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THE GREAT RECESSION AND ITS AFTERMATH FROM A MONETARY EQUILIBRIUM THEORY PERSPECTIVE

By Steven G. Horwitz and William J. Luther

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George Mason University

The Great Recession and its Aftermath from a Monetary Equilibrium Theory Perspective*

Steven G. Horwitz†
St. Lawrence University

William J. Luther‡
George Mason University

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Abstract: Modern macroeconomists in the Austrian tradition can be divided into two groups: Rothbardians and monetary equilibrium (ME) theorists. It is from this latter perspective that we consider the events of the last few years. We argue that the primary source of business fluctuation is monetary disequilibrium. Additionally, we claim that unnecessary intervention in the banking sector distorted incentives, nearly resulting in the collapse of the financial system, and that policies enacted to remedy the recession and financial instability have likely made things worse. Finally, we offer our own prescription to reduce the likelihood that such a scenario occurs again by better ensuring monetary equilibrium and eliminating moral hazard.

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† Email: shorwitz@stlawu.edu Address: Department of Economics, Hepburn Hall, St. Lawrence University, Canton, NY 13617 Phone: (315) 229-5731
‡ Email: wluther@gmu.edu Address: Department of Economics, George Mason University, MSN 3G4, Fairfax, VA 22030 Phone: (740) 222-1242

Modern macroeconomists in the Austrian tradition can be divided into two groups: Rothbardians and monetary equilibrium (ME) theorists. The name for the latter is somewhat misleading, however, as both groups argue that monetary equilibrium is ultimately achieved where the quantity of money supplied equals the quantity of money demanded. The difference between these two approaches concerns what *should* adjust so that equilibrium is obtained. Rothbardians argue that "*any* supply of money is optimal," provided only that it is above some trivial minimum necessary to conduct transactions (Rothbard 1988: 180).[1] Because Rothbard's proposal for 100 percent gold reserves ties the money supply rigidly to the supply of gold, Rothbardians effectively hold the money supply constant in the short run and thereby rely on price adjustments to bring about monetary equilibrium in the face of changes in the demand for money.

In contrast, monetary equilibrium theorists argue that an ideal monetary system would expand or contract the supply of money to prevent changes in the demand to hold money from affecting its current value. Whereas price changes are typically desirable to clear markets for goods and services, ME theorists note that money is unique in that it has no price of its own. Because money is one half of every exchange, changing "the price of money" to clear the money market requires changing *all* prices. The economy-wide price changes necessitated if the price level is to bear the burden of adjustment disrupt the process of economic coordination and lead to macroeconomic instability and either a deflationary recession or inflation and a potential boom-bust cycle. These significant

[1] Rothbard (1988: 181) makes his position quite clear: "There is never any social benefit to increasing the quantity of money, for the increase only dilutes the 'objective exchange value,' or purchasing power, of the money unit. Monetary calculations and contracts are distorted, and the early recipients of the new money, as well as debtors, gain income and wealth at the expense of later recipients and of creditors. In short, increasing the quantity of the money is only a device to benefit some groups in society at the expense of others."

costs of changing all prices to reflect a change in the demand for money are not offset by a corresponding benefit. As such, ME theorists hold that a system under which the supply of money could be reliably counted on to respond to changes in the demand to hold money would be much preferred over a system where the price level bears the burden of adjustment.

The monetary equilibrium approach should not be confused with the standard neoclassical position of price level stability. Both the Rothbardian and ME approaches recognize that prices—and, as a result, the aggregate price level—should fall in response to increases in productivity. Similarly, if goods become more scarce on average—as a result of a natural disaster, for example—the aggregate price level should increase to reflect this. ME theorists do not advocate stabilizing an aggregate price level. Rather, they suggest changing the money supply to offset changes in money demand and allowing the price level to move inversely to changes in productivity. One can characterize this as a desire to keep the MV side of the quantity equation constant, and allow P to move inversely to Y. It is from this perspective that we consider the events of the last few years and offer policy recommendations for the present and future.

