The Effect of credit risk management on the bank profitability

THE EFFECT OF CREDIT RISK MANAGEMENT ON THE BANK PROFITABILITY A COMPARATIVE STUDY ON THE ISLAMIC AND CONVENTIONAL BANKS ACROSS THE GCCs

A thesis submitted in partial fulfilment of the

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By

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تأثير إدارة مخاطر الإتمان على ربحية البنوك مقارنة دراسية على البنوك الاسلامية و التقليدية المتواجدة في دول مجلس التعاون الخليجي

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ABSTRACT

This study investigates the credit risk management efficiency and the profitability of both Islamic and conventional banks in the GCCs between 2007 and 2013. This study also aims to check if the banks that have the most efficient credit risk management are the most profitable banks. The study was executed on ten Islamic banks and ten conventional banks across the GCCs which were selected from. Three financial ratios of credit and two financial ratios of profitability was conducted on the banks. After that, regression analysis was done to analyze the effect of the credit management on the bank's profitability. Mann-Whitney U test was used to evaluate the significance of the differences of each financial ratios between the banks. The study primarily used data extracted from the annual reports published by the banks in their websites which was transformed to percentage and secondary data was the literature review. The finding of the study is that Islamic banks are more profitable than the conventional banks and that Islamic banks have more efficient credit risk management techniques than conventional banks. The study recommends to examine the effect of the Islamic windows which are established in the conventional banks on its credit risk management and profitability. In addition, a study could be conducted to check the effect of the Qatari law which prohibits any Islamic windows established in conventional banks on the performance of those banks before and after the law execution.

ملخص البحث

هذه الدراسة تبحث في كفاءة إدارة مخاطر الائتمان و الربحية لكل من المصارف الإسلامية والتقليدية في دول مجلس التعاون الخليجي بين عامي 2007 و 2013. وتهدف هذه الدراسة أيضا إلى التأكد مما إذا كانت البنوك ذات الأكثر كفاءة في إدارة مخاطر الائتمان هي البنوك الأكثر ربحية. تم تنفيذ الدراسة على عشرة بنوك الإسلامية وعشرة البنوك التقليدية التي تم اختيارها من بين دول مجلس التعاون الخليجي. وأجريت ثلاث نسب مالية للائتمان واثنين نسب مالية للربحية على البنوك. بعد ذلك، تم إجراء تحليل الانحدار لتحليل تأثير إدارة الائتمان على ربحية البنك. وقد استخدم اختبار مان ويتني لتقييم أهمية الاختلافات في كل النسب المالية بين البنوك.

وكانت الدراسة تستخدم في المقام الأول البيانات المستخرجة من التقارير السنوية الصادرة عن البنوك في مواقعها على شبكة الإنترنت التي تم تحويلها إلى نسب مئوية أما البيانات الثانوية فكانت الدراسات الادبية السابقة.

النتيجة التي توصلت إليها الدراسة هو أن البنوك الإسلامية هي أكثر ربحية من البنوك التقليدية وأن البنوك الإسلامية لديها تقنيات في إدارة مخاطر الائتمان أكثر كفاءة من البنوك التقليدية.

توصي الدراسة بالبحث في تأثير النوافذ الإسلامية التي أنشئت في البنوك التقليدية على إدارة مخاطر الائتمان والربحية. بالإضافة إلى ذلك، يمكن إجراء دراسة للتحقق من أثر القانون القطري الذي يحظر إنشاء أي نوافذ إسلامية في البنوك التقليدية على أداء هذه البنوك قبل وبعد تنفيذ القانون.

PREFACE

This dissertation is a comparative study between Islamic and conventional banks in the aspect of credit risk management and profitability. The comparisons will be done by conducting financial ratios on both Islamic and conventional banks from 2007 till 2013 and identify the type of bank that have the superior financial ratio average.

After the calculation of the credit risk and profitability ratio I came to the conclusion that the credit risk ratio resulted that Islamic banks had better capability in covering any loan or asset losses that may arise, however, their impaired loans to gross loan ratio have given the result that conventional banks had a better credit portfolio than the Islamic banks. Also, the profitability ratio, total average through the period have resulted that Islamic banks were more profitable than conventional banks.

Moreover, the study aimed to look for if having a superior credit risk have an effect on the bank profitability. This aim was be achieved be conducting a regression test on the yearly financial ratio of the Islamic and conventional banks separately, in which some of the credit risk management had a significant and positive in the Islamic and conventional bank's profitability.

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1.1. Background:

Islamic banking is the most substantive and growing aspect in the Islamic finance fabric. As through the years it becomes one of the key elements in the Islamic finance.

Islamic banks differ from conventional banks due to the principle each type of banks follows. Conventional banks follow the rules and regulation of their financial industry, however, Islamic banks need to additionally apply the rules and regulation of sharia (Islamic law). (Faleel, 2012)

One of the major differences in both the Islamic and conventional bank practices is the following:

- Conventional banks work as mediator between lenders and borrowers but Islamic banks in most transactions and services they become a part in the transaction and share profit and loses with their customers.
- Conventional banks have no constraints on the type of transaction and industry they are willing to serve. However, Islamic banks must only engage in Hala transaction or industry (permissible sharia).
- Conventional banks obtain their profit by the interest they charged upon their customers. However, Islamic banks work on the basis of interest free transaction as it is prohibited by sharia. (Onakoya, 2013)

In the light of the above mentioned points we can see that Islamic banking systems fundamentals which is derived from the sharia is more ethical and it is oriented to help the community as the bank is sharing both the losses and the profit with their customers and will not burden them with interest accumulated through the years of the transaction conducted. (Khan Laghari, Rani, Ahmed Bhutto, & Butt, 2011)

Therefore, Islamic banks can appeal to both Muslims and non-Muslims at the same level. However, banks are like any other type of business will be subjected to different kind of risks that can shake their stability and stand in the market as a result, they need to establish for them self a powerful defence techniques to protect them from those risks and one of those major risks that can negatively affect both Islamic and conventional banks equally is and can drive the bank to bankruptcy is credit risk.

1.2. Credit risk management:

Credit is the number one risk financially that effect every aspect of our daily lives. As credit is practiced for centuries by the people to fulfil the needs that they cannot afford by them self which will result to borrowing it from other parties, which lead to creating the concept of both creditors and debtors. That's why Joseph Ciby have defined credit as 'A transaction between two parties in which one (the creditor or lender) supplies money, goods, services or securities in return for a promise of future payment by the other (the debtor or borrower). (Ciby, 2013)

Credit risk is one of the main risk faced by the banks due to the nature of their transactions as the lending and borrowing that is practiced by banks makes it effected if their counterpart financial stability and commitment in paying its obligations become fragile. Therefore, in Basel (1999a) the credit risk was defined as "the potential that a bank borrower or counterparty will fail to meet its obligations in accordance with agreed term" (Principles for the Management of Credit Risk, 1999).

In the light of that we can extract that credit risk is the act of the debtors defaulting on their loan payments to the creditors. Therefore, the concept of credit risk management has occurred as it involved the study if the debtors worthiness and capability to fulfil the loan agreement with the creditors.

Banks either conventional or Islamic are affected by credit risk due to the fact that most their transactions are based on loans given either in monetary form, goods or services and if a default occurred, it may lead to the downfall of the banks which have been proven in the sub-prime lending crisis in the US in 2008.

Therefore, we can expect if banks have developed a strong management for their credit to protect themselves from it risks it will safeguard them from bankruptcy and may lead them to collecting the profits from their credit agreement.

1.3. Purpose and objective of the study:

In the light of the credit crisis of 2008 and its aftermath, which have touched the banks and countries around the world which contribute to their defaults and finally to their downfall, this lead to the cerebration that if those banks and countries had serious and sustainable credit risk management it would have kept them out of the losses and have a stable monetary ground. This why in this study will see statistically if credit risk had an effect on the profitability of banks.

In this study first we will compare the credit risk management between Islamic and conventional banks across the GCCs and identify the type of bank that have the best credit risk management techniques. Secondly, compare the profitability of both Islamic and conventional banks. To identify the banks that are most profitable.

In the end we will study if having a high credit risk management techniques will affect positively on the profitability. Our aim of this research to answer the following query:

Do Islamic banks have more capable credit risk management techniques than the conventional banks?

Keeping our research question in mind the study target to achieve the following objectives:

1- To compare credit risk management techniques between Islamic and conventional banks.
2- To compare the profitability between Islamic and conventional banks.
3- To check the relationship between credit risk management and profitability in Islamic and conventional banks.

This study differs from its previous ones as there are more banks included in the study across the GCCs and the time period of the study cover the years from 2007 till 2013 which mean that we will be able to see and compare the conventional banks and the Islamic banks during the time of the credit crisis of 2008 and how they have recovered from it in the following years or that they are still recovering from the repercussion of the crisis. As a result we will be able to witness and understand if the banks before and after the crisis have a poor or good credit risk management and in response did those banks were profitably or not. Moreover, did their credit risk management help in their ability to generate profit or it had no effect on it.

1.4. Research methodology:

To realize the research aim and objectives the following hypotheses were put into the testing:

- **H1:** Islamic banks have more advance credit risk management techniques than conventional banks.
- **H2:** Islamic banks are more profitable than conventional banks.

- **H3:** credit risk management techniques have a positive relationship with the bank's profitability.

Therefore, to test the previous stated hypotheses we will conduct a series of financial ratios on the primary data which will be collected from the bank's annual reports. The benefit of using financial ratios to compare the credit risk and profitability are the following:

- As the country in the GCCs do not have one unified currency among them to compare their annual report's figures will be misleading therefore calculating the financial ratios of the banks will eliminate the currencies from the comparison.
- Financial ratio analysis was used in the research due to the method easiness in the calculation and interruption of its results.
- Financial ratio analysis can be used effortlessly in comparing between different banks and also can help in comparing and evaluating the performance of the same bank through different time periods. (Onakoya, 2013)

After calculating the financial ratios a descriptive statistics will be conducted on the ratios to statistically compare the difference in the financial ratio between the Islamic and conventional banks afterward a Mann-Whitney U test will be executed to test the significance of the difference between the Islamic and conventional banks last but not least a regression analysis will be done to check if credit risk have a significant effect on the bank profitability.

1.5. Overview of the dissertation:

The study has five chapters the first chapter is an introduction of the dissertation topic the second chapter is the literature review the third chapter is the data and limitation of the study and the fourth chapter is the methodology and finding the fifth and last chapter is the conclusions and recommendation.

Chapter 1: introduction

In this chapter an overall explanation of the dissertation is presented. Moreover, a background of the Islamic finance is highlighted and an explanation of the credit risk management. Also, the purpose and objective of the study are offered and the research methodology that helped in reaching it.

Chapter 2: literature review

In this chapter a series of previous researches and studies are discussed and analyzed. Most of them were studying or researches conducted on either risk management as a whole or were done explicitly on credit risk management.

Chapter 3: data and limitation of the study

In this chapter the data that were used in the dissertation is stated and the obstacles that were faced to choose the sample of the research and collect the required date is presented.

Chapter 4: methodology and findings

In this chapter the research method is presented in details and its formulas and process is explained clearly and the framework of the research is stated as conducted step by step.

Moreover, the finding and results that were extracted from the study is defined in this chapter.

Chapter 5: conclusions and recommendation

In this chapter, we reach to the conclusion of our research and the final outcome of the dissertation and the recommendations suggested by the writer.

In conclusion, the dissertation is prepared to enrich and contribute in strengthening the studies about the GCCs banking system as the dissertation will cover resent years and more banks. As a result, the management of the banks in the GCCs will be empowered with the necessary information to base their decision on it.

Chapter 2: Literature review

2.1. Review of the performance of the Islamic and conventional banks:

In a study conducted by K.M. Anwarul Islam, Ibrar Alam and SK. Alamgir Hossain (2014) to examine and compare the profitability of the Islamic and conventional banks in Bangladesh. The researchers have chosen fifteen banks that were enlisted in the Dhaka Stock Exchange (DSE), four of those banks were Islamic and eleven banks were conventional. The study time span was from 2009 till 2011.

To assess the profitability performance of the banks the researchers have used two financial ratios to measure the profitability which is the return on asset (ROA) and return on equity (ROE).

These ratios are used in a lot of studies to compare the profitability performance of two companies or the profitability performance of the same company through different time periods.

The higher value of the ROA means that the bank has the ability to turn its asset to earning, which is an indication that the bank financial capability is higher than their counterparts or that it have increased through the years of operation.

And the higher value of the ROE means that the bank has the ability to produce returns from the shareholders' investments which is an indication that the bank financial performance is higher than their counterparts or that it have improved through the years.

The researchers have found that conventional banks were superior to the Islamic banks in terms with profitability, even though that Bangladesh Islamic banks have increased through the years and more conventional banks have introduced Islamic products in their services or converted their operation to be fully Islamic.

However, the researchers have reasoned this contradiction to the lack of awareness from the Islamic banks about the mode and policies of operation in the industry due to the fact that Islamic banks are new to the industry. (Islam, Alam, & Hossain, 2014)

Moreover, Wasiuzzaman and Gunasegavan (2013) had conducted a study to compare the performance of Islamic and conventional banks in Malaysia. They have conducted their study on fourteen banks operates in

Malaysia, nine banks were conventional and five banks were Islamic the data of the research have covered the years from 2005 till 2009.

The researchers have taken more of a statistical approach in analyzing the data as they have done descriptive statistics to have a better understanding of the bank characteristics also the have done a t-test and Mann-Whitney U on the data to determine if the differences found were independent and significant or not at the end they have run a regression analysis to identify if the variables used have an effect on the bank profitability or not.

One of their major findings is that conventional banks were in the lead when considering return on average assets, bank size and board size value, however, Islamic banks were higher in operational efficiency, asset quality, liquidity, capital adequacy and board independence. In the light of the study finding we can witness that Islamic banks higher asset quality (loan loss reserve to gross loans) is an indication of the banks low credit risk related to their asset but the conventional banks had low asset quality and in comprising they had a higher profitability (ROA) than the Islamic banks. Therefore, the result of the regression analysis conducted have proven that there is a significant and negative relationship between the asset quality (loan loss reserve to gross loans) and the profitability (ROA).

Also the researchers have found that liquidity, board characteristics and type of banks have no impact on the bank profitability. (Wasiuzzaman & Gunasegavan, 2013)

Also, a study was conducted by Onakoya, Adegbemi Babatunde and Onakoya, Adekola Olaitan (2013) on the Islamic and conventional banks in the United Kingdom to compare the performance of the two types of banks and analysis their result. In their research paper they have studied the difference aspect between Islamic and conventional banking in the United Kingdom those aspects are:

- Liquidity
- Profitability
- Risk
- Efficiency
- Solvency

The comparative between the banks in those six areas by using financial ratios conducted on four Islamic banks and five conventional banks in the period from 2007 till 2011. The financial ratio analysis was used as the research methodology.

Also, the researchers have chosen only four Islamic banks out of the twenty two Islamic banks in the United Kingdom as they wanted to include Islamic banks that were fully shará compliant banks.

The result and finding of the research were presented in four sections according to the financial ratio that were used in calculating them.

- LIQUIDITY:

Islamic banks were found to be less liquid than conventional banks due to the fact that conventional banks have more short term liquid asset like treasury bills which can be changed to cash easily.

- PROFITABILITY:

Conventional banks were found to have an operating profitability higher than the Islamic banks, which is a result of Islamic banks having impaired loans higher than the conventional banks. Moreover, as Islamic banks try to apply shara'a standers in their contracts it lead them to create new or mixture types of contract thereby the operating cost will increase.

- RISK AND SOLVENCY RATIO:

Through the authors' finding Islamic banks found to be more risky than conventional banks due to the Islamic banks higher debt/ asset ratio, equity multiplier and debt to equity ratio than conventional banks.

- EFFICIENCY RATIO:

In this aspect, Islamic banks were less cost efficient in their asset utilization however, statistically Islamic banks were not different than conventional banks.

