

Research Article

Analyzing and Measuring the Relationship between Monetary Policy and Monetary Stability in the Iraqi Economy for the Period 1990-2020

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Abstract: Monetary policy occupies a prominent role in achieving monetary stability by adjusting the growth rates of the number of available means of payment in line with changes in the size of the gross domestic product in the country and expressed by the monetary stability coefficient agreed upon by the International Monetary Fund, a term that hides the fact that there is a rate of change in the volume of commodity or real production which expresses the levels of aggregate supply in the economy, which corresponds to the quantities of cash in circulation, which represent a net purchasing power and stimulate aggregate demand, which completes the picture of the existence of the market mechanism, expressed by the monetary or economic stability coefficient, more precisely, the researcher has come to assess the relationship between monetary policy represented by the broad monetary supply and monetary stability transactions in Iraq using modern standard tools in estimation. These tools reveal the existence of a relationship and accompanying integration and balance in the long term between monetary policy and monetary stability transactions. The researcher will also address in the folds of the search for these relationship levels.

Keywords: Broad money supply, monetary stability in the narrow sense, monetary stability in the broad sense, internal and external breaks, co-integration.

INTRODUCTION

The monetary stability transactions reveal the fact that there is a market in the literal sense of the market, and these transactions indicate cases of imbalance and balance between aggregate demand stimulated by money supply and aggregate supply stimulated by economic growth, which reflects the fact that there are changes in the GDP, and that monetary policy plays an important role in controlling monetary stability transactions by regulating the quantities of means of payment mainly, but this does not hide the fact that there is a role for economic conditions and the rentier nature of GDP in the Iraqi economy and the behavior of individuals in monetary demand in determining the amount of influence of monetary policy on stability transactions cash. However, it remains the compass of balance in the regulation of monetary quantities through the money supply index in the broad sense and the management of time deposits, which makes it able to direct these deposits to real investments that stimulate the growth rate of GDP.

Research problem:

The rentier nature of the Iraqi economy, the imbalance of the local production structure, and the weak impact of monetary policy on the components of the money supply in the broad sense encouraged major imbalances in monetary stability transactions in the narrow and broad sense.

Research hypothesis:

There is a correlation and co-integration between money supply in the broad sense and monetary stability transactions, and this is what calls the researcher to adopt comprehensive monetary policies to control monetary stability, stimulate real investments, and raise the rate of economic growth through the time deposits supply management portal.

Research importance:

The importance of the research is reflected in the monetary policy management's inclusion of the broad monetary offer and its role in controlling monetary stability through monetary stability transactions and stimulating economic growth.

Research objective:

Shedding light on the monetary stability coefficient in the broad sense and the role of monetary policy in stimulating real investments through the management of time deposits as an essential component of money supply in the broad sense.

Research limits:

The limits of the spatial research is the Iraqi economy, and the limits of the temporal research are the period between 1990-2022.

RESEARCH METHODOLOGY:

The descriptive approach, both deductive and inductive, was relied on to study the main concepts of monetary policy and narrow and broad monetary stability transactions, data analysis and extrapolation to display the relationship between economic and monetary variables, and the reliance on the standard approach to prove the research hypothesis that there is a relationship between monetary policy and monetary stability transactions.

Research Structure:

The research divided into three main sections, where the first topic focused on the conceptual framework of monetary policy and the monetary stability coefficient, and the second topic touched on the graphic analysis of the narrow and broad monetary stability coefficient in the Iraqi economy, while the role of the third topic was to study the standard relationship between monetary policy and monetary stability transactions.

The first topic: the conceptual framework of monetary policy and the monetary stability coefficient

First: the conceptual framework of monetary policy

Monetary policy is one of the most important macroeconomic policies besides fiscal policy. It is the state's authority in a market economy that affects the effectiveness of economic activity, output levels, unemployment, and the general level of prices (Friedman, 2000, 1).

The Central Bank is the only monetary institution responsible for formulating monetary policy, whose objectives are to issue currency, monitor financial institutions, lend to banks, and buy and sell government bonds in the financial markets. In order to achieve these goals, there must be monetary tools represented by changes in the rediscounting rate of bank securities, changes in the legal cash reserve, and OMO (open market operations). (Al Shabeeb, 2012, 30)

Inspired by the foregoing, monetary policy represents a macroeconomic policy that works to stimulate economic activity through a number of monetary tools to ensure the achievement of the macroeconomic goals of the community, monitor the movement of the financial market, and work to lend to troubled banks, making them an inevitable policy.

