Determinants of Foreign Direct Investment in the West African Monetary Zone: A Case of Ghana

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ABSTRACT

This study examined the determinants of foreign direct investment (FDI) inflows in the West African Monetary Zone using Ghana as a case. The study covers the period 1980 to 2013. The Augmented Dickey Fuller unit root was used to check for the presence of unit root among the variables and the Johansen’s cointegration test was then used to check for the presence of long run relationships between the variables. Finally, vector error correction model was used to identify short run equilibrium determinants of FDI in Ghana. The findings of the study reveal that the significant determinants are Interest rate, interest rate lag two, exports and exchange rate which have a positive relationship with FDI and GDP, GDP lag two, imports, exchange rate lag two which have a negative relationship with FDI. This study recommends that the countries of the WAMZ establish policies that would make the zone favourable to foreign investors such as the provision of financial subsidies. This study also advocates for the implementation of export promotion strategies and import substitution strategies.

Key words: Foreign Direct Investment (FDI), West African Monetary Zone (WAMZ), Ghana, cointegration, error correction model.

1.0 Introduction

The importance of FDI to African countries cannot be over emphasized. This stems from the fact that income levels and domestic savings in the region are very low. As a result, external capital is needed to supplement domestic savings in order to spur investment and growth (Asiedu, 2002). Also FDI is a useful way of transferring technology and expertise from more developed countries to less developed countries and creating jobs in the host country. In connection to the WAMZ zone, Akpan & Ekong (2013) found out in their study of the growth effects of FDI and trade in WAMZ that FDI remains a key catalyst for promoting higher growth in the zone and therefore needs to be encouraged.

Against the backdrop of the importance of FDI to developing countries, WAMZ countries have several implemented policies geared at creating an environment suitable for FDI. In Nigeria, the Structural Adjustment Programme (SAP) was adopted in 1986 which was aimed at trade liberalisation, privatisation, commercialisation and deregulation. In Ghana the Ghana Investment Promotion Council (GIPC) was established in 1994 with the main aim of identifying key areas for potential investment and providing potential investors with needed information of the country through the development of favourable policies and regulations. In Gambia, the Gambia Investment Promotion and Free Zones Agency (GIPFZA) was established to help establish a framework to coordinate, promote and boost foreign investors. In Guinea, the Office of Private Investment Promotion (OPIP) was established to serve as a One-Stop Shop to facilitate the creation of businesses in the country by potential foreign investors. In Sierra Leone, the Sierra Leone Investment Enterprise Promotion Agency (SLIEPA) was established as an institution charged with the responsibility of encouraging and promoting investment in Sierra Leone. It serves as a ‘central Stop’ for doing business in Sierra Leone. In Liberia, the Liberia National Investment Commission (NIC) was established whose current mandate is to promote Liberia’s many investment opportunities, attract and support the growth of value adding foreign direct investments (FDIs) and advocate for and strengthen the domestic private sector.

Regional integration such as the one that exists in the WAMZ has also been seen as a factor that encourages FDI. Asiedu (2006) in her study on Foreign Direct Investment in Africa focussing on the role of natural resources, market size, government policy institutions and political stability found out that regional economic cooperation may enhance FDI to the Sub Saharan African region. This arises because it creates political stability, coordination of policies and creates larger markets which attract investors.
Given the knowledge of the benefits that FDI holds for recipient countries and the attraction that regional economies hold, one would expect that FDI inflows to economies such as those in the WAMZ would be high or at least be at a moderate level but in reality, FDI flows to the WAMZ have been low. As at 2012, FDI net inflows as a percentage of GDP was just 2.7% in Nigeria, in Guinea 10.8% and in Ghana 8.1%, Gambia 3.7% and Sierra Leone 14.4%. This is unfavourable because local private investment is not usually enough to create enough capital to enhance economic growth and development in these countries. If we take for example China, a country that is on its way to becoming one of the leading economies of the world, it can be noticed that China as at 2012, its FDI net inflows as a percentage of GDP was 28.3% (World Bank, 2014). This dismal performance of the WAMZ can be attributed to political instability, corruption, dependence on the export of primary goods and lack of development of areas that foreign investors would be interested in. Therefore, the objective of this study is to identify and examine the determinants of FDI in the West African Monetary Zone using Ghana as a case. If the countries of WAMZ are to integrate and create a single currency, it means that the financial systems and macroeconomic policies of these six countries will be closely related. The remainder of this study is organised as follows: section one (this section) open the study as the introductory section, section two provides some stylised facts about WAMZ as well as FDI inflow in Ghana. Section gives the review of relevant literature. Section four provides the theoretical framework and methodology. Section five presents the analysis of data, results and interpretation. Section five gives the summary and conclusion of the study with relevant recommendations.

