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The Determinants of Foreign Direct Investments Attractiveness to Host Countries:Case studied Algeria

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Abstract
The aim of this paper is to study the relation betweencountry risk, inflation, GDP, FX reserves, exports and their impact onforeign direct investments (FDI) attractiveness to Algeria. The multiple linearregression models during 1990-2012 showed a negative relationship with inflation with R= 0.92 and R^2 = 0.85.
Keywords : Attractiveness, competitiveness, diversification, foreign direct investments, countryrisks.
Classification JEL : C13, C25, F21, F18, F30, F41.

1.Introduction

The future and the economic prosperity of Algeria depend on foreign direct investment inflows. With reference to the importance and the great need to diversification of income resources and Risk reduction of over-reliance on hydrocarbon revenues that exceeded 95% during the period studied which is causing the fragility of the national economy. Moreover,Algeria requires a very high average oil price in order to cover domestic spending. 2011 and 2012 witnessed numerous economic and political events and although Algeria was not so much affected by Arab Spring which led to the declination of lot of FDI projects Thus, the World Investment Report2012 notes (Unctad, 2012)illustrated that North Africa starts to see signs of a revival in cross-border investment activities, after declines rooted in the area's political turmoil in 2011. FDI flows to North Africa increased by 35 per cent to $11.5 billion in 2012. Much of this increase was accounted for by a turnaround in Egypt, where inflows climbed from a net divestment of $0.5 billion in 2011 to a positive $2.8 billion in 2012. The economy of Algeria is heavily dependent on petroleum and natural gas and the government tried to adapt serious liberalization mechanism to achieve diversification in sources of income but The hydrocarbon sector remain dominate and contribute over 50% to GDP and more than 96% to government revenues(Joffé, George,2002).

Recently, Algeria as one of the greatest oil exporter tries to promote non The hydrocarbon exports through encouraging privatization ,FDI and fiscal facilities, liberalization of foreign trade(Haussmann, R., Klinger, B., & Lopez-Calix, J. 2010).

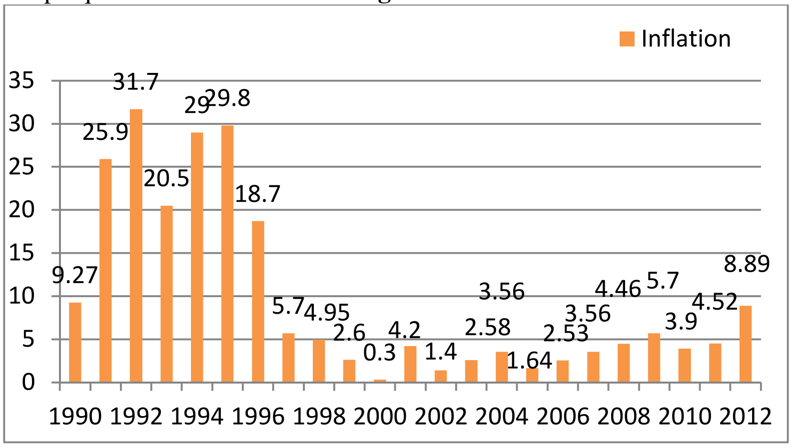
The fifth edition of The IMF's balance of payment manual defines as a foreign direct investments the non-resident who owns and control 10 % of the ordinary shares or voting power in a public or private companyFalzoni, A. M. (2000). Statistics on foreign direct investment and multinational corporations: a survey.(Falzoni, Anna M,2000).

