

IMPACT OF COUNTRY RISKS ON FOREIGN DIRECT INVESTMENT IN ALGERIA

HOCINE YUCEF¹, KADEM DJAWAD², SEDDIKI ISMAIL³,
BNEMASSAOUD NASSREDDINE⁴

¹ University of Tlemcen , Algeria, Faculty of Economics, Trad and Management Science Money and Financial Institutions in the Arab Maghreb (Algeria).

² University of Ain Temouchent , Algeria, Faculty of Economics, Trad and Management Science, Laboratory Development of the Agricultural Sector (Algeria).

³University of ALGERIA 3 , Algeria, Faculty of Economics, Trad and Management Science (Algeria).

⁴ University of Ain Temouchent, Algeria, Faculty of Economics, Trad and Management Science, Laboratory Development of The Agricultural Sector (Algeria).

The Author's E-mail: etudiant.yh@gmail.com¹, djawad.kadem@univ-temouchent.edu.dz², sevrldpo@gmail.com³, Nassreddinbenmassaoud@univ-temouchent.edu.dz⁴

Received: 06/2024

Published: 12/2024

Abstract:

This research aims at the problem of attracting foreign direct investment in Algeria with an analytical and standard study, so that the most important factors affecting the attraction of foreign direct investment to Algeria are highlighted through a standard study of the impact of Qatari risks (Political risks, economic and financial risks), this in the period 1984-2020 using the ARDL model, all of the results indicated the fragility of the economic, political and financial system, coinciding with global developments, and thus Algeria's inability to attract foreign direct investment in the current circumstances, compared with its qualifications.

Keywords: Foreign direct investment, risks political, risks economic , risks financial, ARDL model.

JEL CLASSIFICATION : C22, C51, E62, F21

INTRODUCTION

This research aims to address the problem of attracting foreign direct investments in Algeria through an analytical and quantitative study. The spotlight was placed on the crucial factors influencing the attraction of foreign direct investments to Algeria, with a standardized study on the impact of country risks (political, economic, and financial risks). This study covered the period from 1984 to 2020, utilizing the ARDL model. The results all indicate the fragility of the economic, political, and financial systems, coinciding with global developments. Consequently, Algeria seems unable to attract foreign direct investments under the current circumstances, despite its existing qualifications.

Foreign direct investment (FDI) holds a central role in the agenda of economic policymakers owing to its vital role in energizing and intertwining with the global economic framework. It acts as a catalyst for local institutions, fostering their growth and technological advancement. Hence, comprehending investment dynamics is crucial for formulating policies and strategies aimed at alleviating barriers to business operations, thereby augmenting the appeal of FDI.

The increasing interest in providing a conducive environment to attract foreign direct investment (FDI) has become a prominent priority for policymakers due to its significance in stimulating and integrating into the global economic cycle, acting as a catalyst for local institutions to develop their capabilities, acquire technology, and create employment opportunities (Kevin, 2009). Proper understanding of investment is therefore considered a fundamental step towards formulating policies and strategies aimed at reducing constraints on business operations and consequently enhancing the attractiveness of FDI (Stancik, 2010). It can be argued that FDI serves as a means to create competition within the host country among local companies, thus increasing productivity and reducing unemployment levels, especially in developing countries (OECD, 2002). International organizations and bodies have classified investment as a tool relied upon to address a range of issues faced by developing countries, particularly to achieve economic and social development.

Henceforth, numerous developing nations embarked on economic liberalization, welcoming foreign investors, particularly around the 1990s, evident in the escalating influx of investment into these regions. Concurrently, emerging economies have witnessed a surge in investor appeal, as indicated by the escalating FDI inflows (Göndör. & Paula, October 2012).

Consequently, FDI has been the focal point of extensive research across various scholarly works, publications, and books, spotlighting its pivotal role in shaping economies.

The determinants influencing incoming FDI flows exhibit a broad spectrum, encompassing factors such as country risks, labor costs, market size, private sector growth, industrial development, government stability, corruption levels, and policy frameworks (Alan & Estrin, 2000). Literature also underscores several key factors crucial in attracting FDI, including macroeconomic stability (such as growth, inflation, and exchange rates), institutional consistency encompassing FDI policies and tax structures, transparency in legal regulations, corruption levels, and political stability (Resmini, 2000). Conversely, political and economic dynamics, privatization initiatives, and the imperative to secure market access have profoundly influenced the global distribution of FDI (Lucas, 1993).

1- Theoretical Aspect

1-1- Country Risks

The concept of country risk is complex and encompasses multiple dimensions. However, it is necessary to differentiate between what is referred to as country risk as an indicator and the overall concept of risk, which includes political, economic, and financial risks, as well as cultural risks, sovereign debt, and financial transfers. By using these indicators, we can measure quantitative differences between various countries.

1-1-1- Definition of Country Risks

Country risks refer to the risks associated with a particular country, stemming from economic, political, financial factors, and sometimes social and geographical factors. Several definitions have been utilized by researchers:

✓ Shapiro defines country risk as "the general level of political and economic uncertainty affecting the value of loans or investments in a country.

Therefore, analyzing country risks relies on assessing the political and economic factors of the host country for foreign direct investment (Shapiro, 1985)".

