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A standard study to estimate the determinants of the money supply in Algeria for the period 1990-2024 using the ARDL model.

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ABSTRACT

Through this work, we seek to highlight and estimate the determinants of the money supply in the broad sense represented by the total monetary mass and local liquidity circulating in the Algerian economy in the short and long term by conducting a standard study during the period 1990-2024, relying on a set of independent variables that included the gross domestic product, the inflation rate, and the real interest rate This official exchange rate is on the one hand and on the other hand the dependent variable represented by the money supply, using the ARDL distributed time gap autoregression model.

Through this study, we have found the existence of a long-term dynamic network equilibrium relationship that links the money supply in the broad sense to the independent variables included in the model.

Keywords: monetary mass, GDP, inflation rate, official exchange rate, ARDL model.

INTRODUCTION

The money supply is considered one of the most important factors influencing the level of economic activity in a country. This is because excessive money issuance without being backed by a corresponding increase in goods and services leads to inflation, a decline in purchasing power, and a depreciation of the national currency against other currencies. Therefore, central monetary authorities constantly seek to ensure effective control over the money supply in a manner that is consistent with economic development and growth.

Until recently, the components of the money supply were identified according to a simple institutional criterion, namely, the banking nature of the institution issuing the financial assets. Accordingly, short-term financial assets issued by banks were classified as monetary assets, whereas assets issued by non-bank financial institutions were classified as non-monetary. Subsequently, this criterion gradually became less restrictive, giving rise to extensive debate over the definition of the money supply and paving the way for another criterion based on capital liquidity, viewed from the demand side, regardless of whether the institution offering the financial assets was a banking or non-banking institution.

Based on the foregoing, the following research question can be formulated:

What is the impact of the determinants of money supply in Algeria during the period 1990–2024?

To address this research question, the following hypotheses are proposed:

Research Hypotheses

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There is a positive relationship between the money supply and gross domestic product (GDP).

There is a positive relationship between the money supply and the real exchange rate.

There is a negative relationship between the money supply and inflation.

To answer the research question and test the aforementioned hypotheses, this study focuses on the following main areas:

Defining the study variables.

Conducting an econometric analysis using the Autoregressive Distributed Lag (ARDL) model.

Presenting the main findings of the study.

I. DEFINITION OF THE STUDY VARIABLES

The variables included in the model adopted in this study comprise broad money supply (M2), real gross domestic product (GDP), the inflation rate, the real interest rate, and the official exchange rate. This section seeks to provide a definition of each of the aforementioned variables separately.

1. MONEY SUPPLY

Monetary authorities are concerned with the quantity of money in circulation, particularly through the identification of its components and counterparts. Given the diversity and multiplicity of payment instruments within an economy, according to various criteria, several measures of money have emerged. Accordingly, the money supply in an economy is divided into several levels based on specific criteria and conditions. The first monetary aggregate is M1, followed by M2, then M3, and finally M4. Furthermore, the significance of these monetary aggregates is closely linked to their comparison with other macroeconomic aggregates, which helps ensure the stability of the monetary situation **(Raïs, 2013, p. 52)**

The money supply is defined as: "The total quantity of money circulating within a given society over a specific period of time. The term money in circulation refers to all forms of money held by individuals or institutions, whose forms vary according to the level of economic and social development and the evolution of banking returns within societies" **(Amal, 2020, p. 18)**

It is also defined as: "The quantity of money available during a specific period of time, as determined by the monetary authorities, or the monetary stock represented by all forms of means of payment" **(Belazzouz, 2008, p. 49)**

2. GROSS DOMESTIC PRODUCT (GDP)

Gross Domestic Product (GDP) is considered by economists to be one of the most reliable indicators for assessing the growth and development of productive economic activity. It measures the value of goods and services produced within a country's territory over a specific period, usually one year or three months, as is currently the practice in the United States of America.

GDP can be measured in nominal terms (at current prices) or in real terms (at constant prices). It is equivalent to the total value added generated by all enterprises operating within a country's economy. At the same time, it reflects the aggregate income of all individuals within society, in addition to the total expenditure incurred to acquire goods and services.

