



Measuring And Analyzing Changes In The Exchange Rate And Their Impact On The Trade Balance In Iraq 2010-2022

Marwa Allawi Naji

University of Al-Qadisiyah, College of Administration and Economics, Department of

Economics, Marwaaljubori@gmail.com

Abstract: *This research seeks to illustrate the effects of rate of exchange volatility on Iraq's trade balance .The report examines currency rates in Iraq from 2010 to 2022, including both official and parallel values. The study addresses the trade balance, encompassing exports and imports, and investigates the impact of exchange rate fluctuations on trade performance through the ARDL model. It demonstrates a direct relationship between the two variables and confirms the absence of autocorrelation issues. Formulating a series of results and recommendations.*

Keyword : *Measuring, Analyzing Changes in Exchange Rates, Their Impact on the Balance of Trade*

1. INTRODUCTION:

This topic is of significant importance in most countries, especially Iraq, as many authorities work to achieve stability in exchange rates and work to provide appropriate conditions to attract capital with the aim of maintaining the strength of the national currency and thus achieving a balance in the trade balance. In addition, Iraq and many countries face... Developing countries face many difficulties due to the relationship of economic activity to the global economy and thus its trade deficit, and thus the exposure of the economy in Iraq to international economic fluctuations.

Many researchers have indicated that the exchange rate acts as a mirror. This research reflects a country's trade relations with the global market by analyzing the interaction between exports and imports, which is usually referred to as the trade balance. Throughout the study period (2010-2022), both The rate of exchange and the balance of trade in Iraq have significant fluctuations, and these differences have been primarily affected by the dynamics of supply and demand for currencies, In addition, Iraq faced difficult circumstances, including wars and deteriorating security, especially in 2014, which greatly affected the economic variables under study "the rate of exchange and the balance of trade ". This context prompted the researcher to delve into the topic to evaluate the extent of the impact of changes in the exchange rate on the trade balance in Iraq during the specified period, Using the standard ARDL model in the analysis.

2. SCIENTIFIC METHODOLOGY OF RESEARCH

1-Research problem:

The research problem is as follows:

-What is the impact of exchange rate fluctuations on Iraq's trade balance during the period from 2010 to 2022?

2-Research hypothesis:

The research posits the fundamental premise that the independent variable, the exchange rate, has a considerable positive (direct) influence on the dependent variable, the trade balance in Iraq, throughout the period from 2010 to 2022.

3-Research Objective:

By using the ARDL model for cointegration analysis, the purpose of this research is to assess and investigate the connection that exists between the exchange rate and the trade balance in Iraq throughout the course of the period spanning from 2010 to 2022.

4-Research Methodology:

Two approaches were used in this research, namely the descriptive and analytical approach for the purpose of studying variables and theoretical frameworks regarding the exchange rate and its impact on the trade balance in Iraq, while the other approach is the standard quantitative approach using the EViews program.

5-Temporal and Spatial Boundaries of the Research:

Spatial Boundaries: Iraq

Temporal Boundaries: 2010-2022

6-Search structure:

The study was divided into three areas. The first portion encompasses the theoretical and conceptual dimensions of the rate of exchange and the balance of trade, while the subsequent section presents an examination of fluctuations in the rate of exchange and the balance of trade throughout the period from 2010 to 2022. The third component included an analysis of the correlation between the foreign currency rate and the trade balance in Iraq from 2010 to 2022, followed by a series of findings and suggestions.

3. THE THEORETICAL AND CONCEPTUAL ASPECT OF THE RATE OF EXCHANGE AND THE BALANCE OF TRADE

First: The theoretical and conceptual aspect of the exchange rate

1- **Exchange's rate concept:** The exchange rate is an essential component of the day-to-day operations of economic organizations and plays a significant part in the international economic relations that exist between countries. This is particularly true in light of the rising global economic contacts that exist between nations. The regulation of transactions involving foreign currencies and the establishment of the exchange rate for each currency in relation to exchange rates for other currencies have become essential. When converted into the local currency, the worth of international items is determined by this rate. One way to think about an exchange rate is as the amount of a certain currency that must be exchanged in order to acquire one unit of another currency. A more straightforward explanation would be to say that it is the rate at which the local currency is exchanged for the currency of another country. Therefore, the exchange rate is a fundamental factor that determines the allocation of resources across economic sectors, which in turn affects the profitability of businesses who are focused on exporting their products. As a consequence of this, the exchange rate contributes to a reduction in the total costs of resources that are acquired from overseas sources. The exchange rate is the price of one currency expressed in terms of another foreign currency. It is defined as the relative value of two currencies, which in turn represents the price of one currency. The amount of monetary units of one currency in proportion to one unit of another currency is what is meant to be represented by the exchange rate among different currencies. Because of this, the value of the currency is considered to be the exchange rate. This is because money, in addition to being a medium of exchange, a store of value, and a tool for measurement, is a commodity that has its own price and market that is set by the exchange rate. In a nutshell, the exchange rate may be characterized as the process of changing the local currency into a foreign currency.

