

ANALYSIS AND MEASUREMENT OF THE IMPACT OF THE NEW TOOLS OF MONETARY POLICY IN IRAQ ON THE MONEY SUPPLY FOR THE PERIOD (2004-2021)

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Abstract

The new tools are considered one of the most important monetary policy tools affecting the macroeconomic variables, through which it exercises its role in influencing the monetary and financial markets, as the Iraqi economy faces many economic crises that negatively affect the money supply in Iraq, and the research aims to know the impact of the new tools on Achieving the stability of the money supply, and which of these tools is more effective, and to prove the research hypothesis (that the new tools have an effective and significant role in determining the money supply in Iraq for the period (2004-2021)) The new tools were analyzed and measured using the (ARDL) model, and the results proved that there are cointegration relationship.

AN INTRODUCTION

The goal of any state is to achieve economic stability, which is achieved through economic policies whose main goal is to balance the economy and make it strong, and one of the most important of these policies is the monetary policy that the state relies on in achieving its various goals, because of its great impact on the national economy at the macro level, It also aims to combat economic imbalances and achieve economic stability. Monetary policy is one of the most important effective tools, especially in the recent period, because of its vital role in controlling market imbalances through a number of tools that allow it to control monetary performance in any economy. Monetary tools vary according to The need for monetary policy to be used at certain times in order to reset the monetary course of the economy.

The research's problem:

The research problem is summarized in the following question:

Can the new tools be effective in determining the money supply in Iraq?

The research's importance:

The importance of the research comes through the role played by the new tools of monetary policy in Iraq and their impact on the money supply, through which economic stability can be enhanced.

The research's hypothesis:

The new tools have an effective and significant role in determining the money supply in Iraq for the period (2004-2021).

The research's aim :

The research aims to identify the effectiveness of the new tools and their impact on the money supply in Iraq during the period (2004-2021).

The research's structure:

The descriptive and quantitative analysis method was adopted to reach the goal of the research, and in order to test the hypothesis of the research, the research was divided into three sections. Addresses measuring the impact of the new tools on the money supply in Iraq for the period (2004-2021).



The first topic:

Developed tools and presentation of criticism conceptual framework

The first requirement: the new tools:

First: the concept of the new tools:

It is one of the direct methods used by emerging economies with medium or weak financial depth to intervene in the exchange market. Its aim is to maintain the stability of the exchange rate and the general level of prices. foreign currency and then the exchange rate stability 2.

Second: the most important new tools

1- The currency sale window :

We know the currency window as one of the indirect monetary policy tools for buying and selling foreign currency (dollars) to and from licensed commercial banks, as it began working in Iraq on 10/4/2003 so far to limit the excessive increase in money supply and control the volume of liquidity from By controlling the monetary base.

A- Types of currency sale window:

- **Two-way currency window.**

In this case, the central bank intervenes in the exchange market, either by selling or buying the currency directly, and at a rate that determines its specific objective while ensuring stability in the exchange rate and the exchange market in general. The members participating in this auction are the central bank, banks and some other institutions. In this case, the Central Bank has the ability to influence the auction, and this ability varies according to the number of participants in the auction³.

- **One-way currency window.**

Here, the central bank in the currency window is a seller of foreign currency only, that is, it intervenes in one direction only to meet the local demand for foreign currency and finance imports, and in this case the exchange market falls within the framework of the monopoly market.

The government monopolizes the sources of foreign currency supply, as is the case in the rentier countries, in which these countries suffer from the imbalance of their economic structures. Here, the central bank sells foreign currency to the private sector at a price that is previously the monopoly of the currency, so the window for selling the currency becomes the exchange market and the central bank, which is the main player And influencing the direction of the exchange rate and the supply of money through its sales 4.

2- Existing facilities

A- when the financial markets are in an environment characterized by weak, undeveloped financial systems, the central bank must rely on existing facilities more than open market operations. Efficiency that hinders the orderly distribution of reserves through the market between banks, as its function as a safety valve is also necessary, when the estimate of liquidity prediction weakens, the new Central Bank of Iraq law allows the bank to provide loans and deposit facilities, and these facilities and the lender of last resort will replace the exposure and advance facilities Which was used, and the new law does not allow the exposure of bank deposit balances with the Central Bank of Iraq, and these facilities were aimed at expanding the objectives of the policy Deposit facilities are among the monetary policy tools developed by the Central Bank of Iraq, on the basis of which deposits are accepted in Iraqi dinars or in US dollars with the aim of absorbing surplus liquidity in exchange for an interest determined by the Central Bank of Iraq in the event that banks wish to invest, and this type of facility works to form a base Sober prices and thus reduce the volume of liquidity in the economy, and these facilities are divided into facilities in Iraqi dinars and facilities in US dollars.

