

The theory of Currency Boards

1.Introduction

After the decolonization process was completed in many countries during the second half of the last century, new monetary arrangements were agreed upon and Currency Boards fell into disuse. New Central Banks were opened in many independent countries in the 1960s and the monetary role of Currency Boards was taken over by the new institutions. In the 1990s interest in Currency Boards regained impetus after Argentina and the former Soviet Republics, Estonia and Lithuania, instituted Currency Boards to structure the monetary and financial situation in their respective countries.

What exactly is a Currency Board and what are its objectives? These are the fundamental questions that we will focus on in this article. Second, we will outline the issues related to a general model that can explain the functioning of Currency Boards. Third, we will illustrate the pros and cons of a system that pegs the local currency to the anchor currency, e.g., the US dollar, the Euro, or the Yen. Fourth, the development of the new European Monetary Integration and the role of the EURO will be discussed. Finally we will look at the case of Ecuador; this country dollarized its economy in 2000 after a series of exchange rate realignments that resulted in greater instability of its currency.

2. Currency Boards The prototype.

A Currency Board Arrangement may be seen as a special case of a rules-based monetary cash system.¹ In its simplest form, a Currency Board can be defined as a monetary regime based on an explicit legislative commitment to exchange domestic currency for specified foreign currency at a fixed exchange rate. In some cases, the foreign currency, to which the domestic currency is fixed, also can represent a basket of foreign currencies (e.g., the former European Currency Unit ECU) as defined by the Currency Board Arrangement or the legislation. A second element of a Currency Board is that the

¹ Currency Board Arrangements: Issues and Experiences. By T.J. Baliño and C.Enoch. *Occasional Paper 151 IMF August 1997*

obligations in the domestic currency should be fully (100%) backed up the foreign currencies (anchor currency) at the fixed exchange rate guaranteed by the Board.

2a. Fixed exchange rate.

The most fundamental issue of the Currency Board is to maintain a fixed exchange rate with the anchor currency. Within this arrangement, the Board is legally bound to exchange the domestic currency at a fixed rate for the currency of the anchor country. A crucial question in this regard is related to the type of domestic obligations that qualify for exchange within the Currency Board Arrangement.

From a practical point of view, one also should determine who can deal directly with the Currency Board where the exchange between domestic and foreign currencies is concerned. In most cases, the Currency Board will deal directly with banks holding a foreign exchange license (foreign exchange banks), while the general public will deal with foreign exchange banks when doing foreign exchange transactions.

2b. Back-up by foreign currencies.

The second important characteristic of a Currency Board has to do with which domestic obligations are backed up fully by the anchor currency. Do the domestic obligations cover only coins and notes in circulation, or will they also guarantee the conversion of domestic deposits of foreign exchange banks (the members) of the Currency Boards?

In the second case, the guarantee covers the base money of the board. Typically in Currency Board Arrangements, the foreign exchange reserves (excluding gold) will have to cover at least 100% of the obligation of the domestic currency.

In the condensed balance sheets below, one can see easily the differences between the typical obligations of a Currency Board, and the Central Bank.

I.

Assets	Currency Board	Liability and Capital	
Foreign exchange reserves	X	Coins and notes	Y
		Bank deposits	Z
		Capital	C

II

Assets	Central Bank	Liability and Capital	
Foreign exchange reserves	X	Coins and notes	Y
Domestic assets (in local Currency)	DA	Bank deposits	Z
		Government Deposits	G
		Capital	C

In the case of this stylistic approach; if the Currency Board Arrangement stipulates that only a full backing will be provided for the base money (coins, notes, and bank deposits), there the ratio $(X / (Y+Z)) * 100\%$ in balance sheet I should be at least equal to 100%.

In contrast the Central Bank functions (balance sheet II) go beyond the guarantee of only bank deposits, coins, and notes as obligations. One of the crucial roles of a modern Central Bank is to safeguard and promote a sound and efficient functioning of the

payment system within a country without explicitly guaranteeing any specific obligations other than the bank notes in circulation (paper money).

