

**Monetary Policy: An
Institutionalist Approach**

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A BRIEF HISTORICAL OVERVIEW

While this chapter will not present a detailed history of monetary policy, it is useful to first take a quick look at the evolution of thinking about the nature of monetary policy. We will first examine the famous Currency School-Banking School debates of the early 19th century, then turn to the insightful analysis of Walter Bagehot. We next turn to the creation of the Fed and early 20th century thinking about the role of the central bank. The discovery of the “deposit multiplier” in the 1920s as well as the developing understanding of open market operations had a very large influence on the post-WWII theory of central bank control of the money supply. While post-war “Keynesian” economists were skeptical of the potency of monetary policy, the Monetarist approach gradually gained adherents and came completely to dominate thinking about monetary policy by the last quarter of the 20th century. However, Monetarism experienced a quite remarkable turn-around of fortunes at the end of the century. As we begin the 21st century, orthodox thinking about monetary policy is in nearly complete disarray. However, there are themes that run through the 20th century and even the 19th century that offer some guidance in reformulating and creating a truly institutionalist approach to monetary policy.

Pre-War Monetary Policy

There are many similarities between the Currency School-Banking School debate of the 19th century and the 1960s-1970s debate between Monetarists and “Keynesians”. (When I use the term “Keynesian” in quotes, I mean the bastardized version of Keynes popularized by Samuelson and his followers, and best explicated in the ISLM model. This is to be contrasted with Keynes’s own thoughts and those of his followers, the Post Keynesians.) The debate centered around the relation between money and spending, on the ability of the central bank (the Bank of England) to control the quantity of money, and on the relation between the quantity of money and the external balance. (Wray 1990) The Currency School tended to follow the “Classical” view that an increase of the money supply would be fully reflected in a rise of prices—in other words, they accepted what has come to be known as the proposition that money is neutral. Further, because the resulting inflation would make domestic output noncompetitive, this would tend to cause a trade deficit. On a gold standard, this would then cause a gold outflow, which would cause the money supply to decrease (as there would be less gold to back it) and force prices to fall. Hence, the “specie-flow” mechanism would tend to restore balance by automatically reducing the supply of money.

If, however, some portion of the money supply were not backed directly by gold, the specie-flow mechanism could not work because an outflow of gold would not necessarily reduce the money supply. For example, if private bank notes circulated as part of the money supply, but if these were not strictly convertible to gold (or to government currency that was itself strictly convertible to gold), an increased supply of private bank notes could cause inflation and result in a persistent trade deficit. For this

reason the Currency School wanted to tightly constrain the issue of private bank notes by requiring that private banks hold specie or Bank of England notes in an amount equivalent to their private bank note issues. The Bank of England would be able to control private money creation simply by controlling its own emission of notes—which would serve as the required reserves of the private banks. In short, like modern Monetarists, adherents to the Currency School approach believed that “required reserves” would give to the central bank control over that portion of the money supply that is privately created, and that this would in turn allow the central bank to limit inflationary pressures that would cause trade deficits.

The Banking School, on the other hand, denied that “excessive” creation of private bank notes is the cause of inflation. They argued that bank notes are issued only on demand, and only because someone wants to hold or spend them. Any excessive notes would be returned to banks for redemption or to repay loans—what has been called the “law of reflux”. Indeed, the Banking School denied that private banks have any discretionary influence over the quantity of bank notes outstanding—private money creation is “endogenously” determined by the customers of banks. Further, central banks could not affect the quantity of private notes issued, but rather would affect only the terms on which they were offered in loans. In other words, central bank policy operated not on the quantity of money but rather on the interest rate—restrictive policy would increase interest rates.

Note, however, that the Banking School argued that the law of reflux would not apply to a government-issued “fiat” money that was not convertible. As it was not redeemable for gold, a government fiat money could be issued in excess without refluxing back to government. Hence, a government fiat money could indeed be excessive and could thereby contribute to inflation—and could cause a trade deficit. However, as privately issued money would reflux to the issuers, so long as it was redeemable, it could not directly affect inflation or the trade balance.

Like some modern day “Keynesians”, the Banking School saw monetary policy as operating indirectly, only through its affects on interest rates. Thomas Tooke, the foremost Banking School theorist argued that “(I)t is only through the rate of interest and the state of credit, that the Bank of England can exercise a direct influence on the foreign exchanges....” (Tooke 1959, p. 124) According to Tooke, proper monetary policy would not worry about the quantity of money but instead would attempt to stabilize interest rates: “[T]he greater or less liability to variation in the rate of interest constitutes, in the next degree only to the preservation of the convertibility of the paper and the solvency of banks, the most important consideration in the regulation of our banking system.” (ibid)

Unfortunately, as is often the case, the persuasiveness of the position of the Banking School was lost on policy makers. Parliament adopted the Currency School principles in its Act of 1844, which tried to limit private bank note issue by placing a ceiling on their issue and by constraining Bank of England note issuance. Tooke’s analysis some years later was harsh:

As the result of a careful examination of the principle on which the Act of 1844 was founded, and of the experience of its working since the time when it came into operation, I have no hesitation in giving it as my opinion that it is a *total, unmitigated, uncompensated*, and, in its consequences, a *lamentable failure*. (Tooke 1848, vol IV, p. 402)

The variations, in the rate of interest, during the year 1847, have exceeded in frequency and extent any of which there is to be found an example in the commercial history of this country. (Tooke 1848, vol IV, p. 400)

As we'll see later, one could say much the same of the Federal Reserve's application of Monetarist principles in the early 1980s.

Over time, England developed what we might call a "mono-reserve" system in which private banks promised to redeem their own liabilities (initially taking the form of bank notes, but eventually mostly taking the form of deposits) for Bank of England notes. Private banks thus held some Bank of England notes in vaults, but most of their reserves took the form of deposits in key London banks, which in turn held deposits on the Bank of England. In a sense, the whole banking system "pyramided" reserves on the Bank of England, which gave it tremendous power in determining interest rates. It could cause "tight money" by calling in advances made to London banks or brokers, or it could raise the interest rate required in its discount of bills, or it could simply refuse to discount bills altogether. When faced with tight money, London banks would call in overdrafts and force correspondent country banks to sell consols or stock. This tended to cause bond prices to fall and interest rates to rise. (Sayers 1957, pp. 125-7; Wray 1990, p. 51) In this way, the Bank of England could affect market interest rates.

When England ran a trade deficit, the Bank of England would face an external drain of specie. It would then institute a tight money regime to attract bullion inflows seeking higher interest rates. However, an external drain would often generate an internal drain: bank customers might notice a drain on bank reserves, become worried over the stability of banks, and hence try to obtain loans and discount bills before credit was cut off. Worse, they would try to withdraw deposits or redeem notes. This would lead to a further (internal) drain of reserves of the Bank of England, which would tighten money even further to stem the drain. A panic would result whenever the Bank of England acted like it might not provide the reserves needed by the private banks. Indeed, the Bank of England would frequently sell securities to replenish its own reserves—simply adding pressure on private banks.

