CHAPTER 1: INTRODUCTION

1.1 Overview of Study

1.1.1 Islamic banking

Islamic banking is a banking activity based on Islamic principles, which do not allow the paying and receiving of interest (riba’) and promotes profit sharing in the conduct of banking business.

The most important difference between Islamic and conventional banking is the prohibition of interest in Islamic banking. Islamic banking activity must comply with Shariah principles and avoid prohibited activities such as gharar (excessive uncertainty).

Today, Islamic banking all over the world is managing huge funds. Its clientele are not confined to Muslim countries but are spread over Europe, United States of America and the Far East.

Islamic banking continues to grow at a rapid pace because of its value-orientated ethos that enables it to draw finances from both Muslims and non-Muslims alike. Islamic bankers, keeping pace with sophisticated techniques and latest developments have evolved investment instruments that are not only profitable but are also ethically motivated.

In Malaysia, the central bank, i.e Bank Negara Malaysia (BNM), regulates the law governing the banking system in Malaysia. The Islamic banking system in Malaysia is
subject to dual regulations, namely the regulations of the Islamic banking Act 1985 and the Shariah Council on the other hand, and the regulations imposed by BNM and the Banking and Financial Institutions Act (BAFIA) 1989, on the other (Samad, 1999). The recent survey states that there are more than 160 Islamic financial institutions existing around the world (Sufian, 2007). As at January 2008, there are 12 full-fledged Islamic banks in Malaysia as stated by Bank Negara Malaysia.

The first Islamic bank was established in Malaysia in 1983. In 1993, commercial banks, merchant banks and finance companies were allowed to offer Islamic banking products and services under the Islamic Banking Scheme (IBS banks). The IBS banks are required to ensure that the funds and activities of the Islamic banking transactions are separated from the conventional banking business.

The objectives of the Islamic financial system are based on Islamic Law, Shariah. Ideally, the objectives are threefold. The first objective is to offer Muslims an alternative to conventional banking and this alternative is interest-free banking. The second is to achieve equitable distribution of income and wealth. The Islamic financial system is to be treated as an important vehicle to transfer funds from the surplus to the deficit units. This is done to ensure the equitable allocation of capital to sectors which would yield the best returns to the owners of capital, thereby contributing towards the overall growth and expansion of an economy.

Another important objective of the Islamic financial system is to ensure that the surplus fund be attracted for worthwhile investments in accordance with the owners’ preference in terms of the extent of risk involvement, rate of return, as well as the period of investment. Still another objective of the Islamic financial system is to help
the fund owners to find sufficient opportunities to invest for the short term. Since it is contrary to Shariah principles to hoard wealth, it is necessary for the wealth owners to invest their funds in projects of either short-term or long-term nature. Lastly, the Islamic financial system is aimed to promote economic development. It is viewed by Muslims as an alternative to the existing interest-based financial system and institutions and by non-Muslims as a healthy development that adds a variety rendering financial system as highly competitive.

1.1.2 Growth of Islamic Banks

In recent times, Islamic banking and financing services have increased phenomenally around the world. Islamic bank, as defined by Islamic Development Bank (IDB), is a deposit-taking banking institution whose scope of activities includes all currently known banking activities, excluding borrowing and lending on the basis of interest.

The practice of Islamic banking as it has developed during the last 30 years has four main manifestations:

(a) banks and financial institutions in those countries where the promotion of an Islamic financial system is receiving active government support;
(b) Islamic banks and financial institutions in the private corporate sector working in a mixed environment;
(c) Islamic banking practices by some conventional commercial banks and non-bank financial institutions;
(d) multinational financial institutions working on Shari’ah principles.
Islamic banking is in a rapidly growing stage as a feasible alternative to conventional banking. By early 2003, there were at least 176 Islamic banks around the world, handling over $147 billion dollars (Ghannadian and Goswami, 2004).

The most important development in the history of Islamic banking took place with the establishment of the Islamic Development Bank (IDB) in 1975. The IDB was established as an international financial institution in pursuance of the declaration of intent issued by a conference of finance ministers of Islamic countries held in Jeddah, Saudi Arabia, in December 1973 and it started functioning on 20 October 1975.

The present membership of the IDB consists of 56 countries. The purpose of the IDB is to foster the economic development and social progress of member countries and Muslim communities individually as well as jointly in accordance with the principles of Shari’ah i.e., Islamic Law.

The functions of the IDB are to participate in equity capital and grant loans for productive projects and enterprises besides providing financial assistance to member countries in other forms for economic and social development. IDB is also required to establish and operate special funds for specific purposes including a fund for assistance to Muslim communities in non-member countries, in addition to setting up trust funds. It is authorized to accept deposits and to mobilize financial resources through Shari’ah compatible modes. It is also charged with the responsibility of assisting in the promotion of foreign trade especially in capital goods, among member countries; providing technical assistance to member countries; and extending training
facilities for personnel engaged in development activities in Muslim countries to conform to the *Shari’ah*.

The period between 1975 and 1990 was the most important period in the history of development of Islamic financial industry. During this period, it matured into a viable alternative model of financial intermediation. It won respect and credibility in terms of both theoretical developments and practical experiences. On the other hand, several financial products compatible with the *Shari’ah* were developed and, on the other hand, Islamic banks showed good results while using these products. The period was not only marked by the establishment of a large number of Islamic financial institutions in the private corporate sector under different socio-economic conditions, but also witnessed the expression of intent from three countries – Pakistan, Iran and Sudan – gradually to eliminate interest from their entire economies and substitute it with a complete banking system based on Islamic principles. Several practical steps were also taken in these countries towards achieving that objective. Even more important was the fact that several multinational banks started offering Islamic financial products. That was a clear recognition of the viability of the new model and its acceptance by international players. The International Monetary Fund (IMF) and the World Bank also recognized Islamic financial products as a genuine means of financial intermediation and produced papers to that effect.

### 1.1.3 Performance of Islamic banks

Islamic banks operate in over sixty countries, though mostly concentrated in the Middle East and Asia (Zaman and Movassaghi, 2001). In most of these countries, the
banking system is dominated by conventional banking institutions with Islamic banks operating alongside. However, Pakistan, Sudan and Iran are three countries which have converted the entire banking system to full Islamization banking system.

Saudi Arabia is the largest market for Islamic finance in terms of size. The largest bank in the world, Al-Rajhi Banking and Investment Corporation, is based in Saudi Arabia. The bank had $15.8 billion in assets at the end of 2002. It can be seen that the bulk of the Islamic banking activity is concentrated in the Middle East, especially GCC countries. This region accounts for 85 per cent of the total assets of Islamic banks (Iqbal and Molyneux, 2005).

The evaluation of performance of banks is made using some widely used indicators of measuring banking performance, namely financial ratios such as return on assets (ROA), return on equity (ROE), net interest margin (NIM) and cost to income ratio (COSR).

When compared to conventional banks, Islamic banks as a group outperformed the former in almost all areas and in almost all years. Most studies conclude that they usually show better results than conventional banks. The evaluation of the performance of Islamic banks through a number of key ratios yields fairly satisfactory results. In general, Islamic banks are well-capitalized, profitable and stable (Iqbal and Molyneux, 2005).
1.1.4 Bank Profitability

While there is abundance of literature on performance studies, these studies are confined to conventional banks. Up to this date, there has been little research on the profitability of Islamic banks.

Bank profitability is defined by Rose (2002) as the net after-tax income or net earnings of a bank (usually divided by a measure of bank size).

There are several ratios that are typically used to measure the profitability of banks. The two most often used are the rate of return on assets (ROA) and the rate of return on equity (ROE).

In general, a number of financial ratios are usually used to assess the performance of banks. The primary method of evaluating internal performance is by analyzing accounting data. Financial ratios usually provide a broader understanding of the bank’s financial condition since they are constructed from accounting data contained on the bank’s balance sheet and financial statement.

In general, the findings of conventional banking research have indicated that internal and external determinants of bank profitability are important, and contribute significantly towards a bank’s profitability. Therefore, re-examination is needed to evaluate their suitability and applicability in an Islamic banking context since both banking systems have different financial concept and operations. This study intends to
meet this objective and to determine the internal and external variables that control Islamic banks’ profitability.

1.2 Objectives of the Study

The objective of this study is divided into two parts:

**Overall objective:**

This study is aimed to examine the determinants that influence the profitability of Islamic banks from 2002 to 2007.

**Specific objectives:**

1. To determine the bank characteristic and macroeconomic environment factors that may influence the profitability of Islamic banks.
2. To examine the impact of bank-specific determinants on Islamic bank profitability in 2002 to 2007.
3. To examine the impact of macroeconomics environment variables on Islamic bank profitability, such as GDP growth and inflation.
4. To investigate whether internal and external variables that influence the profitability of conventional banks have similar impact on Islamic banks.
1.3 Research Questions:

This paper intends to provide answers to these questions:

1. What are the factors/variables that influence the profitability of Islamic banks in the world?
2. What is the impact of bank-specific determinants on Islamic bank profitability in 2002-2007?
3. How do macroeconomic variables such as GDP growth and inflation affect the profitability of Islamic banks?
4. Do the internal and external variables that influence the probability of conventional banks have similar impact on Islamic banks?

1.4 Significance of Study

The finding from this study is beneficial to many parties such as the government, academician, the banks, the customers, the students, the investors and the shareholders. The study would also contribute to the more understanding of the factors that influence Islamic banks’ performance. This study of comparison is useful in providing valuable information to relevant parties, such as bank customers, bank management and bank regulators in constructing an efficient management policy decision for Islamic banks to gain higher profits. This paper also contributes to the research on the relationship between Islamic banks’ performance and Islamic financial development as a whole.
In the last four decades, many studies have been conducted to investigate the profitability determinants of conventional banks. Only a handful of researches have been conducted to determine the profitability of Islamic banks. Hence, this study provides a significant additional evidence to postulate some profitability theories related to Islamic banking.

Extending the previous work in Islamic banking performance, this paper investigates the strength of influence between both internal and external variables and the profitability of Islamic banks using multiple regression methodology. By studying the connection between Islamic banks’ performance and the profitability indicators, this paper contributes to the on-going discussion on the effects of bank-characteristics and macroeconomics factors on the performance of Islamic banking sector.

1.5 Organization of the Study

This report is divided into five chapters. Chapter 1 provides some background on Islamic banking, specifies the objectives and purpose of this study, as well as the significance and benefits gained from this research.

Chapter 2 reviews the related studies with respect to the Islamic banking industry as well as conventional banks’ profitability evaluation. The literature review is done by comparing past studies in terms of its sample, data collection, methodology, variables used and results obtained. Hypotheses are developed in this section, and the possible links between dependent and the independent variables are discussed.
Chapter 3 describes the data, identifies the sources and explains the methodology which is employed in this study. This chapter also defines and highlights the profitability measures, internal and external variables used in this study.

Chapter 4 presents the empirical results and the interpretation of the analyses, discusses the hypotheses tested and elaborates on the findings obtained from the regressions.

Chapter 5 summarizes the main findings and gives the conclusion to this research with a discussion of implications, limitations of this study and suggestions for future research.
CHAPTER 2: LITERATURE REVIEW

In this chapter, a review of the relevant literature is presented, distinguishing between studies that have examined the determinants of bank profitability and studies that have focused on the performance of Islamic banks. This distinction is drawn here to highlight, in the case of the former, the underlying factors determining domestic banking sector profitability, and in the case of the latter, evidence relating to profit performance and efficiency of Islamic banks.

