

Currency Boards

By STEVE H. HANKE

ABSTRACT: In contrast to central banks, currency boards are rule-bound monetary institutions without discretionary monetary policies. Currency boards first appeared in the mid-nineteenth century, were widespread prior to World War II, were replaced by central banks after the war, and have made something of a resurgence in the 1990s. This article discusses the distinguishing features of currency boards and central banks. Data that compare the performance of currency boards to that of central banks are presented. The arguments against currency boards are itemized and evaluated. The article concludes that the opposition to currency boards ignores the empirical evidence and is, at best, half baked. In developing countries, currency boards are superior to central banks. By applying a remediableness criterion, the article concludes that there are more than sixty countries that should replace their central banks with currency boards.

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NOTE: The author thanks Matt Sekerke for his assistance in preparing this article.

In the beginning God created sterling and the franc.
 On the second day He created the currency board and, Lo, money was well managed.
 On the third day God decided that man should have free will and so He created the budget deficit.
 On the fourth day, however, God looked upon His work and was dissatisfied. It was not enough. So, on the fifth day God created the central bank to validate the sins of man.
 On the sixth day God completed His work by creating man and giving him dominion over all God's creatures.
 Then, while God rested on the seventh day, man created inflation and the balance-of-payments problem.

—Peter B. Kenen (1978, 13)

Central banks issue currency and exercise wide discretion over the conduct of monetary policy. Although widespread today, central banks are relatively new institutional arrangements. In 1900, there were only 18 central banks in the world. By 1940, 40 countries had them, and today there are 174. Of those, 6 are bound by currency board rules that do not permit discretionary monetary policies. In addition, there are seven monetary authorities that operate as stand-alone currency boards (see Table 1).

An orthodox currency board issues notes and coins convertible on demand into a foreign anchor

currency at a fixed rate of exchange. As reserves, it holds low-risk, interest-bearing bonds denominated in the anchor currency and typically some gold. The reserve levels are set by law and are equal to 100 percent, or slightly more, of its monetary liabilities (notes, coins, and if permitted, deposits). A currency board's convertibility and foreign reserve cover requirements do not extend to deposits at commercial banks or to any other financial assets. A currency board generates profits (seigniorage) from the difference between the interest it earns on its reserve assets and the expense of maintaining its liabilities. By design, a currency board has no discretionary monetary powers and cannot engage in the fiduciary issue of money. Its operations are passive and automatic. The sole function of a currency board is to exchange the domestic currency it issues for an anchor currency at a fixed rate. Consequently, the quantity of domestic currency in circulation is determined solely by market forces, namely the demand for domestic currency (Walters and Hanke 1992).

The currency board idea originated in Britain in the early 1800s. A notable proponent was David Ricardo. Sir John Hicks (1967) made this perfectly clear when he wrote, "On strict Ricardian principles, there should have been no need for Central Banks. A Currency Board, working on a rule, should have been enough" (pp. 167-78).

Currency boards have existed in about seventy countries. The first one was installed in the British Indian Ocean colony of Mauritius in

TABLE 1
CURRENCY BOARDS AND CURRENCY BOARD-LIKE SYSTEMS TODAY

Country	System Began	Exchange Rate	Population	GDP (in U.S.\$) ^a
Argentina ^b	1991	1 peso = U.S.\$1	37 million	\$374 billion
Bermuda	1915	Bermuda\$1 = U.S.\$1	62,000	\$1.9 billion
Brunei ^b	1952	Brunei\$1 = Singapore\$1	320,000	\$5.4 billion
Bosnia ^b	1997	1 convertible mark = DM 1	3.5 million	\$5.8 billion
Bulgaria ^b	1997	1 lev = DM 1	8.2 million	\$34 billion
Cayman Islands	1972	Cayman\$1 = U.S.\$1.20	39,000	\$930 million
Djibouti ^b	1949	177.72 Djibouti francs = U.S.\$1	450,000	\$530 million
Estonia ^b	1992	8 kroons = DM 1	1.4 million	\$7.8 billion
Falkland Islands	1899	Falklands£1 = U.K.£1	2,800	unavailable
Faroese Islands	1940	1 Faroese krone = 1 Danish krone	41,000	\$700 million
Gibraltar	1927	£1 = U.K.£1	29,000	\$500 million
Hong Kong ^b	1983	Hong Kong\$7.80 = U.S.\$1	6.8 million	\$168 billion
Lithuania ^b	1994	4 litai = U.S.\$1	3.6 million	\$18 billion

SOURCES: Hanke, Jonung, and Schuler (1993); Central Intelligence Agency (1999).

a. Expressed in terms of purchasing power parity, not at current exchange rates.

b. Currency board-like system.

1849. By the 1930s, they were widespread in British colonies in Africa, Asia, the Caribbean, and the Pacific islands. Currency boards have also existed in a number of independent countries and city-states, such as Danzig and Singapore. One of the more interesting currency boards was installed in North Russia on 11 November 1918, during the civil war. Its architect was John Maynard Keynes, who was a British Treasury official responsible for war finance at the time (Hanke, Jonung, and Schuler 1993).

