CREDIT RISK IN ISLAMIC BANKS OF GCC COUNTRIES

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ABSTRACT

This study investigates factors which affect credit risk of Islamic banks in Gulf Cooperation Council (GCC) countries. The study uses secondary data obtained from the web sites of 25 Islamic banks during the period from 2006 to 2010. We exclude Saltant Oman which has no Islamic banks. This study uses Non-Performing loans (NPLs) as a proxy for credit risk which is dependent variable. The independent variables consist of three macroeconomic variables Gross Domestic Product (GDP), Inflation rate (INF) and London Inter-Bank Offered Rate and six other variables (bank specific) that are used as internal variables. These are management efficiency (MGTEFF), loan to deposit (L/D), risky asset (RSKAST), total assets (LNTA), regulatory capital (REGCAP) and loan loss provision (LLP). We find that GDP is significant and negatively related to credit risk, and it is similar with finding of past studies, but inflation rate and LIBOR are insignificantly related, and they are different with literature. We find that MGTEFF is significantly and negatively related to credit risk, while L/D and RSKAST are significant and positively related to credit risk. All of them are similar with finding of previous studies. And other internal variables (LNTA, REGCAP, and LLP) are not significantly related to the credit risk. Size of banks is differed with past studies, LNTA and REGCAP are positive related to credit risk, while LLP is negative related to the credit risk of Islamic banks in GCC countries.

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LIST OF ABBREVIATIONS

Abbreviation	Description of Abbreviation
GCC	Gulf Cooperation Council
GDP	Gross Domestic Product
UAE	United Arab Emiratis
KSA	Kingdom Saudi Arabia
LLR	Loan Loss Reserve
CPI	Consumer Price Index
INF	Inflation Rate
LIBOR	London Interbank Offered Rate
PLS	Profit-Loss Sharing
M-M	Mudarabah and Musharakah
GFC	Global Financial Crisis
SSA	Sub-Saharan Africa
NPA	Non-Performing Assets
NPLs	Non-Performing Loans
REGCAP	Regulatory Capital
LLP	Loan Loss Provision
LEV	Leverage
ETA	Equity to Total Assets
EQL	Equity to Net Loans
ImLGL	Total Impaired Loans/Gross Loans

PSIA	Profit Sharing Investment Account
MIR	Market Interest Rate
MGTEFF	Management efficiency
RWA	Risk Weighted Asset
LNTA	Natural Logarithm of Total Assets
RSEC	Risky Sector Loan Exposure
L/D	Proportion of Loan to Deposit
RSKAST	Risky Asset
MENA	Medal East and North Africa

CHAPTER ONE

INTRODUCTORY PART

1.1 INTRODUCTION

Islamic banking is a system of which operations totally relies on the principles of Islamic *shariah*. In over 70 countries (including Muslim ones), *shariah* compliant products are practiced alongside with conventional banks products which are interest based. Hence, Islamic banks operate in the interest free system and this is one of the important things which represent the main difference between the two banking systems: Islamic religion imposing strict prohibitions of *Riba* or interest. As well Islamic banking service represents the main brick in the edifice of Islamic economy, and an important tool to measure its effectiveness, and its applications support its objectives in the Islamic society, and contribute to build the economic reality of the Islamic manners.

On this basis, Islamic banks provide funds and involve in productive projects that comply with Islamic law (*Shariah*). This shows the extent of awareness that Islamic banks play in Muslim's societies today, and they try to carry out their duties and meet society's needs for such services. In order to achieve that end, Islamic banks took into the geographical spread in the world during the past three decades, and significant presence of these banks in the Middle East, especially in the Gulf Cooperation Council

(GCC) countries[1]. For example, Bahrain Kingdom with 27 banks, about half the number of Islamic banks in the GCC countries, is one of the GCC countries that are ranked first among the Islamic banks of GCC countries, and according to a report issued in 2010 by the General Council for Islamic banks.

In recent times, five GCC countries become fast growing economies with the countries (such as Bahrain) emerging as leading centers of Islamic finance and banking.

1.1.1 Islamic Banks In the GCC Countries

Islamic banks received a wide acceptance in recent decades and many of the conventional banks have transformed to Islamic banks, particularly in the Gulf Cooperation Council (GCC) countries, which witnessed this transformation. For example, Dubai Bank and the National Bank of Sharjah have become *Shariah* Islamic banks in the UAE. National Bank of Saudi Arabia, and Kuwait Real Estate Bank (Kuwait International Bank) in Kuwait recently converted their entire operations to be Islamic banks[2].

In the light of competition in the conventional banking and the increasing customers' demand for Islamic banking services, Islamic banks such as Dubai Bank, Qatar Islamic Bank, and Al Rajhi Bank[3] in the GCC region have expanded globally. In the end of 2009[4], the GCC's Islamic banks' total assets contributed over $350 billion or 43 percent of total Islamic banking assets in the whole world compared with less than 10 percent in

(1) Gulf Cooperation Council (GCC) countries are an alliance grouping conjoins the six oil- and gas-rich Arabian states of Kingdom of Saudi Arabia (KSA), Kuwait, the United Arab Emirates (UAE), Qatar, sultanate of Oman and Kingdom of Bahrain, was founded in May 1981on previous century.
(2) Booz & Company www.booz.com and www.booz.com/me
(3) KPMG International provides and a Swiss cooperative with which the independent member firms of the KPMG network. (Growth and Diversification in Islamic Finance 2007)
(4) A report released by Kuwait Finance House (2010)

2003, and this is expected to trend higher on the back of a wide acceptance and increased demand for Islamic banking products and services. The most important factors explaining the fast growth of Islamic banking assets in the GCC region are strong government involvements[5] supporting their economies which depend on the oil wealth.

1.1.2 Economic Variables of GCC Countries

Economists classify economies of the GCC countries as developing countries, as oil is the most important sources of income for them, and oil revenues are instrumental in enhancing economic growth. Furthermore the oil sector in GCC is characterized by a high degree of energy financing and higher average per capita income. It could be said that the economy of GCC countries primarily relies on the oil sector that is considered a dominant public sector or the leader sector with other government and private sectors depending on its revenues (Laabas and Limam, 2002). As a result, GCC countries face many urgent challenges to decrease this dependency and develop other non-oil sectors (Saif, 2009).

It is obvious that macroeconomic performance would be affected by the changes in the oil prices. Instability in oil revenues would have an impact on the rates of growth in the economy through government expenditure's changes. GCC countries thus ought to diversify their exports in order to decrease the dependency on oil which is considered a dominant sector. Economic diversification is also important for these countries to reduce risk or at least spread it, to limit the affect of widely volatility in oil price, to

(5) Standard & Poor's Ratings Services

create job opportunities and to promote economic development (Fasano and Iqbal, 2003).

On the other hand, and according to Saif (2009), GCC countries pegged the exchange rate of their currencies to the price of a main export commodity (i.e. the oil price) For example, the fiscal spending of the State of Kuwait and Oman were reduced from 21.3 percent of Gross Domestic Product (GDP) to 12.5 percent of GDP and from 6.4 percent to 5.3 percent of GDP respectively, while volatility in government expenditure in Saudi Arabia was reduced from 6.6% to 2.8%. This means that the macro economy of GCC countries would be affected by the continuous fluctuations in oil price if local currencies are pegged to oil price, (Saif, 2009).

1.1.2.1 GDP of GCC countries:

GDP is a measure for the economic performance of a country, through the total of market value of the final goods and services which are produced in that country is for just one year.

Generally, Saudi Arabia has a higher GDP than all the rest of the countries, followed by UAE and the four remaining countries' GDPs are approximately similar (Shafiqurrahman, 2010).

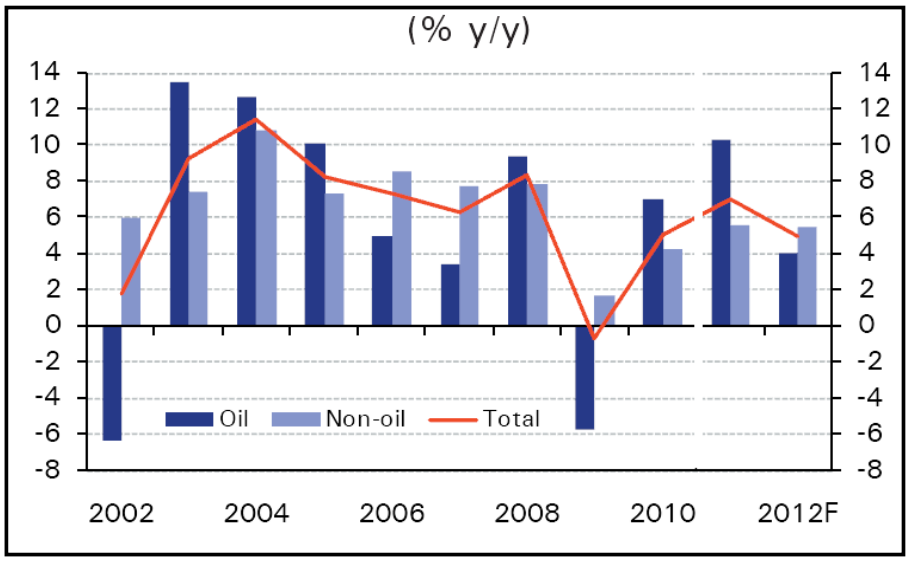


Chart 1.1 Real GDP of GCC countries
Source: GCC Economic Outlook Official sources / NBK estimates and forecasts - April 2011

Nominal GDP in Saudi Arabia was 435.5 ($ billions) in the end of 2010, followed by 260.2 ($ billions) in UAE, and it was about 116 – 22 ($ billions) in other four countries in the end of 2010[6].

1.1.2.2 Inflation of GCC countries:

Generally, overall inflation in the GCC countries is low, although there are many pressures from rising commodities prices.

(6) Source: IMF, IIF, National Accounts, Samba.

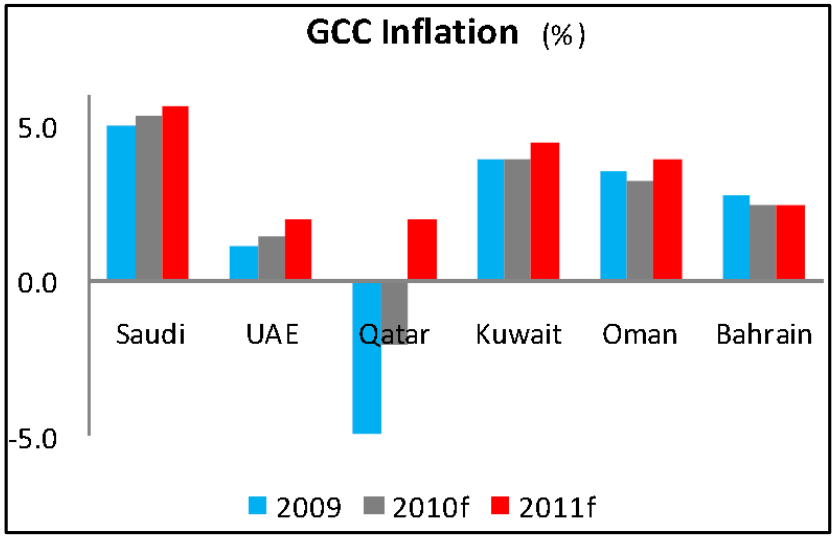


Chart 1.2 The inflation of GCC countries
Source: GCC Outlook 2011, Samba Financial Group

Available information shows that the average inflation for the GCC is 3.2 percent in the beginning of 2010 and 4 percent in the beginning of 2011[7]. Actually there are substantial differences between the GCC countries in terms of demand and supply, but generally this rate is expected to cause inflation to be higher than existed before the last crisis.

1.1.3 GCC's Islamic Banks and their Challenges.

In general Islamic banks are moving significantly in the quantitative aspects. But actually in the recent decade, Islamic banks have faced much criticism, in terms of originality of Islamic banking products, roles and social development for Islamic banks, and costs of transaction and products.

(7) GCC Outlook 2011, Samba Financial Group.

Islamic banks of GCC countries have witnessed the remarkable growth in business recently and tremendous demand for its products and services, the Islamic banks in this region were less affected than conventional banks by the initial impact of the global crisis (Hasan and Dridi. 2010). Islamic banks still face many obstacles and challenges. According to Mohammed Alqerri[8], there is a continuous challenge of applying instruments or modes of financing and methods of payment and collection which are significantly different of conventional system. Another challenge is the relationship between Islamic bank and its central bank in the same country because their legislations are still conventional-based. In addition to several problems such as problem of delaying payment in buying-selling and financing transaction, there are problems of mixing investment deposits and overlapping their profits, benefit from each other due to the lack of stability, and distribution of profits.

The relationship between Islamic banks and own central banks requires differential treatment with that of conventional banks, for example to provide liquidity. It will not lend on interest based like conventional banks but the basis is on *Qard Hasan* (free interest rate loan). Otherwise, Islamic banks may use *Tawarroq* to buy a commodity from banks, or reverse *Murabahah* when Islamic bank buys the commodity from the central bank, and then sell the same commodity to a third party. Actually, this *shariah* complaint way provides cash to Islamic banks under certain circumstances (Fleifel, 2009).

On the other hand, the rate of profit of Islamic banks follows the prevailing international interest forcedly by legislation of central bank. Hence central banks impose on Islamic banks the same rate of dividend interest rate for lending in the

(8) Professor of Islamic Economics and Director of the Centre Researches in Islamic Economics at King Abdulaziz University in Jeddah.

conventional banks. So for pricing *sukuk* (Islamic bond), such as *Mudarabah sukuk* or *Ijarah*, some Islamic banks shifted to the LIBOR rate[9] or to link rate of profit to LIBOR. This is prohibited according to some Muslims' scholars such as Husamaddin Afanah.

Generally, Islamic banks should gather all of their resources in order to strengthen own Islamic interbanking market which is currently weak, or form strong one to provide their benchmarked rates (Fleifel, 2009). However, in the UAE, they use the Emirates Interbank Offered Rate EIBOR as similar to the LIBOR, and also SAIBOR. Actually these rates leaded are led by market considerations that create competition. so many Islamic banks in this region use these rates as benchmarks to represent interest rate proxies for pricing the rate of profit. For example, using it in the rental rates for the leasing contracts (*Ijarah*) or also in the installment sale (Malik, Malik and Mustafa. 2011).

On the other hand, and in the religious side that Islamic banks rely on, Bishr Mohammed Muwaffaq[10] mentioned about this side that there is a multiplicity of *Fatwa* or sometimes *Ijtihad* issued by the Islamic banks which are sometimes conflicting. For example, *Tawarruq* banking order accordance to the allowance of the *Fatwa* applies in some banks in some countries, such as Saudi Arabia and Kuwait, , , and prohibited in others such as Dubai Islamic Bank and Qatar.

