

Risk Exposure of Islamic Financial Institutions: Evidence from Gulf Co-operation Council Countries

**A thesis submitted to the University of Newcastle in fulfilment of
the requirements for the degree of
Master of Philosophy**

By

Mahfod Aldoseri

**Newcastle Business School
Faculty of Business and Law
THE UNIVERSITY OF NEWCASTLE
Callaghan NSW 2308
Australia**

August 2012

STATEMENT OF ORIGINALITY

This thesis contains no material which has been accepted for the award of any other degree or diploma in any university or other tertiary institution and, to the best of my knowledge and belief, contains no material previously published or written by another person, except where due reference has been made in the text. I give consent to this copy of my thesis, when deposited in the University Library**, being made available for loan and photocopying subject to the provisions of the Copyright Act 1968.

**Unless an Embargo has been approved for a determined period.

DEDICATION

This dissertation is dedicated to my most beloved parents “Ghalia Ghanem” (have Allah’s Mercy on her souls and grant her eternal happiness and peace in Paradise) and “Mobarak Naser”, without whose sole contribution I could not achieve anything in my life.

ACKNOWLEDGEMENTS

At the outset, all praise be only to Allah, the Omnipotent to accept this effort and to consider it for His sake only without Whose Grace this work would have not been accomplished.

I would like to express my profound thanks to my Principal Supervisor Professor Abul Shamsuddin for patiently supervising the whole of this work and frequently providing constructive suggestions throughout my period of study at the University of Newcastle from 2009 to 2012. I am deeply grateful to my co-supervisor Professor Steve Easton, for his invaluable assistance and encouragement. Needless to say, for any error and omission in this study I hold myself fully responsible.

I whole heartedly appreciate the staff of the University library as well as the administrative assistants of the Business School who offered much needed support during this lengthy and sometimes difficult project. I wish to provide special thanks to Mr. Md Akhtaruzzaman and Mr. Sudipta Bose for their support and encouragement. My heartfelt appreciation is extended to everyone else who encouraged and helped me to complete this thesis.

I owe my greatest debts and thanks to my dearest wife Nora, my children, Ghalia, Mobarak, Ghanem and Najla, for their truly extraordinary patience and emotional support. I am also greatly indebted to University of Prince Salman in Saudi Arabia for providing me scholarship to undertake this valuable study.

Abstract

This study examines the determinants of major risks faced by both Islamic and conventional banks, and the relationship between different risks and bank performance in the context of Gulf Cooperation Council (GCC) countries. The data used in the study has been collected from the annual reports of banks and Gulf database from 2006-2010. The GCC includes six Arab states: the Kingdom of Saudi Arabia, Kingdom of Bahrain, Kuwait, Qatar, United Arab Emirates and Oman. The study covered 63 banks from these countries. Those banks can be divided into two types: 47 conventional banks and 16 Islamic banks. Foreign banks have been excluded from the list due to their different style of operation and management. This study uses multiple regression models for investigating the factors driving the bank's risk exposure and financial performance. It found no significant difference between Islamic banks and conventional banks in relation to credit risk exposure but both the liquidity risk and the profit-rate risk are significantly higher for the Islamic banks compared to the conventional banks in the GCC region. In the case of Islamic banks, credit risk was found to have a significant positive correlation with leverage, but a negative correlation with bank size. For conventional banks, credit risk is positively correlation with loan to deposit ratio but negatively correlation with management efficiency. Liquidity risk was found to be positively correlation with the degree of financial leverage in the case of Islamic banks, whereas it was found to be positively correlation with fund cost in the case of conventional banks. This study has not been able to identify any significant determinants for the profit-rate (interest-rate) risk in case of Islamic banks. For conventional banks, it has been found that growth of total assets and size negatively affects the interest-rate risk. Further, this study found weak but significant negative relationship between credit risk, liquidity risk and

performance in conventional banks whereas there was no significant relationship between performance and risks in Islamic banks.

CONTENTS

STATEMENT OF ORIGINALITY.....	II
DEDICATION.....	III
ACKNOWLEDGEMENTS.....	III
ABSTRACT	IV
LIST OF TABLES.....	IX
CHAPTER 1 – INTRODUCTION	
1.1 Background.....	1
1.2 Research Questions and hypotheses	6
1.3 Contributions of the Study.....	7
1.4 Methodology and Key Findings	8
1.5 Organization of the Study	9
CHAPTER 2 – LITERATURE REVIEW	
2.1 Introduction.....	10
2.2 An overview of Islamic Finance.....	10
2.3 Principles of Islamic banking.....	12
2.4 Evolution of Islamic Banking Practices.....	13
2.5 Performance of Islamic Banks.....	16
2.6 Islamic Banking Risks.....	21
2.6.1 Credit risk exposure.....	22
2.6.2 Liquidity risk exposure.....	26
2.6.3 Interest Rate Risk Exposure.....	30
2.7 Conclusion.....	34

CHAPTER 3 – METHODOLOGY

3.1 Introduction.....	36
3.2 Sample and Data.....	36
3.3 Development of Hypotheses.....	37
3.3.1. Credit Risk Exposure Hypothesis.....	37
3.3.2 Liquidity Risk Exposure Hypothesis.....	40
3.3.3 Interest Rate Risk Exposure Hypothesis.....	42
3.3.4. Performance Hypotheses.....	43
3.4 Econometric Models.....	44
3.4.1 Credit Risk Model.....	45
3.4.2 Liquidity Risk Model.....	48
3.4.3 Interest Rate Risk Model.....	50
3.4.4 Performance- Risk Relationship Model.....	53
3.5 Conclusion.....	57

Chapter 4 – GCC COUNTRIES’ FINANCIAL SYSTEMS GCC

4.1 Introduction.....	58
4.2 The UAE Banking System and Regulations.....	59
4.3 The Kuwait Banking System and Regulations.....	61
4.4 The Bahrain Banking System and Regulations.....	64
4.5 The Saudi Arabian Banking System and Regulations.....	68
4.6 The Qatar banking system and regulations.....	74
4.7 The Oman Banking System and Regulations.....	78
4.8 Conclusion.....	80

Chapter 5 - EMPIRICAL RESULTS AND DISCUSSION

5.1 Introduction.....	82
5.2 Descriptive Statistics and Test for Differences in Means.....	82
5.3 Tests of Difference in Different Types of Bank Risks and Performance for Islamic and Conventional Banks.....	91
5.4 Correlation Analysis.....	95
5.5 Factors influencing Bank Risks.....	99
5.5.1 Determinants of Credit Risk.....	99
5.5.2 Determinants of Liquidity Risk.....	101
5.5.3 Determinants of Profit-Rate (Interest-Rate) Risk.....	102
5.5.4 Performance Risk Relationship.....	103
5.6 Conclusion.....	106

Chapter 6 - CONCLUSION AND RECOMMENDATIONS

6.1 Introduction.....	108
6.2 Summary of Major Findings.....	108
6.3 Suggestions for Future Research.....	110
6.4 Implications of Research.....	110
6.5 Limitations of the Study.....	111

REFERENCES.....	112
-----------------	-----

APPENDIX 1

List of Islamic and Conventional Banks in GCC Countries used in the study	121
---	-----

APPENDIX 2

List of Islamic terms used in the study.....	124
--	-----

LIST OF TABLES

Table 3.1 Sample by Country and Year	37
Table 3.2 Hypothesized Relationships between Variables.....	57
Table 5.1 Descriptive Statistics on Banks in GCC Countries, 2006–2010.....	83
Table 5.2 Descriptive Statistics according to Country.....	85
Table 5.3 Test for Differences in Means of Risks and Performances according to Country.....	89
Table 5.4 Descriptive Statistics for Islamic and Conventional Banks.....	90
Table 5.5 Tests of Difference in Different Types of Bank Risks and Performance for Islamic and Conventional Banks.....	91
Table 5.6 Correlation between Credit Risk and Its Determinants.....	96
Table 5.7 Correlation between Liquidity Risk and Its Determinants.....	97
Table 5.8 Correlation between Profit-rate Risk and Its Determinants.....	98
Table 5.9 Correlation between Performance and Bank Risks.....	98
Table 5.10 Determinants of Credit Risk.....	100
Table 5.11 Determinants of Liquidity Risk.....	102
Table 5.12 Determinants of Profit Rate (Interest-Rate) Risk.....	103
Table 5.13 Relationship between Performance and Risk.....	105
Table 5.14 Relationship between Risk and Performance (Effects of Islamic Bank).....	106

CHAPTER ONE

Introduction

This thesis contributes to our understanding of risk exposures and performance of Islamic banks in the context of a mixed banking system, comprising of both conventional and Islamic banks. Section one of this chapter sets out the motivation and research questions examined in this study. Section two focuses on the research questions and Section three illustrates the contributions of this study. Section four provides brief discussions on methodology, hypotheses, and results of the study. The final section presents the organisations of this study.

1.1 Background

Islamic banking is emerging at a fast rate in Muslim countries. Compliance with “*Shari’ah*”¹(Islamic Law) is the notable feature of Islamic banking that distinguishes it from conventional banking. Currently, Islamic banking is considered as an alternative banking system and it competes with the conventional banking systems (Hanif, 2011). The experts of Islamic financing systems argue that it can reduce and mitigate the risks faced by conventional banking systems. Although, Islamic banks are based in Middle Eastern and emerging countries, it is evident that some conventional banks in developed countries have started incorporating the former’s banking concepts in their products. For example, conventional banks in the UK and the USA are using Islamic banking products to some extent (Kablan and Yous, 2011).

¹ Islamic religious law that governs not only religious rituals, but also aspects of day-to-day life in Islam. *Shar’iah*, literally translated, means “the way”.

The basic difference between Islamic banks and conventional banks is that Islamic banking system prohibits fixed or floating payments or acceptance of any interest or fees in return of the money lent. Therefore, banks and customers work as joint investors and earnings are handed-out based on the profits earned from this co-operation. Moreover, Islamic banking portfolios comprise secondary financing instruments, such as stocks rather than fixed-income securities. Consequently, their products are divided into three categories: profit-sharing Islamic financing products such as *Musharakah* (equity participation) and *Mudarabah* (profit-sharing participation); advance purchase Islamic financing products, such as *Murabahah* (profit-sharing agreement) and *Ijarah* (Lease and Hire Purchase); and deposit products, such as *Wadi'ah* (savings account) (S. Rosly and Bakar, 2003).

Islamic banks with different characteristics of assets and liabilities face different kinds of risks, such as sharing risk and *Shari'ah* compliant risk. In addition, they are exposed to the risks faced by conventional commercial banks such as credit, liquidity, and interest-rate risks but these take another form due to difference in products offered by these two types of banks. This in turn affects the characteristics of assets and liabilities. Credit risk is the potential exposure that occurs when one of the parties in a deal makes a payment, as is the case in a "*Salam*" or "*Istisna*" contract, or transfers assets, as is the case in a "*Murabahah*" contract, before the receipt of its own assets or money. In the instance of finances based on profit sharing as in "*Murabahah*" and "*Musharakah*" credit risk arises when the entrepreneur fails to pay the bank its share when this falls due. This generally occurs when banks have insufficient information (asymmetric information problem) about the actual profit of the enterprise owing them money. *Murabahah*, which are basically trading contracts, are subject to counterparty credit risk resulting from non-

performing trading partners. The reasons for such non-performance can be of external systematic nature (Boumediene, 2011).

Islamic banks may appear to be resilient to interest rate changes as their businesses are not interest-rate based. However, market interest rate changes affect Islamic financial institution earnings, since different financial institutions set financial prices against a benchmark rate. A case in point is the *Murabahah* contract where there is a mark-up that adds a fixed risk premium, for the duration of the contract, to the benchmark rate (usually the LIBOR²). This results in an increase in the Islamic banks' credit risk since they cannot adjust the mark-up rate if and when the benchmark rate changes (Zainol and Kassim, 2010).

Islamic banks may be exposed to liquidity risk in some cases. For example, where difficulties in borrowing money at a reasonable rate or selling assets at a reasonable cost give rise to a risk of liquidity. In either case, this is critical for Islamic banks due to the fact that Islamic Law does not allow loans to be based on interest and hence, borrowing funds to overcome a liquidity problem is not an option. Moreover, the sale of debt is similarly prohibited unless it is at its face value, thus making it impossible for these institutions to sell debt-based assets in order to improve liquidity (J. How, M. Karim, and P. Verhoeven, 2005).

Economic globalisation has placed Islamic banks in direct competition with conventional banks in strong financial markets. Furthermore, some Islamic countries have completely changed their banking system to adopt the Islamic financial model. This study focuses on the Islamic banks in the Gulf Cooperation Council (GCC)³ region. The motivation for selecting the GCC

² The average interest rate that leading banks in London charge when lending to other banks.

³ GCC refers to the Gulf Cooperation Council. It includes 6 countries. They are Saudi, Qatar, UAE, Oman, Bahrain and Kuwait.

region is the size of *Shari'ah-compliant*⁴ assets in the GCC region. The value of these assets worldwide was USD 640 billion at the end of 2007 where-as their value in the GCC Islamic finance industry⁵ was USD 262.6 billion at the same time. That accounts for 41.01 per cent of total global *Shari'ah-compliant* assets. Further, at the end of 2007, the total value of these assets in the Islamic Republic of Iran was USD 235.3 billion, which indicates that the size of these assets in the GCC is higher than in any other part of the world. Moreover, the accelerated growth in value of these assets in the GCC has been achieved due to rapid rise of oil and gas prices, which feed through to government spending and consequently a buoyant level of economic activity (Wilson, 2009).

Recently, the Islamic banking sector in the GCC region has witnessed tremendous growth and an increasing demand for *Shari'ah-compliant* products and services. Further, the share of the Islamic banking industry in the total assets of the GCC region's banking system had increased to 16.6 per cent by the end of March 2010 and, according to Kuwait Finance House, this is expected to grow annually at 18-20 percent (Smaoui and Salah, 2011).

In the GCC region, there are two factors that affect bank portfolios. The first one is the fluctuation of oil prices, which directly affects the GCC economy, which in turn has a major effect on individual bank performances and their portfolios, over time. Essentially, large banks are more likely to be affected by changing this fluctuation, as reflected in banks' GDP growth. Moreover, the volatility in earnings is unavoidable unless the bank assets are well diversified (Al-Khouri, 2011). The second factor that affects the conventional banks is using the same

⁴ Products and services produced or offered in accordance with the doctrines of the *Shari'ah*.

⁵ The aggregated figures of Saudi Arabia, Kuwait, the United Arab Emirates, Bahrain and Qatar.

products and services offered by the Islamic banks which has become sensitive to risk exposure of their assets and liabilities (Al-Zomaia, 2004).

The financial system in the GCC is dominated by commercial banks (both locally incorporated and branches of foreign banks), specialised banks, non-banking financial institutions (including leasing and finance companies), investment and brokerage companies, and money exchange houses. The size of the banking system varies across countries, with Saudi Arabia and the UAE accounting for nearly 75 per cent of total banks' assets and 70 per cent of the capital. Banks in GCC are well capitalised and bank soundness indicators exhibit stability across countries. The operations of the banks are domestic orientated, relying mainly on lending and private deposits. Foreign assets and liabilities form a relatively small share of the total size of the banks' business in the GCC region. Banks in Saudi Arabia have least amount of liabilities generated from foreign operations while Bahraini Banks have the highest. For example, Saudi Arabian Banks generated only 8.6 per cent of liabilities from abroad while those in Bahrain generated 47 per cent (Espinoza, Prasad, and Williams, 2010).

The banking industry in the GCC region is relatively young, with the oldest banks dating back to no earlier than 1950s (Hasan and Dridi, 2010). Although several banks are operating in the GCC region through equity participation or through direct supervision by their governments, as specialised credit institutions for providing financing facilities to public and private sector enterprises at subsidized rates, the public sector continues to have a prominent role in the GCC banking industry. Private sector ownership of financial institutions also tends to be concentrated on a few shareholders; a matter that reduces the threats (and benefits) of the market, for corporate control. One important group of banking services that has experienced rapid growth over the last decade in GCC countries, except in Oman, is the Islamic financial services sector.

Many GCC commercial banks have introduced Islamic windows and banking services along with their conventional banking operations. As the operation of Islamic banking services is expanded gradually, there is a clear need for more in-depth studies of the risks that may cater to this form of banking.

This thesis contributes to the literature on risk exposures and performance of Islamic banks. The extant literature shows that most of the previous studies focused on measuring Islamic banks' performances in the GCC or comparing their performance to their conventional counterparts (for example, Bashir, 2000, 2003; Parashar and Venkatesh, 2010). Moreover, there are some studies conducted on Islamic banks in context of Malaysia, Pakistan, and Bangladesh but to the researcher's knowledge, no detailed study has ever been conducted on the GCC region, although this region is more engaged in Islamic banking systems than the countries mentioned above. Further, the above studies have solely focused on Islamic banks' performance without any attempt to make an in-depth study of various risks they face, as compared to their conventional counterparts (for example, Akhter, Raza, Orangzab, and Akram, 2011; J. How, et al., 2005; Indriani, 2008). It clearly shows that there are gaps in the literature, particularly in the context of an evaluation of risk and performance of Islamic vis-à-vis conventional banks in GCC countries. This study attempts to fill these gaps in the literature.

1.2 Research Questions and Hypotheses

This thesis aims to investigate credit, liquidity, and profit-rate risk exposures of banks in the GCC countries. 'Interest-rate risk' and 'profit-rate risk' are used interchangeably in this study since Islamic banks use the term 'profit-rate', while conventional banks use the term 'interest-rate', to refer to returns from debt instruments. The determinants of these risks are examined for

both Islamic and conventional banks and the relationship between their risk exposure and performance is investigated. More specifically, the following research questions are addressed:

- (a) What are the determinants of credit, liquidity, and profit-rate risks faced by both Islamic and conventional banks in the GCC region?
- (b) What are the differences between Islamic banking and conventional banking in relation to the credit, liquidity, and profit-rate risks in the GCC region?
- (c) Is there any relationship between credit, liquidity, and profit-rate risks and the performance of Islamic and conventional banks in GCC region?

The study has four hypotheses to answer the research questions. The first hypothesis investigates whether Islamic banks have a higher or lower credit risk compared to conventional banks. The second investigates whether Islamic banks are less exposed to liquidity risk, on average, than their counterparts. In third hypothesis, it investigates whether Islamic banks have a higher profit-rate risk (or interest-rate risk) exposure on average than conventional banks. The final hypothesis investigates whether Islamic banks are higher or lower in performance compared to conventional banks.

1.3 Contributions of the Study

This study adds to the existing literature in a number of ways. Firstly, this is the first study in the context of the GCC region that investigates the determinants of the credit, interest, and liquidity risks for both Islamic and conventional banks. Secondly, this study also investigates the relationship between credit, interest, and liquidity risks and the performance of both types of banking firms, using a large data and long-time horizon, in the context of the GCC region. Thirdly, the practical contribution of this study is that the results would be useful to stakeholders such as policy makers, regulators, central banks, governments, and bank managers in the GCC

region. Fourth, this study is particularly important to Islamic banks' policy makers in the GCC region because Islamic banks are more prone to profit-rate (interest-rate) risk than conventional banks. As conventional and Islamic banks operate parallel and the latter are more vulnerable to profit-rate (interest-rate) risk, the regulators of Islamic banks may use the results of this study to develop policies to mitigate this risk.

1.4 Methodology and Key Findings

As mentioned earlier, this thesis focuses on the banking firms in the GCC region, taking into account the data from 2006 to 2010 for 63 banks. Data are collected from the *Gulf database*⁶ as well as annual reports of sample banking firms. Annual reports are collected from the banking firms' websites from the six Arab States, included in the GCC Region: the Kingdom of Saudi Arabia, the Kingdom of Bahrain, Kuwait, Qatar, the United Arab Emirates, and Oman. The 63 banks are further divided into 2 groups: 47 conventional banks and 16 Islamic banks. Foreign banks have been excluded from the samples due to their different style of operation and management. The final sample size is 315 firm-years. The details in the samples are described in the methodology chapter. This study uses multivariate regression models for investigating the research questions. It has been found that there is no significant difference between Islamic banks and conventional banks in relation to credit-risk exposure but both the liquidity risk and the profit-rate risk is significantly higher for the Islamic banks compared to the conventional banks in the GCC region.

Further, this study confirms that there is a significant positive relation between leverage and credit risk and a negative relation between size and the credit-risk in case of Islamic banks. For conventional banks, loan to deposit ratio is positively associated with credit risk, while

⁶ A website delivers comprehensive company, market and industry information covering all public companies in Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates.

management efficiency is negatively associated with it. For liquidity risk, leverage is positively associated with it in case of Islamic banks, whereas fund cost is positively associated with it in the case of conventional banks. This study did not find any significant determinants for the profit-rate (interest-rate) risk in case of Islamic banks, whereas it has been found that growth of total assets and size is negatively related with the interest-rate risk in case of conventional banks. Further, this study found weak significant negative relationship between credit risk, liquidity risk and performance in case of conventional banks whereas there was no significant relationship between performance and those risks in case of Islamic banks.

1.5 Organisation of the Study

This thesis consists of six chapters: Chapter one presents an introduction to provide the driving reasons that have led to conduct this research. It outlines objectives, research gaps, the research questions, the methodology and hypotheses, as well as the contribution of the study; Chapter two covers the literature review including studies on credit, liquidity, and interest-rate risk as well as firm performance, with focus on Islamic banking; Chapter three looks at the methodology used in the study while Chapter four gives an overview of GCC countries' banking systems; Chapter five presents the empirical results and the discussion ; Chapter six summarises the findings as well as giving recommendations for future research and discusses the limitations of this study.

CHAPTER TWO

Literature Review

2.1 Introduction

The objective of this chapter is to review the literature on determinants of the credit, liquidity, and profit-rate risk faced by Islamic and conventional banks. In addition, the literature on the relationship between those risks and performance is surveyed and the parent literature on Islamic banking practices is also reviewed. It starts with a brief overview of Islamic finance and the principles of Islamic banking, followed by the origin and evolution of Islamic banking theory, and investigate its effectiveness compared to conventional banks. Next, the chapter surveys the different types of risk exposures to which both Islamic and conventional banks are vulnerable and finally draws conclusion on this chapter.

2.2 An Overview of Islamic Finance

Islamic finance is defined as the process of doing financial transactions and banking in compliance with the principles of Islamic Law (K. Hassan and Lewis, 2007). Muslims apply the Islamic lessons to their secular life as well as their religious one. Therefore, politics, finance, economics, as well as social affairs are governed by Islamic Law. It provides a set of comprehensive ethics that governs and regulates all businesses. Incorporating this set into the Islamic financial system does facilitate intermediation among investors and savers, and makes the system a bridge between deficit and surplus units via a group of services and financial products that comply with the ethics and the teachings of Islam.

Obaidullah (2005) states that Islamic financial intermediation has three basic types: 1) Islamic banks, 2) Islamic insurance companies, and 3) Islamic unit trusts and mutual funds. Islamic banking is a general title encompassing at least three types of bank:

a) Commercial banks that act as an intermediary where fund flow is not direct. Such banks purchase funds via offering a group of deposit products depending on the deposits of the current account, savings account gained from *Mudarabah*, and the deposits of the investment account, etc. Debt-based (reflecting ownership of the issuing entity) and equity-based (reflecting a loan the investor has made to the issuing entity) are among the financing products employed to sell funds;

b) Islamic investment banks that act as a facilitator when the fund flow is direct. With their aid, deficit units can initiate and present different Islamic securities, known as '*Sukuk*', to the units of surplus. Moreover, these types of banks have after-marketing services, like acquisitions, mergers, corporate restructuring, project appraisal advisory services, stock-broking, and other similar services. Islamic investment banks have great potential for operating in the field of financial engineering and risk management;

c) The third type of bank is actually a mixture of the previous two types, combining aspects from both. Although such banks are commercial in their nature, they still have some investment activities, such as the Al-Rajhi Bank and Al-Belad Bank in Saudi Arabia.

The other Islamic financial means of intermediation is Islamic insurance companies known as '*Takaful*'⁷, which is an Islamic concept adopted to provide an insurance system based on mutual co-operation, responsibility, assurance, protection, and assistance between groups of

⁷ It means in Arabic 'cooperation'.

participants. *Takaful* companies are mutual-guarantee companies. Those companies have various *Takaful* policies through which they receive funds that are invested in avenues complying with the Islamic Law. Islamic unit trusts and mutual funds are the last intermediation means. They are used for mobilising funds via selling fund units similar to certificates of *Mudarabah*. Those funds are, in turn, invested in businesses complying with Islamic Law. Those funds are normally categorised according to their nature of investment: equity funds, *Ijarah* funds, real estate funds, commodity or *Murabahah* funds, and so on (Indriani, 2008).

2.3 Principles of Islamic Banking

Islamic banking systems are guided by Islamic principles, which are incorporated as Islamic banking rules when establishing a new Islamic banking system. The most important of those Islamic banking rules are:

- All transactions must be interest free (*riba'* or usury).
- Investing in commodities and services that are prohibited (*haram*) in Islam is forbidden, for example liquor.
- All transactions or activities involving speculation (gambling) are not acceptable in the Islamic approach and are therefore, banned.

The Islamic financial system disallows interest (Usury) in all business activities. As a result, the payment or receipt of interest, which is the foundation of current conventional banking, is explicitly prohibited in Islamic banking. The goal of Islamic banking system is to establish justice and fairness in the society as well as in the Islamic Economic Theory. Likewise, the Islamic teachings necessitate that all consumption, distribution and production enterprises should comply with the ethical code of Islam. For example, it is not allowed for an Islamic bank to invest in tobacco, alcohol, gambling, illegal drugs, pork, pornography, or any other harmful

products, even if those enterprises are profitable. The same rule applies to all enterprises that can potentially harm the individuals or the society itself. Consequently, the opportunities for investment open to Islamic banks are somewhat limited compared with the ones available to their counterparts, conventional banks (Ariff, 1988; Siddiqui, 1996).

2.4 Evolution of Islamic Banking Practices

Islamic financial instruments were introduced and established in the early days of Islam. These financial instruments were applied and traded between people as well as between traders. There are many examples that can be found in the earlier times that portray the Islamic principles of *Ijarah*, *Bai bithaman ajil*, *Mudarabah* and many other such concepts. There is one very prominent example, in which the Prophet Muhammad (Peace be upon him) allowed people to trade things that was not yet possessed by them when they were making a contract for reselling them, it was a totally new concept as in those times it was a prohibited contract. This concept was known as *bai' al salam*. The sole purpose of these instruments was to make sure that people were not hampered economically and had devices to be able to progress and make legal profits in their businesses and trades. Through *bai' al salam*'s practicing, the traders got money to be able to invest in other projects. Through this a trend developed in Madinah where people used the money obtained through such contracts for their agricultural purposes (Jalil and Rahman, 2010).

