

Research Article

# The Effect of Public Spending on the Monetary Sterilization Factor in the Iraqi Economy for the Period 2005-2021

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**Abstract:** Monetary sterilization policies are one of the modern trends of monetary policy in rentier countries, specifically to confront the positive shocks in foreign assets flowing into the national economy and the impact of these shocks on monetary and real variables. And that the Central Bank contains these emergency increases in foreign exchange with the aim of avoiding the impact of this increase on the official local currency through its three main monetary tools, which are the rediscount rate, the legal reserve, and open market operations. As well as the relationship between the central bank and the objective of external balance, which is reflected in the balance of payments balance, the central bank resorts to managing the exchange rate to isolate the effect of foreign exchange from domestic currency, and avoiding the impact of positive shocks on foreign exchange means making it neutral in affecting domestic balances through foreign currency, and the neutrality of money means isolating the effect of money in causing undesirable price changes, because price changes impede the efforts of the Central Bank in sterilization operations. Thus, the central bank may enter into a vicious circle from which it does not come out in the long term, because usually the price changes are faced by the central bank with the mechanism of raising the interest rate, and the latter stimulates the entry of new foreign assets with the aim of benefiting from the high interest. Thus, the suffering of the central bank continues in monetary sterilization in rentier economies. Specifically, we will go through this suffering in the rentier Iraqi economy in this research.

**Keywords:** Public spending, monetary sterilization, internal monetary sterilization, external monetary sterilization.

## INTRODUCTION

The Central Bank of Iraq, after obtaining its relative independence in managing its monetary policies in the Iraqi economy in accordance with Resolution 56 of 2004, directed towards the use of indirect quantitative monetary tools, including the foreign currency, in response to the modern trends of the market economy as established under the Iraqi constitution. The Central Bank moved away from the policies of financing the budget deficit and directed towards financing public spending by replacing the general budget dollar with the Central Bank's dinar, and this is what made the Central Bank's reserves of foreign exchange represent the official equivalent of the source money supply. The financing of the budget deficit was carried out by the method of inflationary financing or financing by the deficit or the so-called method of cheap cash or overdraft without the presence of foreign and non-foreign financial assets corresponding to cheap cash.

Therefore, based on modern trends, the Central Bank of Iraq used the internal monetary sterilization tools (the three monetary tools) and the external monetary sterilization tool (the foreign currency window) in order to counter the impact of foreign flows on the local currency on the one hand and to counter the impact of large increases in public spending on its efforts in cash sterilization operations on the other hand.

### Research Problem:

The large increases in public spending by the Iraqi central government weaken the efforts of the Central Bank of Iraq in the operations of monetary sterilization and management of foreign cash reserves.

### Research Hypothesis:

Public spending adversely affects the monetary sterilization indicators, which are basically weak due to the inability of the Central Bank of Iraq to isolate or

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neutralize the impact of changes in foreign exchange that finances public spending on domestic assets corresponding to the money supply.

### **THE IMPORTANCE AND THE OBJECTIVE OF THE RESEARCH:**

The importance of the research is to study the efforts of the Central Bank of Iraq in monetary sterilization operations, management and financing of public spending in the budget and the impact of this funding on monetary sterilization policies. The research aims to demonstrate the relationship of public spending with monetary sterilization policies and the direction of this relationship.

### **The Limits of the Research:**

The scope of the geographical and temporal research is the Iraqi economy and from January of the year 2005 to December of the year 2021.

### **RESEARCH METHODOLOGY:**

The researcher used the descriptive analysis method, graphical analysis and standardization to prove the research hypothesis.

### **Research Structure:**

The research was divided into two sections. In the first topic, the conceptual framework of public spending and monetary sterilization and its general indicators was discussed, while the second topic summarized the analytical and standard framework for the relationship between public spending and monetary sterilization indicators.

### **The First Topic: The Conceptual Framework of Public Spending and Monetary Sterilization:**

#### **The First Requirement: The Conceptual Framework of Public Spending:**

Public spending means spending on basic goods and services such as roads, education, security and police, in addition to government transfers such as social security and health care support, which leads to the provision of financial resources to individuals (Samuelson, P. A., & Nordhaus, W. D. 2006).

Public spending is divided into two parts. The first part consists of federal government purchases of produced goods and services. This part of spending is included in the real GDP. The second part consists of transfer payments. This part of spending is not included in the real GDP because it does not represent goods and services. Producer (O'Sullivan, A. *et al.*, 2014). In the sense that public spending is central government spending on goods and services and this spending constitutes the financial leverage of the gross domestic product as it constitutes a total demand in the national economy.

Controlling, and rationalizing public spending avoids the economy from continuous economic

fluctuations and reduces the severity of undesirable price fluctuations that enhance public spending and enter the local economy into a vicious cycle of inflation feeding spending and spending necessary to confront the rise in prices of goods and services, which causes a rise in the state's general budget deficit and an expansion of the base cash. Therefore, rationalizing public spending is working to increase the effectiveness of public spending to the extent that increases the ability of the national economy to finance its internal and external obligations and reduce the manifestations of waste in public spending to a minimum (Hussein, I. H. 2016).

The economic schools differed in their general vision of public spending, as it represents government intervention in the local economy, where the vision of classical school thought was summed up by the need for public spending to remain within the narrowest limits and the best expenditures to be the least in size, because the increase in public spending means an increase in the public budget deficit. This pushes towards more taxes and the attempt to reduce the tax to the lowest levels makes it have a neutral effect, as public spending must be neutral. The classic goal was to protect the industrial revolution in Britain from the tax increase that results in increased public spending. While the vision of the Keynesian school thought about public spending was manifested as the financial leverage to increase production through the technique of effective aggregate demand and to bring the economy to a state of full use, and this means that public spending departed from its neutrality and became a tool for economic balance. Keynesians prefer increasing public spending over tax reduction, since public spending is more effective than tax in raising real GDP levels (Said, 2021, 21-22).

The summary of the foregoing in the vision of the main economic schools is that public spending plays a major role in managing the local economy and raising the efficiency of this spending means raising the efficiency of the local economy and that the dialectic of financial balance and economic balance is decided by the efficiency of public spending and the rationalization and rationality of this spending.

The increase in public spending is a financial expansion by the central government, and according to Wagner Law, relative to the German economist Adolf Wagner, there is a natural trend for the growth of public spending in industrialized countries as a percentage of GDP. At a rate greater than the growth rate of the per capita GDP (Al-Hussaini, M. G. R. 2016). Raising the efficiency of distributive and productive public spending represents an important goal of rational fiscal policy, as public spending is the most important tool of fiscal policy in raising aggregate demand levels, stimulating gross domestic product, eliminating the positive and negative gap in GDP, and achieving balance and economic stability that pave the way for

raising the rate of economic growth in the long run. long term, to the general economic well-being of society. Therefore, the objectives of the fiscal policy (and general operational and investment spending) can be defined as follows: (Banafa, Ali, 2020).

- The optimal allocation of community resources, meaning that the fiscal policy seeks to optimally use these resources efficiently in order to produce various goods and services that meet the needs of society by stimulating the public and private sectors.
- Equitable distribution of wealth, as this goal is considered complementary to the first goal, as it is necessary to maximize, diversify and distribute production in a fair manner, and correct the imbalances that occur in the distribution and use of resources.
- Achieving economic stability, i.e., achieving stability in production and employment, and stability does not mean stagnation or stagnation in the economy, but rather prevention of continuous fluctuations in production and prices.
- Achieving financial and economic balance, i.e., financial balance in the use of financial resources with high efficiency in order to achieve a balance between revenues and expenditures, and economic balance is to reach a state of full use of economic resources.

Most of the economists concerned with the political aspect of public spending agreed that there are main reasons for public spending by excluding changes in the general level of prices, namely population growth and popular pressure demanding educational facilities and health requirements for this population growth (Richard, M., & Peggy, M. 1992).

### **The Second Requirement: The Conceptual Framework of Monetary Sterilization:**

Monetary sterilization represents a monetary policy that is carried out by adjusting or offsetting the rise in foreign assets with a decrease in domestic assets, which means that the monetary basis remains  $H$  (monetary base  $MS_0$ ) unchanged (Jamam, M. 2014).

Monetary sterilization defines the central bank reducing its domestic assets in a way that prevents the impact of the increase in its foreign assets on the monetary base (Abdelkader, B. 2018).

We conclude from the two previous definitions of monetary sterilization that sterilization is isolation or monetary separation for the purpose of avoiding the impact of the change of foreign assets on the net domestic assets represented by the basic monetary complexes, which are the monetary basis, which prevents this isolation from causing price problems in the local economy through changes that occur in the increase in supply cash.

The accumulation of foreign cash reserves has financial and monetary side effects, and when the central bank decides to absorb the foreign cash reserve by increasing the money supply resulting from the expansion of the monetary base in the national economy, this has repercussions represented by increasing inflationary pressures, or when the central bank decides to reduce cash or net domestic assets. Bank sterilization operations of foreign cash reserves (Aizenman, J., & Glick, R. 2009)

The state's general budget is linked to the foreign exchange budget, each of which is for one fiscal year, and some uses of the general budget are paid in foreign exchange, such as salaries abroad, international subscriptions, and imported goods, in addition to the presence of some investment projects listed in the budget law that require financing in a foreign currency, in addition to the state's payment of debt installments. Foreign Affairs (Zardaq, A. A. R. 2008).

