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Currency Union and Foreign Direct Investment Inflow: Evidence from Economic Community of West African States (ECOWAS)

Anokye M. Adam

*University of Cape Coast, School of Business, Cape Coast, Ghana
Open University Malaysia, Accra Institute of Technology Campus, Accra, Ghana
Email: ano77chie@yahoo.co.uk*

Abstract

This study investigates the effect of currency union membership on foreign direct investment inflow to ECOWAS subregion. The study employed panel dynamic ordinary least square (DOLS) to estimate a panel data of fifteen ECOWAS countries from 1995 to 2010 with the framework of the gravity model. The result indicates a positive effect of a currency union on FDI inflow to ECOWAS, which shows that the presence of a currency union is likely to increase FDI by 46%. The control variables; political constraint, current account and trade openness is significant in explaining FDI inflow to ECOWAS. The implications of the findings are that currency union positively influences the flow of FDI into ECOWAS region, and this requires stable political environment, financial and trade openness. It goes to suggest that adoption of common currency should go with these factors to maximize the benefit of currency union membership in the region.

JEL Classifications: F15, F21, F30.

Keywords: Currency Union, Foreign Direct Investment, Gravity Model and DOLS.

1. Introduction

The Rose (2000) seminal paper on estimating the effect of currency unions on international trade and subsequent work confirming the positive effect of a currency union on international trade brings the debate near to a conclusion. What is unclear is the magnitude of the effect (Anderson and van Wincoop, 2004; De Sousa and Lochard, 2006) and channel of the effect. The reduction in exchange reduction and volatility has been the immediate explanation to the channel of the effect.

This, Sousa and Lochard (2009) argued that it holds for only to explain the additional intra-currency union trade and that there is an indirect effect from additional foreign direct investment (FDI) inflow that explains the increase in trade between members and non-members of a Currency union.

Theoretical explanation of the ability of a currency union in attracting FDI is well documented in the literature. Among the arguments are the ability of a currency union to reduce macroeconomic instability and destability speculation; increase in transparency and credibility of rules and policies (Lane, 2006; Usman and Ibrahim, 2012). The enlarged market as a result of a currency union also facilitates the exploitation of economies of scales by multinational firms (Pantelidis, Kyrkilis and Nikolopoulos, 2012). Available empirical evidence from the European Economic Union affirms this theoretical position. De Sousa and Lochard (2006) through gravity model have shown that the creation of the single currency has increased intra-EMU FDI stock by 29-30%. Petroulus (2007) observed that EMU had increased inward FDI originating from outside the EMU by 8% and 16% from within. Schiavo (2007) and Brouwer, Paap and Viaene (2008) reinforce the currency union positive effect on FDI. Aristotelous and Fountas (2012) recently employed a number of econometric methodologies, and wider data span and also documented significant positive effect of EMU on FDI though not symmetrical.

The relationship between FDI and trade is well documented in the literature with varying argument. Within a low trade complementarity and export concentrated zones, the ability of the FDI inflow to diversify export is likely to boost intra-regional trade. In ECOWAS region, like other Africa regional groupings, where export concentration has been touted as key hindrance to intra-regional trade, the ability of FDI to diversify the export base of the region will increase intra-trade due to the additional FDI inflow as a result of currency union adoption.

Export diversification as noted is necessary for successful trade agreement because countries with more diversified exports are more likely to produce a greater range of products that can be exchanged with regional partners. Yeats (1999) opined that if only a limited number of such goods existed members of a trade bloc may have to rely heavily of third countries for a high share of their key imports (and as the destination for their major exports) and this would likely reduce their commitment to the arrangement. It should be noted that though FDI may be motivated for the reason of starting a firm in a low-cost nation exclusively for serving an export market; not all FDI is motivated by foreign firms aiming to substitute exports to a local market through local production (Ekholm, Forslid and Markusen, 2007). This implies that some FDI may instead serve the purpose of exporting to a third-country market through the establishment of an export-platform in the FDI recipient nation. For example, two-thirds of the 36%

of production of US foreign affiliate was exported to third countries (other than the US). Such is common for countries in a trade bloc like EU. The resultant effect is the diversification of the bloc's export. In low-income nations within a bloc, labour is normally cheap and therefore, FDI seek to establish an export platform in these nations to take advantage of the enlarged market.