Although the concept of Islamic finance is as old as the religion itself, the history of Islamic banks dates back only to the beginning of the twentieth century. By and large, they started in Malaysia with a financial institution called *Tabung Haji*, which was later considered the cornerstone in the development of Islamic banks. *Tabung Haji* was initiated to provide

interest-free money for pilgrims to use in their *Hajj*⁸ (pilgrimage) to Mecca and to invest their savings in business enterprises complying with Islamic law. This was needed since conventional banks did not usually finance this type of activity because they were involved in interest-based business. *Tabung Haji* was initiated by 1,281 depositors with 46,600 Malaysian ringgits in total deposits. This soon increased to 867,220 depositors with over one billion Malaysian ringgits and 65 branches. Although it was basically started as an institution, it was operating like a bank, as it performed the major functions of banking: accepting and investing deposits (A. Ahmad, 1997).

The glimmering success of the Islamic banking idea inspired Muslim thinkers and made them believe that Islamic banking would work. Egypt was one of the first countries that incubated Islamic banks in 1960s on a modest-scale, rural, social banking operation around the country, with almost no competition. Interest-free banking gained popularity and success and, in turn, promoted the trend towards a new Islamic financial, as well as economic, system. Nasser Social Bank was the first developed Islamic Bank in 1972. It started its operations in Cairo, Egypt, and Dubai Islamic bank followed in 1975 (Hamwi and Aylward, 1999).

Faisal, the then King of Saudi Arabia, played an important role in developing the present day Islamic banking system. He believed that Islamic nations should think of a substitute that could replace conventional banks and bridge the gap between the Islamic laws that prohibit interest, and the modern banking and financial systems. He asserted that creating a financial institution with those qualities was a must for Muslim countries (Khan., 2000; Wilson, 1994).

In 1970, the Islamic Foreign Ministers Conference represented a firm step towards Islamic banking. Propositions were made towards studying the methods of initiating the Islamic Banks Federation and the International Islamic Bank for Trade and Development. The experts,

⁸ Hajj is one of the five pillars of Islam that every adult Muslim must undertake if he has the means to do it.

attending from 18 countries, proposed that the interest-based financial systems be replaced with a new system based on schemes of participation and connected with profit as well as loss sharing. Moreover, they took the decision to establish a Federation for Islamic Banks along with an International Islamic Bank (A. Ahmad, 1997; Iqbal, 1998).

In 1975, the Finance Ministers Islamic Conference in Saudi Arabia agreed to establish the Islamic Development Bank (IDB) with a capital of 2 billion Islamic dinars⁹. All the Islamic Conference Organisation member states became bank members. The bank's creation supported the movement of Islamic banking. According to the declaration of the Finance Ministers in 1973, the IDB became a global financial institution with the purpose of promoting the Muslim community's social progress and economic development.

The IDB became the first financial institution worldwide to abide by the *Shari'ah*. All the official publications of the IDB declare its compliance with Islamic Law in all its activities and financing operations. IDB made constant efforts to determine the financing modes conforming to *Shari'ah*, a lead that was followed by many other banks throughout. Today, Islamic banks have spread across 53 countries. Some Muslim countries such as Iran, Pakistan and Sudan, have adopted a complete Islamic banking system, (M. Khan and Mirakhor, 1990).

Later on, when the ethical Islamic banking concepts spread, the world of finance was suspicious of it and considered it a Utopian dream. Yet, the days that followed proved that Islamic banking was more than an idealistic dream. Today, it is managing around \$200 billion in funds with many customers all over the world (Mirakhor, 1995). These historical developments

⁹ The currency of some Arab countries is the dinar

evolved as an Islamic banking theory that tries to transfer the Islamic financial concepts into practical compatible solutions that stand on a par with their counterparts in conventional banks.

The Islamic banking theory, which this study is based on, was further developed at the hands of Qureshi (1946), Siddiqi (1948), and Ahmad (1952) in late 1940s. Their theory suggests that there are some principles that should be followed when building a new bank system, to ensure that it will work efficiently, like conventional banks. Those principles, which later took the shape of Islamic financial products, are suggested to satisfy customers and users of funds in a variety of ways: sales, trade financing, and investment. Essential instruments include cost-plus financing (*Murabahah*), profit-sharing (*Mudarabah*), leasing (*Ijarah*), partnership (*Musharakah*), and forward sale (*Salam*). These instruments serve as fundamental tools for developing a broad offering of financial instruments, suggesting that there is significant potential for financial improvement and expansion in Islamic financial markets (Ariff, 1988).

2.5 Performance of Islamic Banks

Almost until the mid-20th century, the principles of Islamic banking were not fully developed even as some of the Islamic banks started appearing in 1960s. This initiated a large-scale research movement in the academia that investigates and compares this kind of banking with the conventional one (for example, Hasan and Dridi, 2010; Kablan and Yous, 2011; Kader, Asarpota, and Al-Maghaireh, 2007). Those empirical studies examined various areas. Khan (1987) observed Islamic banking operations in Sudan, United Arab Emirates, Kuwait, Bahrain, Jordan, and Egypt. Khan's study demonstrates that these banks had some difficulties in implementing practices in compliance with Islamic Law. He recognised two kinds of investment accounts: (a) where the depositor authorised the bank to invest the funds in any project; and (b) where the depositor chose the project to be financed. The banks had been resorting to

Mudarabah, *Musharakah*, and *Murabahah* modes on the asset side. Khan's study shows Islamic banks profit rates at the time, lying between 9-20 per cent, was comparable with conventional banks. Depositors return rates range between 8-15 per cent for Islamic banks, which is quite similar to the return rates by conventional banks. Similarly, Bader, Mohamad, Ariff, and Hassan (2008) compared the cost, revenue and profit efficiency of 43 Islamic and 37 conventional banks over the period 1990-2005 in 21 countries using Data Envelopment Analysis, and reported that there were no significant differences between the overall efficiency results of conventional versus Islamic banks. Overall, the results in these studies are in favour of the 'new' banking system. Further, Yudistira (2003) studied the efficiency of Islamic banking performance over the period of 1997-2000. His study included 18 Islamic banks and was based on a non-parametric approach; the results suggested that Islamic banks experienced volatility during the global crisis of 1998-99. They revealed that country-specific factors appeared to determine the efficiency differences across the sample data. In conclusion, Yudistira (2003) mentioned that the sampled Islamic banks suffer from inefficiency with over 10 per cent, a considerable percentage when compared to the one found in most of the conventional banks. All of the above studies focused on the performance of Islamic banks but not on the determinants of risks faced by them, nor comparing them between Islamic banks and conventional banks.

Moreover, banks are considered the most important part in a financial system as they contribute significantly to the economic development of any country. Therefore, if the banking industry is not performing well in a country, its economy will be hugely and broadly affected. A bank's performance is its capability of achieving profits for shareholders and investors, which is normally affected by a group of internal and external factors. Risks in general, GDP and inflation are the most important of those factors. Since this study is focusing on three internal factors,

namely credit, liquidity, and interest rate exposure, the next section of the literature review will be limited to the studies that investigated the effects of these factors and other control variables on bank performance.

A large number of empirical studies have been conducted on factors influencing bank performance or determinants of bank performance. However, most of these covered developed economies, whereas fewer covered emerging economies such as GCC. Bashir (2000) assessed the Islamic banks' performance in 8 of the Middle Eastern countries. By controlling the financial and economic structure measures, he carefully studied the important bank features that affect Islamic banks' performance. His paper investigated 14 Islamic banks in Turkey, Jordan, Bahrain, Sudan, Qatar, Kuwait, United Arab Emirates and Egypt from 1993 to 1998. To study profitability, the researcher employed return on assets, net interest margin, return on equity, and profit before tax as performance indicators. The study had internal as well as external variables: the former, incorporated in the regression were loans, overhead, bank size, ownership, short-term funding, and leverage. The latter incorporated regulation, financial market, and macroeconomic environment. Generally, the study results confirmed the prior findings and revealed that the profitability of Islamic banks is positively connected with loans and equity. Accordingly, Islamic banks will profit more if equity and loans are high. Similarly, Islamic banks will profit more if loan-to-assets is large and the leverage is high. In addition, the results demonstrated that profitability improves in favourable macro-economic conditions.

Hassan and Bashir (2002) contended that banks with high-performance are inclined to limit the credit risk. They are inclined to have low loan loss provision and little non-performing loan. If, in one year, asset quality declined in a bank because of a rise in the write-offs or an increase in non-performing loans, it normally increased its provision of loan loss. This increase

will ultimately minimise profit and correspondingly diminishes the return to shareholders. It happens in both conventional and Islamic banking systems. In regard to conventional banks, net interest income forms the larger part of operating income. Because interest expense and interest income have a propensity for rising and falling together, the focus on the net interest income permits us to detach the changing conditions in economy from the bank's performance quality. It is possible to employ the relative changes among gross interest expense and gross interest income when we assess the volatility outcome in interest rate that the net interest income is experiencing. Once the gross interest income rises by a percentage greater than the gross interest expense, a rise will take place in the interest income. On the contrary, if gross interest expenses experience an increase in percentage greater than the gross interest income, a fall will take place in the net interest income. Hence, the percentage of interest-sensitive liabilities and assets will influence the net interest income of a bank and hence affect its profitability (Golin, 2001; P. S. Rose and Hudgins, 2005).

Yet, the directional relationship between bank profitability and interest-rate risk is unclear. On the one hand, it is stated in theory of financial risk management that the more the risk, the more the return. This theory is supported by Maudos and Guevara (2002). The risk increase threat is going to be favourable if there is an excellent risk management that controls interest-rate risk. However, depositors and regulators will not tolerate taking risk excessively, on the part of the bank. Being a significant system in the overall economy, the bank should support its soundness to keep the confidence of the society and the stability of the economic system. Because higher risk means more danger to the position of the bank, it is believed that exposure to interest-rate risk at a lower level is going to increase the performance of the bank (P. S. Rose and Hudgins, 2005).

EL-Moussawi and Obeid (2010) suggested a method for evaluating the productive efficiency of Islamic banks in GCC countries from 2005 to 2008. They followed the productive efficiency technique to evaluate Islamic banks that was proposed by Farrell (1957). They used the Data Envelopment Analysis Method (DEA) for dividing the productive efficiency into allocative efficiency, cost efficiency, and technical efficiency. By applying this technique on 23 Islamic banks, it turns out that allocative inefficiency as well as the technical inefficiency augmented the bank costs by an average of roughly 29 per cent and 14 per cent respectively. Moreover, the results demonstrated that external as well as internal factors significantly contribute to the evolution of Islamic banks efficiency scores.

Parashar and Venkatesh (2010) made a comparison between conventional and Islamic banks in their performance, particularly during global financial crisis. They conducted the study on 12 selected banks in the GCC in the period of 2006-2009. The study was based on five parameters of performance namely, efficiency, liquidity, profitability, capital adequacy, and leverage. This study found that Islamic banks have lower performance than conventional banks during global financial crisis, in terms of leverage, capital ratio and return on average equity, while Islamic banks are better in terms of liquidity and return on average assets. They concluded that Islamic banks performed better overall than conventional banks. It is worth noting that although researchers point to liquidity ratios as performance determinants in the GCC banks, there is still a shortage in the studies dealing with credit, liquidity and interest-rate risk in the GCC.

2.6 Islamic Banking Risks

Islamic banking systems differ from those of conventional banks, in recognising and managing risk exposure, due to differences in concepts and practices. Khan and Ahmed (2001) argue that Islamic banks face conventional as well as unique risks, which are:

(a) Risks typically faced by traditional banks are market risk, credit risk, liquidity risk, and operational risk. However, in case of a Islamic bank the nature of these risks changes because of *Shari'ah*-compliance;

(b) Unique risks related to the Islamic banks as a result of unique asset and liability structures. Therefore, the methods of risk recognition and management existing in Islamic banks adopt the same methods as the conventional banks that agree with the Islamic Law; yet they adjust the ones that contradict with the Islamic laws, producing new techniques and methods with special requirements of their own that do not clash with the Islamic principles of finance.

To put these strategies into effect, Islamic banks employ two practices to retain reserves so as to mitigate commercial risk: the retention of Profit Equalisation Reserve (PER); and the Investment Risk Reserve (IRR). PER is taken from the total income prior to the allocation of profits among Investment Account Holders (IAHs), shareholders and, the calculated share of *Mudarib*. (entrepreneur partaking or investment manager in a *Mudarabah*) The PER retention minimises the actual returns given to both parties and yet, the IRR is only deduced from the IAHs' profits (after deducting the share of *Mudarib*). PER minimises the volatility of the returns of the IAHs and should be of appropriate percentage compared to the return rate. Yet, there is a need for the IRR to cover the expected asset losses that are invested in the funds of the IAHs (Archer and Rifaat, 2006; Grais and Kulathunga, 2007). In the contract, the IAHs agree, generally in advance, on an income percentage that can be allocated to each of the two reserves.

The bank management determines this percentage. The PER percentage and the total of IRR belong to the IAHs but the Islamic bank retain them. The remaining part of the PER goes to the shareholders. The Islamic Bank generally invests those reserves in generating additional returns to IAHs (Archer and Rifaat, 2006; Sundararajan and Errico, 2002). The Islamic banking PER and IRR policies play a significant role in managing the displaced commercial risk. If it turns out that reserves are capable of avoiding the transfer of shareholders' income to IAHs, Islamic banks are then not exposed to displaced commercial risk. In case of the insufficiency of those reserves and the transfer of some percentage of shareholder returns to the depositors becomes necessary, the displaced commercial risk becomes positive (Sundararajan and Errico, 2002).

Despite the idealism of the Islamic banking principles and practices and their earnest endeavours to cope with their counterparts, until now they have not provided effective solutions for the same old risks that conventional banks face: credit risk, liquidity risk, and interest-rate risk. The call is still on for more studies to fill this gap. This section of the literature tries to focus on the state of art in this domain. The researcher has sub-divided it into three sub-sections: credit risk exposure studies, liquidity risk exposure studies and interest-rate risk exposure studies of Islamic Banks.

2.6.1 Credit risk exposure

Credit risk in banking is commonly defined as the probability of a borrower defaulting on his loan commitments. In Islamic banking, credit risk takes the form of settlement / payment risk arising when one party of the business transaction pays money (for example *Salam* or *Istisna* contract) or deliver assets (*Murabahah* contract) before receiving its own assets or cash, thereby exposing it to potential loss (Khan and Ahmad, 2001). In case of profit sharing modes of financing (*Modarabah* and *Musharakah*), the credit risk would be the non-payment of the bank's share by the lender entrepreneur. This situation arises due to asymmetric information available to

borrowers and lenders – in this case the borrower would have inside information about the proposed projects and their profitability, which the bank would not have access to. Under other contracts such as *Murabahah* (cost plus sales or sales with mark-up) the rate of return is fixed and predetermined and such adverse selection and moral hazard problems would not arise.

However, credit risk in *Murabahah* contracts remains in the form of counterparty risk due to non-performance of the trading partner (*Musharik*). The non-performance may not be the fault of the partner but could be due to external systematic forces. Moreover, there is another cause of credit risk exposure; unlike traditional banks, Islamic banks are unable to impose overdue interest or a penalty, in case of counterparty non-payment. The counterparty may abuse this constraint and default payment on purpose, when they know that the Islamic banks will not take any actions against them (Al-Tamimi and Al-Mazrooei, 2007).

Credit risk exposure affects both types of banks; the 1997 financial crisis clearly demonstrated the seriousness of this risk and how it touches upon a bank's viability, and initiated a number of studies in this regard. They were all focused on examining the ability of each bank to face and manage this kind of risk. For example, Sarker (2000) found that an increase in bad debt amounts in Islamic banking arises when a bank makes an excessive amount of *Murabahah* financing, which results in large amounts of non-Performing financing, provision for doubtful and bad debts will be set aside to reflect the strong probability of uncollectible loss to the bank. When losses are reported after adjustment to both general and specific provisions, the value of the shareholders' capital will depreciate. For an Islamic bank to stay in business, fresh capital injection is in order (S. Rosly and Zaini, 2008). In this respect, a number of studies established the bankers' consensus that the risks in Islamic banking were not fully understood (Khan and Ahmad). However, Kahf (2005) stated that Islamic banks have qualitatively similar credit risk to

conventional banks with differences resulting from the profit-and-loss-sharing (PLS) under some Islamic products.

Using Islamic financial institutions from 28 countries, Khan and Ahmed (2001) reported that credit risk in *Musharakah* is higher than that of *Mudarabah* scoring 3.69 and 3.25 respectively on a scale of 5. Mark-up risk was also found to be as high as 3.57 in product-deferred contracts of *Istisna*. Their findings highlight that the bankers perceive PLS modes to have higher credit risk. While PLS modes may shift the direct credit risk of Islamic banks to their investments depositors, they may also increase the overall degree of risk of the asset side of banks' balance sheets since the assets under this model are uncollateralised (Sundararajan and Errico, 2002). Their deductive intuition is that in principle, the ratio of riskier assets to total assets should typically be higher in an Islamic bank than a conventional bank. Likewise, based on 28 Islamic banks in 14 countries and using a questionnaire survey, Ariffin, Archer, and Karim (2009) found that all countries in their sample (Malaysia, Bahrain, and others) perceive credit risk as the most important risk. This result is consistent with the studies on conventional banks, which produced the same finding.

There are other studies that compared between the types of banks in regard to the effect of credit risk exposure on each bank's performance. Hassan and Bashir (2002) examined Islamic banks around the globe and found their loans to be low in risk. They found that conventional banks in their sample tend to have more loan-loss reserve and bad loans – relative to the total loans – than Islamic banks.

Further, Ahmad and Ahmad (2004) examined the issues that affect credit risk because it is the main risk that the banking institutions face and it recognises the principal factors that influence the formation of credit risk in the operations of Islamic banking in Malaysia. They use

NPL to total loans as proxy for credit risk. The estimated predictors consist of nine variables: management efficiency, leverage, risky sector loan exposure, regulatory capital, loan loss provision, funding cost, risk-weighted assets, natural log of total assets, and proportion of loan to deposit. They introduced many policy suggestions: first, if credit risk is considered relatively high in Islamic banks, it is possible to pay much more attention to Islamic banking risk management; particularly the factors that have important effect on credit risk; second, even if Islamic banks have to abide by the same regulations as conventional banks (Banking and Financial Institutions Act 1989), as well as the council of *Shari'ah*, there has to be more suitable information disclosure on risks and financing assets concentrations, as in the reports of conventional banking. That will help people understand better the extent of risks; third, the management of Islamic banking credit risks needs an approach that takes into account its exceptional banking operations because the credit risk in Islamic banks, rather than conventional ones, is affected by a set of different factors. The IFSB¹⁰'s establishment was timely to deal with the problems of risk management. Moreover, this study's findings stress the importance of an efficient risk management to minimise credit risk. Because of the impossibility of hedging in operations in Islamic Banks, strengthening internal controls and minimising adverse selections are recommended as measures of increasing efficacy in alleviating credit risk within Islamic banks.

Indriani (2008) examined whether Islamic financing can explain three important bank risks in a country with a dual banking system: credit risk, profit-rate risk, and liquidity risk, better than commercial banks without Islamic banks windows. The sample included 25 commercial banks in Indonesia from 2002 to 2006. He measured credit risk by the ratio of non-performing loans to total loan (NPL). His study estimated risk determinants consist of eight

¹⁰ Islamic Financial Services Board

variables that are similar to variables used in the study of Ahmad and Ahmad (2004). He conducted multiple regressions to examine factors that could contribute to determination of credit risk in banks that offer Islamic financing and those that do not. The study concluded that the significant factors related to credit risk of Islamic banking are management efficiency, leverage, loans to risky sectors, regulatory capital, risk-weighted assets, and growth in total assets. The study results are consistent with the study of How, et al., (2005), which found that conventional banks without Islamic financing windows (IFWs) have higher credit risk than those with them. Yet, they claim that Islamic banks credit risk remains higher than its equivalent in conventional banking.

Those results demonstrate to what extent we can apply Islamic finance tools for example, *Murabahah* contract and move to equity contract for example, *Musharakah* and *Mudarabah*. The nature of *Murabahah* and *Ijarah* transactions of Islamic banks exposes them to similar credit risk as commercial credits of conventional banks. However, *Mudarabah* and *Musharakah* partnerships have unique credit risks. In *Mudarabah* partnerships, the operations depend on the managing partner. Therefore, the creditability of the managing partner becomes a major issue. Islamic banks are exposed to credit risk in *Mudarabah* via managing partner's fraud, misconduct, negligence and incompetence. The credit risk of the resulting business also exists. If the business cannot generate profits and starts realising losses, the Islamic bank will realise losses as well. This type of credit risk also applies to *Musharakah* partnerships. *Ijarah* and *Salam* transactions also expose Islamic banks to credit risk.

2.6.2 Liquidity risk exposure

Liquidity risk is the possible loss to banks arising from their inability either to meet their obligation or to fund increases in assets as they fall due, without incurring unacceptable costs or losses (Dusuki, 2010). Ray (1995) contends that lack of liquidity is a serious problem facing

Islamic banks. Similarly, Vogel and Hayes (1998) reported liquidity problems as the major barrier facing the Islamic banking growth. The problems of liquidity in Islamic banking take place due to several reasons.

The first reason is that the central banks' policy of only lending against interest conflicts with Islamic banks' code of ruling out interest for borrowing or lending. This leaves the latter with no last-chance lender. Unable to diversify the risk, the latter is forced to provide self-insurance. Therefore, Siddiqi (2008) observed that whether Islamic banks have less or more credit and liquidity risk as compared to conventional banks depends on institutional arrangements prevalent in a particular country, for example, the availability of an Islamic Money Market and central bank regulations on capital and liquidity requirements for Islamic banks. The evidence for Malaysia shows that banks engaging in Islamic financing have lower credit and liquidity risks, but higher interest-rate risks than conventional banks. One reason for lower liquidity risks is that, unlike other Islamic countries, Malaysia Islamic banks can use the central bank as a lender of last resort. Abdul-Rahman (1999) noticed that retail banking operations are run in Islamic banks at around a 100 per cent reserve requirement.

The second reason is that a limited number of financial instruments are permissible under Islamic principles, which does not allow Islamic banks to enjoy the options of funding available to conventional banks, in matching their loans' maturities and deposits. Having no appropriate market for Islamic financial instruments turns the maturities matching into a thorny problem. Therefore, Islamic banks repeatedly fail to generate suitable returns or rates similar to the ones offered in the market by the conventional banks (Henry, 1999; Ray, 1995). Ariffin, et al.,(2009) found that liquidity risks increase because of insufficient liquidity instruments complying with Islamic Law. Financial assets are not permitted to transform into negotiable financial

instruments. If a debt is created, transferring it to another one, to save par value, may not be possible. The funds of depositors are either 'callable on demand' or need very short periods of withdrawal notice. Currently, there is not an 'Islamic inter-bank money market', save in Malaysia. It was first introduced in 1994. Moreover, Ismal (2009) indicated that there are serious liquidity problems for Islamic Banks; first, the rational depositors are sensitive to interest rate returns and second, most deposits have short terms i.e. one month. Specifically, these two probable problems arise from Islamic banks' investigation into liquidity behaviour and depositors' investments.

There are some studies that compared the downsides of liquidity risk on the Islamic banks as well as the conventional ones. Hassan and Samad (1999) evaluated Islamic banking inter-bank performance in Bank Islam Malaysia Berhad, in relation to solvency liquidity, profitability and risk, and involvement of community, from 1984 to 1997. They found that the performance of liquidity in the periods from 1984 to 1989 and from 1990 to 1997 did not show any deterioration or improvement on different measures like loan-deposit ratio, cash-deposit ratio and current ratio. Yet, the comparison of inter-bank liquidity performance showed that Islamic banks looked more liquid statistically when they were compared to eight conventional banks in the measure of cash-deposit, at least where its average ratio was found to be 0.021 in Bank Islam Malaysia Berhad (BIMB) and 0.012 in conventional banks.

Other studies employed alternative proxies in measuring liquidity risk. How, et al., (2005) examined the differences between pure conventional and conventional banks with Islamic financing windows in liquidity risk. They focused on 23 commercial banks in Malaysia from 1988 to 1996 and concluded that conventional banks with Islamic financing have significantly lower liquidity risks than conventional banks without Islamic financing windows. Moreover,

there is a significant relationship between liquidity risk and bank size. However, Indriani (2008) conducted a study to compare conventional banks with Islamic financing windows and pure conventional banks. He used seven proxies for liquidity risk which are: deposit volatility, inter-bank ratio, derivatives, contract loan volatility, growth of total assets, bank capital, and loan to deposit ratio. He found that liquidity risk exposure in commercial banks with Islamic financing is not significantly different for banks that offer pure Islamic financing. Also, the means of liquidity risk exposure between non-Islamic banking and Islamic banking is only a little different, showing that conventional bank's assets are more liquid than Islamic bank's assets. The researcher concluded that liquidity risk exposure faced by those two banking systems is about the same.

Berger and Bouwman (2009) suggested that in large banks, a capital unit makes the bank capable of holding 25 per cent of net liquidity. They believe that the institution failure risk is reduced by capital because a buffer is created against liquidity risk which helps the bank to put more investment in illiquid assets. Nevertheless, it is still vague whether capital alone could be a buffer when a considerable liquidity shock takes place: subordinated debt, equity and similar capital resources could be turned illiquid because the liquidity shock is either an idiosyncratic or systematic one, raising questions about the institution's solvency.

In the GCC region, Loghod (2005) found that Islamic banks are less exposed to liquidity risk exposure than conventional banks. However, many researchers agree that Islamic banks should develop more alternative Islamic products to enhance their ability to be ready for customers' demands at any time. The majority of GCC Islamic banks such as in Saudi Arabia, Bahrain and United Arab Emirates (UAE) have applied reverse *Murabahah* (or *Tawarruq*) and *Sukuk* (trust certificates) on a large scale.

Recently, Aktar and Sadaqat (2011) studied the association between liquidity risk and financial institution solvency in Pakistan. They investigated the significance of the networking, the size, ROE, ROA and capital adequacy with liquidity risk management in both Islamic banks and commercial ones from 2006 to 2009. They concluded that there is a positive, however insignificant, relationship between bank size and networking capital to net asset, and liquidity risk in both types of banks.

2.6.3 Interest-rate risk exposure

Islamic banking does not recognise the concept of interest. It is established based on the concept of interest free transactions. Islamic banks' profits arise through some concepts such as profit sharing (*Mudharabah*), joint venture (*Musharakah*), savings (*Wadi'ah*), leasing (*Ijarah*) and cost plus (*Murabahah*). Considering the existing market position that is dominated by conventional banks, Islamic banks cannot neglect the market interest rate. Islamic banks face 'rate of return risk', a type of market risk, such as in *Ijarah* and the longer-term *Murabahah* (Ariffin, et al., 2009). Therefore, Islamic banks' profit-rate risk is equivalent to the interest-rate risk of conventional banks. Interest-rate risk (profit-rate risk) can be defined as the exposure to the effect of adverse interest rate movements on Islamic banks' profit rate, which is shown as a fixed rate of profit. Baldwin (2002) mentioned that Islamic banks do not care about interest-rate risk management, because of the faulty belief that Islamic banks are not exposed to that risk because their operations are compliant with Islamic Law. He also asserts that the Middle East banks generally lack awareness of their need of risk management. Rosly (1999) claims that Malaysian conventional banks are more flexible than Islamic ones in relation to total asset which could immediately pass on the changes of the interest rate to lots of customers. This happens because the typical form of Malaysian Islamic financing is *Murabahah*, an asset of fixed

rate. He further argued that over-reliance on *Murabahah* means that the majority of assets are not going to be susceptible to market interest rate changes. He also argued that the gaps of funding in Islamic banks are going to be negative because of the interest-sensitivity in Islamic liabilities. Hence, Islamic banks will always be disadvantaged when facing changes in interest rates. The declination of profits in the Malaysian Islamic banks and the rise of interest margin in conventional banks during the period, in which the interest rates rose, support his findings.