The three indirect tools of monetary policy that are used in dealing with economic cycles and the negative and positive output gap can be presented in some detail as follows: (Maaleh, 2017, 221-222)

➤ The re-discount rate, which is the price that the central bank obtains in return for re-discounting

commercial papers and government permits to commercial banks. The re-discount rate represents the interest rate that the central bank charges from commercial banks, and expansionary monetary policies reduce the re-discount rate, while contractionary monetary policy raises the Re-discount price.

- The required monetary reserve is the rate of retention of bank deposits of commercial banks with the Central Bank, and expansionary monetary policies reduce the rate of deposit retention, while contractionary monetary policies raise the rate of deposit retention.
- Open market operations are the buying and selling of securities by the central bank, and expansionary monetary policies are represented by the central bank's purchase of securities and injecting cash into the local economy, while deflationary monetary policies are summarized by the central bank's selling of securities and reducing liquidity in the local economy.

Therefore, through these indirect monetary tools, monetary policy affects and stimulates economic activity in a way that ensures the achievement of acceptable levels of full use, price control and rebalancing after imbalances occur and mitigate economic shocks. No one says that monetary policy can do that without cooperation and coordination with fiscal policy. which represents an economic policy with great weight in the macro economy, in addition to the existence of direct tools of monetary policy, such as credit control, directing credit to economic sectors without others, administrative determination of the interest rate, and other qualitative tools related to the work of monetary policy.

Monetary policy has a role in the process of economic development and according to the main economic schools. The classics consider that saving is a prerequisite for investment, and to increase investment, saving must be increased, and the way to increase saving is to raise the interest rate and attract savings and direct them towards investments. As for the Keynesians, and that the starting point differs, as they see that investment is what stimulates saving through the impact of investment on employment and the increase in GDP and the increase in output raises the levels of saving., (2012, 220-221)

In summary, the balance in the interest rate as a monetary policy represents the important tool in stimulating economic growth by attracting savings, mobilizing them and directing them towards investment economic units. Monetary policy can influence the interest rate through the money supply channel, specifically through the channel or mechanism of open market operations, and that affecting the interest rate means affecting investments and determining the

options of investors and savers to ensure stimulating and raising the rate of economic growth.

The monetary policy must be keen on the correct timing of the changes targeted by the monetary authority, as it is necessary to achieve economic stability. When the economy operates at a lower level than the level of full employment in the long term, the expansionary monetary policy stimulates demand and production to the level of full employment. Also, the contractionary monetary policy at the right time helps to control the inflationary boom. Studies also indicate the possibility of clarity and the impact of monetary policy on aggregate demand and the real GDP within the period between (6-30) months (Guartini and Regaard, 1999, 349).

As there are two types of time intervals in monetary policy, the first type is the internal intervals, which is the time of realizing the problem and setting the necessary policies to solve it, and the second type is the external intervals, which is the time needed by the policies to show their effects in the economy. (Oselvan, 2014, 395)

To complement the idea, it becomes clear to us that the correct timing is important to show the impact of expansionary or contractionary monetary policy on aggregate demand and real GDP. In contrast to the necessary timings to rectify the problem and put the appropriate solution to it by economic decision makers, monetary policies may deepen the economic crisis and tamper with stability and overall economic balance. And monetary policy, by stimulating aggregate demand, stimulates real GDP, and both variables are at the heart of the monetary stability coefficient equation, as the International Monetary Fund calls it. Indeed, it is difficult to adopt the designation of this coefficient as the coefficient of monetary stability, and the correct one is the coefficient of economic stability, as it represents the total demand and supply in the national economy.

In principle, expansionary monetary policies that increase the levels of aggregate demand in the local economy have pivotal effects on the local economy, including: (Daniels, 2010, 563)

- It raises the general level of prices and stimulates inflation.
- In the short term, an increase in the general level of prices will lead to an increase in real GDP.
- It increases the volume of full employment in connection with the rise in real GDP.

The most important target variable for monetary policy remains controlling the inflation rate, i.e., achieving price stability, as the monetary authority is unique in managing it without macroeconomic policies (Al-Dagher, 2019, 274).

