



## Zimbabwe

### *From Hyperinflation to Growth*

by **Steve H. Hanke**

#### *Executive Summary*

The hallmark of Zimbabwe's economic collapse is hyperinflation. The most recent official inflation figure is for February 2008: a whopping 165,000 percent year-over-year. At present (early June 2008), inflation is unofficially about 2.5 million percent a year. Not surprisingly, the Zimbabwe dollar has lost more than 99.9 percent of its value against the U.S. dollar during the past year.

Zimbabwe's hyperinflation is destroying the economy, pushing more of its inhabitants into poverty, and forcing millions of Zimbabweans to emigrate. Between 1997 and 2007, cumulative inflation was nearly 3.8 billion percent, while living standards fell by 38 percent.

The source of Zimbabwe's hyperinflation is the Reserve Bank of Zimbabwe's money machine. The government spends, and the RBZ finances the spending by printing money. The RBZ has no ability in practice to resist the government's demands for cash. Accordingly, the RBZ cannot hope to regain credibility anytime soon. To stop hyperinflation, Zimbabwe needs to immediately adopt a different monetary system.

Any one of three options can rapidly slash the inflation rate and restore stability and growth to the Zimbabwean economy. First is "dollarization." This option would replace the discredited Zimbabwe dollar with a foreign currency, such as the U.S. dollar or the South African rand. Second is a currency board. Under that system, the Zimbabwe dollar would be credible because it would be fully backed by a foreign reserve currency and would be freely convertible into the reserve currency at a fixed rate on demand. Third is free banking. This option would allow commercial banks to issue their own private notes and other liabilities with minimum government regulation.

Central banking is the only monetary system that has ever created hyperinflation and instability in Zimbabwe. Prior to central banking, Zimbabwe had a rich monetary experience in which a free banking system and a currency board system performed well. It is time for Zimbabwe to adopt one of these proven monetary systems and discard its failed experiment with central banking.

*Steve H. Hanke is a professor of applied economics at Johns Hopkins University in Baltimore and a senior fellow at the Cato Institute.*

**Hyperinflation is destroying Zimbabwe's economy, pushing more of its inhabitants into poverty, and forcing millions to emigrate.**

## **Hyperinflation Is Destroying Zimbabwe's Economy**

When properly applied, the rule of law guarantees freedoms in the economic, political, intellectual, and moral spheres. In the economic sphere, money constitutes an important element. Ludwig von Mises, one of the most important economists of the 20th century, dealt at length with this issue in his treatise *The Theory of Money and Credit*, published originally in 1912:

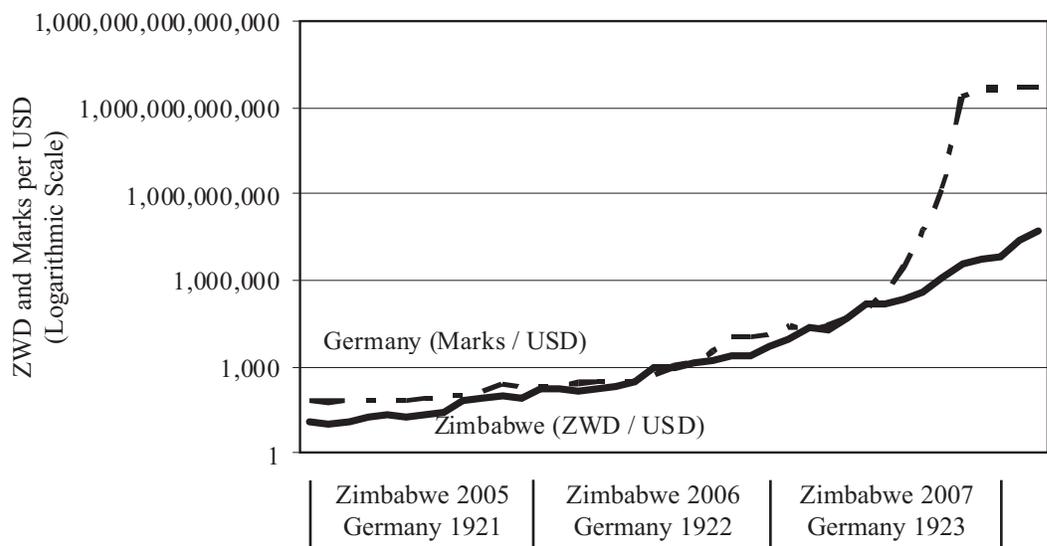
It is impossible to grasp the meaning of the idea of sound money if one does not realize that it was devised as an instrument for the protection of civil liberties against despotic inroads on the part of governments. Ideologically it belongs in the same class with political constitutions and bills of rights. The demand for constitutional guarantees and for bills of rights was a reaction against arbitrary rule and the non-observance of old customs

by kings. The postulate of sound money was first brought up as a response to the princely practice of debasing the coinage. It was later carefully elaborated and perfected in the age which—through the experience of the American Continental Currency, the paper money of the French Revolution and the British Restriction period—had learned what a government can do to a nation's currency system.<sup>1</sup>

Since March 2007 Zimbabwe has been in the midst of a hyperinflation—defined as a rate of inflation per month that exceeds 50 percent. Hyperinflations are rare: there have been only 29 other cases in history, with the most recent one occurring in Bulgaria in 1997.<sup>2</sup>

Zimbabwe's hyperinflation is destroying the economy, pushing more of its inhabitants into poverty, and forcing millions of Zimbabweans to emigrate. In the 1997–2007 period, cumulative inflation was nearly 3.8 billion percent, while living standards (as measured by real gross domestic product [GDP] per capita) fell by 38 percent (see Table 1). In addition,

**Figure 1**  
**Exchange Rates**



Sources: Thomas J. Sargent, *Rational Expectations and Inflation*, 2nd ed. (New York: Harper Collins, 1993); Imara Asset Management Zimbabwe, May 1, 2008; and author's calculations.  
Note: A logarithmic scale is used so that the chart can fit on one page.

**Table 1**  
**Zimbabwe Economic Data (Percent)**

Year	Real GDP Per Capita Growth	Consumer Price Inflation	Lending Rate <sup>a</sup>	Real Interest Rate <sup>b</sup>
1990	3.7	15.5	11.7	-5.6
1991	3.8	46.5	15.5	-8.5
1992	-11.2	46.3	19.7	-21.8
1993	-1.4	18.6	36.3	8.1
1994	2.3	21.1	34.8	12.6
1995	-3.1	25.8	34.7	12.2
1996	6.2	16.4	34.2	12.6
1997	2.4	20.1	32.5	13.7
1998	0.4	46.7	42.0	10.7
1999	-3.3	56.9	55.3	-2.6
2000	-7.0	55.2	68.2	12.6
2001	-2.4	112.1	38.0	-35.3
2002	-4.1	198.9	36.4	-96.7
2003	-11.3	598.7	97.2	-267.7
2004	-3.3	132.7	278.9	-71.0
2005	-4.0	585.8	235.6	-2.1
2006	-5.4	1,281.1	496.4	-520.2
2007	-6.1	108,844.1	N/A	N/A

Sources: International Monetary Fund, *World Economic Outlook* database, April 2008, <http://www.imf.org/external/pubs/ft/weo/2008/01/weodata/index.aspx>; *International Financial Statistics* database, May 2008; author's calculations.

<sup>a</sup> Rate charged by commercial banks on loans (*International Financial Statistics* database).

<sup>b</sup> Lending rate adjusted for inflation.

Note: Consumer price inflation, the lending rate, and the real interest rate are reported on an end-of-year basis. The 2007 data fail to accurately reflect inflation pressures because the government mandated sharp reductions in administered prices. In addition, most observers believe that real GDP per capita declined by more than the -6.1 percent reported by the IMF for 2007.

hyperinflation has robbed people of their savings and financial institutions of their capital through real (inflation-adjusted) interest rates that are actually negative (see Table 1). This form of theft occurs, in large part, because the laws and regulations governing financial institutions (pension funds, insurance companies, building societies, and banks) force them to either purchase government treasury bills that yield only a small fraction of the current inflation rate or make deposits at the Reserve Bank of Zimbabwe (RBZ) that pay no interest.

The value of the Zimbabwe dollar has been wiped out. Figure 1 tells the devastating story—one that is ominously following the same plot

as that followed by the German mark during the great German hyperinflation of the 1920s.

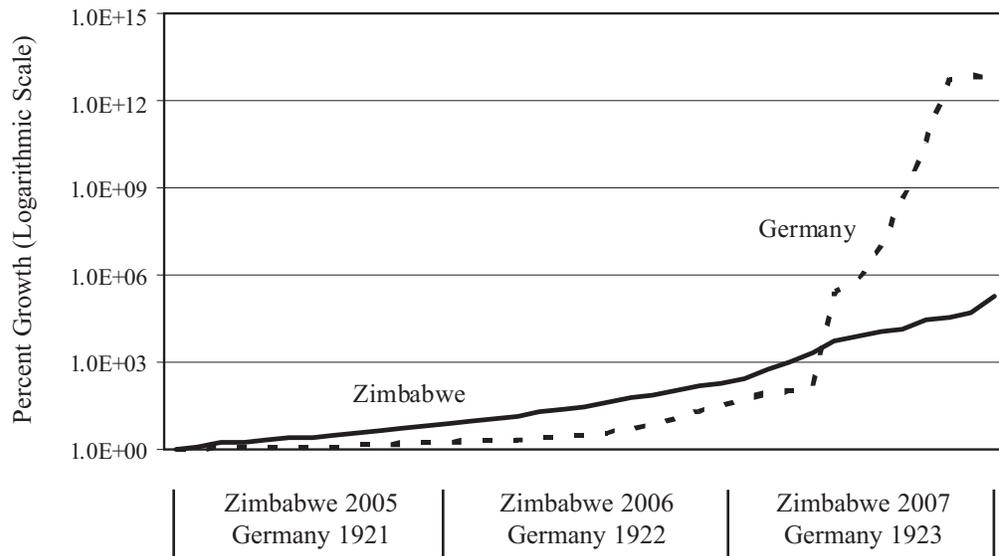
Worse is yet to come. Most private observers of the Zimbabwean economy believe that the data reported by the International Monetary Fund (see Table 1) are too conservative. Moreover, they believe that in the ramp up to the March elections and the June 2008 presidential runoff, the government has forced the RBZ to accelerate the printing presses.

#### **The Reserve Bank of Zimbabwe Has Facilitated the Hyperinflation**

The root cause of the hyperinflation is that government policies have forced the

**In the 1997–2007 period, cumulative inflation was nearly 3.8 billion percent, while living standards fell by 38 percent.**

**Figure 2**  
**Currency in Circulation**



Sources: Thomas J. Sargent, *Rational Expectations and Inflation*, 2nd ed. (New York: Harper Collins, 1993); Reserve Bank of Zimbabwe, “Statistics, Monthly Review” (February 2008), p. 26, <http://www.rbz.co.zw>; and author’s calculations.

Note: A logarithmic scale is used so that the chart can fit on one page.

RBZ to print money. From January 2005 to May 2007, the RBZ issued currency at a rate that even exceeded that of Germany’s central bank from January 1921 to May 1923, the ramp-up phase of the great German hyperinflation (Figure 2).

Hyperinflation isn’t the only thing produced by the RBZ. It is also a proficient producer of jobs, funded at the expense of every Zimbabwean who uses money. In the 2001–2007 period, the RBZ’s staff more than doubled, from 618 to 1,360 employees.<sup>3</sup> This staff increase of 120 percent was the largest of any central bank in the world during this period. Despite this increase, the staff is not producing accurate and timely data. The RBZ has fallen months, if not years, behind in reporting even the most standard economic and financial statistics.

### **Replacing the Central Bank Is the Best Way to Stop Hyperinflation**

The most rapid and reliable way to stop hyperinflation in Zimbabwe is to replace cen-

tral banking with a new monetary regime. That would signal a clean break with the practices that have created hyperinflation and would assure Zimbabweans that inflation will henceforth be controlled.

Some may wonder whether it is necessary to replace central banking with another monetary system in Zimbabwe. After all, other countries with inflation in the hundreds or thousands of percent a year—including Angola, Mozambique, the Democratic Republic of the Congo, and Zambia—have checked high inflations without replacing their central banks. Instead, they changed their policies. Why couldn’t Zimbabwe do likewise?

It could, but so far it hasn’t. In Zimbabwe’s historical experience with a variety of monetary systems, only central banking has produced hyperinflation. Similarly, throughout the world, hyperinflation has been a phenomenon linked to central banking or its close cousin, the direct issue of currency by a government’s treasury.

**The root cause of the hyperinflation is government policies that have forced the RBZ to print money.**

Central banks can put a stop to inflation as fast as they can fuel it. All they have to do is stop the printing presses. Unfortunately, they can switch course again with ease. Consequently, under central banking, inflation can return as easily as it was snuffed out. Many countries, including the African countries mentioned above, have had prolonged double-digit inflation or multiple bouts of very high inflation under central banking. Central banks that have made a seemingly permanent transition to low inflation have usually required a long transition period in which to establish their credibility as inflation fighters. During the transition, real interest rates have often been punishingly high, and long-term loans in local currency have been difficult to obtain. As a result, economic growth has been relatively slow, general living standards have remained stagnant, and the scourge of poverty has spread. Given the current state of affairs in Zimbabwe and the dramatic hyperinflation, the only way for Zimbabwe to make a credible commitment to stopping the hyperinflation rapidly and avoid high transition costs is to replace central banking with a different type of monetary regime.

#### **Options for Replacing the Central Bank<sup>4</sup>**

Three options exist for quickly replacing the RBZ with monetary regimes that would end hyperinflation and provide monetary stability: (1) official “dollarization,” (2) free banking, and (3) a currency board. These options are not mutually exclusive. For example, a currency board system could be combined with official dollarization, as in the monetary systems of Lesotho, Namibia, and Swaziland.<sup>5</sup> (A fourth option—formal membership in the South African rand’s Common Monetary Area—is not dealt with explicitly in this study simply because it would probably involve protracted political negotiations and time, which Zimbabwe can ill afford.)

