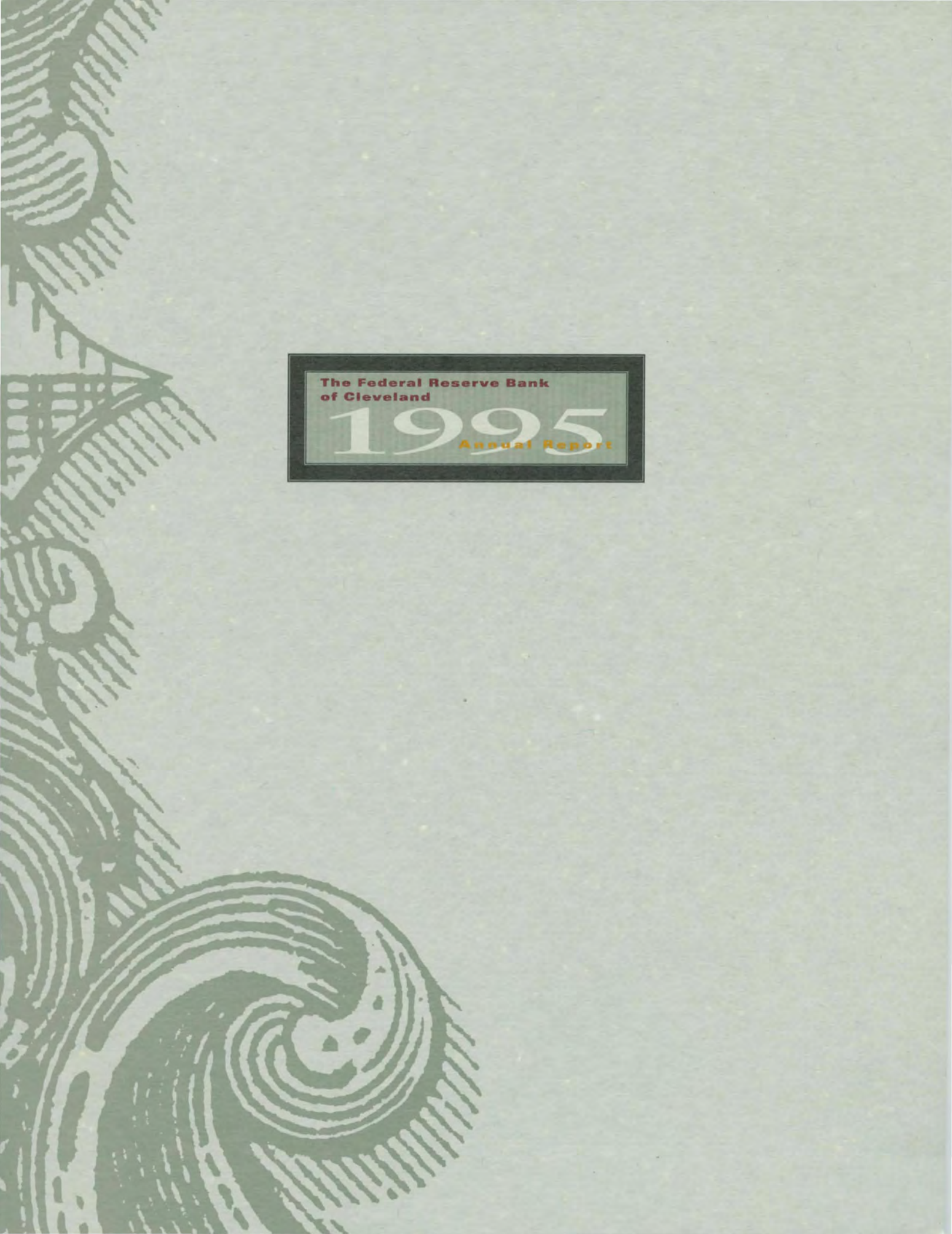
The Federal Reserve Bank
of Cleveland
1995
Annual Report

The Federal Reserve System is responsible for formulating and implementing U.S. monetary policy. It also supervises banks and bank holding companies, and provides financial services to depository institutions and the federal government.

The Federal Reserve Bank of Cleveland is one of 12 regional Reserve Banks in the United States that, together with the Board of Governors in Washington, D.C., comprise the Federal Reserve System.

The Federal Reserve Bank of Cleveland, including its branch offices in Cincinnati and Pittsburgh and its check processing center in Columbus, serves the Fourth Federal Reserve District. The Fourth District includes Ohio, western Pennsylvania, the northern panhandle of West Virginia, and eastern Kentucky.

Federal Reserve Bank of Cleveland

1995 Annual Report

Distributing coin and currency is one of the key responsibilities of the 12 regional Federal Reserve Banks. As part of this process, worn or mutilated notes are removed from circulation and destroyed. But that's not the end of the story. Through a collaborative effort by the Federal Reserve Bank of Cleveland and a national paper company, roughly 1,500 pounds of shredded bills once destined for landfills each day are now being recycled into attractive paper products. The cover stock for this year's annual report contains 70 percent recycled currency—a fitting treatment to highlight our essay on the history of governments and money.

Foreword

Nineteen ninety-five was a year of solid progress for both the Federal Reserve Bank of Cleveland and the Fourth Federal Reserve District. Although regional economic growth did not match the high levels of 1994, activity remained strong: Capital goods producers operated at or near capacity, and our financial and agricultural industries also turned in a solid performance.

