# European economic integration and the Franc Zone: the future of the CFA franc after 1996

## Part I: Historical background and a new evaluation of monetary co-operation in the CFA countries

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List of acronyms

| | |
|---|---|
| CAR | Central African Republic |
| CEL | Cocoa-Export Limited |
| CFAF | Franc de la Communauté Financière Africaine (African Financial Community franc) or Franc de la Coopération Financière Africaine (African Financial Cooperation franc) |
| EC | European Commission |
| ECU | European currency unit |
| EEC | European Economic Community |
| EMS | European Monetary System |
| ESCB | European System of Central Banks |
| FZ | Franc Zone |
| IRFCE | Average intervention rate of Banque de France |
| LIBOR | Reference rate (London Inter Banking Official Rate) |
| SSA | Sub-Saharan Africa |
| TOM-DOM | French Overseas Territories and Departments |
| UDEAC | Union Douanière des Etats de l'Afrique Centrale (Customs Union of Central African States) |
| UMOA | Union Monétaire Ouest Africaine (West African Monetary Union) |

# List of acronyms

| | |
|---|---|
| AEF | Afrique Equatoriale Française (French Central Africa) |
| AOF | Afrique Occidentale Française (French Western Africa) |
| BAO | Banque de l'Afrique de l'Ouest (Central Bank of West Africa) |
| BCEAO | Banque Centrale des Etats de l'Afrique de l'Ouest (Central Bank of West African States) |
| BEAC | Banque des Etats de l'Afrique Centrale (Bank of Central African States) |
| CAR | Central African Republic |
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# Acknowledgements

# Introduction

This paper is concerned with the future of the Franc Zone (FZ) and of the CFA franc in the event of integrated European monetary union. The year 1992 has been set as the date for full economic integration in Europe. Certain conditions have yet to be met in order to achieve a European Central Bank with a unique currency, but nevertheless the goal is monetary unification. Accordingly, research should anticipate the expected impact on the EEC partners.

Among those partners, there is an important subset of countries in Sub-Saharan Africa (SSA) which are part of a monetary co-operation system, the FZ, in which France guarantees the common monetary unit, the CFA franc, through special institutional arrangements. But France is also a member of the EEC so that any monetary reshaping within the EEC will ultimately affect the FZ and, in turn, the CFA franc. What will be the impact of a common European monetary authority on the structure, characteristics and rules of the FZ, and hence on the future of the CFA franc? Obviously this is a politically sensitive issue, but the events of recent months point to the necessity of answering these questions.

Indeed, for the first time since 1962, the devaluation of the CFA franc has become a serious issue, for example, as a way out in Ivorian cocoa dealings and in the CFA countries' crisis in general. The question of devaluation came up at different meetings of the FZ governing bodies in Bangui, and more recently, in Paris. The signs are that 'taboo' issues no longer exist in the FZ and it is time to provide some tentative answers and options.

The general objective of this study is to assess the impact of a unified monetary authority in Europe on the FZ and also to assess the possible options in relation to the current CFA monetary arrangements. The specific goal of this part of the research is to give an evaluation of the FZ co-operation scheme.

However, the establishment of the FZ in the colonial period was a political as well as an economic undertaking. Accordingly, in order to understand the institution fully, Section I provides an historical account of the establishment of the FZ. Section II gives an evaluation of the CFA franc monetary

co-operation system based on the methodology of pooled reserves and gives an assessment of the overall UMOA membership. Section III tests whether the Franc Zone is an optimum currency area.

# I The history of the Franc Zone

## History and current institutional arrangements

The FZ as it is known today is the framework for monetary co-operation between France and her former colonies in Western and Central Africa. This co-operation was institutionalized after the colonies achieved independence in the 1960s. Originally, the FZ was a wider area which included parts of Indo-China and Northern Africa, but the area covered later shrank.

The two principles which characterize a monetary system, convertibility and stability, apply to the FZ. According to Lelart (1986), convertibility, which is the true basis of the FZ monetary co-operation system, is the result of a political agreement, not an economic or financial one.

This political aspect of the FZ is better understood from a historical context. The FZ goes as far back as the French Empire. At that time, it was conceived as a temporary or provisional institution linking France and her colonies in order to survive the economic depression of the 1930s and subsequently to support the war effort through exchange control. Neurrisse (1987) reports that the original objectives of the FZ were to harmonize the many currencies that existed in the different colonies spread from Indo-China to Pondichery Island, a former French trading post in India, to the Middle-East (Lebanon, Syria), and Northern Africa (Tunisia, Algeria, and Morocco).

These French colonies also comprised the SSA regions of AOF (Afrique Occidentale Française, or French Western Africa) and of AEF (Afrique Equatoriale Française, or French Central Africa). AOF includes Côte d'Ivoire, Dahomey (now Benin), Haute-Volta (now Burkina Faso), Senegal, Niger, Mali, Togo, Mauritania. AEF comprises Gabon, Cameroon, Chad, Central African Republic, and the Congo. In addition, the French empire comprises Madagascar and the TOM-DOM, or the French Overseas Territories and Departments, which included Guadeloupe, Martinique, Réunion, the Comoros, New Caledonia and French Polynesia. At one time or another, there was different money and later different currencies in all these colonies. Such plurality made transactions among colonies and between colonies and the metropole very difficult since there was no clear basis for exchange. That is

the reason why the Colonial Pact (and the Colonial Currency Act) was enacted. This pact was the outcome of a long process of legal dispositions and rules that led to the creation of the first French Company of Africa under the auspices of Cardinal Richelieu.

The Colonial Pact was built on five principles.

1. The products of the colonies could only be shipped to the metropolitan market;
2. Sea transportation between colonies and the metropole and vice versa, as well as the link between colonies, was reserved to the French sea authorities;
3. The colonial market was closed to foreign products, the metropole providing all necessary manufactured goods to the colonies;
4. Colonial products had the privilege of being favourably treated on the metropolitan market, as guaranteed by protection rights; and
5. Colonial products could not be manufactured in the colonies but exclusively in the metropolitan territory.

At the outset, these principles constituted the bedrock of the co-operation scheme that followed.

The objectives of this colonial pact were clear: to establish the colonies on the one hand as providers of primary products and raw materials, and on the other hand as consumers of manufactured goods of the metropole. To make the colonial pact work, some monetary organization was needed. At the start, monetary segregation prevailed in the metropole and in the colonies. Such segregation had a dual aspect. There was first the prohibition of colonial currency circulation in France, and of French currency in the colonies; second, there was the setting of an exchange rate favourable to the metropole. But very soon the office of exchange became overwhelmed with many currencies and the metropole imposed the French currency on the colonies but at different values according to the territories.

The separation was later abolished, and a unit of French currency then had the same value in France as in the colonies. From that point on, unification of colonial currency and the creation of colonial banks became necessary and consequently colonial central banks were established. Thus the Banque de la Réunion, the Banque du Senegal, then later the Banque de l'Afrique de l'Ouest (BAO or Central Bank of West Africa), the Banque de Madagascar, the Banque of Indo-China, were created. This situation remained until between the two World Wars.

The FZ has experienced marked evolution from the depression in 1929 and during World War II, and from the *Union Française* to the *Communauté*

*Française* in 1955, before independence in the 1960s. After the depression and during World War II, the exchange control of September 1939 prohibited all commercial and financial transactions with the rest of the world. Exchange controls were extended to the colonies to support the war effort. But, according to Xavier de la Fournière (1971), the formation of the FZ was due not to the war, but to the breakdown of the gold exchange standard and the willingness of France to protect her colonies from the 1930 crisis by constituting a market isolated from the world. The *Caisse Centrale de la France Libre* reinforced the cohesion of the Zone during the war.

After World War I, and until the end of 1955, the *Communauté Française* shrank in size. Syria withdrew in 1949; in March 1949, the Djibouti franc, although issued by the French treasury, was detached from the Zone and became convertible freely into US dollars. This was done in the interest of the transit activities of Djibouti which was assimilated to a foreign country.

The accord of December 1954 had left all financial competence to all the three states of Indo-China, each country with her own currency (Vietnamese piastre, the kip from Laos, and the riel from Cambodia). For the remaining members of the Zone, the *Caisse Centrale de la France Libre* became the *Caisse Centrale* of Overseas. That *Caisse* led to the creation of a monetary committee to reinforce the Zone in 1951. The monetary techniques have been improved and consolidated by the generalization of the operations account system, which was and remained a special account in the French Treasury.

Agreements on the operations account were concluded with newly created Central Banks of Africa and Madagascar. Northern African protectorates have a special scheme of *Compte d'avance*. This situation remained until independence in the 1960s. Hence what is now known as the FZ is mostly the monetary co-operation between France, AOF and AEF. The Indo-Chinese states, Middle East states, and the Northern African states all withdrew.

The new accord of co-operation gave to each new independent state the right to issue money and to create a central bank. In AOF, the central bank changed from BAO (Banque de l'Afrique de l'Ouest) to Banque Centrale des Etats de l'Afrique de l'Ouest (BCEAO) on April 1959.

In May 1962, l'Union Monétaire Ouest Africaine (UMOA) was established and comprises Dahomey (now Benin), Côte d'Ivoire, Haute-Volta (now Burkina-Faso), Mauritania, Niger, Senegal. Togo joined in 1963; socialist Mali and Guinea (Conakry) refused to ratify the agreement and went on to create their own central banks, and their monetary units, the Malian franc and Guinean sily. In 1973, Mauritania also withdrew and created her own currency, the Ouguiya. Mali joined and became member of UMOA in 1984. Guinea, after the death of revolutionary leader Sekou Touré, negotiated with France

and the monetary unit changed from the Sily to the Guinean Franc linked to the French Franc (FF).

In Central Africa, the scheme is similar. Cameroon, Central African Republic, Congo, Chad, and Gabon also had a common central bank, the Banque des Etats de l'Afrique Centrale (BEAC). They did not form a monetary union as in West Africa; rather they grouped into a custom union called l'Union Douanière des Etats de l'Afrique Centrale (UDEAC). Equatorial Guinea, a former Spanish colony, joined UDEAC and BEAC later. In BEAC Zone countries, each CFA bank note bears the name of each individual country. Besides these countries of Western and Central Africa, the other members of the FZ are the Comoros and the TOM-DOM.

The BCEAO and BEAC performed the usual functions of a central bank, issuing a common currency, the CFA Franc (CFAF).

## Current institutional arrangements of the Franc Zone

The current members of the FZ comprise the two main parts of the zone and are in Sub-Saharan Africa: in UMOA and BEAC.

Four principles govern the functioning of the Zone:

1. The fixed parity between the FF and the CFAF since 1948 (1 FF = 50 CFAF), and such parity has never changed;
2. Free transferability without limit among member countries;
3. Pooled reserves — the Zone uses a common foreign exchange policy against the rest of the world; and
4. Full convertibility of CFAF to FF through the special and famous operations account opened at the French Treasury (not at the Banque de France) for BCEAO and BEAC. The operations account holds the foreign exchange reserves of all members of the Zone.

From an economic viewpoint, these principles have important implications. First, the Banque de France is the lender of last resort of the whole financial system of FZ member countries. Second, the French Treasury can in theory grant unlimited deficit to the operations account. Third, the Banque de France and the French Treasury are actually the two institutions that hold effective monetary sovereignty over the FZ as a whole, the member states being in fact deprived of such power. Finally, although the French Treasury holds monetary sovereignty in the CFA countries, their operations account balances are deposited into the French Treasury account at the Banque de France. Consequently, the Banque de France plays a central role in the CFA system.

All CFA countries' foreign exchange transactions take place through the Banque de France. In addition, with the recent Maastricht Treaty signed in December 1991, constraints have been put on national budgets. Hence, the French Treasury can no longer monetize its deficits that previously allowed overdrafts to occur on the operations account without the consent of the new European Central Bank.

The above features distinguish the FZ monetary union countries from all others. The nominal exchange rate is exogenous and does not constitute a policy instrument. This leads to the financing of balance-of-payments imbalances unique to the Zone because of the French guarantee. But countries in the Zone confront certain restrictions on fiscal and monetary policy we will discuss later. The change of parity between FF and CFAF can occur only by unanimous agreement of member countries and France.

Convertibility, which contributes a key feature of the FZ, is a complex concept which implies freedom and guarantee. The Bretton-Woods accords asked member countries to abolish all restrictions on the use of their currency. Indeed, a currency is convertible if it can be used freely; this is the private sector convertibility ensured by the market mechanism of supply and demand (Article VIII, Section 2.a).

Right from the start, convertibility in the FZ was conceived differently through the *operations account* in Paris with the French Treasury. The operations account actually constitutes the key element of the FZ system. It is so important that it is supported by two specific pieces of legislation:

- The Agreement of 13 March 1973 between France and the BEAC;
- The Convention or Agreement of 4 December 1973 between France and UMOA countries.

According to these agreements, a current account is opened at the French Treasury for BCEAO and BEAC. The operations account records in its credits or liabilities, the receipts in foreign currencies that each one of the central banks can acquire outside the issuing zone. On the assets side, the expenditures of each central bank outside the zone are recorded. Bernard Vinay (1988) best describes the operations account mechanism. Such mechanism includes the exchange rates transaction at the Paris exchange market. Since this affects the exchange opportunity costs, it is important to examine it in detail.

Suppose an Ivorian is an exporter of agricultural products, say cocoa. Let's call our exporting firm Cocoa-Export Limited (CEL). The process begins with a loan that CEL receives at its local bank in Côte d'Ivoire or any other country within the FZ. CEL will finance its marketing of cocoa with the loan. After purchasing the cocoa from the producers at the guaranteed price per

kilogramme, CEL exports the cocoa to a client residing in, for example, the United States.

But how does the operations account really work? The American client settles his bills by transferring the adequate amount in US dollars to CEL's bank in Côte d'Ivoire. But CEL needs CFAF, not US dollars, to pay back the loan and to run the daily business. CEL therefore requests its bank to negotiate the US dollars and to deliver the equivalent in CFAF in exchange. Under an independent central bank setting, the central bank will sell the US dollars at the market exchange rate.

In the FZ, CEL's bank places an order to its correspondent in Paris to negotiate the transaction. It is CEL's correspondent bank in Paris that actually sells the US dollars at the Paris exchange market. Similarly, at the Paris exchange market, other banks will buy dollars by order of local importers of, say, American goods.

The correspondent bank in Paris sells the dollars for FFs (not CFAF directly). The equivalent amount in FF is transferred to the BCEAO (or BEAC).

The correspondent bank in Paris puts an order to the central bank (BCEAO or BEAC) to give the value in CFAF to the local bank in Côte d'Ivoire, which in turn will finally pay CEL. But the central bank (BCEAO or BEAC) does not directly transfer the equivalent amount of FF into CFAF to the local bank. There exists one additional step. The BCEAO (or BEAC) will deposit the amount in FF into the correspondent operations account at the French Treasury and at the same time deliver to CEL's local bank the equivalent in CFAF.

The foreign exchange transactions appear as a sale of foreign currencies at the Paris foreign exchange market by a resident of Franc Zone countries, through his local bank correspondent, to foreign currency buyers through their respective banks. Hence, by this mechanism, there occurs a selling and buying of foreign currencies on a daily basis by African economic agents of the Franc Zone.

When the sale of foreign currencies at the Paris foreign exchange market is greater than their purchase, the surplus is converted into FF that will be deposited into the operations account. Conversely, when the purchase of foreign currencies by FZ residents is greater than their sale, the difference is paid for by drawing from the operations account of the concerned central bank, BCEAO or BEAC.

When a member country's foreign exchange reserves are depleted and no longer able to cover external transactions, then the French Treasury advances the amount needed and the operations account is in overdraft. One should add, however, that movements in the operations account are not due solely to the

external foreign exchange transactions. The operations account transactions include also the ones conducted by all other FZ members.

The process of an African importer of the FZ is just the reverse of the export process. However, the situation becomes more complicated when the operations account is in overdraft and the importer of the FZ countries requires foreign exchange to finance an import operation from outside the FZ. In such a case, the process is as follows: the importer applies for a loan from a local commercial bank that puts up the CFAF equivalent of the foreign exchange required. Upon approval by the country's Ministry of Finance, the commercial bank makes an official request to the central bank (BCEAO or BEAC) to purchase first FFs which are then converted into the required foreign currency on the Paris foreign exchange.

The Banque de France (the French central bank) is responsible for making the conversion when an African central bank (BCEAO or BEAC) operations account with the French treasury is in deficit. The Banque de France then sells the FFs on the Paris foreign exchange market and purchases the requisite amount of foreign exchange, which is deposited in the Foreign Exchange Stabilization Fund. This Fund is responsible for providing the necessary foreign exchange, and the concerned African central bank's (BCEAO or BEAC) operations account is debited accordingly. This will obviously increase the overdraft position.

The African central bank concerned is required to pay an automatic overdraft charge on its operations account with the French Treasury. The conversion operation is undertaken within the zones by commercial banks between CFAF and FF without commission at fixed parity. However, FZ convertibility resembles an official convertibility according to Article VIII of the Bretton-Woods accords. But this is not the case as the CFAF are not bought by a central bank, but by the French Treasury.

Hence the CFAF are converted to FF not *ex post*, that is resulting from the demand of foreign banks. The CFAF are converted *ex ante* and the acquired FF are the monetary units that the members will use to make transfers to the outside world. FZ convertibility is not quantitatively restrained. The BCEAO and BEAC convert their currency according to their needs. FZ convertibility is therefore of a different nature from the Bretton-Woods accords. It is not of an economic nature by way of market-clearing exchange rate. Such convertibility has essentially political underpinnings since it involves different independent countries willing to co-operate beyond commercial and financial flows, mostly on political grounds. All the treaties, agreements, and conventions ratified by member countries reveal the share of political power in the management of the zone.

