

# Political Economy of Supplying Money to a Growing Economy: Monetary Regimes and the Search for an Anchor to Stabilize the Value of Money

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*Money performs its economic functions best when its value remains stable over time. This Article explores how that desideratum was achieved, or not achieved, under five identifiable monetary regimes in economic history. Transitions from one regime to another resulted from the demands of economic growth, which some regimes met better than others. The modern fiat money regime is optimal in most economic respects. Whatever amount of money needed to accommodate growth can be supplied at minimal costs. But political control over money creation can be used to increase the short-term control over economic resources of those in power and their constituents. When such debasements of money have occurred, the political economy of every regime interfered with achieving optimal long-term economic outcomes by unleashing inflation. How might the modern fiat money regime avoid that result?*

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## INTRODUCTION

Money serves as a medium of exchange, a unit of account that also can serve as a denominator of debt contracts, and a form in which wealth can be stored. It performs all of these functions best, especially the latter two, when its value remains stable over time. Why is that the case? Essentially it is because a stable value of money removes one important element of uncertainty in a world full of uncertainties. People will not want to hold money today as a medium of exchange if they have reason to think it will be worth substantially less in terms of goods and services tomorrow. Creditors will not want to write nominal contracts to lend money to others if they have reason to think that the nominal sums lent now will be repaid with money that has reduced purchasing power at the end of the contract period. And they will not want to hold money as a financial asset or a form of storing wealth if there is reason to expect the nominal sums stored will have less purchasing power when they come out of storage at a later date. If people are uncertain about the future value of money, it becomes less useful as a medium of exchange, a denominator of debt contracts, and a form of wealth storage. The results are that there are fewer productivity-enhancing exchanges, less saving and lending, and therefore a lower rate of economic growth.

The utility of holding money in a modern economy with its high degree of specialized activity is attenuated as uncertainty about the future value of money increases. Sometimes that value can even disappear during brief periods of hyperinflation. The economic consequences of increases in uncertainty about the future value of money are not good, and in cases of hyperinflation they can be disastrous.<sup>1</sup>

Both economic theory and much evidence from history point to the bad effects of an unstable value of money.<sup>2</sup> Not everyone, however, agrees

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1 The German hyperinflation of the early 1920s, which destroyed a lot of the wealth of the stable middle class and radicalized other elements of German society, thus paving the way for the rise of National Socialism and Hitler, is a prominent example.

2 The Chinese were the first to invent fiat paper money, as well the ink, paper, and printing techniques to make it. It developed most during the Chin, Southern Sung, Mongol, and Ming dynasties in the period 1000-1500 CE, when it was abandoned. In each dynasty, the government issued more and more paper money to fund itself as an alternative to taxation. Over time, the paper money depreciated to the point where people ceased to use it, turning to alternative commodity moneys despite governmental attempts to suppress them in support of its fiat paper. The Ming dynasty abandoned further issues of fiat paper money around 1450 when it had fallen to under one-tenth of one percent of face value. See Gordon Tulloch, *Paper Money — A Cycle*

that a stable value of money is a desideratum. Some, even a few central bankers who are supposedly the guardians of price-level stability, argue that moderate price-level inflation — a gradual decline in the value of money — is better for full employment and economic growth than is price-level stability. The reasoning is that relative price changes, which are always taking place, are accomplished more efficiently under moderate inflationary conditions. In addition, a moderate level of inflation gives an economy a margin of safety in avoiding the possibility of deflation, which is assumed to impose substantial economic costs.<sup>3</sup>

On the other hand, it can be argued that deflation has its benefits. Those living on fixed nominal incomes — old-age pensioners possibly — would participate in an economy's productivity growth if aggregate nominal incomes were stabilized and price levels declined as productivity increased. History can also be invoked in support of such theoretical arguments for deflation: price levels trended down for much of the nineteenth century, a period of rapid growth in the world economy.

If future inflation or deflation could be correctly anticipated by everyone, perhaps it would make no difference. Expecting inflation, lenders of money

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*in Cathay*, 9 *ECON. HIST. REV.* (n.s.) 393 (1957); RICHARD VON GLAHN, *FOUNTAIN OF FORTUNE: MONEY AND MONETARY POLICY IN CHINA, 1000-1700* (1996). The colonial American experience is more mixed, sometimes following the Chinese pattern, sometimes having accommodated the coexistence of fiat paper beside commodity money as a useful supplement to it. In the eighteenth century, John Law's attempted financial revolution in France as well as the subsequent American and French Revolutions repeated the Chinese experience in more compressed time periods: fiat paper money was over-issued, tumbled in value, and was abandoned. Some of these experiences are further touched on *infra* Part II.D.

3 See Jonathan Kirshner, *The Inescapable Politics of Money*, in *MONETARY ORDERS: AMBIGUOUS ECONOMICS, UBIQUITOUS POLITICS* 3, 8-12 (Jonathan Kirshner ed., 2003). This book, a collection of studies by political scientists, rightly argues that money is very much a matter of politics. But it goes too far in suggesting that economists are confused about the costs and benefits of price-level stability and inflation, and that the main reason central bankers favor price-level stability is that it is a political choice made in the economic interest of bankers and other financiers. Implicitly if not explicitly, it argues that other interests in society would benefit from more inflation, albeit "moderate," without any substantial costs to the economy. Central bank independence aimed at securing price-level stability in my view is less about advancing the economic interests of the financial sector of the economy, and more about protecting the populace of a country from the inherent inflationary biases of politicians to raise public spending while not increasing, and perhaps even reducing, taxation. Both increases in government spending and reductions in rates of taxation are politically popular, even if they are or can be inconsistent over time with fiscal responsibility and monetary stability.

would demand to be paid higher interest rates and workers would ask for wages with inflation protection, so real interest rates and real wages would be no different than what they would be with price-level stability. Expecting deflation as compared to price stability, lenders would be willing to accept lower interest rates because the real interest rate would be the same, and workers' wage demands would be adjusted downward to reflect the increased purchasing power of nominal wages after prices declined.

What makes price-level stability — a stable value of money over time — a desirable goal, along with reducing uncertainty and (as will be argued below) its being a more achievable goal than it was under earlier monetary regimes, is that not everyone, and perhaps no one, can correctly anticipate future inflation or deflation. Part of the reason is that deflation and inflation can be unstable processes. In the Great Depression of the 1930s, deflation reduced the ability of borrowers to repay their loans, so banks failed, money contracted more, and there was still more deflation.<sup>4</sup> In the Great Inflation of the 1970s, rising prices caused lenders to raise interest rates and workers to demand higher wages, slowing the economy and raising unemployment, problems which then were fought by expanding money and raising inflation to still higher levels.<sup>5</sup>

Despite the economic desirability of money with a stable value over time, humankind has not been very successful in achieving such a result. The reasons for this lack of success are rooted in political economy. Money is, and probably always has been, a political construct. What might be economically desirable in supplying money does not always match what might be politically desirable to the authorities charged with defining what money is and making arrangements for its supply. The political economy of supplying money comes into focus by studying the evolution of money over the course of modern history. This Article constitutes a step in that direction. It identifies several distinct monetary regimes and a series of historical transitions, from commodity money to commodity-based money to fiat money. The main factors driving the transitions from one regime to another were the demands of economic expansion and, in more recent centuries, modern economic growth.

