

Regulation relationship between interest rates and exchange rates to maintain Algerian economy's competitiveness.

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Abstract :

This study's objective is to use econometric analysis to quantify the effect of interest rates on Algeria's exchange rate from 1990 until 2021. Based on the Autoregressive Distributed Lag (ARDL) model, which uses the exchange rate as the dependent variable and the local interest rate and interest rate differentials as independent variables. The study found no long-term association between the independent variables (local interest rate, interest rate differentials) and the dependent variable (exchange rate) based on the estimation of the econometric model. The local interest rate has a positive and noteworthy short-term influence of 11.83% on the currency rate. Additionally, the study suggested that interest rate liberalization was necessary.

Keywords : Interest rate, Exchange rate, Interest rate differentials, ARDL.

Jel Classification Codes : E43, E31, E22 .

1. INTRODUCTION

Analyzing a nation's economic situation requires an understanding of how interest rates and exchange rates interact. Because of its distinct resource endowments and regulatory structures, Algeria has important ramifications for both foreign and domestic investment. In an economy like Algeria, where the oil and gas industry is dominant and affects overall economic performance, the link between interest rates and exchange rates is especially significant. The outcomes of this study emphasize the importance of monetary policy frameworks in exchange rate movements. The study of (Takashi, 2024) say that under positive trend inflation, changes in market participants' perceptions of the central bank's long-term policy goal could be the main fundamental for real and nominal exchange rates, while model specifically identifies small stochastic variation in trend inflation around the long-run inflation target as the primary driver of volatile and persistent exchange rate fluctuations. The methods by which exchange rates affect domestic interest rates—specifically in the context of Algeria—will be examined in this article, along with the interest rate differentials that arise. We can learn more about economic strategies that can support Algeria's economic growth and stability thanks to the study.

Fundamentally, an exchange rate is the cost of one currency relative to another. A number of variables, including as inflation, interest rate differentials, trade balances, and speculative activity, can cause changes in exchange rates. Both internal and foreign market dynamics have an impact on Algeria's national currency, the Algerian Dinar (DZD). Because the nation is mostly reliant on exporting hydrocarbons, changes in the price of oil around the world can have a big impact on the exchange rate, which in turn influences interest rates at home. (Simona, 2024) 's paper is new since it offers a thorough framework for evaluating these nations' policy-making priorities. In some oil-exporting nations, the exchange rate pegging policy is linked to the oil price stability target, whereas in other nations, the exchange rate and oil price changes are the main factors influencing the inflation-curbing strategy. Only fiscal policy can target inflation in nations that implement the pegging strategy; monetary policy can effectively control for economic

competitiveness in other countries.

Interest rates are essential for figuring out borrowing costs and, consequently, affecting economic activity. This is especially true of the central bank's benchmark interest rate. In general, low interest rates encourage borrowing and expenditure, whereas high rates discourage it. In order to control inflation and foster economic expansion, the Bank of Algeria implements an indirect monetary policy framework in Algeria. Policymakers can create more logical approaches to economic management by having a better understanding of how interest rates are impacted by fluctuating exchange values. There is no proof that higher interest rates decrease the value of the currency, according to (Taha & SaraçKadir , 2016). They conclude that there is still theoretical debate over the inverse relationship between rising interest rates and the currency rate. Acknowledging that this result is not conclusive evidence of how high interest rates affect the ability to defend the exchange rate, but at the very least, it calls into question the assumption that raising interest rates is an effective strategy for doing so.

The problem with our research is that the devaluation of the Algerian dinar's official exchange rate occurs under stressful economic conditions because of the real economy's poor performance, and in light of the real economy's poor performance in supporting the value of the national currency, economic (monetary) policy, particularly interest rates, is used. The study's difficulty derives from this point: Does interest rate policy influence exchange rate behavior? The study will be done using the following sub-questions:

- Does the local interest rate affect the value of the Algerian currency?
- Do interest rate variations affect the value of the Algerian currency?

Our study hypothesis is that raising interest rates leads to a decrease in the Algerian dinar's exchange rate against foreign currencies, resulting in an increase in its value.

