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**Economic Fundamentals and Theories Relevant to Optimal Currency Unions
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**Economic Fundamentals and Theories Relevant to Currency Zones**

1. **Introduction: Proposed Currency Unions in Africa**

Proposals for monetary unions have been advanced in many regions of the world. Most plans have come to naught, however.

The CFA zone (Communauté Financière d’Afrique) is relatively unusual in having successfully maintained a common currency for a long time among a moderately large number of sovereign countries (since before independence in 1960, for most of its members). Its two currency unions currently comprise eight countries in West Africa and six in Central Africa, respectively named the West African Economic and Monetary Union, or UEMOA, and the Bank of the Central African States, or BEAC. Another successful case is the Common Monetary Area (CMA), a long-standing exchange rate union that includes South Africa, Lesotho, Namibia and Swaziland.

In 1987 the leaders of the full set of West African countries in ECOWAS (the Economic Community of West African States), including both the West African members of CFA (UEMOA) and non-members, adopted a program to move forward with plans for monetary union in 2000. That target date has been repeatedly postponed, partly because the member economies were not judged to have achieved established criteria for an optimal currency area. At the same time, six non-CFA West African countries belong to WAMZ (the planned West African Monetary Zone) which was formed in 2000 to pursue a common currency, the eco, on the road to that eventual monetary integration with the UEMOA countries. Its start date, however, originally set for 2003, has again been repeatedly postponed.

Monetary unions have also been proposed over the years in East Africa and Southern Africa (COMESA and SADC, respectively). They too have made little progress. But the Abuja Treaty of 1991 calls for establishing a pan-continental African Central Bank and single currency by 2028, with the sub-continental monetary areas as building blocks or stepping stones.

The same pattern – bold decisions by political leaders to commit to monetary integration, followed by repeated postponement – is evident in other parts of the world. For example, the members of the Gulf Cooperation Council have not followed through on their 2003 decision to adopt a monetary union by 2010.

Meanwhile in Europe, 11 countries did eventually follow through with historic plans to adopt a common currency in 1999, the euro, joined by an additional 8 others subsequently. They judged themselves to have satisfied a set of criteria agreed at Maastricht in 1991. Some economists were skeptical.[[1]](#footnote-1) For the first 10 years, the euro seemed to have proven the skeptics wrong. Its success helped inspire other regional country groups to consider following suit. Conversely, when the euro lost its luster – due to the crisis that erupted in Greece in 2010 and spread to other euro members – the highly visible European troubles took some of the wind out of the sails for other regional groupings with aspirations for monetary integration. Nevertheless, the eurozone has survived the crisis, at least in the sense that no countries have dropped out. At a minimum, the first 20 years of experience with the euro contain some useful lessons for other regional groups of countries contemplating monetary integration.

 Perhaps momentum is returning to efforts at regional integration in Africa. In March 2018, 44 African leaders signed an agreement for the African Continental Free Trade Area.[[2]](#footnote-2) It is a good time to re-examine whether it is desirable for one or more groups of African countries to join in larger currency areas.

This first installment in a series of memos will not deal with the specifics of Africa.[[3]](#footnote-3) Rather it will survey the relevant economic fundamentals and theories. The concepts that are developed in this memo will be applied in later memos both to the question of whether subsets of African states should join in currency unions and the question of the external currency policy to be followed by those unions.

 We begin this first memo by considering in turn three advantages of arrangements for firmly fixed exchange rates – in the limit arrangements for a currency union -- followed by three advantages of flexible rates. Only then we will consider how to go about weighing up the pros and cons and making the decision for a given country or group of countries.

Some commentators talk as if an institutionally fixed exchange rate is right for all countries, others as if floating suits all, and still others as if a target zone is always the answer.[[4]](#footnote-4) But a more judicious approach recognizes that different regimes will suit different countries. The overall judgment of what regime is best will depend on the circumstances of the country or countries in question.[[5]](#footnote-5) That principle will lead us to the framework of the optimum currency area.[[6]](#footnote-6)

1. **Advantages of fixed exchange rates**

We first consider three major advantages of fixing the exchange rate. They are: (i) avoiding competitive devaluation or “currency wars,” (ii) providing a nominal anchor to monetary policy, and (iii) facilitating international trade and investment.

* 1. Avoid competitive devaluation

One advantage of fixed exchange rates is that they prevent competitive devaluation. Competitive devaluation can be viewed as an inferior “Nash noncooperative equilibrium,” where each country tries in vain to win a trade advantage over its neighbors. In such a framework, fixing exchange rates can be an efficient institution for achieving the cooperative solution.

The architects of the Bretton Woods system, who agreed that countries should fix their exchange rates after World War II, thought about the problem in terms of the “beggar thy neighbor” policies of the interwar period , when France, the US, and Britain each in turn had devalued In the Latin American debt crisis of the 1980s and again in the East Asia crisis of 1997-98, neighboring countries in balance of payments difficulty would devalue, but would find that the stimulus to their trade balances was less than it would have been if each had devalued on its own. Some argue that avoiding competitive depreciation was a motivation for European Economic and Monetary Union and the introduction of the euro in 1999.[[7]](#footnote-7) More recently the issue has reappeared, phrased by Brazilian leaders in 2010 as “currency wars”: some governments complained that the exchange rate implications of quantitative easing by others unfairly undercut their trade competitiveness.

