

## Analyzing and measuring the impact of financial inclusion on the profitability of Iraqi banks for the period (2004-2019)

Sawsan Kareem Hodan Al-Jubouri

Hussein Mosaed Jawad Al-Mousawi

*Al-Qadisiyah University - College of Administration and Economics*

*Corresponding Author: Hussein Mosaed Jawad Al-Mousawi*

**Abstract** : Financial inclusion is one of the modern and important topics that have received great attention from the whole world, especially the banking sector, as a result of the great development in the field of technology, communications and information. It is necessary to keep pace with this development and try to provide the best services to the individual and as soon as these services are comprehensive on all his needs and how to exploit this inclusion in Achieving bank profitability, and the aim of the research is to identify indicators of financial inclusion and indicators of profitability for banks, as well as building a standard model for indicators of financial inclusion and their impact on bank profitability. the research hypotheses.

**Keywords:** financial inclusion, financial inclusion indicators, bank profitability, bank profitability indicators, test (ARDL).

**INTRODUCTION:** Financial inclusion is one of the important terms on the economic level, as it has become a goal that all countries of the world, especially the Arab countries, seek to achieve, as part of the role of financial inclusion represented in enabling all segments of society, especially those who are financially excluded, to participate effectively in the economic cycle by providing the necessary banking liquidity. And based on (savings, insurance, cash transfers, and microfinance) due to the economic importance, and in Iraq the central bank, the banking sector and the relevant authorities were keen to put financial inclusion into practice as an ambitious national issue. The research aims to analyze indicators of financial inclusion in the Iraqi economy for the period (2004-2019), and measure their impact on the banking profitability of Iraqi banks.

### **Research problem:**

The research problem is defined in the following question:

Are Iraqi banks able to apply indicators of financial inclusion that lead to achieving banking profitability?

### **research importance:**

The importance of this research lies in the following:

- 1-It deals with a topic of importance at the international and local levels, with an indication of the role of financial inclusion indicators on the profitability of banks and measuring the relationship between them.
- 2- The scarcity of quantitative studies that dealt with the impact of financial inclusion indicators on the level of bank profitability.

### **Research hypothesis:**

The research stems from the hypothesis that "the indicators of financial inclusion applied by Iraqi banks have a significant and effective role in achieving banking profitability."

### **Search goal:**

The research aims to achieve a set of points, the most important of which are:

- 1 -Identify the indicators of financial inclusion
- 2-Identify the indicators of profitability for banks
- 3- Building a standard model for financial inclusion indicators and their impact on bank profitability.

### **Search division:**

The research was divided into the following:

The first topic: Financial inclusion conceptual framework

#### **First: the concept of financial inclusion**

Financial inclusion is a broad concept and is defined as the process that ensures the use of the formal financial system and the ease of access and availability for all individuals in society<sup>1</sup>, There are many concepts related to financial inclusion.

Each of them deals with a specific aspect of the many aspects of financial inclusion, including the population's access to financial services, The degree of use of these services was defined by the World Bank as "the percentage of people and companies using financial services" and was also defined as providing the opportunity to use financial and banking services and products at the lowest costs for the largest possible number of societies, institutions and individuals<sup>2</sup>, especially segments of society with limited income, while the Monetary Fund defined Financial inclusion

is defined as “the availability and use of all financial and banking services for various segments of society through official channels, including credit and savings accounts, payment and transfer services, insurance services, and financing and credit services, in order to avoid the segments of society resorting to informal channels and means that are not subject to a minimum of oversight and supervision and has high costs, which leads to misuse of the needs of these people for financial and banking services<sup>3</sup>.”

The researcher believes that financial inclusion means obtaining financial products and services easily and at the lowest costs by providing them from formal or informal organizations that work to deal with financial hardship and with the optimal use of financial products and services, which are designed according to the needs of customers and the segmentation of services for the purpose of developing them to include all segments of society. Including the poor, and in line with effective regulation and oversight, with the aim of ensuring the provision of financial products and services in an environment of financial stability.

### **Second: the goals of financial inclusion**

Recently, global interest has emerged in expanding the scope of financial inclusion for financial services provided by banks and financial institutions. Accordingly, conferences have been held and international alliances and institutions have been formed to find coordination and work through common and unified mechanisms and clear goals to reach the benefits resulting from financial inclusion, as the Consultative Group considers To help the poor in the World Bank, building a comprehensive and financial system is the main way to reach the poor and people with limited income, and these goals can be summarized as follows:<sup>4</sup>

1 -Delivering all financial services and products to the widest base of the public, while creating awareness among the public of the importance of financial services and how to obtain them, as well as benefit from them to improve social and economic conditions.

2 -Enhancing the access of all segments and groups of society to financial services and products, and introducing customers to the importance of these services, how to obtain them, what are their advantages and costs, and how to improve their conditions and their social and economic reality. Through it.<sup>5</sup>

3 -Providing financial and banking services and products at economical prices, such as deposits, money transfer services, loans and insurance.

4-Increasing the awareness of the economically disadvantaged groups in society through the preparation of programs aimed at enhancing their culture of saving and investment and encouraging them to invest in the benefits of services in the correct and official ways, as well as stimulating competition between financial and banking service providers to provide savings and investment products that are suitable for different groups of society.

5 -Delivering funding sources to the broad public, especially the poor, with the aim of improving their living conditions.

6 -Encouraging small companies to invest and expand.

7 -Work to enable small projects and very small companies to invest and expand.

8-Expanding the base of institutions that provide low-cost financial services so that there is sufficient competition and customers have multiple options to choose from.

9-Optimal utilization of available resources and striving towards achieving stability and equitable growth.

