



QUANTITATIVE TOOLS OF MONETARY POLICY AND IMPACT ON DETERMINING THE IRAQI DINAR EXCHANGE RATE

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Article history:	Abstract:
<p>Received: 6th September 2023 Accepted: 6th October 2023 Published: 7th November 2023</p>	<p>The importance of the study is in identifying the monetary policy tools, whether traditional ones or new tools, that were used in Iraq by the Central Bank after 2003, namely (currency auction, existing facilities), as the study confirmed that the use of quantitative and new tools by the bank The Central Bank was able to achieve its main objectives, achieving stability in the general level of prices, and controlling the rampant inflation, as the inflation rate decreased from 5.33% in 2003 to 9.1% in 2013, and this led to achieving relative stability in the general level of prices, and then determining stability. In exchange rates, the model was formulated based on economic theory, as the legal reserve, open market operations, and discount rate were identified as explanatory variables for the adopted variable, the exchange rate. The test results showed that there is co-integration and a long-term equilibrium relationship between the monetary policy variables and the exchange rate rate. It was found that there is only one causal relationship in one direction between the legal reserve and the exchange rate.</p>

Keywords: Monetary policy, exchange rate, ARDL model.

THE INTRODUCTION:

Monetary policy is considered among the most important economic policies that countries rely on to achieve their various goals, which has made it a fertile field for much research and studies, and it is constantly subject to addition and development by economists of different schools, in light of the monetary crises and economic instability that the world has witnessed, especially in recent years. The studies that have specialized in the exchange rate are somewhat few because of the complexities and ramifications that this subject contains in the process of research and development, and because it is a vital subject (that is, it is always changing), meaning that the process of change occurs to it constantly as a result of its being affected by economic and political crises, and from here this study examines the subject The exchange rate and the factors affecting it, and the extent to which monetary policy supports it through its traditional tools (legal reserve - discount rate - open market operations) and new tools (legal legislation - existing facilities), in achieving the determination of exchange rates in Iraq.

RESEARCH IMPORTANCE:

The importance of the research is to demonstrate the importance and effectiveness of quantitative tools for monetary policy in Iraq and the extent of the impact of these tools in determining the Iraqi dinar exchange rate rates during the period of the study.

STUDY PROBLEM:

The problem of the study is the large fluctuations witnessed in the Iraqi dinar exchange rate rates during the study period, and thus identifying the extent of the impact of quantitative tools of monetary policy in reducing these fluctuations.

RESEARCH OBJECTIVE: THE RESEARCH AIMS TO:

1. Identify the development of quantitative tools for monetary policy in Iraq and exchange rate fluctuations.
2. Identify the extent of the impact of these tools on exchange rate fluctuations.

RESEARCH HYPOTHESIS:



The study is based on the hypothesis that quantitative tools of monetary policy have a positive effect in reducing fluctuations in the exchange rates of the Iraqi dinar during the study period.

The first axis: Analysis of the reality of monetary policy in Iraq

The concept of policy is the intervention of monetary authorities to influence the supply of money and direct credit using certain monetary means to reach economic goals. Monetary policy under the Central Bank Law was characterized by a monetary path that differed from the previous one in terms of the tools used in implementing monetary policy and the objectives, starting with the goal of reducing inflation and stabilizing prices. Maintaining a stable monetary system, achieving the goal of economic well-being, providing job opportunities, strengthening the Iraqi dinar, and reducing the phenomenon of dollarization (Al-Khazraji, 2010: 8), which is the phenomenon of replacing foreign currency with national currency in performing the functions of local currency. Unofficial dollarization appears when individuals keep deposits from Foreign currency and other banknotes to protect themselves from local inflation. There is difficulty in determining and measuring the currency substitution index due to the difficulty of estimating the volume of currency in circulation. One of the most important goals of the policy is economic stability, i.e. stabilizing the general level of prices and combating inflation by stabilizing the exchange rate in addition to combating Unemployment and this is on the part of developed countries that suffer from economic stagnation, idle production capacity, and a deficiency in effective demand. Therefore, such a goal is not suitable for the Iraqi economy, which suffers from severe backwardness in all fields and deficiencies in its various productive sectors. Therefore, according to what the researcher believes, the main goal of economic policy is Including monetary policy in developing countries, sustainable human development is supposed to be achieved. Thus, according to the concept of the Central Bank of Iraq, which is the stability of the general level of prices linked to the stability of the dinar exchange rate against the dollar, maintaining a complete cover of the currency from foreign reserves, and preparing to meet requests to convert the dinar to the dollar, the bank will lose The central bank and its monetary policy are the most important functions in harmony and harmony with other policies in achieving the central development goal. (Al-Baydani, 2012: 166)

