

**Central Bank of Iraq
Statistics & Research Department
Monetary & Financial Stability Division**

Financial Stability Report 2023



Central Bank of Iraq

Statistics & Research Department

Monetary & Financial Stability Division

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ECONOMIC EXPERT

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Introduction:

The Central Bank of Iraq plays a vital role in monitoring and managing financial and economic risks to ensure the stability of the financial system and maintain confidence in the national economy. The central bank's policy includes the effective management of the money supply to ensure the stability of the domestic currency and provide a stable financial and monetary environment, thereby boosting confidence in the financial system and contributing to economic development.

From this perspective, the Central Bank of Iraq presents the Financial Stability Report for 2023, aiming to inform stakeholders, interested parties, and the public about the status of the financial sector in the country. This report reflects the serious efforts made by the Central Bank of Iraq to maintain financial stability, analyze potential risks that could affect the financial system, and develop the financial infrastructure to support financial stability and economic growth.

The report includes a comprehensive analysis of global developments and changes affecting the financial system in Iraq, including the impact of climate change. The report also highlights the efforts and measures taken by the Central Bank of Iraq to strengthen the infrastructure of the financial and banking system, in addition to providing recommendations and guidelines to support its stability and enhance its performance considering international and domestic challenges.

The report covers various chapters that consider all the changes affecting the financial system and their impact on the macroeconomy. These chapters detail developments in the financial system and changes in individual and corporate debt. Additionally, stress test models are formulated to assess the financial soundness of the financial system, and financial safety indicators are analyzed to provide further insight. The report also measures the composite financial stability index and highlights the latest developments in infrastructure and financial inclusion and assesses the impact of climate change on financial stability. This comprehensive and in-depth analysis of financial and economic indicators aims to provide valuable insights that contribute to financial and economic stability. We hope that this report will be a useful guide for making economic decisions and formulating financial policies in the future.

God is the Grantor of Success

Ali Mohsen Ismail Al-Alaq
Governor
Central Bank of Iraq

Summary:

The Central Bank of Iraq has taken a set of measures to ensure the soundness of financial system, in order to enhance the role of financial institutions in providing various financial services to projects and individuals, in a way that enhances financial depth and financial inclusion to facilitate and accelerate the settlement of financial transactions in the public and private sectors. Expanding the use of electronic payment tools.

These measures have contributed significantly to achieving financial stability which has had a positive impact on economic stability and contributed to enhancing the path of economic growth. These efforts also reflect the Central Bank's vision towards achieving financial stability, which contributes to strengthening the process of formulating monetary policies and enhancing efforts towards achieving sustainable financial stability.

Financial Sector Development in Iraq

The financial sector consists of banking and non-banking institutions. As the banking sector witnessed the Iraqi economy will grow in 2023, as the total assets of the banking sector rose to IQD (205.25) trillion compared to IQD (198.66) trillion in 2022, recording a growth of (3.3%). Despite the decline in the share of state-owned banks in total assets from (81.31%) in 2022 to (78.61%) in 2023, the total capital of the banking sector increased by 6.6% to reach IQD (19.07) trillion.

The total deposits in the banking sector also increased from IQD (129.1) trillion in 2022 to IQD (133.50) trillion in 2023, a growth rate of (3.42%) as a result of an increase in current deposits by IQD (5.2) trillion and by (5.13%) in 2023. The total credit provided by banks also recorded an increase in 2023 from IQD (90.96) trillion in 2022 to IQD (95.66) trillion in 2023, with a growth rate of (5.2%) influenced by the Central Bank's initiatives to finance various sectors.

It witnessed the largest increase in cash credit by (% 14.32) from IQD (60.57) trillion in 2022 to IQD (69.25) trillion in 2023, which reflects the role of the central bank in supporting bank financing. The report also includes an analysis of non-banking financial sector that is subject to the supervision of the Central Bank of Iraq and the non-banking financial sector that is not subject to its supervision which plays an important role in achieving economic growth and financial stability through institutions that provide loans, which have a large presence in the Iraqi economy.

Household Sector Indebtedness

The ratio of cash credit provided to the private sector to GDP in Iraq increased to (11.9%) in 2023, compared to (7.6%) in 2018. This credit is distributed between the household and corporate sectors, where the ratio reached the credit provided to the household sector to the GDP reached (9.3%) in 2023, while this ratio to the corporate sector reached (2.6%) within the same period. From a financial stability perspective, this shows that credit to the household sector does not have a high risk to financial stability, and it can be expanded without major concerns.

Financially Soundness Indices (FSIs)

Financial soundness indices are among the most important measures for monitoring the financial situation in banking sector, as they contribute to analyzing weaknesses in financial systems and providing an estimate of the stability of the sector in Iraq. These indices showed stability in the banking sector for 2023, as the capital adequacy ratio rose to (41.9%) compared to (34.1%) in the previous year, exceeding the standard ratio specified under Basel III, which reflects the sector's efficiency and ability to confront risks. As for the liquidity coverage ratio (LCR) although it decreased to (131%) in 2023 compared to (231%) in 2022, it still exceeds the minimum required of 100% which shows the ability of banks to deal with risks associated with liquidity. Also, the ratio of cash credit to deposits increased to (51.9%) in 2023 compared to (46.9%) in 2022 ratio that falls within the standard limit specified by the Central Bank of Iraq which must not exceed (75%).

Asset quality indices also improved, as the ratio of overdue debts to cash credit decreased from (7.19%) in 2022 to (6.26%) in 2023, and the ratio of overdue debts to total assets decreased from (2.19%) to (2.11%), which reflects the improvement in the size of assets and a decrease in the ratio overdue debts compared to capital.

Financial Infrastructure and Financial Inclusion

The Central Bank of Iraq contributed significantly to developing the financial infrastructure and enhancing financial inclusion in Iraq, as it began in early of 2023 to launch an electronic platform to facilitate foreign transfers and sell cash dollars to travelers, within the framework of a policy aimed at facilitating the financing of foreign trade, securing foreign currency for real beneficiaries, and achieving exchange price stability. Sub-accounts were also opened for electronic payment service providers from the main account of the Central Bank of Iraq at JPMorgan Bank and development of retail payment systems' security infrastructure and prepare a platform for selling gold bars. The tools of the Cybersecurity Management Center were also developed, and an advanced approach was adopted to enhance cybersecurity in the CBI and the banking sector, in addition to establishing the Cyber monitoring, response and analysis section.

Macro-Stress Testing

The macro-stress tests analyze their results according to two models. The first model includes an analysis of the impact of shocks on some variables such as the parallel exchange rate, which clearly affects Iraq's financial situation. The rate of dollar-against-dinar exchange rate is linked to a correlation with liquid assets since the value of foreign assets that are part of liquid assets will increase the dollar's value against dinars, which in turn depend mainly on public expenditures and affect consumption and total investment.

It is also linked to an expulsion relationship with the ability to commit to financial transactions and risk-weighted assets and this is reflected in the ratio of liquid assets. The second model includes the impact of the parallel exchange rate and cash credit on non-performing loans of banks operating in Iraq. Overall, analysis of the tests shows how these factors affect the sustainability and stability of the financial system, and how these shocks can lead to changes in the ratio of liquid assets and the ratio of non-performing loans, affecting the volume of credit provided to the private sector that will reflect the variables of the economy noting that the exchange rate is no longer a dynamic stabilizer of inflation after the implementation of the electronic platform for external transfers.

Measurement of the Cumulative Financial Stability index

The index maintained its level with a slight decrease to reach (0.402) in 2023 compared to (0.427) at the end of 2022. This reflects the state of stability in the financial system and its lack of exposure to potential risks.

An improvement was recorded in some stability indices as the banking sector index and global economic index rose to (0.223) and (0.015) respectively, compared to (0.188) and (0.014), respectively in 2023. while the macroeconomic and capital market indices and Finance cycle index decreased to (0.114), (0.052) and (0.0) in 2023.

Impact of Climate Change on Financial Stability

Climate change significantly impacts financial stability. Rising temperatures and severe droughts lead to the deterioration of the agricultural sector and related projects, contributing to a decline in the relative importance of agriculture in the GDP and affecting farmers' income. Desertification and dust storms negatively impact agricultural crops, leading to increased rural-urban migration. This puts pressure on urban infrastructure and services. Addressing these challenges requires significant investments in infrastructure and technology, which strains the financial resources of both the government and the private sector. All these factors combined contribute to creating an unstable economic environment that affects Iraq's ability to achieve sustainable economic growth and financial stability. The bank's role is highlighted in a series of measures and initiatives to mitigate the afore-mentioned climate risks, including initiatives for production, afforestation, and the use of renewable energy sources to reduce carbon emissions, as well as the rehabilitation and development of parks and the issuance of regulations to finance renewable energy generation systems.

1

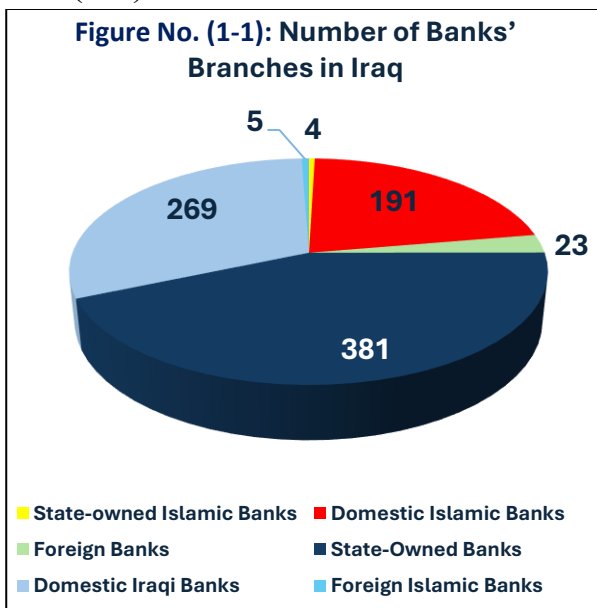


Financial Sector Developments in Iraq

1- Financial Sector Developments in Iraq

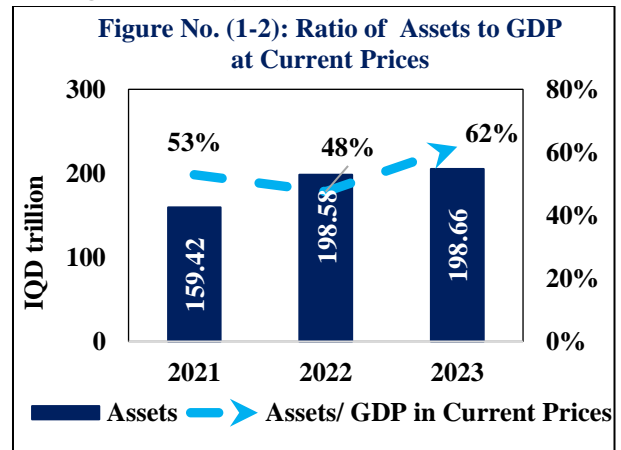
1-1 Banking Sector Developments:

The banking sector witnessed a significant development, where it is composed of (70) banks in 2023, among them being (7) state-owned banks and (63) private banks. The state-owned banks included three major commercial banks which are (Al-Rafidain, Al-Rasheed, and Trade Bank of Iraq), in addition to three specialized state-owned banks, which are (Agricultural Cooperative Bank, Industrial Bank, Real Estate Bank), there is also one state-owned Islamic bank (Al-Nahrain Islamic Bank). The number of branches for these banks reached (385) branches. In addition, there are (23) private domestic conventional banks with (269) branches, and 10 foreign conventional banks with 23 branches. As well as to (28) domestic Islamic banks with (191) branches, and (2) foreign Islamic banks with (5) branches, as shown in Figure No. (1-1).



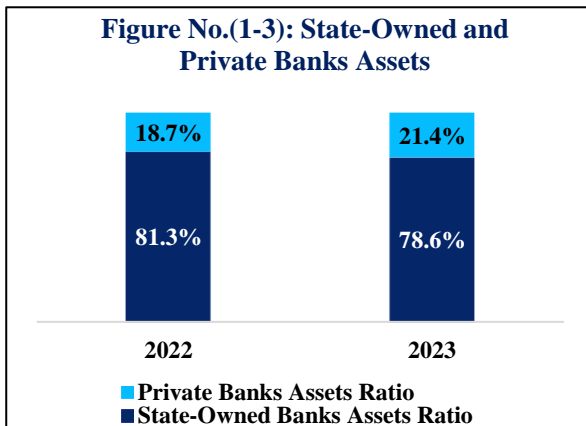
1-1-2 Banking Sector Assets:

The banking sector in Iraq witnessed in 2023 a growth in total assets by (3.3%) to reach IQD (205.25) trillion. This growth is largely due to the increase in deposits by (3.4%), thus increasing the ratio of assets to GDP at current prices from (48%) to (62%). This increase can enhance future growth and support investment and economic development, thus contributing to enhancing financial stability, as shown in Figure No. (1-2).

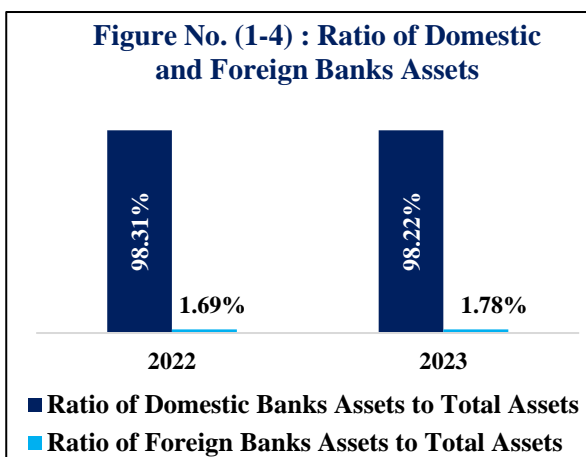


In 2023, state-owned banks continued to dominate the banking sector activities in Iraq, despite their ratio of total banking sector assets declining from (81.31%) in 2022 to (78.61%) in 2023, with a value of IQD (161.3) trillion. At the same time, the ratio of private banks of total assets increased to (21.4%) after it was (18.7%) and with a value of IQD (43.9) trillion. This analysis shows a strong presence of state-owned banks in the banking sector, and the increase in the ratio of private banks indicates an increase in their role and importance, which is a good indicator that reflects the improvement in the level of

competition between private and state-owned banks, as shown in Figure No. (1-3).

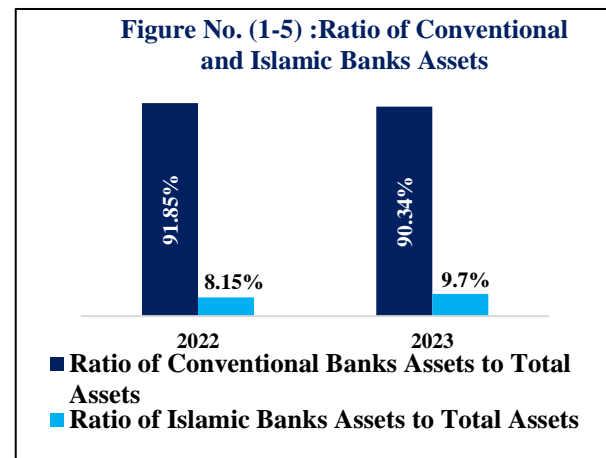


The contribution ratio of **domestic banks'** assets also decreased slightly in 2023, to (98.22%) amounting to IQD (201.58) trillion, compared to (98.31%) amounting to IQD (195.30) trillion in 2022. At the same time, the ratio of total **foreign banks'** assets increased from (1.69%) amounting to IQD (3.36) trillion in 2022 to (1.78%) amounting to IQD (3.66) trillion in 2023, as shown in Figure No. (1-4).

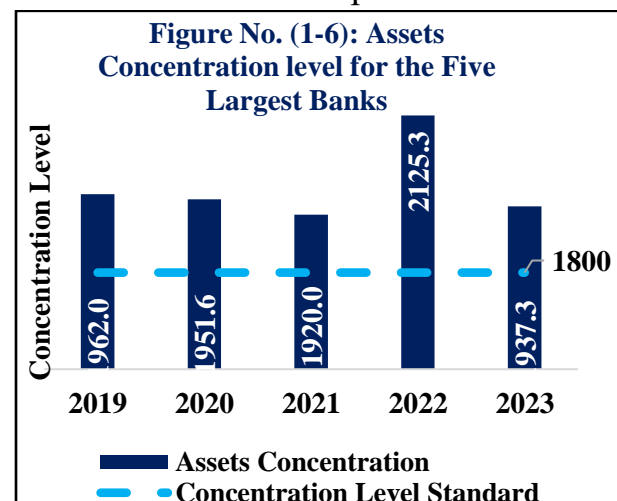


While the ratio of **conventional banks** assets recorded a decrease in 2023, reaching (90.34%) after it was (91.85%) in 2022, as it reached IQD (185.43) trillion in 2023, and in contrast, the ratio of **Islamic banks**

assets increased from (8.15%) in 2022 to (9.7%) in 2023, as it amounted to IQD (19.81) trillion this year, as shown in Figure No. (1-5).

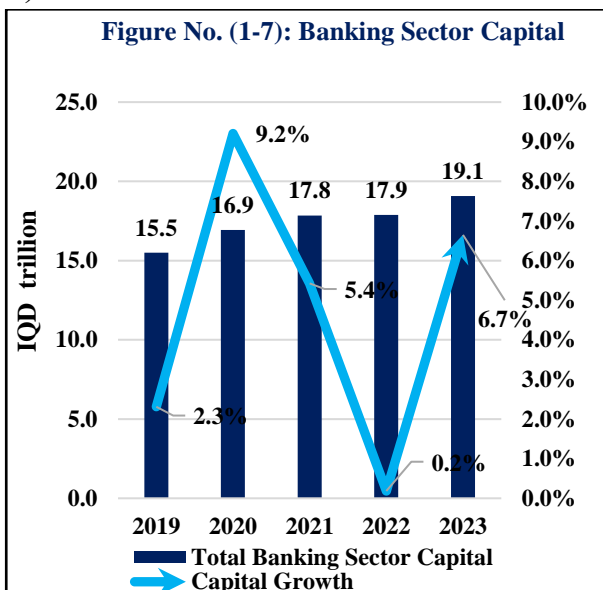


The Herfindahl-Hirschman index, as shown in Figure No. (1-6) shows that the assets concentration level for the five largest banks has decreased from (2125.3) points in 2022 to (1937.3) points in 2023, exceeding the specified standard of (1800). This decrease indicates that assets have been aggregated in the five largest banks, which means an improvement in the level of competition between banks, and the possibility of this level declining in the future if other banks adopt financial technology tools to provide new financial services and products.



1-1-3 Banking Sector Capital:

The total capital of the Iraqi banking sector increased to IQD (19.07) trillion in 2023, with a growth rate of (6.7%) compared to the previous year, which amounted IQD (17.9) trillion, as a result of the instructions issued by the Central Bank of Iraq to increase the capital for banks from IQD (250) billion to IQD (400) billion via three installments, each installment IQD (50) billion, starting from the first installment on 31/12/2023 until the end of 2024. We find that the total capital of state-owned banks has increased to reach IQD (5.02) trillion, with a growth rate of (11.3%) in 2023, compared to 2022, which amounted to IQD (4.51) trillion. As in Figure No. (1-7).



It is noted from Figure No. (1-8) that the ratio of capital contribution **of state-owned banks** as part of the total capital of the banking sector increased from (25.3%) to (26.3%) during the period (2022-2023), and this is due to the increase in the capital of the Industrial

Bank to reach IQD (854.5) billion in 2023.

As for **private banks**, their total capital increased to IQD (14.04) trillion in 2023, with a growth rate of (5.2%) compared to the previous year, which amounted to IQD (13.36) trillion. There is a decrease in the capital contribution ratio of private banks as part of the total banking sector capital from (74.7%) to (73.7%) during the period (2022-2023), although it still constitutes the largest ratio.

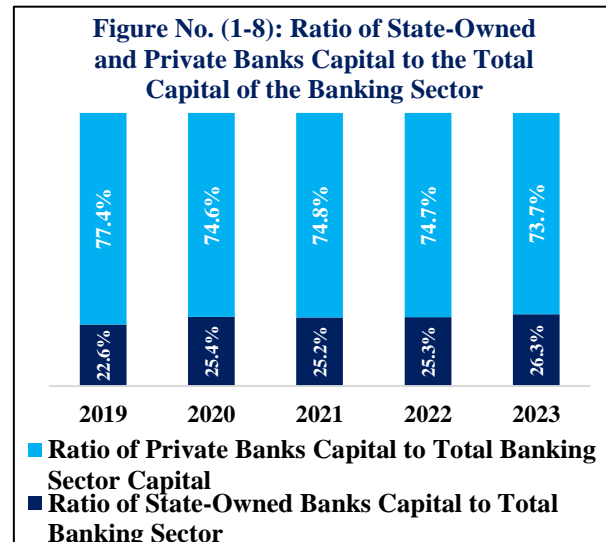
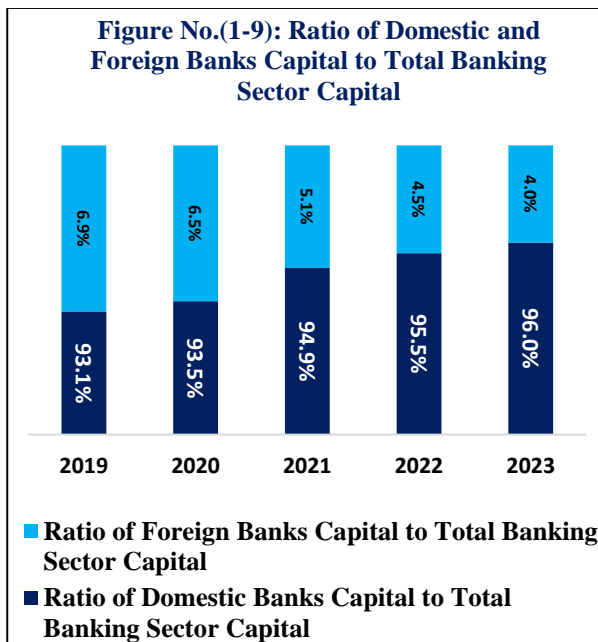


Figure No. (1-9) shows that there are changes in capital between Domestic and foreign banks in the banking sector. The total capital of **domestic banks** increased from IQD (17.08) trillion in 2022 to IQD (18.30) trillion in 2023, with a growth rate of (7.1%). The ratio of capital contribution in Domestic banks as part of the total capital of the banking sector increased from (95.5%) in the previous year to (96%) in 2023. As for **foreign banks**, they witnessed a decrease in total capital from IQD (799.9) billion in 2022 to IQD (768.9) billion in 2023. Despite the

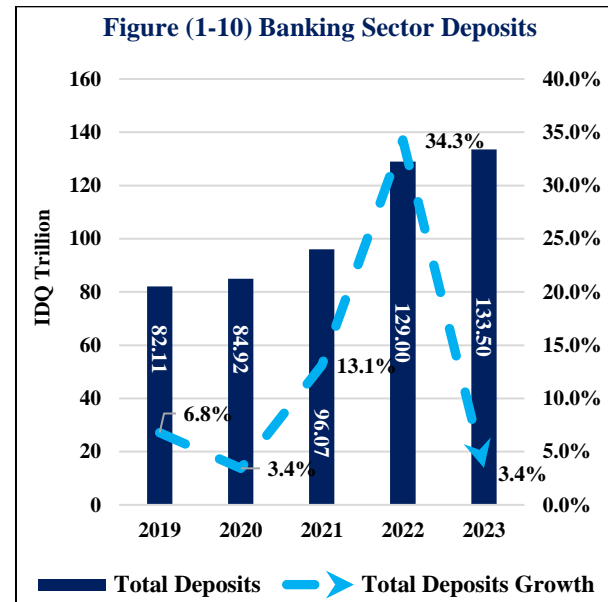
commitment of foreign banks to increase their capital, the withdrawal of some branches of foreign banks from the Iraqi market had the greatest impact on the total capital of foreign banks, as the ratio of capital contribution of foreign banks as part of the total capital of the banking sector decreased from (4.5%) in the previous year to (4%) in 2023.



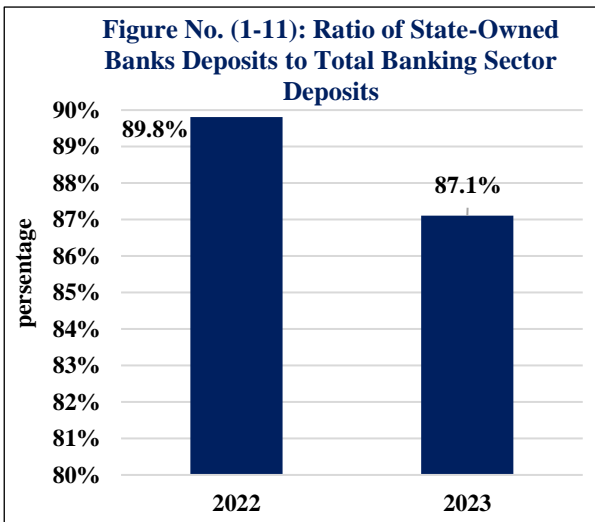
1-1-4 Banking Sector Deposits

In 2023, the banking sector witnessed significant progress in the field of deposits, as the balance of deposits increased from IQD (129.0) trillion in 2022 to IQD (133.50) trillion in 2023, at a growth rate of (3.42%), which is much lower than the previous growth rate of (28.34%). The reason for the increase is due to the increase in current deposits, which increased by IQD (5.3) trillion, at a growth rate of (5.13%) in 2023 compared to the previous year. However, savings deposits witnessed a slight decline in growth rates by (2.0%). In addition,

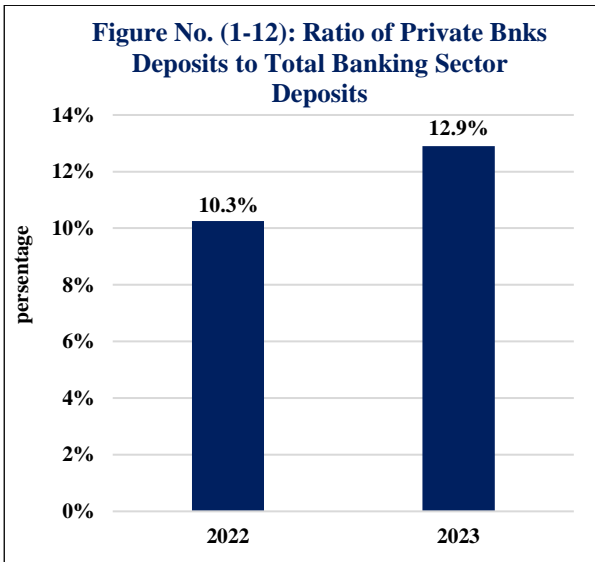
fixed deposits decreased by (4.8%) in 2023 compared to the previous year. The increase in the volume of current deposits means an increase in the financial services provided by banks to the public, as shown in Figure No. (1-10).



It is noted from Figure No. (1-11) that deposits of state-owned banks increased from IQD (115.86) trillion in 2022 to IQD (116.3) trillion in 2023, with a growth rate of (0.37%). This is a result of the increase in government deposits and public institutions to constitute (65%) of total deposits in 2023 after they formed (63%) in 2022, as the growth rate in current deposits reached (0.95%). As for savings deposits, they decreased by IQD (54) billion, by (0.37-%), and the total fixed deposits decreased by IQD (405) billion in 2023.

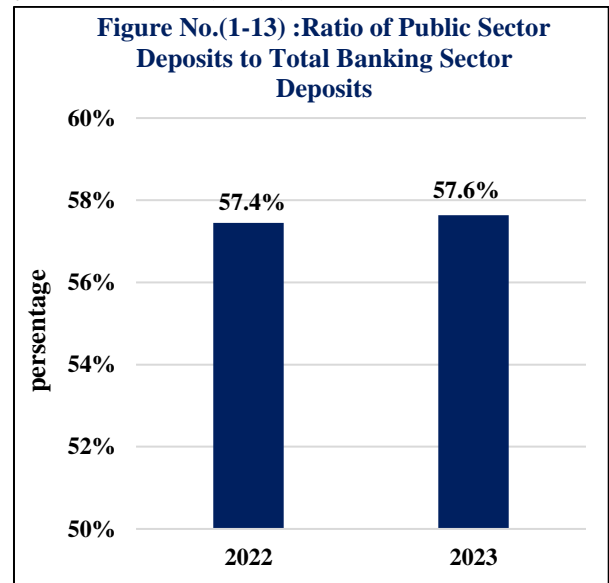


As for private banks, they recorded an increase in total deposits of IQD (4.0) trillion, with a growth rate of (30.1%) in 2023 compared to the previous year, which amounted to (5.7%), and current deposits constitute the largest ratio of total deposits, with a value of IQD (13.6) trillion, while the total fixed and savings deposits amounted to (1.7) and IQD (1.9) trillion, respectively, in 2023. As shown in Figure No. (1-12).

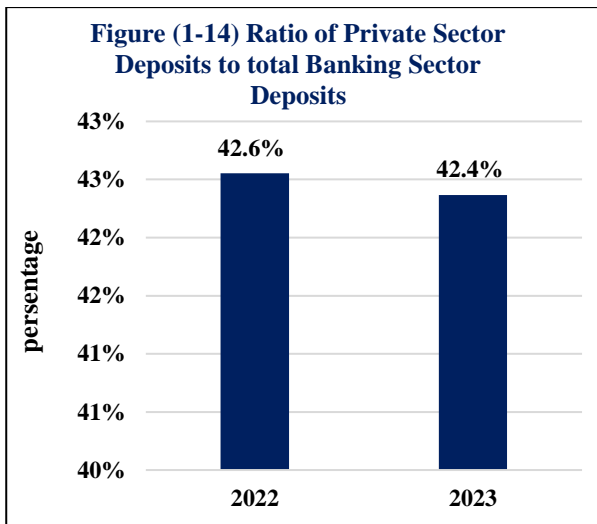


It is noted from Figure No. (1-13) that the total public sector deposits witnessed an increase, reaching IQD 76.9 trillion in 2023, with a growth rate of (3.8%) compared to 2022, which amounted to IQD (74.1) trillion. The

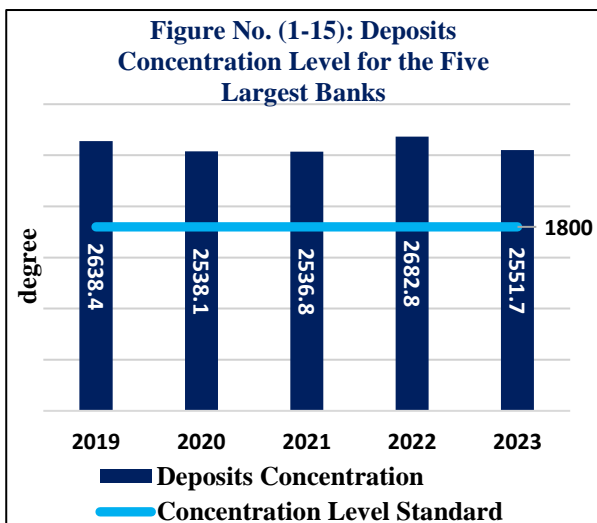
total public sector deposits amounted to (57.6%) of the total banking sector deposits in 2023, compared to (57.4%) in the previous year. Also, the total deposits with the central government increased from IQD (43.0) trillion in 2022 to IQD (47.3) trillion in 2023. As for public institutions, they decreased from IQD (31.1) trillion in the previous year to IQD (29.6) trillion in 2023.