In conclusion, we can notice that Islamic banks have a higher risk but lower profitability than the conventional banks in the United Kingdom. (Onakoya, 2013)

Also, a study was conducted by Fayed (2013), in Egypt to compare the performance of both Islamic and conventional banks in the region the researcher's aim of the study was to identify which type of bank was the performing better than the other.

To achieve the aim of the study, the researcher has selected on three Islamic banks and six conventional bank data from the period of 2008 till 2010 the researcher has divided the aspect that he wants to measure and compare between the banks into four aspects:

- Profitability
- Liquidity
- Credit risk
- Solvency

The methodology used for those aspects was financial ratio that research have chosen seven financial rations to apply in the study, however, in measuring the solvency of the banks the researcher used the module "Bank-o-meter".

The researcher has found that conventional banks were higher in profitability, liquidity, credit risk management and solvency, which is according to the researcher is a result of the Islamic bank's presence is new in the industry so there is limited rules and principle to guide the Islamic accounting and financing practices. (Fayed, 2013)

In sirsj and pillai (2012), they compare the performance of Islamic banks and conventional in the GCC region. The researchers have chosen six Islamic and six conventional banks in the GCCs the researchers have not chosen any Islamic from Oman due to the fact that fully operated Islamic banks are still very recently establish in Oman and in the conventional banks there were no banks from the Kingdom of Saudi Arabia however the researchers have not justified the absence of conventional banks in the Kingdom of Saudi Arabia.

The financial ratios in their study resulted in the fact that Islamic banks have performed better than conventional banks in the period from 2005 till 2010. Due to the fact that the researchers included the financial crisis of 2008 effect in their study it produced the result that Islamic banks were less affected by the crisis than conventional banks.

The researchers supported this finding by conducting AAG rate, which identifies the changes in a selected performance indicators. One of those indicators was the operating profit, which Islamic bank's ratio was higher than the conventional banks. Moreover, they study highlights the fact that conventional banks suffered from a credit losses although they had created revenue. (Siraj & Pillai, 2012)

Finally, in a study conducted by Dr. Minhoon Khan Laghari, Dr. Iram Rani, Niaz Ahmed Bhutto and Falah-ud-Din Butt (2011) on the Islamic and conventional banks in Pakistan to compare and analysis their performance.

The study was conducted on six banks three conventional and three Islamic in two stages with the first stage the researchers have collected questioners data from 300 participants that have accounts in their study banks to measure the perception of each bank type according to their customers, in the second stage a ratio analysis and multiple regression model was used to measure the performance and determine the variables that affect it.

The questioner resulted in the fact that Islamic bank customers were more satisfied with their banks that conventional ones, moreover, in the ratios analysis the conventional banks have performed better, except in the return on asset ratios in which the Islamic banks have recorded higher results. (Laghari, Rani, Bhutto, & Butt, 2011)

2.2. Review of the risk management of both Islamic and conventional banks:

According to Yasin (2014), in which he conducted a study to compare the risk management practices of Islamic banks against conventional banks in Pakistan both types of banks face the same kinds of risks.

The researcher found this result be collecting 150 questionnaires, send to senior management in Islamic and conventional banks of Pakistan.

Moreover, the researcher found that Islamic banks considered easily affected by those risks because their products and services are new to the industry, which make their risk management techniques more innovative than the conventional banks.

However, the researcher estate in the study that some of the participants in the questionnaires had biased answers, as a result the outcome of this study cannot be generalized on other country except Pakistan. (Yasin, 2014)

Rim Ben Selma Mokni, Abdelghani Echchabi, Dhekra Azouzi and Houssem Rachdi (2014), in their research on the risk management in Islamic banks to identify who the banks in the MENA region measure and manage their risk they have found that liquidity risks is perceived as the number one risk faced by Islamic banks in the MENA region in front of credit risk.

Moreover, the study has discovered that the Islamic banks in the region are still using collateral and guarantees as a tool to mitigate from credit risk which is considered to be a more traditional method.

However, the Islamic banks in the MENA region were found to be having effective risk management strategies as they are aware of its importance. (Mokni, Echchabi, Azouzi, & Rachdi, 2014)

Girish Karunakaram Nair, Harsh Purohit and Nidhi Choudhary (2014) have conducted a case study on International Islamic Bank locate in Qatar due to the fact that the Qatari government is actively developing their banking sector.

Therefore, the researchers have conducted this research in an attempted to find a relationship between the International Islamic Bank performance and seven dimensions of the risk management those are:

1- Understanding risk and risk management
2- Risk identification
3- Risk assessment & analysis
4- Risk monitoring
5- Risk management practices
6- Credit risk assessment
7- Risks faced by Islamic banks

Through the collect questionnaire from the managers of the Qatar Islamic Bank they have found that risk assessment analysis, risk management practices, risk identification and credit risk assessment have the most effect on the bank performance and depending on their finding the management of the Islamic Banks of Qatar can improve their risk management practices by monitoring these dimensions when making decisions. (Nair, Purohit, & Choudhary, 2014)

In a study of the risk management practices of conventional banks and Islamic banks in Bahrain conducted by Hameeda Abu Hussain and Jasim Al-Ajmi (2012), they have found that Islamic and conventional banks in Bahrain face different level of risk with Islamic banks having the highest level, the researchers reason the cause of this variance to the Islamic bank unique products and services that makes it more exposed to liquidity, operational, settlement, country and residual risks.

Moreover, both the conventional and Islamic banks in Bahrain find that credit, liquidity and operational risks to be more important than the others. (Abu Hussain & Al-Ajmi, 2012)

In the study of Nazir, Daniel and Nawaz (2012), they conducted a comparative study of the risk management practices in Islamic and conventional banks in Pakistan, which give a major outcome that there is a significant difference in risk monitoring between both banks.

Another result the study found is that even though, Islamic bank credit risk assessment techniques should be more innovative than the conventional banks, but in realty Islamic bank have adopted the conventional banks techniques.

However, this result contradicts Yasin (2014) study on his result that Islamic banks have more innovative than the conventional banks, although both studies have followed the same method of collecting questionnaires their result were opposite each other. (Nazir, Daniel, & Nawaz, 2012)

In a study by Naveed Ahmed, Muhammad Farhan Akhtar and Muhammad Usman (2011), to identify the factors that can affect the Islamic banks' risk management practices significantly, they have found the following:

- The size of the bank and credit risk have a positive relationship.
- The size of the bank and liquidity risk have a positive relationship.
- The size of the bank and operational risk have a negative and insignificant relationship.
- Liquidity risk and operational risk have a positive relationship.
- Liquidity risk and debt equity ratio have negative and significant relationship.
- Liquidity risk and NPLs ratio have negative and significant relationship.

- Liquidity risk and capital adequacy have a positive and significant relationship.
- Operational risk and debt equity ratio have negative and significant relationship.
- Operational risk and NPLs ratio have negative and significant relationship.
- Operational risk and capital adequacy have a negative and significant relationship.
- Credit risk and debt equity ratio have a positive relationship.
- Credit risk and NPLs ratio have a positive relationship.
- Credit risk and capital adequacy have a negative and significant relationship.

The researcher's purpose of the study was to empower the Islamic banking sector in Pakistan with the tools need to manage the numerous types of risks like credit, liquidity and operational risks so that it will aid them in when making decisions. (Ahmed, Akhtar, & Usman, 2011)

Salman Ahmed Shaikh and Dr. Amanat Ali Jalbani (2009) have run an analysis of the conventional banks and Islamic banks risk management procedure in Pakistan.

They have performed the study by identifying the unique aspects of the risk faced by the Islamic banks also the comparative of both the Islamic and conventional banks was done by calculating the ROE ratio for the years from 2001 till 2006 on a sample of four banks two Islamic and two conventional.

They study major finding are:

1- Islamic and conventional banks are both profitable.
2- Islamic banks have an adequate risk management procedure.
3- Islamic banks are exposed more to equity based business than conventional banks.
4- Islamic banks risk management techniques are will build to face the equity based business risks. (Shaikh & Jalbani, 2009)

2.3. Reviews on the credit risk management in Islamic and conventional banks:

In (2015) researchers Karim Ben Khediri, Lanouar Charfeddine and Slah Ben Youssef have compared between Islamic and conventional banks in the GCC they have conducted the study by using classification techniques.

The researchers divided their data into three categories which are:

- Pre financial crisis period (years from 2003 to 2007).
- Financial crisis period (years from 2007 to 2008).
- Post financial crisis period (year from 2009 to 2010).

The researchers had a sample of forty four conventional banks and eighteen Islamic banks from only five GCC countries which are (Bahrain, Kuwait, Qatar, Saudi Arabia and United Arab Emirates) as they have excluded Sultan Oman from the sample of the banks due to the lack of the Islamic banks in the country.

The methodology followed by the researchers was done in three stages:

First stage: the researchers have calculated fourteen financial ratios that can be classified into five groups:

- Profitability ratios (Return on asset and Return on equity).
- Liquidity ratios (Cash to asset and Cash to deposits).
- Credit risk (Loans loss reserves to gross loans, Non-performing loans to gross loans, Loans to assets and Loans to deposit).
- Insolvency risk (Equity to assets, Debt to assets, Deposit to assets and Deposit to equity).
- Asset structure ratios (Fixed assets to assets and Off-balance sheet items to assets).

Second stage: parametric methods of linear discriminant analysis and logistic regression was conducted on the financial ratios.

Third stage: non-parametric methods of neural network and tree of classification was conducted on the financial ratios.

From the comparative the researchers have found that:

1- Islamic banks are more profitable than conventional banks.
2- Islamic banks are more liquid than conventional banks.
3- Islamic banks are more capitalized than conventional banks.
4- Islamic banks have less credit risk than conventional banks.
5- Islamic banks have less off balance sheet activities than conventional banks.
6- Islamic banks have more operating leverage than conventional banks.

Also, the major finding of the study is in the methodology they have used they have proven that financial ratios can be used to compare between two different types of banks and that the classification model can be used also in comparative between types of banks in credit risk, insolvency risk, operating leverage and off-balance sheet activities. However, in the profitability and liquidity we cannot use the classification model. Last but not the least the logistic regression model was proven to be more accurate and destructive than the other modules used. (Ben Khediri, Charfeddine, & Ben Youssef, 2015)

Vikrant Vikram Singh, Naresh Kedia and Anima conducted a study on the credit risk management in Islamic banks (2013), in which they defined the Islamic banks' exposure to the credit risk and the deference between the conventional banks and the Islamic banks in the credit risk management.

Moreover, they have construe a linear regression model for the Islamic banks were the credit risk is the independent variable which can be according to the researchers as a generalized module to examine the dependent variables effect on the credit risk which was developed by using SPSS program.

The researchers have found that:

a. The following variables have a significant positive effect on the credit risk of Islamic banks:
    - Loan loss provisions.
    - Natural log of total assets.
    - Risk weighted assets.
    - Regulatory.
    - Loan concentration in public sector.
b. The following variables have an insignificant statistical relationship with credit risk in Islamic banks:
    - Loan to deposit ratio.
    - Size of the bank.
    - Capital adequacy ratio.
c. The following variables have a significant negative effect on the credit risk of Islamic banks:
    - Leverage.
    - Loan growth.

- Loan concentration in private sector. (Singh, Kedia, & Anima, 2013)

Finally, a study done by Omar Masood, Hasan Al Suwaidi and Priya Darshini Pun Thapa (2012) on the credit risk management in the United Arab Emirates for Islamic and conventional banks in the region, the Islamic bank managers were found to be using newer and robust credit risk management techniques alongside the traditional ones.

Moreover, the Islamic banks were found to be more involved in developing their credit risk framework where conventional banks tend to develop risk adjusted return on capital. (Masood, Al Suwaidi, & Pun Thapa, 2012)

Chapter 3: data

3.1. Introduction:

In this chapter the data sample that was chosen from the GCC countries banking sector is defined and the limitation and obstacles that were faced while collecting it for the purpose of conducting the study is stated.

3.2. Data:

Based on a list with the 50 top GCCs banks (Gulf Business, 2013) and a list of the ranking GCCs safest Islamic banks (Cunningham, 2014) and the availability of the bank annual report on its website, ten conventional banks and ten Islamic banks were chosen listed in table (1) for the period of seven years starting from 2007 until 2013 the study primly data will be the quantitative data from the bank published annual reports.

Table (1): List of the Conventional and Islamic Banks

ISLAMIC BANKS	CONVENTIONAL BANKS
ALRAJHI BANKING CORPORATION (KSA)	BANQUE SAUDI FRANSI (KSA)
BANK ALBILAD (KSA)	NATIONAL BANK OF OMAN (OMAN)
ABU DHABI ISLAMIC BANK (UAE)	FIRST GULF BANK (UAE)
DUBAI ISLAMIC BANK (UAE)	COMMERCIAL BANK OF QATAR (QATAR)
QATAR ISLAMIC BANK (QATAR)	AL KHALIJ COMMERCIAL BANK (QATAR)
AL SALAM BANK (BAHRAIN)	AHLI BANK (QATAR)
BOUBYAN BANK (KUWAIT)	INTERNATIONAL BANK OF QATAR (QATAR)
KUWAIT FINANCING HOUSE (KUWAIT)	GULF BANK (KUWAIT)
BAHRAIN ISLAMIC BANK (BAHRAIN)	BURGAN BANK (KUWAIT)
KHALEEJI COMMERCIAL BANK (BAHRAIN)	BANK OF BAHRAIN AND KUWAIT (BAHRAIN)

Chapter4. Methodology and Findings:

4.1. Introduction:

This chapter outline the methodology used in the research. First, the framework and steps executed on the data are explained then the process as to how the data were calculated and organized for analysis is defined. Also, the statistical approach implemented on the data and the generated output is presented. Finally, the tables and figures used in the analysis are offered.

4.2. Hypotheses:

In this chapter we will try to prove the hypotheses of our research to reach the aim of the study by comparing the Islamic banks and conventional banks following the chosen method of financial ratios.

This method has been used in numerous studies before due to the easiness of calculation and interruption of the financial ratio outcomes. Moreover, the financial ratio analysis can be used effortlessly in comparing between the Islamic banks and conventional banks and also can help in comparing the performance evaluation of the same bank through different time periods. (Onakoya, 2013)

The first thing we will try to test in the study is to see if the Islamic banks have more advance credit risk management than the conventional by calculating the financial ratios for measuring credit efficiency of each bank and perform a descriptive statistics on the data to compare the result of both banks against each other to find the type of bank that the financial ratio indicates have the higher credit risk management.

H1: *Islamic banks have more advance credit risk management techniques than conventional banks.*

Secondly, we will calculate the profitability ratios for both types of banks Islamic and conventional and perform a descriptive statistics on the data and compare the results opposite each other to find if Islamic bank are more profitable than conventional.

H2: *Islamic banks are more profitable than conventional banks.*

Moreover, due to the fact that the financial ratio data does not follow a normal distribution the Mann-Whitney U test will be conducted to test if the difference in the financial ratio between the Islamic and conventional banks are significant.

Finally, to be able to study if the credit risk management has a significant and positive relationship with the bank's profitability. The data will be transformed to follow the normal distribution to conduct a regression analysis on it.

