

## EXCHANGE RATES IN IRAQ FROM 2004 TO 2019 AND THE IMPACT OF MONETARY POLICY

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### **Abstract**

In order to achieve stability and economic balance, as well as high growth rates and low inflation, monetary policy is significant. The question of the independence enjoyed by the monetary authorities represented by the central bank from the government, in the sense of separating government influences or interventions from monetary policy decisions, is perhaps the most divisive issue, generating a diversity of opinions, and then the conflict in economic policies in various countries around the world, including Iraq. The rentier nature of the Iraqi economy, primarily due to oil production and oil revenues, has made the growth of the money supply and its relationship to the government's finances and spending priorities automatic. One of the crucial new tools in the Central Bank of Iraq's arsenal a year that started with its implementation, specifically in 2003, when the Central Bank of Iraq Law No. 56 was issued, represents an essential shift in Iraq's monetary policy. In order to test and analyze the study's hypotheses, the researcher evaluated the effects of independent variables on the official exchange rate and the dependent variable, including the money supply, reserve rate, window sales, and interest rates. A linear regression model is used to estimate the market exchange rate, exports, and imports. The study concludes that the Iraqi Central Bank actively manipulated the exchange rate of the Iraqi dinar using financial resources at its disposal, particularly after the enactment of the Central Bank Independence Law. The money supply (62%) and interest rate (18%) are the two primary tools used by the Central Bank to influence the exchange rate of the Iraqi dinar, respectively. The Central Bank of Iraq sets the official exchange rate for the Iraqi dinar. Still, the market rate is significantly different and determined by the volume of local market demand and the availability of money through the bank's selling window.

Keywords: Iraq Economy, Monetary policy, foreign exchange, Central Bank of Iraq, Statistical study, GDP

### **1.0 Introduction:**

Recent studies have shown the relationship between monetary and economic variables and the monetary impact on growth, inflation and unemployment. Therefore, controlling and controlling the economic situation and monetary stability is a complex process that requires high management of monetary policy. The importance of this study came in measuring the effectiveness of monetary policy and its ability to adhere to the main objectives, including the goal of stability. As a new phase began in the history of Iraqi monetary policy after 2003, which was characterized by great changes that were reflected in its independence, while the second phase was after the political change, and Iraq with its old accumulations, which is trying to overcome the stage of closure and isolation to openness towards a free market economy, has come to power Cash has a major role in adopting the required reforms, rebuilding cash reserves of foreign currency, using indirect monetary tools, and raising the interest rate by 21%, which led to a deflationary movement in the private sector and investment, as well as opening imports without customs duties and no control over the quality of products. All this did not lead to an

improvement in the environment of the Iraqi economy due to the suffering of the economic sectors And productivity from stagnation and lack of a policy of economic diversification and reliance on one source of income (oil) and the failure to employ oil revenues in reforming the macroeconomic institutions in the country. And that the exchange rate of studies is rarely addressed because of the complexities it contains, in addition to being a vital subject of constant change and alteration, so this study tried to address the exchange rate and the factors influencing it and the extent to which monetary policy can help through the use of its tools to maintain the stability of the Iraqi dinar exchange rate towards currencies The foreign exchange rate and its future expectations. The study proved that through indirect monetary policy tools, which is the currency auction, it was able to maintain the stability of the exchange rate for a long period, which is one of the goals of monetary policy, and that the central bank started using daily currency auctions to buy and sell the currency in order to control the exchange rate And reduce the fluctuations of the Iraqi dinar against the US dollar.

### **1.1 Importance of the study**

It is represented in the vital role that monetary policy plays as one of the important economic policies in addressing the economic problems that the economy is exposed to, raising the level of economic performance, and achieving stability in the exchange rates of the national currency against foreign currencies, and through the use of monetary policy tools that have an impact on foreign exchange markets and treatment Imbalances in the balance of payments as well as finding a policy of the Iraqi dinar exchange rate in line with the nature of the Iraqi economy.

### **1.2 Study Problem:**

The use of monetary policy tools, both direct and indirect, in light of unstable economic and political conditions and their impact on the exchange rate of the Iraqi dinar, as well as the lack of a clear vision for choosing the Iraqi dinar exchange system and its fluctuation between stability and flexibility in an economy that is exposed to shocks as a result of its dependence on oil exports (one-sided economy), and there is no clear and independent foreign exchange market. In light of the foregoing, the problem can be formulated in the following question: What is the extent of the impact of monetary policy tools on the foreign exchange market in Iraq?

The current study aims to knowing and studying monetary policy, studying the various variables of the policy, knowing its objectives, tools and its development according to each period it passed; to studying the exchange rate and its importance and knowing the variables that affect it, as well as studying the exchange market and its dealers; also to studying the development of the exchange rate and the currency auction and finding out the value of the Iraqi dinar with the rest of the currencies of selected countries and Clarification of monetary policy tools and exchange rate policy in Iraq.

### **1.3 Hypothesis**

The study is based on the hypothesis of a close relationship between the exchange rate and monetary policy variables, and there is a equilibrium value for the dinar exchange rate with foreign currencies, especially in the long term through the use of the tools of the Central Bank of Iraq.

### **1.4 Limitations of the study**

This article discusses the development of Iraq's monetary policy and its implications on the nation's foreign exchange markets and economy, with a particular emphasis on the years (2004–2019).

## **2.0 Methodology**

The study relied on the application of an analysis method based on the inductive and deductive approaches, by analysing the development of data throughout the various study periods, extrapolating the economic reality, analysing and evaluating economic phenomena and monitoring their developments, and then deducing the implications through the use of the standard analysis method. The Central Bank of Iraq's Annual Bulletin, various issues, 2004–2019, Baghdad, Directorate General of Statistics and Research, as well as the Ministry of Planning and Development Cooperation's Central Statistical Organization for the years 2004–2019, Baghdad, Central Statistical Organization, were the sources of all the data used in this study.

## **3.0 Results and Discussion**

### **3.1 Analysis of the reality of monetary policy in Iraq**

#### **3.1.1 Iraqi monetary policy**

To achieve their economic goals, central banks employ a notion known as "policy," which they use to intervene and steer the money supply and the distribution of credit. Preserving a stable monetary system, reaching the goal of economic well-being, providing job opportunities, strengthening the Iraqi dinar, and reducing the phenomenon of dollarization (Al-Khazraji, 2010: 8), which is the phenomenon of replacing the national currency with foreign currency in performing the functions of local currency. Unofficial dollarization appears when individuals keep deposits from Foreign currency and other banknotes to protect themselves from local inflation, and there is difficulty in identifying and measuring the currency substitution index because of the difficulty in estimating the volume of currency in circulation, and that one of the most important goals of the policy is economic stability, i. Unemployment is in terms of developed countries that suffer from economic stagnation, idle production capacity, and a deficiency in effective demand. Therefore, such a goal is not suitable for the Iraqi economy, which suffers from severe backwardness in all fields and deficiencies in its various productive sectors. Therefore, according to what the researcher believes, the main goal of economic policy, including monetary policy in terms of developing countries, is supposed to be achieving sustainable human development. The Iraqi Central Bank is able to maintain a steady exchange rate for the dinar versus the dollar, a full cushion of foreign reserves, and a willingness to fulfil dinar-to-dollar conversion requests because of the stability of these factors. If the central bank and monetary policy can't work in tandem with other policies to advance the development agenda, they'll be unable to do their job effectively. This is according to (Al-Baydani, 166: 2012).



