

the CATO JOURNAL

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ALTERNATIVES TO CENTRAL BANKING: TOWARD FREE-MARKET MONEY

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EDITOR'S NOTE

When the Federal Reserve was created in 1913, its powers were strictly limited and the United States was still on the gold standard. Today the Fed has virtually unlimited power and the dollar is a pure fiat money.

A limited constitutional government calls for a rules-based, free-market monetary system, not the topsy-turvy fiat dollar that now exists under central banking. This issue of the *Cato Journal* will examine the case for alternatives to central banking and the reforms needed to move toward free-market money.

Discretionary central banking, like any sort of central planning, is not a panacea. Concentrating monetary power in the hands of a few individuals within a government bureaucracy, even if those individuals are well intentioned and brilliant, does not guarantee sound money. The world's most important central bank, the Federal Reserve, is not bound by any strict sort of rules, although Congress requires that it achieve maximum employment and price stability.

The failure of the Fed to prevent the Great Recession of 2009, or the Great Depression of the 1930s, or the stagflation of the late 1970s and early 1980s, raises the question, can we do better? To address that question, the Cato Institute held its 32nd Annual Monetary Conference on November 6, 2014, with the title: "Alternatives to Central Banking: Toward Free-Market Money." The papers from that conference appear in this issue of the *Cato Journal* along with articles by Peter Bernholz on the recent depegging of the Swiss franc and by Tyler Watts and Lukas Snyder on the resource costs of fiat versus commodity money.

In questioning the status quo and widening the scope of debate over monetary reform, the fundamental issue is to contrast a monetary regime that is self-regulating, spontaneous, and independent of government meddling versus one that is centralized, discretionary, politicized, and has a monopoly on fiat money. Free-market money

within a trusted network of private contracts differs fundamentally from an inconvertible fiat money supplied by a discretionary central bank that has the power to create money out of thin air and to regulate banks and nonbank financial institutions.

There are many types of monetary regimes and many monetary rules. The classical gold standard was a rules-based monetary system, in which the supply of money was determined by market demand—not by central bankers—versus today’s pure discretionary government fiat money regime.

Cyber-currencies, like bitcoin, offer the possibility of a private non-commodity monetary base and the potential to realize F. A. Hayek’s vision of competitive free-market currencies. Ongoing experimentation and technological advances may pave the way for the end of central banking—or at least the emergence of parallel currencies.

The distinguished authors in this volume examine the constitutional basis for alternatives to central banking, the role of gold in a market-based monetary system, the obstacles to fundamental reform and how they might be overcome, and the advent of cryptocurrencies and the bitcoin revolution.

In making the case for monetary reform and thinking about rules versus discretion in the conduct of monetary policy, it is important to take a constitutional perspective. As early as 1988, economics Nobel laureate James M. Buchanan argued, at an international monetary conference hosted by the Progress Foundation in Lugano, Switzerland: “The dollar has absolutely no basis in any commodity base, no convertibility. What we have now is a monetary authority [the Fed] that essentially has a monopoly on the issue of fiat money, with no guidelines to amount to anything; an authority that never would have been legislatively approved, that never would have been constitutionally approved, on any kind of rational calculus.”

There is no doubt that Congress has ultimate responsibility for securing sound money. Thus, a national monetary commission along the lines proposed by Rep. Kevin Brady (R-TX) would be a good first step.

In 1980, just after Ronald Reagan’s election, Buchanan recommended that a presidential commission be established to discuss the Fed’s legitimacy. There was some support within the Reagan camp, but Arthur Burns, a former chairman of the Federal Reserve Board, nixed it. As Buchanan explained at the Lugano conference, Burns

“would not have anything to do with any proposal that would challenge the authority of the central banking structure.”

Buchanan's aim was “to get a dialogue going . . . about the basic fundamental rules of the game, the constitutional structure.” There is, he said, “a moral obligation to think that we can improve things.” That is the spirit of this volume and Cato's newly established Center for Monetary and Financial Alternatives.

—J. A. Dom

Reference

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MONETARY MUDDLES

Axel Leijonhufvud

The stability or instability of the market economy is an issue that has been all but ignored in macroeconomics for several decades. Within monetary economics, the distribution of income has been similarly ignored. The crisis of recent years tells us in no uncertain terms that we have to pay more attention to these two topics.

Changes in financial regulation and in the conduct of monetary policy have not only played a very significant role in generating the financial crisis but have also been important in bringing about a large shift in the distribution of income over the last two or three decades.

Lack of Attention to Financial Stability and Income Distribution

The lack of attention to the stability of the financial system is at first sight surprising. Every economist knows about bank runs, after all. But in the United States, deposit insurance had eliminated runs on deposit banks ever since the Great Depression. Runs on banks in other parts of the world—of which there was a significant number—made no impact on an American-dominated economics profession that regarded the problem as solved.

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The crisis dictates a reappraisal. It also demonstrates that the problem had metamorphosed, for old-fashioned bank runs were basically not involved.¹ We have much to learn before we can be confident that we know how the present-day financial system can be reliably governed.

For a very long time, monetary economics has been dominated by theories in which money is *neutral*. In such theories, monetary policy has only evanescent effects on the allocation of resources and affects the distribution of income or wealth only in so far as people fail to anticipate the inflation rate correctly when entering into nominal contracts.

But money is not neutral in the present monetary regime. It is obvious that monetary policy has had very significant effects on the allocation of productive resources in the long run-up to the crisis. It is perhaps less obvious that it has also affected the distribution of income. But I believe it has.

A Look Back

The two great names in monetary economics a century ago were Knut Wicksell and Irving Fisher. Both were intensely preoccupied with the distributive consequences of monetary management. In fact, it was very largely this concern that motivated their work in monetary economics.

Wicksell sought to find a way to manage money so as to stabilize the price level and thus to avoid price changes that would change the real outcome of nominal contracts. Fisher advocated the *compensated dollar*—a scheme to “correct” the distributional effects of changes in the price level.² Both of them saw distributive effects of changes in the price level as offenses against social justice and consequently as a threat to social and political stability.

Wicksell and Fisher were of course both aware of the potential instability of fractional reserve banking systems and of the recessions resulting from bank runs—as were all their contemporaries. But both tended to believe two things: (1) that the economic system was

¹The one exception was the run on Northern Rock in the UK. It had depositors lining up on the street in a most traditional way.

²Wicksell similarly argued for ex post compensation for the losses in real purchasing power incurred in the World War I inflation in Sweden.

basically stable³ *provided* the price level was kept more or less constant, and (2) that (with the same proviso) the distribution of income was determined by the marginal productivity of the factors of production.

Today, distributive issues have not been of interest to monetary economists for many decades. Not only are they no longer a central concern—they are ignored and forgotten altogether.

Turning next to the greats of monetary theory of half a century ago I would single out Friedrich von Hayek and Milton Friedman. It is noteworthy that these two icons of free market conservatism agreed on nothing at all in the field of monetary economics.⁴ Friedman always took the basic neutrality of money for granted. Hayek, on the other hand, was one of the two most prominent advocates of the Austrian theory of the business cycle—and in that theory money was anything but neutral but responsible for large and long-lasting effects on the employment and allocation of resources.

Credit-driven boom-bust cycles are temporally asymmetrical. The buildup is slow and long, the collapse quick and sudden. In Hemingway's *The Sun Also Rises*, one of the protagonists asks his friend: "How did you go bankrupt?" "Two ways," went the answer, "gradually, then suddenly."

The period leading gradually to the recent sudden crisis has the hallmarks of an "Austrian" boom. For a great many years, the Austrian theory of business cycles was kept just barely alive by a small and rather marginal group in the economics profession. For the past 60 or 70 years, macroeconomics was dominated first by "Keynesian" theory—or, I should say, by what was widely thought to be Keynesian theory—then by Monetarism and most recently by Dynamic Stochastic General Equilibrium (DSGE) theory—an evolutionary sequence of theories that ended up in a fool's paradise conducive to much mathematical elaboration, and thus very congenial to modern

³During the early years of the Great Depression, Fisher made numerous public predictions that the economy was about to rebound. His "Debt-Deflation Theory of Great Depressions" (Fisher 1933) was his eventual response to having been so persistently wrong. But by the time it appeared he had completely lost his audience.

⁴So much so in fact that when Hayek moved from LSE to the University of Chicago in 1950, he was kept out of the Economics Department and did not get to teach the economics for which he was known.

economists. Intertemporal equilibrium models incorporating no financial markets did not offer much help in understanding the events of recent years.

Interest in the Austrian theory will presumably revive. In its original form, however, it predicted that an overinvestment boom would be accompanied by inflation. Mises and Hayek had of course lived through the great post-WWI inflations and knew firsthand not only the great redistributions of wealth that they brought but also the social and political upheavals that followed.

There was not much in the way of CPI inflation in the run-up to the recent crisis. So some modification of the original theory is in order. Moreover, we have to consider whether monetary mismanagement may have significant distributive effects even when the price level does not change significantly.

Losing Control: Structure, Regulation, and Policy

For some 60 years after the Great Depression, the financial system of the United States remained basically stable. The Glass-Steagall regulations successfully constrained the potential instability of fractional reserve banking. A number of developments in the past 20 years undermined this stability and, in 2007–08, the system suddenly proved dramatically, disastrously unstable.

Deregulation and Industry Structure

The financial structure inherited from the 1930s divided the system into a number of distinct industries: commercial banks, savings and loan associations (S&Ls), credit unions, and others. It also divided it spatially. Banks located in one state could not branch across the line into another. This structure of the financial sector gave it great resilience. On another occasion I used the metaphor of a ship with numerous watertight compartments. If one compartment is breached and flooded, it will not sink the entire vessel.

In the field of system design, this would be seen as an example of modularity (Baldwin and Clark 2000). Modular systems have several advantages over integral system. The one relevant here is that failure of one module leaves the rest of the system intact whereas failure in some part of an integral system spells its total breakdown. In the old U.S. modular system of financial intermediaries, the collapse of the S&Ls in the 1970s and early '80s was contained to that industry.⁵ It

did not bring down other types of financial intermediaries and it had no significant repercussions abroad. In the recent crisis, losses on mortgages of the same order of magnitude threatened to sink the entire American financial system and to spread chaos worldwide.

The deregulation that turned the U.S. financial industry into an integral system is one of several instances where the economics profession failed spectacularly to provide a reasonable understanding of the subject matter of their discipline. The social cost of the failure has been enormous. At the time, the abolishment of all the regulations that prevented the different segments of the industry from entering into one another's traditional markets was seen as having two obvious advantages. On the one hand, it would increase competition and, on the other, it would offer financial firms new opportunities to diversify risk. Economists in general failed to understand the sound rationale of Glass-Steagall. The crisis has given us much to be modest about.

Deregulation and Incentives

Deregulation did great damage also in another respect. It allowed the great investment banks to incorporate and one by one they all did so in the late 1980s and early 1990s. Historically, they had been partnerships with the partners subject to essentially unlimited liability. For a long, long time, the public perception of bankers was that they were cautious, conservative people who would not lend to anyone who actually needed money. Incorporation meant limited liability for the investment bank and no direct liability for its executives. The incentives for executives in the industry changed accordingly. In a few years, the public perception of investment bankers also changed. Now they are seen as jet-setting high rollers. Economists in general failed to predict this change in bankers' risk attitudes. We have much to be modest about.

From Money Stock Control to Interest Rate Targeting

In the same period, there occurred a dramatic change in the operating doctrine of central banks. Deregulation and financial innovations had combined to render the velocity of various monetary

⁵The S&L industry was destroyed by the inflationary policies that raised the interest rates required to attract or maintain deposits high above the rates earned on previously issued 30-year mortgages.

aggregates increasingly unpredictable. As a result the monetarist policy doctrine, that only a few years earlier had held sway in many central banks, was quickly abandoned. It was replaced by the Wicksell-inspired doctrine of interest targeting brought up to modern technical standards in Michael Woodford's (2003) *Interest and Prices*.

In practice, the rule was now that the central bank should maintain the repo rate constant as long as the rate of change of the CPI did not move outside a narrow range around what was thought to be constant purchasing power. If CPI inflation went above this range, the repo rate should be raised to counter this tendency; in the opposite case, of course, the bank should lower it. At the ruling repo rate, bank reserves were in highly elastic supply.

The consumer price level was indeed successfully controlled in this manner. But the volume of bank credit issued on mortgages expanded at a great rate, fuelling a great boom in both commercial and residential real estate. This was a development that Wicksell or Mises or Hayek would not have anticipated. In their day, it was taken for granted that bank credit was always of short term and created against "real bills" which would be "self-liquidating." If too much credit was flowing into the market, rising consumer prices would quickly signal the central bank that policy had to be tightened. In the early years of the present century, the credit was being created against long-term mortgages that may take up to 30 years rather than 90 days to self-liquidate.

The great expansion of credit in the long end of the market had virtually no effect on consumer goods prices. The feedback that the Fed was relying on kept signaling "steady as you go." There were a couple of reasons for this. Competition from Chinese imports kept the prices of American produced goods in check. In addition, the financial boom raised incomes mostly among people in the financial industry whose consumption demand was not much exercised on the goods of the standard CPI basket.

One Instrument for Two Goals

Here is an exam question for central bankers: Does the bank rate control the price level or the real "price" of credit? The correct answer, of course, is that under present arrangements, *we don't know*—or, rather, we don't know how much of each. In the run-up

to the recent crisis, central banks thought they were controlling the price level, but they were also keeping the real interest rate too low and ended up funding a huge credit boom. The problem is obvious: one instrument for two goals.

What do we do about it? The DSGE models, which had become increasingly influential in central banks over the 10 or 15 years leading up to the crisis, did not alert policymakers to the problem. In intertemporal GE models markets will establish the right price and volume of credit. But, that solution hinges on the transversality condition, which postulates that all debts will be paid on the day before Judgment Day. It is a piece of mathematics with no empirical counterpart whatsoever.

Alan Greenspan belatedly recognized the problem. His recommendation was to reserve the bank rate (the repo rate) for interest targeting to stabilize the price level. To prevent bubbles from developing he would use regulation. It is not clear what he would have the central bank do in the case of a collapse of credit. Deregulate perhaps?

Milton Friedman would never have put faith in transversality, I am sure. He would have insisted on holding the growth rate of M2 constant. An incipient credit bubble would come to strain against this nominal anchor and this would cause *real* rates of interest to rise. This might not take all the air out of a bubble but it would surely prevent it from getting very big.

The striking thing about the one instrument for two goals issue is that we should have known better. We used to know better. Jan Tinbergen, sixty years ago, taught us that the number of instruments had to be at least as large as the number of goals. John Gurley and Edward Shaw (1960) insisted that a central bank needed two instruments to control money and credit. They thought that the two could be either two nominal quantities, or one quantity and one interest rate, or two interest rates. But they were corrected by Don Patinkin (1961) on that last score—just two interest rates will not provide inflation control. It seems our profession forgot all this. Another thing to be modest about.

In my view, the complete endogeneity of the monetary base associated with inflation targeting has failed us. Probably the best way to handle the two goals-one instrument problem is to move back toward control of a nominal quantity.⁶ We no longer have the

trust in the stability of money demand functions that the monetarists once had. Nonetheless, the feedback effect on the real interest rate that I just described would help curbing bubbles.

In the United States, I would have the Fed retake control of the monetary base. I would tie demand liabilities of all sorts—that is, not just bank deposits but also deposits with money market funds—to the monetary base by reserve requirements. To implement this recommendation, starting from the situation as it is today, would not be a trivial task. The tripling of the Fed's balance sheet has left us with an enormously inflated monetary base—and that is not a magnitude that we would want to stabilize at this time. Moving back toward quantity control would moreover dictate a complete change in the way that the repo market for federal funds has operated in recent years. So we must first find a way out of our present troubles before these suggestions can be seriously considered.

The Unstable Web of Contracts

On any given day, the functioning of a market economy is governed by an intricate web of contracts and less formal promises and understandings. Errors occur. Some promises are broken. For the system as a whole to work reliably, it must isolate these cases and deal with them in more or less short order. But in some circumstances, one default will trigger another. Under normal conditions, such chains of default will be short.

But financial systems can become fragile. When this is the case, one default can trigger an avalanche of defaults. Most avalanches are small and self-limiting. But in extreme cases they can take down very large portions of the web of contracts. A major collapse of the web will be associated with a breakdown in the economic organization of a country and widespread unemployment of labor and other resources. But it is more serious than that. A default avalanche leaves a myriad of broken promises in its wake. Social relations are disrupted by distrust and recriminations all around. Effective politi-

⁶Otmar Issing, while still with the Bundesbank, kept insisting that central banks had to monitor and control at least one monetary aggregate. But the instability of various velocity measures that had arisen in the 1990s caused the ECB—and economists in general—to ignore his advice.

cal action becomes almost impossible. Extremist movements on the right and on the left threaten the stability of the political order. It is of the utmost importance, therefore, that a great collapse of the web be stopped—somehow.

But halting a collapse brings intractable political problems as well. A financial crash reveals a large, collective miscalculation of economic values. The incidence of the losses resulting from such miscalculations has to be worked out before the economy can begin to function normally again. Because the process of a crash is unstable, it cannot be left for the markets and bankruptcy courts to work out the eventual incidence. If we had done so this time, it would simply have led us into another Great Depression.

This means political choices have to be made to determine who bears the losses from this collective miscalculation. Obviously, such choices are terribly difficult. Yet, temporizing can prolong the period of subnormal economic performance indefinitely—as the history of Japan over the last 20 years illustrates.

But the questions that demand an answer are of the utmost political difficulty: Who must be paid? Who does not get paid? Who must (in effect) pay for someone else's debt? Who gets away without paying?

Once the issues are spelled out the impossibility of a broad political consensus becomes clear. The distribution of the losses will strike a great many people as “without rhyme or reason.” The room for effective political action in a democracy is obviously very tightly circumscribed.

In practice, governments are apt to rely heavily, if not exclusively, on monetary policy. Massive injections of liquidity will postpone explicit distributional measures and may make some avoidable (since postponement of reckoning will enable some debtors to save themselves). Most of all, reliance on monetary policy has the inestimable advantage that its distributive consequences are so little understood by the public at large.

But relying exclusively on monetary policy has some unpalatable consequences. It creates large rewards for the bankers that were instrumental in erecting the unstable structure that eventually crashed. It also runs some risks. It means after all doubling down on the policy that brought you into severe trouble to begin with.

The Distributional Effects of Monetary Policy

In the years leading up to the Great Depression of the 1930s, there was a great shift in the distribution of income in the United States. It became more unequal. The big gainers were at the top of the distribution—and they were in banking and finance.

In the years leading up to the recent financial crisis, the same type of change in the distribution of income also occurred. The gains are all at the top end and almost all in finance. Is this coincidental? I doubt it.

In interpreting events in these two periods, I have relied on the Austrian theory of business cycles. I argued that the lack of CPI inflation in the upswing, which the Austrian theory would normally predict, had been due to the change in income distribution in favor of income classes whose marginal propensity to spend on the goods in the CPI basket is low. But this leaves the question of how to explain the change in income distribution. The literature on the Austrian theory is extensive and I am far from familiar with much of it. But to my knowledge Hayek and Mises did not pay much attention to income distribution.

A great part of this change in the distribution of income is due, I believe, to the privileges that bankers have come to enjoy under our present monetary arrangements. Three of these privileges are worth discussing at some length.

Bankers' Privilege I: A License to Print Money

Generations of economics students have been taught that “banks create money.” However, the context in which the money creation process is usually explained is one in which the volume of high-powered money is fixed and bank reserves, therefore, a scarce resource. In that context, competition between banks ensures that banks—and bankers—earn no more than a normal return.

This is no longer descriptive of the conditions under which banks operate. Today, total reserves in the banking system vastly exceed the reserves required against deposits. Even when this is not the case, the big conglomerate investment banks face a highly elastic supply of reserves at the repo rate set by the Fed.

This is not quite the same thing as a license to “print money” but—when reserve requirements pose no constraint and the repo rate is significantly below the rate on assets that the banks can acquire—it is

the next best thing. With a central bank that is practically committed to not allow the yield curve to be downward sloping, the banks feel safe operating at high leverage, making lots of money and letting their managers take home big slices of the proceeds.

Let me take this argument two steps further. First, suppose we do give private sector banks the privilege to “print” legal tender. The government might charge a fee for the exercise of the privilege—let’s say 0.2 percent of whatever the repo rate is today. Would that make a significant difference vis-à-vis present arrangements? I do not think so.

Secondly, then, why reserve the privilege for banks? Why don’t we let ordinary citizens borrow in the repo market at the same rate as banks (against good collateral, of course)? The transactions cost of having the central bank engage in this kind of retail lending would be considerable, of course. But they might not be higher than some other government programs, such as agricultural subsidies or oil depletion allowances or a few days’ worth of war on foreign soil. If subsidizing access to the repo window is found objectionable, the citizen-borrower in the repo market might be charged the transaction cost. He might still consider it profitable to refinance his mortgage in this manner.

Admittedly, the operation would not be without risk since the maturity mismatch is rather extreme and the ordinary citizen would know himself to be “too small to save.” But for the time being his housing costs would be very low indeed.⁷

I would not have you take my proposal altogether seriously. But the analytical exercise does, I submit, throw light on our present arrangements. Allowing nonbank agents to compete in this way would obviously do away with abnormal profits in banking and reduce the fortunes of bankers to something more like what the rest of us are accustomed to.

Bankers’ Privilege II: The Shell Game

Monetary economists used to believe that price level stability was a sufficient condition for avoiding distributive effects. This may have been true at some time but it is no longer true.

⁷And American law allows the house owner to walk away from a mortgage debt scot-free.

To see this, consider:

- The Fed is supplying the banks with reserves at a near-zero rate. Not much in the way of bank lending to business has resulted, but banks can buy Treasuries that pay 4 percent, later 3 percent, and lately a bit less than that.
- This hefty subsidy to the banking system is ultimately borne by taxpayers. One should note that neither the subsidy, nor the tax liability has been voted by Congress.
- The Fed policy drives down the interest rates paid to savers to some small fraction of 1 percent. At the same time, banks leverage their capital by a factor of 15 or so, thus earning a truly outstanding return from buying Treasuries with costless Fed money or very nearly costless deposits.

Wall Street bankers are then able once again to claim the bonuses they became used to in the good old days and to which they feel entitled because of the genius required to perform this operation. These bonuses are in effect transfers from taxpayers as well as from the mostly aged savers who cannot find alternative safe placements for their funds in retirement.

The Fed's low-interest policy has turned into a shell game for the ordinary people who are unable to follow how the money flows from losers to gainers:

- The bailouts of the banks during the crisis were clear for all to see and caused widespread outrage; now the public is being told that they are being repaid at no cost to the taxpayer.
- What the public is not being told is that the repayments come to a substantial extent out of revenues paid by taxpayers as rewards for the banks to hold Treasuries.
- Both the political parties supported the bailouts so neither party seems ready to protest the claim that they are being repaid at no cost to taxpayers. Political action to rectify this matter is not to be expected.

Bankers' Privilege III: No Liability

Not so very long ago, the American investment banks were partnerships. The law that permitted them to incorporate is only about 25 years old. Within a decade of its passage, all the big investment banks had taken advantage of it.

Partnerships operate under unlimited liability and the liability falls on the partners as individuals. Corporations, of course, are limited liability companies and the limited liability does not fall on the private wealth of their executives. The change of legal form had a predictable effect on behavior, but it is safe to say that few economists predicted how dramatic this change was going to be. We have much to be modest about.

At one time bankers were generally perceived as cautious, conservative individuals who would not lend money to anyone who actually needed money. The partners of the old investment banks belonged to this breed. Their own fortunes were at stake. The new corporate investment bankers are of a different breed, jet-setting high rollers, gambling with other people's money.

The Goals of Current Monetary Policy

Present monetary policy achieves two aims. One is to recapitalize the banks and to do so without the government taking an equity stake. The authorities do not want to be charged with “nationalization” or “socialism.” So the banks have to be given the funds outright. Economists have agonized a lot lately about the zero lower bound to the interest rate as an obstacle to effective policy in the present circumstances. The agony seems misplaced. As long as the big banks are to be subsidized, why not just pay them to accept reserves from the friendly central bank? Oh, well, come to think of it—U.S. banks are paid interest on reserves nowadays!

The second aim, of course, is to prevent the housing bubble from deflating all the way. In this respect, the policy has had some effect. Homeowners whose houses are not “under water” can often refinance at long-term rates around 4 percent and sometimes even lower.

Forty years ago, the American S&L industry was ruined by inflation raising the rates they had to pay to retain deposits above the rates earned on previously granted long-term mortgages. If the economy were to return to historically more normal interest rates, we would experience a rerun of this episode. The difference, of course, is that some of the lenders are now considered “too big to fail.”

The distributional effects of the policy do not seem to be widely understood. If they were, it is difficult to imagine that they would be let pass without so little opposition. Economists have not done much

to inform the public on this issue. Another matter to be modest about.

The policy is not without risks. To the extent that it succeeds in inducing the banks to load up on long-term, low-yield assets, a return to more normal rates will spell another round of banking troubles.

If the United States were to repeat the Japanese experience and suffer many years of slow deflation, a return to higher rates will be long postponed. At present, strong deflationary pressures are kept at bay by equally strong inflationary policies—an uncomfortable kind of equilibrium. If the United States escapes the Japanese syndrome, the Fed will sooner or later have to raise rates to stem inflation or to defend the dollar.

Central Bank Independence?

For the last 20 or 30 years, political independence of central banks has been a popular idea among academic economists and, of course, heartily endorsed by central bankers. Such independence has not been much in evidence in the recent crisis. But the central banks would very much like to restore their independence.

The independence doctrine, however, is predicated on the distributional neutrality of central bank policies. Once it is realized that monetary policy can have all sorts of distributional effects, the independence doctrine becomes impossible to defend in a democratic society. It is not clear that the economics profession has drawn this conclusion yet.

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MONEY AND BANKING: A CONSTITUTIONAL PERSPECTIVE

Walker F. Todd

Banks either are or should be fiduciaries holding the public's funds as a public trust. Those who want to participate in the risk-taking aspects of banking are shareholders (or should be shareholders). If the government is called upon to share the risks of banking, especially the risks of investment banking, then it should be a shareholder. As Edward J. Kane puts it, "For investment banker's risk, there should be investment banker's reward for the taxpayers." And once the government is a shareholder, it owes a public duty to restrain the egregious risk taking and excess executive compensation in which banks seem to have wanted to engage for the last 30 years or so. The resolution of this dilemma is to avoid governmental share ownership of banks by avoiding governmental risk sharing in partnership with the banks (which is a form of classic corporatism that has nothing to do with free-market economics).¹ Holding banks to the

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¹Evidence emerged in the late fall 2014 civil trial arising from the 2008 Federal Reserve and Treasury bailout of the creditors of AIG, the largest property and casualty insurer, illustrating the corporatist tendencies of emergency lending. One of the bigger issues was whether an official lender (the Federal Reserve Bank of New York, in this instance) should accept a pledge initially amounting to 79.9 percent of the shareholders' equity of AIG to secure an initial loan of \$85 billion. The Reserve Bank's legal authority to make such a loan or to accept such security was questionable at best (I think that such actions were unauthorized by statute or precedent). The relevant statute is Section 13(3) of the Federal Reserve Act, as amended in 1991 (12 U.S.C. Section 346). On the AIG trial, see Morgenson (2014). Edward J. Kane has worthwhile comments in that article.

standards of fiduciaries, at least with respect to deposit taking and access to the payments system, is the essence of sound constitutional advice about money and banking.

The Monetary Constitution

Article I, Section 10, Clause 1 of the U.S. Constitution provides that “No State shall . . . emit Bills of Credit [or] make any Thing but gold and silver Coin a Tender in Payment of Debts.” The first part of this quotation means that no State can issue its own currency or have a state-owned bank issue currency notes backed by the full faith and credit of a State, a matter decided, among other places, in *Briscoe v. Bank of Commonwealth of Kentucky*, 36 U.S. 257 (1837).

On the second part of this quotation, I have written elsewhere as follows:

[T]he states are banned from passing legal tender laws for anything except gold and silver coin; however, bullion is excepted and cannot be made legal tender. This means that state legislatures could proclaim bullion or anything else a form of money lawful for commerce, exchange, and the payment of taxes. But the states cannot *require* private persons to accept anything other than gold or silver coins. A legal tender law requiring the acceptance of alternative forms of money usually affects property rights negatively by requiring an exchange of things of value (goods and services in commerce) for things of lesser value (e.g., fiat currency) [Todd 2009: 65].

Edwin Vieira Jr. has written extensively on topics related to the powers of States or private citizens to use gold and silver as money. I believe that he and I agree that nothing except political blowback from the Established Orders prevents the States from making gold and silver coins at least lawful money and even a legal tender within their boundaries. Treasury objections regarding individual coinage, apparently emanating from coinage and counterfeiting statutes enacted near the end of the Civil War, apparently prohibit individuals from issuing their own gold and silver coins other than as collectible medallions. The States are prohibited from “coin[ing] Money” by that same Article I, Section 10, Clause 1, of the Constitution.

One of the important federal anti-counterfeiting statutes from Title 18 of the United States Code is Section 486, “Uttering Coins of Gold, Silver or Other Metal”:

Whoever, except as authorized by law, makes or utters or passes, or attempts to utter or pass, any coins of gold or silver or other metal, or alloys of metals, intended for use as current money, whether in the resemblance of coins of the United States or of foreign countries, or of original design, shall be fined under this title or imprisoned not more than five years, or both.

An important point to note, however, is that the Treasury’s objections to individual coinage are based on statutes, not the Constitution. Congress probably could not authorize state-issued gold and silver coins. Individually minted coins, however, even coins subject to state regulation, could be authorized if 18 U.S.C. Section 486 were repealed or amended. Under current tax rules, gold and silver coins still would be subject to taxes on capital gains (and state sales tax laws) in the absence of corrective legislation.

Official U.S. coins, however, clearly could be made a legal tender under existing state law, leaving open the question of foreign official gold or silver coins. A good argument could be made that, at a minimum, the official gold and silver coins of our neighbors within the North American Framework Agreement of 1994 (Canada and Mexico) should be made a legal tender within the United States, at least for the duration of that Agreement.

What about the power of Congress to authorize the issuance of legal tender paper money? In 2009, I wrote about this issue as follows, but today I would preface my passage with “Alas”:

The Constitution does not prohibit Congress from authorizing legal tender paper money. When this issue was debated in Philadelphia [in 1787], even George Mason agreed that the hands of Congress should not be tied *in an emergency* on this point [Todd 2009: 65].

About all this, the Constitution merely says in Article I, Section 8, Clause 5, that Congress shall have the power “To coin Money, regulate the Value thereof, and of foreign Coin.”

Many writers have argued that the Constitution should be interpreted as prohibiting a legal tender law for other than gold or

silver at the federal level in light of the explicit provision applying to the States. Indeed, under the Coinage Act of 1792, a bimetallic standard was made the law of the land, and, over the next century or so, only bank notes redeemable in gold or silver on demand passed as lawful money (receivable for customs duties and taxes). The history of bank notes under the Banks of the United States, the National Banking Act, and the Federal Reserve Act is reserved for discussion another day.

Meanwhile, in Philadelphia in 1787, the question of a prohibition of irredeemable federal paper money was raised several times. One delegate, George Read of Delaware, said that he regarded the absence of a prohibition of such paper money as “alarming as the mark of the Beast in Revelations” [Madison *Notes*, August 16, 1787]. On the statement that I attributed to Mason, he prefaced it by saying that he doubted that Congress had the power to issue paper money “unless it [the power] were expressed” [Madison *Notes*, August 16, 1787]. Mason’s statement also made it clear that he wanted Congress to limit the issuance of paper money to emergencies. Further, Madison, writing as Publius in *The Federalist*, No. 10, said that schemes like “a rage for paper money” should be considered together with “other improper or wicked project[s],” a phraseology that tends to reinforce the general principle that the Framers did not want irredeemable paper money to have legal tender status in nonemergency events.

At the founding of the Republic, the presumptive and ordinary state of affairs was *no* paper money—it was to be issued only in an emergency, if then. The bimetallic or gold standard (the country alternated between the two over the years) was suspended in a few emergencies, most notably during the Civil War and again in March 1933. In the Civil War, paper money was issued with wild abandon (on both sides), and domestic banks generally suspended gold payments. In foreign exchange, Union securities fell to about 40 percent of their pre-war values; Confederate currency and securities became worthless with the end of the War. Full resumption did not occur until 1879. In March 1933, domestic gold payments were prohibited for what proved to be 40 years, and U.S. banks still are prohibited from accepting deposits redeemable in gold or making domestic loans repayable in gold. In other words, the emergency that George Mason contemplated now has lasted 81 years. It is nearly certain that, had the Framers foreseen our era, they would have written an

explicit prohibition of irredeemable paper money into the Constitution.

Still, the Federal Reserve and the Treasury seem to have gotten away with it, at least so far. But we all owe a debt to Richard Timberlake (2013) for his contributions to keeping the paper money vs. gold standard debate alive in the post-1971 era.

Central Banking in the United States

The important constitutional point about central banking in the United States is that the Constitution is silent about it. Secretary of State Thomas Jefferson urged upon President George Washington the argument that strict construction of this silence in the Constitution required the president to veto the bill chartering the First Bank of the United States in 1791 for a 20-year term. The Bank, he noted, was not among the powers enumerated for Congress.

Treasury Secretary Hamilton prevailed in that debate, winning the charter for the Bank, but his arguments relied on the following provisions of the Constitution:

- The Preamble, to “promote the general Welfare”;
- Article I, Section 8, Clause 1: “The Congress shall have Power to lay and collect Taxes . . . , to pay the Debts and provide for the common Defense and general Welfare of the United States”;
- Article I, Section 8, Clause 2: “To borrow Money on the credit of the United States”;
- Article I, Section 8, Clause 5: “To coin Money, regulate the Value thereof, and of foreign Coin”;
- And Article I, Section 8, Clause 18: “To make all Laws which shall be necessary and proper for carrying into Execution the foregoing Powers.”

Hamilton argued that these clauses constituted sufficient authority for the chartering of a national bank, which would be convenient for the conduct of the Treasury’s debt issuance and redemption activities, as well as for the Treasury’s receipt of taxes and disbursements. Jefferson argued that the Treasury could do all these things without a national bank or through the existing state banks (then in Philadelphia, New York, and Boston). Hamilton argued that “necessary” merely meant “convenient.” Jefferson argued that Congress

should not violate the Constitution for a degree more or less of mere convenience. Hamilton argued that the whole structure of the list of related powers constituted “implied powers” of Congress, essentially to do anything of a general welfare–promoting nature. Jefferson argued that there are no implicit powers, only explicit powers, and that chartering a bank was not among them. In the end, however, Jefferson essentially advised President Washington that he could sign the Bank charter bill unless he thought Hamilton had misled Congress or that Congress was corrupted by “interest,” what we would call either bribery or a conflict of interest today. Washington signed the bill on February 25, 1791. Later, in *McCulloch v. Maryland* (17 U.S. 316 [1819]), Chief Justice John Marshall, who had the still-unpublished exchanges of correspondence among Hamilton, Washington, and Jefferson, upheld the constitutionality of the Second Bank of the United States (1816–1836), which was organized largely along the lines of the First Bank. Marshall’s reasoning followed Hamilton’s quite closely, including extensive verbatim copying (without citation of sources—Marshall only rarely ever cited sources anyway).²

So if you do not like the Federal Reserve System, you have to figure a way either to persuade Congress to repeal or revise it, or to re-argue *McCulloch v. Maryland* and persuade the Supreme Court that Chief Justice Marshall was wrong. And there are large law firms in New York (usually those representing state-chartered banks) willing to re-argue *McCulloch*.

Meanwhile, back in Philadelphia in 1787, what exactly did the Framers decide about central banking? The issue came to a head in the convention on September 14, 1787, only three days before the convention adjourned. Madison’s *Notes* show that a short but spirited debate was opened on the language that became Article I, Section 8, Clause 7, specifying that Congress shall have power “To establish Post Offices and post Roads.” Benjamin Franklin, who became the first postmaster general, was interested in this clause and suggested amending it to add “cutting canals where deemed necessary.” James Madison suggested

²See generally, Malone (1951), especially, the chapter on “The Bank and the Constitution.”

[A]n enlargement of the motion into a power “to grant charters of incorporation where the interest of the U.S. might require & the legislative provisions of individual States may be incompetent.”

James Wilson of Pennsylvania and Edmund Randolph of Virginia both spoke briefly in favor of the amended and enlarged plan. However, Roger Sherman of Connecticut and Rufus King of Massachusetts spoke against it. King remarked that

The States will be prejudiced and divided into parties by it [a power including incorporation]. In Phila. & New York, it will be referred to the establishment of a Bank, which has been a subject of contention in those Cities. In other places, it will be referred to mercantile monopolies.

Wilson’s replied that

As to Banks he did not think with Mr. King that the power in that point of view would excite the prejudices & parties apprehended. As to mercantile monopolies they are already included in the power to regulate trade.

Madison’s *Notes* describe the end of the debate as follows:

Col. [George] Mason [of Virginia] was for limiting the power to the single case of Canals. He was afraid of monopolies of every sort, which he did not think were by any means already implied by the Constitution as supposed by Mr. Wilson.

The motion being so modified as to admit a distinct question specifying & limited to the case of canals,

[Vote of the States as units, with two states not voting: 8-3 against, with “ay” votes cast by Pennsylvania, Virginia, and Georgia.]

The other part [related to a power to grant charters of incorporation] fell of course, as including the power rejected [Madison *Notes*, September 14, 1787].

So there you have it: The power to charter corporations (understood to include the power to charter a national bank) was considered

explicitly and was voted down. In their 1791 debate, Jefferson alluded to this point in his summary objections delivered to President Washington, but Jefferson was not supposed to know what was said in Philadelphia because he was not there (he was in Paris in 1787). The proceedings of the Constitutional Convention were supposed to be secret. (We assume that Madison, who came around to opposing the national bank, told Jefferson.)

Hamilton's reply to Jefferson argued, essentially, "Who knows exactly what went on in that room four years ago?" (Madison was not supposed to be keeping notes, and they were not published until 1840). Hamilton urged reliance on the ratified text and the doctrine of implied powers. Ironically, Washington was in Philadelphia that summer and should have been able to remember the debate in 1787 because he was the presiding officer of the federal convention [Malone 1951].

Ten Fundamental Truths about Money and Banking

One of the root causes (perhaps *the* root cause) of the current financial crisis (it should be "recent crisis," but has it really ended yet?) was a failure of the public policy debate (and of individual preferences) to consider carefully the obvious implications of one policy choice for the next and obviously interlinked policy choice. A related concern is rhetorical consistency, as in whether any one or more policy choices really belong within the political economy model that public policy allegedly is following at any given moment. Rhetorical consistency could be called avoidance of the "Chinese menu, column A/column B" approach to policy choices.

An unregulated banking system, for example, with no or ineffective reserve requirements, probably requires a larger role for deposit insurance than any other type of banking system *if* (and it is a big *if*) public policy decrees that safety of deposits comes ahead of any other consideration. However, guaranteeing deposits opens other cans of policy worms, appearing to be derived more from corporatist than from classically liberal or free-market political economy models.

Ten fundamental truths (some scholars call them "warranted assertions") about money and banking are listed below in the form of ordinal or ranked sets of policy choices, with each subsequent policy choice depending on the preceding policy choice. These truths

should be kept in mind as we examine varying constitutional and statutory models for the structure of money and banking.

1. Gold is money; everything else is credit. This saying, attributed to the original J. P. Morgan in response to the question, “What is money?” is still as true today as it was 100 years ago (Morgan 1912). Once acquired, gold (or silver in a bimetallic system) becomes the only asset that has monetary value at all times and in all circumstances. Also, unlike anything else on most financial statements, gold (or silver) as an asset does not have to be the liability of anyone else.

In the recent financial turmoil, the price of gold fluctuated, but its value remained more relatively constant than other assets.³ Considered as a commodity instead of as money, gold futures prices have declined less than most agricultural, energy, and non-precious metals future contracts.

2. In unregulated or free banking policy, either extreme position works, at least within its own terms. Either banks should follow a gold standard and maintain an adequate gold reserve against their liabilities, or they should maintain no reserve and issue liabilities valued entirely at whatever the bid price is in the market, regulating the quantity of issue to affect the bid price. Central banks may be convenient but, strictly speaking, are unnecessary under this set of choices.⁴
3. In a regulated or lawful money banking system, either extreme position also works, at least within its own terms. Either banks

³The monthly average price of London market gold in the heart of the crisis, from March 2008 (failure of Bear Stearns) to April 2009, was about \$850–\$900 per ounce, with a volatility range of \$988.50 per ounce (the nominal price peak until then in March 2008) to \$729.50 per ounce (the post-crisis low) in November 2008. Since the end of the Federal Reserve’s emergency lending period (roughly April-May 2009), converted into the first Quantitative Easing period (open market purchases instead of emergency loans), the monthly average price of gold has been about \$1,300 per ounce, with a volatility range of \$1,821 per ounce (August 2011, the onset of the first Greek payments crisis in the eurozone) to \$1,162 per ounce (weekly average, November 10, 2014). The December 7, 2014 spot price was \$1,192.14 per ounce, and the market has observed a general trading range of about \$1,200 to \$1,400 per ounce for the greater part of the last two years (World Gold Council 2014).

⁴Cato Institute-affiliated scholars like Lawrence H. White and George Selgin have written extensively about free banking over the years. See also, Rothbard (1976).

should be held to a statutorily mandated reserve requirement in gold or lawful money (which includes U.S. government bonds, notes, bills, currency, and lesser coin redeemable in gold or silver), or they should hold no gold but should hold statutorily prescribed reserves of full-faith-and-credit (FFC) U.S. government obligations.

The question of fractional reserve banking versus 100 percent reserve banking arises within this category. Both credit and the means of its repayment are obtained more easily under fractional reserve banking. But the unsubsidized safety of the banking system is assured more easily under 100 percent reserve banking. Central banks or a governmental regulatory system, or both, tend to play much more significant roles under a set of choices including fractional reserve banking.

4. Federal deposit insurance may be helpful in preventing irrational bank runs, but so may credible public assurance of the prudent conduct of the banking business. Plans like “safe banking” (the separation of the deposit-taking and payments system functions of banking from the lending functions of banking), 100 percent reserve banking, and a postal savings system (a form of government-sponsored enterprise) have inconveniences, but they provide for safety of deposits without federal deposit insurance. A banking system that allows the commingling of the deposit-taking and lending functions falls more closely to requiring some sort of deposit insurance than a system that does not allow commingling (Phillips 1995; Cochrane 2014).
5. Allowing depository institutions to engage in risk-taking activities that are not closely related to the traditional business of banking normally should require that those activities be segregated from the institutions’ deposit-taking and payments functions in order to prevent the adverse consequences of those risks from endangering the value of savings and payments. For example, allowing near-gaming activities, like the underwriting of credit default swaps inside insured banks or inside registered broker-dealers holding customers’ funds is begging for trouble. That is like lining up dominoes so that the fall of one ensures the fall of all (see Ivry, Son, and Harper 2011).

For a time, ending at the Federal Reserve in 1984, banking supervisors set at least some store in the “real bills” doctrine, which held that commercial banks should make only loans related to self-liquidating current transactions in commerce. Purchases of real estate, capital goods, and the like were “speculative investments” whose financing was deemed more appropriate for investment banking. As a monetary policy tool, the real bills doctrine died in the 1930s (it is a pro-cyclical policy tool, which is inconvenient in recessions), but as a prudential supervision tool, there is much to be said for enforcing conformity of assets with this doctrine in contrast to, for example, displaying an impressive array of credit default swaps. (Ask any bank examiner.)

6. Counting on supervisory or regulatory zeal and diligence to offset some, most, or all of the new types of risks introduced into a banking system (like over-the-counter or OTC derivative contracts, such as interest rate, foreign exchange, and credit default swap agreements) is a vain hope over time. James Madison expressed this thought best in his *The Federalist*, No. 10 (1787), as follows:

It is in vain to say that enlightened statesmen will be able to adjust these clashing interests, and render all subservient to the public good. Enlightened statesmen will not always be at the helm. Nor, in many cases, can such an adjustment be made at all without taking into view indirect and remote considerations, which will rarely prevail over the immediate interest which one party may find in disregarding the rights of another or the good of the whole.

The Framers of the Constitution believed that only properly constructed institutional structures, designed to create and maintain categorical distinctions amounting to a system of checks and balances, with separation of powers, could ensure the public good and the property rights of individuals. Very little evidence (perhaps no evidence) has developed over the years to prove that they were wrong in their belief.

7. It is a mistake, because it is an ever-present temptation to those who run it, to establish a central bank, to charge it with regulation of the currency issue and the supply of bank credit in the economy, and to authorize that central bank to make loans to

particular institutions while simultaneously being the chief supervisor and regulator of those institutions. The ever-present temptation is to use the discount window (or carefully targeted open-market operations) as a means of covering up supervisory mistakes. One's initial reaction to a sudden and sharp rise in central bank credit when these various functions are unified in one institution, as they are today in the Federal Reserve System, probably should be assumptions that a very large supervisory and regulatory policy mistake has been made and that the principal recipients of central bank largesse are those most engaged in gaming the system.

8. When central bank liquidity infusions begin to rise to flood-stage levels, as they currently do, then it is time to inquire whether an unforeseen outside shock to monetary policy is causing the flood or, rather, an eminently foreseeable failure of prior supervisory and regulatory policy. It generally is argued (sometimes more facetiously than at other times) that a supervisor cannot detect conscious and deliberate fraud, but if the supervisor creates or fosters an atmosphere in which fraud may flourish, then it is not irrational for the supervisor to be on sharper alert for fraud. The post-1980 situation probably falls somewhere between conscious fraud and profound neglect of very foreseeable risks and of duty.⁵
9. If the banking system is commingling traditional banking activities (deposit-taking together with commercial lending) with nontraditional banking activities (insurance or securities underwriting), then it is both prudent and rational to require that customers' funds devoted to those different sets of activities be segregated on the banks' accounting books. Governmental protections, to the extent admitted at all, should extend only to those functions related to maintenance of the principal components of the commercial economy (the pooling of deposits and the lending of funds) and not to the supplemental but nonessential components of commerce (insurance and securities underwriting). And it would be a fundamental mistake not to supervise and regulate banks if they both accept retail

⁵For evidence of at least some supervisory awareness of this problem (i.e., inept supervision, created in no small part by regulatory capture), see Dudley (2014) and Tarullo (2014).

deposits and make commercial loans in amounts below the sizes appropriate for syndicates of bond underwriters. Traditionally, by the way, mortgage loans were considered speculative and usually were made by specialized mortgage lending entities.⁶

10. Governmental protection of the banking system took many forms even before the current crisis. It is unclear whether the public receives a fair and reasonable return on its governmental investment in banking. Current government protections that did not exist at common law or in classical economics include: perpetual bank charters (instead of 20-year charters), limited personal liability of directors and principals through corporate forms of organization (instead of partnerships and sole proprietorships), federal deposit insurance, Federal Reserve discount window assistance, and free finality of payment for transactions posted on Fedwire. A few, free-market banks still exist (in partnership form, not receiving retail deposits, not Federal Reserve members, and the like), but they are fairly discreet and tend to be unknown to the general public. On the other hand, they tend to have been around for a long time (nearly 200 years) because of the prudent lending and investment practices that they have followed. (Please contact me if you do not know who they are.)

Conclusion

A central bank may be convenient for some purposes but, strictly speaking, is unnecessary in a free banking, gold standard, or 100 percent reserve banking system. If we decide that fractional reserve banking is desirable, then a central bank or some kind of privately owned bankers' bank (or effective clearing house association) makes more sense. If we decide to have fractional reserve banking with no gold in the system, then a central bank might be a more rational

⁶After this paragraph was written, in a surprise, last-minute maneuver just before the Christmas holiday congressional recess in December 2014, the omnibus federal budget reconciliation bill passed both houses of Congress containing a provision repealing Section 716 of the Dodd-Frank Act of 2010, the "Lincoln amendment," which required federally insured banks to "push out" most non-cleared credit default swaps and certain other over-the-counter derivative transactions. Going forward, it appears that insured banks may engage in such activities without push-out (Weisman 2014).

solution to the liquidity problems that are likely to emerge, but even then, banks should be charged with greater attention to maintaining their own reserves of liquidity. But even if we have a liquidity-providing central bank, Congress should not be excused from legislating either a strict numerical limit on the upper bound of the bank's balance sheet or a limitation on the allowed rate of growth of that balance sheet.

To do less is for Congress to abdicate its power “to coin Money [and] regulate the Value thereof.”

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GOLD AND SILVER AS CONSTITUTIONAL ALTERNATIVE CURRENCIES

Edwin Vieira Jr.

In his Inaugural Address of 1933, Franklin D. Roosevelt warned his fellow Americans that “in our progress towards a resumption of work we require two safeguards against a return of the evils of the old order: there must be a strict supervision of all banking and credits and investments, so that there will be an end to speculation with other people’s money; and there must be provision for an adequate but sound currency.” Nonetheless, Roosevelt proceeded to promote an exceedingly unsound currency—with the seizure of most Americans’ gold, devaluation of gold coinage, removal of domestic redemption of Federal Reserve Notes in gold, and the nullification of gold clauses in both public and private contracts (Vieira 2002: 867–1235).

Subsequently, this country moved even further away from Roosevelt’s professed desideratum (*ibid.*: 1235–40). To be sure, Americans’ right to own gold was restored in 1973, gold clauses were once again permitted for private citizens in 1978, and starting in 1985 the U.S. Treasury began to mint large quantities of gold and silver coins denominated in “dollars” and impressed with the character of “legal tender” (*ibid.*: 1269–1311). Yet, it cannot be said that the United States now enjoys “an adequate but sound currency” based upon silver and gold in the manner the

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Constitution requires (*ibid.*: 27–205). Rather, by providing financial aid and comfort to the overexpansion of the General Government, the operations of the Federal Reserve System—in particular, the use of Federal Reserve Notes, irredeemable in either gold or silver, as Americans’ almost exclusive currency—have validated the prophecy of Justice Stephen J. Field, dissenting in *Dooley v. Smith*, that the fallacious arguments the Supreme Court employed to rationalize the constitutionality of irredeemable legal-tender paper currency

tend directly to break down the barriers which separate a government of limited powers from a government resting in the unrestrained will of Congress. . . . Those limitations must be preserved, or our government will inevitably drift . . . into a vast centralized and consolidated government [80 U.S. 604, 607–8 (1872)].

But exactly what corrective is now to be applied? At least two alternatives for dealing domestically with the present situation are available: (1) reforming the Federal Reserve System by introducing a redeemable currency somehow “backed” by gold, and preferably by silver as well, because no monometallic gold standard can exist under the Constitution; and (2) replacing the present monetary regime with an entirely new system of economically sound, honest, and especially constitutional money. In this article, I shall focus on the second alternative, as I have shown in detail elsewhere the unconstitutionality and imprudence of attempting to salvage the Federal Reserve System by returning its notes to redeemability in gold or silver (Vieira 2002).

Replacing the Present Monetary Regime with Sound, Honest, and Constitutional Money

Replacement of the present monetary regime would begin with the introduction of alternative currencies consisting solely of gold and silver to compete with Federal Reserve Notes. Here, three possibilities exist:

- First, the American people could fashion such currencies for their own use, under the aegis of the Ninth and Tenth Amendments to the Constitution, and of certain statutes, with

the hope that the General Government and the States would then adopt those currencies.

- Second, the General Government could provide such currencies for everyone's use, through the exercise of Congress's power "[t]o coin Money, regulate the Value thereof, and of foreign Coin" in Article I, Section 8, Clause 5 of the Constitution.
- Third, the States could adopt such currencies for themselves and their own people (with the hope that the General Government would then follow suit), on the basis of the States' explicit constitutional duty in Article I, Section 10, Clause 1 of the Constitution not to "make any Thing but gold and silver Coin a Tender in Payment of Debts"—and therefore of their implicitly reserved constitutional right and power *to* "make . . . gold and silver Coin a Tender in Payment of Debts."

Alternative Currencies through Private Action

The qualification *ultimately* to be recognized as official money by all public authorities takes into account that such a reform could be initiated by *private*, rather than governmental, action. In Article I, Section 8, Clause 5, the Constitution delegates to Congress the power "[t]o coin Money, regulate the Value thereof, and of foreign Coin", and in Article I, Section 10, Clause 1 imposes upon the States the duty not to "make any Thing but gold and silver Coin a Tender in Payment of Debts," and through the latter duty reserves to the States the right and power to "make . . . gold and silver Coin a Tender." Nothing in the Constitution, however, precludes Americans, as private individuals, from employing whatever honest media of exchange—in particular, gold and silver—as "Tender" in their private transactions. Indeed, besides the Ninth and Tenth Amendments, the very duty of the States to "make . . . gold and silver Coin a Tender in Payment of Debts" guarantees that private right and power. For most "Debts" arise out of private contracts, are made payable in currency of some sort, and are enforceable in the States' courts. So those courts are constitutionally required to enforce with the actual "Tender" of "gold and silver Coin" contracts that specify the payment of "Debts" in such "Coin"—no matter what other forms of currency Congress may have generated. The reserved duty, right, and power of the States to "make . . . gold and silver Coin a Tender"

plainly limits the reach of Congress's power "[t]o coin Money, [and] regulate the Value thereof" (or any other power, for that matter) because the Constitution cannot be read to license Congress to override the very duty, right, and power it simultaneously reserves to the States.¹ In addition, Americans enjoy a statutory right under Title 31, United States Code, Section 5118(a) and (d)(2) to enter into private contracts that contain gold clauses or silver clauses²—which the States' courts must enforce pursuant to Article VI, Clause 2 of the Constitution. Thus, as a matter of law, nothing precludes common Americans from adopting gold and silver as their currencies in private transactions in preference to Federal Reserve Notes, even if the General Government and the States' governments were to continue to require people to employ those notes in financial interactions with public agencies.

As a matter of fact, however, powerful disincentives work against widespread adoption of alternative currencies by individuals on their own initiatives.

First, information costs. Before people can employ gold and silver clauses in their contracts, they must educate themselves about their legal rights and the economic advantages that might accrue from exercising them. Moreover, they must also learn how to draft legally binding and fully protective gold or silver clauses—or pay competent attorneys to do so.

