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The Dynamic Effect of the Money Supply on the Leakage of the Hard Currency - A Standard Analytical Study, Iraq as a Model

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Abstract: The study aims to analyze and measure the impact of each of the money supply and the speed of money turnover on a study period extending from 2004 to 2020, depending on the (ARDL) method. Or the speed of money circulation, and that the monetary policy worked to correct the imbalances that occur in the short term by 76%, and therefore the increase in the money supply and the speed of money circulation is reflected to be negative on the external leakage of the dollar.

While the study recommended reducing dollar sales except for the most necessary cases in order to preserve the US dollar, the study believes that the monetary authorities (the Central Bank of Iraq) are supposed to work to curb the increasing growth in the money supply.

Keywords: money supply (M2), money circulation velocity (V), foreign currency, dollar, monetary policy.

Introduction:

The US dollar is one of the hard currencies in the Iraqi economy, which comes from the sole revenue of the government (rental revenue), and the local currency (the dinar) is characterized as a currency associated with the US dollar as a result of its linking to the dollar, in addition to taking the exchange rate of the dinar as a nominal anchor for monetary policy, and this is what made foreign reserves From the dollar it has an association with the dinar currency

The wide money supply (M2) is also characterized by rapid growth, and this explains the high demand by individuals and economic institutions, and thus the high speed of money turnover, and since the Iraqi economy has a weak production base that is flexible to changes in demand, this contributes to raising imports from the outside world, which Making the leakage of hard currencies (the dollar) an inevitable consequence of the inability of the productive apparatus to upgrade and raise the level of its productivity that meets the needs and desires of society.

As the Iraqi Central Bank works to pump large amounts of dollars through its foreign window in order to meet the needs of importers and then fill the needs of basic and luxury goods and services for members of society, and therefore this is considered a leakage of dollars by the Iraqi economy to other economies.

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Firstly. Research problem:

The problem of the research lies in the leakage of large amounts of dollars from the Iraqi economy to other economies from which Iraq imports, and this is what made the Iraqi economy a focus for oil revenue leakage, and this is considered a violation of the rights of subsequent generations of foreign reserves, and the reason for this is the high rate of growth of the money supply resulting from of higher government spending.

Secondly. Research hypothesis:

The research stems from the hypothesis that an increase in the growth rate of the money supply contributes to raising the leakage of the dollar.

Third. Research objective: The research aims to

1. Studying the theoretical framework of the money supply, the speed of its circulation, and the foreign currency window.
2. Analyze the relationship between the speed of money circulation and the dollar's leakage to the outside world.

Fourthly. them search:

The analytical approach and the economic measurement approach were relied upon to analyze the relationship between the speed of money circulation and the leakage of the dollar to the outside world during the period (2004-2021)

Fifth. research importance:

The importance of the research lies in clarifying the broad money supply and government spending by highlighting the tiring policies by economic decision-makers, how hard currencies leak to the outside world, and what are the mechanisms used to reduce leakage.

Sixthly. Research Structure:

The research was divided into three sections, the first section took the theoretical basis of the study, while the second section dealt with analyzing the dollar leakage mechanism, while the third section focused on using the method of measuring the impact of economic policies on leakage.

Seventh. Previous studies:

1. A study ((Obaseki, 1991) entitled (Foreign exchange management in Nigeria: past, present and the future) (Foreign exchange management in Nigeria: past, present and future), the study aims to highlight the factors that must be reversed through appropriate policies that Through it, the foreign exchange management mechanism free from crises can develop and must be flexible. The study relied on the analytical approach using an extended period of time from (1986-1990). The economy, and appropriate measures should be used to stimulate non-oil exports intensively, because foreign currencies are an important economic resource that must be preserved.

2. Study (Al-Shammari and Al-Quraishi, 2019) titled (Evaluating the foreign currency auction as a tool for monetary policy in Iraq for the period (2003-2017), the study aims to evaluate the direct tool for monetary policy represented by the foreign currency sales window in Iraq during the period (2003-2017) and find An appropriate policy that is not effective in dealing with inflation and does not deplete foreign reserves, using the descriptive and analytical approach. The most important findings of the study is the need of the Central Bank of Iraq for a new, more effective tool in achieving stability in the general level of

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prices. The most important recommendations were to increase customs protection and follow a policy Replacing imports in order to mitigate the leakage of hard currencies (oil dollars).