Figure 1: Monetary policy tools in Iraq

Among the influencing indicators of monetary policy, we take the following from them:

1) Offer cash

The money supply is one of the macroeconomic variables called the quantity of money or the monetary mass. The concept of money supply  $M_1$  refers to the net currency in circulation in addition to the current deposits (which are the deposits that banks are required to pay to the public upon request and do not pay interest on this type of deposits). Either Money supply in its broadest sense,  $M_2$ , refers to the total means of payment,  $M_1$ , in addition to time deposits (for term) and special savings deposits with commercial banks. They are not suitable for use in developing countries such as Iraq due to the underdevelopment of the financial and monetary markets in it, unlike the developed countries, where we find that the ratio of deposits to the  $M_1$  money supply in Iraq is 20% and in developed countries it reaches 80%. (Khidr, 191: 2019) The money supply is one of the variables, the goal of the economic system is to portray the true picture of the state of the economy, as well as the extent to which the banking system has developed, public awareness of it, and the evolution of the monetary and financial markets, with the money supply tool being one of the central banks' primary concerns. Pay close attention to the local currency's value, purchasing power, and exchange rate in relation to other currencies and exchange rates..

Table 1: Changes in the money supply in Iraq for the period (2004-2019)

Year	The currency outside the banks (1)	(2) Current deposits	$M_1$ (3)	$M_1$ annual growth rate (4)	(5) quasi-money	$M_2$ (6)	$M_2$ annual growth rate (7)
2004	716,294,5	298,568,1	153,242,20	19.37	134,952,2	114,981,48	65.36
2005	911,283,7	228,628,8	697,694,0	54.47	3,26,022.50	146,593,50	27.49
2006	109,680,99	449,196,1	154,600,60	121.59	5,59,018.90	210,502,49	43.6
2007	142,317,00	748,946'7	217,211,67	40.5	5,19,882.90	269,199,96	27.88
2008	184,925,02	969,743,2	281,899,34	29.78	667,199,3	348,619,27	29.5
2009	217,756,79	155,243,51	373,000,30	32.32	8,05,525.90	453,552,89	30.1
2010	243,421,92	274,012,97	517,434,89	38.72	854,567,8	602,891,67	32.93
2011	282,873,61	341,865,68	624,739,29	20.74	959,338,0	720,673,09	19.54

2012	305,936,47	331,422,24	637,358,71	2.02	116,002,57	753,361,28	4.54
2013	349,954,53	388,355,11	738,309,64	15.84	136,956,21	875,265,85	16.18
2014	360,715,93	366,208,55	726,924,48	1.54	178,744,82	905,669,30	3.47
2015	348,552,56	305,801,69	654,354,25	9.98	170,032,87	824,387,12	8.97
2016	420,752,30	286,577,97	707,330,27	8.1	172,088,26	849,418,53	3.04
2017	314,221,04	294,998,44	599,610,28	15.23	129,424,49	729,034,78	14.17
2018	40498067	37330	77829	1.1	130,654,78	95390.7	0.86
2019	47638603	37,776	86770.7	11.5	1,30,632.12	103441.1	0.084

In light of the relationship between the money supply and the gross domestic product, there is an impact relationship, that is, in the event of a change in the money supply through an expansionary monetary policy, this leads to a decrease in the interest rate, which will lead to an increase in investments as a result of the inverse relationship between investment and the price of Interest, which generates an increase in income, which in turn increases aggregate demand, forming an incentive to increase the gross domestic product, and vice versa, if the monetary authority follows a contractionary policy, investment will decrease, which leads to a decrease in investment, which generates a decrease in output, which explains the inverse relationship between output Gross Domestic and Money Supply.

Table 2: the demand for real cash balances and the speed of money turnover in Iraq

Year	public spending growth	public expenditure	* The speed of money circulation	Demand for real money stocks $Md=Ms$	Cash Show Msl	GDP at constant prices	GDP at current prices excluding oil
2004	NA	32117491	6.7	7932.3	10148626	41607.8	41607.8
2005	-17.8	26375175	6.8	6733.9	11399125	43438.8	43438.8
2006	47.1	38806679	7.1	7739.7	15460060	47851.4	47851.4
2007	0.6	39031232	6	9454.3	21721167	48510.6	48510.6
2008	52.2	59403375	6.3	9284.6	2,81,89,934	51717.6	51,716.60
2009	10.5	6,56,58,000	4.2	15133.1	37300030	56527.8	54,721.20
2010	27.7	8,38,23,000	3.9	1824.8	51743489	60633.7	57751.6
2011	15.3	96662767	3.4	20353.4	6,21,96,000	63486.8	63650.4
2012	33.3	105139576	3.9	17762.1	63735871	70201	71680.8
2013	13.3	119127556	3.6	20199.9	73830964	73158	75658.8
2014	29.85	8,35,56,000	3.6	19871.9	72087457	71840	72736.2
2015	-15.75	70397515	3.5	18605.7	73970221	72986	70990.3
2016	-4.73	67067437	3.4	15640.8	74298841	73092	71675.2
2017	12.56	75490115	3.7	17743.9	75231690	74011	71498.3
2018	37.98	10,41,58,183	3.8	19540.8	74609333	74890.9	73895.4
2019	27.8	133107616	3.8	20965.9	74706543	79089.6	78045.9

As for the share of the GDP of oil, it is as follows:

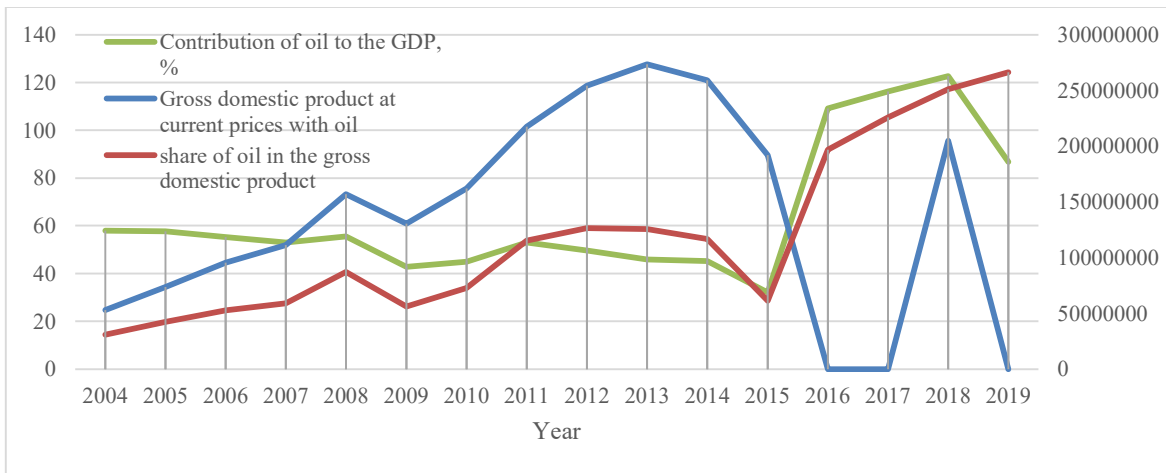


Figure 2: Oil’s share of GDP in Iraq for the period (2004-2019)

Because it is the second-largest producer of crude oil in OPEC after Saudi Arabia and has a rentier economy that depends on oil for income, oil revenues account for a significant portion of the country's gross domestic product. Additionally, more than 80% of the country's general budget revenues come from oil imports.