2.1 Determinants of bank profitability

In the last four decades, many studies have been conducted to investigate the profitability of conventional banks. Among the recent studies are by Peters et al. (2004), Kosmidou et al. (2006), Mamatzakis and Remoundos (2003), Athanasoglou et al. (2008), Pasiouras and Kosmidou (2007), Naceur (2003), Heffernan and Fu (2008) and Goddard et al. (2004). Only a handful of researches have been conducted to determine the profitability of Islamic banks, for example Haron and Wan (2004), Hassan and Bashir (2003) and Haron (1996).

Peters et al. (2004) analyzed the performance and balance-sheet characteristics of banks in post-war Lebanon for the years 1993 to 2000 and for a control group of banks from five other countries in the Middle East for the years 1995 through 1999. The number of Lebanese banks included in their sample varies by year and ranges from 66 to 54 banks per year. They compared their sample banks with a control group of 52 banks from five countries, including United Arab Emirates (18 banks), Saudi
Arabia (10), Kuwait (8), Bahrain (9), and Oman (7). They employed the accounting return-on-equity (ROE) model to investigate profitability and leverage. The components of bank profitability are analyzed by focusing on net interest margin (NIM). This study employed regression models that relate bank profitability ratios to various explanatory variables. This study tests the relationships between bank profitability and size, asset portfolio composition, off-balance sheet items, ownership by a foreign bank, and the ratio of employment to assets. The results suggest that cross-sectional variation among banks play a major role in explaining ROA. Their models show a strong association between economic growth and bank profitability, whether measured by ROE or ROA. They found that Lebanese banks are profitable, but not as profitable as a control group of banks from five other countries located in the Middle East.

Kosmidou et al. (2006) investigated the impact of bank-specific characteristics, macroeconomic conditions and financial market structure on UK owned commercial banks’ profits, measured by return on average assets (ROAA) and net interest margins (NIM). An unbalanced panel data set of 224 observations, covering the period 1995-2002, provided the basis for the econometric analysis. They relied on two commonly used measures of profit performance namely return on assets (ROAA) and net interest margin (NIM). The five measures used as internal determinants of performance are: cost to income ratio as an indicator of efficiency in expenses management; ratio of liquid assets to customer and short term ratio of loan loss reserves to gross loans as an indicator of banks’ asset quality; ratio of equity to total assets representing capital strength; and the total assets of a bank representing its size. Turning to external determinants, four measures were considered, two of which represent the influence of
macroeconomic conditions and the other two of financial market structure. The results showed that capital strength, represented by the equity to assets ratio, is the main determinant of UK banks profits. The other significant determinants are cost-to-income ratio and bank size, both of which impact negatively on bank profits.

Mamatzakis and Remoundos (2003) examined the determinants of the performance of Greek commercial banks from 1989 to 2000. They measured the profitability of the commercial banks using the ratios of return on assets (ROA) and return on equity (ROE). They considered internal factors, like management policy decisions and external factors, like economic environment to explain the profitability of the banks. The results suggested that the variables related to management decisions assert a major impact on the profitability of Greek commercial banks.

Athanasoglou et al. (2008) examined the effect of bank-specific, industry-specific and macroeconomic determinants of bank profitability of Greek commercial banks and covers the period 1985-2001. They employed an empirical framework that incorporates the traditional structure-conduct-performance (SCP) hypothesis. The profitability variable is presented by two alternative measures: the ratio of profits to assets, i.e. the return on assets (ROA) and the profits to equity ratio, i.e. the return on equity (ROE). Five bank-specific factors used to test the correlation with bank profitability. Capital variable which is proxied by equity to assets ratio, and productivity growth variable produced a positive and significant relationship with profitability. Next, credit risk and operating expenses management were found to be negatively significant. Lastly, the effect of bank size on profitability was found to be not important. Two industry-specific profitability determinants utilized namely
ownership and concentration were found to be insignificant in affecting the profitability. Macroeconomic control variables, such as inflation and cyclical output, clearly affect the performance of the banking sector. In conclusion, their findings indicated that all bank-specific determinants, with the exception of size, affect bank profitability significantly in the anticipated way.

Goddard et al. (2004) investigated the profitability of European banks during the 1990s, using pooled cross-sectional, time-series and dynamic panel models. Models for the determinants of profitability incorporate size, diversification, risk and ownership type, as well as dynamic effects. Accounts data of 665 banks from six European countries were downloaded from BankScope. They concluded that the relationship between capital-assets ratio and profitability is positive.

Olson and Zoubi (2004) in their paper, tried to determine whether Islamic and conventional banks in the GCC region are distinguishable from one another on the basis of financial characteristics alone. They collected 237 observations, or bank-years of data, for 141 conventional and 96 Islamic banks operating in the GCC during the period 2000-2005. They input 26 financial ratios into logit, neural network, and k-means nearest neighbour classification models to determine whether researchers or regulators could use these ratios to correctly categorize a bank as Islamic or conventional. These 26 financial ratios fall into five general categories: profitability, efficiency, asset quality, liquidity and risk. The empirical results of this study indicated that measures of bank characteristics are good discriminators between Islamic and conventional banks in the GCC region. An initial glance at the data reveals that most accounting ratios are similar for Islamic and conventional banks.
Nevertheless, some financial characteristics of Islamic banks are different from those of conventional banks. Results from their classification models implied that the operational characteristics of the two types of banks may be different. Islamic banks are more profitable than conventional banks, but probably not quite as efficient. They discovered that non-linear classification techniques are able to correctly distinguish Islamic from conventional banks in out-of-sample tests at about a 92% success rate.

Pasiouras and Kosmidou (2007) examined how bank’s specific characteristics and the overall banking environment affect the profitability of commercial domestic and foreign banks operating in the 15 European Union countries over the period 1995-2001. This study used return on average assets (ROAA) to evaluate bank’s performance. Four bank characteristics are used as internal determinants of performance. These are the bank’s total assets, the cost to income ratio, the ratio of equity to assets, the ratio of bank loans divided by customers and short term funding and bank size. In addition, six external determinants are used to examine the impact of environment on bank’s performance. Two sets of variables have been considered in this study, indicating macroeconomic conditions and financial structure characteristics. The two macroeconomic variables used are gross domestic product growth and inflation. In order to examine this study used the ratios stock market capitalization to GDP, stock market capitalization to total assets of deposit money banks, total assets of deposit money banks to GDP and banking industry concentration. Their sample is a balanced panel dataset of 584 commercial banks operating in the 15 EU countries over the period 1995-2001 consisting of 4088 observations. Banks were split according to their ownership resulting in two sub-samples of 332 domestic and 218 foreign banks. All financial and ownership data of
individual banks as well as information concerning market concentration were drawn from BankScope Database. Country and market specific data were obtained from Euromonitor International Database which collects data from sources such as International Monetary Fund’s (IMF), International financial Statistics (IFS), World Economic Outlook/UN/National Statistics and World Bank. The results indicated that profitability of both domestic and foreign banks is affected not only by bank’s specific characteristics but also by financial market structure and macroeconomic conditions. Capital strength and efficiency in expenses management were found to be the main determinants of ROAA in all cases as the relatively high significant coefficients of the equity to assets and cost to income ratios showed. Equity to assets was positively related to ROAA and appeared to be the most significant determinant of profitability. The impact of the indicators of macroeconomic conditions on ROAA is significant in all cases.

Heffernan and Fu (2008) identified the determinants of Chinese bank performance and assessed whether recent reforms had any effect. The sample covered 76 banks between 1999 and 2006. Most of the data used here come from BankScope. Ten bank-specific independent variables and three macroeconomic explanatory variables were analyzed in this study. While four dependent variables used in this study as the performance measures of banks. They were economic value added (EVA), return on average assets (ROAA), return on average equity (ROAE), and net interest margin (NIM). This study employed the system GMM model to assess the determinants of Chinese bank performance. A fixed effects panel data model is also estimated to allow comparison of results, and as a robustness check. Among the results obtained are cost to income ratio is negatively signed and significant to profitability. On the contrary,
loan loss reserve ratio (LLR) produced a positive and significant coefficient. The results also reported that the macroeconomic variable that performed best in this study is the real GDP growth rate, followed by the unemployment rate. From the results it is confirmed that the system GMM model is the preferred method of estimation. The study also looked at the question of which of four performance measures work best. Based on diagnostics and the significance of coefficients, the results suggested the best dependent variables are economic value added and the net interest margin, as against ROAA or ROAE.

Kosmidou et al. (2007) examined the determinants of profits of Greek banks operating abroad by developing an integrated model that includes a set of determinants informed by the literature on the profitability of both multinational and domestic banks. The basis for the economic analysis was provided by an unbalanced panel dataset for 19 Greek bank subsidiaries operating in 11 nations, covering the period from 1995 to 2001. This study used return of assets (ROA) as the dependent variable. The internal bank-specific characteristics that were included represent information about asset quality, liquidity, capital strength, expenses management, asset quality and size. They considered three external determinants, market concentration, stock market capitalization and market share. Among the five multinational variables listed under this category, three are location-specific, and two are ownership-specific. A sample of 92 observations on each variable was collected from BankScope database and Euromonitor International database. The results showed that the combined set of variables leads to an improvement in the overall explanatory power of the integrated model, compared to a model estimated only with the multinational determinants of Greek bank profitability.
Naceur (2003) investigated the impact of bank’s characteristics, financial structure and macroeconomic indicators on bank’s net interest margins and profitability in the Tunisian banking industry for the 1980-2000 period. Two measures of performance are used in the study: the net interest margin (NIM) and the return of assets (ROA). Five bank’s characteristics indicators are used as internal determinants of performance. They comprised the ratio of overhead to total assets, the ratio of equity capital to total assets, the ratio of bank’s loans to total assets, the ratio of noninterest bearing assets to total assets and the log of bank assets. Two macro-economic variables were used as control variables: inflation and GDP per capita growth. First, individual bank characteristics explain a substantial part of the within-country variation in bank interest margins and net profitability. High net interest margin and profitability tend to be associated with banks that hold a relatively high amount of capital, and with large overheads. Other important internal determinants of bank’s interest margins bank loans which have a positive and significant impact. The size has mostly negative and significant coefficients on the net interest margins. This latter result may simply reflect scale inefficiencies. Second, the paper finds that the macro-economic indicators such inflation and growth rates have no impact on bank’s interest margins and profitability. Third, turning to financial structure and its impact on bank’s interest margin and profitability, he found that concentration is less beneficial to the Tunisian commercial banks than competition. Stock market development has a positive effect on bank profitability. This reflects the complementarities between bank and stock market growth. The paper had found that the disintermediation of the Tunisian financial system is favourable to the banking sector profitability.
Athanasoglou et al. (2006) examined the profitability behaviour of bank-specific, industry-related and macroeconomic determinants, using an unbalanced panel dataset of South Eastern European (SEE) credit institutions over the period 1998-2002. This paper used annual bank level and macroeconomic data from seven SEE countries. The bank variables are obtained from the BankScope database, the macroeconomic variables from the IMF’s International Financial Statistics (IFS) and the banking reform index from the European Bank for Reconstruction and Development (EBRD). Return on assets and return on equity are chosen as proxies for bank profitability. Among the independent variables analyzed were liquidity, credit risk, capital, operating expense management, size, concentration, inflation and economic activity. The least squares methods of fixed effects and random effects models were applied in the analysis. The estimation results indicate that, with the exception of liquidity, all bank-specific determinants significantly affect bank profitability in the anticipated way. A key result is that the effect of concentration is positive, which provides evidence in support of the structure-conduct performance hypothesis. In contrast, a positive relationship between banking reform and profitability was not identified, whilst the picture regarding the macroeconomic determinants is mixed. The paper concludes with some remarks on the practicality and implementability of the findings.