* 1. The exchange rate as a nominal anchor for monetary policy

 Fixed exchange rates, which had been abandoned by many countries in the decade after the 1971-1973 break-up of the Bretton Woods system, made something of a comeback in the following decade. From Bolivia in 1985 to Brazil in 1994, countries that had fallen into high-inflation traps succeeded in escaping them only when their stabilization programs included a visible commitment to a target for the exchange rate. The academic argument for such a nominal anchor for monetary policy is that there can be an inflationary bias when monetary policy is set by governments with full discretion.[[8]](#footnote-8) A central bank that wants to fight inflation can commit more credibly by fixing the exchange rate, or even giving up its currency altogether. Workers, firm managers, and others who set wages and prices then perceive that inflation will be low in the future because the currency peg will prevent the central bank from expanding even if it wanted to. When workers and firm managers have low expectations of inflation, they set their wages and prices accordingly. The result is that the country is able to attain a lower level of inflation for any given level of output.

 The argument assumes that the currency to which the domestic country is considering pegging is itself stable. For countries in Latin American and the Caribbean, the currency in question is usually the US dollar; for those in Europe and Africa, it is more likely to be the euro (since 1999; the deutschemark or French franc before 1999).[[9]](#footnote-9)

 The strength of the argument for basing monetary policy on an exchange rate target will also depend in part on what alternative nominal anchors might be available. Standard candidates besides the exchange rate include the money supply, inflation, the price level, and nominal GDP.

In the context of the 1980s or 1990s, it seemed obvious that the long-term objective of assuring price stability meant getting the inflation rate down from the high levels it had attained in the 1970s. It must be noted that among advanced countries in recent years, the objective of monetary policy has been to get the inflation rate *up* (often to two percent), in order to complete the recovery from the Great Recession of 2008-09. But in most developing countries today, the price stability objective probably still means getting the inflation rate down and keeping it down.

* 1. Facilitating trade

Another leading argument in favor of fixed exchange rates is encouragement of international trade. When countries use different currencies it acts as a barrier to trade. For one thing, exchange rate variability creates uncertainty; this risk in turn discourages imports and exports. Furthermore, dealing in multiple currencies incurs transactions costs. Fixing the exchange rate in terms of a large neighbor eliminates exchange rate risk, and so encourages international trade, at least with that neighbor. Going one step farther and actually adopting the neighbor's currency as one's own eliminates transactions costs as well and thus promotes trade even more.

Similar arguments have been made regarding international investment: exchange rate risk and currency transactions costs act as barriers to cross-border asset trade and banking flows. Thus eliminating them by fixing the exchange rate, or going all the way to a common currency, promotes financial integration.

 Academic economists traditionally tended to be skeptical of the claimed trade-promoting effects of fixed exchange rates,[[10]](#footnote-10) for three reasons. First, in theory, exchange rate uncertainty is merely the symptom of variability in economic fundamentals: if it is suppressed in the foreign exchange market it will show up somewhere else, in particular in the variability of goods prices. Second, in theory, anyone adversely affected by exchange rate variability — importers, exporters, borrowers, lenders — can hedge away the risk, using forward markets or other derivative markets. Third, empirically, it used to be difficult statistically to discern an adverse effect from increased exchange rate volatility on trade.

Each of these three arguments can be rebutted, however. To begin with, some exchange rate changes appear to be unrelated to changes in macroeconomic fundamentals and appear to be the cause rather than the result of real exchange rate variability.[[11]](#footnote-11) Some of the volatility of floating exchange rates might be due to speculative bubbles and therefore might be unnecessary. Secondly, many smaller currencies, such as most of those in Africa, have no derivative markets. Even where such markets exist, they may charge substantial costs for hedging which limit their actual use (transactions costs plus the exchange risk premium). Thin trading is especially a problem for small and developing countries. But even major currencies do not have forward markets at every horizon that an importer or exporter might need. Finally, econometric studies of the last 20 years, based on large cross sections that include many small developing countries, have found stronger evidence of a negative effect of exchange rate variability on trade.

The best econometric evidence is drawn from the gravity model of bilateral trade, where far more data are available than when looking at countries’ levels of overall trade. This research has been able to find not only that reducing exchange rate variability to zero has a highly significant effect on trade (though modest quantitatively), but that institutional fixes such as currency boards or dollarization have a distinctly bigger effect, and currency unions have the biggest effect of all.

Most famously, Rose (2000) found that two members of a common currency area tend to trade as much as three times more with each other, compared to an otherwise similarly situated pair of countries. His data set was big enough to include trade among members of such currency unions as the CFA franc zone, the East Caribbean Currency area, and the southern Africa rand zone. Using a time series sample (1948–1997) that included a number of countries which left currency unions, Glick and Rose (2002) found that trade among the members was twice as high in the currency union period as afterward.

Frankel and Rose (2002) found that for each 1 per cent in openness (trade/GDP) resulting from a common currency, GDP goes up by 1/3 of a percent. For example, Nigeria’s trade/GDP ratio in 1995 was .30; 34% of this was bilateral trade with the eurozone, implying that adopting the euro would raise Nigeria’s trade/GDP by an estimated 21% and in turn would raise its GDP by an estimated 7 per cent. (Dollarization would have a similar effect, because Nigeria trades as much with the US as with the eurozone. But most African countries trade substantially more with Europe, so that adopting the euro would promote total trade by more than adopting the dollar.)

 The gravity estimates control for a great many other determinants of bilateral trade, such as distance between the two countries and a dummy variable representing whether they speak a common language. These controls make it more likely -- but not certain -- that in this case correlation signifies causality.