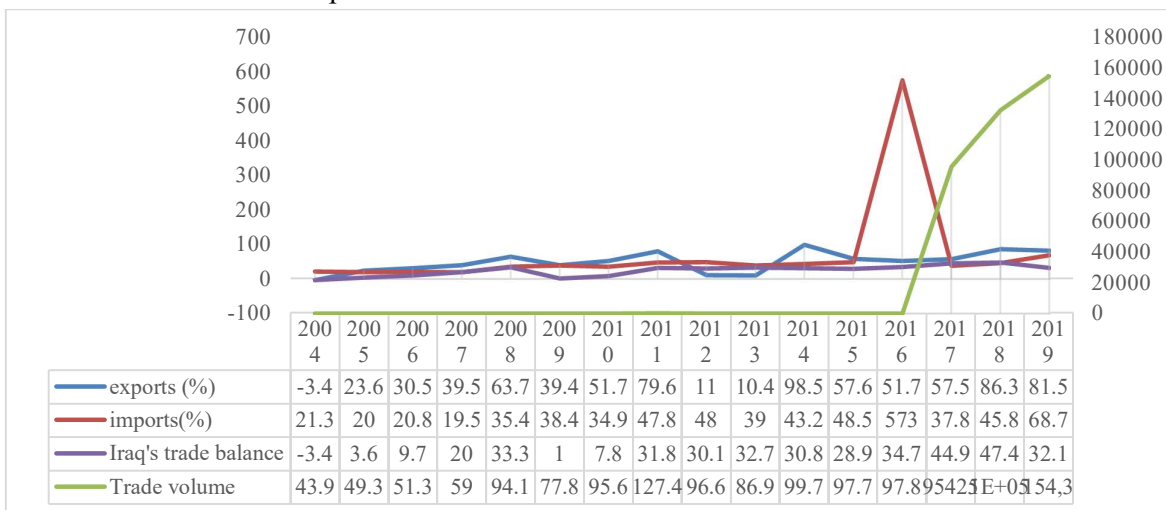


Figure 3: Foreign Trade and Balance of Payments in Iraq for the period (2004-2019) \* Million Dinars

We note in Figure 3 that the trade balance during (2005-2019) is positive, that is, the percentage of exports is higher than imports, which means providing a hard currency for the country, which is reflected positively on the gross domestic product.

Table 3: The structure of the general budget in Iraq for the period (2004-2019)

Year	general revenue	oil revenue	Other revenue	public expenditure	current spending	investment spending	net offset
2004	4596000	28336608	294900	33657511	28543338	5114173	-11928405
2005	21729106	11093499	622000	35981168	28431168	7550000	-7022560
2006	28958608	42287900	3104404	50963261	41691161	9272000	-5570857

6							
2007	42064530	41103691	960839	51727468	3902163	12665305	-9662938
2008	50775081	45218084	5556997	59861973	44190746	15671227	-9086892
2009	50408215	47184137	2879945	69165523	54148081	15017226	- 18757308
2010	61735312	9657738	1941132	42657466	69980649	23676772	- 22922155
2011	80934790	76184137	4750653	96662767	66596473	30066292	- 15727976
2012	102326898	99657753	2669163	117122930	79954033	37177897	- 14796032
2013	119296663	116363805	2932858	134424608	83316006	55108602	- 19127944
2014	139640628	NA	NA	163416518	98793961	64622557	- 23775889
2015	94048364	78649032	15399332	119462429	78248392	41214037	- 25414065
2016	97045332	69773400	15430651	670674378	51173437	15894000	- 57362904 6
2017	77335.9	67950225	16098745	75490115	59025.6	16464.5	- 74716756
2018	106569.8	77160392	17056453	104158183	67052.9	13820.3	- 10309248 5
2019	107566995	99216318	1674248	1331076167	100059110	531509	- 26050917 2

During the years (2004-2019), we note that Iraq's budget is a deficit budget, that is, the percentage of expenditures exceeds revenues, which increased the percentage of indebtedness on Iraq without working on the existence of ways or solutions to bridge this deficit except for borrowing from abroad, which is reflected negatively on many projects. In addition to the possibility of inflation in certain cases, which affects the income level of the individual.

## 2) Interest rate and inflation

The interest rate is the amount that is paid for a unit of time and is expressed as the cost of money lending. Interest rates are measured at an annual percentage, and they differ according to the characteristics of the loan in terms of maturity, risk and liquidity. The state uses the interest rate tool when it finds it difficult to move the exchange rate to replace it to influence. With economic activity, if the state is able to use the exchange rate and the interest rate together, it moves the interest rate to control the exchange rate, as in the United States. (Al-Jaf, 2014: 88)

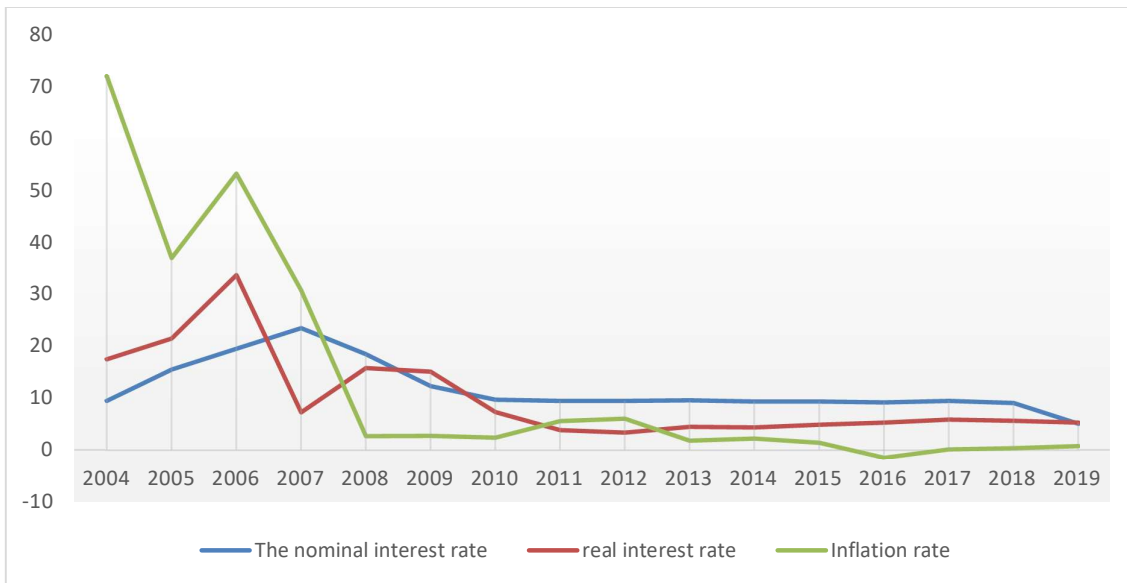


Figure 4: Changes in the interest rate and inflation rate in Iraq for the period (2004-2019)

### 3) the exchange rates

In the year 2003, the Central Bank established an official central exchange market that handles the buying and selling of foreign currency according to the market mechanism, as it was under the control of monetary policy, imposing its control and working on its stability, desiring the economic growth of the country. In 2006, the country lived in a multiple exchange system, where exchange rates reached what More than 13 rates, where the official rate of the exchange rate reached 3.2 dollars per Iraqi dinar. Another official rate amounted to 1450 dinars per dollar. There was a parallel market of hybrid exchange dealing with the exchange rates of the Iraqi dinar, as that market was its leader in determining exchange rates according to the absolute or complete floating system For exchange. Because of all this, a distorted exchange system arose as a result of the different official pluralism, as the multiple fixed exchange systems represented subsidies at unrealistic exchange rates for goods and services supplied and denominated in foreign currency. (Saleh, 2: 2010)

There was difficulty in defining the exchange system, especially in economies that adopt the fixed exchange rate for their monetary policy, as they do not participate in the fixation, targeting inflation through the policy interest rate due to the absence of financial depth, which is what is happening in Iraq. Therefore, the Iraqi realistic exchange system (being the basis for evaluating monetary policy) is a system For the exchange that stimulates stability (IMF, 2013,4-45), therefore, it became difficult for the multiple fixed exchange systems that were adopted before 2003 to harmonize, so the monetary policy makers worked to resort to a price system that fits with current developments and maintains stability for the value of the local currency, In order to ensure that the exchange rate was free, governed by supply and demand, and under the Central Bank's control, the government depended on the managed floating exchange rate system.

