

The newly developed tools of the Central Bank and its impact on the exchange rate in Iraq for the period (2004-2019)

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Abstract : The tools developed for the Central Bank of Iraq are among the most fundamental changes that have occurred in the Iraqi economy, especially after the Central Bank obtained its independence in accordance with Law (56) of 2004. After which it assumed the right to issue instructions in line with the requirements and to move towards a market economy. Despite the great importance these tools and their role in achieving stability in the monetary and financial system, but the Central Bank management faced many challenges and difficulties, especially concerning the deteriorating security conditions, political pressures and instability in exchange rates, which affected in one way or another the speed of effectiveness of the tools used. In this regard, the research came to show if there is a co-integration relationship between the tools developed for the Central Bank of Iraq and the exchange rate for the period 2004-2019. To achieve this goal, the ARDL model used to show the effect of the existing deposit and lending facilities on the exchange rate, to prove the research hypothesis that (the tools developed for the Central Bank of Iraq have positive and other effects negative on the exchange rate). As well as the use of the expanded (Dickey-Fuller) test, and accordingly the research reached a set of results. The most important of them is that the existing deposit facilities tool was able to hold the largest possible amount of public deposits to control the money supply, reduce inflationary effects, and thus achieve stability in the exchange rate in the event of economic prosperity. The study has found that the new tools (existing deposit and lending facilities) explain about 69 % of the changes in (EX), the studied variables are free from the autocorrelation problem and the instability of homogeneity of variance according to the (LM Test) and Heteroscedasticity Test because the probability value of F and the probability value of (Chi-Squared) are insignificant values greater than (0.05). The research also presented a set of proposals, the most important of which is that the success of the central bank's policy in maintaining the stability of the exchange rate requires that guidance directed towards developing and revitalizing the real sector through high coordination between economic policies within a well-studied program to achieve economic growth.

INTRODUCTION: The tools developed for the Central Bank of Iraq have become At the present time, one of the most important means of monetary policy in Iraq, especially after the changes that occurred in the Iraqi economy, specifically after 2003, Which witnessed an important transformation represented by the issuance of the Central Bank of Iraq Law No. (56) for the year (2004), after which it assumed the right to issue regulations and instructions Determining the mechanisms, tools and applications of monetary policy in the country, based on the directives and objectives approved by the Central Bank of Iraq as the highest monetary authority and within the limits of its independence granted to it in accordance with the law approved by the Central Bank of Iraq on the one hand, And also international agreements on the other hand, and since Iraq is one of the oil rentier countries due to its main dependence on oil production, so the stability of the exchange rate is a topic of great interest by monetary and economic policy makers in general, and a major and stimulating tool in achieving monetary stability and growth goals The economic, and through what was mentioned above, our study will address the tools developed by the Central Bank of Iraq and their impact on the exchange rate and work on evaluating these tools, and the extent of their success in achieving their goals on the one hand and analyzing their impact on the economic reality through the use of the ARDL model and in order to cover that, the research has been divided The first topic dealt with the theoretical framework of the new tools (existing facilities for deposit and lending) and the exchange rate and determining the theoretical relationship between the new tools and the exchange rate. On the exchange rate in Iraq for the period (2004-2019).

The Research problem :

The research problem is summarized in the following question:-

(Determine the problem of the search in the double role of some of the developed tools to influence on the stability of the exchange rate in Iraq for the period 2004-2019).

The Research Hypothesis:

The research starts from the premise that:

(The tools developed for the Central Bank of Iraq have positive and negative effects on the exchange rate).

The Research Objectives :

1) To identify the most important objectives used by the Central Bank of Iraq and to know the effectiveness of the new tools that have been applied in Iraq in order to achieve monetary policy.

2) A statement of the dynamic relationship between the monetary policy tools (the new tools) of the Central Bank and the exchange rate through descriptive analysis according to economic theory.

3) Formulation of the standard model to show the impact of the new tools on the exchange rate in Iraq for the period (2004-2019)

The Research Limits :

The Spatial limits of research / Iraq.

The first topic

Theoretical framework for the new tools and the exchange rate in Iraq for the period (2004-2019)

First: Existing Deposit Facilities

It is one of the newly developed tools that aim to manage the excess liquidity of commercial banks and limit the excessive growth of the money supply. It is considered as a safety valve for cases of inefficiency and weakness in liquidity estimates and in response to unexpected developments ⁽¹⁾. It means the acceptance by the Central Bank of the deposits of commercial banks and the provision of facilities within short periods at interest rates determined by the Central Bank.⁽²⁾, and encouraging banks to deal with each other, and these tools are used when financial markets are not developed or because of the ineffectiveness of open market operations, and that their purpose is to give safety to banks to manage their excess liquidity within a moderate rate of interest rates, and they help indirectly directing interest rates And expanding the objectives of monetary policy, and through this tool, the bank can provide deposit and lending facilities and the function of the last resort for lending, by relying on the policy rate as an indicative rate ⁽³⁾.

They are of two types:-

A- **Existing Deposit Facility:** The objective of this tool is to hold the largest possible amount of public deposits and absorb the excess liquidity. The price depends on the economic conditions of the country, and the bank does not have the right to put deposits in the facility account if the bank does not ask it to do so (4), these facilities help to form a strong base for short-term interest rates, and also help the bank to find a kind of stability to predict future interest rates until they develop Financial markets so that the central bank can run open market operations with high efficiency, and facilities help to withdraw excess liquidity automatically (5).

1) Fadel Krayaa Al-Shaibani, "The Monetary Policy and its Impact on Inflation in Iraq after 2003", Journal of City of Science Collegee, City of Science College of the University, Volume 10, Issue 2, 2018, pp. 173-174.

2) Abdul-Hussein Jalil Al-Ghali, "Exchange rate policy and the double shock in the Iraqi economy", Journal of Monetary and Financial Studies, University of Kufa, College of Administration and Economics, Special Issue, 2017, p. 33.

3) The Central Bank of Iraq, "Summary of Monetary Policy Tools", a press announcement issued by the Central Bank of Iraq, pp. 4-5.

4) Ahmed Al-Braihi Al-Ali, "Financial and International Economics and Monetary Policy", 1st Edition, Baghdad, Hammurabi Center for Research and Studies, The Strategy, 2012, p. 45.

