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IMPACT OF INTERNAL FACTORS IN MEASURING PROFITABILITY OF LOCAL AND FOREIGN BANKS: EVIDENCE FROM 16 MALAYSIA COMMERCIAL BANKS

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DECLARATION

We hereby declare that:

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

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

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

(4) The word count of this research report is 15,639 words.

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LIST OF ABBREVIATIONS

BNM	Bank Negara Malaysia
ROA	Return on Asset
ROE	Return on Equity
LLP	Loan Loss Provision
NII	Net Interest Income
ROAA	Return on Average Asset
ROAE	Return on Average Equity
SEE	South Eastern European
TIR	Temporary Investment Ratio
US	United States
EA	Equity-to-Asset Ratio
ASE	Amman Stock Exchange
GCC	Gulf Cooperation Council
FEM	Fixed Effect Model
CNLRM	Classical Normal Linear Regression Model
JB	Jarque-Bera
OLS	Ordinary Least Square
REM	Random Effect Model
VIF	Variance-Inflating Factor
BG	Breusch-Godfrey
IT	Information Technology
GDP	Gross Domestic Product

TOL	Tolerance
IV	Independent Variables
DV	Dependent Variable
SIZE	Bank Size
LIQ	Liquidity Risk
CAP	Capital Adequacy
NPL	Non-Performing Loans
COST	Cost Efficiency

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PREFACE

This research paper is submitted in partial fulfillment of the requirement for Bachelor of Business Administration (Hons) Banking and Finance. The supervisor on this research project is Cik Noorfaiz Binti Purhanudin. The final year project is made solely by the authors yet it is based on the research of others and the resources are quoted in references.

There are a lot of researches and studies on this topic but the numbers of research studies about the internal factors that affect the commercial banks' profitability in Malaysia are still limited. We are keen to learn more about the factors that will influence the bank profitability.

Therefore, we have chosen the topic 'Impact of Internal Factors in Measuring Profitability of Local and Foreign Banks: Evidence from 16 Malaysia Commercial Banks'. Carrying out this research project has been difficult and challenging yet informative because we have learned how the internal determinants will affect the profitability of commercial banks in Malaysia. We strongly believe that the knowledge obtained from this research will be valuable in the future.

ABSTRACT

The purpose of this research is to determine the internal factors that affect the profitability of Malaysia commercial banks. The dependent variable used in the study is bank profitability while the independent variables that influence the bank profitability are bank size, liquidity risk, capital adequacy, non-performing loans and cost efficiency. Secondary data was collected and gathered from Bursa Malaysia and respective banks in this research. This study used panel data consisting 16 Malaysia commercial banks from the year 2004 to 2013. Fixed effect model was chosen to examine the relationship between bank profitability and bank size, liquidity risk, capital adequacy, non-performing loans and cost efficiency. The factors that have positive influences on bank profitability are bank size and capital adequacy. On the other hand, liquidity risk, non-performing loans and cost efficiency give negative relationship towards the bank profitability. From the empirical findings, capital adequacy, non-performing loans and cost efficiency turned out to be significant whereas bank size and liquidity risk are insignificant towards bank profitability. The result also concludes that the cost efficiency is the most influencing factor towards the bank profitability in Malaysia among all the factors studied in this research.

CHAPTER 1: RESEARCH OVERVIEW

1.0 Introduction

This chapter discusses research overview on the effect of internal factors in measuring bank profitability among 16 Malaysia commercial banks. This chapter discusses the banking industry in Malaysia, problem statement, research objectives, research questions, significance of the study and conclusion.

1.1 Banking Industry in Malaysia

In the era of globalization, banking is one of the primary sources in financing a country's economic activities. In order to promote a healthier economy, bank profitability is certainly one of the best tools to boost a country's growth and performance. The significance of bank profitability has made researchers, bank managers, monetary authorities and government to have a special interest in identifying the contributing determinants that affect the bank's profitability. From the financial result for the year of 2014, the profit for the Top 1000 World Banks in the global scale has increased to nearly 23% (The Banker, 2014). On the other hand, Maybank that formerly known as Malayan banking, which is the largest bank in Malaysia if measure by assets, announced that their net profit from July until September 2014 fell 8% to 1.61 billion ringgit. This was due to the decrease in non-interest income and a poor performance in its insurance company. However, their profit for third quarter increased 8% to 8.93 billion ringgit. Their sales have also increased 4% to 26.05 billion ringgit for the first nine months (Tan, 2014). In general, this shows that Malaysian banking institutions still profitable for the previous year.

In general, banks are referred to the financial institutions that operate mainly from receiving deposits and issuing loans. Banks play an important role to the economy because banking system has a close relationship with the health of the economy. This is because bank activities such as borrowing, lending and so on can help in facilitate the process of production, distribution, exchange and consumption of wealth. Thus, this helps in developing the economic.

Malaysia's banking industry was first started in the early 1900s when the economy of Malaysia started to develop mainly from the rubber plantations and tin industry sectors. Soon thereafter, foreign banks began to set up their branches in Malaysia. The first domestic bank in Malaysia was Kwong Yik (Selangor) Banking Corporation. Since then, the Malaysia's banking industry has continued to grow steadily and developed, as a result Bank Negara Malaysia (BNM) has been established, which is the central bank of Malaysia. BNM was established in year 1959. BNM's role was to govern and oversee the activities and operations of all banks in Malaysia. BNM's main objectives are to promote economic growth with price stability and to maintain both financial and monetary stability at the same time.

Currently, the Malaysia's banking system consists of BNM, banking institutions comprising the commercial banks, finance companies, merchant banks, Islamic banks and the miscellaneous groups. The largest component of the financial system are banking system is, which occupy 67% of the financial system.

The commercial banks of Malaysia are the biggest main source of funds in the banking system. Presently, there are 27 commercial banks. Out of these 27 banks, eight are classified as local banks and the remaining are foreign banks. The primary functions of commercial banks are to offer retail banking services, trade financing facilities, cross border payment services, treasury services as well as custody services (KPMG, n.d.). The main purpose of this study is to study the impact of internal factors in measuring the bank profitability of both local and foreign commercial banks in Malaysia. Table 1.1 shows the list of commercial banks in Malaysia.

Table 1.1: List of Commercial Banks in Malaysia

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

Source: Bank Negara Malaysia, 2013

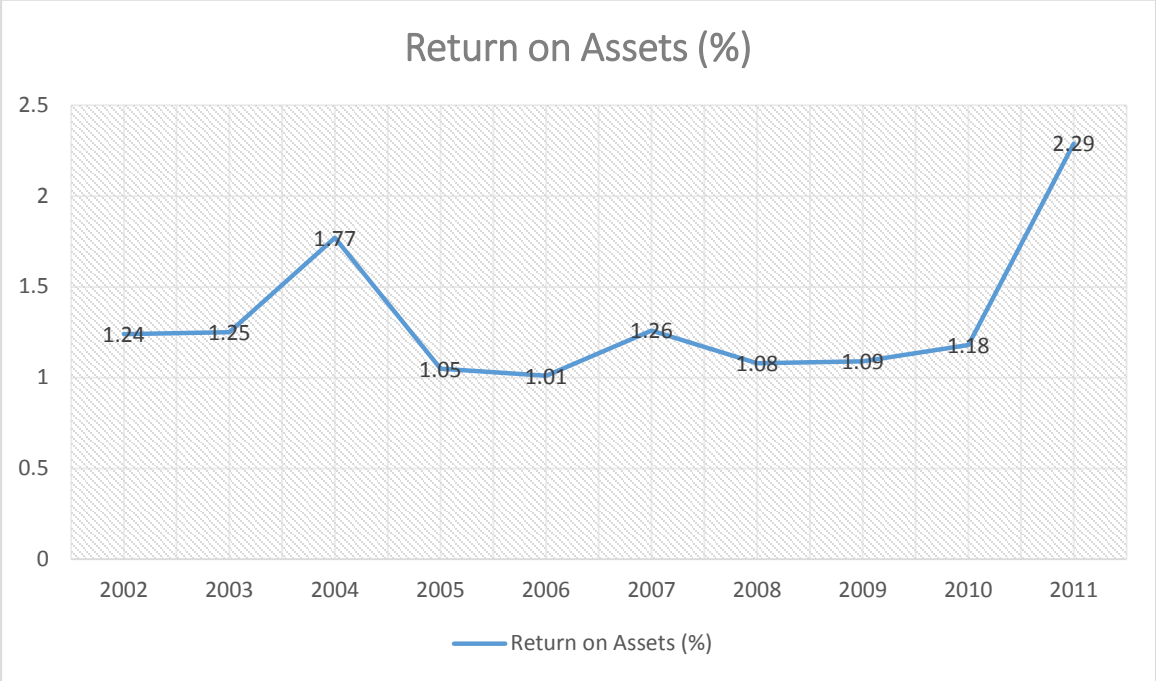
The commercial banks' profitability in Malaysia can be measured by using return on assets (ROA) and return on equity (ROE). The data in figure 1.1 is showing the trend of the ROA while figure 1.2 is showing the trend of the ROE for Malaysia banking industry from year 2002 to 2011. The industry, on average, achieved 1.32% profitability on ROA, and 14.39% profitability on ROE.

Table 1.2: Profitability of Malaysia Banks

Profitability		
Year	**Return on Asset (ROA) (%)**	**Return on Equity (ROE) (%)**
2002	1.24	13.25
2003	1.25	13.40
2004	1.77	19.52
2005	1.05	11.78
2006	1.01	11.98
2007	1.26	14.40
2008	1.08	11.43
2009	1.09	10.83
2010	1.18	11.28
2011	2.29	26.00
2012	N/A	N/A
2013	N/A	N/A
Average	1.32	14.39

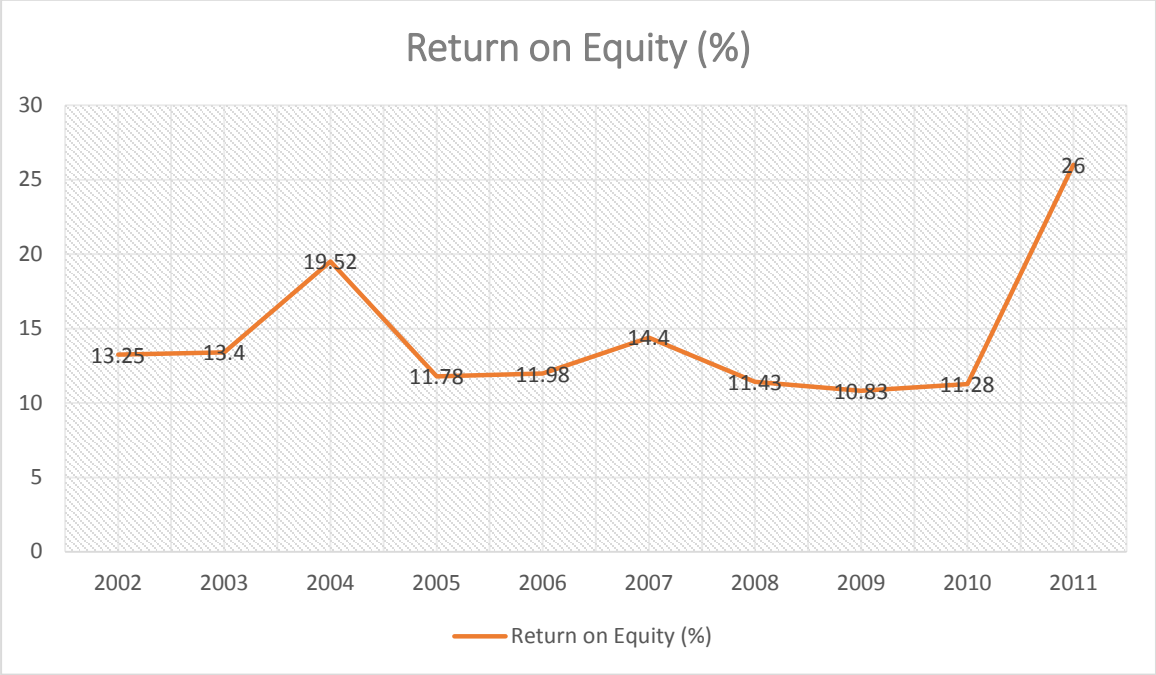
Source: The World Bank, 2013

Figure 1.1: Return on Assets in Percentage of Malaysia



Source: The World Bank, 2013

Figure 1.2: Return on Equity in Percentage of Malaysia



Source: The World Bank, 2013

From year 2002 to 2011, the movements of the ROA and ROE for Malaysia banking industry were on the same direction, with exception for two periods, which were from year 2005 to 2006 and year 2008 to 2009. Firstly, there was a decline in percentage in year 2006 that decreased by 0.04 percentage points to 1.01 percent for the ROA. According to Rasiah, Tan and Abdul Hamid (2014), inefficient merger and acquisition will increase costs and reduce the ROA. Moreover, they also found out that there were few inefficiently merged and acquired banks in Malaysia banking industries in year 2006. Due to this reason, the ROA for that year declined as compared to the previous years. However, the ROE for banking industry rose by 0.20 percentage point from 11.78 percent to 11.98 percent in the same year. Secondly, in 2009, the ROA increased slightly from 1.08 percent to 1.09 percent. However, the ROE for that year had a decreasing trend from 11.43 percent to 10.83 percent.