The importance of the study comes from the fact that decision makers need to have a solid understanding of how interest rate and exchange rate movements interact in emerging nations in order to better comprehend the mechanisms by which monetary policy is transmitted.

2. THEORETICAL BACKGROUND:

2.1 Interest rate concept:

An interest rate is the percentage of principal a lender charges for using its funds. The principal is the amount of cash granted. Borrowers pay interest as compensation for using a lender's money. Banks also pay interest rates as a reward for saving money. The interest rate charged on any loan or line of credit can vary depending on the type, length, size, and purpose of the loan, as well as other factors such as economic conditions, government policies, creditworthiness, and the risks associated with it. To keep the economy functioning, central banks utilize tools such as interest rates to regulate the supply of cash.

The reason an interest rate is considered the "cost of money" is that it makes borrowing the same amount of money more expensive, the majority of lending and borrowing operations involve interest rates. A person may take out a loan for a number of reasons, including starting a business, financing a project, purchasing a home, or covering educational expenses. Businesses use loans to finance capital projects and expand their operations by acquiring long-term, fixed assets like land, buildings, and machinery.

The interest rate on loans is applied to the principal, or total amount borrowed. Both the borrower's cost of debt and the lender's rate of return on investment are represented by the interest rate. Because lenders must make up for the money they cannot use during the loan period, the amount owing is typically higher than the amount borrowed; otherwise, and they might have invested the money and made money off of the asset. The interest rate is the difference between the total amount repaid and the original loan amount. If the lender concludes that the borrower is less risky, the interest rate will often be lower. Should a borrower be deemed more hazardous, they will pay a higher interest rate, which will increase the cost of the loan (Caroline, 2024).

2.2 Exchange Rate:

A measure of how much one currency is worth in relation to another called an exchange rate. This might interpreted as a measurement of the quantity of the second currency that can be "bought" with a certain quantity of the first currency, exchange rates are determined by supply and demand in the foreign exchange market and are subject to fluctuation throughout time, they are

essential to global commerce and finance because they affect import and export prices as well as the return on overseas investments. Exchange rates are sometimes expressed as ratios, e.g., how many units of one currency must be bought with one unit of another.

The purpose of an exchange rate is to figure out the buying power of a currency as compared to another currency. Not all currencies have the same buying power per unit, so knowing the exchange rate helps determine the "value" of an amount of money. For example, if the exchange rate of US dollars (USD) to Euro (EUR) is 1.29. This means that it takes \$1.29 to equal £1. Put another way, if a US citizen traveled to the UE with \$10,000 to exchange into pounds, they would get about 8,034 Eur.

Exchange rates are driven by economic reasons, as one of the primary economic factors influencing the exchange rate is the difference in interest rates between local and foreign currencies. In the near term, the interest rate differential and the exchange rate are negatively correlated, but over time, they become positively correlated. An increase in interest rates causes the exchange rate to fall, which increases the value of the currency when short-term inflation stays constant. Additionally, if the local interest rate rises in comparison to the foreign rate, financial capital will enter the nation, exerting pressure on the currency to rise.

The long-term positive relationship can be explained by the fact that an increase in the interest rate in the home country relative to the foreign often reflects an increase in the conditions of decreased inflation in the distant country and increased inflation in the home country, which also leads to pressure on the country's currency (Jón, 2020).

The following are some of the different models that explain the different links between interest rates and exchange rates: According to Keynesian theory, high market interest rates brought on by tightening monetary policy measures create an attractive environment for capital flows to the host country, provided that fixed rates (inflation) hold true. This is because high interest rates, in the absence of an increase in inflation, lead to an increase in the real interest rate, or the real return on foreign investment in the domestic currency, which in turn causes the domestic currency to appreciate due to increased demand.

Stated differently, under the presumption of fixed rates, exchange rates fluctuate in opposition to interest rates. The different correlations between interest rates and exchange rates can also be explained by the expansion of the global financial system. The development of a system that enables investors to borrow money with a lower interest rate and lend money with a higher interest rate is also made possible by the growth of the global financial system. (Zaheer , Gul , & Ghulam , 2022).