5) (Abdul-Hussein Jalil Al-Ghalbi, "Monetary Policies in Central Banks", 1st Edition, Amman, Dar Al-Manhaj for Publishing and Distribution, 2015, p. 310.

This type of facility takes two forms ⁽⁶⁾

- Overnight investment: deposits are accepted in local currency and in dollars, which expresses a short-term investment for one night, and overnight investment deposits can be accepted from banks that have excess balances Investment for periods (14), (30), (60): the interest is calculated according to each period and according to the economic conditions of the country

B- **Existing Lending Facilities:** Countries that have undeveloped financial systems rely more on existing facilities than on open market operations, and through this tool it is possible to pump liquidity into the money markets by granting credit to banks by the central bank. With interest determined according to the main objectives of monetary policy ⁽⁷⁾, with the aim of maintaining a sound financial system that achieves control over liquidity levels through price signals, and this type of facility is used when the bank suffers from temporary and not acute crises.

The Bank grants these facilities in three forms ⁽⁸⁾

- **The initial credit:** which is that the central bank grants banks primary credit on the basis of an over- night investment, which is then converted into a weekly and is considered as a source of financing and providing support to

banks. The bank uses this credit for a period of 15 days, and this period is subject to change, while it obtained approval from the Central Bank. It uses 20% of its capital, and the amount can be increased if it obtains a prior approval from the Central Bank, and the interest rate on this type of credit exceeds the policy rate by 2%, and the Central Bank can adjust it according to the objectives of the monetary policy followed.

- **The secondary credit:** The Central Bank grants this type of credit on the basis of short-term credit and its maturity is one month. It is considered a source for providing support and financing the bank when it is unable to finance from the money markets, provided that this credit is consistent with the organized recovery from sources of financing. Reliable, as the central bank grants the interest rate equal to the policy rate plus three points, meaning a margin of 1% above the primary credit rate. .

- **Lending last resort facilities:** It is one of the most important functions of the central bank, as the bank grants credit in exceptional and critical circumstances to banks that suffer from severe financial crises so that the bank cannot meet its debts at the same time and is based on the bank's request when it is in dire need of liquidity in order to maintain The stability of the financial system, and in return, these banks are subject to intense scrutiny by the Central Bank, provided that the bank provides a guarantee from the Minister of Finance to the Central Bank that pledges to pay the loan amount when it is due, and the Central Bank provides support within a period of three months at a price .

6)The Central Bank of Iraq, "A summary of monetary policy tools," a previous source, p. 9.

7)Mohamed Khalil Borai, "Introduction to Money and Banks", 1st Edition, Egypt, Nahdat Al-Sharq Library, 1977, p. 143.

8)Sinan Al-Shabibi, "Features of Monetary Policy in Iraq", a paper submitted to the annual meeting of the Board of Governors of Central Banks and Arab Monetary Institutions, Arab Monetary Fund, Abu Dhabi, 2007, p. 32. The policy of the bank is in addition to three points, and the bank can adjust this percentage according to the policy adopted, whether it is contractionary or expansionary.⁽⁹⁾

Second: The Concept of Exchange Rate

The exchange rate is defined as the number of units of the local currency that is exchanged for one unit of foreign currency "that is, the ratio on the basis of which monetary units of the local currency are exchanged against units of foreign currency at a known time ⁽¹⁰⁾, as the economic environment has a direct impact on The exchange system and the exchange rate. If the environment is stable, the exchange system will also be stable and vice versa. Therefore, the issue of choosing the exchange system is of paramount importance, and economic decision makers must look for means that help them choose a suitable exchange system for their environment. Two types of systems can be distinguished- :

1 -The fixed exchange rate system: It is divided into two parts ⁽¹¹⁾

Fixed exchange rate under the gold rule: This system appeared in the nineteenth century, according to which the local currency is linked to a certain weight of gold, and the exchange rates are either fixed or allowed to move within the limits of gold import and export, and through which the price relationship between gold and the currency is established. national

Fixed exchange rate under the paper rule: countries resorted to using this system in the event of crises and wars, and it is considered an alternative to the leaders of gold. In the foreign exchange market by buying and selling at a specific price.

2-The free exchange rate system: - It is to let the exchange rate be determined according to the interaction of the forces of supply and demand for local currencies in the foreign market, because the state uses this system to benefit from price flexibility and it is of two types- :

- The floating free exchange rate system: It is determined according to the interaction of the forces of supply and demand for the local currency without the intervention of the monetary authority.

- Free managed exchange rate system: In this system, the currency is not allowed to move freely, as the monetary authority intervenes through open market operations in the foreign exchange market, either by buying or selling.

The exchange rate is one of the most important monetary indicators that plays an active role in achieving economic stability through its role in achieving internal and external balance. Internal stability represents achieving balance in the general level of prices. External balance is represented by the balance of payments balance, and there are several factors that affect the performance of the exchange rate, including ⁽¹²⁾:-

9) Sinan Al-Shabibi, "Features of Monetary Policy in Iraq", a previous source, p. 32.

10)Adel Ahmed Hashish, "International Economic Relations", 1st Edition, Alexandria, Dar Al-Jamaiya Publishing, 2000, p. 222)

11) Abdul Azim Al Shukri, "The Impact of the Exchange Rate on Monetary Inflation in Iraq for the Period (1991 - 2010)", Al-Qadisiyah Journal of Administrative and Economic Sciences, Al-Qadisiyah University, College of Administration and Economics - Department of Economics, Vol. 15, No. 4, 2013, p. 143.

- High exchange rates for foreign currency, which leads to a decrease in the value of the local currency
- Low export prices, which affects the volume of cash flows into the country
- One of the most important factors that lead to the imbalance in the structure and strength of the national economy are wars and natural disasters that make the value of the local currency low.
- High inflation rates have a negative impact on the value of the local currency and thus the exchange rate is affected, which leads to an increase in the number of units of the national currency that is exchanged for one unit of foreign currency
- External debt is one of the most important burdens that burden the national economy, as well as the indebtedness represented by annual interests. This is what makes many countries resort to rescheduling their debts with creditors in return for high interests, and thus countries pay the interests in the form of installments, this method leads to destabilization of the price of Currency exchange in the direction of other currencies.
- Interest rates have an indirect effect on currency exchange rates. The decrease in interest rates with the presence of investment opportunities increases the demand for capital for the purpose of investment, and this leads to an improvement in the exchange rate of the local currency towards other currencies.

