Measurement and Analysis of the Impact of the Balance of Payments on the Value of the Iraqi Local currency for the Period (2004-2020)

Sawsan Karim Hodan Al-Jubouri Muhammad Kamel Khafif

Al-Qadisiyah University, College of Administration and Economics

Corresponding Author : Muhammad Kamel Khafif

Abstract : In achieving its objectives, this study relied on the analysis of time series through the use of appropriate standard methods, as the results showed that the time series under study are unstable in their levels, but they are stable when taking the first differences for them using unit root tests, as the results of the model test showed (ARDL): the existence of a long-term equilibrium relationship between the balance of payments and the value of the Iraqi local currency.

Introduction: The balance of payments constitutes one of the economic variables that affect the overall economic activity, and therefore the economic policy takes measures to achieve economic balance in this balance, which reflects positively on all the variables of the economic activity of the state, as the economic conditions of Iraq contributed in the nineties of the century The twentieth and the beginning of the twenty-first century affected all economic indicators, including the value of the Iraqi local currency against the US dollar, as the value of the Iraqi currency began to decline continuously for external and internal reasons. The first included the economic sanctions imposed on Iraq in 1991, which led to the loss of Iraq. Foreign exchange resources, especially the dollar, as a result of the cessation of oil exports, as well as depriving Iraq of benefiting from its funds deposited in foreign blocks and the benefits due to it. The gross domestic product, all these circumstances led to a decline in the value of the Iraqi currency against the dollar. As for the period after 2003, many factors contributed to the improvement and stability of the value of the Iraqi local currency, including the issuance of Central Bank Law No. 56 of 2004, which made it possible to achieve complete independence The Bank can draw up and implement its monetary policy through indirect means, including its organization of a public auction of the dollar aimed at stabilizing and improving the value of the local currency towards the dollar, and for the importance of this topic, the research came to show the impact of the balance of payments on the value of the Iraqi local currency through the use of the ARDL model, To cover this, the research was divided into three sections. The first section dealt with the theoretical framework for the value of the local currency and the balance of payments. The second section explains the analysis of the reality of the balance of payments and the value of the Iraqi local currency for the period (2004-2020), while the third section includes: Measuring the impact of the balance of payments On the value of the Iraqi local currency for the period (2004-2020).

Research problem:

The research problem is summarized In the following question:

(How does the balance of payments affect the value of the Iraqi local currency?)

Research hypothesis:

The research starts from the hypothesis that:

(The balance of payments has positive and negative effects on the value of the Iraqi local currency)

Search goal:

- The research aims to achieve a set of objectives that can be documented with the following points:
- 1- Standing on the reality of the value of the Iraqi local currency.
- 2- Statement of the theoretical relationship between the value of the Iraqi local currency and the balance of payments.
- 3- Drafting the standard model to show the impact of the balance of payments on the value of the Iraqi local currency. **Search limits:**

Spatial limits of research / Iraq.

Temporal limits \ The research included the period (2004-2020)

The first topic: the theoretical framework for the value of the Iraqi local currency and the balance of payments:

The balance of payments Is considered one of the most Important economic indicators expressing the state of the national economy, so the state strives to balance It, and in the event of an Imbalance, it Intervenes to correct the

situation without harming the national economy⁽ⁱ⁾ as countries are linked to each other by economic transactions, and this connection requires a transition Financial resources, individuals, investments, and capital between countries, and this transformation entails obligations and rights for each country towards the other, and these countries record all economic operations that take place between them in a special book called the Balance of Payments⁽ⁱⁱⁱ⁾ where It is defined as an organized record or statement A comprehensive account of all economic transactions that take place between residents of the country and residents of other countries during a period of time that Is often a year⁽ⁱⁱⁱ⁾ and the balance of payments is one of the most Important measures that can determine the economic situation from a financial surplus or deficit, because it is considered an Important tool for economic analysis, In view of the data It provides, which through analysis can Identify the most Important economic indicators of the state, and know the position occupied by the national economy, as well as planning and drawing future policies, due to the great Importance it enjoys regardless of the time period it covers, as its data and data are considered a tool for evaluation And the scientific interpretation of a group of economic phenomena associated with global economiesand its importance lies In the fact that It reflects the strength of the national economy and its vulnerability and the degree of Its adaptation to the changes that occur In the international economy and this is through the structure, volume, exports and imports In addition to the factors affecting it such as the size of investments and the degree of employment, and the level of prices and costs, (iv) The balance of payments provides an integrated statistical base on the economic transactions that entail obligations, and also summarizes the economic transactions that help in providing monetary means to meet these obligations. The state of the country's economic relations and then its news about the international economic position It occupies to help reach decisions regarding monetary and financial policies and foreign trade. In addition, the balance analysis shows the country's ability to face Its imports and other economic transactions by exporting goods, or if It is working to reduce its assets And work on the accumulation of foreign liabilities or whether he is able to receive grants from abroad, and the balance of payments statement shows when studying whether the country is a creditor or debtor (), and the balance of payments shows the specific forces of the exchange rate of the local currency, through the conditions of demand The supply of foreign currencies^(v) as it gives an indication to the economic authorities of the validity of the economic policies followed, and help in planning and directing the foreign economic relations of the state, as the balance helps the public authorities in planning International trade in terms of commodity and geographical terms of financial and monetary policies, so the transactions recorded In it are necessary for banks and institutions And people within the fields of finance and foreign trade.^(v1)