By the last quarter of the 19th century, Bagehot forcefully argued that this was precisely the wrong policy. (Bagehot 1927) He believed that one of the most important functions of a central bank is to act as a lender of last resort. He recognized that in any mono-reserve system, the monopoly supplier of that reserve must supply reserves *without limit* whenever the banking system faces a panic. The way to stop a run on reserves is to demonstrate to the public that private bank liabilities can be, and will be, redeemed on demand for the ultimate reserve. This would restore confidence and stop bank runs. Note that Bagehot's recommendation is consistent with the Banking School's preference for policy to aim at interest rate stabilization, while the Bank of England's actual policy only caused interest rates to rise even further during a panic.

Bagehot's influential book was published in 1873, and his recommendations were gradually incorporated within the dominant view of economic theorists. By the end of the 19th century, the Bank of England

endorsed Bagehot's theory in its policy. When the Fed was established in 1913, one of the principal justifications for its creation was the recognition that the panic of 1907 might have been prevented or at least attenuated if a national lender of last resort had been in existence. In a mono-reserve system based on liabilities of the central bank, reserves can always be expanded without limit as the central bank lends reserves (at the discount window, by discounting eligible "bills"), or provides them through open market purchases of assets. Hence, the Federal Reserve Act of 1913 charged the Fed with furnishing "an elastic currency" and "the means of rediscounting commercial paper". (Meulendyke 1989, p. 18) For many years thereafter, the guiding principle of the Fed was the 'Real Bills Doctrine' under which the Fed was to rediscount eligible paper (thus make loans of reserves to member banks) on demand to meet the needs of trade. (Meulendyke 1989).

The original Act did not provide for open market operations. Since WWII in the US, we have become accustomed to central bank open market operations—purchases and sales of government debt—and to the impact these have on banking system reserves. However, before WWII, the outstanding stock of government debt was generally not large (except following wars), and banks typically got their reserves at the discount window by submitting eligible paper for discount. WWI had also increased the supply of government debt, and just like private banks, the Fed had purchased some of this debt as an interest-earning asset. It was not until the 1920s that the effect of open market operations by the central bank was generally understood. It was also at this time that the 'deposit multiplier' was discovered: an open market purchase would create reserves that were believed to permit a multiple expansion of deposits. (Meulendyke 1989) While some commentators at the time noticed that an open market operation that increased/decreased bank reserves would simply lead to offsetting activity at the discount window (as discounts fell/rose), this recognition was gradually lost as Currency School-type thinking was revived after WWII in a particularly virulent, Monetarist, form.

Monetary policy during the Great Depression has received a bad rap. Some have faulted the Fed for "allowing" half of all banks to fail. If the Fed was created in 1913 to save banks facing a run, why did it stand by as bank after bank had to close its doors? A simple, but not complete, answer is that the Fed saw as its mandate the charge to lend reserves to otherwise solvent banks. In other words, the Fed was supposed to provide liquidity by discounting "good" bills, but was not supposed to save banks whose bills (and other assets) were questionable. The banks that were failing were not merely illiquid, they were also insolvent because their assets had collapsed in value. The far less valid, but nearly universal, complaint about the Fed, however, is the absurd Monetarist claim that the Fed reduced the money supply, and, hence, caused the bank failures. This view has been popularized by Friedman and Schwartz (1963), who claim that tight monetary policy by the Fed turned a downturn into a long depression. As evidence, they point out that the money supply and bank reserves declined during the depression; since they believe that the Fed determines the quantity of money through the deposit multiplier and its control over bank reserves, the Fed deserves the blame.

Actually, the Fed intervened immediately and forcefully in 1929, buying \$125 million of Treasury securities the day of the stock market crash,

five times the maximum weekly amount it was authorized to purchase, and doubling Fed holdings in one day. (Muelendyke 1989; Wray 1998, p. 99) However, as the asset price deflation spread, and as the depression forced down production and prices of goods and services, defaults on loans snowballed throughout the economy. In this environment, banks were forced to default on their own commitments (the demand and savings deposits of their customers) and/or reduce their loan portfolios (due to lack of good borrowers). Hence, the money supply fell because of the depression and it is rather silly to claim that the depression could have been avoided if only the money supply had continued to grow rapidly. (There is only one sense in which Friedman and Schwartz are correct in claiming that tight money policy contributed to the depression. Until the US went off the gold standard, the Fed did indeed worry about loss of its gold reserves if there were a run on US dollar-denominated assets. Hence, the Fed's interest rate policy was constrained because the US interest rates could not drop significantly below those of other countries—ignoring expectations of exchange rate movements—without draining gold. Thus, if a lower interest rate might have had a marginal, positive, influence on borrowing and spending, then one could argue that monetary policy should have been “looser”. However, this was not possible so long as the dollar was redeemable for gold.)

Post-War Policy

During WWII, federal government deficits reached to nearly a quarter of GDP, leading to large issues of treasury debt. The Fed agreed in 1942 to peg the three-month Treasury bill rate at $\frac{3}{8}$ of one percent to keep government interest costs low; longer-term bonds were informally pegged at somewhat higher rates. In effect, the T-bill rate operated as a floor for interest rates, and by keeping it low this tended to keep interest rates on private debt low (at a markup over the rate paid by government, with the differential determined largely by default risk and capital risk). After the war, the Fed was concerned with the potential for inflation and wanted to abandon the peg so that it would be free to raise rates to fight inflation. In 1947 the Treasury agreed to loosen the reigns on the Fed, which raised interest rates. The Fed continued to lobby for greater freedom to pursue activist monetary policy, resulting in the 1951 Accord in which the Fed abandoned its commitment to maintain low interest costs for the government. Henceforth, the Fed would manipulate the interest rate to implement countercyclical monetary policy.

After the War, banks were flush with government debt. Gradually, the Fed's emphasis moved from the discount window to open market operations. During the 1950s, the fed funds market was created and evolved to become the primary private “market” for excess reserves. Before the development of the fed funds market, a bank needing reserves would sell government bonds; banks with excess reserves would buy government bonds to obtain earning assets. The fed funds market allowed surplus banks to lend reserves directly to deficit banks, often requiring that borrowing banks put up government bonds as collateral. The fed funds rate gradually became the key short-term, base, interest rate.

After the 1951 Accord, the Fed—for political reasons—did not announce interest rate targets. Its newly won independence required that it proclaim that it was not pegging rates. However, it is clear that the Fed was

targeting Treasury bill rates until the mid 1960s, when it switched to a fed funds target because the fed funds market had by then become the primary means for reserve adjustment by individual banks. Any aggregate deficit of reserves would immediately place pressure on the fed funds rate, inducing Fed provision of reserves to keep the rate from rising above target. Not only did the fed funds rate serve as an almost immediate indicator of reserve positions, but a fed funds target did not have the political baggage that accompanied a bills rate target (which determined the government's cost of issuing debt). Of course, the two rates would be inextricably linked, but it was politically easier for the Fed to increase the fed funds rate than it would be to explicitly raise government interest costs. Over the post war period, the Fed also began to rely on repurchase agreements and reverse repos rather than on outright open market purchases and sales in order more finely to tune market conditions.

