The Interest And Exchange Rates And Their Impact On The Stability Of The Demand For Money In Iraq for The Period (2004-2020)

Prof. Dr. Sawsan Kareem Hodan

sawsan.aljubori@qu.edu.iq

Researcher: Noor Mohammed Kareem

eco.stp22.19@uq.edu.iq

Al-Qadisiyah University / College of Administration and Economics

Abstract

Monetary policy is one of the main pillars of economic policies and an important role in guiding activity Economic, as the monetary authority represented by the Central Bank follows a certain strategy through the use of a different The tools available to achieve these goals, and here the research aims to know the role played by monetary policy (through its indicators) Represented by (interest rate, exchange rate) in affecting the stability of demand for money in Iraq and for the period (2004-2020), The study concluded that the demand for money responds to changes in monetary policy indicators, And the absence of a long-term equilibrium relationship (co-integration) between the variables studied according to the Bound Test methodology.

Keywords: Interest rate, Exchange rate, Demand for money

Introduction

Monetary policy, as one of the types of economic policy, plays an important role in economic activity through its impact on various economic variables such as inflation and gross domestic product, National income, This is because it is based on monitoring money supply and demand and seeks to achieve its ultimate goals , The monetary authority represented by the Central Bank uses this policy to achieve the objectives of monetary policy represented by economic stability A set of direct and indirect indicators or tools with the aim of combating any economic phenomenon that threatens the economy in general and the national economy in particular.

First: Research methodology

1- Research Importance

The importance of the research is to try to build an appropriate standard model for monetary policy indicators and money demand in Iraq Through it, we can identify the economic variables affecting it and measure the extent of their impact on the behavior of the demand for money in Iraq , This contributes to developing and drawing appropriate monetary policies that influence economic stability in order to achieve the requirements of economic growth.

2-Research problem

The research problem is defined in the following question:

Is the monetary policy in Iraq able to achieve stability in the demand for money for the period (2004-2020)?

3-Research Objective

The research aims to know the role that monetary policy plays through its indicators (interest rate, exchange rate) in affecting the stability of money demand in Iraq for the period (2004-2020).

4- Research Hypothesis

The research starts from the hypothesis that:

Monetary policy indicators (interest rate, exchange rate) have an effective and important impact on the stability of money demand in Iraq for the period (2004-2020)

5- Temporal and spatial boundaries:

● Spatial boundaries: The research dealt with the "Iraqi economy".

● Time limits: For the purpose of proving the research hypothesis and conducting the applied side of the research, the Iraqi economy was chosen as the study sample for the period from 2004-2020.

The first topic: The theoretical and conceptual framework of monetary policy

The first requirement: the definition of monetary policy

There are multiple definitions of monetary policy, defined by Paul (Rubin): "It is a type of stabilization policy that involves changes in the amount of money in circulation or interest rates, or both" (Rubin, Paul, 2006, 527). Monetary policy is defined as "It is all monetary decisions and actions, regardless of whether their objectives are monetary or non-monetary, as well as all non-monetary measures that aim to influence the monetary system" (Khalaf, Issa, 2019, 37). Kent also defined it as "a set of means pursued by monetary administration to control the money supply with a view to achieving a specific economic goal as the goal of full utilization " This meaning includes increasing and decreasing the volume of money in circulation with the intention of achieving limited goals (Manahi, 109). The economist (Johanson) defined it as " The instrument used by the central bank to influence the money supply by controlling it to achieve the general goals of economic policy "(Al-Khikani, Al-Musawi, 2015, 13).

The second requirement: monetary policy indicators

Firstly- lnterest Rate : - The interest rate occupies a major role in economic construction, and the interest rate is one of the most important indicators used to analyze the direction and movement of the macroeconomic system. Through monetary policy, the interest rate is used as a tool to influence economic activity, At the beginning of the Renaissance and the direction of the Church's philosophy to allow the interest rate as a tool or argument for investment, The classical economists combined the terms profit and interest without distinguishing between The price of money and risk return , Although the determinants of interest rate are different from the determinants of profit , It cannot be overlooked that the interest rate is one of the important variables at the macro and micro level , Accordingly the interest rate was considered the indicator on which it depends on events total balance by influencing both investment and saving , Then the traditional theory came to the conclusion that it is necessary to accept dealing with positive real interest for a group or several considerations, including , Present consumption is better than future consumption , The interest is the price of deprivation or waiting , The interest is the price of using the capital to other justifications (Kazem, 2012, 69-73). The mechanism of transmission of the monetary policy effect through the interest rate can be explained in the following way:

$$M \uparrow \rightarrow ir \downarrow \rightarrow I\uparrow(C\uparrow) \rightarrow y \uparrow$$