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4 See MILTON FRIEDMAN & ANNA JACOBSON SCHWARTZ, *A MONETARY HISTORY OF THE UNITED STATES 1867-1960*, at 299-419 (1963).

5 See ROBERT L. HETZEL, *THE MONETARY POLICY OF THE FEDERAL RESERVE, A HISTORY*, 67-99, 108-49 (2008).

## I. ECONOMIC GROWTH AND MONETARY INNOVATION

Money may be a political or even a social construct, but the underlying causes of transitions in the nature of money are based in economics, not politics. These transitions have been driven by economic expansion, that is, by increases both in population and in economic growth, defined as increases in product per person.

To an economic historian, economic growth is the dominant characteristic of modern economic history. Among other things, it has made possible the large increase in world population — from less than a half billion people in 1500, to roughly a billion people two centuries ago, to about six billion now. The following table, drawn from the work of Angus Maddison, documents the huge expansion of the world economy during the last millennium, especially during the last two centuries when modern economic growth spread to much of the planet.

**Table 1. World Population, Gross Product, and Product per Capita, 1000-2003<sup>6</sup>**

Year	World population (billions)	World product per person (1990 international dollars)	Gross world product (billions of 1990 international dollars)
1000	0.268	435	117
1500	0.438	565	247
1820	1.041	667	694
1870	1.270	867	1,101
1913	1.791	1,510	2,704
1950	2.525	2,114	5,338
1973	3.913	4,104	16,059
2003	6.279	6,516	40,913

<sup>6</sup> Derived from data in ANGUS MADDISON, *THE WORLD ECONOMY: A MILLENNIAL PERSPECTIVE* 241 tbl.B-10, 264 tbl.B-21 (2001). 2003 data is derived from updates available on Maddison's website. See Angus Madisson, *Historical Statistics for the World Economy: 1-2003 AD* (Mar. 2007), [http://www.ggdc.net/maddison/Historical\\_Statistics/horizontal-file\\_03-2007.xls](http://www.ggdc.net/maddison/Historical_Statistics/horizontal-file_03-2007.xls).

It is evident from the table that the vastly greater numbers of people in the world today — fourteen times as many as there were five centuries ago — have 11-12 times the real (inflation-adjusted) income or product per person that their forbears had half a millennium ago. In other words, gross world product in real terms is now about 165 times what it was five centuries ago, and about 350 times what it was a millennium ago.

We live today in an economic world that would have seemed quite strange, perhaps even unimaginable, to almost anyone living even 200 years ago. World output grew six-fold from 1000 to 1820, and nearly sixty-fold from 1820 to 2003.

What were the implications of the great expansion of the world economy for money, which after all facilitated most of the exchanges of goods, services, and productive resources that occurred during its course? I began to think about that question nearly three decades ago, and provided some tentative answers in two essays.<sup>7</sup> The first implication was easy to reach: the expansion had to lead to an unprecedented increase in the long-term demand for money as a means of exchange and a store of wealth.

But what exactly was money half a millennium ago when economic growth began to accelerate, modestly at first and then rapidly from about 1800 to the present? Mostly it was commodity money, the precious metals gold and silver in bullion or specie (coined) forms. It was the abundance of these precious metals, of money, in America that initially so attracted Europeans after Columbus "discovered" the New World.

The New World provided a lot more gold and silver, hence a lot more money, to Europeans and the rest of the world. One effect was a modest (by modern standards) inflation of prices, termed by economic historians "the Price Revolution" of the sixteenth and early seventeenth centuries. The Price Revolution occurred because precious metals from America initially caused money to increase faster than real economic output grew. But the effect was temporary because, as just documented in Table 1, economic growth and world population were both moving to higher rates of advance after the European discovery of America.

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<sup>7</sup> Richard Sylla, *Monetary Innovation in America*, 42 J. ECON. HIST. 21 (1982); Richard Sylla, *Monetary Innovation and Crises in American Economic History*, in *CRISES IN THE ECONOMIC AND FINANCIAL STRUCTURE* 23 (Paul Wachtel ed., 1982). These essays in turn were stimulated by an earlier one, John A. James & Richard Sylla, *The Changing Nature of American Public Debt, 1690-1835*, in *LA DETTE PUBLIQUE AUX XVIIIE ET XIXE SIECLES SON DEVELOPPEMENTE SUR LE PLAN LOCAL, REGIONAL ET NATIONAL* 243 (Actes-Handlingen, Colloque Int'l, Spa ed., 1980).

Suppose that gold and silver had remained the only money available, or at least most of what was acceptable as money. If gold, say, had continued to be the only money right down to the present, and if the U.S. government had continued to define the dollar as about one-twentieth of an ounce of gold as it did from 1791 to 1933, the result would not have been price stability — the presumed intent of those who defined the dollar as one-twentieth of an ounce of gold in 1791 — but a drastic deflation of prices. The point is not altogether theoretical. During most of the nineteenth century, and especially in its last three decades when most of the world's leading economies were growing rapidly and had adopted the gold standard, all of them experienced price deflation.<sup>8</sup>

If a stable value of money is desirable because it reduces a major source of uncertainty in an uncertain world, unanticipated price deflation is as undesirable as unanticipated price inflation. Creditors gain at the expense of debtors, who have to repay nominal loans in currency units that have increased in value or purchasing power. Deflation in a gold-standard world increased incentives to store wealth in the form of gold, which became more valuable in terms of goods and services the longer it was held rather than spent as a medium of exchange. The incentive to store wealth in gold to take advantage of deflation thus exacerbates deflationary tendencies. Deflation also exacerbates social and political tensions. In the United States, paper-money and silver-money movements sought to overturn the gold standard, and in the presidential election of 1896, William Jennings Bryan electrified the Democratic Party faithful who proceeded to make him their candidate when he proclaimed to his opponents, "Thou shalt not crucify mankind upon a cross of gold."<sup>9</sup>

During inflations, the incentives are just the opposite — one does better by spending money as fast as possible instead of holding a depreciating asset. The incentive to spend money quickly exacerbates the inflation. Price stability is therefore desirable in part to avoid the perverse and self-reinforcing incentives created by both deflation and inflation.

Since economic and population growth have been the dominant characteristics of modern economic history, and both of them increased the demand for money, one could predict that both would have increased deflationary tendencies if precious metallic coins and bullion had remained

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8 See BRIAN. R. MITCHELL, *EUROPEAN HISTORICAL STATISTICS 1750-1970*, at 389 (1978).

