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# The Impact of Monetary Policy in Achieving Exchange Rate Stability in the Iraqi Economy for The Period (1990 - 2023) an Econometric Study

**Sikna Jahya Faraj**

Assistant Professor, Department of Economic, College of Economic and  
Administration, University of Basra, Iraq  
sakna.al\_sary@uobasrah.edu.iq

## Abstract

The exchange rate is a monetary economic indicator that expresses a country's economic performance. The exchange rate is the basic foundation on which the economies of any country in the world are built, whether developed or developing. As a result, most governments seek to implement regulations that ensure the currency exchange rate remains stable. To avoid the radical changes that currencies will endure during another period. The exchange rate also plays a prominent role in monetary policy, due to its use as an intermediate target, or as a tool, or simply as an indicator of the competitiveness of countries through its impact on components of economic growth such as investment, the degree of economic openness, the inflation rate, the narrow money supply, and the volume of exports. And the volume of imports, and foreign exchange reserves. Therefore, the primary goal of this study was to try to identify the nature of the exchange rate. As a result, in the first section, we discussed the concept of monetary policy, its most important tools, its most important goals, the exchange rate, and Iraq's experience in the field of exchange during the period (1990-2023). While the second section was devoted to measuring the impact of monetary policy in achieving stability in the exchange rate of the Iraqi dinar against the US dollar using the vector model. correcting

the mistake. The study concluded with some recommendations to reduce exchange rate fluctuations.

**Keywords:** Exchange Rate, Monetary Policy, Monetary Policy Tools, Partial Adjustment Model, Economic Performance.

## Introduction

Exchange rate stability is linked to achieving economic stability, as it indicates the absence of sharp increases or exaggerated fluctuations in the value of the local currency that would have a negative impact on the economy, as achieving exchange rate stability is linked to all basic variables of the local economy, including production. Consumption, saving, investment, exports and imports. Moreover, the balance in the foreign exchange market appears important as a result of the impact of the exchange rate policy on many goals related to achieving macroeconomic stability, such as maintaining an acceptable and continuous level of the balance of payments balance and reducing inflation rates. And the stability of growth rates. Although monetary policy is one of the main policies in achieving growth and stability, it differs in terms of application from each other, as the view of developing countries on monetary policy differs from the view of developed countries in terms of goals.

Developed countries see that the primary goal of monetary policy is to achieve monetary stability and reduce inflation rates, while developing countries see that the goal of monetary policy is further than that, as it aims through it to achieve economic growth, monetary stability, reduce unemployment levels, and stabilize currency exchange markets. The price is considered... Exchange rate is one of the most important monetary policy tools, and it affects and is affected by other economic indicators. In addition to being affected by internal and external conditions, as a result of the trade exchange of goods and services between countries, the monetary authorities therefore take care of exchange rate policies, especially countries that suffer from a scarcity of their foreign

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currency resources, and that the degree of economic stability of any country is linked to the stability of the exchange rate of the national currency against other currencies.

### **Research Problem**

The Iraqi economy suffered for many decades from many structural imbalances, the most prominent of which was the imbalance in the production structure and its dependence on oil as the sole resource for the economy, which led to misallocation of resources, and then weak production. The exchange rate imbalance is one form of this imbalance. Through many measures, successive reductions were achieved in the value of the dinar against the dollar, but it remained valued at more than its real value, and with the decline in interest rates on the dinar, confidence in the national currency diminished, and the rate of dollarization declined, rising to approximately (50%), and in light of These price distortions increased and the balance of payments deficit and external debt and its servicing increased. At the beginning of 2004, a more flexible exchange rate system was implemented, based on pegging the Iraqi dinar to the US dollar. But by the end of 2014, the Iraqi economy was exposed to a number of internal and external shocks, including exchange rate fluctuations in the Iraqi economy.

### **The Importance of the Research**

The importance of the study lies in the role played by monetary policy as one of the basic policies that help emerge from economic crises and help raise the level of economic performance in a way that enables the restoration of international confidence and integration into the global economy in achieving stability of exchange rates in the Iraqi economy.

### **Research Objectives**

The research aims to try to reveal the impact of the monetary policies applied in Iraq in achieving exchange rate stability, and then the study seeks to reach a set of objectives,

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including: introducing the concept of monetary policy and its most important tools, introducing the concepts of the exchange rate, its functions, and the most important factors affecting it, and trying to Estimating the impact of monetary policy tools in achieving exchange rate stability in the Iraqi economy for the period (1990-2023), and thus coming up with recommendations that may contribute to addressing exchange rate fluctuations in the Iraqi economy.

### **Research Hypothesis**

The study is based on several hypotheses, which are as follows:

- The existence of an equilibrium value for the exchange rate, which is the long-term value or the desired level of the exchange rate.
- The exchange rate model in the Iraqi economy is affected by monetary policy tools during the study period.

### **Research Methodology**

In this research, the researcher combined the inductive approach and the standard approach, as she used the inductive approach to build an appropriate intellectual framework for this study, within the framework of what she addressed using economic theory about monetary policy and its tools, and the exchange rate, while in the standard approach when measuring the impact of monetary policy on... Achieving exchange rate stability.

### **Research Limitations**

The research focuses on the period (1990 - 2023), which is the period during which the Iraqi economy experienced significant changes and fluctuations in exchange rates.

## Search Plan

In light of the problem of the study and its importance, the study was divided into three sections. The first section dealt with the theoretical framework of monetary policy and the exchange rate. The second section dealt with measuring the impact of monetary policy in achieving exchange rate stability in Iraq during the period (1990-2023). Finally, a set of conclusions and recommendations were reached.

### **The First Section: The Conceptual Framework of Monetary Policy and the Exchange Rate**

There have been many definitions of the concept of monetary policy from one school to another, and how to determine its position in economic policy. This is because it has an active role and driver of the financial cycle and the organization of monetary blocs. Perhaps one of the most important pioneers who addressed this American economic thought is Kenz. We will discuss two aspects in the theoretical framework. The first aspect is the theoretical framework of monetary policy. The second aspect is the theoretical framework of the exchange rate.

#### **First: The Concept of Monetary Policy:**

Monetary policy expresses a set of texts, laws and procedures taken by the monetary authority to influence the money supply by expansion or contraction in order to achieve economic goals. It is a set of procedures used by the central bank for the purpose of influencing the money supply in some way to achieve a set of economic goals. (Mandour, 2003, p. 224)

#### **Second: The Importance of Monetary Policy from Economic Policy:**

It is no secret that many monetary policies, especially in underdeveloped countries, are one of the most important causes of internal and external economic imbalance, along with other economic variables. Since the most important goal of monetary policy is to

achieve somewhat economic stability in light of balanced growth, this means that there is a close connection between economic and monetary activity. This appears through the link between economic problems, including unemployment, inflation, and the decline in national employment, with monetary solutions. We must also ignore the importance of coherence of monetary policy with fiscal policy in order to achieve internal stability. Monetary policy uses one of its tools to absorb the surplus purchasing power in the market for goods and services by attracting this surplus in the form of savings vessels, and it can also influence the exchange rate of the national currency. To the extent that it reduces the severity of the deficit in the balance of payments, it is also used to protect the national currency from deterioration and to achieve economic expansion on the basis of transforming various productive activities in order to eliminate the imbalance between the monetary stream and the commodity stream. (Al-Mousawi, 1993, p. 33)