B- Lending facilities

The lending facilities tool is one of the important tools of the monetary policy of the Central Bank of Iraq, and it began operating in September of 2004 with the aim of working according to a sound financial system by issuing instructions from the Central Bank of Iraq on granting banking facilities



to banks. The Central Bank also issued special instructions for guarantees within the directions of monetary policy.

The second requirement: the offer of criticism

First: the concept of money supply

The money supply defines the amount of money in the possession of society at a specific time, as this quantity represents the means of payment of different coins, whether coins or paper and deposits that existed at a certain moment among the members of society⁶, and is defined as the amount of money or the sum of monetary units in the possession of society during A certain period of time, that is, the money supply represents a stock of money and not a cash flow of money. The difference between the two terms is that the cash flow represents the amount of money that is measured during a certain period of time, while the cash balance is a specific amount of money that is measured at a specific moment in time.

1- The measures of money supply.

There is a wide debate among economists about giving a specific definition of the money supply or the method of calculating it during a certain period of time, and this disagreement revolves around a basic point which is that which elements make up the money supply.

A- Currency in circulation (Mo):

The currency in circulation can be considered a measure of the money supply as it constitutes an important penalty and has a direct impact on the money supply, and it is meant by the currency in circulation in the hands of the public or the currency outside the banking system, i.e. the money supply increases with the increase in the currency in circulation and decreases as a result of its decrease⁸.

B-money supply in the narrow sense (M1):

The narrow definition is meant to offer or, as it is sometimes called, the monetary block, which is a group of payment methods circulating in a country during a certain period of time, meaning that they are the means of payment actually used in circulation that are kept by individuals and projects in the form of cash balances, and are considered among the means of immediate payment every Of paper money and auxiliary money, in addition to the current deposits of the private sector with commercial banks, and these components are expressed by the symbol (M1)⁹.

C- Money Supply in the broad sense M2:

It is the money supply in its narrow sense in addition to time deposits, and the money supply is subject to continuous changes that arise due to the policies of the Central Bank and the group of commercial banks¹⁰, and it is usually taken as the symbol (M2) in international monetary statistics¹¹, and is sometimes known by the term local or internal liquidity and consists of current demand deposits And the currency is in circulation in the hands of the public, in addition to time deposits in commercial banks. This definition is consistent with the concept of the modern quantitative theory of money for Friedman. The reasons for the expansion of the money supply here are that the financial sector in developed countries has provided a large part of the financial assets that can be transferred to means of payment Easily, quickly, and at the same time, generate revenue, and these assets are considered means close to money, so that they can replace money as a store of value, and they can also be used as purchasing power ¹¹.

D- Money supply in the broadest sense (M3)

It is a comprehensive measure of the quantity offered of money. It includes both paper and metal money and bank deposits. It is considered one of the main indicators for measuring inflation. The broader concept of money supply refers to the liquidity of society as a whole, as it determines the money supply on the basis of local liquidity, but it extends to broader dimensions that include other deposits. It is determined by adding savings deposited outside commercial banks, i.e. deposited with savings institutions such as savings funds and savings and loan associations, to the local liquidity.

Second: Factors Affecting Money Supply:

1-Non Borrowed Reserves (NBR)



The effect of these reserves on the money supply is a direct effect because their increase leads to a rise in the ability of the banking system to grant loans or create money, and its decrease will lead to a decrease in this ability. There are several reasons that lead to a change in the non-borrowed reserves.

A- Financial flows resulting from the transfer of capital or goods between countries. Increased exports lead to commercial banks receiving amounts from abroad, thus enhancing their balances with the Central Bank and vice versa in the case of imports.

B- The change that occurs as a result of the state's departments dealing with the public, and the central bank performing its function as the state's bank, so the government spending that is paid by a check drawn from the central bank in favor of the public will lead to This leads to high reserves of commercial banks, and vice versa, provided that the check is deposited with commercial banks and not withdrawn in cash from the Central Bank.

C- Open market operations, which is the central bank's buying and selling of securities, and this matter is related to the central bank's policy.

The most important factor of these factors is open market operations through the impact on bank reserves¹².

2- BORROWED RESERVES (BR).

In theory, it has the same effect as non-borrowed reserves, but there are differences in practice

A- Commercial banks do not borrow reserves from central banks or financial markets except when necessary, and this is usually when their reserves drop below the level of the mandatory reserve.