According to the foregoing, we can conclude that the balance of payments constitutes one of the economic variables that have an impact on the overall economic activity, and therefore the economic policy takes measures to achieve economic balance in balance, which reflects positively on all variables of the economic activity of the state. **The theoretical relationship between the value of the local currency and the balance of payments:**

The value of the local currency is significantly affected by the balance of payments, as the supply of foreign exchange derives its source from the various transactions, whether current or capital, that appears on the credit side of the balance of payments, which at the same time represents the demand of non-residents for the local currency and likewise the demand for currency. In contrast, it represents the citizens' offer of the local currency, which derives its source from the various transactions that appear on the debit side or the payments side. Therefore, the balance in the free exchange market is linked to the balance of payments according to what is known as the market balance, where changes in the exchange rate correct the imbalance in The balance of payments automatically without the need to maintain international balances, in the event of a deficit in the balance of payments of a particular country, this leads to an increase in its demand for foreign currencies to fill that deficit, and in return a decrease in the demand of foreigners for its local currency, which means a deterioration in the value of the local currency of that country, that is, The demand for local commodities will appear less than the demand for foreign commodities, where the foreign demand for the local currency is less than the domestic demand for foreign currencies and this leads to a depreciation of the local currency and an increase in the foreign exchange rate, which makes local commodities have low prices compared to foreign commodities, which encourages an increase in exports of local goods and a decrease in imports of foreign goods, as a result of their high prices compared to local goods, and that this deficit represents an excess supply of the local currency in the exchange market, which works to reduce its external value, and in turn gives a competitive advantage to goods, services and financial assets Which becomes relatively cheaper, so this encourages exports and reduces imports, and it is assumed that the external value of the local currency will continue to decline until the deficit disappears (vii) that is, if the deficit continues in a particular country, which forces it to increase the supply of its local currency in the global market, and over time it leads to a devaluation That currency and increased productivity leads to lower costs, which leads to an improvement in the competitive situation, so the entry of new investments leads to an increase in demand for the local currency and then an increase in its value. (viii) Likewise, in the case of the surplus, which represents an excess of demand for the local currency, since the country that enjoys a strong production base and has more goods and services that can be exported more than it imports, the surplus that the

country achieves in the balance of payments will lead to an improvement in the value of its currency compared to other currencies, as it is assumed The continued rise in the external value of the local currency, which gives a competitive advantage to goods, services and foreign financial assets, until the surplus disappears and the balance regains its balance^(ix) Therefore, the balance of payments has a close relationship with supply and demand for the local currency and its exchange rate, as the increase in the amount of money supply for the local currency over the quantity required of it leads to a decrease in its price, meaning a decrease in its value compared to other currencies, and this leads to a rise in the general level of prices, and this rise in prices makes National exports of goods and services are more expensive than their counterparts in foreign markets, and this leads to a decrease in external demand for national exports of goods and services, as well as a shift in domestic demand away from domestic goods and services and replacing them with foreign imports that have become relatively cheaper, which causes a deficit in the current account and an imbalance The balance of payments, which results in a decrease in the quantity supplied of the currency and an increase in the demand for it, especially since the devaluation of the local currency leads to an increase in exports (an increase in the demand for the local currency due to a decrease in its price) and a decrease in the volume of imports and a shortage In the presentation of the local currency^(x) that is, it leads to stimulating economic activity through the rise in the prices of foreign goods in relation to local goods, and this leads to the reluctance of local consumers to buy foreign goods, which leads to an increase in international competitiveness in relation to local goods, and this leads to an increase in the volume of exports^(xi) but it is not necessary for there to be a relationship between the deficit in the balance of commercial transactions and the devaluation of the currency, as there is the possibility of increasing demand and supply for the local currency for reasons not related to trade in goods and services, so capital movements may be a source of supply and demand for the local currency in the international currency market. In the case of the desire of foreigners to invest outside the national economy, citizens resort to obtaining foreign currencies.(xii)

The second topic: an analysis of the reality of the balance of payments and the value of the Iraqi local currency for the period (2004-2020)

First: Analysis of the exchange rate in Iraq for the period (2004-2020):

Tracking the movement and developments of exchange rates in the Iraqi economy is of great importance It enables us to know the course and fluctuations of the exchange rate, to adopt a policy that works to create economic stability capable of advancing economic development forward. During the study period, the exchange rate of the Iraqi dinar witnessed a significant improvement as a result of the Central Bank maintaining its independence by Article 56 of 2004, and confidence was restored in the Iraqi dinar to replace the old currency with the new one. The data is equal to both the official and the parallel exchange rate, as it amounted to (1453) dinars for the year 2004 as a result of the replacement of the national currency and the general acceptance it enjoyed, as it provided security and the difficulty of counterfeiting it, so the demand for the new Iraqi dinar increased because it is sad and good for the value, in addition to that, the implementation of the currency auction, and after The exchange rate of the Iraqi dinar returned to deterioration in 2005, as the parallel exchange rate reached (1472) dinars, with a growth rate of (1.3%). Such as groceries, petrol prices, etc.

In the period (2006-2008), the exchange rate of the Iraqi dinar improved continuously in the parallel and official markets, as the parallel exchange rate for the year 2008 reached (1203) dinars and the official exchange rate (1193) dinars, with growth rates of (-5.05% and -4.9%), respectively. This improvement in the exchange rate is due to the Central Bank employing part of the foreign reserves to reduce the value of the dollar against the Iraqi dinar by absorbing part of the cash balances with the public by increasing the amount of sales of the dollar against foreign currencies.