Dollarization occurs when residents of a country extensively use the U.S. dollar or another foreign currency alongside, or instead of, the domestic currency. *Unofficial* dollarization occurs when individuals hold foreign-currency bank deposits or notes (paper money) to

protect against high inflation in the domestic currency. Zimbabwe is already unofficially dollarized to the extent that Zimbabweans hold South African rand, U.S. dollars, pounds sterling, and other foreign currencies as stores of value. *Official* dollarization occurs when a country uses a foreign currency as the main, or only, component of the monetary base. (The monetary base is the medium accepted for final settlement of payments in the local financial system; in other words, it is what banks typically use for clearing.)

For Zimbabwe, official dollarization could be based on, for example, the South African rand, the U.S. dollar, or the euro. A later section discusses the advantages and disadvantages of each currency. If Zimbabwe used the rand, it could negotiate a profit-sharing agreement such as Lesotho and Namibia now have, and which Botswana and Swaziland formerly had. Under these agreements, South Africa shares the profit (seigniorage) it derives from issuing currency, according to estimates of how many rand notes (paper money) and coins are in circulation in the partner country.<sup>6</sup> In the late 1920s, when Zimbabwe (then called Southern Rhodesia) used South African coins, it apparently had a profit-sharing arrangement with South Africa. The agreement applied only to coins in circulation, because Zimbabwe had its own notes.

Those notes were issued under “free banking,” a system of competitive issuance by private commercial banks of notes and other liabilities with minimal regulation. A completely free banking system has no central bank, no lender of last resort, no reserve requirements, and no legal restrictions on bank portfolios, interest rates, or branch banking. Free banking systems existed in nearly 60 countries during the 1800s and early 1900s. In general, these systems were relatively stable, issued currencies convertible into gold or silver at fixed exchange rates, and were not purveyors of inflation.<sup>7</sup>

Zimbabwe had free banking from the time its first bank was established in 1892 until the government replaced free banking with a currency board in 1940. Zimbabwe’s

**Throughout the world, hyperinflation has been a phenomenon linked to central banking.**

**To restore economic growth, hyperinflation must be extinguished rapidly, and people must have confidence that inflation will not return.**

free banking system was among the least restricted that ever existed. Reflecting the limited use of modern money and credit among the population at the time, the country had only two commercial banks, the Standard Bank of South Africa and the Bank of Africa (later part of Barclays Bank). They issued notes denominated in pounds, and kept their privately issued pounds equal to the pound sterling—except during the First World War and for a few years afterwards, when the local pound floated along with the South African pound (the predecessor to the rand) against the pound sterling. Free banking ended in Zimbabwe not because it performed poorly, but because the government desired the profits from issuing notes.

Currency boards or central banks replaced free banking systems because intellectual and political fashions favored monopolizing the issuance of notes and coins by a government body. Today, no free banking systems exist. In the last 30 years, economists' interest in free banking has revived because of dissatisfaction with the performance of central banks.<sup>8</sup> More recently, the possibility that electronic money will make notes and coins obsolete, enabling banks to offer full-fledged rivals to government-issued currencies, has generated considerable interest.<sup>9</sup>

The final option for quickly replacing the RBZ is a currency board. Currency boards have existed in more than 70 countries, and a number are in operation today.<sup>10</sup> A currency board is a monetary institution that issues notes and coins. (Even though some currency boards accept deposits, the board this study proposes for Zimbabwe would be prohibited from doing so.) A currency board's monetary liabilities are fully backed by a foreign reserve currency (also called the anchor currency) and are freely convertible into the reserve currency at a fixed rate on demand. The reserve currency is a convertible foreign currency or a commodity chosen for its expected stability. As reserves, a currency board holds low-risk, interest-earning securities and other assets payable in the reserve currency. A currency board holds reserves equal to 100 percent or

slightly more of its notes and coins in circulation, as set by law.

Zimbabwe established the Southern Rhodesia Currency Board in 1940. The board replaced free banking, a system that had experienced no severe problems and had served Zimbabwe well. In establishing the currency board, the colonial government was acting in accord with the prevailing belief of the time that issuing notes and coins should be a government monopoly. Officials were also aware that a currency board would generate profits and, therefore, revenue for the government.

The notes and coins of the Southern Rhodesia Currency Board were legal tender in Zambia (then called Northern Rhodesia) and Malawi (then called Nyasaland) as well as in Zimbabwe. The board existed until 1954, when it was replaced by the Central Africa Currency Board. The main feature distinguishing the Central Africa board from its predecessor was that it allowed representation on its governing body by Zambians and Malawians as well as Zimbabweans.

The three governments of the Federation of Rhodesia and Nyasaland transformed the Central Africa Currency Board into the Bank of Rhodesia and Nyasaland, a central bank, in 1956. The central bank was one of several institutions intended to bind Zimbabwe, Zambia, and Malawi into a single economic unit and ultimately perhaps a single political unit. As with the transition from free banking to a currency board, the transition from a currency board to a central bank did not occur because the currency board had experienced any severe problems. Rather, central banking had become the intellectual fashion of the time for countries that were independent or wanted to become independent soon. There was as yet little recognition of the dangers that inept central banking could bring: high inflation, exchange controls, and financial underdevelopment. When the federation dissolved in 1964, its central bank was divided into three separate central banks for each country that had been a member of the federation. Thus the Reserve Bank of Rhodesia came into being.

**Table 2**  
**RBZ Balance Sheet, January 2008 (in Trillions of Zimbabwe Dollars)**

Assets		Liabilities	
Gold	0.1	Notes and coins in circulation	339.8
Other foreign assets	5.2	Bankers' deposits	108.5
Treasury bills discounted	0.0	Government deposits	0.0
Other bills discounted	0.0	Other deposits	108.5
Loans to government	39.4	Foreign loans	16.7
Other loans	64.2	Other	0.0
Investments—government stock	0.0	Capital and reserve	0.0
Other investments	298.3	Other	609.9
Other	776.2		
Total	1183.4	Total	1183.4

Source: Reserve Bank of Zimbabwe, "Statistics, Monthly Review" (February 2008), pp. 26–27, <http://www.rbz.co.zw>.

Official dollarization, free banking, and a currency board are all proven systems with records of success in providing reliable, low-inflation currencies in Zimbabwe and elsewhere. Any one of these systems, or a combination of them, could be successfully implemented immediately, without preconditions, and would therefore quickly put an end to hyperinflation and produce stable money.<sup>11</sup> Although the differences among the three options are worth pondering, it must be stressed that any one would represent an enormous improvement over the monetary policy that the government has forced the RBZ to produce or that the RBZ is likely to produce in the near future.

### **Financial Liberalization**

Financial liberalization is a vital companion policy to dollarization, free banking, or a currency board system. With the elimination of hyperinflation, the rationale for price controls and foreign exchange controls no longer exists. Both should be prohibited. Other forms of "financial repression," including interest rate ceilings, the forced purchase of government bonds, minimum reserve requirements for financial institutions, and the compulsory allocation of credit to favored borrowers should also be prohibited. This liberalization would permit the free flow of capital into and out of

Zimbabwe. It would also increase the return on savings and reduce the cost of capital in Zimbabwe, removing major impediments to economic growth and improved living standards. Such has been the experience of other countries that have ended financial repression.<sup>12</sup>

Financial liberalization is critically important for Zimbabwe's economic recovery. Depreciation of assets has exceeded investment for some time, resulting in capital consumption and the atrophy of the nation's plants and equipment. In addition, the combination of hyperinflation and price controls has wiped out much of the country's stock of working capital. The quickest way to replenish Zimbabwe's capital stock is to import capital. To accomplish this, stable money and a liberal financial regime are important prerequisites.

### **Where Is the Money?**

Any analysis of alternative monetary arrangements for Zimbabwe must involve a look at the financial condition of the RBZ. The RBZ releases its balance sheet with a lag of at least three months. In the present hyperinflation, that lag is so long as to render balance sheet figures almost useless. Even so, Table 2 presents the RBZ's balance sheet as of January 2008.

It is remarkable that the RBZ classifies so many assets and liabilities on its balance sheet

**The most rapid and reliable way to stop hyperinflation in Zimbabwe is to replace central banking with a new monetary regime.**

**Confidence can best be restored if Zimbabwe's central banking system is replaced with dollarization, a currency board system, or free banking.**

as “other.” Those assets most likely represent various forms of credit to the government and to state-owned enterprises, while the liabilities represent their counterparts. The lumping of the majority of assets and liabilities into a catch-all category is yet another reason why the balance sheet is so unilluminating. That said, the central bank clearly has no foreign reserves to speak of; they exist but are so small as to represent nothing more than a rounding error. The balance sheet does, however, reveal one big thing: the RBZ is operating as the government's printing press.

As is the case with the RBZ's financial statements, the government's disclosures of its revenue and spending are not frequent enough to be of much use in the current hyperinflationary environment. Indeed, figures more than a week old are seriously out of date. Despite the lack of timely data, it is apparent that the government is financing most of its spending through money that the RBZ prints and lends to it. It is also apparent that inflation has reached the point where a large burst of additional money printing is necessary to finance a relatively small increase in spending.<sup>13</sup>

Zimbabwe is in the late stages of a classic hyperinflation. Consequently, tax revenue from sources other than inflation is shrinking because lags between collection and spending erode the real value of money. Inflation is galloping ahead as the supply of Zimbabwe dollars surges and the demand for them shrinks. Eventually, the currency will totally collapse as people simply refuse to accept it.

The RBZ nevertheless proudly proclaims that its vision is “to become the financial cornerstone around which Zimbabwe's economic fortunes and developmental aspirations are anchored,” and that “the pursuit of the Bank's vision will express itself through leadership in the formulation, implementation and monitoring of policies and action plans for fighting inflation, stabilisation of the internal and external value of Zimbabwe's currency and of the financial system in a manner that gives pride of achievement to Zimbabweans across the board.” These are now little more than surreal slogans.<sup>14</sup>

## Dollarization

Let us now consider the options for replacing the Reserve Bank of Zimbabwe. The first is dollarization. The three types of dollarization are unofficial, semiofficial, and official. Taken together, these forms of dollarization account for 55 to 70 percent of U.S. dollar notes in circulation,<sup>15</sup> a significant portion of the stock of the euro cash, and small portions of other currencies, including the South African rand.

Unofficial dollarization occurs when people hold much of their financial wealth in foreign assets even though foreign currency is not legal tender. Unofficial dollarization can include the holding of foreign bonds and other nonmonetary assets, foreign-currency deposits (either abroad or domestically), and foreign notes (paper money) in wallets, under mattresses, and in safe-deposit boxes.

More than a dozen countries have what might be called semiofficial dollarization or officially bimonetary systems. Under semiofficial dollarization, foreign currency is legal tender and may even dominate bank deposits, but it plays a secondary role to domestic currency in paying wages, taxes, and everyday expenses such as grocery and electric bills. Unlike officially dollarized countries, semiofficially dollarized ones retain a domestic central bank or other monetary authority and have corresponding latitude to conduct their own monetary policy. Lesotho, Namibia, and Swaziland may be described as semiofficially dollarized in that they allow the South African rand to circulate as legal tender alongside their domestically issued currencies.

Official dollarization, also called full dollarization, occurs when a foreign currency (or currencies) has exclusive or predominant status as full legal tender. Not only is a foreign currency (or currencies) legal for use in contracts between private parties, but the government uses it (them) for payments, too. If domestic currency exists, it is confined to a secondary role, such as being issued only in the form of coins having small value. Today, 32 countries are officially dollarized.

### How Official Dollarization Works

An officially dollarized country is part of a unified currency zone with the country whose currency it uses, hereafter called the anchor-currency country. Panama, for example, has been officially dollarized and part of the U.S. dollar zone since 1904. An officially dollarized country relinquishes an independent monetary policy and “imports” the monetary policy of the country whose currency it uses. Within the unified currency zone, arbitrage—buying and selling to take advantage of differences in prices—tends to keep prices of similar goods within a narrow range. If a computer costs \$500 in the United States, in Panama it cannot cost more than \$500 plus extra taxes and shipping costs, otherwise it becomes profitable to ship computers from the United States to Panama until the difference in price vanishes.<sup>16</sup>

Because arbitrage tends to keep prices of similar, internationally traded goods within a narrow range throughout the unified currency zone, inflation rates tend to be broadly similar throughout the zone. However, inflation need not be exactly the same throughout the zone. For example, in fast-growing regions, prices of goods that are not mobile, particularly real estate and labor, can rise much more rapidly than the zonal average. Rapidly growing regions within the zone can therefore have higher inflation than other areas. There is nothing unusual about this; the same thing occurs in different regions of a single country.

Interest rates also tend to be broadly similar throughout a unified currency zone: if 30-year mortgages have an interest rate of 8 percent in the United States, the rate cannot be too much higher in Panama; otherwise it becomes profitable for U.S. banks to supply funds for mortgages in Panama until the difference in rates vanishes. Some difference in interest rates can persist, however, because of country risk (political factors that affect the security of property rights and credit risks). Interest rate differentials between the anchor-currency country and the dollarized country can also occur when their financial systems aren't fully integrated.

In an officially dollarized country, the supply of money is determined “automatically” by that country's balance of payments, which itself reflects people's preferences for holding versus spending money. The anchor-currency country determines the amount of the monetary base in existence (notes and coins in circulation, plus bank reserves). The monetary base is then held by people in various regions within the anchor-currency country or other countries in the unified currency zone according to the intensity of their demand for base money. If people want to acquire more anchor-currency notes, they have to spend less, other things being equal; if they have more anchor-currency notes than they want, they can get rid of them by spending more.

The current-account balance (trade in goods and services) does not, however, rigidly determine the supply of money in an officially dollarized country. People can also acquire or dispose of spending power through capital-account transactions (trade in financial assets, such as obtaining or making loans). Suppose, for example, that in one year Panama sells \$6 billion of goods and services to the rest of the world and buys \$7 billion; then its current-account deficit for the year is \$1 billion. That does not mean its money supply must contract by \$1 billion. If during the same year, Panamanians invest nothing abroad and foreigners invest \$2 billion in Panama, the capital-account surplus is \$2 billion, resulting in a combined surplus of \$1 billion. In consequence, the money supply would expand, rather than contract.