10- Directing policies towards effective government programs and achieving and monitoring financial integri.<sup>6</sup>

### **Third: Dimensions of financial inclusion**

The dimensions of financial inclusion are among the most important dimensions taken by central banks, which give an accurate analysis of the reality of the banking sector’s work, relying on a solid database of the most important indicators of the work of financial and banking institutions. The dimensions of financial inclusion can be clarified as follows:

1 :After accessing financial services

This dimension helps in measuring the size of the banking population, meaning the ability of financial and banking institutions to provide financial services and products, which are related to regulations, regulatory arrangements, the market and the technological environment. Achieving financial access requires identifying the potential difficulties and obstacles facing institutions in providing services and products or those facing customers, and it reflects the depth of access as well as the spread of financial and banking services within the framework of a comprehensive financial system, as financial services should be made available to potential users with complete ease, and this indicator contributes 50% of financial inclusion indicators.<sup>7</sup>

2 :After the use of financial services

The dimension of using financial services refers to the extent to which customers use financial products and services provided through banking sector institutions, and determining the extent of using financial services requires collecting data on the regularity and frequency of inclusion over a specific period of time. It expresses the number of individuals

who are actually able to obtain one or more financial services, or in other words it includes measuring the extent to which adults aged fifteen years and over use financial services such as using bank accounts to pay wages and pay purchase lists, and reflects the real role of financial intermediation in the sector. Banking includes and the depth of penetration of its services. It contributes 50% of the financial inclusion index.<sup>8</sup>

3 :Dimension of the quality of financial services:

The quality dimension is the ability of financial products and services to meet consumer demands, and the process of developing indicators to measure quality dimensions is a theoretical challenge in itself, because the quality dimension of financial inclusion is not a clear and direct dimension because there are many factors that affect the quality and quality of financial services such as the cost of service, And consumer awareness, as well as consumer protection services and financial guarantees, and transparent competition in the market<sup>9</sup>, and there are also intangible factors such as consumer confidence. Studies emphasize the need for societies to develop financial capabilities so that they can fully benefit from the services that are provided to them, as the financial ability of the customer An increasingly important central aspect of thinking about financial inclusion, and studies emphasize the role of experience as the most important feature in improving financial ability, and that experience includes the use of financial products, even before they are fully understood.<sup>10</sup>

#### **Fourth: Financial inclusion indicators**

1-1 Index of measuring access to financial services

It depends on a number of sub-indicators or ratios, as follows:

a) Banking concentration ratio: One of the objectives of achieving financial inclusion is access to banking services and financial products to all segments of society, especially individuals with limited incomes, women and small enterprises, including various geographical areas, especially rural and deputy ones, which are difficult to reach.

As the main goal of financial inclusion is represented in the widespread network of bank branches in urban, rural and remote areas alike.<sup>11</sup>

P - The ratio of circulation in the graph of the study in the graph of the securities in 1967 and was known by their names, and this model is based on a ratio that is measured by the number of its branches from the population per 100,000 thousand adults.

C - Prevalence rate: The lines made by (Cameron & Trivedi) measure the prevalence rate to the total population or the number of those aged fifteen years and over, and its value should be equal to one.

The fleet was therefore a burden, as it could send large quantities of paper, as there could be a large number of islands in its fleet. But if this number of yellow is present, then this indicates that this indicates its existence.

Among the most important variables used for the access indicator are as follows:<sup>12</sup>

- The number of bank branches to the population per 100,000 thousand adults
- The number of bank branches to the country's area per 1000 square kilometers
- The number of ATMs per 100,000 adults
- The number of ATMs per 1000 square kilometers

#### **2- Indicators for measuring the use of financial services**

There are a number of sub-indicators or ratios:<sup>13</sup>

A- Deposit Index (Savings)

It measures the extent to which adults aged fifteen years and over deposit their savings in official financial institutions. The data of this indicator shows the extent of the effectiveness of the financial and banking sector in attracting deposits from individuals and all economic units, and the higher this ratio indicates the development and effectiveness of financial and banking institutions, as well as the development of banking habits for all and the spread of financial culture.

B - credit index (borrowing)

This indicator measures the degree of orientation of adults aged 15 and over towards official financial and banking institutions to obtain credit (loans). Credit has an active role in the economic development process, and the growth of the economy depends on it, but the parties to the credit process should make optimal use of it On the contrary, it leads to negative consequences for the economy.

Among the most important variables used to obtain the usage index are:<sup>13</sup>

- The volume of loans to the gross domestic product
- Volume of deposits to the gross domestic product
- The number of loan accounts to the adult population
- Number of deposit accounts to the adult population

Second: banking profitability

Profitability is one of the important elements to ensure the continuity of the bank's performance, as the profitability index is a primary goal for all banks and is necessary for their survival and a goal for investors to look forward to. It is

also an important tool for measuring the efficiency of management in the use of available resources. There are factors that may affect sustainability or the quality and quantity of profits, such as insufficient credit risk management through which it leads to loan losses, and the bank's profits may be exposed to fluctuations in interest rates, as well as relying on unjustified exceptional gains that lead to a reduction in the quality of profits. It is clear from this that profitability is an important criterion, which represents the quality of profitability of the bank and the ability to maintain quality, because profitability is directly affected by the quality of assets:

Profits in banks are divided into two parts:<sup>14</sup>

A- Net interest income: It is calculated from the difference between the interest income on loans provided by the bank and the interest costs or expense on deposits or borrowed amounts related to financing the loan portfolio. And stable, and this requires effective management, and banks usually work to adjust lending rates before deposit rates in high interest rate markets and vice versa in low interest rate markets.

B- Banking operations income: It is represented by other operations carried out by the bank, such as fees, commissions, income from the profits of the bank's subsidiaries, and income generated through the sale and purchase of some asset.

Profitability is measured through the following sub-indicators:

return on assets<sup>15</sup>:

The return on assets is a financial indicator that reveals the bank's ability to achieve profits by investing in its assets, and depends on the amount of profits that are realized from these assets, and it is also called the return on investment, because it is an indicator for measuring the profitability of all the bank's short and long-term investments. When the bank invests its money, this indicator is calculated by dividing the net profit into the total assets as per the following equation:

$$ROA = \frac{NI}{TA} \times 100$$

Since:

ROA: the rate of return on assets

NI: net income

TA: Total Assets

Return on assets ratio = (net profit/total assets) \* 100

Return on Equity ROE

This indicator measures the extent to which the goal sought by banks is achieved, which is the rate of return on the money invested by the owners, which is an important criterion for maximizing wealth. In addition, it is an important indicator for determining growth and development. On the other hand, the high rate of this ratio indicates the efficiency of bank management. At the same time, it indicates the great risk resulting from the increase in financial leverage, and its decrease indicates the bank's adoption of conservative financing with loans. This indicator is calculated by dividing the net profit into the total shareholders' equity, as per the following equation:

$$ROE = \frac{NI}{TE} \times 100$$

Since:

ROE: Ratio of Return on Equity

NI: net income

TE: Equity

## **The second topic**

### **Analysis of the reality of indicators of financial inclusion and banking profitability in Iraq for the period (2004-2019)**

One of the most important indicators of financial inclusion is the access indicator, the use indicator, and the quality indicator. Our research will focus on the access and use indicators, because they are among the most important basic indicators used to measure the level of financial inclusion.