As for the period (2009-2011), we note that there is stability in the official exchange rate as a result of the improvement in the security conditions that Iraq witnessed during that period. As for the parallel exchange rate, it witnessed a decrease in the growth rate during those years, as the growth rate reached in 2009 (-1.7%), while in 2011 the growth rate reached (0.9%), as the difference between the official and parallel exchange rates gradually diminished, as the difference between the two rates became very slight, which made individuals relatively increase their confidence in the Iraqi dinar.

In the period (2012-2013), the parallel exchange rate began to rise and fall by a very small difference (1233-1232), respectively, compared to the official exchange rate, which fell to (1166) dinars for both years. The reason for this rise is due to the rise in oil prices, which led to the accumulation of reserves. The foreign exchange with the Central Bank of Iraq, where in 2013 it amounted to approximately \$74 billion.

As for the period (2015-2018), the official exchange rate of the Iraqi dinar was stable, reaching (1190) dinars. As for the parallel exchange rate, it fluctuated between rise and fall. It was recorded in 2015 (1247) dinars, and in 2016 (1275) dinars. In 2017 (1258) dinars

As for the year 2018, it recorded (1208) dinars, and the reason is due to the fluctuation of the parallel exchange rate as a result of the decrease in the volume of foreign reserves resulting from the drop in global oil prices, in addition to the deterioration of the security situation and the terrorist wars waged by Iraq.

In the period (2019-2020), the official exchange rate of the Iraqi dinar was stable, reaching (1190) dinars, however, the exchange rates in the parallel markets recorded a record high at the official rates of the Central Bank, reaching (1196) dinars in 2019, (1234) dinars in 2020 The reason for the high prices in the parallel markets is the high demand for the dollar over the quantities sold by the Central Bank in daily auctions, in addition to the commissions and profits imposed by banks and exchange offices.

schedule(1)
Developments of the exchange rate of the Iraqi dinar against the US dollar during the period (2004-2020)
(US deller diner)

		(US utilat utilat)		
%Growth rate	Official price	%Growth rate	Parallel price	The years
-	1453	-	1453	2004
1.1	1469	1.3	1472	2005
0.1-	1467	0.2	1475	2006
14.4-	1255	14.1-	1267	2007
4.9-	1193	5.05-	1203	2008
1.9-	1170	1.7-	1182	2009
0	1170	1.2	1185	2010
0	1170	0.9	1196	2011
0.3-	1166	3.1	1233	2012
0	1166	0.18-	1232	2013
1.8	1188	1.5-	1214	2014
0.1	1190	2.7	1247	2015
0	1190	2.2	1275	2016
0	1190	1.3-	1258	2017
0	1190	3.9-	1208	2018
0	1190	0.9-	1196	2019
0	1190	3.1	1234	2020

Source: - Central Bank of Iraq, General Directorate of Statistics and Research, annual statistical releases for different years (2004-2020).

The growth rate was extracted through the formula = (current year – previous year) / previous year *100.

As the course of the exchange rate remained dependent on the crude oil sector and the revenues it achieves, the year 2012 marked a clear beginning of a widening gap between the official exchange rate and the parallel exchange rate after the monetary authority resorted to changing the official rate from (1170) dinars to one dollar in 2011 against A parallel exchange rate of (1196) dinars per dollar increased to (1160) dinars per dollar in 2012, compared to an increase in the parallel rate to (1233) dinars per dollar, as in the figure





Source: prepared by the researcher based on the data of Table (1).

Second: Analysis of the Balance of Payments in Iraq for the period (2004-2020):

The balance of payments is among the most important economic indicators that show the country's position in foreign economic relations, and for Iraq it is considered one of the developing countries that suffer from imbalance and imbalance in its balance of payments.

Through Table (2), we notice that in the period (2004-2008) the balance of payments achieved a surplus, and this surplus formed an upward trend, as in Figure (2), as it recorded its highest level in 2008 when it reached (18000.8) million dollars, and that the lowest level In 2005, it amounted to (4122.0) million dollars, and that this surplus came in line with the requirements of openness of the Iraqi economy to the outside world (the global market) after 2003, and the high value of oil exports, which in turn reflected positively on the surplus in the balance of payments.

In 2009, the balance of payments achieved a deficit amounting to (-5000.8) million dollars, at a negative annual rate of (-127.8%). International oil prices, as the price of a barrel of crude oil, fell from 148 dollars to 29 dollars in 2009.

During the period (2010-2013), the balance of payments continued to achieve a surplus that amounted in 2010 (6286.3) million dollars, and in 2013 it amounted to about (7860.9) million dollars. As a result of the increase in oil exports and the rise in crude oil prices, the price of a barrel reached \$103 per barrel.

The balance of payments for the year 2015 witnessed a deficit of (-13473.6) million dollars, compared to the deficit in 2014, which amounted to (-11871.2) million dollars. As a result of the oil crisis and the drop in crude oil prices below \$50 per barrel, in addition to the unstable security situation that led to a relatively low oil production; Which affected the balance of payments, in addition to the lack of production of goods and services that cover the actual needs of the country, and the deficit in the balance of payments continued until the end of 2016 as a result of the continuing effects of the repercussions of the double crisis that Iraq went through.

