DETERMINANTS OF FOREIGN DIRECT INVESTMENT IN MOROCCO: AN EMPIRICAL STUDY.

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ABSTRACT
Like several developing countries, Morocco considers FDI as a source of economic growth, technology transfer, human capital development, job creation etc. From this perspective, the country is committed to a policy of FDI attractiveness in order to improve its general investment climate and offer the necessary conditions and incentives entitled to attract more and more foreign firms to its territory. Thus, Morocco has implemented a set of measures and reforms that cover several aspects, be they economic, fiscal, financial, commercial or institutional.

The objective of this paper is to empirically analyse the factors that determine FDI flows in Morocco. In so doing, we have conducted an empirical study using the cointegration approach and the VECM model with theory macroeconomic data of Morocco over the period 1980-2019.

The results of the study show that the infrastructure, human capital, trade openness, labour cost, political stability and financial system development are factors that favour Morocco's FDI inflows. However, the market size does not show any significant effect.

Keywords: Foreign direct investment, market size, human capital, infrastructure, trade openness.

Résumé
Comme plusieurs pays en développement, le Maroc considère les IDE comme une source de croissance économique, de transfert de technologie, de développement du capital humain, de création d'emplois etc. Les conditions et incitations nécessaires pour attirer de plus en plus d'entreprises étrangères sur son territoire. Ainsi, le Maroc a mis en œuvre un ensemble de mesures et de réformes qui couvrent plusieurs aspects, qu'ils soient économiques, fiscaux, financiers, commerciaux ou institutionnels.

L'objectif de cet article est d'analyser empiriquement les facteurs qui déterminent les flux d'IDE au Maroc. Ce faisant, nous avons mené une étude empirique utilisant l'approche de cointégration et le modèle VECM avec la théorie des données macroéconomiques du Maroc sur la période 1980-2019.
Les résultats de l'étude montrent que l'infrastructure, le capital humain, l'ouverture commerciale, le coût du travail, la stabilité politique et le développement du système financier sont des facteurs qui favorisent les entrées d'IDE du Maroc. Cependant, la taille du marché ne montre aucun effet significatif.

Mots clés : Investissement direct étranger, taille du marché, capital humain, infrastructure, ouverture commerciale.

1. INTRODUCTION

Like several developing countries, Morocco considers FDI as a source of economic growth, technology transfer, human capital development, modernisation and reinforcement of the industrial fabric, job creation etc. From this perspective, the country is committed to a policy of FDI attractiveness in order to improve its general investment climate and offer the necessary conditions and incentives entitled to attract more and more foreign firms to its territory.

Thus, Morocco has implemented a set of measures and reforms that cover several aspects, be they economic, fiscal, financial, commercial or institutional. It is, therefore, a question of upgrading its territorial offer, enhancing its potential and comparative advantages, and eliminating the obstacles and constraints that hinder the entry of FDI into its territory.

Theoretically, the question of the determinants of the location of FDI is highly debatable. Indeed, the economic literature provides a set of theoretical and empirical arguments that emphasise a diverse range of determinants that influence the choice of the location of MNFs in the host country. But, overall, FDI location is simultaneously a function of the strategy adopted by the firm and the specific characteristics of the host country.

Therefore, the aim of our paper is to study empirically the factors that determine the entry of FDI into Morocco. It is an attempt to answer the following question: what are the main determinants that explain the FDI flows to Morocco? To this end, we will conduct an empirical study using the cointegration approach and the vector error correction model (VECM) based on the macroeconomic data of Morocco over the period 1980-2019.

Accordingly, this paper is structured in four sections. The first presents the theoretical framework of the study. The second synthesizes a review of the empirical studies of the determinants of FDI in development countries. The third is devoted to the econometric study of the main determinants of FDI in Morocco. Finally, the fourth section lends itself to the discussion of the obtained empirical results.

2. THEORETICAL FRAMEWORK

From a theoretical point of view, our study of the question of the determinants of FDI location is broadly in line with the eclectic approach (or OLI paradigm) of J. Dunning (1981).

