

Money

Its Origins, Development, Debasement, and Prospects

By
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CONTENTS

Foreword	i
Introduction	1
I. The Origins of Money	3
A. Barter and the Politics of Money	3
B. Saleability and the Choice of Money	7
II. In Search of Profit: The Development of Money	11
A. From Skins and Shells to Coins	11
B. Exotic Alternatives	17
C. Banks, Central Banks, and Governments	21
D. The Cashless Society and the Meaning of Money	26
III. Monetary Standards	31
A. The Classical Gold Standard	32
B. Bimetallism	37
C. Gold Exchange Standards	42
D. Currency Boards	44
E. Bretton Woods: Lack of Commitment and the End of the Gold Standard	49
F. Floating Rates	51
IV. Governments and the Value of Money	57
A. Mostly a History of Debasements	57
B. The Responsibilities of the Prince: Nicholas Oresme's De Moneta	66
C. The Responsibilities Rejected: Indexation, Congress, and the Supreme Court	69
V. Alternative Systems: Competitive Money and Banking ...	75
A. Free Banking in Scotland, 1716-1845	76
B. The Suffolk Bank System of New England, 1824-5872 ...	79
C. The New York Clearing House, 1853-1913	83
D. The American Free Banking Era, 1837-63	86
E. How Would a Free System Operate?	90
VI. Conclusion: Not a New Era	101
References	103

FOREWORD

PRODUCERS, consumers, savers, and investors have vital interests in the preservation of the purchasing power of money. But the great inflation of the last two-thirds of the twentieth century that has eroded nine-tenths of the purchasing power of the dollar demonstrates forcefully that those interests are not being cared for. The Government agencies that have been given the responsibilities for the creation of money and the protection of its value have failed in their duties and abused their powers.

There is no good reason why the means of payment cannot be held to the same standards of reliability and efficiency as other products in a competitive economy. In the pages that follow, John H. Wood, Reynolds Professor of Economics at Wake Forest University and an AIER Faculty Associate, traces the history of money and shows how its production and value may be governed by the forces that regulate other goods—principal among them the pursuit of profit.

As Dr. Wood observes, money confers power over goods, and when its production is monopolized great profits are possible. Rulers throughout history have known this and have abused their power in attempts to monopolize money. Today as yesterday, the invariable result has been the erosion of its value.

Power is also conferred by knowledge, and it is our hope that readers of the following record may learn that the production and management of money may safely be left to the same market forces that confer such rich benefits in other areas of human endeavor.

INTRODUCTION

MONEY is a product that, like other products, is produced for a profit and demanded for the services it provides. The standard history of money—from barter to the use of skins and shells as media of exchange, to lumps of metal and then coins, to bank checks and currency, and finally electronic transfers and the cashless society—is a continuum of technological advance and increasing convenience. But it differs from descriptions of other products in its lack of notice of the profits to successful innovators. The first goal of the following examination of money is an understanding of the economic incentives underlying past monetary changes in order that we may better comprehend the current situation and perhaps even predict the forms that money and monetary transactions might take in the future. How will business be done in the cashless society and what will determine the quantity and value of money? And what will be the role of Government?

Money is tremendously important. It is one side of every transaction, it commands goods, and is a source of power. So we should not be surprised that Governments—whether monarchies, dictatorships, or democracies—have sought to control it. Money has been a Government monopoly for most of its history and has been as subject to abuse as other monopolies. The competitive forces that compel the maintenance of quality in most goods have been lacking in money. A unit of money—the dollar—performs one-twenty-fifth of the service in 1999 that it performed at the beginning of the century. It gives only four percent of the satisfaction—the purchasing power—that it provided in 1900. Unprotected goods with similarly diminishing services have disappeared.

Innovations enabling the users of money to evade Government control—such as bank currency and deposits—have provoked Government actions to recover their profits. Bank currencies were taxed out of existence and supplanted by Government currency that banks are required to hold as “reserves,” insuring the depreciation of bank money in line with Government money. And indexed contracts designed to protect wealth from the inflationary incursions of Government have been invalidated by law.

The first three sections of this study trace the origins of money, its development at the hands of profit-seekers, and the evolution of monetary standards. Regarding the last, the gold standard was far from the rigid structure that its critics like to claim. It was an elastic system, capable of adapting to a changing environment. Clearing houses, gold exchange standards, and currency boards were efficient and effective extensions of the

gold standard that utilized the rapidly developing national and international financial institutions of the 19th century. The gold standard did not fail. It was replaced for a purpose: inflation.

The fourth section is a history of Government regulation of money, which is largely a story of fiscal irresponsibility, debasements, and appropriations of wealth. The fifth section surveys the history and theory of more-or-less competitive, unregulated money. If money is like other goods—demanded for its services by users and supplied with the expectation of profit by producers—its supply and demand ought to be subject to the same market forces as other goods. There seems to be no reason why competition should not be as productive of quality and efficiency in money as elsewhere.

The concluding section examines the question whether we have reason to expect recent improvements in inflationary performance to continue. Unfortunately, the answer must be “No.” There is no sign of a lessening of the motives behind Government money monopolies and their abuses. Society needs and deserves institutions with the flexibility and incentives to supply the money needed for its business but also with the discipline to preserve the value of money by limiting its quantity. Efficient and flexible but limited money requires competitive private production subject to the rule of law, including the compulsion to deliver goods when promised. Only a commodity standard can satisfy these requirements, and no better commodity than gold has been found.

I.

THE ORIGINS OF MONEY

A. Barter and the Politics of Money

Some years since, Mademoiselle Zélie, a singer of the *Théâtre Lyrique* at Paris, made a professional tour round the world, and gave a concert in the Society Islands. In exchange for an air from *Norma* and a few other songs, she was to receive a third part of the receipts. When counted, her share was found to consist of three pigs, twenty-three turkeys, forty-four chickens, five thousand cocoa-nuts, besides considerable quantities of bananas, lemons and oranges. At the Halle in Paris ... this amount of livestock and vegetables might have brought four thousand francs, which would have been good remuneration for five songs. In the Society Islands, however, pieces of money were very scarce; and as Mademoiselle could not consume any considerable portion of the receipts herself, it became necessary in the meantime to feed the pigs and poultry with the fruit.

—W.S. Jevons, *Money and the Mechanism of Exchange*, p. 1.

TO appreciate money we must try to imagine life without it. Exchange in a society without money, without a medium of exchange, is carried on by bartering goods directly for each other. The usual story of a barter economy begins with a shoemaker in need of bread who sets out in search of a baker in need of shoes—hoping for a *coincidence of wants*. They finally meet and arrange a trade—not very satisfying, probably, because the baker would really rather have size eleven Nike’s than size ten Reebok’s, and pumpernickel isn’t the shoemaker’s favorite bread. But they are tired of looking and must soon set forth in quest of another exchange, for the shoemaker also wants some cheese and the thirsty baker must find a brewer in search of bread. And there is still the problem of settling the difference between the values of the shoes and the bread. If the shoemaker does not want thirty loaves today, he must be prepared to extend credit, and hopes that the baker, with whom he may be unfamiliar, will deliver the promised bread the rest of the month.

Of course people will not behave this way. It is too costly. There is not enough time to find all the right trading partners. They will be forced to fend for themselves. The first casualty of a barter economy is the division of labor. Each of us must produce most of the goods we want, whether we are good at it or not, even if we do not make shoes often enough to develop a reasonable facility, eat stale bread six days a week, have to develop a taste for every part of the chicken, and end up every autumn either with no tomatoes or an excess. Unable to exploit our comparative advantage, perhaps barbering or bookbinding, most of our time and effort

are spent on work at which we are inefficient, and we live in isolation and poverty.

Karl Marx declared that the division of labor and exchange made possible by money lead to the isolation and alienation of individuals in a society. That is the opposite of the truth. But his attitude is an illustration of the antagonism of totalitarian systems towards the integrity of money, which is an instrument of freedom. Money is as important to the studies of politics and sociology as to economics. Monetary policy—the determination of monetary institutions as well as the quantities and values of money—is conducted for political and social as well as economic purposes, and it is instructive to look at the attitudes toward money of the most famous critic and the most famous exponent of capitalism and personal freedom. Marx described the world of self-interest and the invisible hand of classical economics as one in which “everyone hinders the satisfaction of everyone else’s interest, that instead of a general affirmation, the result of this war of all against all is rather a general negation.”¹ He dismissed “private interest” as “socially determined” by and dependent on the existing system. The division of labor leads to “concentration, coordination, cooperation, the antagonism of private interests and class interests, competition, the centralization of capital, monopolies and joint stock companies.” As well as general immorality and virtual slavery. “The exchangeability of all products, activities and relationships against a third ... factor [money], which can again be exchanged against everything else without exception—in other words the development of exchange values (and money relationships)—is the same thing as general venality and corruption. Universal prostitution appears as a necessary phase of the development of the social character of personal talents, abilities, capacities and activities. This could be more delicately expressed as the general condition of serviceability and usefulness. It is the equation of unequals....”

Adam Smith presents a sharp contrast to Marx’s choleric view of humanity and the world. Money, trade, and the division of labor are sources not of alienation but of social interactions that are the stuff of life of a gregarious species. In the second chapter of *The Wealth of Nations* he observed that the “division of labor, from which so many advantages are derived, ... is the necessary, though very slow and gradual, consequence of a certain propensity in human nature which has in view no such extensive utility; the propensity to truck, barter, and exchange one thing for another.”² His philosophy of human behavior as set forth in *The Theory of*

¹ The quotations are from David McLellan, ed., *Marx’s Grundrisse (Outlines)*, in which Marx synthesized his philosophy, history, and economics, pp. 76-83.

² Bk. I, ch. 2, p. 13.

Moral Sentiments was a combination of self-interest and sympathy.³ Our self-interest requires trade, and success in trade requires empathy; we have to be able to imagine ourselves in the positions of others—to see ourselves as others see us. “We endeavor to examine our own conduct as we imagine any other fair and impartial spectator would examine it.” We are “anxious to know how far we deserve” the “censure or applause” of others, and we “examine our own passions and conduct, and . . . consider how these must appear to them by considering how they would appear to us if in their situation.” Smith’s philosophy and economics are one. His treatments of the division of labor and exchange in a money economy in *The Wealth of Nations* are direct applications of his central philosophical principle of sympathy as a driving force in human interactions. Our own interests require that we understand the interests of others.

Money expands choice in consumption and work by enabling trade and therefore the division of labor. So it is no surprise that authoritarians who share Marx’s dissatisfaction with people and distrust of their motives resent the power that money conveys, while Adam Smith and other respecters of freedom and the human spirit stress the contributions of money and the importance of maintaining its integrity.

A barter economy of wandering after-work traders probably never existed. Coincidences of want are too scarce. Organized barter, on the other hand, has been common—as we know from the experiences of Arab and European traders in Africa, America, and the South Seas. Other forms of “market” barter have been general stores and market towns. The box below gives some idea of the operation of a general store in an area—central Illinois in 1832—short (but not devoid) of money. The author, recently arrived from England, complained of the monopoly position of the frontier storekeeper, but in a sizeable market town she would have been able to try competing merchants. And our baker and shoemaker would have been able to display their wares for the interest of passing buyers/sellers while they relaxed in the barber’s chair.

Trading in our market town might be expedited by a clearinghouse. Although buyers and sellers would be close together, in their usual places, within sight and shouting distance, the necessity of finding a double coincidence of wants for each trade would still be troublesome. And there is always the problem that the shoemaker’s desire for bread is unlikely to be exactly equal in value to the baker’s desire for shoes. If the market value of

³ *The Theory of Moral Sentiments* was Adam Smith’s first book, published in 1759 while he was Professor of Moral Philosophy at the University of Glasgow. The following quotations are from Part III, ch. 1, pp. 110-12. The connections between Smith’s philosophy and economics are discussed by Milton Myers, *The Soul of Modern Economic Man*, ch. 1, 8.

Illinois ... is very thinly populated, and on that account it is not the situation for shopkeepers. There are, however, in various places, what are termed store keepers, who supply the settlers with articles the most needed, such as food, clothing, implements of husbandry, medicine, and spiritous liquors: for which they receive in exchange the produce of their farms, consisting of wheat, Indian corn, sugar, beef, bacon, etc. ... Besides their store, they often have a saw-mill and a corn-mill, at which they grind the corn they obtain from the farmers, for the purpose of sending it to New Orleans or some other place where it can be readily sold. Stores therefore are in Illinois, nearly what markets are in England, only there is more barter in the former country....

My husband took a specimen of wheat Mr. Varley offered half a dollar per bushel in money, or a few cents more in barter. We borrowed a waggon and a yoke of oxen of one of our neighbors, and carried to the store fifty bushels. The first thing we did was to settle our meal account; we next bought two pairs of shoes. [W]e had intended to have a little more clothing, but finding the prices so extravagant, we felt compelled to abandon that intention. For a yard of common printed calico, they asked half a dollar, or a bushel of wheat.... Our next purchase was a plough.... We also bought two tin milk bowls; these and the plough cost about twenty bushels. We obtained further a few pounds of coffee, and a little meal; ... and thus we laid out the greater part of our first crop of wheat. We had only reserved about twenty pounds for seed.... On balancing our account with Mr. Varley, we found we had to take about five dollars, which we received in paper money, specie being exceedingly scarce in Illinois.

—Rebecca Burlend, *A True Picture of Emigration*, pp.27, 43.

a loaf of bread is a fifth of a bushel of wheat (the unit of account, or *numéraire*, in Illinois; it might be tobacco in Virginia or nails in Baltimore) and a pair of shoes is worth six bushels, the shoe/bread exchange leaves the baker in debt to the shoemaker to the tune of 5.8 bushels. However, if this debt is assigned to a clearinghouse, the shoemaker is credited with claims to goods worth 5.8 bushels. For example, he can get a haircut by transferring a bushel's part of his clearinghouse balance to the barber, who might transfer one-fifth of this amount to the baker for a loaf of bread. This is a big help, but it is unlikely that all traders will wish to spend exactly what they receive, and those in surplus at the end of the market-day might wish to buy goods not available at the market, or before the market reopens. In fact, one of the functions of general stores and central markets has been to *economize* on money, to reduce the number of exchanges of money, rather than do away with it altogether—as we saw in Illinois in 1832. Modern bank and securities clearing houses perform the same function; traders exchange money only at the end of the day and only for the net values of their transactions.

B. Saleability and the Choice of Money

How can it be that the institutions which serve the common welfare and are extremely significant for its development come into being without a common will directed toward establishing them?

—Carl Menger, *Problems of Economics and Sociology*, p.146.

Until very recently, commodities valuable in their own right have served as money. Why have some commodities, but not others, been selected by traders as media of exchange? What accounts for the present form of money? Why did money consist principally of gold and silver coins for hundreds of years, and why is it almost exclusively paper and electronic signals today? We begin with Carl Menger's argument that the choice of money is found in the relative liquidity, or *saleability*, of commodities.

The loss experienced by any one who is compelled to dispose of an article at a definite moment, as compared with the current purchasing prices, is a highly variable quantity, as a glance at trade and at markets will show. If corn or cotton is to be disposed of at an organised market, the seller will be in a position to do so in practically any quantity, at any time he pleases, at the current price, or at most with a loss of only a few pence on the total sum. If it be a question of disposing, in larger quantities, of cloth or silk-stuffs at will, the seller will regularly have to content himself with a considerable percentage diminution in the price. Far worse is the case of one who at a certain point of time has to get rid of astronomical instruments, anatomical preparations, Sanskrit writings, and such hardly marketable articles!

If we call any goods or wares *more or less saleable*, according to the greater or less facility with which they can be disposed of at a market at any convenient time at current purchasing prices, or with less or more diminution of the same, we can see by what has been said, that an obvious difference exists in this connection between commodities.

—Carl Menger, "On the Origin of Money."

Given the small probability of a coincidence of wants, a seller prefers payment in the good or goods that he can most easily use for future purchases—those which are most saleable. But what is most saleable is not up to him. It is determined by traders in general. Adam Smith observed that "there is at this day a village in Scotland where it is not uncommon ... for a workman to carry nails instead of money to the baker's shop or the alehouse."⁴ Merchants supplied the nailers with materials and gave them credit for food and other goods, which they settled in nails.

There will be a tendency for traders to gravitate toward the same good as money, with habit and historical accident playing their roles. As the

⁴ *Wealth of Nations*, Bk. I, ch. 4, p. 23.

most saleable commodities become money, their saleability is accentuated because people acquire confidence in their use. Acceptance by part of the community encourages acceptance by other parts, and once something has become generally, routinely, habitually acceptable, its replacement by something else that on the face of it ought to be as effective may be resisted. People might resist copper if they are accustomed to iron; travelers' checks are sometimes rejected in grocery stores because of their unfamiliarity; the U.S. dollar is a more useful means of payment than the Japanese yen in many parts of the world for no better reason than custom.

Thus the effect produced by such goods as are relatively most saleable becoming money is an increasing differentiation between their degree of saleableness and that of all other goods. And this difference in saleableness ceases to be altogether gradual, and must be regarded in a certain aspect as something absolute. The practice of everyday life, as well as jurisprudence, which closely adheres for the most part to the notions prevalent in everyday life, distinguishes two categories in the wherewithal of traffic—goods which have become money and goods which have not.

—Carl Menger, “On the Origin of Money.”

The precious metals became the medium of exchange in advanced, metal-working societies because they were desired for their beauty, they were relatively scarce but well-distributed geographically, and were durable, portable, and easily stored.

Money was not “discovered” in the sense that early man is said to have happened onto fire, nor was it “invented” by a financial Thomas Edison, nor, despite the pervasive roles of Governments in the production and regulation of money today, was it created by the state. It was the culmination of an evolutionary process towards the general use and storage of the most saleable commodities as media of exchange by traders “apprehending their individual self-interest” in this, as in other economic pursuits. Just as they prefer low prices in the goods they buy, traders gravitate toward the least costly methods of trading—such as organized markets and means of payment that are compact, durable, and homogeneous. The general store might accept almost anything as payment because it trades in almost everything, but the corner barbershop advertises “shave and a haircut for eight nails, an ounce of silver, or a quart of rye; livestock and produce not accepted.” As the community grows and space in the central area becomes expensive, even Mr. Varley begins to refuse cattle and pigs, and refers their owners to the stockyards on the edge of town.

As each economizing individual becomes increasingly more aware of his economic interest, he is led by this interest, without any agreement, without legislative compulsion and even without regard to the public

interest, to give his commodities in exchange for other, more saleable, commodities, even if he does not need them for any immediate consumption purpose. With economic progress, therefore, we can everywhere observe the phenomenon of a certain number of goods, especially those that are most easily saleable at a given time and place, becoming, under the powerful influence of *custom*, acceptable to everyone in trade, and thus capable of being given in exchange for any other commodity.

—Carl Menger, *Principles of Economics*, p.260.

So self-interest, realized in a world of free exchange, was Menger's answer to his question posed at the beginning of this section. This is appropriate because the division of labor and money developed together. It is difficult to conceive of one without the other. "The division of labor ... is not originally the effect of any human wisdom which foresees and intends that general opulence to which it gives occasion." Rather, as we saw above, it is the natural consequence of man's "propensity to truck, barter, and exchange one thing for another."⁵

The relative saleability of goods and therefore the commodities that best serve as money change with technology and the organization of society. The greatest influences on money have been the growth of cities and metal-working. "In the earliest periods of economic development," Menger writes, "cattle seem to have been the most saleable commodity.... Domestic animals constituted the chief item of wealth" of nomads and farmers.

Their marketability extended literally to all economizing individuals, and the lack of artificial roads combined with the fact that cattle transported themselves (almost without cost in the primitive stages of civilization!) to make them saleable over a wider geographical area than most other commodities. A number of circumstances, moreover, favored broad quantitative and temporal limits to their marketability. A cow is a commodity of considerable durability. Its cost of maintenance is insignificant where pastures are available in abundance and where the animals are kept under the open sky. And in a culture in which everyone attempts to possess as large herds as possible, cattle are usually not brought to market in excessive quantities at any one time. In the period of which I am speaking, there was no similar juncture of circumstances establishing as broad a range of marketability for any other commodity. If we add to these circumstances the fact that trade in domestic animals was at least as well developed as trade in any other commodity, cattle appear to have been the most saleable of all available commodities and hence the natural money of the peoples of the ancient world.

—Carl Menger, *Principles of Economics*, p. 263.

⁵ *Wealth of Nations*, Bk. I, ch. 2, p. 13.

Homer tells of gold armor valued at one-hundred oxen and silver armor worth nine oxen, and that Laertes purchased the servant Eurycleia for the price of twenty oxen.⁶ Money shares its name in several languages with some kind of cattle or other domesticated animal. *Pecunia*, the Latin word for money, is derived from *pecus*, or cattle. The origin of *fee*, the payment of a sum of money, is the Anglo-Saxon *feoh*, meaning both money and cattle.⁷ The earliest Greek and Roman coins had pictures of oxen. This was a vestige of the transition of money from cattle to coin. Athenian fines were imposed in livestock until Solon changed them to coin at the rate of one drachma for a sheep and five drachmas for a cow.⁸

The shift from livestock to easily carried manufactures depended on space as much as industrial advances, although the two went together. The growth of cities simultaneously diminished the marketability of cattle and increased that of other commodities, especially the metals worked by urban artisans. The latter were usually unable to accept cattle, and transactions between town and country had to employ media of exchange acceptable to both. What had been the best form of money ceased to be money at all. Later steps in the development of modern money are described in the next section.

⁶ Ch. vi of *The Iliad* and ch. i, *The Odyssey*.

⁷ Jevons, *Money*, p. 22.

⁸ Menger, *Principles*, pp. 263-64.

II. IN SEARCH OF PROFIT: THE DEVELOPMENT OF MONEY

[E]very individual ... endeavors as much as he can ... so to direct [his] industry that its produce may be of the greatest value.... He generally, indeed, neither intends to promote the public interest, nor knows how much he is promoting it.... [H]e intends only his own gain, and he is in this, as in many other cases, led by an invisible hand to promote an end which was no part of his intention. Nor is it always worse for society that it was no part of it. By pursuing his own interest, he frequently promotes that of the society more effectually than when he really intends to promote it.

—Adam Smith, *Wealth of Nations*, Bk. IV, ch. 2, p. 423.

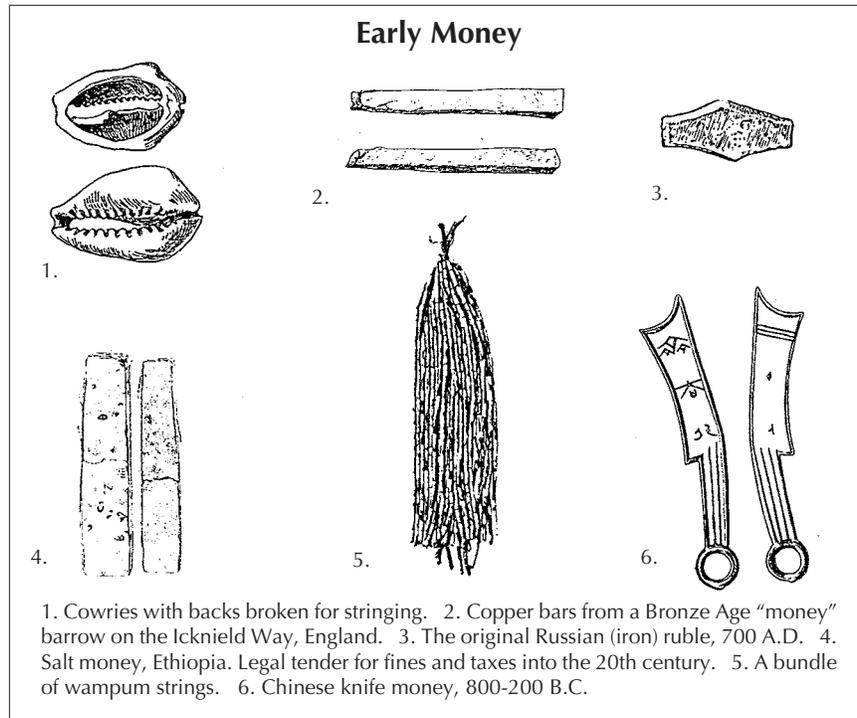
A. From Skins and Shells to Coins

SMITH tells us that “It is not from the benevolence of the butcher, the brewer, or the baker that we expect our dinner, but from their regard to their own self-interest.”⁹ Menger reminds us that this principle applies as much to money as to meat, beer, and bread. Many different goods have served as money, usually, since the development of towns and trade between distant places, articles that are easily stored and carried. We have seen that a people’s choice of money has depended on their economy. Hunting societies as long ago as the Stone Age probably used skins and furs as media of exchange, and there is abundant evidence of the use of leather strips throughout history—including Homer’s Greece, Carthage and early Rome, Russia of Peter the Great, colonial Virginia, and into the 20th century in northern Canada and Alaska. But of all the forms of money, the cowrie shell has been used “over a far greater space and for a far greater length of time than any other.”¹⁰ It is from a mollusk found in the shallower regions of the Indian and Pacific Oceans, but has been found among the remains of early European cave dwellers, like the gold and silver in the tombs of the Egyptian kings of a later, metal-working era. Cowries are found in various shapes, colors, and sizes ranging from the end joint of the little finger to a fist. They were (and are) used for ornament, and “are durable, easily cleaned and counted, and defy imitation...” The following account illustrates the adaptation of money to culture and technology.

For many people over large parts of the world, at one time or other [cowries] have appeared as an ideal form of money. Modern moneys found the cowrie a formidable rival, especially for items of small value.

⁹ *Wealth of Nations*, Bk. I, ch. 2, p. 14.

¹⁰ Glyn Davies, *A History of Money*, p. 35.



An interesting example of their modern use was described to the writer by one of his Nigerian students, who as a small boy regularly collected the smaller cowries which tended to be lost during the hustle and bustle of the open Ibo fair days. If he managed to collect between six and eight of these, he could purchase something useful to eat or play with. This personal illustration is also a powerful reminder of the speed of change in financial matters in developing countries, for the student ... later became the first professor of banking and finance at the University of Lagos and an executive director of the Central Bank of Nigeria and chairman of one of the country's largest commercial banks, in which capacities he has represented his country abroad at OPEC and similar conferences—from cowries to petro-currencies in the course of a single career.

—Glyn Davies, *A History of Money*, p. 35.