The monetary authority was able, through its auctions, to unify the exchange rates by satisfying the market's need for foreign currency, financing imports, and trying to adjust the balance between the foreign currency and the local currency, as noted in the following table of the exchange rate change during the years (2004-2019)



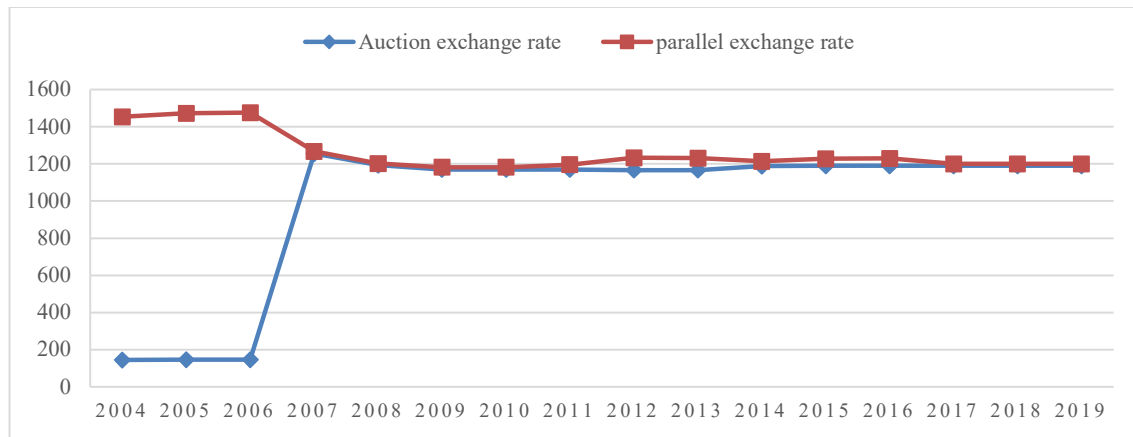


Figure 5: Changes in the exchange rate in Iraq for the period (2004-2019)

“The foreign currency auction can be defined as a foreign currency market in which the demand for the currency meets the supply, and then the exchange market is formed, and that the process of determining the exchange rate must take place smoothly because its obstruction affects the demand for foreign currency.” And that the relationship between currency auctions and the exchange rate comes through that The aim of studying the exchange rate is to search for means and procedures that achieve stability for the exchange rate of the local currency and that the importance of stability leads to the achievement of macroeconomic goals represented by internal and external stability. (Al-Khazraji, 50-58: 2015) As for the mechanism of the currency auction, it is as follows

- 1) The auction is opened continuously during working days, except for holidays.
- 2) The applications of banks, financial transfer and exchange companies shall be submitted in a closed envelope that includes the amounts required to be sold or purchased.
- 3) Applications are opened by the auction committee, which studies the applications.
- 4) Applications are approved and rejected if they are not completed.
- 5) Requests are distributed over the number of days due to their large number.
- 6) The central bank issues orders at an exchange rate determined by it, which is an almost fixed rate that rarely changes. (Al-Ghalibi, 34: 2017)

There are two ways before the monetary authority, and they are:

- 1) Stabilizing the exchange rate, placing it within certain limits, or managing it in a restricted manner through intervention in the exchange market. It can be implemented in two ways. The first is to meet and satisfy the demand for the currency in order to obtain an equilibrium price that is close to or identical to the market price, or to prevent trading in foreign exchange and restrict its movement with abroad through Managing the external transfer of foreign currencies is difficult to implement this method.
- 2) Letting the foreign exchange rate be determined in the market according to economic mechanisms, and here the interaction controls supply and demand for foreign exchange to determine the equilibrium price.

If the currency auction started on 10/4/2003, then the central bank became a central market for the currency. The Central Bank of Iraq started using the method of daily auctions to buy and sell the US dollar in order to control the money supply and liquidity to achieve stability in the general level of prices, reduce inflation, and control the currency exchange. Foreign currency purchases by the central bank account for the largest portion of that department's budget, so it is important

to examine those transactions. Foreign money helped to stabilise the value of the Iraqi dinar in relation to the US dollar (Sakban, 205: 2019)

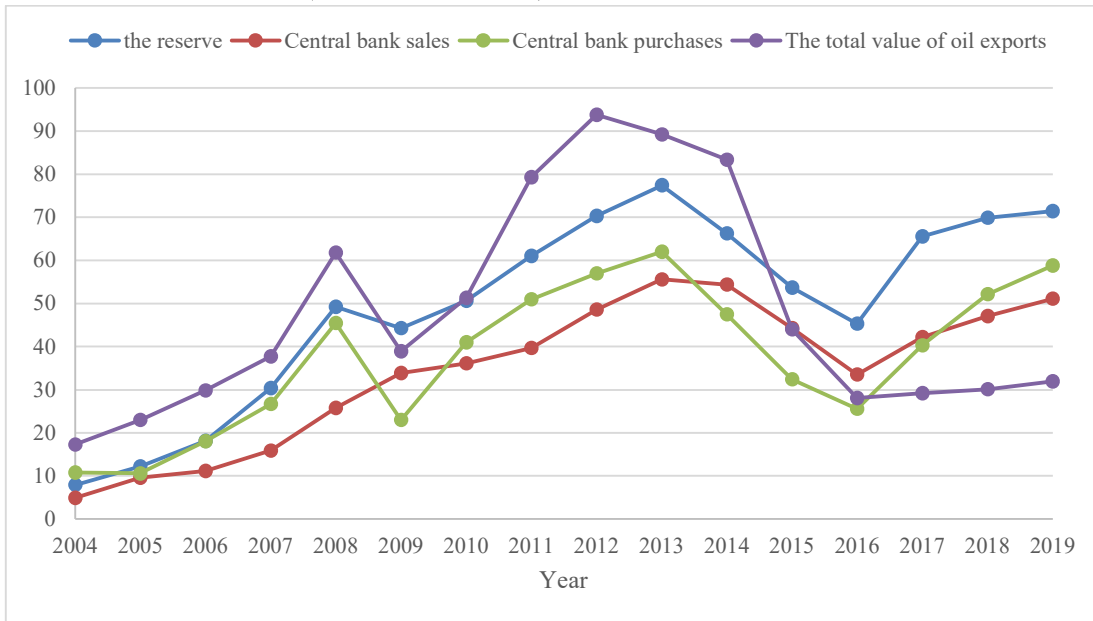


Figure 6: Central Bank sales and purchases of dollars for the period (2004-2019)

The precautionary policy must lead to the realization of two purposes, namely:

- 1) Choosing a criterion for the stock balance or the reserve accumulation of foreign currency to face shocks in the balance of payments according to the cost principle.
- 2) Choosing a criterion for the speed of adjustment or adjustment, to stabilize the erosion of foreign reserves in light of the increasing levels of imports of basic and binding commodities in conditions of lack of capacity for compensated local production in light of the weak flexibility of supply and demand for exports and the weak flexibility of the exchange system adopted in the country. (Al-Quraishi, without a year, 258)

As for the price of the Iraqi dinar and its corresponding currency in foreign countries, where the US dollar reached 1180 for the year 2004, and for the European euro it reached 121 and reached 136 in relation to the pound sterling, while the Swiss franc represented 9476 and represented 111.90 in relation to the Norwegian krone.