Third: - The theoretical relationship between the new tools of the Central Bank of Iraq and the exchange rate

The existing facilities for deposit and lending aim to manage excess liquidity in the banking sector until the time of the development of financial markets in a way that enables the Central Bank to manage open market operations with high efficiency, as the stability in the value of the currency leads to stability in monetary demand ⁽¹³⁾, because interest rates affect the exchange rate is indirect, when the monetary authority resorts to raising interest rates in order to maintain the money supply in line with the level of economic activity, which makes bank deposits rise and this is reflected positively on the exchange rate of the country's currency, where high interest rates tend to attract foreign investments, which leads to The improvement of the value of the national currency in the direction of other currencies, while the decrease in interest rates helps stimulate economic growth by providing appropriate credit for private sector activities based on the keenness of the Central Bank to do so. However, any increase that occurs in the level of aggregate demand results in an increase in the general level price, which negatively affects the value of the local currency, and causes a decline in economic growth that leads to counterproductive results that reduce the strength of the national economy ⁽¹⁴⁾.

12) Imad Muhammad Al-Aji, "The Policy of Exchange of the Iraqi Dinar in the Light of the Current Economic Changes", Journal of the Iraqi Economy between Reality and Ambition, University of Baghdad, College of Administration and Economics, 2005, p. 33.

13) Hakim Mohsen Muhammad, "The Impact of Inflation and Interest Rates on Exchange Rates", Ahl al-Bayt Journal, University of Karbala, College of Administration and Economics, No. 1, 2004, p. 180.

14) Ahmed Al-Braih Ali, "Monetary Economics: Facts, Theories, and Policies", previous source, p. 263.

The second topic

The reality of the new tools of the Central Bank and the exchange rate in Iraq for the period (2004-201)

First: - Descriptive analysis of the existing facilities tool in Iraq during the period (2004-2019)

In the absence of developed financial markets, the Central Bank used the existing facilities tool that would lead to the development of the monetary market as an investment window in the Iraqi dinar, which aims to increase the effectiveness of monetary policy through its impact on directing interest rates in the market, as this tool was applied in the middle of 2004 In accordance with Article (28) and Article (30) of the new Central Bank of Iraq Law, in order to grant safety to banks and manage their surplus liquidity with high efficiency within a moderate rate of interest rates, because the new Central Bank of Iraq law allowed the bank to provide deposit and loan facilities and the function of a last resort for lending that It replaces the exposure facilities and advances used previously, and due to the lack of development of the financial markets, the existing facilities were relied on more than the open market operations. Indicative as well as the exchange rate of currency between banks ⁽¹⁵⁾, and these facilities are divided into two types:

First - Existing Deposit Facility:

The Central Bank has introduced this type of facility and depends on the bank's acceptance of deposits in Iraqi dinars or US dollars in order to absorb the excess liquidity in return for interest determined by the Central Bank in the event that the banks wish to invest. Economy, deposit facilities are divided into two types:

1- **The deposits in Iraqi dinars:** - The Central Bank used this type of deposit in several forms, including the overnight investment, which is a short-term investment, and the interest rate is calculated according to economic conditions. The investment is before eleven o'clock in the morning, and the amount of the deposit with the interest is recorded in the current account. Then this type of investment turned into a weekly investment for a period of 7 days, 14 days and 30 days. This type of investment began to work on 3/7/2005, and the Bank issued its instructions for the purpose of investing for a period of 14 and 30 days starting from September 2005 with interest rates ranging Between (6.00% - 7.00%), but in 2006, an increase in the amounts invested in Iraqi dinars was noticed, with a value of (508,8061) billion dinars, and a growth rate of (289.36%)⁽¹⁶⁾

During the year (2007-2008), the percentage of invested amounts decreased due to the increase in the legal reserve ratio on government deposits, recording a decrease in the total outstanding balance of deposits (45544379), (2750885) billion dinars, with a growth rate of - (39.59%, -10.48%) and high interest rates Ranging between (20.00% - 16.75%) distributed over investments for periods of 7, 14, 30 days, and in the year (2009-2010) all windows were canceled and work continued with the 7-day window, in implementation of the monetary policy directives aimed at encouraging banks to finance projects to record a decline In the total outstanding balance of deposits with a value of (2803) (1060) billion dinars, with a growth rate of (1.89%, -61.96), as for the period (2013, 2012, 2011), the work continued with a window of 7 days and at an interest of 4.00%, as the total outstanding balance of deposit facilities amounted to (3134,3115,2470) billion dinars, and the reason for the rise is the role of this tool in withdrawing liquidity .

1)Sinan Shabibi, "Features of Monetary Policy in Iraq," previous source, p. 32

2) Central Bank of Iraq, "Annual Economic Report", 2005, p. 15.

The surplus, and in the years (2014-2015) the Central Bank reduced the interest rate of (1.00%, 1.42%) for a period of 7 days, as the data in Table (4) indicate a decrease in the deposit balance as a result of the banks' reluctance to participate in the recruitment of their financial resources towards enhancing liquidity in The market, and in the period (2016-2017), the investment window was reactivated 14, 30 days after it made a reduction in the interest rate and on all investment windows, which witnessed a decline in total deposits with a value of (2587) (1058) billion dinars and a growth rate of (22.07- %) (-59.10%) and this decrease is due to government banks not being allowed to invest (17), and the period (2018, 2019) witnessed a decrease in the total deposit balance with a value of (455,453) billion dinars, with growth rates (-56.99 - -0.43%) This is due to the continued non-participation of government banks, and it should be noted that the Central Bank in February 30/1/2019 opened a new investment window with a term of 91 days and continued to work until the end of September, unless it was suspended due to the weak response of banks to diversify their investment portfolios The deposit balance for this term was recorded at 37 million dollars.

