



THE EFFECT OF CREDIT RISK ON FINANCIAL PERFORMANCE IN IRAQI PRIVATE COMMERCIAL BANKS: BANK OF BAGHDAD AS A MODEL

Prof Dr Subhi Hassoon,
shassoon@uomustansiriyah.edu.iq

Noor Abdul Nabi
Noorabdali1996@uomustansiriyah.edu.iq

Department of Finance and Banking, College of Administration & Economics, University of Mustansiriyah, IRAQ

Article history:	Abstract:
<p>Received: 11th May 2022 Accepted: 11th June 2022 Published: 28th July 2022</p>	<p>The banking sector is one of the important sectors as it represents a major link in the development of the financial system in any country. The risks to which the banking sector is exposed have varied greatly, including the credit risks, which result from these risks are the risks of customers not paying their obligations towards the bank and thus lead to the bank's exposure to significant losses as a result of bad debts and an increase in allocations for doubtful debts. Therefore, the research problem revolves around the question (what is the effect of credit risk on the financial performance of the Bank of Baghdad, as a sample for research).</p> <p>In order to achieve its objectives, the research proceeds from the hypothesis that: If credit risks are identified and appropriately addressed, the financial performance of the bank may be affected in a positive way.</p> <p>In order to reach the goals that the bank seeks to achieve, so the study is separated into three axes: The first axis: is the conceptual framework for credit risk and financial performance. The second axis: analysis of the course of developments in the activity of the Bank of Baghdad for the period (2010-2020). The third axis: measuring and analyzing the impact of the credit risk of the Bank of Baghdad on the financial performance for the period (2010-2020).</p> <p>The research found with regard to banking indicators, that the research sample bank showed a clear reluctance regarding the weak contribution of total deposits, total credit, and total assets to GDP on the one hand, and on the other hand, the weak contribution of the number of bank branches in providing banking services to the required number of the population, according to the international standard which indicates that each branch must provide its services for every 10 thousand people.</p> <p>The research recommended that the research sample bank should do its best to reduce credit risk and put in place modern systems to monitor grant and loan collection processes in order to support the investment environment and build a good credit policy, in addition to the need to focus on training credit risk managers and their attendance at local and international seminars that work on Increase their knowledge in making the right decisions in granting credit.</p>

Keywords: Credit risk, financial performance, Bank of Baghdad.

INTRODUCTION

The banking sector is one of the important sectors as it represents a major link in the development of the financial system in any country. Therefore, this sector seeks to maximize its profits according to the nature of its work by granting credit to all economic activities and providing banking services.

The risks to which the banking sector is exposed have varied greatly, including the credit risks, which result from these risks are the risks of customers not paying

their obligations towards the bank and thus leading to the bank's exposure to large losses as a result of bad debts and an increase in allocations of doubtful debts.

RESEARCH PROBLEM

The credit risks that the bank is exposed to result from the borrowers' inability to pay on time, and therefore this will negatively affect the bank's financial performance and expose it to financial loss. These risks must be monitored by regulatory agencies and the



necessary treatments should be provided to prevent their recurrence.

RESEARCH IMPORTANCE

It is imperative that these credit risks be identified so that they can be addressed as quickly as possible, so the process of credit follow-up is necessary for the continuation of banking activity and to avoid defaulting on the bank's business so that the bank is not exposed to large losses that may make it unable to carry out its activities.

RESEARCH HYPOTHESIS

If credit risks are identified and addressed appropriately, the bank's financial performance could be positively affected.

RESEARCH AIMS

The research aims to know the bank credit and its types, as well as to know the credit risks and their types and ways to treat them using good control methods capable of reducing defaults in payment. The research aims to analyze and study the credit risks in one of the Iraqi private banks, as well as know how this risk affects the banking performance of this research sample bank.

Limitations and Sample Research

Based on the necessity and taking into account the selection of an appropriate period for research, and through which it is possible to analyze and measure the impact of the credit risk of one of the private commercial banks on the financial performance, which is the Bank of Baghdad, the research period has been determined during the period (2010-2020).

RESEARCH STRUCTURE

In order to become familiar with the subject of the research and reach the goals that it seeks, the research is divided into three axes, as follows:

The first axis: is the conceptual framework of credit risk and financial performance.

The second axis: analysis of the course of developments in the activity of the Bank of Baghdad for the period (2010-2020).

The third axis: measuring and analyzing the impact of the credit risk of the Bank of Baghdad on the financial performance for the period (2010-2020).

FINALLY: CONCLUSIONS AND RECOMMENDATIONS.

The first axis: is the conceptual framework of credit risk and financial performance.

First: The concept and reasons for credit risk

1- The concept of credit risk

Bhattarai (2019: 87) defines risk as the possibility or threat of harm, injury, liability, loss, or any other negative event resulting from an internal or external event that can be avoided by preventive measures taken.

It also defined risk as "the uncertainty about future cash flows or the possibility that investments will fail to recover the investors' money" (Khamis, 2018: 21).

In light of the previous definitions, the researcher considers that the risk is the possibility of the bank experiencing an uncertain loss in the future so that the desired goals to be achieved are different from what was planned.

The risks faced by banks can be classified into six categories: credit risk, liquidity risk, legal risk, operational risk, management risk, and market risk. Each of these risks may have negative effects on the profitability of financial institutions, their market value, liabilities, and equity, so credit risk is one of the most important risks facing banks.

The Basel Committee - Banking Supervision Committee (4) has defined credit risk, "as the possibility of the partial or total loss of the existing loan due to failure to repay this loan at the agreed time, i.e. on time, so the increase in credit risk will lead to an increase in the marginal cost of debt and equity." (Ekinci, Poyraz, 2019: 980).

It is also meant by credit risk "as the degree of fluctuation of the actual return of the lending process from the contractual return as a result of internal reasons represented in the weakness of the bank's management or external reasons resulting either from the borrower's inability to pay or his delay in payment or for sovereign reasons such as economic conditions." (Najib, Ali, 2021: 307).

2- Reasons for credit risk

There are many points of view in the interpretation of credit risk and how to determine its source, which is caused by the financial hardship that the borrower is exposed to and limits his ability to repay, whether for the principal of credit or its interests, or both. The inability of the borrower to repay has several reasons, including (Samuel, 2015: 4), (Yusuf, 2019: 288) (Al-Shaabani, Abu Bakr, Ezzat, 2021: 146)

- A- There is a deficiency in the assessment of the creditworthiness and financial strength of borrowers, or it is insufficiently specified.
- B- Lack of knowledge and skills of officials in processing loan applications.
- C- The lack of an appropriate system for the classification, measurement, and management of credit risks across geographical locations and production lines, and the unreliability of the



data used for credit management and the risks associated with lending.

