

Received: December 2023 Accepted: January 2024

DOI: <https://doi.org/10.58262/ks.v12i2.160>

Measuring the Relationship between External Debt and the Exchange Rate in Iraq for the Period (2005-2022)

Dr.Maiami Salal Sahib¹

Abstract

The research aims to find out the extent to which exchange rate fluctuations contribute to the total external debt in Iraq for the period (2005-2022), as well as to clarify the significance impact of exchange rate fluctuations in the external debt for the period and that the importance of the research is evident from its association with the importance of the exchange rate as a major linking tool between the local economy and international economies, so the fluctuations of exchange rates leave an inevitable impact on the country's economy, both in its internal transactions. As the research community was represented in the Iraqi economy, while the sample was represented in the external debt, and the method Econometrics and statistical analysis was used for research through the use program (Eviews13). The research reached a number of conclusions, including that the external public debt in Iraq is very high in the first years of the research period and then decreased percentages in the last years of the research period. It was also found that there is a positive moral impact between exchange rate fluctuations and external debt, as external debt is also affected by exchange rate fluctuations. The research recommended the need for the Iraqi state to work to stabilize prices, Should the currency be devalued to ensure that the cost of domestic products does not rise.

Keywords: *relationship measurement, exchange rate, total external debt, error correction form*

Introduction

The exchange rate is a monetary variable that is of great importance to economic policymakers' attention because of the implications for all economic activities. It is an important and fundamental variable indicator that has a significant impact on the country's prosperity. There are many mutual relations in the economy, including exchange rate interrelationships with certain fiscal variables, including external public debt, and the deficit in the general budget. This deficit is the result of the continuous increase in public expenditures for the economic and social development process and the requirements for political stability, offset by a decline in public revenues as a result of dependence on the export of natural resources such as crude oil whose prices are fluctuating and unstable. They often have an impact on other economic variables, so they cover the budget deficit with domestic and external sources of borrowing, both of which have significant implications for the economy, including high external and internal indebtedness, and high overall price levels, given the lack of sufficient flexibility in the productive apparatus.

The importance of research comes from the importance of the exchange rate as a key linkage

¹ Iraq\ University of Al-Qadisiyah\ College of Administration & Economics\ Department of Economics, Email: maiama.alshukri@qu.edu.iq
Orcid: <https://orcid.org/0000-0001-5855-4557>

between the domestic and international economies, so exchange rate fluctuations inevitably have an impact on the country's economy, both in its internal and external transactions.

The research aims to study and analyze the reality of Iraq's exchange rate and external debt for the period 2005-2022. It illustrates the benchmark analytical impact of exchange rate fluctuations on external debt.

The research attempts to ask the following question: "What is the effect of the exchange rate on Iraq's external debt for the period 2005-2022.

Research Hypothesis: significance effect of exchange rate on Iraq's external public debt for the period 2005-2022.

Research Limits

- 1- In order to address the topic with greater focus
- 2-in determining the time and spatial frameworks of the agencies

The Theoretical Framework of the Research

First: The Concept of the Exchange Rate; the concept of exchange rate led the development and growth of economic and trade relations to increase trade among the world's countries, which resulted in exchange of currencies, each currency denominated in other currencies, i.e. the value of one foreign currency against a number of local currencies, or vice versa the number of foreign currency units versus one local currency unit (Klalef,2015:107). The exchange rate is a highly sensitive economic variable for external economic indicators, especially with regard to the accelerated role of foreign trade in economic development. The exchange rate is therefore radically different in content and importance from other economic variables, given its wide impact on macroeconomic balance and being one of the most important pillars on which countries depend to move economic activity (Ramadhan, 20005:21)

It is defined as. a tool linking the prices of commodities in the local economy to their prices in the global market, and the local price of the commodity is linked to the global price through the exchange rate. (Ibn Mubarak 2016: 320)

There is a role for exchange rate changes in eliminating international trade imbalances, and this indicates that countries with current trade surpluses can appreciate in the value of their currency (Bunescu, 2014, 105)