The eclectic theory is seen as a comprehensive approach to FDI and the determinants of its location. The OLI approach presents the factors which explain the trade-off of a firm, within the framework of the organisation of its activities abroad, ranging from exportation, granting license to the foreign direct investment based on three types of advantages\(^1\) (O, L and I). These advantages can vary according to firms, sectors and countries.

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\(^1\) "O": Ownership specific advantages which mean that the firm, under imperfect competition, has some specific advantages that give it some market power over its competitors.

https://revues.imist.ma/index.php/MB2R/
Dunning (1981) states that the firm prefers to exploit a foreign market through FDI instead of exporting or licensing if it has all the three simultaneous advantages (O,L,I). However, if the firm has only "O" and "I" advantages, it will opt for the exportation to serve the host market. Yet, it will choose to license to a local firm if it has only "O" advantage.

The component "L" of the OLI paradigm provides explanations to the following question: where to be located? That is to say, the location determinants of FDI depend on the host country's own advantages. Dunning's (1981) answer is that the firm is located in the host country that offers "own advantages" allowing the firm to maximise its "specific advantages". Thus, the firm's choice of location depends on a trade-off between the comparative advantages granted by the host countries in competition to attract FDI. The location of FDI therefore depends on the strategy, followed by the firm, and the specific characteristics of the host countries.

In the same vein, Dunning (1988) suggests three groups of elements to compare the countries of location. These elements are summarised in his ESP paradigm (Environment, Systems, Policies). The "Environment" element pertains to the quantity and quality of the available production factors, market size, transport costs, telecommunication infrastructure, and the distribution networks. The "Systems" element is associated with the political, social and cultural characteristics. The "Policies" element is related to the policies fostered by the governments of the host countries. Indeed, the interaction between these three categories of elements helps to explain FDI inflows into the host country.

In addition, there are other theories which have attempted to explain the determining factors of the location of FDI. We mainly refer to the "new geographical economy" established by Krugman (1991). This theory makes it possible to understand the spatial distribution of economic activities as the result of the tension between two types of opposing forces: "centripetal forces" which favour the polarisation of production activities and "centrifugal forces" which lead to the dispersion of industries. Brainard's (1993) model of the proximity-concentration trade-off emphasises the location determinants of FDI by focusing on the notions of "proximity" and "concentration" advantages of production activities. This model indicates that MNFs realize horizontal FDI when the advantages of locating in proximity to the consumers are relatively more important to the advantages of concentrating activities.

3. DETERMINANTS OF FDI: A LITERATURE REVIEW OF EMPIRICAL STUDIES

There is an immense literature of the empirical studies dealing with the determinants of FDI location. These studies offer multiple and varied determinants, but the commonly-identified determinants concern market size, trade openness, human capital, infrastructure, labour costs, political stability and so on.

"L": Location advantages which are related to the host country's own characteristics and influence the FDI location decision. They include the price and quality of inputs, transport costs, cultural distance etc.

"I": Internalization advantages; that is, the internalisation of the market within the firm allows the latter to have advantages; such as, the reduction of the transaction costs, the control of the supply and quality of products, the control of the organisation, the protection of technological advantages etc.
3.1. Market size

Market size is one of the main factors conventionally identified in the literature on the location determinants of FDI, the horizontal FDI in particular. Market size supplies information on the size of the demand for goods and services in the host economy. Hence; large economies tend to attract more FDI than small economies. Nevertheless, vertical FDI may be indifferent to this factor (Lim, 2001).

The empirical studies conducted by Liargovas & Skandalis (2012) on 36 developing countries (DCs), by Vijayakumar et al. (2010) and Jadhav (2012) on BRICS countries, and by Asiedu (2006), Cleeve (2008) and Ezeoha & Cattaneo (2012) on to sub-Saharan Africa (SSA) countries, show that the market size is an important determinant to attract FDI. In the case of Morocco, the same result was reached by the studies of Bouoiyour (2007) and Tirhboula et al. (2017). However, Azeroual & Cherkaoui's study (2015) found that the market size is not significant.