In 2018, it achieved a surplus of (6595.8) million dollars, with a positive growth rate of (144.2%) as a result of the surplus achieved in the trade balance, in addition to the surplus achieved in the rest of the components of the current

account. As a result of the increase in exports over imports, in addition to the rise in oil prices in the global market and the security stability witnessed by the country, as well as the increase in capital grants provided to Iraq for the relief of the displaced, but in 2020 the balance of payments achieved a deficit amounting to (-8272.2) million dollars, with a negative annual growth rate (-194.8) as a result of the spread of the Corona epidemic to all parts of the world, in addition to the sharp decline in global oil prices.

Schedule(2)
The evolution of the balance of payments in Iraq for the period (2004-2020)
(Million dollars)

%Annual growth rate	Balance of payments	The years
-	4212.0	2004
32.6-	4122.0	2005
78.6	7360.8	2006
59.7	11757.3	2007
53.1	18000.8	2008
127.8-	5000.8-	2009
225.7-	6286.3	2010
65.3	10393.7	2011
23.6-	7986.8	2012
1.6-	7860.9	2013
251.0-	11871.2-	2014
213.5-	13473.6-	2015
38.1-	8344.1-	2016
132.4-	2701.2	2017
144.2	6595.8	2018
32.2	8724.6	2019
194.8-	8272.2-	2020

Source: Central Bank of Iraq, General Directorate of Statistics and Research, annual statistical releases

- The growth rate was extracted by the researcher

Accordingly, we can say that the external factors represented by oil prices in the global market and the global oil demand have directly contributed to the deficit or surplus in the balance since Iraq is a rentier country and depends primarily on revenues from oil exports, as the Iraqi economy is still suffering from Dangerous structural problems come at the forefront of the unilateralism of this economy and its dependence on oil as a main source for the formation of local income and its remaining hostage to fluctuations in the oil market. Therefore, serious steps must be taken to accelerate economic reform and to give a major role to the private sector in non-oil activities, to stimulate economic growth and diversification of Sources of income, and therefore it can be said that it is not possible to change the structure of the Iraqi economy and get rid of rentiers that make the economy vulnerable to external crises, except after other non-oil economic activities take their required role in the development process.



Figure (2) Trends in the balance of payments in Iraq for the period (2004-2020)

Source: prepared by the researcher based on the data of Table (2).

The third topic: measuring the impact of the balance of payments on the value of the Iraqi local currency for the period (2004-2020)

The first requirement: unit root tests (stability):

Before conducting the estimation process, the time series test was applied regarding the presence of the unit root in the variables of the model and the basic equation by applying the tests of each of the developed – expanded – Dickie Fuller – (ADF) and Phillips – Peyron (P-P), at the level and at the first difference (1Differences) and under hypotheses without, with a fixed limit, with a fixed limit and a general trend.

First: Measuring the stability of the Iraqi currency value data series represented by the inverse of the exchange rate of the dinar against the dollar for the period (2004-2020):

Table (3) shows the results of the ADF test, as it showed that the time series of the Iraqi currency value data represented by the inverse of the exchange rate of the official dinar against the US dollar (EX) when analyzed at the level was unstable without the fixed limit at all levels of significance (1%, 5%, 10%), and also unstable in the presence of the fixed limit at all levels of significance (1%, 5%, 10%), as well as unstable in the presence of the fixed limit at all levels of significance. (1%, 5%, 10%), but after taking the first difference, it was found that the series is stable at the fixed limit at a significant level of 10%.

Extended Dickey-Fuller (ADF) test for Iraqi local currency value data series							
The first	difference	The leval Variable			The leval		riable
Fixed limit and general direction	Fixed limit	Fixed limit and general direction	Fixed limit	Without			
	2.903739-	1.403822-	2.155025-	1.375876-]	EX	
	3.959148-	4.667883-	3.920350-	2.717511-	%1	Moral	
	3.081002-	3.733200-	3.065585-	1.964418-	%5	level	
	2.681330-	3.310349-	2.673459-	1.605603-	%10		

Schedule (3) Extended Dickey-Fuller (ADF) test for Iraqi local currency value data series

Source: The researcher's work is based on the statistical program (10E-views).

To support the results of the (ADF) test, the (P-P) test was adopted in testing the static time series of model variables, because of its better and more accurate dynamic statistical ability, especially in small-sized samples. Table (4) results

of the Phelps-Berron test show that the time series of the variable (EX) is not static in the level and in all hypotheses, as the calculated values for these series are greater than the tabular values at significant levels (1%, 5%, 10%), which means the possibility Acceptance of the null hypothesis 0H: with the existence of the unit root.

When conducting the test (P-P) by taking the first difference and using all the first hypotheses, it becomes clear that the time series of the variable (EX) is stable at the first difference in the presence of the fixed limit at a significant level of 10%.

		1	<i>.</i>			
The first	difference	The leval			Variable	
Fixed limit and	Fixed limit	Fixed limit and	Fixed limit	Without		
general		general direction				
direction						
	2.903739-	1.115984-	2.431346-	1.375876-]	EX
	3.959148-	4.667883-	3.920350-	2.717511-	%1	Moral
	3.081002-	3.733200-	3.065585-	1.964418-	%5	level
	2.681330-	3.310349-	2.673459-	1.605603-	%10	

	Schedule (4)	
P_	_P test for the Iraqi local currency value data serie	es

Source: The researcher's work is based on the statistical program (10E-views).

Second: Measuring the stability of the balance of payments data series for the period (2004-2020):

Table (5) shows the results of the (ADF) test, as it showed that the time series of the balance of payments (BOP) data when analyzed at the level was unstable in the presence of the fixed limit at all levels of significance (1%, 5%, 10%), as well as unstable in the presence of the fixed limit and the general trend at all levels of significance (1%, 5%, 10%), but after analyzing by taking the first difference, it was found that the series is stable at the fixed limit at the level of significance (5%, 10%).