9 William Jennings Bryan, *Speech Before the Democratic National Convention in Chicago (July 9, 1896)*, available at <http://historymatters.gmu.edu/d/5354/>.

the predominant forms of money. Deflation with its perverse economic incentives most likely would have slowed economic growth, and therefore population growth to the extent that population growth resulted from economic growth. Monetary innovation, the development of new forms of money, offered a way to avoid such difficulties. Innovative forms of money could be supplied more elastically than gold and silver. They could in principle make an economic contribution, provided they could be expanded along with economic and population growth to avoid deflation and make price levels more stable over time. In practice, it usually did not work out quite that way. The political economy of money led to different and more inflationary outcomes. The short-term interest of political authorities in having more of the money they had the power to create often overwhelmed the long-term economic interest of keeping the value of money stable. That seems to be the history of the transitions from commodity to commodity-based money, and then from commodity-based money to fiat money.

## **II. MONETARY REGIMES AND THE SUPPLY OF MONEY**

One can identify five different monetary regimes that have existed at times in most parts of the world over the last millennium. They are: (1) a pure commodity regime, generally specie, that is, metallic silver and gold coins, with perhaps some subsidiary coins made of base metals. (2) A specie-based regime without a central bank in which private bank money, that is, credit money, is convertible into the specie base. (3) A specie-based regime with a central bank. (4) An old fiat money regime in which a central political authority controls the issue of fiat paper money. And (5) a new fiat regime in which a central bank purchases government debt or other financial assets to create a fiat base money into which bank money is convertible, and attempts to stabilize the value of money by anchoring inflationary expectations.

Although the five regimes in theory are different, in practice they have not been distinct. Many historical contexts demonstrate a blend of regimes. Colonial America, discussed in Section II.D., is an example of a specie-based regime without a central bank, but having fiat money to supplement specie. A blended regime is to be expected as one regime transitions toward another. The long-term economic logic of such transitions is to accommodate economic growth by making it easier and cheaper to expand the supply of money as the demand for it increases, while at the same time pursuing the worthwhile economic goal of a stable value of money



because monetary stability also tends to promote economic growth. But since political-economic considerations are present, even paramount, in every regime, long-term economic logic and goals may often be subordinated to short-term political considerations. How well each regime performs the function of stabilizing the value of money depends on the relative weights assigned to political and economic considerations in supplying money.

### **A. Pure Commodity Money Regime**

Precious metals are intrinsically valuable, but that does not make them especially suitable as money. Doubts about the weight (is the scale accurate?) and fineness (how pure is that lump of gold?) would add friction, not grease, to the wheels of commerce. Hence, the invention of coinage, usually traced to the Hellenic world and the kings of Lydia in Asia Minor during the sixth century BCE, is considered one of the great innovations of economic history. Coinage was perhaps the primal monetary innovation. The king, a political authority, would oversee the weighing and fineness of lumps of precious metals, and then stamp them with his stamp into valuable, durable, portable, and divisible (various denominations) coins. One of the Lydian kings, Croesus, is reported to have profited so greatly from the innovation of coinage that from his time forward extremely wealthy people were said to be "as rich as Croesus."<sup>10</sup> That the authority to create money from the beginning proved to be lucrative did not escape the attention of subsequent political authorities.

Coins were named by the authorities creating them, giving rise to the unit of account function of money. Some of history's more noted names given to units of account represented by coins are drachma, bezant, ducat, florin, livre, guilder, franc, mark, peso, yen, pound, and dollar. Political authorities who, like Croesus, created such coins, especially when they retained a relatively stable value over long periods of time by maintaining the weight and fineness of the precious metals embodied in them, performed an important service to the economic world. Since political authorities usually controlled the mints that made the useful coins, they could charge fees for making them, thereby adding to their sources of revenue. Such a system worked pretty well in a pre-modern world in which there was little economic growth and populations grew slowly. Coins that held their value over extended periods would define a unit of account, serve as a medium of

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<sup>10</sup> See *Croesus (King of Lydia)*, in WIKIPEDIA, <http://en.wikipedia.org/wiki/Croesus> (last visited July 4, 2009).

exchange to grease the wheels of commerce, and provide a means of storing wealth.

There was, however, another possible outcome of political control over the unit of account and coinage. Nothing in the absence of specific constitutional constraints could prevent a political authority, if it desired more revenue, from reducing the weight and fineness of the coins made at the mint it controlled. Such an action would allow many more coins in the established unit of account to be made from whatever amount of precious metals were embodied in the existing money stock. The political authority controlling the mint would benefit by spending the enlarged stock of coins. Henry VIII, king of England, did this during his reign. Redish describes the results of Henry's great debasement:

[T]he profits were immense. Henry's profit from this and subsequent debasements in the 1540s has been estimated at £1.27 million, an immense sum relative to typical mint revenues of about £1,000 per year and, relative to ordinary annual crown revenues, about £200,000. In addition, the depreciation led to an unanticipated inflation which provided further gains from his status as net debtor.<sup>11</sup>

The example of Henry VIII is a blatant one. But he was neither the first nor the last political leader who would be tempted to ease revenue constraints and debt burdens by debasing money. Political control over money has almost always existed, and not even the age-old practice of making money out of intrinsically valuable precious metals could guarantee a stable value for money.

## **B. Specie-Based Regime with Private-Bank Money**

The problem with a pure commodity money regime is that it is not conducive to a growing economy. Population growth alone would increase the demand for money. If productivity also grew and market-organized economic activity expanded, the demand for money would increase still more. The only way to supply that growing demand under a commodity money regime while retaining a stable value of money would be to devote more economic resources to finding and refining the precious metals to make more coins. Increasing the money supply in a commodity regime, in other words, entailed large costs, or expenditures on grease for the wheels of commerce. Why not

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<sup>11</sup> Angela Redish, *Anchors Aweigh: The Transition from Commodity Money to Fiat Money in Western Economies*, 26 *CAN. J. ECON.* 777, 780 (1993).

devote those resources to make the articles of commerce instead of mere grease for its wheels? If the costs of finding more gold and silver had not been incurred, the expanding economy would experience deflation. It thus would fail to achieve the economic goal of having money with a stable value.

This economic analysis suggests that the fastest growing economies would be the first to come up with monetary innovations. Such innovations would increase the supply of money in ways that lessened the costs of supplying more money, as compared with the costs of supplying more money by increasing the production of precious metals. History confirms the suggestion. The first modern banks, institutions that created credit money on a base of specie money, appeared in the Italian city-state republics of the Middle Ages and the Renaissance. The Mediterranean Sea was then the center of world commerce, the link between East and West, and the Italian city-states were at the forefront of that commerce. Maddison's comprehensive world economic data indicate that in 1500 Italy was the richest economy in the world, with a per capita income twice the world average.<sup>12</sup> To attain their economic leadership, the Italian city-states must have experienced economic growth before 1500. That growth would have led to deflation in the absence of monetary innovation.