This can be interpreted as In the event that the executive authorities follow an expansionary monetary policy That is, an increase in the money supply ratio M This will lead to a decrease in interest rates ir in the money markets , This results in a decrease in the cost of capital And therefore there is an increase in both investment spending I and consumer spending C, And then leads to an increase in aggregate demand and finally in aggregate output Y (Ibrahim, 2019, 133-134). In setting the interest rate, economists distinguish between two types, the real interest rate and the nominal interest rate (N.Mankiw, 2009,63). The nominal interest rate is defined as "the announced rate that investors pay when borrowing money or the rate that the bank pays for deposits." As for the real interest rate, it is defined as "the interest rate that is obtained after excluding discounting, and it is the rate that measures the real cost of lending."

Second- Exchange Rate :- The exchange rate index has become more important in conveying the effects of monetary policy within the international economy after the expansion of international trade , and the subsequent problems and difficulties in exchange rates, This indicator shows the impact of monetary policy through its impact on net exports and total output , For example, when the central bank follows an expansionary monetary policy, this will lead to a decrease in the exchange rate of the national currency, This is what encourages exports , The mechanism of action is through its impact on interest rates , Where the decrease of the latter as a result of monetary expansion will lead to a decrease in the volume of deposits in foreign currency, This lowers the value of the local currency against the value of foreign currencies , Then the demand for domestic goods increases, exports increase, and then output increases (Taylor, 1995, 15-16). But if the central bank wants to follow a contractionary monetary policy, That is, it reduces the volume of the money supply, which means a rise in interest rates And it will cause an increase in the entry of foreign capital, and then the demand for the local currency will increase , Here the value of the national currency will rise against foreign currencies . This mechanism will negatively affect exports Because it will go down and then the growth rate of GDP will go down (Giovanni,Shambaugh,2007,20) . Through this, it can be said that the effectiveness of monetary policy varies according to the applicable exchange rate system There are two types of exchange rate systems: fixed exchange rate system and flexible exchange rate system . Thus, the exchange rate can be defined as " The value of currency in foreign currencies, which is determined by the interaction of supply and demand in the exchange market "(Adnan, Zaki, 2010,25). It is also known as "the price of a foreign currency in terms of a national currency that is obtained by meeting supply and demand" (Bernier, Simon, 1989,349).

The second topic

The reality of currency prices, exchange rates, and demand for money in Iraq during the period (2004-2020)

The first requirement: Interest rate Indicator analysis in Iraq for the period (2004-2020)

Schedule (3) shows the interest rate developments of the Central Bank of Iraq during the period (2004-2020), The interest rates approved by the Central Bank have been modified, since in 2004 the interest rate was 6% and in 2005 it was 7% , The aim of this amendment was to withdraw a greater amount of cash from the public to reduce the phenomenon of inflation , And the interest rate continued to rise in subsequent years until it reached the highest interest rate throughout the research period in 2007, amounting to 20% , This affected investors' decisions and their refusal to borrow As a result of the

increase in interest, the reason for this increase is due to the increase in demand for foreign currencies (the US dollar) Due to the increase in imports and coverage of daily commercial transactions, which are constantly increasing with the entry of various commodities and merchandise into the country. In 2008, as a result of the improvement in the exchange rate of the Iraqi dinar against the US dollar, the interest rate decreased to 16.75%, while the real rate amounted to (14.05%) , In 2009, due to the financial crisis that occurred in 2009, international reserves decreased by (44006) million dollars, so the Central Bank reduced the interest rate to 8.83%, and the reason is the decrease in inflation rates during the years 2007-2008 (30.8%, 2.7%), respectively, In 2010, the interest rate continued to decline until it reached (6.25%), with the aim of achieving monetary stability, raising economic growth rates, and increasing the balance of commercial banks' capital to finance economic development projects, based on the interest rate of 6% during the period 2011-2015, As for the period (2016-2020), the Central Bank of Iraq also reduced interest rates to 4%, respectively, in line with the directives of monetary policy and its high flexibility currently adopted in supporting the economic development process and the decrease in the inflation rate (0.5%) due to the stability it witnessed. The country after the completion of military operations. The purpose of this reduction was to stimulate economic activity in order to finance development projects and continue the economic development process. (Central Bank of Iraq, 2018,39). And as in Schedule(1)