Our approach finds its roots in the work of Knut Wicksell, Ludwig von Mises, and Friedrich A. Hayek.[2] These authors claimed that an excess supply or demand for money causes the market rate of interest—that is, the rate that banks charge on loans—to

[2] Intellectual predecessors also include American economists Harry G. Brown, Herbert J. Davenport, and Clark Warburton; the English economist Dennis H. Robertson; and the South African economist William H. Hutt.

diverge from the Wicksellian natural rate of interest.[3] Entrepreneurs react to these faulty price signals by altering their investments, lengthening or shortening the production process in line with the prevailing interest rate. The resulting malinvestments—to use the Austrian term—are fundamentally at odds with the underlying time preferences of individuals and will eventually reveal themselves as mistakes, leading to the process of self-correction that is the recession that follows the boom.

We argue that the primary source of business fluctuation observed over the last decade is monetary disequilibrium. Additionally, we claim that unnecessary intervention in the banking sector distorted incentives, nearly resulting in the collapse of the financial system, and that policies enacted to remedy the recession and financial instability have likely made things worse. Finally, we offer our own prescriptions to reduce the likelihood that such a scenario occurs again. Those come in two stages. First we suggest some changes to the way monetary policy and banking regulation are conducted under the assumption that we continue to have a central bank in more or less the form that the Federal Reserve System takes in the United States. We conclude by offering a more radical solution that involves a change in the monetary regime, specifically a move toward a truly competitive free-banking system.

Banking Gone Awry

The origins of the Great Recession in the housing market have been well documented. Austrian economists have consistently argued that excessively expansionary

[3] As Horwitz (2000: 77) explains, "the inflationary disequilibrium theory that emerged from Wicksell's work was the Austrian theory of the business cycle in the hands of Mises and Hayek."

monetary policy generated a credit boom while a series of regulatory and institutional interventions encouraged the resulting malinvestment to concentrate in the real estate sector of the economy.[4] Policy errors—not a market gone mad—created a bubble that eventually had to burst.

Virtually no one denies that Congress aggressively sought to promote homeownership. The Federal National Mortgage Association (Fannie Mae) and the Federal Home Loan Mortgage Corporation (Freddie Mac) were instructed by Congress to increase the number of mortgage loans extended to low-income families under both Clinton and Bush administrations (Schwartz 2009: 20). Furthermore, government agencies dominated the mortgage securitization market, increasing the number of securitized mortgages at a rate much greater than nongovernment agencies in the first half of the decade (Horwitz and Boettke 2009: 8). But these facts merely explain why errors clustered *where* they did. The underlying reason for these errors, regardless of *where* they would turn up, was too-easy monetary policy.[5]

Although the Fed let interest rates fall below recommended Taylor-rule levels, especially from 2002 to 2004, it is difficult to convincingly demonstrate that monetary policy was too easy or too tight because the natural rate of interest is not directly

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[4] Essays from Austrian economists on the Great Recession include Boettke and Luther (2009), Horwitz and Boettke (2009), Horwitz (2009a), Horwitz (2009b), White (2008), and White (2009), among others. See also the historian Tom Woods's (2009) book, which makes use of Austrian school theory.

[5] In a recent interview with Brian Carney (2008), Anna Schwartz implicitly endorsed the Austrian theory of the trade cycle: "If you investigate individually the manias that the market has so dubbed over the years, in every case, it was expansive monetary policy that generated the boom in an asset. The particular asset varied from one boom to another. But the basic underlying propagator was too-easy monetary policy and too-low interest rates that induced ordinary people to say, well, it's so cheap to acquire whatever is the object of desire in an asset boom, and go ahead and acquire that object. And then of course if monetary policy tightens, the boom collapses."

