The Role of Monetary Policy in Attracting Investments in The Service Sectors

Benkouider Hayet
Benkouider.hayet@gmail.com

University of Algiers 3

Zidane Oualid
walidzidaneya@googlemail.com

University of El Oued

Abstract:

1- **Introduction:** Developing countries face several economic and social challenges, prompting them to devise strategies that enable them to achieve the desired development. The global economy has witnessed significant developments across various dimensions, altering some of its fundamental concepts, such as greater market openness, increased international trade, and the emergence of new financing methods, with foreign direct investment (FDI) being one of the most important. FDI has gained significant attention worldwide, including in developing countries, as it is a relatively easier way to secure funding. Additionally, it has contributed to increased savings, employment, reduction of unemployment rates, technology transfer, and enhanced productivity and economic competitiveness between nations.

Due to the continuous technological advancements and the changes occurring in today's world—whether economic, political, social, or cultural—there has been a growing reliance on the service sectors more than ever before. This trend has resulted in increased FDI flows into these sectors year after year, so much so that they now account for more than two-thirds of global investments. This is also tied to the liberalization of trade in services, given the rise in global service exchanges, the growing role of services as inputs in production processes, and the emergence of knowledge-intensive services.

Despite the significant importance of the service sector and the global investment growth, making investment decisions in these sectors, particularly in developing countries, remains challenging. This is due to the unique characteristics of the service sector and the nature of developing economies. As is well-known, services are intangible goods consumed at the time of production, and their returns or added value may be realized in the long term. Therefore, macroeconomic indicators, especially monetary policy, must be favorable—controlling inflation levels and stabilizing exchange rates—to ensure that foreign investors can achieve profits.

Algeria's economy, as a developing economy, seeks to attract FDI to diversify its funding sources and benefit from the technology and technical advancements of developed countries. To achieve this, these countries have worked to create an investment-friendly environment by enacting laws that include incentives and guarantees for foreign investors, providing a suitable business environment, and improving economic performance, particularly as Algeria has faced long periods of inflationary pressure. Regarding monetary policy measures and their effectiveness, especially in relation to foreign investment flows, it has had an impact, particularly in the service sectors, where investment has remained relatively low compared to other sectors.

From this perspective, the main problem arises, which can be formulated in the following key question:

Problem Statement: To what extent does monetary policy influence the attraction of foreign direct investment in the service sector in Algeria?

2- **Channels of Monetary Policy Transmission to the Real Economy:** Monetary policy transmission channels to the real economy refer to the pathways through which the effects of monetary policy tools reach the final objective. These channels are divided into four: the interest rate channel, the exchange rate channel, the asset price channel, and the credit channel. Although these channels may differ in terms of the time frame for monetary policy effects, they all agree on their ability to influence macroeconomic variables, as explained below:

Interest Rate Channel: This channel is significant due to its ability to directly impact the real economy within a relatively short period. It is the traditional channel for transmitting monetary policy effects towards the goal of growth. When monetary authorities adopt a contractionary policy that raises interest rates, individuals reduce consumption and increase their savings to benefit from higher interest rates. This leads to increased capital costs, reducing investment expenditures

and, consequently, lowering production (Drumetz, Pfister, & Sahuc, 2015). Conversely, an expansionary monetary policy, by lowering interest rates to address an excess money supply, reduces capital costs, thereby increasing both consumption and investment spending, overall demand, and production.

Exchange Rate Channel: This channel is one of the most critical channels for transmitting monetary policy effects, especially in economies with a high degree of openness to external markets. It is used to stabilize a country's exchange rate and to stimulate exports. The importance of exchange rate changes lies in their impact on the local economy through foreign trade, the trade balance, and capital flows. In countries with inflexible interest rates, the difference between domestic interest rates and those of major foreign currencies plays a crucial role in shifting savings towards currencies with higher returns and more stable, convertible exchange rates. Although the exchange rate is a monetary policy tool for controlling inflation in importing countries, it can also transmit challenges from other economies to the local economy, known as imported inflation. Therefore, when relying on the exchange rate channel, monetary authorities must be cautious about inflation levels, as exchange rates can transmit monetary policy effects through two sub-channels: aggregate supply and demand, and inflation.

Asset Price Channel: Asset prices refer to the present value of the future returns from these assets. The assets in question include all securities held by the banking sector and financial institutions. Asset prices can transmit monetary policy effects to the economy through two sub-channels: the bond channel and the consumption channel (Drumetz, Pfister, & Sahuc, 2015):

Bond Channel: The effect of expansionary monetary policy on securities (bonds) is reflected in a decline in the real interest rates on bonds, making them less attractive than stocks. This leads to an increase in the market value of company shares relative to the cost of capital. As a result, companies expand their equity and use the resulting profits to increase the volume of investments, which in turn boosts aggregate demand and subsequently raises GDP.

Consumption Channel: The core of this channel is that consumption expenditures are determined by consumers' sources of income. Monetary policy impacts the economy through its influence on consumption by affecting individual income, which includes both real capital income and financial wealth, a large portion of which is composed of stocks. When stock prices rise, wealth increases, stimulating higher levels of consumption and aggregate demand, which, in turn, leads to price increases and positively impacts GDP. Conversely, under a contractionary monetary policy, the money supply decreases, reducing the value of wealth, which leads to a decline in consumption and negatively affects GDP growth.