Along the period, the trend for bank profitability was fluctuated. From year 2002 to 2003, there is a same increasing trend on ROA and ROE. ROA increased by 0.01 percentage points to 1.25 percent, while ROE increased by 0.15 percentage point to 13.4 percent. Malaysia's bank profitability met a smaller peak in 2004 which was 1.77 percent for ROA and 19.52 percent for ROE. In the following year, the profitability of those banks declined sharply in which ROA dropped to 1.05 percent and ROE dropped to 11.78 percent. Then, the ROA and ROE rose to 1.26 percent and 14.4 percent respectively in 2007. In 2008, the profitability of banks started to decrease again; ROA declined to 1.08 percent and ROE declined to 11.43 percent. Lastly, after those fluctuations, the bank profitability increased to its highest peak in 2011. ROA for that year had increased by 1.11 percentage points to 2.29 percent, which is almost double the percentage of 1.18 in 2010 and ROE had increased by 14.72 percentage point, which is 1.35 times higher in 2011 compared to 11.28 percent in 2010.

1.2 Problem Statement

Banks may tend to employ unordinary strategy in order to survive in the competitive environment. The most common method for banks to earn higher profit is to engage in high risk business activities. Ludvigson and Ng (2007) found positive relationship between risk and return. This implied that by engaging in high risk business activities, banks would be able to survive in the competitive financial sector because they will be able to generate higher profit from the high risk business activities. Banks may involve in high risk loan disbursement activities because loans are the major instrument for banks to earn profit. Chen, Wong, Lee and Tan (2013) stated that lending and investment is the primary business for the banks and both are risky (as cited in Yap, Chan, Ong and Ang, 2010). This suggests that banks have the exposure on more uncertainty and risk. Thus, the analysis on the factors of bank's profitability is important in order to maintain financial stability of banks. Safe and sound banks are important in maintaining the overall financial stability and act as cushion for negative economic impact (Tafri, Hamid, Meera, & Omar, 2009).

Firstly, bank size and bank profitability often shows positive relationship. de Haan and Poghosyan (2012) found that bank size reduced the volatility of the bank's return. De Nicoló (2000) also found that there is positive link between size and volatility for small to medium-sized banks but large banks show a negative relationship. This is due to the diseconomies of scale occurs in growing size of banks, suggesting growth in bank size may results in losses. Furthermore, increase in bank size results in diminishing marginal returns and in turns reduce average profits. There are researches who found inverse relationship between bank size and its profitability. de Haan and Poghosyan (2012) discovered a negative and significant relationship between bank size and its standard deviation of the return on assets (ROA) rate (as cited in Boyd and Runkle, 1993). The inconsistent findings trigger the needs to study the connection between bank size and profitability.

Secondly, high liquidity risk is one of common symptoms of bank failure. Banks with high liquidity risk face difficulties in provide sufficient liquidity to meet the customers' demand. High liquidity risk often brings negative impact on bank performance. Liquidity risk is often regarded as the influential factor that affects bank profitability. However, Tafri et al. (2009) found that liquidity risk is insignificant in affecting the profitability of the banks. This creates a controversy of common thought that liquidity is influential on bank profitability. Thus, the study on liquidity risk and bank profitability is needed.

Thirdly, capital adequacy is significantly positive to the bank profitability. Thota (2013) supported this statement by stating that the net income on assets on the commercial banks increases as the capital adequacy level increases at the same time. As a result, the profitability of the commercial banks increases and therefore indicating a positive link between the capital adequacy and bank profitability. However, this relation has been refuted by other researchers. For instance, Kosmidou, Pasiouras and Tsaklanganos (2007) argued that equity-to-asset ratio and bank profitability have a negative relationship, when banks with high capital adequacy were relatively lower risk, in which contributed to lower returns because they were perceived to be safer. Besides, Aremu, Ekpo and Mustapha (2013) also supported the negative view. They stated that capital adequacy was negatively related to bank profitability due to bank inefficiency in utilising and managing their capital. Therefore, the link between capital adequacy and profitability of bank shall be studied in more details.

Fourthly, as bank spread decreases due to poor loan recoveries and reduction of returns in lending, non-performing loans (NPLs) tend to lower the bank profitability in a country. Loan loss provision (LLP) is also likely to increase accordingly when the NPLs in the banks increase. Hasan and Wall (2003) found that high loan defaults are closely related to an increase in the provisioning rate. Besides, Haneef, Riaz, Ramzan, Rana, Ishaq and Karim (2012) explained that the number of NPLs increased due to weaker risk management in the banks which may give a negative effect to their profitability. Thus, it is vital for the researchers to carry out a precise study on the effect of NPLs towards bank profitability.

Lastly, high cost efficiency is commonly known to increase the profitability of banks. In other terms, the more cost-efficient the bank is, the higher the profit the bank earns. This is supported by Jansen and de Haan (2003) which stated that the bank profitability is generally higher when the bank is much more cost-efficient with the increase of the bank's scale of operation. However, other researchers have argued the positive link between cost efficiency and bank profitability. According to Turati (2001), bank's cost efficiency in terms of cost-income ratio has no relation to the bank's performance. He indicated that there is a negative association between cost efficiency and bank profitability and this was caused by the existence of monopoly player in the banking industry in which the monopolist may earn high profits but suffer high inefficiency due to lack of competition with other banks.

From all the stated independent variables, there is no definite conclusion on their relationships towards the bank profitability, thus indicating the existence of a research gap in this area of study. Therefore, it is vital of importance to carry out a more in-depth study to further examine the relationships of bank size, liquidity risk, capital adequacy, NPLs and cost efficiency to the bank profitability in Malaysia.

1.3 Research Objectives

1.3.1 General Objective

This research is intended to determine and analyze the internal factors of the commercial banks' profitability in Malaysia. Secondary data is to be collected and used from Bursa Malaysia and respective banks and other relevant sources in order to measure the profitability of selected commercial banks in Malaysia for ten years from the year of 2004 to 2013.

This research is carried out to examine the effects between the bank profitability and its determinants on eight local commercial banks and eight

foreign commercial banks in Malaysia. In this research, the researcher use return on asset (ROA) as the dependent variables and the five identified independent variables that may affect Malaysia's bank profitability in the research are bank size, liquidity risk, capital adequacy, non-performing loans (NPLs) and cost efficiency.

1.3.2 Specific Objectives

The specific objectives of this research are:

i. To determine the link between bank size and bank profitability in Malaysia.
ii. To determine the link between liquidity risk and bank profitability in Malaysia.
iii. To determine the link between capital adequacy and bank profitability in Malaysia.
iv. To determine the link between NPLs and bank profitability in Malaysia.
v. To determine the link between cost efficiency and bank profitability in Malaysia.

1.4 Research Questions

The purpose of the research is to answer the following questions:-

i) Does the bank size impact the bank profitability in Malaysia?
ii) Does the liquidity risk impact the bank profitability in Malaysia?
iii) Does the capital adequacy impact the bank profitability in Malaysia?
iv) Do the NPLs impact the bank profitability in Malaysia?
v) Does the cost efficiency impact the bank profitability in Malaysia?

1.5 Significance of the Study

One of the significances of the study is to provide a better insight of the determinants that affect Malaysia's bank profitability for the bank managers. By understanding each of the determinant's effects on bank performance, bank managers are able to measure how strong the bank's profitability level is. With this, bank managers can compare the bank's strength with the overall banking industry performance. This is to ensure a better bank management can be practiced in order to strengthen their bank position among other banking institutions, as well as to equip the bank with the ability to deal with adverse economic conditions.

This research is also significant to the monetary authority in Malaysia since Bank Negara Malaysia (BNM) has a major role to improve the profitability and financial stability in the Malaysian banking system. This is because well-funded banking institutions are crucial in maintaining financial system stability and confidence in the country. With the findings of this study, BNM will be able to take necessary actions in reinforcing their policies and advisory services in order to stabilize the banking sector in Malaysia.

This study is also important as a reference to students or future researchers regarding the bank profitability determinants in Malaysia. Students or researchers may use this study to gains knowledge on the determinants of bank profitability. By gaining more knowledge on how the determinants affect the bank's ROA, future researchers who have interested to further improve on this area can use this study as their guidelines to conduct their own researches.

1.6 Conclusion

In a nutshell, this study primarily aims to study the bank profitability and its key determinants on 16 commercial banks in Malaysia from year 2004 to 2013. The dependent variable that will be studied in this research is return on assets (ROA) and the independent variables that will be examined are the bank size, liquidity risk, capital adequacy, NPLs and cost efficiency. In addition, from the previous researches, only few researchers focused on examining the internal factors that affect the bank profitability in Malaysian context. Thus, it is vital to conduct this research in order to examine on the factors of bank profitability in Malaysia. Besides, it is also crucial to find out the key factor that will greatly affect the overall Malaysia banks' profitability among all the determinants studied in this research. The following chapter will discuss the previous results done by other researchers regarding all the determinants affecting the bank profitability in more details in order to provide a much better understanding on the link between the dependant variable and independent variables in this research.

CHAPTER 2: LITERATURE REVIEW

2.0 Introduction

There are several researches about the determinants of bank profitability have been done by other researchers. Review on those journals and other sources of references have been searched to provide a more complete view on determinants of bank profitability, particularly on bank size, liquidity risk, capital adequacy, NPLs and cost efficiency. The journals reviewed show that previous researchers focused mainly the study of determinants bank profitability in European countries and less focused on one of the developing countries in the world such as Malaysia. This literature review helps in improving the reliability of the theoretical model to include only the most relevant and important variables in this study. The comprehensive reviews on past literature also help in developing better conceptual framework for accurate hypothesis testing.

2.1 Review of the Literature

2.1.1 Bank Profitability

Table 2.1: Definition of Bank Profitability

No.	Author(s)	Year	Definition
1	Mohammad Abdelkarim Almumani	2013	The return on assets which measured by dividing banks' net profits by its total assets.
2	Christos K. Staikouras and Geoffrey E. Wood	2004	Accounted by using return on assets (ROA).

3	Dr. Mukaila Ayanda Aremu, Imoh Christopher Ekpo and Dr. Adeniyi Mudashiru Mustapha	2013	A situation in which income generated in a given period is more than the expense over the same period of time.
4	Andreas Dietrich, Gabrielle Wanzenried	2011	Return on average assets (ROAA) able to measure it.
5	Panayiotis P. Athanasoglou, Sophocles N. Brissimis, and Matthaios D. Delis	2008	There are two measurement for it, either return on assets (ROA) or return on equity (ROE).
6	Kyriaki Kosmidou, Fotios Pasiouras and Angelos Tsaklanganos	2007	Measured in the return on average total assets.
7	Barry Williams	2003	Profits after tax/total assets (%)
8	Panayiotis P. Athanasoglou, Matthaios D. Delis, and Christos K. Staikouras	2006	Expressed as a function of internal and external factors, and measured in return on assets (ROA), and return on equity (ROE).

Among the various definitions as listed in Table 2.1, the most commonly used approach to determine bank profitability is by measuring its return on assets. Almumani (2013) studied the impact of managerial factors on Jordanian commercial bank profitability by using ROA. The researcher studied 13 Jordanian commercial banks (exclusive of Islamic banks) for year 2005 to 2011 and found that cost income ratio is the major dependent variable to determine the profitability of Jordan's commercial banks.

Staikouras and Wood (2004) studied the factors that affect European bank profitability during the year 1994 to 1998. The researchers denoted ROA as the measure of bank profitability. The research covered several types of local and foreign financial institutions. The reason behinds is due to these researches aim to evaluate which determinants that affect the most to their foreign and local banks' profitability. As a result, they found that profitability of European banks

determined by their management decisions and changes in the external macroeconomic environment.

Aremu et al. (2013) investigated the factors that influencing the Nigerian banking sector's profitability from the year 1980 to 2010. ROA was one of the measurements used to study the Nigerian bank profitability in their study. The researchers have focused both internal and external determinants that might gave impact to the bank performance in order to better understand their relationships in driving the bank profitability in Nigeria. The researchers have employed the co-integration at the same time with error correction mechanism to determine the correlation of bank profitability and those determinants in Nigeria.

Dietrich and Wanzenried (2011) did research on how 372 Switzerland commercial banks' profitability influenced by internal and external determinants over the period from 1999 to 2009. In these research they primary used return on average asset (ROAA) to account for the bank's profitability, net interest income (NII) and while return on average equity (ROAE) as the secondary measurement. ROAA is used to account the profitability of those Switzerland commercial banks from every unit of asset they have involved in. ROAE refers to the shareholders' return on their equity. NII serves as the third measurement for bank profitability. NII emphasises on the profit received based on interest activities.

Athanasoglou, Brissimis and Delis (2008) carry out a research on the bank-specific, industry-specific and macroeconomic determinant of the bank profitability in Greece in the period of 1985 to 2001. According to them, bank profitability can be measured by using two measurements which are return on assets (ROA) and return on equity (ROE). The findings indicate that capital is a vital variable to explain bank profitability. Next, increase in credit risk will lead to lowers profits. Labour productivity growth and bank profitability show a positive relationship, while operating expenses show negative impact on bank profitability. Lastly, the relationship between ownership status and bank's profitability is insignificant.

Kosmidou et al. (2007) had evaluated the local and foreign factors of Greek banks' profitability operating abroad. The research used the data from 19 Greek bank subsidiaries operating in 11 countries for the year 1995 to 2001. Those authors use return on assets (ROA) as endogenous variable for the research to account the overall profitability of the selected banks. ROA has been defined as a measurement to account bank's profitability in the research.

