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Financial depth as a method to reduce financial Fragility

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Abstract
The study aims to determine the general direction that the indicators of financial depth in Iraqi banks and the level of financial fragility in Iraqi banks can take. The study assumes that there are upward trends in the indicators of financial depth and the variation in the ratio and trend of financial depth in Iraqi banks during the study period. The study showed that Iraqi banks are exposed to banking fragility as a result of a number of factors, including internal factors related to the bank and other external ones, such as the economic, political and security conditions. The study recommends that Iraqi banks develop efficient and effective diversification strategies for financing sources between owned financing and borrowed financing in order to achieve an optimal mix between them, which makes financing costs to a minimum.

Keywords: Financial depth; financial fragility; Iraqi banks.

1. RESEARCH METHODOLOGY

1.1. The problem of the study

The mechanism of work of banks relies on the money of others to mainly finance their assets and to provide liquidity under normal conditions, so this gave them a diversity of sources of funding. The future of those banks is subject to bankruptcy, and Iraqi banks today suffer from many problems, the most important of which is the continuous decline in their market value as a result of their faltering performance or lack of management of the financing structure. Hence, the problem of the study sheds light mainly on addressing or trying to answer the following questions:

- What is the general trend that indicators of financial depth can take in Iraqi banks?
- What is the level of financial fragility in Iraqi banks?

1.2. The importance of the study:

There is a need for a cognitive framework around the variables of the study. Previous studies have dealt with the issue of financial depth and financial fragility in a limited way. The study also gains its importance from the importance of what it offers to Iraqi banks, as it focuses on two variables: financial depth and financial fragility in one hypothetical model, meaning that there is no study that proves this. Orientation in the study sample banks, where this study addresses real and actual problems that require finding specific solutions by defining the boards of directors of banks with their roles and responsibilities in developing the necessary solutions to reduce the vulnerability to which banks are exposed by employing the financing structure.

1.3. Study Objectives:

Based on the study's questions, its objectives can be determined according to the following:

- Determine the general direction that the financial depth indicators can take in Iraqi banks?
- Determining the level of financial vulnerability in Iraqi banks.

1.4. The hypothesis of the study

The study begins, in light of the questions raised within the study problem, from the following hypotheses:

- There are upward trends for indicators of financial depth in Iraqi banks during the study period.
- Variation in the percentage and trend of financial depth in Iraqi banks during the study period.

2. LITERATURE REVIEW

2.1. Financial depth:

2.1.1. The concept of financial depth:

Financial depth means the supply of funds available to the government and the private sector in emerging markets, i.e. investing in an emerging market has much more experience than investing in developed markets (Caballero & Krishnamurthy, 2004: p1).

The term financial depth is often used in development studies and refers to the increased provision of financial services with a group the World Bank (1932) emphasized that financial depth includes the increase in the stock of financial assets (Nzotta& Okereke, 2009, 56). Garba also defined financial depth as the ability of the institution or individual to reach Financial services easily through sophisticated and efficient intermediary financial institutions that are able to provide financial services at low cost and sustainable returns (Al-Naqeeb, 2021: 1115). Deeping means expanding the size and activity of the financial sector, and this definition is consistent with the traditional perception that the financial sector can contribute to economic activity by mobilizing and transferring savings. to productive investments, and this requires the presence of reasonably developed and intermediary financial institutions. In developing economies, it means the fragmentation of financial markets so that they can gradually set more accurate and consistent prices (Al-Saadi, 2011: 219). (Mirikin et al) knew that the financial depth refers to the ample amount of money, financial institutions, and financial markets that lead to more beneficial conditions for long-term economic growth and thus reflects the degree of vulnerability of the economy to financial instruments and financial institutions (Thuwaini& Al-Aboudi, 2021, 4), while seeing (Azzam) that the term financial depth is broader and larger than the money market, as it refers to a wide financial market that includes the largest number of financial institutions that provide financial services with high efficiency, and in it a variety of short and long-term financial instruments in addition to the presence of financial intermediation institutions, which work effectively as a link A link between the surplus units and the deficit units, in which there is transparency in information, which in turn contributes to reducing the costs of financial transactions, in addition to the presence of good means of communication between dealers, which leads to an increase in financial activity within the market and increases the financial assets of banks and thus increases their ability to provide loans And then increase investment and achieve more economic progress (Azzam, 2017: 18). Financial depth was also defined as the ability of the financial system to provide and create a wide range of diverse and efficient financial services and tools that can be accessed, used, and benefited from by the various economic units, and in a way that pushes towards raising the levels of economic and social development for different social groups (Al-Iraqi & Al-Nuaimi, 2020: 36).