2- **Exchange's rates types:** There are several sorts of exchange rates that vary based on the time frame of these rates, which may be elucidated as follows:

A- **Nominal exchange rate:** The nominal exchange rate represents the market value of a specific currency in relation to the local currency, excluding considerations of buying power. They are determined by the fluctuations of supply and demand in the foreign currency market during a certain period. This rate signifies the direct exchange of value between two currencies,

omitting the influence of other economic variables that may impact the currency's buying power(Zainab,2004:44).

B- Real exchange rate : The real exchange rate indicates the actual buying power and competitiveness of a currency. The determination is made by comparing the quantity of foreign products required to acquire one unit of domestic goods. This rate serves as a crucial metric for assessing the currency's buying power and its influence on the nation's commerce, particularly on exports and imports. It offers an analysis of the true cost of domestic products in relation to imported commodities. The real exchange rate signifies the correlation between the value of local and foreign currencies, determined by the actual cost of commodities.

C- Actual exchange rate: It is an average of several fixed exchange rates, and it is also the real value of the local currency in relation to the foreign currency, meaning that the actual exchange rate is the real value of the local currency in relation to the foreign currency and is calculated based on the influence of multiple factors such as supply and demand for currencies, inflation, and monetary and economic policies Public, The actual exchange rate is used to estimate the purchasing power of the local currency and analyze its impact on foreign trade, foreign investments, and economic competitiveness. The actual exchange rate simply reflects the true value of the currency and the extent of its impact on the national economy(Tahir,2003:96).

3- Determinants of the exchange rate: There are several determinants of the exchange rate, including the following:

A- Monetary determinants: The relationship between the exchange rate and monetary factors (inflation, money supply, interest rate) is a causal relationship because the exchange rate is affected by monetary determinants, either directly or indirectly. Therefore, this relationship and the changes that occur on the monetary determinants are reflected in the exchange rate, either negatively or indirectly. Positively.

B- Financial determinants: Financial determinants and their tools (such as public revenues and public expenditures) affect the exchange rate, and the size of this impact is reflected in the fluctuation of exchange rates based on financial factors and tools such as public expenditures, public revenues, taxes, and the budget deficit. The impact of these factors also depends on the nature of the relationship and the size of the changes that occur in the exchange rate. Financial determinants, whether increased or decreased(Sabreen ,2020:45) .

C- Real determinants: The role of real determinants relates to their impact on exchange rates through several factors. These factors include new monetary issuance, public revenues,

and taxes, which are referred to as real determinants. These determinants are used to address distortions that affect the public budget. Therefore, economic policy makers must follow an expansionary approach or Deflationary depending on the type of crisis or phenomenon that the economy is facing in the country, These real determinants also affect the level of employment, unemployment rates, poverty, and inflation, and thus directly or indirectly affect the exchange rates of the local currency compared to foreign currencies(Hossam,2002:28).

D- Trade Determinants: Trade variables significantly influence the currency exchange rate. The current account is regarded as a primary determinant influencing the exchange rate. For instance, heightened demand for foreign currencies by domestic inhabitants to get international products and services results in an escalation of the exchange rate. Consequently, heightened demand results in Regarding local currencies used by foreign citizens seeking to acquire local products and services at a more favorable exchange rate, An rise in import volume relative to exports results in heightened demand for foreign currencies, leading to a depreciation of the local currency, which subsequently boosts the country's exports. The theory of stocks posits that exchange rates are dictated by the balance of payments and its fluctuations(Hoshyar,2005:215) .

4- Factors affecting the exchange rate: The factors affecting the exchange rate are divided into two groups:

A- Market conditions: Exchange rates are affected by market conditions, and these conditions include information reaching the market regarding currencies, the economic situation, rumors, and reports, in addition to official statements. It must be taken into account that the market's response to one piece of information differs from its response to other information. For example, bad information has an impact faster than good information.

B- Customer experience: Dealers' experience reflects the direction of price movement and its impact on the exchange market, in addition to their ability to negotiate and the strategies they use in implementing their operations(Abdol Husein,2011:71).