Williams (2003) has done a research on foreign banks in Australia about the local and international factors of banks' profitability. He defined that return on asset (ROA) can be calculated with the formula, profits after tax / total assets (%). The author believe that return on asset (ROA) is the best option variable to measure the profitability of foreign bank and foreign merchant bank.

Athanasoglou, Delis and Staikouras (2006) studied the factors that affect the bank profitability in the region of South Eastern European (SEE) from the year 1998 to 2002. ROA and ROE were used as the measures of bank profitability in SEE. The researchers examined the link between the profitability of bank and its determinants by using least square methods of fixed and random effects models.

2.1.2 Bank Size

Table 2.2: Definition of Bank Size

No.	Author(s)	Year	Definition
1	Antonina Davydenko	2010	The accounting value of banks total assets.
2	Ayse Altıok Yılmaz	2013	The total assets of bank.
3	Christos K. Staikouras and Geoffrey E. Wood	2004	Large bank – Total assets over US$10,000 billion in 1998. Small bank – Total assets less than US$10,000 billion in 1998.

4	C. T. Shehzad, J. De Haan and B. Scholtens	2013	An outcome of accumulated bank growth.
5	Deper Alper and Adem Anbar	2011	Represented by natural logarithm of total asset (log A).
6	John Goddard, Phil Molyneux and John O.S. Wilson	2004	Total assets a bank has.

Based on the above definitions in Table 2.2, bank size is widely defined as the bank's net total assets. Literature reviews below discuss the link between bank profitability and bank size.

The recent financial crisis stimulates the concerns about banks that grow too big in size may cause a threat to financial stability, as expressed by the term "too big to fail". Banks may tend to engage in high risk activities as the regulators act as the lender of last resort. Banks are likely to seek intensive growth in size to be more profitable. For instance, large banks may have higher and more constant stream of profits than small banks results from diversification in products and services. However, there are banks that suffer losses from growing in size. These create both positive and negative association between bank size and profitability.

Growth in bank size results in higher profitability. This statement is agreed by Shehzad, Haan and Scholtens (2013) who studied the bank size, growth and profitability relationship of more than 15,000 commercial banks from 148 countries from 1988 to 2010, found that bigger banks grow in slow speed but are more profitable than small banks. They also revealed variability of bank profitability is not independent of bank size.

In order to determine whether bank size is significant in affecting profitability or not, Goddard, Molyneuz and Wilson (2004), by using accounting data of 665 banks from six European countries, inclusive of France, Germany, Spain, the United Kingdom, Denmark and Italy from 1992 to 1998, analysed the profitability

of European banks and proved that there was evidence for a significant relationship between bank size and profitability.

The statement that bank size and profitability have positive relationship is also investigated by Alper and Anbar (2011), who examined the bank macroeconomic and specific determinants of commercial bank profitability for a sample of Turkish banks for the 2002 to 2010 using balance panel data set. It is found that asset size has a significant effect with positive relationship on profitability; suggest that larger banks achieve higher ROA.

Next, mergers and acquisition of banks is an effective way to increase bank size. Davydenko (2010) suggested that there is a need in mergers of banks as the impacts of bank size on profitability is significant. By examining the determinants of bank profitability using quarterly data in the balance sheet and income statement of Ukrainian banks for the first quarter of 2005 to the fourth quarter of 2009 time period, the study also found that the correlation between bank size and profitability is positive.

In the other multi-country studies, Yilmaz (2013) studied a sample of 195 commercial banks from 9 emerging countries for the 2005 to 2010 time period by using fixed-effect panel data regression. In this study, it is found that bank size is one of the important determinants for both return on assets and net-interest margin of banks besides credit risk, capitalization, operating expenses management and inflation.

However, Staikouras and Wood (2004) who examined the factors of European banks' profitability discovered that the influence of bank size on profitability is negative for large banks but positive for small banks. In this study, it is implied that diseconomies of scale occurs in growing size of banks, suggesting growth in bank size may results in losses. Furthermore, increase in bank size results in diminishing marginal returns and in turns reduce average profits. Banks with small size gain benefits through information advantage and operating efficiency.

In short, there is a negative association between bank size and bank profitability due to banks larger in size does not promise earning.

2.1.3 Liquidity Risk

Table 2.3: Definition of Liquidity Risk

No.	Author(s)	Year	Definition
1	Étienne Bordeleau and Christopher Graham	2010	The risk that face by a company when they are unable to cover their short term debt using short term cash.
2	Victor Curtis Lartey, Samuel Antwi and Eric Kofi Boadi	2013	Bank is unable to meet its needs for cash.
3	Naser Ail Yadollahzadeh Tabari, Mohammad Ahmadi and Ma'someh Emami	2013	Bank is not managing both liabilities and assets well.
4	Ali Sulieman Alshatti	2014	Company is unable to fund the increase in assets and meet its obligation.
5	Ndifon Ojong Ejoh, Inah Bassey Okpa and Aneozeng Awo Egbe	2014	Banks with unstable risk assessment and control policy.

Based on the definitions in Table 2.3, liquidity risk is defined as the risk of loss if a company unable to manage its short term fund to cover its obligation (Bordeleau & Graham, 2010). Literature reviews below show the relationship of liquidity risk and bank profitability.

Alshatti (2014) conducted a research about the influence of liquidity risk on Jordan's banking institutions' profitability during year 2005 to 2012. The researcher found out that liquidity risk is positive related with bank profitability.

As a result, an increase in the investment ratio and quick ratio will increase the bank profitability of Jordanian commercial bank.

In addition, Ejoh, Okpa, and Egbe (2014) examined the link between liquidity risk and performance of bank in Nigeria. The link between liquidity risk and performance of bank in Nigeria is positive after test has been carried out. This indicates that liquidity risk significantly impact on the bank profitability.

Besides, Lartey, Antwi and Boadi (2013) studied the relationship of liquidity risk with seven selected banks' profitability in Ghana during year 2005-2010. They found out that there is a weak positive link between liquidity risk and bank profitability. By using Return on Assets (ROA) and Temporary Investment Ratios (TIR) to test the relationship, R-squared is low. This shows that the increase in bank profitability is caused by the increase in liquidity.

However, there are some researchers who discovered that there is negative association between profitability of bank and liquidity risk. Tabari, Ahmadi and Emami (2013) investigate how liquidity risk affects the performance of financial institutions in Iran during the period of year 2003 to 2010. By using panel data, the researchers found out that liquidity risk is negatively related with bank performance in Iran. If the bank does not have enough liquidity, they are unable to acquire the sufficient fund. Banks are allowed to use the capital or external investment in order to compensate the demands and needs. There is a decrease in loans level and investments portfolio which result in decrease in bank profitability. This indicates that liquidity risk will give an impact to the bank and weaken bank performance.

Bordeleau and Graham (2010) studied about the impact of liquidity risk on the bank profitability in United States (US) and Canadian banks from the year of 1997 to 2009. Results show that a nonlinear relationship exists between liquidity risk and bank profitability. This indicates that if the bank is holding some liquid assets the bank profitability can be improved and reduce the liquidity risk. On the other

hand, if the bank holds too much liquid assets, it might affect profitability of bank. Thus, liquidity risk might increase.

2.1.4 Capital Adequacy

Table 2.4: Definition of Capital Adequacy

No	Authors	Year	Definition
1.	Christos K. Staikouras and Geoffrey E. Wood	2004	Capital adequacy of bank that can be measured by equity-to-asset ratio (EA).
2.	Andreas Dietrich and Gabrielle Wanzenried	2011	Equity-to-asset ratio act as a proxy for a bank capital.
3.	Alicia Garcia-Herrero, Sergio Gavilá and Daniel Santabárbara	2009	Account for bank capitalization.
4.	John Goddard, Phil Molyneux and John O. S. Wilson	2004	Account for ability for banks to absorb unforeseen losses.
5.	Ash Demirgüç-Kunt and Harry Huizinga	1999	Measured by the book value of equity (assets minus liabilities) over total assets.

Based on the definitions in Table 2.4, capital adequacy can be defined as the capital adequacy of banks which is measured by equity-to-asset ratio (EA). Literature reviews below discuss the relationship between capital adequacy of bank and bank profitability.

Staikouras and Wood (2004) who had studied on the factors that affect European bank profitability for the period 1994 to 1998, defined that capital adequacy can be measured by equity-to-asset ratio (EA). According to the conventional risk – return hypothesis, low risk business will only generate less profit, and a negative correlation exists between equity-to-asset ratio and bank profitability (Kosmidou et al., 2007). However, Dietrich and Wanzenried (2011) believed that equity-to-

asset ratio and bank profitability have a positive relationship (as cited in Berger, 1995). If there is a capital increase, it might raise the expected earnings, because it will reduce the expected costs of financial distress like bankruptcy. Besides that, capital ratio may increase due to raise in undistributed earnings. The capital-to-asset ratio is high enough to enable banks to involve in some profitable product lines with risk-related barriers. The findings from Staikouras and Wood (2004) are consistent with Berger (1995) that bank profitability and equity-to-asset ratio are positively correlated.

Dietrich and Wanzenried (2011) were studying the factors that influence the Switzerland banks' profitability in for the period 1999 to 2009. The authors said that during financial distress, highly capitalized are remain profitable in Switzerland. Moreover, they agreed that banks with high capital-to-asset ratio are less risky, more creditworthiness and require less funding costs compare to those lower capital-to-asset ratio banks. As a result, banks' profitability equity-to-asset ratio and is positively correlated.

Garcia-Herrero, Gavilá and Santabárbara (2009) studied on the determinants that affect the profitability among Chinese banks for the period of 1997 to 2004. Those authors are comparing those Chinese banks with Eastern European banks, and get a result that Eastern European banks have a higher profitability. One of the factors given by the authors is the equity-to-asset ratio. Eastern European banks have a higher equity-to-asset ratio compare to Chinese banks. The result shows that there are a constant coefficient between bank's profitability and equity-to-asset ratio.

Goddard et al. (2004) have done a research on using pooled cross-sectional and time-series as well as cross-sectional and dynamic panel models on the European banks' profitability during 1990s. The equity-to-asset ratio is commonly used to account for risk. Banks with strong capital adequacy have higher capacity to absorb unforeseen losses. All in all, they found that equity-to-asset ratio has positive relationship to bank profitability.

Demirgüç-Kunt and Huizinga (1999) had used the data from 80 countries to examine the factors that influencing commercial banks interest margin and profitability for the period 1988 to 1995. Capital adequacy measured in book value of equity over total assets had been used by these researches to account bank profitability. After doing the research, they concluded that there are constant coefficient between bank profitability and equity-to-asset ratio.

2.1.5 Non-Performing Loans

Table 2.5: Definition of Non-Performing Loans

No.	Author(s)	Year	Definition
1	Mabvure Tendai Joseph, Gwangwava Edson, Faitira Manuere, Mutibvu Clifford and Kamoyo Michael	2012	Loans that is delinquent in payments of interest and/or principal for 90 days or more.
2	Kanu Clementina and Hamilton O. Isu	2014	Loan facilities in which borrowers have difficulties in repaying.
3	Rabeya Sultana Lata	2014	Financial assets in which banks have no longer received payments on interest or instalment as scheduled.
4	Samuel Hymore Boahene, Dr. Julius Dasah and Samuel Kwaku Agyei	2012	Indicator of credit risk.
5	Idowu Abiola and Awoyemi Samuel Olausi	2014	Total losses of the commercial bank at a given time.

From the definitions in Table 2.5, the non-performing loans (NPLs) can be considered as loans that are default in payments in general. NPLs serve as one of the essential indicators in order to measure how well a bank can gain profits as well as to know how fit a bank's credit risk management is. Literature reviews below further discuss the link between NPLs and profitability of bank.

The conventional view of NPLs on bank profitability is that it is negatively significant to profitability. Joseph, Edson, Manuere, Clifford and Michael (2012) supported this view. They investigated the effect of NPLs on commercial banks in Zimbabwe and have found out that profitability has been negatively affected with the increase of NPLs. Thus, the study has concluded that the higher the NPLs, the lower the profits that the banks have earned.

Next, Clementina and Isu (2014) also agreed with the negative view of NPLs on profitability of bank. They carried out a study to show the effect of NPLs on the Nigerian economic performance. One of their findings indicated that NPLs have negative association with bank profitability. In other words, the amount of bank assets, capital and its profitability reduced when NPLs increased. This was due to the fact that NPLs were considered to be one of the causes that led to the deterioration of bank assets.

In order to study on whether non-performing loans is negatively related to bank profitability, Lata (2014) has conducted a research on how non-performing loans affected the Bangladesh's state-owned commercial banks in terms of the profitability. The author proved that there was a negative effect on the rate of loan growth with the increase of non-performing loans. With that, the author concluded that when the banks' loan amount and interest income decreased due to NPLs, the profitability of the banks decreased as well.

In the contrary, Boahene, Dasah and Agyei (2012) studied the relationship of credit risk and bank profitability in selected banks in Ghana. NPLs were used as one of the indicators of credit risk to determine the bank profitability in the study. Unlike the conventional view in which previous researchers claimed a negative association between NPLs and bank profitability, Boahene et al. (2012) found that NPLs had a positive link towards bank profitability in the Ghana's banking sector. The researchers pointed out that Ghana banks experienced high profitability in spite of the high credit risk due to prohibitive lending, fees and commission imposed by the banks.

