

Impact of Monetary Union in Promoting Trade among CFA Franc Zone Economies: An Empirical Analysis

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Abstract

This paper examines the trade promoting effects of monetary union in the context of the CFA franc zone. Using the gravity model as a basis for predicting the volume of trade between countries, the study attempts to estimate the potential for increased trade within the CFA franc zone. The study shows that the CFA countries have experienced relatively low monetary growth, relatively strict budgetary disciplines, and consistently low inflation. However, the results of the study indicate that monetary union in the case of the CFA franc zone did not promote economic integration among member countries in the form of expanded trade. The actual trade among these countries remained small despite the use of common foreign exchange policy and free transferability of resources among these countries.

Introduction

The CFA (le Franc des Colonies Francaises d'Afrique) franc zone covers fourteen West and Central African countries. These countries form two regional economic and monetary groupings each with its own currency (CFA Franc) linked to the French Franc. Eight countries - Benin, Burkina Faso, Ivory Coast, Mali, Niger, Senegal and Togo – form the West African Economic Monetary Union (WAEMU) with the BCEAO (Banque Centrale des l'Afrique de l'Ouest) as their central bank issuing the franc de la Communauté financière de l'Afrique (CFA franc). The second group consists of six Central African countries: Cameroon, Central African Republic, Chad, the Congo, Equatorial Guinea and Gabon and form the Central African Economic and Monetary

Community (CEMAC). They use a common currency known as "franc de la Cooperation Financiere en Afrique Centrale" (also known as CFA franc) issued by the Banque des Etats de l'Afrique Centrale (BEAC) or the Central Bank of Central African states. The two CFA francs are legal tender only in their respective regions, but each region's central bank maintains the same parity of its CFA franc against the French franc and capital can move freely between the member states and France.

The CFA franc zone grew out of the economic and financial arrangements that France established in its West and Central African colonies. Soon after World War II France consolidated the currencies of its African colonies into the CFA franc. The CFA franc was fully convertible to the French franc at a fixed parity. The CFA franc was pegged to the French franc at a fixed exchange rate of 50 CFA francs per French franc for 45 years. Only one devaluation has occurred during the history of the currency peg – from CFA50 to CFA100=FF1 in January 1994. Any change requires the unanimous agreement of the member countries and France. Also, the two regional central banks established an "operations account" in the French Treasury. Convertibility was guaranteed through rules permitting overdrafts on these accounts. This allowed the member countries to avoid short-run balance of payments constraints. However, the French Treasury was heavily involved in the monetary policy formulation for the CFA zone. Each of the two regional central banks is required to keep at least 65% of its foreign exchange holdings in its "operations account" with the French Treasury; provide for foreign exchange cover of at least 20% for sight liabilities; and impose a cap on credit extended to each member country equivalent to 20% of that country's public revenue in the preceding year.

With the introduction of the euro in 1999 and complete withdrawal of the French franc from circulation in 2002, the member countries of the CFA franc zone agreed to maintain the currency peg to the euro through an arrangement with the French Treasury. The French Treasury guarantees convertibility of CFA francs into euros, without any monetary implication for the Bank of France (French central bank) or the European Central Bank. The monetary arrangements and operating rules that have applied since 1973 remained unchanged. The fixed parity between the CFA franc and the euro is based

on the official fixed conversion rate between the French franc and the euro set in January 1999 (FF6.55957 = Euro1). Since the CFA100 = FF1 exchange rate has remained unchanged, the CFA franc– euro exchange rate is simply CFA665.957= Euro1.

In this paper, we focus on the benefits in terms of trade promotion derived by member countries from the CFAF monetary union. The analysis builds on the empirical model of the determinants of bilateral trade in the context of the "gravity model" focusing on the role of CFA franc zone in fostering trade among member countries and thereby creating a stable environment that may stimulate economic growth. The assumption behind this study is that trade (within the CFA zone) will not involve foreign exchange risks because member countries are holding export earnings in CFA francs and are paying for imports in CFA francs. Overall, member countries will benefit from the monetary union. By the same token, trade outside the CFA franc zone implies higher exchange costs because these countries need to convert more of their export earnings from other hard currencies into the French Franc with a 65% proportion to be kept at the French Treasury.