The structure of the FZ is organized as follows. In UMOA, the highest authority is the conference of Heads of States, instituted with the 1973 reforms. The council of ministers defines the monetary policy of the Union. The Board of Directors of BCEAO is composed of two administrators selected by each government and by France. This Board presides over the National Credit Committee whose objectives are to decentralize monetary policy formulation in the countries concerned. The structure of the BEAC in Central Africa is similar. There is a Monetary Committee whose members are the Ministers of Finance, and a Board of Directors which comprises three representatives of France. In the event of an overdraft, there is a whole series of measures with which member countries must comply to ensure that the balance of the consolidated operations account will not be negative. Among these safeguards is the 20% level of assets signal. When the total pooled reserves level is near 20%, the two African central banks are requested to exhaust all other avenues of foreign exchange before going to the French Treasury. In fact, since the 1973 reforms, 65% of the African central bank reserves are in FF deposited in the operations account, and 35% are in other hard currencies deposited elsewhere.

Furthermore, when the operations account has been in deficit for 30 consecutive days, the ceiling of the rediscount rate is cut by 20%; the central bank concerned can no longer grant medium-term credit and the Board of Directors is immediately called upon to take appropriate measures required by the circumstances. Thus in the event of an overdraft, the African central banks are required to sell their foreign exchange and transfer the FF received into the French Treasury. A positive operations account thus represents an advantage for the French Treasury, whose assets in FF increase.

The French Treasury pays interest on a positive operations account balance. The interest rate is an average of the Banque de France intervention rate during the current quarter. In contrast, when there is an overdraft, the Banque de France receives payment from the debtor African central bank as has been the case for BCEAO since 1980. The Banque de France receives 1% interest on zero to 5 million FF, 2% on 5 to 10 million; and on an overdraft of more than 10 million the interest paid is the same as that received for a positive balance.

It should be noted that the French Treasury does not open an operations account for each individual country but to the Common central bank, one for BCEAO, and another for BEAC. However, each country maintains a separate account with the central bank where 65% of its official reserves are held at the operations account.

Hence, Benin's net balance can be compensated by Côte d'Ivoire, and Chad's by Gabon. Such compensation is an example of solidarity between

members, but it does make it difficult to monitor the monetary situation regularly on a country-by-country basis. Hence, if one country has drawn fully on its own pooled and unpooled reserves, it can use those of another country. The French Treasury steps in when the operation account of the Union as a whole has been fully drawn down.

The French guarantee makes the CFAF a convertible currency. There is only one zone, but two currencies: the Franc de la Communauté Financière Africaine of BCEAO, and the Franc de la Cooperation Financière en Afrique Centrale issued by BEAC. But their parity *vis à vis* the FF has remained the same since 1948 and the two CFAFs have had the same value since 1945.

## Advantages of the Franc Zone

The FZ system provides four types of advantage to its members:

- The guarantee provided by France allows easy capital inflows into the FZ countries;
- The rigorous monetary policy puts a limit on excessive inflationary tensions;
- The credibility of the CFAF, through the FF, allows FZ countries greater borrowing capacity outside the Zone, given that they can obtain capital abroad beyond their own net foreign assets;
- Not only did the FZ allow its members to avoid the monetary 'balkanization' prevailing in Anglophone Africa after independence, but it was instrumental in the promotion of trade among the member countries.

## Disadvantages of the Franc Zone

The FZ is not without problems however. According to its critics Diarra (1972), Tchundjang (1981) and Martin (1986), among others, the FZ monetary system lends itself to a spirit of laxity and it contributes to the domination and extroversion of the economies of member countries. These countries, according to critics, are at the mercy of any FF devaluation.

## The development of l'esprit de facilité

The monetary guarantee creates an attitude of 'taking it easy' in certain countries. As Diarra (1972) from Senegal, one of the main critics of the FZ, once observed:

The monetary co-operation, in which some member states are taking it too easily, does have its drawbacks: to favour a behaviour of laziness non-compatible with real economic development.

The over-use of fiscal policy is derived from such an attitude. Foreign investment is attracted by a very flexible and accommodating fiscal regime, reinforced by an accommodating investment code.

## The domination and extroversion of the economies of member states

According to Tchundjang, the CFAF is fundamentally a currency of a colonial nature. For him and other critics:

- Fixity of parity does not necessarily imply stability of the economy. Any fluctuation of the FF is transmitted to the CFAF;
- The FZ system directs investment towards products and activities needed most in the metropolitan country. It does not allow the monetary authority to allocate credit to productive sectors; and
- In the FZ system, enterprises do not re-invest; all profits are repatriated, escaping taxation. This is a way of deviating savings to France. Capital outflows therefore exceed capital inflows, creating an imbalance in the balance of payments.

## The impact of French franc devaluation

Since the establishment of the European Monetary System (EMS) in 1979, the FF experienced three devaluations, 3% in October 1981, 5% in June 1982, and 2.5% in March 1983. In addition, in 1974, the FF exited the 'snake'. This made the FF a floating currency. *Vis à vis* other currencies, the CFAF also changes values each time the FF does. Naturally, successive devaluations affected the member states' economies. On a commercial level, devaluations make bills in dollars (especially for oil and oil products) very heavy, in addition to making imports outside France very expensive. This could lead to a revision of financing from projects which include equipment imported from outside the FZ. However, this also affects the export of local products to these countries. This is becoming more and more important since foreign trade with France is continuously declining (M'bet, 1990). On a financial level, devaluation depreciates the net foreign assets in the operations account. With

respect to debt, devaluation leads to an increase in the debt services evaluated in foreign currencies. Since about 80% of LDC debt is in dollars, devaluation accounts for 60-70% of the foreign debt of FZ countries. When inflation is imported, it is accelerated by the time-lag effect. There is a delay between the time the FF devaluation is decided and the real effects of such an operation. Some firms in member countries increase their prices as soon as the devaluation decision is known. They increase their prices again when the costs related to devaluation are actually in effect. But all of these intertwined relationships may be greatly affected by the recent developments in the European move towards economic integration. It is therefore important to review how far and how fast the European integration is proceeding.

## European monetary integration

The European Community seems to be moving rapidly towards economic integration. There is renewed interest in European monetary integration and the necessary monetary reforms to achieve it. To that end, the European Council established the Delors Committee 'to study and propose concrete stages for progress towards economic and monetary union'. In April 1989, the Delors Committee submitted its report to the European Community's Council of Finance Ministers and proposed a three-stage process for achieving economic and monetary union. Stage one of monetary union started on 1 July 1990 with full liberalization of capital within the EEC. All Community currencies entered the EMS exchange rate mechanism. Negotiation was to start on a new treaty to replace the 1974 Council decision that defined the mandate of the Committee of Central Bank Governors. Stage two can begin only when the new treaty has come into force. That will probably occur in 1996 with a gradual transfer of the decision-making process regarding monetary issues to a new ESCB that would absorb the previous monetary institutions. Stage two is a period of transition and training. The final stage would start with a move to irrevocably locked exchange rates and allocation of full monetary and economic competencies to Community institutions, by 1999.

Rules governing co-ordination in the macroeconomic and budgetary policy spheres would become binding. During the final stage, the national currencies would be replaced by a single community currency. The European currency unit (ECU) has the potential to be developed into such a unique currency. This would imply that the ECU would be transformed from a basket of currencies into a genuine currency. But, as Lancaster (1989) pointed out, many details of the changes needed to achieve the goals of the single European Act are unclear.

In order to understand the monetary unification process in Europe more clearly, and to draw some eventual implications for the evolution of the FZ, this section briefly reviews developments in the European Monetary System (EMS).

## History of the EMS

The EMS was formed by a resolution of the European Council and came into operation in March 1979. It had two major aims:

- To restore exchange rate stability between European currencies;
- To create external stability among member countries in terms of prices and costs and a harmonization of economic policy.

## Main features of the EMS

The most important feature of the EMS is a system of fixed but adjustable exchange rates. A second feature concerns the central role of the ECU, the mechanism for detecting the divergence and the move towards the institutionalization of the EMS. The divergence indicator shows the movement of the exchange rate of each EMS currency against the weighted average movement of the other EMS currencies. The ECU is issued by the European Fund for Monetary Co-operation as a counterpart for depositing 20% of assets in gold and 20% in dollars held by the EMS central banks. The ECU is designed to serve four functions: a numeraire for the EMS exchange rate mechanism; a basis for the indicator divergence; a numeraire for central bank financial operations; and a means of settlement between monetary authorities in the Community. As an exchange rate mechanism, the EMS is based on the existence of bilateral parities or central rates between currencies. These central rates determine a grid of bilateral central rates around which fluctuation margins of plus or minus 2.25% have been established (6% for Italian lira).

## The achievements of the EMS

The achievements of the EMS are primarily two-fold. The variability of exchange rates and the competitive conditions among the participants have been narrowed significantly. The system has proved increasingly capable of

developing joint decision-making on both the defence of existing central rates and their modification in realignments.

Two critical observations concerning the EMS have been that it imposes intervention and adjustment burdens primarily on the weaker currencies, and that growth in the participating countries has been disappointing. There are asymmetries within the EMS with respect to monetary autonomy, but these features can be viewed as a necessary element in a system aiming to create a zone of monetary stability. The EMS countries have had a disappointing record of output and employment growth during the 1980s, particularly since 1986. Fiscal policy may have been marked by excessive inertia but it seems difficult to attribute any specific responsibility for a deflationary bias, to the EMS itself, given the high levels of public debt and the large public sector deficits existing in some EMS countries.

## Evolution of the EMS towards a European monetary union

At the outset, the operation of the EMS was characterized by two elements: it was flexible, and it was run efficiently by the participating central banks. This high degree of flexibility can be explained by many factors. First, the EMS is primarily a political institution, not simply a technical one. The technical means are used to achieve political objectives. Second, the flexibility was necessary because of varying institutional solutions to many common problems among the participating central banks; it is workable because the committee of EC central bank governors meets regularly. Hence, despite persisting problems, such as the strength of German monetary policy, there has been slow but continuous progress towards unification.

The unexpected success of the ECU as a unit in private financial markets has opened new opportunities. The private use of the ECU has taken on an important existence of its own, so much so that a wider range of financial instruments is now available in ECU than in some component national currencies.

Such use may well develop further even without the three official steps that are often cited as preconditions: (1) a strengthening of ECU to make it more than just a composite currency but a unit close in quality to the strongest EMS currencies; (2) a linkage of the private and official unit, through the intermediary of the Bank of International Settlements; (3) the arrangement of a lender-of-last-resort function to assure emergency liquidity assistance to banks active in ECU.

Despite these considerable longer-term opportunities for development of private use of the unit, two basic conclusions remain valid in a longer-run

prospective. First, the ECU is constrained in its evolution because it is an average of eleven currencies, and cannot be expected to make major headway as a parallel currency in the countries of the strong EMS currencies. Second, growth in the usage and the issue of the ECU is neither a sufficient nor an obviously necessary condition for arriving at an advanced stage of monetary integration. To measure the success of the latter primarily with reference to such indicators would be misleading.

Amidst the debate of the move towards monetary union, the Delors Committee described the features of the European System of Central Banks (ESCB) in which the ECU has an important role. If an ESCB were to follow the earlier proposed Delors report scheme, national central banks would prevail. In such a case, national currencies would still exist, and the CFAF would live on, subject to plausible amendments of the conventions. But ultimately, the goal of the EEC is monetary unification with one central bank and one currency. Consequently, the FZ will be profoundly reorganized. The degree of such an upheaval of the FZ will depend on the gains and costs associated with the Zone. Therefore an evaluation of the CFA system is necessary.

## II A new evaluation of the CFA monetary co-operation system

The 13 SSA countries of the FZ have received considerable attention over the past few years. Recent discussions on the Franc Zone have focused on three issues: the comparative growth performance of CFA versus non-CFA countries, competitiveness, and the mechanism of bank restructuring.

Some authors performed meticulous calculations to show that prior to the 1980s, CFA countries either maintained or improved their economic situation *vis à vis* non-CFA countries (Devarajan and de Melo, 1987; Guillaumont, 1984). Other authors claimed that CFA countries performed poorly because FZ rules reduce the need for time adjustment. Other authors found, on the contrary, that African countries, CFA and non-CFA alike, were affected negatively because they pay more for their imports. Medhora (1990a) however, found that in UMOA CFA countries:

> ... nominal exchange rate variability has not measurably hurt the imports of the Union. In this regard, membership in the Union has not imposed a measurable cost on the countries.

Whatever the case, in most SSA countries some kind of stabilization policy or adjustment programme has been called for to reverse the imbalances between domestic supply and demand. Such disequilibrium is reflected in a growing external deficit, inflationary pressures, slow or negative growth in per capita income, debt crises, financial crises, declining competitiveness.

In this section, we carry out an assessment of the CFA countries' economies through an analysis of the fluctuations in the operations accounts. In order to do so, we present first an overview of the overall economic stance of CFA countries in the last decade.

## The recent economic situation of the CFA countries

### Economic structure and situation of UMOA Zone countries

The economic hardships that UMOA countries are going through is well documented. The seven countries differ in many ways, in size and population, as well as in geographical location, even within the same region. Table 1 shows some of these features and some macroeconomic indicators.

**Table 1**     General indicators for UMOA Countries (1988)

| Features | Benin | Burkina Faso | Côte d'Ivoire | Mali | Niger | Senegal | Togo |
|---|---|---|---|---|---|---|---|
| Area ('000 sq km) | 113 | 274 | 323 | 1240 | 1267 | 196 | 57 |
| Population (1989) m | 4.60 | 8.7 | 12.10 | 7.25 | 7.25 | 6.9 | 3.36 |
| Life expectancy (1986) years | 50 | 47 | 52 | 47 | 44 | 47 | 53 |
| GDP at market prices CFA (1988) bn | 534 | 517 | 3038 (2847)* | 578 | 730 | 1476 | 406.6 |
| Real GDP growth (1988) % | 1.8 | 5.6 (9.9)* | -1.0 | -0.8 | 7.5 | 4.8 | 4.7 (449.2)* |
| Consumer price inflation (1988) % | 4.3 | 4.2 (0.7)* | 8.2 (6.0)* | 2.6 | -1.4 (2.7)* | -1.8 (3.0)* | -0.1 (-1.0)* |
| Current account (1988) $ m | -170 | -83.9 | -1281 (-761)* | -92 (-86)* | -94.3 | -2.68 | -62.4 (-46.4)* |
| Total external debt ($ m) | 1055 | 866 | 14125 | 2067 | 1742 | 3617 | 1210 |
| External debt service ratio % | 23.9 | 10.4 | 39.9 | 20.1 | 49.8 | 30.2 | 26.8 (12.0)* |
| M1/GDP % (1987) | 12.24 | 16.91 | 19.59 | 18.56 | 11.25 | 15.11 | 24.62 |
| M2/GDP % (1987) | 19.17 | 23.65 | 30.44 | 22.06 | 17.60 | 23.45 | 44.31 |
| RSV/GDP % (1987) | 0.71 | 59.52 | 0.29 | 2.68 | 38.23 | 0.64 | 95.99 |
| Export fob ($ m) | 189 | 248.7 | 2354 | 252 | 369 | 755 | 325 |
| Imports cif ($ m) | 439 | 587.5 | 1907 | 359 | 373 | 1189 | 352 |

Source: *Statistiques Economiques et Financieres de la BCEAO-IFS*. Various issues.
Note: * 1989 estimates.

It appears from Table 1 that Mali and Niger are the two largest countries in terms of surface area. Niger, the largest country, is about 22 times the size of Togo, and about 4 times that of Côte d'Ivoire. The population density in Togo is about twice that of Côte d'Ivoire. Mali, Niger, Burkina Faso are landlocked countries in the Sahel; whereas Côte d'Ivoire, Benin, Togo and Senegal are

open to the Atlantic Ocean. The Ivorian GDP at market prices of 1988 is about seven times that of Togo.

The real GDP growth rate of 1988 has been negative for Côte d'Ivoire and Mali. Niger and Burkina Faso have experienced the highest GDP growth rate in 1988 at 7.5% and 5.6% respectively; followed by Senegal (4.8%) and Togo (4.7%) With its negative growth rate, Côte d'Ivoire experienced the highest consumer inflation at 8.2%.

All of the seven countries have deficit current account with Côte d'Ivoire on the top with 1281 million US dollars in 1988. But it is Niger which holds the highest external debt service ratio (49.8), followed by Côte d'Ivoire and Senegal.

Exports of UMOA countries are essentially primary products or semi-processed primary products such as vegetable oils, cotton fabrics, plywood, fertilizers. Whatever the composition, the origins of GDP are significantly different between countries. Similarly, the main destinations of exports and origins of imports do not follow a common pattern. The salient feature in all of the figures is the dominance of agriculture in the origins of GDP. The primary sector accounts for about 30% in GDP. This feature alone describes the heavy dependence on agriculture and of the vulnerability of the economies. Industry lags behind services in GDP. But services constitute the single most important item in the current account that creates the deficit in the balance of trade. The service sector is be an avenue for further research especially after the almost certain failure of the Uruguay Round of Trade Tariff talks.

