Money Supply And Inflation And Their Impact On The Demand For Money In Iraq For The Period (2004-2020)

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Abstract : This research aims to identify the relationship between monetary policy indicators represented in (money supply, inflation) and their role in stabilizing the demand for money in Iraq for the period (2004-2020), and this was done by using and applying the used tests. In econometrics, where the (ARDL) test for integration was carried out, and the (ARDL) test for the model throughout the research period showed that there is a high response by the demand for money to changes in monetary policy indicators (money supply and inflation), and the interpretation coefficient R^2 reached (97%) The response of money demand to changes in monetary policy indicators (money supply, inflation), as for the peg test, which is an indicator of a long-term currency. - Integration relationship between research variables.

Keywords: Money supply, Inflation, Money For Demand

INTRODUCTION: The success of monetary policy in achieving the final goals such as price stability, the exchange rate and achieving economic growth depends to a large extent on the optimal choice of the intermediate goal of monetary policy such as the money supply in developing countries or the interest rate in developed countries. One of the most important factors affecting the effectiveness of the money supply in achieving the final objectives of monetary policy is the stability of the demand for money. When the demand for money is stable, the central bank can estimate the impact of the change in the money supply. final change in the money supply, In addition, the inflation rate can be considered among the monetary indicators that carry direct political connotations due to its impact on the purchasing power and consumer welfare. Therefore, most governments seek to achieve discipline in monetary policy by controlling inflation.

First: Research Methodology

1- The importance of research

The importance of the research is to try to build a suitable standard model for monetary policy indicators (money supply, inflation) and demand for money in Iraq, through which we can identify the economic variables affecting it and measure the extent of their impact on the behavior of demand for money in Iraq, which contributes to the development and drawing Appropriate and effective monetary policies in order to achieve the requirements of economic growth.

2-Research problem

The research problem is defined in the following question:

Are monetary policy indicators (money supply, inflation) 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 (money supply, inflation) 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 (money supply, inflation) have an effective and significant impact on the stability of money demand in Iraq for the period (2004-2020)

5- Temporal and spatial boundaries

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

B- Temporal limits: For the purpose of proving the research hypothesis and conducting the applied side of the research, the Iraqi economy has been 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. Its economic definition (G.L. Bash) defines it as "the work of the monetary authorities that effectively affects the volume and composition of assets held by the non-banking sector, whether cash, deposits, or government bonds" (Al-Shazly, 2017, 2) . Blider, Baumol also defined it as "the activity or

action that is taken or initiated by the Federal Reserve System (which corresponds to the central bank) in order to change the balance in the money market and which comes from changing the money supply or moving interest rates or both" (Al-Ghalabi et al., 2021 , 8) . Monetary policy is meant as: - It is one of the two main policies (the other is fiscal policy) that government authorities regularly influence in the market economy and the pace and direction of overall economic activity (M.Friedman, 2000, 1).

The second requirement: monetary policy indicators

First - Money Supply: The money supply can be taken as an indicator that highlights the work, role and effectiveness of monetary policy in any country and the extent of its impact on economic activity. Comprehensive presentation of cash and how its value is calculated during a specific period of time, But the main point around which the dispute focused is what elements are included in the concept or constitute the presentation of criticism. Beginning with the concept of money, it cannot be considered a commodity like other commodities. It expands and contracts in its production according to changes in the conditions of the country, However, the money circulating among individuals, whether it is paper or metal or deposit money, mostly represents the amount of money offered, so this amount of money offered is used by individuals many times, i. And it is transmitted from the hands of individuals to others, but this does not explain the occurrence of a change in its quantities, but rather its quantities remain constant during that time period. It can be said that the amount of money in any economic community depends on two things: (Kenawy, 108, 2005):

● The nature of the banking system in that country

● The type of policy followed in creating deposits or creating credit

The money supply is defined as "the amount of means of payment available in society, which is the total amount of money, and of all kinds present in society in a certain period of time" (Khoshnaw, 2019, 31).