When countries experience real economic shocks—those originating from changes in supply and demand (such as increases or decreases in oil prices)—economic adjustments must follow. In an officially dollarized country, adjustments can occur via all the usual channels except one: alterations in the exchange rate of its currency. Evidence from developing countries indicates that the lack of the exchange-rate adjustment channel enhances rather than impairs economic performance.<sup>17</sup>

**Free banking systems existed in nearly 60 countries during the 1800s and early 1900s.**

**Zimbabwe had  
free banking  
from the time its  
first bank was  
established in  
1892 until 1940.**

### **Beyond Simple Dollarization to Financial Integration**

If official dollarization goes no further than the use of a foreign currency, it does not achieve its full potential. While an officially dollarized country has a unified currency with the anchor-currency country, it does not necessarily have a financial system integrated with that of the anchor-currency country. Full financial integration occurs when the law allows financial institutions extensive freedom of action to compete and does not discriminate against foreign institutions. In particular, it means that foreign financial institutions can establish branches, accept deposits and make loans, obtain full ownership of domestic institutions, and move funds freely into and out of the country. (Similar considerations also apply to currency-board and free-banking systems, but they are most pronounced in the case of dollarization; to avoid repetition they are discussed only in this section.)

Combining financial integration with official dollarization, in which a leading international or regional currency serves as the anchor currency, helps a dollarized country tap into a large and liquid international pool of funds. Therefore, the location of loans need not be closely linked to the location of deposits. Citibank, for example, does not need to balance its loans and deposits in Panama any more than it needs to balance its loans and deposits within the city of New York, where its headquarters are located. It can borrow where the cost of funds is lowest and lend where the risk-adjusted potential for profit is highest anywhere in the dollar zone. The ability to allocate funds within an integrated financial system without exchange risk between an officially dollarized country and the anchor-currency country reduces the booms and busts of foreign capital that often arise in countries with independent monetary policies and financial systems that are not well integrated into international capital markets. That, in turn, acts to stabilize the real exchange rate (a measure of the impact of changes in the exchange rate and inflation on the competitiveness of exports). With finan-

cial integration, domestic interbank markets become much more liquid and reliable because foreign financial institutions can lend funds to domestic institutions. Ready access to foreign funds offers financially integrated, dollarized countries a substitute for a central bank's lender-of-last-resort facility. In Panama, the interbank market and the integrated financial system in general have proven to be quite robust, even during times of political turmoil, such as the 1989 U.S. invasion to oust Panama's dictator.

Besides helping to stabilize the financial system and the economy, financial integration improves the quality of the financial system by allowing consumers access to financial institutions that have proved their competence internationally. Indeed, the exposure to international competition forces domestic financial institutions to reduce their costs and improve their services or lose market share.

The leading example of financial integration in recent years has been the euro area. The currencies that preceded the euro experienced a number of crises. In particular, the so-called Exchange Rate Mechanism of the European Monetary System experienced a severe crisis in 1992. The crisis erupted when speculators correctly concluded that the governments of most of the countries involved were not fully committed to maintaining the exchange rates of their currencies to the German mark, which was the de facto anchor for the system.

When the euro replaced national currencies in 1999, no crisis occurred; nor has the euro area experienced any internal currency crises since 1999. Problems have been limited to particular financial institutions that made bad decisions. Monetary unification and financial integration are responsible, in large part, for the absence of crises. With a single currency Germans cannot speculate against a separate French currency, and people outside the euro area cannot speculate against France separately from Germany in matters of monetary policy. An increasingly integrated financial system, in which banks do much of their

business across national borders, means that financial shocks tend to be distributed broadly and evenly over the whole euro area, rather than narrowly and deeply within one country. Consequently, the financial system of the euro area is more robust than were the separate national financial systems that existed before 1999.

### **Which Currency to Choose?**

Which currency should Zimbabwe use for official dollarization? The obvious choices are the U.S. dollar, the euro, or the South African rand. The considerations for choosing a currency are similar under dollarization, a currency board, or free banking. To avoid needless repetition, the currency choice issue is discussed only in this section.

The U.S. dollar is the most widely used currency in international trade and finance. Raw materials, such as Zimbabwe's major exports—tobacco, cotton, gold, chromium, and nickel—are predominantly priced in dollars on world markets. The U.S. dollar has gained its status as the world's predominant currency because it is fully convertible. In addition, inflation and real interest rates in the world's largest economy have remained relatively low and stable, giving credibility to U.S. monetary policy and the U.S. dollar.

The euro is another possibility. Although it has existed as a unit of account only since 1999, and as notes and coins since 2002, it has quickly established itself as the second most important international currency. During its short history, it has performed well, with low inflation, high credibility, full convertibility, and low real interest rates. Many African countries, notably the former French and Portuguese colonies belonging to the CFA franc zone, already link their currencies rigidly to the euro. In addition, the euro area is a more important trading partner than the United States for most African countries.

The final possibility, which seems the most natural, is the South African rand. South Africa is Zimbabwe's largest trading partner. It is also the country with the greatest number of Zimbabwean expatriates, many of whom

transfer funds to relatives back in Zimbabwe. South Africa has a sophisticated financial system, to which Zimbabwe's system has many links.

The rand does not have as good a long-term record as the U.S. dollar. However, by the standards of emerging markets, its record is not bad, and in recent years it has been fairly good. Unlike the U.S. dollar or the euro, the rand has exchange controls. But since 1995, successive South African governments have reduced those controls, and further reductions are probable. Adopting the rand would make Zimbabwe part of a unified currency zone with Lesotho, Namibia, and Swaziland as well as South Africa.

Adopting one currency as the main currency for government transactions under official dollarization, or as the anchor for a currency board, need not preclude people from using other currencies. In fact, it is desirable to allow people to make contracts in any currency they find mutually agreeable. However, because of economies that arise when most people use the same currency, the usual tendency is for one currency to predominate even where people can choose among many.

Were Zimbabwe to establish a currency board or free banking rather than dollarization, the board or banks could use a basket of currencies rather than a single currency as the anchor. But baskets are less transparent to the public than a single anchor currency, and thus may make it more difficult to achieve high credibility and confidence. A basket also imposes greater costs on the currency board or a free banking system in terms of management time and transaction fees. Perhaps that explains why no previous currency board or free banking system has used a basket as its anchor.

### **How to Establish Dollarization**

Zimbabwe could implement official dollarization by taking a series of steps (see Appendix for more detail). For concreteness, the steps listed below assume that the South African rand replaces the Zimbabwe dollar. Accordingly, the

**In the last 30 years, economists' interest in free banking has revived because of dissatisfaction with the performance of central banks.**

**With the elimination of hyperinflation, the rationale for price controls and foreign exchange controls no longer exists. Both should be prohibited.**

term “randization” is used rather than dollarization. The example assumes that the RBZ has no foreign reserves and that foreign currency cannot immediately be obtained to exchange for Zimbabwe dollars. On this point, Zimbabwe would differ from Ecuador and El Salvador; they began their dollarizations in 2000 and 2001, respectively, with enough U.S. dollar reserves to convert their monetary bases into U.S. dollars.

**1. Freeze the Zimbabwe dollar monetary base and other liabilities of the RBZ.** The RBZ should cease increasing the Zimbabwe dollar monetary base (also known as reserve money—notes in circulation plus deposits of financial institutions at the RBZ). However, it may continue to exchange new notes for worn-out old notes of equivalent value.

**2. Abolish exchange controls and allow the Zimbabwe dollar to float cleanly for a brief, pre-established period.** (Note: This step can be taken simultaneously with the first step.) The RBZ should set an appropriate fixed exchange rate at which to convert Zimbabwe dollar prices to rand prices. The best indicator is the market rate that will evolve once people know that the monetary base is frozen, that the value of the Zimbabwe dollar will soon be fixed, and that the rand will then replace the Zimbabwe dollar. The demand for Zimbabwe dollars may well increase, in which case the exchange rate will appreciate. The float should be “clean,” that is, the government and the RBZ should not try to manipulate the exchange rate to achieve any particular level; they should let market participants determine the level. Manipulating the exchange rate is costly. A highly overvalued exchange rate will price exports out of world markets and may create a recession, while a highly undervalued exchange rate will make imports expensive and prolong inflation.

The exchange rate should float for a pre-established period that probably need not exceed 30 days.

**3. At the end of the period of floating, declare a fixed exchange rate between the Zimbabwe dollar and the South African rand and announce that, effective immediately, the rand is legal ten-**

**der alongside the frozen stock of Zimbabwe dollars.** For example, declare that henceforth the exchange rate is one million Zimbabwe dollars per rand, or some other rate determined to be suitable. The fixed rate should be somewhere within the range of market rates obtained during the period of floating, particularly toward the end of the period. Setting exchange rates is an art rather than a science, with no mechanical formula for making the transition from a floating rate to an appropriate fixed rate. If in doubt about the appropriate rate, it is better to err on the side of an apparent slight undervaluation compared to recent market rates, so as not to cause a slowdown in economic growth. Again, a large deliberate overvaluation or undervaluation is undesirable because it will require unnecessarily large economic adjustments after the exchange rate is fixed.

The rand will be declared the “domestic” currency, with all the legal tender rights the Zimbabwe dollar has. All payments in Zimbabwe dollars may be made in rand at the fixed exchange rate. The government will continue to accept Zimbabwe dollars at the fixed rate in payment of taxes until the dollars are retired from circulation. Zimbabwe dollars will also continue to be legal tender for payments between private parties unless they specify otherwise. While Zimbabwe dollars will *not* be compulsory or forced tender in the private sector, the government may continue paying government workers at least partly in Zimbabwe dollars. By ensuring some demand for the Zimbabwe dollar, these steps will help ensure that its market rate remains close to the fixed official rate.

**4. After the government sets a fixed exchange rate between the Zimbabwe dollar and the South African rand, announce that, effective immediately, all Zimbabwe dollar assets and liabilities, with the exception of the components of the monetary base, are rand assets and liabilities at the fixed exchange rate. Announce a transition period of no more than 90 days for replacing quotations of wages and prices in Zimbabwe dollars with quotations in rand.** After the period of floating has ended and the exchange rate has been fixed, both

Zimbabwe dollar bank deposits and loans will be converted to deposits and loans in rand at the fixed rate. Banks will charge no commission fees for the conversion.

During the transition period, wages can continue to be quoted optionally in Zimbabwe dollars at the fixed rate so that employers and banks have time to modify their bookkeeping and computer systems. Prices may also continue to be quoted optionally in Zimbabwe dollars during the transition period, so as to spare merchants the trouble of repricing the goods on their shelves. After the transition period, wages and prices will cease to be quoted in Zimbabwe dollars. Again, though, Zimbabwe dollars will continue to be legal tender at the fixed rate for all payments within the economy unless the parties to a payment specify otherwise.

**5. Retire the Zimbabwe dollar monetary base from circulation as government finances permit.**

As the Zimbabwean economy resumes growth, the government may periodically accept portions of the Zimbabwe dollar monetary base for credit against tax liabilities or exchange them for government bonds as its finances permit. It may take some years to retire the monetary base completely. As the economy grows, though, the size of the frozen Zimbabwe dollar monetary base in relation to the economy should quickly shrink to manageable proportions.

**6. Reorganize the RBZ.** The RBZ will cease to be an institution making monetary policy or issuing currency. Its assets and liabilities will be transferred to the government or to a commercial bank operating as a trustee for the government. Employees working on financial statistics, regulation of financial institutions, economic analysis, and accounting may be transferred to the Ministry of Finance and Economic Development, the Central Statistics Office, or a bank supervisory agency. Alternatively, the central bank may be converted into a new independent authority in charge of gathering and analyzing financial statistics and financial regulation. Considerable economies in staffing should be achievable, given how rapidly the RBZ's staff has grown recently.

In the dollarized monetary systems of Ecuador and El Salvador, the vestigial "cen-

tral banks" continue to issue coins, but not notes. One rationale for that practice is that these countries are somewhat far away from the United States, so shipping coins is costly because coins are bulkier than notes. If Zimbabwe uses the rand, no such argument for a local coinage will apply. That said, it is important to stress that for dollarized countries (and countries with currency boards or free banking), all vestiges of a central bank should be eliminated to make it more difficult for central banking to return through the back door. As the late Milton Friedman put it when advocating unified currencies: dollarization and currency boards were good ideas for developing countries with "one very important proviso, that they do not have a central bank."<sup>18</sup>

**7. If the South African rand is the currency used, request an agreement to share in the profits from issuing the rand.**

As mentioned above, South Africa already has such agreements with Lesotho and Namibia. If South Africa is reluctant to share the profits, however, Zimbabweans should not be too concerned. The gains from ending hyperinflation and providing a solid basis for renewed economic growth will far outweigh the loss from not sharing in the profits from issuing the rand.

The central banks that issue the U.S. dollar and the euro—the other currencies Zimbabwe would most likely adopt—do not offer profit-sharing agreements, so the issue would probably be moot should Zimbabwe adopt a currency other than the rand.

**Performance of Recent Dollarized Systems**

As previously mentioned, 32 dependencies and independent countries currently have official dollarization. Among recent experiences with dollarized monetary systems, the most relevant to Zimbabwe are those of Panama, El Salvador, and especially Ecuador—the three most populous, officially dollarized countries. All three use the U.S. dollar as their official note currency (legal tender), although all issue their own coins.

Panama dollarized in 1904, shortly after becoming independent from Colombia. As a

**The quickest way to replenish Zimbabwe's capital stock is to import capital. To accomplish this, stable money and a liberal financial regime are important prerequisites.**

**“Dollarization”  
would replace the  
discredited  
Zimbabwe dollar  
with a foreign  
currency.**

unit of account, Panama uses the balboa, named after an early Spanish explorer. One balboa is equal to one U.S. dollar, so when a Panamanian store owner asks for five balboas for a sack of rice, he is really asking for a U.S. five-dollar bill, which is legal tender in Panama.

Panama is the only Latin American country whose currency has not depreciated against the U.S. dollar in the last 20 years, let alone in the period since 1904. Panama’s inflation performance over the past two decades has actually been better than that of the United States, with an average annual inflation rate of 1.3 percent in Panama versus 3.1 percent in the United States. Since 1970, when Panama passed a law that opened its banking system to extensive foreign participation, the Panamanian financial system has become integrated into international capital markets and Panama has developed into a highly efficient regional financial center.<sup>19</sup> Growth has been satisfactory, though not spectacular. In the last few years Panama has implemented growth-promoting policies, and growth has accelerated: the rate for 2007 was 11.2 percent. Panama seems to have a chance at becoming a rich country in a generation, rather than remaining a middle-income country.

