

Currency Board Arrangements:  
Analysis and Perspective

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## **Introduction**

In today's economic environment, countries are always seeking more effective strategies to enhance their nation's efficiency. With numerous countries today experiencing a balance of payments crisis or general economic hardship, whether through high inflation or inefficient financial institutions, it is important for countries to examine different monetary arrangements that could strengthen their economies. As a result, implementation of alternative forms of monetary policies, such as currency board arrangements, has recently undergone resurgence. Evidence of this renewed interest is not only prevalent in recent economic literature, but also in real world realization, with countries such as Argentina, Estonia, Lithuania and Bulgaria all adopting a currency board arrangement over the past decade. The reason for this is that it could be a solution to the seemingly difficult question on deciding whether to adopt a fixed or flexible exchange rate regime. Changes in exchange rates have had pervasive effects with consequences involving prices, wages, interest rates, production levels, employment opportunities, and thus with direct or indirect effects on welfare and development.

Due to these factors it is crucial to further understand currency board arrangements as to what they can do to enhance economies. By examining the history of currency boards and their relation to the earlier types of monetary regimes such as the gold standard, a better understanding of their functioning can be realized. It is also through a comparison of their costs and benefits will help to make clear under what circumstances a currency board may be implemented. If a currency board is to be established, then it is crucial to examine the criteria required for adopting a currency board, as well as the question of duration and exit strategies if necessary. Also through a

general assessment of past currency board arrangements as well as a detailed description of the recent currency board arrangement in Argentina, and the present system in Hong Kong, further examination of the workings of the currency board are realized.

### **Fixed versus Floating Exchange Rates**

Before continuing on with the analysis of currency boards, it is important to understand that it fits into the wider study of the decision to use either a fixed or flexible exchange rate. One of the oldest debates in economics is about the merits and limitations of these two types of regimes. What makes this debate so interesting is that the relevance of the issue has not weakened over time. During the last fifteen years, many newly-independent countries have undergone extensive economic liberalization processes, in hopes of opening up their borders to goods, labor, and capital and joining the world economy. Even under the knowledge that these economies are moving from planned and closed ones to open market economies, there is still no absolute consensus on what kind of exchange rate regime gives the best result.<sup>1</sup> However, there seems to be a present consensus that gives the advantage to flexible exchange rates, despite the numerous advantages of a fixed rate. Table 1 lists various exchange rate regimes that are practiced throughout the world.

**Table 1: Global Exchange Rate Arrangements as of January 1<sup>st</sup>, 2002**

<b>Framework</b>	<b>Countries</b>
No Separate Legal Tender	40
Currency Board Arrangements	8
Other Conventional Fixed Peg Arrangements	40
Pegged Exchange Rates with Horizontal Bands	5

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<sup>1</sup> Isard, Peter. "Exchange Rate Economics." Cambridge Surveys of Economic Literature. Ed. Perlman, M. London: Cambridge University P. 1995. P.24.

Crawling Pegs	4
Exchange Rates within Crawling Bands	6
Managed Floating	42
Independently Floating	41

Source: Isard, Peter. "Exchange Rate Economics." Cambridge Surveys of Economic Literature. Ed. Perlman, M. London: Cambridge University P. 1995.

A fixed exchange rate should be regarded as preferable for countries with fragile central banks, since a credible fixed exchange rate will enforce a durable monetary and fiscal foundation that will not be subject to political interference, which can often be the downfall of an economy. In particular, a fixed exchange rate will end soft budget constraints experienced by many developing economies. Under a flexible exchange rate system, expectations that typical central banks will continue to accommodate soft budget constraints can induce a terrible cycle of inflation. A fixed exchange rate maintained by a currency board, however, will impose a hard budget constraint on governments that will discourage them from subsidizing unprofitable state enterprises, and thereby stopping inflation.<sup>2</sup> By doing so, banks will be able to allocate resources more efficiently by lending to innovative companies.

Additionally, a fixed exchange rate can eliminate exchange risk with the reserve currency. A country that establishes a currency board, using for example, the U.S. Dollar as its reserve currency, will join a prosperous common currency zone. Trade with the U.S. and other countries in the common currency zone will be easier than it would have been under a floating exchange rate regime because the fixed rate will eliminate exchange risk in the prices of goods.<sup>3</sup> Price calculations can be made more exactly for

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<sup>2</sup> Aziz, Jahangir. Caramazza, Francesco. "Fixed or Flexible? Getting the Exchange Rate Right in the 1990s." International Monetary Fund Economic Issues 13. Washington. 1998. P.7.

<sup>3</sup> Temperton, Paul. "The UK & The Euro." Ed. Battley, N. London: John Wiley & Sons. 2001. P. 39.

internationally traded goods, and entrepreneurs will have more time to apply to other problems that, in a system with a floating exchange rate, they would have to apply to foreign-currency speculation and hedging.<sup>4</sup> All these factors will tend to enhance economic efficiency by making the lowest-cost producers within the common currency zone those with the greatest natural advantages.

Under a fixed exchange rate regime, the combination of increased credibility and the elimination of exchange risk can lead to encouraged foreign investment, particularly from other countries within the common currency zone. Because investors know with absolute certainty what exchange rate they will receive in terms of the reserve currency they do not have to worry about moving around profits. A fixed exchange rate will also enable the currency board country to mirror the financial markets of other countries in the common currency zone.<sup>5</sup> Entrepreneurs in the country with a fixed exchange rate will be able to use as points of reference the highly liquid, well-established markets elsewhere in the zone. Also, since access to large foreign financial markets elsewhere in the zone will become easier, there is potential for substantial increases of an inflow of capital for nations who establish fixed exchange rates.

One argument against a fixed exchange rate regime is that it is assumed that all citizens of the same country also use the same currency. However, under the currency board system this does not have to be the case. Foreign-currency deposits, particularly reserve-currency deposits, have been common. In Hong Kong, for example, foreign-currency deposits exceed Hong Kong dollar deposits. Also, deposits in Japanese yen, a

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<sup>4</sup> Temperton, P. 39.

<sup>5</sup> Aziz, Jahangir. Caramazza, Francesco. "Fixed or Flexible? Getting the Exchange Rate Right in the 1990s." International Monetary Fund Economic. Issues 13. Washington. 1998. P.9.

currency that floats against the Hong Kong dollar, are widespread.<sup>6</sup> Allowing people to hold foreign-currency deposits inside or outside the country in a fixed exchange rate system will enable them to choose the best mixture of fixed and floating currencies most suitable for them. For example, a firm located in Hong Kong that trades with France may wish to hold Euros. If the currency board currency floats with respect to the euro, holding euros will enable the firm to protect itself against currency risk to some degree, which will tend to improve its profitability.

One consensus is that fixed and flexible exchange rate regimes can behave well under the right economic conditions and for the right economic reasons. While the long-run success of any chosen exchange rate regime will depend on a strong commitment to sound economic fundamentals, it is crucial to examine all possible exchange rate arrangements that could make the jobs of economic liberalization for many countries much easier and fulfilling.

### **The Gold Standard and the Evolution of Currency Boards**

The evolution of the currency board system is linked to the gold exchange standard, which occurred during two periods. Initially established was the international gold standard in England during the eighteenth century, which was abandoned in 1797 but revived in 1819.<sup>7</sup> This was followed by the gold exchange standard, which became the major international monetary arrangement during the period of 1925-31. The reason for the development of the first international gold standard was due to a shortage of silver in England. A commission was set up to investigate the shortage and discovered that the

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<sup>6</sup> Hanke, Steve. Shuler, Kurt. "Currency Boards for Developing Countries." International Center for Economic Growth. ICS P. San Francisco. 1994. P.9.

<sup>7</sup> Isard, Peter. "Exchange Rate Economics." Cambridge Surveys of Economic Literature. Ed. Perlman, M. London: Cambridge University P. 1995. P.30.

price of gold relative to silver was higher in England than abroad.<sup>8</sup> Attempts to stabilize the outflow of silver failed and England was left with sizable gold reserves, therefore naturally leading to a gold exchange.

A country established a gold standard when it fixed an official price for gold in terms of its own currency and stood ready to convert freely between domestic money and gold at the official par value.<sup>9</sup> Under this system, outflows of gold would be condensed automatically by the so called price-specie flow mechanism. The mechanism operated as follows; because a countries price level is positively related to the domestic money supply, which was positively related to the countries stock of gold, and also, a countries trade balance was inversely related to its price level, an outflow of gold would reduce the domestic money supply causing the domestic price level to fall. This would lead to an improvement in the trade balance thereby countering the gold outflow.<sup>10</sup>

The main difference under the gold exchange standard was while each currency was freely convertible into gold at a fixed rate; it was also convertible into other currencies at relatively stable prices.<sup>11</sup> This was intended to give greater convenience to international traders and investors, by ignoring the tedious task of currency conversion, and exchange rate fluctuations.

The similarities between the currency board system and the gold exchange standard goes deeper then the notion of a fixed rate, with distinct parallels more evident than when comparing among other fixed exchange rate regimes. Some of these

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<sup>8</sup>Isard, P.31.

<sup>9</sup>Schwartz, Anna J. "Currency Boards Have a Future?: Twenty-Second Wincott Memorial Lecture." The Institute of Economic Affairs. London. 1992. P.3.

<sup>10</sup> Schwartz, P.3.

<sup>11</sup> Schwartz, Anna J. "Alternative Monetary Regimes: The Gold Standard." Alternative Monetary Regimes. Ed. Colin D. Campbell and William R. Dougan. Baltimore. John Hopkins University P. 1986. P.17-18.

similarities include exchange rate conversion, the absence of exchange rate fluctuations, and the preventative measures imposed by the system on governments from fruitful spending.

Traditionally, the gold exchange standard was an international system that used gold as money. Under the standard, gold bullion was shipped across countries to guarantee that exchange rates converged to their gold parities.<sup>12</sup> Similarly, in a currency board system, people move currency notes to keep the market exchange rate from fluctuating. Both aspects were crucial to the proper functioning of the whole system and to ensure other features would operate smoothly.

Another similarity among this system and the currency board was that there was no need to constantly be concerned with exchange rate fluctuations. Under the gold exchange standard, conversion units were used instead of exchange rates. Every national currency would represent a specific weight of gold. This constancy of exchange rates eliminated exchange rate risk and the need to employ resources to hedge that risk.<sup>13</sup> The elimination of exchange rate risk is one of the most inviting aspects of the currency board system. With so many countries belonging to the gold exchange standard, it could have been the closest the world has come to free international trade.

The third similarity between the two systems was in fact the cause for the downfall of the gold exchange standard. The reality that the exchange standard prevented governments and their central banks from underhandedly diverting wealth from its rightful owners to themselves by money printing, caused the abandonment of the whole system. The commitment to maintain gold convertibility restrained credit creation, which

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<sup>12</sup> Schwartz, P.19.

<sup>13</sup> Temperton, Paul. "The UK & The Euro." Ed. Battley, N. London: John Wiley & Sons. 2001. P.21.

lead to gold outflows and threatened convertibility.<sup>14</sup> Similarly, under the currency board system, countries are forced to steer away from soft budget constraints that render the economies inefficient. While it is evident that governments participating in the gold exchange standard were not able to adhere to the strict monetary laws, it is not to say that this was a disadvantage of the system. If those same governments and central banks had stood by their promises to maintain convertibility of their currencies into gold, it could be argued that the horrendous inflation that occurred in the aftermath of World War I would not have been so devastating.<sup>15</sup> In any case, the credibility that each system tries to instill in order for proper functioning of their respective economies are considered mirror images of each other.

### **Currency Boards Throughout History**

During the time of the first currency boards, London was considered to be the financial centre of the world. Its credibility and advanced macroeconomic policies were the envy of many nations and the idea of linking exchange rates to Sterling was a natural one. Currency boards to date have existed in about seventy countries. The design of currency boards had originated in Britain in the early 1800s among a group of economists known as the “Currency School.”<sup>16</sup> Through political influence, they were able to have the Bank of England converted to a currency board through the Bank act of 1844. The goal of creating a currency board was to provide the colonies inhabitants with a stable and convertible currency, such as the pound Sterling, without the cost that would be

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<sup>14</sup> Kreinin, Mordechai E. “International Economics, A policy Approach.” HBJ 5<sup>th</sup> ed. Orlando. 1987. P.51.

<sup>15</sup> Schuler, Kurt. “Currency Boards.” Dissertation. George Mason University. Virginia. 1992. P.6.

<sup>16</sup> Schuler, P.7.

involved if the colony used Sterling coins and notes.<sup>17</sup> Also, by using a currency board arrangement instead of the pound Sterling, the reserves held could be deposited to earn interest in London, and naturally most of its liabilities; notes and coins were not interest bearing.

The first successful attempt to establish a currency board in the British colonies occurred in Mauritius in 1849.<sup>18</sup> After much experimentation with the system, the currency board reached its mature form with the West African Currency Board, established in 1912 for the British colonies of Nigeria, Sierra Leone, Ghana, and Gambia.<sup>19</sup> The West African Currency Board became a strong model for many later currency boards.

Eventually these arrangements were widespread throughout the British Empire. The currency board system reached its greatest level in the late 1940s, when about fifty countries had currency boards. The colonized countries also favored the arrangements since the system performed well, showing low inflation, full convertibility into their anchor currencies, and good economic growth.

The Second World War saw the end of most currency boards. With the fall of the British Empire and the breakup of colonialism, many states started to seek independence and felt that the currency board arrangement was not the most appropriate exchange rate regime, and indiscriminately replaced many existing institutions with central banks.