Schedule (1) shows changes in the interest rate in Iraq for the period (2004-2020

year	Nominal interest rate %	General inflation rate	Real interest rate %
2004	%6	27.0	% -21
2005	%7	37.0	% -30
2006	%16	53.2	% -37.2
2007	%20	30.8	% - 10.8
2008	%16.75	2.7	%14.05
2009	%8.83	-2.8	% 11.36
2010	%6.25	2.4	% 3.85
2011	%6	5.6	% 0.4
2012	%6	6.1	%-0.1
2013	%6	1.9	% 4.1
2014	%6	2.2	% 3.8
2015	%6	1.4	% 4.6
2016	%4	0.5	% 3.5
2017	%4	0.2	% 3.8
2018	%4	0.4	% 3.6
2019	%4	-0.2	%4.2
2020	%4	0.6	%3.4

Source: Central Bank of Iraq, General Directorate of Statistics and Research, Statistical Bulletin for different years (2004-2020)

- The real interest rate was calculated by researchers based on the following formula: Real interest rate = nominal interest rate - inflation rate

The second requirement: : Exchange rate indicator analysis in Iraq for the period (2004-2020).

We note through Schedule (2), which shows the developments of the foreign exchange rate against the Iraqi dinar for the period (2004-2020) that the exchange rate of the Iraqi dinar in the parallel market amounted to (1453) (dinar / dollar), which is equivalent to the exchange rate in the official market (1453) (dinar/dollar**)** This is due to the replacement of the currency with a new one, and it gained general acceptance, as it provides security and is difficult to provide, which increased the demand for the Iraqi dinar as a good store of value , Then the exchange rate of the Iraqi dinar deteriorated in 2005, as the parallel exchange rate reached (1472) (dinar / dollar) and in the official market (1469) (dinar / dollar) due to the deterioration of the security situation, and this. Negative impact on material costs, including oil prices. gasoline and other foodstuffs that saw an increase during that period Then it rose again and improved at a pace during the period (2006-2008), as the official exchange rate in 2008 reached (1193) (Dinars / Dollars) and the parallel rate (1203) (Dinars / Dollars), with growth rates of (-5.05%, -4.9%). As for the period between (2009-2011), it witnessed remarkable stability in the official and parallel market as a result of the improvement in the value of the Iraqi dinar, which increased the confidence of individuals and narrowed the phenomenon of dollarization (Dagher, Ma'arij, 2015, 280). As for the years (2012-2013), the parallel exchange rate increased by a small difference, while the official exchange rate decreased to (1166) (Dinars - Dollars) for both years, due to the rise in oil prices and the increase in the Central Bank's reserves of foreign currency, as it reached in 2013 approximately 74 billion dinars , As for the period (2015-2019), the official exchange rate reached (1190) (Dinars / Dollars), which was characterized by its stability during the period. As for the parallel exchange rate, the difference widened and was fluctuating between decline and rise. In 2015, it recorded (1247) (Dinars / dollars), with a growth rate of (2.7%) , As for the year 2019, it recorded (1196) (dinars / dollars), with a growth rate of (0.9-%). The reason for this difference is due to the application of Article 50 of the Federal Budget Law of 2015 by the Central Bank of Iraq, which included determining the quantities sold of foreign currency in The auction was about $75 million a day, and when fears arose of a widening difference between the two prices, the central bank abandoned it , As for during the year 2020, the value of the Iraqi dinar decreased towards the US dollar, and the result was the spread of the Corona pandemic and the global economy stopped ,The closure of borders between countries and the decline in import, export and global trade operations, as the official exchange rate reached (1450) dinars / dollars, with a growth rate of (21.8%) this change came according to the requirements of the economic and financial situation and the objectives of monetary policy (Central Bank of Iraq,2020,22). And as shown in Schedule (2) .

Schedule (2) Developments of the exchange rate of the Iraqi dinar against the US dollar for the period (2004-2020) (Dinar – Dollar)

year	Parallel price	Growth rate %	official price	Growth rate %
2004	1453	-	1453	-
2005	1472	1.3	1469	1.1
2006	1475	0.2	1467	-0.1
2007	1267	-14.1	1255	-14.4
2008	1203	-5.05	1193	-4.9
2009	1182	-1.7	1170	-1.9
2010	1185	1.2	1170	0
2011	1196	0.9	1170	0
2012	1233	3.1	1166	-0.3
2013	1232	-0.18	1169	0
2014	1214	-1.5	1188	1.8
2015	1247	2.7	1190	0.1
2016	1275	2.2	1190	0
2017	1258	-1.3	1190	0
2018	1208	-3.9	1190	0
2019	1196	-0.9	1190	0
2020	1234	3.17	1450	21.8

Source: The Central Bank of Iraq, Directorate General of Research and Research, Annual Bulletin for different years (2004-2020).