An early North American currency also consisted of seashells, from which beads called wampum were ground. "A skilled Indian craftsman, with a split stick for a vise, a sharp stone for a drill, and another stone for a grindstone, could grind, bore, and polish thirty-five or forty beads of these in a day...."¹¹ When the colonists applied their iron tools to the manufac-

¹¹ Richard Lester, *Monetary Experiments*, p. 14.

ture of wampum, its supply increased and its value fell.

With the onset of the Bronze Age in the fourth millennium B.C., lumps of metal began to be used as media of exchange. Gold and silver were found to be particularly useful for this purpose because small amounts easily carried on one's person empowered their holders with significant and immediate purchasing power, although the convenience of the precious metals has always to some degree been offset by the inconveniences of determining their weight and fineness. A 19th-century traveler to Burma, where uncoined silver still circulated, described a trip to the market:

When a person goes to market in Burma he must take along a piece of silver, a hammer, a chisel, a balance, and the necessary weights. "How much are these pots?" "Show me your money," answers the merchant, and after inspecting it determines a price at this or that weight. The buyer then asks the merchant for a small anvil and belabors his piece of silver with his hammer until he thinks he has found the correct weight. He thereupon weighs it on his own balance, since that of the merchant is not to be trusted, and adds to or takes away from the silver on the scales until the weight is right. Of course a good deal of the silver is lost as chips drop to the floor, and the buyer therefore usually prefers not to buy the exact quantity he desires but one equivalent to the piece of silver he has just broken off. In larger purchases, which are made only with silver of the highest degree of fineness, the process is still more complicated, since first an assayer must be called who determines the exact degree of fineness....

—Carl Menger, *Principles of Economics*, p.281.

From the 8th century B.C. the main overland trade route between the Aegean and the East—Herodotus called it "the royal road"—passed through the cities of Sardis and Smyrna in the Kingdom of Lydia directly across the sea from Athens. Lydian merchants provisioned outgoing caravans, bought the contents of those arriving, and financed the construction of wagons, which "did as much to make the fortunes of ancient Lydia as railways" did for 19th-century transportation centers.¹² Some of these merchants began to apply their personal marks to lumps of the precious metals as guarantees of fineness and their willingness to redeem them. The next step was to flatten the lumps into homogeneous coins with common stamps, at first the marks of the private money-makers and then, after gold and silver production and their coinage had been made royal monopolies, symbols of the state. We are reminded of the profitability of the Lydian coinage by the exclamation for great wealth: "as rich as Croesus," king from 560 to 546. The legendary King Midas was from the nearby city of Phrygia. The box presents the case that political power is one of the commodities whose

¹² P.N. Ure, *The Origin of Tyranny*, p. 136.

exchange is facilitated by money, and that developments in money may reduce the cost of power as much as other things.

The first Greek coins may have been minted at the beginning of the 7th century on the island of Aegina, near Athens. Their silver was worth a

Money is Power

The seventh and sixth centuries B.C. constitute from many points of view one of the most momentous periods in the whole of the world's history. No doubt the greatest final achievements of the Greek race belong to the two centuries that followed. But practically all that is meant by the Greek spirit and the Greek genius had its birth in the earlier period. Literature and art, philosophy and science are at this present day largely following the lines that were then laid down for them, and this is equally the case with commerce. It was at the beginning of this epoch that the Greeks or their half hellenized neighbours the Lydians brought about perhaps the most epoch-making revolution in the whole history of commerce by the invention of a metal coinage like those that are still in circulation throughout the civilized world.

It was no accident that the invention was made precisely at this time. Industry and commerce were simultaneously making enormous strides. About the beginning of the seventh century the new Lydian dynasty of the Mermnadae made Sardis one of the most important trading centres that have arisen in the world's history. The Lydian merchants became middlemen between Greece and the Far East....

Politically these two centuries are generally known as the age of tyrants.... The evidence appears to me to point to the conclusion that the seventh and sixth century Greek tyrants were the first men in their various cities to realize the political possibilities of the new conditions created by the introduction of the new coinage, and that to a large extent they owed their position as tyrants to a financial or commercial supremacy which they had already established before they attained to supreme political power in their several states.

[T]heir position as I understand it has considerable resemblances to that built up in the fourteenth and fifteenth centuries A.D. by the rich bankers and merchants who made themselves despots in so many of the city states of Italy. The most famous of these are the Medici, the family who gave a new power to the currency by their development of the banking business...

Still closer analogies lie at our very door.... [T]he modern industrial movement ... has been accompanied by a revolution in the nature of the currency, [which] enables property to be transferred and manipulated far more rapidly and on far larger a scale than was previously possible....

Some parts of Greece never passed under a tyrant. The most conspicuous of these is Sparta.... It may be more than an accidental coincidence that the most anti-tyrannical state in Greece was without a real coinage, and backward in trade and industry.

—P.N. Ure, *The Origin of Tyranny*, pp. 1-4, 23.

handful (*drachma*) of iron or copper nails, which they superceded as money. The drachma became the standard name for money in Greece. Bundles of nails have been found in the temple of Aegina, possibly as “a way of preserving official standards of weight and length for the uncoined metal in circulation.”¹³ Sparta resisted the coins of its rivals, and prohibited the circulation of any money but iron.

Coinage was dominated by the city states that controlled silver mines. One of Solon’s reforms in 594 was the introduction of the Athenian “owl,” a silver coin with Athena’s head on the front and an owl on the reverse side. Because of the plentiful supply of Greek silver and the consistent fineness of the owl, it was the most popular coin of the Mediterranean world for nearly six hundred years, surviving the political and economic decline of Athens, and even its loss of independence. The profits from a reputable coin overcame any inclination that the Roman conqueror might have felt to impose his own stamp. “It was only the final exhaustion of the mines of Laurium that brought this famous coinage to an end in 25 B.C.”¹⁴

The owl’s only debasement came in 412, during the last stages of the Peloponnesian War, when a fleet was financed by silver-plated copper coins. “The shame of these miserable counterfeits was deeply felt by the Athenians, who for so long had been justly proud of the purity of their ‘owls’.”¹⁵ The poet compared the debased coins with worthless men.

It has often struck our notice that the course our city runs
Is the same towards men and money. She has true and worthy sons:
She has good and ancient silver, she has good and recent gold.
These are coins untouched with alloys; everywhere their fame is told;
Not all Hellas holds their equal, not all Barbary far and near,
Gold or silver, each well minted, tested each and ringing clear.
Yet we never use them! Others pass from hand to hand,
Sorry brass just struck last week and branded with a wretched brand.
So with men we know for upright, blameless lives and noble names,
Trained in music and palaestra, freeman’s choirs and freeman’s games,
These we spurn for men of brass, for red-haired things of unknown
breed,
Rascal cubs of mongrel fathers—they we use at every need!
—Aristophanes, *The Frogs*, pp. 720-31.

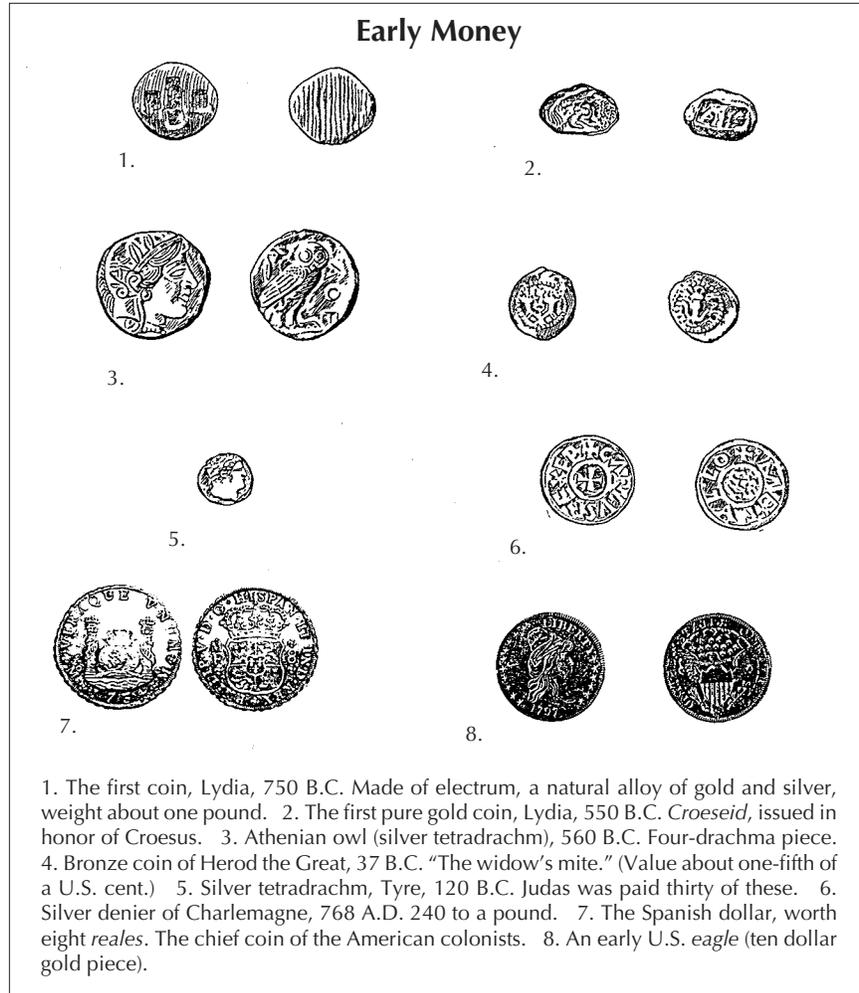
Nearly 2000 years later, in the midst of Henry VIII’s debasement, the mint “blanched” copper coins with silver to pass them for more than their

¹³ A.R. Burns, *Money and Monetary Policy in Ancient Times*, p. 27.

¹⁴ H. Michell, *The Economics of Ancient Greece*, p. 320.

¹⁵ Michell, p. 320.

Early Money



1. The first coin, Lydia, 750 B.C. Made of electrum, a natural alloy of gold and silver, weight about one pound. 2. The first pure gold coin, Lydia, 550 B.C. *Croeseid*, issued in honor of Croesus. 3. Athenian owl (silver tetrachm), 560 B.C. Four-drachma piece. 4. Bronze coin of Herod the Great, 37 B.C. "The widow's mite." (Value about one-fifth of a U.S. cent.) 5. Silver tetrachm, Tyre, 120 B.C. Judas was paid thirty of these. 6. Silver denier of Charlemagne, 768 A.D. 240 to a pound. 7. The Spanish dollar, worth eight *reales*. The chief coin of the American colonists. 8. An early U.S. *eagle* (ten dollar gold piece).

worth. A little wear made the copper show through, as a rhyme of the period relates:

These testons look red, how like you the same?
'Tis a token of grace: they blush for shame.¹⁶

Metallic money was originally divided into pieces corresponding to standard commercial weights. The Roman *as* was at first a pound of cop-

¹⁶ John Heywood's *Epigrams*; quoted by A.E. Feavearyear, *The Pound Sterling*, p. 59. *Teston* is from *testa* (*It., Fr.*), "head," and was applied to several coins with the image of a head, including Henry VIII's.

Seignorage

Seignorage is the profit accruing to the makers of money. Under commodity/coin standards people exchanged the commodity (usually gold or silver) at mints for equivalent values of coin less the costs of coinage and mint profits. These profits were called seignorage because they usually went to the rulers, or *seigneurs*, who had monopolized the coinage in their domains.

When applied to paper money, seignorage refers to the difference between the cost of printing the money and either the goods purchased with the money or the interest saved by issuing money instead of interest-bearing debt.

per, as the *livre* of Charlemagne and the English pound sterling were to consist of a pound of silver. The money power of Congress was prescribed as part of a general responsibility for weights and measures, and presumed that money consisted of coined weights. Article I, Section 8, of the Constitution states that

The Congress shall have Power ... To coin Money, regulate the Value thereof, and of foreign Coin, and fix the Standard of Weights and measures.

Rome was as tempted as later Governments to make lighter and less refined coins in times of financial stress, and it issued silver-plated base-metal coins as Hannibal approached the city in 217 B.C. These coins fluctuated in value as the Government promised, and went back on its promises, to redeem them at face value, and sporadically attempted to enforce their acceptance at par with full-bodied silver.¹⁷

Values of coins could be uncertain not only because of Government debasements but also because of unfamiliarity with foreign coins and the wearing and clipping to which all coins were subject. One of the services of early bankers, or *argentarii* (dealers in silver), was to test and weigh coins and seal them in bags stating their values and the names of their guarantors. A reputable issuer of such collections might earn as much seignorage as the original mints. (Seignorage is defined in the box.)

B. Exotic Alternatives

In exceptional circumstances, goods without the properties usually associated with money have served as media of exchange. An example is cigarettes in prisoner-of-war camps.¹⁸ Government restrictions on private coins and currencies have combined with their failures to supply sufficient

¹⁷ Tenney Frank, *An Economic Survey of Ancient Rome*, pp. 81, 266-67.

¹⁸ R.A. Radford, "The Economic Organisation of a P.O.W. Camp."

amounts of legal money to inspire ingenious devices to fill the gap. Sometimes entrepreneurs saw profit opportunities in competitive private money even when Government money was available. The early French and English settlements in North America provide illustrations of these forces. One of the goals of mercantilism was the accumulation of the precious metals. European colonial powers restricted exports of gold and silver and sought to obtain as much as possible from the New World. The northern colonies were expected to earn Spanish coin by exporting furs, food, and tobacco, and to spend it on manufactures from home.

Most of the coins that were sent to Canada to pay the salaries of the soldiers stationed there returned to France, often by the same boat that brought them, to pay bills the Canadian merchants owed to France or to buy more French goods.¹⁹

For three months in 1685, when the French Government was late sending funds for the colonial Government's expenses, the governor in Quebec ordered the inhabitants to accept playing cards as money, promising to redeem them in coin as soon as possible. Colonial currencies were discouraged as infringements on the rights of the home Governments, and the colonists turned to the most convenient goods at hand for media of exchange: agricultural products, especially tobacco, among the farming communities along the eastern seaboard, and animal skins in the hunting economies to the west.

At various times wheat and moose skins were legal tender for the payment of debts in Canada. Payments were also made in beaver skins, wildcat skins, and in liquor. Among traders in some outlying districts, accounts were even kept in terms of wildcat skins, a blanket being priced at eight *cats*. As late as 1749 ... the account of the storekeeper at Niagara showed a "deficit by 127,842 *cats*." Shortly after Nova Scotia was ceded by France to England in 1713, the garrison of soldiers stationed there, who normally were paid in liquor, petitioned the authorities in England: "That they be payd in money, or Bills, & not in Rum or other liquors, that cause them to be Drunk every days, and Blaspheme the name of God..."
—Lester, *op.cit.*, p. 37.

Further south, in North Carolina, Kentucky, and Tennessee, deer and raccoon skins were accepted in payment of taxes and used to pay the salaries of public officials.

Shortages of money occurred even in Europe, but traders were able to turn to other financial instruments, such as bills of exchange, by which a

¹⁹ Lester, *Monetary Experiments*, pp. 37-38.

borrower, say, Abel, promised to pay a certain sum of money to the bearer on a specified date. Bills circulated much like money in parts of 18th-century England. The initial holder of Abel's bill, Baker, might sign it over to Charlie in exchange for goods, Charlie might do the same for David, and so on, until the holder on its maturity date, Zachary, submits it to Abel for payment. However, the bill was unlike standard money in that it circulated only for a limited period, and Baker, Charlie, et. al. incurred liabilities with their purchases because the note's signers were liable for Abel's debt if he and other previous signers failed to redeem it. So the bill, like the playing cards of Quebec, did not represent final payment.

Monetary expedients continued into the 20th century, and not always because of a shortage of standard money. Their small denominations, as low as \$50, contributed to the popularity of World War I Liberty bonds. In fact they were too popular to suit the Treasury because they passed from hand-to-hand in place of currency. As indicated in the box, the Treasury waged a campaign to discourage the substitution of interest-bearing for interest-free debt, although it did not explain why the public was more likely to be defrauded if purchases were made with Liberty bonds than with currency. The "problem" became more acute after the war when the Treasury offered to redeem the bonds at par on demand. The increases in security and liquidity raised their appeal as media of exchange.

Governments have always been anxious to limit competition with their

Acceptance of Liberty Bonds in Payment for Merchandise or Securities

Actuated no doubt by patriotic motives, but failing to recognize the consequences of their course, numbers of merchants throughout the country have from time to time accepted Liberty bonds in payment for merchandise. In a public statement issued December 28, 1917, it was pointed out that the use of bonds in that way discourages savings on the part of the people and increases the demand upon the common store of goods and materials. The practice also tends to increase the volume of bonds placed upon the market for sale and in this way injures the credit of the United States. A more serious situation involving the exchange of Liberty bonds for other securities also required attention. In many cases the securities offered were of doubtful value, and in order to protect the holders of Government bonds from fraud a public warning against all such exchanges was issued on January 20, 1918. The newspapers, investment bankers, and Liberty loan committees have joined in this effort to prevent the sale of fraudulent stocks and bonds and the exchange of securities, even if of sound value, for Liberty bonds.

—*Annual Report of the Secretary of the Treasury for the Fiscal Year Ended June 30, 1918, p.73.*

own money. In 18th-century America, the British Government encouraged colonial issues “for the King’s use” as emergency finance for military actions against the French and Indians. But it tried, often in vain, to prevent other issues. In 1766 Benjamin Franklin included an act that prohibited colonial paper money among “the five factors which tended to lessen respect in the colonies for the authority of Parliament.”²⁰

Complaints of money shortages persisted even after the advent of a national Government charged by the Constitution with responsibility for the currency. But taxes on private bank notes combined with the Government’s failure to mint sufficient coins or to print currency in convenient denominations compelled communities in remote areas to produce their own money. In 1862 Congress outlawed the issue of notes “for a sum less than one dollar intended to circulate as money.”²¹

Ironically, the very stringency of these restrictions on private money created a powerful incentive to disobey them. The chronic shortage of circulating cash offered a tremendous profit opportunity to anyone who could convince others to take his own manufactured currency in return for goods and services. In the 19th century, such issue of unauthorized currency by private firms, towns, and ... even states was a common practice. These unauthorized notes, often called “scrip” or “shinplasters,” took the form of tokens, railroad tickets, “tax redemption certificates,” and so forth.

—William Roberds, “Lenders of the Next-to-Last Resort:
Scrip Issue in Georgia during the Great Depression.”

England also prohibited small-denomination currency on the grounds that it drove good coin from circulation and represented potentially destabilizing claims on the reserves of their issuers. The consequences were the same as in America—production of substitutes to meet the demand for media of exchange.²² As well as a resort to barter. An observer wrote of the beer in which British coal-miner’s wages were partly paid in the 19th century: “The currency was very popular and highly liquid, but it was issued to excess and difficult to store.”²³

Scrip was common in the remote lumber camps of the American Northwest and the mining camps of Appalachia well into the 20th century. “In West Virginia alone, almost 900 coal mining companies employing about 120,000 miners issued scrip” over periods as long as 50 years.²⁴

²⁰ Lester, *Monetary Experiments*, p. 25.

²¹ Richard Timberlake, “Private Production of Scrip-Money in the Isolated Community.”

²² L.S. Pressnell, *Country Banking in the Industrial Revolution*, ch. 3.

²³ C.R. Fay, *Life and Labour in the Nineteenth Century*, p. 197.

²⁴ Timberlake, “Scrip-Money.”

Scrip was more convenient than the tedious bookkeeping transactions at the company store and provided a medium by which members of the community could carry on business with each other as well as with the company. If the community held some of this money for such transactions instead of spending it immediately at the company store, the company earned seignorage. Scrip expanded during the Great Depression of the 1930s when bank failures made people suspicious of checks and increased their demand for currency, which the federal Government failed to meet. Many municipalities made up for revenue shortfalls by paying wages and welfare in scrip.

C. Banks, Central Banks, and Governments

Bank Notes and Deposits

As early as the 9th century B.C., Assyria had a sophisticated financial system that included transfer orders, much like the modern check, which stipulated on small clay tablets the payment of specific amounts of silver or copper. But our modern check-based monetary system may be traced to renaissance Italy, where goldsmiths were prominent among the early bankers. They had safes in which to store their own materials as well as the gold and silver coin of neighbors lacking secure places of their own. The receipts issued by the goldsmiths for these deposits sometimes circulated as money (like the bank notes, or currency, of the 19th century), and owners of deposits sometimes wrote orders (checks) directing their goldsmiths to pay specified amounts to third parties. Goldsmith bankers discovered that the bulk of their coin was seldom withdrawn, and used the opportunity to lend it (or claims on it) at interest. The resulting excess of claims on goldsmiths' coins over the amounts in their possession is the origin of fractional reserve banking. Implicit in this practice is the ability of a banker to add to the circulating medium. You want a loan of 1,000 florins, so you visit a Florentine banker, who hands you ten receipts for 100 florins each, with which you buy a rug for your villa, a cart of Chianti, and a nicely bound volume of *The Inferno*. The rug, wine, and book merchants are content to hold these receipts for their next purchases—unless they observe or hear gossip to the effect that the banker's notes have lately become plentiful and he is heavily in debt to a Sicilian gambler, in which case they join the line of anxious depositors outside his shop.

In medieval Europe as in ancient Greece, the distinction between merchants and makers of money was blurred. A large part of trade was on credit, and merchants with surplus funds might earn as much by extending credit as by buying and selling goods. Many modern European banks began as trading firms that eventually concentrated on the banking side of their business. The same was true in a later period of manufacturing firms.

The famous 19th-century English banking firms of Lloyd's, Gurney's, and Barings were in the 18th-century makers of iron or textiles. Some firms were drawn into banking by the necessity of issuing their own currency to overcome the shortages of coin and small-denomination notes in their trading areas.²⁵

Money Centers and Bankers' Banks

Money centers are intermediaries between regions as banks are intermediaries between individuals. Large banks in regional trading centers such as Genoa, Florence, Lyon, Amsterdam, London, and eventually New York evolved into intermediaries between banks by accepting funds for investment from banks in surplus areas and lending to those in deficit areas—thereby, for example, directing New England's saving to Colorado's investment. For many years Antwerp was the principal money center of Europe, where Thomas Gresham negotiated loans for his queen and bought and sold foreign exchange.²⁶ In a later era, England's financial scene centered on the Bank of England, which in 1694 was granted a charter entitling it to special privileges in exchange for a low-interest loan to the Government. Partly because of these privileges, including the monopolies of limited liability and currency (bank notes) in the vicinity of London, and partly because of its conservative behavior, the Bank gained an unequalled reputation for soundness. Other banks kept their reserves in the form of Bank of England notes, with which nervous holders of their own notes and deposits might be soothed. The Bank of England—a private institution, although subject to Government regulation—had become England's *central bank*. In the classic analysis of central banks, Walter Bagehot wrote in 1873 that

All London banks keep their principal reserve on deposit at the ... Bank of England. This is by far the easiest and safest place for them to use.... The same reasons which make it desirable for a private person to keep a banker make it also desirable for every banker, as respects his reserve, to bank with another banker if he safely can.

—*Lombard Street*, ch. 2.

This implied a responsibility on the part of the central bank, Bagehot argued, to supply money in times of stress, in other words, to act as lender of last resort. A Bristol banker told a parliamentary committee in 1832 that “my customers give their money to me and look to me for it; I do the same to the Bank [of England].”²⁷

²⁵ Pressnell, *Country Banking*, pp. 14-36.

²⁶ For a description of the Antwerp money market in the 16th century see Raymond de Roover, *Gresham on Foreign Exchange*.

²⁷ Vincent Stuckey, Question 1145, *House of Commons Committee on the Bank of England Charter, Minutes of Evidence*, 1832.

There was no corresponding unique central bank in the United States, but its functions were provided by the New York City banks as a group. They held a substantial part of the country's reserve and served as its primary money center. Chicago, San Francisco, and other "reserve" cities performed similar roles in their regions. An interconnected system of banks actively trading each others' reserves managed a payments system conducted largely in checks and bank notes on the basis of, as in England, a small quantity of the precious metals.

Deposit banking economizes the precious metals. If 100 gold eagles weighing one ounce each are required for a community's transactions, people prefer the convenience of paper certificates representing claims on gold, and local banks like the combination of profit and safety that is provided by a twenty-percent gold reserve behind their gold certificates, the community requires only 20 ounces of gold to support its transactions. Moving to the next level of financial sophistication, if local banks keep their reserves with money-center banks that also keep twenty-percent gold reserves, a nation of ten such communities requires only 40 ounces of gold for its transactions—instead of 1,000 ounces without banks or 200 ounces without a money center.

Governments Seize the Currency

To enable the Government to obtain the necessary means for prosecuting the war to a successful issue, without unnecessary cost, is a problem which must engage the most careful attention of the legislature....

The circulation of the banks of the United States, on the 1st day of January, 1861, was computed to be \$202,000,767.... The whole of this circulation constitutes a loan without interest from the people to the banks, costing them nothing except the expense of issue and redemption and the interest on the specie [coin and bars] kept on hand for the latter purpose; and it deserves consideration whether sound policy does not require that the advantages of this loan be transferred, in part, at least, from the banks, representing only the interests of the stockholders, to the Government, representing the aggregate interests of the whole people.

—Secretary Salmon P. Chase, *Annual Treasury Report, 1861*.

It was only a matter of time, as paper overtook coin, until Governments (sometimes through the erection of private monopolies) extended their seignorage to currency. The Bank of England was initially awarded special privileges in the issue of bank notes in the vicinity of London, its notes were made legal tender in 1833, and in the 1840s Parliament decreed that no new bank could issue notes, and that except for the Bank of England existing banks could not increase their issues. The Bank was required to

reimburse the Government for the profits of its monopoly of legal tender—roughly proportional to the spread between loan rates and the cost of printing money. Eighty years later the Bank’s monopoly of the currency was complete, and in 1946 it was nationalized.²⁸

American currency developed along similar lines. In the National Bank Act of 1863, as part of his program of war finance, Treasury Secretary Chase persuaded Congress to impose a ten percent per annum tax on the notes of state-chartered banks to eliminate their competition with the new federal greenbacks (see the above quotation), and a new system of federally chartered “national” banks was empowered to issue notes backed by U.S. securities. These were severe blows to state banks, but they recovered when checks overtook notes as the principal means of payment. National banks failed to use their note-issuing privilege extensively, also finding checks more profitable even without the tax, and it was withdrawn in 1935, finally giving the federal Government a legal monopoly of the currency. (The Constitution prohibited the states from issuing money.) The seignorage from a \$20 bill costing 4¢ greatly exceeds that on a \$20 gold coin, even if it contains a liberal amount of base metal.