Kosmidou (2008) analyzed how the bank’s management decisions and policy objectives and the overall banking environment affected the performance of banks in terms of their return on average assets, ROAA during the period 1990-2002. An unbalanced pooled time series dataset of 23 Greek commercial banks operating during the above period provided the basis for the econometric analysis. Five bank characteristics are used as internal determinants of performance. They are the cost-to-
income ratio, the ratio of equity to total assets, the ratio of bank’s loans to customer and short-term funding, the ratio of loan loss reserves to gross loans and the bank’s total assets which represent expenses management, capital adequacy, liquidity, asset quality and size, respectively. In this study, two sets of external determinants are examined: the macroeconomic and the financial structure indicators.

The results indicated that individual bank characteristics explain a substantial part of the within-country variation in bank ROAA. High ROAA was found to be associated with well-capitalized banks, with efficient expenses management (lower cost-to-income ratio). Size was positive in all cases but statistically significant only when the macroeconomic and financial structure variables entered the models. Referring to macroeconomic and financial structure indicators, GDP growth has a significant and positive impact on ROAA, while inflation has a significant negative impact. The money supply growth has no significant impact on profits. The financial industry structure indicators, banks’ assets to GDP, market capitalization to banks assets and concentration are all statistical significant and negatively related to ROAA. Table 2.1 below illustrates the profitability ratios for the top banks in the world. The ratios shown are the two most common profitability ratios used, which are return on assets (ROA) and return on equity (ROE).

Table 2.1: Profitability ratios for the top 1,000 banks in the world (1990-2002)

<table>
<thead>
<tr>
<th>Year</th>
<th>ROA (%)</th>
<th>ROE (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average (1990-1996)</td>
<td>1.0</td>
<td>15.7</td>
</tr>
<tr>
<td>Average (1996-2002)</td>
<td>1.1</td>
<td>14.4</td>
</tr>
<tr>
<td>Average (1990-2002)</td>
<td>1.0</td>
<td>14.9</td>
</tr>
</tbody>
</table>

*Source: Iqbal and Molyneux (2005)*
Studies on determinants of Islamic bank profitability have focused on a panel of countries (for example Haron and Wan, 2004; Hassan and Bashir, 2003 and Haron, 1996). Haron and Wan (2004) investigated the strength of influence between both internal and external variables and profitability of Islamic banks in selected countries using time-series techniques of cointegration and error-correction mechanism. This is the first attempt to investigate such relationship using advance time-series technique. The data for this study are pooled time-series cross-sectional data taken from the annual reports of Islamic banks from five countries. The sample period for this study is from 1984 to 2002. The independent variables used in this study are divided into two categories, namely, internal and external variables. The internal variables are liquidity, capital structure, deposits structure, financing structure and expenditure item. Whereas, the external variables used are market share, money supply, interest rate, inflation and size of the bank. Three variables used as proxies for profitability were total income as a percentage of total assets, bank’s portion of income as a percentage of total assets, and net profit after taxes as a percentage of capital and reserves. The result showed a significant long-run relationship between profitability measures of Islamic banks and determining variables such as liquidity, deposit items, assets structure, inflation and money supply.

Hassan and Bashir (2003) intended to characterize some financial and policy indicators that impact the overall performance of Islamic banks. Specifically, the purpose of study is to closely examine the relationship between profitability and the banking characteristics, after controlling for economic and financial structure indicators. Utilizing bank level data, this study examined the performance indicators
of Islamic banks in 21 countries worldwide during 1994 to 2001. The main data source is BankScope database compiled by IBCA. A variety of internal and external banking characteristics were used to predict profitability and efficiency. Four measures of performance used in this study: the net non-interest margin (NIM), profit margin, returns on assets (ROA), and returns on equity (ROE). To assess the relationship between performance and internal bank characteristics, their analysis utilizes several bank ratios. The set of ratios used comprises fund source management, funds use management, leverage and liquidity ratios. The paper used regression analysis to determine the underlying determinants of Islamic banks’ performance. They concluded that Islamic banks’ profitability measures respond positively to the increases in capital and negatively to loan ratios. The results also indicated the importance of consumer and short-term funding, non-interest earning assets, and overhead in promoting banks’ profits. They suggested that the regulatory tax factors are important in the determination of bank performance. Favourable macroeconomic environment seems to stimulate higher profits. Finally, the size of the banking system has negative impact on the profitability except net non-interest margin.

Haron (2004) examined the effects of the factors that contribute towards the profitability of Islamic banks. Fourteen internal variables and six external variables were analyzed in this study. Five ratios had been selected and used as proxies for profitability. This study found that internal factors such as liquidity, total expenditures, funds invested in Islamic securities, and the percentage of the profit-sharing ratio between the bank and the borrower of funds are highly correlated with the level of total income received by the Islamic banks. Similar effects are found for external factors such as interest rates, market share and size of the bank. Other
determinants such as funds deposited into current accounts, total capital and reserves, the percentage of profit-sharing between bank and depositors, and money supply also play a major role in influencing the profitability of Islamic banks. While interest rates, inflation and size have significant positive impact on the profits of conventional banks, similar results were found for Islamic banking in this study. In the case of market share and money supply, these variables were found to have an adverse effect on profits and these results are in contrast to the findings of earlier studies. This study found that there was no significant variation in earnings between Islamic banks in competitive and monopolistic markets.

Haron (1996) examined the effects of competition and some other external factors on the profitability of Islamic banks. This study also examines whether external variables that influence the profitability of conventional banks have similar impact on Islamic banks. The data for this study is a pooled time series and cross-section taken from the annual reports of fourteen Islamic banks from various Islamic countries. Four ratios are considered relevant and were used as proxies for profitability. The independent variables for this study are competition, regulation, market share, interest rate, money supply, inflation and bank size. The study found that Islamic banks in competitive market earned more than those which operate in a monopolistic market. While interest rate, inflation and size have significant positive impact on the profits of conventional banks, similar results were found for Islamic banks in this study. In the case of market share and money supply, these variables were found to have an adverse effect on profits. This study found that there was no significant variation in earnings between Islamic banks in competitive and monopolistic markets. The results of this study
revealed that banks in a competitive market were better managed than their counterpart.

In conclusion, studies that measure the influence of various factors that determine the profitability of Islamic banks are still at the initial stage. From the literature review, it could be observed that very limited study has been done on Islamic bank profitability. Vast literature concentrates on profitability determinants of conventional banking. Within the Islamic banking literature, most studies used international data. Mainly were conducted to examine the internal and external determinants (Haron and Wan, 2004; Haron, 2004; Hassan and Bashir, 2003) and some focused on the external factors only (Haron, 1996).

2.2 Performance of Islamic banks

Among the researchers who have studied the performance of Islamic banks are Haron (1996), Bashir (1998), Rosly and Abu Bakar (2003), Zaman & Movassaghi (2001), Tamanni (2002), Islam (2003), Shamsinar (2003), Hasan (2004), Samad (2004), Ghannadian and Goswami (2004), Pratomo et al. (2006) and Sufian (2007). Most of the studies used return on assets (ROA) and return on equity (ROE) as performance measures.

Rosly and Abu Bakar (2003) evaluated the profitability performance of IBS banks compared with mainstream banks in Malaysia. They selected IBS banks which began when the Islamic banking scheme started its operation in 1992. The researcher used data from the year 1996 till 2000. They found that Islamic banking scheme (IBS)
banks have recorded higher return on assets (ROA) as they are able to utilize existing overheads carried by mainstream banks. The ratios used in this study in order to measure bank profitability performances are as return on assets (ROA), return on deposit (ROD), asset utilization (AU), operating efficiency ratio (OER) and net operating margin (NOM). This study has shown that mainstream banking performed better than IBS banks.

Kader et al. (2007) examined the performance of UAE Islamic banks for five years from the period 2000 till 2004. In order to see how Islamic banks performed in comparison with the conventional banks, this study uses 11 financial ratios for bank performance, which concentrate on the profitability, liquidity, risk and solvency, and efficiency of the banks. The study found that Islamic banks in the UAE are different from conventional banks from the perspective of the financial performance. The UAE Islamic banks are relatively more profitable, less liquid, less risky and more efficient compared to the UAE conventional banks.

Tamanni (2002) analysed the performance of Islamic banking operations at 3 foreign banks in Malaysia in order to evaluate performances of Islamic Banking Scheme (IBS) versus its conventional counterpart at these banks. He discovered that return on Assets (ROA) of the foreign banks’ IBS was considerably higher than that of their counterparts, and this shows that the Islamic banking operations have been more profitable than the conventional ones. On average, ROA of the IBS was more than 1.58%, while the conventional banking at large was only 0.80% during 1996-2000. He also concluded that, Islamic banking operations at foreign banks have been performing considerably well in 1996-2000, during and post the Asian crisis.
Samad (2004) examined the comparative performance of Bahrain’s interest-free Islamic banks and the interest-based conventional commercial banks during the post Gulf War period with respect to (a) profitability, (b) liquidity risk, and (c) credit risk. Nine financial ratios are used in measuring these performances. Data of six Islamic banks and 15 conventional banks for the period 1991-2001 are obtained from BankScope Database. This study used the basic three financial measures: Return on Assets (ROA), Return on Equity (ROE) and Cost to Income Ratio (COSR) to evaluate the profitability performance of the banks. The average ROA and ROE of Islamic banks in Bahrain are respectively, 2.22 percent and 7.1 percent. The comparison of financial measures expressed in terms of various financial ratios indicates that there is no major difference in profitability and liquidity between Islamic banks and conventional banks. In addition, Islamic banks are exposed to less credit risk compared to conventional banks. Their credit performance is superior to that of conventional banks.

Table 2.2: Key financial ratios: Top ten banks, 2002 (%)

<table>
<thead>
<tr>
<th>Region</th>
<th>Capital to asset ratio</th>
<th>Cost to income ratio</th>
<th>ROE</th>
<th>ROA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Top ten World</td>
<td>3.60</td>
<td>75.08</td>
<td>3.88</td>
<td>0.25</td>
</tr>
<tr>
<td>Top ten Asia</td>
<td>3.38</td>
<td>84.34</td>
<td>-14.06</td>
<td>-0.38</td>
</tr>
<tr>
<td>Top ten GCC</td>
<td>9.51</td>
<td>42.83</td>
<td>18.47</td>
<td>1.76</td>
</tr>
<tr>
<td>Top ten other Middle East</td>
<td>4.55</td>
<td>56.65</td>
<td>13.24</td>
<td>0.50</td>
</tr>
<tr>
<td>Top ten Europe &amp; America</td>
<td>3.96</td>
<td>68.35</td>
<td>16.79</td>
<td>0.80</td>
</tr>
<tr>
<td>Top ten Islamic Banks</td>
<td>11.12</td>
<td>43.83</td>
<td>15.56</td>
<td>1.75</td>
</tr>
</tbody>
</table>

*Source: Iqbal and Molyneux (2005)*
Table 2.2 exhibits the key financial ratios such as capital to asset ratio, cost to income ratio, return to equity and return to assets for top ten banks in 2002. Return on assets (ROA) of the Islamic banks was considerably higher than that of their conventional counterparts. It shows that the Islamic banking operations have been more profitable than the conventional banking.