Table (1) Monetary policy tools in Iraq

the year	Open market transactions	Re-discount price	Legal reserve ratio
2004	323,463,7	6%	25%
2005	323,463,7	7%	25%
2006	172,000,0	16%	25%
2007	287,548,0	20%	25%
2008	231,578,0	15%	25%
2009	148,564,9	7%	25%
2010	374,116,0	6%	15%
2011	476,026,0	6%	15%
2012	477.634.1	5%	15%
2013	501.754.4	4%	15%
2014	498.803.1	6%	15%
2015	409.222.3	6%	15%
2016	332.609.1	6%	15%
2017	508.887.2	6%	15%
2018	688.901.6	6%	15%
2019	712.543.2	5%	15%

-Traditional tools (quantity):

A - Legal reserve: This tool constitutes one of the indirect means that enables the Central Bank of Iraq to influence the volume of credit provided to commercial banks. The Central Bank of Iraq is legally authorized to determine the amount of assets that it imposes on commercial banks. It has also given powers to the Central Bank to change the reserve ratio according to The requirements of the economic situation, and the percentage was set at 20% according to the instructions of the Central Bank of Iraq (Adel, 2016-40). According to this tool, the Central Bank of Iraq is able to control the ability of commercial banks to create deposits and provide credit. If the Central Bank seeks to reduce the money supply (one of the factors affecting the exchange rate) in order to limit the ability of commercial banks to grant credit, the Central Bank will resort to To raise the legal reserve ratio, and vice versa, if the central bank seeks to increase



the money supply, in this case it will reduce the legal reserve ratio to increase the ability of commercial banks to grant credit (Al-Shabibi, 2018-169).

B- Open market operations: Through this tool, the central bank is able to influence the volume of active banking liquidity, and to influence interest rates (one of the factors affecting the exchange rate) in the short term in the money market through the buying and selling of government securities (bonds). Treasury transfers), and although the Central Bank did not use this tool in its traditional sense since its founding until 2004, it practiced selling government bonds and treasury transfers in the primary market only through this tool. Now there is a shift in this tool after the issuance of the new Central Bank law. Which authorized open market operations with commercial banks, which obtained a permit from Qibla under the banking law, and on 7/18/2004, the first auction for treasury transfers to the Republic of Iraq was held at an interest rate of 8.6% annually (Hassan, 2018-12). The importance of open market operations is highlighted by the influence it exerts on the cash reserves of commercial banks. This aims to influence the amount of surplus cash reserves held by commercial banks, which in turn aims to influence the ability of banks to create credit according to the economic conditions prevailing in the town (Al-Shaibani, 2018 -172).

C- Discount rate: The discount rate is defined as the interest rate imposed by the central bank on granting loans to commercial banks. It is also known as a percentage of the funds that commercial banks borrow from the Central Bank, and it is considered one of the traditional tools used by the Central Bank to limit the ability of commercial banks to provide credit (loans) to individuals and institutions (Al-Sayed Ali, 2004-314). The discount rate represents the interest it charges. The Central Bank is in the context of a role as a brotherly refuge, when it provides commercial banks with the necessary liquidity in return for a discount on securities offered by commercial banks as a guarantee or as an aspect regulated by the central banks, and the Central Bank determines its percentage of these transactions, which is the discount rate at the Central Bank (Al-Shaibani, 2018-75). Where the discount rate is used to address economic imbalances that occur in cases of recession or inflation. To revive the economy and bring it out of a state of recession, the monetary authority works to reduce the discount rate, and in the event of signs of inflation appearing as a result of an increase in the volume of credit (loans) provided by commercial banks to individuals and institutions, it intervenes. The central bank raised the policy rate (discount rate) to limit the ability of commercial banks to grant credit. (Al-Shaibani, 2018-170).