Benin's agriculture represents 43.5% of GDP, whereas manufacturing accounts for 4.4%. Services on the land constitute a high share of 34.3% of GDP. The service sector deserves further investigation to reinforce its role in the economy. Benin's main exports are cotton lint and cocoa: a typical primary export-led developing economy. Industry products constitute the bulk of Benin's imports. More interesting are the export destinations. Indeed, despite what one might have believed, Benin's major export outlets do not include France. The USA has, in recent years, constituted the major market, followed by Portugal. Benin does, however, export 9.4% of her products to Togo, a FZ member. Nonetheless, Benin imports mostly from France (21.3%), Thailand (11.7%), Italy, and the Netherlands.

For Burkina Faso, the origins and composition of GDP are very similar in pattern to Benin, with agriculture representing the greatest proportion of GDP (36.8%), followed by services (35.4%). Burkina-Faso exports mainly cotton and gold, and imports industrial products. France accounts for the lion's share of both export destinations and import origins. Thus, 34.4% of Burkina Faso's exports go to France, and 16.2% to Côte d'Ivoire. It imports mostly from

France (31.2%), Côte d'Ivoire (16.3%) and the USA (16.4%). Within the FZ, foreign trade is presently limited to Benin.

Côte d'Ivoire represents the case of a relatively diversified economy, but one still based on agriculture. The primary sector accounts for 34% of GDP. The tertiary sector dominates agriculture in GDP (46.9%).

The trade balance is positive. Coffee (Côte d'Ivoire is the third largest world producer) and cocoa (the world largest producer) represent the two dominant exports of the country. Along with timber, they constitute the major source of foreign exchange earnings. No wonder Côte d'Ivoire has a strong positive correlation between traditional exports and the overall position of the economy. Any drop in the price of these products reduces foreign earnings which in turn affects other macro-data, such as the operation accounts.

Given the high share of services in GDP, closer examination in the light of the apparent deadlock of the Uruguay Round on services is required. Côte d'Ivoire's export outlets are quite diversified, The Netherlands (16.9%), France (14.8%), USA and Italy (about 7.5%). France remains the main supplier to the Ivorian economy, as the country imports about 31% from the former colonial power.

Overall, Côte d'Ivoire's unsustained growth in the 1980s, that ended the 'success story', seems to have derived from the heavy dependence on agriculture exports. Exports account for 56% of GDP, and traditional exports account for about 55.6% of total exports (M'Bet, 1990). The drops in exports prices resulted in an unprecedented adverse balance of merchandise trade in the 1980s. This led to the rise of foreign borrowing to finance the economy, hence the rise in the debt service ratio. This is the case of an export-orientated economy which cannot adapt quickly to a largely exogenous crisis. This has been the main danger to countries whose economies are based on commodity exports for which demand is relatively inelastic.

Mali is a case where a trade balance deficit does occur. The primary sector dominates both in GDP and exports. Mali's imports come from FZ countries whereas its export outlets are more diversified. Côte d'Ivoire and France are Mali's main suppliers; whereas Algeria is the main importer of Malian products, followed by France.

For Niger, besides the primary sector which accounts for 39.1% of GDP, the secondary sector occupies a relatively high share of GDP at 37.6%. This is mostly due to the uranium mining sector. France and Côte d'Ivoire represent the major suppliers, 32.3% and 9.4% respectively. Most of the country's uranium is exported to France. So the FZ is the prominent market for Niger.

Senegal is both a coastal and a Sahelian country. Services dominate GDP at 48.8%, followed by industry at 29%, and agriculture stands at 22.2%. Fish and fish products constitute the major exports along with groundnut products.

Senegal is an export-orientated monoculture economy, whose major trading partner is France.

Togo's foreign trade generated a deficit in 1988. Agriculture represented 34.4% of GDP followed by the service industry at 22.5%. The major exports are phosphates and primary agricultural products like cotton, coffee and cocoa beans. The main export destination is France (12.2%). Hence, Togo's foreign markets are quite outside the FZ. But France remains the prominent supplier at 24.8%; followed by the Netherlands (9.9%), Thailand (9.1%) and Taiwan (6.9%).

The most salient feature is that for imports, France remains the major trading partner for all of the seven countries. Export destinations are more varied overall.

Overall, Côte d'Ivoire remained the only country with a trade balance surplus in 1988 of US$447 million. On monetary aggregates, Togo's share of broad money (M2) out of GDP is the highest at 44.31%, followed by Côte d'Ivoire (30.44%) and Burkina-Faso and Senegal (24%).

With respect to the total foreign reserves share out of GDP, Togo held a disproportionately high share of 95.95% in 1988; followed by Burkina Faso 59.52%, then Niger 38.23%. The 'big countries', Côte d'Ivoire and Senegal, had a very small share of 0.29% and 0.64% respectively.

The share of total reserves in GDP shows a reversal in trend. Côte d'Ivoire and Senegal used to have the largest percentage share up to 1978. Smaller landlocked countries such as Burkina Faso, Mali, Niger, and Togo on the coast hold the largest share. Togo holds the biggest share overall, followed by Burkina Faso and Niger. These trends are presented in Table 2.

## Economic structure and situation of BEAC Zone countries

The six countries making up the BEAC Zone are as varied as those in UMOA. Chad, the largest country in terms of surface area, is 2.7 times the size of Cameroon. Chad and the Central African Republic (CAR), which is the second largest country, are landlocked, whereas Congo, Cameroon and Equatorial Guinea are open to the Atlantic Ocean. Congo, Cameroon and Gabon are oil exporters, the only ones so far in the CFA Zone. With respect to population, Cameroon is the largest country with 10 million inhabitants, twice as many as Chad and five times that of CAR. Cameroon's real GDP at market prices in 1988 was about 11 times that of CAR, and four times that of Gabon.

**Table 2**

Percent share of total foreign reserves in GDP in UMOA

| Year | Benin | Burkina-Faso | Côte d'Ivoire | Mali | Niger | Senegal | Togo |
|------|-------|--------------|---------------|------|-------|---------|------|
| 1966 | 15.96971 | 23.14026 | 24.18605 | 0.640000 | 2.202388 | 22.31453 | 35.04145 |
| 1967 | 13.00813 | 25.10232 | 25.78890 | 1.564945 | 0.671961 | 18.10219 | 39.10497 |
| 1968 | 15.17451 | 31.075570 | 24.71669 | 0.747198 | 1.701323 | 7.366483 | 42.57095 |
| 1969 | 10.68376 | 31.38686 | 20.21335 | 1.320528 | 4.118009 | 2.862419 | 37.76565 |
| 1970 | 20.58433 | 43.48866 | 28.60583 | 0.959488 | 10.41203 | 9.204498 | 48.20918 |
| 1971 | 32.66932 | 48.86106 | 20.31584 | 2.046783 | 17.59162 | 11.85275 | 50.70105 |
| 1972 | 33.64929 | 49.27386 | 18.48241 | 3.197926 | 22.06197 | 14.07164 | 42.09434 |
| 1973 | 36.05664 | 62.97786 | 15.62186 | 3.544304 | 24.08725 | 4.347827 | 41.93406 |
| 1974 | 31.74312 | 69.95816 | 8.890392 | 4.987735 | 18.42105 | 1.859504 | 41.72089 |
| 1975 | 12.66892 | 57.51880 | 12.31875 | 2.510460 | 22.37544 | 7.652559 | 32.11224 |
| 1976 | 14.09692 | 6.30351 | 6.858169 | 3.259329 | 32.42925 | 5.486610 | 48.86922 |
| 1977 | 13.56383 | 30.59336 | 12.00546 | 2.219482 | 31.86259 | 6.968569 | 27.31042 |
| 1978 | 9.059030 | 16.44767 | 25.12619 | 3.151422 | 32.04296 | 3.800283 | 37.03704 |
| 1979 | 6.896552 | 25.06102 | 7.559007 | 1.874414 | 29.35146 | 3.282351 | 30.78008 |
| 1980 | 3.342964 | 25.32492 | 0.916322 | 4.212667 | 23.48005 | 1.290631 | 32.59135 |
| 1981 | 20.11876 | 22.20132 | 0.776750 | 4.692557 | 17.85048 | 1.298895 | 58.72093 |
| 1982 | 1.441177 | 17.24330 | 0.088478 | 4.137760 | 4.586303 | 1.350231 | 62.18020 |
| 1983 | 0.990894 | 22.31557 | 0.788726 | 3.938731 | 7.854718 | 1.298563 | 61.42909 |
| 1984 | 0.599233 | 27.22151 | 0.188943 | 5.652643 | 13.89629 | 0.364353 | 69.38567 |
| 1985 | 0.889371 | 29.06856 | 0.149777 | 4.736842 | 21.08191 | 0.442708 | 94.18864 |
| 1986 | 0.797872 | 45.98267 | 0.604192 | 4.291766 | 29.40628 | 0.725701 | 95.54854 |
| 1987 | 0.712871 | 59.52514 | 0.291373 | 2.683424 | 38.23665 | 0.648344 | 95.99675 |

Sources: Computed by the authors; data from IFS and *Statistiques Economiques et Financieres de la BCEAO.*

Real GDP growth rate was positive except for Cameroon (-8.6) as shown in Table 3. War-torn Chad had the highest growth rate in 1988 at 14.3% and that country also experienced the highest inflation rate at 12.8%, whereas CAR experienced deflation.

**Table 3**      General indicators for BEAC countries (1988)

| Features | Cameroon | Congo | Gabon | CAR | Chad | Equatorial Guinea |
|---|---|---|---|---|---|---|
| Area ('000 sq km) | 475 | 342 | 268 | 623 | 1284 | |
| Population (m) | 10.5 | 1.89 | 1.09 | 2.7 | 5.1 | 0.40 |
| Life expectancy (1986) (years) | 56 | 58 | 52 | 50 | 45 | 44 |
| GDP at market prices CFA bn | 3768 (3560)* | 643 | 981 (1112)* | 333 | 273 | 43.7 |
| Total GDP growth rate % | -8.6 | 1.4 | 1.9 | 1.9 | 14.3 | 1.8 |
| Consumer price inflation % | 2.0 | 3.6 | 0.3 | -4.0 | 12.8 | 2.4 |
| Current account ($m) | -880 | -328 | -615 | -40.0 | -25.5** | -2.7 |
| Total external debt ($ m) | 4229 | 4763 | 2663 | 673 | 346 | 199.9 |
| Debt service ratio % | 30.9 | 79.3 | 8.7 | 12.8 | 4.0 | 35.0 |
| M1/GDP % (1987) | 9.59 | 15.82 | 12.66 | 16.54 | 24.07 | |
| RSV/GDP % (1987) | 1.58 | 0.52 | 1.14 | 29.88 | 17.77 | |

Source: *Statistiques Economiques et Monetaires de la BEAC-IFS*, various issues.
Note: * 1989 estimates. ** 1987 estimates.

All six countries have current account deficits, although the level varies from country to country. Cameroon has the largest deficit in the current account, followed by Gabon. External debt service ratio is heaviest for Congo at 79.3%, followed by Equatorial Guinea with 35%, and by Cameroon with 30.9%. Gabon has the smallest debt service ratio at 8.7%.

On monetary aggregates level, Chad carries the largest share of narrow money in GDP at 24.07%, followed by CAR, the two landlocked countries. The coastal countries carry smaller shares. The same tendency is observed for the share of foreign reserves in GDP. Congo and Cameroon, the coastal and oil producers, have the smallest share at 0.52% and 1.58% respectively, whereas CAR stands at 29.88%.

In addition to this different behaviour, what is the composition of GDP in BEAC countries? What are the origins of GDP? What is the geographical orientation of foreign trade?

Cameroonian GDP generates mostly from services at 43.6%. Industry occupies a fairly large share at 30%, followed by agriculture at 26.4%. In 1988 Cameroon experienced a trade balance deficit despite the export of crude oil, the most important exported product with US$862 million in 1988. Coffee and cocoa constitute the other two main exports. The principal exports clearly indicate how vulnerable the country will be to world market price fluctuations. Cameroon imports not only industrial products, but a relatively high level of food and agricultural products. Foreign trade is mostly directed at France and other EEC countries, Germany, the Netherlands, Italy, Belgium and Luxembourg. However export destinations are more varied than imports origin (40.1% from France).

For Congo, the origin of GDP indicates a very high share of the tradables sector, which includes agricultural products. Petroleum alone represents 19.4% of GDP. Trade balance is also in deficit, despite the export of crude petroleum and timber. Congo's foreign trade is directed towards France overall. Again here export destination is more diversified, with the USA taking over from France as the main market (mostly for petroleum). Other EEC countries follow. However, France is the main supplier of Congo with 47% of total imports.

In Gabon, services and petroleum and natural gas constitute the most important sources of GDP with 40.1% and 31.1% respectively in 1988. Petroleum represents by far the largest exported product (at $1,132 million) followed by other raw materials, manganese, timber and uranium. Gabon is the case where France is clearly the main trading partner, both in exports and in imports. Gabon enjoys a trade balance surplus.

The Central African Republic's GDP components indicate a trade balance deficit. Agriculture and services represent the most important source of GDP at 44% each. Exports consisting of diamonds and coffee are directed towards the EEC with Belgium receiving 42.3%, followed by industrial and food stuffs from France mainly (52.4%).

Chad has a less diversified economy consisting mainly of cotton and livestock. Trade balance is in deficit. Export destinations are more diversified than import origins where France supplies 30% of most of the industrial and consumer goods imported.

Equatorial Guinea is a case where France, which guarantees the currency, does not figure in the main export destinations. Spain, the former colonial power, takes up most of the trade with 44% of total exports and 34% of total

imports. EEC countries, however, constitute Equatorial Guinea's main trading partners.

Overall, Franc Zone countries import from France, while export destinations are more diversified. Trade balance deficit, high debt service ratio and current account deficits are the main characteristics of the economic situation. It is customary when discussing the economic problems of SSA economies to have two styles of approach: the 'non-policy' approach which puts emphasis on exogenous international factors (terms of trade determination, interest rate, international economic growth rate etc.) and the 'policy approach', which emphasizes actions by African governments (external borrowing, state intervention in the market-commodity prices, state enterprises, exchange rate policy etc.). In the Franc Zone, the established monetary policy is both the 'non-policy' and 'policy' approach.

It is against this background that we investigate the net effect of the CFA monetary co-operation system. We do so through an analysis of the pooled reserves schemes.

## The gains from pooled reserves: a theoretical analysis and its application to the Franc Zone

The establishment of a reserve fund by pooling reserves constitutes one form of payment arrangement among developing countries. The aim of such a reserve fund is to make possible savings in foreign exchange. This section examines the theoretical rationale for reserve pooling among a group of countries and then applies this theory to exploring the possibilities of gains from reserve pooling in the FZ.

Dodsworth (1978) is among the economic theorists who proposed clear and simple arguments for reserve pooling. Following Dodsworth, Frenkel and Wadhva, one can ascertain that three main arguments explain the rationale for foreign reserve pooling.

First, as Wadhva (1969, p.310) wrote: 'reserves pooling can help in substantial conservation of the foreign exchange reserves'. The availability of foreign exchange is well known to constitute a major factor in the potential for economic growth of many developing countries. Indeed, most of these countries need exchange reserves to pay for the imports of most intermediate goods needed for production. Hence reserve pooling is particularly attractive for developing economies. By spreading the risks, the variability of payments made from a reserve fund is reduced. The variability may derive from the time pattern of international payments. Note that the FZ scheme of reserves pooling was solvent until 1980, a time when both BCEAO and BEAC had an overdraft

on the operations account. In any case, according to Dodsworth, although a reserve pooling scheme implies collective provision, the benefits accruing to its members may be either public or private. It is public (or general) when, for instance, insurance cover increases, making benefits non-exclusive. It is private when it reduces individual countries' reserve requirements; in that case, the foreign exchange saved can be used as the concerned country sees fit. The level of benefits to be expected from a pooling scheme will depend on the determination of a common insurance or risk factor. Such a risk factor becomes important as larger proportions of existing reserves go into the central fund.

The second argument for reserve pooling concerns the direct benefits member countries can draw from it. Pooled reserves increase bargaining strength through the reserve fund, relative to the bargaining strength of a single member. Another qualification relates to the demand for international reserves which may not be adequately explained by the variability of payments and the risk of illiquidity. Frenkel (1974) found other important determinants of international reserves demand, such as the level of imports, or more broadly the relative size of the foreign trade sector. Bahmani-Oskooee (1985), in his review article, put forth other explanatory variables for the demand for international reserves. These are expected export earnings, interest rate on foreign exchange holdings, the one-year lagged reserves, the change in money supply, capital inflow from abroad, government expenditures, etc. In any case, the main point remains that reserve pooling predominantly affects the variability of payments.

The third argument deals with the indirect advantages of reserve pooling. They are derived from pooled information, the exchange of ideas and co-operative decision-making. These co-operative acts are likely to increase the propensity to co-operate and encourage regional co-operation and integration. However, one of the major problems of reserve pooling is the laxity that emerges from easy access to credit; this may create a less disciplined approach to the foreign balance position, what has been called the 'moral hazard' problem.

Each of these three arguments affects the level of expected benefits to be derived from a reserve pooling scheme. They also have some implications for the optimal membership; in particular, it is no longer accepted that the greater the coverage of the scheme, the greater the benefits to be expected.

## Measuring the gains from pooling reserves

Medhora (1992a) wrote that the potential gains from pooling reserves arise from the lower risk that results when reserves that show different patterns of

use are combined. Dodsworth (1975, p.103) sums up the potential gains from pooling reserves thus:

> So long as the risk of abnormal demands on the reserve position is proportionately less when spread over a number of countries, then reserves economics are possible. Either total reserves required can be reduced or individual countries can benefit from an increased level of insurance cover.