Another important question is the choice of the anchor currency to which the domestic currency will be pegged. This choice will depend greatly on, among other things, the current or prospective trading relationship and the external value of the currency at the moment the peg is done. Is the anchor currency weak or strong at the outset of the Currency Board Arrangement? The currency chosen for the peg is usually that of a mature industrialized economy with which the Currency Board country holds a strong trading relationship. In addition, the countries of the anchor currency normally have a proven track record in financial and monetary stability

Some known cases of currency peg, for instance, Argentina, Ecuador, and Hong Kong have (had) the US dollar as the anchor currency. This choice implies that a strong reserve position in US dollars is needed to backup the domestic obligation in all these cases². In other cases, e.g., Estonia and Lithuania that were part of the former Soviet Socialist bloc, the close ties of these countries with the European financial and trade markets led them to link their currency to the Deutsche mark, ECU, or now the EURO.

3.Policy implications after monetary reform under a Currency Board Arrangement.

One of the basic conditions that apply to Currency Boards is no lending by the Currency Board to the government. This in turn implies that government lending should come from the commercial banks depending on the funds available to re-lend to the private sector and government. Here both the private- and public sectors are competing for limited resources. In most cases then, domestic financing to the government will be limited, automatically forcing additional fiscal discipline on governments that unfortunately often do not have such discipline.

Under a Currency Board Arrangement, both the level of interest and the yield curve are genuinely market-determined. Since open-market operations, where the monetary

² More on the dollarization of economies in general will be outlined in paragraph 5.

authority trades in government bonds to influence the domestic liquidity in the market, is not a common phenomena , the interest rates and liquidity in the market are determined by demand and supply forces. Open-market operations under a Currency Board are prohibited, and, therefore, interest rates policy will be lost as an instrument of economic policy. If open-market operations are permitted under this arrangement, the case-by-case intervention in the markets to supply liquidity to the market would mean an increasing obligation of the Board to guarantee domestic obligation. This in turn, can be done only with sufficient foreign exchange reserves. In uncontrolled intervention situations in the market, a point can be reached where the domestic obligations can no longer be guaranteed by the Currency Board, and the arrangement will fall apart. In principle, the interest rates under a Currency Board Arrangement will follow closely the interest development of the peg currency to eliminate the possibilities of arbitrage between the domestic and the anchor currency. Although small deviations between the domestic and peg currency interest rates are possible for a limited period of time, a prolonged deviation is probable only in a default situation in the country where the Board is established or when a realignment of the currency peg is imminent.

The general imitations on the ability of the Currency Boards to influence interest rates also constrain the scope of the monetary authority to act as a lender of last resort. One must recall that under a Currency Board Arrangement, all lending to the banking sector implies that the domestic obligations of the Board will increase and that is possible only if the macro-economic conditions can sustain such a policy in the medium to long term and if the foreign exchange reserves are sufficient at all times to backup these obligations.

While interest rates under a Currency Board tend to follow those of the peg (anchor) currency over the medium term, the inflation rate may not. The inflation rate differences can be explained by the productivity differences and income growth between the countries in question. In the following section, we will see that in a monetary union in Europe, inflation differences are quite common. Mr. Jean-Claude Trichet, Governor of the Banque de France, recently described this situation in a speech in London.

“Inflation divergences across countries or regions are quite natural in a monetary union. In the Euro area, long-term convergence to a common level of prices naturally gives rise to different inflation rates across countries. The convergence of productivity and living standards create a trend towards price convergence”.

4. From the Currency Board to the European Monetary integration.

4a. Historical background.

The plan for the formation of a European Monetary Union was launched by a.o. Bundes Chancellor W. Brandt in 1969. To realize the objectives of the plan for a monetary integration, the member countries of the European Economic Union (later the European Union) decided to set up a commission under the chairmanship of P. Werner of Luxembourg. The final report of the Werner Commission was discussed and ratified in 1971.