C- Changes in the financial markets and other markets in the currency market: When the return achieved by investors in the money market from a particular currency increases, it results in an increase in the exchange rates of those currencies as a result of increased demand for them. This rise in prices also indicates an increase in capital gains for the stocks associated with these currencies. Consequently, the demand for those currencies to buy these stocks increases, which ultimately leads to an increase in their exchange rates.

D- Quantities traded and the degree of liquidity required: The exchange rate of the currency is determined as a result of market forces, as the quantities supplied and requested affect currency prices and thus the degree of liquidity required reflects the availability and tradability of the currency, and plays a role in determining the value of the currency in the market (Mosa,2007:48) .

5- Basic factors:

A- Interest rate: The strength and weakness of the currency is affected based on its relationship to the interest rate, as a high interest rate leads to strengthening the currency, while a low interest rate leads to its weakness, assuming that other factors are constant. The prices mentioned refer to the rates of convertible currencies, which are determined by the forces of supply and demand. It does not include the prices determined by the government through its monetary policy in determining the value of the currency.

B- Inflation rate: A high inflation rate requires a general increase in the price level in a particular country compared to other countries, and taking monetary and financial measures to address this phenomenon. In the event that these measures are not taken, the country can devalue its currency. On the other hand, in the event of a decrease in the inflation rate, which is A general decrease in the price level, the country can increase the value of its currency(Bassem,2003:63).

C- Equilibrium price: The imbalance between supply and demand for the currency is considered one of the main reasons for the change in the price of the currency. When traders in the exchange market find themselves unable to buy the currency due to a lack of supply, this leads to an increase in its price. The opposite is true in the case of increased supply, as the price of the currency decreases. Therefore, the quantities supplied for the currency, their size, and the speed of rotation of these quantities are among the factors that affect determining the exchange rate.

D- Balance of payments conditions: The balance of payments is used to measure changes in the flow of foreign currencies through a group of components that in turn affect exchange rates. These components include (import and export, tourism expenditures, exchange of other services, investment profits, foreign aid, international loans, capital transfers and investments, and government intervention) (Mahir,2004:228).

Second: The theoretical aspect of the trade balance

1- **The concept of the trade balance:** The trade balance refers to the balance of business operations, and it includes purchases and sales of goods and services, This term can be considered in its comprehensive sense as a standard for measuring surplus or deficit when the trade balance is in a state of surplus, This means that the country's exports exceed its imports, and this enhances economic growth and improves the country's external payments accounts. In the case of a deficit, this means that the amount of exports of goods and services is less than the imports(Ghalib,2023:385) .

2- **Sections of the trade balance:** The trade balance is divided into two parts:

A- **Merchandise trade balance:** This type of trade balance refers to all goods and services that have a tangible physical presence, such as physical goods that are exported and imported across customs borders. This type is also called the “balance of physical trade” or the “balance of merchandise trade” and the balance of visible trade.

B- **Service trade balance:** This type includes all services exchanged between countries, such as transportation, education, communications, tourism, travel, insurance, government spending, etc. The service trade balance is considered part of the balance of payments that measures financial flows between countries in relation to intangible services(Nisren,2023:35).

3- **The trade's balance important:** The importance of the trade balance: In light of the following considerations, the trade balance is of critical significance(Mokhtar,2022:23):

A- The trade balance reflects the country's important international trade and economic relations.

B- The trade balance acts as an indicator of the development of the national economy by measuring the volume of trade exchanges.

C- The trade balance is considered the basic criterion for evaluating the country's foreign trade situation.

D- The balance of trade forms an important part of the balance of payments, especially with regard to exported and imported goods and services.

E- The trade balance reflects an image of the commodity structure of exports and imports, and shows the extent of the diversity of productive activity in the country.

F- The balance of trade reflects the economic situation of the country.

4- Functions of the trade balance (Mahmod,2003:74) :

- A- When a country's economy relates to other economies in the world, it provides a set of important data.
- B- The trade balance is used to explain economic phenomena related to the global economy, as it provides data that shows the relationship between the country and other countries in the field of trade.
- C- It provides information about the quantity of goods and services that are exported and imported during a specific period of time.
- D- It shows whether there is a surplus or deficit in commodity production within the country during a period of time, usually such as a year.