- D- Bad faith on the part of the borrower, i.e. bad behavior in order to obtain credit facilities quickly, which is a deliberate behavior by the borrower.
- E- Banks' interest in the expansion of credit in order to increase their profits, regardless of the degree of risk to which they are exposed.
- F- Lack of continuous follow-up on the borrowers' conditions and their funded projects.
- G- Unforeseen emergency circumstances that lead to a decline in the economic situation in the country.

3- Credit risk indicators

Determining credit risks and setting their indicators and data accurately so as to help measure them are important matters and help to control them, know those risks and manage them well, and then reduce those risks to their lowest levels. The most important of these criteria are:

1- Loan Standard

- A- The ratio of non-performing loans to cash credit: It is an important indicator for measuring credit risks in banks, as this ratio shows the credit quality of banks and is measured by dividing non-performing loans into cash credit (Bhattarai 97: 2019).
- B- The ratio of non-performing loans to total assets: This ratio indicates the credit risk of the bank, the higher this ratio, the higher the risk. It is measured by dividing the non-performing loans by the total assets (John, N. N. Ugoani, 2015:309).

2- Credit Standard

- A- Cash credit to equity ratio: This ratio measures the total cash credit to equity, where equity represents the element of safety enjoyed by creditors (the bank), as the higher ratio indicates an increase in the bank's tendency to grant loans, which exposes the bank to potential losses (Al-Zubaidi), 2008: 135).
- B- Cash credit to assets ratio: This ratio shows that part of the assets that banks invest in granting loans and advances, as the greater this ratio leads to a decrease in the bank's liquidity, and it is measured by dividing the cash credit into assets (Lucic, 2014: 28)

3- Debt Standard

- A- Total Debt Ratio: This ratio shows the total assets financed by debt and provided by creditors to the bank, and it is measured by dividing the total liabilities minus the total

equity of the total assets (Gitman & Zutter, 2012: 76).

- B- Provision ratio for doubtful debts to cash credit: It is a non-cash amount. This ratio measures the possibility of the provision to cover doubtful loans resulting from the borrowers not paying the loan amount and interest. It is measured by dividing the provision for doubtful debts into cash credit (Abdul Redha, 2019:67)

SECOND: THE CONCEPT AND IMPORTANCE OF FINANCIAL PERFORMANCE IN BANKS

1- The concept of financial performance

Financial performance refers to the institution's ability to supervise and control resources, and in the context of banking, resources refer to bank deposits that banks receive from customers and these deposits help management to properly utilize them in order to achieve profits for the bank (Hassan,2021:92). There are many definitions, and all of them revolve around the meaning of the result of actions.

2- The importance of financial performance

The importance of evaluating the financial performance in banks is to reveal the development taking place in the bank, during the process of comparing the performance results over time for the same bank or with other similar banks with three points that can be summarized as follows: (Al-Sayed, 2014, 68) (Hussain, 2021: 163 - 162) (Al-Sheikh, 2008: 3):

- A- Discovering the defect or deviation in performance and knowing its causes, so that preventive measures are taken to correct this deviation for each of the bank's activities, in order to prevent its recurrence.
- B - Standing on achieving coordination between all sections of the bank, for example, the management of finance and investment, and others, in order to ensure the achievement of economic savings and to avoid extravagance in money and waste.
- C - Follow up on the bank's situation in rationalizing spending in the use of its available resources.
- D- Drawing future plans, evaluating the financial performance of the bank, and ensuring the soundness of the financial position.
- E- The performance evaluation process gives a complete and comprehensive picture of all administrative levels of the bank's performance, and defines its role in the economy as a whole.
- F- Obtaining financial indicators that show the effectiveness of the bank's policy and its ability to grow.

3- Financial performance analysis indicators

Financial ratios are used in their analysis by both managers and executives in companies and banks, in order to determine the creditworthiness of potential



borrowers, analysts, and institutions in the stock markets to assess the risks of financial instruments. The most important of these indicators are:

A- Liquidity Ratios

The bank's liquidity is measured by its ability to meet its short-term obligations when they become due. Banks must have sufficient liquid resources or assets that can be converted into cash to meet short-term obligations (Hassan,2021:95), and to measure the bank's liquidity there is a set of financial ratios to measure, and the most important:

1- Circulation ratio: This ratio is measured by dividing current assets into current liabilities (Rufai, 2013,5).

2- Cash Balance Ratio: This ratio is measured by dividing cash between the fund, cash with other banks, and liquid balances into total deposits (Al-Jaghifi, 31, 2020).

B- Profitability Ratios

Profit is the main focus in the establishment of many economic activities, and without profitability, companies are not able to attract investors. The profits earned by banks are considered one of the most important factors that affect the wealth of depositors (Boulhia, Bou Jama'a, 2016:7). The most important indicators that measure profitability ratios are:

1- The rate of return on assets: measured by dividing the net profit by the assets (Septariza, 2019, 51).

2- The rate of return on equity: measured by dividing the net profit by the equity (WINGARD, 2001, 96)

C- Safety Ratios

Banking security is a hedge against the risks that the bank is exposed to, and these losses faced by the bank are covered through investment and bank credit granting operations through the right of ownership available to the owners of the bank. 2017, 423). Among the most important ratios by which banking security can be measured are:

1- Equity ratio to total deposits: This ratio is measured by dividing the equity into total deposits (Rose, 1999,481).

2- Capital adequacy ratio: This ratio is measured through the basic capital plus the supporting capital to the risk-weighted net assets inside and outside the balance sheet (Central Bank Instructions No. 4 Facilitating the Implementation of the Bank's Law of 2010).

THIRD: THE RELATIONSHIP BETWEEN CREDIT RISK AND FINANCIAL PERFORMANCE

The main purpose of the bank's existence is to accept deposits as well as grant credit facilities, however, it is exposed to credit risks. Credit risks are one of the most important risks faced by banks and the success of their

business depends on accurate measurement and effective management of these risks to a greater extent than any other risks. Credit plays a crucial role in the bank's profitability, as the bulk of the bank's revenues accrue from loans and advances from which interest is earned.