2- US dollar deposits

This type of deposit was used during the year 2005, when the bank issued its instructions about accepting deposits in US dollars and investing them weekly for periods of 7 days, 90 days, 30 days. and 3.25 for a period of 90 days, while the total deposits during 2007 recorded a decrease in the amounts invested in US dollars, amounting to (98,299) million dollars, due to the absence of any amounts invested as deposits for a period of 90 days, as banks stopped depositing and investing them during the years 2007-2008, and in 2009 Work was canceled in all windows, including the investment window in US dollars, in implementation of the monetary policy directives aimed at stimulating banks and providing credit to finance projects⁽¹⁸⁾

17) Central Bank of Iraq, "Annual Economic Report," 2017, p. 27

18) Central Bank of Iraq, "Annual Economic Report", for different years)

Table 1 Explains the development of deposit facilities in the Central Bank of Iraq for the period (2004 - 2019
(milliards of Iraqi dinars)

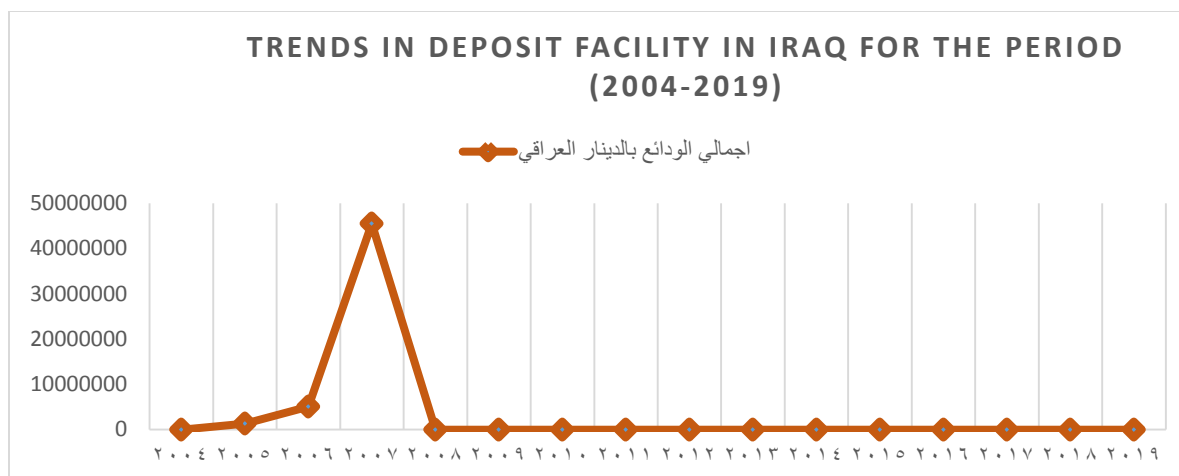
Last period	policy price % (1) policy price % (1)	Investment deposits for 7 days (in Iraqi dinars (2))	Investment deposits for 14 days (in Iraqi dinars (3))	Investment deposits for 30 days (in Iraqi dinars (4))	Total outstanding balance of deposit facilities (in billions of dinars (5))	growth rate % (6)	7-day investment deposit - 7 in US dollars (7)	Investment deposits for 30 days in US dollars (8)	Investment deposit for 90 days (in USD (9))	Total Deposits (US Dollars (10))
2004	6.00	6.00	-	-	4318	-	-	-	-	-
2005	7.00	5.00	6.00	7.00	1306782	-69.7	2.50	3.00	3.25	4155889
2006	10.42	14.00	15.00	16.00	5088061	289.36	2.75	3.10	3.60	103182580
2007	20.00	18.00	19.00	20.00	45544379	-10.48	2.75	3.25	3.50	982996460
2008	16.75	14.75	15.75	16.75	2751	-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	10581	-59.10		-	-	
2018	4.00	0.68	0.75	1.18	455	-56.99		-	-	
2019	4.00	1.00	-	1.50	453	-0.43				

The sixth column was prepared by the researcher based on the data in the table Central Bank of Iraq", Annual Economic Report, General Directorate of Statistics and Research, Statistical Bulletins " (for Different Years (2004-2019

- The growth rate was extracted from the equation = current year - previous year / previous year * 100

Figure 1

It shows the trends of deposit facilities in Iraq for the period (2004-2019)



Source: Prepared by the researcher based on data from Table (1).

Second: - Lending facilities

Work with this tool began in September of 2004 with the aim of maintaining a sound financial system, as the Central Bank issued instructions to Iraqi banks about granting them banking facilities. It also issued instructions for guarantees within the direction of monetary policy. These facilities are divided into three types:

1 -Primary Credit

The Central Bank grants the banks the initial credit on the basis of an over-night investment, and then it is converted into a weekly, and the banks use this credit at a rate of (20%) of their capital and for a period not exceeding 15 days and at an interest rate that is two points higher than the policy rate, and the interest rates on this The type of credit was characterized by fluctuation, as the interest on the initial credit in the period 2004-2005 was (8.00%) (9.00%), and none of the licensed banks in Iraq applied to benefit from these facilities, and in 2007 the interest rates on the initial credit amounted to (22.00) % after it was in 2006 (12.00%) with the aim of curbing inflation and regulating and defining credits in the permissible field, and during the period 2008-2009 the Central Bank reduced the interest on the initial credit, as the interest rate in 2009 reached (10.83%) with the aim of encouraging activity The economic, and it is noted during the study period that the Central Bank continued to work with this tool in implementation of the bank's policy to ensure the control of monetary liquidity and influence on it through interest rates, and none of the governmental and private banks provided any of these credits.

2- Secondary Credit:-

The secondary credit facilities have the same qualifications as primary credit, as it is used for one month as a source of support for bank financing and is granted at an interest rate equal to the policy rate plus three points. Governmental and private banks offer these credits⁽¹⁹⁾

3-Lending last resort:-

According to Article (30) of the Law of the Central Bank of Iraq grants the bank the authority to lend to banks that suffer from financial crises, and thus the bank is under intense scrutiny with the aim of controlling the obstacles it suffers from. In 2019, interest is the last resort for lending (7.50%), and since the issuance of this type of credit, none of the governmental and private banks has provided such type of facilities⁽²⁰⁾

19)Central Bank of Iraq, "Annual Economic Report", 2019, p. 26 .

20) Central Bank of Iraq, "Annual Economic Report", same as the previous source.