Real Gross Domestic Product is calculated by dividing nominal Gross Domestic Product by the general price level **(Bayer, 2019, p. 58)**

1. INFLATION RATE

The phenomenon of inflation is multidimensional and multifaceted, raising numerous issues and being characterized by considerable ambiguity and contradictions **(Al-Saïd, 2000, p. 356)**

2. INTEREST RATE

The interest rate is considered one of the key instruments used to control the volume of credit and, consequently, the money supply. Determining the interest rate reflects the orientation of a country's monetary policy towards encouraging or restraining investment across various sectors, as well as its role in addressing the problems of inflation and deflation. The interest rate is also influenced by the discount rate set by the monetary authority.

Interest rates are characterized by the difficulty of identifying and measuring the differences between real and nominal interest rates. Moreover, ensuring that a particular interest rate achieves specific objectives is challenging, as it is subject to other significant influences that are unrelated to monetary policies.

The interest rate appropriate for investment may be either the prevailing interest rate or the expected real interest rate, depending on its compatibility with demand. However, it is difficult to establish the relationship between this rate and the nominal interest rate on which monetary policy is based.

3. OFFICIAL EXCHANGE RATE

The nominal exchange rate changes on a daily basis, and such changes are referred to as either appreciation or depreciation. Appreciation refers to an increase in the value of the domestic currency relative to a foreign currency, whereas depreciation denotes a decrease in the value of the domestic currency. According to the first definition, appreciation corresponds to a decrease in the exchange rate, while depreciation corresponds to an increase in the nominal exchange rate (E) **(Belkacem, 2003, p. 04)**

II. ANALYSIS, INTERPRETATION, AND DISCUSSION OF THE STUDY RESULTS

1. VARIABLES AND MODEL USED IN THE STUDY

Based on previous theoretical and econometric studies addressing the determinants of the broad money supply, this study relies on annual data for a set of variables covering the period from 1990 to 2024. These data were obtained from the World Bank database. Accordingly, the model is formulated as follows:

The study employs the Autoregressive Distributed Lag (ARDL) model to estimate the determinants of the money supply in Algeria in both the short and long run. The econometric specification of the model is as follows:

Where:

denotes the annual time dimension.

The constant term represents the intercept of the model.

The coefficients represent the estimated long-run elasticities of the independent variables.

The error term represents the stochastic disturbance term.

The model variables and the economic justifications for their inclusion can be summarized as follows:

Broad Money Supply (LM2): This is the dependent variable, expressed in logarithmic form. It represents the total monetary aggregate and domestic liquidity circulating within the Algerian economy (currency in circulation plus deposits of various types).

Real Gross Domestic Product (LGDP): This is an independent variable, expressed in logarithmic form, which measures the level of actual economic activity. A positive relationship with the money supply is expected, as economic growth increases the demand for money to meet transaction needs and accommodate expanding economic activity.

Inflation Rate (LINFL): This is an independent variable that measures the impact of price pressures. Its effect is expected to be positive in the short run, reflecting the immediate liquidity requirements arising from rising living costs, while its effect is expected to become neutral in the long run.

Real Interest Rate (LT_INTR): This is an independent variable representing the opportunity cost of holding money. An inverse relationship is expected in the long run, as higher interest rates encourage individuals to save rather than hold liquid cash.

Official Exchange Rate (LT_CHNG): This is an independent variable, expressed in logarithmic form, measuring the number of Algerian dinars exchanged for one US dollar. It is included to capture the impact of external shocks and the imported inflation channel on the volume of domestic liquidity, in response to changes in import costs.

1. TESTING THE STATIONARITY OF THE STUDY VARIABLES

To avoid the problem of spurious regression, which affects many time-series datasets, the Augmented Dickey-Fuller (ADF) test will be employed to determine the stationarity of the time series and verify whether they contain a unit root.

Table (01) presents the results of the Augmented Dickey-Fuller unit root test.