2.0 Background information on the WAMZ

The Anglophone countries in West Africa established a monetary union, the West African Monetary Zone on the 15th of December 2000 with five member countries namely, Nigeria, Ghana, Guinea, Gambia and Sierra Leone (Liberia joined in 2009). It was initially meant to be a bilateral agreement between Nigeria and Ghana but it was later expanded to include other Anglophone countries of West Africa. The main objective of the WAMZ is to create a monetary union characterized by a single currency, the ECO which would replace the existing currencies of the member countries and to establish a central bank. The ECO was visualized as a currency that would rival the CFA Franc of the francophone countries. The West African Monetary Institute (WAMI) was set up in January 2001 to undertake the technical preparations for the establishment of a common West African Central Bank and the launching of a single currency for the WAMZ.

Two major groups of convergence criteria have been agreed upon in the WAMZ namely the primary and secondary criteria. The primary criteria include; a single digit inflation rate, Fiscal balance with the exclusion of all grants not exceeding 4% of GDP, Central Bank’s financing of fiscal deficits must be less than 10% of total tax revenues in the previous year and Gross reserves of member countries must be able to finance at least three months of imports. The secondary criteria are; Tax revenue as a ratio of GDP should be greater than or equal to 20% wage bill to tax revenue should be less than or equal to 35%, Public investment as a ratio of tax revenue must be greater or equal to 20%, Real exchange rate stability must be maintained within a band of 15% and Real interest rate must be kept positive.

Up to date, none of the countries of the WAMZ have been able to meet with the convergence criteria at the same time so as to enable integration of the member countries. At certain times, Nigeria and Ghana have been able to meet with the criteria but not at the same time. This has led to the shifting of the date of convergence from 2003 to 2005 and now to 2015.

2.1 FDI trends in Ghana

Between the periods of 1980 and 1982, Ghana consistently received about $16 million for each of those years. However in 1983, there was a serious fall in FDI from about $16 million to $2 million this was as a result of a severe dry spell that caused widespread famine and the adoption of an ill advised economic recovery program. This continued till 1988. Average inflow from 1989 to 1992 was about $18 million per annum. The highest of about $22million was recorded in 1992 and the lowest during 1989/90. On the other hand, there was a significant rise to about $125 million in 1993 and $233 million in 1994, between periods of 1995 and 1998, there was a considerable decrease to more than 50% but 1999 recorded an increase. From 2003, the country has been experiencing a persistent increase in FDI inflow.

In comparison to other countries in sub Saharan Africa, flow of FDI to Ghana in the past has been marked with decline in absolute terms (UNCTAD Report, 2008). Since 1983, the Ghanaian government has embarked on a privatization strategy as a result of an Economic Reform Program to encourage the opening up of the economy to foreign investors mainly in the mining sector. Amongst the policies to attract FDI at that time was the ‘no ownership requirements’ and foreign participation of more than 50%. This was because of a preference for local participation which was placed at a minimum threshold of at least 25% (GIPC, 2008).
In 1994, the Ghanaian government established the Ghana Investment Promotion Council (GIPC) with the main aim of identifying key areas for political investment and providing potential investors with the needed information of the country through the development of favourable policies and regulations. Key areas targeted were the fishing and forestry sectors as well as services such as banking, insurance and real estate. In the fishing industry, the maximum ownership holding for foreigners was 50% in a tuna-fishing venture and 40% ownership for foreign investors in insurance companies. Additionally, foreign ownership of a publicly listed company on the stock exchange was given a maximum threshold of about 75%. However in the mineral and oil sectors, the state still has a right of ownership of 10% at no cost. Entry requirements were also made more flexible in certain sectors in comparison to other developing countries which included a low minimum capital requirement to establish a business entity in Ghana (GIPC, 2008).

