"CREDIT RISK MEASURMENT IN ISLAMIC BANKING"
A Case Study of Dubai Islamic Bank and Abu Dhabi Islamic Bank during the period (2008-2012)

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Abstract:

The aim of this study is to identify and measure the credit risk that Islamic banks may face. We selected two Islamic banks, Dubai Islamic Bank and Abu Dhabi Islamic Bank, as a sample of the study during the period 2008-2012. We focused on several aspects of these risks and studied nature and then mentioned some practices and measures used by these banks and in line with the principles of Islamic law to address these risks and management and to mitigate their effects.

Keywords: *Credit risk, Islamic banks, Credit risk measurement.*

الملخص:

الهدف من هذه الدراسة هو معرفة وقياس مخاطر الائتمان التي قد تواجه البنوك الإسلامية، لذلك اخترنا اثنين من البنوك الإسلامية هما: بنك دبي الإسلامي وبنك أبوظبي الإسلامي كعينة للدراسة وذلك خلال الفترة (2008-2012)، حيث ركزنا على عدة جوانب تتعلق بهذه المخاطر ودرسنا طبيعتها ثم ذكرنا بعض الممارسات والتدابير التي يستخدمها هذين البنكين والتي تتماشى مع مبادئ الشريعة الإسلامية لمواجهة هذه المخاطر وإدارتها وكذا للتخفيف من آثارها.

الكلمات المفتاحية: مخاطر الائتمان، المصارف الإسلامية، قياس مخاطر الائتمان.

Introduction

Islamic banking is considered to be one of the most important achievements of Islamic economics and one of its basic pillars. It has proved itself and has become a rival to conventional banks. Despite its recent history, Islamic banking has been expanding and growing widely in different countries and that is because of its nature and objectives which differ from those of conventional banks. Islamic banks operate in accordance with the principles of noble Islamic Shari'ah (Islamic law) in all its businesses, which means interest-free deals, commitment to Halal (permissible under Shari'ah), commitment to Zakat (almsgiving) and other principles of Shari'ah, otherwise it loses its purpose in the event of failure to commit to those principles. One of the most important roles played by these banks are pumping their funds through different investment channels, relying on the use of those funds with a set of methods and tools derived from Islamic Fiqh (Islamic jurisprudence), which are primarily based on the concept of Musharaka (Venture Capital) and Buyu' (sales).

Another role of Islamic banks is investing their financial resources in various activities, because with any activity comes risks and chances of success or failure which are difficult to predict accurately. Credit risk is one of the types of risks that are common with its conventional counterpart, and its future will depend on how it will manage these risks through its continuing search to find appropriate ways and methods which meet the rules of Islamic Shari'ah, so The problem of this study is:

What are methods to mitigate the credit risk in Islamic Banks?

Under this main question we can ask the following sub-questions:

- What is the nature of credit risk in Islamic Banks?
- How to analyze credit risk in Dubai Islamic Bank (DIB) and Abu Dhabi Islamic Bank (ADB)?
- What are methods to mitigate this risk in these banks ?

Divisions of the study :

We divided this study into two parts:

1-The analysis of credit risk in the Dubai Islamic Bank (DIB) and Abu Dhabi Islamic Bank (DIB);

2- Credit risk mitigation techniques in DIB and ADIB.

1. The analysis of credit risk in the Dubai Islamic Bank and Abu Dhabi Islamic Bank

1-1-The concept of credit risk in Banks:

Credit risk can be defined as the potential that a contractual party will fail to meet its obligations in accordance with the agreed terms. Credit risk is also variously referred to as **default risk**, **performance risk** or **counterparty risk**. These all fundamentally refer to the same thing: the impact of credit effects on a firm's transactions[1].

In banking, risk is the potentiality that both the expected and unexpected events may have an adverse impact on the bank' s capital or earnings[2]. Moreover, the credit risk is the most dominant source of risks in an Islamic Bank as in conventional banks, and it is usually argued that Islamic Banks faces higher credit risk, than their conventional counterparties[3].