DISTINGUISHING FEATURES OF CURRENCY BOARDS AND CENTRAL BANKS

The features that distinguish typical currency boards and central banks are itemized in Table 2 and are generally self-explanatory. Several merit further comment, however.

One concerns balance sheets. Unfortunately, most economists are incapable of performing basic balance sheet diagnostics and ignore these important documents. This was not always the case. Sir John Hicks—a high priest of economic theory and 1972 Nobel laureate—thought there was nothing more important than a balance sheet (Klamer 1989). I agree, particularly when it comes to understanding monetary institutions.

A balance sheet reveals a monetary authority's liabilities (high-powered base money). It also shows the make-up of those liabilities, or the split between net domestic assets (the domestic component of base money) and net foreign reserves (the foreign component of base money).

The asset side of a central bank's balance sheet contains both net domestic assets and net foreign reserves. This means that a central

TABLE 2
A TYPICAL CURRENCY BOARD VERSUS A TYPICAL CENTRAL BANK

Typical Currency Board	Typical Central Bank
Usually supplies notes and coins only	Supplies notes, coins, and deposits
Fixed exchange rate with reserve currency	Pegged or floating exchange rate
No conflicts between exchange rate policies and monetary policies	Frequent conflicts between exchange rate policies and monetary policies
No balance of payments crises	Frequent balance of payments crises
Foreign reserves of 100 percent	Variable foreign reserves
Cannot become insolvent	Can become insolvent
Does not hold domestic assets	Does hold domestic assets
Full convertibility	Limited convertibility
Rule-bound monetary policy	Discretionary monetary policy
Not a lender of last resort	Lender of last resort
Does not regulate commercial banks	Often regulates commercial banks
Transparent	Opaque
Immune from corruption scandals	Prone to corruption scandals
Protected from political pressure	Politicized
High credibility	Low credibility
Earns seigniorage only from interest	Earns seigniorage from interest and inflation
Cannot create inflation	Can create inflation
Cannot finance spending by domestic government	Can finance spending by domestic government
Requires no preconditions for monetary reform	Requires preconditions for monetary reform
Rapid monetary reform	Slow monetary reform
Small staff	Large staff

bank can engage in discretionary monetary policy—or fine-tuning—by buying and selling domestic assets (bonds and bills). This results in changes in the fiduciary issue of money, with the domestic component of the monetary base increasing when a central bank buys bonds and bills and contracting when a central bank sells bonds and bills.

Net foreign reserves are the only asset on a currency board's balance sheet because it cannot buy and sell domestic assets. Consequently, a currency board cannot engage in fine-tuning, and its monetary liabilities (base money) are exclusively made up of a foreign component. Changes in base money in a currency board

system are, therefore, exclusively driven by changes in the balance of payments and net foreign reserves.

A quick glance at a monetary authority's balance sheet will show whether it is engaging in discretionary monetary policy and whether it is operating as a currency board or a central bank. Since currency boards conduct no monetary policy and have nothing to hide, they post their current balance sheets on the Web and are transparent. This is not the case for central banks. Of the 174 central banks, only 124 have Web sites. And, only 82 post some form of balance sheet. Of those, only 14 display current balance sheets (Hanke 2001). This lack of central bank trans-

parency causes no end of problems for those who wish to conduct balance sheet diagnostics and determine what central banks are actually doing.

A second feature that distinguishes currency boards and central banks is the exchange rate regimes they employ. With currency board rules, a monetary authority sets the exchange rate—it is fixed—but it has no monetary policy. The quantity of base money in the system is solely determined by the demand for it in the market. Consequently, there can be no conflicts between exchange rate policies and monetary policies in a currency board system. Balance-of-payments problems cannot rear their ugly heads because market forces automatically act to rebalance financial flows. This explains why speculative attacks against currencies issued by currency boards have always ended in failure, with no devaluations. Argentina in 1995 and 2001 is but one example.

Central banks in developing countries simultaneously manage exchange rate policies and monetary policies. They operate with pegged exchange rate systems that are variously referred to as pegged, pegged but adjustable, bands, or managed floating systems. With pegged rates, the monetary base contains both domestic and foreign components because both net domestic assets and foreign reserves on the monetary authority's balance sheet can change, and these changes cause its monetary liabilities to fluctuate.

Pegged rates invariably result in conflicts between exchange rate policies and monetary policies. For

example, when capital inflows become excessive under a pegged system, a monetary authority often attempts to sterilize the effect by reducing the domestic component of the monetary base through the sale of government bonds. And, when outflows become excessive, the authority attempts to offset the changes with an increase in the domestic component of the monetary base by purchasing government bonds. Balance-of-payments crises erupt as a monetary authority increasingly offsets the reduction in the foreign component of the monetary base with domestically created base money. When this occurs, it is only a matter of time before currency speculators spot the contradiction. This is exactly what happened in Turkey during February of 2001.