Besides, Abiola and Olausi (2014) also supported the positive effect of NPLs towards the bank profitability. According to their study of credit risk management effect towards the Nigerian banks' performance, their results showed that NPLs were positively significant to the bank performance in terms of profitability. The positive link implied that there was a proportionate increase in NPLs with profitability despite the large amount of default loans.

From all the NPLs definitions, the definition as stated by Lata (2014) in which financial assets in which banks have no longer received payments on interest or instalment as scheduled is best suited as our main definition for NPLs in this study. This is because the definition is closely related to the BNM's guideline in which loans are labelled as non-performing by the banks when the principal or interest is not paid as scheduled for six months or more from the first day of default.

2.1.6 Cost Efficiency

Table 2.6: Definition of Cost Efficiency

No.	Author(s)	Year	Definition
1	Mohammad Abdelkarim Almumani	2013	How much cost needed by bank to produce an output.
2	Constantinos Alexiou and Voyazas Sofoklis	2009	Represented by the ratio of cost/income.
3	Rami Zeitun	2012	Cost to income ratio as a proxy of cost efficiency. Cost to income ratio represented by dividing operating costs to total revenues.
4	Mohamed Ariff and Luc Can	2008	How a firm minimise the costs to best practice in producing outputs.

5	Andreas Dietrich and Gabrielle Wanzenried	2011	Represented by operating costs over total revenues. Operating cost can be in terms of administrative costs, staff salaries and property costs.

The definitions in Table 2.6 have shown that cost efficiency in general is referring to how banks manage their cost in order to maximizing the cost efficient. Cost efficiency is important for banks to generate more profit. Literature reviews below review the relationship between cost efficiency and bank profitability.

Almumani (2013) used cost efficiency as one of independent variables to determine the bank profitability in Jordan because author mention that efficiency cost management is very important in determine the bank profitability. In this study, cost to income ratio is use to represent cost efficiency. The data used by the author was all local banks from Jordan listed in Amman Stock of Exchange (ASE) since 2000. The author includes a sample of 13 commercial banks in Jordan from year 2005 to 2011. The result shows that cost income ratio and bank profitability have negative relationship. Cost income ratio is also the main cause influencing the profitability of the Jordan's commercial banks.

In order to study the relationship between bank profitability and cost efficiency, Alexiou and Sofoklis (2009) carried out a study on the Greek banking sector. In this study, they included six banks in Greece. They got the internal data from the published financial statement of the five banks and over the period 2000 to 2007. The results examined that cost to income ratio was negative and highly significant towards bank profitability. They concluded that efficient cost management can increase the profitability of the Greek banking system.

Zeitun (2012) suggested that banks with higher cost to income ratio tend to decrease the bank profit margin. The author provided this evidence from the conventional and Islamic banks from Gulf Cooperation Council (GCC) countries. Additionally, the author also conducted this research by using two samples. The first sample comprised of 38 conventional banks while the second sample

consisted of 13 Islamic banks. The sources of data are from Bankscope database between years 2002 to 2009. The author reported that the cost-income shows negative and significant relationship on banks' profitability for both conventional and Islamic banks. Conventional and Islamic banks in GCC countries should minimize cost-income thus to increase profit.

Ariff and Can (2008) suggested that the higher the cost efficiency, the higher the profit efficiency of banks. In this study, they used non-parametric technique data of 28 Chinese commercial banks for the year 1995 to 2004. On the relationship between profitability and efficiency, they found out that the coefficient on cost-to-income ratio is significantly negative, suggesting bank that better in cost management tend to be more efficient in bank.

Dietrich and Wanzenried (2011) used operating cost efficient to represent the cost efficiency. They believe banks that have high efficiency make more profit as compared to banks that have less efficiency in the operating activities. They analysed the profitability of 372 commercial banks in Switzerland over the period from 1999 to 2009. The year 1999 to 2006 was the pre-crisis period while year 2007 to 2009 referred to the years of crisis. The result identified that the cost-to-income ratio coefficient which measured the efficiency of operation, have a negative relationship with bank profitability for all the different time period. This indicates that bank which is more cost efficient have higher profitability.

In summary, all the five literatures review above use the cost-to-income ratio in measuring cost efficiency of banks. This ratio served as one of the ratios that preferred by most of the researchers because of its usefulness in measuring bank's performance. Based on the literatures reviews, no conflict has been found on the relationships between cost-to-income ratio and bank profitability. Therefore, the more cost efficient a bank is, the higher the bank's profitability.

2.2 Review of Relevant Theoretical Models

2.2.1 Review of First Relevant Theoretical Model

Almumani (2013) has done the research with an aim to examine the internal determinants for the bank's profitability in Jordan. In this study, the data used by the author was all local banks from Jordan listed in Amman Stock of Exchange (ASE) since 2000. The author includes a sample of 13 commercial banks from Jordan for the time period 2005-2011. In this paper, the author used descriptive analysis, financial ratio analysis, Pearson correlation analysis, regression analysis, variance (ANOVA) analysis and the natural logarithm to implicate the results with the hypotheses. In this study, the author used return on assets ROA to measure bank profitability. The independent variables used by the author to measure the bank profitability are cost efficiency, liquidity, credit composition, capital adequacy, credit risk and lastly bank size.

Figure 2.1: First Theoretical Model

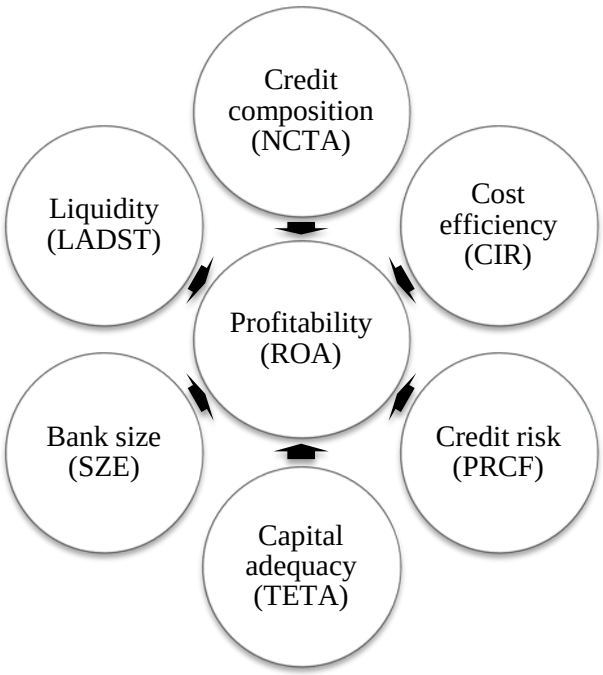


Table 2.7: Relationship between Endogenous Variable and Exogenous Variables in First Theoretical Model Study

Independent Variables	Significance	Relationship with profitability
Bank size	Significant	Negative
Capital adequacy	Insignificant	Negative
Cost efficiency	Significant	Negative
Credit composition	Insignificant	Positive
Credit Risk	Insignificant	Positive
Liquidity	Insignificant	Negative

2.2.2 Review of Second Relevant Theoretical Model

Liu and Hung (2006) have done a research on the correlation between long-term profitability and services quality of bank in Taiwan for the time period from 1991 to 2003. Those researchers have employed the Fama-French IRR approach on the research.

Figure 2.2: Second Theoretical Model

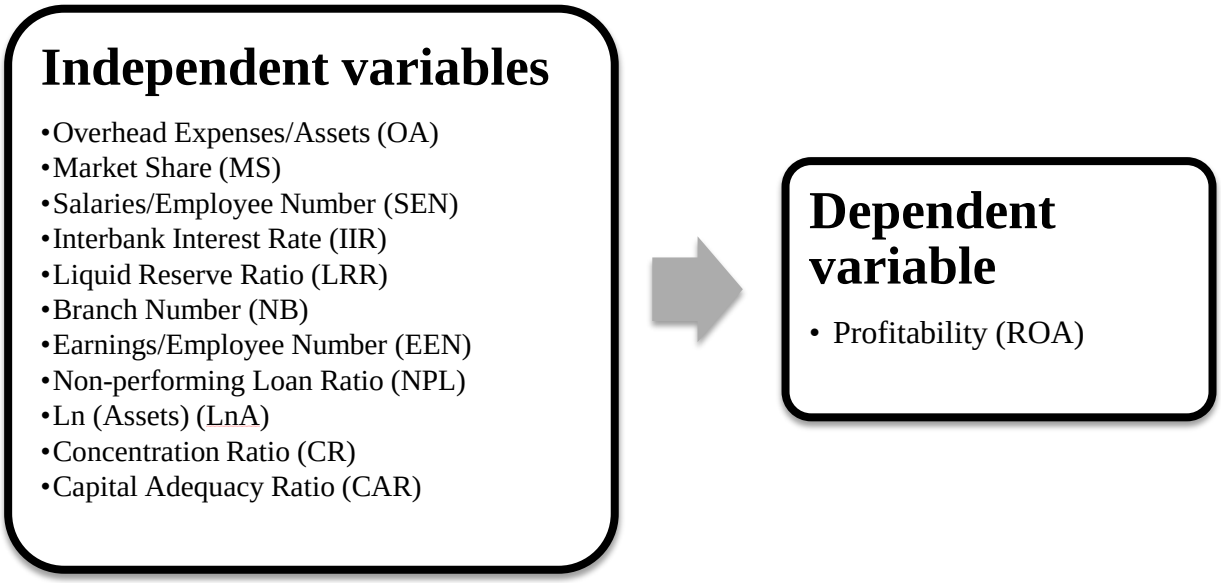


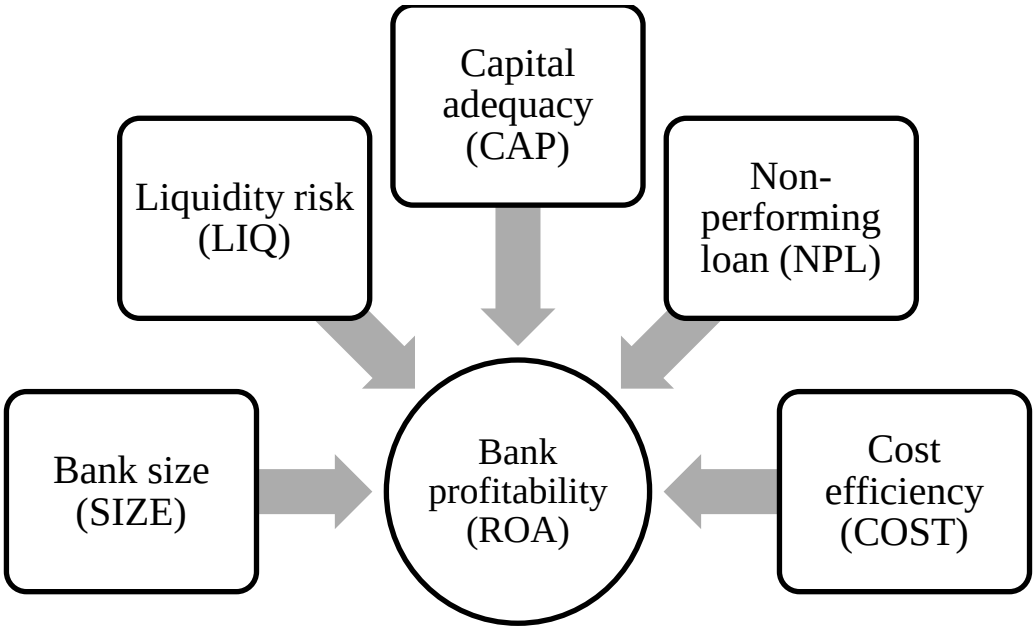
Table 2.8 shows the relationship between the endogenous variables and exogenous variables which is profitability of Taiwan bank measured in return on asset in the research.

Table 2.8: Relationship between Endogenous Variable and Exogenous Variables in Second Theoretical Model Study

Independent Variables	Relationship with profitability
1. Branch Number, NB	Positive
2. Overhead Expenses/Assets, OA	No relationship
3. Salaries/employee Number, SEN	Negative
4. Market Share, MS	Inconclusive
5. Concentration Ratio, CR	Positive
6. Ln (Assets), LnA	Positive
7. Capital Adequacy Ratio, CAR	No relationship
8. Non-performing Loan Ratio, NPL	No relationship
9. Earnings/Employee Number, EEN	Inconclusive
10. Liquid Reserve Ratio, LRR	Inconclusive
11. Interbank Interest Rate, IIR	Inconclusive

2.3 Proposed Theoretical Framework/Conceptual Framework

Figure 2.3: Proposed Theoretical Framework



2.3.1 Dependent Variable

2.3.1.1 Bank Profitability

The researchers identified two approaches in measuring bank profitability from the past researches. According to Athanasoglou et al. (2008), bank profitability can be measured by two measurements suggest which is return on assets (ROA) and return on equity (ROE). Dividing in net income by total assets has been using as a measurement to account return on assets. The researchers propose return on assets approach that widely used by past researchers in measuring bank profitability.

2.3.2 Independent Variables

2.3.2.1 Bank Size

The researchers measure bank size by determining total assets owned by bank. Alper and Anbar (2013) discovered that asset size has a positive and significant effect on profitability, suggesting that large-size banks can get higher ROA. Yet, Staikouras and Wood (2004) stated that there is a negative link between bank size and its profitability because banks with large size cannot guarantee earning.