1-2-Definition of banks under study:

- *Dubai Islamic Bank (DIB)*: The bank is the first Islamic banking institution in the Arab Gulf region. It was founded in 1975; DIB offers many Islamic banking services and products that are considered as alternatives for conventional banking services.

- *Abu Dhabi Islamic Bank (ADIB)*: The bank was established in 1997 and began providing services after a year of its establishment, and was officially opened in 1999.

1-3-Capital Adequacy Ratio (CAR) of both banks

The CAR of each bank is calculated in accordance with the recommendations of the Basel Committee and based on the instructions of the Central Bank of the United Arab Emirates. This ratio is used as a

1 Brown Ken, Moles Peter, **Credit Risk Management,** Edinburgh Business School, Heriot-Watt University, United Kingdom, 2008, P1.

2 Arunkumar, Rekha and Kotreshwar, G., Risk Management in Commercial Banks (A Case Study of Public and Private Sector Banks). Indian Institute of Capital Markets 9th Capital Markets Conference Paper, P8. Available at SSRN: https://ssrn.com/abstract=877812.

3 Boumediene, Aniss, Is Credit Risk Really Higher in Islamic Banks? (October 9, 2010), P15.Available at SSRN: https://ssrn.com/abstract=1689885.

measure of a bank's solvency i.e. security and insurance provided by capital to absorb the losses. It can be listed as follows:

***1-3-1-DIB's CAR*:** The table below shows DIB's CAR growth during the period 2008-2012 according to Basel 2 and the U.A.E. Central Bank requirements. It can be summarized as follows [4]:

Table (01): The growth of DIB's CAR (%)					
Year	**2008**	**2009**	**2010**	**2011**	**2012**
Ratio	13.1	17.5	17.8	18.2	17.4

Source: *prepared by the researchers based on the annual financial statements of the bank for the period 2008-2012.*

We see that the bank's CAR level is on the increase and it has reached its highest level in 2011 by 18.20%, while the lowest level was in 2008, by a ratio of 13.1%. This is low compared to other years for the period under study. We also see that the CAR levels are greater than the minimum ratio specified by the Central Bank of the UAE, which requires banks to maintain a CAR of at least 10%. This was before 2010, where the bank increased this ratio and made it 12% to be applied starting from June 2010.

***1-3-2-ADIB's CAR*:** The following table shows ADIB's CARs from 2008 to 2012. The ratios are calculated in accordance with Basel requirements and the guidelines developed by the U.A.E. Central Bank. It can be identified as follows [5]:

Table (02): the growth of ADIB's CAR (%)					
Year	**2008**	**2009**	**2010**	**2011**	**2012**
Ratio	11.64	16.96	16.03	17.39	21.42

Source: *prepared by the researchers based on the annual financial statements of the bank for the period 2008-2012.*

After calculating ADIB's CARs in the table above, we see the following: A decrease of 11.64% in the Bank's CAR in 2008, compared to the other years, which has seen a significant increase reaching a peak of 21.42% in

4 The annual financial statements of ***Dubai Islamic Bank*** *(DIB)* for the period (2008-2012).

5 The annual financial statements of ***Abu Dhabi Islamic Bank*** *(ADIB)* for the period (2008-2012).

2012. It is seen that the CARs of the years under study, has exceeded and far surpassed the minimum ratio required by the Central Bank of UAE, which is 12% starting from 2010.

At last, we deduce from the previous argument that the CARs of the two banks during the studied period, was greater than the ratio recommended by the Basel Committee, which is 8%. This means that both banks have good financial solvency because the capital is the most effective of resources for risk protection. The rate difference from one year to another, either upward or downward is due to change of method used in the calculation, because these banks operate in accordance with the guidelines and instructions of the supervisory authority of the state – UAE Central Bank-. This body imposes new laws that preserve the stability of the banking sector, such as implementing the recommendations of the Basel Committee on Banking Supervision, through making a budget when applying Basel 1 and Basel 2 standards, although they are currently implementing the Basel 2 standard.