Credit Channel: The weak relationship between long-term interest rates and aggregate demand has led to the emergence of credit as a monetary policy channel. Its significance lies in transmitting monetary policy effects to the economy through the relationship between the volume of credit and total spending. The effectiveness of this channel depends on how credit markets operate and the availability of bank credit. The credit channel transmits monetary policy effects through two sub-channels: the bank lending channel and the balance sheet channel. In the bank lending channel, which depends on the flow of loans within the banking system, expansionary monetary policy increases the supply of bank loans due to higher reserves and deposits, which in turn boosts both investment and consumer spending. This leads to an increase in prices and GDP, and the opposite happens under a contractionary monetary policy (Mishkin, 1996).

3- **Tracking Foreign Direct Investment Flows Worldwide** It is noted that foreign direct investment (FDI) flows are no longer tied to geographical location; they now move where a favorable environment exists. Additionally, there have been significant changes in the size, nature, and sectoral distribution of investments.

Sectoral Distribution of Inbound FDI Globally: It is observed that FDI has increasingly shifted towards the service sector, now accounting for two-thirds of investments, after being primarily concentrated in the oil, manufacturing, and extractive industries. Here's a detailed breakdown:

Between 1999 and 2000, service sector investments reached 71% of total FDI flows, but they dropped to 44.8% due to a general decline in investment. In 2003, services accounted for about 67% of FDI, while industry and agriculture accounted for 33%. From 2004 to 2006, most investments went to natural resources, particularly gas and oil, as a result of rising global prices. Later, the service sector regained prominence, capturing the largest share of FDI. By 2014, services made up approximately two-thirds of investments, at 64%, followed by manufacturing at 27%, and primary sectors (agriculture and extractive industries) at 2%. In 2016, although the share of food, electronics, and oil industries increased, the service sector remained dominant, particularly in financial and telecommunications activities. Investments were distributed as follows:

Table 01: Distribution of investments in the service sectors worldwide in 2016 (percentage).

Other activities	Information and communications	Administrative activities	Scientific and technological activities	Financial and insurance activities	Wholesale and retail trade	Sector
13	5	7	13	19	43	Percentage

Source : Investment and digital economy, World investment report 2017, UNCTAD, 2017 , P :22

In 2017, the value of inflows in the three sectors declined, with the primary sector experiencing a sharp decrease of 61%, dropping to just $21 billion. However, the services sector continued to account for about two-thirds of the total inflows, reaching $350 billion, as shown in the following table.

Table 02: Sectoral Distribution of Foreign Direct Investment in 2017 (unit: billion dollars)

Sector	2016	2017	Percentage Change (%)
Primary sector	54	21	-61
Industries	295	338	14
Services	484	362	-25
Total	833	720	-14

Source: Investment and New Industrial Policies, World Investment Report 2018, UNCTAD, 2018, p. 08.

4- **The Role of Monetary Policy in Attracting Investments** As previously mentioned, one of the key determinants of the investment climate is economic performance. Therefore, the effectiveness of all economic policies pursued by the host country must lead to attracting more investment inflows. In this section, we will examine the extent of the impact of monetary policy on foreign direct investment.

The Impact of Monetary Policy on Attracting Investment through the Exchange Rate

The exchange rate is an important variable in monetary policy, especially in an open economy, as it affects macroeconomic indicators such as international trade, capital flows, foreign direct investment (FDI), inflation, GDP, and international transfers. The globalization of financial markets and the reduction of trade barriers in recent years have created many investment opportunities. Investors constantly seek to improve their cash flows, protect their wealth, and manage uncertainty in investment environments regarding price trends, movements, and the timing of fluctuations. Foreign investors face risks such as exchange rate instability, which is an inherent risk in foreign investments. This is due to the sensitivity of international cash flows to exchange rate fluctuations, which are influenced by market forces.

Thus, exchange rate fluctuations are a key determinant of foreign investment decisions. An investor may profit or lose when converting their foreign investments back to their home country or another foreign country after the investment period ends. If the foreign currency's exchange rate in which they invested declines, the investor may lose the profits earned or even part of the original capital. Conversely, if the foreign currency's exchange rate increases, the investor benefits from the exchange rate rise in addition to the profits generated from the foreign investment.

To attract FDI, host countries often manage exchange rates flexibly to reduce real exchange rate volatility compared to capital flow controls. This approach is advantageous for most developing countries because a flexible exchange rate policy offers several benefits. One advantage is that it isolates money supply from inflows. The greater the exchange rate flexibility, the greater the money supply and monetary policy independence, which is desirable when cash flows are volatile (Al-Khazraji, 2012).

Sharp exchange rate fluctuations hinder FDI inflows as they increase uncertainty, making it difficult to guarantee a reasonable profit level. These fluctuations significantly affect production costs and real returns. Thus, investment decisions are influenced by exchange rate volatility, which alters the relative profitability of returns in host countries compared to repatriating them. As a result, exchange rate fluctuations negatively impact the investment climate, complicating feasibility studies. Exchange rate volatility discourages long-term capital inflows, encouraging capital flight. If the currency in which the investment is made depreciates, the returns decrease when measured in the investor's base currency, leading foreign investors to avoid markets exposed to exchange rate instability.