The credit risks resulting from the borrowers' failure to make payments ultimately affect liquidity and thus negatively affect profitability and capital, however, the highest risks faced by the bank are losses resulting from non-performing loans, most banks maintain to keep non-performing loans at the level of Low because high non-performing loans affect the profitability of the bank, and therefore, the decrease of non-performing loans to the total cash credit indicates that the bank's portfolio is in good health, and the lower the ratio, the better the bank's performance. (GITHAIGA,2015: 6 -19)

There is a relationship between non-performing loans and capital adequacy and profitability because the rate of non-performing loans and the capital adequacy ratio are inversely related to the rate of return on equity, however, the capital adequacy ratio has a positive and important relationship with the financial performance of the bank, so the bank with strong capital It is able to absorb potential loan losses, and is also able to avoid financial failure and insolvency. In light of the theory, it is expected that there is a negative relationship between non-performing loans and the bank's performance. (Bhattacharai, 2019: 90-97)

The increasing level of non-performing loan rates in banks, poor treatment of non-performing loans, or lack of sufficient guarantees for loans and other things, is related to poor credit risk management, which negatively affects the financial performance of banks. And by taking into consideration the fact that the more the bank's exposure to high-risk loans increases. The accumulation of outstanding loans means that these loan losses generate lower returns for many banks. The provision for loan losses has a significant positive impact on non-performing loans. Therefore, the increase in the provision for loan losses indicates an increase in credit risk, which negatively affects the financial performance of the bank.

In summary, the credit risks are represented by the main sources, which are:

- 1- Limited institutional knowledge.
- 2- Inappropriate credit policy.
- 3- Volatile interest rates.
- 4- Bad credit management.
- 5- Inappropriate laws.
- 6- Low levels of capital and liquidity.
- 7- Huge licenses for banks.
- 8- Lax credit assessment.



9 - Inadequate supervision and control by the Central Bank.

The increase in bank credit risk gradually leads to problems of liquidity and solvency, and the credit risk may increase if the bank lends to borrowers that it does not have sufficient knowledge about, as credit risk represents a serious threat to the financial performance of banks. (Samuel,2015: 9)

The global financial crises have proven that poor measurement and assessment of credit risks and poor quality of credit for capital adequacy purposes will affect the financial performance of the bank and expose the bank to failure and exacerbate the problems of banks, which negatively affects the adequacy of the bank's capital and hinders the management of these risks. In December 2015, the Basel Committee on Banking Supervision issued supervisory guidelines explaining how to exercise credit risks represented by expected credit losses and knowing the interaction between the new accounting approach and all the requirements of the Basel 3 regulatory framework (Shaheen, Al-Baghdadi, 2019:130).

The second axis: analysis of the course of developments in the activities of the Bank of Baghdad for the period (2010-2020)

This axis deals in detail with an introduction to the bank and also deals with the analysis of the items of the

statement of the financial position of the Bank of Baghdad, which are:

First: An Introduction To The Bank

The bank was incorporated as a private joint stock company under the certificate of incorporation numbered M. U / 4512 dated 18/2/1992 issued by the Companies Registration Department under the Companies Law in force at that time No. (36) for the year 1983. The bank began its activities in the banking business in 1992. The capital of the bank when it was established reached 100 million dinars and continued to expand to increase its capital, and these increases continued until 2013 with the issuance of instructions by the Central Bank to increase the capital to a minimum of 250 billion dinars. (Annual Report of the Bank of Baghdad, 2020)

The bank provides its services through all its branches prevailing throughout the country, bringing the number of Bank of Baghdad branches until 2020 to (37) banks spread all over the country (Bank of Baghdad annual report, 2020)

Second: Developments in the financial position of the Bank of Baghdad

In order to show the developments that took place in the financial position of the Bank of Baghdad, these developments will be explained in detail with the amount of change and the growth rate for each account, as follows.

Table (1): Developments of the financial position statement of the Bank of Baghdad for the period (2010-2020) (million dinars)

Items Years	Paid Capital	Total assets	Total liabilities	Ownership rights	Reserves	Cash credit
2010	100,000	961,000	842,275	118,700	18,788	180,800
2011	112,900	875,000	735,647	139,600	26,720	149,700
2012	175,000	1,301,000	1,093,402	207,200	32,253	147,400
2013	152,000	1,765,000	1,473,642	291,200	41,262	219,100
2014	250,000	1,827,000	1,535,086	292,400	42,419	228,900
2015	250,000	1,479,000	1,216,898	262,100	8,324	262,000
2016	250,000	1,200,000	917,602	282,800	9,296	195,000
2017	250,000	1,090,000	824,316	266,200	10,916	169,500
2018	250,000	1,113,000	846,796	266,700	9,093	161,900
2019	250,000	1,132,000	859,103	273,600	9,265	149,600
2020	250,000	1,420,000	1,141,092	278,400	10,153	141,600

Source: Prepared by the researcher based on the annual reports of the Bank of Baghdad, several years.

The following is an analysis of the vocabulary of this bank statement in detail during the research period, each separately.

1- Paid-up capital

The following table shows the values and amount of change and growth rates for the paid-up capital of the Bank of Baghdad during the research period



Table (2): developments in the paid-up capital of the Bank of Baghdad for the period (201-2020)
 (million dinars)

Years	Paid-up Capital	Amount of Change	Growth Rate (%)
2010	100,000	-	-
2011	112,900	12,900	12.90
2012	175,000	62,100	55.00
2013	152,000	-23,000	-13.14
2014	250,000	98,000	64.47
2015	250,000	0	0.00
2016	250,000	0	0.00
2017	250,000	0	0.00
2018	250,000	0	0.00
2019	250,000	0	0.00
2020	250,000	0	0.00

Source: Prepared by the researcher based on the data in Table (1).

Note: Columns 3 and 4 of the table were prepared by the researcher, based on column (2).

It is clear from the above table, that there have been changes in the paid-up capital of the Bank of Baghdad, where the values of the paid-up capital rose from 100 billion dinars in 2010 to 175 billion dinars in 2012, then decreased and settled at 250 billion dinars in 2014 and continued at this level throughout The rest of the research years, in compliance with the instructions of the Central Bank to increase the capital of banks to reach 250 billion dinars as a minimum.

While the amount of change in the values of paid-up capital was in a state of increase from 12,900 in 2011 to 62,100 in 2012, to become in a state of decrease and rise in the following two years, and then become zero in the rest of the research years.

As for the growth rates of paid-in capital values, it witnessed a rise from 12.90% in 2011 to 55.00% in 2012, to decrease and rise in the following two years, and become zero in the rest of the research years.

2- Total Assets

Total assets include both current assets and fixed assets. The following table shows the values and amount of change and growth rates of the total assets of the Bank of Baghdad during the research period.

Table (3): Developments of the total assets of the Bank of Baghdad for the period (2010-2020)
 (million dinars)

Years	Total Assets	Amount of Change	Growth Rate (%)
2010	961,000	-	-
2011	875,000	-86,000	-8.95
2012	1,301,000	426,000	48.69
2013	1,765,000	464,000	35.66
2014	1,827,000	62,000	3.51
2015	1,479,000	-348,000	-19.05
2016	1,200,000	-279,000	-18.86
2017	1,090,000	-110,000	-9.17
2018	1,113,000	23,000	2.11
2019	1,132,000	19,000	1.71
2020	1,420,000	288,000	25.44

Source: Prepared by the researcher based on the data in Table (1).