Second: The Concepts of External Debt

External debt arises as a result of the deficit that occurs in the state's general budget and the inability of local savings to secure the necessary and necessary funds to cover that deficit. Thus, the state's need for hard currency arises in order to cover its required expenses by resorting to foreign sources for the purpose of financing through Borrowing from foreign governments or from international institutions and organizations such as the World Bank and the International Monetary Fund or regional institutions such as the European Investment Bank and the Arab Investment Fund, known as the World Bank. Total external debt "is the amount of debt owed to residents outside the country's borders that can be repaid in foreign currency or through goods and services (Dawaya,2016,7)

External debt is also defined as "an amount borrowed by the government economy and which

is repayable to the lending entities through the export of goods and services to them or by payment in foreign currencies, in which the duration of the loan exceeds one year or more, and payment is made through official bodies or through the national government as long as These governments or bodies are guarantors of the obligations of these individuals, private institutions, or governments” .(Mohsen and Asfour, 2020: 30)

Third: The Impact of the Exchange Rate on External Public Debt

Economic progress in developing countries It contributes greatly to the development International Economy. In the current era, therefore, countries have committed more to international agreements and arrangements regarding debt and its percentage of output and the general budget elct, 2019, 326 (Wahyuni,2019,326)

When the state's general budget is exposed to a deficit and local savings are unable to secure the necessary funds to cover that deficit, the state resorts to borrowing from other governments or international or regional institutions. These loans are affected by fluctuations in the exchange rate, through the state's payments of interest and installments on external loans, especially those due from them. It is affected by exchange rate fluctuations, as the state's general budget bears other burdens in addition to the burdens of foreign loans when denominated in the local currency. The value of the services of those loans denominated in the local currency increases when the value of the national currency decreases, and the severity of this burden on the general budget increases if interest rates on foreign loans rise, and the opposite happens. When there is a deficit in the budget, in the event that interest rates tend to decrease, which makes it obligatory for it to borrow to pay its bills when the exchange rate decreases, this leads to prices and the value of exports, and then a decrease in the receipt of taxes on exports, and a decrease in expenditures on imports, and thus a decrease in the burden on the state's general budget. and a decrease in its deficit) Wali and Kazem, 2020: 124.

The Second Section: Previous Studies

The issue of exchange rate fluctuations has received great attention from all developing and developed countries alike, and governments have been keen to stabilize their currency exchange rates because it leads to achieving major economic goals such as stabilizing the value of the national currency, stabilizing prices, and influencing foreign debt as well. Therefore, there was great interest by researchers to study the impact of exchange rate fluctuations on all economic variables, and we list some of them:

The impact of exchange rate changes on internal public debt through the interest rate in Iraq for the period 2004-2012 (Al-Waeli, 2014) , reviewing the reasons for the necessity of coordination between financial and monetary policies, the most important of which is the mutual influence that is highlighted by the issuance of bonds to entities that are not parties to the central bank + the credit provided by the central bank to the government, and measuring the impact of changes in The value of the local currency on subscription to public debt bonds internal to the Iraqi economy for the period 2004 - mid-2012 . The study concluded: The phenomenon of currency substitution plays a major role in determining the exchange rate of the Iraqi dinar against the dollar in the parallel market, which is naturally reflected in the demand for bonds with their different maturities in the financial market. In the event of a decline in the value of the local currency, the demand for financial assets denominated in the local currency, represented by... Demand for bonds will decrease due to the decrease in their cash returns, which increases the desire of individuals and institutions to shift their financial portfolios from demand for bonds and

local currency to foreign currency as a cover to hedge against the decline in purchasing power of the local currency

The impact of exchange rate fluctuations on the general budget of Iraq Sabreen and Iman , 2020)

The study aimed to clarify the effects that foreign exchange rate fluctuations can have on the budget - identifying the relationship between the exchange rate and the general budget. The study concluded that exchange rates affect the general budget through their impact on the components of the general budget represented by public expenditures and public revenues, and the effect is indirectly through changes in local prices, as the effect of fluctuations in the exchange rate is to burden or reduce the burden of the general budget, which It is known as an increase or decrease in prices, which forces the state to bear additional costs or increase the percentage of increases as a result of increasing the volume of exports through diversification

-Impact Of Interest Rate And Exchange Rate On The Stock Market Index In Malaysia (Foo Zor Thang,2009)

The results provide some useful insights into the effects of the interest rate and exchange rate on the stock market index in Malaysia. The findings can help policy makers in planning decision-making as well as investors in making a decision regarding portfolio investments.