The first topic is the theoretical rooting of the study

Firstly. The concept of the speed of money circulation and the factors affecting it:

1. The concept of money circulation speed:

Velocity of Money: An indicator that measures the speed of money circulation in the market, which is the number of times that money is transferred from one individual to another or from one entity to another, and it also indicates the volume of cash currencies used during a specific period of time. The velocity of money circulation is measured by dividing the gross domestic product by the money supply in the economy in the two forms M1 or M2 (Ali, Al-Issa, 2001, 254).

2. Factors affecting the speed of money circulation:

Economists agree that income (mean per capita income or nominal total income) is one of the most important

Economic variables that affect the behavior of the velocity of money circulation, as confirmed by all the studies applied in various developed and developing countries, but economists do not agree about it and the nature of the relationship between the behavior of the velocity of money circulation and the income variable, for example Friedman 1956 claims that there is an inverse relationship between To income and the behavior of the speed of money circulation, and he sees that individuals increase their possession of money whenever the income increases, and thus the speed of money circulation decreases because of the increase in the demand for it, and Friedman calls this case the effects of luxury goods, and there are a group of factors that affect the speed of money circulation, the most important of which are: (Al-Mahagel, 2004, 64):

a. The general level of price

b. Spread of banks

c. interest rates

Money supply (Al-Janabi and Arslan, 2009, 82)

Secondly :Currency selling window as an effective tool in monetary policy:

Some countries with emerging economies, which may suffer from a transitional phase as a result of their exposure to an economic problem or their desire to integrate into the global economy, have worked on adopting new methods of managing monetary policy by consolidating market mechanisms and using quantitative tools in a way that suits the development of their financial systems and the ability to deal with financial intermediation. (Gray et al, 2013:10), on the other hand, the window for selling foreign currency is one of the tools of non-traditional monetary authority, especially in countries with a rentier economy, as these countries suffer from the lack of readiness of their traditional channels, which in turn transmit the impact of monetary policy to the real sector. It also suffers from an imbalance in the economic structure and dependence on imports to meet domestic demand **(www.researchgate.net)**, so the effects of monetary policy are transmitted to the real sector through the exchange rate channel, as it disappears in the path of the fixed exchange rate and the increase occurs in the path of the flexible exchange rate, in addition to Therefore, the rentier economic systems that witness backwardness in their financial systems and the inefficiency of their traditional channels to transfer the impact of monetary policy to the real sector, the exchange rate is one of the effective tools in the possession of the monetary authority to target inflation

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and maintain price stability, so the currency selling window was used as one of the effective methods to influence The exchange rate directly to ensure monetary stability during a certain period (Gray et al, 2013: 8–12)

The second topic: the analytical side of the study

Firstly. The mechanism of action of the window in reducing inflationary pressures in Iraq:

The currency window sells the US dollar to the economic units against the Iraqi dinar, at a specific exchange rate, and in different ways (direct sales, remittances). Its sales of US dollars directly affect the exchange rate in the parallel market. The lower the sales, the lower the value of the Iraqi dinar. Therefore, the window mechanism used by the Central Bank is considered as a policy of sterilization, as this mechanism includes sterilization of the money supply resulting from the increase in government spending as a result of the increase in Oil revenues and in the absence of this mechanism (the window mechanism), inflation rates will increase in Iraq.

the mechanism of the foreign currency window in Iraq, which affects inflation through the exchange rate of the Iraqi dinar and works to implement the process of monetary sterilization. Inflation in the Iraqi economy as a result of the decrease in the real value of the exchange rate of the Iraqi dinar due to the increase in the supply of the Iraqi dinar, and then the injection of foreign currency through window sales, this matter works to absorb or withdraw liquidity, and then the growth of the money supply of the local currency (the Iraqi dinar) decreases) and is matched by an increase in the dollar supply, so the value of the exchange rate of the Iraqi dinar rises against the dollar and its purchasing power increases, and as a result it curbs inflation, especially since inflation in the Iraqi economy is formed through imports and is known as imported inflation because the consumer basket depends very much on imports from abroad, and since The imports are in foreign currency, and then the window has two advantages as follows:

secondly. Advantages and disadvantages of the foreign currency window in Iraq:

1. Features of the window:

a. It works to absorb the required imports to fill the shortfall in the commodity supply.

B. It works to preserve the value of the Iraqi dinar against the US dollar.

In spite of what the window is characterized by, it suffers from many disadvantages, the most important of which are the following:

2. Disadvantages of the window:

a. The increase in sales of foreign currency leads to the leakage of hard currency (the dollar) to develop the economic sectors of the countries from which Iraq imports.

