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Repercussions of the Corona Pandemic Crisis on Financial Soundness Indicators: A Case Study of Iraq

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Abstract *In light of the frequent crises facing the global economy (not least the Corona pandemic (COVID-19)), international financial institutions and central banks have begun to pay increasing attention to trying to maintain the robustness, soundness and strength of the banking and financial system. Central banks have sought to apply various indicators consistent with the decisions of Basel (*I, II, III*), in order to know the performance and conditions of the financial and banking sector. The research aims to identify the most important key indicators followed by the Central Bank of Iraq, its trends, strengths and weaknesses, and in order to know the impact of the shock of the COVID-19 on the strength and soundness of the financial system. The research concluded that despite the negative repercussions of the COVID-19, the Iraqi banking sector, according to the trends of the indicators, enjoys high financial soundness and durability.*

Keywords *Corona Pandemic, Financial Soundness, Banking Sector, Monetary Policy, Financial Soundness Map*

INTRODUCTION

In late 2019 and early 2020, the global economy faced a health and economic crisis as a result of the outbreak of the Corona pandemic (COVID-19), which resulted in an unprecedented decline of the global economy to enter a deep recession. Financial stability was also exposed to risks and challenges, as well as uncertainty about the future. In addition, most economic sectors have been paralysed due to social distancing measures and the cessation of activities and markets. The crisis has imposed challenges and pressures on the banking sector as a result of deteriorating liquidity and financing levels and low returns on taxes. Therefore, most central banks around the world have resorted to taking packages of measures to mitigate the negative effects in an attempt to maintain the stability of the financial system. Financial soundness indicators are an important tool to know the health of the financial system, its ability to absorb shocks, a tool to assess risks, and to demonstrate the ability of financial institutions to comply with capital and liquidity requirements.

Iraq is one of the countries that has begun to pay increasing attention to the use and application of financial soundness indicators as an important tool to diagnose the strengths and weaknesses of the financial system, in order to reach best practices in accordance with international standards.

Research aims to highlight the importance of financial soundness indicators in immunising the banking sector from the negative repercussions of crises and shocks.

Research problem was diagnosed in the following question: Has the COVID-19 affected the performance and soundness of the banking sector through its impact on the capital adequacy, liquidity, asset quality and operational efficiency of banks or not?

Research also proceeds from the premise that "the Corona pandemic has negative repercussions on all economic sectors, including the banking sector, which is one of the most important sectors."

THE CORONA PANDEMIC: A GLOBALISED VIRUS

In December 2019, a series of cases of idiopathic pneumonia emerged in the Chinese city of Wuhan, with clinical symptoms very similar to viral pneumonia, where the deep sequence of respiratory samples indicates the presence of the coronavirus (COVID-19) (Hal, 2020: 10).

Pandemic morbidity has been known as the COVID-19 pandemic, which is considered a global pandemic, as it was caused by SARS-CoV-2 COVID-19 (4). It was created from the original letters Respiratory Syndrome Corona Virus-2 Severe Acute. It is a wide strain of viruses that may cause disease in animals and humans, as a number of corona viruses cause respiratory diseases in humans, the severity of which ranges from the common cold to the most harmful diseases (Saad, 2020: 4).

The most common hypotheses that have been circulating about the source of the COVID-19 are related to the seafood

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market in Wuhan, because a number of people who visited the market were exposed to pneumonia, but a study issued by China on May 25, 2020 confirmed that the first person infected with the COVID-19 on December 1, 2019 had no connection to the seafood market (Al-Khazraji, 2021: 47).

Statistics of the World Health Organization also indicate that the mortality rate has reached (2%) of those infected with the disease. The World Health Organization also officially announced on January 30 that the outbreak of the virus constitutes a public health emergency of international concern that has rapidly spread to most countries of the world for this disease. As of June 15, 2020, the number of people infected with COVID-19 reached (7.9) million in more than 188 countries and regions, including (433,000) deaths, in addition to the recovery of more than (76.3) million infected (Harsh, 2020: 4).

The number of people infected with the COVID-19 has continued to rise to reach (1519083.929) people around the world. According to the World Health Organization report, the number of deaths due to the COVID-19 pandemic has risen to (7) million people globally. The World Health Organization also believes that the number of deaths may reach (15) million. The COVID-19 gradually spread, and then it spread all over the world, although it appeared first in the Chinese city of Wuhan.

The table shows the time line of its spread globally.