The depreciation of a national currency affects the prices of exported and imported goods. It leads to higher prices for imported goods due to the rising exchange rate against other currencies, increasing the cost of imported materials for foreign investors. Meanwhile, the prices of exported goods decrease on the international market, resulting in additional expenses, especially for long-term projects where the investor imports raw materials for production or services (Sahnoun, 2010). Moreover, currency depreciation raises local interest rates, increasing import costs and negatively impacting FDI.

The Impact of Monetary Policy on Attracting Investment through Inflation Rates

The host country's economic instability can act as a significant deterrent to FDI inflows. Any form of uncertainty affects foreign investors' perceptions of future profitability in the host country. Low inflation is a key indicator of economic stability in the host country, while high inflation signals the country's inability to maintain balance and the central bank's failure to manage appropriate monetary policies. In other words, inflation can serve as a gauge of the host country's economic and political conditions (Kiat, 2008).

Inflation rates directly influence pricing policies, affecting capital flows and production costs for foreign investors. High inflation rates in the host country negatively impact market profitability and degrade the investment climate. Foreign investors require price stability. Inflation rates above 10% annually represent a danger zone for both foreign and local investments. High inflation also distorts the investment pattern, prompting investors to focus on short-term activities while avoiding long-term ventures.

Many economic studies have shown a negative correlation between inflation rates and FDI levels, as high inflation indicates a weak economy, posing risks for investors. Some studies have demonstrated that countries that adopted inflation-targeting policies managed to stabilize inflation and create a more favorable investment climate.

The Impact of Monetary Policy on Attracting Investment through Interest Rates

Savings and investments are largely influenced by interest rates, whether they respond to market forces or are controlled by the monetary authority. Interest rates play a crucial role in the economy, as they represent both the cost of loans and the reward for savings. They also significantly affect investment attractiveness. If a country's interest rates are high, it will attract foreign capital and cause the exchange rate to rise. Conversely, if interest rates are higher in other countries, investments will leave, resulting in lower exchange rates.

Economic theory shows that global capital tends to flow into countries with higher returns on investment compared to those with high-interest rates. Therefore, investment is higher in countries offering better returns and security, such as low-interest rates and a favorable business environment.

Monetary Policy Effectiveness through Controlling Inflation and Exchange Rates in Algeria

Through monetary policy, the state aims to control inflation and maintain price stability, which is a priority, along with managing exchange rates and interest rates to achieve real economic growth.

I. Inflation in Algeria The nature of Algeria's rent-based economy has led to price instability. The International Monetary Fund (IMF) has identified four variables that explain inflation (Albertin, Lahreche, & Bennaceur, 2013):

The money supply outside the deposits of the National Hydrocarbon Company and foreign currency deposits.
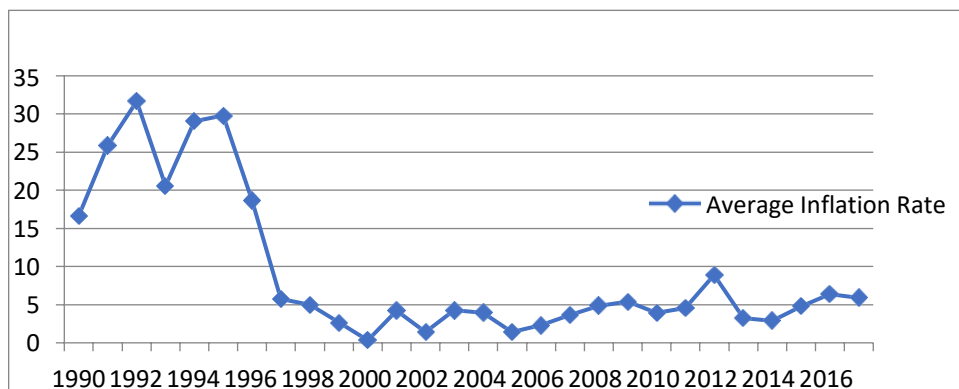
The price index of goods with a strong import content at the nominal effective exchange rate.

The nominal effective exchange rate of the dinar against the currencies of Algeria's major trading partners.

Public and private industrial production prices in the food industry.

The following figure shows the developments in Algeria's annual inflation rate.

Figure 01: Trends in Algeria's Average Annual Inflation (%)

Source: Prepared by the researchers based on the World Bank database.

Inflation saw a significant rise during the 1990s, reaching 32% in 1992, mainly due to the sharp increase in food prices. It then began to decrease, reaching around 4.5% by 1998. The global financial crisis of 2008 led to a 42.5% decline in hydrocarbon export revenues, reducing the pace of monetary expansion by 3.1%. In response, the Monetary and Credit Council issued regulation 02.09 on May 26, 2009, concerning monetary policy operations, tools, and procedures. This was followed by the issuance of Ordinance No. 10-04, amending Ordinance No. 03-11 in August 2010, which explicitly emphasized price stability as a clear goal of monetary policy, known as inflation targeting. Achieving this required the development of appropriate tools to deepen the medium-term analytical framework or use forecasting methods to monitor inflation rates in the short term.