2. Literature Review and Theoretical Framework

Many theoretical and empirical studies discussed the different factors which influence investors and multinational enterprises international(MNEs)entries in research on the factors that determine FDI patterns and the impact of MNCs on parent and host countries. (Sissani, M., &Belkacem, Z,2014) studied the Impact of country risk on the attractiveness of FDI TOWARDS Algeria and found out that the economic risk matter most .However, (Wei, S. J,2000) studied other factors such as GDP, inflation rate ,the exchange reserves and the effect of exchange rate movements on FDI.There are many theoretical papers that examined the effect of inflation ,GDP ,country risk ,the foreign exchange reserves on the FDI .According to (Ehimare, Omankhanlen Alex,2011) inflation has no effect on foreign direct investments but he find that exchange rate has an obvious effect .In Algeria inflation rate measures a broad rise or fall in prices that consumers pay for a standard basket of goods.

The Algeria's inflation rate increased from 4.5% in 2011 to 8.9% in 2012, this is due to the high prices of some fresh products during the first half of 2012. Graph1 shows the development of the inflation rate in Algeria in the period studied.

Graphique 1:. **Inflation rate in Algeria from 1990 to 2012.**



Source : Bank of Algeria, report 2012.From : http://www.bank-of-algeria.dz/

According to (Jadhav, P,2012) who used a panel data and and multiple regressions for the period (2000-2009) to examine the determinants of FDI in (BRICS)Countries : Brazil, Russia, India, China and South Africa . The study took some economic determinates such as: Market Size, Trade openness and some Macroeconomic as Inflation Rate, political stability beside Corruption and Rule of Law.Findings indicate that economics factors are more significant than institutional and political Factors in BRICS economies. On other hands, Trade openness and Real GDP are significant determinates of FDI. However, (Kok, Recep, and BernurAcikgoz Ersoy,2009) using both a panel of data and cross-section for 24 developing countries, during the period 1983-2005 found that the interaction of FDI with the total debt service/GDP and inflation have a negative impact.

However ,(Djankov, Simeon, et al,2008)and(Dorn, James A.,2012) Both think that developed and developing countries have engaged in the construction of a great funds of foreign exchange reserves. These assets are generally controlled and held by central banks and monetary authorities .They are used in the balance of payments needs or to face a situation where supply and demand would tend to push the value of the currency lower or higher or in the sterilization process to protect the domestic monetary base. The outstanding foreign exchange reserves of Algeria reached 190.66 billion dollars at the end of 2012 against 182.22 billion dollars in 2011.

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The causal link between Gross Domestic Product(GDP)and FDI was surprising . According to (Basu, Parantap, ChandanaChakraborty, and Derrick Reagle,2007) study ,their co integrating vectors reveal a bidirectional causality between GDP and FDI for more open economies. But (Haitao Sun,2011) found that GDP has a positive effect on FDI in a short period besides, (Chowdhury, Abdur,2011), results show that GDP causes FDI in the case of Chile and not vice versa based on the Toda-Yamamoto test for causality, to time-series data covering the period 1969-2000.FDI has increased since the 1980s and as it contributes towards economic growth, many countries have tried to offer special tax incentives and subsidies to attract foreign capital .TheOecd which defines FDI as investment by a resident entity in one Home economy Country that reflects the objective of obtaining a lasting interest in an enterprise resident in another host country. The lasting interest leads to a long-term relationship between the investor and the enterprise beside a significant degree of influence by the direct investor on the management of the enterprise. The ownership of at least 10% of the voting power.

3. Analysing Investment Climate and FDI Trends in Algeria

Algeria has made a great progress to reach a market economy. Everything started with the application of the law 90/10 which allowed Central Bank the authority to formulate and implement monetary and foreign-exchange

policies. The law allowed full foreign ownership of new investment projects, encouraged unrestricted joint ventures between foreign companies and Algerian private concerns too. The government introduced a major liberalization of external trade and devaluated the dinar value to 100 % between 1990 and 1991.
Although, the positive macroeconomic outlook, there are still vulnerabilities especially the great dependence on hydrocarbon revenue, risks posed by rising inflation which climbed to 8.9% in 2012. No Doubt that, Algeria with its hydrocarbon wealth, foreign exchange reserves which reached 193.4 billion dollars at the end of December 2012 against 181.5 billion dollars in December 2011, expanding infrastructure needs, growing consumer product demand, is really attracting interest from foreign investors and companies around the world. Algeria has made a great performance in its macroeconomic results where its real GDP Grew at 3.3% in 2010 and decreased to 3.1 in 2012 due to the oil sector and in a total absence a diversification and a higher unemployment which reached 8.9% in2012.