Dodsworth proposed the following statistics as a measure of the gains from pooling in an $n$-country case:

$$Gain = 1 - \left( Var \ (Pr) \ / \ \sum_{i=1}^{n} var \ (UPr) \right)$$

where:

$Pr$ = pooled reserves (operations account)
$UPr$ = unpooled reserves.

This assumes a 100% pooling of reserves as was the case in UMOA before the 1973 reform.

Put differently, since the reduction in variability proxies the benefits from pooling, that is the fraction of reserves that can be saved is measured as:

$$Gain = 1 - \frac{Variation \ of \ the \ sum \ of \ pooled \ reserves}{Sum \ of \ variation \ of \ unpooled \ reserves}$$

In a partial-pooling system, we can modify the above measure as follows:

$$Gain = 1 - \frac{Var \left[ \sum_{i=1}^{n} P.Ri \right] + \left[ \sum_{i=1}^{n} Var \ (1-P) \ Ri \right]}{\sum_{i+1}^{n} VAR \ (UPRi)}$$

where

$Ri$ = country's reserves;
$P$ = proportion of individual pooled reserves;
$0 < P < 1$;
$i$ = given country.

If the last term of the numerator is greater than the denominator, the gains can be negative. To avoid the problem of negative gains, policy-makers have defined another measure of gains called 'coverage'. Gain is proxied by the coverage that can be provided by reserves held. In an international reserves system, 'coverage' refers to the number of months of imports they can pay for. Medhora's (1992a) formula is:

$$Coverage_i = reserves_i \,/\, var\,(reserves_i).$$

Using the concept of coverage to quantify the gains from pooling allows us to answer the question of how much additional reserves a union member would need to hold if it had left the pool and at the same time wanted to maintain the level of coverage it enjoyed in the pool. The answer is given by extra $Ri = coverage * var\,(reserves\ i)$. With partial pooling, a country's reserve holdings are the proportion of its reserves not pooled plus the pooled reserves of all pool members. Coverage thus becomes:

$$Ci = \frac{(1-P)\,Ri + \sum_{i=1}^{n} P \cdot Ri}{var\,(1-P)\,Ri + \sum_{i=1}^{n} P \cdot Ri}$$

This assumes that each country has unlimited access to the pool.

## Gains from pooled reserves in the Franc Zone

How does this apply to FZ countries? The answer to this fundamental question depends upon the cornerstone of the FZ: the operations account.

Many of the previous attempts to evaluate the gains from the pooled reserves in the Zone used estimates of the operations account. For the first time to our knowledge, actual operations account data have been published and

their evolution is very revealing of the solidarity that exists, and ought to prevail, in the Zone. In the following sections, we present the evolution of the operations account in the UMOA and in the BEAC Zone.

## Gains from pooled reserves in UMOA

We start by presenting information on the operations accounts and their evolution (Table 4). Mali is missing from Table 4 since it rejoined the Union in 1984. Therefore we exclude the Malian operations account from the data series. The data provides some interesting features. Burkina Faso and Togo are the only two countries in the Union to hold a positive operations account throughout the period.

The operations account is obtained from statistical documents of the BCEAO where the assets in foreign currencies are reported. Data on the operations account is included in the assets in foreign currencies as presented below.

1. Foreign currencies of the FZ:
   1.1 operations account;
   1.2 FZ correspondents;
   1.3 notes and currencies of the FZ.

2. Other foreign currencies:
   2.1 outside FZ correspondents;
   2.2 international financial institutions bills;
   2.3 compensation agreement in West Africa.

Facing the assets in foreign currencies, we have the external liabilities, which include:

- Liabilities in foreign currencies;
- SDR allocated and IMF credits;
- '*Fonds fiduciaire*';
- Deposits by banks and foreign institutions;
- Deposits by banks and institutions common to UMOA;
- Transfers to other states in UMOA and to the outside world.

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- 'Fonds fiduciaire';
- Deposits by banks and foreign institutions;
- Deposits by banks and institutions common to UMOA;
- Transfers to other states in UMOA and to the outside world.

**Table 4** Evolution of the operations account in UMOA countries (CFAF million)

| Year | Benin | Burkina Faso | Côte d'Ivoire | Niger | Senegal | Togo | UMOA |
|---|---|---|---|---|---|---|---|
| 1978 | 344 | 3932.1 | 45087.9 | 15119.5 | 9955.7 | 11982 | 86421.8 |
| 1979 | 4561.3 | 8600.7 | 19018.4 | 23409.9 | 18559.2 | 11451.5 | 85601 |
| 1980 | -4189.2 | 10676.6 | -96488.5 | 21476.6 | -28189.2 | 13938.2 | -82775 |
| 1981 | 14814.5 | 15277.9 | -168591.4 | 25185.6 | -59660.2 | 40828.2 | -132145.4 |
| 1982 | -952.8 | 12053.6 | -184086.4 | 5621.9 | -65002.4 | 53243.3 | -179122.8 |
| 1983 | -15879.9 | 23454.5 | -241501.9 | 15313.3 | -78835.7 | 73370.4 | -224079.3 |
| 1984 | -19557.7 | 44666.7 | -179044.6 | 36694.5 | -52642.2 | 96122.3 | -73761 |
| 1985 | -23521.3 | 46912.4 | -65358.1 | 47473.9 | -93239.3 | 111682.6 | 23950.2 |
| 1986 | -23617.6 | 69818.6 | -85987.2 | 56957 | -51852.5 | 106879.7 | 72198 |
| 1987 | -33077.2 | 80946.3 | -156522.6 | 62783.9 | -48972.9 | 94517.9 | -324.5977 |
| 1988 | -42174.2 | 91714.6 | -256525.7 | 66491.4 | -75573.4 | 69992.8 | -147074.5 |

Source: *Statistiques Economiques et Monetaires de la BCEAO*; various documents at the Banque de France.

It is often the case that operations accounts and liabilities in foreign currencies represent about 98% of foreign currencies of the FZ and external liabilities respectively, which is the reason why some authors used these two elements as proxy variables for positive and negative operations account. In any case, the state of the data on operations account goes against the dominant position Côte d'Ivoire and Senegal are supposed to hold in UMOA. Contrary to common beliefs, these two countries have had the largest deficits in the operations account of the Union. The data on the operations account show other salient features. Burkina Faso and Togo maintain a relatively low level of pooled reserves at the operations account. But these reserves have small variability, contrary to Côte d'Ivoire and Senegal with high level of operations account and high variability as well.

The variability of the operations account, as measured by their standard deviation, is expressed more clearly in Table 5.

It appears clearly that Côte d'Ivoire has the highest standard deviation, a high variability in the Ivorian operations account behaviour over time. We used the standard deviation relative to the coefficient of variation for the sake of comparability with previous studies (Medhora, 1992a). Using this variability measure, we computed the gains from pooled reserves in UMOA. The variance employed in the calculation is the standard deviation on yearly reserves for period 1978-88. Table 6 presents the results.

We can observe that the gains increase with the degree of pooling. But, at 65% of pooling, in the CFA franc arrangement, some gains have been realized. The percentage gains that would be obtained is 37.7% on our calculation. This is very close to Medhora's 35.1% gain. At 100% pooling, the% gains are higher than at 65%. Our results show 40.3% gains whereas Medhora's result is 54.1%. This difference could be explained by the fact that since 1980 the position of the operations account has deteriorated, affecting negatively the per cent gains from the pooling. The results indicate that some gains from pooling have been realized in UMOA. Such gains could have been greater had the level of pooling been set at higher level.

Another indicator of gains from pooled reserves that has been used is the coverage the pooled reserves can provide to Union members. Coverage in international parlance means the number of months (years) of imports these reserves could pay for.

**Table 5** Variability of the operations account in UMOA

| Series | Means (CFAF m) | S.D. |
|---|---|---|
| Benin | -13022.736 | 17354.607 |
| Burkina Faso | 37095.818 | 31669.447 |
| Côte d'Ivoire | -124636.37 | 97981.356 |
| Niger | 34229.772 | 21111.881 |
| Senegal | -47768.445 | 35215.018 |
| Togo | 62182.681 | 38456.274 |

Source: computed by the authors. Data from previous tables.

**Table 6** Gains from pooled reserves in UMOA (%)

| Degree of pooling | Gains | |
|---|---|---|
| | Our results | Medhora |
| 65% | 37.7 | 35.1 |
| 100% | 40.3 | 54.1 |

Source: computed by the authors.

Assuming most countries are risk-averse, coverage can be defined as the ratio of reserve holdings to risk: risk being the standard deviation of the reserves for the entire period:

$$Coverage_i = reserves_i \; / \; variance \; of \; reserve_i$$

$i$ = a given country

$reserve$ = yearly holdings or access to reserves

$variance \; (R_i)$ = the variability of reserves held, as indicated by the standard deviation during that period.

In this ratio of coverage, there are two sources of gain: either a reduction of the denominator (standard deviation) or increased access to the other country's reserves. In the event the variability of the pool becomes higher than the variability a country faced before pooling, this can offset the higher reserves available.

The figures in Table 7 indicate that Côte d'Ivoire has very low coverage level without the pool. On the contrary Burkina Faso has very high level since 1986. Niger and Senegal seem to have higher degree of coverage. But these figures are nearly the same proportion as those computed by Medhora, using mean coverage rate for the entire period.

Table 8 compares these two average coverage rates. To consider the 65% pooling scheme in UMOA, we computed the coverage rate with pooled reserves. Table 9 presents these results.

Coverage under pooling is higher than without pooling for Côte d'Ivoire, not for Burkina Faso. One observes that under pooling, the countries that enjoyed high coverage without pooling have reversed gains. Hence Côte d'Ivoire, the largest country in terms of monetary aggregates, enjoys high gains in terms of coverage. To quantify the gains from pooling, the concept of coverage is used to compute the amount of reserves a union member has to hold if it had left the pool, and yet wanted to maintain the level of coverage it enjoyed in the Union. Such hypothetical reserves level can be computed as follows:

$$H\ reserves_i = coverage_i \times variability_i$$

This means that the reserves a given country ($i$) would have to hold is equal to the coverage it enjoyed in the pool times the variability in its own reserves. Table 10 shows these hypothetical reserves.

The figures indicate that Côte d'Ivoire would have to hold the highest level of reserves if it were not in the pool. On average Côte d'Ivoire would have to hold 49.087 CFA million and Senegal 171.04 CFA million.

## Gains from pooled reserves in BEAC

As in the case of UMOA, we first present the evolution of the key elements of the Franc Zone, the operations account (see Table 11). Let us recall that Equatorial Guinea is excluded from the series since this country joined BEAC only in 1985. Cameroon and Gabon are the two leading countries in BEAC.

However, these two countries have been in overdraft since 1987. Congo, the third largest country in the BEAC Zone, has been in deficit since 1984. Curiously though, war-torn Chad and landlocked Central African Republic have been the providers of reserves in the pool for others to draw on.

**Table 7** Coverage rate without pooling of each country in UMOA

| Year | Benin | Burkina-Faso | Côte d'Ivoire | Niger | Senegal | Togo |
|------|-------|--------------|---------------|-------|---------|------|
| 1978 | 0.822473 | 0.240735 | 3.422326 | 1.292312 | 4.139546 | 0.377023 |
| 1979 | 0.710284 | 0.385094 | 1.058557 | 1.250489 | 3.694441 | 0.332556 |
| 1980 | 0.402419 | 0.423468 | 0.140901 | 1.187326 | 1.669874 | 0.391323 |
| 1981 | 3.680403 | 0.565391 | 0.163737 | 1.277180 | 2.306732 | 0.982574 |
| 1982 | 0.378628 | 0.596825 | 0.024473 | 0.434169 | 3.655324 | 1.315312 |
| 1983 | 0.331536 | 0.951897 | 0.254126 | 0.904880 | 4.536213 | 1.571637 |
| 1984 | 0.256872 | 1.365062 | 0.079877 | 1.730021 | 1.577552 | 2.120284 |
| 1985 | 0.433129 | 1.841830 | 0.071480 | 2.735257 | 2.235673 | 3.180415 |
| 1986 | 0.317579 | 2.376386 | 0.229772 | 2.924554 | 3.176293 | 2.749921 |
| 1987 | 0.254413 | 2.834324 | 0.090548 | 3.333610 | 2.697928 | 2.545793 |
| 1988 | 0.293665 | 2.819096 | 0.104686 | 3.080556 | 3.046474 | 1.647245 |

Source: computed by the authors.

**Table 8** Average coverage without pooling
in UMOA countries

| Country | Our results | Medhora |
| --- | --- | --- |
| Benin | 0.71 | 1.41 |
| Burkina-Faso | 1.30 | 3.30 |
| Côte d'Ivoire | 0.51 | 0.83 |
| Niger | 1.83 | 2.42 |
| Senegal | 3.0 | 2.38 |
| Togo | 1.56 | 1.63 |

Source: computed by the authors.

The operations account evolution reveals some variability. This variability seems to be relatively high in Cameroon and Gabon, in positive as well as negative position. Such variability is shown through the variability indicator, the standard deviation as displayed below (Table 12). The operations account from Cameroon shows greater variability, like Côte d'Ivoire in UMOA, followed by Gabon. Clearly, the larger countries in the CFA Zone seem to have very volatile reserves positions in the operations account at the French Treasury.

The tables show that landlocked and poor Central African Republic held positive operations account balance from 1976 until 1988. Even war-torn Chad showed positive reserves at the French Treasury from 1981 until 1988, when most coastal countries were in deficit. Cameroon, the most important country in terms of monetary aggregates, fell in the deficit trap of the reserves from 1986. So did Congo from 1983 until 1988. Gabon held relatively high levels of reserves all along, due to oil exports, but exhausted her reserves on the operations account from 1987 onwards. Overall, however, the total operations account level shows that only for the years 1987 and 1988 did the overall operations account become negative, and therefore, for the study period, only during those two years did the French Treasury intervene to advance cash to support budgetary disequilibrium of BEAC countries. From 1975 until 1986, the solidarity prevailing in the pooling system allowed one country in deficit to draw down on the positive reserves of the others. How much each country can draw on the other depends upon the position of each country at the operations account.

**Table 9** Coverage rate with pooling in UMOA

| Year | Benin | Burkina-Faso | Côte d'Ivoire | Niger | Senegal | Togo |
|---|---|---|---|---|---|---|
| 1978 | 0.744976 | 0.741369 | 2.216858 | 0.875377 | 0.787466 | 0.714025 |
| 1979 | 0.699107 | 0.736649 | 1.523033 | 0.787640 | 0.693763 | 0.696991 |
| 1980 | 1.023999 | 0.988893 | 3.391138 | 1.068000 | 1.435487 | 0.947031 |
| 1981 | -1.092056 | -1.047982 | 0.642550 | -1.123905 | -0.684166 | -1.042974 |
| 1982 | -1.468401 | -1.396944 | 0.088508 | -1.528175 | -1.076912 | -1.402630 |
| 1983 | -1.719813 | -1.758920 | 0.388017 | -1.913257 | -1.371771 | -1.832652 |
| 1984 | -0.441709 | -0.588467 | 1.675422 | -0.626027 | -0.190280 | -0.641337 |
| 1985 | 0.410127 | 0.324648 | 1.422912 | 0.329663 | 1.165763 | 0.360181 |
| 1986 | 0.808105 | 0.680537 | 2.567732 | 0.705168 | 1.242111 | 0.637246 |
| 1987 | 0.281393 | 0.124043 | 2.472790 | 0.101074 | 0.501635 | 0.093524 |
| 1988 | -0.862041 | -1.167993 | 1.767259 | -1.262153 | -0.667167 | -1.171527 |
| Mean | -0.146 | -0.214 | 1.65 | 0.235 | 0.166 | -0.240 |

Source: computed by the authors

**Table 10**

Hypothetical reserves out of the pool for UMOA countries 1978-88 (CFAF million)

| Year | Benin | Burkina-Faso | Côte d'Ivoire | Niger | Senegal | Togo |
|---|---|---|---|---|---|---|
| 1978 | 3169.159 | 25226.50 | 65929.47 | 19611.41 | 807.0340 | 29915.67 |
| 1979 | 2973.094 | 25065.90 | 45295.08 | 17645.82 | 711.0024 | 29201.97 |
| 1980 | 4354.761 | 33648.96 | 100852.6 | 23933.27 | 1471.157 | 39677.94 |
| 1981 | -4644.187 | -35659.59 | 19109.46 | -25179.30 | -701.1672 | -43697.69 |
| 1982 | -6244.669 | -47533.68 | 2632.234 | -34236.32 | -1103.672 | -58766.27 |
| 1983 | -7313.849 | -59850.61 | 115539.66 | -42863.47 | -1405.858 | -76782.98 |
| 1984 | -1878.457 | -20023.73 | 49827.14 | -14025.13 | -195.0082 | -26870.22 |
| 1985 | 1744.147 | 11046.76 | 42317.48 | 7385.563 | 1194.731 | 15090.58 |
| 1986 | 3436.629 | 23156.58 | 76364.48 | 15798.16 | 1272.976 | 26698.80 |
| 1987 | 1196.680 | 4220.793 | 73540.91 | 2264.395 | 514.1002 | 391836 |
| 1988 | -3666.003 | -39743.19 | 52558.38 | -28276.53 | -683.7459 | -49083.70 |
| Mean | -624.88 | -7313.20 | 49087.89 | -5267.47 | 171.04 | -10063411 |

Source: computed by the authors.