5- Imbalance and Equilibrium in the trade balance:

In spite of the fact that a persistent imbalance in the trade balance is a fact of life, it is regarded very uncommon to really achieve equilibrium. Regardless of this, every nation on the planet works toward the goal of achieving a balance in their trade budgets by minimizing their imports to the greatest extent feasible and boosting their exports accordingly. In order to attain the desired state of equilibrium, we will provide a detailed explanation of the imbalance and imbalance in the trade balance, as will be shown in the following information(Falih,2004:125):

A- Equilibrium in the trade balance: A state is said to be in a condition of balance when the total domestic output plus imports matches the total domestic demand plus exports. This is the circumstance in which the state's earnings from its exports are equal to the payments (expenditures) that it gets from those exports. Having reached this condition of equilibrium, it may be concluded that there is no major impact on the pricing of goods and services in the local market. thus, as a consequence of this equilibrium, currency exchange rates have a tendency to settle, and external equilibrium is reached; thus, both internal and external economic equilibrium are attained (Duraid,2011:80).

B- Imbalance in the trade balance: In the context of this article, the term "imbalance" refers to the contrary of the idea of "balance." The existence of a surplus may be deduced from the fact that the credit side is higher than the debit side. On the other hand, if the debit side is higher than the credit side, this indicates that the trade balance is in a deficit(Falih , Previous source:121).

4. ANALYSIS OF CHANGES IN THE RATE OF EXCHANGE AND THE BALANCE OF TRADE FOR THE PERIOD 2010-2022

First: The foreign exchange rate against the Iraqi dinar for the period (2010-2022):

The exchange rate is one of the important factors in the Iraqi economy and greatly affects many economic and financial aspects in the country. Exchange rates are subject to continuous fluctuations and are affected by multiple factors, including demand and supply for foreign currencies, monetary policy, as well as global events.

From observing the data in Table (1), we find that the official exchange rate during the period (2010-2013) is stable, as it ranges between (1170 to 1166). This shows an increase in the value of the country's local currency during that period, at a time when the Central Bank worked to introduce Foreign currency (dollar) through the currency sale window with a value of (48) billion dollars with the aim of keeping exchange rates stable, that is, obtaining a reasonable difference between the official and parallel exchange rates, However, this measure reduced the official exchange rate from (1170) in 2010 to (1166) in 2012. As for the parallel exchange rate during the aforementioned period, it witnessed a clear disturbance as it reached (1185-1196 - 1233-1232) respectively. The reason for this is To the increase in demand for the US dollar in the Iraqi market as a result of the US sanctions on Iran and the resulting smuggling of currency from the Iraqi market to Iran, as well as an increase in money laundering operations in Iraq through the foreign currency auction.

During the period (2014-2015), the nominal exchange rate rose, reaching (1188-11900) successively. This rise is due to the Central Bank raising the official exchange rate as a result of the deteriorating security conditions that Iraq was exposed to during that period as well as due to the decline in cash flows from On the one hand, and reducing demand for it on the other hand .

Table (1) The exchange rate of the US dollar against the Iraqi dinar for the period (2010-2022)

years	Official exchange rate	rate of change	Parallel exchange rate	rate of change
2010	1170	-	1185	-
2011	1170	0	1196	0.93
2012	1166	-0.34	1233	3.09
2013	1166	0	1232	-0.08
2014	1188	1.89	1214	-1.46
2015	1190	0.17	1247	2.72
2016	1190	0	1275	2.25
2017	1190	0	1258	-1.33
2018	1190	0	1208	-3.90

2019	1190	0	1196	-1.08
2020	1190	0	1234	3.18
2021	1460	18.5	1474	16.2
2022	1460	0	1482	0.53

Source: Central Bank of Iraq, Statistics and Research Department, Annual Statistical Bulletin , Various Years.

At a time when the parallel exchange rate for the year 2015 also rose, reaching (1247), this rise is due to the interaction of demand forces resulting from the expectation represented by speculation and normal demand. This worked to widen the gap between the official and parallel exchange rates.

In 2016, the official exchange rate was stable, reaching (1190), but in the parallel market, the foreign exchange rate rose against the Iraqi dinar, reaching (1275), as the Central Bank worked to use modern methods to sell the currency, as well as obliging banks and financial transfer companies to follow... New procedures include following international standards , In 2017, the official exchange rate remained stable at (1190) as the Central Bank continued to diversify its investments to support the stability of the exchange rate. As for the parallel exchange rate, it recorded (1258), while in 2018 it stabilized at (1208) as a result of the stability of the security conditions in Iraq as well. About the high demand for the Iraqi dinar at that time.