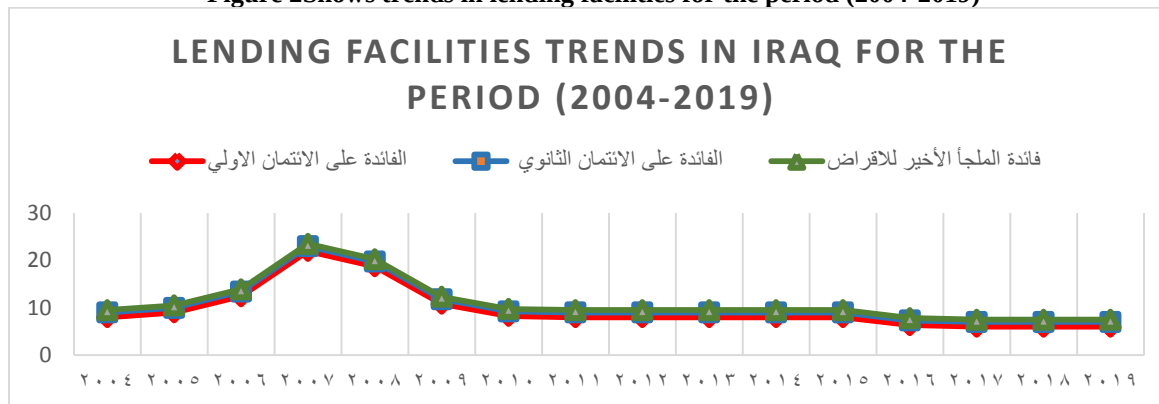
Table (2) Shows the evolution of lending facilities in the Central Bank of Iraq for the period (2004 - 2019)

last period	policy price %	interest on initial credit %	interest on subordinated credit %	Lending last resort interest %
2004	6.00	8.00	9.00	9.50
2005	7.00	9.00	10.00	10.50
2006	10.42	12.42	13.42	13.92
2007	20.00	22.00	23.00	23.50
2008	16.75	18.75	19.75	20.25
2009	8.83	10.83	11.83	12.33
2010	6.25	8.25	9.25	9.75

2011	6.00	8.00	9.00	9.50
2012	6.00	8.00	9.00	9.50
2013	6.00	8.00	9.00	9.50
2014	6.00	8.00	9.00	9.50
2015	6.00	8.00	9.00	9.50
2016	4.33	6.33	7.33	7.83
2017	4.00	6.00	7.00	7.50
2018	4.00	6.00	7.00	7.50
2019	4.00	6.00	7.00	9.50

Source: Prepared by the researcher based on the "Central Bank of Iraq", the General Directorate of Statistics and Research, annual bulletins for different years (2004-2019)

Figure 2 Shows trends in lending facilities for the period (2004-2019)



Source: Prepared by the researcher based on data from Table (2).

Third: Analysis of the exchange rate in Iraq for the period (2004-2019)

After the change in the Iraqi economy from the political and economic point of view, and the lack of confidence in the Iraqi dinar and the loss of its function as a store of value, the exchange rate became one of the important tools with clear goals, especially after the Central Bank obtained its independence under Law 56 of 2004, the stability of the exchange rate of the Iraqi dinar was considered. In the parallel market is one of the most important functions of the Central Bank, and the Central Bank has become a central market for foreign currency through daily auctions of buying and selling dollars in order to achieve stability in the exchange rate and build a cover of foreign currency as a reserve⁽²¹⁾

We note through Table (3), which shows the developments of the foreign exchange rate against the Iraqi dinar for the period (2004-2019), that the Iraqi dinar exchange rate in the parallel market amounted to (1453) dinars / dollar, which is equivalent to the exchange rate in the official market (1453) dinars / dollar. This is due to the replacement of the currency with a new currency that gained general acceptance, as it provided security and the difficulty of counterfeiting it, which increased the demand for the Iraqi dinar as a good store of value. Then the exchange rate of the Iraqi dinar deteriorated in 2005, when the parallel exchange rate reached (1472) dinars / dollar and in the official market (1469). Dinars/dollars, due to the deterioration of the security situation, which negatively affected the costs of materials, including the prices of oil, gasoline and other supplies, which witnessed an increase during that period.

21) Abdul-Hussein Al-Ghalbi, Laila Badawi Matouk, "Shocks of Monetary Policy", Dar Al-Nour for Publishing and Distribution, 1, 2017, p. 299.

The rise and improvement at an increasing pace during the period (2006-2008), as the official exchange rate in 2008 reached (1193) dinars / dollar and the parallel rate (1203) dinars / dollar, with growth rates (5.05% -, -4.9%). As for the period between (2009) -2011) witnessed remarkable stability in the official and parallel market as a result of the improvement in the value of the Iraqi dinar, which increased the confidence of individuals and the narrowing of the dollarization phenomenon⁽²²⁾, and then the parallel exchange rate rose during the years (2012-2013) with a small difference, while the official exchange rate fell to (1166) Dinars / dollars for both years, due to the rise in oil prices and the increase in the central bank's foreign currency reserves, as it amounted in 2013 to approximately 74 billion dollars, while in the period (2015-2019) the official exchange rate reached (1190) dinars / dollars, which is a distinguished price stability during the period, while the difference in the parallel exchange rate widened and was fluctuating between rise and decline, as it recorded in 2015 (1247) dinars and a growth rate of (2.7%) and in 2019 it

recorded (1196) dinars / dollar and a growth rate of (0.9%) due to the reason The difference is that the Central Bank applies Article 50 of the Federal Budget Law for 2015, which includes determining the quantities sold by workers The foreign currency in the auction amounted to approximately \$75 million per day, but the Central Bank abandoned it for fear of a widening difference between the two prices. These reasons coincided with the conditions experienced by the Iraqi economy in the period represented by the decline in foreign reserves as a result of the drop in international oil prices, as well as the deterioration of the security and political conditions.

22) Mahmoud Muhammad Al-Dagher, Hussein Atwan, "The Iraqi dinar exchange rate between the real and announced regime for the period (2004-2012)", Journal of Economic and Administrative Sciences, University of Baghdad, College of Administration and Economics, Volume 21, Issue 84, 2015, p. 280.