The Third Section: Data and Model

This model measures the relationship between the exchange rate and external debt in Iraq for the period) 2005-2022 (using modern statistical and measurement methods such as ADF, PP, ARD, and ECM using Eviews13 software. Data issued by the Central Bureau of Statistics in the Ministry of Planning were used and converted into quarterly data to avoid standard problems that may arise as a result of the small sample size. Based on the above, the model can be described as follows:

$$D_t = \alpha + \beta [EX]_{t-k} + \gamma D_{t-k} + \mu_i$$

Where D_t is the external debt, EX_t is the exchange rate, α, β They are the coefficients of the variables and reflect the percentages of change. It is expected that the relationship between them is positive according to economic theory.

First: Statistical Characteristics of the Variables

We note from Table)1 (, which shows the statistical characteristics of the model variables, that the exchange rate achieved its highest value of about) 1,502,188 (dinars in the last quarter of the year 2020 AD, and the lowest value of about)1,147,813(dinars in the first quarter of the year 2019 AD , with an average of about)1262.333(with a standard deviation of)128.4(. As for the Jarque-Bera coefficient, the probability was greater than the significance level of 0.05, reaching 0.0612, which means we accept the null hypothesis, meaning the variable follows a normal distribution .While the external debt variable achieved its highest value of approximately (1020459) billion dinars in the last quarter of 2007 and below The value of about)-17612.50 (billion dinars in the first quarter of 2006 AD , with an average of About)591072.4(with a standard deviation of 275746.1. As for the Jarque-Bera coefficient, it was more likely than the significance level of 0.05, as it reached. 0.070540 which means Accept the null hypothesis that the variable follows a normal distribution

Table 1: Statistical Characteristics of the Variables.

	EXR	E. D
Mean	1262.333	591072.4
Median	1190,000	683179.3
Maximum	1502.188	1020459.
Minimum	1147.813	-17612.50
Std. Dev.	128.4182	275746.1
Skewness	0.934860	-1.119835
Kurtosis	2.020542	2.979934
Jarque-Bera	13.36558	15.04956
Probability	0.061252	0.070540
Sum	90888.00	42557212
Sum Sq. Dev.	1170878.	5.40E+12
Observations	72	72

Source: Prepared by the Researcher based on the Statistical Program Eviews13.

Second: Static Test

Before starting to estimate the model, the variables were tested to be free of unit roots to avoid the problem of spurious regression. The developed Dickey- Fuller test (ADF) was used And Philip Perun PP at level and at first difference. Table (2) shows the test results for the two variables. We note that the results of the two tests were identical, as the variables were not stable at the level in the three types of tests (without a categorical and time trend, with a categorical, with a categorical and a time trend) and at all levels of significance. But it stabilized at the first difference in the absence of a categorical and time trend at a significance level of 0.05, i.e. accepting the null hypothesis that the variables are free of the unit root problem and that they are stationary of degree $I \sim (1)$.

Table 2: ADF and PP Test Results.

1st Differences				Level		Variables		
PP		ADF		PP		ADF		
Prob.	T-static	Prob.	T-static	Prob.	T-static	Prob.	T-static	
* 0.0000	4.3400-	* 0.0043	2.9004-	0.8628	1.3651-	0.2173	2.759484-	EXR
0.0000	-4.5144	0.0000	4.4425-	0.3185	-2.5187	0.050	0.6 2.343427 -	E.D

Source: Prepared by the Researcher based on the Statistical Program Eviews13.