Columns 4.2 prepared by the researchers based on the data of Schedule No. (2)

The Third Requirement: Analysis of the demand for money in Iraq for the period (2004-2020).

After 2003, the monetary authorities made serious attempts to reach a state of stability in the This was done through the process of replacing the old currency with a new one with high specifications that would be able to gain public confidence , Or by achieving stability in the foreign exchange market, and improving the exchange rate of the Iraqi dinar against the US dollar, as shown in Schedule (3), In order to get rid of the multiple exchange rates of the Iraqi dinar, Despite this, no stability has been achieved in the demand for mone This is due to a group of reasons related to the structure of the national economy As the continued hedging of individuals in foreign currency is considered a stable store of wealth and a means to protect it , This is considered one of the factors that impose instability in the demand for money and because this demand subject to the balance of the portfolio of different assets , On this basis, inflationary expectations, interest rate differences, and fluctuations in the Iraqi dinar exchange rate, all of these things generate a preference among individuals between the Iraqi dinar or the US dollar (Saleh,2008,2). In addition, the new currency that was issued with high specifications was unable to cover all commercial transactions, especially the large ones in the market , Because the exchange rate of the Iraqi dinar is still down . Through the table, it is clear that the demand for money was not stable during the period (2004-2008), and this could be due to the continued hedging of individuals in dollars at the expense of the Iraqi dinar , In addition to the difficulty of relying on the local currency in settling large commercial transactions in an economy that relies mainly on direct cash dealings instead of banks , As a

result of the decline in money demand during this period, this led to an increase in the speed of money circulation and an increase in the price level. As for the period after 2008, it witnessed relative stability in monetary demand, and this was reflected in the speed of money circulation with a gradual decrease and a curb on fluctuations in prices. The reason for this could be the improvement in the exchange rate of the Iraqi dinar and the increase in demand for the local currency and as shown in Schedule (3)

Schedule (3) Demand for real cash balances in Iraq (2004-2020) (million dinars)

year	Gross domestic product at current prices	Gross domestic product at constant prices 2007 = 100	implicit reducer to the gross domestic product	M1 cash offer	Money Demand MD
2004	53235358.7	101845262.4	0.5227	10148626	19415775.7
2005	73533598.6	103973179.6	0.7072	11399125	16118672.2
2006	95587954.8	109843734.7	0.8702	15460060	17766099.7
2007	111455813.4	111455813.4	1	21721167	21721167
2008	157026061.6	120626517.1	1.3017	28189934	21656244.9
2009	130642187.0	124702847.7	1.0476	37300030	35605221.4
2010	162064565.5	132687028.6	1.2214	51743489	42364081.3
2011	217327107.4	142200217.0	1.5283	62473929	40878053.3
2012	254225490.7	162587533.1	1.5636	63735871	40762260.8
2013	273587529.2	174990175.0	1.5634	73830964	47224615.5
2014	266420384.5	175335399.0	1.5194	72692448	47842864.2
2015	194680971.8	183616252.1	1.0602	65435425	61719887.7
2016	196924141.7	208932109.7	0.9425	70733027	75048304.5
2017	221665709.5	205130066.9	1.0806	71161551	65853739.5
2018	268918874.0	210532887.2	1.2773	77828984	60932423.0
2019	276157867.6	222141229.7	1.2431	86771000	69802107.6
2020	219768798.4	196985514.2	1.1156	103353556	92643918.9

Source: Central Bank of Iraq, Annual Bulletin, various issues, 2004-2020, Baghdad, General Directorate of Statistics.

- The demand for money was calculated by the researchers based on the following formula :-

$$\text{Money Demand MD} = \frac{\text{M1 cash offer}}{Implicit\ reducer\ to\ the\ gross\ domestic\ product\ GDP}$$

The Third Topic

The standard model for the impact of interest rates and exchange rates on the stability of money demand in Iraq for the period (2004-2020)

First: Description of the model : The model variables are divided into:-

1- lndependent variables : They are the variables that influence and are not affected by the model. These variables are also called exogenous variables. The independent variables used in the model are as follows:-

- Interest Rate IR
- Exchange Rate Ex

2- Dependent variables: are the variables that affect and are affected by the model. These dependent variables are also called internal variables. These dependent variables are represented in the model as follows:

- Money Demand Md

3- The random variable Ui: includes other variables that were not included in the model.