Muwaffaq also indicates to the qualitative deficiencies in human resources that many of them have experience just like conventional banks, but starting to be improved right now. Because of the insufficient education and training about Islamic banking system, in addition to the weakness of cooperation between Islamic banks and what they were,

(9) LIBOR or (London inter bank offered rate) it's determined daily by major banks in London, when computed interest on deposit among them to fix the cost of borrowing in the money markets.
(10) Founder and General Supervisor of the Encyclopaedia of Islamic Economics and Finance, http://www.iefpedia.com

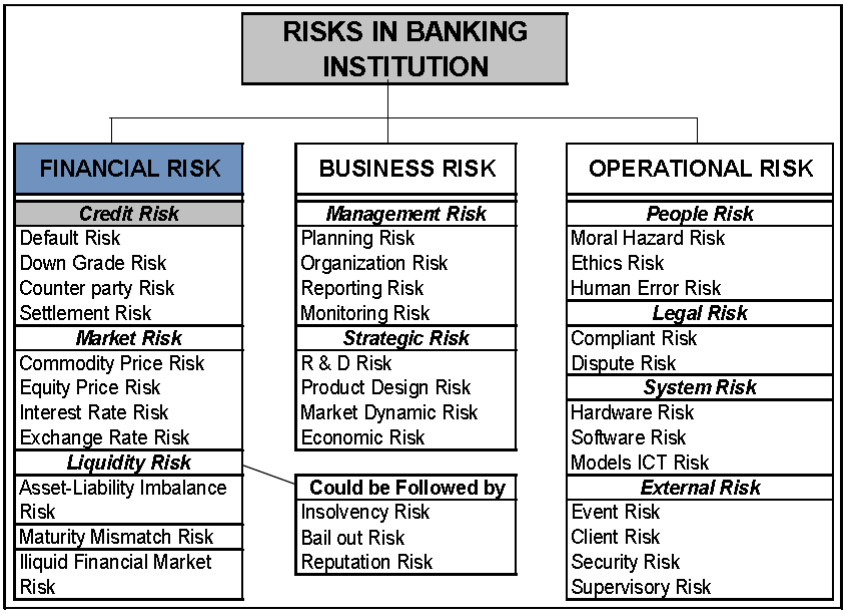
there should be is an agglomeration in order to be an affected and powerful t in international forums.

Furthermore, Islamic banks are needed for a stable economic and financial environment and they are needed to be *shariah* compliant banks. That is the main point which distinguishes them. All of these and other elements require bankers to be experienced in Islamic products and fundamental *Shariah* principles, particularly pertaining to defaults, penalties, and investor rights (Greuning and Iqbal, 2009). But one of the most important challenges that Islamic and conventional banks face is risk management, since the whole banking system needs to manage their risks in order to avoid and/or hedge many types of risks.

Generally, banking institutions are exposed to many types of risks which can be consists of three main categories, as shown in figure 1.1: (1) Financial risk, (2) Business risk and (3) Operational risk. The last two risks relate to internal affairs of the bank, but financial risk arises from the business activities of the bank. Credit risk is categorized under financial risks, (Ismal, 2010).

Actually, and as mentioned previously, the main difference between two banking systems is complying with the Islamic shariah in case of Islamic bank, in addition to its regulation. However similar potential risks would be faced by both banking systems and might lead to a collapse. Major risks for banks such as (1) credit risk, (2) market risk, (3) liquidity risk, and (4) operational risk, might cause a systemic risk which can lead to a case of systemic failure, (Fleifel, 2009).

Figure 1. 1: Risks in Banking Institutions



Source: Rifki Ismal (2010).

SinceIslamic banks need to comply with the Islamic *Shariah* involving many (payment/settlement) activities, they are vulnerable to risks, and particularly credit risk, which is the main risk facing these banks.

1.2 BACKGROUND OF THE STUDY.

The seventies of the last century were the starting of the emergence of Islamic banks in GCC countries. In UAE the first Islamic bank was established in 1975, followed by others and spread to the rest at Arab and Islamic countries.

Islamic banking industry sector in GCC countries during three decades has witnessed enormous developments, whether in the form of establishment of new Islamic banks or transformation of some conventional banks in some countries to Islamic banks, in addition to spreading the opening of Islamic windows for producing variant Islamic banking services.

These developments were accompanied by a similar development in the Islamic investment instruments that was offered to customers in the Islamic banks. Nevertheless, Islamic banks are still surrounded by many challenges as mentioned above and challenges of risks that are preceded by credit risk.

1.2.1 Concepts Relevant to Credit Risk in Islamic Banking.

(Gharar) in Islamic literature mentions uncertainty that is not exactly similar with the term of risk; actually, there is a difference between them. According to Knight (1921), risk is expected to be measuring probabilities and the occurrence of forcible undesirable events, but uncertainty is a situation when probabilities are measured at either or not possible, or is not beneficial. Risk can be measured, or will have no importance if it cannot be measured, in contrast to the uncertainty that situation is not measurable, (Hammad, 2008).

Risk is defined as the probability of occurrence differences between what is expected and actual result, or sometimes the occurrence of unexpected outcomes that lead a bank to eventually bankrupt. Risk management refers to the overall process followed to identify the risks which a bank may be exposed to, to determine, measure, assess, mitigate, and control the cause of risks (Khan and Ahmed, 2001).

Risk management in Islamic banking is not significantly different from that in conventional banking; however some kinds of risks have specific features of Islamic financing contracts, in addition to risks that are unique to Islamic banking sector and related to the *shariah* compliance and different instruments that Islamic bank adopt, (Said et al. 2000).

For example, Islamic banks use risk assessment and the processes of measurement to be applicable to Profit-Loss Sharing (PLS) assets (e.g. *Mudarabah* and *Musharakah*). These modes actually make Islamic banks vulnerable to the risks which are shifted normally to the depositors to be borne by equity investors rather than debt holders. Hence, administration of PLS as financing modes is more complex than that of conventional banks. That risk is credit risk in Islamic banking system (Sundararajan and Errico, 2002).

Furthermore, and according to Ananzah and Othman (2010), credit risk arises in Islamic banking through (1) Accounts receivable of *Murabaha*, (2) Accounts receivable and parties of dealing within contracts *Istisna'*, (3) Payment of rents in the city leases, and (4) Instruments that are held by their maturity dates in the register bank.

Generally, and according to Tariqullah Khan and Habib Ahmed (2001)**,** credit risk is the risk that the borrower's or counterparty's inability to meet his/her obligations in accordance with agreed terms. On the other hand, credit risk faced by Islamic banks arises when the bank pays money as in *Istisna'* and *Salam* contracts or delivers assets before receiving its own cash or assets as in *Murabahah* contract, therefore, the bank would be subject to credit risk. While the credit risk that occurs in PLS modes of *Mudarabah* and *Musharakah* (*M-M*) is the risk that arises when the entrepreneur fail to pay the share of the bank, actually, this problem will be exist in the case of an absence

of sufficient information about the profits of the firm. This problem occurs in case of non-performance of a trading partner of bank by *Murabahah* contracts. This problem is known as asymmetric information problem between borrower and lender, a discussion of which is covered in chapter two within the Delegated Monitoring Theory (Khan and Ahmed, 2001, pp 29, 54).

There are many factors that result in credit risk: concentrations of credit, whether for individuals or sectors; non-diversification in the credit portfolio and weakness of the process of credit analysis. According to Basel Committee II on banking supervision, credit risk arises when there is not enough capital to protect the interests of both depositors and borrowers and other stakeholders. Actually, Basel II highlights subject of capital adequacy of banks especially conventional banks, by focusing on the concept of capital-based on risk, and recommends that increases in the risks of bank requires retaining more capital to cope with those risks (Kahf, 2005).

In addition to these types of risk, there are many risks which unique and belong to Islamic banking sector and related to the *shariah* compliant and its different instruments that Islamic bank adopted (Said, Shafqat and Rehman, 2000).

1.2.2 Credit Risk in Islamic Banks of GCC countries.

Since achievements by Islamic banks of GCC countries happened in a short time, it appears that these banks do not face significant risks., The rapid growth of the Islamic banking sector in GCC region, and the growing the acceptance of it, actually refer to factors related to the method of Islamic banks operation and their banking activities. And one of these factors, the trend of most Islamic banks to establish a portfolio local

investment and mutual funds in global equities that led to the great expansion of the market for these banks and the increasing investment financial services.

In contrast, in GCC countries where there is a great wealth though agricultural sector is limited, microfinance is mostly irrelevant and industry sector still does not consent demands of the vast majority of people. Government involvement as mentioned previously, take advantage of the benefits from the oil sector (oil revenues) which is largely the leader sector in these countries. This is what explains the successive growth of Islamic financial institutions. Due to such factor, Islamic banks of GCC countries have shown strength and resilience to face the global financial crisis which became worsened in 2008[11]. But does this means that these Islamic banks are protected of risk, or free from risk? Absolutely no, and furthermore, because of different systematic banking for Islamic banks as compared with conventional banks in the same region, there are additional risks specific to Islamic banks, there are risk of Islamic finance instruments. Modes of Islamic finance are only practices of new banking system, so this system has its own understanding, its own applications and its own risks as well.

As mentioned previously, Islamic banks in the GCC countries still face several challenges, due to them trying to practice Islamic finance instruments on a large scale and comprehensive, one of these obstacles, offer instruments of credit activities, which are subject to credit risk exposure. Even though credit activity is one of the most important functions offered by banks, it is one of the most profitable activities and the most risky as well. That occurs especially in *M-M*, *Salam* and *Istisna'* contracts. The expected risk in these contracts arises as a result of inability of debtors to meet their

(11) International Monetary Fund (IMF), Multimedia Services Division, 2010.

financial commitments on the dates of maturity, and then consequent losses incurred by Islamic bank.

To minimize risk, Islamic *Shariah* allows collateral which is considered a secured source of debt, and guaranties that are introduced from third party, in addition to the loan loss reserve (LLR) to protect credit risk, Islamic banks are still threatened by the main four types of risks that lead to systemic failure as mentioned previously. One of them is credit risk (Fleifel, 2009).

There is therefore a need to examine credit risk in Islamic banks in the GCC countries by determining its factors and the extent of their impact on the operations of Islamic banks.

1.3 PROBLEM STATEMENT.

The main objective of the management of any bank, just like a typical firm, is to maximize shareholder wealth; that is to maximize the market value of stocks through evaluating cash flows and risks faced by the bank. As it is known, in order to get high return the firm must either afford more risk, or reduce operating costs, but to maximize shareholder wealth it requires continuous evaluating and finding a balance between an opportunity to obtain high returns and resultant risks of these returns. Therefore, there is a possibility of bank failure to achieve returns (Mohammed, 2008).

The characteristic of the investment in Islamic banks is the relationship between the owners of funds or depositors and the Islamic bank that it based on participation in profit and loss. Islamic products have different characteristics of risks, thus many

procedures should be activated to avoid the risks of Islamic banking. Since Islamic banks have to replace interest rate on loans by Profit-Loss Sharing (PLS) to be *shariah* compliant, consequently, credit risk in Islamic banks will be increased (Hassan, 2011).

According to Chapra and Khan (2000) and Khan and Ahmed, (2001), credit risk is an important type of financial risk that are included in default risk which covers more than three-quarters of the risks in an average Islamic bank's banking book of an asset portfolio. Credit risk causes more than three-quarters of Islamic bank failures as shown in Chart 1.3. Credit risk appears greater than other risks, especially with *M-M* or PLS modes of financing. Furthermore, default or credit risk, also causes market risk and liquidity risk.

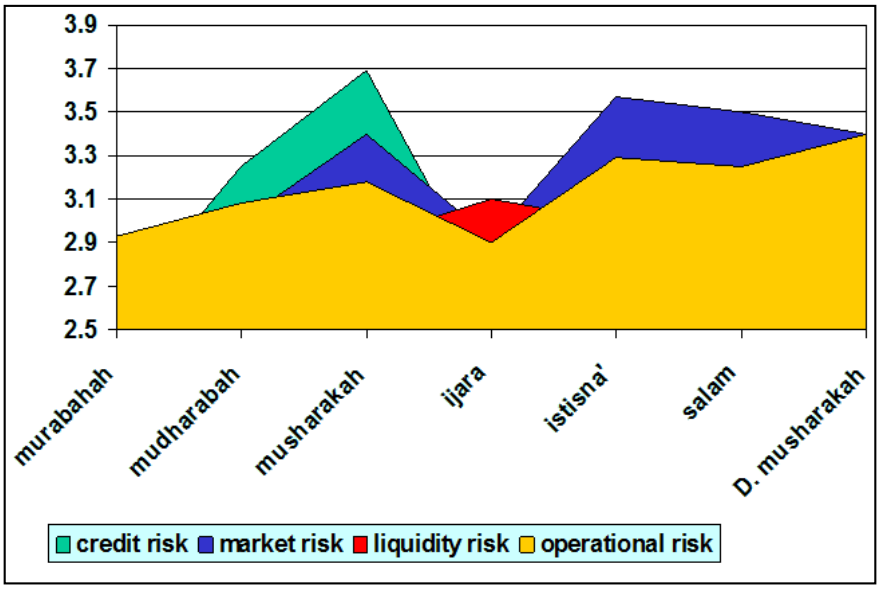


Chart 1.3 Islamic banks modes of financial risks

Source: Chapra and Khan, (2000) & Khan and Ahmed, (2001).

Actually, *Mudarabah* and *Musharakah (M-M)* modes exposure to higher credit risk, because the events of default are undefined and the collateral are not allowed. On the other hand, in the modes of Non-PLS such as *Murabahah* and *Ijarah,* market risk dominates more than credit risk. This is because of the fixed income adopted by these modes of financing and this rate of profit is affected by the market's volatility (Khan and Ahmed, 2001).

According to Mahmoud Dahduli, the management of credit risk is one of the main features that distinguish the banking system as intermediary organizations. If status of credit risk is managed well, this indicates the portfolio of banks' funds and loans diversified.

In GCC countries, credit risk management in Islamic banks is considered as one of the important issues facing Islamic banks. As mentioned above, the Islamic banks generally are available to offer many types of financing modes, but they actually prefer to focus only on certain modes of financing.

According to Mabid Ali Al-Jarhi and Munawar Iqbal (2001)**,** most of Islamic banks in GCC countries since applying financing modes prefer fixed return modes, especially *Murabahah* modes which represent the most of total financing. As shown in Table 1.1 the share of *M-M* from total financing is smaller than share of *Murabahah* (e.g. *Murabaha* and *Ijarah* form 75 percent of the total of financing, and 25 percent at their instruments such as M-M*, Istisna'* and *Salam)*[12].

The first category (*Murabaha* and *Ijarah*) is named non-PLS because it just depends on purchasing services or goods or hiring and the return is fixed, while another category depends on the PLS principle. Hence, Islamic bank tries to make a balance between the

(12) Statistics of the General Council for Islamic banks, Bahrain, (2001).

two modes of non-PLS and PLS, and justify that there is expectation that the first mode meets the least vulnerable banking credit risk (Al-Jarhi and Iqbal, 2001).