3.2. Infrastructure

The scale of the infrastructure development indicates the capacity of the host country to offer the basic facilities essential for the installation of foreign firms and the coordination of their productive and commercial activities at national and international levels alike. Thus, the high level of infrastructure is an element that favours the location of FDI.

Studies conducted by Demirhan & Masca (2008), Vijayakumar et al. (2010), Srinivasan (2011) and Quazi (2014) have displayed that developed infrastructure is an important vector for FDI. A similar result was found by Morisset (2000) and d'Asiedu (2006) in SSA countries. However, this variable has showed a non-significant effect in Onyeiwu & Shrestha's study (2004) on SSA as well as Mohamed & Sidiropoulos' study (2010) in MENA1 region.

In Morocco, Azeroual & Cherkaoui's research (2015) and Moujahid's et al. (2021) have found that the infrastructure constitutes a crucial factor in FDI while Lam'hammdi & Makhtari (2018) have found no significant effect.

3.3. Human capital

MNFs, especially those whose activity requires a high level of technology, pay particular attention to the degree of human capital development in the host country. Indeed, the presence of a local labour force who has got qualifications, technological skills, and creativity is a vital factor which favours the attractiveness of foreign firms.

Empirical works done by Noorbakhsh et al (2001), Deichmann et al (2003) and Asiedu (2006) have demonstrated that human capital is a factor that motivates FDI. Cleeve (2008) have found that the human capital, in SSA countries, has a positive and significant effect on FDI when measured by the secondary school enrolment rate; whereas it has a non-significant effect when measured by the adult illiteracy rate. Srinivasan (2011) has also identified a non-significant effect in his study on SAARC2.

Empirical researches done by Bouoiyour (2007) and Moujahid et al. (2021) have all found a positive and significant effect of the human capital on FDI in Morocco.

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1 MENA: Middle East and North Africa.
2 SAARC: South Asian Association for Regional Cooperation. Its member states are Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, and Sri Lanka.
3.4. Trade openness

Trade openness implies the country's integration degree in the international trade. A high level of openness can promote FDI insofar as it allows Multi-national companies (MNCs) flexibility to import materials and intermediate goods necessary for their production activity. It also offers facilities as well as opportunities to export their produced goods at the same time.

Several studies on DCs such as Demirhan & Masca (2008) and Liargovas & Skandalis (2012) point out that trade openness motivates FDI inflows. This result has been affirmed by Jadhav (2012) in the BRICS countries and by Onyeiwu & Shrestha (2004), Cleeve (2008) and Anyanwu (2012) in Africa. In Morocco, Bouoiyour (2007) and Moujahid & Khariss (2021) highlight that openness encourages FDI inflows. By contrast, Azeroual & Cherkaoui (2015) have found a negative effect of openness on FDI while Lam'hammdi & Makhtari (2018) have found a non-significant effect.

3.5. Labour costs

Labour cost represents one of the main factors which influence the location decision of FDI, seeking to minimise the production costs (vertical FDI). The availability of cheap labour increases the chances of a host country to attract more FDI. Yet, this relationship between labour costs and FDI remains unclear and depends on the wage-productivity ratio, which is in turn related to the qualification of workers.

Campos & Kinoshita (2003) and Vijayakumar et al. (2010) have proved that low labour costs encourage FDI inflows. Shamsuddin (1994) and Cheng & Kwan (2000) suggest that high labour costs discourage FDI inflows. However, Biswas (2002) did not detect labour costs as a determinant of FDI. A similar result was found by Demirhan & Masca (2008) in the manufacturing sector in 38 DCs. In the studies of Bouoiyour (2007) and Moujahid & Khariss (2021) low labour costs favour FDI in Morocco.

3.6. Political stability

Political stability is a factor that influences foreign investors' confidence in the general investment climate of the host country. Indeed, foreign firms do not seem to be willing to risk their properties and bear the risks related to a potential political instability in the host country.