While private sector deposits recorded an increase of IQD (1.6) trillion in 2023, with a growth rate of (3%) compared to the previous year. The private sector's share of total banking sector deposits decreased slightly from (42.6%) in 2022 to (42.4%) in 2023 because of the increase in total public sector deposits. The increase in the volume of deposits indicates depositors' confidence in banks, which ensures their stability, as shown in Figure No. (1-14).

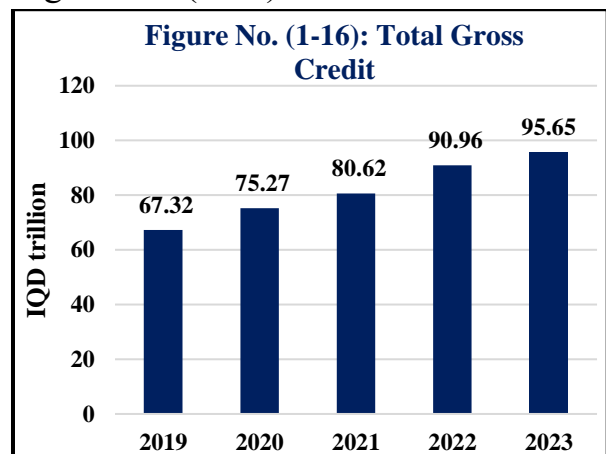


It is noted from Figure No. (1-15) that the Herfindahl-Hirschman index, which measures the concentration of deposits, decreased from (2682.76) points in 2022 to (2551.74) points in 2023. However, the index value is still higher than the standard concentration level of (1800) points, which is clear evidence of the public’s confidence in these banks; since most of them are affiliated with the public sector, and therefore they are guaranteed by the state, so the increase in concentrations in them does not constitute a defect in the financial system, and private banks must increase the banking services provided by them to reduce the volume of the concentration.



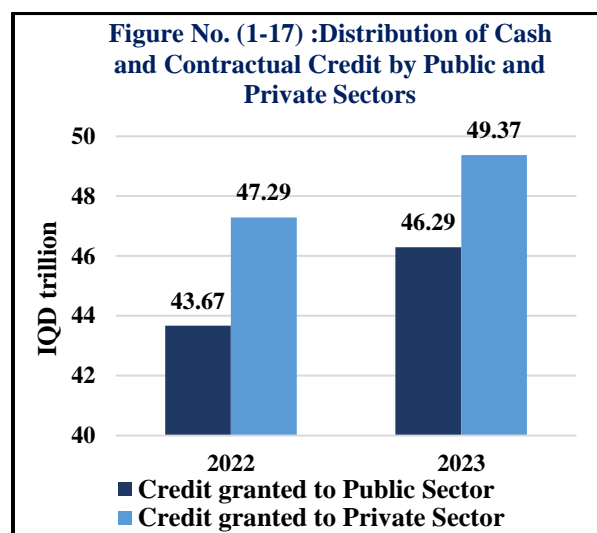
1-1-5 Banking Credit Development

Total credit extended by banks recorded an increase in 2023. It increased from IQD (90.96) trillion in 2022 to IQD (95.65) trillion in 2023, with a growth rate of (5.2%). The largest increase in total credit was due to the increase in total cash credit from IQD (60.58) trillion in 2022 to IQD (69.25) trillion in 2023, with a growth rate of (14.32%). On the other hand, total contractual credit witnessed a decline from IQD (30.38) trillion in 2022 to IQD (26.40) trillion in 2023, with a decrease rate of (13.1%), as shown in Figure No. (1-16).



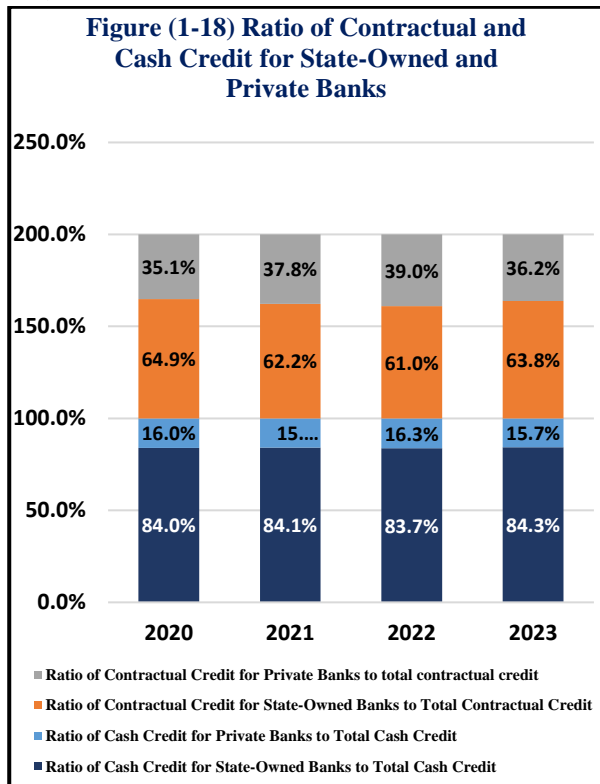
It was noted that the total cash credit granted to the public and private sectors was greater than the volume of the contractual credit granted to them. The volume of cash credit granted to the public sector increased from IQD (25.56) trillion in 2022 to IQD (29.70) trillion in 2023, with a growth rate of (16.2%). Its ratio of total cash credit amounted to (42.9%) for the same year. This increase is a result of the increase in the total cash credit granted to the central government from IQD (21.98) trillion to IQD (27.45) trillion, with a

growth rate of (24.9%) in the period (2022-2023). In the same context, the volume of cash credit in public institutions decreased from IQD (3.58) trillion in 2022 to IQD (2.3) trillion in 2023. Compared to the total cash credit granted to the private sector, the latter increased from IQD (35) trillion in 2022 to IQD (39.55) trillion, with a growth rate of (12.9%) in 2023. This growth shows the continued gap between the ratio of cash credit granted to the public sector and the ratio of cash credit in the private sector. This is a good indicator that shows the decline in the impact of the public sector crowding out the private sector in obtaining cash credit. As for the contractual credit granted to the public sector, it decreased from IQD (18.11) trillion in 2022 to IQD (16.58) trillion in 2023, with a decrease rate of (8.4%). This decrease is due to the reduction in the volume of contractual credit granted to public institutions from IQD (13.0) trillion to IQD (11.84) trillion, at a decrease rate of (9.2%) during the period (2022-2023). Likewise, the private sector recorded a decrease to IQD (9.82) trillion and a negative growth rate of (20%) in 2023, compared to the previous year, which amounted to IQD (12.3) trillion. The ratio of contractual credit granted to the public and private sectors to the total contractual credit amounted to (62.8%) and (37.2%) respectively in 2023. As shown in Figure No. (1-17).



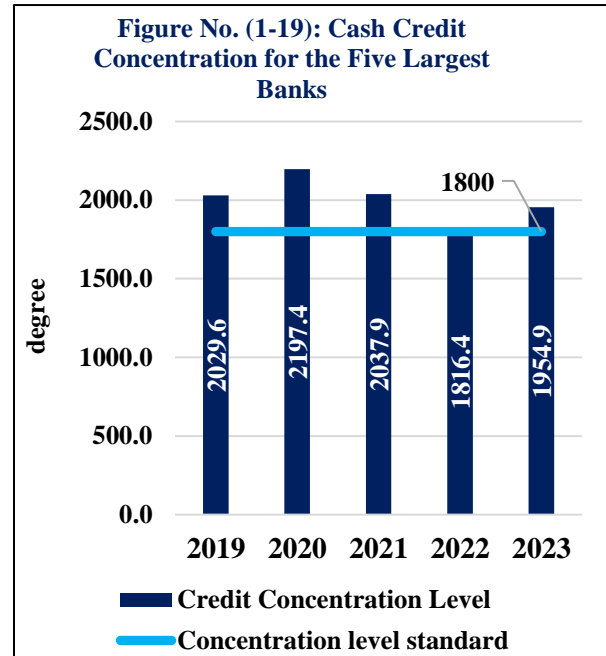
State-owned banks still own the largest share of total cash and contractual credit provided by the banking sector. This is due to the large balance of deposits that these banks own, which enables them to grant credit. In addition, these banks enjoy public confidence, and in 2023, the total cash credit granted by government banks increased from IQD (50.72) trillion in 2022 to IQD (58.40) trillion, with a growth rate of (15.1%). Its ratio to the total cash credit of the banking sector increased by (84.3%) for the same year, compared to the previous year, which amounted to (83.7%). This is followed by a decrease in total contractual credit from IQD (18.52) trillion in 2022 to IQD (16.85) trillion in 2023, with a decrease rate of (-9%). Its ratio to total contractual credit increased from (61%) to (63.8%) during the period (2022-2023). As for private banks, the total cash credit increased from IQD (9.85) trillion in 2022 to IQD (10.86) trillion in 2023, at a growth rate of (10.2%). In contrast, the volume of contractual credit granted by them decreased from

IQD (11.86) trillion in the previous year to IQD (9.55) trillion in 2023, at a decrease rate of (-19.4%). This decrease in its ratio to the total contractual credit from (39.0%) to (36.2%) in the period (2022-2023) is shown in Figure No. (1-18).



State-owned banks control a large ratio of the credit provided by the banking sector, as the ratio of credit provided by the five largest state-owned banks reached (82.23%) of the total cash credit. The market share is high in government banks, and the credit concentration point for the five largest banks recorded an increase of (1954.9) points for the year 2023 compared to the previous year, which amounted to (1816.4) points. The concentration of credit in government banks reveals their impact on controlling the banking sector, and this is a natural result of their branch network spread throughout Iraq,

the ease of access to their services, and their clear developmental role from the increase in the credit they provide compared to private banks, as shown in Figure No. (1-19).



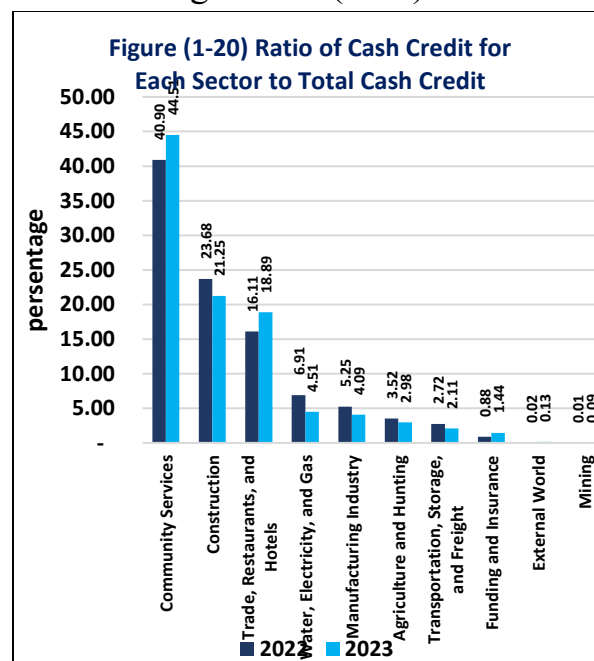
Although the ratio of cash credit provided to the private sector by private banks to the ratio of private sector deposits in private banks reached (70.13%), the volume of cash credit provided to the private sector by private banks, amounting to IQD (10.80) trillion, is low compared to the cash credit provided by state-owned banks to the private sector, amounting to IQD (28.76) trillion.

1-1-5-1 Sectoral Distribution for Cash Credit

The community services sector recorded an increase in the total cash credit granted to it to reach IQD (30.8) trillion, with a growth rate of (24.4%) for 2023, compared to the previous year, which amounted IQD (24.8) trillion. This sector acquired the largest ratio of

total cash credit, as this ratio increased from (40.9%) to (44.5%). Despite the services sector acquiring the largest ratio of the volume of cash credit, it does not pose a risk to the banking sector as long as the ratio of non-performing loans to the total credit for the services sector was low, reaching (1.01%) in 2023, and the ratio of non-performing loans for this sector to the total non-performing loans reached (7.1%) for the same year. The community services sector is followed by the construction and building sector, in which the total cash credit increased from IQD (14.3) trillion in 2022 to IQD (14.7) trillion, with a growth rate of (2.6%) in 2023. However, its ratio of total cash credit decreased from (23.68%) to (21.25%) during the year (2022-2023), in addition to the increase in the total cash credit provided to the trade, restaurants and hotels sector by IQD (3.3) trillion, and its ratio of total cash credit reached (18.89%) in 2023 compared to the previous year, which amounted to (16.17%). As for other sectors such as manufacturing, agriculture, fishing and others, they received lower ratios of the total credit granted, which indicates that Iraqi banks rely heavily on granting commercial, construction and building loans due to the guarantees (Collateral) that these sectors can provide compared to other sectors. On the other hand, the nature of real economic activity is dominated by these activities (community services, construction, restaurants, hotels, and trade) and the

limited nature of other activities (industrial, agricultural, and others) contributed to forming the sectoral distribution map of bank credit, as shown in Figure No. (1-20).

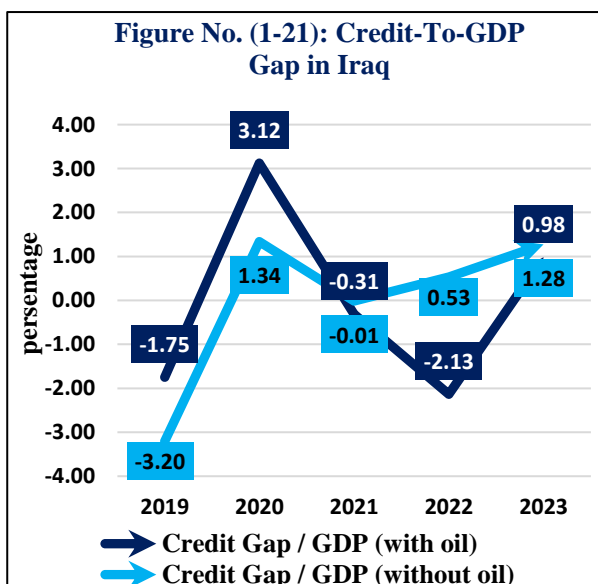


1-1-5-2 Analysis of Cash Credit Provided to Private Sector to GDP Gap

The gap is measured by the difference between the ratio of credit extended to the private sector to GDP and its long-term trend to address cyclical fluctuations. A positive gap indicates an acceleration in the growth of the ratio over its historical trend, which requires the construction of buffers (from the reserve capital) to protect the banking system from potential risks when it reaches (2.5%). Additionally, an increase in the value of the gap above the upper limit of (10%) explains the increase in total credit by a ratio greater than the growth rate of GDP, which means an increase in the degree of risks resulting from excessive credit granting to the private sector,

thereby requiring the construction of a larger amount of additional capital reserves to confront the expected losses that the financial system may be exposed to in order to remain able to continue performing its basic functions.

The Hedrick-Prescott (HP) Filter method used by the Basel Committee on Banking Supervision (BCBS) was used to calculate the Credit-GDP Gap. The results shown in Figure No. (1-21) indicate a positive gap when adopting GDP data with oil by (0.98%), as well as the emergence of a positive gap in the case of adopting GDP data without oil by (1.28%), due to the increase in credit provided to the private sector by (12.9%) in 2023. These data indicate that there is no need to build additional capital buffers, meaning that bank credit can increase without affecting stability within the Iraqi financial system, considering the standards and foundations that must be available when granting credit to the various economic sectors.



1-1-6 Total Non-Performing Loans

The total non-performing loans recorded a decrease of IQD (4.34) trillion, with a negative growth rate of (0.42%) in 2023 compared to the previous year, which amounted to IQD (4.36) trillion, and a decrease in the ratio of non-performing loans to total cash credit to (6.26%) in 2023 compared to the previous year, which amounted to (7.19%), that means a decline in the risks facing the banking sector, especially the risks resulting from the activity of the private sector, whose non-performing loans constitute the largest ratio compared to the public sector, as shown in Figure No. (1-22).

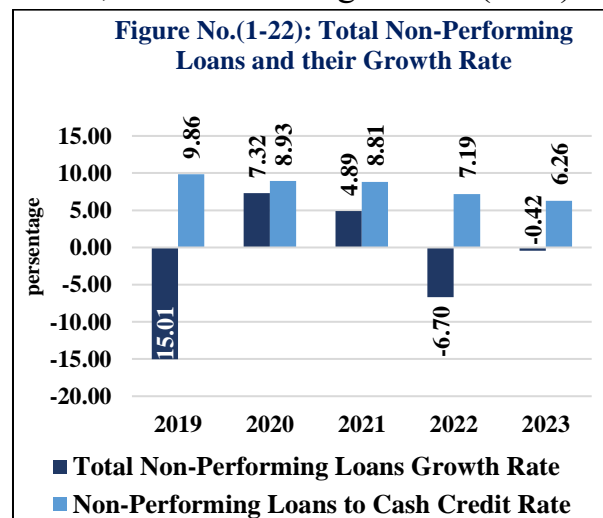


Figure No. (1-23) also shows that the private sector continues to bear the largest ratio of non-performing loans compared to the public sector, and that non-performing loans in it decreased from IQD (4.28) trillion in 2022 to IQD (4.27) trillion, with a negative growth rate (-0.42%) in 2023. The ratio of non-performing loans for the private sector to total non-performing loans stabilized

at (98.36%) compared to the previous year.

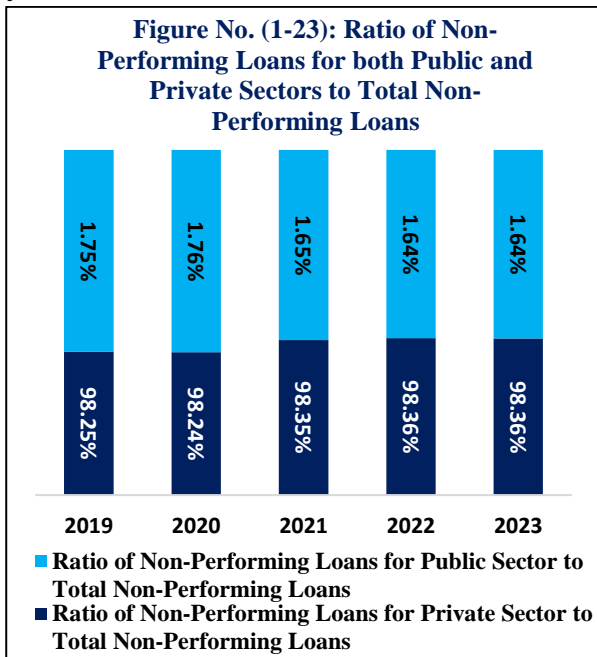
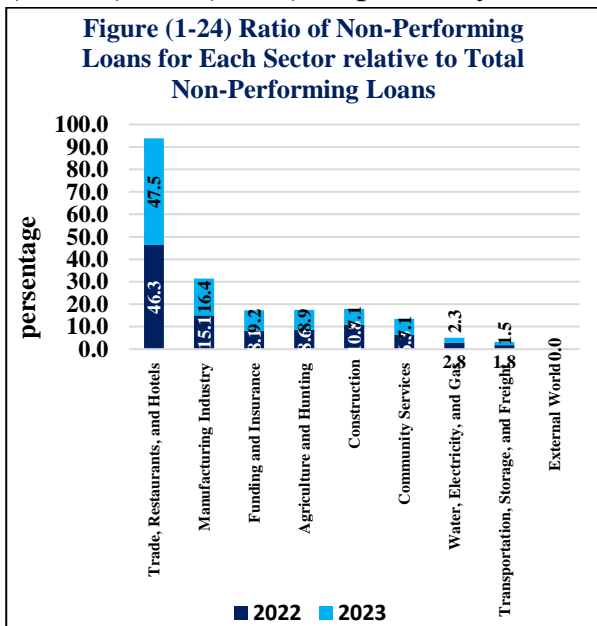
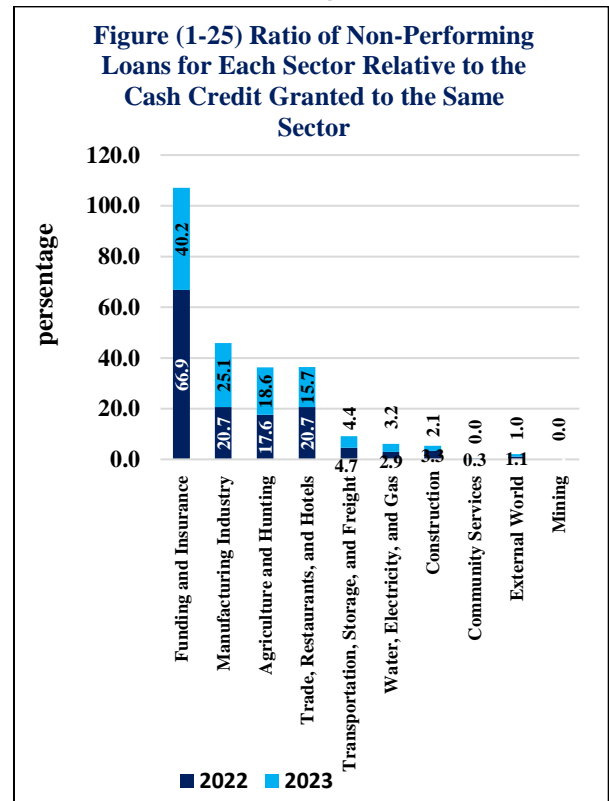


Figure No. (1-24) shows the bad debt ratios of the economic sectors. The ratios varied for each sector. The trade, restaurants and hotels sector had the highest ratio in 2023 with a bad debt ratio of (47.5%). It was followed by the manufacturing, finance and insurance sectors with a bad debt ratio of (16.4%) and (9.2%) respectively for 2023, compared to 2022, which reached (15.1%) and (8.1%) respectively.



The ratio of bad debts for each sector to the total cash credit granted to the same sector showed a decrease in the rates of default risks in each of the finance and insurance sector, which amounted to (40.2%), followed by the trade, restaurants and hotels sector at (15.7%), while an increase in the rate was observed in each of the manufacturing sector, which amounted to (25.1%), and the agriculture and fishing sector at (18.6%). As for the other sectors, they recorded varying rates, as shown in Figure No. (1-25).



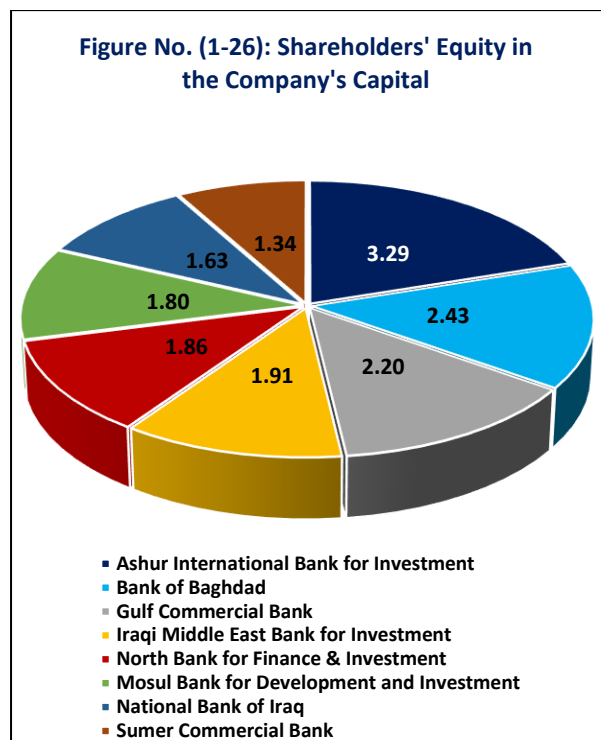
1-2 Non-Banking Financial Sector

The non-banking financial sector in Iraq is one of the most important sectors that contribute to achieving financial and economic growth and stability. This sector includes financial institutions that own investment portfolios containing financial and non-financial assets for lending to individuals and companies,

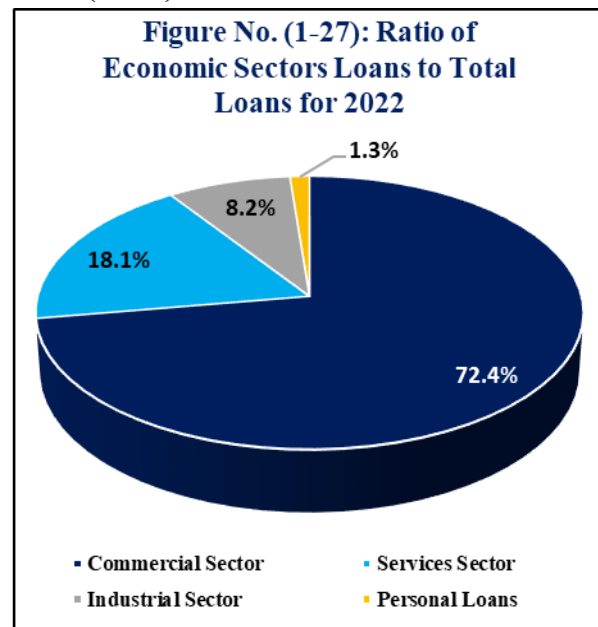
as well as for investing in public bonds issued by the government. The Central Bank of Iraq supervises some of these institutions, while others operate outside its supervision, as these institutions affect financial stability through their management of financial risks and directing their investments towards activities within different sectors. It is necessary to monitor the performance of this sector to ensure its continuity in supporting growth and financial stability.

1-2-1 Non-Banking Financial Institutions under CBI Supervision
1-2-1-1 Iraqi Company for Financing Small and Medium Enterprises¹

The company plays a vital role in supporting the domestic economy and promoting sustainable growth, as it contributes to providing the necessary financing and support for small and medium enterprises, which enhances job opportunities and contributes to achieving economic development. The capital of the Small and Medium Enterprises Financing Company in 2022 amounted to IQD (16.46) billion, with the participation of (8) private banks, as shown in Figure No. (1-26).



The size of the loan portfolio provided by the company through the contributing banks amounted to IQD (1.160) billion in 2022, through the provision of (73) loans, distributed among the sectors as shown in Figure No. (1-27).



¹ Annual Report of the Iraqi Company for Financing Small and Medium Enterprises for the year 2022.

1-2-1-2 Foreign Currency Exchange Companies

It is considered one of the basics of the infrastructure of the non-banking financial system in Iraq. These companies play a vital role in meeting the Domestic needs of foreign currencies for invisible economic transactions, such as travel, education, health, and tourism, in addition to remittances from residents to their families and friends abroad and internal transfers. The number of exchange companies, which is (565) companies, is classified until 2022, as follows:

- There are 73 exchange companies categorized as class (A), with a total asset value of IQD 494 billion.
- There are 52 exchange companies categorized as class (B), with a total asset value of IQD 146 billion.
- There are 440 companies that mediate in the buying and selling of foreign currency, with a total asset value of IQD 235 billion.

1-2-1-3 Financial Investment Companies

These are non-banking financial institutions in Iraq that are regulated by the Central Bank of Iraq and specialize in investing in securities. These companies form and manage investment portfolios, by mobilizing idle capital towards investment channels, thus contributing to the revitalization and development of the national economy. In 2022, the number of these companies reached 5, with a total capital of IQD 6.6

billion, and the total assets in 2022 amounted to IQD 7.4 billion.

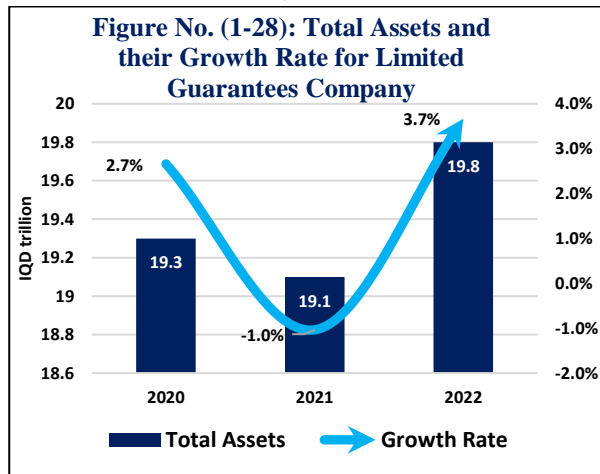
1-2-1-4 Electronic Payment Service Providers

Electronic payment companies have witnessed significant growth thanks to advancements in information and communication technology. This growth is largely dependent on the Iraqi payment system, which has made payment processes and financial transactions easier, faster, and more secure, leading to increased use of online electronic payment services by individuals and companies at a lower cost. In 2022, the number of electronic payment companies reached 17, with a total capital of IQD 252.9 billion.

1-2-1-5 Limited Liability Banking Guarantee Company

The capital of the Limited Liability Banking Guarantee Company reached IQD 9.62 billion in 2022, with 15 private Iraqi banks as shareholders holding 99.61%, a financial brokerage firm holding 0.24%, and 15 individual shareholders holding 0.15%. The company's primary objective is to encourage private banks to provide loans guaranteed by the Iraqi company, to boost the activity of small and medium-sized enterprises. The company provides guarantees of up to 75% of the value of loans granted by participating banks, with loan limits ranging between \$5,000 and \$250,000 or their equivalent in Iraqi dinars. The company generates revenue from the operational and investment activities of

the loans in exchange for the guarantee. Figure No. (1-28) shows an increase of 3.7% in the company's total assets to IQD 19.8 million in 2022, compared to IQD 19.1 million in 2021. This increase is a positive indicator reflecting the company's growth and stability in the financial market. These positive impacts the non-banking financial sector by providing loan guarantees that boost the activity of small and medium-sized enterprises, thereby enhancing investment and stimulating the Domestic economy.



1-2-1-6 Iraqi Deposits Insurance Company²

The Iraqi Deposit Insurance Company plays a vital role in enhancing financial stability through the deposit insurance system. The company aims to provide protection for bank deposits, contributing to building trust in the banking sector and promoting overall financial stability. The insurance system helps to reduce the phenomenon of hoarding money among the public, as it encourages depositors to place their

money in banks with confidence. The company's capital has been set at IQD 100 billion, with a share price of one Iraqi dinar, ensuring the company's ability to bear risks and meet obligations, thus enhancing confidence in its sustainability and contributing to overall financial system stability. The company has 58 shareholders, with the public sector holding 49.2% and the private sector holding 50.8%. Shareholders include individuals and companies. The company covers approximately 80% of the total small deposits in the banking sector, which are defined as deposits of up to 25 million dinars, making it the primary pillar of deposits in banks, as shown in Table 1-1.

Deposit Amount	Compensation Ratio
1 dinar up to 25 million	100%
25,000,001 to 50 million	30%
50,000,001 to 100 million	20%
100,000,001 to 250 million	10%
250,000,001 to 500 million	5%
500,000,001 to 1 billion	4%

The total revenue of the company from guaranteed premiums paid by member banks in 2023 reached approximately 27.5 billion dinars, compared to 28.3 billion dinars in 2022. Additionally, total investment income amounted to approximately IQD 5 billion, derived from investment

² Iraqi Deposits Insurance Company Report 2023

deposits in government bonds and Islamic deposit certificates.

1-2-2 Non-Banking Financial Institutions Outside CBI Supervision

1-2-2-1 Iraqi Housing Fund

The Fund aims to provide adequate housing for the largest possible number of families and individuals in Iraq, expand housing options, and improve the efficiency of housing production. The Fund's total assets reached IQD 4.99 trillion, in addition to a capital of IQD 919.5 billion, with a total of IQD 3.94 trillion in loans granted in 2022. These loans reflect the Fund's success in achieving its objectives and providing adequate housing, especially since most of the loans granted were from initiatives of the Central Bank of Iraq, as a continuation of its developmental role and its contribution to enhancing economic growth in achieving the goals of monetary policy, especially stabilizing the general price level.