So the Italians invented modern banking. Banking arose in Italy during the two to three centuries before 1500.<sup>13</sup> Modern banking spread from Italy to the rest of Europe, and then from Europe to the rest of the world. Later economic leaders — the Dutch Republic, Great Britain, the United States, and Japan — became economic leaders after they adopted Italian monetary and financial innovations, and then added some of their own to enlarge the pool of available financial innovations.<sup>14</sup> In a sense, then, economic growth in these countries was "finance led."

Italian monetary innovations included two important instruments, the bill of exchange and the deposit subject to transfer by check (or cheque). The two instruments are similar. Each is an order from a creditor to a debtor, which might be a bank, to pay money to a third party, either right now (in the case of a demand deposit in a bank) or at a specified later date (in the

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12 Derived from MADDISON, *supra* note 6, at 264 tbl.B-21.

13 FREDERIC C. LANE, *VENICE: A MARITIME REPUBLIC* 322-35 (1973); 1 FREDERIC C. LANE & REINHOLD C. MUELLER, *MONEY AND BANKING IN MEDIEVAL AND RENAISSANCE VENICE* 69-89 (1985); PETER SPUFFORD, *MONEY AND ITS USE IN MEDIEVAL EUROPE* 240-66 (1988).

14 Michele Fratianni & Franco Spinelli, *Italian City States and Financial Evolution*, 10 *EUR. REV. ECON. HIST.* 257 (2006).

case of a bill of exchange). Merchants who knew and trusted one another probably developed the bill of exchange before the first banks appeared. But once banks did appear, bills of exchange became a credit instrument in which banks could deal profitably. Bills of exchange were the main means of making payments over long distances and internationally during the late medieval and early modern periods, and they continued in that role into the nineteenth century.

Italian deposit banking was more about making local payments than were bills of exchange. Persons with surplus funds would deposit them with bankers and receive credits on the books of the bank. If the deposits were to be drawn on regularly by the depositor-creditor, they typically did not earn a money interest, but were a convenience in making payments. Such payments could be made orally at the bank by asking the banker to transfer part of a sum on deposit to the account of a third party. Written orders, or checks, to effect such transfers were also allowed, and eventually they supplanted oral orders. If deposits were left with the bank for longer periods, as a form of storing wealth, they earned a net interest from the gross interest the banker charged borrowers.<sup>15</sup> The banker earned a livelihood from the difference between the lending rate and the deposit rate, the "spread," along with fees charged and commissions earned.

An early Italian bank could be a simple exchange, or giro, bank, holding 100 percent reserves of coin against its deposit liabilities, transferring those liabilities to effect payments on the part of depositors, and being paid a commission for such services. Or it could be even more profitable by holding only fractional reserves and creating bank credit to expand the means of payment. Venice, for example, allowed numerous private bankers to create credit on fractional reserves from the fourteenth to sixteenth centuries, and its government even financed wars by borrowing substantial sums from banks, with the loans to be paid later from tax revenues. But when the banks ran out of specie reserves, their bank credits went to a discount to coin in making payments. They were also subject to bank runs and failures. Predictably, the results were restrictive regulations imposed by city-state governments on Italian banks. Some governments even went so far as to create government-sponsored banks, which sometimes were funded by the government's debt.<sup>16</sup>

There is little in the history of banking during the seventeenth and eighteenth centuries that did not have earlier Italian precedents. The famous

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<sup>15</sup> SPUFFORD, *supra* note 13, at 257.

<sup>16</sup> LANE, *supra* note 13, at 328-31.

Bank of Amsterdam, founded in 1609, was a publicly sponsored exchange bank like the Banco della Piazza established by the Venetians decades earlier. The Bank of England, founded in 1694, was based on the English government's credit, as was the Venetian Banco del Giro established in 1619. Both banks were used by their respective governments to provide loans for fighting wars.<sup>17</sup>

The Bank of England went beyond the Italians in issuing currency in the form of paper bank notes. Bank of England notes were not the first banknotes, but the Bank, a large private company possessing the advantage of a corporate monopoly granted by Parliament, was likely among the very first large-scale issuers of banknotes that circulated over a wide area. Since most of the Bank's assets were English government debt, the Bank's notes in effect were based on government credit and exchangeable for specie reserves.

A specie-based regime with private banks expanding money by creating bank liabilities in the form of deposits, notes, and accepted bills of exchange constituted a major monetary innovation. It possessed many advantages over a purely commodity-based monetary regime. More money could be created at a far lower economic cost as compared with mining and refining precious metals. And the bank money could be kept at par with the specie base money as long as bankers maintained adequate fractional reserves of specie to meet all demands for converting bank money to base money. Increasing demands for money arising from economic growth could be accommodated by new supplies of bank money, flexibly and at low cost, and bank money, anchored in the specie base, would have a stable value.

That is how the regime was supposed to work in principle. In practice there were some problems, exposed initially in the Italian experience and then repeated again and again as the regime spread to other countries. Bank money could be over-issued, that is, the specie reserves maintained by banks to honor the promise to convert their liabilities to specie could prove inadequate. It was almost always in the interest of banks to over-issue bank money because the loans the money funded meant more interest revenue and greater profits for the bank. If the public detected such behavior, a particular bank's credit money might go to a discount in terms of specie, especially if the bank reneged at all on the promise to convert bank money to coin. In a worse-case scenario, people holding bank money might lose confidence in the entire banking system and run on many banks simultaneously to demand conversions of bank money to base money before the reserves of specie were

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<sup>17</sup> *Id.*

exhausted. Since the reserves were fractional, not total, such runs would cause widespread bank failures and defaults. Credit and payment systems would freeze up, interrupting economic growth and causing recessions and depressions of varying lengths and severities.

The Italians had already pointed to a way of attacking the flaws in the specie-based bank-money system, namely regulation.<sup>18</sup> Banking regulations take many forms. Regulatory capital requirements create a margin of safety for holders of bank money by requiring that owners of banks have some skin in the game and take the first losses from reckless or bad banking. Reserve requirements set the fraction of specie reserves that was deemed to make fractional-reserve banking generally safe. Restrictions on the types of loans banks were allowed to book could force banks to be more liquid than they might otherwise be tempted to be. Interest rates on bank loans were also regulated by usury and related laws. Bank regulatory authorities sometimes were given the right to examine the books of banks regularly to enforce the regulations regarding capital adequacy, reserves, loans, and so on.

Such regulatory solutions have two drawbacks. First, in normal times regulations limit the profitability of banking along with the ability of banks to expand bank credit and bank money. Since numerous studies, both historical and contemporary, find that economies with more bank lending and more bank money in relation to economic output are associated with higher rates of economic growth, banking that is overly regulated in the interests of making it safe and sound might actually restrain growth. Second, when runs on banks do occur, safety and soundness regulations do not get at the heart of the problem, which is that solvent banks operating on fractional reserves may not have enough of those reserves, or be able to raise enough of those reserves by selling less liquid assets, to meet all demands for convertibility. They then have to suspend convertibility and sometimes shut their doors. The credit system freezes up in a crisis, and asset values plunge in various markets as banks and the public deleverage in a scramble to obtain the limited supplies of base money. Economic growth is interrupted by the ensuing recession or depression. The second problem had a simple solution, but it took a surprisingly long time to emerge.