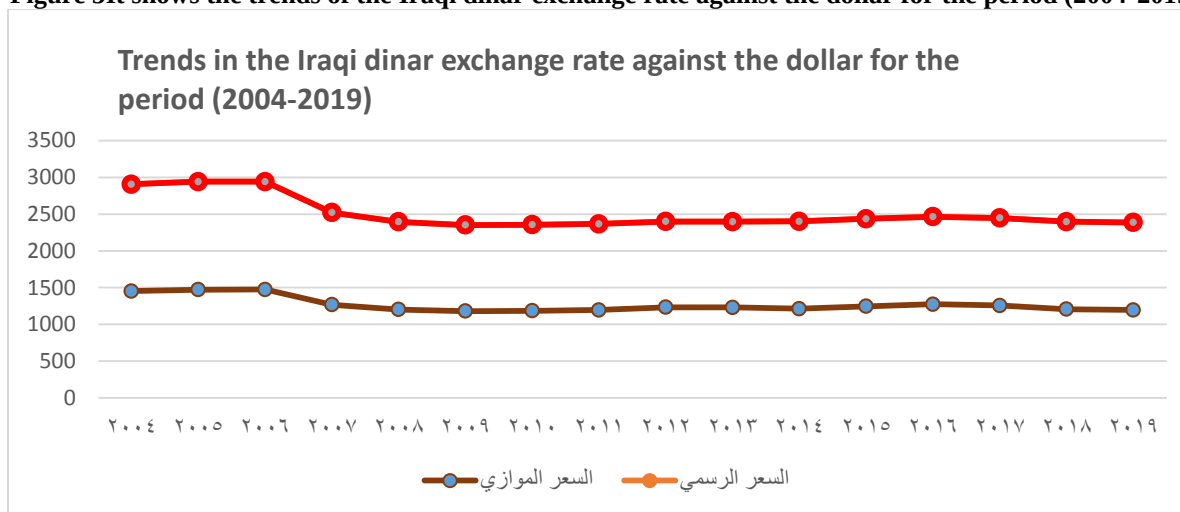
Table 3 Developments of the Iraqi dinar exchange rate against the US dollar for the period (2004-2019)
(dinar/dollar)

Years	Parallel price	growth rate%	Official price	growth rate%
2004	1453	-	1453	-
2005	1472	1.3	1469	1.1
2006	1475	0.2	1467	0.1-
2007	1267	-14.1	1255	14.4-
2008	1203	5.05-	1193	4.9-
2009	1182	1.7-	1170	1.9-
2010	1185	1.2	1170	0
2011	1196	0.9	1170	0
2012	1233	3.1	1166	0.3-
2013	1232	0.18-	1166	0
2014	1214	1.5-	1188	1.8
2015	1247	2.7	1190	0.1
2016	1275	2.2	1190	0
2017	1258	-1.3	1190	0
2018	1208	-3.9	1190	0
2019	1196	-0.9	1190	0

Source: "Central Bank of Iraq", General Directorate of Statistics and Research, Annual Bulletin for different years (2004-2018)

The growth rate was extracted through the following equation: $\text{current year} - \text{previous year} / \text{previous year} * 100$

Figure 3 It shows the trends of the Iraqi dinar exchange rate against the dollar for the period (2004-2019)



Source: Prepared by the researcher based on the data in Table (3).

The third topic

Quantitative analysis of the impact of the new tools on the exchange rate in Iraq For the period (2004-2019)

This topic deals with the standard aspect of knowing the impact of the new tools on the exchange rate, as it represents the independent variable (deposit and lending facilities) and the dependent variables (the exchange rate), in order to analyze that relationship accurately and reach sound results.

First: - Testing the stability of the time series of the variables used in the research using the unit root test (Dickey-Fuller).

The Dickey-Fuller test is one of the most common and used statistical tests for its computational simplicity. This test determines whether the time series is stable or unstable by determining the general trend component. It is one of the best unit root tests for long-term time series. In 1981, Dickey-Fuller developed this test based on two hypotheses and three different regression equations to test the unit root, namely ⁽²³⁾:

$$\Delta y_t = a_1 y_{t-1} + et$$

1- The first equation indicates that there is no fixed term and general trend

$$\Delta y_t = a_0 + a_1 y_{t-1} + et$$

2- The second equation expresses that there is only a fixed term

$$\Delta y_t = a_0 + a_1 y_{t-1} + a_2 t + et$$

3- The third equation expresses the existence of a fixed term and a general trend

23-Mohamed Abdel Qader Attia, "Econometrics between theory and practice", 1st edition, University House for Publishing and Distribution, Alexandria, 2000, p. 621

whereas:

: Δ The first difference of the series i.e. $(y_t - y_{t-1}) = y_t$

et: random error

Y_t : the time series of the economic variable

a_0 : constant limit coefficient

a_1 : coefficient of the decelerating variable

a_2 : time direction parameter

The time series is also tested if it is stable or not through two hypotheses:

The null hypothesis ($H_0: B=0$), if it is true, means that the time series contains the unit root and is therefore unstable.

The alternative hypothesis ($H_1: B=1$), if it is true, means that the time series does not contain a single root, and thus the series is stable

If the calculated t is greater than the tabular t , we reject the null hypothesis and accept the alternative hypothesis, and this means that the time series is stable because it does not contain a unit root. And it is an integrated series of degree (1) $\square 1$ when it is stable at its first difference, and it is integrated from degree (2) $\square 1$ when it is stable at its second difference, and that most time series are tested for their stability and treated at the first and second difference ⁽²⁴⁾

Second - Analysis of the stability of data series (df, PC, EX) in Iraq during the period (2004-2019) using the (ADF) test

Table (4) shows the results of the unit root test for the data series of independent and dependent variables represented by (deposit facilities, lending facilities, exchange rate) in Iraq during the period (2004-2019), as the (ADF) test showed that the time series of deposit facilities data (DF)) When analyzed at the level, it was found to be unstable without the fixed limit and the general trend at all levels of significance (1%, 5%, 10%), but when analyzed at the fixed limit only, it was found that the series was stable, meaning that the calculated t value became greater than the tabular t at The level of significance is 10%. This indicates that the time series is stable and integral of degree (0) $\square 1$ and does not contain a unit root. Accordingly, we will reject the null hypothesis and accept the alternative.

