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| RESEARCH ARTICLE

Analyzing the Relationship between Financial Depth and Economic Growth in Iraq during the Period (2004-2020)

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| ABSTRACT
The research aims to study the relationship between financial depth and economic growth in Iraq during the period (2004-2020) by identifying the direction of each of the indicators of financial depth and economic growth, analyzing their developments, and measuring them using the ARDL model. Given that financial depth is an important indicator that shows the extent of the financial sector's contribution to economic activity by mobilizing savings and directing them towards investment to achieve added value from the activity of the various economic sectors. The research found the limited contribution of the financial sector in stimulating economic growth due to several subjective and objective factors that characterize the financial sector in the Iraqi economy.

| KEYWORDS

Financial depth; Economic growth; Co-integration test; ARDL model.

JEL Classification: G0, G1, G2, O4, E44, O53

| ARTICLE INFORMATION

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1. Introduction

Many studies have dealt with the role of the financial sector in industrialization, growth, and economic prosperity, as it has many financial and monetary functions that are indispensable in the contemporary economy, regardless of the difference in analysis between periods of time, regions, countries, and levels of development. The financial depth links the developments that occur in the real macroeconomic variables and the developments that occur in the monetary variables, which means the multiplicity and overlapping of variables and financial and monetary tools in many aspects and their effects. Therefore, the efficiency of financial institutions in granting credit, attracting deposits, and providing other services is included in the movement of the national economy as a whole, and when these institutions move away from the standards of sound performance, they clearly become a cause of turmoil and crises. Thus, knowing the trends of financial depth and analyzing its developments in the Iraqi economy reflects the extent to which the financial system contributes to promoting economic activity and economic growth in general.

In many developing countries in general, and Iraq in particular, the market economy system was chosen as an approach to managing the economy and relying on the private sector in investment and production; However, the financial system, with its institutions, markets, and infrastructure, has not been employed to serve the process of economic growth, as the financial depth is still low in light of crowding among banks over a narrow market in a way that does not contribute effectively to the economic growth process.

The research gains its importance from the importance of its subject, which has become one of the most important contemporary economic issues locally, regionally, and internationally, especially in countries that are going through the stage of growth and the transition from a planned economy toward a market economy, as financial depth is one of the most important indicators that give a picture of the structure and nature of the financial system in Iraq. And its relationship to economic growth by identifying the role of the financial system institutions in the process of economic growth.

The research aims to determine the importance of financial depth and its role in promoting economic growth in Iraq by analyzing the development of indicators of financial depth and economic growth during the period (2004-2020) and measuring them using the ARDL model.

2. Theoretical and conceptual framework for financial depth:

2.1 Financial depth Definition:

The size or activity of the financial sector or the so-called financial depth is defined as providing financial services and making them available for use or dealing by the various economic sectors and enabling them to benefit from these services, thus contributing to achieving economic growth. Financial depth enables savers to invest in a wider range of high-quality assets and also allows borrowers to benefit from a wider range of financing services, Including risk management tools. Thus, financial depth is a multi-dimensional process that aims to expand the size and activity of financial institutions by expanding the variety of financial services and tools (Torshi and Bouflih, 2016: 42).

Financial depth is defined as "the process of development in the quality, quantity, and efficiency of intermediary financial services." Shaw (1973) defined financial depth as "the accumulation of financial assets at a faster pace than the accumulation of production and non-financial wealth." Levine (2005) defined financial depth More broadly, explaining that "financial depth occurs when there is an interaction between financial markets (primary and secondary) and financial instruments (deposits, loans, foreign currencies, bonds...etc.)" (Khalaf and Rashid, 2017: 335).

According to the World Bank, "financial depth includes the increase in the stock of financial assets." From this perspective, financial depth means the ability of financial system institutions, in general, to effectively mobilize financial resources for economic growth (Sharqi, 2021: 7).

Mohsin S. Khan notes that there is no distinction between financial depth and financial development and considers them to be synonymous, as he uses the same indicators to measure both terms (Khalaf and Rashid, 2016: 131). While some distinguish between financial depth and financial development, the first is one of the quantitative measures of financial activity in the short term, while the second expresses a measure of financial activity in the long term (Sharqi, 2021: 8). Thus, financial depth is defined as the ability of the financial system to efficiently mobilize available savings and financial resources in order to convert them into effective investments to support long-term economic growth through the development of financial system institutions and the provision of financing tools and services necessary to support development and growth in the long term (Al-Khazraji & Al-Zaidi, 2020: 514).

The opposite concept of financial depth is represented in financial shallowness (the shallowness of financial systems), which is a problem that most developing countries suffer from, as it is noted that although negative real interest rates may raise aggregate demand (for lack of incentive to save), the inability to Stimulating savings and then private investment creates constraints on the sustainability of that demand.

Here, financial shallowness due to lack of saving reduces economic growth in the end, and a vicious cycle of high inflation is generated, then real interest rates rise, then the cost of financing increases, then monetization increases, then inflation rises, and so the cycle returns again (Al-Saadi, 2011: 220).).

Accordingly, the economy's enjoyment of a sufficient level of financial depth reflects the extent of the financial system's ability to provide the required ranges of liquid cash balances and financial instruments, as well as providing it to efficient financial and economic institutions, all of which work to create the appropriate conditions for achieving sustainable economic growth. In order to determine the levels of financial depth in an economy, it is necessary to evaluate the extent of the penetration of financial relations and tools in economic activity, as it reveals the level of their development in terms of their efficiency in performing the tasks of financial intermediation. Resources towards economic activities that support economic development (Al-Iraqi and Al-Nuaimi, 2020: 35).

2.2 Financial Depth Objectives:

Countries are striving to achieve greater financial development by increasing financial depth and making the financial system more efficient. Among the factors that contribute to increasing the financial depth are the following: (Azzam, 2017: 19-20)

A) Encouraging joint and orderly interaction between policymakers and participants in financial markets and moving towards a more transparent financial system.
B) Develop long-term investment institutions and encourage pension funds and insurance companies to develop long-term plans for investments by changing evaluation criteria and providing appropriate incentives to invest in insurance products.
C) Providing tax incentives to encourage long-term investments and savings from small investors to bring additional funds to the financial markets.