### **Third: Monetary Policy Tools:**

Monetary policy tools express the rates that are under the direct control of the monetary authority, enabling it to adjust their levels to achieve the final goals. They include two types of means, but the latter varies from one economy to another as it is subject to the degree of consistency in the banking system and the strength of the economy, which are as follows:

- 1- Quantitative tools: These tools mainly aim to influence the volume of bank credit without paying attention to its uses. Quantitative tools include three methods:
  - A- The rediscount rate: The rediscount rate is the interest rate that the Central Bank charges from commercial banks in exchange for rediscounting their bills of exchange and treasury bills in exchange for the loans or advances it provides to them secured by such papers, and there is a relationship between the rediscount rate. Interest rates are positive in one direction. Increasing rediscount rates leads to a reduction in the volume of money in society. Therefore, when central banks

want to influence the reduction of the money supply, they resort to raising the rediscount rate, which leads to higher interest rates in financial markets, including discouraging borrowing from Commercial banks thus reduce credit, and this rate is reduced when there is a desire to increase the volume of credit (Mustafa, 2000, P159).

B- Open Market Operations: Open market policy refers to the central bank's participation in the money market to reduce or expand the size of the money supply by buying or selling securities such as stocks and bonds. This method is the most common and most widely used, especially in poor countries. The use of this technology changes the volume of money in circulation and affects the ability of commercial banks to extend credit. (Qadi, 2006, p 91).

C- Legal cash reserve: The cash reserve ratio is considered one of the tools used on credit that affects the money supply, as commercial banks deposit a certain percentage of their customers' deposits in the vaults of the central bank (Suleiman 2000, p 224).

2- Qualitative tools: Specific mechanisms are used to control certain types of loans and regulate spending in specific sectors, such as encouraging productive loans instead of consumer loans, or promoting short-term loans while restricting long-term lending. Monetary policy also intervenes in industries and activities that are unstable or face challenges that require remediation. Especially through the use of certain techniques, which are also used to influence the volume of credit directed towards sectors, the most important of which are: (Mansour, 2003, p. 121).

A- Credit framing: It is a regulatory procedure according to which the monetary authorities set ceilings for the development of loans granted by commercial banks in a direct administrative manner according to specific percentages during the year. The increase in the total loans distributed does not exceed a certain

percentage. In the event of a violation of these procedures, banks are exposed to penalties.

- B- The minimum liquidity ratio: The central bank forces commercial banks to maintain a minimum ratio that is determined by some assets attributed to some components of liabilities.
- C- Conditional deposits from import contracts: This technique requires importers to deposit the amount required to pay the price of imports in the form of deposits with the central bank for a limited period of time, and the central bank carries out some banking operations (Qadi, 2006, pp 80-81).
- D- Influence and moral persuasion: It is a means used by central banks by requesting, in friendly and informal ways, commercial banks to implement a specific policy in the field of granting credit.

#### **Fourth: Monetary Policy: Foundations and Objectives**

As long as monetary policy is only a manifestation of economic policy, it actually seeks to achieve the same goals. Despite this, monetary policy still has its own goals that distinguish it from other policies, and it is based on its own foundations.

##### **1- Contextual Foundations of Monetary Policy:**

The foundations of monetary policy vary from one country to another, depending on the level of progress and development witnessed by the economic and social systems in each society. For example, in advanced industrial capitalist countries, these policies are largely concerned with ensuring the full operation of the economy in order to maintain internal monetary stability and deal with various economic fluctuations. These countries implement some quantitative monetary measures, such as the open market, changing interest rates, or changing the reserve ratio of banks (Ben Ali, 2005, pp. 112-113).



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## 2- Monetary Policy Objectives and Channels:

There are final goals and intermediate goals for monetary policy:

A- Final goals: The general goal of monetary policy, like economic policy, is to achieve real growth without inflation, with a balance in the balance of external payments, and with an optimal distribution of society's resources. We find these goals in the Arab countries as a result of the stability of legislation. They revolve around the following elements: (Kmenta, 1986, P87).

- Achieving monetary stability to combat inflation

Ensuring the exchangeability of the currency and maintaining its external value

- Encouraging economic growth
- Contributing to the establishment of advanced financial and monetary markets
- Supporting the state's economic policy
- Achieving general economic balance These goals in industrialized countries are limited to one goal, which is price stability, that is, targeting inflation

B - Intermediate goals: These goals express those monetary changes that can be achieved by monitoring and managing some or all of the final goals. The intermediate goals are required to respond to the existence of a relationship between them and the final goals, and the possibility of monitoring them through the tools of the monetary authorities.

C - Monetary pools: These are statistical indicators of the amount of money in circulation and indicate the ability of financial institutions to spend. It includes payment methods for these institutions. The number of these complexes varies depending on the nature of the economy and the level of growth of the banking

and financial commodities industry. How much information do these aggregators provide to monetary authorities about the growth rate of various sources of liquidity? To determine these complexes and their levels, we must take into account the supply and demand for money. (Suleiman, 2000, p 225).

D- Demand for money: In order to determine the appropriate level of the cash supply, the desired level of receipts to be maintained must be determined in terms of inflation and growth goals. The demand for money also results from the need to obtain cash receipts, whether to make regular purchases or build reserves. Three can also be identified. Motives for the demand for cash include: the transaction motive, the reserve motive, and the speculation motive.

E- Money supply: This concept is based on the process of analyzing the monetary mass by analyzing three types of accounts: the cash survey or position, the central bank account, the transaction motive, the reserve motive, the speculation motive, and commercial bank accounts (Essam El-Din, 1989, p 65)

### **Fifth: The Theoretical Framework of the Exchange Rate**

The exchange rate plays an important role in the external economic activities carried out by countries, whether that activity is commercial or investment, as the exchange rate occupies a central position in monetary policy, due to its use as a goal and a tool or simply as an indicator of competitiveness, through its impact on components of economic growth such as investment, And the degree of openness to international trade, capital flows, and the development of the financial sector. In this section, we will try to review the most important concepts related to the exchange rate, the most important functions it performs, and the most important factors in it.

1- Definition of the exchange rate: The exchange rate can be defined as the number of units of a particular currency that must be paid to obtain a unit of another currency. The exchange rate also means the ratio or price of exchanging one currency for

another currency. Thus, one of the two currencies is considered a commodity while the other is considered the price. It is also defined as: the ratio on the basis of which national monetary units are exchanged for foreign monetary units at a specified time, and by foreign currency here we mean all deposits, credits, and payments due in a given currency, in addition to transfers, traveler's checks, and promissory notes (Al-Taher, 2007, P96).