The second axis: the conceptual framework of the exchange rate:

The development and growth of economic and trade relations led to an increase in trade exchange between various countries of the world, which resulted in what is called exchange between currencies, so that each currency is denominated in other traded currencies, that is, the value of one unit of the local currency against units of foreign currency, or a number of units of local currency in exchange for one unit of foreign currency (Marouf, 2006-281) The establishment of international trade between two countries results in the concept of the exchange rate, which is based on linking the banking system of two different countries. Thus, the exchange rate represents the exchange of one currency for another, and thus it is considered one of the two currencies. One commodity, while the other is a price for that commodity. Through the above, the exchange rate is represented as the ratio through which the local cash currency is exchanged for the foreign currency in a certain period of time (Morsi, 2017-504). It was defined by (James Robert) the exchange rate is the relative price. For two amounts and what exactly is exchanged varies depending on the assets that are used as money at any time (James, 2004-2). The exchange rate policy is considered the sum of the procedures and directives issued by the monetary authorities that have an impact and reflection on the reality and system of the exchange rate. The concept of the exchange rate is also considered The link between the local currency and other (foreign) currencies, which leads to easy determination of costs and prices between countries. Thus, it is one of the most important foundations on which economic and trade relations between different countries depend (Al-Abdi, 2005-9).

The third axis: econometric analysis of the impact of monetary policy variables on the exchange rate

1. Nominal exchange rate(y):

Table (1) displays the most important statistical measures for the nominal exchange rate data of the US dollar against the Iraqi dinar for the period (1990-2019).

Table (1): Statistical measures of nominal exchange rate data in Iraq for the period (1990-2019)

N	Minimum	Maximum	Mean	Std. Deviation
30	0.3108	1936.000	720.9013	658.6005
Eviews-12 software outputs				

It is noted from Table (1) that the average nominal exchange rate of the US dollar against the Iraqi dinar during the study period amounted to approximately (721) dinars per dollar, and the lowest exchange rate during the study period reached (0.31) dinars per dollar in (1990), while The highest exchange rate reached (1936) dinars per dollar in (2003) as a result of the American invasion of Iraq. The value of the standard deviation of the exchange rate average during the study period was approximately (659) dinars per dollar, which is a large value indicating the presence of a large variation in the nominal exchange rate during the study period. It is clear from Figure (1) that there was rapid growth in the exchange rate between the years (2002) and (2003), after which it decreased again until (2008) and then began to stabilize until.

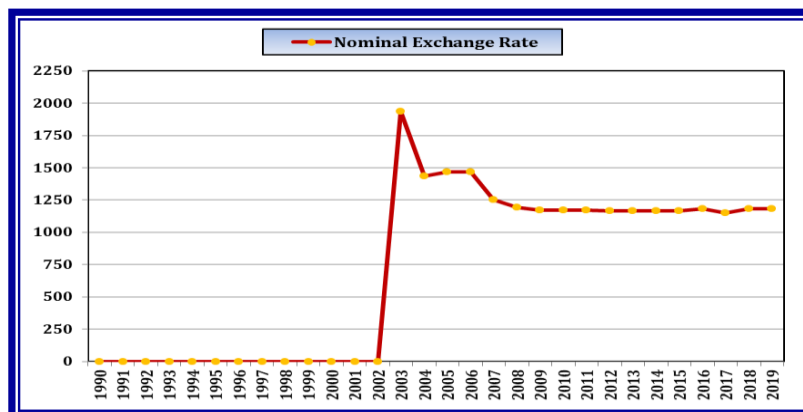


Figure (1): Historical development of the nominal exchange rate in Iraq for the period (1990-2019)

2. Open market operations (X2):

Table (2) displays the most important statistical measures for the data on open market operations carried out by the Central Bank of Iraq for the period (1990-2019).