First: Analysis of the reality of financial inclusion indicators in Iraq for the period (2004-2019)

1-Access to financial and banking services index

Indicators of access to financial and banking services are the basis for paving the way towards promoting and achieving financial inclusion, by reducing the effort and burden borne by individuals when they need financial and banking services. However, the reality of these indicators and the nature of their levels were and still are below the

required level, so changes will be analyzed that occurred with mentioning the most important reasons behind it. Access indicators are based on a set of sub-indicators, which can be summarized as follows:

#### a- Banking density ratio

It is noted from table (1) that the banking density in Iraq during the period studied was fluctuating, as it reached its highest value about (52%) in 2007 and its lowest value amounted to about (34%) in 2013, which is a very low percentage compared to the international standard ratio, which is One branch for every 10,000 people. It is clear from table (4) that the indicator of the banking density ratio in Iraq in 2008 amounted to (56.95), which represents the highest ratio in relation to the total population, while the ratio of adults reached (27.71) for the same year, while it decreased for the period (2009-2012), as it reached (40.96, 37.77, 37.54, 34.83) respectively for the total population and it amounted to about (20.49, 18.96, 19.18, 18.18) respectively for the adult population. This decrease is due to the increase in the number of branches from 774 branches for the year 2009 to 982 branches for the year 2012, and this increase in the number of branches is not commensurate with the increase in the population, then it rose again for the period (2013-2018), reaching (44.48) of the total population and (27.49) in 2018 with regard to the number of branches. adults in the population after it was (35.02) and (18.71) respectively for the year 2013. In other words, the banking density in 2018 reached that each bank has (44000) people, after it was in 2008 for each bank (56000), so it is concluded through that that Despite the development that took place in the banking sector in Iraq, the percentage of banking density is still low, and the reason for this is due to the lack of solid banking plans to expand the network of banking branches and spread its services on a wide level. For the largest segment of society, it will reflect positively on the level of financial and banking awareness and education.

Schedule(1)  
Banking density index in Iraq for the period (2004-2019)

the years	Total population (thousands of people)	The number of adults is 1,000 people, 15 years and over	The number of bank branches	banking density %	
				Total population (1000 people)	The number of adults is 1,000 people, 15 years and over
2004	27139	14333	530	51.20	27.04
2005	27963	14699	530	52.76	27.73
2006	28810	14991	542	53.15	27.65
2007	29682	15250	549	54.06	27.77
2008	31895	15522	560	56.95	27.71
2009	31664	15863	774	40.90	20.49
2010	32490	16308	860	37.77	18.96
2011	33338	17033	888	37.54	19.18
2012	34208	17862	982	34.83	18.18
2013	35096	18750	1002	35.02	18.71
2014	36005	19638	938	38.38	20.93
2015	36934	20484	821	44.98	24.95
2016	37202	21141	858	43.35	24.63
2017	37139	21778	833	44.58	26.14
2018	38124	23561	857	44.48	27.49
2019	39127	23294	881	44.41	26.44

The source was prepared by the researcher based on:

- Central Bank of Iraq, Annual Bulletin, Department of Statistics and Research, for different years
- Iraqi Ministry of Planning, Statistical Group, Population Statistics, for the years (2004-2019)
- Banking density = population (1000 people) / number of branches

#### b- Banking spread

Banking spread is still below the required level in Iraq, despite the increase in the number of bank branches during the research period, but this increase in the number of bank branches is not commensurate with the increase in the population, as it is noted from table (2) that banking spread reached (1.95) in 2004 to The total number of the population reached (3.69) to the total number of adults, while it was declining for the years (2005-2008)

As the banking prevalence to the total population reached (1.89, 1.88, 1.84, 1.75), respectively, and this decrease is attributed to the slight increase in the number of bank branches, which will not exceed 30 branches during the period, then the banking prevalence rate increased for the years (2009-2013), It reached (2.44, 2.64, 2.66, 2.87, 2.85), respectively, to the total population.

They amounted to (4.87, 5.27, 5.21, 5.49, 5.34), respectively, in relation to the adult population. 2015

and (4.00) to the total number of adults. The reason for this decrease is attributed to the decrease in the number of bank branches from (938) branches in 2014 to (821) branches in 2015, while the banking prevalence index was stable for the period (2016-2019), as it reached ( 2.30, 2.24, 2.24, 2.25) in relation to the total population, respectively, and that the banking prevalence index in Iraq is very low compared to the Arab countries and neighboring countries, meaning that individuals face a problem in accessing banks and their branches and obtaining financial and banking services, in addition to that The number of bank branches is not proportional to the population.