Table 1: **Algeria macroeconomic indicators: 2009-2012**

	2009	2010	2011	2012
Nominal GDP	138.0	160.8	190.7	206.5
Real GDP Growth (%)	2.4	3.3	2.5	3.1
Oil GDP Growth (%)	-6.0	-2.6	-2.1	-0.7
Fiscal Balance (% GDP)	-6.4	-2.4	-3.6	-1.0
Reserves (US $ B)	148.9	162.2	181.5	193.4
Population (M)	34.9	35.5	36.0	36.5
Unemployment (Labourforece%)	10.4	11.1	9.9	8.9

Source : IMF , Staff Country report 2011.Report 12/20,P9.

The restrictive foreign investment rules enacted in 2009 and 2010, which imposed a requirement of at least 51/49 % Algerian ownership of foreign investments, have created a sort of threat and uncertainty to foreign Investors. The private sector remained weak with 1.07 % and incapable to contribute in the local economy where the public sector is dominant with almost 98.81%.

Table2:**Development of FDI by legal sectors in Algeria 2002 -2011.**

Legal sectors	Nb of Project	%	Employment
Private	47028	98.81%	656817
public	509	1.07 %	80934
Mixed	56	0.12 %	17419
Total	47593	100 %	755170

Source :Andi .From: http://www.andi.dz/index.php/ar/secteurs

Algeria has also expanded more than 286 USA billion in infrastructure development, making the local market sufficiently profitable for firms to explore opportunity especially in the different sectors such as energy, Trade, water, health, telecommunications and transportation. The 2012 Finance Law included measures to ease tax and customs procedures for companies. The political environment was stable, but not successfully strong to attracting FDI flowsduring this period. The world economic and financial indicators in 2012 revealed that Algeria rank remained Under Performers and suggested an economy diversification toavoid economic crisis.

Table3:**International Rankings and indicators of Algeria in 2012**

Measure	Year	Index/Ranking
Corruption Index (CPI)	2012	105 (out of 176)
Heritage Economic Freedom	2012	140 (out of 183)
World Bank Doing Business	2012	152 (out of 185)
Global Peace Index (GPI)	2012	118 (out of 156)

Source : According to : Corruption perception index 2012report - Heritage Economic Freedom 2012 report-Doing Business & (GPI) 2012 reports.

4.Methodology and data Issues

In this paper the sample data covers annual online database published by Unctad and the central bank reports of Algeria covering 23 years from 1990 to 2012. Data sources include FDI inflows, (GDP) and the inflation rate besides the foreign exchange reserves. The methodology part consisted of four independent variables cited above and FDI as the unique dependent variable. The basic model is algebraically expressed as follows:

$$Y_j = \beta_0 + \beta_1 x_1 + \beta_2 x_{2j} + \beta_3 x_{3j} + \varepsilon_j \quad (1)$$

Where β0 is called the intercept and the (ß 1, ß 2, ß 3, ß4) are called the coefficients however ε_j is the estimated errors. The multiple linear regression will be as fellow:

$$FDI = ß\,0 + ß\,1\,Risk + ß\,2\,Inf + ß\,3\,Fxex + ß\,4\,GDP + \varepsilon_j \quad (2)$$

Where,
FDI = Foreign direct investments
Risk = Country risk
Inf= Inflation
GDP = Gross domestic product
FxRe = Foreign exchange reserves
The expected relationship inflation, gross domestic product and foreign exchange reserves effect on the attractiveness of foreign direct investments in Algeria using multiple regression techniques for the period (1990 to 2012).