B. An increase in foreign currency sales leads to a decrease in the percentage of foreign reserves, which is an important factor for the strength of the local currency and the economy as a whole.

T. Increasing foreign currency sales means encroaching on the rights of subsequent generations, since the natural resource (oil) is not exclusive to the current generations.

3. Proposed procedures to be followed:

a. The currency sales are at different prices, so the dollar is sold at a very high price for consumer goods and in limited quantities, provided that these sold quantities are able to fill the shortfall in the commodity supply.

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B. Also, sales of foreign currency should be at a low price for the purposes of importing capital goods involved in manufacturing, with the aim of supporting local production and increasing growth rates and economic development.

T. The Central Bank of Iraq deals directly with the companies producing and exporting to Iraq, in order to ensure that the dollar does not leak, as it is a hard currency and depends mainly on oil.

w. Establishing and forming banks in Iraqi airports to sell dollars to travelers for travel and treatment purposes, provided that the amount of sales does not exceed the appropriate amount according to treatment reports or for medical purposes.

Table (1) explains The broad money supply, the speed of money circulation, the foreign currency window, and the foreign reserves for the period (2004-2021):

Schedule (1) The broad money supply, the speed of money circulation, the foreign currency window, and the foreign reserves for the period (2004-2021)

the year	Broad Money Supply (M2) (trillion dinars)	Money turnover speed%	window sales (Billion dollar)	window purchases (Billion dollar)	The difference between sales and purchases (Billion dollar)	foreign reserves (Billion dollar)
2004	12.254	-	6108	10402	4294	9395
2005	14.684	19.8	10462	14930	4468	13547
2006	19.658	33.8	11175	18110	6935	18925
2007	26.956	37.1	15980	26700	10720	30452
2008	34.919	29.5	25869	45850	19981	49219
2009	45.437	30.1	33992	23013	(10979)	44335
2010	60.386	32.9	36171	41004	4833	50876
2011	72.177	19.5	39798	51003	11205	61034
2012	77.187	6.9	48649	57004	8355	70327
2013	89.512	15.9	55678	62000	6322	77743
2014	92.988	3.8	54463	47515	(6948)	65365
2015	84.527	(9)	44304	32450	(11854)	53822
2016	90.644	7.2	33524	25653	7871)(	44216
2017	92.857	2.4	42201	40355	(1846)	57893
2018	95.390	2.7	47133	52229	5096	76017
2019	103.441	8.4	51125	58851	7726	79918
2020	119.906	15.9	44080	30730	(13350)	78293

Source: Prepared by researchers, based on data from the Central Bank of Iraq, annual report, 2004-2021.

It is clear from Table (1) the wide money supply, the speed of money turnover, the foreign currency window, and the foreign reserves for the period (2004-2021). Greater and then depleted foreign reserves.

In 2004, the wide money supply amounted to (12.254) trillion dinars, while the window's sales amounted to (6108) billion dollars. A leak of hard currency (the dollar), whose only source is oil.

In 2010, the supply increased and reached (89.512) trillion dinars, and this increase is due to the increase in public spending, and that the increase in supply growth led to a speed of money turnover (32.9%) in 2010 after it was (19.8%) in 2004, which was reflected on Increasing pressure on the window's sales to reach (41004) billion dollars, and that the reserves were rising as a result of the increase in oil revenues, which is represented in US dollars.

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In 2015, the money supply decreased to reach (84.527) trillion dinars, and with it the speed of money circulation decreased to (-9%), and window sales decreased to (32450) trillion dollars, after it was (47515) trillion dollars in 2014.

The money supply has risen again, reaching (119.906) trillion dinars, and raising the rate of money turnover, but sales have decreased to reach (30,730) billion dollars, and the reason for this is the decrease in demand for the dollar due to the Corona crisis that swept the world in 2020.

Noting that the dollar purchases of the Central Bank of Iraq was part of the fiscal policy and that the increase in the level of sales is greater than the purchases leads to a decrease in the level of foreign reserves and thus reflects negatively on the rights of subsequent generations, as the increase in sales is a leakage of the dollar because most of the sales go on consumer goods. It is supposed to be manufactured within the Iraqi economy.

From the foregoing, it is clear that the leakage sales of the dollar rises with the high velocity of money turnover resulting from the increase in the money supply.