Recent empirical work by Adam (2013) looked at currency union effect on intra-ECOWAS and included FDI and export concentration as control variables, and the result showed that FDI positively influences aggregate intra-ECOWAS trade while negative relationship exists between export concentration, and intra-ECOWAS trade. The study, like other studies in ECOWAS, however, did not look at how the indirect effect of a currency union on FDI inflow. The ECOWAS was formed following the signing of Treaty of Lagos on 28 May 1975 by 15 West African countries: Benin, Burkina Faso, Cote d'Ivoire, Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Mauritania, Niger, Nigeria, Senegal, Sierra Leone and Togo. In 1976, Cape Verde joined ECOWAS, and 2001, Mauritania withdrew, having announced its intention to do so in December 1999. In 1990, ECOWAS adopted ECOWAS Trade Liberalisation Scheme (ETLS) as the main operational tool for promoting the West Africa region as Free-Trader Area. In July 1993, a revised ECOWAS Treaty designed to accelerate economic integration and to increase political co-operation, was signed. ECOWAS has though recorded some successes, though small. For instance, ECOWAS intra-trade doubled between 1975 and 1984, thereby generating great optimism that the region was going to be the most successful integration story in Africa. However, several challenges have bedeviled the integration process in recent times, including the inability to fully implement the ECOWAS Monetary Cooperation Programme (EMCP), ECOWAS Trade Liberalization Scheme (ETLS), and recently, the global economic downturn. These challenges have combined to induce integration fatigue. Nevertheless, ECOWAS remains one of the most successful integration arrangements to date, following closely behind the European Union. At inception, the purpose of creating ECOWAS was to promote cooperation and development in all area of economic activity, abolishing trade restrictions, removing obstacles to the free movement of persons, goods and services, and harmonizing regional sectorial policies. This was affirmed during the 24 July 1993 review of the ECOWAS Treaty in Cotonou. However, the overriding objective remains the establishment of a Common Market and the creation of a Monetary Union, characterized by a single currency and a common central bank. In April 2000 by five countries; the Gambia, Ghana, Guinea, Nigeria and Sierra Leone later joined by Liberia in February 2010 signed Accra Declaration seeking to establish the Monetary Zone in West Africa, West African Monetary Zone (WAMZ) second to the West Africa Economic and Monetary Union (WAEMU). The WAEMU was formed in 1994 and is made up of West

African users of the Communauté française d'Afrique (CFA) Franc (formerly, Colonies françaises d'Afrique Franc) which includes namely Benin, Burkina Faso, Cote d'Ivoire, Guinea-Bissau, Mali, Niger, Senegal and Togo. Guinea-Bissau, the only former Portuguese colony, became the WAEMU's eighth (and only non-Francophone) member state in 1997. The currency of the WAMZ will be "the ECO". The success of the WAMZ will intensify the ECOWAS course towards financial integration, which aimed at the establishment of the ECOWAS Central Bank and introduction of the common currency by 2020. It worth noting that adopting a single currency is a very credible commitment to exchange rate stability and has the advantage of reducing transaction costs that would otherwise occur, irrespective of the degree of volatility (Petroulas, 2006). This promotes trade among member countries compared to those from outside the union. The prices of goods that can be equally be produced within the union, hereafter domestic becomes cheap and very competitive, creating bigger domestic market for those goods. The ensuing pressure on MNE in the rest of the world couple with the advantage of being produce domestically will send a signal to non-domestic market participants. The MNE then determines whether to continue export into the union or produces domestically depending on overall cost of doing business domestically or suitability of locating part of a production unit within the union (i.e. cost of licensing, legal regulation; availability of raw material, etc.). The choice of producing domestically increases technology and competition as more FDI flow into the union will result in product diversification and expansion to satisfy domestic market demand. The effect will be to cut off as much as possible the suppliers of products, which were not initially produced domestically. Traditionally, ECOWAS does not produce most of their demand and export product, which looks homogeneous for intra-trade to be lucrative. It believed that low intra-African trade may be as a result of low trade diversification but not mainly exchange rate cost leading to some ridicule "single currency to facilitate what?" It may be prudent for any policies establishing the single currency should also target attracting FDI as a possible channel of achieving long-run intra-trade. This is daunting task, which may go beyond mere introduction of single currency but all inclusive approach that will increase trade and foreign direct investment facilitation. It goes to suggest that, the currency union ability to attract FDI is necessary for the currency union to improve intra-regional trade. This study, therefore, investigates the currency union effect on FDI inflow to ECOWAS. The study contributes to the literature in this area, which is missing in the literature. The rest of the paper is structured as follows: section 2 looks at the methodology, estimation technique and data source, analysis of results and discussion in section and concluded in section 4.