2-Forms of the exchange rate: There have been many forms of exchange rates that have been discussed in economic literature, and they are as follows (Abbas, 2014,P49)

- A- Nominal exchange rate: The nominal exchange rate is considered one of the simplest concepts of an exchange rate in terms of definition. It expresses the value of one unit of foreign currency denominated in units of the national currency or the price of the national currency denominated in units of the foreign currency. Therefore, a rise in the exchange rate is considered synonymous with a deterioration. The value of the national currency and its decline means an improvement in its value.
- B- The real exchange rate: refers to the nominal exchange rate adjusted according to the relative prices between the two countries under consideration. In other words, the real exchange rate represents movements in the nominal exchange rate adjusted by the rate of inflation in two different countries. It is worth noting that the real exchange rate expresses the competitiveness of national products (Al-Husseini, 1999, P150)
- C- The effective exchange rate: It is a standard number whose value in the base year is (100%) of the exchange rate of the national currency against foreign currencies, weighted by weights that reflect the pattern of geographical distribution of exports, imports, or foreign trade shares of the main trading partners the real

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effective exchange rate in this sense is a standard method for measuring the purchasing power of the national currency in relation to foreign currencies.

D- The spot price and the forward exchange rate: The spot exchange rate means the current or current price, which dealers depend on and is included in invoices and evaluation of transactions. These deals represent most of the operations that take place in the exchange market, while the forward exchange rate means that price that is included in Transactions and transactions based on the spot price and the difference in interest rates in the money market between the two currencies, meaning that the difference between the forward exchange rate and the spot rate depends on the time period when the deals are concluded and on the levels of interest rates prevailing in the money markets of the dealing parties. (Bordeaux, 2002, 29)

E- Cross exchange rates: Within the framework of the money market, international operations are carried out and foreign currencies are exchanged for each other. Various monetary transactions have developed over the last three decades as a result of the risks and losses resulting from flotation and the large fluctuations in currency exchange rates. These transactions have taken forms, the most important of which is the conversion formula. The immediate and forward conversion formula later formed markets called the immediate, futures and future markets (Al-Mousawi, 1993, P97). Transactions and transfers are linked to two prices, a selling price and a buying price for each currency with its corresponding other currencies.

Currency prices are linked to each other according to the concept of the equilibrium triangle, which is known as the balancing triangle for buying and selling one currency against another and ending with a return to the original currency in order to achieve the highest profits. The existence of this proverb is

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what makes some currency prices achieve certain surpluses (assuming the cost of transactions is neglected) (Al-Jamil, 2001, 95).

### **Sixth: Factors Affecting the Exchange Rate**

The exchange rate is considered one of the economic variables with a mutual influence.

It is affected and affected by the factors determining it and also its components. Among the most important factors that affect the exchange rate are the following:

- 1- Money supply: The classics believed, through the quantity theory of money, that there is an existing relationship between the quantity of money and the general level of prices, and this relationship is in the same proportion and in the same direction. The monetary school emphasized the importance of money in influencing the general level of prices, but it is not in the way the classics envisioned it (Saqr, 1983, 134).
- 2- General Budget: The state's general budget plays a major role in influencing the exchange rate. If the state follows a contractionary policy by reducing the volume of public spending, which leads to a reduction in the volume of aggregate demand, a decrease in the level of economic activity, and a decline in inflation rates, which leads to an increase in the price of... Local currency exchange
- 3- Balance of Payments: The balance and imbalance in the balance of payments are among the most important factors affecting the exchange rate, because it is the link that reflects the country's relationship with the outside world. If a deficit occurs in the balance of payments for a particular country, this leads to an increase in its demand for foreign currencies to fill that deficit.
- 4- Inflation: There is a mutual influence between the exchange rate and the price level, meaning that the exchange rate affects, to one degree or another, the price level, and the price level affects, to one degree or another, the exchange rate. There are many ways in which inflation exerts its influence on the exchange rate. On the one hand, Inflation leads to a weakening of the state's export capacity, due to the high costs of

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producing goods and services and the rise in export prices, which reduces the state's competitive ability in the foreign market and ultimately leads to a decrease in demand for the national currency, thus affecting the exchange rate negatively (Abbas, 2014, p62)

- 5- Changes in the interest rate: Changes in the interest rate have a significant impact on the exchange rate, through short-term investment movements that are sensitive to changes in interest rates, as the balances are available for international lending (Khudair, 2009, p38).
- 6- Stock market transactions: The psychological factor within the stock market is considered one of the important factors that affect the exchange rate. If there is a decline in stock prices in one of the markets and foreign investors fear losses from their investments, and if stock prices continue to deteriorate, they will exit the market, where they by converting their national currency into convertible currencies, as a result, the supply of local currencies increases, the demand for other foreign currencies increases, and the value of the national currency decreases. Political strikes and wars do not have a major role in influencing the exchange rate, through their impact on the situation. The economic situation of the country in general, as most economic sectors, especially the industrial sector and the foreign trade sector, are affected, and confidence in the country's currency is lost due to high inflation rates. As for rumors and news, they are among the quick influences on the exchange rate, regardless of their degree of validity, as they work to raise or lower the value of the currency for a short period, then the value of the currency soon returns to its normal state after the effect of the rumor or news disappears (Dickey, AND Fuller, 1981, p79).

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## The Second Section: Analysis of the Development of Trends in the Economic Variables Used in the Study in the Iraqi Economy for the Period (1990-2023)

### • Analysis of the Development of Monetary Policy Trends and its Tools in the Iraqi Economy for the Period (1990-2023)

Monetary policy under the Central Bank of Iraq law was characterized by a monetary path that differed from its predecessor in terms of the tools used to implement it and the objectives, starting with the goal of reducing inflation, stabilizing prices, maintaining a stable monetary system and achieving economic well-being, creating job opportunities, strengthening the Iraqi dinar, and reducing the phenomenon of dollarization (Al-Khazraji, 2010, p. 20) which is the phenomenon of using foreign currency instead of the national currency to carry out the functions of the local currency. Informal dollarization occurs when individuals hold deposits of foreign currencies and other banknotes to protect themselves from domestic inflation, and the index of substitutability is difficult to identify and quantify.

Informal dollarization occurs when individuals hold deposits of foreign currencies and other banknotes to protect themselves from domestic inflation, and the index of substitutability is difficult to define and measure. Currency due to the difficulty of estimating the volume of currency in circulation, and one of the most important goals of monetary policy is economic stability, which includes stabilizing the general level of prices and combating inflation by stabilizing the exchange rate, as well as combating unemployment. This is on the part of industrialized countries that suffer from economic stagnation, idle production capacity, and a lack of effective demand.

As a result, such a goal is inappropriate for the Iraqi economy, which suffers from severe backwardness in all areas and suffers from shortcomings in its many productive sectors. According to the strategy of the Central Bank of Iraq, which consists of stabilizing the general level of prices linked to the stability of the dinar's exchange rate against the

dollar, keeping the currency fully covered by foreign reserves, and preparing to meet transfer requests. The dinar against the dollar: The central bank and its monetary policy will lose its most important functions in harmony with other policies in order to achieve central development (Al-Baydani, 2012, 166). Table (1) shows an analysis of the development of trends in the economic variables used in the study in the Iraqi economy for the period (2004-2023).