Schedule(2)  
Banking prevalence index in Iraq for the period (2004-2019)

the years	Total population (thousands of people)	number of adults	The number of bank branches	banking spread %	
				Total population	number of adults
2004	27139	14333	530	1.95	3.69
2005	27963	14699	530	1.89	3.60
2006	28810	14991	542	1.88	3.61
2007	29682	15250	549	1.84	3.6
2008	31895	15522	560	1.75	3.60
2009	31664	15863	774	2.44	4.87
2010	32490	16308	860	2.64	5.27
2011	33338	17033	888	2.66	5.21
2012	34208	17862	982	2.87	5.49
2013	35096	18750	1002	2.85	5.34
2014	36005	19638	938	2.60	4.77
2015	36934	20484	821	2.22	4.00
2016	37202	21141	858	2.30	4.05
2017	37139	21778	833	2.24	3.82
2018	38124	23561	857	2.24	3.63
2019	39127	23294	881	2.25	3.78

The source was prepared by the researcher based on:

- Central Bank of Iraq, Annual Bulletin, Department of Statistics and Research, for different years
- Iraqi Ministry of Planning, Statistical Group, Population Statistics, for the years (2004-2019)
- Banking spread = number of branches / population (1000 people)

### C- The number of automated teller machines (ATMs.)

The Iraqi banking system was devoid of electronic payment methods before 2003, as manual work was prevalent in all financial transactions, so electronic payment methods became one of the main goals that the Central Bank of Iraq seeks to increase, and to introduce the largest possible number of individuals into the system. financial and the use of electronic payment methods, and the shift to electronic dealing instead of dealing in cash gradually, and that banking spread in relation to automatic teller machines (ATM) is no less important than the spread of bank branches, so the level of spread of ATMs is important to raise levels of access to financial and banking services, We note from Table (3), that the prevalence of ATMs in Iraq witnessed a remarkable development during the period (2008-2019), as it reached its lowest rate (0.83) in 2008, and it began to rise to record a rate of (3.45) in 2013 to a percentage of The number of adults in the population, as a result of the increase in the number of ATMs, amounting to 517 ATMs, compared to 2008, and it decreased in 2014 when the percentage reached (1.71), as a result of the decrease in the number of ATMs at a rate of (310) ATMs compared to 2013, due to the security conditions to which they were exposed. A number of Iraqi governorates and the closure of some bank branches in the governorates that were controlled by terrorist gangs, and they rose again for the years (2015-2019). The size of the banking spread in Iraq, through the contribution of private banks to increase the number of automatic teller machines.

### Schedule (3)

Prevalence of automated teller machines (ATMs) in Iraq for the period (2004-2019)

the years	Total population (thousands of people)	The adult population (1000) is 15 or more	The number of automated teller machines (ATMs)	ATM ratio to the number of adults (1000) people 15 years and over	ATM per 1000 sq km %
2004	27139	14333	-	-	-
2005	96327	14699	-	-	-
2006	28810	14991	-	-	-
2007	29682	15250	-	-	-
2008	31895	15522	130	0.83	0.29
2009	31664	15863	225	1.42	0.52
2010	32490	16308	358	2.21	0.82
2011	33338	17033	467	2.74	1.07
2012	34208	17862	467	2.61	1.07
2013	35096	18750	647	3.45	1.48
2014	36005	19638	337	1.71	0.77
2015	36934	20484	580	2.83	1.33
2016	37202	21141	660	3.12	1.52
2017	37139	21778	656	3.01	1.51
2018	38124	23561	865	3.67	1.99
2019	39127	23294	1014	4.35	2.33

Source: Prepared by the researcher based on

- Central Bank of Iraq, Department of Statistics and Research, Annual Statistical Bulletin, for different years.
- The years (2004-2007) lack of data on automatic teller machines (ATMs).
- Years marked with (-) mean no data is available.

## 2 -The indicator of the use of financial and banking services

The indicator of the use of financial and banking services is an important indicator for measuring the level of financial inclusion and the extent to which individuals use financial and banking services provided by banks. The ratio of deposits to the gross domestic product, and the rest of the indicators were excluded due to the lack of accurate data for them.

### A- Private sector credit ratio index to GDP:

Table (4) refers to the results of the analysis of the private sector credit ratio index to GDP. It is noted that the private credit ratio index reached its lowest level of 620 billion dinars in 2004, at a rate of 1.16% of GDP, due to the transformation of the political system in Iraq and what it witnessed of unstable security conditions, which led commercial banks to reduce the credit granted in anticipation of the risks of defaulting and non-payment. To reduce its ability to grant credit, then the private credit index to the gross domestic product (GDP) increased significantly in the following years, reaching 9.28% in 2015, with a growth rate of (39.13%), as private credit amounted to (18070) billion dinars. Because of the increase in cash reserves with the Central Bank as a result of allowing Iraq to export petroleum products, which led to a reduction in interest rates on loans provided to commercial banks by the Central Bank to about 6%, which led to an increase in cash reserves with commercial banks and this in turn led to an increase Its ability to grant credit, then the private credit index to GDP recorded a decrease during the years (2016\_2019), reaching (9.23%) in 2016, with a negative growth rate of (0.53%), due to the drop in oil prices, which led to a decrease in oil revenues And this, in turn, led to a decrease in public revenues, which led to a deficit in the public budget, which led to the government adopting a policy of financial austerity through the central bank raising the cost of borrowing on commercial banks, which led to a decrease in their cash reserves with the central bank and thus a decrease in their ability to Granting credit, in addition to increasing the growth rate of GDP at growth rates that exceed the growth rate of private sector credit, as the GDP growth rate reached (6.02%), and the credit index reached (8.61) in 2019, with a negative growth rate of (1.86%).

to table (4)

The ratio of private sector credit to the gross domestic product in Iraq for the period(2019-2004)  
(billion dinars - percentage)

the years	private local credit	gross domestic product	GDP growth rate %	Private domestic credit to % GDP	% growth rate
2004	620	53235.3	-	1.16	-
2005	950	73533.5	38.12	1.31	12.93
2006	1881	95587.9	23.07	1.96	49.61
2007	2387	111455.8	16.60	2.14	9.18
2008	3978	157026.0	4.88	2.53	18.22
2009	4646	130642.1	(16.80)	3.55	40.31
2010	8527	162064.5	24.05	5.26	48.16
2011	11356	217327.1	34.09	5.22	(0.76)
2012	14650	254225.4	16.97	5.77	10.53
2013	16948	273587.5	7.61	6.19	7.27
2014	17745	266420.3	(2.61)	6.67	7.75
2015	18070	194680.9	(26.92)	9.28	39.13
2016	18181	196924.1	1.15	9.23	(0.53)
2017	19452	225722.3	146.74	8.61	(6.71)
2018	20216	251064.4	11.22	8.05	(6.50)
2019	21042	266190.5	6.02	7.90	(1.86)

Source: Prepared by the researcher based on

- Central Bank of Iraq, Annual Bulletin, Department of Statistics and Research, for the years (2004-2019).