1-2-2-2 National Pension Fund

This fund works to serve civilians, military, and security retirees to obtain their retirement benefits as quickly as possible. The fund receives its revenue from several sources, including collecting contributions from state employees, financial investments, and grants. The fund then directs a portion of its funds to invest in investment portfolios in accordance with specific laws, which reduces the burden on the state's general budget. Retirees' benefits

are calculated and distributed according to applicable laws.

1-2-2-3 Social Security Fund

This fund is part of the Ministry of Labor and Social Affairs in Iraq. It is self-funded through social security contributions paid by employers, investment returns, and other revenues. The fund aims to achieve the humanitarian values of work and improve the living standards of covered workers by providing social security in areas such as health, occupational injuries, retirement, and other services.

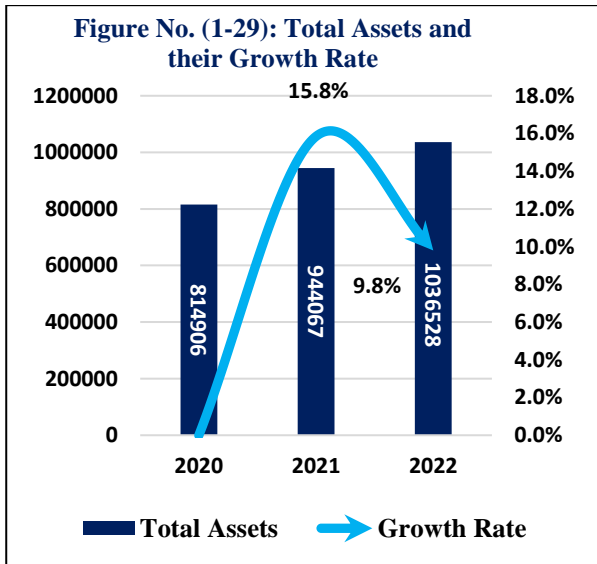
1-2-2-4 Insurance Institutions³

These institutions are characterized by their financial activities and unique investment approaches. They employ contractual mechanisms to achieve both social and economic objectives, playing a significant role in the national economy. These institutions influence economic growth and contribute to the realization of development programs. The impact of insurance on the national economy can be summarized as reducing inflation by absorbing excess funds through premium payments, which are then used to finance economic projects.

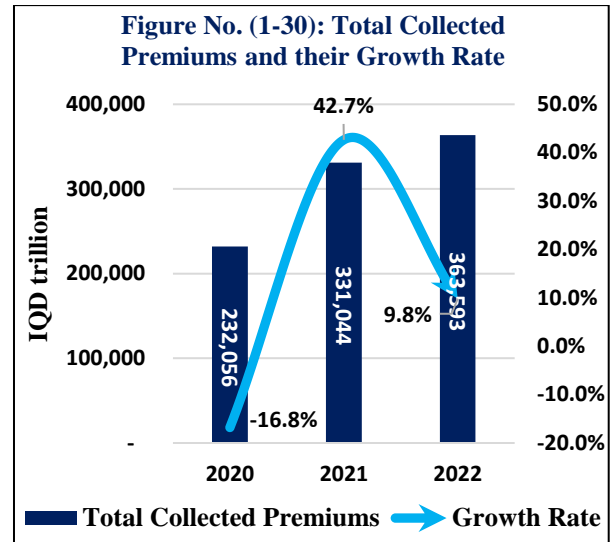
Insurance branches in Iraq are diverse, encompassing marine insurance, automobile insurance, fire insurance, other accident insurance, as well as life insurance. Figure No. (1-29) shows a notable increase in the total assets of insurance companies to IQD 1.036

³ Ministry of Finance, Insurance Bureau, Financial Statements 2022

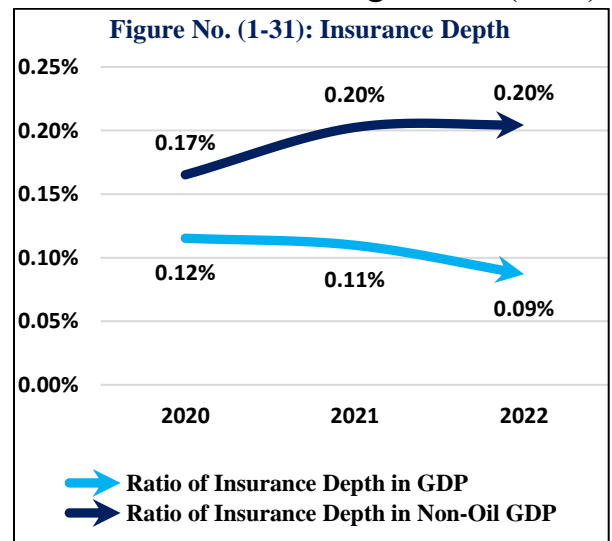
trillion in 2022, compared to IQD 944.0 billion in 2021, representing a growth rate of 9.8%. Notably, National Insurance Company, Iraqi General Insurance Company, and the Iraqi Reinsurance Company recorded the highest asset levels, constituting 50.5% of the total assets.



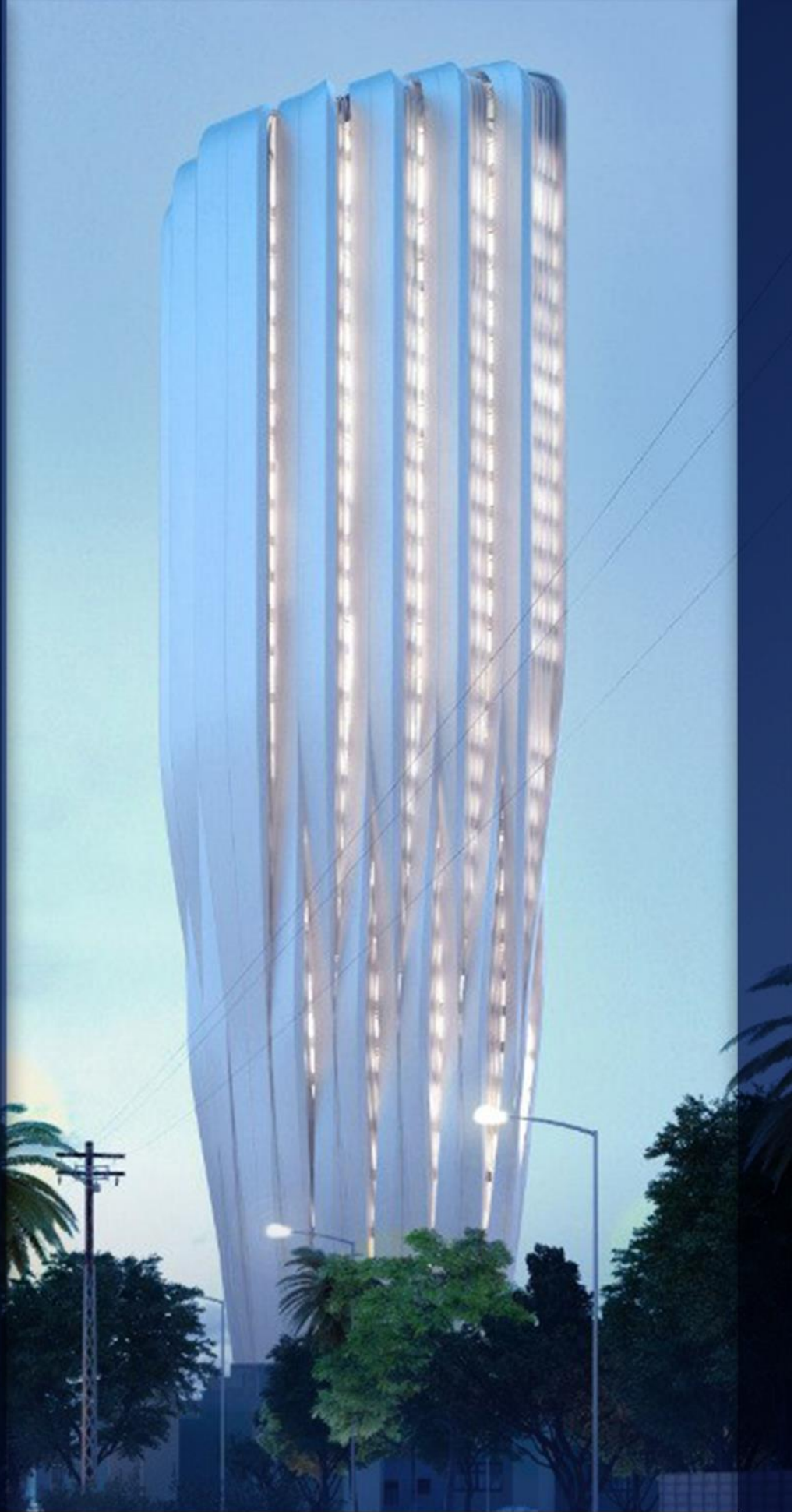
Total premiums collected by insurance companies increased to IQD 363.5 billion in 2022, compared to IQD 331.0 in 2021, representing a growth rate of 9.8%. The highest premiums were concentrated in companies such as Iraqi General Insurance Company, National Insurance Company, and Asia Insurance Company, which accounted for 74% of the total premiums in 2022, as shown in Figure No. (1-30).



Regarding the depth of insurance, it decreased according to its contribution to the gross domestic product (GDP) by 0.09% in 2022 compared to 0.11% in 2021. Its share in non-oil GDP remained stable at 0.20% in both 2021 and 2022, recording an increase of 18% compared to 2020. As shown in Figure No. (31-1).



2



Household and Corporates Sector Indebtedness

2- Household and Corporates Sector Indebtedness:

2-1 Credit Provided to The Household and Corporates Sector:

Credit provided to the private sector is divided into two parts: either it goes towards natural people (the household sector) or what is called credit provided to individuals, or it is given to legal people, which is called (corporates sector). The sum of both credits represents the credit provided to the private sector. Therefore, these two credits represent the activity of the private sector within the real sector, so it is usually high in developed countries due to the high activity of the private sector, which is the main driver for stimulating economic growth and moving the wheel of the economy. However, in return, it is very important to monitor this sector and analyze its size through the indicators used to measure it, and to determine the optimal size appropriate for that economy and work to increase it if there is a decrease in it, or reduce it if there is excessive granting, to maintain it at a level that is compatible with the economic conditions in a way that contributes to maintain financial stability, which is one of the most important goals sought by central banks. It is worth noting that there are many crises that occurred due to excessive credit granted to the private sector, whether they were given to household or corporates, including these crises that occurred in 2008, due to excessive credit extended to the

private sector, which led to the creation of several precautionary tools used to limit this credit if there was excess.

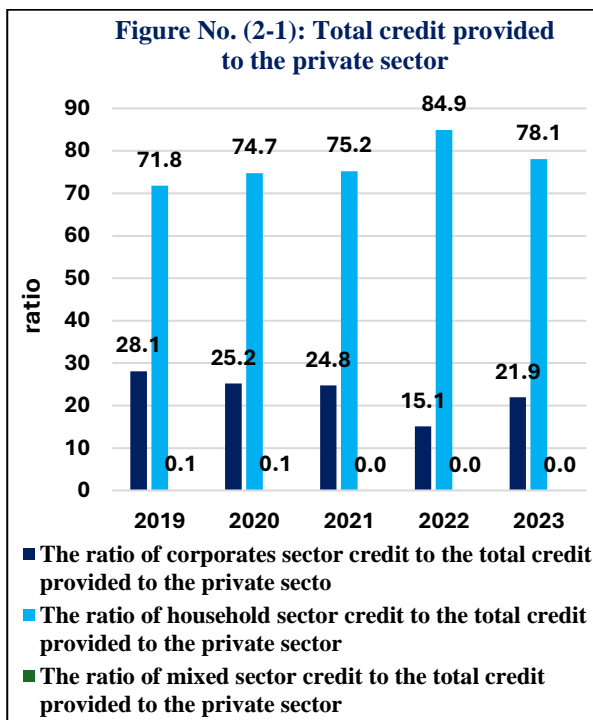
It is worth noting that there is credit provided to the mixed sector, which is specified to corporates sector, which is counted within the private sector. These companies are owned by the public and private sectors with a partnership ratio of (51%) for the public sector and (49%) for the private sector.

Note that the credit provided to the private sector mentioned in this chapter represents cash credit without including the undertaking credit.

2-2 Ratio of Credit for The Individual, Corporate and Mixed Sectors to Total Cash Credit Provided to The Private Sector:

Credit provided to the private sector is one of the most important tools through which the private sector can be activated, which contributes to driving the wheel of growth within the economy. Therefore, it is necessary to detail the credit provided to the private sector according to its orientation towards the family, corporates or mixed sectors. Figure No. (2-1) shows that credit provided to the family sector constitutes the largest ratio of the total credit provided to the private sector, as its ratio reached (78.1%) at the end of 2023, while the ratio of corporate sector during the same period reached (21.9%). Whereas for the mixed sector, it does not have any credit at the end of 2023, since it did not exceed (1%) over the previous years, so its ratio is very

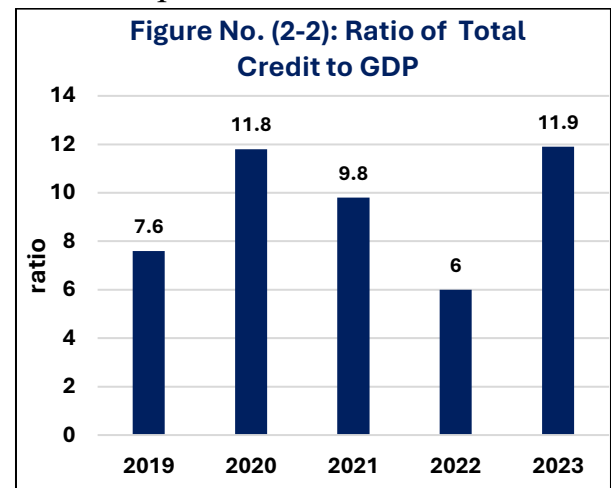
weak. Therefore, credit provided to the family sector is the largest of the total credit provided to the private sector due to the loans granted to this sector through the Central Bank’s initiatives, in addition to personal loans granted by banks, especially those that are directed at individuals whose salaries have been integrated into the process of financial inclusion.



2-3 Ratio of Cash Credit Provided to The Private Sector to (GDP) in Iraq:

Studies have shown that the credit provided to the private sector relative to GDP reaches (80%-100%) will lead to significant fluctuations in the economic cycle, and it may affect financial stability¹, therefore this ratio will be measured for both the total cash credit provided to the private, corporate and household sector. Figure No. (2-2)

shows the ratio of cash credit provided to the private sector to the GDP in Iraq, which confirms that there is an increase in this ratio from (7.6%) in 2019 to (11.9%) in 2023. This ratio was distributed between the household and corporates sectors, as the ratio of credit provided to the household sector to GDP reached (9.3%) in 2023, while the corporate sector reached (2.6%) during the same period, meaning that in terms of financial stability, there are no high risks to credit provided to the private sector on financial stability, so that it can be expanded.



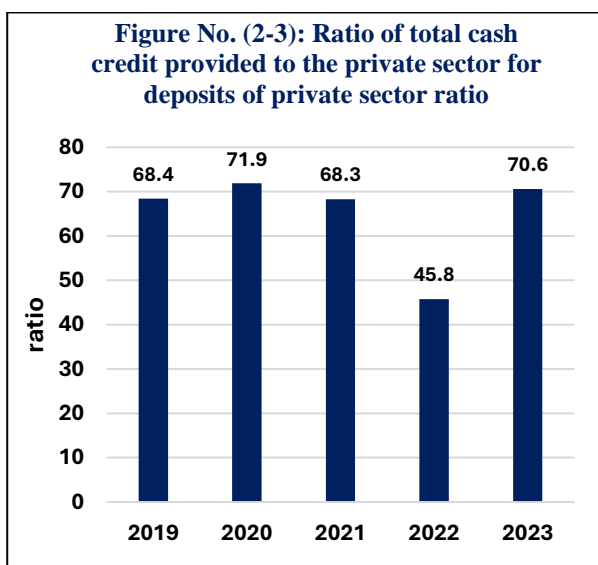
2-4 Ratio of Private Sector Credit (Household and Corporates) to Private Sector Deposits:

This index shows the extent to which banks can cover the debts provided to the private sector, both household and corporate, through private sector deposits only. Figure No. (2-3) shows that the ratio of household sector credit to private sector deposits

1) Ratna Sahay and others, rethinking financial deepening: stability and growth in emerging markets, IMF, 2015.

reached (49.1%) in 2019, then this ratio rose to (54.5%) by the end of 2023.

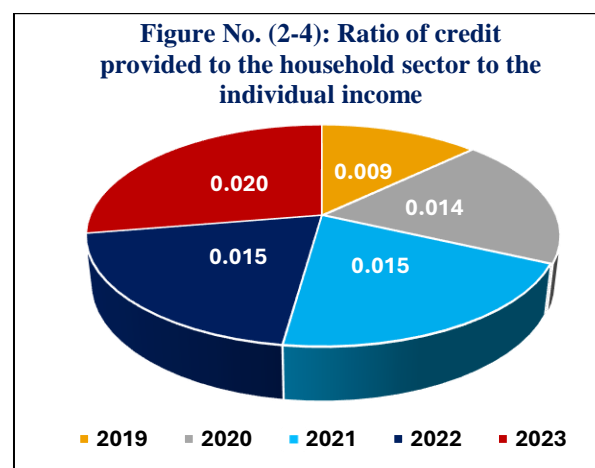
As for the ratio of credit provided to the corporate sector to deposits, the private sector decreased from (19.2%) to (15.5%) during the same period. Whereas the ratio of the total credit provided to the private sector to deposits of private sector increased from (68.4%) to (70.6%). This means that deposits cover all credit provided to the household sector, corporate sector and private sector in full. Thus, the credit provided to the private sector can be increased, considering the conditions, the procedures and guarantees that must be available when providing credit by banks.



2-5 Ratio of Household Sector Credit to Individual Income²:

Given the importance of the household sector in driving the wheel of growth within the economy, as it represents the largest part of the credit

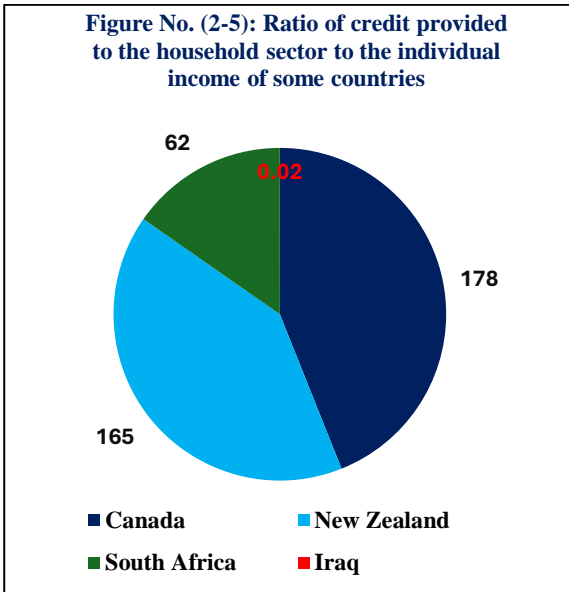
provided to the private sector. Therefore, the income available to this sector represents purchasing power within the real sector through which the market forces of supply and demand are moved on the one hand. As well as through this index, the ability of individuals to repay their loans can be measured on the other hand. Figure No. (2-4) explains that the ratio of household sector debt to their income did not exceed one percent, meaning that it is very low despite the slight increase from (0.009%) in 2019 to (0.020%) in 2023. Accordingly, household sector debt in Iraq does not greatly affect the stability of economic conditions, but rather it has led to growth in some sectors such as the housing sector. Also, it does not pose a real risk to financial stability or lead to a financial crisis if it is relatively high, which is a positive indicator in terms of the risks of household sector debt.



When comparing Iraq to some countries, it can be found that it ranks a

2) To learn more about the methods of measuring household sector indebtedness, see CBI, Financial Stability Report 2020, Issue 11, p. 91.

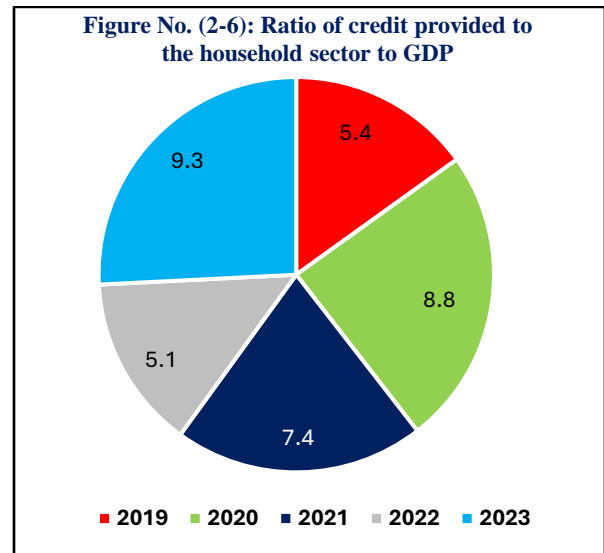
late position in the ratio of household sector credit to individual income. Figure No. (2-5) shows that Iraq occupies the last position among these countries.



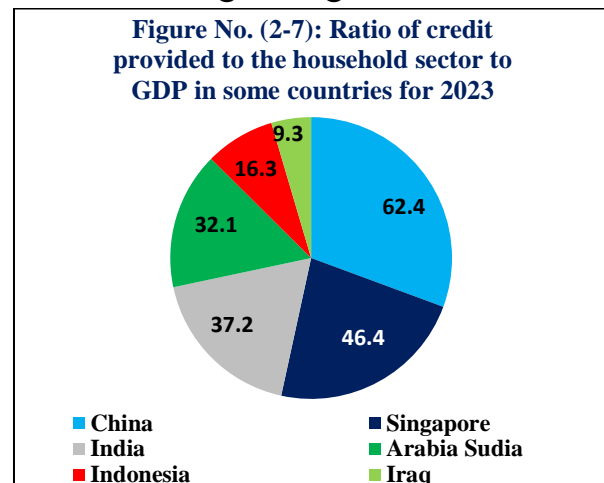
Source: trading economic
<https://tradingeconomics.com/countrylist/households-debt-to-income>

2-6 Ratio of Household Sector Credit to (GDP) in Iraq:

Studies have shown that credit provided to the household sector can lead to a banking crisis if it exceeds (65%) of the GDP, and it is weak when its ratio is less than (10%)³. Figure No. (2-6) shows the ratio of credit provided to the household sector to (GDP) in Iraq. It is noted that the ratio of household sector debt to GDP has increased from (5.4%) in 2019 to (9.3%) in 2023, which is less than (10%), so this credit can be expanded by banks.



In general, the credit provided to the household sector in Iraq is weak when compared with some Asian countries. Figure No. (2-7) shows that the ratio of credit provided to the household sector to GDP in Iraq has formed a late rank among the compared countries. Whereas the credit provided to the household sector can increase without worrying about affecting financial stability, considering the conditions and standards for granting credit.



Source: trading economic
<https://tradingeconomics.com/country-list/households-debt-to-gdp?continent=asia>

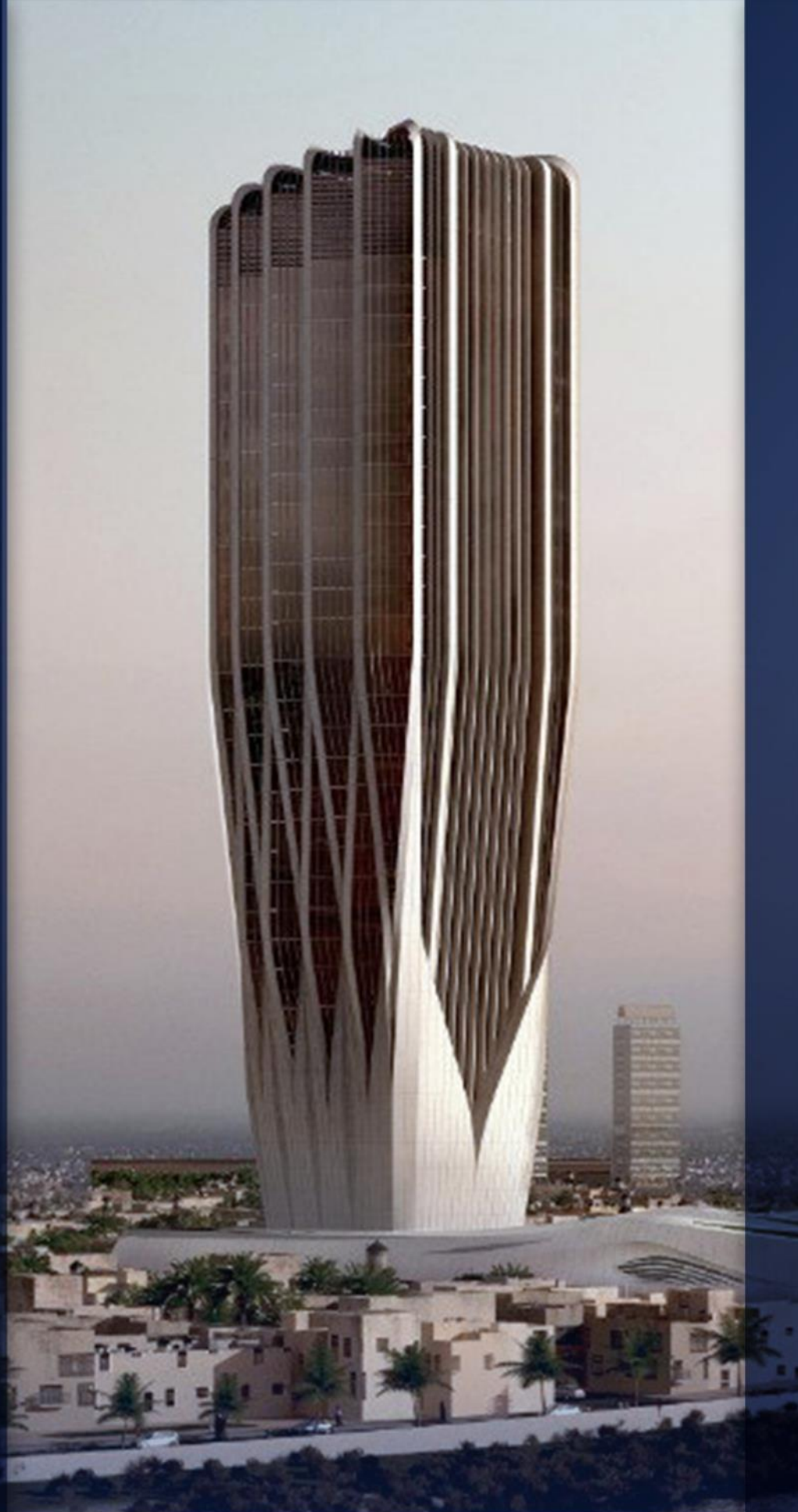
3) Financial Stability Report in Arab Countries, 2019, p. 150.

Summary:

Credit provided to the private sector is one of the most important tools through which the private sector can be activated. Credit provided to the private sector is divided into (family, corporates, mixed). The credit provided to the family sector constitutes the largest ratio of the total credit provided to the private sector, as it reached

(78.1%) at the end of 2023. While the ratio of the corporate sector reached (21.9%) during the same period. Whereas for the mixed sector, it does not have any credit at the end of 2023, with a ratio that did not exceed (1%) in previous years. The total private credit constituted (11.9%) of GDP in 2023, which is a ratio that does not cause a concern in terms of financial stability.

3



مؤشرات السلامة المالية

3- Financial Soundness Indices in Iraq

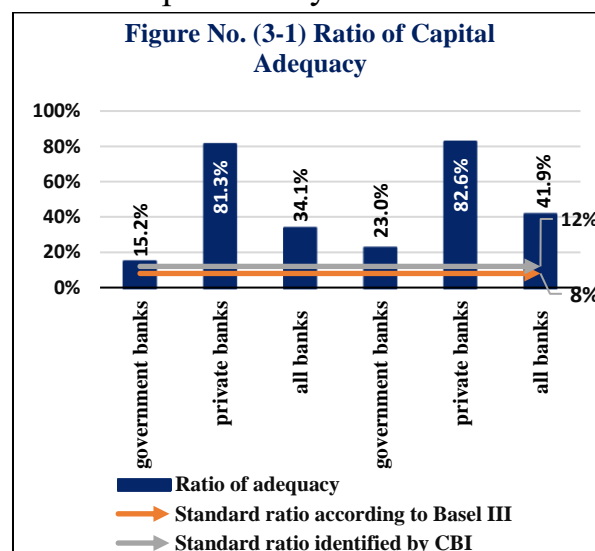
3-1 Capital adequacy ratio index:

The capital adequacy index is one of the most important financial soundness indices that aims to achieve financial stability at the banking sector level. It is a tool for measuring the bank's solvency, i.e. the bank's ability to pay its obligations and face any potential losses or risks that may occur. International standards such as (Basel III Standard) have been adopted, which are set at (8%) to measure the adequacy of the specified capital according to market and operational risks, in addition to the CBI setting a standard ratio for capital adequacy of (12.5%)¹.

The capital adequacy ratio for the banking sector increased from (34.1%) in 2022 to (41.9%) at a rate of approximately (23%) for 2023. This increase is due to the decrease in the value of risk-weighted assets by (8%), as well as the increase in the capital base by (13%) to increase the growth rate in the first slice of capital adequacy (10.5%), as a result of the increase in the growth rate of capital and reserves (15%). The capital adequacy ratio for 2023 is higher than the standard ratio determined according to the Basel III standard, plus the bank's ratio, which is a reassuring ratio that reflects the efficiency of the banking sector and its ability to confront unexpected risks and

problems that it may be exposed to as a result of the capital components, most of which are from the first slice of capital, consisting of base capital and supporting capital, subsequently, banks maintain this high level of financial solvency.

The capital adequacy ratio of state owned banks also increased from (15.2%) for 2022 to (23%) for 2023, which is high at a rate of approximately (51%), as shown in figure No. (3-1). At the same time, it was noted that there is an increase in the capital of state owned banks from (4.51) to (5.01) trillion dinars, as a result of the reforms carried out by CBI through issuing a resolution² of increasing the capital of banks. This reflects the efficiency and ability of state-owned banks to confront potential risks, as this ratio is greater than the standard specified by Basel III and CBI.



The capital adequacy ratio of private banks increased from (81.3%) in 2022 to (82.6%) in 2023, which is an increase

1) The standard ratio of CBI is the ratio adopted in the paragraphs of the Basel III standard, plus the ratios of supporting capital.

2) Decision of "increasing banks' capital" by four hundred billion dinars, No. 9/2/439, dated 8/2/2023, each payment is 50 billion dinars.

of approximately (2%), as a result of a slight increase in their capital by about (14) trillion dinars for 2023 from (13.2) trillion as a result of the banks' response to the decision of increasing the capital of banks issued by CBI to reach 400 billion dinars. The capital adequacy ratio reflects a significant decrease in the risks facing banks in Iraq, and that this ratio is high and exceeds the one specified according to the (Basel III) standards, as well as the standard ratio identified by CBI.