Table (1): Analysis of the development of trends in the economic variables used in the study in the Iraqi economy for the period (2004-2023) (Source: Central Bank of Iraq (1990-2019) Annual Bulletins, Baghdad, General Directorate of Statistics and Research -Ministry of Planning and Development Cooperation, Central Bureau of Statistics for the years (2004-2023))

Year	Legal reserve	Parallel exchange rate	rate Parallel exchange	Foreign direct	Money Supply Ms1	Imports	Exports
1990	1065437	10	161	4178432	15359.3	15.2	14.1
1991	1762000	10	462	4292106	24670.0	15.5	13.2
1992	2752000	21	849	4392654	43909.0	15.9	13.9
1993	3018000	74	261.1	4476321	86430.0	16.6	13.3
1994	2965526	458	154.62	4598754	238901.0	17.5	16.9
1995	3250735	1674	697.92	4530987	705064.0	17.6	17.2
1996	403163.4	1170	590.21	4698743	960503.0	18.8	17.2
1997	4078106	1471	726.10	4612890	1038097.0	18.4	20.6
1998	4935002	1620	833.35	4709876	1351876.0	19.2	20.3
1999	4984815	1972	938.16	4856328	1483836.0	19.4	20.3
2000	11826566	1930	984.8	4998764	1728006.0	20.7	20.2
2001	12084441	1929	114.61	4078654	2159089.0	20.8	22.9
2002	15577378	1957	136.75	5003254	3013601.0	21.2	21.2
2003	16862844	1998	4.69	5107654	2898189.0	21.5	1.22
2004	7.9	1453	72,0	5114173	10148626	21,3	23,4
2005	12.2	1472	37,0	7550000	11399125	20,0	23,6
2006	18.1	1475	53,2	9272000	15460060	20,8	30,5
2007	30.4	1267	30,8	12665305	21721167	19,5	39,5
2008	49.2	1203	2,7	15671227	28189934	35,4	63,7
2009	44.3	1182	(2,8)	15017226	37300030	38,4	39,4
2010	50.6	1182	2,4	23676772	51743489	34,9	51,7



2011	61.0	1196	5,6	30066292	62196000	47,8	79,6
2012	70.3	1233	6,1	37177897	63735871	48,0	11,0
2013	77.4	1232	1.86	55108602	73830964	39,0	10,4
2014	66.3	1214	2.24	64622557	72087457	43,2	98,5
2015	53.7	1228	1.44	41214037	73970221	48,5	57,6
2016	45.3	1229	1.46-	15894000	74298841	57,3	51,7
2017	65.6	1200	0.19	16464.5	75231690	37,8	57,5
2018	69.9	1200	0.4	13820.3	74609333	45,8	86,3
2019	71.4	1200	0.8	531,509	74706543	68,7	88,5
2020	75.3	1200	1.87	16894000	74596843	73,5	89,7
2021	75.6	1200	1.19	15434.5	78831621	77,8	90,5
2022	6.78	1200	1.4	198720.3	78909653	85,8	92,3
2023	6.79	1200	1.8	198950.9	84708741	88,7	93,5

Table (2) shows the monetary policy tools after 2003 in the Iraqi economy for the period (2004-2023) (Source: 1- Bulletins of the Central Bank of Iraq for the years 2004-2023 with the economic report of the Central Bank of Iraq published on the Internet (Central Bank of Iraq) website).

Table (2): Monetary policy tools in Iraq for the period (1990-2023) (Source: 1- Bulletins of the Central Bank of Iraq for the years 2004-2023 with the economic report of the Central Bank of Iraq published on the Internet (Central Bank of Iraq) website. 2-Ministry of Planning, Central Bureau of Statistics, for the period (2005-2023), Baghdad. 3-Field (3) calculated by the researcher based on the above source).

Year	Percentage of foreign exchange reserves	Re-discount price	Open market operations
2004	25%	6%	323,463,7
2005	25%	7%	323,463,7
2006	25%	16%	172,000,0
2007	25%	20%	287,548,0
2008	25%	15%	231,578,0
2009	25%	7%	148,564,9
2010	15%	6%	374,116,0
2011	15%	6%	476,026,0
2012	15%	5%	477.634.1
2013	15%	4%	501,754.4

2014	15%	6%	498,803.1
2015	15%	6%	409,222.3
2016	15%	6%	332,609.1
2017	15%	6%	508,887.2
2018	15%	6%	688,901.6
2019	15%	5%	712,543.2
2020	15%	6%	732,329.1
2021	15%	6%	808,487.2
2022	15%	6%	888,651.6
2023	15%	5%	818, 763.2

• **Analysis of the Development of Exchange Rate Trends in the Iraqi Economy for the Period (1990-2023 )**

In 2003, the Central Bank established an official central exchange market to buy and sell foreign currencies according to market principles. It was under the supervision of monetary policy, and its goal was to stabilize the country's economic growth. In 2006, the government used a multiple exchange system with more than 13 exchange rates, including an official rate of \$3.2 per Iraqi dinar and another official rate of \$1,450 per dollar.

There was a parallel exchange market in a hybrid configuration that dealt with Iraqi dinar exchange rates. This market was a pioneer in setting exchange rates on the basis of an absolute or full floating exchange system, and as a result of different official pluralism, a distorted exchange system emerged, where multiple fixed exchange systems supported unrealistic exchange rates for goods and money. Services provided and denominated in foreign currency (Al-Anazi, 2015, p,43)

The exchange rate regime has been difficult to define, especially in economies that use a fixed exchange rate for monetary policy, because it does not engage in stabilizing inflation targeting through interest rate policy due to a lack of fiscal depth, as is the case in Iraq. As a result, Iraq's de facto exchange regime (which serves as the basis for monetary policy analysis) promotes exchange stability (IMF, 2013, pp. 4-45). As a

result, it became impossible to reconcile many of the fixed exchange rate plans that had been implemented before 2003. As a result, monetary policymakers tried to implement a fixed exchange rate system that would preserve the value of the local currency, so the government used a managed floating exchange rate system, Where the exchange rate is free, determined by supply and demand, and supervised by the central bank. To ensure success, the Central Bank implemented a daily auction strategy to buy and sell foreign currencies (Jarrah, 2019, p 23)

The Monetary Authority was able to unify exchange rates through its auctions by meeting the market demand for foreign currency, financing imports, and trying to control the balance between foreign and local currencies, as shown in the table of exchange rate changes from the year (2004 - 2019) shown in Table (1).

The study of the exchange rate is the search for methods and procedures that achieve stability in the local currency exchange rate, and that the importance of stability leads to achieving the comprehensive economic goals of internal and external stability. (Al-Khazraji, 2015, pp 50-58). The currency auction mechanism can be explained as follows:

1. The auction is open at all times during the business day except holidays.
2. Banks, money transfer companies, and banking companies submit applications in a sealed envelope with the amounts to be sold or obtained.
3. The auction committee opens and evaluates applications.
4. Applications are approved or rejected if incomplete.
5. Due to the huge volume of requests, they are distributed over several days.
6. The central bank disburses requests at the exchange rate it decides, which is almost fixed and rarely changes. (Al-Ghalabi and Hodan, 2017, p34)

The monetary authority has two techniques, and there is no third option:

1. Fixing the exchange rate, placing it within certain limits, or managing it in a restricted way through intervention in the exchange market, as it can be implemented in two ways: The first is to meet and satisfy demand for the currency to obtain an equilibrium

price that approaches or matches the market price, or to prevent trading in foreign exchange and restrict its movement abroad is through managing the external transfer of foreign currencies, and this method is difficult to implement.