A third feature that merits attention concerns the issuance of credit by a monetary authority. Central banks can act as a lender of last resort and extend credit to the banking system. They can also make loans to the fiscal authorities and state-owned enterprises. Consequently, central banks can go bankrupt. The Bank of Indonesia is the most recent example of an insolvent central bank (Hanke 2000a).

A problem in many developing countries is that the rule of law is weak and so are the institutions of government. Consequently, a principal-agent problem exists because the voters (principals) have very little effective control over their agents (politicians) (Williamson 1996). Currency boards remedy the principal-agent problem, in part, because they cannot extend credit to the fiscal

TABLE 3
CURRENCY BOARD VERSUS CENTRAL BANK PERFORMANCES
(NINETY-EIGHT DEVELOPING COUNTRIES, 1950-1993)

System	GDP Growth Rate (%)	Annual Average Inflation (%)	Fiscal Deficit (% of GDP)
Currency board	2.6 (535)	7.0 (523)	2.2 (338)
Central bank	1.7 (2,694)	33.8 (2,663)	3.7 (1,769)

SOURCE: Based on Hanke (1999).

NOTE: Number of observations in parentheses.

TABLE 4
CURRENCY BOARD VERSUS CENTRAL BANK PERFORMANCES
(MEMBERS OF THE INTERNATIONAL MONETARY FUND, 1970-1996)

System	Number of Observations	GDP Growth Rate (%)	Annual Average Inflation (%)	Fiscal Deficit (% of GDP)
Currency board	115	3.2	5.6	2.8
Central bank	695	1.6	48.3	4.4

SOURCE: Based on Ghosh, Gulde, and Wolf (1998).

authorities or state-owned enterprises. In addition, currency boards cannot engage in lender of last resort activities. The fiscal regime, therefore, is subordinated to the monetary regime, and a hard budget constraint is imposed on the politicians.

Much as the gold standard was adopted to control the fiscal authorities (James 2001), I can attest to the fact that every currency board in the 1990s was adopted primarily to impose a hard budget constraint. With few exceptions, this key currency board feature has been overlooked by economists (Horváth and Székely 2001).

PERFORMANCE OF
 CURRENCY BOARDS
 AND CENTRAL BANKS

All currency boards have performed well, when compared to

central banks (Hanke, Jonung, and Schuler 1993). Countries with currency boards have realized price stability, respectable growth rates, and fiscal discipline (for the first detailed quantitative study that compares currency boards and central banks in 155 countries, see Schuler 1996).

Tables 3 and 4 present pooled time-series, cross-section data for a large number of countries spanning nearly fifty years. The data speak for themselves. The currency boards' performance is unambiguously superior to the central banks'. Currency boards, therefore, satisfy Karl Schiller's (cited in Marsh 1992) test of a sound monetary system: "stability might not be everything, but without stability, everything is nothing" (p. 30).

Karl Schiller's test is particularly relevant when judging the performance of the five currency boards

installed in the 1990s. All were installed in countries that were politically and/or economically very unstable. Furthermore, prior to the installation of currency boards, all countries had soft budget constraints and faced the prospect of continued instability. Argentina was attempting to cope with repeated bouts of hyperinflation. Estonia had just gained independence from the U.S.S.R and was still using the hyperinflating Russian ruble. Lithuania was in the grip of a collapsing real economy and very high inflation. To make matters worse, its new political institutions could not effectively control what threatened to be a runaway fiscal deficit. Bulgaria had defaulted on its international debt, narrowly escaped a revolution in late 1996, and was battling hyperinflation that had virtually wiped out its banking system and sent the real economy into a free fall. Finally, the newly independent Bosnia and Herzegovina had just come out of a bloody civil war, one that had disrupted and displaced most of the population, destroyed 18 percent and damaged 60 percent of the housing stock, and covered much of the territory with land mines. Its economy was in shambles, declining to about 20 percent of the 1990 level. With the exception of the deutsche mark, the other three currencies in circulation—the Bosnia and Herzegovina dinar, the Croatian kuna, and the Yugoslav dinar—were either unstable or very unstable.

Tables 5 through 9 constitute event studies, with the event's being the installation of a currency board. Economic and financial data are

presented before and after the event. Although these basic data speak for themselves, several points merit attention. For each of the five countries, the foreign reserves increased dramatically after the currency board was introduced. Given that the monetary liabilities of the boards are solely a function of the demand for those liabilities and given that they must be backed by a minimum of 100 percent foreign reserves, the demand for the domestic currency, as indicated by foreign reserve levels, increased dramatically after the introduction of the currency board.