H3: *credit risk management techniques have a positive relationship with the bank's profitability.*

4.3. Research Framework:

Five financial ratios will be calculated on the quantitative data, three ratios to measure the credit risk management and two ratios to measure the profitability of the banks which are presented in the table (2) below:

Table (2): List of Financial Ratios

Ratio	Equation	Meaning	High result	Low result
Non-performing loans to gross loan ratio (NPLGL)	Non-performing loans to gross loan ratio (NPLGL) = impaired loans/gross loans	This ratio measure how much is the credit portfolio of the bank contains doubtful loans.	The high percentage of the ratio indicates the bank inferior credit performance.	The lower percentage of the ratio indicates the bank superior credit performance.
Common Equity to Total Assets (EQTA)	Common Equity to Total Assets (EQTA) = Common Equity/Total Assets	This ratio measures the percentage of the common equity from the total assets of the bank.	The high percentage of the ratio indicates to the bank superior capacity to cover any asset losses.	The lower percentage of the ratio indicates to the bank inferior capacity to cover any asset losses.
Total Equity to Net Loans (EQL)	Total Equity to Net Loans (EQL) = Total Equity/Net Loans	This ratio measures the percentage of the total equity from the net loans of the bank.	The high percentage of the ratio indicates to the bank superior capacity to cover any loan losses.	The lower percentage of the ratio indicates to the bank inferior capacity to cover any loan losses.
Return on Assets (ROA)	Return on Assets (ROA) = Net Profit/Total Assets	This ratio measures the percentage of net profit that was generated by the total asset of the	The high percentage of the ratio indicates to the bank superior efficiency generates profit from its assets	The lower percentage of the ratio indicates to the bank inferior efficiency to

		bank.		generate profit from its assets
Return on Equity (ROE)	Return on Equity (ROE) = Net Profit/ Total Equity	This ratio measures the percentage of net profit that was generated by the total equity of the bank.	The higher percentage of the ratio indicate to the bank superior efficiency to use its capital to generate profit.	The lower percentage of the ratio indicate to the bank inferior efficiency to use its capital to generate profit.

(Hanif, Tariq, Tahir, & Wajeeh-ul-Momeneen, 2009)

After calculating the ratios from the information collected from the annual reports of the banks and an explanation of each ratio indication to both type of banks will be provided the descriptive statistics of the ratios will be presented to be able to determine the type of bank that scored the higher performance in each financial ratio.

4.4. Primary Data Analysis:

By collaborating the methods in both (Siraj & Pillai, 2012) and (Wasiuzzaman & Gunasegavan, 2013) of first calculating ratios average of each of the ratios and comparing them between the Islamic and conventional banks to understand the indication of each of the ratios to the banks performance an analysis of the descriptive statistic table will be discussed to have a more general outlook on both the Islamic and conventional bank stand on each financial ratio.

To achieve that 1400 observations from the ten Islamic banks and the ten conventional banks on the duration of 7 years from 2007 till 2013 annual reports was collocated to calculate the financial ratio as a result we had 140 percentage to each financial ratios for both banks. However, to be able to do the comparative between the two types of banks the data was separated in to two panels one for the Islamic banks and one for the conventional banks.

4.4.1. Non-performing loans to gross loan ratio (NPLGL):

In this financial ratio we have divided the impaired loans over the gross loans of the banks individually, afterwards the average percentage of two types of banks from 2007 till 2013 was calculated to highlight the bank that have the lower percentage.

From table (3) we can notice that Islamic banks had a higher average percentage through the years due to the high amount of impaired loans but conventional banks have faculty maintained a lower ratio except in 2009 which can be referred back to the financial crisis of 2008 which have increased the amount of impaired loans in the banks.

Moreover, when comparing the averages of banks we can conclude that conventional banks have better credit performance than the Islamic banks.

Table (3): NPLGL Ratio

Year	2007	2008	2009	2010	2011	2012	2013	TOTAL AVERAGE
Non-performing loans to gross loan ratio (NPLGL)								
ALRAJHI BANKING CORPORATION	0.023	0.008	0.012	0.015	0.011	0.013	0.014	1.38%
BANK ALBILAD	0.000	0.000	0.000	0.019	0.017	0.014	0.007	0.83%
ABU DHABI ISLAMIC BANK	0.005	0.179	0.469	0.217	0.227	0.216	0.211	21.77%
DUBAI ISLAMIC BANK	0.106	0.069	0.115	0.208	0.343	0.063	0.075	13.98%
QATAR ISLAMIC BANK	0.000	0.019	0.000	0.016	0.013	0.009	0.008	0.94%
AL SALAM BANK	0.002	0.002	0.001	0.006	0.008	0.006	0.005	0.45%
BOUBYAN BANK	0.002	0.015	0.072	0.005	0.005	0.012	0.013	1.78%
KUWAIT FINANCING HOUSE	0.004	0.019	0.058	0.070	0.051	0.044	0.050	4.23%
BAHRAIN ISLAMIC BANK	0.005	0.013	0.068	0.233	0.231	0.194	0.122	12.36%
KHALEEJI COMMERCIAL BANK	0.002	0.010	0.005	0.047	0.085	0.058	0.079	4.10%
AVERAGE ISLAMIC BANK	1.48%	3.35%	8.01%	8.37%	9.93%	6.30%	5.85%	6.18%
BANQUE SAUDI FRANSI	0.007	0.002	0.007	0.004	0.002	0.004	0.009	0.50%
NATIONAL BANK OF OMAN	0.016	0.002	0.015	0.006	0.006	0.003	0.004	0.72%
FIRST GULF BANK	0.015	0.014	0.027	0.033	0.033	0.032	0.030	2.63%
COMMERCIAL BANK OF QATAR	0.002	0.002	0.014	0.005	0.006	0.003	0.009	0.57%
AL KHALIJ COMMERCIAL BANK	0.002	0.000	0.035	0.000	0.005	0.005	0.000	0.68%
AHLI BANK	0.011	0.007	0.007	0.027	0.026	0.007	0.008	1.34%
INTERNATIONAL BANK OF QATAR	0.002	0.009	0.008	0.012	0.008	0.007	0.011	0.83%
GULF BANK	0.026	0.094	0.138	0.068	0.056	0.059	0.064	7.21%
BURGAN BANK	0.028	0.028	0.050	0.045	0.041	0.035	0.033	3.71%

BANK OF BAHRAIN AND KUWAIT	**0.062**	**0.053**	**0.105**	**0.097**	**0.091**	**0.092**	**0.076**	**8.22%**
AVERAGE CONVENTIONAL BANKS	**1.71%**	**2.11%**	**4.07%**	**2.97%**	**2.74%**	**2.47%**	**2.43%**	**2.64%**

4.4.2. Common Equity to Total Assets (EQTA)

A higher percentage in the common equity to total assets ratio is an indication that the bank can cover up any assets losses that may accord. This ratio was calculated by dividing the common equity of the bank over the total assets from 2007 till 2013 to identify the percentage of the common equity from the total asset.

Islamic banks resulted average percentage through the period as illustrated in table (4) indicates that Islamic banks have a superior capacity to cover their assets losses than the conventional banks. Moreover, conventional banks percentage have decreased through the years.

Finally, the average percentage of the whole study period determine that the Islamic banks from 2007 till 2013 have better ability to shield itself from assets losses.

Table (4): EQTA Ratio

Year	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**TOTAL AVERAGE**
Common Equity to Total Assets (EQTA)								
ALRAJHI BANKING CORPORATION	**0.108**	**0.092**	**0.088**	**0.081**	**0.068**	**0.056**	**0.054**	**7.81%**
BANK ALBILAD	**0.180**	**0.187**	**0.172**	**0.142**	**0.108**	**0.101**	**0.110**	**14.30%**
ABU DHABI ISLAMIC BANK	**0.034**	**0.038**	**0.031**	**0.031**	**0.032**	**0.027**	**0.023**	**3.10%**
DUBAI ISLAMIC BANK	**0.036**	**0.041**	**0.043**	**0.042**	**0.042**	**0.039**	**0.035**	**3.95%**
QATAR ISLAMIC BANK	**0.056**	**0.059**	**0.053**	**0.042**	**0.041**	**0.032**	**0.031**	**4.46%**
AL SALAM BANK	**0.302**	**0.216**	**0.181**	**0.175**	**0.162**	**0.159**	**0.138**	**19.04%**
BOUBYAN BANK	**0.005**	**0.006**	**0.011**	**0.005**	**0.006**	**0.007**	**0.008**	**0.71%**
KUWAIT FINANCING HOUSE	**0.019**	**0.020**	**0.020**	**0.020**	**0.020**	**0.020**	**0.024**	**2.04%**
BAHRAIN ISLAMIC BANK	**0.091**	**0.076**	**0.080**	**0.078**	**0.112**	**0.113**	**0.103**	**9.32%**
KHALEEJI COMMERCIAL BANK	**0.371**	**0.215**	**0.222**	**0.275**	**0.258**	**0.244**	**0.213**	**25.68%**
AVERAGE ISLAMIC BANK	**12.03%**	**9.49%**	**9.01%**	**8.92%**	**8.48%**	**7.98%**	**7.38%**	**9.04%**
BANQUE SAUDI FRANSI	**0.113**	**0.112**	**0.130**	**0.146**	**0.140**	**0.144**	**0.006**	**11.29%**
NATIONAL BANK OF OMAN	**0.062**	**0.054**	**0.060**	**0.060**	**0.048**	**0.044**	**0.038**	**5.25%**
FIRST GULF BANK	**0.017**	**0.013**	**0.011**	**0.010**	**0.010**	**0.017**	**0.015**	**1.32%**
COMMERCIAL BANK OF QATAR	**0.031**	**0.034**	**0.038**	**0.036**	**0.035**	**0.031**	**0.022**	**3.23%**
AL KHALIJ COMMERCIAL BANK	**0.699**	**0.301**	**0.205**	**0.192**	**0.133**	**0.107**	**0.087**	**24.64%**
AHLI BANK	**0.033**	**0.142**	**0.110**	**0.036**	**0.040**	**0.110**	**0.094**	**8.05%**

INTERNATIONAL BANK OF QATAR	**0.030**	**0.045**	**0.044**	**0.041**	**0.040**	**0.034**	**0.038**	**3.89%**
GULF BANK	**0.021**	**0.025**	**0.053**	**0.055**	**0.052**	**0.054**	**0.055**	**4.51%**
BURGAN BANK	**0.030**	**0.024**	**0.025**	**0.034**	**0.032**	**0.026**	**0.023**	**2.78%**
BANK OF BAHRAIN AND KUWAIT	**0.037**	**0.037**	**0.037**	**0.035**	**0.031**	**0.027**	**0.029**	**3.34%**
AVERAGE CONVENTIONAL BANKS	**10.73%**	**7.87%**	**7.14%**	**6.44%**	**5.61%**	**5.94%**	**4.08%**	**6.83%**

4.4.3. Total Equity to Net Loans (EQL)

The total equity to net loans ratio is measured by dividing the total equity of the bank over their net loans. Achieving a higher percentage is what we look for in this ratio as it indicates the bank ability to cover any loan losses that may accrued.

We can comprehend from table (5) that conventional banks had a 28.94% percentage average in 2007 however it dropped by a percentage average of 6.14% the next year, moreover it still have not rebooted themselves to their 2007 percentage we can assume that the reason of the fall was due to the financial crisis of 2008 and that the conventional banks still have not recovered from the aftershock of the crisis. However, Islamic banks have steadily increased their average ratio percentage through the years however, in 2009 it had a fall in the average percentage of 5.88% but it have increased in the following years.

At the end, we can conclude from the average percentage of the total equity to net loans ratio comparative between the Islamic and conventional banks that Islamic banks have superior ability to cover any loan losses than conventional banks.

Table (5): EQL ratio

Year	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**TOTAL AVERAGE**
Total Equity to Net Loans (EQL)								
ALRAJHI BANKING CORPORATION	**0.159**	**0.192**	**0.193**	**0.253**	**0.239**	**0.212**	**0.206**	**20.76%**
BANK ALBILAD	**0.316**	**0.388**	**0.273**	**0.252**	**0.248**	**0.239**	**0.218**	**27.63%**
ABU DHABI ISLAMIC BANK	**0.219**	**0.165**	**0.177**	**0.169**	**0.176**	**0.247**	**0.212**	**19.48%**
DUBAI ISLAMIC BANK	**0.263**	**0.166**	**0.180**	**0.180**	**0.197**	**0.212**	**0.291**	**21.28%**
QATAR ISLAMIC BANK	**0.396**	**0.379**	**0.397**	**0.308**	**0.379**	**0.303**	**0.290**	**35.03%**
AL SALAM BANK	**0.596**	**0.857**	**0.661**	**0.777**	**0.625**	**0.517**	**0.510**	**64.91%**
BOUBYAN BANK	**0.203**	**0.190**	**0.107**	**0.206**	**0.180**	**0.157**	**0.148**	**17.01%**

KUWAIT FINANCING HOUSE	**0.152**	**0.149**	**0.150**	**0.141**	**0.129**	**0.125**	**0.143**	**14.14%**
BAHRAIN ISLAMIC BANK	**0.426**	**0.286**	**0.236**	**0.242**	**0.258**	**0.168**	**0.179**	**25.63%**
KHALEEJI COMMERCIAL BANK	**0.674**	**0.587**	**0.398**	**0.581**	**0.590**	**0.562**	**0.451**	**54.92%**
AVERAGE ISLAMIC BANK	**34.03%**	**33.60%**	**27.72%**	**31.09%**	**30.20%**	**27.43%**	**26.48%**	**30.08%**
BANQUE SAUDI FRANSI	**0.188**	**0.174**	**0.201**	**0.222**	**0.213**	**0.221**	**0.209**	**20.39%**
NATIONAL BANK OF OMAN	**0.257**	**0.175**	**0.184**	**0.195**	**0.168**	**0.159**	**0.159**	**18.53%**
FIRST GULF BANK	**0.228**	**0.209**	**0.253**	**0.258**	**0.256**	**0.260**	**0.250**	**24.50%**
COMMERCIAL BANK OF QATAR	**0.249**	**0.294**	**0.376**	**0.372**	**0.342**	**0.307**	**0.248**	**31.27%**
AL KHALIJ COMMERCIAL BANK	**0.918**	**0.651**	**0.656**	**0.724**	**0.478**	**0.435**	**0.272**	**59.07%**
AHLI BANK	**0.151**	**0.232**	**0.209**	**0.182**	**0.207**	**0.181**	**0.167**	**18.98%**
INTERNATIONAL BANK OF QATAR	**0.296**	**0.197**	**0.214**	**0.190**	**0.248**	**0.214**	**0.261**	**23.13%**
GULF BANK	**0.150**	**0.011**	**0.125**	**0.129**	**0.129**	**0.135**	**0.144**	**11.76%**
BURGAN BANK	**0.247**	**0.181**	**0.191**	**0.252**	**0.251**	**0.184**	**0.016**	**18.88%**
BANK OF BAHRAIN AND KUWAIT	**0.210**	**0.155**	**0.182**	**0.188**	**0.169**	**0.193**	**0.206**	**18.63%**
AVERAGE CONVENTIONAL BANKS	**28.94%**	**22.80%**	**25.91%**	**27.13%**	**24.61%**	**22.90%**	**19.31%**	**24.51%**

4.4.4. Return on Assets (ROA)

Return on asset is one of the famous financial ratios for measuring the bank's profitability performance (Islam, Alam, & Hossain, 2014). This ratio give an idea on the banks efficiency in generating profit from their assets. Therefore, when comparing between the Islamic banks and conventional banks we need to spot the bank that have the higher percentage.

From table (6) we find that Islamic banks financial ratio average have plummeted from the years of 2007 till 2009 as it was 4.23% then kept fallen till it reached 0.62% also, in the same years the conventional banks had the same result as their percentage ratio average was 2.36% and then it have descended till it reached 0.69%. From the previous outcome we can draw that both Islamic and conventional banks have been effected by the 2008 financial crisis therefore both bank had low ROA ratio. In addition, the conventional banks had a higher return on their assets in 2007 and 2008 in comparison with the Islamic banks.

Moreover, on the following years from 2010 till 2013 the conventional and Islamic banks had maintained relatively the same percentage average for their ROA.

As a result the total average of both Islamic and conventional banks through the time period from 2007 till 2013 was to a certain degree similar with Islamic bank having ROA of 1.66% and conventional banks having ROA of 1.62% but due to the fact that Islamic bank had an advantage on the conventional bank with 0.04% therefore, we have come to the conclusion that the Islamic banks are more efficient in producing profit from their assets than the conventional banks.