From what was presented, price stability is a necessary and sufficient condition to stimulate the gross domestic product and bring the economy to acceptable levels for the full utilization rate, achieve balances, and raise the contributions of investors and savers in the local economy.

Second: The conceptual framework for monetary stability

Monetary stability expresses the relationship between the rate of change in means of payment and the rate of change in gross domestic product, and the International Monetary Fund (IMF) relies on the monetary stability coefficient to determine inflationary and deflationary trends in the domestic economy (Yahya, 2001, 57)

We also know that the change in the means of monetary payment is the change in the money supply, which represents the driving force of aggregate demand, and that the change in the gross domestic product is a change in the size of the aggregate supply, which represents the levels of actual output in the economy, and the monetary stability coefficient can be expressed according to the definition The procedure of the International Monetary Fund with the following mathematical equation:

$$E = \frac{\Delta MS}{\Delta GDP}$$

Where E is the monetary stability coefficient, ΔMS is the rate of change in the money supply, ΔGDP is the rate of change in the GDP. If the value of E is greater than the correct one, this means that the domestic economy is going through a cycle of rising prices because aggregate demand is greater than aggregate supply, but if the value of E is less than the correct one, this means that the domestic economy is going through a cycle of declining prices because aggregate demand is less than aggregate supply, If the value of E is equal to one, this means that the domestic economy is going through a price stability cycle and economic equilibrium has been achieved in the short term, since aggregate demand is equal to aggregate supply.

By noting the monetary stability coefficient, it becomes clear to us that the more accurate name for this coefficient is the coefficient of economic stability, since this coefficient includes the actual changes in the gross domestic product. These changes are real changes and reflect the presence of negative and positive gaps in the GDP, and that the negative and positive gaps in the GDP necessarily reflect the presence of positive and negative gaps in the natural, human and financial economic resources which shows us that the economy has reached the actual or natural unemployment rate, and this is what is included in the mathematical relationship of the monetary stability coefficient in the place of this coefficient.

The economist Mishkin believes that monetary instability is the fluctuation between high inflation rates and the flight of capital and the collapse of financial markets and the low credibility of monetary policy in correcting monetary imbalances (Mishkin, 2007, 1)

Recently, the Committee of Central Bank Governors of the European Union issued a draft law on the statute for the central banks of the European Union and the European Central Bank. It explained in the draft law that targeting prices is the main goal and that the stability of financial markets and the payment system are not explicit goals of the European Central Bank, which means that the European Central Bank focuses on the narrow concept of monetary stability rather than the broad concept of monetary stability (Folkerts, 1992, 4).

It is clear from the above that monetary or economic stability, more precisely, is the compass of change in the levels of gross domestic product through the change that occurs in the means of payment or monetary quantities in the public, where the monetary quantities offered to individuals represent an effective element in aggregate demand that drives aggregate supply according to the Keynesian theory, a condition Provides stability in the overall economy.

In his standard study, the researcher will work on studying the effect of money supply in the broad sense as an indicator of the impact of monetary policy on the monetary stability coefficient. The money supply in the broad sense represents a broader indicator than the money supply index in the narrow sense, and savings deposits are added to it, which represent the basis of long-term investments in commercial banks and the extent of the impact of these investments in maximizing the gross domestic product as a variable that expresses the position of the relationship to monetary stability, and this was not addressed by previous studies. As far as the researcher knows.

The second topic: graphic analysis of indicators of monetary stability in the Iraqi economy

The structure of the Iraqi economy has been determined since the eighties of the last century and crystallized with its increasing dependence on the oil sector, the unsustainable expansion of the service sector, especially the military, the continuous neglect of productive sectors such as agriculture and industry, the collapse of productive investment in non-military activities, and the overvaluation of the Iraqi currency, which prompted these determinants to deepen The Rentier Features of a Rentier Economy (Thwaini and Nashur, 2018, 185)

The 2003 Gulf War had a significant negative impact on the remaining components of the Iraqi economy in its production and service aspects. The war destroyed the entire infrastructure represented by

energy sources, roads and transportation, and this left a significant impact on the economic institutions owned by the public sector, which are estimated at 192 large projects. In addition to the great openness to import and its negative impact on national industries, specifically the private sector, due to the lack of competitiveness of local goods, and this is the reason for the disruption of 60,000 small industrial projects (Al-Rawi, 2013, 231)

Therefore, it is clear from the foregoing that the Iraqi economy suffers from a problem in aggregate supply and does not suffer from a problem in aggregate demand. For this reason, the Iraqi economy witnessed during the nineties and beyond, unprecedented rates of inflation, a decrease in the levels of domestic production, and the dominance of the rentier character in the Iraqi economy, which deepened the internal economic imbalance That is, sectoral neglect constituting supply or total production and deepening the external economic imbalance represented by the trade balance deficit.