3.0 Literature Review

Udo & Obiora (2006) investigated the determinants of foreign direct investment and economic growth in the West African Monetary Zone by analyzing the candidate determinants of FDI in the West African Monetary Zone and investigating the cause-effect relationship between FDI and Growth. They used a simultaneous-equations method on a panel of WAMZ countries over the period 1980 to 2002. They found no evidence of a two-way causal relationship between FDI flows and economic growth rather they discovered that FDI tends to be attracted by high per capita income, better infrastructure and political stability. Hence any meaningful attempts at attracting FDI must take cognizance of these determinants.

Fabyan (2009) while studying foreign direct investment: trends, historical development and determinants in member countries of West African Monetary Zone (WAMZ) looked at the trends and historical development of foreign direct investment (FDI) in member countries of the West African Monetary Zone (WAMZ). The paper discussed the determinants of FDI and analysed its impact on the growth of these economies. The study covered the period 1980 to 1999 with 100 observations for five of the member countries of WAMZ namely Nigeria, Ghana, Sierra Leone, Guinea and the Gambia. The study calculates Panel Corrected Standard Errors (PCSE) using the Ordinary Least Squares Estimation (OLS). The study confirms that external debt and openness of the economy are indeed important for the inflow of FDI whereas inflation and GDP growth were not significant.

Sichei & Kinyondo (2012) in their study; Determinants of foreign direct investment in Africa: a panel data analysis, provide a panel data evidence of the determinants of foreign direct investment (FDI) for a sample of 45 African countries over the period 1980 to 2009. They used a dynamic panel data estimation technique. Their study identifies a number of factors that affect FDI flows in Africa, including agglomeration economies, natural resources, real GDP growth and international investment agreements. Their study also showed that the Africa-wide environment has become more conducive to FDI since the year 2000.

Ezeoha & Catteneo (2011) in their study; FDI flows to sub-Saharan Africa: the impact of Finance, institution and natural resource endowment used a panel data set spanning from 1995 to 2008 and drawn from 30 Sub-Saharan African (SSA) countries. They made use of the Generalised least square technique (GLS). The paper examined the relative impact of financial development, macroeconomic and institutional factors on the flow of foreign direct investments to the region. The study was motivated by what the authors felt was an apparent lack of attention on the role of financial development in previous studies and the robust methodology used by Sun et al. (2002) in the case of China. The study also shows that financial development, infrastructure and trade openness play more role in attracting FDI to non-resource endowed countries than they do in resource endowed countries.

Babatunde (2010) in his paper FDI and economic growth redux: a comparison of the effect of trade openness and human capital between BRIMCs and SSA countries shows that the benefits of FDI vary with respect to the level of openness and quality of human capital in developing countries. The study conducts an empirical analysis on the relationship between FDI and economic growth in Brazil, Russia, India, Mexico and China (BRIMCs) and selects SSA countries for the period 1985-2006. In particular, the study employs the panel data random effect (RE) technique to test whether trade openness and human capital has helped in the attraction of FDI, and also whether the extent to which FDI affects growth depends on trade openness and the quality of human capital. The results of the study indicate that FDI is mainly determined by trade, literacy and infrastructural development. Economic growth also contributes to FDI inflow in the used sample. In addition, the study notices that trade openness interact positively with human capital insofar as the attraction of FDI is concerned. One interesting result is that inflation has a positive but insignificant relationship with FDI in the SSA sample countries. Although FDI has a positive impact on economic growth, its impact is more pronounced with its interaction with trade in the BRIMC countries. In the SSA countries however, FDI interacts positively with human capital to promote economic growth. To test the sensitivity of the results, the study employs the dynamic panel data method based on Generalized Method of Moments (GMM) to verify the findings. The results indicate that FDI has a positive relationship with economic growth.
4.0 Theoretical Framework and methodology

the framework for this study follows Mundell (1957) where was shown that FDI inflows in this setting lower the capital rent in the receiving economy, but also increase labour productivity. The latter effect predominate, increasing welfare for the receiving economy. From the following exposition it can be deduced that FDI is determined by the interplay of some fundamental macroeconomic variables such as the trade component of the country, exchange rate policies, economy’s size and its growth (GDP) and the others like inflation and interest rates i.e.

$$\text{FDI}_t = f(\text{GDP}_t, \text{INT}_t, \text{IMP}_t, \text{EXPT}_t, \text{INF}_t, \text{EXCH}_t)$$  \hspace{1cm} (1)

Where the variables in the equation respectively are FDI as a percentage of GDP, GDP current US$ prices, interest rate, imports as a percentage of GDP, exports as a percentage of GDP, inflation rate, the official exchange rate to the US$.