The discovery of the reserve effects of open market operations and the discovery of the deposit multiplier, together with the growing post-depression consensus that government "ought" to try to use monetary and fiscal policy in a countercyclical manner, led to the belief that the Fed should try to increase the growth of the money supply in a downturn and reduce its growth in a boom. To be sure, economists were not unanimous in their belief that this would do much good. The typical "Keynesian" believed that while monetary policy might be fairly effective in a boom (tight money policy could slow money growth and hence slow growth of spending), it probably would have little effect in a recession. It was said that one "cannot push on a string"—the Fed would not be able to encourage loan-making activity and thereby increase the money supply if no one wanted to spend. Hence, most economists believed that in a recession, fiscal policy would be more effective in stimulating demand.

The notion that a central bank can influence reserve and monetary aggregates had been around for quite some time, as indicated above, however, the Fed did not adopt formal monetary targets until 1970, with the express purpose of bringing down inflation by reducing money growth. Still, during most of the 1970s, the Fed explicitly adopted the fed funds rate as the operating target used to hit intermediate (monetary aggregates) targets. If the rate of growth of the money supply were above the Fed's target, it would raise the fed funds rate target. Unfortunately, the 1970s saw "stagflation" so the Fed was continually in inflation-fighting mode. In October 1979, the new Chairman, Paul Volcker, announced a major change of policy: the Fed would henceforth use the growth rate of M1 as its intermediate target, with reserves as the operating target, while it would allow the fed funds rate to rise as high as necessary to allow achievement of this goal. (Fazzari and Minsky 1984) The Fed would calculate the total reserves consistent with its money target, then subtract existing borrowed reserves to obtain a non-borrowed reserve operating target. However, in practice, when the Fed did not provide sufficient reserves in open market operations (as it hit its non-borrowed reserve target), banks would simply turn to the discount window, causing borrowed reserves to rise (and, in turn, causing the Fed to miss its total reserve target). Because required reserves are always calculated with a lag (see Moore 1984 and Wray 1998), the Fed could not refuse to provide required reserves at the discount window, thus, it found it could not control total reserves. Further, the rate of growth of M1 exploded beyond targets in

spite of consistently high interest rates that resulted from the Fed's tight policy (the fed funds rate reached above 19% during April 1980 and hit 20% in January 1981). So the Fed found it could hit neither its reserve nor its M1 targets. The attempt to target nonborrowed reserves ended in 1982 while the attempt to hit M1 targets was abandoned in 1986. (Meulendyke 1989; Fazzari and Minsky 1984) Still, the Fed continued to announce and tried without success to hit M2 targets during the rest of the 1980s. The attempt to target growth of monetary aggregates finally came to an official end in 1993 after more than a decade of miserable failure.

The fate of Monetarist doctrine in academic circles nearly mirrors its fate in policy-making. Over the course of the 1960s and 1970s, Monetarism gradually rose in favor, from virtual obscurity to accepted doctrine. As "Keynesianism" lost its following in the 1970s—largely due to stagflation—use of fiscal policy to tame the business cycle lost credence. Hence, in the 1980s, Monetarism, rejection of fiscal policy, and exclusive use of monetary policy in a countercyclical manner became increasingly accepted among academicians. By the mid 1980s, it would not have been far wrong to claim that academic macroeconomists were all Monetarists. At the end of the decade, however, Monetarist doctrine was in question because the Monetarist experiment at controlling the money supply had been such a disaster in the US (and also in the UK). (Ben Friedman 1988) That is a remarkably quick turn-around for accepted doctrine.

Both theorists and policy makers quickly abandoned the belief that the Fed could control the money supply and that the money supply determines the rate of spending and thus of inflation. Paradoxically, a "cult of Greenspan" (the BOG chairman who had replaced Volcker in 1987) developed in the US and abroad. While no one could put into words exactly how he single-handedly whipped inflation and created a "Goldilocks" economy (neither too hot to cause inflation nor too cold to cause unemployment) in the last half of the 1990s, virtually all analysts came to believe that the Fed somehow is responsible for not only keeping inflation in check, but also for keeping real GDP growth at potential. The Greenspan-led Fed became so bold as to announce immediately after each FOMC meeting exactly what the fed funds rate target would be—something the Fed had never before done. The financial press deconstructed every word uttered by Chairman Greenspan in the 1990s, trying to anticipate the Fed's next action. Whether he hinted that inflation was around some corner or other, or that the stock market suffered from "irrational exuberance", or that the "New Economy" offered rapid productivity growth as far as the eye could see, every Greenspan speech moved financial markets. The Greenspan Fed changed interest rate targets frequently—first up to fight invisible but incipient inflation, then down to forestall a slump. Every quarter-point change of the fed funds rate target was supposed to have a monumentally important impact on production, prices, and employment. Every improvement of the unemployment rate and every downward click of inflation was proof positive of Greenspan's guiding hand. While Al Gore was said to have claimed to have invented the internet, everyone knew that Al Greenspan had suckled and nurtured NASDAQ and the New Economy. His efforts did not go unrewarded: he was reverently treated in Bob Woodward's *Maestro* (the title says it all); and he won the highly valued "Enron Prize", funded by a high-tech energy speculation firm that went bust

during the Fall of 2001 in the most spectacular and expensive bankruptcy in US history—at just about the precise moment that Greenspan had lost his luster.

While Greenspan's fall from grace has not, yet, been quite so impressive as that of NASDAQ and Enron, and while it has lagged the demise of Monetarist doctrine, it may well be as complete by the time this volume hits the streets. As of late winter 2002, the stock market has fallen significantly and is poised for collapse; the Goldilocks New Economy is long dead, dead, and gone; every component of Greenspan's highly touted IT sector is reeling; unemployment is rising faster than at any time since the Great Depression; household net wealth has fallen—for the first time ever in US history; and the private sector is suffering under record debt levels as bank customers default, as bank profits fall, and as we move down the path to massive and widespread bank insolvency. The Fed has lowered interest rates a dozen times, or so—to no avail. No doubt Greenspan feels like the guest who has overstayed his welcome and regrets the fact that he did not retire with his saintly wings intact in 2000 and thereby avoid the fall from Maestro to dot-com sucker in a matter of months. His speeches are now but an irrelevant embarrassment, having no measurable impact on financial markets. The most articulate and inflation hawkish of the Fed's governors, Larry Meyer, has refused to serve another term—preferring the relatively certain and carefree life of a private economic forecaster over serving as a member of a thoroughly discredited Fed BOG.

IS THERE AN ALTERNATIVE APPROACH TO MONEY?

Where to begin? Institutionalists reject the entire orthodox corpus, including the view of money advanced, the pseudo history adopted, the theory of the role that money plays in the economy, and orthodox policy analysis and prescription. In the orthodox story, money comes out of markets, created by barterers to reduce transactions costs. Above all a handy medium of exchange, money plays no *essential* role in orthodox theory—our economy would function in substantially the same manner even if we were to ban money from the system and return to barter. Indeed, modern technology should allow barter-based markets to function without entailing many transactions costs of the sort that money's creation was supposed to have eliminated. At most, orthodox economists debate about the conditions under which money might have some short-run non-neutrality; in the long run, according to orthodoxy, money's neutrality is assured. Finally, as discussed above, most mainstream theoretical approaches presume that money is under control of the “monetary authorities”—in theory, if not in practice. Only Austrians and Real Business Cycle Theory aficionados deviate from this “exogenous” money approach, although Austrians do so in order to imagine a utopia of “free” banks without an evil government or central bank, while RBC theorists do so in order to make money “super-duper” neutral. Neither fringe approach warrants further inquiry.