The remainder of this paper is organized as follows. The next section examines the economic performance and institutional framework of the CFA franc zone. Following that section is the specification of the model and empirical findings. The final section concludes the analysis.

Economic Performance and Institutional Framework of the CFA Franc Zone

Monetary union entails fixed exchange rates and full convertibility on both current and capital accounts between member countries. Monetary union can be an informal exchange rate union in which central banks agree to limit fluctuations in exchange rates without the support of centralized coordinating bodies. There can also be a formal exchange rate union in which a central agency coordinates exchange rate policy, but national central banks remain autonomous in other respects. In a full monetary union (or currency union) member countries share a common currency and a central bank. The CFA franc zone is a close variant of full monetary union.

Most studies of monetary union focus on the overall benefits and costs derived

by member countries from using common currencies and common monetary policies (M'Bet Allechi and M.A. Niamkey, 1994; S. Devarajan and J. De Melo, 1987; D. Cobham and P. Robson, 1994). The benefits of monetary union are measured in terms of their contributions to producing macroeconomic stability and promoting economic integration among member countries in the form of expanded trade and cross-border investment flows. Macroeconomic stability is enhanced by union membership to the degree that participation: (1) improves price stability and leads to improvements in domestic and international resource allocation; (2) reduces exchange rate variability leading to increased trade and investment flow within the union; and (3) save resources from pooling of foreign exchange reserves and centralization of monetary policy. The potentially important benefit of full monetary union is the support of an open trading regime associated with the maintenance of mutual convertibility for current account purposes at fixed rates within the union.

However, when a country joins a full monetary union, it loses its monetary independence. Hence, the costs of monetary union are measured in terms of: (1) the loss of the exchange rate as an instrument for adjustment amongst members; (2) the initial disinflation required to enter the union; and (3) the loss of seigniorage and inflation-tax revenue.

The CFA countries have experienced relatively slow monetary growth, strict budgetary discipline, and hence, consistently lower inflation than most African countries. Over the period 1970 to 1990, CFA inflation averaged 7.3% per year compared with SSA states at 18.4% per year (World Bank, *World Tables*). A study by Devarajan and de Milo (1987) shows that during the 1960's and 1970's CFA countries improved their economic situation vis-à-vis non-CFA countries. Ten of CFA zone countries experienced an average annual growth rate of 4.2%. These countries were exporting to world markets at prices fair enough to generate sufficient export earnings to finance development projects. In addition, during this period exports were very competitive because the French Franc was depreciated against the US dollar. A study by Assane and Pourgerami (1994), however, shows that during this period, other Sub-Saharan African countries were able to match output growth rates of the CFA zone countries without necessarily surrendering

their monetary autonomy.

Despite lower domestic inflation rates, the fixed French franc parity was regarded by some critics as having been sufficient to undermine the CFA states' external competitiveness (Allechi and Niamkey. 1994; Hadjimichael and Galy. 1997). The financial advantages provided by reserve pooling were offset by the exchange rate risk and differential interest rates between those offered by the Bank and world rates. Those states with positive balances in their operational accounts and a large percentage of trade outside the CFA zone lose the most. This is the case with most of the UMOA group, where most states are net losers – especially Niger, Togo and Burkina Faso. They concluded that there were more losers than winners among the CFA member countries.