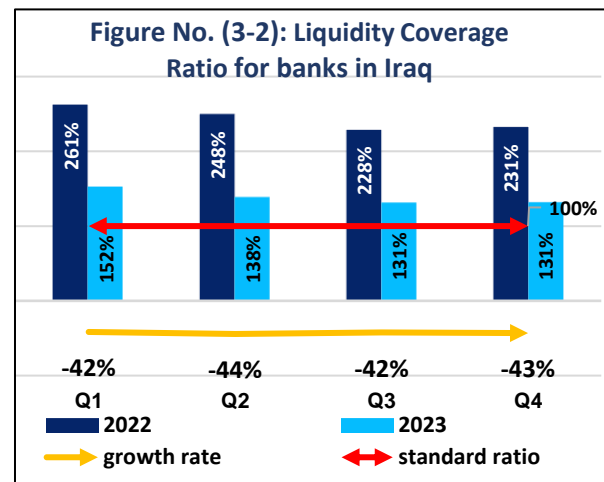
3-2 Liquidity Indices:

Liquidity indices represent measures of a bank's possession of an appropriate level of liquidity, i.e. a bank's position reflects its ability to pay its obligations and not be exposed to risks that affect the stability of its financial position, Therefore, there are several indices to measure liquidity, and it can be observed that international financial organizations are interested in liquidity due to its importance, whereas there are regulatory tools, which were implemented (Basel II and III) to measure the liquidity level, as follows:

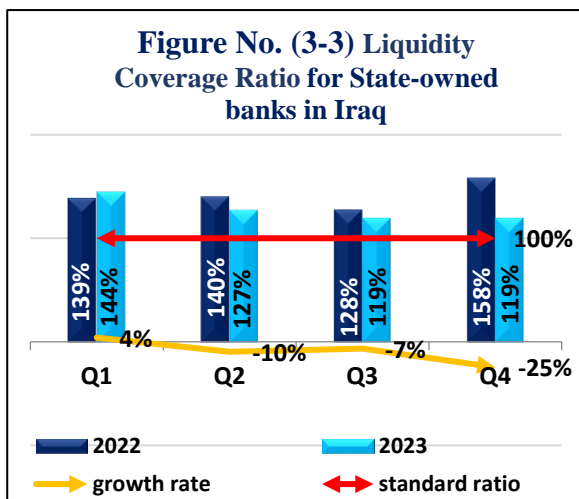
3-2-1 Liquidity Coverage Ratio (LCR):

Banks in Iraq achieved a high rate of liquidity coverage ratio, as the monthly rate of this ratio did not fall below the minimum set for it during 2023, as the liquidity coverage ratio recorded its highest rate in Q1, which reached (152%). While the lowest rate of liquidity coverage ratio was in Q3 and Q4, reaching (131%). This latter ratio is

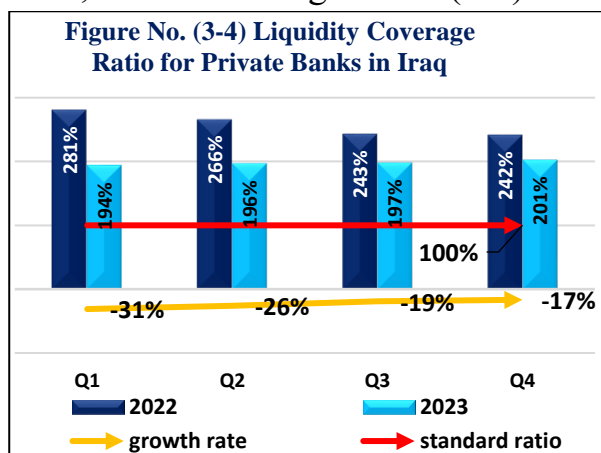
higher than the minimum ratio (100%), thus banks have succeeded in applying the liquidity coverage ratio for the banking sector. Despite this, banks are required to pay attention to liquidating high-quality liquid assets to confront the risks arising from sudden withdrawals. As well as the ability of banks to meet their obligations within (30) days is measured. Figure No. (3-2) shows the quarterly average of the liquidity coverage ratio for banks in Iraq and the growth rate between the quarterly ratio for (2022-2023).



Liquidity coverage ratios can be classified according to the type of banks (government and private). It could be found that the liquidity coverage ratio for state owned banks did not fall in 2023 below the minimum set by CBI, as it reached the highest ratio in the Q1 (144%) and the lowest ratio (119%) in Q3 and Q4 of 2023, as shown in Figure No. (3-3). While the growth rate fluctuated in achieving positive and negative rates during the year.



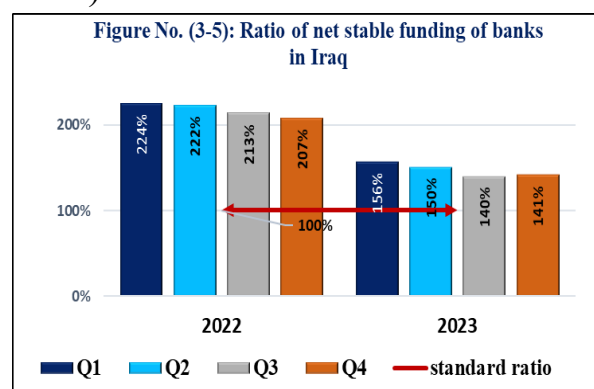
As for the liquidity coverage ratio for private banks, it could be found that the liquidity coverage ratio for private banks did not fall in 2023 below the minimum limit set by CBI. Its value ranged between the highest rate (201%) in Q4, while the lowest rate (194%), which was recorded during Q1, whereas the growth rate fluctuated during quarters of 2023 in achieving negative rates, as shown in figure No. (3-4).



3-2-2 Net Stable Funding Ratio (NSFR):

This ratio represents the ability of banks to maintain a ratio of 100% to provide the necessary liquidity to meet

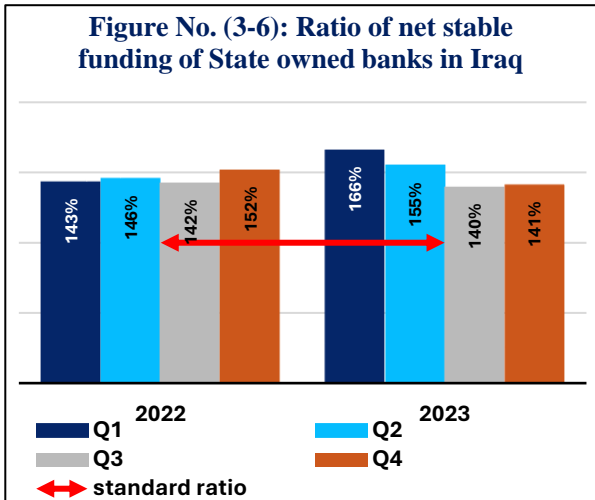
their obligations. It means that the bank can finance its assets according to what the sources of funds provide on the liabilities side (obligations)³. The net stable funding ratio for the banking sector in Iraq achieved good ratios in all quarters of 2023, reaching (156%), (150%), (140%), (141%) respectively. These ratios are high compared to the ratio specified according to (Basel III), which is (100%). This indicates that banks have available funding greater than the required funding, meaning that banks can finance the assets side according to what the sources of funds provide on the liabilities side. Figure No. (3-5) shows the stable funding ratio available for the quarters of (2022-2023).



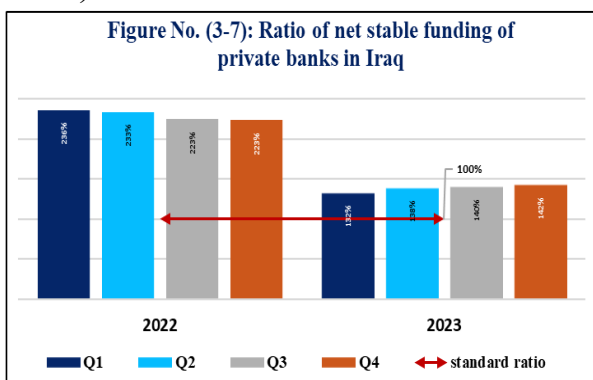
As for the classification of the net stable financing ratio according to the type of banks (government and private). The ratio for state owned banks did not decrease in 2023 to the minimum limit set by CBI, which is (100%). It reached the highest ratio in Q1 (166%). While the lowest ratio was (140%) in Q3. Figure No. (3-6) shows the development

3) To see the instructions for LCR and NSFR ratios issued by the Central Bank of Iraq, click on the following link: <https://cbi.iq/static/uploads/up/file-151867791682355.pdf>

of the net stable financing ratio for state owned banks for quarters of (2022-2023).



As for the net stable financing ratio for private banks in 2023, its value ranged between the highest rate, which recorded in Q4 (142%), whereas the lowest rate recorded (132%) in Q1. Figure No. (3-7) shows the development of the net stable financing ratio in private banks for the quarters of (2022-2023).



Liquidity indices can be measured according to four indicators, in addition to the two previous indicators, which are liquid assets to short-term liabilities, liquid assets to total deposits, liquid assets to total assets, and cash credit to

deposits. By calculating the ratios of these indices, it can be determined whether the banking system has a high liquidity ratio that gives it a shield and a buffer against crises resulting from withdrawals that it may be exposed to. Subsequently, the degree of risk is as low as possible, and it can be avoided through using the available liquid assets, even if it affects the banks' profitability goal. In addition to that, banks could expand by granting bank credit.

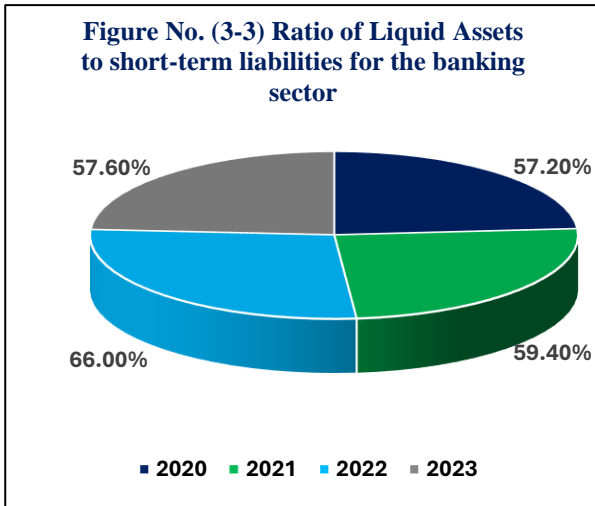
3-2-3 Liquid Assets/ Short-Term Liabilities⁴:

The ratio of liquid assets to short-term liabilities for the banking sector decreased in general, reaching (57.6%) in 2023 compared to its ratio in 2022 of (66.0%). This decrease occurred as a result of the increase in the value of demand deposits (current deposits and of a current nature) from (102.3) trillion dinars in 2022 to (107.5) trillion dinars in 2023, at a growth rate of (5.13%). It is higher than the growth rate of liquid assets, which decreased by a rate of (-10.81%) for the same period, and that liquid assets cover short-term liabilities by (57.6%). This ratio is high and reflects the great financial strength of the banking sector, whether government or private banks, despite its decrease from the ratio for the previous year, as it enhances financial stability. The latest ratio of liquid assets to short-term liabilities confirms that banks maintain

4) Short-term liabilities include (current and of a current nature).

high liquidity in the event of emergency depositor withdrawals and providing loans. Thus, it positively reflects on financial stability, and

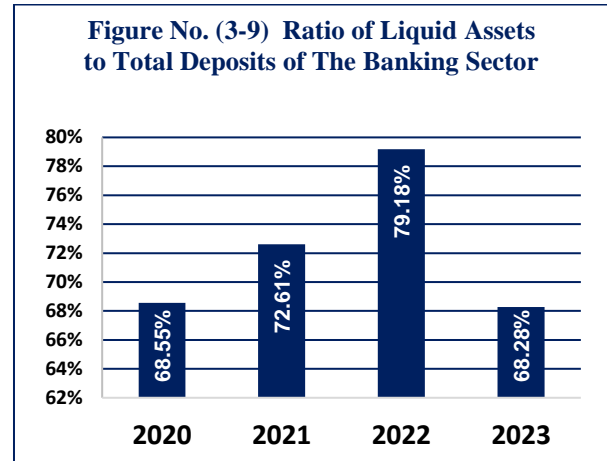
At the same time hedging and not resorting to CBI to request liquidity. Figure No. (3-8) shows this percentage during (2020-2023).



3-2-4 Liquid Assets / Total Deposits:

This ratio expresses the amount of liquid assets held by the bank, including (balances at CBI, cash on hand, and other liquid balances), and the extent of their investment in granting loans of various types. The banking system in general recorded a percentage of (68.28%) in 2023, which is lower than 2022, that amounted to (79.18%). As shown in figure No. (3-9), the banking system is unlikely to be exposed to liquidity risks in the short term. This is evidence of the employment of liquid funds that generate financial returns for banks, and it represents the liquidity goal with the profitability goal. The decrease in its ratio reflects a clear inclination towards the employment of loanable funds. The decrease in the

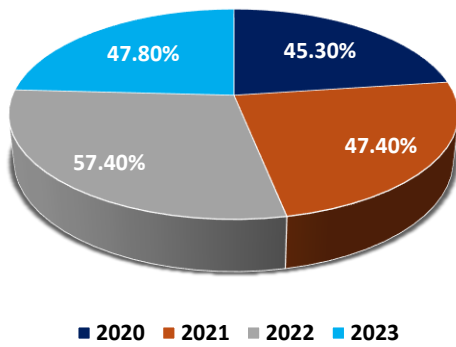
percentage resulted from a slight increase in deposits at a growth rate of (3.42%) compared to a decrease in the growth rate of liquid assets of (-10.81%). It can be found that the size of deposits amounted to (133.5) trillion dinars, which indicates that the banking sector must take greater precautions at the expense of return and profitability.



3-2-5 Liquid Assets / Total Assets:

This ratio shows the extent to which the bank maintains fully liquid assets to meet depositors' withdrawals relative to the total assets of the banking system in general. The ratio decreased from (54.9%) in 2022 to (47.5%) in 2023, so this decrease of the index occurred as a result of the decrease in the volume of liquid assets by (10.81%), as cited in figure No. (3-10). The decrease in this ratio reflects the employment of funds by the banking sector.

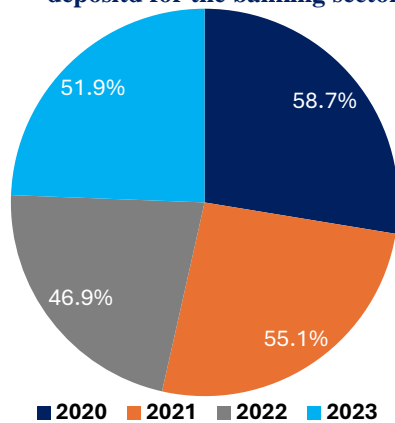
Figure No. (3-10): Liquid Assets to Total Assets of The Banking Sector



3-2-6 Cash Credit/ Total Deposits:

The ratio of cash credit to deposits in the banking sector recorded an increase of (10.5%) to reach (51.9%) in 2023 compared to the ratio in 2022 of (46.9%). This increase falls within the standard ratio specified by CBI, which should not exceed (75%) as shown in figure No. (3-11), and it reflects that banks employ the available funds coming from deposits to meet the demand on credit.

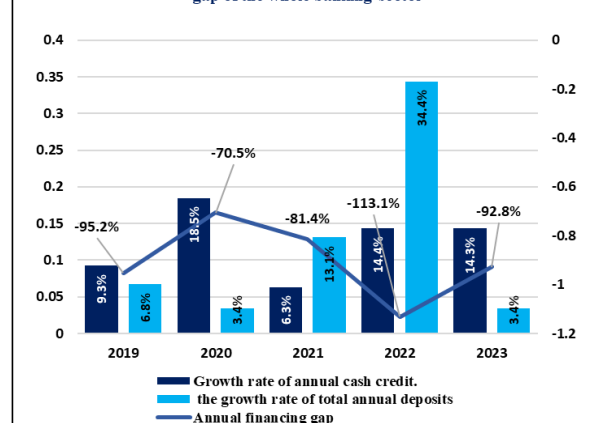
Figure No. (3-11) Cash Credit to total deposit for the banking sector



As for the financing gap, which represents the funds allocated to grant cash credit through deposits, it is noted that the gap has shrunk in 2023 by (-92.8%) after it was (-113.1%) in 2022,

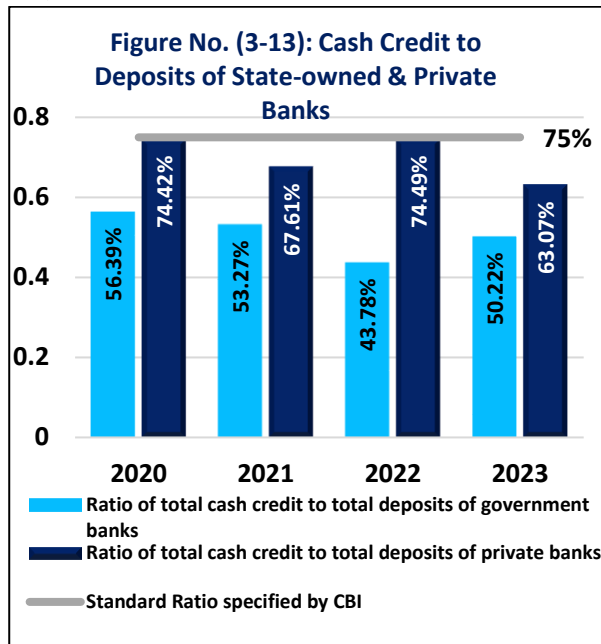
due to the decrease in the growth rate of total deposits to become (3.4%) that amounted (133) trillion dinars in 2023. Despite the increase in the growth rate (34.4%) in 2022, the amount of deposits is (129) trillion dinars, with a slight decrease in the growth rate of cash credit (14.3%) in 2023 to reach (69) trillion dinars compared to 2022, when the growth rate reached (14.4%) amounted to (61) trillion dinars, which led to a decrease in the gap, and despite its decrease, it remains high and covered by more than its value by deposits and creating balanced growth between demand for loans and attracting new deposits. According to what was mentioned, the financing gap does not destabilize financial stability. Figure No. (3-12) shows the relationship between the growth rates of cash credit, deposits, and the annual financing gap.

Figure No. (3-12): Growth rates of credit, deposits & financing gap of the whole banking sector



As for cash credit to total deposits in state-owned banks, the percentage reached (50.22%) in 2023, which is higher by (14.70%) than in 2022, which amounted to (43.78%). This increase resulted from the growth of cash credit in state owned banks at a rate of

(15.13%) higher than the growth rate of deposits for state owned banks, which amounted to (0.37%). This increase is due to the employment of funds, which does not exceed the specified standard percentage, as shown in figure No. (3-13).



As for private banks, the percentage reached about (63.07%) in 2023, which is lower than 2022, which amounted to (74.49%), due to the increase in deposits in private banks at a rate of (30.14%) higher than the growth rate of cash credit for private banks, which amounted to (10.19%). Despite the increase in the values of the amounts for the year 2023, the value of credit reached (11) trillion dinars and the value of deposits (17) trillion dinars for private banks compared to the previous year, where credit reached (9.9) trillion dinars and deposits reached (13) trillion dinars. But the percentage showed that the increase in deposits was higher than the increase in credit.

From what was mentioned above, private banks did not exceed the percentage set by CBI by reducing the employment of funds coming from deposits in order to meet the demand for credit. Despite this, private banks remain ahead of state-owned banks in investing their deposits, as it can be found that state owned banks maintain more liquidity and employ low deposits.

3-3 Asset Quality Indices:

Asset quality is considered as a significant importance in banking evaluation, since it is the decisive aspect of banks' activities that drives their operations towards achieving their goals, because banks' possession of good assets means generating more income and a better evaluation for liquidity, management, and capital.

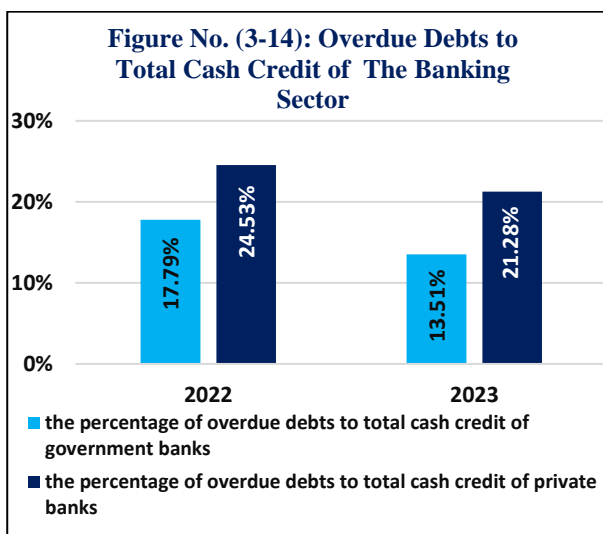
3-3-1 Overdue Debts to Total Cash Credit:

This index decreased from (18.8%) in 2022 to (14.7%) in 2023, which positively affects the financial stability index in Iraq and the efficiency of the Iraqi banking sector, consequently reducing credit risks.

This index was distributed for State-owned banks at a rate of (13.5%) of their total cash credit compared to its rate for 2022, which amounted to (17.8%). So, this is a good indicator that supports the stability of the financial sector.

As for private banks, which constituted a percentage of (21.3%) of cash credit, slightly lower than in 2022,

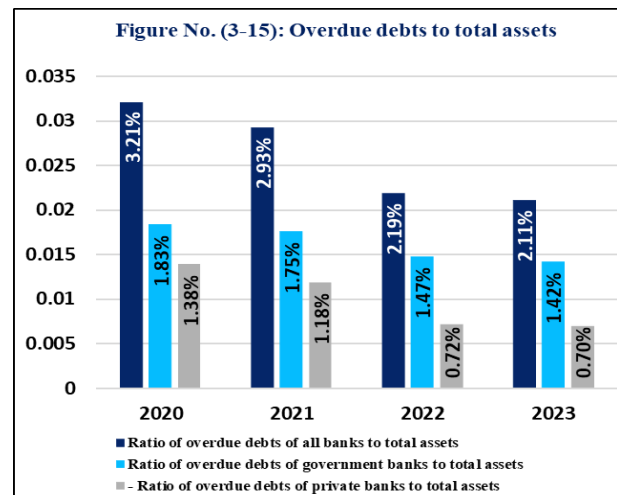
when it reached (24.5%). Despite the decrease in the percentage for private banks, which are still exposed to the risk of non-payment when compared to the percentage of state-owned banks. This indicates that private banks are more exposed to the risk of non-payment compared to state-owned banks. Figure No. (3-14) shows the percentage of overdue debts to banks to total cash credit for state owned banks and private banks.



3-3-2 Overdue Debts to Total Assets:

The ratio of overdue debts to total assets in the banking system decreased in general during 2023, reaching (2.11%) compared to (2.19%) in 2022. This reflects a good and sound position for banks in Iraq in terms of asset size in 2022. As international literature and experiences indicate that exceeding this ratio (10%) portends an expected banking crisis, but in Iraq this ratio is still within acceptable standards. As for state owned banks, their ratio of overdue debts to total assets decreased from (1.81%) in 2022 to (1.80%) in

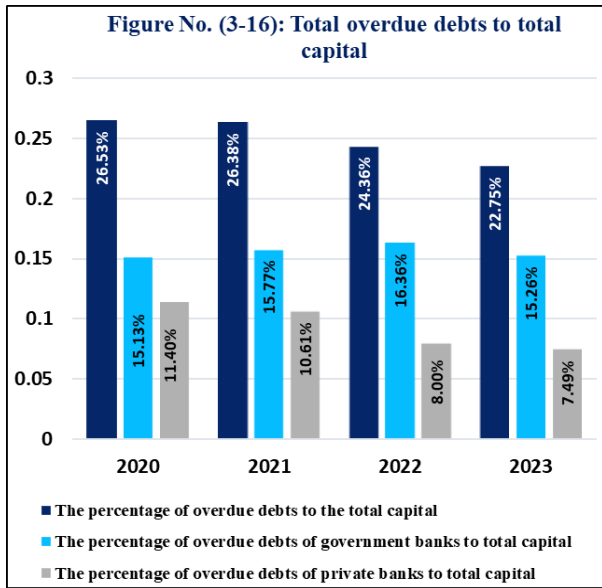
2023. The growth rate of overdue debts for state owned banks also decreased by a rate of (0.5%), which is more than the rate of decline in the ratio of assets, which amounted to (0.11%). While private banks recorded a decrease in the ratio of their overdue debts to total assets to reach (0.70%) in 2023 compared to 2022, as a result of a slight decrease in their overdue debts at a rate of (-0.2%) compared to an increase in the growth of its assets at a rate of (18.2%) for 2023. Figure No. (3-15) shows the aforementioned ratios.



3-3-3 Overdue Debts to Capital:

The ratio of overdue debts to capital for the banking sector decreased in 2023 to (22.75%) compared to (24.36%) in 2022. This decrease is due to the increase in the total capital of the banking system by (6.65%) for 2023, as well as due to the decrease in total overdue debts was (-10.8%). Figure No. (3-16) shows the percentage of contribution of overdue debts for government and private banks to the total capital of the banking sector. This percentage reached (15.26%) for state owned banks, whereas ratio of (7.49%)

was for private banks in 2023, since the size of the capital of state-owned banks is less compared to private banks.

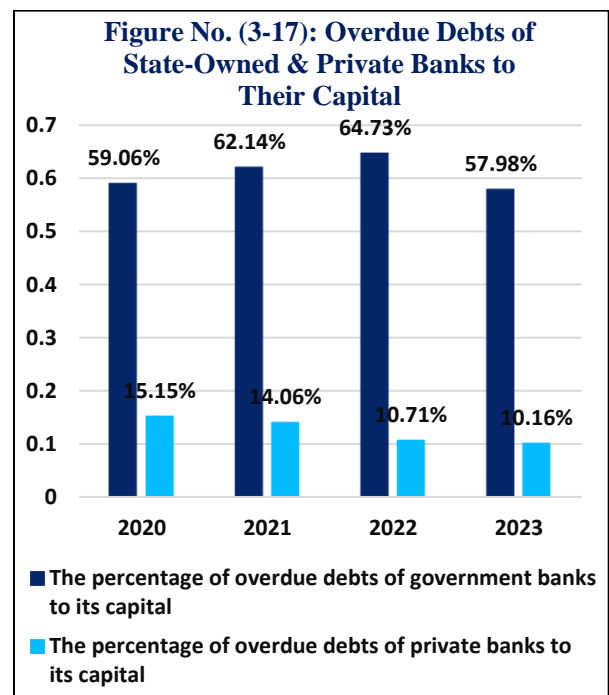


As for the ratio of overdue debts for each government bank and private banks to the total capital of each of them separately, it showed that the ratio of overdue debts for state-owned banks to their capital is (64.73%), and (57.98%) for 2022 and 2023 respectively, which is a high ratio. The size of the capital of the Industrial Bank was increased by (141%), thus the capital of the bank became (854) billion dinars, as shown in figure No. (3-17). Consequently, the growth rate of the capital of state-owned banks is (11.1%) in application of the capital increase requirements imposed by CBI. While keeping the portion largest shareholder in the capital of state-owned banks in favor of the Trade Bank of Iraq (TBI) at a rate of (70.67%). Whereas the shareholder less than this portion is for each Rashid and Real Estate Banks at a rate of (1.00%). Nevertheless, this does not pose a risk to the banking system, since these banks

are guaranteed by the Iraqi Ministry of Finance, but this does not prevent finding appropriate ways to reduce this ratio as a hedge against potential risks.

As for **private banks**, their bad debts to total capital ratio reached (10.71%) and (10.16%) for the years 2022 and 2023, respectively, as shown in figure No. (3-17).

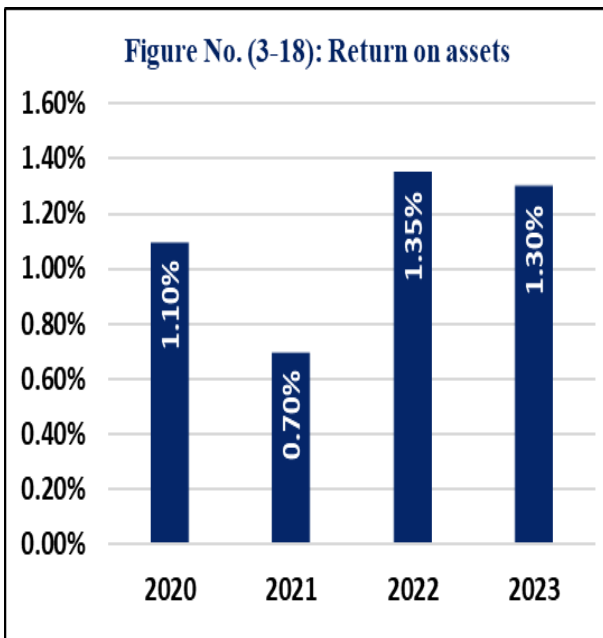
The rise in this index gives a clear indication of the seriousness of the financial situation of banking institutions, and then it affects the financial stability index in Iraq, which was clearly evident in state-owned banks as a result of the large size of their loans, compared to the small size of their capital. But the exacerbation of this ratio in banks' budgets has given an indication of the existence of financial risks surrounding them in a way that is beyond doubt, which requires giving this matter a high degree of importance to avoid any potential default that may occur in the future.



3-4 Profitability Indices:

3-4-1 Return on Assets:

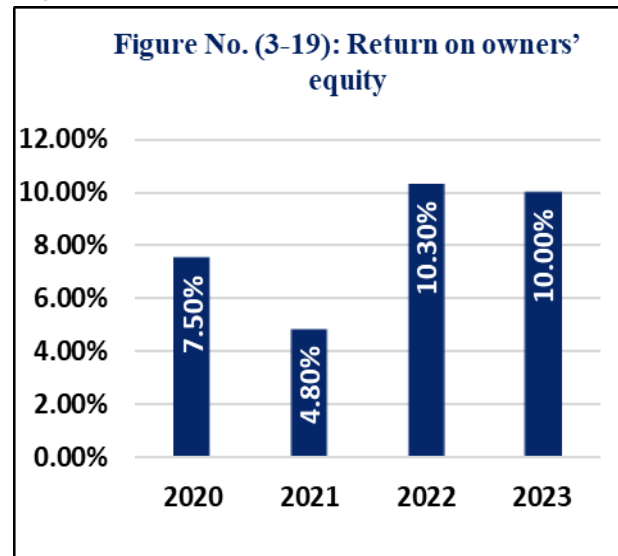
Regarding banks in general, the return on assets ratio decreased from (1.35%) in 2022 to (1.30%) in 2023, and this decrease was due to the growth of total assets (14.1%) compared to the growth of the return, which amounted to (10.3%). In addition to the increase in bank profits, the net income bearing interest increased from (2.16) trillion dinars in 2022 to (2.38) trillion dinars in 2023, with a positive growth rate of (42.21%). The largest part of this increase is due to the increase in the value of assets in foreign currency as a result of modifying in the exchange rate of the Iraqi currency against the US dollar. Figure No. (3-18) shows the return on assets ratio.



3-4-2 Return on Owners' Equity:

The return on owners' equity ratio decreased from (10.3%) in 2022 to (10.0%) in 2023 for all banks. This ratio reflects the rate of return obtained by investors who own capital in the

financial institution, and the efficiency of the institution in as well as its success in generating profits from each unit of owners' equity. The main reasons for the decrease in this ratio are the increase and rise in the capital ratio at a rate of (6.65%) compared to the growth of the return at a rate of (10.3%), as shown in figure No. (3-19).