Ecuador began dollarizing in January 2000 as a way of ending accelerating inflation and depreciation of the national currency, the sucre.<sup>20</sup> At the time of dollarization, distrust of the sucre was becoming so great that some shopkeepers were beginning to quote prices in U.S. dollars and to prefer payment in dollars to sucres. The currency had lost about two-thirds of its value against the U.S. dollar over the previous 12 months, and consumer prices had risen by 61 percent in that period. Dollarization brought immediate relief to Ecuador’s economy: the exchange rate stabilized at 25,000 sucres per U.S. dollar, the level decreed by the president, and within a week the overnight interest rate fell from 200 percent to 20 percent a year before falling even further shortly thereafter (see Table 3).

Ecuador’s Congress passed a law in March 2000 that removed lingering doubts about whether it would allow dollarization to per-

sist. The sucre, Ecuador’s former currency, became less and less important and was retired in September 2000. The economy resumed growth by the fourth quarter of the year and has continued growing. The banking system was in distress when dollarization occurred—despite a government rescue only months earlier—but it made a strong recovery as the economy revived. After an initial period in which inflation caught up to the depreciation of the sucre that had occurred before dollarization, inflation fell to low single digits. (To conserve the central bank’s foreign reserves, the president deliberately decreed a rate that he suspected to be a large undervaluation. If the sucre-dollar rate had been set according to the procedures recommended in this study, the rate would probably have been lower and inflation would have abated much more rapidly in Ecuador.)<sup>21</sup>

Dollarization has provided Ecuador with a stable currency and a foundation for economic growth despite a highly unstable political system. Dollarization has so far lasted through six presidents and more than a dozen ministers of finance. Ecuador’s current government favors the kind of populist socialism that has prevented other Latin American countries from growing rich, and it dislikes dollarization. Even so, the government recognizes that the economic stability dollarization has brought is popular, with over 80 percent of the public approving of dollarization. Therefore, it has been reluctant to criticize dollarization directly.

El Salvador dollarized at the start of 2001 after pegging the Salvador colón to the U.S. dollar for more than seven years. Its motive for dollarizing was to strengthen its integration into the international financial system. Even though the Salvador colón had a good long-term record by Latin American standards, dollarization resulted in an almost immediate drop in certain interest rates, particularly those charged by credit card issuers.<sup>22</sup> Dollarization made little difference to El Salvador’s rate of economic growth, which was sluggish because of natural disasters, crime, and policies that the government has subsequently tried to address.

**Table 3**  
**Dollarization in Ecuador (Fully Implemented September 13, 2000, %)**

Year	Real GDP per Capita	CPI Inflation (End of Period)
1990	0.6	49.5
1991	2.7	49.0
1992	1.3	60.2
1993	-0.2	32.0
1994	2.5	25.4
1995	-0.4	22.8
1996	0.3	25.5
1997	2.0	30.7
1998	0.1	43.4
1999	-8.1	60.7
2000	0.9	91.0
2001	9.6	22.4
2002	0.1	9.4
2003	2.1	6.1
2004	6.5	1.9
2005	4.5	3.1
2006	1.4	2.9
2007	0.5	2.9

Source: International Monetary Fund, *World Economic Outlook* database, April 2008, <http://www.imf.org/external/pubs/ft/weo/2008/01/weodata/index.aspx>.

Note: Dollarization period below double border.

**Table 4**  
**Cumulative Changes in GDP per Capita and Inflation in Selected Dollarized Countries and Zimbabwe (Percent)**

Country	Period	GDP per Capita, Total Change	Average Annual		Average Annual Inflation
			GDP Per Capita Change	Inflation, Total Change	
Ecuador	2000–2007	27.0	3.5	58.1	6.8
El Salvador	2001–2007	7.5	1.2	27.3	4.1
Panama	2000–2007	31.6	4.0	15.8	2.1
Zimbabwe	2000–2007	-31.6	-5.3	1,064,067,691.1	908.9

Source: International Monetary Fund, *World Economic Outlook* database, April 2008, <http://www.imf.org/external/pubs/ft/weo/2008/01/weodata/index.aspx>.

However, dollarization has eliminated the concern that previously existed regarding currency devaluation.

In no country has dollarization by itself been all that was needed to foster sustained

economic growth. It has, however, provided reliability in one important area of economic policy. A good currency is not sufficient for growth, but a very bad currency is so destructive that it can wreck the economy (see Table 4).

**Full dollarization occurs when a foreign currency has exclusive or predominant status as full legal tender.**

## A Currency Board

### How a Currency Board Works

An orthodox currency board system relies entirely on market forces to determine the amount of notes and coins that the currency board supplies. Market forces also determine other components of the supply of money in the broad sense.

In a currency board system and in a central banking system alike, commercial banks are entrepreneurs of credit. A commercial bank cannot for long lend more to borrowers than it can borrow from depositors (or wholesale credit markets), in the form of deposits held instead of spent. If a commercial bank lends excessively, the borrowers spend the excess, for instance, by writing checks. In the payments system, more funds flow out of the bank than flow into the bank. To prevent the outflow from bankrupting it, a commercial bank holds reserves. Commercial banks must maintain sufficient reserves to enable depositors to convert deposits into cash (or reserves) on demand and to withstand outflows of reserves through the payments system.

An orthodox currency board has no active role in determining the monetary base. A fixed exchange rate with the reserve currency and the requirement to hold foreign reserves equal to 100 percent of the monetary base prevent the currency board from increasing or decreasing the monetary base at its own discretion. Nor does a typical currency board influence the relationship between the monetary base and the money supply by imposing reserve ratios or otherwise regulating commercial banks. Regardless of the metric used, the money supply in a typical currency board system, therefore, is determined entirely by market forces. A typical central bank, in contrast, can increase or decrease the monetary base at its discretion. It can lend to commercial banks, creating reserves for them, even if its foreign reserves are decreasing. More reserves tend to enable commercial banks to make more loans, which they do by creating deposits for borrowers. The money supply then increases. Decreasing the

monetary base tends to have the opposite effect. Besides changing the monetary base, a typical central bank can also influence the supply of commercial bank loans by changing the reserve requirements for commercial banks.

Even though an orthodox currency board cannot create reserves for commercial banks at its own discretion, the money supply in a typical currency board system is quite elastic—responsive to changes in demand—because the system can acquire foreign reserves. The rules governing a currency board merely prevent it from creating reserves for commercial banks in an inflationary manner, as a central bank can. Other sources of elasticity in the money supply are variability in commercial banks' ratio of reserves to deposits, the pooling of reserves among branches of commercial banks in the currency board country and the reserve country, interbank lending, and variability in the public's deposit-to-cash ratio.<sup>23</sup>

### How to Establish a Currency Board

Establishing a currency board would require steps that in many ways are similar to those for implementing dollarization. A currency board could be established very quickly—within a month of passing appropriate legislation.

**1. Establish a currency board.** The Appendix contains a model currency board law.

**2. Freeze the Zimbabwe dollar monetary base and other liabilities of the RBZ.** This step is like its counterpart under establishing dollarization.

**3. Abolish exchange controls and allow the Zimbabwe dollar to float cleanly.** This step is also like its counterpart under establishing dollarization.

**4. At the end of the period of floating, declare a fixed exchange rate between the Zimbabwe dollar and the anchor currency chosen.** Again, this step is like its counterpart under establishing dollarization.

**5. Allow the Zimbabwe dollar monetary base to increase only to the extent that the increase is backed 100 percent by liquid foreign assets.** In short, the currency board will only be allowed to increase the supply of Zimbabwe dollars by a dollar if it receives a Zimbabwe dollar's

worth of the anchor currency in exchange, converted at the fixed exchange rate.

Under this rule, the Zimbabwe currency board will operate “at the margin” with 100 percent foreign reserves. It may or may not have enough foreign reserves to fully back its total (both new and old) Zimbabwe dollar liabilities. To establish a credible, stable money commitment, the important point is that new monetary liabilities must be backed 100 percent by liquid foreign assets.

Two currency boards—Argentina’s of a century ago and the East African Currency Board of the first half of the 20th century—began with less than 100 percent foreign reserve backing of their total monetary liabilities, but both required 100 percent backing of their new monetary liabilities. In both cases, the currency boards were credible; the demand for their currencies was robust; and their foreign reserves accumulated rapidly. In Zimbabwe, the demand for the currency board’s money should likewise increase rapidly as the economy stabilizes and begins to grow. Given the 100 percent marginal reserve rule, the currency board’s foreign reserves will also grow rapidly.

The currency board should retain all profits from its operations until its foreign-currency reserves equal 100 percent of the monetary base. After that, it may be prudent to establish a reserve fund equal to a modest, specified percentage of the board’s assets—say 10 percent (total reserves would then equal 110 percent of the monetary base), as was the case with Zimbabwe’s previous currency board. The reserve fund would guard against the possibility of the currency board’s foreign-currency reserves falling below 100 percent because of a default on the foreign securities it holds. The currency board would pay to the government all earnings other than those needed to operate the currency board and its reserve fund and maintain the specified ratio of foreign-currency reserves to base money.

Additionally, to help increase foreign-currency assets to 100 percent of the monetary base, the government could repay the loans the RBZ has made to it or the RBZ could sell its government securities to the private sector.

Depending on the government’s financial condition, these actions might not be feasible for some time. Yet another possibility would be a foreign loan, such as from the International Monetary Fund or a foreign grant to bolster the board’s initial foreign reserves. There would be no need to delay establishing a currency board while waiting for a foreign loan or grant, though; it is better to establish monetary stability immediately.

**6. Reorganize the RBZ.** The RBZ will cease to be an institution making independent monetary policy. Its financial activities will likewise cease. The RBZ will transfer ownership of its remaining assets and liabilities to other banks or the Ministry of Finance and Economic Development, as the case may be. The Ministry of Finance will become the sole manager of government debt, rather than using the services of the RBZ as it does now.

RBZ employees who now issue the monetary base and manage foreign-currency reserves will become employees of the currency board. Employees who now deal with other matters may be transferred to the Ministry of Finance and Economic Development, the Central Statistics Office, or a new superintendency of financial institutions.

### **How to Operate a Currency Board**

A typical currency board is simple to operate. Past currency boards, such as Zimbabwe’s, have usually had staffs of 10 or fewer people. Operational details are addressed in other publications.<sup>24</sup> Some noteworthy points are presented below.

**Constitution.** The Appendix contains a model currency board law that distills features of past currency board constitutions into a form that will both enable the currency board to operate efficiently and insulate it from political interference.

**Exchange policy, clientele, and fees.** The currency board should exchange its notes and coins on demand at a fixed rate into (or from) the reserve currency at its offices or agencies. Although the currency board should encourage a wholesale currency exchange business with commercial banks for the sake of effi-

**Which currency should Zimbabwe use? The obvious choices are the U.S. dollar, the euro, or the South African rand.**

**Under a currency board the Zimbabwe dollar would be fully backed by a foreign reserve currency and would be freely convertible at a fixed rate on demand.**

ciency, the public should also be allowed to deal directly with the board. In dealing with the public, the currency board's minimum should be zero or low, such as 100 rand. Also, there should be no upper limit to the amount of the anchor currency or to its own notes and coins in circulation that the currency board accepts for exchange. Some currency boards have charged commission fees of one-eighth percent to 1 percent per transaction. For Zimbabwe, the social benefits of not charging fees exceed the pecuniary benefits to the currency board of levying fees. In addition, commission fees would loosen the link to the anchor currency, especially for short-term capital movements, because they would impose high costs relative to the benefits of arbitrage. Experience also indicates that most of the currency board's income is likely to come from invested assets, not from fees. Exchanges by the currency board should be exempt from taxation, to prevent the government from attempting to tax the currency board out of existence. The currency board should also be exempt from other legal barriers that might hinder its exchange operations.

**Offices.** The currency board should have its main office in Harare and perhaps a branch agency in Bulawayo, which it may operate or subcontract to a bank. The currency board should also have an office abroad, in the anchor country or in a safe-haven financial center such as Switzerland. The office abroad should provide a backup location for redeeming notes and coins in case the government threatens to harass the domestic offices of the currency board.

**Management.** The currency board should have a small board of directors—say, five people—to supervise the board's staff. The powers of the board of directors and of the staff should be limited. Unlike their counterparts in central banks, they should have no discretionary control over the monetary base. To protect the board of directors from political pressure to convert the currency board into a central bank, directors should serve staggered terms. Directorship should be open to qualified foreigners as well as to Zimbabweans.

**Composition of reserves.** The currency board should hold its foreign reserves in low-risk assets payable in the anchor currency only. Most of its foreign reserves should be low-risk, interest-earning securities. It could also hold some foreign reserves in interest-bearing deposits at reputable commercial banks in the anchor country, or in anchor-currency notes or noninterest-earning deposits at the central bank of the anchor country. As much as possible, the currency board should avoid holding assets that earn no interest. The currency board should hold no assets issued in Zimbabwe dollars or by Zimbabweans. Doing so would both open the way to central banking-type operations and endanger the quality of assets by making them domestic rather than foreign.

In the past, many currency boards divided their foreign reserves into a pool of short-term and a pool of higher-yielding longer-term securities. The size of the long-term pool was determined by estimates of the public's minimum, "hard-core" demand for currency board notes and coins.

**Expenses and profits.** Judging from the experience of past currency boards, the board should earn a return of at least 4 percent a year on its reserves and have operating expenses of no more than 1 percent of total assets, perhaps even 0.5 percent. The largest expense will be printing notes and minting coins. Salaries will probably be the next largest expense. Rent, utilities, and remaining costs should be small.

The currency board's profits equal the interest earned on its foreign reserves minus its operating expenses. Typically, the profits from a currency board are roughly 1 percent of GDP.

### **How to Protect the Currency Board**

Protecting the currency board and the notes and coins it issues from the government of Zimbabwe requires both a credible commitment and competition. The idea and importance of credible commitments have been with us through the ages, with the most commonly cited example being that of Ulysses in

the *Odyssey*, who commanded his men to tie him to the mast of his ship so he would not jump overboard and drown when lured by the sweet but fatal song of the Sirens.