2.1.2. The importance of financial depth:

The financial depth is of great importance, and this importance is reflected in the following: (Thuwaini & Al-Aboudi, 2022: 5-8)

- The financial depth works to encourage units with a surplus to reduce consumer spending in favor of savings as a result of the expected returns from investment, as well as great opportunities to diversify the portfolio of financial assets.
- Increasing the financial depth and searching for financing sources will contribute to the inclusion of the largest number of those requesting financing, especially communities suffering from poverty.

- The financial depth has a role in the growth of economic activity for most of the sectors that make up the gross domestic product, and then considering the financial depth as an important determinant of the growth of the gross domestic product through raising domestic investment, which is the channel through which the financial depth affects economic growth.
- Financial depth contributes to reducing the severity of economic cycles, as financial depth reduces investment and consumption fluctuations.
- The financial depth has an effective role in raising the performance and efficiency of monetary policy, as a country that has an acceptable financial depth will be reflected in raising and improving the efficiency of monetary policy and then economic stability.
- Financial depth has a significant and effective role in increasing economic growth.

2.1.3. Financial depth indicators:

Financial depth occupies great importance for its direct reflection on the development of financial sectors and raising the level of their efficiency, and for this reason, the financial depth scale is necessary to know the depth of the financial sectors and the degree of their development, as there are a number of indicators for measuring financial depth, and these indicators include traditional quantitative measures, structural measures, Traditional prices, a range of available financial instruments, and transaction costs. Traditional quantitative measures are considered more reliable as indicators of financial depth (Ahmed & Al-Naimi, 2022: 383), and quantitative measures depend on magazines or monetary and credit aggregates. They are approximate measures for savings and credit intermediation in any economy. It is expected The value of these measures increases in response to the existence of positive real interest rates (Al-Saadi, 2011: 220). These measures include the following:

- Cash-to-GDP ratio: This indicator is one of the important indicators that measure the extent of the financial depth in the economy, and this indicator reflects the degree of cash in the economy. This indicator has been widely used in many studies as a measure of banking development (Thuwaini & Al-Aboudi, 2021: 113).
- Ratio of private credit to GDP: This ratio is defined as the credit provided by banks and other financial institutions to the private sector divided by the gross domestic product. This indicator is used to measure the growth of the banking sector and the level of financial intermediation. From any other measure, the ratio of credit granted to the private sector to the GDP is directly related to investment and growth, and the increase in this ratio is the increase in services, the improvement in financial intermediation, and the growth in total deposits (Azzam, 2017: 40).
- Total deposits to GDP: This is an indicator of the extent of development of the banking system and its ability to collect savings from economic units with cash surpluses on the one hand and reallocate them towards various investments on the other hand, and thus reflects the extent of the financial depth that the local system enjoys. (Al-Iraqi & Al-Nuaimi, 2022: 38).