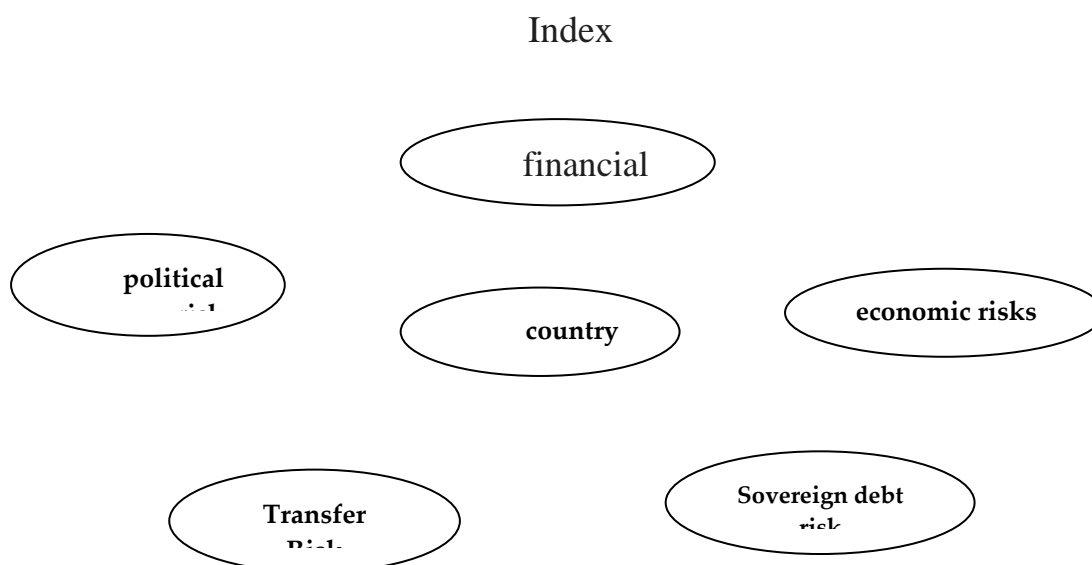
✓ Peijie Wang (2008) defines host country risk as "uncertainty in the political climate, economic environment, and financial situation negatively affecting the performance of institutions and companies in terms of interests and financial returns (Wang, 2009, p. 378)".

✓ Country risks (state risks or country risks) are defined as "potential losses resulting from non-compliance with obligations towards others due to political, economic, environmental, or social risks related to a specific country, making individuals or institutions unable to fulfill their obligations towards others" (KADEM, 2019)

1-1-2- Sections of Country Risks

Previous experiences of economic crises indicate fluctuations in exchange rates or consequences on economic structures, whether at the macro or micro level. Country risks can be potent at any time or place and can spread contagiously to other countries. Therefore, researchers have focused on them to avoid their recurrence due to their high cost on gross domestic product (GDP). Hence, the components of this indicator in our research can be categorized into three basic types:

Figure 1: The basic components of the country risk



source :(sissani, 2015, p. 37)

1-2- Foreign Direct Investment

1-2-1- Concept

Researching the topic of foreign investment leads us to differentiate between two types of foreign investments: foreign direct investment (FDI) and indirect foreign investment. Therefore, it is necessary to distinguish between the two concepts:

➤ Indirect Foreign Investment: This refers to portfolio investment (portfolio investment) or investment in securities, by purchasing stocks or bonds in financial markets. However, ownership does not grant individuals, entities, or companies the right to exercise any form of control or participation in regulating and managing the investment project. This type of foreign investment is considered short-term when compared to foreign direct investment.

➤ Foreign Direct Investment: There are various definitions and theories explaining this type of foreign investment, which is considered one of the most important topics in economics, garnering wide attention from researchers, governments,

and businesspeople due to the diversity of opinions regarding its importance and role in economic development. The International Monetary Fund (IMF) defines it in its annual report as "investment that acquires a fixed share in a project established in another economy, different from that of the investor, with the foreign investor controlling the management of the project".

According to the United Nations Conference on Trade and Development (UNCTAD), it is defined as "a type of investment involving a long-term relationship reflecting a lasting interest and the ability to exercise management control between the investor entity and the enterprise in the host country, with the investor entity owning at least 50% of the shares".

Additionally, it is described as "the process of transferring funds and assets from one nation to another by contributing the capital of one company to another, achieved through establishing overseas branches, augmenting capital, or forming new foreign entities in collaboration with foreign partners from another country" (Bernard, 1971).

Furthermore, it is defined as "the ownership of investments in a particular project, either partially or wholly, by non-resident individuals or entities, entailing the right to partake in the project's management or assume full control over it. This pursuit aims at attaining better returns, accessing cost-effective labor, or tapping into new markets. Moreover, foreign investors bring forth a range of financial, technological, and technical expertise resources across various sectors to host nations" .

1-2-2- Importance of Foreign Direct Investment in Developing Countries

Foreign direct investment (FDI) is beneficial for the host country and its economy in the short term, as it achieves rapid economic growth in all aspects of the economy. However, when considering growth rates of the economy in these countries generally and holistically, we find that economic growth rates are very weak and almost stagnant in the long term. Nevertheless, it positively affects encouraging citizens to invest and reducing the gap between savings and investment rates, a problem faced by all developing countries.

The most significant advantages of foreign direct investment include bringing modern technological innovations, raising the level and quality of production to international standards, developing human resources skills and capacities, introducing improvements in management methods and techniques in developing countries, as well as increasing employment rates due to the need for a workforce to operate new projects, and raising market capitalization rates.