3-5 Risk Map for Financial Soundness Indices:

The risk map is one of the tools used to alert regarding threats, as well as a tool to monitor weaknesses of the financial system. Through the risk map, it is possible to diagnose any of indices used for monitoring. The Arab Monetary Fund also stressed the importance of the risk map tool, as it is one of important tools in identifying and monitoring weaknesses and strength of the banking sector by displaying them in a form of risk map. Colors were used in the risk map to reflect the state of an index under a study, which is explained as follows:

Green to yellow: indicates the absence of any weaknesses, therefore the index under a study is in a positive state and it is not a source of concern.

The orange color will be the index between the first two cases (positive case) and the second (source of concern), which requires the decision-maker to follow this index and not give the opportunity to reach the red color.

The red color reflects the weaknesses that lead to the possibility of a crisis in the banking system.

3-5-1 Analysis of The Risk Map for Financial Soundness Indices⁵:

The risk map of the basic financial soundness indices is analyzed and measured to determine the nature of the financial and banking sector, its stability, and its impact by financial and economic crises. These indices act as an early warning tool as well as identify strengths and weaknesses in the banking sector. It is considered direct control methods, so the main indices are classified as follows:

- Capital adequacy indices.
- Profitability indices.
- Assets quality indices.
- Liquidity indices.

It was noted through the risk map of the financial soundness indices that the colors are different, although the green color is the most prevalent on the map that indicates the stability of most financial soundness indices. This situation will be reflected in banking stability and then financial stability in Iraq.

As the capital adequacy index for 2023 recorded low risk rates so that the green color is the most prevalent during the year, meaning that the capital adequacy of the banking sector is particularly good and exceeds the standard rate set by CBI, which is (12%). While the profitability indices have stabilized for 2023. Whereas the return on assets ratio represents

5) Based on "Framework (1) Steps for Preparing a Risk Map for Financial Soundness Indices." For more details, review the Financial Stability Report for 2022, page 72.

moderate risks, as it showed a difference in color gradation in most quarters of 2023, and as well as for the return on the owner equity during Q3 and Q4 of 2023. This is shown by the variation of colors over the course of the period, even though the red color appeared in Q1. According to this index, it is observed the path of the volume of achieved profits by banks in Iraq. As for the liquid quality indices' risks have witnessed a decrease compared to 2022, which became less risky during 2023 regarding the ratio of liquid assets to total assets. Whereas the ratio of liquid assets to short-term liabilities became more stable by the end of 2023. Asset quality indices witnessed stability as

appearing in green during the period (2022-2023), where indices of both non-performing loans to total assets, and non-performing loans to total cash credit are inclining towards stability concerning the same risks, which is what the green color indicates. As the ratio of overdue debts to total assets decreased slightly in the Q4 by (2.11%) of 2023 compared to the year 2022, in which the percentage was (2.19%). The same applies to the percentage of overdue debts to total cash credit in Q4 that recorded (14.7%) of 2023, compared to 2022, in which the percentage reached (18.8%), as shown in table (3-1).

Table No. (3-1): Risk map of financial soundness indices

asset quality		liquidity quality indices		profitability indices		adequacy	indices	
non-performing loans / total cash credit	non-performing loans / total assets	liquid assets/short-term liabilities	liquid assets/total assets	return/owner equity	return/assets	capital adequacy		
0.444	0.217	0.186	0.089	0.370	0.348	0.490	Q1	2017
0.445	0.229	0.031	0.017	0.207	0.171	0.433	Q2	
0.385	0.186	0.019	0.000	0.205	0.175	0.476	Q3	
0.780	0.844	0.031	0.349	0.356	0.386	0.460	Q4	
0.825	0.946	0.000	0.340	0.261	0.440	0.482	Q1	2018
0.923	1.000	0.068	0.349	0.203	0.340	0.476	Q2	
0.908	0.830	0.137	0.438	0.110	0.188	0.937	Q3	
0.961	0.869	0.075	0.409	0.015	0.044	0.932	Q4	
1.000	0.922	0.466	0.579	0.000	0.000	1.000	Q1	2019
0.681	0.544	0.727	0.719	0.132	0.164	0.903	Q2	
0.515	0.436	0.441	0.617	0.230	0.278	0.636	Q3	
0.543	0.474	0.516	0.634	0.229	0.267	0.626	Q4	
0.439	0.384	0.441	0.638	0.360	0.363	0.649	Q1	2020
0.420	0.469	0.497	0.579	0.233	0.247	0.774	Q2	
0.321	0.470	0.298	0.553	0.205	0.212	0.612	Q3	
0.403	0.520	0.453	0.647	0.332	0.360	0.412	Q4	
0.491	0.594	0.540	0.630	0.162	0.177	0.557	Q1	2021
0.442	0.522	0.516	0.621	0.317	0.383	0.614	Q2	
0.414	0.481	0.540	0.647	0.177	0.199	0.617	Q3	
0.384	0.385	0.590	0.681	0.106	0.105	0.582	Q4	
0.296	0.270	0.714	0.779	0.357	0.377	0.506	Q1	2022
0.211	0.193	0.714	0.804	0.384	0.391	0.303	Q2	
0.173	0.156	0.702	0.800	0.627	0.671	0.000	Q3	
0.140	0.037	1.000	1.000	0.561	0.573	0.035	Q4	
0.150	0.073	0.752	0.868	1.000	1.000	0.087	Q1	2023
0.087	0.066	0.509	0.728	0.599	0.578	0.090	Q2	
0.052	0.064	0.385	0.621	0.730	0.748	0.128	Q3	
0.000	0.000	0.478	0.685	0.536	0.540	0.271	Q4	

4



**Developments in Financial Infrastructure
and Financial Inclusion**

4- Developments in Financial Infrastructure and Financial Inclusion:

4-1 Developments in Financial Infrastructure:

The financial infrastructure includes the country's financial system, including all institutions, information, technologies, rules and standards that enable financial access through transparent and stable financial systems. The development of the financial infrastructure is a major factor in increasing the speed, security and reliability of electronic financial transactions, by increasing corporate security and encrypting financial data. This contributes to achieving an increase in the speed of implementation and transfer of funds immediately and effectively. The Central Bank of Iraq has been able to achieve many goals that support developments in the financial infrastructure during the following:

4-1-1 The Electronic Platform:

In early 2023, the Central Bank of Iraq began developing the electronic platform for foreign transfers (remittances - credits), in addition to developing the electronic platform for selling cash dollars to travelers (FITR) within the framework of this bank's policy that aims to facilitate foreign trade financing procedures and achieve the goals of this bank in enhancing the role of the banking system and non-banking financial institutions in securing foreign currency for real beneficiaries, which contributes to achieving stability in foreign exchange rates on the one hand, and simplifying

the procedures for selling them on the other hand, with emphasizing the need to adhere to the requirements of the Anti-Money Laundering and Terrorism Financing Law No. (39) of 2015, and these two platforms can be highlighted as follows:

4-1-1-1 The Electronic Platform for Foreign Transfers (Remittances - Credits):

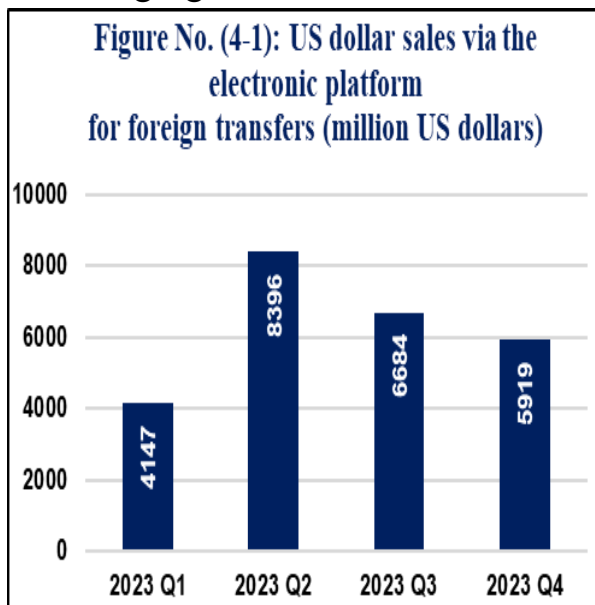
The most prominent aspects related to the electronic platform for foreign transfers that was activated on 1/31/2023 can be covered by addressing the entities that are legally permitted to be financed through the electronic platform, which can be summarized through the following form:

Companies	<ul style="list-style-type: none"> • All companies registered with the Companies Registration Department at the Ministry of trade. • Simple companies whose capital does not exceed (200,000) dollars. • Branches of foreign companies registered with the Companies Registration Department at the Ministry of trade.
Projects	<ul style="list-style-type: none"> • Projects registered with the General Directorate of Industrial Development at the Federal Ministry of Industry and Minerals. • Investment projects licensed by The National Investment Commission. • Agricultural and livestock projects licensed by the competent departments at the Ministry of Agriculture.
Other Parties	<ul style="list-style-type: none"> • For scientific offices duly licensed by the Pharmacists Syndicate. • Distributors of global factories and their agents. • Agents of global companies registered according to the applicable commercial agency law. • All types of companies, factories, plants and projects licensed in the Kurdistan Region of Iraq, if they register with counterpart sectoral bodies in the federal government.

4-1-1-2 Dollar sales through the electronic platform for foreign transfers:

The electronic platform for foreign transfers has achieved a prominent impact in supporting and achieving monetary and financial stability for the banking sector by limiting the dollar's access to the real beneficiaries, in addition to its effective contribution to implementing international compliance standards.

We can notice an increase in the value of external transfers via the electronic platform in 2023, as shown in the following figure:



4-1-2 Issuance of Letters of Guarantee:

Instructions have been prepared that are consistent with the aims of this bank to organize the issuance of letters of guarantee in accordance with the best practices and in a manner that ensures the preservation of the rights of all parties concerned with letters of guarantee.

4-1-3 Supporting and Achieving Monetary and Financial Stability:

To achieve monetary and financial stability, the Central Bank has achieved many goals, including:

- 1) Developing financial safety indices and identifying strengths and weaknesses in the financial system, as banks that have developed their financial statements in accordance with the international methodology have been identified, and the obstacles that banks have faced in developing the statements have been identified, and the means to solve them have been identified.
- 2) Opening sub-accounts for electronic payment service providers from the main account of the Central Bank of Iraq at JPMorgan Bank, as these accounts have been fed for the purposes of electronic card settlements.

4-1-4 Strengthening the Banking Sector and Financial Institutions:

The Central Bank of Iraq seeks to enhance the concept of corporate responsibility to ensure the stability of the banking system while enhancing competitiveness and providing an environment conducive to innovation and development. For this purpose, the Central Bank of Iraq has done the following:

- 1) Activating quality in banks: by opening quality units to raise the overall performance of banks and keeping pace with developments in global banks and addressing cases of

weakness identified in the banking sector and enhancing customer confidence and satisfaction in the banking sector by controlling operations and procedures in standard ways according to the requirements of (ISO9001: 2015).

- 2) Preparing a guide for selecting quality management consultants in the banking sector according to the international guidelines (ISO9001: 2015), as the guide was circulated and published on the official website of the Central Bank of Iraq.
- 3) Classifying banks operating in the banking sector according to the soundness of the application of the governance guide issued by the Central Bank through the performance card for environmental and social standards.
- 4) Preparing controls for calculating liquidity according to the maturity scale for Islamic banks to ensure that they maintain sufficient liquidity in a manner that ensures the safety of their financial position.
- 5) Preparing controls for calculating liquidity ratios (NSFR, LCR) for Islamic banks to keep pace with developments in the Islamic banking system and based on the decisions of the Basel III Committee and the Islamic Financial Services Board.

4-1-5 Supporting Digital Transformation:

The digital transformation in the Central Bank of Iraq aims to enhance

efficiency and improve financial services provided to citizens and the financial sector, as digital transformation constitutes a basis for improving the user experience, facilitating access to banking services, enhancing the use of technologies such as artificial intelligence and big data analysis, and providing customized banking services to meet customer needs more effectively in relation to the banking sector, as digital transformation is a strategic solution to enhance innovation and raise the level of competitiveness. To enhance digital transformation, this bank has accomplished the following:

- 1) Developing the security infrastructure for retail payment systems.
- 2) Auditing and compliance with the Secure User Program (CBS) of the SWIFT system.
- 3) Preparing a platform for selling gold bullion and coins, after preparing the feasibility study, analyzing the requirements, preparing the main and sub-interfaces, and then implementing, preparing and training on the system.
- 4) Completing the third phase of the project to develop the banking optical communications network operating with optical cable technologies (establishing a banking network operating with optical cable technologies).

- 5) Developing the infrastructure for payment systems (PCA), as the project was contracted and implemented, and the receipt and inspection were completed.
- 6) Completing the fourth phase of acquiring an advanced electronic central banking system (CBS) that covers the activities and tasks managed by the Central Bank.
- 7) Developing the tools and systems of the Cyber Security Management Center (SOC) and adopting an advanced approach to enhance cyber security in the bank and the banking sector, creating a cyber monitoring, response and analysis division, and preparing tasks for this division.
- 8) Implementing governance controls and institutional management of information and communications technology within the Central Bank and monitoring its implementation throughout the banking sector.
- 9) Gap analysis and comprehensive assessment of banking and payment service providers' infrastructures and institutions' compliance with IT and security frameworks, governance controls and standards, and compliance with Payment Card Industry Data Security Standards (PCI_DSS).
- 10) Develop a roadmap for the adoption of central bank digital currencies.
- 11) Transition to automating the supervisory and regulatory work of institutions subject to the supervision of the Central Bank

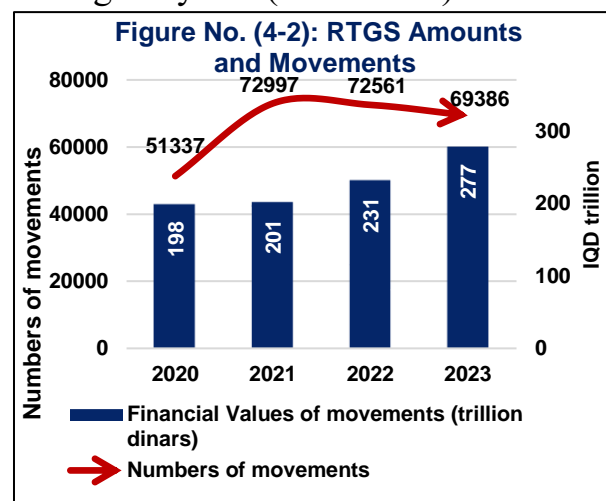
(Electronic Banking Supervision Reporting System) (BSRS).

4-1-6 Development of Payment Systems:

The Central Bank of Iraq seeks to modernize and develop payment systems in accordance with international best practices. The most prominent developments in the Iraqi payment system can be summarized as follows:

1) Development of the Real Time Gross Settlement System (RTGS):

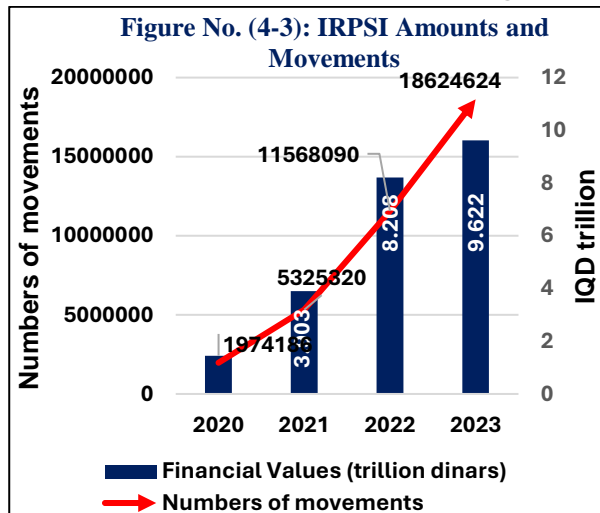
It is the system in which financial payments are exchanged electronically between banks through a secure and efficient network and ensures an actual and final settlement of payment orders exchanged between participants on an ongoing basis during the actual business day. Among the advantages of this system is that it provides speed of transfer and final settlement of payments and reduces the risk of defaulting in financial payments from one country to another. The figure below shows the number of movements of this system with financial values during the years (2020-2023).



According to the previous figure, the number of financial movements through the system increased from (51337) movements in 2020 to (69386) movements in 2023, with an increase in the financial values of the movements from IQD (198) trillion to IQD (277) trillion during the same period.

2) Retail Payment System (IRPSI):

The retail payment system represents a passage for Domestic transactions made on cards between the issuer and the collector through the electronic payment service provider. The bank is linked to the national switchboard through the electronic payment service provider (which represents the main processor for card transactions), which in turn is directly linked to the national switchboard through a secure and protected network to exchange messages related to card transactions, which include inquiries, purchases and cash withdrawals. The total transfers according to this system in 2023 amounted to IQD (9,622) billion after it was IQD (8.209) trillion in 2022, as shown in the following figure:



The figure above shows an increase in the amount of financial value traded within the IRPSI system by (17.2%) in 2023 compared to 2022, and the number of transactions increased by (61%) during the same period, which indicates a noticeable development in the financial infrastructure.

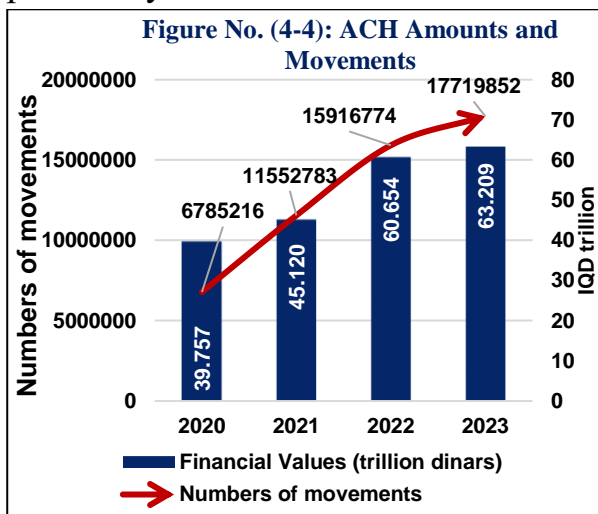
The objectives of the retail payment system (IRPSI):

- Providing a Domestic internal network that connects all ATMs and electronic payment cards.
- Determining commission rates internally from this bank within the issued controls and instructions.
- Limiting data related to Domestic financial transactions made on cards within a single secure Domestic environment and preventing external access to this data.
- Ensuring that financial transactions made on cards are settled internally within the RTGS system.
- Expanding the use of electronic payment tools (cards, mobile phones, the Internet).
- Spreading points of sale and ATMs throughout Iraq.
- A database for all financial transactions and easy access to them.
- Electronic supervision and monitoring of financial transactions.

3) (ACH) System:

It is an electronic system that enables participating banks and their branches to send and receive payment order files between them in an

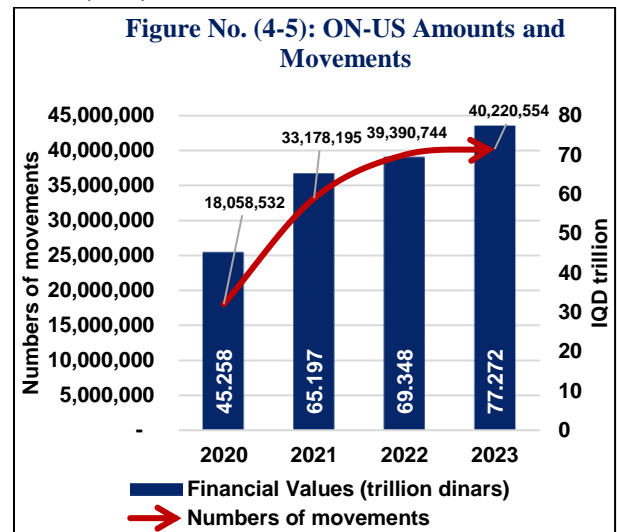
automated manner. It is linked to the RTGS gross settlement system in terms of receiving the guarantee ceiling at the beginning of the sessions and then processing payment orders and sending the final net settlement. Participants can also exchange electronic checks encoded with magnetic ink, where a copy of the check and its data are sent to the branch on which it is drawn, and a copy of the original check is kept in the branch in which it is deposited. Figure No. (4-4) shows an increase of (161%) in the growth of the number of financial transactions in 2023 compared to 2020, and an increase in the financial value to IQD (63.209) trillion in 2023, after it was IQD (39.757) trillion in the previous year.



4) Internal Clearing System (ON-US):

Internal clearing operations are widely used to facilitate financial transfers between customer accounts in the same bank. We notice in Figure No. (4-5) a continuous increase in the number of financial transactions from (18,058,532) financial transactions in 2020 to (40,220,554) financial transactions in 2023, amounting to

approximately IQD (77.272) trillion. This is a good indicator of an increase in financial activity, as shown in Figure No. (4-5) below.



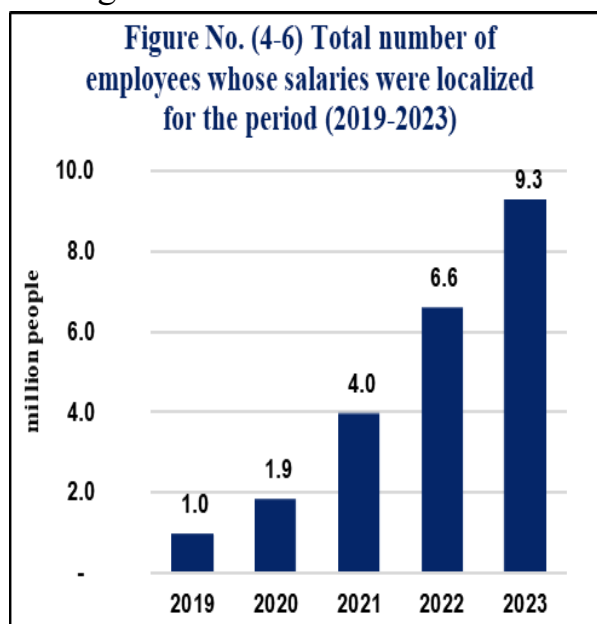
4-2 Financial Inclusion:

Financial inclusion is one of the main objectives of central banks, due to its very important impact on the domestic financial system, as it contributes to improving financial conditions, raising levels of savings and investment, reducing income disparity, reducing poverty, and improving the quality of education and health, by providing financial services to the largest possible number of people at a low cost and enabling them to start new businesses, in addition to contributing to strengthening the family sector and the business sector by promoting financial development that contributes to social and political stability by increasing the stability of the financial system. Financial inclusion can also improve the efficiency of the financial mediation process between deposits and investments and increase the share of the formal financial sector at the

expense of the informal financial sector, which supports the effectiveness of monetary policy tools.

4-2-1 State Employees' Salaries Localization Project:

This project contributes to strengthening the financial structure of banks operating in Iraq and increasing their role in domestic financing, as this project can provide opportunities for Domestic banks to provide diverse and improved banking services to employees. Figure No. (4-6) shows an increase in the number of public sector employees whose salaries were domiciled within banks to IQD (9.3) million employees and retirees during 2023 after it was IQD (6.6) million employees in 2022. This increase in the number of employees whose salaries were domiciled in banks contributed in turn to increasing the number of bank accounts created for employees, as well as increasing the number of electronic cards granted to them.



4-2-2 Financial Inclusion Indices:

Financial inclusion indicators are measured based on two main indicators, namely access and use, each of which includes sub-indicators as follows:

4-2-2-1 Indicators of the level of access to financial services:

This indicator measures the spread of bank branches, ATMs, points of sale, payment and settlement systems, and mobile payment, as the availability of a sound infrastructure for the financial sector is of great importance in enhancing financial inclusion by improving financing efficiency and the access of financial and banking services to all segments of society, as follows:

1) Banking density and spread index:

This indicator is one of the important criteria for measuring and determining the level of financial inclusion in the country, as this indicator depends mainly on the number of bank branches spread throughout the country, which seek to provide financial services to the public, and therefore the indicator measures the ratio of banking spread within Iraq, and in 2023 the banking sector witnessed a decrease in the number of bank branches, as the number of branches reached (843), compared to (876) branches in 2022, and the banking density index reached (38.54) thousand people per bank branch on average in 2023, after covering (27.25) thousand people per bank branch on average in 2022. In contrast, there was a decrease in the banking penetration index, as it reached (2.59%) in 2023, after it was (3.67%) in 2022. This decrease is due to

the closure of some branches of foreign banks, and Table (4-1) shows this:

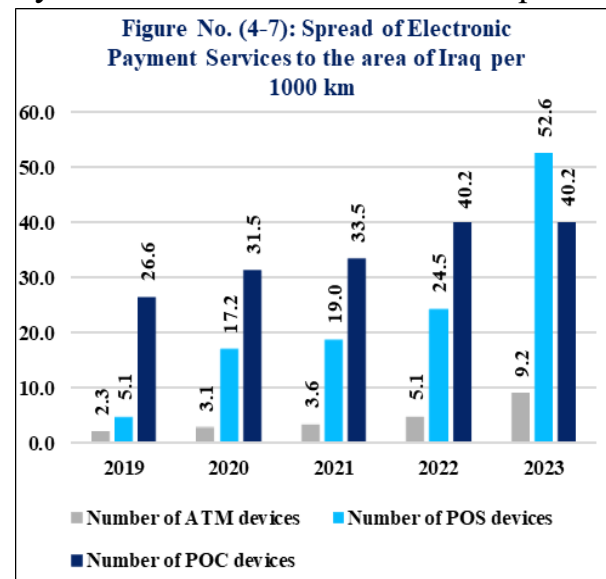
Year	No. of economically active population from (15-64) (thousand people)	No. of bank branches	Banking density	Banking penetration
2019	22,091	888	24.88	4.02
2020	22,668	891	25.44	3.93
2021	23,255	904	25.72	3.89
2022	23,870	876	27.25	3.67
2023	32,493	843	38.54	2.59

Source: Central Bank of Iraq, Department of Statistics and Research, Statistical Bulletin . Ministry of Planning, Website, <https://www.ina.iq/189184--43-324-.html>

2) Spread of electronic payment services:

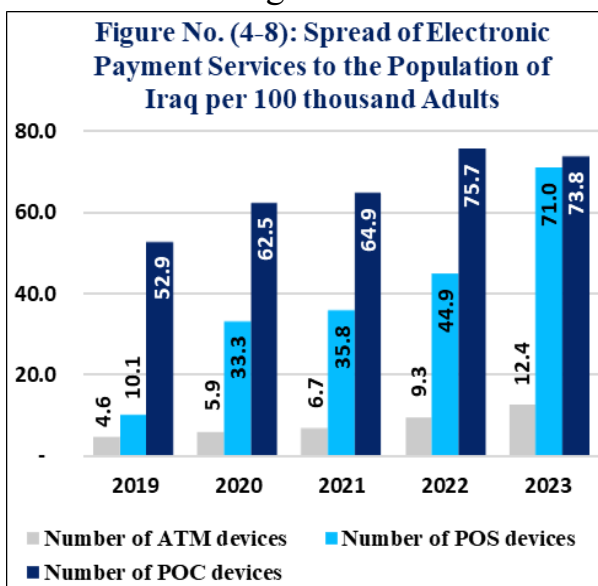
Electronic payment services are a fast and effective means of accessing financial and banking services, and they also contribute to reducing costs. The Central Bank of Iraq is working to increase the spread of these services, and one of its important goals is to improve systems electronic payment, to evaluate and analyze the availability and use of these services in the country. Figure No. (4-7) shows that the ratio of the number of ATMs to the area of Iraq has increased from (5.1) devices per (1000 km) of the area of Iraq in 2022 to (9.2) devices per (1000 km) of the area of Iraq in 2023. As for point-of-sale (POS) devices, their spread increased from (24.5) devices per (1000 km) of the area of Iraq in 2022 to (52.6) devices

per (1000 km) of the area of Iraq in 2023. As for payment devices (POC), their spread remained constant at (40.2) devices per (1000 km) of the area of Iraq in 2022 and 2023. These ratios are expected to increase in the future according to the directions of the Central Bank of Iraq to enhance these services, and this comes within the efforts of the Central Bank to achieve its goals in developing electronic payment systems and facilitating electronic financial exchanges in the country, as the increasing spread of these devices It will contribute to strengthening the financial infrastructure and enhancing the use of electronic financial services by citizens and institutions in Iraq.



Considering the spread of electronic payment services in Iraq, it is noted that the number of (POS) devices increased to (71) devices per (100,000) adults in 2023 after it was (44.9) in 2022, and the number of automated teller machines (ATM) increased in 2023 to (12.4) per (100,000) adults after it was (9.3) per (100,000) adults in 2022, despite the

increase in the number of aforementioned payment devices, they are still weakly spread compared to the number of (100) thousand adults, and the stability of the number of (POC) devices with the increase in the number of adult population led to a decrease in the number of devices per (100) thousand adults to (73.8) devices in 2023 after it was (75.3) in 2022, and Figure No. (4-8) shows the above, that the Central Bank emphasizes the need for banks and commercial companies to work on increasing the number of automated teller machines and points of sale and providing them in public locations and remote areas. It also stressed the contribution of the government and relevant authorities to enhance financial inclusion by taking measures to enhance financial awareness and increase financial education and education for individuals and companies about the benefits of electronic banking services.

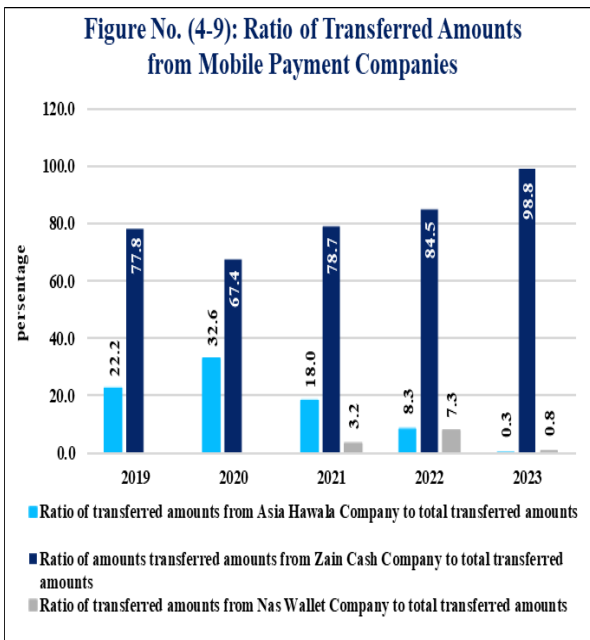


4-2-2-2 Financial Services Usage Index:

1) Spread of mobile payment services:

This indicator shows the spread and use of payment technologies that rely on mobile phones. These technologies include digital payment applications and electronic wallets, which allow individuals to conduct financial transactions and send and receive money via their mobile phones. This indicator is important for financial inclusion, as it contributes to providing easy and effective access to financial services for different population groups.