Financial institutions in the region continued to benefit from sound management and a strong asset base. Earnings, asset quality, and capital levels were all above national averages, and loan losses remained at or close to their low 1994 levels.

A. William Reynolds, chairman; Jerry L. Jordan, president; Sandra Pianalto, first vice president; and G. Watts Humphrey, Jr., deputy chairman.

On the national scene, the economy expanded amid a climate of restrained price increases. Through December, the Consumer Price Index was up 2.6 percent over the previous year, with few signs of higher inflation on the horizon. Significantly, consumers reported a steady decline in their expectations of future inflation —perhaps signaling that the public is becoming aware of the link between low inflation and economic growth.

The President's recent reappointment of Alan Greenspan to another four-year term as Federal Reserve Chairman bespeaks confidence in the stewardship of the central bank over the past several years. Both Main Street and Wall Street understand that curbing inflation—protecting the purchasing power of the dollar—is in everyone's best interest. Even Congress is joining the fold: The Economic Growth and Price Stability Act of 1995, proposed by Senator Connie Mack, would make price stability the primary long-term goal of U.S. monetary policy. But such legislative restraint will be effective only if government abides by its restrictions. The essay that begins on page four of this report details the history of attempts to protect the value of money and makes the case that fostering competition among currencies may be the best way to generate economic growth through price stability.

Internally, 1995 was a year of significant accomplishment for the Federal Reserve Bank of Cleveland. We maintained our focus on technology, quality, and employee involvement to further our goal of providing high-quality, value-added services to our customers. Our Cincinnati and Pittsburgh offices installed a new generation of cash-sorting equipment, enabling them to sort higher volumes of currency more quickly and accurately than before. At the same time, Cleveland's Check Collection Department began offering check imaging services to District financial institutions, which in turn can provide the benefits of imaging to their individual and corporate customers.

We also conducted a comprehensive survey of our customers to determine how they evaluate our services and personnel. The results have given us a better understanding of our strengths, as well as a base for assessing those areas requiring improvement. We institutionalized our commitment to continuous quality improvement by appointing a full-time quality officer and establishing a separate Quality Department. Partly as a result of these and similar initiatives, we saw volume increases in virtually all of our priced services.

During the year we established a home page on the Internet's World Wide Web, allowing individuals around the globe to view Bank publications, data, and other printed materials on-line. This project was conceived and executed by a team comprising individuals from various departments and functions, and is an example of the open, cooperative culture we seek to foster among our employees.

The Cleveland Residential Housing and Mortgage Credit Project, launched in 1993, continued to bring together representatives of the residential real estate and mortgage credit industries to seek ways of eliminating potential discrimination in the home-buying process. Plans are under way to launch a similar initiative in the Cincinnati area in 1996.

The past year saw the Cleveland Bank selected as the site for a group undertaking important research on behalf of the Federal Reserve System. The Financial Services Research Group is exploring issues pertaining to the future of the nation's payments system, the impact of technology on the financial services industry, and the Federal Reserve System's role in the evolving payments system.

The group's work supports the Financial Services Policy Committee, which is part of the Federal Reserve System's new management structure for financial services. This new approach is designed to allow the System to respond quickly and creatively to the needs of the financial services marketplace.

Construction of our new Operations Center continued in 1995, and the building remains on schedule to be occupied in early 1997. Renovation of our historic main building will begin shortly thereafter. During October and November 1996, those employees not moving to the Operations Center will relocate to a nearby site in downtown Cleveland.

All of the past year's successes have been guided by the 23 directors of our Cincinnati, Cleveland, and Pittsburgh offices, as well as by the members of our Business and Community Bank advisory councils. I thank them for their hard work and expert counsel. I would particularly like to acknowledge those directors who completed their terms of service in 1995: Ed Brandon (retired chairman and chief executive officer, National City Corporation) for his service on the Cleveland Board; Jerry W. Carey (president and chief executive officer, Union National Bank and Trust Company) and Eleanor Hicks (president, M.I.N.D.S. International), who served on the Cincinnati Board; and Robert P. Bozzone (vice chairman, Allegheny Ludlum Corporation) and Helen J. Clark (chairman, president, and chief executive officer, Apollo Trust Company) for their service on the Pittsburgh Board.

I also extend my gratitude and best wishes to two officers who left the Bank in 1995: Jill Goubeaux Clark, senior vice president and general counsel, and Elena McCall, vice president and head of the Bank's Human Resources Department. They were valued members of our management team, and their contributions will be missed. We will also miss Jack Wixted, senior vice president, who recently joined the Federal Reserve Bank of Chicago to direct its banking supervision and regulation function.

Finally, I want to express appreciation to the officers and employees of the Fourth District for their creativity and hard work. Their efforts made 1995 a successful year and will enable us to meet the challenges of 1996 and beyond.