### **B\_ index of the ratio of private sector deposits to GDP:**

By analyzing the indicator of the ratio of private sector deposits to GDP in the Iraqi banking sector during the research period (2004-2019), it is clear from Table (5) that the value of the indicator amounted to (5.68) in 2004 and then decreased for the years (2005-2006) to reach ( 5.01, 4.97) respectively, with a negative growth rate of (0.79, 11.79%), respectively. The indicator of the ratio of private sector deposits to GDP fluctuated between rise and fall during the period (2005-2012), so that this ratio recorded a decline at the end of 2012, as it reached (8.30), and with a negative growth rate of (0.83%) due to the attraction of savings deposits in government banks by a decision of the Ministry of Finance to withdraw deposits belonging to the public sector from private banks to government banks. The decrease in this percentage indicates the state of weak financial depth in Iraq because it is a very modest percentage, which leads to To the public's lack of confidence in private banks compared to government banks, then the ratio of private sector deposits to GDP rose again for the years (2013-2015) to reach (12.14%) in 2015 with a growth rate of (30.96%), which is the highest percentage recorded during the research period. As a result of recording an increase in the volume of deposits that exceeds the increase in the volume of gross domestic product, which decreased from 2014, to record a negative growth rate of (26.92%), due to the repercussions of the war on terrorist gangs that controlled large areas of Iraq, as well as the drop in global oil prices. While the index of deposits to GDP decreased again for the years (2016-2018) to reach (10.89%, 11.55%, 12.03%), respectively, with negative growth rates of (5.71%, 3.99%, 0.10%), respectively, and returned to a slight increase in 2019 to reach (11.53%), with a growth rate of (5.87%).

#### **Schedule (5)**

#### **The ratio of private sector deposits to the gross domestic product in Iraq for the period(2019-2004) (billion dinars)**

the years	private sector deposits	gross domestic product	GDP % growth rate	Private sector deposits to GDP % Total	% growth rate
2004	3025	53235.3	-	5.68	-
2005	3689	73533.5	38.12	5.01	(11.79)
2006	4752	95587.9	23.07	4.97	(0.79)
2007	9402	111455.8	16.60	8.43	69.61
2008	11615	157026.0	4.88	7.39	(12.33)
2009	12686	130642.1	(16.80)	9.71	31.39
2010	13711	162064.5	24.05	8.46	(12.87)
2011	18199	217327.1	34.09	8.37	(1.06)
2012	21115	254225.4	16.97	8.30	(0.83)
2013	24450	273587.5	7.61	8.93	7.59
2014	24702	266420.3	(2.61)	9.27	3.80
2015	23636	194680.9	(26.92)	12.14	30.96
2016	23697	196924.1	1.15	12.03	(0.90)
2017	26093	225722.3	146.74	11.55	(3.99)
2018	27364	251064.4	11.22	10.89	(5.71)
2019	30708	266190.5	6.02	11.53	5.87

Source: Prepared by the researcher based on

- Central Bank of Iraq, Annual Bulletin, Department of Statistics and Research, for the years (2004-2019)

The ratios between brackets are negative

### **The third topic**

#### **Standard model of the impact of indicators of financial inclusion on indicators of competitiveness of Iraqi banks for the period (2004-2019)**



First: Analyzing the relationship between financial inclusion and return on assets using the ARDL autoregressive distributed deceleration model

Quarterly data amounting to (60) observations for the period (2004-2019) of Iraqi commercial banks were used in order to measure the impact of financial inclusion on the return on assets index, which is one of the indicators of the competitiveness of Iraqi commercial banks.

-Estimating the impact of financial inclusion indicators on return on assets

Table (6) shows the results of the initial estimate of the ARDL model for the relationship between the return on assets (ROA) index, and the financial inclusion indicators ((BD), (BS), (ATM), (DSO CDP), (SDO/ GDP)) As it turned out that the estimated model has a high explanatory ability, as the value of the coefficient of determination (R<sup>2</sup>) was (0.918412), which gives explanatory power to the model, and that the corrected coefficient of determination was (0.895354), and the calculated (F) value of (39.83119) indicates that the model Significant, that is, there is a relationship between indicators of financial inclusion and return on assets, as we accept the alternative hypothesis, which states that there is a long-term equilibrium relationship between the independent variables and the dependent variable in the standard model, and reject the null hypothesis.

#### Schedule (6)

#### The results of the preliminary assessment of the relationship between financial inclusion and the return on assets inde

Variable	Coefficien	Std. Error	t-Statistic	Prob.*
ROA(-1)	0.500333	0.127717	3.917519	0.0003
ROA(-2)	-9.35E-15	0.147491	-6.34E-14	1.0000
ROA(-3)	5.35E-15	0.147491	3.63E-14	1.0000
ROA(-4)	-0.253066	0.115510	-2.190848	0.0336
BD	0.081856	0.019301	4.241043	0.0001
BS	1.526660	0.367082	4.158905	0.0001
ATM	0.046885	0.031214	1.502040	0.1399
ATM(-1)	-0.019974	0.040296	-0.495671	0.6225
ATM(-2)	-1.98E-14	0.040404	-4.91E-13	1.0000
ATM(-3)	3.29E-14	0.040404	8.13E-13	1.0000
ATM(-4)	0.117285	0.034979	3.353041	0.0016
DSOGDP	-0.002467	0.013232	-0.186424	0.8529
SDOGDP	0.016569	0.012439	1.332047	0.1894
C	-7.208414	1.741950	-4.138129	0.0001
<b>R-squared</b>	<b>0.918412</b>	<b>Mean dependent var</b>	<b>0.474667</b>	
<b>Adjusted R-squared</b>	<b>0.895354</b>	<b>S.D. dependent var</b>	<b>0.246215</b>	
<b>S.E. of regression</b>	<b>0.079648</b>	<b>Akaike info criterion</b>	<b>-2.021430</b>	
<b>Sum squared resid</b>	<b>0.291817</b>	<b>Schwarz criterion</b>	<b>-1.532750</b>	
<b>Log likelihood</b>	<b>74.64290</b>	<b>Hannan-Quinn criter.</b>	<b>-1.830280</b>	
<b>F-statistic</b>	<b>39.83119</b>	<b>Durbin-Watson stat</b>	<b>1.694381</b>	
<b>Prob(F-statistic)</b>	<b>0.000000</b>			