Second, transaction costs. Economic actors who understand the advantages of gold and silver clauses must search out complementary partners who also know, or can quickly be educated, about those advantages; must convince them to consummate such arrangements; and must prepare the necessary documents to the satisfaction of various attorneys, accountants, corporate boards, and other supervisors and advisors. In addition, if those actors also enter into other deals pursuant to which they employ Federal Reserve Notes as their media of exchange, they must maintain complex systems of accounting which record receipts and expenditures sometimes in gold and silver,

¹Compare *Hostetter v. Idlewild Bon Voyage Liquor Corp.*, 377 U.S. 324, 332 (1964), with *Dick v. United States*, 208 U.S. 340, 353 (1908), and *South Dakota v. North Carolina*, 192 U.S. 286, 328 (1904) (White, J., dissenting), and with, e.g., *United States v. Brignoni-Ponce*, 422 U.S. 873, 877 (1975).

²See *Bronson v. Rodes*, 74 U.S. 229 (1869), and *Butler v. Horwitz*, 74 U.S. 258 (1869).

sometimes in notes, and which track exchanges of gold and silver for notes and vice versa.

Third, opportunity costs. In the absence of banks that pay interest in gold and silver on deposits of such currencies, people who employ gold and silver clauses can only “hoard” the gold and silver they receive but do not spend. This may prove economically disadvantageous.

Fourth, regulatory costs. Individuals who employ U.S. gold and silver coinage statutorily denominated in “dollars” as their media of exchange are typically required by tax gatherers and courts to report their gross receipts, incomes, sales, and other financial data, and to calculate and pay taxes, not on the basis of the face values of the coins in “dollars” as mandated by Congress, but instead on the basis of the much greater so-called fair market values of the coins expressed in Federal Reserve Notes (Vieira 2002: 1311–40). Although this requirement should be disallowed on both constitutional and statutory grounds, to challenge it is a costly and chancy endeavor.³

So, to expect individuals in large numbers spontaneously to adopt gold and silver as alternative currencies is unrealistic. Moreover, that many Americans did employ such alternative currencies in their private transactions would not by itself guarantee that the General Government and the States’ governments would accept those currencies as media of exchange in the normal run of public transactions.

Alternative Currencies through the Federal Government

Pursuant to Title 31, United States Code, Section 5112(a)(7 through 10), (e), (h), and (i), the General Government already issues gold and silver coins as official currencies with the status of “legal tender.” But it has not arranged for these coins to compete with Federal Reserve Notes in the marketplace on anything approaching equal terms (primarily because of the confusion surrounding how the “dollar” values of payments in such coins are to be determined). In the present political climate, the likelihood that any such arrangement will be made is essentially nil.

³Contrast *Thompson v. Butler*, 95 U.S. 694 (1878), and 31 U.S.C. § 5112(a)(7 through 10), (e), (h), and (i)(1)(B), with, e.g., IRS Notice 2008-14, *Frivolous Positions*, ¶ 15.

Moreover, although Congress has mandated in Title 31, Section 5119(a) that “the Secretary [of the Treasury] shall redeem gold certificates owned by the Federal reserve banks at times and in amounts the Secretary determines are necessary to maintain the equal purchasing power of each kind of United States currency”, and although Congress has declared in Title 31, Section 5117(b) “the value (for the purpose of issuing those [gold] certificates . . .) of the gold held against” them to be “42 and two-ninth dollars a fine troy ounce,” U.S. gold coins do not exchange against Federal Reserve Notes in the free market at anything close to that figure—and no one has called the Secretary to account for this discrepancy.

Alternative Currencies through the States

Not entirely unlikely, though, is that one or more of the States may recognize the economic necessity of adopting gold and silver as alternative currencies within their own territories. The constitutionality of such action is beyond question. The ultimate purpose of a State’s adoption of an alternative currency would be to protect the economic, social, and political well-being of her citizens against the inherent instability of the Federal Reserve System and its paper currency. To this end, the States’ “police power” is particularly well suited.

“The police power” “is a power originally and always belonging to the states, not surrendered by them to the general government, nor directly restrained by the Constitution of the United States, and essentially exclusive” (*In re Rahrer*, 140 U.S. 545, 554 [1891]). “The police power” “is not granted by or derived from the Federal Constitution, but exists independently of it, by reason of its never having been surrendered by the States to the general government” (*House v. Mayes*, 219 U.S. 270, 282 [1911]).⁴ The States possess “the police power” “in their sovereign capacity touching all subjects jurisdiction of which is not surrendered to the federal government” (*Nebbia v. New York*, 291 U.S. 502, 524 [1934]). So “the police power” subsumes *all* of the sovereign powers of a State government reserved to it by the Constitution of the United States. It is, there-

⁴*Accord*, *California Reduction Co. v. Sanitary Reduction Works*, 199 U.S. 306, 318 (1905) (“the States possess, because they have never surrendered, the [police] power”).

fore, the primary subject of the Tenth Amendment with respect to the States, because it embraces *all* of “[t]he powers not delegated to the United States by the Constitution, nor prohibited by it to the States, [which] are reserved to the States respectively.” That being so, “the police power” is “one of the most essential of powers, at times the most insistent, and always one of the least limitable of the powers of government” (*District of Columbia v. Brooke*, 214 U.S. 138, 149 [1909]).⁵

In particular, “the police power of a State embraces regulations designed to promote . . . the general prosperity” (*Chicago, Burlington & Quincy Railway Co. v. Illinois ex rel. Grimwood*, 200 U.S. 561, 592 [1906]),⁶ and “to enforc[e] the primary conditions of successful commerce” (*Noble State Bank v. Haskell*, 219 U.S. 104, 111 [1911])—and in a free-market economy “the general prosperity” cannot be advanced through “successful commerce” without a politically honest and economically sound medium of exchange.

The States possess “the police power” “in their sovereign capacity touching all subjects jurisdiction of which is not surrendered to the federal government” (*Nebbia v. New York*, 291 U.S. 502, 524 [1934]). The States’ “jurisdiction”—that is, their legal authority—to employ gold and silver coin as alternative currencies is a “subject . . . which is not surrendered to the federal government.” Rather, the Constitution itself explicitly reserves that power to the States. Article I, Section 10, Clause 1 of the Constitution provides that “[n]o State shall . . . make any Thing but gold and silver Coin a Tender in Payment of Debts.” So, on the very face of the Constitution, the States *may* “make . . . gold and silver Coin a Tender”—and, according to the principle that the Constitution must always be read with an eye toward fully achieving its purposes, the States *should always* “make . . . gold and silver Coin a Tender” whenever the situation calls for it. For no one should “construe any clause of the Constitution as to defeat its obvious ends, when another construction, equally accordant with the words and sense thereof, will enforce and protect them” (*Prigg v. Pennsylvania*, 41 U.S. 539, 612 [1842]). True it is that the authority to “make any Thing *but* gold and silver Coin a Tender”

⁵Quoted in *Eubank v. City of Richmond*, 226 U.S. 137, 142–43 (1912).

⁶*Accord*, *Bacon v. Walker*, 204 U.S. 311, 317 (1907); *Eubank v. City of Richmond*, 226 U.S. 137, 142 (1912); *Sligh v. Kirkwood*, 237 U.S. 52, 59 (1915).

is drafted as an exception to the States' general disability to "make . . . Tender[s]"—that is, as an exception to an absence of power. But an exception to an absence of power is necessarily the recognition of that power to the full extent of the exception. And the exception in favor of "gold and silver Coin" knows no bounds in terms of the times at which, the circumstances in which, or the degree to which the States may apply it. So the States may and should "make . . . gold and silver Coin a Tender" under *all* circumstances considered appropriate *by them*.

"Tender" is generally defined as "[a]n offer of money; the act by which one produces and offers to a person holding a claim or demand against him the amount of money which he considers and admits to be due, in satisfaction of such claim of demand, without any stipulation or condition"; and "[l]egal tender is that kind of coin, money, or circulating medium which the law compels a creditor to accept in payment of his debt, when tendered by the debtor in the right amount" (Black's: 1637). So, perforce of Article I, Section 10, Clause 1, the States may not compel a creditor to accept, in payment of any "Debt]" solvable in money, "any Thing but gold and silver Coin," but *may* compel him—and certainly may allow him, and even assist him—to receive such "Coin" in fulfillment of a contract in which such "Coin" has been designated the medium of payment. On the other hand, if a creditor and a debtor have entered into an enforceable contract that specifies as the exclusive medium of payment something other than "gold and silver Coin," no State can compel them by some subsequently enacted law to substitute any other medium of payment, including "gold and silver Coin"—because Article I, Section 10, Clause 1 also declares that "[n]o State shall . . . pass any . . . Law impairing the Obligation of Contracts."

Because it is directed toward promoting "the general prosperity," the States' power to "make . . . gold and silver Coin a Tender" is necessarily a component of, and as exhaustive in its own domain as, their "police power" in general. Perhaps most important in this regard, except in one respect the Constitution in no way limits the ambit of the States' authority to "make . . . gold and silver Coin a Tender" with respect to the possible *sources* of such "Coin." The only "gold and silver Coin" excluded from the States' power to "make . . . a Tender" is the "Money" that *the States themselves* might purport to generate, because Article I, Section 10, Clause 1 declares that "[n]o State shall . . . coin Money." Otherwise, "where no exception is made in terms,

none will be made by mere implication or construction” (*Rhode Island v. Massachusetts*, 37 U.S. 657, 722 [1838]). Therefore, the States may declare any and every domestic “gold and silver Coin a Tender,” in addition to any relevant declaration Congress has put forth. The States may declare any and every foreign “gold and silver Coin a Tender,” even when (as is the case today) Congress has refused to do so under Title 31, United States Code, Section 5103. And the States may declare even private “gold and silver Coin a Tender,” too.

The *only* condition on the States’ exercise of their power “to make . . . a Tender” is that they must apply it comprehensively to *both* “gold and silver Coin.” Under Article I, Section 10, Clause 1, a State may not adopt a monometallic “gold standard” or “silver standard,” but must always employ the two metals in tandem—and, of course, always in such a manner as to ensure that, in every particular transaction, “a Tender” required to be made in “gold . . . Coin” will deliver the same purchasing power as “a Tender” in “silver Coin,” as the Constitution requires perforce of Article I, Section 10, Clause 1 (“[n]o State shall . . . pass any . . . Law impairing the Obligation of Contracts”) and Amendment XIV, Section 1 (“nor shall any State deprive any person of . . . property, without due process of law”). This, however, would be quite easy to accomplish. For, under such a duometallic system, the required equivalence would be controlled by the free market. For instance, “a Tender” in gold of X grains could also be made with Y grains of silver, where Y equaled X *times* E (the market exchange rate between gold and silver). Or, “a Tender” in silver of Y grains could also be made with X grains of gold, where X equaled Y *times* the reciprocal of E. The matter would be entirely one of economic arithmetic, not of arbitrary political policy.

Besides being part of their “police power”—because it is “a power originally and always belonging to the states, not surrendered by them to the general government, nor directly restrained by the Constitution of the United States, and essentially exclusive” (*In re Rahrer*, 140 U.S. 545, 554 [1891])—the States’ power to “make . . . gold and silver Coin a Tender” is, because of its placement in the Constitution, effectively *absolute* (Vieira 2002: 104–12). The States enjoy a right and power to “make . . . gold and silver Coin a Tender” *no matter what Congress may decree in the monetary field*.

The Supreme Court has arrived at the same conclusion on a different but complementary basis. In *Lane County v. Oregon* (74 U.S.

71 [1869]), the State courts had ruled that, as a matter of State law, certain county and State taxes were required to be collected in silver and gold coin. At issue in the Supreme Court was whether, notwithstanding State law, the taxes could be paid in U.S. Treasury notes that were at the time not redeemable in either gold or silver coin, pursuant to the congressional mandate that those notes “shall be receivable in payment of all taxes, internal duties, excises, debts and demands due to the United States, except duties on imports . . . ; and shall also be lawful money and legal tender in payment of all debts, public and private, within the United States” (74 U.S. at 75, quoting An Act to authorize the Issue of United States Notes, and for the Redemption or Funding thereof, and for Funding the Floating Debt of the United States, Act of 25 February 1862, Chap. XXXIII, § 1, 12 Stat. 345, 345). The Supreme Court held that the State could *not* be compelled to accept payment of taxes in those notes. “The people of the United States”, the Court explained,

constitute one nation, under one government, and this government, within the scope of the powers with which it is invested, is supreme. On the other hand, the people of each State compose a State, having its own government, and endowed with all the functions essential to separate and independent existence. The States disunited might continue to exist. Without the States in union there could be no political body as the United States.

Both the States and the United States existed before the Constitution. The people, through that instrument, established a more perfect union by substituting a national government, acting, with ample power, directly upon the citizens, instead of the Confederate government, which acted with powers, greatly restricted, only upon the States. But in many articles of the Constitution the necessary existence of the States, and, within their proper spheres, the independent authority of the States, is distinctly recognized. . . . [T]o them and to the people all powers not expressly delegated to the national government are reserved. . . .

Now, to the existence of the States, themselves necessary to the existence of the United States, the power of taxation is indispensable. It is an essential function of government. . . . There is nothing in the Constitution which contemplates or authorizes any direct abridgment of this power by national legislation. . . . If, therefore, the condition of any

State, in the judgment of its legislature, requires the collection of taxes . . . in gold and silver bullion, or in gold and silver coin, it is not easy to see upon what principle the national government can interfere with the exercise, to that end, of this power, original in the States, and never as yet surrendered [74 U.S. at 76–78, followed in *Union Pacific Railroad Company v. Peniston*, 85 U.S. 5, 29 (1873), and *Hagar v. Reclamation District No. 108*, 111 U.S. 701, 706 (1884)].

The doctrine of *Lane County* recognizes that certain kinds of monetary laws that Congress may make applicable to the government of the United States and to private individuals acting in their personal capacities it cannot make applicable to the States or to individuals performing State governmental functions. The Supreme Court later explicitly affirmed this interpretation in *Juilliard v. Greenman* (110 U.S. 421, 448 [1884]), when it observed that “Congress is authorized to establish a national currency, either in coin or in paper, and to make that currency lawful money for all purposes, as regards the national government or private individuals”—but, as the studied absence of any reference to the States makes clear, *not* as regards the States’ governments or individuals acting in some official capacity on their behalf or under their auspices.

Thus, *Lane County* and related decisions laid down a wide avenue for the States’ self-emancipation from congressional media of exchange other than “gold and silver Coin.” For, although those particular decisions all involved State taxes, their reasoning rested on a principle that encompasses every monetary transaction arising from a State’s exercise of any and every one of her attributes of sovereignty. After all, taxation is no more “indispensable” to or “an essential function of government” (*Lane County*), or an “attribute of sovereignty” (*Peniston*), than (say) spending public moneys on public functions, borrowing on the public credit, paying just compensation to persons expropriated under the power of eminent domain, or awarding damages or collecting fines in judicial proceedings. All of these, and more, are quintessentially “sovereign” activities, including:

- Taxation, which *Lane County*, *Peniston*, and *Hagar* so held;
- Public spending, as to which *Taub v. Kentucky* (842 F.2d 912, 919 [6th Cir. 1988]) noted that “State sovereignty extends to the

total conduct of a State's fiscal affairs," and that "[a] sovereign must have the authority to determine how tax revenues are to be spent, or the power to tax is illusory";⁷

- Public borrowing evidenced in and enforceable through "binding obligations," which *Perry v. United States* (294 U.S. 330, 353 [1935]) held to be "a competence attaching to sovereignty";
- The power of eminent domain, which *Boom Company v. Patterson* (98 U.S. 403, 406 [1879]) described as "an attribute of sovereignty";⁸
- The jurisdiction of the courts, which *The Schooner Exchange v. McFaddon* (11 U.S. 116, 136 [1812]) treated as "a branch" of "independent sovereign power";
- All of the matters within the ambit of "the police power," which *Nebbia v. New York* (291 U.S. 502, 524 [1934]) held that the States may exercise "in their sovereign capacity touching all subjects jurisdiction of which is not surrendered to the federal government"; and
- The regulation and operation of the State's militia, which the Second Amendment declares to be "necessary to the security of a free State," and which therefore constitutes the ultimate embodiment and guarantor of *all* aspects of the State's sovereignty (Vieira 2012).

The Practicality of Electronic Gold and Silver Currencies

The practicality of having States offer alternative currencies based on gold and silver is also plain.

First, through the use of "Coin," a State could exercise her authority under Article I, Section 10, Clause 1 of the Constitution to

⁷*Accord, e.g., State ex rel. Walton v. Parsons*, 58 Idaho 787, 792, 80 P.2d 20, 22 (1938) ("the power to levy and collect taxes and the power to appropriate public funds are coexistent and rest upon the same principle"); *Mills v. Stewart*, 76 Mont. 429, 438, 247 Pac. 332, 334 (1926) (same); *Agricultural & Mechanical College v. Hagar*, 121 Ky. 1, 14, 87 S.W. 1125, 1129 (1905) (same). See U.S. Const. art. I, § 8, cl. 1, which explicitly links the power "To lay and collect Taxes" with the power "to pay the Debts and provide for the common defence and general Welfare".

⁸*Accord, Georgia v. City of Chattanooga*, 264 U.S. 472, 480 (1924); *Albert Hanson Lumber Co. v. United States*, 261 U.S. 581, 587 (1923); *Adirondack Railway Co. v. New York*, 176 U.S. 335, 346-47 (1900).

“make . . . gold and silver Coin a Tender in Payment of Debts,” and render such alternative currencies economically and politically by:

- Listing various domestic and foreign gold and silver coins—properly valued according to their actual contents of fine metal—as suitable for “Tender in Payment of Debts”;
- Declaring that only those coins would be employed in certain (perhaps, eventually, all) financial transactions or other payments in the nature of “Debts” that involved the State, her subdivisions, and their employees, agents, and contractors;⁹
- Recognizing that everyone else in the State could enter into contracts payable in whatever currencies the parties agreed to use (including but not necessarily limited to “gold and silver Coin”), and specifically enforceable *in those terms and only those terms* in the State’s courts;¹⁰ and
- Facilitating the use of “gold and silver Coin [as] a Tender” by *inter alia*
 - (i) creating a State depository which would establish and manage accounts in “Coin” for the State and her citizens, transfer ownership of gold and silver among these accounts (by such means as electronic assignments, debit-cards, and checks), and maintain appropriate accounting-records for depositors;
 - (ii) providing businessmen in the State with the necessary computer-software and instructions to enable them to price their goods and services in terms of “gold and silver Coin”;
 - (iii) offering incentives to businessmen to encourage their customers to employ “gold and silver Coin [as] a Tender” in dealing with their businesses;
 - (iv) simplifying the calculation and collection of State and local taxes by allowing (for example) transactions effected in gold

⁹Other payments that were not “Debts” in the strict constitutional sense of that term, such as taxes, could also be made subject to the “Tender” of “gold and silver Coin”, under the constitutional rationale of *Lane County*. Although the legal explanations would differ, the practical effects would be the same.

¹⁰See *Bronson v. Rodes*, 74 U.S. (7 Wallace) 229 (1869); *Trebilcock v. Wilson*, 79 U.S. (12 Wallace) 687 (1872). On the valuation of such contracts where the currency is nominally valued in “dollars”, see *Thompson v. Butler*, 95 U.S. 694 (1878).

and silver to be valued, and taxes on or related to those transactions to be paid, in gold and silver; and

- (v) collecting selected taxes, fees, and other public charges in “gold and silver Coin” as soon as practicable, so as to familiarize as many citizens as possible with the existence, operations, and advantages of the alternative currency system (see Vieira 2002: 1664–66 for a model statute for this purpose).

Second, through the use of gold and silver in forms other than “Coin.” Economically sound, constitutional, and honest alternative currencies consisting of gold and silver need not employ those metals only in the form of “Coin.” For nothing in the Constitution prohibits a State from adopting *any* alternative currency as long as, in so doing, the State itself does not attempt to exercise any powers which the Tenth Amendment recognizes as “prohibited by [the Constitution] to the States,” in particular the powers denied by Article I, Section 10, Clause 1 to “coin Money; emit Bills of Credit; [or] make any Thing but gold and silver Coin a Tender in Payment of Debts.”

From a technological perspective, probably the best alternatives available today are so-called electronic gold and electronic silver currencies. Here, “electronic” refers to the method for recording and transferring legal title to specific amounts of gold or silver bullion actually held by an “electronic currency provider” in separate accounts for each depositor’s use as money. Such “electronic” currencies offer numerous advantages both of and over gold and silver coins:

- *Security*: The gold and silver are owned by the depositors themselves and not by the “electronic currency providers” that hold those deposits. The depositors are bailors of the specie, the “providers” bailees. (With a typical bank, conversely, a deposit becomes the property of the bank, with the depositor merely a general creditor of the bank for the value of his deposit.)
- *Ubiquity*: Anyone maintaining an account with an “electronic currency provider” can easily acquire gold and silver through the “provider” and then deal with anyone else holding such an account, anywhere in the world.
- *Convenience*: transactions in gold and silver can be effected with debit cards or like instruments, so that payment is had immediately; but the actual specie may never have to leave the

“electronic currency providers” vaults. (Transactions also can be effected on the basis of paper orders in the nature of checks and drafts, or actual physical delivery of gold or silver, if the parties so desire.)

- *Flexibility*: Transactions of very small and exact values can be made—down to thousandths of a grain or a gram, or even less—which is impossible with coins. And
- *Accuracy*: Details can be automatically recorded for purposes of accounting, including *inter alia* the date, the time, and the parties to a transaction; the location, nature, and purpose of the transaction; and its value in gold, silver, Federal Reserve Notes, or any other common media of exchange.

To implement such a system, a State would establish within her government an official “electronic gold and silver currency provider.” This agency might develop its own “electronic currency,” or license the necessary technology from some private vendor. The constitutionally as well as politically most secure arrangement would be to staff this agency with properly trained members the State’s militia, and to secure the gold and silver bullion in a depository under the militia’s direct supervision, operation, and physical control (Vieira 2012: 1208–33). This would provide the inestimable advantage of maintaining actual possession of the people’s gold and silver in the people’s own hands at all times. Particular depositors’ gold and silver would be held in separate bailment accounts, so that the system could not be accused of operating on the basis of fractional reserves. This is critically important, inasmuch as any scheme utilizing “fractional reserves” would also necessarily implicate “Bills of Credit”—for if the State purported to credit a depositor’s account with amounts of gold or silver bullion not owned by him, or not immediately subject to his order (either because they were not physically in the depository or were somehow legally encumbered), then those credits would amount at best to promises by the State to pay those amounts upon the depositor’s demand at some future time, which is the essence of a “Bill of Credit” that functions as currency (*Craig v. Missouri*, 29 U.S. 410, 431-2 [1830]). Yet the depositors’ gold and silver would always be impressed with the attributes of the State’s sovereign authority, because the State had designated the metals as her own alternative currencies (*Ling Su Fan v. United States*, 218 U.S. 302, 311 [1910], and *Norman v. Baltimore & Ohio Railroad Co.*, 294

U.S. 240, 304 [1935]). Thus, the gold and silver in the State's depository would be serving, not only the particular purposes of the various depositors, both public and private, but also the overarching public purpose of guaranteeing the State's economic "homeland security."

Consequently, not only the gold and silver deposited by the State and all of the governmental bodies and agencies within her jurisdiction, but also the specie deposited by members of her militia in their capacities and pursuant to their duties as such—which would include essentially all of her adult population—would be protected by a intergovernmental immunity, arising out of federalism itself, from any form of interference on the part of rogue agents of the General Government. For, under Article I, Section 8, Clause 15 of the Constitution, Congress can "provide for calling forth the Militia" only "to execute the Laws of the Union, suppress Insurrections and repel Invasions." A State's adoption of an alternative currency involves neither an "Insurrection" nor an "Invasion." And, as no merely statutory "Laws of the Union" can interfere with the constitutional duty, right, and power of the States to "make . . . gold and silver Coin a Tender," the militia cannot be "call[ed] forth" on behalf of the federal government "to execute the Laws of the Union" with respect to such monetary matters *except to support the States in their fulfillment and exercise of that constitutional duty, right, and power*. Moreover, except for the president of the United States, no officials of the General Government can interfere by way of command in the operations of the militia within the States, because Article I, Section 8, Clause 16 of the Constitution "reserv[es] to the States respectively, the Appointment of the Officers." Even the president cannot interject himself into the matter, because under Article II, Section 2, Clause 1 of the Constitution he is "Commander in Chief . . . of the Militia of the several States" only when they are "called into the actual Service of the United States"—which "Service" can embrace only one or more of the three constitutional functions set out in Article I, Section 8, Clause 15. Indeed, this intergovernmental immunity would extend to the silver and gold used as media of exchange by *every one* of the State's citizens, whether members of her militia or not, because all such use would be in aid of preserving the State's economic "homeland security" by and through her militia.

Third, the constitutional equivalency of "Coin" and "electronic" currencies. The distinction between "electronic" gold and silver

currencies, on the one hand, and actual “gold and silver Coin”, on the other, is small in practice and inconsequential in principle. Instructive in this regard is the Supreme Court’s decision in *Bronson v. Rodes* (74 U.S. 229 [1869]). At issue was whether a private contractual obligation of “dollars payable in gold and silver coin, lawful money of the United States” was, notwithstanding that stipulation, payable in United States Treasury notes which Congress had declared to be “legal tender” but were not redeemable in either gold or silver. In order to determine “the precise import in law” of the key contractual phrase, the Court reviewed the coinage acts of Congress from 1792 onwards, observing that “[t]he design of all this minuteness and strictness in the regulation of coinage . . . recognizes the fact, accepted by all men throughout the world, that value is inherent in the precious metals; that gold and silver are in themselves values, and being such . . . are the only proper measure of value; that these values are determined by weight and purity”—and that “[e]very . . . dollar is a piece of gold or silver, certified to be of a certain weight and purity, by the form and impress given to it at the mint . . . and therefore declared to be legal tender in payments” (74 U.S. at 247–50). From all this, the Court concluded that

[a] contract to pay a certain number of dollars in gold or silver coins is, therefore, in legal import, nothing else than an agreement to deliver a certain weight of standard gold, to be ascertained by a count of coins, each of which is certified to contain a definite proportion of that weight. It is not distinguishable . . . , in principle, from a contract to deliver an equal weight of bullion of equal fineness. It is distinguishable, in circumstance, only by the fact that the sufficiency of the amount to be tendered in payment must be ascertained, in the case of bullion, by assay and the scales, while in the case of coin it may be ascertained by count.

Thus, “mak[ing] . . . gold and silver Coin a Tender” should not be distinguishable in constitutional principle from “mak[ing] . . . [an equal weight of bullion of equal fineness] a Tender”. The only concern should be how to assure in practice that in either case a constitutionally “equal weight” of metal is delivered. This will depend, however, upon how “equal weight” is defined—whether physically or economically.

Traditionally, a coin containing a certain weight of gold or silver has been considered to be of somewhat greater market value than—that is, has commanded a “premium” over—gold or silver bullion of the same weight. This, because each coin is so designed as to certify its source, substance, content, and in most cases nominal legal value as money, and therefore on its face imparts more information than an equal weight of mere bullion. Also, coins are fabricated in sizes deemed convenient for commerce, and with a small amount of base metal added to the gold or silver in order to harden the resulting alloy so as to facilitate exchange in hand-to-hand transactions—and therefore are more useful than bullion in that context. Such design and fabrication add economic value to the bullion a coin contains.¹¹ And for quite a while the Treasury minted gold and silver coins according to the constitutional principle of “free coinage”, whereby an individual who brought some weight of gold or silver bullion to the Mint would receive, after a time, coins containing the selfsame weight of metal, struck at no charge to him; or, if he preferred immediate receipt (and the Mint concurred), could accept coins containing some lesser weight according to a fixed formula. For example, the first coinage act enacted under the Constitution provided that “any person” might

bring to the . . . mint gold and silver bullion, in order to their being coined; and . . . the bullion so brought shall be . . . coined as speedily as may be after the receipt thereof, and that free of expense to the person . . . by whom the same shall have been brought. And as soon as the said bullion shall have been coined, the person . . . by whom the same shall have been delivered, shall upon demand receive in lieu thereof coins of the same species of bullion which shall have been so delivered, weight for weight, of the pure gold or pure silver therein contained: *Provided, nevertheless,* That it shall be at the mutual option of the party . . . bringing such bullion, and of the director of the . . . mint, to make an immediate

¹¹Some contemporary private purveyors of gold and silver bullion fabricate small bars stamped with such information, *except for a nominal legal value*. The absence of the latter distinguishes these bars from coins. Of course, if the legal unit of monetary value were a standard measure of weight—say, the troy grain or the metric gram—then a designation of weight on such a bar would simultaneously be a designation of its legal value in such units, and no practical difference would exist between bullion in that form and coin.

exchange of coins for standard bullion, with a deduction of one half per cent. from the weight of the pure gold, or pure silver contained in the said bullion, as an indemnification to the mint for the time which will necessarily be required for coining the said bullion, and for the advance which shall have been so made in coins [“An Act Establishing a Mint, and Regulating the Coins of the United States,” Act of 2 April 1792, CHAP. XVI, § 14, 1 Stat. 246, 249].

The rationale for this statute was that the conversion of bullion into coinage has always been considered a prerogative of sovereignty that performs an indispensable public function (*see Ling Su Fan v. United States*, 218 U.S. 302, 311 [1910], and *Norman v. Baltimore & Ohio Railroad Co.*, 294 U.S. 240, 304 [1935]), and therefore the cost of which is rightfully chargeable to the public, unless some special benefit is to be provided to the purveyor of the bullion, in which case any excess charge that has to be incurred may fairly be laid upon him. The principle of “free coinage”—with its implicit recognition of the premium between coinage and bullion, and its allocation of the cost of generating new coinage to the public in the first instance—constitutes an integral part of Congress’s constitutional power “[t]o coin Money” under Article I, Section 8, Clause 5 of the Constitution,¹² and therefore must be taken into consideration if a State chooses to employ bullion as alternative currency in conjunction with “Coin”, so that nothing the State does in the course of “mak[ing] . . . gold and silver Coin a Tender” under the authority of Article I, Section 10, Clause 1 conflicts with that power.

A further consideration must be taken into account. With “electronic” gold and silver currencies, almost all transfers of ownership of bullion are effected, not “by count” as with coins, but by weight.¹³ Nonetheless, these transfers do not require recourse to the cumbersome procedure of “assay and the scales,” because the bullion is so controlled in the depository that its susceptibility to substitution or adulteration is for all practical purposes precluded. Therefore transfers of ownership of aliquots of bullion between account-holders can

¹²Compare Act of 2 April 1792, § 14, 1 Stat. at 249, with *Myers v. United States*, 272 U.S. 52, 174-5 (1926), and *Field v. Clark*, 143 U.S. 649, 691 (1892).

¹³Conceivably, a few transfers could be effected by actual physical delivery of some number of standard bars of bullion. These, however, would likely involve exceptionally large values of gold or silver.

be effected with speed, security, accuracy, and confidence through electronic accounting rather than anyone's physical involvement with the bullion. Indeed, the system can operate for most purposes without any disturbance of the bullion once lodged in the depository. Also, because an "electronic" currency can be subdivided into exceedingly small units, transactions of almost any value can be conducted—a flexibility impossible to achieve with coins, because coins of only a few different values are ever minted, which requires that so-called "token coinage" of base metals (or, worse yet, paper notes) be generated for use in small transactions and to "make change". So, with the advent of "electronic" gold and silver currencies, the former advantages of "Coin" arising out of special designs and fabrication have largely disappeared; and the few sizes of "Coin" available have become more of a liability than ever. As a result, any premium might now run in favor of gold and silver bullion in an "electronic-currency depository" over equal weights of such metals in the form of "Coin" held outside of such a depository. The weight of gold and silver in "Coin" held within such a depository could also be treated as bullion until the "Coin" were actually paid out, at which point some calculation involving a premium could come into play.

Obviously, investigation by experts will be necessary to determine whether any premium between bullion and "Coin" will arise, and if so what it may be and to the advantage of which it may accrue, when a State employs "electronic" gold and silver currencies as "Tender in Payment of Debts." In any event, a State must so arrange her system that the "Tender" for any "Debt[]" will, as a matter of both fact and law, be some actual "gold [or] silver Coin" or the amount of gold or silver bullion of weight and fineness "equal" to the weight and fineness of that metal in the "Coin," corrected for the premium (if any) in favor of either "Coin" or bullion, as the case may be. Moreover, the bullion in the State's depository must always be fully and freely convertible into "Coin," and "Coin" in the free market convertible into bullion in the depository, according to the same principle of relative valuation. A depository might also find it convenient to employ "Coin" as well as bullion as the basis for its "electronic" currency, because the problem of *inter-valuation* between the two would be merely a matter of arithmetic once the formulae for assigning and calculating any premium have been established. This, however, is a technical matter best left to specialists to sort out.

Implementation of an Electronic Gold and Silver Plan

Implementation of an electronic gold and silver currency plan would be highly advantageous.

First and foremost, adoption of alternative gold and silver currencies would be an act of foresight. It would recognize that resuscitation of the Federal Reserve System may prove impossible, and in any event is inadvisable.

Second, adoption of alternative gold and silver currencies would be an act of scientific insight, because it would introduce currencies the values of which could always be verified or falsified in terms of fixed amounts of gold and silver measured by universal standards of weight, not the fanciful names historically attached to various coins. Because a unit-weight of gold is always a unit-weight of gold, and no less for silver, these would be objective and permanent values everywhere and at all times throughout the world, no matter what economic, political, or social conditions happened to prevail here or there.

Third, under this plan, holders of these currencies not only would have some claim to, but would actually own, and at their discretion could themselves physically possess, the gold and silver that would constitute the currencies. Contrast this with Federal Reserve Notes: Even when those notes were redeemable in gold, some Federal Reserve Bank or the United States Government actually owned and possessed the gold that “backed” the notes; and holders of the notes had no more than a claim to redemption. Only upon actual redemption did actual title to and possession of the gold change hands. And that right of redemption was eventually cancelled, both domestically and internationally. As to gold, then, Federal Reserve Notes proved to be, as the late John Exter so trenchantly put it, “an I.O.U. nothing currency,” because the notes and the gold were separate things, under the control of different people. But with actual weights of gold and silver as currencies, nothing is owed, and the holders of the currencies can always possess the actual gold or silver, so no promise of redemption can ever be repudiated.

Fourth, alternative gold and silver currencies would allow for more than one experiment to be conducted—indeed, as many as 50 separate experiments in each of the several States would be possible. Should any single trial fail in any particular, it would do so only locally, not nationally. If it succeeded, it could be expanded easily

enough elsewhere. And by the process of judicious experimentation, constant improvements on initial successes would eventuate. Moreover, even if politically influential factions could succeed in frustrating the adoption of alternative currencies in one State, they would be unlikely to wield the political clout necessary to suppress such currencies in every other State as well. And if they could not stop the experiment everywhere, honest public officials and the free market would put the theory into practice somewhere, and then expand its application elsewhere.

Fifth, adoption of alternative gold and silver currencies could be accomplished incrementally and gradually, allowing the free market to set and equilibrate prices as more and more people employed the new currencies in preference to Federal Reserve Notes. No sudden, economically disorienting jump from Federal Reserve Notes to gold and silver would have to occur.

Sixth, quite unlike the Federal Reserve System and Federal Reserve Notes, alternative currencies of gold and silver would be fully constitutional. As explained above, the Supreme Court in *Lane County v. Oregon* has already ruled that the States constitutionally cannot be compelled to use a currency emitted by Congress—in particular, that they may choose to employ gold and silver in preference to irredeemable paper currency, even when Congress has declared that currency to be “legal tender.” Thus, the adoption of alternative gold and silver currencies would return each State to the rule of constitutional law and federalism with respect to money.

Seventh, introduction of alternative gold and silver currencies would not depend upon a State’s having any gold or silver in her treasury at the beginning of the process. To be sure, under Article I, Section 8, Clause 5; Article I, Section 10, Clause 1; and Article VI, Clause 2 of the Constitution, only Congress enjoys the power “[t]o coin Money”—that is, the “[official] Money” which all public agencies must recognize and employ for public purposes. But the Constitution is utterly silent as to purely “[private] Money” which individuals may create and exchange among themselves. Indeed, as “powers” with respect to the prohibition of “private Money” are “not delegated to the United States,” and as the States’ authority to “make . . . gold and silver Coin a Tender” is sufficiently broad to enforce “private Money” as “Tender” in private contracts so providing, under the Tenth Amendment the power to create and exchange

“private Money” must be “reserved . . . to the people.” Beyond that, inasmuch as alternative gold and silver currencies could—and initially should—consist of bullion, not coin, no State would find itself dependent upon the assistance of Congress and the U.S. Treasury for her adoption of such currencies.

Eighth, employment of alternative gold and silver currencies would not involve a State in the rat’s nest of central economic planning. A State would not be required to attempt to regulate the supply of money against a so-called price level, to fix interest rates, or to engage in any of the other political-cum-economic manipulations characteristic of a central bank. Whatever amounts of gold and silver the people desired to use as their alternative currencies would become currency. The free market would then rationally establish and mutually adjust the prices in gold and silver of all goods and services, and competition in the free market between Federal Reserve Notes and the alternative currencies would control the rate at which the latter replaced the former.

Ninth, adoption of alternative gold and silver currencies would serve, not just one set of special interests, but instead all of society, by facilitating on a State-by-State basis the separation of private banking from government with respect to currency.

Tenth, if adoption of alternative currencies showed promise, with more and more people preferring those currencies to Federal Reserve Notes in more and more transactions, the banks would be forced to compete. Some of them might try to generate a new currency redeemable in or otherwise “backed” by gold, silver, or both. Exactly how they might do this one cannot predict, because such a new bankers’ currency would have to be as secure as the alternative gold and silver currencies, which would require that it not be based on fractional reserves, or that it offered to its users some significant economic advantage, suitably enforceable by law, that offset the risk from fractional reserves—and that the right of the holders of the currency to its redemption in gold or silver were absolutely guaranteed, not only against default by the banks but also against any intervention by the government in favor of the banks which enabled them to default or otherwise prevented or delayed redemption. Yet even a few banks moving in that direction could facilitate the present system’s orderly transformation or liquidation, rather than its sudden collapse.

Conclusion

Why, then, are the champions of sound money, limited government, and free markets not aggressively promoting the adoption of alternative gold and silver currencies? The present economic crisis presents the best opportunity since 1932 to free Americans from their thralldom to the Federal Reserve System. Under the pressure of this crisis, common people are awakening to their predicament, and sensing what needs to be done—because, as Samuel Johnson once reputedly quipped, nothing focuses a man’s mind more than his impending hanging. So, Americans can now be convinced that this country’s economy cannot be restored by some “Rube Goldberg” tinkering with the existing faulty edifice of money and banking, but only by its total replacement. The present structure lacks the capacity to survive—and, constitutionally speaking, can claim no right to be saved. A new structure must be built from the ground up, on a new site, according to a different plan. If this can be accomplished, then for the first time in generations Americans will enjoy honest weights and measures in the monetary field—and with that reform, will have a realistic hope to restore honest commerce and even honest politics as well.

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THE ROLE OF GOLD IN A MARKET-BASED MONETARY SYSTEM

Jerry L. Jordan

I am convinced we shall never have good money again so long as we leave it in the hands of government. Government has always destroyed the monetary systems.

—Friedrich A. Hayek (1978)

Fruitful consideration of the role of gold in a market-based monetary system must be preceded by an understanding of why gold is not part of our government-based monetary system. I have set out my view on that issue elsewhere (Jordan 2011) and will not repeat it here. People whose views on money I greatly respect still advocate restoring gold backing to the Federal Reserve-issued U.S. dollar. During the Hearings of the U.S. Gold Commission in 1981–82, several witnesses advocated restoration of some linkage between Federal Reserve-issued dollar notes and gold.¹ I frankly do not understand their arguments. Yes, the Federal Reserve Banks were

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¹The case for restoring the gold standard was made by Rep. Ron Paul and Lewis Lehrman (1982) in their *Minority Report*. For a review of the Gold Commission Report, see Schwartz (1987: 317–32).

legislated into existence when our currency was defined in terms of gold, but World War I abruptly ended that linkage, and subsequent attempts to relink to gold all failed. At the outset the Reserve Banks' functions did not include monetary policy. That changed with enactment of the amendments to the Federal Reserve Act in the 1930s that formalized the Federal Open Market Committee. If advocates of restoring gold backing to the dollar are advocating the necessary abolition of the FOMC, then I can start to imagine the institutional arrangements they may have in mind. However, I don't think that is going to happen, and I don't think it is necessary in order to open the door to alternative privately issued competing currencies, which may have gold backing.

As a general matter, I don't think it is fruitful to preface any policy proposal with the necessity of abolishing existing politically created and protected institutions. As much as I would like to abolish the IRS, World Bank, IMF, EX-IM Bank, and even the OECD, if I thought such was a necessary condition for achieving my policy objectives, I would not waste my time tilting at those windmills. Fortunately for what I believe is feasible, it is not necessary to start with a campaign to abolish the Fed or even the FOMC—the monetary authority of our central bank. Instead, like many other legacy institutional arrangements, there are avenues to innovate around the ossified, politically entrenched institutions. It is a philosophy of, “Don't challenge their existence, just ignore them.”

However, there are some attitudes and conceptions that need to change, and some avenues of innovation that need to be opened, in order to offer market-driven vehicles for the services people demand but government doesn't provide or is preventing. For example, at one time I no doubt shared the view of many people that the U.S. public (government) school system is in desperate need of reform. That has not happened and, in my view, cannot happen for political reasons. Instead, a couple decades ago the combination of the rise of home-schooling by fed-up parents and state-level legislation authorizing charter schools has fostered a genuine revolution in the way educational services are provided, driven by the economic proposition of consumer sovereignty.

The list of new avenues of innovative approaches to delivering demand-determined services by bypassing legacy delivery systems is getting long and is still growing. Taxi and limo services, overnight

accommodations, news sources, travel arrangements, on-demand movie viewing/rental, book and music purchases, buying movie and theater tickets, and even “yellow pages” have changed, so why not monetary services? Bitcoin may not be the ultimate market-driven response to government-issued, monopoly fiat currency, but it certainly has been a provocative beginning.

Why Not Restore Gold Backing to Government-Issued Currency?

Earlier this year, my friend Sebastian Edwards asked me to comment on a proposal for a new book he is writing. Sebastian had been stunned when he came across a little known fact—namely, that it was illegal for Americans, in the land of the free, to own gold from 1933 to 1974, under penalty of large fines or even prison. Sebastian is a well-educated University of Chicago economist with great experience at the IMF and the World Bank, and an eminent UCLA professor, but he had never before come across the fact that the confiscation of a particular form of property (gold) had been enacted by the executive and legislative branches of government and held to be constitutional by the judicial branch. Furthermore, Sebastian was dumbfounded to further discover that the gold clauses in bond contracts had been abrogated by ruling of the Supreme Court.

Surely, thought Sebastian, the economics profession understood that protection of property and enforcement of contracts are crucial underpinnings of our market economy.² Yet, he found only a single paragraph in Friedman and Schwartz’s monumental *Monetary History of the United States* and a single footnote in Allan Meltzer’s mammoth *History of the Federal Reserve* that even mention the unconstitutional nationalization of gold holdings and unenforceability of gold protections of both government and privately issued bonds.

²The importance of property rights to our economic (and political) system has received increasing attention in recent years. Even the popular press has been carrying more columns and op-eds about protection of rights to property. A recent excellent column by Kevin Williamson (2014) at *National Review* is quite good in illustrating the ways our property rights have been steadily eroded in the past century.

My explanation to Sebastian was that it seems that for a few decades one had to be a student of Armen Alchian, Ronald Coase, Jim Buchanan, or a few others of their generation, in order to have been taught the fundamental importance of the protection of rights to property and inviolability of private contracts in order to have a true market economy.

In effect, several provisions of the U.S. Constitution guaranteeing a market economy were simply suspended with the concurrence of all three branches of government. In *The Rise and Fall of Economic Due Process: When the Supreme Court Championed and then Curtailed Economic Freedom*, Bernard Siegan (1983) argued that actions taken by Congress and the Roosevelt administration in 1933, which were subsequently held to be constitutional by the Supreme Court, represented a failure to enforce the provisions of the Fifth, Ninth, and Fourteenth Amendments of the Constitution assuring the protection of property and the sanctity of contracts.

While some progress has been made in restoring substantive or economic due process after the *Nollan* decision,³ any approach to backing the U.S. dollar by gold would be vulnerable to the same assaults on liberty as carried out by the federal government in the 1930s. Quite simply, no matter the initial exchange rate between dollars and a quantity of gold, any emergency would be sufficient for the government to declare a suspension of convertibility, or unilaterally alter the exchange rate (i.e., devalue the dollar against gold).

Introduction of a Gold-Backed Private Currency

With full restoration of the protection of property and enforcement of contracts by the U.S. judicial system, a gold-backed, market-driven private currency would not suffer the same vulnerabilities to political whims as gold backing of the official currency. While the experience of the 1930s was that the judicial branch of government would not overturn decisions of the executive and legislative branches of the federal government with regard to gold ownership, *private, voluntarily negotiated contracts involving payment of gold-backed private currency* are more likely to enjoy constitutional protection by the judicial branch.

³*Nollan v. California Coastal Commission*, 483 U.S. 825 (1987). The right to just compensation for the taking of private property for public use (under the Fifth and Fourteenth Amendments) was upheld by the Supreme Court in this case.

Full restoration of property rights and contracts begins with popular political revolt against Ronald Reagan's description of modern-day government. A few decades ago, Reagan said that contrary to the Founders' vision of a just, and minimal, government that serves the people, we have evolved to a government bureaucracy that believes, "If it moves, tax it; if it keeps moving, regulate it; if it stops moving, subsidize it" (Reagan 1986). The first two policies—taxation and regulation—must be dealt with for any currency competition to be viable. We don't have to worry that the government will see fit to subsidize immobile private monies.

Tax Treatment of Alternative Currencies

In economics, we talk about stocks and flows; politicians see two sources of tax revenue. In business and finance, we talk about balance sheets and income statements; politicians see two sources of tax revenue. In households, we talk about wealth and income; politicians see two sources of tax revenue. In New York, California, and no doubt other places, people like to have dogs and cats as pets; politicians see two sources of tax revenue.

My point is, any stock of assets and any form of transactions is viewed by politicians as something that can and should be taxed. From the lunacy of the Tobin transaction tax to the Piketty "tax all your stuff" prescription, holding assets denominated in gold or other alternatives to dollars, or transacting in gold or other alternatives to dollars, will not provide protection from burdensome taxation, and may not offer any effective protection from inflation of the dollar.

Let me provide an example of the conceptual issues we must confront. It is common to find financial journalists (and maybe far too many economists) make reference to someone "profiting from inflation" because the value of their home or farm rose along with the rate of inflation. How is one gaining if the market value of an asset merely keeps pace with inflation? Would it be accurate to say that increases in wages and salaries that match the inflation rate are gains to the worker? Nevertheless, even though the homeowner or worker has not had a real gain, they are taxed on their nominal gain—that is a real loss even with a before-tax nominal gain.

This asymmetric tax treatment of the fiat currency and alternative currencies must be confronted in order for the market-driven currencies to become standards of value or units of account—whether

or not they are successful as media of exchange. Suppose I own gold, or claims to gold, to give me protection against the erosion of purchasing power of dollars. Assume the dollar price of gold appreciates at exactly the rate of inflation. In order to sidestep the question of which statistical series best measures the loss of purchasing power of dollars,⁴ take an average of 10 or 12 measures, they all come out the same over the relevant horizon of a few decades. If the government promises and delivers on 2 percent inflation of prices in dollars, in 36 years the market value of my gold will be twice the number of dollars at the beginning; I break even in real terms. Yet the politician's view is that I have had a doubling in the value of this asset and am therefore subject to capital gains taxation. Think about it, the government deliberately erodes the purchasing power of its fiat currency and I get taxed for avoiding that loss.

The problem would be the same if I were offered the opportunity to own shares in a mutual fund where my original balance would earn interest equal to the average of the dollar inflation rates. My real purchasing-power balance at some future point would be the same as the original, yet the tax authorities assert I have "gained from inflation" and am therefore taxed on this illusory gain.

The essential point is, to the extent that appreciation of fiat-dollar prices reflects debasement of dollars as a standard of value, it is wrong to impose taxes on the higher dollar prices of assets or transaction values, including higher wages and salaries, that reflect nothing more than debasement of dollars. For our purposes, how can an alternative currency become a commonly held standard of value when the government treats its success at maintaining stable purchasing power (versus a deliberately debased dollar) as a source of tax revenue?

I've argued this point elsewhere (Jordan 2006), in different language. Namely, it has been incorrect for decades to say the government "raised the price of gold" instead of the government "devalued the gold backing of the dollar." Changing the gold/dollar exchange rate from 1/20 oz/dollar to 1/35 oz/dollar in the early 20th century was not raising the price of anything. Whether we are considering bit-

⁴Measures include: the consumer price index, with or without things people buy frequently; hedonic measures of such transactions; personal consumption expenditure deflators; and trimmed-mean, median, and sticky measures of these series.

coins or other alternatives, bitcoins are not a standard of value until we stop saying “the (dollar) price of bitcoins rose” but say instead, “the bitcoin price of dollars fell.”

Regulatory Treatment of Alternative Currencies

A worsening problem in the functioning of our economy over the past century will likely prevent the emergence of alternative currencies and financial intermediaries without fundamental reforms in the relationship between agencies of government and the people. No doubt it is still taught in junior high schools in much of the country that a bedrock principle of our society is “innocent until proven guilty.” While that is still mostly true for individuals,⁵ it has not been true for enterprises in our modern overregulated economy for a long time. *The Economist* magazine (2014) concludes the United States “risks the prospect of a selective—and potentially corrupt—system of justice in which everybody is guilty of something and punishment is determined by political deals.”

Under administrative law, the effective principle is “guilty unless you can bear the burden of proving your innocence.” Our legislative branch of government has gotten in the habit of creating regulatory agencies that operate as extensions of the executive branch of government, something the authors of our Constitution had endeavored to prevent. The rules and regulations issued by these agencies have the force of law; they must be obeyed under threat of fines or imprisonment. Merely being “under investigation for,” let alone being actually accused of, violation of some rule or regulation is as much as a guilty sentence, without benefit of trial in the judicial system. Arthur Anderson was destroyed by accusations, not by trial and conviction (Powell 2014). The burden of proof is on the business enterprise to substantiate claims of innocence (Ryan 2014).

Firms in the financial services industry are especially vulnerable because reputation for integrity and reliable, prudential dealings with their customers is essential to survival. Supervisory authorities have grown accustomed to expecting that financial firms will undertake

⁵Sadly, it is becoming more common for individuals (especially political opponents) to be presumed by the media and the public to be guilty of something as a result of being “indicted” by some authority of government. Resulting loss of reputation can ruin careers even when no guilt by trial is ever rendered.

considerable effort and incur substantial expense *in advance* of a regulatory examination in order to be able to “prove innocence” of malpractice. Failure to produce convincing evidence of innocence of various possible accusations can result in fines, prison, and “banned for life” rulings by supervisory authorities.

Whether justified for historical reasons or not, the general public seems to accept the premise that if bankers or others providing financial intermediary services are accused, or under investigation, they are most likely guilty. At the same time, there is pervasive suspicion that if businesses or even individuals choose to utilize unconventional financial services, they must have something to hide. Foreign currency transactions, foreign bank accounts, and financial instruments denominated in foreign currencies are all subject to stringent reporting requirements. Swiss economist Peter Bernholz (2013: 72) recently wrote that “all U.S. residents with foreign bank accounts are now suspected of fraud.” Even large cash transactions in U.S. dollars are viewed with suspicion. While not everyone who wants to put up \$100,000 in cash as downpayment on a home has engaged in illegal, criminal activities to acquire large amounts of cash, they are certainly suspected of unethical, immoral, and possibly criminal behavior.

This suspicious mind-set will carry over to assets held in alternative currency, or transactions consummated in alternative currency. Without affirmative legislation to require currency and transactions *neutrality*, regulators and supervisory authorities in the financial services industry will presume guilt of “something to hide” on the part of individuals and firms who are predisposed to seeking alternatives to the official national currency.

Regardless of the merits of the original purpose of “know your customer” and bank secrecy regulations and the legislation intended to combat illegal money laundering, the result has been the suppression of legitimate innovation in financial products and services. Furthermore, unlike other startups in e-commerce, a potential innovator in financial transactions services must register as a “Money Services Business” engaged in “money transmitting” (U.S. Treasury 2003) in all 50 states prior to initiating operations.

It is not possible to have a digital currency that satisfies all the key attributes of “cash” (i.e., transactions consummated with hand-to-hand currency). Even with the low cost and convenience of

electronic payments, an enormous amount of paper currency is still held and used in routine commerce. Cash transactions are immediate, final, and anonymous. Banking laws and regulations will not permit electronic transactions to be anonymous, which was tried by the original e-gold service.

New initiatives to offer private digital currency will have to accept that the identity of account holders and transactors will have to be discoverable. Offering anonymity is not an option, although a greater degree of privacy versus alternative electronic payments methods is feasible, which leaves offering immediacy and finality. However, even finality cannot be absolute. While e-gold transactions were not reversible—the transacting parties were not known—successor payments initiatives will be required to have a method of identifying the transacting parties and, presumably under court order, reversing a transaction in the case of fraud or other criminal activity by one of the parties to the transaction.

Without review and reform of the Patriot Act (U.S. Treasury 2001), the burdens of compliance may be prohibitive for would-be innovators in digital financial services, including alternative private currencies. Such review and reform (ACLU 2011) are likely to be driven more by concerns about privacy in digital communications than financial services, but are essential to the latter. While total secrecy regarding financial transactions will not be tolerated by authorities, a reasonable degree of privacy would be a byproduct of reforms strengthening privacy of communications generally. With the news of increasing frequency of credit and debit card information theft by hackers, the greater security and protection of personal information inherent in private digital currency could become a decisive competitive advantage.

Structure of a Private, Gold-Backed System

Assuming all the existing taxation and regulatory barriers and obstacles to emergence of an alternative market-driven money can be reformed, it is useful to contemplate the structure of the private system. That is not difficult. The legislation at the end of 1913 creating the system of “bankers’ banks,” which became known as the Federal Reserve System, never envisioned what evolved into a purely fiat currency managed by a “monetary authority.” Without

the outbreak of World War I, the United States would not have abruptly abandoned specie backing of national currencies soon after operation of the 12 “bankers’ banks” commenced in the fall of 1914.