Bashir (1998) studied the determinants of Islamic banks’ performance across eight Middle Eastern countries between 1993 and 1998. The purpose of the study is to closely examine the relationship between banking characteristics and performance measures in Islamic banks. He used a cross-country bank-level data of 14 Islamic banks in 8 countries, using BankScope database. Four measures of performance used in this study are the net non-interest margin (NIM), profitability (BTP/TA), returns on assets (ROA), and returns on equity (ROE). Utilizing bank level data, this paper provides summary statistics pertaining to Islamic banks’ sizes and profitability. Then, he used regression analysis to determine the underlying determinants of Islamic bank performance. Bashir found that the Islamic banks profitability measures respond positively to the increases in capital and loan ratios. He concluded that foreign-owned banks are more profitable than their domestic counterparts.

In 2003, Islam examined the development and performance of local and foreign banks in some GCC economies, such as Bahrain, Oman, and Abu Dhabi and Dubai of the UAE. The internal performance of a bank is evaluated by constructing financial ratios from the banks’ balance sheet and income statements. Key financial ratios were calculated to assess the performance of a bank. Both cross section and time series techniques were applied to evaluate the performance of a bank. External performance
is measured by evaluating the bank’s market share, regulatory compliance, and the public confidence. The analysis of banks’ internal performance by examining the financial ratios of accounting items showed that local and foreign banks in Bahrain, Oman, and in Abu Dhabi and Dubai have performed well over the past several years. Domestic and foreign banks in these economies are well capitalized and the sector is well developed with intense competition among the banks. Most banks are reaping the benefits of modern technology, which has helped to streamline their operations and improve their efficiency.

Shamsinar (2003) studied on the performance evaluation of Islamic banking system pre and post 1997 Asian Financial Crisis and the comparison of the performance of Islamic banks with the conventional banks in term of quantitative measures of financial ratios. Data used for this study was obtained from Bank Negara Malaysia and annual reports of Bank Islam and Maybank. She found that the Islamic banking system in Malaysia over its 19 years of its existence (1983-2002) performed remarkably well in terms of the total deposits and total financing.

Abdul-Majid et al. (2008) aimed to measure efficiency of banks in countries that have Islamic banking in operation as well as relative efficiency between countries, and focused particularly on the relative performance of Islamic banks as compared to conventional banks. Data on 23 Islamic and 88 conventional banks from 10 countries that operate Islamic banking were drawn from the BankScope database for the period 1996-2002 resulting in an unbalanced panel of 558 observations. This study employed an output distance function to examine the efficiency and returns to scale of Islamic banks relative to conventional banks in countries that have Islamic banks. The
resulting model enables better understanding of difference between Islamic and conventional banks and across different countries. This study shows that country effects play a significant part in explaining efficiency distributions between countries, even after controlling for country-specific environment conditions, including Islamic banking. The results provide statistically validated evidence that suggests that banks in Iran, Malaysia, Bahrain and Bangladesh have achieved relatively high levels of efficiency compared to other countries in the sample. In contrast, while efficiency of banks in Jordan, Lebanon, Tunisia, and Indonesia falls into a middle category, banks in Yemen and Sudan can be classified as highly inefficient. On average, banks in each of the 10 sample countries exhibit moderate returns to scale. However, the average estimated returns to scale for conventional banks are lower than those for Islamic banks, with the exception of Malaysia and Jordan.

Samad (1999) conducted an empirical study of managerial and productive efficiencies of the two banking systems – conventional banks and the Islamic bank in Malaysia, Bank Islam Malaysia Berhad (BIMB). He studied the relative efficiency position of BIMB and conventional banks of Malaysia during 1992-1996. In the analysis part, both ratio measures and ANOVA tests conducted in this study support the hypothesis that the managerial efficiency of the conventional banks is higher than that of the Islamic banks. A total of 8 tests have been performed to measure the productive efficiency of the conventional banks and BIMB. All profitability indexes indicate that profits earned by the Islamic bank either through the use of deposit or loanable funds, or used funds are lower than the conventional banks. The result of this study reflects weaker efficiency position of the Islamic bank compared to that of the conventional banks.
Pratomo et al. (2006) attempted to prove the agency cost hypothesis of Islamic banks in Malaysia. Data was obtained from 15 Malaysia Islamic banks’ annual reports from the year 1997 till 2004. To measure bank performance, they compute the return on equity (ROE). They used Hausman Test to analyse the result of estimated regression. They concluded that the higher leverage or a lower equity capital ratio is associated with higher profit efficiency. They also discovered that size of bank is negatively correlated to bank’s performance.

Sufian (2007) examined the relative efficiency between the domestic and foreign banks Islamic banking operations in Malaysia. The paper utilized the Data Envelopment Analysis (DEA) methodology to distinguish between 3 different types of efficiency, such as technical, pure technical and scale efficiencies. Additionally, Sufian performed a series of parametric and non-parametric tests to examine whether the domestic and foreign banks were drawn from the same population. Finally, he employed Spearman Rho Rank-Order and the Parametric Pearson correlation coefficients to investigate the association between the efficiency scores derived from the DEA results with the traditional accounting ratios. For the empirical analysis, all Malaysian conventional banks that offered Islamic banking window services were incorporated in this study. Data were taken from published balance sheet information in annual reports of each individual bank. The results from the DEA suggest that Malaysian Islamic banks efficiency declined in year 2002 to recover slightly in years 2003 and 2004. From Spearman and Pearson correlation coefficients, he suggested that overall efficiency is positively and significantly associated with all accounting measures of performance. Sufian concluded that domestic Islamic banks were more
efficient compared to the foreign Islamic banks albeit marginally. He also found that larger Malaysian Islamic banks tend to disburse more loans and are more efficient compared to its smaller counterparts. He discovered that market share has a positive and significant effect on Malaysian Islamic banks efficiency. Finally, he learned that the more efficient banks tend to be more profitable.

Zaman and Movassaghi (2001) conducted a performance analysis on Islamic banking. The objectives of this paper were to review the growth of Islamic banking on a global basis and to assess its performance based on the latest financial data available. From the result, by the end of 1996, the number of Islamic banks rose to 166 with total assets of $137 billion. It should be pointed out that about 49 percent of all assets of Islamic banks in the world were commanded by Middle East. This is principally because of Iran, whose entire financial system is based on non-interest bearing transactions and instruments. This study concluded that some of the practices and the financial instruments used by the Islamic banks do not seem to conform to the traditional Islamic principles.

Mokhtar et al. (2008) conducted a study to provide empirical evidence of Islamic banks’ efficiency in Malaysia for the years 1997 to 2003. For analysis purpose, this study used 288 panel data from the banks’ financial statements of two-fledged Islamic banks, 20 Islamic windows and 20 conventional banks were used. This study measured the technical and cost-efficiencies of these banks using the non-parametric frontier method, data envelopment analysis (DEA). The findings showed that the average efficiency of the overall Islamic banking industry has increased during the survey period. The study also revealed that the full-fledged Islamic banks were more
efficient than the Islamic windows. However, the efficiency level of Islamic banking was still less efficient than the conventional banks. On the other hand, foreign banks were found to be more efficient than domestic banks. Finally, they revealed that the technical and cost efficiencies of Malaysian Islamic banks could be improved further.

To conclude, studies on the performance of Islamic banks were focused on a panel of countries for example Middle East countries (Bashir, 1998), GCC countries (Islam, 2003); Abdul-Majid et al. (2008) and single country such as Bahrain (Samad, 2004), Malaysia (Rosly and Abu Bakar, 2003; Samad, 1999; Sufian, 2007; Mokhtar et al., 2008), and United Arab Emirates (Kader et al., 2007). Many researches used Data Envelopment Analysis (DEA) method to evaluate Islamic bank performance, for instance Mokhtar et al. (2008), Sufian (2007) and many others.

2.3 Development of Hypotheses

Theoretical framework is a basic conceptual structure organized around a theory. It defines the kinds of variables that are going to be used in the analysis. Figure 2.1 exhibits the theoretical framework for this study. Seven independent variables namely capital, liquidity, bank risk, efficiency, GDP growth and inflation are categorized into two types of factors, namely bank-specific or macroeconomic factors. Bank profitability is the dependent variable and three proxies to bank profitability are used in this study, namely return on equity (ROE), return on assets (ROA) and net non-interest margin (NIM).
This paper attempts to test seven hypotheses. A hypothesis is a claim or assumption about the value of a population parameter. It consists either of a suggested explanation for a phenomenon or of a reasoned proposal suggesting a possible correlation between multiple phenomena. According to Becker (1995), hypothesis testing is the process of judging which of two contradictory statements is correct.

**Internal variables:**

1. **Hypothesis 1:** *Profitability has a positive and significant relationship with equity to asset ratio (EA).*

   Equity to asset ratio is a measure of capital adequacy. Athanasoglou *et al.* (2008) found that the coefficient of the capital variable (EA) is highly significant and
positively related to profitability. Mamatzakis and Remoundos (2003) also discovered a similar result. The ratio shows the ability of the bank to withstand losses. It is expected that the higher the equity to assets ratio, the lower the need to external funding and therefore the higher the profitability of the bank.

2. **Hypothesis 2:** *Loan loss reserves ratio (LLR) has positive and significant relationship with profitability measures.*

Ratio of loan loss reserves to gross loans is a measure of banks’ asset quality. Heffernan and Fu (2008) found a positive and significant coefficient on the loan loss reserve ratio (LLR) for all the dependent variables (except ROAE) suggests loan loss provisioning actually improved performance. With a sound quality of loans, in accordance to the risk-return hypothesis, a high ratio could imply a positive relationship between risk and profits.

3. **Hypothesis 3:** *Profitability has negative significant relationship with COSR ratio.*

Cost to income ratio is used as an indicator of efficiency in expenses management. The coefficient of cost to income ratio was found to be the most significant determinant and negatively related to profitability by Pasiouras et al. (2007) and Kosmidou et al. (2006). According to Kosmidou, since higher expenses normally mean lower profits and vice versa, COSR is expected to have a negative effect on bank profits and margins. The lower the COSR ratio, the better is the profitability performance of a bank.
4. **Hypothesis 4:** *Net loan to total asset ratio (NLA) has an inverse and significant relationship with profitability.*

Net loans to total asset ratio is a liquidity ratio. It indicates how much of the assets of the bank is tied up in loans. This hypothesis claims that when NLA ratio is high, profitability declines. Higher ratios may be indicative of better bank performance because of increases in interest income. However, very high ratios could also reduce liquidity and increase the number of marginal borrowers that default. Heffernan and Fu (2008) found mix results for NLA. Nevertheless, Demirguc-Kunt and Huizinga (1999) found that NLA gave a negative and significant impact on bank profitability.

5. **Hypothesis 5:** *Profitability has an inverse and significant relationship with liquid assets to deposit and short-term funding ratio (LIQ).*

Liquid assets to deposit and short-term funding ratio is used as a proxy to liquidity. Previous studies reported mix results for this ratio as well. For example, Heffernan and Fu (2008) discovered that it is positively related to ROA and ROE, but it has negative effect on NIM. This hypothesis argues that the higher the value of this ratio, the more liquid the bank is. Liquid assets are associated with lower rates of return; therefore this variable is expected to have a negative relationship with performance.
External variables:

Macroeconomic:

6. **Hypothesis 6:** Profitability has a positive significant relationship with GDP growth.