In contrast, most heterodox economists, including institutionalists, adopt an “endogenous” money approach similar to the views of the Banking

School examined above. Privately issued money (mostly bank deposits today) is issued only on demand, that is, only because someone has deposited cash or is willing to take out a loan. The latter activity has been concisely described by Post Keynesians as “loans make deposits” because when a bank accepts a borrower’s IOU it simultaneously creates a bank deposit. The idea that privately created money could be “excessive” is ludicrous, for as the Banking School explained, any excess would “reflux” to banks. Those with “extra” bank deposits would retire loans, withdraw cash, or buy something (the latter of which just shifts the deposits about; the first two activities reduce bank deposits in the aggregate). It is literally impossible for banks to force excess money onto the economy because there must be willing borrowers in order for banks to create deposits.

The second important point made by Post Keynesians is that “deposits make reserves”, reversing the interpretation of the deposit multiplier. They emphasize that reserves cannot be a discretionary variable from the point of view of the central bank. There are a number of reasons for this. Many, including Basil Moore (1988), have argued that because required reserves (in those nations that have them) are always calculated with some lag, based upon deposits that are “history” (issued by banks at some point in the past), banks cannot adjust deposits to cope with a position of insufficient reserves to meet requirements. This means that only reserves can be adjusted—so that a bank caught short will turn to the fed funds market. However, if the system as a whole is short, at least one bank will not be able to meet requirements. In practice, central banks always and automatically lend reserves to such banks, booking a shortfall as an overdraft or loan of reserves. If they did not, they would force the bank to fail to meet legal mandates. Further, if the central bank did not provide desired reserves, banks with insufficient reserve levels would bid the fed funds rate above target. (Note that the reverse is also true: if the system as a whole has excessive reserves, the fed funds rate is bid below target—at the limit it will fall nearly to zero.) Hence, an orderly fed funds market requires that the central bank provide/drain reserves to eliminate deficiencies or surpluses.

In addition, timely and orderly check clearing among banks requires that the Fed automatically provide reserves as required. Banks use reserves for net clearing of checks (recall the discussion of a mono-reserve system). If the Fed refused to routinely make up for aggregate reserve shortfalls, the payments system could not operate smoothly. Indeed, if the Fed stopped lending reserves as needed, checks would bounce. If a bank was suspected of nearing a position of a shortage of reserves, other banks would refuse to accept its checks. It is because the Fed always credits reserves to the account of a receiving bank without first ensuring that the bank upon which a check is drawn has sufficient reserves that bank checks always clear at par. Indeed, this was a primary purpose of the creation of the Federal Reserve System, before which bank notes commonly circulated below par. Finally, payments to the Treasury by bank customers (tax payments, mostly) are also made using bank reserves. Imagine the problems that would be created if a taxpayer’s check to the IRS bounced because her bank did not have sufficient reserves! Again, in practice the Fed always provides reserves to banks as needed to meet reserve requirements, to clear checks among banks, and to make payments by check to the Treasury.

If the central bank cannot control reserves in a discretionary manner, and if the deposit multiplier is reversed, and if the supply of privately created money is essentially determined by the demand for loans, then what *can* the central bank control? Leaving aside regulatory and supervisory issues for the moment, the central bank only has one policy tool: the overnight interbank lending rate, or fed funds rate (called the bank rate in the UK). This rate can be hit with a great degree of accuracy, indeed, as mentioned above the Greenspan Fed began to simply announce what the target would be, and the fed funds rate would nearly instantly move toward the target. All the Fed must do to keep the actual rate at the target is to ensure that banks have the quantity of reserves they require or desire; if the rate rises above/falls below the target, the Fed adds/drains reserves until the rate aligns with the target. While some at the Fed would like for us to believe it is all very complicated and hence that it requires teams of highly trained economists to provide detailed analyses and forecasts of future demand for reserves, that is mostly obfuscation to protect budgets, jobs, and the Fed's reputation.

Turning to the "nature" and "origins" of money, institutionalists reject the orthodox notion that money is essentially a commodity that functions primarily as a medium of exchange, invented to reduce transactions costs. Institutionalists and other heterodox economists insist that money is "social" in its nature. As Ingham puts it "money *necessarily* consists in *social relations* between economic agents and between them and a monetary 'authority'" (Ingham 2000, p. 19) Or, as Neale argues: "all monies are *parts of larger systems* of economic and social relationships." (Neale 1976, p. 4). Further, Neale warns that "Despite the fact that many a text on money says that money originated in the inconveniences of barter, that money was invented as a medium of exchange...neither historical evidence nor argument by analogy from contemporary nonliterate societies lends support to this speculative history." (Neale 1976, pp. 8-9)

Admittedly, any story of the origins of money is necessarily speculative for two reasons. First, we must decide what "social relation" from the past qualifies as something we are willing to label "money". Neale argues that it is best to think of "monies" rather than "money" because those social relations vary widely by society. He emphasizes that in most pre-capitalist societies the range of social relations associated with use of a "special purpose money" was much narrower than those we now associate with "general purpose money". For example, we would now likely include medium of exchange, unit of account, means of debt settlement, and store of value as functions that are served today by general purpose money. However, in previous societies (and in nonliterate societies today) there have been "special purpose monies" that served only one or two of these functions but not the others. The second problem is that it is possible and even likely that the origins of money lie in a very distant past for which we have no easily interpretable records; indeed, many believe that money predates writing. (It has long been believed that writing was invented to keep track of nominal debts, although the history of writing is probably as complex as the history of money. See Schmandt-Besserat 1989.) Hence we will probably never have a completely satisfying story of the origins of money.

Still, it is tempting to speculate on money's origins. There are three plausible alternatives to the orthodox story. Heinsohn and Steiger (1983) argue that money developed not out of a barter economy but when private

property and loans developed. Following Keynes, they emphasize that early monetary units were based on a specific number of grains of wheat or barley. (Keynes 1982, pp. 233-36) Later, metals (such as iron, copper, silver, or gold) were used as money, with the value denominated in those grain units of measurement. According to their argument, the first money was created when private property (so many units of grain) was loaned with the expectation of payment of a greater sum of grain in the future. Eventually, grains of wheat or barley would be used as a universal equivalent to measure value of all types of alienable private property to reduce transactions costs, acting as a unit of account in all creditor-debtor relations. Gradually, representative money, in the form of metal but still denominated in these grain weight units, could be loaned, used as a medium of exchange, and used to settle debts. Hence, Heinsohn and Steiger focus on money as a unit of account developed in these early loan agreements, and the “thing” used as money is important primarily because it represents the loan agreement that is denominated in the unit of account.