Hypothetical History

The U.S. system of bankers’ banks in 1914, the 12 Federal Reserve Banks, held gold (or claims to gold) as the primary “reserve” asset, and earnings to cover the cost of operations came from very short-term, collateralized loans to banks (“rediscounting” by commercial banks at the Fed banks). The “economic service” provided by these bankers’ banks was to provide a uniform currency with high authenticity and transferable reserve balances (i.e., deposits owned by commercial banks that could be readily transferred and achieve finality in settlements). However, technology in 1914 did not provide the Reserve Banks a way of generating revenue from these highly valuable services, so income was generated from the assets acquired (including government debt monetization once open market operations were discovered). With modern technology, a bankers’ bank could earn a service fee for transfers of electronic currency (giro-type payments) and also could charge a fee (“negative interest”) for maintenance and transfer/settlement services. PayPal provides a model of the payments process under such a system. It is an historical accident that the United States developed a credit transfer-type payments system (checking accounts, whereby the payee presents a right to receive payment to his own bank) instead of the debit transfer-type more common elsewhere (the payor instructs his bank to make payment to the bank of the payee). A digital, market-driven alternative will be a debit-transfer system.

The liabilities of a bankers’ bank are “outside money” and serve as the monetary base upon which the “inside money” (customer-owned deposits at transfer/banking companies) stands. A private bankers’ bank would have as its primary asset something that defines the outside money liabilities—traditionally gold, silver, jewels, or other assets of “intrinsic worth.” If the only asset of the private bankers’ bank is gold, the outside money liabilities are “as good as gold.”

The inside money deposit liabilities of commercial banking companies that are denominated in units of the outside money of the bankers’ bank must be limited to some pre-determined multiple of

the outside money via a (ideally) single, uniform reserve requirement.⁶ That is, each commercial bank that offers liabilities (deposits owned by customers) denominated in units of the gold-backed outside money of the bankers' bank must maintain a reserve balance in its account at the bankers' bank that cannot fall below a contractual fraction of its own liabilities denominated in units of the gold-backed outside money. The total amount of gold-backed money in circulation (both the electronic forms of currency issued by the bankers' bank, if any, and deposit liabilities of commercial banking companies, are strictly constrained by the total assets of the bankers' bank.

Note that the deposit liabilities of commercial banking companies in a system that allows fractional reserve banking (the commercial banking companies hold earning assets in addition to their deposit balance at the banker's bank) are not "as good as gold." Allowance of anything less than 100 percent gold backing of the liabilities of commercial banking companies means there is allowance for the possibility of insolvency of the commercial banking companies (i.e., losses on earning assets exceed net worth).

The quantity of money outstanding and circulating will depend on whether fractional reserve banking is allowed and on how bank customers (money holders) choose to hold their gold-backed private currency. In a 100 percent gold-reserve model, there is no difference. However, if bank customers choose to download currency onto a mobile device, a legal and accounting distinction will need to be made between digital currency and claims to money. The accounting treatment by the commercial bank is important. When the customer of the bank adds to the balance on a mobile device, does the bank treat that as a withdrawal or an advance?

If it is a withdrawal (both assets and liabilities of the commercial bank are reduced), the balance on the mobile device is digital currency, the same as Federal Reserve Notes in one's pocket.⁷ Theft or loss of the device is a loss of the money, the same as when your

⁶The reserve ratio may be 100 percent, in which case commercial banks need to generate earnings by transactions fees—their deposit customers pay a small amount for the service of electronic payments to recipients. Whether the ratio remains at 100 percent or becomes some fraction should be determined in the marketplace by competition among commercial banking companies offering varying levels of capitalization and earning asset composition.

⁷Note that in this case the balance loaded on the mobile device is a claim to the liabilities of the banker's bank, the same as paper currency issued by central banks.

wallet is lost or stolen; no recovery is possible. If the bank records the loading of value on the mobile device as an advance, purchases made by the holder of the mobile device merely transfer ownership of the funds (liabilities of the bank) from one party to another.⁸

Alternative Approaches

A successor to the defunct e-gold system is being planned around a single gold-reserve repository and a network of transfer agents, which may be existing commercial banks. Instead of one or more bankers' banks, the proposed "Global Standard Payment System" (GSPS) consists of an entity with only one asset, physical gold, and one type of liability, gold-backed digital currency (AUG). Approved transfer agents (or primary dealers) will acquire physical gold and transfer it to the gold repository in exchange for units of AUG, presumably equivalent to grams or fractions of grams of gold. The AUG may initially be the property of the transfer agent, or of the party selling physical gold to the transfer agent.

Note that the outside money in this system is virtually identical to a foreign national currency.⁹ The liabilities of the gold repository may be held directly by and circulate among individuals and businesses without the involvement of financial intermediaries, or may be essentially the same as foreign-currency deposit accounts at a bank. It is also noteworthy that these liabilities are not claims to gold or warehouse receipts for gold bullion. The holder of AUG does not own any gold, so transfers of AUG do not involve the transfer of ownership of actual gold bullion.

The quantity of money outstanding is a simple function of the demand for AUG: parties currently holding physical gold must choose to exchange actual gold for AUG. Conversely, decreased demands for AUG that are returned to the gold repository for redemption of physical gold will result in a contraction of the balance

⁸The commercial bank's balance sheet does not contract; one liability (deposits) contracts and another (advances) increases.

⁹Nothing in the business plan of GSPS precludes an approved account holder from offering credit intermediary functions. Clearly, as seasonal demand for AUG emerges, there will be opportunity for banks or bank-like firms to offer to pay interest to AUG holders in order to aggregate the quantities demanded by AUG borrowers.

sheet of the central gold repository: there will be less gold held as an asset and fewer AUG liabilities outstanding.

The business model of GSPS anticipates two types of payments. The first is holders of AUG making payments for goods and services offered by merchants/vendors who accept AUG, and making personal transfers to other persons who are pre-approved account holders. Much like PayPal-to-PayPal transactions and transfers, it is a closed system of account holders. The second type of payments is holders of AUG-denominated deposits instruct the transfer agent (bank) to make payment to a recipient who does not wish to receive AUG. The transaction would be essentially the same as current foreign-exchange transactions. The payor gives up one currency and the payee receives another, with the bank or banks involved earning a fee for the exchange conversion. Any recipient of AUG can exchange the value received for national currency/deposits via the approved money transfer agents (at the momentary exchange rate between grams of gold and the national currency).

While this limited functionality should not encounter many regulatory barriers and obstacles, it is short of the array of functions of money. As a medium of exchange for acquiring immediate delivery of a good or service (e.g., buying a newspaper from the local kiosk), units of national currency (paper or coins) serve quite well, and AUG offer little added value, except for reduced risk of theft or accidental loss. However, in transactions that would normally involve credit or debit cards, AUG would offer several competitive advantages. The spender of AUG would not be furnishing any personal identification or financial information to the vendor. Like vendors today that accept bitcoin in payment, the vendor does not know and has no need to know anything about the buyer. Also, transactions in AUG would be immediate and final to the seller, with lower transactions fees than credit or debit cards.

Longer-run, it is in the standard-of-value, unit-of-account, abode-of-purchasing-power functions where there is greater potential for value added—and greater obstacles to be overcome. Once time is introduced into the subject of money and payments, legal questions are also introduced.

Without specific-performance legislation concerning digital currencies, contractual obligations to deliver AUG (or bitcoin or other alternative currencies) in the future in payment for delivery of goods

or services would not be enforceable in the exact terms of the contract. Financial instruments involving payment or repayment of AUG would be inferior to similar instruments involving national currencies if courts are not required to compel delivery of the promised AUG. Furthermore, tax treatment of transactions involving AUG is still evolving along with treatment of other digital currencies. A bitcoin has no physical counterpart and is not a claim to a future stream of dividends or interest payments like common stock or bonds. A bitcoin is not a claim to anything, yet the IRS has chosen to treat it as a commodity.¹⁰ It certainly is true that physical gold and silver are commodities, but it is not at all obvious that an electronic currency defined in terms of gold can be construed as a commodity or an earning asset and taxed accordingly. However, these are unresolved, and crucially important, issues.

Growing popular support for ending the taxation of precious metal assets and transactions is evidenced by the increasing number of state governments that have ended such taxes, Oklahoma being the most recent. Building a national consensus that taxation of gold and gold-backed currency transactions should be eliminated at the federal level is essential.

Redistribute the Wealth

Momentum toward usage of private gold-backed currency would be enhanced by increasing the share of the population that owns gold or claims to gold. Also, popular opposition to taxation of gold holdings and gold-based transactions would increase along with wider gold ownership.¹¹

As a demonstration of who was the master, the U.S. government nationalized private holdings of gold in 1933 (Executive Order 6102): both citizens and foreign residents were required to “sell” physical

¹⁰The IRS logic is that while the payor is giving up bitcoin, the payee will make an immediate conversion to dollars. If the bitcoin/dollar exchange rate at the time of the transaction is different than at the time the payor acquired the bitcoin, the payor has incurred a gain or loss in dollar terms. Of course, if both payor and payee transacted only in bitcoin and neither ever exchanged dollars for bitcoin or bitcoin for dollars, the IRS logic for capital gains and losses does not hold up.

¹¹In the transition from socialism to a market economy in the early 1990s, Václav Klaus put forth the political proposition that the best way to build popular support for protection of property rights was to get property into the hands of the people. Support for an abstract proposition of “protecting private property rights” means little to people who have no property.

gold to the Federal Reserve Banks for \$20.67/oz by May of that year. Private ownership of gold by Americans was banned by the federal government until 1974. Now, four decades later—as a symbol of who is the real master—the people should ban ownership of gold by their government.

The U.S. government currently possesses (I will not say “owns” because of the way the gold was acquired) more than 260 million Troy ounces of gold, which is more than 0.8 ounce (or about 27 grams) for every citizen in the country.¹² Congress should set a date in the near future to distribute, as a matter of birthright or naturalization, a certificate entitling the holder to claim 0.8 ounce or 27 grams of gold from the U.S. Mint.¹³ Note that this is emphatically not a proposal that the government “sell” its holdings of gold to the citizens.

Upon distribution of the certificates, markets for trading these claims to gold would quickly develop. Persons or parties who acquire 400 certificates would present authenticated certificates to the U.S. Mint in exchange for one standard gold bar. At current exchange rates, each certificate would be valued at over \$1,000. The legislation instructing the U.S. Mint to distribute gold to certificate holders would of necessity include a provision that there would be no federal taxation of any sort associated with the transactions to acquire or sell certificates. State and local government politicians would support local taxation at their political peril.

Organized and well-financed opposition to a proposal to distribute the U.S. gold stock to the nation’s citizens can be anticipated to arise from the commercial dealers in precious metals. In fact, they can usually be counted on to cheer news that some government or central bank in the world is reported to be buying gold or silver. While such traders in gold and silver advertise aggressively to promote individual ownership of the metals, the last thing they want is for the government to give (back) to the people the gold they were banned from owning from 1933 to 1974.

¹²See U.S. Treasury (2015) for updated figures. There is no reason to distribute certificates to noncitizen residents; in fact, making only citizens eligible would heighten the incentive for naturalization.

¹³If a gold-backed private currency system, such as GSPS, is in existence, the U.S. Treasury could simply assign the gold to the private repository and send AUG worth 27 grams of gold to every citizen. Recipients of AUG could continue to hold in that form of money or convert to the national or other currency at the prevailing exchange rate.

End Monopoly Money

Many of the trappings of “nationhood” have fallen away in recent decades. A half a century ago, newly independent nations adopted their own flags and anthems as symbols of nationhood, but also insisted on national airlines, national railroads, national television and radio stations, and, of course, a national currency managed by a national central bank. Even when they employed currency boards in the transition to full independence, the goal was a national money.

Just as the notion of independent national airlines now seems quaint, the adoption of the euro by (initially eleven) nations in Europe has rendered the insistence on national currencies to be obsolete. Holding foreign currencies (mainly U.S. dollars and German deutschemarks) has been common to many people around the world for the past half century, and more recently people regularly own bank accounts and financial instruments that are denominated in something other than the “official” currency. Even contracts specifying foreign currency have become enforceable in domestic courts.

The technologies that have given rise to cybercash and digital currency necessitate further evolution toward full currency competition. Gresham’s law about bad money driving out good money is a statement only about the medium of exchange function (circulating cash) under fixed exchange rates. With regard to the standard of value and abode of purchasing power functions under currency competition, Gresham’s law is flipped on its head: High confidence money drives out low confidence money (see Hayek 1976: 29; Mundell 1998). People “used” U.S. dollars and German marks as standards of value even when they had none.

In just a very few years, bitcoin has become a limited-use medium of exchange, but not a standard of value. It is probable that initially AUG or other gold-backed digital currencies will be introduced and employed as media of exchange. Evolution of alternative currencies toward familiar standards of value will develop more slowly and will be influenced by ongoing experience and satisfaction with national currencies as standards of value and stores of value. The evolution will be quicker if tax authorities readily begin to accept cybercash/digital currency in settlement of personal and business tax obligations. Technologically this is quite simple, even if the tax collection authority initiates immediate conversion to national fiat currency. At the federal level, the tax authorities will have a requirement

for tens of trillions of dollars for many decades as a result of legacy debt, interest on that debt, and “entitlement” promises to people. Nevertheless, it is no more difficult for the taxpayer to tender AUG to settle tax obligations than it is to make an online purchase from a private vendor.¹⁴

At the end of World War II, the newly introduced German mark was defined as 1/4 of a U.S. dollar and the Japanese yen was defined as 1/360 of a U.S. dollar, at a time the dollar was defined as 1/35 ounce of gold. All of the new currencies in the 1990s after the end of the Cold War began this way. Early in this century, the euro was introduced as essentially a German mark by a different name. All newly introduced currencies have begun this way—defined in terms of something of known value—and it can be expected that digital currencies (even if backed by gold) must develop a history before becoming an independent standard of value, floating against other private and national currencies.

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¹⁴It is a widely held myth that people can pay their federal income taxes with Federal Reserve Notes or even coins. The reality is that any form of money the taxpayer tenders must be converted by a commercial bank into a digital dollar deposit in the “Treasury Tax and Loan” account at the commercial bank before it is subsequently swept into the Treasury General Account at the Federal Reserve Banks.

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LAW, LEGISLATION, AND THE GOLD STANDARD

George Selgin

Isn't it perplexing that people who advocate a return to the gold standard are often against big government and supposedly pro-market? After all, the term "gold standard" is just a euphemism for government price fixing where the government sets an arbitrary, non-market price for the currency/gold conversion. By now humans should have learned that government price fixing almost always leads to a host of bad, unintended consequences.

—*The Motley Fool* (2010)

More than a half century ago, in October 1961, Milton Friedman's "Real and Pseudo Gold Standards" appeared in the *Journal of Law and Economics*. In that article, Friedman argued that versions of the gold standard erected after 1914, if not some earlier ones, were "pseudo" gold standards, differing from "real" ones in dispensing with actual gold coins and allowing monetary authorities to sterilize international gold movements, instead of letting those movements automatically regulate national money stocks. Such pseudo gold standards, Friedman argued, amounted to particularly dangerous instances of government price-fixing, and as such ought to be anathema to believers in free markets.

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Here I wish to suggest a different distinction, inspired by the 40th anniversary of Friedrich Hayek's Nobel Prize in Economics in October 1984. The distinction I wish to emphasize is based on the one that forms the subject of the opening volume of Hayek's ambitious post-Nobel Prize work, *Law, Legislation, and Liberty*. It is that between a gold standard founded on custom-based or "private" law, and one resting upon statute or "public" law, that is, on government legislation.

I plan to argue that this Hayekian distinction is related to, but more fundamental than, the one Friedman insisted upon. But before I can do so I must first review the difference between custom-based law and legislation, and then show how the development and flourishing of the historical gold standard depended more on the former than the latter. I will then go on to argue that any gold standard based on legislation only, and not on customary law, is unlikely to endure. Because a spontaneous return to gold-based payments is itself highly unlikely, I conclude that, even setting general opposition to the idea aside, there is little prospect for an enduring gold standard revival.

Customary versus Statute-Based Law

Law, according to Hayek, must not be identified with legislation. Although legislation (the corpus of edicts, statutes, and regulations enacted or adopted by government authorities) is itself a source of law, it is neither the most important nor the oldest source. "Law," Hayek (1982: 73) reminds us, "existed for ages before it occurred to man that he could make or alter it." Instead of being imposed by political authorities, such traditional or custom-based law, the best examples of which are the common law and law merchant (itself absorbed into the English common law during the 17th century), is "discovered" by judges though their attempts, in adjudicating cases, to determine how pre-existing, if tacit, rules of just conduct appertain to them.¹ Though legislation may also codify customary laws, it consists by and large, not of generally applicable rules of just conduct, but "of directions

¹As Benn Steil and Manuel Hinds (2009: 18) observe, although the fact has been obscured by "the Napoleonic practice of codifying national law based on the Roman inheritance," Roman jurisprudence "itself shares with uncodified English common law a genesis wholly outside the realm of political expression."

concerning what particular officers or agencies of government are required to do” (ibid.: 133). Because custom-based law instead mainly governs relationships between private individuals, the distinction between it and legislation conforms roughly to that between “private” and “public” law (ibid.: 131).

Because it is “discovered” rather than “made,” customary law differs from legislation in being backward-looking and largely “purpose independent”: it seeks to discern and enforce established if implicit codes of conduct. Legislation in contrast tends to look forward to the accomplishment of some particular end or ends, and as such is necessarily based on the perceived expedience of the rules it puts into effect. Because of this, legislation is always subject to reconsideration and revision. It is, in other words, inherently provisional. The likelihood that it will go unaltered tends, furthermore, to decline over time as circumstances change from those that prevailed at the time of its adoption. Customary law, in contrast, is subject at most to very gradual or evolutionary, but never sudden, change. “Public law passes,” Hayek (ibid.: 135) succinctly observes, “but private law persists.”

The difference between private or customary law and public law or legislation is, I submit, one of great importance for a proper understanding of the gold standard’s success. For, despite both appearances to the contrary and conventional wisdom, that success depended crucially upon the gold standard’s having been upheld by customary law *rather than* by legislation. It follows that any scheme for recreating a durable gold standard by means of legislation calling for the Federal Reserve or other public monetary authorities to stand ready to convert their own paper notes into fixed quantities of gold cannot be expected to succeed.

The Essence of a Gold Standard

The general employment of particular goods in making payments, whether in trade or tribute, was itself, so far as can be determined, an outgrowth of pre-monetary customs rather than a product of any deliberate planning or legislation. “It is apparent,” the Victorian classicist and archeologist Sir William Ridgeway (1892: 47) observed, “that the doctrine of a primal convention with regard to the use of any one particular article as a medium of exchange is just as false as the old belief in an original convention at the first beginning of

Language or Law.”² Although no one knows when gold and other precious metals first acquired the status of generally accepted exchange media (i.e., money), that status was well established among the civilizations of early antiquity.³

We owe to Sir William as well what remains the most compelling explanation of the origin of the earliest known gold units (Mundell 2002: 7). He is quick to dismiss the view that ancient weight units “had been obtained scientifically” (Ridgeway 1892: 1), which he attributes to a false analogy with the metric system established by the French Republic. “Reflection,” Ridgeway says, “might have shown scholars that even the French system was not a wholly independent outcome of science, for beyond doubt the *mètre* and *litre* and *hectare* were only varieties of older measures of length, capacity and surface, then for the first time scientifically adjusted.” Instead, he argues, ancient gold monetary units were a natural outgrowth of traders’ pre-monetary habit of expressing prices in terms of oxen or cows.⁴ There was, on the other hand, no such thing as a natural gold unit in which

²In contrast, the Chartalist view holds that public authorities invented and introduced money to serve as a convenient medium for the payment of taxes or tribute. That view makes sense only assuming that these authorities were sufficiently important to have formed a bandwagon attractive enough for others to clamor aboard. In light of this one might view the Chartalist view as a special case of the spontaneous evolution theory. Carl Menger (2002: 31), the most well-known exponent of the latter theory, explicitly recognized that goods formerly used for paying dues to chieftans or priests were especially likely to become generally employed as exchange media.

³David Graeber’s (2011) now fashionable claim that this “outgrowth of barter” theory of money’s origins is an invention of ignorant economists, including Smith and Menger, rests entirely on his assumption that the theory was intended to refer to developments *within* tightly knit traditional societies, rather than *among* otherwise independent communities. That barter, far from having occurred only in “a fantasy world” concocted by economists (as Graeber initially asserts) was, prior to the advent of money, the only convenient means of exchange among *strangers*, is a point that Graeber himself eventually admits (*ibid.*: 29). What he cannot admit, of course, is that the concession effectively rescues the conventional notion that money evolves from a prior “barter economy,” subject only to the proviso that the “economy” in question is one encompassing, not a single independent village or tribe, but many.

⁴I say “prices” rather than “values” deliberately, to avoid the troublesome suggestion that values, which are necessarily subjective, can be expressed, let alone measured, in monetary units. Besides being contrary to subjective value theory, this suggestion leads to the false and mischievous idea that money can and ought to be a “measure” of value, and that its own value (purchasing power) ought therefore to be constant.

prices might be expressed. Instead, gold became the first object upon which the art of weighing was practiced, with grain serving as a weighing medium. As oxen were worth about 130 grains of gold throughout the ancient world when gold came to be employed as an exchange medium, that quantity of gold became the basis of the earliest gold units, and eventually of coins representing those units. This simple transition, Ridgeway observes, accounts both for the surprising uniformity of independently developed gold units throughout the ancient world, and for the tendency for the name of the old barter unit to attach itself to the new metallic ones. In ancient Athens, for example, the first current gold coins bore the symbol of an ox, and values continued to be expressed in ox-units, though those units were now represented not by oxen themselves but by their metallic value equivalents. The same development is reflected in the various monetary terms having the latin word *pecunia* as their root.

Despite claims to the contrary dating back to Herodotus, coinage—the packaging of raw metal into units of standard size and purity—was also, so far as can be determined, a private-market development rather than an invention of Gyges, Pheidon, Theseus, or some other ancient tyrant. There is in any event no technical reason why coining, an industrial process, cannot have begun as a private undertaking, as it has occasionally been in more recent times. Kings and princes were nonetheless quick to make the coining of precious metals (and, sometimes, of base metals as well) a royal prerogative. Notwithstanding the naïve belief that governments were obliged to monopolize coinage for the sake of protecting their citizens from abuses to which competitive coinage would expose them, it was not private firms but government authorities themselves who posed the greatest danger of abusing coinage, and who would in fact be responsible for all the more notorious abuses of the power to coin, including countless episodes of debasement stretching from Roman to early modern times. Governments were able, by virtue of their coinage prerogatives and associated power to compel acceptance of their coins at par, to arbitrarily redefine national money units, and to thereby turn former products of commercial custom into playthings of public law.

That metallic units became matters of public law rather than custom might itself have spelled the end of durable precious-metal standards had debasement not ceased, in early modern times, to be an effective means for raising revenue. In England, first and foremost,

the debasements of Henry VIII and Edward VI left the coinage in such a state as compelled Elizabeth I to renounce her predecessors' policies and restore England's pre-debasement (silver) standard. A century later, when merchants' resort to goldsmiths' notes again threatened to undermine the demand for coin, the government took the next logical step, in 1666, of renouncing debasement altogether, by ceasing to coin on its own account and instead devoting its mints (in unconscious imitation of a competitive coinage system) to the "free" (i.e., unlimited) coinage of metal on private account.⁵ Other European nations eventually followed a similar course.

Although coin debasements thus became a thing of the past, standard money units remained matters of public law. This vestige of ancient legislators' interference in money's free development was to play a crucial role, first in the substitution throughout Western economies of the gold standard for previous silver and bimetallic standards, and eventually in that standard's own undoing.

Paper and Gold

In the absence of banks, having a gold standard simply means having coins embodying standard gold units serve as generally accepted exchange media. But where banks also supply exchange media, having a gold standard means that money consists either of gold coins or of bank notes and deposits that are reliable *representatives* of the standard gold unit.

Banknotes, the first paper substitutes for coin, were originally resorted to because government abuse of coinage confronted merchants with a hodgepodge of coins, many of them debased or otherwise impaired to some degree. "The superscription of the bank upon a piece of paper," Elgin Groseclose (1934: 70) observes, "became a better certificate of valid money than the seal of the state upon the coin, and because it was not, like coin, subject to wear and abrasion, it became a more acceptable medium of payment than the actual metal." In England goldsmiths rose to prominence as bankers and note issuers after Charles I, in 1640, seized £120,000 of precious metal that had been delivered to the Tower of London for coining. William Paterson later adopted the goldsmiths' idea in proposing the

⁵Besides making coinage free, the 1666 reform made it "gratuitous" as well, with coinage expenses paid out of the general revenues.

Bank of England as a device for funding England's involvement in the War of the Palatinate.

Paterson wanted the Bank's notes declared legal tender, but Parliament balked at the suggestion.⁶ Consequently the Bank's notes continued, along with other commercial banknotes, to be private IOUs, circulated and redeemed by custom only, akin to today's commercial bank deposits. Indeed, commercial banknotes involved stricter obligations than, say, foreign bills of exchange, in that anyone holding such notes was considered *prima facie* a holder in due course, who was therefore excused from having either to lodge a formal protest in the event of nonpayment or to notify the banker of such protest. Consequently a bank that refused payment on a note was automatically held to have dishonored it, and thus to have committed an act of bankruptcy, giving the holder an immediate right of recourse for breach of contract, including the right to prove upon the bankrupt bankers' estate for the refused amount (Byles 1891: 10–11, 291, 461). Although banknote issuance became increasingly subject to special statutory regulation over the course of the 19th century, in many Western nations, and in Anglo-Saxon legal systems in particular, "It was taken for granted that the general freedom to contract . . . extended to issuing notes and establishing credits by lending or discounting," and not merely to the making of loans funded by deposits (Hurst 1973: 152).

The modern gold standard can thus be said to have involved not one but two kinds of commitments. The first consisted of mints' commitment to supply coins in exchange for gold bullion at a stated "mint price" of bullion. The second consisted of banks' commitment to supply gold coins in exchange for their paper promises on demand. While the sustainability of a gold standard depended on the credibility of both of these commitments, what sealed the fate of the gold standard or, more precisely, of attempts to reconstruct that standard after the World War I, were reforms that served, albeit quite unintentionally, to permanently and

⁶Much later, in 1833, the Bank Notes Act made Bank of England notes of over £5 legal tender in England and Wales. The Currency and Bank Notes Act of 1954 extended legal tender status to smaller-denomination Bank of England notes. In Scotland today neither Bank of England notes nor Scottish commercial bank notes are legal tender.

fatally undermine the credibility of commitments to convert paper into gold.

The Classical Gold Standard

The classical gold standard, which prevailed throughout much of the industrialized world between the early 1870s until the outbreak of World War I, is frequently portrayed by critics and enthusiasts alike as an instance of government price-fixing and, hence, as a product of legislation. Michael Bordo (2008), for example, claims that “The gold standard was a commitment by participating countries to fix the prices of their domestic currencies in terms of a specified amount of gold. National money and other forms of money (bank deposits and notes) were freely converted into gold at the fixed price” (compare Eichengreen 2011).

This interpretation is, however, anachronistic and misleading: it views pre-1914 monetary arrangements through the lens of the post-1914 advent of deliberately designed (if nonetheless chaotic) international monetary schemes. In truth, the classical gold standard was to a considerable degree a spontaneous development, founded not on statutes but on customary law. Legislation did play a part, of course, as was bound to be the case given that governments monopolized coinage, thereby making basic metallic coin units themselves objects of public rather than customary law. And though more advanced 19th century governments had ceased to resort to debasement, this did not prevent them from occasionally altering units’ metallic content, implied mint prices, and (where bimetallism prevailed) mint silver to gold ratios. It was, indeed, partly in consequence of such alterations, and partly due to the changing relative worth of gold and silver, that gold monometallism came to displace bimetallism in country after country during the first three quarters of the 19th century.

Yet, both the working and the duration of the classical gold standard can be said to have owed more to commercial custom than to legislation. Regarded as an international regime, the gold standard was, first of all, not the result of any international collaboration, but, as Leland Yeager (1984: 662), observes, “Simply an additional outcome of a group of nations . . . unilaterally adopting gold standards in the 1870s,” the mechanics of which “were primarily the resultants of private transactions in the markets for goods and

money” (see also Gallarotti 1995). Just as importantly, the so-called rules of the classical gold standard game were rules enforced by the private law of contracts, not by public laws.

Private contracts rather than public laws were, in particular, responsible for what so many commentators wrongly regard as the “fixing” of gold’s price—that is, the fact that paper currencies could be converted into definite quantities of gold. This convertibility was proof, not of any sort of government price-fixing, but of the fact that during the period in question currency consisted mainly of commercial banknotes that were considered binding promises to pay. Many participating nations, including the United States, Switzerland, Canada, Australia, and (until 1901) Sweden, did not even have central banks enjoying exclusive note issue privileges for which they were indebted to their governments. Moreover, most of the privileged banks that did take part, the Bank of England among them, were still private institutions generally subject to the same private-law sanctions applicable to commercial banks. Testimonials by representatives of these central banks, gathered by the U.S. National Monetary Commission between 1908 and 1910, show that they “carried on in a state of relatively high independence from the public domain” (Gallarotti 1995: 24).

In short, countries abided by the rules of the gold standard game because that game was played by private citizens and firms, not by governments.⁷ The contrary view of the classical gold standard as a system deliberately kept to serve “as a contingent rule or a rule with escape clauses” (Bordo and Rockoff 1996: 389), or for any other national or international purpose, may do as an “as if” theory, but *not* as an accurate portrayal of how that standard actually came to be, or why it survived as long as it did. The standard didn’t last merely or mainly because government authorities appreciated its advantages, fiscal and otherwise, and were anxious to take full advantage of them. Rather, it was kept going by private laws that governments were generally unwilling to contravene. Put

⁷Nor did the Bank of England manage the classical gold standard, as it often asserted. As Gallarotti (1995: 140) notes, “Not only can we say that the Bank did not manage the international monetary system, but it is questionable whether it even managed the British monetary system.”

yet another way, pre-1914 gold pegs were hard not because government policies made them so, but because the pegs actually had little to do with government policies.

The Gold Standard's Undoing: From Contract to Policy

Although it may seem paradoxical, our understanding of the classical gold standard suggests that, if that standard had been deliberately set up by governments to enhance their borrowing ability, it is unlikely that it would have worked as intended. This conclusion follows because, once public (or quasi-public) authorities, governed by statute law rather than the private law of contracts, become responsible for enforcing the rules of the gold standard game, the convertibility commitments crucial to that standard's survival cease to be credible.

A change of the sort just described, which had already begun to weaken the foundations of the classical gold standard in the decades prior to World War I, was to play a crucial albeit heretofore unacknowledged part in the failure of post-WWI attempts to reconstruct the classical gold standard. The change was mainly due to the spread of central banking and the subsequent tendency of private law courts (referring as usual to prevailing commercial custom) to treat central banks' paper notes, not as so many negotiable instruments, but as money proper (Mann 1992: 16, 19). The change was facilitated by legislation conferring legal tender status on central bank currency. But it was also a consequence of non-note-issuing banks' practice, itself often reinforced by legislation, of employing central bank notes and deposits as reserves rather than as so many IOUs in need of collection. That habit, in turn, caused central banks to become their nations' sole custodians of gold, and therefore the only banks responsible in normal times both for managing their nations' gold stocks and for converting paper money into gold.

Once they found that central bank notes were being treated by commercial bankers as "definitive" money, it was only natural for private law courts to take the further step of holding a central bank's decision to devalue its currency to be "an exercise of sovereign authority which does not give rise to a cause of action against the nation in question" (Shuster 1973: 57). Central banks thus came to inherit the monetary prerogative originally asserted by

monarchs, and exercised by them through their control of coinage, including the ability to arbitrarily redefine monetary units. This change in the legal status of central bank currencies allowed central bankers to suspend convertibility and, eventually, to devalue their currencies, with impunity.⁸

It might seem that the developments just described need not have doomed the gold standard, since central bankers, and more independent ones especially, might have refrained from devaluing their paper currencies, just as past governments eventually abjured debasement. But the analogy is misleading, for a gold standard founded on commitments to which sovereign immunity attaches, and therefore no longer bolstered by the private-law sanctions applicable to other banks when they dishonor their promises, is necessarily one in which the commitment to maintain a gold parity ceases to be credible. Knowing that central banks can devalue with impunity, and that they may even profit by so doing, holders of a central bank's currency have good reason to fear that it might devalue, especially if it has already done so in the past (Selgin and White 2005: 73). Gold pegs enforced by central banks are for this reason just as likely as any central-bank-based fixed exchange-rate scheme to eventually succumb to a speculative attack. The general proliferation of central banks, starting with the Federal Reserve's establishment in 1914 and accelerating during the 1920s and 1930s thanks to campaigning by Edwin Kemmerer and Montegue Norman, and to resolutions adopted at the Brussels Conference of 1920 and the Genoa Conference of 1922, may thus be said to have played no less important a role than World War I in sealing the fate of the gold standard, for it was that development that undermined, as war itself could not, the private legal foundation upon which the classical gold standard's success had rested. The war severed belligerent nations' monies from their previous gold moorings, but it was mainly other developments—and the spread of central banking especially—that ruled out the possibility of ever making those moorings secure again, regardless of chosen gold parities.⁹ Indeed, the

⁸According to Mann (1992: 19), paper banknotes constitute definitive money in law, and hence can have their redemption value arbitrarily manipulated by their issuers “only if they are created by or with the authority of the State or such other supreme authority as may temporarily or de facto exercise the sovereign power of the State.” By contrast, notes issued by ordinary commercial banks “do not in law possess the attributes and privileges” of definitive money.

⁹On the post-WWI spread of central banking see Helleiner (2003: ch. 1).

same developments would ultimately doom not just attempts to reestablish some kind of gold standard, but all attempts to reestablish a durable system of fixed-exchange rates.

This outcome was as ironic as it was tragic, for it could not have been more contrary to the intentions of the very people who insisted, in the language of the Brussels resolution, that “in countries where there is no central bank, one should be established.” These advocates of central banking, informed perhaps by the very misunderstanding of the nature of the classical gold standard to which we have drawn attention, were convinced, against all experience, that central banks alone could be relied upon to “insulate national monetary management from the control of political forces” (Helleiner 2003: 148)

Ethos versus Contract

Writings on the classical gold standard are sprinkled with references to the “ethos” of that standard (e.g., Eichengreen 1992: 22) or to the “laissez-faire ethic” or “metallist norms” that held it in place (Gallarotti 1995: 7, 28). The general thinking that such terms represent is perhaps best summarized by Leland Yeager’s (1984: 663–64) statement that “the gold standard before World War I hinged on favorable conditions that no longer prevail,” including “a laissez-faire atmosphere” that “favored limitations on the scope of government activity and restraint on seeking special advantage through the instrumentality of government.” It follows, according to Yeager, that “without a return to liberal attitudes and self-restraint, a restored gold standard would not work well and would hardly endure. After all, the gold standard is simply a particular set of rules for policy regarding the monetary system; and these rules are no more inherently self-reinforcing than any other set of monetary rules.”

While it is of course hard to imagine any revival of the gold standard unaccompanied by a “return to liberal attitudes,” or (to be more specific), *classical* liberal attitudes, there is an important sense in which Yeager’s position, and that of others subscribing to the ethos view of the gold standard’s underpinnings, is misleading. For as we have seen the classical gold standard was *not* at bottom “a particular set of rules for *policy*,” as it would have been had it rested solely or primarily on statute law. Instead it was, while it lasted, grounded mainly in customary law, including the common law of contracts. And because adjudication of such law tends to be backward-looking, rules

based upon it—including the “rules” of the classical gold standard—are self-reinforcing in a way that statute-based rules, monetary or otherwise, are not. A change in ethos in Yeager’s sense alone did not, in fact, doom the gold standard, for the authorities who undertook to reconstruct the international monetary system in the aftermath of World War I were for the most part both steeped in that ethos and determined to reconstruct the institutions to which it supposedly gave rise. Their failure was due not to their having turned their back upon prewar values, but to their having tragically misunderstood the true legal foundations of the arrangement they sought anxiously and sincerely, not only to recreate, but to strengthen.

Friedman on Real and Pseudo Gold Standards

My remarks in the last sections concerned the manner in which currency centralization contributed to the destruction of the gold standard by undermining the *credibility* of gold redemption pledges, and not the effects of such centralization on the workings of the standard, and especially the pattern of short- and long-run adjustments of national money stocks and price levels to which it gave rise. The two subjects are nevertheless closely related, both because speculative attacks upon untrusted convertibility schemes themselves alter patterns of monetary adjustment, and because the unique ability of central banks to manage gold flows could itself result in such departures from the requirements for long-run international monetary equilibrium as might themselves lead to exchange crises (see Gallarotti 1995: 181–217; Hayek 1937).

By a “pseudo gold standard,” Friedman meant an arrangement involving one or more national central banks charged with fixing the price of gold. He was not concerned with the low credibility of the pledges implicit in such price fixing, but with central banks’ ability to sterilize and thereby deliberately manipulate international gold flows, and thus undermine the market forces that tend, under a real gold standard, to preserve international monetary equilibrium. Friedman (1961: 67) wrote:

My thesis is that current proposals to link national currencies rigidly to gold whether at present or higher prices arise out of a confusion of two very different things: the use of gold as money, which I shall call a “real” gold standard; governmental fixing of the price of gold, whether national or international, which I shall

call a “pseudo” gold standard. Though these have many surface features in common, they are at bottom fundamentally different—just as the near identity of prices charged by competitive sellers differs basically from the identity of prices charged by members of a price-ring or cartel. A real gold standard is thoroughly consistent with liberal principles, and I, for one, am entirely in favor of measures promoting its development, as, I believe, are most other liberal proponents of floating exchange rates. A pseudo gold standard is in direct conflict with liberal principles, as is suggested by the curious coalition of central bankers and central planners that has formed in support of it.

He goes on to say, regarding the various post–World War I attempts to reconstruct the gold standard, that

either a real gold standard throughout the 1920’s and ‘30’s or a consistent adherence to a fiduciary standard would have been vastly preferable to the actual pseudo gold standard under which gold inflows and minor gold outflows were offset and substantial actual or threatened gold outflows were over-reacted to. And this pattern is no outmoded historical curiosity: witness the United States reaction to gold inflows in the early years after World War II and its recent reaction to gold outflows; witness the more recent German sterilization of gold inflows. The pseudo gold standard is very much a living menace [Friedman 1961: 72].

Unlike our distinction between a gold standard established and enforced by customary law and one established or enforced by means of legislation, Friedman’s distinction between real and pseudo gold standards refers not to any difference in their legal foundations but only to the different forms of money involved in each. In a pseudo gold standard these include the fractionally backed (fiduciary) liabilities of central banks or other official monetary authorities. Actual gold coins, on the other hand, need not be employed. In a real gold standard, in contrast, money consists, first of all, of actual gold coins. But it may also consist of either warehouse receipts fully backed by gold or of the promises of either

private persons or governments . . . to pay gold either on demand or after a specific time interval which were not

warehouse receipts but nonetheless were widely acceptable because of confidence that the promises would be redeemed. Such promises to pay would still not alter the basic character of the gold standard so long as the obligors were not retroactively relieved from fulfilling their promises, and this would be true even if such promises were not fulfilled from time to time [Friedman 1961: 75–76].¹⁰

Although Friedman comes close to recognizing the different legal foundations we have outlined, one of which makes gold redemption pledges as binding contracts, while the other makes them a form of government price fixing, he never actually refers to them. Moreover, in allowing that a real gold standard might involve promises to pay issued by “private persons *or governments*,” he overlooks the tendency for sovereign immunity to attach to government actions. It is for this reason that I regard the distinction between a gold standard resting on private contracts and one resting on statute law to be of more fundamental importance than Friedman’s distinction between real and pseudo gold standards.

A Spontaneous Return to Gold?

I turn now to consider some implications of our analysis of the legal foundations of the historical gold standard for the prospect of a gold standard revival.

The classical gold standard consisted, as we’ve seen, of a combination of official coinage policies with largely private arrangements guaranteeing the convertibility of paper currencies into gold. It is therefore tempting to suppose that to revive the gold standard it will suffice to make gold coins available again, by providing for their free coinage either by government or private mints, while allowing private contracts to guarantee the convertibility of gold-denominated bank notes and deposits into equivalent amounts of coin itself.

¹⁰Friedman adds that “Such a system might and I believe would raise grave social problems and foster pressure for governmental prohibition of, or control over, the issue of promises to pay gold on demand,” referring readers to the arguments in his *Program for Monetary Stability*. Friedman would later revise his views on private versus government supply of currency (Friedman and Schwartz 1986), though without entirely freeing himself of the parochialism upon which his earlier stand rested (see Selgin 2008).

Thus, Richard Timberlake (1995) proposes that the U.S. government privatize the Treasury's gold stock, which, according to official records, consist of over 8,000 tons of the metal stored mainly at Fort Knox, by first offering one-ounce, marketable "gold certificates" to taxpayers, and then supplying bullion itself to those presenting sufficient quantities of such certificates. Private firms might then go into the business of converting bullion into coins of "convenient denominations," by which Timberlake means not existing dollar units—for the new coins would have no set dollar value—but merely convenient indicators of the coins' gold content. Gold coins could then

become the basis for special bank-administered checking accounts [that] would develop monetary functions. Gold depositors who wished to transact in this medium would have checkbooks appropriately identified with gold logos, and would write checks to anyone who would accept title to the designated quantity of gold as payment for a debt. Gold reserve banks would clear gold balances with each other based on their daily or weekly debits and credits. They would perforce redeem deposits on demand in gold for any gold depositor who so wished. Eventually, borrowers might base their loans on gold, whereupon the gold would complete its restoration as a viable money [Timberlake 1995].

Some authorities suppose that a sufficiently rapid deterioration in the fiat dollar's purchasing power could suffice, even apart from the steps Timberlake proposes, to spur a spontaneous gold revival. According to George Reisman (1998: 951), for example, "If not prevented from doing so by government interference, the market itself would take all of the necessary precautions against the destruction of money, by preparing the ground for the reemergence of gold and silver as money."

As inflation becomes perceived as a serious problem, a growing demand for gold and silver develops as an "inflation hedge"—i.e., as a store of value. Once this demand reaches a certain level, the stage becomes set for a spontaneous remonetization of the precious metals. For, just as in the process by which the precious metals became money in the first place, once enough people want to own gold and silver as an inflation hedge and thus are willing to accept them in exchange for

their own goods and services, others become willing to accept them too, even though they themselves do not wish to hold them as an inflation hedge or store of value. Conditions exist, in other words, for a growing acceptability of the precious metals, to the point at which they become universally acceptable, i.e., become money once again [Reisman 1998: 511].

The prospects for a “spontaneous” gold standard revival are, however, considerably dimmer than such scenarios suggest. “The dollar,” Lawrence White (2012: 413) explains,

has an incumbency advantage due to the network properties of a monetary standard. The greater the number of people who are plugged into the dollar network, ready to buy or sell using dollars, the more useful using dollars is to you. Conversely, if you are the first on your block to go shopping with gold coins or a gold-denominated debit card, you will find few stores ready to accept payments in gold.

The public has, to adopt a phrase from the economics of technology, become “locked into” a fiat standard.¹¹ What’s more, customary law, far from supplying a means for overcoming “lock in,” tends to reinforce it, by recognizing and legitimizing established practice, even when that practice has itself been shaped by legislation rather than by mercantile custom alone. As Hayek (1982: 88) observes, the development of customary law “may lead to an impasse from which it cannot extricate itself by its own forces. . . . The development of case law is in some respects a one-way street: when it has already moved a considerable distance in one direction, it often cannot retrace its steps when some implications of earlier decisions are seen to be clearly undesirable.”

Before World War I, in contrast, network effects favored gold itself. Although government intervention was proximately responsible both for the rise of bimetallism and for its eventual abandonment

¹¹Although White (2012: 415) allows that the lock-in effect can be overcome by a sufficiently “painful period of high and uncertain inflation,” thereby appearing to acknowledge the plausibility of Reisman’s scenario for a spontaneous return to gold plausible, he fails to point out that even in that case currency substitution would tend to favor not gold but other relatively stable fiat currencies with substantial user networks. Gold’s adoption might then have to await the prior destruction, through inflation, not just of one but of numerous established fiat currencies—a prospect as remote as it is terrible.

in favor of gold monometallism, as the size of the gold standard network increased, economic considerations alone encouraged governments and private traders alike to take part in it. Private law, in turn, recognized the fact that monetary units once representing silver had come instead to represent gold.

It should go without saying that these observations hardly serve to justify legal tender laws and other legislation aimed at propping up fiat monies by erecting barriers against the voluntary adoption of gold and other alternatives. They are aimed solely at showing why the elimination of such barriers alone is unlikely to result in any spontaneous gold standard revival. What's more, even if a new monetary standard were able somehow to overcome the network effects favoring established fiat monies, there is no reason for assuming that the new standard would be based on gold rather than some different, and perhaps as yet untried, exchange medium.¹²

The Legislative Alternative

The understanding that a spontaneous gold standard revival is unlikely has led some who favor a return to the gold standard to rest their hopes instead on legislation aimed at directly securing that end. "The network property of a monetary standard," White (2012: 414–15) observes, "supports the case for not simply legalizing a parallel standard, but reestablishing a gold definition for the U.S. dollar." This means "converting the Federal Reserve System's liabilities and the Treasury's coins into gold-redeemable claims at so many grams of gold per dollar or equivalently so many dollars per ounce of gold" (*ibid.*: 412).

The practical shortcoming of such a step is that it would result not in a gold standard of the traditional sort but rather in a gold standard involving paper claims which, instead of being so many binding contracts, are convertible into fixed quantities of gold as a matter of public policy only. That the commitment in question, like any central-bank based exchange rate peg, might be reneged upon with impunity, would soon cause it to become the target of speculative attacks, and all the more so in light of the fate of previous, central-bank based gold commitments. As Obstfeld and Rogoff (1995: 73)

¹²At present, for example, though its use network is miniscule in comparison with that of most fiat currencies, bitcoin is far more commonly accepted than gold in U.S. retail payments.

observe, “Stuffing the genie of floating exchange rates back into its bottle is . . . easier said than done,” with most efforts to do so ending “in spectacular debacles.” They conclude that “for most countries it is folly to try to recapture the lost innocence of fixed exchange rates” (*ibid.*: 74). There is no reason to suppose that a government-sponsored revival of the gold standard of the sort White proposes would not prove another such folly.¹³

It is in part owing to the inherent weaknesses of a legislation-based gold standard that Timberlake and Reisman, among other gold-standard proponents, have staked their hopes on a spontaneous gold standard revival. “Sound money advocates,” Timberlake (1995) writes, “should not waste their resources lobbying for a gold standard, which by definition would include the state as overseer and manager of a gold currency, specifier of a gold price in terms of dollars, custodian of the gold, and continuing manipulator of a central bank-issued paper money.” And it is well to recall in this connection Friedman’s own strictures upon the sort of legislative revival here being considered:

This kind of pseudo gold standard violates fundamental liberal principles in two major respects. First, it involves price fixing by government. It has always been a mystery to me how so many who oppose on principle government price fixing of all other commodities can yet approve it for this one. Second, and no less important, it involves granting discretionary authority to a small number of men over matters of the greatest importance; to the central bankers or Treasury officials who must manage the pseudo gold standard. This means the rule of men instead of law, violating one of our fundamental political tenets. Here again, I have been amazed how so many who

¹³Although a gold-based Currency Board would be far more secure than a central-bank gold peg, it would also be extremely expensive. The very high gold parity obtained by dividing the M1 money stock by the available stock of gold would imply “a large influx of gold from the rest of the world, a large loss of U.S. wealth in exchange, and a sharp transitional U.S. inflation (White 2012: 417). This is true even assuming, as White does, that official gold stock numbers are valid. Moreover, even a 100-percent reserve or currency-board based gold standard could survive only for as long as it takes legislators to determine to alter it on the grounds that doing so has become expedient. According to Obstfeld and Rogoff (1995: 90–91), “The question is whether [monetary authorities] have the will to use their reserves if necessary: attacks need not be deterred unless the currency’s 100 percent reserve backing is 100 percent credible.”

oppose on principle the grant of wide discretionary authority to governmental officials are anxious to see such authority granted to central bankers. . . . [S]ince when have we liberals tempered our fear of concentrated power by trust in the particular men who happen at a particular moment to exercise it? Surely our cry has been very different—that benevolent or not, tyranny is tyranny and the only sure defense of freedom is the dispersal of power [Friedman 1961: 78].

The Hayekian perspective taken here prompts me to embellish upon Friedman's point by observing that, the popular belief to the contrary notwithstanding, a gold standard consisting of a particular monetary rule to be implemented by government authorities, even if it awards citizens the opportunity to exchange paper currency for gold coin, is *not* an instance of the rule of law applied to a nation's monetary affairs. For a true application of the rule of law would place those affairs on the much firmer foundation of binding contracts and, hence, of customary law, which in turns means doing away altogether with public and quasi-public (or "government sponsored") monetary authorities.

Conclusion

Our understanding of the legal foundations upon which a durable gold standard must rest, together with a consideration of both the legal and the economic forces that render the spontaneous revival of a gold standard unlikely, leads us straight into the horns of a dilemma, to wit: that while a spontaneous gold standard revival is extremely unlikely, a deliberate revival, involving the redefinition of existing dollar notes and credit, cannot be expected to last.

This conclusion is a sobering one to convey to those readers who would like to see the gold standard resurrected so as to recreate the exchange-rate and purchasing-power stability with which the classical gold standard was associated, and for which it was responsible. Nor is it any less so for being based upon the insights of a thinker who was himself one of the gold standard's more prominent champions. Economics has long been known as the dismal science, albeit for very bad reasons.¹⁴ There are, alas, also good ones.

¹⁴ The expression, as is now well known, was coined by Thomas Carlyle in the course of arguing for the revival of slavery.

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FIX WHAT BROKE: BUILDING AN ORDERLY AND ETHICAL INTERNATIONAL MONETARY SYSTEM

Judy Shelton

It has been more than six years since the global economy was put through the financial wringer and left hung out to dry. According to former Federal Reserve chairman Ben Bernanke, who presided over the debacle: “September and October of 2008 was the worst financial crisis in global history, including the Great Depression” (da Costa 2014). Given that Bernanke is a scholar on the global economic collapse of the 1930s, his assessment is particularly sobering. After all, a horrifying world war followed in its aftermath.

Today’s situation might be less worrisome if we had any reason to believe that the fundamental problem of calibrating the global money supply to the needs of the global economy had been resolved. But we don’t. Instead of establishing a sound money foundation that would permit free-market mechanisms to optimize capital flows and maximize long-term economic growth, we have empowered central banks to engage in central planning. Instead of building an international monetary system consistent with the values of democratic capitalism—free markets, free enterprise, and free trade—we have amplified the influence of government over the voluntary transactions of individuals operating in the private sector.

And what have we gained in terms of global financial stability? Central bankers and government authorities are likely to prove less

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than omniscient once more; the next worldwide financial meltdown may well be looming on the horizon.

Even more disabling would be our loss of leadership and perceived bankrupt principles. How can America promote the virtues of economic opportunity and honest competition in an open global marketplace while allowing currency disorder to distort the terms of trade? How can our nation stand for free people and free markets, and yet have nothing to say about the disrupting and destabilizing effects of capital flight and manipulative monetary practices?

Financial Disarmament

The world has experienced more difficult and more dangerous conditions than our current setting. On July 1, 1944, delegates from 44 nations came together in Bretton Woods, New Hampshire, to work out arrangements for a new international monetary and financial order. Less than four weeks earlier, on June 6, 1944 (termed “D-Day”), more than 160,000 Allied troops had landed on the beaches of Normandy to battle against heavily entrenched Nazi forces. The outcome of the war was far from being assured.

In spite of the distractions of global hostilities—indeed, precisely because of such challenging circumstances—the assemblage was infused with a strong sense of purpose and resolve. The goal was to forge an agreement that would establish a stable international monetary system to serve the needs of a postwar world recovering from devastation. It was an endeavor both hopeful and fateful; if ravaged nations could not look forward to a more functional and productive global economy than the one that had sparked belligerence and confrontation, they might not be able to summon the necessary fortitude to prevail against totalitarianism.

Harry Dexter White, a monetary expert at the Treasury, sought to inspire struggling nations by providing a glimpse of an economic future that would grant them the opportunity to rebuild their economies through full participation in an open global trading system. In a draft memo that would be the precursor to the Bretton Woods agreement for international monetary cooperation, White (1942: 46) argued that prosperity should be built on a solid monetary foundation of stable exchange rates:

The advantages of obtaining stable exchange rates are patent.
The maintenance of stable exchange rates means the

elimination of exchange risk in international economic and financial transactions. The cost of conducting foreign trade is thereby reduced, and capital flows much more easily to the country where it yields the greatest return because both short-term and long-term investments are greatly hampered by the probability of loss from exchange depreciation. As the expectation of continued stability in foreign exchange rates is strengthened there is also more chance of avoiding the disrupting effects of flights of capital and of inflation.

The logic and clarity of the ideas pursued by White at Bretton Woods still have resonance today. They should not be tainted by the controversy that clouded his reputation. White was accused in 1948 of passing information to communists, a charge he denied before the House Committee on Un-American Activities; he died shortly after giving testimony (Shelton 1994).

What we should take from his economic writings and policy undertakings is the imperative of preventing “beggar-thy-neighbor” devaluations among currencies leading to retaliatory tariffs and a breakdown in international commerce and credit. As a bulwark against monetary disorder and economic depression, White proposed the creation of an international monetary fund comprising gold and national currencies. It would stabilize foreign-exchange rates, encourage the flow of productive capital among participating nations, help stabilize domestic price levels, promote sound credit practices, and reduce barriers to foreign trade.

All these tasks, as Treasury Secretary Henry Morgenthau Jr. observed in 1943, were interrelated. “It is generally recognized that monetary stability and protection against discriminatory currency practices are essential bases for the revival of international commerce and finance” (in Horsefield 1969: 83).