Therefore, the monetary authority must work to put an end to the growth of the money supply, which will negatively affect inflation in the event of a reduction in dollar sales.

The third topic

The standard aspect of the study

Firstly. Model description:

The standard model is one of the most important methods that are used to know the relationship between the various variables of the study, and that our study relied on three variables, one of which is an affected variable and the rest are influencing variables, to measure the impact of the money supply and the speed of money circulation on the leakage of the dollar, and the equation was as follows:

Y=F(X1, X2)

Y: foreign dollar leakage (window sales).

X1: Expresses the monetary fair.

X2: Expresses the speed of money circulation.

Firstly. Developed Dickey-Fuller test (ADF):

The expanded Dickie Fuller test is one of the most important tests that measure the degree of inactivity of economic variables. This test depends on the significance of the variable for three possibilities, which are (fixed limit, fixed limit, and general trend, without a fixed limit and no general trend). If the probability value is less than 5%, then that It refers to the stillness of the time series and vice versa. Table () shows the results of stillness (UNIT ROOT TEST TABLE (PP)) - Algeria:

Schedule(2) UNIT ROOT TEST TABLE (PP)

variable	Level			The first difference		
	With Constant & Trend	With Constant	With Constant & Trend	With Constant	With Constant & Trend	With Constant
Y	0.3569	0.8721	0.7853	0.0000	0.0000	0.0000
X1	0.8864	0.7003	0.9995	0.0000	0.0000	0.0000
X2	0.5739	0.5395	0.2945	0.0002	0.0011	0.0000

Source: Prepared by the researcher based on the results of the eviews12 program.

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It is clear from the table () that each of the independent variables (money supply and the speed of money circulation) and the dependent variable (currency window sales, which express leakage of the dollar) were not static at the original level due to their very high probability, which was greater than 5% and all Cases (With Constant, With Constant & Trend, Without Constant & Trend) and therefore the variables are not integrated at zero degrees.

When taking the first difference, the results of the test indicate that all variables are stationary at the first difference, meaning that both the independent variables (money supply and money turnover speed) and the dependent variable (currency window sales) became stationary at the first difference, since their probabilities were less than 5% and in all Cases (With Constant, With Constant & Trend, Without Constant & Trend).

Secondly. Model estimate:

The second step is to use the most appropriate model to measure the relationship between the variables, as it will rely on the autoregressive methodology for automatically distributed delay periods (ARDL), and the table () shows the initial estimate of the model:

Schedule(3) Initial estimate of the model

Dependent Variable: Y Method: ARDL Selected Model: ARDL(4, 4, 4)			
R-squared	0.976465	**Mean dependent var**	40926.21
Adjusted R-squared	0.951119	**S.D. dependent var**	10892.80
S.E. of regression	2408.289	**Akaike info criterion**	18.71539
Sum squared resid	75398142	**Schwarz criterion**	19.42908
Log likelihood	-247.0155	**Hannan-Quinn criter.**	18.93357
F-statistic	38.52599	**Durbin-Watson stat**	1.989627
Prob(F-statistic)	0.000000		

Source: Prepared by the researcher based on the results of the eviews12 program.

It is clear from the table (3) the initial estimate of the model, and it is clear that the value of the coefficient of determination (R-squared), which explains the changes in economic growth as a result of changes in macroeconomic variables (the money supply and the speed of money circulation), as it turns out that the dollar leakage changes by (97%) as a result of alopecia changes in monetary variables

It is also clear that the value of Durbin-Watson stat amounted to (1.9), and it shows that the model does not contain a serial autocorrelation problem.

It turns out that the best criterion is (Akaike info criterion), which has a value of (18.7), which is lower than the values of the other criteria.

It is also clear that the total probability value of the model has reached (0.00000), and this means that the model is completely acceptable, and therefore it is possible to resort to the rest of the model tests.

Third. Limit test (cointegration):

The cointegration test is based on the statistical value (F-statistic) of Fisher, and it is compared with the limits set by Basran at the 5% level. If the statistical value (F-statistic) of Fisher is greater than the upper limit of parameter I (1), this indicates that A cointegration relationship between the variables, so we reject the null hypothesis that states that there is no cointegration relationship, and we accept the alternative hypothesis that states that there is a cointegration relationship. If the statistical value (F-statistic) of Fisher is less than the minimum parameter I (0), then This indicates that there is no cointegration relationship, so we accept the null hypothesis that states that there is no cointegration relationship, and we reject the

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alternative hypothesis that states that there is a cointegration relationship, but if the statistical value (F-statistic) of Fisher is located between the two extremes (I) 0) and the upper limit I (1), this indicates the indecisive region, that is, the result of the integration is not deductible, and the table shows the limits test (cointegration) - Algeria:

As it is clear from Table (4) that the statistical value (F-statistic) of Fisher has reached (17.09308), which is greater than the upper limit of parameter I (1), which amounted to (3.49) at the level of significance of 5%, and therefore this indicates the existence of a relationship Co-integration between the dependent variable (dollar leakage) and the independent variables (money supply and money circulation speed.