A second approach has been advanced by Hudson (2001), who has developed an alternative thesis for the origins of the money of account in Babylonia. He argues that money originated within the temple and palace communities for internal accounting purposes. Like Heinsohn and Steiger, his story also emphasizes the importance of loans, however, he argues that early loans were made by the temple and palace communities to the “external” sector. Thus, rather than focusing on private property and loans between individuals that gradually become standardized in a grain unit of account, Hudson believes the unit of account was created within the early bureaucracies. Clearly, his argument focuses more on the social nature of the origins of money and hence is probably more appealing to institutionalists.

A third approach has been developed by the great numismatist, Grierson, and elaborated in Goodhart (1989, 1998) and Wray (1998). According to this view, money evolved out of the pre-civilized practice of *wergeld*; or to put it more simply, money originated not from a pre-money market system but rather from the penal system. (Grierson 1977, 1979; Goodhart 1998) An elaborate system of fines for transgressions was developed in tribal society. Over time, authorities transformed this system of fines paid to victims for *crimes* to a system that generated a variety of payments *to* the state. (Innes 1932) Until recently, *fines* made up a large part of the revenues of all states. (Maddox 1769) Gradually, fees and taxes as well as rents and interest were added to the list of payments that had to be made to authority. To be clear, this authority should be seen as a gradually evolving institution—from early temples to palace communities to feudal kings and finally to democratically elected representative governments—with varying degrees of sovereign power. All that was required was some sort of authority able to levy obligations on a population—anything from fines or tithes to fees and taxes. While *wergeld* payments did not require a unit of account (the fines were assessed in the form of particular items or services to be delivered to victims), payments to the authority were gradually standardized, measured in a money of account.

This approach has been called the “Chartalist” or “taxes-drive-money” approach. It is also closely related to Knapp’s “state money” approach. Briefly, this view emphasizes the important role played by “government” in the origins and evolution of money. More specifically, it is

believed that the state (or any other authority able to impose an obligation--whether that authority is autocratic, democratic, or divine) imposes an obligation in the form of a generalized, social unit of account--a money--used for measuring the obligation. The next important step consists of movement from a specific obligation--say, an hour of labor or a spring lamb that must be delivered--to a generalized, money, obligation. This does not require the pre-existence of markets, and, indeed, almost certainly predates them. Once the authorities can levy such an obligation, they can then name exactly what can be delivered to fulfill this obligation. They do this by denominating those things that can be delivered, in other words, by pricing them. To do this, they must first "define" or "name" the unit of account. This resolves the conundrum faced by methodological individualists and emphasizes the social nature of money and markets.

Note that the state can choose anything it likes to function as the "money thing" denominated in the money of account, and, as Knapp emphasized, can change "the thing" any time it likes: "Validity by proclamation is not bound to any material" and the material can be changed to any other so long as the state announces a conversion rate (say, so many grains of gold for so many ounces of silver). (Knapp 1924, p. 30) What Knapp called the State money stage begins when the state chooses the unit of account and names the thing that it accepts in payment of obligations to itself—at the nominal value it assigns to the thing. The final step occurs when the state actually issues the money-thing it accepts. In (almost) all modern developed nations, the state accepts the currency issued by the treasury (in the US, coins), plus notes issued by the central bank (Federal Reserve notes—green paper—in the US), plus bank reserves (again, liabilities of the central bank)—that is, the monetary base or high powered money (HPM). The material from which the money thing issued by the state is produced is not important (whether it is a gold coin, a base metal coin, paper notes, or even numbers on a computer tape at the central bank). No matter what it is made of, the state must announce the nominal value of the money thing it has issued (that is to say, the value at which the money-thing is accepted in meeting obligations to the state).

Many orthodox economists are "metallists" (as Goodhart 1998 calls them), who argue that until this century, the value of money was determined by the gold used in producing coins or by the gold that backed up paper notes. However, in spite of the amount of ink spilled about the gold standard, it was actually in place for only a relatively brief instant. Typically, the money-thing issued by the authorities was not gold-money nor was there any promise to convert the money-thing to gold (or any other valuable commodity). Indeed, throughout most of Europe's history, the money-thing issued by the state was the hazelwood tally stick. Other money-things included clay tablets, leather and base metal coins, and paper certificates. Why would the population accept otherwise "worthless" sticks, clay, base metal, leather, or paper? Because the state agreed to accept the same "worthless" items in payment of obligations to the state. Contrary to orthodox thinking, then, the value of the money-thing issued by the state was not determined by its intrinsic value, but rather by the nominal value set by the state at its own pay offices (at which it accepted payment of fees, fines, and taxes).

In the orthodox story, barter is replaced by use of a medium of exchange; due to its inherent characteristics, barterers soon settle on gold (or another precious metal) as the most efficient medium of exchange. In order to reduce transactions costs involved in assessing purity and weight, this metal is stamped and coined. However, it has long been established that the first coins were issued in Lydia and East Greece, probably no earlier than the third or fourth quarter of the seventh century BC, and long after other forms of complex financial instruments, local markets, and long distance trade had been established. If precious metal coins were indeed invented to reduce transactions costs, one wonders why it took so long to discover them. Further, while coins might have been important to the Greek world and perhaps to the Roman world, they played a relatively unimportant role throughout most of European history. Numismatists, such as Kraay (1964) have challenged the economic thinking of orthodoxy by arguing that coins were invented to standardize payments made by and to the state.

In a detailed study of the origins of coinage in Greece during the seventh century BC, Kurke (1999) links the creation of coins to “a seventh/sixth century crisis of justice and unfair distribution of property”, that was eventually decided in favor a democratically-leaning city state against a hostile elite. (Kurke 1999 p. 13) In her view, “the minting of coin would represent the state’s assertion of its ultimate authority to constitute and regulate value in all the spheres in which general-purpose money operated simultaneously—economic, social, political, and religious. Thus, state-issued coinage as a universal equivalent, like the civic *agora* in which it circulated, symbolized the merger in a single token or site of many different domains of value, all under the final authority of the city.” (Kurke 1999, p. 13) By tying the invention of coinage to the special circumstances of Greece during that period, Kurke’s analysis makes it clear why coins were so unimportant to other societies, before and since. Further, as Kurke makes clear, since coins are nothing more than tokens of the city’s authority, they could have been produced from any material. The choice of gold should be viewed as something of a coincidence, resulting from the particular hierarchy of metals in elite gift exchange extant in Greece at that time. In other words, and in contrast to the orthodox story, there is nothing inherent in gold (or silver, or copper) that guarantees its adoption as the money thing. A state is theoretically free to name anything it wants, although the historical circumstances might dictate that one thing is preferred over others.

Once the state has created the unit of account and named that which can be delivered to fulfill obligations to the state, it has generated the necessary pre-conditions for development of markets. All the evidence suggests that in the earliest stages the authorities provided a full price list, setting prices for each of the most important products and services. Once prices in money were established, it was a short leap to creation of markets. This stands orthodoxy on its head, by reversing the order: first money and prices, then markets and money-things (rather than barter-based markets and relative prices, and then numeraire money and nominal prices). The next step was the recognition by government that it did not have to rely on the mix of goods and services provided by taxpayers, but could issue the money-thing to purchase the mix it desired, then receive the same money thing in the tax payments by subjects/citizens. This would further the development of markets because those with tax liabilities but without the goods and services

government wished to buy would have to produce for market to obtain the means of paying obligations to the state. As Heinsohn and Steiger (1983) say, the market is the place to which one turns for earning the means of debt settlement, including the means of tax settlement. This is quite different from the orthodox view that markets develop so that individuals may maximize utility by trading consumables.