As for the year 2019, as we note from the table above, the parallel exchange rate recorded (1196), while the official exchange rate was remained stable at (1190) and continued until 2020, but the parallel rate rose to (1234) against the dinar, and the reason for this rise is due to the reasons for the economic conditions. And finance, as well as the repercussions of monetary policy, The primary reason for this increase was the global crisis that impacted the world economy as a whole, namely the COVID-19 pandemic.

The (official - parallel) exchange rates also increased during the remaining period (2021-2022), as the official exchange rate reached (1460), while the parallel exchange rate reached (1474-1484) as a result of the rise in the prices of imported goods, the rise in international prices, and the increase in demand by individuals for... Foreign currency for the purpose of travel after the increase in transport movement between countries as a result of the end of the pandemic.

The following chart shows fluctuations in the official and parallel foreign exchange rate against the Iraqi dinar during the period (2010-2022):

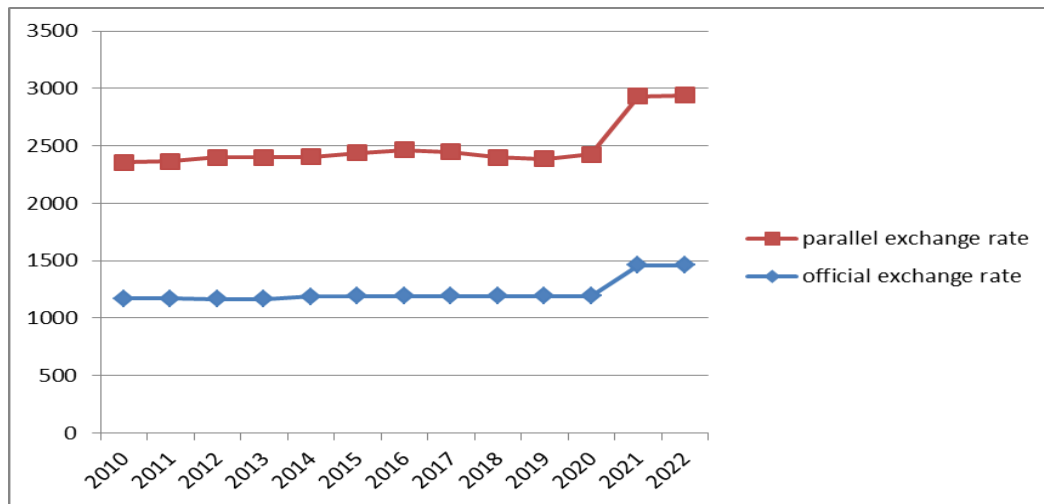


Figure (1) “Fluctuations in the foreign exchange rate official - parallel against the Iraqi dinar for the period 2010-2022”

Source: Researcher’s work based on the data from Table(1).

Second: The trade balance in Iraq for the period (2010-2022):

When looking at the data shown in Table (2), which displays the trade balance in Iraq for the period (2010-2022), it is clear that there has been an improvement in the structure of the trade balance during the period (2010-2012), as it recorded a value of (7849-31878-35203) million dollars accordingly. This improvement may be ascribed to the growth in domestic and international oil prices during that time period, which led to an increase in both exports and imports. Additionally, the rise in crude oil export income during that era also contributed to this development. When compared to the levels of the trade balance in the years before, the level of the trade balance in 2013 was lower, recording around thirty-four hundred and twenty million dollars. This may be attributed to the fall in the amount of both exports and imports that has occurred as a consequence of the decrease in the rates at which oil is exported. In addition, the level of the trade balance decreased to reach (30804) in 2014 as a consequence of the deterioration of the security conditions that Iraq experienced during that period. This was in addition to the decline in oil production that occurred as a consequence of terrorist gangs taking control of Iraqi oil fields, as well as the decline in global oil prices. Furthermore, the level of the trade balance continued to decline during the period (2015-2016), recording (3318-7090) million dollars as a consequence of the continued decline in global crude oil prices.

Table(2)“Structure of the trade balance in Iraq for the period2010-2022million dollars”

Years	Exports	Imports	Trade Balance
2010	51764	43915	7849
2011	79681	47803	31878
2012	94209	59006	35203
2013	89769	59349	30420
2014	83981	53177	30804
2015	51328	48010	3318
2016	41298	34208	7090
2017	57559	38766	18793
2018	86360	45736	40624
2019	81585	58138	23447
2020	46811	48150	-1339
2021	72822	40736	32086
2022	118045	55194	62851

Source: Central Bank of Iraq, Statistics and Research Department, Annual Statistical Bulletin, Various Years.