The Rose finding has been subject to a great many critiques.[[12]](#footnote-12) One critique is that early estimates suffered from a missing variable such as a “multilateral resistance term” and that allowing for it reduces the estimates.[[13]](#footnote-13) Another critique is that the effects are smaller if one addresses the problem of some zero values for bilateral trade.[[14]](#footnote-14) Some attempts to address remaining endogeneity of the fixing decision also reduce the coefficient estimate.[[15]](#footnote-15)

The post-1999 trade-boosting effects of the euro have been found in many studies to be much smaller than those in the earlier studies where the available currency unions were all among countries that were small, developing, or both. Baldwin (2006) finds a central tendency in the estimates of only 5 to 15 per cent. The gap between such the estimates of the trade effects of the euro and trade effects of earlier currency unions is a bit of a puzzle. The evidence doesn’t seem to support the initial suspicion that the difference might reflect that the proportionate effect is smaller for large countries (which have already achieved a certain level of economies of scale internally) than for small countries (which are more dependent on promoting trade).[[16]](#footnote-16) Rather, the latest evidence seems to be that the euro has in fact increased trade among members by a highly significant estimate as large as 54% and that studies finding smaller effects may have been based on insufficiently large samples of countries.[[17]](#footnote-17)

1. **Advantages of independent currencies**

As there are three major advantages to fixed exchange rates, there are also three major advantages to flexible exchange rates. They are: (i) national independence for monetary policy, (ii) allowing automatic adjustment to trade shocks, (iii) retaining seigniorage and lender-of-last-resort capability.

* 1. Retain monetary independence

 The leading advantage of exchange rate flexibility is that it allows the country to pursue an independent monetary policy. The argument in favor of monetary independence, instead of constraining monetary policy by the fixed exchange rate, is the classic argument for discretion to respond to shocks. When the economy is hit by a disturbance such as a fall in demand for the goods it produces, the government would like to be able to respond with more money, lower interest rates, and a depreciated currency, so that it does not go into a deep recession. Under fixed exchange rates, monetary policy is to an extent diverted to dealing with the balance of payments. This single instrument cannot be used to achieve both internal balance and external balance. If financial markets are highly integrated, the loss of independence under a fixed exchange rate is particularly clear: the domestic interest rate is tied to the foreign interest rate.

Hélène Rey (2015) has recently questioned whether exchange rate flexibility in fact insulates countries from foreign shocks, whether it allows them to choose their own interest rates even when, for example, the Federal Reserve raises US interest rates. But there is evidence that it does. The results in Klein and Shambaugh (2016) support the traditional view that “a moderate amount of exchange rate flexibility does allow for some degree of monetary autonomy, especially in emerging and developing economies.” Di Giovanni and Shambaugh (2008) find that, while foreign interest rates have a negative impact on domestic GDP in pegged countries, flexible exchange rates insulate against them. Aizenman, Chinn and Ito (2010, 2011) find that exchange rate stability is associated with less monetary independence and more output volatility. Obstfeld (2015) finds that the correlation between local and US short-term interest rates falls to zero for countries with flexible exchange rates.

* 1. Automatic adjustment to trade shocks

The unfortunate reality is that relatively few developing countries in practice have been able regularly to make effective use of discretionary or activist monetary policy. Imperfect data, lags, and political forces all get in the way of timely response to shocks. But even if one gives up on deliberate changes in monetary policy, there remains an important advantage of floating: that it allows automatic adjustment to external shocks. The currency responds to adverse developments in the country’s export markets or other adverse shifts in the terms of trade by depreciating, which in turn works to restore equilibrium.[[18]](#footnote-18)

* 1. Retain seigniorage and lender of last Resort ability

When a country has its own money, the government can earn seigniorage, that is, it can command real resources when it funds the budget by creating (“printing”) domestic money, avoiding the need to finance its spending by raising tax revenue or borrowing. This ability is partially lost under a fixed exchange rate, because the central bank has to hold foreign exchange reserves and must limit the amount of domestic credit creation if the exchange rate peg is to be sustainable. The lost seigniorage accrues instead to the foreign government that creates the money which the domestic central bank must hold as foreign exchange reserves to back up its own currency.

More seigniorage is lost under a rigid institutional commitment such as a currency board, because money creation must by law be backed up fully by the accumulation of foreign exchange reserves. Seigniorage is lost *entirely* under full dollarization or monetary union (except to the extent that the arrangements under which it joins the monetary union allow it to share in the common seigniorage), because the domestic country no longer even has a money it could print.

A particularly salient application of the case for seigniorage is the monetary authority’s ability to act as a lender of last resort for the banking system. Playing the lender of last resort role in a crisis ultimately depends on the knowledge that the central bank can create as much money as necessary to bail out banks in difficulty. If citizens believe that their deposits are backed by this ultimate guarantee, they won’t “run” on banks in the first place. The credibility of this guarantee is lost if the central bank does not have its own money -- unless the monetary union includes a banking union with some allowance for regulating and rescuing banks in member countries.

1. **How do currency unions differ from fixed exchange rate arrangements?**

The binary choice between fixed and flexible is convenient for textbook purposes, but oversimplifies the range of options considerably. The full range runs from free floating – not relevant for most developing countries – to an institutionally fixed regime such as adopting a foreign currency as legal tender domestically. A wide variety of intermediate regimes, such as target zones and adjustable pegs, are arrayed along the spectrum in between the polar extremes of free floating and currency unions.