In addition, foreign investments drive governments in developing countries to undertake developmental projects to enhance infrastructure efficiency. This is achieved

through the establishment of commercial trade networks linking all parts of the country to distribute production and develop international transportation between them and neighboring countries and the rest of the world to market their products in foreign markets. As a result, the country's economy improves overall, which is evident in the increase in wages and the services provided to its citizens.

1-2-3- Factors Attracting Foreign Investments:

Several pivotal factors sway the decisions of foreign investors when considering investments in developing nations. Among these, as outlined by are:

❖ **Security and Political Stability:** Political turmoil, armed conflicts, or security instabilities deter investors from risking their capital in such environments. Investors prioritize stability and seek secure investment destinations.

❖ **Legislation and Investment Laws:** The stability and coherence of investment-related legislation hold paramount importance for investors when choosing where to allocate their funds. Consistency in investment laws is a crucial determinant.

❖ **Government Support:** Many developing countries extend incentives to foreign investors, including tax breaks, competitive labor costs, and additional support services, to attract investment.

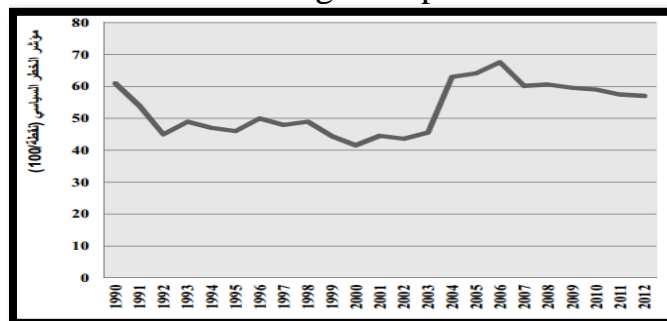
❖ **Legal Safeguards against Political Risks:** Investors demand assurances from government bodies to safeguard against risks such as asset seizure, restrictions on currency transfer, ambiguity in policies, and lack of transparency in governmental transactions.

2- Analysis of the Algerian Situation with in Country Risks

2-1- Analysis of Algeria's country risk situation

2-1-1- Political Risk Analysis

Figure 2: Evolution of Algeria's political risk index



source :(BERBECHE, 2016, p. 133)

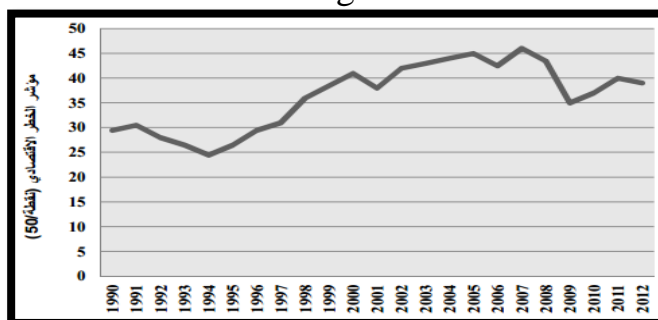
The political risk index in Algeria experienced a consistent decline, notably throughout the 1990s, coinciding with the onset of economic reforms and a deterioration

in the security and political landscape. Consequently, investors shifted their focus towards the oil sector, which was relatively distant from regions facing security challenges. However, starting from the year 2000, there was a notable enhancement in the overall security situation globally, owing to Algeria's adoption of a rational and stringent security policy. This played a significant role in revitalizing the flow of foreign direct investment into Algeria during that period (BERBECHE, 2016, p. 133).

2-1-2- Economic Risk Analysis

By tracking the evolution of the Economic Risk Index in Algeria, specifically the International Country Risk Guide (ICRG), the following chart illustrates the Economic Risk Index:

Figure 3: Evolution of Algeria's economic risk index



SOURCE :(BERBECHE, 2016, p. 136)

During the initial years (1990-1999), Algeria witnessed a continuous decline in the Economic Risk Index due to political instability and civil conflict, leading to significant imbalances in the overall economy. This situation compelled Algeria to resort to international financial institutions to obtain international financing for its institutions. This process went through several stages:

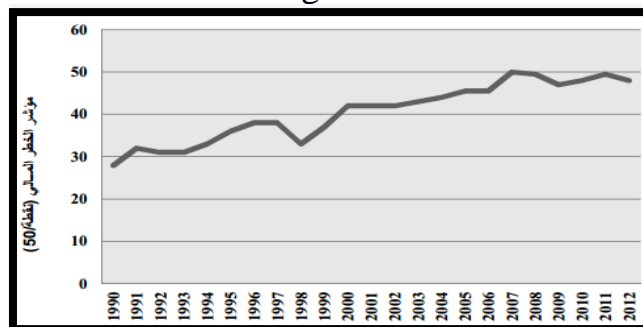
conditional phase with the International Monetary Fund (IMF) (1990-1991), phase focused on structural adjustment within the framework of debt restructuring (1991-1994), phase aimed at achieving economic stability through external debt rescheduling (1995-1998).