There are two types of monetary sterilization that are carried out using monetary policy tools: external sterilization through the currency window, managing the local currency, controlling the supply and demand of the local currency, and internal sterilization through the main monetary tools, which are the re-discount rate, open market operations, and the legal cash reserve ratio. In order to measure the degree of critical sterilization, there are several methods of measurement agreed upon in most of the research and studies that dealt with the subject of critical sterilization, and they will be presented as follows (Frenkel, R. 2007):

#### **➤ Annual Regression Coefficient Method:**

It is a method that measures the effect of the change in net foreign assets (NFA) on net domestic assets (NDA) according to the least squares method to measure the linear regression between foreign and domestic monetary variables and the general form of this method:

$$\Delta NDA = \alpha - \beta \Delta NFA + \epsilon$$

The barometer for ascertaining the degree of impact of the change in foreign assets on domestic assets is via a coefficient  $\beta$  so when  $\beta$  is equal to (-1) this means complete monetary sterilization, because the increase in foreign assets by one unit was offset by a decrease in domestic assets by one unit. And when  $\beta$  is equal to (0) this means that there is no monetary sterilization policy at all. But if the value of the coefficient  $\beta$  is greater than (-1)  $\beta > -1$  It means that there is an excess and exaggeration in the application of the monetary sterilization policy by the Central Bank.

#### **➤ The Method of Broad Money Supply:**

It is also a method similar to the previous one in measuring the degree of influence through the regression coefficient, but this method it focuses on the effect of the change in foreign assets on the broad

money supply. The general form of this method in measuring the degree of monetary sterilization is as follows:

$$\Delta MS_2 = \alpha + \delta \Delta NFA + \epsilon$$

To check the degree of sterilization, we note the value of  $\delta$  where it is between zero and one, and if the value of  $\delta$  is equal to zero, this means complete monetary sterilization because the change in foreign assets was not reflected in the broad money supply, meaning changes in the money supply as a result of foreign exchange shocks is equal to zero. And if it was greater than zero and less than one True indicates the presence of partial monetary sterilization, but if it was equal to 1 this means that the change in foreign assets by one unit increases the broad money supply by one unit, and this means that there is no monetary sterilization policy by the Central Bank.

➤ **The Local Credit Method:**

According to this method, the degree of monetary sterilization can be measured by measuring the percentage change in domestic credit from the value of the change in the value of foreign assets, as it reflects the percentage of negative changes in domestic credits to positive changes in foreign assets and vice versa, i.e., the ratio of positive changes in domestic credits to negative changes in foreign assets to the existence of an active sterilization policy practiced by monetary policy in avoiding and isolating changes in domestic assets as a result of a change in foreign assets and also evidence of the existence of an independent monetary policy where we have the value  $W$  is negative in both cases, while if the value  $W$  positive, this is evidence of the absence of an active monetary sterilization policy, where positive changes in foreign assets led to positive changes in domestic assets at a rate greater or less than one, correct according to the following mathematical relationship:

$$W = \frac{\Delta DC}{\Delta FR}$$

➤ **The Foreign Reserve Ratio Method of the Monetary Base:**

Under this method, the degree of monetary sterilization can be measured through the following simplified mathematical relationship:

$$Y = \frac{FR}{H}$$

If the value of  $Y$  is greater than 1 this means that there is a decrease in the size of the monetary base compared to the size of the foreign reserve, and this reflects that the monetary base is not affected by the foreign reserves in the central bank, and that there is a policy of monetary sterilization or isolating foreign cash flows from the monetary base, and if the value of  $Y$  was less than one means an increase in the size of the

monetary base compared to the size of the foreign reserve, and this reflects the impact of the monetary base on foreign reserves in the central bank, and there is no monetary sterilization policy or the isolation of foreign cash flows from the monetary base.

From the foregoing, we find that these different main methods of estimating the existence of monetary sterilization by the Central Bank or not is nothing but verification of the sterilization process in more than one direction, whether ratio or linear regression coefficient, and the four methods will be applied in the Iraqi economy after taking the necessary data to measure The degree of monetary sterilization from the official website of the Central Bank of Iraq via the following link: <https://cbi.iq/page/79>

The data that was adopted is included in a separate appendix, another research.

Monetary sterilization is related to the movement of the balance of payments, whether deficit or surplus, and that the entry and exit of cash quantities from the local economy expands and reduces the money supply, if the surplus of the balance of payments causes an increase in the amount of money in the economy may prompt the central bank to withdraw monetization through the interest rate, which stimulates high interest entry New foreign assets into the local economy, which enters the economy in a vicious cycle, as well as when a deficit in the balance of payments causes a decrease in the amount of money in the economy, which may push the central bank to monetary expansion by reducing the interest rate, which drives the low interest to the exit of foreign assets from the local economy.

Therefore, monetary policy uses a set of measures to achieve the goal of monetary sterilization of local assets, represented in buying and selling foreign and local currency according to open market operations techniques, or withdrawing deposits from commercial banks and transferring them to the central bank, or increasing the legal cash reserve ratio in order to reduce local credits or reduce the value of the monetary multiplier. Which reflects reducing the value of the money supply to the monetary basis or encouraging domestic savings and reducing the volume of investment by raising the local interest rate despite the damages of this rise in the medium term. All of these measures monetary policy can follow for the purpose of neutralizing local assets from being affected by foreign assets.

The monetary control policy can be applied through refinancing, because banks and projects own a portfolio of financial assets (securities issued by the public sector) that can be liquidated and allow its holder to face the lack of liquidity. The severe supply of money in the central bank leads to bankruptcy in banks and

projects, which rushes monetary policy towards the regulation of banking assets and the quantitative control of loans (Malak, W, 2000).

**The Second Topic: The Analytical and Standard Framework of the Relationship between Public Spending and Monetary Sterilization in the Iraqi Economy for the Period (2005-2021):**

The Iraqi economy is considered one of the unstable rentier economies, and the source of life for this economy is the oil market. Without this market, there is no life in the Iraqi economy, as well as the absence of an identity for this economy and a vision of defining the tasks, duties and role of the state, the market or the private sector in raising the efficiency of economic activity.

The foreign currency reserve is mainly caused by the movement of the balance of payments and the changes of this reserve result from the continuous external movement. The reserve exercises a central function which is the stability of the exchange rate of the local currency against the foreign currency. cover the expenses of the general budget. Also, the function of the foreign reserve is to meet the market's need of the dollar, and this falls within the framework of the new direction of monetary policy by the end of direct dealing with the needs of the general budget, i.e., the shift from financing the general budget deficit from the assets of the Central Bank of Iraq to financing restricted public spending in dinars against the dollar of the Iraqi Ministry of Finance (Salih, M. M. 2019).

One of the problems facing rentier economies related to fiscal policy and inflation is the improvement in oil prices, as this improvement leads to an increase in public spending and loss of control over it and the undertaking of expensive infrastructure projects that may be financed by foreign loans when there is a deficit in the state's general budget. It fuels inflation and increases external indebtedness (Thomas, A. B. 2007).

Therefore, because of the characteristics of the Iraqi economy, we always find a great increase in public spending on the side of the general budget, and this spending expands the money supply due to the transformation of the dollar into a net dinar, in addition to being a total demand and monetization in the hands of individuals through the general budget technique. Changes in bank credit lead to changes in the monetary base and changes in the monetary base lead to changes in the money supply, and changes in money supply must be identical with changes in domestic credit and the development of the balance of payments situation, which means a change in the value of foreign assets and therefore the expansion of bank credit through Borrowing from the Central Bank and commercial banks, and in light of the decline in the flow of foreign assets and the decline in foreign trade exchange rates, this expansion leads to an increase in inflationary

pressures and a budget deficit that is covered by deficit financing or inflationary financing, which leaves a growth in the monetary base (Al-Quraishi, A. H. 2017).

As it is known that the Central Bank of Iraq cannot control foreign reserves because of its inability to control the demand for foreign currency (the demand of the private sector) and it cannot control the supply of foreign currency (the presentation of the Ministry of Finance). It is natural that an increase in demand over supply causes a shortage of reserves the foreigner with the central bank and vice versa.

The increase in demand for the dollar by the private sector or the state sometimes is not determined by the amount of oil sales, but rather the general budget deficit constitutes an additional pressure in the demand for the dollar because there is government spending covered by remittances, bonds and local loans from commercial banks, and this pushes the increasing government spending towards increasing demand On the dollar and the payment of the obligations covered by the dollar and the occurrence of changes in foreign reserves. One of the main reasons for the increase in demand for the dollar is the large import of imported goods and services and the flight of capital due to political instability and corruption in public money and the transfer of corruption funds outside Iraq, in addition to the lack of medical and health services in Iraq and the increase in demand for these services from abroad, as well as the migration of numbers A large number of Iraqis due to sectarian violence and the transfer of their financial assets abroad (Al-Alaq, A. M. I. 2018).