The first diffe	erence	The leval			Va	riable
Fixed limit and general direction	Fixed limit	Fixed limit and general direction	Fixed limit	Without		
	3.875925-	2.729183-	2.376174-	2.376411-	E	BOP
	4.121990-	4.667883-	3.920350-	2.717511-	%1	Moral
	3.144920-	3.733200-	3.065585-	1.964418-	%5	level
	2.713751-	3.310349-	2.673459-	1.605603-	%10	

Source: The researcher's work based on the statistical program (10E-views)

In order to support the results of the (ADF) test, the (P-P) test was adopted in testing the static time series of the model variables, and it is clear from Table (6) that the Phelps-Peyron test showed that the time series for the variable (BOP) was unstable in the presence of the fixed limit at all levels of significance (1%, 5%, 10%), as well as unstable in the presence of the fixed limit at all levels of significance (1%, 5%, 10%), which means The possibility of accepting the null hypothesis 0H: with the existence of the unit root And when conducting the test (P-P) by taking the first difference and using it, it becomes clear that the time series of the variable (BOP) is stable at the first difference in the presence of the fixed limit at all levels of significance (1%, 5%, 10%), and this indicates that the series is stable and integrated of degree $(1) \sim 1$, and this confirms that the series is free from the unit root, and therefore we reject the null hypothesis and accept the alternative.

Schedule (6) P P test for the balance of payments data series in Iraq

The first di	fference	The leval			Variable	
Fixed limit and	Fixed limit	Fixed limit and	Fixed limit	Without		
general direction		general direction				
	4.333190-	2.699464-	2.425139-	2.412091-	E	BOP
	3.959148-	4.667883-	3.920350-	2.717511-	%1	Moral
	3.081002-	3.733200-	3.065585-	1.964418-	%5	level
	2.681330-	3.310349-	2.673459-	1.605603-	%10	

Source: The researcher's work is based on the statistical program (10E-views).

The second requirement: testing the ARDL model:

After conducting a test of the stability of the time series of the economic variables, it was found that they are stable at the first difference, and accordingly, the Autoregressive Distributed Delay (ARDL) model was chosen as follows:

The quantitative relationship between the balance of payments on the value of the Iraqi currency represented by the exchange rate of the dinar against the dollar for the period (2004-2020):

The balance of payments data was analyzed in Iraq for a period of (17) years, and the data was divided into quarterly due to the small size of the sample to verify the research hypothesis and test the effect of (Bop) as an independent variable on the official exchange rate (the value of the Iraqi currency) as a dependent variable, as the results of the estimate showed and as shown in Table (7) the balance of payments (Bop) affects the official exchange rate and the relationship between them is inverse, meaning that (the relationship is direct with the value of the Iraqi currency), and this is consistent with the logic of economic theory, as the change in The balance of payments in one unit affects the official exchange rate (the value of the Iraqi currency) by (-0.000475).

Regression analysis of the relationship between the official exchange rate (the value of the Iraqi currency) and the balance of payments shows that the explanatory power of the model amounted to (0.326707), and this is indicated by the value of R2. This means that the independent variable explains about (33%) of the changes that occurred in the dependent variable, while the remaining percentage is (67%) due to unexplained factors included in the random variable. As for the value of F, it amounted to (12.61616) with a probability level of (0.000) less than (0.05), which is Significant Thus, we reject the null hypothesis and accept the alternative hypothesis indicating the significance of the estimated parameters.

Schedule (7) It shows the quantitative relationship between BOP and the value of the Iraqi currency

R-squared= 0.326707				
F-statistic= 12.61616	Prob(F) = 0.000			
BOP	0.000475-			
С	958.2167			

Source: The researcher's work is based on the statistical program (10E-views).

1- Measuring the impact of the balance of payments on the value of the Iraqi currency represented by the exchange rate of the dinar against the dollar for the period (2004-2020) using the (ARDL) model

Table (8) shows the results of the ARDL test to show the impact of the balance of payments on the official exchange rate against the dollar (the value of the Iraqi currency). It is noted through the R2 test that the explanatory power of the model amounted to (0.994455), which means that the balance of payments explains about (99%) of the changes in the official exchange rate (the value of the Iraqi currency). F calculated, which amounted to (701.0341).

Schedule (8) Results of the (ARDL) test of the effect of BOP on the value of the Iraqi local currency

Dependent Variable: EX Method: ARDL Date: 02/08/23 Time: 20:11 Sample (adjusted): 2006Q3 2020Q1 Included observations: 55 after adjustments Maximum dependent lags: 12(Automatic selection) Model selection method: Akaike info criterion (AIC) Dynamic regressors (4 lags, automatic): BOP

	Variable Coefficient	Std. Err	or t-Statistic	Prob. *
EX(-1)	1.163604	0.138805	8.382993 0.0000	
EX(-2)	-0.229208	0.156018	-1.4691130.1491	
EX(-3)	1.79E-11	0.108634	1.65E-10 1.0000	
EX(-4)	-0.435191	0.108634	-4.006035 0.0002	
EX(-5)	0.518019	0.121131	4.276513 0.0001	
EX(-6)	-0.124990	0.118036	-1.058914 0.2956	
EX(-7)	2.34E-11	0.108382	2.16E-10 1.0000	
EX(-8)	-0.223662	0.108771	-2.056267 0.0459	
EX(-9)	0.326490	0.101411	3.219480 0.0024	
EX(-10)	-0.153721	0.047188	-3.257668 0.0022	
BOP	-0.000125	5.85E-05	-2.144291 0.0377	
С	187.9094	31.92128	5.886651 0.0000	