There were also several currency boards in independent countries, such as, Argentina from 1902-14, 1927-29, Iraq from 1931-49, Danzig, 1922-23, and North

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<sup>17</sup> Williamson, J. "What Role for Currency Boards?" The Institute for International Economics. Washington: Institute for International Economics. 1995. P. 4.

<sup>18</sup> Williamson, P.5.

<sup>19</sup> Schwartz, Anna J. "Do Currency Boards Have a Future?: Twenty-Second Wincott Memorial Lecture." The Institute of Economic Affairs. London. 1992. P.11-12.

Yemen from 1904-31, to name a few.<sup>20</sup> However, one could argue that the first modern currency board was established in Hong Kong in 1983. Although they initially moved away from the currency board arrangement, they still have maintained their strict peg to the U.S. Dollar.

After Hong Kong the next country to introduce the arrangement was Argentina in 1991, following a severe bout of hyperinflation. The decade also saw currency boards established in several transition countries such as Estonia, Lithuania, Bulgaria, and Bosnia. Table 2 gives a basic description of some currency boards and board like systems. A more complete listing of currency board operations can be referred to in the appendix.

**Table 2: Currency Boards and Currency Board-Like Systems Today**

Country	Population	GDP (US\$)	System began	Exchange rate / remarks
Argentina	37 million	\$374 billion	1991	1 peso = US\$1 / Currency board-like
Bermuda	62,000	\$1.9 billion	1915	Bermuda \$1 = US\$1 / Loose capital controls
Brunei	320,000	\$5.4 billion	1952	Brunei \$1 = Singapore \$1 / Currency board-like
Bosnia	3.5 million	\$5.8 billion	1997	1 convertible mark = DM1 / Currency board-like
Bulgaria	8.2 million	\$34 billion	1997	1 lev = DM1 / Currency board-like
Cayman Islands	39,000	\$930 million	1972	Cayman \$1 = US\$1.20
Djibouti	450,000	\$530 million	1949	177.72 Djibouti francs = US\$1/ Currency board-like
Estonia	1.4 million	\$7.8 billion	1992	8 kroons = DM1 / Currency board-like
Falkland Islands	2,800	unavailable	1899	Falklands £1 = UK£1
Faroe Islands	41,000	\$700 million	1940	1 Faroese krone = 1 Danish krone
Gibraltar	29,000	\$500 million	1927	Gibraltar £1 = UK£1
Hong Kong	6.8 million	\$168 billion	1983	Hong Kong \$7.80 = US\$1 / More orthodox since 1998
Lithuania	3.6 million	\$18 billion	1994	4 litai = US\$1* / Currency board-like

Source: CIA (1999) U.S. Central Intelligence Agency, CIA World Factbook, <http://www.odci.gov/cia/publications/factbook/index.html>.

<sup>20</sup> Schwartz, P.12.

## Defining the Currency Board Arrangement

Defined broadly, a currency board can be seen as a special kind of monetary system based on firm rules instead of decision-making. It is a monetary authority that issues notes and coins convertible into a foreign anchor currency or commodity on demand and at a strictly fixed rate.<sup>21</sup> The anchor currency is a currency chosen for its expected stability and international acceptability, for most currency boards the British pound, the U.S. Dollar, or more recently the Euro are good examples of an anchor currency. However, while it would also be possible to fix the exchange rate in terms of a basket of currencies instead of just a single currency, the general practice has been the latter.

The currency board holds various assets denominated in the anchor currency, such as low-risk interest bearing bonds.<sup>22</sup> As set by law, the currency board must hold reserves somewhat equal to 100 percent of its notes and coins in circulation.<sup>23</sup> Thus, profits are generated from the difference between the interest accrued on these reserve assets and the expenses involved in maintaining its notes and coins in circulation, with all profits remitted to the government. A typical currency board has no discretion in monetary policy, as market forces and the balance of payments determine the money supply. A currency board can operate in place of a central bank, since these arrangements do not require a full-fledged central bank for their operation. While there are various currency

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<sup>21</sup> Balino et. al. "Currency Board Arrangements: Issues and Experiences." International Monetary Fund Occasional Paper. Washington. 1997. P.1.

<sup>22</sup> Hanke, Steve H. "Currency Boards." The Annals of the American Academy of Political and Social Science. Sage P. Vol. 579. 2002. P.88.

<sup>23</sup> Balino, Tomas. et. al. "Currency Board Arrangements: Issues and Experiences." International Monetary Fund Occasional Paper. Washington. 1997. P.1.

board arrangements that work alongside a central bank, a typical currency board does not try to influence interest rates by establishing a discount rate like a central bank. The fixed exchange rate with the anchor currency tends to keep interest rates and inflation in the currency board country roughly the same as those in the anchor currency country.

Generally, a currency board comprises of some core elements: a fixed exchange rate between a country's currency and an anchor currency, automatic convertibility, and a long-term commitment to the system, which is often made explicit in the banking law. A currency board maintains credibility if a country's central bank holds and maintains sufficient official foreign exchange reserves to cover at least its entire monetary liabilities, thereby assuring financial markets and the public at large that all domestic-currency is backed by an equal amount of foreign currency.

In the currency board system, demand is higher for a currency-board currency than for currencies without the guarantee of convertibility because holders of these currencies know that their money can be easily converted into a major internationally recognized foreign currency: the anchor currency. However, if a situation arose and it were to come to such a testing of the system, automatic stabilizers would prevent any major outflows of foreign currency.<sup>24</sup> The mechanism works through changes in the money supply, which lead to interest rate changes, which, in turn, encourage funds to move between the domestic and the anchor currency. This is essentially the same mechanism that operates under a fixed exchange rate, as well as described under the gold standard. The exchange rate guarantee implied in the currency board rules assures that the

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<sup>24</sup> Hanke, Steve. Shuler, Kurt. "Currency Boards for Developing Countries." International Center for Economic Growth. ICS P. San Francisco. 1994. P.7.

necessary interest rate changes and the attendant costs for the economy will be comparatively lower.<sup>25</sup>

It is important to note that a currency board should be viewed as only one aspect of a monetary system in any country that has banks and other financial institutions. The currency board is a crucial part since it determines what the monetary standard will be, however other monetary institutions that comprise the currency board system must not be neglected.

It has been characteristic of currency board systems to allow freedom of entry by foreign banks.<sup>26</sup> Because most currency board systems have lacked lenders of last resort, the diversification of risk that branch networks make possible has been the main source of stability in the banking system. The most prominent banks in currency board systems have been international banks with extensive branch networks, including branches in the reserve-currency country which enable them to tap its money markets readily.<sup>27</sup> While this is an advantage to commercial banks, the emergence of a currency board does tend to crowd out private sector banking.

Another characteristic of currency board systems has been freedom of capital movements. Since a currency board converts all its own currency into reserve currency on demand at the fixed rate, it also accepts unlimited amounts of reserve currency for conversion into its currency.<sup>28</sup> The currency board system is thus incompatible with capital controls on exchanges with the reserve currency. Capital controls may however

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<sup>25</sup> Hanke, P.7.

<sup>26</sup> Balino, Tomas. et. al. "Currency Board Arrangements: Issues and Experiences." International Monetary Fund Occasional Paper. Washington. 1997. P.1.

<sup>27</sup> Balino, P.1.

<sup>28</sup> Hanke, Steve. Shuler, Kurt. "Currency Boards for Developing Countries." International Center for Economic Growth. ICS P. San Francisco. 1994. P.9.

exist for the reserve currency, imposed by the government of the reserve-currency country. This was done in Britain from 1939 to 1979.<sup>29</sup> In currency board systems tied to Sterling, capital movements with countries outside the "Sterling area" were not as free as they would have been if the reserve currency had been the U.S. Dollar.

Government budgets in currency board systems have historically been balanced or slightly in surplus. Theoretically, a government may run persistent budget deficits under the currency board system if it can keep borrowing to finance its deficits, just like governments do under flexible exchange rate regimes. However, lenders should be unwilling to allow government budget deficits to carry on forever. The currency board system enforces a hard budget constraint on the domestic government just as the use of a foreign currency would.

### **Main Characteristics of a Currency Board**

In general, a currency board is considered fairly simple to operate. This is primarily due to the fact that its characteristics consist of only a few aspects relative to alternative exchange rate regimes. Following are some of the main features and characteristics of the currency board arrangement:

#### Anchor Currency:

The anchor currency, typically chosen for its expected stability and international recognition, has historically been the British Pound or the U.S. Dollar. However, for some of the recent currency board-like systems, the Euro has been selected. Countries may also wish to opt for a currency basket as the anchor, where a number of currencies

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<sup>29</sup> Hanke, P.10.

are used in order to enhance stability of the reserves. Also, the anchor currency does not have to be a currency printed by a central bank; as a few currency boards have used gold as the anchor currency.<sup>30</sup>

### Convertibility:

A fundamental characteristic of a currency board is that it maintains full, unlimited convertibility between its notes and coins and the anchor currency at a fixed rate of exchange. Since deposits are convertible into currency board notes and coins at a fixed rate: one unit of notes or coins equals one unit of bank deposits, the bank deposits are also convertible into the anchor currency.<sup>31</sup> However, the currency board is not responsible for converting deposits into currency board notes and coins. Banks must meet customer's demands by keeping on hand adequate reserves of currency board notes and coins.

Unlimited convertibility into the anchor currency also means that in a currency board system, there are no restrictions on current-account transactions, such as buying and selling goods and services, or capital-account transactions, such as buying and selling financial assets. This is due to automatic adjustments in the balance of payments,<sup>32</sup> a main feature of the system.

The currency board does not have to be the only holder of the anchor currency in a currency board system. Banks also hold reserves.<sup>33</sup> People who want to convert deposits of domestic currency into foreign currency can do so either directly by

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<sup>30</sup> Schuler, Kurt. "Introduction to Currency Boards." Currency Boards and Dollarization. <http://users.erols.com/kurrency/intro.htm>.

<sup>31</sup> Schuler, <http://users.erols.com/kurrency/intro.htm>.

<sup>32</sup> Williamson, J. "What Role for Currency Boards?" The Institute for International Economics. Washington. 1995. P.30.

<sup>33</sup> Williamson, P.31.

exchanging domestic currency deposits for foreign currency with their bank, or indirectly, by cashing in the deposits for currency board notes and exchanging the notes for foreign currency at the board.

#### Reserves:

A currency board's reserves must be adequate in order to guarantee that all holders of its notes and coins can convert them into the reserve currency. This is accomplished by holding external assets equal to at least 100 percent of the board's notes and coins in circulation. In addition, the board will often hold reserves of 105 or 110 percent of their liabilities, to have a margin of protection should the bonds they hold lose value. The assets may be actual foreign currency, or more commonly, securities issued abroad and denominated in the reserve currency.<sup>34</sup> A currency board holds a portion of its reserves in extremely liquid form, such as bank deposits in the reserve-currency country, top-grade short-term securities, and perhaps even some reserve-currency notes.<sup>35</sup> Sometimes, reserves may be held in less liquid but higher yielding forms, such as long-term securities. As much as possible, the currency board should avoid holding assets that earn no interest.

#### Profits:

Because notes and coins do not pay interest like bonds or most bank deposits, they act as an interest-free loan from the people who hold them to the issuer. Profit therefore equals the interest earned on reserves minus the expense of putting the notes and coins into circulation. If the notes and coins are destroyed, the issuer's net worth increases, because liabilities are reduced but assets do not. Profits from a currency board

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<sup>34</sup> Schuler, Kurt. "Introduction to Currency Boards." Currency Boards and Dollarization. <http://users.erols.com/kurrency/intro.htm>.

<sup>35</sup> Schuler, K. <http://users.erols.com/kurrency/intro.htm>.

that are left after paying all the board's expenses are usually around one percent of gross domestic product a year.<sup>36</sup>

Using currency issued by a currency board rather than using foreign currency directly captures seigniorage for the domestic government, another form of profit to be discussed in more detail later.

#### Expenses:

Judging from the experience of past currency boards, average expenses of the currency board are usually no more than one percent of total assets, and can get to as little as one-half percent.<sup>37</sup> The largest expenses will be printing and minting of notes and coins, as well as salaries of the currency board staff. Other costs such as rent and utilities are usually minor.

#### Inflation and Interest Rates:

The fixed exchange rate between the currency board currency and the reserve currency implies that, changes in the prices of tradable goods should be close to those occurring in the reserve currency country, providing there are relatively low trade barriers. Interest rates should be somewhat equal among the two countries, as long as there is no political risk or barriers to movement of funds between them. Currency boards do not try to influence interest rates by establishing a discount rate like a classic central bank. The fixed exchange rate with the anchor currency encourages arbitrage that also tends to keep interest rates and inflation in the currency board country parallel as those in

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<sup>36</sup> Hanke, Steve H. "Currency Boards." The Annals of the American Academy of Political and Social Science. Sage P. Vol. 579. 2002. P.91.

<sup>37</sup> Hanke, P.91.

the anchor-currency country.<sup>38</sup>

#### Monetary Policy:

By design, a currency board has no discretionary power. Its monetary policy is completely automatic, consisting only of its sole function, exchanging its notes and coins for the reserve currency at a fixed rate. Unlike a central bank, a currency board does not lend to the domestic government, to domestic companies, or to domestic banks. In a currency board system, the government finances its spending through fiscal means, by either taxing or borrowing, not by printing money and causing inflation. Since a currency board's role is strictly controlled, it can be more protected from political interference or influence than a central bank is.

#### Offices:

The main office of a currency board is typically in the financial center of the country, usually the capital, with a few other branch offices or agencies in other large cities of the country. The main offices are usually concerned with overseeing that the currency board runs smoothly, while the main role of the branch offices is primarily concerned with the storing and distributing of notes and coins.<sup>39</sup> The currency board should also have an office abroad, usually in the reserve country, which can provide a backup location for redeeming notes and coins should the domestic government threaten the domestic offices of the currency board.