2.3.2.2 Liquidity Risk

Alshatti (2014) stated that company will face liquidity risk if the company unable to fund the increase in assets and meet its obligation. The research further clarified that there is positive link between liquidity risk and profitability. However, Bordeleau and Graham (2010) discovered that if a bank holds too much liquid assets, it might adversely affect profitability of bank. The controversy is to be investigated in the following chapters. The proxy used in measuring liquidity risk is ratio of cash asset to total asset.

2.3.2.3 Capital Adequacy

Demirgüç-Kunt and Huizinga (1999) proposed capital adequacy as book value of equity over total assets. They discovered that there are positive correlation between equity-to-asset ratio and bank profitability. This implied the increase in capital adequacy could results in improvement of bank profitability.

2.3.2.4 Non-Performing Loans

Clementina and Isu (2014) defined NPLs as loan facilities in which borrowers have difficulties in repaying and indicated that non-performing loans have negative association with bank profitability. The findings are supported by Lata (2014) who concluded that as the banks' loan amount and interest income decreased due to non-performing loans, the profitability of the banks decreased as well. The percentage of NPLs to total loans is being employed to measure NPLs.

2.3.2.5 Cost Efficiency

Cost efficiency which measured by cost-to-income ratio has a negative relationship with bank profitability as suggested by Dietrich and Wanzenried (2011). The lesser the cost-to-income ratio, the more cost efficient a bank is and the higher the bank's profitability. The researchers measured cost efficiency by dividing operating cost by total income.

2.4 Hypotheses Development

The following hypotheses are developed to determine the impact of internal factors in measuring profitability of 16 local and foreign banks in Malaysia. The internal factors are bank size, liquidity risk, capital adequacy, NPLs and cost efficiency. The researchers carry out data analysis to find out any significant relationship between endogenous variable and exogenous variables.

2.4.1 Bank Size

H_0: Bank size has no effect on bank profitability.

H_1: Bank size has an effect on bank profitability

2.4.2 Liquidity Risk

H_0: Liquidity risk has no effect on bank profitability.

H_1: Liquidity risk has an effect on bank profitability.

2.4.3 Capital Adequacy

H_0: Capital adequacy has no effect on bank profitability.

H_1: Capital adequacy has an effect on bank profitability.

2.4.4 Non-Performing Loans

H_0: NPLs has no effect on bank profitability.

H_1: NPLs has an effect on bank profitability.

2.4.5 Cost Efficiency

H_0: Cost efficiency has no effect on bank profitability.

H_1: Cost efficiency has an effect on bank profitability.

2.5 Conclusion

In this chapter, the purpose of the study is to find out the internal determinants that gives impact towards the bank profitability in Malaysian commercial banks. The studies done by previous researchers for this topic are beneficial to the current researchers by supplying useful information for this study. The information gathered in this chapter will be discussed further on the following chapters of this study.

CHAPTER 3: METHODOLOGY

3.0 Introduction

The research methodology of this research will be further discussed in this chapter. The use of secondary data from Bursa Malaysia and respective banks is adapted by the researchers for this research. The software used to generate the results of this research is Eviews 6.

3.1 Research Design

This study describes about the determinants of bank profitability, such as bank size, liquidity risk, capital adequacy, non-performing loans and cost efficiency in Malaysia. In this study, quantitative research is used by researchers to collect data from secondary source. The objective in this research is to find out the impact of internal factors in measuring profitability of 16 selected local and foreign banks during the period of year 2004 to 2013. Secondary data is collected from Bursa Malaysia and respective banks.

Lartey et al. (2013) explained that a quantitative research was conducted in order to determine the trend of dependent and independent variables. The ratio of dependent and independent variables were analysed and the correlation coefficients and coefficients of determination were recognized in order to display the strength of relationship between the variables. Hence, quantitative research plays an important role in methodology.

3.2 Data Collection Methods

In a research, data can be classified into primary and secondary data. In this study, secondary data was chosen. The secondary data used in this research were gathered from 16 Malaysian commercial banks' annual reports. The time period for this research was from year 2004 to year 2013; the annual report was obtained from Bursa Malaysia and respective banks. The obtained data from the banks' annual reports were extracted and computed from the income statements and balance sheets.

3.2.1 Secondary Data

Secondary data refers to those data previously gathered and available from other sources; it is also a published source. Secondary data can be further categorised into two categories; internal and external data. Internal data represents the information obtained within an organization such as organization's annual report, financial statement and balance sheet while external data refers to the information from outside sources such as libraries, databases, government agencies and newspaper. This paper is primarily focus on internal data. The main purpose for using secondary data in this research is because of its economical reason. Firstly, it is much more cost-effective as compared to primary data. Secondly, it is time saving, as it is a published source which can be easily obtained. Secondary data are also helpful in assisting the researchers on understanding the problem, as they can compare the information gathered by other researchers to recognize the problems that exist in the paper.

3.3 Sampling Design

3.3.1 Target Population

The banking sector in Malaysia is going to be the target population. According to Bank Negara Malaysia (2013), Malaysia consists of 27 licensed commercial banks including banks from local and foreign. However, only 16 commercial banks are selected for this research; eight of them are from local banks and another eight samples are from foreign banks. The reason behind choosing both local and foreign commercial banks in this study was because both types of banks have the same degree of regulatory and supervisory control by the central bank of Malaysia (Bank Negara Malaysia, 2008). Besides, the data availability for the particular time duration of year 2004 to 2013 is also an important factor in choosing these 16 licensed commercial banks. The 16 commercial banks chosen to examine the factors that determine the bank profitability in Malaysia are presented as follow:

Table 3.1: Licensed Commercial Banks in Malaysia

Local Licensed Commercial Banks	**Foreign Licensed Commercial Banks**
I. Affin Bank Berhad	I. Bank of China (Malaysia) Berhad
II. Alliance Bank Malaysia Berhad	II. Citibank Berhad
III. Ambank Berhad	III. Deutsche Bank (Malaysia) Berhad
IV. CIMB Bank Berhad	IV. HSBC Bank Berhad
V. Hong Leong Bank Berhad	V. OCBC Bank Berhad
VI. Maybank Berhad	VI. Standard Chartered Berhad
VII. Public Bank Berhad	VII. The Royal Bank of Scotland Berhad
VIII. RHB Bank Berhad	VIII. United Oversea Bank Berhad

3.3.2 Analytical Tool

In this study, Eviews 6 software is used as the main analytical tool. This is because Eviews 6 can perform a wide variety of statistical functions for the researchers to generate the findings needed in this study. Besides, Eviews 6 is also said to be particularly suitable to be used for result forecasting too (Schott, n.d.).

3.3.3 Sampling Size

Sampling size refers to the amount of observations studied in a sample. Researchers may have to include big sample size in their research, because it can increase the chance of finding a significant difference and to obtain a higher accuracy in results. In this research, 16 commercial banks are selected in Malaysia from year 2004 to 2013 and the total size of the sample is 160.

3.4 Research Instrument

The research instruments used to measure the research variables in this research are as follow:-

i) ROA_{it} **= Return on assets of bank *i* for year *t***

= Total return/ Total assets

Total return to total assets ratio is used as the proxy of the profitability of bank.

ii) $SIZE_{it}$ **= Bank size of bank *i* for year *t***

= log $SIZE_{it}$

Natural logarithm of total bank assets is served as a proxy to bank size.

iii) LIQ_{it} **= Liquidity risk of bank *i* for year *t***

= Cash assets/ Total assets

Cash to total assets ratio is the proxy for the liquidity risk in a bank.

iv) CAP_{it} **= Capital adequacy of bank *i* for year *t***

= Book value of equity/ Total asset

The equity-to-asset ratio acts as a proxy for a bank capital.

v) NPL_{it} **= Non-performing loans of bank *i* for year *t***

= Non-performing loans/ Total loans

The percentage of NPL to total loans in bank is the measurement of the NPL.

vi) $COST_{it}$ **= Cost efficiency of bank *i* for year *t***

= Total operating cost/ Total income

The proxy of cost efficiency is the total operating cost to total income ratio.

3.5 Data Analysis

3.5.1 Panel Data

Panel data was used in this study to examine the relationship between the internal factors and bank profitability for 10 years from year 2004 to 2013 across 16 local and foreign commercial banks. According to Gujarati and Porter (2009), one of the advantages of the panel data is to give more informative data and less collinearity among the variables. Panel data can also be used to measure the impacts that cannot be captured by either pure cross-sectional or time-series data. There are three types of panel data regression model estimation, which are pooled ordinary least square (OLS) model, fixed effects model (FEM) and random effects model (REM). Among all the models, FEM has been chosen to be the estimation model in this study.

3.5.1.1 Fixed Effects Model

Fixed effects model (FEM) is used in this research to examine the relationship of the internal factors towards the bank profitability of 16 selected commercial banks in Malaysia. FEM is used in this paper because the data obtained consists of both cross-sectional data from 16 Malaysian commercial banks and time-series data from year 2004 to 2013. The model can be regressed as below:

$$\boldsymbol{Y_{it}} = \boldsymbol{X_{it}\beta_1} + \boldsymbol{\alpha_i} + \varepsilon_{\boldsymbol{it}}$$

$\boldsymbol{Y_{it}}$ = the dependent variable observed for individual in time *t*.
$\boldsymbol{X_{it}}$ = representing one independent variable (IV).
$\boldsymbol{\beta_1}$ = the coefficient of IV.
$\boldsymbol{\alpha_i}$ = the unobserved individual effect.
$\varepsilon_{\boldsymbol{it}}$ = error term.

This FEM model is examined by using E-views 6 to study the relationship between the dependent and independent variables. By using FEM model in this research, it can provide a more detailed and informative data with more variability and efficiency as well as less collinearity among the variables. This model can also produce a better result in explaining the effects between the variables which cannot be explained with either pure cross-sectional data or pure time-series data. Therefore, the FEM regression model is the best measure for the panel data used in this study.

3.5.2 Scale of Measurement

3.5.2.1 Normality Test

In the classical normal linear regression model (CNLRM), the error term u_i is assumed to be in normal distribution (Gujarati & Porter, 2009). The normality of residuals can be observed by using Jarque-Bera (JB) test. The JB normality test is computed using the skewness and kurtosis in the model. The JB test uses the following test statistic in which:

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

where n = sample size, S = coefficient of skewness and K = coefficient of kurtosis.

Under the null hypothesis that the error term is in normal distribution in the model, the hypothesis can be rejected if the computed p-value for JB test statistics is smaller than 10% significance; otherwise, do not reject the null hypothesis.

The level of significance for normality test is set at 10% because it is widely used by the researchers. For example, Iloska (2014) applied 10% significance level in normality test to measure how likely the variables are normally distributed in measuring bank profitability in Macedonia.

3.5.2.2 Redundant Fixed Effect Test

The redundant fixed effect test is used to examine the suitability between pooled ordinary least square (OLS) model and fixed effects model.

H_0: Pooled OLS is better than fixed effects model.

H_1: Fixed effects model is better than pooled OLS model.

Decision rule: Reject H_0 if p-value is less than significance level. Otherwise, do not reject H_0.

Decision: Reject H_0 since the p-value is less than the significance level 10%.

Conclusion: There is sufficient evidence to conclude that fixed effects model is better than pooled OLS model.

3.5.2.3 Hausman test

In this study, Hausman test is used to test fixed effects model and random effects model (REM).

H_0: Random effects model is better than fixed effects model.

H_1: Fixed effects model is better than random effects model.

Decision Rule: Reject H_0 if p-value is less than significance level. Otherwise, do not reject H_0.

Decision: Reject H_0 since the p-value is less than the significance level of 10%.

Conclusion: There is sufficient evidence to conclude that fixed effects model is better than random effects model.

3.5.2.4 Multicollinearity

Multicollinearity happens when there is more than one exact linear relationship between the explanatory variables (Gujarati & Porter, 2009). When multicollinearity exists in a model, it is difficult to identify the independent variables (IVs) that may affect the dependent variable (DV). There are no standardised tests for multicollinearity problem; however, it can be detected in several ways. First of all, multicollinearity detection can be done with high R^2 but few significant *t* ratios. When R^2 value is more than rule of thumb of 0.8, the *F* test has the tendency to reject the hypothesis in which the partial slope coefficient is equivalent to zero. However, the individual *t* tests may result in either none or few partial slope coefficients that are not equal to zero. Secondly, high pair-wise correlations between regressors can be employed to detect multicollinearity. When the pair-wise correlation among two regressors is more than 0.8, it poses a serious multicollinearity problem. Next, variance-inflating factor (VIF) and tolerance (TOL) can be used in order to detect multicollinearity. VIF is used to show if the estimator's variance is inflated by multicollinearity. The equation of VIF can be shown as:

$$\boldsymbol{VIF = \frac{1}{(1 - R^2_{1\,2})}}$$

where $R_{1\,2}$ is the coefficient of correlation between X_1 and X_2 variables.