The positive impact of GDP growth supports the argument of the positive association between growth and financial sector performance, and is also confirmed by Kosmidou (2006) and Hassan and Bashir (2003). GDP is expected to have impact on the demand for bank loans, whereby increase in bank loans would increase the bank profitability.

7. **Hypothesis 7:** Profitability has a positive and significant relationship with inflation.

Inflation was found significant and positively associated to profitability by most studies such as Athanasoglou *et al.* (2008), Kosmidou *et al.* (2006), Pasiouras *et al.* (2007) and Demirguc-Kunt and Huizinga (1999). High inflation rates are generally associated with high loan interest rates, and therefore, high incomes. Thus, inflation is expected to have a positive association with profitability.
CHAPTER 3: RESEARCH METHODOLOGY

3.1 Sample and Data

The data used for this study are from a pooled time-series cross-sectional data. The data are taken from various countries. Sample period for this study is from 2002 to 2007. Cross-sectional data provide information on variables for a given period of time. While time series data give information about variables over a number of periods of time.

The data for internal variables are obtained from BankScope database which is compiled by International Bank Credit Analysis Limited (IBCA). Using BankScope has two advantages. Firstly, it has information for 11,000 banks, accounting for about 90% of total assets in each country. Secondly, the accounting information at the bank level is presented in standardized formats, after adjustments for differences in accounting and reporting standards. The data for external variables are obtained from World Economic Outlook 2008 database, published by International Monetary Fund (IMF).

A total of 60 Islamic banks from 18 countries were chosen in this study. The selected banks are those which are classified as Islamic bank in BankScope database. The Islamic banks have available data for at least one year between 2002 and 2007. This yielded an unbalanced panel data consisting of 260 observations. However, after eliminating cases with missing data, only 155 observations of balanced panel data are left.
Ratios provided in BankScope are divided into 4 categories, namely asset quality, capital, operations and liquidity. In this study, at least one ratio is chosen from each category to represent the internal variables.

The data are classified as panel data because it is a combination of cross-sectional and time series data. An advantage of using panel data is that more observations on the explanatory variables are available. This has the effect of helping overcome the inherent multicollinearity which probably exists between the independent variables.

Most of past researches which studied on bank profitability used panel data to investigate the relationship between the performance measures. Haron and Wan (2004) used pooled time-series cross-sectional data for their study, which was taken from annual reports of Islamic banks from five countries namely Malaysia, Bangladesh, UAE, Jordan and Bahrain. The sample period for their study was from 1984 to 2002.

Hassan and Bashir (2003) also utilized cross-country bank level data to examine the performance indicators of Islamic banks. The data was compiled from income statements and balance sheets of Islamic banks in 21 countries for each year from 1994 to 2001. The main source was BankScope database compiled by IBCA. Other data sources used included International Monetary Fund’s International Financial Statistics (IFS), World Development Indicators, and Global Development Finance.
Mamatzakis and Remoundos (2003) used panel data, since it combines time series with cross section observations. According to them, the main advantage of using a panel data set is that it allows the detail account of the dynamic developments of the banking sector. The study covered the period 1989-2000 and included 17 major commercial banks of that period.

**3.2 Profitability Measures**

In the banking literature, there are many profitability ratios that have been used by researchers in measuring bank performance. To evaluate the performance of Islamic banks, some of the measurements used are profitability, efficiency, soundness, prudence, economy and effectiveness. This study focuses only on the profitability aspect. There are several ratios that are typically used to measure the profitability of banks. The two most often used are the rate of return on assets (ROA) and the rate of return on equity (ROE) (Iqbal et al., 2005).

In this study, the ratios that have been selected and used as proxies for profitability are:

- **ROA**: Return on Assets
- **ROE**: Return on Equity
- **NIM**: Net Non-Interest Margin

Table 3.1 shows the definitions, notation and the expected effect of the explanatory variables on bank profitability.
**Return on Assets (ROA)**

ROA is the ratio of a bank’s net after-tax income divided by its total assets (Rose, 2002). The return on assets (ROA) is a financial ratio used to measure the relationship of profits or earnings and total assets. ROA measure assesses the profitability performance of total assets, and could be treated as measure of financial performance in this study. ROA reflects the bank management ability to generate profits (Tarawneh, 2006). The return on asset primarily indicates managerial efficiency (Rose, 1991). It indicates how efficiently the (top) management of the bank has been able to convert the bank’s or institution’s assets into net earnings, i.e. profits (Samad, 1999).

ROA is probably the most important single ratio in comparing the efficiency and operating performance of banks as it indicates the return generated from the assets financed by the bank. Average assets are being used in this study, in order to capture any differences that occurred in assets during the fiscal year.

**Return on Equity (ROE)**

ROE is the ratio of a bank’s net after-tax income divided by its total equity capital (Rose, 2002). The return on equity (ROE) is considered to be one of the profitability performance ratios (Tarawneh, 2006). It indicates how effectively the management of the enterprise (bank) is able to turn shareholders’ funds (i.e. equity) into net profit. It is the rate of return flowing to the bank’s shareholders (Samad, 1999). The higher ROA and ROE reflect higher managerial efficiency of the bank and vice versa.
**Net Non-Interest Margin (NIM)**

The NIM is defined as the net income accruing to the bank from non-interest activities (including fees, service charges, foreign exchange, and direct investment) divided by total assets. Non-interest income is growing in importance as a source of revenue for conventional banks in the 1990s. Some of the fastest growing non-interest income items include ATM surcharges, credit-card fees, and fees from the sale of mutual funds and annuities. For Islamic banks, non-interest income, NIM, makes up the lion’s share of total operating income and captures the bank’s ability to reduce the risk of insolvency. Moreover, since the returns on Islamic banks’ deposits are contingent on the outcomes of the projects that banks finance, then NIM reflects the management’s ability to generate positive returns on deposits. If banks were able to engage in successful non-loan activities and offer new services, non-interest income will increase overtime (Hassan and Bashir, 2003).

Rose (2002) defined noninterest margin as the amount of noninterest revenues stemming from deposit service charges and other service fees the bank has been able to collect (called fee income) relative to the amount of noninterest costs incurred (including salaries and wages, repair and maintenance costs on bank facilities, and loan-loss expenses). The higher this ratio, the cheaper the funding or the higher the margin the bank is commanding. Higher margins and profitability are desirable as long as the asset quality is being maintained. In the West, NIM is usually dismissed as too narrow a measure because of the expansion into off-balance-sheet (OBS) activities (Heffernan and Fu, 2008).
3.3 Determinants of Profitability

Generally, previous studies on bank profitability divided profitability determinants into two categories, namely, internal and external variables. Internal variables can be broadly classified into two categories: financial statement variables and non-financial statement variables. External variables are variables outside the control of bank management (Haron and Wan, 2004). Among the widely discussed external variables are competition, regulation, concentration, market share, ownership, scarcity of capital, money supply, inflation and size.

The internal variables used by Haron and Wan in their study were liquidity, capital structure, deposits structure, assets structure and expenditure item. While the external variables used were market share, money supply, interest rate, inflation and size of the bank.

Hassan and Bashir (2003) used four measures of performance in their study. The measures were the net non-interest margin (NIM), profit margin, returns on assets (ROA), and returns on equity (ROE). In order to assess the relationship between performance and internal bank characteristics, their analysis utilized several bank ratios namely fund source management, funds use management, leverage and liquidity ratios.

Internal variables used by Mamatzakis and Remoundos (2003) in their research to examine the determinants of the profitability of the Greek commercial banks were
personnel expenses to assets ratio, natural logarithm of bank’s asset and its value squared, bank ownership status as a dummy variable and equity to assets ratio. They also used variables such as concentration ratio measured by Herfindahl index, consumer price index, narrow money supply and Athens Stock Exchange yearly percentage change to evaluate the external effects on banks’ profitability.

Kosmidou et al. (2006) used five internal variables as profitability determinants in their study. The variables were cost to income ratio as an indicator of efficiency in expenses management; ratio of liquid assets to customer and short term funding to represent liquidity; ratio of loan loss reserves to gross loans, as an indicator of banks’ asset quality; ratio of equity to total assets representing capital strength; and the total assets of a bank representing its size.

In this study, five measures are used as internal determinants of performance. They are: loan loss reserves to gross loan (LLR) which represents the banks’ asset quality; ratio of equity to total assets (EA) represents capital strength; cost to income ratio (COSR) as an indicator of efficiency in expenses management; and lastly, ratio of net loans to total assets (NLA) and liquid assets to deposit and short term funding (LIQ) to represent liquidity.

### 3.3.1 Internal Variables

Five internal variables are examined in this study, namely loan loss reserves to gross loans, cost to income ratio, equity to asset ratio, net loans to total assets, and liquid...
assets to deposit and short-term funding. They are also classified as bank-specific variables. The description of these five variables is given in this section.

**Efficiency: Cost to Income ratio (COSR)**

COSR is one of the most focused on ratios currently and measures the overheads or costs of running the bank, the major element of which is normally salaries, as percentage of income generated before provisions. It is a measure of efficiency although if the lending margins in a particular country are very high then the ratio will improve as a result. It can be distorted by high net income from associates or volatile trading income (Hassan and Bashir, 2003).

Samad (2004) used COSR as one of the financial measures in his study to evaluate the profitability performance of the banks. COSR is defined as cost incurred per dollar generation of income or in other words, income generated per dollar cost. It is indeed considered to be one of the best indices for measuring economic efficiency or profit performance. The lower the COSR ratio, the better is the profitability performance of a bank.

COSR is used as an indicator of efficiency in expenses management. COSR measures the overheads or costs of running the bank, including staff salaries and benefits, occupancy expenses and other expenses such as office supplies, as percentage of income. It is typically used as an indicator of management’s ability to control costs. Since higher expenses normally mean lower profits and vice versa, COSR is expected to have a negative effect on bank profits and margins (Kosmidou et al., 2006).
Asset Quality: Loan loss reserves to Gross loans (LLR)

Ratio of loan loss reserves to gross loans is a measure of banks’ asset quality that indicates how much of the total portfolio has been provided for but not written off. Assuming a similar charge-off policy, a high ratio could signal a poor quality of loans and therefore a higher risk of the loan portfolio. However, with a sound quality of loans, a high ratio could imply a positive relationship between risk and profits, according to the risk-return hypothesis. It is therefore difficult to hypothesize the sign of this relationship although a negative impact this ratio on bank profitability would suggest a poor quality of loans that reduce interest revenue and increase the provisioning costs (Kosmidou et al., 2006).

LLR is the percentage of the total loan portfolio that has been set aside for bad loans. Higher provisioning signals the likelihood of possible future loan losses, though it could also indicate a timely recognition of weak loans by prudent banks. So the expected sign on this coefficient is ambiguous (Heffernan and Fu, 2008).