The final theoretical topic to be tackled concerns money's supposed neutrality. The discussion thus far should make it clear that money cannot be neutral, as it is not simply a medium of exchange invented to lubricate market exchange. If, as I have hypothesized, money originated as a means to move resources to the public or state sector, then it clearly had a "real" impact. If, as Heinsohn and Steiger speculate, money was invented in private loan contracts, it played a crucial role in an important social relationship—that between debtor and creditor. Further, if one views the market as a place for earning the means of settling debts (both private debts and tax debts), rather than as a place to which one turns to increase utility through mutually beneficial trades, then one sees the market as a fundamentally monetized institution. Regardless of the origins of money and markets, institutionalists have always distinguished between the technical aspects of production and the pecuniary considerations involved in producing for markets. In the modern capitalist economy, the primary purpose of production is not to exchange for other consumables, but to "make money"—that is, to sell at a profit. The most famous characterization of capitalist production is Marx's M-C-M', according to which the capitalist begins with money (M) to produce commodities (C) to sell for more money (M'). Keynes advanced what he called the "monetary theory of production", emphasizing the same point; Dillard (1988) explicitly adopted Keynes's terminology, as have many institutionalists. (See also Mayhew 19xx and Wray 1993.) If modern production begins and ends with money, money cannot be neutral. Indeed, rather than arguing that money is a veil that hides "real" activity (as Friedman does), one might more accurately argue that money is the "real" variable that motivates production while the "real" output that results is just a veil that obscures the true purpose of individual decision making of capitalist production.

AN ALTERNATIVE VIEW OF FISCAL AND MONETARY POLICY

In the orthodox approach, the government must tax, borrow, or "print money" in order to spend. If the government borrows, that is likely to place upward pressure on interest rates, "crowding out" investment. If it prints money, that is likely to generate inflation. While most economists do not insist that government continuously balance its budget, limiting its spending to its tax revenue, they do believe that a perpetual deficit is to be avoided. Not only would it cause interest rates or inflation to rise (depending on whether the deficit were financed by borrowing or money creation), it could also eventually cause government insolvency and default on its obligations. During the last two decades of the twentieth century, "fiscal discipline" was increasingly imposed in most developed nations and in many developing

nations (especially those that had fallen under the control of the IMF and World Bank). Indeed, several developed nations (including Japan, the US, Canada, the UK, and Australia) actually ran significant surpluses in some years during the final decade of the century. This was almost universally cheered by economists, as an antidote to the budget deficits that had been common in the post war years.

Institutionalists have always rejected such notions. They have always taken the pragmatic approach perhaps best espoused in Lerner's functional finance approach: "The central idea is that government fiscal policy, its spending and taxing, its borrowing and repayment of loans, its issue of new money, and its withdrawal of money, shall all be undertaken with an eye only to the results of these actions on the economy and not to any established traditional doctrine about what is sound or unsound." (Lerner 1943, p. 39) Further, institutionalists have recognized that the notion that government borrowing "crowds out" private borrowing is really based on either the loanable funds argument or on the supposition that the supply of money is fixed. Foster (1981) was among the first to recognize how revolutionary was Keynes's argument that investment *creates* an equivalent amount of saving; similarly, a government deficit must also create an equivalent amount of saving. Hence, a government deficit cannot absorb saving that would otherwise have gone to finance investment. Further, given the endogenous money arguments provided above, it is clear that government borrowing could not reduce the amount of "money" available for firms to borrow from banks. Banks create money when they make loans, and no amount of government deficit spending would reduce bank ability to create deposits for firms to use to finance investment.

These are powerful arguments, even if they appear rather simple. However, they can be strengthened by adding the Chartalist or taxes-drive-money approach. When a modern government spends, it issues a check drawn on the treasury; its liabilities increase by the amount of the expenditure and its assets increase (in the case of a purchase of a good produced by the private sector) or some other liabilities are reduced (in the case of a social transfer). The recipient of the check will almost certainly cash it at a bank, in which case either the recipient will withdraw currency, or (more likely) the recipient's bank account will be credited. In the former case, the bank's reserves are first increased and then are reduced by the same amount. In the latter case, bank reserves are credited by the Fed in the amount of the increase of the deposit account. The bank reserves carried on the books as the bank's asset and as the Fed's liability are nothing less than a claim on government-issued money, or, a leveraging of HPM. In other words, treasury spending by check really is the equivalent of "printing money" in the sense that it increases the supply of HPM. Unless bank required reserves happened to increase by an equivalent amount, the banking system will typically find itself with excess reserves after the treasury has spent, creating HPM.

The important thing to notice is that the treasury can spend before and without regard to either previous receipt of taxes or prior bond sales. In the US, taxes are received throughout the year (although not uniformly as tax payments are concentrated around April 15 and other quarterly due dates). These are mostly paid into special tax accounts held at private commercial banks. (Bell 2000) It is true that the Treasury transfers funds from these

private bank accounts to its account at the Fed when it wishes to spend, but this is really a reserve maintenance operation designed to minimize effects on reserves that result when the treasury issues checks. When the treasury spends, bank reserves increase by approximately the same amount (less only cash withdrawals) so that the simultaneous transfer from tax accounts is used to neutralize bank reserves. These additions to/subtractions from reserves are carefully monitored and regulated by coordination between the Fed and the treasury, but this should not confuse analysts about the processes at work. The Treasury spends by having the Fed emit HPM; that HPM is simply a liability that can be increased at will. The treasury does not need to transfer deposits from private banks to the Fed in order to spend; it needs to do so simultaneously with spending only to minimize reserve effects.

On the other hand, tax payments by households lead to a reserve drain as the treasury submits the checks to the Fed for clearing, at which point the Fed debits the bank's reserves. Things would be much simpler and more transparent if tax receipts and treasury spending were perfectly synchronized. In that case, the treasury's spending would increase reserves, and the tax payments would reduce them. If the government ran a balanced budget there would be no net impact on reserves. In this case there would be no need for the complex coordination between the Fed and treasury using tax and loan accounts because there would be no reserve effects so long as the budget were balanced.

However, let us suppose that the timing were synchronized but that spending exceeded tax revenues so that a budget deficit resulted. This means that after all is said and done, there has been a net injection of reserves. It is possible that the extra reserves created happen to coincide with growing bank demand for reserves—in which case the Treasury and Fed need do nothing more. More probably, the net injection of reserves resulting from budget deficits would lead to excess reserves for the banking system as a whole. The receiving banks would offer them in the fed funds market, but would find no takers. This would cause the fed funds rate to begin to fall below the Fed's target, inducing the Fed to drain reserves either through an open market sale or by reducing its discounts. When the treasury runs a sustained deficit, quarter after quarter and year after year, the Fed would find it was continually intervening to sell bonds; obviously, it would eventually run out of bonds to sell. This is why, over the longer run, responsibility for bond sales designed to drain excess reserves from the system must fall to the treasury—which faces no limit to its own sales of bonds as it can create new bonds as needed.