Table 1.1 **Distribution of Financing Provided by Islamic Banks**

Institution	Total Financing Million US$	Murabaha	*Musharakah*	*Mudarabah*	leasing	Other Modes	Total
Al Baraka Islamic Bank for Investment	119	82	7	6	2	3	100
Bahrain Islamic Bank	320	93	5	2	0	1	100
Faisal Islamic **Bank, Bahrain**	945	69	9	6	11	5	100
Bangladesh Islamic Bank Ltd.	309	52	4	17	14	14	100
Dubai Islamic Bank	1,300	**88**	1	**6**	0	**6**	100
Faisal Islamic Bank, Egypt	1,364	73	13	11	3	0	100
Jordan Islamic Bank	574	62	4	0	5	30	100
Kuwait Finance **House**	2,454	45	20	11	1	23	100
Islam Malaysia Bank Berhad	580	66	1	1	7	24	100
Qatar Islamic Bank	598	73	1	13	5	8	100
Simple Average	8,563	70	7	7	5	11	100
Weighted Average		66	10	8	4	12	100

Source: Al-Jarhi and Iqbal, 2001.

Banks are entrusted with the depositors' money, hence they should use with constant concern to mobilize the costumers' deposit into productive projects. In case of Islamic banks, they lend to productive projects using their composite of instruments or modes of financing which are shariah compliant. The banks deal with all Islamic banking products, for example, the bank funds as Profit-Loss sharing (PLS) financing modes (e.g. *Mudarabah* and *Musharakah*), and Non-PLS financing which represents fixed-income and installment sale such as *Murabahah, Istisna' salam* or *Ijarah*. These banks have to use specific methods to deal with credit risk due to the constraints of Islamic law or *shariah* as shown in chart 1.4 that the Non-PLS financing represent 95 percent from total financing, while only 5 percent for PLS modes.

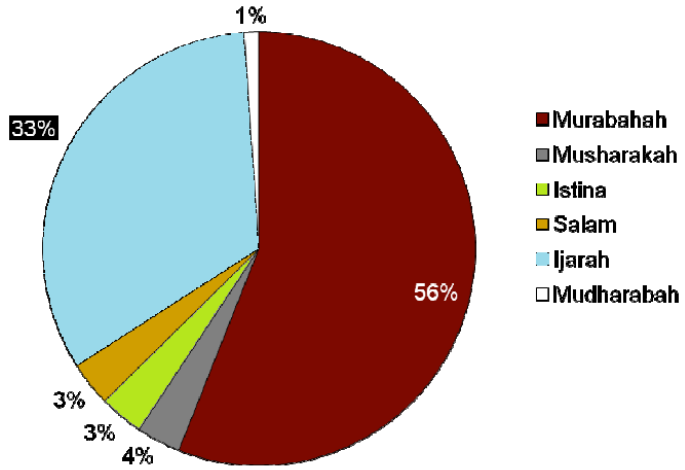


Chart 1.4 Loan portfolio composition by mode of financing

Source: ATKEARNEY - John Meinhold, (2010).

Therefore, Islamic banks should be aware of how to manage credit risks to ensure the maintenance of their viability growth in facing challenges such as crisis, and to ensure taking the necessary precautions. There are many factors affecting these risks, and banks should be able to identify these factors to manage credit risks in general, and achieve the required rate of return with acceptable rate of risk (Ahmed and Nizam 2004).

This study examines factors affecting credit risk which is the main risk that banks in GCC countries face. Another major significant unique risk, but not included in the present study, that Islamic banks face is the *Shariah* compliance risk. Islamic banks

have to ensure that they are in conform with *Shariah* rulings as this carries considerable reputation risk to the bank (Jiun and Yining, 2008). However, credit risk in Islamic banks is a problem and credit risk of Islamic banks among GCC countries in particular have not been examined before. Based on the scenario above, we list down here the research questions and objectives of the thesis.

1.4 RESEARCH QUESTIONS

The questions that guide the research are:

Q1: What are the factors that affect credit risk in Islamic banks of GCC countries?

Q2: What is the extent of each factor affecting credit risk in the Islamic banks of GCC countries?

Q3: Which factors have more significant impact on credit risk in the Islamic banks of GCC countries?

Q4: Is the Islamic banks' credit risk in GCC countries affected by the global financial crisis (GFC) in 2008?

1.5 RESEARCH OBJECTIVES

1: To identify the factors that affect credit risk in Islamic banks of GCC countries.

2: To determine the extent to which each factor affects credit risk in the Islamic banks of GCC countries.

3: To identify which factor/s has/have significant impact on credit risk in the Islamic banks of GCC countries.

4: To examine the impact of the global financial crisis of 2008 on the GCC Islamic banks' credit risk.

1.6 SIGNIFICANCE OF THE STUDY

The majority of theoretical studies in Islamic banking during the recent decades focused on the instruments of the financing whereby Islamic banks, and their ability to enhance the needs of financial intermediation and to be an efficient substitute for lending, in terms of people's needs for funding their productive projects and compliance of those instruments with the laws that regulating banking activities (Eljari, 2003).

Nevertheless, the there has been no extensive studies on Islamic banking risk management particularly credit risk management. Therefore, studies of credit risk of Islamic instruments are very important. This study aims to provide better understanding of the analytical aspects to identify factors that affect credit risk and ways to improve risk management in Islamic banking. Also, bankers should be able to understand how to manage credit risk by having knowledge on the factors that affect credit risk in Islamic banks. This present research is hoped to lead to more future researches in bank risk management.

As yet, there are scant studies in GCC countries to examine these factors and identify them. Hence, this study hopes to contribute to the availability of findings on factors affecting credit risk. Bank managers can take advantages and to better position defects and then conduct the risk management of credit to face the imbalances on keeping funds or investing them.

The general goal of this study is the development of credit risk management in Islamic banks of GCC countries.

1.7 SCOPE OF THE STUDY

This survey is conducted among Islamic banks in GCC countries and tests the impact of selected factors that affect credit risk in Islamic banks of GCC countries in the last five years, from 2006 to 2010. The year of 2008 is included to show the impact of the global crisis.

This study is limited to financial statements to investigate the relevant factors affecting credit risk and scope of the study which covers five countries, excluding Sultanate Oman because it has no Islamic banks during the period of the study. Non-banking institutions are excluded.

This study is limited to examining the factors that affect the credit risk in Islamic banks as applied to Islamic banks of the Gulf Cooperation Council (GCC) countries, where financial statements are available in the internet.

CHAPTER TWO

LITRATURE REVIEW

Literature review is presented to enhance understanding of the relationship between facts and what is covered in several previous studies. This chapter covers theory and the empirical evidences.

2.1 DELEGATED MONITORING THEORY

Delegated Monitoring is a theory that explains the process which is used via financial intermediation to transfer the deposit funds as surplus units from depositors, and then lend those funds to the debtors as deficit units. As a result, the banks have this capability and work as a delegated monitors of the behaviour of borrower (Diamond 1984, 1996).

Delegated monitoring refers to the collection of a required information about the firm (or investors) which in the process to borrow a loan (or after granted a loan), (as a debt contract) from intermediaries. The information would examine that the borrower respects and adheres to the terms of the debt contract; what about his creditworthiness; how are his investment projects would be conducted before and after granted the loan

and observe the projects' borrower outcomes. So there are costs (costs of monitoring) that arise as a result from this observation or monitoring and executing the debt contract. Therefore, delegated monitoring theory of borrowers is one of the most significant on the existence of banks as mentioned in the many past studies (Matthews and Thompson, 2005, 2008).

According to the delegated monitoring theory, Diamond[13] (1996), mentions three types of contracts between borrowers and lenders (1) Non-monitoring, and actually it will be expensive and inefficient, (2) Investors would monitor directly, investors monitoring can be costly (costs of monitoring), and (3) An intermediary would be a delegated monitoring, in this case the cost of monitoring will be reduced or may be at least avoiding duplication of monitoring costs, thus the benefits obtained will be exceeded its costs.

However, delegated monitoring with a single loan contract would be a failure, which means if the financial intermediary contracts lending a loan with one borrower (or the project's entrepreneur) and many depositors, that it is not a viable because the intermediary cannot pay behalf of the many depositors from one project's entrepreneur. Therefore, Diamond (1996), referred to the role of diversification in mitigating the cost of monitoring for granting a portfolio of loans across different types of risky borrowers.

Portfolio diversification considers one of the most way that using when it relates to mitigate risks or costs. Subsequently, portfolio diversification through the financial intermediaries is applied. Therefore, the technology of financial-engineering which focuses on the bank deposits that without cost monitoring, trying transformation of loans with monitoring costs and enforcement debt contracts into bank deposits.

(13) Douglas W. Diamond Professor of Finance at University of Chicago, GSB, he is specialized in the study of financial intermediaries, financial crises, and liquidity.

The financial intermediary receives deposits from the depositors to lend these funds to entrepreneurs and will delegate of monitoring the outcomes entrepreneurs' projects on behalf of the depositors. Depositors can observe the payment that they would receive from the financial intermediary, but they cannot observe the project outcomes which the intermediary would receive these payments from the entrepreneur, these payments is expended in monitoring the project outcomes. In such case, the incentive problem for the financial intermediary would arise because the project outcomes are not observed by depositors, so the payments which were received by the intermediary from entrepreneur (as a cost of monitoring) are not observed by the depositors as well (Diamond, 1996).

Nevertheless, there are three conditions that must be done for the financial intermediaries to be viable. (1) for each unit deposited, depositors must receive an expected return, (2) for the costs of monitoring, the intermediary must receive an expected return net at least equal to zero (3) the projects' entrepreneurs must retain an expected return which at least higher than would lending directly from the depositors (Diamond, 1984, pp.399, 400).

As mentioned earlier, the financial intermediary and the banks can operate as delegation monitors. Therefore, the debt contracts are issued by investors to the financial intermediaries to fund (these are considered as bank loans) the borrowers. In contrast, the debt contracts issued by the financial intermediaries are borrowed from the investors (these are considered as bank deposits). So the banks seek to exist in order to achieve its role in addressing symmetric information between a borrower and lender and create the best selection which would serve to transfer of funds from surplus to deficit units (Matthews and Thompson, 2005).

According to Matthews and Thompson (2005), there are three components which make the banks able to introduce their tasks; (1) the case of scale of economies in the bank's activities, so banks represent a coalition of information sharing; (2) the banks operate as a delegated monitoring of borrowers that they grant them a loans; and (3) the banks commit to keep a long-term relationships with consumers. So the banks' function under the asymmetric information problem between borrowers and lenders is providing a means for that problem to be more improvement via bank's intermediate, certainly, because of the comparative advantage of the banks which use it in process of monitoring of borrowers, therefore the lenders will have incentive to delegate the monitoring.

Delegated Monitoring theory in Islamic banking is represented in Profit Loss Sharing (PLS) mode, so the asymmetric information problem between Islamic bank and the counterparty (*Mudarib* or *Musharek*) could occur when the bank faces an absence of sufficient information about the actual profits of that counterparty. Also the asymmetric information problem could occur in non-PLS mode such as *Murabahah*, in the event of an occurrence of an external event such as systematic sources that caused non-performing of a trading partner, thereby, credit risk arises in Islamic bank (Khan and Ahmed, 2001).

2.2 PAST STUDIES

Many studies mentioned that the financial risk is one of the most important challenges which Islamic banking faces. Islamic banks are affected by many issues related to this risk. According to Seyed Nezamuddin Makiyan (2008), risk management in Islamic banking is still not effective enough to face the major challenges of financial risk, and it needs many issues to be understood better to access innovative and appropriate solutions to reflect the attributes of financial products of Islamic banking. Islamic permissible modes of financing whether Profit loss Sharing (PLS) such as *Mudarabah* or non-PLS (e.g. Murabahah) need many measurements of risk such as income recognition, adequacy of collateral to be available, (Makiyan, 2008).

2.2.1 A comparison of risk between Islamic and conventional banking

Table 2.1 Risk Sharing and Risk Transfer

Islamic Banks - Risk Sharing	**Conventional Banks - Risk Transfer**
Sources of funds: Investors (profit sharing investment account (PSIA) holders) share the risk and return. The return on PSIA is not guaranteed and depends on the bank's performance.	**Sources of funds:** Depositors transfer the risk to the bank , which guarantees a pre-specified return.
Uses of funds: they share the risk in Mudharabah and Musharakah contracts and conduct sales contracts in most other contracts.	**Uses of funds:** Borrowers are required to pay interest independent of the return on their project. banks transfer the risk through securitization or credit default swaps. Financing is debt-based.

Source: Hasan and Dridi, 2010.

Islamic bank considers sharing its risks and returns via its instruments, and using Profit Sharing Investment Account (PSIA) to fund itself. Islamic bank tries to achieve high rates of performance, to outcome the returns on its products and services, because returns for investors is not guaranteed.

Additionally, Islamic bank uses its instrument for funding investors, and shares with them risks and returns as well. Unlike conventional bank which swaps guarantee returns and/or transfer risks (Hasan and Dridi, 2010). Table 2.1 shows the differences between Islamic and conventional banks in term of risk sharing and risk transfer.

Wael Moustafa Hassan finds that there are differences between Islamic banks and conventional banks regarding some explanatory variables, nonetheless Islamic banks have different attributes of risk. He cites three factors as a combination of total risk in Islamic banks (1) risk arises from Shariah compliant as a new classification of deposit holder, (2) replacing the interest rate by profit sharing, and (3) converting the loans into capital participation to firms. These loans will increase the risk faced by Islamic banking. That means there are significant differences between Islamic banks and conventional banks concerning many issues related to face the risk (e.g. risk analysis, practices of risk management, risk monitoring and credit risk analysis). But there is no significant difference concerning risk identification (Hassan, 2011).

According to Seyed Nezamuddin Makiyan (2008), risk management in Islamic products such as PLS modes is more complex than conventional financing. Because these modes under *shariah* principles, they have many activities that do not apply by conventional banks, in addition to determinant of PLS ratios that depends on various sectors

according to investment projects. Credit risk in Islamic banks will be increased because PLS financing modes cannot logically be made with requirement collateral or other guarantees to minimize this risk In Islamic finance. The modes also cannot logically control their entrepreneur that manages the enterprise via *Mudarabah* mode and Islamic bank that funds him, just shares profit or loss. But with better opportunities in *Musharakah* contracts, Islamic bank can monitor investments of the entrepreneur. Because both of the partners may affect on the business they use rights of the voting, (Makiyan, 2008).

Makiyan (2008), also indicates to three general factors that make the operations of Islamic banks riskier and less profitable than conventional banks and there are (1) absence of the money markets or underdeveloped, (2) limitation of beneficial from LOLR (lender- of - last resort), that is facilities by central bank, and (3) limited market infrastructure and the lack of legal framework can raise the operational risk of the Islamic bank.

2.2.2 Impact of GFC on GCC countries' Islamic banks

The recent global financial crisis (GFC) that occurred in the end of 2008, and according to Zafar Iqbal (2009), the end of 2008 witnessed three major crises (energy, food, and the global financial and economic crises) and there is no country that had escaped from the impacts of these crises, whether developing or developed. The financial turbulence covered wide regions including GCC with relatively more developed countries, and

Sub-Saharan Africa SSA[14] with relatively less developed countries. With regard to GCC countries the UAE, Saudi Arabia, and Kuwait have the largest share of the GCC foreign asset holdings. They were concerned about the possible depreciation of the values of their assets, and then they depend on the oil revenues which are also witnessed a reduction in the beginning of 2009, because of the sharp impact of the crisis in those countries which were demand the gulf oil.