Schedule (4) bounds test (cointegration)

ARDL Bounds Test **Included observations: 28** **Null Hypothesis: No long-run relationships exist**				
F-Bounds Test				
Test Statistic	**Value**	**Signif.**	**I(0)**	**I(1)**
F-statistic	**17.09308**	10%	2.2	3.09
K	**4**	**5%**	**2.56**	**3.49**
		2.5%	2.88	3.87
		1%	3.29	4.37

Source: Prepared by the researcher based on the results of the eviews12 program.

In light of this, we accept the alternative hypothesis, which states that there is a cointegration relationship between the dependent variable (dollar leakage) and the independent variables (money supply and money turnover), and we reject the null hypothesis that states that there is no cointegration relationship between the dependent variable (dollar leakage). And the independent variables (the money supply and the speed of money turnover), and therefore it is possible to resort to the results of the short and long effects and the error correction coefficient.

Fourthly. Impact results (short term and long term):

The autoregressive model for automatically distributed deceleration periods shows us the short-term and long-term parameters as well as the error correction coefficient that shows the correction that occurs in the short term and can be treated in the long term, and the table (5) shows the results of the impact (short and long term) as follows:

Schedule5) Impact results (short term and long term)

ARDL Cointegrating And Long Run Form **Dependent Variable: Y** **Selected Model: ARDL(4, 4, 4)** **Included observations: 28**				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
D(X1)	1463.060976	287.834701	5.082990	0.0002
D(X2)	1460.201455	264.276524	5.525279	0.0001
CointEq(-1)	-0.760285	0.082880	-9.173361	0.0000
Levels Equation **Case 2: Restricted Constant and No Trend**				
X1	-923.623855	289.853077	-3.186524	0.0072
X2	-3467.773589	772.212144	-4.490701	0.0006

Source: Prepared by the researcher based on the results of the eviews12 program.

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It is clear from the table (5) that the optimal slowing periods for the model were Selected Model: ARDL(4, 4, 4), and the results of the short-term effect were as follows:

1. The money supply is positively related to dollar leakage in the short term, as an increase in the money supply by one trillion dinars leads to an increase in dollar leakage by (1463) million dollars at a probability of (0.00002), which is significant because it is less than 5%.

2. The speed of money circulation is positively related to dollar leakage in the short term, as an increase in the money supply by one trillion dinars leads to an increase in dollar leakage by (1460) million dollars at a probability of (0.00001), which is significant because it is less than 5%.

It is also clear from the table (5) that the error correction coefficient has reached (-0.76) and has a significant significance (0.0000), and therefore it is in accordance with the items of the error correction coefficient, which states that the value of the correction coefficient is negative and significant, and that the result of the error correction coefficient indicates that the imbalances that occur in The short term can be corrected in the long term by 76%.

The results of the long-term impact are as follows:

1. The money supply is inversely related to dollar leakage in the short term, as an increase in the money supply by one trillion dinars leads to a decrease in dollar leakage by (932) million dollars at a probability of (0.00072), which is significant because it is less than 5%.

2. The speed of money circulation is inversely related to dollar leakage in the short term, as an increase in the money supply by one trillion dinars leads to a decrease in dollar leakage by (3467) million dollars at a probability of (0.00006), which is significant because it is less than 5%.