For many African countries, and for the purposes of this project, the relevant choice is between joining a monetary union and retaining a degree of flexibility. What difference does it make if the commitment is to a monetary union rather than a simple declaration of a fixed exchange rate? Experience has taught us that it makes a lot of difference. For one thing, many formally declared pegs are best classified in practice as adjustable pegs, because they last only until they are put under strain, often due to a big shock.[[19]](#footnote-19) There are other ways as well in which a monetary union has effects that go beyond a fixed exchange rate. For many of the effects it is mainly a question of degree, i.e., the difference is mostly quantitative; but for some the difference is qualitative.

* 1. Quantitative differences between a currency union and a fixed exchange rate

 One important way that a currency union differs from a fixed exchange rate is the relative permanence of the arrangement. A fixed exchange rate can always be changed. Even the CFA franc devalued against the French franc in 1994.[[20]](#footnote-20)

It would not be quite right to say that the decision to join a monetary union is permanent and irrevocable. There are some cases of countries leaving. But most of the cases occur at the same time that a larger political union breaks up into separate countries, such as the breakups of the Soviet Union, Yugoslavia, and Czechoslovakia in the 1990s. In any case, a currency union is more permanent than a conventional fixed exchange rate or even than a currency board or dollarization.

Consider the argument (in Section 2.2) that a fixed exchange rate provides a credible commitment to non-inflationary monetary policy or at least to monetary policy that is no more inflationary than that of the external currency to which the country links. A currency that is officially pegged today but can be devalued tomorrow does not represent a very credible commitment. More credible – more likely to anchor inflation expectations and thus achieve price stability without loss of output – is an exchange rate that is fixed by law, as in a currency board arrangement. But even currency boards can be abandoned, as holders of Argentine pesos discovered to their loss in 2001. The ultimate commitment is to give up the national currency altogether and join a monetary union.

 The near-permanence of a currency union is a double-edged sword for monetary policy. Although it does make inflation-fighting more credible, it also virtually eliminates the possibility of responding to even a very severe negative shock. Greece probably regretted the decision to join the euro when it could not devalue or lower interest rates even in response to a crisis as severe as the one it suffered in 2010.

Consider next (Section 2.3) the argument that a fixed exchange rate encourages trade. There is evidence in the gravity model estimates of a statistically significant boost to bilateral trade when “fixed” means near-zero variability in the exchange rate during some period of time, even without an institutional mechanism to assure that it will stay fixed in the future.[[21]](#footnote-21) But the boost is far larger if the exchange rate is fixed by an institutional mechanism. It is larger still in a monetary union, where it is not just exchange rate risk that is eliminated but also the transactions cost that comes from dealing with separate currencies.[[22]](#footnote-22) The result seems to be analogous to econometric findings regarding the effects of regional trading arrangements. A Free Trade Area that eliminates tariffs stimulates trade somewhat; but a Customs Union that eliminates altogether the need for trucks to stop at the border stimulates trade by a distinctly greater amount.

* 1. Qualitative differences between a currency union and a fixed exchange rate

A monetary union has at least two advantages that are different from fixed exchange rates not just quantitatively but qualitatively. First, it avoids not only the speculative bubbles that may sometimes afflict floating exchange rates, but also the speculative attacks that sometimes afflict pegged exchange rates. In both cases the problem simply doesn’t arise because the exchange rate does not exist. If there is no exchange rate, then there is no target for central bankers to defend or for speculators to attack.

Secondly, a country that joins a currency union usually gains the right to some sort of representation in the decision-making of the union’s central bank. Typically the extent of representation will be larger or smaller depending on the size of the country in question (or sometimes depending on whether it joins earlier or later). But a country that fixes its exchange rate to the dollar, or even that formally dollarizes (i.e., adopts the dollar as legal tender), gets no representation at all at the US Federal Reserve Board.

Countries that form a monetary union also run into some problems that don’t arise from ordinary fixed exchange rates. If responsibility for fiscal policy remains at the national level, moral hazard can arise as individual governments run up excessive levels of debt, because they and their creditors feel that they will likely be bailed out in the event of a fiscal crisis. The architects of European EMU recognized and addressed this danger, by setting limits on members’ budget deficits and debt levels. But after 1999 virtually all the members violated the limits, most egregiously Greece, leading to the crisis that erupted in early 2010. One can imagine similar problems of fiscal moral hazard afflicting an African currency union.[[23]](#footnote-23)

1. **Attempts to weigh up the net benefits of alternative exchange rate regimes**

 Which dominate: the advantages of flexible exchange rates or the advantages of fixing? Some studies have classified countries according to their de facto exchange rate regime and then tested which categories have superior economic performance, judged usually by growth and/or inflation.[[24]](#footnote-24) This literature is entirely inconclusive. Some find that floating works best, some that institutionally fixed rates work best, some that an intermediate regime works best.

 Why such different answers? There are two major reasons, one relatively more pedestrian and the other more enlightening. First, the classification schemes do not correspond to each other. A country’s currency may be classified by one author as pegged and by another as floating.[[25]](#footnote-25) To that extent, it is no surprise that the authors get different answers as to performance of different categories of exchange rate regime.

 Secondly, and more interestingly from an economic viewpoint, the question as to what exchange rate regime is best should depend on the circumstances of the country in question. No single exchange rate regime is right for all countries. Although some of the aforementioned studies include estimates that condition on a few country variables, such as distinguishing developing countries from advanced countries, the list of conditioning variables is not extensive or definitive.