The main cause for interest-rate risk exposure is volatility of the interest rate in the market. However, Islamic banks are more affected by this risk than conventional ones. Rosly (1999) opined that when interest rates are rising, the base lending rate (BLR) and rates of return on deposits of the conventional bank would change accordingly. As a result, the profit margins of the conventional bank will not be affected. However, the Islamic bank cannot increase the rate of returns on its deposits because the “*bai bithamin ajil*”¹¹ profit margin is fixed. As a consequence, Islamic deposits give lower returns. The substitution effect comes into play where depositors prefer the conventional banks. Similarly, Khan and Ahmad’s (2001) findings confirm that the rate-of-return risk is the most significant risk faced by the Islamic banks compared to other risks such as the liquidity risk and operation risk. They conclude this because the debt contracts in Islamic banks (as in the *Murabahah* contract) cannot be re-priced or transferred.

Angebazo (1997) investigated the interest-rate risk in conventional banks. He studied 286 American commercial banks from 1989-1993 and stated that exposure to interest-rate risk is positively and significantly connected with bank margin. Furthermore, the preceding studies referred to total assets growth, size, loan-to-deposit ratio, management efficiency, non- interest

¹¹ Fixed rate asset financing

income and equity capital to determine this risk (Hutapea and Kasri, 2010; Soto, González, Ballester, and Ferrer, 2009).

A number of studies have conducted research on bank customers' behaviour in relation to Islamic banks. For example, Kader and Leong (2009) investigated the behavioural attitude of bank customers. They studied the effect of changes in interest rates on the financing demand in a system of dual banking. They used monthly data from 1999 to 2007 and reported that the smallest increase in the base lending rate encourages customers to seek financing of Islamic banks, and vice versa. The study concluded that since customers are motivated by profit in the banking system, Islamic banks are liable to interest-rate risks despite their operation on the interest-free principle.

Further, a number of researchers have examined the interest-rate risk exposure in both types of banks. For example, Zainol and Kassim (2010) analysed the dynamic effects of interest rate changes on the rate of return of Islamic banks and the amount of deposits in the conventional and Islamic banks. They surveyed the Malaysian banks for the period of 1997-2008 and applied the co-integration analysis, impulse response function (IRF), bi-variables Granger Causality test, and Variance Decomposition. They found that Islamic banks' deposits and rate of return respond significantly to changes in the interest rates of conventional banks. Therefore, when the interest rate increases, Islamic banks have to comply with the market trend by raising the rate of deposit accordingly. It is noteworthy that the deposits in Islamic banks which can be compared to deposits in commercial banks are investment deposits, which are affected by the fluctuations in interest rates. However, the non-interest deposits in Islamic banks have a negative relationship with the deposits in conventional banks (Haron and Ahmad, 2000). These findings corroborate the findings by Bacha (2004).

How, et al., (2005) studied the differences between conventional banks offering Islamic financing windows and conventional banks without Islamic financing windows. The study covered 23 Malaysian banks and concluded that commercial banks with Islamic financing have significantly higher interest-rate risk than banks without Islamic financing. The findings by How, et al., (2005) were supported by Indriani (2008). The latter conducted a study on 25 conventional banks operating in Indonesia for the period of 2002-2006. He used the same variables as How, et al. (2005) to determine interest-rate risk, namely net profit margin, growth in total assets, and derivatives and provided the interest-sensitivity ratio as proxy for banks' profit-rate risk. He found that conventional banks in Indonesia with Islamic financing windows have significantly higher profit-rate risk than conventional banks without Islamic financing windows.

Some studies conducted empirical research by using the Duration Gap approach to measure and identify the difference between Islamic banks and conventional banks in interest-rate risk. Chattha and Bacha (2010) applied this measure to 30 Islamic banks and 30 conventional banks in 9 Islamic countries - Malaysia, Indonesia, Saudi Arabia, Kuwait, UAE, Pakistan, Bangladesh, Bahrain and Yemen. It is worth noting that Qatar and Oman were not included in this study. The analysis is based on year-end 2006 financial data. He concluded that Islamic banks have a significantly higher Duration Gap than conventional banks.

The above discussion shows that profit-rate risk which is equivalent to interest-rate risk is higher in Islamic banks and conventional banks with Islamic financing windows than in conventional banks without Islamic financing windows.

2.7 Conclusion

In conclusion, this chapter reviews the literature on performance and risk exposures that Islamic and conventional banks are exposed to and affected by, and presented the major findings of those studies to make full use of them in the future. In addition, it is worth mentioning that this review revealed that banks with Islamic products are more vulnerable to credit risk since the involved procedures may expose the bank to other risks such as the inability to deliver the product on time, the client could not finish the contract in time, etc. It is worth noting that late payment or no payment at all may be very embarrassing for the Islamic bank since it cannot charge extra fees to its clientele because the Islamic *Shari'ah* prohibits interest. This has encouraged a number of researchers to claim that conventional banks have sufficient experience to face such a risk and deal with it competently.

The researcher also investigated the liquidity risk and how it clearly affects the Islamic banks that do not have sufficient financial tools to bridge this gap and face that danger. This explains why the studies conducted on conventional banks with Islamic windows showed that they are less subject to liquidity risk since conventional banks have more liquidity helping them to reduce the risk where it results from employing Islamic financial tools. However, some researchers argue that Islamic banks are less liable to liquidity risk in spite of the limited number of Islamic financial tools, possibly because they are using *Sukuk* which helps them reduce their exposure to such a risk.

Previous studies suggest that the Islamic banks are affected by the interest-rate risk changes just as the conventional banks. Most of the review studies showed that Islamic banks, as well as conventional banks with Islamic windows, are more exposed to interest-rate risks than conventional ones. The last part of this review highlighted the banks' performance, comparing

between the two types of banks in this regard. However, the trend was not clear for the researcher because the banks' performance depends on each individual bank's management and how effective it is in achieving higher profits while avoiding high risks.

Last but not least, the literature reveals a clear shortage in the studies conducted on Islamic banks compared to the conventional ones. In view of the fact that most of the GCC countries are heading towards this kind of banking, there is a clear need for more in-depth studies of the risks that may face such kind of banking. Most of the literature studies focused on measuring banks' performance in the Gulf or comparing their performance to their conventional counterparts, with marginal infrequent references to some credit, liquidity or interest rate determinants. Moreover, there are some studies conducted on Islamic banks in Malaysia, Pakistan, Bangladesh, yet, to the researcher's knowledge, no detailed study like the one proposed here has ever been conducted on the GCC before. The study bridges this gap in this area by conducting a complete investigation of the risks that banks face in the GCC.

CHAPTER THREE

Methodology of the Study

3.1 Introduction

The previous chapters presented the introduction of this thesis and the literature review. As mentioned earlier, the objective of this study was to examine the determinants of the major risks faced by Islamic and conventional banks and to identify the relationship between those risks and their performance. This chapter initially focuses on the samples and data collection and then on the development of hypotheses. Finally, it presents the models used in this study.

3.2 Sample and Data

The sample of this study consists of 63 banks from the GCC region. The period of study covers from 2006 to 2010. There are 6 Arab States in the GCC region including the Kingdom of Saudi Arabia, Kingdom of Bahrain, Kuwait, Qatar, United Arab Emirates and Oman. Among 63 banks, 47 banks are classified as conventional banks (CB) and 16 banks are classified as Islamic banks (IB) based on the nature of their operations. The foreign banks operating in the GCC region have been excluded from the study due to their different style of operation and management. Finally, the samples are selected based on data availability. The time period of this study covers 5 years for both Islamic and conventional Banks. The sampled banks from Oman include only the conventional banks because Oman does not have any Islamic banks. The financial data for the sample banks are collected from the Gulf database¹² website. Further, the annual reports of some banks have been collected from their websites. The financial items are measured in US million dollars. Table 3.1 presents the samples for this study.

¹² A website delivers comprehensive company, market and industry information covering all public companies in Bahrain, Kuwait , Oman ,Qatar , Saudi Arabia and the United Arab Emirates.

Table 3.1: Sample by Country and Year

Name of Country	2006		2007		2008		2009		2010	
	IB	CB	IB	CB	IB	CB	IB	CB	IB	CB
Bahrain	4	7	4	7	4	7	4	7	4	7
Kuwait	2	7	2	7	2	7	2	7	2	7
Oman	-	6	-	6	-	6	-	6	-	6
Qatar	2	4	2	4	2	4	2	4	2	4
Saudi Arabia	3	8	3	8	3	8	3	8	3	8
United Arab Emirates	5	15	5	15	5	15	5	15	5	15
Total	16	47	16	47	16	47	16	47	16	47

a. IB refers to Islamic banks

b. CB refers to conventional banks

3.3 Development of Hypotheses

The first research question of this study is to determine the major risks faced by Islamic and conventional banks in the GCC region. Accordingly, this study identifies credit risk, liquidity risk and the profit-rate (interest-rate) risk as the major risks faced by both Islamic and conventional banks. The second research question examines differences in these major risks in the GCC region between Islamic and conventional banking. The third research question examines the relationship between the credit risk, liquidity risk, the profit-rate (interest-rate) risk and the performance of both types of banks. The following discussion develops the hypotheses in this study.

3.3.1 Credit risk exposure hypothesis

Generally, banks are exposed to the risk of failure to provide the product in time, or failure to provide it at all. This failure could be in the quality of services as contractually specified. It could even result in delay or default in payment. As for Islamic banks, they have some financial instruments that expose them to credit risks. One of those instruments is a *Salam* or “*Istisna*”. This normally happens when the banks fail to deliver the product in time or fail to

provide it at all. “*Mudarabah*” investment is the second source of credit risk for Islamic banks. In case of investments, Islamic banks enter the contract as the principal with an external agent (*Mudarib*). As a result of this contract, an Islamic bank is exposed to enhanced credit risk on the amounts advanced to the agent. Moreover, the nature of the “*Mudarabah*” contract is such that it does not give the bank the appropriate right to monitor the agent or participate in the project management, which makes it difficult to assess and manage credit risk. The third source of credit risk exposure to Islamic banks is “*Ijarah*”. “*Ijarah*” in Islamic banks is similar to the financial lease operated in conventional banks; yet, there is a basic difference between the two contracts. In Islamic banks, the bank keeps the object proprietorship of the lease. In “*Ijarah*”, credit risk takes place if there is a default in the rent payment or no payment at all. In such a case, the bank can add a clause to the contract that stipulates that the lessee, in case of defaulting, should pay a specific penalty to a charity organisation which the bank supports. However, such a clause should not be applied if the lessee is suffering from difficulties. In case the lessee anticipated that he will default, he could resort to sub-leasing the asset, with the bank's permission. If so, then the rent will directly go to the respective bank. If there is a high demand in the market for the leased asset, the bank may unilaterally terminate the contract since the lessee has breached an agreement term. Then, the object can be leased to a second client.

The final source of credit risk exposure in Islamic banks is “*Murabahah*” which is a sale contract with known cost to the buyer, who accepts the addition of a specific amount of money above that the seller's profit. Credit risk exposure happens when the bank delivers the asset to the customer, but does not receive the payment on time from the customer. Two cases can cause credit risk in “*Murabahah*”; the customer cancels buying the commodity subsequent to the bank's engagement in actual liabilities. If the customer, in such a case, decided not to buy, the

commodity can be returned to the seller by the bank. For example, if a delay of imported commodity took place between the bank's purchase and delivery to its customer, the bank could pay *arbun* (down payment) to the supplier in the first phase and cancel the deal when the customer did not default and the goods become available. Yet, the bank can also receive *arbun* if the commodity is in "constructive possession" by the bank. This is legal since *arbun* is only available during the sale period after the *Muwa'adah* period. Payment default or late payments are considered to be the second source of credit risk. First, the bank may demand a security. If it is the commodity itself, the mortgage is applicable once the ownership exchange takes place. If it is a different object, the bank could be given the mortgage after determining the *Murabahah*'s price. If the bank does not want the customer to sell the sold commodity when he receives it, to get cash, the bank can take it as a mortgage. Second, the customer can present a third-party guarantee. If a default in payment takes place, the guarantor is going to be liable to the bank. Third, the bank could even add a clause to the *Murabahah* agreement maintaining that if the buyer defaults paying at the due time, he/she, if not facing real difficulties, has to pay a certain amount of money to a charity organisation specified by the bank (Greuning and Iqbal, 2009).

The aforementioned argument reveals that Islamic banks could be liable to higher credit risk exposure, on average, than banks with conventional financial instruments. As Islamic banks do not have sufficient *Shari'ah* compliant tools for dealing with debt-based contracts, they are more prone to risk, compared to their counterparts. For example, when a customer defaults or delays the payment, Islamic Law does not allow Islamic banks to add any additional amount on the loan, as delay fees. While investment depositors bear part of the bank's direct credit risk through profit and loss sharing modes, those modes may also raise the overall level of risk of the asset side of the bank's balance sheet, causing bank risks normally borne by equity investors

(Vasudevan and Errico, 2002). However, although Islamic banks are still likely to be higher than conventional banks in credit risk exposure, a number of researchers have argued that Islamic banks could be lower in this kind of risk. For example, How, et al., (2005) argued that Islamic financing may be the least prone to credit risk exposure because the assets of Islamic banks are invariably on loan resulting from sale-based finance, as opposed to the deposits which are on a *Mudarabah* (profit-sharing) basis. This feature allows Islamic banks to transfer the default risk debt to investment depositors, instead of the capital only. Furthermore, the nature of the community financing in which Islamic banks operate extensively, apply “know-your-client” rules when taking lending decisions. This rule reduces the credit risk exposure related to Islamic financing. Therefore, the testable hypothesis is:

H1: Banks with Islamic financial instruments are less exposed to credit risk, on average, than banks with conventional financial instruments.

3.3.2 Liquidity risk exposure hypothesis

Islamic banks may be exposed to liquidity risk for at least two reasons (Ariffin, et al., 2009). First, there is dissonance between Islamic banks and the central banks regarding the latter’s refusal to offer funds on a basis without interest rate. Therefore, Islamic banks will be left without a last resort lender because they are not allowed to borrow on interest. This has encouraged Islamic banks to provide self-insurance because, in the future, they may not be able to diversify the risks of the bank while running it. Abdul-Rahman (1999) states that Islamic Banks can run the retail banking (demand deposits) operations by a self-compulsory reserve requirement of 100 percent or close to it. Second, Islamic banks have a limited number of Islamic financial instruments. Therefore, they do not have many funding options as in conventional banks, which can match the maturities of deposits and loans through recourse to the

money or capital markets. The absence of a secondary capital market or an adequate money market for Islamic financial instruments thus causes difficulties with mismatched maturities. Accordingly, Islamic banks are usually unable to create adequate returns for their depositors, and many of them look to the market rates provided by conventional banks (Ray, 1995).

Further, Mills and Presley (1999) argue that once liabilities of equity type are issued, the depositors have no “insolvency” encouragement to “run” since their deposits’ values are going to oscillate with the value of the underlying portfolio. Such a bank may face liquidity difficulties but cannot become insolvent because its losses are passed on to its depositors. The urgency to withdraw is thereby significantly reduced. Moreover, after the proliferation of instruments of Islamic banks in the Gulf, which is one of the appropriate solutions to the liquidity risk management, it is possible that Islamic banks can perform better than conventional banks. Additionally, the introduction of *Sukuk* securities helped Islamic banks to manage the liquidity risk exposure. Before *Sukuk*, the only means for Islamic banks to obtain a return on liquid reserves was to place funds through the inter-bank market on a *Murabahah* basis with institutions that would buy and sell commodities on their behalf; often through the London Metal Exchange which resulted in a mark-up payment that was viewed as legitimate by *Shari’ah* scholars as it was based on a real trading transaction, rather than being simply a return on a monetary deposit. The problem for Islamic banks was that there were only a small number of institutions capable of managing funds in this way and hence charges were relatively high and returns were low. The advent of *Sukuk* brought with it more diversified possibilities for liquidity risk management.

Based on this argument, it can be hypothesised that commercial banks have less liquidity in the face of unacceptable risks, and that Islamic banks will be lower than conventional ones, on average, in liquidity risk exposure. Thus, the testable hypothesis is:

H2: Banks with Islamic financial instruments are less exposed to liquidity risk on average than banks with conventional financial instruments.

3.3.3 Interest-rate risk exposure hypothesis

Rosly and Bakar (2003) provide a theoretical explanation of the impact of interest rate changes on Islamic bank performances in the dual system. They maintain that Islamic banks are potentially exposed to interest-rate risk because they over depend on fixed rate asset financing, namely “*bai bithamin aji (BBA)*”, that refers to the sale of goods on a deferred payment basis at a price which includes a profit margin agreed upon by both buyer and seller. Furthermore, changes to interest rates in the conventional bank system result in changes in deposit rates within the Islamic banking system. This is inevitable since if the Islamic bank deposit rates remain unaltered, the rate differentials will prevail, leading to easy arbitrage opportunity. The possibility of such risk-free arbitrage through the flow of funds leads to an extra, or third, implication; the consequences of interest rate movements that affect conventional banks also affect Islamic banks indirectly. Moreover, changes to the cost of funds in conventional banks lead to changes in the cost of funds of Islamic banks too, with similar consequences for both. Chapra and Ahmed (2002) argue that the environment in which the service providers of Islamic finance operate is controlled by practices based on interest as well as conventional financial institutions. Consequently, the volatility of the interest rate still influences the environment's profit rate indirectly. This assumption is confirmed by Haidi and Malik (2006) who found that the total given Islamic financing is positively correlated with interest rate in Malaysian Islamic banks.

Moreover, the study revealed that depositors still compare the interest rates which the conventional banks provide with the Islamic banks' sharing scheme of profit rate. Similarly, a number of researchers have claimed that conducting activities on a free-interest basis in an interest-rate based environment does not indicate the total independence of the Islamic financial system (Chapra and Ahmed, 2002; Khan and Ahmed, 2001). Similarly, Baldwin (2002) mentioned that it is erroneous to believe that Islamic banks are not liable to such a risk because their operations are compliant to Islamic Law ; this lack of awareness on their part has caused them, in the Middle East, to ignore their need for a bank-risk management. Additionally, over-relying on sales-based financing modes more than profit and loss sharing ones, in Islamic banks, may cause more exposure to the risk of the profit rate.

On the other hand, some scholars have argued that interest rates should not cause any concerns for the Islamic financial system because the latter does not deal in instruments based on interest (How, et al., 2005). They asserted that heavy reliance on assets of fixed rates (under the *Murabahah* and *BBA* scheme), which Islamic banks possess on their balance sheets, indicates that most of the assets will be insensitive to market interest rate changes. Therefore, those two contradicting points of view may suggest that Islamic banks may be affected by interest rate exposure but not as much as the conventional ones. Thus, the hypothesis here can be:

H3: Banks with Islamic financial instruments are more exposed to profit-rate risk (or interest-rate risk in conventional banks) on average than banks with conventional financial instruments.

3.3.4 Performance hypotheses

Generally, the performance of a bank, whether it is Islamic or conventional, is affected by various risks. For example, credit risk and profit-rate risk significantly influence Islamic banks' performance whereas conventional banks appear to have three important bank risks, namely

credit, liquidity and interest rate. To complete the comparison between Islamic financing instruments and conventional ones, the three risks altogether will be evaluated to find their combined effect on performance in both banks and to see whether the combined effect of risks is greater, less or the same in Islamic banks, compared to their commercial counterparts.

The results in regard to the effects of the three risks on each bank's performance suggest that conventional banks have better performance than Islamic ones. Indriani (2008) investigated this effect in Indonesia and found that the performance of Islamic banking is higher than its conventional counterpart. On the other hand, Samad and Hassan (1999) found that conventional banks have higher profitability performance compared to Islamic banks in Malaysia. They identified a few reasons for this conclusion: First, Islamic banks do not invest widely in any security or stock due to the Islamic religious constraints; their investments are strictly maintained projects approved by Islamic Law. Even if these projects are going to yield high return rates, they will not invest in them unless they are approved by the *Shari'ah* Board. Second, investing in government bonds is a key resource of earnings. The other types of investment have lower return rates than the government bonds. Third, Islamic banks keep more liquidity than conventional ones to guarantee the deposits of the depositors and maintain their trust. Likewise, the UAE conventional banks were found to have more profitability than Islamic ones (Kader, et al., 2007). Thus, the hypothesis can be:

H4: Banks with Islamic financial instruments underperform, on average, than the banks with conventional finance instruments.

3.4 Econometric Models

As mentioned earlier this study classifies the major risks faced by both conventional and Islamic banks as credit risk, liquidity risk and interest-rate risk. Accordingly, econometric

models are developed to investigate the determinants of these risks and how they are related to bank performance.

3.4.1 Credit risk model

$$CR_{i,t} = \beta_0 + \beta_1 LD_{i,t} + \beta_2 LEV_{i,t} + \beta_3 FCOST_{i,t} + \beta_4 MGT_{i,t} + \beta_5 SIZE_{i,t} + \varepsilon_{i,t} \dots (1)$$

Where,

CR = Credit risk as measured by non-performing loan for the current year to total loan of bank.

LD = Loan to deposit ratio as measured by total loans divided by time deposits.

LEV = Leverage as measured by total liabilities divided by total assets.

FCOST = Funding costs as measured by the sum of interest expense and non-interest expenses divided by total assets.

MGT = Management efficiency as measured by total earning assets divided by total assets.

SIZE = The size of the banking firms as measured by the natural logarithm of total assets.

Dependent Variable

Credit Risk (CR): The proxy for the credit risk variable is the ratio of non-performance loans (NPLs) to total loans. An increase in NPLs will lead to an increase in credit risk exposure in the banks (N. H. Ahmad and Ariff, 2007; Berger and DeYoung, 1997; Corsetti, Pesenti, and Roubini, 1998; P. Rose, 1996). According to Rashid and Nishat (2009), the ratio of NPLs to total loans indicates the level of direct credit risk. There are some variables that determine credit risk exposure which will be discussed in the following section.

Independent Variable(s)

Loan-to-Deposit Ratio: The loan-to-deposit ratio (LD) indicates that the larger the loan in the portfolio, relative to its deposit size, the higher the probability of the loan default. In

Islamic banks, loans are based on interest income in the latter, but they are based on profit-share income in conventional banks. In the balance sheet, loans appear in the following instruments: profit shares (*mudarabah*); cost plus services (*murabahah*); joint-venture (*musarakah*); safekeeping (*wadiah*); and leasing of assets (*Ijarah*). To deposit in Islamic banks, depositors shall be (a) from sharing of risk in the project and (b) profit-share agreements and not pre-agreed fixed interest payments, which are considered prohibited earnings because pre-agreed interest agreements do not share financial investment risks (Ariff, 1988). LD has been found to be a significant positive determinant of credit risk in the US, Malaysia and France (N. H. Ahmad and Ariff, 2007). Moreover, it was also found that if the ratio of credit to deposit is high, it demonstrates that the management has been extremely efficient in deploying higher amounts of deposits in earning assets. The relationship between the LD and credit risk exposure is expected to be positive ($\beta_1 > 0$).

Leverage (LEV): Leverage is measured by the total liabilities divided by total Assets. Indriani (2008) argues that the LEV sign is both positively and significantly related to credit risk in Islamic banking whereas it is insignificantly related to that in conventional banks. Moreover, a bank with higher debt has a high probability of higher credit risk from default payment (N. H. Ahmad and S. N. Ahmad, 2004; Berger and DeYoung, 1997). This study expects a positive relationship between LEV and credit risk exposure.

Funding Cost: Funding cost (FCOST) is measured by adding the interest expense to non-interest expense and dividing them by total assets. Interest expense is absent in Islamic banks because interest is prohibited in *Shar'ah* law. Therefore, this variable does not appear in the income statement of Islamic banks. Ahmad and Ahmad (2004) state that FCOST coefficients are both negative and positive, and not statistically significant in their relation to credit risk in

both conventional and Islamic banks. However, the FCOST itself demonstrates that the two types of banking may have brought high overheads (interest expense is added in conventional banks) in the controlling and monitoring functions to guarantee the reduction of problem loans and credit risk. The relationship between FCOST and credit risk exposure is expected to be positive.

Management Efficiency (MGT): Earning assets divided by total assets is used to measure management efficiency (MGT). There is a significant relationship between MGT and credit risk exposure. Indriani (2008) contends that when management efficiency shows a negative sign, it significantly influences credit risk exposure at the 5% level in both conventional and Islamic banks. Such a negative sign indicates that the lower the efficiency of earning assets management, the more banks will be exposed to credit risk. These results lend credit to the findings maintained by Ahmad (2003), Ahmad and Ahmad (2004), and Angbazo (1997). Therefore, the relationship between Credit risk exposure and MGT is expected to be negative.

Size: It is measured by the natural logarithm of total assets. It has been found that a bank's size is related to its exposure to credit risk, liquidity risk, interest rate, and its performance. As for credit risk exposure, it has been argued the larger the bank size, the higher it is exposed to credit risks. This takes place when the lucrative returns induce the large banks to lend to risky borrowers or take high risks in the belief that they are capable of absorbing the losses while their capital is enlarged (N. H. Ahmad and Ariff, 2007). Yet, the results obtained from the Australian and Indian banks suggest a different relationship between a bank's size and its credit risk exposure. It was found that more risks are taken by under-capitalised banks in the belief that credit risk relationship to regulatory capitals is significant yet negative. Such a finding lends credit to the results of Berger and DeYoung (1997), Park (1997), and Shrieves, Ronald,

and Dahl (1992). This study expects that there is a positive relationship between credit risk exposure and bank's size.

3.4.2 Liquidity risk model

$$LR_{i,t} = \beta_0 + \beta_1 DEPVOL_{i,t} + \beta_2 LVOL_{i,t} + \beta_3 GTA_{i,t} + \beta_4 MGT_{i,t} + \beta_5 SIZE_{i,t} + \varepsilon_{i,t} \dots (2)$$

Where,

LR = Liquidity risk as measured by the ratio of financing gap to total assets. Financing gap is defined as the difference between a bank's loans and customer deposit.

DEPVOL = Deposit volatility as measured by the standard deviation of deposits divided by the average total assets of bank.

LVOL = Loan volatility as measured by the standard deviation of loans divided by the average total assets of bank.

GTA = It is measured by the growth of total assets.

MGT = Management efficiency as measured by total earning assets divided by total assets.

SIZE = The size of the banking firms as measured by the natural logarithm of total assets.