observable (Taylor 2009a: 2). Beckworth and Selgin (2010: 5) provide a "crude estimate" of the natural rate. Assuming that population growth and household time preference rates are constant, they estimate the natural rate of interest as the long-run average real rate plus the difference between the currently forecasted and mean total factor productivity (TFP) growth rates. The measure created by Beckworth and Selgin (2010: 13) "suggests that monetary policy was excessively easy in the aftermath of the dot.com collapse, and that it was so to an extent unmatched since the inflationary 1970s." Specifically, they show that the estimated natural and actual real federal funds rate began diverging in 2001 and, in 2004, the actual real federal funds rate was 5 percentage points lower than the estimated natural real federal funds rate (6). While their measure of the natural rate is admittedly imperfect, the magnitude of the difference leaves little doubt that monetary policy was excessively expansionary over the period.

Although there is a growing consensus that the Federal Reserve held interest rates too low for too long, some continue to argue to the contrary. Hummel and Henderson (2008: 2) reject the Austrian account, denying that monetary policy under Greenspan was too loose. They claim a central bank's ability to affect interest rates "is increasingly diminished, even for a major central bank like the Fed, as globalization integrates global financial markets" (3). Low interest rates, according to Hummel and Henderson, merely reflect a rapid increase in the supply of loanable funds brought about by savings from developing Asian economies.[6]

The Hummel-Henderson hypothesis is plausible, but empirical evidence suggests it is incorrect. As Taylor (2009b: 348) notes, "a good fraction" of the European Central

[6] This position is consistent with Greenspan's (2007: 385–88 and 2008) own claim that emerging economies created a savings glut.

Bank's "interest rate decisions can be explained by the influence of the Fed's interest rate decisions." Hence, the evidence suggests that central banks around the world look to the Fed as the authority on optimal monetary policy. And while one central bank may play but a small role, several banks acting erroneously in concert could have a destabilizing effect. Furthermore, global savings as a share of GDP was lower in the 2002 to 2004 period than the thirty-year average from 1970 to 2000 (Taylor 2009b: 345–46). And that global savings was less than investment for the period suggests a shortage—one we contend was brought about by monetary expansion—rather than a glut.

L. H. White (2008) provides even more evidence in conflict with the Hummel-Henderson hypothesis. If monetary expansion under Greenspan was not excessive, changes in the stock of money would have merely offset changes in velocity and, according to the equation of exchange, nominal spending would have been stable. Using the growth rate for final sales of domestic goods, White (2008: 117) shows that nominal spending increased rapidly from a compounded rate per annum of 3.6 percent between 2001 and 2003 to 7.1 percent between 2004 and 2006. As a result, Selgin (2008) remarks that "whatever M was up to during the housing boom, it was not simply adjusting so as to offset opposite changes in V."

Although the Fed may be wholly to blame for creating the bubble, it is not entirely responsible for the widespread bank failures and the financial meltdown that was purportedly staved off in 2008. The housing bubble merely strained an already weak and fragile banking system crippled by perverse incentives. Specifically, we argue that federal deposit insurance and an implicit promise to bail out financial firms plagued the banking sector with moral hazard.

The Federal Deposit Insurance Corporation (FDIC) was created by the Banking Act of 1933 (Glass-Steagall). The economic argument for deposit insurance is relatively straightforward. In a fractional reserve system, lack of confidence can cause depositors to run on a bank. If this lack of confidence is unfounded, a solvent bank could be rendered insolvent through no fault of its own. Guaranteeing deposits provides depositors with the confidence necessary to prevent bank runs. However, it also discourages depositors from rewarding a prudent bank by accepting a lower rate of return. Since risky banks are then able to draw in insured deposits without paying the risk premium it would have to pay if depositors were still risk sensitive, deposit insurance effectively amounts to a subsidy for bank risk-taking.