The Central Bank of Iraq, since the issuance of Law 56 of 2004, has adopted a policy of targeting inflation in the economy and achieving monetary stability, especially after the exchange rate improved by 40% from 2004, in addition to the formation of a foreign currency reserve that led to building strong foundations in maintaining external economic stability and establishing a climate Suitable for starting the investment movement (Wahim, 2009, 189)

Unemployment reflects weak employment policies and low growth, and this is evidence of the failure of macroeconomic policies and that employment is not a target of monetary policy, and if it is responsible for managing aggregate demand in the short term, other policies such as fiscal policy must be available to provide incentives for job creation and investment, as well as creating employment policies that aim to improve the efficiency of labor markets (Ali, 2015, 280)

From the foregoing, it becomes clear to the researcher that monetary stability was achieved by purely monetary tools represented by achieving stability in the exchange rate of the local currency and mitigating monetary shocks, and that monetary policy worked to create the appropriate conditions for increasing employment, maximizing GDP and controlling the movement of commodity imports from abroad, but other policies The financial and commercial sector did not take advantage of the appropriate opportunity and conditions to play its role.

It is possible to rely on investments in the private sector to provide job opportunities and raise the gross domestic product, and this requires building the bases of a market economy on which the structure of investment stimulating economic growth is based. In the long term (Marzouk, 2007, 27-28)

And by noting Table (1) that the Iraqi economy suffers from major monetary turmoil, which indicates the occurrence of monetary instability, in addition to a significant decrease in the volume of GDP, mostly oil, which is directed to export. The major monetary turmoil is due to the weak resources of the general budget and the government's resort to cheap cash policies or the so-called inflationary financing to carry out the government's annual duties and with the occurrence of large fluctuations in the gross domestic product due to the suspension of most economic projects as a result of the 1991 war against Iraq, and the second highest monetary stability coefficient was in 1996, reaching 12.48 due to the Oil for Food and Drug Agreement, the high levels of money turnover and the increase in the levels of change in the means of payment, followed by the highest monetary stability coefficient in 2002. This is due to the public's fear of the 2003 war and a rise in the levels of commodity demand that is stimulated by changes in the quantity of monetary means of payment. However, these ratios of the monetary stability coefficient do not reflect monetary stability as the expression coefficient is termed, but rather reflect a distortion in economic stability due to the large gaps

between the quantity of means of payment and the quantities of output The gross domestic product, which is mainly dominated by oil. However, the monetary stability coefficient in the narrow sense witnessed a relatively acceptable convergence between the rates of change in the means of payment and the amount of output, except for the years of military confrontations with ISIS organizations, and the suspension of most productive projects due to the pessimism that pervaded investors and the drop in oil prices in the global market. In the inductive graphic analysis, the monetary stability index in the narrow sense is almost approximated with the monetary stability index in the broad sense, except for the year 2013, which witnessed the highest levels of change in the means of payment in the broad sense. 2012-2011.

To sum up what was mentioned above, monetary stability in the narrow and broad sense in Iraq remains distorted and undesirable in general due to the instability of the levels of change in the gross domestic product as a result of the instability of international oil prices. Commodity import to meet the requirements of local demand.