But more attention has focused upon the relative performance of the CFA countries in the 1980s and 1990s. Their GDP growth rates fell far behind other Sub-Saharan African countries (World Bank, *World Development Report*. 1997). This period corresponds to an era of world recession fueled, among other factors, by oil price shocks and deteriorating terms of trade. Devarajan and de Melo (1991) noticed that, lack of adjustment to the changed external environment led to some exchange rate misalignment and economic downturn. Medhora (1993), on the other hand, stresses that the weaker performance in the 1980s may be attributable in part to poor lending practices and inadequate supervision. During this period the French Franc was sharply appreciated to keep up with European Monetary Union. This policy of a strong Franc (pursued by the French government) has affected these economies negatively because they have to pay more for their imports. In this regard, membership in the Franc zone has imposed a measurable liability on these countries.

The crucial question is whether the CFA franc zone has made significant contributions to promoting economic integration among member countries in the form of expanded trade and cross-border investment flows. Studies of existing regional integration schemes in Africa reveal that inter-regional trade has not only been minuscule but nearly stationary (Foroutan. 1993; Lyakurwa. 1993). Inter Sub-Saharan Africa exports accounted for only 2.8 percent of the total exports of the region in 1980 and 7.1 percent in 1992. Inter African imports accounted for 5.8 percent of the total in 1984 and

7.3 percent in 1992 (IMF, *Direction of Trade Statistics, Yearbook 1991 and 1993*). The direction of trade matrix of CFA countries also shows a similar pattern. Except for three countries (Burkina Faso, Mali, and Chad), inter-African imports did not exceed 10 percent of the total imports (UNDP and World Bank, *Africa Development Indicators, 1992*).

Other studies (for example, ECA. 1988; Oramah and Abou-Lehaf. 1998) argue to the contrary, pointing out that inter-African trade potential is enormous. However, these studies recommend further trade liberalization and speedier economic cooperation to realize the potential.

In this study, we are concerned with one factor, namely, the impact of CFA monetary union in promoting bilateral trade among member countries. In addition to accounting for the standard factors that affect the trade, the study will attempt to account for the trade creation effects of the CFA zone.

Methodological Issues and Empirical Results

In this study, the gravity model is used to investigate the pattern of bilateral trade among CFA countries. Foroutan and Pritchett (1993) apply this model in their study of inter African trade and conclude "contrary to popular belief, the gravity model produces no evidence that inter SSA trade is below expectations." According to this model the volume of trade (T_{ij}) between two countries (i,j) is the function of each country's trade potential (TP_i and TP_j) and their mutual trade attraction (TA_{ij}).

$$T_{ij} = f(TP_i, TP_j, TA_{ij})$$

The trade potential of a country in this model is determined by its economic size (measured by GDP) and its trade intensity, measured by the ratio of trade to GDP. In turn, trade intensity is determined by economic factors (such as the level of development, proxies by nominal GDP, per capita (GDPPC) and geographic characteristics (such as the area size or whether the country is an island). Whereas GDP and GDPPC are expected to

have positive affects on bilateral trade, the impact of size should be negative. The greater the size of the country, the smaller the size of economic activity expected to cross its borders.

The trade attraction between two trading partners is determined by a host of factors that affect the cost of bilateral trade, such as - transport cost (proxies by the distance between the economic centers of gravity in the two countries and whether or not the two countries share a common border); political inducements (or barriers) to trade, and general "business environment" variables. The model estimated is specified as:

$$T_{ij} = f(\text{GDP}_i, \text{GDPPC}_i, \text{AREA}_i, \text{GDP}_j, \text{GDPPC}_j, \text{AREA}_j, \text{ID}_j, \text{Distance}_{ij}, \text{BD}_{ij}, \text{GDPPC}_i / \text{GDPPC}_j, \text{PAD}_{ijk}, \text{LD}_{ij})$$

In this equation, GDPPC is per capita GDP; ID is a dummy if i is an island; BD is a dummy variable if i and j share a common border; LD is a set of dummy variables if i and j share a similar language (equal to 1 if i and j share the same language); and PAD is a dummy variable reflecting a set of economic and monetary integration schemes.