Source: From the researcher's work based on the outputs of the statistical program (Eviews: 12)

#### 2-Testing the limits

Since the time series of financial inclusion indicators and the return on assets index are static at the first level and the first difference, the distributed ARDL autoregressive model was used to demonstrate the existence of a long-term equilibrium relationship between the variables of the model, as the economic meaning of the distributed autoregressive model is to verify the presence or absence of The existence of a co-integration relationship and a long-term equilibrium relationship between the variables of the model, and it is clear from Table (7) that there is a co-integration relationship between (return on assets) and indicators of financial inclusion during the research period, as the value of (F) calculated amounted to (6.562681) in the limits test, which is Statistically significant because it is higher than the critical value at the upper limit of (4.15) and the lowest limit of (3.06) at the level of (10%, 5%, 2.5%), and this means rejecting the null hypothesis which states that there is no long-term equilibrium relationship between (return on assets) and indicators of financial inclusion, and accepting the alternative hypothesis that states the existence of a long-term equilibrium relationship between the dependent variable and the explanatory variables.

**Schedule (7)**  
**Testing the limits between indicators of financial inclusion and return on assets**

				F-Bounds Test
I(1)	I(0)	Signif.	Value	Test Statistic
	Asynptotic N=1000			
3	2.08	10%	6.562681	F-Statistic
3.38	2.39	5%	5	K
3.73	2.7	2.5%		
4.15	3.06	1%		

Source: From the researcher's work based on the outputs of the statistical program (Eviews: 12)

### -3-Model diagnostic tests

With regard to the diagnosis of the model, the results of the analysis of the standard criteria shown in Table (8) showed that the model exceeded the standard problems, as it is noted from the table itself that the model does not suffer from the problem of instability of variance because the probability value reached (0.4817), which is greater than 5 % meaning that we accept the null hypothesis, which states that there is no problem of instability of variance, and we reject the alternative hypothesis that states that there is a problem of instability of variance. Through the results of Table No. (8), we find that there is no problem of autocorrelation, because the probability value is greater than (5%) This supports the validity and accuracy of the results of the model used.

**Schedule (8)**

**Model diagnostic tests of the impact of financial inclusion indicators on the return on assets index**

the test	the value	Prob.
Breusch-Godfrey LM Test	0.367995	0.8319
Arch Test	0.501602	0.4817
Ramsey Reset Test	1.293364	0.2025

Source: From the researcher's work based on the outputs of the statistical program (Eviews: 12)

### 4-Error Correction Model (ECM) according to the ARDL methodology

The error correction parameter (ECM) according to the methodology of the Autoregressive Distributed Deceleration Model (ARDL) is an indicator of the speed of processing the imbalance in the short term and the return to equilibrium in the long term, and according to the results of Table (9), the error correction parameter CointEq (-1) \* of (-0.752733), and with two conditions, the sign is negative and statistically significant, as the error correction parameter refers to the speed of adaptation in the deviation occurring in the values of the model variables in the long term up to (75%), which reveals the correction of the imbalances that occurred in the short term and the restoration of balance in the long term.

**Schedule (9)**

**Correction of the error in the short term ECM between financial inclusion and the return on assets index**

Variable	Coefficient	Std. Error	t-Statistic	Prob
D(Y1(-1))	0.253066	0.104187	2.428946	0.0191
D(Y1(-2))	0.253066	0.104187	2.428946	0.0191
D(Y1(-3))	0.253066	0.104187	2.428946	0.0191
D(X3)	0.046885	0.026602	1.762474	0.0846
D(X3(-1))	-0.117285	0.031416	-3.733324	0.0005
D(X3(-2))	-0.117285	0.031416	-3.733324	0.0005
D(X3(-3))	-0.117285	0.031416	-3.733324	0.0005
CointEq(-1)*	-0.752733	0.104455	-7.206301	0.0000

Source: From the researcher's work based on the outputs of the statistical program (Eviews: 12)

The long-term relationship of financial inclusion indicators and the return on assets index

Table (10) shows the results of the long-term relationship between indicators of financial inclusion and return on assets, and through the above equation it is clear that the parameter (BD, BS, ATM) was significant in the long term, meaning that there is a long-term equilibrium relationship between (banking intensity, Banking spread, the ratio of ATM to the number of adults) towards the return on assets index, and this is consistent with the economic logic, while the results showed that there is no long-term equilibrium relationship between (DSOGDP, SDOGDP), and the return on assets index, as the parameters (DSOGDP, SDOGDP) showed that it Not significant at the level of (1%, 5%, 10%), which indicates a non-significant relationship between (private domestic credit to GDP, and private sector deposits to GDP) and the return on assets, and this is due to the weakness of the ratio Private credit to the gross domestic product in the Iraqi economy.

**Schedule (10)**

**Estimates of the long-term relationship of financial inclusion indicators and the return on assets index**

Levels Equation				
Case 2: Restricted Constant and No Trend				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
BD	0.108745	0.021202	5.128897	0.0000
BS	2.028158	0.400703	5.061495	0.0000
ATM	0.191563	0.030679	6.244132	0.0000
DSOGDP	-0.003277	0.017623	-0.185951	0.8533
SDOGDP	0.022011	0.016115	1.365901	0.1786
C	-9.576328	1.917999	-4.992874	0.0000

EC = Y1 - (0.1087\*X1 + 2.0282\*X2 + 0.1916\*X3 -0.0033\*X4 + 0.0220\*X5 - 9.5763)

Source: From the researcher's work based on the outputs of the statistical program (Eviews: 12)

Second: Analyze the relationship between financial inclusion and return on equity using the ARDL autoregressive distributed delay model

-1 Estimating the impact of financial inclusion indicators on return on equity

It is clear from Table (11) the results of the initial estimate of the ARDL model for the relationship between the (ROE) index and the indicators of financial inclusion, as it turned out that the estimated model has a high explanatory power, as the value of the determination coefficient (R2) was (0.983190), which gives an explanatory power to the model, The corrected determination coefficient was (0.977960), and the calculated (F) value of (187.9986) indicates that the model is significant, meaning that there is a relationship between the independent variables and the dependent variable. Therefore, we accept the alternative hypothesis, which states that there is a long-term equilibrium relationship between the independent variables and the dependent variable standard form.