Third: Co-Integration Test

Table 3 (shows the results of the cointegration test, not the bounds test, as it was found that the values Calculated for F-Statistic test and reported 4) 6.04940)) is greater than the values of the tabular upper limits of the F- statistic values according to the sample size and the degree of freedom at a significance level) 5% (This indicates the presence of cointegration between the studied variables, that is, we reject the null hypothesis and accept the alternative hypothesis that there is a long-term equilibrium relationship, after... To ensure the existence of cointegration according to the bounds test, the short-run relationship and the long-run relationship are determined

Table 3: Bounds Test for Cointegration.

F-Bounds Test		Null Hypothesis: No relationship levels		
TestStatistic	Value	Signif .	I(0)	I(1)
Asymptomatic: n=1000				
F-statistic	6.04940	10%	3.02	3.51
k	1	5%	3.62	4.16
		2.5%	4.18	4.79
		1%	4.94	5.58
Finite Sample: n=70				
Actual Sample Size	69	10%	3.12	3.623
		5%	3.78	4.327

Source: Prepared by the Researcher based on the Statistical Program Eviews13.

Fourth: Estimating the ECM Model for External Debt

The long-run relationship can be estimated by estimating the error correction model (ECM), which represents the expression of the variables used in the first difference formula with the addition of the error correction term lagged for one period of time (ECMt -1) as an explanatory variable, and the error correction term measures the speed of adaptation of the imbalance in the term. Short-term to long-term equilibrium. If the error correction term parameter is negative and significant, this indicates the existence of a long-term relationship between the two variables. Table (4) shows the results of estimating the effect of the exchange rate on external debt. We note that the error correction coefficient is negative and significant, meaning that it meets the acceptance conditions.

Its value reached about -0.052105) which reflects the existence of a long-term equilibrium relationship between the total external debt on the one hand and the exchange rate on the other hand. That is, about 0.52 % of errors in the short term can be corrected and readjusted in the long term, meaning that the time period required to return to long-term equilibrium is about 1.9. That is, it needs about two seasons to return to a long- term equilibrium position, which confirms the acceptance of the alternative hypothesis, which states that there is an equilibrium relationship in the short term.

Table 4: ECM Error Correction Model.

ARDL Error Correction Regression				
Dependent Variable: D(D)				
Selected Model: ARDL (3, 2)				
Case 2: Restricted Constant and No Trend				
Sample: 2004Q1 2021Q4				
Included observations: 69				
ECM Regression				
Case 2: Restricted Constant and No Trend				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D (D (-1))	0.682295	0.117492	5.807175	0.0000
D (D (-2))	0.192539	0.127836	1.506143	0.1371
D(EX)	0.151075	0.055079	-2.742870	0.0080
D (EX (-1))	0.103196	0.055812	1.848990	0.0692
CointEq (-1)*	-0.052105	0.025101	-3.270958	0.0018
R-squared	0.889951	Mean dependent var		-0.030118
Adjusted R-squared	0.864323	SD dependent var		2.508177
SE of regression	0.655544	Akaike info criterion		3.915840
Sum squared residue	75.4128	Schwarz criterion		4.077732
Log probability	-100.0965	Hannan -Quinn criter .		3.980068
Durbin-Watson stat	1.787349			

Source: Prepared by the Researcher based on the Statistical Program Eviews13.

As for the long-term relationship, it is clear from Table 5, (where the results show that the long-term parameters are significant at a significance level of 0.05, where we find the exchange rate has a positive impact on Total external debt, that is, an increase The exchange rate is raised by 1% External debt at 24 %, which is consistent with economic theoretical logic. Where external debts are also affected by Exchange rate fluctuations , as the state bears burdens Additional for foreign loans when denominated in local currency _ _ _ _ _ And the value increases _ These loans are serviced when the foreign exchange rate rises, and this burden becomes more severe if interest rates rise Loans Foreign exchange , as a result of the erosion of the real value of the local currency when the foreign exchange rate rises, and this result is consistent with Economic theory.