Second: Model equations: The model consists of a set of functional economic relations represented in the form of rates linking the studied variables. The model can be described in its standard form as follows:

$$MD = B_0 - B_1IR - B_2EX + Ui \quad \text{…..……}$$

The second requirement: analysis of stability tests

First: - Analysis of the stability of interest rates and exchange rates data in Iraq during the period (2004-2020) using the (ADF) test.

Schedule (4) shows the results of the unit root test of monetary policy indicators represented by (interest rate - exchange rate) in Iraq for the period (2004-2020), as we note from Schedule (4) that the interest rate (IR) was a series of data at Its analysis at the level is stable without a fixed limit and the general trend is at the levels of significance (1%, 5%, 10%), and this means that the time series is stable and integrated from degree (0) ~ 1, and therefore we will reject the null hypothesis and accept the alternative hypothesis .

As for the results of the unit root of the exchange rate (EX) data series when analyzed at the level, it was unstable without the fixed limit and the general trend at all levels of significance (1%, 5%, 10%) , Also, when analyzed in the presence of the fixed limit, it was unstable at all levels of significance (1%, 5%, 10%) , And when tested in the presence of the fixed limit and the general trend, it was also unstable at all levels of significance (1%, 5%, 10%) , But it was stable at the first difference without the fixed limit and the general trend at all levels of significance (1%, 5%, 10%) , This means that the series is stable, integral of degree (1) ~ 1, and devoid of a unit root. Thus, we will reject the null hypothesis and accept the alternative hypothesis.

Schedule (4)The unit root test for (interest rate, exchange rate) in Iraq for the period (2004-2020) using the (ADF) model

variable		The level			The first difference	
		without	Fixed limit	Fixed limit and general direction	without	Fixed limit
t-Statistic **IR**		-2.654788				
Moral level	%1	-2.605442				
	%5	-1.946549				
	%10	-1.613181				
t-Statistic **EX**		-1.071611	-2.046027	-1.622701	-5.612486	
Moral level	%1	-2.600471	-3.533204	-4.103198	-2.601024	
	%5	-1.945823	-2.906210	-3.479367	-1.945903	
	%10	-1.613589	-2.590628	-3.167404	-1.613543	

Source: Prepared by researchers based on the Eviews program

Second: Analysis of the stability of the series of money demand data in Iraq for the period (2004-2020) using the (ADF) test

Schedule (5) shows the results of the unit root test of the money demand data series in Iraq for the period (2004-2020) , As we can see from Table (5), the results of the data series (MD) at all levels of significance (1%, 5%, 10%), as well as at all levels of significance (1%, 5%, 10%), as well as when analyzed in having a fixed limit at all levels of significance (1%, 5%, 10%) , When tested in the presence of the fixed limit and the general trend, it was also unstable at all levels of significance (1%, 5%, 10%), but it was stable at the first difference without the fixed limit and the general trend at all levels of significance (1%, 5%, 10%) , This means that the series is stable and integral of degree (1) ~ 1 and is devoid of a unit root. Thus, we will reject the null hypothesis and accept the alternative hypothesis. As long as the stability of the variables was not at one level of differences, this requires a joint integration procedure that enhances its stability in general in the long run.

Schedule (5) The unit root test of money demand in Iraq for the period (2004-2020) using the (ADF) model

variable		The level			The first difference	
		without	Fixed limit	Fixed limit and general direction	without	Fixed limit
t-Statistic **MD**		1.942928	0.224652	-2.785297	-5.612486	
Moral level	%1	-2.600471	-3.533204	-4.103198	-2.601024	
	%5	-1.945823	-2.906210	-3.479367	-1.945903	
	%10	-1.613589	-2.590628	-3.167404	-1.613543	

Source: Prepared by researchers based on the Eviews program

The Third requirement: measuring and determining the impact of the interest rate and the exchange rate on the demand for money in Iraq for the period (2004-2020)

First: The quantitative relationship between (Interest Rate, Exchange Rate) and the demand for money in Iraq for the period (2004-2020)

The data of the monetary policy indicators in Iraq were analyzed for a period of (17) years, and the data was divided into quarterly due to the small size of the sample for the purpose of verifying the research hypothesis and testing the impact of the interest rate and the exchange rate (IR, EX) , as independent variables on money demand (MD) as a dependent variable.

And the results of the estimation showed, as shown in Schedule (6), that the relationship of the interest rate (IR) with the demand for money (MD) is an inverse relationship, and this is in line with the logic of economic theory, as a change in the interest rate by one unit affects the (MD) by (E) +08 (-2.48) alone.