Fifth. Standard Problems - Algeria:

1. The problem of normal distribution of residuals:

The test for the normal distribution of the residuals of the model depends on the probability value on (Jarque-Bera). If it is greater than 5%, then we accept the null hypothesis that states that the residuals are distributed normally, and vice versa. If it is less than 5%, then we accept the alternative hypothesis that states that the residuals It is not distributed normally, and the figure (1) shows the normal distribution of the residuals:

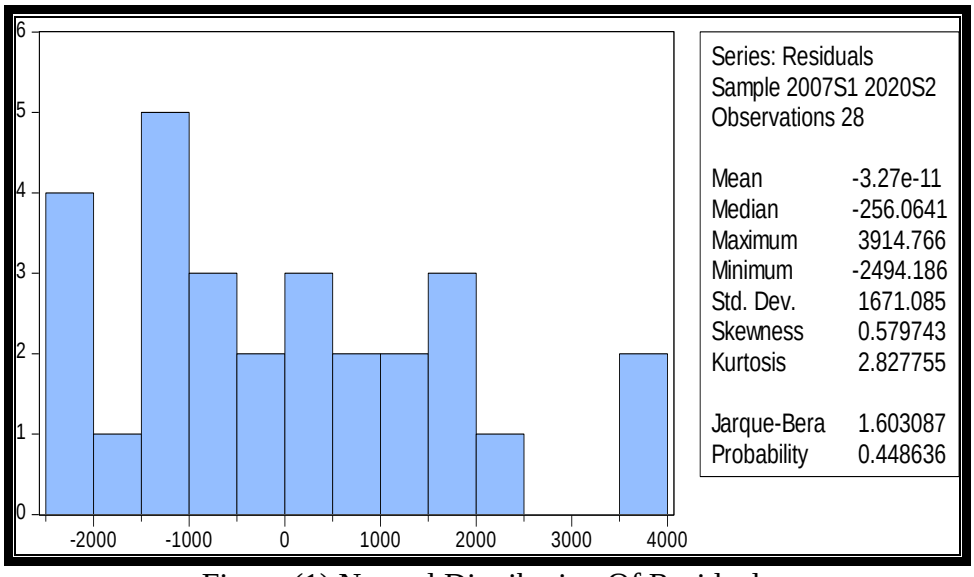

Figure (1) Normal Distribution Of Residuals

Source: Prepared by the researcher based on the results of the eviews12 program.

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As it is clear from figure (1) that the residuals of the model were distributed normally because the probability reached (0.44), which is greater than 5%, and by that we accept the null hypothesis which states that the residuals are distributed normally in the model**.**

2. The problem of autocorrelation:

The autocorrelation problem depends on the chi-square probability value of Prob. Chi-Square (2), if it is greater than 5%, then we accept the null hypothesis that states that there is no problem in autocorrelation, and vice versa, if it is less than 5%, then we accept the alternative hypothesis that states that there is a problem in autocorrelation, and the table () shows Results of the autocorrelation problem:

Schedule(6) results of the autocorrelation problem

Breusch-Godfrey Serial Correlation LM Test:			
F-statistic	**0.073699**	Prob. F(2,11)	**0.7823**
Obs*R-squared	**0.073963**	Prob. Chi-Square(2)	**0.8711**

Source: Prepared by the researcher based on the results of the eviews12 program.

As it is clear from the table (6) that there is no autocorrelation problem, since the probability of chi-square amounted to (0.8711), which is greater than 5%, and accordingly we accept the null hypothesis, which states that there is no autocorrelation problem in the model.

3. Variation Smoothing Consistency Problem:

The problem of consistency of variance smoothing depends on the chi-squared probability value of Prob. Chi-Square(1), if it is greater than 5%, then we accept the null hypothesis which states that there is no problem in the stability of variance homogeneity and vice versa, if it is less than 5% then we accept the alternative hypothesis which states that there is a problem in the stability of variance homogeneity and the table (7) shows the results of the variance smoothing stability problem:

Schedule**(7)** Results of the variance homogeneity stability problem

Heteroskedasticity Test: ARCH			
F-statistic	**2.724423**	**Prob. F(1,28)**	**0.7720**
Obs*R-squared	**2.660186**	**Prob. Chi-Square(1)**	**0.5972**

Source: Prepared by the researcher based on the results of the eviews12 program.

As it is clear from the table () that there is no problem of consistency of variance homogeneity, since the probability of chi-square amounted to (0.5972), which is greater than 5%, and accordingly we accept the null hypothesis which states that there is no problem in the stability of variance homogeneity in the Algeria model.