Table (1) The monetary stability coefficient in the narrow and broad sense in the Iraqi economy for the period (1990-2020)

$\frac{MS2\%}{GDPN\%}$	$\frac{MS1\%}{GDPN\%}$	MS2%	MS1%	GDPN %	MS2	MS1	GDPN	years
8	7	6	5	4	3	2	1	-
					26983.4	15359.3	55926.5	1990
-0.72	-2.51	17.56	60.61	-24.09	31722	24670	42451.6	1991
0.46	0.45	79.14	77.98	171.15	56829	43909	115108.4	1992
0.55	0.53	100.01	96.83	179.42	113666	86430	321646.9	1993
0.34	0.42	143.57	176.40	415.57	276866	238901	1658325.8	1994
0.59	0.64	179.31	195.12	303.74	773337	705064	6695482.9	1995
-13.85	-12.48	40.19	36.22	-2.90	1084172	960503	6500924.6	1996
0.11	0.06	14.60	8.07	131.33	1242569	1038097	15039144	1997
2.34	2.17	32.48	30.22	13.87	1646240	1351876	17125847	1998
0.12	0.09	12.82	9.76	101.23	1857406	1483836	34464016	1999
0.42	0.36	19.20	16.45	45.69	2214072	1728006	50213699	2000
-1.59	-1.40	28.18	24.94	-17.72	2838048	2159089	41314568	2001
-51.04	-56.52	35.73	39.57	-0.70	3852241	3013601	41022927	2002
-2.32	-3.28	64.86	91.58	-27.87	6350961.1	5773601	29585788.6	2003
1.01	0.94	81.04	75.77	79.93	11498200	10148626	53235358.7	2004
0.72	0.32	27.49	12.32	38.12	14659450	11399125	73533598.6	2005
1.45	1.18	43.59	35.62	29.99	21050249	15460060	95587954.8	2006
1.67	2.4	27.88	40.49	16.60	26919996	21721167	111455813	2007
0.73	0.74	29.50	29.78	39.94	34861927	28189934	155982258	2008
-1.85	-1.98	30.09	32.31	-16.24	45355289	37300030	130643200	2009
1.36	1.60	32.92	38.72	24.05	60289165	51743489	162064566	2010
0.57	0.60	19.53	20.73	34.09	72069177	62473929	217327107	2011
0.28	0.12	4.53	2.01	15.91	75336125	63735871	251907662	2012
139.83	2.08	1064.11	15.83	7.61	877000000	73830964	271091778	2013
-2.00	0.89	3.45	-1.54	-1.72	907280000	72692448	266420384.5	2014
0.25	0.15	-6.83	-4.23	-26.92	845270000	69613150	194680971.8	2015

6.10	7.38	7.02	8.49	1.15	904660000	75523952	196924141.7	2016
0.18	0.13	2.64	1.93	14.62	928570000	76986584	225722375.5	2017
0.24	0.09	2.72	1.09	11.22	953910000	77828984	251064479.9	2018
-8.34	1.07	-89.15	11.48	10.68	103441131	86771000	277884869.4	2019
-0.55	-0.67	15.92	19.11	-28.46	119906260	103353665	198774325.4	2020

Source: 1. Central Bank of Iraq data - various annual bulletins for tables (1-2-3)
 2. The tables (4-5-6-7-8) are from the researcher's work

The third topic: the standard estimation of the relationship between the broad and narrow monetary stability coefficient and the broad money supply.

To verify the existence of a standard relationship between the research variables and their adoption in building an economic vision that benefits the economic decision-maker, a series of standard tests must be conducted to verify as follows:

First: The unit root test according to the developed Dickey-Fuller test for the time series of the narrow and broad monetary stability coefficient and the broad money supply.

In order to ensure the estimation of a correlation, impact, and co-integration between economic variables,

and to avoid misleading results in the standard estimation of the relationship, we first resort to verifying the time series' indifference degrees using the developed Dickey-Fuller test, and verifying the results with the Phillips-Peron test. Tables (2-3) show the stability of the monetary stability coefficient in the narrow and broad sense in the original level of the data, and here we accept the alternative hypothesis that there is no unit root and time series are still, and we reject the null hypothesis which states that there is a unit root and that time series are not. We also find that the data of the broad money supply series is not at the level and is in the first difference, and it is worth noting that the money supply series in the broad sense has been converted to the logarithm for the variation of values between time series and to ensure obtaining quality results from the data used.