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2.2. Financial fragility

2.2.1. The concept of financial fragility:

The concept of financial fragility dates back to Fisher (1933) and Keynes (1936), who theorized that debt financing for investment can have destabilizing effects. The writings of the economists (Fisher and Keynes) were prompted by their personal observations of the Great Depression and many bank panics. In recent decades, Minsky in 1977 advanced a similar idea where he observed that modern capitalist economies are inherently fragile due to their heavy reliance on debt to finance investment. Although his efforts stimulated significant writing on financial fragility, that literature lacked a fully coherent model that could provide some insights into the nature and effects of fragility (LAGUNOFF & SCHREFT, 2001:1). Financial fragility was represented as the fourth generation of writings arising from financial problems and crises, as some writers and researchers dealt with this phenomenon with multiple concepts, each according to his point of view, and according to the theoretical and analytical contexts adopted by the researcher. One of these analyzes is called financial fragility (Al-Hayali & Al-Hamdani, 2022: 114). Schroeder believes that financial fragility is the result of the financial system passing through several stages, and this stage precedes bankruptcy, which forces the financial system to exit the business world. The sector after the success in investing and improving profitability, which makes this project more optimistic for the future, but the growth in profits does not continue without difficulties or obstacles imposed by the nature of the environment on financial systems of all kinds (Al-Ta'i & Al-Jubouri, 2017: 546). In macroeconomics, the term financial fragility is widely used to refer to the vulnerability of the financial system to large-scale financial crises resulting from small routine shocks (Iftikhar, 2015: 87). (from outside or from within the budget) are highly sensitive to changes in the interest rate, extinction rate, income, and others that affect the financial solvency and liquidity of the balance sheet, as unexpected fluctuations in these influences would create great financial difficulties (Tymoigne, 2011:2) also known Financial fragility is the weakness in the financial performance of the institution resulting from a financial shock, and according to its nature it is considered one of the internal or external factors represented by the crisis (Rejda, 2003: 406).The financial fragility is reflected in the three main elements of the balance sheet (assets, liabilities, and equity) where (Shen & Chen) explained that the sources of financial fragility include both sides of the balance sheet of financial institutions, assets and liabilities. Previously, the focus was on the liabilities side. Which represent sources of financing, but now the focus is on the assets side and when the cash assets of a financial institution deteriorate, financial fragility occurs (Al-Atwi, 2018: 173).

2.2.2. The causes of financial fragility:

Financial fragility occurs as a result of several reasons and factors, the most important of which are the following (Al-Atwi, 2018: 173) (Albanaa & Aziz, 2021, 237):

- Financial fragility occurs as a result of the deterioration of the monetary assets of financial institutions.
- Financial fragility occurs as a result of government legislation and instructions, for example, freezing deposits and not borrowing in the long term or imposing guarantees on deposits and others.
- Competition between institutions plays a major role in increasing financial fragility, as financial institutions, when they are small in size and have weak competitiveness, are exposed to high risks, and thus financial fragility affects systems that are unable to compete.
- The financial system that relies on debt or any external source of financing is a source of financial fragility, because financing investment opportunities results from an estimate of expenditures and revenues, where fragility usually appears in the mismatch between expectations and what is actually achieved, especially when the economic situation transitions into recession.
- The financial fragility occurs due to a reason based on the overlapping information resulting from the financial shocks to which the financial system is exposed, and information will flow about the extent of the failure of the financial system, which in turn leads to the inability of the financial institution to carry out its function in directing money to productive investment opportunities, as it occurs as a result of behavior Excessive optimism about economic factors.
- Financial fragility occurs due to weak cash payments for the bank's current operations, as the bank's long-term assets are illiquid or difficult to convert into liquidity, as low liquidity can shake depositors' confidence, which creates a bankruptcy banking system.

Financial fragility occurs as a result of fluctuating interest rates, as volatility will increase the risks that make the cost of obtaining financial assets fluctuate with the value of fixed obligations, and inflexibility in obtaining appropriate funding in the short term will lead to large fluctuations in the level of financial assets, which makes the system fragile .