Gani (2007), Busse & Hefeker (2007), and Quazi (2014) have found that political stability stimulates FDI inflows. Naudé & Krugell (2007) have found that the political instability negatively influences FDI in Africa. In contrast, Kandiero & Chitiga (2006), Mhlanga et al (2010) and Asiedu (2002) have concluded that this variable does not have a significant effect on FDI in Africa. Mohamed & Sidiropoulos (2010) and Moujahid & Khariss (2021) have found that the political stability is in favour of FDI in Morocco.

4. EMPIRICAL ANALYSIS OF THE DETERMINANTS OF FDI IN MOROCCO

4.1. Methodology and model specification

4.1.1. Methodology and data

To examine the determinants that explain the behaviour of FDI inflows in Morocco, in the long term, we will use time series econometrics through the cointegration approach and the vector error correction model (VECM). For this reason, a set of approaches must be deployed. First, we study
the stationarity of the series by unit root tests, and determine the lag number of the model. Then, we apply Johansen cointegration test to verify the existence of long-term equilibrium relationships between the variables. We after that proceed to the estimation of our model and finally test the validation assumptions of the estimated model.

The time series of the study are derived from annual macroeconomic data covering the period 1980-2019 in Morocco. The sources of the data are: World Development Indicators (WDI) from the World Bank and ICRG from PRS group.

4.1.2. Model specification and presentation of the study variables

Based on the theoretical and empirical literature on the determinants of FDI and taking into account the Moroccan context, we have formulated our hypothetical model as follows:

$$FDI_t = C + \alpha_1 GDP_t + \alpha_2 OPEN_t + \alpha_3 HK_t + \alpha_4 INFR_t + \alpha_5 COST_t + \alpha_6 CRED_t + \alpha_7 STAB_t + \epsilon_t$$

With:

FDI: it represents the dependent variable. It is measured by net FDI inflows as a percentage of GDP;

GDP: it stands for the market size. It is measured by real Gross Domestic Product. We assume a positive effect of this variable on FDI.

OPEN: it refers to the degree of trade openness. It is measured by the sum of exports and imports of goods and services as a % of GDP. We assume a positive effect on FDI.

HK: it indicates the level of the human capital in the country. It is measured by the number of students enrolled in secondary education. We expect a positive effect on FDI.

INFR: it refers to infrastructure. We measure this variable by gross fixed capital formation (GFCF) as a percentage of GDP. We choose this indicator because public investment expenditure represents 2/3 of GFCF in Morocco. We expect a positive effect of this variable on FDI.

COST: This is the cost of labour. It is measured by the Guaranteed Minimum Interprofessional Wage (SMIG). A negative effect of labour costs on FDI is expected.

CRED: it indicates the degree of development of the financial system. It is measured by the domestic credit provided to the private sector as a % of GDP. A positive effect on FDI is expected.

STAB: it represents political stability. It is measured by the "political risk" index developed by the PRS group's ICRG. We expect a positive effect of this variable on FDI.

$\epsilon_t$: it indicates the error term;

C: it denotes the constant that represents the effect of the other factors not specified in the model.
4.2. Estimation and validation of the VECM model

4.2.1. Study of the stationarity of the series

To study the stationarity of the series, we apply the ADF (Augmented Dickey Fuller) unit root test. The results of this test are summarised in the table below.