**Table 11**    Evolution of the operations account in BEAC countries (CFAF million)

| Year | Cameroon | Congo | Gabon | Chad | CAR | BEAC |
|------|----------|-------|-------|------|-----|------|
| 1975 | 1501 | 1990 | 30326 | -2203 | -918 | -30696 |
| 1976 | 8138 | 1655 | 29835 | -1381 | -883 | 37364 |
| 1977 | 7766 | 953 | 18837 | 4263 | 4352 | 36171 |
| 1978 | 8715 | 1021 | -6086 | 1711 | 5422 | 10783 |
| 1979 | 22314 | 71 | 7367 | -1293 | 3645 | 32104 |
| 1980 | 38079 | 19153 | 22424 | -7155 | 12403 | 84904 |
| 1981 | 17320 | 33961 | 54782 | -1218 | 19823 | 124668 |
| 1982 | 10502 | 10449 | 104352 | 2002 | 14913 | 142218 |
| 1983 | 60162 | 974 | 74410 | 9126 | 18273 | 162945 |
| 1984 | 20461 | -23676 | 92271 | 20641 | 23920 | 133617 |
| 1985 | 47114 | -17033 | 71290 | 10742 | 17863 | 129976 |
| 1986 | 12569 | -27423 | 33588 | 5281 | 20345 | 44360 |
| 1987 | -118825 | -18804 | -16462 | 14523 | 18943 | -120625 |
| 1988 | -119515 | -26845 | -4061 | 22494 | 25646 | -102281 |
| Mean | 1164.35 | -3111 | 36633.78 | 5538.07 | 13124.78 | |

Source: *Statistiques Economiques et Financieres de la BEAC*. Various documents of Banque de France.

**Table 12** Variability in the operations account in BEAC

| Series | Mean (CFAF m) | S.D. |
|--------|---------------|------|
| Cameroon | 1164.3571 | 53610.421 |
| Congo | -3111 | 17932.388 |
| Gabon | 36633.786 | 37631.201 |
| Chad | 5538.0714 | 8885.3683 |
| CAR | 13124.786 | 9099.5309 |

Source: computed by the authors. Data from previous tables.

Using the concept of gains developed earlier and applied to UMOA, we computed the gains in the BEAC Zone (Table 13).

**Table 13** Aggregate gains from pooled reserves in BEAC

| Degree of pooling | Gains (%) |
| --- | --- |
| 65% | 61.08 |
| 100% | 38.9 |

Source: computed by the authors.

It appears in the BEAC Zone that contrary to UMOA, member countries derived more gains with 65% reserve pooling than 100% pooling. This seems to lend credence to the fact that in the BEAC Zone where there does not exist a Union, little solidarity prevails among members relative to UMOA countries. Indeed, in BEAC, the credit allocation is based upon the weight carried by each member, not according to actual need. Using the concept of coverage, we calculated the coverage rate in the BEAC Zone, with and without pooling, as we did for UMOA. Tables 14 and 15 display such coverage rate.

The mean values of these two coverage rates are displayed in Table 16. Table 16 indicates that Cameroon and Congo enjoyed a higher coverage with 65% pooling than without pooling. Congo seems to benefit from greater coverage under the pooling system, up to 1.08 from 0.74, an increase of 68.5%. Chad and Central African Republic on the other hand appear to benefit less from the pooling, their coverage having deteriorated during the study period. Based on the above information, we calculated the hypothetical amount of reserves each country would need had it opted out of the system using the same methodology as under UMOA:

$$HR_i = Coverage \times variability$$

Table 17 gives the hypothetical reserves. For the period of study, Cameroon appears to need more reserves than had the 65% pooling scheme not existed. All the other countries need lower reserves. But on average Gabon and Cameroon would have needed higher reserves without the pooling. Table 18 indicates that Gabon would have needed 36,472 CFAF million had the 65% pooling scheme not existed. Gabon is followed by Cameroon with 28,463.74 CFAF million.

**Table 14**          Coverage rate without pooling in BEAC

| Year | Cameroon | Congo | Gabon | Chad | CAR |
|------|----------|----------|----------|----------|----------|
| 1975 | 0.350921 | 0.322985 | 0.902369 | 0.097526 | 0.085139 |
| 1976 | 0.594434 | 0.317354 | 0.800100 | 0.826913 | 0.466707 |
| 1977 | 0.591502 | 0.362755 | 0.070182 | 0.686155 | 0.646004 |
| 1978 | 0.670058 | 0.232227 | 0.146814 | 0.395663 | 0.564806 |
| 1979 | 1.518680 | 0.980337 | 0.123433 | 0.356524 | 0.973269 |
| 1980 | 2.266319 | 1.980604 | 0.654708 | 0.158674 | 1.204898 |
| 1981 | 1.314767 | 3.658417 | 1.557557 | 0.295401 | 1.952406 |
| 1982 | 1.254777 | 1.327230 | 2.954262 | 0.606470 | 1.580539 |
| 1983 | 3.443173 | 0.306068 | 2.052973 | 1.586748 | 1.849413 |
| 1984 | 1.336442 | 0.195988 | 2.512212 | 2.869639 | 2.387673 |
| 1985 | 3.379911 | 0.194151 | 2.493572 | 2.235529 | 2.312288 |
| 1986 | 1.160846 | 0.257741 | 1.261271 | 0.819368 | 2.347390 |
| 1987 | 1.088362 | 0.111514 | 0.103960 | 2.329056 | 3.015442 |
| 1988 | 2.529557 | 0.124608 | 0.565880 | 2.743888 | 3.338128 |

Source: computed by the authors.

## More on the gains from pooling reserves on a country basis

Using the above hypothetical reserves and the actual reserves held by the different countries, the reserves saved can be derived as follows:

$$RSAVi = HRi - RSVi$$

where:

RSAVi = reserves saved for country $i$;
HRi   = hypothetical reserves that ought to be held;
RSVi  = actual reserves held.

Tables 19 and 20 give the reserves saved for UMOA and BEAC. Based on the concepts of coverage with pooling we computed the above reserves savings in Tables 19 and 20, by subtracting actual reserves from hypothetical reserves. Those reserves savings represent in fact the gains from reserves pooling by each member country. Tables 19 and 20 reveal that in UMOA, only Côte d'Ivoire obtained some savings from pooling reserves of 33,940.6 CFAF million. All of the other countries did in fact dissave, that is they contributed

more to the pool than they drew from it between 1978 and 1988. Similarly, in BEAC, between 1975 and 1988, Cameroon and Congo derived positive reserves savings from the pooling. That is by being member of the Zone, these two countries acquired reserves beyond their own actual need. Gabon, Chad and CAR, however, dissaved because of the pool. In order to understand the interpretation of the above statements more fully, the overall situations of the operations account of each zone are presented in Table 21.

**Table 15**   Coverage rate with 65% pooling in BEAC countries

| Year | Cameroon | Congo | Gabon | Chad | CAR |
|------|----------|-------|-------|------|-----|
| 1975 | 0.563119 | 0.398764 | 0.415497 | 0.420530 | 0.420786 |
| 1976 | 0.773269 | 0.594025 | 0.578666 | 0.659677 | 0.662441 |
| 1977 | 0.352162 | 0.272985 | 0.058236 | 0.249578 | 0.275867 |
| 1978 | 0.359108 | 0.258795 | 0.390911 | 0.256927 | 0.254194 |
| 1979 | 0.675501 | 0.581665 | 0.461412 | 0.521187 | 0.562512 |
| 1980 | 1.406521 | 1.070404 | 1.130612 | 1.176866 | 1.107467 |
| 1981 | 1.953050 | 1.459267 | 1.516377 | 1.501099 | 1.499545 |
| 1982 | 2.558030 | 1.891980 | 1.927781 | 1.895824 | 1.936337 |
| 1983 | 2.828392 | 2.234074 | 2.266765 | 2.230339 | 2.278879 |
| 1984 | 2.832808 | 2.480744 | 2.215711 | 2.170250 | 2.245855 |
| 1985 | 3.260286 | 2.631160 | 2.607555 | 2.462779 | 2.544224 |
| 1986 | 1.995231 | 1.818218 | 1.657736 | 1.476177 | 1.548552 |
| 1987 | 1.174115 | -0.445497 | -0.461152 | -0.661463 | -0.575590 |
| 1988 | 1.901438 | -0.082101 | -0.137257 | -0.452388 | -0.340770 |

Source: computed by the authors.

**Table 16** Average coverage with and without pooling in BEAC

| Countries | Without pooling | With 65% pooling |
|-----------|-----------------|------------------|
| Cameroon | 1.53 | 1.61 |
| Congo | 0.74 | 1.08 |
| Gabon | 1.15 | 1.05 |
| Chad | 1.14 | 0.99 |
| RCA | 1.16 | 1.03 |

Source: computed by the authors.

**Table 17**    Hypothetical reserves for BEAC countries (CFAF million)

| Year | Cameroon | Congo | Gabon | Chad | CAR |
|------|----------|-------|-------|------|-----|
| 1975 | 9914.650 | 3654.011 | 14414.10 | 2827.745 | 4056.710 |
| 1976 | 13614.70 | 5443.252 | 20074.63 | 4435.826 | 6396.453 |
| 1977 | 6200.397 | 2501.450 | 2020.269 | 1678.223 | 2659.572 |
| 1978 | 6322.694 | 2371.432 | 13561.18 | 1727.638 | 2450.629 |
| 1980 | 24794.16 | 9808.479 | 39222.30 | 7913.533 | 10676.86 |
| 1981 | 34386.72 | 13371.76 | 52604.95 | 10093.75 | 14456.80 |
| 1982 | 45038.40 | 17336.86 | 66877.05 | 12747.98 | 18667.82 |
| 1983 | 49798.57 | 20471.58 | 78636.82 | 14997.34 | 21970.19 |
| 1984 | 49876.33 | 22731.90 | 76865.70 | 14593.29 | 21651.82 |
| 1985 | 57402.79 | 24110.22 | 93581.44 | 16560.32 | 24528.33 |
| 1986 | 35129.38 | 16660.95 | 57508.86 | 9926.172 | 14929.26 |
| 1987 | 20672.26 | -4082.242 | -15997.93 | -4447.835 | -5549.140 |
| 1988 | 33478.00 | -751.3173 | -4761.601 | -3041.967 | -3285.292 |

Source: computed by the authors.

**Table 18** Average hypothetical reserves in
BEAC countries (CFAF million)

| Countries | Mean |
|-----------|------|
| Cameroon | 28,463.741 |
| Congo | 9,925.52 |
| Gabon | 36,472.48 |
| Chad | 6,679.75 |
| CAR | 9,930.21 |

Source: computed by the authors.

**Table 19** Reserves savings from pooling in UMOA countries (CFAF million)

| Year | Benin | Burkina-Faso | Côte d'Ivoire | Niger | Senegal | Togo |
|---|---|---|---|---|---|---|
| 1978 | -329.1501 | 17035.04 | -35166.23 | -9340.770 | -3435.374 | 14119.47 |
| 1979 | -47.53003 | 11962.35 | 14025.24 | -10369.40 | -3351.950 | 15268.81 |
| 1980 | 2643.393 | 19239.67 | 96690.38 | -2666.881 | -240.2111 | 23282.61 |
| 1981 | -20295.84 | -54898.08 | 14272.67 | -53792.47 | -3065.218 | -84864.80 |
| 1982 | -7854.858 | -67842.78 | 1909.292 | -43963.18 | -4849.826 | -113874.2 |
| 1983 | -8723.772 | -92240.71 | 4032.778 | -63135.86 | -6054.790 | -142630.2 |
| 1984 | -2970.857 | -66472.58 | 47467.56 | -52783.48 | -1811.760 | -115704.2 |
| 1985 | -97.81897 | -51625.01 | 40205.96 | -53893.50 | -1096.495 | -118159.9 |
| 1986 | 2086.059 | -57704.47 | 69577.00 | -49721.80 | -1982.244 | -88515.20 |
| 1987 | 114.7361 | -92222.50 | 70866.10 | -72419.81 | -2250.868 | -102743.2 |
| 1988 | -4914.873 | -135668.3 | 49465.94 | -97291.47 | -3805.921 | -118098.6 |
| Mean | -3671.90 | -51857.85 | 33940.6 | -46307.15 | -2904.05 | -75629.03 |

Source: computed by the author.

**Table 20**   Reserves savings from pooling in the BEAC countries (CFAF million)

| Year | Cameroon | Congo | Gabon | Chad | CAR |
|------|----------|-------|-------|------|-----|
| 1975 | 4468.633 | 481.1118 | -17551.24 | 1951.827 | 2937.245 |
| 1976 | 4154.610 | 2217.518 | -8602.490 | -1469.854 | 1416.851 |
| 1977 | -3755.867 | -968.6040 | -507.0759 | -3066.291 | -3764.216 |
| 1978 | -5007.653 | 105.0430 | 07846.074 | -1067.383 | -3174.963 |
| 1979 | -13966.83 | -3964.269 | 1090.75 | 834.4141 | -4359.266 |
| 1980 | -13308.48 | -8912.969 | 14710.85 | 6230.534 | -1725.346 |
| 1981 | 13778.70 | -20932.05 | -3841.211 | 7321.647 | -5430.260 |
| 1982 | 26273.61 | 4163.090 | -38677.08 | 7677.550 | 2055.841 |
| 1983 | -7144.879 | 16472.10 | 3810.133 | 3160.170 | 2522.930 |
| 1984 | 30031.15 | 19609.18 | -13811.30 | -5838.900 | -2961.250 |
| 1985 | 2135.020 | 20923.89 | 2784.453 | 238.9297 | 430.2598 |
| 1986 | 17286.27 | 13326.71 | 11116.32 | 3643.823 | -8800.529 |
| 1987 | 3037.211 | -4865.806 | -18870.69 | -19762.73 | -34211.85 |
| 1988 | -8585.559 | -1850.230 | -24174.27 | -21255.73 | -35225.62 |
| Mean | 3528.28 | 2557.47 | -5341.19 | -1528.71 | -6449.29 |

Source: computed by the authors.

**Table 21** Overall balance of operations account
in UMOA and BEAC (CFAF million)

| Year | UMOA | BEAC |
|------|------|------|
| 1975 | - | -30696 |
| 1976 | - | 37364 |
| 1977 | - | 36171 |
| 1978 | 86421.80 | 10783 |
| 1979 | 85601.00 | 32104 |
| 1980 | -82775.50 | 84904 |
| 1981 | -132145.4 | 124668 |
| 1982 | -179122.8 | 142218 |
| 1983 | -224079.3 | 162945 |
| 1984 | -73761.00 | 133617 |
| 1985 | 23950.20 | 129976 |
| 1986 | 72198.00 | 44360 |
| 1987 | -324.5977 | -120625 |
| 1988 | -147074.5 | -102281 |

Source: computed by the authors.

Table 21 shows the state of solidarity that prevailed in the two zones and the extent to which France intervened through advances by the French Treasury. In UMOA, for the years 1981, 1982, 1983, 1984, 1987 and 1988, the overall balance of the operations account has been in deficit. That is exactly the situation in which France intervened by providing cash advances for budgetary purposes.

During the other years, countries with a negative operations account balance drew down on the operations account of the others, namely, Benin, Côte d'Ivoire, Senegal drew on the account of Burkina Faso, Niger and Togo. This expresses some solidarity between member countries.

As for the BEAC Zone, France intervened only twice during our study period, in 1987 and in 1988. From 1975 until 1986, countries with deficit operations accounts such as Chad, drew down on the account of others.

In the BEAC Zone, only Congo showed a continuous negative balance between 1984 and 1988. Otherwise, most countries used their own reserves. Therefore, there appears to be less solidarity in the BEAC Zone than in UMOA.

Overall, the FZ allows member countries in balance-of-payments difficulties to draw on the reserves of other countries and thus enable them to pay for their imports.

If the account is in deficit for the whole Zone then the French Treasury provides the necessary foreign exchange to pay for imports. Under such circumstances, the system appears to be beneficial.

But to maintain an operations account at the French Treasury is not cost-free. There are two kinds of opportunity costs: one related to the interest rate and the other to exchange risks. It is therefore necessary to compute the net gains from pooling reserves to have a clear picture of how beneficial the Zone is to member countries. First are the costs related to the interest rate.

$$COST_j = (i^* - i) * CO$$

where

$COST$ = opportunity cost related to the interest rate;
$i^*$ = interest rate of reference;
$i$ = average interest rate available to the operations account;
$j$ = country $j$ ($j = 1, 2 ...$).

For our computation we used LIBOR as the reference interest rate; we used $IRF_{ce}$ as the average rate of intervention of Banque de France. This is an approximation. Indeed, at the operations account, the interest rate is the average of the intervention of Banque de France on public assets in the short run, when the operations account is in overdraft. In case of deficit, as has been the case since 1980, the interest rate structure charged is as follows:

- From 0 - 5 million FF : $i = 1\%$;
- From 5 - 10 million FF : $i = 2\%$;
- Above 10 million FF: the interest rate is the same as when the operations account has positive balance. For the interest, we computed the following opportunity costs related to the interest rate received or paid by member countries.

How should one interpret these results? There are four alternatives since $COST_j$ is the product of the operations account balance ($COi$) and the interest rate differential.

$$COST_j = (i^* - i) CO$$

We have thus either:

(a) Operations account positive and ($i^* - i$) positive;

(b) Operations account positive and $(i^* - i)$ negative;
(c) Operations account negative and $(i^* - i)$ positive;
(d) Operations account negative and $(i^* - i)$ negative.