As for the relationship of the exchange rate (EX) with the demand for money (MD), it is also an inverse relationship, and this is in line with the logic of economic theory, as a change in the exchange rate by one unit affects (MD) by (-59754.22) alone. It is worth noting that the exchange rate signal can be positive or negative depending on the economic development of the country. An increase in the local currency exchange rate (the depreciation of the local currency) can appear as an increase in national wealth and lead to a decrease in the demand for money, an inverse relationship. Either If the local currency exchange rate decreases (an increase in the value of the local currency), it can lead to an increase in the demand for money, and then the relationship is positive (Lungu, Simwaka, Austin, 2015, 53).

Multiple regression analysis of the relationship between (IR, EX) and (MD) shows that the explanatory power of the model amounted to (0.587959), and this is indicated by the value of R2. This means that the independent variables (IR, EX) explain about (58%) of the changes that occurred in the variable. The dependent (MD), while the remaining percentage is (52%), it is due to unexplained factors included in the random variable.

As for the value of F, it amounted to (46.37566), with a level of probability (0.000) less than (0.05), which is significant. Thus, we reject the null hypothesis and accept the alternative hypothesis, which indicates the significance of the estimated features, as shown in Schedule (6).

Schedule (6) It shows the quantitative relationship between (IR, EX) and (MD)

R-Squared = 0.587959	
F-statistic= 46.37566	**Prob(F-statistic)= 0.000**
IR	-2.71E+08
EX	-86099.78
C	1.76E+08

Source: Prepared by researchers based on the Eviews program

Second: Measuring the impact of the interest rate index and the exchange rate on the demand for money in Iraq for the period (2004-2020) using the (ARDL) model.

1-String estimation under the ARDL methodology

Schedule (7) It shows the results of the ARDL test of the effect of the interest rate index and the exchange rate (IR), EX) on the demand for money (MD)

Dependent Variable: MD
Method: ARDL
Date: 04/30/23 Time: 12:36
Sample (adjusted): 2006Q2 2020Q4
Included observations: 59 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
MD(-1)	0.948975	0.104723	9.061755	0.0000
MD(-2)	1.25E-13	0.136672	9.13E-13	1.0000
MD(-3)	-3.31E-13	0.136672	-2.42E-12	1.0000
MD(-4)	0.527638	0.164123	3.214887	0.0027
MD(-5)	-0.521855	0.146257	-3.568074	0.0010
IR	2.06E+08	96806794	2.125617	0.0403
IR(-1)	-2.41E+08	98949095	-2.438157	0.0197
IR(-2)	-0.000134	42976933	-3.12E-12	1.0000
IR(-3)	9.56E-05	42976933	2.22E-12	1.0000
IR(-4)	1.50E+08	55542391	2.702943	0.0103
IR(-5)	-1.61E+08	47850877	-3.356636	0.0018
EX	80880.99	24169.64	3.346388	0.0019
EX(-1)	-86477.86	27397.82	-3.156378	0.0032
EX(-2)	-8.09E-08	22800.56	-3.55E-12	1.0000
EX(-3)	4.53E-08	22800.56	1.99E-12	1.0000
EX(-4)	-30202.05	28653.66	-1.054038	0.2987
EX(-5)	33794.11	29552.39	1.143532	0.2602
EX(-6)	1.53E-07	25194.67	6.08E-12	1.0000
EX(-7)	-1.33E-07	25194.67	-5.29E-12	1.0000
EX(-8)	-175728.0	35343.13	-4.972056	0.0000
EX(-9)	185610.7	29415.86	6.309885	0.0000
C	-3530585.	21137993	-0.167026	0.8683

R-squared	0.982094	Mean dependent var	49991828
Adjusted R-squared	0.971930	S.D. dependent var	20636436
S.E. of regression	3457421.	Akaike info criterion	33.22909
Sum squared resid	4.42E+14	Schwarz criterion	34.00376
Log likelihood	-958.2581	Hannan-Quinn criter.	33.53149
F-statistic	96.63324	Durbin-Watson stat	2.194724
Prob(F-statistic)	0.000000		

*Note: p-values and any subsequent tests do not account for model selection.