Table (2): Statistical measures of open market operations data (%) in Iraq for the period (1990-2019)

N	Minimum	Maximum	Mean	Std. Deviation
30	6.4800	14.5500	10.8140	2.5412
Eviews-12 software outputs				

It is noted from Table (2) that the average open market operations carried out by the Central Bank of Iraq during the study period amounted to (10.8%), and the lowest percentage of open market operations during the study period reached (6.48%) in the year (2016), while it reached The highest percentage of open market operations (14.55%) in 2006. The value of the standard deviation of open market operations during the study period was (2.5412%), which is a relatively low value that indicates the presence of a kind of convergence in the proportions of open market operations during the study period. It is clear from Figure (2) that there is a clear decline in open market operations in the year (2017) compared to the year (1990), which means that the time series for this variable is unstable during the study period.

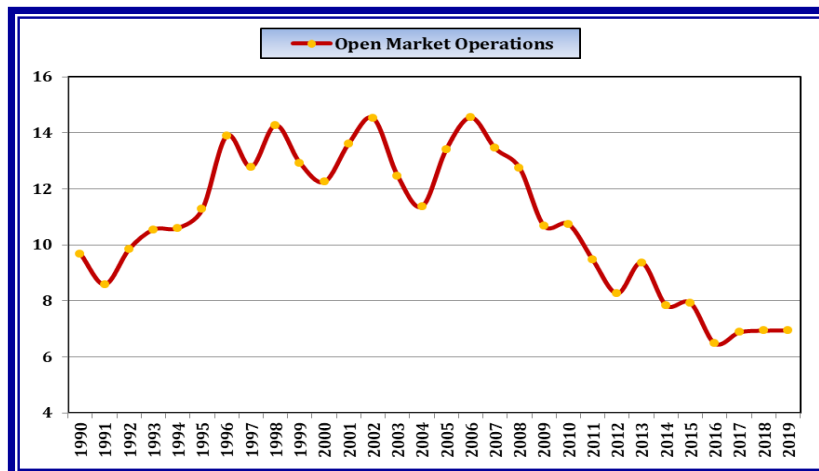


Figure (2): Historical development of open market operations (%) in Iraq for the period (1990-2019)

3. Re-discount price (x2):

Table (3) displays the most important statistical measures for the rediscount rate data charged by the Central Bank of Iraq for the period (1990-2019)

Table (3): Statistical measures of rediscount rate data (%) in Iraq for the period (1990-2019)

N	Minimum	Maximum	Mean	Std. Deviation
30	2.48	12.69	8.324	3.106
Eviews-12 software outputs				

It is noted from Table (3) that the average percentage of the rediscount rate charged by the Central Bank of Iraq during the study period amounted to (8.324%), and the lowest percentage of the rediscount rate during the study period reached (2.48%) in the year (1994), while it reached The highest percentage of the rediscount rate was (12.69%) in the year (2002). The value of the standard deviation of the rediscount rate during the study period was (3.106%), which is a relatively low value that indicates the presence of some kind of convergence in the rediscount rate ratios during the study period. It is clear from Figure (3) that there is a clear decline in the rediscount rate in the year (2017) compared to what it was in the year (1990), which means that the time series for this variable is unstable during the study period.