#### Management:

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<sup>38</sup> Balino, Tomas. et. al. "Currency Board Arrangements: Issues and Experiences." International Monetary Fund Occasional Paper 151. Washington: International Monetary Fund. 1997. P.27.

<sup>39</sup> Balino, P.28.

The currency board typically has a board of directors to supervise the board's staff. Past currency boards have had three to eight directors.<sup>40</sup> Unlike the power of the board of directors under a central banking system, the powers of the board of directors and of the staff under the currency board will be restricted, as they have no discretionary control of the money supply.

#### Staff:

The staff of the currency board has two primary functions: exchanging currency board notes and coins for reserve currency, and investing the assets of the currency board in predominantly low-risk securities denominated in and payable in the reserve currency. The staff should be comprised of some bank tellers for exchange functions as well as some financial traders. Traders do not have to be too experienced since a currency board should follow routine, conservative investment practices.

#### Accounting:

Accounting is crucial in the currency board system. Under usual circumstances, currency boards are initially set up in a country with the goal of enhancing credibility. Accounting procedures must be properly outlined with strict safeguards in place in order to reassure investors that the system is keeping its integrity.

#### Seigniorage:

Defined broadly, seigniorage can be considered as the profit that results from the difference in the cost of printing money and the face value of that money.<sup>41</sup> Under the currency board system, the difference between using currency issued by the currency

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<sup>40</sup> Enoch, Charles, Gulde, Anne-Marie. "Making a Currency Board Operational." IMF Paper on Policy Analysis and Assessment 97/10. Washington: International Monetary Fund. 1997. P.22.

<sup>41</sup> Hanke, Steve. Shuler, Kurt. "Currency Boards for Developing Countries: A Handbook." International Center for Economic Growth. ICS P. San Francisco. 1994. P.33.

board rather than the anchor currency is that a currency board captures seigniorage for domestic use, rather than letting it accrue to the foreign central bank that issues the anchor currency.<sup>42</sup> While seigniorage is also captured under a central banking system, there are differences between the two.

A currency board can earn seigniorage from interest only. The currency board earns interest from its holdings of reserve-currency securities, but pays no interest on its liabilities in the form of notes and coins.<sup>43</sup> Therefore, notes and coins act like an interest free loan from people who hold them to the issuer, where the issuer's profit is equal to the interest earned on reserves minus the expense of putting the notes and coins into circulation. Gross seigniorage is the income from issuing notes and coins. It can be explicit interest income or implicit income in the form of goods acquired by spending money. Net seigniorage is gross seigniorage minus the cost of putting and maintaining notes and coins in circulation. The currency board will earn gross seigniorage equal to interest from its holdings of reserve-currency securities.<sup>44</sup> Its net seigniorage will be the gross seigniorage minus the expense of putting and maintaining notes and coins in circulation. In addition, if notes and coins are destroyed, the net worth of the currency board will increase, because its liabilities: notes and coins, will decrease but its assets do not. Seigniorage generated by a currency board can be quite substantial. For example, if a currency board earns around 6 percent annually on its securities, and its expenses of putting notes and coins in circulation costs one percent annually, then its net seigniorage

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<sup>42</sup> Schuler, Kurt. "Introduction to Currency Boards." Currency Boards and Dollarization. <http://users.erols.com/kurrency/intro.htm>.

<sup>43</sup> Hanke, Steve. Shuler, Kurt. "Currency Boards for Developing Countries: A Handbook." International Center for Economic Growth. ICS P. San Francisco. 1994. P.36.

<sup>44</sup> Hanke, P.36.

will be roughly five percent annually of the average circulation of the currency board's notes and coins in circulation.<sup>45</sup>

A typical central bank also earns seigniorage on its notes and coins in circulation and on the deposits that commercial banks hold with it.<sup>46</sup> These deposits however, like notes and coins, pay no interest. There is however a more important source of seigniorage for a typical central bank; inflation. A currency board does not capture seigniorage from inflation because it does not have the power to increase the nominal money supply, which is ultimately the monetary base of the anchor currency. A typical central bank, in contrast, can create inflation at its discretion by increasing the domestic monetary base. The additional seigniorage gained by a central bank has come at the expense of inflation for its country, which is a heavy trade off. If not managed properly this could have severe negative effects on the economy.

The negative effects of seigniorage can also be seen in countries where there is a high cost of money printing, generally in developing countries where bills are handled more often than in developed countries. These heavily handled bills must be destroyed and newly printed quite often. Bills in these countries are printed many times a year, which cuts into seigniorage revenues.

### **Difference between Currency Boards and Other Popular Regimes**

It is important to clearly understand the difference between a currency board and a central bank. The crucial difference between them is that a currency board maintains a fixed proportion of reserves in foreign assets, whereas a central bank does not. The ability

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<sup>45</sup>Enoch, Charles. Gulde, Anne-Marie. "Are Currency Boards a Cure for All Monetary Problems?" Finance and Development, December, 1998. P.201.

<sup>46</sup> Enoch, P.201.

to change the ratio of external assets to domestic liabilities gives a central bank the ability to engage in discretionary sterilization of the reserves of commercial banks.<sup>47</sup> This is an absolute contradiction to a currency board's monetary policy. Unlike currency boards, however, central banks have no upper bound on their reserve ratio, or at least have a wide band where they may vary the reserve ratio at their pleasure.<sup>48</sup>

A currency board system is a regime of fixed exchange rates, not pegged rates. The exchange rate with the reserve currency is fixed permanently, at least if the reserve currency does not become terribly unstable. The formal or informal structure of the currency board enables it to make a binding commitment to a fixed exchange rate.

### **Benefits Gained from Adopting a Currency Board Arrangement**

It should be stressed once again that currency boards can succeed the way they are intended to only if the establishing country puts in place both the fitting economic policies, proper regulation, and undertakes adequate procedural preparation, to parallel the establishment of the currency board. If these conditions are met, then a country can stand to benefit from the currency boards operational simplicity, increased credibility, lower inflation and interest rates, heightened public confidence, as well as from an automatic payments adjustment mechanism.

#### Operational Simplicity:

A currency board's strength is derived from the simplicity and narrow discretion of its operating rules. These operating rules are easily understood and monitored by the general public. This virtually eliminates the scope for government intervention in

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<sup>47</sup> Hanke, Steve. Shuler, Kurt. "Currency Boards for Developing Countries: A Handbook." International Center for Economic Growth. ICS P. San Francisco. 1994. P.10.

<sup>48</sup> Hanke, P.11.

monetary and foreign exchange rate policies, and thereby enhances the credibility of the fixed peg.<sup>49</sup> Pegging the exchange rate simplifies the operation and monitoring of the foreign exchange market and at the same time reduces the need for staff. Due to the identified reasons, currency boards are therefore appealing to small newly-independent countries, such as Estonia and Lithuania.

#### Credibility by Instilling Discipline in Government Spending:

Another advantage from the currency board system is that they can instill tremendous macroeconomic discipline and build up credibility. The currency board system implies strict prohibition of financing government deficits or the provision of credit to the banking sector.<sup>50</sup> This should encourage sound fiscal policy making, leaving spending cuts, revenue increases, or lending from domestic or foreign banks as alternatives to the government. Currency boards also help to curb wasteful government spending due to the inability to rely on printing money to finance deficits. By extension, this implies that debt must be kept within limits of serviceability.

#### Inflation and Interest Rates:

Inflation can have harmful effects on an economy. It causes profits to be overstated and creates distortion in the balance sheets and income accounts of financial institutions.<sup>51</sup> One of the main arguments for a currency board is that they tend to deliver low inflation. This superior inflation record appears to be mainly due to lower inflationary expectations reflecting a higher degree of confidence in the currency board

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<sup>49</sup> Hanke, Steve H. "Currency Boards." The Annals of the American Academy of Political and Social Science. Sage P. Vol. 579. 2002. P.92.

<sup>50</sup> Williamson, J. "What Role for Currency Boards?" The Institute for International Economics. Washington. 1995. P.15.

<sup>51</sup> Popiel, Paul. "Financial System and Financial Crisis: A Practitioner's View." Ottawa: Economic Department of Carleton University. 2003.

regime then that of a standard pegged exchange rate regime.<sup>52</sup> Also, the predictability and rule-based nature of a currency board offers a stable exchange rate and convergence of the interest rate towards the interest rate of the reserve country, which promotes both trade and investment. This was evident in Estonia, where Interest rates declined rapidly compared with Latvia due to higher credibility of the Estonian currency board.<sup>53</sup>

#### Payments Adjustment Mechanism:

The major advantage of a currency board arrangement is that it builds in an automatic payments adjustment mechanism. This works in the same manner as the one identified as the price-specie flow mechanism under the gold standard.<sup>54</sup> If the currency board country's combined current and capital account is in deficit, the money supply will go down over time causing interest rates to rise. This will attract a capital inflow. At the same time, the higher interest rates tend to exert deflationary pressure, which will reduce absorption and improve the current account of the balance of payments. The resulting lower pressures of demand will eventually reduce prices, making exports more competitive in world markets and allowing real output to rise back to full employment without a payments deficit. Under more common flexible exchange rate regimes, a payments deficit would induce a depreciation of the currency. While this would make exports more competitive, it also causes inflation by pushing up prices. Countries who adopt currency board like systems, or have some alternative form of pegged exchange rate regime, in the hopes of combating inflation, tend to get overvalued in the early stages

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<sup>52</sup> Schuler, Kurt. "Introduction to Currency Boards." Currency Boards and Dollarization. <http://users.erols.com/kurrency/intro.htm>.

<sup>53</sup> Balino, Tomas. et. al. "Currency Board Arrangements: Issues and Experiences." International Monetary Fund Occasional Paper. Washington. 1997. P.1.

<sup>54</sup> Williamson, J. "What Role for Currency Boards?" The Institute for International Economics. Washington. 1995. P.16.

of the regime, mainly due to sticky prices. This causes a balance of payments deficit, but instead of allowing this to reduce the money supply as happens under a currency board, they use their central banks to reserve money outflow while holding the money supply constant.<sup>55</sup> These actions often lead to crisis, forcing a devaluation of the currency and a tightening of macroeconomic policy.

#### Confidence in the Public:

A currency board has good prospects of maintaining the confidence in the public in general and the financial markets in particular, by making a nation's currency and exchange rate regimes more transparent, rule-bound, and predictable; and therefore be relatively immune to speculative crises induced by fears of devaluation. Also, under a currency board, the establishing country cannot provide extra liquidity to the banking system other than on a temporary basis. Therefore, its financial institutions have to be able to withstand the consequences of external shocks on interest rates. Historical circumstances and the economic situation in countries like Estonia and Lithuania have weakened the reputation of the monetary authorities. Under such conditions currency boards are considered to be an effective instrument for rapid strengthening of credibility and sound fiscal policy, as the law of currency board arrangements prohibits financing of government deficits or saving the banks from crises by crediting them.

#### **Objections to the Currency Board System**

Despite all the benefits that a currency board arrangement can impose on an economy, many objections have risen as to its performance. In comparison to the typical central banking system, currency boards have been characterized as being less effective

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<sup>55</sup> Williamson, P.17.

due to the loss of monetary policy tools, the high cost of reserves, and its potential deflationary effects. There are also arguments as to it being a system limited only to small nations, as well as it having a negative historic link to colonialism.

#### Loss of Policy Tools:

By makeup of the currency board system, countries under, or wishing to adopt such a system no longer have the ability to use monetary policy tools. Governments are no longer allowed to adjust domestic interest or exchange rates in hopes of stimulating the economy. Instead, economic adjustment can be achieved only through wage and price adjustments,<sup>56</sup> which tend to occur at a much slower pace.

The loss of monetary policy tools could be of particular importance in the event of an external shock. Because the exchange rate is fixed, a country loses its ability to react to these shocks. Changes in the monetary conditions in the reserve currency country, or changes in the value of the reserve currency in relation to the other currencies can tremendously affect a nation's economy.<sup>57</sup> The magnitude of these shocks will be dependant upon how intensively the currency board country is trading with its reserve currency country.

While the loss of policy tools can lead to hampering effects on the economy, it is important to take into account that governments in the past have repeatedly misused these tools, which have lead to even worse effects. The loss of monetary policy can therefore be viewed as a blessing in disguise for many nations who are seeking credibility for their financial institutions.

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<sup>56</sup> Balino, Tomas. et al. "Currency Board Arrangements: Issues and Experiences." International Monetary Fund Occasional Paper. Washington. 1997. P.17.

<sup>57</sup> Williamson, J. "What Role for Currency Boards?" The Institute for International Economics. Washington. 1995. P.23.

### The Cost of Reserves:

Another objection to a currency board is requiring the currency board to hold 100 percent foreign reserves. Critics argue this deprives the economy of real resources that are made available in a central banking system, since a typical central bank holds much less than 100 percent foreign reserves.<sup>58</sup> Surplus reserves are viewed as being too costly, because they could be used to buy imports, thus increasing the real goods available to the economy. But this argument does not take into account that once spent; the surpluses are gone and earn no interest. Foreign reserves held by a currency board, in contrast, earn interest because the currency board can invest them. The stream of future interest payments has a present-value equivalent.<sup>59</sup> The cost of surplus reserves is the difference between the value of the goods they could buy now and the present-value equivalent of the interest that they will earn if invested.