B- The Central Bank's ability to lend or not lend to commercial banks for any reason whatsoever, and this bank has no right to object because the Central Bank may see that the borrowing process is a result of the bank's mismanagement or an increase in discounted lenders, which may lead to inflation in the economy.

3- The percentage of cash reserves that banks must keep to cover public deposits and to face cash withdrawals on them and thus secure the liquidity of the banking system¹³. The increase in demand for surplus reserves means that they are not used in granting loans or creating credit money, and this negatively affects money.

4- The currency in circulation with the public (C).

In the short term, this currency is considered stable because it is linked to technical and social factors, but in reality it is affected by a number of variables in the long term, the most important of which is¹⁴.

A- Real income level (y) An increase in real income leads to an increase in the demand for cash. The rate of increase in demand for bank deposits is greater than the rate of increase in demand for currency. This is because the increase in income leads to an increase in the volume of exchanges that are settled by cash. Linearity is greater than those exchanges that are settled by the currency in circulation.

B- The tax-to-income ratio (t). The higher this ratio is, the more motives the public has for tax evasion.

A- The interest rate (i) that banks raise on deposits. The higher the interest rate on current accounts, for example, the commissions charged by these banks seem low, which encourages the public to reduce the size of their currency balances and pushes them towards bank deposits.

5- THE LEGAL RESERVE RATIO:

Banks usually have low reserves that exceed legal reserves. To maximize the profits of banks, they expand in granting credit to the maximum extent permitted by these reserves, but this process is actually governed by considerations of profitability, liquidity, risks, and rates of return on banks' investments in credit, and here it does not work. Only by the minimum necessary standard to meet the needs of withdrawals and debt settlement, but rather it seeks to achieve the greatest profit when the rate on each of its assets is equal, but it will remain restricted to the size of the deposits

that it can obtain and the necessary minimum requirements, and here we will see what is the behavior of the public and commercial banks and their role Influencing the money supply:

First: The influence of the public on the money supply comes through its desire to keep the currency in circulation instead of commercial deposits.

Second: Among the five factors affecting the money supply, which can be affected by interest rates in the market, are the two factors, the proposed reserves and the excess reserves, both of which are determined by the decisions taken by the banks.

The second topic: analysis of the reality of the new tools of monetary policy and money supply in Iraq for the period (2004-2021)

The first requirement: the window for selling foreign currency:

A method followed by the central bank to dispose of the papers it issues, in which it invites potential investors to submit their offers, which include the quantities they want to buy and the offered purchase price, and the bank accepts the best offers¹⁵,

First: Purchases and sales of the Central Bank of Iraq in foreign currency (dollars).

The foreign currency auction consists of two sides, so the first side is represented by the Central Bank of Iraq's purchases of foreign currency, usually from the Ministry of Finance and banks, and the other side is the side of the Iraqi Central Bank's sales of foreign currency to banks, intermediary financial institutions and transfer companies.

Table (1) The Central Bank's purchases and sales of foreign currency (dollars) for the period (2004-2021) (Billion dollar)

Year	Central Bank purchases	growth rate%	Central Bank sales	growth rate%
2004	10.8	...	6.1	...
2005	14.9	%37.9	9.6	57.3
2006	18	20.8	11.1	15.6
2007	26.7	48.3	15.9	43
2008	45.5	70.4	25.8	62.2
2009	23	49.4	33.9	31.3
2010	41	78.2	36.1	6.4
2011	51	24.3	39.7	10
2012	57	11.7	48.6	22.4
2013	62	8.7	53.2	9.4
2014	47.5	- 23.3	51.7	- 2.8
2015	32.4	- 31.7	44.3	- 14.3
2016	25.6	- 21	33.5	- 24.3
2017	40.3	57.4	42.2	26
2018	52.2	29.5	47.1	11.6
2019	58.9	12.6	51.1	8.5
2020	30.7	%47.8	44.1	- 13.8

Source: Central Bank of Iraq, Annual Statistical Bulletin, General Directorate of Statistics and Research for the period (2004-2021).