2. Methodology

The analysis is done using the gravity model. Tinbergen (1962) proposed to apply Newton's law of gravitation to international trade flows to study the effect of economic factors on trade changes. Theoretical justification for the gravity model under international trade theories has been gradually strengthened since the 1990s (see Anderson, 1979; Bergstrand, 1985; Bergstrand, 1989, Deardoff, 1998; Anderson & van Wincoop, 2003). The model predicts that bilateral trade between a pair of countries should increase as their economic size's increase and decrease with the transaction costs' increase. The use of the gravity model for the analysis of FDI flows determinants have increased recently. Like gravity model for trade, the gravity approach to FDI suggests that FDI is positively related to GDP levels both in host and source countries and negatively related to the distance between them. The use of the gravity model in explaining FDI flows is supported theoretically. The most well known theoretical framework is Dunning's (1958) eclectic OLI (Ownership, Location, Internalization) paradigm. In this framework, the market size and the proximity of markets are rather influential factors for FDI decision. The model can be expressed as follows:

$$FDI_{ij} = G \frac{M_i M_j}{D_{ij}} \quad (1)$$

where,

- FDI_{ij} = FDI flows from origin country i to destination country j ;
- M_i and M_j = the economic forces of the two countries that have a positive effect on bilateral trade flows (e.g. GDP, Population, GDP per capita);
- D_{ij} = the economic force that negatively affects trade flows between the origin country and the destination country, it usually represents changes in transaction costs;
- G = constant.

We adjust equation (1) by replacing m_i with $GDPW$, m_j with GDP_i and d_{ij} by $KAOPEN_{i,t}$ and augment with the natural log of the following determinants of FDI: TT , P , $KAOPEN$ and $POLCON$. We therefore states our required model as:

$$\ln FDI_{i,t} = \omega_1 + \omega_2 \ln GDPW_{j,t} + \omega_3 GDP_{i,t} + \omega_4 \ln TT_{i,t} + \omega_5 \ln P_{i,t} + \omega_6 \ln KAOPEN_{i,t} + \omega_7 \ln POLCON_{i,t} + \omega_8 CU_{ij} + \psi_t \quad (2)$$

where FDI_i is the volume of FDI flow to host country i , GDP_i is the GDP of country i proxy the absorption capacity of country i , $GDPW_j$ is the world GDP excluding GDP of country i proxy supply capacity of world to country i , $KAOPEN_i$ is the capital account openness of country i , $POLKON_i$ is the political constraints measure of country i , P_i is the population of country i , proxy market size, TT_i is total trade as percentage of GDP, proxy trade openness $\omega_2, \dots, \omega_8$ are the sensitivity to respective variables.

The inclusion of World GDP, $GDPW$, as supply side capacity is intended to indicate the un-identified source of FDI used in this study. The interest is not where the FDI is coming from without downplaying the importance of the source of the FDI. Unlike trade gravity, where trade cost is directly proportional to distance between the host and partner countries, FDI flow cost is influenced by the degree of capital account openness ($KAOPEN$) of the host country and measures the degree of unilateral foreign investment regulatory reforms done to attract FDI from all sources. Capital account openness has the ability to lower uncertainty and transaction costs thus expanding investment flows within and outside the regional bloc. Therefore, replacing the physical distance variables with capital account openness variable is justified. $Polcon$ is used to proxy institutional development of host countries. $Polcon$ is included as a control variable as poor institutions may discourage FDI by giving rise to uncertainty (e.g., with respect to the protection of property rights; Lee and Mansfield, 1996; Henisz, 2000; Busse, Königer and Nunnenkamp, 2008) and additional costs (e.g., in the case of corruption; Wei, 2000).