Note: Columns 3 and 4 of the table were prepared by the researcher, based on column (2).

It is noted from the above table that there have been changes in the total assets of the Bank of Baghdad during the research period, as it witnessed that the values of total assets decreased from 961 billion dinars in 2010 to 875 billion dinars in 2011, to rise after that over the following three years, as a result of the

recruitment of sources of funds and investing them from low-risk assets and transforming them into income-generating assets and treating non-producing assets through the collection and taking provisions for expected credit losses for these assets through the



application of IFRS9¹. At 1,420,000 trillion dinars in 2020.

The amount of change in the values of total assets was also in a state of decline in 2011 to reach -86,000, then rise to 464,000 in 2013, fluctuating between rising and falling until it settled at 288,000 in 2020.

As for the growth rates of total assets values, they witnessed a decline at -8.95% in 2011, then witnessed

a rise in 2012 to reach 48.69%, then fluctuated between rising and decline, until it stabilized at 25.44% in 2020.

3- Total Liabilities

The table below shows the changes that occurred in the total liabilities of the Bank of Baghdad during the research period.

Table (4): The evolution of the total liabilities of the Bank of Baghdad for the period (2010-2020)
 (million dinars)

Years	Total Liabilities	Amount of Change	Growth Rate (%)
2010	842,275	-	-
2011	735,647	-106,628	-12.66
2012	1,093,402	357,755	48.63
2013	1,473,642	380,240	34.78
2014	1,535,086	61,444	4.17
2015	1,216,898	-318,188	-20.73
2016	917,602	-299,296	-24.59
2017	824,316	-93,286	-10.17
2018	846,796	22,480	2.73
2019	859,103	12,307	1.45
2020	1,141,092	281,989	32.82

Source: Prepared by the researcher based on the data in Table (1).

Note: Columns 3 and 4 of the table were prepared by the researcher, based on column (2).

It is evident from the above table, that there have been changes in the total liabilities of the Bank of Baghdad during the research period, where the values of total liabilities decreased from 842,275 billion dinars in 2010 to 735,647 billion dinars in 2011, to rise significantly in the following three years, which indicates the ability of the bank to attract deposits, especially low-cost deposits such as (current deposits), and this is a good indication of the preference of customers to deal with the bank (Annual Report of the Bank of Baghdad, 2014), then fluctuate between increase and decrease, and settle at 1,141,092 trillion dinars in 2020, which constitutes a clear increase, compared to the previous four years.

As for the amount of change in the values of total liabilities, it was in a state of decline in 2011 at -106,628, then rises to reach 380,240 in 2013, then

decreases and fluctuates between decline and rise until it settled at 281,989 in 2020.

As for the growth rates of the values of total liabilities, they witnessed a decrease at -12.66% in 2011, after which they witnessed a rise in 2012 to reach 48.63%, after which they fluctuated between rising and decline until it settled at 32.82% in 2020.

4- The right of ownership

Equity includes several items, namely capital, reserves, and undistributed profits. The following table shows the changes that occurred in the ownership right of the Bank of Baghdad during the research period

¹ **International Financial Reporting Standards (IFRS 9):** On 7/24/2014, the International Accounting Standards Board issued IFRS 9 standard for financial reporting to replace International Standard No. 39, as this standard

facilitates the loss forecasting process in order to reduce the occurrence of crises It should be applicable as of 1/1/2018 with early application allowed.



Table (5): developments in the ownership right of the Bank of Baghdad for the period (2010-2020)
 (million dinars)

years	Ownership rights	Change amount	Growth rate (%)
2010	118,700	-	-
2011	139,600	20,900	17.61
2012	207,200	67,600	48.42
2013	291,200	84,000	40.54
2014	292,400	1,200	0.41
2015	262,100	-30,300	-10.36
2016	282,800	20,700	7.90
2017	266,200	-16,600	-5.87
2018	266,700	500	0.19
2019	273,600	6,900	2.59
2020	278,400	4,800	1.75

Source: Prepared by the researcher based on the data in Table (1).

Note: Columns 3 and 4 of the table were prepared by the researcher, based on column (2).

It appears from the above table that there have been changes in the property rights of the Bank of Baghdad during the research period, as it witnessed an increase from 118,700 billion dinars in 2010 to 292,400 billion dinars in 2014, to then fluctuate between increase and decrease, and to settle at 278,400 billion dinars in 2020. While the amount of change in the property right values had a similar behavior, as it rose from 20,900 in 2011 to 84,000 in 2013, then fluctuated between rise and decline until it settled at 4,800 in 2020, according to the Central Bank circular No. 9/6/98 dated 3/3/2020 about the application of IFRS 9 standard and its approval to distribute the decrease in the quantitative impact resulting from this application over a period of 5 years, provided that profits are not distributed except when the impact of the standard is fully covered. In addition to the profits resulting from currency exchange differences, as well as in compliance with the instructions of the Central Bank of the Board of Directors' decision to submit a recommendation to the General Assembly to rotate the profits of the current year to the coming years (Bank of Baghdad annual report, 2020:25).

As for the growth rates of property rights values, they witnessed a rise from 17.61% in 2011 to 48.42% in 2012, to decline sharply until it reached the negative level and then fluctuated between rise and fall until it stabilized at 1.75% in 2020.

The third axis: analysis of the relationship between credit risk and the financial performance of the Bank of Baghdad for the period (2010-2020)

This axis contains the analysis of the relationship between credit risk and the financial performance of the Bank of Baghdad. This axis includes three parts, namely:

1- Analyzing the relationship between the loan standard and financial performance ratios

In this part, we will discuss two main indicators of credit risk under the loan criterion, namely the ratio of non-performing loans to cash credit and the ratio of non-performing loans to total assets and the relationship of the ratios of this criterion with financial performance indicators consisting of liquidity, profitability and safety ratios in the Bank of Baghdad during the research period, as well as It is evident from the table below



Table (6): Analysis of the relationship between the loan criterion and the financial performance ratios of the Bank of Baghdad for the period (2010-2020) (%)