Table 1: Results of the ADF stationarity tests

<table>
<thead>
<tr>
<th>Variables</th>
<th>At level</th>
<th>First difference</th>
<th>Integration order</th>
</tr>
</thead>
<tbody>
<tr>
<td>FDI</td>
<td>-2.776335 (0.2143)</td>
<td>-14.90988*** (0.0000)</td>
<td>I(1)</td>
</tr>
<tr>
<td>GDP</td>
<td>-3.030986 (0.1382)</td>
<td>-13.26276*** (0.0000)</td>
<td>I(1)</td>
</tr>
<tr>
<td>OPEN</td>
<td>-2.317922 (0.4149)</td>
<td>-7.770876*** (0.0000)</td>
<td>I(1)</td>
</tr>
<tr>
<td>HK</td>
<td>-2.618694 (0.2746)</td>
<td>-4.588764*** (0.0039)</td>
<td>I(1)</td>
</tr>
<tr>
<td>INFR</td>
<td>-2.107382 (0.5257)</td>
<td>-6.208520*** (0.0000)</td>
<td>I(1)</td>
</tr>
<tr>
<td>CRED</td>
<td>-1.978570 (0.5945)</td>
<td>-5.205554*** (0.0007)</td>
<td>I(1)</td>
</tr>
<tr>
<td>COST</td>
<td>-1.740981 (0.7136)</td>
<td>-6.860163*** (0.0000)</td>
<td>I(1)</td>
</tr>
<tr>
<td>STAB</td>
<td>-1.207589 (0.8950)</td>
<td>-5.763816*** (0.0002)</td>
<td>I(1)</td>
</tr>
</tbody>
</table>

Source: Calculated by the author using Eviews 10

* : the t-statistic is superior to the Mackinnon critical value for a tolerance threshold of 10%;
** : the t-statistic is superior to the Mackinnon critical value for a tolerance threshold of 5%;
*** : the t-statistic is superior to the Mackinnon critical value for a threshold of 1%.

Values in brackets are probabilities.

The results obtained show that all the series are stationary in the first difference. We note that there may be a cointegration relationship in the long run between the dependent variable and explanatory variables.

4.2.2. Determination of the lag number

In order to estimate the VECM model, the lag number (p) of the VAR(p) model must be determined. For this, we use the Akaike (AIC) and Schwarz (SC) criteria.
Table 2: Results for the determination of the lag number of the VAR(p)

<table>
<thead>
<tr>
<th>Lag</th>
<th>LogL</th>
<th>LR</th>
<th>FPE</th>
<th>AIC</th>
<th>SC</th>
<th>HQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>527.8135</td>
<td>NA</td>
<td>8.66e-23</td>
<td>-28.09803</td>
<td>-27.74972</td>
<td>-27.97523</td>
</tr>
<tr>
<td>1</td>
<td>795.0611</td>
<td>404.4829</td>
<td>1.59e-27</td>
<td>-39.08439</td>
<td>35.94963*</td>
<td>-37.97924</td>
</tr>
<tr>
<td>2</td>
<td>882.8098</td>
<td>94.86337*</td>
<td>7.36e-28</td>
<td>-40.36809</td>
<td>-34.44688</td>
<td>-38.28059</td>
</tr>
<tr>
<td>3</td>
<td>1003.379</td>
<td>78.20676</td>
<td>1.96e-28*</td>
<td>43.42587*</td>
<td>-34.71820</td>
<td>40.35601*</td>
</tr>
</tbody>
</table>

Source: Calculated by the author using Eviews 10

The obtained results indicate that the number of lags to be retained is p=1. Therefore, we apply JOHANSEN cointegration test on a VAR(1) model.

4.2.3. JOHANSEN cointegration test

Johansen cointegration test allows us to identify the long-term equilibrium relationships between the dependent variable and the integrated explanatory variables of the same order I(1). The following table summarises the results of this test under the null hypothesis of no cointegration.