Jerry L. Jordan
President

Governments and Money

> "We do not pretend, that a National Bank can establish and maintain a sound and uniform state of currency in the country, in *spite* of the National Government; but we do say that it has established and maintained such a currency, and can do so again, by the *aid* of that Government; and we further say that ***no duty is more imperative on that Government, than the duty it owes the people, of furnishing them a sound and uniform currency.***"
>
> [emphasis added]

Abraham Lincoln spoke these words, affirming the government's ability and obligation to provide a stable currency, in an 1839 speech before the Illinois legislature.[1] Even though most prominent U.S. thinkers have clearly recognized the importance of a sound currency, the means to ensure that governments actually provide it have proven elusive. Convincing evidence can be found in the somewhat dubious experience of the Greenback period, initiated in 1861 and lasting until 1879, when paper money issued by the government during the Civil War was made convertible into gold.

Today, more than 150 years after Lincoln's admonition, we find ourselves still wrestling with this same issue: Is government the solution or the problem when it comes to protecting the purchasing power of money? History is replete with examples of what governments will do when their power of mintage is unfettered. The hyperinflations of Germany in the 1920s and of Bolivia, Argentina, and Brazil in the 1980s are sobering reminders of the effects of excessive money creation. What can be done to ensure that governments and their central banks deliver on their responsibility of protecting money's value?

The combination of historical experience and the near-universal evolution to fiat money systems—monetary standards that are not supported by convertibility into intrinsically valued commodities, such as gold or silver—has created a widespread recognition that national monetary authorities will not deliver price stability unless careful attention is given to the incentive structures under which they operate.

Nobel Prize winning economist Friedrich von Hayek put it this way: "History is largely a history of inflation, and usually of inflations engineered by governments and for the gain of governments."[2] What remains uncertain is the mechanism that will prevent such history from repeating itself. More directly, the challenge remains to devise sustainable institutional monetary arrangements that can protect the public from debasement of the value of its money.

In recent years, several nations have taken up this challenge by legislating price stability as the sole, or dominant, objective of their central banks. Such legislation has already been passed in New Zealand, Canada, the United Kingdom, and Sweden. In the United States, a bill to replace central-bank responsibility for both low inflation and low unemployment with accountability strictly for long-term price stability has been proposed by Senator Connie Mack and others.

While these new initiatives are laudable, it is too soon to tell whether they will be sufficient to ensure that governments and their central banks consistently deliver price stability. Such legislation is but one of many environmental factors that may contribute to the protection of a nation's currency. Furthermore, legislative restraint on the behavior of monetary policy operates only so long as a government chooses to live under its restrictions.

The history of money over the past two centuries shows nations groping for lasting institutional structures that provide incentives to limit their own governments' temptation to debase their currency in order to satisfy shortsighted political objectives. The approaches used in the past have stemmed directly from both the nature of money prevailing at the time and societies' views about the proper role of government.

This essay traces some historical attempts to rein in sovereign nations' appetite for excessive money growth. We contend that competitive market forces can provide a strong incentive mechanism to encourage countries to maintain the quality, or value, of their money in much the same way that competition leads companies to maintain the quality of their products.

In other words, perhaps the most innovative and lasting way countries can achieve stable purchasing power for their monetary assets is by competing against each other in the provision of money. Nations that excel at providing a superior standard of value may find citizens in other countries who prefer to import their currency. Facing such competition, the providers of domestic currencies will have to improve their own products, erect "trade barriers," or abandon the market.

The Gold Standard

For most of recorded history, governments have taken some role in providing money to the economy. In early times, that role was limited to "authentication"—verifying that coins contained the indicated metals. Even in this limited role, however, the authorities occasionally violated the public trust concerning the soundness of money. Citizens' dual reliance on and distrust of government with regard to the value of money is an age-old phenomenon.

The conviction that, despite all contrary assurances, governments will eventually abuse their powers led countries to develop institutions aimed at limiting a government's ability to print additional money. One such method was the gold and silver standards followed (on and off) by most countries from 1821 to 1973.

Specie-backed currency—that is, currency convertible into a standardized unit of a nonmonetary commodity—took money out of immediate government control. For example, if the dollar were defined as equal to 1/20 of an ounce of gold, then the number of dollars the United States could issue would be constrained by its holdings of gold reserves. Moreover, if Britain then defined its currency, the pound, as equal to 5/20 of an ounce of gold—as it did before World War I—the dollar/pound exchange rate would be fixed at $5 per pound. If either government issued more money than would be consistent with maintaining its value in gold—say, to finance a budget deficit—it would lose gold reserves to the country with the more stable currency. In this way, the discipline exerted by the potential loss of reserves strengthened a government's covenant with the public not to erode the purchasing power of its money.

One problem with a specie standard was that the value of money was only as stable as the value of the specie backing it. When gold production was low in the 1870s and 1880s, the money supply across the world grew slowly, leading to a general deflation. This situation changed dramatically, however, with the discovery of gold in Alaska and South Africa in the 1890s. The result was rapid money growth and inflation up until World War I.

Furthermore, linking currencies to gold (or sometimes silver) did not completely restrain governments from manipulating the value of their currencies. First, in order to finance expenditures by printing money, governments would frequently suspend the gold standard during times of war. Second, even without officially abandoning gold, some nations periodically redefined the value of their currencies in terms of gold. Instead of allowing gold or foreign reserves to consistently drain from their coffers, they would choose instead to devalue their currencies.

The Greenback Era

First issued to help finance the North's effort in the Civil War, *greenbacks*, named after the cheap green ink used to manufacture the notes, gave their name to the era that lasted until 1879, when the U.S. resumed the gold standard. Both the money itself and the era had notable features.