Table 4**: Algeria data listed by (ICRG) ,unctad and central bank of Algeria**

DATE	FDI	Risks	Inflation	F.X.Reseves	GDP
1990	40	59,4	16,65	980,67	55,63
1991	80	52,48	25,89	1765,39	62,05
1992	30	53,07	31,67	1725,72	45,72
1993	90	53,5	20,54	1743,13	45,72
1994	150	53,36	29,05	2959,13	49,95
1995	210	60,8	29,78	2295,63	49,95
1996	270	58,86	18,68	4515,99	42,54
1997	260	58,41	5,73	8310,38	41,76
1998	607	52,48	4,95	7120,66	48,18
1999	292	56	2,65	4793,85	48,18
2000	280	58,09	0,34	12278,49	48,19
2001	1108	61,8	4,23	18327,02	48,64
2002	1065	66	1,42	23503,11	54,79
2003	634	70,88	4,27	33415,6	55,18
2004	882	77,19	3,96	43549,82	85,01
2005	1081	77,92	1,38	56582,37	68,02
2006	1795	78,06	2,31	78207,74	117,16
2007	1662	77,25	3,67	110626,35	135,8
2008	2594	73,69	4,86	143543,92	170,98
2009	2746	71,9	5,73	149346,93	138,11
2010	2264	71,21	3,91	162915,15	161,67
2011	2571	71,25	4,52	183122,4	198,54
2012	1484	71,21	8,89	191597,06	205,8

Source:Theworldbank ,statistical appendix: from http://data.worldbank.org/indicator/NY.GDP.MKTP.KD.ZG. 9/06/2013.

4.1. Problem Statement:

This paper tries to understand what are the main variables which matter most in the attractiveness of FDI inflows in Algeria although, the negativity being generated about Algeria investment climate.

4.2. Originality Of Study:

There is no study which has really explored as much as variables used in this study such as the foreign exchange reserves, inflation and the GDP and the Country risk components to show and measure the link between these variables and the Algerian attractiveness for foreign direct investments inflow.

4.3. Objective Of Study:

The objective of the study is to examine the impact of inflation and the so called foreign exchange reserves determine other factors which matter most in investment decisions.

4.4Estimation procedure: In this study we are going to use ordinary least squares equation technique to estimate the causality. Using stepwise method and SPSS software package used for statistical analysis.

4.5 Hypothesis:

$H0_1$ = There is no significant relationship between country risk(Risk) and FDI in Algeria.
$H0_2$ = there is no relationship exist between inflation(Inf) and FDI in Algeria.
$H0_3$ = there is no relationship exist between foreign exchange reserves (FxRe) and FDI in Algeria.
$H0_4$ = there is no relationship exist between GDP and FDI in Algeria.

4.6 Descriptive Statistics

In descriptive statistics, total numbers of observations of each variable are 23. For GDP, mean value is 85.98, and standard deviation is 910.54 . For foreign exchange reserves (Fxre), the mean value is 54053.32, and standard deviation is 66840.76.For inflation variable (Inf) the mean value is 10.22, and standard deviation is 10.35.However ,For Country risk (Risk) the mean value is 64.55, and standard deviation is 9.29. The result of descriptive statistics is seen in Table5.

Table 5:**Descriptive statistics**

	Mean	Std. Deviation	N
FDI	965,0000	910,54384	23
Risk	64,5570	9,29126	23
Infl	10,2209	10,35632	23
FxRe	54053,3265	66840,76068	23
GDP	85,9813	54,46082	23

Source: Developed by the authors according to the spss outputs.

4.7 Correlation

The Correlation analysis shows a relationship between dependent and independent variables. Risk and FDI is -75% correlated. There are 90% correlations between FDI and foreign exchange reserves (FxRe). 86. % correlation exists between FDI and GDP and all the variables have 100 % correlation among themselves. The results are shown in table 6.