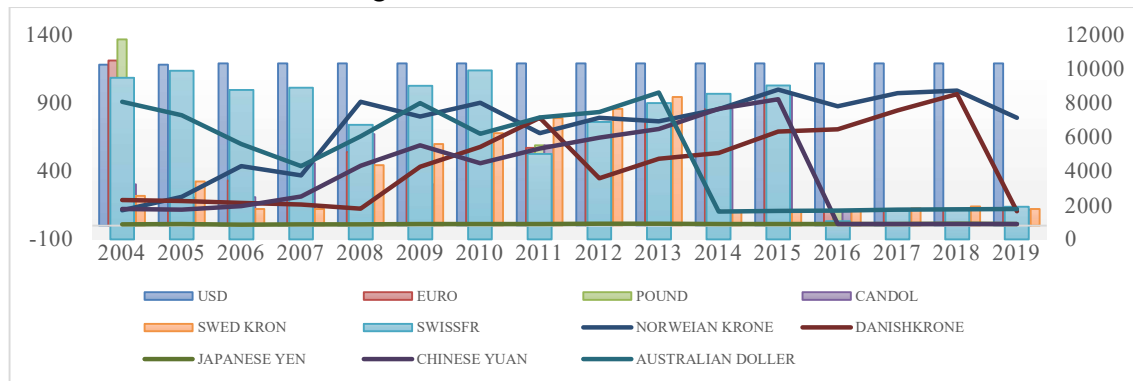


Figure 7: The value of the Iraqi dinar against the currencies of other countries  
 (Source: From the researcher's work)

In order to test and analyze the hypotheses of the study, the researcher measured the effect of the

independent variables {money supply ( $x_1$ ), reserve rate ( $x_2$ ), window sales ( $x_3$ ), interest rates ( $x_4$ )} on both the dependent variable, the official exchange rate ( $y_1$ ) and the dependent variable. Market exchange rate ( $y_2$ ), ( $X_5$ ) (exports), ( $X_6$ ) imports, using a simple regression model estimation: Testing and analysing the hypotheses of the study:

$$y_1 = B_0 + B_1X_i + u_i$$

$$y_2 = B_0 + B_1X_i + u_i$$

Therefore, the above two models were estimated for each independent variable separately, and the results were reached in the following tables:

Table 4: Results of the market exchange rate in a regression analysis to examine the impact of monetary policy on the official exchange rate.

		Supported variable - $y_1$				
Independent variable	Parameter	t-Value	p- value (SIG.)	F-Value	P value	R <sup>2</sup>
Independent variable	Parameter	t value	p-value	F value	p-value	R <sup>2</sup>
x1	B <sub>0</sub> =1414.61	34.45	0	22.85	0	0.62
	B <sub>1</sub> =-0.034	4.78-	0			
		Supported variable - $y_2$				
x1	B <sub>0</sub> =1413.97	-34.28	0	17.19	0	0.55
	B <sub>1</sub> =-0.030	-4.15	0.001			

The table was prepared by the researcher based on the SPSS program

It is clear from the results of Table 4 that:

1- The official exchange rate is the dependent variable, and the coefficient of determination ( $R^2$ ) between the independent variable (the money supply) and the dependent variable is (0.62). This means that the money supply accounts for 62% of the variation in the official exchange rate, while the remaining 38% is attributable to other variables. As well as noting the significance of the computed value of t for the independent variable (money supply) ( $B_1$ ), if any, as reflected by the random error (p-value). If the t-value is less than 0.05 mm, there is a negative relationship between money supply and the official exchange rate. The significance level in this analysis is below 0.05. This suggests that the quantity of money has a noticeable impact on the currency's value. We therefore accept the alternative hypothesis that suggests a significant effect of the money variable on the official price, and reject the null hypothesis that there is no such effect.

2- The market exchange rate and the money supply's coefficient of determination,  $R_2$ , reached a value of (0.55), meaning that 55% of the changes in the market exchange rate can be attributed to the money supply and the remaining 25% can be attributed to other variables that were not included in the model. It is represented by the random error, and if it is statistically significant, we additionally note the significance of the computed value of t for the coefficient of the independent variable (money supply) ( $B_1$ ) (p-value). The market exchange rate is significantly impacted by the money supply, and this impact is in the opposite direction, according to the t value of 0.05 mm. It is less than 0.05 in value. On the basis of this, it may be concluded that the money supply has a statistically significant impact on the market exchange rate. Therefore, we accept the alternative hypothesis, which indicates the existence of this significant influence, and reject the null hypothesis, which claims that there is no significant effect of the money variable on the market price.

Table 5 the results of the regression analysis to test the effect of the reserve rate on the official

exchange rate and the market exchange rate

Supported variable - $y_1$						
Independent variable	Parameter	t-Value	p- value (SIG.)	F-Value	P value	R <sup>2</sup>
X3	B <sub>0</sub> =1134.358	11.41	0	1.19	0.294	0.08
	B <sub>1</sub> =0.018	1.09	0.294			
Supported variable - $y_2$						
X3	B <sub>0</sub> =1418.87	12.69	0	1.65	0.67	0.11
	B <sub>1</sub> =-0.019	-0.22	0			

The table was prepared by the researcher based on the SPSS program

It is clear from the results of Table 5 that:

1- R<sup>2</sup> between the reserve rate (the independent variable) and the official exchange rate (the dependent variable) reached a value of (0.08), indicating that the reserve rate explains 8% of the changes in the official exchange rate, and the remaining 2% is due to other variables that were not included in the model. The standard deviation gives it, and we observe that if the reserve rate (B<sub>1</sub>) is statistically significant, then the calculated value of t for the coefficient of the independent variable (B<sub>1</sub>) is not significant (p-value). If the t value is more than 0.05 mm, then the reserve rate has a negligible impact on the official exchange rate, and the impact flows in the opposite direction. Its significance level is higher than 0.05. This suggests that the reserve rate does not influence the official exchange rate much. As a result, we support the null hypothesis, which claims that the reserve rate variable does not significantly affect the official rate. We reject the null hypothesis, which implies the presence of this Moral effect.

2- R<sup>2</sup> between the reserve rate (the independent variable) and the market exchange rate (the dependent variable) attained a value of (0.11), indicating that the reserve rate explains 11% of the fluctuations in the market exchange rate and the remaining 80% is due to other variables. It is given by the standard deviation, and we observe that if the reserve rate (B<sub>1</sub>) is statistically significant, then the calculated value of t for the coefficient of the independent variable (B<sub>1</sub>) is not significant (p-value). If the t-value is more than 0.05 mm, then the reserve rate has no discernible impact on the market exchange rate, and if it does, it has the reverse direction. Its significance level is higher than 0.05. This suggests that the official exchange rate is not much influenced by the reserve rate. Accordingly, as there is no evidence to suggest that the reserve rate variable influences the market rate, we accept the null hypothesis and reject the alternative hypothesis indicating the presence of this Moral impact.

Table 6: The findings of a regression analysis to examine how window sales affect the official exchange rate and the market exchange rate

Supported variable - $y_1$						
Independent variable	Parameter	t value	p- value (SIG.)	F value	p-value	R <sup>2</sup>
X4	B <sub>0</sub> =1187.813	16.47	0	0.584	0.457	0.04
	B <sub>1</sub> =0.012	0.764	0.457			
Supported variable - $y_2$						
X4	B <sub>0</sub> =1208.47	18.22	0	0.45	0.41	0.05
	B <sub>1</sub> =-0.012	-0.853	0.41			

The table was prepared by the researcher based on the SPSS program

It is clear from the results of Table (6) that:

1- The official exchange rate was the dependent variable, and the coefficient of determination (R<sup>2</sup>) between the independent variable (window sales) and the dependent variable was (-0.04), indicating that changes in the official exchange rate could be attributed to factors other than window sales. It is a random number, and we note that if it is significant, the t value we calculated for the window-sales-related independent variable (B<sub>1</sub>) is not (p-value). The direction of the effect of window sales on the official exchange rate is direct if the t value is greater than 0.05 mm. Its significance level is higher than 0.05. This suggests that window sales do not significantly affect the fixed exchange rate. Therefore, since there is no evidence to support the existence of this Moral effect, we accept the null hypothesis and reject the alternative hypothesis that suggests that the window sales variable has a significant effect on the official price.

2- The official exchange rate was used as the dependent variable, and the coefficient of determination (R<sup>2</sup>) between window sales as the independent variable and the official exchange rate as the independent variable reached (0.05), indicating that changes in the official exchange rate could be attributed to factors other than window sales. It is a random number, and we note that if it is significant, the t value we calculated for the window-sales-related independent variable (B<sub>1</sub>) is not (p-value). If the t-value is greater than 0.05 mm, then window sales have no discernible impact on the market rate of exchange, and if it does, it has the opposite direction. Its significance level is higher than 0.05. This suggests that window sales do not significantly affect the fixed exchange rate. Therefore, since there is no evidence to support the existence of this Moral effect, we accept the null hypothesis and reject the null hypothesis that suggests that the window sales variable has a significant effect on the official price.