Fiat Money Supplants Commodity Money

Gold succeeded silver as the world’s dominant money in the 18th and 19th centuries, and by 1900 all the world’s major currencies were backed by gold.²⁹ But the financial demands of World War I led the European combatants to issue more debt than could be supported by their gold reserves, and they suspended convertibility and reverted to fiat (unbacked) paper money. Attempts to restore the pre-war system were abandoned in the 1930s, although it should be noted that the social and political movements toward increased Government intervention in economic life, including the management of money, were prominent before 1914. The Federal Reserve Act of 1913 was a symptom of these movements, and the decision to make Federal Reserve currency a liability of the federal Government instead of the banking system was a concession to the populist/inflationary forces led by William Jennings Bryan. These movements might eventually have broken the link between money and gold even in the absence of war and depression.

In any case, the right of American citizens to redeem currency in gold was suspended in 1933, and in 1934 the international exchange value of the dollar was cut forty-one percent, from \$20.67 per ounce of gold to \$35. The purposes and some of the effects of this debasement are discussed in

²⁸ Feavearyear, *The Pound Sterling*, pp. 154, 254-55.

²⁹ China, which remained on silver until the 1930s, might be an exception.

Section IV.C. The short-lived attempt to restore an international gold standard after World War II is described in Section III.E.

Electronic Money

Payments have been made by wire since the 1840s, when the telegraph enabled depositors to order the immediate transfer of funds between bank accounts. America was linked to Europe by the Atlantic cable in 1867, and for more than a century wire was the main domestic and international highway for money. The capacity of the system was greatly expanded by electronic computers and communications satellites. Electronic payments are making their way into the market for consumer goods in point-of-sale transfers. A magnetic strip on a plastic card enables the buyer to direct her bank to transfer (pay) a portion of her deposit to the store's bank. Instead of handing over currency or writing a check, she issues an equivalent order quicker and cheaper—at no risk to the seller, who does not have to worry about currency thefts or bad checks.

Estimates of the volume and costs of electronic money relative to other forms of payment at the end of the 1980s are shown in Table 1. The first column of numbers shows that over 99 percent of payments were still made by the traditional forms of currency, coin, and checks. On the other hand, 83 percent of the *value* of payments was made electronically, mostly by transfers between bank accounts. The average cash payment was \$5 compared with \$3,300,000 for wire.

The last three columns of the table list the costs of the various means of payment. Direct unit costs reflect the production cost of each instrument and

Table 1
Estimated Volumes, Values, and Costs of Means of Payment

<i>Means of Payment</i>	<i>Volume (millions)</i>	<i>Value (billions)</i>	<i>Average value</i>	<i>Direct unit cost^b</i>	<i>Cost of float^c</i>	<i>Net unit cost^d</i>
<i>Nonelectronic</i>						
Cash	278,600	\$ 1,400	\$ 5	\$ 0.04	\$ 0.05	\$ 0.09
Checks	47,000	55,800	1,188	.79	- .83	- .04
<i>Electronic</i>						
ACH ^a	936	3,600	3,882	.29	- .00	.29
Wire transfers	84	281,000	3,300,000	7.33	- .02	7.31
Point-of-sale	55	0.08	15	.47	.00	.47
ATM bill payment	29	2	70	.66	.03	.69

^aAutomated clearing houses, used mainly for direct deposits and bill payments; ^bcost of producing the instrument and processing a payment; ^cfloat is the amount of time between the tender of a payment and the availability of funds to the payee; ^dDirect unit cost plus cost of float.
Source: David Humphrey and Allen Berger, "Market Failure and Resource Use: Economic Incentives to Use Different Payment Instruments," Tables 2-1 and 2-A1. Data are for 1987.

the processing costs associated with tendering and collecting each payment. These include accounting and mailing costs of payers, processing and accounting costs of payees, and processing and transportation costs of banks and the Federal Reserve. Float is the time between the presentation of the payment instrument (for example, a check) and the transfer of funds from the payer's checking account to the payee's account. On the other hand, we forego interest on the currency we hold. The benefits of float to individuals helps to explain the continued popularity of checks despite their high resource costs.

The potential savings of a switch from currency and checks to electronic money are large, but banks are encountering resistance to their attempts to reduce the use of tellers and ATM's. Electronic-cash payments at points-of-sale have not been popular despite the advantages cited above. Perhaps Harvey Rosenblum of the Federal Reserve Bank of Dallas captured the public mood when he said that "the current paper-based system doesn't have much to recommend it, other than it works great, is cheap, reliable, and we trust it."³⁰ Cheap for the user, that is, but not for the supplier. Political opposition to bank charges for services rendered is illustrated by the news item in the box opposite.

D. The Cashless Society and the Meaning of Money

We hear of the "cashless" society of the future in which currency and perhaps even checks will have disappeared, and all payments will be electronic transfers between bank accounts. Some writers have called this the "moneyless" society and suggest that it will be fundamentally different from the monetary system with which we are familiar:

Currency is a physical medium which can be characterized as money....
[A]n advanced society in which it is economic to carry out all transactions through the accounting system of exchange provided by banks ... finds no need for currency or other physical mediums of exchange, and its numeraire has long been a real good, say steel ingots. The society is so advanced that terms like money, medium of exchange, means of payment, and purchasing power have long ago fallen from its vocabulary ...
—Eugene Fama, "Banking in the Theory of Finance."

If money does not exist, how can we think of controlling it or preserving its value? Will we not still need a means of payment whose effectiveness requires a reliable purchasing power? Must everything that we have learned about money be forgotten?

Answers to these questions require a close look at the meaning of money. If we are to understand the money of the future, with all of its changes in

³⁰ Jeffrey Kutler, "Fed Officials Minimize Smart Card Potential."

San Francisco Considers Limits on ATM Charges

Amid threats of a legal challenge by business groups, the city board of supervisors will consider a proposal next week to forbid banks from double-charging ATM customers in San Francisco.

The proposal ...won a key endorsement from the board's Finance and Labor Committee [and] several consumer groups, as well as organized labor and advocates for senior citizens, have been stumping for more than a year to rope in extra bank fees, which they say put an unfair financial pinch on a banking public that has been wooed over the years into relying on automated teller machines.

The legislation takes aim at banks that charge noncustomers a surcharge (usually about \$1.50) when they use their money machines. In addition, some banks charge their own account holders when they use another bank's ATM. That fee ranges from \$1 to \$2.

"Consumers are extremely frustrated by ATM fees and surcharges at a very visceral level," said Tom Ammiano, the president of the board of supervisors and the chief sponsor of the plan. "The banking industry has taken these surcharge fees to an extreme.... Let's bring some common sense and consumer protection back to this equation."

Attempts to clamp down on ATM surcharges in Congress have failed, although new efforts are underway.... Iowa and Nebraska prohibit ATM double-dipping; Connecticut's double-dipping law is being challenged in court. Three other states, Arkansas, Mississippi and Wyoming, have enacted surcharge caps.

"[F]inancial institutions will either choose to fight this in court ... or they will take their machines out of service for everyone but their own customers, and the result will be less access," Gregory Wilhelm of the California Bankers Association told the San Francisco board's Finance and Labor Committee.

—*San Francisco Examiner*, Feb. 13, 1999.

appearance and methods of transfer, we must be sure of what we mean by money. For example, are currency and checks both money? The answer is: "No." Some of the things that are commonly referred to as money do not conform to a consistent definition. On the other hand, we will find that the electronic age and cashless society, although reducing the costs of exchange, do not alter the monetary system in any fundamental way, including the principles that determine the demand for money and its purchasing power. The quotation above confuses money and credit. Historically, money has consisted of commodities with intrinsic value, primarily gold. A shift in the method of transfer of the ownership of money from paper currency and checks to electronic signals has no effect on, and certainly does not dispense with, money.³¹

³¹ For a cogent discussion of these points see, Dale Osborne, "Ten Approaches to the Definition of Money" and "What Is Money Today?"

The real danger to money is not in the form of transfers, but in laws that prohibit the use of gold as money. The loss of money's integrity is a consequence not of electronic payments—of the cashless society—but of the removal of a valuable basis for those payments. Instead of claims on gold, which is a valuable commodity in limited supply, bank accounts have been reduced by law to claims on fiat currency that can be expanded without limit for political purposes by Government agencies.

A Definition of Money

Money is whatever is generally accepted as a means of payment or in settlement of debts.

Let's examine the parts of this standard definition from a popular textbook.³² Presumably, when Abel "pays" Baker for a loaf of bread, their transaction is finished. If the cost of the loaf is added to Abel's charge account with Baker, payment has not been made. Credit has been extended, to be settled later. The same is true if Abel uses his Visa or Master Card, by which he defers payment.

So much is clear: credit is not payment. Debt is not money. A charge does not finish the transaction, which is completed only when the debt is settled. What often is not appreciated in discussions of money, however, is that checks fall into the same category.³³ A check is also a debt instrument, a promise to pay. When a store accepts your check it extends you an interest-free loan—with an average benefit indicated under the "cost of float" in Table 1. The loan is settled only upon the transfer of funds from your bank account to the store's bank account. (It will not accept your check if it suspects that your account or your bank lacks sufficient funds.) Your bank is less willing than the store to extend interest-free loans. For example, if you deposit a check written on an account in the First National Bank of Centerville into your account in the Hometown Bank, the latter may credit your account only after your check clears, that is, after the funds have been received from Centerville. This used to mean the delivery of gold, later it was done by adjusting clearinghouse balances. Since 1914 it has usually meant a debit to First National's deposit account (reserves) with the Federal Reserve and a credit to Hometown's deposit with the Fed. In the meantime, the Hometown Bank carries the claim on the Bank of Centerville represented by your check under the asset category called "cash items in the process of collection."

³² Lawrence Ritter and William Silber, *Money*, p. 9.

³³ Immediately after their definition, Ritter and Silber state: "On that basis, the money supply in this country amounts to almost \$200 billion, roughly \$150 billion in demand deposits (checking accounts) at commercial banks and about \$50 billion in currency (bills and coins).

Interest

If you wish to overdraw your account, please ask us in advance. Interest will be charged and is calculated on a daily basis. When you pay in a cheque not drawn on your branch, it takes a little time for us to collect the proceeds. Indeed, we do not know if it will be paid. During the period when we are awaiting payment it may be possible for us to let you draw against such an 'uncleared' cheque, but if so, there may be interest to pay, even though your statement does not show that your account has been overdrawn.

—From a Midland Bank (England) current (checking) account statement.

Similar practices exist in England, where as shown in the box above the Midland Bank includes a reminder of the credit nature of checks on its monthly statements.

The lack of finality of checks has removed them from even the appearance of money in the securities markets, where speed and certainty of payment are highly valued. Securities dealers do not accept checks but require payment in “immediately available funds,” that is, the immediate wire transfer of funds between bank accounts as listed in Table 1.

In summary, under the gold standard, checking accounts and currency (Government as well as private) were claims on gold. Only gold was money. Other media of exchange were debt instruments that promised to deliver gold on specific dates or, as in the cases of currency and demand deposits, on demand. Even *legal tender* currency was redeemable in gold.

What is Money Today?

What is final payment today? In 1934 the United States Government prohibited the use of gold as money and in the process suspended its promises to redeem its debt in gold. Previous suspensions were temporary. For example, the holders of greenbacks following the suspension of 1862 could look forward to its convertibility into gold at some future time—an expectation that was realized in 1879. The suspension of 1934, on the other hand, is indefinite, perhaps permanent. We can hope for a return to gold, but for now and the foreseeable future, final payment consists of Federal Reserve currency and bank deposits (reserves) with the Fed, which are themselves claims on currency. We pay for goods or settle a debt when we deliver currency to the seller or creditor, or accomplish the transfer of funds from our bank account to theirs. Money consists exclusively of Federal Reserve liabilities, over which it has complete control.

The value of money under the gold standard was governed by its cost of

production. Today's money is produced electronically by Federal Reserve credits to the reserves of dealers' banks in payment for securities. The political nature of its quantity and value are unaffected by the change from paper to electronic transfers.

III. MONETARY STANDARDS

Our ancestors, when but three millions in number, had the courage to declare their political independence of every other nation; shall we, their descendants, when we have grown to seventy millions, declare that we are less independent than our forefathers? No, my friends, that will never be the verdict of our people. Therefore, we care not upon what lines the battle is fought. If they say bimetallism is good, but that we cannot have it until other nations help us, we reply that, instead of having a gold standard because England has, we will restore bimetallism, and then let England have bimetallism because the United States has it. If they dare to come out in the open field and defend the gold standard as a good thing, we will fight them to the uttermost. Having behind us the producing masses of this nation and the world, supported by the commercial interests, the laboring interests, and the toilers everywhere, we will answer their demand for a gold standard by saying to them: You shall not press down upon the brow of labor this crown of thorns, you shall not crucify mankind upon a cross of gold.

—William Jennings Bryan, speech concluding debate on the platform, Democratic party national convention, July 1896.

THE single currency of the European Currency Union has received a good deal of attention. But we can put this innovation into perspective by remembering that trading countries have composed a currency union for most of their history. A gold standard is a currency union: national currencies trade at fixed ratios, and the value of the world's common money is determined by production costs.³⁴ Gold producers are effectively the world's central bank, and national central banks have limited freedom of action. Furthermore, legislatures and ministers of finance are forced to submit to private standards of prudence and honesty; they may not issue debts, including paper money, beyond their capacities for redemption. It is interesting that J.M. Keynes and Milton Friedman, as well as their followers, Keynesians and monetarists, have opposed the gold standard because of its restrictions on the abilities of Governments to pursue independent monetary and fiscal policies.

We have traced the development of money from skins and shells to lumps of metal to coins to paper and finally electronic signals. In fact, several kinds of money have often existed side by side. During the last

³⁴ A stricter form was the Latin Monetary Union of France, Belgium, Italy, Switzerland, and Greece that lasted from 1865 to 1914. Each country kept the nomenclature of its francs, drachmas, etc., but minted coins of standard weight and fineness.

3,000 years most western societies have relied on gold and silver coins supplemented by base metals for small change. Although it was not unusual for a single metal to dominate the money of an area, the extent of gold's dominance and its official position as *the* monetary standard of the industrial west in the late 19th and early 20th centuries, with silver relegated to subsidiary coin, was unprecedented. Legislatures chose gold at the instigation of commercial interests largely because its value relative to goods in general was more stable than the exchange values of other metals, including silver, which had been its principal competitor.

But the structure of the gold standard varied as countries sought ways to achieve the benefits of sound money without the costs—particularly the foregone interest from foreign investments—of circulating gold coin. After a discussion of bimetallism and the reasons for the demonetization of silver in Section B, Section C considers the gold exchange standard in which countries economized on gold by holding their reserves in the form of interest-earning claims on gold, such as the sterling and dollar areas centered on London and New York, and Section D describes the versions of gold exchange standards called currency boards that tied domestic money to holdings of foreign exchange. Section E describes the internal contradictions and collapse of the global gold exchange system based on the dollar that was drawn up at Bretton Woods, New Hampshire, in 1944, and the disillusionment with the floating-rate system that succeeded it is discussed in Section F.

A. The Classical Gold Standard

The Golden Constant

The long-run stability of prices under the gold standard is illustrated in Chart 1.³⁵ Movements in the American price level between 1870 and 1997 fall into three distinct periods. The heyday of the international gold standard, 1870-1914, saw the price level nearly the same at the end as at the beginning. After falling thirty-five percent between 1870 and 1896 at an average rate of 1.6 percent per annum, prices rose during the next eighteen years at an average rate of 2 percent to within six percent of their 1870 level. The purchasing power of gold in 1914 approximated its average during the first half of the 19th century—as well as, if we look at British data, its averages during the 17th and 18th centuries. References to *The Golden Constant* are well deserved.³⁶

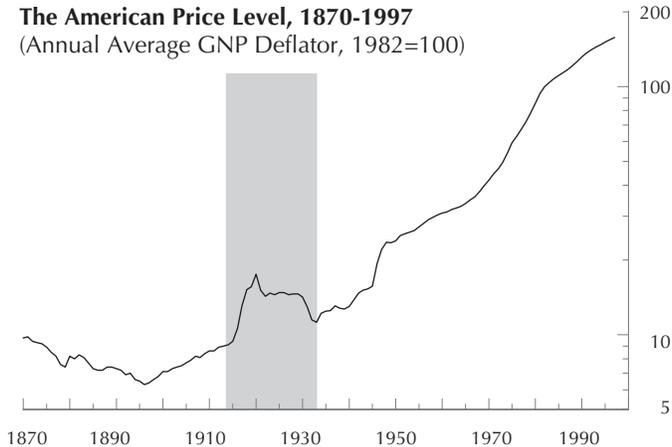
³⁵ The GNP deflator—index of prices of final goods and services produced in the United States—used here was calculated by Christina Romer (“The Prewar Business Cycle Reconsidered: New Estimates of Gross National Product, 1869-1908”) to be comparable with post-1929 estimates.

³⁶ The title of a book by Roy Jastram; especially see his Table 3 and Chart 1.

The period of greatest instability extended from World War I through the Great Depression of 1929-33. The Allies financed their World War I military expenditures by the issue of paper currencies not redeem-

Chart 1

The American Price Level, 1870-1997
(Annual Average GNP Deflator, 1982=100)



able in gold and spent their gold reserves on American goods. The influx of reserves permitted increases in money and prices in the United States without forcing suspension of the gold standard. The end of a complete and committed gold standard came with the New Deal, when the gold value of the dollar was made a matter of public policy.

The dominant feature of the third period has been almost continuous inflation. Prices rose between 1933 and 1997 in all but three years — 1938-39 and 1949. The price level in 1997 was more than fourteen times its level in 1933. Even if we disregard World War II, the postwar inflation that came with the end of wage and price controls, and the Korean War, and begin with 1953, prices have risen in forty-four consecutive years, at an average annual rate of 4.2 percent, by a total of 500 percent. This inflation is owed entirely to increases in Federal Reserve currency. Another inflow of gold during another world war enabled another inflation. But this time inflation persisted, and the American gold reserve, after rising from \$8 billion in 1934 to \$24 billion in 1949, had by the end of the 1950s fallen to \$20 billion. The gold outflow accelerated with foreigners' misgivings about the country's ability to maintain convertibility. In 1968 Congress repealed the minimum 25-percent gold backing against Federal Reserve currency, and in 1971, in the face of a run on the dollar with reserves under \$10 billion, President Nixon closed the gold window. The gold standard, which had not restrained Government monetary and fiscal policies since 1933, was finally and formally abandoned.

Why is the Value of Money Stable Under the Gold Standard?

The long-run price stability of the gold standard was not the coincidental result of accidental gold discoveries, but the natural and necessary

consequence of market forces inherent in the system. The value of gold relative to other commodities is determined by their relative costs of production. The nominal price of a monetary unit—a dollar or pound sterling—is arbitrary.³⁷ A Government or private financial institution credits a deposit account or hands over a piece of paper engraved with \$20 and a picture of Andrew Jackson (who hated paper money) for an ounce of gold—with the understanding that it will reverse the transaction at the convenience of its creditor. So the price of an ounce of gold is *defined* as \$20. If the British Government defined its currency as £4 per ounce of gold, with free markets in currencies and gold the dollar/pound exchange rate would be 5. (The gold values of the dollar, which was \$20.67 before 1934, and the pound have been simplified for our example. The actual exchange rate was 4.866 before Britain left the gold standard in 1931.)

Critics of the gold standard point to the fortuitous nature of the money stock and the potential instability of prices when money is based on gold. They express concern over whether there would be enough gold to preserve the viability of exchange and the stability of prices. These concerns are belied by the history of prices under the gold standard and the realization that this record of stability was a consequence of economic incentives directing resources to their most productive uses. If, for example, the price of wheat falls from \$1.60 a bushel in the 1870s to \$1 in the 1880s while an ounce of gold remains at \$20, we are not surprised that Sam McGee leaves his Tennessee farm for the Yukon.

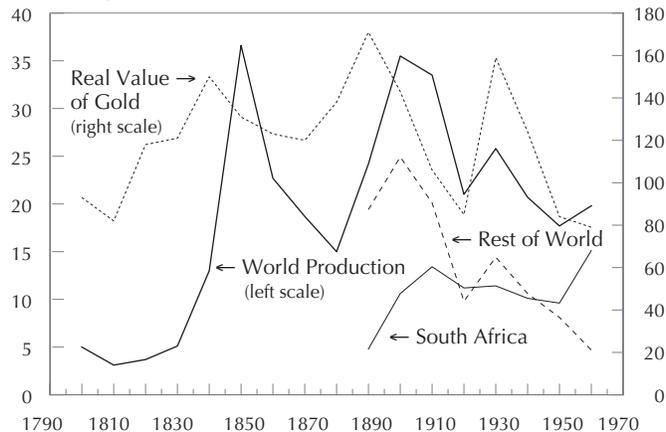
The gold standard does not guarantee price stability. The costs of gold production vary in response to discoveries of new deposits and technological advances in the extraction of known deposits. The costs of producing other goods, such as wheat, also vary. If the cost of producing gold had fallen while a permanent dust bowl made a bushel of wheat as expensive to produce as an ounce of gold, the price of wheat would have been \$20. Anything less would have induced a shift of resources from wheat to gold.

As a matter of fact, the cost of producing gold relative to other goods has been remarkably steady. Technological advances in agriculture and manufacturing have been matched by those in gold production—including the drilling capabilities required by the deep deposits in South Africa. The silver strikes of the 19th century caused a great fall in silver's value and led several countries on the silver standard to switch to gold in the interests of monetary stability. Chart 2 shows how, on the other hand, gold production adjusted to relative price changes so as to preserve its long-run value

³⁷ Although we have seen that the English pound was originally a pound (*livre*) of silver of 240 pennyweights, and ancient Greek and Roman coins frequently identified weights or handfuls.

relative to goods in general. The increase in the demand for gold, and therefore in its relative value, as most of the world shifted to the gold standard in the 1870s and 1880s brought increased production in the Yukon and South Africa—

Chart 2
Real Value of Gold, and Production as a Percentage of Stock, by Decade, 1800-1960



just as the price decline of the 1830s and 1840s was followed by the California and Australian gold rushes. Moving to the 20th century, gold production was discouraged by the inflations of the two world wars and encouraged by the deflation of the 1930s. The constant nominal value of gold also promoted the stability of aggregate production. Increases in gold production made the depressions/deflations of the 1890s and 1930s a little less severe.

The stabilization properties of the gold standard are not fortuitous. Although discoveries and other unforeseen events exist in gold production as elsewhere, most of the variation in output comes through the more or less intensive exploitation of known deposits as they become more or less profitable. An exception to this influence was South Africa in the 1950s and 1960s, where high-cost mines were kept at work by Government subsidies. The Government wanted to maintain employment in the country's major industry and also to ensure that marginal mines were maintained in the event of a turn-around in the price of gold, a speculation that was well-rewarded.

Who Killed the Gold Standard?

The immediate cause of the suspension of an effective gold standard in 1933 was the Government's determination to reverse the catastrophic falls in prices and employment. The continuation of that suspension has rested on the belief that managed money is superior to the gold standard. Even some of those who fear the instability of prices and recognize the inflationary dangers inherent in politically determined paper money have a greater



Prospectors crossing the Chilcoot Pass to the Yukon: 1895-6?

fear of an inflexible money tied to gold. But they have learned the wrong lessons from history.

Everyone, it seems, whatever their economic or political persuasion, puts at least some of the blame for the monetary contraction of the Great Depression on the Federal Reserve and its aggressive defense of its gold reserves. So the rejection of the gold standard is in effect the rejection of gold *as managed by the Federal Reserve*. The pre-1914 gold standard was more flexible. We saw above that market forces tend to produce stabilizing changes in money in the long run. But institutions arose during the 19th century which also promoted stability in the short run. Financial instability in the United States stemmed principally from legal restrictions on branch banking. Thousands of small independent banks dependent for their solvency on local economies and for their liquidity on New York were susceptible to failure, runs, and panic whenever crops failed or the balance of payments turned to deficit. But the effects of gold losses were moderated by bank clearinghouses, the Independent Treasury, investment bankers, and congressional interventions. Beginning in the 1850s, the major New York banks, operating through their clearinghouse, forebore to exercise

gold claims on each other during periods of stringency, and issued certificates that circulated as money. On more than one occasion, J.P. Morgan and his colleagues arranged loans from Europe to ensure the convertibility of the dollar—much as the Banks of France and England accommodated each other—and the Treasury sold bonds in Europe for the same purpose. Of course such loans could be gotten at affordable interest rates only if repayment was assured, that is, only if the country’s commitment to the gold standard was credible. Although the Treasury was required by law to keep most of its gold in its own vaults, secretaries moved reserves to banks when the money market was short of funds. Finally, Congress played an active part in monetary policy. The House of Representatives, in particular, with the power of the purse, had much the same relationship with the Secretary of the Treasury that the British House of Commons had with the Chancellor of the Exchequer. In 1866, when Secretary Hugh McCulloch was retiring greenbacks too rapidly for an electorate that did not want deflation, Congress placed him under a strict regimen.³⁸

These stabilizing features of the pre-1914 monetary system were terminated by the creation of a central bank that was formally placed in charge of the monetary system. The sharpness of the reversal from inflation to deflation after World War I—from an increase in prices of one-third between 1918 and 1920 to a one-fifth fall between 1920 and 1922—exceeded anything seen up to that time. Then and during the Great Depression, when money and prices fell by one-third and the Federal Reserve failed to act even though its gold reserve was never seriously threatened, bankers, the Treasury, and Congress left the control of money to an official and supposedly expert body with little stake in the outcome. The lessons taken by politicians from these experiences were that the gold standard should in effect be abandoned and that the Federal Reserve be strengthened and its control centralized in Washington. The lack of commitment to price stability and fixed exchange rates in the United States and other countries finally led to the formal separation of money from gold in the 1970s—a step that will be analyzed in Section E. The next section examines an earlier challenge to the gold standard most famously expressed in Bryan’s “cross of gold” speech quoted above.

B. Bimetallism

*Gresham’s Law and Gresham’s Fallacy*³⁹

Left to market forces, the exchange value of gold and silver coins tends toward the ratio of their costs of production, which varies with technology

³⁸ Davis Dewey, *Financial History of the United States*.