### **C. Specie-Based Regime with a Central Bank**

Central banking solved the liquidity problem of the specie-based, fractional-reserve banking regime. By acting as a lender of last resort, a central bank

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<sup>18</sup> LANE, *supra* note 13, at 329.

in principle can prevent financial crises from either happening or from doing much economic damage if they do occur. The lender-of-last-resort function appears to have evolved over the course of a number of financial crises in Britain and the United States from the mid-eighteenth to the mid-nineteenth centuries.<sup>19</sup> It then came to be regarded as one of a central bank's most important functions, with other nations following the British and American leads by establishing their own central banks or conferring central banking powers on previously established national banks. Paradoxically, in the interim the United States backtracked by abolishing its central bank — for domestic political rather than economic reasons — during the 1830s, only to reestablish a central bank, the Federal Reserve System, in 1914.<sup>20</sup> I discuss this in further detail toward the end of this Section.

How does a central bank prevent or alleviate bank runs and financial crises? The typical pattern leading up to a financial crisis involves a boom in lending and a rise in the values of assets such as stocks, bonds, land, and houses, and in the returns reaped, at least on paper, from owning such assets.<sup>21</sup> But asset values do not rise forever, no matter how much they may become temporarily divorced from reality. When asset values stop rising, the hopes of those who bought in late, perhaps with a lot of money borrowed when credit was cheap and abundant, are dashed. Such borrowers may be forced to liquidate their positions when asset values cease to rise or even begin to turn down, and the forced liquidations push asset values down still more. Others holding assets, the returns from which fall and turn negative in the downturn of values, also join in the selling, causing further declines. Institutions such as banks, which may be holding claims to assets as collateral for their loans, begin to doubt whether the collateral is adequate and whether the loans will be repaid. So they stop lending and ask for loans to be repaid, which accelerates the decline of values. Pretty soon those with claims on the banks — the depositors and note-holders — begin to doubt the solvency of the banks. So they line up at the banks to convert their deposits and banknotes to the monetary base, which may be specie or, increasingly

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19 CHARLES GOODHART, *THE EVOLUTION OF CENTRAL BANKS* 1-11 (1990). Goodhart argues that if governments had not created national banks that often evolved into modern central banks, private bankers themselves would have done so because it was in their interests as bankers.

20 See PAUL STUDENSKI & HERMAN E. KROOSS, *FINANCIAL HISTORY OF THE UNITED STATES* 103-07, 254-60 (1963).

21 CHARLES P. KINDLEBERGER & ROBERT ALIBER, *MANIAS, PANICS, AND CRASHES: A HISTORY OF FINANCIAL CRISES* (5th ed. 2005), describes and documents the typical boom-bust pattern of history's numerous financial crises.

over time, the notes of the central bank that came to be regarded as the equivalent of specie.

It is in such panic circumstances that the lender of last resort can come to the rescue, by adding to the liquidity of the financial system when everyone is scrambling to get liquid by selling assets at distressed prices. The mechanism is simple. When solvent but illiquid banks are on the verge of running out of base-money reserves to meet the conversion calls of their deposit and note holders, they replenish reserves with loans of base money from the central bank. These loans from the central bank are secured by pledges of illiquid but good collateral carried on the asset side of the banks' balance sheets. In this way, the banks are able to meet all of their creditors' calls to convert bank money into base money. As they do so, the creditors realize that the banks have plenty of cash to meet conversion calls, so the crisis conditions melt away. Pretty soon after that, the banks' creditors, now having more base money and less bank money than they are used to holding in normal times, begin to redeposit the base money. The banks can then repay their loans from the central bank and reclaim the collateral they posted. The financial crisis ends.

The ability of central banks in a specie-based, fractional-reserve monetary regime to stabilize financial systems, both during crises and under normal conditions, arose in several ways. Recognizing their public responsibilities, central banks held larger reserves of specie as a percentage of their own liabilities than most private banks did. When they were privately owned institutions, this may have cost the shareholders some profits that could have been reaped by holding lower reserves and making more loans and investments. But that disadvantage was offset to an extent by the enhanced reputation of central-bank liabilities (its notes and deposits) in comparison with those issued by private banks, which encouraged the public to favor central banknotes and deposits over those of the private institutions. Eventually, this advantage led to central banks becoming the sole issuers of banknotes. Central banknotes, beginning with Bank of England notes in 1833, were declared by governments to be legal tender, in effect "paper gold," another monetary innovation that allowed money supplies to expand to accommodate economic growth without inflation or deflation. Even before such declarations, notes of central banks were a *de facto* legal tender in England, the United States, Sweden, and perhaps other countries. In those countries, when a bank creditor wanted to convert bank money to base money, central banknotes



were accepted as satisfying the demand, and so they were held as reserves by private banks.<sup>22</sup>

In terms of the argument of this Article, a specie-based system with a central bank was a clear advance over such a system without a central bank. It allowed more money to be supplied to a growing economy (central-bank money based on government credit in addition to private-bank money based on private credit) and at a lower cost (central banknotes and deposits, a form of paper specie, were far cheaper to produce than real specie). In addition, the gains in the ability to expand money cheaply were obtained with advances in systemic financial stability when central banks began to act as lenders of last resort during crises, and sometimes to avoid incipient crises. The economy and society benefited from a lower cost of supplying any given amount of money, along with a safer financial system. The American humorist Will Rogers was perhaps not far off the mark when he declared, "There have been three great inventions since the beginning of time: fire, the wheel, and central banking."<sup>23</sup>

U.S. history furnishes a telling illustration of the advantages of a central bank and the disadvantages of not having one. The United States economy grew faster than any other in the world since the late eighteenth century. That was partly a result of having modern financial arrangements from the start, shortly after American independence; no other country has been quite so fortunate.<sup>24</sup> When the United States had a central bank most of the time

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22 During the restriction on cash payments in England from 1797 to 1821, Bank of England notes were essentially the base money of England, and gold and silver went to a premium in the market. For the United States, Lawrence Officer, *The U.S. Specie Standard, 1792-1932: Some Monetarist Arithmetic*, 39 EXPLORATIONS ECON. HIST. 113 (2002) shows that notes of the Bank of the United States (in existence as a central bank from 1791 to 1811, and again from 1816 to 1836) were treated as base money by the U.S. public and American banks. For the Swedish case, Anders Ögren, *Free or Central Banking? Liquidity and Financial Deepening in Sweden, 1834-1913*, 43 EXPLORATIONS ECON. HIST. 64 (2006), demonstrates that the notes of the central bank, the Riksbank, were held as reserves by Swedish banks and accepted as base money by holders of those banks' liabilities. For England see 1 SIR JOHN CLAPHAM, *THE BANK OF ENGLAND: A HISTORY* 162 (1944).