**Schedule (11)**

**The results of the preliminary assessment of the relationship between financial inclusion and the return on equity index**

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
ROE(-1)	0.471495	0.114984	4.100520	0.0002
ROE(-2)	4.57E-13	0.120929	3.78E-12	1.0000
ROE(-3)	-4.67E-13	0.120929	-3.86E-12	1.0000
ROE(-4)	0.299714	0.122998	2.436729	0.0188
BD	6.048592	0.853947	7.083102	0.0000
BD(-1)	-2.541554	0.864179	-2.941006	0.0052
BD(-2)	-1.27E-12	0.228898	-5.54E-12	1.0000
BD(-3)	1.28E-12	0.228898	5.59E-12	1.0000
BD(-4)	0.530872	0.193346	2.745716	0.0086
BS	107.2040	18.16000	5.903300	0.0000
BS(-1)	-43.48654	16.95950	-2.564140	0.0138
ATM	-0.649156	0.736677	-0.881195	0.3829
DSOGDP	2.723644	0.850685	3.201706	0.0025
SDOGDP	-2.813371	0.778664	-3.613074	0.0008
C	-308.9056	73.99392	-4.174744	0.0001
R-squared	0.983190	Mean dependent var		25.45933
Adjusted R-squared	0.977960	S.D. dependent var		16.78650
S.E. of regression	2.492088	Akaike info criterion		4.876437
Sum squared resid	279.4727	Schwarz criterion		5.400023
Log likelihood	-131.2931	Hannan-Quinn criter.		5.081240
F-statistic	187.9986	Durbin-Watson stat		1.423538
Prob(F-statistic)	0.000000			

Source: From the researcher's work based on the outputs of the statistical program (Eviews: 12)

**2-Testing the limits**

Since the time series of financial inclusion indicators and the return on equity index are static at the general level, the autoregressive distributed slowdown model was used to demonstrate the existence of a long-term equilibrium relationship between the variables of the model, as the economic meaning of the autoregressive distributed slowdown model is to verify the existence or absence of a relationship Buyer integration and a long-term equilibrium relationship between the variables of the model, and it is clear from Table (12) that there is a co-integration relationship between the variable return on property rights and indicators of financial inclusion during the research period, as the value of

(F) calculated amounted to (7.125003) in the limits test, which is statistically significant Because it is higher than the critical value at the upper limit of (4.15) and the lower limit of (3.06), and this means rejecting the null hypothesis, which states that there is no long-term equilibrium relationship between the dependent variable and the independent variables.

**Schedule (12)**

**Testing the limits between indicators of financial inclusion and the return on equity index**

				F-Bounds Test
I(1)	I(0)	Signif.	Value	Test Statistic
	Asynptotic N=1000			
3	2.08	10%	7.125003	F-Statistic
3.38	2.39	5%	5	K
3.73	2.7	2.5%		
4.15	3.06	1%		

Source: From the researcher's work based on the outputs of the statistical program (Eviews: 12)

**3-Model diagnostic tests**

With regard to the diagnosis of the model, the results of the analysis of the standard criteria shown in Table (13) showed that the model exceeded the standard problems, as it is noted from the table itself that the model does not suffer from the problem of instability of variance because the probability value reached (0.4817), which is greater than 5 % meaning that we accept the null hypothesis, which states that there is no problem of instability of variance, and we reject the alternative hypothesis that states that there is a problem of instability of variance. Through the results of Table No. (13), we find that there is no problem of autocorrelation, because the probability value of (0.3697) is greater This supports the correctness and accuracy of the results of the used model, as it appears from the model that there is no multicollinearity problem based on the Klein test, which indicates that the parameters of R2 are greater than the correlation coefficient between the independent variables, which means that there is no multicollinearity problem.

**Schedule (13)**

**Model diagnostic tests of the impact of financial inclusion indicators on the return on equity index**

the test	the value	Prob.
Breusch-Godfrey LM Test	1.989886	0.3697
Arch Test	0.048467	0.8258
Ramsey Reset Test	1.293364	0.2025

Source: From the researcher's work based on the outputs of the statistical program (Eviews: 12)

**4- Error correction model (ECM) according to the ARDL methodology**

The error correction parameter according to the methodology of the Autoregressive Distributed Deceleration model (ARDL) is an indicator of the speed of processing the imbalance in the short term and the return to equilibrium in the long term, and through the results of Table (14), the error correction parameter CointEq (-1)\*, amounting to (-0.228791), and its two conditions The sign is negative and statistically significant, as the error correction parameter refers to the speed of adjustment in the deviation occurring in the values of the model variables in the long term, up to (22%), which reveals the correction of imbalances occurring in the short term and rebalancing in the long term, in addition to the parameters in the short term They correspond to a large extent with the parameters in the long term in terms of signs, even if the values of the parameters varied in varying proportions, as the estimation of the parameters in the long term measures the overall effect, whether it is a direct or indirect effect of the change in the independent variables on the dependent variable, while the short term parameters measure the effect only direct to those changes.