Table 01: Results of the Unit Root Test for the Study Variables

		Phillips-Perron test.						
		Level			First Difference			Decision
Variables		Intercept only	Intercept and general trend	No intercept and no general trend	Intercept only	Intercept and general trend	No intercept and no general trend	
lM2	tstatistic	-3.304	-0.979	2.906	-3.762	-4.929		I(1)
	Prob	0.024	0.931		0.0084	0.0024	0.061	
lGDP	tstatistic	-1.956	-1.012	7.874	-4.134	-3.425	-2.002	I(1)
	Prob	0.303	0.926	1.000	0.0034	0.071	0.045	
linfl	tstatistic	-2.6075	-2.8189	-1.6745	-7.5572	-7.4459	-7.5880	I(1)
	Prob	0.1011	0.2004	0.0850	0.0000	0.0000	0.0030	
Lt_intr	tstatistic	-4.156	-4.219	-0.607	-3.872	-3.784	-3.975	I(1)
	Prob	0.0031	0.0123	0.444	0.0071	0.035	0.0003	
Lt_chng	tstatistic	-1.204	-1.624	2.800	-4.248	-4.157	-3.778	I(1)
	Prob	0.693	0.758	0.998	0.0026	0.0146	0.0005	

Source: Prepared by the researcher based on the outputs of EViews 13 software.

Before proceeding with the estimation of the ARDL model, and in order to verify whether the conditions for its valid application were satisfied, a unit root test was conducted using the Augmented Dickey-Fuller (ADF) test, both at level and at first differences. This was performed using three commonly employed specifications: (with an intercept, with an intercept and a deterministic trend, and without an intercept or trend). The empirical results indicate the following:

2.1. Unit Root Test at Level I(0)

- The results revealed that both the inflation rate (LINFL) and the real interest rate (LT_INTR) are stationary at level under the intercept specification and the intercept-and-trend specification, at very high significance levels (1% and 5%). This indicates that these variables are integrated of order zero, I(0).

- In contrast, the time series of real Gross Domestic Product (LGDP) and the official exchange rate (LT_CHNG) were found to be non-stationary at level across all specifications, as their probability values (Prob.) exceeded 0.05. This confirms the presence of a unit root in these series at their original levels. Regarding the dependent variable, the money supply (LM2), it exhibited conditional stationarity under the intercept-only specification, while stationarity was not maintained when a deterministic trend was included.

2.2. Unit Root Test at First Differences I(1)

- After taking the first differences of all variables, the previously non-stationary series, namely LGDP and LT_CHNG, in addition to the dependent variable LM2, became fully stationary and statistically stable at significance levels of 1% and 5% under the different test specifications (with an intercept and with an intercept and trend). This formally confirms that these variables are integrated of order one, I(1).

3. ESTIMATION OF THE ARDL MODEL

The estimation of the Autoregressive Distributed Lag (ARDL) model requires following several successive stages, as outlined below:

First: Testing for Cointegration (Bounds Test)

To examine the existence of a cointegrating relationship among the variables, the F-statistic was calculated using the Bounds Testing approach, which is based on the Wald test. The results obtained are presented in the following table:

Table 02: Bounds Test for the Existence of a Long-Run Equilibrium Relationship

	Calculated F-statistic		**Result**
Model	14.15		Acceptance of the alternative hypothesis: A cointegrating relationship exists (i.e., a long-run equilibrium relationship).
Critical Values	Lower Bound	Upper Bound	
10%	3.56	2.525	

Table 02: Bounds Test for the Existence of a Long-Run Equilibrium Relationship *(continued)*

	Calculated F-statistic		Result
Significance Level 5%	4.223	3.058	
Significance Level 1%	5.840	4.280	

Source: Prepared by the researcher based on the outputs of EViews 13 software.

As shown in the above table, the calculated F-statistic (14.15) exceeds the upper bound of the tabulated critical value at the 1% significance level. This indicates that the alternative hypothesis is accepted, confirming the existence of a cointegrating relationship among the study variables.

Second: Estimation of the Error Correction Model (ECM) (Short Run)

Based on the foregoing results, the next stage involves applying the Error Correction Model (ECM) to estimate the short-run parameters governing the relationship between the money supply variable and its determinants in Algeria over the study period.