Against the background of a steady consolidation of the economic integration process in Europe, the Werner Commission proposed a three-step approach toward further economic and monetary integration in Europe. During the first phase of the integration (1971-1974), the European member countries had to concentrate on the harmonization and coordination of fiscal policies. In addition all impediments between European members countries on the free movement of capital had to be eliminated. In the second stage, all member countries of EEC (later EU) had to coordinate their economic, fiscal, and monetary policies. Member countries had to develop and adhere to strict rules on the maximum fiscal deficits and public debt, while the fluctuation margins between the various currencies of the member countries gradually had to be eliminated. After completion of these objectives, the EEC had to change into a system of fixed exchange rates. In the final stage of the European integration process, a new system of Central Banks, comparable to what has existed in the USA for a long time, had to become operational. This system of European Central Banks (ESCB) would take over the coordination of the monetary policy in Europe and, therefore, guarantee prices and exchange rate stability.

As you are well aware, this new system of European Central Banks became operational on January 1, 1999.

4b. Benefits and costs associated with the European Monetary Union.

What were/are the costs and benefits of the monetary union and the introduction of the single currency, the Euro?³ The initial economic benefit from the introduction of a single currency in Europe is the reduction of transaction costs. The savings involved from the lower transaction costs are estimated at 0.5-1% of GDP (8.2-16.3 billion Euro). A second benefit from the European Monetary Union is the elimination of the uncertainties surrounding the exchange rate movements. A reduction in the exchange rate variability is likely to lead to a decrease in the risk premium built into the real interest rates. Third, from a purely macro-economic standpoint, the benefit of the European integration is the strengthening of price stability within Europe. Finally, some expect the Euro to become an important international reserve currency.

Dr. Wellink⁴, president of the Dutch Central Bank (DNB), recently summarized the following advantages of the introduction of the Euro.

“From an economic point of view the Euro will increase the macro-economic stability and the cross country price transparency within the Euro area. This on its turn will reduce transaction costs. The results of a recent cross-country study by Andres Rose show also that trade volume between countries with the same currency is significantly higher than the trade volume between countries with different currencies. In summary the introduction of a single currency will expand the trade volume within the Euro area. The third benefit according to Dr. Wellink of the introduction of the Euro is that the uncontrolled budgetary expansion policies cannot persist in the immediate future because of the Stability and Growth Pact rules that impede expansionary fiscal policy without limits. Finally, the financial markets in Europe have deepened further after the Euro.

³ Framework for Monetary Stability IMFbook,: ‘Building a Monetary Union in Europe’ Jose Viñas pages 213-243.

Compared to 1998, e.g., the Euro bonds have doubled today and have reached a stage comparable to the US dollar market⁴.

One of the major disadvantages of the monetary union is that the nominal exchange rate as a tool of macro-economic adjustment will be gone. This cost means that any economic shock must be absorbed by other instruments. Alternatives to absorb these shocks are dependent on the degree of international mobility, the degree of wage and price flexibility, and the degree to which the fiscal policy is oriented toward macroeconomic stability.

Labor mobility.

Insofar as large asymmetric shocks exist and wage and price flexibility is not complete, macroeconomic stability within the European Union will require other adjustment mechanisms. In the classical approach of Mundell (1961), the international mobility of factors of production and in particular of labor indicates that if the demand across countries shifts, under the scenario that the real exchange rate does not adjust, and if the factor mobility is low, then unemployment will occur in the country where the demand has dropped. Studies on inter-country labor mobility show that labor movements across Europe are very low when compared to the USA, for example.

Wages and prices.

A country where external shocks cannot be absorbed by real exchange movements and where labor mobility is very weak will have consistently high unemployment. The restoration of macro-economic equilibrium through the instruments of factor mobility and exchange rate movements should then be restored through the wage and price movements in order to safeguard macro-economic equilibrium. Experiences in Europe that are confirmed by studies show that due to rigidities in the labor market, wages respond quite slowly under increasing unemployment situations. In addition, structural rigidities in the non-tradable goods market limit the downward response of prices.

⁴ De Euro, een grote uitdaging en katalysator voor Europa. March 12, 2002.

Fiscal policy.

The third way to adjust to asymmetric shocks in an economy is to adjust fiscal policy. If the wages and prices are very slow in responding to market disequilibrium and labor mobility is weak as in Europe then the only instrument left to deal with the shocks in the economy is fiscal policy. Even in this area, member countries are limited in their room to maneuver because fiscal discipline, rules and ceilings imposed on budget deficits (Growth and Stability Pact), and public debt will force participating member states to be prudent on the fiscal front.