Table (6): ROA Ratio

Year	2007	2008	2009	2010	2011	2012	2013	TOTAL AVERAGE
Return on Assets (ROA)								
ALRAJHI BANKING CORPORATION	**0.052**	**0.040**	**0.040**	**0.037**	**0.033**	**0.029**	**0.027**	**3.68%**
BANK ALBILAD	**0.011**	**0.007**	**-0.012**	**0.044**	**0.011**	**0.032**	**0.021**	**1.62%**
ABU DHABI ISLAMIC BANK	**0.017**	**0.012**	**0.000**	**0.014**	**0.014**	**0.013**	**0.013**	**1.21%**
DUBAI ISLAMIC BANK	**0.030**	**-0.004**	**0.015**	**0.011**	**0.010**	**0.012**	**0.015**	**1.27%**
QATAR ISLAMIC BANK	**0.078**	**0.062**	**0.046**	**0.034**	**0.030**	**0.018**	**0.015**	**4.04%**
AL SALAM BANK	**0.058**	**0.046**	**0.017**	**0.009**	**0.001**	**0.011**	**0.011**	**2.19%**
BOUBYAN BANK	**0.025**	**-0.002**	**-0.050**	**0.004**	**0.004**	**0.005**	**0.004**	**-0.15%**
KUWAIT FINANCING HOUSE	**0.037**	**0.030**	**0.021**	**0.019**	**0.010**	**0.023**	**0.017**	**2.23%**
BAHRAIN ISLAMIC BANK	**0.038**	**0.026**	**-0.021**	**-0.042**	**-0.021**	**-0.043**	**0.007**	**-0.82%**
KHALEEJI COMMERCIAL BANK	**0.077**	**0.059**	**0.007**	**-0.016**	**0.001**	**0.002**	**-0.035**	**1.35%**
AVERAGE ISLAMIC BANK	**4.23%**	**2.75%**	**0.62%**	**1.13%**	**0.94%**	**1.01%**	**0.94%**	**1.66%**
BANQUE SAUDI FRANSI	**0.027**	**0.022**	**0.020**	**0.023**	**0.021**	**0.019**	**0.014**	**2.10%**
NATIONAL BANK OF OMAN	**0.030**	**0.014**	**0.013**	**0.016**	**0.014**	**0.017**	**0.015**	**1.71%**
FIRST GULF BANK	**0.027**	**0.026**	**0.025**	**0.026**	**0.024**	**0.031**	**0.028**	**2.68%**
COMMERCIAL BANK OF QATAR	**0.031**	**0.028**	**0.027**	**0.029**	**0.025**	**0.025**	**0.014**	**2.54%**
AL KHALIJ COMMERCIAL BANK	**0.014**	**0.009**	**0.010**	**0.023**	**0.018**	**0.015**	**0.013**	**1.46%**
AHLI BANK	**0.019**	**0.013**	**0.014**	**0.023**	**0.025**	**0.020**	**0.017**	**1.87%**
INTERNATIONAL BANK OF QATAR	**0.022**	**0.007**	**0.020**	**0.019**	**0.021**	**0.016**	**0.023**	**1.83%**
GULF BANK	**0.024**	**-0.072**	**0.000**	**0.000**	**0.004**	**0.006**	**0.008**	**-0.43%**
BURGAN BANK	**0.026**	**0.009**	**0.005**	**0.004**	**0.013**	**0.011**	**0.004**	**1.02%**
BANK OF BAHRAIN AND KUWAIT	**0.014**	**0.012**	**0.015**	**0.016**	**0.012**	**0.014**	**0.014**	**1.39%**
AVERAGE CONVENTIONAL BANKS	**2.36%**	**0.69%**	**1.49%**	**1.78%**	**1.76%**	**1.73%**	**1.52%**	**1.62%**

4.4.5. Return on Equity (ROE)

Return on equity is calculated by dividing the net profit of the bank over the total equity, it is a measure of the banks' ability to produce profit from their equity specifically from their shareholders investments.

From the calculation result we can see the both the conventional banks and the Islamic banks had a huge drop in their ROE ratio average in 2008 which may be the cause of the financial crisis of 2008 that had the impact on the banks' ability to drive any profit from their equity however the conventional banks ROE have suffered drastically more than the Islamic as in 2008 the conventional bank ROE was -83.75%. However, both banks have increased their ratio from 2010 till 2013 although the conventional banks had a higher return on their equity in the previous stated period than the Islamic banks.

In the end we can see that the total average of the period from 2007 till 2013 that Islamic banks had a higher percentage total average percentage of 8.29% from the conventional banks percentage total average of -1.57%.

Table (7): ROE Ratio

Year	2007	2008	2009	2010	2011	2012	2013	TOTAL AVERAGE
Return on Equity (ROE)								
ALRAJHI BANKING CORPORATION	0.273	0.241	0.235	0.223	0.220	0.216	0.194	22.91%
BANK ALBILAD	0.057	0.034	-0.070	0.298	0.091	0.217	0.148	11.09%
ABU DHABI ISLAMIC BANK	0.142	0.108	-0.001	0.134	0.125	0.090	0.104	10.03%
DUBAI ISLAMIC BANK	0.236	-0.037	0.144	0.096	0.085	0.104	0.105	10.46%
QATAR ISLAMIC BANK	0.360	0.293	0.200	0.195	0.155	0.102	0.082	19.80%
AL SALAM BANK	0.145	0.149	0.067	0.036	0.002	0.050	0.050	7.13%
BOUBYAN BANK	0.134	-0.014	-0.542	0.022	0.027	0.034	0.034	-4.36%
KUWAIT FINANCING HOUSE	0.231	0.196	0.153	0.145	0.087	0.202	0.134	16.41%
BAHRAIN ISLAMIC BANK	0.134	0.134	-0.138	-0.397	-0.171	-0.519	0.078	-12.56%
KHALEEJI COMMERCIAL BANK	0.154	0.198	0.024	-0.055	0.004	0.006	-0.192	2.00%
AVERAGE ISLAMIC BANK	18.66%	13.02%	0.73%	6.96%	6.26%	5.03%	7.38%	8.29%
BANQUE SAUDI FRANSI	0.241	0.199	0.157	0.155	0.148	0.133	0.104	16.25%
NATIONAL BANK OF OMAN	0.192	0.117	0.096	0.107	0.112	0.138	0.131	12.76%
FIRST GULF BANK	0.198	0.169	0.139	0.026	0.024	0.149	0.146	12.17%
COMMERCIAL BANK OF QATAR	0.223	0.171	0.127	0.144	0.124	0.135	0.097	14.57%

AL KHALIJ COMMERCIAL BANK	**0.016**	**0.023**	**0.035**	**0.081**	**0.090**	**0.090**	**0.098**	**6.19%**
AHLI BANK	**0.199**	**0.068**	**0.092**	**0.200**	**0.176**	**0.130**	**0.125**	**14.13%**
INTERNATIONAL BANK OF QATAR	**0.122**	**0.064**	**0.162**	**0.159**	**0.138**	**0.124**	**0.148**	**13.09%**
GULF BANK	**0.249**	**-9.408**	**-0.005**	**0.001**	**0.049**	**0.068**	**0.084**	**-128.04%**
BURGAN BANK	**0.213**	**0.093**	**0.048**	**0.029**	**0.102**	**0.101**	**0.052**	**9.11%**
BANK OF BAHRAIN AND KUWAIT	**0.126**	**0.129**	**0.152**	**0.163**	**0.134**	**0.147**	**0.136**	**14.09%**
AVERAGE CONVENTIONAL BANKS	**17.79%**	**-83.75%**	**10.02%**	**10.65%**	**10.96%**	**12.15%**	**11.20%**	**-1.57%**

Moreover, a statistical approach was conducted to produce result from the whole sample financial ratios of both Islamic and conventional banks in the GCCs alongside the average comprising above

4.4.6. Descriptive statistical analysis:

In table (8) is a summary of the descriptive statistic of both banks data we see that in NPLGL ratio for all the sample of banks that the minim and maxim amount of the ratio are far apart and when examining the minim and maxim amount of each individual type of bank we can see that the reason for the large difference is the Islamic banks this is an indication that some of Islamic banks in GCCs have a very a good credit portfolio performance but their others who have a very bad credit portfolio performance however the conventional bank NPLGL minimum and maximum amount of the ratios is less than the Islamic. Also the mean of the NPLGL ratio of the conventional bank is less than the Islamic banks also we can observe that the skewness of the ratio is high for all sample and when comparing the skewness of the conventional and Islamic banks separately we can see that Islamic banks had the higher skewness. In addition the whole sample and each type of bank had a high kurtosis which means that their less ratios near the average of the normal distribution and that there are extreme ratios either above or below the average. At the end we can conclude about the NPLGL ratio the same result that we have come against when comparing the average of each year separately which is that conventional banks had a superior credit portfolio performance.

In the EQTA and EQL ratios we can observe that the range is very high between the minimum and maximum of all the sample and that the reason for that large difference is the conventional banks also the mean of the

Islamic banks is higher than the conventional banks and the skewness is high and on the positive side also the kurtosis of the data is very high which is due to the influence of the conventional banks high skewness and kurtosis. Finally, we can say that we have reached the same previous result when comparing year's average which is that Islamic banks more capable to protect themselves from asset and loan loses than conventional banks.

At the end the ROA and ROE ratios have also come to the same result of the year's average comparative as the mean of the Islamic banks were higher and the skewness of the sample was pulled to the negative by a high amount due to the influence of the conventional banks high negative skewness moreover the kurtosis of the sample was a huge amount also because of the conventional banks.

Table (8): Descriptive Statistics

Variables/Statistics		All sample	Conventional banks	Islamic banks
(NPLGL)	Mean	.044117291568	.026419367306	.061815215831
	Median	.014145445500	.011636018000	.015346142000
	Std. Deviation	.0705486594309	.0305784563972	.0919554511199
	Minimum	.0000159898	.0000716882	.0000159898
	Maximum	.4694008800	.1377160500	.4694008800
	Skewness	3.048	1.617	2.225
	Kurtosis	11.721	2.232	5.543
(EQTA)	Mean	.079350452863	.06829316014	.090407745583
	Median	.042079587000	.03801553600	.056016819500
	Std. Deviation	.0885172458619	.093069021242	.0829110771109
	Minimum	.0053475373	.005779585	.0053475373
	Maximum	.6989292500	.698929250	.3710423700
	Skewness	3.285	4.948	1.281
	Kurtosis	17.236	31.004	1.143
(ROA)	Mean	.016388913756	.016168784476	.016609043035
	Median	.015547862000	.016449283500	.014499033500
	Std. Deviation	.0198748503742	.0131607460824	.0249487590260
	Minimum	-.0722382700-	-.0722382700-	-.0500954100-
	Maximum	.0780622000	.0306763310	.0780622000
	Skewness	-.782-	-4.472-	-.172-
	Kurtosis	4.842	29.351	1.034
(EQL)	Mean	.27295791245	.3007890033	.24512682161
	Median	.21367278000	.2389767300	.20910933000
	Std. Deviation	.161770508585	.17323365205	.145386303148
	Minimum	.011016373	.10679665	.011016373

	Maximum	.918294000	.85735050	.918294000
	Skewness	1.834	1.370	2.600
	Kurtosis	3.288	1.138	8.398
(ROE)	Mean	.033610463797	-.015696206351-	.082917133946
	Median	.124218887500	.126507360000	.104707190000
	Std. Deviation	.8128884964709	1.1402782945721	.1611976931277
	Minimum	-9.4081030000-	-9.4081030000-	-.5423989000-
	Maximum	.3598035600	.2489523600	.3598035600
	Skewness	-11.439-	-8.335-	-1.954-
	Kurtosis	133.653	69.641	5.454

After discussing all the difference between the Islamic and conventional banks we will test if the difference we have found between the Islamic and conventional banks were significant or not due to the fact that the variables were not normally distributed a simple t-test will be inappropriate to conduct on them therefore a Mann-Whitney U on the difference between means based on ranking test was done on the variables.

Table (9): Mann-Whitney U test for two independent samples

Variables	(NPLGL)	(EQTA)	(EQL)	(ROA)	(ROE)
Mann-Whitney U	2064.000	2039.000	2069.000	2336.000	2259.000
Z	-1.609-	-1.713-	-1.588-	-.475-	-.796-
Asymp. Sig. (2-tailed)	.108	.087	.112	.635	.426

a. Grouping Variable: bank type

From table (9) of the Mann-Whitney U test we have come to the result that from the credit risk ratios only the EQTA ratio in which the Islamic banks were superior to the conventional banks in covering their loses in their assets was significant however in the rest of the credit risk ratios the difference between the samples were insignificant.

In addition from the profitability ratios were the Islamic banks were found to have more ability to generate more profits from their assets and equity, both the ROA ratio and the ROE ratio differences were found to be insignificant.

Now before determining if the credit risk ratios had a significant effect on the profitability ratios a correlation test was performed on the data to check for the multicollinearity according to (Gujarati & Porter, 2009) if the coefficient correlation of the variables did not exceeded 0.8 then there is no problem of the multicollinearity between the variables.

From table (10) we can find that the correlation between the variables were low and that the highest coefficient correlation was between the EQTA and EQL with a coefficient of 0.76.

Moreover, due to the fact that the variables were not normally distributed a logarithmic transformation was done on the variables to become normally distributed to be able to do the regression however, all the data have followed a normal distribution as presented in figures (1) till (8) except the EQL ratio have remained not normally distributed as displayed in figures (9) and (10).