Capital: Equity to Asset ratio (EA)

Equity to asset ratio (EA) is a measure of capital adequacy, calculated as equity capital as a percentage of total assets. EA provides percentage protection afforded by banks to its investment in asset. It measures the overall shock absorbing capacity of a bank for potential loan asset losses. The higher the ratio of EA, the greater is the capacity for a bank to sustain the assets losses (Samad, 2004).
EA is a ratio which measures the ability of the bank to withstand losses. A declining trend in this ratio may signal increased risk exposure and possibly capital adequacy problem (Hasan and Bashir, 2003). The ratio of equity to total assets is considered one of the basic ratios for capital strength. It is expected that the higher this ratio, the lower the need for external funding and therefore the higher the profitability of the bank. Additionally, well-capitalized banks face lower costs of going bankrupt which reduces their costs of funding (Kosmidou et al., 2006). The ratio EA is used as a proxy for measuring the impact of capital structure on profitability. It is hypothesized that the higher amount of capital injected, the more confident customers will be and the more deposits that will be placed at the bank.

**Liquidity Performance**

**Net Loans/Total Assets (NLA)** is a liquidity ratio which indicates what percentage of the assets of the bank is tied up in loans. The higher this ratio the less liquid the bank will be (Hassan and Bashir, 2003). Higher ratios may be indicative of better bank performance because of increases in interest income. However, very high ratios could also reduce liquidity and increase the number of marginal borrowers that default. Its affect on bank performance is therefore ambiguous.

**Liquid assets to deposit and short-term funding (LIQ)** is used to measure the relationship between liquidity management and specifically the process of managing assets and cash flow to maintain the ability to meet current liabilities as they come due. Without the required liquidity and funding to meet obligations, a bank may quickly fail, or at least be technically insolvent. The higher the value of this ratio, the
more liquid the bank is. Since liquid assets are associated with lower rates of return, a negative relationship is expected between this variable and performance.

3.3.2 External Variables

External variable generally includes macroeconomic variables, industry-specific or financial market structure. However, this study concentrates only on two macroeconomic determinants, which are GDP growth and inflation.

GDP growth

Gross domestic product (GDP) is among the most commonly used macroeconomic indicators and it is a measure of total economic activity within an economy. The real GDP growth, used in this study, is expected to have a positive impact on bank’s performance according to the well-documented literature on the association between economic growth and financial sector performance.

GDP growth reflects the state of the economic cycle and is expected to have impact on the demand for bank loans as well. Among previous studies which used GDP growth as one of the profitability determinants were Kosmidou et al. (2005), Pasiouras et al. (2007), Heffernan and Fu (2008) and Kosmidou et al. (2006).
**Inflation: Consumer Price Index (CPI)**

Inflation is the rate at which the general level of prices for goods and services is rising. Inflation affects the real value of costs and revenues although it may have a positive or negative effect on profitability depending on whether it is anticipated or unanticipated. In the first case (i.e. anticipated inflation) banks can timely adjust interest rates, which consequently results in revenues that increase faster than costs, with a positive impact on profitability. In the second case (i.e. unanticipated inflation) banks may be slow in adjusting their interest rates resulting in a faster increase of bank costs than banks revenues. This will consequently have a negative impact on bank profitability (Pasiouras and Kosmidou, 2007).

This paper uses Consumer Price Index (CPI) as a proxy for inflation. Other studies by Mamatzakis and Remoundos (2003), Athanasoglou et al. (2008) and Haron and Wan (2004) also used CPI as one of the external variables to represent inflation.

Revell (1980) contended that inflation could also be a factor contributing to the variations in a bank’s profitability. He proposed that inflation affected banks through a number of different routes such as interest rates and asset prices, exchange rates and operating costs.

**3.4 Methodology**

In line with past literature, a panel regression is employed to examine the determinants of the profits of Islamic banks. The content of the model is:
Profitability = \( b_0 + b_1(\text{LLR}) + b_2(\text{EA}) + b_3(\text{COSR}) + b_4(\text{NLA}) + b_5(\text{LIQ}) + b_6(\text{GDP}) + b_7(\text{CPI}) \)

Where,

**Dependent variable**

Profitability = ROA, ROE or NIM.

**Independent variables:**

LLR = Loan loss reserves to gross loan ratio  
EA = Total equity to total assets ratio  
COSR = Cost to income ratio  
NLA = Net loans to total assets ratio  
LIQ = Liquid assets to deposit and short-term funding  
GDP = GDP growth rate  
CPI = Consumer price index

This paper uses multiple regression analysis to investigate the determinants of Islamic banks’ profitability. The regression models are conducted for three dependent variables, namely ROA, ROE and NIM as proxies to profitability measures.
3.5 Data Analysis Techniques

Financial ratios of 60 Islamic banks obtained from BankScope database and macroeconomic variables of 18 countries are systematically compiled using Microsoft Excel. This study uses multiple regressions to examine the factors that determine the profitability of Islamic banks. Multiple regression is a method of regression analysis that uses more than one explanatory variable to predict values of a single dependent variable (Becker, 1995). SPSS software is applied to obtain the regression and t-test results. SPSS is among the most widely used programs for statistical analysis in social science. A t-test is any statistical hypothesis test in which the test statistic has a Student's t distribution if the null hypothesis is true.

There are a few different methods of analysis employed by past researches to evaluate the performance of banks. Among them are cointegration approach, Promethee method, CAMEL rating, multiple regression, ordinary least squares (OLS) model and GMM estimator.

Haron and Wan (2004) in their paper, used cointegration and error correction model to examine the factors that determine the profitability of Islamic banks. Cointegration enables the estimation of a relationship among non-stationary variables where cointegration in the variables simply reveals the existence of a long-run equilibrium relationship among them. Error correction model (ECM), which is derived from cointegration, shows how this equilibrium relationship is achieved, i.e. indicates the short-term dynamics in the movement towards this long-run equilibrium.
Samad (2004) applied $t$-test in assessing the statistical difference between two types of banks. Athanasoglou et al. (2008) applied GMM estimator to investigate the determinants of Greek banks profitability. Kosmidou (2008) used multi-criteria Promethee method to evaluate the performance of commercial and cooperative banks in Greece. The Promethee method can be considered as an extension of the CAMEL rating system, which is widely used in the assessment of banking performance.
CHAPTER 4: RESEARCH RESULTS

4.1 Summary Statistics

Before moving on to estimation issues, it is useful to remark on some preliminary features of the data, as revealed by the descriptive analysis. Table 4.1 below describes the data by presenting the number of banks by country and by year. Meanwhile Table 4.2 exhibits the descriptive statistics for all variables used in this study. Next, the position of Malaysian Islamic banks in the world ranking in terms of ROA and ROE is given in Appendix D. Lastly, Appendix E reports the correlation matrix between all variables used in this analysis.

Table 4.1: Number of Banks by Country and by Year

<table>
<thead>
<tr>
<th>Country / Year</th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bahrain</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>4</td>
<td>5</td>
<td>3</td>
<td>15</td>
</tr>
<tr>
<td>Brunei</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Egypt</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>0</td>
<td>9</td>
</tr>
<tr>
<td>Indonesia</td>
<td>0</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>Iran</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>1</td>
<td>8</td>
</tr>
<tr>
<td>Jordan</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td>Kuwait</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>9</td>
</tr>
<tr>
<td>Lebanon</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Malaysia</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>5</td>
<td>6</td>
<td>13</td>
</tr>
<tr>
<td>Pakistan</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>2</td>
<td>3</td>
<td>7</td>
</tr>
<tr>
<td>Qatar</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>1</td>
<td>13</td>
</tr>
<tr>
<td>Saudi Arabia</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Sudan</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>2</td>
<td>3</td>
<td>0</td>
<td>6</td>
</tr>
</tbody>
</table>
Table 4.1 above shows the country-wise and year-wise breakdown of the Islamic banks. A total number of 18 countries and 155 observations are obtained for the year 2002 to 2007, which is in six years period. Initially, there were 260 observations of unbalanced panel data of 90 Islamic banks from 23 countries were obtained from the database. However, after eliminating cases with missing data, only 155 observations of balanced panel data are left. The data are obtained from BankScope database, compiled by International Bank Credit Analysis Limited (IBCA) and World Economic Outlook 2008 database, published by International Monetary Fund (IMF). The year 2006 has the highest number of observations which is 43 in total. Whilst country-wise, UAE and Bahrain has the highest number of counts with 24 and 15 observations respectively. Due to data availability in BankScope database, Malaysia has only 13 observations in the six-year period.

4.1.1 Descriptive Statistics

Descriptive statistics for the data compiled in this analysis is given in Table 4.2. The mean and standard deviation for each variable are given in the table. The mean shown is the average value of dependent as well as independent variables from the year 2002 to 2007. Total number of balanced panel data is 155.
A mean is the sum of the observations divided by the number of observations. It is often quoted along with the standard deviation, where mean describes the central location of the data, and the standard deviation describes the spread. Mean is also described as a measure of central location defined by the arithmetic average, which is the sum of the values in a data set divided by the number of values (Becker, 1995).

Standard deviation on the other hand, is a measure of the dispersion or variability of the data. In essence, this is the average distance of any data point in the distribution from the arithmetic average. In other words, standard deviation is the amount of variation from the mean (average) within a single data set. The greater the standard deviation, the greater is the range (difference between the highest and lowest values) of values within the sample.

The mean for dependent variables return on assets (ROA), return on equity (ROE) and net non-interest margin (NIM) are 2.25, 14.43 and 3.70 percent respectively. Meanwhile the standard deviations are 3.79, 14.25 and 2.58 percent correspondingly.

Seven independent variables are selected for this study. This includes the internal and external variables. The ratio loan loss reserves to gross loans (LLR) is the proxy used to represent asset quality. The average of LLR in the data is 3.76 percent and it has a standard deviation of 3.42 percent. The ratio of equity to total assets (EA) is used in
this study as a measure of capital adequacy. The mean for EA is 16.66 percent and its standard deviation is 13.77 percent.

Cost to income ratio (COSR) provides information on the efficiency of the management regarding expenses relative to the revenues it generates. The mean value for COSR is 61.01 percent and it deviates 69.21 percent from the mean. NLA is defined as net loans to total assets. It is a liquidity ratio which represents the percentage of assets that comprise the loan portfolio. Its average value is 53.20 percent and the standard deviation is 20.49 percent.

LIQ is described as liquid assets to deposits and short-term funding. 15.82 percent is the average LIQ in this data and it has a high standard deviation of 56.26 percent. GDP is a macroeconomic variable and is an acronym for gross domestic product growth. Its mean and standard deviation is 6.76 and 2.70 percent respectively. Consumer price index (CPI) which is the proxy for inflation has a mean of 6.43 percent and 4.09 percent standard deviation.

4.1.2 Position of Malaysian Islamic banks in world ranking

Appendix D exhibits the position of Islamic financial institutions worldwide based on the two most widely used performance measures which are return on assets (ROA) and return on equity (ROE). These lists are taken from BankScope database.

Both rankings prove that the position of Malaysian Islamic bank is in the top 30 Islamic banks in the world. The table reports that the value of return on assets for
Bank Islam Malaysia Berhad is 1.49 percent, compared to the highest ROA which is 18.33%. Bahrain gained the uppermost position while Malaysia is ranked at 23rd place. ROA is an indicator of how profitable a company is relative to its total assets and it shows how efficient management is at using its assets to generate earnings. Other Malaysian Islamic banks namely CIMB Islamic Bank Berhad and Hong Leong Islamic Bank Berhad are ranked at 25th and 26th place.