1-4-Identifying and analyzing credit risk in the two banks

Based on the contained disclosure of the credit risk in the consolidated financial statements of both banks for the years of the studied period, it could be adopted to identify the risk and analyze it as follows:

***1-4-1-Identification and analysis of credit risk in DIB*:**

The bank shows the maximum credit risk which could be exposed to when investing its funds in different areas as follows[6]:

-Maximum exposure to credit risk:

Table (03): The maximum exposure to credit risk in DIB (Unit: Thousand Dirhams[7])

6 The consolidated financial statements of ***Dubai Islamic Bank*** for the period (2008-2012).

7 Dirham is the basic unit of the United Arab Emirates currency. The Dirham is subdivided into 100 Fulus issued by the UAE Central Bank. The UAE Dirham is pegged to the U.S. dollar at a price of 3.67 Dirhams per one dollar. The price is almost constant and there is no restriction on ATMs and currency exchange. The UAE Dirham was first time introduced on May 19, 1973. It replaced Bahraini Dinar and Qatar and Dubai Riyal.

Statement	Years				
	2008	2009	2010	2011	2012
Balances with central banks	5035257	10120397	9872471	11457902	13741965
Balances and deposits with other banks and financial institutions	1840978	2557258	2356531	3043096	3169114
International Murabahat – short term	1640601	-	-	-	-
Islamic financing and investing assets	53904212	51873243	60128141	55015923	59259525
Investments in Islamic Sukuk	11226246	9290797	8200476	12688111	11088662
Other investments	2147128	1925950	1772946	2034389	2144871
Receivables and other assets	1646978	1456394	2076143	3470764	3386029
Contingent liabilities and commitments	44050589	25638030	24266184	18665849	20423795
Total	121491989	102862069	108672883	106376035	113213961

***Source**: prepared by the researchers based on the consolidated financial statements of the bank for the period 2008-2012.*

The table above shows in general the maximum extent the bank can be exposed to credit risk associated with its assets, listing the balance sheet elements subject to this type of risk. It consists of elements within the budget expressed in diverse financial assets like balances with other financial institutions, Islamic financing and investing assets and other elements that are direct credit facilities offered by the bank. On the other hand, other elements appear under contingent liabilities and commitments, where the bank is a party outside the statement of financial position, including letters of credit, acceptances ... etc.

Through what is stated in the previous table, we notice the following:

(A) The ceilings are a total amount of assets subject to credit risk, included in the notes of the consolidated financial statements of the bank for the studied period.

(B) The total exposure to credit risk related to components of the budget varies from one year to another. The highest level of exposure to credit risk was in 2008. Then it began to decrease and increase gradually

in the following years of the studied period, where the amount and the rate of change of the total exposure to credit risk through these years can be identified as follows:

Table (04): the rate of change of the total exposure to credit risk for the period 2008-2012 (Unit: Thousand Dirhams)

Statement	Years				
	2008	2009	2010	2011	2012
Total exposure to credit risk	121491989	102862069	108672883	106376035	113213961
Amount of change	-	-18629920	5810814	-2296848	6837926
Rate of change (%)	-	15.33	5.64	2.11	6.42

***Source**: prepared by the researchers based on the consolidated financial statements of the bank for the period 2008-2012.*

Through the table (04), which shows the amount of change to the total exposure to credit risk from one year to another of DIB, we notice that the maximum has decreased in 2009 compared to the previous year. The estimated ratio of decrease was 15.33%, and then it increased in 2010 by 5.64 % compared to 2009. The same happened in 2011 and 2012, where it witnessed a decrease and increase respectively. The reason for the fluctuation of the bank's total maximum exposure to credit risk from a year to another may be explained by a number of factors, which can be classified into positive impact factors through the decrease of maximum. This indicates low credit risk exposure, and other factors that had a negative impact. We explain it generally as follows:

A) According to the bank's policy in place from time to time, there is either an expansion or a restraint to provide financing to its customers depending on Islamic financial products which are more vulnerable to credit risk. What is seen is that more funding for the bank is based on the Islamic financing and investment assets, i.e. Murabaha, Mudaraba, Musharaka ... etc.