³⁹ “Gresham’s Law,” was named after the 16th-century English financier, Thomas Gresham,

and discoveries. But the price ratio offered by Government mints changed infrequently and often deviated from that prevailing in the market. Consider an example in which the Government mints a \$20 gold eagle weighing one ounce and a silver dollar weighing 0.8 ounces. That is, the official mint ratio of gold to silver is $20/1.25 = 16$. An ounce of gold and 16 ounces of silver are each worth \$20 at the mint. Suppose, however, that silver discoveries reduce its value so that the market prices of gold and silver bear the ratio 17:1, compared with the mint ratio of 16:1. By *Gresham's law*, people melt gold coins (each sells for \$20) and use the proceeds to buy 17 ounces of silver in the open market to take to the mint to be converted to $\$20(17/16) = \21.25 , with which to buy 1.0625 ounces of gold coins, to be melted and converted to $\$22.578125 = \$20(17/16)^2$, etc., making a profit of one-sixteenth of a dollar in each round of transactions. The overvalued silver drives the undervalued gold from circulation. Gold is hoarded, sent abroad, or used for nonmonetary gold objects.

An interesting story, but in their discussion of “Gresham’s Law or Gresham’s Fallacy?” Arthur Rolnick and Warren Weber point out that the so-called “law” has seldom, if ever, operated. Coins whose relative costs of production differed from official mint ratios routinely circulated side by side. This is explained, Rolnick and Weber argue, by the irrelevance of the official ratio when it differs from the market ratio. Gresham’s Law requires the simultaneous adherence to the official and market ratios by different traders, that is, the willingness of the mint or a portion of the public to provide arbitrage profits for others by exchanging undervalued for overvalued coins. Such behavior is unlikely and has seldom been observed. Gresham’s Law has not operated for two reasons. First, mints did not generally give gold (or gold certificates) for silver. They gave gold certificates or gold coins for gold, and silver certificates or silver coins for silver. Silver could not be exchanged for gold at the mint as required by the above hypothetical example of Gresham’s Law. Even if mints had been inclined to provide these arbitrage profits, they would soon have run out of the gold stocks necessary to maintain such a policy.

An exception was the Sherman Silver Purchase Act of 1890 that required the U.S. Treasury to buy 4.5 million ounces of silver a month with silver certificates issued for the purpose and redeemable in gold or silver coin. The Act had two purposes: to bolster the market for silver and to increase the money stock during a period of falling prices. Purchases were made at market prices, and the quantity of silver involved was only a small

by H.D. MacLeod three centuries later (*The Theory and Practice of Banking*, pp. 151-52). The effect had been maintained by earlier writers, including Copernicus, but Gresham’s Law was never stated by its namesake (de Roover, *Gresham on Foreign Exchange*, p. 91).

proportion of the Treasury's gold. But the price of silver continued to fall and the conversion of overvalued silver to gold permitted by the Act led to a loss in gold reserves at a time when gold was leaving the country because of falling exports and fears that the growing silver movement might lead to a departure from the gold standard. The process was brought to a halt in 1893 after President Grover Cleveland asked a special session of Congress to repeal the Act of 1890. He reminded the legislators that the Act had failed to end the fall in silver; the ratio of the market prices of gold and silver had risen from 18 in the 1870s to 20 in the late 1880s, accelerating to 26 in 1893. It would reach 40 in 1902. Cleveland was aware of the principles underlying Gresham's Law—and so were the silver interests, who hoped for a mono-metallic silver standard. In any case, the silver-purchase program could not be continued if the country wanted a gold standard.

Unless Government bonds are to be constantly issued [primarily in Europe] to replenish our exhausted gold, only to be again exhausted, it is apparent that the operation of the silver-purchase law now in force leads in the direction of the entire substitution of silver for the gold in the Government treasury, and that this must be followed by the payment of all Government obligations in depreciated silver.

At this stage gold and silver must part company and the Government must fail in its established policy to maintain the two metals on a parity with each other. Given over to the exclusive use of a currency greatly depreciated according to the standard of the commercial world, we could no longer claim a place among nations of the first class, nor could our Government claim a performance of its obligation, so far as such an obligation has been imposed upon it, to provide for the use of the people the best and safest money....

The knowledge in business circles among our own people that our Government cannot make its fiat equivalent to intrinsic value, nor keep inferior money on a parity with superior money by its own independent efforts, has resulted in such a lack of confidence at home in the stability of currency values that capital refuses its aid to new enterprises, while millions are actually withdrawn from the channels of trade and commerce to become idle and unproductive in the hands of timid owners. Foreign investors, equally alert, not only decline to purchase American securities, but make haste to sacrifice those which they already have.

—Message to Congress by President Cleveland, Aug. 8, 1893.

After lengthy debates in both Houses, Congress acceded to the president's request and repealed the Silver Purchase Act on November 1, 1893.

The other reason why Gresham's Law will not operate is that private individuals are even less willing than Governments to hand over arbitrage

profits to others. Markets have valued gold and silver coins according to their true exchange values. Referring to our numerical example, one could not acquire an ounce of gold for less than seventeen ounces of silver.

“The Wizard of Oz” as a Monetary Allegory

It has been argued that the famous children’s story by Frank Baum published in 1900 is an allegory inspired by the late 19th-century battles over gold and silver. Certainly it provides an interesting view of the contest through the eyes of a proponent of silver. This brief summary is confined to the cast of characters and the meanings of a few terms. For a more extensive account of the symbolism of events in *Oz* the reader is referred to Hugh Rockoff’s article upon which this summary is based.

Dorothy represents *America*—honest, kindhearted, and plucky. Her best friend is her dog *Toto*—for “teetotaler”—representing the *Prohibition Party*, also with populist leanings and a supporter of the silver movement, although not always reliable and sometimes pulling in the wrong direction. They naturally come out of the West, propelled by a cyclone with the speed of the silver movement, arriving in the East where the gold standard reigns supreme. The *yellow brick road* to the capital city of the East symbolizes gold, as does *Oz* (for an ounce of gold). Dorothy’s house lands on the *Wicked Witch of the East*, who dries up, leaving only her silver shoes. This witch is *Grover Cleveland*, who played a leading part in the defeat of silver and by 1900 was politically dead. The *silver shoes* represent the silver part of bimetallism and are given to Dorothy by the *Good Witch of the North* (possibly representing the support of silver in some parts of New England). They have a magical power that was understood and feared by the dead witch but not by the *Munchkins* (citizens of the East).

The *Cowardly Lion* is *William Jennings Bryan*, who had compromised on the silver issue after the 1896 campaign. The *Scarecrow* is the *western farmer*, who thinks he has no brains but is in fact shrewd and capable. The *Tin Woodman* is the *urban industrial worker*, who has been alienated and upon which the lion’s claws (silver message) make no impression.

The *green-colored glasses* that everyone in the Emerald City must wear (locked on with a gold buckle) symbolize the requirement by the conservative financiers who run the capital city that its citizens see the world in terms of money. The *Wizard* is *Marcus Hanna*, chairman of the Republican National Committee, a close adviser of McKinley and reputedly the political brains of the gold interests. The *Wicked Witch of the West*, who uses her golden cap to call the Winged Monkeys, is President *William McKinley* of Ohio, a supporter of the gold standard who had defeated Bryan in 1896.

The *Good Witch of the South*, Glinda, from a region generally sympathetic to silver, tells Dorothy that the way to return to Kansas is to click the heels of her silver shoes together three times. “The power to solve her problems (by adding silver to the money stock) was there all the time. When Dorothy awakens in Kansas, she finds that the silver shoes have disappeared, just as the silver issue was disappearing.... Baum’s observation that the silver cause would become a distant memory proved to be true.”

Otherwise, he could exchange the metal from a one-ounce \$20 gold eagle for 17 ounces of silver to be coined into 20 silver dollars, exchangeable for an eagle, with an ounce of silver remaining. But people do not give up eagles for twenty silver dollars in these circumstances because they would be passing up profits for themselves. They require 21.25 silver dollars for an eagle, and a good that is listed at \$20 in gold requires 21.25 silver dollars. The two coins circulate side by side, with the silver dollar trading at a one-seventeenth discount, for about 94¢. Gresham's Law does not prevail because the values stamped on the coins by the Government are not effective.

The failure of Gresham's Law is an example of the Government's inability to fix more than one price, such as the dollar price of an ounce of gold. It cannot (effectively) decree relative prices, that is, the exchange values of commodities, whether of gold and silver or beans and bread. A strong example of this principle was the experience of Civil War greenbacks. In 1862 Congress authorized the issue of inconvertible paper money (greenbacks) to be legal tender for all debts. The U.S. Treasury accepted all legal tender money—gold and greenbacks—at par. By Gresham's Law, the overvalued money (greenbacks) should have driven the undervalued money (gold) out of circulation. In fact they circulated side by side, with gold commanding a premium. This was most strikingly illustrated in the West, where merchants advertised that greenbacks were good only for ninety cents worth of goods per dollar.⁴⁰

An earlier example was the British guinea, a gold coin first minted in 1663 with an official value equal to a silver pound of 20 silver shillings.⁴¹ The gold content of the guinea was based on a 15.5:1 ratio of gold to silver. But the official ratio undervalued gold, and the guinea never circulated at par, varying in price between 21 and 22 shillings. In 1817 the guinea was replaced by a gold pound—the sovereign—with 20/21 of the gold of a guinea. Although it ceased to be represented by an actual piece of money, the guinea continued as a unit of account—equal to 21 shillings—for professional services. Even today, with decimalization and fiat money, lawyers' fees are quoted in "guineas" of £1.05.

The disappearance of bimetallism after centuries of vitality occurred not because markets are unable to deal with changing relative prices but because the great fall in the value of silver in the 19th century diminished its usefulness as a store of value and means of price stability. The silver

⁴⁰ Lester, *Monetary Experiments*, p. 165.

⁴¹ The guinea was so-called because it was originally minted from gold mined in that region by the African Company and bore the stamp of the company's symbol, an elephant, later changed to an elephant and castle.

movement in the United States was supported by those who wanted higher prices, but it was primarily an effort by the producers of silver to obtain the Government's support of its price.

C. Gold Exchange Standards

Banks in a fractional reserve system are a means of economizing gold. The gold exchange standard is an extension of this principle in which a country is a banker for other countries. The system first developed on a large scale between India and England. It had been assumed that a gold standard, in particular the linking of a currency to a fixed weight of gold, required that gold circulate side by side with notes and token coins in order that the latter might readily be converted to gold. But a system grew up in the latter part of the 19th century in which the Government of India stood ready to convert rupees not into gold but into bills of exchange payable in London, that is, into claims on gold. This practice allowed India to earn interest on British securities purchased with the gold that otherwise would have lain in bank or Government vaults, and supplied British banks with funds for the finance of domestic and international trade.

The system was similar to that proposed by David Ricardo and shows that the resource costs of the gold standard may be overrated. The monetary gold stock may be quite small relative to checks and currency payments.

To secure the public against any other variations in the value of currency than those to which the standard [gold] itself is subject, and at the same time to carry on the circulation with a medium the least expensive is to attain the most perfect state to which a currency can be brought ...

—David Ricardo, *Principles of Political Economy*, 1821, ch. 27.

This perfect state might be achieved if there is free trade in gold and the issuers of currency are required to maintain a fixed rate of convertibility with gold. Nevertheless, a British Government commission was dissatisfied with the system, and in 1898 recommended the establishment of an Indian mint for gold coin. This was not done, and paper and subsidiary silver coin continued as the standard medium of exchange for domestic transactions.

Another commission called in 1913 to inquire into the same question finally accepted the Indian system as it had developed. It accepted the view of practitioners and informed observers as expressed by J.M. Keynes in his book on *Indian Currency and Finance*. Keynes described how India had “drifted” into a monetary system with neither “contemplation” nor “explanation” by those effecting it. The prophecy made to the 1898 commission by A.M. Lindsay, deputy secretary of the Bank of Bengal, had been ful-

filled: By an “almost imperceptible process the Indian currency will be placed on a footing which Ricardo and other great authorities have advocated as the best of all currency systems, viz., one in which the currency media used in the internal circulation are confined to notes and cheap token coins, which are made to act precisely as if they were bits of gold by being made convertible into gold for foreign payment purposes.”⁴² Because “One of the objects of a good currency is to combine cheapness with stability,” Keynes wrote to *The Times* in 1912, India’s establishment “of a gold standard without encouraging the circulation of gold,” and the investment of “a part of their reserves in London earning interest” should be objects of admiration rather than criticism.⁴³ It had been criticized by financiers and Government officials, nevertheless. A British Treasury official had called it “far too clever for the ordinary English mind with its ineradicable prejudice for an immediately tangible gold backing to all currencies.” But Lindsay had been right when he said “they *must* adopt my scheme despite themselves.” Keynes called attention to the fact that since “the Indian system has been perfected and its provisions generally known, it has been widely imitated both in Asia and elsewhere. In 1903 the Government of the United States introduced a system avowedly based on it into the Philippines.”⁴⁴ “India’s policy only differs from policies lately adopted in all parts of the world in being more complete, more systematic, and, compared with some of them, more public.” *The Times* had been right, Keynes argued, to assign part of the blame for misunderstandings of its practices on the Government of India itself. In words that might also be applied to other monetary authorities, he wrote:

For ten years they have kept silence even from good words. But the question whether the Indian authorities have adequately explained themselves is quite different from the question whether the currency system is actually a good one.... One notes with regret, though with acquiescence and without surprise, that in this country financial ability in departments of State must be accompanied by public eloquence if it is to rest free from ungenerous and ill-founded charges.

The system was adopted in other British, French, and American colonies. The “dollar area,” a gold exchange system that included the Philippines, North America, and several countries in the Caribbean and South America, was comparable with the “sterling area” covering New Zealand, Australia, Hong Kong, Singapore, India, South Africa, and other African

⁴² Testimony before the Indian Currency (Fowler) Committee of 1898, quoted by Keynes, *Indian Currency and Finance*, pp. 3-4. The quotation from Lindsay below is from Keynes, 1913, p. 24.

⁴³ November 14, 1912; see Keynes, *Collected Writings*, xv, pp. 91-94.

⁴⁴ *Indian Currency and Finance*, pp. 24-25.

colonies and former colonies. In several of these countries, gold exchange standards were managed by currency boards.⁴⁵

D. Currency Boards

The development of currency boards and their connections with modern monetary policy can be told in the context of Singapore, which maintained its board until the suspension of the gold convertibility of the dollar in 1971 and still eschews the principle of managed money. Singapore's history also contains another example, coincident with the United States and India, of the silver controversy.

Between 1786 and 1824, in the course of its battle with the Dutch East India Company for eastern trade, the British East India Company acquired three ports on the Malay side of the Strait of Malacca. These "Straits Settlements"—Pinang, Malacca, and Singapore—were combined in a single administrative unit with the capital in Singapore. The dominant money in the Settlements, and throughout Southeast and East Asia was the silver dollar brought to the region in the 16th century by the Spanish and Portuguese through Manila and Malacca.

These early silver dollars were known as Spanish dollars, for they resulted from the Spanish conquest of Mexico.... The Spanish acquired control of the fabulously rich silver mines, established mints and produced over 2,000 million coins between 1535 and 1821. These coins ... had the profile of the reigning monarch on one side. In 1821 Mexico became an independent republic. It continued to mint silver dollars of the same size, weight and quality, producing almost 1,500 million between 1821 and 1903. These were known as Mexican dollars and carried, instead of the royal head, the republican eagle.

These Spanish and Mexican dollars were the most widely circulated coins in history and came closer than any other to being a truly international currency.

—H.D. Chiang, "A History of Currency in Singapore and Malaysia," pp. 1-2.

This experience was similar to the Athenian owl in the Mediterranean region two-thousand years earlier, and demonstrates that the popularity and profit potential of reputable money compare favorably with other goods.

The Settlements minted no coins until 1903, relying on Mexican silver

⁴⁵ For an early survey of gold exchange standards in India and elsewhere and a recommendation for its adoption by China and Mexico, see the report of the Commission on International Exchange, 58th Congress, 2nd Sess., House Doc. 144, 1903.

and similar coins from the United States, Hong Kong, and Japan. Other media of exchange were the notes of commercial banks convertible into silver. As always and everywhere, some parts of the business community complained of a shortage of money and lobbied for Government currency. They eventually succeeded, although not to the extent they had hoped. A currency system was introduced based on that originated some years earlier in Mauritius. The Government of that colony had begun to issue currency in 1849 after the failure of the major local bank of issue. But there was no regular administrative machinery to handle its issue until a currency board was established in 1864. The board was assigned responsibility for issuing notes and redeeming them in coin. A minimum coin reserve of one-third of the note issue was required, with the remainder backed by British and Mauritius bonds.

Currency boards were established in other colonies, including the Straits Settlements in 1899. In that colony, as elsewhere, the primary functions of the currency board were passive, consisting simply of issuing paper currency for silver coin and reversing the transaction on demand. Its silver went to a Guarantee Fund of three parts: silver between one-half and two-thirds of outstanding notes, interest-bearing securities making up the remainder, and the accumulation of interest earnings until the fund was 110 percent of the currency. Earnings beyond this went to the Government.

In practice, currency boards dealt primarily with banks and covered expenses with commissions and spreads between buying and selling rates—just as the banks did with their customers. The Straits Currency Board at first invested only in British Government securities, and although its portfolio expanded over time, it did not extend beyond investments

... in short-dated securities (British Treasury Bills, demand or time deposits with United Kingdom banks, etc.) or in British Government, British Dominion Government, Government of India, British Colonial Government or British Municipal Loans, subject to the proviso that, for greater security no authority shall ever invest in loans issued by its own Government or Governments.⁴⁶

“In general terms,” H.A. Shannon wrote in 1952, “the permanent currency reserves under the Colonial Sterling Exchange Standard may be described as gilt-edged public securities, expressed in a sterling area currency and easily marketable in London.”⁴⁷ Reliance on sterling was shaken

⁴⁶ From a statement by the Colonial Secretary, in G.L.M. Clauson, “The British Colonial Currency System.”

⁴⁷ “The Modern Colonial Sterling Exchange Standard.”

by the British devaluation of 1967, but Singapore's currency continues to be fully backed by gold and foreign assets.

Straits notes were used throughout the region, and the Currency Board paid substantial sums to the colony. The Malay states (which had also come under British control) demanded a share of the profits of the currency used in their territories, and in 1938 the Currency Board was reconstituted as the Board of Commissioners of Currency, Malaya. The Straits dollar became the Malayan dollar, and profits were distributed according to currency use in the Straits Settlements, the nine Malay States, and the independent Sultanate of Brunei.

Silver to Gold

By this time, in fact in 1906, the reserve had shifted from silver to gold. The 19th-century fall in the price of silver had led to controversies in Asia similar to those in the United States—with the same outcome, the victory of gold. Since the events and arguments were similar, it is convenient to discuss India and the Straits Settlements together. The values of the Straits silver dollar and the Indian rupee fell on the London market by one-half between 1872 and 1893. Foreign trade was predominantly with gold standard countries, especially Britain, and both colonies were liable to payments in London fixed in gold. Advocates of a shift to gold argued that the depreciation of local money discouraged foreign investment and aroused labor unrest. They were opposed by producers and merchants who believed that a depreciating currency stimulates exports. This was disputed on the grounds—using the words of the young J.M. Keynes!—“(a) that the advantage to exporters was largely at the expense of other members of the community ..., (b) that it could only be temporary.” In the absence of restrictions on trade, international prices, that is, relative domestic prices adjusted for exchange rates, could not long differ from relative costs. India's continued strong exports to China, which remained on silver after the former switched to gold, was a case in point.⁴⁸ Planters eventually dropped their opposition to gold because of “the difficulty of getting capital out from England.”⁴⁹

India shifted to gold in steps and the Straits Settlements followed in 1906. The role of the Currency Board was unchanged except that its task had become the preservation of the gold value instead of the silver value of its issues. Token silver remained in circulation, and Straits silver dollars, like their paper currency, were convertible with gold at the fixed rate of exchange of S\$1 to 28 British pence (240 pence to a pound).

⁴⁸ *Indian Currency and Finance*, pp. 2-3.

⁴⁹ J.O. Anthonisz, *Currency Reform in the Straits Settlements*, p. 15.

The End of the Malay/Singapore Currency Union: Choosing Between an Automatic Currency Board and a Discretionary Central Bank

The Malay states gained independence as the Federation of Malaya in 1957, and Singapore was granted internal self-Government in 1959. In 1959 Malaya established a central bank to serve as the Government's banker and regulator of domestic finance. But it did not issue money, which remained the responsibility of the Board of Commissioners of Currency, Malaya and British Borneo (the latter having joined the currency union in 1950), still located in Singapore. Singapore, Sarawak, and Sabah joined Malaya to form Malaysia in 1963, and Singapore left the political union in 1965. But the currency union remained intact until 1967. Currency boards had many native admirers in the former colonies in which they operated. Nevertheless, most were traded in for active central banks soon after independence.

Malaysia left its money to a currency board longer than most, but by 1966 its Government felt the need for an active monetary policy. The negotiations between Malaysia and Singapore over this issue produced classic statements of the arguments for and against discretionary central banks. Officials of the Bank Negara Malaysia admitted that "the currency board system has not restrained orderly development in Malaysia and Singapore so far." However, development has occurred

... not because of the existence or non-existence of the currency board system but because of the strength of the economy combined with the character of the administration of both these countries. And should the economy deteriorate and should the Malaysian and Singapore Governments be obliged to maintain levels of expenditure in spite of deteriorating revenues, the currency board system will certainly be a serious restraining factor in the orderly development of Malaysia and Singapore because of the rigidities of the system which prevents the use of foreign exchange reserves other than for backing the currency ...

The board cannot in any way influence the money supply and, even in normal times, it is powerless to make credit available to meet the growing needs of an expanding economy, nor can it influence the cost of credit in the country. The system cannot in any way influence the country's economy when it is subjected to pressures due to swings in the country's balance of payments. Its rigidity imposes an undue hardship on the economy in times of crisis. A deflationary situation caused by a deficit in the balance of payments brought about by a sudden fall in export earnings, for example, can be accentuated by a contraction in the supply of money at a time when the proper remedy for such a situation

would be an increase in the money supply and a lowering of the cost of credit in the country.

—Governor of Bank Negara to
Singapore Minister of Finance, April 8 and Jan. 10, 1966.⁵⁰

The Government of Singapore responded that a central bank with discretionary monetary powers might be a desirable “framework to strive for,” but its commitment to sound money did not permit its abandonment of the Currency Board.

The Bank has made the point that in view of the rigid nature of Currency Board operations, it is not an appropriate currency system for a developing economy. While this may be so, it must be remembered that the present stability of the Malaysian dollar in comparison with other currencies in this area is due in quite large measure to the in-built financial discipline which a Currency Board system imposes. The main question to ask is whether the Currency Board system has restrained orderly development in Malaysia and Singapore to date. [T]aking into account the effects of sudden separation of Singapore from Malaysia, it may be more prudent for both our countries to continue with a known trusted existing currency system, rather than to introduce structural changes now.

—Singapore Minister of Finance to
Governor of Bank Negara, March 12, 1966.

Malaysia left the Currency Board, which since 1967 has been limited to Singapore and Brunei. Currency boards had existed in nearly fifty British, French, and American colonies. But by the end of the 1960s only Singapore among those gaining independence had elected to keep that system. Its currency board still maintains a formal existence, but its method of operation has been adjusted to attempt to neutralize the inflationary impacts of an outside world that has departed from gold. It turned from sterling to the U.S. dollar in 1967, and since the latter’s departure from gold has manipulated its exchange rate in response to the domestic price levels of its principal trading partners. Specifically, it seeks an appreciation of the Singapore dollar in the same proportion as an index of foreign prices.⁵¹

The debate between Malaysia and Singapore overstated the differences between the possibilities of the banking system’s responsiveness to domestic needs under the currency boards and central banks. First, it should be noted that money and credit are not rigidly linked to the balance of

⁵⁰ This correspondence is reproduced in Republic of Singapore, *White Paper on Currency*, 1967.

⁵¹ This procedure assumes the validity of the Purchasing Power Parity theory of exchange rates. See John Wood, “Monetary Policy in a Small Open Economy: The Case of Singapore.”

payments under a currency board. It is true that in the first instance bank reserves and money vary directly with the excess or deficit in the balance of payments. But what happens next is the extent to which banks change their lending in response to the change in reserves. If they have ample reserves or access to funds from abroad (an important consideration in view of the numerous international banks in Malaysia and Singapore), a temporary outflow of foreign exchange might not affect money and credit, particularly if local investments look profitable. This was proved in the United Kingdom after the imposition of what was effectively a currency board by the Bank Act of 1844. The Act established an Issue Department within the Bank of England with the sole power of issuing currency. Its issues and redemptions were strictly in exchange for gold at a fixed rate of exchange. Other banks—including the Banking Department of the Bank of England—kept their reserves in the form of the Issue Department’s notes, and history tells us that they retained considerable discretionary power over the monetary system.

The Government also retains its influence on money: restraint through a budget surplus invested abroad or stimulus by means of a budget deficit financed by borrowing abroad. It must be admitted, on the other hand, that the power of a central bank to issue money without regard to the balance of payment adds flexibility to monetary policy. But even this institution must eventually conform to the balance of payments *if it is committed to a fixed exchange rate*. It is the acceptance or refusal of this condition that in the end determines whether domestic money and prices will be stable. In practice, shifts from currency boards to central banks have been among the first steps of newly independent countries, together with fiscal deficits, towards inflation and the depreciation of exchange rates.