The currency boards' imposition of a hard budget constraint is not fully revealed by the fiscal balance data. These data show fiscal balances on a standard cash basis, which excludes revenues from privatization. Also, in the years prior to the introduction of the currency boards, the fiscal authorities were all running up large arrears. This practice stopped after boards were installed. Consequently, the fiscal deficits prior to their introduction would have been larger if bills had been paid on time. In addition, in the years following their introduction, privatizations increased significantly. If these were included in the fiscal data, the deficits after the installation of the currency boards would have been much smaller. Therefore, the fiscal effects of currency boards are, in reality, much more impressive than those implied by the standard data presented in Tables 5 through 9.

For the four countries in which data were available (see Tables 5-8), foreign direct investment and portfolio flows registered healthy increases

TABLE 5
ARGENTINA BEFORE AND AFTER SETTING UP A CURRENCY BOARD (1 APRIL 1991)

	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Annual inflation (year-end %)	4,928.6	1,344.5	84.0	17.5	7.4	3.9	1.6	0.0	0.3	0.7	-1.8	-0.5
Change in real GDP (%)	-6.9	-1.8	10.6	9.6	5.7	5.8	-2.8	5.5	8.1	3.9	-3.1	-0.2
Interest rates (money market rate, % per annum, at year-end)	1,387,179	9,695,422	71.33	15.11	6.31	7.66	9.46	6.23	6.63	6.81	6.99	8.15
Fiscal balance (% of GDP)	-7.6	0.1	-0.1	-0.2	0.9	-0.3	-1.0	-2.2	-1.5	-1.4	-2.5	-2.4
Foreign reserves (in U.S.\$ billions)	3	6	7	12	15	16	16	20	22	25	26.4	22.9
Foreign direct investment (in U.S.\$ millions)	1,028	1,836	2,439	4,045	2,555	3,635	5,610	6,949	9,161	7,280	24,148	11,154
Portfolio assets (investment abroad by Argentines, in U.S.\$ millions)	NA	-241	-8,261	-80	-2,037	-1,485	-2,882	-2,380	-1,449	-2,065	-2,037	-1,456
Portfolio liabilities (investment by foreigners in Argentina, in U.S.\$ millions)	-1,098	-1,105	8,227	1,060	22,345	9,853	4,752	12,209	11,753	10,829	-4,418	-94
Exports (% of GDP)	13.0	10.4	7.8	6.7	7.0	7.6	9.7	10.5	10.6	10.4	9.8	10.8
Seigniorage (% of GDP)			0.24	0.30	0.33	0.38	0.35	0.42	0.48	0.43	0.52	0.52

SOURCES: International Monetary Fund, Argentine Ministry of Economy, Banco Central de la Republica Argentina, Lehman Brothers.

NOTES: (1) The fiscal balance is calculated on a cash basis and excludes privatization revenues. The arrears were very high in 1990, suggesting that the cash deficit as a percentage of GDP would have been quite high in 1990 if the government had been paying its bills on time. (2) For portfolio assets, a negative number indicates an increase in holdings of foreign assets by Argentines (a net outflow of capital), while a positive number reflects a decrease in holdings. Conversely, for portfolio liabilities, a positive number indicates an increase in holdings of Argentine assets by foreigners (a net inflow of capital), and a negative number reflects a decrease in Argentine assets held by foreigners. (3) Seigniorage is calculated by multiplying foreign reserves less gold, special drawing rights, and the country's net International Monetary Fund position by the long bond yield in the reserve currency.

TABLE 6
ESTONIA BEFORE AND AFTER SETTING UP A CURRENCY BOARD (20-24 JUNE 1992)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Annual inflation (annual average %)	23.1	210.5	1,076	89.0	47.7	29.0	23.1	11.2	8.1	3.3	4.0
Change in real GDP (%)	-6.5	-13.6	-14.2	-9.0	-2.0	4.3	4.0	10.4	5.0	-0.7	6.9
Commercial banks average lending rates (short-term, 1-3 months, %)	NA	NA	59.2	36.6	24.6	19.0	14.8	11.9	15.1	11.1	7.4
Fiscal balance (% of GDP)	2.9	4.7	-0.3	-0.7	1.3	-1.2	-1.5	2.2	-0.3	-4.6	-0.3
Foreign reserves (in U.S.\$ millions)	NA	NA	196	389	447	583	640	760	813	906	935
Foreign direct investment (in U.S.\$ millions)	NA	NA	82.3	162.2	214.4	201.5	150.2	266.2	580.5	305.2	386.9
Portfolio assets (investment abroad by Estonians, in U.S.\$ millions)	NA	NA	NA	-0.4	-22.5	-33.2	-52.7	-165.0	-10.9	-132.3	39.9
Portfolio liabilities (investments by foreigners in Estonia, in U.S.\$ millions)	NA	NA	NA	0.2	8.4	11.1	198.1	427.5	1.1	153.3	76.2
Exports (% of GDP)	NA	31.9	60.0	70.3	76.0	72.4	67.1	78.1	79.8	77.4	96.2
Seigniorage (% of GDP)			1.25	1.26	1.29	1.06	0.82	0.83	0.68	0.71	0.97

SOURCES: International Monetary Fund; Estonian Central Bank; European Bank for Reconstruction and Development; Lehman Brothers.