Second - Inflation: The inflation index is considered one of the important indicators that receive great attention from decision makers, and it is one of the biggest problems facing the developed and developing economies of the world without discrimination. And because inflation is a monetary phenomenon that has a set of negative effects on the national economy, when an increase in the money supply occurs at a rate greater than the increase in production, this leads to an increase in the general level of prices, meaning a decrease in the purchasing power of money. A number of economists, including Keynes, see that the hidden forces of economic law can be destroyed if inflation occurs in a way that makes it difficult to restore balance within the economy (Keynes, J.M, 1940,14). 3,255). There was a wide debate among economists about giving a clear definition of inflation, as there are those who defined it as "the continuous or continuous rise in the general level of prices for a certain period of time (Shendi, Al-Khidr, 2016, 9). Also, one of the common definitions of inflation is that "a lot of money chases few commodities in circulation Prices rise." Inflation is also defined as the increase in aggregate demand over aggregate supply (Al-Khatib, Diab, 255, 2013).

The Second Topic

The reality of monetary policy indicators (money supply, inflation) in Iraq during the period (2004-2020)

The First Requirement: analysis of the money supply index in Iraq for the period (2004-2020).

In terms of monetary indicators, we note through table (1) that the money supply in the narrow sense, M1, has been on the rise. The growth amounted to (40.5%) compared to other years, while the money supply in the narrow sense in 2008 also rose to reach (28,189,934) million dinars, with a growth rate of 29.7%, and despite the occurrence of the global economic crisis in 2008, this did not lead to a decline The money supply in the narrow sense in 2009, when it recorded a growth rate of 32.3% due to the increase in foreign currency cash balances held by the Central Bank, and so the money supply continued to increase in the narrow sense for subsequent years if it reached in 2010 (51,743,489) million dinars, with a growth rate of 38.7% , The growth rate of the money supply M1 in 2011 was about 20.7%, and this percentage represents the lowest rate of increase compared to previous years. As for the money supply in the narrow sense in 2013, it amounted to (73,830,964) million dinars, with a growth rate of 15.8%, while in the years (2014-2015 The money supply decreased in the narrow sense and at negative growth rates (-1.5 and -9.9), respectively, and the reason for this is the decrease in current deposits, and this is due to the sharp decline in global oil prices, which reduced the proportion of foreign assets. As for the money supply M1 in 2016, it increased to reach (70,733,027) million dinars, with a growth rate of 8% compared to 2015. The reason for this increase is due to the decrease in the current deposits ratio to M1, at a rate of 40.5%, offset by the increase in the currency ratio in circulation to M1, at a rate of 59.4%. 2018, 17). In 2017, the money supply increased in the narrow sense, as it recorded (71,161,551) million dinars, with a growth rate of 0.6%, as a result of the increase in the current deposits ratio to M1 76.3, while in 2018, the money supply in the narrow sense, M1, increased to (77,828,984) million dinars, with a growth rate of 9.3% compared to 2018. 2017 This increase in the money supply in the narrow sense is explained by the decrease in the ratio of current deposits to M1 by 47.9%, and this means that current deposits with

commercial banks have increased to (37,330,917) million dinars compared to 2017. In 2019, the money supply in the narrow sense, M1, recorded an increase of (86,771,000) with a growth rate of (11.4%). Of the money supply M1, this increase came as a result of the grants granted by the government to the unemployed as a result of the protests. In 2020, the money supply in the narrow sense, M1, witnessed an increase amounting to (103,353,556) million dinars, with a growth rate of (19.1%). This increase is attributed to the growth in currency outside banks and current deposits by (25.9%) and (10.8%), respectively.

As for the money supply in the broad sense, M2, it recorded clear growth rates during the period (2004-2020), in 2004 it recorded approximately (11498148) million dinars, as we note that the money supply during this period is constantly increasing as a result of the rise in oil revenues, which led to an increase in assets The government's monetary position improved, which increased the government's opportunity to increase its investment and current expenditures by converting foreign assets into a local currency and changing the old currency into a new one, in addition to lifting economic sanctions. And as in table (1)

Table (1) shows the extent of the development of the money supply in Iraq for the period (2004-2020) (million dinars)