Table 1: Timeline of the Spread of the Coronavirus (COVID-19) Around the World

Dates	Event
31 Dec 2019	Outbreaks of severe pneumonia in Wuhan Province of unknown cause.
11 Jan 2020	China announces its first death from coronavirus.
20 Jan 2020	Countries including the United States of America have confirmed cases.
23 Jan 2020	Isolation of the Chinese city of Wuhan by Chinese authorities with a population of more than 11 million.
30 Jan 2020	Who declared a global health emergency.
2 Feb 2020	First coronavirus death reported outside China.
11 Feb 2020	The disease is officially named by the World Health Organization COVID-19.
14 Feb 2020	France reports first coronavirus death in Europe.
23 Feb 2020	Italy has experienced a surge in the number of coronavirus cases.
24 Feb 2020	Iran has emerged as the second focal point of the COVID-19 pandemic.
26 Feb 2020	Latin America reports first case of coronavirus.
29 Feb 2020	The United States of America announced the first death from the Coronavirus.
17 May 2020	Japan and Germany, two of the world's largest economies, are in recession.
11 Jun 2020	Coronavirus infections in Africa have exceeded 200,000.
10 Jul 2020	Hong Kong shut down its school system amid the third wave.
17 Jun 2020	India has reached 1 million cases of coronavirus and the lockdown has been re-imposed.
11 Dec 2020	FDA approved vaccine by Pfizer.
31 Dec 2020	The first anniversary of who reporting its first case of COVID-19. 2.8 million people in the United States received a vaccine dose, well below the country's target of 20 million vaccines.
6 Jan 2021	MOH Announces Plans to Provide $22 Billion in State Funding to Support Scale-Up of Virus Tests and Vaccine Distribution.
22 Jan 2021	Emergence of a new variant 1.1.7COVID-19B/ alpha. Discovered in over 30 countries and 12 US states.
25 Jan 2021	First Gamma P1 Poplar Injury Reported in Brazil.
13 Mar 2021	Giving more than 100 million doses of the COV-ID-19 vaccine in the United States.
12 May 2021	ACIP Pfizer recommends the COVID-19 vaccine for all adolescents aged 12-15 years.
1 Jun 2021	3rd Wave COVID-19 B11672/ Delta Emergence in India.
26 Nov 2021	The World Health Organization names the new variantCovid-19/Omicron. Who first appeared in South Africa.
1 Jan 2022	After the spread of the Delta, AandMicron axons in the world, New York State records a number of virus infections, reaching 114,082 new confirmed cases.
5 Mar 2022	The World Health Organization has announced the administration of 10,704,043.684 doses of the COVID-19 vaccine worldwide. About 56% of the world has been fully vaccinated, but many areas still lack access, especially the continent of Africa, where less than 20% of the total population is currently vaccinated.
10 Jun 2022	The global market for N95 masks is expected to reach $11.8 billion by 2026.
6 Jul 2022	Data shows that the AB4 andAB5 omicron variants are now prevalent in the United States, where they account for more than 70% of new COVID-19 infections.
8 Jul 2022	New York State recommends all people wear N59, KN95, or KF94 masks in all places, due to the high incidence of coronavirus.

Source: Taylor, Derrick Bryson. a Timeline of the Corona virus pandemic: The outbreak of the virus has sickened more than 80 million people At least (1.7) million people have died Here how the year unfolded.

https:\\www.coronavirus-timeline/article/com.anytime

https://ccp.jhu.edu/kapcovid/?gad_source=1&gclid=CjwKCAjwjeuyBhBuEiwAJ3vuodC52nen9HG7_LpmiXkijkORMx6wBk7N9iJ_Ai6R1ynke4vD4w-0FhoCFUAQAvD_BwE

FINANCIAL SOUNDNESS: CONCEPTS AND INDICATORS

Maintaining the stability of the banking sector has become an increasingly important goal in the context of economic policymaking, as it is linked to the stability of the financial system. Financial stability is related to assessing, pricing, identifying and managing financial risks as the financial system continues to be able to perform its financial functions such as saving and investment. The sound banking and financial system also allows for raising the efficiency of financial intermediation as well as the effectiveness and efficiency of monetary policies. In addition, banks seek to achieve a number of economic and development goals, the most important of which is to maintain their financial soundness and stability. Financial stability is still consistent with the analysis of the Institute's recent financial soundness indicators compared to the analysis of monetary stability and economic stability.

Financial soundness expresses "the ability of banks to withstand hostile situations such as fundamental changes in the bank's policies, financial liberalization, natural disasters, and then reflects the bank's ability to meet its obligations under difficult economic conditions using its capital and reserves" (Kawthar, 2021: 371).

It should be noted that there are a set of main and sub-indicators through which it is possible to identify the conditions of the financial and banking sector, which can be clarified through the following:

Capital Adequacy Indicator

It is the expected capital to maintain balance, as the financial institution is exposed to risks, as all risks and their impact on the financial position of the bank must be taken into account when evaluating capital. In order to absorb potential losses and protect stakeholders is to maintain sufficient capital to meet those risks, that the size and type of risk is what determines the level of capital that should be held by the bank, as well as the extent to which the size of capital can be greater than minimum required (Yamina, 2019: 16).

Asset Quality Indicator

It expresses the extent to which the bank is able to make good use of the resources available to it and the extent to which it is able to cover the loans it has granted. These indicators usually focus on the quality of loans, as lending activity is the main activity of banks (Shioki, 2019: 27).

Management Quality Indicator

The quality of management is assessed by the ratio of non-operating administrative expenses to total income, the lower the ratio, higher the quality of management. The ratio also gives an analysis to measure the quality and effectiveness of management by making decisions according to its awareness of risks (Hassan, 2021: 51).

Profitability Indicator

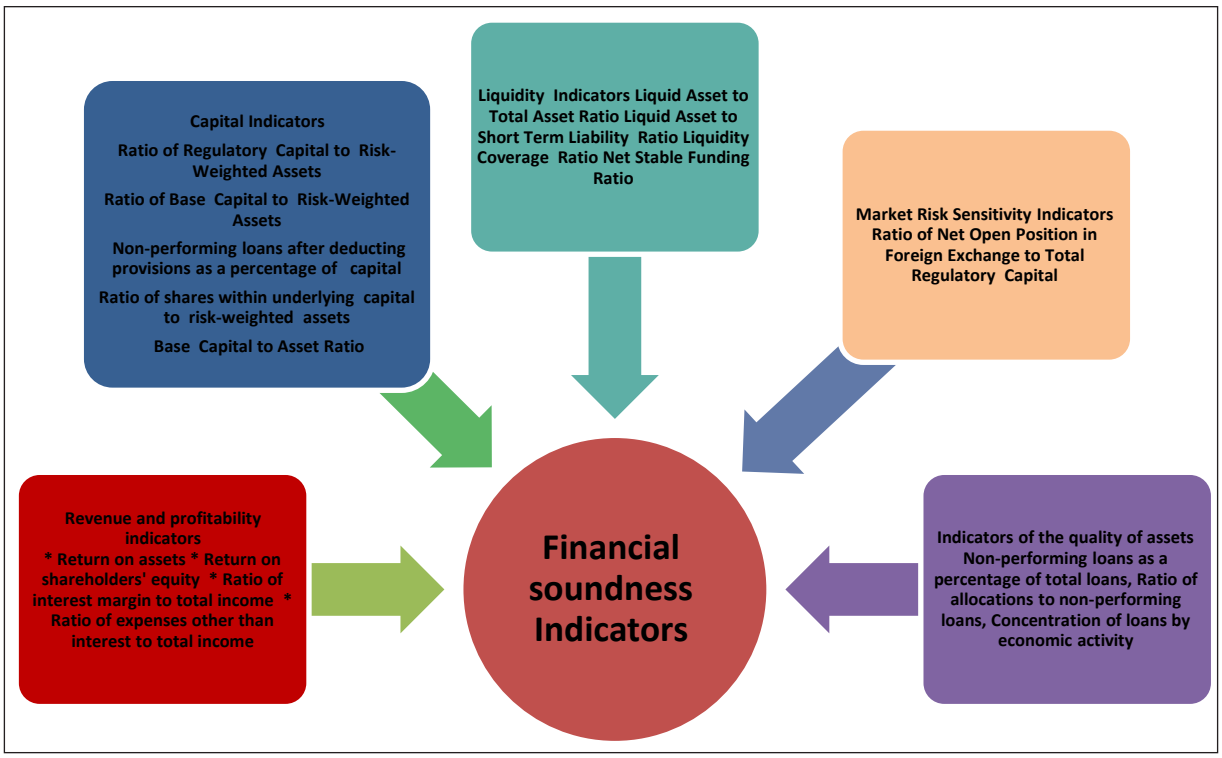
It measures the result of the business and efficiency of policies and investment decisions taken by senior management and the extent to which they are able to achieve profit. The importance of ratios is not limited to management only, but it is concerned with borrowers and depositors in order to reassure them of the bank's ability to pay obligations towards them and the interest of loans in a timely manner, as well as investors to know the level of return on their money invested in the bank (Al-Hamdani, 2013: 76).