NOTES: (1) Reliable data for interest rates and foreign reserves are not available for 1990 and 1991 because Estonia was still part of the U.S.S.R. during most of that period. A referendum was held in March 1991, and 77.8 percent of the votes cast favored Estonian independence. Estonia declared independence on 20 August 1991, and an independent status was conceded by the U.S.S.R. State Council on 6 September 1991. (2) When the currency board was established in June 1992 and the kroon replaced the Russian ruble, foreign reserves were \$98.1 million. (3) For portfolio assets, a negative number indicates an increase in holdings of foreign assets by Estonians (a net outflow of capital), while a positive number reflects a decrease in holdings. Conversely, for portfolio liabilities, a positive number indicates an increase in holdings of Estonian assets by foreigners (a net inflow of capital), and a negative number reflects a decrease in Estonian assets held by foreigners. (4) Seigniorage is calculated by multiplying foreign reserves less gold, special drawing rights, and the country's net International Monetary Fund position by the long bond yield in the reserve currency.

TABLE 7
LITHUANIA BEFORE AND AFTER SETTING UP A CURRENCY BOARD (1 APRIL 1994)

	1992	1993	1994	1995	1996	1997	1998	1999	2000
Annual inflation (year-end %)	1,175	188.8	72.2	35.5	13.1	8.4	2.4	0.3	1.5
Change in real GDP (%)	-21.3	-16.2	-9.8	3.3	4.7	7.3	5.1	-4.2	2.7
Commercial banks' average lending rates (short-term, 1-3 months, %)	135.2	91.6	33.0	29.5	20.0	13.3	13.3	14.5	13.4
Fiscal balance (% of GDP)	0.5	-5.3	-4.8	-4.5	-4.5	-1.8	-5.9	-8.5	-2.8
Foreign reserves (in U.S.\$ millions)	107	412	587	819	834	1,063	1,460	1,242	1,356
Foreign direct investment (in U.S.\$ millions)	NA	30.2	31.3	72.6	152.4	354.5	925.5	486.5	378.9
Portfolio assets (investment abroad by Lithuanians, in U.S.\$ millions)	NA	-0.9	-0.2	-10.5	-26.9	7.7	-10.1	-1.9	-141.4
Portfolio liabilities (investment by foreigners in Lithuania, in U.S.\$ millions)	NA	0.6	4.6	26.6	89.6	180.5	-42.7	507.5	405.9
Exports (% of GDP)	23.3	82.5	55.4	53.0	53.4	54.5	47.2	39.7	45.5
Seigniorage (% of GDP)			0.85	0.81	0.62	0.66	0.68	0.63	0.70

SOURCES: International Monetary Fund, European Bank for Reconstruction and Development, Lehman Brothers.

NOTES: (1) For portfolio assets, a negative number indicates an increase in holdings of foreign assets by Lithuanians (a net outflow of capital), while a positive number reflects a decrease in holdings. Conversely, for portfolio liabilities, a positive number indicates an increase in holdings of Lithuanian assets by foreigners (a net inflow of capital), and a negative number reflects a decrease in Lithuanian assets held by foreigners. (2) Seigniorage is calculated by multiplying foreign reserves less gold, special drawing rights, and the country's net International Monetary Fund position by the long bond yield in the reserve currency.

after currency boards were installed. This, in part, can be attributed to the fixed exchange rate regimes and the marked reduction in exchange rate risks that accompany a currency board system.

The story of Hong Kong provides another event study. The authorities allowed the Hong Kong dollar to float in November 1974. The floating Hong Kong dollar became wildly

volatile and steadily lost value against the U.S. dollar. The volatility reached epic proportions in late September 1983, after the fourth round of Sino-British talks on Hong Kong's future. Financial markets and the Hong Kong dollar went into tailspins.

At the end of July 1983, the Hong Kong dollar was trading at Hong Kong\$7.31 to U.S.\$1. By Black

TABLE 8
BULGARIA BEFORE AND AFTER SETTING UP A CURRENCY BOARD (1 JULY 1997)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Annual inflation (year-end %)	338.9	79.4	63.8	121.9	32.9	310.8	549.2	1.7	7.0	11.4
Change in real GDP (%)	-11.7	-7.3	-1.5	1.8	2.1	-10.1	-6.9	3.5	2.4	5.3
Interest rates (money market rate, % per annum)	69.6	49.7	66.4	101.2	39.8	435.0	7.0	5.2	4.6	4.7
Fiscal balance (% of GDP)	-3.7	-5.2	-10.9	-5.8	-5.6	-12.7	-2.5	1.0	-1.0	-1.0
Foreign reserves (in U.S.\$ millions)	616	1,207	960	1,311	1,545	793	2,474	3,056	3,222	3,460
Foreign direct investment (in U.S.\$ millions)	56	42	40	105	90.4	109.0	504.8	537.2	806.1	1001.5
Portfolio assets (investment abroad by Bulgarians, in U.S.\$ millions)	NA	NA	NA	-222	9.7	-7.1	-13.7	-129.5	-207.5	-62.0
Portfolio liabilities (investment by foreigners in Bulgaria, in U.S.\$ millions)	NA	NA	NA	-10	-75.4	-122.2	146.5	-112.0	8.0	-114.9
Exports (% of GDP)	43.4	47.3	38.1	45.1	44.7	62.9	61.4	45.2	44.1	NA
Seigniorage (% of GDP)							1.10	0.99	1.02	NA

SOURCES: International Monetary Fund, Lehman Brothers, European Bank for Reconstruction and Development.