From Observing the data of the table above, we find that there was an improvement in the structure of the trade balance during the period (2017-2018), as it rose to reach (18,793-40,624) million dollars as a result of the increase in crude oil production as well as the rise in global oil prices, but in 2020 the trade balance was in a state of deficit. It recorded (-1339) million dollars, and this decrease is due to the decline in crude oil revenues, in addition to the crisis that the entire world has been exposed to, caused by the COVID-19 pandemic and its subsequent effects.

As for the remaining period (2021-2022), we notice an improvement in the structure of the trade balance, as it recorded about (32,086-62,851) million dollars respectively as a result of the increase in the volume of exports and imports during that period as well as a result of the rise in global oil prices.

The following chart shows the structure of the trade balance in Iraq during the period (2010-2022):

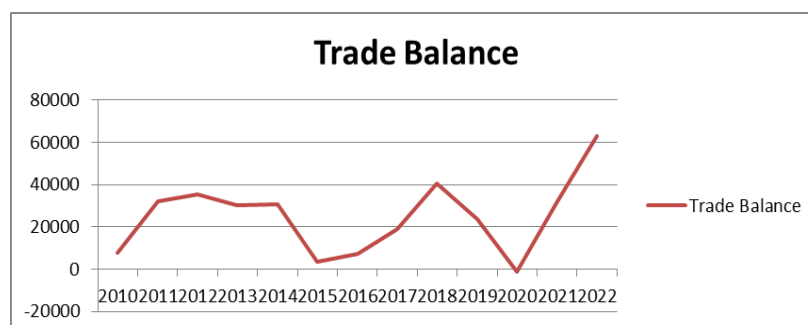


Figure (2) “Development of the Trade Balance Structure in Iraq during the Period 2010-2022”

Source: Researcher’s work based on the data from Table (2).

Measuring the impact of the relationship between the “foreign exchange rate and the trade balance in Iraq for the period 2010-2022”

This chapter focuses on the specifications of the econometric model utilized in the research, detailing the economic variables involved and the relationship between the dependent and independent variables. The trade balance is considered as the dependent variable, while the parallel exchange rate in Iraq is considered the independent variable.

Here we will analyze the effect of the exchange rate, as an independent variable, on the trade balance which is treated as the dependent variable.

Independent variable: exchange rate EX

Dependent variable: trade balance TR

$$TR = B_0 + BEX + U_i$$

First: Results of the static test for the variables (EX, TR):

From Table (3), we note that the unit root results for the exchange rate data series EX for Iraq, which were shown by the ADF test, at the level. The calculated value of (t) was greater than the critical (t) at the level of significance (10%), meaning that it is stable at the level of Constant and general trend, so the time series does not contain a unit root and is an integral of degree $I \sim (0)$. Accordingly, we will reject the null hypothesis and accept the alternative hypothesis.

Table (3) Results of the stationary test for the variables (EX, TR) according to the augmented Dickey-Fuller test

Significance Level of the Variables EX,TR	Level			First Difference		
	Constant	Constant and Trend	Without Constant and Trend	Constant	Constant and Trend	Without Constant and Trend
T-Statistic for EX	2.013697-	-3.556892				
Significance Level	% 1	-4.200056	-5.295384			
	% 5	-3.175352	-4.008157			
	% 10	-2.728985	-3.460791			
T-Statistic for TR	-3.349811					
Significance Level	% 1	-4.200056				
	% 5	-3.175352				
	% 10	-2.728985				

Source: Prepared by the researcher based on the Eviews10 statistical software.

As for the unit root results for the TR trade balance data series in Iraq, which were shown by the (ADF) test at the level for the TR series, the calculated value of (t) was greater than the critical (t) at the levels of significance (10%, 5%), meaning that it is stable at the level of

Constant, so the time series does not contain a unit root and is an integral of degree $I(0)$. Accordingly, we will reject the null hypothesis and accept the alternative hypothesis.