D) Reducing restrictions on banks by allowing banks to own and trade shares, provide underwriting financing, and provide loans in exchange for shareholders' equity, leads to enhancing liquidity in the market, providing more flexibility to borrowers, and facilitating investment in the market.
E) Development of stock derivatives, including futures options as well as future stock options, which are necessary to enhance liquidity and provide a hedging mechanism for investors.
F) Increasing efficiency in the financial markets through the availability of all information on a daily basis about transactions that take place in the money market reduces the severity of the risk and increases investment.
G) Increasing the number of companies listed in the financial markets.
H) Diversify financial instruments by issuing new financial instruments such as bonds.

The financial depth enables the following objectives to be achieved: (Sharqi, 2021: 8) (Al-Saadi, 2011: 219)

A) The increasing number and size of institutions operating in the financial sector.
B) Diversity of financial services provided and the amount of funds brokered.
C) Good risk coverage by creating a wide variety of assets to allocate risks.
D) Make rational decisions with respect to saving and investment.
E) Increased capital borrowed by financial institutions to the private sector instead of direct government lending.
F) Improving the financial sector in terms of control, supervision, regulation, and stability, as well as in terms of quality, efficiency, and competitiveness.
G) Increased access to credit and financial services.
H) Minimizing cases of information asymmetry, as the emergence of new mechanisms such as efficient laws to regulate the work of financial institutions and markets in order to eliminate information asymmetry, and the creation of new institutions such as credit assessment agencies in order to generate high-quality information, and the use of technology to improve the processing and dissemination of information, including prices And enacting rules in order to regulate the financial sector well and ease regulatory restrictions. All of this contributes to a greater development of the financial sector over time and thus increasing its depth.

2.3 Financial Depth Theories:

There are several theories explaining the increase in financial depth prevailing in advanced financial systems, with the aim of easing financial constraints in repressed economies in order to increase financial depth, increase savings and credit supply, encourage investment, and thus increase economic growth. Among the most important increase in these theories: (Azzam, 2017: 21-24)

A) Keynes's theory of financial depth: John Maynard Keynes asserts that financial depth occurs due to the expansion of government spending in order to achieve higher levels of employment of the workforce up to full employment, which causes the government to inject more money into the economy, which in turn increases of income and effective aggregate demand and thus increase the demand for money. The level of financial depth also depends on the increase in the proportion of total savings in the country, and therefore, as a result of this increase in total savings and the achievement of increased financial savings and savings as well as the transfer of funds and savings from unregulated (and risky) financial markets to organized financial markets, which increases the ability of These markets and their contribution to increasing economic growth.

   It follows from this that what Keynes meant by financial depth due to the expansion of government spending is that increasing government spending and adopting stimulus policies would stimulate effective aggregate demand (both with consumption and investment) and that an increase in government spending means that there is an activity in the markets and an increased demand. On products and raw materials needed for production, this pushes the national economy forward by increasing the saving rate, which is one of the tributaries of growth and a measure of financial depth.

B) Financial Liberalization Theory of (McKinnon - Shaw): Financial liberalization gives complete independence in managing financial activities, as it eliminates controls on banking work, abandons credit policy, and opens the banking field to the private, public, and foreign sectors. Financial liberalization is an effective means of accelerating growth and allowing for greater financial depth. This theory is based on the fact that the higher the real rate of interest, the greater the degree of financial depth, consequently increasing savings and then increasing investment opportunities more efficiently and directly without financial intermediation, and all this leads to the liberation of the financial sector and thus the accumulation of financial assets and then the accumulation of physical capital, which It will lead to economic growth.

   Moreover, financial depth - especially in developing countries - means lessening the fragmentation of financial markets so that they can gradually set prices in a more accurate and consistent manner. Mchinnon & Show believes that finding positive

real interest rates is the first step in this direction, as these rates stimulate financial saving, which leads to increased monetization of the economy and the expansion of financial intermediation (Al-Saadi, 2011: 219).

C) The theory of financial intermediation: Financial intermediation is carried out through the collection of financial resources by financial institutions in order to make those funds available to economic units. Financial institutions exist in order to facilitate this mediation, and they collect funds in quantities and conditions accepted by savers and investors, and they finance in quantities accepted by borrowers. Financial intermediation is defined as those bodies that allow the direct financing relationship between lenders and borrowers to be transformed into an indirect one by creating a new channel through which funds pass from those with financial surplus to those with a financial deficit, and thus they mobilize savings (of individuals and institutions) on the one hand and grant Loans to third parties. Therefore, financial intermediation is one of the indicators of financial depth, as the owners of this theory see that financial intermediation plays an important role in the growth process by transferring financial resources from savers to borrowers, thus affecting investment and economic growth. This theory suggests that financial intermediation can overcome market failure and thus solve the information asymmetry problem. Gurley and Shaw support the view that financial intermediation is an opportunity to enhance financial capacity and increase market depth, especially in savings and investment operations. Thus, the high level of financial intermediation in the financial sector and the increase in saving and then investment, in turn, increases the level of economic growth. Gould Smith believes that financial structure accelerates economic performance to the extent that it facilitates the migration of funds to the best user.

2.4 Financial Depth Indicators:

Economists have used many financial indicators to determine the degree of financial depth enjoyed by a country. Perhaps the most important of these indicators are the following:

A) *The ratio of credit to the private sector to GDP*:
This indicator takes into account the volume of economic activity, so it is not affected by the cycles associated with credit demand operations; that is, it takes into account the levels of development of financial depth over time, and it is one of the most indicators Stable and less volatile compared to the credit growth rate index (Sharqi, 2021: 13). This indicator is also one of the most important indicators expressing the efficiency and development of the banking system in any country, as the percentage in it depends on the size and importance of the private sector's contribution to economic activity compared to the financial sector, and therefore it is directly related to investment and growth (Al-Shaddoud and Al-Saidi, 2013: 78), that is, an increase in the credit-to-GDP ratio is a sign of more financial services being provided to the economy, and thus improved financial intermediation. The main advantage of this indicator is that it isolates the credit provided by financial institutions to the private sector, as it does not include credit provided by the central bank or credit provided by financial institutions to the public sector, and thus the possibility of using it in measuring the role of financial institutions in increasing financial depth (Khalaf and Rashid, 2017: 343).