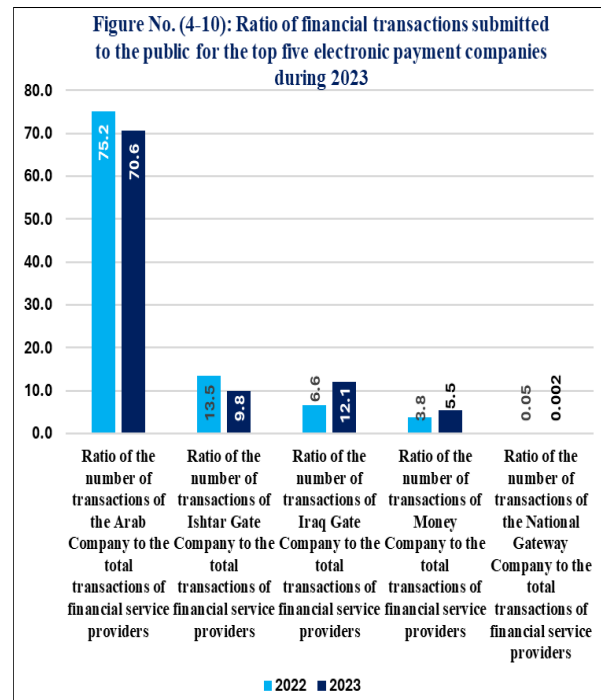
According to Figure (4-9), which shows the amounts transferred from mobile payment companies, it was noted that Zain Cash Company has control over financial transfer operations, as the ratio of amounts transferred through it as part of the total amounts transferred through mobile payment companies increased from (84.5%) in 2022 to (98.8%) in 2023, while the ratio of Asia Hawala Company decreased from (8.3%) in 2022 to (0.3%) in 2023. As for Nas Wallet Company, it started its work in 2020, and the ratio of amounts transferred through it decreased to (0.8%) in 2023, after it was (7.3%) in 2022. This requires other companies to develop their activities and increase their payment programs, to ensure that they remain in the competitive arena in the coming years.



2) Contribution of electronic payment companies (processing, issuing and collection companies) to financial inclusion:

Financial companies play a vital role in enhancing financial inclusion by providing basic financial services. These services include providing bank accounts for individuals and companies, facilitating financial transfers, providing electronic payment methods, providing credit cards and loans, and providing insurance services. From Figure No. (4-10), it can be noted that Al-Arab Company leads electronic payment companies in the ratio of financial transactions provided, whether in the form of financial services issued, processed or collected, as its ratio reached (70.6%) of the total transactions of financial service providers in 2023, followed by Iraq Gate Company with a ratio of (12.1%), while Ishtar Gate Company recorded a ratio of (9.8%). This data shows an increase in financial transactions in 2023 to reach (14.3)

thousand financial transactions after (11.6) thousand financial transactions in 2022.



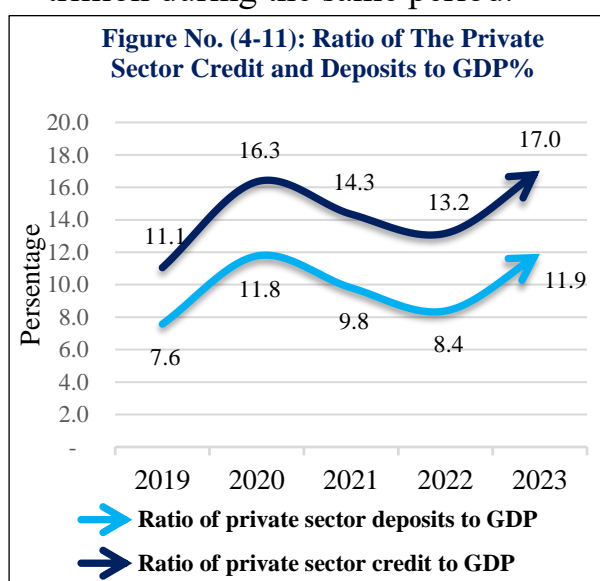
4-2-3 Financial Depth Index:

This index measures the extent of the provision of banking services and their role in supporting economic growth, financing businesses and projects. This index is measured using two main variables:

- 1) The ratio of credit provided to the private sector to GDP:** This variable reflects the volume of credit provided by commercial banks to the private sector compared to the country's GDP. An increase in this ratio indicates an increase in private sector financing from banks.
- 2) The ratio of private sector deposits to GDP:** This variable expresses the volume of private sector deposits in the banking sector as a ratio of the country's GDP, as the credit granted by commercial banks depends on the

volume of deposits and is directly ratio to it.

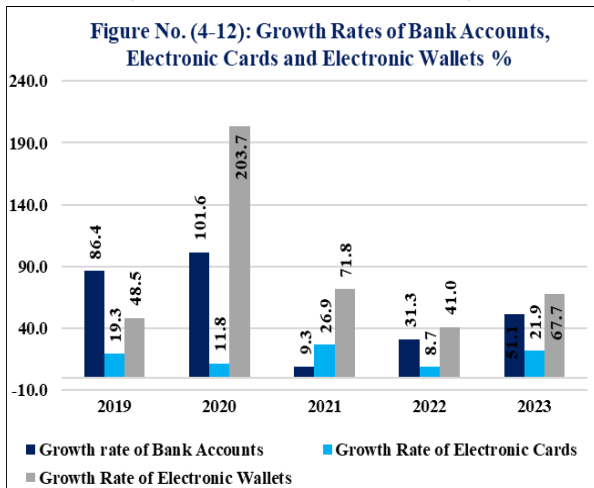
The two ratios are used together to estimate the depth of the banking sector in supporting economic activity and financing businesses. Figure No. (4-11) shows that Credit provided to the private sector to GDP increased from (8.4%) in 2022 to (12.0%) in 2023. This increase is attributed to the increase in credit to the private sector by (12.9%), as credit recorded an amount of IQD (39.5) trillion in 2023, after it was IQD (35) trillion in 2022, with a decrease in GDP growth by (20.6%) for the same period, affected by the decline in oil prices. The ratio of private sector deposits to GDP also witnessed an increase during 2023 to record a rate of (17.1%) after it was (13.2%) in 2022, because of the increase in deposits to reach IQD (56.6) trillion after it was IQD (55) trillion during the same period.



4-2-4 Electronic Cards, Bank Accounts and Electronic Wallets:

Financial inclusion levels in the country are enhanced by providing comprehensive and equitable access to financial services for all members of society, regardless of their income or geographical location. Electronic cards, bank accounts and electronic wallets play a crucial role in achieving financial inclusion by providing easy and secure financial means to manage money. Electronic cards allow individuals to make payments and cash withdrawals easily and securely, whether through ATMs or online, providing an easy way to handle and control money. On the other hand, bank accounts are essential to achieving financial inclusion, as they enable individuals to open their bank accounts, deposit money, and conduct transfers and other financial transactions. Through bank accounts, individuals can receive salaries and payments, save money and access it safely and efficiently, while electronic wallets provide an additional layer of security and protection for funds, as they use encryption and multiple authentication technologies to protect sensitive financial information and ensure their safety from hacking and fraud, which contributes to enhancing financial inclusion. According to Figure No. (4-12), which shows an increase in the number of electronic wallets by (67.7%) in 2023 compared to 2022, the number of bank accounts also increased

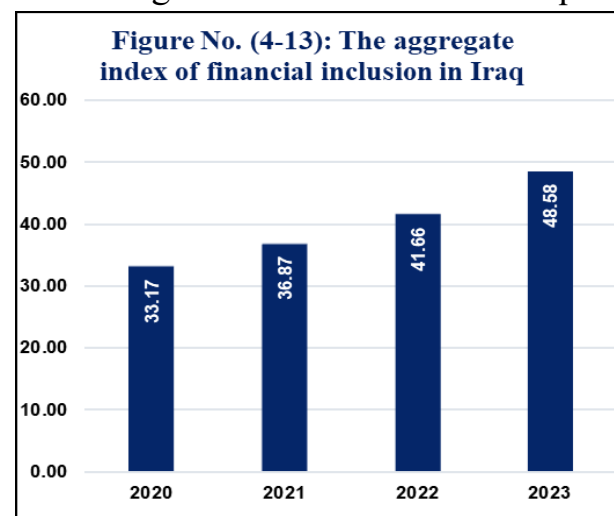
by (51.1%) during the same period, and the number of electronic cards increased by (21.9%) in 2023 compared to 2022. The increase in the indicators enhances financial inclusion in Iraq, which effectively contributes to achieving monetary and financial stability.



4-2-5 Measuring the Aggregate Index of Financial Inclusion in Iraq:

The aggregate index of financial inclusion in Iraq was adopted to measure the extent of access and use of financial services. The index consists of two main indicators: access and use. This indicator aims to measure progress in the level of financial inclusion and reflects the degree of success in enhancing financial inclusion and increasing individuals' confidence in dealing with the formal financial sector. The results in Figure No. (4-13) indicate an increase in the value of the aggregate

index of financial inclusion from (33.17) in 2020 to (48.58) in 2023. This increase reflects the success of the policies of the Central Bank of Iraq in encouraging financial inclusion, because of the increase in the number of bank accounts because of the salary Domestication policy, in addition to the increase in the number of ATMs and points of sale in the recent period. These developments have contributed to enhancing financial inclusion in Iraq.



A low-angle photograph of a modern building with a glass skybridge and a large white number 5 on a dark blue background. The building features a light-colored, textured facade and a prominent glass skybridge connecting two sections. The sky is a clear, bright blue. The number 5 is large and white, set against a dark blue background that occupies the left side of the image.

5

Macro-Stress Testing

5- Macro-Stress Testing:

The integrity of the banking sector's operations and the soundness of its policies are among the most prominent factors that lead to the development and growth of the financial sector, maintaining its stability and the possibility of achieving its goals in reaching a high level of economic growth and providing capital directed to the real sector, as there are a group of factors that affect the performance of the banking sector and its effectiveness in mobilizing savings and providing credit to various economic sectors, so it is necessary to follow up on the performance of the Iraqi banking system and identify the most prominent obstacles that are a source of threat that can hinder the process of growth and stability in the economic sectors in general and the financial and banking sector in particular, and to identify the expected shocks that affect it negatively or positively to avoid the negatives and enhance the positives and identify the areas of failure in the variables studied in this chapter that have a systematic impact on the banking sector in Iraq.

The role and importance of banks in the economy has expanded according to their work as an intermediary between surplus and financial deficit units and their work as an engine for economic development, which has been proven by economic theories and practical experiences of various countries around the world. Therefore, paying attention to the safety of the financial sector has

become an urgent necessity to ensure the continuity of the work of the economic sectors and to support, activate and expand them. Stress tests are one of the risk management tools in the financial system and conducting them is part of the off-site supervision tools for the performance of banks.

The nature and degree of interconnection between the real and financial sectors makes it necessary to study developments and changes in one or both sectors, and to know the extent of the impact of one on the other sector, because any risks or shocks to which the real sector is exposed may constitute a source of risk to the financial sector and vice versa. Therefore, predicting the banking sector's ability to absorb external shocks requires analyzing and monitoring developments in the real economy.

5-1 Structural Vector Autoregression (SVAR) Model:

The model used was developed from (VAR) to (SVAR) model, due to the lack of foundations of economic theory in the (VAR) model, i.e. it does not consider the results of economic theory. Therefore, the use of the (SVAR) model was adopted, which allows simulating the impact of shocks on economic variables and is characterized by high flexibility compared to other aggregate models, as it is used to estimate responses to structural shocks to data and consider the interaction between economic variables. The (SVAR) model also allows for the

transition from legal residuals (random errors) of the (VAR) model to structural shocks of the (SVAR) model .

Given the nature of the Iraqi financial system, the overall stress tests depend on selecting some macroeconomic and microeconomic variables, in addition to variables from the financial system. Therefore, two models were used. The first model depends on the liquidity of the Iraqi banking sector represented by liquid assets and the impact of shocks to some variables on them, such as the parallel exchange rate due to its clear impact on the financial conditions in Iraq as a whole, and public revenues, which are directly related to liquid assets and depend mainly on public expenditures. The latter is one of the indicators with a clear impact on total consumption and total investment, and thus on the ability of projects and individuals to adhere to their financial transactions with banks, which are directly related to liquid assets, while risk-weighted assets are directly related to liquid assets. While the second model included the impact of the parallel exchange rate and cash credit on non-performing loans of banks operating in Iraq.

Stress tests are conducted according to the following steps:

- Variable stability test.
- Determining the optimal slowdown degree for the (VAR) model.
- Structural stability for the (VAR) model.
- Correlation Matrix.

- Estimation of the (SVAR) model.
- Structural impulse response function analysis.
- Structural variance partitioning analysis.

5-1-1 The First Model: Testing the Impact of Some Macroeconomic and Microeconomic Variables on the Liquid Assets of Banks Operating in Iraq:

The model aims to estimate the impact of macroeconomic variables on the liquid assets of banks operating in Iraq, and any shocks related to macroeconomic and financial variables, especially the variables referred to above; to measure their impact on the liquid assets of the private sector for the specified future period, as the model takes the following functional form:

$$X_t = \sum_{i=1}^m A_i X_{t-1} + U_t$$

Where:

$X_t=(LA,EX,RWA,CP,RE)$: is the vector of internal variables that must be independent of each other.

LA: Liquid assets.

EX: Parallel exchange rate.

RWA: Risk-weighted assets.

CP: Public expenditures

RE: General revenues.

$U_t = (U_t^{LA}, U_t^{EX}, U_t^{RWA}, U_t^{CP}, U_t^{RE})$:

Represents the vector of legal residuals, which assumes that there is no correlation between their values.

m: The number of time lags in the model, which can be determined using the (AIC) criterion, which is the period

that guarantees that there is no correlation between the residuals.

t: The current period.

A_i : The matrix of regression parameters, which is squared with degree ($k \times k$).

k: The number of variables in the model.

To determine the structural shocks, the transition matrix (S) must be created, which satisfies the relationship ($S U_t = S \cdot e_t$) to determine the transition matrix, the equality ($S U_t = S \cdot e_t$) must first be written in the form ($A U_t = B \cdot e_t$), where ($S = A^{-1} \cdot B$), then the diagonal elements of the matrices (A) and (B) must be fixed by giving them the value (1). As for the non-diagonal elements, they are determined based on some economic indications, when it is assumed that the residuals do not affect the other during the same period (i.e. this element will take a value of 0), and vice versa in the case of assuming the presence of an effect, and here this effect must be measured in order to give a value to the element (α_j^i, β_j^i), which is called (economic constraints).

5-1-1-1 Correlation Matrix:

The correlation matrix shows the relationships between each pair of variables in the data set, and the correlation matrix helps in determining how two or more variables are related to each other or depend on each other, as shown in Table (5-1).

Table No. (5-1): Correlation Matrix Between Variables					
	RE	CP	RWA	EX	LA
LA	0.56	0.45	0.57	0.83	1
EX	0.38	0.32	0.62	1	0.83
RWA	0.25	0.19	1	0.62	0.57
CP	0.93	1	0.19	0.32	0.45
RE	1	0.93	0.25	0.38	0.56

Source: (EViews) program outputs.

The correlation matrix calculates the linear relationship between two variables, as Table (5-1) shows that the parallel exchange rate variable (EX) is directly related to liquid assets (LA) with a ratio of (83%), while the risk-weighted assets variable (RWA) is directly related to liquid assets (LA) with a ratio of (57%). The variable of public expenditures (CP) is directly related to liquid assets (LA) with a ratio of (45%), while the variable of public revenues (RE) is directly related to liquid assets (LA) with a ratio of (56%).

5-1-1-2 Estimating the (SVAR) Model:

After ensuring the stability of the time series of the variables and after determining the optimal degree of slowing, the methodology of the structural autoregressive vector (SVAR) will be relied upon because it is suitable for studying the dynamic interactions between the parallel exchange rate, risk-weighted assets, public expenditures, public revenues and their impact on liquid assets, as hypotheses were developed for the (SVAR) model, taking into account the economic theory and

the state of the Iraqi financial system through the following hypotheses:

First hypothesis: Any unexpected change in the variables (the parallel exchange rate, risk-weighted assets, public expenditures, and public revenues) in addition to a shock in the variable (liquid assets) will have an immediate impact on the variable (liquid assets).

Second Hypothesis: Any unexpected change in the variables (public expenditures and public revenues) in addition to a shock in the variable (parallel exchange rate) will have an immediate impact on the variable (parallel exchange rate), while the variables (liquid assets and risk-weighted assets) have no immediate impact on the variable (parallel exchange rate).

Third Hypothesis: Any unexpected change in the variables (liquid assets and parallel exchange rate) in addition to a shock in the variable (risk-weighted assets) will have an immediate impact on the variable (risk-weighted assets), while the variables (public expenditures and public revenues) have no immediate impact on the variable (risk-weighted assets).

Fourth Hypothesis: Any unexpected change in the variable (public revenues) in addition to a shock in the variable (public expenditures) will have an immediate impact on the variable (public expenditures), while the variables (liquid assets, parallel exchange rate, and risk-weighted assets)

have no immediate impact on the variable (public expenditures).

Fifth hypothesis: The variable (public revenues) is affected immediately by a shock in the variable (public revenues).

After imposing restrictions on the variables, it is possible to determine the values of both matrices (A) and (B) and thus determine the transition matrix (S) that allows estimating the structural impulse response functions as well as analyzing the variance components according to the (SVAR) model as follows:

$$A = \begin{bmatrix} 1 & -\alpha_{X1}^Y & -\alpha_{X2}^Y & -\alpha_{X3}^Y & -\alpha_{X4}^Y \\ 0 & 1 & 0 & -\alpha_{X3}^{X1} & -\alpha_{X4}^{X1} \\ -\alpha_Y^{X2} & -\alpha_{X1}^{X2} & 1 & 0 & 0 \\ 0 & 0 & 0 & 1 & -\alpha_{X4}^{X3} \\ 0 & 0 & 0 & 0 & 1 \end{bmatrix} \begin{bmatrix} U_t^Y \\ U_t^{X1} \\ U_t^{X2} \\ U_t^{X3} \\ U_t^{X4} \end{bmatrix}$$

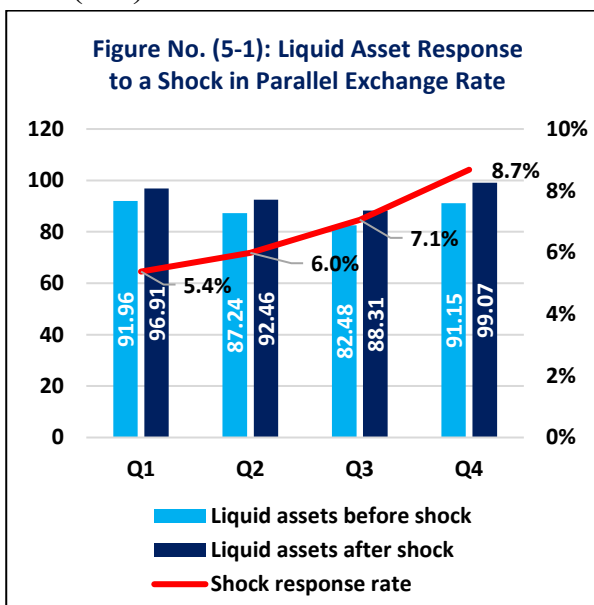
$$B = \begin{bmatrix} 1 & 0 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 & 0 \\ 0 & 0 & 1 & 0 & 0 \\ 0 & 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 0 & 1 \end{bmatrix} \begin{bmatrix} \mu_t^Y \\ \mu_t^{X1} \\ \mu_t^{X2} \\ \mu_t^{X3} \\ \mu_t^{X4} \end{bmatrix}$$

5-1-1-3 Analysis of Structural Impulse Response Functions:

1) The Impact of the shock on the parallel exchange rate (EX) on liquid assets (LA):

The effects on the financial position of the banking system come through the net foreign exchange position of banks operating in Iraq (assets denominated in foreign currency minus liabilities denominated in foreign currency), the latter rises as a result of the rise in the exchange rate, which in turn leads to an increase in liquid assets, and the rise in the latter leads to an expansion in banking activity as a result of the rise in

its liquidity, and on the other hand, the rise in the exchange rate leads to an increase in risk-weighted assets as a result of the rise in exchange rate risks, so banks operating in Iraq must hedge these risks through maintaining the standard ratio specified by the Central Bank of Iraq, which is (20%), which is the net foreign exchange position ratio, so the exchange rate in the parallel market is directly related to the liquid assets of the banking system in Iraq, and the estimates of the impulse response functions of liquid assets to a shock in the parallel exchange rate during the four quarters of 2024 were as in Figure No. (5-1).



As it is clear from Figure No. (5-1) that there is any unexpected change in the variables (public expenditures and public revenues) in addition to a random shock in the variable (price of the parallel exchange rate) by two standard deviations in the first quarter led to a response of liquid assets by (5.3%), which led to an increase in liquid assets

from IQD (91.96) trillion to IQD (96.91) trillion during the same quarter . As for the remaining quarters, a greater positive impact will be generated than in the first quarter, starting from the second quarter following the shock. This is due to the nature of the Iraqi economy, which is characterized by a high index of economic exposure to the outside world, which makes the economy exposed to fluctuations in external variables, and thus highlights the role of the exchange rate in the Iraqi economy, as the response of liquid assets to the random shock in the parallel exchange rate variable during the fourth quarter by (8.7%) led to an increase in liquid assets to IQD (99.07) trillion compared to their value before the shock, which amounted to IQD (91.15) trillion during the same quarter. This can be seen in Figure No. (5-1), where it can be said that the change in shocks across the four quarters of 2024 affects liquid assets according to the nature of the shock.

2) The impact of the shock on risk-weighted assets (RWA) on liquid assets (LA):

The capital of financial institutions is determined wisely and based on their risk-weighted assets to assess their ability to bear risks. The financial institution carries a higher level of capital to protect against potential losses. It ensures that banks maintain a sufficient level of capital to maintain the safety of the institution, which is the core of the stability of the financial

system. Risk-weighted assets are directly related to liquid assets. The estimates of the impulse response functions of liquid assets to a shock in risk-weighted assets during the four quarters of 2024 were as shown in Figure No. (5-2).

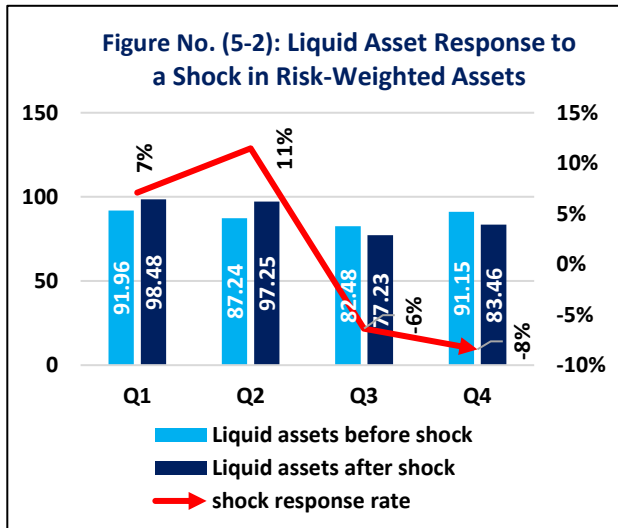


Figure No. (5-2) shows that the estimates of the impulse response functions during the four quarters of 2024 indicate that the degree of response of liquid assets to a random shock in the risk-weighted assets variable by two standard deviations in the first quarter led to a response of liquid assets by (7.1%), which led to a change in liquid assets from IQD (91.96) trillion to IQD (98.48) trillion during the same quarter, and continued to increase according to the second quarter, except that the random shock in the risk-weighted assets variable in the third quarter was negative, which led to a response of liquid assets by (-6.4%), thus decreasing the liquid assets of banks operating in Iraq from IQD (82.48) trillion to IQD (77.23) trillion in the same quarter, and liquid assets

continued to decline to reach IQD (83.46) trillion in the fourth quarter from the same quarter, which amounted to IQD (91.15) trillion, as a result of the increase in the response of liquid assets to the negative shock by (-8.4%).

3) The impact of the shock in public expenditure (CP) on liquid assets (LA):

Public expenditures are directly related to liquid assets. The direction of this relationship may be due to the high level of government spending being affected by economic and political crises in Iraq, especially current expenditures, as the government often maintains the level of current expenditures and prepares alternative sources to finance it in the event of a decline in basic sources (oil revenues). Increased government expenditures lead to an increase in the level of economic activity and thus an increase in the ability of individuals to meet their obligations and thus a decrease in the ratio of non-performing loans to total credit, which leads to a decrease in credit risks and then an increase in liquid assets in banks operating in Iraq. Also, any unexpected change in the variable (public revenues) in addition to a shock in the variable (public expenditures) will have an immediate impact on the variable (public expenditures). Estimates of the impulse response functions of liquid assets to a shock in public expenditures in the four quarters of 2024 are as in Figure No. (5-3).

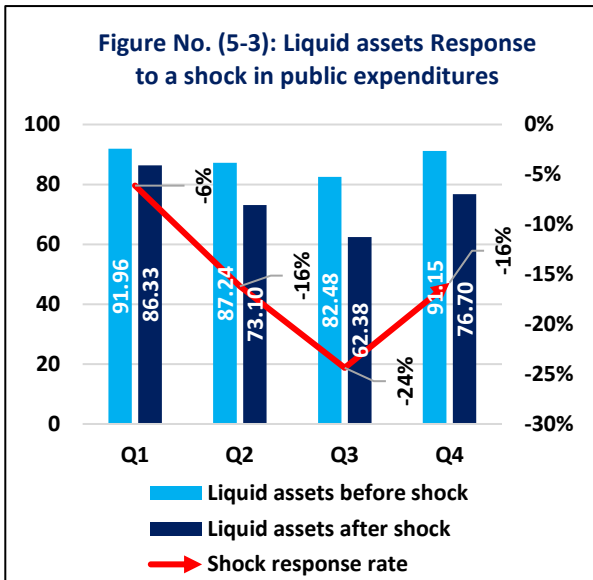


Figure No. (5-3) shows that the degree of response of liquid assets to a random shock in the public expenditure variable by two standard deviations in the first quarter led to a decrease in liquid assets by (-6.1%), which led to a change in liquid assets from IQD (91.96) trillion to IQD (86.32) trillion in the same quarter. As for the second and third quarters, a greater impact will be generated than in the first quarter, starting from the second quarter following the shock, as the negative shock in the public expenditure variable continued to the third quarter and liquid assets responded to it by (-24.4%), which led to a decrease in liquid assets from IQD(82.48) trillion to IQD (62.38) trillion. As for the fourth quarter, the negative shock in expenditure decreased to (-15.9%) compared to the previous quarters, which led to a change in liquid assets from IQD (91.15) trillion to IQD (76.70) trillion. This can be observed as in Figure No. (5-3), where it can be said that the change in shocks during the four

quarters of the year 2024 affects liquid assets according to the nature of the shock.

4) The impact of the shock on public revenues (RE) on liquid assets (LA):

Public revenues are directly related to the liquid assets of the Iraqi banking system, as the results showed a direct and statistically significant relationship between the two variables, which reflects the strong relationship between public revenues and the financial sector in Iraq. Public revenues are also greatly affected by global oil prices because oil revenues constitute more than (95%) of public revenues, especially since most government expenditures depend on these revenues, so they can greatly affect the per capita disposable income in Iraq, as

public revenues are immediately affected by a shock in the variable (public revenues) and the estimates of the impulse response functions of liquid assets to a shock in public revenues during the four quarters of 2024 are as shown in Figure No. (5-4).

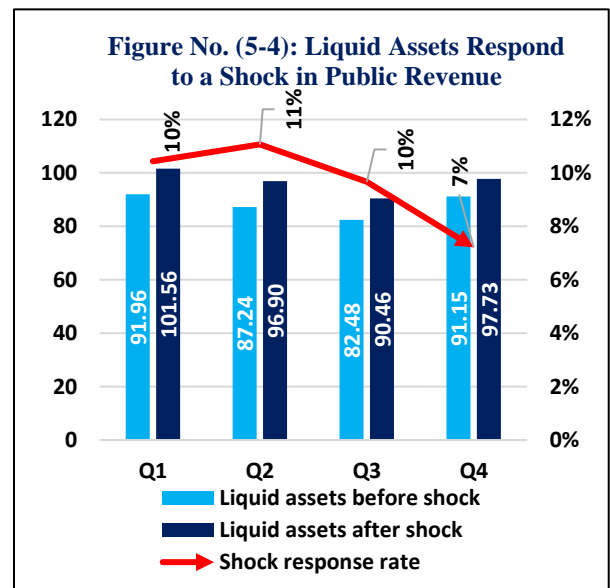


Figure No. (5-4) shows that the degree of response of liquid assets to a random shock in the public revenue variable by two standard deviations in the first quarter led to an increase in liquid assets by (4.10%), due to the increase in individuals' ability to save and thus the increase in bank deposits, which in turn leads to an increase in liquid assets in banks operating in Iraq from IQD (91.96) trillion to IQD (101.56) trillion in the same quarter. The random shock in public revenues in the second quarter led to a change in liquid assets by (11.1%), while in the third and fourth quarters the shock continued to decrease compared to the first and second quarters, as it led to an increase in liquid assets in the fourth quarter by (7.2%), which led to a change in liquid assets from IQD (91.15) trillion to IQD (97.73) trillion.

5-1-1-4 Analysis of the structural variance of liquid assets (LA):

Table No. (5-2) shows each shock of the variables used in the model to explain the circumstantial fluctuations of the liquid assets index in the 4-quarter forecast horizons for the year 2024. The table shows that liquid assets and public revenues in the first quarter are the ones that contribute the largest ratio to explaining the variance of the forecast error¹ for liquid assets. Liquid assets explain (97.9%) of the forecast error, while in the second and third quarters, public expenditure (2.7%) and (4.8%)

of the forecast error are explained respectively, followed by public revenues and then risk-weight assets. The parallel exchange rate has a small role in explaining the forecast error, while liquid assets explain (94.1%) and (91.6%) of the forecast error for the same quarters, respectively. As for the last quarter, public expenditure and liquid assets remain the most important in explaining the forecast error for liquid assets, as liquid assets explained (91.3%) of the forecast error, while public expenditures explained (4.9%) of the forecast error for the same quarter. The standard error of the forecast error for 4 quarters is increasing with time, and this increase is attributed to the effects of uncertainty in the forecast for the previous period.

Table No. (5-2): Analysis Results of the components of variance of liquid assets according to the (SVAR) model

Period	S.E.	Shock1 LA	Shock2 EX	Shock3 RWA	Shock4 CP	Shock5 RE
1	1.02	97.85	0.28	0.48	0.36	1.04
2	1.15	94.13	0.49	1.37	2.26	1.75
3	1.36	91.62	0.62	1.20	4.82	1.75
4	1.52	91.29	0.82	1.27	4.97	1.64

Source:(EViews) program outputs.

¹What is meant by forecast error: It is the difference between the expected values and the actual results. It

measures the deviation between what was expected and what happened for a certain period.

5-1-2 The Second Model: Testing the Impact of Some Macroeconomic and Microeconomic Variables on Non-Performing Loans of Banks Operating in Iraq:

The model aims to estimate the relationship between the financial distress of banks and any shocks related to macro-economic variables. A second model was taken to measure the impact of the parallel exchange rate and cash credit on non-performing loans, where the model was in the following functional form:

$$X_t = \sum_{i=1}^m A_i X_{t-1} + U_t$$

Where:

$X_t = (NPL, EX, CC)$: is the vector of internal variables that must be independent of each other.

NPL: Non-performing loans.

EX: Parallel exchange rate.

CC: Cash credit.

Stability tests were conducted for the variables, determining the optimal slowdown degree, and structural stability. As for the correlation matrix, it was found that the parallel exchange rate variable (EX) is directly related to non-performing loans (NPL), with a ratio of (25%), while the cash credit variable (CC) is directly related to non-performing loans (NPL), with a ratio of (38%).

As for the correlation between the parallel exchange rate variable (EX) and the cash credit variable (CC), they are

strongly directly related, with a ratio of (89%).

5-1-2-1 Estimation of the (SVAR) Model:

After ensuring the stability of the time series of the variables and after determining the optimal slowdown degree, the structural autoregressive vector (SVAR) methodology will be relied upon because it is suitable for studying the dynamic interactions between the parallel exchange rate and monetary credit and their impact on non-performing loans, as hypotheses were developed for the (SVAR) model, taking into account the economic theory and the state of the Iraqi financial system through the following hypotheses:

First hypothesis:

Any unexpected change in the variables (parallel exchange rate and monetary credit) in addition to a shock in the variable (non-performing loans) will have an immediate impact on the variable (non-performing loans).