Table (2) D.F time series test at the general level and the first difference (1990-2020)

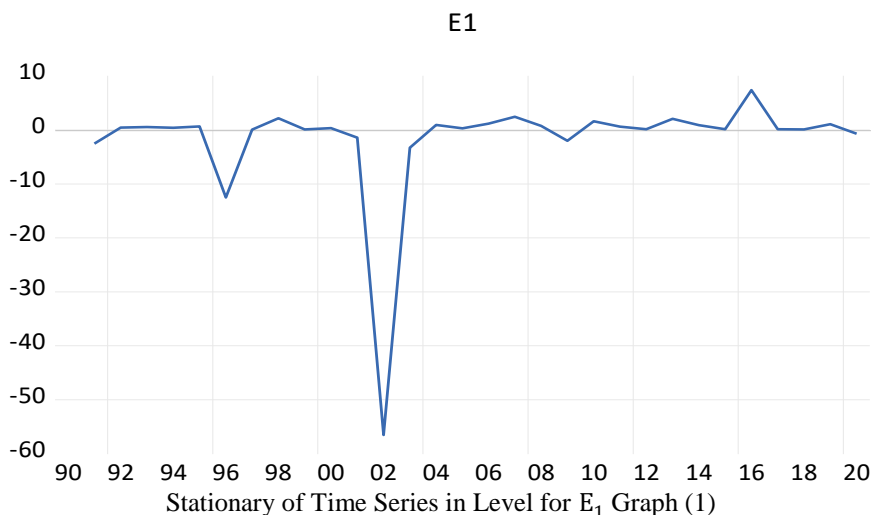
Time series	/ Different 1 Level		Integration
	Constant	Constant . Liner Trend	
E ₁	4.949	4.988	I(0)
E ₂	5.255	5.342	I(0)
LOG MS ₂	2.033	1.266	I(0)
LOG MS ₂	4.757	5.344	I(1)
Critical Values	1%	3.679	4.309
	5%	2.967	3.574
	10%	2.622	3.221

Source: Prepared by the researcher based on the statistical program (E-views 12)

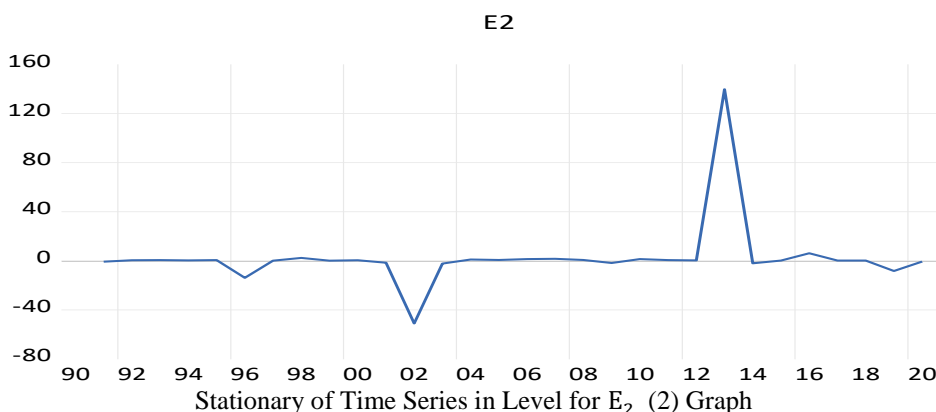
Table (3) Time series P.P test at the general level and first difference (1990-2020)

Time series	/ Different 1 Level		Integration
	Constant	Constant . Liner Trend	
E ₁	4.942	4.973	I(0)
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LOG MS ₂	2.033	1.266	I(0)
LOG MS ₂	4.757	5.344	I(1)
Critical Values	1%	3.679	4.309
	5%	2.967	3.574
	10%	2.622	3.221

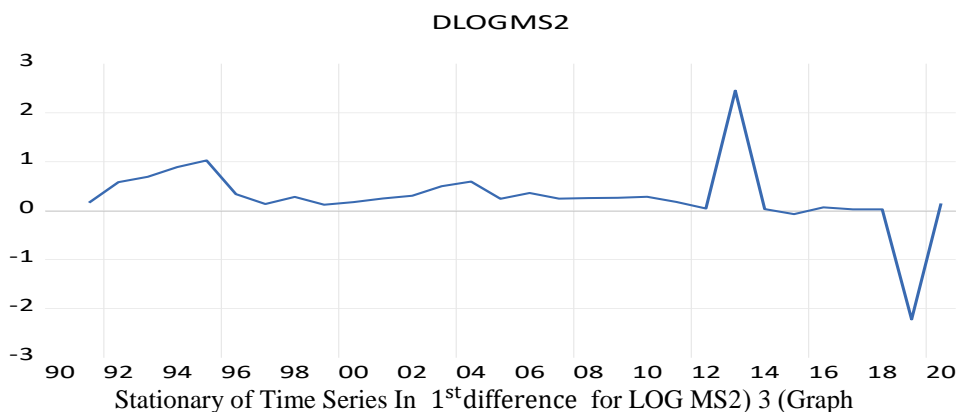
Source: Prepared by the researcher based on the statistical program (E-views 12)