Table 03: Results of the Error Correction Model (ECM) Estimation (Short Run)

Error Correction

Dependent Variable: D(LM2)
Method: ARDL
Date: 09/10/26 Time: 19:19
Sample: 3 30
Included observations: 28
Dependent lags: 2 (Automatic)
Automatic-lag linear regressors (2 max. lags): LGDP LINFL LT_INTR LT_CHNG
Deterministics: Restricted constant and no trend (Case 2)
Model selection method: Akaike info criterion (AIC)
Number of models evaluated: 162
Selected model: ARDL(1,2,1,2,0)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
COINTEQ*	-0.241420	0.023029	-10.48315	0.0000
D(LGDP)	0.303912	0.347568	0.874396	0.3913
D(LGDP(-1))	-0.559710	0.383401	-1.459858	0.1585
D(LINFL)	0.037090	0.009079	4.085209	0.0005
D(LT_INTR)	-0.042834	0.008533	-5.019834	0.0001
D(LT_INTR(-1))	0.043660	0.008642	5.051932	0.0000

R-squared	0.827093	Mean dependent var	0.122958
Adjusted R-squared	0.787796	S.D. dependent var	0.082033
S.E. of regression	0.037789	Akaike info criterion	-3.526197
Sum squared resid	0.031416	Schwarz criterion	-3.240724
Log likelihood	55.36675	Hannan-Quinn criter.	-3.438925
F-statistic	21.04718	Durbin-Watson stat	2.281383
Prob(F-statistic)	0.000000		

* p-values are incompatible with t-Bounds distribution.

Source: Prepared by the researcher based on the outputs of EViews 13 software.

Based on the estimation results of the selected Autoregressive Distributed Lag (ARDL) model, ARDL (1, 2, 1, 2, 0), as presented in the econometric outputs, the short-run dynamics and the structural adjustment capacity can be analyzed as follows:

1. ERROR CORRECTION TERM COEFFICIENT (COINTEQ)*

The results indicate that the coefficient of the error correction term is negative and statistically significant at the 1% significance level (with a value of -0.241420 and a probability value of Prob = 0.0000). From both an economic and econometric perspective, this finding confirms the existence of a long-run dynamic equilibrium relationship linking broad money supply (LM2) to the independent variables included in the model (gross domestic product, inflation, the real interest rate, and the official exchange rate).

The coefficient indicates that approximately 24.14% of the disequilibrium resulting from short-run random shocks is automatically corrected within the current period (year), allowing the system to return to its long-run equilibrium path. This reflects a relatively sound structural adjustment capacity of the Algerian economy,

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Prob(F-statistic)	0.000000		

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requiring approximately four time periods (years) to fully absorb the shock.

2. THE SHORT-RUN EFFECT OF INFLATION: D(LINFL)

The results reveal a positive (direct) and highly statistically significant effect of the contemporaneous inflation rate on changes in the money supply, with a coefficient of 0.037 at the 1% significance level. Economically, this finding can be explained by the immediate liquidity effect.

3. THE SHORT-RUN EFFECT OF THE REAL INTEREST RATE: D(LT_INTR)

The real interest rate variable exhibits a dual dynamic pattern, with a high level of statistical significance (Prob = 0.0001):

The contemporaneous effect D(lt_intr): The coefficient carries a negative sign (-0.042), which is fully consistent with the classical Keynesian argument, whereby the interest rate represents the opportunity cost of holding money. Accordingly, an increase in the real interest rate immediately restrains liquidity and reduces the money supply, as individuals tend to prefer bank savings.

The one-period lagged effect D(lt_intr(-1)): The coefficient shifts to a positive sign (+0.043). From an econometric and sectoral perspective, this can be attributed to the response of commercial banks, which, encouraged by higher interest rates, subsequently expand credit provision in order to generate higher profit margins, thereby injecting liquidity back into the economy.

4. THE EFFECT OF THE OFFICIAL EXCHANGE RATE AND THE BEHAVIOR OF OTHER VARIABLES

It is noteworthy that the econometric model excludes the first differences of the official exchange rate variable (D(lt_chng)) from the short-run equation (lag order 0). Economically, this implies that official exchange rate shocks in Algeria do not produce an immediate, short-term transmission effect on the monetary aggregate. Rather, their cumulative impact is delayed and becomes fully apparent through structural channels in the long run (long-run transmission channels).

1. STANDARD VALIDITY QUALITY AND GOODNESS-OF-FIT STATISTICS

The modified model specification demonstrates a high level of statistical adequacy, making it suitable for academic research purposes. This is evidenced by the following indicators:

- Adjusted Coefficient of Determination (Adjusted R^2): The value reached 0.7877, indicating that 78.77% of the variations in the Algerian money supply are explained by the combined dynamics of the selected independent variables.