Year	net currency in circulation	Currency ratio to M1	current deposits	Deposit ratio to M1	M1 Money Supply	M1 growth rate	semi-money	Money Supply M2	M2 growth rate
2004	7162945	70.5	2985681	29.4	10148626	-	1349522	11498148	-
2005	9112837	79.9	2286288	20	11399125	12.3	3260225	14659350	27.4
2006	10968099	70.9	4491961	29	15460060	35.6	5590189	21050249	43.5
2007	14231700	65.5	7489467	34.4	21721167	40.4	5198829	26919996	27.8
2008	18492502	65.5	9697432	34.4	28189934	29.7	6671993	34861927	29.5
2009	21775679	58.3	15524351	41.6	37300030	32.3	8055259	45355289	30
2010	24342192	47	27401297	52.9	51743489	38.7	8545679	60289168	32.9
2011	28287361	45.2	34186568	54.7	62473929	20.7	9593380	72067309	19.5
2012	30593647	48	33142224	51.9	63735871	2	11600257	75336128	4.5
2013	34995453	47.4	38835511	52.5	73830964	15.8	13695621	87526585	16.1
2014	36071593	49.6	36620855	50.3	72692448	-1.5	17874482	90566930	3.4
2015	34855256	53.2	30580169	46.7	65435425	-9.9	17003287	82438712	-8.9
2016	42075230	59.4	42025000	40.5	70733027	8	17208826	87941853	6.6
2017	40343309	56.6	30818242	76.3	71161551	0.6	18133034	58476343	1.5
2018	40498067	52	37330917	47.9	77828984	9.3	17561741	95391725	6.8
2019	47638603	17.6	39132397	4.8	86771000	11.4	13063212	10344110	8.4
2020	59987098	25.9	43366458	10.8	103353556	19.1	11056000	11990638	15.9

Source: The Central Bank of Iraq, General Directorate of Statistics and Research, Annual Bulletin for different years (2004_2020)

_ Columns (8, 6, 4, 2, 9) prepared by the researcher based on the data of table (1)

_ The growth rate was extracted through the equation= $\frac{(previous\ year - current\ year))}{(previous\ year)} \times 100$

The second requirement: - Analysis of the inflation rate in Iraq for the period (2004-2020)

After 1996, inflation rates decreased as a result of Iraq obtaining foreign currency according to the memorandum of understanding of the UN Security Council. Several factors, the most important of which is the supply shock, which was represented by the increase in wages for fuel and energy and its repercussions on transportation costs, communications, and other production and marketing costs, in addition to the increase in government spending resulting from the increase in wages and salaries (Saleh, 2008, 1). During the period (2009, 2008, 2007) inflation rates decreased by (2.7%, 30.8%, -2.8%), respectively. Foreign currencies through the optimal use by the Central Bank of interest rates and the currency exchange rate in addition to the improvement of the security situation, after which inflation rates rose again in the period (2010, 2011, 2012), as the general level of prices was recorded in 2012 in all of Iraq (140.1) due to the bloc High cash flow and poor flexibility of the production system (Al-Ghalabi, Hodan, 2017, 446). In the year 2013, the inflation rate reached (1.9) due to the decline in food prices globally and the decrease in demand for them, and in the year 2014 it reached (2.2). Despite the decline in international oil prices in the middle of this year, the Central Bank of Iraq maintained inflation rates and the low exchange rate The parallel to (1214) after it was (1232) dinars / dollars in 2013, and the decline in inflation rates continued in 2015 due to the global decline in internal commodity prices in the components of the consumer price index, especially the prices of food commodities, which decreased by (1.9), in the year 2015 according to the Food and Agriculture Organization of the United Nations (FAO), due to the abundance of supply, the decline in global demand, and the high price of the dollar. The decline continued until 2017, when it reached (0.2%). Monetary policy achieved its goal during the year 2018 in reducing

inflation rates to one decimal place, as it reached (0.4%), but in 2019, inflation rates decreased to (-0.2%), and this means that the Central Bank used the currency auction method as one of the non- It is one of the modern methods to maintain the stability of the exchange rate and reduce inflation. Monetary policy achieved its goal during the year 2018 in reducing inflation rates to one decimal place, as it reached (0.4%), but in 2019, inflation rates decreased to (-0.2%), and this means that the Central Bank used the currency auction method as one of the non- It is one of the modern methods to maintain the stability of the exchange rate and reduce inflation.