Currency boards may be making a comeback. Estonia began one in 1992 linked to the deutschemark, Argentina has moved toward a similar relationship with the U.S. dollar, and currency boards have been recommended for some of the newly independent countries of eastern Europe and the former Soviet Union.⁵²

E. Bretton Woods: Lack of Commitment and the End of the Gold Standard

Experts looked for a system after World War II that would combine the advantages of the gold standard—specifically its fixed exchange rates, free flows of goods and currencies between countries, and long-term price stability—with, having learned the wrong lessons, exchange rates suffi-

⁵² See, Adam Bennett, “The Operation of the Estonian Currency Board,” and Steve Hanke and Kurt Schuler, *Currency Boards for Developing Countries: A Handbook*.

ciently flexible that Governments would not be constrained in dealing with short-run economic problems. Specifically, when a country's exchange rate was in "fundamental disequilibrium"—not clearly defined in the Bretton Woods agreements but in practice usually meaning that its currency had been depreciated by monetary expansion—it might be devalued. The authoritative statement of the role of the International Monetary Fund under conditions of "fundamental disequilibrium" is instructive:

While thus a system of reasonably stable and unrestricted exchanges, under present-day conditions, is possible only on a foundation of domestic stability in the member states, it is equally well to recognize the correlative proposition that, as a rule, the external balance of payments should not require an individual country to depart from domestic stability and to undergo either a general inflation of its price structure or a deflation of money income far below the level corresponding to good employment. If there is a persistent discrepancy seeming to require adjustment through inflation or deflation, it is the exchange rate that should be changed and not the domestic price or income level. Ideally, as we have seen, exchange rates should be fixed for long periods in such manner that, when all countries enjoy satisfactory levels of employment without inflation, the international accounts are in equilibrium. It is the business of the buffer mechanism of international liquidity to meet any moderate and temporary departures from this happy state; it is the business of domestic employment policy to prevent severe and protracted departures.

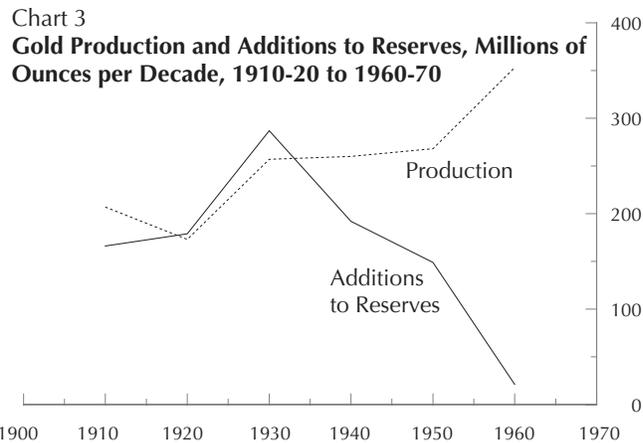
—Ragnar Nurkse, "Conditions of International Monetary Equilibrium."

The dominant goal of monetary policy had thus shifted from the stability of the currency in terms of gold to the domestic goals of income and employment. It is not surprising, particularly following the deflationary catastrophe of the 1930s, that Governments and central banks were less inclined to resist inflation than deflation.

Unfortunately this system of simultaneously fixed and flexible exchange rates was as internally inconsistent in practice as it appeared on paper. During its short life Bretton Woods operated as a gold exchange standard in which the United States held most of the world's monetary gold while others kept their reserves in dollars. It was operational for only five years. Most industrial countries had ended most of their exchange controls by 1958, allowing nearly unrestricted transactions at uniform official rates, but in 1963 the United States imposed a tax on foreign investments and informally gave notice to other Governments that an attempt to convert dollars on a large scale would provoke suspension.

The inevitable breakdown of Bretton Woods is usually explained as

follows. The growing world economy and the general commitment to inflation required continuous additions to international reserves. Given a stationary volume of monetary gold, the new reserves had to be



required American deficits, which were obligingly forthcoming. But as foreigners' dollar holdings rose while American gold did not, they increasingly worried about the value of their claims. The result was a run on the dollar and suspension in 1971—the end of the Bretton Woods system.

But there was another, more fundamental, contradiction in the system—one that explains why gold reserves did not increase. Under a committed gold standard, a shortage of gold is corrected by a rise in its relative value that encourages an increase in supply. Under Bretton Woods, however, the fixed \$35 price of gold was accompanied by inflation, meaning a rising cost of production. Gold production was accordingly weak, and failed to decline only because of South Africa's speculation on a rise in price. Little of this production went into monetary reserves, as we see in Chart 3. The proportion of new gold going to the monetary system fell dramatically after the 1920s. Gold producers who expected higher prices—which came in 1934 and 1971—were unwilling to sell it for the \$20.67 or \$35 offered by central banks.

F. Floating Rates

During the early 1920s and again during the 1930s, the exchange rates between the world's major currencies were allowed to fluctuate without the benefit of narrow bands around fixed parities that were enforced by the intervention of central banks. One of the empirical regularities that characterized the behavior of exchange rates during both of these periods was that there were substantial up and down fluctuations in the relative values of different national currencies over relatively short intervals of time. The past four and one-half years of experience [written in 1978] with generalized floating indicates that such fluctuations are not a peculiarity of the 1920s and 1930s. Looking at the totality of our experience with floating

exchange rates, there is no sound basis for the belief that exchange rates will adjust slowly and smoothly to correct “fundamental disequilibria” that would otherwise develop between different national economies....

[T]he “flow market model” of the foreign exchange market that is presented in virtually every textbook on international economics is ... not notably successful in explaining any of the empirical regularities that have characterized the behavior of floating exchange rates.... Exchange rates exhibit many of the characteristics of prices that are determined in highly organized asset markets. The general theory of the determination of asset prices, the efficient market theory, appears relevant to the explanation of the foreign exchange market as one example of an efficient functioning asset market in which expectations of asset holders play a dominant role in determining asset prices.

—Michael Mussa, “Empirical Regularities in the Behavior of Exchange Rates and Theories of the Foreign Exchange Market.”

A gold standard, or any commodity standard, necessarily requires fixed rates of exchange between currencies. Promises to pay \$20 and £4 for an ounce of gold imply a fixed rate of exchange of five dollars per pound sterling. Unbacked fiat moneys, on the other hand, may have fixed or flexible rates of exchange. Under a flexible-rate system, Governments are free to pursue monetary policies of their choice, leaving the international values of their moneys to the foreign-exchange markets. Or they might commit themselves to the regulation of money such that international exchange values are constant. This means at a minimum similar rates of inflation in participating countries.

Exchange-rate discussions usually begin with *purchasing power parity* (PPP), which maintains that in the absence of tariffs and other impediments to trade the prices of similar things in different countries are similar. PPP ought to be strongest for modern industrial countries, whose manufactured products compete in international markets under conditions of relatively free trade. For example, suppose that British and American machine bearings with identical specifications sell for £100 and \$500, respectively. If the dollar/pound exchange rate is 5, their prices are the same. But if American bearings rise to \$600, buyers shift their purchases to British bearings. If American prices in general rise 20 percent while the British price level is unchanged, there should be a general shift from American to British goods, and therefore, in the foreign currency market, from dollars to sterling, and an appreciation of the latter such that the new dollar/pound exchange rate approaches 6.

The American inflation is presumably the result of an increase in money, which cannot be maintained for long in a system of fixed exchange rates

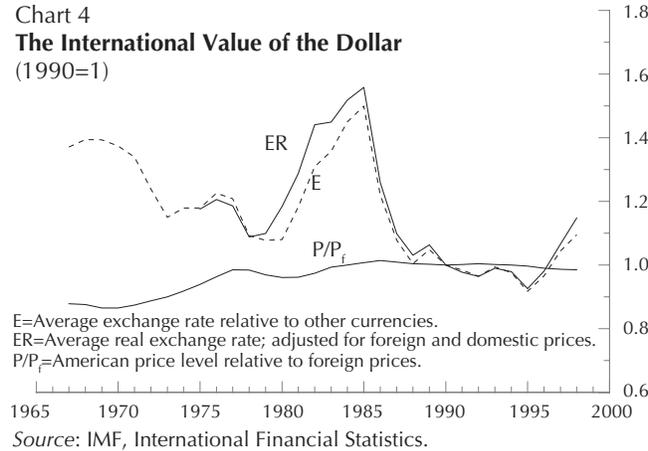
unless the British and others have similar inflations. If the Federal Reserve wishes to preserve the international value of the dollar, including a dollar/pound exchange rate of 5, while at the same time raising domestic prices relative to foreign prices, it must offset international sales of dollars for other currencies. It must buy dollars. The foreign exchange required for these interventions must come from the Fed's existing reserves or borrowing from abroad. Both sources must eventually be exhausted if American prices do not return to their previous relations with foreign prices. Fixed exchange rates greatly inhibit a Government's power over prices.

On the other hand, the Fed can have as much inflation (or deflation) as it likes if the exchange rate is free to float. In our example, according to PPP, a 20 percent fall in the international value of the dollar accommodates a similar fall in domestic purchasing power, and American goods remain competitive in foreign markets. The cost of an American bearing to an Englishman is still £1 because a pound is worth \$6.

The best-known monetary economists of the 20th century have strongly favored floating rates—J. M. Keynes because he wanted the central bank to be free to pursue the monetary policies appropriate to domestic circumstances, Milton Friedman because he wanted to restrain it to a rigid rate of money growth. Their positions are best defended in the circumstances of a foreign depression. Suppose, to reverse the above example, that British prices fall 20 percent and the Federal Reserve is committed along with the Bank of England to a pound sterling fixed at \$5. The flow of dollars to the now cheaper British market will be reinforced (or at least not offset) by the Fed until American prices regain their parity with British prices at the fixed exchange rate of \$5 per pound. So under fixed exchange rates, it is argued, foreign deflations, and foreign price fluctuations in general, are transmitted to our own economy. Flexible exchange rates, on the other hand, allow us to determine our own price level.

So the system of floating rates that succeeded Bretton Woods was welcomed by many, perhaps most, economists. But it has not worked the way that was anticipated. Exchange rates have not been consistent with the “flow market model” underlying PPP (see the above quotation from Mussa). From the beginning, since the early 1970s, exchange rates have fluctuated widely and unpredictably in ways that have little correspondence with relative price levels. It is true that the extreme inflations of developing countries have brought extreme depreciations of their currencies—illustrated by the hundred-fold increases in Mexican prices and the peso/dollar exchange rate between the late-1970s and the late-1980s. But for the more moderate range of inflations experienced by industrial economies, there has been little correlation between internal and external currency values.

Chart 4
The International Value of the Dollar
 (1990=1)



This is illustrated in Chart 4, which allows us to compare the wide fluctuations of the foreign exchange value of the U.S. dollar with the relatively stable ratio of American to foreign price levels. The dollar rose 39 percent in international markets between 1979 and 1985,

and fell in the same proportion during the next ten years, while the cumulative difference between changes in American prices and those in other industrial countries never exceeded 6 percent. In consequence, instead of a constant “real” value of the dollar—the nominal exchange rate adjusted for relative domestic price changes—as implied by PPP, the real exchange rate varied with the nominal rate. The experience of the U.S. dollar has been shared by other currencies.

The acceleration of inflation following the breakdown of Bretton Woods was no surprise. The goal of fixed exchange rates that had strengthened the case for price stability, however weakly, had been removed. But the offsetting advantage expected from the removal of this discipline—the operation of PPP to maintain the stability of real exchange rates and therefore of effective prices in international exchange—never came into play. Economists had neglected the role of money as an asset. They had thought of money simply as a medium of exchange for current transactions, and not as a store of value for future transactions and a vehicle for investment. Since the end of fixed exchange rates we have seen the foreign currency markets behave like the stock market and other asset markets, all of which contain large random components. The price of an asset is what it is because of what investors believe it will be.

On reflection it should come as no surprise that the current value of the dollar depends on its expected future value. Investors are unlikely to invest in dollar-denominated assets if they believe that the value of the dollar will fall. In fact, one should not be surprised that currency values fluctuate as much as stock prices, since their determinants, Government monetary policies, are at least as unpredictable as corporate profits.

There appears to be no substitute for fixed exchange rates in the pursuit of stability of international prices. The commitment to a fixed rate by the issuer of a currency seems necessary to confidence in exchange rates.

IV. GOVERNMENTS AND THE VALUE OF MONEY

No good can come from an evil deed.

—Nicholas Oresme, *De Moneta*.

A. Mostly a History of Debasements

GOVERNMENT monopolies have sooner or later devalued their moneys, sometimes as a result of miscalculation, greed, or political weakness, and sometimes as part of calculated programs to appropriate property for Government use or redistribution between private interests. The first category includes Henry VIII and modern regimes lacking the political support for borrowing or tax collections adequate to their wants. The United States Government's monetary program of 1933-34—the prohibition of private monetary gold, devaluation of the gold content of the dollar, and suspension of gold clauses and other inflation protections in debt contracts—is an example of the second. It has been continued in the form of so-called countercyclical monetary policies that depend for their effectiveness on the undermining of contracted money payments, especially wages and interest.

But there have also been periods when Governments have risen to the same standards, and conformed to the same laws of contract, as its citizens, even in times of political turbulence and financial pressure. The most recent example in Anglo-American history extended from the 17th century to the 1930s. Some of the highlights of this period are discussed and compared with periods of debasement in the following paragraphs. A classic statement of the happy coincidence of the morality and intelligence of stable money is reviewed in Section B, and the rejection of both by the United States Congress and Supreme Court are described in Section C.

Worth Its Weight: the Profits of Honest Money

Quality in money is potentially as profitable as in other goods. Yet its history is largely a story of the conflict between those who would bind Governments to their promises and those who would not. The myopia of Governments—inevitable in institutions headed by short-timers with no stake in the long-term effects of their policies—has produced monetary debasements even when, by damaging reputation and credit, they have injured Government revenues in the long run.

The evolution of money and the mechanism of exchange, including money-lenders and market-places, have been consequences of the pursuit of self-interest by individuals without the necessity of Government in-

volvement. The resulting medium of exchange was not a *fiat* money accepted simply on faith that it could be passed to someone else. It was a valuable commodity that evolved into money. Furthermore, money's exchange value did not depart substantially from its non-monetary value although it traded at a slight premium because of its usefulness as a means of payment. For example, nine nails in a frontier economy might be required for a shave and a haircut if they were not used as money, compared with eight if the barber was sure of being able to exchange them for supper. But as nails became cheaper to produce because of advances in nail-making technology, more were offered to the barber, their value fell, and perhaps a dozen were required for a shave and a haircut. Private issuers of nail-money (or gold- or silver-money) could not acquire significantly more goods for their medium of exchange than its cost of production without inviting competition from other money-makers.

The situation is changed when Government enters the picture. Governments have to be taken into account because they have been in the business of money-making for so long that it is regarded as a natural function of the state. There are two reasons for the state's control of money. The first is to promote efficiency by standardizing money. Among the arguments for a single currency for Europe are the savings of time, effort, and uncertainty of value involved in exchanges of distinct national currencies. Because money had been specified as weights of the precious metals for thousands of years, the framers of the United States Constitution thought it natural to include Congress's task "To coin money and regulate the value thereof" among its responsibilities for fixing "the standard of weights and measures." It was as much a function of Government to assist trade by determining the gold and silver contents of its monetary units as to define a yard's length and a pound's weight; the origins of the U.S. dollar are described in the box. Unfortunately, history has shown that Governments have often failed to perform this function honestly or effectively.

The second purpose of the state's control of money is revenue. This is not necessarily inconsistent with the first reason. Some reputable Governments have contributed to efficiency in trade for long periods and over wide areas by supplying reliable coins at low costs, that is, by appropriating small and constant proportions of the metals brought to their mints for coinage. An efficient mint with a good reputation is valuable property, and its owners have an incentive to preserve it, especially in a competitive environment. The willingness of traders to accept the Athenian owl and Spanish and Mexican pesos brought long-term profits to the Governments that produced them.

More recently, the reputation of its currency has been profitable to the

United States. The history of respect for the nominal value of this money, at least (the real value is less assured, although the dollar has depreciated less than most currencies), has led the residents of many countries to conduct their business and store their wealth in American currency, often at great personal risk. Governments have imposed severe penalties—the cutting-off of hands is a favorite—for using foreign currencies in attempts to compel their citizens to hold their own depreciating currencies. The dollars held abroad—referred to in the box—benefit the United States because they represent spending by Americans that the recipients have not returned for goods or interest-bearing securities. A radically different course has been taken by countries such as India that periodically require their currencies to be traded in for new issues, with holdings not turned in by certain dates being repudiated, ostensibly to discover and penalize criminals who deal in cash. The presumption that those who use one’s currency are public enemies does not encourage its use.

Conflicts Between Reputation and Expediency

The temptations of short-term political gain often override the more distant benefits of reputation. Even where the nominal value of money has

The U.S. Dollar

The most common coins in the British colonies of America in the 18th century were Spanish pesos, or pieces of eight, called *dollars* by English speakers. Congress accepted Treasury secretary Alexander Hamilton’s recommendation that the United States mint a new coin of the same average weight and fineness as the Spanish dollars then in circulation. “The dollar is recommended by its correspondency with the present coin of that name for which it is designed to be a substitute, which will facilitate its ready adoption as such in the minds of the citizens.” (*Treasury Report on the Establishment of a Mint*, 1791)

Hamilton’s report was an affirmation of a Congressional resolution of 1786 under the Articles of Confederation. That resolution had been based on the advice of Thomas Jefferson that U.S. coins be similar to those already in use and with “parts and multiples in an easy proportion to each other so as to facilitate the money arithmetic.” This meant a decimal system, Jefferson argued, and excluded the cumbersome 240-penny English pound, although it did not prevent Americans from calling 25¢ coins “two-bits” after the equivalent pieces of eight into which the peso was divided.

“Dollar” is derived from the German “thaler,” a shortened form of Joachimsthaler, which was a coin first struck in 1519 from silver mined in St. Joachimstal (Joachim’s dale) in Bohemia. Many of these “thalers” were produced, and the name came to be generally applied to silver coins. The thaler continued as the German monetary unit until its replacement by the mark in 1873.

been honored its real value has been debased. Alexander Hamilton warned of the dangers of Government paper money in 1790 in his *Report on a National Bank*:

The stamping of paper is an operation so much easier than the laying of taxes, that a Government in the practice of paper emissions would rarely fail, in [emergencies], to indulge itself too far in the employment of that resource, to avoid, as much as possible, one less auspicious to present popularity.

The paper money issues of the War of 1812 and the Civil War may be regarded as fulfillments of Hamilton's prophecy, but what was done in the 19th century in emergencies became in the 20th century standard practice.

The debasements of modern paper money resemble in their causes and consequences—political expediency and the effective repudiation of public and private debts payable in fixed amounts of nominal money—those of earlier gold and silver moneys. Hyperinflations have been unique to paper money, but some of the coin debasements were also extensive.

... in every country of the world, I believe, the avarice and injustice of princes and sovereign states, abusing the confidence of their subjects, have by degrees diminished the real quantity of metal which had been originally contained in their coins.

—Adam Smith, *Wealth of Nations*, Bk. I, ch. 4.

From Alfred the Great (871-900) to Edward III (1327-77) the English pound (which gave “sterling” its meaning) contained approximately a troy

\$100 Question: Will Ben's New Look Stop Counterfeits?

WASHINGTON—Ben Franklin ... is moving to the left. He is also losing his fur collar on the new issue of the \$100 bill—the first fully redesigned paper denomination since 1928... The two changes ... are among the many alterations that the Treasury hopes will make United States currency as close to counterfeit-proof as possible for years to come....

Early next year, as banks deposit worn-out \$100 bills in the regular course of business, the Federal Reserve will replace them with the new version.

“Old notes will not be recalled or devalued,” said the Fed's chairman, Alan Greenspan. “The United States has always honored its currency at its full face value, no matter how old.”

The \$100 bill was chosen as the first for redesign because it is the most widely used United States paper currency throughout the world. More than \$380 billion in American currency is in circulation, two-thirds of it overseas, where it sometimes serves as a substitute for the local currency or an additional means of exchange.

—*New York Times*, September 28, 1995, p. D19.

Table 2
**Mint Charges (Expenses and Seignorage) and
Pennies per Ounce of Silver, Tower Mint, 900 – 1816**

Year	Silver pennies minted per ounce troy	Mint charges			Total	Silver pennies paid by the mint for an ounce of silver
		Seignorage	Expenses			
900	20.0	?	?	?	?	
1276	21.6	0.80	0.50	1.30	20.3	
1464	40.0	3.56	1.24	4.80	35.2	
1526	45.0	?	?	1.00	44.0	
1547	133.2	?	?	74.00	59.2	
1560	60.0	0.30	1.20	1.90	58.1	
1626	62.0	0.80	1.20	2.00	60.0	
1666	62.0	0	0	0	62.0	

Source: A.E. Feavearyear, *The Pound Sterling*, pp. 7, 88, 346.

pound of silver consisting of 12 ounces or 240 pennyweights.⁵³ A silver penny contained a pennyweight of silver less expenses and a profit (seignorage) for the king. Civil and foreign wars tempted a series of debasements, and a hundred years later coins nominally worth a pound contained half that weight of silver, and seignorage jumped from 3.7 percent (0.80/21.6) to 8.9 percent (3.56/40) of the coinage. These changes may be seen in Table 2. Seignorage was greatly increased under Henry VIII (1509-47), who made 133 pennies from an ounce of silver and about six ounces of copper—the shameful red-heads.

The value of money was partly restored by Elizabeth I (1558-1603), and its silver content was virtually unchanged until Britain shifted completely to the gold standard in 1816. The values of gold coins were also maintained from early in the 18th century until their withdrawal from circulation in 1925. The use of money was encouraged by an Act of 1666 that ended mint charges. The coinage would henceforth be maintained at the Government's expense. The recommitment to monetary integrity came with the end of absolutism and the rise of Government by the commercial classes, which might be said to date from the accession of Elizabeth or perhaps the victory of Parliament over “the divine right” of Charles I in the English Civil War of the 1640s or its reassertion in the Glorious Revolution of 1688. Those whose livelihoods depended on the performance of their obligations, including the repayment of debts, possessed for 250

⁵³ The origin of “sterling” is uncertain. It may be after the merchants who first minted English silver coins, who were from the eastern part of Germany and called *Easterlings*; or it may be from the *starlings* whose image appeared on early coins. In any case, the modern use of “sterling” is derived from the same quality in medieval English coins.

years—until the 1930s—the political power to hold their Government to the same standard.

The gold standard has been called a *contingent rule* of monetary policy that was effective because the commitments of central banks and Governments to convertibility under all but exceptional circumstances lent credibility to their promises. It was a long-term contract that relieved central banks of the necessity of subjecting their economies to the short-term real disruptions of the “rules of the game.” The access to long-term international credit made possible by a country’s commitment to gold enabled it to weather adverse trade movements without resorting to monetary restrictions.⁵⁴ Douglas North and Barry Weingast have traced the source of this commitment to the Glorious Revolution, which is seen as a triumph of property in which Government was converted from oppressor to protector.⁵⁵ The winners sought protection of their wealth from the depredations of Government, but a necessary part of the package was the development of institutions that allowed the Government to commit credibly to the preservation of property rights. The crown’s confiscatory powers were subordinated to Parliament in exchange for a sound fiscal basis. The crown was given an allowance and its bills became the national debt. The land tax and later the income tax were payments for the protection of property. Parliament did not immediately succeed the crown as a threat to property because it consisted of men of property.

The most dramatic manifestation of the renewed monetary integrity was the recoinage of 1696. There had been no replacement of worn and clipped coins since early in the century, most were underweight, and variations in their weights impeded trade. Secretary of the Treasury William Lowndes proposed that coins be called in and replaced with new standard coins of the same weight and nominal value. This meant new pennies and other coins with 20 to 25 percent less silver than the original values of most of those in circulation. Lowndes saw no harm in this. The coinage was already depreciated.⁵⁶ This “natural” process had long been a source of debasement in England and other countries. However, John Locke argued in *Further Considerations concerning Raising the Value of Money* that the proposed policy amounted to theft, that “such a lessening our coin ... will,

⁵⁴ See Michael Bordo and Finn Kydland, “The Gold Standard as a Rule,” M. Pani?, *European Monetary Union: Lessons from the Gold Standard*, and Robert Triffin, *Gold and the Dollar Crisis*.

⁵⁵ “Constitutions and Commitment: The Evolution of Institutions Governing Public Choice in Seventeenth-Century England.” Also see David Ogg, *England in the Reigns of James II and William III*.

⁵⁶ William Lowndes, *An Essay for the Amendment of the Silver Coins*, discussed by Feavearyear, *The Pound Sterling*, ch. 6.

without any reason, deprive great numbers of blameless men of a fifth part of their estates beyond the relief of Chancery.” He also disputed the argument that inflationary increases in the nominal quantity of money was beneficial to trade. The only “lawful money” was that which corresponded to the official Mint weight, “and justice could be done only by recoinage all the money at this rate.”⁵⁷ Locke’s position was adopted by the Government, and for the first time since 1299 “a recoinage was effected which restored entirely the standard that had existed before the debasement; and for the first time in English history a considerable part of the cost was borne by the Exchequer.”

It is interesting that this was done during a period of considerable financial stringency, when England was engaged in a costly war with France. But it was especially for this reason that the Government was solicitous of the public credit. The profligacy of Charles II had demonstrated once again that credit on good terms in times of need depended on a reputation for honest dealing. William III advised the House of Commons in 1702 to “Take care of the public credit, which cannot be preserved but by keeping sacred that maxim, that they shall never be losers who trust to a parliamentary security.”

Feavearyear called Locke’s *Further Considerations* “almost a gospel for ‘sound money’ men,” although the “sanctity which he attached to the Mint weights was something new.... It is true that from the Conquest down to 1342, when a pound of silver and a pound of money, if not actually the same, were regarded as such by the people, not only the fineness of sterling silver, ‘the ancient right standard of England’, but the weight of the coins was regarded as sacred.” And Parliament protested so loudly against Edward III’s debasement that it was not repeated for a century. But during the 15th and 16th centuries “the idea that the Mint weights should not be changed entirely disappeared. They were regarded as within the prerogative of the King, who might do as he pleased with them; and when he altered them few people grumbled”—although “the alloy still retained its sacredness, which was one reason why Henry VIII’s base coins were detested so much.”

The old sacredness was restored to the standard in 1696. “Largely as a result of Locke’s influence, £3 17s 10¹/₂d an ounce came to be regarded as a magic price for gold from which we ought never to stray and to which, if we do, must always return.” Feavearyear’s book was published in the summer of 1931. In September Britain detached its money from gold, and has not since returned to the “ancient right standard.”

⁵⁷ This and the following quotations are from Feavearyear unless otherwise indicated.

Back to Barter

The first great achievement of money is that it enables man as a consumer to generalise his purchasing power, and to make his claims on society in the form which suits him best. If there were no money, people would have to be paid for their services in kind; and ... encouraged to take more of certain goods and services, and forced to take less of others, than they really require.... The existence of a monetary economy helps society to discover what people want and how much they want it, and so to decide what shall be produced and in what quantities, and to make the best use of its limited productive power. And it helps each member of society to ensure that the *means* of enjoyment to which he has access yield him the greatest amount of *actual* enjoyment which is within his reach—it gives him the chance of not surfeiting himself with bus rides, or stinting himself unduly of the countenance of Charlie Chaplin.