23 Cited by GEORGE HORWICH, SARAPAGE MCCORKLE & SANDRA ODORZYNSKI, *FOCUS: ECONOMIC SYSTEMS* 115 (2005).

24 Richard Sylla, *Comparing the UK and US Financial Systems, 1790-1830*, in *THE ORIGIN AND DEVELOPMENT OF FINANCIAL MARKETS AND INSTITUTIONS, FROM THE SEVENTEENTH CENTURY TO THE PRESENT* 209 (Jeremy Atack & Larry Neals eds., 2009); ROBERT E. WRIGHT, *THE WEALTH OF NATIONS REDISCOVERED: INTEGRATION AND EXPANSION IN US FINANCIAL MARKETS, 1780-1850*, 193 (2002).

from 1791 to 1836, it experienced only two financial crises, in 1792 and 1819. In both cases, the central bank was new and probably contributed to the crisis. The crisis of 1792 was well handled by a *de facto* and thoroughly modern central banker, Treasury Secretary Alexander Hamilton.<sup>25</sup> Between 1792 and 1837, there was but one more financial crisis, in 1819, making just two crises in 45 years.

Then, in 1836, politics — Andrew Jackson's 1832 veto of Congress's renewal of the central bank's charter that expired in 1836 — ended American central banking for nearly eight decades. During those decades, financial crises occurred in 1837, 1839-1842, 1857, 1873, 1884, 1893-1895, and 1907, roughly once a decade instead of once every two decades, as in the preceding period.<sup>26</sup> The absence of a central bank between 1836 and 1914 did little to change the trajectory of U.S. economic growth because the rest of the modern financial system remained intact, and some substitutes for central banking such as private bank clearinghouse reserve expansions during crises and U.S. Treasury interventions to expand bank reserves emerged to partially replace it. But without a central bank, that growth was obtained with considerably more economic instability. The realization after the crisis of 1907 that a central bank might help to prevent or alleviate crises led to the reestablishment of the U.S. central bank, the Federal Reserve, in 1914. Since 1914 there have been only two major financial crises in the United States, 1930-1933, when the Federal Reserve did not come to the aid of failing banks, and 2007-2009, when, having contributed to the crisis with easy money before the crisis began, the Federal Reserve went on to write a whole new chapter in central banking history by creating liquidity during the crisis in ways that could hardly have been imagined prior to the crisis. The case for central banking, though blemished, thus seems strong on the basis of the U.S. experience over more than two centuries.

The new chapter in central banking history currently being written is occurring under a new fiat money-based regime, not the former regime that featured commodity-based money. So we need to understand fiat regimes in both their old and more recent manifestations. Did they — do they — represent an advance over specie-based systems?

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25 Richard Sylla, Robert E. Wright & David J. Cowen, *Alexander Hamilton, Central Banker: Crisis Management During the U.S. Financial Panic of 1792*, 83 *BUS. HIST. REV.* 61 (2009).

26 Richard Sylla, *Reversing Financial Reversals: Government and the Financial System Since 1789*, in *GOVERNMENT AND THE AMERICAN ECONOMY: A NEW HISTORY* 115 (Price Fishback ed., 2007).

#### D. Old Fiat-Money Regimes: Political Control of Money Supply

Although China, an innovator of so many modern inventions that had their greatest impact elsewhere, may have introduced the first fiat paper moneys, they were over-issued and became extinct before the modern era.<sup>27</sup> Perhaps the first fiat paper money in Western history, at least as a monetary innovation that spread to numerous other adopters and had a substantial long-term impact, occurred in 1690 when the British North American colony of Massachusetts Bay introduced bills of credit that quickly came to be used as money. The innovation spread to all of the other colonies that became the United States before they declared their independence from Britain in 1776.<sup>28</sup>

One might wonder, especially now that the whole world has adopted the fiat paper money innovated by North American colonists from Europe long ago, why such an innovation appeared at the distant, New World periphery of Western civilization instead of at its European center. In terms of this Article's analysis, the answer is obvious. The economies of the British North American colonies in a pre-modern world were growing at modern rates of at least 3 percent per year — this can be inferred from similar rates of population growth and no reports of lasting economic reversals. Such expansion created a growing demand for money to grease the wheels of expanding colonial commerce, and it was difficult to supply that demand by attracting adequate long-term inflows of the commodity moneys used in the European world. One reason was that any inflows of specie or bullion would be used to finance imports of Old World products customarily used but still not produced by European settlers in the New World. Another was the mercantilist regulation of colonies by European powers, which frowned on providing colonies with specie money. In mercantilist thinking, it was the purpose of colonies to help the mother countries attract and retain specie,

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<sup>27</sup> See *supra* note 2.

<sup>28</sup> See sources cited *supra* note 7; Dror Goldberg provides a new account of how the Massachusetts innovators covered up their intent to create a new kind of money to get it past the authorities in Britain. Dror Goldberg, *The Massachusetts Paper Money of 1690*, 69 J. ECON. HIST. 1092 (2009). In another paper, Goldberg argues that paper playing-card money appearing in Quebec, Canada, in 1685, was the precursor of the Massachusetts paper money of 1690. Dror Goldberg, *The Inventions and Diffusion of Hyperinflatable Currency* (Bar Ilan Univ. Dep't of Econ., Working Paper No. 2009-06, 2009). Christine Desan shows what is often missing in older accounts, namely the relationship of the colonial American paper moneys to related developments in Britain at the time. Christine Desan, *Reconceiving the Creation Story: Money, Credit, and the Advent of Capitalism* (2007) (unpublished manuscript, on file with author).

not of mother countries to supply their colonies with specie for monetary or other uses. So the colonies were chronically short of the specie-based moneys they needed to sustain their rapid economic expansion.<sup>29</sup>

The solution to the colonies' money-shortage problem was fiat paper money. To give the paper money value, it was backed (if not initially, soon thereafter) by promises to pay it off with revenues from taxes the colony promised to levy in the future. Such taxes were indeed levied, and made payable in the paper money earlier issued. It might have seemed like a temporary measure akin to tax anticipation notes used by governments to obtain short-term funding, and indeed the first issue by Massachusetts in 1690 was intended to meet a fiscal emergency.<sup>30</sup> But while the colonials may have given the paper money more credence by accepting it for tax payments and promising to redeem the money with the proceeds of future taxes, the real reason the innovation proved to be more than a temporary expedient was that the paper money served as a useful supplement to the media of exchange in colonial economies that were expanding economically at modern rates. Properly managed, meaning that it was not issued to excess, the paper money would retain its value in terms of specie. This was by custom rather than law, since the colonies did not commit themselves legally to redeem their paper money issues in specie.<sup>31</sup>

There is little mystery about the acceptance of well-managed paper money. Modern fiat currencies, officially convertible into nothing but other fiat currency, maintain a fairly stable value in relation to goods and services when they are not over-issued. For this to happen, it is only necessary that fiat currencies increase at rates related to the monetary needs of expanding economies — their demands for more money — in a manner calculated to achieve fairly stable price levels as measured by price indexes. All this was discovered long ago, in colonial America before it became the United States. The discovery even made it possible to declare colonial paper money a general legal tender for all payments, as it was often declared to be, just as modern fiat currencies invariably are legal tender in the nations and currency unions that issue them.