Despite these measures, inflation rose to 8.9% in 2012, exceeding the medium-term target set by the Monetary and Credit Council at 4%. This rise was due to high liquidity in the economy caused by increased public spending (wage hikes and transfers), a 20% increase in credit to the public sector, and a 10% increase in private sector credit. These factors contributed to inflationary pressures. In response, the Bank of Algeria raised the mandatory reserve on deposits from 9% to 11% and increased absorption to 250 billion dinars (an increase of 23%). This helped stabilize prices, and inflation rates fell below the targeted rate in 2013 and 2014. However, the collapse of oil prices, leading to a fiscal deficit and a continuous decline in foreign currency revenues, caused inflation to rise again starting in 2015.

In addition to these monetary factors, other reasons (institutional, structural, economic) contributed to the worsening inflation, such as the liberalization of interest rates and exchange rates.

Exchange Rate in Algeria:

The sharp decline in oil prices in 1986 significantly affected the economy, leading to a dual deficit in the budget and the balance of payments. This prompted the authorities to implement exchange rate adjustments as part of economic reforms aimed at transitioning from a planned economy to a market-driven one. These adjustments aimed to account for monetary and financial aspects, ensure the Algerian dinar reflected its true value, and reduce imbalances, including narrowing the gap between the official and parallel exchange rates. The following summarizes the development of the dinar's exchange rate against major currencies:

Development of the Dinar's Exchange Rate against the US Dollar: The evolution of the dinar-dollar exchange rate between 1990 and 2018 can be divided into key phases:

From 1990 to 2002, the dinar continuously declined against the dollar, with the sharpest drop in 1991 (112.05% decline).

From 2003 to 2004, there was a slight improvement, with the dinar appreciating by 2.89% and 6.86% against the dollar.

From 2005 to 2010, the dinar experienced fluctuations, with both increases and decreases in value against the dollar. The largest drop was in 2009 (due to the global financial crisis), with a 12.51% decrease, bringing the exchange rate to 72.64 dinars per dollar.

From 2011 to 2018, the dinar continued to decline against the dollar. The largest drop occurred in 2015, following the oil price collapse in 2014, with a 20% decline in the dinar's value against the dollar. In 2016, the dinar stabilized at 109.47 dinars per dollar, followed by further declines of 1.36% in 2017 and 3.8% in 2018.

Development of the Dinar's Exchange Rate against the Euro: The euro emerged as a result of European economic and monetary integration, and it began circulating in 1999. Analyzing the dinar-euro exchange rate shows that the dinar generally experienced more declines than improvements. The dinar saw slight improvements in 2000 and 2010, by 2.17% and 2.07%, respectively. The largest drop in the dinar's value against the euro was in 2003, at 16.09%. After the oil price shock in 2014, the dinar declined by 3.8% against the euro and continued to fall in subsequent years, reaching 125.32 dinars per euro in 2017.
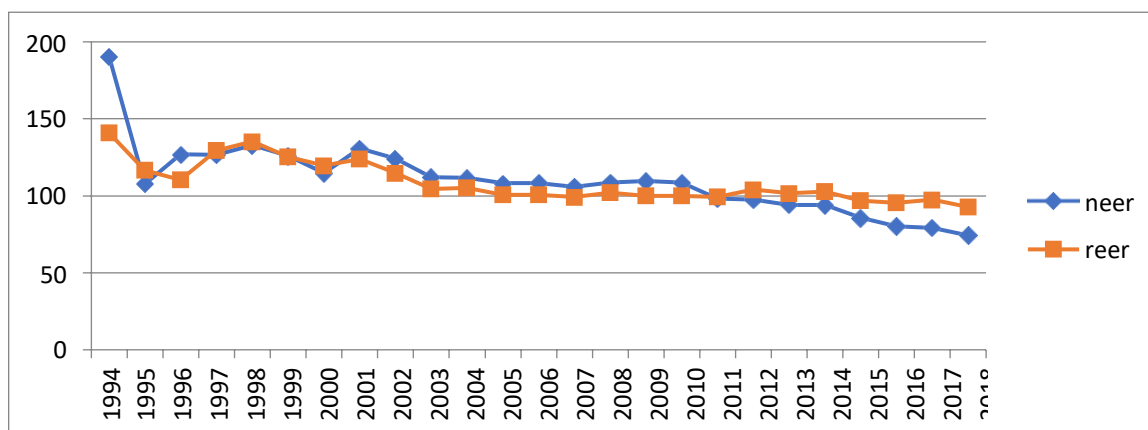
The evolution of the nominal exchange rates of the Algerian dinar reveals the following (Marghet, 2018):

The continuous decline in the external value of the dinar since the decision to abandon the fixed exchange rate system and move towards exchange rate flexibility contradicts theoretical assumptions about currency flotation, which suggest that the value should rise or fall according to market conditions. However, the general trend of the dinar's value has been downward.

The Algerian economy is sensitive to movements in the euro and the dollar. The dollar is the currency used to price Algeria's main exports (oil), while the euro is used to invoice the majority (over 60%) of Algeria's imports. Therefore, euro-dollar movements significantly impact the Algerian economy, as a decline in the dollar's value against the euro deteriorates trade terms, increases import costs, and reduces foreign exchange reserves.

In addition, economic partners focus on real exchange rates. The following figure illustrates the evolution of both nominal and real exchange rates.

Figure 02: Development of Real and Nominal Effective Exchange Rates

Source: Prepared by the researchers based on statistics from the Bank for International Settlements (BIS: effective exchange rate) from the website BIS.