Explicitly the above model is rewritten as follows

$$\text{FDI}_t = \beta_0 + \beta_1 \text{GDP}_t + \beta_2 \text{INT}_t + \beta_3 \text{IMP}_t + \beta_4 \text{EXPT}_t + \beta_5 \text{INF}_t + \beta_6 \text{EXCH}_t + \mu_t$$ \hspace{1cm} (2)

Specifying the variables in their natural log form equation, we have

$$\ln \text{FDI}_t = \beta_0 + \Delta \ln \text{GDP}_t + \Delta \ln \text{INT}_t + \Delta \ln \text{IMP}_t + \Delta \ln \text{EXPT}_t + \Delta \ln \text{INF}_t + \Delta \ln \text{EXCH}_t + \mu_t$$ \hspace{1cm} (3)

The general error correction model adopted for the study is specified as follows

$$\ln \text{FDI}_t = \beta_0 + \Delta \ln \text{GDP}_t + \Delta \ln \text{INT}_t + \Delta \ln \text{IMP}_t + \Delta \ln \text{EXPT}_t + \Delta \ln \text{INF}_t + \Delta \ln \text{EXCH}_t + ECM_{t-1} + \mu_t$$ \hspace{1cm} (4)

The study’s expectations about the variables are as follows:

$$\beta_0 > 0, \beta_1 > 0, \beta_2 > 0, \beta_3 < 0, \beta_4 > 0, \beta_5 < 0, \beta_6 > 0$$

For the estimation, the study starts by examining the unit root properties of the variables objective of the unit root test is to empirically examine whether a series contains a unit root or not. Unit root can cause problems of statistical inference involving time series models. A linear stochastic process has a unit root if 1 is a root of the process characteristics equation; such a process is non-stationary. If the other roots of the characteristics equation lie inside the unit circle have absolute value less than 1, then the first difference of the process will be stationary. The determination of the order of integration of each series is necessary for co-integration and indeed for vector error correction model simply because each series involved in the estimation of the model must be integrated of the same order. Cointegration test is conducted to examine the long-run relationship of the model while the vector error correction was employed to examine the significant determinants of FDI flow in Ghana. The study makes use of secondary data from the World Bank database.

5.0 Data Presentation and Analysis

5.1 Stationary test

The unit root test is conducted mainly to establish whether the variables are stationary at level or not and to determine how many of such relationship exist. In addition an Augmented Dickey Fuller technique is adopted to test the unit root property of the time series data used.

<table>
<thead>
<tr>
<th>Table 1: Augmented Dickey Fuller Unit Root Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variables</td>
</tr>
<tr>
<td>-----------</td>
</tr>
<tr>
<td>FDI</td>
</tr>
<tr>
<td>INT</td>
</tr>
<tr>
<td>IMP</td>
</tr>
<tr>
<td>EXPT</td>
</tr>
<tr>
<td>GDP</td>
</tr>
<tr>
<td>INF</td>
</tr>
<tr>
<td>EXCH</td>
</tr>
</tbody>
</table>

Source: Author’s Computation

The results show that the variables FDI, INT, EXP, GDP and INF were integrated at order one and the variables IMP and EXCH were integrated at order two. This indicates that the variables FDI, INT, EXPT, GDP and INF
are statistically significant at 1 percent, 5 percent and 10 percent critical values in the first difference while IMP and EXCH are statistically significant at 1 percent, 5 percent and 10 percent critical values in the second difference. For the unit root test, the null hypothesis states that there is an existence of unit root and for these results; this indicates that all the variables are non stationary at level. However, this null hypothesis is rejected at the first and second difference because as indicated by the results, FDI, INT, EXPT, GDP and INF are stationary at first difference and IMP and EXCH are stationary at the second difference.