In terms of return on equity, it is reported that Malaysia is in the first position with 65.58 percent of return, gained by Bank Islam Malaysia Berhad. ROE is an indicator of profitability and it shows how efficient a bank is at generating profits from every dollar of net assets, and shows how well a bank uses investment dollars to generate earnings growth. From the table, it is revealed that the subsequent place after Bank Islam Malaysia Berhad are attained by Bahrain and Sudan Islamic banks with 44.52 percent and 35.82 percent of return on equity correspondingly.

4.1.3 Correlation between Variables

Appendix E exhibits a square symmetrical matrix which describes the correlation among the variables in this study. A correlation matrix is similar to a covariance matrix. The diagonal elements, which are the correlations of variables with themselves, are always equal to 1.

Equity to total assets (EA) has a significant relationship with NLA, LIQ, GDP and ROA. All of which are statistically significant at the 1% level. The highest strength of correlation observed is between EA and liquid asset to deposit and short-term funding
Next is efficiency variable, cost to income ratio (COSR) is negatively significant to NLA. Most of other variables have negative relationship with COSR, including two profitability measures, ROA and ROE. This is consistent with the results obtained by Heffernan and Fu (2008) which suggested that more efficient banks perform better.

There is a positive association between net loan to total assets ratio (NLA) and return on equity (ROE). This suggests that profitability increase with net loans. On the other hand, NLA is negatively correlated to EA, COSR and LLR. Liquid assets to deposit and short-term funding (LIQ) is only significant when correlated to EA and GDP. Both give positive impact to liquidity.

Gross domestic product growth (GDP) has an effect on numerous factors related to the supply and demand for loans and deposits. From the correlation matrix, it is observed that GDP has an inverse relationship with cost to income ratio. Meanwhile, other variables such as EA, LIQ, ROA and ROE have positive significant effect on GDP. This is consistent with previous study, for example, Kosmidou (2008) who reported that GDP has a significant and positive impact on ROA. Inflation, which is represented by Consumer Price Index (CPI) variable, has a significant positive effect on NLA and negative effect on LLR. Return on assets (ROA) is positive significantly associated to EA, COSR, GDP, NIM and ROE. The correlation coefficient is highest when associated with ROE.

Net non-interest margin (NIM) is positively significant to three variables namely ROE, ROA and CPI. Both ROE and ROA are profitability measures same as NIM.
Return on equity (ROE) has a significant relationship with most of the variables in this study; they are COSR, NLA, GDP, CPI, ROA and NIM. Loan loss reserve to gross loan (LLR) is only statistically significantly related to NLA and CPI. Both present a negative effect on the variable.

4.2 Regression results

Table 4.3, 4.4 and 4.5 report the estimated models for ROA, ROE and NIM respectively. The first column presents the coefficient for each independent variable which shows the strength of influence between the determinants and the profitability measures. Column two presents the $t$-value which indicates the significance of the regression results.

Return on Assets (ROA)

Table 4.3 exhibits the estimated model for return on assets (ROA). Three variables are found to be significant to ROA, namely EA, COSR and GDP growth. The R square for ROA is 0.370, which means that 37% of the sample describes ROA. This model generates the highest R square and F-value compared to ROE and NIM. Its constant coefficient is a negative value, which is -2.908.
Table 4.3: Regression results for determinants of Return on Assets (ROA)

<table>
<thead>
<tr>
<th>Variables</th>
<th>Coefficient</th>
<th>t-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>LLR</td>
<td>0.095</td>
<td>1.135</td>
</tr>
<tr>
<td>EA</td>
<td>0.107</td>
<td>5.357</td>
</tr>
<tr>
<td>COSR</td>
<td>-0.016</td>
<td>-3.940</td>
</tr>
<tr>
<td>NLA</td>
<td>0.029</td>
<td>1.926</td>
</tr>
<tr>
<td>LIQ</td>
<td>0.003</td>
<td>0.676</td>
</tr>
<tr>
<td>GDP</td>
<td>0.274</td>
<td>2.763</td>
</tr>
<tr>
<td>CPI</td>
<td>0.085</td>
<td>1.319</td>
</tr>
<tr>
<td>Constant</td>
<td>-2.908</td>
<td></td>
</tr>
<tr>
<td>R square</td>
<td>0.370</td>
<td></td>
</tr>
<tr>
<td>F-value</td>
<td>12.321</td>
<td></td>
</tr>
</tbody>
</table>

The full equation could be written as below:

\[ ROA = 0.095 \times LLR + 0.107 \times EA - 0.016 \times COSR + 0.029 \times NLA + 0.003 \times LIQ + 0.274 \times GDP + 0.085 \times CPI - 2.908 \]

**Return on Equity (ROE)**

As per Table 4.4, two independent variables which are significant in this regression model are cost to income ratio (COSR) and GDP growth (GDP). COSR produced the highest \( t \)-value among all variables in these three profitability models which is 5.487. The explanatory power for ROE which is indicated by R square is 36.4%. The constant value for this model is 2.992.
Table 4.4: Regression results for determinants of Return on Equity (ROE)

<table>
<thead>
<tr>
<th>Variables</th>
<th>Coefficient</th>
<th>$t$-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>LLR</td>
<td>0.096</td>
<td>0.305</td>
</tr>
<tr>
<td>EA</td>
<td>-0.039</td>
<td>-0.521</td>
</tr>
<tr>
<td>COSR</td>
<td>-0.084</td>
<td>-5.489</td>
</tr>
<tr>
<td>NLA</td>
<td>0.105</td>
<td>1.851</td>
</tr>
<tr>
<td>LIQ</td>
<td>-0.005</td>
<td>-0.305</td>
</tr>
<tr>
<td>GDP</td>
<td>1.347</td>
<td>3.591</td>
</tr>
<tr>
<td>CPI</td>
<td>0.348</td>
<td>1.422</td>
</tr>
<tr>
<td>Constant</td>
<td>2.992</td>
<td></td>
</tr>
<tr>
<td>R square</td>
<td>0.364</td>
<td></td>
</tr>
<tr>
<td>F-value</td>
<td>12.019</td>
<td></td>
</tr>
</tbody>
</table>

The full equation could be written as below:

$$ROE = 0.096 \times (LLR) - 0.039 \times (EA) - 0.084 \times (COSR) + 0.105 \times (NLA) - 0.005 \times (LIQ) + 1.347 \times (GDP) + 0.348 \times (CPI) + 2.992$$

Non-interest Margin (NIM)

As indicated by Table 4.5, the explanatory power (in terms of R square) for NIM is rather low. Besides that, $F$-value for this model is only 1.945. Only two determinants are found to be statistically significant in this regression. They are loan loss reserves to gross loan ratio (LLR) and inflation (CPI). It has a constant value of 0.841.
Table 4.5: Regression results for determinants of Non-Interest Margin (NIM)

<table>
<thead>
<tr>
<th>Variables</th>
<th>Coefficient</th>
<th>t-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>LLR</td>
<td>0.147</td>
<td>2.144</td>
</tr>
<tr>
<td>EA</td>
<td>0.003</td>
<td>0.206</td>
</tr>
<tr>
<td>COSR</td>
<td>-0.002</td>
<td>-0.465</td>
</tr>
<tr>
<td>NLA</td>
<td>0.019</td>
<td>1.571</td>
</tr>
<tr>
<td>LIQ</td>
<td>0.002</td>
<td>0.491</td>
</tr>
<tr>
<td>GDP</td>
<td>0.080</td>
<td>0.984</td>
</tr>
<tr>
<td>CPI</td>
<td>0.115</td>
<td>2.175</td>
</tr>
<tr>
<td>Constant</td>
<td>0.841</td>
<td></td>
</tr>
<tr>
<td>R square</td>
<td>0.085</td>
<td></td>
</tr>
<tr>
<td>F-value</td>
<td>1.945</td>
<td></td>
</tr>
</tbody>
</table>

The full equation could be written as below:

\[
NIM = 0.147(LLR) + 0.003(EA) - 0.002(COSR) + 0.019(NLA) + 0.002(LIQ) + 0.08(GDP) + 0.115(CPI) + 0.841
\]

**Equity to Total Assets (EA)**

Hypothesis 1 argued that profitability has a positive and significant relationship with equity to asset ratio (EA). The ratio of equity to total assets is used in this study as a measure of capital adequacy. Capital adequacy refers to the sufficiency of the amount of equity to absorb any shocks that the bank may experience. It is expected that the higher the equity to assets ratio, the lower the need to external funding and therefore the higher the profitability of the bank.
Capital strength makes a significant contribution to the profitability of the Islamic banks, as the relatively high coefficient of the equity to assets ratio (EA) shows on ROA. The $t$-value for its correlation with ROA is very high, which is 5.357, indicates that the relationship is highly significant. EA appeared as the most significant determinant of return on assets in this study. EA is also positively significant for the NIM performance measure. Therefore, the results support Hypothesis 1. This finding is consistent with previous studies (Demirguc-Kunt and Huizinga, 1999; Kosmidou et al., 2006; Pasiouras et al., 2006; Athanasoglou et al., 2008; Heffernan and Fu, 2008). This indicates that well capitalized Islamic banks face lower costs of going bankrupt, which suggests reduced cost of funding or lower need for external funding, implying higher profits.

In contrast, the coefficient of EA on ROE is negative. According to Athanasoglou et al. (2008), it is not appropriate to include EA in a profitability equation, when ROE is the dependent variable.

**Loan loss reserve to gross loan ratio (LLR)**

Hypothesis 2 proposed that loan loss reserve to gross loan ratio has a positive and significant relationship with profitability measures. In this study, the analyses produce a positive coefficient on LLR for all dependent variables. This finding suggests that loan loss provisioning improved performance. One explanation could be that banks differ in their risk attitudes and those taking more risks could enjoy greater immediate profits.
This ratio indicates how much of the total portfolio has been provided for but not charged off and is used as a measure of bank’s asset quality. As such, the positive impact of LLR on the profitability measures could be rationalized by the similar charged-off policy. The higher the ratio, the poorer the quality and therefore the higher the risk of the loan portfolio will be. On one hand, the risk-return hypothesis implies a positive relationship between risk and profits. Thus, higher LLR could result in higher profitability.

The impact of LLR is significant only on NIM, suggesting that higher risks result in higher margins for Islamic banks (and therefore supporting the risk-return hypothesis). On the other hand, the effect of LLR on ROA and ROE is not significant. Kosmidou et al. (2006) in her study on the UK commercial banks obtained similar results for both ROA and NIM.

Cost to Income ratio (COSR)

Hypothesis 3 suggested that cost to income ratio would be a negative function of the profitability of Islamic banks. As expected the coefficient of COSR is found negative and significant in all cases, suggesting that efficiency in expenses management is a robust determinant of Islamic bank profits. The COSR is the financial ratio that does best in all estimations. The COSR is negatively signed and significant for all types of performance (except for NIM) suggesting that more efficient banks perform better (Heffernan and Fu, 2008). As such, this finding supports Hypothesis 3.
The inverse effect of COSR coefficients on the profitability measures suggests that the lower the COSR ratio, the better is the profitability performance of a bank. Besides that, the results also suggest that higher expenses mean lower profits and vice versa. This is one of the reasons why COSR has a negative effect on bank profits and margins. Thus it is learned that efficient Islamic banks operate at lower costs.

Pasiouras (2007), Kosmidou *et al.* (2005) and Kosmidou *et al.* (2006) among others also found poor expenses management to be among the main contributors to poor profitability. Kosmidou *et al.* (2006) and Pasiouras *et al.* (2006) also confirm this inverse relationship for the UK and European banks respectively.