In the subsequent period (2000-2012), Algeria experienced an improvement in its economic climate, coinciding with rising oil prices. This led to the implementation of various economic revitalization programs, including the Economic Revitalization Program (2001-2004), the Supplementary Program for Economic Support (2005-2009), and finally, the Five-Year Revitalization Program (2010-2014) (BERBECHE, 2016, pp. 136-146)

2-1-3- Financial Risk Analysis

The following chart illustrates the evolution of the Financial Risk Index in Algeria:

Figure 4: Evolution of Algeria's financial risk index

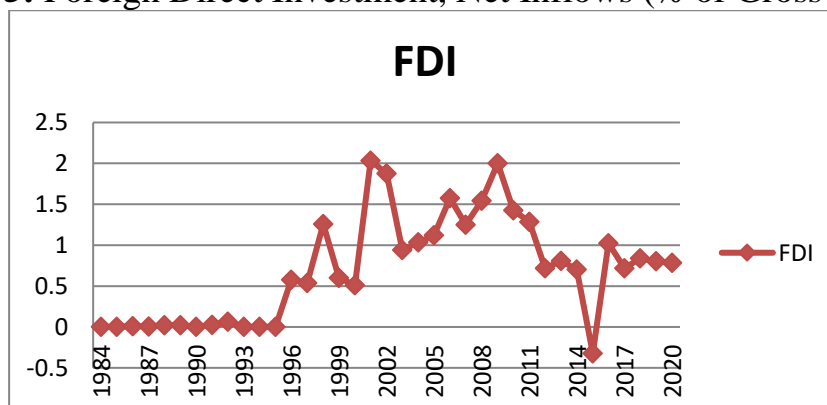


SOURCE :(BERBECHE, 2016, p. 147)

Through the above figure, we notice a continuous improvement in the level of the financial risk index in Algeria, except for the years 1998-2009, where the financial risk index witnessed a decrease, reaching levels between 33-47 points in ranking. In contrast, its lowest level was recorded in 1990 at 28 points. Conversely, its highest level was reached in 2011 at 49 points. All these changes reflect the financial situation in Algeria, where external debt is considered one of the most influential factors on the level of the financial risk index. Its presence is considered a deterrent factor for foreign investors, as it reflects poor management of the country's affairs and weakens the negotiating position of debtor countries. Creditworthiness analysts in banks and lending countries give great importance to economic, financial, and even political indicators. This is known by most developing countries that are in permanent recession due to the burden of external debt, unlike advanced countries (such as the United States of America, the most indebted country). (BERBECHE, 2016, pp. 147-152)

2-2- Evolution of Foreign Direct Investment in Algeria

Figure 5: Foreign Direct Investment, Net Inflows (% of Gross Domestic Product)



SOURCE :From student preparation and based on World Bank statistics

The dependent variable: Represents the net inflow of Foreign Direct Investment (FDI) into Algeria, denoted as FDI in the study, expressed as a percentage of Gross Domestic Product (GDP).

The study period came after a period of political and security instability in Algeria, which was the worst period for attracting Foreign Direct Investment (FDI) inflows. These were considered deterrent to FDI due to the security situation in Algeria during that period, resulting in no inflow of foreign investments. However, the beginning of the study period witnessed an economic transition, market economy introduction, and structural reforms under the guidance of the International Monetary Fund (IMF) and the World Bank. This opened the door for Foreign Direct Investment (FDI), with currency devaluation during this period making Algeria relatively attractive for foreign investments between 1996 and 1998.

With the improvement in the security and political situation in Algeria and the global rise in oil prices, along with adjustments in investment attraction factors, the balance of inflowing investments witnessed continuous growth, reaching its highest level in 2009, exceeding \$2.75 billion, which accounted for 2.007% of Algeria's GDP. The fluctuations observed since 2010 can be attributed primarily to the global financial crisis that hit the world economy as a whole. This crisis exacerbated the debts of multinational corporations worldwide, leading to withdrawal of investments from some projects. Additionally, the decline in global oil prices during the study period also contributed to this fluctuation.

3- Empirical Study

This section will present the theoretical background of the Autoregressive Distributed Lag (ARDL) bounds testing approach, followed by the results obtained using the ARDL model in the study.

3-1- Autoregressive Distributed Lag (ARDL) Bounds Testing Methodology

In this study, we will rely on the Autoregressive Distributed Lag (ARDL) bounds testing approach, developed by Pesaran et al. (1997, 2001). This model is based on the bounds testing procedure and is characterized by its applicability regardless of the properties of the time series, whether they are stationary at level $I(0)$, integrated of order one $I(1)$, or a mixture of both $I(0)$ and $I(1)$. However, this test requires that the time series variables are not integrated of order two $I(2)$. The ARDL model enables us to separate short-term effects from long-term effects, as we can determine the cointegrating relationship between the dependent variable and independent variables in both the short and long run in the same equation. Additionally, it helps determine the size of the impact of each independent variable on the dependent variable (Dahmani, 2011, p. 135).

When the variables under study are integrated of the same order, joint integration tests such as (Engel & Granger, Johansen) are required. However, this type of study yields inaccurate results when dealing with a small sample size, imposing a condition

on the use of these two methods in analyzing long-term relationships between variables (Hassler & Jürgen, 2005, p. 5) .

The Autoregressive Distributed Lag Model (ARDL) methodology emerged as a solution to these two problems and has become a widely used approach in recent years. This methodology, introduced by Pesaran et al. in 2001, integrates Autoregressive Models with Distributed Lag Models into one model. In this approach, time series are functions of their own lagged values and lagged values of explanatory variables by one or more periods (PESARAN, SHIN, & SMITH, 2001, p. 289).