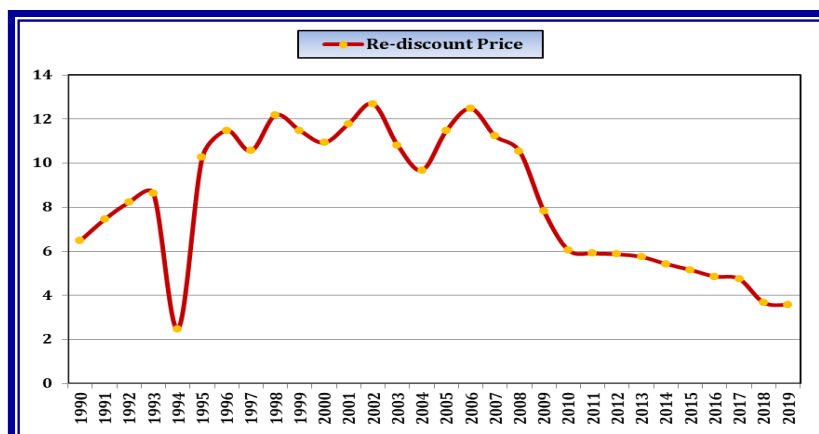


Figure (3): Historical development of the rediscount rate in Iraq for the period (1990-2019)

4. Legal reserve (X3):

Table (4) displays the most important statistical measures for the legal reserve data at the Central Bank of Iraq in Iraq for the period (1990-2019).

Table (4): Statistical measures of legal reserve data (%) in Iraq for the period (1990-2019)

N	Minimum	Maximum	Mean	Std. Deviation
30	9.6000	15.500	13.4293	1.8124

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It is noted from Table (4) that the average legal reserve deposited with the Central Bank of Iraq during the study period was (13.43%), and the lowest legal reserve during the study period was (9.6%) in the year (2019), while the highest legal reserve was (15.5) % in 1997. The value of the standard deviation of the legal reserves during the study period was (1.81%), which is a small value that indicates the convergence in legal reserves during the study period. It is clear from Figure (4) that there is instability in the time series for this variable during the study period, as the legal reserve began to rise rapidly for the period (1990-1996), then was followed by years of stability for the period (1997-2006), then followed by a period of rapid decline for the period (2007- 2019).

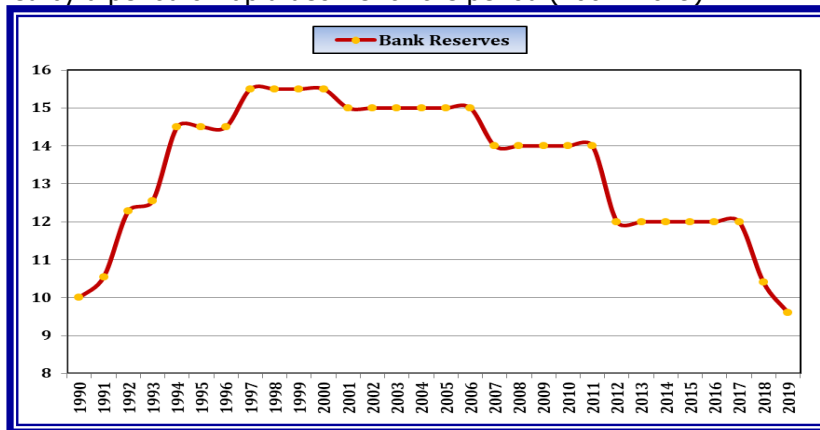


Figure (4): Historical development of the legal reserve (%) in Iraq for the period (1990-2019)

2.1Autoregressive distributed lag model:

If both the dependent variable and the independent variables in the current year are affected by their values in previous years, this will lead us to include these variables in the model and thus we will have a kinetic or dynamic model. In this case, we are dealing with Lagged Time Models. The best example of these models is the Auto Regressive Distributed Lag Model, which is also referred to as the ARDL model for short. ARDL models have been used for decades, but in recent years it has been found that these models are highly efficient in describing the relationships between economic variables and giving a description of these relationships, both in the short run and the long run, especially if they are used with cointegration (Co-integration). integration) between economic variables, and this is what the classical analysis of the standard model cannot provide. The use of cointegration methodology in ARDL models was developed by (Pesaran, 1997), (Pesaran & Shin, 1999), and (Pesaran et al., 2001).