Second hypothesis:

Any unexpected change in the variables (monetary credit) in addition to a shock in the variable (parallel exchange rate) will have an immediate effect on the variable (parallel exchange rate), while the variable (non-performing loans) has no immediate effect on the variable (parallel exchange rate).

Third hypothesis:

Any unexpected change in the variable (non-performing loans) in addition to a shock in the variable (monetary credit)

will have an immediate effect on the variable (monetary credit), while the variables (parallel exchange rate) do not have an immediate effect on the variable (monetary credit).

After imposing restrictions on the variables, the values of both matrices (A) and (B) can be determined, and thus the transition matrix (S) can be determined, which allows estimating the structural impulse response functions as well as analyzing the variance components according to the (SVAR) model, as follows:

$$A = \begin{bmatrix} 1 & -\alpha_{X1}^Y & -\alpha_{X2}^Y \\ 0 & 1 & -\alpha_{X2}^{X1} \\ -\alpha_Y^{X3} & 0 & 1 \end{bmatrix} \begin{bmatrix} U_t^Y \\ U_t^{X1} \\ U_t^{X2} \end{bmatrix}$$

$$B = \begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix} \begin{bmatrix} \mu_t^Y \\ \mu_t^{X1} \\ \mu_t^{X2} \end{bmatrix}$$

5-1-2-2 Analysis of the structural impulse response functions:

1) The impact of the shock on the parallel exchange rate (EX) on non-performing loans (NPL):

One of the reasons for the default of loans is the rise in the parallel exchange rate, which affects the ability of individuals to meet their obligations because of the decline in purchasing power and real income. Therefore, the exchange rate in the parallel market is directly related to the non-performing loans in the banking system in Iraq. The estimates of the impulse response functions during the four quarters of 2024 were as shown in Figure (5-5).

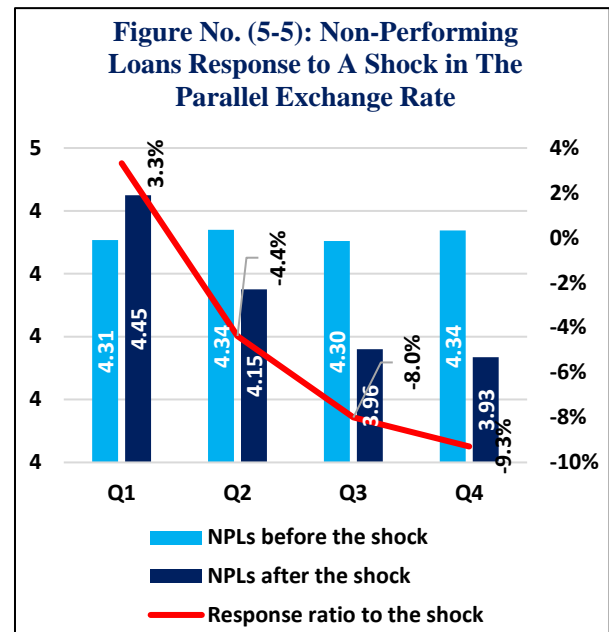


Figure No. (5-5) shows that any unexpected change in the variable (cash credit) in addition to a random shock in the variable (parallel exchange rate) by two standard deviations in the first quarter led to a response of non-performing loans by (3.3%), which led to an increase in non-performing loans from IQD (4.31) trillion to IQD (4.45) trillion in the same quarter. As for the remaining quarters, a negative impact was generated, the opposite of what it was in the first quarter, and this began from the second quarter that follows the shock to record the response of non-performing loans to the shock in the fourth quarter by (-9.3%), which led to a decrease in non-performing loans from IQD (4.34) trillion to IQD (3.93) trillion in the same quarter, and this can be seen as in Figure No. (5-5), where it can be said that the change in shocks during the four quarters of 2024 affects non-performing loans according to the nature of the shock.

2) The impact of the shock on cash credit (CC) on non-performing loans (NPL):

Credit is effective in the banking sector if used properly, because excessive use of it leads to inflationary effects, cash credit is directly related to non-performing loans, as the estimates of the impulse response functions during the four quarters of 2024 were as in Figure (5-6).

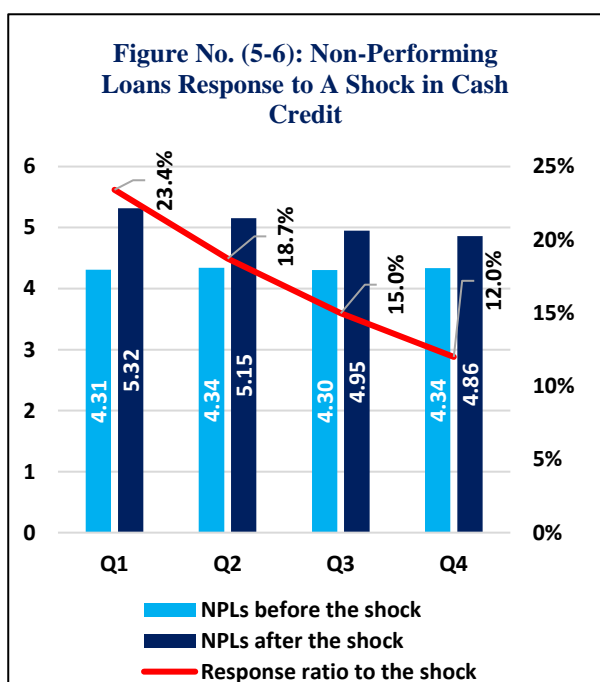


Figure No. (5-6) shows that any shock in cash credit will have an immediate impact on the cash credit variable, and then non-performing loans respond to this shock. Therefore, the degree of response of non-performing loans to a random shock in the cash credit variable by two standard deviations in the first quarter was (23.4%), which led to an increase in non-performing loans from IQD (4.31) trillion to IQD (5.32) trillion during the same quarter.

As for the rest of the quarters, the impact of the shock decreased from what it was in the first quarter, starting from the second quarter following the shock to record the lowest decrease in the response of non-performing loans in the fourth quarter by (12%), which led to an increase in non-performing loans, but by a small ratio from IQD (4.34) trillion to IQD (4.86) trillion in the same quarter.

5-1-2-3 Structural Variance Analysis of Non-Performing Loans (NPL):

Table (5-3) shows each shock of the variables used in the model to explain the circumstantial fluctuations of the NPL index in the 4-quarter forecast horizons for the year 2024. The table shows that non-performing loans and cash credit in the first quarter are the ones that contribute the largest ratio in explaining the variance of the forecast error of non-performing loans. Non-performing loans explain (71.6%) of the forecast error, while cash credit explains (28.4%) of the forecast error. As for the second and third quarters, cash credit explains (30.1%) and (31.5%) of the forecast errors, respectively. As for the parallel exchange rate, its role is small in explaining the forecast error, while non-performing loans explain (69.9%) and (68.5%) of the forecast error for the same quarters, respectively. In the last chapter, non-performing loans and cash credit remain the most important in explaining the forecast error of non-performing loans, as non-performing loans explained (67.6%) of the forecast

error, while cash credit explained (32.4%) of the forecast error for the same chapter.

The standard error of the forecast error for 4 chapters is increasing with the passage of time, and this increase is attributed to the effects of uncertainty in the forecast for the previous period.

Table No. (5-3): Analysis Results of the components of variance of non-performing loans according to the (SVAR) model

Period	S.E.	Shock1 (NPL)	Shock2 (EX)	Shock3 (CC)
1	0.55	69.86	0.0001	30.14
2	0.60	68.54	0.0003	31.46
3	0.62	67.56	0.0005	32.44
4	0.55	69.86	0.0001	30.14

Source: (EViews) program outputs.

5-2 Summary of Shock Risks:

5-2-1 Liquid Assets Risk Level:

- Downward trend for the exchange rate shock risk on liquid assets (positive risk level below average).
- Semi-equal trend (positive upward in the first two quarters and negative downward in the last two quarters) for the risk-weighted assets shock risk on liquid assets (weak risk level).
- Negative trend for the net expenditure shock risk on non-performing loans (medium negative risk level).

- Positive trend for the net revenue shock risk on liquid assets (medium positive risk level).
- Dominance of expenditures in the impact and a declining role of revenues, exchange rate and risk-weighted assets.

5-2-2 Non-Performing Loans Risks Level:

- Positive trend for the outcome of exchange rate shock risks on non-performing loans (positive medium risk level).
- A downward trend for the outcome of the cash credit shock risks on non-performing loans (a negative risk level of downward average).
- The dominance of credit risks in influencing non-performing loans, and the weak role of exchange rate risks.

6



Measurement of Aggregate Financial Stability Index in Iraq

6- Measurement of Aggregate Financial Stability Index in Iraq

The Central Bank of Iraq (CBI) seeks to protect Iraq's individuals, economy and financial system from the effects of the various shocks to which the country is exposed through its procedures. To this end, CBI has implemented a variety of funding initiatives aimed at supporting Iraq's economy in the light of the significant challenges it faces. However, this was not one of its main functions, as compared to financial policy, through its directed initiatives to the specialized banks. These initiatives aim to finance vital sectors of the Iraqi economy, promote economic growth and create jobs. Although Iraq's GDP indicators are affected by those policies, still further action is needed to support the economy and stabilize the financial system. In this context, the financial stability index is an important tool that measures the country's level of financial stability, providing early guidance for decision makers to take appropriate protective measures.

Central banks assess the integrity of the financial system by using a variety of quantitative and objective indicators. This analysis aims to assess the strength and robustness of the financial system and identify any risks it may face. The Central Bank of Iraq promotes the principle of transparency and disclosure by providing adequate information to the market and financial system participants. This is done through the

publication of detailed reports and data on the state of Iraq's financial system and its important indicators. This principle helps to build confidence and enhance stakeholders' understanding of the risks and challenges facing Iraq's financial system.

The development of the financial stability index depends on a variety of indices, which include the banking system, the economic sector in general, the capital market, the world economy index and the financial cycle. These sub-indices are based on a range of other sub-ratios that reflect various aspects of the stability of Iraq's financial system. This approach of multi-indices allows the Central Bank of Iraq to obtain a comprehensive picture of financial stability and identify areas that may need improvement or focus on in accordance with the analysis of these multiple indices and related sub-ratios. The Central Bank can assess public financial conditions and take the necessary measures to maintain the stability of Iraq's financial system.

6-1 Practical Aspect of The Financial Stability Index:

Building a good aggregate financial stability index enables an enterprise to rely on and trust its results. There are fundamental steps to build the index, so several steps have been used to measure the aggregate financial stability index, they are as follows:

6-1-1 Variables Used in Calculating the Aggregate Financial Stability Index:

The aggregate financial stability index consists of five main sub-indices, considering the addition of a negative sign to the reverse-related variables with the financial stability index prior to the normalization of data process, as the following¹

6-1-1-1 Banking Sector Index:

One of the key indicators used to measure the financial stability index, which involves four main indices. The first involves the capital adequacy ratio, while the second involves asset quality indices, including: ratio of non-performing debt to total loans and advances, ratio of net non-performing debts after provisions deduction/capital base, ratio of non-performing debts /total cash credit and ratio of coverage (provisions/non-performing debts). The third index involves liquidity indices, including: ratio of liquid assets/liabilities, ratio of liquid assets/short-term liabilities, ratio of liquid assets/total deposits and cash credit ratio /total deposits. While the fourth index involves profitability indices, including: ratio of return on assets, ratio of return on equity, ratio of gross expenditure excluding interest to gross income and the ratio of interest margin to gross income, making 13 sub-indices that reflect the banking sector.

6-1-1-2 Macroeconomic Index:

It involves (8) sub-indices: GDP growth rate, current account deficit/GDP ratio, breakeven price of oil in Iraq, inflation rate, parallel exchange rate (market), public debt/GDP ratio, individuals' indebtedness/GDP ratio and net foreign reserves/GDP ratio.

6-1-1-3 Capital Market Index:

It involves two sub-indices: the Iraq Stock Market Index and the ratio of the market value of equity to GDP.

6-1-1-4 World Economy Index:

It involves two sub-indices: the world economic growth index and the world inflation index.

6-1-1-5 Financial Cycle Index:

It involves one index that measures the credit gap: meaning the difference between the credit ratio of the private sector to GDP and the trend of the long-term ratio using The Hodrick-Prescott Filter.

6-1-2 Standard Financial Stability Matrix:

The standard financial stability matrix was added to determine the stability of all the component variables of the aggregate index. Each variable is classified on a scale between (0) and (1) by a criterion consisting of five ratings (unstable), (less stable), (stable), (more stable) and (very stable) per variable. This classification is adopted after the application of the normalization approach phase and conversion to

¹ For more information on the aggregate financial stability index, see Financial Stability Report, Central Bank of Iraq 2022, Chap. V, p. 87.

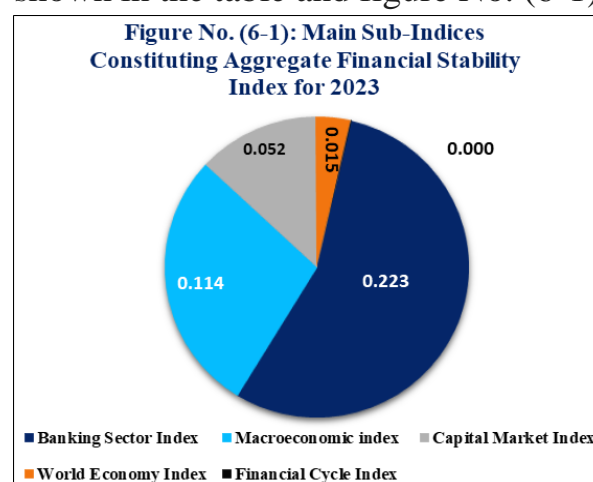
normative values, considering the relationship (whether direct or reverse correlation) that links the partial sub-variable to the aggregate index of financial stability. If the variables are linked to a direct correlation with the aggregate index of financial stability, the criterion (unstable) is defined by threshold (0), the criterion (less stable) is defined by threshold (0.01-0.25), the criterion (stable) is defined by threshold, (0.26-0.50) and the criterion (higher stability) is defined by threshold (0.51-0.75), while the criterion (very stable) is defined by threshold (0.76-1). And vice versa if the relationship that links the partial sub-variable with the financial stability index is reversed.

6-1-3 Analysis of The Aggregate Financial Stability Index:

The financial stability level can be assessed by the aggregate financial stability index, which basically depends on the aggregate index's components and trends. Aggregate Financial Stability Index values decreased over the period of (2019-2021), after which they began to rise in 2022 and then decreased in 2023 as shown in table No. (6-1).

Indices \ Years	2019	2020	2021	2022	2023
Aggregate Financial Stability Index	0.563	0.430	0.365	0.427	0.404
Banking Sector Index	0.261	0.229	0.194	0.188	0.223
Macroeconomic index	0.267	0.138	0.126	0.150	0.114
Capital Market Index	0.000	0.053	0.016	0.069	0.052
World Economy Index	0.005	0.010	0.020	0.014	0.015
Financial Cycle Index	0.030	0.000	0.009	0.005	0.000

It reflects the overall orientation of the Central Bank of Iraq to adopt and strengthen financial stability policies through applying Basel III requirements and IFRS No. 9, as well as other CBI requirements for Iraq's banking sector (domestic and foreign). Table No. (6-1) also shows that the main sub-indices components of the aggregate financial stabilization index have decreased both the macroeconomic index, the capital market index and the financial cycle index to (0.114), (0.052) and (0.0), respectively. While the banking sector index rose to (0.223) and the world economic index to (0.015) in 2023, as shown in the table and figure No. (6-1).



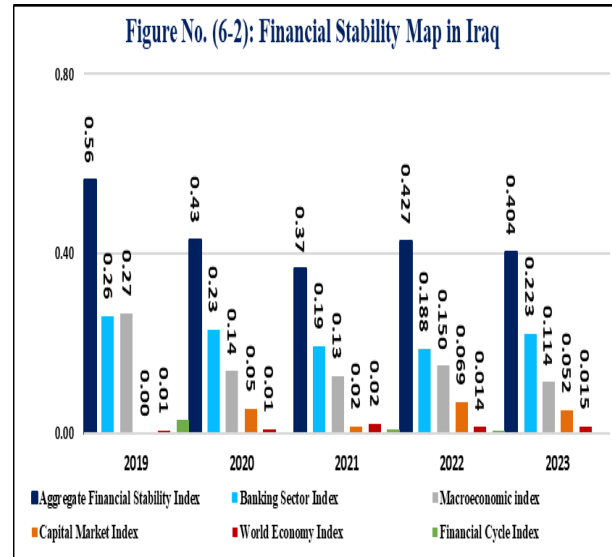
The Central Bank of Iraq sought to minimize the impact of successive crises beginning with the coronavirus pandemic, followed by the Ukrainian-Russian war and changes in world powers, including the most recently tensions in the Red Sea. It was achieved by increasing financing initiatives in support of economic sectors and reducing the non-performing credit through extending the duration of repayment of beneficiaries' loan

receivables and other measures in which precautionary policies were used at both the micro and macro levels around capital and liquidity enhancement according to international and domestic standards. However, these actions and conditions did not have a significant impact on the aggregate financial stabilization index, which maintained its level with a slight decline to (0.404) in 2023 against (0.427) at the end of 2022. The aggregate financial stability index consists of several sub-indices, all of which affect the outcome of its value. They are as follows:

6-1-4 Financial Stability Map:

The financial stability map clarifies the analysis of the direction of sub-indices compiled based on data of each year, where the aggregate index witnessed fluctuations over the period (2019-2023). The macroeconomic index, the capital market index and the financial cycle index declined, while the banking sector index and the world economic index rose in 2023. The overall impact of the change in these indices is the decline of the banking stability index from (0.427) in 2022 to (0.404) in 2023, as the biggest impact of its decline is due to the capital market index, which declined from (0.069) to (0.052), in addition to the decline of the macroeconomic index., as shown in figure No. (6-2). Despite the rise of the banking sector index, still the decline of macroeconomics index had the greatest impact on the decline of the financial stability index, though its weight is

(32%) of the total weighted weight of the financial stability index. It is due to the decline of GDP growth rate, which had impacted the decline of the macroeconomic index and hence on aggregate financial stability index in Iraq.



6-2 The Relationship Between the Aggregate Financial Stability Index and Its Component Sub-Indices:

The Aggregate financial stability index consists of several sub-indices, all of which affect the outcome of its value as follows:

6-2-1 Banking Sector Index (BI)

Stability indices for the Iraqi banking sector are a vital part of assessing the soundness and strength of Iraq's financial system, consisting of four main indices (capital adequacy ratio, asset quality, liquidity quality and profitability quality), calculated by involving several sub-indices affecting positively or negatively the financial stability index in Iraq. Therefore, the weighted weight was estimated at (51%), since it involves the most

constituent indices of the financial stability index, as it experienced fluctuations during the period (2019-2023). The weighted value of the banking stability index increased from (0.188) in 2022 to (0.223) during 2023 as shown in figure No. (6-3).

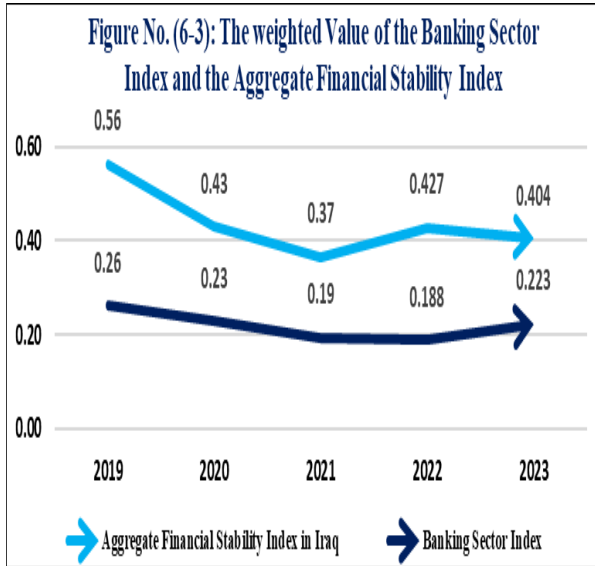
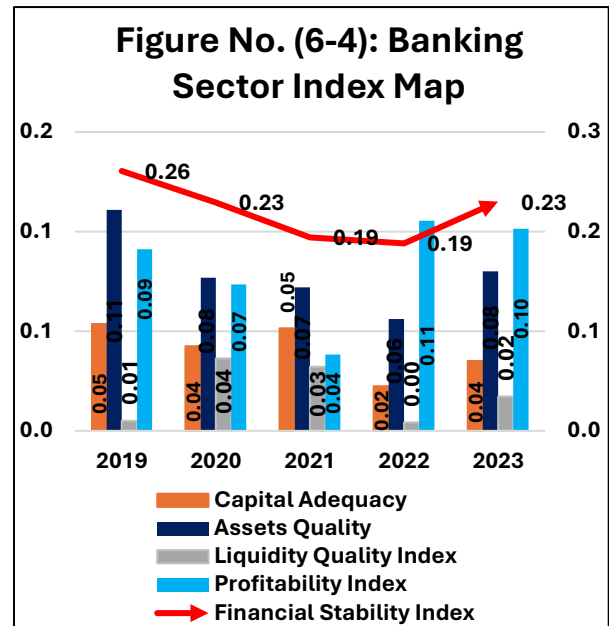


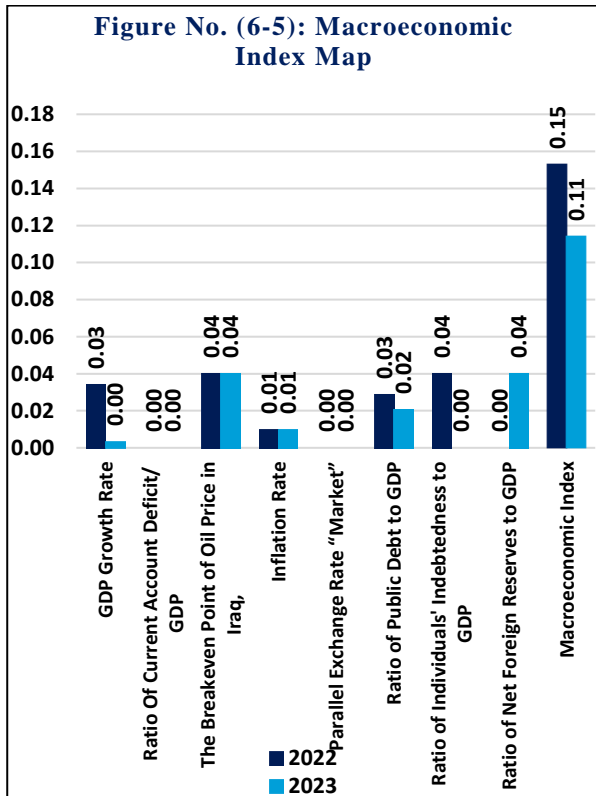
Figure No. (6-4) shows that the Capital Adequacy Index weighted value increased during 2023 to a rate of (0.04) up from (0.02) during 2022 due to the depreciation of risk-weighted assets. This rise of capital adequacy is positively reflected in the financial stability index, as noted in the banking stability map that the weighted value of both: the liquidity and asset quality index rose to (0.02) and (0.07) in 2023 up from (0.004) and (0.06) in 2022, respectively. The profitability quality index declined from (0.11) in 2022 to (0.10) in 2023. Although the profitability quality index declined, However, financial stability index for the banking sector in Iraq increased from (0.188) in 2022 to (0.423) in 2023.



6-2-2 Macroeconomic Indices:

These indices measure the macroeconomic environment in which the financial sector operates. The financial sector depends on the overall activity and macroeconomic performance of the country, it is affected by the economic variables that can occur from time to time and that affect the economy. As it measures the impact of macroeconomic variables on financial stability. Given the fact that this index directly affects the financial stability index, it was given a weighted weight of (32%), consisting of 8 sub-indicators: GDP growth rate, the breakeven price of oil in Iraq, ratio of foreign reserves to GDP, which is linked in a direct correlation with the macroeconomic index. While other indices include: (ratio of current account deficit/GDP, inflation rate, parallel exchange rate “Market”, public debt to GDP and individuals' indebtedness to GDP) as they are linked to an inverse correlation to

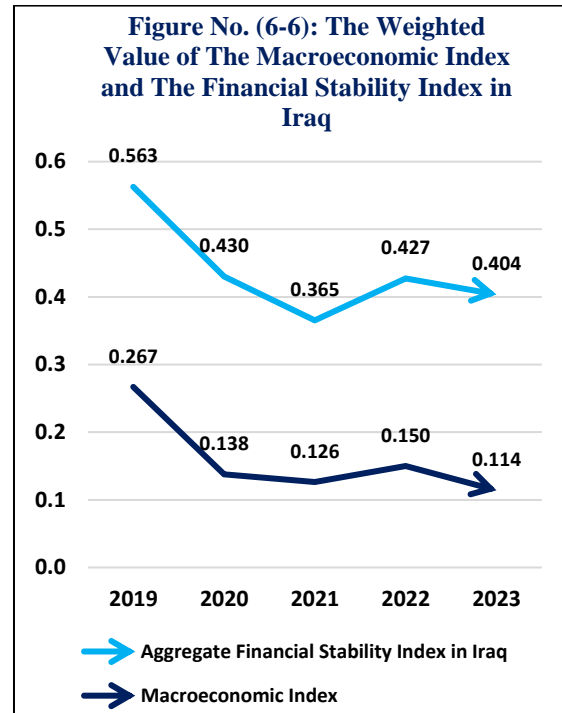
macroeconomic index, while the latter is linked in a direct correlation with the financial stability index. Meaning that the increase of the macroeconomic index had a positive impact on the financial stability index and vice versa, as shown in the macroeconomic index map for 2022 and 2023 in figure No. (6-5).



It explains that the ratio of internal public debt to GDP, the ratio of individuals' debt to GDP and the ratio of foreign reserves to GDP had a positive impact on the macroeconomic index and then the financial stability index in Iraq, recording (0.02), (0.00), and (0.04), respectively, in 2023. Gross domestic product (GDP) had a negative impact on the financial stability index, as it declined from (0.3) in 2022 to (0.003), the constant parallel exchange rate (market), the current account deficit to GDP, the point of breakeven price of

oil in Iraq and the inflation rate (0.00), (0.00), (0.04) and (0.01), as shown in figure No.(6-5).

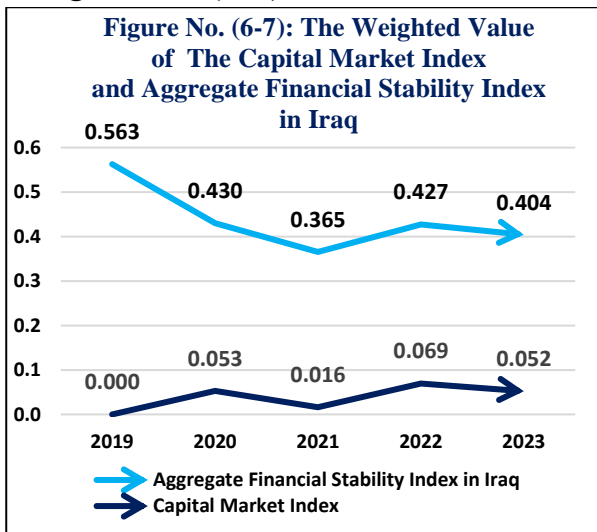
The aggregate macroeconomic index declined from (0.15) in 2022 to (0.11) in 2023, as the impact of this decline was reflected on aggregate financial stability index in Iraq in 2023, as shown in figure No. (6-6).



6-2-3 Capital Market Index:

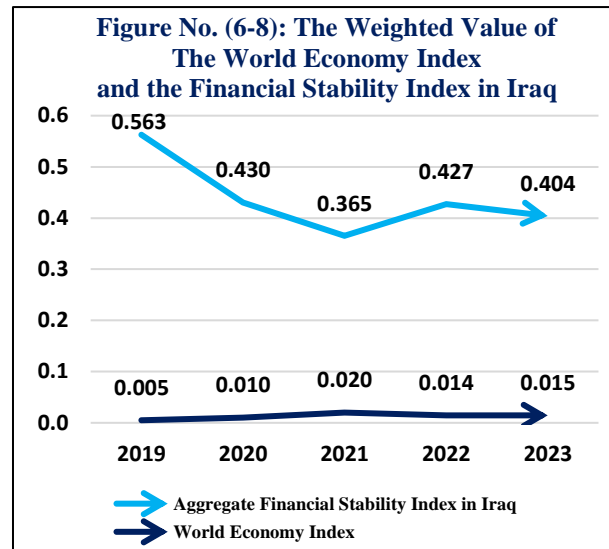
This index measures the impact of capital markets on financial stability using two indices: first- (Iraq Stock Exchange Index for Financial Markets) that measures market performance and, second- (the market value of equities/GDP). As this index is used to measure the impact of developments of the financial market on financial stability since this ratio is considered one of the most important indices to be considered in the aggregate index because it affects the financial stability in Iraq with weighted weight that

constitutes (10%) of the total weights of the indices involved in calculating the aggregate financial stability index in Iraq. These two indices have a direct correlation with the financial stability index as figure No. (6-7) shows the low weighted value of the capital market index from (0.07) in 2022 to (0.05) in 2023. It adversely affected the financial stability index in Iraq in 2022, as shown in figure No. (6-7).



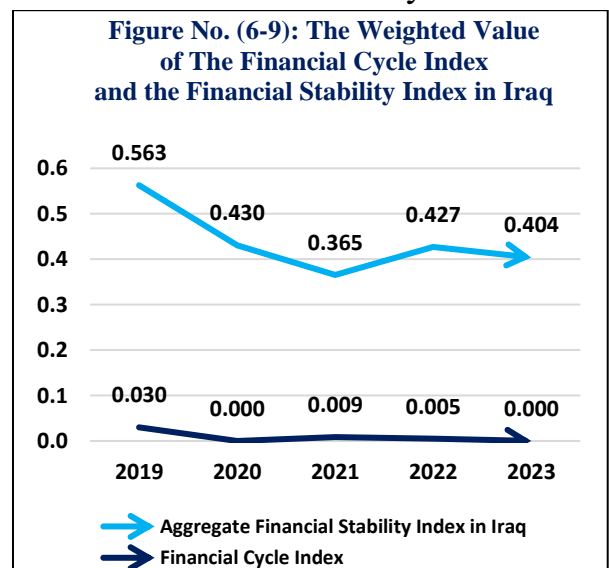
6-2-4 World Economy Index:

Global developments affected most of the world economies, particularly Iraq. In the light of these challenges, it’s necessary to know their impact on the financial stability in Iraq due to the importance of this index at the level of Iraq's financial stability index, which consists of two sub-indices: the world economic growth index, the global inflation index with a weighted weight of (4%) of the total weighted weight of financial stability. It was noted through figure No. (6-8) that its value rose slightly from (0.014) in 2022 to (0.015) in 2023, but it was not significantly reflected on the financial stability index.



6-2-5 Financial Cycle Index:

The impact of the financial cycle on financial stability could be known by analyzing the private sector's credit gap to GDP without oil. The index shows stages of expansion and deflation of the financial sector in each period. The positive gap indicates an accelerated rate of growth of the private sector's credit rate that may not correspond to the GDP growth rate at the same pace. The negative gap indicates that credit prices widen less than the GDP growth rate, which usually occurs after financial crises. When the gap widens, it reflects financial instability.