1. The Central Bank of Iraq purchases of foreign currency.

1. The Central Bank of Iraq purchases of foreign currency.

It is clear from the data of Table (1) that the percentage of purchases by the Central Bank of Iraq of foreign currency in the year (2004) amounted to (10.8) billion dollars. The percentage of the Central Bank of Iraq's purchases of foreign currency (dollars) from the Ministry of Finance for the year (2005) increased, amounting to (14.9) billion dollars, at an annual growth rate of (13.9%), and the increase from the previous year amounted to approximately (4) billion dollars, and this increase had an impact Negatively on inflation by controlling foreign exchange to raise the value of the Iraqi dinar against the dollar, the Central Bank of Iraq's purchases of foreign currency increased in the



year (2006) to reach (18) billion dollars, with a growth rate of (20.8%) and for the year (2007) to (26.7) billion Dollars, with a growth rate of (48.3%). This increase in the percentage of purchases for these years (2006-2007) is due to speculation in the exchange rate and its instability due to the security situation the country went through. The increase in the percentage of purchases of foreign currency continued by the Central Bank In 2008, the Iraqi government reached (45.5) billion dollars, with a growth rate of (70.4%) due to the increase in public spending as a result of high revenues from the oil sector, which made the government motivated to increase public spending as well as increase the money supply to increase purchasing power and raise prices, in In (2009) the percentage of the Central Bank of Iraq's purchases of foreign currency (dollars) decreased until it reached (23) billion dollars, with a growth rate of (49.4-). of the foreign currency to the dollar for the years (2010, 2011, 2012, 2013), where it reached the highest growth rate in the year (2010) during the study period, as it reached (78.2%), and the decline in the Central Bank's purchases of foreign currency returned in the year (2014) to reach the percentage Purchases from the currency to (47.5) with a growth rate of (23.3-%), as the decline from the previous year amounted to approximately (15) billion dollars. By imposing new restrictions regarding buying and selling foreign currency on banks as a response to concerns about money laundering and illegal inflows coming from abroad and linked to an increase in demand for foreign currency.

The Central Bank of Iraq returned to increasing its purchases in (2017) to reach (40.3) billion dollars, a difference from the year (2016) by approximately (14.5) billion dollars, with a growth rate that reached (57.4%), and this increase continued for the years that followed this year. (2018-2019) The percentage of sales for the years (2018-2019) was higher than purchases, and this was in order to maintain monetary stability and reduce the gap between the price of the Iraqi dinar and the official price in the parallel market, but in the year (2020) it witnessed a decrease in purchases of foreign currency to reach (30.7) billion dollars, with a growth rate of (-47.8) compared to (58.9) billion dollars for the year (2019). The year (2021) witnessed an increase in the percentage of the Central Bank of Iraq's purchases of foreign currency, as the percentage of its purchases reached (46) billion dollars, with a growth rate of (49.8), and this was due to the increase in energy demand that the world witnessed and the approval of the state's general budget and what accompanied from a rise in public spending.

2. The Central Bank of Iraq's sales of foreign currency:

It is clear from Table No. (1) that the Central Bank of Iraq's sales of foreign currency reached in the year (2004) to (6.1) billion dollars, as the Central Bank of Iraq offered foreign currency (dollars) through the foreign currency sale window, and this is considered a new method that the bank The Central Bank of Iraq, relying on it, as the Central Bank of Iraq had never dealt in this manner, as it contributed to creating openness in the local money market. 57.3% continued to increase in the quantity sold for the year (2006), reaching (11.1), with a growth rate of (15.6%). Unstable security conditions in the country and instability in the exchange rate. The Central Bank of Iraq's sales of foreign currency continued to increase until it reached (25.8%) billion dollars in 2008, with the highest growth rate during the study period, as the growth period in this year reached (62.2%). The increase in the percentage of sales compared to the previous year was approximately 1. The Central Bank of Iraq purchases of foreign currency.

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2. The Central Bank of Iraq's sales of foreign currency:

It is clear from Table No. (1) that the Central Bank of Iraq's sales of foreign currency reached in the year (2004) to (6.1) billion dollars, as the Central Bank of Iraq offered foreign currency (dollars) through the foreign currency sale window, and this is considered a new method that the bank The Central Bank of Iraq, relying on it, as the Central Bank of Iraq had never dealt in this manner, as it contributed to creating openness in the local money market. 57.3% continued to increase in the quantity sold for the year (2006), reaching (11.1), with a growth rate of (15.6%). Unstable security conditions in the country and instability in the exchange rate. The Central Bank of Iraq's sales of foreign currency continued to increase until it reached (25.8%) billion dollars in 2008, with the highest growth rate during the study period, as the growth period in this year reached (62.2%). The increase in the percentage of sales compared to the previous year was approximately(10) billion dollars The continuation of the Central Bank of Iraq in selling foreign currency contributes to the stability of the exchange rate and the improvement of the value of the local currency. The Iraqi foreign currency in the year (2009) until it reached (33.9) billion dollars, with a growth rate of (31.3%), the Central Bank of Iraq continued to sell in order to maintain the financial system in achieving monetary stability, the percentage of sales increased to the Central Bank of Iraq for the years (2010 -2013) in financing the private sector to be able to obtain the imports needed by the market and maintain the stability of goods and services, especially the goods that were imported, we note from Table (1) that the sales of the Central Bank of Iraq for the years (2014, 2015, 2016) have decreased and reached a percentage of The decrease in the year (2014) from the previous year to approximately (1.5) billion dollars and recorded a rate of change estimated at (-2.8%). This is due to the new instructions issued by the Central Bank of Iraq to impose restrictions on banks regarding fears of money laundering operations. The Central Bank of Iraq in the year (2016), relying on the development of sales procedures for foreign currency (dollar) through the foreign currency sale window by encouraging banks to adopt the mechanism of opening documentary credits to finance foreign trade instead of the method of remittances, the increase in sales of foreign currency by the Central Bank of Iraq continued For the years (2017, 2018, 2019) to provide liquidity