In the case of (a) and (d), the result is a positive cost. In that case, it is real cost to the country. In the case of (b) and (c) we have negative costs, that is a gain for the country. In other words, in UMOA, two countries obtained some gains by maintaining the pooled reserves: Burkina Faso and Togo, the two countries that held positive balances at the operations account. Niger has a special case where she supports an opportunity cost while holding a positive balance in the operations account. All other countries paid interest to the French Treasury. On average Benin paid 10,945.47 CFAF million in interest during 1978-88, and Senegal 33,690.9 CFAF million. On the other hand, Burkina Faso received 12,592.7 CFAF million and Togo 39,465.4 CFAF million. Overall in UMOA, these are more losers than gainers with respect to the interest rate (see Table 22).

In the BEAC Zone, in contrast to UMOA, only Congo paid more interest to the French Treasury than it received, paying 8,516.51 CFAF million. All other countries received interest payments. On average, during 1975-88, Cameroon, Gabon, Chad, CAR received in payment respectively 10,214.03 CFAF million, 37,546.69 CFAF million, 5,336.85 CFAF million, and 3,852.69 CFAF million (see Table 23). The second cost associated with reserve pooling is due to the exchange rate changes. Indeed, 65% pooled reserves are denominated only in FF, so that only transactions in other hard currencies carry conversion costs. These costs stem from the fact that there is usually a differential between the buying and selling rates of FF, especially with respect to the US dollar. The opportunity cost associated is defined as:

$$KOST_i = (TV - TA) * CO_i$$

where

$TV$ = selling rate
$TA$ = buying rate
$CO$ = operations account balance
$i$ = country

To compute the above costs some assumptions are needed:

- All of the balance of the operations account is converted;
- The conversions are only in dollars.

**Table 22**  Costs of the pooled reserves associated with the interest rate in UMOA (CFAF million)

| Year | Benin | Burkina-Faso | Côte d'Ivoire | Niger | Senegal | Togo |
|---|---|---|---|---|---|---|
| 1978 | 330.2399 | 3774.815 | 43284.37 | 14514.71 | 9557.469 | 11503.29 |
| 1979 | 11813.77 | 22275.81 | 49257.66 | 60631.64 | 48068.32 | 29659.38 |
| 1980 | -9090.565 | 23166.22 | -209380.0 | 480604.2 | -61170.57 | 30245.89 |
| 1981 | 21777.31 | 22458.51 | -24729.4 | 37022.68 | -87700.49 | 60017.45 |
| 1982 | 1210.056 | -15308.07 | 233789.4 | -7137.813 | 82553.05 | -67618.99 |
| 1983 | 41764.14 | -61685.34 | 635150.1 | -40273.98 | 207337.9 | -192964.2 |
| 1984 | 10365.57 | -23673.34 | 94893.58 | -19448.07 | 27900.35 | -50944.79 |
| 1985 | 30577.69 | -60986.12 | 84965.53 | -61716.07 | 121211.1 | -145187.4 |
| 1986 | 21964.36 | -64931.29 | 79968.09 | -52970.00 | 48222.82 | -99398.11 |
| 1987 | 22161.73 | -54234.02 | 104870.1 | -42065.22 | 32811.84 | -63327.00 |
| 1988 | -32474.13 | 70620.24 | -198294.8 | 51198.38 | -58191.52 | 53894.45 |
| Mean | 10945.47 | -12592.7 | 60970.45 | -1240.13 | 336690.9 | -394465.4 |

Source: computed by authors.

**Table 23**     Costs of the pooled reserves associated with the interest rate in BEAC (CFAF million)

| Year | Cameroon | Congo | Gabon | Chad | CAR |
|------|----------|-------|-------|------|-----|
| 1975 | -1395.930 | -1850.701 | -28203.19 | 2048.791 | 853.7403 |
| 1976 | -24251.25 | -4931.901 | -88908.33 | 4115.381 | 6231.341 |
| 1977 | -23841.52 | -2925.710 | -57829.59 | -13087.41 | -13360.64 |
| 1978 | 8366.397 | 980.1596 | -5842.558 | 1642.559 | 5205.118 |
| 1979 | 57793.26 | 183.89 | 19080.53 | -3348.870 | 9440.550 |
| 1980 | 82631.43 | 41562.01 | 48660.08 | -15526.35 | 26914.51 |
| 1981 | 25460.40 | 49922.67 | 80529.54 | -1790.460 | 29139.81 |
| 1982 | -13337.54 | -13270.23 | -132527.0 | -2542.540 | -18939.51 |
| 1983 | -158226.1 | -2561.62 | -195698.3 | -24001.38 | -48057.99 |
| 1984 | -10844.32 | 12548.27 | -48903.60 | -10939.72 | -12677.59 |
| 1985 | -61248.20 | 22142.90 | -92677.00 | -13964.40 | -23221.90 |
| 1986 | -11689.17 | 25503.38 | -31236.83 | -4911.329 | -18920.85 |
| 1987 | 79612.76 | 12598.68 | 11029.54 | -9730.411 | -12691.81 |
| 1988 | -92026.55 | -20670.65 | -3126.97 | 17320.38 | 19747.42 |
| Mean | -10214.05 | 8516.51 | -37546.69 | -5336.85 | -3852.69 |

Source: computed by authors.

Since it is difficult to obtain the continuous fluctuations of exchange rate of FF *vis à vis* the dollar, we use the average rate. The differential is calculated as the pivot rate plus and minus 5%, which roughly approximate the commercial gains realized by commercial banks resulting from change operations.

To obtain accurate figures, we first converted the operations account into dollars, and then multiplied by the exchange rate differential. The results were obtained for UMOA and BEAC (see Tables 24 and 25).

How should we read these results? Two cases must be considered. First, in the case of positive balance at the operations account, member countries support a double exchange risk, when 65% of the export earnings is converted from, say, coffee, cocoa or petroleum to a hard currency (US dollar) into FFs to keep them in the operations account. The other exchange risk is when we reconvert the pooled reserves from FFs into, say, US dollars to pay for imports.

Second, in the case of negative balances on the operations account, member countries support two costs: the interest paid for the French Treasury advances

and simultaneously the conversion costs. An advance by the French Treasury is a kind of borrowing at a special rate. Hence the figures in Tables 24 and 25 should be read as absolute values. In such cases all member countries supported costs. In UMOA, for instance, during 1978 and 1988, Benin, Côte d'Ivoire and Senegal supported exchange costs of 1,257.67 CFAF million, 11,880.85 CFAF million, and 4,517.61 CFAF million respectively. Benin supported the smallest exchange costs. In the BEAC Zone, Gabon supported the highest exchange costs at 7,516.82 CFAF million, whereas Congo supported only 19,052 CFAF million. There does appear to be some correlation between the balance of the operations account and the costs associated with exchange risks. For instance, Gabon, with the highest mean value of operations account, also supported the highest exchange costs. On the other hand, Congo with a negative mean value of operations account (that is the smallest balance) also supported the smallest exchange costs. We can therefore establish a positive correlation between the operations account balance and the exchange costs.

Given the gains by country, and the above costs of the pooled reserves, the next step is to compute the net gains (losses) of the pooled reserves. Net gains for country (i) is given by:

$$Netg_i = Gain_i - COST_i - KOST_i$$

where

$Netg_i$ = net gain for country $i$;
$Gain_i$ = gross gain for country $i$ ($RSAVi$);
$COST_i$ = interest-rate associated cost for country $i$;
$KOST_i$ = exchange rate transaction for $i$;

Under the reservations of the assumptions made about the average intervention rate of the Banque de France and of the total conversion of the operations account only in dollars, the following net gains were derived (Tables 26 and 27).

During the study period, one observed that all UMOA countries were net losers based on the gains derived from the operations account system. The highest losers were, in decreasing order, Niger, Togo and Burkina Faso. Curiously enough these three countries are precisely those which held positive operations account balances during the study period. These three countries provided more to the pooled exchange reserves than they needed to cover their imports. Côte d'Ivoire, Benin and Senegal, with negative operations account balances, are also net losers but to a lesser degree. In the BEAC Zone, there are two countries with net gains, Gabon and Chad, with 24,688.67 CFAF

**Table 24    Exchange rate costs of pooled reserves in UMOA (CFAF million)**

| Year | Benin | Burkina-Faso | Côte d'Ivoire | Niger | Senegal | Togo |
|---|---|---|---|---|---|---|
| 1978 | 68.79999 | 786.4202 | 9017.581 | 3023.900 | 1991.140 | 2396.520 |
| 1979 | 912.2599 | 1720.140 | 3803.680 | 4681.9802 | 3711.840 | 2290.300 |
| 1980 | -418.9201 | 2135.320 | -9648.851 | 4295.320 | -2818.921 | 2787.640 |
| 1981 | 1481.450 | 3055.580 | -16859.14 | 5037.120 | -5966.020 | 8165.639 |
| 1982 | -95.28001 | 2410.721 | -18408.64 | 1124.380 | -6500.241 | 10648.66 |
| 1983 | -1587.990 | 4690.899 | -24150.19 | 3066.660 | -7883.571 | 14674.08 |
| 1984 | -1955.770 | 8933.341 | -17904.46 | 7338.900 | -5264.219 | 19224.46 |
| 1985 | -2352.130 | 9382.482 | -6535.812 | 9494.779 | -9323.929 | 22336.52 |
| 1986 | -2361.760 | 13963.72 | -8598.719 | 11391.40 | -5185.251 | 21375.94 |
| 1987 | -3307.719 | 16189.26 | -15652.26 | 12556.78 | -4897.291 | 18903.58 |
| 1988 | -4217.419 | 18342.92 | -25752.57 | 13298.28 | -7557.341 | 13998.56 |
| Mean | -1257.67 | 7419.16 | -11880.85 | 6845.95 | -4517.61 | 12436.53 |

Source: computed by the authors.

**Table 25**          Exchange rate costs of pooled reserves in BEAC (CFAF million)

| Year | Cameroon | Congo | Gabon | Chad | CAR |
|------|----------|-------|-------|------|-----|
| 1975 | 300.2000 | 398.0000 | 6065.200 | -220.3000 | -91.80001 |
| 1976 | 1627.600 | 331.0000 | 5967.002 | -138.1000 | -88.30000 |
| 1977 | 1553.200 | 190.6000 | 3767.400 | 852.6000 | 870.4000 |
| 1978 | 1743.000 | 204.2000 | -608.6000 | 342.2000 | 1084.400 |
| 1979 | 4462.802 | 14.20000 | 1473.400 | -129.3000 | 728.9999 |
| 1980 | 7615.799 | 3830.600 | 4484.798 | -715.4999 | 2480.600 |
| 1981 | 3464.000 | 6792.201 | 10956.40 | -121.8000 | 3964.600 |
| 1982 | 2100.400 | 2089.800 | 20870.40 | 400.4001 | 2982.600 |
| 1983 | 12032.40 | 194.8000 | 14882.00 | 1825.200 | 3654.600 |
| 1984 | 4092.200 | -2367.600 | 18454.20 | 4128.201 | 4784.001 |
| 1985 | 9422.799 | -1703.300 | 14258.00 | 2148.400 | 3572.601 |
| 1986 | 2513.800 | -2742.300 | 6717.601 | 1056.200 | 4069.000 |
| 1987 | -11882.50 | -1880.400 | -1646.200 | 2904.600 | 3788.600 |
| 1988 | -11951.50 | -2684.500 | -406.1001 | 4498.799 | 5129.200 |
| Mean | 1935.30 | 190.52 | 7516.82 | 1202.25 | 2637.82 |

Source: computed by the authors.

million and 2,605.88 CFAF million respectively. Cameroon appears to loose the most. Overall, if one adds the costs associated with interest rate and exchange rate, the evidence shows more countries lose than gain in the FZ with 65% reserve pooling. These results derive from the fact that the interest payments received by maintaining reserves at the French Treasury are smaller in magnitude than the losses incurred through exchange costs.

The differential in interest rates paid or received by FZ countries, relative to the market rate proxied by the LIBOR are presented in Table 28. As we reported earlier, given the signs of DIFRI, CFA Zone countries with negative operations account balance and negative interest differential support interest costs. But, countries with positive operations account balance and negative interest differential gained in interest payments. Even more important, in addition to the variation in interest differential, is the diversification of export destinations and origins of imports UMOA and BEAC countries experience over the years. For instance, at independence in 1960, Côte d'Ivoire exported over 50% of its total exports to France. This share decreased to 32.66% in 1970 and reached 21.66% in 1980. It continued to decline to 16.56% in 1985 and to 14.8% (behind the Netherlands at 16.9%) in 1988 (M'bet, 1990, p.44).

**Table 26** Net gains (losses) in UMOA (CFAF million)

| Year | Benin | Burkina-Faso | Côte d'Ivoire | Niger | Senegal | Togo |
|------|-------|--------------|---------------|-------|---------|------|
| 1978 | -728.6109 | 12473.80 | -87468.18 | -26879.38 | -14983.98 | 219.6597 |
| 1979 | -12773.56 | -12033.61 | -39036.10 | -75683.02 | -55132.11 | -16680.87 |
| 1980 | 12152.88 | -6063.871 | 315719.2 | -527566.4 | 63749.28 | -9750.921 |
| 1981 | -43554.60 | -80412.16 | 278961.2 | -95852.41 | 90601.30 | -153047.9 |
| 1982 | -8969.634 | -54944.43 | -213471.8 | -37947.75 | -80902.63 | -56903.87 |
| 1983 | -48899.92 | -35246.26 | -606967.2 | -25924.54 | -205509.1 | 35659.92 |
| 1984 | -11380.66 | -51732.57 | -29521.56 | -40674.31 | -24447.89 | -83983.88 |
| 1985 | -28323.38 | -21.37305 | -38223.76 | -1672.209 | -112983.7 | 4690.988 |
| 1986 | -17516.54 | -6736.899 | -1792.352 | -8143.201 | -45019.81 | -10493.03 |
| 1987 | -18739.28 | -54177.74 | -18351.74 | -42911.38 | -30165.42 | -58319.78 |
| 1988 | 31776.68 | -224631.5 | 273513.3 | -161788.1 | 61942.94 | -185991.6 |
| Mean | -13359.69 | -46684.2 | -15148.99 | -95003.8 | -32077.3 | -48600.11 |

Source: computed by the authors.

**Table 27**      Net gains (losses) in BEAC (CFAF million)

| Year | Cameroon | Congo | Gabon | Chad | CAR |
|------|----------|-------|-------|------|-----|
| 1975 | 5564.363 | 1933.813 | 4586.749 | 123.3370 | 2175.305 |
| 1976 | 26778.26 | 6818.419 | 74338.84 | -5447.135 | -1126.190 |
| 1977 | 18532.55 | 1766.506 | 53555.11 | 9168.520 | 8726.023 |
| 1978 | -15117.05 | -1079.317 | 14297.23 | -3052.142 | -9464.481 |
| 1979 | -76222.89 | -4162.358 | -9563.180 | 4312.585 | -14528.82 |
| 1980 | -103555.7 | -54305.58 | -38434.03 | 22472.38 | -31120.46 |
| 1981 | -15145.70 | -77646.92 | -95327.15 | 9233.907 | -38534.67 |
| 1982 | 37510.75 | 15343.53 | 72979.52 | 9819.690 | 18012.75 |
| 1983 | 139048.8 | 18838.92 | 184626.4 | 25336.35 | 46926.32 |
| 1984 | 36783.26 | 9428.510 | 16638.10 | 972.6187 | 4932.339 |
| 1985 | 53960.41 | 484.2903 | 81203.45 | 12055.13 | 20079.56 |
| 1986 | 26461.64 | -9434.361 | 35635.55 | 7498.952 | 6051.320 |
| 1987 | -64693.05 | -15584.09 | -28254.03 | -12936.92 | -25308.64 |
| 1988 | 95392.48 | 21504.92 | -20641.20 | -43074.91 | -60102.24 |
| Mean | -11807.008 | -6149.55 | 24688.67 | 2605.88 | -5434.42 |

Source: computed by the authors.

As for imports M'Bet (1990, p.55) showed that Côte d'Ivoire imported 69.24% from France. This share declined to 44.47% in 1970 and reached 39.80% in 1980. In 1985 the share declined further to 32.06%, and reached 30.6% in 1988 as appears in Table 29.

This picture is similar, although not identical, to other UMOA countries as well as BEAC countries. However, for the BEAC Zone in general, countries imported more from France than UMOA countries. For instance, Cameroon imported 40% from France in 1988, Central African Republic imported 52.4% from France in 1988, as appears in Table 29. Moreover, BEAC countries seem to export more to France than UMOA countries. For instance, Gabon exported 36% to France in 1988 compared to 30.6% for Côte d'Ivoire. This drive for diversification of geographical areas for exports and imports can be summarized for 1988 as follows. It can be observed from Table 29 that BEAC countries trade more with France than do UMOA countries. Trading more with France means holding export earnings in FF and paying imports in FF, with no exchange risks. This is one of the reasons why there are more net gainers in BEAC than in UMOA countries.

**Table 28** Comparative evolution between the average
intervention rate of Banque de France and LIBOR

| Year | IRFCE | LIBOR | DIFR1 |
|------|-------|-------|-------|
| 1975 | 7.92  | 6.99  | -0.93 |
| 1976 | 8.56  | 5.58  | -2.98 |
| 1977 | 9.07  | 6.00  | -3.07 |
| 1978 | 7.98  | 8.94  | 0.96  |
| 1979 | 9.04  | 11.63 | 2.59  |
| 1980 | 11.85 | 14.02 | 2.17  |
| 1981 | 15.30 | 16.77 | 1.47  |
| 1982 | 14.87 | 13.60 | -1.27 |
| 1983 | 12.53 | 9.90  | -2.63 |
| 1984 | 11.74 | 11.21 | -0.53 |
| 1985 | 9.93  | 8.63  | -1.30 |
| 1986 | 7.74  | 6.81  | -0.93 |
| 1987 | 7.98  | 7.31  | -0.67 |
| 1988 | 7.36  | 8.13  | 0.77  |

Source: derived by the authors, data IFS.