 We need a framework for thinking about the characteristics that suit a country or other geographic area for fixing or floating or intermediate regimes, the characteristics that determine the relative weight that should be placed on the advantages and disadvantages considered above. This leads us to the theory of the Optimum Currency Area.

1. **The Optimum Currency Area: Criteria that suit a country to give up its own currency**

Characteristics of the country in question should be major determinants of the decision to enter a monetary union or retain more flexible exchange rate arrangements. Some such criteria are already implicit in the pros and cons that have been listed in earlier sections of the paper.

* 1. A need to import monetary stability

Recall from section 2.2 that one argument in favor of giving up currency independence is that an institutionally fixed exchange rate provides a credible nominal anchor for monetary policy. A country is particularly suited to give up exchange rate flexibility if it has a desperate need to import monetary stability. A desperate need to import monetary stability can in turn arise from such factors as: a past history of hyperinflation, an absence of credible public institutions, chronic political pressure to monetize large fiscal deficits, location in a dangerous neighborhood, or large exposure to nervous international investors.

* 1. Supply shocks

An old textbook wisdom holds that fixed rates work best if shocks are mostly internal demand shocks (especially monetary) but flexible rates work best if shocks are mostly to be supply shocks or real shocks (especially external trade shocks). The theory is that floating rates can automatically accommodate or adjust to real shocks. Developing countries tend to be more prone to real or supply disturbances than advanced economies. In theoretical models, supply shocks are usually labelled “productivity shocks.” But some other supply shocks are also common in developing countries and yet are easier to observe than productivity shocks. They include labor strife, electric power failures, major weather events, and natural disasters Empirical research finds that when developing countries are hit by natural disasters, they tend to adjust better if their exchange rate floats.[[26]](#footnote-26)

* 1. Volatility of commodity export prices

Terms of trade fluctuations are a common variety of real shock. Other things equal, a country that experiences more volatile terms of trade, which describes most developing countries more than most advanced countries, is a better candidate for an exchange rate policy that is flexible enough to accommodate such shocks, for the reasons discussed in section 3.2 above.[[27]](#footnote-27)

The biggest sources of exogenous terms of trade shocks are changes in the world prices of oil, minerals or agricultural commodities which impact countries that specialize in the exports of those products. This factor is especially relevant for almost all African countries. (A country’s terms of trade is defined as the ratio of export prices to import prices. But export prices for most commodity producers are much more variable than any country’s import prices.)

Empirical evidence that the currencies of commodity-exporting countries that float do in fact fluctuate together with the global prices of the commodities in question is offered by Cashin, Céspedes, and Sahay (2004), Chen and Rogoff (2003), Frankel (2007), and Habib and Kalamova (2007), among others. Examples of such commodity currencies include the Australian dollar, Canadian dollar, Chilean peso, Russian ruble and South African rand.

Furthermore, these exchange rate adjustments seem to work. A number of studies have confirmed empirically that in the presence of large terms of trade shocks, economic performance tends to be better in countries with floating exchange rates than in countries with fixed exchange rates: Broda (2004), Edwards and Levy-Yeyati (2005), Rafiq (2011), Céspedes and Velasco (2012), and Berg, Goncalves, and Portillo (2018) . Céspedes and Velasco (2012), for example, examine 107 major country commodity boom-bust cycles, and find that the output loss from a given commodity price decline is smaller, the more flexible is the exchange rate.

* 1. Financial development

Another of the characteristics that is often suggested to suit a country for a flexible exchange rate is financial development. In some countries at low levels of financial development, the supply and demand for foreign exchange on a given day may be too thin to let the exchange rate be determined in a free-floating market. Financial development includes a liberalized yet well-regulated banking system. It also includes markets in such instruments as forward exchange contracts, which are useful for helping firms manage the risk that arises from variable exchange rates as noted in section 2.3. [[28]](#footnote-28)

It has been argued that a country that is open to capital inflows and outflows is a better candidate to give up its currency independence. Indeed giving up capital controls is usually considered a necessary component of joining a monetary union. The argument is that the ability to borrow internationally after an adverse shock makes an independent monetary response less necessary. But this argument is somewhat undermined by the observation that the capital flows experienced by developing countries tend to be pro-cyclical in practice, not counter-cyclical as the theory says.[[29]](#footnote-29)

* 1. Small and dependent on trade

A classic criterion suiting a country to give up its own currency is small size and openness. After all, few would suggest that a small city should have its own currency, its own exchange rate, and its own monetary policy. Openness can be measured, for example, in the ratio of tradable goods to GDP.[[30]](#footnote-30)

There are two ways to make the argument that small open economies are suited to give up the independence of having their own currency: in terms of the pros or cons, respectively, discussed in sections 5.2 and 5.3. On the one side, advantages of eliminating currency differences, particularly the facilitation of trade, tend to be larger for small open countries that are highly dependent on trade. On the other side, the advantages of floating, particularly discretionary monetary policy, tend to be smaller for small open countries.[[31]](#footnote-31)

We classify small size and openness together as one criterion, because small countries are more dependent on trade than large countries. Small countries need trade to achieve economies of scale in production and also because they are likely to be under-endowed with some factors of production. The United States could survive without trade. Singapore could not.