B) *The ratio of total deposits to GDP*:
This indicator is one of the important and expressive indicators of the volume of banking transactions, as well as being a qualitative measure of financial depth, especially after it was noted that there is a large percentage of currency circulating outside the banking system in developing countries, as high The ratio of money supply in its broad sense to income means an increase in the use of currency rather than an increase in the volume of bank deposits, for this reason, the currency must be excluded in circulation to obtain a more representative measure of financial depth, and be more illustrative of the services and financial activities provided, which is the ratio of total deposits to GDP. The exclusion of the currency in circulation also focuses on considering bank deposits as the main source of investment financing, and any increase in this percentage of deposits from financial savings against GDP can be interpreted as an improvement in bank deposits, and then the development and increase in the depth of the financial sector (Khalaf and Rashid, 2016: 140), that is, it measures the ability of banks to mobilize deposits in all its forms, such as demand deposits, savings deposits, and time deposits (Thuwaini and Al-Aboudi, 2021: 15). A higher deposit-to-GDP ratio also means more investment, and thus higher economic growth (Azzam, 2017: 42).

C) *The ratio of Broad Money (M2) to GDP*:
This indicator measures the degree or percentage of monetization in the economy, as the money supply is one of the most important monetary variables, as its changes lead to important changes in other economic variables such as output, exchange rates, and interest rates (Al-Shaddoud and Al-Saidi, 2013: 74). It is also the simplest indicator among the indicators of financial depth, as money in the economy provides important services related to payments and savings, where Narrow Money Supply (M1) performs the first type of services (payments), and M2 performs the second type (savings). In order to achieve financial depth, cash balances in the narrow sense must increase in line with the increase in economic transactions (when ignoring technical developments), and cash in the broad sense must rise more quickly if the financial depth is achieved (Al-Saadi, 2011:

220). The money supply indicator measures the degree of use of money in the national economy, and therefore it shows the size of the financial sector in the economy, and then it is possible to know the level of financial depth through the size of the market. Therefore, an increase in this ratio over time means a faster accumulation of a variety of financial assets in general and savings deposits in particular. In general, the increase in this percentage indicates the development of the volume of financial intermediation (Sharqi, 2021: 16).

2.5 The relationship of Financial Depth to Economic Growth:

The analysis of the relationship between financial depth and economic growth has received great attention in the economic literature, as many theoretical and empirical studies have proven the existence of a positive relationship between financial depth and economic growth, and the controversy centered on the direction of this relationship. Gurley & Shaw (1955) A new trend has emerged in economic thought that focuses on the introduction of the financial system and its degree and depth as a new variable among the variables that affect the achievement of economic growth and reinforces the belief that the existence of a developed financial system characterized by depth will be able to mobilize savings and ensure an optimal allocation of resources Available financial resources, thus ensuring monetary and financial stability to enhance the path of economic growth (Torshi and Buflih, 2016: 42).

The introduction to the studies on the relationship between financial depth and economic growth was conducted by the economist Smith (1969), which was characterized by its focus on the importance of financial institutions in mobilizing the savings needed by the process of economic growth. This study concluded that financing through banks and financial institutions has clear positive effects on economic growth, especially in the long term (Al-Shaddoud and Al-Saeedi, 2013: 73).

In the study of Hugh T. Patrick (1966), a distinction was made between two stages in analyzing the relationship between financial depth and economic growth; in the first stage, financial development is what stimulates economic growth, and in this stage, the leading supply hypothesis is realized, as financial depth leads to providing Financial services and their diversification, which opens new horizons for investors by mobilizing the largest amount of financial resources and contributing to the optimal allocation of resources by transferring financial resources from a traditional unproductive sector to a modern sector with higher efficiency. After this stage, the second stage comes in which the dependent demand hypothesis is fulfilled, i.e., economic growth becomes a form that affects the deepening of the financial system by increasing the demand for financial services, which prompts banks to invent new financial services in response to market needs (Torshi and Buflih, 2016: 43).

The study of Woo S. Jung (1986) to determine the direction of the relationship between financial depth and economic growth - which included a sample of 56 countries, including 19 developed countries - depended on the analysis of two indicators of financial depth (monetary mass circulating outside the banking system to the money supply in a sense narrow, the money supply in the broad sense to GDP), and I have concluded that financial depth in developing countries leads to economic growth, while in developed countries it is economic growth that leads to an increase in financial depth.

Darrat (1999) study also tested the effect of financial depth on economic growth through its application to Saudi Arabia, the UAE, and Turkey, as it focused on the causal relationship between financial depth and economic growth by using the Granger causality test and estimating the error correction model to test the relationship in the long term And it found that financial depth is a necessary and causative factor for economic growth, with a difference in the degree of impact according to each country, as well as a long-term relationship (Torchi et al., 2018: 115-116). There is a study that agreed with Schumpeter's views that financial depth could enhance economic growth using data from a sample of 80 countries for the period (1960-1989). The study demonstrated a strong correlation between financial depth and real growth of GDP, accumulation of physical capital, and improvement in economic efficiency and future rates of economic growth (Thweeny and Al-Aboudi, 2021: 8-9).

On the other hand, the study of Lucas (the owner of the school of rational expectations) came to reduce the importance of the relationship between financial depth and economic growth, as he believes that financial factors often lead to negative effects during periods of economic growth; He based this on "that the financial sector is responsible for stimulating crises that hinder economic growth" (Al-Shaddoud and Al-Saeedi, 2013: 73). Wachtel & Rousseau (2007) - which included a sample of 84 countries during the period (1960-2003) - found that excessive financial depth or rapid credit growth clearly leads to inflation and weakening banking systems, which leads to a negative impact on economic growth.

In general, and through empirical studies, it became clear that there are three visions of the relationship between financial depth and economic growth: (Torchi et al., 2018: 116-117)

A) Financial depth positively affects economic growth, as it has been proven using cross-sectional data on the one hand and time-series regression analysis, whether in developed or developing countries.
B) Financial depth negatively affects economic growth, as it has been proven using cross-sectional time series (Panel data) in developing countries.

C) The existence of a complex relationship between financial depth and economic growth, as financial depth positively affects economic growth at a specific level of financial development, and then this impact becomes negative on economic growth when this level of development is exceeded.