Source: Prepared by researchers based on the Eviews program

And the ARDL model , it is clear from Schedule (7) that the value of R2 = 0.982094), the value of F= (96.63324) , and the value of prob = (0.000000), which indicates the significance of the estimated model, that the test (ARDL) for the model dedicated to the research period that there is a high response by the demand for money to changes in (interest rate, exchange rate) , Monetary policy played a major role in

the Iraqi economy, especially the great role played by the Central Bank of Iraq by controlling the exchange rate and then controlling the general level of prices and making this goal one of its main objectives through the exercise of the window for selling foreign currency, especially the US dollar, in terms of price stability. Despite the existence of an inflexible production system for changes in domestic aggregate demand, the interpretation coefficient R^2 reached (98%). The response of money demand to changes in the interest rate index and the exchange rate index .

2- Limits test for cointegration

Schedule (8) Bound Test results for the effect of the interest rate index and the exchange rate index (IR, EX) on the demand for money MD

F-Bounds Test		Null Hypothesis: No levels relationship		
Test Statistic	Value	Signif.	I(0)	I(1)
			Asymptotic: n=1000	
F-statistic	1.3493682	10%	2.63	3.35
k		5%	3.1	3.87
		2.5%	3.55	4.38
		1%	4.13	5

Source: Prepared by researchers based on the Eviews program

As for the Bound Test, we note from Schedule (8) that the calculated F value of (1.349368) is less than the values of the minimum limits Bound and at all levels (1%, 2.5%, 5%, 10%) This indicates that there is no joint integration between the research variables, so we reject the alternative hypothesis and accept the null hypothesis that there is no long-term equilibrium relationship .

3_ Test (LM.Test)

Schedule (9)Test results of the autocorrelation problem of the effect of the interest rate index and the exchange rate index (IR, EX) on (MD)

Breusch-Godfrey Serial Correlation LM Test			
F-statistic	0.803825	Prob. F(2,35)	0.4557
Obs*R-squared	2.591025	Prob. Chi-Square(2)	0.2738

Source: Prepared by researchers based on the Eviews program

It can be confirmed that the model is free from the autocorrelation problem by relying on the (LM TEST) test at a significant level (0.05), as the results in Schedule (9) prove that the relationship between (IR, EX) and (MD) is free from the autocorrelation problem, because the value The probability of F is Prob.

F=0.4557, F=0.2738 Prob. Chi-Square values are non-significant and greater than (0.05), so we will reject the alternative hypothesis and accept the null hypothesis, which indicates that the residuals are not self-correlated.

4- Cumulative sum test for residuals (ARCH)

Schedule (10)Cumulative sum test (ARCH)

Heteroskedasticity Test: ARCH			
F-statistic	1.040516	Prob. F(1,56)	0.3121
Obs*R-squared	1.058019	Prob. Chi-Square(1)	0.3037

Source: Prepared by researchers based on the Eviews program

As for the relationship between (IR, EX) and (MD), it is free from the problem of homogeneity of variance based on the Heteroskedasticity Test. Schedule (10) shows that the probability value of the F-statistic was (0.3121) and Prob.Chi-Square = 0.3037, which is Also, it is not significant and greater than 0.05, so the alternative hypothesis will be rejected and we will accept the null hypothesis, which confirms that there is no problem of homogeneity of variance.

As for the results of error correction (CointEq (-1), we note from Schedule (11) that the error correction speed reached (-0.045242) and with a probability level of (0.0208), which is less than 0.05, i.e. there is correction from the short term to the long term according to the following equation:

EC = MD - (-1016075520.2574*IR + 174127.7208*EX - 78037768.7145)

We note from Schedule (11) that the interest rate parameter amounted to (-1016075520.2574), which is not significant, since the probability of correcting the error in the long term amounted to (0.2019), which is greater than 0.05, while the exchange rate parameter amounted to (174127.7208), which is not significant, since The probability of error correction in the long run was (0.6473), which is greater than 0.05.

Schedule (11) Error correction results for the effect of interest rate and exchange rate (IR, EX) on (MD)

CointEq(-1)	prob	Long Run Cofficients (I)	prob	Long Run Cofficients (Ex)	prob
0.045242	0.0208	1016075520.2574	0.2019	174127.7208	0.6473

Source: Prepared by researchers based on the Eviews program

Conclusions

1- The research hypothesis has been proven that (the monetary policy indicators in Iraq represented by (interest rate, exchange rate) have an effective and significant effect on the stability of the demand for money.

2- The results of the (ADF) test showed that the stability of the data was a mixture between the level and the first difference. Accordingly, the distributed delay model (ARDL) was used to analyze the cointegration of the time series.

3- It was concluded that there is no long-term relationship between the interest rate index, the exchange rate, and the demand for money. This inferred from it that the monetary policy did not generate those accelerating effects that lead to the stability of the demand for money.