2.2.3. Measurement of financial vulnerability:

The issue of measuring the fragility of financial systems in general sparked a wide debate among regulators and specialists in financial affairs, and they agreed that there is no unique measure that can be relied upon when it is intended to measure the fragility of any financial system, and on this basis many studies focused on the need to identify the main indicators of the fragility of the banking system for the purpose of Setting warning signs through which periods of instability are evaluated and addressed before they lead to the bankruptcy of those institutions (Al-Ta'i & Al-Jubouri, 2017: 547).

(Al-Tai & Al-Jubouri) indicated that the majority of studies focused on determining capital intensity, management efficiency and liquidity as indicators that reflect the strength of the balance sheet and the stability of the company; Because it enhances the return on assets and covers losses, being factors of value and efficiency (Al-Hayali and Al-Hamdani, 2022: 119). The following are the most important approved indicators for measuring financial fragility:

Z-Score: Financial literature usually uses (Z.Score) as an indicator to measure financial fragility, whose value indicates the extent of financial stability achieved by the financial institution or financial fragility. The lower the value of (Z.Score), this indicates an increase in financial fragility and vice versa in the event Increasing its value indicates that the institution enjoys financial stability (Ashraf et al, 2016: 29). There are many models for the Z-Score index, which researchers derived from mathematical and statistical methods. Among the most famous of these models are the following:

- Altman model: This model was found in 1968. The Altman model is one of the most important models: Z-Score. This model was built in 1968 and is the first quantitative measure to distinguish between successful banks from doubtful ones through the use of a set of financial ratios, which helps the relevant parties In order to take the necessary measures in a timely manner, Altman limited his model to five financial ratios and assigned a relative weight to each of them that differs from the other according to its relative importance (Albanaa & Aziz, 2021: 237), and the Z-Score is calculated according to the following equation (Kaiser & Obermaier, 2020 : 12):

Z-Score= 1.2X1+1.4X2+3.3X3+0.6X4+1.0X5

whereas:

X1: working capital/total assets.

X2: Retained Earnings/Total Assets.

X3: Operating profit before interest and taxes/total assets.

X4: Market value of shareholders' equity/total liabilities.

X5: Revenue/Total Assets.

Altman classified companies into three categories as follows (Al-Rifai, 2017: 29):

  - The red region if the model result is less than 1.8 (Z < 1.8).
  - The fuzzy region if the result ranges from 1.9 – 2.9 (2.9 < Z < 1.9).
  - Green region if score is greater than 2.9 (Z > 3.0).

- Kida model: This model was built in 1980. The (Kida) model is one of the modern statistical methods of (Z-Score) models, which consists of five financial ratios. These ratios are liquidity ratios, financial leverage ratios, profitability ratios, and activity ratios. and asset balance ratios (Albanaa & Aziz, 2021: 55), and defaulting companies are classified in this model according to the value of (Z). Bankruptcy is 91% a year before the occurrence of the bankruptcy incident. The value of (Z-Score) can be calculated using this model according to the following equation (Al-Rifai, 2017: 29-30):

Z = 1.042X1+0.42X2+0.461X3+0.462X4+0.271X5
whereas:
X1: net profit after tax/total assets.
X2: Total shareholders' equity/total assets.
X3: Total liquid assets/total current liabilities.
X4: Sales/Total Assets.
X5: cash/total assets.
The Z-Score value is also calculated through the following equation (Al-Atwi, 2018: 173):

$$Z_{Score} = \frac{ROA + \frac{E}{A}}{\sigma ROA}$$

whereas:
ROA: return on assets.
E: property right.
A: Total assets.
σROA: standard deviation of return on assets.

If the value of (Z) is higher than the arithmetic mean, it indicates that banks are less fragile, and if the value is lower than the arithmetic mean, it indicates a high fragility of the bank's financial system.