The 100 percent reserve requirement should otherwise not be looked at as a cost but as a safeguard. If under a currency board, the public all of a sudden wishes to convert all currency board currency into reserve currency, the 100 percent foreign reserves of the currency board would ensure that it could meet all demands to convert currency board notes and coins and the currency board would not disturb the economy, as long as the exchange rate is fully credible. If the exchange rate is not fully credible because the currency board lacks strong institutional safeguards, interest rates would rise significantly. Conversion of currency board currency into reserve currency will begin a sequence of events that are self-correcting, leading to new market-clearing levels of the

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<sup>58</sup> Hanke, Steve. Shuler, Kurt. "Currency Boards for Developing Countries." International Center for Economic Growth. ICS P. San Francisco. 1994. P.37.

<sup>59</sup> Hanke, P.38.

nominal money supply, prices, and incomes.<sup>60</sup> Furthermore, the necessity that payments to the government be made in currency board currency will create a demand for currency board currency, which will limit the amount of currency board notes and coins that people convert.<sup>61</sup>

Deflation:

Another objection to a currency board is that it is deflationary in a growing economy. This argument incorporates the idea that as an economy with a currency board grows, it must achieve continual current-account surpluses for the supply of currency board notes and coins to increase with its growing demand. In periods of balance or deficit in the current account, the supply of notes and coins will increase more slowly than the demand, resulting in deflation.<sup>62</sup> Some argue that this would not occur if the notes and coins were liabilities of a typical central bank, which could increase the supply of notes and coins without acquiring additional foreign reserves, something that cannot be done under the currency board system.

In theory however this does not seem to be the case. A country experiencing healthy economic growth, such as most countries with currency boards have been, has typically been able to encourage foreign investment, resulting in a capital-account surplus that exceeds its current-account deficit.<sup>63</sup> In addition, international branch networks typical of commercial banks in a currency board system reduce the demand for reserves in the currency board country compared to what it would otherwise be without the

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<sup>60</sup> Williamson, J. "What Role for Currency Boards?" The Institute for International Economics. Washington. 1995. P.16.

<sup>61</sup> Hanke, Steve. Shuler, Kurt. "Currency Boards for Developing Countries." International Center for Economic Growth. ICS P. San Francisco. 1994. P.39.

<sup>62</sup> Hanke, P.39.

<sup>63</sup> Hanke, P.40.

currency board. Commercial banks can pool reserves between the reserve country and the currency board country.<sup>64</sup> Similarly, considering commercial banks as a group, if all have branches in the currency board country and the reserve country, their combined reserves do not change when people in one country make payments to people in the other country.

There has apparently been only one case of deflation in a currency board system caused by an increase in demand for notes and coins, occurring in Hong Kong in 1984.<sup>65</sup> Following the reintroduction of the currency board system, the demand for notes had increased during the Chinese New Year due to the customary purposes of giving gifts of money.<sup>66</sup> This increased demand affected commercial bank reserves and interest rates in Hong Kong for two weeks, after which they returned to their previous normal levels. During proceeding Chinese New Years, commercial banks in Hong Kong have held more reserves than at other times of the year, and interest rates have not been affected.

#### The Size of an Economy:

Another objection to the currency board system is that it is only appropriate for small economies that are highly dependent on foreign trade, such as Hong Kong, but not for large economies that have little foreign trade. The objection implies that a crawling peg or a floating exchange rate would encourage greater economic stability than the fixed rate entailed by the currency board.<sup>67</sup> However, experience shows that this objection has no practical rationale for the currency board system. Currency boards have been successful in small, open economies such as Hong Kong and large populous, closed

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<sup>64</sup> Hanke, P.40.

<sup>65</sup> Ghosh, Atish R. et. al. "Currency Boards: The Ultimate Fix?" IMF Working Paper 98/8. Washington: International Monetary Fund 1998. P.8.

<sup>66</sup> Ghosh, P.9.

<sup>67</sup> Hanke, Steve. Shuler, Kurt. "Currency Boards for Developing Countries." International Center for Economic Growth. ICS P. San Francisco. 1994. P.42.

economies such as Nigeria, which initially had little trade with the outside world.<sup>68</sup>

Currency boards have instead been credited with opening previously closed economies by providing sound currencies that encouraged trade.

#### Colonialism:

Another objection to the currency board system is that it creates a colonial relationship between the currency board country and the reserve country. This notion has resulted from the colonial practices of Great Britain, who implemented the currency board arrangement on their colonies. While historically, most currency boards have existed in British colonies, currency boards have also existed in many independent countries past and present; including Argentina early in the 20th century, Ireland, and Jordan.<sup>69</sup> Furthermore, all currency board-like systems that exist today are all in independent countries. The effect of a currency board is not to create a colonial relationship, but to achieve more credibility than a central bank can. This is no more evident than in the case of Hong Kong today. The Hong Kong Dollar is linked to the U.S. Dollar, even though Hong Kong was a British colony until 1997 and since then has been a special autonomous region of China.<sup>70</sup> The reason for this is that the U.S. Federal Reserve System has more credibility than the Bank of England, the central bank of China, or a Hong Kong central bank.

The establishment of a currency board has also been linked to claims that it erodes sovereignty and nationalistic pride for the currency board country. While this may not be a major issue for many currency board countries, many nations considering adopting this

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<sup>68</sup> Hanke, P.42.

<sup>69</sup> Hanke, P.44.

<sup>70</sup> Hanke, Steve. Shuler, Kurt. "Currency Boards for Developing Countries." International Center for Economic Growth. ICS P. San Francisco. 1994. P.45.

type of regime could have a problem with the dependence that a currency board entails with the anchor currency country. Also, the unofficial yet pervasive use of foreign currency would signal the inability of the domestic government to provide a currency that people wish to hold. However, a currency board can instead restore an element of national pride by providing a sound domestic currency, something a country who is considering adoption of a currency board is probably lacking. In turn, this will tend to reverse currency substitution as confidence is restored to the system.

### **Lender of Last Resort under a Currency Board**

One of the main debates within the case for a currency board argument is that it has no responsibility for acting as a lender of last resort to protect banks from losses therefore making them susceptible to financial panic. Many critics argue that this can prove limiting, especially for countries that already have weak banking systems or are easily prone to economic shocks. At most, the currency board is limited to acting as an emergency fund that is either set aside at the time the currency board is introduced or funded, over time, out of central bank profits.<sup>71</sup> However, this does not necessarily have to be the case. A currency board system entails that the government can be a lender of last resort even if no central bank exists. The government can lend to commercial banks; for example, the Hong Kong government has several times paid depositors of insolvent banks from its accumulated budget surpluses.<sup>72</sup> The absence of a central bank only prevents the government from providing assistance by creating unwanted inflation.

Also, many central banks are lenders of last resort not only to commercial banks,

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<sup>71</sup> Williamson, J. "What Role for Currency Boards?" The Institute for International Economics. Washington. 1995. P. 26.

<sup>72</sup> Williamson, P. 26.

but to government and state owned enterprises as well. Some countries have tried to limit the lender of last resort function only to commercial banks. But this alteration of the rule will create problems of moral hazard since commercial banks will come to expect that the central bank will rescue them in the event of distress.

The absence of a lender of last resort can also provide a source of stability for commercial banks. Under a currency board system, there lies the potential for the development of a large interbank lending market.<sup>73</sup> Funds will move from highly liquid banks to ones of illiquidity. This exchange does not have to be limited to only the domestic market either, as commercial banks can also borrow from abroad or in international markets.

A country with a currency board system will also be able to draw in the establishment of a foreign commercial banking sector due to the absence of a lender of last resort. By importing access to these foreign financial markets, commercial banks will be able to diversify their risks more than banks were able to before. They will also be less susceptible to failure because of localized economic shocks.<sup>74</sup> Under a currency board system, residents of the currency board country will be able to take advantage of the stability of commercial banks with international branch networks, by depositing funds with the banks legally in the currency board country, as residents of many countries with central banks already do so illegally abroad.

The lack of a central bank as a lender of last resort does not seem to have harmed currency board systems in the past. No large commercial bank has ever failed in a currency board system, and losses to depositors from the few small commercial banks

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<sup>73</sup> Williamson, P. 26.

<sup>74</sup> Williamson, P. 26.

that failed have been minor.<sup>75</sup> Dating back to the first currency board of Mauritius in 1849, there have been no cases in which commercial banks in currency board systems have relied on central banks as lenders of last resort.<sup>76</sup> Therefore, it is possible that commercial banks in countries who have established a currency board can become viable and capable of preserving their liquidity without government-sponsored lenders of last resort.

However, many countries with currency board like systems in place have relied on some sort of lender of last resort function. The proceeding table lists seven currency board countries and their lender of last resort facilities.

**Table 3: Prudential Arrangements and Lender of Last Resort Facilities**

	Supervising Agency	Last-resort facilities	Deposit Insurance	Prudential Measures	Experience with recent banking crises	Other measures taken to mitigate crisis
Argentina	Central Bank of the Argentine Republic.	By rolling over of central bank's liquidity rediscounts (after the modification of the central bank's charter in early 1995).	Deposit Guarantee Scheme (April 1995); central bank's involvement prohibited by its charter.	High reserve requirements, replaced by liquidity requirement in August 1995; risk-based capital adequacy ratio	March 1995	Suspension of banks with serious financial difficulty; lowering & changing composition of reserve requirement; setting up of Bank Capitalization Trust Fund (Mar '95); setting up Trust Fund for Provincial Bank Privatization (Mar '95); special facility generated through lowering of reserve requirements & administered by the Banco de la Nacion Argentina.
Brunei Darussalam	Financial Institutions Division of the Ministry of Finance since 1993.	No.	No.	N/A	1985-86 and 1989.	The government was heavily involved in the liquidation, asset recovery, and deposit repayments (in one case included budgetary transfer) after a bank failed.

<sup>75</sup> Williamson, P. 27.

<sup>76</sup> Caprio, G. Dooley. et al. "The Lender of Last Resort Function Under a Currency Board." Policy Research Dissemination Center. World Bank. Washington. 1996. P. 28.

Djibouti	National Bank of Djibouti.	No.	No.	Maximum total assets-to-capital ratio of 20 to 1; claims to capital plus term deposits below 200%; matching foreign currency deposits with net foreign currency assets; risk-based capital adequacy ratio.	1991-92.	Two banks were liquidated.
Eastern Caribbean Central Bank	ECCB; the new Uniform Banking Act extends the supervisory power of the ECCB to include licensing for the ECCB area.	No explicit provision; in theory, up to 40% of (currency and other demand liabilities – lending to governments).	No.	N/A	N/A	N/A
Estonia	Bank of Estonia (BOE)	By the BOE; restricted to systemic and emergency situations; limited to the amount of foreign exchange in excess of banking requirement - reserves of the Banking Dep.	N/A	Risk-based capital adequacy ratio, liquidity requirement, foreign exchange exposure limit.	1992; September 1994 (Social Bank).	In 1992, banks were allowed to fail. In 1994, problem banks were merged and granted loans by the BOE; some were eventually privatized; a loan recovery agency was established.
Hong Kong	Hong Kong Monetary Authority (HKMA) (relevant sections of the Exchange Fund (EF) & Banking Commissioner's Office merged in 1993).	By the HKMA for the account of the EF through the new accounting arrangements; limited to the EF's excess reserve; in practice, the Hongkong and Shanghai Banking Corporation (HSBC) has served as lender of last resort through the HKBA's clearing system.	No; a scheme for small depositors in the event of a bank liquidation is being considered.	Risk-based capital adequacy ratio, liquidity requirement, foreign exchange exposure limit.	1982-86; closure of BCCI Hong Kong, summer 1991.	N/A
Lithuania	Bank of Lithuania (BOL); BOL Law & Commercial Banking Law were passed in December 1994.	Limited to the amount of reserves in excess of the banking requirement (BOL intends to maintain this capability at around 15% of total deposits in the banking system; only for emergency cases).	Deposit Protection Law; plan to change the civil code to eliminate the full deposit protection at state-controlled banks.	Risk-based capital adequacy ratio, liquidity requirement, foreign exchange exposure limit.	Last quarter 1995 & first quarter 1996.	In December 1995, insolvent banks were placed under moratorium or closed; temporary suspension of the penalty for reserve requirement shortfall during the systemwide liquidity shortage; recapitalization by the government before privatization; no financial support from the BOL for failed banks.

Source: Balino, Tomas. Enoch, Charles. "Currency Board Arrangements: Issues and Experiences." International Monetary Fund Occasional Paper 151. Washington: International Monetary Fund. 1997. P.44.

It should be kept in mind that these types of operations must be used with caution. If countries are planning to put some sort of lender of last resort function in place, banks should rely on it as little as possible or authorities should make it very expensive to use in the event banks need to. More importantly, strong supervision rules must be in place in order to force bank owners to act before the situation becomes critical.<sup>77</sup> Whether it occurs through mandatory intervention, when a bank's capital falls below a predetermined level or penalties imposed on central banks who offer forbearance, supervision of the system must be done efficiently. Increased disclosure requirements and significant penalties for nondisclosure or erroneous information will make it easier for outsiders to monitor banks, which will lessen the burden of the limited lender of last resort function.

### **Different Types of Currency Board Arrangements**

Within a currency board arrangement, there are also different types of options policymakers can adopt. While a genuine currency board must include all characteristics that have been examined, there are also numerous currency board like systems that have many characteristics of the orthodox currency board, but lack one or more key features such as the 100 percent reserve requirement, or laws prohibiting the use of monetary policy tools. Other systems differ by their willingness to act as lender of last resort. In any case, the differences among the currency board, and similar systems should be examined.