Liquidity Indicator

Liquidity is considered as insurance against shocks during crises. The liquidity ratio indicates whether the bank is able to adequately meet the requirements of current and future cash flows without adversely affecting daily operations or incurring losses (Habbi, 2021: 220).

Market Risk Sensitivity Indicator

In light of the financial and banking developments that have occurred at the international level, the fluctuations in foreign exchange centers and in securities prices, which have made banks more vulnerable to financial crises, it is necessary to focus and follow up on many topics in this regard, including the bank's sensitivity to different expectations in interest rates (Bouhrera, 2017: 111).



Source: Prepared by the researcher by relying on research sources.

Chart 1: Basic and Sub-Financial Soundness Indicators

THE IMPACT OF THE CORONA PANDEMIC ON SOME INDICATORS OF FINANCIAL SOUNDNESS IN IRAQ

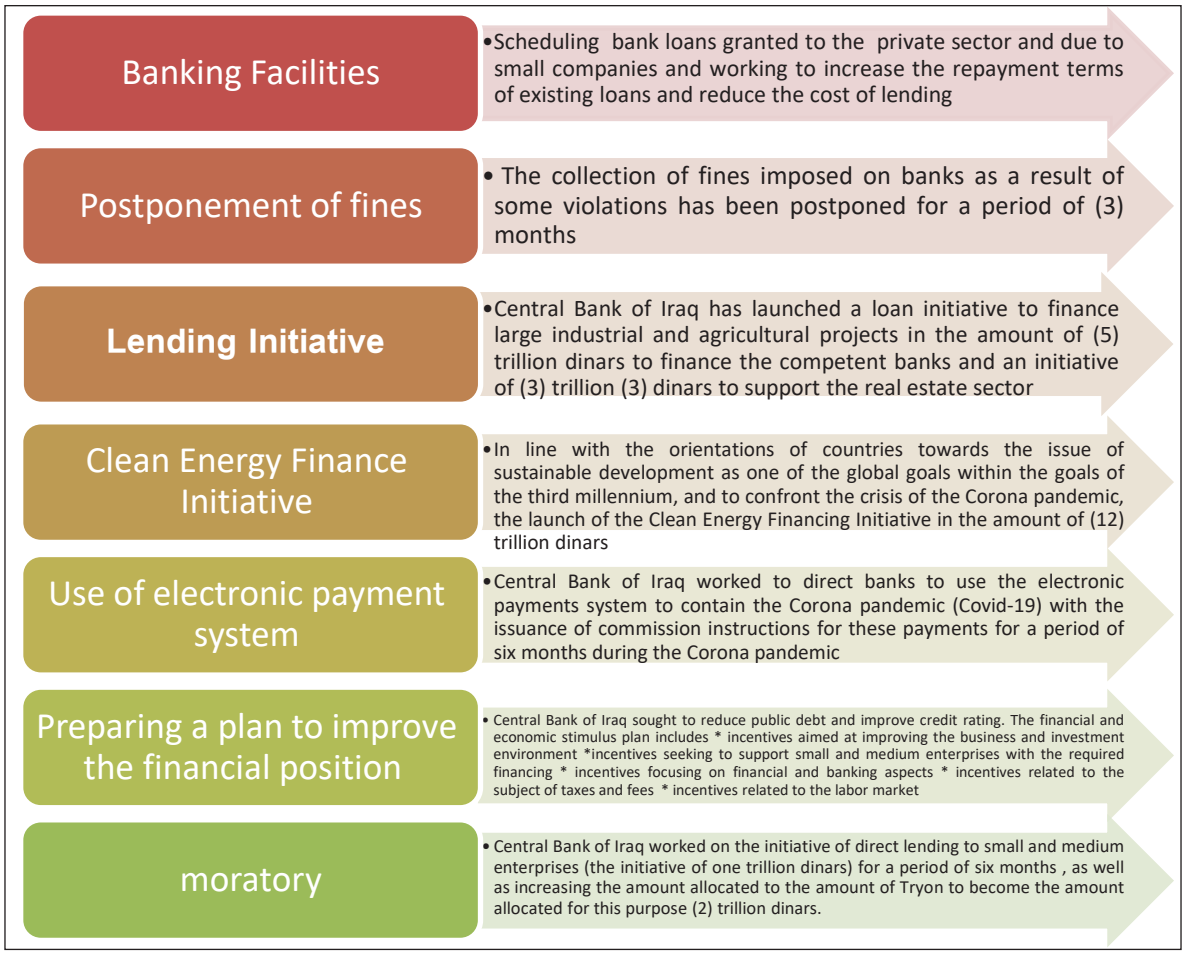
The banking system is the main sector that finances various economic and social processes, within the framework of development goals and policies. The management of this system is then centered on the decisions and instructions provided by the Central Bank of the State, as it determines the monetary policy that plays an important role. Iraq was one of the first Arab countries to face the emergence of banking institutions. The Iraqi banking system has gone through several stages since its inception until the present, as these stages have faced transformations that were sacrificed in its legislation and structure.