The year 1994 marked the transition to a flexible exchange rate system and the beginning of targeting the real exchange rate, which is based on the principle of periodic intervention by the Bank of Algeria in the foreign exchange market to guide the nominal exchange rate behavior toward achieving the real exchange rate goal of the dinar. Consequently, both the nominal and real effective exchange rates of the dinar experienced relative stability. The real exchange rate of the dinar recorded its largest decline in 2003 due to a decrease in the inflation rate in Algeria compared to its trading partners, while it reached its highest level in 2012 due to an increase in the inflation rate in Algeria. Thus, it can be said that the inflation rate in Algeria, compared to its trading partners, has a direct impact on the developments of the real effective exchange rate of the dinar.

5- **Measuring the Impact of Monetary Policy Effectiveness on Attracting Service Investments in Algeria**
To estimate the long-term relationship (1) and apply it to the Algerian economy, we will use the Autoregressive Distributed Lag (ARDL) model, which allows the application of the bounds testing approach for cointegration, regardless of whether the independent variables are integrated of order (0) or order (1). The equation of the baseline model is as follows:

$LINVdz_t = b_0 + b_1*LINFdz_t + b_2*LTCNdz_t + \square_\square$

Unit Root Test

The integration order of the variables must be either I(0) or I(1). Table 1 shows the stability and integration order of the time series under study based on the Phillips-Perron test. We found that all variables are integrated either of the first order or at the level.

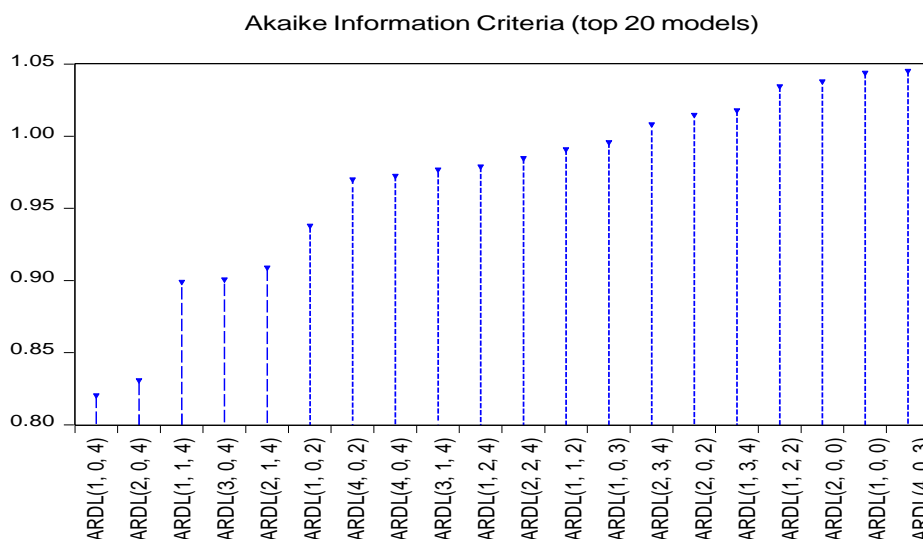**Table 01:** Stability Test of Time Series (Phillips-Perron Test)

First difference			Level			Decision (rank)	Time series
Without constant and trend	Constant and trend	Constant only	Without constant and trend	Constant and trend	Constant only		
-6.27 (0.00)	-6.70 (0.00)	-6.89 (0.00)	-3.51 (0.99)	-3.66 (0.04)	-1.44 (0.54)	**I(1)**	**LINVdz**
-7.97 (0.00)	-8.16 (0.00)	-7.90 (0.00)	-1.34 (0.16)	-2.36 (0.38)	-2.24 (0.20)	**I(1)**	**LINFdz**
			1.50 (0.09)	-4.45 (0.00)	-5.99 (0.00)	**I(0)**	**LTCNdz**

Source: Prepared by the researchers based on the outputs of Eviews 10

• Choosing the optimal lag periods for the model

Based on the AIC, the lag periods were determined, and it was found that the (1,0,4) ARDL model is the optimal model, as shown in the following figure:

Figure 03: Results of the optimal lag periods test

Source: Outputs of Eviews 10

• **Cointegration Test using the Bounds Test**

The following table shows the results of the cointegration test using the Bounds Test methodology. The results indicate that the calculated value of the F-statistic is greater than the critical lower bound values at most significance levels, thus rejecting the null hypothesis that there is no cointegration relationship between the variables. This means there is a long-term equilibrium relationship between public expenditures and the independent variables.