A pure currency board arrangement possesses all the characteristics that define it. The best example of this type of board can be found in Hong Kong, where, after a period of increasing unorthodoxy, turned back toward orthodoxy in the aftermath of the Asian

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<sup>77</sup> Caprio, P. 27.

currency crisis of 1997.<sup>78</sup> Hong Kong is the most populous and economically diversified of most currency board systems. Although less populous than many countries, nearly 7 million, Hong Kong is considered to be an economic giant, with a gross domestic product exceeding US\$160 billion.<sup>79</sup> Hong Kong's economic success is well known and has been among the world's most rapidly growing economies despite its lack of natural resources. Also, its currency board arrangement has been credited with keeping inflation relatively low. A detailed description of Hong Kong's experiences with its currency board will be discussed in more detail later. Orthodox currency boards also exist today in the Cayman Islands, Gibraltar, and the Falkland and Faroe Islands.<sup>80</sup>

In recent years a number of countries have reformed their central banks to give them some but not all characteristics of orthodox currency boards. Countries that have established such currency board-like systems are Argentina (1991), Estonia (1992), Lithuania (1994), Bosnia (1997), and Bulgaria (1997).<sup>81</sup> They join the older systems of Brunei and Djibouti.

Like orthodox currency boards, the currency board-like systems have a constant exchange rate with the anchor currency. Argentina and Lithuania use the U.S. Dollar as the anchor currency; Estonia, Bosnia, and Bulgaria use the euro, and prior to its inception used the German mark.<sup>82</sup> Some of the currency board-like systems have had exchange controls initially, but have later removed them and made their currencies fully convertible into the anchor currency like orthodox currency boards.

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<sup>78</sup> Balino, Tomas. et. al. "Currency Board Arrangements: Issues and Experiences." International Monetary Fund Occasional Paper 151. Washington. 1997. P. 34.

<sup>79</sup> Hanke, Steve H. "Currency Boards." The Annals of the American Academy of Political and Social Science. Sage P. Vol. 579. 2002. P.89.

<sup>80</sup> Hanke, P.90.

<sup>81</sup> Schuler, Kurt. "Introduction to Currency Boards." Currency Boards and Dollarization. <http://users.erols.com/kurrency/intro.htm>.

<sup>82</sup> Schuler, <http://users.erols.com/kurrency/intro.htm>.

The currency board-like systems differ from orthodox currency boards with respect to their reserve ratios and their power to act as lenders of last resort. None of the currency board-like systems have a maximum reserve ratio. For an orthodox currency board, if it is allowed to accumulate foreign reserves exceeding 100 percent of the monetary base, with a definite upper limit, which has usually been about ten percent. The purpose of the surplus reserves is to guarantee that reserves are always at least 100 percent by providing a cushion against losses in the securities the currency board invests in.<sup>83</sup> An orthodox currency board is not allowed to use the surplus in a discretionary manner, and all profits beyond those necessary to maintain the small surplus go to the government. Most of the currency board-like systems, in contrast, are allowed to accumulate surplus reserves indefinitely from their profits. The currency board-like systems are also allowed to use their surplus reserves, and in some cases even their main reserves, in a discretionary manner to act as lenders of last resort to commercial banks. The Central Bank of Argentina has a minimum reserve ratio of only 66 percent, though in practice it holds approximately 100 percent foreign reserves, while the Bulgarian National Bank is explicitly allowed by law to act as a lender of last resort in case of a crisis affecting the banking system as a whole.<sup>84</sup>

Another example of a currency board like system is used by Latvia. After Latvia became independent again in 1991, it first allowed its currency to float. Later, the Bank of Latvia pegged its currency to a basket of major currencies, and began accumulating

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<sup>83</sup> Hanke, Steve. Shuler, Kurt. "Currency Boards for Developing Countries: A Handbook." International Center for Economic Growth. ICS P. San Francisco. 1994 P.16.

<sup>84</sup> Balino, Tomas. et. al. "Currency Board Arrangements: Issues and Experiences." International Monetary Fund Occasional Paper 151. Washington. 1997. P.23.

foreign reserves equal to 100 percent of the monetary base.<sup>85</sup> At present, the Bank of Latvia seems to be imitating the key features of a currency board. Unlike a currency board, though, the Bank of Latvia could change the exchange rate, its ratio of foreign reserves, or exchange controls and still remain a central bank. Also, the Bank of Latvia does not have to keep its similar features, and can abandon them at any time; no law compels it to act like a currency board, nor does the Latvian government seem to strongly prefer the current monetary policy to a more typical central banking policy.

Overall, performances under the currency board-like systems have been strong. In acting more like a currency board than central banks, they have all provided sound currencies. In all cases, inflation has fallen dramatically and economic growth has been positive,<sup>86</sup> which is what they were intended to do and came as quite a contrast to the experiences of those countries under central banking regimes. However, a potential problem with the currency board-like system emerges. The problem lies in the discrepancy between the discipline of orthodox currency boards and the desire of governments to retain some discretion in monetary policy, with particular attention going to the ability to act as a lender of last resort. In circumstances where discipline is considered to be the only option for the government is where mistakes can be made. Concern that currency board-like monetary authorities might devalue has led to speculative attacks against the currencies of Estonia, Lithuania, and to a larger extent Argentina in 1995.<sup>87</sup> The speculative attacks came to a halt only after the Argentine

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<sup>85</sup> Iikka Korhonen, et al., "Why Currency Boards?" Economic Policy in Eastern Europe: Were Currency Boards a Solution? Ed. Iliana Zloch-Christy. Westport: Praeger. 2000. P.304.

<sup>86</sup> Williamson, J. "What Role for Currency Boards?" The Institute for International Economics. Washington. 1995. P.30.

<sup>87</sup> Ghosh, Atish R. et. al. "Currency Boards: The Ultimate Fix?" IMF Working Paper 98/8. Washington: International Monetary Fund. 1998. P17.

officials assured the public that they did not intend to devalue, and took action to demonstrate their commitment.

### **Assessment of Past Currency Boards**

In order to recommend the adoption of a currency board for a country, a critique of the performance of past currency boards is necessary. Currency board systems of the past can be credited with providing economic stability, bringing down inflation, encouraging foreign investment, contributing to economic growth, and have helped some countries recover quickly from wartime occupation. Bank failures have also been minor in currency board systems.

Currency board systems have typically been stable. All prior currency boards have successfully maintained fixed exchange rates and full convertibility into their reserve currencies,<sup>88</sup> a crucial determinant for the proper functioning of a currency board. Even during the Great Depression, all currency boards then existing maintained fixed exchange rates and full convertibility, unlike almost all central banks of the time.<sup>89</sup> The oldest remaining currency board, in the Falkland Islands, has maintained a fixed exchange rate of Falklands £1 per £1 sterling since it opened in 1899.<sup>90</sup>

Currency board systems have also been successful in encouraging foreign investment. With currency boards, many countries have taken the decisive step from primitive monetary conditions to modern monetary systems that include sophisticated banking and foreign-exchange services. Because inflation in currency board systems is

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<sup>88</sup> Williamson, J. "What Role for Currency Boards?" The Institute for International Economics. Washington. 1995. P40.

<sup>89</sup> Williamson, P.41.

<sup>90</sup> Schuler, Kurt. "Introduction to Currency Boards." Currency Boards and Dollarization. <http://users.erols.com/kurrency/intro.htm>.

kept under control, it has encouraged the use of modern currency in transactions.

Economic growth has in general been pleasing, and in some cases quite impressive. Trade in export goods that have remained characteristic of certain countries originated during the years of the currency board system. For example, the export of cocoa and peanuts in West Africa, rubber and tin in Malaysia, and textiles and financial services in Hong Kong all developed under currency boards.<sup>91</sup>

Currency boards have also helped some countries recover quickly from wartime occupation. During the Second World War, Hong Kong and the Philippines, which had currency boards, were occupied by the Japanese army.<sup>92</sup> The Japanese army issued occupation currencies to replace currency board notes. Much as people in many developing countries hold foreign notes today, the inhabitants of the occupied territories continued to hold currency board notes during the war. The foreign reserves of the currency boards were kept safe in their respective reserve countries, Britain and the U. S. The occupation currencies experienced high inflation and became worthless.<sup>93</sup> After the war, Britain re-established rule over Hong Kong, and the U.S. re-established rule over the Philippines. Local offices of the currency boards were quickly reopened as part of an overall economic strategy of replacing wartime command economies with the market economies that had existed before the war. The currency boards resumed full convertibility into their reserve currencies from the day they reopened.

Bank failures have happened but have been relatively minor within currency board systems. Fixed exchange rates with a reserve currency have encouraged foreign

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<sup>91</sup> Hanke, Steve. Shuler, Kurt. "Currency Boards for Developing Countries: A Handbook." International Center for Economic Growth. ICS P. San Francisco. 1994. P.49.

<sup>92</sup> Hanke, P.50.

<sup>93</sup> Hanke, P.51.

commercial banks, especially those based in the reserve country, to establish branches. Their multinational branch networks have enabled them to diversify risk. Domestic banks have had to be strong to survive competition from the foreign banks. This has caused some small commercial banks to fail, however, the losses they have inflicted on depositors have been tiny.<sup>94</sup> The recent currency board-like systems, which inherited banking systems made fragile from bad monetary policy under central banking, have suffered significant bank failures; however, the failures and their effects have been no worse than those in neighboring central banking systems.

Overall, the historical record of currency boards has proven to be positive. The main point is that the actual performance of currency boards has been close to the ideal they have been established to strive for, namely, to maintain full convertibility into the reserve currency at a fixed exchange rate according to strict rules of procedure. Historical experience therefore supports the argument that currency boards, if established according to strict rules in the manner described, have a high probability of success.

### **Analysis of Recent Currency Board Systems**

As noted earlier, many currency boards or currency board-like systems have been implemented in numerous countries throughout the world. A deeper examination of two different types of currency boards that have been in place, the former Argentinean system and the current orthodox system in Hong Kong, can shed some light on what countries can come to expect upon adoption of a currency board or board-like system.

The decision to adopt a currency board like system in Argentina was primarily due to high inflation. In the mid 80's, the authorities began to implement a series of

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<sup>94</sup> Enoch, Charles. Gulde, Anne-Marie. "Are Currency Boards a Cure for All Monetary Problems?" Finance and Development, Dec. 1998. P.9.

stabilization programs to strengthen monetary and fiscal discipline and to peg the exchange rate.<sup>95</sup> Nonetheless, consistent careless fiscal discipline had resulted in persistently high inflation. Steady economic turmoil persisted until the currency board arrangement was introduced through the Convertibility law; as part of a comprehensive stabilization package to strengthen the credibility of the system. This formation fixed the value of the Argentine Peso to the U.S. Dollar. No Pesos could be issued unless the central bank had dollars in reserve to back them up, thereby acting like a currency board. This prevented the central bank from printing currency, thereby putting the brakes on a 3,000 percent inflation rate.<sup>96</sup> Also, as in a currency board system, it was designed to instill credibility by reassuring foreign investors that the economy was in good hands. The Convertibility law, along with major efforts by governments to reduce federal expenditures and improve tax collection succeeded in bringing down inflation after decades of poor performance of monthly double-digit levels to annual single-digit levels.<sup>97</sup> Inflation was steady, and growth was robust during the three years following the Convertibility Law. Increased confidence in the system was the apparent outcome.

The currency board like system was perceived by investors as a credible institution as the government took actions to show discipline and reinforce its commitment to price stability and economic growth. The government began deregulation, sold state-owned money-losing businesses that appealed to soft budget policies, cut taxes, and opened its capital markets.<sup>98</sup> Reassured by the monetary reform, foreign investors

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<sup>95</sup>Schuler, Kurt. "The Collapse of Argentina's 'Convertibility' System: A Failure of Central Banking." <http://users.erols.com/kurrency/convertibility.pdf>. Nov. 14, 2003. P.7.

<sup>96</sup> Carrizosa, Mauricio. et al. "The Tequila Effect and Argentina's Banking Reform." Finance & Development. Mar. 1996. Vol.3 no.1. P.22.

<sup>97</sup> Carrizosa, P.23.

<sup>98</sup> Schuler, Kurt. "The Collapse of Argentina's 'Convertibility' System: A Failure of Central Banking." <http://users.erols.com/kurrency/convertibility.pdf>. Nov. 14, 2003. P.19.

began pouring money into Argentina, sparking a great boom. However, these large capital inflows were primarily debt. Banks, firms, and governments borrowed aggressively and by the end of the decade, Argentina was borrowing to cover its interest bills, and its debt burden had doubled.

Argentina was unfortunately not protected from external shocks either. Falling prices for its agricultural products had a damaging effect as well as and various financial crises experienced in other parts of the world.<sup>99</sup> The disruption of Mexico's economy in late 1994 triggered a confidence crisis in Argentina's financial system in early 1995. Despite the considerable progress made since 1991 in strengthening Argentina's banking system, the Mexican crisis had a deep effect. In late 1994, market sentiment about the Argentine financial system was distinctly more sluggish due to various factors such as rising world interest rates, and declines in the prices of Argentine government bonds and stocks.<sup>100</sup> The devaluation of the Mexican Peso on December 20, 1994, and the resulting capital outflows throughout Latin America triggered the financial crisis. The wholesale banks were among the first to feel the damaging effects. Typically, these banks had large stock and bond trading positions or depended almost entirely on large corporate deposits. Withdrawals from these banks along with cuts in interbank lending forced many wholesale banks into liquidation. As news of the failures spread, retail depositors fled from weak provincial, cooperative, and small retail banks, resulting in a net deposit withdrawal of \$8 billion from the banking system, or sixteen percent of the deposit

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<sup>99</sup> Lischinsky, Bernardo. "The Puzzle of Argentina's Debt Problem: Virtual Dollar Creation?" <http://www.fondad.org>. Jan.2003. P 309.