2. Allowing the market to determine the foreign exchange rate using economic mechanisms. Here, the equilibrium price is determined by the interaction of supply and demand for foreign exchange. If supply increases, price decreases; If demand increases, the price rises. Then the central bank moves to keep up with the reserves. (Al-Ghalbi, 2017, p 23 )

The Central Bank of Iraq began using daily auctions to buy and sell the US dollar with the aim of controlling the money supply and liquidity, achieving price stability, reducing inflation, and controlling currency exchange. The currency auction began on October 4, 2003, and the central bank served as the central market for the currency. Foreign funds helped reduce fluctuations in the value of the Iraqi dinar against the US dollar, and the central bank's purchases of foreign currency occupied the largest share in the Ministry of Finance (Al-Sakban, 2019, p 205)

### **The Third Section: Measuring the Impact of Monetary Policy in Achieving Exchange Rate Stability in Iraq During the Period (1990-2020)**

This research aims to analyze the impact of monetary policy (some monetary variables) on the exchange rate in the Iraqi economy, using the vector autoregressive model, stationary and cointegration tests, and the error correction model, through which we arrive at realistic, sound and logical results for economic relations on which sound decisions can be made.

#### **First: Formulating the Model**

In this study, we will discuss the impact of monetary policy (exchange rate, money supply, foreign exchange reserves, foreign direct investment, inflation rate, volume of exports, volume of imports, degree of economic openness), one of the factors affecting

the achievement of exchange rate stability, as well as other factors that affect In the exchange rate, which was discussed in the theoretical aspect, we will use the following variables:

- 1-The exchange rate, which is symbolized by the symbol ER.
- 2- Inflation rate, which is symbolized by the symbol INF.
- 3- Money supply, which we symbolize as MSS.
- 4- Export volume, which we symbolize as EX.
- 5- The volume of imports, which we symbolize as IM.
- 6- Foreign exchange reserves, which we symbolize as R.
- 7- Foreign direct investment, which we symbolize as FDI.
- 8- The degree of economic openness, which we symbolize as OPN.
- 9- A dummy variable with the symbol  $U_t$  that expresses the exchange rate policy, where it takes the value = 1, in the years in which the monetary authorities intervened in the exchange rate, and the value = zero in the remaining years of the study period, and the study period is (1990-2023). After we have identified the variables for this study, the model can be formulated as

follows: $ER=B_0+B_1INF+B_2MSS+B_3OPN+B_4FDI+B_5EX+B_6IM+B_7R+U_t$

## Second: Presentation of Results

### 1- 1Time Series Chart

Testing the stability of time series of economic variables in Iraq using the unit root test. At this point, we will first graph the independent and dependent variables used for analysis in the Iraqi economy, then determine their lag periods, and then test the stability using the expanded Dickey-Fuller test (Hall & Anderson, 1994) and to know the type and nature of the series and indicate its general trend, we illustrate it through the following graphical figures:

Figure (1) Stability of time series of dependent and independent variables for internal and external balance objectives in Iraq for the period (1990-202)

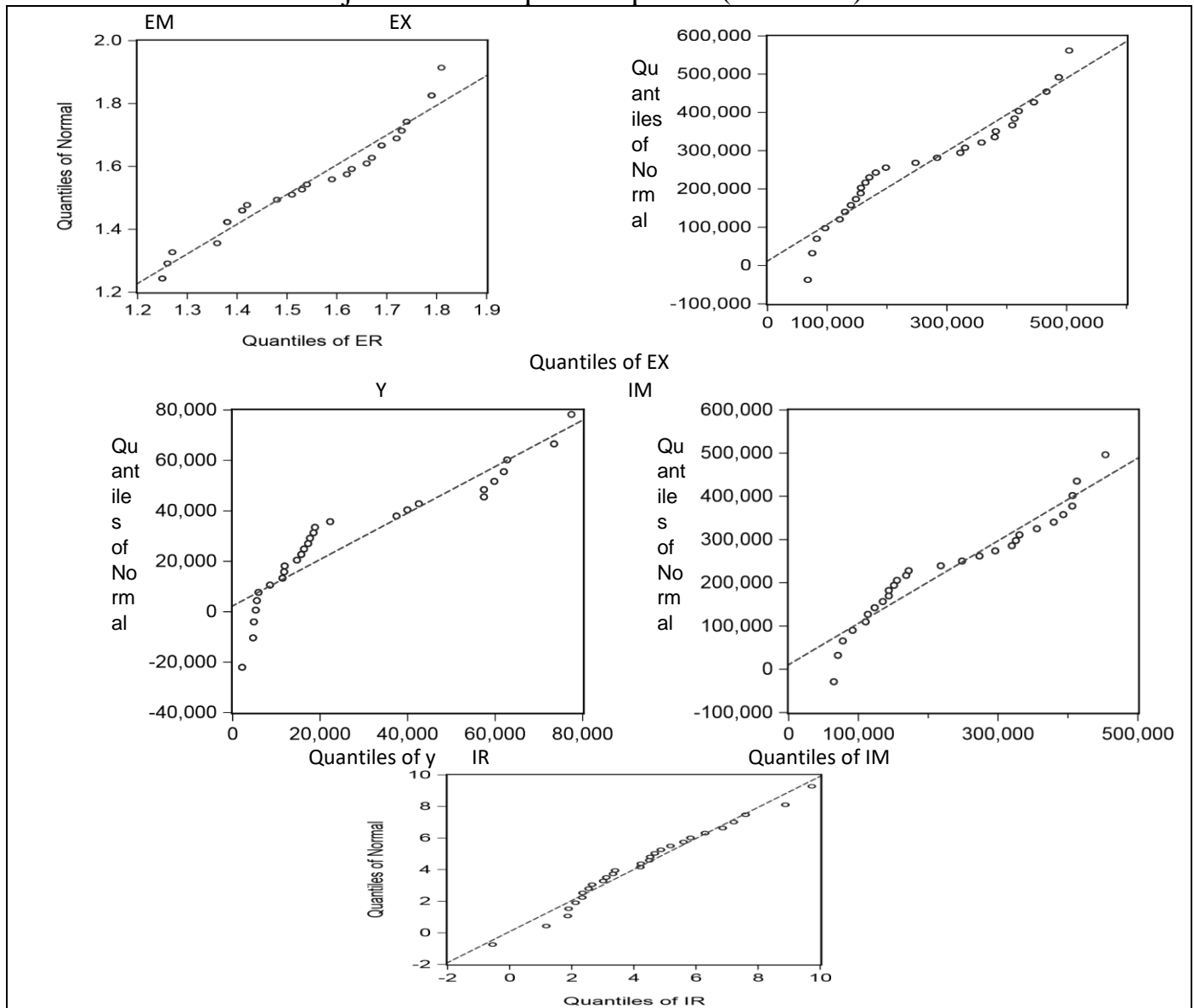


Figure (1): shows that the series suffers from a general trend. In order to ensure its stability and freedom from a unit root, the expanded Dickey-Fuller test was used

## 2- Determine the Length of the Lag Periods for the Dependent and Independent Variables

To determine the lag periods for the dependent variable (Y) and the independent variables (EX, IM, ER, IR) in Iraq according to the Schwarz criterion. After conducting the analysis, the results showed that the lag periods we obtained for inflation, money supply, exports, imports, foreign direct investment, foreign exchange reserves, and economic openness It is (3) lags for each variable, while the lag period for the dependent variable (exchange rate) was also determined by (3) lags.