This methodology can also be applied to short time series, in addition to the possibility of obtaining estimates of short and long-term effects simultaneously. However, this methodology requires that none of the variables under study are integrated of the second order. The decision on joint integration relies on the bounds test, which measures the absence of a common integration relationship under the null hypothesis versus the presence of a common integration relationship under the alternative hypothesis. This is determined by comparing the calculated F-statistic with the critical upper or lower bounds obtained either from Pesaran et al. (2001) or Narayan. The critical bounds from Narayan are used when the sample size ranges from 30 to 80 observations (Narayan, 2005).

The basic model of the ARDL model is written as follows:

$$\Delta y_t = \delta_0 + \sum_{i=1}^p \delta_k \Delta y_{t-i} + \sum_{i=1}^q \beta_k \Delta x_{t-i} + \psi_1 y_{t-1} + \psi_2 x_{t-1} + u_t$$

where y_t is the dependent variable, x_t is the vector of explanatory variables, (p, q) are the upper bounds for the lag lengths of variables in the model, Δ represents differences, δ_k and β_k indicate short-term parameters, ψ_1 and ψ_1 represent long-term parameters.

To apply this methodology, the following steps are undertaken:

1. Stability analysis;
2. Conducting bounds testing (joint integration test);
3. Testing for optimal lag lengths of the model;
4. Estimation of long-term coefficients, estimation of the error correction model;
5. Model diagnostics through conducting residual autocorrelation tests, heteroscedasticity tests, and model stability tests (structural stability of estimated parameters), including the Cumulative Sum of Squares (CUSUM) and Cumulative Sum of Squares Squared (CUSUMSQ) tests.

3-2- Model Building:

To explore the relationship between Foreign Direct Investment (FDI) flows and country risks in Algeria during the period 1984-2020, the model is constructed as follows:

The economic model assumes the following linear specifications for the dependent and independent variables:

$$FDI = f(Pol Risk; Econ Risk; Fin Risk)$$

Where:

-*Pol RISK*: Political risks consist of 12 variables, but we'll abbreviate to the following variables: Government Stability (GS), Investment Profile (IP), Corruption (C).

-*Econ RISK*: Economic risks consist of 5 variables, with the average GDP per capita (NGDP) and Inflation Rate (INF) used.

-*Fin RISK*: Financial risks consist of 4 variables, with Exchange Rate Stability (TC) used.

The model is represented as follows:

$$\begin{aligned} \Delta FDI_t = & \delta_0 + \sum_{i=1}^p \delta_{1k} \Delta FDI_{t-i} + \sum_{i=1}^q \beta_{2k} \Delta POL RISK_{t-i} + \sum_{i=1}^q \beta_{3k} \Delta ECON RISK_{t-i} \\ & + \sum_{i=1}^q \beta_{4k} \Delta FIN RISK_{t-i} + \psi_1 FDI_{t-1} + \psi_2 POL RISK_{t-1} \\ & + \psi_3 ECON RISK_{t-1} + \psi_4 FIN RISK_{t-1} + u_t \end{aligned}$$

3-3- Estimation Results:

3-3-1- Time Series Stationarity Study

Table 1: Time Series Stationarity Study using ADF

		UNIT ROOT TEST TABLE (ADF)						
		At Level						
		FDI	GS	IP	C	NGD P	INF	TC
With Constant	t-Statistic	-0.1	-2.934	-0.8	-0.84908	-3.16064	-4.26503	-3.91876
	Prob.	0.149	0.0525	0.635	0.7915	0.0317	0.0020	0.0053

With Constant & Trend	t-Statistic	-1.3	-2.883	-1.8	-1.161269	-3.732436	-4.855045	-2.382981
	Prob.	0.193	0.1806	0.448	0.9022	0.0340	0.0023	0.3805
		At First Difference						
		FDI	GS	IP	C	NGDP	INF	TC
With Constant	t-Statistic	-8.235	-4.118	-1.6	-5.540173	/	/	/
	Prob.	0.0000	0.003	0.000	0.0001	/	/	/
With Constant & Trend	t-Statistic	-5.857	-4.273	-1.5	-5.695602	/	/	-5.539319
	Prob.	0.0002	0.017	0.000	0.0003	/	/	0.0004

Source: Prepared by the student based on EVIEWS 10 outputs.

From the observation of the table above for the Dickey-Fuller expanded ADF test, we find that both (TC, FDI, GS, IP, C) are not stationary at the level; where the computed t-values using absolute values were lower than the critical t-values (critical values at 5% significance level, where we accept the null hypothesis H0 of unit root existence), indicating that the series is not stationary. As for NGDP, INF, they are stationary at the level according to the table above. After conducting the ADF test following the first-order differencing of the time series components of the model, we found that they are first-order stationary for the variables that were not stationary at the level, as indicated by the table through the significance of (TC, FDI, GS, IP, C).

To obtain more reliable results, we conduct the Phillips-Perron (PP) test for each series of the model, and the following table shows the results of the PP test.

Table 2: Time Series Stationarity Study using PP

		UNIT ROOT TEST TABLE (PP)						
		At Level						
		FDI	GS	IP	C	NGDP	INF	TC
With Constant	t-Statistic	-2.226010	-1.933425	-1.820134	-0.919304	-3.233671	-4.265038	-2.977332
	Prob.	0.2013	0.3136	0.3646	0.7694	0.0268	0.0020	0.0475

With Consta nt & Trend	t- Statist ic	- 2.8437 93	- 1.9005 51	- 2.1078 64	- 1.4137 20	- 3.8028 77	- 4.7792 24	- 1.3126 44
	Prob.	0.1928	0.6316	0.5227	0.8380	0.0291	0.0028	0.8671
		At First Difference						
		FDI	GS	IP	C	NGDP	INF	TC
With Consta nt	t- Statist ic	- 1.0787 24	- 4.0637 03	- 4.7199 80	- 5.5409 51	/	/	/
	Prob.	0.2482	0.0036	0.0006	0.0001	/	/	/
With Consta nt & Trend	t- Statist ic	- 9.1488 89	- 3.9814 11	- 4.6642 73	- 6.9084 21	/	/	- 5.3051 59
	Prob.	0.0000	0.0198	0.0039	0.0000	/	/	0.0008

Source: Prepared by the student based on EVIEWS 10 outputs.