5.2 Cointegration test

Table 2
Series: LNEXCH LNXPT LNFDI LNGDP LNIMP LNINF LNINT2
Lags interval (in first differences): 1 to 1

Unrestricted Cointegration Rank Test (Trace)

<table>
<thead>
<tr>
<th>Hypothesized No. of CE(s)</th>
<th>Eigenvalue</th>
<th>Trace Statistic</th>
<th>0.05 Critical Value</th>
<th>Prob.* **</th>
</tr>
</thead>
<tbody>
<tr>
<td>None *</td>
<td>0.896610</td>
<td>162.0126</td>
<td>125.6154</td>
<td>0.0001</td>
</tr>
<tr>
<td>At most 1 *</td>
<td>0.710471</td>
<td>96.20440</td>
<td>95.75366</td>
<td>0.0465</td>
</tr>
<tr>
<td>At most 2</td>
<td>0.640092</td>
<td>60.25889</td>
<td>69.81889</td>
<td>0.2275</td>
</tr>
<tr>
<td>At most 3</td>
<td>0.389317</td>
<td>30.62362</td>
<td>47.85613</td>
<td>0.6866</td>
</tr>
<tr>
<td>At most 4</td>
<td>0.235914</td>
<td>16.32148</td>
<td>29.79707</td>
<td>0.6895</td>
</tr>
<tr>
<td>At most 5</td>
<td>0.203260</td>
<td>8.518315</td>
<td>15.49471</td>
<td>0.4118</td>
</tr>
<tr>
<td>At most 6</td>
<td>0.064345</td>
<td>1.928748</td>
<td>3.841466</td>
<td>0.1649</td>
</tr>
</tbody>
</table>

Trace test indicates 2 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

<table>
<thead>
<tr>
<th>Hypothesized No. of CE(s)</th>
<th>Eigenvalue</th>
<th>Max-Eigen Statistic</th>
<th>0.05 Critical Value</th>
<th>Prob.* **</th>
</tr>
</thead>
<tbody>
<tr>
<td>None *</td>
<td>0.896610</td>
<td>65.80821</td>
<td>46.23142</td>
<td>0.0002</td>
</tr>
<tr>
<td>At most 1</td>
<td>0.710471</td>
<td>35.94551</td>
<td>40.07757</td>
<td>0.1358</td>
</tr>
<tr>
<td>At most 2</td>
<td>0.640092</td>
<td>29.63527</td>
<td>33.87687</td>
<td>0.1477</td>
</tr>
<tr>
<td>At most 3</td>
<td>0.389317</td>
<td>14.30215</td>
<td>27.58434</td>
<td>0.8012</td>
</tr>
<tr>
<td>At most 4</td>
<td>0.235914</td>
<td>7.803163</td>
<td>21.13162</td>
<td>0.9153</td>
</tr>
<tr>
<td>At most 5</td>
<td>0.203260</td>
<td>6.589567</td>
<td>14.26460</td>
<td>0.5388</td>
</tr>
<tr>
<td>At most 6</td>
<td>0.064345</td>
<td>1.928748</td>
<td>3.841466</td>
<td>0.1649</td>
</tr>
</tbody>
</table>

Max-eigenvalue test indicates 1 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

It can be observed from the co integration test that the trace test statistic indicates four (2) co integrating equations at the 5% level of significance. Also, the maximum eigenvalue test indicates five (1) co integrating equation or vector at 5% level of significance. Therefore, based on these evidences, it is safe to reject the null hypothesis of no co integrating vectors or no significant long run relationship between the variables, but rather accept that there is a presence of co integrating vector among the time series variables of the model or that there is a long run relationship existing among the variables that have been included in the model.