Table 7: Results of regression analysis to test the effect of interest rates on the official exchange rate and the market exchange rate

		Supported variable - $y_1$				
Independent variable	Parameter	t-Value	p- value (SIG.)	F-Value	P value	R <sup>2</sup>
X4	B <sub>0</sub> =1121.112	15.69	0	3.12	0.099	0.18
	B <sub>1</sub> =9.933	1.77	0.099			
		Supported variable - $y_2$				
X4	B <sub>0</sub> =1158.98	17.31	0	2.66	0.125	0.16
	B <sub>1</sub> =8.589	1.63	0.125			

The table was prepared by the researcher based on the SPSS program

It is clear from the results of Table (7) that:

1- Interest rates were found to account for only 18% of the variance in the official exchange rate. In contrast, the remaining variance was attributable to other factors not included in the model, according to the coefficient of determination R<sup>2</sup> of (0.18) between the independent variable (interest rates) and the dependent variable (the official exchange rate). In addition to the non-significance of the random error, we note that the t-value calculated for the coefficient of the independent variable (interest rates) (B<sub>1</sub>) is greater than 0.05 mm, indicating that the interest rate has no significant effect on the official exchange rate and that the direction of this effect is direct. It is also important to note that the calculated F value for the linear effect relationship is not significant because its SIG. value is greater than 0.05. For this reason, we accept the null

hypothesis that the interest rate has no appreciable effect on the market exchange rate. It claims that the interest rate variable has no appreciable influence on the central bank rate, and we therefore reject the null hypothesis that there is no such influence.

2- We can infer that only 16% of the variation in the market exchange rate is attributable to interest rates, with the remaining variation being attributable to other, unaccounted-for factors, based on the R2 value between interest rates (the independent variable) and the market exchange rate (the dependent variable) being (0.16). Because the random error is small and the value of t calculated for the coefficient of the independent variable (interest rates) (B1) is large, there is no statistically significant effect of interest rates on the market exchange rate, and the direction of this effect is clear. Because its SIG value is higher than 0.05, we can also see that the calculated F value for the linear effect relationship is insignificant. As a result, we accept the null hypothesis that the interest rate and market exchange rate have no statistically significant relationship. It contends that because we reject the null hypothesis, the interest rate variable has no discernible impact on market price.

Table (8) results of regression analysis to test the effect of exports on the official exchange rate and the market exchange rate

Independent variable	Supported variable - $y_1$					
	Parameter	t-Value	P value	F-Value	P value	R <sup>2</sup>
X5	B <sub>0</sub> =1332.03	26. 58	0	4. 69	0.048	0.25
	B <sub>1</sub> =-0. 192	2. 17-	0.048			
	Supported variable - $y_2$					
X5	B <sub>0</sub> =1361. 15	31. 30	0	7. 22	0. 018	0.34
	B <sub>1</sub> =-0. 210	-2. 69	0. 018			

The table was prepared by the researcher based on the SPSS program

It is clear from the results of Table (8) that:

1- The coefficient of determination, R2, between exports and the dependent variable, the official exchange rate, reached a value of (0.25), indicating that exports explain 25% of the changes in the official exchange rate, and the rest is due to other variables that are not accounted for in the model. Suppose the calculated value of t for the coefficient of the independent variable (exports) (B1) is statistically significant (p-value 0.05). In that case, exports significantly affect the official exchange rate, which is in the opposite direction from that predicted by chance. It has a value below 0.05. From this, we can conclude that exports do have an impact on the fixed exchange rate. We therefore accept the alternative hypothesis that indicates the existence of a significant effect of an export variable on the official price and reject the null hypothesis that there is no such effect.

2- the relationship between exports and the market exchange rate has an R2 of (0.34), meaning that exports account for 34% of the variation in the market exchange rate and the remaining variation is attributable to factors that are not included in the model. If the calculated value of t for the coefficient of the independent variable (exports; B1) is statistically significant (p-value 0.05), then exports have a significant effect on the market exchange rate, and this effect is in the opposite direction from that predicted by the random error. It has a value below 0.05. This suggests that exports have a noticeable impact on the market exchange rate. We therefore accept the alternative hypothesis that indicates the existence of a significant effect of the export variable

on the market price and reject the null hypothesis that states there is no such effect.

Table (9) results of regression analysis to test the effect of imports on the official exchange rate and the market exchange rate

		Supported variable - $y_1$				
Independent variable	Parameter	t-Value	P value	F-Value	P value	R <sup>2</sup>
X6	B <sub>0</sub> =1460.12	22.88	0	13.53	0.002	0.49
	B <sub>1</sub> =-0.566	3.68-	0.002			
		Supported variable - $y_2$				
X6	B <sub>0</sub> =1361.15	23.97	0	11.88	0.004	0.46
	B <sub>1</sub> =-0.510	-3.45	0.004			

The table was prepared by the researcher based on the SPSS program

It is clear from the results of Table 9 that:

1- the relationship between imports and the market exchange rate has an R2 of (0.49), meaning that imports account for 49% of the variation in the official exchange rate and the remaining variation is attributable to other variables not included in the model. If the calculated value of the independent variable's (imports) coefficient (B1) is statistically significant (p-value to t value less than 0.05), then imports have a significant effect on the official exchange rate, but in the opposite direction from that expected by chance. It has a value below 0.05. Imports have a statistically significant impact on the currency's market value, as shown here. Therefore, since the alternative hypothesis indicates that the import variable does have a significant effect on the official price, we accept it and reject the null hypothesis that there is no such effect.

2- the relationship between imports and the official exchange rate was determined to have a coefficient of determination of (0.46), indicating that the money supply accounts for 46% of the variation in the market exchange rate and the remaining 54% is attributable to factors outside the scope of the model. There is a significant effect of imports on the market exchange rate, and the direction of this effect is opposite, if the calculated value of t for the coefficient of the independent variable (imports) (B1) is less than 0.05 (assuming a random error of 0.05). The value is much smaller than 0.05. From this, we can conclude that imports do have an impact on the market exchange rate. The assumption that imports do not affect market price (the null hypothesis) is therefore rejected in favour of the alternative hypothesis that an effect does exist.

The researcher also measured the impact of the independent variables {the official exchange rate (x1), the market exchange rate (x2)} on each of the dependent variables} the dollar (y1), the euro (y2), the yen (y3), the yuan y4 {using the estimation of the simple regression model. The results shown in the following tables were reached:

Table (10) results of regression analysis to test the effect of the official exchange rate on both the dollar, the euro, the yen and the yuan

		Supported variable - $y_1$				
Independent variable	Parameter	t-Value	P value	F-Value	P value	R <sup>2</sup>
x1	B <sub>0</sub> =1217.35	88.85	0	19.84	0.001	0.59
	B <sub>1</sub> =-0.023	4.45-	0.001			
Independent variable	Supported variable - $y_2$					
x1	B <sub>0</sub> =275.66	0.27	0.79	0.04	0.853	0.003

	$B_1=0.153$	0.19	0.853			
Independent variable	Supported variable - $y_3$					
x1	$B_0=23.979$	6.04	0	11.31	0.005	0.45
	$B_1=-0.011$	-3.36	0.005			
Independent variable	Supported variable - $y_4$					
x1	$B_0=1845.87$	23.97	0.049	3.02	0.104	0.18
	$B_1=-1.196$	-1.74	0.104			

The table was prepared by the researcher based on the SPSS program

It is clear from the results of Table (10) that:

1- The coefficient of determination  $R^2$  between the independent variable (the official exchange rate x1) and the dependent variable (the dollar y1) reached a value of (0.59), which indicates that the official exchange rate explains 59% of the changes in the dollar and the rest is due to other variables that were not taken into account in the model. It is expressed by the random error, and we also note the significance of the calculated t value of the coefficient of the independent variable (official exchange rate) ( $B_1$ ) if it is statistically significant (p-value). If the *t – value* is less than 0.05 mm, the official exchange rate has an opposing, considerable impact on the dollar's value. Based on this, it may be concluded that the official exchange rate has a statistically significant impact on the value of the dollar. The null hypothesis that the official exchange rate variable has no significant effect on the dollar is thus rejected in favour of the alternative hypothesis that suggests the existence of this significant influence.