Table (2) Developments in inflation rates in Iraq for the period (2004-2020)

Year	general price level	Inflation rate %
2004	36.4	27.0
2005	49.9	37.0
2006	76.4	53.2
2007	100	30.8
2008	112.7	2.7
2009	122.1	-2.8
2010	125.1	2.4
2011	132.1	5.6
2012	140.1	6.1
2013	142.7	1.9
2014	145.9	2.2
2015	148.3	1.4
2016	104.1	0.5
2017	104.3	0.2
2018	104.7	0.4
2019	104.5	-0.2
2020	105.1	0.6

Source: Central Bank of Iraq, Directorate General of Statistics and Research, various annual releases (2004-2020)

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 table (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 table (3)

Table(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 :-

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

The Third Topic

The standard model of the impact of money supply and inflation 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- Independent 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:-

● Money Supply MS

● Inflation   In

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:

$$MD = B_0 + B_1MS - B_2In + Ui \quad …..………$$

The second requirement: analysis of stability tests

First: Analysis of the stability of money supply and inflation data in Iraq during the period (2004-2020) using the ADF test.

As we note from table (4) that the results of the (MS) data series when analyzed at the level were unstable without the fixed limit and the general trend, meaning that the time series here is initially unstable at all levels of significance (1%, 5%, 10%) as well as It was unstable in the fixed limit at all levels of significance (1%, 5%, 10%), and also when conducting the test in the presence of the fixed limit and the general trend, it was found to be unstable at all levels of significance (1%, 5%, 10%), but after Taking the first difference without the fixed limit and the general trend, the time series became stable at all levels of significance (1%, 5%, 10%). This means that the series is integrated and stable to degree (1) ~ 1. Thus, we reject the null hypothesis and accept the alternative hypothesis.

As for the results of the unit root of the inflation data series (In), the test results show that the time series when analyzed at the level was stable without the fixed limit and the general trend at all levels of significance (1% 5% 10%) and this indicates that the time series is stable and integrated in degree (0)~1 Thus, we will reject the null hypothesis and accept the alternative hypothesis.

Table (4) Unit root test for monetary policy indicators (money supply, inflation) 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 MS		-0.822364	-1.708906	-1.175265	-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	

t-Statistic **In**		-4.743909				
Moral level	%1	-2.605442				
	%5	-1.946549				
	%10	-1.613181				

Source: prepared by the researcher 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

Table (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.

Table (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 monetary policy indicators (money supply, inflation) on the demand for money in Iraq for the period (2004-2020)

First: The quantitative relationship between monetary policy indicators (money supply, inflation) and demand for money in Iraq for the period (2004-2020)

The data of the indicator (money supply, inflation) were analyzed in Iraq 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 monetary policy indicators (MS, In) as independent variables on the demand for money (MD) as a dependent variable.

The results of the estimation showed, as shown in table (6), that the relationship of money supply (MS) with the demand for money (MD) was negative, and this is not consistent with the logic of economic theory, As a change in the money supply by one unit affects (MD) by (-0.064395) units.

As for the relationship of inflation (IN) with the demand for money (MD), it was an inverse relationship as well, and this is consistent with the logic of economic theory, since a change in inflation by one unit affects (MD) by (-1010818 units).

Multiple regression analysis of the relationship between (MS, IN) and (MD) shows that the explanatory power of the model is (0.472463), and this is indicated by the value of R2. This means that the independent variables (MS, IN) explain about (47%) of the changes that occurred in the dependent variable. (MD) As for the remaining percentage (53%), it is due to unexplained factors included in the random variable.

As for the value of F, it amounted to (29.10707), 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 table (6).

Table (6) It shows the quantitative relationship between (MS, In) and (MD)

R-Squared = 0.472463	
F-statistic = 29.10707	**Prob(F-statistic) = 0.0000**
MS	-0.064395
In	-1010818
C	59134309

Source: Prepared by researchers based on the Eviews program

1: String Estimation Under The ARDL Methodology
Table (7) It shows the results of the ARDL test of the impact of monetary policy indicators (MS, In) on the demand for money (MD).