Table (10): Correlations

		(NPLGL)	(EQTA)	(EQL)	(ROA)	(ROE)
(NPLGL)	Pearson Correlation	1	-.164-	-.231-**	-.378-**	-.110-
	Sig. (2-tailed)		.053	.006	.000	.195
	N	140	140	140	140	140
(EQTA)	Pearson Correlation	-.164-	1	.765**	.053	.029
	Sig. (2-tailed)	.053		.000	.537	.737
	N	140	140	140	140	140
(EQL)	Pearson Correlation	-.231-**	.765**	1	.218**	.127
	Sig. (2-tailed)	.006	.000		.010	.136

	N	140	140	140	140	140
(ROA)	Pearson Correlation	-.378-**	.053	.218**	1	.495**
	Sig. (2-tailed)	.000	.537	.010		.000
	N	140	140	140	140	140
(ROE)	Pearson Correlation	-.110-	.029	.127	.495**	1
	Sig. (2-tailed)	.195	.737	.136	.000	
	N	140	140	140	140	140

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

Figure (1): normal Q-Q plot of the ROA ratio of the Islamic banks

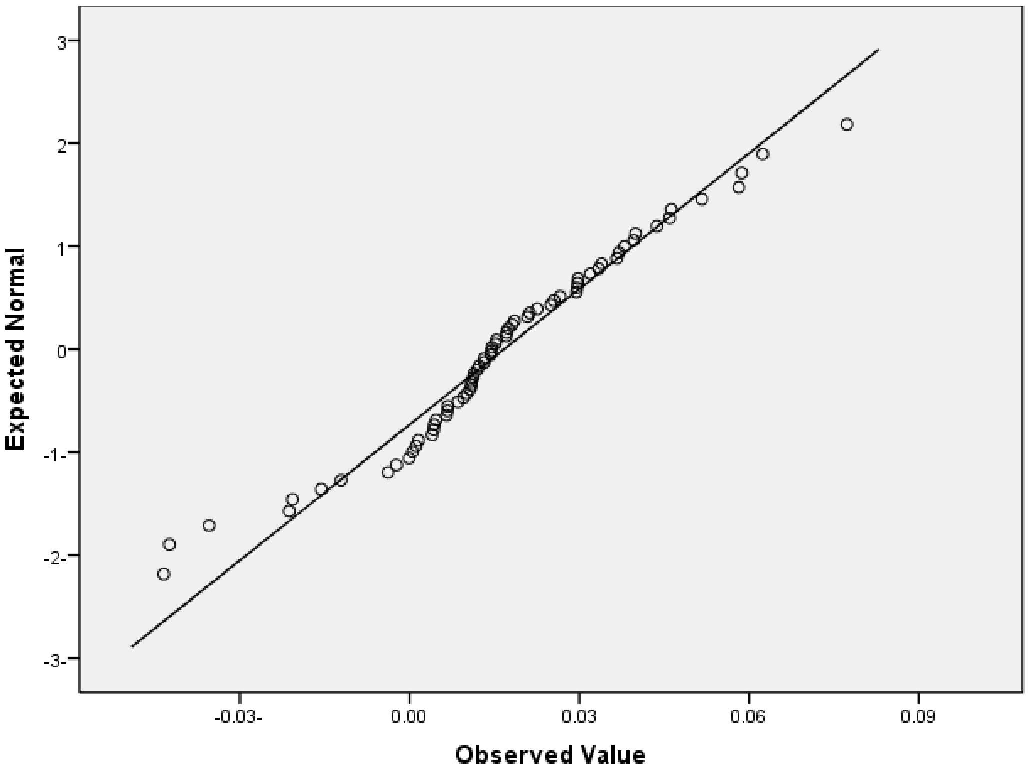


Figure (2): normal Q-Q plot of the ROA ratio of the conventional banks

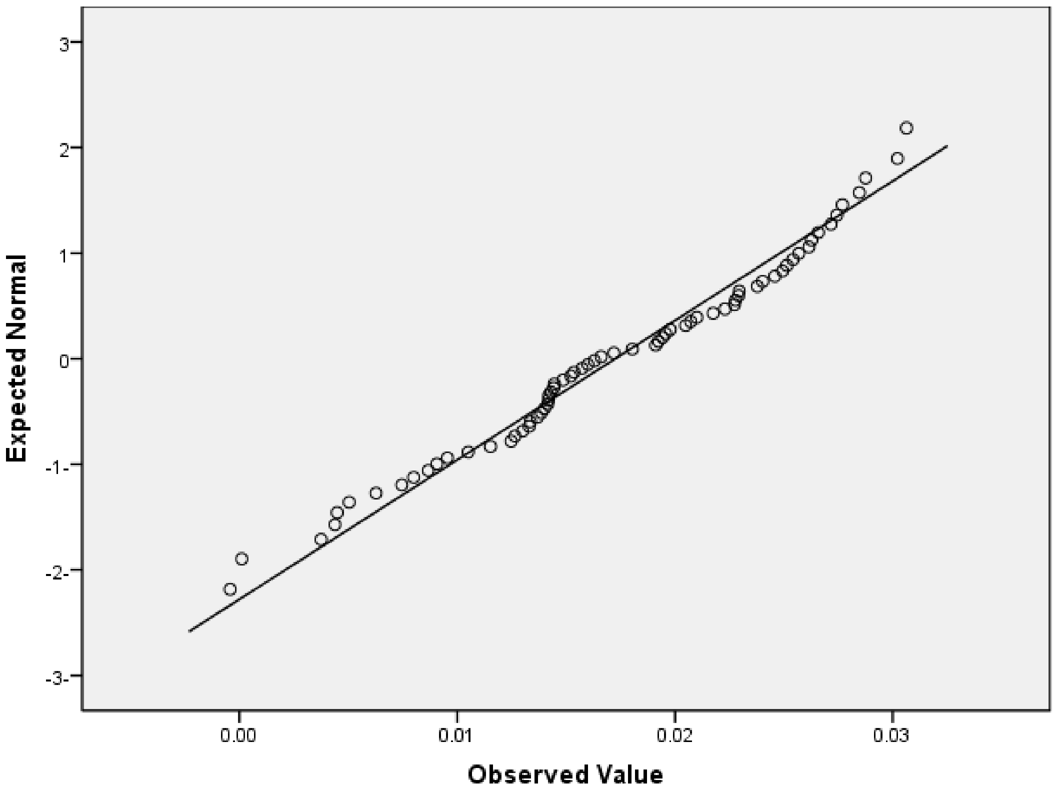


Figure (3): normal Q-Q plot of the NPLGL ratio of the Islamic banks

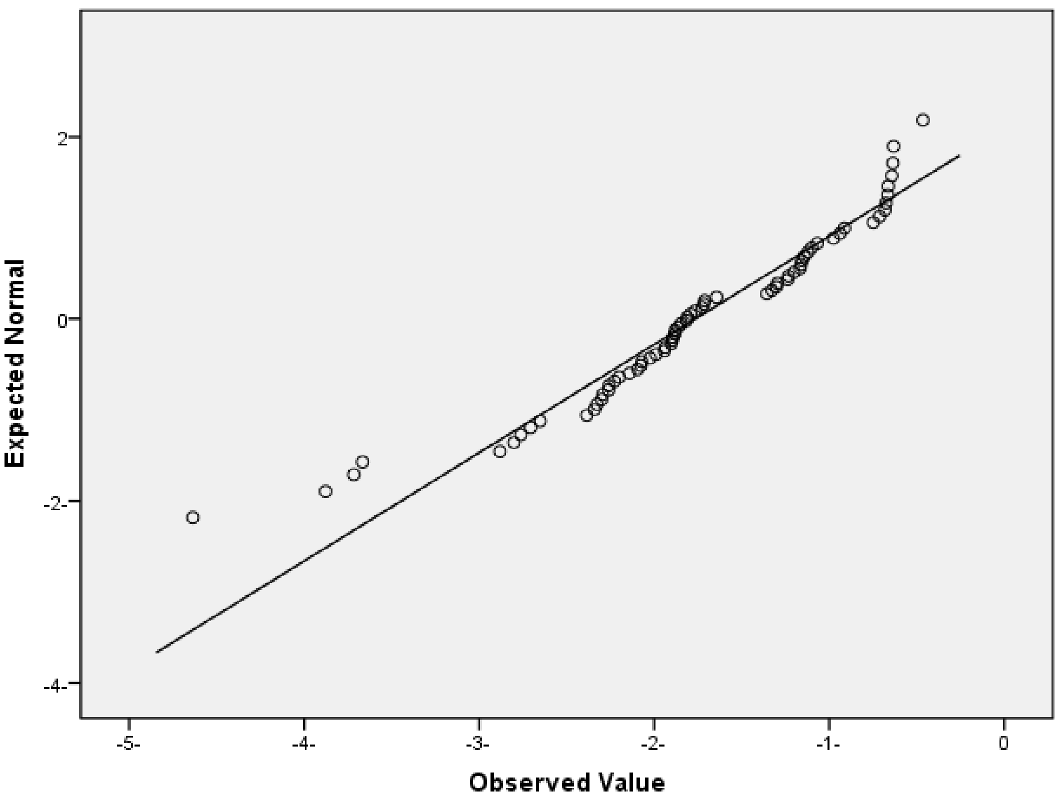


Figure (4): normal Q-Q plot of the NPLGL ratio of the conventional banks

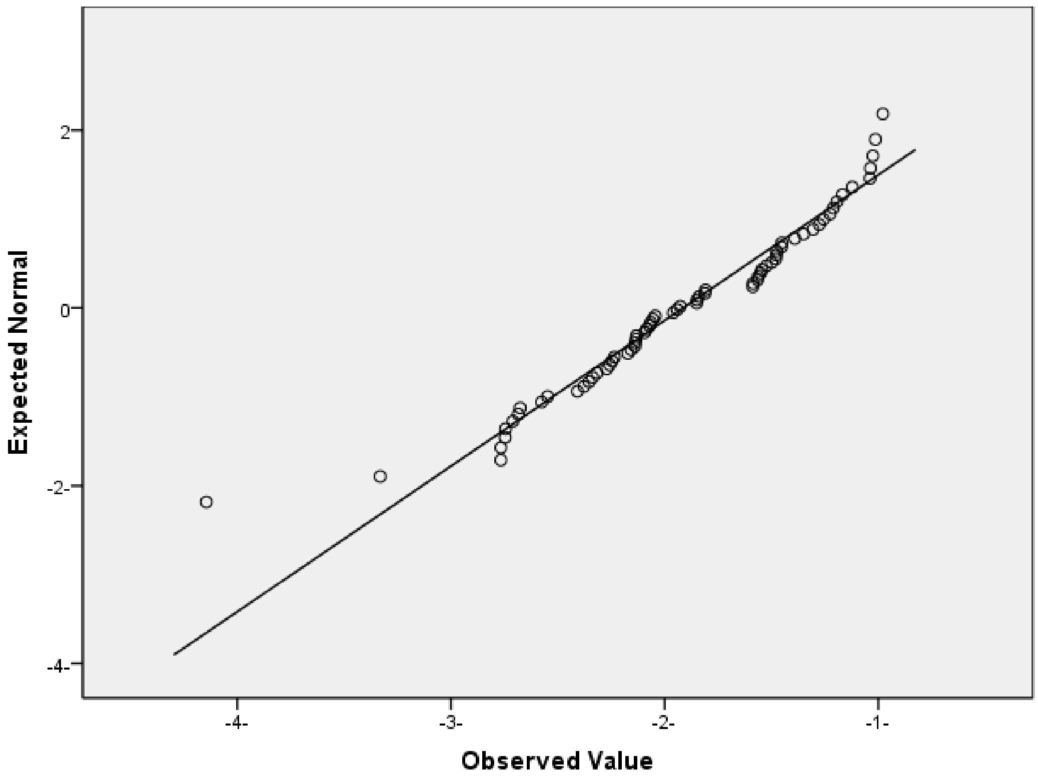


Figure (5): normal Q-Q plot of the EQTA ratio of the Islamic banks

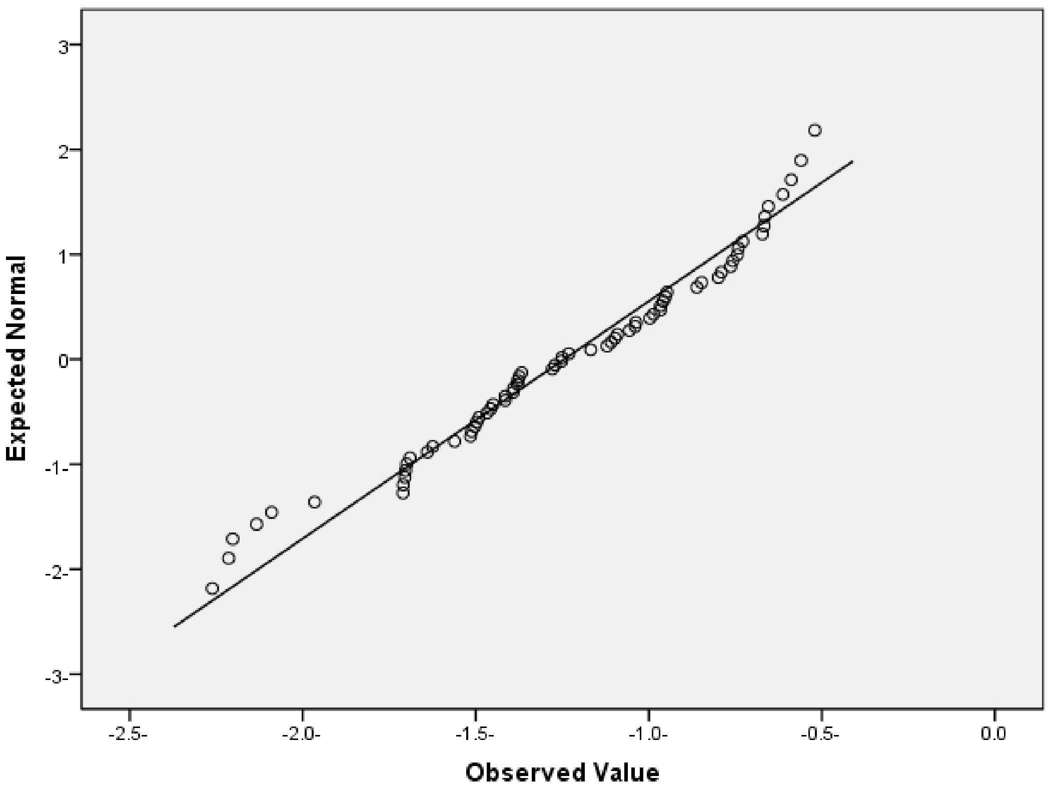


Figure (6): normal Q-Q plot of the EQTA ratio of the conventional banks

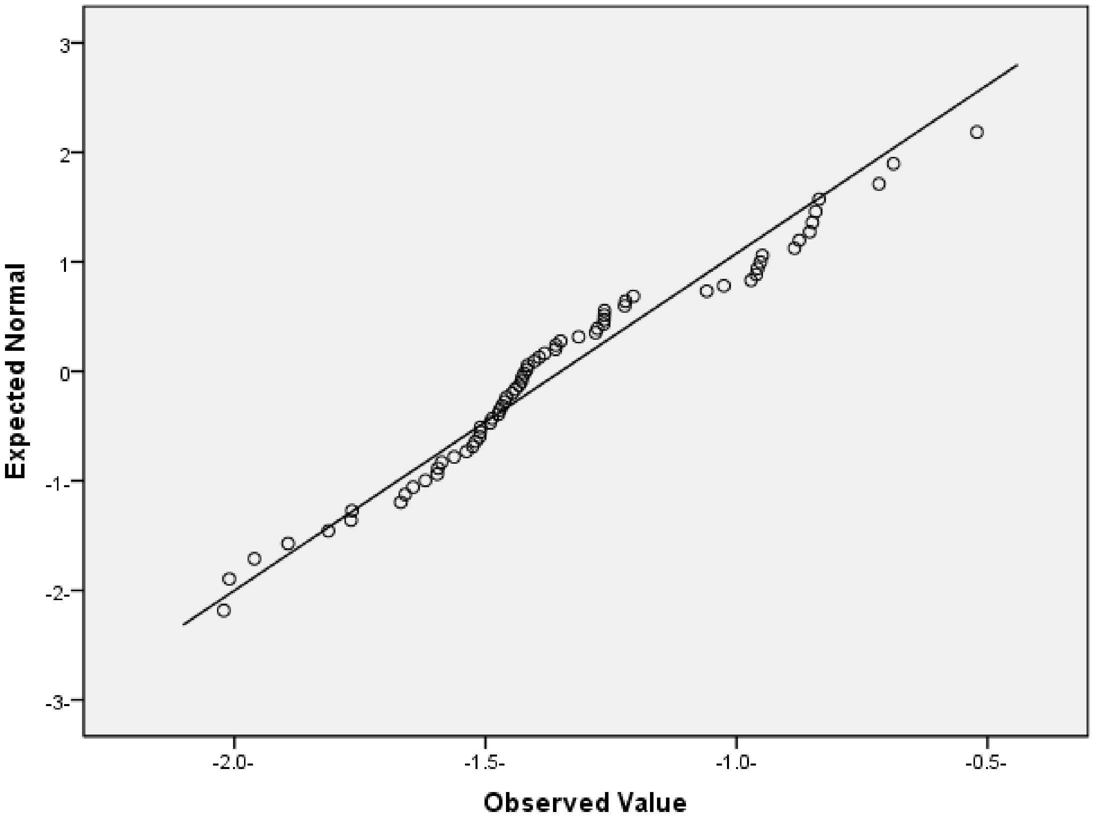


Figure (7): normal Q-Q plot of the ROE ratio of the Islamic banks

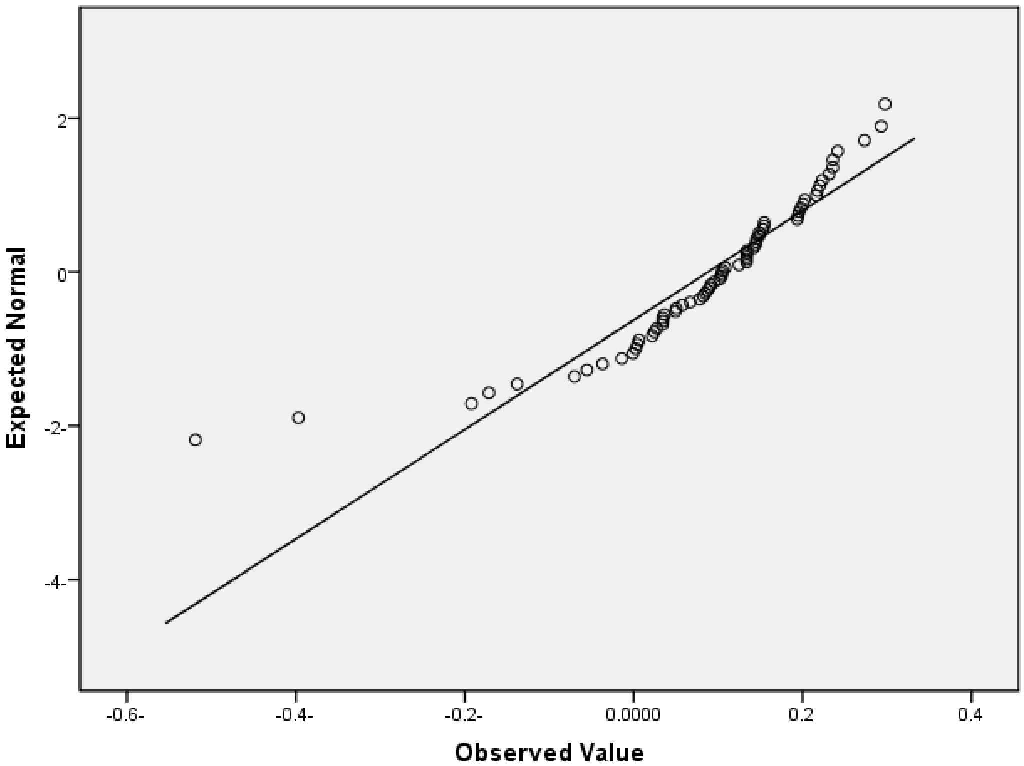


Figure (8): normal Q-Q plot of the ROE ratio of the conventional banks

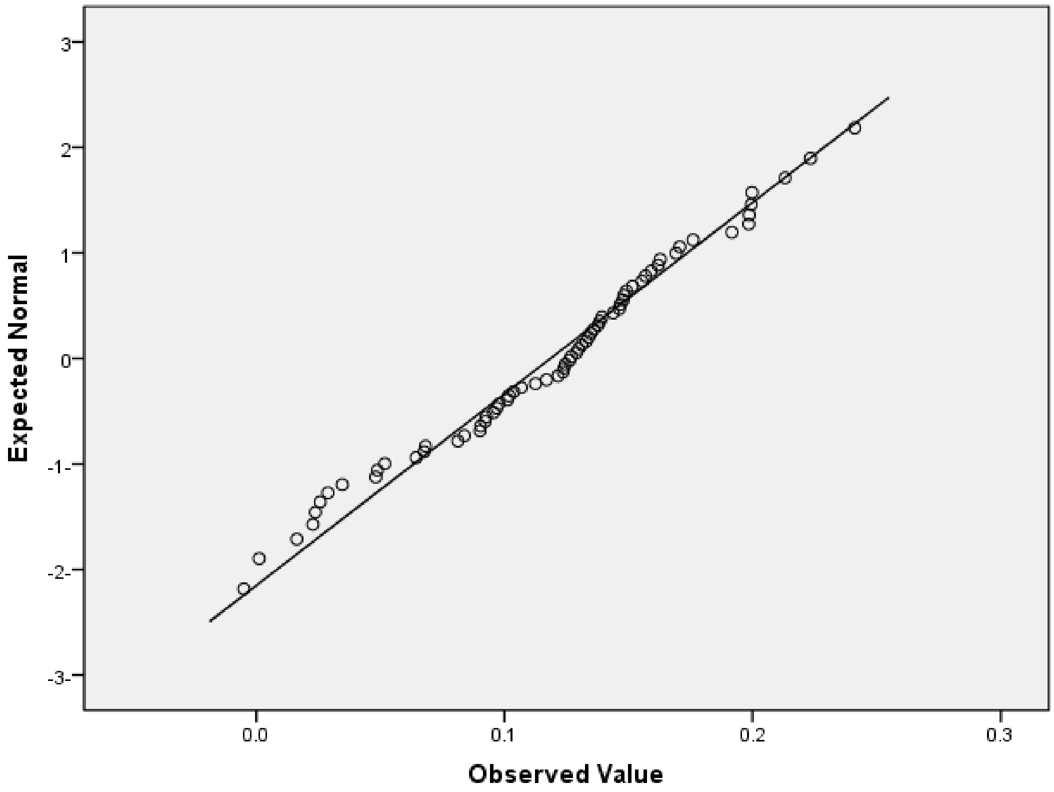


Figure (9): normal Q-Q plot of the EQL ratio of the Islamic banks

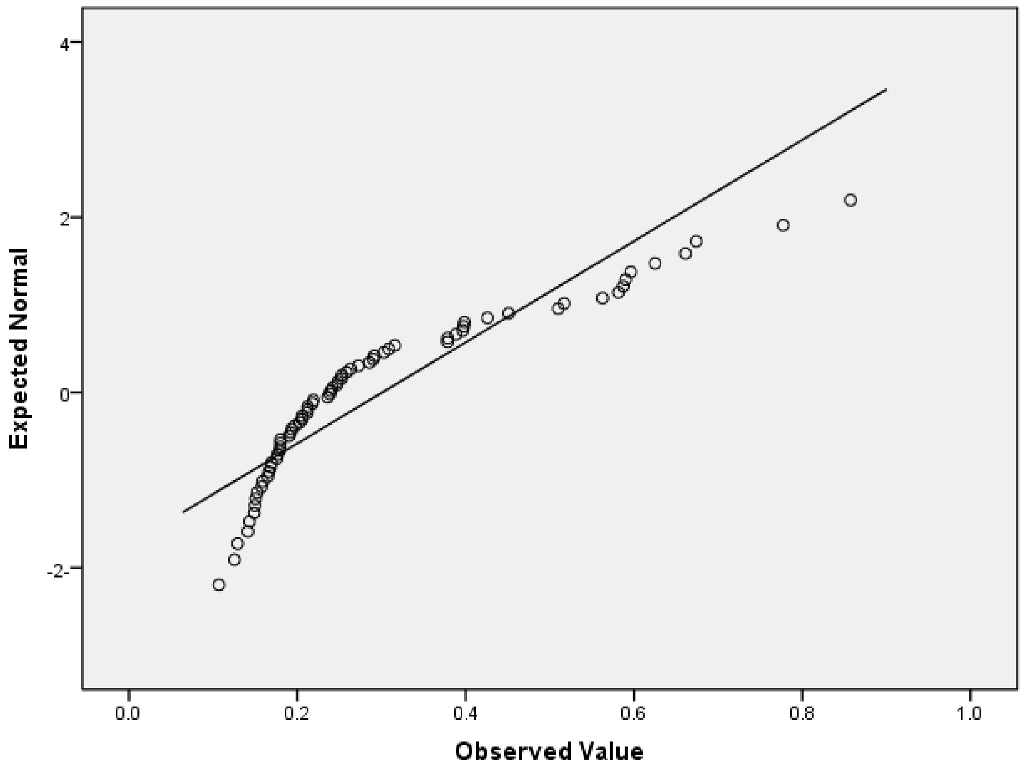
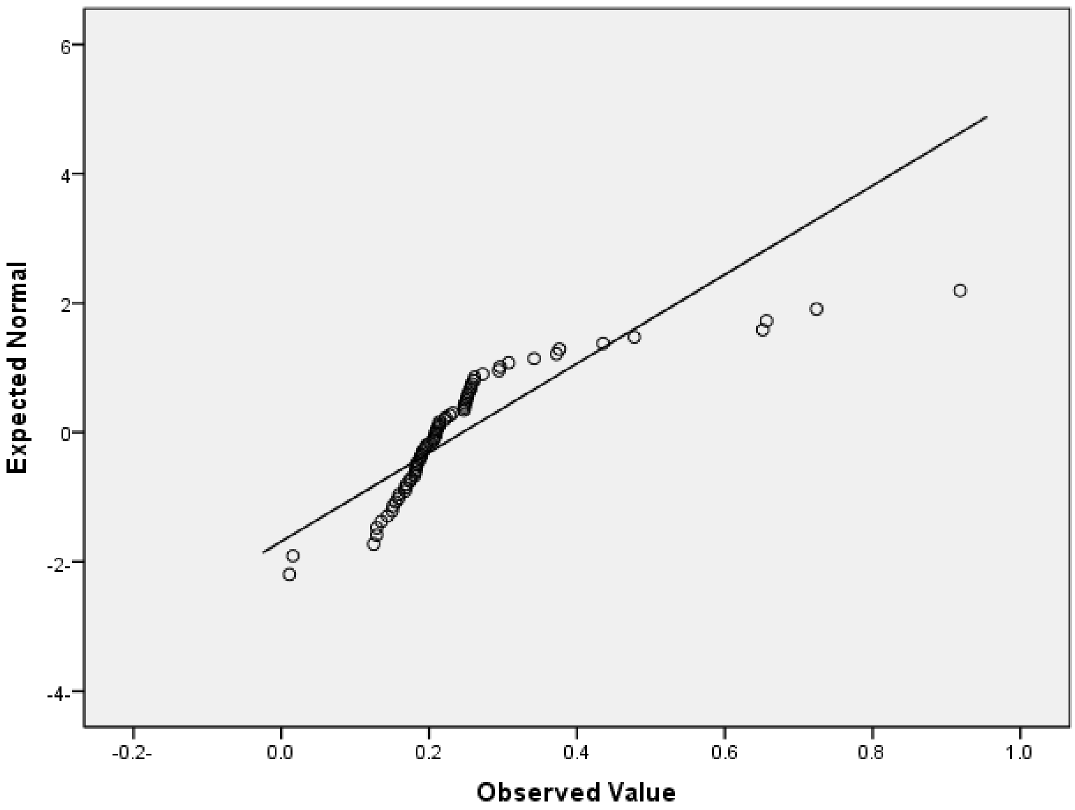


Figure (10): normal Q-Q plot of the EQL ratio of the conventional banks



4.4.7. Regression analysis:

The regression was run on Islamic banks and conventional banks separately moreover the regression in each bank type was conducted on the ROA and the ROE ratios as dependent variables separately.

The Islamic banks ratios output from the regression analysis with the ROA as a dependent variable give the result that the EQTA ratio (0.960) had a significant and positive relationship with the ROA ratio of Islamic banks in the GCCs but with the ROE ratio the EQTA ratio (0.542) has a negative and significant relationship in the Islamic banks in the GCCs this is an indication that if the Islamic bank had a higher capability to cover their assets losses it will effect positively on the bank ability to generate profit from their own assets but not for their equity as it will have a negative effect on it. However the NPLGL ratio had insignificant and negative relationship with both the ROA and ROE ratios in the Islamic banks in the GCCs which means that Islamic banks in the GCCs ability to generate profit from both their assets and their equity is not affected with the bank higher percentage of bad loans.

Table (11): regression analysis on Islamic banks ROA as independent variable

Model		B	Std. Error	t	Sig.
1	(Constant)	.000	.010	.018	.986
	NPLGL	-.009-	.003	-2.881-	.005
	EQTA	.000	.006	-.051-	.960

Table (12): regression analysis on Islamic banks ROE as independent variable

Model		B	Std. Error	t	Sig.
1	(Constant)	-.012-	.064	-.186-	.853
	NPLGL	-.040-	.020	-1.985-	.051
	EQTA	-.024-	.038	-.614-	.542

Figure (11): histogram of the regression analysis on Islamic banks ROA as independent variable

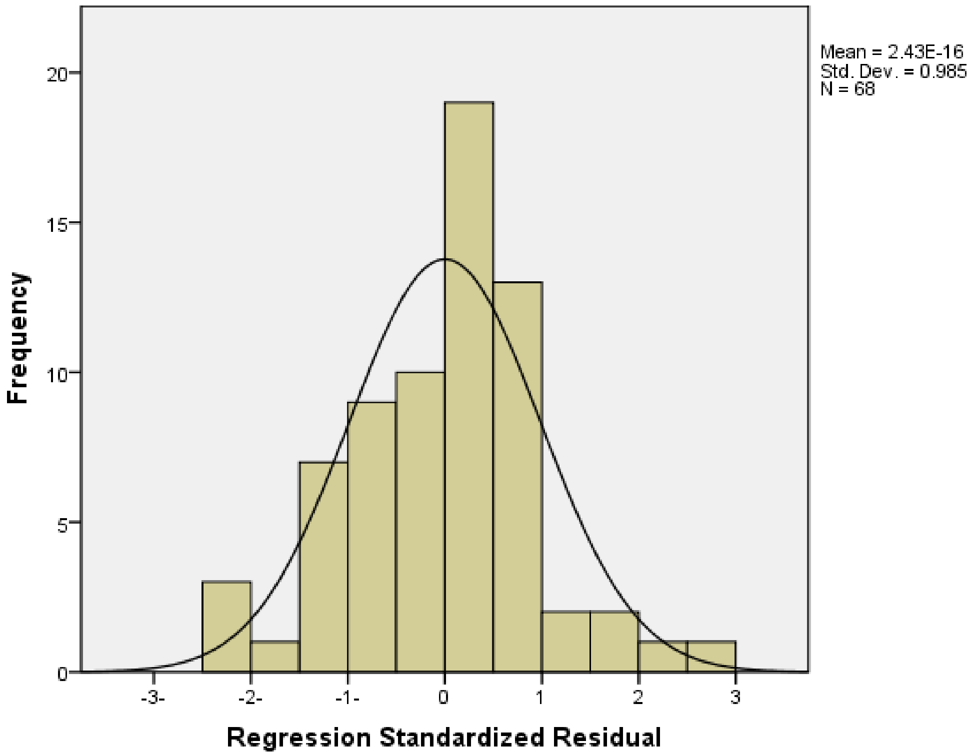


Figure (12): histogram of the regression analysis on Islamic banks ROE as independent variable

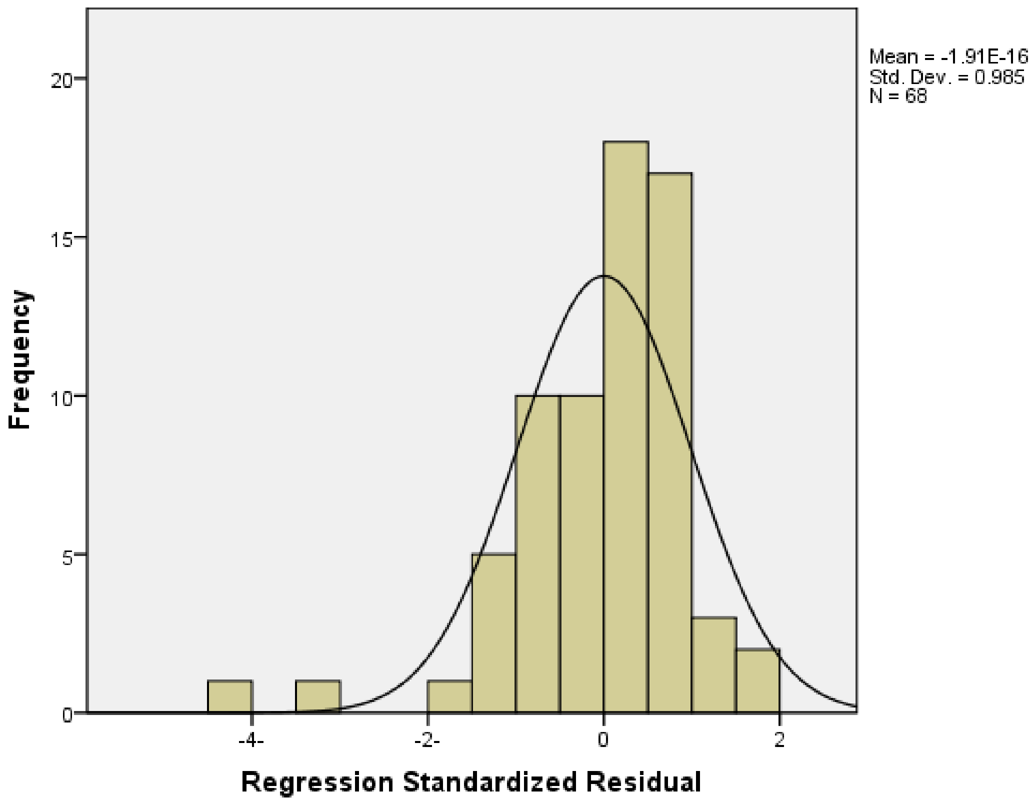


Figure (13): normal P-P plot of the regression analysis on Islamic banks ROA as independent variable