<sup>100</sup> Hanke, Steve H. "Currency Boards." The Annals of the American Academy of Political and Social Science. Sage P. Vol. 579. 2002. P.92.

base.<sup>101</sup>

The Argentine system faced more damaging attacks as a result of the 1997 Asian currency crisis and 1998 Russian and Brazilian financial crises. These shocks caused investors to withdraw their capital from many emerging markets as a precaution, including Argentina. The 1999 devaluation of the Real by the government of Brazil, Argentina's main trading partner, had a tremendous negative effect by raising the prices of Argentine goods relative to Brazilian goods. The overall effect of these external shocks was a 17.4 percent decline in their GDP from its peak in 1998 to the end of 2001.<sup>102</sup>

As problems were getting worse, the Argentinean government took drastic measures to reinvigorate their failing economy. Going against orthodox currency board standards, officials announced on June 14, 2001 a dramatic policy change to adjust the Peso exchange rate for international trades to a new formula which included a currency basket comprised of the U.S. Dollar and the Euro, which devalued the Peso by roughly 8 percent to \$0.71.<sup>103</sup> The devaluation quickly caused credibility in the currency board system to erode. The proceeding months in Argentina were chaotic as rioters filled the streets. The government was forced to suspend payment on its \$132 billion debt and its citizens saw five different presidents in a span of only two weeks. Real GDP fell 10.9 percent in 2002, the worst annual performance in more than a century.<sup>104</sup> Table 4 displays key indicators of the Argentinean economy during their currency board arrangement.

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<sup>101</sup> Carrizosa, Mauricio. et al. "The Tequila Effect and Argentina's Banking Reform." Finance & Development. Mar. 1996 Vol.3 no.1. P.24.

<sup>102</sup> Carrizosa, P.24.

<sup>103</sup> Hanke, Steve. "The Disregard for Currency Board Realities." Cato Journal. Vol.20. no.1. spring/summer 2000. P. 51.

<sup>104</sup> Hanke, P. 52.

**Table 4: Argentina: Before and After Setting Up a Currency Board  
(April 1, 1991)**

	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Annual Inflation (End-year %)	4,928.6	1,344.5	<b>84.0</b>	17.5	7.4	3.9	1.6	0.0	0.3	0.7	-1.8
Change in Real GDP (%)	-6.9	-1.8	<b>10.6</b>	9.6	5.7	5.8	-2.8	5.5	8.1	3.9	-3.1
Interest Rates (Money market rate, % per annum, at end-year)	1,387,179	9,695,422	<b>71.33</b>	15.11	6.31	7.66	9.46	6.23	6.63	6.81	6.99
Fiscal Balance (% of GDP)	-7.6	0.1	<b>-0.1</b>	-0.2	0.9	-0.3	-1.0	-2.2	-1.5	-1.4	-2.5
Foreign Reserves (Billions of U.S. dollars)	3	6	<b>7</b>	12	15	16	16	20	22	25	26.4

Source: Hanke, Steve. "The Disregard for Currency Board Realities." *Cato Journal*. Vol.20. no.1. spring/summer 2000. P. 53.

The unfortunate failure of the Argentinean economy over the past decade has sparked debate on the implementation of a currency board system. Many critics have argued that if were not for the currency board, Argentina would have been able to respond to external shocks in a proper way by rising interest rates. However, this case represents many of the problems a country can face when currency board like systems are in place instead of more orthodox ones. The convertibility system of Argentina was in fact much closer to a typical central bank than to a currency board. At most, it was a mixture of the two. Under the convertibility system, Argentina never established a separate body to act as a currency board, nor did it establish a separate division within its

central bank or even a separate balance sheet.<sup>105</sup> Instead, the Central Bank of Argentina retained its previous organizational structure, but was subjected to some new rules.

Throughout the life of the convertibility system, Argentina's central bank engaged in sterilized intervention, held domestic assets, lent to commercial banks, and regulated commercial banks.<sup>106</sup> The central bank also enforced multiple exchange rates and in effect lent to the government at below-market rates of interest. These actions by the central bank were in no way consistent with currency board operations. Also, lack of fiscal discipline and failure to resolve internal political strife within the government were definite setbacks to any type of currency board or board like system that was in place. The collapse of the Argentinean system was the result of conflicting policies undertaken by the government, and not due to their currency board like system.

In contrast to the Argentinean currency board like system, the Hong Kong currency board has proved to be a success. Analysis of Hong Kong's experience under the arrangement demonstrates the effectiveness such an arrangement can have on a certain type of economy.

Due to characteristics as being a highly external oriented economy, which requires a solid anchor for the external value of its currency, Hong Kong has had a long history with fixed exchange rates. Table 5 summarizes Hong Kong's history with exchange rate regimes.

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<sup>105</sup> Kurt Schuler, "The Collapse of Argentina's 'Convertibility' System: A Failure of Central Banking." <http://users.erols.com/kurrency/convertibility.pdf>. Nov. 14, 2003. P.19.

<sup>106</sup> Schuler, P. 20.

**Table 5: History of Hong Kong's Exchange Rate System**

Period	Exchange Rate Regime	Features
1863-1935	Silver Standard	Silver dollars as legal tender
12/1935 – 6/1972	Sterling Exchange Standard	Exchange rate: H1:HK\$16 (12/1935-11/1967) H1:HK\$14.55 (11/1967-6/1972)
7/1972 – 11/1974	Fixed Exchange Rate against the US dollar	Exchange rate: US\$1:HK\$5.650 (6/1972-2/1973) US\$1:HK\$5.085 (2/1973-11/1974)
11/1974 – 10/1983	Free Floating	Exchange rates on selected days: US\$1:HK\$4.965 (25/11/1974) US\$1:HK\$4.600 (6/3/1978) US\$1:HK\$9.600 (24/9/1983)
10/1983 – Present	Linked Exchange Rate System	US\$1=HK\$7.80 (fixed) (for issue and redemption of Certificates of Indebtedness) US\$1=HK\$7.75 (9/1998 onwards) (The HKMA undertakes to convert the HK dollars in licensed banks' clearing accounts maintained with the HKMA into US dollars at the fixed exchange rate of HK\$7.75 to US\$1. The rate has been moving to 7.80 by 1 pip each calendar day starting from 1 April 1999 ending 12 August 2000.)

Source: Chiu, Priscillia. "Hong Kong's Experience in Operating the Currency Board System." <http://www.imf.org/external/pubs/ft/seminar/2001/err/eng/chiu.pdf>.

Their first version of a currency board dates from 1935, when Hong Kong nationalized all privately held silver.<sup>107</sup> Aspects of this older system were also taken over to the present day currency board. In the old system, government would hand the silver over to an Exchange Fund as a reserve against bank and government notes. In return, the

<sup>107</sup> Schwartz, Anna J. "Do Currency Boards Have a Future?: Twenty-Second Wincott Memorial Lecture." *The Institute of Economic Affairs*. London. 1992. P. 15.

few banks that had the right to issue, would receive non interest bearing Certificates of Indebtedness.<sup>108</sup> To issue more notes, the banks were required to purchase more certificates. Reserves were kept mainly in Sterling, with an initial 100 percent cover, later raised to 105 percent.

The performance of the currency board system fell short of expectations. The Exchange fund failed to maintain a fixed exchange rate between the Hong Kong Dollar and the Sterling during the period up to 1971.<sup>109</sup> A shift of anchor currencies from Sterling to U.S. Dollars over the next three years had similar effects, as exchange rates also varied over the period.

Authorities allowed the Hong Kong Dollar to float for a period of the next nine years, from 1974 to 1983.<sup>110</sup> The economy performed well in the early part of this period, showing impressive growth with moderate inflation. However, signs of overheating emerged in the late 1970s. Fuelled by public construction projects and the booming property market, domestic loans rose to annual rates of 43 percent between 1979 and 1982. Consumer inflation surged to over 15 percent in 1980-81, and the exchange rate of the Hong Kong Dollar depreciated by over 20 percent during the period from 1979 to 1982.

With a depreciating dollar, coupled with uncertainties surrounding Hong Kong's political transition, a crisis in confidence ensued. During the crisis, the Hong Kong Dollar depreciated against the U.S. Dollar by more than 50 percent.<sup>111</sup> Property and stock markets collapsed and financial institutions experienced widespread deposit runs. To

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<sup>108</sup> Schwartz, P. 15.

<sup>109</sup> Schwartz, P. 16.

<sup>110</sup> Jao, Y.C. "The Asian Financial Crisis and the Ordeal of Hong Kong." Quorum Books. London. 2001. P. 30.

<sup>111</sup> Jao, P. 30.

restore confidence in the Hong Kong Dollar, the decision was taken to link the Hong Kong Dollar at a fixed rate of HK\$ 7.80 to the US Dollar on October 15, 1983.<sup>112</sup> The US Dollar was an obvious choice, as the US is a major trading partner of Hong Kong and its currency is the predominant international currency in which a significant proportion of Hong Kong's trade is denominated.

The first measure taken by the Hong Kong Monetary Authority, under the new linked exchange rate system was the re-imposition of the foreign exchange constraint by requiring note issuing banks to pay U.S. Dollars to the Exchange fund in return for Certificates of Indebtedness as cover for bank notes issued, at a fixed rate.<sup>113</sup> The HKMA also abolished a 10 percent withholding tax on interest income from Hong Kong Dollar denominated deposits with financial institutions, thereby removing the tax advantage from holding foreign currency denominated deposits.

However, Hong Kong's initial linked exchange rate system was not as orthodox as it is today. Contrary to currency board standards, the Exchange Fund had the power to conduct open market operations, as well as issue three month Treasury bills.<sup>114</sup> Although these were considered limited central banking powers, there still were not representative of an orthodox system. Nonetheless, most primary characteristics of a currency board were in place, specifically a 100 percent foreign exchange cover and unlimited convertibility with the U.S. Dollar at a fixed rate.

The test of Hong Kong's linked exchange rate system came during the series of financial crises that took place all over the world during the mid 90's. In January 1995,

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<sup>112</sup> Jao. P. 30.

<sup>113</sup> Jao. P. 31.

<sup>114</sup> Schwartz, Anna J. "Do Currency Boards Have a Future?: Twenty-Second Wincott Memorial Lecture." The Institute of Economic Affairs. London. 1992. P. 16.

selling pressures on Asian currencies, including the Hong Kong Dollar, increased in the aftermath of the Mexican crisis. However, speculation was short-lived and exchange rate stability was quickly restored as interest rates increased.<sup>115</sup> The real test for Hong Kong came during the Asian financial crisis in 1997. With Asian currencies tumbling all around them, Hong Kong suffered a severe blow to its economy. GDP fell 5.1 percent in 1998,<sup>116</sup> which was the worst performance in 40 years. Unemployment began to rise and a deflationary trend began. Despite these ills, Hong Kong was able to maintain its peg to the dollar. This should be attributed to prudent fiscal and monetary control and the accumulation of huge foreign reserves.

In the wake of the Asian financial crisis, Hong Kong also took steps to strengthen its monetary management system. In August of 1998, a subcommittee of Currency Board Operations was formed with the goal of strengthening the currency board arrangement.<sup>117</sup> These new technical reforms touched on a wide range of issues: The first measure was for the HKMA to make the commitment to the link more explicit, which was now even more credible due to it being enforceable under the legal system. This was crucial since at the time, confidence had been shaken by the Asian crisis, and the absence of an explicit commitment was not conducive to public confidence.

Other reforms were designed to account for the new reality of the evolving interbank lending market and the effects on the interest rate banks were having by placing their funds with the HKMA instead of with the interbank market.<sup>118</sup> An outflow of funds

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<sup>115</sup> Chen, Edward. Ng, Raymond. "The Financial Sector and Economic Development in Hong Kong: Implications for Developing Countries." East Asia's Financial Systems Evolution & Crisis. Ed. Masuyama, S. Vandenbrink, D. Yue, Chia. Singapore: Institute of Southeast Asian Studies. 1999. P.200.

<sup>116</sup> Chen, P.200.

<sup>117</sup> Chen, P.201.

<sup>118</sup> Hanke, Steve H. "Currency Boards." The Annals of the American Academy of Political and Social Science. Sage P. Vol. 579. 2002. P.95.

could easily drain the pool of interbank liquidity, causing panic among banks. A discount window was put in place to allow freer access to liquidity, through the pledging of Exchange Fund paper.

Final reforms were aimed at enhancing the transparency of currency board operations. The HKMA decided to publish forecast changes in the Aggregate Balance on a real time basis, the monetary base and its components on a daily basis, and the currency board account on a monthly basis.<sup>119</sup> This package of technical reforms back towards orthodoxy successfully ended speculative pressure and stabilized the monetary condition. Helped also by developments in the external environment, the Hong Kong Dollar risk premium narrowed substantially in 1999, and largely disappeared in 2000, while interest rate volatility also declined significantly, from 2.84 percentage points in 1998 to 0.45 percentage points in 2000.<sup>120</sup>

Hong Kong today continues to be on an impressive pace. Its economy is widely respected and envied all over Asia and throughout the world. Their experience with a currency board arrangement has proven a perfect fit for their externally driven economy, and their commitment to it has only made it more efficient. It is interesting to contrast Hong Kong's experience with a currency board to Argentina's experience with one. It has seemed that in times of crisis, Argentina underwent policies to move away from its currency board arrangement while Hong Kong took steps to strengthen their system. Analysis of both countries illustrates the dangers of adopting currency board like systems

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<sup>119</sup> Hanke, P 96.