The currency board law is of utmost importance. It must be designed so that the government is bound by a credible commitment to protect the currency board. The model currency board law in the appendix offers details for creating such a credible commitment. The model law ties the hands of the government, making it difficult for the government to interfere with the smooth workings of the currency board.

One feature of the law, designed to reduce the possibility of government meddling, requires the currency board to incorporate in Switzerland. In addition, the law mandates that a majority of the board of directors be foreigners appointed by the Bank for International Settlements in Basel, Switzerland. That will help prevent the government from bending or altering the rules of the currency board. Precedents exist for such an arrangement. For example, only three of the eight directors of the Libyan Currency Board of the 1950s were Libyans; the others were Britons, French, Italians, and Egyptians chosen by their respective governments. Most recently, the Dayton-Paris peace accords that ended the civil war in Bosnia and Herzegovina in 1995 mandated that the new monetary authority in Bosnia-Herzegovina operate as a currency board. It also mandated that the first governor of the board of directors not be a citizen of Bosnia-Herzegovina or any neighboring state and that the governor be appointed by the International Monetary Fund.<sup>25</sup> To reduce the political influence of the government on the domestic directors of the currency board, only one of the Zimbabwean directors will be appointed by the government of Zimbabwe, with the other appointed by the Bankers Association of Zimbabwe.

Under the model law, the currency board will also gain credibility because its assets will be held at the Bank for International Settlements. This feature will guarantee that the notes and coins issued by the currency board can always be redeemed for the anchor currency at the

fixed rate in Switzerland, even if the government of Zimbabwe obstructed redemption in Zimbabwe. This fall-back factor is an important feature of the currency board and is somewhat analogous to the fall-back factor that existed under gold and silver standards when notes were convertible into a commodity.

Yet another way to strengthen the credibility of a currency board is for its notes to contain a legally binding statement that they are convertible into the reserve currency at a fixed rate at the board's offices domestically and abroad. Whether or not notes and coins issued by the currency board contain an explicit statement of convertibility, they will be considered a type of contract promising a fixed exchange rate, unlike notes and coins issued by a typical central bank. Holders of notes and coins will have the right to sue the currency board for breach of contract in the very unlikely event that it fails to redeem its notes and coins at the fixed exchange rate on demand. (As discussed in the next section, either the exchange rate or the anchor currency can be legally changed in extraordinary circumstances.)

To prevent the domestic government from seizing the printing presses and overturning the currency board system by printing notes unbacked by foreign reserves, the notes issued by the currency board will be printed abroad.

The currency board will be subjected to competition to induce it to maintain high-quality service. To enhance currency competition, people will be allowed to make contracts, payments, and deposits in any currency they wish. In addition, the anchor currency chosen for the currency board will be granted joint legal tender status, along with the Zimbabwe dollars issued by the currency board.

### **How to Change the Anchor Currency, If Necessary**

Changing the anchor currency is beneficial if the existing anchor currency becomes quite unstable, because otherwise the currency board system will suffer the monetary

**Currency boards have been highly successful in maintaining fixed exchange rates with their anchor currencies.**

**Currency boards  
have been  
successful in  
promoting fiscal  
discipline,  
low inflation,  
economic growth,  
and financial  
integration  
within their  
regions or with  
the world.**

problems afflicting the anchor country. Currency competition—introduced by the freedom to make contracts and payments in other currencies—also offers an escape from this potential problem.

If the currency board is given the power to change the anchor currency, the currency board law must carefully specify the procedure. Also, a change in anchor currency should come from the currency board itself, rather than being a somewhat arbitrary government decision as has happened with past currency boards.

The currency board should not be allowed to change the anchor currency unless the annualized change in the consumer price index of the anchor country exceeds the range of -2 percent to 20 percent for two consecutive years, or -5 percent to 40 percent for three consecutive months. These rates of change in consumer prices have historically caused substantial economic disruption when exceeded. If deflation or inflation in the anchor country exceeds the specified range, the currency board will be allowed to offset the change, partially or fully, by devaluing or revaluing its currency in terms of the anchor currency. The limit to the offsetting change will be the amount of the inflation rate in the reserve country for the period just specified (two years or three months). Alternatively, the currency board will be allowed to choose a new, more stable anchor currency and set a new fixed exchange rate at the rate then prevailing between that currency and the original anchor currency.

Allowing the currency board to reset the exchange rate or change anchor currencies may trigger speculative flows into or out of the Zimbabwe dollar if the anchor currency approaches the specified limits. No perfect solution exists. Here, at last, is a place for discretion: the board of directors will not be required to alter the exchange rate; it will simply have the power to do so, within limits.

#### **Performance of Recent Currency Board-Like Systems**

More than 70 countries have had currency boards. As in Zimbabwe during its curren-

cy board period of 1940–56, currency boards elsewhere have been highly successful in maintaining fixed exchange rates with their anchor currencies. When compared to their central bank counterparts, they have also been successful in promoting fiscal discipline, low inflation, economic growth, and financial integration within their regions or with the world.<sup>26</sup> Despite the economic success of currency board systems, national governments converted most currency boards into central banks in the late 1950s and 1960s. Some governments were influenced by theoretical arguments claiming that a central bank could promote stability and economic growth better than a currency board. But political considerations carried the most weight. Most newly independent countries abandoned currency boards because of their association with colonial rule. Moreover, older, more established countries had central banks. A central bank was seen as a symbol of independence, like a national flag.

Today, 13 currency boards or currency board-like systems still exist. Three are located in noted international financial centers: the Cayman Islands, Bermuda, and Hong Kong. The Cayman system is orthodox, while Bermuda's operates with rather loose capital controls. In Hong Kong, since the early 1990s, the system has wavered between orthodoxy when in trouble, as in the aftermath of the Asian currency crisis of 1997–98, and deviations from orthodoxy in less troubled times.<sup>27</sup> The 10 other systems are in Brunei, Bosnia-Herzegovina, Bulgaria, Djibouti, Estonia, Falkland Islands, Faroe Islands, Gibraltar, Lithuania, and St. Helena.

In the 1990s several countries reformed their central banks or established new monetary authorities, giving them some but not all of the characteristics of orthodox currency boards. Countries that established such currency board-like systems are Argentina (whose system lasted from 1991 to early 2002), Estonia (1992), Lithuania (1994), and Bulgaria (1997). Bosnia-Herzegovina (1997) established a system more orthodox than the others.<sup>28</sup>

It is widely acknowledged that the euro-based currency board-like systems of Estonia, Lithuania, and Bulgaria have performed well. The same can be said for the more orthodox euro-based system in Bosnia-Herzegovina. Indeed, all those countries rapidly stabilized

their post-communist economies and promoted growth with positive confidence shocks (see Table 5).

Bulgaria is noteworthy because it recorded the last hyperinflation of the 20th century in 1997. The introduction of its currency

**Table 5**  
**Cumulative Changes in GDP per Capita and Inflation in Selected Currency Board Countries and Zimbabwe, 1997–2007 (Percent)**

Country	GDP per Capita, Total Change	Inflation, Total Change
Bosnia	96	27
Bulgaria	75	84
Estonia	114	54
Lithuania	99	26
Zimbabwe	-38	3,800,542,354

Sources: International Monetary Fund, *World Economic Outlook* database, April 2008, <http://www.imf.org/external/pubs/ft/weo/2008/01/weodata/index.aspx>; and author's calculations;

Note: Inflation data are calculated from end-of-year data except for Bosnia, where only average annual figures are available.

**Table 6**  
**Currency Board-Like System in Bulgaria (Installed July 1, 1997, %)**

Year	Real GDP per Capita	CPI Inflation (End of Period)
1990	-8.4	64.3
1991	-9.9	4027.8
1992	-7.5	79.4
1993	-10.7	63.8
1994	-2.7	121.9
1995	-0.7	32.9
1996	-7.3	310.8
1997	-4.9	549.2
1998	4.7	1.7
1999	2.8	7.0
2000	6.2	10.0
2001	4.8	4.8
2002	5.2	3.8
2003	5.7	5.6
2004	7.3	4.0
2005	6.9	6.5
2006	7.0	6.5
2007	6.9	11.6

Sources: International Monetary Fund, *World Economic Outlook* database, April 2008, <http://www.imf.org/external/pubs/ft/weo/2008/01/weodata/index.aspx>; and author's calculations.

Note: Currency board-like period below double border.

**The monetary sovereignty argument is a smokescreen to conceal the RBZ's wretched performance.**

board-like system on July 1, 1997, immediately put an end to that painful episode (see Table 6).

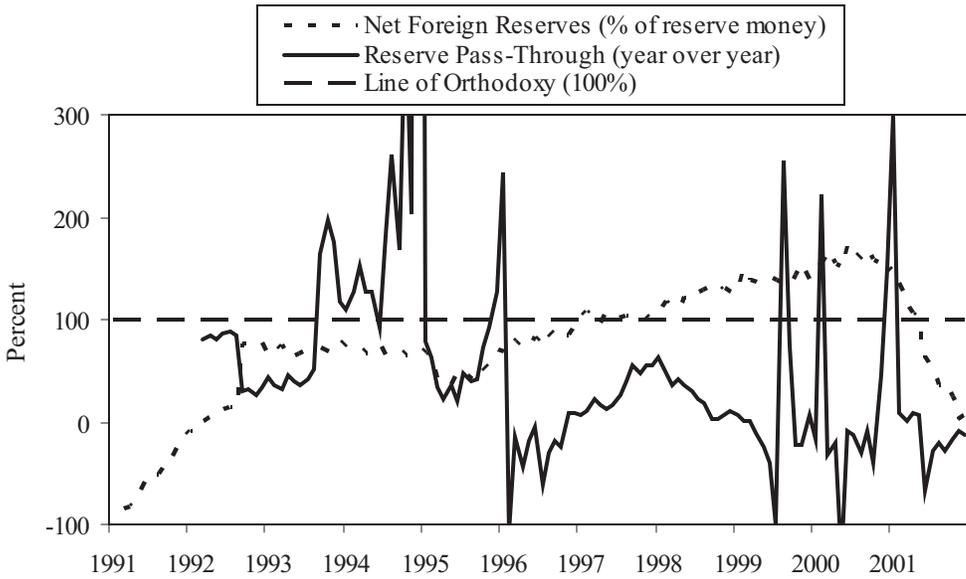
Currency board-like systems differ from orthodox currency boards with respect to their reserve ratios and their power to act as lenders of last resort. None of the currency board-like systems have a maximum reserve ratio. If an orthodox currency board is allowed to accumulate foreign reserves in excess of 100 percent of the monetary base, the amount of the surplus has a definite upper limit, which historically has been 10 percent. Today, Bosnia-Herzegovina has such a 10 percent upper limit.<sup>29</sup> 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 in which the currency board invests. 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 currency board-like systems, in contrast, are allowed to accumulate profits (surplus reserves) unchecked, though in practice there is political pressure to contribute some reserves to the general government budget. Currency board-like systems are also allowed to use their surplus reserves in a discretionary manner to act as lenders of last resort to commercial banks. In some cases, they can also use their main reserves in the same manner.

These loopholes can be fairly harmless in good economic times but can cause great mischief in bad times. Argentina's currency board-like system, which looked like a great success until 1999, ended in a spectacular economic crash and currency depreciation in January 2002. Figure 3 shows how unorthodox Argentina's system was. For much of its life, the system operated like some central banks, not like a currency board. For an orthodox currency board, net foreign reserves (foreign assets minus foreign liabilities) should be close to 100 percent of the monetary base. Moreover, "reserve pass-through," defined as the change in the monetary base divided by the change in net foreign reserves over the period in question, should also be close to 100 percent.

Argentina pegged its currency at one Argentine peso per U.S. dollar. A reserve pass-through ratio of 100 percent means that if net foreign reserves rise (or fall) by, say, US\$100 million, the Argentine peso monetary base should also rise (or fall) by 100 million pesos. That was rarely the case in Argentina, but few commentators have appreciated how unorthodox the system was.<sup>30</sup>

In Figure 3, reserve pass-through above 100 percent means that the monetary base and net foreign reserves changed in the same direction, but the monetary base changed more than net foreign reserves. One might call this the "zone of magnified foreign reserve effects." Reserve pass-through between 0 percent and 100 percent means that the monetary base and net foreign reserves changed in the same direction, but the monetary base changed less than net foreign reserves. One might call this the "zone of ordinary sterilization." In this zone, not all of the change in foreign reserves is allowed to flow through to the monetary base. Some of the change in foreign reserves is sterilized by either sales or purchases of bills or bonds denominated in Argentine pesos. Reserve pass-through below 0 percent means that the monetary base and net foreign reserves changed in opposite directions. One might call this the "zone of super sterilization." Both at 100 percent and at 0 percent, no sterilization occurs. An orthodox currency board with a fixed exchange rate has reserve pass-through close to 100 percent. The monetary base changes passively in response to changes in the public's desired holdings of base money, which occur through exchanging the notes, coins, or deposits of the currency board for the anchor currency and vice versa at the fixed exchange rate the board maintains. (Reserve pass-through may not be exactly 100 percent because of accounting and valuation issues concerning the board's accumulation of profits and payment of expenses.) A central bank with a clean floating exchange rate has a reserve pass-through often close to 0 percent, because it rarely has reason to buy or sell its currency for foreign reserves. However, if the central bank also holds foreign reserves for government accounts that are active but not related to

**Figure 3**  
**Was Argentina Orthodox?**



Sources: International Monetary Fund, *International Financial Statistics*, database and printed volumes (Washington: International Monetary Fund, August 2007); and author’s calculations.

monetary policy, reserve pass-through may often be far from 0 percent.

### Free Banking

Free banking is a system of competitive issue of notes and other liabilities by private commercial banks with minimal regulation. A completely free banking system has no central bank, no lender of last resort, no reserve requirements, and no legal restrictions on bank portfolios, interest rates, or branch banking. Commercial banks are only restricted in their issuance of deposits and currency by contracts and market practices, not by legislation. Despite the unfamiliarity of free banking to most people today, it has deep historical roots and a record of working well in a wide range of countries, including Zimbabwe.<sup>31</sup>

#### How Free Banking Works

Although free banking is unfamiliar, the principles of competition that underlie it are not. Indeed, they are already at work in deposit banking. People do not usually think of

deposits from different banks as being different types of currency, but in effect they are—at least, they are different brands of a common unit of account. By holding a deposit at one bank rather than others, a depositor is choosing that bank’s management, portfolio, and services over those of its competitors.