Years	Loan Standard		Liquidity ratios		Profitability ratios		Safety ratios	
	The ratio of non-performing loans to cash credit	The ratio of non-performing loans to total assets	circulation rate (Once)	Cash Balance Ratio	rate of return on assets	rate of return on equity	Equity to total deposits	Capital Adequacy Ratio
2010	16.86	2.80	1.11	76.60	1.69	13.66	14.75	25
2011	20.85	3.57	0.20	72.35	2.85	17.89	19.96	37
2012	24.54	2.78	0.13	83.20	2.28	14.30	19.80	55
2013	15.34	1.90	1.16	77.41	2.20	13.32	20.90	59
2014	208.39	26.11	1.15	72.82	1.80	11.23	19.60	58
2015	22.62	4.01	1.50	116.81	0.44	2.46	29.83	64
2016	37.44	6.08	1.25	98.82	1.69	7.16	34.16	86
2017	41.89	6.51	1.12	101.18	0.56	2.30	35.59	103
2018	98.88	14.38	1.17	100.83	0.37	1.56	34.10	127
2019	108.87	14.39	0.97	86.19	0.64	2.67	34.15	64
2020	124.66	12.43	1.06	96.45	1.42	7.26	25.96	39
AV	65.30	8.63	0.98	89.33	1.45	8.53	26.25	62

Source: Prepared by the researcher based on the annual reports of the Bank of Baghdad, several years.

It is noted from the above table, that there is some harmony between the criteria set for credit risk indicators, and the percentages specified to express the financial performance indicators of the research sample banks during the research period.

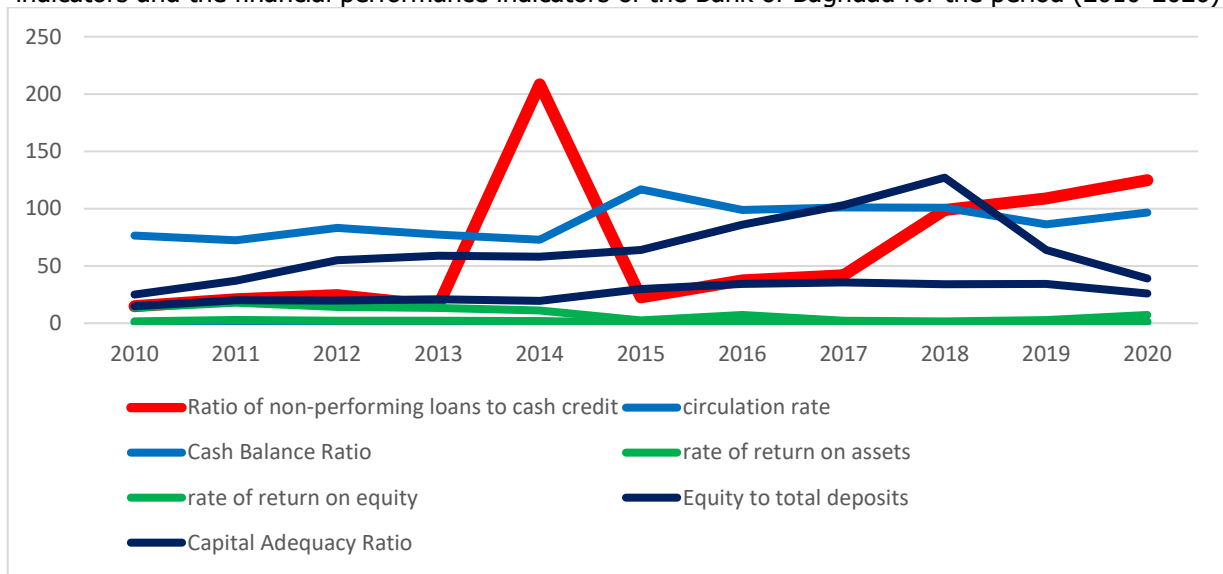
With regard to the Bank of Baghdad, it is noted that the loan criterion, consisting of the ratio of non-performing loans to cash credit, and the ratio of non-performing loans to total assets, showed a fluctuation between increase and decrease throughout the research period, reaching their lowest level in 2013, reaching 15.34% and 1.90 %, respectively, based on the instructions of the Central Bank of Iraq issued under its book No. 73/3/9 of 24/3/2013, which includes canceling the standard guiding rule and working with Article (12) of the instructions to facilitate the implementation of the banking law in force, which guarantees how to calculate credit reserve for non-return-producing debts (bad loans), and acceptable guarantees have been identified to mitigate these debts (Bank of Baghdad annual report, 2016: 6), which was positively reflected on the liquidity ratios, which include both the trading ratio and the cash balance ratio, as the circulation ratio increased to 1.16 times compared to the standard ratio (1:2 times), while the cash balance ratio decreased to 77.41%, while the

profitability ratios, consisting of the rate of return on assets and the rate of return on equity decreased, where they decreased to reach 2.20% and 13.32%, respectively, which are lower than the standard average of (12%) and (22%), while the safety ratios, which include equity to total deposits, and the capital adequacy ratio, increased to reach 20.90% and 59%, respectively, and these percentages are greater than the standard average, namely (10% and (12%).

While the ratios of this criterion reached the highest level in 2014, reaching 208.39% and 26.11%, the higher the ratios of this criterion the bank is exposed to potential risks, accompanied by a decrease in the circulation rate to reach 1.15 times. The bank's attempts to enhance liquidity by diversifying the bank's sources of funds (the annual report of the Bank of Baghdad, 2018: 7) and a slight decrease in the cash balance ratio to reach 72.82%, while the profitability ratios were severely reduced compared to previous years, reaching 1.80% and 11.23%, while Safety rates slightly decreased to 19.60% and 58%.

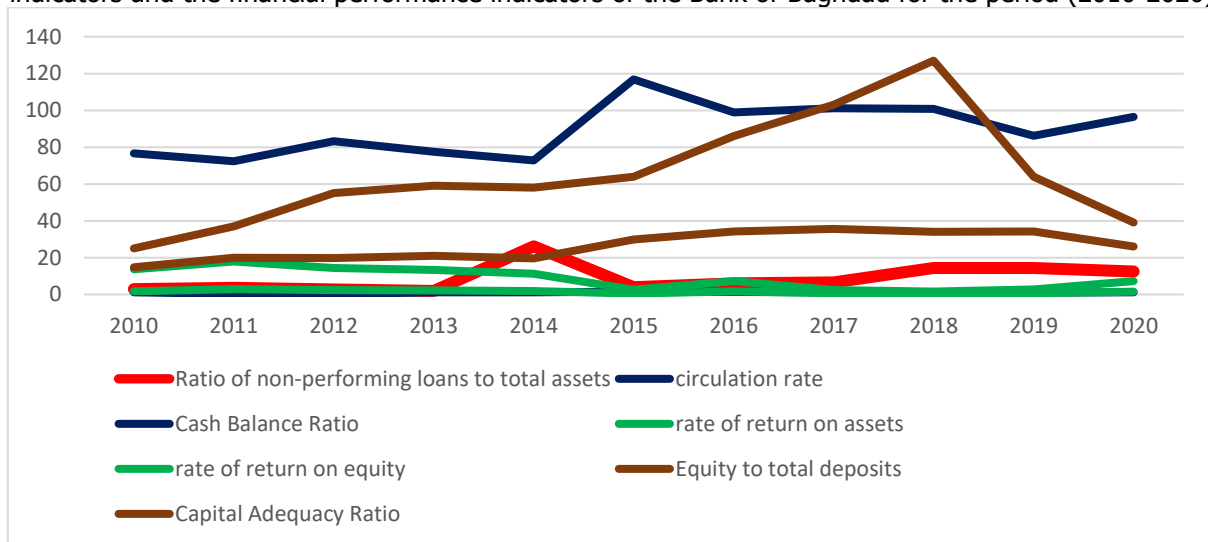
The figure below illustrates this relationship between the ratio of the loan criterion and the financial performance indicators of the bank