Table 5: Long-Term Parameters.

Levels Equation				
Case 2: Restricted Constant and No Trend				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
EX	0.241803	0.319390	-0.672438	0.0295
C	17.83504	22.32511	1.282660	0.0264
EC = D - (-0.2418*EE + 17.83504)				

Source: Prepared by the Researcher based on the Statistical Program Eviews13'

Fifth: Diagnostic Tests for the Estimated Model

1-Testing the Autocorrelation Problem

After examining the significance of the model from a statistical standpoint, we move towards conducting a diagnostic test to judge the extent to which the model passes the standard tests. To ensure that the model is free of the autocorrelation problem, we will rely on the LM test shown in the table below:

Table 6: LM Test.

Breusch -Godfrey Serial Correlation LM Test:			
Null hypothesis: No serial correlation at up to 2 lags			
F-statistic	0.510877	Prob. F (2,60)	0.6849
Obs *R-squared	0.375034	Prob. Chi-Square (2)	0.6489

The results showed that the estimated model is free from the problem of autocorrelation as a function of the Breusch -Godfrey Serial Correlation LM Test, as the value of Prob. Chi - square)0.6489 () as shown in Table 6) is greater than (0.05), that is, we accept the null hypothesis which states that the residuals are not autocorrelated.

2-Testing the Problem of Heterogeneity of Variance

To ensure that the residuals do not suffer from the problem of variance, we find that the value of Prob. The Chi-square for the Heteroskedasticity Test ARCH reached (0.5676), which is greater than 5%, and therefore we accept the null hypothesis that the residuals are homogeneous and do not contain the problem of heterogeneity of variance.

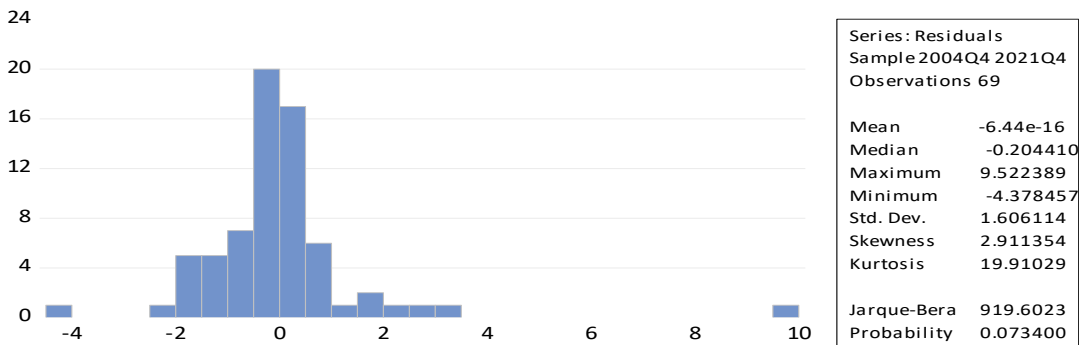
Table 7: Test of Homogeneity of Variance.

Heteroskedasticity Test: Breusch -Pagan-Godfrey			
Null hypothesis: Homoskedasticity			
F-statistic	1.455136	Prob. F (6,62)	0.5676
Obs *R-squared	8.517171	Prob. Chi-Square (6)	0.2026
Scaled explained SS	65.02025	Prob. Chi-Square (6)	0.0000

3-Normal Distribution

We note from Table 8 (that the probability value of the Jarque-Bera test It reached approximately 0.073400, which is greater than 0.05, which indicates a normal distribution of the residuals.

Table 8: Normal Distribution of the Residuals.



Results

Proven Results verification hypothesis search With existence relationship Moral Self indication Statistic between variable Independent (price morphology) and variable Subordinate foreign debt and existence Effect moral positive between Fluctuations price Exchange parents External so affected Debts External she The other By action Fluctuations Prices Exchange, so Bear Country fatigues addition For loans Foreign when Straighten it In currency Local , And it increases Value Services That Loans when to rise price Exchange The foreigner And it increases Sharpness this Burden in condition to rise Prices Benefit on Loans Foreign Affairs , a result Eat the value The real one For currency Local when to rise price Exchange The foreigner And this The result correspond with the theory Economic .