B) The bank's size has increased through opening new branches. 64 branches were opened in 2009, which increases the degree of complexity and sophistication in financing and investing activities.

C) The degree of concentration: The more the bank increases the diversification of the credit portfolio according to either customers or geographic areas or sectors, the more it is a mitigating risk factor.

D) The availability of human and technical efficiency at the bank to study the necessary feasibility related to the client. Through identifying its financial ability and the performance of its work successfully in light of the financial difficulties and the circumstances surrounding its activity and the sector to which it belongs, and its capability to generate sufficient cash flow which enables it to fulfill its commitments.

E) The extent of the bank to follow the directives and instructions of the Central Bank and the respect of the limits specified by the bank that are in line with its nature.

***-Credit risk measurement*:**

The bank uses a variety of methods to measure credit risk, including a simplified method based on internal assessment, which determines the credit quality of each class of financial assets. On one hand there are non impaired exposures that include amounts of overdue assets by a few days, as well as impaired and fair risks, on the other hand impaired exposures[8], which include the amounts of doubtful assets.

There is a range of financial banking ratios adopted by the banking analysts to measure credit risk, including the percentage by which to measure the efficiency of the bank assets and the failure of credit as a percentage of the total credit portfolio, i.e., the total impaired amounts to the total direct credit facilities, where the higher are those, there is a greater risk to the bank. They are calculated according to the equation below:

Bad debts ratio = Non-performing credit facilities / Total credit facilities

It can be called the "bad debts" ratio to the total direct credit facilities, because the facilities of contingent liabilities and commitments are of fair risk and they are not impaired or overdue. This ratio

8 Impaired amounts (non-performing credit facilities) means: Amounts of customer defaults i.e. there is doubt about the customer's ability to meet payment obligations to the bank in accordance with the original contractual terms. Thus, the bank reschedules it and studies the possibility of collecting it in the future.

calculation values can be determined depending on the consolidated financial statements of the bank during the period under study as follows:

Table (05): Analysis of the efficiency ratio of credit portfolio assets of DIB (Unit: Thousand Dirhams)

Statement	Years				
	2008	2009	2010	2011	2012
Non-performing credit facilities	2496495	3260646	5077905	8118950	7413513
Total credit facilities	77441400	77251382	84406699	87662548	92790166
Ratio (%)	03.2	04.2	06.2	09.2	07.9

***Source**: prepared by the researchers based on the consolidated financial statements of the bank for the period 2008-2012.*

We see from the above table that the ratio of non-performing credit facilities (bad debts) –which the bank defines it as the impaired amounts of its total granted funds- continues to increase from 2008 to 2011 and then decreases in 2012. The results of the table show the ratio increased from 3.2% in 2008 to 9.2% in 2011, and then decreased to 7.9% in 2012. The ratio increase can be explained as a result of increased bad debts from 2008 to 2011 and the decrease in 2012. The facilities reaching stumble stage indicates a defect at one part of the credit process, or both. Since the bank and the client are working under surrounding external environment, changes that occur in this environment enters a third party among parties causing stumble, such as Dubai's debt crisis in 2009 and the extension of its impact on the banks operating in the state and DIB's credit rating downgrade. As for the cause of bad debts decrease, it can be explained by the beginning of recovery of Emirate of Dubai from the crisis that occurred in 2009, as well as the bank's accession to citizens' distressed-debt fund, through an agreement to settle customers' distressed-debts. The basis of this initiative was the UAE government and its efforts to help the defaulters in order to achieve the welfare of the community. This contributed to a slight decrease in bad debts which is better than it was, and in order to minimize losses resulting from non-payment, where the bank holds part of its profits as provisions to face the decrease of direct credit facilities (elements within the budget) and thus covering the non-performing credit facilities. This ratio can be calculated according to the equation below:

Provisions ratio = Provision for credit losses / Total direct credit facilities

This ratio was calculated based on the consolidated financial statements of the bank during the period under study, where the higher is the ratio, the more it is hedged. Decrease of risk degree associated with it can be summarized as follows:

Table (06): Analysis of provisions ratio credit facilities decrease of DIB (Unit: Thousand Dirhams)

Statement	Years				
	2008	2009	2010	2011	2012
Provision for credit losses	1284393	1979570	2957074	4030074	4 271038
Total credit facilities	77441400	77251382	84406699	87662548	92790166
Ratio (%)	0.016	0.025	0.035	0.045	0.046

***Source**: prepared by the researchers based on the consolidated financial statements of the bank for the period 2008-2012.*

We see from the above table that the provisions of credit losses to the total credit facilities have gradually increased during the studied period. In 2008, the ratio was 1.6%, and that is the lowest ratio compared to the following years. In 2011, it reached a ratio of 4.5%, and the ratio increase varies from period to another. This indicates that the bank is suffering from increasing provisions which are deducted to face doubtful debts; in contrast, the bank has an increasing degree of hedging from losses of non-payment.

-Temporal analysis of overdue and non-impaired amounts

Bank has declared the past due but non-impaired financing facilities as follows:

Table (07): Temporal classification analysis for non-impaired overdue amounts of DIB (Unit: Thousand Dirhams)

Statement		Islamic financing and investing assets	Ratio (%)	Total arrears
Less than 30 days	2008	1437388	%51	1437388
	2009	1350921	%37	1350921
	2010	1127951	%24	1127951
	2011	1145235	%35	1145235

	2012	1924924	%36	1924924
From 31 days to 61 days and less than 90	**2008**	623960	%22	623960
	2009	905397	%25	905397
	2010	1304452	%27	1304452
	2011	877080	%27	877080
	2012	1460583	%27	1460583
More than 90 days	**2008**	755531	%27	755531
	2009	1377725	%38	1377725
	2010	2334608	%49	2334608
	2011	1270796	%39	1270796
	2012	1972207	%37	1972207
Total	**2008**	2816879	%100	2816879
	2009	3634043	%100	3634043
	2010	4767011	%100	4767011
	2011	3293111	%100	3293111
	2012	5357714	%100	5357714

***Source**: prepared by the researchers based on the figures in the financial statements of the bank and its subsequent notes for the period 2008-2012.*

Table (07) shows the temporal classification of overdue amounts, which is expressed as a classification of due or overdue amounts into groups depending on its duration of delay. The ratio of each period is calculated to the total arrears. This index ranges between 24% minimum for 2010 and 51% maximum for 2008 of the ratio of arrears, which represents less than 30 days. In contrast, 27% minimum for 2008 and 49% maximum for 2010 of those arrears are more than 90 days. This indicates the flexibility demonstrated by the bank towards the overdue financing facilities, where the delay applications are approved within the acceptable limits and likelihood of somewhat an acceptable risk.

1-4-2-Identification and analysis of credit risk of ADIB:

-The maximum credit risk:

The bank identifies the maximum credit risk to reduce and avoid exposure to potential losses which affect its status and performance. The Bank studies the risks that may be encountered such credit risk via a special section for that, where it determines the maximum of those risks that the bank may be exposed to. Based on what the bank has stated on

this type of risks in its consolidated financial statements for the years under study, this can be explained as follows[9]:

Table (08): Analysis of the maximum exposure to credit risk in ADIB for the period 2008-2012 (Unit: Thousand Dirhams)