Under the present surveillance by the EC, the national debt and budget deficits should not be higher than 60% and 3% of GDP, respectively, or tend to converge toward these levels. All budget deficits or public debt beyond these thresholds are considered 'excessive' in terms of prudent fiscal policy.

The creation of a monetary union and the introduction of the Euro set in motion new developments in Europe from which future generations will presumably reap the benefits. Among the most pressing questions is how to deal with the asymmetry between centralized monetary policy making and decentralized economic and fiscal policy. Dr Jürgen Stark, Deputy Governor of the Deutsche Bundesbank, recently noted the following on this topic : "Member countries will have to overcome this tension by closely coordinating decentralized economic and fiscal policy at the European level. Fiscal policy in the member states is additionally required by the Stability and Growth Pact to achieve the medium-term goal of a budget that is close to balances or even in surplus. One rationale for the Growth and Stability Pact is that it would be asking too much of a single monetary policy to be the sole defender of stability. The other was to keep government budgets sustainable. Public debt and interest burden should not be allowed to go up after every economic slump as has happened in the 70s and the early 80s".

4c Future challenges, opportunities, and the dynamics of the Euro.

The use of the Euro in the medium and long term will depend greatly on the confidence that the Europeans themselves give to the new currency. All technical aspects from the

production of coin and notes, the distribution of the same, the conversion of bank accounts into Euro's, and the information campaign were successfully completed during recent months. Further progress on the acceptance and use of the Euro will have to come about in the months ahead. Mr. Jean-CLaude Trichet mentioned in a presentation in November 2001 that the introduction of the Euro will be a catalyst for new reforms in the coming years. Mr. Trichet⁵ sees these important challenges.

The Euro deepens and completes the single market.

The Euro makes the completion of the single market possible. It enables the productive sector and companies to achieve significant economies of scale and allocation of all Europeans savings to the most efficient investments. It also enhances transparency of the market and boosts competition and innovation to the benefit of consumers.

The introduction of the Euro will bring about significant change in the economic and financial environment.

The introduction of the Euro has been a strong catalyst for mergers and acquisitions in the Euro area. In the year 2000, for example European money market transactions were one of the most dynamic markets in the world with operations totaling around one trillion Euro.

Major progress has been made in the stock and bond markets.

Statistics over the year 2001 (first 6 months) show that the Euro accounted for close to 40% of the total issuance in the world. Furthermore, European investors have diversified their bond portfolios substantially since the introduction of the Euro, prompted by the removal of the exchange rate risk.

⁵ The Euro- a major structural reform of the European economy. BIS review November 25, 2002 pages 4 and 5.

The Euro is an incentive for further structural reforms.

The Euro, per se, also is a strong catalyst for structural reforms in all non-financial domains in Europe. A single currency facilitates the comparison of prices, taxes, and earnings. Furthermore, the Euro could encourage the use and implementation of best practices in such areas as the labor market through increased coordination of member states. Unemployment in Europe is still relatively high if compared to the United States. According to studies of the OECD and the IMF, 75% of the unemployment in Europe is of a structural nature, i.e., generated by an environment, that handicaps job creation.

5. Dollarization⁶.

5a. The theoretical background for dollarization.

Dollarization can best be explained by the extensive (in cases only) use of the US dollar or another foreign currency alongside or instead of the domestic currency. This definition suggests first, that not only the use of US dollars but also the use of other foreign currencies (e.g., Euro, Yen, etc) is characterized as dollarization. Second, dollarization doesn't necessarily imply that only the dollar or foreign currency is used in economic and financial transactions. Typically, the US dollar, the Euro, or the Yen will be used alongside the domestic currency depending on the stage of dollarization in the country in question.

In the real world, dollarization can have three main varieties: unofficial dollarization, semiofficial dollarization, and official dollarization.