Dependent Variable

Liquidity Risk (LR): Liquidity risk is presented by the ratio of financing gap to total assets. Financing gap is the difference between the bank's loans and the customer deposits. Once the bank has a positive financing gap, it has to fund it via selling liquid assets, using its cash and borrowing money from the market. Consequently, we can estimate the financial gap by subtracting the borrowed funds from the liquid assets amount. This financing gap demonstrates bank' financing requirements subsequent to the selling of its liquid assets. Banks may be more exposed to liquidity risk once the economy deteriorates and the financial market gets keen to cash. Hence, this study argues that financing gap may be more apposite to be the alternative of

the bank liquidity risk. There are some variables that determine the liquidity risk exposure which will be discussed in the following section (Indriani, 2008).

Independent Variable(s)

Deposit Volatility (DEPVOL): Deposit volatility is presented by the standard deviation of deposits divided by the average total assets of the bank. Indriani (2008) found that the DEPVOL coefficient is negatively correlated with liquidity position in both Islamic and conventional banking; yet, it only gives significant effect for conventional banking. It indicates that higher volatility on deposit will lower the bank's liquidity, leading in turn to an increased liquidity risk. This result is consistent with (Dennis and Suriawinata, 1996), where they argue that higher deposit volatility suggests instability in deposits, resulting in uncertainty in the ability to service customer withdrawals, and thus higher liquidity-risk exposure. Therefore, this study expects that there is a positive relationship between DEPVOL and liquidity risk.

Loan Volatility (LVOL): Loan volatility is measured by the standard deviation of loans during the sample period divided by the average of the total assets. Angbazo (1997) argued that the amount of these contingent loans can affect the liquidity risk of commercial banks. In a situation where the holder of such loans (e.g., a documentary credit) should default, the bank will find itself in a position where it needs to liquidate more assets to meet such loans. Hence, it can be argued that liquidity risk is significantly and positively related to the LVOL (How, et al., 2005). Consequently, there is a positive relationship between liquidity risk and LVOL.

Growth of Total Assets (GTA): it can be used as an indicator of the liquidity situation of banks. Banks with high GTA are considered somewhat safer in case of liquidation or loss. In addition, Berger (1995) argued that any increase in asset growth could raise the expected earnings by means of minimizing the expected financial distress costs (Indriani, 2008).

Therefore, the relationship between growth to total assets ratio and liquidity risk exposure is expected to be positive.

Management Efficiency (MGT): The efficiency of bank management seeks to strike a balance through investing liquid funds to earn a higher return in order to stay liquid to meet the requests of deposit withdrawal. Therefore, the relationship between liquidity risk and MGT is expected to be negative.

Size: Liquidity risk exposure is also affected by size. Sawada (2010) found that there is a positive correlation between a bank's size and liquidity. Large banks usually hold more loans and, in turn, have larger financing gap ratio, resulting in high liquidity. Yet, the largest banks will encounter less liquidity risk because of size. Thus, the effect of size on a bank's liquidity risk is non-linear. However, this study expects that there is a negative relationship between liquidity risk and bank's size.

3.4.3 Interest-rate risk model

$$IRR_{i,t} = \beta_0 + \beta_1 ECT_{i,t} + \beta_2 GTA_{i,t} + \beta_3 LD_{i,t} + \beta_4 NII_{i,t} + \beta_5 MGT_{i,t} + \beta_6 SIZE_{i,t} + \epsilon_{i,t} \dots\dots\dots (3)$$

Where,

IRR = Interest-rate risk as measured by the ratio of interest-sensitive assets to interest-sensitive liabilities within a year of bank.

ECT = Equity capital as measured by the equity capital divided by total assets of bank.

GTA = It is measured by the growth of total assets.

LD = Loan to deposit ratio as measured by total loans divided by time deposits.

NII = Non-interest income as measured by the non-interest income divided by total revenue of bank.

MGT = Management efficiency as measured by total earning assets divided by total assets.

SIZE = The size of the banking firms as measured by the natural logarithm of total assets.

Dependent Variable

Interest Risk (IRR): This study measures the interest-rate risk in terms of the ratio of interest-sensitive assets to interest-sensitive liabilities (RSAL). The possible determinants of the interest-rate risk exposure are outlined below.

Independent Variable(s)

Equity Capital (ECT): The ratio of equity capital is the equity proportion compared to the bank assets. It is the capital-strength measure that is widely used as a probable determinant of the interest rate exposure of the bank (for example, Au Yong, Faff, and Chalmers, 2009; Fraser, Madura, and Weigand, 2002; Reichert and Shyu, 2003; Saporoschenko, 2002). Generally, banks having higher capital ratios do not have higher needs for external funding, thus reflecting a low financial leverage level. Fluctuations in the interest rate will not largely impact the revenue in those banks and, in turn, their stock returns. In addition, Fraser, et al. (2002) affirmed that the large equity capital level minimises the likelihood of bankruptcy and financial distress, hence evading strong sell-off of the bank stocks in reaction to possible negative shocks, for instance increasing interest rates. Accordingly, the high capital level could be seen as a shock absorber against unusual interest rate increases and other undesirable market shocks. The relationship between ECT and interest-rate risk exposure is expected to be negative.

Non-interest Income (NII): Non-interest income is measured by non-interest income divided by total revenue of the bank. NII has gained importance as a revenue source for conventional banks since the 1990s. Credit card fees, ATM surcharges and the sale of annuities and mutual funds fees are a few of the fastest growing NII items for conventional banks. In Islamic banks, Bashir (2003) contends that Islamic banks consider all income as NII that is

consistent with the total operating income. Fraser, et al (2002) asserted that a bank generates the NII from advising, underwriting and other services. When economic growth is reduced by high interest rates, the initial public offerings volume and other services e.g. acquisitions, are reduced too. Accordingly, a decline takes place in the fees which the bank generates from bridge financing, underwriting and advising. The higher the banks dependence on those fee types, the higher its sensitivity to any increase in the interest rates. Hence, banks that depend more on NII will be more exposed to interest-rate risk. Therefore, this study expects that there is a positive relationship between NII and interest-rate risk exposure.

Growth of Total Assets (GTA): It is also used to determine interest-rate risk exposure. Therefore if the total assets increase because of having short-term funds in order to provide long term loans, the GTA is going to result in increasing the profits and lowering the exposure to the interest-rate risk and vice versa. The relationship between growth of total assets and interest-rate risk exposure is expected to be negative.

Management Efficiency (MGT): The main goal of management is to keep managing the interest-sensitive gap. For example, in the case of Islamic banks, *Murbahah* contracts cannot be hedged via conventional bank tools such as interest rate swap and other derivatives tools which reduce rate- of-return risk exposure. Therefore, better Management reduces or prevents mismatching of the interest sensitive gap (W. Hassan, 2011). Consequently, this study expects that there is a positive relationship between MGT and interest-rate risk.

Size: A bank's size is positively correlated with its interest rate exposure. Entrop, Memmel, Wilkens, and Zeisler (2008) found that there is a strong relationship between the bank size and the interest-rate risk exposure in the context of German banks and concluded that banks with large size are more likely to be affected by the volatility of interest rate and have a high

level of risk. The study expects a positive relationship between interest-rate exposure and bank's size.

3.4.4 Performance-risk relationship model

$$PER_{it} = \beta_0 + \beta_1 CR_{i,t-1} + \beta_2 LR_{i,t-1} + \beta_3 IRR_{i,t-1} + \beta_4 GDPC_{i,t} + \beta_5 INF_{i,t} + \beta_6 SIZE_{i,t} + \varepsilon_{i,t} \dots\dots\dots (4)$$

Where,

PER = Performance of a bank is measured by return on equity (ROE) which is the ratio of net income to total stockholders' equity of bank.

CR=Credit risk as measured by the non-performing loan for the current year to total loan of bank.

LR = Liquidity risk as measured by the ratio of financing gap to total assets. Financing gap defined as the difference between a bank's loans and customer deposit.

IRR = Interest-rate risk as measured by the ratio of interest-sensitive assets to interest-sensitive liabilities within a year.

DGPC = Gross domestic product change as measured by the annual percentage change of GDP.

INF = Inflation as measured by the annual percentage change of inflation.

SIZE = The size of the banking firms as measured by the natural logarithm of total assets.

Dependent Variable

Performance (PER): This study measures the performance of bank based on its ROE (return on equity), it is a commonly used indicator of performance calculating an internal performance measure of an investor's value. It has the following three properties: (1) for an analyst depending on secondary or public information only it is commonly available; (2) a comparative report can be easily prepared based on various companies or various sectors of the economy; and (3) assessment of financial return of a shareholder can be done directly. Other indicators of performance used for measuring performance in the banking sector are the ROA

(Return on Assets) and NIM (Net Interest Margin). Van Horne and Wachowicz (2005) contended that ROE informs the firm's shareholders about profitability after deducting all taxes and expenses; it reflects how the firm has invested each dollar and its earnings. Moreover, it reflects the managerial efficiency (M. K Hassan and Samad., 1999; Sabi, 1996). Generally, the high ROE testifies to the management's efficient performance. Normally, companies with high growth have high ROE.

Credit Risk (CR): Bashir (2003) argues that banks of high-performance are likely to hold back their credit risk; those banks are inclined to have loan-loss provision and low non-performing loan. When a certain bank experiences a drop in asset quality in one year, it ordinarily, either via raising the non-performing loans or increasing the write-offs, increases its provision for loan loss. Such an increase in the latter will ultimately decrease profit and, in turn, the return to the shareholders is reduced in the same way. This normally happens to both Islamic and conventional banks. The relationship between credit risk and performance is expected to be negative.

Interest-Rate Risk (IRR): There is a relationship between the bank's performance and its exposure to interest-rate risk. Excessive risk-taking behaviour by a bank would not be conducive to financial stability and intolerable to both the regulators and depositors. One of the basic economy principles' is that a bank has to promote its soundness in order to maintain a stable economic system and society's confidence. Maudos and Guevara (2002) rightly maintain that since high risks will endanger a bank's position, it is expected that lower exposure to interest-rate risk will increase a bank's performance.

Liquidity Risk (LR): Shen, Chen, Kao, and Yeh (2010) affirmed that the liquidity risk is negatively and significantly related to a bank's performance. It is indicated that banks with larger

finance gap lack stable and cheap funds, and thus they have to use liquid assets or much external funding to meet the demand of funding. As borrowings rise, money market lenders may be concerned about a bank's creditworthiness. They may impose higher risk premiums on borrowed funds, and thus increase the bank's cost of funding which, consequently, decreases the bank's performance.

Gross Domestic Product (GDP): It is the value of final output of a country's goods and services (normally for the duration of one economic year) according to the prices of the market, not including the net income from abroad. There have been some findings suggesting a correlation between the business cycle and a banks' profits (Bikker and Hu, 2002; Demirgüç-Kunt and Huizinga, 2001). GDP is expected to positively affect a bank's profitability. A number of studies (for example, Allen and Nadi, 1998; Fritzer, 2004; Islam, 1995) demonstrated the methodical relationship between economic growth and financial development. Neely and Wheelock (1997) employed individual (per capita) income and suggested that GDP strongly and positively affect bank earnings. Likewise, Pasiouras and Kosmidou (2007) asserted that real GDP has a positive relationship with the profitability of the bank. Similarly, Said and Tumin (2011) assert that GDP demonstrates that greater economic growth encourages banks to provide more loans and allows them to increase their margins and improve their assets' quality. The relationship between GDP and performance is expected to be positive.

Inflation (INF): Being an important factor that affects a bank's performance, the inflation variable cannot be ignored in the study. Perry (1992) maintains that the inflation-performance relationship relies on the full anticipation of inflation expectations. The full anticipation of the inflation rate on the part of the bank management means that a bank can properly fine-tune interest rates to boost the revenues faster than the costs leading to making

greater economic profits. On the contrary, if it is not expected, the banks' adjustment to the interest rates could be slow. It will increase the bank costs more than its revenues, impacting, in turn, the bank's profitability negatively. A number of studies demonstrated that there is a relationship between bank's profitability and inflation (for example, Bourke, 1989; Molyneux and Thornton, 1992). Yet, some scholars found a negative relationship (Kosmidou, 2008). Regardless of being positive or negative, these findings suggest that there is a relationship between performance and inflation, making the latter an unavoidable factor in the study. This study expects that there is a negative relationship between inflation and performance of banks.

Size: A bank's performance is positively correlated with its size. Srairi (2009) found that the larger the size of the bank, the higher its profitability. The argument behind this conclusion is that large size may result in reducing the cost of gathering and processing information through economies of scale or in the case of economies of scope leading to greater loan product diversification and accessibility to capital markets, which are not available to small banks (Smirlock, 1985). However, for banks that have become extremely large, the effect of size could be negative due to bureaucracy and other reasons. Indeed, some studies found diseconomies for larger banks (for example, (Naceur and Goaied, 2008; Pasiouras. and Kosmidou., 2007). Table 3.2 provides a summary of the hypothesised relationships between the dependent and explanatory variables in the context of the econometric models discussed above.

Table 3.2: Hypothesised Relationship between Variables

Variable (s)	Expected Relationship			
	Credit Risk Model	Liquidity Risk Model	Interest Risk Model	Performance Model
Loan to Deposit (LD)	+		+	
Leverage (LEV)	+			
Funding Cost (FCOST)	+			
Management Efficiency (MGT)	-	-	-	
SIZE	+	-	+	+
Deposit Volatility (DEPVOL)	+			
Loan Volatility (LV)	+			
Growth of Total Assets (GTA)		+	-	
Equity Capital (ECT)			-	
Non-interest Income (NII)			+	
Credit Risk (CR)				-
Liquidity Risk (LR)				-
Interest-rate Risk (IRR)				-

3.5 Conclusion

This chapter presents the empirical models and discusses the development of hypotheses used in this study. The hypotheses are tested based on four econometric models that have been specified. They are: credit risk model, liquidity risk model, interest-rate risk model and the performance-risk relationship model. Finally, this chapter defines the dependent variable, independent variables and control variables used in the econometric models. The models are estimated using a panel data set of GCC banks.

CHAPTER FOUR

GCC Countries' Financial Systems

4.1 Introduction

As mentioned earlier, the objective of this thesis is to examine the determinants of credit risk, liquidity risk, and profit-rate (interest-rate) risks, faced by the Islamic and conventional banks in the GCC region and to assess the relationship between these risks and banking firms' performance. The previous chapter discusses the literature review related to this study, while this chapter will focus on the financial systems of the GCC countries. The GCC region consists of six countries including Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates. Although the GCC countries have some common features, the banking systems in each of these countries vary. They differ in terms of size, compliance with Basel standards, domestic regulatory landscape, and the structure of the banking systems. For example, while some Islamic banks are already operating in other GCC countries, Oman has just started its structuring of Islamic banking operations. Further, the monetary authority in each country has its basic regulations that the financial institutions are required to follow so as to limit the risk exposures of the financial institutions and to maintain the stability of the financial system. These regulations help gain public confidence in the financial system. Also, since the banking systems are prone to market failures, these regulations help maintain composure in the market. However, the regulations should be conducive to innovation of new financial products and services. This chapter discusses the banking systems of the GCC countries. Section 4.2 will focus on UAE banking systems, while the banking systems in Kuwait will be discussed in Section 4.3. Section 4.4 discusses the banking systems of Bahrain, followed by Section 4.5, explaining the banking

systems of Saudi Arabia. Section 4.6 will focus on the banking systems of Qatar. Section 4.7 will discuss the banking systems of Oman. Finally, Section 5.8 concludes the chapter.

4.2 The UAE Banking System and Regulations

In the UAE, the three types of banks operates are Islamic banks, Commercial banks and Investment banks. The Central Bank of the UAE jointly controls these banks. The fortitude for these established banking sectors in the UAE was sanctioned in 1980. In our study, Islamic banks are not defined as they were given licence in 1985 to execute Islamic banking operations in the UAE. However, the latter two systems, Commercial and Investment banks are controlled through the Organization of Banking (the banking regulations of the UAE excluding Islamic banks from this study) and Monetary System (Central Bank of UAE, 2012).

The number of locally operated commercial banks in the UAE by the end of 2010 was 23 inclusive of Islamic banks with 732 branches spread all over the country. Islamic banking being a small component of the banking sector, its success is published by International Islamic Finance Forum stating that its value in the UAE is growing at more than 15 percent - it is an outcome of its well-executed and successful dissemination strategies. The accumulative loan base of Islamic banking alone is also going up at around 15 percent annually. Similarly, in recent statistics issued by the UAE Central Bank, the accumulative worth of banking sector assets went up by 5 percent during initial seven months of 2011, valuing at USD 460 billion in comparison to USD 438 billion, at the end of 2010 (AME info Press Release, 2012).

The United Arab Emirates (UAE) has adapted Basel II International Banking Protocol, since 2006, to improve its overall banking systems performance. Further, pursuant to Circular No. 13/93, issued by the UAE Central Bank, all banks are obliged to maintain a minimum capital base relative to the total of their risk-weighted assets, as measured by the risk assets ratio. The

capital base of a bank is defined as the sum of tier I capital and tier II capital, minus certain prescribed deductions. Tier I capital shall be the paid-up share capital and published reserves of a bank. Profits of the current period cannot be included, except in certain exceptional cases at the discretion of the UAE Central Bank. Goodwill and other intangible assets, own shares held, shortfall in provisions, current year losses and others (as may be prescribed by the UAE Central Bank from time to time) must be deducted from tier I capital (Bank Guidelines, 2009).

Tier II capital comprises of undisclosed results, revaluation of assets limited to a maximum of 45 per cent of the excess of the market value over their net book value (revaluation reserves in respect of a bank's property assets are not to be included), hybrid (debt or equity) capital instruments, and subordinated term loans. The prescribed deductions from the aggregate of tier I and tier II capital are the investments in unconsolidated subsidiaries, investments in associate companies, investments in other banks or financial institutions and any other deductions, as may be prescribed by the UAE Central Bank, from time to time. The minimum risk assets ratio to be maintained by banks at all times is 10 per cent, where tier I capital must reach a minimum of six per cent of the total risk-weighted assets and tier II capital must not be more than 67 per cent of tier I capital (Hussein and Al-Tamimi, 2008).

UAE banks are required to file some mandatory reports to the Central Bank periodically. Furthermore, under the Banking Law, the UAE Central Bank is entitled to inspect the books, records and accounts of any bank at its discretion. In certain cases, the Central Bank may appoint administrators or representatives to temporarily manage a bank.

In January 2009, the UAE Central Bank announced that all banks in UAE must provide details of each loan in excess of 10 million Dirhams to the UAE Central Bank, so as to enable it to scrutinise the asset quality of the banks. In February 2009, the UAE Central Bank created an

online unit to settle disputes among banks, through which banks may lodge a direct complaint with the UAE Central Bank. Upon receipt of a complaint, the UAE Central Bank investigates the issue and notifies its decision within eight weeks. However, matters that are already presented before a judicial process and major financial problems or criminal cases are to be dealt with outside the purview of this online complaint system. The banks in UAE are operating by following the above discussed rules and laws (Annual Report of UAE Central Bank, 2010).

4.3 The Kuwait Banking System and Regulations

In Kuwait, the banking industry is found to be well concentrated with a Central Bank, Seven Conventional Banks that are split into 5 commercial banks and 2 specialized banks and lastly 5 Islamic Banks. Kuwait consists of the largest number Islamic Banks when compared to the rest of the GCC region. This comparison is based on the amount of assets that are present. 3 Islamic banks have been provided an operating license by the Central Bank of Kuwait. The Conventional Banking systems and the Islamic Banking systems are both at competitive positions in the economy. The local and Islamic banks consist of deposits worth USD 153,591.92 million. The National Bank of Kuwait (NBK) is nearly twice as much of the Gulf Bank and the two banks are known to have 50% of the total assets of the conventional banking system and provide 50% of the entire banking credit. The Central Bank of Kuwait (CBK) has carried out several activities like bank inspection units or offsite bank monitoring for the efficient monitoring and control process of these banks. The Central Bank makes persistent efforts to enhance the strength and safety of the financial positions of these units, based on international oversight standards, and to increase the ability of this sector to face the repercussions of the global financial and economic crisis, so as to resume its central role in strengthening domestic economic activity as well as

ensuring monetary and financial stability in the national economy(Central Bank of Kuwait, 2012).

Within this context, the Central Bank of Kuwait (CBK) continues its procedures to strengthen banking regulations, particularly those concerning risk management, including procedures for stress testing, as well as to emphasise the importance of internal evaluation of capital adequacy (ICAAP). The Central Bank of Kuwait developed tools and models used in financial Stress testings, which were provided to the banks on June 13, 2010, along with comprehensive guidance on conducting Stress testings on a semi-annually basis. The Central Bank of Kuwait also started focusing on Risk-Based Supervision, directing the banks to strengthen their capital base, and to build precautionary provisions along with specific and general provisions. This is the policy that has been undertaken, and is still ongoing, which targets to support their financial position against any negative repercussions of the global financial and economic crisis (Annual Report of Kuwait Central Bank, 2010).

As a further reassurance, the Central Bank of Kuwait (CBK) has assigned an international independent consultant to diagnose and assess the risks faced by the banking sector and to conduct the financial stress-tests on all Kuwaiti banks, in order to measure their ability to resist shocks and work during adverse situations. The results of these tests, which were based on three scenarios with increasing degrees of stress, have showed that the Kuwaiti banks, at the level of each bank separately and at the level of the banking sector as a whole, have the flexibility and the capacity to resist strongest shocks.

Within the framework of its efforts toward applying the international supervisory standards and fortifying the banking sector, and increasing its ability to withstand shocks, the Central Bank of Kuwait has started taking necessary measures to apply supervisory standards

issued by the Basel Committee, known as Basel III. These standards include a package of regulations that would enhance and improve the quality of capital money, in addition to regulations related to financial leverage, and promote liquidity ratios aimed at improving liquidity risk management and enhancing the degree of stability in the financial resources, according to the structure of uses of these banks, in addition to the standards aimed at macro-supervisory measures to deal with systemic risks. At the request of the Central Bank of Kuwait a joint team from the IMF and World Bank visited Kuwait from 15th to 27th March, 2010, for updating the Financial Sector Assessment Plan (FSAP), last conducted in 2004. The report of the joint team, which was issued in May 2010, included a tribute to the success of the supervisory authority in Kuwait in maintaining financial stability during the global financial crisis, in addition to rates of capital adequacy ratios in the banking sector, which were found to be higher than the minimum rate determined by the Central Bank of Kuwait (12%), and set by the Basel Committee standards (8%). In the same direction, the Central Bank of Kuwait has assigned the World Bank to conduct an assessment of governance standards on Kuwaiti banks and develop set of standards and practices for the same. The final World Bank report was issued in October 2010 (Annual Report of Kuwait Central Bank, 2010).

The Central Bank of Kuwait (CBK) is currently conducting an update on governance standards in banks and financial institutions, taking into account the lessons learned from the global financial crisis and the recommendations contained in the World Bank report. The CBK issued a circular on 7th February, 2011 to all banks and investment companies to prepare a separate statement to be displayed at the annual meeting of the General Assembly that includes all sanctions imposed on the bank or the company during the financial year. In August 2010, the CBK issued instructions to the Kuwaiti banks prohibiting them from providing any funding for

underwriting to increase their capital. This applies to the bank, its branches abroad and its subsidiaries, in order to ensure that the increase in capital from a new source supports the bank's capital base. The Central Bank of Kuwait continued applying its policies regarding the follow up of the banks, to ensure their commitment in established fees and commissions, to eliminate any overstatement of imposing such charges.

A circular was issued in 2010 to all banks, investment companies and exchange companies to enhance regulations of fighting against money laundering and terrorism financing operations, and to reinforce internal control systems to fight against such operations. Within the context of supportive services of the financial sector, the Central Bank of Kuwait, through its contribution in Ci-Net and chairing its Board of Directors, has guided that company to upgrade its business operations, raise its performance efficiency, and improve the quality of collected data, especially from consumer and instalment loans, with effective participation of the participants in this company. This is to make the database more informative, which provides a proper base for banks and investment companies to make credit-related decisions. The banking systems of Kuwait are operating by following the above rules (Annual Report of Kuwait Central Bank, 2010).

4.4 The Bahraini Banking System and Regulations

The financial sector of Bahrain is well-structured diverse in nature. It comprises of a wide range of conventional and Islamic financial institutions, including retail and wholesale banks, specialised banks, insurance companies, finance companies, investment advisors, money changers, insurance brokers, securities brokers, and mutual funds, one stock exchange. The financial sector of Bahrain is considered as the leading financial sector in the GCC region. This sector offers a diverse range of financial products and services. The amount of total assets for

the banking system (retail and wholesale banks) increased to USD 222.2 billion by the end of 2010 in comparison to USD 221.8 billion at the end of 2009. Among the total assets, wholesale banks represented 70.5 percent and retail banks accounted for 29.5 per cent.

With the Kuwaiti banking system, Bahrain is also improving its Islamic financing operations. Presently, it consists of the largest number of Islamic financial institutions in the Middle East region having 26 Islamic banks and 19 Takaful institutions (Islamic insurance companies). Moreover, it is prominently playing an active role in Islamic securities (*Sukuk*), comprising of both leasing securities as well as short-term government *Sukuk*. These Islamic banks offer a wide range of products consisting of *Murabahah*, *Al Islam*, *Ijarah*, *Mudarabah*, *Istitsna* and *Musharakah*. All the regulations consisting of strict or lenient practices, procedures, methods adopted in conventional banking are transformed and amended according to the *Shariah compliance*. These innovative products are a result of an effort by the Central Bank of Bahrain. Islamic banking has shown a remarkable performance here comprising of the total assets of USD 26.3 billion by June 2009 as compared to USD 1.9 billion in 2000 - an outstanding increase of more than 12 times. Similarly, the market share value has moved up from 1.8 percent of accumulative banking assets in 2000 to 11.1 percent in June 2009 (Central Bank of Bahrain, 2012).

The provisions of the Bahrain Monetary Agency Law - No 23 of 1973 and amended from time-to-time, lay specific and general responsibilities on the Bahrain Monetary Agency (BMA) in relation to licensing and supervision of banks operating in and from Bahrain. The Law provides for minimum capital and reserve requirements and authorises the BMA to determine the types of businesses that banks may conduct. It entrusts the BMA with powers of inspection, which includes a comprehensive system of quarterly and monthly statistical returns from banks.

Under the Law, the BMA is empowered, in certain circumstances, to take over the administration of a bank, which can lead to liquidation. Prudential information returns are required from all banks operating in Bahrain. The current requirements include quarterly prudential information return, in addition to monthly and half-yearly statistical returns, and yearly returns concerning management personnel and foreign exchange dealers. Other requirements include the auditor's management letter together with a response from the bank's management (Central Bank of Bahrain, 2012).

Since 1992, the published accounts of locally incorporated banks have been directed to comply with the International Accounting Standards (IAS). In the case of Islamic banks, separate arrangements were being developed. In 1997, the BMA instructed Islamic banks in Bahrain to apply five International Islamic Financial Accounting Standards (IFAS) and also to publish this information as supplementary to their audited financial statements. In 1998, the BMA added a further three standards and required Islamic banks to comply with these standards in preparing their accounts. Foreign banks in Bahrain were instructed to either adapt UK or US Generally Accepted Accounting Principles (GAAP) or to comply with IAS. Audited accounts should be submitted to the agency within three months of the calendar year end.