3. The Indicators of Financial Depth and Economic Growth in Iraq

3.1 Evolution of Financial Depth indicators in Iraq:

The trend of financial depth in Iraq during the period (2004-2020) can be analyzed by analyzing the special indicators that show the size, depth, and development of the financial sector as follows:

A) ***Ratio of Credit to the Private Sector to GDP*:**

The ratio of Credit to the Private Sector to GDP accurately shows the actual amount of money provided to the private sector, and therefore this ratio is directly related to investment and economic growth. Therefore, the increase in this percentage is a sign of the increase in financial services provided to the economy and, thus, the improvement of financial intermediation.

We note in Figure (1) that the ratio of direct cash credit granted to the private sector to GDP was generally low during the period (2004-2020) and did not exceed (10%) until 2020, when it reached (13%), and the reason for this is The decrease in the gross domestic product with a negative growth rate of (28.5%) in contrast to the increase in credit granted to the private sector, as it rose from (21042213) million Iraqi dinars (ID) in 2019 to (25866682) million ID in 2020, with a growth rate of (22.9%) as it shows in Table (1).

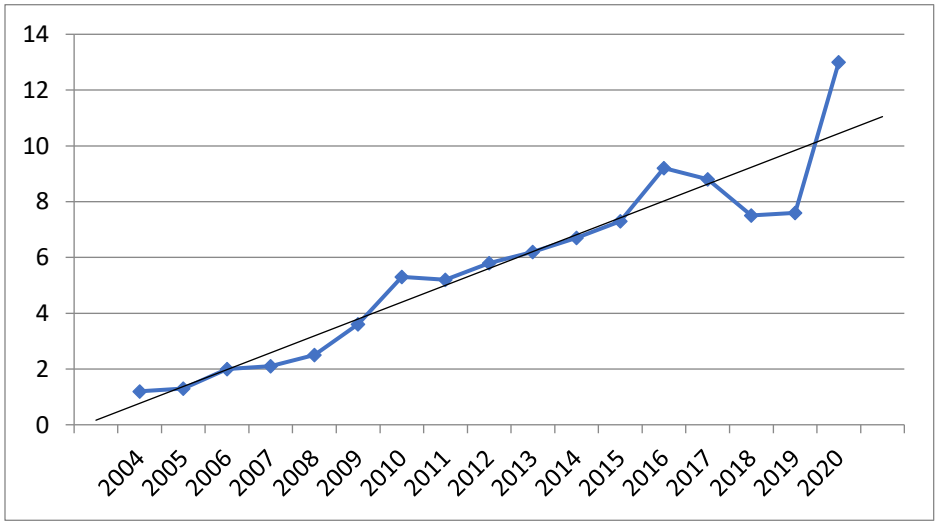

Figure (1): Credit to Private Sector/GDP (%) in Iraq for the period (2004-2020)

In general, this ratio (the ratio of credit granted to the private sector to the GDP in Iraq is considered low, and a small contribution to economic activity and limited influence on financing economic growth, and the reason for this is that a significant proportion of the credit is provided to the public sector (credit provided to the central government + credit provided to public institutions), and consequently there is crowding out the private sector in financing, as well as a decrease in the volume of savings locally as a result of the decrease in the real income of individuals. The total credit granted during the period (2004-2020) in return for (60%) of the total credit provided to the private sector.

We also note in Table (1) that after the percentage of credit granted to the private sector was (75.5%) of the total credit in 2004, it began to decline to reach (38.5%) in 2015 and then rise slightly to (51.9%) in 2020, which indicates that Despite all the reforms through which the government is trying to activate the role of banks in financing the economy, the behavior of banks is still apprehensive about all investments that are not supported by the government. Therefore, investment files remain suspended, and their implementation is far from due to the poor adaptation of the local financial system to the requirements of the economic environment. The reality indicates that all these requirements collide with complexities of a financial nature, including banks' demand for private institutions for high (in-kind) guarantees that the owners of these institutions may not have, high-interest rates on loans to compensate for the degree of risk, and weak banking competition due to the weakness of private sector banks. etc., in addition to the resort to banks to buy treasury bills away from financing private institutions, since the possession of these bills is a profitable and low-risk investment compared to financing private investment institutions.

Table (1) Total credit and GDP in Iraq for the period (2004-2020)

Year	Credit to Private Sector (Million ID) (1)	Credit to Public Sector (Million ID) (2)	Total credit (Million ID) (1+2)=(3)	1/3 %	2/3 %	GDP (million ID) (4)	1/4 %
2004	622467	202206	824673	75.5	24.5	53235358.7	1.2
2005	950287	767163	1717450	55.3	44.7	73533598.6	1.3
2006	1881014	783884	2664898	70.6	29.4	95587954.8	2.0
2007	2387433	1071587	3459020	69.0	31.0	111455813.4	2.1
2008	3978301	618122	4596423	86.6	13.4	157026061.6	2.5
2009	4646167	1043949	5690116	81.7	18.3	130643200.4	3.6
2010	8527131	3194404	11721535	72.7	27.3	162064565.5	5.3
2011	11356308	8996831	20353139	55.8	44.2	217327107.4	5.2
2012	14650102	13788586	28438688	51.5	48.5	254225490.7	5.8
2013	16947533	13004479	29952012	56.6	43.4	273587529.2	6.2
2014	17745141	16377926	34123067	52.0	48.0	266332655.1	6.7
2015	14150406	22602280	36752686	38.5	61.5	194680971.8	7.3
2016	18180970	18999153	37180123	48.9	51.1	196924141.7	9.2
2017	19452293	18500536	37952829	51.3	48.7	221665709.5	8.8
2018	20216073	18270874	38486947	52.5	47.5	268918874.0	7.5
2019	21042213	21010298	42052511	50.0	50.0	277884869.4	7.6
2020	25866652	23951085	49817737	51.9	48.1	198774325.4	13.0
				60%	40%		

Source: https://www.cbiraq.org/default.aspx

B) Ratio of Total Deposits to GDP:

The ratio of total deposits to GDP focuses on excluding the currency in circulation because semi-liquid assets are the main source of investment financing, and any increase in this ratio can indicate an improvement in bank deposits and then the development of the financial sector and its deepening through the use of those deposits in The accumulation of assets and thus the increase in economic growth rates.