- Overall Statistical Significance (F-statistic): The F-statistic reached 21.04, with a probability value of (Prob = 0.000000). This confirms the rejection of the null hypothesis and the acceptance of the alternative hypothesis, thereby establishing the model's structural validity and overall statistical significance at the 1% significance level.

Third: Estimation of the Long-Run Model Parameters

Following the implementation of the bounds test and confirmation of the existence of a long-run equilibrium relationship between the dependent variable and the independent variables, we proceed to estimate the long-run parameters of the model. The estimation results are presented in Table No. (03).

Table 04: Long-Run Parameter Estimation Results

Cointegrating Specification

Deterministics: Rest. constant (Case 2)

CE = LM2(-1) - (3.484621*LGDP(-1) - 0.131554*LINFL(-1) - 0.443263 *LT_INTR(-1) - 0.278663*LT_CHNG - 70.078336)

Cointegrating Coefficients

Variable *	Coefficient	Std. Error	t-Statistic	Prob.
LGDP(-1)	3.484621	0.405329	8.597021	0.0000
LINFL(-1)	-0.131554	0.085901	-1.531461	0.1393
LT_INTR(-1)	-0.443263	0.181521	-2.441938	0.0227
LT_CHNG	-0.278663	0.237083	-1.175378	0.2519
C	-70.07834	12.11133	-5.786181	0.0000

Note: * Coefficients derived from the CEC regression.

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LT_CHNG	-0.278663	0.237083	-1.175378	0.2519
C	-70.07834	12.11133	-5.786181	0.0000

Note: * Coefficients derived from the CEC regression.

Source: Prepared by the researcher based on the outputs of EViews 13.

- Gross Domestic Product (LGDP): The Positive Structural Effect

The results indicate that gross domestic product represents the primary and strongest driving force behind the money supply in Algeria in the long run. It exhibits a positive coefficient of 3.484621 and is statistically highly significant (t-statistic = 8.59; Prob = 0.0000).

From an economic perspective, a 1% increase in gross domestic product is associated with a 3.48% increase in the money supply. This finding is fully consistent with the Quantity Theory of Money and the Keynesian theory, particularly its component relating to the transactions demand for money.

- Real Interest Rate (LT_INTR): The Opportunity Cost Effect

The real interest rate exhibited a pattern consistent with modern economic theory across both the short and long terms:

- In the short run: A dual and statistically significant dynamic effect was observed. The contemporaneous effect, represented by D(LT_INTR), had a negative coefficient (-0.042), reflecting an immediate contractionary effect on liquidity when interest rates rise, due to the increased opportunity cost of holding money. This was followed by a one-period lagged positive effect (+0.043), resulting from the response of commercial banks, which are encouraged by higher returns to expand credit provision at a later stage.

In the Long Run: The effect stabilized at a negative and statistically significant coefficient of (-0.443263) at the 5% significance level (Prob. = 0.0227). This confirms the effectiveness of monetary policy transmission channels in Algeria. An increase of one unit in the real interest rate leads, in the long run, to a 0.44% decrease in the money supply, as individuals and firms tend to redirect their liquid monetary holdings towards savings and time deposits in order to earn positive real returns

• Inflation Rate (LINFL):

The inflation rate recorded a positive and statistically significant effect in the short run only, as reflected by D(LINFL), with a coefficient of 0.037 and a significance level of 0.0005. However, its statistical significance disappeared entirely in the long run (Prob. = 0.1393). In the long run, the findings therefore suggest that inflation is neutral, as cumulative inflation does not lead to a sustained and arbitrary expansion of the money supply.

• Official Exchange Rate (LT_CHNG):

The results revealed that the estimation procedure excluded the first differences of the official exchange rate variable, D(LT_CHNG), from the short-run equation (lag 0). The findings also indicated that this variable was statistically insignificant in the long run (Prob. = 0.2519). This econometric behavior reflects the administratively managed nature of the exchange rate by the Bank of Algeria. Official exchange rates do not undergo periodic, freely determined adjustments in response to instantaneous shocks; rather, they are subject to long-term structural adjustment policies, whose direct effects are absorbed through the channels of the trade balance and imported inflation, without generating an independent direct impact on the money supply in the long run.

3. ECONOMETRIC VALIDITY AND MODEL ADEQUACY

The model exhibits strong statistical and econometric properties, making it suitable for forecasting and for formulating monetary policy recommendations in Algeria.