By observing the unit root test table of Phillips-Perron, we found almost the same result as the Dickey-Fuller expanded test, where all the series used in the model are non-stationary at their levels (TC FDI, GS, IP, C), as the computed t-values using absolute values were lower than the critical t-values (critical values at 5% significance level, where we accept the null hypothesis H0 of unit root existence). This implies that the series are non-stationary, thus necessitating the first-order differencing, which rendered the time series stationary, except for NGDP INF, where they remained stationary at the level.

3-3-2- Cointegration Bounds Test

We adopt the critical values from Narayan (2005) when the sample size ranges from 30 to 80 observations. The bounds test revealed the presence of cointegration relationship, which is compared with F (Kumar, 2005, p. 1981).

According to this method, the computed F-statistic should be greater than the upper bound of the critical values. Thus, we can verify cointegration using the ARDL bounds test approach, as illustrated in the following table:

Table 3: Bounds Test for Cointegration

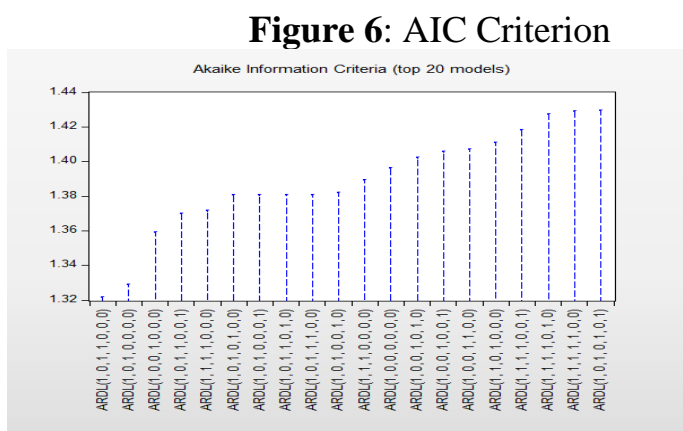
Delay period	value F-Statistic	maximum	minimum	critical values
1	3.74	2.94	1.99	10%
		3.28	2.27	5%
		3.71	2.88	1%

Source: Prepared by the student based on EVIEWS 10 outputs.

From the table above, we notice that the computed F-statistic is greater than the upper bound of the critical values. Therefore, we reject the null hypothesis H_0 and accept the alternative hypothesis H_1 , indicating the presence of cointegration between foreign direct investment flows and the study variables.

3-3-3- Optimal Lag Length Test

By relying on the AIC criterion, the optimal lag lengths have been determined, which are represented as (1.0.1.1.0.0.0), as shown in the following figure:



Source: EViews 10 outputs

3-3-4- Estimation of Long-Run and Short-Run Relationships and Error Correction Model

Table 4: Estimation of Long-Run and Short-Run Relationships

Short-term relationship and error correction model		long-term relationship	
ARDL (1.0.1.1.0.0.0)		Choose the ideal model	
transactions	dependent variable D(FDI)	transactions	dependent variable FDI
-0.3916**	D(CO)	-1.034**	CO
***0.0089	D(GS)	**0.429	GS
-0.0112	D(IP)	0.108	IP
0.0108	D(NGDP)	**0.007	NGDP

-0.00605***	D(INF)	** -0.044	INF
0.00007	D(TC)	*0.032	TC
*-0.8877	cointEq(-1)	***2.149	C
0.8178		R-squared	
Indicates statistical significance at *** , ** , * levels of 1%, 5% and 10% respectively			

Source: Prepared by the student based on EVIEWS 10 outputs

Based on the obtained results, the standard equation of the study is as follows:

$$FDI = 2.149 - 1.034CO + 0.429GS + 0.007NGDP - 0.044INF + 0.032TC$$

From the results of the long-run and short-run estimation shown in Table 2-11, the following observations can be made:

➤ Long-run:

The parameters of the variables are all statistically significant at 1%, 5%, and 10% levels except for the investment map (IP). This indicates that corruption, political stability, exchange rate, inflation, and GDP growth rate have a significant impact on foreign direct investment (FDI). The explanatory power of the independent variables (CO, GS, IP, NGDP, TC, INF) on the dependent variable (FDI) reached ($R^2=81.78$), meaning that the variation in inbound foreign investment can be explained by the independent variables studied.

➤ Short-run:

The results of the error correction model also showed the speed or slow return of variables to equilibrium, which is moral and negligible to detect a common integration of the variables. In this model the error correction coefficient, which means the speed of error correction, is negative and is about (0 .8877) and we note that it has a strong statistical morale at 1% (0.000) level. This increases the accuracy and validity of the long-term equilibrium relationship, and also indicates that 88% of all imbalances in the balance of FDI flows in the previous year are corrected in the current year, indicating that adjustment in the model was relatively rapid.