NOTES: (1) For portfolio assets, a negative number indicates an increase in holdings of foreign assets by Bulgarians (a net outflow of capital), while a positive number reflects a decrease in holdings. Conversely, for portfolio liabilities, a positive number indicates an increase in holdings of Bulgarian assets by foreigners (a net inflow of capital), and a negative number reflects a decrease in Bulgarian assets held by foreigners. (2) Seigniorage is calculated by multiplying foreign reserves less gold, special drawing rights, and the country's net International Monetary Fund position by the long bond yield in the reserve currency.

TABLE 9
**BOSNIA AND HERZEGOVINA BEFORE AND AFTER
 SETTING UP A CURRENCY BOARD (11 AUGUST 1997)**

	1995	1996	1997	1998	1999	2000
Annual inflation (annual average %)	-4	-25	14	5	0	2
Change in real GDP (%)	21	86	40	13	9	10
Commercial banks' median lending rates to households (short-term, 1-3 months, %)	146.7	55.6	29.6	26.0	28.0	24.0
Fiscal balance (% of GDP)	0	-3	-1	-2	-1	-3
Foreign reserves (in U.S.\$ millions)	207	235	80	175	455	488

SOURCES: Central Bank of Bosnia and Herzegovina, International Monetary Fund.

NOTES: (1) Interest rate data for 1996 are for April. All interest rates are for the federation only. (2) Between 1995 and 10 August 1997, the National Bank of Bosnia and Herzegovina (NBBiH) operated and issued a Bosnia-Herzegovina dinar (BHD). That currency was pegged to the German mark at BHD = DM 100. During that period, the NBBiH operated as a pseudo-currency board. However, there were some deviations in which credits were issued to the government. Moreover, those credits were not fully backed by DM assets. On 11 August 1997, the Central Bank of Bosnia and Herzegovina (CBBiH) was established, and the convertible marka (KM) became the unit of account. The CBBiH operates under currency board-like rules. On 22 June 1998, the KM notes were put into circulation, and on 9 December 1998, KM coins were put into circulation. On 7 July 1998, the BHD ceased to be legal tender. (3) The last cease-fire agreement in the civil war was signed on 10 October 1995; the Dayton/Paris Treaty that ended the war was initiated in Dayton on 21 November 1995 and signed in Paris on 14 December 1995.

Saturday, 24 September, it had fallen to Hong Kong\$9.55 to U.S.\$1, with dealer spreads reported as large as ten thousand basis points. Hong Kong was in a state of panic, with people hoarding toilet paper, rice, and cooking oil. The chaos ended abruptly on 15 October, when Hong Kong reinstated its currency board.

In the seventeen years since the currency board, Hong Kong's GDP growth has been positive and strong in all but one year, 1998, the year after the Asian crisis engulfed the region. Annual inflation has come down from 9.2 percent during the floating period to an average of 3.7 percent during the currency board period. And, the fiscal authorities have generated budget surpluses in fourteen out of the seventeen years.

THE DEMISE AND RESURGENCE OF CURRENCY BOARDS

Given the superior performance of currency boards, the obvious question is, What led to their demise and replacement by central banks after World War II?

The demise of currency boards resulted from a confluence of three factors. A choir of influential economists was singing the praises of central banking's flexibility and fine-tuning capacities. In addition to changing intellectual fashions, newly independent states were trying to shake off their ties with former imperial powers, which sometimes included chasing away foreign investment. And, the International Monetary Fund (IMF) and World

Bank, anxious to obtain new clients and “jobs for the boys,” lent their weight and money to the establishment of new central banks. In the end, the Bank of England provided the only institutional voice that favored currency boards. That was obviously not enough (Tignor 1998).

Why, then, did currency boards begin to make something of a resurgence in the 1990s? As someone who observed these developments at close range, I can attest that it had very little to do with the usual things economists write about currency boards. Instead, the resurgence was largely motivated by the desire to install a monetary regime to which the fiscal regime would be subordinated. By putting the monetary authorities in a straitjacket, currency boards were viewed as a means to impose fiscal discipline. And, as Tables 5 through 9 indicate, they have satisfied that expectation, a fact acknowledged in the IMF’s (2001f) most recent edition of the *World Economic Outlook*: “a currency board tends to discourage persistently large fiscal deficits and the use of the inflation tax” (p. 131).