Recommendations

There is a need for coordination between economic policies and revitalizing the role of the banking sector. It is a necessary process to work on determining the real exchange rate of the Iraqi dinar. The reason for this is due to the continuation of the Central Bank of Iraq in auctioning foreign currency, which has caused the exchange rate to decrease relatively, and this is negatively reflected in foreign reserves. It is necessary to work on developing comprehensive plans to reconstruct the infrastructure of the economy because it is the basic foundation for

providing appropriate grants to attract foreign investment, and this leads to an increase in the volume of foreign currency in the Iraqi economy and thus leads to improving the value of the Iraqi dinar.

Sources

1. Al-Ghalibi, Abdul ELHussein Jalil 2015, Central Banking the theory and policies, institution Nebras for printing and publishing and distribution, Najaf the most honorable.
2. Alafandy, Muhammad,)2013(, Introduction to Macroeconomics - 5th edition, Al-Amin Publishing and Distribution.
3. Dawaya, Ashraf Muhammad)2016, (crisis Debt General Egyptian Vision Analytical study economic, Institute Egyptian for studies Political and strategy, Cairo.
4. Ibn mobark, Youssef (2013) Effect of price Exchange on the resulting Internal Raw study condition Algeria during Period 1970-2013 (Note Master's degree (University). My intention Profitable Ouargla, Economy Standard.
5. Al-Abidi, Shaima Rashid Mohsen, (2005), evaluating the exchange rate policy in Iraq for the period (1951-2000), a master's thesis submitted to the Administration Council of the College of Administration and Economics, University of Kufa, Iraq.
6. Wally, Be patient Adnan, Kazem, Emma N Alaa (2020) impact Fluctuations price Exchange in Budget the public Iraq condition Study Duration B yen 200 4_ " 2018, magazine Hammurabi Issue 35 year Eight.
7. Rushdi, Amin,)2017(, following Changes in exchange rates for foreign currencies on the financial statements, Al-Bashaer Economic Journal - Farhat Abbas - Issue 1.
8. Mohsen, Sondos Maher, Asfour, Abbas Lafta, ((2022), the external public debt in Iraq and ways to address it for the period) 2004-2020(, Journal of Financial and Accounting Sciences, No. 8.
9. Al-Waeli, Sami R. Fakhri Nimah, (2014), The impact of exchange rate changes on internal public debt through the Iraqi interest rate, a case study for the period from 2004 - mid-2012, Al-Kut Journal of Economic and Administrative Sciences, Issue 10, College of Administration and Economics, Wasit University.
10. Central Bank of Iraq, Economic Report, Baghdad - Iraq, various years.
11. Central Bureau of Statistics, Annual Statistical Collection, Financial and Monetary Statistics, Baghdad-Iraq, various years.
12. Bunescu, L. (2014), The Impact of External Debt on Exchange Rate Variation in Romania, Economics and Sociology, Vol. 7, No. 3, pp. 104-115. DOI: 10.14254/2071-789X.2014/7-3/8>
13. Rzozowski, M, (2006), "Exchange Rate Variability and Foreign Direct Investment Consequences of EMU Enlargement", Eastern European Economics 44(1).
14. Wahyuni, Sri Sukma and elect (2019), Does Exchange Rate Determine Foreign Debt? An Empirical Evidence from Indonesia, East African Scholars Journal of Economics, Business and Management, Volume-2 | Issue-6. DOI: 10.36349/easjebm.2019.v02i06.008.
15. Mohamad Ramadhan, Marawa Al-Musallam (2005), Analysis of the GCC Balances Of Payments Performance, Kuwait Economic Journal, No. XVIII, Ninth year.
16. Ismail Ould Klalef (2015), La Balance Des Paiements, Law Journal, XXIX Volume, Maroc.