The other key architect of the Bretton Woods agreement, John Maynard Keynes, brought his own perspective to the proceedings. Keynes was primarily interested in channeling needed financial resources from wealthy countries to needy countries; he wanted to ensure that Britain, in particular, would continue to receive defense aid from the United States. Yet Keynes also understood that international monetary stability was the key to promoting increased trade and capital flows. He was intrigued with the idea of elaborating a truly international plan for global financial cooperation and he likewise saw an important monetary role for gold. Keynes recommended

the creation of an international currency unit (he called it “bancor”) into which other currencies would be convertible. Keynes proposed that exchange rates be fixed in terms of bancor and that bancor be valued in gold.

Keynes (1942: par. 51) described the proposal for a gold-based international monetary union to facilitate world trade as nothing less than a call for global “financial disarmament.” White, for his part, believed that the vision of a better world offering nations a more prosperous existence in the future would inspire them to persevere in winning the war. People had to be assured that the United States would not desert them, but rather would help them through the difficult task of economic reconstruction. “To help them, not primarily for altruistic motives, but from recognition of the truth that prosperity, like peace, is indivisible” (White 1942: 38–39).

Golden Age

It would be too pat to merely proclaim that the Bretton Woods agreement brought about a time of economic prosperity, high productivity, high average wages and high consumption. The International Monetary Fund (IMF) officially commenced operations on March 1, 1947, launching a gold exchange standard based on a U.S. dollar convertible into gold at the rate of \$35 per ounce. The Marshall Plan would be implemented the following year, through which the United States would provide \$17 billion (approximately \$160 billion in 2014 dollars) in economic support to European countries.

Was it the existence of a reliable golden anchor for international monetary relations that was most responsible for delivering the period of high economic growth? Or should we attribute America’s foresight in channeling financial capital to Europe as a way to impose our own free market values and strengthen capitalism’s hold across the Atlantic? Improving the economic productivity of Western Europe not only served as a buffer against communism, it also created markets for American goods.

Still, the Marshall Plan was in operation for only four years whereas the Bretton Woods international monetary system continued to function until August 15, 1971, the day President Richard Nixon suspended convertibility of the dollar into gold.

Can it be coincidental that a fixed-exchange rate regime linked to gold accorded generally with the high-growth period from 1945 to

1975 referred to in France as the “Trente Glorieuses” or 30 glorious years? In his book *Capital in the Twenty-First Century*, French economist Thomas Piketty describes the postwar years in Europe as an exceptional time of economic “catch-up” as per capita output leapt ahead. “Western Europe experienced a golden age of growth between 1950 and 1970, only to see its growth rate diminish to one-half or even one-third of its peak level during the decades that followed” (Piketty 2014: 97).

This more specific reference to the prosperous decades of the 1950s and 1960s, which marked the heyday of the Bretton Woods gold exchange regime, is echoed by economist Paul Krugman. Writing in the *New York Times*, Krugman (2002) laments the increase in wealth inequality since the 1970s and concurrent decline of the middle class. “For the America I grew up in—the America of the 1950s and 1960s—was a middle-class society, both in reality and in feel.” For Krugman, the widening gap between the “very rich” and the rest is having profound effects in the economic, social, and political spheres; specifically, he asserts that the growing concentration of wealth since the early 1970s is at the root of “an extreme polarization of our politics.”

Yet even as Krugman points out that income inequality was historically low during the era from World War II until the 1970s, he doesn’t make the association with the gold-linked monetary system that was in effect during the same period.

Fallacy of Floating

Economists today accept the paradigm of freely floating exchange rates with the same conviction that an earlier generation of economists acknowledged the gold standard as the most rational and efficient approach to structuring international monetary relations. Those who propose alternative exchange-rate arrangements to the currency mishmash that exists in the world today are quickly branded heretics by fellow economists.

But has the system for determining exchange rates among currencies that came into being as the result of the void left by the collapse of Bretton Woods actually delivered results in keeping with the theoretical assumptions of a floating rate model? Has it delivered the results its proponents claimed it would achieve? Can we even refer to the current manner in which exchange rates are determined as any kind of system with regard to structure or orderliness?

In their book *Manias, Panics and Crashes: A History of Financial Crisis*, Charles Kindleberger and Robert Aliber (2011: 40–41) describe the reasoning of Milton Friedman in his assertion that destabilizing speculation would not take place under floating rates, or at least would be unlikely to persist: “The Friedman view is that since the destabilizing speculators would fail to survive, destabilizing speculation cannot occur.” Since the end of the Bretton Woods system, however, the behavior of exchange rates has not comported with Friedman’s expectations for a freely floating international monetary regime. Instead of providing a rational monetary approach to accommodate international trade and capital movements, fluctuating rates have engendered greater uncertainties and associated costs.

By the mid-1970s, the gyrating dollar had turned foreign trade into a game of currency speculation. An oil crisis and deep recession engulfed the global economy even as major industrial countries found themselves suffering unprecedented levels of inflation; a new phenomenon called “stagflation” combined rising prices with high unemployment. The price of gold soared to more than 10 times its value under the former gold exchange system. Instead of stabilizing major currency exchange rates, floating rates wrought disturbances and disruptions that far surpassed those that had occurred under the Bretton Woods system.

Should we be surprised that the supposed “free market” approach to determining exchange rates through the unalloyed interplay of demand and supply for various currencies has not worked out so well? What seemed an ideologically appealing concept lost its way in the transition from theory to reality.

Of course, “floating rates” in the vacuum left by Nixon’s closing of the gold window were not generally floating freely, as governments were not constrained from intervening in currency markets to manipulate exchange rates. And the Bretton Woods system was not truly based on “fixed rates” as it permitted changes in exchange rates in response to a fundamental disequilibrium. The IMF, which was charged with overseeing the system, was responsible for identifying when an adjustment was warranted. Thus, there was never a purist gap between an era of fixed exchange rates and an era of floating exchange rates for comparison’s sake.

While we can point to the rare instance when a floating rate approach delivered remarkable exchange-rate stability—Canada’s float of its dollar from 1950 to 1962 in defiance of the rules of Bretton

Woods provides an illustrative example—we can still draw broad conclusions about the relative differences between two fairly distinct historical approaches to international monetary relations.

In short, we can appropriately characterize Bretton Woods as a “fixed-but-adjustable-rate” system and likewise recognize that today’s non-system encompasses an array of currency arrangements, including pegged rates as well as floating rates, all contributing to global monetary cacophony. And even though the differences between the two approaches are blurred by numerous political compromises imposed by reality, it’s still clear that the post-Bretton Woods international monetary regime that came closest to fulfilling the notion of “market-determined” exchange rates could not meet the strictures of that theoretical paradigm.

The so-called “free-market” approach begins to fail with the fact that only governments are the issuers of currency, where central banks act in an official capacity on behalf of governments. This highly restricted set of suppliers circumvents the requirement of free entry to other potential suppliers of currency. Powerful cartels are an anathema to free-market adherents. If private-sector suppliers are not permitted to compete against government-supplied forms of money, how then can we refer to a floating currency regime as a “free-market” approach to determining exchange rates? Moreover, governments are not prohibited from intervening in those same markets for the specific purpose of confounding the impact of market forces on the value of their currencies.

The irony is that the advent of floating rates should have meant that governments would no longer have to accumulate foreign reserves. If the value of currencies is truly left to the market under floating rates, and destabilizing speculation cannot rationally persist, why should governments concern themselves with trying to limit exchange rate movements? Why build up expensive war chests of gold and dollars (or euros, pound sterling, yen) to defend their own currencies against supply-and-demand forces? Pressured by the exigencies of real-world economic shocks and the anxieties of fiscal scrambling, political demands for currency protection will always trump the elegance of theoretical constructs.

In truth, the experiment with floating rates since the end of Bretton Woods has brought about Friedman’s worst nightmare: It has empowered central banks—particularly the Federal Reserve—and strengthened government control over the private sector.

What the World Needs Now

The distortions that have been diffused throughout the global economy through monetary machinations make it exceedingly difficult for the real economy to recover. The clarity of price signals has been compromised. As a result, the process of efficiently channeling financial capital into productive opportunities has been undermined. How can investors be persuaded to provide funds for those innovative projects that might generate higher returns in the future—the kind that actually raise living standards for whole societies—when global equity markets artificially pumped up by monetary policy offer easy gains?

The “flexibility” inherent in today’s global monetary arrangements enables central banks to indulge in policies explicitly aimed at pursuing domestic economic policy goals while retaining plausible deniability with regard to the impact on other currencies, on international capital flows, and on global economic performance. Even as the world’s major central banks are liberated from responsibility for the “spillover” effects imposed on other economies through their decisions, monetary policymakers are quick to point to international developments as important determinants in considering their next move.

So even as the existing non-system allows the world’s most influential central bankers to exercise total discretion versus adhering to any formal set of rules, the distortions unleashed around the world through highly speculative financial markets confound the ability of those officials to discern between real economic effects and the aberrations caused by price signals skewed by monetary policy.

The discipline of a rules-based approach to monetary policy—let alone the overlay of an international monetary system anchored by gold—might be seen as unnecessarily confining to governments that have grown accustomed to running budget deficits. Moreover, governments have come to rely on the ability to finance sovereign debt at suppressed interest rates through accommodative monetary policies. The zero-interest-rate policies imposed by the Federal Reserve since December 2008 cater to government borrowing even as they discourage more risky small business loans.

But therein lies the economic price paid for monetary flexibility in a world presumably devoted to free trade and the free flow of international capital. The concept of risk is inherent to making any

financial decision to invest. Yet when the risk lies in trying to decipher the utterances of Federal Reserve officials and how they may impact equity markets versus analyzing the genuine attributes of a potential new idea, it makes a mockery of the notion of financial intermediation. Entrepreneurs should not have to compete with the latest nuanced statement of a central banker in trying to obtain financial seed money for worthwhile endeavors.

The wag-the-dog impact of monetary policy has so perverted the natural process of evaluating the tradeoff between risk and reward for investment opportunities that negative economic news often has an immediate stimulating effect on financial equity markets. Profit-seeking investors readily anticipate that poor economic performance means further intervention from the Federal Reserve and its counterparts around the world. Slower growth of the real economy portends higher returns in financial markets.

All of which has caused an alarming disconnect between the global equity markets and the underlying world economy. While major stock exchanges have experienced spectacular returns, real-world economic growth has limped along at a meager pace. Garry Kasparov and Peter Thiel (2012) observed in a *Financial Times* op-ed that “the world has willingly retreated from a culture of risk and exploration” during the past 40 years, leading to a “depressed rate of technological progress since the 1970s.” Could the demise of a well-anchored monetary system be a factor in stifling innovation? Even more distressing: The miscalibration of money and credit to the productive needs of the organic economy suggests that a bubble may yet plunge the world into another global financial crisis.

Have we learned nothing about the perils of monetary policies that perpetuate destructive boom-and-bust cycles? Can the world go through another financial meltdown without despairing over the capacity of free markets to raise prospects for prosperity? Can democratic capitalism survive the next crushing economic blow?

Looking back at the goals and aspirations of the Bretton Woods agreement is not so much an exercise in nostalgia but rather a way to compare the benefits (economic, political, and social) of a stable global monetary system against the perilous platform that reigns today. Calls for a new Bretton Woods are prompted by the need to preserve democratic capitalism for reasons of morality, not mere efficacy. If our current monetary non-system plays favorites by rewarding holders of large stock portfolios while punishing virtuous small

savers with near-zero interest on their savings accounts; if it imposes unwarranted burdens on developing nations through currency effects that hurt their capacity to export; if it presupposes a level of omniscience for the world's leading central bankers that is not only unrealistic but violates American principles of self-government: How can we knowingly permit such a regime to be perpetuated?

Free markets and free people are being demoralized by the absence of a global monetary system, worthy of the designation "system," to ensure the clarity of price signals and the integrity of economic outcomes. If free-market capitalism is to survive, along with its principles of individual liberty and personal responsibility, we must have a free-market monetary system.

The new system must be dedicated to orderly monetary arrangements that provide equal access to a global monetary unit of account; this has nothing to do with furnishing capital itself or transferring wealth by government decree but instead would enable all individuals to voluntarily utilize a defined monetary unit for purposes of valuing goods and services. The unit must be immune from the machinations of governments and central banks. It must be transparently self-disciplining through an automatic stabilizing mechanism.

Solid Choice

Lest it seem as if all the preceding has amounted to making the case for implementing a new global gold standard, or at least a gold exchange system capable of transcending the vagaries of national economic priorities, let me acknowledge here: It doesn't have to be gold.

In pointing out the disorderliness and inefficiencies of the current monetary state of affairs, the purpose is to question why a better approach has not been conceived and implemented. Why must we continue to live with constant fears over the economic damage wrought by central bank actions that are even now beginning to diverge from one to another across oceans and continents, transmitting further capital asset misallocations and financial distortions in their wake?

And in questioning the morality of such a "system" and its impact on the world, the point is well-taken from Pope Francis that today's arrangements have failed to meet the criteria for inclusion and social

justice. “While the earnings of a minority are growing exponentially, so too is the gap separating the majority from the prosperity enjoyed by those happy few,” the pontiff wrote in his “*Evangelii Gaudium*” statement (2013). The inequality of financial outcomes related directly to central bank policies has exacerbated social tensions, and with good reason. How can people have confidence in the Federal Reserve when so many disenfranchised workers are still paying the price of a financial crisis spawned by monetary excess and distorted credit signals?

The indictment against status quo international monetary arrangements is not that the system is inherently immoral. What’s immoral is that there *is* no international monetary system. There is no practical means for allowing individuals to voluntarily conduct transactions across borders and through time using an honest and reliable monetary unit of account. Everything gets filtered through the carnival mirror of government-issued currencies. Money is meant to provide a useful tool for private enterprise; instead, it has become an insidious instrument of government policy.

So, no, it doesn’t have to be gold. It may be possible to designate some other unit of value that is universally recognized, readily accessible to individuals, yet highly utilized by governments as a monetary reserve asset. But can anyone think of a better reference unit than gold to serve as a monetary standard?

In an article published two decades ago in *National Review*, the same Milton Friedman who propounded flexible exchange rates in 1953 made the observation: “A true gold standard—a unified currency—is indeed consistent with free trade.” While he believed no government would be willing to submit itself to the discipline of a strict gold standard, Friedman wrote (1994): “The lesson is that for any group of economic entities to have a unified currency, there can be at most one independent central bank. (‘At most,’ because with a pure commodity standard, e.g., a gold standard, no central bank is needed.)”

Getting There

Is it possible that, under pressing circumstances (or a vision of the coming chaos engendered by currency wars unwittingly launched by divergent central bank policies), a major government might indeed be willing to submit itself to the discipline of a gold standard?

Would that government likely represent the people of the United States or would it be based in Beijing? According to Kwasi Kwarteng (2014), a British parliament member, writing in a *New York Times* op-ed: “With a balanced budget and a gold-backed currency, China’s economy could be even more formidable than it is today.” Kwarteng notes that China has large reserves and might wish to claim leadership in the creation of a new monetary order, especially if the dollar continues to prove unreliable as a store of value. He concludes: “Hard as it may be to contemplate today, this scenario would, in many ways, be a more secure basis for an international monetary regime system than the system of floating exchange rates that Nixon inadvertently created in 1971, one that forever overturned the Bretton Woods order.”

It is true that China has been aggressively purchasing gold, and in 2013 China overtook India to be the world’s largest gold consumer (Badkar 2014). The head of China’s largest gold mining company, Sun Zhaoxue (2012), stated in *Qiushi*, the main academic journal of the Chinese Communist Party’s Central Committee: “As gold is a currency in nature, no matter if it’s for state economic security or for the acceleration of renminbi internationalization, increasing the gold reserve should be one of the key strategies of China.”

Still, with U.S. gold reserves nearly eight times the amount held by China—8,133.4 tonnes versus 1,054.1 tonnes, according to the World Gold Council (2014)—the United States would seem to be the more logical nation to offer a gold-backed currency. The fact that the U.S. dollar is already the most dominant global reserve currency grants to America an additional powerful advantage in seeking to build a new monetary order.

What is lacking is the political will. Yet if democratic capitalism still works in the country where it was boldly embraced more than two centuries ago as a radical experiment in self-government, it may be that public outcry at the impotence of monetary policy—indeed, its negative impact on economic performance—will propel a presidential candidate forward who is willing to challenge the current monetary regime. It will take political courage to make the statement: We should be prepared to debate the potential role of gold in our nation’s monetary affairs and as an anchor for international monetary stability.

What’s required is to explain that monetary policy today is proving intellectually bankrupt. Injecting empty credits into the reserve

accounts of Fed-member banks in hopes that cheap money will somehow lure wealthy investors and big corporations to eventually choose to finance productive enterprises and hire more workers has not worked. If it did work, we would see wage growth due to demand for workers. We would see price gains due to increased demand for goods stemming from higher wages. Instead, the Fed reports in its October survey that wage growth has been “modest” and price gains remain “subdued” across the U.S. economy (Board of Governors of the Federal Reserve: 2014).

The cheap money has instead largely gone into speculative investment, with derivatives linked to interest-rate plays and exchange-rate movements at record levels, while listed corporations purchasing their own shares have become the single biggest category of stock buyers. Such window dressing adds no real value to the economy. But it does explain why inflation, as measured by the Consumer Price Index (CPI), has been relatively subdued. If the increased liquidity provided by the Fed is not filtering beyond sophisticated financial investors and boardroom strategists, there is no kick to economic production or consumer demand.

The rallying cry for fundamental monetary reform should begin with a clear-eyed assessment of these failings, which have stymied economic recovery through the perverse financial effects of distorted price signals. It should then proceed to initiating an alternative to central banking and a return to free-market money. This new approach should align domestic monetary calibration with an orderly and ethical international monetary system forged through a link to gold.

As a first step, a limited issuance of Treasury obligations—redeemable at maturity for a fixed amount of dollars or a specified amount of gold, at the option of the bondholder—should be implemented through congressional legislation or as an initiative by the Department of the Treasury in response to an administration’s directive (Shelton 2012). These gold-linked Treasury obligations would conjoin financial instruments already familiar to investors (Treasury debt securities and gold futures contracts), while also providing an alternative to the currently-available Treasury Inflation-Protected Securities (TIPS) as a means for holders to protect themselves from monetary distortions that impact purchasing power.

The difference between gold-linked Treasury bonds and TIPS is that the latter reimburse the bondholder for the impact of inflation

as measured by the Consumer Price Index while the former would reimburse the bondholder for the impact of monetary misalignment as measured by the dollar price of gold. The availability of this new Treasury instrument would be an acknowledgement that seriously distorted price signals leading to severe misallocations of financial capital present a greater risk to many investors than unanticipated changes in the CPI. Chronic inflation at seemingly harmless low rates is seldom viewed as posing an imminent financial threat. It is the panic-inducing breakdown of financial markets as asset bubbles burst that causes the more severe damage to portfolios and proves most debilitating to economic functionality.

If the United States would take this first step toward linking the dollar to gold, it would send a signal of America's commitment to restoring the integrity of the dollar as a meaningful unit of account and reliable store of value. What could we expect from other nations and regional monetary authorities? Would they be willing to subject their own currencies to the discipline of a gold-convertibility option on sovereign government obligations?

One suspects that China might jump at this opportunity to compete with the validity of the dollar by offering its own version of a gold-convertible sovereign debt obligation. If China linked the value of the renminbi to gold through a parallel instrument, investors would price expected exchange rate risk into the comparative bids. Other countries with large holdings of gold reserves (Germany, Italy, France, Russia, Japan, and India) would likely be willing to demonstrate their own capacity to participate in offering gold-convertible debt, not only to join those nations deemed financially solvent by virtue of their reserves, but also to borrow inexpensively.

An increasingly broader group of countries and successively larger set of gold-linked offerings should lead to greater monetary stability—and effectively, fixed exchange rates among participating currencies. Since the various gold-convertible securities all promise a fixed weight of gold or a fixed amount of the particular currency at maturity (its face value), they represent a unified currency system. And most beneficial is that market forces would determine the bid-and-ask prices for these analogous instruments, implicitly establishing fixed exchange rates among the currencies denominating them, rather than having governments arbitrarily impose their own assessments.

Achieving a unified currency system through this approach would be a vast improvement on the monetary status quo, which brought

about the explosion of credit and leverage in the 1990s leading up to the 2007–08 global financial crisis. As former IMF head Jacques de Larosiere observed at a Vienna conference in February 2014: “If one reflects on the monetary setting of those last fifteen or twenty years, one cannot just say that it amounted to a ‘non-system’. It was actually much worse: it amounted to an ‘anti-system’” (de Larosiere 2014).

One might even suggest that the IMF should help to facilitate the building of such a unified currency system in order to establish the foundation for global monetary stability based on fixed exchange rates anchored to gold. It is, after all, an objective wholly in keeping with the original purpose for which the organization was brought into being at Bretton Woods, New Hampshire, in 1944. As the world’s third largest holder of gold (with 2,814 tonnes), the IMF is uniquely situated to assist member nations in linking their currencies to gold.

Yet, since April 1978, with the acceptance of the Second Amendment to its Articles of Agreement, the IMF has abandoned the notion of “system” with regard to international monetary relations (Shelton 2010). A visit to the IMF website confirms that the organization created to oversee a stable monetary system based on fixed exchange rates anchored by gold now endorses precisely the opposite approach: “Since the collapse of the Bretton Woods system, IMF members have been free to choose any form of exchange arrangement they wish (except pegging their currency to gold): allowing the currency to float freely, pegging it to another currency or basket of currencies, adopting the currency of another country, participating in a currency bloc or forming part of a monetary union” (IMF 2014).

Given that the IMF now expressly denies member countries the right to peg their currency to gold, it is difficult to understand why the IMF would still cling zealously to its substantial gold holdings. Why not permit member nations to utilize their contributed gold as they so choose? If necessary, it might be useful for a major nation to remind the IMF that the Articles of Agreement include a section devoted to the administration of liquidation procedures. Schedule K charges that in the event of liquidation, after discharge of the Fund’s liabilities, a suitable portion of gold “shall be distributed to those members that were members on August 31, 1975 in proportion to their quotas on that date” (IMF 1978).

In short, in order to fix what broke with the end of Bretton Woods—i.e., a stable international monetary system based on gold

convertibility—it may be necessary for a group of like-minded nations to withdraw from the IMF and take their gold with them. Even as the IMF advises its members that linking their currency to gold is the one exchange-rate option they are not free to choose, that’s the very approach they *should* now actively be pursuing in the interests of recalibrating the value of money with real economic activity.

Conclusion

If the world is to have an orderly and ethical international monetary system disciplined by gold; if we are to avoid the next financial meltdown infused by unwarranted money creation; if we are to quash the increasing trend toward central planning by central banks: We must challenge today’s monetary anti-system and replace it with a genuine system compatible with liberty, individualism, and free enterprise. It’s time to recognize the need for free-market money as the only appropriate foundation for a global economy dedicated to opportunity and inclusion—and to embrace gold as the universally acknowledged standard of monetary value.

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TRANSITIONING STANDARDS OF VALUE IN FIXED-VALUE MONETARY SYSTEMS

Nathan Lewis

By now I think we can agree that the absence of an official, rules-based, cooperatively managed monetary system has not been a great success. In fact, international financial crises seem at least as frequent and more destructive in impeding economic stability and growth.

—Paul Volcker (2014)

Soft and Hard Money Approaches to Monetary Affairs

Historically, there have been two basic frameworks by which a government organizes its monetary affairs. One of these—the Soft Money approach—we are quite familiar with today: a process by which a committee of government bureaucrats manages a floating fiat currency of some sort, on a day-to-day and ad hoc basis. The other format—the Hard Money approach—is typified by the Rule of Law, which is some definite and unchanging framework by which the currency is managed. Consequently, there is no need or role for a day-to-day human discretionary element, except perhaps in some of the particulars of the system's execution.

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The Soft Money Approach

Under the Soft Money approach, the goal of monetary policy is to maintain full employment, price stability, and moderate interest rates—and to satisfy an array of interest groups. These include voters and the political class; exporters, importers, and other commercial interests; bankers and the financial industry; agricultural and other commodity producers; creditors; and debtors of various sorts, particularly the federal government.

What a wondrous tool money can seemingly be, to address all of these issues and interests. And, it has no apparent cost, or, it appears, need to bother with a parliamentary process. Thus, the “Rule of Man” is paramount, and typically unfettered in practice by any defined framework whatsoever.

The Hard Money Approach

In practice, there has been only one kind of law or rule that is used in the Hard Money approach: namely, a “fixed-value system” in which the value of the currency is to be the same as some defined benchmark. Although a variety of commodities have been used as a monetary base, gold and silver have long been dominant. In the late 19th century, these bimetallic systems were simplified further into monometallic systems. The value of the currency would be fixed at, for example, 23.2 troy grains of gold, or 1/20.67th of a troy ounce.

Fixed-Value Policies Are Very Common Today

Although it may seem that the Hard Money approach to organizing monetary affairs is basically nonexistent today, many countries have adopted forms of a fixed-value system. Consequently, these countries do not attempt to address all of the myriad interests of the Soft Money enthusiasts via management of the currency. There is no meaningful discretionary element.

Many governments in the world have a fixed-value policy with some major international currency. The 19 members of the eurozone have adopted a common currency over which the members and their central banks have no direct control. In effect, they have given up their domestic discretionary policy in favor of a form of fixed-value policy with what amounts to an external benchmark. This arrangement is not much different from dollarized countries such as

Ecuador and El Salvador. In addition, there are six other states that use the euro, but are not officially part of the eurozone (Monaco, San Marino, Vatican City, Andorra, Kosovo, and Montenegro), plus four territories (Akrotiri and Dhekelia, Saint Pierre and Miquelon, French Southern and Antarctic Lands, and Saint-Barthelemy). Also, there are 27 countries that have a currency linked to the euro, often via a currency board. They include eight African countries that use the West African CFA franc, seven African countries that use the Central African CFA franc, plus Bulgaria, Denmark, and Morocco.

Altogether, a total of 55 nations and autonomous territories have variants of a nondiscretionary fixed-value policy with the euro, not counting those countries where the euro is in common but informal/unofficial usage. These governments, in effect, have adopted a Rule of Law (“use the euro” or “link to the euro”) and have consequently abandoned discretionary monetary policy.

In recent years, this arrangement has infuriated many economists who are ardent believers in the advantages of discretionary monetary management. This has led them to insist that Spain, Greece—and most any other country that gets itself into economic difficulties—would be better off leaving the eurozone and adopting some independent floating currency arrangement, which could then be independently managed to produce the kinds of economic outcomes they hope for. Typically, it is suggested that this process begin with a substantial devaluation.

One might invent other rules-based systems without any discretionary element based on measures of prices, quantity-based measures, or other indicators.¹ Sometimes it is proposed that floating fiat monetary policy be rigidly determined by a Taylor rule, inflation targeting, nominal GDP targeting, or various measures of credit. But these ambitions are typically abandoned almost immediately in practice for a day-to-day, ad hoc approach.

Thus, it turns out that the only rules-based system of any demonstrable practicality is a fixed-value system. The only real question is: What should one fix the value to? Or, in old-fashioned terminology: What should be the standard of value?

¹Inflation targeting and other such guidelines, as used by most central banks today to varying degrees, amount to vague frameworks for central bank discretion. The term “rules-based” is here used to mean a largely automatic system, for example a fixed-value policy with a currency-board-like operating mechanism, which does not have a significant discretionary element.

Fixed-Value Systems Are Market Based

The term “market based” is often applied to fixed-value systems, because the amount of currency in existence (the base money supply) is determined by market participants via the automatic currency-board-type system, rather than by the decisions of a board of bureaucrats. The base money supplies of existing currency board systems vary on a daily basis, expanding or contracting depending on people’s interest in holding the currency. When Bulgarians (or indeed anyone) want to hold more Bulgarian levs, they go to the Bulgarian central bank, offer euros, and receive levs. Or, if they wish to reduce their holdings of levs, they can offer levs and receive euros. This process applies even in the case of a shared currency: the amount of euros in Italy, and held by Italian individuals and institutions, is determined by Italians’ willingness to hold euros. At any time, they can acquire more euros, or reduce their holdings, as they see fit.

Deciding on a Standard of Value Today

Today, a Hard Money–minded government deciding what it might fix the value of its currency to might choose between the U.S. dollar and the euro. In making that choice, there are two basic considerations: (1) which international currency is likely to be the most successful over time, and (2) which international currency is used by most trading partners. For example, Latin American countries tend to gravitate toward U.S. dollars, while Eastern European and African countries tend toward euros.

The Chinese yuan is getting more attention today as an international currency but is still inconvertible on the capital account and, like many emerging market currencies, subsidiary to the dollar. The Japanese yen at one time seemed destined to become a highly demanded currency but has lost luster, just as the British pound did. The Swiss franc had a huge surge in popularity as it was perceived as a meaningful alternative to the euro. This resulted in a rising value, which the Swiss central bank capped. Thus, the Swiss franc became a *de facto* subsidiary currency of the euro with what amounts to a fixed-value policy, although not one expected to be permanent, as witnessed by the recent depegging of the franc-euro exchange rate.

Most countries today are rather small. Out of 242 countries listed by Wikipedia, only 26 have a population larger than 50 million.

Smaller countries are normally much more enmeshed in foreign trade than larger ones. Even Nigeria (178 million) has few or no automobile manufacturers, computer equipment manufacturers, or makers of electric utility generation and delivery infrastructure, but must obtain all of these goods from foreign trade. For these and a great many other reasons, the exchange rate between the local currency and that of trading partners is of great importance, and possibly the source of much turmoil if it becomes volatile. The advantages of fixed exchange rates for trade, financing, and investment incentivize a country to adopt a fixed-value system, instead of having some sort of independent floating currency managed to address domestic policy goals. This incentive was an important basis for the creation of the eurozone and the abandonment of independent fiat currencies across Europe.

In short, governments that embrace a fixed-value approach want stability in their monetary arrangements, instead of the unpredictability inherent in Soft Money approaches with floating fiat currencies of unpredictable values managed by bureaucrats with unpredictable opinions of what to do next. Countries want stability in the terms of exchange rates and in terms of a currency with a predictable value over the long run.

It might be argued that the current management of the dollar or euro is not very promising, and that long-term stability will be badly compromised over a relatively short timeframe. However, for the moment, such considerations are outweighed by the advantages of maintaining stability in the terms of trade—in other words, maintaining a fixed-value parity with either the dollar or euro.

In the market for a standard of value, the dollar and euro still have the most market share. However, even these currencies are limited in the degree to which they can express any meaningful independence. A tolerable degree of variance in exchange rates between dollars, euros, and also British pounds and yen, is seen as desirable by most everyone. Thus, in a sense, dollars, euros, pounds, yen, Swiss francs, and Chinese yuan are really somewhat different flavors of one single option—today's floating fiat currency status quo. This being the case, it is perhaps not too surprising that leading central banks around the world also have a remarkably similar policy stance at this time, with periodic bouts of monetary base expansion combined with interest rates, on both the short and rather heavily managed long end, which are among the lowest in the last 500 years.

A Standard of Value That Is Not Itself a Floating Fiat Currency

The dollar, euro, and every other major world currency today are floating fiat currencies, operated along Soft Money principles with a heavy discretionary element. Among alternatives for a standard of value that are not themselves floating fiat currencies, or otherwise subject to the daily whims of human managers and the tendency of fiat currencies to suffer a disastrous demise, there is really only one option—gold. In the past, silver served as something of a contender, but even that was only due to the fact that during the bimetallic era prior to 1870, the market value of silver and gold were very closely linked. Thus, they were effectively two versions of the same thing, like a \$1 bill and a \$20 bill.² The effective end of the bimetallic era in the mid-1870s eliminated silver as an attractive standard of value, as demonstrated by those countries, notably China, that attempted to stay on a silver-based system.

A fixed-value system that uses gold as a standard of value, or what we call a “gold standard system,” is inherently quite similar to one that uses the euro or dollar as a standard of value, except for the choice of the standard. The preferred operating mechanisms are similar in each case, with systems that resemble currency boards the most effective and reliable means to accomplish the fixed-value policy goal.

Unfortunately, because gold does represent a meaningful alternative to today’s fiat currencies, it also has a substantial amount of exchange-rate variance with those currencies. Some of this apparent variance is probably due to the fact that price formation tends to occur in markets for financial contracts with limited connection to gold bullion (e.g., the U.S. Comex futures market and the London Bullion Market Association’s market in “unallocated gold,” defined by the LBMA as “unsecured liabilities of LBMA member banks”). Several efforts are under way today to create transparent and large-volume markets where price formation is based on transactions in gold bullion alone, for immediate delivery. In any case, the natural outcome of using gold as a standard of value is the potential for substantial exchange-rate volatility with the dollar or euro.

²In actual practice, the U.S. \$1 coin was made of silver and the \$20 coin was made of gold.

At the present time, the disadvantages of introducing this potentially intolerable level of chaos into the terms of trade makes gold rather unpopular as a standard of value. In the past, this problem did not exist. The major world currencies such as the U.S. dollar, British pound, German mark, French franc, and others were themselves based on gold. A government that adopted a fixed-value system with gold as the standard of value would also stabilize exchange rates with major world currencies. Thus, adopting a major world currency as a standard of value implied a stable value parity with gold.

One can imagine a situation where a government might decide that the dollar, euro, and other options had become so problematic that gold presented a more attractive choice as a standard of value in a fixed-value system. Unfortunately, that point is likely to be reached rather far along the course of currency debauchery, such that a country would not likely avoid the well-known effects of such monetary misbehavior, but perhaps would be able to recover from them sooner. It would not be particularly difficult to decide when to abandon existing euro or dollar allegiances, as these currencies would by then seem to be unviable disasters to be avoided with extreme prejudice.

At that point, the main issue becomes how to establish and properly manage a gold-based, fixed-value currency system. The basic principles are no different than for a euro-based or dollar-based fixed-value system. Fundamentally, it is an automatic currency-board-type mechanism.³

In 1990 Estonia was part of the Soviet Union. Naturally, the ruble was in use; there was no other currency in Estonia. Between 1990 and 1995, the ruble entered hyperinflation, and Estonia experienced the same. In 1991, Estonia established its independence from the Soviet Union. In 1992, Estonia introduced its own currency, the kroon, which was fixed to the deutschemark at eight kroon per mark using a currency board system. The deutschemark currency board evolved into a euro currency board. In 2011, the kroon was retired, and euro notes and coins began to be used in Estonia.

Perhaps in the future, the euro will enter a period of impracticality just as the once-reliable ruble did in the 1990s.⁴ Estonia, today

³Operating mechanisms for a number of variants of gold-based, fixed-value systems are discussed in in Lewis (2013).

⁴Officially, the ruble's value was linked to the British pound from 1961 to 1991. In early 1989, the black market rate was about four rubles per dollar.

with no independent currency, could again establish a new currency, perhaps again called the kroon, which could be linked to gold in a currency-board-like fashion.

Estonia had another currency called the mark between 1918 and 1927. It was originally linked to the German ostmark at a 1:1 ratio—a currency that, although it was a floating fiat currency after World War I, was not obviously worse than the other (then-floating) major international currencies of the day, and had the advantage of locality.⁵ Unfortunately, the German's mark's prewar history of discipline did not apply after the war. The Estonian mark was hyperinflated, likely due to its links with the German currency. In 1924, the first Estonian kroon was introduced, linked to the Swedish krona at 1:1. As the krona was itself linked to gold, this implied a ratio of 2,480 kroon per kilogram of gold. In 1928, the kroon received a direct, independent gold basis, replacing its indirect link via the Swedish krona. In 1940, Estonia was occupied by the Soviet Union, and the kroon was replaced by the ruble.

During the 1970s, the value of the U.S. dollar fell from its Bretton Woods parity of 1/35th of an ounce of gold to a momentary nadir around 1/800th, a decline in value of over 20:1 compared to its previous parity benchmark. Although many countries had currencies that were notionally freely floating and independent, nevertheless, in practice, they tended to follow the dollar lower in value as compared to gold. Despite the crisis atmosphere, no government developed a viable alternative—an example of the principle that, if a transition occurs, it tends to happen only after the former leading currencies reach a stage of total unviability.

Multicurrency Systems

The term “central bank” has a number of associations. One is the idea of floating fiat currencies managed by some panel of bureaucrats in a Soft Money fashion. But, most central banks actually date from the 19th century, with the Bank of England the forerunner and model for institutions that were established around the world.

⁵The ostmark was issued by Germany in 1918 for use in eastern areas under German control at that time. It was equal to the German papiermark at a 1:1 ratio. The papiermark was floated from its gold basis and devalued beginning in 1914. Hyperinflation in Germany properly began in 1919 and continued to November 1923.

These 19th-century central banks used a Hard Money approach, based on a fixed-value ratio with gold bullion. The result is often termed the “Classical Gold Standard Era,” from about 1870 to 1914. There is nothing inherent to a central bank that is contrary to a gold-based, fixed-value system.

However, the introduction of central banks had another aspect—namely, currency monopoly. Gold had been the basis of money in Europe and elsewhere for decades and centuries previous (along with silver in the bimetallic era), but actual representative monies (such as paper banknotes) were issued by a variety of entities. In the United States, there were more than 1,500 banks issuing gold-based banknotes in 1859, all of them in standardized dollar units. Japan had more than 1,600 paper currencies in circulation in the 1850s, most (but not all) of them based on gold and silver. Prior to the establishment of the mark, Germany had more than 200 separate currencies, mostly based on the silver *vereinsthaler* coin.

After 1870, governments typically replaced this myriad of currency issuers with a single monopoly issuer, the central bank, along the lines of the Bank of England, which became an effective currency monopolist in 1708. The United States was a laggard in this trend. The Federal Reserve was not established until 1913, and did not enjoy an effective currency monopoly until the 1940s. Although the Federal Reserve Note soon became ascendant, there were 5,389 commercial banks in the United States, even as late as 1930, that reported to the Office of the Comptroller of the Currency that they were issuing their own gold-based banknotes within the framework of the National Bank System.

Today we are quite accustomed to the notion of currency monopoly, accompanied by various laws that inhibit (though often do not prohibit) the use of foreign currencies or other alternatives. However, international use of currencies is a lot more common than most assume. Many governments are unable to issue debt in their domestic currencies and regularly issue bonds denominated in dollars or euros. Domestic corporations do the same. Even Britain’s government recently issued a series of bonds denominated in Chinese yuan. Germany’s government has issued debt denominated in U.S. dollars, and the U.S. Treasury, in the 1960s, experimented with Treasury bonds denominated in foreign currencies.

A country could, conceivably, have no domestic currency at all, and allow people to use whatever they wished. In practice, they

would likely use dollars or euros, perhaps with a bit of a regional currency, as the South African rand is used in southern Africa, or the Thai baht in Laos and Cambodia. Zimbabwe has an official open-currency policy and no domestic currency. However, its government has publicly floated the idea of introducing a new Zimbabwean currency based on gold.

Alternately, a country could have two currencies, both issued by the government or a central bank. This was the case in Estonia in 1926, when the Estonian mark circulated alongside the new Estonian kroon. This arrangement mirrored Germany, in which the gold-based rentenmark circulated alongside the floating fiat papiermark, and Russia, where the gold-based chervonets circulated alongside the fiat ruble.

Today, a territory like Hong Kong could allow (and encourage) the issuance of gold-linked banknotes by private banks, just as it now allows the issuance of dollar-linked banknotes by the same private banks. Both of these currencies could circulate simultaneously and be used in commerce as the basis of contracts by anyone who so wished, without any mandate to do so.

A more libertarian approach would be to allow the issuance of currency of any sort. A bank or nonbank currency-issuing entity could issue banknotes based on currency or commodity baskets, as well as other bases. They could even issue notes guided by the changing opinions of their own in-house panel of fiat money managers. Banknotes themselves are by no means necessary. Various schemes that are wholly nonphysical in nature seem to be popular today, and mirror the Federal Reserve's own deposit and clearing system, which has been in use for decades.

One might expect that the result of free-for-all currency experimentation would resemble the natural outcome throughout history—that is, inferior solutions are eventually discarded, and gold-based currencies reign supreme. The less-viable alternatives would probably have few users, and thus any potential problems would be of such limited scale as to be effectively irrelevant. Probably no great harm would come from such an experiment, and possibly a lot of good as a great many people gained practical experience in the process of establishing and maintaining currency systems. People who are attracted to novelty in monetary affairs could learn why things have generally not been done that way.

Managing a Transition between Floating Fiat Currencies and Gold-Based Currencies

Although these sorts of situations are interesting to think about, and perhaps instructive to put into actual practice, history indicates that there are really only two final options: a floating fiat currency, which typically is abused to the point of disaster within a few decades at most; or a gold-based currency.⁶ The potential challenge today is for a country to manage a transition between a world dominated by fiat dollars and euros, to perhaps a world in which gold-based currencies are dominant—without the pattern of first following the fiat currency into the fiery pits of its final demolition, as Estonia did first with the German mark, and again later with the Russian ruble.

A sensible option would be to introduce a gold-based alternative currency today. The government of China, for example, could either establish a new currency through its central bank or allow multiple private banks to issue their own gold-based currencies, perhaps based on a traditional Chinese monetary unit such as the *tael*.⁷ These would circulate alongside the existing fiat dollar-based yuan, and would be accompanied by tael-based bank deposit accounts and payment systems (checking, wire transfer, credit and debit cards, and other electronic options) no different than those that exist for yuan, dollars, and euros. Today, some Chinese banks reportedly offer “gold savings accounts.” These could be expanded by offering payment services (“gold checking accounts”), with banknotes added at a later time.

If people and businesses decided that they would rather do business in yuan, and enjoy the advantages of limited exchange rate volatility with the international fiat dollar, then they could do so. If they instead decided that they would rather do business on the basis of gold-based tael, as business had been done in China in previous centuries, then they could do that too. They could do both, choosing one currency for one situation and another currency for other transactions. This is no different than a Chinese corporation today that

⁶The dollar has been an unusually long-lived fiat currency, still widely viable more than 40 years after leaving its gold basis in 1971. Nevertheless, it is today worth less than 1/30th of its value versus gold in 1970.

⁷One 19th century Canton tael of silver was 37.5 grams. Using the 16:1 ratio of silver to gold common during the bimetallic era of the 19th century, this would equate to 2,344mg of gold, or 13.2692 taels per ounce of gold.

might issue debt in euros, purchase capital equipment or raw materials in dollars, pay workers in Chinese yuan, and sell products in Indian rupees.

Over time, if today's fiat currencies become less viable as a basis for business, that same Chinese corporation might find it cannot find a buyer for its debt unless denominated in gold-based tael. It might also find that workers refuse to work unless paid in tael, foreign manufacturers of capital equipment demand to be paid in tael instead of their increasingly unviable domestic currency, and that taking anything other than tael in payment for goods and services is folly. The adoption of a gold-based currency system would happen incrementally, with no identifiable "day of transition," and on a wholly voluntary basis.

As a growing number of Chinese and others around the world do business in tael, it would eventually become a dominant international currency. A prominent place for tael emerges naturally. Some Chinese city, most likely either Hong Kong or Shanghai, would become the key financial center for domestic and international tael-based finance. Perhaps other governments would also introduce their own gold-based, fixed-value systems, which would have a fixed exchange rate with the gold-based tael. This emergent monetary order would mirror the world gold standard system of the late 19th century and could last for a century or more.

A major international currency—in practice, either the dollar or euro—could itself transition to a fixed-value arrangement of some sort (White 2012). Likewise, the United States or European Union could introduce a parallel currency that uses a fixed-value system with gold as a standard of value. It is possible for a major international currency to be fixed to another major international currency, the dollar fixed to the euro or vice versa, but for various reasons perhaps not likely. That leaves some external benchmark that is not itself a floating fiat currency. Although some might suggest a commodity basket or some other such benchmark, these notions have remained largely hypothetical.⁸ Historically, gold has been the external benchmark of choice.

⁸In 1875, William Stanley Jevons suggested a commodity basket approach in his book *Money and the Mechanism of Exchange*. In it, Jevons notes that Joseph Lowe proposed a commodity basket standard in 1822, in his book *The Present State of England in Regard to Agriculture, Trade, and Finance*.

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AN AGENDA FOR MONETARY ACTION

James Grant

Not quite 40 years ago, the newly minted Nobel laureate Friedrich A. Hayek issued his famous appeal for freedom of choice in currency. He didn't object to governments issuing money; he only objected to governments monopolizing the right to issue money. He expressed the hope that "it will not be too long before complete freedom to deal in any money one likes will be regarded as the essential mark of a free country" (Hayek 1976: 22).

You'd think that the world would have made up its mind by now. Money is as old as the hills. Credit, the promise to pay money, is as old as trust. Still we earthlings still search for an answer.

The Need for Sound Money

The need for sound money is urgent and obvious. Yet we must pause to consider that there is nothing either obvious or urgent about the idea of sound money to the people who own so much of the other kind. The asset-holding portion of the community has hugely profited by zero-percent funding costs and the levitation of stock, bond, and real estate prices. The Dow is back to its highs. The U.S. Treasury is borrowing at yields that would lead a visitor from Mars to conjecture that the government is actually solvent. The dollar value of gold has been falling since 2011—meaning, reciprocally, that the world's faith in the pure paper dollar has been rising since 2011.

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If there's a crisis in money, it's news to most moneyed people. The bald fact is that we, believers in markets, are out of step with markets.

Fundamental monetary reform is no easy sale in this time of not-so-terrible measured economic growth and sky-high asset prices. In the era of quantitative easing (QE), the dollar is still the Coca-Cola of world monetary brands. Not many would disdain to pick up a greenback if they saw one lying on the sidewalk. From the vantage point of monetary reform, the Republican takeover of Congress was not quite satisfying. Jeff Bell, running in New Jersey on a gold standard platform against Democrat Cory Booker, lost by a margin of 56 to 42 percent.

Still, it does amaze me that the system in place remains in place. You could write a book about its many demerits, and some of us have. One hundred years ago, we had the gold standard. Today, we have the PhD standard. One hundred years ago, the stockholders of a nationally chartered bank were responsible for the solvency of the institution in which they owned a fractional interest. Today, we have too big to fail.

Progress is the rule in American enterprise. Retrogression is the rule in American money and banking. With respect to the dollar and high finance, we seem to be going backwards.

Pressing for Alternative Monetary Arrangements

This is not the counsel of despair. As people consent to monetary arrangements, so may they withhold their consent and press for alternative arrangements. It's easy to forget that in mid-20th century America, no citizen could lawfully own gold. Principled men and women ended that New Deal fatwa as well as the kindred prohibition against entering into contracts specifying payment in gold. Writing in the snail-mail era, Hayek compared the government's monopoly over money with its monopoly over the post office. E-mail disrupted the post office. Maybe bitcoin or bitgold will disrupt the Fed.

Something should disrupt it. Every new financial crisis brings a bigger, more radical central-bank intervention. You wonder what they'll do the next time. At crisis-wracked intervals since 1993, they have pushed the federal funds rate steadily lower—to 3 percent, 2 percent, 1 percent and now zero percent. In Europe, the authorities have dropped short-dated yields to less than zero.

The great British journalist Walter Bagehot warned that ultra-low interest rates induce speculative bubbles. "John Bull can stand

anything but he can't stand 2 percent," was Bagehot's epigrammatic phrasing of that idea. He meant a positive 2 percent.

The Yellens, Draghis, and Kurodas are going to force a reconsideration of the theory of interest. Joseph Schumpeter (1934: 159) called interest a "permanent net income." He had in mind what Eugen von Boehm-Bawerk (1922: 1) had noted earlier, namely, that interest "flows to the capitalist without ever exhausting the capital from which it comes and therefore without any necessary limit to its continuance."¹ Well, yes and no. The Swiss government two-year note changed hands recently at a price to yield minus 14.5 basis points to maturity. *Minus* 14.5 basis points, mind you. The minus sign means that your principal instead of growing, shrinks. Continuously invested at that particular negative rate, one's principal would be sawed in half in 478 years.

Asset Bubbles Engineered by Central Banks

What's new today isn't ultra-low interest rates. They were as low in Queen Victoria's time as they are today. They were as low during Harry Truman's presidency as they are today. What's new is governmentally sponsored asset booms superimposed on ultra-low interest rates.

The complicity of the American financial establishment with this species of price control is another kind of monetary novelty. Interest rates are, of course, prices. They are the prices that set investment hurdle rates and that discount the present value of estimated future cash flows. They are the investment traffic signals of a market economy.

If you recall, the Fed was conscripted into government service in World War II. It became the bond-buying arm of the Treasury. Nor, come the peace, did the Treasury set its captive free. The Fed chafed under its continued subjugation. It bridled at pegging bond yields at 2 1/4 percent in the face of a virulent postwar inflation. Others protested, too, including the head of the New York Stock Exchange and the house economists at Bankers Trust and the National City Bank, today's Citibank. To strike a preemptive blow against flyaway

¹For an excellent introduction to the theory of interest and its history, see Conard (1959).

asset prices, the Fed ordered that no one could buy stocks using margin debt. It was cash on the barrelhead or nothing.

You know the world has changed when the Fed not only doesn't resist an interest rate-induced bull market but actually sponsors one. In 2011, under gentle questioning from the CNBC correspondent Steve Liesman, then chairman Ben Bernanke expressed his satisfaction at the lift-off of share prices. He singled out the Russell 2000 small-cap index for special mention. Its angle of ascent was even steeper and therefore more stimulative than that of the S&P 500. As justification for these intrusions, the Fed cited the theory of the so-called portfolio balance channel. My friend Paul Isaac, a talented Wall Street practitioner, assesses such radical policies in simpler language. They are, he observes, "the largest, most explicit and prolonged exercise in trickle-down economics in American history."

With respect to the radicalization of monetary policy, investors en masse resemble the sleepy frog in the warming saucepan. They don't jump out while the jumping's good. At that, professional investors couldn't jump if they wanted to. They are paid to invest, not to pass judgment on the administration of monetary policy. Monetary criticism is our line of work, not theirs. As a rule, theirs pays better.

The temperature in the Federal Reserve saucepan rose to the boiling point as long ago as October 15, 1998. It was an options expiration day, therefore a day primed for stock-price volatility. Out of the blue at 3:04 p.m. EST came news of a one-fourth of 1 percent cut in the federal funds rate. In the next 56 minutes, the S&P 500 leapt by 7 percent. Long Term Capital Management was then combusting, but the world was hardly coming to an end; the unemployment rate stood at just 4.5 percent. Members of the Fed's open market committee knew which buttons to push, and they've kept right on pushing them.

It's a sign of the times that these interventions have come to seem normal. I am reminded of Daniel Patrick Moynihan's phrase "defining deviancy downward." In monetary policy, the once unspeakable—indeed, unimaginable—has become the commonplace. You get a sense of how far we have come—either up or down, according to political and monetary preference—by recalling the close of the Bretton Woods system in 1971. The dollar had been defined as 1/35th of an ounce of gold. On August 15, 1971, President Richard Nixon redefined it as a piece of paper. Foreign governments had been entitled to exchange unwanted greenbacks for gold at that statutory rate. Nixon withdrew the privilege. Bretton Woods was far from the real

gold standard. But it did exert a helpful check on American public finance. How starchy and orthodox it seems from the vantage point of QE.

It did not seem orthodox to Hayek. Good riddance to it, he said in 1976. “Wholly Keynesian” was his malediction on the post–World War II monetary structure. You can only begin to imagine what Hayek would say about central banks conjuring dematerialized scrip on computer keyboards.

The Bogeyman of Deflation

To what end do they conjure? Why, to beat back “deflation.” By deflation, the mandarins mean a substandard rate of inflation. How the statisticians can calculate inflation rates to tolerances exacting enough to validate the debates over the difference between, for instance, 2 percent per annum and 1.7 or 1.8 percent per annum is beyond me. Neither do I understand why the central bankers refuse to admit that, in a time of technological wonder, prices ought to be falling. As it costs less to make things, so should it cost less to buy them.

Mario Draghi, president of the European Central Bank, is a champion of faux statistical precision. He has announced his determination to steer the fortunes of the continent of Europe according to the squiggles of something called the “five-year, five-year euro inflation swap rate.” That would be a market-based expression of inflation expectations for the half-decade starting in 2019. Curious minds will wonder how any mortal being could accurately divine such distant events.

Let us now imagine the scene in the boardroom of a German bank in the spring of 1914. A directors’ meeting is in progress. The chairman of the board polls the assembled about the financial outlook. “Anyone care to venture a forecast of the rate of inflation eight years out?” he inquires. Here is what nobody says in reply: “A great war will shatter Germany and the world. Nothing will ever be the same again. The German cost-of-living index, now set at 1, will hit 218,000 million come November 1923. The mark will become worthless, after which it will become very worthless.”

Returning to the 21st century, Switzerland is pledging to defend its currency with its last ounce of breath—that is, to protect it from unwanted appreciation against Draghi’s euro. The Swiss National

Bank is not purely a central bank. It is partly a wealth fund, partly a conjuring act. Its mission is to protect Swiss exporters against a too-high Swiss franc exchange rate. To this end, the SNB creates Swiss francs by the gondola-car-full. With those francs it buys euros. And with those euros (or some of them), it buys dollars. What to do with the dollars? Why, the Swiss buy American equities, \$27 billion's worth at last report. Here's a metaphysical head scratcher. The francs cost nothing to create. Ditto, the euros and the dollars. Yet these disembodied monetary claims secure equity ownership in American public companies—something for nothing, indeed. On November 30, Swiss voters go to the polls to cast their ballots on a referendum that would effectively take the Swiss National Bank out of the money-spinning business by requiring it to hold substantially more gold than it currently does. While the technical merits of the Swiss proposal are debatable, I applaud the spirit of this popular revolt against mandarin rule.²

The Question of Trust

Trust is at the root of all monetary systems. Ours is peculiarly faith-based. We trust the central bankers—not you and me, perhaps, but most people. This trusting majority includes—critically—most people who hold the central bankers' money. In their turn, the central bankers trust the accuracy of the government's statistics on which they profess to be dependent. And the central bankers trust their so-called dynamic stochastic general equilibrium models. These are the econometric models that failed to flag the most disastrous credit event in the professional lives of the model builders. What the mandarins distrust is the resiliency of the price mechanism.

And yet, as I say, markets trust the mandarins. Sentient people are lending at some of the lowest rates in 50 years. They will be repaid in a currency of no intrinsic value that the Federal Reserve has pledged to depreciate at the rate of 2 percent a year. Still, they lend: 30-year Treasury bonds are priced to yield just 3.09 percent.

Classical Gold Standard versus the PhD Standard

Under the classical gold standard, prices and wages were expected to adjust to economic disequilibria. Under the PhD standard, it's

²The Swiss have now depegged the franc from the euro, and the November 2014 gold referendum failed to be passed (Ed.).

interest rates and exchange rates and asset prices that are expected to do the adjusting.