Small size and openness to trade are attractive as OCA criteria in that they suggest that there exists a roughly optimum *size* for a currency area. If a group of neighboring countries are judged too small and open to merit each having its own currency, the set is more likely to meet the criterion when considered as a larger unit. The larger the size of the set of countries under consideration, the lower will be the openness measure of the collective unit (the ratio of trade undertaken with countries outside the region relative to the amount of economic activity within the region) and the more likely are they able to stand on their own as a currency area.

A related criterion is the existence of major-currency partners with whom bilateral trade, investment and other activities are already high, or are hoped to be high in the future. Is trade geographically concentrated or diversified? If a country’s trade is spread relatively equally around the world, it does not have the option to fix its exchange rate to one set of important trading partners (say, the euro) without giving rise to variability in its exchange rate vis-à-vis other important trading partners (say, the dollar bloc). In theory a country can peg to a basket of foreign currencies if necessary to match a geographically diversified trade pattern. But basket pegs tend to be loose in practice. A union with a single currency bloc that represents a major actual or potential set of trade partners, if one exists, is far simpler, stronger, and more credible.

* 1. Correlation or “symmetry” of shocks

Academic writing uses the term “symmetry of shocks” to refer to high correlation of cyclical fluctuations between the home country and the country or countries with which a currency union is contemplated. The condition is important because, if the domestic country is to give up the ability to follow its own monetary policy, it is better if the interest rates chosen by the monetary union as a whole are more often close to those that the domestic country would have chosen anyway.[[32]](#footnote-32)

One interpretation of where European EMU “went wrong” is that it never satisfied the symmetry criterion for an Optimum Currency Area. Except for a narrow core of countries, many European economies tend to experience idiosyncratic shocks. Norway’s economy is so tied to oil, for example, that it never contemplated joining the euro (or even the European Union, for that matter). But others on the periphery did join. The macroeconomic consequences for periphery countries of the loss of ability to set their own interest rates became clear not long after the birth of the euro in 1999. In the years 2004-08, their economies needed a higher interest rate than the one that was set in Frankfurt. For example, Ireland had an unsustainably strong boom, initially based fully on fundamentals but then turning into a bubble via escalating bank lending and soaring housing prices. The economy overheated and inflation rose, because there was no longer the possibility of tightening Irish money, raising the interest rate, or revaluing the currency. Then, in the years after 2008, the periphery countries needed interest rates lower than the one that was set in Frankfurt. But, again, they couldn’t have it. This exacerbated the recessions in Ireland and other periphery countries during 2010-14.

* 1. Flexibility of labor and goods markets

 Consider what happens when an asymmetric or idiosyncratic shock hits one country, but a tailored monetary response has been precluded by membership in a currency union. The likely result will be overheating and inflation, in the case of a positive demand shock, or unemployment and recession in the case of a negative demand shock. The classical mechanism of adjustment is that wages adjust to clear the domestic labor market and prices adjust to clear the goods markets. It is only when a country’s labor and goods markets suffer structural rigidities such as sticky wages and prices or regulations that make it difficult for firms to hire and fire workers, that there is need for a monetary response, currency depreciation, or alternative means of adjustment.

Thus an economy that is characterized by highly flexible labor and goods markets has less need of an independent currency policy.[[33]](#footnote-33) Hong Kong is a good example. An economy with sticky wages and prices or other impediments to adjustment in labor and goods markets has more need of an independent monetary policy. Greece is probably a good example.

* 1. Labor mobility across borders

Consider again what happens when a shock hits a country, but wages and prices are sticky and a monetary response has been precluded by a currency union. In that case it is especially useful if workers can move from the high-unemployment country to a low-unemployment country. If this avenue of adjustment works well, the separate geographic entities have less need for separate monetary policies. Labor mobility has historically been the primary mechanism of adjustment, for example, across the 50 states within the monetary union which is the United States. This is another reason why the US has traditionally been considered an optimum currency area and the European continent much less so.

Mundell (1961) focused on labor mobility. Indeed his paper was the original source of the phrase and concept of the “Optimum Currency Area”, recognizing that it might be optimal to draw the geographic borders of a monetary union to encompass more than one country -- or less than one country.[[34]](#footnote-34)

* 1. Emigrants’ remittances

Emigrants remittances have been relatively neglected in the study of international macroeconomics in general and currency unions in particular. Yet in some developing countries they are a very important component of national income and of the balance of payments.

 Remittances tend to be variable. But there is evidence that they also tend to be counter-cyclical. If country *S* has sent immigrants to host country *H*, their remittances back home tend to be correlated with the differential in growth or employment in *S* versus *H*.[[35]](#footnote-35) This strengthens the case for *S* joining a currency union with *H*. Why? Countercyclical remittances help stabilize the current account and national income even when *S* has given up ability to devalue.

 Countercyclical remittances help stabilize income and the balance of payments not just in the country that has sent the immigrants (S), but in the host country as well (H). For example, South Africa hosts immigrants from the smaller countries on its borders. The resulting remittances have the potential to narrow cyclical differences among these countries.[[36]](#footnote-36)

* 1. Countercyclical fiscal policy

What happens if a country has been hit by an adverse shock; has lost the freedom to respond by expanding the money supply, lowering the interest rate, or devaluing; but does not enjoy flexible enough labor markets to adjust in that way? The negative effects on the economy might still be cushioned by inward fiscal transfers. Thus countries or regions that are parts of some federal sort of fiscal system are better candidates for a currency union than otherwise.[[37]](#footnote-37) But of course there needs to be a degree of political solidarity at the pan-regional level to support transfers to negatively impacted regions from the others.