Greenbacks, as a fiat standard, represented a huge break with the past: The government would not convert these notes into gold on demand, and it made greenbacks legal tender for private as well as public debts. These innovations led to severe constitutional challenges about whether the government could authorize legal tender that was not "lawful money," such as gold or silver, and whether greenbacks constituted legal tender for debts contracted before they were issued.

Greenbacks may have hogged the headlines, but they were by no means the dominant money in circulation. Gold and national bank notes also circulated. National bank notes were issued by (and thus were liabilities of) individual national banks. These notes were printed by the U.S. government, however, and were backed 111 percent by government bonds held on deposit at the Treasury.

The economy of the time showed a surprising combination of vigorous growth and declining prices. The price level was cut in half over the period, and despite the long recession of 1873–1879, output rose. The population increased by one-third, while the output of pig iron, coal, and copper more than doubled.

The combination of growth and declining prices is intriguing. With freely floating exchange rates and an open economy, the U.S. money supply was determined by people's demand for money (expressed mainly in bank notes). The success of fiat money during this period was largely due to the competition of national bank notes. Along with the government's ability to get its fiscal house in order, this enabled the nation to maintain enough credibility to commit to the gold standard again. The Greenback Era established that despite the high cost in human terms, the Civil War did not bankrupt the nation financially.

The Mack Proposal

The Full Employment and Balanced Growth Act of 1978—popularly known as the Humphrey-Hawkins legislation—stipulated that U.S. economic policy be conducted to achieve full employment, balanced growth, a balanced federal budget, an improved trade balance, and reasonable price stability. The Federal Reserve Reform Act of 1977 specifically targeted three goals: maximum employment, stable prices, and moderate long-term interest rates. Since then, the sentiment that *central banks* can reliably engineer multiple objectives has fallen into disrepute. Most economists now accept the notion that the only sustainable long-term objectives of monetary policy are those involving the purchasing power of money.

On September 21, 1995, Senator Connie Mack (R—Fla.) introduced the Economic Growth and Price Stability Act of 1995, which would repeal the 1978 law and stipulate price stability as the primary long-term goal of U.S. monetary policy. Senator Mack's bill was motivated by the finding that "the multiple policy goals of [the central bank] have created uncertainty about the aims of monetary policy, which can add to volatility in economic activity and financial markets, costing workers jobs and harming economic growth."

The Economic Growth and Price Stability Act would require that the Federal Reserve "1) establish an explicit numerical definition of the term 'price stability'; and 2) maintain a monetary policy that effectively promotes long-term price stability." Congress has yet to act on Senator Mack's proposal.

At first glance, it might seem that gold standards imposed no real discipline on government behavior, because countries could devalue their currencies at will. However, discipline came from the fact that countries actually *could not* contemplate doing so without suffering a cost. If it was threatened that a country would devalue its currency, massive speculative attacks would ensue as investors attempted to shed themselves of that currency. Such a country would eventually lose large amounts of reserves (gold and foreign currencies).

In 1966 and 1967, for instance, Britain—whose currency was tied to gold-backed U.S. dollars through the 1944 Bretton Woods agreement—lost nearly 28 million ounces of its gold reserves when confidence in the value of the pound plummeted. On a single day (November 17, 1967), it lost reserves valued at more than $1 billion.

The common wisdom is that the frequency and destabilizing effects of such speculative attacks caused the Bretton Woods system, and thus the last vestige of a gold standard, to be abandoned in 1973. While this is correct on a superficial level, the underlying cause was that the ultimate anchor of the Bretton Woods system was not gold, but U.S. dollars. Although these dollars were supposedly backed by U.S. gold reserves, nothing in the system constrained the Federal Reserve from issuing fiat money (money that is not backed by specie) as long as Congress was willing to remove successively weaker statutory requirements tying dollar issues of central-bank money to gold. Eventually, the modified gold standard of Bretton Woods could be sustained only if the United States actively pursued monetary policies consistent with price stability, or if other governments were willing to accept the inflation rates generated by the Federal Reserve. In the end, neither condition was realized.

The Bretton Woods System

Under the Bretton Woods system, the International Monetary Fund (IMF) charter stipulated that the price of the U.S. dollar was fixed in terms of gold (initially at $35 per ounce) and that all other currencies were pegged to the U.S. dollar. Unless a country developed a "fundamental disequilibrium" in its balance of payments (usually interpreted as a "large and persistent" deficit or surplus) and obtained IMF approval to change the pegged value of its currency, the nation would have to maintain the exchange rate through purchases or sales of U.S. dollars, the reserve currency. The creation of the World Bank and its affiliates to make longer-term loans is also considered part of the Bretton Woods system. Shorter-term loans were available from the IMF.

The destabilizing effects of speculation and the persistent U.S. balance-of-payments deficit were seen as the immediate causes of the system's demise in 1973. Because the U.S. dollar was the key reserve currency, the United States was reluctant to devalue despite persistent deficits. At the same time, surplus countries chose to add to their dollar holdings rather than to revalue.

As U.S. deficits persisted, the stock of U.S. dollars held abroad ballooned relative to the need for a reserve currency. Some countries viewed the United States as abusing its privilege to issue reserve currency and as forcing other countries to finance persistent U.S. deficits. Eventual increases in the dollar price of gold and the refusal of Germany and Japan to revalue their currencies were the final blows. However, the fundamental flaw in the system was that international liquidity considerations encouraged foreign central banks to hold U.S. dollars, but also hindered other nations from revaluing their currencies to eliminate their balance-of-payments surpluses. Ultimately, confidence in the dollar as a reserve currency had to suffer.