<sup>120</sup> Chen, Edward. Ng, Raymond. "The Financial Sector and Economic Development in Hong Kong: Implications for Developing Countries." *East Asia's Financial Systems Evolution & Crisis*. Ed. Masuyama, S. Vandenbrink, D. Yue, Chia. Institute of Southeast Asian Studies. Singapore. 1999. P.202.

as opposed to more orthodox ones. It also demonstrates the importance of maintaining to currency board rules throughout its duration.

### **Criteria for Adopting a Currency Board Arrangement**

For countries that are considering to adopt a currency board system, there are many critical decisions that have to be made for it to function efficiently. Even in circumstances where economic arguments favor a currency board arrangement; its feasibility will depend on whether the legal and institutional issues are well addressed. After all legal issues are thoroughly sorted out, the decision to establish a currency board should be initially guided by three factors. First, the anchor currency must be selected, then the determination of the level of the exchange rate, and finally whether or not to include a safety margin for the financial sector.

The importance of creating sound legal and institutional framework must not be underestimated at the onset of the currency board. This is essential because currency boards are usually intended to bring credibility back to a countries financial system, therefore this credibility must be evident early in the arrangement. A characteristic of a currency board arrangement is that the fixed exchange rate is established by law. This should entice the media and the public to get involved in the process, alongside government authorities. Because a currency board arrangement derives much of its credibility from the changes required in the central bank law concerning exchange rate adjustments, the law must define both the exchange rate and reserves.

For a country that is ready to adopt a currency board arrangement, the first evident decision is to choose the anchor currency. The country has a choice of either

using a single country's currency as the anchor, or a "currency basket" comprised of two or more currencies. If the country considers using a single currency, as most countries do, then they would have to ensure the currency in question is stable and internationally recognized. These criteria rule out most currencies except for a few, primarily the U.S. Dollar and the Euro. To decide between the dominant international currencies for the anchor, a country should take into account the direction of trade flows, the denomination of imports and exports, the denomination of international debt, as well as whether the two economies have similar cyclical movements. When the peg is to a single currency, fluctuations in the anchor currency against other currencies imply fluctuations of the exchange rate of the economy in question against those currencies. The decision to peg your currency to that of your largest trading partner is usually a good idea, but the decision should take into account past trade patterns as well as future and prospective trade patterns.

In other situations, a country's economy may indicate an equal trading value between two dominant currencies. It may also be characterized by widespread currency substitution, where the currency used is not that of its major trading partner. In these situations, a country may find it more optimal to adopt a currency basket as an anchor. However, in practice, the apparent simplicity of using a single currency has been too tempting as most countries that have introduced currency board arrangements so far have opted for a single currency-anchor.<sup>121</sup>

Establishing the initial exchange rate is unfortunately not as simple as determining the anchor. If the rate obtained has been kept overvalued while

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<sup>121</sup>Hanke, Steve. Shuler, Kurt. "Currency Boards for Developing Countries: A Handbook." International Center for Economic Growth. ICS P. San Francisco. 1994. P 52.

contemplating a currency board arrangement through administrative measures, it will need to be devalued to a level that reflects market forces.<sup>122</sup> Also, inflation must be taken into account. But to knowingly build in a margin for inflation could jeopardize the credibility of the arrangement, a quality that makes it appealing in the first place. Choosing the appropriate definition of the exchange rate would have to involve a trade-off: authorities could choose greater restrictiveness with a narrow definition of foreign reserves. While this might signal strong discipline and possibly improve the credibility of the system, it might also require an up-front devaluation that would put increased strains on the system that prove politically and economically infeasible, thus jeopardizing the credibility of the system.<sup>123</sup>

In a currency board arrangement, the currency board has no margin to intervene as lender of last resort on behalf of banks in distress, or to engage in open market operations. A country deciding whether to establish a currency board may choose to seek a safety margin of excess coverage, holding reserves in excess of 100 percent of the monetary base. In this case, a safety margin for the banking sector or future open market operations can be made using the excess amount, without violating the currency board rules.<sup>124</sup> While most currency board arrangements do permit some variety of limited intervention, the decision to include a safety margin should be analyzed carefully. Room for maneuver in case of unexpected difficulties is possible only at a more depreciated exchange rate than would have been necessary under other exchange arrangements. Intervention of this form may also hurt credibility of the system by limiting transparency.

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<sup>122</sup> Williamson, J. "What Role for Currency Boards?" The Institute for International Economics. Washington. 1995. P.35.

<sup>123</sup> Williamson, P.36.

<sup>124</sup> Williamson, P.36.

### **Transition to a Currency Board**

Reorganizing the central bank into a currency board will be guided by the new central bank laws that have been established. Previous countries that have recently adopted currency board arrangements have set up separate banking and issue departments, each with distinct functions and coming under the authority of different deputy governors.<sup>125</sup> However way a country wishes to do this, reorganization has to take place to allow easy identification of the central bank's key activities and to ensure that maintenance of the relevant currency cover ratios will be clearly visible.<sup>126</sup> To that end, the currency board arrangement will have to publish a well-defined set of statistics in a form, and according to a calendar, which are consistent with the currency board arrangement law.

Establishing a currency board arrangement will also generally involve reviewing how the central bank will carry out its new core functions, of which reserve management is most important. The added importance of reserve management under a currency board arrangement is due to the fact that the board's earnings from foreign exchange holdings will probably be its major source of income. Even a small violation of the cover requirement, which could arise from technical problems in reserve management, might cause serious trouble for the currency board arrangement.<sup>127</sup>

Finally, conducting a review of the banking sector and prudential standards and deciding on the location of banking supervision will generally also be necessary during

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<sup>125</sup> Balino, Tomas. et al. "Currency Board Arrangements: Issues and Experiences." International Monetary Fund Occasional Paper. Washington. 1997. P.24.

<sup>126</sup> Balino, P. 24.

<sup>127</sup> Balino, P. 25.

the transition to a currency board arrangement. A review of the banking sector is important because of the elimination of the central bank's ability to function as a lender of last resort under such an arrangement. During this period, the authorities may decide to transfer banking supervision, which has often been carried out by the central bank, to an independent agency to avoid possible circumvention of currency board arrangement rules in case of banking sector difficulties.<sup>128</sup> If, for reasons of timing or organization, banking supervision functions cannot be performed outside the central bank, it has to demonstrate clearly that any support it provides to banks in difficulty will not breach the currency board arrangement rules.

### **Duration of a Currency Board Arrangement**

The length of a currency board arrangement can be either for a short period of time, or for the long haul. Currency board arrangements should be perceived as permanent arrangements in countries that derive obvious trade and other benefits from belonging to a common currency area. However, in some cases, a currency board arrangement may be viewed as transitional phase that is designed to support a currency until credibility and financial institutions strengthen, and are adequate to carry on normal central bank operations.<sup>129</sup> A currency board can also be viewed as transitional in the event of a large exogenous change in the economic environment that makes it advantageous to switch to a different currency and exchange rate arrangement. This was the case for both Malaysia and Singapore.<sup>130</sup> In both cases, the currency board systems

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<sup>128</sup> Balino, P.25.

<sup>129</sup> Balino, P.26.

<sup>130</sup> Balino, P.26.

were abandoned from a position of strength and as a result of conscious policy choices, in the wake of the breakup of the Bretton Woods system.

However, policymakers must beware of this latter option since it requires an early, unplanned exit, which could limit risks of overvaluation. Also, exiting a currency board by depreciating is likely to have a drastic impact on the policymakers' credibility; particularly if the abandonment of the arrangement is not associated with an exogenous shock that clearly justifies it.

Over time the potential weaknesses from the inflexibility of a currency board arrangement may become more apparent, or the arrangements usefulness may become less important as confidence in government policy has grown. Thus, while strict rules may be more attractive during a transitional phase, these rules may eventually become overly constraining. Similarly, as the monetary authorities build up their central banking expertise and financial markets develop, the impediments to increasing the scope of policy discretion that a currency board is responsible for, may want to be reduced. The gradual relaxation of the currency board rules and its eventual abandonment may therefore be viewed as the natural conclusion to a transitional process during which credibility has been restored, and financial institutions and markets have developed.

When a country decides to make a currency board a permanent or long term policy feature, it can adopt additional measures that will help further establish the currency board's credibility and commitment. A currency board can strengthen its credibility by protecting itself from potential future pressures from its government. One way of achieving this goal is to have an independent board of directors, in which the majority of members are from countries other than the one with the currency board

arrangement. Such outside influence can prevent government authorities from bending the rules of the currency board. This type of arrangement existed in Libya, when they had a currency board in the 1950's. Only three of the eight directors of the Libyan Currency Board were in fact Libyan, and the rest comprised of British, French, Italian and Egyptian officials.<sup>131</sup>

Another way to strengthen the credibility of a currency board is for its money notes to contain some sort of statement and guarantee that they are convertible into the reserve currency at a fixed rate, both domestically and abroad. Because notes under a currency board arrangement are in essence a type of contract promising a fixed exchange rate, unlike notes and coins issued by a typical central bank, holders of notes and coins should be made aware of that they are always fully convertible at the fixed exchange rate on demand.

A highly debatable option for a country who is considering a permanent currency board is whether or not to allow for the ability to change the reserve currency. This could prove to be quite beneficial if the existing reserve currency becomes unstable, since the currency board system suffers the same monetary troubles afflicting the reserve country. If laws have been placed in at the onset of the currency board system, the procedure should be carefully specified in its constitution and should be only acted upon by the currency board itself. It should not be just an arbitrary decision made by government or a decision made by outside pressures.

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<sup>131</sup> Steve H. Hanke, "Currency Boards." The Annals of the American Academy of Political and Social Science. Sage P. Vol. 579. 2002. P.100.

## Exit Strategies

In the event of a situation that requires a country to exit from a currency board arrangement, there are some different options. One is to revert back to a central bank regime with an independent monetary policy. Another choice is to join a monetary union.

Reverting back to a central banking system in hopes of relieving financial instability could be done with the frame of mind that the currency board was a transitional arrangement in which the main goals of have been exhausted with the achievement of macroeconomic and monetary stability. This type of exit corresponds to the understanding of a currency board as strictly a stabilization device. It supposes that the causes of financial instability have been removed and the country is able to operate a monetary system with the full set of monetary adjustment instruments.<sup>132</sup>

The second option considers a currency board as a stepping stone towards more complete monetary integration and eventual monetary union. In this case the exit strategy is more of an entrance strategy into a more detailed monetary arrangement. Bulgaria, for example, has an exit strategy already since it is planning to adopt the euro upon EU accession, in 2006.<sup>133</sup>

Whatever the case may be, these exit strategies can entail many risks. A non-managed scenario could damage the stabilization acquisitions accumulated during the currency board period.<sup>134</sup> Because it is a system based on specific rules, any expectation of changes or uncertainties surrounding the exit strategy or perspective may have a strong destabilizing effect. Therefore, countries who wish to exit from a currency board

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<sup>132</sup> Balino, Tomas. et al. "Currency Board Arrangements: Issues and Experiences." International Monetary Fund Occasional Paper. Washington. 1997. P.24.

<sup>133</sup> Balino, P.27.

<sup>134</sup> Balino, P.28.

arrangement should work towards obtaining the simplest strategy with the lowest transitional costs, and with minimum deviations.

## **Conclusion**

Thorough study of the currency board system concludes that this type of arrangement should be considered for countries under a wide array of circumstances. Either large or small open economies may want to benefit from belonging to a larger currency area, or as a stabilization tool to control inflation. In particular, transition and developing economies stand to benefit the most with the implementation of a currency board system due to the credibility this type of system can instill and they so critically require. A currency board is also recommended to act as a transitional tool for economies moving from fixed to floating exchange rate regimes. While many of these types of economies lack the expertise needed to run properly functioning central banks or financial markets; working within a currency board system, due to its operational ease, can serve as the perfect training ground until more mature systems emerge.

Overall, the history of currency boards has given them the same credibility they have instilled on economies where they have been in place. The past century has witnessed several currency boards throughout, making it a rare exception among different exchange rate regimes that have stood the test of time. Countries are advised to stick to orthodox forms of a currency board if they are to put one in place. While success has been achieved for countries who have tried to mirror the currency board with currency board-like arrangements; caution must be taken when moving ahead with policy formation, since only all the benefits of a currency board can be realized with an

orthodox form. As long as countries that are willing to adopt a currency board follow proper transitional guidelines, and adhere to the definitions of the arrangement, problems encountered should be as minimal as possible. Also, in the case of transitional economies for example, assessing the duration and possible exit strategies would be necessary to make the smooth shift to central banking. With many currency boards in place today, the idea that there will be more to come in the future is promising. This will depend on how present systems fare in the days ahead.