**Net loans to total assets (NLA)**

Hypothesis 4 argued that net loan to total asset ratio (NLA) has an inverse and significant relationship with profitability. From the analyses in this study, the ratio of loans to assets is found to have a positive but insignificant effect on the profitability of Islamic banks. The coefficient of NLA shows a consistent value in ROA, ROE and NIM regression models. This is in line with Mamatzakis and Remoundos (2003) who discovered that the ratio of loans to assets has a positive effect on the profitability of the Greek commercial banks, especially in the case where the dependent variable is ROE. Likewise, Bourke (1989) found a strong positive relationship between liquidity and bank profitability. Hence, the result obtained is not consistent with the hypothesis.
In contrary, prior studies for example Demirguc-Kunt and Huizinga (1999) discovered that NLA gave a negative and significant impact on bank profitability. Heffernan and Fu (2008) however, found mix results for NLA.

NLA is a measure of liquidity which denotes the percentage of bank assets that are tied up in loans. To avoid insolvency problems, banks often hold liquid assets that can be easily converted into cash. According to Hassan and Bashir (2003), the higher this ratio the less liquid the bank will be. Higher ratios may be indicative of better bank performance because of increases in interest income. The positive impact of NLA on performance indicates that lower liquidity would be associated to higher profitability. This is due to the fact that liquid assets are usually associated with lower rates of return, and therefore higher liquidity would be associated with lower profitability.

**Liquid assets to deposit and short-term funding (LIQ)**

Hypothesis 5 stated that profitability has an inverse and significant relationship with liquid assets to deposit and short-term funding ratio (LIQ). This study shows mix results in terms of LIQ. This ratio is positively correlated to ROA and NIM, but it has a negative relationship with ROE. LIQ is found statistically insignificant for all profitability measures. This result does not support Hypothesis 5.

Referring to previous literature on liquidity, the results are mixed as well. For example, Heffernan and Fu (2008) discovered that it is positively related to ROA and ROE, but it has negative effect on NIM. Nevertheless, Kosmidou (2006) revealed a
negative and significant relationship between bank profitability and the level of liquid assets held by the bank.

LIQ is a measure of assets in the form of cash (or easily convertible into cash). The higher the value of this ratio, the more liquid the bank is. From the analysis, the inverse relationship found between LIQ and ROE indicates that liquid assets are associated with lower rates of return. Higher liquidity for the bank means fewer funds for investment. Hence, lower rates of return are gained.

**GDP Growth (GDP)**

Hypothesis 6 proposed that GDP growth is a positive significant function of Islamic bank’s profitability. The macroeconomic variable that performs best is the real GDP growth rate. As expected, a rise in the real growth rate boosts bank performance for ROA, ROE and NIM. The positive impact of GDP growth supports the argument of the positive association between growth and financial sector performance, and is also confirmed by Kosmidou *et al.* (2006) and Hassan and Bashir (2003).

GDP growth is defined as an increase in the production levels of goods and services and is used as a measure of total economic activity within an economy. This variable reflects the state of the economic cycle of a country and it affects the demand for bank loans as well. Hence, an increase in GDP growth would improve bank profitability.

According to Kosmidou *et al.* (2006), GDP growth was found to have a significant and positive impact on ROA. In line with previous studies, this study also found that
GDP growth gives positive impact on profitability measures. The results are significant for ROA and ROE. Hence, this finding supports Hypothesis 6. In addition, the high significant value of this variable shows the importance of including macroeconomic variables when testing bank performance.

**Consumer Price Index (CPI)**

Hypothesis 7 mentioned that profitability has a positive and significant relationship with inflation. Haron (2004) found that inflation was positively related to all profitability measures, but their relationship was not statistically significant. Whereas, Hasan and Bashir (2003) found that inflation is only significant on ROA. In this study, using CPI as a proxy for inflation, the results show that the index has a positive relationship with all profitability measures. This finding is consistent with Hypothesis 7. It is learned that CPI has a significant effect on ROA and NIM, but is insignificant on ROE.

Inflation is the rate at which the general level of prices for goods and services is rising. When it is anticipated, banks can timely adjust interest rates, which consequently results in revenues that increase faster than costs, with a positive impact on profitability. With this, bank performance could be improved. Revell (1980) proposed that inflation affected banks through a number of different routes such as interest rates and asset prices, exchange rates and operating costs. Inflation was found significant and positively associated to profitability by most studies such as Athanasoglou et al. (2008), Kosmidou et al. (2006), Pasiouras et al. (2007), Haron and Wan (2004) and Demirguc-Kunt and Huizinga (1999).
CHAPTER 5: CONCLUSION AND RECOMMENDATION

5.1 Research Summary

This study specifies an empirical framework in an attempt to investigate the impact of bank-specific characteristics and macroeconomic conditions on Islamic banks’ profitability, measured by return on assets (ROA), return on equity (ROE) and non-interest margins (NIM). A balanced panel data set of 155 observations of Islamic banks in 18 countries, covering the period 2002 to 2007, provided the basis for the econometric analysis. The aim is to combine the literature on conventional bank profitability and the literature on Islamic bank performance, with the purpose of examining the determinants that influence the profitability of Islamic banks.

5.2 Research Conclusion

This section illustrates the findings revealed from this study. Firstly, among the three profitability measures, ROA model generates the highest explanatory power. This finding serve as an indicator that the bank-characteristic and macroeconomic variables selected for this study provide a better description of return on assets (ROA) rather than ROE and NIM.

One of the important findings from this study is that some of the determinants have significant influence on profitability. From the regressions, it is seen that capital strength, represented by the equity to assets ratio, is found positively related to ROA and NIM and is one of the main determinant of Islamic banks profit. This finding
provides support to the argument that well capitalized banks face lower costs of external financing, which reduces their costs and enhances profits. Studies for other countries also support this finding (Demirguc-Kunt and Huizinga, 1999; Kosmidou et al., 2006; Pasiouras et al., 2006; Athanasoglou et al., 2008; Heffernan and Fu, 2008).

From past evidence, efficiency factor determines the performance of Islamic banks significantly. In this study, cost to income ratio which served as a proxy for efficiency factor, is also significant although negatively in all cases, and appeared to be the most significant determinant of profitability for Islamic banks. This finding is in line with previous studies such as Pasiouras (2007), Kosmidou et al. (2005) and Kosmidou et al. (2006).

The impact of liquidity on bank performance is not clear-cut, and varies with the measure of profitability used. Specifically, liquidity is negatively related to ROE but positively related to ROA and NIM. The impact of loan loss reserves to gross loans is not significant and positive on all profitability measures, which suggests that higher risks result in higher margins. Bank regulators may use this as an evidence for prompt supervisory action.

Next, favorable macroeconomic environment seems to stimulate higher profits. Specifically, the macroeconomic environment (proxied by GDP and inflation) is observed to have a positive impact on bank performance. Higher growth rate of GDP seem to have a strong positive impact on the performance measures. This is similar to conventional banks, where GDP and inflation were found in prior literatures as being significant and positively related to performance as well.
The similarity of results of profitability determinants for both conventional and Islamic banks is a strong indicator that many of the tools and techniques developed in conventional banking literature are potentially suitable for an Islamic banking environment.

5.3 Limitations of Research

First of all, the weakness of the present study is that due to data constraints, it focuses only on two areas of performance measurement: bank characteristic and macroeconomic condition. This study is limited to only sample of Islamic banks that are available in BankScope database and World Economic Outlook, from year 2002 to 2007, and furthermore, cases with missing data are eliminated from the analysis.

Secondly, the study was conducted within a limited period of time. This paper did not include for instance, the effects size of banks, financial structure, as well as taxation variables on the profitability of Islamic banks.

5.4 Implications

This study provides Islamic bank managers with understanding of activities that would enhance their banks financial performances. The results of this study imply that it might be necessary for the bank management to take all the required decisions to enhance the financial positions of Islamic banks.
Knowledge of the underlying factors that influence banks’ profitability is essential, not only for the managers of the banks but for numerous stakeholders such as the central banks, bankers associations, governments and other financial authorities in the Islamic countries.

The most important finding from this study is that Islamic bank determinants are revealed to be similar to those of conventional banks’. This signifies that many of the tools and techniques developed in conventional banking literature are potentially suitable for the Islamic banking environment. Further research is essential to find more similarities between both banking systems and to discover alternative methods that could be applied to Islamic banking in an attempt to enhance its performance. If similarity is established, Islamic banks can thus benefit from conventional banking literature, to propose a better solution in order to achieve better performance.

The need to enhance the profitability of Islamic banks is vital because it will consequently boost Islamic economy. This is necessary, as indicated in the Sunnah and the holy Quran, because it would help to prosper Islamic countries and provide a better living for Muslims. Islam intends that the gifts of God to the society to be used to the maximum extent by the society, reasonably, without any waste or prodigality through responsible freedom, social justice, and just distribution. Islam emphasizes its control of the processes of gaining and consuming wealth (Ahmad, 1994).

By attaining a stable economy, Islamic banks can give more loans to help the nation and Muslims mainly, world-wide. Thus, Islamic countries would prosper and thrive in any industries and would simultaneously eliminate poverty. Islamic principles
formulate a perfect way of life. Wealth is distributed through zakat to poor Muslims and there would be no more poverty. Islamic banking will also provide a better alternative that is interest-free and also profitable to Muslim depositors and investors. There will be no more unfair burden of high rates of interests imposed on borrowers, because Islam prohibits riba’. This study is extremely essential to Muslim community and society. It attempts to identify techniques for Islamic banks to make more profit and increase performance in an effective manner.

In addition, Islamic banking is indeed significant and relevant to the current economic crisis. The global financial meltdown stemming from the US subprime woes actually poses an opportunity for the Islamic finance system to demonstrate its uniqueness. The financial meltdown showed the desperate need for a system like Islamic finance, which is based on the principle of profit-sharing where both parties are subjected to potential losses and returns. It is fair and equitable. This is unlike conventional system, where Islamic banks do not buy or trade debt; rather they manage concrete assets which are tied to real economic activities. Following the global economic crisis, observers were considering the Islamic system with envy and respect as it prohibited speculative excesses. As a result, mutual respect and recognition would emerge within Islamic financial industry global community. This is truly an opportunity for the Islamic financial community to prove to the global market that the Islamic financial system is truly a robust and viable alternative to the conventional system.

This paper would contribute in resolving current issues in Islamic banking, by contributing to the existing research on the relationship between Islamic banks’
performance and Islamic financial development as a whole. This study will serve as impetus for future works related to Islamic banking literature.

5.5 **Suggestion for Future Research**

Further research covering a longer time period with a wider range of economic conditions could reveal some new insights. In addition, the combination of variables drawn from the conventional banks’ profitability literature with those of Islamic banks performance literature into a single model could capture the factors affecting the profits of Islamic banks more accurately.

This study can be extended to include more Islamic banks of other countries. The study may also be extended to cover other fields of performance measurement such as effectiveness, economy, prudence and soundness of Islamic banks in the world.

A comparative analysis of Islamic banking requires further research. This study can be extended to investigate the magnitude of strength of internal and external variables on Islamic bank profitability, compared to conventional banks’.

In view of the globalization of the markets and the reformed financial environment that has been created, a study of the Islamic banks efficiency system based on financial, stock market and strategic criteria is worth conducting.