The worldwide inflation experiences of the 1970s and 1980s that followed the disintegration of the Bretton Woods system have left nations groping for alternatives that might return credibility to their pursuit of a stable purchasing power of money. The dominant role of West Germany in the European Monetary System (EMS), created in 1979, clearly reflects the fact that the mark was widely considered to be (and in fact is) the most stable of the participating countries' currencies.

Alternative Monetary Arrangements

Although the discipline imposed by the EMS system of fixed exchange rates was far from immediate or complete—several realignments of these rates have occurred since its inception—the dynamics of the process have led to an ever-increasing integration of monetary policy across the countries of the European Economic Community. If nations within the Community permit pure "free trade" in the use of their currencies, a single European central bank and currency could someday emerge. If one nation does specialize in currency provision for the Community, it will gain seigniorage (revenue from printing money) and the other nations will achieve monetary stability.

The European Monetary System and European Monetary Union

Throughout its post-World War II drive for economic integration, the European Community has consistently regarded monetary union as necessary in order to realize the full benefits associated with free movement of goods, capital, and labor within its borders. In December 1978, the European Community entered into a series of agreements—collectively referred to as the European Monetary System (EMS)—to stabilize European exchange rates and minimize the significance of the U.S. dollar in European monetary decisions. The EMS defined central parity rates for participating countries, articulated rules for defending a currency, established institutions to finance intervention, and encouraged monetary policy cooperation.

The centerpiece of the program was the Exchange Rate Mechanism (ERM), which effectively established a series of exchange rates and required each member country to defend these rates within a 2.25 percent band (6 percent in some special cases).

Implicitly, however, the arrangement required each country to adopt a monetary policy similar to that of Germany, the member country with the most credible low-inflation policies.

Between 1978 and 1991, the ERM was remarkably successful. European inflation rates converged toward the low German rate, and surprisingly few official parity adjustments took place. In 1992 and 1993, however, a series of economic shocks, including a recession in England and the effects of German reunification, forced countries either to suspend their participation or to adopt largely irrelevant (15 percent) parity bands.

Encouraged by the relatively early success of the EMS, the European Community agreed to a monetary union at Maastricht, the Netherlands, in December 1991. The European Monetary Union (EMU) advocated the adoption of a single pan-European currency issued by a single European central bank by the end of the decade. With an independent central bank directed toward maintaining price stability, the EMU ideally could lower the costs of economic transactions in Europe.

Currency boards represent a similar institutional constraint that can be adopted by countries that lack an established or credible reputation for maintaining the purchasing power of their money. The essence of a currency board arrangement is that domestic money is issued against a foreign reserve currency at a fixed exchange rate. Under a currency board, a country's money stock behaves much as it would under a gold standard, except that instead of contracting and expanding with gold reserves, the money stock responds to the government's holdings of a foreign reserve currency.

Arrangements such as currency unions and currency boards are, ultimately, still fiat monetary systems, and as such rely on the monetary performance of the governments involved. Currency boards, for instance, are probably best described as small boats that tie themselves to a large ship. As in the Bretton Woods experience, there is not much to keep the smaller boats from drifting if the large ships themselves are not firmly anchored.

Competing Currencies: Private Competition

In the era of pure fiat monies, the primary approach to keeping governments "honest" has been to remove the power to inflate from those with the most incentive to do so. This is achieved by building in a high level of independence between the central bank—which has the *power* to inflate—and the Treasury—which has the *incentive* to inflate. Charging the central bank with independent responsibility for monetary policy is meant to serve as a way for a government to commit to lower rates of inflation than would be realized without the existence of a separate monetary authority. This institutional structure is not a panacea, but has proven especially useful: Studies have shown that, on average, countries with more independent central banks have lower rates of inflation.[3]

Despite central-bank independence, the high-inflation era of the 1970s showed us what central banks can do when left to their own devices, freed from fixed exchange rates and dollar convertibility into specie. An increasing number of countries are now moving toward more explicit central-bank accountability for protecting the purchasing power of money—witness the previously mentioned price-stability mandates enacted in New Zealand and other nations, as well as the Mack proposal in the United States.

None of these developments, however, goes as far as the more radical mechanism for price stability proposed by Hayek, who suggested that governments be removed altogether from the provision of money.[4] Although private issuers of fiat money also have an incentive to finance expenditures by creating monetary liabilities—by collecting the seigniorage on their money creation—Hayek contended that as long as private monies were allowed to circulate freely, competition would keep the value of these currencies constant over time. If any issuer attempted to collect too much seigniorage by inflating away the value of its money, consumers would substitute into a competing money. Thus, currency issuers would have an incentive to remain honest and not devalue their product through excessive money creation.

Seigniorage: The Revenue from Printing Money

A government can finance its spending in three ways: 1) through taxes, 2) by borrowing from the public, or 3) by printing money. The revenue raised through the printing of money is called *seigniorage*—from the French word *seigneur*, a feudal lord. In the Middle Ages, the lord owned the exclusive right to coin money on his manor. Today, this right belongs to a country's central government.