## APPENDIX

### Complete Listing of Currency Board Operations

Country (current name) [colonial power], year independent	Years	Reserve ratio and assets	Exchange rate, exchange spread
Abu Dhabi [UK], 1971	1966-1973	100+% gold and foreign exchange	1 Bahrain dinar = 17s. 6d. stg
Aden and Aden protectorate (part of Yemen) [UK], 1967	1951-1972	100% * stg 1942-65; 100+% stg after first 2.5 million dinars 1965-1972	20 East African shillings = £1 stg, +1/2% 1942- 1965; 1 South Arabian/South Yemen dinar = £1 stg, +3/4% 1965-1972
Argentina	1902-1914, 1927-1929	100% gold after first 293 million pesos	1 peso = 0.63870849 g gold, no spread
Bahamas [UK], 1973	1916-1974	100+% stg	Bahamas £1 = £1 stg, 1916-1966; Bahamas \$1 = US\$0.98 1966-1970; Bahamas \$1 = US\$1 1970- 1974
Bahrain [UK], 1971	1965-1973	100+% foreign exchange	1 Bahrain dinar = 17s. 6d. stg
Barbados [UK], 1966	1937?- 1973	100+% stg 1937?-1951; 110% stg 1951- 1973	(Barbados) West Indies \$4.80 = £1 stg 1937?- 1951; West Indies/ East Caribbean \$4.80 = £1 stg, +3/8% and -7/16% 1940-1973
Bermuda [UK]	1915- present	110+% stg 1915-1970; 115% US\$ 1970- present	Bermuda £1 = £1 stg 1915-1970; Bermuda \$1 = US\$1 1970-present
British Guiana (Guyana) [UK], 1966	1937-1965	100% stg 1937-1951; 100% stg + 10% Guiana (West Indies) \$ 1951?-1965	(Guiana) West Indies \$4.80 = £1 stg, +1% 1937- 1951; West Indies \$4.80 = £1 stg, +3/8% and - 7/16% 1951-1965
British Honduras (Belize) [UK], 1981	1894- 1981?	67% gold + 33% stg and US\$ = 110% 1894-1939; 110% stg and US\$ 1939- 1958; 100% stg after first Belize \$350,000-\$1 million = 110% 1967-1981?	Belize \$1 = US\$1 1894-1949; Belize \$4.00 = £1 stg, 1949-1974; Belize \$2 = US\$1 1974-1981?
British Solomon Islands (Solomon Islands) [UK], 1978	1930s?- 1940s	100+% Australian £ and stg?	Solomon Islands £1 = Australian £1
British Somaliland (part of Somalia) [UK], 1960	1942-1961	100% stg*	20 East African shillings = £1 stg, +1/2%
Brunei [UK], 1983	1952-1973	110% stg 1952-1967; 100% gold and foreign exchange 1967-1973	Malay \$1 = 2s. 4d. stg,+1/8% 1952-1967; Brunei \$1 = 2s. 4d. stg 1967-1973
Burma [UK], 1948	1947-1952	100% stg	15 Burmese rupees = £1 stg,+ 9/32%
Cameroons (part of Cameroon and Nigeria) [UK], 1959	1916-1959	110% stg	West African £1 = £1 stg,+1/2%
Cayman Islands [UK]	1933-1961, 1972- present	100% stg 1933-1961; 100% US\$ 1972- present	used Jamaican currency to 1972 (see Jamaica); US\$1 = Cayman \$0.83 1972-present
Ceylon (Sri Lanka) [UK], 1948	1884-1950	33-50% coin + 50-67% stg and rupees = 110% 1884-1917; 110% stg and rupees 1917-1950	1 Ceylon rupee = 1 Indian rupee, no spread
Cyprus [UK], 1960	1928-1964	110% stg	Cyprus £1 = £1 stg
Danzig (Gdansk, Poland)	1923-1924	100% stg	25 gulden = £1 stg
Dubai [UK], 1971	1966-1973	100% gold and foreign exchange	1 Qatar/Dubai riyal = 0.16621g gold
Eritrea [Italy, Ethiopia], 1993	1942-1945	100% * stg	20 East African shillings = £1 stg, +1/2%
Ethiopia	1942-1945	100% * stg	20 East African shillings = £1 stg, +1/2%
Falkland Islands [UK]	1899- present	100+% stg	Falkland £1 = £1 stg
Faroe Islands (part of Denmark)	1940- present	100% stg 1940-1949; 100% Danish kroner 1949-present	22.40 Faroese kroner = £1 stg, no spread 1940- 1949; 1 Faroese krone = 1 Danish krone, no spread 1949-present

Fiji [UK], 1970	1913-1975	100+% stg	Fiji £1 = £1 stg, 1913-1933; Fiji £1.11 = £1 stg 1933-1967; Fiji £1 = £1 stg 1967-1969; Fiji \$2 = £1 stg 1969-1975?
Gambia [UK], 1965	1913-1971	110% stg 1913-1964; 100% foreign exchange 1964-1971	West African £1 = £1 stg,+1/2% 1913-1964; Gambia £1 = £1 stg, +1/2%? 1964-1971
Gibraltar [UK]	1927-present	100+% stg	Gibraltar £1 = £1 stg
Gold Coast (Ghana) [UK], 1957	1913-1958	110% stg	West African £1 = £1 stg,+1/2%
Hong Kong [UK]	1935-1941, 1945-1974, 1983-present	105% stg 1935-1941, 1945-1972; 105% US\$ 1983-present	managed float, HK\$15.36-16.45 = £1 stg 1935-1939; HK\$16 = £1 stg, +0% and -1.17% 1935-1941, 1945-1967; HK\$14.55 = £1 stg, no spread 1967-1972; HK\$5.65 = US\$1, +2-1/4%** 1972-1973; HK\$5.085 = US\$1,+2-1/4%** 1973-1974; HK\$7.80 = US\$1, no spread 1983-present
Iraq [UK], 1932	1931-1949	100+% stg	1 Iraqi dinar = £1 stg,+1/2%?
Ireland [UK], 1921	1928-1943	100% stg after first Irish £6 million	Irish £1 = £1 stg, no spread
Italian Somaliland (part of Somalia) [Italy], 1960	1941-1959	100%* stg 1941-1950; 100% foreign exchange and gold 1950-1959	20 East African shillings = £1 stg, +1/2% 1941-1950; 20 somali = £1 stg 1950-1959
Jamaica [UK], 1962	1933-1961	100% stg 1933-1953?; 70% stg + 30% Jamaican £ 1953?-1961	Jamaican £1 = £1 stg, +7/16% and -1/2%
Kenya [UK], 1963	1897-1966	100%* stg	20 East African shillings = £1 stg, +1/2%
Kuwait [UK], 1961	1961-1969	min. 50% gold + max. 50% US\$ and stg = 100%	1 Kuwaiti dinar = £1 stg
Leeward Islands (Anguilla, Antigua and Barbuda, St Kitts and Nevis, Montserrat) [UK], not all independent	1935-1983	110% stg 1951-1964; 70% stg + 30% West Indies \$ = 110% 1964-1968; 100% stg + some West Indies \$ = 110+% 1968-1971; 90% stg + 10% East Caribbean \$ = 110% 1971-1974; 100% foreign exchange + some East Caribbean \$ = 110+% 1974-1983	used Trinidad currency 1935-1951 (see Trinidad); West Indies/East Caribbean \$4.80 = £1 stg, +3/8% and -7/16% 1951-1976; East Caribbean \$2.70 = US\$1 1976-1983
Liberia	1913-1944		used West African currency (see Nigeria)
Libya [UK, France], 1951	1950-1956	100% stg	Libyan £1 = £1 stg, +1/4%
Malaya (part of Malaysia) [UK], 1963	1899-1942, 1946-1967	110% stg	used Straits Settlement (Singapore) currency to 1939 (see Singapore); Malay \$1 = 2s. 4d. stg, +1/8% 1939-1942, 1946-1967
Maldiv Islands (Maldives) [UK], 1965	1849?-1967		used Indian and Mauritius currency (see Mauritius)
Malta [UK], 1964	1949-1965?	100+% stg	Maltese £1 = £1 stg
Mauritius [UK], 1964	1849-1967	33-50% coin + 50-67% Mauritius rupees and stg = 100% 1849-1865; = 110% 1865-1934; 110% stg 1934-1967	1 Mauritius rupee = 1 Indian rupee 1849-1934; 15 Mauritius rupees = £1 stg,+1/2% 1934-1967
New Zealand [UK], 1907	1850-1856	min. 25% coin + max. 75% stg = 100%	New Zealand £1 = £1 stg
Nigeria [UK], 1960	1913-1959	110% stg	West African £1 = £1 stg,+1/2%
North Borneo (part of Malaysia) [UK], 1963	1881?-1942, 1946-1967	110% stg	Borneo \$1 = Spanish \$1 1881-1906 (may have been a currency board); Borneo \$1 = 2s. 4d. stg 1906-1952 (currency board for part or all of period); Malay \$1 = 2s. 4d. stg, +1/8% 1939-1942, 1946-1967
North Russia (part of Russia)	1918-1920	75% stg + 25% rubles	40 rubles = £1 stg, +1%
Northern Rhodesia (Zambia) [UK], 1964	1940-1956	110% stg 1940-1942; 100% stg + 10% Rhodesian £ 1942-1947; min. 50% stg + max. 60% Rhodesian £ = 110% 1947-1956	Rhodesian £1 = £1 stg,+1/4%
Nyasaland (Malawi) [UK], 1966	1940-1956	110% stg 1940-1942; 100% stg + 10% Rhodesian £ 1942-1947; min. 50% stg+ max. 60% Rhodesian £ = 110% 1947-	Rhodesian £1 = £1 stg,+1/4%

		1956	
Oman	1970-1974	100+% stg	1 rial Omani = £1 stg
Palestine (Israel) [UK], 1948	1927-1948 (1927-1951 in Gaza Strip)	110% stg	Palestine £1 = £1 stg, +1/8%
Panama	1904-1931?	100% silver coin + 15% US\$ = 100% of gold value	1 balboa = US\$1
Philippines [USA], 1946	1903-1918, 1923-1942, 1945-1948	100% silver coin + 15-25% US\$ = 100% of gold value 1903-1908, 1923-1942, 1945-1948; 100% silver coin + 17.5% US\$ + 17.5% pesos = 100% of gold value 1908-1918	2 pesos = US\$1, +3/8% (cheques) or +3/4% (telegrams)
Qatar [UK], 1971	1966-1973	100% gold and foreign exchange	1 Qatar/Dubai riyal = 0.16621g gold
St Helena [UK]	1970s	100+% stg	St Helena £1 = £1 stg
Sarawak (part of Malaysia) [UK], 1963	1927-1942, 1946-1967	110% stg	Sarawak \$1 = 2s. 4d. stg 1927-1952; Malay \$1 = 2s. 4d. stg, +1/8% 1952-1967
Seychelles [UK], 1976	1849-1966?	100+% stg 1934-1966?	used Mauritius currency to 1936 (see Mauritius); 1 Seychelles rupee = 1s. 6d. stg, +1/2%? 1936-1966?
Sierra Leone [UK], 1961	1913-1964	110% stg	West African £1 = £1 stg, +1/2%
Singapore [UK], 1967	1899-1942, 1946-1973	50-67% coin (incl. at least 10% silver) + 33-50% Indian rupees and stg*** = 105% 1899-1923; 110% stg 1923-1942, 1946-1967; 100% gold and foreign exchange 1967-1973	managed floating 1899-1906; Straits \$1 = 2s. 4d. stg, +1-1/8% and -7/8% 1906-1939; Malay \$1 = 2s. 4d. stg, +1/8% 1939-1942, 1946-1967; Singapore \$1 = 2s. 8-7/10d. stg 1967-1973
Southern Rhodesia (Zimbabwe) [UK], 1965	1940-1956	110% stg 1940-1942; 100% stg + 10% Rhodesian £ 1942-1947; min. 50% stg + max. 60% Rhodesian £ = 110% 1947-1956	Rhodesian £1 = £1 stg, +1/4%
Sudan [Egypt, UK], 1956	1957-1960	50% stg + 50% Sudanese £	Sudanese £ = £1 6d. stg
Swaziland [UK], 1968	1974-1986	100% South African rands	1 langeni = 1 South African rand, no spread
Tanganyika (Tanzania) [UK], 1961	1920-1966	100%* stg	20 East African shillings = £1 stg, +1/2%
Togoland (part of Ghana) [UK], 1957	1914-1958	110% stg	West African £1 = £1 stg, +1/2%
Tonga [UK], 1970	1936-1974	100+% stg and Australian £/\$?	Tonga £1 = Australian £1, +1-3/4% (cheques) or +2-1/2% (telegrams) 1936-1966; 1 pa'anga = Australian \$1 1966-1974
Transjordan (Jordan) [UK], 1946	1927-1964	110% stg	Palestine £1 = £1 stg, +1/8% 1927-1948; 1 Jordanian dinar = £1 stg, +1/8% 1948-1964
Trinidad and Tobago [UK], 1962	1935-1964	100+% stg	(Trinidad) West Indies \$4.80 = £1 stg 1935-1951; West Indies \$4.80 = £1 stg, +3/8% and -7/16% 1951-1964
Uganda [UK], 1962	1919-1966	100% stg*	20 East African shillings = £1 stg, +1/2%
Western Samoa [New Zealand], 1962	1920-1973?	100% New Zealand £/\$?	Western Samoa £1 = New Zealand £1 1920-1967; 0.8076 tala = New Zealand \$1 1967-1973?
Windward Islands (Grenada, St Vincent and the Grenadines, St Lucia, Dominica) [UK], 1974-1979	1935-1983	110% stg 1951-1964; 70% stg + 30% West Indies \$ = 110% 1964-1968; 100% stg + some West Indies \$ = 110+% 1968-1971; 90% stg + 10% East Caribbean \$ = 110% 1971-1974; 100% foreign exchange + some East Caribbean \$ = 110+% 1974-1983	used Trinidad currency 1935-1951 (see Trinidad); West Indies/East Caribbean \$4.80 = £1 stg, +3/8% and -7/16% 1951-1976; East Caribbean \$2.70 = US\$1 1976-1983
Yemen Arab Republic (part of Yemen)	1964-1971	100%+ stg	3 Yemeni rials = £1 stg
Zanzibar (Tanzania) [UK], 1961	1936-1966	100%* stg	20 East African shillings = £1 stg, +1/2%

Source: Hanke, Steve H. Shuler, Kurt. "Currency Boards for Developing Countries: A Handbook." International Center for Economic Growth. ICS P. San Francisco. 1994.

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