2.2Testing the stability of the study variables:

The first step in building the standard model for the study is to test the stability or stationarity of the time series of the model variables. The problem with unstable time series data is that estimating models using the ordinary least squares method leads to incorrect results. In such cases, it is possible to obtain a high coefficient of determination () and high significant values for the t test of the model’s estimators, and they may not have economic meaning. Also, the value of the coefficient of determination is greater than the value of the Durbin-Watson statistic (D.W). The regression model in this case is called spurious regression. To test the stability of time series of model variables, this requires a unit root test. Despite the many unit root tests, the most important and most common in contemporary studies is the Augmented Dickey-Fuller test (ADF), where the null hypothesis states In this test, the time series data for the variable includes a unit root, meaning that the time series is non-stationary, while the alternative hypothesis indicates otherwise (Gujarati, 2004).

Building ARDL models is based on the assumption that all variables are either stable at the level or after taking their first difference, meaning that the degree of integration of the variables is either zero I(0) or one I(1), but in some cases the variables Type I(2) or higher leads to spurious results and then an ARDL model cannot be built (Narayan, 2005). Table (5) displays the largest lag gap for the research model variables, which was obtained from the vector autoregressive (VAR), as well as the results of the (ADF) test for the stability of the model variables over the period (1990-2019).

Table (5): Results of the ADF test for the stability of the variables of the exchange rate model in Iraq For the period (1990-2019)

	Max. Lag	Original Variable (Level)	After one Difference
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		Intercept	Inter. & Trend	Intercept	Inter. & Trend
Y	1	-1.6768 ^{n.s} (0.432)	-2.4270 ^{n.s} (0.359)	-6.6237*** (0.000)	-6.5162*** (0.000)
X ₁	1	-0.9198 ^{n.s} (0.767)	-1.8215 ^{n.s} (0.668)	-5.8142*** (0.000)	-6.4229*** (0.000)
X ₂	1	-1.6451 ^{n.s} (0.448)	-2.4132 ^{n.s} (0.366)	-6.8114*** (0.000)	-6.9964*** (0.000)
X ₃	1	-0.9867 ^{n.s} (0.745)	-2.2452 ^{n.s} (0.449)	-4.1100*** (0.004)	-6.1232*** (0.000)

*** significant at 1% level -Eviews-12 software outputs
 ** significant at 5% level The values in parentheses represent the P-value
 * significant at 10% Max.Lag values are found through VAR models
 level
 n.s not significant

We note from the results of Table (5) that all variables (nominal exchange rate, open market operations, rediscount rate, legal reserve) were non-static at the level, but they became stationary after taking their first difference, meaning that the degree of integration of each of them is one (I. 1), thus the conditions for building ARDL models are met.

2. 3 Estimating the ARDL model:

Table (6) displays the results of estimating the ARDL(5,4,4,4) model for monetary policy variables and the nominal exchange rate in Iraq for the period (1990-2019). It is clear from the results of the table above that the standard model estimated in the long term is:

Table (6): Estimation results of the ARDL(5,4,4,4) model for monetary policy variables and the nominal exchange rate in Iraq for the period (1990-2019)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Y _{t-1}	-0.493698	0.210349	-2.3470 ^{n.s}	0.101
Y _{t-2}	0.126704	0.159847	0.7927 ^{n.s}	0.486
Y _{t-3}	-0.262461	0.161650	-1.6236 ^{n.s}	0.203
Y _{t-4}	-0.949309	0.196410	-4.8333**	0.017
Y _{t-5}	-0.615544	0.196593	-3.1311*	0.052
X _{1t}	846.6705	185.1457	4.5730**	0.020
X _{1,t-1}	327.3398	172.7253	1.8951 ^{n.s}	0.154
X _{1,t-2}	1001.304	232.9696	4.2980**	0.023
X _{1,t-3}	69.70183	167.4424	0.4163 ^{n.s}	0.705
X _{1,t-4}	-701.9881	144.1131	-4.8711**	0.017
X _{2t}	-442.0791	86.58915	-5.1055**	0.015
X _{2,t-1}	-301.9136	76.52475	-3.9453**	0.029
X _{2,t-2}	-488.7638	105.7217	-4.6231**	0.019
X _{2,t-3}	-118.8507	105.2513	-1.1292 ^{n.s}	0.341
X _{2,t-4}	300.8476	63.23358	4.7577**	0.018
X _{3t}	477.7378	295.8954	1.6146 ^{n.s}	0.205
X _{3,t-1}	432.7694	118.3251	3.6575**	0.035
X _{3,t-2}	-1036.478	285.0315	-3.6364**	0.036
X _{3,t-3}	1005.894	407.7696	2.4668*	0.090