Rising cost of financing and moving GCC conventional banks to credit market (which had risen because of increasing demand of liquidity to refinance) and little liquidity in the market, in addition to depreciation values of their assets, make a systematic threats to the banking sector in GCC countries during the GFC. But Islamic banks of GCC countries remained insulated from the first impact of the crisis because of their debt instruments and prohibition of speculative activities that Islamic *shariah* (Islamic law) adopted. However, they were affected by the global economic recession which had accompanied the global crisis in 2009, this year that was expected to raise credit risk and the demand of funding would reduce by businesses because of the low liquidity which accompanied the GFC events across the developing countries (Iqbal, 2008).

Islamic banks were less affected by the initial impact of GFC, but 2009 and exactly mid-year 2009, which were known as the second-round effects of this crisis, witnessed some declines in Islamic banks profitability in some GCC countries. The results by International Monetary Fund are showed in Table 2.2. Islamic banks seem to withstand adverse the crises, since they are not allowed to have exposure to financial derivates and the conventional securities of financial institutions which were most risky,

(14) Sub-Saharan Africa includes Benin, Burkina Faso, Cameroon, Chad, Comoros, Côte d'Ivoire, Djibouti, Gabon, Gambia, Guinea, Guinea-Bissau, Mali, Mauritania, Mozambique, Niger, Nigeria, Senegal, Sierra Leone, Somalia, Sudan, Togo, and Uganda.

However, there is a slight difference between the GCC countries in exposure to risky asset[15].

Table 2.2. GCC: Selected Indicators for GCC Islamic Banks and the Banking System (2008)

	Saudi Arabia		Kuwait		U.A.E.		Bahrain		Qatar		GCC Average	
	Islamic	All	Islamic	All	Islamic	All	Islamic	All	Islamic	All	Islamic	All
Capital adequacy ratio	22.1	16.0	21.7	16.0	12.8	13.3	24.5	18.1	17.9	15.6	19.8	15.7
Change in profitability (2007–08)	2.0	-11.8	-42.7	-70.1	0.7	7.9	14.7	-4.8	4.5	21.7	-7.6	-14.2
Change in profitability (H1 2009–H1 2008)	2.9	-11.9	-71.9	-65.3	-34.2	-19.5	-57.6	-36.8	0.0	5.1	-29.3	-23.3
Change in profitability (2008 and H1 2009 compared to 2007)	4.3	-7.2	-49.7	-65.8	-0.8	10.0	1.4	-3.4	2.8	25.4	-9.7	-10.5
Return on assets	3.7	2.1	1.6	3.2	1.7	2.2	2.6	1.3	6.6	2.6	3.2	2.3
Exposure to real estate and construction (as percent of total loans)	5.6	7.3	22.1	31.4	25.7	12.9	11.3	26.2	38.3	18.4	20.6	19.2

Source: International Monetary Fund, 2010.
Note: the figures in percent.

According to Maher Hasan and Jemma Dridi (2010), in their analysis which covered both types of banks in many countries, Islamic banks (most of which are in GCC countries) were affected by the crisis differently than conventional banks. The decline in profitability of some Islamic banks in 2008 was actually a result of weakness in the practices of risk management compared to end of 2008. But generally, credit and asset growth in Islamic banks were better than conventional banks in 2008-2009.

Nabil Hashad[16] indicates efforts of Basel II committee on banking supervision for Islamic banks and challenges' facing them such as GFCs. Basel II was implemented to increase capital to cover credit risk and other risks related to capital adequacy. Most of

(15) International Monetary Fund, 2010
(16) Director of Arab Centre for Financial and Banking Studies and Consulting

Islamic banks in Islamic and Arab countries still do not have a developed risk management and there is no integration of system for this management. It is considered insufficient and adequate to implement Basel II which also requires that most important challenge should be taken in account. Many banks in those countries needed to complete its infrastructures and to restructure to be consistent with Basel II, to achieve more efficient ways to mitigate the many risks which are related to capital adequacy, particularly credit risk which is expected to aggravate in GFCs (Kahf, 2005).

2.2.3 Islamic Banks' Credit Risk

Iqbal, Munawar, Ausaf Ahmad and Tariqullah Khan (1998), present evidence in their study which consists of most of Islamic bank in GCC countries that Islamic bank that uses both fixed return modes and variable return modes. Even though Profit Loss Sharing (PLS) modes are preferable but the share of (PLS) in the total financing is very much less than the share of Non-PLS modes especially *Murabahah* mode. So there is no balance between the two modes. This occurs due to avoidance of the credit risk that occur more in the PLS modes.

Khan and Ahmed (2001), define credit risk as a failure of the counterparty to meet bank obligations according the agreed terms. This risk would arise in Islamic banks as a form of settlement/payment risk when the banks pay money before they receive the assets (e.g. *Salam* or *Istisna'*) or deliver assets before receives the cash (e.g. *Murabahah* contract).

Certainly, these represent Non-PLS modes and will be exposed to credit risk as shown in Table 2.3. They also consider the PLS modes or M-M financing (which is more risky and minimal in practise), exposure to asymmetric information problem which makes the profit of the trading partner indeterminate, in addition to absence of the requirement for collateral for these modes. Hence, the banks will be faced very high credit risk involved.

Table 2.3
Credit Risks in different Modes of Financing

Modes	Credit Risk
Murābaḥah	2.56 (16)
Muḍārabah	3.25 (12)
Mushārakah	3.69 (13)
Ijārah	2.64 (14)
Istiṣnā'	3.13 (8)
Salam	3.20 (5)
Diminishing *Mushārakah*	3.33 (6)

Source: Khan and Ahmed, 2001.
Note: The numbers between brackets represent the number of respondents.

Also Khan and Ahmed (2001), opine about the diversification of granting loans as a portfolio. They mention that this way should be taken as a considering by the credit risk management to minimizing the unsystematic risk and trying transferring the systematic risks.

Abul Hassan (2009), searched about extent implementation of techniques and practices of risk management in Islamic banks of Brunei Darussalam, and finds that this country seems not much unlike GCC countries, which have slightly sufficient liquidity The study covers the main techniques that risk management adopted in Brunei's Islamic

banks; such as understanding risk, risk assessment, risk identification, risk monitoring, and credit risk analysis. Abul Hassan (2009), finds that the credit risk faced by Islamic banking system represent the most important risk after foreign exchange risk that encounters Islamic banks of Brunei as shown in table 2.4.

Table 2.4 Types of risk facing by the Islamic banks

No.	Types of risk	Frequency	Percentage
1	Foreign-exchange risk	152	96.81
2	Credit risk	151	96.17
3	Operating risk	147	93.64
4	Liquidity risk	141	89.82
5	Legal risk	141	84.71
6	Solvency risk	133	81.54
7	Interest rate risk	126	80.25
8	Contemporary risk	128	76.44
9	Price risk	120	75.16
10	Reputation risk	120	74.45
11	Strategic risk	117	74.51
12	Other	77	49.65

Source: Abul Hassan, 2009.

Thiagarajan, et al. (2011), in their result for finding determinants of credit risk in the banks of Indian economy, find that the lagged Non-Performing Assets (NPA) has positive influence on the current NPA and that there is a significant inverse relationship between credit risk and GDP, . Thus, the GDP growth helps the banking system there in having their Non-Performing Loans (NPLs) at an acceptable level. In fact, both macroeconomic factors and specific factors of banks play an important role in determining the credit risk of the both banking system.

Ahmed, et al. (2011), state in their regression results, that the credit risk is highly affected by size of the bank, capital adequacy and debt equity ratio and found a positive

and significant relationship statistically with credit risk at 5 percent, 5 percent and 1 percent level respectively. The asset management established has a significant negatively relationship with credit risk at 5 percent level. Therefore all explanatory variables affect credit risk. They find a statistically insignificant relationship between NPLs and credit risk. However their regression results report a relation but it is insignificant statistically.

Ahmad and Ariff (2007), search across two type of conventional banking systems, banks in emerging economies which are compared with their counterparts in several developed countries. They find that the factors are significant and relevant to credit risk, whether in banks in emerging economies or developed economies. Regulatory Capital (REGCAP) would be increase the capital to adequate absorbing any losses potential, so the capital is significantly positively relevant to credit risk. However, their results suggest that some countries under capitalized still face more risks, meaning that the relationship is significantly and negatively related to credit risk. Management Quality (MGT) which is a ratio calculated by (earning assets to total assets) seems significantly positive relevant to credit risk for a country which has higher earning assets. And Loan Loss Provision to total loans (LLP) ratio has a significantly positively relationship to credit risk. While there in an insignificant relationship between leverage (LEV) and credit risk.

Ahmad and Ariff (2007), use the non-performing loans (NPLs) or bad loans as a measure for credit risk and also they highlighted that emerging economy banks have a higher credit risk than their counterparts in developed economies. Therefore, GCC countries classified are as emerging economies, so the banking system facing higher credit risk.

Das and Ghosh (2007), examine both macroeconomic and microeconomic factors that affect on credit risk of Indian banking sector as an emerging economy, with advanced data analysis techniques, with a study period from 1994 to 2005. Generally, the results show that, real loan growth, GDP growth and at the bank level, bank size, real interest rate and operating expenses, have main role in determining credit risk. Their effects respectively are significantly mixed, statistical significance negatively, statistical significance positively, significantly positively and also significantly positively related. They employ NPLs instead credit risk as a proxy for dependent variable.

The study of Khemraj and Pasha (2010), to ascertain NPLs determinants in the Guyanese banking system for period from 1994 to 2004, shows that GDP growth is significantly and inversely related to NPLs and the effective exchange rate has an impact on NPLs positively. They also find that real interest rate has a significantly positively related to NPLs, thus inflation (INF) and growth in loans. However, the size of bank f has mixed positive and negative relationships, and ratio of loans to total asset (LTA) was negative related to NPLs.

According to a study by Dahduli during the period from 2000 to 2008 (2010), credit crunch has different effects on the GCC's Islamic banks and their counterpart. He examines measures of credit risk, liquidity, efficiency, and profitability and then made comparison. In terms of measuring credit risk, he uses three variables (1) Equity to Total Assets (ETA), (2) Equity to Net Loans (EQL), and (3)Total Impaired Loans to Gross Loans (ImLGL). He finds that both EQL and ETA have high ratios which imply a superior credit risk level for Islamic banks in GCC countries than their conventional banks.

Al-smadi, (2010), applies risk index to measure exposure to risk for several Jordanian banks, during 1995 to 2008. His findings indicate three major variables of macroeconomic that are statistically significant. They are GDP, Inflation rate (INF) and market interest rate (MIR). He provides evidence that internal variables have affects on credit risk more than those external variables, and he finds that the relationship between GDP and credit risk is significantly negative, while it is positive for INF and also positive relationship for MIR. There are five bank specific variables: NPL, loan concentration in risky sectors, loan growth, bank size and net interest margin. According to Al-smadi, (2010), these five variables have significant relationship with credit risk as following, NPL positive. Loan growth and loan concentration in risky sectors are positive as well, and has negative relationship with bank size and net interest margin.

Ahmad and Nizam, (2004), study the determinants factors which affect credit risk in banks of Malaysia during the period from 1996 to 2002, and they make a comparison between the Islamic banks and conventional banks concerning credit risk exposure, using the non-performance loans (NPLs) as a proxy for credit risk. Their results show that three variables are significantly related to its own credit risk for Islamic banking there are: Management efficiency (MGT), risk weighted asset (RWA), and natural logarithm of total assets (LNTA). All these except LNTA have positive relationships with credit risk.

Additionally, four variables for conventional banking, (risky sector loan exposure (RSEC), regulatory capital (REGCAP), loan loss provision (LLP) and risk weighted asset (RWA)) significantly affect its own credit risk. They have a positive relationship with credit risk except (REGCAP). In addition, the authors find a higher R-square in conventional banking comparing to Islamic banking, 75.6 percent and 34 percent

respectively This denote that the combined impact of these variables is stronger on conventional banks' credit risk than Islamic banks' credit risk.

CHAPTER THREE

METHODOLOGY

3.1 INTRODUCTION

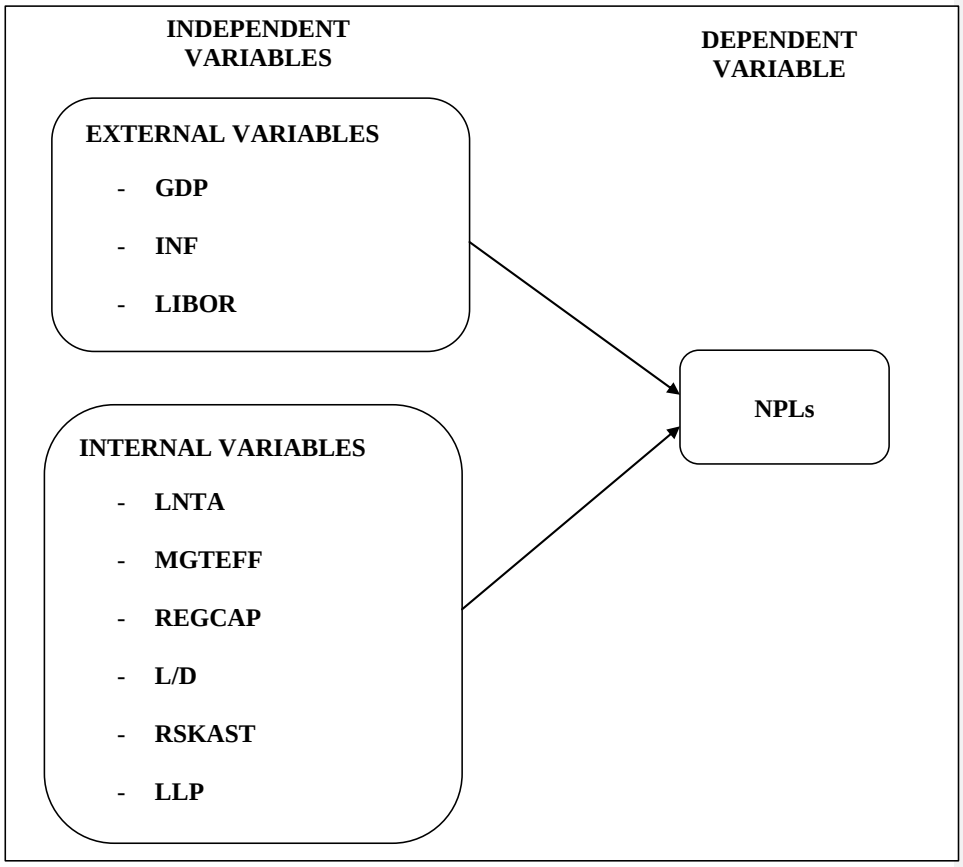
This chapter describes the study design, research sample, method of data collection and all procedures related to method of data analysis. The main questions that guide the study are restated as follows: What are the variables which influence credit risk? What is the impact of GFC on the credit risk? All questions apply to Islamic banks in the GCC countries. Once these variables are identified, the management of credit risk in Islamic banks will be able to manage these variables to mitigate risk for Islamic banking services and improve credit risk management. These variables are selected according to several literatures, and are explained in this chapter, together with all the measurements of variables, the model, framework and the hypotheses development of all variables of the study.