In order to mitigate this problem, Glass-Steagall placed restrictions on banks receiving deposit insurance. Although investment banks would not be subject to the additional restrictions, deposits at investment banks would not be federally insured and, hence, individuals with deposits at investment banks would have to keep a close eye on their balance sheets. Commercial banks, on the other hand, would receive deposit insurance. And since individuals no longer have an incentive to monitor the bank once their deposits are insured, FDIC was charged with the task of ensuring that these banks were run prudently. Gorton (2010) argues that the geographic restrictions on banks in place until the 1990s created local monopoly power that enhanced the value of a bank charter, creating incentives for banks to avoid the risky behavior we would normally expect with deposit insurance. In addition to the FDIC attempts at monitoring, the complex set of government regulations actually interacted in a way that solved the

principal-agent problem, though not without other costs to consumers and economic efficiency thanks to the geographic restrictions and other regulations.

The Riegle-Neal Act of 1994 effectively ended many of the geographic restrictions on banks. As the monopoly profits associated with bank charters fell, the incentive for banks to avoid excessive risk declined as well. To make matters worse, Congress tore down the wall between investment and commercial banks in 1999 by passing the Financial Services Modernization Act (Gramm-Leach-Bliley). Gramm-Leach-Bliley allowed commercial and investment banks to merge. FDIC would still insure commercial deposits, but they would no longer prevent banks holding commercial deposits from taking on excessive risk. Without monopoly profits, bankers were no longer encouraged to act prudently under this system. Depositors with insured accounts had no incentive to watch the banks. Regulators were no longer concerned with moral hazard. And taxpayers—who would ultimately be on the hook if the Deposit Insurance Fund[7] fell into the red—were in the dark. Unsurprisingly, banks leveraged up.

To make matters worse, historical experience had revealed to banks that the federal government would bail them out if they got into trouble. Direct bailouts first became a policy option in the United States with the Federal Deposit Insurance Act of 1950, which allowed the FDIC to provide emergency assistance to banks deemed "essential to provide adequate banking service in its community." It used this authority for the first time in 1971 by bailing out Unity Bank in Boston (Hetzel 1991: 5). In 1984, it demonstrated the extent of its support by infusing an unprecedented $4.5 billion into

[7] From 1989 to 2006, FDIC managed two funds: the Bank Insurance Fund (BIF) and the Savings Association Insurance Fund (SAIF). These funds were merged in 2006 to create the Deposit Insurance Fund (DIF) when President Bush signed the Federal Deposit Insurance Reform Act of 2005 (FDIRA) into law.

the failing Continental Illinois National Bank and Trust Company. Then, in 1999, the Fed reaffirmed the federal government's commitment to backing insolvent institutions by orchestrating a bailout for Long-Term Capital Management.[8] These actions gave banks an implicit guarantee that, should they find themselves in a pinch, the government would cover the losses. With risk effectively subsidized and gains privatized, these financial institutions took risks they otherwise would have avoided.

The U.S. government had made it quite clear it would cover the costs if major banks were in trouble—a promise it largely kept. And banks responded accordingly. Too-big-to-fail and too-many-to-fail doctrines encouraged banks to consolidate and employ similar strategies.[9] Government backing—in terms of deposit insurance and an implicit guarantee to bail out banks—meant that the American taxpayer would ultimately foot the bill if losses were incurred. It was as if we sent the CEOs of the world's largest financial firms to Las Vegas with Uncle Sam's credit card to cover their losses and told them they could keep their winnings. Predictably, they made very risky bets that would make them unbelievably wealthy in the improbable event that they panned out. But those bets did not pan out.

It All Came Crumbling Down

In 2004, the federal funds rate began to converge toward the natural rate as estimated by Beckworth and Selgin (2010: 6) and the bubble began to burst. Housing prices—having been bid up in the boom—reached their peak in 2005 and started to fall.

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[8] Dowd (1999) discusses the failure and rescue of LTCM.