$X_{3,t-4}$	-387.8311	239.8981	-1.6166 ^{n.s}	0.204
C	-21037.31	6242.601	-3.3700**	0.043
@TREND	513.9084	104.4214	4.9215**	0.016
R-squared	0.981166	Mean dependent var.		865.9440
Adjusted R-squar.	0.849326	S.D. dependent var.		626.6130
S.E. of regression	243.2305	Akaike info criterion		13.46563
Sum squared resid.	177483.2	Schwarz criterion		14.53824
F-Stat.	7.4421*	Hannan-Quinn criter.		13.76313
Sig. (F-Stat)	0.062	Durbin-Watson stat		2.558571
*** significant at 1% level ** significant at 5% level * significant at 10% level n.s not significant				

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In general, and in light of the rank of the model above, the results indicate that the monetary policy variables (open market operations, rediscount rate, and legal reserve) in the last four consecutive years significantly affect the exchange rate of the dollar against the Iraqi dinar in the last year, as the following is observed:

Open market operations: When open market operations increase in a year by (1%), this leads to the following: an increase in the exchange rate by (8.47) dinars/dollar in the same year, an increase in the exchange rate by (10.13) dinars/dollar after two years, The exchange rate declined by (7.02) dinars/dollar after four years.

Rediscount rate: When the rediscount rate increases in a given year by (1%), this leads to the following: The exchange rate declines by (4.42) dinars/dollar in the same year. The exchange rate declines by (3.02) dinars/dollar after one year. The exchange rate declined by (4.89) dinars/dollar after two years. The exchange rate declined by (3.01) dinars/dollar after four years.

Legal reserve: When the legal reserve increases in a given year by (1%), this leads to the following: an increase in the exchange rate by (4.33) dinars/dollar after one year, a decline in the exchange rate by (10.36) dinars/dollar after two years, an increase in the exchange rate The exchange rate is (10.06) dinars/dollar after three years.

The long-term relationship has a constant or segment whose moral value is estimated at (-21037.31), and the relationship also has a positive general trend whose moral value is estimated at (513.908), meaning that in light of the above relationship there is an annual rate of increase in the exchange rate of (5.14) dinars per dollar. Monetary policy and exchange rate variables in the previous four years contribute about 98% to explaining the variation in the exchange rate in the last year.

3.4 Cointegration test:

To test the existence of cointegration between monetary policy variables and the exchange rate rate, the bounds test is used. The results of the bounds test are in Table (7)

Table (7): Results of the cointegration test between the variables of the monetary policy model and the exchange rate rate

Test Statistic	Value	Sig. F	I(0)	I(1)
F-statistic	8.8651***	10%	3.47	4.45
k	3	5%	4.01	5.07
		2.5%	4.52	5.62
		1%	5.17	6.36
		*** significant at 1% level		

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We note from the table above that the value of (F) is (8.8651), which is a value greater than the upper limit I (1) and at all levels of significance adopted. Accordingly, the null hypothesis is rejected and the alternative hypothesis is accepted that there is an effect of monetary policy variables on the exchange rate rate, meaning the presence of cointegration. between variables.