[M]an values highly this privilege of spending his money income—
[H]ow highly you may see if you ... watch the faces of the engaged couple as they open the parcel containing their seventeenth writing-case.

—D.H. Robertson, *Money*, pp.4-5.

The abolition of private holdings of monetary gold—“hoarding” according to President Franklin Roosevelt’s proclamation of April 5, 1933, punishable by a fine of up to \$10,000 and/or imprisonment up to ten years—that is, suspension of the redemption of the currency for full-bodied money (gold coins and bullion), ushered in the era of continuous inflation. Since the 1933 proclamation, when it was nearly the same as in Alexander Hamilton’s time, the purchasing power of the dollar has fallen more than 90 percent.⁵⁸ In some countries in the 20th century, the decline in purchasing power was so rapid that currency completely lost its usefulness as a medium of exchange. It effectively ceased to be money. The benefits described above by Dennis Robertson were lost. When people lose confidence in the value of currency they require such large amounts for goods today that it is deprived of the economizing features that justify its use as money. Once it begins to depreciate rapidly, people resort to barter. The German inflation of 1922-23 brought the following scenes:

June, 1923: one [U.S.] dollar equaled a hundred thousand marks; July, 1923: one dollar equaled two million marks; August, 1923: one dollar equaled one hundred million.

The printing presses of the Government could no longer keep pace. They were still printing ten-thousand-mark bills when one dollar had gone into the millions of marks. You could see mail carriers on the streets with sacks on their backs or pushing baby carriers before them loaded

⁵⁸ *AIER Chart Book*, p. 1.

with paper money....

Our neighbors were farmers [who] would not sell anything against marks, though they did a lively trade by way of barter. For a pair of old flannel trousers or a few leather straps we could buy grain to feed our cows....

Communities printed their own money, based on goods, on a certain amount of potatoes, of rye, for instance. Shoe factories paid their workers in bonds for shoes which they could exchange at the bakery for bread or the meat market for meat.

—Fritz Ringer, *The German Inflation of 1923*, pp. 100, 144.

Government economic intervention has interfered with the usefulness of money and encouraged barter in ways other than debasement. Money provides *flexibility*, the ability to purchase immediately. By holding an illiquid, non-money asset, on the other hand, “the holder has narrowed the band of opportunities which may be open to him.... He has ‘locked himself in’.” He has lost the use of money, “the refuge from specialized commitment, the postponer of the need to take far-reaching decisions.”⁵⁹

So why does your employer subsidize lunches in the cafeteria—although you never eat lunch, a health-care plan that pays the costs of pregnancy—although you are a single male—and a parking space—although you always take the train? Undoubtedly, you would prefer the cash value of these perquisites. “Give me the \$100 they cost and I’ll spend it on things *I* like,” you say. On the other hand, you appreciate the corner office overlooking the park and the “free” membership in the gym next door.

An important explanation of “in-kind” income—of barter between labor and consumption goods—is its exemption from income tax. If all of a company’s workers have the same tastes and a marginal tax bracket of twenty percent, it can reduce labor costs by substituting goods worth marginally more than \$100 per week per worker for \$125 in cash. Even if our workers are not identical, company and labor might still benefit from this partial barter system, especially after those dissatisfied with the trade-off between taxable (money) and non-taxable (in-kind) incomes have left for jobs with combinations of pay and benefits more to their liking.

Barter has also been promoted by Government wage and price controls. The combination of scarce labor and wage ceilings during World War II induced employers to compete for workers by non-cash payments that went unnoticed by the tax collector and the wage-control board. Employer

⁵⁹ The identification of “liquidity” with “flexibility” is J.R. Hicks’s (*The Crisis in Keynesian Economics*, p. 38), and the quotations are from Hicks, pp.43-44, and G.L.S. Shackle, *The Years of High Theory*, p. 6, repeated from Gerald O’Driscoll, “Money: Menger’s Evolutionary Theory.”

health-care benefits first became a significant part of the pay packet in this period. At the same time, the milkman's family did not go without rationed sugar while the grocer found himself with a few "free" bottles of milk each week.

The flexibility that money can provide has also been inhibited by a welfare system dominated by in-kind assistance: food stamps, public housing, school lunches, meals on wheels, child care, and medicaid. This system is justified if those receiving assistance are incapable, like children, of "correct" choices. But to the extent that it is intended for responsible adults encountering difficulties—a man with a family and mortgage who has been laid off by the town's only high-wage employer, a new high-school graduate in an area of high unemployment, a single mother, or an elderly or disabled person without well-off relatives—money would seem to be the best economic remedy. It would enable the person to keep up the mortgage and insurance, and perhaps pay for a room and meals while looking for a job in the city or doing odd jobs until the local economy turns up, or have the car repaired so she could make it to work across town and deliver her children to their aunt for the day, or to order in meals that they like, when they like.

Consumers know that money is power. Those who maintain that health care, schools, and housing are "rights," and then provide them in forms they think consumers need, are unaware of the importance of money to the development of complex commercial economies. The satisfactions derived by consumers from their food, cars, computers, medical care, schools, and housing are directly related to the power over suppliers that is conveyed by money, that is, by the flexibility to spend their money elsewhere.

B. The Responsibilities of the Prince: Nicholas Oresme's *De Moneta*

Debasements have been defended on the grounds of political expediency in the face of emergencies and the belief that private interests are subordinate to the public welfare. But there has always been a strong moral belief among the defenders of liberty that rulers are obliged by their power—to a greater, not a lesser, extent than others—to adhere to high standards of morality and respect for the rights of their subjects. In fact, the protection of those rights is the justification of their power. This view was forcefully expressed by Nicholas Oresme (1320-82), Master of the College of Navarre in the University of Paris, chaplain and financial adviser to Charles V, and Bishop of Lisieux.

Oresme's treatise, which was "provoked by the successive debasements of the coinage by Philip VI and John II and the consequent derangement of trade and social relations," attacked the notion "that any king or prince

may, of his own authority, by right or prerogative, freely alter the money current in his realm, regulate it as he will, and take whatever gain or profit may result.”⁶⁰ His argument began with reviews of the importance, even necessity, of money “to the business of the state” and of the advantages of silver and gold coin. For example, “it is inexpedient that the material of money should be too plentiful; for that, as Ovid says, was the reason for the disuse of copper.”

He accepts the custom, “ordained of old, with good reason, and to prevent fraud, that nobody may coin money or impress an image or design on his own gold and silver, but that the money, or rather the impression of its characteristic design, should be made by one or more public persons deputed by the community to that duty, since ... money is essentially established and devised for the good of the community. And since the prince is the most public person and of the highest authority, it follows that he should make the money for the community and stamp it with a suitable design. This stamp should be finely wrought and difficult to engrave or counterfeit.” It would be a contradiction if the prince, who is entrusted with the protection of the value of money, should also be free to debase it. “Although it is the duty of the prince to put his stamp on the money for the common good, he is not the Lord or owner of the money current in his principality.” Money is the property of the people. “For if a man gives bread or bodily labor in exchange for money, the money he receives is as much his as the bread or bodily labor of which he (unless he were a slave) was free to dispose. For it was not to princes alone that God gave freedom to possess property, but to our first parents, and all their offspring, as it is in *Genesis*.” Debasement of the coinage is nothing less than theft of a man’s “bread and bodily labor.”

Changes in “the weight or quantity of money without any change of name or value” are no more acceptable than in other things. They are “plainly unlawful, especially in a prince, who cannot do it without disgraceful injustice. Because, in the first place, the prince’s image or superscription is placed by him on the coin to guarantee the weight and standard of the material.... Consequently, if the weight is not true, this is at once seen to be a foul lie and a fraudulent cheat. For measures of corn and wine and other measures are frequently stamped with the king’s public mark, and any man tampering with these is held to be a forger.... Secondly, the prince can in this way get possession of other people’s money, nor can there be any other reason why he should make such a change.” If the prince changes the material or the weight despite his inscription, he would be

⁶⁰ The first quotation is from Charles Johnson’s “Introduction” to *De Moneta*; others are from Oresme as translated by Johnson.

“bearing false witness.” He also “misuses the word ‘money,’ ... so called from *moneo* (to warn) because it warns us against fraud in metal or weight.”

The prince’s profit is unjust because it is necessarily the community’s loss. It is “the act of a tyrant and not of a king, as Aristotle says.⁶¹ And if he should tell the tyrant’s usual lie, that he applies that profit to the public advantage, he must not be believed, because he might as well take my coat and say he needed it for the public service.” “Ill-gotten goods never prosper,” Cicero says, and “Saint Paul says that we are not to do evil that good may come.”⁶² Finally, changes in the value of money hinder trade: Rents, pensions, and rates of hire “cannot be well and justly taxed or valued.... Neither can money safely be lent or credit given.” Debasement cannot be justified.

In a later age one might have pointed out to Oresme that he was attempting the impossible, that power necessarily corrupts, and regardless of the initial honorable intentions of the prince, the ease with which he may be enriched (at least in the short run) is too great a temptation to be resisted, especially in emergencies, real or imagined. But his was an age of authority, although of authority with responsibility, of *noblesse oblige*, and his objective was to raise the level of the prince’s recognition of his duties. Oresme did not base his case entirely on altruism, however. He also appealed to his master’s self-interest. “Things contrary to nature quickly decay,” Aristotle says. A disordered kingdom may no more survive than a diseased body. Princes are too easily deceived by flatterers who urge them to accumulate power and wealth. They should instead heed Aristotle’s “rule by which a kingdom may long survive. That is that the prince should not enlarge his dominion over his subjects, should not overtax them or seize their goods, should allow or grant them liberties and should not interfere with them or use his plenary powers but only a power regulated and limited by law and custom. For few things ... should be left to the decision of a judge or a prince.” Oresme retells Aristotle’s story of the Spartan king, Theopompus, who was reproached by his wife for relinquishing various powers and taxes. He “should be ashamed to hand on to his sons a less profitable kingdom than he had received from his father.” Theopompus replied: “I leave them a more permanent one. I have made the kingdom greater in duration than I have made it less by limiting its power.”⁶³

Debasements of money have been carried much further by modern democracies than by ancient and medieval kings and princes. We have seen that the value of the dollar has fallen more than nine-tenths in the last

⁶¹ *Politics*, V .x. 10.

⁶² *Philippics* II, 65; and *Romans*, iii. 8.

⁶³ *Politics*, III.xvi.11, V.xi.3.

sixty years compared with two-thirds during the six-hundred years between Alfred and Elizabeth. Another difference from the situation considered by Oresme is that recent inflations have not been used primarily for the enrichment of Government officials, although they certainly have not suffered. Politically powerful groups have used Governments to redistribute wealth to themselves. Finally, it should be pointed out that experience has verified the prediction of Theopompus that the durations of Governments are inversely related to their appetites for power, particularly as reflected in their debasements.

C. The Responsibilities Rejected: Indexation, Congress, and the Supreme Court

When national debts have once been accumulated to a certain degree, there is scarce, I believe, a single instance of their having been fairly and completely paid. The liberation of the public revenue, if it has ever been brought about at all, has always been brought by a bankruptcy; sometimes by an avowed one, but always by a real one, though frequently by a pretended payment.

The raising of the denomination of the coin has been the most usual expedient by which a real public bankruptcy has been disguised under the appearance of a pretended payment.

— Adam Smith, *Wealth of Nations*, 1776, Bk. V, ch. 3.

The erection of defenses against the depreciation of money is an ancient practice. A common approach has been to tie payments to the value of a particular commodity, usually gold. Loan repayments in medieval France were often specified in grains of gold of a particular fineness. Then when the king cut the gold content of the *livre* in half, the lender was entitled to twice the nominal amount of the debt (twice the number of *livres*) originally contracted. The 98-percent reduction in the gold content of the *livre* between Charlemagne and Louis XVI made these protections potentially very important. But since the purpose of debasement was the appropriation of wealth, debt-ridden monarchs forbade inflation-protection contracts or impeded their enforcement.⁶⁴

In spite of their record of official repudiations in France and elsewhere, gold clauses were almost universally applied to corporate and Government bonds in the United States after the inflationary silver scares of the late 19th century. These “gold bonds” were also common in other countries. And as history should have told investors, their protections were invalidated just

⁶⁴ To put the French debasement into perspective, it averaged about four-tenths of one percent per year, accumulated over a thousand years to about the same total as American inflation since the 1930s.

when they would have come into play. All the countries that devalued their currencies during and after World War I also invalidated their gold promises. Lenders were forced to accept the numbers of francs or marks that had been promised regardless of their diminished gold contents. The experience was repeated in the depression of the 1930s, this time joined by the United States.⁶⁵

On June 5, 1933, Congress resolved

That every provision contained in ... any obligation which purports to give the obligee a right to require payment in gold or a particular kind of coin or currency, or in an amount in money of the United States measured thereby, is declared to be against public policy.... Every obligation, heretofore or hereafter incurred, whether or not any such provision is contained therein ... shall be discharged upon payment, dollar for dollar, in any coin or currency which at the time of payment is legal tender for public and private debts. Any such provision contained in any law authorizing obligations to be issued by or under authority of the United States, is hereby repealed....

As Justice James McReynolds later pointed out in his dissent from the Supreme Court's approval of the constitutionality of the resolution: "Over and over again [the United States] have enjoyed the added value which [the gold clause] gave to their obligations. So late as May 2, 1933, they issued to the public more than \$550,000,000 of their notes each of which carried a solemn promise to pay in standard coin." This was no inconsistency; but part of the Government's policy to acquire gold at \$20.67 an ounce before raising its price to \$35. Henry VIII had done the same thing. "The king, intending as he did ultimately to raise the prices of the metals ... , determined to be as big a 'bull' of the market as he could, before letting in the general public."⁶⁶

But the U. S. Government's objective went beyond its own aggrandizement. One of its goals had been stated a few weeks earlier by Senator Elmer Thomas of Oklahoma in support of a proposal for "increasing agricultural purchasing power."

... the amendment, in my judgment, is the most important proposition that has ever come before the American Congress.... It may transfer from one class to another class in these United States value to the extent of almost \$200,000,000,000. This value will be transferred, first, from those who own the bank deposits. Secondly, this value will be transferred from

⁶⁵ For a history of indexation, including gold clauses, see Arthur Nussbaum, *Money in the Law*.

⁶⁶ Feavearyear, *The Pound Sterling*, p. 48.

those who own bonds and fixed investments....

Two-hundred billion dollars now of wealth and buying power rests in the hands of those who own the bank deposits and fixed investments bonds and mortgages. That \$200,000,000,000 these owners did not earn, they did not buy it, but they have it, and because they have it the masses of the people of this Republic are on the verge of starvation—17,000,000 on charity, in the bread line.

If the amendment carries and the powers are exercised in a reasonable degree, it must transfer that \$200,000,000,000 in the hands of persons who now have it, who did not buy it, who did not earn it, who do not deserve it, who must not retain it, back to the other side—the debtor class of the Republic....

—73rd Cong., 1st sess., April 24, 1933; *Cong. Record*, pp. 2216-17.

Norman C. Norman had invested in a 30-year, \$1,000 bond of the Baltimore and Ohio Railroad Co. issued in 1930 with annual interest of 4 1/2 percent, payable semi-annually “in gold coin of the United States of America of or equal to the standard weight and fineness existing on February 1, 1930.” After the devaluation of January 1934 had raised the price of gold from \$20.67 an ounce to \$35, Mr. Norman asked for the 1930 gold value of his coupon—raised from \$22.50 to \$38.10. B&O refused, Norman sued, and the case was decided by the U.S. Supreme Court in 1935.

The Court acknowledged that the resolution was part of a consistent policy of inflation on the part of the Government, but by a 5 to 4 vote upheld it on the ground that since the Constitution had given Congress the power to regulate the currency it could do anything that it considered necessary in regard to the monetary system no matter how many private contracts were invalidated or how much private property was confiscated. Justice McReynolds wrote in his dissent that “Just men regard repudiation and spoliation of citizens by their sovereign with abhorrence; but we are asked to affirm that the Constitution has granted power to accomplish both.” Alexander Hamilton was a leading advocate among the founding fathers of a broad interpretation of the powers of Congress. Yet he believed that

When a Government enters into a contract with an individual, it deposes, as to the matter of the contract, its constitutional authority and exchanges the character of a legislator for that of a moral agent with the same rights and obligations as an individual.

—*Report of the Secretary of the Treasury to the House of Representatives Relative to a Provision for the Support of the Public Credit*, 1790.

The Court’s disregard for financial integrity was at least partly a surrender to political pressure and a sense of crisis. Chief Justice Charles Evans

Hughes delivering the majority opinion cited the disruptions that would follow from honoring the gold contracts. He referred to the \$75 billion of gold contracts outstanding and stated: "It requires no acute analysis or profound economic inquiry to disclose the dislocations of the domestic economy which would be caused by such a disparity of conditions in which, it is insisted, those debtors under gold clauses should be required to pay one dollar and sixty-nine cents in currency while respectively receiving their taxes, rates, charges and prices on the basis of one dollar of that currency." This argument is sensible only if all these debts were due immediately. But most of the payments to Norman and other bondholders came in the future. "Dislocations" in the form of unintended wealth transfers would probably have been less if promises had been honored, although they would still have been substantial. Given the 77 percent increase in consumer prices between 1930 and 1960, the honest payment of Norman's principal of \$1,693 would have been worth \$955 in 1930 prices.

The Manipulation of Price Indexes

Since 1997 the U.S. Treasury has followed the example of several other Governments by issuing bonds whose coupon and principal payments are linked to the consumer price index. This would seem to be a good defense against inflation—until it is remembered that price indexes are computed by Governments. The manipulation of price indexes for political purposes is almost as old as the indexes. In the United Kingdom during World War II, for example, when the price index was based on a standard consumer basket of 1910, in the interests of public morale and the moderation of wage demands, official inflation was understated by means of subsidies and the regulation of prices with high weights in the index but of little current importance.⁶⁷ A similar effect was achieved in the United States by calculating the CPI from official prices instead of those actually paid by consumers. Later, during the inflation of the late 1970s, the CPI was redefined by eliminating mortgage interest rates (which were high and rising) and reducing the overall housing component (also high and rising) of the index from 46 percent to 38 percent. The old index was retained for the benefit of workers whose escalator-wage contracts used the CPI.⁶⁸

The recent official push for reform of the CPI has been motivated by the desire to reduce inflation-indexed payments. The Senate Finance Committee held hearings on the CPI in 1995 and appointed a study commission chaired by Professor Michael Boskin of Stanford University. The commis-

⁶⁷ See R.G.D. Allen, "Index Numbers of Retail Prices, 1938-51," *Applied Statistics*, June 1952.

⁶⁸ The changes were announced in 1981 but not implemented until 1983; *Survey of Current Business*, February 1983, p. S-36.

sion reported that because of inadequate accounting for quality changes and other problems the CPI overstates annual inflation by about 1.1 percent. The calculation of appropriate indexes is difficult, and there is general agreement about the need for improvement. But some groups are more interested in achieving particular financial goals through the CPI than in “getting it right.” The Finance Committee selected for its study commission only those economists who had indicated their belief that the CPI overstates inflation. Its recommendation that Congress legislate a correction was supported by Harvard Professor Martin Feldstein, former Chairman of the President’s Council of Economic Advisors, because it would reduce the federal deficit by cutting cost-of-living adjustments for social security and other benefits as well as the indexation of tax brackets. A 1.1 percent reduction in inflation adjustments beginning in 1998 would lower the federal deficit by \$6 billion that year and by \$60 billion in 2002. “If the inflation adjustment were postponed by just two years, the deficit reduction in 2002 would be only about half as large (about \$33 billion) and the national debt would be more than \$90 billion larger.” Dr. Barry Bosworth of the Brookings Institution, on the other hand, believes that because of poverty among the elderly a boost in social security benefits should be encouraged whatever the method.⁶⁹ It appears that the degree of protection against inflation enjoyed by the owners of inflation-indexed bonds will depend on the relative political strengths of competing economic interests.

⁶⁹ Statements before the Senate Finance Committee, February 11, 1997, in Dean Baker, *Getting Prices Right: The Debate Over the Consumer Price Index*, which also contains the Boskin report and a critique.

V.

ALTERNATIVE SYSTEMS: COMPETITIVE MONEY AND BANKING

Few areas of economic activity can claim as long and unanimous a record of agreement on the appropriateness of Government intervention as the supply of money. Very early in our history money was recognized by policy makers to be “special,” and individuals fearful of Government influence in other areas of economic life readily acknowledged that Government had a primary role in controlling monetary arrangements.

—Benjamin Klein, “The Competitive Supply of Money.”

MONEY is too important, we are told, to be left to the market. It is a vital public good that is bound up with credit, the lifeblood of industry. The sensitivity of the credit markets to uncertainty, adverse incentives, and fluctuations in confidence leading to waves of speculation and panic must be subjected to the calming influence of Government control, usually exercised through the agency of a central bank.

But these arguments are not sufficient. Money is not the only good whose quality and value depend on the reputation of its issuer, and problems of uncertainty and adverse incentives exist in all markets. In fact the relative simplicity and the transparency of most credit arrangements compared with, for example, the construction of a plant or the supply of materials over time place money issuers among the most easily monitored of producers. The balance sheets and income statements of financial firms are unrivaled in their simplicity, and the ease with which they can diversify their investments and activities adds to their advantage in safety. We have seen that the producers and managers of money are impelled by the same motives as other economic agents. And in the absence of regulation they would be subject to the same market disciplines. The case has yet to be made that free markets would fail to produce the same quality and efficiency in the production of money that we see in other goods.

We cannot know the details of a competitive monetary system for certain because none has existed under modern conditions. But Section E below applies the standard analysis of competition that is used in other industries to the questions of how the monetary system might evolve and function if it were released from Government control. No reason is found why it should not perform as well as other unregulated industries.

We might also learn something of how an unregulated system would function by reviewing the performance of perhaps the closest approximation to competitive money and banking since the advent of the industrial/

commercial/financial revolution—Scotland before it came under English financial regulation in 1845. After the discussion of Scotland in Section A, Sections B, C, and D review some private attempts by 19th-century Americans to secure stable and profitable money. In addition to the Suffolk and New York clearing systems, we look at the so-called “free banking” era of the quarter-century leading up to the Civil War. We find that this much-maligned episode which is often cited as an example of the need for regulation was in fact another illustration of the damages inflicted by over-regulation.

A. Free Banking in Scotland, 1716-1845

Scotland, a relatively industrialized nation with highly developed monetary, credit, and banking institutions, enjoyed remarkable monetary stability throughout the eighteenth and early nineteenth centuries. During this time Scotland had no monetary policy, no central bank, and virtually no political regulation of the banking industry. Entry was completely free and the right of note issue universal.

—Lawrence White, *Free Banking in Britain*, p. 23.

All of Great Britain was on the gold standard. Bank notes and deposits were redeemable in gold coin at the same rate of exchange—£3.88 per ounce—throughout the island. But the freedom to issue notes was severely restricted outside of Scotland. In 1708 Parliament undertook to protect the Bank of England from competition by prohibiting any other English bank with more than six partners from issuing bank notes or other obligations with maturities under six months. Since the Bank of England’s business was concentrated in London, the business of supplying bank notes outside the metropolis was “left to a host of poorly capitalized, locally based banks.”⁷⁰ Other English banks held reserves in the form of Bank of England notes, which were made legal tender in 1833. No bank in Scotland enjoyed the legal advantages of the Bank of England in the South, and there were no legal limits to their size, structure, or location within Scotland.

The most striking difference between English and Scottish banks was their size. Instead of hundreds of English banks limited by their resources to single offices dealing with narrow clienteles, the Scottish system had a few large banks with extensive branches. In 1845 Scotland had 19 banks of issue with 1 to 52 branches (a median of 12), an average of 692 shareholders, and all but one with capital substantially in excess of notes. The much lower failure rate of Scottish banks suggests that their expansions were not

⁷⁰ White, p. 38. Unless indicated otherwise, the quotations in this section are from White, ch. 2. In this discussion, England means England and Wales.

ill-advised, that there were significant economies of scale in banking. Between 1809 and 1830, for example, the failure rate of English banks was 1.8 percent per annum, about four times that in Scotland. Moreover, English failures came in waves. Approximately one-tenth of English banks failed in each of the three-year periods, 1814-16 and 1824-26. In no year was there more than a single Scottish failure.⁷¹ These economies were not unlimited, however, because unlike the Bank of England no Scottish bank approached a dominant position. The largest note issue in 1845, by the British Linen Co., was only 14 percent of the total Scottish issue and one-sixth greater than its closest competitor.

Competition led to innovations in customer service. Beginning in the 1720s, long before England, Scottish banks paid interest on deposits and offered overdraft accounts. The latter enabled borrowers to arrange lines of credit that could be drawn on, as the need arose, without repeated negotiations, paying interest only on the outstanding loan—an arrangement that was still unusual in the United States a quarter of a millennium later.

A vital element in the success of the Scottish system was its *note exchange system*. Banks began to accept the notes of other banks beginning in the 1750s *as long as the issuers were thought to be sound*. This was good for the business of a merchant who banked with the Dundee Banking Co., for example, and increased the use of notes generally. It was safe as well as convenient to accept the notes of the Perth United Bank if the merchant knew they would be accepted by his own bank. Knowledge that a bank was a member of the note exchange system, and had passed the scrutiny of its members, raised the demand for its notes. “Membership in the exchange became recognized as a valuable brand-name capital asset.” But trust was not unlimited, and members took care to redeem notes regularly. No such system developed in England because the dominant Bank of England refused to accept the notes of other banks, which were too small, numerous, geographically diverse, and unknown to each other to be willing to accept each others’ notes on a systematic basis.

The system of several reputable banks with none in a dominant position was conducive to monetary stability. On the one hand, regular note exchanges meant that no bank could for long increase its notes beyond the willingness of the public to hold them—thereby discouraging sharp monetary expansions. On the other hand, the sound reputations built by their conservative behavior and the absence of restrictions on banks’ access to capital minimized failures and monetary contractions. The dissemination of knowledge regarding banks and the limited dependence of one bank on any other bank because of the general acceptance of notes prevented fail-

⁷¹ White, Table 2.3.

ures from becoming runs; we have seen that the few Scottish failures were scattered over time. The contrast between the stability of the Scottish system and the violent fluctuations experienced in England was noted by the founder and first editor of *The Economist*.