R-squared	0.994455	Mean dependent var	1190.427	
Adjusted R-squared	0.993036	S.D. dependent var	33.36924	
S.E. of regression	2.784645	Akaike info criterion	5.076348	
Sum squared resid	333.4326	Schwarz criterion	5.514312	
Log likeliho	-127.5996	Hannan-Quinn criter.	5.245712	
F-statistic	701.0341	Durbin-Watson stat	2.077028	
Prob(F-statistic)	0.000000			

*Note: p-values and any subsequent tests do not account for model selection

Source: The researcher's work based on the statistical program (10E-views.

2- Bounds test for cointegration:

The Bounds Test is used to find out the extent to which there is a long-term equilibrium relationship (the existence of a co-integration) between the (Balance of Payments) as an independent variable and the value of the Iraqi currency (the inverse of the official exchange rate) as a dependent variable, by comparing between the (F) statistic and the limits of the upper and lower critical values. We note from Table (9) that the calculated F value of (11.56640), which is greater than the upper limit of (3.51) at the 10% level of significance and ((4.16) at the 5% level, (4.79) at the 2.5% level of significance, and (5.58) at the 1% level of significance. Therefore, we reject the null hypothesis and accept the alternative hypothesis, and this indicates that there is a long-term cointegration relationship, and Table (26) shows that.

Schedule (9)

Bounds test results							
(Bounds Test)							
F-statistic =11.56640							
Moral level	Bound l(0)	Bound l(1)					
%10	3.02	3.51					
%5	3.62	4.16					
%2.5	4.18	4.79					
%1	4.94	5.58					

Source: The researcher's work based on the statistical program (10E-views).

3- Error correction model according to the ARDL methodology:

As for the results of error correction (CointEq (-1), we note from Table (10) that the error correction speed has reached (-0.158660) and the probability level is (0.0000), which is less than (0.05), that is, there is a correction from the short term to the long term, according to the following equation:

EC = EX - (-0.0008 * BOP + 1184.3512)

We note from Table (10) that the balance of payments parameter amounted to (-0.0008), which is significant, as the probability of correcting the error in the long term amounted to (0.0282), which is less than (0.05).

Schedule (10)

Error correction results for the effect of BOP on the value of the Iraqi local currency

CointEq (-1)	Prob	Long Run Coefficient(BOP)	Prob
0.158660-	0.0000	0.0008-	0.0282
TE1 1 1			

Source: The researcher's work based on the statistical program (10E-views).

4- Autocorrelation test and instability of homogeneity in the ARDL model:

A- Breusch-Godfrey Serial Correlation Lm Test

The test of the autocorrelation problem is one of the important tests in the (ARDL) model to ensure that the relationship is free from the autocorrelation problem. We note from Table (11) that presents the results of the autocorrelation test and the instability of homogeneity. We find that the relationship between (BOP) and the value of the Iraqi currency (the inverse of the official exchange rate against the dollar) is free from the autocorrelation problem, as the calculated probability of F was (0.2263) according to the (LM Test) test, which is a non-significant value, i.e. greater than (0.05), while the probability value is Chi-Squared. Prob (0.1462) is greater than (0.05), meaning that we accept the null hypothesis which states that there is no autocorrelation problem and we accept the alternative hypothesis.

B- Testing the problem of heteroskedasticity

This test is one of the important tests that helps to know that the relationship is free from the problem of heterogeneity, so we note from Table (11) that presents the results of the autocorrelation test and the instability of homogeneity that the relationship between the balance of payments and the value of the Iraqi currency (the inverse of the official

exchange rate) is free of instability of homogeneity according to the probability (F, R2) of (0.7909) and (0.7223) respectively, because these values are not significant, i.e. greater than (0.05).

effect on the official exchange rate						
Breusch - Godfrey Serial Correlation LM Test						
F-statistic	1.541201	Prob. F	0.2263			
Obs*R-squared	3.845799	Prob. Chi-Squared	0.1462			
Heteroskedasticity test: Breusch- Pagan- Godfrey						
F-statistic	0.640680	Prob. F	0.7909			
Obs*R-squared	8.771741	Prob. Chi-Squared	0.7223			

Schedule (11) Results of testing the autocorrelation and heterogeneity-of-variance problem of the BOP

Source: The researcher's work based on the statistical program (10E-views).

Conclusions:

1- There are several factors that lead to an increase or decrease in the exchange rate of the Iraqi dinar against the US dollar, including the money supply and the deficit in the balance of payments, which have a negative impact represented in the decrease in its exchange rate and then its value, and vice versa, in addition to rumours and news, regardless of their validity.

2- The results of the time series stability tests showed that the study variables were stable when taking the first difference, according to the extended Dickie-Fuller test (ADF) and the Phelps-Perron test (P_P), which necessitates the use of the autoregressive distributed slowing (ARDL) model in determining the relationship, the balance of payments and the official exchange rate in Iraq (the inverse of the value of the Iraqi local currency).

3- The results of the limits test showed that there is a co-integration between the variables studied, that is, there is a long relationship between the balance of payments and the value of the local currency (the inverse of the official exchange rate).