• Adjusted Coefficient of Determination (Adjusted R^2):

The adjusted coefficient of determination reached 0.7877, indicating that 78.77% of the variations in the money supply are explained by the joint dynamics of the selected independent variables.

Overall Significance (F-statistic): The F-statistic reached a value of 21.04, with a probability value of zero (Prob = 0.000000), confirming the high statistical significance of the model as a whole and its overall structural validity at the 1% significance level.

1. MODEL STABILITY TEST (STABILITY TEST):

To assess the stability of the model, the Cumulative Sum of Recursive Residuals (CUSUM) test and the Cumulative Sum of Squares of Recursive Residuals (CUSUM of Squares) test are employed. These tests make it possible to verify whether the data used in the study are free from structural changes. They also assess the stability and consistency of the long-run parameters with the short-run parameters. This condition is satisfied when the graphical plots remain within the critical bounds at the 5% significance level.

As can be observed from the figures below, both the Cumulative Sum of Recursive Residuals (CUSUM) and the Cumulative Sum of Squares of Recursive Residuals (CUSUM of Squares) remain within the critical bounds at the 5% significance level.

Source: Prepared by the researcher based on the outputs of EViews 13 software.

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It is evident from these two figures that the estimated model coefficients are structurally stable throughout the study period, as the graphical plots of the test statistics for the aforementioned tests fall within the critical

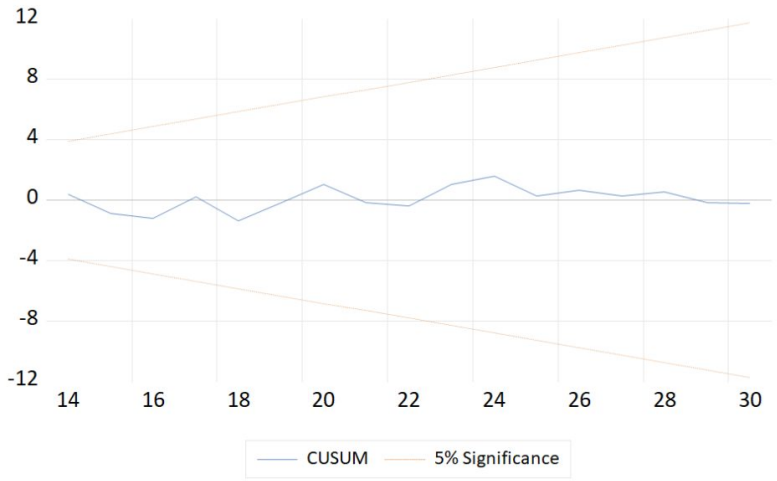
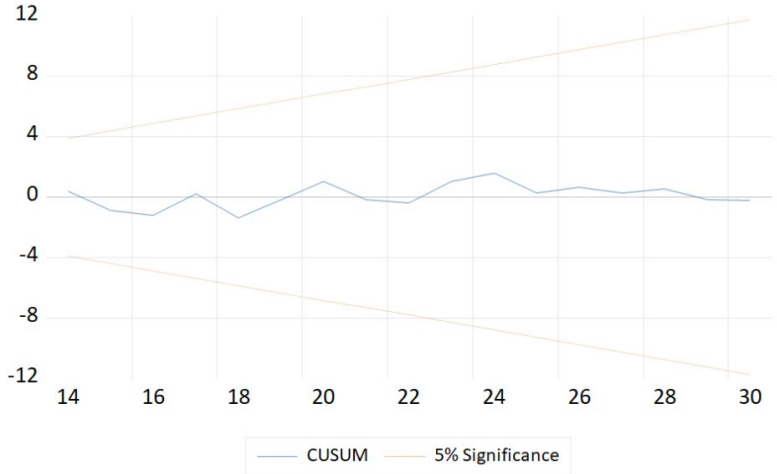


Figure 01: Cumulative Sum of Recursive Residuals Test (CUSUM)