Table6:**Correlation results**

		FDI	Risk	Inf	FxRe	GDP
Pearson Correlation	FDI	1,000	,750	-,550	,904	,860
	Risk	,750	1,000	-,608	,700	,657
	Infl	-,550	-,608	1,000	-,420	-,342
	Reser	,904	,700	-,420	1,000	,980
	GDP	,860	,657	-,342	,980	1,000

Source: Developed by the authors according to the spss outputs.

4.8 Model Summary and ANOVA

Regression statistics of proposed mode is presented in table 4 entitled as the model summery and Anova. The results suggest the overall model is significant at 5% level of significance because its p value is 0.000. The value of R is 0.92 which indicates the percentage variation in FDI due to the different variables entered in this model. The Risk and GDP variables are excluded and were not statistically significant. R square reached 0.85, which is quite high and shows the proportion variance in the dependent variable that was explained by the variation in dependent variable. The Adjusted R square result shows that 83% variation in FDI is explained by inflation (Inf) and Foreign exchange reserves (FxRe) and rest of 17% variation in this model is unexplained. The result are shown in table 7 .

Table 7:**Model summery and ANOVA**

R	0.92
R Square	0.85
Adjusted R Square	0.83
Std .Erro Of the Estimate	366.15
ANOVA SIG.	0.000

Source: Developed by the authors according to the spss outputs.

4.9 Regression equation

According to table 5 entitled the Coefficients which show that for each unit increase in foreign exchange reserves (FxRe) leads the increase of FDI by 0.01 units. ß0= 548.54 which shows the average value of the dependent variable FDI when there is no change in foreign exchange reserve (FxRe) and Inflation(Inf). We noticed also that there is adverse effect between Inflation (Inf) and FDI since any increase in the inflation by one unit leads to a decrease in foreign direct investments by (-18.15)units .All findings are in line with the economic logic. However, the illogical variables were the GDP and the Country risk which were excluded from the stepwise procedure.

Table 8:**Coefficients**

Model	B	Std. Error	t	Sig.
(Constant)	548,531	151,162	3,629	0,002
FxRe	0,011	,001	8,652	0,000
Inf	-18,153	8,308	-2,185	0,041

a. Dependent Variable: FDI

The regression equation of this analysis is as follow:

FDI = 548.53 + 0.01 FxRe -18.15 Inf (3)

5. Findings and Discussions

Despite institutional and economic reform in Algeria during 1990 to 2012, the foreign direct investments inflows remained quite weak and insufficient. In this paper, we concluded that attractiveness of foreign direct investments (FDI) in Algeria depends on the control of inflation .Besides; the high level of foreign exchange reserves level helps and gives a great confidence to foreign investors to invest in Algeria and strength the attractiveness of FDI flows. To sum up, a positive relationship is found between foreign exchange reserves and foreign direct investments and Algeria stayed dependent on the hydrocarbon sector.

6. Conclusion

A great number of earlier studies discussed the impact of inflation, GDP or other independent variables such as foreign exchange reserves on Foreign direct investment(FDI) attraction and illustrated the important role of multinational companies in increasing competitiveness .This let us focus on their decision of where ,when and for which purpose to invest abroad especially in uncertain environments like the Algerian one. We know that Algeria’s foreign exchange reserves hit nearly $192 billion in 2012 but Algeria is still looking for the best equation in order to attract enough FDI since it is rich in natural resources and has really scored high record levels of FDI in the recent years, reaching 2264 million USD in 2010 and 1484 in 2012. Nevertheless, the long civil war between1992 to 2000, military influence, corruption, and cronyism remain prevalent up today. According to transparency international word corruption Index, which is closely watched by investors, economists, and civil society campaigners, Algeria is ranked 112 in 2012 of 174 countries. The empirical result indicates that there are significant between Foreign exchange reserves and FDI attraction. With further analysis, we know that Inflation has a negative relation with FDI towards Algeria.

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