The authority to print money allows the government to raise revenue because the cost of producing the money itself is far less than the government's command over the purchase of goods and services.

Hayek's proposal, written 20 years ago, has historical precedent. So-called "free banking"—well-known examples being the eighteenth and nineteenth century experiences of the United States, Canada, and Scotland—tested the idea that money need not be provided by the central government.[5] Under free banking arrangements, private banks competed against each other to provide the public with currency (albeit under varying degrees of government regulation).

Critics of traditional private money systems have often cited Gresham's law to argue that money must be provided by governments and not by private banks. This famous dictum states that bad money will always drive good money out of circulation—in effect, it argues that only monies with the *worst* inflation rate would circulate. This led many to believe that a government monopoly on printing money is necessary.

However, as Hayek pointed out, "Gresham's law will apply *only* to different kinds of money between which a fixed exchange rate is enforced *by law*. With variable exchange rates, the inferior quality money would be valued at a lower rate and, particularly if it threatened to fall further in value, people would try to get rid of it as quickly as possible. The selection process would go on towards whatever they regarded as the best sort of money among those issued by the various agencies [or countries], and it would rapidly drive out money found inconvenient or worthless."[6]

With variable exchange rates, the exchange value of issuer liabilities will fall (depreciate) if an issuer attempts to print an excessive amount of money, because cautious consumers will substitute into a competitor's product with a more stable purchasing power. The offending monies, ceasing to circulate as media of exchange, will be replaced by money that has more stable value. Competing money issuers, who gain seigniorage from the use of their liabilities, will have an incentive to protect the purchasing power of their money.

Despite the possibility that private companies and banks could compete in the provision of money, it is not clear that such private arrangements are sustainable as a practical matter, given the seigniorage opportunities inherent in government-controlled money or in any currency provided by a monopoly. In other words, governments have powerful incentives to tax private money out of existence in order to become the sole provider of legal tender. Indeed, according to Hayek, "it might... prove to be nearly as impossible for a democratic government *not to interfere* with money as to regulate it sensibly" [emphasis added].[7]

Competing Currencies: Competition among Governments

Left unanswered in Hayek's proposal is what might make governments less inclined to intervene now than in the past. Furthermore, convertibility of private note issues into specie was taken as a given in all historical free-banking regimes. What incentives do governments have to forgo the seigniorage opportunities inherent in their provision of fiat money and return to the world of privately issued monies that are ultimately redeemable in specie?

We argue that with the advent of flexible exchange rates, Hayek's vision of competition among currencies that can effectively regulate the quantity of notes may become a reality. Privately issued monies may not be allowed to compete, but competition among different *national* currencies may serve the same purpose. Even without allowing private companies and banks to issue their own money, such competition can also work to keep government monetary authorities honest.

International currencies are increasingly competing to become the currency of choice. The rapid "dollarization" in Eastern Europe, the former Soviet Union, and Latin America shows how a foreign currency can become a legitimate substitute for a domestic currency that has failed to maintain its value. Even in currency-board countries like Argentina, individuals' ability to hold dollar accounts encourages the government to maintain the integrity of its monetary system.

Thus, the same seigniorage motives that have historically provided perverse incentives for governments to inflate make it desirable for them to circulate their domestic money as an international medium of exchange. However, the fact that such "market share" is contestable—alternative currencies being readily available to supplant any currency that is losing value too rapidly—acts as a natural restraint on central-bank misbehavior.

The Free Banking Era

Until the Civil War, the use of paper money in the United States largely developed outside the direct control of the federal government. As banks were chartered by states and established around the country, they began to issue their own circulating liability notes and deposits to their customers. These liabilities were implicitly backed by gold and silver held at the issuing bank and could be redeemed for such by the bearer or depositor. Also, the First and Second Banks of the United States issued circulating notes that were also receivable for federal taxes at par, as long as they were redeemable at par in gold or silver.

State-chartered banks were constrained by market forces in their ability to issue notes and deposits. The likelihood that the demand liabilities would be redeemed at the bank for specie—gold and silver coin—constrained a bank's ability to issue notes. Under normal circumstances and market pressures, then, each bank had to be careful to reserve an appropriate amount of specie in relation to its issue of bank notes—a tricky endeavor.

Between the charters of the First and Second Banks of the United States (1812–1816) and after the expiration of the Second Bank's charter (1836), the natural constraint on bank-note issue was tested. Banks wishing to take advantage of the rules of the circulating bank-note regime placed themselves at long distances from financial and commercial centers and issued much larger volumes of notes than their reserve of specie otherwise would have warranted. However, when bank notes and deposit liabilities circulated to places far from their point of issue, potential recipients often demanded discounts commensurate with the difficulty of sending the notes back for redemption or of collecting a check. Market forces, in effect, "priced" the value of each bank's note.

The U.S. banking system showed great promise in its ability to formulate private market solutions for the problems associated with a maturing financial system and economy. By the 1850s, the banking system was far from perfect, but it displayed enough stability and efficiency so that there was no real political impetus to change the system until the Civil War.

Some Barriers to International Competition in Money

Once the United States and the rest of the world broke away from the anchor provided by the gold standard, inflation rates almost universally trended upward and, in some cases, spun rapidly out of control. Recently, the Federal Reserve has made great progress in reining in inflation from the clearly unacceptable experience of the 1970s and early 1980s. Unfortunately, our current commitment may seem fragile to many market participants because there appears to be no clear institutional safeguard to prevent a return to the past.