While it may sound strange, we conclude that Treasury bond sales are not a borrowing operation at all, but are in fact nothing but a reserve draining operation. This becomes apparent when one recognizes that the Treasury cannot really sell bonds unless banks already have excess reserves, or unless the Fed stands by ready to provide reserves the banks will need to buy the bonds. If the Treasury typically tried to first “borrow” by selling bonds *before* it spent, it would be trying to drain reserves it will create only *once* it spends. As it drained required or desired reserves, it would cause the fed funds rate to rise above the Fed's target—inducing an open market purchase and injection of reserves by the Fed.

Another way of putting it is that the government spends by issuing IOUs, and the private sector uses those IOUs to pay taxes and buy

government bonds. Obviously, if government spending were the only source of these IOUs, the private sector could not pay taxes or buy bonds *before* the government provided them through its spending. In the real world, government spending is the main, but not the only source, of the IOUs needed by the private sector to pay taxes and buy government bonds. In addition, the central bank provides its IOUs through discounts or open market operations, and these IOUs are perfect substitutes for treasury IOUs. Unfortunately, most economists have become confused about all this because they do not understand the nature of the coordination between the Fed and the Treasury.

Indeed, most economists do not understand that monetary policy has nothing to do with the quantity of money, but is concerned only with the overnight interest rate. The central bank's provision of, or removal of, reserves is nondiscretionary and is always merely in response to actions of the treasury or the private sector. On the other hand, fiscal operations always impact reserves, and government deficits always lead to a net injection of reserves. Boulding came close to capturing this when he said:

It's just as true as it is funny,
That Deficits increase our money;
In understanding this there lies
The power of States to Stabilize.
(Boulding 1958, p. 183)

The purpose of government bond sales is not to borrow reserves—a liability of the government—but is instead designed to offer an interest-earning alternative to undesired non-interest-earning bank reserves that would otherwise drive the fed funds rate toward zero. Note that if the Fed paid interest on excess reserves, the Treasury would never need to sell bonds because the overnight interest rate could never fall below the rate paid by the Fed on excess reserves. Note also that in spite of the widespread, orthodox, belief that government deficit spending places upward pressure on interest rates, it would actually cause the overnight rate to fall to zero if the treasury and Fed did not coordinate efforts to drain the created excess reserves from the system. (For proof of this, note that for many years after the mid 1990s, the overnight interest rate in Japan was kept at zero, in spite of government deficits that reached 8% of GDP, merely by keeping some excess reserves in the banking system.) On the other hand, budget surpluses drain reserves from the system, causing a shortage that would drive up the fed funds rate if the Fed and Treasury did not coordinate actions to buy and/or retire government debt. Needless to say, orthodoxy has got the interest rate effects of government budgets exactly backwards.

One could think of government bonds as nothing more than HPM that pays interest—indeed, as described above, the government would never need to sell bonds if the Fed paid interest on excess bank reserves, or if the Fed's interest rate target were zero. Bond sales are not really a borrowing operation but are instead an interest rate maintenance operation. Obviously, however, banks are not the only entities in the private sector that would like to earn interest by holding government IOUs. Indeed, households and firms generally like to accumulate a portion of their net wealth in the form of interest-earning government debt. In a growing economy, the outstanding stock of government IOUs (both interest-earning and non-interest earning)

will need to grow to keep pace with the demands of the private sector. This means that a government deficit should be the “normal”, expected, situation. In contrast, sustained budget surpluses can be achieved only by draining the government IOUs held as net wealth. This is why government budget surpluses usually cannot be sustained for long—they reduce the private sector’s disposable income (because taxes exceed government spending) and destroy private net wealth (by draining government IOUs), and hence set off tremendous deflationary impacts on the economy.

MONETARY POLICY RECOMMENDATIONS

The main monetary policy recommendation that follows from this analysis is that central banks should abandon any pretense that they can influence the quantity of reserves or the quantity of money privately created. They should admit that they only set the overnight interest rate—the fed funds rate in the US. This of course sets the base interest rate; short-term interest rates on government debt are determined rather directly by the fed funds rate because the banking system uses this market as a substitute for the fed funds market to adjust reserves at the individual bank level. Longer-term government debt is priced more complexly because it must include potential capital gains and losses that result from future changes to the fed funds rate target. When a central bank frequently changes its targets wildly—as the Fed has increasingly done since the mid 1960s—a great deal of uncertainty about future policy must be built into the pricing of longer term assets. Indeed, this is the primary reason that markets deconstructed every word uttered by Chairman Greenspan during the 1990s, trying to anticipate policy moves that would impact asset prices.

It is very difficult to see why a great deal of uncertainty about Fed interest targets is desirable. Wild swings of asset prices tend to reinforce uncertainty and encourage speculative behavior. As Keynes argued, “Speculators may do no harm as bubbles on a steady stream of enterprise. But the position is serious when enterprise becomes the bubble on a whirlpool of speculation. When the capital development of a country becomes a by-product of the activities of a casino, the job is likely to be ill-done.” (Keynes 1964, p. 159) An “active” Fed that continually tries to surprise markets with interest rate adjustments promotes the casinos over enterprise. As Tooke argued in the quote above, “[T]he greater or less liability to variation in the rate of interest constitutes, in the next degree only to the preservation of the convertibility of the paper and the solvency of banks, the most important consideration in the regulation of our banking system.” (Tooke 1959, p. 124) As the Fed’s propensity to destabilize the interest rate has increased since the mid 1960s, speculative behavior has increased and economic performance has suffered. Obviously, other factors have also contributed to this and we cannot say with certainty that greater instability of interest rates has been the decisive factor.

The orthodox response is that the Fed must move interest rates countercyclically in order to help to fine-tune the economy—to fight inflation in booms and lower unemployment in recessions—hence, even if this contributes to greater instability of asset prices, the Fed cannot abandon

its responsibility. There are, however, strong reasons to doubt that Fed policy has much impact on either unemployment or inflation. As discussed above, low interest rate policy in a slump does not seem to have much effect on spending—for fairly obvious reasons, consumers are reluctant to borrow when they fear losing their jobs, and firms are unlikely to invest as sales are falling.

Furthermore, the interest rate is really a redistributive variable, as for every interest payment there is an interest receipt. When the Fed lowers interest rates this does indeed benefit new borrowers and anyone with existing debt that can be reset at a lower rate. However, all those who rely on interest payments for income (particularly pensioners and financial institutions) suffer as rates fall. Interest income has increased greatly in the postwar period as the population has aged, and as workers have built up pension funds and other savings for their retirement years. The conventional argument is that interest payments represent a transfer from mostly low and middle income earners to the rich, hence, lower interest rates redistribute income from those with a low marginal propensity to consume toward those with a high propensity to consume. There is surprisingly little work on this, however. With the aging of western societies, the redistribution that results today from rising interest rates is probably mostly from firms and younger workers (especially from new homeowners with mortgages) toward elderly persons. It is not clear that this necessarily reduces the overall propensity to consume. More importantly, in a modern economy with a large outstanding stock of government debt, the redistribution is largely from government to households and firms. Indeed, if the stock of government debt were large relative to national income and to private debt, it is possible that lower interest rates actually depress spending because of the effect on private sector incomes as government interest payments fall. It is conceivable that Japan reached such a situation in the late 1990s, when short term interest rates effectively reached zero.