Statement	Years				
	2008	2009	2010	2011	2012
Balances and Wakalat with other banks and financial institutions	1343237	2467919	2906382	2.515.371	4121480
Murabaha and Mudaraba with financial institutions	7553729	12376243	13013852	5346312	9884748
Murabaha and Islamic financing	18747940	22281045	24580111	25582698	25948237
Ijarah finincing	16019952	19943653	25649171	26258849	28346207
Investments	1522138	536658	1145746	1364811	3985324
Other assets	1940929	839902	372741	465368	456730
Contingent liabilities and commitments	19018897	12544839	10302354	12403028	11616244
Total	66146822	70990259	77970357	73936437	84358970

***Source**: prepared by the researchers based on the consolidated financial statements of ADIB for the period 2008-2012.*

The above table shows the maximum credit risk the bank can be exposed to when granting credit facilities. The listed figures reflect the amounts of budget components subject to credit risk. These are described in the notes of the consolidated financial statements of the bank for the studied period. What can be seen on the growth of the total exposure to credit risk during the years of the studied period is that the ceilings from year to another, at times they go up, other times they go down. The largest maximum exposure

9 The consolidated financial statements of ***Abu Dhabi Islamic Bank*** for the period (2008-2012) .

to credit risk was in 2012, compared to the rest of previous years. To determine the amount and the rate of change over the years, we show the following table:

Table (09): Rate of change of the total exposure to credit risk for the period 2008-2012 (Unit: Thousand Dirhams)

Statement	Years				
	2008	2009	2010	2011	2012
Total exposure to credit risk	66146822	70990259	77970357	73936437	84358970
Amount of change	-	4843437	6980098	4033920-	10422533
Rate of change (%)	-	%7.32	%9.83	%5.17	%14.09

Source: *prepared by the researchers based on figures listed in table (09) for the studied period.*

From table (09), which shows the amount of change in the total bank's exposure to credit risk from one year to another, we see that there is a decrease of 5.17% in the total exposure to credit risk in 2011, compared to the previous year, while in other years the increases were different, a ratio of 7.32% in 2009 compared to 2008, and a ratio of 9.83% in 2010 compared to 2009, but in 2012 the ratio stood at 14.09% compared to the decrease that occurred in 2011. The change in total exposure to credit risk from one year to another can be explained by several factors including:

(A) The Bank's focus on investing its resources through diverse Islamic financial instruments to meet the credit demands, especially by Murabaha and Islamic financing, as well as Ijarah financing.

(B) The strategy adopted by the bank in its credit decision-making, and to what extent it is willing to grant or not grant a certain credit.

(C) Case study of counterparty that requests the funding from various aspects in terms of the general and special circumstances surrounding it and its ability to manage its activities and pay its commitments.

(D) Time frame it takes for any financing facilities ranked by the temporal classification of the due amounts.

(F) Capacities owned by bank like qualified human resources and advanced equipment.

(E) Commitment to the standards and regulations set by the central bank.

In general these are some of the factors that can determine the amount of credit risk, which may be exposed by the bank when granting credit facilities.

-Credit risk measurement:

By using the same previous method, the credit risk of ADIB can be measured as follows:

Table (10): Analysis of the efficiency and quality of credit portfolio of ADIB (Unit: Thousand Dirhams)

Statement	Years				
	2008	2009	2010	2011	2012
Non-performing credit facilities	1458345	2860954	4066762	4742985	4687441
Total credit facilities	47127925	58445420	67668003	61533409	72742726
Ratio (%)	03.0	04.8	06.0	07.7	06.4

Source: *prepared by the researchers based on the consolidated financial statements of ADIB for the period 2008-2012*

From the previous table, we see that the ratio of non-performing credit facilities (bad debts) to the total credit facilities during the studied period, is going upward where the highest ratio was in 2011 at 7.7% compared to previous years. This high ratio indicates the likelihood of a bank credit risk increase, but it decreased in 2012 to 6.4%. The reason of the stumble can be explained as a result of the global financial crisis and its implications; such shocks are beyond the control of both parties (the bank and the client), thus its vulnerability to external shocks is a result of its openness to foreign markets. As for the slight decrease of this ratio in 2012 compared to 2011, it can be explained by the bank settlement of financial obligations of its customers in accordance with distressed-debt fund.