5.3 Error correction model (ECM)

The Error Correction Model is a category of multiple time series models that directly estimate the speed at which a dependent variable return to equilibrium after a change in an independent variable.
Table 3
Dependent Variable: LNFDI

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>LNINT2</td>
<td>3.364439</td>
<td>0.570941</td>
<td>5.892796</td>
<td>0.0000</td>
</tr>
<tr>
<td>LNINT2(-2)</td>
<td>1.997342</td>
<td>0.366460</td>
<td>5.450368</td>
<td>0.0000</td>
</tr>
<tr>
<td>LNGDP</td>
<td>-2.688385</td>
<td>0.612893</td>
<td>-4.386387</td>
<td>0.0003</td>
</tr>
<tr>
<td>LNGDP(-2)</td>
<td>-0.964430</td>
<td>0.463926</td>
<td>-2.078447</td>
<td>0.0514</td>
</tr>
<tr>
<td>LNIMP</td>
<td>-4.093339</td>
<td>0.907393</td>
<td>-4.511097</td>
<td>0.0002</td>
</tr>
<tr>
<td>LNEXPT</td>
<td>1.620198</td>
<td>0.804253</td>
<td>2.014536</td>
<td>0.0583</td>
</tr>
<tr>
<td>LNEXCH</td>
<td>1.086721</td>
<td>0.385390</td>
<td>2.819799</td>
<td>0.0109</td>
</tr>
<tr>
<td>LNEXCH(-1)</td>
<td>-1.099874</td>
<td>0.425743</td>
<td>-2.583423</td>
<td>0.0182</td>
</tr>
<tr>
<td>LNINF</td>
<td>-0.661962</td>
<td>0.182818</td>
<td>-3.620881</td>
<td>0.0018</td>
</tr>
<tr>
<td>ECM(-1)</td>
<td>-0.330714</td>
<td>0.151493</td>
<td>-2.183026</td>
<td>0.0418</td>
</tr>
</tbody>
</table>

R-squared 0.978916  Mean dependent var 17.98939  
Adjusted R-squared 0.968929  S.D. dependent var 1.993216  
S.E. of regression 0.351186  Akaike info criterion 1.011799  
Sum squared resid 2.343306  Schwarz criterion 1.483281  
Log likelihood -4.671089  Hannan-Quinn criter. 1.159461  
Durbin-Watson stat 2.518013  

Source: authors own computation using E-views 7

The coefficient of the slope of GDP is obtained as -2.688385. This indicates a negative relationship between GDP and FDI. The magnitude of the coefficient indicates that with a unit increase in GDP, FDI decreases by 2.688385 units. This is inconsistent with what is found in theory because theory states that with an increase in GDP which is used as a proxy of economic growth, FDI should increase. This deviation from theory can be explained by the fact that components of FDI in Ghana may be components that hamper economic growth causing this negative relationship. GDP lag 2 also corroborates with the result gotten for GDP as the sign is negative as well -0.964430 indicating a negative relationship between GDP lag 2 and FDI. Another variable that exhibits a negative relationship with FDI is imports. The coefficient of the variable is given as -4.093339 indicating that for every unit increase in imports, FDI decreases by -4.093339 units. This result conforms to theory.

The coefficient of interest rate is obtained to be 3.364439 which indicate a positive relationship between interest rate and FDI. The magnitude of the coefficient shows that when there is a unit increase in interest rate, FDI increases by 3.364439 units. This result conforms to economic theory. This relationship between FDI and imports is also present in lag 2 as the coefficient of interest rate in lag 2 is obtained as 1.997342. That is in lag 2, for every unit increase in imports, FDI increased by 1.997342 units. The coefficient of export is obtained to be 1.620198 which indicates a positive relationship between export and FDI. The magnitude of the coefficient shows that when there is a unit increase in export, FDI increases by 1.620198 units. This result conforms to economic theory. The coefficient of exchange rate is obtained to be 1.086721 which indicates a positive relationship between exchange rate and FDI. The magnitude of the coefficient shows that when there is a unit increase in exchange rate, FDI increases by 1.086721 units. This result conforms to economic theory. However in lag 2 for exchange rate, the coefficient of exchange rate is -1.099874 which indicates a negative relationship between FDI and exchange rate in lag 2. This shows that after some years, the relationship between exchange rate and FDI changes from a positive relationship to a negative relationship. This is because the exchange rate is highly volatile and as such cannot be expected to have a stable relationship with the dependent variable.