Can central banks stabilize the overnight interest rate? Yes, so long as they do not try to peg currency exchange rates. Recall from the discussion above that during the Great Depression the Fed worried that if it kept interest rates too low, the US would lose reserves of gold. Exchange rates are fixed on a gold standard and hence only adjustments of the interest rate could stem a “run” on dollar-denominated assets. In the modern world, countries do not operate on a gold standard, and most countries have adopted floating exchange rates. Hence, if the US were to keep interest rates lower than those abroad, it is possible that from time to time there might be downward pressure on the dollar. So long as the US allows the dollar to fall, it can maintain low interest rates without losing international reserves. Note that low interest rates do not necessarily cause currency depreciation—Japan’s currency has remained exceedingly strong (many would say it was overvalued) even with overnight rates at zero. Exchange rates, like long term interest rates, are complexly determined and the overnight interest rate is only one factor that goes into their determination. However, in any event, so long as exchange rates are indeed flexible, a nation’s overnight interest rate is “exogenous” and can be set anywhere the central bank wants to put it.

What else *should* a central bank do? We have dealt with the issues that are most closely related to orthodox views on monetary policy: reserves, money aggregates, inflation, and interest rates. In addition, we have

addressed Bagehot's recommendation that the central bank must operate as a lender of last resort—still among the most important functions of the central bank. There is also a wide array of other important central bank functions:

Setting required reserve ratios: While orthodox economists believe that required reserve ratios give the central bank leverage over private money creation, we have seen this is false. Others believe that maintenance of reserves makes banks safer because they hold a liquid asset. However, if a central bank stands ready to discount eligible assets, a bank does not need to hold reserves for liquid purposes. Indeed, it could be argued that required reserves in excess of the level of reserves that would be held voluntarily for clearing purposes acts like a tax on banks (forcing them to hold assets that do not earn a return). If this lowers bank profitability it could actually reduce bank safety and soundness. The UK has never had legal reserve ratios; Canada has recently moved to a system in which the required reserve ratio is zero. On balance, there is probably little argument in favor of retaining legal requirements, and in practice, legal ratios in the US are now so low that they probably are not very binding especially given all the innovations banks use to reduce requirements (such as sweep accounts).

Finally, as discussed above, government spending creates bank reserves, and reserve requirements force banks to hold nonearning reserves rather than earning government bonds. Hence, one might conclude that reserve requirements lower government “borrowing” costs (a point frequently made by populist groups such as COMER in Canada). However, the government can have any “borrowing” cost it wants, including zero, merely by setting the fed funds rate target at that level. It seems a bit strange to argue that banks, alone, should earn zero if the government has decided that everyone else can earn a positive return by holding government liabilities. Alternatively, as discussed above, the Fed could pay interest on reserves—in which case the difference between bank reserves and treasury bills disappears. Equivalently, the Fed could allow banks to count interest-earning government liabilities as reserves to meet requirements.

Credit Controls: Many support use of the Fed to try to channel credit to some areas, and to discourage it from others. Some have argued for asset-based reserve requirements to discourage banks from holding some kinds of assets. For example, if the Fed wanted to encourage home mortgage loans but discourage commercial real estate loans, it could require reserves against the latter, but exclude home mortgages from reserve requirements. The same sort of result can be obtained by risk-weighting assets and requiring greater net equity ratios against riskier assets (as is done with the Basle Accord), or simply by imposing a tax on bank purchases of riskier assets. All such requirements work by reducing the relative return on unfavored assets. Others have emphasized that central banks can impose margin requirements on borrowers, requiring them to put up liquid assets as collateral—raising the cost of borrowing. In the US, the Fed has the authority to change margin requirements on stock purchases, so that buyers are constrained in the percent of borrowed funds they may use to purchase stocks. During the NASDAQ boom after the mid 1990s, the Fed refused to raise margin requirements, although some believe this would have constrained the boom.

Encourage provision of financial services: Relatedly, many American analysts want to use the Fed and other monetary authorities (including other regulatory agencies such as the FDIC, the Comptroller of the Currency, and state banking regulators) to encourage an increased supply of credit to areas thought to be underserved. Most importantly, some studies have shown that financial institutions have traditionally discriminated against certain groups (racial minorities, women) and have “red-lined” some neighborhoods (drawn a “red line” around neighborhoods to which they would not provide many services, including loans). Note that redlining is not exactly the same as discrimination—while red-lined areas typically were neighborhoods with a high proportion of minority residents, even white males living in them would be denied banking services simply because they lived in red-lined areas. The Community Reinvestment Act in the US forced banks to report on the services provided in their own self-defined business area, and many analysts believe this has played an important role in reducing discrimination and redlining activity. In addition, it has often been believed that more credit needed to be supplied to finance certain activities deemed to have significant social worth. This led to creation of Government Sponsored Enterprises (essentially institutional arrangements that put government guarantees behind loans initiated by private lenders) that have targeted lending to favored groups such as homeowners (Fannie Mae), students (Sallie Mae), farmers (Freddie Mac), and veterans. (Stanton 1991)

Supervision and regulation: Many economists have argued that bank regulation and supervision is a necessary corollary to central bank lender of last resort activity as well as to implicit and explicit government guarantees (such as those offered through FDIC and the Government Sponsored Enterprises). If government intervenes to prevent or contain failures, then adverse incentives are created. While all modern, developed, economies regulate and supervise financial institutions, the US is fairly unusual in the degree to which responsibilities are shared by the Fed, the FDIC (and in the past, the now-defunct FSLIC), the FHLBB, the Comptroller, and state regulators. There have been sensible proposals to streamline and consolidate these activities in the US, but they have never made much headway. Part of the problem is that financial institutions have been very important campaign contributors, and seats on House and Senate committees that have anything to do with financial institutions are highly prized as campaign cash cows. Since the early 1970s, most changes to supervision and regulation have been free-market-oriented, designed to unleash “entrepreneurial initiative”. The most notorious example is the series of legislative maneuvers that succeeded in “freeing” US savings and loans associations to “market forces”, playing a significant role in creating the thrift crisis of the 1980s that required a massive government bail-out. (Wray 1998) More recently, the Glass-Steagall Act (that had separated commercial banking from investment banking since the Great Depression) was eroded, first for the biggest financial institutions, allowing commercial banks to become involved in equities markets. As this chapter is being written, the deregulation chickens are coming home to roost as the Enron fiasco spreads to Enron’s partner banks, including J.P. Morgan and Citi-Group. It is also becoming apparent that the mostly self-regulated accounting firms played an important role in hiding Enron’s financial misdealings, just as they had done in the Saving and Loan fiasco a dozen years

earlier. Unregulated markets seem to do well when they are doing well, and remarkably poorly when the offal hits the fan. It is too soon to forecast how this will all play out, but a very serious and prolonged recession is likely to contribute to such a financial mess that there will be a sea-change of policy, away from laissez-faire and back toward New Deal-era sorts of reforms.

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