The Bank creates provisions to face doubtful debts. Its ratio for the studied period can be calculated according to the equation that has been mentioned earlier, and we explain that through the following table:

Table (11): Analysis of provisions ratio credit facilities decrease of ADIB (Unit: Thousand Dirhams)					
Statement	**Years**				
	2008	**2009**	**2010**	**2011**	**2012**
Provision for credit losses	829517	2215803	2728430	3461561	3715825
Total credit facilities	47127925	58445420	67668003	61533409	72742726
Ratio (%)	0.017	0.037	0.040	0.056	0.051

***Source**: prepared by the researchers based on the consolidated financial statements of the bank for the period 2008-2012.*

We see from the above table that the provisions ratio to meet the direct credit losses during the studied period increased by different ratios. The lowest ratio was in 2008 by 1.7% and the highest ratio was in 2011 by 5.6%. This means that the bank is suffering from an increasing of provisions balances which are deducted to face doubtful debts, i.e. an increasing hedging against these potential losses, but in contrast, it restricts its ability to invest its funds and cause it to miss alternative opportunities.

-Temporal analysis of overdue and non-impaired amounts:

ADIB classifies receivables representing overdue amounts within specific time periods, we explain it in the following table:

Table (12): Analysis of temporal classification for overdue amounts of ADIB (Unit: Thousand Dirhams)				
Statement		**Islamic financing and investing assets**	**Ratio (%)**	**Total arrears**
Less than 30 days	**2008**	78842	%28	78842
	2009	23981	%1	23981
	2010	25285	%1	25285
	2011	93830	%6	93830
	2012	136679	%9	136679
From 31 days to 61 days and less than 90	**2008**	73762	%27	73762
	2009	93157	%5	93157
	2010	86768	%4	86768
	2011	88678	%5	88678
	2012	105511	%7	105511
More than 90 days	**2008**	124561	%45	124561
	2009	1767038	%94	1767038

	2010	1890785	%94	1890785
	2011	1476175	%90	1476175
	2012	1211694	%83	1211694
Total	**2008**	277165	%100	277165
	2009	1884176	%100	1884176
	2010	2002838	%100	2002838
	2011	1658683	%100	1658683
	2012	1453884	%100	1453884

***Source**: prepared by the researchers based on the consolidated financial statements of the bank for the period 2008-2012.*

It may be clearly seen from the table (12) that the ratio of the risked Islamic financing and investments in ADIB for the year 2008, and which represents less than 30 days is 28% compared to 1% in 2009 and 2010, 6% in 2011, and 9% in 2012. This index demonstrates a high level of arrears in the other periods. Hence, we learn that the ratio of arrears, which represents more than 90 days, is 45% for 2008, compared to 94% for 2009 and 2010, 90% for 2011 and 83% for 2012, which are very high ratios and the bank has to concentrate on the financial ability of the other party and a reschedule for those arrears.

Finally, based on the financial results obtained by identifying and analyzing credit risk in DIB and ADIB, we can conclude the following:

(A) Both banks are working on determining the limits of total exposure to credit risk, but estimating its size varies. In the studied period, we learn that these limits are significantly high in DIB, when compared to the limits of ADIB, and this is due primarily to the size of businesses and investments for each bank. Moreover, the uses of funds in both banks are based on Islamic financial investments such as financing through Murabaha, Mudaraba, Musharaka and Ijara ... etc.

(B) The ratio of bad debts of DIB and ADIB has been identified through the standards that have been used within this field to see how efficient the credit portfolio is, and as it turns out assets of both banks were inefficient, but in different ratios. Bad debts ratio was 9% in 2011, and that was the highest ratio of the calculated ratios for DIB in the studied period. In contrast, ADIB ratio was at 7% for the same year, and therefore it is less likely that its customers may default.