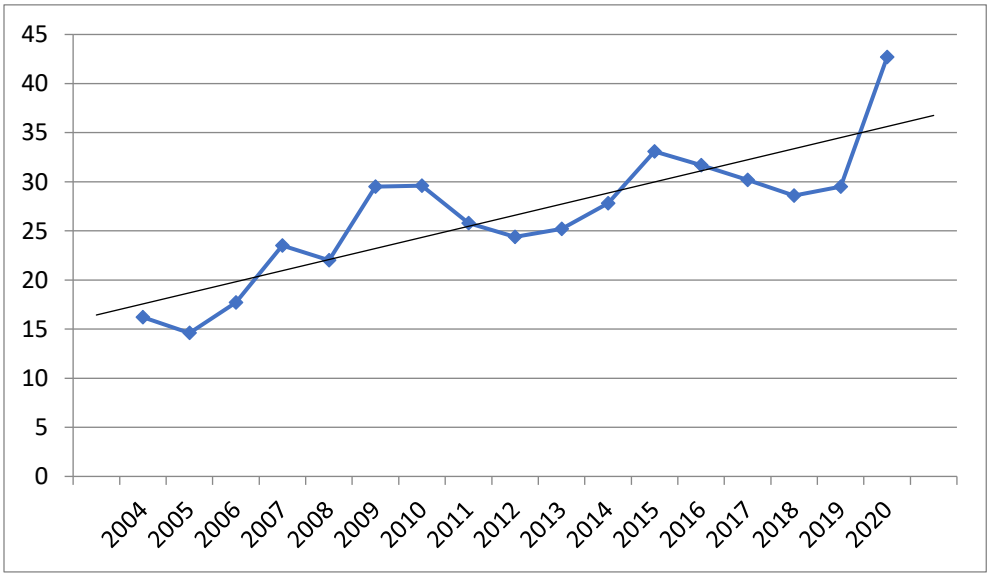

Figure (2): Deposits/GDP (%) in Iraq for the period (2004-2020)

We note from Figure (2) that the ratio of total deposits to GDP has gradually increased from (16.2%) in 2004 until it reached (42.7%) in 2020, and we note in Table (2) that this ratio did not exceed a third of GDP - except in 2020, because of the decline in GDP during that year - and this decline is due to the weakness of commercial banks in general in attracting deposits, due to the

deteriorating security conditions and the lack of public confidence in the banking system, as we note from Table (2) that the percentage of private sector deposits did not exceed on average (35.1%) of the total deposits during the period (2004-2020), while the remaining percentage (64.9%) was for the public sector deposits (central government deposits + public institutions deposits), which reflects weakness in dealing in the banking sector and a decrease in attracting deposits The private sector and consequently a weakness in the provision of financial services, and perhaps the reason for this is due to the decline in banking habits in general in Iraq, so we find a small percentage of savings moving towards the banking sector, as a result of the commitment of individuals on a large scale to customs and traditions that clearly prevent dealing with interest rates and Commercial (interest-based) banks. All of this leads to a decrease in the contribution of deposits in financing investment projects and a failure to stimulate economic growth.

Table (2) Total deposits and GDP in Iraq for the period (2004-2020)

Year	Private Sector Deposits (Million ID) (1)	Public Sector Deposits (Million ID) (2)	Total Deposits (Million ID) (1+2)=(3)	1/3 %	2/3 %	GDP (million ID) (4)	3/4 %
2004	3431339	5188470	8619809	39.8	60.2	53235358.7	16.2
2005	3689917	7080078	10769995	34.3	65.7	73533598.6	14.6
2006	4751249	12177046	16928295	28.1	71.9	95587954.8	17.7
2007	9402538	16786388	26188926	35.9	64.1	111455813.4	23.5
2008	11616160	22909288	34525448	33.6	66.4	157026061.6	22.0
2009	12686827	25896259	38583086	32.9	67.1	130643200.4	29.5
2010	13711185	34236047	47947232	28.6	71.4	162064565.5	29.6
2011	18199698	37957482	56157180	32.4	67.6	217327107.4	25.8
2012	21115540	40890395	62005935	34.1	65.9	254225490.7	24.4
2013	24450014	44405473	68855487	35.5	64.5	273587529.2	25.2
2014	24702632	49370704	74073336	33.3	66.7	266332655.1	27.8
2015	23636904	40707157	64344061	36.7	63.3	194680971.8	33.1
2016	23708420	38690313	62398733	38.0	62.0	196924141.7	31.7
2017	26093354	40955277	67048631	38.9	61.1	221665709.5	30.2
2018	27364385	49529542	76893927	35.6	64.4	268918874.0	28.6
2019	30708684	51397741	82106425	37.4	62.6	277884869.4	29.5
2020	35920533	49003635	84924168	42.3	57.7	198774325.4	42.7
				35.1	64.9		

Source: https://www.cbiraq.org/default.aspx

C) Ratio of Broad Money (M2) to GDP:

We note in Figure (2) and Table (3) that the ratio of money supply in the broad sense to the GDP was witnessing an increasing state of growth as the money supply in the broad sense during the period (2004-2020) increased more than 99 times in 2020 compared to 2004 with a compound growth rate of 15.3 %), which indicates a relative improvement in the economy's liquidity rate, however, the rate of expansion in the economy's cash through what is reflected in the money supply ratio in the broad sense to the GDP was low and did not exceed on average (34.1%), and therefore it is limited cash to the economy, as The rate of expansion has been very slow and did not exceed (46%) until 2020 – and this increase came due to the decline in GDP. In 2005, this percentage was the lowest during the period (2004-2020) due to the economic crisis (Supply crisis) in the real sector that the Iraqi economy was exposed to, as due to the deficit in the energy and fuel sector, this was reflected in transportation and communication costs as well as production and marketing costs.