The International Fisher Effect (IFE) theory states that higher nominal interest rates represent predicted inflation, so a country's currency with a comparatively higher interest rate will depreciate (PETR & SVATOPLUK, 2013). According to Fisher's theory (1930), a rise in the nominal interest rate should correspond with any increase in predicted inflation. The exogenous rise in interest rates in the home nation is not due to disruptions in the money market.

A decrease in the demand for money could lead to increased prices and an appreciation of the exchange rate. Regarding the interest rate differential, there is a negative short-term association between it and the exchange rate. Monetary shocks cannot establish a long-term relationship between the interest rate differential and the exchange rate during that period because they have no long-term impact on the interest rate differential. Since the Purchasing Power Parity (PPP) model is predicated on price flexibility over the long term, It predicts that the interest rate and the exchange rate will positively correlate. The framework developed by (Oscar, Sanjay, & Alan, 2019) is a combination of the two models. The extreme opposites. It includes price stability in product markets as a short-run feature. The long-run adjustment of the price – towards its new equilibrium – is a characteristic of the monetary model with variable rates. Although interest rates and currency rates eventually have a positive link, in the short term, they are adversely associated as monetary shocks. (Abir, 2020).

This necessitates adjusting the pricing and, two fundamental theories are presented by (Jeffrey A., 1979) to clarify how interest rates and currency rates are related, the international commodities market strategy and the asset market approach. Consequently, the asset market allows interest rates correlated with currency rates, the worldwide commodities market is not

directly correlated with interest rates since the valuations of international assets may be impacted by interest rates and exchange rates, with reference to the asset market method, the Chicago School contends that, in the case of completely flexible prices, changes in market interest rates mostly dictated by the anticipated by the anticipated rate of inflation, market players thought to have already factored in rises in the anticipated rate of inflation if home interest rates tend to rise in comparison to those across the globe, in this scenario, it was expected that the depreciation of inflation would result in a decline in the value of the domestic currency. The exchange rate consequently rises (depreciates) in proportion to the home currency as a result of the drop in demand for it, this suggests that exchange rates and nominal interest rates fluctuate similarly, because greater amounts of government debt are correlated with higher interest rates, a high interest rate policy may result in lower demand for money and higher prices overall.

That financed by money printing. This will cause the exchange rate to decline. Similarly, an increase in interest rates may have a negative impact on future export performance, decreasing the amount of foreign exchange reserves coming in and therefore causing the currency to depreciate. (O'Brien, 1994) Make the case that default risk and the risk premium are the two primary ways that interest rates are expected to impact exchange rates. The interest rate indicates the expected return on domestic assets because parity theory ignores both of these channels for uncovered interest, meaning that the actual interest is equal to the promised interest. However, due to its detrimental effects on domestic economic activity, such as lower domestic business profitability and higher borrowing costs, a high interest rate policy in a post-crisis environment may decrease the likelihood of default and raise the risk premium on domestic assets. Consequently, a decline in the currency rate could result from an increase in interest rates. When businesses and banks' financial standing is precarious, this might be more evident (Klaus, 2021). Despite the fact that the aforementioned two opinions on how interest rates affect exchange rates conflict with one another, the true impact of interest rates on currency rates is determined by additional factors. The notion of uncovered interest parity, the method of transmission, and the revealed curiosity.

Despite the contradiction between the aforementioned two opinions, the

actual effect of interest rates on exchange rates is determined by a number of factors, the transmission mechanism operates. The uncovered interest parity theory, the established interest parity theory served as the foundation for the traditional theory of exchange rate determination, which makes the assumptions of total capital mobility, risk neutrality, and reasonable expectations. The higher country-specific returns brought about by higher interest rates might not hold up in the long run, despite the fact that these assumptions are not true in reality because the exchange rate depreciates gradually to balance local and foreign returns. However, a brief rise in interest rates can result in stable economic conditions if there is political stability and complete knowledge of the economic realities.

A brief increase in interest rates can result in stable exchange rates and reduced inflation because it will give investors the impression that an appreciation in the currency is expected. This, in turn, causes the spot exchange rate to change in value even if the high interest rate policy is later abandoned (Jón Helgi, 2020), the uncovered interest parity hypothesis states that since the difference between the domestic and global interest rates equals the expected change, the domestic interest rate is equal to the sum of the global interest rate and the anticipated depreciation of the domestic currency.