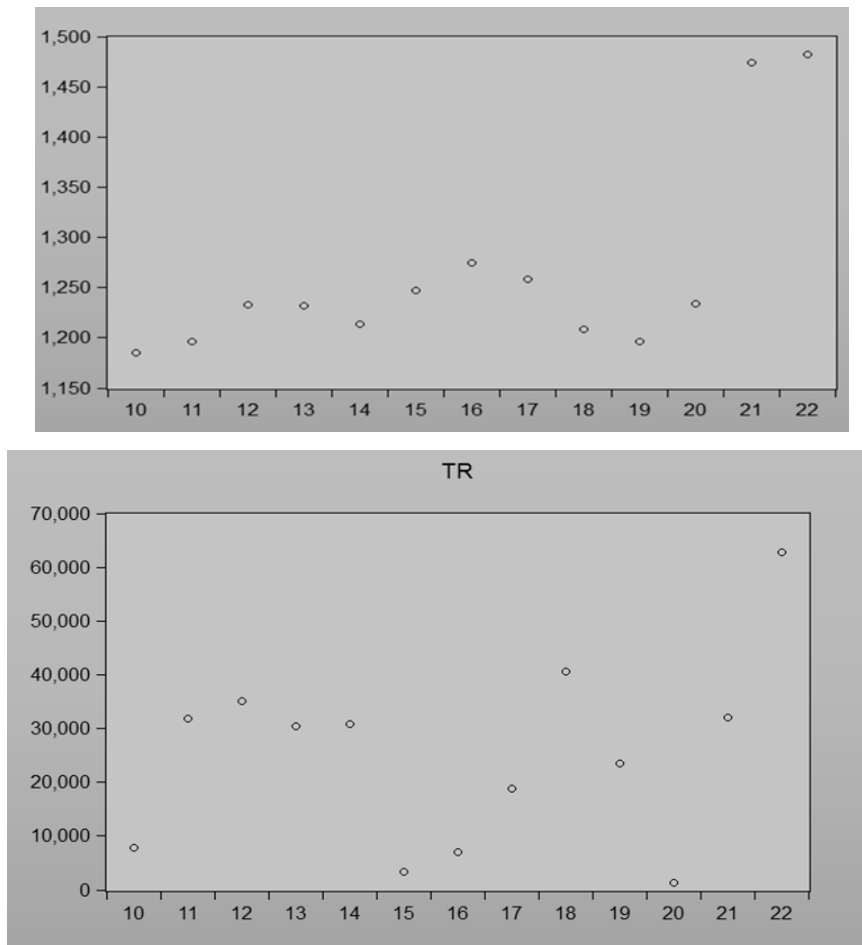


Figure (3) Charts of the independent variable and the dependent variable EX

Source: Prepared by the researcher using EViews10 software.

Second: “Correlation coefficient matrix for the effect of the exchange rate on the trade balance of Iraq for the period 2010-2022”

The matrix of correlation coefficients illustrates the direction of regression for the link that exists between the independent variable EX and the variable TR that is being studied. The data shown in Table 4 demonstrates that there is a direct connection between the exchange rate and the trade balance. The degree of correlation between the two variables is 0.482280, which indicates that a rise in the exchange rate directly leads to an increase in the trade balance.

Table (4) Correlation coefficient matrix for variables (TR, EX)

	EX	TR
EX	1.000000	0.482280
TR	0.482280	1.000000

Source: Prepared by the researcher based on the Eviews10 statistical software.

Third: ARDL Model Test

After conducting a stationary test for the time series (EX, TR) in Iraq for the period (2010-2022), it was found that they are stationary at level, accordingly the ARDL model was selected for analysis as follows:

Measuring the impact of the exchange rate on the trade balance of Iraq during the period (2010-2022):

Table 5 presents the findings of the ARDL test, which was conducted to determine the impact of the exchange rate on Iraq's trade balance during the course of the period of time spanning from 2010 to 2022. Furthermore, the value of the value of F is (12.0), and the level of significance is (0.05), which demonstrates the significance of the estimated model. It was discovered that the R2 value, which reveals the explanatory power of the model, was equal to (0.97), while the value of Adj R2 was equal to (0.89). (3.26) is the value of D.W., as determined from the data shown in the table below. This demonstrates that the model is located in the area where there is no autocorrelation.

Table (5) Results of the ARDL test for the effect of (EX) on (TR) in Iraq

Dependent Variable: TR				
Method: ARDL				
Date: 03/29/24 Time: 16:02				
Sample (adjusted): 2013 2022				
Included observations: 10 after adjustments				
Maximum dependent lags: 3 (Automatic selection)				
Model selection method: Akaike info criterion (AIC)				
Dynamic regressors (3 lags, automatic): EX				
Fixed regressors: C				
Number of models evaluated: 12				
Selected Model: ARDL(3, 3)				
Variable	Coefficient	Std. Error	t-Statistic	Prob.*
TR(-1)	0.000976	0.217411	0.004487	0.9968
TR(-2)	0.641424	0.437484	1.466166	0.2803
TR(-3)	-1.047189	0.262819	-3.984450	0.0576
EX	212.9374	50.79437	4.192146	0.0525
EX(-1)	-32.11876	60.25320	-0.533063	0.6473
EX(-2)	770.2436	224.6871	3.428072	0.0756
EX(-3)	-505.1775	111.0654	-4.548468	0.0451
C	-526243.9	279321.7	-1.884007	0.2002
R-squared	0.976829	Mean dependent var	24809.40	
Adjusted R-squared	0.895731	S.D. dependent var	19192.81	
S.E. of regression	6197.497	Akaike info criterion	20.29224	
Sum squared resid	76817942	Schwarz criterion	20.53431	
Log likelihood	-93.46120	Hannan-Quinn criter.	20.02669	
F-statistic	12.04503	Durbin-Watson stat	3.264061	
Prob(F-statistic)	0.058776...			