As the collinearity increases, the variance of the estimator increases as well. VIF is infinite or undefined when $r^2_{1\,2}$approaches to 1, thus indicating a perfect multicollinearity has occurred in the model. When VIF is equivalent to or more than 10, it indicates that a serious multicollinearity might exist between the IVs. On the other hand, VIF lesser than 10 indicates the multicollinearity between the

IVs is not serious. VIF will be equivalent to 1 when there is no multicollinearity in the model. Next, TOL is the inverse of VIF in which,

$$\boldsymbol{TOL = \frac{1}{VIF} = \left(1 - R^2_{1\,2}\right)}$$

Unlike VIF, there is an inverse relationship between multicollinearity and TOL. The multicollinearity problem is not serious as TOL increases, whereas serious multicollinearity occurs when TOL decreases. Theoritically, when $R^2_{1\,2} = 0$, TOL is equal to 1 and there is no multicollinearity problem. In contrast, TOL is 0 when $R^2_{1\,2} = 1$, thus showing that perfect multicollinearity happens in the model. Among all the methods, pair-wise correlation has been applied to examine the multicollinearity problem in this study.

3.5.2.5 Heteroscedasticity

Heteroscedasticity exists when the variances of the error terms are no longer equal and constant. It violates the assumption of homoscedasticity in which the variances of error terms are equal across the observations (Gujarati & Porter, 2009). There are several methods in detecting heteroscedasticity, namely Park test, Glejser test, Breusch-Godfrey (BG) test and White test. Thus, in order to ensure the model is free from heteroscedasticity, a hypothesis testing is conducted by using Eviews 6 to generate the p-value for the purpose of detecting this problem. Under the null hypothesis that there is no heteroscedasticity problem, this hypothesis can be rejected if the p-value is fewer than the significance level at 10%. In contrast, when the null hypothesis is not rejected, it indicates that the model is free from heteroscedasticity problem.

The reason that 10% significance level is employed in this study is because 10% is generally used by other researchers to determine the existence of heteroscedasticity problem in the model. For instance, Vejzagic and Zarafat (2014) who studied the determinants of Malaysia commercial banks for year 1995 to 2011 applied 10% significance level in their White test in determining the heteroscedasticity problem in their study.

3.5.2.6 Autocorrelation

Autocorrelation can be defined as correlation in error terms between a series of observations ordered in space for cross-sectional data or time for time series data. Autocorrelation takes place when there is a correlation between the error term at time period *t* and *t*-1. In order to test the model for autocorrelation problem, a hypothesis testing is conducted by using Eviews 6 to obtain the p-value. The null hypothesis, in which stated that there is no autocorrelation problem, can be rejected when the obtained p-value for autocorrelation is less than 10% confidence level. Otherwise, the hypothesis cannot be rejected when the p-value is more than the indicated confidence level, suggesting that there is enough evidence to conclude that the model is free from problem of autocorrelation. In this study, 10% significance level is used in testing the model for autocorrelation problem because it is commonly used in the studies from other researchers who did the same type of research. For example, Davydenko (2010) used 10% significance level to test the autocorrelation in his model in the research of determinants of bank profitability in Ukraine.

3.5.2.7 Unit Root Test

Unit root test is examined in this study. The objective of this test is to carry out is to test whether the series is stationary or not. When the mean, variance and covariance do not change over time, the series is said to be stationary. According to Maredza (2009), significance level of 10% is used for this test in his study of internal factors of bank profitability in South Africa.

H_0: The series is non-stationary or it has a stochastic trend.

H_1: The series is stationary or has a non-stochastic trend.

Decision Rule: Reject H_0 if the p-value of unit root test less than significance level.

Otherwise, do not rejectH_0.

Decision: Reject the H_0 since the p-value for unit root test is less than the significance level 10%.

Conclusion: There is sufficient evidence to conclude that series is stationary.

3.6 Conclusion

In Chapter 3, the researchers have described the sources of the secondary data. Moreover, the data obtained for the internal factors will be used to estimate the factors' significance towards the bank profitability. The researchers have used eight local commercial banks and eight foreign commercial banks in Malaysia for their study. In the following Chapter 4, analysis of data and discussion on the major findings of the study will be explained in details.

CHAPTER 4: DATA ANALYSIS

4.0 Introduction

The researchers employed the data from 16 local and foreign commercial banks in Malaysia from year 2004 to year 2013 in conducting data analysis. The data obtained by the researchers was extracted from annual reports of 16 local and foreign commercial banks in Malaysia. The researchers used Eviews software to analyze the data collected and continue with discussion on research findings. The diagnostic checking was being carried out using Eviews software in order to detect the presence of econometric problems.

4.1 Scale Measurement

4.1.1 Redundant Fixed Effect Test

Table 4.1: Redundant Fixed Effect Test P-value

Test statistic value
Prob. Chi-Square = 0.0095

The researchers conducted redundant fixed effect test to select the correct estimated model between pooled OLS model and fixed effects model (FEM). The null hypothesis for this test is that pooled OLS Model is better than FEM. The researchers will then make decision on whether to reject null hypothesis with the comparison of p-value with the confidence level. From Table 4.1 above, the p-value is 0.0095 which is less than 0.10 confidence level. Thus the researchers choose to reject the null hypothesis and give a conclusion that FEM is the most suitable model for this research.

4.1.2 Hausman Test

Table 4.2: Hausman Test P-value

Test statistic value
Prob. Chi-Square = 0.0561

The researchers conducted Hausman test to examine whether fixed effects model (FEM) or random effect model (REM) is more appropriate to be used. The null hypothesis stated that REM is more preferable than FEM. Since the p-value of 0.0561 is less than 0.10 confidence level, the researchers therefore reject the null hypothesis. There is not enough evidence to show that REM is better than FEM. This concludes that FEM is the most suitable model for this research.

4.1.3 Multicollinearity

Researchers used correlation matrix to examine the existence of multicollinearity between variables. The outcomes are stated as follow:

Table 4.3: Correlation between Each Independent Variable and Dependent Variable of the Estimated Model

	ROA	SIZE	CAP	COST	LIQ	NPL
ROA	1.000000	-	-	-	-	-
SIZE	-0.171649	1.000000	-	-	-	-
CAP	0.684547	-0.429486	1.000000	-	-	-
COST	-0.650646	0.018435	-0.715082	1.000000	-	-
LIQ	-0.270741	-0.286315	-0.326486	0.499659	1.000000	-
NPL	0.045570	-0.118168	0.226926	-0.102780	-0.176593	1.000000

The results for analysis of correlation for every pair of independent variables in Table 4.3 show that no serious multicollinearity problem exists among the independent variables. This is due to the correlation of each pairs are less than researchers' benchmark of 0.8 by following rule of thumb.

4.1.4 Heteroscedasticity

The use of panel data and Fixed Effects Model's characteristics of the estimation model restrict Eviews software from detecting heteroscedasticity. The researchers run the estimation model by using unstructured data and detected heteroscedasticity. Heteroscedasticity happen when the error term variance is not consistent. The existence of heterascedasticity in the model caused the estimated parameter to be inefficient no longer BLUE. The t and F statistic will consequently become biased and inaccurate. The inaccurate statistics will lead to wrong interpretation about the significance of the independent variables. Hence, the results of hypothesis testing will be spurious. The researchers solve this problem with White cross-sectional test.

4.1.5 Autocorrelation

Table 4.4: Durbin-Watson Value

Test Statistic Value
Prob. Chi-square = 2.108597

Figure 4.1: Durbin-Watson Decision Rule

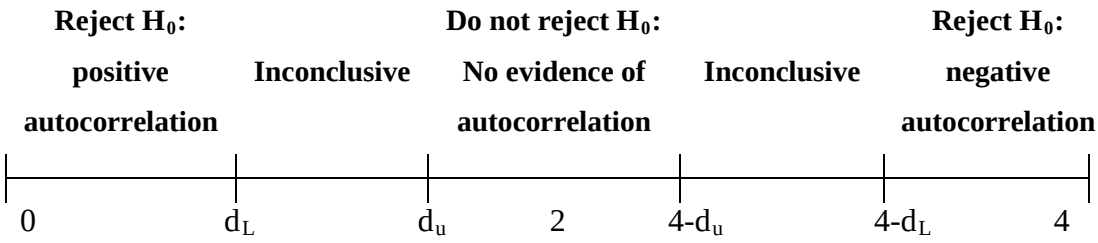
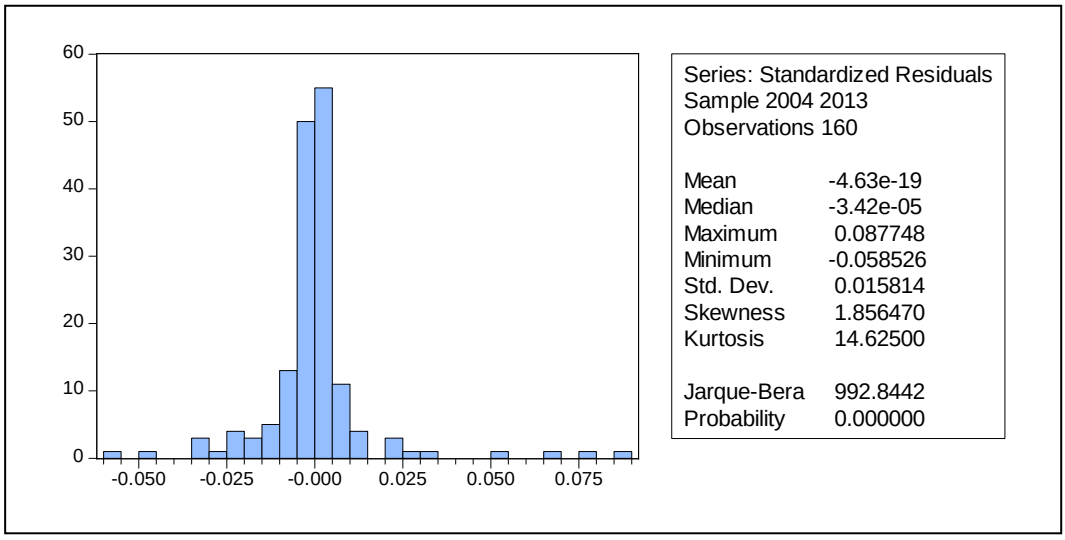


Table 4.4 shows that Durbin-Watson statistic is 2.108597. The statistic proved that there is no (first-order) autocorrelation in the model.

4.1.6 Normality of the Error Term

Figure 4.2: Normality Test Result



Researches examine the normality of the error term with Jarque-Bera (JB) test. The null hypothesis for JB test is that error term is normally distributed. The p-value of 0.0000 shown in Figure 4.2 is less than the 10% significance level. Thus, the researchers reject null hypothesis and deduce that the error term is not normally distributed. Under FEM, the error term of the model is assumed to distribute normally.

Based on central limit theorem, Gujarati and Porter (2009) suggested that error term is assumed to distribute normally when the sample size is more than 100. The sample size of the estimation model is 160 thus error is assumed to be normally distributed.

4.1.7 Unit Root Test

Table 4.5: Unit Root Test Result Obtained from E-view Output

Test statistic value
Im, Pesaran and Shin W-stat = 0.0000
ADF - Fisher Chi-square = 0.0000
PP - Fisher Chi-square = 0.0000

The unit root test was conducted by researchers to study the stationarity of variables. The null hypothesis of unit root test is that there is non-stationarity in variables in the model. The p-value of the test statistics is all less than confidence level of 0.10. The researchers then reject the null hypothesis and deduce that all variables are stationary at 0.10 confidence level. The result shows that the estimation model is accurate.

4.2 Inferential Analysis

Table 4.6: Estimation Model Output from E-view

Variables	**Coefficient**	**P-value**
Bank size	-0.000374	0.9591
Capital adequacy	0.062849	0.0208**
Cost efficiency	-0.082764	0.0000***
Liquidity risk	0.009543	0.4054
Non-performing loan	-0.077616	0.0317**

R-square	0.615632
Adjusted R-square	0.560328
Prob.(F-statistics)	0.000000

***significant at 1 % (strong effect)

**significant at 5 % (medium effect)

*significant at 10 % (weak effect)

4.2.1 R-Square

R-square (R^2) is defined as the coefficient of multiple determinants that shows the proportion sum of variation in the dependent variable (Y) explained by all independent variables (X). R-square is use to evaluate fitness of an estimation model. The R-square value of the model is 0.615632. Researchers conclude that bank size, capital adequacy, cost efficiency, liquidity, and non-performing loan affect 61.5632% of the variation in return on asset. In contrast, there are 38.4368% variation in return on asset is explained by other determinants.

On the other hand, adjusted r-square is used when the sample size and degree of freedom are taking into account while adding a new variable into the model. Researches get a result that the adjusted r-square of 0.560328. It indicates that bank size, capital adequacy, cost efficiency, liquidity, and non-performing loan affect 56.0328% of variation in return on asset in the event of adding a new variable into the model. It also shows that 43.9672% variation of return on asset is determinate by other factors. The similar study on bank profitability was done by Masood, Aktan and Chaudhary (2009) and has obtained adjusted R-squared of 0.5333. The study suggested that the R-squared obtained in this research which is 0.5603 is acceptable.

4.2.2 Bank Profitability

4.2.2.1 Return on Asset Ratio

Return on asset (ROA) ratio is recognised as a type of measure to evaluate bank profitability by dividing net income with total asset, and is expressed in percentage. The ROA ratio explains the capability of a bank's management in utilizing its total assets to gain a profit. Higher return means that bank's management is more efficient in utilizing its asset base, vice versa. Result shows that bank size and liquidity risk are insignificant to ROA while capital adequacy, cost efficiency and non-performing loan are significant to ROA.