External auditors are appointed annually and must be acceptable to the BMA. The BMA has direct access to auditors so as to protect the financial integrity of a bank. Direct access by auditors to the BMA is allowed at the discretion of the auditors. Inspection is carried out on a regular basis that can cover any aspect of banks' operations. Regular meetings are held with senior management of banks to discuss past performance and future strategies. BMA maintains a close relationship with auditors in accordance with Bank for International Settlements (BIS) directives. Meetings are held with all locally incorporated banks in order to discuss issues such

as capital adequacy, asset quality, internal control, profitability and liquidity. Management, control systems, accounting and other book keeping records are inspected. Moneychangers provide the BMA with monthly turnover returns and quarterly P&L and balance sheet statements(Central Bank of Bahrain, 2012).

The Law restrains the banks from investing in real estate. With the approval of the BMA, banks are free to invest in other financial businesses. Off-shore banking units (OBUs) are not allowed to deal with residents of Bahrain except for the government and fully-licensed banks. They can also accept deposits from non-banks outside Bahrain to a minimum of USD 50,000. They can only make loans and advances to non-residents. Since November 1993, the provision of investment and other financial services other than by a bank requires a special license from the BMA. The CBB continued with its proactive supervisory approach, including enhanced monitoring of the banking sector, while concurrently taking steps to provide positive signals to the market. The objective was to provide adequate assurance to the consumers, ensure financial stability in the system, and enhance market confidence to facilitate economic growth (Central Bank of Bahrain, 2012).

With the objective of developing a timetable and a transitional period for the implementation of Basel III in Bahrain, the CBB requested its locally incorporated banks to perform an impact assessment of the Basel Committee proposals on higher global minimum standards for Banks on solo and consolidated capital adequacy ratios. Furthermore, as part of the CBB's endeavour to ensure its regulatory framework remains aligned with international best practices, the CBB requested banks to provide their comments on the Basel Committee proposal on methodologies for risk and performance alignment of remuneration (Annual Report of Bahrain Central Bank, 2010).

As part of its efforts to augment its onsite supervisory resources, the CBB appointed qualified Reporting Accountants to undertake onsite bank examinations. Fourteen such assignments were conducted by Reporting Accountants during 2010, covering both conventional and Islamic licensees. The issues examined included, inter alia, compliance with the Code of Practice for consumer credit and charges, risk management and control. The CBB continued with its monitoring of related party exposures on a monthly basis with the objective of limiting any risk concentration and ensuring compliance with the CBB rules. It also continued its monitoring of banks' liquidity position on a weekly basis, in addition to its assessment of liquidity on quarterly basis. The liquidity risk assessment was based on bank specific risks as well as external events affecting the bank, for which it used both quantitative and qualitative indicators. The weekly liquidity reports submitted by banks also highlighted maturity gaps between assets and liabilities under different time buckets.

The Directorates mandated all banks to submit risk assessment reports to monitor their financial position more accurately. These reports constituted a thorough investigation into high level controls, procedures and processes within banks in Bahrain in relation to credit, market, operational, liquidity risks, as well as other risks including reputational risks and strategic risks. The reports also covered corporate governance, human resources, compliance functions, financial and accounting controls and investor relations and measures covering the banks' readiness to comply with Basel II, Pillar 2 requirements (Annual Report of Bahrain Central Bank, 2010).

4.5 The Saudi Arabian Banking System and Regulations

When compared to the GCC region, Saudi Arabia has a wide spread financial system and is concentrated with banks. The financial trades of the country is carried out by five Shariah

acquiescent Islamic banks which are Al-Rajhi, the Bank Al-Bilad, the National Commercial Bank (NCB), Islamic Development Bank and Alinma. The Central Bank of Saudi Arabia is responsible for controlling all Islamic and Commercial Banks of the region and also monitors the credit being given out by these banks or other financial institutions. The total assets of the banking sector in Saudi Arabia have increased by 3.3% as compared to 2010 and are 401 billion as of April 2011. 65% of the cost of USD 1.5 billion at project Rabigh was financed by NCB, Al Rajhi and Alinma (Saudi Arabian Monetary Agency, 2012).

During 2009, the Saudi Arabian Monetary Agency (SAMA) reinforced its Risk Based Supervisory Approach and Methodology first introduced in 2005, for which, a Risk Based Supervision Guidance Manual was prepared with detailed procedures. Currently, this manual is being revised and enhanced so as to include elements that are related to the Internal Capital Adequacy Assessment Plan (ICAAP). The ICAAP procedures were completed at the end of 2008, which enables banks to submit their own ICAAP documents. The ICAAP documents include an analysis of all risks related to Pillar 1 and Pillar 2. Risk Based Supervisory Framework has been designed in line with the concept that all supervisory work, off-site or on-site, should be directed towards preparation of a single Risk Profile of a bank documenting their assessments related to credit, market, operational risks, and other risks related to Pillar 2 - capital adequacy standard, including strategic, liquidity, interest rate, concentration, and reputation risks, etc. Included under the category of risk mitigators are elements such as effectiveness of the board, the audit committee, senior management, financial analysis, operational management, risk management, internal audit, and compliance functions. The assessment of risk and risk mitigators leads to the assessment of net risk position of the bank. Further factors taken into account include the capital strength of the bank and its earnings to be subject to a Composite

Risk Rating which in turn boosts the supervisory process and contributes to comprehensive planning of both off-site and on-site supervisory work (Ramady, 2009).

In June 2004, the Basel Committee on Banking Supervision issued a new international banking standard entitled: “International Convergence on Capital Measurement and Capital Standard.” This standard, commonly known as Basel II, sets a new minimum capital advancing ratio, calculated on the basis of risk consideration. It revised the 1988 Capital Accord, by introducing more risk-sensitive capital requirements for various risks, including credit, market and operational risks, as well as other risks like liquidity, interest rate and reputational risks, etc. It also introduced the concepts of capital adequacy, target and buffer capital, and capital requirements under stress conditions. In Saudi Arabia, the 1988 Capital Accord was introduced by SAMA through a Supervisory Guidance in 1992. The implementation of this international standard permitted SAMA to supervise Saudi banks’ capital adequacy against this global yardstick and allowed comparisons with international banks. Throughout 1995-2009, Saudi banks maintained a high level of capital adequacy averaging to 19.25 per cent, against the minimum required level of 8 per cent. In 2009, the ratio declined to 16.5 per cent following the introduction of Basel II. As a member of the Basel Committee’s International Liaison Group, SAMA was an active member, contributing to the development of Basel II Framework. This had also permitted the Agency to be fully involved in the consultation process relating to development and to ensure that Saudi banks fully participated in this process. Since June 2009, SAMA has become a member of the Basel Committee for Banking Supervision (BCBS) from which a number of committees, sub-committees, working groups and work streams have stemmed, which are continuously involved in developing or refining global banking and supervision standards. SAMA is actively participating in various working groups and committees

that are focusing on refining and enhancing Basel II as well as other international standards. The Basel II framework has 3 components: Pillar 1, Pillar 2, and Pillar 3. In this regard, Pillar 1 addresses credit, market and operational risks; Pillar 2 deals with the Supervisory Review Process and requires banks to identify, measure, and monitor all other risks such as additional Pillar 1 risks, liquidity, macroeconomic, interest rate, reputational risks, etc. It also includes the Internal Capital Adequacy Assessment Plan (ICAAP) process that requires a bank to establish its target capital levels and identify capital buffers on an ongoing future basis. Pillar 3 deals with transparency and market discipline and cover minimum disclosures with regard to capital, financial statements, annual reports and the website of the bank (Annual Report of Saudi Arabian Monetary Agency, 2011).

SAMA required all Saudi banks to implement Basel II framework from 1st January 2008. The main reason for applying Basel II to the Saudi banking system was not due to any concerns about capital adequacy, but to promote and strengthen risk management systems and processes and to ensure greater transparency for an enhanced market discipline. SAMA expects Saudi banks to maintain their leading position among international financial institutions that completely apply Basel II. Following the announcement of Basel II standards in June 2004, SAMA took several steps and measures and issued specific guidance on Pillar 2 risks and the Internal Capital Adequacy Assessment Plan (ICAAP). The Pillar 2 component of Basel II involves verification and monitoring of capital adequacy of banks in relation to their risk taking activities. It also encourages the strengthening of risk management processes and systems and to adapt more proactive planning practices of capital and management. The full transition to Pillar 2 was completed by the end of 2008 through the implementation of the ICAAP process, and banks began submitting an ICAAP document annually. The ICAAP is a significant document from the

perspective of both management and the regulator; it brings together in one place the capital requirements for strategies, business plans, acquisitions, dividend policy, and all additional Pillar 1 and Pillar 2 risks. It also establishes a framework for economic, regulatory and accounting capital purposes and helps identify planned sources of capital to meet the bank's needs. It also includes an assessment, whether the bank holds sufficient capital or there is a need for additional capital buffers for risks that are not adequately covered. Banks have conducted extensive work on various Pillar 2 risks, by identifying and quantifying these and in assigning risk capital. These risks include liquidity, interest rate, reputational, macro-economic and concentration risks. SAMA supervised ICAAP Pilot Runs and held bilateral discussions during 2008 to finalise the implementation of the ICAAP process, which was fully implemented in 2009 (Annual Report of Saudi Arabian Monetary Agency, 2011).

The banks delivered their first formal ICAAPs on 28 February, 2009 covering a period of two years (January, 2009 to 31 December, 2010). SAMA has made significant progress in the implementation of Pillar 2 in Saudi Arabia, including the ICAAP process on a timely basis. This is a remarkable achievement in view of the complexity of Pillar 2 (Supervisory Review Process). To proceed forward, SAMA will use a bank's annual ICAAP as a main tool for its Supervisory Review Visits under its Risk Based Supervisory Approach. Given the comprehensive coverage of risks provided in the ICAAP, it will enable SAMA to maintain an updated Risk Profile for each bank.

An essential feature of Basel II is Pillar 3, which is designed to promote market discipline and transparency for achieving security and soundness of the banking system. SAMA implemented Pillar 3 through its Guidance Document circulated in May 2007. It required banks to fully disclose qualitative and quantitative information concerning capital and risks. This

disclosure is achieved through banks' quarterly, biannual, and annual financial statements, annual reports and websites. Within the context of the implementation of Basel II, SAMA's focus over the past few years has been to encourage Saudi banks to use Stress-Test as a supplementary tool for their Risk Management practices. In this regard, SAMA issued its first draft guidance concerning Basel II in May 2005, where banks were required to perform the Stress-Test by determining the unfavourable effects of various economic scenarios on their credit exposures and overall Capital Adequacy. SAMA's second guidance document concerning Basel II, issued in June 2006, further elaborated and offered additional guidance on Stress-Test requirements under Pillar 1 and Pillar 2, as well as for internal risk management purposes with regard to limit structure, market risk, capital planning, etc. SAMA's two guidance documents concerning ICAAP formulation offered further directions on Stress-Test of capital requirements under Pillar 2 related to market risk, liquidity risk, interest rate risk, and macroeconomic and business risks, etc. In January 2009, SAMA also issued the Basel Committee's proposed Stress-Test standards to the banks to further strengthen their systems. SAMA's Basel II team closely monitored specific testing practices in its ICAAP review process and required banks to provide sufficient capital buffers under stress conditions.

For branches of foreign banks in Saudi Arabia, SAMA is carrying out consultations with their parent banks and their home supervisory authorities. The objective is to be fully aware of the Basel II implementation plans of the parent banks and to establish contact points for exchange of relevant information. In this regard, SAMA evaluates the Home Supervisory Authorities Approaches for the implementation of Basel II in their jurisdiction, the relevant guidance provided and the options and national discretion adapted. SAMA also consults the host authorities for Saudi banks' branches in other countries. Furthermore, as a host authority, SAMA

is a member of two supervisory bodies of major International Banking Groups, which also serve to further facilitate the implementation of Basel II of Foreign Banks' branches in Saudi Arabia through sharing and assessment of relevant information and data concerning capital and risk(Annual Report of Saudi Arabian Monetary Agency, 2011).

For Liquidity, profitability and financial solvency of banks, the banking sector achieved good results during 2009, although its net profits dropped by Rls 3.1 billion to Rls 26.8 billion from Rls 29.9 billion in 2008. Total assets of the banking sector rose by 5.2 per cent to Rls 1,370 billion in 2009 compared to Rls 1,302 billion in the preceding year. Loans and credit facilities remained unchanged at Rls 734.2 billion. Customer deposits grew by Rls 94.4 billion to Rls 940.5 billion in 2009, from Rls 846.1 billion in the preceding year. Liquidity ratio stood at 36.5 per cent in 2009 against 33.8 per cent in the preceding year, while the capital adequacy ratio (Basel II Standard) was 16.5 per cent compared with 16.0 per cent in 2008. The ratio of credit to the public and private sectors to total deposits stood at 78.3 per cent at the end of 2009 compared to 88.0 per cent at the end of 2008 (Annual Report of Saudi Arabian Monetary Agency, 2011).

4.6 The Qatari banking system and regulations

The banking sector has grown overwhelmingly showing a strong asset growth during 2010. The asset grew stronger by approximately 25 percent, a notable improvement on the growth rate of 22 percent recorded during 2009. The banking sector in Qatar has a large financial institution competition with each other and has become highly aggressive; the reason for this tough competition is the increase in the number of banks and more product complexity. An average asset is valued at QR 505.7 billion as compared to 109 percent in 2010 GDP (Gross Domestic Product). There are three types of banks operate in Qatar are commercial banks (have 11 banks

for both national and foreign), Islamic banks (4 banks) and a specialised bank providing financial intermediation services in domestic affairs.

In the recent years, conventional banks stock prices and index rating retrieved; consequently, Islamic banks outclass the performance leaving conventional banks behind as well as the Qatar Exchange overall Index from January to August 2011. The group-wise analysis of banks discovered that during the year, the growth rate for credit lent by Islamic banks was almost double the number provided by commercial banks showing an extraordinary growth of Islamic banking products. This growth encourages the Islamic banks to expand their share in the cumulative credit market and recorded a massive growth in deposit deployment of more than 60 percent; the figures for commercial banks were much reasonable whereas foreign banks reflected minus deposit growth at the end of the year (Central Bank of Qatar, 2012).

The Qatar banking regulations were substantially modified by the promulgation of the Law issued by the Decree 33 of 2006 relating to the Qatar Central Bank (QCB). The QCB has the task of establishing and executing the government's financial policy, managing the exchange rates, and monitoring the operations of banks and financial institutions. Pursuant to the Decree, the QCB may ask banks operating in Qatar to maintain with a reserve fund to guarantee the various deposits, and may impose financial penalties on non-compliant banks. It authorises the QCB to approve the opening and closing of a branch or any other act affecting the form of financial institutions, or the opening of branches abroad. Reference to financial institutions in the law covers banks as well as financial institutions. The QCB issues mandatory regulations and may ask for any guarantees as may be required. Decree 33 has created a specialised committee to look into banks' and financial institutions' violations. It has also catered for a large range of penalties for infringements by financial institutions, and established a specific mechanism to

assist defaulting financial institutions and to safeguard the rights of their clients (Meouchi,Badri, and Meouchi, 2008).

Furthermore, Qatar has established the Qatar Financial Centre (QFC) by virtue of Law no. 7 of 2005, which provides for the basic construction of the centre's buildings and establishes the QFC's Authority, Regulatory Authority, Appeals Body, and Tribunal. The centre is designed to allow foreign banks, insurance companies and other financial institutions to operate in Qatar, either through a subsidiary or through a branch of the foreign entity, under the control of the QFC Regulatory Authority rather than the Central Bank. The regulations establish the legal framework, including legal and business infrastructure, for entities operating in the centre. The regulations enacted under the QFC Law define the management, objectives, duties, functions, powers, and constitution of the Regulatory Authority, which is an autonomous body that handles license granting. They also define the role and function of the QFC Authority, a commercial body. To operate in the QFC, a firm must be registered before the centre's registration office and the applicant must demonstrate its ability to comply with the QFC's standards and requirements. Firms authorised to conduct relevant financial services activities will be supervised by the Regulatory Authority, which can take enforcement or disciplinary action for non-compliance with applicable laws and rules, noting that such decisions may be challenged before the Appeals Body. The regulations applicable at the QFC are continuously being developed and cover many of the banking and financial sector's main issues .QCB obliges all national banks to apply all the ceilings and supervisory ratios on the consolidated level of the Bank and its groups (branches and subsidiaries both inside and outside Qatar). QCB also expands its on-site and off-site supervision to include the bank and its group inside and outside Qatar.

Law No. 33/2006 empowers QCB to perform certain functions in order to ensure the liquidity and solvency of the banking system in Qatar. Some of the functions performed by QCB are given below:

1. QCB may, in emergency situations, grant loans and issue obligations to financial institutions not exceeding 50 per cent of the bank's capital and reserves, when such loans or obligations are necessary to support the bank's liquidity. QCB may extend the maturity of these loans or obligations based on a reasonable plan, specifying the measures and procedures that financial institutions must adopt in order to meet the financial requirements set by the QCB.
2. Support banks' liquidity through Repo transactions with the Central Bank and other mechanisms specified by the Bank.
3. Issue instructions to the banks prescribing conditions or financial ratios, which all banks must adhere to, in order to ensure their liquidity and solvency, including liquidity ratio and credit ratio, in addition to the instructions issued with regard to the bank's liquidity management in both regular and unusual circumstances. QCB shall also assess the liquidity management risks at each bank, in accordance with these requirements. In this regard, the Central Bank obliged all banks to apply the capital adequacy ratio according to Basel II, based on specific executive instructions with a minimum ratio prescribed at 10 per cent compared to 8 per cent specified in the agreement.
4. The QCB may decide to put any financial institution under its temporary management if such institutions become endangered to insolvency(Annual Report of Qatar Central Bank, 2010).

4.7 The Omani Banking System and Regulations

In Oman, the financial industry have undergone vast structural reforms such as financial innovations, technology advancements, de-regulation, corporate governance practices, advances in settlement and payment systems. Oman's banking system comprises of the Central Bank of Oman, specialised banks, non-bank finance, leasing companies, money exchange and commercial banks. There were seventeen commercial banks consisting of 10 foreign and 7 local banks by the end of 2010. The banking system was well dominated by the three largest local banks accounting for more than 60 percent of total assets, 63 percent of the cumulative credit, and 57 percent of total deposits - having the accumulative assets of USD 24.5 billion by the end of 2010 (Annual Report of Oman Central Bank, 2010).

Oman does not have any Islamic banking sector as it does not allow '*Shar'iah-compliant*' financial institutions, and the situation doesn't appear to be changing in the near future. The idea behind this trend is that all banks should be international, and do not deal with specific operations and regulations. However, in 2011, the Central Bank of Oman (CBO) has decided to issue license for Islamic Banking through exclusive Islamic banks and windows of existing licensed conventional banks (Central Bank of Oman, 2012).

The CBO undertook a number of regulatory and supervisory initiatives during recent past with regard to banks and other financial institutions with the goal of promoting confidence in the banking sector and ensuring efficiency and stability in the markets. The policy initiatives were a part of the ongoing financial reforms rather than a response to the global financial crisis and were guided by CBO's resolve in following international best practices. During 2010, a joint mission of the IMF and the World Bank gave an update on the Financial Sector Assessment Program (FSAP) for Oman. Issues included the compliance of Basel Core Principles, supervisory

framework, stress testing and financial stability. The CBO mandated implementation of Basel II in January 2007 with standardised approach for credit and market risk and the basic indicator approach for operational risk. Regarding Pillar III (Market discipline) requirements, all banks complied with the disclosure norms as part of their annual financials. In regards to Basel III compliance, banks in Oman have traditionally operated at higher and comfortable capital levels. To strengthen the regulatory capital position further, the minimum capital to risk assets ratio was enhanced from 10 per cent to 12 per cent and all the banks in Oman have achieved the ratio as at the end of December 2010. The system wise capital adequacy ratio for commercial banks stood at 15.8 per cent at the end of 2010 as against the mandated 12 per cent. Further, the capital quality of banks in Oman is significantly stronger on account of the high level of common equity and overall Tier I capital and thereby well placed to comply with the revised Basel III capital requirements. The risk-based supervision, which had been recently introduced on a pilot basis, would cover the entire banking system by 2012. Inflow of information from the risk-based supervision is being integrated with the off-site monitoring to keep a constant vigil over the banking system. Preliminary work has already been done to set up a financial stability unit within the CBO for macro prudential supervision of the financial system and to produce a financial stability report (Annual Report of Oman Central Bank, 2010).

The Monetary Policy and Banking Development Committee has been regularly evaluating the regulatory and supervisory reforms suggested by international standard setting bodies and appropriate actions are being taken on those issues, keeping in view their relevance to Oman. In view of the inherent risk attached to lending abroad, the ceilings on the non-resident exposures were lowered in April 2010 to 2.5 per cent and 20 per cent of the local net worth of the lending bank for individual exposure and aggregate level, respectively, from the previous

limits of 5 per cent and 30 per cent of the net worth. The financial statements have been prepared in accordance with the Banking Law 2000, and in conformity with the International Financial Reporting Standards (IFRS) except for the accounting treatment of revaluation gains and losses on foreign currencies, shares, bullion, and derivatives that are recognised through the statement of changes in capital and reserves, and the presentation of the statement of comprehensive income in accordance with the requirements of the Banking Law, 2000.

As part of its liquidity management operations, the Central Bank issued its own certificates of deposit and the outstanding amount at the end of 2010 amounted to RO 804 million. The recent global financial crisis motivated a review of the role of central banks in ensuring financial stability. Accordingly, the reform process in the financial sector has been taken forward with the objective of maintaining a healthy, strong, and resilient banking system. Considerable progress has been achieved in strengthening the regulatory and supervisory norms with a view to inducing greater transparency, modernisation, accountability and market discipline amongst the participants. The most significant achievement in the banking sector in Oman has been the improvement in financial health of banks in terms of asset quality, provision coverage, capital adequacy and profitability, along with an increasing focus on risk management. Oman's banking system continued to perform well in its primary role of financial intermediation depicting optimism and resilience during 2010, consistent with the recovery of the real economy (Annual Report of Oman Central Bank, 2010).

4.8 Conclusions

The banking systems in the GCC region are not homogeneous. The state-owned banks have a notable percentage of stake in the banking systems in UAE and Qatar while the banking systems in Bahrain, Kuwait, and Oman is mostly privately owned and the banking systems in

Saudi Arabia is between the two groups. The public investors play a central role in private banks in some of the countries in the GCC region which can blur the distinction between state and private ownership. GCC banks have stronger links with global financial systems than banks elsewhere in the region. The recent trends shows that the banking systems in GCC region have been more integrated with the global system through more open cross-border flows. Some GCC countries are showing more dependency on foreign funding before the crisis and eventually suffered sudden funding stops and a stronger crisis impact. The most developed Islamic banking sectors are observed in Bahrain, Kuwait, and the United Arab Emirates in the GCC region. Islamic banking is expanding rapidly in Qatar, Saudi Arabia, and Oman. The majority of Islamic banks are privately owned. In some countries under this region, conventional banks offer Islamic products and services. To compete with the Islamic banks in other countries under the GCC region, Qatar has issued a circular for the operation of Islamic banks in early 2011. For preserving the resilience of GCC financial systems, there is a need to upgrade the regulatory and supervisory framework, improving liquidity management, and developing debt markets. The GCC countries adopted certain measures before the global financial crisis, especially in order to control retail lending but these measures came lately. The expanded use of those measures that adopted by the GCC countries can be used to reduce the asset price cyclicity as the economy of GCC countries are relied on hydrocarbon revenues. There is a weakness in the liquidity management frameworks for Islamic banks in the GCC region. In addition to providing a complementary source of funding, debt instruments would allow banks to reduce interest rate risk and maturity mismatches on their balance sheets. The next chapter discusses the results of the analysis(Rocha,Arvai, and Farazi, 2011).

CHAPTER FIVE

EMPIRICAL RESULTS AND DISCUSSION

5.1 Introduction

This chapter presents the financial characteristics and the regression model to identify the differences between Islamic and conventional banks in GCC countries in term of risks (credit, liquidity, and interest-rate risk) and performance. It presents a summary of all the collected data compiled for the study and investigates whether Islamic banks differ from conventional banks. Moreover, it conducts a correlation analysis on the dependent and the independent variables and applies multiple regression models for examining the factors that may contribute to the determination of credit risk, liquidity risk, and interest-rate risk of both, Islamic and conventional banks.

This chapter is divided into five major sections. Section 5.1 introduces the chapter, Section 5.2 presents and analyses the descriptive statistics of the variables used in this study and tests the differences in means of banks among GCC countries in term of risks and performance. Section 5.3 shows the results of the non-parametric Kruskal Wallis test of differences in performance and risks of Islamic and conventional banks. The correlation results are presented in Section 5.4 in order to identify the relationship between key variables (performance, credit, liquidity, and interest-rate risks) and their determinants. The results of the regression analysis are presented in Section 5.5 and the final section, Section 5.6, concludes the chapter.

5.2 Descriptive Statistics and Test for Differences in Means

Table 5.1 shows the descriptive statistics of the variables used in this study and presents the aggregate descriptive statistics of the variables for both, Islamic and conventional banks. The average total assets of the banks in the sample are USD 123,795 million, ranging from USD 454

million to USD 3,877,981. The mean of Credit Risk (CR), which is defined by the ratio of Non-Performing Loans (NPL) to total loan is 0.038, ranging from 0 to 0.455. The mean of Liquidity Risk (LR) measured by the ratio of financing gap to total assets is 0.170, which varies from 0 to 0.770. The average Interest-Rate Risk (IRR) measured by the ratio of interest-sensitive assets to interest-sensitive liabilities of banks is 0.172. The mean of performance measured by the return on equity is 15.33 per cent, which varies from -30.26 to 47.07 per cent. Similarly, the average Loan to Deposit ratio (LD) is 0.902, varying from 0.004 to 3.740, and the average fund cost (FCOST) is 0.0310 ranging from 0.001 to 0.140. While the mean of deposit volatility (DEVOL) is 0.131, ranging from 0.010 to 0.327, the mean of loan volatility (LVOL) is 0.135 spanning from 0.018 to 0.346. The mean of management efficiency (MGT) measured by total earning assets divided by total assets is 0.1210, ranging from -0.925 to 1.440. The average Growth of Total Assets (GTA) is 0.147, ranging from -0.800 to 0.867.