The monetary sterilization will be estimated according to the above-mentioned four methods, and the impact of public spending on some indicators of monetary sterilization will be shown, according to the following:

**First:** The annual regression method. According to this method, the coefficient of  $\beta$  was estimated, which shows the regression of net domestic assets NDA According to changes in net foreign assets NFA and as follows:

$$\Delta NDA = \alpha - \beta \Delta NFA + \epsilon$$

According to the outputs of the dialog box for estimating a linear regression of the level of monthly change in net domestic assets as a result of the monthly change in net foreign assets according to the method of least squares OLS, it became clear that the regression relationship between net domestic assets and net foreign assets was not significant, due to the insignificance of the regression coefficient, as it appeared (0.4042). Despite the negative reference to the parameter estimated according to the mathematical relationship above (337.7642 -), as well as the insignificance of the estimated model if the value of F is not significant in the model, and accordingly, it is not possible to rely on the results of this model to determine the existence or

absence of the case of monetary sterilization conducted by the Central Bank of Iraq during The period from 1-1-

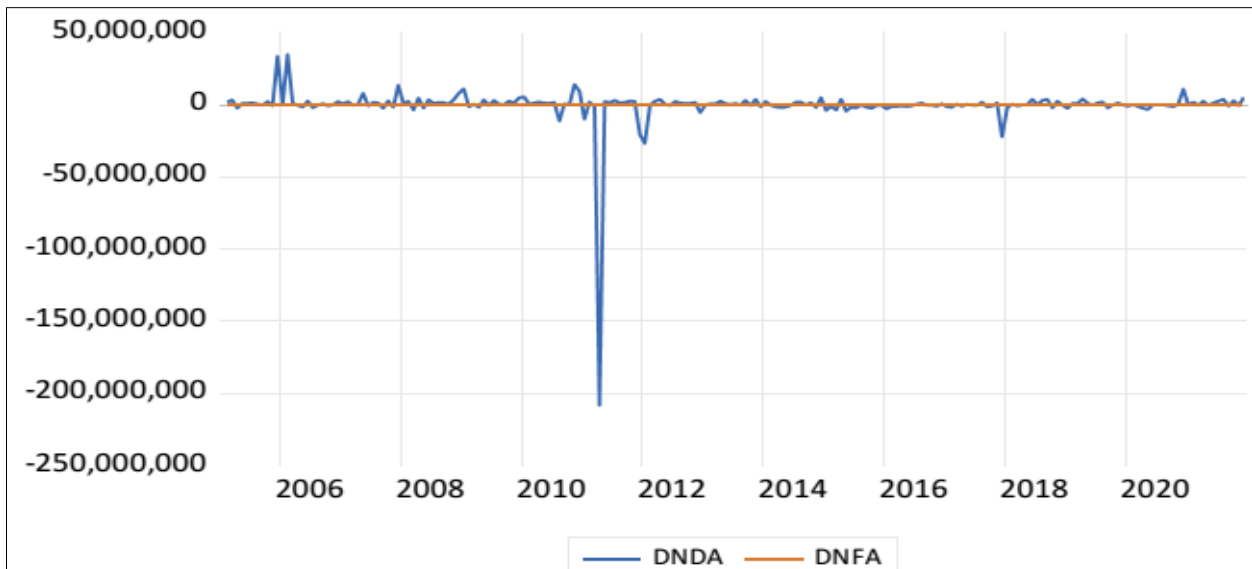
2005 to 31-12-2021, as shown below in Table No. (1).

**Table 1:** Results of estimating the linear regression of changes in domestic assets of foreign assets

Dependent Variable: DNDA				
Method: Least Squares				
Date: 07/02/22 Time: 10:13				
Sample (adjusted): 2005M02 2021M12				
Included observations: 203 after adjustments				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	90745.43	1106110.	0.082040	0.9347
DNFA	-337.7645	404.0273	-0.835994	0.4042
R-squared	0.003465	Mean dependent var		-43075.86
Adjusted R-squared	-0.001493	S.D. dependent var		15582105
S.E. of regression	15593731	Akaike info criterion		35.97244
Sum squared resid	4.89E+16	Schwarz criterion		36.00508
Log likelihood	-3649.203	Hannan-Quinn criter.		35.98565
F-statistic	0.698886	Durbin-Watson stat		1.981587
Prob(F-statistic)	0.404151			

$$DNDA = 90745.4299315 - 337.764488438 \cdot DNFA$$

Source: From the researcher’s work based on E-VIEWS 12



Source: From the researcher’s work based on E-VIEWS 12

**Figure 1:** Monthly changes in net domestic and foreign assets

**Second:** The broad money supply method, and according to this method, the coefficient of  $\delta$  is estimated, which shows the decline in the broad money supply  $MS_2$  According to changes in net foreign assets NFR and as follows:

$$\Delta MS_2 = \alpha + \delta \Delta NFA + \epsilon$$

According to the outputs of the dialog box for estimating a linear regression of the level of monthly change in the broad money supply as a result of the monthly change in net foreign assets according to the method of least squares OLS, it became clear the significance of the regression relationship between the broad money supply and net foreign assets, due to the significance of the regression coefficient, which

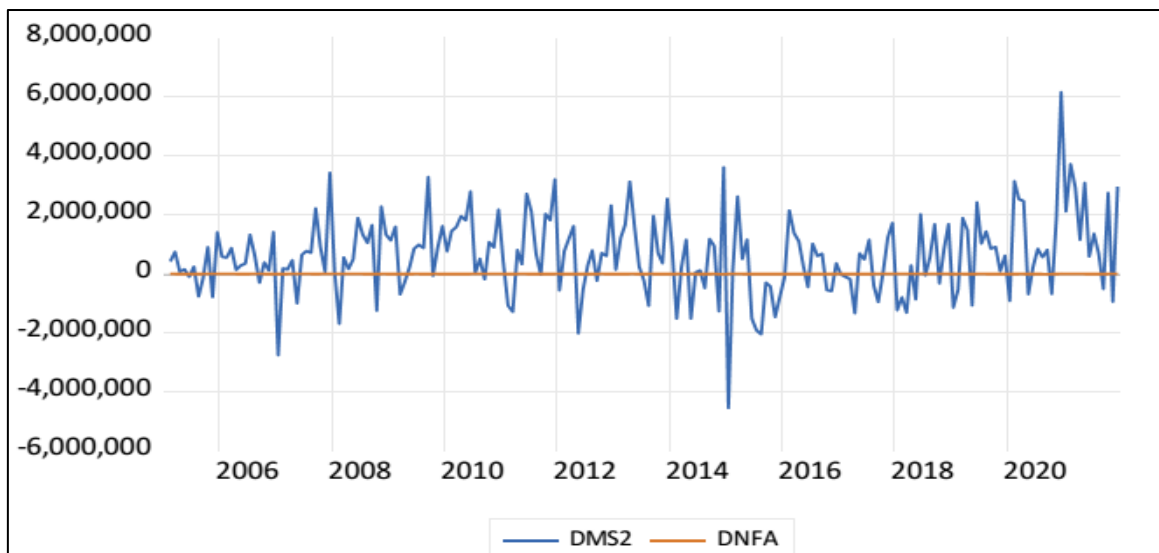
appeared (0.0003) and that the sign Positive for the parameter estimated according to the mathematical relationship above (123.4717) as well as the significance of the estimated model if the value of F is significant in the model, and that the value of the coefficient is greater than one is true, and this is a standard indication that there is no monetary sterilization or isolation of the effect of the change in foreign assets from the local monetary changes carried out by the Central Bank of Iraq, meaning that the large monthly changes in the broad money supply are the source of the monthly changes in foreign assets during the period from 1- 1-2005 until 12/31/2021, as shown below in Table No. (2).

**Table 2:** Results of estimating the linear regression of changes in money supply for foreign assets

<b>Dependent Variable: DMS2</b>				
<b>Method: Least Squares</b>				
<b>Date: 07/02/22 Time: 10:21</b>				
<b>Sample (adjusted): 2005M02 2021M12</b>				
<b>Included observations: 203 after adjustments</b>				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	578726.1	91280.37	6.340094	0.0000
DNFA	123.4717	33.34187	3.703204	0.0003
R-squared	0.063870	Mean dependent var	627645.2	
Adjusted R-squared	0.059212	S.D. dependent var	1326733.	
S.E. of regression	1286854.	Akaike info criterion	30.98310	
Sum squared resid	3.33E+14	Schwarz criterion	31.01575	
Log likelihood	-3142.785	Hannan-Quinn criter.	30.99631	
F-statistic	13.71372	Durbin-Watson stat	1.842756	
Prob(F-statistic)	0.000275			

$$DMS2 = 578726.106304 + 123.47173149 * DNFA$$

*Source:* From the researcher’s work based on E-VIEWS 12



*Source:* From the researcher’s work based on E-VIEWS 12

**Figure 2:** Monthly changes of broad money supply and net foreign assets

**Third:** The local credit method. According to this method, the percentage of  $W$  was estimated, which shows the percentage change in domestic credit from the change in foreign assets  $NFA$  and according to the mathematical relationship below. The outputs of this percentage are shown in the table numbered (3):

$$W = \frac{\Delta DC}{\Delta NFA}$$

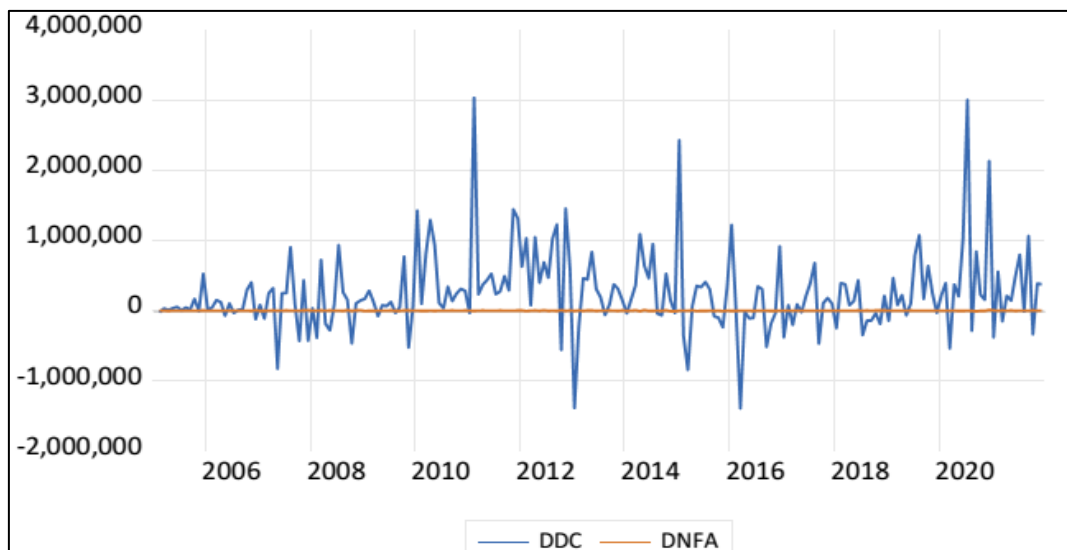
According to this mathematical method and according to the results of Table (3), the number of months in which there is no monetary sterilization is (116), where the value of  $W$  positive, this is evidence of the absence of an active monetary sterilization policy, where positive changes in foreign assets led to positive

changes in domestic assets at a rate greater or less than one. And the number of months during which cash sterilization was (87) months, where the value of  $W$  appeared negative. This is evidence of the existence of an active monetary sterilization policy, which reflects the ratio of negative changes in domestic credits to positive changes in foreign assets and vice versa, i.e. the ratio of positive changes in domestic credits to negative changes in foreign assets to the existence of an active sterilization policy practiced by monetary policy in avoiding and isolating Changes in domestic assets as a result of a change in foreign assets and also evidence of the existence of an independent monetary policy, where we have the value of  $W$  is negative in both cases.