Table 3: Results of JOHANSEN cointegration test

<table>
<thead>
<tr>
<th>Hypothesized NO. Of CE (s)</th>
<th>Eigenvalue</th>
<th>Trace Statistic</th>
<th>Critical Value 0.05</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>r=0*</td>
<td>0.797738</td>
<td>237.8029</td>
<td>159.5297</td>
<td>0.0000</td>
</tr>
<tr>
<td>r ≤1*</td>
<td>0.714390</td>
<td>177.0716</td>
<td>125.6154</td>
<td>0.0000</td>
</tr>
<tr>
<td>r≤2*</td>
<td>0.684635</td>
<td>129.4528</td>
<td>95.75366</td>
<td>0.0000</td>
</tr>
<tr>
<td>r≤3*</td>
<td>0.610568</td>
<td>85.59989</td>
<td>69.81889</td>
<td>0.0017</td>
</tr>
<tr>
<td>r≤4*</td>
<td>0.463723</td>
<td>49.76341</td>
<td>47.85613</td>
<td>0.0327</td>
</tr>
<tr>
<td>r≤5</td>
<td>0.389536</td>
<td>26.08544</td>
<td>29.79707</td>
<td>0.1262</td>
</tr>
<tr>
<td>r≤6</td>
<td>0.172755</td>
<td>7.331048</td>
<td>15.49471</td>
<td>0.5394</td>
</tr>
<tr>
<td>r≤7</td>
<td>0.003262</td>
<td>0.124169</td>
<td>3.841466</td>
<td>0.7245</td>
</tr>
</tbody>
</table>

* There is cointegration because the null hypothesis of no cointegration has been rejected at the 5% threshold (the trace is above the critical value).

Source: Calculated by the author using Eviews 10

The results of the trace test indicate the existence of five cointegration relationships at 5% threshold between the endogenous variable and the explanatory variables of the model in the long term.
4.2.4. Estimation of the vector error correction model (VECM)

We continue our approach and estimate our VECM model by integrating the long-term cointegration relations.

Table 4: Results of the estimation of the long term VECM model

<table>
<thead>
<tr>
<th>Variables</th>
<th>Coefficient</th>
<th>Std. Errors</th>
<th>t-Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td>FDI</td>
<td>1.000000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GDP</td>
<td>-0.101671</td>
<td>0.06404</td>
<td>-1.37319**</td>
</tr>
<tr>
<td>OPEN</td>
<td>0.106291</td>
<td>0.03190</td>
<td>3.33209*</td>
</tr>
<tr>
<td>HK</td>
<td>0.171426</td>
<td>0.03497</td>
<td>4.90202*</td>
</tr>
<tr>
<td>INFR</td>
<td>0.530684</td>
<td>0.08318</td>
<td>6.37959*</td>
</tr>
<tr>
<td>CRED</td>
<td>0.038320</td>
<td>0.01069</td>
<td>3.58424*</td>
</tr>
<tr>
<td>COST</td>
<td>-0.248053</td>
<td>0.03826</td>
<td>-6.48289*</td>
</tr>
<tr>
<td>STAB</td>
<td>0.214463</td>
<td>0.03861</td>
<td>5.55431*</td>
</tr>
<tr>
<td>C</td>
<td>0.743164</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 5: Results of the estimation of the short-term VECM model

<table>
<thead>
<tr>
<th>Variables</th>
<th>Coefficient</th>
<th>Std. Errors</th>
<th>t-Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td>CointEq1</td>
<td>-0.809363</td>
<td>0.24131</td>
<td>-3.35409*</td>
</tr>
<tr>
<td>D(FDI(-1))</td>
<td>-0.331486</td>
<td>0.15839</td>
<td>-2.09281*</td>
</tr>
<tr>
<td>D(GDP(-1))</td>
<td>0.149152</td>
<td>0.12430</td>
<td>1.19909*</td>
</tr>
<tr>
<td>D(OPEN(-1))</td>
<td>0.135996</td>
<td>0.04799</td>
<td>2.83365*</td>
</tr>
<tr>
<td>D(HK(-1))</td>
<td>0.249462</td>
<td>0.12018</td>
<td>2.07570*</td>
</tr>
<tr>
<td>D(INFR(-1))</td>
<td>-0.099334</td>
<td>0.12216</td>
<td>-0.81316**</td>
</tr>
<tr>
<td>D(CRED(-1))</td>
<td>-0.005792</td>
<td>0.03583</td>
<td>-0.16166**</td>
</tr>
<tr>
<td>D(COST(-1))</td>
<td>0.059501</td>
<td>0.08226</td>
<td>0.72330**</td>
</tr>
<tr>
<td>D(STAB(-1))</td>
<td>0.023421</td>
<td>0.05965</td>
<td>0.39265**</td>
</tr>
<tr>
<td>C</td>
<td>-0.008538</td>
<td>0.00384</td>
<td>-2.22509*</td>
</tr>
</tbody>
</table>