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Source: Prepared by the researcher based on the statistical program (E-views 12)

Through the figures (1-2-3) above, it is clear to us that the narrow and wide monetary stability coefficient is still in the original level of the data and the money supply in the broad sense is still in the first difference, and this is what calls us to apply the autoregressive methodology for the slowest distributed ARDL

Second: Estimating the co-integration between monetary stability transactions and money supply in the broad sense

The economic meaning of the ARDL model is to verify the existence and absence of a long-run integration and equilibrium relationship between the independent variable (money supply in the broad sense) and the dependent variables (the narrow and broad monetary stability coefficient). It is clear from Table (4) that there is a co-integration relationship between the total money supply in the broad sense and the monetary stability coefficients during the research period, as the calculated F value (10.05003) in the boundary test according to the ARDL model is statistically significant

at the 5% level, and at all other levels, that is, higher than the critical value at its upper limit of (3.87) and only the lower (3.10), and this means rejecting the null

hypothesis which states that there is no long-term equilibrium relationship between money supply in the broad sense and monetary stability transactions.

Table (4) ARDL model boundary test results

Test Statistic	Value	K
F-Statistic	10.05003	1
	Critical Value Bounds	
Significance	Lower limit I (0)	upper limit I (1)
10%	2.63	3.35
5%	3.10	3.87
2.5%	3.55	4.38
1%	4.13	5

Source: Prepared by the researcher based on the statistical program (E-views 12)

Third: Estimating the speed of imbalance correction according to the autoregressive model of the distributed slowdown.

The error correction limit parameter (ECM), according to the techniques of the autoregressive model of the distributed slower, represents an indicator of the speed of processing the imbalance in the short term and returning to equilibrium in the long term. Table (5) shows that the value of the error correction parameter is negative CointEq (-1) = -1.006954 and is significant (0.000000), meaning that the imbalances in the

monetary stability coefficients are corrected by an amount of $0.99\% = \frac{1}{1.006954}$ during the year, i.e. corrected within 360 days (0.99×365), and this reflects the importance of monetary policy in a rentier economy such as the Iraqi economy, and that the imbalances in the money market are corrected more quickly during the year. This model can be trusted because the model does not suffer from autocorrelation problems between the limits of the random variable, where the value of Durbin Watson was 1.99.

Table (5) Estimating the short-term error correction speed (ECM).

Variables	Coefficient	Std. Error	t-statistic	Prob*
CointEq (-1)	-1.006954	0.150068	-6.710003	0.0000
R-Squared	0.616558	Durbin-Watson statistic		1.992017

Source: Prepared by the researcher based on the statistical program (E-views 12)

Fourth: Diagnostic tests for the estimated model:

➤ **Serial Correlation LM test** This test is used to ensure that the estimated model is free from the problem of the serial correlation of the residuals of the estimated model. From noting the value of the Breusch-Godfrey test, we infer the existence or absence of a serial correlation problem for the residuals of the model, as we note the probability value of Chi-Square and the value F probability, if the value is greater than 5%, meaning we accept the null hypothesis, which states that there is no

sequential correlation between the random residuals, and we reject the alternative hypothesis, which states that there is a serial correlation between the random residuals, Through Table (6), it appeared that the probabilistic value of the Breusch-Godfrey test is greater than 5% (0.9013), which leads us to accept the null hypothesis where there is no serial correlation between the random residuals, and this means the safety of the estimated model from random errors.