[9] Stern and Feldman (2004) provide a comprehensive analysis of the too-big-to-fail doctrine. Acharya and Yorulmazer (2007) show that the too-many-to-fail results in herding, particularly among smaller banks.

Mortgage defaults increased. By the end of the second quarter of 2006, foreclosures sat 50 percent higher than in 2002. Financial giants like Bear Sterns and Lehman Brothers watched as the value of their assets collapsed. Investing heavily in mortgage-backed securities had been lucrative for a while, but ultimately turned out to be a losing strategy. On October 17, 2007, then-Treasury Secretary Henry Paulson declared that the housing decline was "the most significant current risk to our economy." And everyone seemed to be asking the same question: what can we do about it? Virtually no one wondered if we had done too much already, or whether the best solution was to allow prices to get themselves in line with the underlying variables.

Fearing a repeat of the deflation of the early 1930s, the Fed rapidly expanded the monetary base to offset what appeared to be a collapse in the money multiplier.[10] From September 2008 to May 2010, the monetary base increased by 138 percent, from $843 billion to $2,007 billion. Although increasing the monetary base would be necessary to maintain monetary equilibrium if the money multiplier were falling, simultaneous changes in other variables like velocity complicate the situation. As noted above, it is difficult to know for sure whether the money supply is too big or too small under central banking. It is true that nominal GDP growth—which averaged 5.7 percent a year from 1986 to 2006—began falling in 2007 and turned negative in late 2008, suggesting that monetary policy was too tight. But if the last decade was marked by monetary expansion (as we argue above), the 5.7 percent benchmark overstates the sustainable long-run GDP growth rate. As such, the fall in nominal GDP growth might very well indicate the

[10] Recall that in a fractional reserve banking system, $M = Bm$, where M is the money supply, B is base money, and m is the money multiplier. We return to the issue of central bank fear of deflation in a later section.

inevitable return to the sustainable long-run trend. Whether the decline in nominal GDP growth is evidence of monetary disequilibrium is harder to discern given that the prior years of growth took place in an inflationary environment, but the magnitude of the decline suggests that some increase in the monetary base over the past two years was likely the appropriate response. Even if the Fed acted in the right direction, it is not at all clear whether this expansion was too big or too small.

Any good the Fed's monetary policy might have done has arguably been more than offset by a plethora of policy errors. Acting in concert with the Treasury, the Fed increased uncertainty by hosting secret meetings with key players in the banking system and Washington, D.C. The political nature of these meetings made it difficult for entrepreneurs to accurately assess their options. And the tone of fear established by top Fed and Treasury officials decreased confidence among consumers and investors.[11] Ironically, this frenzied response may have caused the very panic the Fed and Treasury aimed to prevent.

Even though increasing uncertainty and perpetuating a climate of fear has almost certainly had an impact on present conditions, other policy errors have the potential to do significant damage over the long haul by amplifying the extent of moral hazard already present in the system. For starters, the maximum deposit balance insured by FDIC was increased from $100,000 to $250,000 in 2008, reducing the incentive for those with deposits in excess of $100,000 to monitor banks even further. Similarly, the Treasury extended deposit insurance to cover money market mutual funds. Although both of these

[11] At a White House meeting held in September 2008, for example, then-Treasury Secretary Henry Paulson literally got down on one knee to beg House Speaker Nancy Pelosi to pass the Troubled Asset Relief Program (Herszenhorn et al. 2008).

programs were initially purported to be temporary, whether or not they will actually be rolled back remains to be seen.[12] And, at the very least, they reaffirm a dangerous precedent capable of increasing risk regardless of whether these particular programs are officially terminated in the next few years.