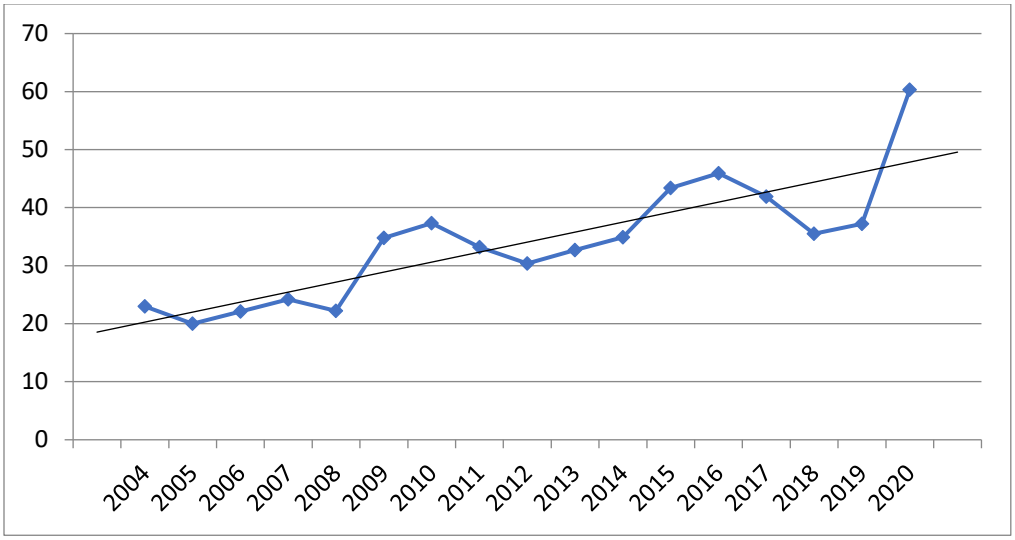

Figure (3): M2/GDP (%) in Iraq for the period (2004-2020)

Table (3) Broad Money (M2) and GDP in Iraq for the period (2004-2020)

Year	Broad Money (M2) (Million ID) (1)	Change Rate %	GDP (million ID) (2)	1/3 %
2004	12254000	-	53235358.7	23.0
2005	14684000	19.8	73533598.6	20.0
2006	21080000	43.6	95587954.8	22.1
2007	26956076	27.9	111455813.4	24.2
2008	34919675	29.5	157026061.6	22.2
2009	45437918	30.1	130643200.4	34.8
2010	60386086	32.9	162064565.5	37.3
2011	72177951	19.5	217327107.4	33.2
2012	77187497	6.9	254225490.7	30.4
2013	89512076	16.0	273587529.2	32.7
2014	92988876	3.9	266332655.1	34.9
2015	84527272	-9.1	194680971.8	43.4
2016	90466370	7.0	196924141.7	45.9
2017	92857047	2.6	221665709.5	41.9
2018	95390725	2.7	268918874.0	35.5
2019	103441131	8.4	277884869.4	37.2
2020	119906260	15.9	198774325.4	60.3
				34.1

Source: https://www.cbiraq.org/default.aspx

3.2 The Evolution of the Economic Growth Index in Iraq:

The GDP is one of the most important indicators of the state's economic performance, and the analysis of output growth and its sectoral structure is one of the main points for identifying and addressing deficiencies. Also, the development of the average per capita income of the gross domestic product is one of the important indicators in this regard, as it reflects the real goal of development; however, the average per capita income may rise without this rise is accompanied by a real development in the standard of living for most individuals. Therefore, we find that the average per capita income has received wide attention in the development literature as a development indicator that expresses the economic and social characteristics of the country. Economic growth means continuous increases in the average per capita income of GDP over time, and then these increases may lead to raising income levels and levels of living and thus increasing the financial transactions of individuals.

Table (4) GDP and Average per Capita Income in Iraq for the period (2004-2020)

Year	GDP (million ID)	Change Rate %	Average per Capita Income (million ID)	Change Rate %
2004	53235358.7	-	2.0	-
2005	73533598.6	38.1	2.6	30.0
2006	95587954.8	30.0	3.3	26.9
2007	111455813.4	16.6	3.8	15.2
2008	157026061.6	40.9	5.1	34.2
2009	130643200.4	-16.8	4.1	-19.6
2010	162064565.5	24.1	5.0	22.0
2011	217327107.4	34.1	6.5	30.0
2012	254225490.7	17.0	7.4	13.8
2013	273587529.2	7.6	7.8	5.4
2014	266332655.1	-2.7	7.6	-2.6
2015	194680971.8	-26.9	5.5	-27.6
2016	196924141.7	1.2	5.4	-1.8
2017	221665709.5	12.6	6.0	11.1
2018	268918874.0	21.3	7.1	18.3
2019	277884869.4	3.3	7.1	0
2020	198774325.4	-28.5	5.0	-29.6

Source: https://www.cbiraq.org/default.aspx

From Table (4), we note that the gross domestic product in Iraq at current prices amounted to (53,235358.7) million ID in 2004 and then began to rise until 2008 to become (157026061.6) million dinars, and the reason for the rise to this extent as a result of the rise in the price of a barrel of oil is due to More than (100) dollars, in addition to the increase in the quantities of exported oil and the exploration of new oil fields, which contributed to the rise in the GDP. In 2009, the output decreased to (130643200.4) million ID, with a negative growth rate (of 16.8%) as a result of the global financial crisis and the drop in global oil prices. But then it started to rise until the years 2014 and 2015; the gross domestic product decreased as a result of the drop in oil prices in global markets, as well as the security and military operations in Iraq. After that, the gross domestic product rose to 2020, as it began to decline at a negative growth rate (28.5%) due to the repercussions of the health crisis due to the spread of the (Covid-19) pandemic and its impact on the overall economic life.

As for the average per capita income of GDP in Iraq during the period (2004-2020), we notice from Table (4) that it fluctuated up and down as a result of the fluctuation in the GDP to achieve a compound growth rate of (5.9%), which shows the achievement of economic growth rates. However, it does not reflect a parallel improvement in the living standards of individuals in light of the decline in social services and the deterioration of infrastructure in general.

4. Research Methodology:

4.1 The collection of data:

The current study covers Iraq country between 2004 and 2020 using aggregate data extracted from the CBI (Statistical website). Our choice of the period under investigation is driven by data availability, from the year 2004.