- The accounting framework for (Minsky): (Minsky) indicated that a correct understanding of financial fragility requires a careful analysis of companies, as one of the ways in which each company can be distinguished is its portfolio represented in the group of physical and financial assets it owns and the financial obligations it has, and based on the degree of risk associated with their ability to fulfill financial obligations (Hussein et al., 2020: 30). Minsky proposed dividing these firms into three different categories: hedging, speculative, or Ponzi. According to him, one can apply this classification to every company whether from the financial sector or not without discrimination and as follows:
  - Hedge financing companies: They are companies that can fulfill all their obligations on maturity dates, all contractual obligations, i.e. interest and principal (through the current expected revenues (their cash flows). In this case, both borrowers and lenders will not worry about changes in the conditions of the external environment, such as The level of interest rates, collateral requirements, loan conditions, etc., as all the risks associated with fulfilling financial obligations depend on the potential degree of frustration with expected revenues. The possibility of considering the company (a hedging company), that is, it adopts hedge financing (Al-Hayali & Al-Hamdani, 119: 2022).
  - Speculation Finance Companies: speculation Finance Companies know in advance that they will not be able to generate sufficient revenue to meet all contractual payment obligations by their due date. Interest payments can be covered, but at least part of the principal will not be repaid from the current cash flows. Therefore, this company will need to renew its obligations, and issue new debts in order to meet its obligations on outstanding debts (i.e. incurred in refinancing) before their due date.

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This situation means that the decision regarding these loans is based on the expectation that the speculation company will need to refinance part of its debt principal , both from the viewpoint of creditors and debtors This company poses a greater risk than the hedging company because, in addition to the general market risks (decreased level of revenue), it is exposed to additional financial risks that may need to renegotiate its obligations in the debt markets (Hussein et al., 2020: 31).

Ponzi finance companies: Ponzi finance companies refer to companies that resort to selling assets or borrowing increasingly larger amounts, because the cash flows from operations are insufficient to meet either the repayment of the principal loan or the interest due on outstanding debt (Weijermars, et al., 2019: 163).

3. RESULTS AND DISCUSSIONS

Analysis of the financial depth trend in the Iraqi banking sector:

The data in table (1) shows the indicators of the banking sector in Iraq for the period (2010-2019), which varied between rise and fall. The reason for this discrepancy is due to a number of factors, the most important of which are:

- Iraq witnessed an increase in domestic liquidity in 2010 compared to previous years, which was reflected in the increase in the money supply in the broad sense, which amounted to (61393.1) million dinars, as it continued to gradually increase until it reached (92988.9) million dinars in 2014, with a growth rate of (3.9%). In 2015, it decreased to reach (84527.3) million dinars, with a negative growth rate of (9.1%). It is clear from the foregoing that the increase in the money supply came as a result of several factors, including: an increase in the salaries of state employees, investment and military spending, as well as a result of the replacement of the Iraqi currency after the issuance of the Central Bank of Iraq law. No. (56) in 2004, raising the volume of foreign reserves of the Central Bank of Iraq against the Iraqi currency in order to maintain the stability of the exchange rates of the Iraqi dinar (Abdul Zahra, 2018). Then the money supply increased in subsequent years until it reached (96,794.2) million dinars in 2019, with a negative growth rate of (1.5%).
- The dependence of bank liquidity on dollar proceeds from the sale of oil, which contributes to the bulk of the output and public revenues. Levels of deficit in the state's general budget, and this was reflected in the conditions of monetary policy, represented by an increase in levels of demand for foreign currency compared to what is available in the local market (Arab Monetary Fund, 2018: 129), and this led to a decrease in the growth rate of money supply M2 to GDP for the period (2016). - 2019), as it reached (9.1%) in 2015 with a negative growth rate, while in 2019 it reached (1.5%) with a positive growth rate.