4.2.3 Bank Internal Factors

4.2.3.1 Bank Size

The bank size estimated on Malaysia local and foreign bank profitability has a negative association but it is not significant at confidence level of 10%. The researchers do not reject null hypothesis in hypothesis testing and deduce that bank size does not affect Malaysia local and foreign banks profitability. The estimated result shows bank size and bank profitability has negative relationship. Researchers agree with Staikouras and Wood (2004) study that suggests effect of bank size on profitability is negative for large banks but positive for small banks. This is due to the diseconomies of scale occurs in growing size of banks, suggesting growth in bank size may results in losses. Furthermore, increase in bank size results in diminishing marginal returns and in turns reduce average profits. The estimation result also shows that bank size is insignificant in affecting bank profitability. Berger,

Hanweck & Humphrey (1987) supported this result by stating that bank size is not significant in affecting bank profitability.

4.2.3.2 Liquidity Risk

Results show that liquidity risk is insignificant at significance level of 10% and it is said that liquidity risk and bank profitability are positively related. From the hypothesis testing, the researchers do not reject the null hypothesis and conclude that liquidity risk has no influence on profitability of banks. The estimated result also shows positive relationship between liquidity risk and bank profitability. Alshatti (2014) agreed on the positive association between bank profitability and liquidity risk in which supported the research findings. The proxy that used in measuring liquidity risk in this study is ratio of cash asset to total asset. Therefore, an increase in quick ratio will increase the bank profitability. This suggests that bank liquidity risk and bank profitability has positive relationship and increase in liquidity risk leads to higher bank profitability.

4.2.3.3 Capital Adequacy

The estimation result demonstrates that capital adequacy is significant at 10% significance level. The result obtained is in line with the researchers' expectation that capital adequacy and bank profitability are positively linked. Therefore, the researchers conclude that when capital adequacy increase by 1 percentage point, Malaysia commercial bank return on asset will increase by 0.062849 units, by holding other variables constant.

4.2.3.4 Non-Performing Loans

The results show that non-performing loan (NPL) is significant in determining the bank profitability in Malaysian local and foreign commercial banks at significance level of 10%. The result obtained match with the expectation of researchers. The NPLs are found to have negative relationship with profitability of local and foreign commercial banks in Malaysia. In this study, the coefficient obtained explains that NPL's increase by 1 percentage point affects the profitability of Malaysia's commercial banks to decrease by 0.077616 units, by holding other variables constant. Hence, this indicates that the greater the NPL, the lesser the bank profitability.

4.2.3.5 Cost Efficiency

The estimation result shows that cost-to-income ratio is significant at 10% confidence level. The result obtained is consistent with the researchers' expectation that cost-to-income ratio and bank profitability are negatively related. Hence, the researchers conclude that 1% increase in cost-to-income ratio will cause bank profitability to decrease by 0.082764, holding other variables constant. In short, lower cost to income ratio means that high cost efficiency.

4.2.4 The Most Influencing Factor

Among all the five independent variables, the researchers found out that the most influencing factor of this study is cost efficiency which is calculated by the formula of cost to income ratio. Cost to income ratio shows significant at 1%, 5%, and 10% significance level. The coefficient of cost efficiency is -0.082764. For every 1% increase in cost to income

ratio, the bank profitability will reduce by 82.76%. This indicates that cost efficiency has a strong negative relationship on the bank profitability.

4.3 Conclusion

The empirical result and major findings have been discussed in Chapter 4. Diagnostic test such as autocorrelation, heteroscedasticity, multicollinearity and normality test have been provided and adjustments for the econometric problem have been done. Next, researchers discussed the effect of each independent variable to dependent variable. The estimation result shows that capital adequacy, cost efficiency and non-performing loans are significant to bank profitability. However, bank size and liquidity risk are insignificant to bank profitability. In the next chapter, further explanations along with implication, limitation and recommendation of the study will be provided by researchers.

CHAPTER 5: DISCUSSION, CONCLUSION AND IMPLICATIONS

5.0 Introduction

This chapter discusses the overall conclusion of the whole research. The summary of the statistical analyses that have been explained previously in Chapter 4 is provided in this chapter. In addition, the discussion of the major findings and implication of the study will be explored in the chapter. Finally, this chapter talks about the limitations of the study, recommendations for future researchers and conclusion.

5.1 Summary of Statistical Analyses

Table 5.1: Results of Diagnostic Checking

Diagnostic checking	Decision	Solution
Redundant fixed effect test	Reject H_0	-
Hausman test	Reject H_0	-
Multicollinearity	Every variable's correlation is not more than 80%	-
Heteroscedasticity	Reject H_0	Solved by using White cross-sectional test
Autocorrelation	Do not reject H_0	-
Normality	Reject H_0	Error term assumed to be normal due to central limit theorem
Unit root test	Reject H_0	-

As discussed in the previous chapter, the researchers had used Eviews 6 to detect econometric problems that might occur in the study. Based on Table 5.1 above, the econometric problems occurred in the study have been solved by using appropriate tests. Hence, this indicates that the results from the researchers are correctly interpreted as well as reliable at the same time.

5.2 Discussions of Major Findings

Table 5.2: Major Findings

Dependent variable = ROA			
Variables	Coefficient	P-value	Result
Bank size	-0.000374	0.9591	Insignificant
Capital adequacy	0.062849	0.0208**	Significant
Cost efficiency	-0.082764	0.0000***	Significant
Liquidity risk	0.009543	0.4054	Insignificant
Non-performing loan	-0.077616	0.0317**	Significant
R-square	0.615632		
Adjusted R-square	0.560328		
Prob.(F-statistics)	0.000000		

***significant at 1 % (strong effect)

**significant at 5 % (medium effect)

*significant at 10 % (weak effect)

Based on Table 5.2, the result shows that capital adequacy, cost efficiency and non-performing loan are the significant variables in measuring bank profitability in this study. In contrast, bank size and liquidity risk are insignificant towards the profitability of the commercial banks. Besides, the R-square in this study is equivalent to 0.615632. The R-square value indicates that 61.5632% of the variation in return on asset can be explained by bank size, liquidity risk, capital adequacy, NPLs and cost efficiency. On the other hand, the value of adjusted R-

square, which is 0.560328, shows that bank size, liquidity risk, capital adequacy, non-performing loan and cost efficiency affect 56.0328% of variation in return on asset in the event of adding a new variable into the existing model.

5.2.1 Internal Factors

5.2.1.1 Bank Size

The bank size shows insignificant effect on Malaysia local and foreign commercial bank profitability at 10% significance level. Goddard et al. (2004) analysed 665 European banks' profitability and proved that there is evidence for significant relationship between bank size and profitability. Yet, Berger et al. (1987) stated that bank profitability and size relationship is not significant. Nicholson (2000) stated that diseconomies of scale appear as the size of bank growth and cause difficulty for management to conduct surveillance. Consequently, growth in bank size leads to decline in bank profitability due to higher level of bureaucracy (Athanasoglou et al., 2008).

Based on empirical findings, the bank size shows negative and insignificant relationship on Malaysia local and foreign commercial bank profitability. A bank's profit largely dominates by its main asset which is loans. Theoretically, a large bank defined in the assets it possessed could create economies of scale which brings a positive impact on bank profits. However, given this empirical findings, banks must be aware that growth in bank size measured in assets does not promise rise in bank profitability as the default in principal and interest repayment could affect negatively on the bank's performance. Moreover, the bank size and bank profit is found to have negative relationship. Thus the banks are encouraged to closely monitor quality of assets instead of

constantly seeking extensive growth in assets. The potential borrowers' ability to serve the loan repayment should be given detailed analysis by the bank. As the quality of borrowers substantially determined the regular interest and payment receive by banks, concern must be given by the banks to ensure stable stream of bank profit.

5.2.1.2 Liquidity Risk

Researchers found out that there is insignificant effect of liquidity risk towards bank profitability. According to Tabari et al. (2013), liquidity risk on profitability of Iran's commercial banks was significant from year 2003 to 2010 by using panel data. However, Tafri et al. (2009) examined that there is insignificant relationship between liquidity risk and bank profitability in Malaysia during the year 1996 to 2005. This can be explained that the banking institutions in Malaysia are still short of resources to fulfil the minimum standards of liquidity in banking system, indicating that banks remain an illiquid position to avoid failures (Athanasoglou et al., 2008).

The liquidity risk in this study shows that there is a positive and insignificant relationship towards the bank profitability based from the obtained findings. In other words, the bank profitability increases despite of the increase in liquidity risk in a bank. In theory, high liquidity risk should reduce the return on assets of the banks as liquidity risk is associated with inability of converting liquid assets to cash in a short period of time. However, based on the empirical findings, it is not necessary that high liquidity risk will greatly affect the profitability of banks. With that, this study suggests that the banks may utilise approaches that give effective and efficient diversification in sources of funding in order to ease

the exposures of liquidity risk. Moreover, banks in Malaysia should also implement a good liquidity risk management so that liquidity risk can be managed properly to ensure a sound financial system in the country.

5.2.1.3 Capital Adequacy

Capital adequacy has been found out that it is positively related with the dependent variable which is bank profitability. This finding is constant with the research results with some existing researches. Firstly, commercial bank with high capital may have high earnings, and it is able to absorb those unseen losses due from financial distress (Berger, 1995; Goddard et al., 2004; Garcia-Herrero et al., 2009). Secondly, the researchers' findings are also consistent with Dietrich and Wanzenried (2011). A highly capitalized commercial bank is normally less risky and deserves a high creditworthiness. Moreover, it will decrease the funding cost required during financial distress (Dietrich & Wanzenried, 2011).

In order to increase bank's capital adequacy, commercial bank can issue convertible bonds or new shares. Bonds with convertible feature allow buyers to transform from creditors into shareholders after a certain period, in term of increasing commercial banks' capital adequacy. Therefore, issuing new shares will have the same effect to increase capital adequacy. Above of all, higher capital adequacy results in higher bank profitability.

5.2.1.4 Non-Performing Loans

Researchers found out that the result for non-performing loan is significant towards the bank profitability. This result is supported by Joseph et al. (2012), stating that the bank profitability has been negatively affected with the increase of non-performing loans. Another finding that supported this result is from Clementina and Isu (2014), whereby they explained the deterioration of bank's return on assets is associated with the high amount of non-performing loans. Additionally, the study conducted by Lata (2014) is also in line with the result obtained because the study implies that the profitability of the banks decreases when high non-performing loans contributes to the reduction in bank's loan amount and interest income. Hence, from all the findings, this clearly explains that an increase in loan defaults will reduce the Malaysia commercial banks' profitability.

From the empirical findings, non-performing loans show a negative and significant effect on the profitability of bank in Malaysia commercial banks' profitability. As non-performing loans increase, bank's return on assets decreases. In order to reduce the number of non-performing loans, a proper risk assessment should be implemented by the banks. For instance, before the loan agreements are executed to the borrowers, the bank should assess any possible risk that might happen in the event of the borrowers go default on their loan obligations. This will give the bank an early protection from loan defaults. Besides, banks should also keep track and monitor closely to the financial conditions of the borrower during the terms of agreement from time to time. By monitoring the borrower's financial activities, the bank is able to know whether the borrower can repay the loan or not. In addition, the number of non-performing loans can also be minimised if a bank imposes an efficient loan collection from the borrowers.

5.2.1.5 Cost Efficiency

The researchers found that cost to income ratio is important to the bank profitability. It also shows a strong negative relationship with Malaysia bank profitability. The lower the cost to income ratio, the higher is the bank profitability. The result acquired is in consonance with the previous research by Alexiou and Sofoklis (2009). These authors mentioned that cost-to-income has a negative and highly significant effect on bank profitability. The authors pointed out that banks must practise cost efficiency management in order to stay competitive. Further study by Almumani (2013) also determined that cost-to-income ratio have a strong negative relationship with bank profitability. The reason behind is that banks are able to control well in costs and gain huge savings which can increase the profitability. The author implies that cost to income ratio is the main factor under management control that determines the banks' profitability in Jordan.

Based on the empirical result, as bank increase the efficiency, bank can earn more profit. Hence, bank is encouraged to improve their efficiency by using advanced technologies in communication, information and also financial technologies. Advanced technology allow faster processing of data for bank, thus can save time and cost. Next, advanced technology can also minimize human errors as technology can be used for repetitive operations, making human mistakes to be reduced or even eliminated. Besides, outsourcing has become very attractive because it can achieve a streamlined organization structure. Bank can practise business process outsourcing in order to remain efficient. For example, banks can outsource information technology (IT) functions such as network and hardware maintenance, disaster recovery and item processing to the IT firm. Bank can achieve cost efficiency and remain competitive in the rapidly evolving landscape by outsourcing.

5.3 Implications of the Study

The major implication of this study is that the profitability for Malaysian commercial banks can only be realized if the bank managers and monetary authorities shift their attentions more on the internal factor that might affect on the banks' performance in the country. Bank managers should put more efforts to seek for better alternatives that can increase the bank's capital level by investing their resources in both stock and capital market to enhance the businesses conducted by the bank. Besides, this study also emphasizes on the need for the bank managers to implement a more practical risk management procedures to ensure that the bank is able to create sound and competitive products and services to the customers as well as to respond quickly to the risks exposed within the bank in order to have a better return for the bank. Moreover, this study is served as a foundation for policy enhancement to the monetary authorities in the financial sectors in Malaysia. There is a need for the monetary authorities such as BNM to use an effective regulatory framework that can improve the growth of equity market to increase the bank profitability in the country. Lastly, this study is opened up for further research. Researchers can use this study to explore on how profitability of the commercial banks in Malaysia can be related with other countries. Besides, researchers can also examine other factors to explain bank profitability to add on the existing literature to improve the banking sector in the country. Other suitable econometric methods apart from this study that can enhance the understanding on the bank profitability can be suggested by future researchers to increase the accuracy in obtaining the results.