R-squared            | 0.723007    | Log likelihood | 124.6296 |
Adj. R-squared       | 0.633974    | Akaike AIC     | -6.033135 |
Sum sq. resids       | 0.003152    | Schwarz SC     | -5.602191 |
S.E. equation        | 0.010610    | Mean dependent | 0.000268  |
F-statistic          | 8.120626    | S.D. dependent | 0.017537  |

* : Variable significant at the 5% level.
**: Not a significant variable.

Source: Calculated by the author using Eviews 10

4.2.5. Model validation tests

To examine the conformity of the model, we apply a number of important tests.

Normality test

To test residual normality, we use the Jarque-Bera test. The results (Table 6) show that the Jarque-Bera probabilities are superior to the critical threshold of 5%. We therefore accept the normality of the residuals.

Table 6: Results of the residual normality test

<table>
<thead>
<tr>
<th>Component</th>
<th>Jarque-Bera</th>
<th>Df</th>
<th>Prob</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>4.414235</td>
<td>2</td>
<td>0.1100</td>
</tr>
<tr>
<td>2</td>
<td>1.908308</td>
<td>2</td>
<td>0.3851</td>
</tr>
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<td>3</td>
<td>5.072988</td>
<td>2</td>
<td>0.0791</td>
</tr>
<tr>
<td>4</td>
<td>0.686730</td>
<td>2</td>
<td>0.7094</td>
</tr>
<tr>
<td>5</td>
<td>0.807218</td>
<td>2</td>
<td>0.6679</td>
</tr>
<tr>
<td>6</td>
<td>1.226978</td>
<td>2</td>
<td>0.5415</td>
</tr>
<tr>
<td>7</td>
<td>5.223492</td>
<td>2</td>
<td>0.0734</td>
</tr>
<tr>
<td>8</td>
<td>1.584656</td>
<td>2</td>
<td>0.4528</td>
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<tr>
<td>Joint</td>
<td>20.92460</td>
<td>16</td>
<td>0.1814</td>
</tr>
</tbody>
</table>

Source: Calculated by the author using Eviews 10

Autocorrelation test

To check residual autocorrelation, we apply the Lagrange multiplier (LM) test. The results (Table 7) indicate that the LM probability is superior to 5% significance level. Therefore, there is no autocorrelation of residuals.

Table 7: Results of the autocorrelation test (LM)

<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>44.95900</td>
<td>64</td>
<td>0.9661</td>
<td>0.625591</td>
<td>(64, 81.5)</td>
<td>0.9740</td>
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<tr>
<td>2</td>
<td>77.05658</td>
<td>64</td>
<td>0.1268</td>
<td>1.252639</td>
<td>(64, 81.5)</td>
<td>0.1678</td>
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</tbody>
</table>

Source: Calculated by the author using Eviews 10
Heteroskedasticity test

The results of the heteroskedasticity test (Table 8) indicate that the obtained probability (0.8943) is superior to 5% significance level. Therefore, there is no heteroskedasticity.

Table 8: Results of the residual heteroskedasticity test

<table>
<thead>
<tr>
<th>VEC Residual Heteroskedasticity Tests (Levels and Squares)</th>
<th></th>
</tr>
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<tbody>
<tr>
<td>Sample: 1980 2019</td>
<td></td>
</tr>
<tr>
<td>Included observations: 38</td>
<td></td>
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<td></td>
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<td>Joint test:</td>
<td></td>
</tr>
<tr>
<td>Chi-sq</td>
<td>df</td>
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<td>662.5751</td>
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</table>

Source: Calculated by the author using Eviews 10

5. RESULTS DISCUSSION

The results of the estimation, carried out using the VECM model, indicate that, in the long term, all the variables retained in the study are statistically significant at the 5% level except for the market size variable, which shows a non-significant effect. In the following, we will discuss the obtained empirical results.