You know about the gold standard. Money was a weight or measure, specifically a weight or a measure of gold. Bank notes were convertible into gold. The central banks of gold standard nations stood ready to exchange notes for gold and gold for notes at the fixed and statutory rate. Bullion moved freely from one gold standard nation to another.

In 1959, the Federal Reserve Bank of New York published a monograph on the workings of the classical gold standard. The author, Arthur Bloomfield, summarized thus:

From about 1880 to 1914, the exchange rates of the various gold standard countries moved within narrow limits approximating their respective gold points without the support of exchange restrictions, import quotas, or related controls, which were virtually unknown even for currencies on paper or silver standards. . . . This remarkable performance, essentially the product of an unusually favorable combination of historical circumstances, appears all the more striking when contrasted with the turbulence of post-1914 international financial experience and remains, even today, a source of some measure of fascination and indeed of puzzlement to students of monetary affairs [Bloomfield 1959: 9].

Well, if Eisenhower-era America scratched its head over the classical gold standard, what will futurity make of the PhD standard? Likely, it will be even more baffled than we are. Imagine trying to explain the present-day arrangements to your 20-something grandchild a couple of decades hence—after the crash of, say, 2016, that wiped out the youngster’s inheritance and provoked a central bank response so heavy-handed as to shatter the confidence even of Wall Street in the Federal Reserve’s methods.

I expect you’ll wind up saying something like this: “My generation gave former tenured economics professors discretionary authority to fabricate money and to fix interest rates. We put the cart of asset prices before the horse of enterprise. We entertained the fantasy that high asset prices made for prosperity, rather than the other way around. We actually worked to foster inflation, which we called ‘price stability’ (this was on the eve of the hyperinflation of 2017). We seem to have miscalculated.”

A Modest Reform Agenda

Bearing in mind how little disposed is the monied world for thoroughgoing overhaul, perhaps we should not disdain the opportunity for achieving some small, symbolic victories.

To this end, Cato's Center for Monetary and Financial Alternatives could assemble a modest action agenda for the new Republican Senate. Why not—as a gesture of bipartisan comity—a bill to add, rather than subtract, a monetary bureaucracy? I would support legislation to create a new Department of Unintended Consequences within the Federal Reserve. Give it a big budget and a new, properly imposing headquarters building with lots of neon signage.

What about reaching another hand across the aisle to the liberals and introduce a bill to institute free-range, fresh-from-market, organic interest rates in lieu of the government-issued hothouse kind?

Finally, and here I borrow from my friend Larry Parks, why not introduce a bill to remove federal taxation from U.S. Gold and Silver Eagles? As Larry observes, “Existing statutes and Supreme Court decisions already authorize these coins as legal tender currency for their face amounts. . . . If the IRS were to treat these coins as U.S. currency instead of ‘property’ in accordance with existing law and stop taxing them, economic laws will trump political laws” (Parks 2014: 3).

I will account us victorious when the name of the chairman of the Federal Reserve Board is just as obscure as that of the head of the Weight and Measures Division of the Department of Commerce. Come to think of it, the monetary millennium will arrive when the dollar reverts to a tangible weight or measure—and perhaps, when the Weights and Measures Division and the Federal Reserve Board are joined in bureaucratic matrimony.

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A ROADMAP TO MONETARY POLICY REFORMS

Norbert J. Michel

We now have a 100-year history by which to judge the Federal Reserve's performance. On balance, the Fed has not increased economic stability relative to the pre-Fed era. The Great Depression, the great stagflation, and the 2008 financial crisis have all occurred on the Fed's watch. Even excluding the Great Depression, business cycles have not become appreciably milder, nor have recessions become less frequent or measurably shorter.

The Fed has strayed so far from the classic prescription for a lender of last resort—to provide short-term funds to solvent institutions at high rates—it strains all reason to suggest that it has successfully fulfilled that function. Its regulatory failures are numerous. It failed even to see the 2008 financial crisis coming. Perhaps the best that can be said about the Fed is that the variability in inflation has declined since 1984.

The Federal Reserve's centennial is the perfect time to assess the Fed's track record and to propose major reforms as needed. This article provides policymakers with direction to begin addressing these issues. Specifically, the article discusses several long-term policy reforms in the context of a monetary commission and also provides a list of reforms that could more easily be instituted outside of such a formal group.

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Major Fed Failures

One of the most glaring failures of the Fed, compared to its original purpose, has been its misuse as a lender of last resort. The essence of the classic prescription for a lender of last resort—well known at the founding of the Fed—is to avoid lending to financially troubled firms. The purpose is, instead, to ensure the systemwide flow of credit while avoiding the moral hazard issues that arise via government lending to private companies. Within its first 25 years of operation, the Fed twice failed to provide any sort of liquidity to the banks it was supposed to serve, likely worsening the Great Depression. In 1929, the Federal Reserve Board prohibited the extension of credit to any member bank that it suspected of stock market lending, a decision that ultimately led to a 33 percent decline in the economy's stock of money (Humphrey 2010, Timberlake 2012: 354–55). In 1937, the Federal Reserve Board of Governors doubled the reserve requirement for member banks, again preventing credit from expanding when and where it was needed (Friedman and Schwartz 1963: 543).

Throughout its history, the Fed has also consistently strayed from the classic lender of last resort prescription by lending directly to specific institutions, especially those with questionable financial strength (Schwartz 1992, Michel 2014a). The Fed's actions in the 2008 financial crisis were merely the latest in a long line of credit allocation activities that demonstrate this unfortunate proclivity. A classic lender of last resort would provide short-term loans to all solvent institutions, on good collateral, at a high rate of interest. Yet during the most recent crisis, the Fed allocated more than \$16 trillion in credit to specific firms, at an estimated \$13 billion *below* market rates.¹

The Fed's actions leading up to the 2008 crisis also highlight the central bank's failure as a financial market regulator. The U.S. central bank has been involved in banking regulation since its founding, and it became the regulator for all holding companies owning a member bank with the Banking Act of 1933. When bank holding companies, as well as their permissible activities, became more clearly defined under the Bank Holding Company Act of 1956, the Fed was named their primary regulator (Watkins and West 1982).

¹See GAO (2011a, 2011b); Ivry, Keoun, and Kuntz (2011), and White (2014a).

Although it would be unjust to place all of the blame on the Fed, the fact remains that the United States experienced major banking problems during the Depression era, again in the 1970s and 1980s, and also a severe financial crisis in 2008. All of these disruptions occurred on the Fed's watch. At best, the Fed did not predict the crises. In 2008, for example, Fed chairman Ben Bernanke testified before the Senate that "among the largest banks, the capital ratios remain good and I don't anticipate any serious problems of that sort among the large, internationally active banks that make up a very substantial part of our banking system" (CNBC.com 2008). Simply being mistaken about banks' capital is one thing, but the Fed was the primary regulator for many of these institutions.

In fact, under the 1999 Gramm-Leach-Bliley Act (GLBA), the Fed alone approved applications to become a financial holding company only after certifying that both the holding company and all its subsidiary depository institutions were "well-managed and well-capitalized, and . . . in compliance with the Community Reinvestment Act, among other requirements" (Avraham, Selvaggi, and Vickery 2012: 67).² The Fed has not always had sole discretion in determining which banks were well capitalized, but in the 1950s it developed a "risk-bucket" approach to capital requirements that formed the basis of the risk-weighted capital requirements still used today (Crosse 1962: 169–72).

In particular, the Fed's original method was the foundation for the Basel I capital accords which the Fed and the Federal Deposit Insurance Corporation (FDIC) adopted for U.S. commercial banks in 1988. Under these capital rules, U.S. commercial banks have been required to maintain several different capital ratios above regulatory minimums in order to be considered "well capitalized." According to the FDIC, U.S. commercial banks exceeded these requirements by 2 to 3 percentage points, on average, for the six years leading up to the crisis (Jablecki and Machaj 2009: 306–7). Moreover, the Basel requirements sanctioned, via low risk weights, investing heavily in the mortgage-backed securities (MBS) that contributed to the 2008 meltdown (Michel 2014b).³

²GLBA allowed bank holding companies to affiliate with firms engaged in activities such as securities and insurance underwriting.

³The Fed was directly responsible for the recourse rule, a 2001 change to the Basel requirements that applied the same low-risk weight for Fannie- and Freddie-issued MBS to highly rated private-label MBS (Friedman and Wladimir 2011: 69).

The Fed has also failed to improve overall economic stability. The full Federal Reserve era, for instance, has “been characterized by more rather than fewer symptoms of monetary and macroeconomic instability than the decades leading to the Fed’s establishment” (Selgin, Lastrapes, and White 2012). Yes, U.S. economic stability has improved since WWII, but it would be myopic to focus only on this period. For starters, such an assessment rests largely on forgetting any policy mistakes that occurred prior to 1985, after which the Volcker and Greenspan years coincided with what’s known as the “Great Moderation.” Moreover, while many have attributed this moderate period to improved monetary policy, several studies suggest that other factors—such as fewer exogenous economic shocks and more efficient capital markets—also contributed to this reduction in volatility (see Stock and Watson 2002, 2005).⁴

Additional studies suggest that the apparent postwar improvement depends heavily on a comparison to unrevised prewar data—so much so that what appears to be a dramatic improvement after WWII is actually a “figment of the data” (Romer 1986a: 314). One major study concludes: “Depending on which series and measure are used, somewhere between half and all of the observed stabilization is the result of comparing inconsistent data” (Romer 1986a: 322).

Revised data series show that improvements in specific aggregates, such as employment, industrial production, and GNP, are also much less dramatic than previously thought (Romer 1986b, 1994).⁵ As for inflation, the volatility in price level changes has come down roughly 1 percentage point in the full Fed era, with most of the reduction in the post-WWII period. In fact, inflation variability has declined even more the latter half of the postwar period, after the Fed was given a formal price stability mandate in 1977. On the other hand, the average rate of inflation is higher in the Fed era, and even more so after 1977. The decline in inflation variability, particularly since the mid-1980s, has certainly contributed to the perception that the Fed learned from earlier mistakes and figured out the “right” way to implement monetary policy. Still, it is clear that deflation—even the benign type of price declines that are driven by aggregate supply

⁴For a list of studies supporting various views of the causes of the great moderation, see Selgin, Lastrapes, and White (2012: 579–80).

⁵For studies in support of an alternative view, see Selgin, Lastrapes, and White (2012: 577–79).

improvements—has all but disappeared during the Fed era (Selgin, Lastrapes, and White 2012: 574; Selgin 1997; Bordo, Lane, and Redish 2004).

The Fed’s success and failure—indeed, the success of active monetary policy in general—regarding macroeconomic stability have been debated among economists for decades. While there are some areas of broad agreement in this debate, key disagreements remain. For instance, while most reform-minded economists would prefer some type of rules-based monetary policy to the pure discretionary framework that now exists, there is no clearly overwhelming consensus on exactly which rule should be implemented. John Taylor and Scott Sumner, for example, have very different prescriptions for a rule-based Federal Reserve, even though both economists’ views are rooted in monetarism.⁶

Similarly, many reform-minded economists recognize that the Fed’s so-called independence is rather limited, but there is no overwhelming consensus regarding what—if anything—to do about the political nature of monetary policy. Should Congress take firm control of monetary policy? Should the Federal Reserve become part of the Treasury Department? Many economists have argued against such measures, but Milton Friedman argued that these changes (particularly congressional control) could “avoid major mistakes like the Great Depression and the great inflation” (Friedman 2014: 636). It will likely take time to reach a compromise on these types of major monetary policy reforms, but there is broader agreement on several other key policy improvements. Policymakers should aim to work out any remaining disagreements over the long term, while simultaneously proceeding with reforms that are more widely agreed upon. Packaging the bulk of these ideas together into one piece of legislation can help to guard against the piecemeal approach exhausting the political will to enact further reforms.

Long-Term Monetary Policy Reforms

The Federal Reserve currently employs discretionary policy without any rigid operational framework. Thus, the Federal Open Market

⁶While Sumner advocates the central bank targeting nominal GDP, Taylor prefers that the central bank target interest rates—in a formulaic manner—based on both inflation and employment (i.e., the Taylor rule).

Committee (FOMC) is not bound to implement expansionary or contractionary policies at any particular time using any particular method. The FOMC does operate under the so-called *dual mandate*, requiring it to promote both price stability and low unemployment, but it has no binding requirements to hit any specific economic goals.⁷ Consequently, FOMC members are completely free to judge both the direction of the economy and the appropriate monetary policy response.

In contrast to this discretionary framework, rules-based monetary policies would require the Fed to state specific policy goals and responses *before* engaging in policy actions. A policy rule commitment would ostensibly bind the Fed to a specific course of action based on clearly defined economic outcomes, thus drastically reducing uncertainty with respect to the Fed's policies. Another possible advantage of policy by rule rather than policy by pure discretion is that rules-based policies can prevent short-term considerations from interfering with the Fed's long-term goals.

Nonetheless, policymakers could implement one of many different monetary policy rules, and there is no clear consensus on which rule would be best. For instance, the Fed could be required to follow an inflation targeting rule, a Taylor rule, or a nominal GDP targeting rule. Alternatively, some form of a gold standard could be reinstated or the monetary base could be frozen, thus ultimately eliminating the need for a central bank (Friedman 2014). The best way to settle this debate and find the best way forward would be for Congress to provide a public forum for experts to evaluate these issues. A formal monetary commission, such as the one proposed by Rep. Kevin Brady (R-TX) and Sen. John Cornyn (R-TX), would be an excellent vehicle for assessing the Fed's overall performance and implementing the best long-term monetary policy reforms.

The Centennial Monetary Commission Act of 2013 (H.R. 1176 and S. 1895), for example, would “establish a commission to examine the United States monetary policy, evaluate alternative monetary regimes, and recommend a course for monetary policy going

⁷This provision is controversial because many economists believe that monetary policy can do very little to influence employment. For example, former Federal Reserve chairman Ben Bernanke publicly stated that “the maximum level of employment in a given economy is largely determined by nonmonetary factors” (Bernanke 2012).

forward.” The commission’s recommendations would not bind Congress to make any particular changes, but it would provide members of Congress with the information they need to fulfil their constitutional responsibilities regarding monetary policy.

Major structural reforms to the Fed will most likely not be achieved without such a formal commission. On the other hand, because the Fed has had so much discretion in the past, there are several reforms that could most likely be implemented outside of any formal commission’s recommendations. Furthermore, it may be best to institute most of these reforms simultaneously. Many of these policy improvements are complementary and taking too much time to implement them may be counterproductive.

Near-Term Policy Improvements

The Fed’s supporters believe that a central bank needs broad discretion to deal with unforeseen economic changes. Historically, though, the Fed has exercised discretion in ways that go well beyond what is traditionally viewed as monetary policy (Schwartz 1992). For instance, the Fed currently has the discretion to deal with large, unexpected swings in the economy via “emergency” measures. In particular, Section 13 (3) of the Federal Reserve Act allows the Board of Governors to authorize Fed District Bank lending to “any participant in any program or facility with broad-based eligibility” in “unusual and exigent circumstances.”⁸

During the 2008 financial crisis, for example, the Fed created more than a dozen special lending programs by invoking its emergency authority under Section 13 (3). The U.S. Government Accountability Office (GAO) estimates that from December 1, 2007, through July 21, 2010, the Fed lent financial firms more than \$16 trillion through Broad-Based Emergency Programs (GAO 2011a, 2011b). *Bloomberg Markets* estimates that the Fed’s total emergency loans from 2007 to 2010 charged \$13 billion *below* market rates (Ivry, Keoun, and Kuntz 2011). This type of direct credit allocation stretches well beyond the norms of monetary policy into the area of fiscal policy. Moreover, charging below

⁸See 12 U.S. Code § 248(r)(2)(A)(ii). The “Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010” amended this authority after the 2008 crisis, but even if these changes had been in place prior to the crisis, the Fed still would have been able to conduct roughly half of those lending programs.

market rates has, once again, shown that the Fed tends to stray from the classic prescription for a lender of last resort.

Fixing this problem should be relatively easy compared to implementing any of the major structural reforms discussed above. There is already broad agreement among reform-minded economists that monetary policy entails maintaining systemwide liquidity and, therefore, does not require emergency lending authority. The work of a formal commission does not need to be bogged down with these types of Fed reforms on which there is already broad agreement. In fact, pending legislation in the U.S. House of Representatives would implement some of these policy improvements. The following list, though not comprehensive, is meant to serve as a guide for policymakers to reform the Fed outside of a formal monetary commission.

End the Fed's Broken Lender of Last Resort Function

Congress should prohibit the Fed from making emergency loans under Section 13 (3) and via the discount window. There is, in fact, no clear economic rationale for the Fed to provide direct loans to private firms, and the discount window is a relic of the Fed's founding. Given the development and current sophistication of financial markets, there is even less reason to allow the central bank to serve as a lender of last resort now than there was in 1913. Firms that fail should be allowed to go through bankruptcy so that markets ultimately become stronger and more efficient. Congress should help to minimize the chances of future "too-big-to-fail" credit allocation by revoking the Federal Reserve's emergency lending authority and closing the discount window.

Update the Federal Reserve's Primary Dealer System

The current primary dealer framework was created in the 1960s when there were clearer advantages to having a centralized open market system in New York. Now, however, there is good reason to believe that allowing *all* member banks to participate in open market operations would provide a more liquid interbank lending market. At the very least, expanding the participants in open market operations would make the federal funds market less dependent on any particular institution. This type of reform would enhance the Fed's ability to provide systemwide liquidity, thus reducing the temptation to lend money to individual financial firms.

Require the Fed to Select a Short-Term, Rules-Based Policy

Ending discretionary monetary policy and moving the U.S. toward a truly competitive monetary system is a justifiable long-term goal. In the near term, however, Congress could require the Fed to take a small step toward this outcome. For example, the approach offered in the Federal Reserve Accountability and Transparency Act of 2014, introduced by Rep. Bill Huizenga (R-MI) and Rep. Scott Garrett (R-NJ), would require the Fed to choose its own monetary policy rule. It would also give the Fed the flexibility to stop following its policy rule, provided that it explains this decision to Congress. A policy based on this type of rule would avoid some of the drawn-out, scholarly debates sure to ensue in a formal monetary commission, and it would not overly restrict the Fed.

Reverse Quantitative Easing

In December 2008, the Fed began what eventually became several rounds of quantitative easing, an unconventional form of expansionary monetary policy. Under its QE programs, the Fed purchased long-term Treasury securities as well as the debt and the mortgage-backed securities of Fannie Mae and Freddie Mac. A large portion of these purchases removed some of the riskiest assets—Fannie’s and Freddie’s debt and MBS—from commercial banks’ balance sheets. This fact, coupled with the decision to pay interest on reserves, suggests the QE programs were more about propping up failing banks than expanding the money supply (Horwitz 2014). Regardless, the Fed now holds more than five times the amount of securities it had prior to the 2008 crisis. With the latest QE round ending in October 2014, the Fed’s balance sheet now shows more than \$2 trillion in long-term Treasuries and nearly \$2 trillion in GSE securities.

According to Richard Fisher, president of the Dallas Federal Reserve Bank, the Fed now holds more than 30 percent of all outstanding MBS and nearly 25 percent of outstanding Treasuries (Fisher 2014). Holding such large quantities of securities, many of which are of questionable value, unnecessarily exposes taxpayers to losses and heightens the risk of future inflation. The Fed should start reversing these QE purchases and bringing its balance sheet back to the size it was prior to the QE programs. The central bank can minimize any negative effects to reversing QE by announcing a deliberate long-term plan to sell the bulk of these securities.

As an example, the Fed could announce the following plan:

- Through 2020, 75 percent of the long-term securities and MBS will be sold, and the remainder will be held until maturity.
- Each month, \$45 billion of the long-term securities and MBS will be sold.

End the New Reverse Repo Program

The Fed's Overnight Reverse Repurchase Facility (ON RRP), still in the testing phase, would ultimately result in yet another expansion of federal involvement that adds to firms' incentive to take financial risks. Currently, on any given day, private firms (as well as Fannie and Freddie) can lend the Fed up to \$10 billion and collect interest the next day (Bair 2014). An expanded ON RRP makes it more likely that, for example, money market funds would lend to the Fed at the first sign of market turmoil rather than finance private firms' commercial paper (a short-term debt instrument used by many non-financial companies). More broadly, this program essentially turns the Fed into a *borrower* of last resort; it provides lenders with a guaranteed rate of return at the expense of private markets. Because there is no risk the Fed will fail to uphold its end of the contract, an expanded ON RRP increases the likelihood that even more firms will run straight to the Fed during market instability.

Moreover, investors would be less likely to monitor their own risk if they know they have an expanded government backstop. The program marks a drastic departure from previous open market operations and potentially increases systemic risk. The fact that the Fed is testing new ways to influence additional short-term credit markets only underscores that its aggressive QE policies have damaged these markets and should therefore be reversed sooner rather than later.

End the Fed's Role as a Financial Regulator

A central bank does not need to be a financial regulator to conduct monetary policy (Goodfriend and King 1988). Allowing the Fed to serve as a financial regulator increases the likelihood that policy decisions will be compromised as the Fed's employees become embedded in the financial firms they are supposed to be overseeing. The fact that Dodd-Frank imposed a nebulous financial stability mandate on the Fed only increases this possibility. Aside from these recent

changes, it is completely unnecessary for the U.S. central bank to serve in a regulatory capacity. Removing the Fed from its regulatory role would leave at least five other federal regulators overseeing U.S. financial markets.

Require a Full Accounting of Interest on Reserves

Congress should require the GAO and the Federal Reserve to officially report whether paying interest on reserves (IOR) has hindered the economic recovery and made other Fed efforts less effective. Prior to the crisis, the Fed paid no interest on banks' reserves. Yet, it began IOR at the same time it started to purchase massive quantities of securities in (ostensibly) an effort to spur economic growth. At the very least, the Fed should give an accounting of the impact IOR has had on its policies.

Allow Private Innovations to Flourish

The privately produced digital currency bitcoin is just one example of a market innovation which allows people to choose their own mediums of exchange. Bitcoin is both a digital currency and an electronic payment network. The technology allows people to send money to another person or business via the Internet without a third party such as PayPal or MasterCard. Though it is still not pervasively used, Bitcoin, perhaps by accident, seems to have solved some payment system deficiencies that even the Fed has decried (see Hochstein 2015). Nonetheless, bitcoin has come under increasing scrutiny from both federal and state regulators (Hill 2013).

Congress should ensure that these types of private innovations flourish by, at the very least, preventing any regulatory actions which may threaten their use. Concerns over people using digital (or any other non-U.S. dollar) payments for illegal activity should not result in these technologies being held to higher standards than payment systems based on the dollar (or other national currency). Criminals often break the law in pursuit of money, but the policy solution is not to outlaw money. Congress could also encourage these types of private innovations by passing several modest reforms:

- *Eliminate capital gains taxes on alternative currencies.* The IRS has labeled digital currency as property, thus requiring people who use digital currency as a medium of exchange to calculate basis and pay capital gains taxes. Treating digital

currency as any other medium of exchange, instead, would simplify the process of engaging in transactions with alternatives such as bitcoin. Similarly, prohibiting state and federal taxes on any precious metals used as a medium of exchange would enhance private citizens' ability to use non-dollar contracts.

- *Repeal statutes banning private coinage.* Laws such as Section 486 and 489 of Title 18 of the U.S. Code (18 USC § 486 and 18 USC § 489) effectively prohibit private coinage, even though the U.S. Constitution does not ban private coinage and private coins previously (prior to the Civil War) circulated in the United States. Repealing these statutes would restore the freedom of private citizens and firms to produce metal coins intended for use as a medium of exchange. Anti-counterfeiting laws have also been used to inhibit private citizens' ability to use non-dollar contracts. In particular, statutes such as sections 485 and 486 of Title 18 of the U.S. Code (18 U.S.C. § 485 and 18 U.S.C. § 486) have been used to prosecute the proprietors of E-Gold and Liberty Dollars, even though they were clearly not counterfeiting U.S. money (White 2014b). These statutes should be repealed or amended to allow private firms to produce pieces of *original* design.

Clarify Money-Laundering Laws, Bank Secrecy Laws, and Money Transmitting Licensing Requirements

These laws, as well as the broad discretion enjoyed by federal officials with respect to these laws, have served as barriers to entry for private firms developing innovative ways to solve payment system inefficiencies. Some forms of innovation have not precisely fit the definition of current statutes, and it seems likely that new innovations will run into the same problem because of their very nature. At the very least, conflicts over the precise definition of the term *funds* in 18 USC § 1960 (Prohibition of Unlicensed Money Transmitting Business) and 31 USC § 5330 (Registration of Money Transmitting Businesses) should be resolved so that digital currency transmission is treated equivalently to that in other currencies. These laws are intended to cut down on criminal activity, but Congress should ensure that they are not used to restrain private-sector innovations by individuals who have committed no crime.

Conclusion

On balance, the Fed has not fulfilled the promises of its founders. Overall, it has not increased economic stability relative to the pre-Fed era, and it has often contributed to instability. The Fed has never held to the classic prescription for a lender of last resort, and, at best, it has displayed no comparative advantage over any other state or federal financial regulatory agency.

There are many aspects of the Federal Reserve system that are ripe for reform, but even market-oriented economists display disagreement over some of these policy improvements. Many reform-minded economists, for example, believe rules-based monetary policy is preferable to pure discretionary policy, but there is no broad consensus on which rule would be best. Instituting this type of major structural reform, therefore, might best be accomplished in the context of a formal congressional commission. Given the broader agreement that exists on other key reforms, however, Congress could likely achieve several key policy improvements outside of a formal commission. This article has provided something of a roadmap to begin instituting both types of reform to the nation's monetary policy.

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A PRIVATE COMMITTEE FOR MONETARY REFORM: PROCESS AND SUBSTANCE

Gerald P. O'Driscoll Jr.

In this article, I propose establishing a private Committee for Monetary Reform (CMR), outline a process for advancing fundamental reform, and suggest what the substance of that reform might look like. Obviously, I cannot provide the exact details of the reform, or there would no point in having a process; the outcome would be preordained. The choice of a process is important, however, because the process will affect the outcome.

I first discuss how the process could work by drawing on the experience of the Shadow Open Market Committee (SOMC) founded in 1973 by Karl Brunner and Allan Meltzer. Second, I briefly review the case for monetary reform. Third, I propose some guiding principles for monetary reform. Fourth, I discuss the process in more detail.

The Shadow Open Market Committee

In August 1971, President Richard Nixon imposed wage-price controls in an attempt to dampen inflation, which was running at an annual rate of 4.4 percent (as reported at the time), as measured by the CPI. Arthur Burns, then chairman of the Federal Reserve, supported the controls to the dismay of Brunner and Meltzer, who, along with several other prominent economists, published an op-ed in the *Wall Street Journal* arguing that price controls distort market

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prices, and that the real cause of inflation is an excess growth of the money supply. But Meltzer (2000b: 2) recalled that although the op-ed attracted national attention, the process of getting the message out was “cumbersome, slow, and unsatisfactory.” Thus, he and Brunner decided to establish the SOMC “to show that better policy choices were available and that inflation could be controlled at acceptable cost, if the Federal Reserve controlled money growth.”

The SOMC met semi-annually over the years, and I attended several meetings as an observer in the mid- to late 1990s, when I worked in Washington, D.C. After Brunner’s death in 1989, Meltzer alone chaired the group. Members of the SOMC prepared position papers on various aspects of monetary policy. The papers addressed both near-term policy and long-term issues. They were part of the process of improving policy discussion mentioned by Meltzer. A policy statement was prepared and committee members provided input into the statement’s wording. The statement was modelled after that prepared at the meetings of the Federal Open Market Committee (FOMC). This all took place on a Sunday afternoon. The next day, the committee held a press conference.

The relevance of the SOMC to monetary reform today consists chiefly in its structure and focus. The membership of the committee did change gradually over time, but was relatively constant. There was continuity from meeting to meeting. Members certainly had different views on particular issues, and discussion was at times energetic. But all were committed to control of inflation through control of money growth. So there was a common purpose and broad agreement on theory. Consensus could be reached, typically driven by the chairman.

I propose incorporating these key features into a Committee for Monetary Reform. First, the committee must have a focus on fundamental monetary reform and not on current policy. Second, members should have a shared view of fundamental reform yet possess enough intellectual diversity to challenge each other on details. Third, discussions at meetings should build on prior discussions. The goal is to have a committee of semi-permanent membership and not a recurring seminar with an ever-changing set of participants. Meetings should take place on a regularly scheduled basis. Unlike the SOMC, the CMR should have a definite lifespan. Nothing facilitates agreement like a deadline.

Finally, and very importantly, there must a strong chairman to drive the committee to its goal. Anyone who has served on a committee, or been a senior staff member, can testify to the importance of a strong chairman.

Why Monetary Reform?

History does not repeat itself exactly. However, how leaders dealt with prior crises can provide lessons for dealing with new ones. The high inflation of the early 1970s generated a crisis of public policy: the imposition of wage-price controls. An ineffective, indeed, counterproductive economic policy was implemented to deal with a real problem. Meanwhile, the agency that could effectively control inflation was under a Fed chairman, Arthur Burns, who had an erroneous theory of inflation.¹ In Meltzer's account, the goal of forming the SOMC was to demonstrate that inflation could be controlled if the Federal Reserve controlled money growth.

Is there a crisis today? There is, in the sense that we are at a turning point for the Federal Reserve. There are multiple facets of the crisis.

Since the onset of the Great Recession and continuing into what is now more than six years of economic recovery and expansion, the Fed has greatly expanded its balance sheet and changed the composition of its assets. The average maturity of its portfolio has been lengthened, which means it has taken on much greater interest-rate risk, and its portfolio is concentrated in housing securities. Plosser (2014: 202) notes that this is a form of credit allocation that takes the central bank into the realm of fiscal policy, which deals with the size and composition of government spending. By lending to particular sectors at subsidized interest rates, the Fed is shifting resources toward favored sectors.

The Constitution intended that Congress make such decisions, if they are made at all, in a democratic fashion. Members are answerable to the electorate for their decisions. It is not always a pretty process to watch, but it imposes constraints not present when central bank policymakers make allocational decisions through the

¹Burns also was busy putting the Federal Reserve in the service of the re-election of President Nixon (Ferrell 2010).

assets they purchase. If Congress wants to subsidize housing, the constitutional way to accomplish that goal is to appropriate funds for that purpose.

When a central bank strays into fiscal policy, it is at a minimum not a democratic process. It also threatens its independence and creates other political economy problems. As Plosser (2014: 208) emphasizes, “If the set of institutions having regular access to the Fed’s credit facilities is expanded too far, it will create moral hazard and distort the market mechanism for allocating credit. This can end up undermining the very financial stability it is supposed to promote.”

There is a crisis for the rule of law because the Fed is straying into fiscal policy. Thus, Plosser (2014: 208–09) advocates returning the Fed to a “Treasuries only” policy—that is, limit the central bank to purchasing only short-term T-bills—as an exit strategy from credit allocation. Other current and former Fed officials have made a similar recommendation (see, e.g., Lacker and Weinberg 2014). It is a proposal worthy of consideration by the proposed CMR.

The “Treasuries only” policy is not a panacea; it does not address the size of government, particularly its size relative to the private sector. It is government spending that takes resources away from the private sector, and thus affects resource allocation. When government appropriates resources for government purposes (e.g., war), those resources are no longer available to consumers and businesses.²

Government spending can be financed either through taxation or borrowing, which involves future taxation. In a Ricardian world, that choice does not affect resource allocation. As Ricardo recognized, however, we do not live in such a world (O’Driscoll 1977). So the choice can matter. If debt finance is chosen, and central banks are willing purchasers of Treasuries, then central banks can become enablers of government deficits. Nonetheless, the current “nontraditional” monetary policy strikes me as worse than “Treasuries only.”

Central bank independence is a much-invoked value of central bankers. That valued independence, however, has been undercut by the Federal Reserve’s low interest-rate policy. Jerry L. Jordan, a former president of the Federal Reserve Bank of Cleveland, notes, “In the 60-plus years since the Accord in 1951, the U.S. central bank has

²An increase in government spending also reallocates spending and incomes *within* the private sector. Firms and factors of production supplying services to the government gain at the expense of others.

gone full-circle from being a de facto bureau of the U.S. Treasury, to an ‘independent’ monetary authority, and back to a bureau of the Treasury. Of course, the long period of ‘even-keeling’ demonstrated that the Fed’s independence was always more in rhetoric than reality” (Jordan 2014: 214).³

The policy from which the Fed sought to extricate itself in 1951, and which made it dependent on the Treasury, was one of interest-rate pegging or support of Treasury bond prices. The Accord ended that requirement, and liberated the Fed to act against inflation by raising short-term interest rates. Regardless of one’s views of how truly independent the Fed ever was, in recent years it has effectively put itself back under the Treasury’s thumb. Quantitative easing (i.e., large-scale asset purchases by the Fed) has a number of aspects, but it has functioned as a price-support program for Treasury securities. Consequently, the Fed surrendered its putative independence. That surrender is a crisis for supporters of central bank independence.

Through its aggressive lending during the height of the financial crisis, and its bailouts of some financial institutions, the Fed increased moral hazard. It socialized losses of financial firms while keeping the profits privatized. The Fed’s “too big to fail” policy has been accompanied by a policy of “too politically well-connected to supervise” (Jordan 2014: 214). Cronyism among bankers and government officials is an epidemic in America and a crisis. It must be tackled in financial services as elsewhere.

The Fed began paying interest on bank reserves in October 2008, which roughly coincided with the beginning of the great expansion of the Fed’s balance sheet. Each asset purchase added to the reserve balances of commercial banks at the Fed.⁴ The interest being paid was low, 25 basis points, but lending opportunities were not attractive given the enhanced economic risk. Thus, banks built up their excess reserves at the Fed. That practice has continued and excess reserves are now around \$2.6 trillion.

The volume of fed funds traded dried up in mid-2011. So the target fed funds rate has lost its meaning. A price has a meaning when

³Cargill and O’Driscoll (2013) provide a detailed discussion of Fed independence and argue that, indeed, it is more myth than reality.

⁴That is true whether the Fed purchases the asset directly from a bank or from its customers.

there are transactions at that price. The fed funds rate is now just a number.⁵ Additionally, as the Federal Reserve expanded its balance sheet, it substituted long-dated assets for short-term Treasury bills. It now has no Treasury bills and thus nothing to sell to raise the fed funds rate at some future date (Jordan 2014: 220). This is a serious problem that deserves more attention (Melloan 2014). Fed watchers constantly ask, “When will the Fed raise interest rates? They should be asking, “*How* will it raise interest rates?”

The Federal Reserve Bank of New York has established a reverse repurchase facility that enables the Fed to sell assets to financial firms for repurchase at a later date.⁶ It puts the Fed in the position of being a borrower rather than a creditor. The facility could theoretically be used to set short-term interest rates, but it would need to be expanded to do so as a practical matter. James Bullard, president of the Federal Reserve Bank of St. Louis, believes the Fed would need to borrow “several hundred billion” dollars to raise short-term interest rates (Boesler 2014). There are about \$250 billion of reverse repos outstanding in the Federal Reserve facility, so perhaps the system is close to where the Fed could attempt to effect monetary policy through use of reverse repos. But monetary policy is clearly in uncharted waters, and monetary experimentation may deepen the crisis.⁷

Additionally, the Fed has established the Term-Deposit Facility to help drain reserves.⁸ It appears to be another exercise in monetary experimentation.

The major argument for monetary reform is the Fed’s 100-year policy record. Selgin, Lastrapes, and White (2012) examined that record and cast serious doubt on the Fed’s performance. Jordan (2014: 226) succinctly summarized the record: “The Fed’s century-long track record includes the Great Depression of the 1930s;

⁵There is presently a limited amount of borrowing, mainly by foreign banks, and a limited amount of lending, principally by Federal Home Loan Banks. My thanks to Jerry Jordan for this analysis.

⁶In a reverse repo, the Fed borrows cash overnight from money market mutual funds and others using its securities as collateral. The counterparties return the securities the next day and receive their cash plus interest (Boesler 2014).

⁷As this is written, discussion of the risks associated with the new policy tool is occurring within and outside the Federal Reserve (Derby and Hilsenrath 2014).

⁸For an explanation of this facility, see www.federalreserve.gov/monetarypolicy/tdf.htm.

the Great Inflation of the 1970s; episodes of bubbles, panics, and crises; and an average inflation that left today's dollar worth a small fraction of the 1913 dollar. The challenge is to establish institutional arrangements that prevent the next hundred years from being simply more of the same."

Substance

Almost every proposal for monetary reform involves adopting a rule.⁹ The nature of the rule varies with the reform proposal. All such proposals contrast with the current system, which is one of pure discretion. David Fand (1989: 323) succinctly described the current system. "The only rule governing [the Federal Open Market Committee's decisionmaking process] is that, at each point in time, those who are responsible for monetary policy choose the convenient and expedient thing to do." I suggest that this situation motivates many reform proposals. Almost any rule would add predictability compared to monetary policy today.¹⁰

A rule can specify a target for an economic variable. Examples are prices (price index), interest rates, nominal GDP, exchange rates, or an unemployment rate. The unemployment rate stands out as a real variable, while the others are nominal variables. I will return to this point.

A rule can specify a policy instrument to control, usually with a target in mind. An example is control of a monetary aggregate with the goal of zero inflation. The growth rate of the aggregate, say the monetary base, consistent with zero inflation must be estimated. The monetary rule then consists in a statement about the growth rate of the monetary base rather than prices. The reason is that the monetary base can be controlled directly by the central bank while prices cannot, but zero inflation or "price stability" is the ultimate policy goal.

⁹I am using rule in a broad sense, such as "the rule of law," and not narrowly as in "a monetary rule," which suggests a formula for the growth of a monetary aggregate.

¹⁰Under the leadership of Ben Bernanke and now Janet Yellen, the Fed has attempted to create more market certainty through better communication of their intentions ("forward guidance"). However, what matters to markets are actions, not intentions. Unlike discretion, rules restrict actions and inherently provide their own forward guidance.

My example is an old-style monetarist rule. It is essentially the rule the SOMC followed for its early history (Meltzer 2000b). Monetarist rules of this kind have fallen out of favor because of the inability of researchers to establish a stable or predictable relationship between a monetary aggregate and price inflation.¹¹ In the wake of the financial crisis, that problem has worsened. The connection between base growth and the growth of bank money appears to have been largely severed.

At this point, I only want to establish that monetary reform will involve choosing a rule of some kind. It may be expressed in terms of policy goals or policy instruments. Or, the rule might be that competitive banks responding to market signals determine the quantity of bank money (“free banking”). The debate over monetary reform will be over which rule to choose. I think it fair to say that there is no consensus among reformers of which rule to choose.

Just to sample from the alternatives, some advocate a commodity standard (gold, silver, or other); some advocate nominal GDP targeting, but there is no consensus on what type; some advocate competitive money production (free banking); some support nonbank private money production, like bitcoin; and so on. As long as there is reform cacophony, there will be no progress.

I now suggest a few principles of selection. First, rules aimed at controlling real economic variables should be excluded from consideration. The shared goal of reform advocates is taking a long-run view of monetary policy. That is what rules accomplish, or at least good rules. There is no long-run relationship between money, a nominal variable, and real variables. If monetary policy aims at influencing real variables, it almost inherently becomes focused on the short run. That is true because relationship between money and real variables is a short-run economic relationship.

My first principle is correct, but also controversial. The dual mandate for the Federal Reserve instructs it to set policy to promote maximum employment. I would not be the first to suggest that the policy could be interpreted as a long-run policy. In that case, a monetary policy of zero inflation could also promote maximum employment in the long run and moderate long-term interest rates.

¹¹Not all researchers have given up on finding such a relationship.

But taking the long view is not what Fed policymakers have typically done. The Fed has in practice focused on fluctuations in the unemployment rate. That is nowhere more apparent than at the 2014 Jackson Hole conference (“Re-Evaluating Labor Market Dynamics”), and most notably in Janet Yellen’s presentation (Yellen 2014). Fed employment policy makes my case that pursuit of a real variable leads to short-term policies.

Would the first principle exclude the Taylor Rule? At first blush, it appears to do so. That rule proposes adjusting the policy interest rate (i.e., the fed funds target rate) to deviations in the inflation rate from a target rate, and deviations of output from its long-run trend (“the output gap”). So the Taylor rule separately targets a nominal variable and a real variable. By contrast, nominal GDP targeting looks only at the product of prices and real output.

Some analysts interpret the Taylor Rule as aimed at targeting nominal GDP. Why then not target NGDP directly, as Hummel (2014) suggests? Some defenders of the Taylor Rule suggest that it is merely taking account of the Fed’s dual mandate, which is the law of the land. That line of argumentation suggests a second principle, one that is a corollary of the first: the Fed’s dual mandate should be ended. I leave to further discussion how to assess the Taylor Rule.¹²

My third suggested principle is not to allow the best to be the enemy of the good. There is no perfect monetary system. The path to monetary reform will involve a series of tradeoffs. That is especially true were the ultimate goal a competitive or private monetary system. O’Driscoll (2014) points out the subservience of a central bank to fiscal authorities. When governments run very large deficits, as a practical matter they require central banks to finance them. If the banking system consists of private banks, the financing requirements will threaten the solvency of the banks. That is what occurred with the Bank of England during the Napoleonic wars, and with other banking systems (Smith 1990). Private banks were given monopoly powers and privileges (e.g., limited liability and exclusive rights to note issue) as compensation for the requirement to lend to their governments. As the monopoly privileges accumulated, the heretofore private banks evolved into central banks as we know them today.

¹²Dorn (2014) argues that the Taylor rule would improve monetary policy but what is needed is fundamental reform.

A modern system of competitive or free banking would end similarly in a world of large fiscal deficits. That suggests that those advocating competitive banking face a complex task. They need to evolve a monetary rule for a transition period. And they would need to evolve a fiscal rule consistent with the long-run goal of free banking. Indeed, for any monetary rule to be durable, fiscal deficits likely must be tamed (Buchanan and Wagner 1977, Sargent and Wallace 1981, Cochrane 2001).¹³

But there is a silver lining in this complexity. In the medium run, advocates of competitive banking share common cause with a wide range of reformers who want a limited central bank. For example, free bankers might find common cause with advocates of NGDP targeting. Whether my speculation can be realized remains the outcome of discussion and debate on the proposed committee. So, I turn now to the process.

Process

At Cato's 31st Annual Monetary Conference in November 2013, I briefly outlined the idea for a reform process (O'Driscoll 2014: 403). The idea was received favorably in some quarters. Implementation has been made easier by the creation of Cato's Center for Monetary and Financial Alternatives. The Center could provide institutional support and sponsorship. Cato staffing in money and finance is expanding. The Center has an academic advisory board. So there is a natural population from which to draw members of a committee for monetary reform. Experts from other institutions would presumably also join the committee.

To clarify, I am proposing a *private* Committee for Monetary Reform. There are precedents for private efforts (Friedman and Schwartz 1963: 117–19). As explained below, the output of a private committee can influence legislation and then policymaking.

On the size of that committee, I suggest 6 to 12 members. The SOMC started with 12 members to mimic the number of voting members on the FOMC. It eventually migrated down to 6. Today it

¹³There can be reverse causation between monetary and fiscal rules. The existence of the gold standard helped ensure budget balance over the long run (White 2012: 420).

stands at 7. The Meltzer Commission (see below) had 11 members, and operated efficiently and effectively with that number. A range of 6 to 12 members makes for a good working committee. A smaller number may not produce enough diversity, and a larger number starts to become unworkable. Large boards are notoriously ineffective, and leave real decisionmaking to the chairman.

Other events make such a committee very timely. Congressman Kevin Brady (R-TX) has called for the creation of a “Centennial Monetary Commission” (H.R. 1176) to examine the Fed’s performance and consider alternative monetary regimes. Brady was inspired by the National Monetary Commission, whose deliberations culminated in the Federal Reserve Act. His bill proposes that the Commission examine six possible monetary regimes, including the status quo.¹⁴ The regimes encompass most categories of monetary reform. I would omit the status quo, since I am proposing a Committee for Monetary Reform and not the status quo.

Congress often creates commissions when there is agreement on the need for reform and legislation in an area, but no consensus on exactly what to do. When the area is highly technical, like monetary policy, there is added reason to move deliberations out of the normal legislative process. There is also a hope that a commission will be less partisan than is Congress.

When I proposed the idea of forming monetary reform group, Congressman Brady saw that its recommendations could feed into the Centennial Monetary Commission. He reacted favorably to my idea.

In July 2014, the “Federal Reserve Accountability and Transparency Act of 2014” was introduced into Congress (H.R. 5018). It requires that the Federal Reserve adopt a rules-based policy. The act specifies a “Reference Policy Rule,” which is the Taylor Rule. The legislation does not require the Federal Reserve to follow the Taylor Rule, but the central bank must describe how its rule would differ. But it must follow a rule.

These two pieces of legislation and other developments create a politically teachable moment. The time is ripe for discussion, debate

¹⁴Rep. Brady introduced his bill, the Centennial Monetary Commission Act of 2013, in the 113th Congress. It did not pass, but he is expected to reintroduce it in the 114th Congress.

and action. A Committee for Monetary Reform could help shape the outcome of the reform process.

Substance merges with process. I have argued for continuity of members, regular meetings, and a fixed lifespan of the committee. I was staff director for the Meltzer Commission. By legal necessity, we held all our meetings and issued a report within a six-month deadline. In that period, there were meetings on 12 days and then public hearings on 3 additional days (Meltzer 2000a: 2). The report was written in real time as all that was going on. It is not a pace that I would recommend. I think a one-year time frame would work best. Here is why.

First, to be effective, the CMR should act in a timely fashion so as to influence the policy debate and have an influence on legislation. The timing is right. Second, there is no shortage of ideas on monetary reform. It is time to implement some of those ideas. The proposal for a committee is intended to produce an action plan. Third, it can be done logistically in a year. Maybe there would not be enough time to get a report in print. These days putting a document on a website is publication, however.

I would envision a series of meetings among the committee members. Other experts could submit papers and briefs to the committee. There could be hearings with testimony. All of that would ensure that a broad range of ideas for reform would be heard. The hearings at the Meltzer Commission were very important in shaping the committee report.

To reiterate, I am proposing the creation of a private Committee for Monetary Reform. It would not be subject to the rules and regulations applying to an official government commission. Some might think that a private committee would be less authoritative and influential than an official commission. My response would be that the stature of CMR members can offset that effect.

The committee's report would be its product. It would presumably summarize its deliberations, the material submitted to it, and the outcome of the hearings. It could recommend a series of reforms, which taken together would constitute a monetary regime. Or, it might choose to present one or more alternative regimes. The report would be the basis for legislation, not a piece of legislation. As previously suggested, its findings could feed into the deliberations of the Centennial Monetary Commission. The report would constitute public policy recommendations for consideration by Congress and the executive branch.

I reference once more the Meltzer Commission as illustrating what a commission report looks like. That commission was charged with examining a group of international financial institutions: the International Monetary Fund, the World Bank plus three other regional development banks, the World Trade Organization, and Bank for International Settlements. The commission made recommendations for each institution, more for some and fewer for others. To cite one case, for the development banks it was recommended that they change from lending institutions to grant-making institutions for poverty relief. That would transform them from being banks into something more akin to foundations. That is regime change.

Unfortunately, the World Bank mostly ignored the commission's recommendations. It mainly still lends to countries with easy access to capital markets. For very poor countries, some grants are being made. It is unclear what the rationale is for the World Bank's continued existence.¹⁵

The lesson for the CMR is that entrenched organizations oppose organizational reform. That reality must be incorporated into the plan of the CMR.

Conclusion

I have not covered all issues of design and implementation for a Committee on Monetary Reform. Some of that would be done by the committee itself. I trust, however, that I have outlined a process that can expedite a concrete plan for fundamental monetary reform.

In the wake of the financial crisis, the Federal Reserve has greatly expanded its balance sheet, expanded the kind and duration of assets that it holds, and made significant loans to the shadow banking sector—and even to arms of industrial companies like auto manufacturers. In doing so, it has taken on more and new types of risks that ultimately fall on taxpayers. As argued in this article, the Fed has surrendered what independence it possessed to the Treasury.¹⁶ In

¹⁵My thanks to Adam Lerrick, formerly special advisor to the Chairman of the Meltzer Commission, for the analysis of the World Bank's recent operations. I also thank Allan Meltzer for his analysis.

¹⁶It has done so at the same time as it accuses its critics of jeopardizing its independence.

short, the Fed has expanded its size and scope, while de facto changing its institutional structure.

These events call for public reconsideration and reform. The intellectual climate is receptive to ideas for change. It is time to turn ideas into actions.

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THE BITCOIN REVOLUTION

Bennett T. McCallum

The likelihood of the Bitcoin system replacing the Federal Reserve as the main provider of money in the United States and the desirability of such a transformation are the topics of this article.¹ With respect to the first of these topics, one needs to consider how far the so-called Bitcoin Revolution has progressed by estimating the average volume of transactions conducted per time period by means of Bitcoin payments, and then compare recent values of that magnitude with the total volume per period of dollar payments in the United States.²

Francois Velde of the Federal Reserve Bank of Chicago has estimated that, as of late 2013, the average volume of bitcoin transactions per minute totaled less than four-tenths of 1 percent of average dollar transactions per minute—actually, not *total* dollar transactions but only the *subset* conducted by means of Visa credit card payments (Velde 2013). In the months since the publication of Velde’s article the volume of bitcoin payments has been growing rapidly, but their quantitative extent is still negligible from a macroeconomic perspective. In fact, this 0.004 magnitude is quite

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¹I have not attempted to explain the workings of the Bitcoin system in this article because it would require space and because I could not do this better than Velde (2013).

²In what follows, I will use “Bitcoin” as the name of the system, “bitcoin” as an adjective or a singular noun, and “bitcoins” to refer to specified quantities.

close to the ratio implied by magnitudes of Bitcoin and Visa daily transactions averaged over the most recent 12 months as reported on August 7, 2014, by the *coinometrics.com* web site. These magnitudes are \$57.3 million and \$16,518 million, so the implied ratio is 0.00345. Alternatively, in terms of *stocks*, rather than transactions, the M1 measure of the U.S. money supply (currency plus demand deposits) is currently about \$2,835 billion (as of August 7, 2014) with bitcoins worth \$7.7 billion, for a ratio of 0.00272—again, of the same order of magnitude.

Another way to express the point that Bitcoin is not at this time a quantitatively important money is to reflect on the economist's standard definition of money—namely, an entity that serves as a medium of exchange, store of value, and unit of account.³ Doing so, one recognizes that some clarification in this common description is necessary to make it analytically coherent. First, traditional money is typically a tangible object (e.g., metallic coins, government issued currency, or legal claims to such coins or currency) and thus is not itself a unit of account, which is intangible. Indeed, careful terminology would replace “unit of account” with “medium of account,” a specified amount of which serves as the unit of account.⁴

Also, it is necessary to recognize that in developed economies tangible money does not rank highly as a store of value. For example, in the United States, during the first quarter of 2014, aggregate assets of households and nonprofit organizations together totaled \$95,549 billion whereas checkable deposits and currency holdings by these units came to only \$1,096 billion (roughly 1/100 of their assets).⁵ Much larger components of household plus nonprofit-organization wealth include the reported monetary value of houses, furniture, automobiles, etc. Some major categories are real estate (\$22,820 billion), corporate equities (\$13,502 billion), corporate and foreign bonds (\$2,626 billion), and pension entitlements (\$19,766 billion).

Accordingly, it is the medium-of-exchange role that is the primary attribute that serves to define money.⁶ But an important qualifier

³See, for example, Jevons (1875: 13–18), Wicksell (1935: 6–7), and Clower (1967: 4–5)

⁴This semantic point has been made by Niehans (1978: 118), McCallum (1989: 17), and White (1999: 7)

⁵These figures came from: www.federalreserve.gov/releases/z1/current/z1r-5.pdf.

⁶That the medium-of-exchange property is the essential one is mentioned by Wicksell (1935: 7), Clower (1967: 4), and (implicitly) Jevons (1875: 13–18).

often made explicit is that money is a *generally acceptable* medium of exchange. By that standard bitcoins do not qualify as money. Indeed, for most members of the U.S. population there are very few, if any, of their basic payments that could be made using bitcoins.

None of the foregoing arguments rule out the possibility that Bitcoin will become a major—or even the main—medium of exchange in the future.⁷ But as of today it seems likely that for law-abiding U.S. citizens the practical attractions of Bitcoin are primarily as a financial investment with very high volatility and as a means of participating in an intellectually fascinating, avant-garde, and potentially revolutionary, social experiment.⁸ One would have to admit, however, that there are certain categories of transactions for which bitcoin payments are (or could be) quite important.

Anonymity

Before proceeding, it should be mentioned that, as a novice to the Bitcoin world, I have found it confusing that some experts tout anonymity as a great advantage of Bitcoin over other payment systems while other, also qualified, experts—e.g., Spear (2014)—state that anonymity is not a feature at all. Apparently, however, both are correct but have in mind anonymity in two quite different respects. One is whether it is possible to follow the transactions of an individual Bitcoin user. Since all transactions are recorded and retained in the system’s “block chain,” which is a public ledger, there is no anonymity at all of this nature. The public ledger does not, however, associate a particular Bitcoin transactor with any specific person (or group of persons). It might be possible, therefore, for an individual to keep secret his ownership of his bitcoin account. A useful brief statement on this topic by Grinberg (2011: 179) is: “All Bitcoin transactions are public, but are considered anonymous because nothing ties individuals or organizations to the accounts that are identified in the transactions.” Velde (2013: 3) puts this in another way as follows: “The many ingenious features of bitcoin try to emulate . . . properties of cash, but do so at some costs. One prominent cost is the loss of anonymity. Possession of the virtual currency

⁷ For a reasonably optimistic outlook, and suggestions for improving it, see Luther and White (2014).

⁸ For an analytically impressive argument to the contrary, see Selgin (2013).

must be linked to the unique identifier of the wallet. Admittedly, there . . . are ways to make the wallet hard to trace back to its owner, but these require additional efforts.”

Will Bitcoin Become a Major Medium of Exchange?

Here the object is to consider the possibility that, while quantitatively unimportant at present, Bitcoin will in the foreseeable future become a major (and perhaps main) medium of exchange—provided it is not thwarted by legal actions of the U.S. government. A natural way to argue that Bitcoin will grow is to identify some of its major advantages. A useful (and highly positive/optimistic) viewpoint has been expressed by Andreessen (2014). Since that writing is intended to be persuasive, I will quote from it extensively in what follows.