and cover expenses for the country, as the percentage of sales in (2017) reached (42.2) billion dollars, with a growth rate of (26%), and the difference from the previous year was approximately (8.7) billion dollars, while in the year (2020) We note that there is a decrease in the quantities sold in the window for selling foreign currency at the Central Bank of Iraq by (13.8-%) compared to the year (2019) to record (44.1) billion dollars, and the reason for that was the double crisis that Iraq went through in that year It was represented in the spread of the epidemic and the decline in oil revenues, due to the complete closure that the world witnessed due to the pandemic. This led to the suspension of window sales during the month of April, as sales were only to enhance stocks abroad to meet the country's need for medicines and food supplies, recorded in the year (2021) The quantities sold of foreign currency through the foreign currency sale window in the Central Bank of Iraq amounted to (37.1) billion dollars, a decrease of (-15.8%) from the previous year due to the continuation of the pandemic crisis, the spread of the epidemic, and the change in the exchange rate, which led to an increase in the prices of imported goods actually from Rising global prices.

Second: Existing facilities in Iraq for the period (2004-2021)

1. Analysis of deposit facilities in Iraqi dinars :

There are several forms of this type of facility, including short-term investment (night investment). The interest rate for this type is calculated according to economic conditions. Deposit is by submitting a request by banks authorized to open an account with the Central Bank. The investment period is before eleven o'clock in the morning, and the amount is restricted. The depositor with interest in the current account, and the central bank bears paying the amount only without interest in the event that the deposit is broken, and through the data of Table (2) it is noted that the total deposits of banks operating in Iraq amounted to (4318) billion dinars in 2004, after which work began with a new type of Investment is an investment for a period of 7 days, 14 days, 30 days, and it was implemented on 3/7/2005, with interest rates ranging between (7.00%, 6.00%), while the total amount invested in Iraqi dinars rose to (5088061) billion dinars in 2006 With a growth rate of (289.36%), while during the period (2007-2008) the total amount invested decreased to reach (45,544,379) in 2007, and (2750,885) in 2008, with a negative growth rate of (-10.48% -39.59%), respectively. At interest rates ranging between (16.75%, 20.00%) distributed over investments for a period of (30 days, 14 days, and 7 days) as a result of raising the legal reserve ratio on government deposits, while all windows were canceled and work was maintained with a 7-day window for the years (2009). -2010) due to monetary policy directives aimed at encouraging banks to finance projects, which led to a decrease in total deposits at a value of (1060, 2803) billion dinars, with a negative growth rate of (61.96% -1.89-%), while work continued with a 7-day window and an interest rate (4.00%) for the years (2011-2013), bringing the total deposit facilities to (3134, 3115, 2470) billion dinars, while the Central Bank of Iraq reduced it to (1.42%, 1.00%) for a period of 7 days for the years (2014, 2015), while the years recorded (2016, 2017) a significant decrease in the volume of deposits as a result of the reluctance of banks to use their financial resources towards enhancing liquidity, in addition to reactivating the investment window for a period of 14 days and 30 days after a reduction in the interest rate, which was reflected in the decline in the volume of deposits by (2587, 1058).) billion Iraqi dinars, with a negative growth rate of (-59.10% -22.07%), as a result of preventing government banks from investing.) days and (30) days according to the decision of the Board of Directors on 6/14/2020 with the aim of providing liquidity to banks in order to face the repercussions of the Covid crisis.