**Table 3:** Percentage of the monthly change in domestic credit DC from the change in foreign assets NFA in the Iraqi economy 1-1-2005 until 13-12-2021

2013	2012	2011	2010	2009	2008	2007	2006	2005	W
383.87	148.20	-32.48	1447.97	-38.30	119.02	-67.24	23.86	-	JAN
-52.04	-150.13	-3064.73	-52.55	-81.15	-423.11	50.90	79.34	-23.74	Feb
-216.50	-178.61	-922.79	-718.65	-59.74	313.80	959.25	249.39	63.68	Mar
194.24	389.36	97.43	2270.68	148.00	-308.74	142.17	226.39	-8.60	Apr
420.86	-206.18	561.46	-380.51	-123.29	-76.05	-1094	418.15	25.39	May
-290.79	121.51	22979.95	84.10	75.63	199.22	301.24	-129.95	-98.81	Jun
-442.77	-357.07	-240.95	78.38	59.89	759.52	91.78	-163.25	415.53	Jul
-54.77	1099.02	63.61	720.82	21.65	-192.94	2677.02	7.44	-64.05	Aug
22.12	-588.96	-1386.95	39.75	-20.22	25.99	-250.39	42.95	11.01	Sep
-94622.75	-78.15	245.36	473.85	228.77	237.05	-327.53	1107.02	145.61	Oct
-184.12	-685.59	-6747.73	273.26	-225.99	32.53	196.76	-234.30	-5.91	Nov
34.62	134.51	370.69	78.74	-136.57	27.77	-80.08	-19.71	231.86	Dec
2021	2020	2019	2018	2017	2016	2015	2014	2013	W
-190.11	-400.71	194.24	-186.05	-495.01	-461.83	4516.90	25.49		JAN
420.63	-2842.34	308.83	11228.31	-2346.02	5.08	-858.83	333.94		Feb
-47.93	-1163.41	93.29	319.84	3537.75	-5455.77	-819.45	68.43		Mar
132.44	339.12	-763.80	41.742	-2342	131.65	11.38	-128.73		Apr
63.60	-165.82	372.44	300.57	-33.86	135.45	-58.31	73.43		May
-298.89	-500.81	47.52	202.22	-1196.85	55.35	-103.38	-167.64		Jun
12283.13	2847.81	1418.20	-177.83	-4879.66	11626.43	-121.99	-296.47		Jul
33.53	159.82	954.91	-70.51	670.15	-2630.84	-333.74	42.19		Aug
-2864.26	-120.89	-174.52	-514.43	-1068.35	600.52	80.94	31.53		Sep
-72.82	-129.28	1804.74	-14.38	353.95	125.15	118.96	73.93		Oct
716.13	-53.16	-2370.17	-79.69	454.26	32.07	38.84	-18.86		Nov
377.33	162.08	61.29	102.95	64.51	6159.65	745.74	054.		Dec

Source: The table is from the researcher’s work based on the data taken from the official website of the Central Bank of Iraq and according to the following electronic link: <https://cbi.iq/page/79>



Source: From the researcher’s work based on E-VIEWS 12

**Figure 3:** The percentage of the monthly changes in domestic credit from the monthly changes in net foreign assets

**Fourth:** The foreign reserve ratio method from the monetary base: according to this method, the ratio of  $\gamma$  was estimated, which shows the percentage change in the cash reserve FR from the monetary base H and according to the mathematical relationship below. The outputs of this ratio are shown in the table (4):

$$Y = \frac{NFR}{H}$$

According to this mathematical method and according to the results of Table (4), the value of Y appeared positive, and much less than one throughout the period from 1-1-2005 to 12-13-2021. This is evidence of significant expansions in the monetary base



H As a result of the increase in net foreign assets NFR as a result of the surplus in the trade balance of the rentier Iraqi economy as a result of high oil prices and an increase in public spending as a financial trend that indicates lack of financial discipline in the general budget, and this means the absence of an active monetary sterilization policy where positive changes in foreign assets led to larger positive changes in the monetary base or monetary basis It represents the source of monetary expansions in the Iraqi economy and what these expansions create from significant increases in the inflation rate, had the Central Bank not

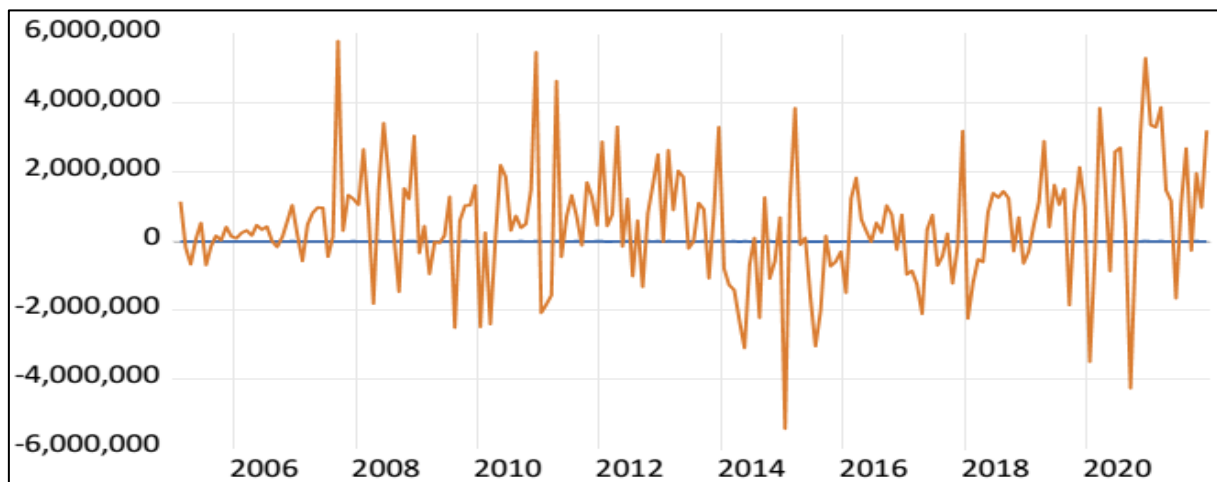
managed the exchange rate and calmed the inflationary expectations of individuals, as well as the availability of a commodity supply imported from foreign economies that is almost stable in inflation rates, at least for the greater part of the research period.

In summary, the four methods used in estimating the monetary sterilization, it became clear to us that there are three methods (the second, third and fourth) that confirm the absence of a monetary sterilization policy carried out by the Central Bank of Iraq in return for the immorality of the first method.

**Table 4:** The percentage change in the net foreign assets (NFA) from the monetary base H in the Iraqi economy for the period 1-1-2005 until 31-12-2021

2013	2012	2011	2010	2009	2008	2007	2006	2005	Y
0.00110	0.00122	0.00116	0.00124	0.00128	0.00129	0.00140	0.00132	0.00093	JAN
0.00111	0.00110	0.00118	0.00119	0.00118	0.00121	0.00132	0.00133	0.00093	Feb
0.00107	0.00108	0.00121	0.00123	0.00116	0.00125	0.00130	0.00134	0.00098	Mar
0.00107	0.00106	0.00118	0.00124	0.00115	0.00134	0.00136	0.00136	0.00091	Apr
0.00107	0.00104	0.00120	0.00112	0.00113	0.00139	0.00133	0.00131	0.00101	May
0.00106	0.00110	0.00119	0.00110	0.00115	0.00127	0.00131	0.00123	0.00093	Jun
0.00106	0.00110	0.00114	0.00110	0.00116	0.00124	0.00148	0.00121	0.00098	Jul
0.00106	0.00110	0.00120	0.00110	0.00120	0.00120	0.00148	0.00132	0.00094	Aug
0.00109	0.00109	0.00120	0.00116	0.00113	0.00141	0.00114	0.00136	0.00102	Sep
0.00111	0.00119	0.00119	0.00116	0.00118	0.00131	0.00117	0.00136	0.00110	Oct
0.00107	0.00113	0.00116	0.00115	0.00120	0.00134	0.00119	0.00121	0.00114	Nov
0.00108	0.00115	0.00121	0.00110	0.00115	0.00137	0.00133	0.00149	0.00129	Dec
2021	2020	2019	2018	2017	2016	2015	2014	2013	Y
0.00087	0.00106	0.00112	0.00093	0.00079	0.00098	0.00117	0.00108	0.00108	JAN
0.00085	0.00106	0.00114	0.00095	0.00080	0.00094	0.00115	0.00110	0.00110	Feb
0.00085	0.00101	0.00113	0.00097	0.00081	0.00091	0.00111	0.00118	0.00118	Mar
0.00085	0.00100	0.00108	0.00101	0.00084	0.00090	0.00119	0.00111	0.00111	Apr
0.00086	0.00100	0.00107	0.00101	0.00085	0.00089	0.00110	0.00127	0.00127	May
0.00086	0.00094	0.00108	0.00102	0.00083	0.00086	0.00108	0.00125	0.00125	Jun
0.00085	0.00093	0.00107	0.00103	0.00084	0.00085	0.00108	0.00120	0.00120	Jul
0.00083	0.00090	0.00106	0.00104	0.00086	0.00085	0.00109	0.00123	0.00123	Aug
0.00083	0.00086	0.00107	0.00102	0.00087	0.00082	0.00108	0.00118	0.00118	Sep
0.00085	0.00084	0.00107	0.00106	0.00089	0.00079	0.00108	0.00129	0.00129	Oct
0.00085	0.00077	0.00104	0.00109	0.00090	0.00077	0.00099	0.00119	0.00119	Nov
0.00084	0.00088	0.00102	0.00113	0.00088	0.00077	0.00100	0.00107	0.00107	Dec