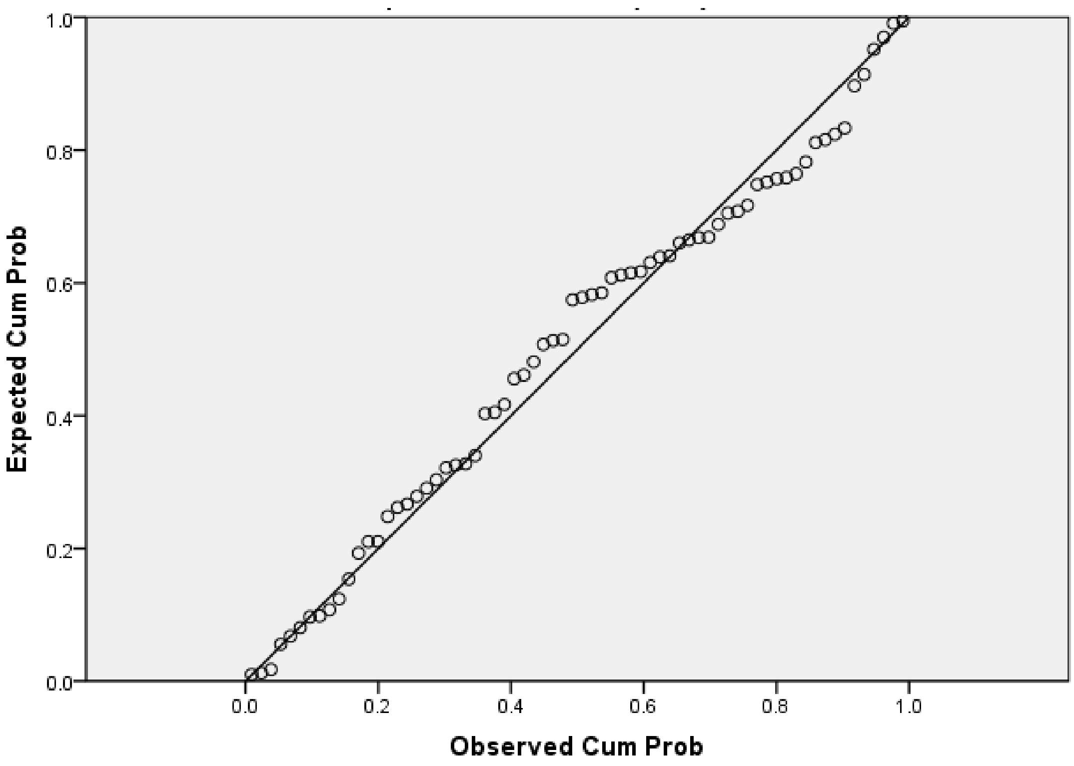


Figure (14): normal P-P plot of the regression analysis on Islamic banks ROE as independent variable

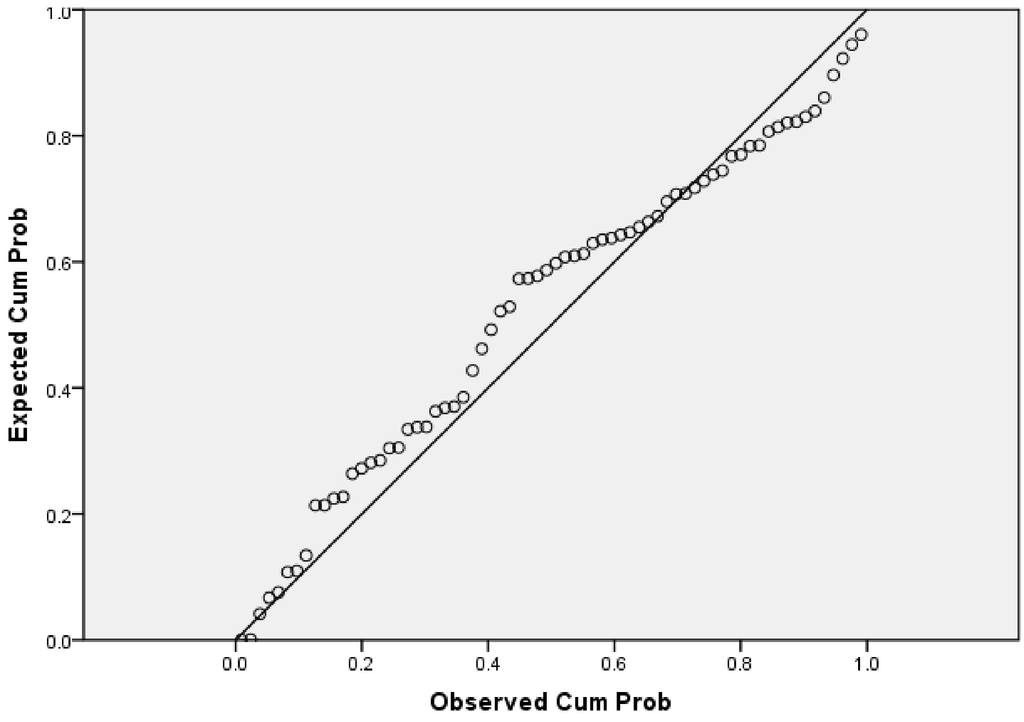


Figure (15): scatterplot of the regression analysis on Islamic banks ROA as independent variable

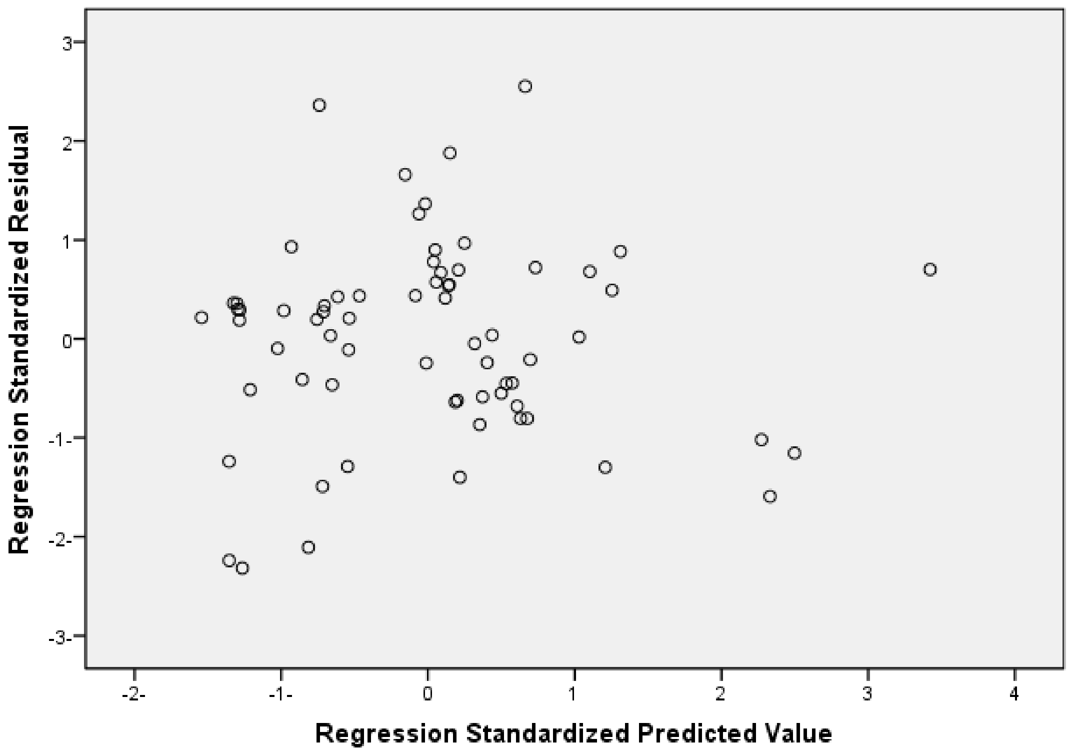
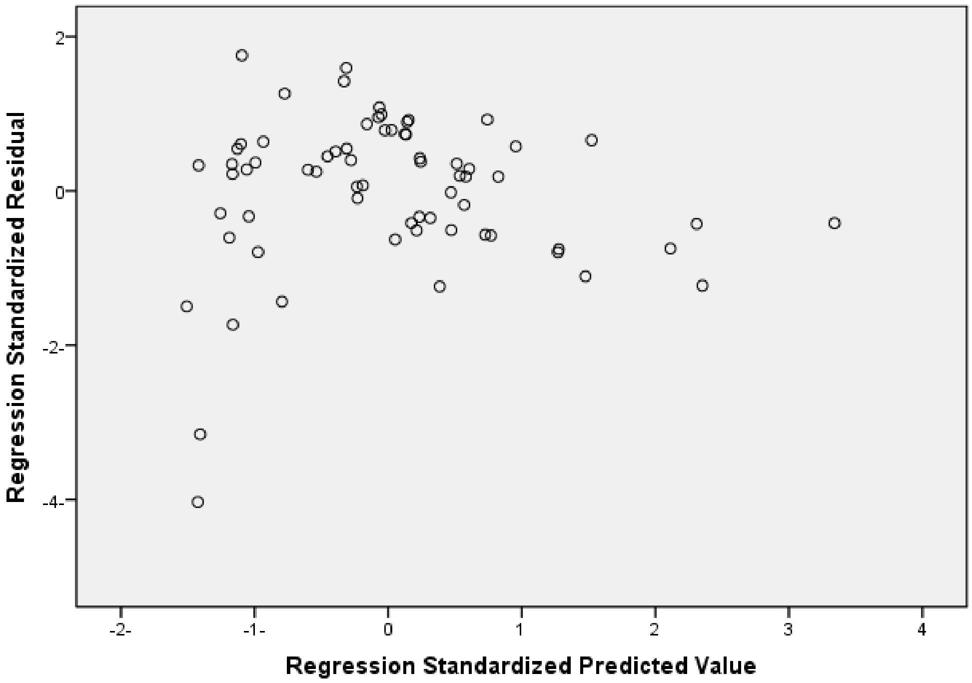


Figure (16): scatterplot of the regression analysis on Islamic banks ROE as independent variable



In the conventional banks regression analysis result the ROA and the ROE ratios had a significant negative relationship with the EQTA ratio which means that for the conventional banks of the GCCs to be able to generate profit from their assets and equity they need to have a good capacity to cover their assets losses. However, the NPLGL had a negative significant relationship with the ROA and a positive significant relationship with the ROE ratios therefore for the conventional banks of the GCCs if they had good performance of the credit portfolio it will be able to generate profit from their equity but not from their assets.

Table (13): regression analysis on conventional banks ROA as independent variable

Model		B	Std. Error	t	Sig.
1	(Constant)	.009	.005	1.671	.100
	NPLGL	-.003-	.002	-1.946-	.056
	EQTA	-.002-	.003	-.759-	.451

Table (14): regression analysis on conventional banks ROE as independent variable

Model		B	Std. Error	t	Sig.
1	(Constant)	.115	.039	2.951	.004
	NPLGL	.007	.011	.593	.556
	EQTA	-.012-	.021	-.580-	.564

Figure (17): histogram of the regression analysis on conventional banks ROA as independent variable

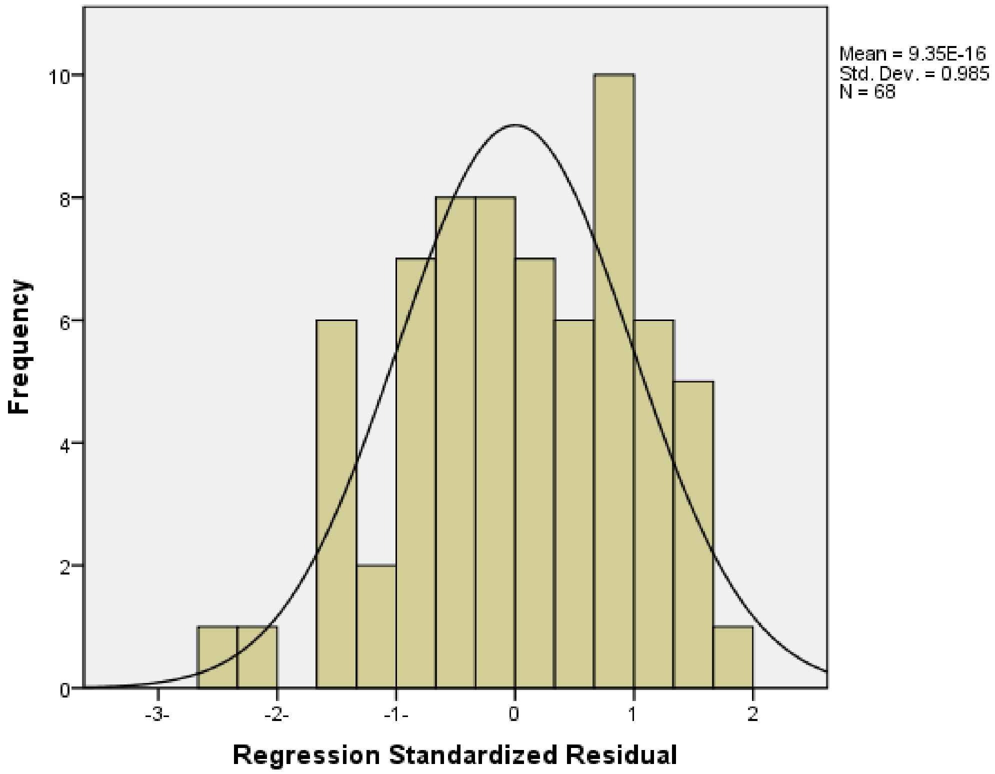


Figure (18): histogram of the regression analysis on conventional banks ROE as independent variable