... we have only to look to Scotland to see what has been the effect of a long career of perfect freedom and competition upon the character and credit of the banking establishments of that country.

—James Wilson, *Capital, Currency, and Banking*, p.30.

The Scottish system was efficient as well as stable.

The substitution of paper in the room of gold and silver money, replaces a very expensive instrument of commerce with one less costly, and sometimes equally convenient. Circulation comes to be carried on by a new wheel, which costs less both to erect and to maintain than the old one....

When the people of any particular country have such confidence in the fortune, probity, and prudence of a particular banker, as to believe that he is always ready to pay upon demand such of his promissory notes as are likely to be at any time presented to him; these notes come to have the same currency as gold and silver money, from the confidence that such money can at any time be had for them....

The whole value of the gold and silver... which circulated in Scotland before the union [1707] cannot be estimated at less than a million sterling. It seems to have constituted almost the whole circulation.... In the present times [1776] the whole circulation of Scotland cannot be estimated at less than two millions, of which that part which consists of gold and silver, most probably, does not amount to half a million. But though the circulating gold and silver of Scotland have suffered so great a diminution during this period, its riches and prosperity do not appear to have suffered any. Its agriculture, manufactures, and trade, on the contrary, the annual produce of its land and labour, have evidently been augmented.

—Adam Smith, *Wealth of Nations*, Bk.II, ch.2.

Scottish bank notes did extra duty by contributing to the English circulation. “The fact that Scottish notes crossed the border to form the common circulation of the northern counties of England—there is no evidence of English notes traveling northward—stands as clear evidence of the superior reliability of the Scottish banks,” and that “good banks ... drive out bad, given the chance.”

The defects of the English system finally led Parliament, in the Bank Act of 1844, to attempt to regulate the currency within narrow limits: no new English banks of issue were to be permitted, existing banks could not increase their issues, and the newly created Issue Department of the Bank

of England was constrained to issue and redeem its notes precisely in line with its receipts and payments of gold. Most of the provisions of the act were extended to Scotland in 1845, the principal difference being that existing Scottish banks, like the Bank of England, were permitted to change their note issues in line with their gold. But the prohibition against entry into the note-issuing business ended the Scottish experiment in competitive banking, although it could be argued that this restriction had little effect in the long run because checks succeeded notes as the primary means of payment. Of greater significance for the integrity and stability of the Scottish monetary system was its domination by the Bank of England, whose legal tender notes served as the reserves of other banks and was therefore free of the restraining influences of banks who might otherwise have presented its notes for redemption. The Scottish note exchange system that had restrained all banks and been the key to the monetary stability of that country was bypassed by the Bank of England.

The flexible Scottish banking system which had demonstrated that the profit motive might produce financial stability was ended by law. We will see below that other attempts to stabilize money—in particular, the private manufacture of reserves during stringent periods under the Suffolk system and by clearing houses—although made under more difficult, more heavily regulated, conditions—met similar fates.

B. The Suffolk Bank System of New England, 1824-58⁷²

Competition from the notes of small-town “country” banks had begun to worry Boston banks as early as the 1790s. Many Boston merchants depended on their sales outside the city, and since they often found it inconvenient to present country notes for redemption and Boston banks would not accept these “foreign” notes except at significant discounts—and sometimes refused them—Bostonians found it convenient to hold and do business with country notes while paying-off their bank loans, making deposits, and obtaining specie with “city” notes. By 1824 it was estimated that country notes made up ninety-six percent of Boston’s circulation (see the letter from the Suffolk Bank).⁷³ The “problem” as viewed by Boston banks was made worse by the country bank practice of making loans in their notes through agents located in Boston—which was an infringement of the Massachusetts prohibition against branch banking. American attitudes toward branching (see the box) have kept this country’s banking structure in a state not much different from

⁷² This account draws heavily on Fritz Redlich, *The Molding of American Banking*, Pt. I, ch. 4, from which the quotations are drawn.

⁷³ Donald Mullineaux suggests that the Suffolk Bank exaggerated, and that the ratio of Boston to country notes was 76 percent rather than 4 percent.

Letter from the Suffolk Bank to the Other Boston Banks, April 10, 1824

The subscribers, having been chosen by the directors of the Suffolk Bank a committee for the purpose of conferring with the other banking institutions in the city concerning the measures which it might be expedient for them in common to adopt, with the view of checking the enormous issues of country, and especially Eastern, paper, and of securing to the bills of the Boston banks a just proportion of the circulation, beg leave to call the attention of your board to the following statement of facts.

That of the whole incorporated banking capital of New England, amounting to no less than twenty million dollars, the eleven banks in this city possess ten million one hundred and fifty thousand. That estimating the circulation of the country banks at only seventy-five per cent. Of their capital, which they believe to be a moderate computation, these banks furnish seven million five hundred thousand dollars of the circulating medium, while the banks in the city, with a capital equal to all the rest, keep in what may be fairly termed permanent circulation only three hundred thousand dollars. That this prodigious credit thus enjoyed by the country banks is not owing to any superior confidence in the stability of these institutions, or in their ability to redeem their promises in gold and silver, but may be attributed to a discount founded on the very difficulty and uncertainty of means of enforcing this payment. Such would not be the natural operation of these causes were these institutions what they profess to be,—establishments for the discount of country notes and the convenience of country traders. Their bills would then circulate only in their own immediate vicinity. The farmers, who come to this city to dispose of their produce, would take back Boston bills, which the traders would in their turn bring down to pay for foreign or domestic merchandise. The superior stability and security of our banks would insure this result. But under the existing circumstances we presume that a very great proportion of the discounts of the country banks are made in Boston. Loans to an immense amount are made by their agents here at reduced rates of interest, payable in three or five days after demand, so that they can be in funds at very short notice, and in this manner necessarily deprive us of much valuable business.

Since the last of January the Suffolk Bank has received nearly one million dollars of country paper, the greater part of which has been sent home for collection, or redeemed by the agents here at par. Notwithstanding the unfavorable season and bad state of the roads they do not find themselves losers by the operation. But the measures hitherto pursued have been only partially effectual. Part of the bills thus removed from circulation are replaced by a worse description of paper. The sending home of the latter must be attended with some risk, and as the benefits proposed in our increased circulation and discounts will be common to all banks in this city, we deem it but just to call upon them to contribute their proportion towards the risk.

With these views we make the following proposals. That a fund of three hundred thousand dollars, to be assessed in proportion to their respective capitals, be raised by the several banking institutions, who may agree to the arrangement, to be placed at the disposal of one or more banks for the purpose of sending home the bills of the banks in the State of Maine in such way as may be deemed expedient. That this capital shall be paid in the bills of the several banks, which shall be indiscriminately paid out for the purchase of Eastern money. That the profit or loss shall be in common after charging a reasonable compensation for any extra service rendered by the officers of the bank receiving them.

—Signed: John A. Lowell and William Lawrence (Herman Krooss,
Documentary History, vol. i.)

England's in the first half of the 19th century.

The Boston banks periodically attempted to force the country banks to contract their issues by embarrassing them with sudden demands for specie in exchange for wagon-loads of notes. But this was expensive, unpopular, and not always supported by the courts. In 1824 the Suffolk Bank offered to act as agent for other Boston banks in handling country notes, that is, to buy the notes of country banks willing and eligible to join the system at a uniform discount and to bear the costs of redeeming those notes when they became excessive. Country banks were admitted to the system on the condition that they kept non-interest-bearing deposits at the Suffolk Bank. The discount on country notes was soon removed and the notes of all members of the system circulated throughout New England at par. The

Attitudes Toward Branching

The question of the utility of extending the operations of a bank by the organization of branches was raised at an early date. Hamilton, in his report on establishing a national bank, briefly refers to the subject; he admitted that branches might afford more general accommodation and would lessen the danger of a run upon the bank, but on the other hand, the complexity of such a system would be apt to inspire doubts which ought to be avoided in the introduction of a general banking system. Each branch, also, must be under a distinct, though subordinate direction, to whom a considerable latitude of discretion must be entrusted. As the property of a whole institution would be liable for the engagements of each part, the credit of the parent bank would depend upon the prudence of the directors of each branch....

Massachusetts also condemned the practice, the law reading: "No loan or discount shall be made, nor shall any bill or note be issued by such bank, or by any person on its account, at any other place than at its banking house." Notwithstanding this prohibition, some banks violated the spirit if not the letter of the law. In 1852 the bank commissioners severely condemned existing practices: "Banking institutions have a locality to which their operations are designed to be confined. It is a perversion of such design if the officers are sent into the money market in other places in pursuit of paper which, under the form of exchange, will give a higher rate of interest than it would be prudent for them to exact of the business community in their own neighborhood; it is an interference with the rights and interests of other banks, and the practice is frequently attended with loss on account of ignorance of the true character of the paper. The increased facilities of communication have a tendency to concentrate business in the metropolis. Managers of banks in the country, established for local convenience, should be at all times aware that to discount paper, receive checks, and exchange their bills through an agency in the city is an infringement upon the foregoing statute."

—Davis Dewey, *State Banking Before the Civil War*, pp.136,141-42.

region had achieved a reliable, uniform currency.

The price of membership for a country bank was an interest-free loan sufficient to redeem its notes and compensate the Suffolk Bank for operating expenses—tantamount to a reserve requirement. Its return was an enhanced reputation and therefore an increased demand for its notes. The system was not universally popular, although

The most violent objections came from those institutions whose loans exceeded conservative limits and which circulated their notes over a wide geographic area in the expectation that few would ever be presented for redemption.

—Harold Williamson, “Money and Commercial Banking, 1789-1861.”

However, by the 1830s no bank felt able to remain outside the system, and they all benefited from the public’s reduced demand for specie. The system’s reputation for soundness meant that fewer reserves were necessary to allay noteholder and depositor fears, which at least partially offset the extra reserve kept in Boston. The Suffolk Bank was a true central bank in the sense that it was the principal holder of the region’s reserve. Furthermore, it was willing to act as lender of last resort by extending overdraft privileges to members with deficient balances—similar to the Federal Reserve’s discount window. The relationship between New England country banks and the Suffolk Bank is illustrated by the balance sheets of New Hampshire banks in the box. Notice that three-quarters percent of their reserves (\$405,000 of \$541,000 in September 1851) were held in Boston. (The item above these balance sheets is included as typical news of the day, the one below as a reflection of interstate rivalries between currency systems.⁷⁴)

The system was profitable for the Suffolk Bank—too profitable to suit the country banks, who eventually established a cooperative system to capture the profits. The Bank of Mutual Redemption was chartered “to redeem our currency at par in Boston,” and, by requiring smaller deposits and paying higher interest on them than the Suffolk Bank, drove its predecessor from the field. While the venerable Suffolk Bank “handled the foreign money business in a dignified, routine fashion, the Bank of Mutual Redemption pushed it with a very undignified aggressiveness,” going so far as to employ an agent to “solicit subscriptions.” The latter’s New England business grew rapidly, and it moved into New York and beyond, indicating a “willingness to take at par from any party the notes of banks which kept their accounts with it and the notes of all other New England

⁷⁴ The reference to note security in Albany is to New York’s note insurance, or “safety fund.”

banks at a rate of twenty cents per thousand dollars.” All this was ended by the National Bank Act of 1863, under which state bank notes were taxed out of existence to make way for a Government-regulated “uniform currency” consisting of federal greenbacks and the notes, backed by federal bonds, of a new system of national banks.

C. The New York Clearing House, 1853-1913

Most of this [clearinghouse] currency was illegal, but no one thought of

Banking News in the New York Times

The bills of the Commercial Bank of Perth Amboy were refused in Wall-street to-day, it being stated that the Bank had ceased to redeem its notes.

The Newark Mercury says: “This institution, in former years, was considered as one of the soundest in New-Jersey, and we remember two or three instances in which strenuous attempts were made to run it out of specie, but without success. Located, as it is, in a great manufacturing town, the depression in that branch of business has probably some connexion with the present failure, though we have no certain information that such is the fact.

The following statement exhibits the condition of the Banks of New-Hampshire on the 1st inst., as compared with the month of March, 1850:

	<i>Sept., 1851</i>	<i>March, 1850</i>
Capital Stock paid in	\$2,571,000	\$2,203,950
Individual deposits	641,000	480,466
Circulation	2,127,000	1,750,096
Specie on hand	136,000	149,572
Deposits in Boston &c, to redeem circulation	405,000	432,782
Loans and discounts	4,798,000	3,852,158
(Some items adjusted for balance sheet consistency)		<i>Sept. 26, 1851</i>

One of our Philadelphia contemporaries objects to New York small notes, claiming in Pennsylvania a superior and cleaner currency. We hardly hope to satisfy the writer as to New York policy, nor shall we attempt to disturb his equanimity about his domestic advantages. But we do say, from a thorough conviction of the fact, that the small note currency of N. York, as secured at Albany, and the New England small note currency under the Suffolk system, were never so safe, and never more convenient and generally acceptable to the people than at present. In New England, the system has worked well for more than twenty years, and in New York for full ten years, and we dont recollect that small notes either produced suspension in 1837, or kept back resumption the year following. The experience of Pennsylvania may not have been so fortunate, in which case, her legislators were possibly right to stop such issues.

—Nov. 8, 1851

Clearinghouses: Support and Restraint of the Monetary System

Timberlake described the support of money by private, competitive banks operating through their clearinghouses:

A fractional reserve banking system by its very nature contains an element of instability. An increased demand for currency can so deplete bank reserves that the supply of bank-created money (deposits) declines, [resulting] in a decline in the total quantity of money.... The banking industry recognized this problem at an early stage. Since both the money-supplying industry—the banks—and the users of money—firms and households—were harmed by the results of bank-aggravated crises, everyone had an interest in reducing or eliminating this structural instability.

The solution, arrived at through force of circumstances and some financial innovation, was clearinghouse creation of temporary currency. The banking industry simply reinstated itself as an ad hoc central bank, and through its clearinghouse associations issued more currency.... It was the private-money-producing industry's answer to a pronounced need. It was, as well, constrained by market factors—interest rate charges on its issue, and the real stake the clearinghouse banks' directors had in seeing to it that the clearinghouse association did not make costly mistakes....

Others have stressed the restraint of clearinghouses. The cashier of Hunters and Co. of Ayr complained that

"the unlucky resolution of the Edinburgh Banks to take in our notes, by which they do us much honour..., has for two months past kept us both bare and busy, by exchanging every Monday at Edinburgh with the three banks there, and prevents us from discounting so freely as we have done." Hunters had hoped that its notes would be refused by other banks without affecting the public's willingness to use them. Although the note exchange "had a moderating effect on the volume of notes which a bank could keep in circulation,... in the long term there was a net expansionary effect on business as a whole."

—Charles Munn, "Origins of the Scottish Note Exchange."

prosecuting or interfering with its issuers.... As practically all of it bore the words "payable only through the clearing house," its holders could not demand payment for it in cash. In plain language, it was an inconvertible paper money issued without the sanction of law, ... yet necessitated by conditions for which our banking laws did not provide.... [W]hen banks were being run upon and legal money had disappeared in hoards, in default of any legal means of relief, it worked effectively and doubtlessly prevented multitudes of bankruptcies which otherwise would have occurred.

—A. Piatt Andrew, "Substitutes for Cash in the Panic of 1907."

A clearinghouse is an arrangement that saves a bank the time and trouble of paying or receiving its net debts or credits with every other

Banker and statesman Albert Gallatin, Secretary of the Treasury to Jefferson and Madison, proposed clearinghouses in the United States as early as 1841: Few regulations would be more useful in preventing dangerous expansions of discounts and issues on the part of the city banks, than a regular exchange of notes and checks, and an actual daily or semi-weekly payment of the balances. It must be recollected, that it is by this process alone that a bank of the United States has ever acted or been supposed to act as a regulator of the currency. Its action would not in that respect be wanted in any city, the banks of which would, by adopting the process, regulate themselves. It is one of the principal ingredients of the system of the banks of Scotland. The bankers of London, by the daily exchange of drafts at the Clearing House, reduce the ultimate balance to a very small sum, and that balance is immediately paid in notes of the Bank of England. The want of a similar arrangements among the banks of [New York], produces relaxation, favors improper expansions, and is attended with serious inconveniences.^a

^a *Suggestions on the Banks and Currency of the Several United States*, p.424, quoted in Fritz Redlich, *The Molding of American Banking*, Pt. II, pp. 47-48. Gallatin argued that clearinghouses would be more effective and efficient in promoting careful banking than New York's safety fund, a version of deposit insurance. The reference to "a bank of the United States" is a reminder that the conservative lending practices of the Second Bank of the United States (1816-36) tended to make it a net creditor of other banks, whose expansions were limited by the Second Bank's policy of regularly presenting them with their notes in exchange for specie. This policy of restraint incurred the displeasure of some bankers, who may have been influential in President Andrew Jackson's veto of Congress's renewal of the Bank's charter. (See Redlich, ch.6, and Bray Hammond, *Banks and Politics in America from the Revolution to the Civil War*, ch. 11.)

bank in the system. In a three-bank system, for example, suppose that Bank A receives \$200 of the notes and deposits of Bank B while B accumulates \$300 in claims on A, and that A has a net claim of \$300 on Bank C. Viewing interbank settlements from A's position, instead of sending \$100 of its reserves (primarily gold coin in the 19th century) directly to B and receiving \$300 directly from C, a clearinghouse enables it to settle its reserves with a single entity. All three banks keep reserves with the clearinghouse, all send their claims on the others to the clearinghouse, and A, for example, is notified of a \$200 increase in its clearinghouse balance. The New York Clearing House was established for this purpose in 1853, but its activities soon expanded.

When the New York banks lost gold in the panic of 1857, the "instinct of

each one was to curtail its loans in order to protect its reserves.”⁷⁵ But they soon realized that this would only intensify the panic without helping their individual reserve positions. So instead of insisting upon gold they agreed to accept *clearinghouse loan certificates* secured by the notes of country banks, although the latter were also in difficulty. On subsequent occasions, the certificates were also secured by state and federal bonds, with the borrowing banks paying 6 percent to the lending banks in lieu of gold.

Loan certificates enabled banks to maintain loans and deposits in the face of gold losses—a violation of legal reserve requirements. They were effectively extra-legal bank reserves. Through their clearinghouse the New York banks had assumed the role of private lenders of last resort. The practice spread to other cities, and often the certificates were issued in sufficiently small denominations—as little as \$10—that they could be used as currency by the public without being subjected to the 10 percent tax that was supposed to be levied on bank notes. This “temporary currency,” a Comptroller of the Currency wrote, “performed so valuable a service ... in moving the crops and keeping business machinery in motion, that the Government, after due deliberation, wisely forbore to prosecute.”⁷⁶

The necessity of subterfuge for reserves to meet crises was an obvious defect of the pre-1914 American monetary system, and Congress might have responded by legalizing an institution that had been developed in difficult circumstances over a half century and had made a definite contribution to financial stability. But the country was suspicious of bankers and shared President Woodrow Wilson’s desire that money be regulated by Government “so that banks may be the instruments, not the masters, of business and of individual enterprise and initiative,” and the Federal Reserve System was accordingly created in 1913. Richard Timberlake wrote of the Federal Reserve’s failure to support money and credit during the Great Depression:

The Federal Reserve alternative ... was critically different from the clearinghouse system. It introduced a discretionary political element into monetary decision making and thereby divorced the authority for determining the system’s behavior from those who had a self-interest in maintaining its integrity.

—“The Central Banking Role of Clearinghouse Associations”

D. The American Free Banking Era, 1837-63

... free banking degenerated into so-called *wildcat banking*. Banks of

⁷⁵ Margaret Myers, *The New York Money Market*, p.97.

⁷⁶ A.B. Hepburn, *History of Coinage and Currency in the United States and the Perennial Contest for Sound Money*, p.352.

very dubious soundness would be set up in remote and inaccessible places “where only the wildcats thrive.” Bank notes would then be printed, transported to nearby population centers, and circulated at par. Since the issuing bank was difficult and even dangerous to find, redemption of bank notes was in this manner minimized. These and similar abuses made banking frequently little more than a legal swindle.

—Dudley Lockett, *Money and Banking*, p. 242.

The fraud, failure, over-issue, and other alleged excesses of the American free banking era are frequently cited as examples of the dangers inherent in an unregulated banking system. But this evidence has two major deficiencies. First, American “free” banking was not unregulated. The term simply meant access to the banking business to anyone meeting specified standard conditions. Historically in banking, as in many other endeavors, the ability to conduct business required special permission from the legislature or the executive, which often sold monopoly privileges. But in the early 19th century the growth of profit opportunities and opposition to privilege, including privileged corporations, led to general laws permitting manufacturing concerns satisfying standard requirements to obtain corporate charters by direct application to the appropriate state office. Such laws were adopted in New York in 1811 and Connecticut in 1817, but most states waited until the 1830s to follow suit, and the principle of standardized free entry was not extended to banking until the late 1830s—in Michigan, New York, and Georgia. Fifteen more states soon adopted free banking laws, but only half saw much advantage taken of them, and at its peak in the 1850s ten of thirty-two states had active free banking: Connecticut, New York, New Jersey, Louisiana, and the states of the old Northwest Territory: Ohio, Michigan, Indiana, Illinois, Wisconsin, and Minnesota. In all these states, “free” banks were subject to portfolio and branching restrictions similar to those existing before the adoption of free banking and in the states without standardized entry. The legal frameworks of the pre-Civil War free banking states were thus very similar to the National Banking System between 1863 and 1935, after which national bank charters and federal deposit insurance became conditional on “the convenience and needs of the community.”⁷⁷

The other shortcoming of the usual history of wildcat banking is the failure to recognize that there was little difference between bank failure rates in free banking states and other states in similar stages of develop-

⁷⁷ Comptrollers of the Currency sometimes exceeded their authority by restricting entry on the basis of expected competitive effects even before 1935. “Needs and convenience” have apparently not been given much weight in charter decisions since about 1980, so that we are currently in another free banking era.

ment. The northwest had high failure rates, especially in the first two or three years after the adoption of free banking, but the experiences of eastern free banking states were about the same as their neighbors. In New York, for example, after the widespread failures of 1838-1842, which it shared with other states, the average annual percentage loss to noteholders was about 0.04 percent, “described by a contemporary observer as being far less than the loss arising from wear, tear, and shaving of specie coins.”⁷⁸ Nevertheless, it would be interesting to know whether there was something about free banking that stimulated wildcat behavior.

It can be shown that free bank failures arose less from their “freedom” than from regulation, in particular the interest rate risk required by their charters. Most free banking laws required banks to (a) deposit state and U. S. bonds with the state auditor as security for notes issued and (b) pay specie for notes on demand. Failure to redeem even one note required the state to close the bank and distribute the proceeds from the sale of the deposited bonds to noteholders, who were usually preferred over other creditors in the distribution of bank assets (free banks were limited liability companies).

Using the 1851 New Hampshire balance sheet in the box on “Banking news ...” and dropping the last three digits, a free bank might be started and operate as follows. The prospective banker uses his capital (in specie and/or notes of an existing bank) of \$2,571 to buy state bonds worth \$2,030, which he deposits with the state auditor, with the remaining \$541 allocated to reserves of specie and the notes and deposits of reputable banks. The bonds are included among “loans and discounts.” Then the bank extends (buys) loans and other assets valued at \$2,768 with notes and deposits, resulting in the September 1851 balance sheet in the box.

We are interested in how such a bank might have failed during the free banking era. The wildcat explanation, based on fraudulent behavior, recognizes that notes were backed by the par value of bonds, so that when bonds were selling below par bankers could obtain, say, \$2,127 in new bank notes for bonds costing, say, \$1,702 (if \$100 bonds were selling for \$80). Once the notes had been gotten into circulation, a wildcat banker could close his doors and leave town, and the noteholders would have only \$1,702 to cover their claims of \$2,127. But this story does not tell us what the banker has gained. He cannot take the bank’s loans because they pass to the state. In our example, even if we reduce assets and capital by \$425, the wildcatter would have made a very bad deal—fleeing with the specie of \$136, plus perhaps another \$405 of specie or the notes of good banks (if

⁷⁸ Robert King, “On the Economics of Private Money.”

Table 3
**Free Bank Failures: Total and During Major Declines
in Asset Prices, 1841-61**

	<i>Months</i>	-----Failures-----				
		<i>New York</i>	<i>Indiana</i>	<i>Wisconsin</i>	<i>Minnesota</i>	<i>Four states</i>
Total	237	34	16	37	9	96
During major declines	65	25	12	37	2	76

Source: Rolnick and Weber, "The Causes of Free Bank Failures," Table 9.

he cashes the deposits) after having put up \$2,146 in capital.

About the only way that a wildcatter could have come out ahead was to buy land, securities, or other assets with the new notes—directly or through defaulting co-conspirators. In our example, his capital of \$2,146 would have been turned into \$3,212 (reserves of \$541 plus goods of \$2,671). Of the gain of \$1,066, \$641 is from the purchase of goods with deposits (and is unrelated to the note circulation) and \$425 is attributable to the bond discount, that is, to the excess of the notes over the market value of the bonds. Since any gains from wildcat banking would have been gotten by absconding with the assets purchased with the notes as soon as they were circulated (and the deposits as soon as they were created), instead of from interest on bank assets, the wildcat-banking hypothesis implies short-lived banks, almost certainly less than a year.

However, Arthur Rolnick and Warren Weber have pointed out that the great majority of free banks lasted much longer than a year, in fact, as long on average as banks in neighboring non-free-banking states, and there was no concentration of free-bank entry at the times that state bonds sold below par, when wildcatting would have been most profitable. They suggest an alternative explanation of free-bank failures arising not from their freedom but from their restraints—specifically the obligation to hold long-term bonds. This is supported by data from four states which show that in the two decades before the Civil War nearly four-fifths (76/96) of free-bank failures coincided with the five major bond-price declines that made up little more than a quarter (65/237) of the overall period (see Table 3). The data are consistent with the hypothesis that a substantial proportion of free bank failures were caused by declines in the values of bank assets leading to insolvency or fears of insolvency that led creditors to attempt to redeem their notes and deposits for gold. The explicit bond backing of notes would have made noteholders sensitive to declines in bond values. When these events combined to force a bank's failure they imposed losses on its projectors—unlike the wildcatters of the history books.