The banking system in Iraq has faced successive developments after 2003. After the issuance of the Central Bank Law 56 of 2004, many laws related to the regulation of Iraqi banking were issued. In 2006, the Iraqi Investment Law 13 and its subsequent amendments were issued, then reconsidering the construction and restructuring of the banking sector and granting licenses to establish Arab and foreign banks to enter the banking business, through the establishment of branches or entering by participating in the capital of private banks. In addition, the Central Bank of Iraq has completed the Iraqi payment system by relying on advanced payment systems in this field and issuing the Electronic Payment Law. Then, the Islamic Banking Law 23 of 2015 was issued in Iraq in accordance with the principles of Islamic law (Twij, 2022: 14-17).

According to the data, the number of banks operating in Iraq has reached (79) banks, including (7) government banks distributed among commercial banks, specialised banks and one Islamic bank, represented by banks (Rafidain, Rashid, Industrial, Agricultural Cooperative, Real Estate, Iraqi Trade, Al-Nahrain Islamic), as well as (29) private Islamic banks.

The COVID-19 pandemic affected the banking sector. The total or partial ban affected the economy. And the banking sector in particular. This led to the cessation of some works. Especially in the first months of the virus invasion of the country, due to the curfew measures imposed by the government, this was reflected in the high volume of non-performing loans. The outbreak of the Corona virus has exacerbated the financial crisis of Iraq. The options available to the government to get out of its distress have become difficult and limited, for the reason that the economic recession in Iraq is a global economic recession.

In order to face the negative repercussions of the pandemic, the Central Bank of Iraq has taken a number of measures to maintain the soundness and stability of the banking sector, which can be clarified through the following Chart:



Source: Al-Imam, Salah Al-Din Muhammad Amin. (2022). Analysis of the Central Bank of Iraq's Response to the Impacts of the COVID-19 Pandemic Crisis on the Banking Sector: A Study in the Mechanisms of Achieving Economic and Financial Recovery, Journal of the University College of Heritage, Is. 34, pp. 473 - 474.

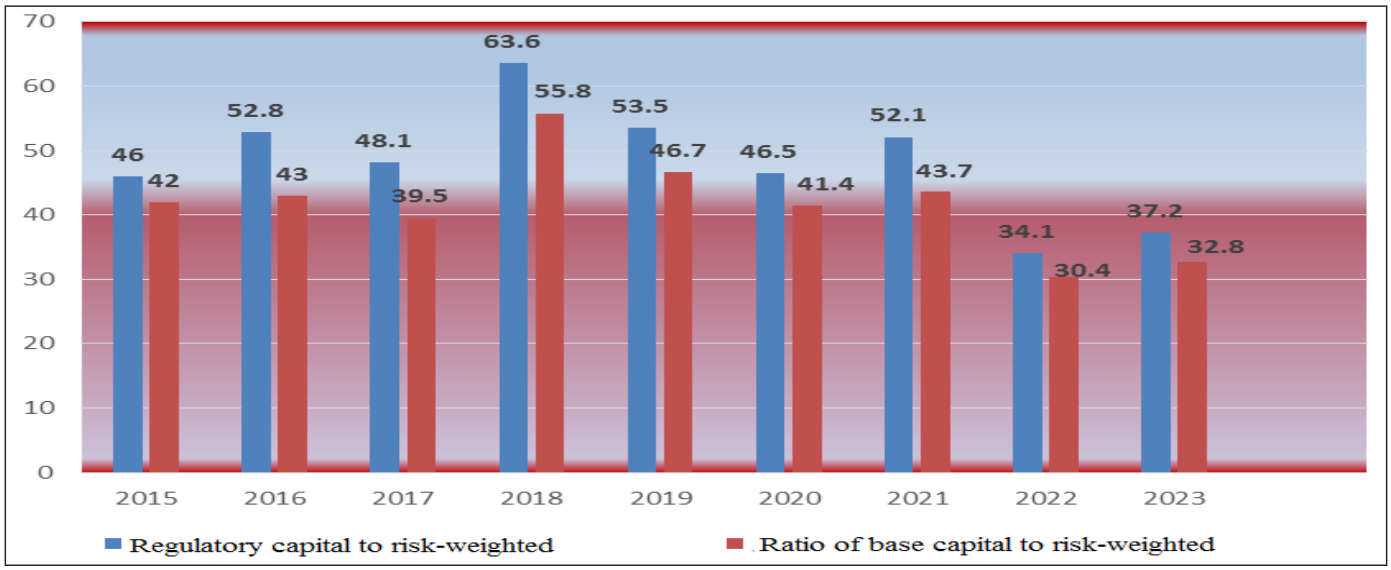
Chart 2: The Procedures of the Central Bank of Iraq to Face the Repercussions of the Corona Pandemic (COVID-19)

Impact of the Corona Pandemic on Marginal Capital Adequacy Indicators

The Central Bank of Iraq has been particularly interested in strengthening the financial positions of banks by increasing their capital, in order to make them the first line of repelling risks and reducing the severity of their negative effects. Capital adequacy is one of the most important indicators used to identify the bank's solvency and its ability to withstand potential losses or insolvency. As capital increases, the likelihood of financial hardship decreases and the degree of solvency rises accordingly, and vice versa, higher the probability of a bank's insolvency, the lower its solvency. According to the Basel Committee (Banking) Supervisory Committee, the adequacy ratio depends on determining the size of the capital and comparing it to the size of the risk-weighted assets with the risk weights inside and outside the budget. Where the size of the capital is not less than (8%), this percentage is the criterion on the basis of which it is determined whether banks are able to face the risks or crises to which they are exposed. While the percentage set by the Central Bank of Iraq is (12%). In order to measure the capital adequacy ratio, it will be measured by the standard or indicator of the Basel II Committee.