2.3 Exchange rate development:

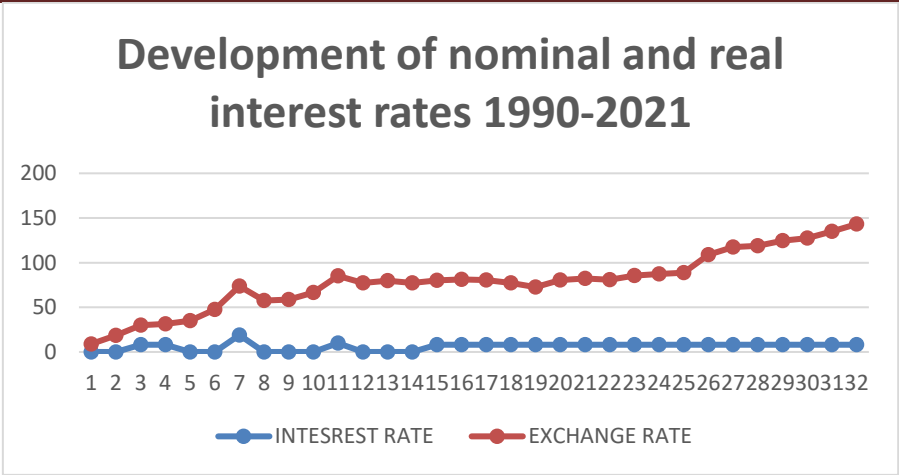
The currency rate's evolution shows a notable trajectory marked by fluctuations influenced by various economic factors over the years. Notably, the currency experienced a consistent depreciation up until 1996, after which it stabilized temporarily, only to face a pronounced decline in 1998. This downturn can be attributed to the rescheduling of national debts, alongside a crucial financial assistance package aimed at bolstering the balance of payments, which amounted to approximately 920 million dollars. Such support was vital in alleviating the adverse effects of plummeting oil prices on the country's foreign exchange reserves. Nevertheless, the depletion of these reserves intensified pressure on the exchange rate, culminating in a value of 58.73 dinars per US dollar in 1998, which further deteriorated to 66.57 dinars by 1999. Following this period, the currency witnessed a gradual appreciation, peaking at 79.68 dinars per dollar in 2002. However, this was followed by a steady decline until 2008, when it was valued at 64.58 dinars

per dollar. In response to the ongoing economic challenges, particularly the significant reduction in prices of primary commodities and foodstuffs on the global market resulting from the housing crisis, monetary authorities opted for a strategic devaluation of the currency in December 2008 by 12%, setting the exchange rate at 72.64 dinars per dollar. This decision underscored the urgent necessity to manage rising domestic demand for essential goods while safeguarding foreign exchange reserves.

The Algerian economy heavily characterized by its dependence on oil revenues, resulting in a lack of diversity in its export portfolio. Foreign currency inflows predominantly stem from oil exports, which transacted in US dollars, while a significant portion of the country's imports sourced from European nations and paid for in euros. This dichotomy has led monetary authorities to devalue dinar periodically against the euro, as exemplified in 2015 when the dinar pegged at 105.84 dinars per euro in response to oil crisis. Conversely, the dinar's value may also adjusted downward against the dollar to enhance the current account balance, measured in dinars, thereby maximizing budgetary revenues. However, such continuous devaluation has intensified imported inflation, particularly following the euro's introduction, which drove up import costs significantly. The dinar experienced a notable deterioration in value in 2015—approximately 102.44 dinars per dollar—after a relatively stable exchange rate period from 2009 to 2014, during which it averaged 76.25 dinars per US dollar. This currency depreciation closely tied to fluctuations in global oil prices, allowing the government to mitigate the adverse effects of declining oil revenues. In 2016, while nominal exchange rates remained generally stable, real exchange rates surged by 5.6%, attributable to inflation rates in Algeria outpacing those of its primary trading partners. By the close of 2017 and into 2018, nominal exchange rates climbed to approximately 114.93 and 118.29 dinars per dollar, respectively.