It is noted through figure No. (6-9) that the weighted value of the gap declined since 2019, but the decline did not significantly affect financial stability because the weight of the financial cycle within the financial stability index is only (3%). As the weighted value of the financial cycle index recorded (0.0) during 2023. The average credit gap ratio in Iraq for the period 2015-2022 was (0.03), which indicates the weak contribution of Iraq's banking sector to financing real activity despite the Central Bank's efforts to promote financial inclusion to provide credit facilities and initiatives to accelerate development and sustain economic growth in Iraq. At the same time, however, it represents a reduction of risks volume from the likelihood of accelerated growth of banking credit in Iraq.

6-3 Standard Financial Stability Matrix and Its Relationship with Iraq's Aggregate Financial Stability Index:

The index aims to assess the risks specific to Iraq's financial system, which rely primarily on the components and trends of the aggregate index that can play a crucial role in ensuring financial stability, as shown in table No. (6-2).

6-3-1 Banking Stability Sub-Index:

This index is weighted by a weight of (51%) of aggregate financial stability index, however it contributed (55%) to the composition of the aggregate financial stability index in 2023, as shown in figure No. (6-10). The banking

sector index rose to (0.223) in 2023 compared to 2022, which was (0.188). The standard stability matrix of the index's sub-indices shows stability in each of the capital adequacy ratio, the cash credit to total deposits ratio, interest margin to total income and net non-performing debts after deducting provisions to capital base. While non-performing debt to total debt and non-performing debt to total cash credit are in an unstable situation. Coverage ratio (provisions to non-performing debt), ratio of liquid assets to liquid liabilities, and liquid assets to total deposits in a less stable situation. Total expenditure without interest to total income is in a more stable situation, while liquid assets to short-term liabilities, the ratio of return on assets (ROA) and the ratio of return on equity (ROE) are in a very stable position.

6-3-2 Macroeconomic Sub-Index:

This index is weighted by (32%) of aggregate financial stability index in Iraq, as it contributed (28%) in 2023, then it reduced the macroeconomic index to (0.114) in 2023 compared to 2022, in which it reached (0.150). The reason for the decline of the macroeconomic sub-index is the decline in some of its component sub-indices (GDP growth rate, current account deficit/GDP ratio, public debt to GDP and foreign reserves/GDP ratio).

Table No. (6-2): Standard Financial Stability Matrix and its Relationship with Iraq's Aggregate Financial Stability Index

Variables of Direct Correlation							
Item	Variables	Sub-Variabes	2019	2020	2021	2022	2023
Banking Sector Index	Capital Adequacy	Capital Adequacy Ratio	0.77	0.61	0.74	0.32	0.42
	Assets Quality	Coverage Ratio (Provisions/ Non-Performing Debts)	1.00	0.60	0.39	0.00	0.05
	liquidity	Ratio Of Liquid Assets/ Liquid Liabilities	0.00	0.00	0.20	0.00	0.00
		Liquid Assets/ Short-Term Liabilities	0.00	0.00	0.04	0.00	0.00
		Liquid Assets/ Total Deposits	0.00	0.00	0.03	0.10	0.04
		Cash Credit/ Total Deposits	0.13	0.91	0.53	0.00	0.39
	Profitability	Ratio of Return on Assets (ROA)	0.65	0.92	0.18	1.00	1.00
		Ratio of Return on Equity (ROE)	0.63	0.91	0.27	1.00	1.00
		Interest Margin to Total Income	1.00	0.00	0.49	0.44	0.45
Macroeconomic Index	GDP Growth Rate	0.78	0.38	1.00	0.85	0.08	
	Breakeven Point of Oil Price in Iraq	0.60	0.77	0.71	1.00	1.00	
	Foreign Reserves/ GDP Ratio	1.00	1.00	0.35	0.00	1.00	
Capital Market Index	Iraq Stock Market Index	0.00	0.06	0.32	0.39	1.00	
	Market Value of Equity/ GDP	0.00	1.00	0.00	1.00	0.04	
World Economy Index	World Economic Growth	0.00	0.00	1.00	0.71	0.68	
Variables of Reverse Correlation							
Item	Variables	Sub-Variabes	2019	2020	2021	2022	2023
Banking Sector Index	Assets Quality	Non-Performing Debt/ Total Debts	0.72	0.97	1.00	1.00	1.00
		Net Non-Performing Debt After Provisions Deduction/ Capital Base	1.00	0.00	0.02	0.00	0.33
		Non-Performing Debt/ Total Cash Credit	0.98	0.99	0.99	0.87	0.92
	Profitability	Total Expenditure Without Interests/ Total Income	0.00	0.00	0.02	0.20	0.09
Macroeconomic Index	Ratio of Current Account Deficit/ GDP	0.53	0.78	0.30	0.00	0.00	
	Inflation Rate	0.78	0.00	0.00	0.18	0.24	
	Parallel Exchange Rate (Market)	1.00	0.52	0.00	0.00	0.00	
	Public Debt to GDP	1.00	0.00	0.39	0.72	0.52	
	Individuals' Indebtedness to GDP	0.98	0.00	0.41	1.00	0.00	
World Economy Index	World Inflation	0.25	0.51	0.00	0.00	0.05	
Financial Cycle Index	Credit Gap to GDP Without Oil	1.00	0.00	0.29	0.18	0.01	

Nevertheless, when analyzing the standard stability matrix of the index's sub-indices, it is noted that each of the ratio of foreign reserves to GDP, the breakeven point of oil price in Iraq, the current account deficit to GDP ratio, individuals' indebtedness to GDP and the parallel exchange rate are rated very stable. Public debt to GDP ratio and GDP growth rate are rated less stability, while the parallel exchange rate index (market) is in a more stable situation.

6-3-3 Capital Market Index:

The index was weighted by a weight (10%) of Iraq's aggregate financial stability index, with a contribution of (13%) in 2023 as the capital market index declined to (0.052) in 2023 compared to 2022, in which it reached (0.069). The reason for the decline is the decrease in its component sub-indices (equity market value /GDP). However, in analyzing the standard stability matrix of component sub-indices, it is noted that there is an index rated a very stable situation: (Iraq Stock Market Index), while the market value index of equity to GDP is rated less stable.

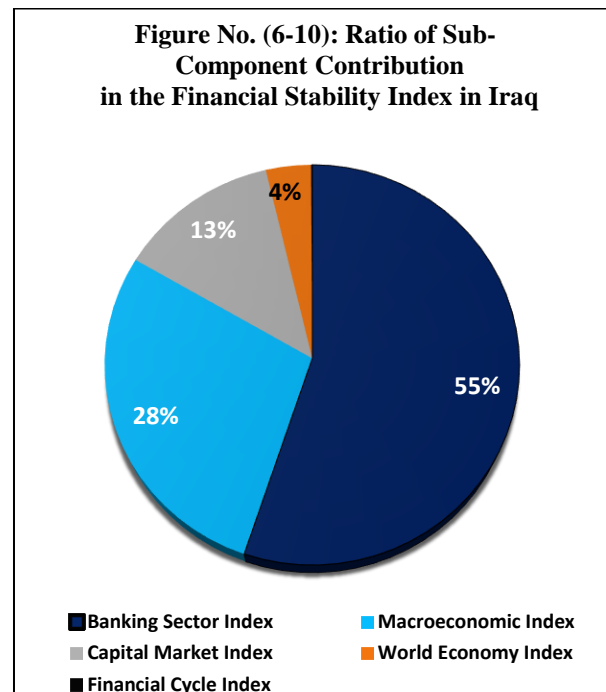
6-3-4 World Economy Index:

It is weighted by (4%) of aggregate financial stability index in Iraq. This index contributed (4%) in 2023, as the contribution of the world economy index rose to (0.015) in 2023 compared to 2022, which it reached (0.014). The reason for the decline of the world economy index is the decline of its component sub-indices (global inflation

and global economic growth index). However, when analyzing the standard map of its component sub-indices, it could be noticed that the world economic growth index is stable, while the inflation index is more stable.

6-3-5 Financial Cycle Index:

This index was weighted by (3%) of aggregate financial stability index in Iraq, but it contributed by (0%) in 2023, dropping the contribution of the financial cycle index to (0.000) in 2023 compared to 2022, in which it reached (0.005). The decline of financial cycle index is due to the higher credit gap to GDP without oil in the long term; meaning that there is (a rise of cash credit to GDP without oil), which is a good indicator for the Iraqi economy as confirmed by the map of standard stability analysis with a higher stability standard of the index.



7



The Impact of Climate Change on Financial Stability in Iraq

7- The Impact of Climate Change on Financial Stability in Iraq:

Iraq's climate faces significant challenges due to changes that are considered one of the most critical risks to various aspects of life. These climate changes usually consist of rising temperatures, severe droughts, reduced rainfall, desertification, and an increased spread of dust storms. These environmental changes have a significant impact on various economic sectors, especially the financial and monetary sectors”.

- Economic impacts: Climate changes affect the Iraq's economy directly and indirectly, drought and dust storms undermine the agricultural sector, which is an important part of the components of GDP, as well as drought and desertification lead to migration from the countryside to the city, which causes pressure on all economic variables, including financial stability.
- Water security: Iraq depends on the Tigris and Euphrates rivers to meet its water needs, and when there is a deterioration in the flow and storage of water, it will certainly lead to a deterioration in food and economic security, which affects financial stability.
- Impact on financial stability: As a result of the changes mentioned earlier through the effects that affect the economy as well as changes in food

security, there will be financial effects on the financial system, especially water shortages, desertification and migration from the countryside to the city, which causes pressure on all economic variables. The Central Bank of Iraq seeks to integrate climate risks within the framework of financial stability, because climate change is a source of both opportunities and risks. The financial system can play a vital role in the transition towards a green economy by mobilizing resources to invest in climate change mitigation measures and the transition to a low-carbon economy. For example, a (20%) reduction in water supply and what accompanies of its reduction in crop yields could lead to GDP of up to (4%) equivalent to US\$(6.6) billion¹. This decline reflects negatively on the financial system. Based on these impacts, Iraq needs to implement adaptation and mitigation programs, to deal with climate impacts that can include improving water management, developing sustainable agriculture, and strengthening infrastructure to cope with extreme weather conditions.

7.1 Risks of Climate Change in Iraq:

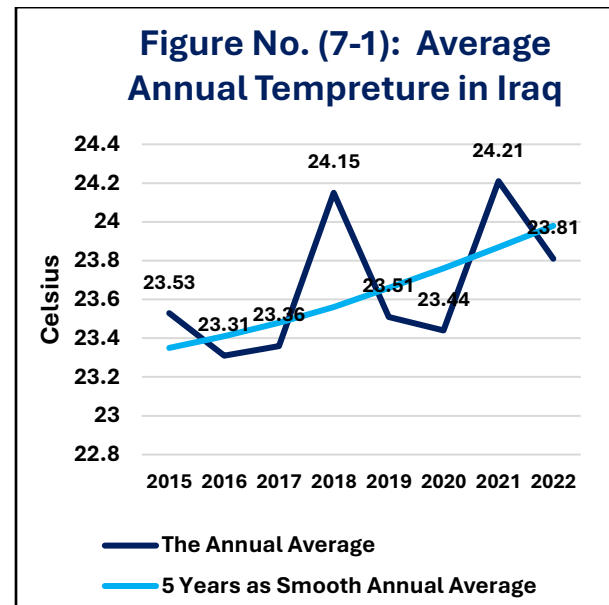
Iraq is one of the most vulnerable countries to the effects of climate change, ranking Iraq the top five countries most affected by this global issue of the five countries most affected by climate change. The country is witnessing a sharp decline in water

¹ World Bank Economic Monitor for Autumn 2021 entitled "The Slippery Road to Economic Recovery".

supply and an acceleration in desertification, losing up to 252,000 dunums of arable land annually, a situation that threatens the livelihoods and food security of a large ratio of the population, creating an environment conducive to displacement, instability and the collapse of social cohesion², Highlights of Climate Indicators can be Summarized as Follows:

7.1.1 The Impact of Climate Change on Temperatures:

Iraq faces great challenges due to climate change, and the country is witnessing a continuous rise in temperatures, as the country recorded the highest temperature in the world was in the city of Ali Al-Gharbi in Maysan Governorate, reaching (55.6) degrees Celsius on Friday 7 June 2019, and this temperature is the highest in the history of Iraq, and Basra also recorded a high temperature of (53.9) degrees Celsius in 22 July 2016³. It is noted from Figure (7-1) that there is an increase in average temperatures after they were in 2015 (23.53) degrees Celsius to reach (23.81) degrees Celsius during 2022.



Source

<https://climateknowledgeportal.worldbank.org/country/iraq/climate-data-historical>.

It is expected that the average annual temperature will increase by two degrees Celsius by 2050 and the annual rainfall will decrease by (9%), as the average annual rainfall was (178.72) millimeters, so climate changes such as rising temperatures and low rainfall, affect water resources in Iraq, agriculture, health sector and biodiversity⁴, which clearly affects financial stability.

7.1.2 The Impact of Climate Change on the Agriculture Sector:

The agricultural sector is an important economic sector in the Iraq and is one of the main contributors to reducing greenhouse gas emissions. In 2023, the total cultivated area in Iraq was about 13 million dunums. Nineveh governorate alone accounted for more than half of this area at 51.8%. Demia lands (which do not depend on

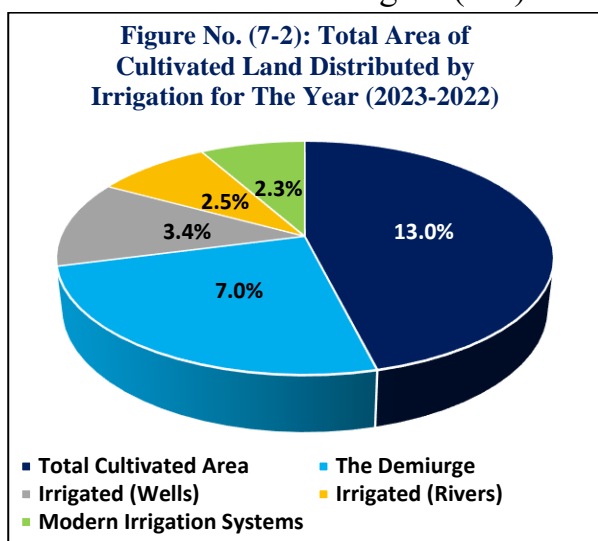
² <https://www.usip.org/publications/2023/11/climate-adaption-key-iraqs-stability-and-economic-developmet>

³ <https://www.arabiaweather.com/ar/content/12>.

⁴ Climate Change Knowledge Portal, Climate change in Iraq, World Bank

irrigation) constituted the largest part of the cultivated area with approximately 7 million dunums, or 54.2% of the total land irrigated by wells, which was second in order, amounting to (3.4) million dunums, or 26.4% of the total. Land using river water accounted for (2.5) million dunums, or 19.5 % of the total.

As for the areas covered by modern irrigation systems of irrigated areas (rivers and wells), they amounted to (2.3) million dunums, which constitutes (39%) of the total as shown in Figure (7-2).



Source: Ministry of Planning, Central Organization of Statistics.

These figures point to the crucial role played by the agricultural sector in the Iraq economy. Any changes in climatic conditions, such as drought or floods, which can significantly affect this sector, Consequently, the Iraqi economy is at risk. For example, drought can reduce agricultural yields, leading to higher food prices and economic volatility. This could increase

pressure on financial stability in Iraq. On the other hand, floods can lead to the destruction of Agricultural infrastructure, requiring significant investment for reconstruction. It is therefore essential that Iraq's financial and economic planning include strategies for adaptation to and mitigation of climate change. This could include improving water management, developing sustainable agriculture, and strengthening infrastructure to cope with extreme weather conditions.

The Path Adopted to Reduce Emissions for this Sector is Summarized as follows⁵:

Control the cultivation of crops that produce a large amount of methane, such as rice cultivation, as well as reducing water consumption, combat soil erosion and rehabilitate degraded lands.

The use of alternative energy units such as solar and wind energy in the agricultural sector to operate irrigation pumps and use efficient irrigation systems.

Apply integrated management to combat natural forest fires, rehabilitate burned and degraded forests, increase forest areas and create green belts to reduce CO₂ emissions.

Increase environmental awareness on climate-smart agriculture and improve nitrogen fertilizer application techniques to reduce N₂O emissions and encourage no-till farming to reduce

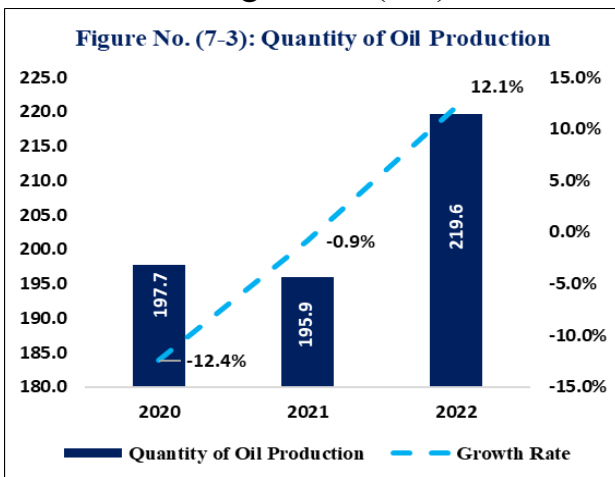
⁵ Iraqi Ministry of Environment, Iraq's Nationally Determined Contributions on Climate Change, 2020.

emissions from the use of agricultural mechanisms.

Reduce emissions from intestinal fermentation in livestock and sheep by identifying and improving appropriate feeds.

7.1.3 The Impact of Climate Change on the Energy Sector:

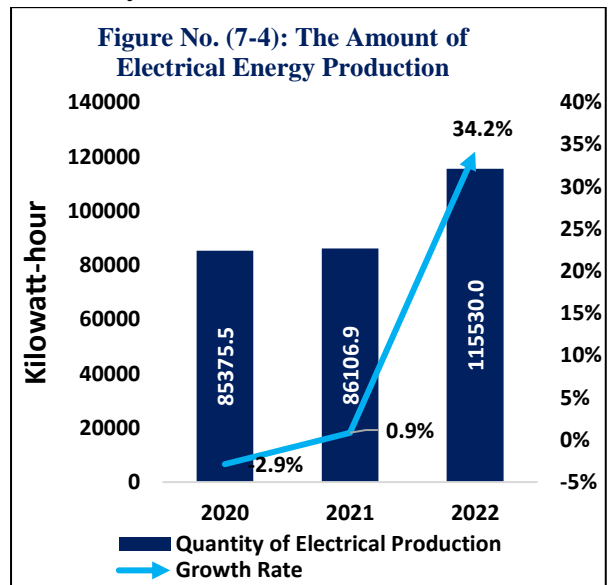
Iraq relies heavily on oil as a major source of energy, and oil production and its derivatives are considered one of the most important influences on climate change such as drought and high temperatures, and this may lead in the future to a restriction on oil production in Iraq, leading to fluctuations in government revenues. In 2022, oil production in Iraq increased by (12.1%) to (219.6) million metric tons per year, as shown in Figure no. (7-3).



Source: Ministry of Planning, Central Bureau of Statistics.

While electricity production increased by (34.2%) to reach (115,530) kilowatt-hours, as shown in Figure(7-4), although Iraq has the fifth largest natural gas reserves in the Arabic countries, natural gas is underutilized, due to a lack of investment and reforms in the generation and transmission

sectors These factors make the Iraqi economy vulnerable to the negative effects of climate change, highlighting the importance of taking action to protect energy infrastructure and promote environmental sustainability to ensure The financial stability of the country.



Source: Ministry of Planning, Central Organization of Statistics.

Iraq is working to reduce its gas emissions from the energy sector, which accounts for 75% of the country's total emissions. Taking necessary measures to reduce these emissions is crucial. This includes investing in associated gas extraction operations, improving gas flaring technology, reducing methane leaks, converting power plants to LPG and dry gas, and supporting the use of renewable energy and environmentally friendly technologies in the transport sector. The effects of these measures could be positive for financial stability, as they may contribute to strengthening the national economy by improving the efficiency of

natural resource use, reducing energy costs, and enhancing public health. These measures could also increase investment opportunities in the energy sector and align with Iraq's goals of sustainable development and environmental protection.

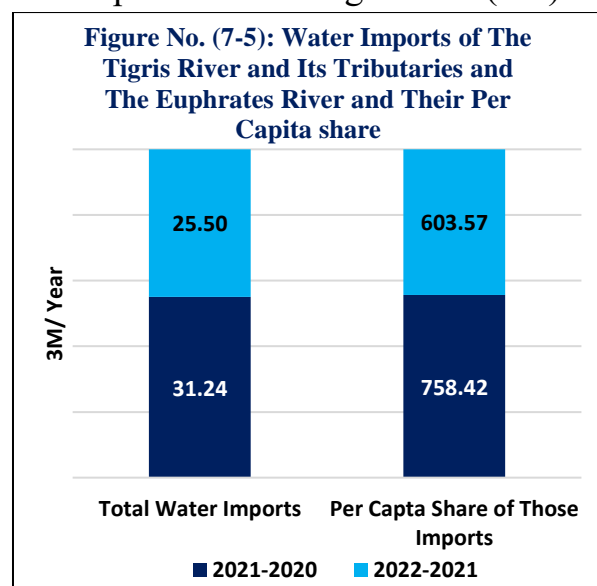
7.1.4 The Impact of Climate Change on the Water Sector:

Rising temperatures in Iraq, exceeding the global average, are causing water levels to decline due to increased evaporation. This is significantly impacting the Tigris and Euphrates rivers. Projections indicate that water levels in these rivers could drop by up to (70%) by the end of the 21st century, necessitating long-term planning for resource management, especially in agriculture. This challenge raises concerns about accelerated migration from affected areas, which could potentially lead to Domestic disputes over water sharing. As of September 2023, the IOM estimated that 130,788 people remained displaced due to drought and water shortage⁶. Water resource management in Iraq heavily relies on cooperation with upstream governments like Turkey and Iran. However, internal water resource management challenges within Iraq not only undermine these negotiations but also pose additional obstacles⁶.

The water sector in Iraq experienced a significant decline in total water imports from the Tigris River, its

tributaries, and the Euphrates River during the (2021-2022) water year. Imports decreased to 25.50 billion cubic meters per year, compared to 31.24 billion cubic meters in the previous year (2020-2021), representing an (18.4%) decrease. This decline poses a serious threat to Iraq's financial stability, both directly and indirectly, due to its negative impacts on vital sectors such as agriculture, industry, services, and domestic water use.

Per capita river imports decreased by (20.4%) in the (2021-2022) water year, dropping from 758.42 cubic meters per year to 603.57 cubic meters. Therefore, the government's effective management of the water shortage crisis is crucial to ensure the country's stability and maintain its economic development. As in Figure No. (7-5).



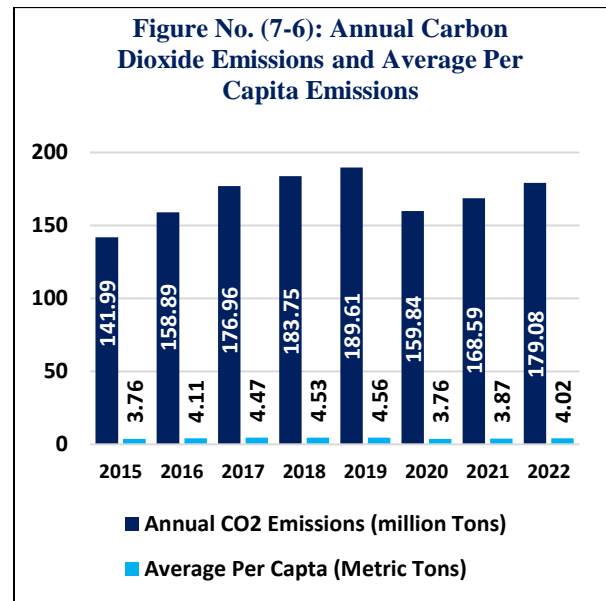
Source: Ministry of Planning, Central Bureau of Statistics

7.2 Carbon Dioxide Emissions and Average Per Capita Emissions:

⁶ <https://odihpn.org/publication/extreme-heat-drought-and-displacement-in-iraq/>

⁶ united states institution of peace, Climate Adaption Key to Iraq's Stability and Economic Development

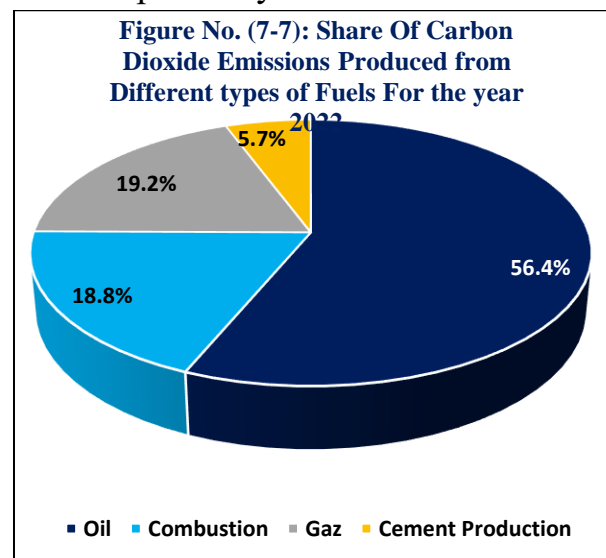
The increase in carbon dioxide (CO₂) emissions and climate change poses a challenge to Iraq's financial stability. This increase can lead to rising temperatures and severe weather events, harming agriculture and food security. Additionally, the need for increased cooling during summer months can lead to higher energy consumption. The transition to a zero-emissions world requires a complete transformation in production, consumption, and energy use methods, including replacing polluting energy with renewable energy, which reduces carbon emissions. Iraq witnessed a notable increase in carbon dioxide emissions during 2022, reaching (179.08) million tons, up from (168.59) million tons in 2021. The average per capita emission was (4.02) metric tons in 2022, a slight increase from (3.87) metric tons in 2021. Carbon dioxide emissions may have a negative impact on Iraq's financial stability, as climate changes lead to price fluctuations, higher insurance costs, property damage, and reduced productivity, which could adversely affect the Iraqi economy. This may also affect the financial system, represented by credit risk and market risk.



Source: <https://ourworldindata.org/co2/country/iraq>.

7.2.1 Share of Carbon Dioxide Emissions Produced from Different Fuels:

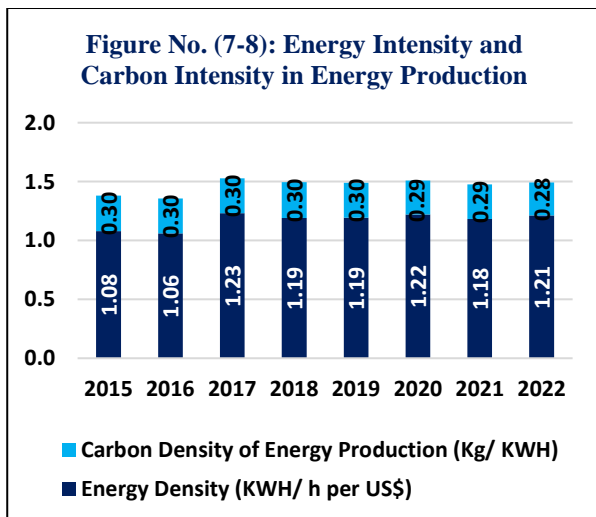
Iraq's carbon dioxide emissions come mainly from burning fossil fuels and cement production. Oil is the main contributor, accounting for 56.4% of emissions, followed by gas, flaring and cement production at 19.2%, 18.8% and 5.7% respectively.



Source: <https://ourworldindata.org/co2/country/iraq>

7.2.2 Carbon Intensity (amount of carbon emitted per unit of energy):

Energy intensity and carbon intensity are key metrics for assessing countries' progress in reducing emissions. Emissions can be reduced by using less energy and low-carbon energy. Switching to renewables or nuclear power sources can reduce the amount of carbon emitted per unit of energy. This transition can improve financial stability by reducing energy costs and emissions.



Source: <https://ourworldindata.org/co2/country/iraq>

7-3 The Role of the Central Bank of Iraq in Reducing Climate Risks:

The role of the CBI is highlighted in a set of measures and initiatives to reduce climate risks, as follows :

- The initiative of production and afforestation of (200) thousand seedlings with an amount of IQD (600) million, to protect the environment from the negative effects of climate change, especially the problem of desertification.

- Rehabilitation and development of parks and tourist cities.
- Supporting the Green House project with an amount of IQD (466) million, which aims to combat desertification and reduce environmental pollution and toxic gases, and that this project will achieve many environmental and social benefits, by improving air quality, increasing agricultural activities, improving water quality, and encouraging economic development throughout Iraq⁷.
- Recycling damaged currency that cannot be returned to circulation again because of its damage, When the tumor's remnants are sent after the destruction process to the Ministry of Industry and Minerals / General Petrochemical Industries Company / School Supplies Factor in Taji for disposal.
- Using the electronic credit inquiry system and stopping the work of sending credit inquiry books to the Central Bank of Iraq from all licensed banks and conducting the credit inquiry process from these banks on the (CBS) system for all their customers and guarantors.
- The construction of the new Central Bank building is environmentally friendly, as the building was distinguished from the architectural side as the first project in the Middle East to have a Brim certificate for sustainability. As it used recycled

⁷ Green House Project Website <https://greenhouse-iq.com/>

materials such as materials used in UHBC used in the packaging of building, and in the concrete mixture where GPS was used. This material is waste of iron factories, and they call it furnace slag, and this is used with concrete for its durability, and increases its life because it is designed for a hundred General⁸.

- The Central Bank is currently in the process of joining the network of the green global financial system (NGFS).
- The Central Bank of Iraq, in cooperation with the Supreme Committee for Lending in the Council of Ministers, launched the (1) trillion initiative to switch to the use of renewable energy sources to reduce carbon emissions and improve the environment, with the participation of environmental experts and energy generated from renewable sources in order to develop the executive framework for financing such development projects, whether at the level of individuals or investors in the field of clean energy.
- Issuing regulations for financing electricity generation systems from renewable energy, facilitating the procedures for those wishing to obtain loans for the renewable energy initiative amounting to IQD (1) trillion, and adopting new mechanisms that grant the borrower from this initiative the right to choose the lending bank without the need to transfer the domiciliation of his salary, if he has another bank, and collecting the installments due from the borrower through the electronic clearing system

7.4 Proposals for Climate Risk Reduction:

- Establishing a green bank that aims to finance environmentally sustainable projects by developing environmentally friendly banking products and applying policies and procedures that adhere to environmental standards, with the aim of enhancing sustainability, reducing financial and environmental risks, and increasing confidence and credibility in society.
- Encouraging investments in sustainable environmental projects, by granting licenses for carbon bonds, which contribute to reducing carbon emissions, achieving sustainable development, and reducing financial and environmental risks associated with traditional projects.
- Develop resilient and low-carbon cities by improving energy efficiency and increasing reliance on renewable energy.
- Application of climate-friendly farming practices and expansion of forests.

In Conclusion:

Iraq faces significant challenges related to climate change and its repercussions on financial and economic stability. Therefore, the proposals presented in this report highlight the importance of developing financial and banking policies that contribute to promoting sustainable financing, in addition to investments in renewable energy and environmental projects. These efforts are essential to ensure sustainable economic development and a secure future for generations.

⁸ by 2025. A paradigm shift in performance awaits the Central Bank, <https://alsabaah.iq/76988-.html>



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