The ratio of base capital to risk-weighted assets and regulatory capital to risk-weighted assets for the banking system as a whole faced an increase in 2016 to (43%) and (52.8%), compared to (42%) and (46%) in 2015, as this

increase reflects the ability of banks to face crises to which banks are exposed, then, the ratio of base capital to risk-weighted assets and regulatory capital to risk-weighted assets decreased to (41.4%) and (46.5) in 2020 compared to (46.7%) and (53.5%) in 2019. The reason for the decline is due to the repercussions of the COVID-19 pandemic. Hence, the ratio of base capital to risk-weighted assets and regulatory capital to risk-weighted assets increased during 2021 to (43.7%) and (52.1%). This is due to the measures taken by the Central Bank of Iraq to confront the COVID-19. The ratio of base capital to risk-weighted assets and regulatory capital to risk-weighted assets in 2023 increased to (32.8%) and (37.2%), compared to (30.4%) and (34.1%) in 2022. This reflects the efficiency and ability of banks to face potential risks, as this percentage is greater than the standard percentage specified by Basel II and the Central Bank of Iraq.



Source:

- Central Bank of Iraq. (2016). Financial Stability Report, Baghdad, separate pages.
- Central Bank of Iraq. (2018). Financial Stability Report, Baghdad, separate pages.
- Central Bank of Iraq. (2022). Annual Statistical Bulletin, Department of Statistics and Research, various pages.

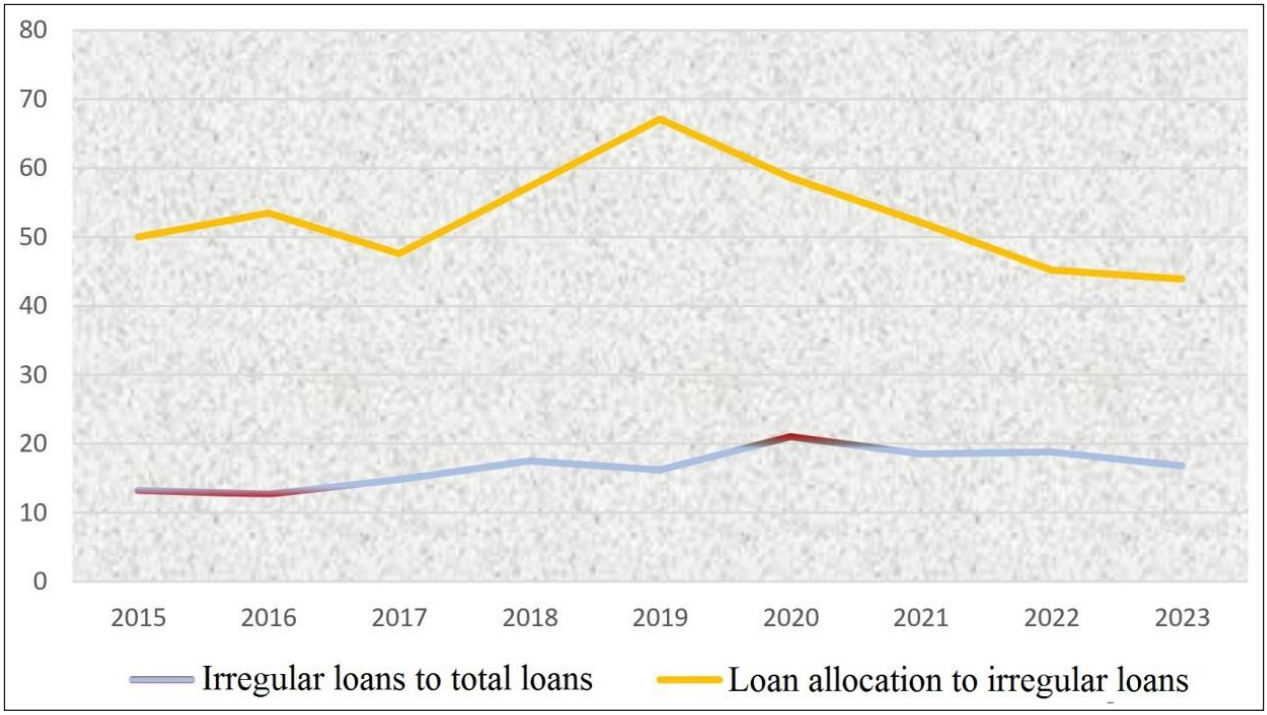
Fig. 1: Capital Adequacy Indicators in Iraq for the Period 2016-2023 (%)

As for the capital adequacy ratio of government banks, it also decreased from (26.3%) for 2021 to (15.2%) for 2022, which is low at a rate of about (42.2%), as shown in Fig. 1. At the same time, it was noted that there was a slight increase in the capital of government banks from (4.34) trillion dinars to (4.51) trillion dinars, as a result of the increase in the capital of each of Rafidain Bank at a rate of (5.3%), Agricultural Cooperative Bank at a rate of (8.3%) and the Industrial Bank, which also increased its capital at a rate of (1.4%). This reflects the efficiency and capacity of government banks in the face of potential risks, as this percentage is greater than the standard percentage specified by Basel II and the Central Bank of Iraq (Central Bank of Iraq, 2022: 49).