2.4 Development of nominal and real interest rates:

Fig.01.Development of nominal and real interest rates 1990-2021



Source: Researcher Outputs

That illustrates the notable fluctuations in interest rates in Algeria throughout the study period, reflecting the broader economic context of the country. Initially, nominal interest rates remained stable at an average of 8% during the early years of the study, but surged to 11.33% in 1994 and further escalated to 19% by 1996, this pronounced increase can linked to Algeria's implementation of contractionary economic policies and stabilization programs, which included critical reforms such as the partial liberalization of interest rates. Following this peak, nominal interest rates declined to 11.5% in 1998 and further to 10.8% in 1999, demonstrating the successful implementation of monetary policy measures and the end of the structural adjustment program (Yahia , 2023), from 2000 onwards, these rates continued to decrease, reaching 10% until 2003, and hitting 8.6% as inflation rates began to decline due to stricter aggregate demand management policies, from 2004 until 2021, nominal interest rates stabilized at 8%, a phenomenon attributed to the monetary authority's consistent maintenance of the discount rate, which fostered greater stability within commercial banking and contributed to an overall stabilization of interest rates. Conversely, real interest rates exhibited negative values from 1990 to 1996, with figures recorded at -17.09% in 1990 and -4% in 1996. This adverse outcome stemmed from rising inflation rates during a time marked by structural adjustment programs and the devaluation of the national currency, compelling individuals

and institutions to prefer saving in hard currencies and fueling the development of parallel foreign currency markets. Between 1997 and 2011, Algeria experienced notable fluctuations in real interest rates, oscillating between positive and negative values. The period commenced with a recorded positive rate of 8.10% in 1997, marking the first such instance since the implementation of the Currency and Loan Law. This figure surged to approximately 15.10% in 1998, a rise attributed to declining inflation rates as the Algerian economy gradually recovered, bolstered by the stringent application of the International Monetary Fund's structural adjustment program. However, the subsequent years witnessed considerable volatility; real interest rates plummeted to -0.10% in 1999, rebounded to 10% in 2001, and then fell dramatically to -7% in 2005. Notably, in 2009, rates peaked at 21.60%, the highest since 1990, before reverting to negative values in 2010 and 2011, at 7% and -8.70%, respectively. These fluctuations largely influenced by prevailing monetary policies and the significant economic transformations occurring in Algeria. In contrast, from 2012 to 2019, real interest rates consistently remained positive, initially rising from 0.5% to 15.5% between 2012 and 2015. Subsequently, a decline observed from 2016 to 2018, with rates recorded at 6.4% and 1.1%, respectively. However, in 2019, rates experienced a resurgence, reaching 8.5%, driven by substantial changes in inflation rates linked to the economic challenges faced by the country, includes the adoption of non-traditional financing techniques and the devaluation of the national currency, both of which had a major impact on the money supply during this time.

3. RESEARCH METHODOLOGY

To examine the effect of interest rates on exchange rates in Algeria, we will utilize annual data pertaining to the Algerian economy from 1990 to 2021, employing an ARDL model.

3.1 Study Model: In this study, we'll employ a linear model that connects the independent variables—the domestic interest rate (*intr*) and interest rate differentials (*dint*) with the dependent variable, the exchange rate (*exch*), and the model will be as follows:

$$\text{exch} = f(\text{intr}, \text{dint})$$

We can write: $\text{exch}_t = \alpha + \beta_1 \text{intr}_t + \beta_2 \text{dint}_t + \varepsilon_t$

Where: *exch*: exchange rate, *intr*: interest rate, *dint*: difference in interest rates (local - foreign), ε : represents the error term. While α , β_1 , and β_2 represent the model parameters to estimated, *t* denotes time.

3.2 Sample:Data for this study obtained from various sources, including primary sources such as references and articles, in addition to statistics from the World Bank database, the National Office of Statistics (ONS), and the Bank of Algeria.