2. Analysis of deposit facilities in US dollars :

Work with this type of deposits began in 2005, as the Central Bank of Iraq issued special instructions for accepting deposits in US dollars, and investing them according to periods of (7) days, (30) days, and (90) days, and it is noted from the data of Table No. (2) that the total Deposits amounted to (4,155,889) million US dollars in 2005, at an interest rate of (3%) for a period of 30 days, and an interest rate of (3.25%) for a period of 90 days, while the total deposits decreased to (747,500) million US dollars in 2007, as a result of the absence of any deposits invested for a period of time. 90 days, and the participating banks stopped depositing, as all dollar financial products (deposits of remittances of Islamic certificates of deposit) continued to be suspended due to the

weak response of the banks in diversifying their investment portfolios in a way that achieves the desired goals, with the continuation of the accrual processes for the principal amount with interest.

Table (2) The development of deposit facilities in the Central Bank of Iraq for the period (2004-2021)

Years	Policy Rate %	Investment Deposits for 7 days in Iraqi Dinars	Investment Deposits for 14 days in Iraqi Dinars	Investment Deposits for 30 days in Iraqi Dinars	Total Outstanding Balance of Deposit	Growth rate	Rate Investment Deposits for 7 days in US Dollars	Investment Deposits for 30 days in US Dollars	Investment Deposits for 90 days Day in US dollars	Total deposits in US dollars
2004	6.00	6.00	-	-	4318	-	-	-	-	-
2005	7.00	5.00	6.00	7.00	1306	-69.7	2.50	3.00	3.25	4155889
2006	10.42	14.00	15.00	16.00	5088	289.36	2.75	3.10	3.60	10318258
2007	20.00	18.00	19.00	20.00	4554	-10.48	2.75	3.25	3.50	747500
2008	16.75	14.75	15.75	16.75	2750	-39.59	2.13	2.46	2.71	1804965
2009	8.83	6.83	13.00	14.00	2803	1.89	1.00	1.25	1.50	1566934
2010	6.25	4.25	-	-	1066	-61.96		-	-	
2011	6.00	4.00	-	-	2470	131.71		-	-	
2012	6.00	4.00	-	-	3115	26.11		-	-	
2013	6.00	4.00	-	-	3134	0.61		-	-	
2014	6.00	1.42	-	-	383	22.21		-	-	
2015	6.00	1.00	-	-	332	-13.32		-	-	
2016	4.33	1.29	0.95	1.20	2587	-22.07		-	-	
2017	4.00	0.50	0.75	1.00	1058	-59.10		-	-	
2018	4.00	0.68	0.75	1.18	455	-56.99		-	-	
2019	4.00	1.00	-	1.50	453	-0.43		-	-	
2020	4.00	-		-	453			-	-	
2021	4.00	-		-	451			-	-	

Source: Central Bank of Iraq, Annual Economic Report, General Directorate of Statistics and Research, Annual Bulletins for the years (2004-2021).

The second requirement: the development of the money supply in the broad sense of M2 in Iraq for the period (2004-2021)

Through table (3), it is noted that the money supply in the broad sense, M2, recorded clear growth rates during the period (2004-2014), as it reached (11499) billion dinars in 2004, rising to reach (90568) billion dinars in 2014, and that the increase in the money supply in the broad sense After 2003, due to the lifting of economic sanctions and the significant increase in oil revenues from foreign currency, which led to an increase in foreign assets, and an improvement in the monetary position of the government, which gave the government the opportunity to finance its public expenditures, both investment and current, by converting foreign assets into the local currency, while the year 2015 witnessed decline and a negative growth rate of (-6.67%) compared to 2014 due to the decrease in the M1 money supply and the decrease in quasi-money (other deposits) from (17875) billion dinars in 2014 to (14914) billion dinars in 2015, as a result of the political crises and the repercussions of the war on terrorism, in addition to the decrease in net foreign assets As a result of the decrease in oil revenues and this is due to the expansionary effect of the net debt of the private sector and the government, while the money supply in the broad sense recorded an increase at the end of 2016 at a growth rate of (6.6%) over the year 2015. This increase in the money supply M2 is due to the growth of its two main components: the money supply M1, to increase (69613) billion dinars in 2015 to (75524) billion dinars in 2016, and the increase in other deposits from (14914) billion dinars in 2015 to (14942) in 2016, while the money supply in the broad sense began to rise and record high growth rates to reach a growth rate of (%) 16.59) in 2021, after it reached (-6.67%) in 2015, and this increase in the growth rates of the money supply M2 is a result of the increase in the money supply M1, which amounted to (119944) billion dinars in 2021, with an increase of (50331) billion dinars over the year 2015. In addition to the increase in other deposits to

reach (19942) billion dinars in 2021, after it reached (14914) billion dinars in 2015, and it is noted that other deposits still constitute low percentages, as they amounted to (17.16%) of the total M2 in 2021 compared to (14.26%) in 2020. This increase in the percentage of participation is due to the increase in banking awareness and public confidence in the banking sector as a result of the high rates of Emiratisation.