Free banking extends competition from deposits to notes. In practice, multiple brands of notes have generally not created problems for free banking systems any more than multiple brands of deposits create problems in central banking or other systems. (The issue of coins by banks has been much rarer than issuance of notes, because governments have traditionally monopolized coinage even where they have not monopolized note issue. But multiple brands of coinage present no special problems, particularly in a country such as Zimbabwe where inflation has driven coins out of circulation and hence no vending machines use coins.)

In a system of free banking, the field of competitors includes banks, domestic or foreign, which meet the requirements common to other businesses: registering a place of busi-

**The effect of dollarization or a currency board is not to create a colonial relationship, but to achieve more credibility than a local central bank can.**

**Less flexible  
monetary regimes  
have generally  
had much less  
inflation than  
more flexible  
regimes.**

ness, stating who the officers are, listing the shareholders periodically, and publishing financial statements if the company is not a private partnership. Competition weeds out firms that are less astute at delivering what consumers want. Abundant experience indicates that depositors want assurance that they are placing their funds with a financially solid bank. Accordingly, the tendency almost everywhere has been for a few large but highly competitive banks to dominate the market, while leaving niches for small banks to serve specialized clientele. As with deposit banking, then, historical experience suggests that eventually or perhaps even immediately, note issuance will be dominated by a small number of large banks.

Under free banking, banks would have the liberty to issue deposits and circulate notes in any currency: the U.S. dollar, the euro, the South African rand, gold, etc. In past free banking systems, issuance has converged on a single unit of account: typically gold or a foreign currency. In Zimbabwe, quite possibly, issuers would converge on the South African rand. However, free banking leaves it for banks and customers to discover what works best for them; it does not presume that the government already knows the answers.

### **How to Establish Free Banking**

The steps for establishing free banking are presented below. The first three can be implemented simultaneously.

**1. Freeze the Zimbabwe dollar monetary base and other liabilities of the RBZ.** This step is like its counterparts for the establishment of dollarization or a currency board. Accordingly, there is nothing to add in the case of free banking.

**2. Abolish exchange controls and allow the Zimbabwe dollar to float cleanly.** This step is like its counterparts under the establishment of dollarization or a currency board.

**3. Remove all barriers to entry into the business of banking, including restrictions against issuance of notes and coins.** The main effect of this step will be to remove reserve requirements and minimum capital requirements. But because banking is a business where rep-

utation is of utmost importance, removing barriers to entry will not necessarily result in a rush of new entrants. A consolidation into a few large “financial supermarkets” may even occur as financial institutions become able to offer services in lines of business where regulations formerly blocked their competitive entry.

A fully free banking system has no reserve requirements. Currently, required reserves are 10 to 40 percent of deposits in Zimbabwe, depending on the kind of financial institution and the kind of deposit. It may be desirable to convert some or all required reserves into freely tradable government bonds. This would ensure that eliminating the current high reserve requirements would not generate a one-time inflationary surge as a legacy of central banking.

**4. At the end of the period of floating, declare a fixed exchange rate between the Zimbabwe dollar and a suitable foreign currency.** The purpose of this step is to give RBZ currency a reliable value during its remaining time in circulation. This step is much like its counterparts under the establishment of dollarization or a currency board. But there are some differences, which are explained below.

**5. After the government sets a fixed exchange rate, announce that, effective immediately, all Zimbabwe dollar assets and liabilities with the exception of the components of the monetary base are foreign-currency assets and liabilities at the fixed exchange rate.** Under the dollarization or currency board options, nothing more should happen with respect to the redenomination of assets and liabilities because the government’s setting of a fixed rate provides a strong “pole of attraction,” influencing most transactions to be denominated in the same currency as long as it is reliable. In a free banking system, however, people may wish to redenominate again. For example, if the government chooses the U.S. dollar as the currency with which it sets a fixed rate, but the market preference is for most assets and liabilities to be denominated in South African rand, euros, or some mixture of other currencies, people will convert into those currencies.

As under dollarization or a currency board, the government will accept RBZ notes in payment for taxes, and RBZ notes will be legal tender but not compulsory tender for transactions in the private sector.

**6. Retire the Zimbabwe dollar monetary base from circulation as government finances permit.** This step is similar to its counterpart under the dollarization option. However, even before the government begins retiring the Zimbabwe dollar monetary base, banks may decide that to promote their own note issues, they will accept RBZ notes in exchange for their own notes. In past free banking systems, solvent banks sometimes accepted at face value the notes of banks that had failed, giving note-holders their own notes in exchange and hoping thereby to generate goodwill and stimulate a demand for their own notes.

**7. Reorganize the RBZ.** As under the dollarization or currency board options, the RBZ will cease to be an institution making monetary policy or issuing currency. The reorganization will be similar to that under the dollarization option. However, under free banking, little special financial regulation will be needed. Financial institutions will be subject to general corporate law but will not face minimum required reserves or various other regulations that do not exist for firms in other lines of business. Accordingly, the residual functions of the RBZ will be limited to the collection and analysis of economic and financial data. These functions will be transferred to the Ministry of Finance and Economic Development or the Central Statistics Office, as appropriate.

## Objections to Replacing the Reserve Bank of Zimbabwe

Dollarization, a currency board, or free banking would perform better than the Reserve Bank of Zimbabwe. To investigate whether these options have disadvantages compared to allowing the RBZ to continue to exist, this section considers the main objections to all three options. Because the options

have many similarities, the objections to them also have many similarities.

Much of what is written about central banking and its challenges is by central bank staffs or external researchers funded by central banks. Moreover, it is published in journals sponsored and financed by central banks. A study of the U.S. Federal Reserve System confirmed these conclusions.<sup>32</sup> In light of the extremely poor performance of the RBZ, Zimbabweans should be skeptical of objections to replacing it that originate from staff of the RBZ. They should also be skeptical of objections that originate from sources that have a strong institutional bias in favor of central banking. The International Monetary Fund, for example, has often advised against replacing central banks even in countries where their performance has been poor. The IMF was established at a time when economists and policymakers thought every country should have a central bank, and the institutional bias present at its creation has persisted for more than 60 years, despite the many cases where central banks (often established or reformed with IMF help) have created high inflation, inconvertibility, and other problems.

### Loss of Sovereignty

The most frequent objection to dollarization or a currency board is that they would reduce Zimbabwe's sovereignty by depriving Zimbabwe of an independent monetary policy. However, dollarization or a currency board by itself would create no colonial subjugation. Panama, Ecuador, and El Salvador are no less sovereign for being dollarized; Estonia, Lithuania, Bulgaria, and Bosnia-Herzegovina are no less sovereign for having currency board or currency board-like systems. Consider also Montenegro. It became an independent sovereign state in 2006 largely because it replaced the Yugoslav dinar with the German mark (now the euro) in 1999.<sup>33</sup> Using the euro enabled Montenegro to break loose from the bad economic policies undertaken at the time by Serbia, its much larger partner in the Federal Republic of Yugoslavia. The effect of dollarization or a currency board is not to cre-

**An important source of stability for banks operating under dollarization, currency boards, and free banking alike has been the ability to borrow abroad.**

**The strongest form of legal protection would be to make the monetary reform part of the constitution.**

ate a colonial relationship, but to achieve more credibility than a local central bank can. The monetary sovereignty argument is a smoke-screen to conceal the RBZ's wretched performance. Under a currency board, which some might term "colonialist," the Zimbabwe pound maintained a fixed exchange rate with its anchor currency, the pound sterling. Under the RBZ, the Zimbabwe dollar has become worthless.

### **A Step Backwards**

Another objection to the three alternatives to central banking which have been evaluated is that drastically reorganizing or abolishing the RBZ would be a step backwards in the evolution of Zimbabwe's monetary regime. Zimbabwe has expended much effort building its own central bank, and it would be a shame to waste that effort, the argument goes.

The real step backwards was to establish the RBZ. Had Zimbabwe continued with a currency board, or returned to free banking, it would have had lower inflation and higher economic growth than it has had with the RBZ. The options for monetary reform that this study presents would be a step forward because they would provide a stable currency, which Zimbabwe now lacks.

### **No Flexibility**

Another frequent objection to all three options is that they would deprive the government of the flexibility to make changes in the supply of money to offset external or internal shocks to the economy, such as a plunge in the price of tobacco.

Consider the record of flexible monetary policy in Zimbabwe. Whatever the government has wanted, the RBZ has given. Zimbabwe had better economic performance when monetary policy was less flexible. Indeed, less flexible monetary regimes have generally had much less inflation than more flexible regimes.<sup>34</sup> The former chairman of the U.S. Federal Reserve System, Paul Volcker, has remarked that "if the overriding objective is price stability, we did better with the nineteenth-century gold standard and passive

central banks, with currency boards, or even with 'free banking'."<sup>35</sup> Putting some backbone into Zimbabwe's monetary structures would reduce or eliminate the possibility of the government using flexible monetary policy as a way of mismanaging the economy.

### **No Lender of Last Resort**

A closely related objection is that monetary systems lacking a central bank would be susceptible to financial panics because they would have no lender of last resort to financial institutions in danger of failing. Lack of a central bank as a lender of last resort does not seem to have harmed countries with dollarization or currency boards. Zimbabwe's financial system was admirably stable before central banking began. An important source of stability for banks operating under dollarization, currency boards, and free banking alike has been the ability to borrow abroad. Because dollarization and currency boards eliminate risk with the anchor currency, they facilitate access to international financial markets for banks that are temporarily short of cash but fundamentally sound.

If Zimbabweans are worried about the possibility of a financial panic, they might consider a deposit insurance scheme. The scheme should be private and voluntary. Switzerland, Germany, and other countries have private deposit insurance schemes that could serve as models. Insurance should cover at most, say, 80 percent of the value of large deposits, so that depositors have an incentive to avoid imprudently managed banks that pay unsustainably high interest rates.

Another way to reduce the risk of financial panics would be for commercial banks to include a "notice of withdrawal clause" (option clause) in their contracts with depositors. The notice of withdrawal clause would allow a commercial bank to delay for a set period the requests of depositors to convert deposits into notes and coins. In return, the bank would pay a penalty rate of interest; for example, 3 percent above the rate prevailing before it exercised the notice of withdrawal clause. Banks would be free to offer a notice of withdrawal clause, and depositors would be

**Table 7**  
**Comparison of Options for Monetary Reform**

	Benefits Compared to Current System	Costs Compared to Current System
Dollarization	No discretionary monetary policy;* no ability to finance government deficits;* no possibility of devaluation; much lower inflation; positive, but low and stable, real interest rates	Loss of seigniorage from notes and coins (except perhaps if rand is used)
Currency board	No discretionary monetary policy;* no ability to finance government deficits;* much smaller possibility of devaluation; much lower inflation; positive, but low and stable, real interest rates	
Free banking	No discretionary monetary policy;* no ability to finance government deficits;* much smaller possibility of devaluation; much lower inflation; positive, but low and stable, real interest rates; most effective system for promoting financial development because it imposes the fewest restrictions on banks	Seigniorage accrues to private banks rather than to government

\*Some argue that these features represent costs rather than benefits. The evidence from developing countries does not support that conclusion. The ability of central banks to engage in discretionary monetary policy and finance government deficits is associated with relatively high rates of inflation, relatively large fiscal deficits, and relatively slow GDP growth rates (Steve H. Hanke, "Currency Boards," *Annals of the American Academy of Political and Social Science* 579 (January 2002): pp. 87–105).

free to do business with such banks. Notices of withdrawal clauses have precedents; for example, they were widespread among savings banks in the United States until the 1970s.

### **Zimbabwe Is So Big, It Must Have Its Own Central Bank**

The International Monetary Fund's *World Economic Outlook* database of April 2008 reports that Zimbabwe's economy is much smaller than the economies of Bosnia-Herzegovina, Bulgaria, Ecuador, El Salvador, Estonia, Lithuania, and Panama. If those countries can prosper without typical central banks, so can Zimbabwe.

### **Ineffectiveness**

Yet another objection is that the options for monetary reform that this study proposes would not restrain the government's deficit spending.

The possibility that the government might try to undermine any of the options for monetary reform emphasizes the need for strong legal protection—a credible commitment—to insulate the monetary reform from political pressure. The strongest form of legal protection would be to make the monetary reform part of the constitution. But in most recent cases, the kind of far-reaching monetary reforms discussed here have been established by statute, not by national constitutions. Even so, most countries that have been dollarized or established currency boards or free banking have had smaller budget deficits than comparable countries with central banks; and they have not used regulatory tricks to force financial markets to hold their debt.<sup>36</sup> Instead they have had much lower deficit spending (as a percentage of GDP) than Zimbabwe; and when they have issued

**Far-reaching monetary reform is possible and can be politically popular.**

debt, financial markets have been willing to hold it voluntarily. Any of the three options presented here would be a stronger barrier against deficit spending than the RBZ is now. Deficit spending would still be possible, but it would be more difficult without a central bank; and when it occurred, it would be more visible to public scrutiny.

## Final Observations

Since 1998, Zimbabwe's economy has been on a road to ruin. Per capita GDP has contracted in each year; inflation has surged; real interest rates have been negative; the value of the Zimbabwe dollar has been wiped out; personal savings have been destroyed; the nation's capital stock has shrunk; and businesses' working capital has been decimated. This state of economic ruin has forced millions of Zimbabweans to lose hope for Zimbabwe's future and to emigrate.

To restore economic growth, hyperinflation must be extinguished rapidly, and people must have confidence that inflation will not return. Otherwise, unstable expectations and uncertainty will arise and undermine the stabilization program and economic growth.

Confidence can best be restored if Zimbabwe's central banking system is replaced with one of the three options presented in this study: dollarization, a currency board system, or free banking. None of these options requires preconditions prior to its implementation, and any one of them would establish stability and restore economic growth. As Karl Schiller, a former German Minister of Economic Affairs, put it: "Stability is not everything, but without stability, everything is nothing."<sup>37</sup>

In Table 7, I briefly review the options for monetary reform, considering their benefits and costs compared to the current system, the RBZ.