Figure (1) The relationship between the ratio of non-performing loans to cash credit as one of the credit risk indicators and the financial performance indicators of the Bank of Baghdad for the period (2010-2020)



Source: Figure prepared by the researcher, based on the annual reports of the Bank of Baghdad, for several years

Figure (2) The relationship between the ratio of non-performing loans to total assets as one of the credit risk indicators and the financial performance indicators of the Bank of Baghdad for the period (2010-2020)



Source: Figure prepared by the researcher, based on the annual reports of the Bank of Baghdad, for several years

2- Analyzing the relationship between the credit standard and financial performance ratios

In this part, the relationship between the credit criterion as one of the credit risk measurement indicators consisting of the ratio of a cash credit to equity and the ratio of a cash credit to total assets and the ratios of financial performance in the Bank of Baghdad during the research period will be addressed, as shown in the table below.



Table (7) analysis of the relationship between the credit criterion and the financial performance ratios of the Bank of Baghdad for the period (2010-2020) (%)

Years	Credit criterion		Liquidity ratios		Profitability ratios		Safety ratios	
	Cash Credit to Equity Ratio	The ratio of cash credit to total assets	circulation rate (Once)	Cash Balance Ratio	rate of return on assets	rate of return on equity	Equity to total deposits	Capital Adequacy Ratio
2010	152.32	18.81	1.11	76.60	1.69	13.66	14.75	25
2011	107.23	17.11	0.20	72.35	2.85	17.89	19.96	37
2012	71.14	11.33	0.13	83.20	2.28	14.30	19.80	55
2013	75.24	12.41	1.16	77.41	2.20	13.32	20.90	59
2014	78.28	12.53	1.15	72.82	1.80	11.23	19.60	58
2015	99.96	17.71	1.50	116.81	0.44	2.46	29.83	64
2016	68.95	16.25	1.25	98.82	1.69	7.16	34.16	86
2017	63.67	15.55	1.12	101.18	0.56	2.30	35.59	103
2018	60.70	14.55	1.17	100.83	0.37	1.56	34.10	127
2019	54.68	13.22	0.97	86.19	0.64	2.67	34.15	64
2020	50.86	9.97	1.06	96.45	1.42	7.26	25.96	39
AV	80.28	14.49	0.98	89.33	1.45	8.53	26.25	62

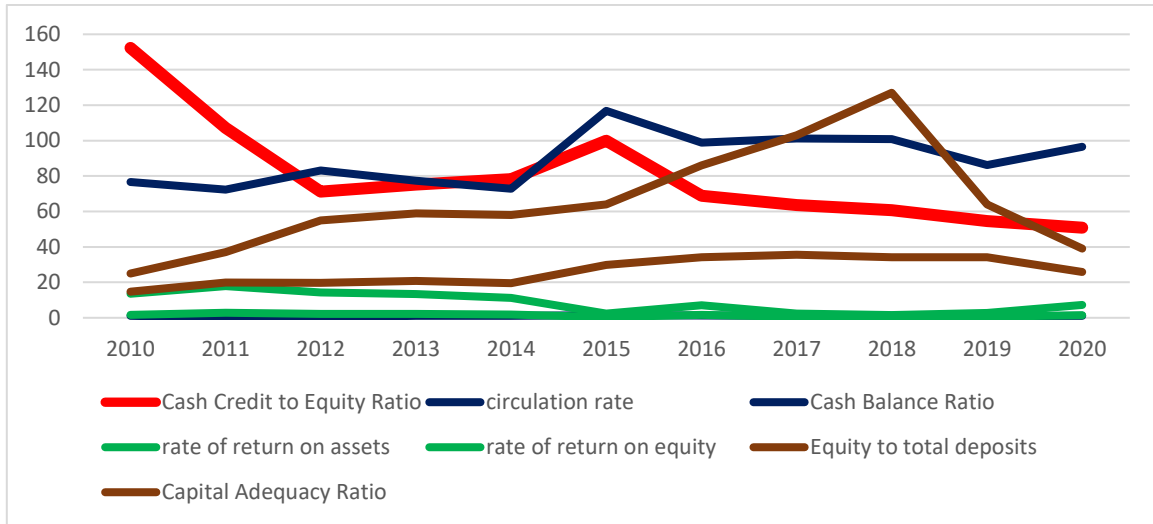
Source: Prepared by the researcher based on the annual reports of the Bank of Baghdad, several years.

It is noted from the above table that there is coordination between the credit criterion and the financial performance ratios represented by the liquidity, profitability, and safety ratios of the Bank of Baghdad during the research period.