Notes: IRFCE: average intervention rate of Banque de
France. LIBOR: reference rate (London Inter Banking
Official Rate). DIFRI: LIBOR minus IRFCE.

In UMOA countries, France's share of foreign trade declined more substantially than in BEAC. This implies that UMOA countries need to convert more export earnings from other hard currencies into FF at 65% proportion to be kept at the French Treasury. This explains the high exchange costs in UMOA countries. This implies also that there are more net losers in UMOA countries. Overall, the highest net losers are countries in the Franc Zone with large positive operations account balance trading to a large degree (more than 60% outside the FZ). Trading more outside the FZ implies higher exchange costs and since exchange risks costs outweigh interest payments, this leads to the net losses.

However, the overall membership gains of a monetary union go beyond the simple reserves savings minus interest and exchange rate costs. Such gains must include the net transfers within the Zone. We therefore compute the total gains of the Franc Zone based on UMOA data.

**Table 29** Percent share of export destinations and import origins in UMOA and BEAC countries (1988)

| | Importation | | |
| --- | --- | --- | --- |
| | U M O A | | B E A C |

| | | | |
| --- | --- | --- | --- |
| Benin | France 21% | Cameroon | France 40% |
| Burkina-Faso | France 31% | Congo | France 47% |
| Côte d'Ivoire | France 30.6% | Gabon | France 45% |
| Niger | France 32.3% | CAR | France 52.4% |
| Senegal | France 36.4% | | |
| Togo | France 24.8% | | |

| | Exportation | | |
| --- | --- | --- | --- |
| | U M O A | | B E A C |

| | | | |
| --- | --- | --- | --- |
| Benin | USA 20.1% | Cameroon | France 28.2% |
| Burkina-Faso | France 34.4% | Congo | USA 42% |
| Côte d'Ivoire | Holland 16.9% | Gabon | France 36% |
| Niger | France 80% | CAR | France 42.3% |
| Senegal | France 28.5% | Chad | France 25% |
| Togo | France 12.2% | | |

Source: computed by the authors; data from IFS, various issues.

## The total net gains from Franc Zone membership

The overall net benefits of a union membership go beyond the mere reserves saving minus interest and exchange rate costs. Indeed, coverage should be enlarged to include a wider evaluation of the costs and benefits that incorporate the net transfers. Because of free transferability within the Franc Zone, a great deal of currency movement occurs among countries. Unfortunately, scanty data make it difficult to assess quantitatively how much money circulates in the Zone. Moreover, huge unrecorded transfers are known to exist in the CFA Zone, especially between France and African members. According to a report in *Africa Analysis* (8 June 1990, p. 6), the French Treasury figures show a steep rise in CFA banknotes.

An estimated 446 CFAF billion were sent out of the Zone in 1988 alone, about 47% of the total issues. In the BEAC Zone, this outflow amounted to

77% (270 CFAF billion), while in UMOA, it was about 30% (176 CFAF billion). No matter how qualified the report sources are, it has become well-known that important capital flight does occur from CFA countries to France. The matter reached such an extent that it became more and more difficult to exchange CFA at French banks. CFA franc holders were directed to the Banque de France, and even some French commercial banks are charging a one per cent commission for converting CFA to French francs. The situation has worsened to the point that since 1991 only the Banque de France is allowed to convert CFAF into FF, with a 3% service charge. Commercial banks in France can no longer carry on such conversion operations. Thus, the CFAF is no longer freely convertible into FF. The point should be made that the official transfer records are at best only partial and an incomplete aspect of fund movements in the Zone.

Despite enormous difficulties, we were able to collect data on bank and postal transfers within UMOA and between UMOA countries and France. Using these data, we computed the gains of Franc Zone membership. Such gain is defined as the net gain by country from which we deduct the net transfers. Algebraically, we have:

$$UMGaini = NetGi - NetRi,$$

where

$UMGaini$ is the union membership gain;

$NetRi$ is the net transfers, the difference between the transfers received from and paid to other members;

$i$ is a given country.

From the above data, we computed the net transfers, as shown in Table 30. Data availability allowed us to compute net transfers for Benin only for the period 1978 until 1985, for Burkina Faso 1978-87, and for the other four countries, 1978-88. Table 30 presents the net transfers to all countries in UMOA. On average Burkina Faso, Côte d'Ivoire and Senegal benefited from positive net transfers. In other words, those three countries received more transfers from France and other UMOA members than they paid. Benin, Niger and Togo experience the reverse.

Our primary aim is to deduct the net transfers from the net gain we computed earlier to obtain the gains of CFA Zone membership.

$$UMGi = Netgi - NetRi,$$

where,

UMGi is the union membership gain for a given country given the net gain derived for the operations account;

Netgi is union membership total net gains (as below).

One can clearly observe that only Benin is benefiting from the Franc Zone membership. All other countries in the West African Monetary Union are actually losing from being a member, based on our data, and for the study period where data were available. On average, Côte d'Ivoire loses most, by about 177,567.47 CFAF million a year from 1978 to 1988. This is followed by Niger with 73,179.85 CFAF million net loss. Senegal is the third largest loser, with on average 46,593.88 CFAF million a year from 1978 to 1987, followed by Burkina Faso with 31,025.16 CFAF million. Togo loses least. Our results reveal that independent from the operations account position, most countries do not benefit from the CFA arrangement. This seems to reinforce our earlier findings. Furthermore, let us recall that the official data we used do not take into account the considerable unrecorded transfers of money within the Zone, especially between the African members and France. If one could add those data to the official data, one could easily speculate that it is highly likely that the membership loss would be higher (Table 31).

One of the main advantages of the CFA system is to allow member countries to have easy access to foreign capital, through borrowing. This stems from the strict monetary policy that prevents money printing as a way of financing the economy and instead uses foreign money, thus increasing the debt of member countries. It is therefore adequate to examine how the bedrock of the whole system, that is the operations account, relates to the external debt situation in CFA countries.

## Relationship between the operations account and debt

It is often argued that due to the existence of the FZ, and especially the scheme of the operations account, CFA countries borrow easily abroad and hence increase external debt.

Tables 32 and 33 show the evolution of these two sets of data as well as the ratio of debt to the balance of the operations account. Data on debt were available only for 1980-87. The ratios of debt to the operation is RDCOi. These ratios show that debt is several times the balance of the operations account. The ratios are highest in UMOA for Côte d'Ivoire and Senegal. For BEAC, Cameroon and Gabon have the highest ratios.

**Table 30**   The state and the evolution of net transfers in UMOA countries (CFAF million)

| Year | Benin | Burkina-Faso | Côte d'Ivoire | Niger | Senegal | Togo |
|---|---|---|---|---|---|---|
| 1978 | -35093.90 | -34039.60 | 90709.30 | -9342.40 | 5237.80 | 5459.30 |
| 1979 | -47254.50 | -35406.10 | 783730.0 | -629.00 | -3113.70 | 1172.00 |
| 1980 | -43085.40 | -45529.60 | 62535.50 | -34937.30 | -14769.10 | -1486.30 |
| 1981 | -45215.30 | -47349.30 | 68490.80 | -32114.10 | -27394.00 | 11759.60 |
| 1982 | -53018.60 | -62117.40 | 113918.80 | -42261.80 | -35373.30 | 15584.30 |
| 1983 | -59797.10 | -67260.40 | -8096.20 | -17351.40 | -33569.70 | -43896.60 |
| 1984 | -62669.00 | -60973.50 | 208488.70 | -140169.00 | 7069.89 | -14007.10 |
| 1985 | -66416.01 | -65034.70 | 2016034.90 | -4966.40 | 10825.80 | -77003.90 |
| 1986 | NA | -45379.50 | 88984.80 | 18662.30 | 49660.40 | -82447.20 |
| 1987 | NA | -37500.40 | 63064.10 | 13396.60 | 92842.10 | -71285.60 |
| 1988 | NA | NA | 113173.40 | 9670.20 | 108175.40 | -109107.4 |
| Mean | -51568.7 | -2135.65 | 162418.46 | -21824.02 | 14516.50 | -33205.35 |

Source: computed by the authors; data from BCEAO publications, Statistiques monétaires, various issues.

**Table 30**   The state and the evolution of net transfers in UMOA countries (CFAF million)

| Year | Benin | Burkina-Faso | Côte d'Ivoire | Niger | Senegal | Togo |
|---|---|---|---|---|---|---|
| 1978 | -35093.90 | -34039.60 | 90709.30 | -9342.40 | 5237.80 | 5459.30 |
| 1979 | -47254.50 | -35406.10 | 783730.0 | -629.00 | -3113.70 | 1172.00 |
| 1980 | -43085.40 | -45529.60 | 62535.50 | -34937.30 | -14769.10 | -1486.30 |
| 1981 | -45215.30 | -47349.30 | 68490.80 | -32114.10 | -27394.00 | 11759.60 |
| 1982 | -53018.60 | -62117.40 | 113918.80 | -42261.80 | -35373.30 | 15584.30 |
| 1983 | -59797.10 | -67260.40 | -8096.20 | -17351.40 | -33569.70 | -43896.60 |
| 1984 | -62669.00 | -60973.50 | 208488.70 | -140169.00 | 7069.89 | -14007.10 |
| 1985 | -66416.01 | -65034.70 | 2016034.90 | -4966.40 | 10825.80 | -77003.90 |
| 1986 | NA | -45379.50 | 88984.80 | 18662.30 | 49660.40 | -82447.20 |
| 1987 | NA | -37500.40 | 63064.10 | 13396.60 | 92842.10 | -71285.60 |
| 1988 | NA | NA | 113173.40 | 9670.20 | 108175.40 | -109107.4 |
| Mean | -51568.7 | -2135.65 | 162418.46 | -21824.02 | 14516.50 | -33205.35 |

Source: computed by the authors; data from BCEAO publications, *Statistiques monétaires*, various issues.

$$UMGi = Netgi - Netli,$$

where,

UMGi is the union membership gain for a given country given the net gain derived for the operations account;

Netgi is union membership...

One can clearly observe that countries benefiting from the Franc Zone membership are either winners in the West African Monetary Union, or actually losers from being a member, based on our data, and for the study period when data from all... Côte d'Ivoire loses most, by about 177,567.47 CFAF million a year from 1978 to 1987. This is followed by Niger with 73,179.85... Senegal is the third largest loser, with an average 46,593.88 CFAF million a year from 1978 to 1987, followed by Burkina Faso with 31,025.16 CFAF million...

| Table 31 | The state and the evolution of union membership gains in UMOA countries (CFAF million) | | | | | |
|---|---|---|---|---|---|---|
| Year | Benin | Burkina-Faso | Côte d'Ivoire | Niger | Senegal | Togo |
| 1978 | 34365.29 | 46513.40 | -1781177.5 | -17536.98 | -20311.78 | -5239.64 |
| 1979 | 34480.94 | 23372.49 | -822766.10 | -75054.02 | -52018.41 | -17852.87 |
| 1980 | 55238.28 | 39465.73 | 253183.70 | -492629.10 | 78518.38 | -8264.621 |
| 1981 | 1660.699 | -33062.86 | 210470.40 | -63738.31 | 117995.30 | -164807.50 |
| 1982 | 44048.97 | 7172.969 | -327390.60 | 4314.051 | -45529.33 | -72488.17 |
| 1983 | 10897.18 | 32014.14 | -598871.0 | -8573.139 | -171939.40 | 79556.52 |
| 1984 | 51288.34 | -512706.10 | -238010.30 | 99494.69 | -31517.79 | -69976.78 |
| 1985 | 380.63 | 65013.32 | -239827.70 | 3316.191 | -123809.50 | 81694.88 |
| 1986 | NA | 38642.60 | -90777.15 | -26805.50 | -94680.20 | 71954.17 |
| 1987 | NA | -16677.34 | -81415.84 | -56307.98 | -123007.50 | 12965.82 |
| 1988 | NA | NA | 160339.90 | -171458.30 | -46232.46 | -76884.20 |
| Mean | 33759.04 | -31025.16 | -177567.47 | -73179.85 | -46593.88 | -15394.76 |

Source: computed by the authors; data source as in Table 35.

## Relationship between the operations account and debt

It is often argued that membership of the Franc Zone, especially the scheme of the operations account, gave countries bad or underdeveloped and hence increased external debt.

Tables 32 and 33 provide the ratio of... as well as the ratio of debt to the balance of the operations account... The ratios of debt to the operations account... These ratios show that debt is several times the balance of the operations account. The ratios are highest in UMOA for Côte d'Ivoire and Senegal. For BEAC, Cameroon and Gabon have the highest ratios.

The figures in Table 34 and 35 give mixed signals. In UMOA, Benin and Senegal have negative correlation coefficient between debt and the operations account, That is, the operations account and debt move in opposite directions. Benin has the strongest association (-0.84) between debt and the operations account.

Burkina Faso, Côte d'Ivoire, Niger and Togo have on the contrary positive coefficients. That is debt moves along with the operations account. It is striking that the three countries that held positive operations accounts are precisely those with high correlation coefficients. This lends credence to the observation that the existence of the operations account with positive balance allows CFA countries greater indebtedness. This does not imply a causal relationship between the operations account and debt, but rather some degree of association between the two variables. For these countries, the high correlation coefficients mean that the evolution of the operations account contributes to a large extent to the debt situation. That is the reason why these countries continue to add to the pooled reserves while at the same time they borrow from the IMF and from the World Bank. In fact, the cash advances made under the operations account do not constitute a financing fund but only temporary budgetary relief. For instance for investment projects in phosphates, Togo prefers to borrow at the international institutions where technical assistance is provided. This is valid for other CFA countries: French Treasury cash advances are used mainly for budgetary purposes (to pay civil servants for instance) while borrowing from international financial institutions is geared towards investment projects. Since the IMF and the World Bank provide feasibility studies and technical assistance, CFA countries turn to these investment funds.

The case of Côte d'Ivoire is rather peculiar; indeed, that country has a positive correlation coefficient despite a negative operations account since 1980 during our study period. However, the coefficient is relatively low (0.42); this indicates that the evolution of the operations account does not explain fully the increase of the Ivorian debt.

For BEAC countries, Cameroon, Congo and Gabon have negative correlation coefficients and Central African Republic and Chad have positive coefficients. For Congo, the evolution of the operations account explains to a large degree the level of the debt.

But beyond the issue of total net membership gains, the question arises as to whether the CFA Zone is an optimum currency area. Section III provides some tentative theoretical answers.

**Table 32** Operations account (CO) and debt (DBT) in UMOA (CFAF million)

| Year | CO Benin | DBT Benin | CO Burkina-Faso | DBT Burkina-Faso | CO Côte d'Ivoire | DBT Côte d'Ivoire | CO Togo | DBT Togo |
|---|---|---|---|---|---|---|---|---|
| 1980 | -4189.200 | 57299.14 | 10676.60 | 63341.74 | -96488.50 | 918856.7 | 13938.20 | 195117.1 |
| 1981 | 14814.50 | 98855.38 | 15277.90 | 83448.29 | -168591.4 | 1194253 | 40828.20 | 233497.6 |
| 1982 | -952.8000 | 183660.1 | 12053.60 | 114027.7 | -184086.4 | 1625962 | 53243.30 | 270577.5 |
| 1983 | -15879.90 | 234275.7 | 23454.50 | 151814.3 | -241501.9 | 1838233 | 73370.40 | 306867.6 |
| 1984 | -19557.70 | 313038.2 | 44666.70 | 205240.1 | -179044.6 | 3193741 | 96122.30 | 386338.2 |
| 1985 | -23521.30 | 367494.7 | 46912.40 | 243029.7 | -65358.10 | 4400053 | 111682.6 | 432637.4 |
| 1986 | -23617.60 | 326560.9 | 69818.60 | 232713.6 | -85987.20 | 3885486 | 106879.7 | 368809.5 |
| 1987 | -33077.20 | 317069.7 | 80946.30 | 260267.6 | -156522.6 | 4089749 | 94517.90 | 371166.9 |

| Year | CO Niger | DBT Niger | CO Senegal | DBT Senegal |
|---|---|---|---|---|
| 1980 | 21476.6 | 84258.46 | -28189.20 | 189095.6 |
| 1981 | 25185.60 | 164415.1 | -59660.20 | 262219.5 |
| 1982 | 5621.900 | 197396.0 | -65002.40 | 371329.3 |
| 1983 | 15313.30 | 240448.9 | -78835.70 | 570065.8 |
| 1984 | 36694.50 | 401784.7 | -52642.20 | 853164.4 |
| 1985 | 47473.90 | 542706.1 | -93239.30 | 1082267. |
| 1986 | 56957.00 | 501096.1 | -51852.50 | 1040631. |
| 1987 | 62783.90 | 509715.8 | -48972.90 | 1115304. |

Table 32 cont ...

| Year | Ratio* Benin | Ratio* Burkina-Faso | Ratio* Côte d'Ivoire | Ratio* Niger | Ratio* Senegal | Ratio* Togo |
|---|---|---|---|---|---|---|
| 1980 | -1367.782 | 593.2763 | -952.296 | 392.3200 | -670.8087 | 1399.873 |
| 1981 | 667.2880 | 546.2026 | -708.371 | 652.4169 | -439.5217 | 571.9028 |
| 1982 | -19275.83 | 946.0054 | -883.2602 | 3511.197 | -571.2548 | 508.1907 |
| 1983 | -1475.297 | 647.2715 | -761.1671 | 1570.197 | -723.1061 | 418.1444 |
| 1984 | -1600.588 | 459.4924 | -1783.768 | 1094.945 | -1620.685 | 401.9236 |
| 1985 | -1562.391 | 518.0927 | -6732.223 | 1143.167 | -1160.741 | 387.3812 |
| 1986 | -1382.702 | 333.3117 | -4518.679 | 879.7797 | -2006.906 | 345.0697 |
| 1987 | -958.5748 | 321.5312 | -2612.881 | 811.8575 | -2277.390 | 392.6948 |

Note: *Ratio of debt (DBT) to operations account (CO).
Source: Computed by the authors.