The resurgence has not gone unchallenged, however. Indeed, a cottage industry housing passionate opponents of currency boards has developed over the past decade. The works they produce, much like those in development economics, have been promoted by “the disregard for contrary opinions” (Bauer 1976, 231). Indeed, they suffer from parasitic citation loops in which opponents exclusively cite other opponents. As for the empirical evidence, it is swept away like flies. Indeed, the opponents use as their method “nirvana

economics” in which the ideal of central banking is compared to the actual operation of currency boards.

But, why all this opposition? The most charitable answer to this phenomenon was given by Michael Polanyi (1958). He wrote that it is “the normal practice of scientists to ignore evidence which appears incompatible with the accepted system of scientific knowledge” (p. 138).

Be that as it may, there are a number of objections that were anticipated and refuted in a chapter devoted to that task (Hanke and Schuler 1994a). Unfortunately, these objections have become little more than clichés (Williamson 1995) and merit comment, once again.

The most common cliché that has been propagated by the opponents of currency boards is the notion that certain preconditions must be satisfied before currency boards can be adopted. It was embraced by the Council of Economic Advisers (1999), which wrote, “A currency board is unlikely to be successful without the solid fundamentals of adequate reserves, fiscal discipline and a strong and well-managed financial system, in addition to the rule of law” (p. 289).

This statement is literally fantastic and demonstrates how far off base professional economists can get when they fail to carefully study the history, workings, and results of alternative real-world institutions. After all, none of the successful currency boards of the 1990s was installed in a country that came close to satisfying even one of the alleged preconditions.

The second oft-cited criticism of currency boards asserts that they are rule bound and rigid. Consequently, countries that employ them are more subject to external shocks than are countries with central banks. If this were true, the variability of growth measured by the standard deviations in growth rates in currency board countries would be larger than in central banking countries. The facts do not support this thesis (Hanke 1999). Indeed, the variability of growth rates between the two sets of countries is almost identical. This suggests that while currency board countries are subject to external shocks, central banking countries are subject to internal shocks, and their magnitudes are almost the same. The currency board shock argument is, therefore, little more than a straw man.

The inability of a currency board to extend credit to the banking system, or what is referred to as the lack of a lender of last resort, constitutes a third criticism. As the United Nations Conference on Trade and Development (2001) put it, “a currency board regime makes payments crises less likely only by making bank crises more likely” (p. 117). This is another straw man argument. The major banking crises in the world have all occurred in central banking countries in which the lender of last resort function was practiced with reckless abandon (Frydl 1999). In contrast, currency board countries have not only avoided banking crises, but their banking systems—knowing they would not be bailed out by a lender of last resort—have tended to strengthen over time. Bulgaria is but

one example. The 1999 Organization for Economic Cooperation and Development (OECD) Economic Survey of Bulgaria stated, “By mid-1996, the Bulgarian banking system was devastated, with highly negative net worth and extremely low liquidity, and the government no longer had any resources to keep it afloat” (p. 60). However, the OECD also observed, “By the beginning of 1998, the situation in the commercial banking sector had essentially stabilized, with operating banks, on aggregate, appearing solvent and well-capitalized” (p. 59).

A fourth cliché states that competitiveness cannot be maintained after the adoption of a currency board. Hong Kong contradicts this conventional wisdom. Since its currency board was installed in 1983, it has retained its rank as the most competitive economy in the world (Gwartney and Lawson 2001). Moreover, countries that adopted currency boards in the 1990s have maintained their competitiveness measured by exports as a percent of GDP (see Tables 5-8). Argentina is of particular interest because virtually every report about the current problems in Argentina contains an assertion about how the currency board-like system has made Argentina uncompetitive. What nonsense. Exports are the only bright spot in Argentina’s economy. Indeed, the value of exports in the first half of 2001 grew by 3.2 percent compared to the first six months of 2000 (Dow Jones Newswires 2001).

A fifth assertion made by opponents of currency boards is that they are desirable only in small, if not tiny,

economies. It is true that most currency boards today are in relatively small economies (see Table 1). However, Argentina and Hong Kong are not small. Indeed, Argentina and Hong Kong rank as the seventeenth and twenty-fourth largest economies in the world, respectively (World Bank 2001). If the size of Argentina's economy is the standard, then 115 countries—including every one in Africa—would qualify for currency boards because their economies are smaller than Argentina's (World Bank 2001).

A sixth concern expressed by economists is that currency boards are not suitable for most countries because the prospective currency board country is not in an optimum currency area with the anchor currency country. An optimum currency area is an artificial construct within which exchange rates should be fixed and between which exchange rates should be flexible. The problem is that the facts on the ground contradict the economists' notion of an optimal currency area. For example, Argentines have voluntarily chosen to hold most bank deposits and make most bank loans in dollars, and the value of the dollar notes (paper money) held in Argentina exceeds the value of the peso notes held. Therefore, Argentines have themselves determined that the dollar is the best currency, no matter what the optimal currency area theorists have concluded.