First, Andreessen emphasizes the reduction in certain transaction costs that Bitcoin could bring about. A major example is the case of international remittance: “Every day, hundreds of millions of low-income people go to work in hard jobs in foreign countries to make money to send back to their families in their home countries—over \$400 billion annually Every day, banks and payment companies extract mind-boggling fees, up to 10 percent . . . to send this money Switching to Bitcoin, which charges no or very low fees, for these remittance payments will therefore raise the quality of life of migrant workers and their families significantly.” Moreover, he says, Bitcoin can be a powerful force “to bring a much larger number of people around the world into the modern economic system” and thereby “can be a powerful catalyst to extend the benefits of the modern economic system to virtually everyone on the planet.”

Also, Andreessen argues that another “fascinating use case for Bitcoin is micropayments, or ultras-small payments” that “have never been feasible, despite 20 years of attempts, because it is not cost effective to run small payments . . . through the existing credit/debit and banking systems” whose fee structure “makes that nonviable.” By contrast, “Bitcoins have the nifty property of infinite divisibility: currently down to eight decimal places. . . . So you can specify an arbitrarily small amount of money, like a thousandth of a penny, and send it to anyone in the world for free or near-free. . . . Think of content monetization, for example. One reason media businesses such as newspapers struggle to charge for content is because they need to charge either all (pay the entire subscription fee for all the content)

or nothing.” But “with Bitcoin, there is an economically viable way to charge arbitrarily small amounts of money per article, or per section, or per hour, or per video play, or per archive access, or per news alert.”

In this context, Andreessen states that “another potential use of Bitcoin micropayments is to fight spam. Future email systems and social networks could refuse to accept incoming messages unless they were accompanied with tiny amounts of Bitcoin—tiny enough to not matter to the sender, but large enough to deter spammers, who today can send uncounted billions of spam messages for free with impunity.” This is a type of use that seems likely to appeal to economists, many of whom are (I believe) appalled by the view (evidently held by many Internet developers and guardians) that use of the Internet should be *entirely* free with respect to the sending of e-mail messages.

Bitcoin Growth Rate

As most descriptions of the Bitcoin system explain, the total stock of bitcoins outstanding is programmed to grow automatically at a rate that is currently 25 bitcoins every ten minutes but which will be halved every four years, implying that the stock will asymptotically approach 21 million bitcoins. Thus, if real economic growth continues and Bitcoin becomes a dominant currency, the bitcoin price of goods will at some point have to begin a continuous fall. This plan could be modified, if I understand correctly, by Bitcoin’s five-man “development team” that could in principle alter the schedule of growth rates.⁹ It is of some interest from the perspective of monetary economics, then, to consider what a desirable rate of growth would be for the stock of bitcoins. Suppose that Bitcoin became the dominant medium of exchange; what then

⁹See, e.g., Selgin (2013: 21) and Grinberg (2011: 175–76).⁹ A member of the Bitcoin development team has indicated to me that the process for changing the code is more difficult than the foregoing discussion implies. What a member (or, in fact, anyone) actually can do is to submit a proposal for changing the code. Any such proposal is then reviewed by all interested members of the Bitcoin community. If a proposed change would have the effect of changing the path of the Bitcoin supply, it would amount to a “hard fork” that would entail the existence of two different versions of the Bitcoin code. Then if all users adopted the proposal, the change would be incorporated. If they did not, then the result would be two competing versions of Bitcoin—in which case its market value might be endangered. Accordingly, all Bitcoin holders would have, he suggests, a strong incentive not to adopt the proposal.

would be the socially optimal rate of growth of the bitcoin stock? Well, if there is only a negligible resource-cost difference for different rates of growth of the bitcoin stock, one could use Milton Friedman's famous argument regarding the "optimal inflation rate" in the bitcoin context.¹⁰

That is, one could argue that the optimal money-creation rate should be that which drives the nominal (money) rate of interest to zero, since lower rates of interest lead economic agents to hold larger money stocks in real terms thereby providing more real transaction-facilitating *services* for their holders. Since there are no tangible costs of producing these additional services, it is socially optimal to increase their magnitude to a satiation level. So, applying this line of argument to an economy with a Bitcoin medium of exchange, we get the Friedman result again: the optimal inflation rate is the negative of the real rate of interest, which makes the nominal interest rate equal to zero.

The foregoing line of argument suggests, however, that if the Bitcoin development team or others can propose altered rules for the creation of bitcoins and have them adopted by the Bitcoin community, then it is possible that the development team could lead the way into adoption of an *activist* rule or to one that would generate some inflation. So it seems that the ultimate fundamental difference between a highly developed Bitcoin system and our current Fed-based, paper-money arrangement is *political*—the tangible resource costs of creating the medium of exchange are extremely low in both cases. In this regard one might be able to argue—as in footnote 9—that a Bitcoin-type system would be less subject to political forces inimical to price level stability. But, on the other hand, one might be impressed by Velde's statement that "it is hard to imagine a world where the main currency is based on an extremely complex code understood by only a few and controlled by even fewer, without accountability, arbitration, or recourse" (Velde 2013: 3).

In this context it is pertinent to remember that the U.S. Constitution clearly intends, as specified in Article I, Sections 8 and

¹⁰The usual reference is Friedman (1969) but that article's basic argument was developed much earlier, in Friedman (1960: 73). Selgin (1995) has suggested that that Friedman's analysis "superficially resembles arguments for the productivity norm" which Selgin has championed.

10, for the nation's monetary system to be based on gold and/or silver.¹¹ Since there is nothing in the existing Amendments that suggests any change in this arrangement, it is clear that the inconsistency of today's reality with the Constitution's specification is severe—and that it can be traced to Supreme Court rulings in the 1871 cases of *Knox v. Lee* and *Parker v. Davis*. I have written a short paper (McCallum 2010) discussing this astonishing episode, drawing heavily on several earlier writings by Richard Timberlake that are beautifully and extensively developed in *Constitutional Money: A Review of The Supreme Court's Monetary Decisions*.¹²

Will Bitcoin Prosper?

In thinking about the future of Bitcoin, a major question is whether the U.S. government will, or will not, take legal steps to prevent its growth and possible dominance. A substantial discussion of this matter has been provided by Grinberg (2011: 181–206). He observes that the U.S. Constitution “has nothing to say about private parties creating money,” and that the relevant existing federal statutes are the Stamp Payments Act of 1862 and an assortment of federal statutes concerning counterfeiting. Regarding the first of these, he concludes that it is unlikely that this act would form the basis for a federal attack on Bitcoin: “It is a 150-year-old statute that has outlived its usefulness.” Specifically, “there has been no published court opinion interpreting the Act since 1899.” In addition, “the availability of more fitting statutes under which to attack Bitcoin” is “likely to dissuade prosecutors from trying to breathe new life into the Stamp Payments Act” (Grinberg 2011: 190–91).

What, then, about the statutes regarding counterfeiting? Grinberg's discussion is highly informative, but does not leave one with much confidence regarding the major issue at hand—namely, whether the U.S. government would permit control of monetary

¹¹More precisely, it put constraints on monetary arrangements made by Congress and the states, evidently presuming that the main monetary institutions would be provided by Congress.

¹²Timberlake (2013) argues that not only was the majority Supreme Court reasoning in these cases faulty, but also that there exists a possibility of reversing the *Knox v. Lee*, *Parker v. Davis*, and *Juilliard v. Greenman* decisions, these themselves being startling and fascinating reversals of the *Hepburn v. Griswold* decision of 1870.

management to pass from the Federal Reserve to a system not under its dominance. In this regard, Selgin (2013: 23–24) states:

Although I have suggested that a synthetic commodity monetary regime might perform better than either existing fiat money regimes or than potential commodity money alternatives, I have deliberately avoided suggesting that any government is likely to take steps to establish such a regime. Indeed, rather than make that suggestion, I'm inclined to argue that, while it is possible to conceive of a government-sponsored synthetic commodity monetary regime, it is difficult to imagine a government actually embracing the idea, and more difficult still to imagine one that would not be tempted to interfere with, and ultimately to undermine, an established synthetic commodity standard by means of its ability to introduce and to confer legal tender status upon some new fiat currency.

I find it difficult to argue with Selgin's conclusion. Yet, I would like to believe that it might be possible for Bitcoin to survive and succeed in providing the useful services identified by Andreessen.¹³ In this context, it is interesting that an outcome of this type could be possible, should be welcomed, and seems reasonably likely, as St. Louis Fed economist David Andolfatto (2014) has recently argued.

An Intriguing Possibility

In conclusion, I would like to mention an unlikely but intriguing possibility that could arise from the existing situation. It is, that there exists a rather prominent possibility that the U.S. government will take legal steps to constrain or banish the Bitcoin system. In that case, it would seem that any legal attack by the federal branch of government on Bitcoin would have to begin by establishing the government's responsibility for management of the U.S. monetary system.¹⁴

¹³It might be asked what one could reasonably believe would be the case if it were not for the likelihood of government resistance to Bitcoin. To me it would nevertheless seem unlikely that Bitcoin would replace government currencies to a large extent. If, however, I think back to the early 1990s, I would have myself never believed that e-mail and the Internet would have taken over as large a part of my daily activities as, in fact, they have.

¹⁴There will be regulations at the state level—New York, for example, has been holding hearings in preparation for the design of its version—but these will be of a different nature than ones that would entail a challenge to the Federal Reserve as the nation's monetary authority.

But, given the explicit provisions of the Constitution, doing so would apparently need to rely on the Supreme Court decisions in the “Legal Tender Cases” of *Knox v. Lee* (1871) and *Parker v. Davis* (1871), plus *Juilliard v. Greenman* (1884), which served to overturn the post–Civil War decision in *Hepburn v. Griswold* (1870). But, given the illogical nature of the decisions in these three cases, as richly detailed by Timberlake (2013), a competently developed counter-argument should be able to yield a reversal of their rulings, which permitted the development of today’s arrangements—ones that appear to be (whether one likes them or not) fundamentally inconsistent with the Constitution.

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BITCOIN WILL BITE THE DUST

Kevin Dowd and Martin Hutchinson

Bitcoin is the most radical innovation in the monetary space for a very long time. It is an entirely private monetary system that runs itself and does not depend on trust in any central authority to honor its promises. Instead, it relies on trust in the Bitcoin community or network that verifies transactions and maintains the integrity of the system. This system of distributed trust creates bitcoins and produces an automatic, tamper-proof bitcoin money supply process.¹ As such, it avoids the dangers of discretionary monetary policy—namely, quantitative easing, manipulated interest rates, and the need to rely on wise men or women to withstand political pressure or successfully forecast the future. Indeed, under Bitcoin there is no monetary policy at all. There is just an automatic monetary rule dictated by the Bitcoin protocol designed in 2009 by an anonymous programmer using the alias Satoshi Nakamoto.

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¹By convention, Bitcoin with an upper case “B” refers to the Bitcoin protocol that sends and receives payment information; and bitcoin with a lower case “b” refers to the corresponding unit of money.

Bitcoin has been widely hailed as a success and has won a substantial following. Unfortunately, the underlying economics of Bitcoin mean that it is unsustainable and in all likelihood will be remembered as a failed experiment—at best a pointer to some superior successor.

A first-pass intuition into Bitcoin can be obtained from a comparison with the stone money in Milton Friedman's (1992) case study, "The Island of Stone Money." In this story, the people of the island of Yap in Micronesia used as money large round limestone disks transported from the nearby island of Palau. These were too heavy to conveniently move around, so they were placed in prominent places. When ownership was to be transferred (e.g., as part of a dowry, inheritance, or ransom payment), the current owner would publicly announce the change in ownership but the stone would typically remain where it was and the islanders would maintain a collective memory of the ownership history of the stones. This collective memory ensured that there was no dispute over who owned which stones. Similarly, in Bitcoin, the record of all transactions, the "blockchain," is also public knowledge and is regarded as the definitive record of who owns which bitcoins. Both the stone money and Bitcoin share a critical feature that is highly unusual for a monetary system: both systems operate via a decentralized collective memory.

On February 11, 2009, Nakamoto gave an explanation of the thinking behind Bitcoin in an e-mail announcing its launch: "The root problem with conventional currency is all the trust that is required to make it work. The central bank must be trusted not to debase the currency, but the history of fiat currencies is full of breaches of that trust. . . . With e-currency based on cryptographic proof, without the need to trust a third-party middleman, money can be secure and transactions complete." Cryptocurrencies, however, face the problem of "double-spending." As Nakamoto notes, "Any owner could try to re-spend an already spent coin by [digitally] signing it again to another owner. The usual solution is for a trusted company with a central database to check for double-spending, but that just gets back to the trust model. . . . Bitcoin's solution is to use a peer-to-peer network to check for double-spending." Consequently, "the result is a distributed system with no single point of failure."²

²Quoted from <http://p2pfoundation.ning.com/forum/topics/bitcoin-open-source>.

The fact that Bitcoin has no single point of failure is highly significant: it means that it cannot be brought down by knocking out any particular individual or organization.³ It can only be brought down by knocking out the whole network or one of the underlying building blocks on which the network depends.⁴ It can and does operate outside of government control: Bitcoin is a dream come true for anarchists, criminals, and proponents of private money.

Despite its success, the Bitcoin system is unsustainable due to a design flaw at the very heart of the system. The problem is that Bitcoin requires competition on the part of “bitcoin miners” who validate transactions blocks, but this competition is unsustainable in the long run because of economies of scale in the mining industry. Indeed, these economies of scale are so large that the bitcoin mining industry is a natural monopoly. Furthermore, there are signs that competition in this industry is already breaking down. Once that happens, the system will no longer be able to function as it hitherto has. Its key attractions (decentralization, absence of a single point of failure, and anonymity) will disappear; there will no longer be any reason for users to stay with it; and the system will collapse.

How Bitcoin Works

Let’s start by explaining how Bitcoin works.⁵ The first point to appreciate is that the system is based on the use of Public-Key Encryption (PKE) used to digitally authenticate a signature. PKE is the basis of Internet financial security and is widely used to protect sensitive financial information. Each individual user has both a public key, known to everyone, and a private key, known only to it. When Alice transfers a bitcoin to Bob, she adds Bob’s public key to the coin and digitally signs the coin using her private key. When Bob receives

³By contrast, all other successful monetary or payments systems, including private ones, are dependent on a single individual or organization, which then represents a potential point of failure. Two well-known examples are the Liberty Dollar and e-gold, both of which were perfectly respectable (and legal) business enterprises that were highly successful until they were shut down by the U.S. government. For more on these cases, see Dowd (2014) and White (2014).

⁴The two most obvious such pillars are the Internet and the encryption technology on which Bitcoin depends. Trying to bring Bitcoin down is therefore a tall order.

⁵This account of how Bitcoin works draws extensively from Nielsen (2013).

the bitcoin, he is able to verify that only someone with Alice's private key could have sent it to him: he can then be confident that the bitcoin came from her.⁶

There is, however, a problem: how to prevent Alice double-spending the same bitcoin. So let's look at the general problem of Alice making a payment to Bob: there needs to be a transfer and the transfer needs to be validated without allowing Alice to double-spend. With conventional cash, the transfer is easy: Alice hands over a \$1 note to Bob and Bob just needs to check that the note is not a fake. Alice is unable to spend the same dollar note twice: having handed over the note to Bob, she can't then spend it again with Charlie. With a conventional bank check, Alice sends the check to Bob, and the central authority (the bank) verifies the transfer and adjusts Alice's account to prevent her spending the same deposit money twice. Under the Bitcoin system, on the other hand, there is no central authority to validate the transfer and prevent Alice double-spending the same bitcoin. Instead, these tasks are performed by the network itself—that is, by the community of users.

To get the system to perform these tasks we then have to ensure that there is a reliable verification process and we have to incentivize that process. At first sight, the most obvious verification approach would be a voting system: other users could vote on whether the transfer was valid. If the majority agreed, then the transfer would be deemed valid. Unfortunately, this approach does not work. Remember that the users are anonymous and all we really have is user IDs. So Alice can set up a billion different IDs and take over the system: she has one bitcoin, which she then spends with Bob, Charlie, David, and so on, and she uses her billion votes to approve each transaction; she sock-puppets the system by overwhelming it with spam votes, known in the trade as a "Sybil attack." The way round this problem is to make each "vote" costly, and this costliness is achieved by imposing a proof-of-work requirement. In the Bitcoin system, the proof of work is to demonstrate that the user/voter has expended valuable CPU power to solve a difficult mathematical problem. To oversimplify slightly, the veracity of any transaction is then determined by the majority of CPU-adjusted votes. It is now no longer economic for Alice to spam the system.

⁶The principles of PKE were first publicly set out by Diffie and Hellman (1976) and the first PKE algorithm was set out by Rivest, Shamir, and Adleman (1978).

In addition to solving the double-spending problem, Bitcoin must address the incentive problem—namely, the need to incentivize the network to validate any transaction. Users need to be given some reward for spending their valuable CPU power to validate other people's transactions. Under the Bitcoin system, this reward comes from a combination of newly minted bitcoins and a transaction fee. Leaving aside the fee, the analogy here is with a gold miner mining for gold and occasionally finding it. Similarly, the Bitcoin validator goes searching for bitcoins and occasionally gets lucky. For this reason, the process of validating the bitcoin transactions blocks is usually referred to as "bitcoin mining." In the very early Bitcoin system, a successful bitcoin miner was rewarded with 50 bitcoins for each block validated. However, after every 210,000 validated blocks the rewards halve. This halving has occurred once so far, in November 2012, so the current reward for validating a block is 25 bitcoins. This halving will continue roughly every four years so the production of new bitcoins over time will asymptotically go to zero. It is anticipated that the rate of bitcoin production per block will fall to less than 1 satoshi, or 0.00000001 BTC, by 2141. By that point, the total amount of bitcoin produced will be just short of 21 million. Note, too, that because the time to validate each block is fairly predictable (i.e., about 10 minutes), and even this randomness tends to cancel out over the long run thanks to the law of large numbers, then the rate of bitcoin production, and the hence the total mined by any future time, is highly predictable.

The actual amount of bitcoin available to use, however, is unknown, because of the risk of permanent loss. Loss of the private key to a bitcoin wallet results in the permanent loss of the bitcoins in that wallet, for example. Bitcoins can also be lost when hard drives fail or become infected and the user has not backed them up. One early bitcoiner was reported to have had three copies of his bitcoin wallet, but inadvertently managed to erase two of them and then lost his password for the third, in the process losing \$140,000 worth of bitcoin value. There are probably many others like him. Bitcoins can also be lost due to sundry other forms of human error. In one widely publicized case (reported, e.g., in ITN 2013), an IT worker in Wales generated 7,500 bitcoins on a website in 2009. He then forgot all about them and later threw out his hard drive in a clear-out. By the time he realized his mistake, his bitcoins were worth about £4.6 million but were still on his

hard drive, which was now buried in a landfill in Newport. He was now a virtual millionaire in more ways than one. He went over to the site, which was now the size of a football field, and was told that his hard drive was probably buried 3–5 feet beneath the surface somewhere on the site. He subsequently spent a few weeks digging around for it, but to no avail, and the local council has since barred anyone else from looking for it. There are no hard estimates of how many bitcoins have been permanently lost in such ways.

An important principle of the Bitcoin system is that it does not assume that all miners are honest when validating transactions. To deal with possible dishonesty, it seeks to establish incentive-compatibility to reward honest miners and make dishonest mining unprofitable. To understand how this works, we can think of the mining process as a competition to approve transactions, and the cost of entry to this competition is a certain amount of CPU power. A miner's chance of success in the next competition is then roughly equal to the proportion of total computing power that it controls, so a miner with 1 percent of the computing power being used to validate transactions has a roughly 1 percent chance of winning the competition. It then follows that, provided a lot of computing power is being brought to bear on the competition, and provided that most miners are honest, a dishonest miner is likely to have only a small chance to corrupt the validation process, unless it expends a huge amount of computing resources—and that will be costly. The idea (hope?) is then that dishonest mining will rarely occur, for the simple reason that it is not a profitable strategy.

To spell out the argument further, we need to consider how the blockchain works. For the system to work properly, we need the network to agree on the order in which transactions occurred, as otherwise it may not be clear who owns which bitcoins. To achieve this objective, each block in the blockchain includes a pointer to the previous block (in fact, this pointer is just a hash of the previous block) until we go back to the original block, the Genesis block, and we end up with a linear blockchain.

Sometimes, however, a fork will appear on the chain. This might happen if two miners happen to validate different blocks at almost the same time, both broadcast their newly validated blocks to the network, and some network members update the blockchain using one block, while others update it using the other block. This fork can

cause confusion, as it is no longer clear which set of transactions is to be regarded as valid. To get around this problem, the Bitcoin protocol stipulates that if a fork occurs, miners should keep track of both forks, but at any point in time, they should only work on the longer one. This rule means that once one fork gets a sufficient lead over the other, then it will become the generally accepted one and the blockchain will revert to the linear form.⁷ However, any pending legitimate transactions in the abandoned fork will eventually be validated in the successful fork, so all legitimate transactions will still be validated regardless of the fork in which they first appeared.

One can then imagine Alice attempting a variety of different double-spend attacks. One is for her to attempt to validate a block that includes a first spend with Bob and then a double-spend with Charlie. But even if she gets lucky and is able to validate her block—and the odds are that she won't—the attack won't work because other users will refuse to confirm her validation. A second possible attack is to spend the same bitcoin with Bob and Charlie, but broadcast each transaction to different parts of the network in the hope that both transactions will be confirmed. However, this won't work either, as the network will eventually confirm only one transaction. A third strategy is to spend a bitcoin with Charlie, wait for the transaction to be fully confirmed, and then pretend to be Bob and spend it on him. To do this, Alice creates a new fork, but her new fork is already six confirmations behind the leading fork. She then faces the problem of how to overtake the leading fork, but to do that she would have to win the competition to validate at least the next six blocks. If she has 1 percent of the network's computing power, the probability of her winning the next seven block validations is then $1/100^7 = 0.00000000000001$ percent. So her chances of success are vanishingly small—she may as well be honest instead.

This discussion is neither rigorous nor exhaustive, but it does illustrate how the Bitcoin system is designed to counter dishonest behavior by being incentive-compatible. How well it achieves this objective is however another matter, and we shall return to this issue presently.

⁷In fact, under the Bitcoin protocol, a transaction is not considered confirmed unless it is part of the longest fork and at least five later blocks follow it in that fork, i.e., six confirmations are required before a transaction is regarded as finalized.

Why Bitcoin Mining Is a Natural Monopoly

As we have seen, a central feature of the Bitcoin system is that it relies on competition between independent miners to maintain the integrity of the blockchain: it relies on a form of perfect competition between atomistic miners. Unfortunately, this perfect competition is not a stable equilibrium, because the atomistic miners have an incentive to collude, or at least to merge.

The Incentive to Merge

Suppose that one bitcoin is to be mined over the next 10 minutes. Now consider any two miners: If they work separately, each gets a certain expected return and there is a certain probability of it successfully mining the bitcoin in the next block. If they merge their operations into a mining pool, they have the same expected return per miner but a higher probability of obtaining that return.

Assume that there are n independent miners, each of whom faces a probability p of mining the next bitcoin. For any individual miner, the expected return from mining the next block is p bitcoin, since he has a probability p of a return of 1 bitcoin. Now suppose that two miners form a pool. The mining pool's expected return is now $2p$ bitcoin, because it has a probability $2p$ of mining the next bitcoin. The expected return for each pool member is therefore p bitcoin. So by joining the pool, the individual miner gets the same expected return as it would get if it mined on its own, but it doubles its probability of getting a positive return. Assuming miners are risk-averse, it then makes sense for any two miners to pool their resources and share the profits.

However, if it makes sense for any two miners to form a pool, it also makes sense for any group of miners to form a pool. Thus, the original competition between individual miners in the Bitcoin system consolidates into competition between ever growing mining pools: perfect competition gives way to oligopoly.

Now suppose that the process of consolidation has produced four mining pools of equal size. Then each pool gets an expected return of 0.25 bitcoin because the probability that any one pool successfully mines the next bitcoin is 0.25. Each of the $p/4$ pool members then has an expected return of p bitcoin, being a 0.25 chance of a $4p$ return. The original individual miners are clearly better off in the bigger pools than they were operating independently, or even in smaller pools.

But the best outcome is simply for all the remaining pools to merge into one super pool. The expected return to that super pool is 1 bitcoin and it would achieve that expected return with a probability of 1. (This is an oversimplification because we ignore the possibility of new entrants coming into the mining market, but this is just a detail.) The expected return to each pool member is again p bitcoin, which it achieves with a probability approaching 1.

We then arrive at the conclusion that the production of bitcoin is a natural monopoly, an industry in which it is technically more efficient to have one producer rather than many. So even if there are a large number of producers/miners to begin with, there will be economic pressure on them to combine.

The Negative Externalities of Competitive Mining

There is also a second reason why bitcoin mining is a natural monopoly: the negative externalities of competitive mining. The expected marginal revenue for an individual miner increases with the amount of CPU power it devotes to bitcoin mining, but the difficulty of the problem it must solve (and hence the marginal cost involved) increases with the amount of CPU power expended across the entire network. The result is that individual miners do not take into account the negative cost externalities that their own activities impose on other miners. The competitive equilibrium is where the expected marginal private benefit (MPB) from mining is equal to the expected marginal private cost (MPC) of mining, but since the latter is less than the marginal social cost (MSC) of mining, we get an equilibrium in which excessive resources are devoted to mining-related activities. In particular, there is excessive use of energy and excessive investment in computing resources.

There is also an externality on the benefit side as well. An increase in mining activity will produce a positive expected MPB to the miner concerned, but the marginal social benefit (MSB) must always be zero, because the Bitcoin protocol dictates that there are only so many bitcoins to be had. So even if the activity were costless, seeking the private benefits of bitcoin mining is a zero sum game—that is, one miner's gain must be another miner's loss. Moreover, from the perspective of social efficiency: since the MSB is zero, the socially

optimal MSC is the lowest possible, which is a far cry from what the competitive mining equilibrium delivers.

Consider the evidence. The daily revenue to bitcoin miners since January 2009 shows that this revenue was initially very low, with occasional peaks, the biggest being just over \$5 million in late 2013. Miners' revenue then fell erratically and was \$1,331,071 as of December 13, 2014, equivalent to \$370 per bitcoin mined. The price of bitcoin the same day was \$349. The difference between the revenue per bitcoin and the price of bitcoin reflects the average transaction fee that day.⁸

We also need to consider the cost of production, and these have risen enormously. In the very early days of bitcoin, a typical home PC could mine hundreds of bitcoins a day, but by late 2014, PCs have long since been obsolete for bitcoin mining, and a state of the art mining computer, an Application Specific Integrated Circuit (ASIC), can expect to mine only fractions of a bitcoin a day. A key component of the cost of bitcoin mining is the "hash rate"—that is, the number of gigahashes (billions of hashes) calculated by the network each second. In January 2010, the hash rate was 0.01 or 1 percent but is now more than 300 million, increasing by a factor of more than 30 billion. We also have to consider that as the rate of production of bitcoins halved in November 2012, the hash rate per bitcoin actually mined increased by a factor of over 60 billion, as of December 13, 2014.⁹

However, what matters from a cost perspective is not the hash rate as such, but the cost of producing it, and this cost has been falling sharply over time. A good rule of thumb here is Koomey's Law, which suggests that the amount of battery power needed to achieve a fixed computing load has been halving about every 18 months since the 1950s (Greene 2011). If we count five years since January 2010, the amount of energy per hash will have fallen by a factor of between 4 and 5 over this period, and the cost-adjusted hash rate will then have risen by a factor of around only 10 billion or so. This is, needless to say, still an enormous rate of growth.

There is also the question of the profitability of bitcoin mining. Some insight into this issue is provided by a recent study by Hass McCook (2014). To start with, we need to keep in mind that the

⁸Downloaded from blockchain.info on December 13, 2014.

⁹Ibid.

profitability of mining depends in part on the local cost of electrical power and the cost/efficiency of the mining machine used, and these vary considerably. He points out that the rate of increase of the difficulty of the underlying computing problem, which is reflected in the rate of increase of the hash rate, is typically between 10 and 20 percent a fortnight, implying that the useful life of most mining equipment is only about 3 to 6 months. Putting these points together, he comes up with some ballpark figures. He suggests an average capital cost of \$530 for each mined bitcoin, and a corresponding average operational cost of about \$67 per bitcoin, meaning a total cost per bitcoin of just under \$600. By a curious coincidence, this was about the same as the price of a bitcoin at that time. Of course, we should keep in mind that this is very much a ballpark average figure and there will be considerable variation around it. However, if we give it some credence, we can say that by July 2014, the average profitability of bitcoin mining had declined to the point of marginality. Since then, the price of bitcoin has fallen by just over 40 percent, and the hash rate—and presumably the cost of mining—have risen further. We can then reasonably infer that most bitcoin mining is now unprofitable.

We should now expect to see miners exiting the field by letting their computers become obsolete without replacing them. The CPU power devoted to mining would then fall to the point where it became profitable to resume mining again, and the cycle would repeat itself. However, we should keep in mind that the profitability of mining also depends on the price of bitcoin. If the price of bitcoin increased, then currently unprofitable mining operations would become profitable and more CPU power would be devoted to mining again. However, if the price of bitcoin fell, currently profitable operations would become unprofitable, and there would be further downward pressure on mining CPU power. In that case, mining capacity would keep falling until it reached the point where mining again became profitable—or, alternatively, if the price of bitcoin kept falling, mining capacity would fall indefinitely.

It is also insightful here to consider the incentives faced by a bitcoin miner. For the sake of illustration, let's take as given McCook's cost estimates just set out. If the price of bitcoin is higher than about \$600 and expected to remain so, then bitcoin mining is profitable. We would then expect the miner not just to mine for bitcoin, but also to mine on the maximum scale it can manage, investing all it can in further mining. This incentive to scale up helps explain why mining

capacity has expanded so much, and is a critical and destabilizing feature of bitcoin market dynamics. If the bitcoin price is below \$600, but expected to stay above \$67, then it is no longer economic to continue investing in bitcoin mining, because the price obtained no longer covers both the capital and operational costs involved. However, the marginal costs of bitcoin mining are still covered, so the miner will use existing capacity to continue mining, but will not maintain that capacity. Mining capacity will then rapidly run down and effectively disappear in six months or so. Lastly, if the price of bitcoin were to fall below \$67, then mining activity would no longer cover even the operational costs, and the miner would stop mining altogether.

Returning to our natural monopoly theme, it is plainly obvious that the industry could reap considerable benefits if the major players were able to form a cartel or unite into a single outfit. This outfit could stop further investment in bitcoin computing and switch off most of the existing mining computers. Thereafter, it would maintain the blockchain using a much smaller number of computers—perhaps just a couple of servers—expending much less CPU power. The cost gains achieved in this way could then be shared around the members as additional profit. The potential savings are considerable: If we take McCook's figures for July 2014, then most of the nearly \$600 mining cost for each bitcoin could be avoided. With $24 \times 6 \times 25 = 3,600$ bitcoins currently being produced each day, there would be a cost saving of the greater part of $3,600 \times \$600$ or just over \$2 million per day.

Implications of a Bitcoin Natural Monopoly

These tendencies to centralization are totally destructive of the Bitcoin system. The central innovations of Bitcoin are distributed trust and the absence of any single point of failure. The system has worked because users could trust the network as a whole to maintain the integrity of the system, and so avoid the need to trust any individual body such as a central manager; and the system couldn't be brought down, because it had no single point of failure. However, this model only works so long as the network consists of a sufficient number of competing mining entities. Once the individual miners coalesce into a dominant player or a group of big players that are able to form a cartel, then that dominant

player/cartel has control over the system—it decides which transactions are to be deemed valid, and which are not. We then have to trust that entity not to abuse its position and are back to the trust model, not a self-regulating one. That same entity also becomes a point of failure for the system as a whole. In short, the fundamental contradiction in the Bitcoin system is that it requires mining to be competitive, but it creates a mining market structure that is a natural monopoly, and the two are incompatible because of the latter's tendencies toward centralization.

Going back to our island of stone money, it is as if everyone woke up one morning unable from that point on to remember who owned which stones. However, one individual still claims that he can remember and helpfully offers to remember for everyone else. One wonders how well that would work.

In each case, we have a system that depends on collective memory to operate, so it is difficult, to say the least, to see how it could survive the undermining of the collective memory on which it depends—especially when there is no instantly credible replacement to the original collective memory trust model that has just been eviscerated.

There are also further casualties to the Bitcoin system. Once a dominant player arises, it cannot possibly operate in a clandestine fashion beyond the knowledge of law enforcement; it cannot operate anonymously like Silk Road on a dark web browser and thumb its nose at the government. If it cannot operate anonymously, then it cannot escape regulation by the state and would have to submit to whatever state law requires in terms of tracking individual users and reporting results to legal authorities. The combination of the Bitcoin system being controlled by a publicly known entity, the requirement that that entity submit to the law, and evolving de-anonymization technology would then be fatal for user anonymity.¹⁰ Users of bitcoin

¹⁰It often said that Bitcoin is anonymous, but the truth is that it is actually pseudonymous and operates via user IDs. The anonymity (or otherwise) of Bitcoin then depends on whether a user's true identity can be inferred from these user IDs or the blockchain record. Even back in 2011, Jeff Garzik, a member of the Bitcoin dev team, was openly cautioning bitcoiners not to take Bitcoin anonymity for granted. He warned that law enforcement could parse the transactions flow to track down users in the same way that they can detect suspicious money flows. Recent studies such as Merklejohn et al. (2013), Möser (2013), and Biryukov, Khovratovich, and Pustogarov (2014) look at various ways in which anonymity can be broken and confirm that most bitcoin transactions are not truly anonymous (see also Nielsen 2013).

could no longer operate on the basis of any assumed anonymity, and those who unwisely carried on using bitcoin for illegal purposes would soon fall foul of law enforcement. Anonymity on part of miners or bitcoin users would then disappear. Indeed, the likelihood is that the government would destroy anonymity at a stroke by requiring that the bitcoin dominant player insist that any users of the network openly register themselves by providing photo ID, Social Security numbers, and proof of address in much the same way that bank depositors are required to provide the same information to their banks for anti-money laundering and similar purposes. The demand for bitcoin to make any illicit transactions (e.g., to buy illegal drugs on Silk Road and similar sites, or to move funds around illegally) would then disappear.

One has to ask why users of bitcoin would rationally continue to have any confidence in the Bitcoin system when it becomes apparent that its key attractions—decentralized trust, no single point of failure, and the possibility of using it for anonymous transactions—had all been compromised. Remember also that the willingness of any individual to accept bitcoin is entirely dependent on his or her confidence that other people will continue to accept it. There is nothing in the system to anchor the value of bitcoins because, unlike gold or tulips, bitcoins have no alternative use value.

Nor is there any rational reason to trust in the dominant player/cartel to behave itself. Trust comes from credible assurances—it comes from credible precommitment, a willingness to post performance bonds, and to submit to account—and there is no way that a shadowy dominant mining pool can provide such assurances. In any case, there is no reason to want to trust such an entity when you can use safe and reputable systems such as PayPal or the better banks.

The whole Bitcoin system then becomes a house of cards. There is nothing within the system to maintain confidence in the system, and anything—a scandal, a government or regulatory attack, or any factor that triggers a loss of confidence—could lead to a run that brings down the entire system. It is then rational to sell out before that happens, and if enough individuals think this way, their expectations will become a self-fulfilling prophecy. There will be a stampede for the exit; the price of bitcoin will drop to bitcoin's intrinsic value, zero; and the system will collapse.

The Emergence of the Big Mining Pools

Indeed, it may not take the emergence of a monopolist to bring on the crisis, but merely the emergence of a mining pool big enough to threaten the system. If we look at the bitcoin mining market, we see that mining pools have been growing rapidly and are already very large. An idea of their size can be seen from the distribution of hash rate power across the bigger mining pools. As of December 13, 2014, Discus Fish had 25 percent of the hash rate distribution and GHash.IO had 17 percent. The other bigger pools were somewhat smaller, but 20 percent of the distribution is “unknown.”¹¹ It is therefore conceivable that some of this unaccounted hash rate is due to the other big players. Thus, the shares of the big players might be larger than they seem to be. The distribution also moves around a reasonable amount from day to day, so the data should be regarded as a snapshot from a volatile motion picture. Nevertheless, it indicates that some pools are now large enough to be a source of threat to the system as a whole.

The most interesting of these mining pools is the secretive GHash.IO. Its business model is based on zero fees and cloud hashing, in which miners rent out hash power from its sister outfit, CEX.IO, which supplies the hardware, hosting, and maintenance. Its webpage offers instant payouts, zero fees, 24/7 support, and SMS messaging. We are told that GHash was launched in July 2013, is trusted by 300k users, and (with about one third of the network's hashing power) is already the largest mining pool in the Bitcoin community. However, the webpage offers no phone numbers, offers no credible reassurances, and has no audited accounts that we know of. It also says nothing about the people involved or where it is based, although further investigation suggests that the person behind GHash is one Jeffrey Smith. The photo on his Twitter page (Jeffrey Smith@jeff_smith01) shows him as a gentleman in his early 20s wearing a T-shirt, but even so, we still cannot be sure whether this is the person behind GHash or Mr. Smith himself. In short, we have no real idea who is behind the allegedly biggest mining pool in the Bitcoin community. However, we can safely assume that he is probably not some latter day John Pierpont Morgan, the premier

¹¹Downloaded from blockchain.info on December 13, 2014.

financier of his age, operating out in the open, putting his considerable wealth and reputation on the line with each deal he makes and even choosing to operate under unlimited liability to give his counterparties credible reassurance.

Once mining pools reach a big enough size, there is a danger that one of them will launch a 51 percent attack in which a mining pool achieves 51 percent or more of the mining power on the network and then uses this power for malicious ends that the system was designed to prevent. It can keep all the mined bitcoins to itself, double-spend bitcoins, selectively reject competing miners' transactions, extort high fees from those with large holdings by making certain addresses unspendable, or launch a denial-of-service attack against the network. Another threat is "selfish mining"—that is, a strategy in which a pool

keeps its discovered blocks private, thereby intentionally forking the chain. . . . Rational miners will preferentially join selfish miners to reap the higher returns. . . . Such a selfish mining pool will quickly grow to become a majority, at which point the pool will be the only creator of blocks, the decentralized nature of the currency will collapse, and a single entity, the selfish pool manager, will control the system [Eyal and Gün Sirer 2013b: 2].

The possibility of a selfish mining attack is also significant because it proves that the Bitcoin system is not fully incentive compatible. Eyal and Gün Sirer offer various fixes to this threat. But even in their best-case scenario with their fixes in place, their analysis shows that the system can be taken over by a mining pool that has 33 percent of the network's hash power. Even in their best-case, we would need at least two-thirds of the miners to remain honest, not 50 percent as is widely believed, for the system to be safe—and without any fixes it is not safe at all. Their conclusions are stark:

Bitcoin is broken. And not just superficially so, but fundamentally, at the core protocol level. We're not talking about a simple buffer overflow here, or even a badly designed API that can be easily patched; instead, the problem is intrinsic to the entire way Bitcoin works. All other cryptocurrencies and schemes based on the same Bitcoin idea, including Litecoin,

Namecoin, and any of the other few dozen Bitcoin-inspired currencies, are broken as well. (Eyal and Gün Sirer 2013a)¹²

The Bitcoin community had long been aware of threats such as 51 percent attacks. However, the conventional view among experts was that they were not as serious as they appeared to be. It would be obvious from the blockchain that an attack was under way, an attacker wouldn't be able to get its proceeds out of the Bitcoin system and there were various ways to deal with an attack in the unlikely event it did occur (e.g., the Bitcoin dev team would fix the problem or the community would pressure a miscreant to behave responsibly). One commentator even went so far as to describe the threat of a 51 percent attack as a boogeyman. The argument was also repeatedly made that it would not be in any pool's own interest to achieve a 51 percent position, not least because this would be to invite mutually assured destruction. Bitcoin insiders also pointed to the community's success in dealing with previous cases where a mining pool had become uncomfortably large.

A case in point occurred in April 2013, when the mining pool BTC Guild obtained a large portion of the network hashrate and provoked concern over its market power. In response, BTC Guild adopted a mitigation plan that saw its market share fall again. This solution worked thanks to the commitment of those involved to the Bitcoin "rules of the game" and their shared understanding of the dangers posed by the emergence of large mining pools. When a pool became too big not only would miners voluntarily leave the pools of their own choice, but the mining pools themselves would voluntarily reverse their own growth by raising fees and halting new registrations. A big pool would then reduce in size and the threat would recede.

¹²It is important to stress that there are alt currencies that are not based on Bitcoin-like mining protocols. One of these is Ripple, which ranks second to Bitcoin in terms of market cap: it currently has just over 9 percent of the cryptocurrency market share, as opposed to Bitcoin's 84 percent. Ripple has a pre-mined currency supply and validates blocks through a consensus system based on trusted validators, not proof-of-work "mining" as under Bitcoin. Its protocol deters collusion and the fact that validators are known entities deters any Sybil attack. Another is BlackCoin, which ranks #24 in the cryptocurrency league with a market share of 0.02 percent. In this system, validation is based on "proof-of-stake": a node that generates a block has to prove that it has access to a certain amount of coins before being accepted by the network. Generating a block involves sending coins to itself, which then proves the ownership and hence the stake in the system.

However, arguments to the effect that no one would engage in behavior that threatened the system, because everyone has a stake in it, are based on simplistic assumptions about the self-interests of the parties concerned. Take an individual miner or small mining pool. It is often stated that such outfits will have a commitment to the system and take a long-term view because of their investment in mining equipment. Yet this argument overlooks the point that ASICs have a useful lifetime of only months. Their only incentive is to extract as much value as possible before their investment becomes obsolete: this is not a long-term investment but its opposite, pure short-termism. Competition between mining pools is also a complicated affair with enormous scope for game-playing, especially with the rapidly evolving technology involved. A big player will also have market power, and we should expect that it will use that power to its own advantage. Like a big bank or utility company, it can practice price discrimination, it can exploit behavioral traits in its customer base, and it can exploit customers with deliberately complicated opaque charge regimes. A dominant miner can also

engage in subtle attacks that are hard to detect. [One of these is] Transaction Differentiation [in which a] 51 percent miner can simply render certain Bitcoin addresses (what clients perceive as “wallets”) either unspendable or highly deprioritized unless a high mining fee is paid. This is tantamount to ransom. In effect, the miner would turn to the Winklevii, who have large Bitcoin holdings, and say “my, my, my, nice fat wallet you’ve got there, you’ll have to attach a 1 percent mining fee if you want to ever spend those coins again” while brandishing the virtual equivalent of a steel pipe [Eyal and Gün Sirer 2014].¹³

¹³The Bitcoin system is also open to a large variety of other attacks. These include: (1) block withholding attacks, in which a pool infiltrates another, but discards any full proofs-of-work and provides only partial proofs-of-payment to its victim, which is thus deceived into thinking that the attacker is doing effective mining; the attacker is then rewarded for its apparent effort when in fact it never contributes to the victim’s revenue stream (Eyal 2014); (2) DOS attacks on the most important nodes in the network, which might seriously disrupt it; (3) side-channel attacks which exploit weaknesses in crypto security to extract information about private keys and enable the attacker to steal bitcoins (see Bengier et al. 2014); (4) any number of malware attacks; (5) the usual market manipulation tactics; and, as noted elsewhere, (6) the threat of attack from governments.

Then along came GHash.IO, which broke the mould in two different ways. First, it had an innovative business model that made it very attractive to individual miners. Apart from the obvious attraction of zero fees, cloud hashing and hosted mining meant that miners no longer had to bear the inconvenience and risks of having their own mining equipment. Not surprisingly, GHash's market share then rose rapidly and it very soon became the biggest mining pool. The second distinctive feature of GHash was its attitude: it wasn't prepared to play by the rules of the game.

In January 2014, GHash.IO achieved 42 percent of the network's hash rate and there was renewed concern about the threat this posed to the network. In response, GHash.IO reassured the community that it would "take all necessary precautions to prevent reaching 51 percent of all hashing power" to maintain the stability of the network.¹⁴ However, GHash pointedly refused to move from the zero fee model and didn't deliver on its promises to keep its market share down. The issue then flared up again on June 15, 2014, when it was reported that GHash had repeatedly contributed more than 51 percent of the network's hashing output for periods as long as 12 hours. As Gün Sirer observed, "having a single entity in GHash's position, of holding 51 percent of the mining power, of being in a monopoly position, of being able to launch any of these attacks at will, completely violates the spirit and intent of Bitcoin as a currency."¹⁵ The very next day, June 16, GHash rushed out a statement to reassure everyone of its continued commitment to the Bitcoin system:

Our investment, participation and highly motivated staff confirm it is our intention to help protect and grow the broad acceptance of bitcoin and categorically in no way harm or damage it. We never have and never will participate in any 51 percent attack or double spend against bitcoin.¹⁶

¹⁴These precautions included a mitigation plan that included allowing CEX.IO customers to point their hashing power toward other mining pools besides GHash. This was a non-solution if ever there was one: the hashing power so diverted would still be under the control of GHash.io/CEX.io and its hashing power would merely *appear* to diminish. Such a "solution" makes the underlying problem worse by hiding it.

¹⁵<http://arstechnica.com/security/2014/06/bitcoin-security-guarantee-shattered-by-anonymous-miner-with-51-network-power>.

¹⁶<http://www.coindesk.com/ghash-io-never-launch-51-attack>.

This statement will, we believe, ultimately prove to be bitcoin's death knell. Bitcoin, the ultimate system designed to avoid the need for trust, is now reduced to relying on trust in the dominant mining pool not to attack it.

In mid-July, Bloomberg journalist Leonid Bershidsky (2014) wrote:

Trust will kill bitcoin, the stability of [Bitcoin] and all the infrastructure that has grown around it in the past five years . . . now depends on the goodwill of a few people whose names nobody knows. "Jeffrey Smith"—the name used by GHash.IO's only spokesman—is likely a pseudonym.

There's no guarantee that a certain group of people doesn't control more than 51 percent of Bitcoin emission even now: GHash.io is currently 39 percent, but another 17 percent is ascribed to "unknown" by Blockchain.info, the best source on mining pool shares. . . .

I'm not willing . . . to ignore the risk that a group of people who won't even tell me who they are might take the money and run.

Trusting them would be akin to acknowledging them as the system's central bank, something Nakamoto emphatically didn't want it to have. Paradoxically, it's easier to trust central banks that print fiat money, because the people in charge and their interests and motives are more or less known, or at least are the subject of much study and speculation.

However, the problem wasn't just that GHash.IO was now placed to compromise the system, again. Part of the problem was its attitude. It still claimed to share the community's concern that mining should be decentralized, but it had done nothing to promote decentralization despite its earlier promises to scale itself back. It continued to refuse to raise its fees: higher fees were only a "temporary" solution and GHash.IO was looking for something more permanent, it said. It then painted itself as the victim: "You cannot blame GHash.IO for being the #1 mining pool," Smith told an interviewer, as if it being the #1 pool had been outside of its control. It had blatantly gone past the 51 percent barrier knowing very well its psychological impact: it was openly flaunting its power and didn't seem to care what the others thought. It then declared its intention to host a round table with the other leading pools and the Bitcoin

Foundation to find ways to decentralize the mining industry, simultaneously declaring its adamant opposition to the traditional solutions of high-level Bitcoin idealism—that is, self-restraint, to which the other mining pools (apparently) still adhered.

Yet the underlying problem is not GHash’s attitude or any secret agenda, or the fact that the community lacks an effective means of bringing “offenders” under control.¹⁷ Instead, the problem is that many of the proposed solutions to the problems posed by large mining pools are not incentive-compatible.

One such “solution” is to suggest that individual miners would (or should) behave responsibly because of *their* stake in the system. After the GHash.IO threat surfaced in January 2014, one commentator issued a stark statement:

This is a WARNING to all Bitcoin Miners. We sincerely request that miners using GHash.io . . . leave the pool for other smaller pools to create a more decentralized Bitcoin hash distribution.

From the perspective of the community, it would have been a good thing for individual miners to heed this warning and switch away from GHash.IO. But why should they? Yes, very large mining pools are antisocial, but why should any individual miner forgo his own self-interest for the greater good? One has to bear in mind that for an individual bitcoin miner, a big pool like GHash is an attractive proposition—it charges no fees, offers a fairly stable return because of its size, and even takes away the hassle and risk of buying and maintaining one’s own ASIC miner. Why should such a miner forgo those benefits when so many other miners are quite happy to enjoy them? Again, one is left with only an appeal to put conscience over self-interest. In any case, one can no longer assume that individual miners even have much of a stake in the Bitcoin system. In the past, there were major setup costs to mining, and most

¹⁷ Their only weapons are bad publicity, ostracism, and DoS attacks, all of which have been tried on GHash.IO without much success. Bitcoiner critics are also constrained in that they can’t be too aggressive in their criticisms without the risk of undermining confidence in Bitcoin itself. The truth is that if one big player refuses to play by the “rules of the game,” there is nothing much that the Bitcoin community can do about it.

miners had some commitment to the system, ideological as well as intellectual. However, as mining has become mainstream and much easier, you can now become a bitcoin miner without knowing much about Bitcoin or even giving a damn about it: a friend tells you that Bitcoin mining is a good prospect, so you take a few minutes to register at GHash, pay your money, and wait for the bitcoins to roll in.

“Is this really Armageddon?” asked Eyal and Gün Sirer (2014). “Yes, it is,” they answered. We agree. As they continued:

The fact is, this [GHash positioning itself to threaten the network] is a monumental event. The Bitcoin narrative, based on decentralization and distributed trust, is no more. True, the Bitcoin economy is about as healthy as it was yesterday, and the Bitcoin price will likely remain afloat for a while. But the Bitcoin economy and price are trailing indicators. The core pillar of the Bitcoin value equation has collapsed.¹⁸

Conclusion

The fact that the Bitcoin system was designed not to require trust, but now depends on it, suggests that it is living on borrowed time. Human nature being what it is, the temptation to abuse that trust will prevail. The history of central banking is full of breaches of such trust, and it would be perverse to assume that the big

¹⁸ We should add that Eyal and Gün Sirer themselves do not draw our conclusion that bitcoin is doomed. Yes, it is Armageddon, they say, but they go on to state that there is life after Armageddon and much of their work is devoted to suggesting fixes of one sort or another that they claim would alleviate or solve some of the problems posed by game-playing mining pools. We would claim that our conclusion is the simplest and most natural one, however, and that their fixes, *if* adopted, would only delay the inevitable and may not be adopted anyway. In fact, there has been a great deal of discussion on the blogosphere about the large mining pool problem. Most proposed solutions boil down to encouraging decentralization, a good example being the “getblocktemplate” mining protocol developed over mid 2012, the essence of which is to move block creation from the pool operator to the individual miner. We cannot even attempt here to provide any analysis of these proposals, other than to repeat our view that these are at best palliatives that may ameliorate but do not root out the underlying problems posed by centralizing tendencies in the Bitcoin system. We would also add that our message that Bitcoin will bite the dust has received a mixed but mostly negative response from the Bitcoin community.

bitcoin players would be immune to the same human failings as central bankers.

Our best guess is that in the short term there will continue to be a drip-by-drip erosion of confidence as the realization grows that the system is compromised. The current bitcoin oligopoly cannot resolve this problem: like the Roman triumvirates, it is unstable and the principal parties involved cannot agree on a lasting solution; they also lack the ability to provide the necessary credible assurances anyway. Humpty is well and truly broken and neither all the King's horses nor all the King's men can put him back together again: it can only be a matter of time before the whole unsteady edifice will collapse.¹⁹

Even in the unlikely event that it survives into the medium run, we would still rate its longer-term chance of survival as zero. First, we should remember that a recurring theme in the history of innovation is that the pioneers rarely, if ever, survive. This is because early models are always flawed and later entrants are able to learn from the mistakes of their predecessors. There is no reason why Bitcoin should be an exception to this historical rule. The second reason is that in the very long run bitcoin would be uncompetitive against efficient closed-wall systems such as PayPal or COEPTIS, the successor to e-gold. Once the production of bitcoins becomes insignificant, then the Bitcoin system will entirely depend on transaction fees to cover its operational costs, and its fee levels would be higher than those of more traditional payment systems because of the need to maintain excess hashing and excess capacity to deter new entrants into the transaction validation business. Put differently, Bitcoin can never achieve the technical economic efficiency of competitors that can operate with a very small number of servers, or even just one. In the very long term, when there are no new bitcoins being produced to subsidize the validation process, the Bitcoin system will no longer be

¹⁹ Many of the alt cryptocurrencies have similar weaknesses to bitcoin. Lawrence H. White (2015) documents that many of these have already collapsed, including Terracoin, FreicoIn, BBQCoin, Megacoin, Mooncoin, CryptCoin, ScotCoin, Bitgem, and CrtCoin. Of these, Terracoin experienced a decline of 97 percent, Megacoin experienced a decline of over 98 percent, and all the others mentioned experienced declines of over 99 percent. This evidence suggests to us that mining-based alt currencies have short life-spans and soon succumb to inherent tendencies toward centralization, takeover, and collapse.

able to compete.²⁰ Last but not least, there is still the problem that Bitcoin is not backed by anything.

Yet the undeniable achievement of Bitcoin is that it demonstrates the practical *possibility* of fully decentralized monetary systems based on the principle of distributed trust rather than central authority. Like the Wright brothers, it shows that such systems can fly, but it does not demonstrate that they can stay in the air for too long. We would therefore regard Bitcoin as an instructive creative failure, but we are hopeful that the lessons to be drawn from the experience of Bitcoin and other cryptocurrencies will lead to superior private currencies in the future, crypto and otherwise. Further experimentation in the private money space is therefore to be welcomed. As is the nature of capitalist innovation, most of these experiments will doubtless fail, but a few will succeed—perhaps hybrids of crypto and gold. As the old saying goes: “Make new friends, but keep the old. One is silver and the other is gold.”

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²⁰ One should also bear in mind a related problem with Bitcoin’s competitiveness: the fact that a block takes about 10 minutes to validate can be a considerable inconvenience for point-of-sale transactions, especially when there are competing payments systems that can offer almost instantaneous payment verification.