3.2 THEORETICAL FRAMEWORK AND MODEL

This section explains the modelling of the variables that determines NPLs (Non-performing loans) which is the dependent variable. NPL represents a proxy for credit

risk. LNTA (natural log of total assets), MGTEFF (management efficiency), REGCAP (regulatory capital), L/D (proportion of loan to deposit), RSKAST (risky asset which is real estate asset in GCC countries according to the published reports17) and LLP (loan loss provision). These variables represent internal independent variables, (Ahmad and Nizam, 2004). GDP (gross domestic product), INF (inflation rate) and LIBOR (Landon inter-banks offered rate that usually Islamic bank in GCC countries linked its profit margin with that ratio) are external independent variables.

Figure 3.1 conceptual framework



(17) GCC's central banks reports, and KAMCO and MEED Researches - Kuwait

3.3 HYPOTHESES DEVELOPMENT

The main aim of this investigation is to identify selected variables that affect credit risk. These variables are into divided into two categories with one representing specific variables of banking and the other one representing macroeconomic factors. Both have significant impact on credit risk according to literature.

Hypotheses testing for external independent variables start with GDP which represents macroeconomic performance (booms or depressions) that will affect bank's credit risk. Higher GDP means improving economy when there is a boom, thus the individual and institutions will be able to pay and refinance again. Therefore, the NPL will tend to be lower and then lower the credit risk of Islamic bank. On the other hand, in the depressions case the Islamic banks will be exposed to credit risk, Al-smadi, (2010). The hypothesis is thus stated as follows:

H_1: ***There is a negative relationship between GDP and credit risk in Islamic banks of GCC countries.***

The second variable which is found to be statistically significant in the literature, (Khemraj and Pasha, 2010; Al-smadi, 2010), is inflation rate. It is one of the important factors that caused high costs of setting up projects which are established by funding of Islamic banks. INF depends on the CPI, thus increasing CPI means rising prices in the market, this will lead the investors - who invest by banking financing - to face difficulty

in meeting debt payments on time to Islamic banks. Therefore, the banks will be exposure to credit risk of Islamic banks, the hypothesis is as follows:

H_2: ***There is a positive relationship between inflation rate and credit risk in Islamic banks of GCC countries.***

The third hypothesis for testing the next external variable which considers as a replacement of interest rate that has dealing between banks interest based, it's determined by central banks of these countries. But Islamic banks link their profit rate with LIBOR (Landon inter-banks offered rate). So LIBOR is used as a marginal profit for Islamic bank contracts (usually for Islamic *sukuk*) to compensate or to be instead of the rate of profit sharing which is depended by Islamic banks contracts.

H_3: ***There is a positive relationship between LIBOR and credit risk in Islamic banks of GCC countries.***

Many of specific banking variables are mentioned in the literature, for example in Ahmed and Nizam (2004); Ahmed and Ariff, (2007); and Das and Ghosh, (2007). The largest Islamic banks will select good institutions and investors to fund them, and they have an ability to meet their obligation on time. Thus, this reveals that large Islamic banks are safer than small Islamic banks and bigger size gives lower credit risk to Islamic banks. So, the hypotheses testing for the first internal independent variable, size of the bank (LNTA) is as follows:

H_4: ***There is a negative relationship between size and credit risk in Islamic banks of GCC countries.***

Second hypothesis for testing the next internal independent variables is management efficiency which has a significant effect on credit risk increasing efficiency of management will lead to mitigate impairment financing and doubtful debts, thus achieving a decrease in credit risk in Islamic banks. This management may not be a credit risk management, it just the assets management in Islamic bank.

H_5: ***There is a negative relationship between management efficiency and credit risk in Islamic banks of GCC countries.***

Another hypothesis for the regulatory capital and increasing in regulatory capital will increase credit risk of Islamic banks of Islamic banks. However, will decrease it credit risk of conventional banks according to Ahmed and Nizam, (2004), and hypothesis is tested as followed:

H_6: ***There is a positive relationship between regulatory capital and credit risk in Islamic banks of GCC countries.***

The proportion of loan to deposit has an effect on credit risk according to literature, Ahmed and Nizam, (2004). Actually, increasing proportion of loan to deposit reveals to rise in the impairment financing in Islamic bank and then higher credit risk exposure. Therefore, hypothesis of this as followed:

H_7: *There is a positive relationship between proportion of loan to deposit and credit risk in Islamic banks of GCC countries.*

Risky asset (such as real estate) has an impact on credit risk, and actually that more investing in this asset which described as risky, will lead to higher credit risk in Islamic banks in GCC countries, and its hypothesis is as followed:

H_8: *There is a positive relationship between a risky asset and credit risk in Islamic banks of GCC countries.*

The loan quality or loan loss provision has an impact on credit risk (Ahmed and Nizam, 2004). If Islamic banks support more provision for loan losses, this trend will reveal lower credit risk in Islamic banks of GCC countries. Therefore, the last hypothesis is:

H_9: *There is a negative relationship between the loan loss provision and credit risk in Islamic banks of GCC countries.*

3.4 MEASUREMENT OF THE VARIABLES

Independent variables in this study explain the risk exposure of Islamic bank, hence, credit risk is categorised as a dependent variable in this study.

3.4.1 Dependent Variable

According to Ahmed and Nizam (2004), Das and Ghosh (2007), and Al-smadi, (2010) credit risk is a dependent variable and is measured by Non-Performing Loan (NPL) as a proxy. Definition of NPL in this study follows previous studies and is measured as in this equation:

The loan in Islamic banks is formed as the financing or funding to individual or institutions, and the impairment loan means doubtful debts generated from funding, and the debtors (individual or institution) have difficulties to pay back in the agreed time to Islamic bank.

3.4.2 The Independent Variables

3.4.2.1 External Independent Variables

This study has two types of independent variables (external and specific banking variables) the external variables are the macroeconomic factors and they are found as a figure or ratio form in the macroeconomic annual reports, thus easing the burden of measuring these variables by the researchers. However, sometimes researcher can measure some variables in few cases for example for GDP, they use this equation: GDP = C + I + (X - M) + G. where C: Consumption, I: Investments, X: Exports, M: Imports and G: Government's expenditure. And they are taken annually, therefore increases or decreases of GDP are taken between two years as a growth. And regarding inflation rate they use Consumer Price Index (CPI) and INF rate equal the rate of change of CPI and taken as the annual basis.

3.4.2.2 Internal Independent Variables

As for the specific banking independent variables, they are measured in this study following past studies measurements. Size of bank (LNTA) is measured as follows:

Management efficiency (MGTEFF) variable:

Regulatory capital (REGCAP) variable:

The proportion of loan to deposit (L/D) variable:

Risky asset (RSKAST) variable:

Loan loss provision (LLP) variable:

The word of financing beside loan, means that belong Islamic banking based on Profit Loss Sharing Modes, this is different from the loan which is based on interest rate in conventional banking.

3.5 DATA COLLECTION AND SAMPLE OF THE STUDY

3.5.1 Sampling

The population of this study is all Islamic banks in GCC countries that consist of more than a hundred Islamic banks according to the annual reports[18], but this study applies 25 Islamic banks as a sample. They are selected from 5 countries, since the sixth country Sultanate Oman has no Islamic banks that have been established during the period of study. Conventional banks or interest based banks, also Islamic windows that exist in interest based banks and other Islamic financial institutions are excluded from this study.

3.5.2 Data Collection

As for the data collection, the annual reports are used for 25 Islamic banks of GCC countries, for five years from 2006 to 2010. For internal independent variables and dependent variable, data are selected from financial statements, for example balance sheets of Islamic banks. But data for macroeconomic key indicators are taken from the group of reports, for example Outlook economic reports of GCC countries[19] that issue annually. Annual reports for whole study are found and downloaded from the websites of the Islamic banks, central banks and another GCC banking, economic sites.

(18) General Council of banks and Islamic financial institutions - www.cibafi.org

(19) Samba Financial Group, Office of the Chief Economist - GCC Outlook 2011, 2010 and 2009

However, some data is unavailable in some reports and few figures obtained from another reports or sites, sometimes because of transformation of the banks from conventional to Islamic banks and newly established banks. Data of the study is taken in cross sectional form, consisting of 125 observations (N=125).

3.6 MODEL OF THE STUDY

Regression model is used to test the variables affecting credit risk. According to past studies of Das and Ghosh, (2007); Ahmed and Ariff, (2007), there are 9 variables in this study that determine credit risk of banks by applying linear regression analysis. The test model is mathematically written in following form:

Where:

CR_{it}: Non-Performing Loan (PLNs) for bank (i) in year (t).

: Constant coefficient.

GDP_{it}: Gross Domestic Product for the country (i) in year (t).

INF_{it}: Inflation rate for the country (i) in year (t).

$LIBOR_t$: London Inter-Bank Offered Rate in year (t).

$LNTA_{it}$: Natural Log of Total Assets for bank (i) in year (t).

$MGTEFF_{it}$: Management Efficiency for bank (i) in year (t).

$REGCAP_{it}$: Regulatory Capital for bank (i) in year (t).

L/D_{it}: Proportion of Loan to Deposit for bank (i) in year (t).

$RSKAST_{it}$: Risky Asset for bank (i) in year (t).

LLP_{it}: Loan Loss Provision for bank (i) in year (t).

Term of the Random Error

: The Slope Coefficient.

CHAPTER FOUR

ANALYSIS OF FINDINGS

4.1 INTRODUCTION

This chapter describes the main findings of the study, after completing the whole procedures of data collection and analysis. Also discussed is the final results of the analysis of factors or variables that determine credit risk of GCC's Islamic banks, the variables which have impact on credit risk, and how to manage them under the management of credit risk in the GCC's Islamic banks.

The findings of this study may converge with the results of previous studies as presented in this chapter. This study finds three specific bank variables which are significantly related to their credit risk. They are Management Efficiency (MGTEFF), Risky Asset (RSKAST), and Proportion of Loan to Deposit L/D, and one from three macroeconomic variables that is GDP, which is found as significantly related to credit risk of Islamic banking. Thus, this study is consistent to past studies in some aspects. The difference that exists is due to several features enjoyed by GCC states, such as strategic position, banking system, economy and oil sector.

All these GCC countries are one of the largest oil exporters in the world, and they have economies that rely on oil revenues primarily. Therefore, some of the expected results may be different than the results of literature which applies to another region, for example MENA[20] countries, India or Malaysia. Thus, some of results are different than what is known in the past studies.

Ahmad and Ariff (2007), present their findings for conventional banking system, in two types of economies by making comparison between banks in emerging economies and developed countries. That means the economies play some role to impact banking system, in addition to the differences on the variables' impact to Islamic and conventional banks in the same country.

Islamic banks have some variables which appear to be more similar. According to Ahmed and Nizam (2004), the three variables are more related to their credit risk (i.e. MGT, RWA and LNTA) than others that are more related to credit risk of conventional banking (i.e. RSEC, REGCAP, LLP and RWA). Ahmed and Nizam 2004's study examine some variables' impact on credit risk of both banking systems in Malaysia, and also they present similarities and differences. They find some of expected results differ between conventional banks and Islamic banks in the same country.

9 variables are tested in this study to examine their influence on non-performing loans (NPLs). This period (2006 - 2010) is selected to cover also the impacts of the GFC (global financial crisis) that became worse in 2008, this slightly affected the expected results during the crisis period and in few countries The study period selected helps to

(20) Medal East and North Africa countries.

demonstrate the relationship between the variables in different levels of economic performance across each country of GCC.

4.2 EMPIRICAL RESULTS

4.2.1 Impacts of GFC: Credit Risk and the External Independent Variables.

The results in this study are affected slightly by the crisis that worsened in 2008. It is noticed that GDP for GCC countries became negative in Kuwait and UAE in 2008, and very low in others. Qatar achieved the highest GDP which reached more than 25 percent in 2007; however, it dropped to its lowest level in 2009, and then improved in 2010, due to a decrease in oil prices in 2009, and this lead to decrease in GDP. According to Saif, (2009) and Iqbal, (2008) oil sector contributes about 90 percent of some GCC governments' revenues and 50 percent of the GDP. According to national central banks, some countries tend to compensate the decline from using the surpluses of previous years in closing the budget deficit.

Also, some of the reports in this regard[21], describe that the average growth rates of real GDP in GCC countries during the period 2005 - 2008 amounted to about 6.6 percent, was 6.8 percent in 2005, falling to 6.1 percent in 2006 and then to 5.2 percent in the following year,. With the decline oil prices to below $40 with the intensification

(21) GCC Economic Outlook Official sources, 2011

of the GFC, the growth rates of real GDP in the GCC countries declined to rates ranging between 8 percent in Qatar and -4.4 percent in Kuwait in 2009.

The result of the study shows that there is a negative relationship between GDP and credit risk, thus the first hypothesis is accepted. GDP has a significant relationship to the dependent variable (NPL). The higher GDP means that getting a boom in the economy and the individual and institutions, who invested through banking system - especially Islamic banks will be profitable to settle and refinance again. On the other hand, if the opposite happened, the NPL will tend to be higher and the Islamic banks will be exposed to greater risks.

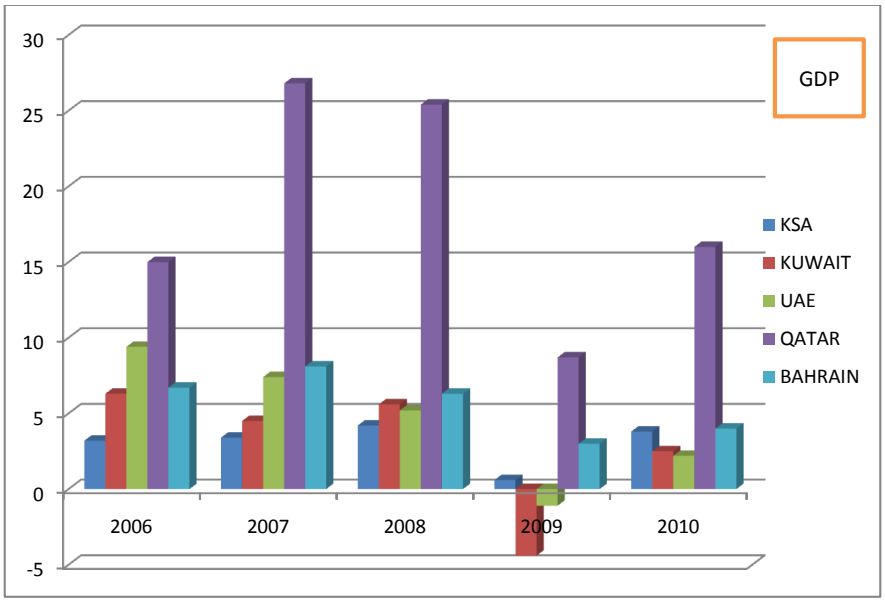


Chart 4.1 Impact of GFC on real GDP of GCC countries

Chart 4.1 shows the decline in GDP that reach to be negative in Kuwait and UAE with the intensification of the GFC in 2009, meaning that these countries suffered a loss

because of the collapse of oil prices. Banking system suffered the loss as well, but conventional banks got the largest share of the loss, and Islamic banks withstood. However, they did not escape from some of the decline in rates of their profitability due to the GFC.