(C) It was shown that each of DIB and ADIB provisions ratio was elevated to mitigate the potential loss resulting from non-performing finances, amounting to 4%, a maximum for DIB, in contrast, 5% for ADIB. It is a security for both banks and at the same time, a loss of a chance to invest these funds in certain areas to earn additional revenue.

(D) Bad debts increase as well as the calculation of large provisions to cover the deterioration in the assets of both banks, in addition to the high CAR to absorb potential losses, which reached its highest limit. A ratio of 21% for ADIB, and of 18% for DIB. These indications show that both banks are facing a high level of credit risk, so they have to well-manage it to mitigate the impact and severity of these risks using methods and techniques in line with the principles of Islamic Shari'ah, which will be addressed in the following point.

2-Credit risk mitigation techniques in DIB and ADIB

The two banks use appropriate practices and measures that are in line with the principles of Islamic Shari'ah for the management and mitigation of credit risks to acceptable limits, because it is difficult to get rid of it permanently, but to work on controlling it. Among the methods used and stated in the notes of the consolidated financial statements of the two banks, it can be summarized as follows:

2-1-The credit risk mitigation techniques in DIB:

Bank tries to reduce credit risk through:

-Monitoring credit risk and reducing the emphasis on dealing with specific parties, and working on continuous assessment of credit ability related to the parties with whom it deals.

-The Bank manages its credit exposure related to its trading activities by entering into settlement agreements and collateral arrangements as required by the circumstances.

-The bank, in some cases cancels transactions or distributes it to other parties.

-Maintaining a diversified portfolio i.e. diversification of financing and investing activities to avoid undue concentration of risk with individuals and groups of customers in specific locations or businesses.

-The Bank has established a detailed structuring for approval and the approval roof of the credit facilities and renewing it.

-The Bank actively uses collaterals which mean that the use of this tool is to dramatically reduce its credit risks. The principal collateral types for Islamic financing and investing assets are: mortgages over residential and commercial properties; corporate guarantees; charges over business assets such as premises, machinery, vehicles, inventory and receivables; and charges over financial instruments such as deposits and equity investments.

2-2-The credit risk mitigation techniques in ADIB:

Among the techniques to reduce credit risk of the bank, we mention the following:

- Obtaining *collaterals*: The amount and type of collateral required depends on an assessment of the credit risk of the counterparty. Guidelines are implemented regarding the acceptability of types of collateral and valuation parameters. The main types of collateral obtained are as follows:

(A) Sale and repurchase and reverse repurchase transactions: cash or securities.

(B) Commercial lending: charges on real property, inventory and trade receivables and securities.

(C) Personal lending: reservation on assets, real estate mortgage, salaries transfer to the bank.

- Distribution of financing and investing activities to avoid unfortunate concentrations of credit risks with individuals or groups of customers in a particular industry or business sector, according to geographic region and industry sector.

-Establishing a review process of the quality of credit to provide an early identification of possible changes in credit efficiency for counterparties. This includes periodic collateral reviews, which allow the bank to assess the potential losses as a result of the risks to which it is exposed and take corrective action.

- In some cases the bank cancels transactions or distributes it to other parties.

Conclusion:

In conclusion of this research paper, we can say that despite the successes of Islamic banks in a short period and the expansion it has achieved, but like any other banking system components, it faces in general many risks most importantly credit risks, which arise, according to the investment of its funds in various financial and investment activities. Thus, this paper focused on highlighting several aspects related to these risks, studied its nature and then suggested mechanisms by which to face these risks and mitigate its effects. One of the most important results obtained in this study is:

- Most of the methods and techniques available for managing credit risk in conventional banks are not suitable for Islamic banks, as a result of non-compliance with the purposes of Islamic Shari'ah. The consequence was that credit risks were higher in Islamic banks than in conventional banks.

- The concentration of banks subject to study on some of the traditional ways to manage credit risk, specifically collaterals and provisions, due to lack of modern ways to manage it within a legitimate scope.