While the results of the unit root of the LF lending facilities data series represented by (PC, SC, lolr), it is noted that when analyzed in the level they were unstable without the fixed limit and the general trend at all levels of significance (1%, 5%, 10%), and unstable Also, in the presence of the fixed term at all levels of significance (1%, 5%, 10%), meaning that the calculated t was less than the tabular t , but after conducting the analysis with the presence of the fixed term and the general trend, it was found that the calculated t was greater than the tabular t at the level of significance 5 % and 10% and this confirms that the series is devoid of a unit root, that is, the time series is stable and integrated of degree (0) $\square 1$, thus we reject the null hypothesis and accept the alternative, while the results of the unit root of the exchange rate data series (EX) -----

24-Ammar Hamad Khalaf, "Econometrics Methods, Lectures and Applications", 1st Edition, Amman, Dar Al-Hamid Publishing, 2011, p. 82.

when analyzed at the level were not Stable without the fixed term and the general trend at all levels of significance (1%, 5%, 10%), meaning that the calculated t value was less than the tabular t , and also unstable in the presence of the fixed term only and unstable at the fixed term and the general trend, but after taking the difference The first is that the

time series has become stable in the presence of the fixed limit at all levels of significance (1%, 5%, 10%), and this means that the An integrated and stable series of degree (1) $\square 1$, thus we reject the null hypothesis and accept the alternative.

Table (4)Unit root test for data series (df, PC, EX) in Iraq for the period (2004-2019) using (ADF) model

First team		Level			Variables	
Fixed limit and general trend	Fixed limit	Fixed limit and general trend	Fixed limit	Without		
			-2.911638	-1.719366	t-Statistic for DF	
			-4.121990	-2.771926	1 %	morale level
			-3.144920	-2.304028	5%	
			-2.713751	-1.602922	10%	
		-4.753744	-1.172684	-0.852436	t-Statistic for Pc	
		-4.992279	-4.057910	-2.754993	1 %	morale level
		-3.875302	-3.119910	-1.970978	5%	
		3.388330	-2.701103	1.603693	10%	
		-4.753744	-1.172684	-0.824457	t-Statistic for Sc	
		-4.992279	-4.057910	-2.754993	1 %	morale level
		-3.875302	-3.119910	-1.970978	5%	
		-3.388330	-2.701103	-1.603693	10%	
		-4.753744	-1.172684	-0.811961	t-Statistic for lolr	
		-4.992279	-4.057910	-2.754993	1 %	morale level
		-3.875302	-3.119910	-1.970978	5%	
		-3.388330	-2.701103	-1.603693	10%	
	-4.112954	-2.719659	-3.067804	-1.253226	t-Statistic for EX	
	-4.057910	-4.800080	-4.004425	-2.728252	1 %	morale level
	-3.119910	-3.791172	-3.058896	-1.966270	5%	
	-2.701103	-3.342253	-4.690439	-1.605026	10%	

Source: Prepared by the researcher based on the Eviews program

Third: - The quantitative relationship between the new tools and the exchange rate in Iraq for the period (2004-2019)

The data of tools developed in Iraq was analyzed for a period of (16) years, and the data was divided into quarterly due to the small sample size for the purpose of verifying the research hypothesis and testing the effect of (PC, DF) as an independent variable on (EX) as a dependent variable. Shown in Table 5)) Deposit facilities affect the dependent variable (EX) and the relationship between them is positive, and this is consistent with the logic of economic theory, as the change in the tools created by one unit affects EX by (35.62136)

As for the relationship of lending facilities (PC) with the exchange rate, the results showed that the relationship between them is positive, and this is consistent with the logic of economic theory, as the change in lending facilities with one unit affects the exchange rate by (38.72221)

The multiple regression analysis of the relationship between (PC, DF) and (EX), shows that the explanatory power of the model was (0.699858), and this was explained by the value of R^2 . This means that the independent variables (PC, DF) explain about (69%) of the changes in the variable The dependent (EX) The remaining percentage (31%) is due to

unexplained factors included in the random variable. As for the value of F, it reached (4.704149) with a probability level (0.000) less than (0.5), which is significant. Thus, we reject the null hypothesis and accept the alternative hypothesis. The significance of the estimated parameters, and Table (5) illustrates this.

Table 5

It shows the quantitative relationship between (PC, DF) and (EX)

R-Squared = 0.699858

Probe (F) = 0.000 F-Statistic = 4.704149

35.62136 DF

38.72221 PC

1447.117 C

Source: Prepared by the researcher based on the Eviews program

2- Measuring the impact of the new tools on the exchange rate in Iraq for the period (2004-2019) using the ARDL model.

Table (6) shows the results of the ARDL test to show the effect of the new tools on the exchange rate in Iraq, and it is noted through the R^2 test that the explanatory power of the model reached ((0.898564). This means that the new tools explain about 89% of the changes in the exchange rate, and that the predictive power of the model It reached (0.842211) through the value of Adj R^2 , while the significance of the model was tested through the calculated F value, which amounted to (15.94525).

Table (6)

Dependent Variable: EX Method: ARDL Date: 09/21/21 Time: 21:51 Sample (adjusted): 2005 2019 Included observations: 15 after adjustments Maximum dependent lags: 1 (Automatic selection) Model selection method: Akaike info criterion (AIC) Dynamic regressors (2 lags, automatic): DF PC Fixed regressors: C Number of models evaluated: 9 Selected Model: ARDL(1, 1, 1) Note: final equation sample is larger than selection sample				
Variable	Coefficient	Std. Error	t-Statistic	Prob.*
R-Squared = 0.699858				
F-Statistic = 4.704149		Probe (F) = 0.000		
DF	0.122203	1.346932	35.62136	0.000000
PC	238.8206	0.145780	38.72221	0.000000
C	Mean dependent var	1256.200	1447.117	
	S.D. dependent var	92.92178		
	Akaike info criterion	10.54407		
	Schwarz criterion	10.62729		
	Hannan-Quinn criter.	10.34105		
	Durbin-Watson stat	1.199334		
	Log likelihood	-71.58052		
	F-statistic	15.94525		
	Prob(F-statistic)	0.000306		

It shows the results of the ARDL test of the effect of the new tools (DF, PC) on EX in Iraq for the period (2004-2019)