**Schedule (14)**

**Correction of the error in the short term ECM between financial inclusion and return on equity index**

Variable	Coefficient	Std. Error	t-Statistic	Prob
D(ROE(-1))	-0.299714	0.089671	-3.342379	0.0017
D(ROE(-2))	-0.299714	0.089671	-3.342379	0.0017
D(ROE(-3))	-0.299714	0.089671	-3.342379	0.0017
D(BD)	6.048592	0.654178	9.246100	0.0000
D(BD(-1))	-0.530872	0.167634	-3.166858	0.0028
D(BD(-2))	-0.530872	0.167634	-3.166858	0.0028
D(BD(-3))	-0.530872	0.167634	-3.166858	0.0028
D(BS)	107.2040	13.69140	7.830023	0.0000
CointEq(-1)*	-0.228791	0.030431	-7.518312	0.0000

Source: From the researcher's work based on the outputs of the statistical program (Eviews: 12)

-5The long-term relationship of financial inclusion indicators and the return on equity index

Table (15) shows the results of the long-term relationship between financial inclusion indicators and the return on equity index. Through the above equation, it is clear that the parameter (BD, BS, DSO/GDP) was significant in the long term, meaning that there is a long-term direct and equilibrium relationship towards The return on equity index, and this is consistent with the economic logic, while the results showed that there is no long-term equilibrium relationship between (ATM) and the return on equity index, as the (ATM) parameter showed that it is not significant at the level of (10%, 5%, %) 1), which indicates a non-significant relationship between (the ratio of ATM to the number of adults), and this result reflects to us the picture that the Iraqi banking sector suffers from structural imbalances, while the results showed a significant and inverse relationship between (private sector deposits to GDP) and return on equity.

**Schedule (15)**

**Estimators of the long-term relationship of indicators of financial inclusion and the return on equity index**

Levels Equation				
Case 2: Restricted Constant and No Trend				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
BD	17.64886	5.468299	3.227487	0.0023
BS	278.4956	82.85798	3.361120	0.0016
ATM	-2.837326	2.748028	-1.032495	0.3074
DSOGDP	11.90448	6.880249	1.730240	0.0904
SDOGDP	-12.29666	6.799549	-1.808452	0.0772
C	-1350.162	418.3612	-3.227264	0.0023

EC = Y2 - (17.6489\*X1 + 278.4956\*X2 -2.8373\*X3 + 11.9045\*X4 -12.2967\*X5 - 1350.1623)

Source: From the researcher's work based on the outputs of the statistical program (Eviews: 12)

**conclusions**

- 1- The results of the research proved that there is a relationship between indicators of comprehensiveness and banking profitability of Iraqi banks for the period (2004-2019), and this applies with what the research hypothesis came from
- 2- The results of the research proved that there is a relationship between the indicators of financial inclusion and the profitability indicator of Iraqi banks, and this is what applies with the hypothesis of the research.
- 3- The prevalence of banking branches and automated teller machines (ATMs) is concentrated in the main cities and commercial centers, and is weak in the districts, sub-districts and rural areas, i.e. the presence of a large group that is excluded and deprived of financial and banking products and services.
- 4- It became evident through the research that there is a long-term equilibrium relationship between the indicators of financial inclusion (banking density, banking spread, ATM ratio to the number of adults) with the indicator (return on assets).
- 5- The results of the analysis showed that there is no long-term equilibrium relationship between indicators of financial inclusion (private domestic credit to GDP, and private sector deposits to GDP) with the competitiveness indicator (return on assets).

**Recommendations**

- 1-The need for financial services instructions and procedures to be simple and clear and consistent with the weak financial culture of Iraqi society, and for banks to have financial products and services at low prices commensurate with the income of all members of society.
- 2-Establishing a national center specialized in the generalization and follow-up strategy for financial inclusion in Iraq and employing expertise and specialists to conduct business in the center.
- 3-Reclassifying or evaluating the operating banks according to their financial inclusion indicators and adopting it as an important factor in the performance evaluation process, which encourages individuals, companies and institutions to deposit their money with highly rated banks.

4- Under the initiative of the Central Bank of Iraq for financial inclusion, work should be done to enhance financial inclusion, which has an important role in delivering the necessary financial and banking services to all segments of society, especially the financially excluded groups.

### **Sources**

- 1- Bulletin," Taking Banking services to the common man financial inclusion, 2006. P 73.
- 2- Gatnar, Eugeniusz, Financial inclusion indicators in Poland, 2013, P 225.
- 3- Helms, Brigit," access for all : Building inclusive finance systems washing ton ,D.C, world Bank, 2006, p 5.
- 4- Al ber,N ,Determinants of financial inclusion,the case of 120 countries from 2004 to 2017 in Global Issues in Banking and finnce, (pp.1-10) springer,charm, 2014, p. 69.
- 5- Gamito, Susana, Financial inclusion in Africa, Master's in Finance, Católica Lisbon School of Business and Economics, 2018, P 9.
- 6- Bernadett V. Operaña, FINANCIAL INCLUSION AND FINANCIAL STABILITY IN THE PHILIPPINES, Degree of Masters, Graduate School of Public Policy, University of Tokyo, Tokyo, Japan, 2016, p 63.
- 7- FATF/OECD, Anti-money laundering and terrorist financing measures and financial inclusion, 2013m p 4.
- 8- R.L. Brown and other, Techniques for Testing the Constancy of Regression Relationships over Time, Journal of Royal Statistical Society, Series B, vol 37, no2, 1975, p158, 159.
- 9- Mohamed Nagy Hassan, Economic Growth: Theory and Concept, Cairo, Cairo House, 2011, p. 22.
- 10- Majid Abu Dayyah, The Role of Banking Spread and Financial Inclusion in Economic Activity, unpublished master's thesis, Al-Azhar University, Gaza, 2016, p. 35.
- 11- Wassim Muhammad Al-Haddad, Electronic Banking Services, 1st Edition, Dar Al-Masirah, Amman, 2012, p. 63
- 12- Ratna Sahay And Others, Financiad Inclusion: Cac It meet multiple mucraeconomic Goals? International monetary fund, IMF staff Discussion Note, 2015.
- 13- Central Bank of Iraq, Annual Financial Stability Report, 2016.
- 14- Iftikhar Muhammad Manahi al-Rafi'i, The Role of the Central Bank of Iraq in Achieving Financial Inclusion, Al-Israa University Journal for Social and Human Sciences, Volume 2, Issue 2, 2020.
- 15- Muhammad Samir Dhairib, CAMELS Banking Indicators Evaluation System in Light of Risks, An Applied Study on the Iraqi Middle East Investment Bank.