The increase in moral hazard from deposit insurance likely pales in comparison to that resulting from the bailouts offered over the last few years. When Bear Stearns approached the brink in March 2008, the Fed lived up to expectations established in dealing with Long-Term Capital Management. In exchange for purchasing Bear Stearns for $2 per share—down from $93 in February 2008—the Fed extended a $30 billion nonrecourse loan to JP Morgan. Having accepted Bear Stearns' mortgage debt as collateral, the Fed would have no recourse (i.e., it cannot seize any other assets from JP Morgan) should the value of these so-called "toxic assets" fall below the value of the loan. In other words, the Fed—and ultimately the taxpayer—bears the risk associated with the bad loans while JP Morgan receives the benefits if things work out.

Unfortunately, deals like this abound. Congress set aside $700 billion for the Treasury to dole out through the Troubled Asset Relief Program (TARP). By January 2009, the U.S. government had become a major shareholder in the banking system by purchasing $178 billion worth of bank equity shares through the Capital Purchase

[12] The temporary increase in FDIC insurance coverage from $100,000 to $250,000 per depositor as established in the Emergency Economic Stabilization Act of 2008 was originally schedule to expire on December 31, 2009, at which point coverage levels would return to $100,000. It was then rescheduled to last until December 31, 2013. The increase was made permanent with the signing of the Dodd-Frank Wall Street Reform and Consumer Protection Act on July 21, 2010.

Program.[13] $25 billion more was spent on preferred stock of Citigroup and GMAC. Another $40 billion was used to buy up a large chunk of AIG. Tack on the $19.4 billion spent to bail out the auto industry and $25 billion to backstop the Fed and guarantee loans for Citigroup and—as Everett Dirksen might say—pretty soon you're talking real money.

Although most of the money spent thus far has been to acquire stock (which can eventually be resold) or issue loans (much of which has already been repaid), these expenditures might still add to the growing government debt. The Congressional Budget Office estimates that the subsidy cost of the $247 billion spent from October 2008 to January 2009 amounts to roughly $64 billion (CBO 2009: 1). Worst of all, as Lawrence Kotlikoff (2010: 92) argues, "Bailouts are teaching corporate America a very bad lesson about looking to the government in times of trouble." If Kotlikoff is correct—and if the government does nothing to remedy the situation—moral hazard will be an even bigger problem in the future.

Where do we go from here?

The desire to end the recession as quickly as possible has prompted the Bush and Obama administrations to cut taxes and increase government spending. Unfortunately, the best medicine for ending a recession is time. It takes time for capital to be retooled and reallocated. It takes time for labor to learn new skills and relocate. And only in time will entrepreneurs have enough information to feel comfortable pursuing new plans. Efforts to jumpstart the economy prematurely by providing fiscal stimulus merely interrupt and postpone the inevitable adjustment process. However, one thing

[13] The Capital Purchase Program is a component of TARP allowing the Treasury to purchase preferred stock and equity warrants.

policymakers can do is ensure that, when enough time has passed, market participants will return to an institutional environment conducive to the market process. This requires addressing two major problems moving forward: monetary instability and moral hazard.

In our view, monetary stability means continuously adjusting the supply of money to offset changes in velocity.[14] Given the current monetary regime, where such adjustments are in the hands of the central bank, they should be made as mechanical as possible. Discretionary monetary policy unnecessarily introduces instability into the system with little or no offsetting benefit. Instead, the Fed should commit to a policy rule. Given our monetary equilibrium view, we hold that the Fed should adopt a nominal income target. Although nominal income targeting would require price adjustments in response to changes in aggregate supply, these particular price changes convey important information about relative scarcity over time and would be much less costly than requiring all other prices to change as would be the case under a price-level targeting regime (Selgin 1997: 23–29). Under a nominal income targeting regime, monetary policy would have the best chance to maintain our goal of monetary equilibrium, at least to the extent that central bankers can accurately estimate and commit to follow an aggregate measure of output. As imperfect as this solution would be, we believe it is superior to the

[14] As we shall discuss in the next section, we believe that a fundamental change in monetary regimes in the form of adopting a free-banking system is the first best way to achieve this end. Unfortunately, "a combination of governmental desire to manipulate money and economic theory favoring central banking led governments to replace competitive issue of notes (paper money) by commercial banks with monopoly issue by central banks" in the period since the start of WWI (Schuler 2001: 453). Given that these forces are still in play, abolishing the Fed and establishing a system of competitive note issue, though ideal, is likely out of the question, at least in the short run. This necessarily leaves us in a world of the second best.

alternatives available in the world of the second best, and certainly an improvement over the status quo of the Fed's pure discretion in monetary policy and beyond.