2- The coefficient of determination  $R^2$  between the independent variable (the official exchange rate x1) and the dependent variable (the euro y2) reached a value of (0.003), which indicates that the official exchange rate explains 0.3% of the changes in the euro and the rest is due to other variables that were not taken into account in the model. It is expressed by the random error, and we note that the calculated t value of the coefficient of the independent variable (official exchange rate) ( $B_1$ ) is not significant if it is statistically significant (p-value). The official exchange rate has no discernible impact on the dollar, and the effect is direct, according to the t-value of larger than 0.05 mm. On the basis of this, it may be concluded that the official exchange rate on the dollar has no statistically significant impact. Therefore, we reject the alternative hypothesis that suggests the existence of this Moral effect and accept the null hypothesis, according to which there is no discernible impact of the official exchange rate variable on the dollar.

3- The coefficient of determination  $R^2$  between the independent variable (the official exchange rate x1) and the dependent variable (the yen y3) reached a value of (0.45), which indicates that the official exchange rate explains 45% of the changes in the yen and the rest is due to other variables that were not taken into account in the model. It is expressed by the random error, and we also note the significance of the calculated t value of the coefficient of the independent variable (official exchange rate) ( $B_1$ ) if it is statistically significant (p-value). The official exchange rate has a substantial impact on the yen, and the direction of this impact is the opposite, according to the t-value of less than 0.05 mm. On the basis of this, it can be concluded that the official exchange rate has a statistically significant impact on the value of the yen. Therefore, we accept the alternative hypothesis that suggests the official exchange rate variable has a large impact on the yen. We reject the null hypothesis that claims no such impact exists.



4- The coefficient of determination  $R^2$  between the independent variable (the official exchange rate  $x_1$ ) and the dependent variable (the yuan  $y_4$ ) reached a value of (0.18), which indicates that the official exchange rate explains 18% of the changes in the yuan and the rest is due to other variables that were not taken into account in the model. It is expressed by the random error, and we note that the calculated t value of the coefficient of the independent variable (official exchange rate) ( $B_1$ ) is not significant if it is statistically significant (p-value). The official exchange rate has no discernible impact on the yuan, and the direction of this impact is opposite, according to the t-value higher than 0.05 mm. It has a value higher than 0.05. On the basis of this, it may be concluded that the official exchange rate on the yuan has no statistically significant impact. Therefore, we reject the alternative hypothesis suggesting this Moral effect and adopt the null hypothesis, which argues that the official exchange rate variable has no discernible impact on the yuan.

Table 11: Results of regression analysis to test the effect of the market exchange rate On both the dollar, the euro, the yen and the yuan

	Supported variable - $y_1$					
Independent variable	Parameter	t-Value	P value	F-Value	P value	$R^2$
x1	$B_0=1219.74$	168.32	0	18.41	0.001	0.57
	$B_1=-0.025$	4.29-	0.001			
Independent variable	S Supported variable - $y_2$					
x1	$B_0=-11.15$	0.01-	0.992	0.19	0.672	0.01
	$B_1=0.378$	0.432	0.672			
Independent variable	Supported variable - $y_3$					
x1	$B_0=24.288$	6.04	0	8.83	0.01	0.39
	$B_1=-0.011$	-2.97	0.01			
Independent variable	Supported variable - $y_4$					
x1	$B_0=1681.34$	1.73	0.106	1.85	0.195	0.12
	$B_1=-1.050$	-1.36	0.195			

The table was prepared by the researcher based on the SPSS program

It is clear from the results of Table (11) that:

- 1- The market exchange rate explains 57% of the changes in the dollar, with the remaining 33% being explained by other variables that were not included in the model, according to the coefficient of determination  $R^2$  between the independent variable (the market exchange rate  $x_2$ ) and the dependent variable (the dollar  $y_1$ ), which reached a value of (0.57). It is represented by the random error, and if it is statistically significant, we additionally note the significance of the computed value of t for the coefficient of the independent variable (market exchange rate) ( $B_1$ ) (p-value). The market exchange rate has a noticeable impact on the value of the dollar, and the direction of this impact is opposite, according to  $t - value < 0.05$  mm. It is  $< 0.05$  in value. On the basis of this, it can be concluded that the market exchange rate has a statistically significant impact on the value of the dollar. As a result, we accept the alternative hypothesis, which indicates the existence of this significant influence, and reject the null hypothesis, which claims there is no significant effect of the market exchange rate variable on the dollar.
- 2- The coefficient of determination  $R^2$  between the independent variable (the market exchange rate,  $x_2$ ) and the dependent variable (the euro,  $y_2$ ) reached a value of (0.01),

indicating that the market exchange rate accounts for 1% of changes in the dollar and that the remaining 95% is due to other factors that were not taken into account. It is modelled as a random error. We also see that the computed value of  $t$  for the independent variable's coefficient (market exchange rate) ( $B_1$ ) is not significant if it is a  $p$  value. If  $t$ -value more than 0.05 mm, it means that the market exchange rate has no appreciable impact on the value of the dollar and that the impact is direct. It has a value higher than 0.05. On the basis of this, it may be concluded that the market exchange rate has no statistically significant impact on the value of the dollar. We therefore reject the alternative hypothesis, which suggests the presence of this Moral effect, and adopt the null hypothesis, according to which there is no discernible impact of the market exchange rate variable on the dollar.

- 3- The market exchange rate explains 39% of the changes in the yen, and the remaining 61% is due to other variables that were not included in the model, according to the coefficient of determination  $R^2$  between the independent variable (market exchange rate  $x_2$ ) and the dependent variable (yen  $y_3$ ), which reached a value of (0.39). It is represented by the random error, and if the estimated value of  $t$  value for the independent variable's coefficient (market exchange rate) ( $B_1$ ) is a  $p$ -value, we also underline its importance. The market exchange rate has a substantial impact on the yen, and the direction of this impact is the opposite, according to  $t$  value  $< 0.05$  mm. It is  $< 0.05$  in value. On the basis of this, it may be concluded that the market exchange rate has a statistically significant impact on the yen. As a result, we agree with the alternative hypothesis, which states that the market exchange rate variable has a major impact on the yen, and disagree with the null hypothesis, which states that the market exchange rate variable has no major impact on the yen.
- 4- The market exchange rate explains 12% of the changes in the yuan, and the remaining 80% are due to other variables that were not included in the model, according to the coefficient of determination  $R^2$  between the independent variable (the market exchange rate  $x_2$ ) and the dependent variable (the yuan  $y_4$ ), which reached a value of (0.12). We observe that the calculated value of  $t$  for the coefficient of the independent variable (market exchange rate) ( $B_1$ ) is not significant if it is  $p$  value, and it is reflected by the random error. If *the  $t$  value* is more than 0.05 mm, it means that the market exchange rate has a negligible impact on the value of the yuan and that the impact is in the other direction. It has a value higher than 0.05. On the basis of this, it may be concluded that the market exchange rate has no statistically significant impact on the yuan. We therefore reject the alternative hypothesis, which suggests the presence of this Moral effect, and adopt the null hypothesis, according to which there is no discernible impact of the market exchange rate variable on the yuan.

**Measuring a long-term relationship:** The previous findings led to the conclusion that there is a meaningful short-term regression relationship between the variables  $x_1$  (the official exchange rate) and the dollar ( $y_1$ ) and the yuan ( $y_3$ ) both individually. Additionally, it was shown that the market exchange rate, the dollar ( $y_1$ ), the yuan ( $y_3$ ), and each separately had a substantial short-term regression association with the variable  $x_2$ . However, is this relationship true or not? Also, how long-lasting and balanced is the link between these variables?