Source: The table is from the researcher’s work based on the data taken from the official website of the Central Bank of Iraq and according to the following electronic link: <https://cbi.iq/page/79>



Source: From the researcher’s work based on E-VIEWS 12

**Figure 4:** Monthly changes in the ratio of net foreign assets to the monetary base

**Fifth:** Estimating the impact of public spending on the proportion of domestic credit to foreign assets:

Public spending in the state’s general budget is characterized by large booms due to the increase in public employment and the great demand for goods and services produced, whether consumption or investment, which leaves these large surges in public spending, which is sourced from the oil dollar obtained from oil exports, large increases in the money supply as an indication of the impact of public spending on foreign reserves and the money supply of which domestic credit is a part of, and according to the outputs of the dialog box for estimating a linear regression of the percentage of domestic credit from foreign assets for public spending according to the method of least squares OLS,

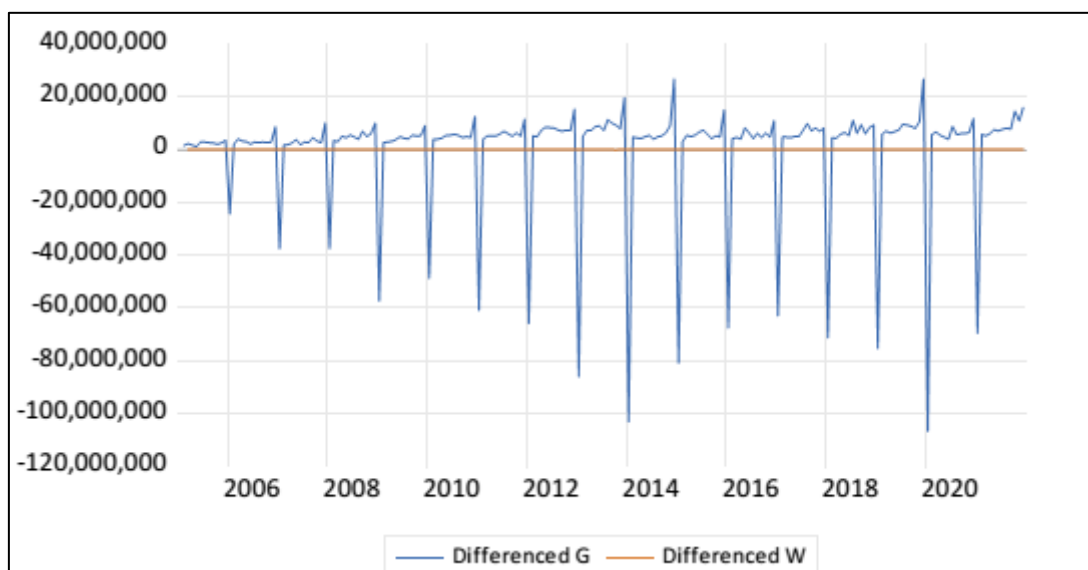
it became clear the significance of the regression relationship between the percentage of domestic credit from foreign assets for public spending, due to the significance of the regression coefficient at 10%, where it appeared (0.0642) and that the sign is negative For the estimated parameter (3.83 - ) The dialog box also indicates the significance of the estimated model if the value of F is significant more than 2 in the model, and this means that the higher the monthly spending rates, the less the case of cash sterilization according to the local credit ratio of net foreign assets, and this confirms the weakness of the monetary sterilization operations conducted by the Central Bank of Iraq during The period from 1-1-2005 to 31-12-2021, as shown below in Table No. (5).

**Table 5:** Results of the linear regression estimation of the domestic credit ratio of foreign assets for public spending

Dependent Variable: W Method: Least Squares Date: 07/01/22 Time: 16:55 Sample (adjusted): 2005M02 2021M12 Included observations: 203 after adjustments				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1031.206	836.2982	1.233060	0.2190
G	-3.83E-05	2.06E-05	-1.860738	0.0642
R-squared	0.016934	Mean dependent var	-223.5186	
Adjusted R-squared	0.012043	S.D. dependent var	7090.711	
S.E. of regression	7047.885	Akaike info criterion	20.56865	
Sum squared resid	9.98E+09	Schwarz criterion	20.60129	
Log likelihood	-2085.718	Hannan-Quinn criter.	20.58185	
F-statistic	3.462345	Durbin-Watson stat	2.058084	
Prob(F-statistic)	0.064242			

$$W = 1031.20619333 - 3.83320701956e-05 * G$$

Source: From the researcher’s work based on E-VIEWS 12



Source: From the researcher’s work based on E-VIEWS 12

**Figure 5:** Public spending changes and the percentage change of domestic credit from foreign assets

**Sixth:** Estimating the impact of public spending on the foreign reserve ratio of the monetary base:

For the same reasons mentioned above about the impact of public spending in the general budget on the foreign cash reserve, which requires replacing the budget dollar with the central bank dinars and the lack of financial efficiency and discipline, we note the opposite effect of public spending on the proportion of foreign reserves from the monetary base, and according to the outputs of the dialog box for estimating a linear regression of the proportion of net foreign assets from the monetary base of public spending according to the method of least squares OLS, the significance of the regression relationship between the proportion of net

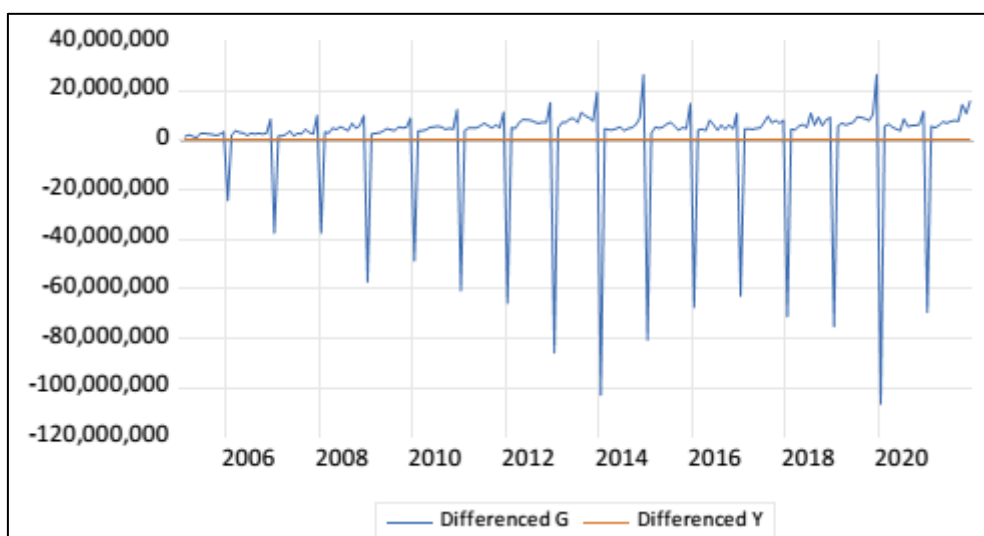
foreign assets from the monetary base of public spending was clear, because of the significance of the regression coefficient at 5%, where it appeared (0.0007) and that The sign is negative for the estimated parameter (1.59 - ) The dialog box also indicates the significance of the estimated model if the value of F is significant more than 2 in the model, and this means that the higher the monthly spending rates, the less the case of monetary sterilization according to the percentage of net foreign assets from the monetary base of public spending, and this confirms the weakness of monetary sterilization operations conducted by the Central Bank Iraqi during the period from 1-1-2005 to 31-12-2021, as shown below in Table No. (6)

**Table 6:** Results of estimating the linear regression of the foreign reserve ratio from the monetary base of public spending