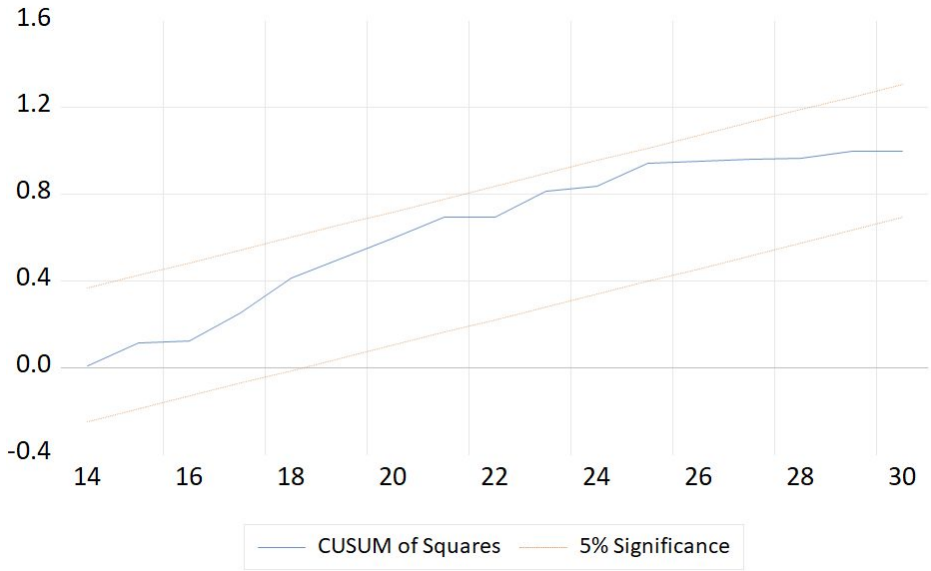
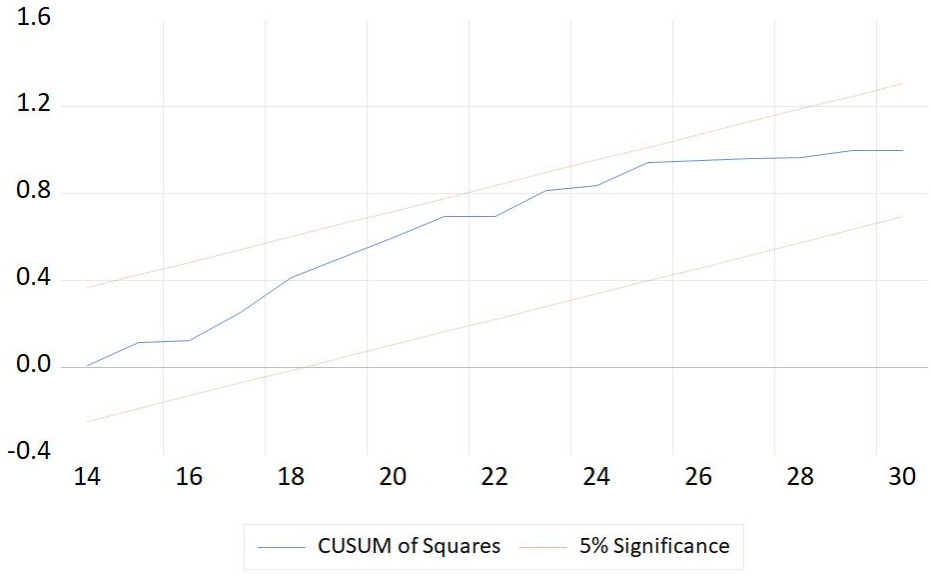


Figure 02: Cumulative Sum of Squares of Recursive Residuals Test (CUSUM of Squares) bounds at the 5% significance level.



1. MODEL DIAGNOSTIC TESTS

To assess the validity and reliability of the estimated model, it is necessary to conduct a series of diagnostic tests, as follows:

- Autocorrelation Test of the Error Terms:

To detect the presence of autocorrelation among the error terms, the Breusch–Godfrey Serial Correlation LM Test is employed. The results are presented in the following table:

Table 05: Results of the Breusch–Godfrey Serial Correlation LM Test

Breusch-Godfrey serial correlation LM test			
0.07	**Prob.F(2,15)**	**3.205**	**F-statistic**

Source: Extracted from EViews 13 software.

It can be observed that the calculated F-statistic is 3.025, with a corresponding probability value of 0.07, which is greater than the 5% significance level. Accordingly, the null hypothesis is accepted, indicating that there is no autocorrelation problem among the error terms.

- Heteroskedasticity Test of the Error Terms:

To examine the problem of heteroskedasticity, the ARCH test is employed.