3.3. The instrument

- Stability Study of the Study Variables: Before estimating the ARDL model as a first stage, we test study time series stability, which is a prerequisite for co-integration. Unit root tests are among the most important methods for determining the stability of time series. However, We used the Phillips-Perron (PP) and Augmented Dickey-Fuller (ADF) tests, which are stability tests that let us determine what kind of model to utilize, the main results can summarized in the following table:

Table 1. Stability Test of Study Variables.

Dint	Intr	Exch	Series
In the level	In the level	In the first team	Degree of stability
(0)I	(0)I	(1)I	Degree of integration

Source: Own outputs from E-views program.10

We accept the null hypothesis and reject the alternative hypothesis for the first difference, which is integrated of order I(1), since the table clearly shows that the variable (*exch*) has a unit root. In contrast, the variables (*intr/dint*) seem to be stationary at level, so they are integrated of order I(0).

Methodology of Bounds for Testing Co-integration:

We will use the Autoregressive Distributed Lag (ARDL) model and the co-integration methodology in this investigation, which considered a modern methodology developed by a group of researchers, including Pesaran and Shin (1999) and Pesaran et al. (2001), There are a number of benefits to employing the ARDL model, which combines two different model types: the distributed lag model and the linear autoregressive model.

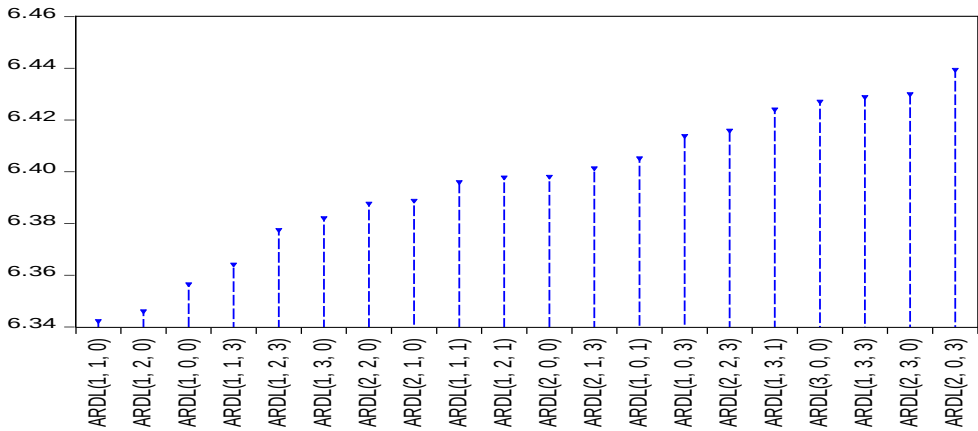
- This model can be applied regardless of whether the variables under study

are integrated of equal or different orders.

- It allows for the estimation of long-term and short-term relationships simultaneously.
- It permits the use of variables with different lag lengths, unlike the Vector Auto-regression (VAR) model, which imposes a single lag order for all model variables.

Fig .2. Optimal Lag Length

Akaike Information Criteria (top 20 models)



Source: Own outputs from E-views program.10

4. RESEARCH RESULTS AND DISCUSSIONS

From the results of the lag test, we observe that the appropriate lag order is (1, 1, 0) ARDL.

Table 2. Results of the Bound Test for the Co-integration Relationship.

Calculated statistic	Significance level	Lower bound I (0)	Upper bound I (1)
F-statistic = 4.87	%10	2.63	3.25
	%5	3.1	3.87
	1 %	4.13	5

Source: Own outputs from E-views program.10

From table above, at a significance level of 10% and 5%, We note that Fisher's statistic's calculated value exceeds the model's upper limit of critical values.

In this case, we reject the null hypothesis and accept the alternative hypothesis, which states that the variables used in the study have joint integration.

Table 3. Results of estimating the long-term coefficients according to the ARDL methodology.

Levels Equation				
Case 2: Restricted Constant and No Trend				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
INTRS	76.96892	1216.098	0.063292	0.9500
DINT	85.72029	1124.193	0.076251	0.9398
C	405.3854	4321.065	0.093816	0.9260
EC = EXCH - (76.9689*INTRS + 85.7203*DINT + 405.3854)				

Source: Own outputs from E-views program.10

We notice From the above table, that all long-term coefficients are not significant, meaning that they are not statistically acceptable, which does not allow us to take the independent variables into account in analyzing and analyzing the long-term relationship between them and the dependent variable.