Table 5.1: Descriptive Statistics on Banks in GCC countries, 2006-2010

	N	Minimum	Maximum	Mean	Std. Deviation
Total Assets (In Million USD)	315	454	3877981	123795	330696
CR	315	0.000	0.455	0.038	0.047
LR	315	0.000	0.770	0.170	0.154
IRR	315	0.000	0.912	0.172	0.131
PER	315	-30.26	47.070	15.330	7.890
LD	315	0.004	3.740	0.902	0.443
LEV	315	0.000	1.8630	0.6047	0.2992
FCOST	315	0.001	0.140	0.0310	0.017
MGT	315	-0.925	1.440	0.1210	0.215
SIZE	315	5.010	9.070	6.880	0.596
DEVOL	315	0.010	0.327	0.131	0.078
LVOL	315	0.018	0.346	0.135	0.074
GTA	315	-0.800	0.867	0.147	0.163
ECT	315	0.770	56.300	16.000	7.680
NII	315	-0.545	1.740	0.329	0.217

CR is the credit risk, which is measured by the non-performing loan for the current year to total loan of bank; LR is the liquidity risk measured by the ratio of financing gap to total assets; IR is the interest-rate risk measured by the ratio of interest-sensitive assets to interest-sensitive liabilities within a financial year; PERF is the performance of a bank as measured by the Return On Equity (ROE), which is the ratio of net income to total stockholders' equity of bank; LD is loan to deposit ratio measured by the total loans divided by deposits; LEV is the leverage as measured by total liabilities divided by total assets; FCOST is the funding cost, which is measured by the sum of interest expense and non-interest expenses divided by total assets; MGT is the management efficiency as measured by total earning assets divided by total assets; SIZE is the natural logarithm of total assets; DEPVOL is the deposit volatility measured by the standard deviation of deposits divided by the average total assets of bank; LVOL is the loan volatility as measured by the standard deviation of loans divided by the average total assets of bank; GTA is measured by the Growth of Total Assets; ECT is the equity capital measured by the equity capital divided by total assets of banks; NII is the non-interest income measured by the non-interest income divided by total revenue of bank.

Table 5.2 presents the Differences in Means in banks cross GCC countries. The number of observations is highest in United Arab Emirates and the lowest in Oman because there are no Islamic banks operating there. Bahrain's banks have lowest means of non-performing loan of 0.023 and lowest means of Return on Equity, the performance determinant being 13.60. However, the highest means of non-performing loans is Kuwait banks with 0.059. This result is consistent with the study of Espinoza and Prasad (2010) who found that the Kuwaiti banks have the highest means nonperforming loans and this is because of loan concentration in equities, real estate, and the battered investment companies' (ICs) sector. Whereas Qatar's banks have highest means of return on equity and they have the highest means of financing gap the liquidity risk determinant. It observes that the means of non-performing loans in Qatar's banks and Saudi's banks are similar values. It can be deduced that the values are low and closely spread to the mean for the ratio of non-performing loans to total loans for all countries' banks and this is because the financial systems of the GCC have strongly entered the worldwide crisis, with high capital sufficiency and unpretentious NPLs (Khamis and Senhadji, 2010). Moreover, the lowest means of financing gap the determinant of Liquidity risk exposure is Oman's banks 0.128. Table also reports the highest means the ratio of interest-sensitive assets to interest-sensitive liabilities, determining the interest rate risk (IRR) exposure is United Arab Emirates' Banks 0.189 while the lowest averages is in Kuwait's banks 0.149.

5.2 Descriptive Statistics according to Country

Countries- (Variables)		N	Minimum	Maximum	Mean	Std. Deviation
Bahrain	CR	50	0	0.254	0.023	0.04
	LR	50	0.003	0.511	0.157	0.142
	IRR	50	0.001	0.653	0.164	0.147
	PER	50	-30.26	45.48	13.6	11.39
Kuwait	CR	45	0	0.351	0.059	0.08
	LR	45	0.006	0.623	0.192	0.206
	IRR	45	0.01	0.276	0.149	0.073
	PER	45	0.03	26.59	13.84	7.08
Oman	CR	29	0	0.091	0.048	0.019
	LR	30	0.006	0.425	0.128	0.108
	IRR	30	0.004	0.679	0.151	0.147
	PER	30	7.61	26.47	15.17	4.39
Qatar	CR	35	0.001	0.081	0.028	0.018
	LR	35	0	0.77	0.211	0.232
	IRR	35	0.003	0.912	0.186	0.148
	PER	35	12.69	27.95	19.37	4.43
Saudi Arabia	CR	55	0.002	0.079	0.028	0.019
	LR	55	0.025	0.446	0.205	0.087
	IRR	55	0.011	0.444	0.167	0.099
UAE	PER	55	0.61	47.07	16.9	9.23
	CR	100	0	0.455	0.04	0.05
	LR	100	0	0.746	0.145	0.131
	IRR	100	0.001	0.834	0.189	0.145
	PER	100	0.3	31.77	14.63	6.47

CR is the credit risk which is measured by the non-performing loan for the current year to total loan of bank, LR is the liquidity risk as measured by the ratio of financing gap to total assets, IR is the interest-rate risk as measured by the ratio of interest-sensitive assets to interest-sensitive liabilities within a year of bank, PERF is the performance of a bank as measured by the return on equity (ROE) which is the ratio of net income to total stockholders' equity of bank.

Table 5.3 shows the results of test for differences in means of risks and performances according to each GCC country. The Kruskal-Wallis χ^2 statistics reveals that there is a statistically significant relationship for credit risk, liquidity risk, and performance, whereas there is no significant relationship for interest-rate risk exposure between 2006 and 2010. The reasons for these significant differences could indicate to the differences between GCC countries' financial system as discussed in the previous chapter. Moreover, the GCC banking systems became vulnerable during the recent global crisis due to the impact it had on the economies of the GCC

countries. Some of the important reasons are higher reliance on external financing, and greater exposure to the real estate and construction industry and equity prices.

From the year 2003 to 2008, the GCC countries have experienced an asset price bubble due to their banking industry liquidity, oil price booms, pro cyclical government spending, rapid growth of credit connected to domestic imbalances and optimistic investors and consumers towards the non-oil real estate industry. The requirement of external funding grew as the growth of credit took place from the stable household deposits. In the year 2008-9 the region suffered severe downfall in their economy due to inflation. The short term capital receded from the economy, the cycle of the external debt from the private sector was stopped and oil revenues were withdrawn.

When credit is provided to a consumer certain risks are associated with it. The non-performing loans have been regarded as the credit risk problem and the ratio of these loans has decreased since 2003 even though there was a high credit growth rate. Considering the economic crisis in the year 2008, the non-performing loans were still considered proportionally low. Even though the problem of non-performing loans is not severe, the authorities have been requested to manage a loan loss provision for the years 2009 and 2010 along with several International standards for handling the NPLs (Khamis and Senhadji, 2010).

Due to the crisis in the economy, the asset value has declined to a great extent as observed in the balance sheets of the banks. The construction and real estate sector has suffered the most during this crisis period in the GCC countries. Two of the largest conglomerates of Saudi Arabia have defaulted on their loan which is why providing loans to the large organization has become a difficult tasks for the banks.

It is believed that restructuring would help the economy of the UAE and other GCC countries; to achieve this purpose, the prime government related holding company the Dubai World has made announcements and is searching for a loan halt.

The cash inflow began to shrink in the beginning of 2008 as expected capital inflows reversed and liquidity was tightened more following the Lehman's destruction in September 2008. However, the liquidity flow through injecting money by the GCC authorities through the Central bank repos and through placement of the government deposits managed the proper flow of cash in the region rapidly.

However, the amount of cash flow in the banking industry got badly affected in 2008 when the events like return of unpredicted foreign deposits and constrained cash flow in international capital market. Banks in the GCC region got extremely dependent on the external financing, this increased tremendously since 2003 and reaching out at USD 103 billion in September 2008, the cash flow ratio were ranked on a lower side according to international standards, reproducing comparatively high asset/liability maturity variances in the GCC banks.

The UAE, Saudi Arabia and Bahrain did the largest issuances in the GCC regions. The cash flow went up in 2007 in these countries showing the inflow of capital in assumption for an appreciation of the GCC exchanges. A huge amount of these inflows were received by the UAE as shown by a remarkable increase in its liquidity ratio in 2007. Several liquidity indicators show that such conditions of constrained liquidity will go back to their 2006 levels or even reaching high by the end of the first quarter of 2009 (Al-Khouri, 2011).

Kuwait has a steady less liquidity ratio in the GCC during the period of 2000-2009 whereas the UAE liquidity ratio went down tremendously and continued to stay low during the global downfall. With reference to Tier I capital of Basel III, liquidity will remain an intimidating issue.

Hence, banks much make use of adaptable policy on the liquidity risk management and introduce principles of institutional control where a handsome percentage of liquidity is maintained for the survival in case of crises situations.

In the Table 5.3, it is observed that the performance of the banks in the GCC regions is not standardized and differs to a great extent. Their situations are considered viable at any point of time and have different kinds of layout present which has helped them present extraordinary performance in the economy.

The Central Bank of Bahrain and the Bahrain authorities have come together to monitor the present condition of the nation to help revive the economy. It has been observed that recovery is only possible if the real estate market revives specially in the case of Kuwait. Apart from the real estate market, different kinds of aspects are the reason why the banking sector is not performing efficiently. These factors differ in different regions or states. According to Moody's analysis, the real estate and construction sectors have received 33% of the credit issued by the retail banks in Bahrain. The real estate boom of Dubai received investment from only a few institutions from UAE and the IMF provided nearly 33% of the total credit of the two sectors to the Kuwaiti shops who belonged to the private sector.

Subsequently, banking systems found in Oman, Qatar and Saudi Arabia are much secure as most of the issues related to the real estate in Qatar are managed through the government's buying of banks real estate portfolios valuing at QR 15bn (USD 4.1 bn) in May 2009. Qatar is an active state in managing the state capital to overcome any minute problem before it grows and becomes more problematic. In October 2008, a capital injection of USD 5 billion was done by the Qatar Investment Authority to take over 10 to 20% shares in the banking system of the country. Considering this activity, in March 2009 the government also purchased bank stock portfolio.

The banking system of the country consists of a pessimistic nature along with an insignificant economy. Due to this fact Oman faced several issues in the banking system. They have little experience with companies like the Dubai World, the AlGosaibi Group and the Saad Group. It was due to the traditional nature of the system that the economy suffered but due to some changes in the Saudi Arabia rules and regulations it was possible to find growth in the quarters. In the year 2009, the NPLs grew at a rate of 3% and the Saudi banks suffered from asset quality with no issues towards the transfer of personal load (Middle East Report, 2010).

Table 5.3: Test for Differences in Means of Risks and Performances according to Country

Variable	COUNTRY	N	Mean Rank	Chi-Square	Asymp. Sig.
CR	Bahrain	50	99.61	43.782	0.000
	Emirate	100	172.45		
	Kuwait	45	167.12		
	Oman	30	229.80		
	Qatar	35	147.57		
	Saudi Arabia	55	144.83		
	Total	315			
LR	Bahrain	50	146.74	22.155	0.000
	Emirate	100	146.42		
	Kuwait	45	152.24		
	Oman	30	137.17		
	Qatar	35	150.97		
	Saudi Arabia	55	209.84		
	Total	315			
IRR	Bahrain	50	147.70	4.582	0.469
	Emirate	100	166.00		
	Kuwait	45	155.29		
	Oman	30	133.27		
	Qatar	35	172.00		
	Saudi Arabia	55	159.62		
	Total	315			
PER	Bahrain	50	135.81	22.495	0.000
	Emirate	100	150.71		
	Kuwait	45	138.28		
	Oman	30	152.18		
	Qatar	35	218.11		
	Saudi Arabia	55	172.48		
	Total	315			

CR is the credit risk measured by the non-performing loan for the current year to total loan of bank; LR is the liquidity risk measured by the ratio of financing gap to total assets; IRR is the interest-rate risk measured by the ratio of interest-sensitive assets to interest-sensitive liabilities within a year of bank; PERF is the performance of a bank as measured by the return on equity (ROE), which is the ratio of net income to total stockholders' equity of bank.

Table 5.4 shows the descriptive statistics of the key variables for Islamic and conventional banks. The ratio of NPLs to total loans ratio is very low for both types of banks, with a mean and standard deviation of 0.036 and 0.041 respectively for conventional banks, while Islamic banks have a slightly higher mean and standard deviation, which is 0.041 and 0.061. Moreover, this statistical summary indicates that the mean and standard deviation of the ratio of financing gap to the total assets, which is a proxy for liquidity risk, is higher in Islamic banks (0.241, and 0.182, respectively) compared to conventional banks (0.145, and 0.134, respectively). The mean of IRR is 0.22 and standard deviation is 0.18 for Islamic while for the conventional banks, the mean, and standard deviation of the IRR is 0.16 and 0.11 respectively. Therefore, Islamic banks are higher than conventional banks in mean of ratio of interest-sensitive assets to interest-sensitive liabilities. Finally, the mean and standard deviation of ROE, which is used as a proxy for performance, is small in both type of banks, which is 13.36 and 10.48 for Islamic banks and 16 and 6.7 for conventional banks. The mean of ROE for conventional banks is 16 per cent whereas the mean of ROE for Islamic banks is 13.36 per cent.

Table 5.4 Descriptive Statistics for Islamic and Conventional Banks

	Islamic Banks					Conventional Banks				
	N	Min	Max	Mean	Std. Dev	N	Min	Max	Mean	Std. Dev
CR	80	0.001	0.455	0.041	0.061	235	0.000	0.351	0.036	0.041
LR	80	0.010	0.770	0.241	0.182	235	0.000	0.746	0.146	0.135
IRR	80	0.003	0.912	0.216	0.179	235	0.004	0.679	0.157	0.105
PER	80	-30.26	47.07	13.36	10.48	235	0.030	45.48	16	6.68

CR is the credit risk, measured by the non-performing loan for the current year to total loan of bank; LR is the liquidity risk measured by the ratio of financing gap to total assets, IRR is the interest-rate risk measured by the ratio of interest-sensitive assets to interest-sensitive liabilities within a year of bank; PERF is the performance of a bank measured by the return on equity (ROE), which is the ratio of net income to total stockholders' equity of bank

5.3 Tests of Difference in Different Types of Bank Risks and Performance for Islamic and Conventional Banks

Table 5.5 presents the results of the non-parametric Mann-Whitney test on difference between Islamic and conventional banks in relation to credit risk, liquidity risk, interest-rate risk, and performance. Practically, it examines the effect of Islamic banking on credit risk, liquidity risk, interest-rate risk, and performance in comparison to conventional banks. This study examines Kolmogorov-Smirnov, kurtosis and skewness statistics for testing the normality of data and the results suggest that data is not normally distributed. Therefore, it employs a non-parametric test instead of a t-test.

Table 5.5 Tests of Difference in Different Types of Bank Risks and Performance for Islamic and Conventional Banks

Conventional Banks				
Variable (s)	No. Observations	Mean	Z-statistic	p-value
Credit Risk (CR)				
Islamic Bank =1	80	0.0408	-0.225	0.822
Conventional Bank = 0	235	0.0364		
Liquidity Risk (LR)				
Islamic Bank =1	80	0.2408	-4.571	0.000***
Conventional Bank = 0	235	0.1458		
Profit-Rate (Interest-Rate) Risk (IRR)				
Islamic Bank =1	80	0.2159	-2.340	0.019***
Conventional Bank = 0	235	0.1567		
Performance				
Islamic Bank =1	80	13.36	-2.206	0.027***
Conventional Bank = 0	235	16.01		

The Mann-Whitney test statistic is approximately normally distributed for a large sample.
 *** Significant at the 0.01 level, ** Significant at the 0.05 level, * Significant at the 0.10 level

The above table shows that the unconditional mean credit risk for Islamic banks (0.0408) slightly differs from that of conventional banks (0.0364) but this difference is statistically insignificant with a p-value of 0.822. Hence, the hypothesis that banks with Islamic financial instruments

have less exposure to credit risk on an average, compared to banks with conventional financial instruments is rejected.

Islamic banks have significant relationship with other dependent variables being tested, i.e. liquidity risk, interest-rate risk (profit-rate risk), and performance. The most outstanding difference is on liquidity risk that is statistically significant with a p-value of 0.000 that rejects the hypothesis (H2), which states that banks with Islamic financial instruments have a lower liquidity risk exposure on an average than banks with conventional financial instruments. Islamic banks have bigger ratio of financing gap to total assets than conventional banks in the GCC region. This finding is consistent with Hassan and Bashir (2002). On the contrary, a number of studies found that Islamic banks have lower liquidity risk exposure than conventional banks (for example, Saleh and Zeitun (2006) and How, et al., (2005). The difference in mean indicates that conventional bank's assets are more liquid than that of an Islamic bank.

Therefore, with this significant result, it is expected that Islamic banks face higher challenge to create more liquidity from their assets. They are expectedly inclined to possess high liquidity ratios compared to conventional banks because they cannot depend on the money borrowed from the central bank or other available resources. Conversely, conventional banks, when compared to Islamic banks, have more leverage. This partly goes back to the nature of Islamic banking that bans borrowing money with interest from the central bank or any other banks (Longhop, 2005). It is suggested that Islamic banks should revisit their policies to balance asset and liability, publicise their principles and operations so as to help public understand Islamic banking and restructure liquidity management on the asset and the liability side for improving and strengthening their own liquidity management. In addition, the introduction of *Sukuk* securities has helped Islamic banks manage liquidity risk exposure. Before *Sukuk*, the only

means for Islamic banks to obtain a return on liquid reserves was to place funds through the inter-bank market on a *Murabahah* basis with institutions that would buy and sell commodities on their behalf. This often takes place through the London metal exchange but results in a mark-up payment that is viewed as legitimate by *Shari'ah* scholars as it is based on a real trading transaction rather than being a return on a monetary deposit.

The difference in means between conventional banks and Islamic banks in relation to interest-rate risk (profit-rate risk) is statistically significant with a p-value of 0.019. Islamic banks in GCC countries have a bigger gap between their interest sensitive assets and interest sensitive liabilities, thus leading to higher profit rate risk than conventional banks. Therefore, the hypothesis (H_3) that states that banks with Islamic financial instruments have a higher profit-rate risk (or interest-rate risk in conventional banks) exposure on average than banks with conventional financial instruments is accepted. The result is consistent with the finding of Indriani (2008) and How, et al., (2005). This may be due to the strong focus of Islamic finance on short-term financing. Moreover, this study results highlight Al-Harran's (2000) claim in regard to the big financial gap between long-term financing (through *Musharakah*) and short-term financing (through *Murabahah* and *Mudarabah*). Furthermore, since the main source of Islamic banking interest-rate risks is their over-reliance on deferred payment sale financing, Islamic banks are recommended to be detached from the movements of interest rate by changing from instruments of fixed rate to more leasing or profit-sharing financing.

In *Musharakah* or *Mudarabah* financing, which is profit-sharing, returns are dependent on sector's real performance. Therefore, in profit sharing, interest rate can be considered an external factor. In leasing, the financing cost depends on the rate of rental which is, unlike the fixed rate of BBA, flexible. Periodically, the rate of rentals can be reviewed to be sure that it

reflects market conditions. Consequently, Islamic banks will be able to reduce the interest-rate risks more.

The Mann-Whitney test indicates that the performance of conventional banks is better than that of Islamic ones. The difference in means between conventional banks and Islamic banks is significant at the 0.05 level ($p = 0.018$). Conventional banks in GCC countries have higher return on equity than Islamic banks, which leads to higher performance in conventional banks than in Islamic ones. Such a finding could explain the pattern of performance of both types of banks in terms of the global financial crisis. Therefore, the hypothesis (H_4) that states that banks with Islamic financial instruments are lower in performance, on an average, than the banks with conventional finance instruments is accepted.

This finding is consistent with Parashar and Venkatesh's (2010) who compared between conventional and Islamic banks in the performance particularly during the global financial crisis. They conducted the study on 12 banks in GCC during the period of 2006-2009. Their study was based on five parameters of performance namely, efficiency, liquidity, profitability, capital adequacy, and leverage. They found that Islamic banks have lower performance than conventional banks during the global financial crisis in terms of leverage, capital ratio, and return on average equity whereas Islamic banks are better in terms of liquidity and return on average assets. On the other hand, some studies found that Islamic banks' performance is higher than conventional banks. For example, Indriani (2008) found that the Indonesian Islamic banks outperform their conventional counterparts. Credit risk and profit-rate risk (interest-rate risk) are the risks that significantly impact the performance of Islamic banks, while, liquidity risk insignificantly impacts the performance. Furthermore, Hasan and Bashir (2002) found that there is no significant difference in the performance of Islamic banks and conventional banks. They

concluded that Islamic banking is in its quick development mode and is competent to cope with fierce competition from conventional banking. In the same vein, Samad (2004) concluded that there were no major differences between Islamic and conventional banks in Bahraini banks for the period of 1991-2001. Moreover, Loghod (2005) found that Islamic banks do not have a statistically different (better or worse) performance than conventional banks in the GCC countries, indicating that this mostly depends on the style of management and the overall performance of the specific bank.

The finding of this study indicates that Islamic banks have less performance than conventional banks due to following reasons. First, the strict applications of *Shari'ah* rules means that many of Islamic banking products are not standardised thereby increasing operational costs in Islamic banks relative to those of Conventional banks. Second, Islamic banks in GCC countries tend to be small compared to Conventional banks. Third, Islamic banks are domestically owned. The majority of evidence suggests that foreign-owned banks are more technically efficient than their domestically-owned counterparts.

5.4 Correlation Analysis

Table 5.6 presents the correlation of variables used in the credit risk model. It shows that there is a significant positive correlation between credit risk and leverage for all banks and the Islamic banking groups that indicate highly levered firms have higher credit risk. The lower the leverage ratio, the lower is the probability that a bank will fail to pay back its debt. This result can also reveal one of the financial reporting practices of Islamic banks concerning the accounting treatment of the Profit-Sharing Investment Accounts (PSIA). The lower debt to equity ratio for Islamic banks can be explained by the treatment of PSIA as 'off balance sheet funds' by several Islamic banks. PSIA may be either restricted or unrestricted. Restricted PSIA

are normally treated by Islamic banks as ‘off balance sheet funds under management’. However, Unrestricted PSIAs are normally reported on the balance sheet but that could not be the case because of the lack of accounting standards concerning the PSIAs in some countries. This is because these special accounts do not meet the legal definition of deposits. The correlation table also shows that there is no multicollinearity problem in the variables used in the credit risk model.

Table 5.6: Correlation between Credit Risk and Its Determinants

Variable	All Banks	Islamic Banks	Conventional Banks
LD	.008	-0.068	0.083
LEV	.188**	0.463**	0.054
FCOST	-.065	-0.142	-0.018
MGT	-.032	0.063	-0.106
SIZE	-.059	-0.126	-0.037

CR is the credit risk, which is measured by the non-performing loan for the current year to total loan of bank; LD is loan to deposit ratio measured by the total loans divided by deposits; LEV is the leverage measured by total liabilities divided by total assets; FCOST is the funding cost, which is measured by the sum of interest expense and non-interest expenses divided by total assets; MGT is the management efficiency as measured by total earning assets divided by total assets; SIZE is the natural logarithm of total assets.

**p-value < .01. Correlation is significant at the 0.01 level (2-tailed).

*p-value < .05. Correlation is significant at the 0.05 level (2-tailed).

Table 5.7 presents the correlation of variables used in the liquidity risk model. The correlation table shows that there is a significant negative correlation between liquidity risk and DEVOL for all banks and the Islamic banking groups. This implies that higher deposit volatility leads to lower bank liquidity, and thus liquidity risk exposure increases. Islamic banks are heavily reliant on the loyalty of their depositors because they are not paid interest on the deposit. Therefore, Islamic banks subject to have a volatility on their deposit (Bellalah and Ellouz, 2004). The correlation table also shows that there is no multicollinearity problem in the variables used in the liquidity risk model.

Table 5.7: Correlation between Liquidity Risk and Its Determinants

	All Banks	Islamic Banks	Conventional Banks
DEVOL	-.119*	-0.397**	-0.008
LVOL	-.068	-0.103	-0.111
GTA	.051	0.106	-0.059
MGT	-.033	-0.021	-0.115
SIZE	-.194**	-0.054	-0.258**

LR is the liquidity risk measured by the ratio of financing gap to total assets; DEPVOL is the deposit volatility, which is measured by the standard deviation of deposits divided by the average total assets of bank; LVOL is the loan volatility as measured by the standard deviation of loans divided by the average total assets of bank; GTA is measures by the growth of total assets; MGT is the management efficiency as measured by total earning assets divided by total assets; SIZE is the natural logarithm of total assets.

**p-value < .01. Correlation is significant at the 0.01 level (2-tailed).

*p-value < .05. Correlation is significant at the 0.05 level (2-tailed).

Table 5.8 presents the correlation of variables used in the interest-rate risk model. The correlation table shows that there is a significant negative correlation between NII and interest-rate risk that indicates that firms with lower Non-Interest Income (NII) have lower interest-rate risk. Consequently, the higher the banks' dependence on those fee types, the higher its sensitivity is to any increase in the interest rates. However, there is a relationship between NII for all banks in GCC region. The ratio of equity capital is a significant positive correlation with interest rate exposure for all banks and the conventional banking groups. Hence, banks having higher capital ratios do not have higher needs for external funding, thus reflecting a low financial leverage level. Fluctuations in the interest rate will not largely impact the bank's revenue in those banks and, in turn, on the stock returns of the bank (Soto, et al., 2009). Moreover, interest-rate risk exposure has a significant negative correlation with growth of total assets in conventional banks. Therefore, if the total assets are increased due to short-term funds in order to provide long term loans, the GTA is going to result in increasing the profits and lowering the exposure to the interest rate risk and vice-versa. The correlation table also shows that there is no multicollinearity problem in the variables used in the liquidity risk model.

Table 5.8 Correlation between Profit-rate Risk and Its Determinants

Variable	All Banks	Islamic Banks	Conventional Banks
ECT	0.124*	0.058	0.140*
GTA	-.097	-0.026	-0.222**
LD	-.003	-0.046	-0.027
NII	-.147**	-0.099	-0.125
MGT	-.029	-0.059	-0.067
SIZE	-.078	0.096	-0.161*

IRR is the interest-rate risk as measured by the ratio of interest-sensitive assets to interest-sensitive liabilities within a year of bank; ECT is the equity capital as measured by the equity capital divided by total assets of banks; GTA is measured by the growth of total assets; LD is loan to deposit ratio as measured by the total loans divided by deposits; NII is the non-interest income as measured by the non-interest income divided by total revenue of bank; MGT is the management efficiency as measured by total earning assets divided by total assets; SIZE is the natural logarithm of total assets.

**p-value < .01. Correlation is significant at the 0.01 level (2-tailed).

*p-value < .05. Correlation is significant at the 0.05 level (2-tailed).

Table 5.9 presents the correlation of variables used in the performance-risk model. The correlation table shows that there is a significant positive correlation between GDP and performance that indicates Islamic banks from countries with higher GDP has higher performance. In other words, the region's high GDP will help support consumer spending and investment, which would in turn increase the demand for Islamic financial products and services moving forward. The correlation table also shows that there is no multicollinearity problem in the variables used in the liquidity risk model.

Table 5.9 Correlation between Performance-Bank Risks

Variable	All Banks	Islamic Banks	Conventional Banks
CR	-.065	-0.008	-0.100
LR	-.069	0.059	-0.096
IRR	-.041	-0.026	-0.001
GDP	.120*	0.239*	0.050
INF	.076	0.057	0.078
SIZE	.023	0.115	-0.013

CR is the credit risk, which is measured by the non-performing loan for the current year to total loan of bank; LR is the liquidity risk measured by the ratio of financing gap to total assets, IRR is the interest-rate risk as measured by the ratio of interest-sensitive assets to interest-sensitive liabilities within a year of bank; PER is the performance of a bank as measured by the return on equity (ROE), which is the ratio of net income to total stockholders' equity of bank; SIZE is the natural logarithm of total assets; GDP is the gross domestic product change as measured by the annual percent change of GDP; INF is the inflation as measured by the annual per cent change of inflation.