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THE MARKET FOR CRYPTOCURRENCIES

Lawrence H. White

Cryptocurrencies like Bitcoin are transferable digital assets, secured by cryptography. To date, all of them have been created by private individuals, organizations, or firms. Unlike bank account balances, they are not anyone's liability. They are not redeemable for any government fiat money such as Federal Reserve Notes or for any commodity money such as silver or gold coins. The cryptocurrency market is thus a market of *competing private irredeemable monies* (or would-be monies). Friedrich A. Hayek (1978a) and other economists over the last 40 years could only imagine how market competition among issuers of private irredeemable monies would work. Today we have an actual market to study. In what follows I will discuss the main economic features of the market. I also discuss whether the market is purely a bubble.

As an introduction to the topic, I offer the following comic verse about the contrast between Bitcoin and the physical gold coins of the past:

In the past, money's value was judged with our teeth;
We *bit coins* to confirm they were real.
Now a Bitcoin's just data, no gold underneath.
That's okay if it buys you a meal.¹

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¹The fourth line is mine. It refers to the news that Washington, D.C. now has a food truck that accepts Bitcoin payments. The first three lines are by Gary Crockett (2014). His original fourth line was: "Bitten bits don't make much of a meal."

The Size and Composition of the Cryptocurrency Market

Bitcoin rightly gets the lion's share of media attention, but it is not alone in the market for cryptocurrencies. The authoritative website CoinMarketCap.com tracks the U.S. dollar price and total "market cap" (price per unit multiplied by number of units outstanding) for each of more than 500 traded cryptocurrencies. Bitcoin is the largest by far. On a recent day (March 9, 2015), the site showed Bitcoin trading at \$291 per unit, with a market cap of \$4.05 billion. The second and third largest cryptocurrencies, Ripple and Litecoin, had market caps respectively 8.5 percent and 1.8 percent as large. The entire set of non-Bitcoin cryptocurrencies (known as "altcoins") had a market cap of roughly \$619 million, or 15 percent of Bitcoin's. Stated differently, Bitcoin had roughly 87 percent of the market, altcoins 13 percent. In percentage terms, altcoins do a higher share of Bitcoin's business than Bitcoin does of the Federal Reserve Note's business (currently \$1.35 trillion in circulation). In trading volume the percentage share of altcoins (led by Litecoin and Ripple) has been similar.

The cryptocurrency market has grown about fourfold in market cap over the last 22 months, with altcoins growing faster than Bitcoin. This is seen by comparing recent data to the oldest snapshot of the CoinMarketCap site available via the Internet Archive "Wayback Machine," which reports data for May 9, 2013. On that date, Bitcoin had a price of \$112 per unit, and a market cap of \$1.2 billion. The two largest altcoins at that time, Litecoin and Peercoin (aka PPCoin), had market caps respectively 4.7 percent and 0.4 percent as large. Only 13 altcoins were listed. Jointly their market cap was about 6 percent of Bitcoin's, giving Bitcoin 95 percent of the market. Since then, the market share of altcoins has doubled, and their market cap has grown ninefold. Trading volumes then were not reported.

At \$4.05 billion, the market cap of Bitcoin, as of March 2015, was slightly smaller than the dollar value of the September 2014 monetary bases of the Lithuanian litas (\$5.8 billion) and the Guatemalan quetzal (\$5.5 billion), but larger than those of the Costa Rican colon (\$3.3 billion) and the Serbia dinar (\$3.3 billion).² The August 2014 figures from the Central Bank of the Bahamas do not provide the

²All figures to follow come from official central bank websites, converted to U.S. dollars using the xe.com rates for September 30, 2014.

monetary base, but count Bahamian dollar currency in circulation at \$210 million, less than two-thirds of Ripple's recent market cap of around \$344 million.

Medium of Exchange, Store of Value, and Medium of Remittance Functions

The retail use of Bitcoin as a medium of exchange for goods and services is small to date, but is growing. In December 2014, Microsoft began accepting bitcoin payments “to buy content such as games and videos on Xbox game consoles, add apps and services to Windows phones or to buy Microsoft software” (BBC 2014). In doing so it joined prominent online retailers Overstock, Dell, Expedia, TigerDirect, and Newegg, and the payment processors Paypal and Square. The list grows weekly. Payments processing firms Bitpay, Coinbase, Coinkite, and others are enabling (and recruiting) brick-and-mortar retail shops to accept Bitcoin from any consumer whose smartphone “Bitcoin wallet” application can display a QR code. On its website Bitpay claims a clientele of “44,000 businesses and organizations”; Coinbase claims 37,000. These processors offer to purchase the consumer's bitcoin as it is spent, paying the equivalent (minus a fee) in dollars or other preferred currency to the merchant. The merchant avoids all exchange rate risk of holding bitcoin. For the retailer on the front end of the transaction, “accepting bitcoin” via these services actually means receiving dollars (or euros, etc.), just like accepting a credit card or debit card does. Bitpay and Coinbase thereby remove the barrier against transacting in cryptocurrency posed by the incumbency advantage of the established domestic currency unit (Luther and White 2014), just as Visa and Mastercard enable merchants to accept credit and debit cards from a customers whose accounts are denominated in a foreign currency.

A potentially vast market for bitcoin and altcoin use is international remittances. For example, workers abroad send an estimated \$25 billion per year to the Philippines, where remittances contribute a remarkable 10 percent of national income. The established remittance services Western Union and MoneyGram commonly charge more than 10 percent in fees. Bitcoin remitters, by contrast, are charging only 1 percent. As the CEO of a recently launched bitcoin remittance service remarked to a reporter: “We thought: with

Bitcoin we can do it cheaper.” A Filipino working in Singapore or Hong Kong (say) doesn’t need to have online access or a Bitcoin wallet. The worker can purchase bitcoins at a BTM (bitcoin teller machine), bring the QR code printout to the local “rebitance” provider’s office, and the service delivers Philippine pesos as a direct deposit into a designated recipient’s account at a participating bank back home or (for an addition fee but still much less than the legacy firms) as cash (Ferraz 2014, Buenaventura 2014).

Market Competition

The market for cryptocurrencies has always been characterized by free entry. A new development in the past two years is competition from profit-seeking enterprises. Free entry is exhibited by the remarkable growth in the number of altcoins, from the 13 listed in May 2013 to the 500+ listed in March 2015. Profit-seeking by new entrants is especially conspicuous in systems like Ripple (2nd behind Bitcoin in market cap as of March 9, 2015), BitShares (4th), Nxt (6th), and MaidSafeCoin (8th). In each of these systems a substantial share of “pre-mined” coins was initially held by their developer-entrepreneurs. The entrepreneurs hope to profit by raising the coin’s market price through efforts to promote wider use of the coin and its associated proprietary payment network or trading platform, such that they can eventually realize a market value for their coin holdings greater than their expenditures on development and promotion.

Bitcoin, by contrast, was launched by a pseudonymous programmer (or set of programmers) apparently as a public-spirited experiment. Revenue from producing (“mining”) new coins, the reward for validating peer-to-peer transfers, is open to anyone with the computing power to participate successfully. While Federal Reserve Bank of Chicago economist François Velde (2013) is thus right to contrast the nonprofit Bitcoin system to the profit-seeking firms that Hayek (1978a) foresaw, the contrast does not apply to the new enterprises that are launching altcoins for profit.³ In these new altcoin enterprises

³Velde also writes that Bitcoin does not “truly embody what Hayek and others in the ‘Austrian School of Economics’ proposed.” But I would distinguish Hayek’s *proposal*—to allow free choice and private competition in currency—from his *prediction* about what type of money would then dominate the field.

we see a working embodiment of competitive issue of irredeemable money by profit-seeking private firms. It is no longer correct—if it ever was—to say that Bitcoin is not “operating in a competitive environment.” Bitcoin competes with altcoins in the same way that the giant nonprofit YMCA competes with smaller nonprofit and for-profit health clubs, or a large nonprofit hospital competes with smaller nonprofit and for-profit immediate-care clinics.

The Novel Implementation of Quantity Commitments

We should not be too surprised that the features of competing irredeemable privately issued currencies are different from what Hayek (and other economists) imagined, for two reasons. First, market competition is a discovery procedure as Hayek (1978b) elsewhere emphasized, in which successful entrepreneurs discover profit in overlooked or unforeseen ways of producing products and reconfiguring product features. Secondly and more specifically, Hayek imagined that the issuer of a successful irredeemable private currency issuer would retain discretion to vary its quantity. The issuer would promise (but not make any contractual commitment) to maintain a stable purchasing power per unit.⁴ A naked promise of that sort unfortunately appears to be time-inconsistent (Taub 1985; White 1989: 382–83; White 1999: ch. 12). An issuer whose promise was believed could reap a large one-time payoff by spending a massive batch of new money into circulation until the public caught on. The one-time profit would exceed the normal rate of return from staying in business. By assumption, there would be no legal recourse against the decline of the money’s value. Aware of the problem, the public would not believe the promise to begin with, giving the money zero value in equilibrium.

The traditional solution to the problem of giving a privately issued money a reliably positive value is a redemption contract, an enforceable money-back guarantee or *price commitment* (White 1989). Under the gold standard, a banknote was worth \$20 when the bank of issue was bound to pay a \$20 gold coin for it. Today a

⁴Benjamin Klein (1974), in a more formal model, supposed perfect competition among issuers on “rental price”—that is, the risk-adjusted rate of return to holding money—in an environment of perfect foresight or the equivalent (see White 1999: ch. 12).

bank deposit is worth \$100 when the bank is bound to pay \$100 in Federal Reserve Notes for it. A suitable medium of redemption has a value that is known and independent of actions by any particular bank of issue.

Ronald Coase (1972) identified an alternative solution to the problem—how an issuer is to bind himself not to run down the price of the thing issued—in the context of a monopolist selling a durable good priced above marginal cost. To get customers to pay \$200 for an art print when the marginal cost of producing a duplicate copy is \$1, the artist must convince them that she will not run off and sell lower-priced duplicates in the future. To commit herself, the artist produces the print in a numbered edition with a stated maximum (“this print is #45/200”), providing an enforceable *quantity commitment* that she will issue no more than a fixed number of prints. Despite discussing this solution years ago (White 1989), I did not foresee that a quantity commitment could be used in practice to launch a successful irredeemable private currency.⁵

It is this second solution that Bitcoin has creatively introduced to the field of private currency. The implementation uses an entirely new technology: the limit on the number of Bitcoin units in the market is not guaranteed by a contractual promise that can (with some probability) be enforced on an issuing firm, but rather by a limit having been *programmed* into the Bitcoin system’s observable source code and being continuously verifiable through a public ledger (the “block chain”) that is shared among all “miners” who participate in bitcoin transactions processing.⁶ Altcoins employ the same basic idea of a programmed quantity commitment verified through a public ledger, though sometimes implemented in a different way.

Altcoin Innovations

In order to compete with the market leader Bitcoin, the developers of altcoins have understandably emulated its best features (decentralized peer-to-peer exchange, quantity commitment embedded in

⁵I believed that redeemable claims to a commodity money would be preferred over any IOU-nothing as a medium of exchange. And perhaps they would be even today, if not for government suppression of the former. For recent examples of suppression, see Dowd (2014: 1–37) and White (2014b).

⁶On the mechanics of the Bitcoin system see King, Williams, and Yanofsky (2013), Velde (2013), and Dowd and Hutchinson (2015).

an open source code, and shared public ledger), while introducing various general improvements and customizations. Most of the emphasis has been on improving speed, robustness, and privacy. A few altcoins aim to serve niche constituencies.⁷

The first generation of altcoins are nonprofit projects like Bitcoin, but tweak the Bitcoin code. Litecoin was introduced in October 2011 to provide faster transaction confirmation times (2.5 minutes versus 10 minutes). Peercoin, launched in August 2012, increases the speed even more by using a newer protocol (“proof of stake” rather than Bitcoin’s “proof of work”) that is less computationally demanding. This protocol also promises to allow participants to share in the rewards from mining without joining mining pools or buying the expensive specialized equipment that it now takes, as the result of competition, to succeed at Bitcoin mining. Because Peercoin’s protocol, unlike Bitcoin’s, does not promote the merger of miners into ever-larger pools, it is said to be less vulnerable to a possible collusive attack by 51 percent of miners.⁸ Primecoin, a later project from Peercoin’s main developer, implements a newer proof-of-work protocol (finding prime numbers) to reduce confirmation times to 1 minute.

Darkcoin, a nonprofit project launched in April 2014, and recently renamed Dash, has introduced payment confirmation “within seconds.” Dash alters the Bitcoin code to provide greater anonymity to users. Whereas the Bitcoin ledger puts every transaction and transactor address on public view, Dash transactions are “obfuscated.” BlackCoin, supported by an active nonprofit foundation and first listed in February 2014, uses a “proof of stake” protocol for speedy verification. It is connected to a proprietary trading platform, BlackHalo, that promises greater user anonymity than other systems. Blackcoin can now be spent (along with Bitcoin and Litecoin) at participating retail shops using the Coinkite debit card.

⁷While CoinMarketCap.com tracks market caps, the site CoinGecko.com ranks altcoins on a combination of market cap, trading volume, ongoing development activity, and social media buzz. In December 2014 it had Dogecoin at #2 and Darkcoin at #6, each four steps above its market cap ranking, based on their buzz factors. By March 2015 Darkcoin (Dash) had risen to #5 in market cap.

⁸On this problem with the Bitcoin protocol, see Dowd and Hutchinson (2015), who predict that it will bring Bitcoin’s demise. Whether or not they are right about that, many altcoin developers have recognized the problem and have made deliberate design changes to avoid what Dowd and Hutchinson call “inherent tendencies toward centralization, takeover, and collapse.”

Ripple, first traded in August 2013, is a cryptocurrency issued by the for-profit enterprise Ripple Labs. It does not rely on a mining protocol. A fixed stock of Ripples was “premined,” though the developers have not released them all yet. To make the fixity of the Ripple stock credible, the system follows Bitcoin’s lead in having a shared public ledger. The Ripple payment network confirms transactions through a “consensus” protocol that works *much* faster than mining protocols (5 seconds versus 1 to 10 minutes), so has a much better prospect of competing with ordinary credit and debit cards for point-of-sale transactions. The coin is only one part of the parent firm’s efforts, which include building a wholesale remittance system for “real-time, cross-border payments” between banks, cheaper and faster than the legacy Automated Clearing House system (Liu 2014). Stellar is a non-profit project that emulates Ripple.

BitShares also promises greater anonymity and ease of use. Like Ripple, it is part of a larger for-profit enterprise funded by venture capital. In this case the larger project, according to the BitShares Wiki (<http://wiki.bitshares.org/index.php/BitShares>), is an “experiment,” based on “a business model similar to existing banks or brokerages,” to enable the creation and trading of “BitAssets,” digital derivative contracts on “the value of anything from dollars, to gold,” to exchange-traded equities, bonds, and commodities. The project exemplifies what two *Wall Street Journal* writers (Vigna and Case 2014) describe as “so-called Bitcoin 2.0 technologies—those bitcoin-inspired software applications that bypass financial middlemen and allow almost any asset to be digitized and traded over a decentralized computer network.”

The niche-market strategy of CannabisCoin is to offer a payment service for medical marijuana dispensaries and other cannabis retailers whose access to bank accounts and credit cards is currently being blocked by the federal government even where their business has been legalized at the state level. In October 2014, the coin’s promoters were seeking retailers willing to provide a specific type of cannabis to patients at one gram per one CannabisCoin. Whether this will lead to the institution of a new commodity money standard remains to be seen, however, as the number of participating retailers and their supplies were quite limited. The promotional effort appears to have helped the market cap of CannabisCoin to surge ahead of other cannabis-themed

cryptocoins, such as the earlier-launched Potcoin and the more recent MaryJaneCoin.

Auroracoin is an Iceland-only altcoin introduced in February 2014 for the purpose of helping Icelanders evade the country's exchange controls. (The controls, which included a ban on Bitcoin purchases, were imposed during the financial crisis in October 2008 and are still in place.) Scotcoin, launched by an Edinburgh venture capitalist in May 2014, in advance of Scotland's independence referendum, is likewise a nationally specific enterprise. Its backer has expressed the hope (Hern 2014) that "introducing a voluntary cryptocurrency, which may in the future act as a medium of exchange for the Scottish people, can only benefit them should there be major disruption." A recent entry is CzechCrownCoin, launched October 2014, at least half of which is being distributed to Czech citizens. None of these national coins had a March 2015 market cap above \$55,000.

But Aren't They All Just Bubbles?

A quantity commitment solves the problem of making a credible commitment not to overissue. But it has a major shortcoming when applied to currency. Unlike a price commitment, it leaves the market price of the currency to vary with demand. This explains how it is possible for the prices of Bitcoin and other cryptocurrencies to be as volatile as they have recently been (Luther and White 2014). And it explains how it was possible for several altcoins, when enthusiasm for them evaporated, to decline to near-zero market cap.

The collapse of several altcoins is readily evident on CoinMarketCap.com. Three of the earliest thirteen altcoins have declined substantially in market cap. Terracoin, which at its peak had a market cap of \$7.1 million, is now (March 2015) down to around \$23,000, a decline of more than 99 percent. Freicoin, which peaked at \$16.1 million, has fallen to around \$61,000, also a decline of more than 99 percent. The whimsically named BBQCoin, having peaked at \$7 million, now trades around \$21,000, another 99+ percent decline. All three had very sharp run-ups to their peaks in early December 2013, mostly reversed by month's end. Megacoin, first listed in July 2013, experienced the same December 2013 pattern, soaring from \$1.2 million on

November 23, 2013, to a peak of \$47.5 million on December 1, then sliding to around \$328,000 today, a decline of more than 99 percent. Later-peaking examples of altcoins suffering 98 percent or greater peak-to-present declines have included Mooncoin, CryptCoin, Scotcoin, Bitgem, and CrtCoin.

Looking only at the market cap charts, the most remarkable case appears to be Auroracoin, which quickly climbed to chart a recorded market cap of \$953 million, but is valued today at around \$46,000, a drop of more than 99.99 percent. The incredible valuation of nearly \$1 billion was, even at the time, a misstatement. The Auroracoin launch plan (Hern 2014) was to jump-start enthusiasm by giving away about 30 premined coins to every Icelandic citizen, for a total of 10 million units. (Such a giveaway is known, in honor of Milton Friedman's famous thought experiment, as a "helicopter drop" or "airdrop.") Dividing the CoinMarketCap.com peak valuation by the price on that day (March 4, 2014) indicates 10 million units in the market, when the number of coins actually available was one-hundredth of that figure (Torpey 2014), the airdrop having yet to be made. Multiplying the price by the actual number of coins, the true market cap was one-hundredth of the reported value, around \$9.53 million. A drop from \$9.53 million down to the current \$46,000, however, is still a 99+ percent drop.

The repeated experience of crashing altcoins, in which the market valuation of a once-popular cryptocurrency all but evaporates, suggests in retrospect that the prices of *those* coins, at least, were simply bubbles. That is, such a coin's demand was unsupported by any price-independent usefulness that would put a floor under its equilibrium market price. (By contrast, industrial and ornamental uses support gold's market value.) To understand the argument, consider again the example of an artist's print. Some print buyers are presumably not just speculators who will put the print in storage and hope for its price to rise, but art-lovers planning to hang it on the wall and enjoy the real aesthetic pleasure it provides. That enjoyment is independent of its price. An irredeemable currency, by contrast, is presumed in standard monetary theory to be held only in order to be later spent or sold. It provides no service that is independent of its market value. People thus presumably have a positive demand price for any irredeemable currency, giving it a positive market value, only to the extent that they expect it to have a future market value. A market

valuation anchored by *nothing* but expectations of market valuation is the definition of a bubble.⁹

Does this logic show that the prices of all cryptocurrencies are pure bubbles? No. We cannot rule out that the flourishing cryptocurrencies have some fundamental support.

As several economists have proposed, owning Bitcoin (or other cryptocurrency) may provide a kind of real pleasure to at least some of its holders, say anti-statists who like what it stands for,¹⁰ tech enthusiasts who admire its ingenuity, or its own developers who gladly stake some wealth to help their project succeed (Luther 2013, Murphy 2013, Selgin 2014). For such an individual we can determine his affinity-based demand curve for Bitcoin by positing that he wants to own Bitcoin worth not just any old amount, but rather a specific amount of purchasing power, say 100 real U.S. dollars. (A “real dollar” here means the equivalent in purchasing power to the dollar of a specified base year.) We can plot the individual’s demand curve against the real price, i.e. the U.S. dollar price of Bitcoin divided by the dollar price level. The individual’s demand curve will be a rectangular hyperbola, a familiar construct in the basic theory of a fiat money’s value. The market demand curve sums all the individual demand curves. At a given U.S. dollar price level, if ten thousand individuals want to hold an average of \$100 worth of Bitcoin each, just because Bitcoin is cool, then the market cap of Bitcoin must be at least \$1 million.

This account does not explain day-to-day variations in the market price of Bitcoin, but it does potentially explain why the price is above zero. In this way real affinity demand provides an answer to economist-blogger Brad DeLong’s (2013) rhetorical question: “Placing a floor on the value of bitcoins is . . . what, exactly?” Of course, if Bitcoin were to become completely uncool to *everyone*, the floor would vanish.¹¹

⁹The same argument applies to any fiat money, to the extent that its market value exceeds whatever floor value it has due to exclusive tax receivability or other government compulsion. No cryptocurrency has *that* kind of support.

¹⁰A pseudonymous commenter on the reddit CryptoMarket page (Pogeymanz 2014) writes about Darkoin: “I have some DRK because I like what it stands for.”

¹¹DeLong (2013) also writes: “Placing a ceiling on the value of bitcoins is computer technology and the form of the hash function . . . until the limit of 21 million bitcoins is reached.” Actually, of course, Bitcoin’s source code does not put a ceiling on the market cap or *value* of bitcoins, only a limit on the *quantity*. The conceptual ceiling on *value* is Bitcoin achieving a 100 percent share of the real value of all money balances in the world (Luther and White 2014).

I previously (White 2014a) too hastily rejected this argument as an explanation of how Bitcoin first achieved a positive market price, on the grounds that it “does not deliver what the argument requires, namely, an account of how Bitcoins initially had a positive value *apart from their actual or prospective use as medium of exchange*. The value at every point in this scenario derives entirely from use or prospective use as a medium of exchange (only such use as a dollar competitor is what might [provide aesthetic pleasure], not the existence of untraded digital character strings.” I was mistaken to think that the argument has such a requirement. A positive affinity valuation of a cryptocurrency may well require the *possibility* of its taking off as a nonstate money, but that does not imply a chicken-or-egg problem. Affinity demand and hence market value can be positive before actual medium-of-exchange use begins.

The affinity account has the additional merit of being consistent with the great market cap of Bitcoin, esteemed for being the first mover, the middling market cap of altcoins that embody valuable technical improvements and have active support communities, and the low market cap of me-too altcoins. Five hundred altcoins are not all making a statement or breaking new technical ground. They have positive market caps, but most of them are slight.

A second grounding for fundamental value lies in the real demand for the sorts of payment services offered by a cryptocurrency. Ownership of a particular brand of cryptocurrency units is needed to make use of the brand’s payment system, which may offer advantages over other systems (Tucker 2014).

With regard to the “bubble” element in cryptocurrency valuation, economist-blogger Stephen Williamson (2011) reminds us that official fiat money or a commodity money likewise trades well above its fundamental value. In a case where the surplus of a currency asset’s market value over its fundamental value results from its solving a medium-of-exchange coordination problem, that surplus is a good thing because it represents value-added:

Bubbles can be good things, as any asset which is used widely in exchange will trade at a price higher than its “fundamental,” and the asset’s liquidity premium—the difference between the actual price and the fundamental—is a measure of the asset’s social contribution as a medium of exchange.

I would, however, qualify this claim by saying that the difference is a reliable measure of social contribution only insofar as it arises through voluntary trade rather than legal compulsion, and only after we subtract the costs of generating and maintaining the asset in question. It is from by adding such value that Ripple's entrepreneurs hope to profit. Unlike an official fiat currency, no part of Ripple's valuation is based on legal compulsion.

Is There a Problem of Monopoly? Is There Too Much Competition?

Milton Friedman (1960: 8) wrote of “the technical monopoly character of a pure fiduciary currency which makes essential the setting of some external limit on its amount.” By “pure fiduciary currency” he meant an irredeemable or fiat currency. By “technical monopoly character” he meant that open entry into counterfeiting would drive the value of an irredeemable paper currency note down to the cost of paper and ink,¹² and all the way down to zero if ever-higher denominations could be introduced at no higher cost. Therefore, a single authorized issuer was needed to preserve the currency's value. As Benjamin Klein (1974) pointed out, however, Friedman here conflated monopoly with enforcement of trademarks. To ban the selling of knock-off perfume in bottles bearing a counterfeit Chanel trademark does not imply giving Chanel a monopoly except in the sale of Chanel-branded perfume. It does not require any restriction on the production of competing perfumes under different trademarks. Enforcing a ban on the counterfeiting of Federal Reserve Notes, or in other words having the Secret Service protect the Federal Reserve's trademark, does not require giving the Fed a monopoly on currency issue.

The counterfeiting of bitcoins (also known as the problem of “double spending”) is prevented not through police work and legal prosecution by any central authority, but quite elegantly by the decentralized verification process that prevents the transfer of any coin of unattested provenance from being accepted onto the public ledger. With such effective de facto counterfeiting protection, the quantity of bitcoins remains on its programmed path.

¹²For a real-world example of this happening, see Luther (2012).

Velde (2013) states that Bitcoin has “a status of quasi-monopoly in the realm of digital currencies by virtue of its first-mover advantage.” By “quasi-monopoly status” he may mean only that Bitcoin has a large market share, derived from its being the first mover into (that is, creating) the market. But such a status is distinct from the usual concept of natural monopoly (or quasi-monopoly) status due to economies of scale, which denotes the ability to serve every (or nearly every) part of the market at lower marginal cost than competitors. The main static danger of a monopoly in the usual sense, whether natural or state-granted, is that the monopolist firm may restrict output to raise price above marginal cost, thwarting efficiency by sacrificing potential gains from trade. Because the quantity of bitcoin is predetermined by a program and not manipulable by a discretionary issuer, it poses no danger of any such monopolistic output restriction.

Competition from new entrants surrounds Bitcoin. The new entrants have the advantage of being able to introduce altcoins with improved features while the Bitcoin code was written five-plus years ago. The Bitcoin community can at most agree to patch the code, not to fundamentally revise it. Bitcoin does have the largest established network, but a dominant proprietary network does not imply monopoly pricing (in this context, transaction fees above marginal cost) when the market is contestable. Ripple, Litecoin, BitShares, and others entrants are vigorously contesting the market. The cryptocurrency market exhibits Schumpeterian competition from new business models rather than only static price competition.

DeLong (2013) raises an issue that is the opposite of monopolistic restriction. He worries that competition from more and more altcoins may expand the total quantity of cryptocurrencies without limit, and thereby—unless Bitcoin “can somehow successfully differentiate itself from the latecomers”—drive the market value of Bitcoin and all other cryptocurrencies to zero. He writes: “the money supply of BitCoin-like things is infinite because the cost of production of them is infinitesimal.” To consider this possibility let us suppose, for the sake of argument, that the cost of introducing a me-too altcoin is indeed infinitesimal. The economic implication is that in a fully arbitrated equilibrium the

marginal altcoin will have an infinitesimal real value (which is an approximate description of the marginal altcoins we do in fact observe). But this is not to say that the value of bitcoins (or of established altcoins) will tend toward zero. Infinitesimally valued altcoins do not eat into Bitcoin's market share in real terms. Only valued altcoins can do that, as they have since May 2013 (reducing Bitcoin's share to 87 percent from 95 percent as noted; but at the same time Bitcoin's market cap in U.S. dollars grew more than three-fold).

In the foreign exchange market for government fiat monies with flexible exchange rates, hyper-expansion in the nominal supply of dollar-like things, say Zimbabwe dollars or Venezuelan bolivars, does not drag down the purchasing power of the U.S. dollar. Likewise, in the existing altcoin market with its completely flexible exchange rates, cheap altcoins simply have low exchange value against Bitcoin and do not drag down Bitcoin's real market value.

Cryptocurrency and Fiat Currency: Comparisons and Contrasts

DeLong likens Bitcoin to government fiat money in the following way: "Bitcoin is like fiat money, and unlike 18th and 19th century Yap stone money, in that its cost of production is zero." In fact, although Bitcoin is similar to a government fiat money (and unlike gold) on the demand side, in that nothing supports its price if transaction and other money-related demand for it goes to zero, it is absolutely *unlike* a government fiat money on the supply side. It does not have an indefinitely expandable supply but the opposite. Just as monopolistic under-supply is ruled out (see above), so too is hyper-expansion. Bitcoin has a verifiably programmed commitment to a pre-specified quantity path.¹³ In light of that commitment, the

¹³Blogger Charlie Stross (2014) colorfully comments that Bitcoin "wears a gimp suit and a ball gag, padlocked into permanent deflation and with the rate of issue of new 'notes' governed by the law of algorithmic complexity." That padlocked "gimp suit and ball gag" is Bitcoin's binding quantity commitment. It is a feature, not a bug.

cost of production beyond the scheduled quantity is extremely high, not zero.¹⁴

Noting that “improvements, bug fixes, and repairs” to the Bitcoin code have been “carried out by the community of bitcoin users, dominated by a small set of programmers,” Velde (2013) downplays the prospects for Bitcoin to rival the fiat U.S. dollar:

Although some of the enthusiasm for bitcoin is driven by a distrust of state-issued currency, it is hard to imagine a world where the main currency is based on an extremely complex code understood by only a few, and controlled by even fewer, without accountability, arbitration, or recourse.

Substitute the phrase “bureaucratic agency” for the word “code” in this statement, however, and the hard-to-imagine world becomes a fair description of our current world of Federal Reserve currency. This fact completely overturns Velde’s argument. If the prospects for Bitcoin against the dollar depended only on the public’s choice between trusting an open source code with a public ledger and trusting a byzantine central bank, the prospects would look extremely good.

Bitcoin as a Vehicle Currency and Unit of Account

Finally, Bitcoin has an interesting role that is often overlooked or denied. A recent paper by a team of Bank of England economists (Ali et al. 2014), for example, declares that cryptocurrencies “are not typically used as media of exchange” and “there is little evidence of digital currencies being used as units of account.” In fact Bitcoin is the vehicle currency (commonly accepted medium of exchange), and consequently is the unit of account, in most altcoin markets. With a few exceptions (Litecoin against U.S. dollar, Chinese yuan, and euro; Chinese exchanges where altcoins trade against yuan; Peercoin

¹⁴In light of its programmed production limit, Selgin (2013) calls Bitcoin a “synthetic commodity money.” He helpfully likens Bitcoin’s quantity commitment to the quantity commitment of an artist who publicly destroys the engraved plates from which a known number of lithographic prints have been made.

against dollar), the vast majority of altcoin exchanges trade and quote prices in bitcoins, not in dollars, euros, or yuan.¹⁵

The altcoin market is structured this way for the same reason that the U.S. dollar is the vehicle currency for foreign exchange transactions (Kreuger 2012). To trade (say) Australian dollars for British pounds, the standard route is AUD for USD, then USD for GBP. Thicker markets enjoy lower bid-ask spreads. The U.S. dollar currency markets are so much larger than others that for most almost all currency pairs that do not include the U.S. dollar (euro-yen is an exception) the sum of bid-ask spreads is less for indirect exchange via the U.S. dollar than for direct exchange. This pattern is self-reinforcing by bringing more volume to the U.S. dollar markets.¹⁶ Most non-USD to non-USD foreign exchange markets are missing.

The Bitcoin-U.S. dollar market has much more volume and thus much lower spreads than any altcoin-U.S. dollar market. To trade U.S. dollars for an altcoin, often the *only* route in practice is to trade U.S. dollars for Bitcoin, and then Bitcoin for the altcoin. Most altcoin-dollar markets are missing because volume would be too low to have attractive bid-ask spreads. With by far the thickest potential markets against any altcoin, even compared to U.S. dollars, Bitcoin is naturally the vehicle currency and thus the unit of account in altcoin markets.

Policy Implications

The market for cryptocurrencies is still evolving, and (to most economists) is full of surprises. Policymakers should therefore be very humble about the prospects for improving economic welfare by restricting the market. Israel Kirzner's (1985) warning about the perils of regulation strongly applies here: Interventions that block or divert the path of entrepreneurial discovery will prevent the realization of potential breakthroughs such that we will never know what we are missing.

¹⁵See <http://www.cryptocoincharts.info/main/priceBoxes>.

¹⁶The positive network effect that makes the U.S. dollar the common medium for inter-currency exchange echoes the self-reinforcing Mengerian process by which a common medium for inter-commodity exchange (money) emerged out of barter.

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THE SWISS EXPERIMENT: FROM THE LOWER BOUND TO FLEXIBLE EXCHANGE RATES

Peter Bernholz

On January 15, 2015, to the perfect surprise of markets, business firms and politicians, the directorate of the Swiss National Bank decided to abolish the lower bound for the euro of CHF 1.20, which had been introduced on September 6, 2011.¹ Obviously, the SNB had limited the number of people involved so that no leaks to the outside world occurred. In fact, a short time before the decision the Bank had still insisted that it would stick to the lower bound. Thus, the old truth had been confirmed that if a change of a foreign exchange regime is planned, central banks are obliged to lie.

The surprise was the greater since the lower-bound regime had been a big success.² It had been introduced after a strong fall of the euro to nearly CHF 1 to prevent damages to the real Swiss economy. During the 40 months of the peg's existence, the SNB only had to intervene about 4 months to maintain the lower bound and prevent the Swiss franc from appreciating against the euro. When the lower bound was announced the Bank pledged to defend it by

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¹ Putting a floor under the euro/franc exchange rate at 1.20 Swiss francs per euro meant the SNB had to buy euros at that rate to maintain the peg. If the equilibrium rate moved above the peg, no intervention would be necessary.

² The author has to admit that he may be biased concerning the success of the lower bound, since he was one of the first to propose its introduction in the beginning of August 2011.

creating as many Swiss francs as needed to maintain the peg. This announcement stabilized expectations so that nobody wanted to risk losses by betting against the SNB. The Bank had to intervene strongly only during three months in the summer 2012. That intervention was not due to speculation.³ Rather, two different related reasons may have been important for these interventions. First, the eurozone experienced a crisis of confidence. Second, Switzerland was enjoying a current account surplus that had to be financed. If the Swiss people and business firms were no longer prepared to invest in euros because they mistrusted the euro at the time, the SNB had to take over this task, which may have been an important reason for the interventions in 2012. After that episode no new interventions were necessary until the end of 2014. For some time the euro even reached CHF 1.24. And until the end of 2013 foreign reserves even fell by CHF 22 billion.

The absence of interventions in most months since 2011 marked quite a contrast to their substantial volume of CHF 200 billion from the end of 2008 to August 2011, which had scarcely been able to influence the fall of euro against the Swiss franc. This difference was presumably caused by the failure to shape expectations by introducing a lower bound.

In fact, with the introduction of the lower bound for the euro the SNB had successfully sheltered the Swiss real economy (including tourism) and unemployment against a sizable recession and deflation, even though at the rate of CHF1.20 an overvaluation of the franc still existed compared to its purchasing power parity, and thus a weak deflation took place in 2012–13.

It has been argued that the introduction of the lower bound of CHF 1.20 for the euro by the SNB has been a mistake. But the reasons given for this opinion are in no way convincing. First, the exchange rate fell from CHF 1.64 for the euro in 2007 as a consequence of the international crisis to 1.0663 on August 4, 2011. Even if we take the average value of CHF of 1.565 for the years from 1996 to 2008, this implies a revaluation of about 47 percent. It is unthinkable that such a shock would not have had disastrous consequences for the Swiss real economy and Swiss tourism. Even with the lower bound of CHF 1.20 a strong overvaluation remained. Second, the

³ By studying future and option markets, I convinced myself that no speculation was involved.

Swiss franc not only appreciated against the euro, but also against other currencies. For instance the dollar fell from CHF 1.6886 in 2000 to 1.030 in 2008 and 0.8873 in 2011. Third, foreign trade as a share of GDP is the more important the smaller the country. For Switzerland the share of exports (without gold) amounted to 35.7 percent of GDP in 2013. Finally, 46.3 percent of Swiss exports go to the eurozone. As a consequence, the dangers threatening economic activity and employment were much bigger than in larger countries. Thus, the assertion that the SNB should not have introduced the lower bound for the euro is not maintainable in view of economic realities.

The Dilemma Faced by the SNB

The situation changed, however, at the end of 2014, when the SNB again had to intervene strongly in foreign exchange markets, probably because of the announcement of the European Central Bank that it would begin buying bonds (including those of governments) in March 2015, amounting to 1,140 billion euros until September 2016. The avowed purpose of this “quantitative easing” is to increase inflation to the ECB’s target of 2 percent, and thus to reinvigorate the eurozone’s sluggish growth. As a consequence, the euro weakened strongly against the dollar and other currencies, and with it, because of the lower bound, the Swiss franc. In fact, after the abolition of the lower bound, one of the three members of the Bank’s directorate, Fritz Zurbrugg (2015), explained in an interview on January 22 that if the lower bound had not been abolished, the SNB would have had to supply about CHF 100 billion for the month of January alone to maintain the peg. Together with the Bank’s already huge foreign reserves of about CHF 500 billion at the end of 2014, the new additions would have raised foreign reserves to nearly the value of Switzerland’s GDP. Consequently, at the beginning of 2015, the SNB was faced with a dilemma. On the one hand, reserves and the monetary base (M0) had reached dangerously high volumes for a small country; on the other hand, the removal of the lower bound for the euro—that is, a further revaluation of the Swiss franc—threatened the real economy and employment, and also increased the risk of deflation. Given this situation, the directorate made its decision to let the franc float after first having introduced negative interest rates in December 2014 without notable success. But the

Bank also announced that it would again intervene in the foreign exchange market if necessary.

As a consequence, the euro dropped at once below CHF 1, but has since recovered to CHF 1.0361 as of April 24, 2015. This seems to be far less than the president of the SNB, Thomas Jordan, had expected, when he spoke in public of a short-term overshooting of the exchange rate (Jordan 2015). I have to admit that because of historical evidence since the 17th century I doubt that the overshooting will be short-lived. Indeed, the evidence shows that maximal over- and undervaluations of ± 30 percent occurred for pairs of currencies showing only minor differences in inflation, and that they usually last for several years (Bernholz 2005). This has also been true for the exchange rate of the DM-euro for the dollar since 1972, where five long-lasting overvaluations and undervaluations occurred. A similar long-lasting overvaluation took place for the Swiss franc compared to the DM bloc after 1973, when the Bretton Woods System of fixed exchange rates had broken down. My hypothesis seems also to be supported by the fact that the sight deposits at the SNB increased by more than 40 billion francs from January 16 to February 6, a fact that can only be explained by a similar amount of purchases of foreign exchange in an effort to increase the value of the euro. But as has been mentioned before, in spite of these interventions the euro recovered only to CHF 1.0361 as of April 24.

Possible Consequences of the Removal of the Lower Bound

The removal of the lower bound for the euro is expected to lead to important consequences for the Swiss real economy if the exchange rate of the euro does not recover to at least CHF 1.10 or even 1.15. An immediate consequence was a buying spree by Swiss consumers crossing the borders to Germany, France, and Italy. For a short time, not even enough euros were available to satisfy the demand. Travel agencies already expect a boom for journeys to countries of the eurozone. Some Swiss hotels began to offer better rates for guests coming from these countries. On January 29, a representative of the unions demanded to reestablish the lower bound of 1.20. Even politicians slowly began to move, and asked for extension of government support if working hours had to be reduced with the aim of preventing higher unemployment, also as a consequence of the

high exchange rate. Further demands were presented to reduce administrative burdens and not to introduce new measures like higher prices for electricity planned for the purpose of supporting clean energy. Already proposed anti-cartel legislation meant to prevent foreign firms from demanding higher prices in Switzerland than in other countries suddenly faced better chances of approval in parliament.

Several business firms reacted by introducing extended working hours at unchanged pay, by announcing to stop hiring new employees, and also by planning to transfer to or extend some of their activities in foreign countries. Other firms are planning to pay foreign workers in euros at the old exchange rate. Moreover, some have already warned that negative consequences have to be expected for turnover and profits. To understand the importance of such measures, one has to realize that the greatest part of Swiss exports is going to countries in the eurozone.

At the moment it is very difficult to estimate the damage to be expected for the real Swiss economy and unemployment. Recently the Institute for the Study of Business Cycles at the Technical University Zurich has stated that it expects a small recession in 2015 instead of the formerly calculated real growth of 1.5 percent for Swiss GDP. It is obvious that the tourist industry and small- and medium-sized export firms will be harmed the most. Their expenses and wages are mostly in Swiss francs, and it is well known that reductions in wages are difficult and may lead to social unrest. Thus, to maintain sales, firms will be forced to lower the prices for their goods and services expressed in francs. Multinational firms with great production facilities in foreign countries will be least damaged, but it has to be expected that they may strengthen their foreign activities by reducing those in Switzerland.

Possible Alternatives

What are the possible alternatives to the present policies of the SNB? It is important to discuss these alternatives, because the damages to the real economy and to unemployment at a long-lasting exchange rate near CHF 1 for the euro may urge the Bank to change these policies. I have already mentioned that I do not share the hope of the president of the SNB that only a short-term overshooting of the franc compared to the euro is taking place. Indeed, there exists

much historical evidence going back to the 17th century that overshooting by 30 percent or more, often lasting for years, compared to purchasing power parity is typical of flexible exchange rates (see Bernholz 2005).

The first alternative of the SNB to be considered is given by the possibility of buying euros to raise their value in francs. As mentioned earlier, the SNB appears to have chosen this alternative during the last two weeks of January. The success of this intervention has been limited: until February 12, it only led to an increase of the exchange rate to about CHF 1.05 for the euro. This outcome should not be a surprise because without a limit informing expectations, heavier interventions are necessary, as already experienced by those taken by the SNB from 2008 to 2011.

A second alternative was proposed by Ernst Baltensperger of the University of Bern a few days before the lower bound was abolished. He recommended a lower bound for a currency basket consisting of euros and dollars, both with a weight of one half, to be defended by interventions if necessary (Baltensperger 2015). Such a solution would have allowed a milder solution of the dilemma faced by the SNB, because the dollar had already begun to rise in terms of the euro and that development would probably continue given the ECBs announcement of QE, set to begin in March. This solution would have been much less damaging to the real economy, though it has to be admitted that a currency basket is somewhat less efficient to handle and less able to influence expectations.

A third alternative would have been to maintain the lower bound for the euro somewhat longer, but to lower it after some time according to the differences of inflation between the eurozone and Switzerland. This new policy would have had to be announced in advance. It is true that such measures would at least for some time not have reduced the inflow of foreign reserves. But that doesn't necessarily imply a disadvantage. I still recall that Charles Kindleberger of MIT told me about 30 years ago that with regard to U.S. monetary policy: "We indebt ourselves short-term at low cost and invest the proceeds long-term with higher earnings." This is exactly what would occur if the SNB chose the third alternative. The Bank would indebt itself against foreigners by selling them stable francs, which it can produce nearly without costs, and then invest the foreign exchange reserves profitably in foreign countries, a policy followed recently by China and the Gulf States.

Such a policy would, as a side-effect, offer inflation-haunted foreigners a stable money—that is, a valuable good. However, the SNB, as central bank of a small country, would presumably argue that it might lose monetary control by following such a strategy. Moreover, the Bank might point out that a large part of its foreign exchange reserves had to be invested in short-term liquid assets that could be sold if needed to support the franc or to reduce the monetary base in case of inflation. To me both arguments do not seem to be very convincing. Since its foundation in 1907, the SNB has been able to maintain the lowest average rate of inflation of all developed countries, as stated by former president Claude Trichet of the ECB on its 100th anniversary (Trichet 2007). As a consequence, the SNB's reserves have always increased.⁴

A third argument against the third alternative is the following: The debts of the SNB would be denominated in Swiss francs, but its assets in foreign currencies. This would mean that each revaluation of the franc would lead to sizable losses. This argument sounds plausible. But it is only valid as long as the SNB would follow a wrong investment policy. For it is well known that the prices of shares, property, and gold develop in line with inflation—and thus, at least in the long run, compensate the losses brought about by revaluations.

Finally, no loss of control concerning monetary policy had to be expected by selecting the third alternative. For this policy is only dependent on *changes* in interest rates and the monetary base. The latter can always be accomplished if the SNB issues its bills, which has been legal for several years.

In sum, the three alternative scenarios mentioned for the SNB's monetary policy are still available to the Bank—even after the removal of the lower bound for the euro—if there is serious damage to the real economy.

Conclusion

The SNB's removal of the lower bound for the euro was a mistake. That policy decision has weakened the Bank's credibility and could lead to strong problems for tourism, several branches of industry, and

⁴ This is generally true except for passing losses because of lower prices for gold reserves, the selling of more than 50 percent of them as “no longer needed” since 2000, and the distribution of the proceeds to the Swiss Federation and Cantons.

employment. At the moment, predictions run from a strong weakening of the growth rate of GDP to a recession. Moreover, a small deflation is expected.

A better solution to the inflow of foreign exchange would have been to follow the proposal by Baltensperger (2015) to move to the lower bound of an evenly balanced euro-dollar basket at a time when the dollar has been rising in terms of the euro. This would have allowed a smooth change of the system and maintained the credibility of the SNB. With a future lower rate of inflation in Switzerland than in the United States and the eurozone this lower bound could have been lowered.

Against such a solution the directorate of the SNB has argued that the expected inflow of CHF 100 billion in January 2015, which would have brought up foreign exchange reserves to nearly the amount of GDP, would have been too much for a small country. But a comparison with Norway, which is even smaller (not in territory) than Switzerland, is throwing some doubt on this proposition. In Norway the wealth accumulated because of oil exports and invested mainly in foreign countries has already reached 200 percent of domestic GDP. And it is the Norwegian National Bank that is managing the corresponding fund. It also should be possible to profitably invest Swiss foreign exchange reserves stemming not from exporting oil but sound money. However, it has to be admitted that such a decision would require not only great courage but also a fundamentally changed perception, and might also lead to political problems for the independence of the SNB.

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CURRENT EVIDENCE ON THE RESOURCE COSTS OF IRREDEEMABLE PAPER MONEY

Tyler Watts and Lukas Snyder

I do not know of any attempt to measure the real resource costs of an irredeemable paper currency and to compare such costs with the real resource costs of a commodity currency. That is clearly a much needed research project.

—Milton Friedman

In 1986, Milton Friedman published a brief article in the *Journal of Political Economy* suggesting the possibility that real resource costs associated with the production and use of money could be greater under the current fiat money regime than under the commodity money regimes that preceded it. His article, and the broader implication about the resource costs of paper money, however, received scant attention. For by 1986, the Fed's disinflationary policies had come to full fruition, inaugurating the Great Moderation that ushered in two decades of low inflation, low unemployment, and strong real growth in the U.S. economy. Private accumulation of gold coins and bullion as an inflation hedge, safe-haven asset (hereafter "investment demand" for gold, following the terminology of the

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World Gold Council) had ballooned in the 1970s along with the price of gold, but the Volcker disinflation brought the gold price back down to earth, undermining much of the rationale for ongoing monetary gold accumulation.¹

More recently, the world has experienced severe financial crises, recession, and massive central bank interventions aimed at preventing a recurrence of the Great Depression. Unconventional monetary policies—in the form of ultra-low interest rates, quantitative easing, and macro-prudential regulation—by the Federal Reserve and other major central banks have contributed to asset price booms in commodities. In particular, in 2012, gold—the traditional safe haven asset still widely perceived as a hedge against inflation and economic uncertainty—saw both its average annual nominal and real price soar to new heights, as shown in Figure 1.

The gold boom is not just a price boom, but a production boom. The high price of gold is largely a result of the extra safe-haven investment funds being diverted into gold holdings during times of

FIGURE 1
GOLD PRICES, 1967–2013

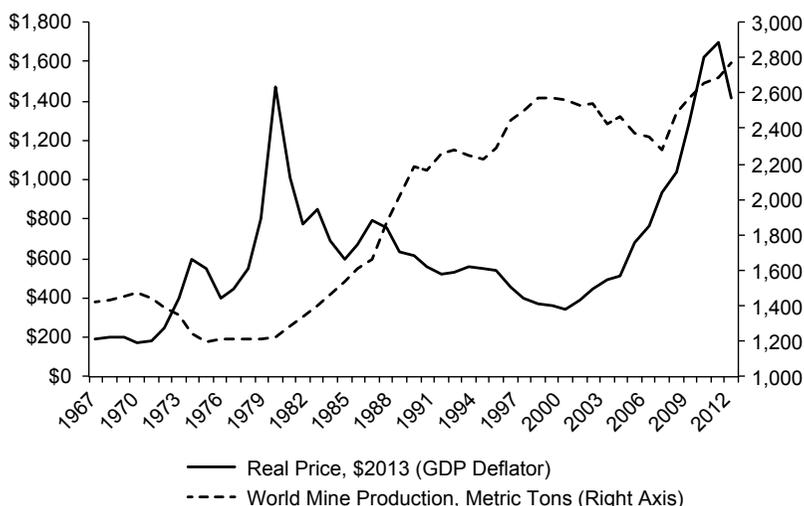


SOURCES: www.kitco.com/charts/historicalgold.html;
www.measuringworth.com/usgdp.

¹Indeed, lower inflation rates, sustained economic growth, and higher real rates of return on capital investments not only diminished the demand for investment gold, but likely increased the supply as well, as people sought to liquidate gold in favor of higher-yield investment opportunities.

fiscal and monetary uncertainty, and this high price in turn induces mining entrepreneurs to direct additional resources into gold production. Although many researchers and commentators argue that the world is near “peak gold” production—that is, world gold output must at some point peak and then decline due to the finite amount of gold extant in the earth’s crust—it appears that gold output has indeed responded to real price changes over the past several decades, albeit with a significant lag. Gold, like all fixed mineral resources, exhibits rising marginal costs of production in the short run with fixed production technology. Hence, the lagged output response to higher real prices represents a clear increase in real resource use in the gold mining industry. As Butterman (1980: 377) explained in the U.S. Geological Survey annual *Minerals Yearbook* for 1978–79, “The increasingly strong gold price provided the incentive for extensive exploration for gold deposits and the development of new mines. Retreatment of old tailings dumps, and the heap leaching of low-grade ores, became economically feasible.” Figure 2 confirms that

FIGURE 2
REAL GOLD PRICE AND WORLD GOLD PRODUCTION,
1967–2013



SOURCES: Price Data: www.kitco.com/charts/historicalgold.html. World Production Data: USGS *Minerals Yearbook*, “Gold,” 1970–2011; USGS *Mineral Commodity Summaries*, “Gold,” 2012–2014 (<http://minerals.usgs.gov/minerals/pubs/commodity/gold>).

higher real prices of gold—driven largely by bouts of increased investment demand—do indeed elicit an increased supply effort, and hence a greater resource cost of gold production.

In light of these rising resource costs of investment gold production, Friedman's unanswered question acquires renewed relevance. By comparing the net annual real value of gold investment in the fiat money era against the classical gold standard era, we seek to begin the undertaking of Friedman's "much needed research project."

The remainder of this article proceeds as follows. First, we present some estimates of the resource costs of the classical gold standard. While standard estimates assume that the classical-style gold standard requires that 1.5–2.5 percent of annual real output be dedicated toward monetary gold production (Friedman 1953, 1960), recent revisions, based on a more realistic fractional reserve banking practice of the actual gold standard era, revise this number significantly downward, to about 0.05 percent of GDP (White 1999). The estimates of scholars using the historically and theoretically accurate fractional reserves practice serves as a baseline by which to compare resource costs of net monetary gold production in both the modern pure fiat money regime and the classical gold standard.

Next, we present new evidence on the resource costs of gold across both monetary regimes. We look at trends in gold investment both as a percentage of GDP and as a percentage of total gold demand. We find that in the last several years, not only has gold investment increased significantly as a fraction of total gold demand, from roughly a 10 percent average in the pre-2008 years, to nearly 40 percent in the post-2008 period, but gold coin and bullion holding has approached, in real per-capita terms, levels last observed during the classical gold standard era. These data give weight to Friedman's concern that the "direct resource cost of the gold and silver accumulated in private hoards may have been as great as or greater than it would have been under an effective gold standard" (Friedman 1986: 644).²

²Gold is not, of course, the only inflation hedge asset. Moreover, the accumulation of other assets, such as silver and other commodities, add to the resource opportunity costs of fiat money. This article, however, only examines the costs associated with gold investment due to the lack of readily accessible data on silver and other commodity investment. We acknowledge that our exclusion of nongold inflation hedges likely biases downward our estimates of the inflation-hedging resource costs of paper money.

In the final section, we conclude by reiterating the notion that a real resource opportunity cost is not unique to the gold standard. Fiat currencies are much more susceptible to devaluation and deflation, and rational economic actors anticipate those risks by continuing to accumulate quasi-monetary gold. If the costs associated with gold hoarding and other investment vehicles directed at protecting wealth against fiat money volatility are seen to approach the levels of monetary gold production under historical gold standards, then the case for fiat money cannot rest on reducing resource costs in practice. Our results indicate that, in two major fiat money volatility episodes in the last 40 years, fiat money regimes have drawn gold into quasi-monetary or investment uses at levels approaching monetary uses during the classical gold standard.

Resource Costs of Money

A chief complaint against the gold standard is that there are opportunity costs associated with the real resources that must be dedicated to the mining and minting of coins. As Friedman (1962: 40) states,

The fundamental defect of a commodity standard from the point of view of society as a whole is that it requires the use of real resources to add to the stock of money. People must work hard to dig gold out of the ground in South Africa—in order to rebury it in Fort Knox or some similar place. The necessity of using real resources for the operation of a commodity standard establishes a strong incentive for people to find ways to achieve the same result without employing those resources.

Friedman has supplied widely cited estimates of this resource cost, in terms of the percentage of total national income required to be directed toward gold mining each year to add sufficient monetary gold stocks so as to maintain price level stability consistent with real economic growth. Assuming a 100 percent reserve gold standard monetary system (i.e., one in which all hand-to-hand currency consists of gold coin or fully backed gold certificates, and all bank deposits are 100 percent gold-backed), Friedman (1953: 210) estimated that “something like 1½ per cent of the national income would have had to be devoted to the production of the currency commodities in order for prices to have remained stable under a strict

commodity standard.” In 1960, he argued that “under a pure commodity standard, the United States would at present be devoting about 2½ per cent of its national product or about \$8 billion a year to produce directly or indirectly through foreign trade additional amounts of the monetary commodity to add to the amounts already in circulation or in warehouses” (Friedman 1960: 5).