Dependent Variable: Y Method: Least Squares Date: 07/01/22 Time: 16:56 Sample: 2005M01 2021M12 Included observations: 204				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.001147	1.87E-05	61.33587	0.0000
G	-1.59E-12	4.62E-13	-3.447726	0.0007
R-squared	0.055575	Mean dependent var		0.001095
Adjusted R-squared	0.050900	S.D. dependent var		0.000163
S.E. of regression	0.000159	Akaike info criterion		-14.65074
Sum squared resid	5.08E-06	Schwarz criterion		-14.61821
Log likelihood	1496.376	Hannan-Quinn criter.		-14.63758
F-statistic	11.88682	Durbin-Watson stat		0.187764
Prob(F-statistic)	0.000688			

$$Y = 0.00114650747211 - 1.59139302468e-12 * G$$

Source: From the researcher’s work based on E-VIEWS 12



Source: From the researcher’s work based on E-VIEWS 12

**Figure 6:** Changes in public spending and the percentage of foreign assets from the monetary base

**Table 6:** Monthly public expenditure in the Iraqi economy for the period 2005-2021

2013	2012	2011	2010	2009	2008	2007	2006	2005	G
4,470,874	3,843,468	3,583,740	3,861,589	2,129,132	1,607,046	1,350,445	2,087,710	1,010,030	JAN
9,491,016	9,032,673	7,539,833	7,688,959	4,687,280	4,995,678	3,084,154	4,096,114	2,527,842	Feb
16,788,178	13,879,760	12,735,146	11,624,023	7,573,558	7,975,770	4,946,238	8,110,930	4,757,612	Mar
24,036,601	21,146,963	17,828,846	15,931,096	10,659,729	12,954,951	7,473,210	11,358,817	6,332,496	Apr
32,741,459	29,653,611	22,951,921	21,249,373	14,480,889	17,400,673	11,251,064	14,333,493	7,432,887	May
41,687,042	37,979,778	28,861,159	26,691,602	19,308,998	22,952,019	13,101,040	16,459,986	10,352,309	Jun
48,892,341	46,132,256	35,791,501	32,432,019	23,562,094	27,721,807	16,008,157	19,257,550	13,160,137	Jul
60,192,555	53,576,997	41,786,546	37,881,009	27,604,557	31,612,445	18,617,390	21,938,206	15,705,267	Aug
70,225,129	60,540,661	46,753,668	42,410,560	33,073,579	38,556,973	23,147,986	24,742,634	18,229,751	Sep
79,434,769	67,880,750	53,102,654	47,319,988	38,198,670	43,450,505	26,411,509	27,352,221	20,267,030	Oct
87,274,923	75,091,126	58,146,385	51,839,037	43,521,533	49,385,768	28,960,902	30,206,873	22,791,497	Nov
106,873,027	90,374,783	69,639,523	64,351,984	52,567,025	59,403,375	39,031,232	38,806,679	26,375,175	Dec
2021	2020	2019	2018	2017	2016	2015	2014	G	
6,569,312	5,133,306	5,650,331	4,274,429	4,161,531	2,943,531	2,826,894	3,858,545	JAN	
12,277,142	10,749,424	11,440,142	8,792,330	8,817,856	7,058,029	5,823,480	8,647,883	Feb	
17,443,689	17,377,596	18,429,560	13,042,887	13,496,166	11,687,629	11,237,128	13,035,950	Mar	
23,521,979	22,756,417	24,629,112	18,821,427	17,977,964	15,639,813	16,135,540	17,347,076	Apr	
31,132,696	27,478,471	31,432,960	25,276,526	22,896,085	23,911,618	21,570,927	22,215,339	May	
38,121,117	31,354,308	38,824,983	30,488,415	27,924,908	30,328,588	28,186,469	27,602,713	Jun	
45,761,687	40,056,757	48,371,033	41,587,673	35,226,042	34,459,129	35,520,403	31,470,255	Jul	
53,831,475	45,685,763	57,626,488	47,736,089	45,085,375	40,681,257	41,353,105	36,274,228	Aug	
61,572,130	51,734,178	66,448,687	57,218,567	52,226,418	45,198,901	45,435,844	41,474,407	Sep	
76,094,426	57,865,491	74,456,452	63,159,398	60,413,958	51,455,567	50,680,027	47,857,507	Oct	
86,918,080	64,360,943	85,050,465	71,483,665	67,344,150	56,131,024	55,475,580	56,938,729	Nov	
102,849,65	76,082,443	111,723,52	80,873,189	75,490,115	67,067,437	70,397,515	83,556,226	Dec	

*Source:* The official website of the Central Bank of Iraq (<https://cbi.iq/page/79>)

#### CONCLUSIONS:

➤ The shift in the behavior of the Central Bank of Iraq from the policies of financing the budget deficit to the policies of financing public spending confuses the monetary sterilization operations carried out by the Central Bank of Iraq.

➤ Despite the central bank's use of monetary sterilization tools represented in the rediscount rate, the legal cash reserve ratio, open market operations, the external sterilization tool, and the foreign currency sale window, the central bank has not succeeded in achieving monetary sterilization

of domestic assets by isolating changes in foreign assets from the basic cash.

- Weak fiscal discipline and the technical and distributive efficiency of public spending caused a significant expansion in the narrow and broad money supply.

#### RECOMMENDATIONS:

- Establishing a sovereign fund for the financial surpluses realized from the rise in the price of oil above the speculative price of the general budget with the aim of neutralizing the impact of changes in foreign reserves generated by the rise in the price of oil from affecting the local currency.
- Adopting a new approach in the general budget that is an alternative to the item budget approach, with the aim of raising the technical and distributive efficiency of public spending.
- Diversify the sources of national income for the Iraqi economy in order for diversification to serve as a financial buffer for fluctuations that occur in the Iraqi economy as a result of fluctuations in the oil market and the resulting undesirable financial shocks in the state's general budget.

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#### Supplement to the monthly data on monetary and financial variables used in scientific research for the period 2005-2021

T	FR	MS2	DC	NDA	Δ FR	Δ DC	H	G
Jan,2005	12,099	12,474,000	850706	168,168,817	-	-	12,905,000	1,010,030
Feb,2005	13,106	12,899,000	826794	170,237,890	1007	-23912	14,064,000	2,527,842
Mar,2005	13,626	13,650,000	859911	173,914,840	520	33117	13,900,101	4,757,612
Apr,2005	12,154	13,732,000	872572	171,947,661	-1472	12661	13,240,367	6,332,496
May,2005	13,541	13,888,000	907791	173,258,391	1387	35219	13,303,898	7,432,887
Jun,2005	12,985	13,792,000	962733	174,634,719	-556	54942	13,836,813	10,352,309
Jul,2005	13,000	14,036,000	968966	176,306,866	15	6233	13,154,000	13,160,137
Aug,2005	12,274	13,278,000	1015473	177,209,400	-726	46507	13,020,849	15,705,267
Sep,2005	13,486	13,138,000	1028829	177,199,747	1212	13356	13,189,000	18,229,751
Oct,2005	14,648	14,051,000	1198029	179,752,520	1162	169200	13,225,000	20,267,030
Nov,2005	15,582	13,272,000	1192507	179,368,034	934	-5522	13,646,000	22,791,497