Table 06: Results of the ARCH Heteroskedasticity Test

Breusch-Godfrey serial correlation LM test			
0.587	**Prob.F(10,17)**	**0.855**	**F-statistic**

Source: Extracted from EViews 13 software.

The results indicate that the calculated F-statistic is 0.855, with a corresponding probability value of 0.587, which exceeds the 5% significance level. This result leads to the acceptance of the null hypothesis, confirming the homoscedasticity of the error terms (i.e., constant error variance).

- Normality Test:

This test enables us to determine whether the residuals follow a normal distribution. Based on the following figure, the Jarque–Bera test statistic is 0.878, with a corresponding probability value (Prob.) of 0.644, which is greater than the 5% significance level. Therefore, we conclude that the calculated test statistic is lower than the critical value, leading to the acceptance of the null hypothesis that the residuals are normally distributed. The results are illustrated in the following figure.

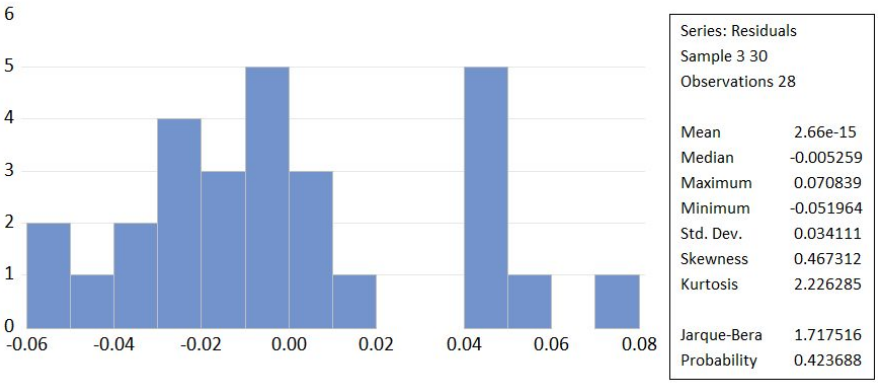


Figure 03: Results of the Normality Test for the Random Error Terms

Source: Extracted from EViews 13 software.

1. MAIN FINDINGS OF THE STUDY

There is a highly significant positive (direct) effect of the contemporaneous inflation rate on changes in the money supply, which can be economically explained by the monetary liquidity effect.

The inflation rate also exhibits a positive, direct, and statistically significant effect in the short run only (D(LINFL), with a coefficient of 0.037 and a p-value of 0.0005). However, its statistical significance completely disappears in the long run (Prob. = 0.1393). In the long run, the results therefore support the neutrality of inflation, indicating that cumulative inflation does not lead to a sustained and arbitrary expansion of the money supply.

It is worth noting that the econometric model excludes the first differences of the official exchange rate variable from the short-run equation. From an economic perspective, this implies that official exchange rate shocks in Algeria do not generate an immediate transitory effect on the monetary aggregate. Rather, their cumulative impact is delayed and materializes entirely through structural channels in the long run.

The results further indicate that the error correction term coefficient carries a negative sign and is statistically significant at the 1% significance level (with a value of -0.241420 and a probability value of Prob. = 0.0000). From both economic and econometric perspectives, this finding confirms the existence of a long-run dynamic equilibrium relationship linking broad money supply (LM2) to the independent variables included in the model, namely gross domestic product (GDP), inflation, the real interest rate, and the official exchange rate.

CONCLUSION

Given the significant role that money plays in the functioning of economic activity, monetary authorities attach particular importance to the money supply, also known as the monetary aggregate, in terms of its components and the mechanisms governing its issuance. The money supply represents all means of payment available within an economy, encompassing various forms of money, including legal tender in circulation and derivative bank money. These forms of money are classified into what are known as monetary aggregates, which are structured according to several criteria, including the degree of liquidity of the assets comprising each aggregate, the impact of interest rates, and the extent to which the central bank can influence each aggregate. The relative importance of each monetary aggregate varies depending on the level of financial and banking development within the economy.

Furthermore, the money supply plays a crucial role in economic activity in Algeria. Excessive money issuance without a corresponding increase in the supply of goods and services inevitably leads to inflationary pressures and a decline in the purchasing power of the national currency relative to other currencies.

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