**Table 33** Operations account (CO) and debt (DBT) in BEAC (CFAF million)

| Year | CO Cameroon | DBT Cameroon | CO Congo | DBT Congo | CO Gabon | DBT Gabon |
|---|---|---|---|---|---|---|
| 1980 | 38079.00 | NA | 19153.00 | 239169.0 | 22424.00 | 286495.7 |
| 1981 | 17320.00 | NA | 33961.00 | 346184.0 | 54782.00 | 283414.4 |
| 1982 | 10502.00 | 118628.2 | 10449.00 | 498501.3 | 104352.0 | 285890.7 |
| 1983 | 60162.00 | 202342.9 | 974.00 | 566636.2 | 74410.00 | 277792.8 |
| 1984 | 20461.00 | 758344.1 | -23676.00 | 976605.6 | 92271.00 | 309804.6 |
| 1985 | 47114.00 | 1320824. | -17033.00 | 1340143. | 71290.00 | 541358.3 |
| 1986 | 12569.00 | 1284773. | -27423.00 | 1306936. | 33588.00 | 684288.8 |
| 1987 | -118825.0 | 1213881. | -18804.00 | 1540268. | -16462.00 | 766076.5 |

| Year | CO CAR | DBT CAR | CO Chad | DBT Chad |
|---|---|---|---|---|
| 1980 | 12403.00 | 31163.80 | -7155.000 | 42699.69 |
| 1981 | 19823.00 | 52090.64 | -1218.000 | 47824.48 |
| 1982 | 14913.00 | 69763.90 | 2002.000 | 45873.96 |
| 1983 | 18273.00 | 81927.90 | 9126.00 | 49118.63 |
| 1984 | 23920.00 | 100238.6 | 20641.00 | 68122.06 |
| 1985 | 17863.00 | 156342.5 | 10742.00 | 82214.58 |
| 1986 | 20345.00 | 162414.7 | 5281.000 | 81380.50 |
| 1987 | 18943.00 | 188739.1 | 14523.00 | 95571.73 |

**Table 33** cont ...

| Year | Ratio* Cameroon | Ratio* Congo | Ratio* Gabon | Ratio* CAR | Ratio* Chad |
|------|-----------------|--------------|--------------|------------|-------------|
| 1980 | NA | 1248.729 | 1277.630 | 251.2602 | -596.7811 |
| 1981 | NA | 1019.357 | 517.3495 | 262.7788 | -3926.476 |
| 1982 | 1129.577 | 4770.804 | 273.9676 | 467.8059 | 2291.407 |
| 1983 | 336.3301 | 58176.20 | 373.3273 | 448.3550 | 538.2274 |
| 1984 | 3706.291 | -4124.876 | 335.7551 | 419.0577 | 330.0328 |
| 1985 | 2803.464 | -7867.921 | 759.3648 | 875.2309 | 765.3563 |
| 1986 | 10221.76 | -4765.839 | 2037.302 | 798.3028 | 1541.005 |
| 1987 | -1021.570 | -9191.172 | -4653.606 | 996.3527 | 658.0715 |

Note: *Ratio of debt (DBT) to operations account (CO).
Source: computed by the authors.

**Table 34** Correlation coefficients between debt and the operations account in UMOA by country

| | |
|---|---|
| Benin | -0.84 |
| Burkina-Faso | 0.92 |
| Côte d'Ivoire | 0.42 |
| Niger | 0.86 |
| Senegal | -0.313 |
| Togo | 0.97 |

Source: computed by the authors.

**Table 35** Correlation coefficients between debt and the operations account in BEAC by country

| | |
|---|---|
| Cameroon | -0.35 |
| Congo | -0.88 |
| Gabon | -0.66 |
| CAR | 0.42 |
| Chad | 0.64 |

Source: computed by the authors.

# III Is the Franc Zone an optimum currency area?

Two main features characterize a monetary integration system. First, exchange rates in the integrated area must have a permanent fixed relationship to each other, although they may vary jointly with respect to other currencies. Second, full convertibility must exist in the sense that there are no exchange controls on either current or capital transactions within the area. For these two features to be satisfied, two other requirements are necessary:

- The use of monetary policy must cover the community as a whole. Such policy must be carried out solely by the monetary authority. Hence, member states have no autonomy in monetary policy. This implies that any member's budget deficit will be financed in the capital market.
- Any change in the rate of exchange between an external currency and the currencies of the union must be uniform, as is the case in the FZ.

Consequently, the responsibility for exchange rate policy, with other currencies and for the balance of payments of the union community with the rest of the world, must also be assigned to the community and its monetary authority must control the pool of exchange reserves. There would exist within the union a single currency even if differently denominated currencies co-existed, as in the Belgo-Luxembourg case. Whether such union is desirable is a question which naturally arises. This leads directly to the problems related to the theory of optimum currency areas, to which we now turn.

## Mundell's analysis of optimum currency area theory

Mundell's initial (1961) contribution to this theory considered the costs and benefits of common currencies, and consequently the relative desirability of fixed versus flexible exchange rates.

## A definition of an optimum currency area

An optimum currency area is an area composed of several countries which has a single currency regime, or a fixed exchange rate system with guaranteed convertibility of currencies. In the ideal case, optimality is achieved by three objectives:

1. The maintenance of low unemployment;
2. The maintenance of balanced international payments;
3. The maintenance of a stable international average price level, following from the flexible exchange rate.

These objectives often conflict, which makes optimality both complex and difficult to quantify precisely.

The optimal monetary area assumes perfect factor mobility within the area, co-ordinated economic policies, and a central monetary authority in order to achieve an equalization of interest rates within the area. Between the zones, factors of production are assumed immobile.

In the case of countries each having their own currency, as in the EEC, monetary unification must be achieved progressively through a system of fixed exchange rates between national currencies before the creation of a unique currency.

Mundell's initial model for the theory of optimum currency area is summarised in Table 36. Consider two regions, A and B, at an initial equilibrium state. Suppose an external shock or disturbance occurs in the presence of nominal rigidities (Mundell, 1961; McKinnon, 1963). Mundell argued that if factors of production are downwardly immobile, rigidity of nominal prices would in general make exchange rate flexibility preferable. Hence, an external shock, such as a shift in demand, will cause a disequilibrium in the goods and in the labour markets if prices and/or wages are rigid.

## Implications of optimum currency area theory

Since Region A and Region B have different national currencies, the adjustment process resulting from the shock will depend upon the exchange rate system that exists between the two countries. Under a flexible exchange rate regime, a depreciation of Region B's currency relative to Region A will make Region B's goods more competitive and ease its unemployment. As Region B's goods are demanded, demand for Region A's will fall, and

inflation will decrease. Under a fixed exchange rate, as in the FZ, the entire burden of the adjustment process, a reduction in real income, output and employment, will be borne by Region B if Region A succeeds in preventing a rise in prices through maintaining competitiveness.

**Table 36**      Mundell's model of the theory of optimum currency areas

|     | Region B | Region A |
| --- | --- | --- |
| 1.  | Initial state of equilibrium (internal and external). | Initial state of equilibrium (internal and external). |
| 2.  | An exogenous shock occurs: demand shifts from goods from Region B to those of Region A. | An exogenous shock occurs. |
| 3.  | Region B has its own currency. | Region A has its own currency. |
| 4.  | A shift away from Region B causes demand to fall, *ceteris paribus*. | Demand in Region A will increase. |
| 5.  | Fewer workers are used in Region B as a result of reduced demand. If there is factor immobility, this implies high unemployment. | Demand increases, leading to inflationary pressures in Region A. There is a surplus in the balance of payments. |

If we contrast this with the scenario where Regions A and B do not correspond with natural boundaries, exchange rate tools cannot be used. As a result of the demand shift towards Region A's good, a paradox will emerge that if the monetary authorities attempt to reduce unemployment in B, inflation will increase in the prosperous Region A, by increasing demand for Region A's goods in Region B. If inflation is controlled in Region A by restrictive monetary policies, unemployment will increase in Region B. Mundell (1961, p.658) defines this situation as 'areas within each of which there is factor mobility, but between which there is factor immobility'. Hence the objectives:

> ... of price stability and full employment are compatible if, and only if, each region has its own currency and can use its exchange rate to offset demand shifts or, alternatively, factors are mobile between

regions in an optimum currency area, but immobile among currency areas. (Bhatia, 1985, p.2)

The optimum currency area has both advantages and disadvantages. According to some economists, monetary integration is a dynamic and evolutionary process. Membership of a monetary union cannot be purely assessed against the objectives of price stability, full employment and balance of payments equilibrium. Other non-quantifiable elements need to be considered.

## Advantages of an optimum currency area

Four advantages are usually cited in the literature.

1. As a universal medium of payment, a common currency lowers transaction costs between currencies. The larger the area where the common currency is used, the better the common currency satisfies its functions as a medium of exchange, a unit of account, and a store of value. The common currency allows economies of scale, and leads to relative economic efficiency by integration.
2. The monetary area eliminates speculative capital movements between nations. Indeed, exchange rate variation between a monetary area and the rest of the world would become less important and less frequent.
3. Member countries would realize savings of exchange reserves in the context of intra-regional trade on the one hand, and *vis-à-vis* other countries, if reserve needs are mutually satisfied and if reserves are pooled, on the other.
4. Monetary integration could also lead to accelerated fiscal integration, but this seems rather difficult to achieve.

## Disadvantages of an optimum currency area

There are three major drawbacks to the welfare effects of a monetary union.

1. The most important and sensitive disadvantage is the reduction of national monetary sovereignty. A given country cannot use independent monetary policy to affect the levels of inflation and employment. Hence, if development levels differ between countries, the least developed will still continue to suffer from unemployment and economic depression, while the most advanced will suffer from inflation. Fiscal policies prove powerless to tackle unemployment.

2. If the level of development differs among member states, as is likely, the optimum currency area could put the economy on a higher Phillips curve. This is so because the optimum currency zone could worsen inflation in the most advanced countries, or those with surplus economies, and worsen unemployment in deficit economies.
3. A result of the first two disadvantages is a possible deterioration of the least developed economies, because of the capital accumulation in the more advanced countries.

## Criticisms of Mundell's theory of the optimum currency area

Mundell's work on the optimum currency zone has been criticized on several grounds. First, his definition of an optimum currency area is based on the hypothesis of factor mobility. But as Fleming (1971) pointed out, capital mobility does not always lead to equilibrium. Indeed, Fleming distinguishes labour mobility from capital mobility. For him, capital mobility as a condition of monetary unification depended on three factors: the nature of the disequilibrium, the sensibility of investment to economic activity, and the period of adjustment of the balance of payments. Following a shift in the demand from one country to another, under a fixed exchange rate, the incentives to invest decline in the first set of countries, and increase in the second. In addition, if the incentives to invest decline faster than those of savings in the first set of countries, and are greater in the second set, the outcome would be the aggravation of under-employment in the first set of countries, and a worsening of inflation in the second. Hence capital mobility would worsen internal disequilibrium.

Second, others, including Ishiyama (1975) and Scitovsky (1967) are not convinced that labour mobility is a balance-of-payments adjustment mechanism. Even if labour mobility does prevail, there are economic and physical moving costs that make labour a quasi-fixed factor (Oi, 1962), even within a currency area. Ishiyama (1975, p.349) wrote:

> Labour mobility is an inadequate substitute for more conventional payments adjustments, demand management and exchange rate variation.

Third, authors such as McKinnon (1963), believe that other criteria should also be considered for an optimum currency area. McKinnon specifically suggested that the degree of openness should be a criterion for optimality. He defined economic openness in terms of the proportion of production of tradables out

of the total production of the economy. In a largely open economy, a system of flexible exchange rates between those of the currency area and the rest of the world is incompatible with internal price stability. Two cases can be considered, the case where there is an elastic foreign supply of, and demand for, goods, and the case of an absence of monetary direction.

In the first case, when an open economy manipulates the external value of its currency to adjust the balance-of-payment imbalance following a shift in demand, the result will be a price variation greater than in a relatively closed economy. If governments pursue the objective of price stability in a larger open economy at full employment, a reduction of internal demand is required to improve the balance of payments, and accordingly, a substantial increase in internal taxes becomes necessary. McKinnon concluded that a flexible exchange rate is inefficient in correcting the balance of payments in a largely open economy. In the second case, McKinnon claims that the economic agents will refuse any variation in their wages linked to a price index that does not incorporate the unit value of imports, especially in an economy with a large share of imports in total consumption. The income effects of exchange rate variation will become evident to the agents.

However, McKinnon's model also revealed some weaknesses, as pointed out by Corden (1973). According to Corden, Mundell's theory is based upon two hypotheses, changes in the microeconomic conditions of supply and demand requiring balance-of-payments adjustment, and price stability in the rest of the world. Hence, if balance of payments disequilibrium stemmed from macroeconomic distortions, Corden posits that flexible exchange rates are necessary to restore balance-of-payments equilibrium.

A further criterion for achieving an optimum currency area has been the diversification of production, as outlined by Kenen (1969). According to Kenen, a country with a diversified economy would be more resistant to external shocks that a less diversified one. Such a country could use the fixed exchange rates to adjust its balance of payments. Flexible rates are necessary for less diversified economies. Hence, small countries with less diversified economies do not constitute optimum monetary areas.

There appears to be a contradiction between Kenen's and McKinnon's conclusions. For McKinnon, the more diversified the economy, the smaller its foreign sector. If this country uses fixed rates, as suggested by Kenen, fiscal and monetary policies must be used to correct for external disequilibrium. Ingram (1969) adds the criterion of the degree of financial integration to the conditions of optimum currency areas. Ingram claims that the size of the optimum monetary zone must be determined by the financial characteristics of the economy. This differs from the analysis made by Mundell, McKinnon and Kenen, which emphasized the real aspects of the economy. Ingram employed

a high degree of international financial integration for both short and long-term securities as a criterion for an optimum currency area. Fleming (1971) stressed that capital mobility is dependent upon many factors, as reviewed under Mundell's model. Moreover, surplus economies would not be willing to lend indefinitely to those in deficit. Hence, one must distinguish between financing a deficit to correct for payments disequilibrium, and to finance such disequilibrium.

Similarly, the rate of inflation is a further criterion to be considered. This has been put forward by Haberler (1970) and Fleming (1971). According to these authors, balance-of-payments disequilibrium is due to divergent evolution of inflation rates. This is an important point since Britain is making a levelling-off of inflation rates within the EEC a condition for entering the EMS.

Finally, Haberler (1970), Ingram (1969), and Tower and Willett (1970) stress that it is not so much economic characteristics as the similarity of policy attitudes of member countries that is relevant in making a group of countries a successful currency area, although they were vague about the content of 'policy integration'. Tower and Willett (1970, p.411) write:

> Perhaps of primary importance for a successful currency area with a less than perfect internal adjustment mechanism is that there be a reasonable degree of compatibility between the member countries' attributes toward growth of inflation and unemployment and their abilities to trade off between these objectives. A nation with a low tolerance for unemployment ... and price pressures from concentrated industries, would make a poor partner for a country with a low tolerance of inflation and high productivity growth, making for a very favourable 'Phillips Curve'.

This policy integration criterion is similar in approach to the inflation rate criterion, but it involves diverse elements, and it not very homogenous.

## Theory and the Franc Zone

How do these theories apply to CFA countries? In the Franc Zone there exists a unique currency, one of the key criteria of an optimum currency area. However, other criteria do not seem to be satisfied.

First, all the economies of the Zone are far from achieving full employment. In fact, they are experiencing high and worsening unemployment, resulting from various structural adjustment programmes. Second, relative price stability

and low inflation prevail in the Zone, but price stability is due to stringent discipline from the FZ rather than to a flexible exchange rate. Third, while labour mobility does exist between the two zones, such mobility is far from perfect. In fact, labour mobility is not solely motivated by economic incentives, but also by social ties among ethnic groups across artificial borders inherited from colonization.

Finally, regarding the openness of the economy as defined by McKinnon, who uses the proportion of tradables out of the total production of the economy, one can say that in most of these mono (or two) crop economies such proportions are low. Accordingly, the Franc Zone does not appear to fulfil the main criteria of an optimal currency area, despite the uniqueness of its currency.

Despite immediately non-quantifiable benefits such as monetary stability and greater disposition to regional integration, CFA countries do not derive total net gains overall from membership of the Zone. Moreover, following the December 1991 Maastricht accord, the issue of a single European currency has emerged. It is highly likely that European national currencies, including the French franc, will no longer exist. However, according to French officials, the disappearance of the French franc does not imply the end of the FZ. The problem remains to assess how the Zone will adjust to the new environment. It is therefore timely to search for alternative scenarios for the CFA franc. This is the object of Phase II of this research.

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