4.2 Methodology:

In this topic, a review of the results of the standard model used to measure the impact of financial depth indicators on economic growth in Iraq through the use of the standard program (E-Views), as the research data covers the time period (2004-2020), and (Diz) equations have been used. Approach) to convert annual data into quarterly data, as follows:

$X_1 = Z_{t-1}+7.5/12\ (Z_t - Z_{t-1})$
$X_2 = Z_{t-1}+10.5/12\ (Z_t - Z_{t-1})$
$X_3 = Z_{t-1}+1.5/12\ (Z_{t+1} - Z_{t-1})$
$X4 = Zt-1+4.5/12\ (Zt+1 - Zt - 1)$
Since:
Zt: the value of the variable in years (t).
Zt-1: The value of the variable in the year prior to the year (t).
Zt+1: the value of the variable in the year following year (t).
Xi: the value of the quarter (1,2,3,4).

4.2.1 Description of the variables used in the model:

To prove the validity of the hypothesis or not and to access the main objective of the research, as well as to support the results of the analysis that were presented in the first section, we will describe the basic variables of research according to economic theory, as the dependent variable represents (economic growth rate Y), and the independent variables are (ratio of Credit to the Sector Private to GDP: X1, ratio of Total Deposits to GDP: X2, ratio of Broad Money to GDP X3).

4.2.2 The results of the silence tests:

It must first be ascertained that all the variables of the model are quiescent by conducting the Augmented Dickey Fuller test (ADF). The null (Ho: β=1) which assumes that the time series is unstable, that is, there is a unit root, but if the series is stable, then this depends on accepting the alternative hypothesis (H1: β<1) which indicates the absence of a root lonliness.

Table (5) shows the static test of the model variables, as it turns out that some variables are static at the level and others are static at the first difference, based on ADF, and this is based on the value of Prob, which was at less than (%5). Thus, the conditions for applying the Autoregressive Distributed Lag (ARDL) model have been met.

Table (5) Augmented Dickey-Fuller Test (ADF) for Model Variables

Variable	The level			The first difference		
	Fixed limit only	Fixed boundary and direction	No fixed limit and no general direction	Fixed limit only	Fixed boundary and direction	No fixed limit and no general direction
	Prob	Prob	Prob	Prob	Prob	Prob
Y	0.1047	0.1107	0.0062	0.0000	0.0000	0.0000
X1	0.9479	0.2306	0.9727	0.0000	0.0000	0.0000
X2	0.5086	0.3782	0.9519	0.0000	0.0000	0.0000
X3	0.8803	0.3936	0.9228	0.0000	0.0000	0.0000

4.2.3 Estimating the model according to the ARDL Model:

The application of the ARDL model does not require that it be preceded by time-series static tests, but the basic condition for its application is the absence of an integrated series of the second difference [I(2)]. Thus, an estimation of the ARDL model was made, and the results were as in Table (6):

Table (6): ARDL Model estimation results

R-squared	0.940307	Mean dependent var	2.682812
Adjusted R-squared	0.924786	S.D. dependent var	5.267154
S.E. of regression	1.444524	Akaike info criterion	3.764077
Sum squared resid	104.3325	Schwarz criterion	4.236332
Log likelihood	106.4505	Hannan-Quinn criter.	3.950122
F-statistic	60.58557	Durbin-Watson stat	1.124039
Prob (F-statistic)	0.000000		

The results show that the research model is acceptable, as the corrected determination coefficient is (0.924), that is, the independent variables explain (92%) of the changes that occurred in the dependent variable, as well as the Fisher statistical value amounted to (60.58557), and the model's significance was high (0.000000), which It means that the model is acceptable as a whole. The Durban Watson statistic (D-W) reached (1.124039), which explains that the model is free from the problem of autocorrelation, as (D-W > AR-S).

4.2.4 Co-Integration test according to the ARDL Model:

The co-integration test in the ARDL model is known as the Bound Test, and the Bound Test depends on the statistical value of Fisher by comparing with the lower and upper limits (Critical Value Bounds), which was developed by the economist Basran, and distributed Within different moral levels, as shown in Table (7).

Table (7) shows the statistical value of Fisher, which amounted to (15.37142), which is greater than all the lower and upper limits and at all different moral levels (1%, 2.5%, 5%, 10%), and this means that there is a correlation of co-integration between the independent variables (Indicators of financial depth) and the dependent variable (economic growth) and that this result leads us to apply the error correction model in the short and long term.

Table (7): Limits Test for Co-integration According to ARDL Model

Test Statistic	Value	K
F-statistic	15.37142	3
Critical Value Bounds		
Significance	I0 Bound	I1 Bound
10%	2.72	3.77
5%	3.23	4.35
2.5%	3.69	4.89
1%	4.29	5.61

4.2.5 Error Correction Form According to ARDL Model:

The error correction model consists of two parts, the first includes short-term flexibility, while the second includes long-term flexibility, and the results are as in Table (8).

Table (8) shows the short-term and long-term flexibility in relation to the research model and the short-term and long-term relationship. In the short-term relationship, we note the positive impact of the indicator (X1), as an increase in its value by (1%) leads to an increase in the value of (Y) by (10.561%) and that this effect was significant at the (5%) level, as its probabilistic value was (0.000000). We note the negative impact of the indicator (2X), as an increase in its value by (1%) leads to a decrease in the value of (Y) by (1%), and that this effect was not significant at the (5%) level, as its probabilistic value was (0.2422). We also note the negative impact of the indicator (3X), as an increase in its value by (1%) leads to a decrease in the value of (Y) by (3.468%), and that this effect was significant at the level of (5%), as its probabilistic value was (0.0000).

Table (8) shows the long-term relationship. It is clear that the error correction coefficient (CointEq(-1)) is highly significant, which is negative, and its value is confined between zero and the right one; that is, it is identical to the terms of the error correction condition in terms of value, indication and moral, as its value are (0.598), The speed of correction reached (1.67), and this means that the imbalances that occur in the short term are corrected in the long term within (1 year, 8 months), and the parameters of the long-term relationship indicate that there is an effect between the indicators of financial depth and economic growth, but these relationships did not show. They were all statistically significant at the (5%) level, as the probability of (X2, X3) was greater than (5%), while (X1) was significant at the (5%) level, and the results were as follows:

There is a negative relationship between (X1 and Y)
There is a positive relationship between (X2 and Y)
There is a negative relationship between (X3 and Y)

4.2.6 Model stability tests:

After estimating the ARDL model, the limits test for joint integration, the error correction model, and the quality tests, the model stability tests are conducted, and those tests can only be done after re-estimating the model according to the method of least squares (OLS only), as several tests appear within an item (Stability Diagnostics), including Recursive Estimation, which contains several tests, the most famous of which are my tests (the cumulative sum of the residuals Cusum) and (the cumulative sum of the squares), which were made and the results were as in Figures (4) and (4).