4. Structural stability:

After estimating the Autoregressive Distributed Delays (ARDL) model, testing the limits (for cointegration, error correction model, and performing standard problems tests, the structural stability test of the model is performed, which is represented by testing the cumulative sum of the remainder (Cusum) and (the cumulative sum of squares of the remainder (Cusum of Square), which was performed and the results are as in the following figures (2) and (3) :

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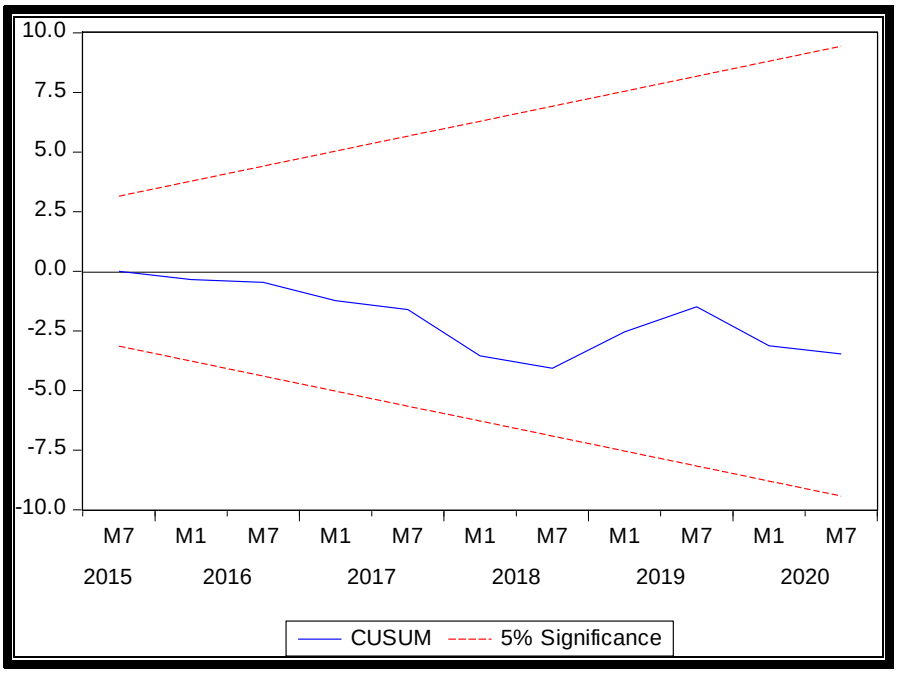

the shape (2) Structural stability test (cusum)
Source: Prepared by the researcher based on the results of the eviews12 program.

As it is clear from Figure (2) the test of the cumulative sum of the remainders of the model (Cusum), and that the red dashed lines indicate the critical limits at the level of significance (5%), while the connected blue series indicates the cumulative sum of the rest of the model, and that the structural stability occurs when the cumulative series is within The red critical limits, so it turns out that the model was stable throughout the study period

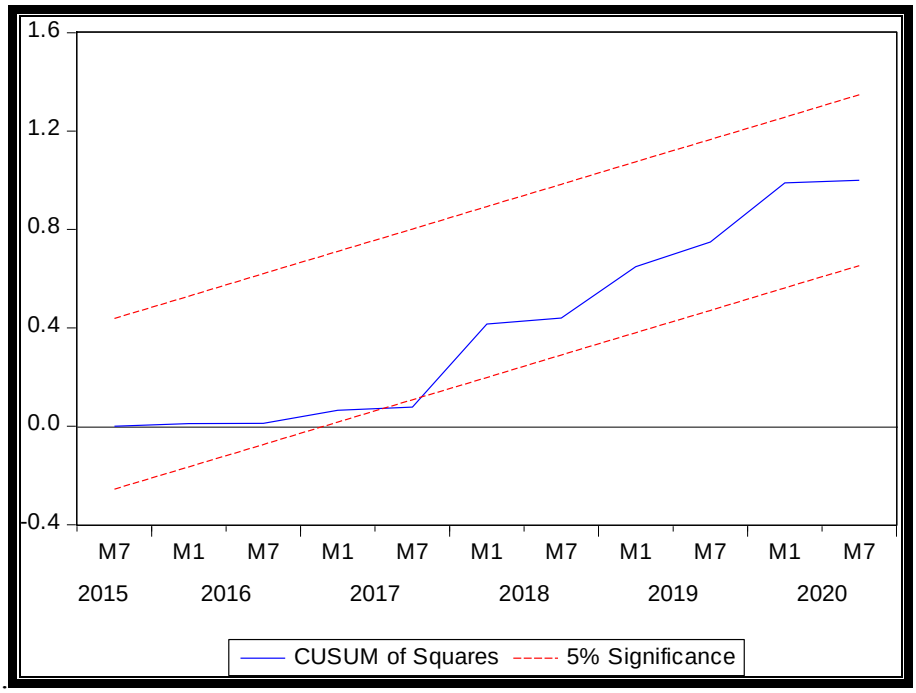

Figure (3) Structural stability test (cusum of squares)
Source: Prepared by the researcher based on the results of the eviews12 program.