Unofficial dollarization. In this case, people hold much of their financial wealth in foreign assets even though the foreign currency is not a legal tender. Unofficial dollarization can include holding any of the following: foreign bonds and other nonmonetary assets generally held abroad, foreign currency deposits abroad, foreign currency deposits in the domestic banking system, or foreign notes (paper money) in wallets and under mattresses.

⁶ Basics of Dollarization. January 2000, Joint Economic Committee Staff Report

The case of unofficial dollarization corresponds to the money function of store of value where the foreign currency is used for 'asset substitution'. People do so because they want to protect their wealth against a loss in value due to high inflation at home.

Studies conducted on unofficial dollarization indicate its effects within the economy. One negative effect is that demand for domestic money becomes unstable. People can switch suddenly into foreign currency when they speculate against exchange rate changes. One positive effect of dollarization is that it provides a hedge against inflation in the domestic currency, thereby increasing the stability of the domestic banking system. When a devaluation is imminent it would normally trigger a run on the banking system. In a situation of an unofficial dollarization, this run can be controlled since the foreign currency can be made available, containing the panic in the community.

Semiofficial dollarization is also called a bimonetary system. In this scenario, the foreign currency is a legal tender and may even dominate bank deposits, but the foreign currency plays a secondary role in the payment of wages, taxes, and everyday expenses such as groceries and utility bills. Under a semiofficial dollarization, the country retains a Central Bank or other monetary authority and has latitude to conduct its own monetary policy.

Official or full dollarization. In this case, foreign currency has the exclusive or the predominant status as a full legal tender. This means that not only is foreign currency legal for use in contracts between private parties, but the government also uses the foreign currency in payments. Official dollarization does not mean that just one or two foreign currencies are the only full legal tenders. Freedom of choice can provide some protection from being stuck using a foreign currency as full legal tender. Today some 29 countries can be considered as official dollarization economies.

Generally speaking, some benefits can be derived from dollarization. Monetary problems and high inflation occur in many developing countries over the years. This development

originates mainly from the excessive creation of domestic currency; dollarization has eliminated these problems in the past.

Within a currency zone, similar products and services will have the same prices; dollarization is one way of reducing the price differences because of the arbitrage possibilities. In theory, inflation should be exactly the same in a currency zone, but prices of, e.g., real estate and labor tend to rise faster than the average in fast-growing areas.

Interest rates also tend to be broadly similar throughout a currency zone, but again differences in the assumed political environment result in deviations in interest rates. Technically the country risk between the various countries in a currency zone can reflect differences in interest rates.

An officially dollarized country cannot respond to economic shocks, such as in the price of oil, by altering the exchange rate of its currency; than, the authorities have to use alternative economic instruments to deal with asymmetric shocks.

Finally, the financial integration and the official dollarization using a leading currency make a country part of a larger and liquid international market. Consequently, the location of the loans need not be linked closely to the location of deposits.

On the cost side, the dollarization of a country also is associated with some losses in revenues. One of the most discussed losses of revenues attributed to the dollarization is the 'seigniorage'. This revenue can best be explained as the revenue lost to a country by the issuing of currency. A simple way to explain seigniorage is that it's the difference between the cost of producing a bill of 10 guilder (approximately 25 cents) and the buying power of that same 10 guilders. In other words, monetary authorities can circulate currency with a face value representing its purchasing power that is higher than the cost to produce the currency.

A second cost of dollarization is the loss of the domestic Central Bank is function as a lender of last resort. The question here is, can the governments of officially dollarized countries obtain sufficient funds if they wish to save a problem bank? If the system of banks come under increasing pressure in times of turmoil, can the government resolve the liquidity problem if they wish to do so?

A third cost related to dollarization is that of losing flexibility in monetary policy. A dollarized country may be passing through a recession and needs a more expansionary monetary policy, but this doesn't imply that e.g., the currency issuing country (for the US dollar, the USA) is experiencing the same economic cycle. The USA could be in an opposite economic cycle, and, therefore it would be very unlikely for the USA under these circumstances to accommodate the dollarized economy by loosening its monetary stance.

5b Economic and political considerations for dollarization?