The indicators showed an increase in the granting of credit due to giving the private sector a greater role in economic development by allowing it to establish private banks after it was monopolized by the public sector. And the increase in the number of private banks and the size of their capital due to the improvement in oil revenues and the expectations of growth in demand for banking facilities for credit or deposit purposes, as well as the financial liberalization witnessed by the Iraqi markets during these years, which was actually embodied in the financial market through the freedom of the banking system and the release of its ability to determine credit and debit interest rates.

He has (financial liberalization), which was a cornerstone of strengthening financial intermediation, which is the essence of financial stability, especially after the coercive measures that previous monetary policies were adopted through direct abandonment and resorting to indirect policies that depend on market forces to avoid the phenomenon of financial constraint represented by setting ceilings on the granted bank credit, specifying the credit party, or imposing administrative interest rates outside the market and its balances, as the rate of credit growth over output increased significantly in 2015, which amounted to (39.9%). .

Through the data contained in Table (1), the trend of volatility and fluctuation in the values of the Iraqi banking sector indicators is clear, which can be identified and known about the general development and the general trend of those indicators over time.

Table (1) Indicators of the financial depth of the banking sector in Iraq

years	M2 cash flow	Annual growth rate	The local credit for the private sector	Annual growth rate	gross domestic product	Annual growth rate	The ratio of money supply M2 to GDP	Annual growth rate	The ratio of local credit for the private sector to GDP	Annual growth rate
2010	61393.1	31.2	874029.7	77	162064.6	24.1	37.9	5.8	5.4	42.7
2011	74098	20.7	1176707	34.6	217327.1	34.1	34.1	-10	5.4	0.4
2012	77187.5	4.2	1501852	27.6	254225.5	17	30.4	-10.9	5.9	9.1
2013	89512.1	16	1733276	15.4	273587.5	7.6	32.7	7.8	6.3	7.2
2014	92988.9	3.9	1766663	1.9	266332.7	-2.7	34.9	6.7	6.6	4.7
2015	84527.3	-9.1	1806469	2.3	194681	-26.9	43.4	24.4	9.3	39.9
2016	90466.4	7	1942172	7.5	196924.1	1.2	45.9	5.8	9.9	6.3
2017	92857	2.6	2089311	7.6	225722.4	14.6	41.1	-10.5	9.3	-6.1
2018	95390.4	2.7	2168306	3.8	251064.5	11.2	38	-7.6	8.6	-6.7
2019	96794.2	1.5	2266574	4.5	267674.3	6.6	39.8	4.7	9.2	7

4. CONCLUSIONS

- The financial depth has a role in the growth of economic activity for most of the sectors that make up the gross domestic product, including the banking sector, as it is an important determinant of the growth of the gross domestic product through raising domestic investment, which is the channel through which the financial depth affects economic growth.
- Financial fragility means weakness in the financial performance of the institution resulting from a financial shock, and according to its nature, it is considered one of the internal or external factors represented by the crisis.
- The decline in the growth rate of Iraqi banks indicators during the study period.
- The results of the financial analysis showed that Iraqi banks are exposed to banking fragility as a result of a number of factors, including internal factors related to the bank and others external such as the economic, political and security conditions.
- The indicators showed an increase in the granting of credit due to giving the private sector a greater role in economic development by allowing it to establish private banks after it was monopolized by the public sector.
- The study recommends that Iraqi banks develop efficient and effective diversification strategies for financing sources between owned financing and borrowed financing in order to achieve an optimal mix between them, which makes the financing cost to a minimum.
- The need for Iraqi banks to follow traditional and modern hedging mechanisms that help them get rid of fragility, as well as applying the Altman model to measure banking fragility and determine their financial position, since this model helps them predict their financial future and their ability to continue by making sound financing decisions.
- The research recommends Iraqi banks to rely on proprietary financing to finance its assets, because the results of the study showed that there is an inverse relationship between proprietary financing and financial fragility.
- The need to support the banking sectors, whether through expanding the movement of structural reforms for local economies or through laws regulating their work and encouraging local investment, as well as completing the infrastructure of banks and opening up globally.

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