Other countries have overcome political obstacles that protected unsatisfactory monetary regimes and have made far-reaching reforms like those this study has evaluated.

Far-reaching monetary reform is possible and can be politically popular.

## Appendix: Model Statutes

### Dollarization Law

1. The Reserve Bank of Zimbabwe shall cease to issue Zimbabwe dollars except as replacements for equal amounts of old currency that become worn out.

2. Except as specified in paragraph 3, wages, prices, assets, and liabilities shall be converted from Zimbabwe dollars to [name of currency] ("the replacement currency") at the conversion rate chosen in the law that accompanies this law. By 60 days after this law enters into force, wages and prices shall cease to be quoted in Zimbabwe dollars.

3a. Interest rates shall be converted into the replacement currency by the following procedure. The independent committee of experts specified in the law accompanying this law shall choose benchmark interest rates in the Zimbabwe dollar and replacement currency, having similar characteristics with respect to maturity and liquidity insofar as possible. The ratio between existing interest rates in Zimbabwe dollars and the benchmark interest rate in the Zimbabwe dollar shall determine the interest rate in the replacement currency, which shall bear the same ratio to the benchmark rate in the replacement currency.

3b. In no case, however, shall new interest rates in the replacement currency resulting from the conversion procedure exceed 50 percent a year.

4. The president may appoint a committee of experts on technical issues connected with this law to recommend changes in regulations that may be necessary.

5. Nothing in this law shall prevent parties to a transaction from using any currency that is mutually agreeable. However, the replacement currency may be established as the default currency where no other currency is specified.

6. While Zimbabwe dollars remain in circulation, the government shall accept them

in payment of taxes at no premium to the conversion rate with the replacement currency. Acceptance of Zimbabwe dollars shall not be obligatory for any other party.

7. Within five years after this law takes effect, the government shall redeem all outstanding Zimbabwe dollars for the replacement currency or exchange it for government debt bearing a market-determined rate of interest.

8. Existing laws that conflict with this law are void.

9. This law takes effect immediately upon publication.

### **Currency Board Law**

1. The Zimbabwe Currency Board (“the Board”) is hereby created. The purpose of the Board is to issue notes and coins in new Zimbabwe dollars, and to hold foreign reserves sufficient to maintain them fully convertible at a fixed exchange rate into an anchor currency specified in paragraph 6.

2. The Board shall have its legal seat in Switzerland and shall be subject to the laws of Switzerland.

3a. The Board shall be governed by five directors. Three directors shall be citizens of countries other than Zimbabwe, appointed by the Bank for International Settlements in Basel, Switzerland. Two directors shall be Zimbabwean, one appointed by the Government of Zimbabwe and one by the Bankers Association of Zimbabwe. The directors appointed by the BIS shall not be employees of governments or multigovernmental organizations.

3b. A quorum shall consist of three of the Board’s directors, including the director chosen by the Government of Zimbabwe or the director chosen by the Bankers Association of Zimbabwe. Decisions shall be made by majority vote, except as specified in paragraph 15.

3c. The first director appointed by the Government of Zimbabwe shall serve a term of one year. The first director appointed by the Zimbabwe Bankers Association shall serve a term of four years. The first three directors appointed by the BIS shall serve terms of two, three, and five years. Subsequent directors shall serve terms of five years.

Directors may be reappointed once.

3d. Should a director resign or die, the organization that selected that director shall select a replacement to serve the remaining term.

4. The board of directors shall have the power to hire and fire the Board’s staff, and to determine salaries for the staff. The bylaws of the Board shall determine salaries for the directors.

5. The Board shall issue notes and coins denominated in new Zimbabwe dollars. The notes and coins shall be fully convertible into the anchor currency. The notes shall be printed outside Zimbabwe.

6a. Initially, the anchor currency shall be [name of currency], and the fixed exchange rate shall be determined 30 days after the promulgation of this law is announced. The procedures for determining the fixed exchange rate are contained in a separate law that accompanies this law. The fixed exchange rate so determined will be used as the fixed exchange rate for the duration of the currency board arrangement, subject to changes of the anchor currency in accordance with paragraph 13.

6b. Failure to maintain the fixed exchange rate with the anchor currency shall make the Board and its directors subject to legal action for breach of contract according to the laws of Switzerland. This provision does not apply to attempts to redeem embezzled, mutilated, or counterfeited notes, coins, and deposits. Nor does this provision apply to changes of the anchor currency in accordance with paragraph 13.

7. The Board shall charge no commission for exchanging new Zimbabwe dollars for the anchor currency.

8a. The Board may assume the monetary liabilities and corresponding assets of the Reserve Bank of Zimbabwe. The Board need not initially hold foreign reserves against this stock of monetary liabilities if it has inherited no corresponding readily saleable assets from the Reserve Bank of Zimbabwe. Over time it shall dispose of any domestic assets initially held as counterparts to its monetary liabilities.

8b. The Board may not increase its monetary liabilities without foreign reserves equal to 100 percent of the amount of the increase.

8c. The Board shall hold its foreign reserves in highly rated and liquid securities, or other forms payable only in the anchor currency. These reserves shall be on deposit at the BIS. The Board shall not hold securities issued by the national or local governments of Zimbabwe, or by enterprises owned by those governments. The reserves of the Board are the property of the holders of the Board's monetary liabilities and may not be appropriated by the Government of Zimbabwe.

9. The Board shall pay all net seigniorage (profits) into a reserve fund until its unborrowed foreign reserves equal 110 percent of its notes and coins in circulation and deposits. It shall remit to the Government of Zimbabwe all net seigniorage beyond that necessary to maintain 110 percent foreign reserves. The distribution of net seigniorage shall occur annually.

10. The head office of the Board shall be in Harare. The Board shall establish a branch in Bulawayo and may establish branches or appoint agents in other cities of Zimbabwe. The Board shall also maintain a branch in Switzerland.

11. The Board shall publish a financial statement, attested by the directors, monthly or more often on a publicly accessible Internet site. The statement shall appraise the Board's holdings of securities at their market value. An annual audit of the Board shall be made by an international audit firm and shall be published by the Board.

12. The Board may issue notes and coins in such denominations as it judges to be appropriate.

13. The Board may take the following steps to alleviate disruptions to the purchasing power of its currency resulting from deflation or inflation in the anchor currency.

(a) If the year-over-year change in the consumer price index of the country issuing the anchor currency is below -2 percent for two consecutive years, or below -5 percent for three consecutive months,

the Board may devalue its currency against the anchor currency by no more than the cumulative amount of deflation since the consumer price index of the country issuing the anchor currency began to decline.

(b) If the year-over-year change in the consumer price index of the country issuing the anchor currency exceeds 20 percent for two consecutive years, or 40 percent for three consecutive months, the Board may revalue its currency against the anchor currency by no more than the difference between the change in the consumer price index of the country issuing the anchor currency and the rate of 20 percent or 40 percent that triggers this clause.

(c) Alternatively, in the cases of deflation or inflation as defined above, the Board may choose a new anchor currency and fix the exchange rate of the Currency Board currency to the new currency at the rate then prevailing between the new anchor currency and the former anchor currency.

(d) The Board may only take these steps within 60 days of the consumer price statistics being reported in the country issuing the anchor currency.

14. If the Board chooses a new anchor currency in accordance with paragraph 13, it must convert all its foreign reserves into assets payable in the new anchor currency within two years.

15. The Board may not be dissolved, nor may its assets be transferred to a successor organization, unless all of the following conditions are satisfied: two-thirds of the members of the Parliament of Zimbabwe approve, the President of Zimbabwe approves, all the directors of the Board approve, and all claims against its monetary liabilities can be satisfied.

16. The Board may accept loans or grants of reserves from multigovernmental organizations or foreign governments to establish initial foreign reserve backing of up to 100 percent of the monetary base. The loans shall not exceed 100 percent of the monetary base. After

establishing the initial backing, the Board may not accept loans.

17. Exchanges of currency by the Board shall be exempt from taxation by the government of Zimbabwe and all its subdivisions.

18. Old Zimbabwe dollars, new Zimbabwe dollars, and the anchor currency shall be legal tender for paying taxes and settling debts in Zimbabwe. However, private parties shall be free to contract among themselves in any currencies they wish to specify, and no currency shall be forced tender for such contracts.

19. The Board may not perform banking services for the Government of Zimbabwe, and it shall not be responsible for the financial obligations of the government.

20. Existing laws that conflict with this law are void.

21. This law takes effect immediately upon publication.

**Law for Determining the Rate of Exchange between the Zimbabwe Dollar and the [name of anchor currency for currency board or replacement currency for dollarization]**

1. This law shall take effect upon the promulgation of the Zimbabwe Currency Board Law or the Zimbabwean Dollarization Law.

2. After the promulgation of the Zimbabwe Currency Board Law or the Zimbabwe Dollarization Law, the Zimbabwe dollar shall be allowed to trade for 30 days on the open market without intervention from or restriction by the Government of Zimbabwe. The prices and quantities of Zimbabwe dollars traded shall be tabulated by dealers in foreign currency for the duration of the 30-day period.

3. An independent accounting firm will use foreign currency dealers' tabulated trading records to calculate the weighted average of the Zimbabwe dollar-[name of currency] exchange rate at the end of each day in the 30-day trading period, and for the overall period. The results of these calculations will be taken into consideration by an independent committee of experts to determine the fixed exchange rate. The rate will be chosen

to best represent the fair market value of the Zimbabwe dollar, facilitate economic calculation, and allow for rapid implementation of the Zimbabwe Currency Board Law or the Zimbabwe Dollarization Law.

4. The appropriate international cross currency rates shall be used to convert transactions in currencies other than the [name of currency] into [name of currency] terms.

5. The fixed exchange rate determined according to the procedures above will be used as the fixed exchange rate in the Zimbabwe Currency Board Law or the conversion rate in the Zimbabwe Dollarization Law.

**Free Banking Law**

1. Any person may issue circulating notes and coins denominated in any unit of account.

2. All restrictions on the holding, use in payment, and quotation of prices in currencies other than the Zimbabwe dollar are abolished.

3. Existing regulations that impose minimum reserve requirements and other specialized regulatory burdens and taxes on banking institutions that do not apply to other industries are abolished.

4. [Name of currency] is hereby declared legal tender for payment of all debts in Zimbabwe alongside the Zimbabwe dollar at a fixed exchange rate of [number] Zimbabwe dollars per unit of [name of currency].

5. All interest rates in Zimbabwe dollars agreed to before this law takes effect shall be converted according to the following procedure:

- (a) The government, in consultation with the Bankers Association of Zimbabwe, shall select or calculate a benchmark, market-determined interest rate in Zimbabwe dollars and an analogous benchmark interest rate of similar maturity in [name of currency].
- (b) Parties to a contract requiring payment of interest in Zimbabwe dollars shall calculate the ratio between the interest rate they have specified and the benchmark interest rate in Zimbabwe dollars.

- (c) The new interest rate, which shall be the rate for making all future payments during the life of the contract, shall equal the benchmark interest rate in [name of currency] multiplied by the ratio determined in the preceding paragraph.
- (d) In no case, however, shall the new annualized interest rate exceed 50 percent.

## Notes

I would like to thank John Legat and John Robertson for their encouragement and support in the preparation of this study, my research assistants Andrew Burgess and Alex Kwok, and my long-time collaborator Kurt Schuler for comments on the manuscript. An earlier version of this manuscript was published in Harare, Zimbabwe, by the New Zanj Publishing House and was sponsored by Imara Holdings Limited.

1. Ludwig von Mises, *The Theory of Money and Credit* (Irvington-on-Hudson, New York: Foundation for Economic Education, 1971 [1912]), p. 414.

2. Peter Bernholz, *Monetary Regimes and Inflation: History, Economic and Political Relationships* (Northampton, Massachusetts: Edward Elgar, 2003).

3. Robert Pringle, ed., *The Morgan Stanley Central Bank Directory 2008* (London: Central Banking Publications, 2008).

4. I have relied on the following works for information concerning the monetary history of Zimbabwe: Bank of Rhodesia and Nyasaland, 1956/1961–1964 annual reports; Salisbury: Bank of Rhodesia and Nyasaland (the first annual report covers the period 1956–1961); Patrick Bond, *Uneven Zimbabwe: A Study of Finance, Development, and Underdevelopment* (Trenton, New Jersey: Africa World Press, 1996); Sir Robert Chalmers, *A History of Currency in the British Colonies* (London: Eyre and Spottiswoode for Her Majesty's Stationery Office, 1893); Sir Julian Stanley Crossley and John Blandford, *The DCO Story: A History of Banking in Many Countries 1925–27* (London: Barclays Bank International, 1975); James A. Henry and H. A. Siepman, *The First Hundred Years of the Standard Bank* (London: Oxford University Press; Reserve Bank of Zimbabwe, 1983, *The Currency Media of Southern Rhodesia (from the Time of the Charter to 1953), of the Federation of Rhodesia and Nyasaland (from 1954 to 1963), of Rhodesia (from 1964 to 1979), and of Zimbabwe (from 1980)* (Harare: Reserve Bank of Zimbabwe); Reserve Bank of Zimbabwe, *Final Accounts* (Harare, Zimbabwe, 1993); Reserve Bank of Zimbabwe, *Annual Report* (Harare: Reserve Bank of

Zimbabwe 1994–present (although the Reserve Bank of Rhodesia became the Reserve Bank of Zimbabwe in 1980, the successor central bank did not publish its first annual report until 1994); Reserve Bank of Zimbabwe, *Quarterly Economic and Statistical Review* (later called *Monetary and Economic Developments*) (Harare: Reserve Bank of Zimbabwe, 1980–present); Reserve Bank of Zimbabwe, *Selected Economic Indicators* (Harare: Reserve Bank of Zimbabwe, monthly), <http://www.rbz.co.zw>; Reserve Bank of Zimbabwe, *Weekly Economic Highlights* (Harare: Reserve Bank of Zimbabwe), <http://www.rbz.co.zw>; Rhodesia and Nyasaland (Federation), Central African Currency Board, Annual Report, 1953/1954–1955/1956. *First [Second, Third] Report of the Central African Currency Board* (Salisbury: Central African Currency Board) (printed by Government Printing and Stationery Office); Southern Rhodesia Currency Board: annual report, 1939/1940–1952/ 1953, *First Report of the Southern Rhodesia Currency Board, Covering the Period Ended 31 March, 1940 (1939–1940); Second [etc.] Report of the Southern Rhodesia Currency Board, Year Ended 31 March, 1941 [etc.] (1940/1941–1952/1953)*; the 7th, 9th, 10th, and 11th reports have the word “annual” in their titles, but the rest do not. Salisbury: Government Stationery Office; Rafik Ahmed Sowelem, *Towards Financial Independence in a Developing Economy: An Analysis of the Monetary Experience of the Federation of Rhodesia and Nyasaland, 1952–63* (London: Allen and Unwin, 1967).