Dependent Variable: MD
Method: ARDL
Date: 05/26/23   Time: 05:58
Sample (adjusted): 2006Q1 2020Q4
Included observations: 60 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
MD(-1)	0.542220	0.087521	6.195305	0.0000
MS	-0.205325	0.044770	-4.586210	0.0000
MS(-1)	0.054371	0.056827	0.956774	0.3439
MS(-2)	-4.26E-15	0.056145	-7.58E-14	1.0000
MS(-3)	-7.38E-15	0.056145	-1.31E-13	1.0000
MS(-4)	-0.107463	0.058596	-1.833945	0.0734
MS(-5)	0.094585	0.058257	1.623573	0.1116
MS(-6)	-5.79E-15	0.056221	-1.03E-13	1.0000
MS(-7)	-1.03E-14	0.056221	-1.84E-13	1.0000
MS(-8)	0.297496	0.073786	4.031871	0.0002
IN	-84988.62	96606.67	-0.879739	0.3838
IN(-1)	69530.77	130976.8	0.530863	0.5982
IN(-2)	-3.65E-09	130495.1	-2.80E-14	1.0000
IN(-3)	1.30E-09	130495.1	9.96E-15	1.0000
IN(-4)	-176555.6	99823.87	-1.768672	0.0839
C	17315194	3360221.	5.152993	0.0000

R-squared	0.976342	Mean dependent var		49454733
Adjusted R-squared	0.968277	S.D. dependent var		20879482
S.E. of regression	3718843.	Akaike info criterion		33.31890
Sum squared resid	6.09E+14	Schwarz criterion		33.87739
Log likelihood	-983.5671	Hannan-Quinn criter.		33.53736
F-statistic	121.0560	Durbin-Watson stat		1.657064
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 table (7) that the value of R2 = 0.976342), while the predictive power of the model was (0.968277) through the value of Adj R2, the value of (12.0560 (= F), and the value of prob = (0.0000), which denotes the significance of the estimated model , The (ARDL) test of the model for the duration of the research showed that there is a high response by the demand for money to changes in monetary policy indicators (money supply, inflation), and the interpretation coefficient R2 reached (97%), the response of money demand to changes in policy indicators Money (money supply, inflation).

2- Limits Test For Cointegration
   Table (8) shows the results of the Bound Test for the impact of monetary policy indicators (MS, In) on the demand for money, MD

F-Bounds Test			Null Hypothesis: No levels relationship	
Test Statistic	Value	Signif.	I(0)	I(1)
F-statistic	8.753690	10%	Asymptotic: n=1000	
			2.63	3.35
k	2	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 notice from table (8) that the calculated F value of (8.753690) is greater than the values of the upper bounds Bound at all levels (1%, 2,5%, 5%, 10%) and this indicates To the existence of a long-term cointegration relationship between the research variables, so we reject the null hypothesis and accept the alternative hypothesis

3-Limits Test For Cointegration
   Table (9) Results of the Bound Test of the impact of monetary policy indicators (MS, In) on the demand for money, MD

Breusch-Godfrey Serial Correlation LM Test			
F-statistic	1.243089	Prob. F(2,42)	0.2989
Obs*R-squared	3.353192	Prob. Chi-Square(2)	0.1870

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 table (9) prove that the relationship between MS (In,) and (MD) is free from the autocorrelation problem , Because the probability value of F is Prob F = 0.2989 and Prob = 0.1870. 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-ARCH Cumulative Sum Test.
   Table (10) ARCH Cumulative Sum Test

Heteroskedasticity Test: ARCH			
F-statistic	0.127828	Prob. F(1,57)	0.7220
Obs*R-squared	0.132017	Prob. Chi-Square(1)	0.7164

Source: Prepared by researchers based on the Eviews program

As for the relationship between (MS, IN) and (MD), it is free from the problem of homogeneity of variance based on the test, Heteroskedasticity Test , If table (10) shows that the probability value of the F-statistic amounted to (0.7220) and Prob.Chi-Square = 0.7164, which is also not significant and greater than 0.05, therefore, 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 table (11) that the error correction speed has reached (-0.0457780) and with a probability level of (0.0000), which is less than 0.05, that is, there is correction from the short term to the long term, according to the following equation :

EC = MD - (0.2920*MS -419445.1411*IN + 37824288.1688)

We note from table (11) that the money supply parameter amounted to (0.2920), which is significant, as the probability of correcting the error in the long term amounted to (0.0000), which is less than 0.05. As for the inflation parameter, it amounted to (-419445.1411), which is significant, as the probability of correcting the error in the long run amounted to (0.0003), which is less than 0.05.