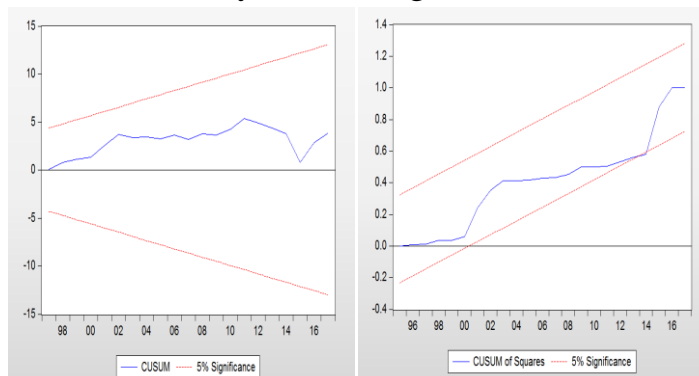
4- Model diagnostic tests and results analysis

4-1- Diagnostic tests of the model

Diagnostic tests for the ARDL model for both long-run and short-run estimation were conducted to ensure the reliability and validity of the model.

4-1-1- Model Stability Test Using CUSUM and CUSUMSQ Tests

Figure 7: Model Stability Test Using CUSUM and CUSUMSQ Tests



Source: EVIEWS 10 outputs

From the figure above, we observe that both the cumulative sum of residuals (CUSUM) and the cumulative sum of squares of residuals (CUSUMSQ) are within the critical bounds, indicating structural stability of the ARDL model at a significance level of 5%. Therefore, it can be concluded that there is stability and consistency in both the long-term and short-term model results.

4-2-1- Test for the Presence of Serial Correlation and Heteroskedasticity

➤ Test for the Presence of Serial Correlation:

Using the Breusch-Godfrey Serial Correlation LM Test, the results in Table 2-12 indicate no presence of serial correlation in the models. This is confirmed by the p-value (0.38) for the model, which is greater than 0.05, thus accepting the null hypothesis.

Table 5: Test for the Presence of Serial Correlation

Breusch-Godfrey Serial Correlation LM Test:			
F-statistic	0.537114	Prob. F(1,23)	0.4710
Obs*R-squared	0.753056	Prob. Chi-Square(1)	0.3855

Source: EVIEWS 10 outputs

➤ Test for the Presence of Heteroskedasticity

Table 6: Test for the Presence of Heteroskedasticity

Heteroskedasticity Test: Breusch-Pagan-Godfrey			
F-statistic	1.561891	Prob. F(8,24)	0.1888
Obs*R-squared	11.29847	Prob. Chi-Square(8)	0.1854
Scaled explained SS	23.13234	Prob. Chi-Square(8)	0.3265

Source: EVIEWS 10 outputs

The results of the Breusch-Pagan-Godfrey test for detecting heteroskedasticity indicate that the probability value of the Chi-Square statistic in the model is greater than 0.05 (0.18), indicating the acceptance of the null hypothesis. Therefore, it can be concluded that the model is free from heteroskedasticity.

4-2- Analysis and Discussion of Results:

✓ The results of the model estimation show that corruption has an inverse relationship with the volume of foreign direct investment (FDI) in Algeria, meaning it has a negative effect. This is consistent with economic theory, where an increase in corruption by 1% leads to a decrease in FDI by 1.034%. This result aligns with numerous empirical studies that emphasize the detrimental impact of corruption on society and the state. Corruption undermines the overall stability of the state, erodes investor confidence, and weakens both internal and external strength. This indicates the institutional environment's failure to attract foreign investors due to governance indicators characterized by widespread corruption, lack of effective organizational quality, inefficient and non-independent judicial systems. The government's inefficiency and lack of will in creating a conducive environment for attracting foreign investors are evident. Moreover, bureaucratic obstacles have become a hobby in Algerian administrations, contributing to increasing economic transaction costs and creating a state of uncertainty that raises the level of risk, leading to a decline in foreign direct investment inflows. This finding is consistent with the findings of Mihaela Peres et al. (2018), Sabir et al. (2019), and Gangi & Abulrazak (2012).

✓ Furthermore, the results indicate a significant inverse relationship between inflation rate and the volume of foreign direct investment (FDI) in Algeria. Specifically, for every one-unit increase in the inflation rate, FDI decreases by 0.044. This finding aligns with economic theory, where the weak impact of inflation changes on foreign projects in Algeria can be attributed to their concentration in high-yield activities such as petroleum. Additionally, their reliance on international markets for various goods, materials, and resources may contribute to this weak impact.

✓ Similarly, the results show a significant positive relationship between exchange rate and foreign investment in the long term, which is economically acceptable. Exchange rate appreciation typically leads to a decrease in the value of the local currency, a strategy often pursued by countries to attract foreign direct investment. According to the model, a one-unit increase in the exchange rate leads to a 0.032 increase in foreign direct investment in the long term.

✓ As for the Gross Domestic Product (GDP) growth variable (GDP_it), it has a statistically significant positive impact on foreign direct investment in Algeria. Specifically, a one-unit change in GDP leads to a 0.007% increase in FDI. However, the impact is very weak. This result is consistent with studies by Sedik (2012), Nahed Zghidi et al. (2016), and aligns with economic theory, as GDP is an important economic determinant for FDI. It measures market size, which is crucial for attracting foreign direct investment, as large markets in a country reduce costs and attract more investments in various industrial, agricultural, and service sectors.