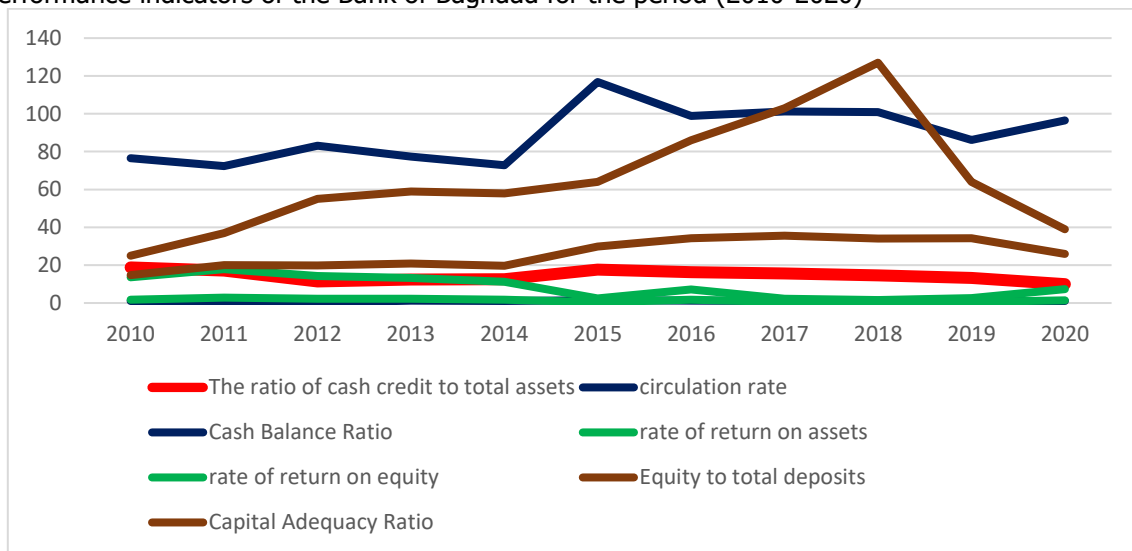
With regard to the Bank of Baghdad, it is noted that the credit criterion consisting of the ratio of a cash credit to equity and the ratio of a cash credit to total assets, showed a fluctuation between increase and decrease throughout the research period, reaching their highest level in 2010, reaching 152.32% and 18.81%, respectively, this was reflected in the liquidity ratios consisting of the trading ratio and the cash balance ratio, which reached 1.11 times and 76.60%, while the picture was clear in the high profitability ratios consisting of the rate of return on assets and the rate of return on equity to reach 1.69% and 13.66 %, respectively, which are lower than the standard average of (12%) and (22%), and the safety ratios, which include both the ratio of ownership right to total deposits and capital adequacy, reached 14.75% and 25%, respectively, and these ratios are high compared to the average The two standards are (10% and (12%). The percentages of this criterion reached their lowest level in 2020, reaching 50.86% and 9.97%, due to the Corona pandemic, which led to people lying at home and abandoning their work to impose a curfew. Nevertheless, the Central Bank of Iraq made

contributions, including reducing interest rates for loans related to the Central Bank initiative, as well as postponing its installments on borrowers (Bank of Baghdad annual report, 2020:7), accompanied by an increase in the trading ratio, compared to the previous year, to reach 1.06 times and when compared to its standard average of (1:2), it is considered an acceptable ratio, and the cash balance ratio increased to reach 96.45% in the year 2020, compared to the previous year, while when compared to its benchmark, it is considered a good percentage, despite the conditions that the bank went through due to the pandemic, but it remained in a strong financial position. The supervisory authorities (Bank of Baghdad annual report, 2020: 8), while the profitability ratios increased, compared to the previous year, to reach 1.42% and 7.26% in 2020, respectively, and when compared to their standard average of (12%) and (22%) are considered low rates. The picture also became clear in the decrease in safety rates to reach 25.96% and 39% in 2020, respectively, compared to the previous year. The figure below shows these relationships between the credit standard and the bank's financial performance ratios.

Figure (3) The relationship between the cash-to-equity credit ratio as one of the credit risk indicators and the financial performance indicators of the Bank of Baghdad for the period (2010-2020)



Source: Figure prepared by the researcher, based on the annual reports of the Bank of Baghdad, for several years.
 Figure (4) The relationship between the cash credit ratio to total assets as one of the credit risk indicators and the financial performance indicators of the Bank of Baghdad for the period (2010-2020)



Source: Figure prepared by the researcher, based on the annual reports of the Bank of Baghdad, for several years.

3- Analyzing the relationship between the debt standard and financial performance ratios

In this part, we will analyze the relationship between the debt criterion consisting of the ratio of allowance for

doubtful debts to cash credit, the ratio of the total debt and the ratios of liquidity, profitability and safety of the Bank of Baghdad during the research period, as shown in the table below



Table (8) analysis of the relationship between the debt criterion and the financial performance ratios of the Bank of Baghdad for the period (2010-2020) (%)

Years	Debt criterion		Liquidity ratios		Profitability ratios		Safety ratios	
	Ratio of doubtful debts to cash credit	Total Debt Ratio	circulation rate (Once)	Cash Balance Ratio	rate of return on assets	rate of return on equity	Equity to total deposits	Capital Adequacy Ratio
2010	8.38	75.29	1.11	76.60	1.69	13.66	14.75	25
2011	11.36	68.12	0.20	72.35	2.85	17.89	19.96	37
2012	11.53	68.12	0.13	83.20	2.28	14.30	19.80	55
2013	7.76	66.99	1.16	77.41	2.20	13.32	20.90	59
2014	7.43	68.02	1.15	72.82	1.80	11.23	19.60	58
2015	11.45	64.56	1.50	116.81	0.44	2.46	29.83	64
2016	12.82	52.90	1.25	98.82	1.69	7.16	34.16	86
2017	17.88	51.20	1.12	101.18	0.56	2.30	35.59	103
2018	18.67	52.12	1.17	100.83	0.37	1.56	34.10	127
2019	20.68	51.72	0.97	86.19	0.64	2.67	34.15	64
2020	30.26	60.75	1.06	96.45	1.42	7.26	25.96	39
AV	14.38	61.80	0.98	89.33	1.45	8.53	26.2	62

Source: Prepared by the researcher based on the annual reports of the Bank of Baghdad, several years.

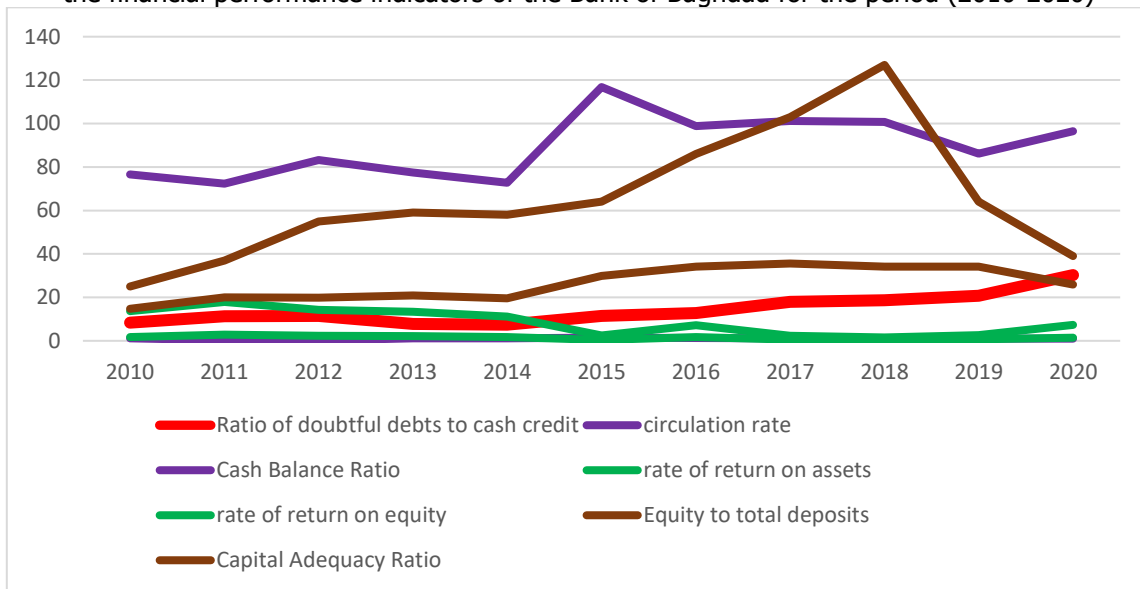
It is noted from the above table, that there is a general harmony between the debt criterion and the financial performance ratios of the research sample during the research period.