Table (11) Error correction results for the impact of monetary policy indicators (MS, In) on (MD)

CointEq(-1)	prob	Long Run Cofficients (MS)	prob	Long Run Cofficients (In)	prob
- 0.457780	0.0000	0.2920	0.0000	-419445.1411	0.0003

Source: Prepared by researchers based on the Eviews program

First: conclusions

1- The research hypothesis has been proven that (the monetary policy indicators in Iraq represented by (money supply, inflation) 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, and accordingly, the distributed delay model (ARDL) was used to analyze the cointegration of the time series.

3- It was concluded that there is a long-term relationship between the monetary policy indicators (money supply, inflation) and the demand for money. This inferred from it that the monetary policy generates those effects that lead to the stability of the demand for money in the long term.

4- Through the ARDL Error test for all independent variables (money supply, inflation), 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 a negative relationship between the variable of money supply and demand for money, so its sign was negative, and this contradicts what the economic theory came with. As for the relationship between inflation and demand for money, it was inverse, and this is consistent with the logic of economic theory.

7- Money in the Iraqi economy, in addition to being a necessary commodity for the purposes of transactions, is considered a political commodity that is affected by the political conditions the country is going through, since most of the money is of an oil nature, and oil is a political commodity that is affected by the political and global conditions.

Second: Recommendations

1- The need to use the element of demand for money by the monetary authorities when drawing up their monetary policies, especially when determining the target monetary expansion rate.

2- Monetary policy must control the money supply by coordinating the growth of the amount of money with the growth of gross domestic product.

3- Work on setting an accurate and efficient standard to determine the volume of money in the economy, to which the monetary authorities resort when they intend to change the money supply, taking into account monetary and economic indicators.

4- Determine an entity responsible for the statistical data of economic and monetary indicators for the purpose of ensuring the accuracy and robustness of such data.

5- 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.

Sources and references

1- Ahmed Shafiq El-Shazly, "Channels of Transmission of the Impact of Monetary Policy to the Real Economy," Arab Monetary Fund, Economic Studies Series, 2017, p. 2.

2- Abd al-Hussein Jalil al-Ghalbi and others, "Monetary and Financial Shocks," Dar al-Funun and Adab for Publishing, first edition, 2021, p. 8.

3- Benjamin M.Friedman " Monetary policy " nber working paper series, national bureau of economic research ,Cambridge ,2000 ,p1.

4- Izzat Qinawy, "Basics in Money and Banking," Dar Al-Ilm for Publishing and Distribution in Fayoum, 2005, p. 108.

5- Sabah Saber Muhammad Khoshnaw, "Analysis and Measurement of the Causal Relationship between Money Supply and Gross Domestic Product," Anbar Journal of Economic and Administrative Sciences, Volume 11, Issue 26, 2019, p. 31.

6- Keynes , J.M., How to Pay for the war ,(New York : Harcourt Brace and Co. Inc , 1940) P 14 .

7- Adeeb Qassem Shendi, Nagham Hamid Abdel Khader, "Measuring the relationship between money supply and indicators of economic stability in Iraq for the period (1980-2013), Al-Kout Journal of Economic and Administrative Sciences, Issue 21, 2016, p. 9.

8- Farouk bin Saleh Al-Khatib, Abdul Aziz bin Ahmed Diab, "Advanced Studies in Macroeconomic Theory," Jeddah, 2013, p. 255.

9- Sinan Al-Shabibi, "Features of Monetary Policy in Iraq," a paper presented to the thirty-first annual meeting of the Council of Governors of Central Banks and Arab Monetary Institutions, Arab Monetary Fund, Abu Dhabi, p. 17.

10- Mazhar Muhammad Salih, "Monetary Policy of the Central Bank and the Requirements for Stability and Economic Growth," Central Bank of Iraq, research published on the Internet, Baghdad, 2008, p1.

11- Abdul-Hussein Al-Ghalbi, Sawsan Karim Hodan, "The Impact of the Central Bank's Independence on Some Macroeconomic Variables in Iraq During the Period (1991-2013), Al-Ghari Journal of Economic and Administrative Sciences, University of Kufa, College of Administration and Economics, Volume 14, Number 3, 2017, p. 446.

12- 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.