**p-value < .01. Correlation is significant at the 0.01 level (2-tailed).

*p-value < .05. Correlation is significant at the 0.05 level (2-tailed).

5.5 Factors influencing Bank Risks

This study has used multiple regression models for examining the factors that may contribute to the determination of credit risk, liquidity risk, and interest-rate risk of both Islamic banks and conventional banks. The Ordinary Least Square (OLS) method of regression has been applied. The VIF for the variables in the regression models is less than 5 and the tolerance value of those variables is greater than 0.2 that indicates that there is no multicollinearity problem in the regression models. The value of Durbin-Watson test is under the range of 1 to 3, indicating that there is no autocorrelation of residuals. The scatterplot does not show any definite pattern, therefore it is reasonable to assume that the linearity and equal variances (homoscedasticity) assumptions have been met. The Mahalanobis distance values indicate that there are no multivariate outliers among the independent variables.

5.5.1 Determinants of Credit Risk

This study hypothesises that loan to deposit ratio, leverage, funding costs, size, and management efficiency is a determinant of the credit risk exposure in the GCC banks. Table 5.10 presents the regression result of the factors influencing credit risk of all banks in the samples and separately, for the Islamic banks and conventional banks. The credit risk model explains 7.1 per cent variation of the credit risk for the whole banking sectors in the GCC region. The credit risk model for Islamic banks explains 20.70 per cent of the variation of the credit risk while, the credit risk model for conventional banks has no statistically significant explanatory power. The regression results for all banks show that credit risk increases with financial leverage and decreases with bank size. Both effects are statistically significant at the 1 per cent level. The effects of these variables are more pronounced for Islamic banks. The finding of positive

relationship between leverage and credit risk in the Islamic banks corroborates the findings by Indriani (2008), Ahmad and Ahmad (2004), and Ahmad (2003).

The negative relationship between bank size and credit risk for Islamic banks indicates that large Islamic banks may be better placed in evaluating credit worthiness of potential borrowers. This may also happen due to the strong credit evaluation mechanisms taken by larger Islamic banks for avoiding the credit risk. Larger Islamic banks have huge amount of resources that help them measure against higher credit risks. For conventional banks, this study did not find any statistically significant effect on either bank size or financial leverage on credit risk. The coefficient of the loan-to-deposit ratio is positive and statistically significant at 10 per cent level for conventional banks, which is consistent with the notion that the banks with a high ratio of portfolio loans to deposits are exposed to an increased risk of loan default. This result is consistent with the study of Ahmad and Ariff (2007) who found that financial leverage is a significant positive determinant of credit risk in banks of US, Malaysia and France.

Table 5.10 Determinants of Credit Risk

Variable	All Banks	Islamic Banks	Conventional Banks
	Coefficient	Coefficient	Coefficient
Intercept	0.107*** (3.133)	0.162* (1.729)	0.071** (1.954)
LD	0.001 (0.229)	-0.004 (-0.407)	0.018* (1.811)
LEV	0.038*** (4.138)	0.090*** (4.538)	0.009 (0.894)
FCOST	-0.203 (-1.230)	-0.422 (-0.901)	-0.108 (-0.578)
MGT	-0.006 (-0.461)	0.010 (0.393)	-0.027* (-1.878)
SIZE	-0.014*** (-2.816)	-0.023* (-1.729)	-0.007 (-1.373)
Adjusted R-Square	0.071	0.207	0.011
F –Value	3.679**	5.117***	1.527
No of Observations	315	80	235

CR is the credit risk, which is measured by the non-performing loan for the current year to total loan of bank; LD is loan to deposit ratio as measured by the total loans divided by deposits; LEV is the leverage measured by total liabilities divided by total assets; FCOST is the funding cost, which is measured by the sum of interest expense and non-interest expenses divided by total assets; MGT is the management efficiency measured by total earning assets divided by total assets; SIZE is the natural logarithm of total assets.

*** p-value < .01. Significant at the 0.01. level **p-value < .05. Significant at the 0.05 level *p-value < .10. Significant at the 0.10 level.

Banks with lower managerial efficiency have higher credit risk for conventional banks. This result supports the findings by Indriani (2008), Ahmad, (2003), and Angbazo (1997). The negative sign of MGT indicates a lower efficiency of managing earning assets leads to more credit risk exposure.

5.5.2 Determinants of Liquidity Risk

In this study, it is expected and hypothesised that deposit volatility, loan volatility, growth of total assets, management efficiency, and banking firms' size are the factors associated with the liquidity risk exposures. Table 5.11 shows the results of the regression model for the determinants of the liquidity risk. The liquidity risk model for the whole banking sector in the GCC region explains 4.6 per cent of the variation of liquidity risks. The liquidity risk model for Islamic banks explains 13.18 per cent and the conventional banks explain 6.48 per cent of the liquidity risk variation. This table also presents regression results of factors influencing liquidity risk of all banks in samples and separately, both of the Islamic banks and conventional banks. For the whole banking sector, DEVOL is negatively associated with liquidity risk at 10 per cent level, while SIZE is negatively associated with 1 per cent level of significance. Further, GTA is positively associated with the liquidity risk at 10 per cent level of significance. These results indicate that banking firms with lower DEVOL and SIZE and higher GTA have higher liquidity risk. For Islamic banks, the only one statistically significant determinants of liquidity risk is DEVOL that means higher volatility on deposit will lead to lower bank liquidity that consequently increases the liquidity risk. This result is consistent with Dennis and Suriawinata (1996), where they argued that higher deposit volatility suggests instability in deposits, which leads to uncertainty in the ability to service customer withdrawals, and thus higher liquidity-risk exposure. The coefficient of SIZE is negatively related with liquidity risk at 1 per cent level for conventional banks that indicates that conventional banks with larger size have less liquidity risk.

Table 5.11 Determinants of Liquidity Risk

Variable	All Banks	Islamic Banks	Conventional Banks
	Coefficient	Coefficient	Coefficient
Intercept	0.53749*** (5.42)	0.51952 (1.64)	0.50623*** (5.39)
DEVOL	-0.23907* (-1.80)	-0.86679*** (-3.72)	0.18196 (1.18)
LVOL	-0.005469 (-0.04)	0.24758 (0.93)	-0.22930 (-1.40)
GTA	0.11519* (1.77)	0.1114 (0.73)	0.04296 (0.64)
MGT	-0.05515 (-1.13)	-0.07021 (-0.78)	-0.08225 (-1.52)
SIZE	-0.05023*** (-3.53)	-0.02899 (-0.67)	-0.05092*** (-3.72)
Adjusted R-Square	0.0461	0.1318	0.0648
F -Value	4.04***	3.40***	4.25***
No of Observations	315	80	235

LR is the liquidity risk measured by the ratio of financing gap to total assets; DEPVOL is the deposit volatility, which is measured by the standard deviation of deposits divided by the average total assets of bank; LVOL is the loan volatility measured by the standard deviation of loans divided by the average total assets of bank; GTA is measures by the growth of total assets; MGT is the management efficiency as measured by total earning assets divided by total assets; SIZE is the natural logarithm of total assets.

*** p-value < .01. Significant at the 0.01. level **p-value < .05. Significant at the 0.05 level *p-value < .10. Significant at the 0.10 level.

5.5.3 Determinants of Profit-Rate (Interest-Rate) Risk

It is hypothesised in this study that equity capital, growth of total assets, loan to deposit ratio, non-interest income, management efficiency, and the size are factors that influence the profit-rate (interest-rate) risk. Table 5.12 presents the determinants of interest-rate risk exposure for all banks and for Islamic and conventional banks separately. The interest-rate risk model explains 3 per cent variations of the interest-rate risk of the whole banking sectors in the GCC region. The Islamic banking interest-rate risk model is not statistically significant while the conventional bank interest-rate risk model is statistically significant at 1 per cent level of significance. No statistically significant relationship was found between profit-return risk (interest-rate risk) and the proposed determinants for Islamic banks, while GTA is negatively associated with interest-rate risk at 1 per cent level of significance, in case of conventional banks. For the whole banking sectors in GCC region, ECT is significantly positively associated

with the interest-rate risk at 10 per cent level, while GTA and NII are negatively significantly associated with IRR at 1 per cent level. The negative association between GTA and IRR in case of conventional banks indicates that banks with higher GTA have lower IRR. If total assets increased with the help of short-term funds in order to provide long term loans, the GTA has an effect on the increase of the profits and lowers the exposure to the interest-rate risk and vice-versa. There is a significant negative association between NII and IRR in case of conventional banks at 10 per cent level of significance.

Table 5.12 Determinants of Profit Rate (Interest-Rate) Risk

Variable	All Banks	Islamic Banks	Conventional Banks
	Coefficient	Coefficient	Coefficient
Intercept	0.165 (1.352)	-0.06649 (-0.16)	0.291** (2.52)
ECT	0.002* (1.856)	0.00264 (0.83)	0.001 (0.745)
GTA	-0.106** (-1.922)	-0.00976 (-0.06)	-0.175*** (-3.39)
LD	0.003 (0.155)	-0.0157 (-0.51)	0.023 (0.94)
NII	-0.091*** (-2.70)	-0.08469 (-0.74)	-0.057* (-1.84)
MGT	0.029 (0.696)	-0.13885 (-0.13)	0.043 (1.02)
SIZE	0.002 (0.099)	0.04128 (0.78)	-0.019 (-1.23)
Adjusted R-Square	0.031	0.0607	0.0679
F -Value	2.67**	0.35	3.43***
No of Observations	315	80	235

IRR is the interest-rate risk measured by the ratio of interest-sensitive assets to interest-sensitive liabilities within a year of bank; ECT is the equity capital measured by the equity capital divided by total assets of banks; GTA is measured by the growth of total assets; LD is loan to deposit ratio measured by the total loans divided by deposits; NII is the non-interest income measured by the non-interest income divided by total revenue of bank; MGT is the management efficiency measured by total earning assets divided by total assets; SIZE is the natural logarithm of total assets.

*** p-value < .01. Significant at the 0.01. level **p-value < .05. Significant at the 0.05 level *p-value < .10. Significant at the 0.10 level.

5.5.4 Performance Risk Relationship

This study hypothesises a relationship between credit risk, liquidity risk, profit-rate risk, and performance. Table 5.13 summarises the relationship between performance and credit risk, liquidity risk, and the interest-rate risk. The regression models are not statistically significant and

the model for the whole banking sector shows that there is no significant relationship between credit risk (CR), liquidity risk (LR), interest-rate risk, and performance. The only significant variable is the GDP, which is a control variable for the whole banking sector in the GCC region.

Similarly, the only significant variable in the Islamic banks performance-risk regression model is the GDP. This result indicates that Islamic banks have high performance and profitability when GDP increases. This finding supports Neely and Wheelock (1997), who employed individual (per capita) income and suggested that GDP strongly and positively affects bank earnings. Likewise, Pasiouras and Kosmidou (2007) asserted that real GDP has a positive relationship with the profit ability of the bank.

For conventional banks, this study found weak significant negative relationship between credit risk, liquidity risk and performance at 10 per cent level of significance. It means that the ability of banks to reduce the exposure of bad loans will positively impact their performance. It should consider this as an improvement in GCC banking sector. The negative relationship between liquidity risk and performance in the conventional banks model is consistent with Shen, Chen, Kao, and Yeh (2010) who affirmed that the liquidity risk is negatively and significantly related to the bank's performance. It is indicated that banks with larger gap lack stable and cheap funds, and thus they have to use liquid assets or much external funding to meet the demand of funding.

Table 5.13 Relationship between Performance and Risk

Variable	All Banks	Islamic Banks	Conventional Banks
	Coefficient	Coefficient	Coefficient
Intercept	16.243*** (2.96)	-8.77875 (-0.50)	19.898*** (3.79)
CR	-10.11 (-1.07)	12.33847 (0.62)	-17.824* (1.68)
LR	-3.524 (-1.195)	4.907734 (0.73)	-5.863* (-1.73)
IRR	-1.369 (-0.399)	1.89472 (0.27)	2.241 (0.52)
GDP	0.073* (1.795)	0.22741** (0.032)	0.023 (0.56)
INF	0.379 (1.044)	0.171 (0.16)	0.456 (1.30)
SIZE	0.023 (0.030)	2.9473 (1.17)	-0.437 (-0.61)
Adjusted R-Square	0.007	0.0071	0.0060
F –Value	1.39	1.09	1.23
No of Observations	315	80	235

CR is the credit risk, which is measured by the non-performing loan for the current year to total loan of bank; LR is the liquidity risk measured by the ratio of financing gap to total assets; IRR is the interest-rate risk measured by the ratio of interest-sensitive assets to interest-sensitive liabilities within a year of bank; PER is the performance of a bank measured by the return on equity (ROE), which is the ratio of net income to total stockholders' equity of bank; SIZE is the natural logarithm of total assets; GDP is the gross domestic product change as measured by the annual percent change of GDP; INF is the inflation as measured by the annual per cent change of inflation.

*** p-value < .01. Significant at the 0.01. level **p-value < .05. Significant at the 0.05 level *p-value < .10. Significant at the 0.10 level.

Table 5.14 shows the regression results after considering the banking types variable. This regression model is statistically significant at the 10 per cent level of significance. The regression model also shows that Islamic banks have a negative relationship with the performance at 5 per cent level of significance that indicates in terms of performance, conventional banks are better compared in the Islamic banks. The control variable GDP is also significant at 10 per cent level of significance. The probable reason for this poor adjusted R-Square is the non-availability of more variables.

Table 5.14 Relationship between Risk and Performance (Effects of Islamic Banks)

Variable	All Banks
	Coefficient
Intercept	15.534*** (2.842)
CR	-9.237 (-0.980)
LR	-1.659 (-0.544)
IRR	0.117 (0.034)
Islamic Banks	-2.376** (-2.211)
SIZE	0.130 (0.171)
GDP	0.075* (1.843)
INF	0.336 (0.928)
Adjusted R-Square	0.020
F -Value	1.908*
No of Observations	315

CR is the credit risk, which is measured by the non-performing loan for the current year to total loan of bank; LR is the liquidity risk measured by the ratio of financing gap to total assets; IRR is the interest-rate risk measured by the ratio of interest-sensitive assets to interest-sensitive liabilities within a year of bank; PERF is the performance of a bank measured by the return on equity (ROE), which is the ratio of net income to total stockholders' equity of bank; SIZE is the natural logarithm of total assets; GDP is the gross domestic product change as measured by the annual percent change of GDP; INF is the inflation as measured by the annual per cent change of inflation.

*** p-value < .01. Significant at the 0.01. level **p-value < .05. Significant at the 0.05 level *p-value < .10. Significant at the 0.10 level.

5.6 Conclusion

It has been found that Islamic banks do not differ from conventional banks in relation to credit risk. However, there are significant differences between the Islamic and conventional banks in relation to the liquidity and interest-rate risk. Conventional banks are less than Islamic banks in liquidity and interest-rate risk exposure, while there is no significant difference between these types of banks in credit-risk exposure. Moreover, conventional banks are better than Islamic banks in performance. This chapter answers the researcher's hypotheses for credit risk, liquidity risk, interest-rate risk, and performance. We rejected the credit risk exposure hypothesis

that suggested that banks with Islamic financial instruments are higher in credit risk, on average than banks with conventional financial instruments. The second hypothesis suggesting that banks with Islamic financial instruments have a higher liquidity risk exposure on average than banks with conventional financial instruments is accepted, while the third hypothesis suggesting that banks with Islamic financial instruments have a higher rate of return risk (or interest-rate risk in conventional banks) exposure on average than banks with conventional financial instruments is also accepted. The final hypothesis suggesting that banks with Islamic financial instruments are lower in performance on average than the banks with conventional finance instruments is accepted.

CHAPTER SIX

CONCLUSION AND RECOMMENDATIONS

6.1 Introduction

This chapter presents a summary and conclusion of this thesis. The first section of this chapter presents the summary of the study and the next section provides directions for future studies. The final section provides the implications of this study.

6.2 Summary and Major Findings

The GCC banking system has both interest-based conventional banks and interest-free Islamic banks operating parallel. The unique nature of Islamic banking operations provides an insightful intuition that the risk determinants of Islamic banking should be different from those factors affecting conventional banking. In fact, the excellent growth that Islamic banking has achieved throughout the world, especially in GCC countries, leaves us wondering how this new banking system performs compared to the strong and established conventional banking systems.

The preceding chapters have shed some light on the factors that can influence three important banking risks: credit risk, profit-rate (interest-rate) risk, and liquidity risk. This study has been extended to investigate how performance is different in both types of banks types in the GCC. It has also investigated whether and how credit risk exposure, interest-rate risk exposure, and liquidity risk exposure impacts the performance of Islamic banks and conventional banks in the GCC. The analysis of conventional and Islamic banks permits us to focus on the similarities and differences between the two bank types.

Using a sample of 47 conventional banks and 16 Islamic banks in the GCC for the period 2006–2010, it has been found that banks with Islamic financial instruments have a significantly higher liquidity risk exposure. This result indicates that Islamic banks are limited in the financial

instruments that can be traded in the secondary market. Moreover, *Shar'ah* enforces a certain limitation on the transaction of financial claims unless the claims are related to real assets. Therefore, there is a need to improve asset-backed tradable securities, known as *Sukuks*. Even though instruments are offered, the number of market participants is still limited.

Profit-rate (interest-rate) risk exposure is higher in Islamic banks compared to conventional banks for several reasons. First, the return on deposits is predetermined in conventional banks, but it is anticipated and not agreed beforehand in Islamic banks. In addition, the return on some investments—that is, those based on equity partnerships—are not known accurately until the end of the investment period. Islamic banks have to wait for the results of their investments to determine the level of return that investors—depositors—will earn. If, during this period, there is a change in the prevailing yields or expected rates of return, the investors may expect to receive similar yields from the bank (Greuning and Iqbal, 2008). The non-parametric test, Mann-Whitney, also confirms that conventional and Islamic banks do not have significant differences in credit risk exposure.

This study employs four regression models for examining the research questions. The first regression model, credit risk model, shows that there is a significant positive relationship between leverage and credit risk and negative relationship between size and the credit risk in case of Islamic banks. While in case of conventional banks, loan to deposit ratio is positively associated with the credit risk and management efficiency is negatively associated with it. The second regression model, liquidity risk model, shows that leverage is positively associated with liquidity risk in case of Islamic banks whereas fund cost is positively associated with liquidity risk in case of conventional banks. Further, in the third regression model, profit-rate (interest-rate) risk model, this study did not find any significant determinants in case of Islamic banks

whereas it has been found that growth of total assets and size is negatively related with the interest-rate risk in case of conventional banks. The final regression model, performance-risk relationship model, did not find any relationship between the credit risk, liquidity risk, profit-rate (interest-rate) risk and, performance in Islamic banks whereas for conventional banks, this study found weak significant negative relationship between credit risk, liquidity risk and performance. Finally, this study concludes that Islamic banks have higher profit-rate risk and lower liquidity risk compared to their counterparts. As an emerging banking system, Islamic banks should be more conscious about their profit-rate risk because this type of banks is based on profit and loss structure. Conventional banks can mitigate their interest-rate risk by making changes in their interest rate but Islamic banks are more prone to inter-rate risk.

6.3 Suggestions for Future Research

This research cannot make a generalised conclusion about the relationship between the risk and performance of the banking sectors in the GCC region, not even in the case of Islamic banks and conventional banks separately. Further, this study has only focused on the internal factors of each bank for risks and the external factors of the performance. Thus, it is suggested that the future research in this area should not only incorporate bank's internal characteristics but also the overall financial environment such as macro-economic conditions and financial structure. Islamic banking has a unique feature and the financial environment of every country varies, thus the consideration of country level economic and cultural factors may provide valuable insights about the risks faced by Islamic banks.

6.4 Implications of Research

The result of this study has some valuable implications for the regulators, policy makers, and researchers. Firstly, this study confirms that profit-rate risk is higher for Islamic banks. This

finding goes against the general assumption that Islamic banks need not worry about the movement of interest rate because their operations do not involve the interest factor. Therefore, Islamic banking should emphasise on the factors that influence the profit-rate risk. Further, Islamic banks need to consider creating new products to solve the liquidity risk. Therefore, the suggestion to establish Islamic international central bank is important to support Islamic banks in innovating new products and risk management practices.

Secondly, researchers and professionals working in the Islamic banking and finance can use this study to improve their overall understanding of the factors that could affect the risks in Islamic banking and how those risks can influence their profitability. Such understanding may bring innovation in practices of Islamic banking in GCC. Finally, Islamic bank depositors can get benefit from this study because the results of this study provide an insight into the risks faced by both type of banks. Therefore, the depositors can take valuable decisions in case of investment of their valuable savings.

6.5 Limitations of the Study:

The limitations of this study are as follows. Firstly, this study did not find any data of Islamic banks for Oman due to restrictions on operations of Islamic banks in the Oman. Secondly, this study has used a small number of Islamic banks (16 Islamic banks) compared to conventional banks (47 conventional banks). The number of Islamic banks in GCC countries is more than 25, but due to the non-availability of data, a sample of 16 Islamic banks is used in this study. The other limitations are the non-availability of nonperforming loans data in the Gulf database. Thus, the future research in this area can be conducted by considering more variables and using more data coverage that will give more generalised results.

REFERENCES:

- Abdul-Rahman, Y. (1999). Islamic instruments for managing liquidity. *International Journal of Islamic Financial Services*, Retrieved November 24, <http://www.islamicfinance.net/journal.html>.
- Ahmad, A. (1997). Towards an Islamic Financial Market, A Study of Islamic Banking and Finance in Malaysia. *Islamic Research and Training Institute, Islamic Development Bank, Jeddah.*, 45.
- Ahmad, N. H. (2003). Credit Risk Determinants: By Institutional Type. *Proceedings of Malaysian Finance Association Conference*.
- Ahmad, N. H., & Ahmad, S. H. (2004). Key Factors Influencing Credit Risk of Islamic Bank: A Malaysian Case. *Proceedings of the National Seminars in Islamic Banking & Finance (iBAF) 2004. Malaysia: Intel Multimedia and Publications.* .
- Ahmad, N. H., & Ahmad, S. N. (2004). Key Factors Influencing Credit Risk of Islamic Bank: A Malaysian Case *The Journal of Muamalat and Islamic Finance Research*, 1(1), 65-80.
- Ahmad, N. H., & Ariff, M. (2007). Multi-country study of bank credit risk determinants. *International Journal of Banking and Finance*, 5(1), 135-152.
- Akhtar, M. F., Ali, K., & Sadaqat, S. (2011). Factors Influencing the Profitability of Islamic Banks of Pakistan. *International Research Journal of Finance and Economics*, 66, 125-132.
- Akhter, W., Raza, A., Orangzab, M., & Akram, M. (2011). Efficiency and Performance of Islamic Banking: The Case of Pakistan. *Far East Journal of Psychology and Business*, 2(2), 54-70.
- Al-Harran, S. (2000). Time for long-term Islamic financing. . Retrieved November 24, 2004, from <http://www.islamic-finance.net/harran1.html>
- Al-Khouri, R. (2011). Assessing the Risk and Performance of the GCC Banking Sector. *International Research Journal of Finance and Economics*(65), 72-81.
- Al-Tamimi, H., & Al-Mazrooei, M. (2007). Banks' Risk Management: A Comparison Study of UAE National and Foreign Banks. *The Journal of Risk Finance*, 8(4), 394-409.
- Al-Zomaia, T. (2004). *Measuring Integrated Market and Credit Risk in Bank Portfolios: An Application to commercial Banks in Saudi Arabia* The George Washington University, Washington.
- Allen, D., & Nadi, k. (1998). Financial Intermediation and Economic Growth in Southern Africa. *Federal Reserve Bank of St. Louis, Working Paper 98-004b*.
- AME info Press Release. (2012). Retrieved November 3, 2011, from <http://www.ameinfo.com/279080.html>,
- Angbazo, L. (1997). Commercial bank net interest margins, default risks, interest rate risks and off-balance sheet banking. *Journal of Banking and Finance*, 2, 55-87.

- Annual Report of UAE Central Bank. (2010). Annual Report. Retrieved November 25, 2011, from http://www.centralbank.ae/index.php?option=com_content&view=article&id=100&Itemid=88,
- Annual Report of Bahrain Central Bank. (2010). Retrieved November 11, 2011, from http://www.cbb.gov.bh/page.php?p=reports_and_papers,
- Annual Report of Kuwait Central Bank. (2010). Retrieved October 22, 2011, from <http://www.cbk.gov.kw/WWW/index.html>,
- Annual Report of Oman Central Bank. (2010). Retrieved November 6, 2011, from <http://www.cbo-oman.org/>,
- Annual Report of Qatar Central Bank. (2010). Retrieved November 25, 2011, from <http://www.qcb.gov.qa/English/Publications/ReportsAndStatements/Pages/AnnualReports.aspx>,
- Annual Report of Saudi Arabian Monetary Agency. (2011). Retrieved October 13, 2011, from <http://www.sama.gov.sa/sites/samaen/ReportsStatistics/Pages/AnnualReport.aspx>,
- Archer, S., & Rifaat, A. (2006). On capital structure, Risk Sharing and Capital adequacy in Islamic Banks. *International Journal of theoretical and Applied Finance*, 9(3), 269-280.
- Ariff, M. (1988). Islamic Banking. *Asian-Pacific Economic Literature*, 2(2), 46-62.
- Ariffin, N. M., Archer, S., & Karim, R. A. A. (2009). Risks in Islamic banks: Evidence from empirical research. *J Bank Regul*, 10(2), 153-163.
- Au Yong, H. H., Faff, R., & Chalmers, K. (2009). Derivative activities and Asia-Pacific banks' interest rate and exchange rate exposures. *Journal of International Financial Markets, Institutions and Money*, 19(1), 16-32.
- Bacha, O. I. (2004). Dual Banking Systems and Interest Rate Risk for Islamic Banks. *Accounting, Commerce & Finance: The Islamic Perspective Journal*, 1(8), pp. 1-42.
- Bader, M. K. I., Mohamad, S., Ariff, M., & Hassan, T. (2008). Cost, Revenue, and Profit Efficiency of Islamic versus Coventional Banks: International Evidence Usingg Data Envelopment Analysis. *Islamic Economic Studies*, 15, 23-76.
- Baldwin, K. (2002). Risk management in Islamic banks. *Islamic Finance: Innovation and Growth*, 176-200.
- Baldwin, K. (2002). Risk Management in Islamic Banks”. In R. Abdel Karim & S. Archer (Eds), *Islamic Finance: Innovation & Growth. Euromoney Books and AAOIFI*, 176 - 197.
- Bank Guidelines. (2009). Capital Adequacy Standards. Retrieved November 20, 2011, from <http://www.centralbank.ae/pdf/baselII/Basel2-Guidlines.pdf>,
- Bashir, A.-H. M. (2000). Assessing the Performance of Islamic Banks: Some Evidence from the Middle East. *Paper presented at the Economic Research Forum (ERF) 8th meeting in Jordan*.