Table (3) The structure of the broad money supply (M2) in Iraq for the period (2004-2021) in billions of dinars

Year	M1	quasi coins (other deposits)	M2	annual growth	M1/M2 %	quasi money/M2
2004	10149	1350	11499		88.2 6	11.7 4
2005	11399	3260	14659	27.48	77.7 6	22.2 4
2006	15460	5590	21050	43.60	73.4 4	26.5 6
2007	21722	5199	26921	27.89	80.6 9	19.3 1
2008	28190	6672	34862	29.50	80.8 6	19.1 4
2009	37300	8055	45355	30.10	82.2 4	17.7 6
2010	51743	8546	60289	32.93	85.8 2	14.1 8
2011	62474	9593	72067	19.54	86.6 9	13.3 1
2012	63736	11600	75336	4.54	84.6 0	15.4 0
2013	73832	13696	87528	16.18	84.3 5	15.6 5
2014	72693	17875	90568	3.47	80.2 6	19.7 4
2015	69613	14914	84527	-6.67	82.3 6	17.6 4
2016	75524	14942	90466	7.03	83.4 8	16.5 2
2017	76986	15871	92857	2.64	82.9 1	17.0 9
2018	77829	17562	95391	2.73	81.5 9	18.4 1
2019	86771	16670	10344 1	8.44	83.8 8	16.1 2
2020	103353	16553	11990 6	15.92	86.2 0	13.8 0
2021	119944	19942	13988 6	16.66	85.7 4	14.2 6



Source: Central Bank of Iraq, Annual Statistical Bulletin, General Directorate of Statistics and Research for the period (2004-2021)

The third topic: Measuring the impact of the new tools on the money supply in Iraq for the period (2004-2021)

First: Estimating the Autoregressive Distributed Deceleration (ARDL) model

In order to measure the impact of the new tools represented by (foreign currency sales SA, deposit facilities DF, and lending facilities LF) and money supply in the broad sense (M2), we make an initial estimate of the model.

Table (4) Autoregressive estimation of distributed deceleration for the developed tools on (M2)

Source: Central Bank of Iraq, Annual Statistical Bulletin, General Directorate of Statistics and Research for the period (2004-2021)

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Table (5)

Limits test of the impact of the new tools on (M2)

Test Statistic	Value	k
F-statistic	3.561951	3
Critical Value Bounds		
Significance	Minimum (0)l	upper limit (1)l
10%	2.37	3.2
5%	2.79	3.67
2.5%	3.15	4.08
1%	3.65	4.66

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

It is clear from Table (5) that there is a co-integration relationship between the tools developed and the money supply in its broadest sense during the research period, as the value of f calculated is equal to (3.561951) in the limits test according to the ARDL model, and it is statistically significant at the level of significance of 5%, i.e. higher than the critical value At its upper limit of (3.67) and its lowest limit (2.79), this means rejecting the null hypothesis, which states that there is no long-term equilibrium relationship between the dependent variable and the independent variable.

Third: Diagnostic tests for the estimated model

We will perform the most important diagnostic tests to ensure the integrity and absence of the estimated model from important standard problems, according to the following:

1. Test the autocorrelation problem

Table (6) LM Test for the impact of the new tools on (M2)

Breusch-Godfrey Serial Correlation LM Test			
F-statistic	0.015673	Prob.F	0.9845
Obs*R-squared	0.039159	Prob.Chi-Square	0.9806

Source: prepared by the researcher based on the statistical program (Eviews: 12)

It is clear from Table (6) that the results of the serial correlation test between the residuals of the estimated model under study show that the model is free from the problem of self-correlation by using the LM Test, because the Chi-Square value was about (0.1056), which is greater than the level of significance (0.05), and therefore The model does not suffer from the problem of serial



correlation, and thus we accept the null hypothesis and reject the alternative hypothesis, which states that there is a problem.

2. Homogeneity instability test :

Table (7) Heteroskedasticity Test for the effect of the new tools on (M2)

Heteroskedasticity Test : ARCH			
F-statistic	0.094508	Prob.F	0.7596
Obs*R-squared	0.097408	Prob.Chi-Square	0.7550

Source: prepared by the researcher based on the statistical program (Eviews: 12)

Table (7) shows the results of the Heteroskedasticity Test, as the value of the Prob.Chi-Square amounted to (0.4932), which is not significant at the level of significance (0.05). That is, we accept the null hypothesis, which states that the residual variance is homogeneous for the estimated model under study. We reject the alternative hypothesis, which states that there is a homogeneity instability problem.