Table (8): Error Correction Model (Short run & Long run) According to ARDL Model

ARDL Cointegrating And Long Run Form Dependent Variable: Y Selected Model: ARDL(1, 4, 1, 4) Date: 01/30/22 Time: 03:30 Sample: 2004Q1 2020Q4 Included observations: 64				
Cointegrating Form				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(X1)	10.561066	2.087046	5.060293	0.0000
D(X1(-1))	0.000000	2.534296	0.000000	1.0000
D(X1(-2))	-0.000000	2.534296	-0.000000	1.0000
D(X1(-3))	7.855050	2.107257	3.727619	0.0005
D(X2)	-1.010727	0.853931	-1.183617	0.2422
D(X3)	-3.468272	0.707309	-4.903478	0.0000

D(X3(-1))	-0.000000	0.539802	-0.000000	1.0000
D(X3(-2))	0.000000	0.539802	0.000000	1.0000
D(X3(-3))	-2.353587	0.494666	-4.757930	0.0000
CointEq(-1)	-0.598375	0.079965	-7.482990	0.0000
Cointeq = Y - (-3.4200*X1 + 0.9659*X2 -0.6611*X3 + 6.6955)				
Long Run Coefficients				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
X1	-3.420030	1.645814	-2.078017	0.0429
X2	0.965949	0.640405	1.508341	0.1378
X3	-0.661052	0.678438	-0.974374	0.3346
C	6.695514	2.920548	2.292554	0.0261

Figure (4): Cumulative sum of residuals test (Cusum)

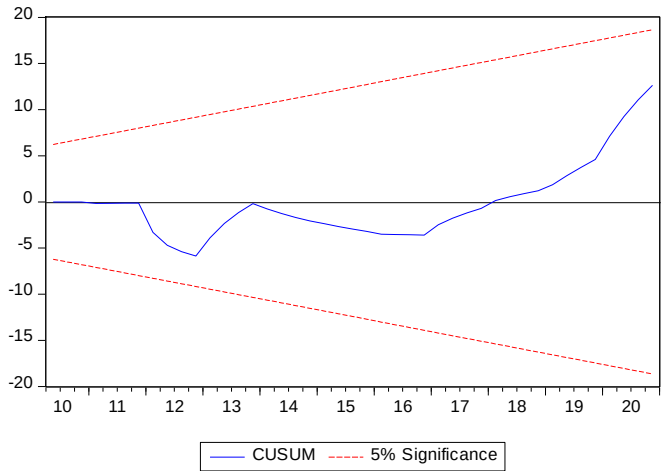

Figure (4) shows the cumulative sum test for the residuals of the model, as the red dotted lines indicate the critical limits at the level of significance of 5%, and the connected and sinuous blue series indicates the cumulative sum of the residuals of the model, and the content of stability is the presence of that cumulative series within the red critical limits, so it turns out to us That the research model was stable throughout the research period, as the numbers in the horizontal axis indicate the number of observations of the time series in question.

Figure (5): The Cusum of Squares test

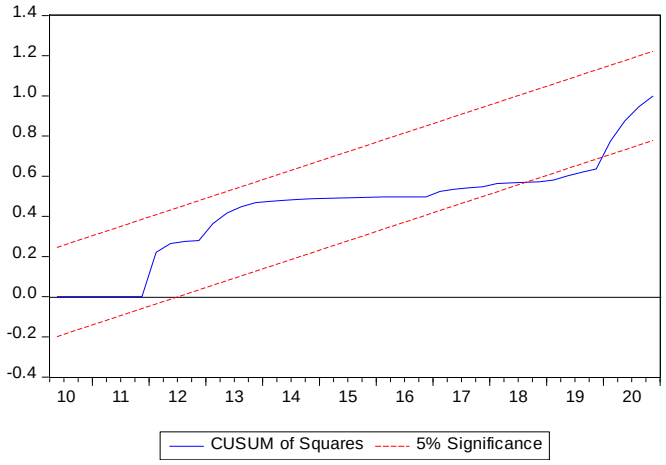

Figure (5) shows the test of the cumulative sum of the residual squares of the research model, as the red dotted lines indicate the critical limits at the level of significance of 5%, and the connected and sinuous blue series indicates the cumulative sum of the residual squares of the model, and the content of stability is the presence of that cumulative series within the red critical limits, so

It turns out that the research model shown in Figure (2) was stable throughout the research period, except for the period (2018 Q3 - 2020 Q1).

5. Conclusions:

The ratio of credit granted to the private sector to GDP, the ratio of total deposits to GDP, and the money supply ratio in the broad sense to GDP are important indicators that show the level of depth of the financial sector in Iraq, and they also indicate the level of development of the financial and banking system in Iraq, which is characterized by low economic contribution to support economic growth. All indicators of financial depth in Iraq indicate that a relative development occurred during the period (2004-2020) and that it was clearly affected by the economic and security conditions in the country, which means the dependence of the financial system in general on macroeconomic variables. The existence of a long-term joint integration relationship between the indicators of financial depth And the economic growth based on the value of (CointEq(-1)), as it was negative, significant, and confined between zero and the correct one, that is, it corresponds to the terms of the error correction condition, and this means that there is a long-term equilibrium relationship between the time series. According to the results of the econometric model, there is a direct and significant relationship in the short term between the ratio of credit granted to the private sector to GDP and economic growth. Private sector deposits are still relatively low, and their median accounted for only (35.1%) of the total deposits with commercial banks during the period (2004-2020), which reflects the continuing decline in banking habits of individuals in Iraq, and thus its weak role in supporting investment and thus economic growth. , This is what was shown by the results of the econometric model. Despite the steady increases achieved in the money supply in the broad sense, they did not match the requirements of economic activity in Iraq represented in the gross domestic product, as its median amounted to (34.1%) because the gross domestic product depends mainly on oil revenues, and therefore the money supply loses the ability to influence GDP, as shown by the results of the econometric model.

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