The ordinary least squares (OLS) regression analysis is employed in this study to demonstrate empirically the relevance of monetary union for an explanation of bilateral trade between CFA countries using the well-known "Gravity Model". A more formal expression of the model is specified as follows:

$$\log T_{ij} = \beta_0 + \beta_1 \log(Y_i) + \beta_2 \log(YP_i) + \beta_3 \log(Y_j) + \beta_4 \log(YP_j) + \beta_5 \log|Y_{i-} - Y_{j-}| + \beta_6 \log(NP_i) + \beta_7 \log(NP_j) + \beta_8 \text{REXR}_{ij} + \beta_9 \text{MU}_{ij}$$

Where T_{ij} is the volume of trade between i and j; Y is gross domestic product at current prices; YP is GDP per capita; NP is population; REXR is real effective exchange rate index; MU is a dummy variable representing common monetary policy (1 if country i and j use a fixed exchange rate and common monetary policy, and 0 otherwise). All measures with the exception of dummy variables are expressed in log format so that the regression coefficients show elasticity.

The above gravity equation is estimated in its most simple form, that is, disregarding other trade-restricting or trade promoting factors such as language, transportation costs and availability of human and physical infrastructure. In the above model, the GDP (Y) variable is expected to measure the relative size of the trading countries. According to Linder's hypothesis, it is expected that higher GDP countries will have a large volume of bilateral trade. Also, countries with similar demand conditions will produce a similar range of goods and will trade them with each other. The real effective exchange rate index gives a measure of price competitiveness of a country's exports relative to its trading partners. A decrease (increase) in the index indicates real depreciation (appreciation) of the exchange rate. The monetary integration variable is used to capture the effects of fixed exchange rates and common monetary policy in bilateral trade promotion. This variable is expected to have a positive coefficient, implying that countries in the same monetary union are more likely to trade between themselves.

For this study, use is made of World Bank's *African Development Indicators* of 1992 and 1997. The actual trade flows considered are goods and non-factor services. Data for real GDP, per capita GDP, population, real effective exchange rate index, and regional groupings are obtained for 17 years (1980-1996). The number of years is obviously not large enough to portray the performance of these economies. Therefore, in interpreting the findings of this study, the inherent characteristics of the data employed have to be kept in mind.

Table 1 shows the regression results of the underlying model for six CFA countries. A closer examination of these results suggests that there is a weak relationship between the patterns of trade as hypothesized by the model and the explanatory variables. For most countries in the study, the regression coefficients of the level of real GDP and per capita GDP turned out with negative signs suggesting that real GDP and per capita GDP had little impact on the pattern of trade. Poverty remains a formidable problem in these countries, and substantial economic progress has yet to touch millions of their people.

Table 1

<u>MODEL ESTIMATES (EXPORTS): CIF FRANC ZONE (1980 - 1996)</u>										
	β_0	β_1	β_2	β_3	β_4	β_5	β_6	β_7	β_8	β_9
<u>BURKINA FASO</u>										
Coefficient	-16.23	2.54	-4.71	0.19	1.24	-0.02	-1.39	-1.32	3.08	1.10
t-statistic	2.04	2.03*	-2.93	0.18	1.00	-0.11	-2.10	-0.34	2.41*	1.77*
R2	0.7964									
F	8.824*									
<u>CAMEROON</u>										
Coefficient	1.43	0.25	2.37	1.21	-0.89	0.04	-0.22	2.84	-1.12	-0.07
t-statistic	0.33	0.37*	1.68***	1.63	-1.11	0.45	-0.04	0.45	-2.01*	-0.25
R2	0.8265									
F	9.467*									
<u>CENTRAL AFRICAN REPUBLIC</u>										
Coefficient	26.73	-0.45	-14.55	-2.59	8.87	7.87	-5.19	10.08	1.45	-0.96
t-statistic	1.77***	-0.71	-2.30*	-1.98 **	2.28*	2.15*	-0.94	1.68*	2.37*	-2.71*
R2	0.6940									
F	5.031*									
<u>CHAD</u>										
Coefficient	119.27	-0.35	-61.40	5.29	6.79	47.29	-31.22	35.64	-1.24	2.08
t-statistic	1.44***	-0.11	-1.63***	1.47***	0.81	1.57***	-0.98	1.01	-0.76	1.52***
R2	0.4801									
F	2.641									
<u>IVORY COAST</u>										
Coefficient	6.94	3.29	-1.95	1.01	5.37	-2.37	1.50	2.28	0.69	-0.11
t-statistic	0.73	1.47	0.63	0.45	1.19	-1.31	0.89	0.74	2.88*	-0.39
R2	0.7619									
F	7.402*									
<u>SENEGAL</u>										
Coefficient	-5.07	1.89	-3.42	-0.45	2.52	-0.23	7.67	-4.63	0.20	0.19
t-statistic	-0.44	1.00	-1.31	-0.26	1.01	-0.64	0.46	-0.29	0.34	0.56
R2	0.7546									
F	6.467*									