A seventh argument designed to stir populist ire concerns sovereignty. It is argued that monetary sovereignty is lost by the adoption of a

currency board. An independent monetary policy is given up. True. After all, a currency board has no monetary policy. However, national sovereignty over a country's monetary regime is retained. Indeed, history has shown that many countries that once had currency boards have unilaterally exited from those rule-bound systems, albeit to their peril.

In closing, one final comment merits attention because it reveals just how confused and confusing the debate about the desirability of a currency boards is. Has the IMF been for or against currency boards? Well, it depends on when you ask. *Ex ante* the IMF has generally been opposed and has employed many of the clichés mentioned. The most notable case was in 1998 when the IMF vehemently opposed the establishment of a currency board in Indonesia (Hanke 2000b; Culp, Hanke, and Miller 1999). This prompted Robert Mundell (cited in IMF 2000b), the 1999 Nobel Laureate in Economics, to chastise the IMF at an IMF economic forum, where he said,

I have been very disappointed in the way the IMF has treated currency board arrangements, by and large. I think they should have grasped onto it. After all, let's suppose that apart from the fact that the United States dollar would be at the center of this thing, you could imagine a world of currency boards, where all central banks operate like currency boards—not currency boards, but currency board systems. After all, that's what the gold standard was—it was what people nowadays call a currency board system. That's what the adjustment mechanism was. It was automatic until countries decided in the 1930s to go off on independent mone-

tary policies; then they got off on the wrong track.

Ex post the IMF has had nothing but praise for the five currency boards installed in the 1990s, as well as Hong Kong's (IMF 2000a, 2001a, 2001b, 2001c, 2001d, 2001e). According to the IMF, they have strengthened fiscal discipline and the banking systems, have motivated reforms, and have been the linchpins for growth.

ARGENTINA

Even though one might agree that the opponents of currency boards have ignored the evidence and put forward a wide variety of nonsensical arguments, the current travails in Argentina might cause one to pause before embracing the currency board idea. Just how did Argentina become embroiled in yet another financial turmoil? After all, it has a currency board-like system.

Even though Argentina emerged intact from Mexico's Tequila Crisis of 1995 and its GDP grew by 5.5 percent in 1996 and 8.1 percent in 1997, its economy ran into trouble in 1999, after Brazil's devaluation and before its own presidential elections.

The inauguration of Fernando de la Rúa as president in December 1999 engendered some economic optimism, but the de la Rúa government was a weak left wing coalition. It quickly proved incapable of reforming the supply side of the economy and bringing order to Argentina's fiscal affairs. A crisis of confidence ensued.

Earlier this year, de la Rúa was forced to appoint Domingo Cavallo as his economic czar. Cavallo designed Argentina's unorthodox currency board, which killed the country's hyperinflation. But this time around, Cavallo has made missteps that have worsened Argentina's predicament.

In June, Cavallo introduced a dual-currency regime. Under this setup, all exports (excluding oil) take place with a devalued peso, all imports with a revalued peso. All other transactions take place at a peso-dollar rate of 1:1. Then a law was passed in which the peso's anchor will switch from the dollar to a basket of 50 percent euros and 50 percent dollars once the euro reaches parity with the dollar.

Not surprisingly, these changes were viewed by the markets as moves by Argentina to abandon its currency board. Interest rates shot up in anticipation of a devaluation.

This raises the issue of whether, and how, to drop an exchange rate regime. Countries that exited from pegged regimes and adopted currency boards in the 1990s have all seen dramatic improvements in their macroeconomic indicators. Indeed, a shift from a soft regime to a hard one has always ended currency crises. But not so with shifts from hard regimes to soft. Recall Hong Kong's exit from its currency board in November 1974.

Domingo Cavallo should understand that merely talking about the idea of abandoning a hard regime in the middle of a crisis is playing with dynamite. In July, the dynamite exploded. Military history teaches the same lessons about the dangers

of discussing exit strategies. In his new book, *Waging Modern War*, General Wesley Clark showed that every time the U.S. Department of Defense spoke about exit strategies for U.S. troops in Bosnia, the Bosnian Serbs would intensify their efforts, causing no end of problems for the allies (Clark 2001).

THE WAY FORWARD

What is the way forward for currency boards? The analytical poverty of nirvana economics must be eliminated. Hypothetical ideals are operationally irrelevant. Within the feasible subset of real-world options, the relevant test should be whether an alternative can be described that can be implemented with expected gains. It is this remediableness criterion that should be adopted.

When that criterion is applied, currency boards stand head and shoulders above central banks for many developing countries. Just how many pass the test? According to the World Bank, average annual inflation has exceeded 10 percent in sixty-one countries with central banks during the past decade (World Bank 2001). As a rough estimate, then, sixty-one new currency boards could pass the remediableness test. Indeed, for these countries, central banks are an expensive luxury they can ill afford.

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