Regarding inflation rate, GCC countries have suffered of the phenomenon of rising inflation, like many countries in the world, but the inflation rates in the GCC countries collectively have risen (by average) to their highest level in 2008, reaching 11.4 percent.

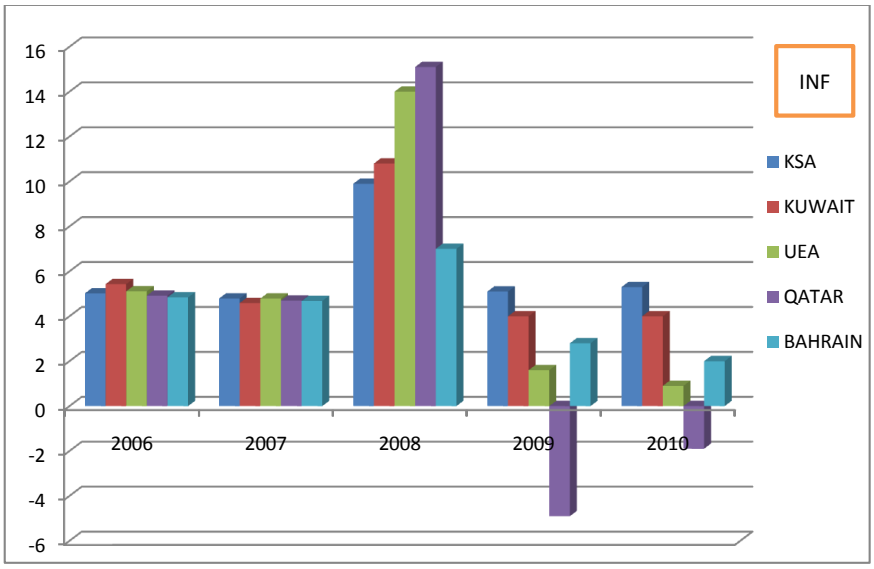


Chart 4.2 the impact of GFC on Inflation rate in GCC countries

The decline in the currency of U.S. dollar, which the currencies of the GCC countries are linked, caused higher inflation. In addition to the U.S dollar weaknesses against international currencies such as the euro (EUR) and the pound sterling and the Japanese

yen, especially in the period of GFC, before the collapse of oil prices which have negative impact on banks performance.

Chart 4.2 shows the extent of rising of inflation rates in 2008, and after decrease in oil prices, INF became decline, reaching to be negative in Qatar in 2009 and 2010. The reduction in the rates denotes the use of some procedures or policies by the governments to mitigate the impacts of the crisis and to face the collapse in the oil prices. However, inflation is a complex phenomenon and multi-dimensional at the same time, so it is needed many procedures to balance all aspects, particularly in GCC region that depend on oil revenues and the real products level is still weak and imports of many goods from developed countries in America, Europe and Asia which are affected by the decrease in oil prices.

From this study, there is a negative relationship between inflation rate and credit risk, but it is a positive as mentioned in the second hypothesis, so the second hypothesis is rejected. The difference with the literature refers to the GCC economy, and inflation rate depend on the consumer price index (CPI). Therefore, if CPI increases, prices rise, and the investors who invest by banking financing will face difficulty to repay debts to Islamic banks because of prices increase. Consequently, banks will be exposed to risks and they will suffer high credit risk, according to literature. While, in GCC countries the governments will support tend reducing the inflation rate to heal the economy, this lead to improve investors' position and will be able to pay easily. So credit risk will be lower. However, in this study, INF is not significant as an independent external variable to credit risk.

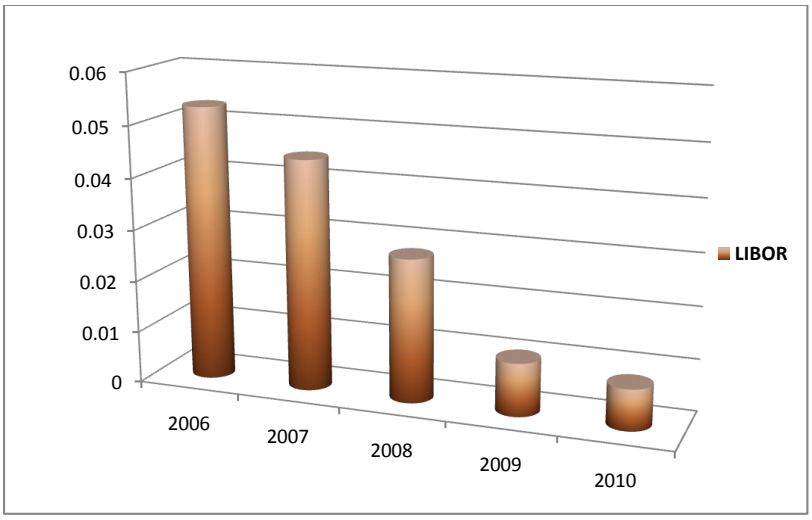


Chart 4.3 Decreasing the LIBOR

In Chart 4.3 the third factor of macroeconomics factors adopted by this study is LIBOR, taken to replace interest rate that is used in conventional banks, since Islamic banks linked its marginal profits with the LIBOR. As shown in Chart 4.3, it decreases over the period from 2006 – 2010. The result shows that statistically LIBOR was not significant to dependent variable (NPLs), and the chart 4.3 shows LIBOR decrease over the tested period, while the credit risk increase over the same time. Actually, there is a negative relationship between LIBOR and credit risk, which means the hypothesis, will be rejected in this study. The coefficient estimate of LIBOR is -0.053 (t-statistic = -0.569), (see table 4.2).

The economic policies adopted in the GCC countries have mitigated the effects of the GFC and its repercussions through government injecting liquidity to the financial institutions and adopting some procedures by using the authority of the respective GCC central banks. Some of these policies include expanding the credit, reduce include

Interest rates, guaranteeing bank deposits and purchase of shares. Most of these countries adopted expansionary fiscal policies to stimulate their economies.

The GFC also reveals the weaknesses and deficiencies in some units of the banking sector and the corporate investment sector, which requires special procedures to achieve stability, and strengthen corporate governance, resources mobilization and risk diversification.

4.2.2 Credit Risk Analysis

4.2.2.1 Credit Risk and the External Independent Variables

Chart 4.4 shows the extent of the rise of credit risk especially in Kuwait in 2009. It is noticed that credit risk generally increases over the period from 2006 to 2010, meaning that there is an imperfection in the credit risk management which is required to be examined and identified.

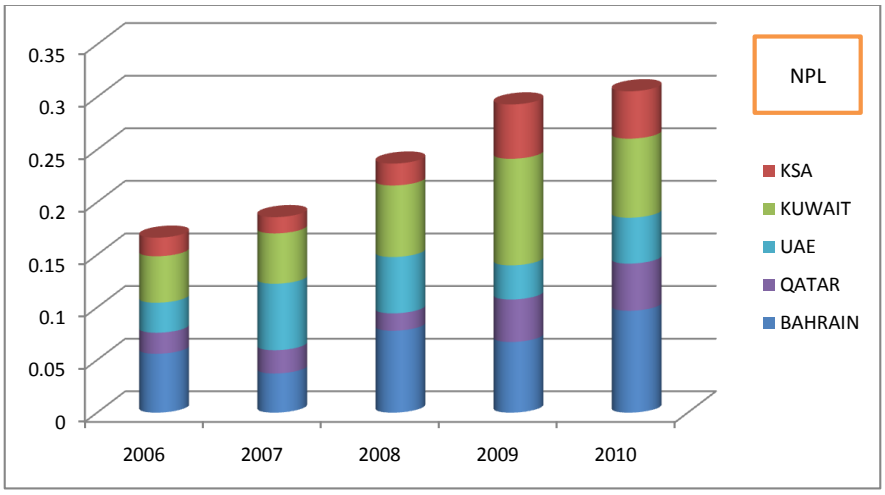


Chart 4.4 NPL in the Islamic banks of GCC countries

From Table 4.1, the mean credit risk estimated is 0.043, for all of the banks in the test period from 2006 to 2010. This is also showed in Chart 4.5 where the NPL increases from 3 percent in 2006 to 6 percent in 2010. This increase in the NPL is because of the rising in the impaired loans (financing in Islamic banks) compared to the total loans. The variance between banks in term to its credit risk exposure (standard deviation) estimated is 0.040 as shown in Table 4.1.

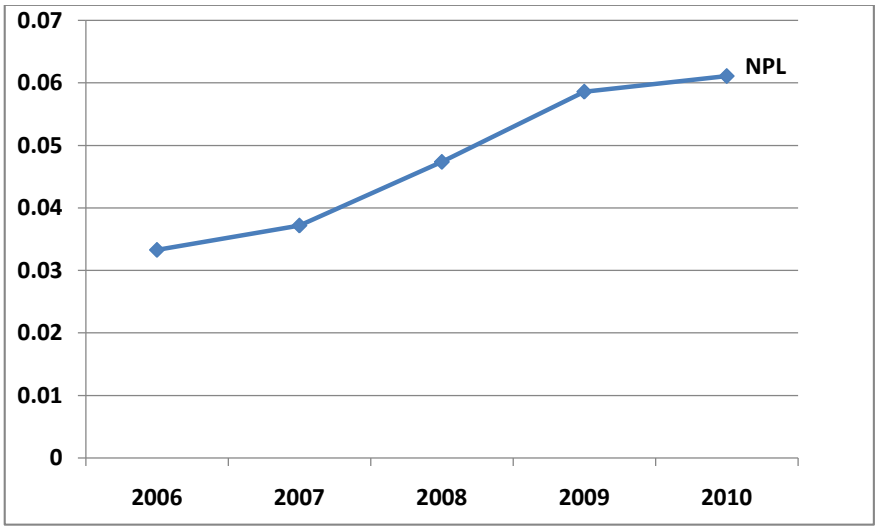


Chart 4.5 Average of NPL in the Islamic banks of GCC countries

Table 4.1 Descriptive Statistics

Variables	Mean	Std. Deviation	N
NPLs	.043302	.0402167	125
LNTA	22.281300	1.3242628	125
MGTEFF	.771641	.1979476	125
REGCAP	.237093	.1952356	125
L/D	2.496817	5.4553364	125
RSKAST	.211773	.1425873	125
LLP	.086549	.4322325	125
GDP	6.464800	5.5310889	125
INFL	4.939760	3.3373341	125
LIBOR	.028684	.0181148	125

Also the means of GDP, INF and LIBOR are 6.46, 4.94, and 0.029 respectively. The standard deviations are 5.53, 3.34 and 0.018 respectively, as shown in Table 4.1.

The results of this study shows, that there is a negative relationship between GDP and credit risk and it is statistically significant at 0.05 accepted level. Therefore, the first hypothesis is accepted; GDP has inverse relationship with NPL (which represents credit

risk in this study). The finding indicates that in bad economy, credit risk increases, and borrowers do not have sufficient money to pay to the banks, (Das and Ghosh, 2007; and Al-smadi, 2010).

Table 4.2 also shows that the inflation rate (INF) and LIBOR are not statistically significant and are negatively related to credit risk, thus the second and third hypotheses are rejected. This result is different from previous studies on other countries. Since GCC countries are different than others due to the economic structure of GCC countries remains dominated by the oil sector.

Table 4.2 Regression Analysis (Coefficients).

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.018	.097		-.186	.853
	LNTA	.005	.004	.157	1.114	.268
	MANGEFF	-.065	.020	-.318	-3.189	.002
	REGCAP	.010	.031	.049	.326	.745
	L/D	.002	.001	.300	2.852	.005
	RSKAST	.053	.023	.188	2.323	.022
	LLP	-.007	.007	-.077	-.980	.329
	GDP	-.002	.001	-.208	-2.179	.031
	INF	.000	.001	-.002	-.023	.982
	LIBOR	-.119	.209	-.053	-.569	.571

4.2.2.2 Credit Risk and the Internal Independent Variables

Table 4.1 presents the natural logarithm of total assets which shows that the size of Islamic bank mean value is 22.281with a standard deviation of 1.324.

Table 4.2 presents the size of Islamic bank which has a positive relationship, however, it's not significantly related to credit risk, and hypothesis which belong size is rejected according to this regression. This result is deference with literature, and this depend on the demand on financing which is seems greater in largest GCC's Islamic banks or in small banks. The size of intermediate institutions is a proxy for quality lender, thus the demand on financing from largest banks will be greater than small banks, (Marsh, 2008).That means, when the largest Islamic banks get greater demand on the financing which would raise the financing and then increasing the debts and get higher credit risk exposure.

However, there are cases where size of bank impacts negatively related to its credit risk, when the largest Islamic banks get good investors to deal with them, and they have an ability to repay on time. Also, largest banks can diversify their assets and then mitigate credit risk, Ahmed and Nizam, (2004); Ahmed and Ariff, (2007); Das and Ghosh, (2007).

In terms of management efficiency factor, the result of this regression shows that the mean of MGTEFF is 0.772 with a standard deviation estimated of 0.198 as shown in Table 4.1. There is a negative and significant relationship between MGTEFF and its credit risk, at 0.05 accepted levels and therefore the hypothesis of management efficiency is accepted.

Based on descriptive statistics, MGTEFF was deteriorated over period from 2006, in which it records 0.82, reaching 0.70 in 2010. The negative significant relationship means that the higher the management efficiency in managing the earning assets is, the lower is the credit risk.

In term of regulatory capital variable the mean is 0.237 with standard deviation 0.195 as Table 4.1 shows.

Table 4.2 shows s that regulatory capital of Islamic bank has a positive relationship to credit risk; however, this factor is insignificant. The result is similar to the study by Ahmed and Nizam, (2004). Therefore, the hypothesis of REGCAP is accepted. The result means that banks with higher risk need to have better capital as required by regulation.

The proportion of loan to deposits in Islamic banks of GCC countries has a mean that of 2.497 with the highest standard deviation of 5.455 as shown in Table 4.1.

The proportion of loan to deposit has a positive and significant relationship to credit risk, at 0.05 accepted level as shown in Table 4.2. Therefore the hypothesis that states the proportion of loan to deposit is accepted. This reveals that increasing of the proportion of loan to deposit will cause a rise in the impairment financing in Islamic bank and then higher credit risk exposure. L/D factor thus must be managed based on scale of the deposits, to keep a level of loans that could mitigate credit risk.