3. Estimation Technique

Since the data considered varying both over time and across countries, the study considered panel (pooled) estimation that will also take time series properties of the data into consideration. This brings the problem of stationarity in econometrics studies. Empirical studies show that most of the time series are not stationary. That is, their mean and variances depend on time. As econometric theory shows, when the variables are non-stationary, the standard ordinary least squares cannot be applied because there might be a spurious regression which affects the forecasting performance. A number of methods have been suggested to solve this problem. One of them is taking the differences of the series and then putting them into regressions. However, in this case, we are confronted with a new problem; loss of information that is important for the long-run equilibrium. As long as the first differences of the variables are used, determining a potential long-run relationship between these variables becomes impossible. We consider two other estimators, which have power to deal with stationarity problems; fully modified ordinary least square (FMOLS) and dynamic ordinary least squares

(DOLS). To correct for the endogeneity bias and to obtain an unbiased estimator of the long-run parameters, DOLS uses a parametric adjustment to the errors by augmenting the static regression with leads, lags, and contemporaneous values of the regressors in first differences. Both FMOLS and DOLS provide consistent estimates of standard errors that can be used for inference. According to Kao and Chiang (2000), FMOLS and DOLS, estimators have normal limiting properties, and the DOLS estimator outperforms the FMOLS estimator, especially in small samples. On the basis of the earlier findings in favor of panel DOLS estimation, the DOLS method is employed in this study. The specification of the DOLS estimated follows Stock and Watson (1999) specified as:

$$Y_{it} = \alpha_i + x'_{it}\beta_{DOLS} + \sum_{j=-m}^m \rho_{ij}\Delta x_{it+j} + u_{it} \quad (3)$$

Here, the x' is a vector of regressors, Δx is a vector of the first difference of the non-stationary variables, m is maximum lag determine by Akaike Information criterion (AIC) and u_{it} is the error term.

3.1 Data and Data Sources

All data series are in annual frequency from 1995 to 2010. The data is for fifteen countries: Benin, Burkina Faso, Cape Verde, Cote d'Ivoire, The Gambia, Ghana, Guinea, Guinea Bissau, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone and Togo. Table 1 shows the data description, proxy and data source.

Table 1
Data Description and Source

Data Description	Proxy	Source
Bilateral Trade among countries (M)	Total Trade	IMF- IFS Direction of Trade (DOT) database
Real GDP (GDP)	Economic size of respective host countries	World Bank World Development Indicator (WDI)
Real World GDP excluding GDP of host nation	Economic size of respective source countries	World Bank World Development Indicator (WDI)
Population	Respective Market size	World Bank (WDI)
Total trade as a percentage of GDP (TT)	Trade openness	World Bank (WDI)

(to be continued)

Export concentration index	Homogeneity of exports	UNCTAD Statistics Division (UNCTADSTAT)
Foreign Direct Investment inflow (FDI)	Accessibility of overseas investment	UNCTAD Statistics Division (UNCTADSTAT)
Dummy variable (CU=1 if a country is a member of WAEMU, CU=0 if otherwise)	Currency union	Author's construct

4. Analysis of Results and Discussion

Table 2 shows summary of panel Dynamic OLS estimated results. The results indicate that all except population variable have the expected sign.

The GDP variable indicating the capacity of the host region has a positive effect on FDI inflows into the region. This means that the more production levels within the bloc increase the more the influx of foreign investors. The coefficient of 1.188 signifies that, a one percentage change in productivity or expansion within the bloc would lead to 1.188 percentage change in the FDI inflows.

The supply capacity proxy by GDPW is positive but insignificant and therefore, increases in rest of the world economic size does influence FDI flow to ECOWAS. Investors do not consider their home-country production conditions before making a decision to invest in the bloc.

Trade openness may attract foreign investment since such investors are assured of a wider market. From Table 2, the extent of trade openness within the bloc has a positive and elastic impact on the amount of FDI. With a coefficient of 1.857, it is evident that foreign investors will be highly attracted to the ECOWAS bloc if trade restrictions are limited to a high degree.

Population as a factor in attracting FDI into the ECOWAS bloc has a significant impact on the amount of FDI inflow. However, surprisingly, it has a negative and inelastic effect (-0.332) on FDI. This implies that increase in population within the bloc by 1 percent will lead 0.332 per cent decrease in amount of foreign direct investment the bloc attracts from non-ECOWAS countries.