Though a price stability mandate would help to shift the focus of monetary policy away from short-term fine-tuning to long-term price stability, such legislation cannot be viewed as a panacea in the absence of clear incentive structures that remove the government's temptation to violate the mandate. However, in light of the increasing integration of world markets, we propose that the same competitive forces that have served market economies so well may ultimately constrain the excessive money creation that has been problematic for fiat money regimes in the past.

Why might competition among sovereign nations in the provision of money prove to be sustainable where private competition did not? The answer lies in the very same seigniorage possibilities that induce governments to undermine private competition in the first place. Unlike the case for the domestic economy, individual countries have no power to legislate their own monetary monopoly in the global economy. Short of a war declaration, the U.S. dollar will circulate as a medium of exchange in foreign countries only if it is considered superior in value to other national currencies. In other words, the United States, or any country, will enjoy the benefits of seigniorage outside its borders only if it wins the competitive battle in the monetary marketplace. Furthermore, this battle will be won only by maintaining a relatively stable purchasing power for the nation's money.

Why would a sovereign nation willingly give up its seigniorage to a "competing" country? The answer comes from considering the mutual advantage of trade, wherein nations benefit from comparative advantage. A nation should be willing to import a competing currency when it needs a stable payments medium to undergird a developing market economy. If a nation's monetary credibility is weak, importing a standard of value may enhance wealth within the country, and thus tax receipts, by more than the revenue gained from seigniorage.

This competitive mechanism for protecting the value of money can be enhanced by changing existing protectionist laws to foster more effective competition among currencies. We should heed Hayek's argument that countries around the world should abolish "any kind of exchange control or regulation of the movement of money between countries . . ." and provide "the full freedom to use any of the currencies for contracts and accounting." Further, there should be ". . . the opportunity for any bank located in these countries to open branches in any other on the same terms as established banks."[8]

Specific U.S. laws could be changed. For example, federal law currently states that "United States coins and currency (including Federal Reserve notes...) are legal tender for all debts, public charges, taxes, and dues. Foreign gold and silver coins are not legal tender for debts."[9] This law might be altered so that contracts written in terms of foreign or alternative domestic monetary units, including specie, could compete with those based on dollars.

Legislation requiring that the courts enforce "specific performance" would also increase the opportunity for currency competition. Currently, in most countries of the world, when there is a dispute involving a contract that is stated in terms of a currency or unit other than the national currency (such as gold), courts do not require performance in the stated unit, but only require an "equivalent payment" in the national currency, weakening the power of competition among national currencies.

A Market Approach to Currency Provision

Clearly, important goals are within reach. Inflation is low, and price stability is beginning to be recognized as the predominant long-term monetary policy objective of the Federal Reserve. Flexible exchange rates, coupled with more-open capital markets, are enabling international currencies to compete with one another. Central banks cannot be complacent, however, because new challenges will surely arise. Just as fiat money replaced specie-backed paper currencies, electronically initiated debits and credits are likely to become the dominant payment modes in the future. The concept that money is like any other good and that competition among issuers can best guarantee its value should not be forgotten.

With the fall of communism, the lesson that market economies can best provide a country's goods and services is being affirmed around the world. That same wisdom may also be applied to the provision of currency. A nation's economy does not fare as well without competition in the marketplace. Similarly, the value of a nation's currency may not be optimal without competition. It is probably only with such competition that we may finally live up to Lincoln's challenge of fulfilling "the duty [government] owes the people, of furnishing them a sound and uniform currency." Fostering such competition may prove the surest way to guarantee that central banks meet their responsibility to generate maximum sustainable growth through price stability.

E-Cash

Plunging computer chip prices and advances in the esoteric science of cryptography may now permit affordable and secure forms of electronic currency, or "e-cash," to become not just a curiosity, but a significant market reality. E-cash offers the prospect of added convenience and security in everyday, small-dollar-value transactions. Perhaps more important, e-cash could enable the cybermarkets now emerging on the Internet to flourish.

Many different types of e-cash have been proposed. For everyday transactions, smart cards (credit cards with embedded computer chips) could be loaded with value by transferring funds using compatible ATM machines, telephones, or even "electronic wallets." Once loaded, the cards could be used to make a variety of purchases—provided the merchant has compatible equipment.

In cyberspace, e-cash could reside either on a smart card placed in a special reader or, as some proposals envision, on the user's hard disk in the form of a string of specially encrypted digits. In either case, buyers could transmit their e-cash to merchants on the Internet in exchange for various products. With products that can be shipped electronically, such as information, consumers would benefit from rapid delivery and merchants would receive good funds.

A number of policy questions arise from the use of e-cash. First, advances in computer science or cryptography could compromise even seemingly impregnable systems. Security is a moving target, so care must be taken to ensure that security practices are kept up to date. Second, what laws should be in place to protect consumers? Currently, Federal Reserve Regulation E gives consumers specific rights, but just how this statute should be implemented in this market has not been determined. Finally, how much privacy should consumers be permitted? Currency offers consumers near-complete anonymity. Should its electronic replacement offer the same? All of these issues require careful consideration.