With regard to the Bank of Baghdad, it is noted that the debt criterion consisting of the ratio of the allowance for doubtful debts to the cash credit and the ratio of the total debt showed a fluctuation between increase and decrease throughout the research period, where the ratio of the allowance for doubtful debts to cash credit reached its lowest level to reach 7.43 % in 2014, to rise during the remaining years of the research period, in order for the Bank of Baghdad to allocate amounts within the accounts of the year 2016 as a result of the exposure of the Bank of Erbil branch of the Bank of Baghdad to a robbery as a result of manipulation and embezzlement carried out by the bank's branch employees in cooperation with parties outside the bank, as well as another theft in Al-Sinak Branch Bank in Baghdad. (Bank of Baghdad annual report, 2016: 66). While the total debt ratio increased to reach 68.02% in 2014, which was reflected in the liquidity ratios consisting of the trading ratio and the cash balance ratio, which was accompanied by a decrease in the trading ratio to reach (1.15) times and when compared to its standard average which is (1:2), it is considered

an acceptable ratio. As for the cash balance ratio, it also decreased to reach 72.82% compared to the previous year, while the picture was clear in the drop in profitability ratios. The rate of return on assets and the rate of return on equity reached 1.80% and 11.23% in 2014, respectively, and the safety ratios decreased slightly, which includes both equity to total deposits and capital adequacy reaching 19.60% and 58% in 2014 on straight.

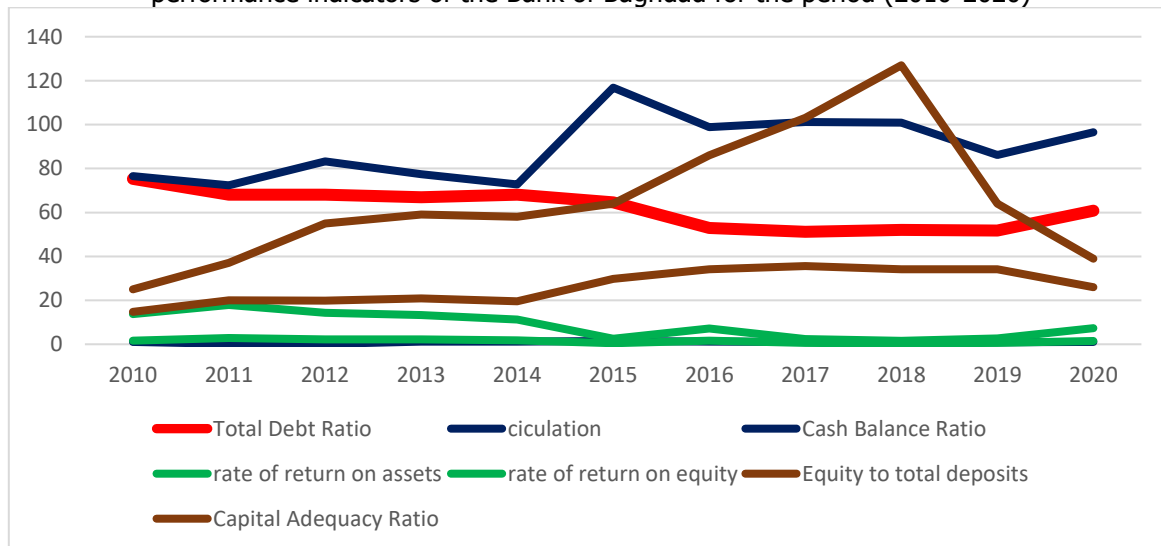
The ratios of this criterion reached the highest level of the provision for doubtful debts to reach 30.26% in the year 2020, due to the establishment of a high provision to hedge some investments and sectors that witness a high probability of default, whether in terms of being affected by the Corona pandemic or the decrease in the book value of the guarantees (Annual Bank report Baghdad, 2020: 8), while the total debt ratio reached 60.75% in 2020, accompanied by an increase in the trading ratio and the cash balance ratio to reach 1.06 and 96.45% in 2020 compared to the previous year, while the profitability ratios increased to reach 1.42% and 7.26% over respectively, and when compared to the standard average for them, which is (12%) and (22%), they are considered low rates. The picture also became clear in the decrease in safety rates to reach 25.96% and 39% in 2020, respectively.

Figure (5) The relationship between the ratio of doubtful debts to cash credit as one of the credit risk indicators and the financial performance indicators of the Bank of Baghdad for the period (2010-2020)



Source: Figure prepared by the researcher, based on the annual reports of the Bank of Baghdad, for several years

Figure (6) The relationship between the total debt ratio as one of the credit risk indicators and the financial performance indicators of the Bank of Baghdad for the period (2010-2020)



Source: Figure prepared by the researcher, based on the annual reports of the Bank of Baghdad, for several years.

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

1- The Central Bank plays an important role in limiting credit risk through credit control tools and obligating banks to work with the regulations and guidelines they issue in order to ensure the soundness of their financial position.

2- It is evident from the financial analysis that the provision for doubtful debts is not commensurate with the volume of non-performing loans.

3- Paying attention to the process of analyzing information and data about the customer's condition. This will give the credit risk management a good perception about the credit risks that accompany this credit process.

4- Credit risk insurance operations are a new means of development, which is established between the insurance company and banks as a good result imposed by technological development and financial globalization.



5- The research sample bank showed a clear reluctance regarding the weak contribution of total deposits, total credit and total assets to the GDP on the one hand, and on the other hand, the weak contribution of the number of bank branches in providing banking services to the required number of the population, according to the international standard that indicates that Each branch must provide its services for every 10,000 people.

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