Fourth: Error Correction Model (ECM) according to the ARDL methodology

The error correction model is one of the most important methods that are used to describe the form of the relationship between economic variables in the short and long-term period because it shows the effect of the time regress of the variables included in the model on the same variables.

Table (8) The results of the error correction model (ECM) for the impact of the new tools on (M2)

ECM Regression - Case 2: Restricted Constant and No Trend				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(M2(-1))	0.394325	0.113359	3.478535	0.0010
D(M2(-2))	0.166693	0.104695	1.592179	0.1172
D(SA)	-0.880107	0.259252	-3.394797	0.0013
D(SA(-1))	0.486263	0.316525	1.536255	0.1303
D(SA(-2))	0.472000	0.276257	1.708552	0.0933
D(DF)	0.001608	0.000575	2.798909	0.0071
CointEq(-1)*	-0.113535	0.025959	-4.373671	0.0001

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

Table (8) indicates that the CointEq (-1)* error correction parameter met the two basic conditions, which are negative and significant (-0.025208). The value of the error limit also indicates that there is a correction from the short term to the long term at a rate of (2%).

Fifth: Estimating the long-term relationship according to the ARDL methodology

Table (9) The results of estimating the long-term relationship according to the ARDL methodology

Long run form				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
SA	-1.063071	0.477415	-2.226723	0.0302
DF	0.002769	0.003282	0.843606	0.4026
LF	-1.858282	1.706752	-1.088782	0.2811
C	65.61740	29.90180	2.194430	0.0325
EC = M2 - (-1.0631*SA + 0.0028*DF -1.8583*LF + 65.6174(

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

When estimating the long-term relationship between the variables, it is clear from Table (9) that (foreign currency sales) had an impact on the money supply in the long term, because the value of Prob. It was less than (10%), and this indicates a significant relationship between (foreign currency sales) and money supply, and this is consistent with economic logic, because the Central Bank of Iraq follows an efficient monetary policy that stems from the fact that monetary stability is a prerequisite for achieving growth and also an important factor for creating an investment environment As the currency auction is an investment for banks and businessmen, as well as protecting the purchasing power of the national currency, while (deposit facilities and lending



facilities) did not have any effect on the money supply in the long term, because the value of Prob. Greater than (10%), and this indicates that there is no significant relationship between the legal reserve ratio and money supply.

CONCLUSIONS AND RECOMMENDATIONS

First: conclusions

- 1- The use of the monetary authority represented by the Central Bank of Iraq for its new monetary tools in addition to the traditional tools that contributed significantly to achieving its goals.
- 2- The researcher concluded that the currency window, or what was previously called the auction, is a window found in most developing economies that expose their economy to problems as a result of the weakness of the financial and monetary structure, as it is a tool whose main objective is to adjust the image and remove the blurring of the strength of the local currency in front of foreign currencies because it provides flexibility within the market And easy access to foreign currency by the private sector.
- 3- The researcher concluded through the initial assessment that there is an explanatory relationship for the estimated model, meaning that the predictive power of the explanatory variables included in the model explains 96% of the changes in the dependent variable.
- 4- There is a co-integration relationship between the developed tools and the money supply in its broadest sense throughout the study period, where the calculated (F) value was (3.561) in the limits test according to the (ARDL) model.

Second: Recommendations

- 1- The researcher recommends that the monetary authority have greater flexibility in dealing with large changes in the exchange rate by pressing towards reducing the differences between the real exchange rate and the exchange rate in the parallel market in order to restore balance to the market.
- 2- Taking care of the currency sale window by simplifying the procedures for obtaining hard currency by expanding the base of outlets for obtaining currency by merchants and individuals who wish to obtain dollars.
- 3- The researcher recommends keeping the currency supply in circulation, because every expansion of the cash issuance will have a negative reflection on the value of the Iraqi dinar due to the turbulence of the exchange market at the present time.
- 4- The need to pay attention to the new tools by organizing the procedures for facilitating these procedures through monetary systems and legislation, similar to the rest of the tools, so that these tools become an integrated framework aimed at regulating the ceiling of currency sales and controlling the supply of money within the market in order to ensure the continuity of the flow of money to and from the market to fill The gap between the parallel market and the official market.

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