- Bashir, A.-H. M. (2003). Determinants of Profitability in Islamic Banks: some Evidence from the Middle East. *Islamic Economic Studies*, 11(1).
- Bellalah, M., & Ellouz, S. (2004). Islamic Finance, Interest Rate and Islamic Banking : A Survey of the Literature. *Finance India*, 18(Special Issue), 533-546.
- Berger, A. N. (1995). The Relationship between Capital and Earnings in Banking. *Journal of Money, Credit and Banking*, 27(2), 432-456.
- Berger, A. N., & Bouwman, C. (2009). Bank liquidity creation. *Review of Financial Studies*, 22(9), 3779-3837.
- Berger, A. N., & DeYoung, R. (1997). Problem loans and cost efficiency in commercial banks. *Journal of Banking and Finance*, 21, 849-870.
- Bikker, J. A., & Hu, H. (2002). Cyclical Patterns in Profits, Provisioning and Lending of Banks and Procyclicality of the New Basle Capital Requirements. *BNL Quarterly Review*(221), 143-175.
- Boumediene, A. (2011). Is Credit Risk Really Higher in Islamic Banks? *The Journal of Credit Risk* 7(3).
- Bourke, P. (1989). Concentration and Other Determinants of Bank Profitability in Europe, North America and Australia. *Journal of Banking and Finance*, 13, 65-79.
- Central Bank of Qatar. (2012). Retrieved October 25, 2011, from <http://www.qcb.gov.qa/English/Pages/default.aspx>,
- Central Bank of UAE. (2012). Retrieved November 15, 2011, from http://www.centralbank.ae/index.php?option=com_content&view=article&id=68&Itemid=107.
- Central Bank of Bahrain. (2012). Retrieved October 20, 2011, from <http://www.cbb.gov.bh/home.php>,
- Central Bank of Kuwait. (2012). Retrieved November 10, 2011, from <http://www.cbk.gov.kw/WWW/index.html>,
- Central Bank of Oman. (2012). Retrieved October 12, 2011, from <http://www.cbo-oman.org/>,
- Chapra, U., & Ahmed, H. (2002). *Corporate governance in Islamic financial institutions*. Paper presented at the Islamic Research and Training Institute (IRTI).
- Chattha, J. A., & Bacha, O. I. (2010). Duration Gap and Net Worth Risk for Islamic and Conventional Banks: A Comparative Cross Country Analysis. *International association for islamic economics Review of Islamic Economics*, 13(2), 5-33.
- Corsetti, G., Pesenti, P., & Roubini, N. (1998). Determinants of the Asian Crisis: a preliminary empirical assessment. *paper prepared for the JIMF-Fordham University Conference on "Perspectives on the Financial Crisis in Asia"*.
- Demirgüç-Kunt, A., & Huizinga, H. (2001). Financial Structure and Bank Profitability . In *Financial Structure and Economic Growth: A Cross-Country Comparison of Banks, Markets, and Development*. Cambridge. MA: MIT Press.

- Dennis, S., & Suriawinata, I. (1996). An empirical analysis of the determinants of Australian commercial banks' loan-to-deposit ratios. *Working paper. University of New South Wales*.
- Dusuki, A. W. (2010). Commodity Murabahah Programme (CMP): An Innovative Approach to Liquidity Management. *Journal of Islamic Banking*, 3(1).
- El Moussawi, C., & Obeid, H. (2010). Evaluating the productive efficiency of Islamic banking in GCC: A non-parametric approach. *International Research Journal of Finance and Economics*, 53, 179-189.
- Entrop, O., Memmel, C., Wilkens, M., & Zeisler, A. (2008). Analyzing the interest rate risk of banks using time series of accounting-based data: Evidence from Germany. *Discussion Paper Deutsche Bundesbank*, 2(01/2008).
- Espinoza, R., Prasad, A., & Williams, O. (2010). *Regional Financial Intergration in the GCC*.
- Farrell, M. J. (1957). The Measurement of Productive Efficiency. *Journal of the Royal Statistical Society (A, general)*, 120, 253-281.
- Fraser, D. R., Madura, J., & Weigand, R. A. (2002). Sources of Bank Interest Rate Risk. *Financial Review*, 37, 351-368.
- Fritzer, F. (2004). Financial Market Structure and Economic Growth: A Cross-Country Perspective. *Monetary Policy and the Economy*, 2(4), 72-87.
- Golin, J. (2001). *The Bank Credit Analysis Handbook: A Guide for Analysts, Bankers and Investors*: John Wiley & Sons (Asia) Pre Ltd.
- Grais, W., & Kulathunga, A. (2007). Capital structure and Risk in Islamic Financial Services” dans Simon Archer & Rifaat Ahmed Abdel Rifaat ‘Islamic finance: the regulatory challenge. *Edition John Wiley&Sons, Ltd.,* 69-93.
- Greuning, H. v., & Iqbal, Z. (2009). Risk analysis for Islamic Banks. *J.KAU: Islamic Economics*, 22(1), 81-88.
- Haidi, N. K., & Malik, R. (2006). *The Impact of Interest Rates on Islamic Financing Scheme: A Special Focus on BBA*. University of Malaya.
- Hamwi, B., & Aylward, A. (1999). Islamic Finance: A Growing International Market. *Thunderbird International Business Review*, 41((4-5)), 407-420.
- Hanif, M. (2011). Differences and Similarities in Islamic and Conventional Banking. *International Journal of Business and Social Science*, 2(2), 166-175.
- Haron, S., & Ahmad, N. (2000). The Effects of Conventional Interest Rates and Rate of Profit on Funds Deposited With Islamic Banking System in Malaysia. *Journal of Islamic Financial Services*, 1(4).

- Hasan, M., & Dridi, J. (2010). The Effects of the Global Crisis on Islamic and Conventional Banks: A Comparative Study. *International Monetary Fund*, 1-35.
- Hassan, K., & Lewis, M. (2007). *Islamic banking: an introduction and overview*, in *The Handbook of Islamic Banking*. Cheltenham: Edward Elgar Publishing.
- Hassan, M. K., & Bashir, A. M. (2002). Determinant of Islamic Banking Profitability. *Paper presented at the Economic Research Forum (ERF) 10th Annual Conference, Marrakesh, Morocco, 16-18 December*.
- Hassan, M. K., & Samad, A. (1999). The Performance of Malaysian Islamic banks during 1984-1997: An Exploratory Study. *International Journal of Islamic Financial Services*, 1(3).
- Hassan, W. (2011). Risk Management Practices: A Comparative Analysis Between Islamic Banks and Conventional Banks in the Middle East. *International Journal of Academic Research*, 3(3), 288-295.
- Henry, C. (1999). Guest editor's introduction. *Thunderbird International Business Review*, 41, 357-368.
- How, J., Karim, M., & Verhoeven, P. (2005). Islamic Financing and Bank Risks: The Case of Malaysia. *Thunderbird International Business Review*, 47(1), 75-94.
- How, J. C. Y., Karim, M. A., & Verhoeven, P. (2005). Islamic financing and bank risks: The case of Malaysia. *Thunderbird International Business Review*, 47(1), 75-94.
- Hussein, A., & Al-Tamimi, H. (2008). Implementing Basel II: an investigation of the UAE banks' Basel II preparations. *Journal of Financial Regulation and Compliance*, 16(2), 173-187.
- Hutapea, E. G., & Kasri, R. A. (2010). Bank margin determination: a comparison between Islamic and conventional banks in Indonesia. *International Journal of Islamic and Middle Eastern Finance and Management*, 3(1), 65-82.
- Indriani, V. (2008). *The relationship between Islamic financing with risks and performance of commercial banks in Indonesia*. University of Malaya.
- Iqbal, Z. (1998). Financial Innovations in Islamic Banking. *Journal of Islamic Banking and Finance*, 15(2), 7-17.
- Islam, N. (1995). Growth Empirical: A Panel Data. *Quarterly Journal of Economics*, 110, 1127-1170.
- Ismail, R. (2009). Industrial analysis of liquidity risk management in Islamic bank, International Association of Islamic Banks. *Journal of Islamic Banking and Finance*, 26(2).
- Jalil, M. A., & Rahman, M. K. (2010). Financial Transactions in Islamic Banking are Viable Alternatives to the Conventional Banking Transactions. *International Journal of Business and Social Science*, 1(3).
- Kablan, S., & Yous, O. (2011). Efficiency of islamic and conventional banks in countries with islamic banking. *Unpublished MPRA Paper, University Library of Munich, Germany*.

- Kader, J. M., Asarpota, A. J., & Al-Maghaireh, A. (2007). *Comparative Financial Performance of Islamic Banks vis-à-vis Conventional Banks in the UAE*. Paper presented at the Paper presented at the Proceeding on Annual Student Research Symposium and the Chancellor's Undergraduate Research Award.
- Kader, R. A., & Leong, Y. K. (2009). The Impact of Interest Rate Change on Islamic Bank Financing. *International Review of Business Research Papers*, 5(3), 189-201.
- Kahf, M. (2005). Basel II: Implications for Islamic Banking. *Paper presented at the 6th International Conference on Islamic Economics and Banking - Jakarta, Nov 22-24*.
- Khamis, M., & Senhadji, A. (2010). Impact of the Global Financial Crisis on the Gulf Cooperation Council Countries and Challenges Ahead: An Update. *International Monetary Fund*.
- Khan, M., & Mirakhor. (1990). Islamic Banking: Experiences in Islamic Republic of Iran and in Pakistan. *Economic Development and Cultural Change*, 38, 353-375.
- Khan, T., & Ahmed, H. (2001). Risk Management: An Analysis of Issues in Islamic Financial Industry. Occasional Paper. King Fahd National Library Cataloging-in-Publication data.
- Khan, A. (2000). Globalization of Financial markets and Islamic Financial Institutions. *Islamic Economic Studies*, 8(1).
- Kosmidou, K. (2008). The determinants of banks' profits in Greece during the period of EU financial integration. *Managerial Finance*, 34(3), 146-159.
- Loghod, H. A. (2005). Do Islamic Banks Perform Better than Conventional Banks? Evidence from Gulf Cooperation Council countries. *API/WPS 1011*.
- Maudos, J., & Guevara, J. F. (2002). Factors Explaining the Interest Margin in the Banking Sectors of the European Union. *Journal of Banking & Finance*, 28(9), 2259 - 2281.
- Meouchi, C. E., Badri, R. A., & Meouchi, S. E. (2008). *Qatar Chamber of Commerce and Industry: Qatar Financial and corporate*.
- Middle East Report. (2010). State of the GCC banking system. Retrieved from <http://www.ifre.com/state-of-the-gcc-banking-system/610387.article>.
- Mills, P. S., & Presley, J. R. (1999). *Banks and banking; Religious aspects; Islam countries*. New York: St. Martin's Press.
- Mirakhor, A. (1995). Outline of an Islamic economic system. *Zahid Husain Memorial Lecture Series No. 11. Islamabad: State Bank of Pakistan*.
- Molyneux, P., & Thornton, J. (1992). Determinants of European Bank Profitability: A Note. *Journal of Banking and Finance*, 16, 1173-1178.
- Naceur, S. B., & Goaid, M. (2008). The Determinants of Commercial Bank Interest Margin and Profitability: Evidence from Tunisia. *Frontiers in Finance and Economics*, 5(1), 106-130.

- Neely, M. C., & Wheelock, D. C. (1997). Why does bank performance vary across states? *Federal Reserve Bank of St. Louis Review*, 27-38.
- Obaidullah, M. (2005). Islamic Financial Services. *King Abdulaziz University*, Jeddah, Saudi Arabia.
- Parashar, S. P., & Venkatesh, J. (2010). How did Islamic banks do during global financial crisis? *Banks and Bank Systems*, 5(4).
- Park, S. (1997). Risk-taking behaviour of banks under regulation. *Journal of Banking and Finance*, 21, 491-507.
- Pasiouras., F., & Kosmidou., K. (2007). Factors influencing the profitability of domestic and foreign commercial banks in the European Union. *Research in International Business and Finance*, 21(2), 222-327.
- Perry, P. (1992). Do Banks Gain or Lose from Inflation. *Journal of Retail Banking*, 14(2), 25-30.
- Ramady, M. A. (2009). Evolving banking regulation and supervision. A case study of the Saudi Arabian Monetary Agency (SAMA). *International Journal of Islamic and Middle Eastern Finance and Management*, 2(3), 235-250.
- Rashid, M., & Nishat, A. (2009). Disparity of Performance Indicators of Islamic Banks: Study on Bangladesh. *International Journal of Business and Management*, 4(8), 52-72.
- Ray, N. D. (1995). Arab Islamic Banking and the Renewal of Islamic Law. *J.KAU: Islamic Economics*, 11, 63-69.
- Reichert, A., & Shyu, Y.-W. (2003). Derivative activities and the risk of international banks: A market index and VaR approach. *International Review of Financial Analysis*, 12(5), 489-511.
- Rocha, R. R., Arvai, Z., & Farazi, S. (2011). Financial Access and Stability A Road Map for the Middle East and North Africa. The International Bank for Reconstruction and Development.
- Rose, P. (1996). *Commercial Bank Management*: USA: McGraw Hill Cos. Inc.
- Rose, P. S., & Hudgins, S. C. (2005). *Bank Management & Financial Service*: New York: McGraw Hill.
- Rosly, S., & Bakar, M. A. A. (2003). Performance of Islamic and mainstream banks in Malaysia. *International Journal of Social Economics*, 30(12), 1249-1265.
- Rosly, S., & Zaini, M. A. M. (2008). Risk-Return analysis of islamic banks' investment deposits and shareholders' fund. *Managerial Finance*, 34(10), 695-707.
- Rosly, S. A. (1999). Al-Bay' Bithaman Ajil financing: impacts on Islamic banking performance. *Thunderbird International Business Review*, 41 (4/5), 124-136.
- Sabi, M. (1996). Comparative Analysis of Foreign and Domestic Bank Operations in Hungary. *Journal of Comparative Economics* 22, 179 - 188.

- Said, R. M., & Tumin, M. H. (2011). Performance and Financial Ratios of Commercial Banks in Malaysia and China. *International Review of Business Research Papers*, 157-169.
- Saleh, A. S., & Zeitun, R. (2006). Islamic Banking Performance in the Middle East: A Case Study of Jordan. *University of Wollongong Economics Working Paper Series 2006*.
- Samad, A. (2004). Performance of Interest-free Islamic banks vis-à-vis Interest-based Conventional Banks of Bahrain. *IIUM Journal of Economics and Management*, 12(2), 1-15.
- Samad, A., & Hassan, M. K. (1999). The Performance of Malaysian Islamic banks during 1984-1997: An Exploratory Study. *International Journal of Islamic Financial Services*, 1(3).
- Saporoschenko, A. (2002). The sensitivity of Japanese bank stock returns to economic factors: An examination of asset/liability differences and main bank status. *Global Finance Journal*, 13(2), 253-270.
- Sarker, M. A. A. (2000). Islamic Banking in Bangladesh: Performance, Problems and Prospects. *International Journal of Islamic Financial Services*, 1(3).
- Saudi Arabian Monetary Agency. (2012). Retrieved from <http://www.sama.gov.sa/sites/SAMAEN/Pages/Home.aspx>.
- Sawada, M. (2010). Liquidity risk and bank portfolio management in a financial system without deposit insurance: Empirical evidence from prewar Japan. *International Review of Economics and Finance*, 392-406.
- Shen, C.-H., Chen, Y.-K., Kao, L.-F., & Yeh, C.-Y. (2010). *Bank Liquidity Risk and Performance*. National Taiwan University.
- Shrieves, Ronald, E., & Dahl, D. (1992). The Relationship between Risk and Capital in Commercial Banks. *Journal of Banking and Finance*, 16, 439-457.
- Siddiqi, N. (2008). Current financial crisis and Islamic economics. *lecture paper in the long distance IDB courses in Islamic Banking and Finance*.
- Siddiqui, S. H. (1996). Islamic Banking: Rationale, Prospects and Challenges. *Journal of Islamic Banking and Finance*, 13(2), 26-47.
- Smaoui, H., & Salah, I. B. (2011). *Profitability of Islamic Banks in the GCC Region*. Paper presented at the Auuual Paris Conference on "Money, Economy and Management"
- Smirlock, M. (1985). Evidence on the (Non) Relationship between Concentration and Profitability in Banking. *Journal of Money, Credit and Banking*, 17(1).
- Soto, G., González, C., Ballester, L., & Ferrer, R. (2009). Determinants of interest rate exposure of Spanish banking industry. *Instituto Valenciano de Investigaciones Económicas. Working Papers. Serie EC*.

- Srairi, S. (2009). A comparison of the profitability of Islamic and conventional banks: The case of GCC countries. *Bankers, Markets and Investors*, 92, 16-27.
- Sundararajan, V., & Errico, L. (2002). Islamic Financial Institutions and Products in the Global Financial System: Key Issues in Risk Management and Challenges Ahead. *IMF Working Paper No. 02/192* (Washington: International Monetary Fund).
- Van Horne, J., & Wachowicz, J. (2005). *Fundamentals of Financial Management*: Pearson Education Limited, 12th Ed.
- Vasudevan, S., & Errico, L. (2002). Islamic Financial Institutions and Products in the Global Financial System: Key Issues in Risk Management and Challenges Ahead *IMF International Monetary Fund. Working Paper. Washington, No.02/192*.
- Vogel, F. E., & Hayes, S. L. (1998). Islamic Law and Finance: Religion, Risk and Return *Arab Law Quarterly*, 13(4), 423-425.
- Wilson, R. (1994). Development of Islamic Financial Instruments. *Islamic Economic Studies*, 2(1), 103-115.
- Wilson, R. (2009). *The development of Islamic finance in the GCC*. Kuwait: Working Paper, Kuwait Programme on Development, Governance and Globalisation in the Gulf States.
- Yudistira, D. (2003). Efficiency in Islamic Banking: an Empirical Analysis of 18 Banks. *Islamic Economic Studies*, 12(1), 1-19.
- Zainol, Z., & Kassim, S. H. (2010). An Analysis of Islamic Banks' Exposure to Rate of Return Risk. *Economic Cooperation and Development*, 31(1), 59-84.

Appendix 1

List of Banks Sample

	Islamic Banks	Symbol	Established	Data	Country
1	Al Rajhi Bank	(RJHI)	1987	2006-2010	Saudi
2	Bank Al Jazira	(BJAZ)	1975	2006-2010	Saudi
3	Bank Al Bilad	(ALBILAD)	2004	2006-2010	Saudi
4	Bahrain Islamic Bank	(BISB)	1979	2006-2010	Bahrain
5	Albaraka Banking Group	(BARKA)	2002	2006-2010	Bahrain
6	Ithmaar Bank	(ITHMR)	1984	2006-2010	Bahrain
7	Ithmaar Bank	(ITHMR)	1984	2006-2010	Bahrain
8	Kuwait Finance House	(KFIN)	1977	2006-2010	Kuwait
9	Boubyan Bank	(BOUBYAN)	2004	2006-2010	Kuwait
10	Amlak Finance	(AMLAK)	2000	2006-2010	Emirates
11	Dubai Islamic Bank	(DIB)	1975	2006-2010	Emirates
12	Emirates Islamic Bank	(EIB)	1975	2006-2010	Emirates
13	Abu Dhabi Islamic Bank	(ADIB)	1997	2006-2010	Emirates
14	Sharjah Islamic Bank	(SIB)	1975	2006-2010	Emirates
15	Qatar Islamic Bank	(QIBK)	1982	2006-2010	Qatar
16	Qatar International Islamic Bank	(QIIK)	1990	2006-2010	Qatar
Conventional Banks					
17	Riyad Bank	(RIBL)	1957	2006-2010	Saudi
18	AlAhli Bank	(NCB)	1953	2006-2010	Saudi
19	SABB	(SABB)	1976	2006-2010	Saudi
20	Arab National Bank	(ARNB)	1979	2006-2010	Saudi
21	The Saudi Investment Bank	(SIBC)	1976	2006-2010	Saudi

22	Saudi Hollandi Bank	(SHB)	1976	2006-2010	Saudi
23	Banque Saudi Fransi	(BSFR)	1977	2006-2010	Saudi
24	Samba Financial Group	(SAMBA)	1980	2006-2010	Saudi
25	National Bank of Bahrain	(NBB)	1957	2006-2010	Bahrain
26	Bahrain Middle East Bank	(BMB)	1982	2006-2010	Bahrain
27	Investcorp Bank	(INVCORP)	1982	2006-2010	Bahrain
28	Al Ahli United Bank	(AUB)	2000	2006-2010	Bahrain
29	BBK	(BBK)	1971	2006-2010	Bahrain
30	Arab Banking Corporation	(ABC)	1980	2006-2010	Bahrain
31	Taib Bank	(TAIB)	1979	2006-2010	Bahrain
32	National Bank of Kuwait	(NBK)	1952	2006-2010	Kuwait
33	Gulf Bank	(GBK)	1960	2006-2010	Kuwait
34	Al Ahli Bank of Kuwait	(ABK)	1967	2006-2010	Kuwait
35	Burgan Bank	(BURG)	1975	2006-2010	Kuwait
36	Commercial Bank of Kuwait	(CBK)	1960	2006-2010	Kuwait
37	Ahli United Bank	(ALMUTAHED)	1971	2006-2010	Kuwait
38	Kuwait International Bank	(KIB)	1973	2006-2010	Kuwait
39	National Bank of Abu Dhabi	(NBAD)	1968	2006-2010	Emirates
40	Abu Dhabi Commercial Bank	(ADCB)	1985	2006-2010	Emirates
41	Bank of Sharjah	(BOS)	1973	2006-2010	Emirates
42	Union National Bank	(UNB)	1982	2006-2010	Emirates
43	Arab Emirates Investment Bank	(AEIBANK)	1976	2006-2010	Emirates
44	Commercial Bank of Dubai	(CBD)	1969	2006-2010	Emirates
45	Mashreq Bank	(MASQ)	1967	2006-2010	Emirates

46	Commercial Bank International	(CBI)	1991	2006-2010	Emirates
47	First Gulf Bank	(FGB)	1979	2006-2010	Emirates
48	Finance House Co.	(FH)	2004	2006-2010	Emirates
49	Invest Bank	(INVESTB)	1975	2006-2010	Emirates
50	National Bank of Fujairah	(NBF)	1984	2006-2010	Emirates
51	National Bank of Umm Al Qaiwain	(NBQ)	1982	2006-2010	Emirates
52	National Bank Of Ras Al Khaimah	(RAKBANK)	1976	2006-2010	Emirates
53	United Arab Bank	(UAB)	1975	2006-2010	Emirates
54	Qatar National Bank	(QNBK)	1964	2006-2010	Qatar
55	Commercial Bank of Qatar	(CBQK)	1975	2006-2010	Qatar
56	Doha Bank	(DHBK)	1979	2006-2010	Qatar
57	Al Ahli Bank QSC	(ABQK)	1983	2006-2010	Qatar
58	Bank Muscat	(BKMB)	1992	2006-2010	Oman
59	National Bank Of Oman	(NBOB)	1973	2006-2010	Oman
60	Oman International Bank	(OIBB)	1979	2006-2010	Oman
61	Bank Dhofar	(BKDB)	1990	2006-2010	Oman
62	Ahli Bank	(ABOB)	1997	2006-2010	Oman
63	Bank Sohar	(BKSB)	2006	2006-2010	Oman

Appendix 2

List of Islamic Banks Terms

TERMS	MEANING
<i>Arbun</i>	Down payment; a non-refundable deposit paid by a buyer retaining a right to confirm or cancel the sale.
<i>Bai bithaman ajil</i>	A contract that refers to the sale and purchase transaction for the financing of assets on a deferred and an instalment basis with a pre-agreed payment period. The sale price will include a profit margin.
<i>Ijarah</i>	The transfer of ownership of a service for a specified period for an agreed upon lawful consideration.
<i>Istisna</i>	A contract of sale of specified goods to be manufactured with an obligation of the manufacturer to deliver them upon completion. It is a condition in <i>Istisna</i> that the seller provides either the raw material or cost of manufacturing the goods.
<i>Mudarabah</i>	A form of partnership where one party provides the funds while the other provides expertise and management. The latter is referred to as the <i>Mudarib</i> . Any profits accrued are shared between the two parties on a pre-agreed basis, while loss is borne by the provider(s) of the capital.
<i>Murabahah</i>	A contract that refers to the sale and purchase transaction for the financing of an asset whereby the cost and profit margin (mark-up) are made known and agreed by all parties involved. The settlement for the purchase can be settled either on a deferred lump sum basis or on an instalment basis, and is specified in the agreement.
<i>Musharakah</i>	A partnership arrangement between two parties or more to finance a business venture whereby all parties contribute capital either in the form of cash or in kind for the purpose of financing the business venture. Any profit derived from the venture will be distributed based on a pre-agreed profit sharing ratio, but a loss will be shared on the basis of equity

	participation.
<i>Muwa`adah</i>	A mutual promise between two parties with the intention to conclude a contract in the future.
<i>Riba</i>	An increase, which in a loan transaction or in exchange of a commodity, accrues to the owner (lender) without giving an equivalent counter value or recompense in return to the other party. It covers interest both on commercial and consumer loans, and is prohibited according to <i>Shariah</i> .
<i>Salam</i>	A contract for the purchase of a commodity for deferred delivery in exchange for immediate payment according to specified conditions.
<i>Sharia</i>	The term Sharia has two meanings: Islamic law, and the totality of divine categorizations of human acts (<i>Islam</i>). The second meaning of the term means Sharia rules do not always function as rules of law in the western sense, as they include obligations, duties and moral considerations not generally thought of as “law”. Sharia rules, therefore, admitting of both a legal and a moral dimension, have as their purpose the fostering of obedience to the Almighty. In the legal terminology, Sharia means the law as extracted by the <i>mujtahids</i> from the source of law.
<i>Sharia-compliant</i>	Sharia-compliant of a product or service is produced or offered in accordance with the doctrines of the sharia.
<i>Sukuk</i>	A document or certificate, which evidences the undivided pro-rata ownership of underlying assets - the Sak (singular of Sukuk) is freely tradable at par, premium or discount.
<i>Takaful</i>	This is a form of Islamic insurance based on the principle of ta’awun or mutual assistance. It provides mutual protection of assets and property and offers joint risk sharing in the event of a loss by one of its members. Takaful is similar to mutual insurance in that members are the insurers as well as the insured.
<i>Tawarruq</i>	It is a sale of an asset to a purchaser with

	deferred payment. The purchaser then sells the asset to the third party on cash with a price lesser than the deferred price, for the purpose of getting cash.
<i>Wadi'ah</i>	Goods or deposits, which have been deposited with another person, who is not the owner, for safekeeping. As <i>wadiah</i> is a trust, the depository becomes the guarantor and, therefore guarantees repayment of the whole amount of the deposits, or any part thereof, outstanding in the account of depositors, when demanded.
<i>Wakalah</i>	A contract, which gives the power to a person to nominate another person to act on his behalf as long as he is alive based on the agreed terms and conditions.