## 3- Extended Dickey-Fuller Test (ADF)

We will conduct a stability test for each of the independent variables (money supply, foreign exchange reserve, foreign direct investment, inflation rate, export volume, import volume, degree of economic openness) (IM, FDI, INF, MSS, EX, IM, R, OPN) And the dependent variable (the exchange rate ER) in Iraq, using the expanded (Dickey-Fuller) test, from Table (3) we note that the unit root results for the exchange rate data series in Iraq shown by the (ADF) test at the level of the series, that the value of (t) The calculated value was smaller than the critical (t) at significance levels (10%, 5%, 1%) when the analysis was conducted in the presence of a fixed term, and the same is true in the presence of a fixed term and a general trend and without a fixed term and a general trend, meaning that the series here is unstable, but it has become stable. After conducting the analysis with a fixed limit and taking the first difference, here the calculated (t) became greater than critical at all levels of significance (10%, 5%, 1%), meaning that the time series does not contain a unit root and is an integral of degree  $I \sim (1)$  Accordingly, we will reject the null hypothesis and accept the alternative hypothesis, meaning that the series is stable with its first difference at the significance levels (10%, 5%, 1%).

As for the unit root results for the inflation data series in Iraq, the (ADF) test at the level of the series showed that the calculated (t) value was smaller than the critical (t) value at significance levels (10%, 5%, 1%) when conducting Analysis with a fixed term, and the same applies to the presence of a fixed term and a general trend and without a fixed term and a general trend, meaning that the series here is unstable, but it became stable after conducting the analysis with a fixed term and taking the first difference, as the calculated (t) became greater than critical at all levels of significance (%) 10, %5, %1) This means that the time series does not contain a unit root, i.e. stable. Accordingly, we will reject the null hypothesis and accept the alternative hypothesis.

As for the unit root results for the money supply data series in Iraq, the (ADF) test at the level of the series showed that the calculated (t) value was smaller than the critical (t) value at the significance levels (10%, 5%, 1%) at Conducting the analysis with a fixed term and the same applies to the presence of a fixed term and a general trend and without a fixed term and a general trend, meaning that the series here is unstable, but it became stable after conducting an analysis with a fixed term and taking the first difference as the calculated (t) became greater than critical at all levels of significance (% 10, %5, %1) This means that the time series does not contain a unit root, i.e. stable. Accordingly, we will reject the null hypothesis and accept the alternative hypothesis.

As for the unit root results for the export volume data series in Iraq, the ADF test at the series level showed that the calculated (t) value was smaller than the critical (t) at the significance levels (10%, 5%, 1%) when the analysis was conducted with a limit. Stable, meaning that the series here is unstable, but it became stable after conducting the analysis with a fixed limit and a general trend at all levels of significance (10%, 5%, 1%), meaning that the series is free of the unit root and stable at those levels, and for this reason we will reject the hypothesis null and we accept the alternative hypothesis.



The unit root results for the import volume data series in Iraq, which were shown by the ADF test at the level of the series, showed that the calculated (t) value was greater than the critical (t) at all levels of significance (10%, 5%, 1%) when the analysis was conducted in the presence of A fixed term, which means that the series here is free from the unit root, stable, and integral of degree (I~0). Therefore, we will reject the null hypothesis and accept the alternative hypothesis.

The results of the unit root of the foreign exchange reserve data series in Iraq, which were shown by the ADF test at the level of the series, showed that the calculated (t) value was greater than the critical (t) at all levels of significance (10%, 5%, 1%) when conducting the analysis. In the presence of a fixed term, this means that the series here is free from the unit root, stable, and integrated of degree (I~0), and for this reason we will reject the null hypothesis and accept the alternative hypothesis.

The results of the unit root of the foreign direct investment data series in Iraq, which were shown by the ADF test at the level of the series, showed that the calculated (t) value was greater than the critical (t) at all levels of significance (10%, 5%, 1%) when conducting the analysis. In the presence of a fixed term, this means that the series here is free from the unit root, stable, and integrated of degree (I~0), and for this reason we will reject the null hypothesis and accept the alternative hypothesis.

The results of the unit root of the data series on the degree of economic openness in Iraq, which were shown by the ADF test at the level of the series, showed that the calculated (t) value was greater than the critical (t) at all levels of significance (10%, 5%, 1%) when conducting the analysis. In the presence of a fixed term, this means that the series here is free from the unit root, stable, and integrated of degree (I~0), and for this reason we will reject the null hypothesis and accept the alternative hypothesis.

Table (3): Extended Dickey-Fuller test (ADF) for data series (EX, IM, ER, IR, y) in the Iraqi economy for the period (1990-2023) (Source: Worked by the researcher based on the Eviews10 statistical program)

The first difference			the level				
Without a fixed limit and general trend	A fixed limit and general trend	Fixed limit	Without a fixed limit and general trend	A fixed limit and general trend	Fixed limit		
exchange rate							
		-4.438481	-0.2855230	-2.763281	-1.053796	T-Statistic	
		-3.711457	-2.653401	-4.356068	-3.699871	1%	Moral level
		-2.981038	-1.953858	-3.595026	-2.976263	5%	
		-2.629906	-1.609571	-3.233456	-2.627420	10%	
Inflation							
		-3.911584	0.271236-	-2.409601	-0.678525	T-Statistic	
		-3.711457	-2.653401	-4.356068	-3.699871	1%	Moral level
		-2.981038	-1.953858	-3.595026	-2.976263	5%	
		-2.629906	-1.609571	-3.233456	-2.627420	10%	
Money supply							
		-6.220286	-0.649218	-2.392788	-1.572734	T-Statistic	
		-3.711457	-2.653401	-4.339330	-3.699871	1%	Moral level
		-2.981038	-1.953858	-3.587527	-2.976263	5%	
		-2.629906	-1.609571	-3.229230	-2.627420	10%	
Export volume							
				-4.588539	-2.601340	T-Statistic	
				-4.339330	-3.699871	1%	Moral level
				-3.587527	-2.976263	5%	
				-3.229230	-2.627420	%10	
Import volume							
					-11.32066	T-Statistic	
					-3.886751	1%	Moral level
					-3.052169	5%	
					-2.666593	%10	
Foreign exchange reserves							
		-6.220286	-0.649218	-2.392788	-1.572734	T-Statistic	
		-3.711457	-2.653401	-4.339330	-3.699871	1%	Moral level
		-2.981038	-1.953858	-3.587527	-2.976263	5%	
		-2.629906	-1.609571	-3.229230	-2.627420	10%	
direct foreign investment							
				-4.588539	-2.601340	T-Statistic	
				-4.339330	-3.699871	1%	Moral level
				-3.587527	-2.976263	5%	
				-3.229230	-2.627420	%10	
Degree of economic openness							
					-11.32066	T-Statistic	
					-3.886751	1%	Moral level
					-3.052169	5%	
					-2.666593	%10	