- Error correction methodology: We will now try to study whether there by examining the error correction parameter, it is possible to rectify the error from the short term to the long term. Co-integration equation, as shown in the following table:

Table 4. Results of the error correction model

ECM Regression				
Case 2: Restricted Constant and No Trend				
Variable	Coefficient			
	t	Std. Error	t-Statistic	Prob.
D(INTRS)	1.118346	0.528650	2.115476	0.0441
CointEq(-1)*	-0.002948	0.000638	-4.621612	0.0001

Source: Own outputs from E-views program.10

Through the results of the table, we notice that the value of (1-) Coint Eq, i.e. At the 5% level, the error correction coefficient is large and negative. With a coefficient of -0.002948, or the proportion of short-term errors that can be repaired in the long term in a unit of time to return to the long-term equilibrium state, we conclude that there is a mechanism to rectify the error from the short term to the long term, we also notice that there is a direct relationship between the interest rate and the exchange rate in the short term, i.e. a 1% increase in the interest rate accompanied by an increase of 11%. We also notice that the exchange rate not affected by interest rate differences, and this is contrary to some theories and applied studies that confirm the existence of a (positive or negative) effect of interest rate differences on the exchange rate. 2-6 Diagnostic tests for the model:

- **Autocorrelation test for residuals:** To ensure that there is no autocorrelation between the residuals of the model, we use two tests (LM) where: The null hypothesis states that there is no autocorrelation between the residuals of the model. The results of this test displayed in the following table:

Table 5. Results of the LM test – Test

Breusch-Godfrey Serial Correlation LM Test:			
F-statistic	0.701098	Prob. F(2,24)	0.5059
Obs*R-squared	1.711193	Prob. Chi-Square(2)	0.4250

Source: Own outputs from E-views program.10

The null hypothesis—that is, that there is no autocorrelation between the model residuals—is accepted based on the results of the previous table since the probability value is equal to 0.4250, which is higher than 5%.

- **Test of variance stability (homogeneity of variance):** There are many tests to discover the problem of variance homogeneity; we'll rely on the ARCH test, whose findings are displayed in the table below:

Table 6. Test of variance stability

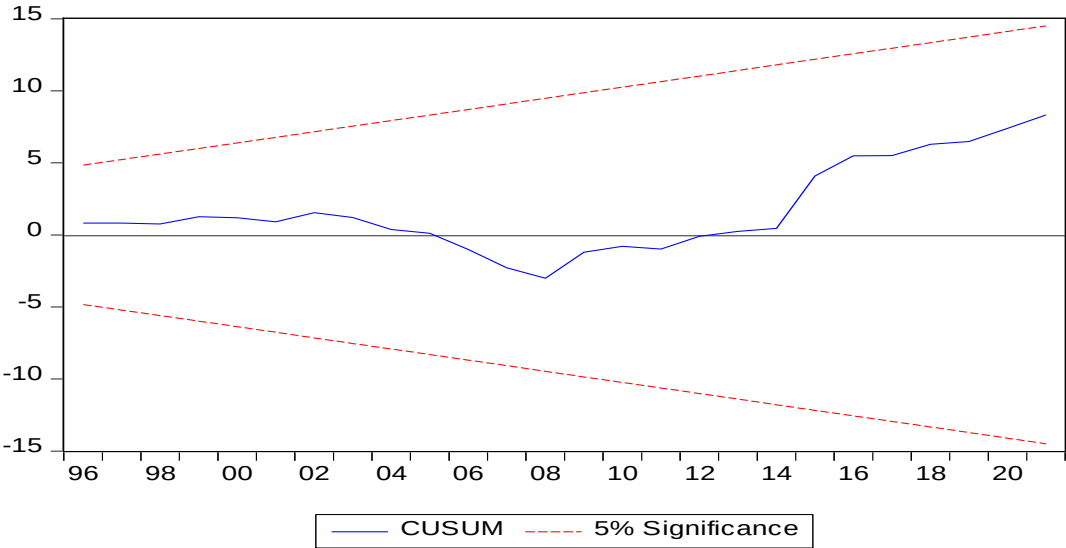
Heteroskedasticity Test: ARCH			
F-statistic	0.000599	Prob. F(1,28)	0.9806
Obs*R-squared	0.000642	Prob. Chi-Square(1)	0.9798

Source: Own outputs from E-views program.10

We can see from the table that the probability value is 0.9798, which is higher than 5%. This entails embracing the null hypothesis, according to which the computed model's random error term's variance is stable.