Friedman’s 1.5 percent of GDP figure amounted to half of the average GDP growth for the U.S. economy during the historical period in question. Updating Friedman’s estimate with the then-lower ratio of money to income, Alan Meltzer (1983: 105) arrived at a gold cost figure of roughly 0.5 percent of GDP. The Friedman-Meltzer estimates thus range from a low of \$35.4 billion to a high of \$177 billion per year in terms of 2012 dollars.

These resource costs would constitute a high burden by anyone’s standards, and Friedman recognized that fractional reserve banking developed to economize on the resource costs of a strict 100 percent reserve gold standard. Historical gold standard monetary regimes have, since the beginnings of banking, featured substantially less than 100 percent reserves. Yet Friedman and Meltzer report estimates only for the resource costs of an imagined 100 percent reserve system, rather than also considering a more realistic fractional reserve system.

According to Lawrence H. White, in a financially developed economy with a mature banking system under a gold standard, the historically observed ratio of gold reserves to banks’ demand liabilities was as low as 2 percent, or 1/50th of Friedman’s assumed 100 percent reserves scenario. Thus, White (1999: 47) estimates, the amount of new gold production required each year to maintain monetary equilibrium in the economy would therefore be around 0.05 percent of GDP, 1/50th of Friedman’s 1960 estimate and 1/10th of Meltzer’s 1983 update of that estimate. If we assume a far more conservative 10 percent gold-to-bank demand liabilities ratio, our estimate of the annual resource cost of monetary gold amounts to only 0.25 percent of GDP, a figure very close to the measured gold flow resource cost we derive for the classical gold standard period in the United States. The upshot of these historically more realistic estimates of the resource cost of gold is that they are an order of magnitude or more below the traditional view of resource costs that Friedman’s initial estimates had established.

Even granting that Friedman and Meltzer’s estimates of the resource costs of the gold standard were far too high, the argument

that fiat money can avoid such resource costs altogether still must be taken into account. With a negligible marginal cost of production, paper money obviously has the *potential* to reduce the net resource costs of the monetary regime.³ Here we investigate the extent to which this potential has been realized. That is, to what extent has the switch to fiat money in the United States obviated the demand for monetary gold? Where Friedman, Meltzer, and White have offered armchair estimates of resource costs based on different assumptions, we examine the actual data on gold production for monetary use under the classical gold standard and for investment uses under the fiat dollar standard.

A great irony with fiat money is that its negligible marginal cost of production, which has the potential to spare resource costs of money, can potentially resuscitate these very resource costs if abused. Inflation through excessive fiat money issuance can be, and has historically been, far more severe and prolonged than the mild inflations associated with new gold discoveries in the historical gold standard regimes. This kind of fiat money inflation, or even the very threat of it, can inaugurate a flight back into gold as a safe-haven asset.

White (1999: 49) takes standard estimates of the deadweight burden of the inflation tax on currency-holding at various rates of inflation, compares them to his own estimate of a 0.05 percent of GDP annual resource cost of monetary gold production, and derives a break-even point: "A country where fiat money is managed so as to keep inflation below 4 percent can do without a gold standard; but a high-inflation country would be better off with gold." But his approach understates the costs of fiat money inflation by counting only the deadweight loss of money-holding benefits arising from a suboptimal quantity of real balances, completely neglecting the resource costs of producing quasi-monetary gold to meet inflation-hedging demand.

³Moreover, due to the fact that a reserve monopolist central bank is needed to install a fiat money regime in an economy, fiat money can—at least in theory—be supplied with perfect elasticity through activist monetary policy. Thus, fiat money offers the potential twin benefits, as compared with the gold standard, of zero resource costs and an elastic supply that could obviate both liquidity crises and deflationary adjustments in the face of adverse nominal spending shocks in the economy. It is not our task here to address whether central banks have in practice actually achieved a greater degree of monetary stability than the gold standards they superseded.

U.S. Monetary Gold Production: Gold Standard vs. Fiat Currency

This brings us to our present task, which is to provide data comparing monetary or investment gold production for two distinct periods of U.S. monetary experience: the classical gold standard era of 1879–1914, and the post-Bretton Woods, pure fiat money era of 1972–present. The former period represents the zenith of the international gold standard in the decades leading up to World War I. The latter period is instructive because it provides two distinct sub-periods of increased gold investment, interspersed by a sub-period of declining gold prices and slack gold investment demand—namely, the gold boom of the 1970s brought on by inflationary volatility in fiat money, the Great Moderation in U.S. inflation and interest rates from 1984 to 2007, and the 2008 financial crisis and ensuing recession accompanied by massive monetary interventions by the Federal Reserve and other central banks. Although the latter actions have not yet generated much measured inflation, they nevertheless encouraged the long-term bull market in gold, leading the yellow metal to new nominal and real price records in 2012.

Procedure

We set about to estimate the net annual change in the monetary gold stock (i.e., coins and bullion held by the public and in bank reserves) for the classical gold standard era, and the net annual gold *investment* demand (as opposed to industrial or jewelry demand⁴)

⁴We recognize that purchases of gold jewelry, especially the high-karat variety, can and do at times constitute investment demand, as people may choose to hold investment gold in this more attractive and wearable form. Indeed, it is common practice in many societies, particularly India and China, for people to hold much of their wealth in such a manner. For present purposes we are unable to include any jewelry purchases as gold investment for the United States. Although there are indications that at least some U.S. gold jewelry buyers view their purchases as a quasi-investment, we lack data, such as high-karat items as a percentage of total U.S. gold jewelry sales, upon which to build an estimate of the investment nature of gold jewelry purchases. Suffice to say that, by overlooking any jewelry component of investment gold purchases, we are simply establishing a more conservative estimate of investment gold flow costs for the fiat money era.

for the modern fiat money era.⁵ Using the GDP deflator index, we converted the yearly gold flow values into constant 2009 dollars, then divided these real monetary/investment gold flow figures into real GDP for each year, to provide estimates in terms of the above-referenced literature of the resource cost of gold in terms of the fraction of total output devoted to *net* annual production of monetary or investment gold.

The Data

Precise yearly data for the value of the monetary gold stock in the United States for the classical gold standard era are taken from the annual summary *Report of the Director of the Mint* published by the Government Printing Office. The yearly net flow of monetary gold is estimated for each year simply by subtracting the previous year's gold stock. We view this as a reliable estimate on the grounds that the vast majority of monetary gold in the United States in the classical gold standard period was either manufactured or processed by the U.S. mint, and that which was not of U.S. mint provenance—for example imports of foreign-made bullion—was most likely stored in the vaults of national banks that reported to the U.S. Treasury. Hence, the mint directors were well positioned to keep careful tabs on monetary gold stocks and flows in the United States.

Data for the post-Bretton Woods period come from two major sources. For the years 1997 to 2013, the World Gold Council provides “total bar and coin investment” data for gold in the United States and other major gold-using countries in nominal dollar value and/or quantity terms. Details on the sources and estimation methods for these data are provided in the endnotes of the

⁵The 1914–1933 period is excluded on the basis that, although the United States remained on a domestic gold standard, most of the erstwhile gold-standard countries did not, which led to large inflows of gold into the United States for much of this period. These inflows would distort our method of estimating yearly net monetary gold accumulation on the basis of the net change in the monetary gold stock. The 1934–1974 period is excluded from analysis on the grounds that holdings of monetary gold had been made illegal for U.S. residents during this period. While many Americans surely continued to hold monetary gold during this period, the illegality of such holdings undoubtedly clouds the already scanty official data on private gold-holding for that era.

yearly Gold Demand Trends publications issued by the World Gold Council.⁶

The period 1975 to 1996 presents the biggest challenge for this project in terms of estimating the yearly flow of investment gold into the U.S. economy because no official data are available.⁷ Thus, we construct a weighted estimate based on annual production figures for, and journalists' accounts of American investors' purchases of, the most popular gold investment products available during this period. For this entire period, the South African Krugerrand gold coin was the most widely used vehicle for gold holding by American investors.⁸ Various journalists' accounts indicate that Americans' share of total Krugerrand output ranged from 32.8 percent to 50 percent for 1977, 50 percent to 61.4 percent for 1978, and 50.6 percent for 1979 (Africa Fund 1977; Ross 1978, 1979; *Globe and Mail* 1979; Welsh 1980). Taking the mode of these estimates, we posit that U.S. purchases amounted to 50 percent of total Krugerrand output for the entire period.⁹ Late in 1979, in reaction both to the widespread success of the Krugerrand and the gold investment boom then occurring, the Canadian government introduced the Maple Leaf bullion coin. Based on reports from Canada's *Globe and Mail* newspaper, we posit that U.S. purchases amounted to 40 percent of Maple Leaf output for the period in question (Welsh 1980, 1983). The U.S. government got into gold bullion production with the introduction of the American Eagle coin in 1986. We posit that 100 percent of American

⁶See www.gold.org/supply-and-demand/gold-demand-trends/back-issues.

⁷Private possession of unlimited amounts of gold coin and bullion, which had been outlawed by President Franklin D. Roosevelt's well-known gold confiscation and devaluation policies of 1933–1934, was re-legalized as of December 31, 1974 by Public Law 93–373.

⁸Indeed, for 1975–1978, the Krugerrand was the predominant government-issued gold bullion product available for individual American investors, representing an estimated 75 percent of all U.S. bullion purchases (Jarvis 1978). Canadian Maple Leaf gold coins became available late in 1979, and the U.S. Mint-issued Gold American Eagle became available in 1986.

⁹It is likely that U.S. purchases accounted for well less than 50 percent of Krugerrand production after North American coins became available. However, Krugerrand production tapered off substantially into the 1980s, especially after the introduction of the American Eagle in 1986, thus the effect of overweighting U.S. Krugerrand purchases for later years is diminished by the decreasing relevance of new Krugerrand production in the United States and world gold bullion markets.

Eagles were purchased in the domestic market.¹⁰ Thus, although the gold investment flow data for 1975–1996 are not as complete or precise as for the classical gold standard era or the post-1996 period, we feel confident that, by tracking estimated U.S. purchases of the three best-selling gold bullion products, we have established a conservative working estimate of net U.S. gold investment flows for this period. The compiled data are presented in Table 1.

As Table 1 indicates, the net flow of monetary or investment gold into the U.S. economy since the time of the classical gold standard has varied within a large range, from 0.007 percent of real GDP during the Great Moderation to 0.306 percent during the later years of the classical gold standard. The overall average monetary gold flow resource cost during the classical gold standard in the United States stands at 0.249 percent, which we note is one-sixth the level of Friedman's 100 percent reserves-based estimate and one-half of Meltzer's updated Friedman-style estimate, but five times larger than White's estimate. The fact that the observed flow resource cost lies roughly midway between Friedman's and White's estimates makes perfect sense, given that Friedman (wrongly) assumes 100 percent reserves, while White assumes a free banking regime capable of achieving reserve economies much greater than those achieved in U.S. gold standard experience.¹¹

On the surface, it appears that the post-Bretton Woods fiat money period performs substantially better for the United States than did the classical gold standard in terms of economizing on the resource costs of monetary gold. The percentage of real GDP devoted to monetary

¹⁰Production of both Canadian Maple Leafs and American Eagles represented *net* gold demand, as in Canada's case the coins were required by law to be produced with newly mined Canadian gold and in the case of the American Eagle the U.S. Treasury was required to replace any gold it withdrew from reserves for the purpose of minting Eagles (McAllister 1987). While American Eagles were marketed entirely within the United States, certainly some amount of them have been purchased for foreign accounts, and thus net American holding of Eagles likely represents less than 100 percent of production. We are confident, however, that foreign accumulation of American Eagles is offset by American accumulation of other minor bullion products, such as Chinese Pandas and Mexican Pesos.

¹¹The National Banking System imposed stringent reserve requirements on banks' notes and demand liabilities ranging from 15 percent to 25 percent, depending on the classification of the bank, although these were in effect lower due to the pyramiding of reserves, as explained by Edward Meade (1898).

TABLE 1
MONETARY AND INVESTMENT GOLD FIGURES

Time Period	Net Monetary/ Investment Gold Flow (\$2009)	Annual Averages for:	
		Gold Flow as % of Real GDP	Gold Flow per capita (\$2009)
Antebellum (1822–1860)	\$109,740,350	0.242%	\$5.43
Early Classical Gold Standard (1879–1896)	\$429,438,431	0.196%	\$8.45
Late Classical Gold Standard (1897–1913)	\$1,488,766,455	0.306%	\$18.44
Classical Gold Standard Average	\$943,969,185	0.249%	\$13.30
1970s Gold Boom (1975–1983)	\$1,645,624,704	0.026%	\$7.26
Great Moderation (1984–2007)	\$656,026,889	0.007%	\$2.55
Financial Crisis/ Recession (2008–2009)	\$2,888,100,756	0.020%	\$9.43
Post Great (Moderation (2008–2013)	\$3,289,354,167	0.022%	\$10.58
Post-Bretton Woods Average	\$1,289,522,889	0.014%	\$4.87

SOURCES: Friedman and Schwartz (1970); U.S. Bureau of the Mint (1907, 1913); Warwick-Ching (1993); and World Gold Council, *Gold Demand Trends*: www.gold.org/supply-and-demand/gold-demand-trends/back-issues.

or investment gold was on average at least a full order of magnitude larger in the classical gold standard period than in the fiat money era.

We need to dig deeper, however, to get an accurate picture of the relative significance of investment gold in the modern era as compared to monetary gold in the classical gold standard era. The U.S.

economy has experienced substantial economic growth in the past 100 years, representing a 24-fold expansion in real GDP. This growth has been driven largely by a host of products and industries that either did not exist or were in their infancy in 1913: automobiles, aircraft, television, computers, cell phones, etc., to name just a few. Real GDP growth has averaged over 3 percent, while the gold stock has grown at about 1.5 percent per year during that time (Lehrman 2012: 27). With real goods and services *other than gold* growing at more than double the rate of the gold stock, gold is bound to become of less and less economic significance relative to total economic output. Note for instance that nonmonetary uses of gold—largely jewelry and art applications—averaged 0.11 percent of real GDP in the classical gold standard era, a figure which diminishes to 0.03 percent of GDP through the entire post-Bretton Woods era.¹² Is the diminution of the total value of nonmonetary, noninvestment gold relative to total output a factor of diminishing consumer tastes for gold? Perhaps, but a more plausible explanation is that this represents not an absolute drop in consumers' interest in gold, but simply a *relative* diminishment of gold due to tremendous growth across all other sectors of the economy.¹³

To compensate for the tendency of large overall economic growth to cloud relative gold cost comparisons over a more than 100-year timespan, it is useful to consider monetary vs. investment gold accumulation on a real per capita basis. As the final column of Table 1 shows, real per capita monetary gold flows peaked at an average level of \$18.44 (2009 dollars) in the late classical gold standard years, and bottomed out at an average of \$2.55 during the Great Moderation. However, during two distinct episodes of monetary volatility in the fiat money era—namely, the high inflation of the late 1970s and early 1980s, and the 2008 financial crisis and ensuing Great Recession—real per capita gold investment approached the level of the classical

¹²Calculation based on data from *Annual Report of the Director of the Mint* and *USGS Gold End Use Statistics*. Data available on request by email: tylerwatts53@gmail.com.

¹³For comparison, consider that U.S. sugar consumption rose from about 85 pounds per person in 1913 to about 100 pounds per person in 2013, even though the total value of sugar consumed in the United States fell from over 1 percent to 0.03 percent of real GDP (USDA Economic Research Service, www.ers.usda.gov/topics/crops/sugar-sweeteners.aspx; Austin 1913).

gold standard, and even exceeded the level observed during the early years of the classical gold standard era.¹⁴

The figures on the composition of gold use presented in Table 2 reinforce our interpretation of the trends observed in Table 1. While monetary uses of gold dominate nonmonetary uses by a two-to-one ratio during the classical gold standard, no sub-period of the fiat money era sees the investment share of gold rise above the non-monetary share.

Thus, on first glance the U.S. experience with fiat money comes out ahead in terms of minimizing the proportion of gold flowing into monetary uses, thus freeing more gold for nonmonetary uses. Note, however, that the shifting patterns of gold use in monetary versus nonmonetary uses reflect the episodic volatility of the fiat money era.

TABLE 2
MONETARY VS. NONMONETARY COMPOSITION OF
YEARLY GOLD DEMAND

Period	Annual Average Value of Percentage of Calculated Net Yearly Production Used in:	
	Jewelry/ Industrial	Monetary/ Investment
1880–1913 ¹⁵ (CGS)	33%	67%
1975–1980 (1970s Gold Boom)	60%	40%
1982–2003 ("Early" Great Moderation)	53%	46%
1997–2007 ("Late" Great Moderation)	91.6%	8.4%
2008–2011 (Great Recession)	60%	40%

SOURCES: Friedman and Schwartz (1970); U.S. Bureau of the Mint (1907, 1913); Warwick-Ching (1993); and World Gold Council, *Gold Demand Trends*: www.gold.org/supply-and-demand/gold-demand-trends/back-issues.

¹⁴The larger monetary gold flows seen during the later classical gold standard period arose largely from substantial new worldwide gold discoveries and application of new gold processing technology (Friedman 1992: 104 ff.).

¹⁵These values were estimated by dividing the average of total value of gold used in the "Manufactures and the Arts" category of the 1914 *Report of the Director of the Mint* (p. 201) into the average of the previously estimated nominal gold flow for each year in the period.

For instance, while the stability and low inflation expectations of the Great Moderation drove monetary or investment use of gold to less than 10 percent of the total, this figure rose to 40 percent on the heels of the 2008 financial crisis and Great Recession.

Conclusion

Our goal in this article has been to provide data covering a range of monetary regimes and financial episodes from U.S. history in order to shed light on the question of the resource costs of monetary gold. The data indicate that in times of consistently low inflation and smooth financial seas, such as the Great Moderation, gold investment demand is light, and the value of net yearly real gold investment, both total and in per-capita terms, falls well below that of the historical gold standard era. However, in times of financial crisis and potential fiat money volatility, gold investment demand grows to levels that can rival monetary gold production of the classical gold standard era.

These facts support the claim of Lawrence H. White (1999) that fiat money regimes ultimately only save on resource costs associated with monetary gold accumulation if they are able to credibly commit to a low inflation regime and thereby obviate monetary demand for gold. Even when relatively low-inflation fiat regimes, such as the post-Bretton Woods Federal Reserve, engage in inflationary or expected inflationary policies, they can instigate renewed flows of investment gold at significant levels. On a final note, this article has addressed only the monetary or investment uses of gold in terms of accumulation of physical gold either by financial institutions or individual investors. Of course, there are other means available for hedging against volatility in the value of fiat money. Investors may accumulate other hard assets, such as silver, land, and art, in addition to gold, or may engage in various asset allocation strategies, such as increased holdings of foreign-currency-denominated assets. All investment strategies that aim at securing one's capital against losses due to fiat money volatility incur some form of opportunity costs. In other words, while gold remains the most popular safe-haven asset, there is more to the opportunity costs of fiat money than strictly gold investment. A further examination of whether the total opportunity costs of fiat money, including all hedging assets and strategies, exceeds the monetary gold resource costs of the classical gold standard is a ripe subject for further research.

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BOOK REVIEWS

The New Counter-Insurgency Era in Critical Perspective

Edited by Celeste Ward Gventer, David Martin Jones, and
M.L.R. Smith

New York: Palgrave Macmillan, 2014, 375 pp.

The New Counter-Insurgency Era in Critical Perspective pulls together contributions from a range of authors with academic, policy, and military perspectives. Developed in the wake of the American-led invasion of Iraq, the current counterinsurgency (COIN) narrative—commonly referred to as “population centric” or “hearts-and-minds”—identifies civilians as the center of gravity in winning insurgencies. Under this rubric, counterinsurgency experts have advocated redressing popular grievances, providing public goods and services, representative governance, and limited use of force. Such actions, these experts claim, will woo civilians away from supporting insurgents and inspire loyalty to the incumbent regime. Scholars, military handbooks, and media reports have all articulated this paradigm. The book’s editors state that “it was the largely uncritical acceptance of this COIN narrative that forms the background to this edited volume.”

Broadly, all chapters question the efficacy of population-centric COIN. Many chapters focus (explicitly or implicitly) on Western-led interventions in Iraq and Afghanistan, and the approaches, assumptions, and scholarship that underpin them. The chapters are almost universally critical of the current COIN paradigm, but the volume as a whole may be summarized by Paul Schulte’s contribution: Rather

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than lining up to spurn large-scale interventionist COIN, “a more useful task is to . . . consider the grave, but not necessarily catastrophic, implications of 12 years of campaigning.” In this vein, several themes emerge from the collected chapters.

First, a recurrent theme throughout the volume is criticism of the current COIN narrative’s technocratic approach, emphasizing tactics over strategy and a conflict’s wider political context (the contributions by Colin Jackson, Douglas Porch, M.L.R. Smith, John Bew, Huw Bennett, and Paul Staniland). Indeed, Porch argues that David Galula’s account of French counterinsurgency in Algeria has been popular with American academics and practitioners who have worked to revive Galula’s work in part because he views COIN with a tactical focus, ignoring the fight’s strategic context. Galula’s account emphasizes the imperative of separating insurgents from the population, and the concomitant importance of not alienating the population from the incumbent while doing so. Delinking COIN from politics, the current narrative “exceptionalizes” insurgency as a phenomenon distinct from conventional war and Clausewitz’s edict that war is politics by other means.

Focusing on tactics, COIN experts lump different types of war into a single category, which risks a strategy/policy mismatch in interventions and prescribing a fixed tactical toolbox to address very different conflicts (as noted in the essays of Joshua Rovner, M.L.R. Smith, and Bing West). This “technocratic conceit,” as Jackson dubs it, may lead to short-term tactical success but longer-term failures in producing stable, post-conflict states. Conflating insurgencies into a single category also undermines efforts to draw generalizations, as theorizing based on tactics is, according to Smith, an “inadequate and unstable basis for analysis.”

Smith further argues that delinking war and politics risks “escalat[ing] war far and above what is feasible and proportional in either military or political terms” and a “perverse predilection for unrestrained grievance settlement.” Moreover, failure to appreciate the wider political context means that interventionist COIN or aid to allies facing rebellion may face difficulties because Western policymakers pursue a monopoly on violence and state-building goals that these states may not share.

Jeffrey Michaels suggests that an apolitical focus is self-perpetuating. Large-scale interventionist COIN entails a large

military presence whose bureaucracy tends to overwhelm all diplomatic cadres, leads to the exclusion of nonmilitary policies, and promotes a tendency to view conflict in military rather than political terms. Similarly, Huw Bennett holds that a technocratic focus on “lessons learned” from operations in Iraq and Afghanistan may miss larger weaknesses. In perhaps an extreme argument along these lines, Bennett proposes that British military policy in southern Iraq “suggests weak civilian control of the armed forces, and the triumph of military amateurism.”

Second, authors throughout the volume highlight contradictions and tensions embedded within contemporary COIN—suggesting that this narrative is intrinsically flawed or impracticable. Broadly, Michaels argues that large-scale interventionist COIN may be a destabilizing, rather than stabilizing, influence. Such interventions can produce local inflation and corruption, and present often-underplayed logistical challenges. Within this larger contradiction, Michaels notes that interventions can foster dependency—even as host regimes and their populations may come to resent foreign intervention, governments may come to depend on foreign aid, and civilians may find that foreign COIN operatives behave better than local troops. Bing West argues that several of COIN’s main efforts—democratization and implementing Western-style rule of law—are undermined by a simultaneous emphasis on host governments’ sovereignty. Thus empowered, such states have few incentives to constrain themselves as Western sponsors might prefer.

Third, the volume repeatedly underlines a larger tension: the ways in which the “liberal strain” in American policy simultaneously perpetuates and undermines COIN practice. The editors note that the hearts-and-minds COIN narrative plays well among the Western public, satisfying a broad constituency, offering a gratifying “story about triumph over adversity,” and a messianic effort to confer “liberty upon others.” This desire may underwrite future COIN efforts, even in the face of a war-weary public and a broader strategic pivot to Asia. According to Joshua Rovner, policymakers may support COIN efforts among allies in the Middle East and Asia, and pursue “future COIN adventures seeking to rebuild weak states.”

But even as this “liberal strain” underpins modern COIN interventions, it constrains historical interpretations and limits policy options, and its elements can undermine one another. Hearts-and-minds COIN restricts the use of force against civilians to the bounds

of liberal democracy. Yet David Galula, author of some of the paradigm's seminal texts, advocated withholding details of COIN operations from the home public in order to preserve support. Justifying COIN under a rubric of human security, the West's characterization of COIN as an "exceptional" form of war may make it easier for Western military operations to sacrifice human rights and professional restraint.

Moreover, for all of COIN's emphasis on civilian-led democratization and security sector reform, William Rosenau's discussion of the "military-police nexus" on the American home front strikes a particularly ironic chord. He notes the parallels in characterizing foreign insurgencies and domestic unrest, such as law enforcement's interest in COIN expertise and military operatives' interest in law enforcement approaches to gangs and organized crime.

Similarly, James Worrall and Matthew Ford note a tension between COIN's ends and means. Worrall argues that "if counterinsurgency is about shaping the desires of the population, then there are two ways to do this: firstly, through population persuasion; and, secondly, through population control." Unfortunately, "perhaps two of the most unpalatable aspects for Western states are the physical and psychological control of populations and the control of territory for long periods." Out of deference to the liberal paradigm, he argues, such issues of control are widely ignored or downplayed through vague language—risking unrealistic assessments of COIN operations and the possibility that governments will look to COIN as a panacea.

Many of the authors note inaccurate and selective use of historical cases to highlight elements of these campaigns that are consistent with the population-centric perspective, while glossing over evidence that counterinsurgents used force against civilian populations and may not have governed as benignly as claimed (for example, John Bew on Northern Ireland, and Joshua Rovner, among others, on Iraq and Afghanistan). Hampering historical analysis in this way constrains theory and practice, and limits policymakers' ability to "reconcile military means, however liberal, with more realistic political concerns."

Fourth, as Schulte notes, insurgency will likely continue, but the contributors to this volume argue that COIN policy and practice need to be re-examined, suggesting avenues for future research and thoughts for future policies. Authors question some of the assumptions underlying the current COIN paradigm or, like Ryan Evans,

argue that these are underexplored. Population-centric COIN is premised on the notion that civilians will abandon their support for insurgents, or forsake political indecision, if wooed with political compromise, good governance, and public goods and services. Yet, in their essay, Stephen Biddle, Jeffrey Freidman, and Jacob Shapiro note that civilians' and local powerbrokers' realignment is largely understudied. Moreover, the two instruments frequently used to persuade the populace (cash and bureaucracy) rarely generate influence or change loyalties in ways envisioned. Other authors advocate reconsideration of COIN's assumption that states want to defeat insurgents and (re)establish a monopoly on the use of force within their borders. Emerging and future work has started to question these assumptions, and the demand for outright victory, in favor of a more flexible model of political management.

Several contributions to the volume suggest that American policymakers and academics should seek insight from a more diverse range of sources than those that inform the current paradigm. Several authors advocate study of non-Western counterinsurgency campaigns—in the words of West, the “various means—some compatible with current American societal values and some not—[that] have defeated insurgencies.” Yet, within the West's current paradigm, COIN is tightly tied to issues of governance and state building, and “a great many lessons to be learnt from studying both non-Western counter-insurgency operations and their attempts at state building, especially after decolonization.” Moreover, the current roster of historical writings and cases popularly used to study COIN (inaccuracies aside) are unnecessarily limited. Rovner suggests a turn to other political theorists, like Thomas Hobbes and Charles Tilly, to inform the collective understanding of COIN.

Finally, several authors emphasize that future policy would benefit from pursuing fewer COIN interventions and more limited goals. Porch and Michaels argue that much of the work on COIN underplays its risks. Michaels and Gentile note that a prolonged focus on COIN operations can come at a cost of military readiness and skills needed to fight other forms of war. Moreover, as Ford notes, “there are limits on what an interventionist power can achieve.” Faced with failure of what Jackson dubs the “government in a box” model (in which counterinsurgents' toolkit sets up stable, popularly supported governments), the policy “answer lies in decreased ambition and sanctimony, and an acceptance of increased complexity and

duration.” Large-scale interventionist and population-centric COIN is only one policy option. Many more limited alternatives may facilitate American security aims, argues Gian Gentile.

As a whole, this volume offers an interesting set of perspectives on U.S.-led counterinsurgency efforts since 9/11. Readers who have followed counterinsurgency primarily through evolving media reportage may find more in-depth, chapter-length analyses informative. Those concerned with the future of American foreign policy, and skeptical of interventionist COIN, will find this collection makes progress toward its ambitious goal of recognizing what the “straight-jacket of operational framework has done to strategic thought” and to “restore some subtlety to the debate.”

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A Nation Wholly Free: The Elimination of the National Debt in the Age of Jackson

Carl Lane

Yardley, Pa: Westholme Publishing, 2014, 265 pp.

In recent years, federal government debt has soared to the highest levels in our peacetime history. In other countries, rising debt has precipitated economic crises, but these foreign experiences have not yet prompted U.S. policymakers to focus on debt reduction. While policymakers often express concern about the debt, other fiscal priorities always seem to take precedence.

American leaders used to be more troubled by government debt, and during various periods they worked to reduce it. One of those periods was the 1820s and 1830s, as described by Carl Lane in *A Nation Wholly Free: The Elimination of the National Debt in the Age of Jackson*. Lane is a professor of history at Felician College in New Jersey, and he provides an engaging and detail-oriented account of fiscal policy in the early Republic. Debt reduction was a key policy focus at that time, and it influenced many other issues, including tariffs, internal improvements, and the Second Bank of the United States.

America was born with a substantial load of government debt, which had been issued to fund the Revolutionary War. Following Alexander Hamilton’s plan, Congress passed a law in 1790 that transferred state debts to the federal government, creating a total federal

debt that year of \$75 million. Hamilton and the Federalists were in no rush to pay down the debt, and by the end of the Adams administration in 1800, it had edged up to \$83 million.

Thomas Jefferson assumed the presidency in 1801 promising to end internal taxes, restrain spending, and pay down the debt. In a 1799 letter to Elbridge Gerry, Jefferson said, "I am for a government rigorously frugal and simple, applying all the possible savings of the public revenue to the discharge of the national debt." Jefferson followed through on his tax promise, kept total spending roughly flat, and was able to pay down a substantial part of the debt, even though the Louisiana Purchase had cost \$15 million. Federal debt fell from \$83 million in 1801 to \$57 million by 1809.

After reaching a low of \$45 million in 1812, federal debt soared to \$127 million by 1816 as a result of the War of 1812. Jefferson's animosity toward government debt, however, had a lasting influence on policymakers. By the Monroe administration (1817–1825), debt was falling again as the government began running surpluses in most years.

This is the point at which Lane's detailed narrative begins. Senator Thomas Hart Benton of Missouri said that, after the war, leaders started focusing on the government becoming "wholly free" of debt. By the end of Monroe's tenure, that dream began to look possible. In his final State of the Union message in 1824, Monroe said that the debt could be fully paid off by January 1835.

That prospect caught the imagination of many leaders who believed in the moral and practical benefits of debt freedom. They associated government debt with corruption, and they thought that debt undermined checks and balances and thus eroded liberty. Debt freedom was also favored by the public, which strongly supported frugality in the federal government. Lane says, "When Congress voted itself a raise in 1816, voters retaliated. An overwhelming majority of incumbents went down to defeat at the next election."

With policymakers focused on debt elimination, numerous efforts to expand spending during the 1820s and 1830s failed. Since Alexander Hamilton's tenure as Treasury secretary, for example, there had been pressure for the federal government to spend on infrastructure, called "internal improvements." Many members of Congress wanted the government to support roads and canals, either as particular projects in their districts or as a general policy. Henry Clay of Kentucky was a major force in Congress for decades, and he

promoted his “American System” of high protective tariffs combined with infrastructure spending.

Opposition to such spending came from members such as John Randolph and John Taylor of Virginia, who both thought that such local spending was unconstitutional. Lane notes that Martin Van Buren of New York also thought that “Congress had no power to construct roads and canals within the states.” Van Buren said that spending on such projects “was sure in the end to impoverish the National Treasury by improvident grants to private companies and State works, and to corrupt Federal legislation by the opportunities it would present for favoritism.”

President John Quincy Adams came into office in 1825 with grand plans to fund roads, canals, a national university, a new department of interior, new federal courts, and other items. Adams was an intelligent and experienced leader, but his expansionary agenda conflicted with the goal of debt freedom, and it went nowhere in Congress. Lane notes that “the debt question permeated the proceedings of the nineteenth Congress [1825 and 1826] Every appropriations bill, whether minor or major, underwent intense scrutiny and debate.” Indeed, members were so focused on restraining the budget that they openly challenged spending on military projects in each other’s districts.

Lane argues that Adams’s lack of commitment to debt freedom doomed his presidency. Adams was replaced after the 1828 election by Andrew Jackson, who was a believer in debt elimination and Jeffersonian frugality. On assuming office, Jackson made a list of his priorities, including “the Public debt paid off, the Tariff modified and no power usurped over internal improvements.” In his first inaugural address, he promised “extinguishment of the national debt, the unnecessary duration of which is incompatible with real independence.”

Jackson famously vetoed federal funding of Kentucky’s Maysville Road project in 1830, citing constitutional objections and his concern that it interfered with the goal of debt freedom. Lane says that Jackson’s veto and his focus on debt reduction “erased from the national policy agenda” any major program of internal improvement, at least for the time being.

“Jackson knew that, given the choice, Americans would prefer inexpensive government to expensive government-funded roads and canals,” notes Lane. Jackson also knew that federal investments in roads and canals were likely to be flops. In his 1830 message to

Congress, he said “positive experience, and a . . . thorough consideration of the subject, have convinced me of the impropriety as well as inexpediency of such investments.”

Jackson’s observations about what we now call “crony capitalism” were astute. He noted, for example, that when the government gave initial subsidies to companies, they tended to get hooked on the handouts and keep coming back for more. He also noted that business subsidies placed public funds under the “management and control” of “an authority unknown to the Constitution, and beyond the supervision of our constituents.”

Lane argues that the goal of debt freedom “factored into all the major policy decisions of [Jackson’s] two administrations,” including the Nullification Crisis of the early 1830s. That crisis revolved around the fact that high federal tariffs favored the commercial and manufacturing states in the northeast and hurt the agricultural South. South Carolina’s John C. Calhoun argued that the impending elimination of the federal debt meant that tariffs should be slashed because the revenues would no longer be needed to pay the interest or principal. Jackson was neither a free trader nor a strong protectionist, but he hesitated to reduce tariffs until the debt was paid off. The crisis reached a peak in 1832 when South Carolina declared that the federal tariff laws of 1828 and 1832 were null and void within the state’s borders. Fortunately, the crisis was diffused when agreement was reached on the Compromise Tariff of 1833.

Debt freedom played an important role in the battle between Jackson and Second Bank of the United States. With the Bank needing rechartering by 1836, Bank president Nicholas Biddle initially sought favor with Jackson by proposing a financial plan to retire the federal debt early. But, ultimately, Jackson and his allies in Congress decided that the Bank was unconstitutional, a damaging monopoly, a threat to liberty, and it would not be needed after the debt was paid off in 1835. Jackson, Senator Thomas Hart Benton and others battled Bank supporters, and they were ultimately successful in killing the institution with Jackson’s veto of a recharter bill in 1832.

Debt freedom came as expected on January 1, 1835, and the Jacksonian political elite held a big party to celebrate at Brown’s Hotel in Washington. Even with the debt paid off, Jackson continued to stress Jeffersonian frugality. In his annual message to Congress in December 1834, he said “simplicity in the character of the Federal Government, and a rigid economy in the administration, should be

regarded as fundamental and sacred.” Jackson thought that allowing the government to issue debt encouraged profligacy and tempted it to spend on items that it did not have the constitutional power to spend on.

The good times ended with the financial Panic of 1837, which plunged the economy into recession and led to a drop in revenues and a resumption of borrowing. As it now stands, the only time in history that America has enjoyed federal government debt freedom was between January 1835 and October 1837.

The Congressional Budget Office has published data on federal debt as a share of estimated gross domestic product back to 1790. Debt fell from 30 percent of GDP that first year to 6 percent by 1811, but then rose to 10 percent during the War of 1812. Debt then declined for two decades to reach zero by 1835, as Lane’s book describes.

After the effects of the Panic of 1837 subsided, Congress began running occasional surpluses once again, and debt remained below 3 percent of GDP all the way to the Civil War. The war caused debt to spike to 31 percent of GDP, but then the Jeffersonian tradition reasserted itself, and policymakers steadily reduced the debt load to 3 percent by the beginning of World War I.

Debt peaked at 33 percent of GDP in 1919, and then was reduced under Presidents Warren Harding and Calvin Coolidge. The Great Depression and World War II caused the debt to spike to 103 percent in 1946, but post-war prosperity enabled politicians to pay down some of the debt during the 1950s and 1960s, even as spending was growing. Debt began rising in the 1980s to peak at 48 percent in 1994, before declining once more in the 1990s boom.

Over the past decade, restraint has been put aside and debt soared to 74 percent of GDP by 2015. Today’s debt load is easily the highest in our history outside of World War II. What makes it particularly troubling is that, as entitlement programs expand in coming years, CBO projects debt as a share of GDP to grow continuously.

Unfortunately, our federal fiscal culture has changed dramatically since the Jackson era. Lane concludes: “Debt freedom, Americans in the Jacksonian era believed, would improve the material quality of life in the United States. It would reduce taxes, increase disposable income, reduce the privileges of the creditor class, and, in general, generate greater equality as well as liberty.” Back then, the belief was that a frugal government that balanced its books would help secure

liberty and broadly benefit average citizens, but that understanding is sadly alien to most federal politicians today.

Chris Edwards
Cato Institute

Social Justice and the Indian Rope Trick

Anthony de Jasay

Indianapolis: Liberty Fund, 2014, 189 pp.

There's a clarity and straightforwardness to Anthony de Jasay's work that's always refreshing—even when I find myself disagreeing with what he's clearly and straightforwardly arguing. Jasay is unapologetic about his beliefs and that sense of purpose has animated his numerous contributions to libertarian thought. Yet, in this collection, that certainty occasionally leads him to offer incomplete arguments that miss their mark.

The essays collected in *Social Justice and the Indian Rope Trick* largely group into three different arguments, all intended in some degree to highlight what Jasay calls a “perilously ignored defect of modern political thought, namely the careless use, the misuse, and even the downright abuse of the language.” The first target is the term “social justice,” which Jasay thinks a pleonasm at best, a dangerous subversion of justice at worst. Then he turns to rights, which he finds conceptually unhelpful, tying us in intellectual knots we could shrug out of if we'd only recognize the primacy of rules. Finally, he addresses the problems of social contract theory and distinguishes it from his own preferred theory of conventions.

Of his three targets, social justice is where I most fear Jasay's arguments don't work. Or, at least, don't quite establish as much as he says they establish. Over the course of several essays, he makes many trenchant observations; he also often argues against concepts that, while familiar to advocates of social justice, won't look like the views they actually claim to hold. He also displays a tendency to get tied up in his own preferred terminology, thus allowing tricks of language to take the place of trenchant criticism.

He begins his critique by noting that a great many concepts exist in binaries with their opposites, and the binaries have value baked in. Thus “good” pairs with “bad,” and we needn't build arguments for why we prefer the former. Good is obviously better than bad, and so

a good result better than a bad one. Likewise with “beautiful-ugly, useful-useless, clever-dumb, adequate-inadequate, just-unjust.” Contrast these with binaries that may have values associated with the sides but which aren’t self-evident: “Big-small, long-short, loose-tight, heavy-light, soft-hard, equal-unequal.” It’s this last—equal-unequal—that sits at the heart of social justice, Jasay says, and so is the seed of its incoherence.

Jasay argues that, to make any sense at all, social justice must pair with social injustice, but it’s not obvious what such injustice entails. “Judgments on social justice cannot validly claim to be true or false in the absence of rules defining what is socially unjust.” Jasay’s claims that to fill in the meaning of these terms, advocates basically substitute another binary, equal-unequal. Thus we can find social justice by looking for equality, and identify social injustice wherever we see inequality. But notice that equal-unequal is of that second kind of binary, where the value judgments aren’t inherent to the terms themselves. Just as we might prefer big to small but also, in different circumstances, small to big, we might also sometimes prefer equal and at other times prefer unequal. This makes it “necessary to find at least a conclusive reason why equality must in all circumstances rank above inequality and thus give a lasting content to social justice.”

Jasay believes attempts to provide a reason for the absolute primacy of equality must fail. Within the libertarian theory of distributive justice he prefers, distributions may—and often will—be unequal, but that inequality is just—and often desirable—when it results from basic principles of acquisition and transfer. So long as individuals exchange legitimate property voluntarily, it would be absurd to label the resulting distribution unjust. Jasay also believes “social justice” a pleonasm. If it’s legitimately a kind of justice, then why not just call it “justice?” If it’s not, then it’s not, and sticking “social” before the word won’t make it so. I fear both somewhat miss the point. His first prong appears to beg the question and his second ignores potentially fertile ground for discussion by way of insisting on rather narrow—and contested—definitions.

Any society must have a method by which goods are distributed. Jasay is right when he criticizes many philosophers for forgetting that most goods must also first be produced, and that our distributive principles will impact production. But that doesn’t settle the question of how distribution, once we have goods, will work. We can, as Jasay prefers, focus our talk on individual transactions occurring within that

distributive framework. But it doesn't seem entirely illogical to also discuss the overall distribution. Nor is it on-its-face illogical to ask if that resulting distribution is good or bad, helpful or harmful, perhaps even just or unjust. Jasay's fairly typical libertarian theory of distributive justice holds that the only principles that matter in such talk are private property and free exchange, and that any distribution resulting from people following those rules is *ipso facto* moral and/or just. Fair enough—and I'm inclined to agree with him. But there are alternative theories, articulated at length and part of a vast literature on the subject, and they're not so obviously incoherent as Jasay asserts. (Though he does a rather terrific job of poking holes in naive claims about the virtue of perfect distributional equality.)

Someone more egalitarian than Jasay could argue, for instance, that voluntary transfers of legitimate property can be just in and of themselves, but that the resulting distribution can be so lopsided, or so harmful to some individuals or groups, that we have to judge the rules themselves as creating an emergent injustice. We might think of this as a variation of Derek Parfit's "Harmless Torturers" thought experiment, where millions of torturers each remotely inflict an imperceptible amount of harm on a person, so imperceptible that it fails to rise to the level of an injustice. But the aggregate of those just acts is the injustice of excruciating torture. In the market, one might say, millions of individually just transactions may do no perceptible harm, but the aggregate effect might be so bad that we have to judge the system itself as unjust. Perhaps everyone refuses to trade with a small minority and refuses to let members of that minority traverse their property. They'd effectively drive that minority to destitution or death, but all through just—according to this libertarian conception of distributive justice—actions. If minor modifications to rules of property acquisition or transfer would prevent this outcome while resulting in vanishingly small injustices, perhaps that's a desirable world, and one that justice-with-a-capital-J demands.

I join Jasay in responding "no" to that suggestion—in part because I believe the hypothetical depends on several mistaken or unrealistic assumptions. But showing *why* takes more than saying, "But the rules of justice are what I say the rules of justice are" or "Justice only means what I say it means." There's nothing magical about the term "justice" itself. It's merely a word we use to talk about a certain set of morals and principles we attach a certain sort of huge importance to. The advocates of nonlibertarian distributive justice think their

concerns fit within that. Jasay doesn't. That's an important debate to have, and it's one with which Jasay fails to directly engage.

Jasay's take on rights is that we shouldn't talk about them because they're an unnecessary appendage on the more important and foundational concept of right and wrong. As he's argued at greater length elsewhere, we derive the rules of right and wrong from whatever is to our mutual advantage. Thus, "under the conventional rule, wrong is what obstructs or destroys mutual advantage." This includes killing, but also most torts, such as violating "respect for property and the keeping of promises," as well as weaker "rules against nuisances and incivilities." Anything that isn't wrong is, by definition, right. This leaves little room or need for "rights" as a feature of humanity or the world. "If something is defined as *wrong*, it must not be done. It is nonsensical to claim a right that it should not be done to you or anyone who has this right, since we have also said that it must not be done anyway, right or wrong."

One might approach this a number of ways, including voicing skepticism about mere convention, even if mutually agreed upon, as the best source for all rules of right and wrong. But what stands out to me is that Jasay's idea—that wrong action is just any action that violates a rule and that the concept of rights contributes nothing to the discussion—gives us an inadequate reason for not behaving in what we might call rights-violating ways. Moral motivation matters, which is, for instance, one of the many reasons why consequentialism proves so dissatisfying as a moral theory. It's wrong for me to kill you not because it makes the world a worse place or because I've violated some conventional rule, but because it's wrong for me to kill *you*. The idea of rights recognizes this. Rights are a fact about people, something morally significant in their nature. Rights operationalize a basic respect for the humanity of the people we share the planet with. Respecting them is about respecting that humanity. Respecting conventional rules that benefit us, and respecting them *because* of that personal benefit, isn't good enough. Even if we might prefer it on grounds of conceptual parsimony. There's more to rights than telling us what's wrong.

Ultimately, judging the effectiveness of *Social Justice and the Indian Rope Trick* depends on who's going to read it. An academic audience is likely to find Jasay's argument against social justice unconvincing, but only because so few of them will subscribe to the crude, radical egalitarianism he's addressing. But nonacademics, who

aren't familiar with the literature on distributive justice, will likely get a good deal more out of it. I fear many people new to thinking about politics from a philosophical perspective will naturally drift toward precisely the confused theory Jasay eviscerates. His clarity and directness will serve that audience well, and he has quite a lot to teach them.

Aaron Ross Powell
Cato Institute

This Nonviolent Stuff'll Get You Killed: How Guns Made the Civil Rights Movement Possible

Charles E. Cobb Jr.

New York: Basic Books, 2014, 293 pp.

Charles Cobb's excellent book *This Nonviolent Stuff'll Get You Killed: How Guns Made the Civil Rights Movement Possible* teaches two important lessons that will make some people uncomfortable. The first lesson is summarized in the subtitle: the exercise of Second Amendment rights was a sine qua non for the survival and success of the Civil Rights Movement in the South during the 1960s. The second uncomfortable lesson, for some people, is that community organizing is vital to democracy. *This Nonviolent Stuff* is not the first book about armed self-defense in the Civil Rights Movement, but it does make a vital and unique contribution.

Nicholas Johnson's *Negroes and the Gun: The Black Tradition of Arms* (Prometheus, 2014) surveyed the long history of self-defense by black people in America—from Frederick Douglass advising how to resist slave-catchers, to Otis McDonald winning his Supreme Court case in 2010. This survey includes a long chapter about the Civil Rights Movement, and it is the best introduction to the subject. As a law professor, Johnson pays careful attention to the national leaders of the civil rights organizations and their formally expressed views.

The other major, prior book on the subject is *The Deacons for Defense: Armed Resistance and the Civil Rights Movement* by Lance Hill (University of North Carolina Press, 2004). This overlooked gem tells the history of the Deacons for Defense and Justice, an armed community defense organization founded in southeastern Louisiana in 1965. Especially in the Louisiana panhandle and in southwestern

Mississippi, the Deacons were immensely successful at suppressing Klan violence and promoting the repeal of segregation. The Johnson and Cobb books both include careful analysis of the Deacons, but of course not in the detail provided by Hill.

What makes *This Nonviolent Stuff* so powerful is that it provides the perspective of the community organizers themselves and explains why they overcame their aversion to forceful self-defense. In contrast to conventional histories of the Civil Rights Movement, which concentrate on famous leaders, *This Nonviolent Stuff* is history from the ground up.

Cobb was a field secretary for the Student Nonviolent Coordinating Committee, working in the rural Deep South. In conformity with SNCC's name, Cobb began his organizing work strongly committed to nonviolence. Even more deeply invested in nonviolence was another community organizing group, the Congress of Racial Equality. CORE had roots in the Fellowship of Reconciliation, the world's leading ecumenical organization of Christian pacifists. So how did these people end up with guns?

To begin with, they went to places which already had lots of guns. The rural South has a very strong gun culture. "Gun control," such as restrictive licensing laws, originated in ex-Confederate states when white supremacists attempted to prevent freedmen from defending themselves. Nevertheless, by the middle of the 20th century, black farmers and residents of small towns had a healthy supply of firearms. Many black men had become proficient shooters during their service in World War II or Korea. They had an established tradition of self-defense—of using their arms to deter and drive off whites who might come to their homes and threaten their families.

The civil rights community organizers were housed with local families. And the families made it quite clear to their long-term guests that if Klansmen showed up to attack the organizers, there was going to be an armed response. When the organizers traveled, especially at night, there was grave risk of homicide by the Klan, other terrorist groups, or unorganized thugs. So the community tended to insist that the organizers be provided with armed escort. The organizers had mixed feelings about this, but they believed that their job was to help the community empower itself and not to try to impose their values on the community.

Besides that, there was the practical fact of survival. Getting roughed up by the police at a lunch-counter sit-in while the national

press was filming and photographing was an outstanding tactic to win Northern sympathy. But there was nothing to be gained in allowing oneself to be murdered late one night on a rural road, knowing that the local law enforcement agency sympathized with (or was run by) the Klan and would do nothing to apprehend the perpetrators.

Moreover, the organizers could see what guns meant to the community itself. As Cobb explains, community organizing is not about telling people what to do. Empowering the community means helping individuals take whatever steps are personally appropriate for them. Cobb recounts the story of an elderly black man, Joe McDonald, whose shotgun was confiscated on a pretext because he was letting civil rights workers live in his home in the small town of Ruleville, Mississippi. The civil rights workers told him he had a right to a gun, and they showed him a history textbook that contained the text of the Second Amendment.

So McDonald drove to the city hall and told the mayor to give him his shotgun back. When the mayor refused, McDonald showed him the textbook page with the Second Amendment and insisted that he had a constitutional right to his gun. The mayor complied, and when McDonald arrived home, he stepped out of his pickup truck “triumphantly raising the shotgun above his head.”

Drawing up the courage to stand one’s ground did not always have to take place at a voter registration office or a segregated lunch counter.

For a while, when the SNCC and CORE community organizers wrote field reports to send back to their national headquarters, information about armed defense tended to be discretely omitted. But over time, the community changed the organizers, and the organizers changed the organizations. Today, Roy Innis, who has been national chairman of CORE since 1968, also serves as an elected director of the National Rifle Association.

The image of armed black people was certainly not something that Dr. Martin Luther King Jr. was promoting. But as Cobb details, it was a part of the Civil Rights Movement that he was willing to discretely accept. On June 6, 1966, James Meredith (the first black student at the University of Mississippi) was shot and wounded while conducting a march to encourage voter registration.

Leading civil rights organizations banded together to continue the “Meredith March against Fear,” from Memphis, Tennessee, to

Jackson, Mississippi. With King's consent, armed security was provided the entire way by the Deacons for Defense. Four thousand new voters registered; fifteen thousand marched into Jackson along with Dr. King on June 26, the largest civil rights march in the state's history.

Presumably the most common guns on the march were those that the Deacons preferred as standard equipment, namely, .30 caliber M1 carbines (whose standard magazines are 15 or 30 rounds) plus .38 Special revolvers. The M1 was a classic citizen-soldier rifle from World War II, and the U.S. government's Civilian Marksmanship Program had put hundreds of thousands into civilian hands at steeply discounted prices via NRA-affiliated gun clubs. Virtually alone among major U.S. sporting organizations, the NRA had never adopted a whites-only standard for membership.

Deterrence worked, and, although there were confrontations with aggressive Mississippi police during the Meredith March, nobody on either side fired a shot.

The many thousands of empowering steps on that march provided a foundation for even more voting and organizing in the coming years. Political power did grow out of the barrel of a gun—not in the Maoist sense of using guns to suppress the political expression of other people—but in the deeply American sense of using firearms to defend the exercise of other fundamental rights, such as freedom of speech, assembly, and voting.

In those days in the South, it was the Second Amendment that was “the guardian of all other rights.”

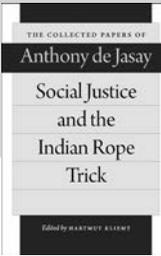
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Social Justice and the Indian Rope Trick

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Paperback. ISBN 978-0-86597-885-0. \$14.50.

In this collection of witty and compelling essays, Anthony de Jasay challenges what many of today's social and political philosophers widely accept: that social injustice is identified with inequality and social justice with equality.

The fifteen articles in this collection include both published and unpublished papers written over the years 2008 to 2012.

Anthony de Jasay

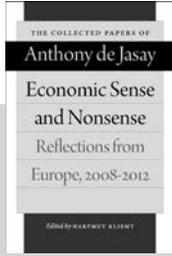
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Economic Sense and Nonsense

May 2014. 6 x 9. 311 page.
Cloth. ISBN 978-0-86597-878-2. \$24.00.
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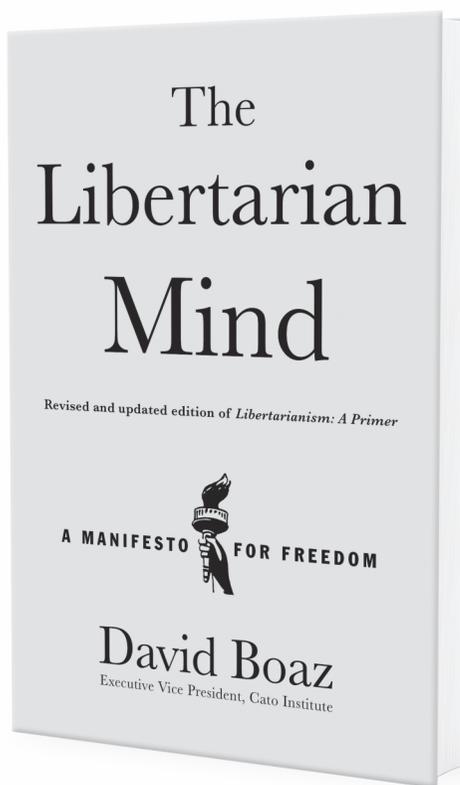
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—Joseph Schumpeter

The History of Economic Analysis (New York: Oxford University Press, 1954): 405–6.

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