4- The negative and significant value of the error correction coefficient reveals to us the speed of the return of the variable of the local currency value (the inverse of the official exchange rate) towards its equilibrium value in the long term in each period for the year of imbalance from the period (t-1) estimated at (-0.158660), which has a relatively high adjustment coefficient, meaning that the imbalance in the short term can be adjusted in the long term and then reach the equilibrium situation, as the change in the balance of payments by one unit affects the official exchange rate (the value of the Iraqi currency) by (-0.000475), and this result is consistent with the logic of economic theory.

5- The existence of a direct relationship between the dependent variable, i.e. the value of the local currency (the inverse of the official exchange rate) and the balance of payments, where the balance of payments parameter showed significance with a level of significance of less than 5%.

6- It was found from the results of the test of autocorrelation and instability of homogeneity between (BOP) and the value of the local currency (inverse of the exchange rate), that it is free from the problem of autocorrelation and the problem of instability of homogeneity according to (LM Test) and (Heteroskedasticity Test) because the probability value of (F) and the probability value of (Prob. Chi-Squared) are non-significant values greater than (0.05) and based on that the null hypothesis was accepted and the alternative hypothesis was rejected.

Recommendations:

The need to take into account the factors affecting the exchange rate to maintain a low level of the exchange rate and strive to raise the value of the Iraqi local currency, due to the great impact of these factors on the exchange rate.
The economic stability of the Iraqi economy can be achieved if it manages to control the external factors affecting

2- The economic stability of the Iraqi economy can be achieved if it manages to control the external factors affecting the exchange rate.

Search margins

ii – – Khaled Hammadi Hamdoun, Hamdiya Adel Jalil, The role of economic policies in facing the imbalance of payments in Iraq for the period (1990–2018), Tikrit Journal of Administrative and Economic Sciences, Volume 17, Issue 55, 2021, p. 267.

i- Ben Mustafa Reem, Ben Laghm Fathy, Sawar Youssef, An econometric study of the impact of monetary policy on the balance

of payments in Algeria during the period 1990-2017, Al Wahat Journal for Research and Studies, Volume 13, Issue 1, 2020, p. 394.

iii – – Khaled Fayhan Raja Al-Dulaimi, Ali Ahmed Daraj Al-Dulaimi, The reciprocal relationship between monetary variables and the balance of payments in Iraq for the period (2004–2018), Tikrit Journal of Administrative and Economic Sciences, Volume 16, Issue 50, 2020, p. 268.

iv- Muhammad Abdel-Latif Khattab, The Role of International Finance and its Repercussions on the Balance of Payments of the Arab Republic of Egypt, Journal of the Arab League, Volume 43, Issue 3, 2019, p. 334.

v- - Consider this - Boujafs Hakimi, Aqbi Lakhdar, Balance of Payments and its Impact on Foreign Trade (Algeria Case Study), Journal of Economic Issue Studies, Volume 1, Issue 2, 2010, p. 106.

- Yazid Takarrat, Salim Helal, Salima Ben Zama, Diagnosis and Analysis of the Balance of Payments in Algeria during the period (2004-2018), Journal of Finance and Corporate Governance, Volume 6, Issue 1, 2022, p. 22.

vi – Muhammad Hussein Odeh, Hussein Ali Ahmed, Ali Talib Shihab, Study and Analysis of the Iraqi Balance of Payments for the period (2003–2018), Al-Muthanna Journal of Administrative and Economic Sciences, Volume 11, Issue 2, 2021, p. 207.

vii- Sadiq Fadel Zughair Al-Zuhairi, Balance of Payments Fluctuations and Its Impact on the Iranian Economy for the Years

1973-1979 (A Study in Economic History), Journal of the College of Education, University of Wasit, Volume 2, Issue 44, 2021, p. 40.

viii –Hashi Nouri, Bin Khalif Tariq, Al–Oqab Muhammad, Balance of Payments and its Relationship to Exchange Rate Fluctuations in the Maghreb Countries Compared to Using (ARLD Panel), Journal of Economic, Management and Commercial Sciences, Volume 13, Issue 1, 2020, p. 810.

ix – Consider this – Abboud Abdel Majeed, The Impact of Exchange Rate Changes on Balances of the Algerian Balance of Payments, an econometric study using autoregressive ray models (Var) during the period 1990–2015, Financial and Business Economics Journal, Volume 1, Issue 4, 2017, p. 180.

- Qarqab Mubarak, Lakassi Mariama, Approaches to correcting the imbalance in the balance of payments, the case of Algeria, Journal of Ijtihad for Legal and Economic Studies, Volume 10, Issue 2, 2021, p. 543.

- Adel Mokhtari, The Effect of Exchange Rate Changes on the Algerian Balance of Payments for the Period (1980-2019) Using the Autoregressive Nonlinear Time Lapse Methodology NARDL, New Economy Journal, Volume 12, Issue 3, 2021, p. 490.

Growth and Development. Mindex Publishing Benin City, 2003, p69.

x- Mustafa Talaat Al-Taweel, Kawthar Muhammad Rashid, The repercussions of decreasing the exchange rate of the Iraqi currency on some indicators of the Iraqi economy, Journal of Human and Natural Sciences, Volume 2, Issue 10, 2021, p. 173 – xi-- Consider this – Sarrama Abdel Waheed, Baaloul Nofal, Measuring the relationship between the exchange rate and the balance of payments – a case study of a group of Arab countries during the period 2000–2016, Journal of Finance and Corporate Governance, Volume 2, Issue 2, 2018, p. 50.