$$\log T_{ij} = \beta_0 + \beta_1 \log(Y_i) + \beta_2 \log(YP_i) + \beta_3 \log(Y_j) + \beta_4 \log(YP_j) + \beta_5 \log|Y_{P_i} - Y_{P_j}| + \beta_6 \log(NP_i) + \beta_7 \log(NP_j) + \beta_8 \text{REXR}_{ij} + \beta_9 \text{MU}_{ij}.$$

* Significance at the 5% level; ** Significance at the 10% level; and, *** Significance at the 20% level.

The model was tested for multicollinearity and heteroscedasticity. There is no evidence to suggest that a strong effect of either one on the underlying model warrants any concern.

The population variable also had a negative effect on bilateral trade flows. Given the circumstances of these countries where the prospects for increasing production are low due to structural rigidities, a larger population resulting from a high population growth rate can only reduce the per capita income, thereby reducing bilateral trade. Thus, it may be that high population growth reduced the purchasing power in these countries, thereby reducing domestic absorption. It must be noted that the NP_i variable is not significant at any acceptable level of probability while the NP_j variable is only slightly significant.

A striking aspect of the results is the weak influence of the monetary union dummy in explaining bilateral trade flows contravening the conventional wisdom that regional blocs are inter-regional trade promoting. In other words membership in the CEF zone did not promote bilateral trade flows. Statistics show that bilateral trade in the CEF franc zone is lower than expected. In fact, the volume of trade with France and other European countries is higher than the volume of trade within the CEF zone (Hadjimichael, M and M. Galy. 1997). It seems that a greater part of trade variation is due to factors that affect trade flows outside the CEF zone than changes within the CFA franc zone.

Summary, Conclusions and Recommendations

This study has attempted to examine the trade promoting effects of monetary union in the context of the CFA franc zone. Using the gravity model as a basis for predicting the volume of trade between countries, the study has attempted to estimate the potential for increased trade within the CFA franc zone. The study shows that monetary union helped CFA countries to achieve macroeconomic stability. These countries have experienced relatively low monetary growth, relatively strict budgetary disciplines, and consistently low inflation. However, the results of the study indicate that monetary union in the case of CFA franc zone did not promote economic integration among member countries in the form of expanded trade. The actual trade among these countries remained small despite the use of common foreign exchange policy and free transferability of resources among member countries.

On the basis of the above, it is important to note that there are many factors that impede trade flows among these countries. It is a well-known fact that African countries in general are facing structural barriers to trade including cultural and ethnic problems and political instability. However, increasing regional trade is not just a matter of removing these obstacles. It requires, among others, adoption of "market oriented" economic reforms. In particular, these countries should invest in human and physical infrastructure, create a competitive climate for business, and establish sound macroeconomics policies.

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