Within the United States, for example, if one region suffers an economic downturn, the federal fiscal system cushions it; one estimate is that for every dollar fall in the income of a stricken state, disposable income falls by only 70 cents. Such fiscal cushions are mostly absent at the international level. Even where fairly substantial transfers exist, for example “the cohesion funds” within the European Union, they are often not especially countercyclical and thus do not provide a substitute for national monetary policies.

What about domestic fiscal policy? Many economists used to reason that if countries were to give up their independent monetary policy levers, it was all the more important that they be able to retain their independent fiscal policies as an alternative instrument of macroeconomic management. From this perspective, the fiscal criteria in the 1991 Maastricht Treaty limiting members’ budget deficits and debt levels were a surprise.[[38]](#footnote-38) But the architects of EMU had accurately diagnosed the problem of moral hazard in national fiscal policy; as it turned out the constraints they placed on national fiscal policy, rather than being excessive, were inadequate to the task. The lesson seems to be that some countercyclical fiscal policy capacity must be moved to the pan-regional level if a currency union is to run smoothly.

* 1. Political willingness to give up some sovereignty

Some countries look on their currency with the same sense of patriotism with which they look on their flag. It is not a good idea to force subordination to the US dollar or the euro or the rand down the throats of an unwilling public. Otherwise, in times of economic difficulty, the public is likely to blame the monetary union, and the country that exercises the most power within it, rather than accepting the need for painful domestic adjustment. After the Global Financial Crisis, for example, the Baltic countries showed political willingness to suffer the sharpest recessions in the world, motivated largely by a strong desire to bind themselves to Western Europe via the euro. The Greeks were less enthusiastic.

* 1. The endogeneity of the Optimum Currency Area criteria

Such characteristics as openness to trade and cyclical correlations are not eternal unchanging constants. They can evolve over time, including in response to the formation of a currency union itself.

Frankel and Rose (1998) pointed out the endogeneity of Optimum Currency Area criteria, particularly the endogeneity of two parameters, the intensity of intra-regional trade (criterion 6.5) and the intra-regional correlation of shocks (criterion 6.6), with respect to the decision to enter a currency area. More specifically, they found that when a currency union promoted trade among members (as in Rose, 2000), there usually followed an increase in the correlation of shocks across members. Thus a group of countries might satisfy these two criteria twenty years after forming a currency union, even if they did not satisfy them before forming the union. [Calderón and Chong (2007)](https://www.sciencedirect.com/science/article/pii/S0022199606000833#!) also found a significant effect on cyclicalcorrelation among developing countries, even though it was not quite as strong as among advanced countries. The research that allows for the endogeneity of the criteria has been labelled the “new” theory of Optimum Currency Areas. [[39]](#footnote-39)

Some have hypothesized that other parameters, particularly labor mobility and flexibility of labor and goods markets, might also be endogenous with respect to the decision to form a currency area. Labor mobility did go up among the euro members for example. But hopes that the loss of the monetary policy tool would force all member countries to reform their labor and goods markets proved unrealistic, at least until the extreme circumstances of the aftermath of the 2010 crisis in the euro periphery.

1. Concluding note

This memo has aimed, comprehensively but succinctly, to review the pros and cons for a generic developing country considering giving up its own independent currency and to list the country characteristics that should influence that decision. To recapitulate, a country is better suited to join a currency union if it: has a need to import monetary stability, experiences demand shocks more than supply shocks or trade shocks, is less developed financially, is small and dependent on trade, tends to experience shocks that are highly correlated with those of its prospective monetary partners, has flexible labor and goods markets, enjoys high labor mobility across its borders, receives (or sends) emigrants’ remittances, enjoys countercyclical fiscal transfers from outside, and is politically willing to give up some sovereignty.

Future memos will apply these ideas specifically to the actual and proposed monetary unions of Africa, particularly the (actual) CFA franc zone and the (proposed) currency union among the ECOWAS countries. The jumping-off point will be the relatively low level of trade in Africa, both intra-regionally and more generally. One motivation for expanding currency areas in Africa, as for free trade areas, is to promote trade and thereby promote economic growth.

 The analysis will include relevant literature review, statistical and econometric evidence for African countries, and the logic of the complicated variety of sequential paths that are possible options.

At each stage, the question whether a group of countries should form a currency union needs to be accompanied by the second question: what would or should be the monetary regime of the resulting union. For example, would the eco (the proposed currency for ECOWAS) peg to the euro? Thus the pros and cons of currency regimes that have been laid out in this memo will be applicable at both the level of the decision to join in a currency union and the level of the external policy to be followed by that union.