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<b>Dec,2005</b>	17,846	14,684,000	1717450	213,203,008	2264	524943	13,794,742	26,375,175
<b>Jan,2006</b>	18,336	15,267,000	1729142	213,711,722	490	11692	13,889,656	2,087,710
<b>Feb,2006</b>	18,894	15,826,000	1773416	248,768,787	558	44274	14,140,089	4,096,114
<b>Mar,2006</b>	19,498	16,701,000	1924051	250,202,214	604	150635	14,459,460	8,110,930
<b>Apr,2006</b>	20,040	16,842,000	2046756	250,113,004	542	122705	14,633,275	11,358,817
<b>May,2006</b>	19,868	17,128,000	1974833	248,828,899	-172	-71923	15,107,000	14,333,493
<b>Jun,2006</b>	19,059	17,486,000	2079970	251,657,401	-809	105137	15,452,121	16,459,986
<b>Jul,2006</b>	19,249	18,820,000	2048952	250,004,186	190	-31018	15,888,000	19,257,550
<b>Aug,2006</b>	21,072	19,440,000	2062529	250,037,790	1823	13577	15,908,000	21,938,206
<b>Sep,2006</b>	21,476	19,145,000	2079884	251,291,055	404	17355	15,747,000	24,742,634
<b>Oct,2006</b>	21,748	19,538,000	2380996	250,854,353	272	301112	15,876,931	27,352,221
<b>Nov,2006</b>	20,020	19,658,000	2785883	251,065,946	-1728	404887	16,471,702	30,206,873
<b>Dec,2006</b>	26,158	21,080,000	2664898	253,453,625	6138	-120985	17,520,265	38,806,679
<b>Jan,2007</b>	24,914	18,329,063	2748546	254,447,538	-1244	83648	17,718,171	1,350,445
<b>Feb,2007</b>	22,720	18,521,249	2636855	256,910,393	-2194	-111691	17,154,185	3,084,154
<b>Mar,2007</b>	22,980	18,677,529	2886261	256,900,316	260	249406	17,643,000	4,946,238
<b>Apr,2007</b>	25,254	19,144,052	3209568	257,635,408	2274	323307	18,466,000	7,473,210
<b>May,2007</b>	26,010	18,147,866	2382504	265,954,060	756	-827064	19,450,000	11,251,064
<b>Jun,2007</b>	26,830	18,791,275	2629523	265,529,433	820	247019	20,422,738	13,101,040
<b>Jul,2007</b>	29,586	19,577,348	2882492	267,479,326	2756	252969	19,981,705	16,008,157
<b>Aug,2007</b>	29,924	20,301,736	3787327	269,139,324	338	904835	20,114,998	18,617,390
<b>Sep,2007</b>	29,551	22,524,744	3880726	266,925,330	-373	93399	25,915,623	23,147,986
<b>Oct,2007</b>	30,863	23,444,731	3450997	269,873,165	1312	-429729	26,227,063	26,411,509
<b>Nov,2007</b>	33,065	23,522,876	3884281	268,483,393	2202	433284	27,573,122	28,960,902
<b>Dec,2007</b>	38,375	26,956,076	3459020	282,180,087	5310	-425261	28,808,438	39,031,232
<b>Jan,2008</b>	38,678	27,037,186	3495084	283,360,140	303	36064	29,872,955	1,607,046
<b>Feb,2008</b>	39,586	25,349,193	3110897	286,019,149	908	-384187	32,544,000	4,995,678
<b>Mar,2008</b>	41,890	25,910,917	3833913	282,714,029	2304	723016	33,401,032	7,975,770
<b>Apr,2008</b>	42,482	26,081,245	3651137	287,741,914	592	-182776	31,605,959	12,954,951
<b>May,2008</b>	46,189	26,580,025	3369210	285,793,396	3707	-281927	33,091,597	17,400,673
<b>Jun,2008</b>	46,628	28,481,094	3456671	289,585,249	439	87461	36,517,422	22,952,019
<b>Jul,2008</b>	47,860	29,825,484	4392409	290,962,449	1232	935738	38,347,190	27,721,807
<b>Aug,2008</b>	46,488	30,879,575	4657136	292,690,179	-1372	264727	38,482,054	31,612,445
<b>Sep,2008</b>	52,492	32,536,077	4813224	294,459,674	6004	156088	37,031,215	38,556,973
<b>Oct,2008</b>	50,526	31,294,688	4347174	295,170,530	-1966	-466050	38,564,854	43,450,505
<b>Nov,2008</b>	53,687	33,579,985	4450003	298,961,710	3161	102829	39,800,898	49,385,768
<b>Dec,2008</b>	58,958	34,919,675	4596423	307,194,947	5271	146420	42,858,594	59,403,375
<b>Jan,2009</b>	54,565	36,057,912	4764713	318,589,007	-4393	168290	42,528,261	2,129,132
<b>Feb,2009</b>	51,044	37,659,037	5050450	317,433,761	-3521	285737	42,970,388	4,687,280
<b>Mar,2009</b>	49,006	36,973,388	5172213	318,135,749	-2038	121763	42,033,098	7,573,558
<b>Apr,2009</b>	48,487	36,720,694	5095400	316,750,615	-519	-76813	42,021,387	10,659,729
<b>May,2009</b>	47,847	36,957,496	5174311	320,484,868	-640	78911	41,979,238	14,480,889
<b>Jun,2009</b>	48,711	37,811,325	5239657	320,323,018	864	65346	42,150,262	19,308,998
<b>Jul,2009</b>	50,804	38,806,875	5365025	323,688,397	2093	125368	43,445,009	23,562,094
<b>Aug,2009</b>	49,351	39,690,346	5333559	324,406,809	-1453	-31466	40,951,354	27,604,557
<b>Sep,2009</b>	46,960	42,982,641	5381913	324,856,565	-2391	48354	41,555,003	33,073,579
<b>Oct,2009</b>	50,338	42,921,266	6154710	327,681,615	3378	772797	42,594,570	38,198,670
<b>Nov,2009</b>	52,653	43,813,715	5631527	329,130,512	2315	-523183	43,644,854	43,521,533
<b>Dec,2009</b>	52,224	45,437,918	5690116	334,235,927	-429	58589	45,270,897	52,567,025
<b>Jan,2010</b>	53,210	46,211,046	7117819	339,911,596	986	1427703	42,799,445	3,861,589
<b>Feb,2010</b>	51,355	47,666,215	7215307	340,554,511	-1855	97488	43,053,628	7,688,959
<b>Mar,2010</b>	50,221	49,264,741	8030257	342,140,583	-1134	814950	40,665,319	11,624,023
<b>Apr,2010</b>	50,791	51,224,102	9324547	344,250,732	570	1294290	40,777,575. 80	15,931,096
<b>May,2010</b>	48,334	53,050,750	10259475	345,736,932	-2457	934928	42,984,738	21,249,373
<b>Jun,2010</b>	49,645	55,851,298	10369738	347,021,119	1311	110263	44,856,045	26,691,602
<b>Jul,2010</b>	50,101	55,873,827	10405480	349,006,452	456	35742	45,176,925	32,432,019
<b>Aug,2010</b>	50,576	56,388,061	10747874	338,109,234	475	342394	45,919,710	37,881,009
<b>Sep,2010</b>	54,029	56,213,464	10885131	339,039,952	3453	137257	46,316,119	42,410,560
<b>Oct,2010</b>	54,541	57,299,232	11127743	339,530,415	512	242612	46,824,713	47,319,988
<b>Nov,2010</b>	55,682	58,201,459	11439533	353,813,648	1141	311790	48,327,428	51,839,037
<b>Dec,2010</b>	59,263	60,386,086	11721535	363,360,199	3581	282002	53,809,831	64,351,984
<b>Jan,2011</b>	60,217	60,808,829	11690548	353,801,366	954	-30987	51,742,103	3,583,740
<b>Feb,2011</b>	59,227	59,739,929	14724634	356,051,924	-990	3034086	49,923,657	7,539,833
<b>Mar,2011</b>	58,973	58,452,768	14959024	355,264,279	-254	234390	48,369,517	12,735,146
<b>Apr,2011</b>	62,788	59,265,111	15330733	147,380,819	3815	371709	53,013,795	17,828,846
<b>May,2011</b>	63,568	59,602,270	15768672	149,908,290	780	437939	52,571,647	22,951,921

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Jun,2011	63,591	62,321,706	16297211	151,649,591	23	528539	53,295,403	28,861,159
Jul,2011	62,620	64,438,666	16531175	154,886,540	-971	233964	54,630,439	35,791,501
Aug,2011	66,947	65,125,368	16806442	156,503,065	4327	275267	55,349,950	41,786,546
Sep,2011	66,591	65,110,706	17300199	158,479,523	-356	493757	55,239,519	46,753,668
Oct,2011	67,779	67,148,300	17591690	161,263,139	1188	291491	56,950,406	53,102,654
Nov,2011	67,565	68,973,332	19035705	164,007,764	-214	1444015	58,227,853	58,146,385
Dec,2011	71,119	72,177,951	20353139	143,877,896	3554	1317434	58,697,956	69,639,523
Jan,2012	75,370	71,626,698	20983173	117,383,507	4251	630034	61,585,604	3,843,468
Feb,2012	68,491	72,389,840	22015977	117,315,916	-6879	1032804	62,034,379	9,032,673
Mar,2012	68,052	73,592,642	22094388	120,082,430	-439	78411	62,825,596	13,879,760
Apr,2012	70,743	75,216,016	23142176	124,076,097	2691	1047788	66,148,915	21,146,963
May,2012	68,797	73,207,937	23543418	124,812,775	-1946	401242	66,003,811	29,653,611
Jun,2012	74,481	72,682,903	24234112	124,661,801	5684	690694	67,497,986	37,979,778
Jul,2012	73,155	72,968,245	24707596	127,160,146	-1326	473484	66,237,155	46,132,256
Aug,2012	74,086	73,768,559	25730789	128,767,628	931	1023193	66,842,931	53,576,997
Sep,2012	71,999	73,543,262	26959961	129,981,501	-2087	1229172	65,531,088	60,540,661
Oct,2012	79,127	74,254,439	26402847	131,387,914	7128	-557114	66,342,799	67,880,750
Nov,2012	77,003	74,863,727	27859045	133,355,087	-2124	1456198	67,977,667	75,091,126
Dec,2012	81,312	77,187,497	28438688	128,200,325	4309	579643	70,501,210	90,374,783
Jan,2013	77,706	77,336,835	27054430	128,253,014	-3606	-1384258	70,491,521	4,470,874
Feb,2013	81,856	78,554,690	26838456	129,309,610	4150	-215974	73,134,687	9,491,016
Mar,2013	79,712	80,238,418	27302645	130,117,420	-2144	464189	74,048,700	16,788,178
Apr,2013	82,006	83,367,590	27748245	133,036,331	2294	445600	76,090,581	24,036,601
May,2013	83,995	84,979,975	28585348	134,103,630	1989	837103	77,953,193	32,741,459
Jun,2013	82,931	85,218,485	28894759	134,679,148	-1064	309411	77,749,096	41,687,042
Jul,2013	82,501	84,998,414	29085151	135,933,062	-430	190392	77,747,884	48,892,341
Aug,2013	83,603	83,919,472	29024792	136,007,754	1102	-60359	78,862,522	60,192,555
Sep,2013	87,471	85,886,119	29110376	139,363,641	3868	85584	79,795,123	70,225,129
Oct,2013	87,467	86,592,362	29488867	139,114,214	-4	378491	78,735,823	79,434,769
Nov,2013	85,766	86,959,526	29802069	143,160,276	-1701	313202	79,496,467	87,274,923
Dec,2013	90,097	89,512,076	29952012	142,140,101	4331	149943	82,804,919	106,873,027
Jan,2014	88,578	90,436,700	29913281	144,666,995	-1519	-38731	82,010,980	3,858,545
Feb,2014	89,069	88,921,947	30077250	144,604,260	491	163969	80,756,216	8,647,883
Mar,2014	94,364	89,146,380	30439588	143,584,520	5295	362338	79,349,202	13,035,950
Apr,2014	85,874	90,306,439	31532514	141,994,067	-8490	1092926	77,072,592	17,347,076
May,2014	94,613	88,797,216	32174291	140,702,343	8739	641777	73,989,482	22,215,339
Jun,2014	91,847	88,852,188	32637994	140,479,013	-2766	463703	73,308,800	27,602,713
Jul,2014	88,647	88,970,432	33586727	142,599,665	-3200	948733	73,409,554	31,470,255
Aug,2014	87,682	88,497,577	33546009	144,637,131	-965	-40718	71,205,811	36,274,228
Sep,2014	85,640	89,683,842	33481618	144,768,073	-2042	-64391	72,481,623	41,474,407
Oct,2014	92,748	90,633,315	34007113	146,502,119	7108	525495	71,409,200	47,857,507
Nov,2014	84,898	89,370,875	34155206	144,949,978	-7850	148093	70,832,608	56,938,729
Dec,2014	76,973	92,988,876	34123067	150,206,878	-7925	-32139	71,528,076	83,556,226
Jan,2015	77,511	88,444,238	36553164	146,491,729	538	2430097	66,103,611	2,826,894
Feb,2015	77,927	88,621,868	36195890	145,671,474	416	-357274	67,237,603	5,823,480
Mar,2015	78,956	91,248,122	35352668	142,267,351	1029	-843222	71,099,867	11,237,128
Apr,2015	84,510	91,762,010	35415885	146,434,961	5554	63217	71,012,342	16,135,540
May,2015	78,433	92,930,011	35770244	142,393,259	-6077	354359	71,121,507	21,570,927
Jun,2015	75,186	91,422,026	36105839	141,210,884	-3247	335595	69,497,204	28,186,469
Jul,2015	71,816	89,513,378	36516963	139,372,637	-3370	411124	66,467,485	35,520,403
Aug,2015	70,913	87,471,120	36818332	139,702,855	-903	301369	64,482,819	41,353,105
Sep,2015	69,899	87,179,092	36736250	138,481,204	-1014	-82082	64,642,725	45,435,844
Oct,2015	69,074	86,752,666	36638105	136,393,391	-825	-98145	63,923,668	50,680,027
Nov,2015	62,963	85,292,706	36400693	136,050,824	-6111	-237412	63,342,213	55,475,580
Dec,2015	63,435	84,527,272	36752686	136,233,599	472	351993	63,048,516	70,397,515
Jan,2016	60,787	84,418,246	37975638	133,692,658	-2648	1222952	61,565,581	2,943,531
Feb,2016	59,144	86,573,324	37967290	132,773,527	-1643	-8348	62,799,306	7,058,029
Mar,2016	59,399	87,960,801	36576067	131,971,804	255	-1391223	64,643,902	11,687,629
Apr,2016	59,285	89,080,003	36561058	131,425,015	-114	-15009	65,286,849	15,639,813
May,2016	58,487	89,342,320	36452963	130,593,173	-798	-108095	65,580,945	23,911,618
Jun,2016	56,608	88,901,115	36348946	130,182,439	-1879	-104017	65,571,545	30,328,588
Jul,2016	56,638	89,925,264	36697739	130,944,508	30	348793	66,111,463	34,459,129
Aug,2016	56,522	90,540,554	37002917	132,395,308	-116	305178	66,371,482	40,681,257
Sep,2016	55,663	91,225,709	36487068	132,450,913	-859	-515849	67,408,338	45,198,901
Oct,2016	54,181	90,685,636	36301590	132,447,022	-1482	-185478	68,184,231	51,455,567
Nov,2016	52,957	90,106,348	36262335	131,607,148	-1224	-39255	67,948,192	56,131,024
Dec,2016	53,106	90,466,370	37180123	132,613,975	149	917788	68,717,292	67,067,437