In proportion to private banks, the capital adequacy ratio decreased from (101%) in 2021 to (81.3%) in 2022, which is low at a rate of nearly (19.5%). This is due to the stability of its capital by about (13.4) trillion dinars for 2022 and the rise in risk-weighted assets, due to the increase in cash credit provided by private banks at a rate of (16.6%). As well as the increase in the volume of assets of private banks at a rate of (8.7%), despite this, the capital adequacy ratio still reflects a significant decrease in the risks faced by banks operating in Iraq, as this percentage is very high and exceeds the percentage specified according to Basel II standards, as well as the standard percentage specified by the Central Bank of Iraq, as an increase in the capital adequacy ratio of private banks compared to government banks was observed. It is due to the increase in the number of private banks (63) compared to government banks (7) banks, in addition to the increase in the capital of private banks because the minimum amount is (250) billion dinars per bank in response to the instructions of the Central Bank of Iraq (Central Bank of Iraq, 2022: 50).

Impact of the Corona Pandemic on Asset Quality Indicators

The ratio of loans to total non-performing loans recorded a decrease in 2016, reaching (12.7%) compared to (13.2%) in 2015. While the ratio of loan allocations to irregular loans increased in 2016 to (53.5%) compared to (50%) in 2015. In 2020, the ratio of irregular loans to total loans increased to (21%) compared to (16.2%) in 2019. Between the ratio of loan allocations to irregular loans, it decreased to (58.6%) compared to (67.1%) in 2019. This is due to the repercussions of the COVID-19 pandemic. During 2021–2022, the ratio of irregular loans to total loans stabilised at (18%). The ratio of loan allocations to non-performing loans decreased to (52.1%) and (45.2%), respectively. In 2023, the ratio of irregular loans to total loans and the ratio of loan allocations to irregular loans decreased to (16.8%) and (43.9%).



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- Central Bank of Iraq. (2022). Annual Statistical Bulletin, Department of Statistics and Research, various pages.

Fig. 2: Asset Quality Indicators in Iraq for the Period 2015-2023 (%)

The Impact of the Corona Pandemic on Profitability Indicators

The return on assets ratio experienced an increase in 2016 to reach (0.9%) compared to (0.5%) in 2015. The return on rights ratio decreased to (7.3%) in 2016 compared to (15.5%) in 2015. The return on assets ratio increased during 2019–2020 to (0.9%) and (1.1%), respectively. The percentage of return on rights has risen to (6.3%) and (7.5%) respectively. The main reason for the rise is the actions of the Central Bank of Iraq in the fading of the COVID-19. In 2021, the return on assets ratio and the return on rights ratio decreased to (0.7%) and (4.8%). During the years 2022–2023, the rates of return on assets and return on rights increased to reach (1.3%) and (1.6%), respectively, and to (10.3%) and (12.3%), respectively.

Source:

Central Bank of Iraq (2016). Financial Stability Report, Baghdad, separate pages.

Central Bank of Iraq (2018). Financial Stability Report, Baghdad, separate pages.

Central Bank of Iraq (2022). Annual Statistical Bulletin, Department of Statistics and Research, various pages.

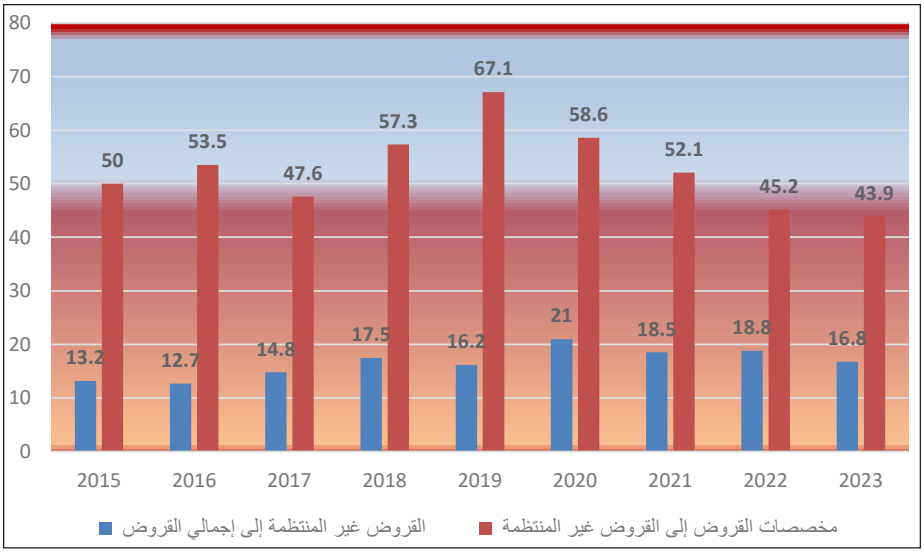
Fig. 3: Return on Rights and Return on Assets over the Period 2015-2023 (%)

Impact of the Corona Pandemic on Liquidity Indicators

The bank's possession of an appropriate level of liquidity remains a major challenge for the management of banks, because it is faced with the trade-off between profitability and liquidity. When liquidity levels fall, the bank is exposed to high financial risks that may lead to its failure. Therefore, Basel III introduced a new standard for regulating and monitoring bank liquidity. It focused on high-quality capital (common stock). The new liquidity benchmark consists of the LCR. This requires banks to maintain a sufficient quantity of high-quality liquid assets to enable them to face stressful situations for a period of at least 30 days. As well as the ratio of net stable funding available NSFR, which is a structural control tool to measure the level of liquidity, as for the liquidity coverage Indicator, the Central Bank of Iraq began to apply the liquidity coverage ratio starting from 2017 by (80%). The percentage increased until it reached (100%) in 2019. Banks operating in Iraq have achieved a high liquidity coverage ratio, as the monthly average of this ratio has not fallen below the minimum prescribed since these ratios began to be used. Thus, the banks have succeeded in applying the liquidity coverage ratio as a full banking sector. These percentages reflect the ability of banks to liquidate high-quality liquid assets to meet the risks resulting from sudden withdrawals, as well as measuring the ability of banks to meet their obligations within (30) days (Central Bank of Iraq, 2022: 49).