- **Model stability test:** To ensure that the data used in this study are free of any structural changes and the extent of stability and consistency of long-term parameters with short-term parameters.

Fig.3. Cumulative sum test of residuals



Source: Own outputs from E-views program.10

We notice from the figure above that the cumulative sum of the residuals CUSUM is a middle line within the limits of the critical region, which indicates a kind of stability in the model at a significant limit of 5%. Therefore, ultimately, this study's use of the ARDL model leads us to the conclusion that the model is stable and consistent between the long-term and short-term outcomes, we attempted to calculate the degree to which the domestic interest rate (INTRS) and interest rate differentials (DINT) affected Algeria's exchange rate (exch) between 1990 and 2021 (Hadji , 2020), after estimating the model, determining the sign of the parameters, measuring the coefficients of the variables in the function, and testing the hypotheses, and assessing them both short- and long-term from a conventional standpoint:

- Given that the domestic interest rate coefficient reached 76.96 with a positive sign, there is a direct correlation between the domestic interest rate and the exchange rate, indicating the existence of a direct relationship. This relationship is not statistically significant because the probability value reached (0.95) which is greater than the significance level (0.05). This is consistent with the first hypothesis, which states that there is a direct relationship between the domestic interest rate and the exchange rate (ADAM, KATERYNA, OLEKSANDR, & ANDRII, 2020).
- The interest rate differential coefficient reached 85.72 with a positive sign, There is a clear association between the domestic interest rate and the exchange rate, as evidenced by the domestic interest rate coefficient reaching 76.96 with a positive sign, this relationship is not statistically significant because the probability value it reached (0.93) which is greater than the significance level (0.05). This is contrary to the second hypothesis, it asserts that interest rate differences and the currency rate have an inverse connection.
- The time series' stability at initial difference in dependent variable (exchange rate), which means that it is integrated of rank I(1), while it appears to us that the independent variables (local interest rate - interest rate differentials) are stationary at the level and therefore integrated of rank I(0).
- The (1,1,0) ARDL model is the model that illustrates the link between the exchange rate and the variables: local interest rate and interest rate differentials.
- The existence of a relationship of long-term equilibrium between the

model's variables, indicating that regardless of how integrated they are, they take on their natural shape. The study's findings demonstrated that the local interest rate had a short-term, direct, and significant impact on the exchange rate.

- The model diagnostic quality tests showed that the model reached of acceptable quality and can therefore use in analysis and prediction.

5. Conclusion:

One of the key tenets of macroeconomics is the connection between currency rates and interest rates. This is due to the fact that higher interest rates attract foreign capital in search of greater returns, which raises demand for the local currency and improves its value on exchange markets. Lowering interest rates, on the other hand, makes the local currency less appealing, which fuels its depreciation in relation to other currencies.

This link is not set in stone because it depends on a number of variables, including inflation rates, the degree of political and economic stability, and the monetary policies that have been implemented. While fragile economies could find it difficult to achieve this balanced connection, stable economies frequently gain from increasing interest rates without having a detrimental impact on the value of the currency.

Therefore, in order to promote currency stability, boost investor confidence, and guarantee the economy's competitiveness in international markets, monetary and economic policy must be carefully coordinated in order to control the relationship between interest rates and exchange rates, long-term macroeconomic stability depends on striking a balance between internal objectives and outside factors. The study recommends liberalizing interest rates to attract more capital, and the resulting great advantages, the most important of which is the entry of foreign currency into the foreign exchange reserve, which helps stabilize the exchange rate.

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