The main economic consideration that makes a particular country a likely candidate for dollarization is that the country has a history of monetary performance and credibility of its currency. Another motive for dollarization is that the country collects little seigniorage from issuing domestic currency because unofficial dollarization is already extensive. Finally, from the theory of the optimum currency areas, one can single out desirable candidates for dollarization. The main point here is that optimum currency areas exist in practice where there is a large dominant currency and where considerable trade, labor, and investments flow between that country and its neighbors exist.

Further experience in dollarized countries shows that if inflationary pressures exist prior to the dollarization, the dollarization process will trigger a reversal of the inflationary trend after some time. It is also important to notice that business cycles in dollarized areas may diverge between various parts of the area, making it more difficult to synchronize monetary policy actions that satisfy all parties.

The most important political consideration that makes a country a likely candidate for official dollarization is that its people do not consider the domestic currency an indispensable element of national identity. Dollarization promotes globalization and increases the influence of international economic forces relative to domestic political forces.

5c The case of Ecuador

Dollarization (unofficial) in Latin America in general can be explained mainly by the absence of macroeconomic stability, the persistent fiscal deficits, the poor development in the financial markets, the loss of credibility in the domestic currency, the historical high inflation in the region, and other institutional factors.

In January of 2000, the authorities of Ecuador decided to opt for the dollarization of the country to solve the economic crisis that had hit the country after the drop in oil prices (a major export product) and the effects of 'el niño' (prices of agricultural export products adversely affected by higher temperatures). The modification of the exchange rate regime (between the Sucre and the US dollar) was basically vested on three main pillars; (1) a change in the exchange rate system, (2) the change in the monetary system, and (3) desire to promote macro-economic equilibrium and start the needed structural reforms in the country.

In the case of Ecuador, the dollarization came about as a spontaneous process in time due to the consistent loss in purchasing power of the Sucre (the domestic currency). Looking at table 1, one can appreciate the development in two indicators in Ecuador that best explains the unofficial dollarization process during the period 1989-99.

The first column relates the foreign currency deposits to the total deposits in Ecuador; one can see that this ratio has grown constantly during the decade prior to the official dollarization. This ratio explains the substitution effect of the Sucre to the dollar. The second column shows the ratio of investment portfolios in foreign currency to the total

investment portfolios. This ratio also has shown an increasing trend. From an economic viewpoint, this ratio indicates the asset substitution that has taken place in Ecuador.

Table 1.

Year	Foreign Currency deposits/ Total deposits	Foreign currency portfolio/ Total investment portfolio
1989	14.70	1.90
1990	13.30	1.60
1991	14.50	3.00
1992	20.00	6.80
1993	16.90	13.40
1994	15.60	20.30
1995	19.20	28.30
1996	22.30	32.80
1997	23.60	45.10
1998	36.90	60.40
1999	53.70	66.50

Ecuador's experiences with dollarization can be summarized as follows. The dollarization has eliminated the exchange risks involved in transaction between the Sucre and the US dollar. Furthermore, the process has reduced the interest rates and inflation. (average monthly inflation is 14,4 % february, 2002).

One of the main objectives of the dollarization of Ecuador was to initiate a process in which the domestic prices will converge to international price levels. Although the variations in the inflation rate have dropped considerably, inflation in Ecuador is still too high. The failure to reduce price levels to international prices had to do with price hikes after the dollarization of Ecuador due to higher tariffs and utility prices and the expectations of the economic agents as to the doubts whether the government would sustain a price policy in Ecuador geared toward further price increases of public services.

The second objective of the dollarization was to impose fiscal discipline on the government. Several instruments were implemented in the country to guarantee prudent fiscal policy. One of these is the use of budgetary norms such as the fiscal deficits should

be limited to a maximum of 2.5% of the GDP. Second, the Minister of Finance should present budgetary data every six months that show the development of budget execution.

Propositions and axioms:

- Will dollarization of the Antillean economy resolve the problems of macro-economic disequilibrium (unemployment, fiscal-gap, and public debt)?
- If the answer to axiom one is affirmative, then do we have to use the US dollar or the Euro as the anchor currency?
- How can we promote more wage and price flexibility here, given that we have opted since 1971 for a fixed exchange rate?
- Should we further liberalize the market for banking and financial services? And how can this best be done?