As for the net stable financing available, which reflects the bank's ability to provide the liquidity necessary to meet its obligations in the medium and long term, as the Basel Committee set this percentage at no less than (100%), it expressed the sources of financing of the bank (liabilities) in relation to the uses of these sources (assets). The percentage of net stable financing for the banking sector in Iraq has achieved high rates since its implementation. This indicates that banks have more available funding than required, that is, banks are able to finance the asset side as allowed by the sources of funds on the liability side (Central Bank of Iraq, 2022: 51).

As for the ratio of assets to total assets, it faced a decrease in 2016 to (32%). The ratio of total loans to total deposits increased to (51.7%). In 2019–2020, the ratio of assets to total assets increased to (46.3%) and (46.6%), respectively. The ratio of total loans to total deposits in 2020 decreased to (58.7%) compared to (59.6%) in 2019. The reason for the decrease is due to the repercussions of the COVID-19 pandemic. During 2021–2022, the ratio of assets to total assets and the ratio of total loans to total deposits increased to (47.4%) and (54.9%), respectively, and to (62.2%) and (70.3%) respectively. In 2023, the ratio of assets to total assets and the ratio of total loans to total deposits decreased to (46%) and (59.7%).



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- Central Bank of Iraq. (2022). Annual Statistical Bulletin, Department of Statistics and Research, various pages.

Fig. 4: Liquidity Indicators in Iraq for the Period 2015-2023 (%)

Impact of the Corona Pandemic on the Operational Efficiency Indicator of the Bank

The ratio of the interest margin to total income experienced a decrease in 2016 to reach (48%) compared to (57.8%) in 2015. Then the percentage began to rise until 2019 to reach (59.3%), which was the highest percentage during the research period, due to the repercussions of the COVID-19 pandemic. The percentage of interest margin to total income in 2020 decreased to (38.9%), Due to the measures of the Central Bank of Iraq to confront the COVID-19. In 2021, the percentage of interest margin to total income increased to (48.8%). In 2022, the percentage of interest margin on total income decreased to (45.8%). In 2023, the interest margin to total income ratio increased to (50.4%).

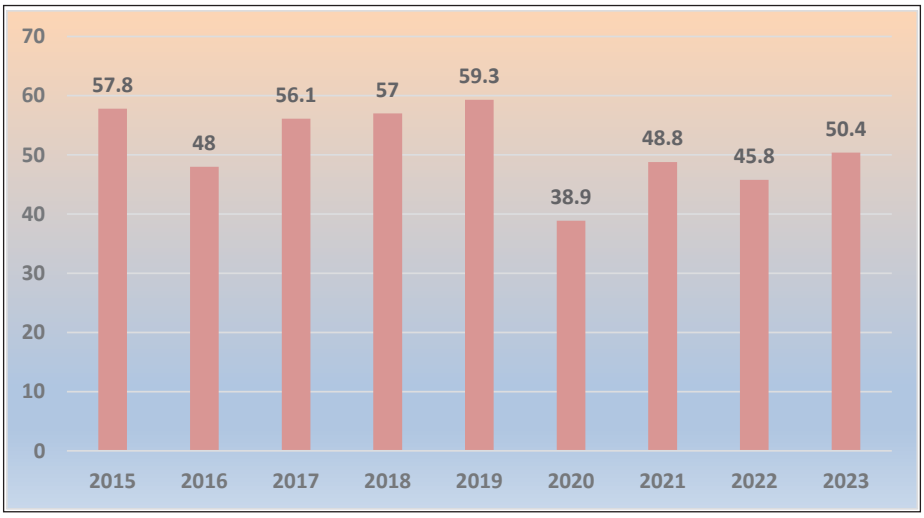

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Fig. 5: Operational Efficiency Indicator (Interest Margin to Total Income) of the Bank during the Period 2015-2013 (%)

RISK MAP ANALYSIS OF FINANCIAL SOUNDNESS INDICATORS

The risk map is one of the tools used to alert to the threats and inherent weaknesses that the financial and banking system may face, which has an impact on financial stability. It is also a tool to monitor weaknesses in the financial system, where the risk map of basic financial soundness indicators is analysed and measured in order to know the nature of the financial and banking sector and its stability and vulnerability to financial and economic crises. These indicators serve as an early warning tool, identify weaknesses and strengths in the banking sector and are one of the direct supervisory means. Using the risk map, it is possible to diagnose any of the indicators used that need more attention and follow-up. The risk map can also be used to illustrate how financial shocks can affect financial stability, and then the real economy, by assessing the different stages of financial shocks. The colors have been used in the risk map in order to reflect the situation that the indicator is going through, as follows (Central Bank of Iraq, 2022: 65-66):

Green: Indicates that there are no weaknesses, so the indicator is in a positive state is not a source of concern.

Orange: The indicator is between the first two states (positive state) and the second (source of concern). That is, the decision-maker should follow up on this indicator, not giving the opportunity to reach the red color.

Red: Reflects weaknesses that lead to the possibility of a crisis in the banking system.

The indicators were selected by reviewing international scientific reports, taking into account the nature of the Iraqi financial system. On the basis of this, indicators were selected through which weaknesses in the financial sector in Iraq can be diagnosed, which may reflect negatively on all economic sectors. The risk map has come to be a complementary indicator of the risks to which the financial system may be exposed. The indicators are followed up and the colors of each indicator are given according to the quarterly results and their location from the standard score of that indicator. The risk map is based on the standard values for each indicator entered into the map. If the indicator exceeds the standard value, it will be within the red color, if the opposite, it will be within the green color. The risks of each indicator are calculated by normalising data for each financial indicator used in calculating the risk map, by adopting the following equation:

$$Zi, t = (X - min) / (max - min)$$

Zi,t: Standard scores of the financial indicator i in the period t.

X: Number of views of the financial indicator.

min: minimum value, max: maximum value.

The results are then compared with the standard scores of the risk map represented by (0 and 1).