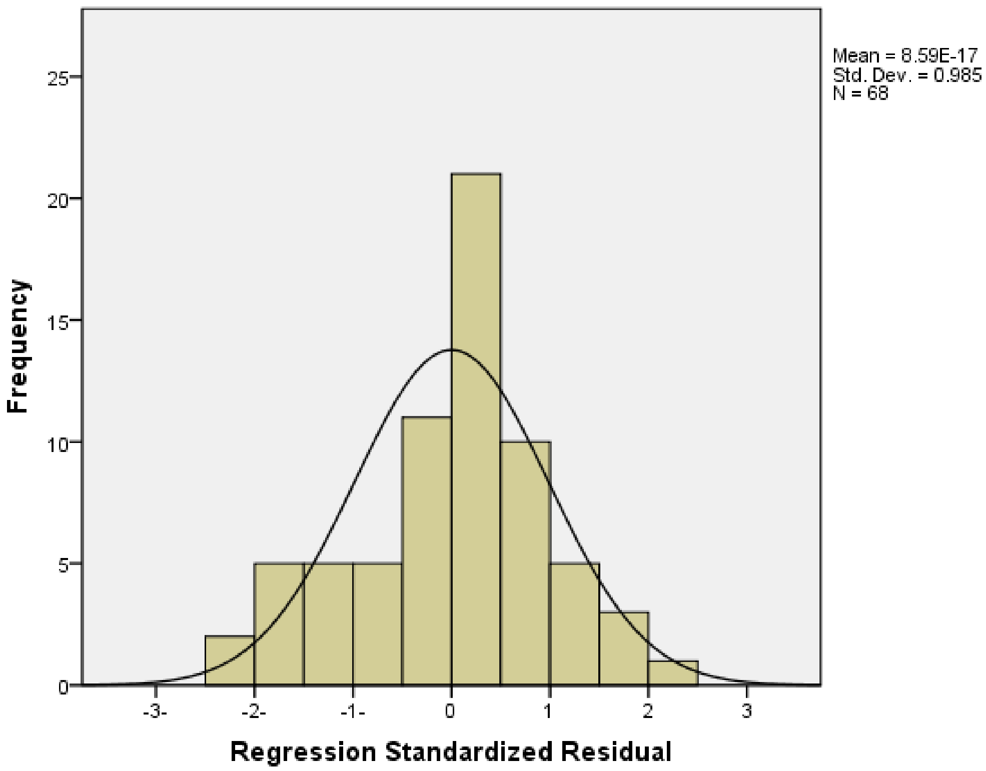


Figure (19): normal P-P plot of the regression analysis on conventional banks ROA as independent variable

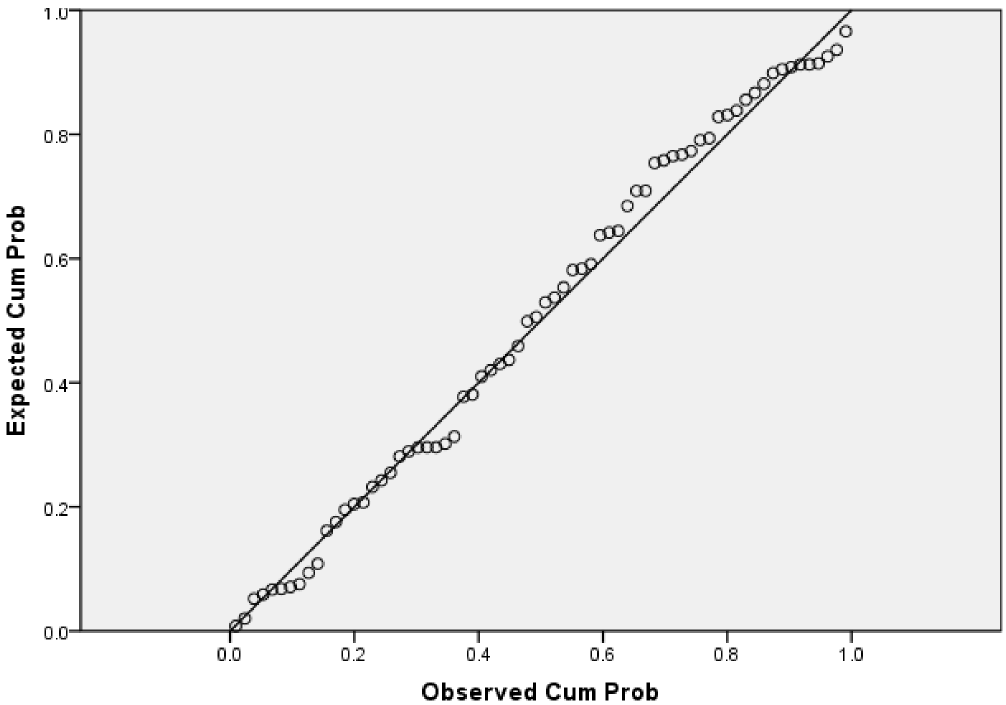


Figure (20): normal P-P plot of the regression analysis on conventional banks ROE as independent variable

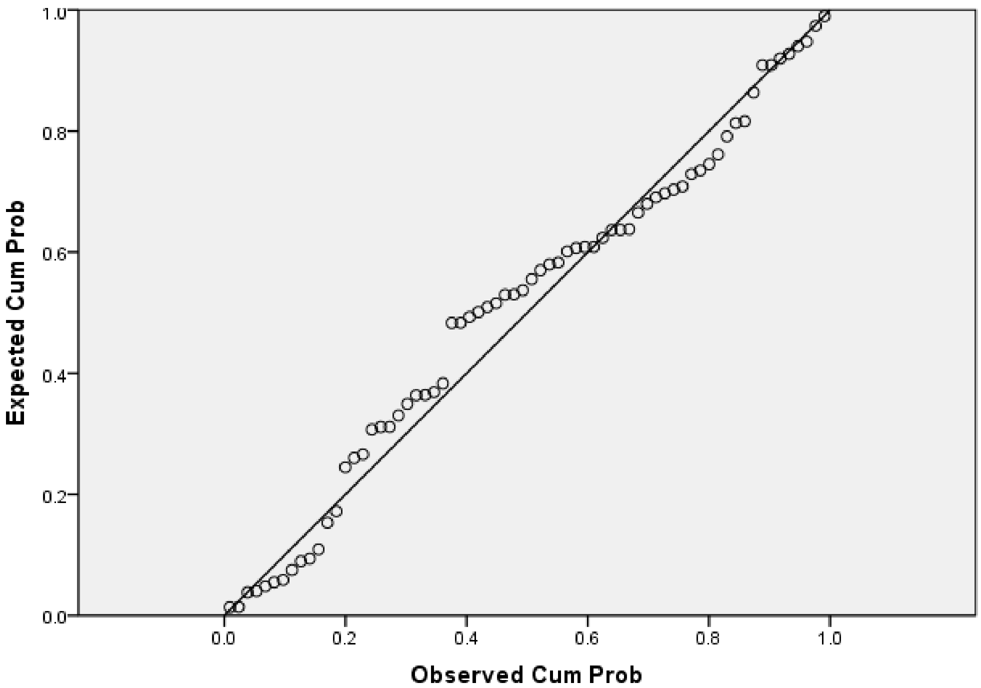


Figure (21): scatterplot of the regression analysis on conventional banks ROA as independent variable

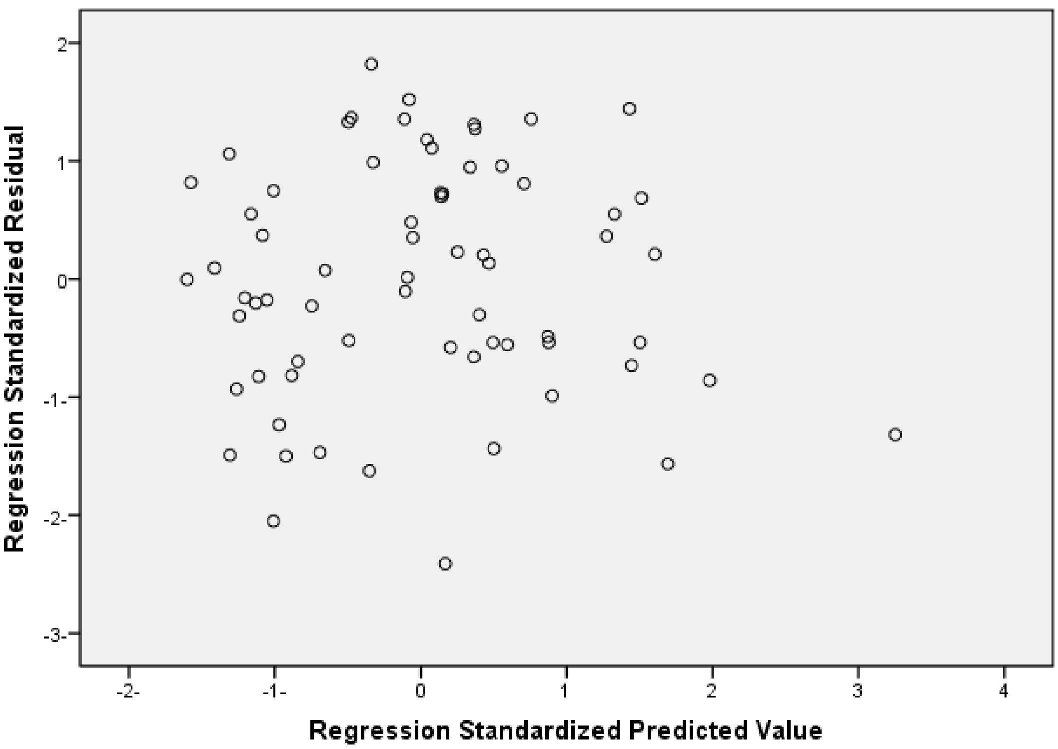
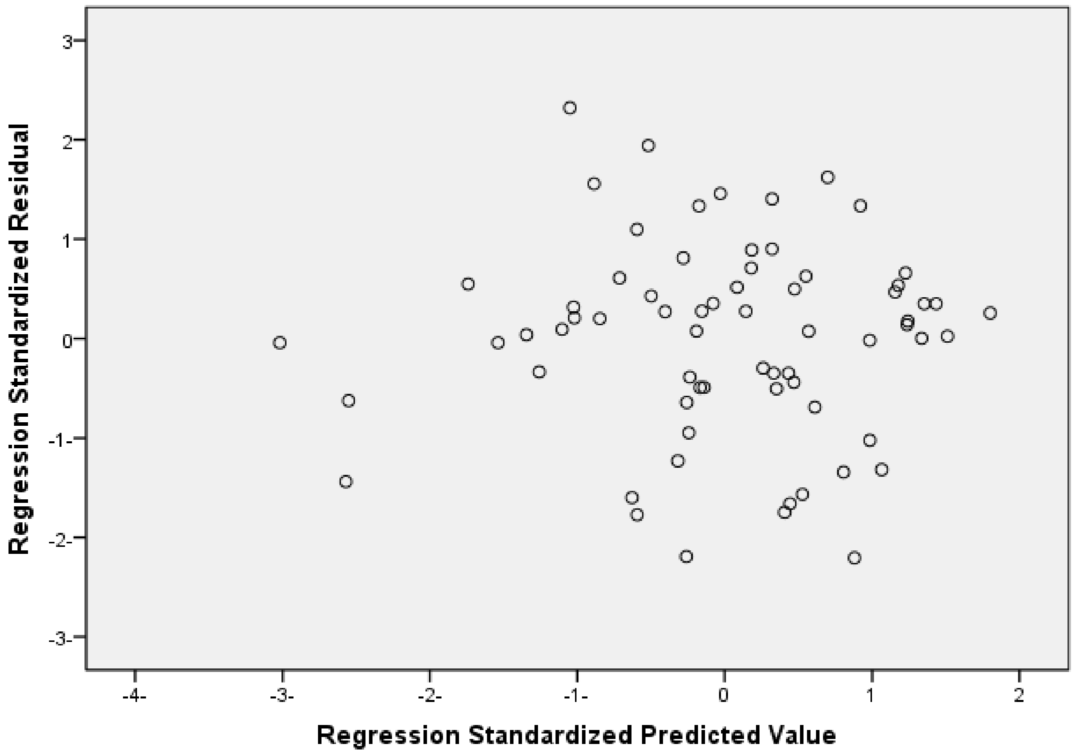


Figure (22): scatterplot of the regression analysis on conventional banks ROE as independent variable



Chapter 5: conclusion and recommendation

5.1. Introduction:

In this chapter a summary of the finding of the dissertation will be presented and the objective and aim of the study will be answered according to it. In addition the recommendations for the banks in the GCCs region to improve their credit risk management and to increase their profitability. Finally, suggestions of various topics to other researchers to conduct that can also increase the literature of the GCCs banking sector.

5.2. Summary:

In this dissertation study the aim was to answer the following question:

Do Islamic banks have more efficient credit risk management techniques than the conventional banks?

Therefore, three objective were designed to provide an answer for the previous question which are:

1- To compare credit risk management techniques between Islamic and conventional banks.

2- To compare the profitability between Islamic and conventional banks.

3- To check the relationship between credit risk management and profitable in Islamic and conventional banks.

To be able to reach the first and second objectives of the study, five financial ratios were calculated on ten Islamic banks and ten conventional banks from the period of 2007 till 2013 and a comparative between the Islamic and conventional banks in the yearly average of each ratios and the total period was conducted in addition to a descriptive statistical analysis of each bank type separately was presented, both approaches give the results that Islamic banks had better credit risk management and that they were more profitable than conventional banks in the GCCs countries. However, the Islamic banks were found to have a large ratio of their loans that were concerned as non-performing loans (bad loans). Afterward, a Man-Whitney U test was run on the ratios to examine the significant of the differences between the Islamic and conventional banks in which the only the difference in the banks' ability to cover their assets losses is significant which the Islamic banks had the higher ratios in it through the period.

The last objective of the dissertation was examined by running a regression analysis on the each of the Islamic and conventional banks. The analysis have resulted that in Islamic banks the ability to cover the assets loses had a positive and significant relationship with the profit generated from the assets however with the profit generated for the equity it had a negative and significant relationship. In the contrary, the conventional banks had a positive and significant relationship between the profit generated from the assets and the equity with the bank ability to cover their assets losses.

Moreover, the ratio of the non-performing loans from the total loans in the Islamic banks had an insignificant relationship with the banks profit. But the conventional banks had a significant relationship between the non-performing loans and the profit however the relationship was negative with the profit generated from the assets and positive with the profit generated from the equity.

5.3. Recommendation:

On the light of the result of the methodology for the Islamic banks to establish there grounds more firmly in the GCCs they must improve the following:

- Maintaining their good capability in covering their assets loans by utilizing their assets to generate more profit.

However, the conventional banks in the GCCs need to pay more attention to the following:

- Improving their ability to cover their assets loans by increasing their common equity to their total assets.

5.4. Limitation of the study:

One of the limitation was the fact that Islamic banks are new in the financial field which led to a limited number of years to be included in the data range when it is compared to conventional banks.

Moreover, some banks official website had a limited number of annual reports of both types of banks, which it did not start from the bank establishing year, which also limited the number of years to be included in the study .

Also, a major obstacle was confronted when choosing the conventional banks in the GCCs as most of the conventional banks in the GCC countries have introduced Islamic windows within their offered services with the intention to reach to all investors in the GCC countries which may influence negatively on the study results as if the conventional banks have been resulted to have higher profitability or less credit risk it may be that their Islamic windows have effected them to reach to this position.

That's way the conventional banks were chosen based on the following:

- BANQUE SAUDI FRANSI was the only conventional banks chosen from kingdom of Saudi Arabia as there were no income from the Islamic windows offered by the bank in their income statement through the years from 2007 till 2013.
- NATIONAL BANK OF OMAN was the only bank chosen from sultanate of Oman due to the fact that most banks in the country have added Islamic windows in their services however, this bank Islamic window start in January of 2013 and it generated an income at the end of the year of RO 228 which represent 0.5% from the bank income therefor, the Islamic contribution to the total income of the bank can be neglected.
- FIRST GULF BANK was the only bank from United Arab Emirates selected due to the fact that their Islamic window contribution to the total income is in a range from 3% to 6% of the total income of the banks during the years from 2007 till 2013.
- Four banks were selected from Qatar with the 2011 Qatari law that declares that conventional banks obliged to terminate their Islamic window and to not engage in any Islamic banking activities all bank have complained with the law and terminated their Islamic windows and before the law declaration all of the four Islamic banks windows income was insignificant to the total income of the bank with a percentage range from 3% to 7%.

5.5. Further research topic:

One of the aspect which was encountered in the study was the fact that conventional banks started to establish Islamic windows within their services therefore, a research can be done on the conventional banks profitability before and after the introduction of the Islamic windows.

Also, a case study can be done on the Qatari banks that had Islamic windows and had to terminate it to commit with the 2011 law of prohibiting conventional banks to establish Islamic windows.

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