Source: Prepared by the researcher based on the Eviews program

As for the Bound Test, we notice from Table (7) that the calculated F value of (5.128008) is greater than the upper limit (1) $\square$ 1 Bound of (3.51) at the 10% significance level and (4.16) at the 5 level. % and (4.79) at the level of significance of 2.5% and (5.58) at the level of significance of 1%, and therefore we reject the null hypothesis and accept the alternative hypothesis, and this indicates that there is a long-term co-integration relationship between the variables and the table (7) shows that

Bound Test Results

Source: Prepared by the researcher based on the Eviews program

Breusch – Godfrey Serial Correlation LM Test			
F- Statistic	0.800845	ProP.F	0.4862
Obs*R-Squared	2.793095	Prob.Chi-Squared	0.2474
Heteroskedasticity test: Breusch-Pagan-Godfrey			
F- Statistic	0.531771	ProP.F	0.7480
Obs*R-Squared	3.420817	Prob.Chi-Squared	0.6354

It can be confirmed that the model is free from the problem of autocorrelation and the problem of instability of homogeneity of variance by relying on the (LM TEST) test at the level of significance (0.05), as the results in Table (8) proved that the relationship between (PC, DF) and (EX) is free of The autocorrelation problem, because the probabilistic value of F was 0.4862 Prob.F=, 0.2474 Prob.Chi-Squared=, which are not significant and greater than (0.05)

Regarding the relationship between (PC, DF) and (EX), it is free from the problem of homogeneity of variance based on the Heteroskedasticity TEST test. Table (8) shows that the probability value of the F-Statistic was 0.7480, and Obs*R-

Squared is 0.6354, which is also insignificant and is greater than 0.05

Breusch – Godfrey Serial Correlation LM Test

0.4862 ProP.F 0.800845 F- Statistic

0.2474 Prob.Chi-Squared 2.793095 Obs*R-Squared

Heteroskedasticity test: Breusch-Pagan-Godfrey

0.7480 ProP.F 0.531771 F- Statistic

0.6354 Prob.Chi-Squared 3.420817 Obs*R-Squared

Table(8)

The results of testing the autocorrelation problem and the instability of homogeneity of variance for the effect of foreign currency sales (DF, PC) on (EX)

Source: Prepared by the researcher based on the Eviews program

As for the results of error correction CointEq (-1), we notice from Table (9) that the speed of error correction has reached

(-0.325707) and at a probability level of (0.0027), which is less than 0.05, that is, there is a correction from the short term to the long term according to the following equation: -

$E_c = EX - (60.1397 \cdot DF + 369.2116 \cdot PC - 1354.3119)$

We note from Table (5) that the parameter of deposit facilities amounted to (60.1397), which is significant, as the probability of correcting the error in the long term amounted to (0.001), which is less than 0.05, while the parameter of lending facilities amounted to (369.2116), which is significant, meaning that the probability of correcting the error amounted to (0.0005) which is less than 0.05

Table (9)

CointEq (-1)	Prob	Long Run Coefficients(DF)	Prob	Long Run Coefficients(PC)	Prob
test results (Bound Test)					
F- Statistic=5.128008					
Moral level		Bound 1 $\square$ (0)		Bound 1 $\square$ (1)	
10 %		3.02		3.51	
5%		3.62		4.16	
2.5 %		4.18		4.79	
1 %		4.94		5.58	

-0.025707	0.0027	60.1397	0.001	369.2116	0.0005
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Error correction results for the effect of the new tools (DF, PC) on (EX)

Source: Prepared by the researcher based on the Eviews program

Conclusions and Recommendations

First: the conclusions

- 1- The research hypothesis has been proven that (the tools developed for the Central Bank of Iraq have positive and negative effects on the exchange rate)
- 2- The monetary policy in Iraq took a new path, specifically after 2003, in accordance with the independence obtained by the Central Bank in accordance with Law (56) of 2004 through the use of new tools aimed at building a sound financial and monetary system, maintaining the size of the monetary mass and formulating policies that address the economic situation For the country and to control the levels of liquidity and reduce inflation rates, in addition to building strong reserves of foreign currency and achieving stability in the exchange rate, which encouraged the retention of the local currency and increased demand for it despite the challenges that resulted from the deteriorating security conditions.
- 3- The existing deposit facilities tool managed to retain the largest possible amount of public deposits with the aim of controlling the money supply and reducing inflationary effects and thus achieving stability in the exchange rate in the event of economic prosperity.
- 4 - The Central Bank was able to liberalize the structure of interest rates that banks pay to depositors or receive from borrowers as part of the policy of creating competition between banks. Maintaining the integrity of the banking and financial system and assisting banks in facing the temporary liquidity deficit
- 5- The results of the (ADF) test showed that the stability of the data was a mixture between the first level and the difference, and accordingly, the Distributed Deceleration Model (ARDL) was used to analyze the co-integration of the time series.
- 6- A long-term co-integration relationship has been reached between the new tools (DF, Pc) and the exchange rate, and there is an error correction of (-0.325707) which is negative and significant and at a lower probability level (0.05), which means that the imbalance in the short term between the developed tools and the studied variables It corrects quickly in the long term (32%).
- 7- The study found that the new tools (existing deposit and lending facilities) explain about 69% of the changes taking place in (EX).

Second: Recommendations

- 1- The success of the Central Bank's policy in maintaining the stability of the exchange rate and inflation requires that guidance be directed towards developing and revitalizing the real sector through high coordination between economic policies within a well-studied program to achieve economic growth.
- 2- Developing and rehabilitating the banking sector by intensifying training courses to acquire skills in accordance with modern standards in order to advance the reality of the private sector and provide the appropriate climate for citizens to benefit from banking services, instill confidence and diversify services to meet all requirements, emphasizing the need for the Central Bank to seek to build a banking infrastructure that keeps pace with global banks.
- 3- The necessity of activating the new tools that are out of use (lending facilities) due to the high volume of liquidity in the banks and their reservations about granting credit, as banks must employ their excess liquidity and direct it towards the market.
- 4- Continuing work in the deposit facilities tool, as it has proven its importance in controlling the money supply according to the economic cycles that the country is going through, as it is considered a way for banks to invest their surplus liquidity.

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