Table 02: Results of the Bounds Test

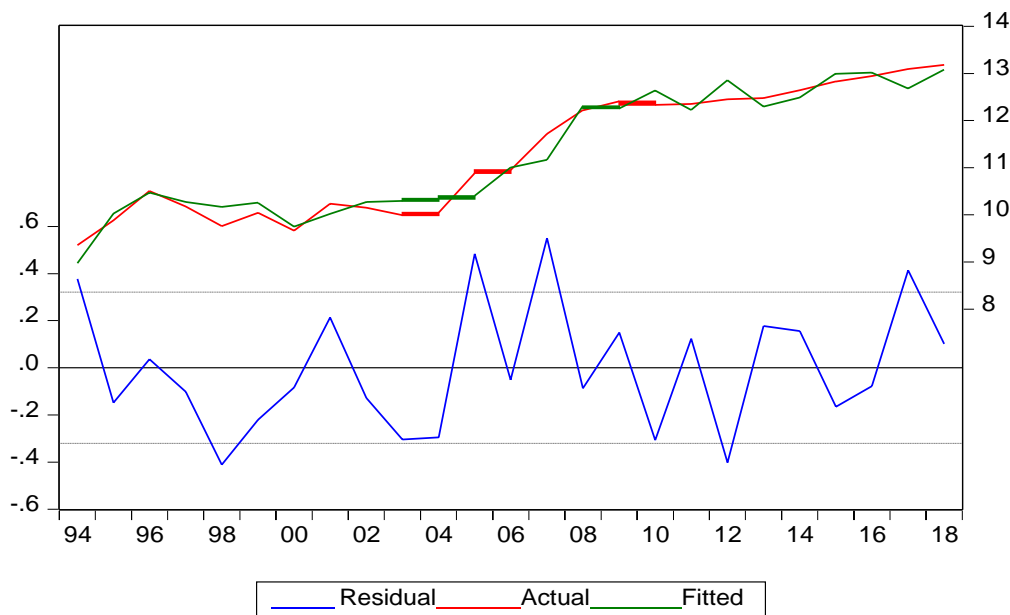| F-Bounds Test		Null Hypothesis: No levels relationship		
Test Statistic	Value	Signif.	I(0)	I(1)
		Asymptotic: n=1000		
F-statistic	4.018567	10%	2.63	3.35
k	2	5%	3.1	3.87
		2.5%	3.55	4.38
		1%	4.13	5

Source: Outputs of Eviews 10

• **Model Quality Test**

Before adopting the ARDL(1,0,4) model to estimate short- and long-term effects, it is necessary to ensure the quality of this model's performance using the following tests:

• **Model quality:** To assess the quality of the model, it is essential to compare the actual values with the estimated ones, as shown in the following figure:

Figure 04: Actual, estimated values, and residuals (Model Quality)
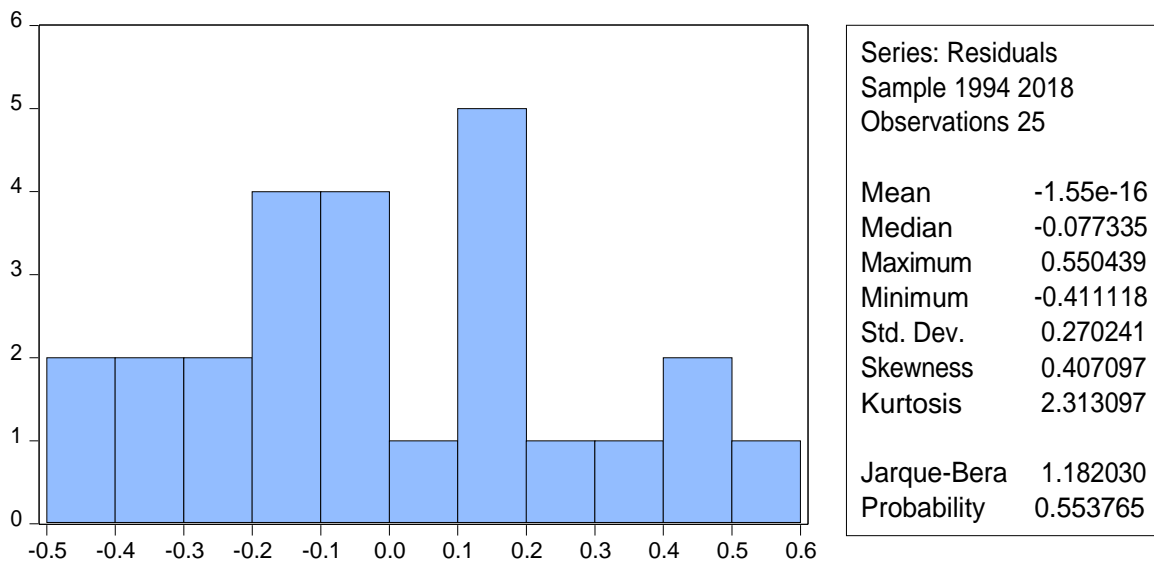

Source: Outputs of Eviews 10

From the figure, we observe that the estimated values are close to the actual values, which indicates the quality of the estimated model. Therefore, it can be relied upon for interpreting and analyzing the results.

• **Normal distribution of residuals:** To verify the normality condition, we use the Jarque-Bera test. It was found that the test result is significant ($\alpha > 0.05$), which supports that the residuals follow a normal distribution. With a J-B value of 1.18, which is less than $\chi^2 = 5.99$, this confirms that the model residuals follow a normal distribution, as shown in the following figure:

Figure 05: Normal distribution of residuals

Series: Residuals	
Sample 1994 2018	
Observations 25	
Mean	-1.55e-16
Median	-0.077335
Maximum	0.550439
Minimum	-0.411118
Std. Dev.	0.270241
Skewness	0.407097
Kurtosis	2.313097
Jarque-Bera	1.182030
Probability	0.553765

Source: Outputs of Eviews 10

• **Autocorrelation test for errors:** To ensure the absence of autocorrelation, we use autocorrelation tests (Autocorrelation, Breusch-Godfrey correlation LM test), as shown in the following table:

Table 02: Results of the autocorrelation test for errors

Breusch-Godfrey Serial Correlation LM Test:			
F-statistic	0.329242	Prob. F(2,15)	0.7245
Obs*R-squared	1.051320	Prob. Chi-Square(2)	0.5912

Date: 08/15/19   Time: 15:55
Sample: 1990 2018
Included observations: 25

Autocorrelation	Partial Correlation		AC	PAC	Q-Stat	Prob*
		1	-0.331	-0.331	3.0862	0.079
		2	0.171	0.069	3.9485	0.139
		3	-0.108	-0.037	4.3076	0.230
		4	-0.130	-0.209	4.8503	0.303
		5	0.202	0.138	6.2251	0.285
		6	-0.208	-0.094	7.7659	0.256
		7	0.145	-0.011	8.5491	0.287
		8	-0.242	-0.193	10.869	0.209
		9	0.011	-0.121	10.874	0.284
		10	-0.019	-0.077	10.891	0.366
		11	-0.199	-0.262	12.804	0.306
		12	0.067	-0.215	13.037	0.366

*Probabilities may not be valid for this equation specification.

Source: Outputs of Eviews 10

From the table, we observe that all the columns are within the confidence interval, and the Q-Star test statistic is not significant. According to the LM test, the Prob chi-square is greater than 0.05, so we accept the null hypothesis that there is no autocorrelation.

• **Heteroscedasticity test:** To detect heteroscedasticity, we use the test shown in the following table:
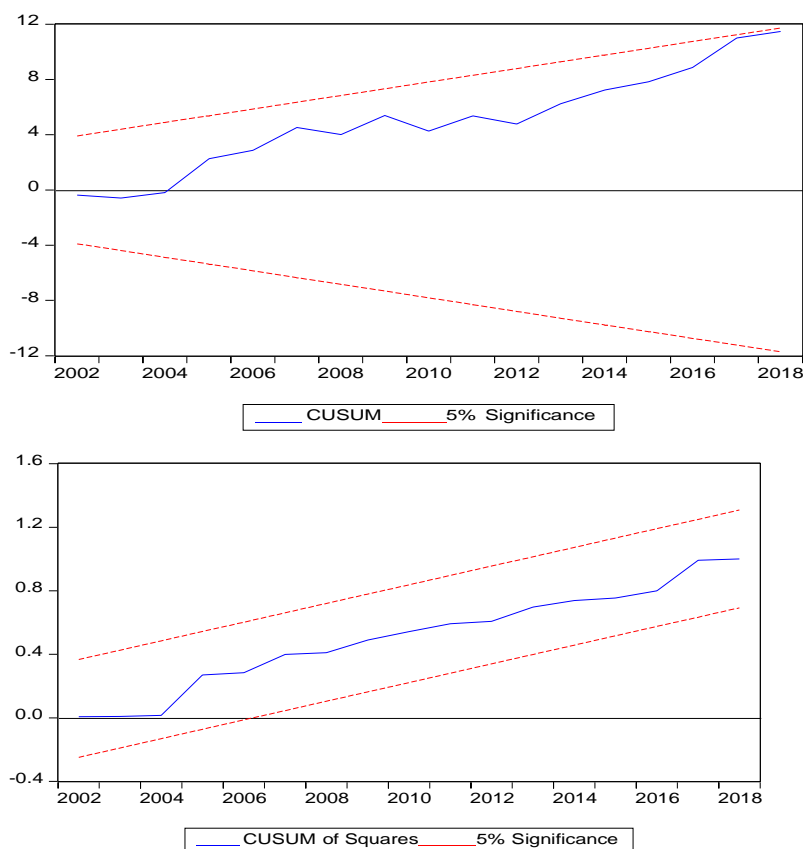**Table 03:** Results of the heteroscedasticity test

Heteroskedasticity Test: Breusch-Pagan-Godfrey			
F-statistic	0.798376	Prob. F(7,17)	0.5994
Obs*R-squared	6.185226	Prob. Chi-Square(7)	0.5183
Scaled explained SS	1.877761	Prob. Chi-Square(7)	0.9663

Source: Outputs of Eviews 10

According to this test, the Prob F is greater than 0.05, which means that F is not significant, and therefore, we accept the null hypothesis of homoscedasticity.

• Stability test: To ensure that the data used is free from any structural changes, we must use one of the tests shown in the following figure:

Figure 05: Results of the model stability test

Source: Outputs of Eviews 10

Since the graphical representation in both the CUSUM Test and CUSUM of Squares Test is within the critical bounds at the 0.05 level, we accept the stability of the model.