#### 4- Error Correction Form

The study in this part uses modern methods of time series analysis using the vector autoregressive model, stationary tests for variables, cointegration, and the error correction model, through which we reach realistic results and a sound and logical analysis of economic relations on which sound decisions are based, and thus we avoid the misleading results that are reached. Using traditional regression methods in light of the instability of time series, which leads to a spurious regression with 2R, F, and T being statistically significant. This is due to the fact that temporal data is often characterized by instability of variance, the first of which is its periodicity, or the trend factor over time, which reflects certain conditions that affect on all variables in the same or opposite direction (Phillips, 1986, p78). The directional regression model is one of the modern standard models for studying the relationships between macroeconomic variables. In this model, each of the study variables is written as a linear function with the values of the same variable in previous periods and with the values of the variables. The other variables in the model in the previous periods, and all variables in this model are treated as endogenous variables, that is, they are determined inside the model and not outside. All that is necessary in this model is to specify the study variables and determine the number of time lag periods only. Through this model, causality will be tested. Where it is known Causation in the presence of two variables X and Y They are the variable X causing the variable Y if the time lag of the variable Study variables (Al-Youssef, 2004, p87) and the relationship is either unidirectional, where one factor affects the other factors without the rest of the factors affecting it, or a reciprocal relationship, which is that the factors affect each other, or there is no causal relationship between these variables (Dickey,19981,p34).

## 5- Estimating the Error Correction Model

After confirming the existence of cointegration, comes the third step, which is related to building, designing, and estimating the error correction model. The significant results showed that the variables of the study are compatible with the logic of economic theory, with the exception of (inflation rate, cash reserves), and thus it can be said:

- There is a dynamic relationship in the short term between the exchange rate and each of the money supply, exports, imports, foreign direct investment, and economic openness, and the adjustment coefficient is significant and has a negative sign. This means that there is a dynamic relationship in the long term between the independent variables and the dependent variable, and the value reached the adjustment factor is (-0.899). This means that the deviation from equilibrium in the long term is corrected every year by (90%), and that a negative value means a decline to the equilibrium value.

There is a significant inverse relationship in the short term between the money supply and the exchange rate, which means that every change in the money supply by (10) results in a change in the exchange rate by (20%) in the opposite direction, which confirms the positive impact of monetary policy in achieving stability. In the Iraqi dinar exchange rate

The value of the coefficient of determination reached (0.5113), which is a logical value and good in the error correction test, as it indicates that the model explains about (51.13%) of the change occurring in the Iraqi dinar exchange rate, and the rest (48%) is due to other reasons.

The value was (1.28), which is close to 2%, which means there is no autocorrelation. Its value is also greater than the value of R. This means that the model does not suffer

from spurious regression, and therefore the statistical significances of (R, F) can be accepted.

- The value of the (LM) test also indicates (0.086), which is greater than (1%), which indicates the absence of autocorrelation.
- The Breuch-Pagan test for conditional variance showed that there is no conditional variance because its value is (6.21), which is greater than (5%).(
- Testing the normal distribution of the residuals revealed that the residuals do not follow the normal distribution, meaning that the model suffers from a non-normal distribution

Table (4) Results of the error correction model for the variables used during the period (1990-2023) in the Iraqi economy.

Table (4): Results of the error correction model for the short- and long-term relationship between (EX, IM, ER, IR) and its impact on (RM) in the Iraqi economy. (Source: Worked by the researcher based on the Eviews statistical program).

Error correction results									
CointEq (-1)	Prob	Long Run Coefficients (EX)	Prob	Long Run Coefficients (IM)	Prob	Long Run Coefficients (ER)	Prob	Long Run Coefficients (IR)	Prob
-0.140838	0.04	0.655085	0.70	-1.170116	0.70	18.793829	0.70	-269.6969	0.67

Note from Table (4), which presented the results of the autocorrelation test, that there is no consistency in the change between companies, imports, exchange rate, and foreign direct interest rate from the autocorrelation problem, with no probability (F) calculated (0.45) according to the (LM Test), which is a non-existent value. Nuclear, that is, greater than (0.05), while the value  $0.20 = \text{Prob. Chi-Squared}$  is greater than (0.05), meaning that it is assumed that the absence of a relationship is assumed because there is no subjective relationship and we reject the alternative hypothesis, as well as isolating the

ratios between (EX), IM,ER,IR) and (y) of probability instability (R2,F) (0.41) and (0.34) respectively, for those values are not significant, i.e. greater than (0.05).

جدول (5): نتائج اختبار الارتباط الذاتي وعدم ثبات التجانس بين (EX,IM,ER,IR) و (y) في الاقتصاد العراقي، (المصدر: من

عمل الباحثة بالاعتماد على البرنامج الإحصائي Eviews)

نتائج اختبار الارتباط الذاتي وعدم ثبات التجانس (EX,IM,ER,IR) و (y)			
<b>Breusch-Godfrey Serial Correlation LM Test</b>			
F-Statistic	1.024181	Prob.F	0.45
Obs*R-Squared	10.14369	Prob.Chi- Squared	0.20
<b>Heteroskedasticity Test: Breusch-pagan-Godfrey</b>			
F-Statistic	1.316967	Prob.F	0.41
Obs*R-Squared	20.83644	Prob.Chi- Squared	0.34

المصدر: من عمل الباحثة بالاعتماد على البرنامج الإحصائي Eviews

Valuep	t- statiastic	الخطأ المعياري	القيمة	معاملات المتغيرات
0.2666	1.14855-	1.06691	1.225-	C
0.5800	0.56416-	0.08783	0.496-	D(DF)
0.0091	0.56416-	1.7689	2.02-	MSS
0.0406	0.06783	105.665	7.153	D(OPN)
0.0068	1.07888-	0.00026	0.0028-	FDI
0.0089	0.22777-	0.04232	0.0096-	D(EX)
0.0089	2.27774	0.06295	0.14955	D(IM)
0.3688	2.923214	0.05801	0.05356	R
0.0262	2.435846-	0.369299	0.8995-	U(-1)
0.0027	--	-	2.2235	F
----	---	--	1.2869	DW
---	---	--	0.086	LM
--	--	--	0.621	Breuch-pagan
---	---	---	0.00	Jarque-Bera

تعني الفروق الأولى (المشتقة الأولى) D

## 6- Testing Causality Using the Error Correction Vector Model

To determine the causal relationship and its direction in the short term, it is necessary to enter Granger causality into the error correction model to know the direction of the relationship between the Iraqi dinar exchange rate and the explanatory variables for which it has been proven that there is a cointegration relationship between them.