4- Through the ARDL Error test for all independent variables (interest rate, exchange rate), there is a short-term relationship with the dependent variable (money demand) because CointEq is negative and has a significance of less than 0.05.

5- Through the ARCH test, the Chi-Square value is greater than (0.05), meaning that there is no autocorrelation in the residuals.

6- The results proved the existence of an inverse relationship for each of the interest rate and the exchange rate with the demand for money, all of which are consistent with the logic of economic theory.

7- The difficulty of relying on the local currency in settling large commercial transactions in the Iraqi economy, which depends mainly on direct cash dealings instead of banks, which led to a decrease in the demand for money.

Recommendations

1- The interest rate is one of the most important tools on which monetary policy in the global economy depends, and since the Iraqi economy is one of the economies that claim to shift to a market economy, so the economic policy must pay attention to the interest rate variable and its activation so that it becomes influential for general liquidity and transfers the impact of monetary policy to real sector of the economy

2- In view of what the Central Bank has achieved in adopting policies to control the exchange rate and limit the rise in inflation rates, it must enjoy independence for the purpose of making decisions that have an impact on economic conditions.

3- Work to improve banking services provided by the Iraqi banking system, and develop banking habits among the public, because of its role in improving the volume of savings bank deposits and reducing the percentage of currency in circulation**.**

4- Addressing the phenomenon of dollarization in the Iraqi economy by improving the value of the Iraqi dinar against the value of the US dollar.

5- In order to give more credibility and accuracy to the results of studies related to monetary policy, we recommend that the monetary authority provide a periodic economic database that is presented according to international methodologies, as well as cooperation between relevant institutions such as the Central Bank, the Ministry of Planning and the Ministry of Finance.

References:

(1) Paul Krugman end Robin " Macroeconomic " Worth ، 2006، p527

(2) Hamid Hassan Khalaf, Saad Salih Issa, "Monetary policies and the imbalance of the Iraqi balance of payments for the period 2003-2016," Dananer Magazine, Issue Sixteen, 2019, p. 37.

(3) Iftikhar Muhammad Manahi, "The Importance of Monetary Policy in Economic Stability in Iraq for the Period 2003-2010," Dinars Magazine, Issue Six, p109.

(4) Nizar Kazem Al-Khikani, Haidar Younis Al-Musawi, "Economic policies, the general framework and their impact on the financial market and macroeconomic variables," Al-Yazuri Scientific House for Publishing and Distribution, second edition, 2015, p 13.

(5) Ammar Majid Kazem, "The interest rate from the traditional and Islamic point of view," the Iraqi Journal of Economic Sciences, the tenth year, the thirty-second issue, 2012, pp 69-73.

(6) Amal Ali Ibrahim, "The Role of Monetary Policy in Achieving the Objectives of Economic Policy in Egypt Using a Square as the Magic Role," without publisher, 2019, pp. 133-134

(7) N. Gregory Mankiw " Macroeconomics" Worth Publishers , New York , 2009 ,7Ed , p63.

(8)John Taylor , the monetary transmission , an empirical framework ,journal of economic perspective , vol . 9 no 4 ,1995 , p15-16 .

(9) Julian di Giovanni and Jay C. Shambaugh " The lmpact of foreign lnterest Rates on the Economy : The Role of the Exchange Rate Regime , National of Economic Research , NBER Working Paper No . 13467 , 2007 , p 20.

(10) Hajir Adnan, Amin Zaki, "The International Economy," Ithraa for Publishing and Distribution, first edition, Amman, 2010, p 25.

(11) Bernier W. Simon, "The Fundamentals of Macroeconomics," translated by Abdel-Amir Ibrahim Shams Al-Din, Al-Kitab for Publishing and Distribution, first edition, Beirut, 1989, p. 349.

(12) Central Bank of Iraq report,2018, p 39.

(13) Mahmoud Muhammad Dagher, Hussein Atwan Maarij, "The exchange rate of the Iraqi dinar between the realistic system and the declared system for the period (2004-2012), Journal of Economic and Administrative Sciences, University of Baghdad, Volume 21, Issue 84, 2015, p 280.

(14) Central Bank of Iraq, Annual Economic Report 2020, p 22.

(15) Mazhar Muhammad Salih, "The Monetary Policy of the Central Bank of Iraq and the Requirements for Stability and Economic Growth, Central Bank of Iraq, Baghdad, p. 2008, p 2.

(16) Mark ,Lungu . Simwaka,kisu and Chiumia Austin ," Money Demand Function for Malawi – implications for monetary policy conduct " Banks and Bank Systems, volume 7.Issue 1, 2012, p 53.