The error correction coefficient (ECM), or what is known as the cointegration coefficient, indicates that in each period a certain proportion of the imbalance in monetary policy variables is adjusted to approach equilibrium in the long-term relationship.

Table (8): Results of the error correction model (ECM) coefficient for the long-term relationship between monetary policy variables and the exchange rate rate in Iraq for the period (1990-2019)



Variable	Coefficient	Std. Error	t-Statistic	Prob.
CointEq(-1)	-3.1943	0.3793	-8.4214	0.004***
*** significant at 1% level				
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The results of Table (8) confirm the existence of a long-term cointegration relationship between the variables of the model, meaning that there is a long-term equilibrium relationship between the monetary policy variables and the exchange rate rate in Iraq, as the error correction factor or the cointegration factor appears with a negative and significant value at (1%) Its value is estimated at (-3.1943), which indicates the amount of change in the exchange rate rate as a result of the deviation of monetary policy variables in the short term from their equilibrium values in the long term by (1%), meaning that the nominal exchange rate rate takes approximately four months to return to its value.

Equilibrium in the long run after the effects of shocks on monetary policy variables because $\frac{1}{3.1943} = 0.31 \text{ year} \cong 4 \text{ months}$

3.5 Diagnostic tests of the model:

All previous results are derived from the basic model for the study variables, which is ARDL(5,4,4,4). Table (9) displays the results of the diagnostic tests for the model.

Table (9): Results of diagnostic tests for the standard model ARDL(5,4,4,4)

Test	Statistic	Value	Prob.
Normality Jarque-Bera	Jarque-Bera	0.3126 ^{n.s}	0.855
Autocorrelation Breusch-Godfrey	F-Statistic	3.5204 ^{n.s}	0.353
Heteroskedasticity Breusch-Pagan-Godfrey	F-statistic	1.6743 ^{n.s}	0.376
	Chi-Square	23.0345 ^{n.s}	0.342
n.s: not significant			
Eviews-12 software outputs			

It is clear from the above table that the remainder of the model follows normality based on the probability value of the Jarque-Bera test, which was greater than (5%). Also, these residuals are not related to each other based on the probability value of the Breusch-Godfrey test, which is greater than (5%). In addition to the homogeneity (stability) of the variance of the residuals through the two Breusch-Pagan-Godfrey tests, whose probability values were greater than (5%).

CONCLUSIONS AND SUGGESTIONS

1. Conclusions:

- A. The suitability of the distributed lag gap autoregressive model to the relationship between monetary policy variables (open market operations, rediscount rate, and legal reserve) and the exchange rate. The model has a very high explanatory power exceeding (98%), and the model does not suffer from any problems. Standard models.
- B. Monetary policy variables in the previous four consecutive years affect the exchange rate rate in the current year. The most influential variable is the legal reserve, as increasing this reserve by (1%) in one year leads to a decline in the exchange rate after two years by (10.36) dinars per dollar.
- C. There is a general increasing trend in the exchange rate during the study period, at a rate of (5.13) dinars per dollar.
- D. There is co-integration and a long-term equilibrium relationship between the monetary policy variables and the exchange rate rate, and the exchange rate rate takes approximately four months to return to its equilibrium value in the long term after the effects of shocks in the monetary policy variables.
- E. It has been proven that there is only one and one-way causal relationship between the legal reserve and the exchange rate, where the exchange rate causes the legal reserve in the long run.

2. Proposals:

- A. The effectiveness of monetary policy tools used in the Iraqi economy must be increased in order to have an impact on monetary policy variables, including the exchange rate, especially open market operations and the legal reserve.



- B. The necessity of creating stability in the macroeconomic environment. This stability is represented by a prevailing growth rate and achieving stability in the exchange rate, as instability in the macroeconomic environment limits the application of monetary policy rules, and also limits the credibility of the central bank.
- C. Urging to diversify sources of income in the country and working to raise the value of the Iraqi dinar exchange rate through a currency auction.
- D. Urging the Central Bank to work with a managed flotation system due to the weakness of the country's productive sectors.

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