5. Benjamin Cohen, *The Future of Money* (Princeton, New Jersey: Princeton University Press, 2004); Paul R. Masson and Catherine Pattillo, *The Monetary Geography of Africa* (Washington: Brookings Institution, 2005).

6. Jian-Ye Wang, Iyabo Masha, Kazuko Shirono, and Leighton Harris, “The Common Monetary Area in Southern Africa: Shocks, Adjustment, and Policy Challenges,” International Monetary Fund Working Paper no. 158 (July 2007), <http://www.imf.org/external/pubs/ft/wp/2007/wp07158.pdf>.

7. Kevin Dowd, ed., *The Experience of Free Banking* (London: Routledge, 1992).

8. Kurt Schuler, *Should Developing Countries Have Central Banks?* (London: Institute of Economic Affairs, 1996).

9. Lawrence H. White, “In What Respects Will the Information Age Make Central Banks Obsolete?” *Cato Journal* 21, no. 2 (Fall 2001): 127–40, <http://www.cato.org/pubs/journal/cj21n2/cj21n2-7.pdf>.

10. Alan A. Walters and Steve H. Hanke, “Currency Boards,” in *The New Palgrave Dictionary of Money and Finance*, ed. Peter Newman, Murray Milgate, and John Eatwell (London: Macmillan, 1992).

11. Steve H. Hanke, "On Dollarization and Currency Boards: Error and Deception," *Journal of Policy Reform* 5, no. 4 (2002): 203–22.
12. Maxwell J. Fry, *Money, Interest, and Banking in Economic Development* (Baltimore, Maryland: Johns Hopkins University Press, 1988).
13. Sonia Muñoz, "Central Bank Quasi-Fiscal Losses and High Inflation in Zimbabwe: A Note," International Monetary Fund Working Paper no. 98 (April 2007), <http://www.imf.org/external/pubs/ft/wp/2007/wp0798.pdf>.
14. Reserve Bank of Zimbabwe, <http://www.rbz.co.zw/about/vision.asp>.
15. Richard D. Porter and Ruth A. Judson, "The Location of U.S. Currency: How Much Is Abroad?" *Federal Reserve Bulletin* 82 (October 1996): 883–903, <http://www.federalreserve.gov/pubs/bulletin/1996/1096lead.pdf>.
16. Dominick Salvatore, James W. Dean, and Thomas D. Willett, eds., *The Dollarization Debate* (Oxford and New York: Oxford University Press, 2003).
17. Steve H. Hanke, "Some Reflections on Currency Boards," in *Central Banking, Monetary Policies, and the Implications for Transition Economies*, ed. Mario I. Blejer and Marko Skreb (Norwell, Massachusetts: Kluwer Academic Publishers, 1999); Steve H. Hanke, "Currency Boards," *Annals of the American Academy of Political and Social Science* 579 (January 2002): pp. 87–105.
18. Milton Friedman, "Do We Need Central Banks?" *Central Banking* 5, no. 1 (1994): 55–58.
19. Juan Luis Moreno-Villalaz, "The Monetary Experience of Panama: A Dollar Economy with Financial Integration." *Cato Journal* 18, no. 3 (Winter 1999): 421–39; Juan Luis Moreno-Villalaz, "Financial Integration and Dollarization: The Case of Panama," *Cato Journal* 25, no. 1 (Winter 2005): 127–40.
20. Steve H. Hanke, "Money and the Rule of Law in Ecuador," *Journal of Policy Reform* 6, no. 3 (2003): 131–45.
21. Kurt Schuler, *El futuro de la dolarización en Ecuador* (Guayaquil: Instituto Ecuatoriano de Economía Política, 2002): 10–11.
22. Manuel Hinds, *Playing Monopoly with the Devil: Dollarization and Domestic Currencies in Developing Countries* (New Haven, Connecticut: Yale University Press, 2006).
23. Steve H. Hanke and Kurt Schuler, *Currency Boards for Developing Countries: A Handbook* (San Francisco: ICS Press [Institute for Contemporary Studies], 1994). A more recent electronic version is available on Kurt Schuler's website, <http://www.dollarization.org>.
24. Ibid.
25. Warren Coats, *One Currency for Bosnia* (Ottawa, Illinois: Jameson Books, 2007).
26. Steve H. Hanke, "Currency Boards," pp. 87–105.
27. John Greenwood, *Hong Kong's Link to the U.S. Dollar: Origins and Evolution* (Hong Kong University Press, 2007); Tony Latter, *Hong Kong's Money: The History, Logic and Operation of the Currency Peg* (Hong Kong University Press, 2007).
28. Steve H. Hanke, "Some Reflections on Currency Boards"; Steve H. Hanke, "Currency Boards," pp. 87–105; Steve H. Hanke, "On Dollarization and Currency Boards: Error and Deception," pp. 203–22.
29. Coats, *One Currency for Bosnia*.
30. Steve H. Hanke, "On Dollarization and Currency Boards: Error and Deception," pp. 203–22; Kurt Schuler, "Ignorance and Influence: U.S. Economists on Argentina's Depression of 1998–2000," *Econ Journal Watch* 2, no. 2 (August 2005): 234–78, <http://www.econjournalwatch.org/pdf/CompleteIssueAugust2005.pdf>, viewed June 23, 2008.
31. Dowd, *The Experience of Free Banking*; George A. Selgin, *The Theory of Free Banking: Money Supply Under Competitive Note Issue* (Totowa, New Jersey: Rowman and Littlefield, 1988); George A. Selgin and Lawrence H. White, "How Would the Invisible Hand Handle Money?" *Journal of Economic Literature* 32, no. 4 (December, 1994): 1718–49.
32. Lawrence H. White, "The Federal Reserve System's Influence on Research in Monetary Economics," *Econ Journal Watch* 2, no. 2 (August 2005): 325–54, <http://www.econjournalwatch.org/pdf/InvestigatingAugust2005.pdf>.
33. Steve H. Hanke, "Hyperinflation," *Forbes* (June 4, 2007), p. 200.
34. Steve H. Hanke. "Currency Boards," pp. 87–105.
35. Paul Volcker, "Foreword," in *The Central Banks*, ed. Marjorie Deane and Robert Pringle (New York: Viking Penguin, 1995), p. vii–viii.
36. Steve H. Hanke. "Currency Boards," pp. 87–105.
37. David Marsh, *The Bundesbank: The Bank that Rules Europe* (London: Mandarin Paperbacks, 1992): 30.

## STUDIES IN THE POLICY ANALYSIS SERIES

617. **Roadmap to Gridlock: The Failure of Long-Range Metropolitan Transportation Planning** by Randal O'Toole (May 27, 2008)
616. **Dismal Science: The Shortcomings of U.S. School Choice Research and How to Address Them** by John Merrifield (April 16, 2008)
615. **Does Rail Transit Save Energy or Reduce Greenhouse Gas Emissions?** by Randal O'Toole (April 14, 2008)
614. **Organ Sales and Moral Travails: Lessons from the Living Kidney Vendor Program in Iran** by Benjamin E. Hippen (March 20, 2008)
613. **The Grass Is Not Always Greener: A Look at National Health Care Systems Around the World** by Michael Tanner (March 18, 2008)
612. **Electronic Employment Eligibility Verification: Franz Kafka's Solution to Illegal Immigration** by Jim Harper (March 5, 2008)
611. **Parting with Illusions: Developing a Realistic Approach to Relations with Russia** by Nikolas Gvosdev (February 29, 2008)
610. **Learning the Right Lessons from Iraq** by Benjamin H. Friedman, Harvey M. Sapolsky, and Christopher Preble (February 13, 2008)
609. **What to Do about Climate Change** by Indur M. Goklany (February 5, 2008)
608. **Cracks in the Foundation: NATO's New Troubles** by Stanley Kober (January 15, 2008)
607. **The Connection between Wage Growth and Social Security's Financial Condition** by Jagadeesh Gokhale (December 10, 2007)
606. **The Planning Tax: The Case against Regional Growth-Management Planning** by Randal O'Toole (December 6, 2007)
605. **The Public Education Tax Credit** by Adam B. Schaeffer (December 5, 2007)
604. **A Gift of Life Deserves Compensation: How to Increase Living Kidney Donation with Realistic Incentives** by Arthur J. Matas (November 7, 2007)
603. **What Can the United States Learn from the Nordic Model?** by Daniel J. Mitchell (November 5, 2007)

602. **Do You Know the Way to L.A.? San Jose Shows How to Turn an Urban Area into Los Angeles in Three Stressful Decades** by Randal O'Toole (October 17, 2007)
601. **The Freedom to Spend Your Own Money on Medical Care: A Common Casualty of Universal Coverage** by Kent Masterson Brown (October 15, 2007)
600. **Taiwan's Defense Budget: How Taipei's Free Riding Risks War** by Justin Logan and Ted Galen Carpenter (September 13, 2007)
599. **End It, Don't Mend It: What to Do with No Child Left Behind** by Neal McCluskey and Andrew J. Coulson (September 5, 2007)
598. **Don't Increase Federal Gasoline Taxes—Abolish Them** by Jerry Taylor and Peter Van Doren (August 7, 2007)
597. **Medicaid's Soaring Cost: Time to Step on the Brakes** by Jagadeesh Gokhale (July 19, 2007)
596. **Debunking Portland: The City That Doesn't Work** by Randal O'Toole (July 9, 2007)
595. **The Massachusetts Health Plan: The Good, the Bad, and the Ugly** by David A. Hyman (June 28, 2007)
594. **The Myth of the Rational Voter: Why Democracies Choose Bad Policies** by Bryan Caplan (May 29, 2007)
593. **Federal Aid to the States: Historical Cause of Government Growth and Bureaucracy** by Chris Edwards (May 22, 2007)
592. **The Corporate Welfare State: How the Federal Government Subsidizes U.S. Businesses** by Stephen Slivinski (May 14, 2007)
591. **The Perfect Firestorm: Bringing Forest Service Wildfire Costs under Control** by Randal O'Toole (April 30, 2007)
590. **In Pursuit of Happiness Research: Is It Reliable? What Does It Imply for Policy?** by Will Wilkinson (April 11, 2007)
589. **Energy Alarmism: The Myths That Make Americans Worry about Oil** by Eugene Gholtz and Daryl G. Press (April 5, 2007)
588. **Escaping the Trap: Why the United States Must Leave Iraq** by Ted Galen Carpenter (February 14, 2007)

## BOARD OF ADVISERS

ANNE APPLEBAUM  
WASHINGTON POST

GURCHARAN DAS  
FORMER CEO, PROCTER  
& GAMBLE, INDIA

ARNOLD HARBERGER  
UNIVERSITY OF CALIFORNIA  
AT LOS ANGELES

FRED HU  
GOLDMAN SACHS, ASIA

PEDRO-PABLO KUCZYNSKI  
FORMER PRIME MINISTER OF PERU

DEEPAK LAL  
UNIVERSITY OF CALIFORNIA  
AT LOS ANGELES

JOSÉ PIÑERA  
FORMER MINISTER OF LABOR AND  
SOCIAL SECURITY, CHILE

# CENTER FOR GLOBAL LIBERTY & PROSPERITY

The Center for Global Liberty and Prosperity was established to promote a better understanding around the world of the benefits of market-liberal solutions to some of the most pressing problems faced by developing nations. In particular, the center seeks to advance policies that protect human rights, extend the range of personal choice, and support the central role of economic freedom in ending poverty. Scholars in the center address a range of economic development issues, including economic growth, international financial crises, the informal economy, policy reform, the effectiveness of official aid agencies, public pension privatization, the transition from socialism to the market, and globalization.

For more information on the Center for Global Liberty and Prosperity, visit [www.cato.org/economicliberty/](http://www.cato.org/economicliberty/).

## OTHER STUDIES ON DEVELOPMENT FROM THE CATO INSTITUTE

“A Decade of Suffering in Zimbabwe: Economic Collapse and Political Repression under Robert Mugabe” by David Coltart, Development Policy Analysis no. 5 (March 24, 2008)

“Fifteen Years of Transformation in the Post-Communist World: Rapid Reformers Outperformed Gradualists” by Oleh Havrylyshyn, Development Policy Analysis no. 4 (November 9, 2007)

“Troubling Signs for South African Democracy under the ANC” by Marian L. Tupy, Development Policy Briefing Paper no. 3 (April 25, 2007)

“Kenya’s Fight against Corruption: An Uneven Path to Political Accountability” by John Githongo, Development Policy Briefing Paper no. 2 (March 15, 2007)

“A Second Look at Microfinance: The Sequence of Growth and Credit in Economic History” by Thomas Dichter, Development Policy Briefing Paper no. 1 (February 15, 2007)

“Corruption, Mismanagement, and Abuse of Power in Hugo Chávez’s Venezuela” by Gustavo Coronel, Development Policy Analysis no. 2 (November 27, 2006)

“The Rise of Populist Parties in Central Europe: Big Government, Corruption, and the Threat to Liberalism” by Marian L. Tupy, Development Policy Analysis no. 1 (November 8, 2006)

“Foreign Aid and the Weakening of Democratic Accountability in Uganda” by Andrew Mwenda, Foreign Policy Briefing no. 88 (July 12, 2006)



Nothing in this Development Policy Analysis should be construed as necessarily reflecting the views of the Center for Global Liberty and Prosperity or the Cato Institute or as an attempt to aid or hinder the passage of any bill before Congress. Contact the Cato Institute for reprint permission. Additional copies of Development Policy Analysis are \$6 each (\$3 for five or more). To order, contact the Cato Institute, 1000 Massachusetts Avenue, N.W., Washington, DC, 20001, (202) 842-0200, fax (202) 842-3490, [www.cato.org](http://www.cato.org).