The colonial American monetary experiments with fiat paper money worked tolerably well in most colonies most of the time. They did not work well in the colonies most exposed to warfare during the frequent

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29 EDWARD JAMES FERGUSON, *THE POWER OF THE PURSE: A HISTORY OF AMERICAN PUBLIC FINANCE 1776-1790*, at 3-24 (1961).

30 See sources cited *supra* note 7; Sylla, *supra* note 26.

31 EDWIN J. PERKINS, *AMERICAN PUBLIC FINANCE AND FINANCIAL SERVICES 1700-1815*, at 42-46 (1994).

wars waged by eighteenth-century European powers over control in North America. In war emergencies, colonial governments would over-issue the fiat currencies. They then depreciated in value, often considerably. Such depreciations provided a windfall for debtors who could use depreciated legal tender paper to discharge debts, but it did not appeal to creditors who were returned a purchasing power far below what they had lent. Hence, a goodly number of colonial Americans developed a distrust of fiat paper money, and Britain asserted greater regulatory authority over it.<sup>32</sup>

The distrust of fiat money soared during the American War of Independence, 1775-1783, when both the Continental Congress — the national government — and the new states greatly over-issued paper currency. In the case of Congress's continental paper dollars, originally issued at a value of one for one with specie and supported with somewhat vague promises to redeem them in specie at some future date, the over-issue and consequent depreciation were extreme. By 1780, continental currency was trading at forty or more for one in specie, and Congress wrote it down to forty to one. Soon it traded at 500 or even 1,000 to one in specie, when it traded at all. It had ceased to serve as money and Congress recognized the fact. Much of the American Revolution had been financed by an inflation tax on money balances.<sup>33</sup>

By the time the U.S. Constitution was written in 1787, most American leaders had had pretty much enough of fiat paper money. The Constitution gave Congress control over U.S. money, as well as taxing powers. It banned further issues of state fiat money, specifying that states could make nothing other than gold and silver money a legal tender. It did not say the national government had to do that, but it appeared to be an implication. In 1791, when Hamilton defined the new U.S. dollar, it was in terms of weights of gold and silver in a ratio of 1:15, the approximate market ratio at the time. "We the people of the United States," as principals, had determined to constrain governments, our agents, from inflationary finance.<sup>34</sup>

The United States left fiat paper money behind, shifting to a specie-based, bank-money regime with a central bank, the Bank of the United States, which also appeared in 1791. With and without a central bank, and with relatively minor adjustments to what constituted the definition of a dollar, that regime continued until the 1930s. For fourteen decades a paper U.S. dollar, whether

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32 JOSEPH A. ERNST, *MONEY AND POLITICS IN AMERICA, 1755-1775* (1973).

33 FERGUSON, *supra* note 29, at 51-59.

34 See ROBERT E. WRIGHT, *HAMILTON UNBOUND: FINANCE AND THE CREATION OF THE AMERICAN REPUBLIC* 59-88 (2002).

issued by a private bank, a central bank, or by the government itself, could normally be exchanged for about one-twentieth of an ounce of gold or about eight-tenths of an ounce of silver. And price levels were relatively stable, except during temporary suspensions of the specie standard in periods of war.

Apart from America, there was one more eighteenth-century attempt to establish a fiat paper monetary system in the West.<sup>35</sup> That was the scheme of John Law, a Scottish monetary theorist, gambler, and rogue, who managed to convince the Regent in France after the death of Louis XIV that, given enough power, he could solve the French kingdom's manifold financial problems. Law began by operating successfully a fractional reserve bank that issued banknotes convertible to specie. That gave Frenchmen a more reliable currency than they had had before. But the bank was but a means to a larger end. Far ahead of his time, if perhaps a little behind the European colonies in North America, Law had determined that a country's money supply did not have to be anchored in precious metals, but could just as well be based on fiat paper with a large saving of resources. This was an extremely modern concept in 1720, so modern that the world would not fully adopt it for another two and one-half centuries.

To implement his modern vision of fiat paper money, and at the same time lighten the financial burdens of the French monarch, Law adopted an idea developed earlier on a smaller scale in Britain, namely the conversion of illiquid public debt instruments into liquid equity shares of a corporation with monopoly trading rights and thus, by implication, great prospects of profit. Law took the idea to a much larger scale, while at the same time converting the money of France from one based on specie to one of fiat paper. The first part of the scheme worked well enough for a time, from late 1719 to early 1720, as the shares of Law's Mississippi Company soared from several hundred livres to 10,000 livres. The speculation that drove this share bubble was fueled by credit in the form of banknotes printed by Law's Banque Royale, into which his successful earlier bank, the Banque Generale, had been transformed.

Frenchmen most likely thought that the banknotes created by the new bank would be anchored in specie, as had been the notes of its predecessor. But in the frenzy of speculation that turned many of them into millionaires on paper, there was little interest in checking up on that assumption. It was certainly not a part of Law's forward-looking plan, which called for

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35 The following account is based on ANTOINE E. MURPHY, *JOHN LAW: ECONOMIC THEORIST AND POLICY MAKER* chs. 14-17 (1997).

a permanent turn to fiat paper money. To implement that part of the plan, Law in the early months of 1720 had the monarchy issue a series of complicated and sometimes contradictory edicts designed to reduce and ultimately eliminate the French public's use of specie as money. One such edict allowed the free export of specie and bullion from France, but put a tax penalty on their import. This was coupled with an upward revision of the livre unit of account in terms of specie, designed to encourage specie holders to convert their holdings into paper banknotes. That failed to bring much specie out of hoards, so a week later the export of specie from France was prohibited and the hoarding of specie was gradually criminalized and made subject to confiscation and fines. Other edicts prohibited the wearing of diamonds and precious jewels, and the production, sale or export of gold and silver objects. This was designed to prevent people from converting the ever-growing emissions of paper banknotes into these hard assets. In February, specie holdings were limited by law to 500 livres per person. In March, plans were announced to demonetize gold and silver.

Law's money-printing (credit-creating) operations were used to support the price of the Mississippi Company shares at a high level through late February, 1720. That allowed the French ruler to sell his shares at that level and, in a rather personal version of public finance worthy of Henry VIII, to book a nice profit. Thinking that his credit creation might have gone too far, Law then stopped supporting the share price. When it plunged by 25 percent in a few days, shareholders protested against the measures that had caused the drop, so Law reinstated the share price-support program, fixing the price at 9,000 livres. That meant that Law had to buy Mississippi Company shares at that price if it threatened to slip any lower. Effectively, shares and paper banknotes became one and the same.