Risky assets in Islamic banks of GCC countries are real estate investments. Risky asset ratio is calculated as the percentage from the investment in real estate to total

investment. The mean of RSKAST is 0.212 with a standard deviation estimated 0.143 as shown in Table 4.1. There is a positive and significant relationship between RSKAST with the credit risk at 0.05 acceptance level. Thus, the hypothesis of RSKAST is accepted, and that means more investments in this risky sectors leads to higher credit risk in Islamic bank.

The mean of loan loss provision factor (LLP) variable amounts to 0.087 with a standard deviation estimated as 0.432 as showed in Table 4.1. LLP is not significantly related to credit risk, and it shows an inverse relationship with credit risk. Thus the hypothesis pertaining LLP is accepted.

Al-smadi, (2010) who investigates conventional banks in Jordan, finds similar result that LLP is insignificant. This is contrary to the relationship and that is due to the different banking system. However, the result was similar to the study of Ahmed and Nizam (2004), at least for Islamic banking findings. This mean that if Islamic bank adopted more provision for loan losses, this decision would lead to lower credit risk in Islamic banks of GCC countries.

4.2.3 Regression and Model Summary

There is just one model for this study as shown in Table 4.3 and this model is acceptable, because it has Zero significance, as presented in Table 4.5 (ANOVA). This regression has a slightly lower adjusted R-square of 26.8 percent and R-square of 32.1 percent.

Table 4.3 Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.566	.321	.268	.0344170

The adjusted R-Square indicates that the model explains 26.8 percent variation in the credit risk of Islamic banks in GCC region.

Table 4.4 Change Statistics

R Square Change	F Change	df1	df2	Sig. F Change	Durbin-Watson
.321	6.035	9	115	.000	1.364

Table 4.4 shows the Durbin-Watson of 1.364, that means there is a slight autocorrelation but within acceptable level.

Table 4.5 ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.064	9	.007	6.035	.000
	Residual	.136	115	.001		
	Total	.201	124			

CHAPTER FIVE

DISCUSSION AND CONCLUSION

5.1 INTRODUCTION

This study investigates the factors which affect credit risk of Islamic banks in GCC countries having economies which are different from other emerging economies GCC economies depend on oil prices and have not transited to a modern industrial economy yet.

The price of oil in GCC region is the most important factor that the economy depends on as revenues, and seeks to diversify sources of national income. However, the oil market starts to stabilize at acceptable levels after the financial turbulence during the GFC. That actually was due to a sharp decline in oil prices that happened in 2009, and as mentioned previously, to oil revenue contributing about 90 percent to GCC governments' revenue. Some countries tend to use the surpluses of previous years to compensate the decline and in closing the budget deficit.

Islamic banks in GCC were affected by GFC, but not similar with the effects that hit conventional banks. Islamic banks remained in 2008 insulated from the first impact of

GFC, because they adopted debt instruments which are non-interest based and prohibited speculative activities, (Iqbal, 2008).

However, Islamic banks were affected by the global economic recession which accompanied the GFC that worsened during 2009, raising credit risk of Islamic banks. The results of this study show that the NPLs increase in 2009 and 2010.

5.2 DETERMINANTS OF ISLAMIC BANK'S CREDIT RISK

This section summarises the major findings of the study on the determinants of credit risk in GCC countries, by examining external determinants and other specific variables for Islamic banks, all of which contribute in impacting Islamic banks' credit risk in GCC countries.

5.2.1 Macroeconomic Determinants of Islamic Bank's Credit Risk

This study examines three macroeconomic variables (GDP, INF, and LIBOR) that are tested against credit risk. Out of these three variables, GDP is found to be significantly and negatively related to credit risk, hence, improving GCC economy, using diversification sources of GDP and benefiting from oil revenues for transition to a modern industrial economy, leading to strong economy, less affected by crises that result from fluctuation of oil prices, and better able to mitigate credit risk for Islamic banks in GCC countries.

The results also shows that the other macroeconomic variables (inflation rate INF and London Inter-Bank Offered Ratio LIBOR). They are not significant to credit risk of Islamic bank; and their hypotheses are therefore rejected. GCC economy suffered from higher INF in 2008, but had taken some procedures to reduce the rise of inflation rates. The results show decreasing rates of inflation in 2009 and 2010, which amounted to negative rates in Qatar. In term of LIBOR, it is decreases over the period tested, while credit risk increases.

5.2.2 Internal Determinants of Islamic Bank's Credit Risk

The study explores six specific banks variables that are tested against credit risk, MGTEFF, L/D, RSKAST, LNTA, REGCAP and LLP. Out of the six variables, MGTEFF, L/D and RSKAST are significant with MGTEFF negatively, while L/D and RSKAST were positively related to credit risk.

Hence, managing assets efficiently will lead to ability to finance viable and efficient projects. Thus, the investors will be able to meet the obligation towards Islamic bank, and then mitigate credit risk.

According to this study's result, L/D has a positive relationship with credit risk. This ratio should be therefore managed based on deposits' amount; to keep a level of financing that could be mitigate credit risk.

This study indicates that the risky asset is significantly related to credit risk, with a positive relationship. Hence, the Islamic banks must reduce investing in risky asset to avoid increasing credit risk.

Other internal variables (LNTA, REGCAP, and LLP) are not significantly related to the credit risk of Islamic banks in GCC countries.

5.3 CONCLUSION

This study tests some variables (internal or external) which determine credit risk of Islamic banks in GCC countries. The main finding of this study shows that four variables significantly determine credit risk of Islamic banks in GCC countries. They are GDP, MGTEFF, L/D and RSKAST **(SPELL THESE OUT).** The GDP as an external variable determines credit risk with a significant, but negative relationship. Keeping high GDP will lead to low credit risk of Islamic bank.

Management efficiency affects credit risk the most according to the result of this study. The inversely relationship implies that Islamic banks should manage the financing and investing assets efficiently as earning assets, to achieve greater ratio (earning assets to total assets) and thus lowering credit risk. The proportion of loan to deposit variable also determines credit risk of Islamic bank, and the result shows a positive relationship between L/D and credit risk. Hence, the step will be decrease L/D by controlling quantity of proportion of financing from deposit in order to achieve lower credit risk.

The risky asset is the last variable that determines credit risk and it is found to be positively related to credit risk. Real estate is tested as a risky asset in GCC countries

good earning assets should be selected to invest and avoid riskier assets. Therefore, higher investment in risky asset will cause higher credit risk of Islamic banks.

The study overall reveals that there are differences in the determinants of credit risk in GCC countries compared other countries.

This study suggests future researchers to include other variables that could affect credit risk of Islamic banks.

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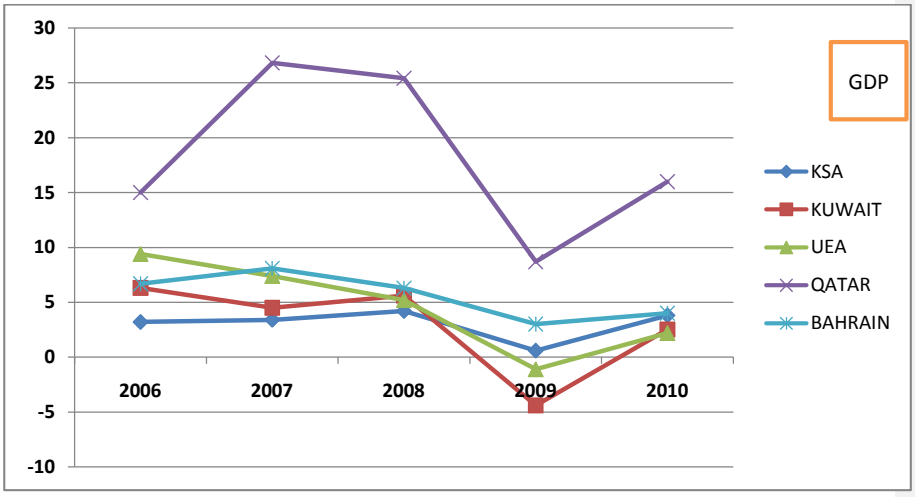
APPENDIX 1

GDP in GCC countries

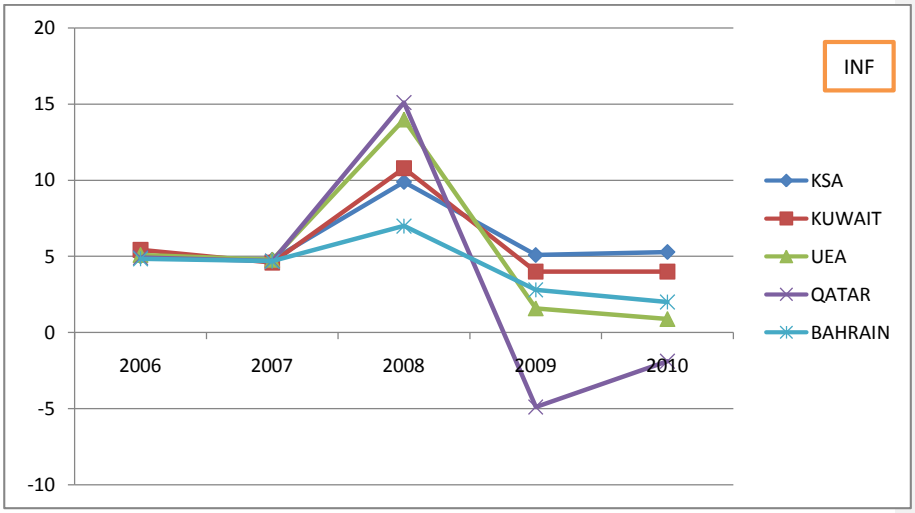
YEAR	2006	2007	2008	2009	2010
STATE					
KSA	3.2	3.4	4.2	0.6	3.8
KUWAIT	6.3	4.5	5.6	-4.4	2.5
UEA	9.4	7.4	5.2	-1.1	2.2
QATAR	15	26.8	25.4	8.7	16
BAHRAIN[FONT]	6.7	8.1	6.3	3	4
AVERAGE	8.12	10.04	9.34	1.36	5.7



APPENDIX 2

INF in GCC countries

YEAR	2006	2007	2008	2009	2010
STATE					
KSA	5.02	4.79	9.9	5.1	5.3
KUWAIT	5.43	4.59	10.8	4	4
UEA	5.11	4.79	14	1.6	0.9
QATAR	4.92	4.7	15.1	-4.9	-1.9
BAHRAIN	4.84	4.68	7	2.8	2
AVERAGE	5.064	4.71	11.36	1.72	2.06