✓ Moreover, there is a significant positive relationship between government effectiveness index and foreign direct investment inflows as a percentage of GDP. An increase in the government effectiveness index by one unit leads to a 0.429 increase in the FDI percentage. This finding is in line with expectations, as foreign investors are attracted to countries with credible governments that adhere to favorable policies and ensure good public services. Stability in governance encourages foreign investors as it guarantees their rights. The stability and continuity in governance in Algeria post the "black decade" period encouraged FDI inflows. This is consistent with economic theory, as governmental stability stimulates foreign investors by ensuring their rights. Conversely, governmental instability, characterized by successive and rapid changes in ministries, indicates political system conflicts, which may lead to increased risk in foreign direct investment in the future.

✓ As for the investment map variable, its relationship with foreign direct investment (FDI) was positive but not significant. This lack of significance can be attributed to the fact that most foreign investments in Algeria are concentrated in the energy sector.

Conclusion:

The concept of foreign direct investment (FDI) emerged as a consequence of global economic integration, which brought about shifts in traditional production models. This led multinational corporations to traverse continents towards developing nations, enticed by lower labor costs and abundant natural resources. These cross-border movements entail the transfer of capital, technology, and equipment, reshaping the spatial distribution of goods and services production.

The significance of FDI is underscored by its diverse definitions and the various economic theories elucidating this phenomenon.

In our study, we aimed to delve deeper into the primary determinants influencing the inflows of foreign direct investment in Algeria. Despite Algeria's inherent capacities

and advantages that attract investors, the investment climate is shaped by the country's economic and social landscape.

Although Algeria has endeavored to enhance the investment climate through legislative reforms, economic liberalization initiatives, tax restructuring, and institutional facilitation, it continues to be categorized with low FDI levels by international institutions. Deficiencies in public policies have spawned a parallel market, impeding investment. Moreover, challenges within the banking system, industrial infrastructure, and bureaucratic processes have compounded the investment environment, heightening uncertainty and risk, thereby affecting FDI inflows.

Key Findings:

- The policy of attracting FDI relies on coordinating various macroeconomic policies, institutional aspects, legislative environments, and business climates.

- Despite slight improvements in Algeria's overall economic indicators, which are among the key determinants of the investment climate, statistical data show that Algeria's share of FDI remains weak, classified among countries with high risks, indicating that FDI has not reached the desired level.

- The investment climate in Algeria has not yet reached the desired level to attract a large number of foreign direct investments due to various economic, political, social, legal, and tax risks, hindering the flow of foreign direct investments.

- Political risks, especially corruption and government stability, significantly impact the attractiveness of foreign direct investments in Algeria.

- Economic risks, such as high inflation rates, declining GDP growth rates, and unclear privatization programs, are among the main factors affecting the attractiveness of foreign direct investments in Algeria.

- Finally, through statistical analysis, it is evident that foreign direct investments in Algeria are affected by political, financial, and economic risks, with political risks having the greatest impact on the inflow of foreign direct investments into Algeria.

references

Alan, & Estrin. (2000). The determinants of Foreign Direct Investment in Transition Economies.

BERBECHE, A. (2016). FDI to Maghreb States Case: Algeria-Morocco-Tunisia Standard Analysis 1990-2012. *Thesis for PhD in economics* . Faculty of Economic, Commercial and Management Sciences, ALGERIA: Mohammed Boudiaf University.

Dahmani, M. &. (2011). The Impact of Foreign Direct Investment on Economic Growth in Algeria. *Journal of Economic Sciences* , 6 (6), 124-139.

Göndör., M., & Paula, N. (October 2012). Fiscal Policy and Foreign Direct Investment: Evidence from some. *Procedia - Social and Behavioral Sciences* , 1256 – 1266.

Hassler, U., & Jürgen, W. (2005). Autoregressive distributed lag models and cointegration. *Free University Berlin, School of Business & Economics* .

KADEM, H. Y. (2019, 07 06). *Electronic reference with information*. Retrieved 04 18, 2022, from Country risks: <https://almerja.com/reading.php?idm=118928>

Kumar, P. (2005). The saving and investment nexus for China: evidence from cointegration test. *Applied economics* , 17 (37), 1979-1990.

Lucas, R. (1993). on the Determinants of Direct Foreign Investmen :Evidence for east and southeast asia. *World Development, Vol.21, No.3* , pp. 391-406.

Narayan, P. K. (2005). The saving and investment nexus for China: evidence from cointegration test. *Applied economics* , 37 (17), 1979-1990.

PESARAN, M. H., SHIN, Y., & SMITH, R. (2001). Bounds testing approaches to the analysis of level relationships. *Journal of Applied Econometrics* , 16 (3), 289-326.

Resmini, L. (2000). Resmini, The Determinants of Foreign Direct Investment into the CEECs: New Evidence from Sectoral Patterns, LICOS and L.Bocconi University.

Shapiro, A. C. (1985). "Currency risk and country risk in international banking." 40.3 (1985): PP 881-891. *The Journal of Finance* , 40 (03), 881-891.

sissani, m. (2015). Analyzing the impact of country risks on the attractiveness of foreign direct investments. *A dissertation submitted to obtain a doctoral degree* . Commercial sciences, algeria: university ibn kheldoun tiaret.

Wang, P. (2009). The economics of foreign exchange and global finance. *Springer-Verlag Berlin Heidelberg* .