Jan,2017	53,871	90,454,105	36801438	131,699,249	765	-378685	67,761,367	4,161,531
Feb,2017	53,837	90,359,096	36881203	130,367,515	-34	79765	66,911,440	8,817,856
Mar,2017	53,780	90,180,057	36679551	131,230,406	-57	-201652	65,668,462	13,496,166
Apr,2017	53,741	88,855,348	36770889	130,578,643	-39	91338	63,576,981	17,977,964
May,2017	54,415	89,550,630	36748062	131,116,359	674	-22827	63,929,729	22,896,085
Jun,2017	54,241	90,045,251	36956314	131,173,463	-174	208252	64,694,225	27,924,908
Jul,2017	54,160	91,205,230	37351567	131,188,629	-81	395253	63,999,770	35,226,042
Aug,2017	55,173	90,811,987	38030432	133,218,836	1013	678865	63,584,490	45,085,375
Sep,2017	55,611	89,870,649	37562494	132,153,670	438	-467938	63,812,672	52,226,418
Oct,2017	55,915	89,904,869	37670097	131,465,924	304	107603	62,603,474	60,413,958
Nov,2017	56,313	91,129,944	37850895	133,107,633	398	180798	62,490,573	67,344,150
Dec,2017	57,893	92,857,047	37952829	111,285,271	1580	101934	65,690,505	75,490,115
Jan,2018	59,227	91,625,221	37704631	109,432,452	1334	-248198	63,461,082	4,274,429
Feb,2018	59,262	90,831,209	38097622	110,216,126	35	392991	62,268,775	8,792,330
Mar,2018	60,441	89,517,337	38474717	109,695,497	1179	377095	61,749,961	13,042,887
Apr,2018	62,323	89,802,803	38553277	109,850,293	1882	78560	61,155,941	18,821,427
May,2018	62,780	88,948,026	38690641	110,483,661	457	137364	62,010,855	25,276,526
Jun,2018	64,931	90,973,298	39125637	114,487,640	2151	434996	63,409,425	30,488,415
Jul,2018	66,875	90,927,911	38779929	114,935,571	1944	-345708	64,680,625	41,587,673
Aug,2018	68,889	91,487,579	38637915	118,185,579	2014	-142014	66,135,317	47,736,089
Sep,2018	69,159	93,170,025	38499017	122,192,150	270	-138898	67,384,893	57,218,567
Oct,2018	71,590	92,856,914	38464040	120,334,471	2431	-34977	67,103,752	63,159,398
Nov,2018	73,960	93,702,138	38275174	123,021,506	2370	-188866	67,798,279	71,483,665
Dec,2018	76,017	95,390,725	38486947	122,994,835	2057	211773	67,160,979	80,873,189
Jan,2019	75,288	94,252,953	38345346	120,903,198	-729	-141601	66,876,175	5,650,331
Feb,2019	76,800	93,722,387	38812308	122,236,317	1512	466962	67,360,342	11,440,142
Mar,2019	77,692	95,621,659	38895529	123,353,390	892	83221	68,505,638	18,429,560
Apr,2019	77,399	97,104,080	39119325	127,743,246	-293	223796	71,412,380	24,629,112
May,2019	77,227	96,043,053	39055265	129,133,101	-172	-64060	71,834,577	31,432,960
Jun,2019	79,444	98,466,307	39160620	129,207,821	2217	105355	73,474,611	38,824,983
Jul,2019	80,001	99,501,960	39950558	130,797,130	557	789938	74,544,165	48,371,033
Aug,2019	81,129	100,943,654	41027703	133,108,722	1128	1077145	76,071,431	57,626,488
Sep,2019	80,158	101,802,917	41197167	131,248,583	-971	169464	74,232,940	66,448,687
Oct,2019	80,512	102,719,522	41836046	131,521,802	354	638879	75,105,336	74,456,452
Nov,2019	80,408	102,821,807	42082544	133,024,710	-104	246498	77,249,810	85,050,465
Dec,2019	79,918	103,441,131	42052511	133,089,806	-490	-30033	78,253,336	111,723,523
Jan,2020	79,376	102,530,572	42269696	132,468,145	-542	217185	74,773,557	5,133,306
Feb,2020	79,238	105,677,133	42661939	132,867,332	-138	392243	74,430,867	10,749,424
Mar,2020	79,698	108,219,690	42126769	132,059,179	460	-535170	78,294,069	17,377,596
Apr,2020	80,804	110,696,059	42501844	129,844,717	1106	375075	80,004,380	22,756,417
May,2020	79,567	110,015,681	42706973	127,004,946	-1237	205129	79,147,766	27,478,471
Jun,2020	77,515	110,254,072	43734641	127,408,769	-2052	1027668	81,743,405	31,354,308
Jul,2020	78,570	111,106,913	46739089	127,802,290	1055	3004448	84,461,301	40,056,757
Aug,2020	76,797	111,674,519	46455719	128,011,331	-1773	-283370	84,949,807	45,685,763
Sep,2020	69,814	112,494,374	47299950	127,655,819	-6983	844231	80,703,140	51,734,178
Oct,2020	68,032	111,817,097	47530337	126,675,260	-1782	230387	80,414,940	57,865,491
Nov,2020	65,132	113,735,480	47684519	127,330,318	-2900	154182	83,550,581	64,360,943
Dec,2020	78,293	119,906,260	49817737	138,468,929	13161	2133218	88,861,792	76,082,443
Jan,2021	80,286	122,036,970	49438839	138,678,378	1993	-378898	92,237,456	6,569,312
Feb,2021	81,609	125,762,378	49995342	140,840,828	1323	556503	95,548,253	12,277,142
Mar,2021	84,779	128,693,135	49843394	140,782,626	3170	-151948	99,436,327	17,443,689
Apr,2021	86,406	129,860,360	50058879	143,446,019	1627	215485	100,922,728	23,521,979
May,2021	88,642	132,949,578	50201098	143,383,913	2236	142219	102,094,927	31,132,696
Jun,2021	87,020	133,546,538	50685907	144,855,228	-1622	484809	100,449,150	38,121,117
Jul,2021	87,085	134,910,510	51484311	147,756,928	65	798404	101,531,176	45,761,687
Aug,2021	86,781	135,603,854	51474115	151,786,908	-304	-10196	104,222,910	53,831,475
Sep,2021	86,409	135,101,124	52539622	151,104,858	-372	1065507	103,963,042	61,572,130
Oct,2021	90,985	137,855,413	52206362	154,296,808	4576	-333260	105,936,939	76,094,426
Nov,2021	91,526	136,914,524	52593793	153,970,082	541	387431	106,923,390	86,918,080
Dec,2021	92,527	139,885,978	52971508	159,424,417	1001	377715	110,137,166	102,849,659

Source: The official website of the Central Bank of Iraq (<https://cbi.iq/page/79>)