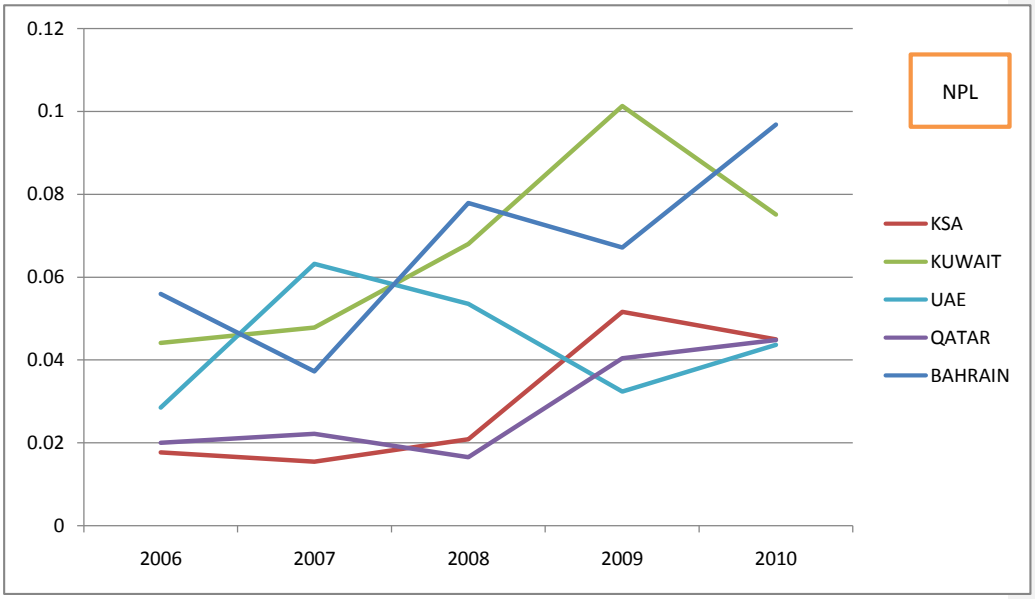
APPENDIX 3

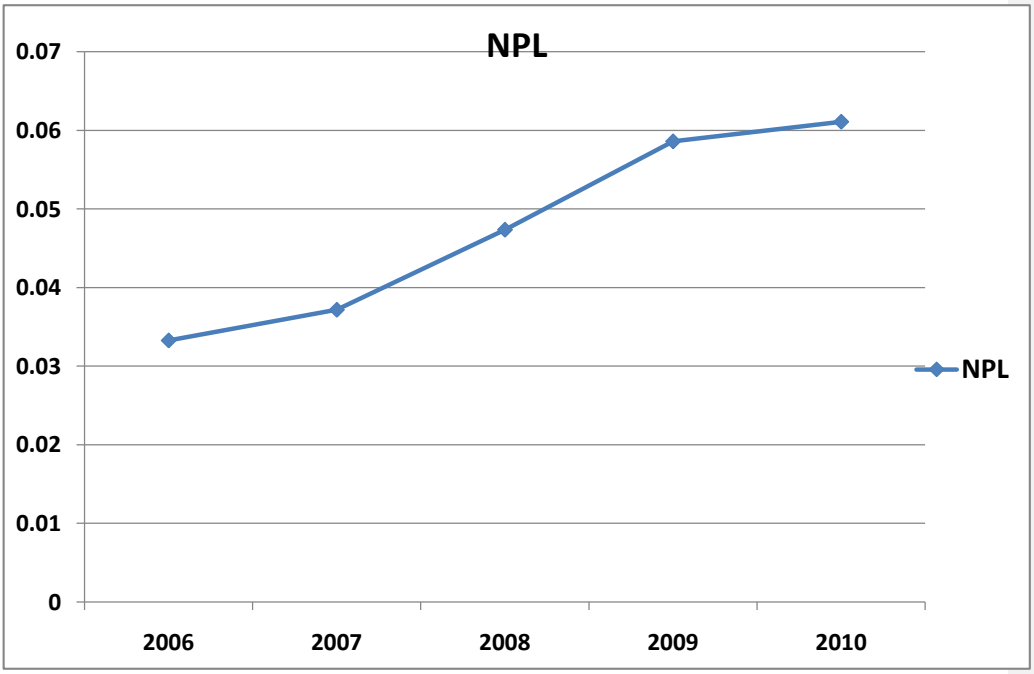
Correlations

		NPLs	LNTA	MGTEFF	REGCAP	L/D	RSKAST	LLP	GDP	INFL	LIBOR
Pearson Correlation	NPLs	1.000	-.105	-.392	.233	.271	.316	-.051	-.207	-.067	-.246
	LNTA	-.105	1.000	.483	-.785	-.306	-.014	.126	-.113	.030	-.208
	MGTEFF	-.392	.483	1.000	-.426	-.092	-.198	.032	.241	.045	.200
	REGCAP	.233	-.785	-.426	1.000	.551	.144	-.106	.117	-.042	.097
	L/D	.271	-.306	-.092	.551	1.000	.165	-.053	.358	.045	-.027
	RSKAST	.316	-.014	-.198	.144	.165	1.000	.045	-.026	.006	-.157
	LLP	-.051	.126	.032	-.106	-.053	.045	1.000	-.096	-.109	-.172
	GDP	-.207	-.113	.241	.117	.358	-.026	-.096	1.000	.287	.365
	INF	-.067	.030	.045	-.042	.045	.006	-.109	.287	1.000	.308
	LIBOR	-.246	-.208	.200	.097	-.027	-.157	-.172	.365	.308	1.000
Sig. (1-tailed)	NPLs	.	.121	.000	.004	.001	.000	.287	.010	.230	.003
	LNTA	.121	.	.000	.000	.000	.438	.081	.105	.369	.010
	MGTEFF	.000	.000	.	.000	.154	.013	.363	.003	.309	.013
	REGCAP	.004	.000	.000	.	.000	.055	.121	.097	.319	.142
	L/D	.001	.000	.154	.000	.	.033	.279	.000	.309	.384
	RSKAST	.000	.438	.013	.055	.033	.	.310	.385	.473	.040
	LLP	.287	.081	.363	.121	.279	.310	.	.143	.114	.028
	GDP	.010	.105	.003	.097	.000	.385	.143	.	.001	.000
	INF	.230	.369	.309	.319	.309	.473	.114	.001	.	.000
	LIBOR	.003	.010	.013	.142	.384	.040	.028	.000	.000	.
N	NPLs	125	125	125	125	125	125	125	125	125	125
	LNTA	125	125	125	125	125	125	125	125	125	125
	MGTEFF	125	125	125	125	125	125	125	125	125	125
	REGCAP	125	125	125	125	125	125	125	125	125	125
	L/D	125	125	125	125	125	125	125	125	125	125
	RSKAST	125	125	125	125	125	125	125	125	125	125
	LLP	125	125	125	125	125	125	125	125	125	125
	GDP	125	125	125	125	125	125	125	125	125	125
	INF	125	125	125	125	125	125	125	125	125	125
	LIBOR	125	125	125	125	125	125	125	125	125	125

PPENDIX 4

NPL in GCC countries





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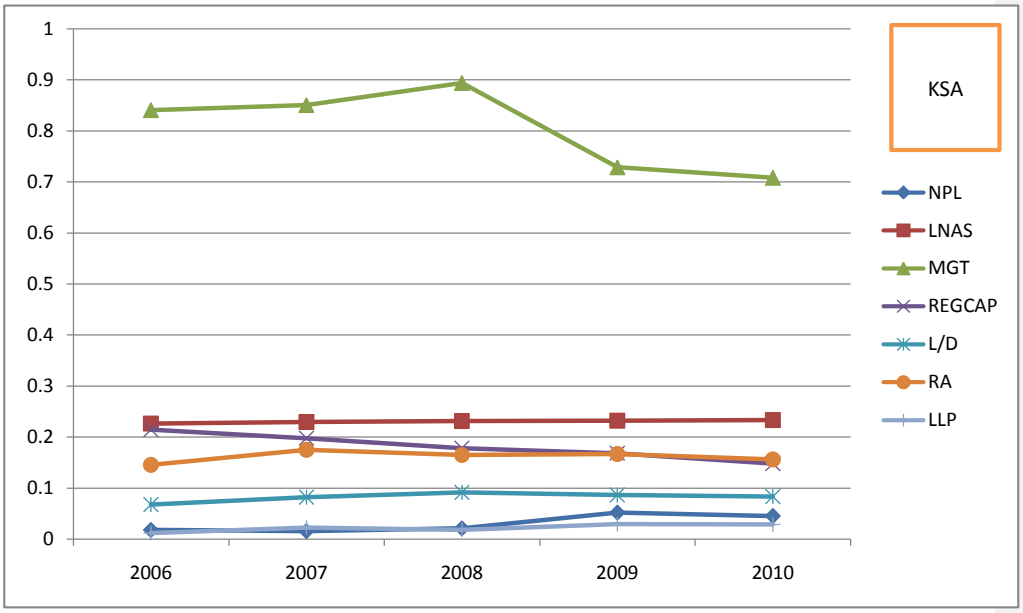
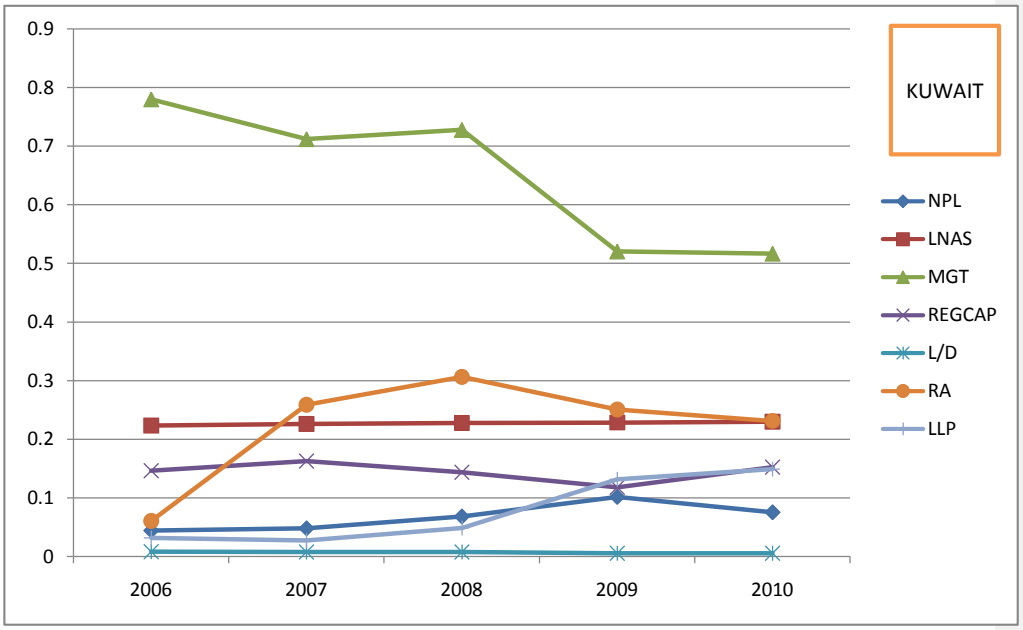
APPENDIX 5

(1) (2)

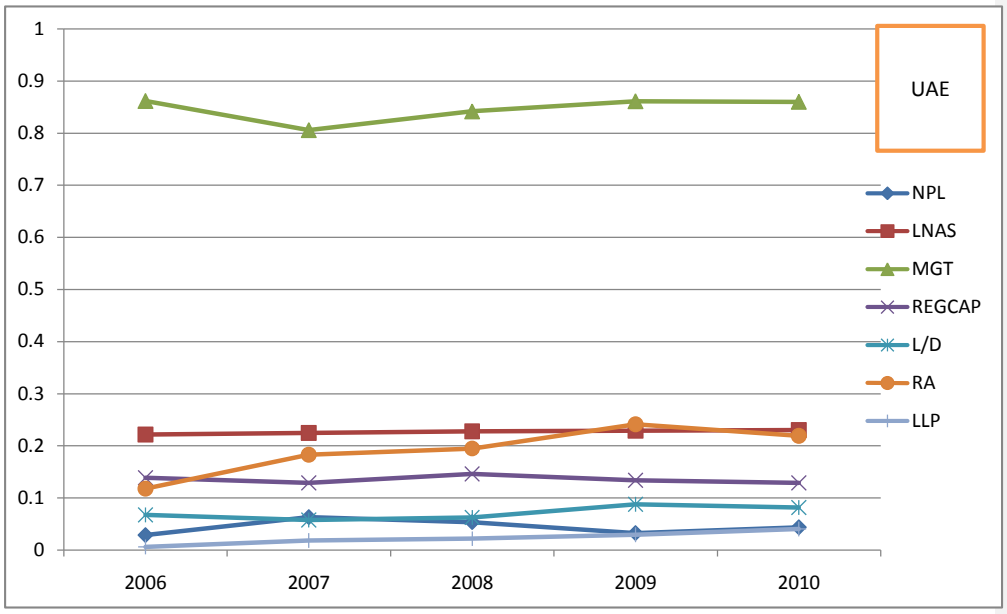


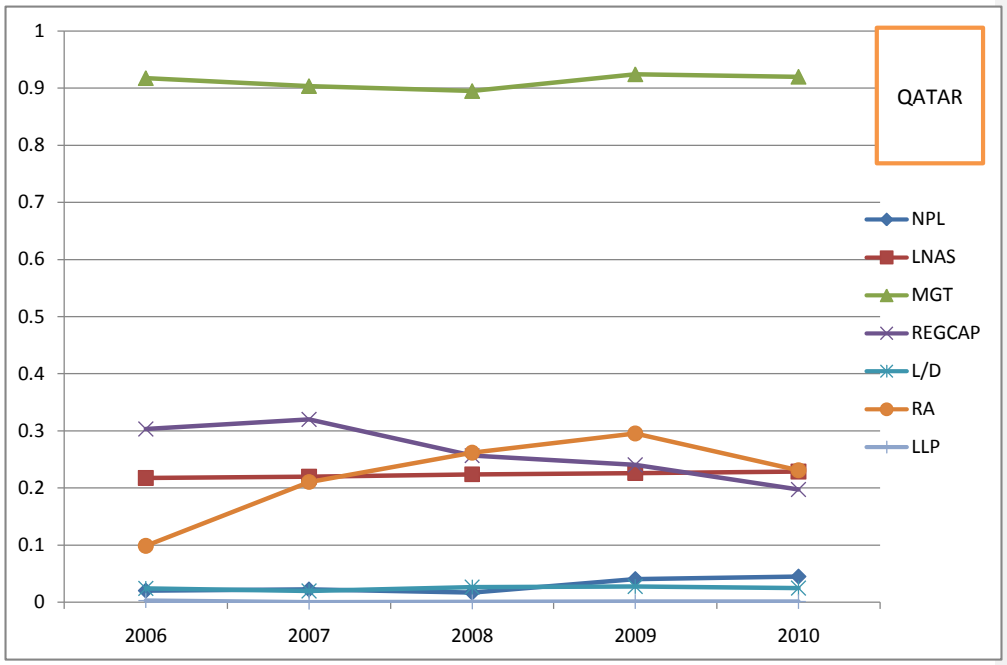


E

APPENDIX 5

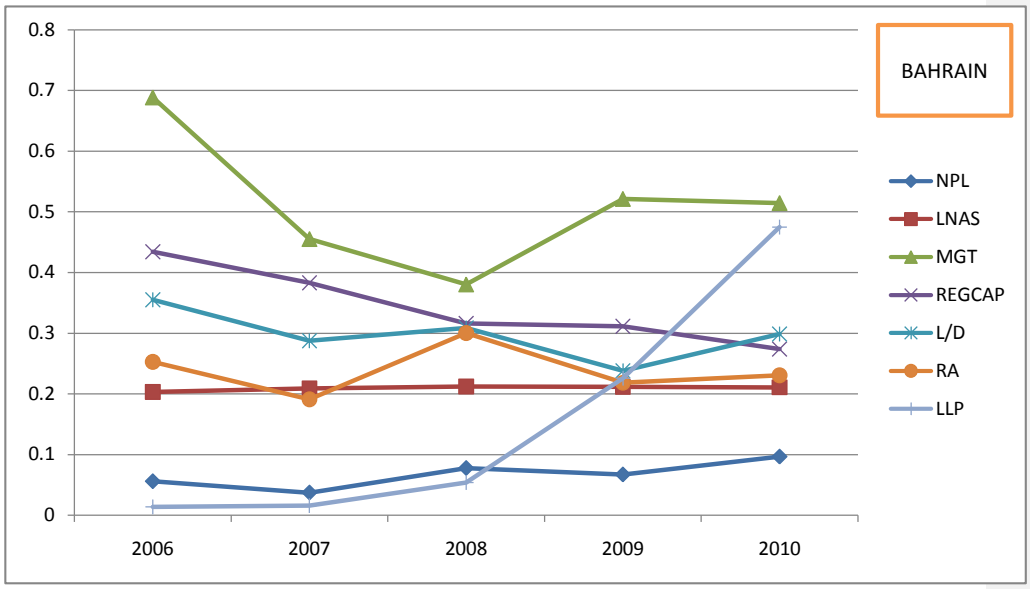
(3) (4)

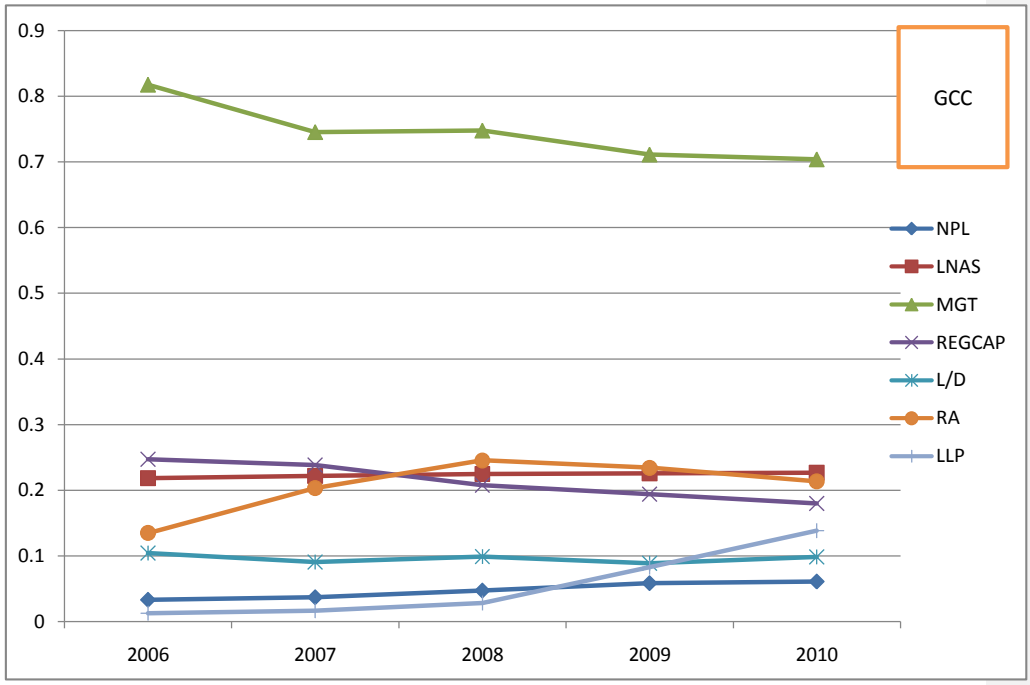




APPENDIX 5

(5) (6)





APPENDIX 6

(1) (2)