The infrastructure variable shows a positive and statistically significant correlation with FDI, which means that it is an important vector of FDI inflows in Morocco. This result aligns with the results of several researches on the subject; such as, Demirhan & Mascia (2008), Asiedu (2006), Quazi (2014), Azeroual & Cherkaoui (2015) and Moujahid et al. (2021).

The human capital variable manifests a positive and statistically significant effect which indicates that the human capital is an important factor that motivates FDI in Morocco. This result is consistent with several empirical studies on DCs (Noorbaikhsh et al. (2001), Nunnenkamp (2002), Cleeve (2008)) and several studies on Morocco (Bouoiyour (2007) and Moujahid et al. (2021).

The trade openness variable has a positive and statistically significant effect, which attests that this variable plays in favour of FDI entry in Morocco. This result, extensively debated in the determinants literature, is consistent with much empirical research (Kandiero & Chitiga (2006) and Liargvos & Skandalis (2012)), and some studies in the case of Morocco: Bouoiyour (2007) and Moujahid & Khariss (2021).

The labour cost variable has a negative and statistically significant effect. This signifies that the increase of the general level of wages in Morocco is an element that discourages FDI inflows, especially those seeking to minimize production costs. This result has been corroborated in the empirical research of Bouoiyour (2007) and Moujahid & Khariss (2021).
The variable of **domestic credit provided to the private sector**, which reflects the level of development of the financial market, shows a positive and significant effect, which indicates that the financial system encourages the entry of FDI in Morocco.

The **political stability** variable appears to have a positive and significant effect. This shows that this variable plays an important role in the attractiveness of FDI in Morocco. This result is in tandem with those of several empirical studies; for instance, Busse & Hefeker (2007) and Gani (2007) in DCs, and Mohamed & Sidiropoulos (2010) and Moujahid & Khariss (2021) in Morocco.

The **market size** variable is statistically insignificant. This implies that it is not able to motivate the establishment of MNCs in Morocco. This result is paradoxical with a large part of the literature that considers the market size as a major determinant of FDI in DCs (Asiedu (2006), Liargovas & Skandalis (2012), Jadhav (2012)) as well as in Morocco (Bouoiyour (2007) and Tirhboula et al (2017)). However, the result obtained by our study complies with the results of Azeroual & Cherkaoui (2015).

Finally, regarding the short-term relationship, we can see that the results of the study are not adequately robust. Except for the variables of trade openness and human capital which appear significant and positive, the rest of the explanatory variables are not significant.

### 6. CONCLUSION

This paper aims at providing a new empirical evidence on the determinants that explain the behaviour of foreign direct investment inflows in Morocco. For this reason, after having conducted the literature review of the theoretical approaches and empirical studies of the determinants of FDI, we have proceeded with an empirical study of the main factors which determine FDI inflows in Morocco using time series econometrics by the cointegration approach and the vector error correction model (VECM), based on Morocco's macroeconomic data over the period spanning from 1980 to 2019.

The obtained empirical results demonstrate that, in the long run, the variables of infrastructure, human capital, trade openness, financial system development and political stability display a positive and statistically significant effect on FDI. This means that these variables constitute important factors that favour the attractiveness of FDI in Morocco. Contrarily, the labour cost variable shows a negative and statistically significant effect, indicating that the increase of wages have a negative effect on FDI inflows. These results are consistent with a great deal of theoretical and empirical literature on the subject.

Furthermore, the market size variable shows a non-significant effect, which indicates that the size of the Moroccan market does not represent a very important factor that motivates the massive entry of foreign firms.

In a nutshell, it is noteworthy that this study has some limitations. The main one is the absence of some important variables; such as, corruption, institutional quality and taxation, which are highlighted in several theoretical and empirical studies.
BIBLIOGRAPHY