Source: By researcher with the Eviews10 statistical software.

The findings of the Bound Test applied to the relationship between the currency rate and the trade balance in Iraq are shown in Table 6. Due to the fact that the value of the calculated F is higher than the F equating to (12.93), which is higher than the value of the tabulated F at both the upper and lower bounds at all levels of significance, the findings demonstrated the existence of cointegration. (10,5,2.5,1) percent As a result, we conclude that the null hypothesis is

incorrect and instead adopt the alternative hypothesis, which states that there is a long-term cointegration connection between the variables (EX) and (TR).

Table (6) Bound Test results

F-Bounds Test		Null Hypothesis: No levels relationship		
Test Statistic	Value	Signif.	I(0)	I(1)
Asymptotic: n=1000				
F-statistic	12.93592	10%	3.02	3.51
k	1	5%	3.62	4.16
		2.5%	4.18	4.79
		1%	4.94	5.58

Source: Prepared by the researcher based on the Eviews10 statistical software.

Table (7) shows the results of the autocorrelation test and the lack of consistency between the exchange rate and the trade balance in Iraq during the period (2010-2022). According to the LM test, we find that the calculated value of F reached (0.53), which is not significant and greater than (0.05). As for the value The probability of Obs R-squared is also not significant, as it reached (0.07). On the basis of this, we accept the null hypothesis, which states that there is no autocorrelation problem, and we reject the alternative hypothesis, in addition to the absence of the relationship between (EX) and (TR) from the lack of homogeneity stability, according to the probability (R2,F) of (0.57) and (0.34) respectively because these values are not significant, i.e. greater than (0.05).

Table (7) Results of the autocorrelation test, homogeneity instability, and the effect between (EX) and (TR) in Iraq

Breusch-Godfrey Serial Correlation LM Test:			
F-statistic	0.804517	Prob. F(1,1)	0.5346
Obs*R-squared	4.458352	Prob. Chi-Square(1)	0.0747
Heteroskedasticity Test: Breusch-Pagan-Godfrey			
F-statistic	1.042862	Prob. F(7,2)	0.5715
Obs*R-squared	7.849470	Prob. Chi-Square(7)	0.3461
Scaled explained SS	0.277698	Prob. Chi-Square(7)	0.9999

Source: Prepared by the researcher based on the Eviews10 statistical software.

5. CONCLUSIONS:

1- It was found that there was a positive impact of the exchange rate on the trade balance in Iraq during the research period, meaning that the rise in the exchange rate leads to an increase in the trade balance due to the weakness of Iraqi exports and their dependence on one source, which is oil exports.

- 2- There is a cointegration relationship between the exchange rate and the trade balance, because the calculated F (12.93) is greater than the tabulated F at all levels of significance.
- 3- There is no autocorrelation problem according to the LM test between the exchange rate and the trade balance because the significant value of the calculated F is greater than 5%. Therefore, we accept the null hypothesis and reject the alternative hypothesis.
- 4- The relationship between the exchange rate and the trade balance is free from heterogeneity according to the probability (R²,F) of 0.57) and 0.34) because these values are not significant, that is, greater than (0.05).

RECOMMENDATIONS:

- 1- The need to establish strict control by the Central Bank with the aim of reducing the smuggling of foreign currency abroad for the purpose of preserving the value of the Iraqi dinar.
- 2- Work to diversify the Iraqi economy with the aim of eliminating shocks that could affect the Iraqi economy, which depends on oil.
- 3- Working to reduce the exchange rate and raise the value of the local currency without affecting economic stability, in addition to not remaining on a fixed exchange rate, provided that this price is in line with reality and consistent with the forces of supply and demand in the market.
- 4- Work to reduce the difference between the official and parallel exchange rates, because this method leads to increasing confidence in banking transactions in Iraq, as well as reducing the currency in circulation and attracting the currency within the bank.

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