The coefficient of inflation is obtained to be -0.661962 which indicate a negative relationship between inflation and FDI. The magnitude of the coefficient shows that when there is a unit increase in inflation, FDI decreases by -0.661962 units. This result conforms to economic theory. The absolute value of the coefficient of the error-correction term is 0.330714 which implies that about 33% percent of the disequilibrium in the model is offset by short-run adjustment within a year. In this case, full adjustments are achieved, and take twelve months to complete the cycles.
Table 4 Summary of significant determinants of FDI in Ghana

<table>
<thead>
<tr>
<th>Variables (t-values)</th>
<th>t-tab</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>LNGDP (-4.386387)</td>
<td>± 2.048</td>
<td>Significant</td>
</tr>
<tr>
<td>LNGDP(-2) (-2.078847)</td>
<td>± 2.048</td>
<td>Significant</td>
</tr>
<tr>
<td>LNINT (5.892796)</td>
<td>± 2.048</td>
<td>Significant</td>
</tr>
<tr>
<td>LNINT(-2) (5.450368)</td>
<td>± 2.048</td>
<td>Significant</td>
</tr>
<tr>
<td>LNIMP (-4.511097)</td>
<td>± 2.048</td>
<td>Significant</td>
</tr>
<tr>
<td>LNEXPT (2.014536)</td>
<td>± 2.048</td>
<td>Insignificant</td>
</tr>
<tr>
<td>LNEXCH (2.819799)</td>
<td>± 2.048</td>
<td>Significant</td>
</tr>
<tr>
<td>LNEXCH(-2) (-2.583423)</td>
<td>± 2.048</td>
<td>Significant</td>
</tr>
<tr>
<td>LNINF (-3.620881)</td>
<td>± 2.048</td>
<td>Significant</td>
</tr>
</tbody>
</table>

The t-statistics is used to test for significance impact of the estimated parameters. From the table above, we can conclude t-statistics for the coefficients of LNGDP (-4.37), LNGDP(-2) (-2.08), LNINT (5.89), LNINT(-2) (5.45), LNIMP (-4.51), LNEXCH (2.82), LNEXCH(-2) (-2.58), LNINF (-3.62) and ECM(-1) (-2.18) are greater than the critical value of 2.048 (using the absolute values). This indicates that LNGDP, LNGDP(-2), LNINT, LNINT(-2), LNIMP, LNEXCH, LNEXCH(-2), LNINF and ECM(-1) statistically significant with relation to FDI. On the other hand, the t-statistics of LNEXPT (2.01) is less than the critical value of 2.048, indicating it is not statistically different from zero. Therefore we conclude by saying:

1. GDP is a significant determinant of FDI in Ghana.
2. GDP lag two is a significant determinant of FDI in Ghana.
3. Interest rate is a significant determinant of FDI in Ghana.
4. Interest rate lag two is a significant determinant of FDI in Ghana.
5. Imports are a significant determinant of FDI in Ghana.
6. Exports are not a significant determinant of FDI in Ghana.
7. Inflation rate are a significant determinant of FDI in Ghana.
8. Exchange rate is a significant determinant of FDI in Ghana.
9. Exchange rate lag two is a significant determinant of FDI in Ghana.

6.0 Conclusion and Recommendations

This study set out to find out the determinants of FDI in WAMZ with Ghana as a case. The study showed which determinants were significant for each of the countries under study and it also examined the type of relationship that the determinants have with FDI. The variables that turned out to be significant determinants of FDI using the ECM are GDP in the current period, GDP lag two, interest rate in the current period, interest rate lag two, imports, exports, exchange rate in the current period, exchange rate lag two and inflation. Interest rate in the current period, interest rate lag two, exports and exchange rate in the current period were found to have a positive relationship with FDI while GDP in the current period, GDP lag two, imports, exchange rate lag two and inflation were found out to be negatively related to FDI.

The results of this study have several implications. Firstly the governments of the WAMZ nations should empower their agencies, ministries and departments to effectively collect and analyse data. Proper data is the bedrock of every research. If the data used in studies are accurate, the results of the study will be more reliable. The governments of the WAMZ countries are advised to implement policies like export promotion strategies since it has been proven in this study that exports have a positive relationship with FDI. An export-oriented regime opens up the economy of a nation to the outside world especially in terms of increase in demand, which is necessary for a higher return of investment to be achieved by investors. In the same vein, import substitution strategies, can also be put in place since it has been proven that imports have a negative relationship with FDI. The governments can increase tariffs on imports as well so as to discourage importation of goods and services.
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