• Estimating short-term and long-term effects using the ARDL model

After confirming the existence of a long-term equilibrium relationship, we estimate the short-term and long-term effects, as shown in the following tables:

Table 04: Results of short-term parameter estimates and the error correction term

ARDL Error Correction Regression
Dependent Variable: D(LINVDZ)
Selected Model: ARDL(1, 0, 4)
Case 2: Restricted Constant and No Trend
Date: 08/15/19   Time: 16:01
Sample: 1990 2018
Included observations: 25

ECM Regression
Case 2: Restricted Constant and No Trend

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LTCNDZ)	2.782223	0.904202	3.076993	0.0068
D(LTCNDZ(-1))	-2.614378	0.855927	-3.054442	0.0072
D(LTCNDZ(-2))	0.492673	0.756466	0.651283	0.5236
D(LTCNDZ(-3))	-1.592413	0.628082	-2.535359	0.0213
CointEq(-1)*	-0.181463	0.041728	-4.348667	0.0004

Source: Outputs of Eviews 10

ARDL Long Run Form and Bounds Test
Dependent Variable: D(LINVDZ)
Selected Model: ARDL(1, 0, 4)
Case 2: Restricted Constant and No Trend
Date: 08/15/19   Time: 15:44
Sample: 1990 2018
Included observations: 25

Conditional Error Correction Regression

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.515554	1.701245	0.890850	0.3854
LINVDZ(-1)*	-0.181463	0.087413	-2.075916	0.0534
LINFDZ**	0.285002	0.105636	2.697957	0.0152
LTCNDZ(-1)	0.092985	0.514078	0.180878	0.8586
D(LTCNDZ)	2.782223	1.111324	2.503521	0.0228
D(LTCNDZ(-1))	-2.614378	0.928418	-2.815950	0.0119
D(LTCNDZ(-2))	0.492673	0.856890	0.574955	0.5729
D(LTCNDZ(-3))	-1.592413	0.716191	-2.223448	0.0400

* p-value incompatible with t-Bounds distribution.
** Variable interpreted as Z = Z(-1) + D(Z).

Levels Equation
Case 2: Restricted Constant and No Trend

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LINFDZ	1.570580	0.688093	2.282510	0.0356
LTCNDZ	0.512421	2.655710	0.192951	0.8493
C	8.351869	11.64409	0.717262	0.4830

EC = LINVDZ - (1.5706*LINFDZ + 0.5124*LTCNDZ + 8.3519)

Source: Outputs of Eviews 10

The relationship can be explained as follows:

Long-Term Relationship:

The first table shows the following:

The positive and statistically significant effect of the inflation rate on service investments. As the inflation rate increases by one unit, the volume of service investments increases by 0.28 units. This aligns with economic theory, which suggests that as inflation rates rise, investors tend to move toward less productive economic activities, such as the service sector. This is evident in the Algerian economy, which relies more on investments in the service sectors due to increased expenditures leading to higher inflation rates.

The positive and statistically significant effect of the exchange rate (lagged by one period) on service investments. As the exchange rate increases by one unit, the volume of service investments rises by 2.78 units. This also aligns with economic theory, which states that as exchange rates rise, especially foreign investors, they are drawn to service activities, as the depreciation of the local currency encourages foreign investors to increase their investments in the service sector.

Short-Term Relationship:

The second table shows that the exchange rate is the only independent variable affecting service investments in the short term. The exchange rate (lagged by one period) has a positive impact on service investments, where a one-unit increase in the exchange rate leads to a 2.78-unit increase in service investments, which is consistent with economic theory. However, inflation does not show an effect in the short term, as investors fear investing in the service sector due to the potential risk of future inflation, which could negatively impact investment volumes. The results also show a short-term dynamic relationship between service investments and the explanatory variables, attributed to the error correction term, which is negative and statistically significant. The value of (CointEq(-1) = -0.18) indicates that 18.14% of the disequilibrium in service investments can be corrected from one period to the next, and the negative sign supports the existence of a long-term equilibrium relationship between the variables.

Conclusion:

The increasing importance of the service sector in the global economy has led to a rise in investments in service sectors, accounting for 67% of global investment flows. Most of these investments come from developed countries, which possess advanced technology and technical expertise, unlike developing countries, which face financing issues and a lack of resources, widening the gap between them and developed countries. This necessitates the creation of an appropriate investment environment, especially since the service sectors have several distinguishing features compared to other sectors. The study reached the following conclusions:

The central bank is directly responsible for designing and implementing monetary policy using quantitative tools (such as the discount rate, open market operations, and required reserve ratio) and qualitative tools (such as loan framing policy and selective credit policy) to achieve the primary objective of price stability.

Coordination between monetary and fiscal policies is increasingly important, particularly as many countries adopt flexible exchange rate systems and inflation targeting as a means of implementing monetary policy. The effectiveness of this coordination depends on the development of financial markets.

Inflation distorts the investment pattern, leading investors to short-term activities while avoiding long-term projects. Many economic studies have shown a negative correlation between inflation rates and foreign direct investment (FDI) levels, as high inflation signals economic weakness, representing a risk for investors in terms of undesirable policies.

Sharp exchange rate fluctuations hinder the flow of FDI as they increase uncertainty, especially since they do not guarantee a reasonable level of profits. Exchange rates significantly affect production costs and real returns.

It can be said that monetary policy is one component of the investment climate used by countries to influence investor decisions. However, its role becomes more apparent only when the other factors and determinants of the investment climate are in good shape.

The study showed that in Algeria, as inflation rates increase, investment in service sectors rises. This can be explained by the fact that investors tend to move toward less productive sectors when inflation is high. In the short term, however, inflation does not impact attracting investments.

The relationship between exchange rates and investment in service sectors is positive, as higher exchange rates lead to increased investment flows. This aligns with economic theory, which suggests that as exchange rates rise, foreign investors, in particular, are drawn to service activities, as the depreciation of the local currency helps foreign investors increase their investments in the service sector.

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