A monetary regime that stayed closer to monetary equilibrium would have likely prevented the housing bubble and subsequent recession. However, it is also important to weed out the moral hazard problem perpetuated—and recently exacerbated—by nearly a century of policy errors. Among other things, this means ending federal deposit insurance and credibly committing not to offer any more bailouts. The political consequences of such a policy are admittedly unclear. And the feasibility of credibly committing to refrain from stepping in should a similar situation result, having just exemplified a willingness to do precisely the opposite, does not look promising. Nonetheless, we contend that ending the moral hazard problem is essential to long-run economic growth free of damaging macroeconomic fluctuations.

The absolute worst solution in terms of dealing with moral hazard would be to abolish these programs officially without credibly committing to refrain from reestablishing them in the future. If market participants expect the government will bail them out when they get into trouble, they will act accordingly. The difference, however, would be that the Deposit Insurance Fund—having been abolished—would be empty and the full cost of bailing out depositors would fall on taxpayers in general. If bailouts and deposit insurance are going to be offered in the future, those likely to take advantage of them should be required to pay into respective funds to be used when the occasion arises. Ideally, payouts would be limited to the size of the fund. But given that a lack of credibility is the only acceptable reason to perpetuate these programs, their continuance

suggests that the resulting government would be unable to tie its hands in this capacity as well.

We end our policy recommendations within the current monetary regime by emphasizing our reluctance to keep FDIC or establish an official bailout fund. These suggestions are clearly made in a world of the second best, where the government is incapable of choosing our preferred alternative. In such a world, we argue that the combination of the FDIC and a Deposit Insurance Fund drawn from the banks is preferred to no official deposit insurance program and an implicit guarantee to be funded by taxpayers in general when the need arises, with all the dangers of the political process defining "need" that such a situation would bring. Similarly, we would prefer explicit promises to bail out financial institutions via deposit insurance, and a corresponding fund to provide the resources, to the implicit promises existing in our current system, provided that the government is incapable of denying bailouts *ex post* regardless of their position *ex ante*. Unfortunately, as Mises (1996: 8) pointed out, interventions typically have unintended consequences that run counter to their desired goals, and "[i]f government is not inclined to alleviate the situation through removing its limited intervention [. . .] its first step must be followed by others." The interventions we might reluctantly accept here are no different.

Mitigating the moral hazard associated with continuing federal deposit insurance and establishing an official bailout fund would likely require raising capital requirements and overseeing financial services to an even greater extent in the future. With the prospect of regulatory capture at one end and a bureaucratic banking system at the other, this is obviously the least desirable of the potential alternatives we outline. In the world

of the second best, a deposit insurance system sufficiently funded by the banks might be better than perpetuating a system that fully socializes costs while privatizing gains, as a greater share of the costs of bailing out failed banks are borne by banks and depositors rather than taxpayers broadly. These dilemmas of the second-best world further emphasize that the ultimate solution to the problems of the Great Recession is to remove the whole panoply of government interventions that caused it, with the Federal Reserve System being first and foremost among them. In the final section we explore what the free-banking alternative might look like and why it offers a first-best solution.