In order to get the answer, it is necessary to conduct stability tests for the time series using the

unit root test, as the test was carried out and the following results were reached:

Table (12) unit root test for variables  $x_1, x_2, y_2, y_1$

Variables	At the level	
	probability-p	Calculated Statistics
x1	0.043	-3.19
x2	0.049	-3.16
y1	0.001	-3.302
y3	0.046	-3.71

We note from the previous table that the test confirms the stability of all variables in their levels, meaning that each variable is stable at the first degree I (0), and this result indicates the possibility of a long-term relationship between the variables of the study

**Johanson test of cointegration:** After ensuring the stability of the time series and that each of them is integrated and of the same degree, the existence of an equilibrium relationship between these variables is tested over the long term by means of co-integration tests, as the Johanson co-integration test was performed, as in the following table:

Table (13) Johanson cointegration test for variables  $x_1, x_2, y_1$

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.797461	39.13744	29.79707	0.0032
At most 1 *	0.672088	16.78189	15.49471	0.0318
At most 2	0.080290	1.171750	3.841466	0.2790

Table (14) demonstrates that the value of prob. Less than 0.05, we therefore reject the null hypothesis and accept the alternative hypothesis, namely that the short-term effect relationship that was obtained is true and that there exists at least one co-integration between the study's variables ( $x_1, x_2,$  and  $y_1$ ). This confirms the existence of a long-term equilibrium relationship.

Table (14) Johanson test for cointegration of variables  $x_1, x_2, y_3$

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.911234	53.75763	29.79707	0.0000
At most 1 *	0.698260	19.85304	15.49471	0.0103
At most 2	0.197389	3.078396	3.841466	0.0793

Table (14) shows that the value of prob.  $>0.05$ , so we reject the null hypothesis and accept the alternative one, which states that there is at least one co-integration between the study's variables ( $x_1, x_2,$  and  $y_3$ ), confirming the existence of a long-term equilibrium relationship and the validity of the short-term effect relationship that was found.

**Error Correction Model (ECM):** After making sure that there is co-integration between the study variables, the most suitable model for estimating the relationship between them is the error correction model. Then comes the step of designing a correction model, which is considered one of the standard analysis tools, so that the error correction limit that represents the regression residual is added to the long-term equation of the model used in The study with a decelerating time gap for the differences model, which is what is known as the short-term equation, but before the long-term relationship can be estimated, the optimal number of decelerations must be determined as follows:

Table (15) Determining the optimal delay period for the variables ( $x_1, x_2, y_1$ ) using the VAR

model

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-185.2713	NA	16027357	25.10284	25.24445	25.10134
1	-141.9400	63.55269*	171326.6*	20.52533*	21.09177*	20.51929*

The **ECM** was applied after finding the ideal delay period, which is (1), and the estimation outcomes are listed in Table (16) as follows.

Table (16) The results of the **ECM** for the variables (x<sub>1</sub>, x<sub>2</sub>, y<sub>1</sub>)

Dependent Variable: D(Y1)  
 Method: Least Squares  
 Date: 02/08/21 Time: 05:38  
 Sample (adjusted): 2005 2018  
 Included observations: 14 after adjustments

$$D(Y1) = C(1)*(Y1(-1) + 3.12480288883*X1(-1) - 8.95232227869*X2(-1) + 6928.93891855) + C(2)*D(Y1(-1)) + C(3)*D(X1(-1)) + C(4)*D(X2(-1)) + C(5)$$

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	-0.040669	0.146436	-0.277727	0.7875
C(2)	-0.193663	0.246530	-0.785555	0.4523
C(3)	0.349756	4.607490	3.918834	0.0235
C(4)	-1.859038	4.528065	-0.410559	0.6910
C(5)	-41.61934	85.78312	-0.485169	0.6391

R-squared	0.314407	Mean dependent var	0.553571
Adjusted R-squared	-0.134744	S.D. dependent var	276.0470
S.E. of regression	294.0574	Akaike info criterion	14.47788
Sum squared resid	778227.6	Schwarz criterion	14.70611
Log likelihood	-96.34516	Hannan-Quinn criter.	14.45675
F-statistic	5.614081	Durbin-Watson stat	1.702645
Prob(F-statistic)	0.033304		

Because C(1) is not significant, there is no long-term association, but there is a short-term relationship because C(2) is significant C(3).

Table (17) Determining the optimal delay period for the variables (x<sub>1</sub>, x<sub>2</sub>, y<sub>1</sub>) using the VAR model

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-179.3493	NA	7276769.	24.31323	24.45484	24.31173
1	-153.9220	37.29326*	846561.2*	22.12294*	22.68938*	22.11690*

After including the ideal delay period (1) into the error correction model, the estimation results are shown in Table (18).

Table (18) the results of the error correction model for the two variables (x<sub>1</sub>, x<sub>2</sub>, y<sub>3</sub>)

Dependent Variable: D(Y3)

Method: Least Squares

Date: 02/08/21 Time: 06:08

Sample (adjusted): 2005 2018

Included observations: 14 after adjustments

$$D(Y3) = C(1)*(Y3(-1) + 0.0383122600446*X1(-1) - 0.00834011960873*X2(-1) - 47.2519724841) + C(2)*D(Y3(-1)) + C(3)*D(X1(-1)) + C(4)*D(X2(-1)) + C(5)$$

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	-0.507399	0.128309	-3.954493	0.0033
C(2)	-0.531599	0.191410	-2.777283	0.0215
C(3)	-0.016696	0.016039	-1.040999	0.3250
C(4)	0.008710	0.015561	0.559744	0.5893
C(5)	0.048862	0.284468	0.171764	0.8674
R-squared	0.736157	Mean dependent var		0.090000
Adjusted R-squared	0.618893	S.D. dependent var		1.625153
S.E. of regression	1.003270	Akaike info criterion		3.116859
Sum squared resid	9.058957	Schwarz criterion		3.345094
Log likelihood	-16.81802	Hannan-Quinn criter.		3.095732
F-statistic	6.277787	Durbin-Watson stat		1.336116
Prob(F-statistic)	0.010735			

As we notice that there is a long-term relationship because (1) c is negative and significant, just as there is a short-term relationship through the significant value of c (2).

### Conclusions:

According to the current analytical analysis, the Central Bank of Iraq used its financial instruments to maintain the value of the Iraqi dinar, particularly after the Central Bank Independence Law was passed. Use the central currency window to keep the Iraqi dinar's exchange rate stable. The Central Bank lowered the rate of inflation in the Iraqi economy by utilising its resources, particularly the currency window. Iraq did not rely on the foreign exchange market in the Iraqi market for securities, the Central Bank for currency trading against the Iraqi dinar, and it shows sideways in the Central Bank. The Central Bank publishes a daily list of Iraqi dinar issuances in various foreign currencies. There is no specific indicator of the exchange rate of the Iraqi dinar versus other currencies because there is no foreign market. The money supply, in particular, has a 62% impact on the exchange rate of the Iraqi dinar, whereas interest rates were ineffective, reaching only 18%. The market exchange rate for the Iraqi dinar differs significantly from the official rate, which is primarily determined by the level of demand in the local market and the availability of currency through the Central Bank of Iraq's selling window.

### Recommendations

- Finding trading platforms for various currencies based on the Iraqi dinar is necessary, and these platforms should be located at the Iraq Stock Exchange or the Central Bank of Iraq.
- There is a requirement to compute a unique indicator of the Iraqi dinar's exchange rate versus other currencies, and this indicator is computed using data from daily trade on the foreign exchange market.
- Keeping in mind that the Central Bank of Iraq is legally free to pursue its goals without interference, as long as those goals are consistent with those of the Iraqi state as a whole.

- Create a general framework for integrating the Central Bank's monetary tools with the fiscal policy's financial tools to stabilise the exchange rate of the Iraqi dinar.
- the Central Bank of Iraq adopting a flexible exchange policy in keeping with the structure of the Iraqi economy and changes in the price of oil on the global market.

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