5.4 Limitations of the Study

The researchers faced several restrictions in this study. The studies done for determinant of bank profitability in Malaysia context are limited. The references used for this research are the studies done in European countries, Middle East and other countries. Thus the researchers conduct literature review by referring to the research in countries other than Malaysia. The discrepancy might exist in the research findings and researchers are unable to make comparison between their findings with other research findings in Malaysia context.

Besides, the data used for data analysis involves manual calculation by the researchers. The researchers extract data such as banks' total assets, total operating cost and book value of equity from annual reports of respective banks. The researchers then proceed with calculation by using formulas for the variables. The data required ratio analysis by the researchers because the information is not presented in the annual reports. The tendencies for making mistakes in manual calculation exist despite multiple checking were done.

In addition, the research finding for this research is significant for Malaysia banks only. This is due to the different banking regulations and political background of different countries. Besides, the operations of banks are different according to development of countries. Thus, the research finding is applicable in Malaysia only.

Moreover, limited research time period is another limitation of this study. The time period for this research is only pre-determined as ten years from year 2004 to 2013. This is due to the restriction in availability of the annual reports for those sample commercial banks from Bursa Malaysia and respective banks. The longer the research period, the more accurate the result is. Besides that, the effect of financial crisis in year 2007 to 2008 has been ignored for this research.

Lastly, external factors are not taken into account in the study. This research is mainly focused on the internal factors of commercial banks as the determinants

for bank profitability. However, the data of annual reports from respective commercial banks have included the effects of external factors or economic factors to the bank profitability. As a result, this may lead in inaccurate results in this research.

5.5 Recommendations for Future Research

In this research, the researchers only examine internal factors that will affect bank profitability. Due to this limitation, future research is recommended to include external factors such as financial crisis and gross domestic products (GDP). This would make the findings more accurate and the readers have more understanding about factors affecting bank profitability.

Besides that, this study uses Eviews 6 to run the data and heteroscedasticity is detected. However, heteroscedasticity problem cannot be solved by using Eviews 6. Thus, future researchers are recommended to use more advanced software such as Stata or Eviews 9 to solve heteroscedasticity problem. By using Stata or Eviews 9, researchers can obtain a better and more specific result. In addition, for the dependent variable, future researchers are also encouraged to use more than one profitability ratios such as using both return on asset and return on equity to provide different insights about the implication.

Furthermore, the period of ten years used in this study is quite small and is not enough to capture the real effect. Future researchers are advised to increase the number of years to increase the degree of freedom and improving representativeness. Consequently, more conclusive findings can be drawn to describe the bank profitability and the result obtain can be more accurate.

Last but not least, future study is also encouraged to increase the coverage of study. For example, the study can be improved in terms of countries. The future researchers can expand their research countries to other countries, such as Singapore, Japan and United States. This will shows a better comparison of banks'

profitability in different countries. Malaysia banking system can also realize its weaknesses when comparing to banking system in other countries and may seek for alternatives for further improvement.

5.6 Conclusion

Banks should be profitable at all time in order to avoid any financial problems that can lead to bank failures. Thus, this study has been done to determine the internal factors that affect the commercial banks' profitability in Malaysia. This research also gives a review of previous studies from other researches based on the same topic. Panel data has been used in this study, whereby 16 Malaysia commercial banks which consist of eight local and eight foreign banks are used over the time period of 10 years from year 2004 to 2013. The result of the study is estimated by using Fixed Effects Model (FEM). From the overall findings, it is found that capital adequacy, cost efficiency and non-performing loan have significant effects on bank's return on assets. On the other hand, only bank size and liquidity risk are proven to be insignificant towards the bank profitability in this research.

In this last chapter, the summary of the statistical analyses, discussions of the study and implications of the study are explained in details. In spite of the best efforts done by the researchers, this study still has a few limitations such as limitations of studies based on Malaysia context, manual calculations, significance of research finding based in one country only, limited research time period and exclusion of external factors in the study. However, these limitations do not pose as a serious problem to the results in this study and recommendations for future research have been given to solve the said limitations.

In a nutshell, this research has achieved its aim in determining the internal factors of bank profitability of 16 commercial banks in Malaysia and hence can be studied by future researchers who want to further examine on this topic area in more details.

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APPENDICES

Appendix 1: Result of Redundant Fixed Effects Tests (E-view)

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

Effects Test	Statistic	d.f.	Prob.
Cross-section F	1.964314	(15,139)	0.0219
Cross-section Chi-square	30.760383	15	0.0095

Cross-section fixed effects test equation:
Dependent Variable: ROA
Method: Panel Least Squares
Date: 07/06/15 Time: 21:25
Sample: 2004 2013
Periods included: 10
Cross-sections included: 16
Total panel (balanced) observations: 160

Variable	Coefficient	Std. Error	t-Statistic	Prob.
SIZE	0.003172	0.003337	0.950592	0.3433
CAP	0.050869	0.009671	5.259807	0.0000
COST	-0.041498	0.012171	-3.409698	0.0008
LIQ	0.009272	0.010167	0.911956	0.3632
NPL	-0.046115	0.030230	-1.525501	0.1292
C	0.000364	0.028770	0.012637	0.9899

R-squared	0.534155	Mean dependent var	0.018780
Adjusted R-squared	0.519031	S.D. dependent var	0.025507
S.E. of regression	0.017690	Akaike info criterion	-5.194897
Sum squared resid	0.048190	Schwarz criterion	-5.079578
Log likelihood	421.5918	Hannan-Quinn criter.	-5.148070
F-statistic	35.31647	Durbin-Watson stat	2.383616
Prob(F-statistic)	0.000000		

Appendix 2: Result of Hausman Test (E-view)

Correlated Random Effects - Hausman Test
Equation: Untitled
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	10.774103	5	0.0560

Cross-section random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
SIZE	-0.000374	0.002146	0.000040	0.6886
CAP	0.062849	0.046858	0.000616	0.5192
COST	-0.082764	-0.049008	0.000124	0.0025
LIQ	0.009543	0.008912	0.000028	0.9049
NPL	-0.077616	-0.055389	0.000372	0.2489

Cross-section random effects test equation:
Dependent Variable: ROA
Method: Panel Least Squares
Date: 07/06/15 Time: 22:08
Sample: 2004 2013
Periods included: 10
Cross-sections included: 16
Total panel (balanced) observations: 160

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.041048	0.056899	0.721412	0.4719
SIZE	-0.000374	0.007272	-0.051431	0.9591
CAP	0.062849	0.026878	2.338315	0.0208
COST	-0.082764	0.016902	-4.896608	0.0000
LIQ	0.009543	0.011435	0.834612	0.4054
NPL	-0.077616	0.035772	-2.169732	0.0317

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.615632	Mean dependent var	0.018780
Adjusted R-squared	0.560328	S.D. dependent var	0.025507
S.E. of regression	0.016913	Akaike info criterion	-5.199650
Sum squared resid	0.039762	Schwarz criterion	-4.796033
Log likelihood	436.9720	Hannan-Quinn criter.	-5.035755
F-statistic	11.13164	Durbin-Watson stat	2.765476
Prob(F-statistic)	0.000000		

Appendix 3: Correlation between Dependent Variable and Each Independent Variable of the Estimated Model (E-view)

	ROA	SIZE	CAP	COST	LIQ	NPL
ROA	1.000000	-	-	-	-	-
SIZE	-0.171649	1.000000	-	-	-	-
CAP	0.684547	-0.429486	1.000000	-	-	-
COST	-0.650646	0.018435	-0.715082	1.000000	-	-
LIQ	-0.270741	-0.286315	-0.326486	0.499659	1.000000	-
NPL	0.045570	-0.118168	0.226926	-0.102780	-0.176593	1.000000

Appendix 4: Result of Fixed Effect Model (E-view)

Dependent Variable: ROA
Method: Panel Least Squares
Date: 07/06/15 Time: 21:07
Sample: 2004 2013
Periods included: 10
Cross-sections included: 16
Total panel (balanced) observations: 160

Variable	Coefficient	Std. Error	t-Statistic	Prob.
SIZE	-0.000374	0.007272	-0.051431	0.9591
CAP	0.062849	0.026878	2.338315	0.0208
COST	-0.082764	0.016902	-4.896608	0.0000
LIQ	0.009543	0.011435	0.834612	0.4054
NPL	-0.077616	0.035772	-2.169732	0.0317
C	0.041048	0.056899	0.721412	0.4719

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.615632	Mean dependent var	0.018780
Adjusted R-squared	0.560328	S.D. dependent var	0.025507
S.E. of regression	0.016913	Akaike info criterion	-5.199650
Sum squared resid	0.039762	Schwarz criterion	-4.796033
Log likelihood	436.9720	Hannan-Quinn criter.	-5.035755
F-statistic	11.13164	Durbin-Watson stat	2.765476
Prob(F-statistic)	0.000000		

Appendix 5: Result of Fixed Effect Model after Heteroscedasticity Solved (Eview)

Dependent Variable: ROA
Method: Panel Least Squares
Date: 07/21/15 Time: 21:30
Sample: 2004 2013
Periods included: 10
Cross-sections included: 16
Total panel (balanced) observations: 160
White cross-section standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
SIZE	-0.000374	0.004410	-0.084811	0.9325
CAP	0.062849	0.041298	1.521844	0.1303
COST	-0.082764	0.022024	-3.757858	0.0003
LIQ	0.009543	0.008453	1.128980	0.2609
NPL	-0.077616	0.044454	-1.745990	0.0830
C	0.041048	0.039242	1.046007	0.2974

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.615632	Mean dependent var	0.018780
Adjusted R-squared	0.560328	S.D. dependent var	0.025507
S.E. of regression	0.016913	Akaike info criterion	-5.199650
Sum squared resid	0.039762	Schwarz criterion	-4.796033
Log likelihood	436.9720	Hannan-Quinn criter.	-5.035755
F-statistic	11.13164	Durbin-Watson stat	2.765476
Prob(F-statistic)	0.000000		

Appendix 6: Adjustments for Autocorrelation (E-view)

Dependent Variable: ERROR
Method: Panel Least Squares
Date: 07/21/15 Time: 19:54
Sample (adjusted): 2005 2013
Periods included: 9
Cross-sections included: 16
Total panel (balanced) observations: 144

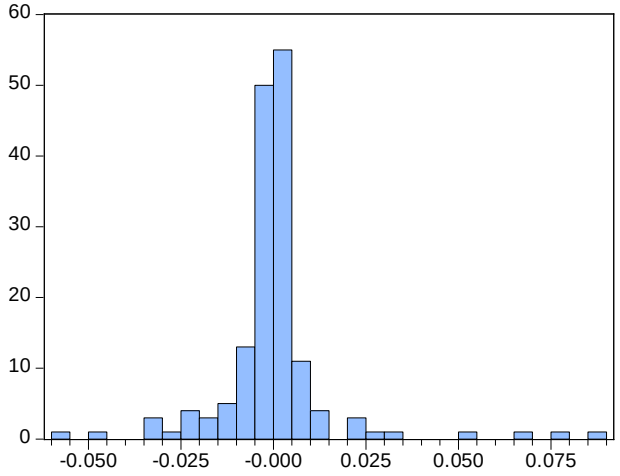
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-9.41E-05	0.001343	-0.070061	0.9443
ERROR(-1)	-0.328993	0.083541	-3.938110	0.0001

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.115449	Mean dependent var	-2.41E-05
Adjusted R-squared	0.004010	S.D. dependent var	0.016144
S.E. of regression	0.016111	Akaike info criterion	-5.308116
Sum squared resid	0.032966	Schwarz criterion	-4.957513
Log likelihood	399.1843	Hannan-Quinn criter.	-5.165650
F-statistic	1.035980	Durbin-Watson stat	2.108597
Prob(F-statistic)	0.424046		

Appendix 7: Result of Jarque-Bera Test (E-view)



Series: Standardized Residuals
Sample 2004 2013
Observations 160

Mean	-4.63e-19
Median	-3.42e-05
Maximum	0.087748
Minimum	-0.058526
Std. Dev.	0.015814
Skewness	1.856470
Kurtosis	14.62500
Jarque-Bera	992.8442
Probability	0.000000

Appendix 8: Result of Unit Root Test (E-view)

Group unit root test: Summary
Series: ROA, SIZE, CAP, COST, LIQ, NPL
Date: 07/21/15 Time: 21:36
Sample: 1 160
Exogenous variables: Individual effects
Automatic selection of maximum lags
Automatic selection of lags based on SIC: 0 to 1
Newey-West bandwidth selection using Bartlett kernel

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-5.33897	0.0000	6	952
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-9.19285	0.0000	6	952
ADF - Fisher Chi-square	116.914	0.0000	6	952
PP - Fisher Chi-square	194.020	0.0000	6	954

** Probabilities for Fisher tests are computed using an asymptotic Chi -square distribution. All other tests assume asymptotic normality.