Table 2
Panel Long run Regression for FDI Model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GDP	1.188419	0.045087	26.35848	0.0000
GDPW	1.492932	1.506436	0.991036	0.3231
P	-0.331893	0.058407	-5.682378	0.0000
TT	1.856722	0.039874	46.56468	0.0000
KAOPEN	0.243847	0.021289	11.45404	0.0000
POLCON	1.155301	0.130404	8.859379	0.0000
CU	-0.759810	0.035242	-21.55963	0.0000
C	-30.12175	20.56957	-1.464384	0.1450
Weighted Statistics				
R-squared	0.991030	Mean dependent var		11.78797
Adjusted R-squared	0.990160	S.D. dependent var		27.96577
S.E. of regression	1.011467	Sum squared resid		168.8057
F-statistic	1139.319	Durbin-Watson stat		1.984400
Prob (F-statistic)	0.000000			
Unweighted Statistics				
R-squared	0.779274	Mean dependent var		4.167500
Sum squared resid	151.5227	Durbin-Watson stat		1.233247

The easing of capital flows across national or regional boundaries is an important factor that can delimit or improve the flow of capital into the bloc. From the study, capital account openness within the bloc has a positive and significant impact on FDI inflows into the region. This means that, as member states ease or remove the barriers to capital flow; it would have a positive impact on the amount of foreign investments into the economy. Its coefficient of 0.244 is, however, inelastic.

Polcon is a measure of the degree of Political constraints. The positive significant effect depicted in the results implies that when the political situation within the bloc becomes more favourable, it would lead to increased confidence for foreign partners to invest in the economy. Its coefficient was elastic at 1.155.

Common currency has been found to attract foreign direct investment since investors feel more confident in the regional structure. Coupled with this, the wider

market fostered by this common currency and lack of exchange rate volatility is expected to attract more FDI.

From Table 2, common currency union among some ECOWAS members lead to marginal increase in foreign investment in the region. Common currency significantly increased FDI inflow by a factor of 0.46 (exp (-0.7598)) more than would have been with different currencies into the ECOWAS bloc.

The finding on the currency union on FDI is consistent with the previous literature which found positive relationship between currency union and FDI inflow. Specifically, Petroulus (2007) observed that EMU had increased inward FDI originating from outside the EMU by 8% and 16% from within. Schiavo (2007) and Brouwer, Paap and Viaene (2008) reinforce the currency union positive effect on FDI. Aristotelous and Fountas (2012) recently employed a number of econometric methodologies, and wider data span and also documented significant positive effect of EMU on FDI though not symmetrical. Our finding suggests that currency union in ECOWAS has a substantially high impact on FDI to ECOWAS than what Petroulus (2007) recorded. With high macroeconomic instability and destability in West Africa, Currency union will reduce the macroeconomic instability and destability speculation; increase in transparency and credibility of rules and policies (Lane, 2006; Usman and Ibrahim, 2012) and thereby will boost flow of FDI into the region. Also, currency union ECOWAS has enlarged the market and resource endowment as a result of a currency union which facilitates the exploitation of economies of scales by multinational firm, which is consistent with Pantelidis, Kyrkilis and Nikolopoulos (2012).

Contrary to the findings of Busse, Königer and Nunnenkamp (2008), the current study finds significant and positive causality running from stable political environment, capital account openness and trade openness to FDI inflow. The finding partly supports Bankole (2008) that political constraint impedes inflow of FDI into ECOWAS.

Finally, the finding that flow of FDI into ECOWAS depends less on the performance of the world economy is inconsistent with gravity theory, which posits that flow of FDI depend on host and source countries. It also contravenes Paniagua (2011) and Kleinert and Toubal (2010) proposition.

5. Conclusion

The paper has looked at the currency-union effect on FDI inflow using the Gravity model. A panel DOLS estimation technique was employed to analyse panel data from 1995 to 2010. The study finds evidence of positive effect of a currency union on FDI inflow to ECOWAS, which shows that the presence of a currency union is likely to increase FDI by 46%. The control variables, political

constraint, current account and trade openness is significant in explaining FDI inflow to ECOWAS.

The implications of the findings are that currency union positively influences the flow of FDI into ECOWAS region, and this requires stable political environment, financial and trade openness. It goes to suggest that adoption of common currency should go with these factors to maximize the benefit of currency union membership in the region.

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