E. How Would a Free System Operate?

The Legal Framework

Under competition there are no exclusive rights to the issue of money. Anyone may produce money—engrave currency, mint coins, and accept checking accounts, subject, like other firms, only to general legislation and the ordinary rules of law, particularly the enforcement of contracts. These “banks,” as we may call money producers, might also engage in other activities, and must comply with the same labor and environmental laws and building codes as anyone else, and pay taxes, but their banking activities are not subject to special regulation. Their portfolios and capital structures are not restricted by special banking laws, although, like other firms, they are liable to creditors and others for damages resulting from misleading information, perhaps overly optimistic valuations of their assets, and negligence, perhaps in the management of trust accounts. If a bank fails to keep a promise to redeem its deposits for gold (or whatever else has been promised), it is liable for damages and is subject to the laws of bankruptcy.

The experiences described in earlier sections show that the freedom to make private arrangements to address problems special to banking enhances the stability of banks and the monetary system. For example, delays in payment during liquidity crises moderated bank suspensions during the 19th century. Bank-money contracts often provided for such delays subject to the compensation of creditors. Of course arrangements depended on the costs and preferences of banks and their creditors—on whether the compensation required by moneyholders exceeded the reserve economies for

The Costs of Competition: You Get What You Work For

Nineteenth-century bank-note reporters and market discounts are reminders that, compared with the convenience of U.S. currency and Government-insured checking accounts, the costs of maintaining a competitive currency are significant—although removal of the branching and other legal restrictions to which they were subject would have eliminated many impediments to information by enabling banks to build regional and even national and international reputations.

The differences between competitive and Government moneys are comparable to the food distribution systems of the U.S. and the former Soviet Union. The U.S. system requires choices and considerable attention to detail on the parts of consumers. The lack of variety in the Soviet system relieved consumers of these problems.

The argument concerning the relative merits and deficiencies of competition and Government monopoly in money rests on whether user surveillance would have the same salutary influence on the quality of money, as well as the efficiency of its production and distribution, as on the distribution and quality of food.

banks. In any case, these arrangements came to be prohibited by state and federal laws. We also saw that the creation of emergency reserves through clearinghouses was a useful stabilizer. Furthermore, the deposit insurance debacle of the 1980s suggests that efficiency might be improved by turning the authority to liquidate banks, like other firms, over to private creditors. The unwillingness of officials to close insolvent institutions because of the fear of political embarrassment culminated in a massive tax-payer bail-out of the insurance funds. It is unlikely that private creditors would have shown the same forbearance. The failures themselves were effects of legal restrictions, especially on branching, and subsidies that encouraged high-risk portfolios such as the short-term borrowing and long-term lending of S&Ls. Under competition, banks would be freed of legal impediments to low-risk strategies, and risky portfolios would not be insulated from market risk premia by regulatory restrictions on competition, federally subsidized deposit insurance, or Federal Reserve bail-outs.

In a free society trademarks are valuable property and indispensable to informed, efficient trading. Some writers have expressed the fear that a competitive system in which the circulating media consisted of paper currency and electronic transfers would allow the value of money to gravitate to its cost of production. Since gold coins were “full-bodied,” and the price of wheat in terms of gold depended on the relative costs of producing wheat and gold under the gold standard, it was feared that the value of competitive paper money would also tend toward its cost of production—worth, like Confederate money after 1865, the paper it was printed on.⁷⁹ This might be true if banks’ brand-name property was not protected. If thefts (counterfeits) of trademarks were not prohibited so that any bank might issue the promises of the ABC bank, the value of those promises might indeed fall to the cost of printing them. But bank note trademarks were protected in the 19th century just as Government currencies are protected today, and just as Joe’s Instant Rotgut Company may not put Chateaufort-du-Pape 1971 labels on its bottles. The value of paper or electronic claims on gold are worth their face (contract) values in gold if the public has confidence in the bank that issues those claims (contracts), which is possible only if the bank’s trademark is protected.

We assume that the banks in our newly competitive economy call their money “dollars” for ease of comparison with earlier moneys. There might be exceptions, such as the “pesos” preferred by a few banks on the Mexi-

⁷⁹ Milton Friedman, *A Program for Monetary Stability*, p. 7. The lack of realism of this assumption of the unique absence of trademarks and other product identifications in money inspired Benjamin Klein’s seminal paper, “The Competitive Supply of Money,” on which this section is based.

Table 4
**Discounts on Bank Notes at Philadelphia, November 1845 from
*VanCourt's Counterfeit Detector and Bank Note Reporter***

<i>State</i>	<i>Percent</i>	<i>State</i>	<i>Percent</i>	<i>State</i>	<i>Percent</i>
New England	0.50	North Carolina	1.50	Kentucky	1.50
New York	0.75	South Carolina	1.50	Missouri	1.75
New Jersey	0.75	Georgia	2.00	Ohio	2.00
Pennsylvania	0.00	Alabama	5.50	Indiana	2.00
Delaware	0.00	Mississippi	80.00	Illinois	70.00
Maryland	0.25	Louisiana	2.00	Michigan	65.00
Virginia	1.00	Tennessee	2.50	Wisconsin*	?

*Wisconsin's notes were of doubtful value and only purchased under special circumstances. The table gives modal discounts; Gary Gorton reports that in most periods the vast majority of bank notes from a particular state had the same discounts ("Reputation Formation in Early Bank Note Markets"). *Source*: Hugh Rockoff, "The Free Banking Era."

can border, but the money of each bank, whether pesos or dollars, is distinct—as distinct as the brands of other products. This means that not all dollars necessarily have the same value. Sellers might require twelve dollars of the Wildcat Bank of Evanston for a case of Coke compared with ten Hawkeye Bank of Iowa dollars, but we assume that banks strive for par values for their currencies. Discounts on bank notes in the 19th century increased with distance from their banks of issue (see the box on "Discounts on Bank Notes"), and may be explained by information and redemption costs. The repeal of anti-branching laws would reduce these costs.

Banks and Their Creditors: the Determination of a Bank's Money

The demand for Hawkeyes. The public's demand for bank notes and deposits in general depends on the scale of their transactions, the costs of handling money, and the rates of return on money and other assets. The demand for the money of an individual bank, say the Hawkeye Bank, depends on the convenience and expected rate of return on Hawkeye money relative to the moneys of other banks. Assume that we are the owner-managers of this new bank and that we denominate our money in "dollars" for ease of comparison with the moneys of existing banks, although our notes and checks are popularly called "Hawkeyes" because the bank's name and symbol are inscribed on them. We started the bank by buying 200 one-ounce gold coins with an existing money and extending loans amounting to H\$1,000,000, repayable in Hawkeyes or other moneys at current rates of exchange. We promised to redeem our money in gold or its equivalent at the rate of \$500 an ounce, choosing the customary rate of exchange for the convenience of our customers. By "its equivalent" we mean the gold values of goods, moneys, or other securities. For example, if

someone brings H\$1,000 to us, he has the contractual right to 2 ounces of gold, but he might prefer, or be satisfied with, \$1,000 of the ancient and unimpeachable Safe and Sound Bank of St. Paul, or perhaps, if the current price of wheat is S\$4 a bushel, a warehouse receipt for 250 bushels of wheat. By S\$ we mean the St. Paul dollar, which with other safe moneys has come to serve as the monetary standard. Other currencies are quoted “on a par with” or “discounts from” the St. Paul “Saints.” For example, the Hawkeye Bank requires W\$1,250 as payment on a H\$1,000 loan if the purple dollars of the Wildcat Bank of Evanston are exchanging at a 20 percent discount from our money, or for 80 Hawkeye cents.

Our assumption of a gold standard is not completely arbitrary because it has precedents as well as some basis in logic. Gold still has the characteristics that made it a popular money before the rise of banks and credit money—malleability, storability, and a quantity that can be increased but not so easily that it rapidly loses value. However, malleability is unlikely to be a significant feature of money in a future competitive system. Gold coins will not be in great demand when by far the greatest value of transac-

The “Autographical Counterfeit Detector”

Under this title an 80-page book containing facsimile signatures of the President and Cashier of nearly every bank in the United States was issued in 1853 with *The Bank Note and Commerical Reporter*. The signatures below are from the sample of New York City banks reproduced in Henry Lanier, *A Century of Banking in New York, 1822-1922*, pp. 225-28.

NEW YORK CITY.

American Exchange Bank.


D. Leavitt, President.

Astor Bank.


J. Deromas Mills, Cashier.


John Lloyd, President.

Bank of America.


J. Fannett, Cashier.


Geo. Newbold, President.

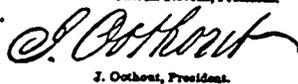
Bank of Commerce.


Henry F. Vall, Cashier.


Jan. A. Stevens, President.

Bank of New York.


A. P. Halsey, Cashier.


J. Outhout, President.

tions takes the form of multi-million-dollar electronic transfers between bank deposits. Small depositors or noteholders might ask for gold or other full-bodied coins from time to time, but others would still rely on book-entry (electronic) or paper claims. The question is: claims on what? Presumably not pieces of paper professing trust in God, but rather things of value in their own right. Commodities. Therefore a commodity standard, probably gold.

We do not have to take the word of the Hawkeye Bank management or Government regulators for its condition. The creditors of the bank, as of other firms, keep their eyes on it, perhaps by subscribing to bank money reporters like those of the 19th century. Competition is not free. That's the point. It requires effort. We have to look out for the value of bank money, as we do for other financial claims. But there is a pay-off. We can enforce value, as in competitive markets for other goods, by shifting between moneys—something not possible in the present monopolistic system that has seen a nine-tenths fall in value since the 1930s.

The Supply of Hawkeyes.

It is very important to understand the cost associated with maintaining notes in circulation, if only because the nineteenth-century opponents of free banking so often built their case on the implicit assumption that a bank of issue could extend its circulation gratuitously. It is one thing to print up notes and to *initiate* their circulation; it is quite another to *maintain* that circulation in a competitive environment.

—Lawrence White, *Free Banking in Britain*, p. 7.

The Hawkeye Bank will expand its notes and deposits as long as it is profitable to do so, that is, as long as the expected returns on its assets (loans and investments) exceed the costs of funds, which consist of the interest and other expenses of its note and deposit liabilities, including rapid transfers of funds and convenient hours and locations of branches and ATM machines.

Market equilibrium. Prices and quantities are determined as in other markets. For example, suppose that supply and demand diverge because the public desires more Hawkeyes than they possess. The Hawkeye Bank experiences an increase in deposits and notes in circulation without a significant increase in the cost of maintaining them—possibly consequences of a growing reputation for service and soundness, or perhaps a decline in the quality of competitors' moneys. The increased popularity of Hawkeyes induces an increase in their supply until their marginal value to moneyholders equals their marginal cost to the Hawkeye Bank at the competitive interest spread between its loan and money rates.

***What Will Be the Nature of the Unregulated System?
Competitive or Monopolistic? Gold or Paper or Corn?***

We now move to the competitive *system*. What will be the consequences of the free-for-all between the producers of Hawkeyes, Saints, and Wildcats? Stable or fluctuating prices? Financial stability or chaos? Before turning to the operations of the system and its resiliency, we must be clear about its fundamental properties. Will it truly be competitive, or will it just be an exchange of a Government for a private monopoly? And what will be the monetary base, the foundation of money?

The advantages of a competitive market for money or any other good stem primarily from the checks imposed by producers on one another. A bank is unable to get away with excessive issues—that is, large amounts of notes and deposits unbacked by solid loans and adequate reserves—in the presence of good alternatives any more than a low-quality grocery can expect customers if it is not the only store in town. This raises the question of whether economies of scale in money production might be so great that the withdrawal of regulation will result not in competition but in the rise of another monopoly central bank, another Bank of England, with the powers of such an institution to force large and sudden changes in aggregate money and the price level.

History is little help in answering this question because of the lack of experience of competition (although Scotland showed no signs of monopoly before it was forced into the Bank of England's orbit). Monopoly central banks owe their powers to legislation; the Bank of England was given certain monopoly privileges from its beginning, and its notes were eventually made legal tender. The supplies of currency and bank reserves have been the protected preserves of state-owned or state-controlled enterprises. But it is reasonably clear that other banking activities, such as lending and check-processing, are not natural monopolies because even those countries without restrictions on branching or other means of growth, such as Great Britain and its former colonies (except the United States), support several large banks in active competition through nationwide branching systems in addition to numerous regional and specialized banks. These banking structures are not “perfectly” competitive in the sense of modern economic theory, but they may be consistent with competition as the term was used by Adam Smith and is understood by businessmen. (See the box on “Competition, Knowledge, and Discovery.”)

But if the monetary base is not dominated by the obligations of a monopolist, what form will it take? In this case, history does provide a guide. Before the appearance of banks, a common property of the most popular moneys was their relative stability of value. People were reluctant to accept payment in

Competition, Knowledge, and Discovery

It is worthwhile to inquire into the differences between the meanings of competition in economic texts and in our discussion of competitive money, which is like that used in ordinary discourse. Economic theorists and the textbooks define a “perfectly competitive” market as one in which buyers possess complete information about the price and characteristics of a homogeneous good, and because of diseconomies of scale each of the large number of sellers has such a small share of production that no one can affect the price. This definition implies costless transactions as well as free information. Everyone pays the same price for a good about which, without incurring costs, they know everything.

For those in the marketplace, on the other hand, “competition” means the development and marketing of distinctions between products, a great part of which involves the transmission of information. In a dynamic world of costly information and transactions, competition is primarily a discovery process. Buyers search for high quality at low prices; and sellers search for buyer preferences and cheap ways of supplying them. Adam Smith understood this. The tendency in free markets for scarce resources to be directed to their most desired uses does not require free information and transactions; that would be begging most of the economic problem. Smith was more realistic than this. “The real price of every thing, what every thing really costs to the man who wants to acquire it, is the toil and trouble of acquiring it.” Prices are “adjusted ... not by any accurate measure, but by the higgling and bargaining of the market, according to that sort of rough equality which, though not exact, is sufficient for carrying on the business of common life.” (*Wealth of Nations*, Bk. I, ch. 5) But in the 1930s Edward Chamberlin (*The Theory of Monopolistic Competition*) and others analyzed various forms of “imperfect competition” that depart suboptimally from “perfect competition” because sellers contest for “market power” by “differentiating” their products. These pretended differences distort information, impede the efficient allocation of resources, and ought to be discouraged. Trademarks and other investments in quality distinctions are worse than useless.

The economic theorist’s concept of perfect competition led Friedman to assume that indistinguishable competitive money would be issued to the point that it was worth no more than the paper it was printed on. But Klein pointed out that we should expect quality distinctions and reputations, and sellers’ investments in both, to be as important for money as other goods. He quoted Hayek on models of competition: “Especially remarkable ... is the explicit and complete exclusion from the theory of perfect competition of all personal relationships between the parties. In actual life the fact that our inadequate knowledge of the available commodities or services is made up for by our experience with the persons or firms supplying them—that competition is in a large measure competition for reputation or good will—is one of the most important facts which enables us to solve our daily problems.”

—“The Meaning of Competition”

media of exchange unlikely to retain their values. They also wanted something that was portable and malleable, easy to carry in a variety of recognizable values. And even in the early stages of banking, until Governments discovered the profitability of irredeemable legal tender paper, traders accepted only paper representing claims on gold or silver. Silver was abandoned when its value declined and became unstable. Portability and malleability are unimportant in the modern world, but it is unlikely that in the absence of coercion our descendants will be any more likely than our ancestors to trade goods for worthless paper. Furthermore, the ability to produce irredeemable money would insulate a bank from limits on its production and raise fears among its potential holders of falls in its value. Irredeemable money could not survive in competition with money that was redeemable and limited in quantity.

There is a good chance that the monetary base will be gold. The changes in gold's value in terms of other goods have occasionally been significant over long periods, such as the four-fifths fall during the 16th century (an annual fall of 1.6 percent) and the one-third rise during the last third of the 19th century (also 1.6 percent per annum). But its value has been more stable than the values of agricultural products, which depend on the weather, and manufactured products, which are susceptible to innovations and obsolescence, and it is easily stored without loss to rust or spoilage. Would you rather your money be redeemable in corn, furniture, or gold? If speculation or hedging in corn is what you want, other means are available. Another advantage of gold is its substantial reserves of known costs of extraction so that increases in its value (falling prices of other goods) bring forth stabilizing increases in its supply.

***Operation of the Competitive System.
Will It Provide Support and Restraint?***

Metallic money is an expensive way of performing a simple function; why waste resources in digging up gold from the ground when pieces of paper (or mere book entries) which can be provided, and transported, at a fraction of the cost will do as well? That is the reason why the credit system grows: that it provides a medium of exchange at much lower cost. But on the other side there is the penalty that the credit system is an unstable system. It rests upon confidence and trust; when trust is absent it can just shrivel up. It is unstable in the other direction too; when there is too much 'confidence' or optimism it can explode in bursts of speculation. Thus in order for a credit system to work smoothly, it needs an institutional framework which shall restrain it on the one hand, and which shall support it on the other.

—J.R. Hicks,
"Monetary Theory and History—An Attempt at Perspective."

The proponents of a competitive gold standard have made a good case for probable monetary stability in ordinary circumstances: competitive banks should have the incentive and ability to maintain their circulation while being restrained in their issues by competition for costly reserves. But how would it perform under pressure? Is it likely to improve our defenses against the kinds of inflationary and deflationary assaults that have overwhelmed Government systems? We will consider the probable responses of a competitive system to two common shocks.

Restraint of inflationary pressures? Suppose that an increase in expected returns to investment leads to rising interest rates and loan demands that induce banks to increase their lending. Higher interest rates and improved loan quality persuade banks to try to maintain more money and credit on a given reserve base. This means procyclical money and prices, as we have observed in regulated systems. But the limited capacities of unregulated banks to promote the demand for their increased money—for example, by interest on deposits and more or better branches—should moderate the inflation. The most effective restriction on the monetary expansion, however, is the limited quantity of reserves (gold in our example). The greatest difference between the inflationary potentials of competitive and regulated systems is the independence of the latter's dominant bank from market discipline. The tendency of official central banks to supply the credit necessary to prevent adjustments in interest rates has been an important source of inflation. Their improved awareness of this danger combined with the public's reaction to the inflation of the 1970s led to a reduction of inflation in industrial countries after 1980. But their interest-rate policies must of necessity be conducted in the dark, on the basis of incomplete and tardy information, which brings us to the chief advantages of competition over regulation—information and incentives. Decisions are based on information that can be available only to the agents involved, and the market punishes those who expand too far.

Support against deflationary pressures? Now assume a loss of reserves by the banks of a region—either because of an adverse balance of payments with other regions or an economic depression that raises doubts about the solvency of banks. In a regulated system, banks come under pressure to restrict their loans in a battle for each others' reserves, and the resulting bank and customer liquidity failures easily escalate to panic, bank suspensions, deflation, and depression—an all-too-common experience before central banks became aware of their support responsibilities. In an unregulated system, however, banks might pursue their incentives to develop clearinghouse certificates and other short-term reserve substitutes that lessen the scramble for gold—effectively agreements between solvent banks not to press one another too hard for reserves. They are lenders of

last resort for each other, with the efficiency advantage over Government central banks of excluding insolvent banks from the exercise of these claims, and they have an interest in knowing the situations of their debtors.

Serious deflationary pressures have also been associated with declines in the aggregate demand for commodities, especially investment goods, which put downward pressures on loan demands and therefore the money stock at times when liquidity demands tend to be most pronounced. Of course banks, like other producers, have an incentive to maintain their supply in the face of depressed demands, and the box contains F.A. Hayek's

Preventing General Deflation

The reader may not yet feel fully assured that in the ... competitive money system ... a general deflation will be as impossible as a general inflation. Experience seems indeed to have shown that, in conditions of severe uncertainty or alarm about the future, even very low rates of interest cannot prevent a shrinking of a bank's outstanding loans. What could a bank issuing its own distinct currency do when it finds itself in such a situation, and commodity prices in terms of its currency threaten to fall? And how strong would be its interest in stopping such a fall of prices if the same circumstances affected the competing institutions in the same way?

There would of course be no difficulty in placing additional money at a time when people in general want to keep very liquid. The issuing bank, on the other hand, would not wish to incur an obligation to maintain by redemption a value of its currency higher than that at which it had issued it. To maintain profitable investments, the bank would presumably be driven to buy interest-bearing securities and thereby put cash into the hand of people looking for other investments as well as bring down the long-term rates of interest, with a similar effect. An institution with a very large circulation of currency might even find it expedient to buy for storage quantities of commodities....

This would probably be sufficient to counteract any downward tendency of general prices produced by the economic process itself, and if it achieved this effect it is probably as much as can be accomplished by any management of money. But it is not to be wholly excluded that some events may cause such a general state of discouragement and lethargy that nothing could induce people to resume investment and thereby stop an impending fall of prices. So far as this were due to extraneous events, such as the fear of an impending world catastrophe or of the imminent advent of communism, or in some region the desire to convert all private possessions into cash to be prepared for flight, probably nothing could prevent a general fall in the prices of possessions that are not easily portable. But so long as the general conditions for the conduct of capitalist enterprise persisted, competition would provide a money that caused as little disturbance to its working as possible. And this is probably all we can hope.

—F.A. Hayek, *The Denationalisation of Money*, pp. 99-100.

analysis of how in the absence of regulation they might contain depression more effectively than a system dominated by a Government monopolist lacking the same incentives or information.

What About Monetary Policy?

The Government is excluded from monetary control in a competitive system. The great advantage of this is the removal of the capacity for official destruction of property through inflation. On the other hand, Keynesian activists committed to the Phillips curve still argue that the abolition of official control of money would remove a discretionary instrument for the stabilization of employment. The anti-Keynesian advocates of monetary rules would also exclude competition. In reference to the latter, Professor Hayek cannot see why the money of every country—Finland as well as the United States, even in the winter—and of every region—even western mining towns through the booms and busts of the 19th century—should grow at constant rates.⁸⁰ The folly of such a policy is clearest in the face of great shifts in population. But its implications for the flexibility of the system's response to crises is also troubling.

I would not like to see what would happen if under such a provision it ever became known that the amount of cash in circulation was approaching the upper limit and that therefore a need for increased liquidity could not be met.

—F.A. Hayek, *Denationalisation of Money*, p. 81.

⁸⁰ Hayek cites a similar statement by Walter Bagehot in the course of an argument against the adoption by England of fixed required reserve ratios similar to the United States: “In a sensitive state of the English money market the near approach to the legal limit of reserve would be a sure incentive to panic; if one-third were fixed by law, the moment banks were close to one-third, alarm would begin and would run like panic.” (*Lombard Street*, ch. 13)

VI.

CONCLUSION: NOT A NEW ERA

THE development of money from cattle to electronic bookkeeping entries in modern commercial banks has been a history of responses to profit opportunities. Money is no different from other goods in this respect. Where it has differed from other goods is the extent of its monopolization by Governments. These monopolies have inevitably been abused for the purposes of redistributing wealth between citizens or from citizens to Governments outside normal and open economic and political processes. The inefficiencies and instabilities of Government-controlled money are characteristic of monopolies. Past and present monetary systems have lacked the efficiency, restraint, and support in times of stress that is needed and which we have every reason to demand.

The question might be asked, however, in light of the lessening of inflation since the 1970s, whether a permanent improvement has not occurred within the present system. Have we not acquired the knowledge and will to maintain price and financial stability with fiat money?

Unfortunately, these questions must be answered in the negative. There has been no change in institutions that would justify any expectation of a change in motives. The political incentives and freedom from market discipline that produced inflation in the past still exist. In fact, the inflationary potential of the present system exceeds those of the past fiat systems that were tried and found wanting. The 18th-century colonial paper issues that led the framers of the Constitution to prohibit Government paper money made up relatively small proportions of the total money supply, their duration was limited, and there were no banks to be required to hold them as reserves against further monetary expansion. It was also understood that they, like the Civil War greenbacks, would eventually be redeemable in gold.

None of these restraints apply today. There is no expectation of an end to the current fiat system or, if it is replaced, that our paper dollars will be redeemable for the gold into which they were convertible at the time of suspension. The unlimited Government paper-money monopolies prevailing in the United States and other countries are even more subject to abuse than other monopolies. The sole producer of widgets, or even of such necessities as electricity, cannot throw unlimited, deteriorating amounts onto the market without going bankrupt. Even nationalized industries do not enjoy unlimited subsidies. But fiat money is cheap to produce and demand is virtually unlimited in the absence of other, more stable, currencies. Furthermore, the management of a private monopoly has to be con-

cerned with the value of its stock, and therefore with the company's reputation. But the bottom line for politicians—to whom we have entrusted the decision of whether to fund expenditures by the immediately unpopular courses of taxation or forcing up interest rates by borrowing, or by printing money that may have inflationary consequences some time in the future—is the next election.

These deficiencies might be countered by the observation that prices have recently been held in check—at least by post-Keynesian standards. But in fact recent performance does not compare favorably with earlier periods. The 3.1 percent average annual inflation between 1982 and 1998 exceeds the 2.7 percent between 1953 and 1969, and the 2 percent of the '90s is no better than under Eisenhower. But such comparisons miss the point. They merely demonstrate the erosion of our standards, of our expectations regarding the value of money. Two-percent inflation may sound small, but it cuts 81 percent from the purchasing power of the principal of a 30-year bond. The threat of even 2-percent inflation greatly modifies the plans of savers and investors, and compels the erection of costly defenses.

But the inefficiencies of unrestrained fiat money do not end there. Notwithstanding the retrenchment of the Federal Reserve since 1979 under Chairmen Paul Volcker and Alan Greenspan, who have been about as conservative as could be managed in the prevailing political environment, there is no reason to believe that the Government's fundamental monetary policy is not still opportunistic, that inflation has ceased to be a policy option. Nothing else can explain the continued willingness of the federal Government to underwrite massive private liabilities over which it has little influence. We have seen the bail-out of the savings and loan deposit insurance fund. This blank-check undertaking still exists, and also applies to commercial bank deposits, company pension plans, financial firms' liabilities to their customers, crop insurance, and hurricanes. Such unconditional promises are possible only in a system in which it is expected that money can be made available in unlimited quantities virtually without cost.⁸¹

In conclusion, there have been no institutional changes or other signs that would justify an expectation of inflation below the record of the last sixty-five years. On the other hand, changes in monetary systems have seldom been foreseen. They have occurred in crisis situations often without regard to their long-term consequences. The elimination of the domestic and international gold standards in 1933-34 and 1971 are examples. A future inflationary experience could provoke a more tangible and permanent reaction than we have seen so far.

⁸¹ For a comparison of public finance under gold and fiat standards see Richard Salsman, *Gold and Liberty*.

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