-Malakia Kahwaji, Mekadish Mohamed, The Impact of the Exchange Rate and Interest Rate on the Balance of Payments in Algeria, New Economy Journal, Volume 12, Issue 3, 2021, pp. 430-431.

- Udegbunam, R.I. Monetary and Financial Policy. In Iyoha, M.A. & C.O. Itsede (Eds.), Nigerian Economy: Structure Growth and Development. Mindex Publishing Benin City, 2003, p69.

-Udegbunam, R. I. Monetary and Financial Policy. In Iyoha, M. A. & C. O. Itsede (Eds.), Nigerian Economy: Structure

xii- Wissam Hussein Ali Al-Enezi, Measuring the reciprocal relationship between the exchange rate and the balance of payments in Iraq for the period 2004-2016, Cihan University-Erbil Scientific Journal, Issue 2, 2018, p. 305

13- Fernando Daniel Sedano : Trade ajustements to exchange rates in régional conomic intégration: rgentina and brazil , A Dissertation Submitted to the Graduate Faculty of Auburn University, December 16, 2005,p7

14- Wissam Hussein Ali Al-Enezi, previous source, p. 305

<u>Sources</u>

- -Ben Mustafa Reem, Ben Laghm Fathy, Sowar Youssef, An econometric study of the impact of monetary policy on the balance of payments in Algeria during the period 1990-2017, Al-Wahat Journal for Research and Studies, Volume 13, Number 1, 2020.
- 2. Boujafs Hakimi, Aqbi Lakhdar, Balance of Payments and its Impact on Foreign Trade (A Case Study of Algeria), Journal of Economic Issue Studies, Volume 1, Issue 2, 2010, p. 106.
- 3. Hashi Nouri, Bin Khalif Tariq, Al-Oqab Muhammad, Balance of Payments and its Relationship to Exchange Rate Fluctuations in the Maghreb Countries Compared to Using (ARLD Panel), Journal of Economic, Management and Commercial Sciences, Volume 13, Issue 1, 2020.
- 4. Khaled Hammadi Hamdoun, Hamdiya Adel Jalil, The role of economic policies in facing the imbalance of payments in Iraq for the period (1990-2018), Tikrit Journal of Administrative and Economic Sciences, Volume 17, Issue 55, 2021.
- 5. Khaled Fayhan Raja Al-Dulaimi, Ali Ahmed Daraj Al-Dulaimi, The reciprocal relationship between monetary variables and the balance of payments in Iraq for the period (2004-2018), Tikrit Journal of Administrative and Economic Sciences, Volume 16, Issue 50, 2020.
- 6. Sadiq Fadel Zughair Al-Zuhairi, Balance of Payments Fluctuations and its Impact on the Iranian Economy for the Years 1973-1979 (A Study in Economic History), Journal of the College of Education, University of Wasit, Volume 2, Issue 44, 2021.
- Sararama Abdel Waheed, Baaloul Nofal, Measuring the relationship between the exchange rate and the balance of payments – a case study of a group of Arab countries during the period 2000-2016, Journal of Finance and Corporate Governance, Volume 2, Issue 2, 2018.
- 8. Karkab Mubarak, Lakassi Mariama, Approaches to correcting the imbalance in the balance of payments, the case of Algeria, Ijtihad Journal for Legal and Economic Studies, Volume 10, Issue 2, 2021.
- 9. Abboud Abdel Majeed, The Impact of Exchange Rate Changes on Balances in the Algerian Balance of Payments, An Econometric Study Using Autoregressive Ray Models (Var) During the Period 1990-2015, Business and Financial Economics Journal, Volume 1, Issue 4, 2017.
- 10. Adel Mokhtari, The Impact of Exchange Rate Changes on the Algerian Balance of Payments for the Period (1980-2019) Using the Autoregressive Nonlinear Time Lapse Methodology NARDL, New Economy Journal, Volume 12, Issue 3, 2021.
- 11. Muhammad Hussein Odeh, Hussein Ali Ahmed, Ali Talib Shihab, Study and Analysis of the Iraqi Balance of Payments for the period (2003-2018), Al-Muthanna Journal of Administrative and Economic Sciences, Volume 11, Number 2, 2021.
- 12. Mohamed Abdel Latif Khattab, The Role of International Finance and its Repercussions on the Balance of Payments of the Arab Republic of Egypt, Journal of the Arab League, Volume 43, Issue 3, 2019.
- 13. -Mustafa Talaat Al-Taweel, Kawthar Muhammad Rashid, The repercussions of the devaluation of the Iraqi currency exchange rate on some indicators of the Iraqi economy, Journal of Human and Natural Sciences, Volume 2, Issue 10, 2021.
- 14. Malakia Kahwaji, Mekadish Mohamed, The Impact of the Exchange Rate and Interest Rate on the Balance of Payments in Algeria, New Economy Journal, Volume 12, Issue 3, 2021.
- 15. Wissam Hussein Ali Al-Enezi, Measuring the reciprocal relationship between the exchange rate and the balance of payments in Iraq for the period 2004-2016, Cihan University-Erbil Scientific Journal, Issue 2, 2018.
- 16. Yazid Takarrat, Salim Helal, Salima Ben Zama, Diagnosis and Analysis of the Balance of Payments in Algeria during the period (2004-2018), Journal of Finance and Corporate Governance, Volume 6, Issue 1, 2022.
- 17. Udegbunam, R. I. Monetary and Financial Policy. In Iyoha, M. A. & C. O. Itsede (Eds.), Nigerian Economy: Structure Growth and Development. Mindex Publishing Benin City,2003,.