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1. American economists tended to be skeptical of the euro project from the beginning (as catalogued in the ill-timed paper by Jonung and Drea, 2009).  Many of their concerns have been borne out, particularly concerns that European countries did not constitute an optimum currency area (especially not to the extent that American states do). Eichengreen, 1992).
 [↑](#footnote-ref-1)
2. Mangeni (2018). [↑](#footnote-ref-2)
3. The literature on actual and proposed monetary unions in Africa has been surveyed by Asongu, Nwachukwu, and Tchamyou (2017). [↑](#footnote-ref-3)
4. An example from each of the three schools: Hanke and Schuler (1994) on currency boards, Larrain and Velasco (2001) on floating, and Williamson (2000) on target zones. [↑](#footnote-ref-4)
5. Frankel (1999).
 [↑](#footnote-ref-5)
6. Tavlas (1993) and Mongelli (2002) surveyed the optimum currency area literature.
 [↑](#footnote-ref-6)
7. Frieden (2014).
 [↑](#footnote-ref-7)
8. This is the classic model of dynamically consistent monetary policy, due to Barro and Gordon (1983). Also Rogoff (1985) and Calvo and Vegh (1994).
 [↑](#footnote-ref-8)
9. The question of what will be the monetary policy of the foreign or larger currency unit is an important one to which a later memo will return (when considering the CFA peg to the French franc in the past, the euro in the present, and other options for the future). [↑](#footnote-ref-9)
10. Going back to the original proponent of floating exchange rates: Friedman (1953).
 [↑](#footnote-ref-10)
11. One piece of evidence is that nominal changes in the exchange rate are seen to cause real changes in the exchange rate. E.g., Bahmani-Oskooee, Hegerty, and Kutan (2008). [↑](#footnote-ref-11)
12. Surveyed by Baldwin (2006). [↑](#footnote-ref-12)
13. Rose and van Wincoop (2001) find that taking multilateral resistance into account should knock the predicted effect of the euro on bilateral trade among the original members down from tripling to 58%.
 [↑](#footnote-ref-13)
14. Nitsch (2002).
 [↑](#footnote-ref-14)
15. Persson (2001). [↑](#footnote-ref-15)
16. Frankel (2010).
 [↑](#footnote-ref-16)
17. Rose (2017) and Frankel (2010).
 [↑](#footnote-ref-17)
18. The argument goes back to Friedman (1953). The normal textbook assumption is that depreciation stimulates net exports and thereby helps moderate a fall in national output. But sometimes depreciation is contractionary (e.g., Frankel, 2005). This particularly applies to a country that has a lot of debt denominated in foreign currency. Currency mismatch plus devaluation results in a negative balance sheet effect. This is one explanation for the observed “fear of floating” (Calvo and Reinhart, 2002). [↑](#footnote-ref-18)
19. Obstfeld and Rogoff (1995) and Klein and Marion (1997) document that most declared pegs do not last very long [absent an institutional elimination of the possibility of devaluation, for example through a currency union]. [↑](#footnote-ref-19)
20. Cossé, et al (1996) and Devarajan and Hinkle (1994). [↑](#footnote-ref-20)
21. Klein and Shambaugh (2006). [↑](#footnote-ref-21)
22. Rose (2000, 2001).
 [↑](#footnote-ref-22)
23. Debrun, Masson, and Pattillo (2005)
 [↑](#footnote-ref-23)
24. Examples include Ghosh, Gulde and Wolf (2000), Sturzenegger and Levy-Yeyati (2001, 2003), Reinhart and Rogoff (2004), Tavlas, Dellas, and Stockman (2008), and Klein and Shambaugh (2012).
 [↑](#footnote-ref-24)
25. The low correspondence across different analysts’ classifications of countries by exchange rate regime has been documented by Bénassy-Quéré, Coeuré and Mignon (2004), Frankel (2003), Klein and Shambaugh (2013), and Rose (2011). One reason for differences in classification outcomes is differences in methodology. A more fundamental problem is that many countries in fact do not typically follow any single regime for longer than a year or so without changing parameters, if not changing regimes altogether. [↑](#footnote-ref-25)
26. Ramcharan (2007).
 [↑](#footnote-ref-26)
27. Corden (1972). [↑](#footnote-ref-27)
28. Husain, Mody and Rogoff (2005) find that for richer and more financially developed countries, flexible rates work better in the sense of being more durable & delivering higher growth without inflation. Aghion, Bacchetta, Ranciere and Rogoff (2005) find that exchange flexibility becomes more attractive when financial markets develop as proxied by the ratio of private credit to GDP, with an estimated threshold of 40%.
 [↑](#footnote-ref-28)
29. Kaminsky, Reinhart, and Végh (2004).
 [↑](#footnote-ref-29)
30. The classic reference is McKinnon (1963). Criterion 6.5 (openness to trade) may be at odds with criterion 6.3 (terms of trade volatility) for some developing countries: countries that are both small and open to trade may have high terms-of-trade variability. This would be the case for a small oil state, for example.
 [↑](#footnote-ref-30)
31. Romer (1993).
 [↑](#footnote-ref-31)
32. Bayoumi and Eichengreen (1994) is one of the earlier studies to estimate correlations of shocks to ascertain whether various regional groupings met the optimum currency area criterion. The 50 states of the United States are often used as a standard of comparison. [↑](#footnote-ref-32)
33. Friedman (1953). [↑](#footnote-ref-33)
34. Macroeconomic research has come a long way since 1961. But, as Mongelli (2002) notes, “the pioneering intuitions of the OCA theory were remarkably strong. In fact, we still discuss all OCA properties.”
 [↑](#footnote-ref-34)
35. Frankel (2011).
 [↑](#footnote-ref-35)
36. Of course a recession in South Africa will likely be felt in Lesotho as a strong negative shock, and migration and remittances are channels of that transmission. But the South African Reserve Bank can be expected to respond to such a recession counter-cyclically and the rand can be expected to depreciate. What is at stake when forming a currency union is the cyclical *differences* between the two economies and here countercyclical emigration and remittances can be helpful. [↑](#footnote-ref-36)
37. Kenen (1969).
 [↑](#footnote-ref-37)
38. Buiter, Corsetti, and Roubini (1993). [↑](#footnote-ref-38)
39. Tavlas (2008). [↑](#footnote-ref-39)