Table (5): Results of the causality test based on the error correction vector model, (Source: Eviews analysis results)

Dependent Variable :ER				Dependent Variable :EX			
Excluded	Chi-sq	df	Prob	Excluded	Chi - sq	df	Prob
EX	45.572	2	0.0000	ER	0.10141	2	0.9506
IM	11.091	2	0.0039	IM	0.75593	2	0.6853
INF	3.5777	2	0.1672	INF	1.31619	2	0.5178
MSS	9.5159	2	0.0086	MSS	7.78244	2	0.0204
OPN	1.5510	2	0.0460	OPN	6.13723	2	0.0465
R	3.2869	2	0.1933	R	5.64574	2	0.0594
<b>ALL</b>	<b>289.032</b>	<b>12</b>	<b>0.000</b>	<b>ALL</b>	<b>45.9832</b>	<b>12</b>	<b>0.0000</b>
Dependent Variable : IM				Dependent Variable : INF			
Excluded	Chi - sq	df	Prob	Excluded	Chi - sq	df	Prob
ER	0.3496	2	0.8396	ER	1.7973	2	0.4071
EX	0.4607	2	0.7943	EX	0.1316	2	0.9363
INF	1.6526	2	0.4377	IM	0.3217	2	0.8514
MSS	7.3710	2	0.0251	MSS	0.2002	2	0.9048
OPN	4.4027	2	0.1106	OPN	0.3325	2	0.8468
R	2.8572	2	0.2396	R	0.0189	2	0.9905
<b>ALL</b>	<b>29.9616</b>	<b>12</b>	<b>0.0028</b>	<b>ALL</b>	<b>11.5640</b>	<b>12</b>	<b>0.4813</b>
Dependent Variable : MSS				Dependent Variable : OPN			
Excluded	Chi - sq	df	Prob	Excluded	Chi - sq	df	Prob
ER	5.48623	2	0.0064	ER	0.81130	2	0.6665
EX	65.9663	2	0.0000	EX	3.05814	2	0.2167
IM	25.6822	2	0.0000	IM	0.91947	2	0.6315
INF	6.79711	2	0.0334	INF	0.53309	2	0.7660
OPN	5.03896	2	0.0805	MSS	0.84482	2	0.6555
R	0.18436	2	0.9119	R	1.32773	2	0.5149
<b>ALL</b>	<b>353.520</b>	<b>12</b>	<b>0.0000</b>	<b>ALL</b>	<b>23.22533</b>	<b>12</b>	<b>0.5149</b>
Dependent Variable : R				Dependent Variable : FID			
Excluded	Chi - sq	df	Prob	Excluded	Chi - sq	df	Prob
ER	0.30665	2	0.8578	ER	43.0976	2	0.9864
EX	1.96414	2	0.3779	EX	4.07654	2	0.9321
IM	2.17429	2	0.3372	IM	5.98234	2	0.0543
INF	1.34175	2	0.5113	INF	7.0957	2	0.4329
MSS	1.97785	2	0.3720	MSS	3.87109	2	0.0823
OPN	5.06368	2	0.0795	OPN	31.8761	2	0.6543
<b>ALL</b>	<b>25.1524</b>	<b>12</b>	<b>0.0141</b>	<b>ALL</b>	<b>52.9865</b>	<b>12</b>	<b>0.0432</b>

It is clear from the previous table that:

1. There is a reciprocal causal relationship between the exchange rate and the money supply, which means that the exchange rate affects the money supply and is affected by it.
2. There is a unilateral causal relationship between the exchange rate and imports, as imports affect the exchange rate.
3. There is a unilateral causal relationship between the exchange rate and economic openness, where economic openness affects the exchange rate.
4. There is a reciprocal causal relationship between the money supply and exports, as well as between the money supply and imports.
5. There is a unilateral causal relationship between exports and economic openness and between the money supply and the inflation rate.

## Conclusions and Recommendations

### First, the Conclusions:

- 1-The exchange rate is considered one of the important topics that has undergone important developments in economic thought. The importance of the exchange rate stems from the fact that it represents the relative value of the different currencies between the countries of the world, as it links countries to each other. The exchange rate also plays a prominent role in monetary policy due to its use as a target. Or as a tool or indicator of the competitiveness of countries through its impact on components of economic growth such as investment and the degree of openness to international trade.
- 2-Through the error correction vector model, the economic variables under study have a long-term relationship between them, and therefore these economic variables are



- harmonized to eliminate any deviations in the short term in order to reach the long-term balanced relationship.
- 3- The results showed the significance of the study variables and their compatibility with the economic outlook, with the exception of (inflation rate, cash reserves). Therefore, it can be said that there is a dynamic relationship in the short term between the exchange rate and all of (money supply, exports, imports, foreign direct investment, degree of economic openness).
  - 4- The adjustment factor ( $u$ ) is significant and has a negative sign. This means that there is a dynamic relationship in the long term between the independent variables and the dependent variable.
  - 5- There is a reciprocal causal relationship between the exchange rate and the money supply, which means that the exchange rate affects the money supply and is affected by it.
  - 6- The exchange rate was affected by local and external shocks in the short and long term. In the short term, the effect of all the explanatory variables fluctuated between positive and negative along the line in each year of the time period of the study. However, in the long term, the effect of all variables on the exchange rate was Positive, confirming the existence of a long-term balanced relationship between the study variables revealed by the results of the previous cointegration test.
  - 7- The exchange rate is affected by variables that were not included in the model. Also, the calculated Fisher value reached  $F = 45.26$ , which is greater than the tabulated Fisher. This means that the model's estimates are highly significant. The model also showed that there is no problem of autocorrelation, because the calculated value of (W.D.) It is equal to (1.86) for a significance level of (5%) and degrees of freedom (28), and it is greater than the value of  $du_{-}$ , which is (1.66) and less than the value of  $du_{+}$ , which is (2.98).

8- Standard criteria: The normal distribution test shows the residuals = 0.0666. The residuals follow a normal distribution. They are greater than 5%, as the LM test showed (0.848). They are greater than 5%, which indicates the absence of autocorrelation. However, we note that the model suffers from the problem of non-stationarity of variance, as the test showed (0.004 = GodfreY), -Pagan -Breusch) for the difference in conditional variance, which is less than (5%)

### **Second: Recommendations:**

- 1-The monetary authority must intervene strongly to achieve stability in the foreign exchange market. This intervention will be through a short- and long-term strategy that takes into account the prevailing economic conditions at the present time. In the short term, all forms of possible speculation in the local currency must be prevented, but in the short-term long term, this strategy must deal with the potential processes of structural reform of the Iraqi economy.
- 2- Develop a development strategy that includes various economic sectors, ensuring that serious solutions are found that restore balance to the structure of the Iraqi economy, diversify its sources and incomes, and transform it into a diversified economy in its structural components.
- 3- Achieving monetary stability is achieved by controlling the money supply and working to control the rates of growth of unproductive spending to control the high rates of inflation, and because monetary policy alone is unable to solve the problem of inflation. If it has a major role in treating it, coordination must be recommended between Fiscal and monetary policy.
- 4- Increasing international foreign exchange reserves, reducing the deficit in the trade balance and the state's general budget, and rationalizing government spending.

- 5- Taking measures aimed at increasing exports, reducing imports, encouraging capital flows, and increasing remittance flows from workers abroad, with the aim of increasing foreign exchange revenues, and thus reducing the balance of payments deficit, and thus the deterioration of the value of the national currency.
- 6- Working to eliminate the black exchange market. This is through the availability of banking offices to achieve safety and work to absorb a huge mass of cash circulating in unofficial markets.
- 7- Working to continue reform, support macroeconomic stability, and sustain economic growth.

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