By May, if not earlier, all of the money creation produced financial overheating and price inflation. Law then decided to try to cool the overheated economy by having the government announce that Mississippi share prices would undergo a phased reduction totaling 44 percent of their value, and banknotes would undergo a similar phased reduction to 50 percent of their face value by December 1720. As a result of the announcement, Mississippi Company shares lost half of their value in the market in a few days. Although the Regent, against Law's wishes, revoked the phased-reduction edict, the market price of Mississippi shares never recovered enough to reach even the prices proposed in the phased reduction. Confidence in the value of both paper money and shares had been irreparably damaged. At the same time, though, the French state had greatly reduced the burden of its debts.

John Law went into exile. His visionary scheme to supplant gold and

silver with paper money was poorly executed and crashed along with the price collapse of Mississippi shares and banknotes. The Western world was not quite ready for fiat paper money, except in the American colonies where, when managed better than Law had in France, it served as a viable and useful supplement to commodity money. One advantage the American colonies possessed was economic expansion at a much higher rate than France experienced. Unlike Law, the Americans wanted fiat paper money to supplement specie money, not replace it. When during their revolution against British rule the Americans financed the effort with excessive paper issues and a drastic inflation tax, the results were similar to what Law's France experienced.

### **E. The Modern Fiat Money Regime**

In 1971, the three-hundredth anniversary of John Law's birth, Richard Nixon completed the project that Law had initiated by severing the link between the U.S. dollar, the leading international reserve currency, and gold. That action ended the fixed exchange-rate system launched at Bretton Woods in 1944. In that system, other world currencies were to have fixed exchange rates with the U.S. dollar, and the United States promised to anchor the value of the dollar by offering to redeem dollars held by foreign governments and central banks for gold at the rate of \$35 per ounce. That rate was established in 1934 by the Franklin Roosevelt administration when it devalued the dollar from the old rate of \$20.67 per ounce.

The Bretton Woods gold exchange standard became untenable when the United States flooded the world with so many dollars that it was obvious to everyone that U.S. gold reserves were far too small to meet the convertibility commitment. Nixon's action effectively put the United States and the world on a new fiat money regime. Gold became just another commodity, priced daily in terms of fiat paper currencies by the market. As of this writing in 2009, an ounce of gold can be obtained for approximately \$900.

In the new regime, how is money supplied? And how well does it perform the traditional functions users of money expect from it? The answer to the supply question is really quite simple. The monetary authority, usually the central bank, creates fiat base money by purchasing government debt, although it could accomplish the task about as well by purchasing a number of other assets (which the Federal Reserve did in 2008 and 2009),<sup>36</sup> and by issuing central banknotes. On the balance sheet of the central

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<sup>36</sup> In addition to government debt, the Fed balance contained assets such as commercial paper and securities issued by government sponsored enterprises (GSEs). See Peter



bank, government debt purchased is carried under assets, and the base money (consisting of paper currency issued by the central bank and the reserve deposits of banks) appears under liabilities. The central bank can expand base money by purchasing government debt in the government debt market, an operation that expands bank reserves; it can contract base money by selling government bonds, reducing bank reserves.

Since banks hold fractional reserves against their own liabilities, when their reserves increase as the central bank purchases government debt, the banks as a system can expand their lending and money creation by a multiple of the reserves newly created by the central bank. The public decides how much of its money it wishes to hold as bank deposits and how much as base-money currency. Banks have an obligation to convert deposits to currency, just as under the gold standard they once had an obligation to convert deposits to gold coin. So banks maintain cash reserves of base-money currency to facilitate depositor requests to convert bank money to base money. If the banks run short of currency, all they have to do to replenish cash reserves is pay for new supplies by drawing down their reserve deposits at the central bank.

The power of a central bank to create money in the modern fiat money regime is vastly greater than it was under a commodity-based standard, and the money can be supplied at a far lower cost. That was John Law's great insight long ago, one demonstrated again in the panic of 2008 when the U.S. central bank expanded its balance sheet by a factor of more than two in just a few months.<sup>37</sup> But Law in practice failed to answer the question regarding how much fiat money should be created. Instead, in an effort to implement another part of his plan, conversion of France's public debt to equity shares in the Mississippi Company, he oversaw the creation of far too much fiat paper money. As a result, both he and his money lost credibility. Law left France, and his fiat money — banknotes and shares in the company, which were equivalent at the height of his system in May 1720 — lost almost all of its value by the end of the year. Paradoxically, the French state that sent Law into exile benefited from his failure: "Law's System certainly bankrupted the creditors of the state; the state, however, as debtor, was a net gainer."<sup>38</sup>

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Stella, *The Federal Reserve System Balance Sheet: What Happened and Why it Matters* (Int'l Monetary Fund, Working Paper No. WP/09/120, 2009).

<sup>37</sup> *Id.*

<sup>38</sup> MURPHEY, *supra* note 35, at 308.

## CONCLUSION

There is a lesson for our era from the history of John Law in France. In principle, the modern fiat money regime is the best that has ever existed. It allows us to have whatever supply of money we need to grease the wheels of commerce and provide for both economic growth and a stable value of money at quite a low cost in resources as compared with any commodity-based money regime. The central bank that operates the system can achieve that outcome by stabilizing the value of money in ways that convince us to use it as a medium of exchange, a unit of account in which debt contracts can be denominated, and a safe and liquid means of storing wealth. It can do so by anchoring our expectations of future inflation.<sup>39</sup> If a central bank commits to low or no inflation and achieves that result, as the Federal Reserve in the United States has done from the 1980s to the present, inflation expectations become anchored and fiat money becomes credible.

But the history of monetary regimes suggests that any state which employs the modern fiat money system, both during "emergencies" and perhaps even in normal times, may well have an interest in a different outcome. By debasing rather than stabilizing the value of money, it can increase its revenues and lighten the burden of its debts. We need to think about how the political interests of the state and the economic interests of the citizens who comprise it and benefit from monetary stability can be aligned in a lasting manner. Central bank independence designed to insulate monetary authorities from inflationary political whims is one method of accomplishing the task. But it is a thin reed if based, as it is in most countries subscribing to it, including the United States, on statute law. Why? Because statutes can be repealed and reversed, and often are when political control of government passes from one group to another.

Constitutional enshrinement of central bank independence and a commitment to money with a stable value over time would appear to offer a better chance of achieving the desired result. Constitutions constrain elected and appointed government officials — the agents — from acting against the interests of the citizenry — the principals. Exigencies can be provided for within a constitutional framework. Before national and world economies outgrew specie standards, they provided long-term stability of price levels for a century or more, even though they were suspended in periods of exigency, usually wars. But many exigencies can be foreseen,

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<sup>39</sup> HETZEL, *supra* note 5, at 252-65, 311-17.

and they would need to be defined and provided for within a constitutional framework. If a political need to increase government spending along with a political need not to increase taxation become defined or accepted as exigencies, we will have learned little from the varied experiences of monetary regimes over the past millennium and a stable value of money will become a will-o'-the-wisp.