Table (6) Serial Correlation LM test

F-Statistics	0.104393	Prob.F(2.22)	0.9013
Obs* R-Squared	0.260833	Prob.Chi-Squared	0.8777

Source: Prepared by the researcher based on the statistical program (E-views 12)

➤ **Heteroskedasticity test problem** This test is used to detect the problem of variance instability, and from observing the value of the Breusch - Pagan-Godfrey test, we infer the presence or absence of the variance instability problem, as we note the probability value of Chi-Square and the probability value F. If the value is greater than 5%, meaning we accept the null hypothesis, which states that there is no problem of instability of variance, and

we reject the alternative hypothesis, which states that there is a problem of instability of variance, Through Table (7), it appeared that the probabilistic value of the Breusch-Pagan-Godfrey test is greater than 5% (0.3512), which means we accept the null hypothesis where there is no problem of instability of variance, and this means the integrity of the estimated model from the problem of instability of variance.

Table (7) Heteroskedasticity

F-Statistics	1.142630	Prob.F(3.24)	0.3512
Obs* R-Squared	3.496877	Prob.Chi-Squared(3)	0.3512

Source: Prepared by the researcher based on the statistical program (E-views 12)

➤ **Cumulative Sum Residual Test (CUSUM).** This test is useful in verifying that the estimated model is free of time intervals or structural pauses affecting the functioning of the relationship between monetary stability transactions and money supply in the broad sense, where the occurrence of the estimated model between the upper and lower limits indicates a structural stability evidence for the results of the estimated model, meaning that the parameters of the estimated model can be adopted in the future prediction of monetary stability

transactions due to changes in money supply in the broad sense. These structural tests also reflect that the parameters estimated in the ECM error correction formula of the autoregressive model of the gaps or the slowest distributed are structurally stable during the research period, meaning that there is harmony between the results of the short-term and the long-term, and that the imbalances in the short-term return to equilibrium in the long-term.

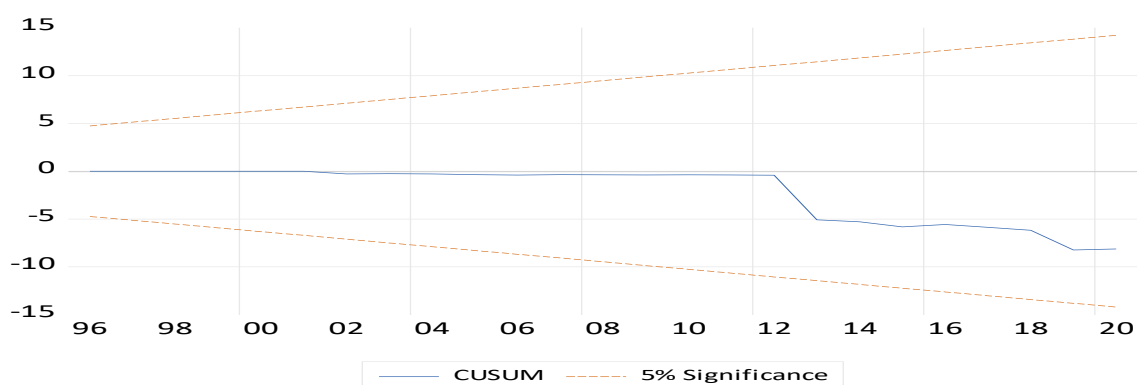


Figure (4) Cumulative Sum (CUSUM) test

Source: Prepared by the researcher based on the statistical program (E-views 12)

CONCLUSIONS:

- Monetary policy can control the monetary stability coefficient in the broad sense more than the monetary stability coefficient in the narrow sense, due to the presence of time deposits in the components of the money supply in the broad sense.
- The monetary stability transactions in a rentier economy such as the Iraqi economy are witnessing a state of imbalances due to the correlation of the economic growth rate with the foreign market and the foreign market is unstable.
- The absence of macro policies that support the state of monetary and economic stability makes it difficult for monetary policy to manage the task assigned to it, which is to control stability.

Recommendations:

- Diversifying the sources of GDP and delinking the local economic cycle from the external oil cycle, in order to control monetary stability transactions in the narrow and broad sense.
- Activating the role of financial, commercial and banking policies to stimulate the rate of economic growth and make it more stable, and this can only be achieved in coordination between monetary policy and the rest of the macroeconomic policies.

- Establishing a fixed growth policy for the money supply in the narrow and broad sense that is concurrent with the constant growth policy of the gross domestic product so that we can control the state of monetary and economic stability in the Iraqi economy.

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