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As for Figure (3), the test of the cumulative sum of squares of the remainders shows the model (Cusum of Square), and the stability is when that cumulative blue series is within the red critical limits, so it turns out that the study model shown in Figure (2) was stable throughout the study period.

Findings and Recommendations:

Firstly. Results:

1. Both the money supply and the speed of money circulation were increasing throughout the study period, and this gives us an impression of the movement of economic activity in the country.

2. The leakage of the dollar was the result of the lack of a productive apparatus capable of meeting the needs of individuals and economic institutions.

3. The money supply is positively related to dollar leakage in the short term, as an increase in the money supply by one trillion dinars leads to an increase in dollar leakage by (1463) million dollars at a probability of (0.00002), which is significant because it is less than 5%.

4. The speed of money circulation is positively related to dollar leakage in the short term, as an increase in the money supply by one trillion dinars leads to an increase in dollar leakage by (1460) million dollars at a probability of (0.00001), which is significant because it is less than 5%.

5. that the error correction coefficient has reached (-0.76) and has a significant significance (0.0000), and therefore it is in accordance with the items of the error correction coefficient, which states that the value of the correction coefficient is negative and significant, and that the result of the error correction coefficient indicates that the imbalances that occur in The short term can be corrected in the long term by 76%.

6. The money supply is inversely related to dollar leakage in the short term, as an increase in the money supply by one trillion dinars leads to a decrease in dollar leakage by (932) million dollars at a probability of (0.00072), which is significant because it is less than 5%.

7. The speed of money circulation is inversely related to dollar leakage in the short term, as an increase in the money supply by one trillion dinars leads to a decrease in dollar leakage by (3467) million dollars at a probability of (0.00006), which is significant because it is less than 5%.

Secondly. Recommendations:

1. The Iraqi government must establish investment projects capable of meeting the needs of local demand through them.

2. Reducing dollar sales except for absolutely necessary cases in order to preserve the US dollar.

3. The monetary authorities (the Central Bank of Iraq) are supposed to curb the increasing growth in the money supply.

4. The speed of money circulation is a positive indicator of the economy and the movement of its activity, so the circulation process must remain within the activity of the Iraqi economy and not be leaked to the outside.

References :

1. Al-Muhajili, Muhammad bin Saleh bin Suleiman, 2004 Determinants of the speed of money circulation in the Kingdom of Saudi Arabia, an unpublished master's thesis, King Saud University, College of Administrative Sciences, Department of Economics.

ISSN 2576-5973 (online), Published by "Global Research Network LLC"
under Volume: 6 Issue: 9 in Sep-2023 https://globalresearchnetwork.us/index.php/ajebm

2. Ali, Abdel Moneim Al-Sayed, Al-Essa, Nizar Saad Al-Din, 2004 Money, Banks and Financial Markets, 1st Edition, Al-Hamid House for Publishing and Distribution, Amman.
3. Al-Janabi, Hayel Ajami Jamil, Arsalan, Ramzi Yassin Yasa, 2009 Money, Banking and Monetary Theory, 1st Edition, Dar Wael for Publishing and Distribution, Amman.
4. (www.researchgate.net).
5. Gray K a r a m and et all (2013), Monetary Issue in the Middle East and North Africa Region' a Policy Implementation Handbook for central Bankers-Washington, International, Monetary fund.
6. Obaseki, P. J, (1991), Foreign exchange management in Nigeria: past, present and the future, Economic and Financial Review, v 29, n1.
7. Al-Shammari, Hashem Marzouk and Al-Quraishi, Shaima Jaber, (2021), Evaluation of the foreign currency auction as a tool for monetary policy in Iraq for the period (2003-2017), Iraqi Journal of Administrative Sciences, Volume 16, Number 56, Iraq.
8. Central Bank of Iraq, Annual Report on the Role of Monetary Policy of the Central Bank of Iraq in Inflation Management for the year (2018), Baghdad, Iraq.
9. The window for selling foreign currency in the Central Bank, (2019), prepared by the Central Bank Administration, Baghdad, Iraq.
10. Central Bank of Iraq, Annual Economic Report, Different Years, 2004-2020, Baghdad, Iraq.

ISSN 2576-5973 (online), Published by "Global Research Network LLC"
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