Endnotes

1. Abraham Lincoln, "Many Free Countries Have Lost Their Liberty," A Speech on the Subtreasury, Springfield, Illinois, December 26, 1839.

2. Friedrich A. von Hayek, *Denationalisation of Money: An Analysis of the Theory and Practice of Concurrent Currencies*, London: Institute of Economic Affairs, 1976, p. 27.

3. See Alberto Alesina and Lawrence H. Summers, "Central Bank Independence and Macroeconomic Performance: Some Comparative Evidence," *Journal of Money, Credit, and Banking*, vol. 25, no. 2 (May 1993), pp. 151–62.

4. See especially Hayek, *Denationalisation of Money*, op. cit.

5. Free banking experiments are common throughout world history. Countries with banking systems exhibiting various degrees of private, competitive currency issue include Bolivia (1835–51), Rhodesia (now Zimbabwe, 1892–1939), Thailand (1888–1902), and many others. See Kurt Schuler and Lawrence H. White, "Free Banking: History," in Peter Newman, Murray Milgate, and John Eatwell, eds., *The New Palgrave Dictionary of Money and Finance*, London: Macmillan Press, 1992, pp. 198–99.

6. Hayek, *Denationalisation of Money*, op. cit., p. 35.

7. Ibid., p. 74.

8. Ibid., p. 17.

9. 31 U.S.C. §5103 (1983).

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Comparative Financial Statement

Statement of Condition

	For years ended December 31 1995	1994
ASSETS		
Gold certificate account	$ 621,000,000	$ 660,000,000
Special drawing rights certificate account	584,000,000	556,000,000
Coin	23,652,072	16,694,902
Loans and securities:		
Loans to depository institutions	—0—	—0—
Federal agency obligations bought outright	151,844,053	229,245,239
U.S. government securities:		
Bills	10,556,220,428	11,181,316,977
Notes	8,705,577,919	9,086,293,278
Bonds	2,540,458,668	2,710,415,171
Total U.S. government securities	$ 21,802,257,015	$ 22,978,025,426
Total loans and securities	$ 21,954,101,068	$ 23,207,270,665
Cash items in process of collection	265,371,685	268,936,471
Bank premises	66,429,296	45,580,606
Other assets	1,999,292,948	1,977,994,674
Interdistrict settlement account	220,361,503	–1,332,449,195
TOTAL ASSETS	$ 25,734,208,572	$ 25,400,028,123
LIABILITIES		
Federal Reserve notes	$ 23,524,410,275	$ 22,542,394,720
Deposits:		
Depository institutions	1,161,144,879	1,813,652,367
Other Federal Reserve Banks	10,000	—0—
Foreign	9,858,331	9,266,587
Other deposits	39,750,755	40,656,808
Total deposits	$ 1,210,763,965	$ 1,863,575,762
Deferred availability cash items	231,941,721	222,309,262
Other liabilities	249,559,011	256,692,279
TOTAL LIABILITIES	$ 25,216,674,972	$ 24,884,972,023
CAPITAL ACCOUNTS		
Capital paid in	$ 258,766,800	$ 257,528,050
Surplus	258,766,800	257,528,050
TOTAL CAPITAL ACCOUNTS	$ 517,533,600	$ 515,056,100
TOTAL LIABILITIES AND CAPITAL ACCOUNTS	$ 25,734,208,572	$ 25,400,028,123

Income and Expenses

	For years ended December 31 1995	1994
CURRENT INCOME		
Interest on loans	$ 231,626	$ 137,807
Interest on government securities	1,400,033,105	1,227,039,616
Earnings on foreign currency	54,586,655	58,356,750
Income from services	47,415,071	45,499,574
All other income	438,272	401,259
Total current income	$ 1,502,704,729	$ 1,331,435,006
CURRENT EXPENSES		
Current operating expenses	$ 89,140,676	$ 83,758,408
Cost of earnings credits	13,122,316	12,381,212
CURRENT NET INCOME	$ 1,400,441,737	$ 1,235,295,386
PROFIT AND LOSS		
Additions to current net income		
Profit on foreign exchange transactions	$ 70,243,911	$ 159,216,132
Profit on sales of government securities	267,913	—0—
All other additions	13,175	33,927
Total additions	$ 70,524,999	$ 159,250,059
Deductions from current net income		
Loss on sales of government securities	$ —0—	$ 1,510,117
Post-employment benefits—FAS 112	2,890,248	—0—
Compensated absences—FAS 43	1,192,327	—0—
All other deductions	8,270	5,063
Total deductions	$ 4,090,845	$ 1,515,180
Net additions or deductions	$ 66,434,154	$ 157,734,879
Cost of unreimbursable Treasury services	2,183,009	1,964,554
Assessments by Board of Governors		
Expenditures	11,216,100	9,693,400
Federal Reserve currency costs	21,874,736	21,583,556
Total assessments by Board of Governors	$ 33,090,836	$ 31,276,956
NET INCOME AVAILABLE FOR DISTRIBUTION	$ 1,431,602,046	$ 1,359,788,755
DISTRIBUTION OF NET INCOME		
Dividends paid	$ 15,514,258	$ 14,283,474
Payments to U.S. Treasury (interest on Federal Reserve notes)	1,414,849,038	1,311,506,031
Transferred to surplus	1,238,750	33,999,250
Total distributed	$ 1,431,602,046	$ 1,359,788,755

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