Table 2: Risk Map of Financial Soundness Indicators in Iraq for the Period (2016-2022)

Indicators		Adequacy	Profitability		Liquidity		Asset Quality	
		Capital Adequacy	Return/Assets	Return on Equity (ROE)	Liquid Assets/ Total Assets	Liquid Assets/ Short-Term Liabilities	Non-Performing Loans/Total Assets	Non-Performing Loans/Total Cash Credit
2016	Q1	.066	.329	.030	0.987	0.944	0.000	0.269
	Q2	0.080	0.295	0.206	1.000	1.000	.021	328
	Q3	0.000	0.262	0.361	1.000	0.964	.030	0.364
	Q4	.705	0.152	.840	0.986	.960	.022	0.317
2017	Q1	621	0.304	0.110	0.138	0.161	.030	0.353
	Q2	0.579	0.270	0.231	0.088	0.145	0.035	0.356***
	Q3	0.611	0.198	0.379	0.092	0.151	0.159	.286
	Q4	599.	0.198	0.379	520	0.155	504	0.744
2018	Q1	0.615	.283	(061)	0.474	0.155	0.568	817.
	Q2	0.611	0.224	226.	0.429	0.148	0.606	0.917
	Q3	.954	0.143	0.295	371	0.094	934	0.907
	Q4	0.949	0.143	296	0.327	0.082	0.935	0.907

Indicators		Adequacy	Profitability		Liquidity		Asset Quality	
		Capital Adequacy	Return/Assets	Return on Equity (ROE)	Liquid Assets/ Total Assets	Liquid Assets/ Short-Term Liabilities	Non-Performing Loans/Total Assets	Non-performing Loans/Total Cash Credit
2019	Q1	1.000	312	.027	0.361	0.110	1.000	1.000
	Q2	0.928	0.219	0.147	0.468	0.100	0.694	0.632
	Q3	.729	0.101	0.401	0.339	0.068	0.602	0.422
	Q4	0.722	0.034	0.558	0.225	0.056	0.637	564.
2020	Q1	740	0.262	.048	.157	0.056	0.939	0.353
	Q2	0.832	0.190	0.182	0.180	0.056	.954	0.360
	Q3	0.712	0.122	.303	0.000	0.003	0.637	0.362
	Q4	564.	0.000	0.592	.032	0.000	0.671	520
2021	Q1	0.671	0.287	0.000	0.068	0.016	0.744	0.405
	Q2	0.713	0.181	0.228	0.111	.031	0.667	0.352
	Q3	716	0.004	.023	0.133	0.041	.629	0.317
	Q4	690	0.127	.377	0.126	040	0.552	.282
2022	Q1	0.633	0.831	0.655	0.201	0.062	.472	0.182
	Q2	0.482	0.831	697	.234	0.058	0.407	0.082
	Q3	0.257	1.000	1.000	.213	0.037	0.376	0.039
	Q4	.283	916	916	.292	.021	.281	0.000

Source: Central Bank of Iraq. (2022). Financial Stability Report 2022, Baghdad, p. 68.

By following the risk map of financial soundness indicators, it is possible to notice that green is the most widespread color on the map. It indicates the stability of most indicators of financial soundness, which is reflected in banking stability, and then financial stability in Iraq. The Capital Adequacy Indicator for 2022 recorded low risk ratios to be very good for the banking sector, as the benchmark percentage exceeds the Central Bank of Iraq (12%). Profitability indicators stabilised during 2022, as the risk of return on assets increased in all quarters for 2022. For ROE during the third and fourth quarters of 2022, the color variation over the duration path is shown. According to this indicator, it is clear the course of the volume of profits achieved by banks operating in Iraq. As for liquidity quality indicators, they faced more stability in the ratio of liquid assets to total assets and the ratio of liquid assets to short-term liabilities with a decrease in risk during the period (2021–2022). However, the liquidity quality ratios are higher than the central bank's specified ratio of (30%). While asset quality indicators faced a variation in performance, as non-performing loans to total assets (assets) faced a decrease in risk during the period 2021–2022, as the risk ratio decreased during the year 2022. The ratio of overdue debt to total cash credit was more stable in 2022 compared to previous years in which the degree of risk was high.

In general, despite the negative repercussions of the shock of the COVID-19 on the Iraqi economy through low oil prices, deteriorating public budget conditions and high public debt ratios, most of the indicators of financial soundness were clearly stable, as they were not affected by the repercussions of the pandemic. This indicates the strength and health of the financial and banking system in the country.

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

COVID-19 is a health crisis that has been reflected in the overall situation of the global economy. It resulted in an unprecedented decline and a deep recession, and most economic sectors were disrupted, and financial stability was exposed to great risks and challenges.

Financial soundness indicators are an important tool to know the health, durability and soundness of the financial and banking system. They serve as early warning tools about the situation of the banking sector.

Most of the soundness indicators in Iraq were clear rises during the period 2016–2022. Some indicators, such as liquidity indicators and marginal capital adequacy indicators, were higher than the ratios prescribed by the Basel Committee II. Liquidity ratios were higher than (100%), while marginal capital adequacy ratios were recorded at (43.1%) in 2022. This reflects the banks' ability to cope with potential risks.

The financial soundness risk map showed a trend towards the spread of the green color. This means the stability of most indicators, with the exception of cases of some sub-indicators that were suffering from instability.

Recommendations

The need to continue to improve and develop the infrastructure of the banking sector, and to benefit from modern technology in order to prepare and publish financial soundness indicators in lessons, because of its role in knowing the health and soundness of the banking sector.

Working on preparing, qualifying and training workers in the field of preparing financial soundness reports, as well as benefiting from international expertise in this field, in line with international best practices in this field.

Working on publishing financial soundness data periodically (monthly, quarterly, semi-annually), not only on an annual basis. As well as removing all obstacles to the deployment process, in order to make it possible to make the right decisions, and to develop appropriate strategies to maintain banking and financial stability.

Work to pay attention to the reality of the banking sector, develop it, and maintain its health and soundness, as it is the main element in achieving financial stability, in line with the global economic developments of the post-Corona era.

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