The Free-Banking Alternative

Normally, the only alternative to central banking that receives real consideration is some kind of commodity standard, not unlike what the classical gold standard of the nineteenth century. There was much to recommend about that system, but in practice, it never gave the full play to market forces that is required to minimize deviations from monetary equilibrium. Under a commodity standard, the supply of money expands and contracts more or less the way monetary equilibrium theorists claim is desirable. Consider the automatic response under a gold standard to a sudden increase in the demand to hold money.[15] The increase in demand puts upward pressure on the purchasing power of gold. As a result, some individuals currently using gold in other, nonmonetary capacities (e.g., jewelry, candelabras) will choose to melt and mint, unintentionally increasing the quantity of money in circulation. Furthermore, mine owners are

[15] White (1999: 28–37) graphically details the automatic mechanism underlying the classical gold standard.

encouraged to increase their production of gold. With more gold being produced, the money supply expands until the purchasing power of gold is restored to its original level.

The advantage of such a system is that the supply of the commodity serving as money responds to offset changes in money demand. Unfortunately, it does not do so very rapidly. The process of converting the commodity from nonmonetary sources and mining is very time consuming. Although precise estimates are not available, the adjustment process of the historical gold standard, White (1999: 38) claims, "probably required a decade or more on average." With changes in the money supply delayed by a decade or more, changes in velocity make aggregate demand unstable. As a result, prices and output fluctuate and generalized economic discoordination abounds.

An alternative monetary regime, normally referred to as "free banking," has the potential to adjust more rapidly. Under free banking, private banks create money, both in deposit and currency form. Both forms of bank liabilities would be redeemable in some outside money, mostly likely a commodity such as gold. Prior to the creation of central banks, this was the typical way in which both deposits and currency were produced. In the more successful of these systems (e.g., Canada and Scotland), banks were left free to produce their liabilities to the best of their judgment. In other systems, such as the United States, other forms of government regulation (e.g., limits on branch banking and requirements to hold federal government bonds as collateral against currency issues) prevented banks from making the appropriate adjustments in the money supply. In a truly free banking system, banks would be left to determine the quantity of money (in the form of bank liabilities) they create based on their calculations of profit maximization. What free-banking theorists argue is that the profit-maximizing quantity of bank liabilities to

create is that quantity that meets the demand to hold those liabilities at the current price level. In other words, profit-maximizing banks will maintain monetary equilibrium.[16]

The key to that result is the calculation banks make about their holdings of reserves. Free banks would determine their reserve holdings at the clearinghouse and in their vaults by balancing the risk of being illiquid in the face of demands for redemption against the opportunity cost of foregone interest from the loans those reserves could support. If such a bank creates more liabilities than the public wishes to hold in their money balances, those excess liabilities will be spent and eventually come back to the issuing bank for redemption. Whether that redemption is "over the counter" for the outside money commodity or, more likely, through the clearing system by other banks, it will reduce the issuing bank's holding of reserves. If we assume the bank was maximizing profits before the overissue, then this loss in reserves means a loss in profits and the bank will have both the signal (in the form of reduced reserves) and the incentive (in the form of lost profits) to reduce its liabilities back to that amount the public wishes to hold. Conversely, should it issue too few liabilities compared to demand, it will see reserves piling up as redemptions fall. Those excess reserves reflect an opportunity cost in terms of foregone interest on loans that could be made with them, just as is true in banking systems today. The profit-maximizing free bank would see that signal and recognize the incentive to increase its liability issuance to provide the amount the public wishes to hold. Profit maximization produces monetary equilibrium.

What is true of the free bank misjudging the quantity of money its customers want to hold is equally true of how it will respond to a change in consumer demand for its

[16] Selgin and White (1994) detail the mechanics of free banking in much greater detail. The interested reader should also consult the sources referenced there.

liabilities. Bank customers express their new demand to hold money by spending less. As a result, fewer notes are redeemed directly and through the clearinghouse system, just as we saw above when the bank issued too few liabilities in the face of a constant demand for money. Assuming that banks were optimizing subject to consumer preferences prior to the change in demand, they now find that their reserves are in excess of that amount required to maintain liquidity and that the bank is forgoing interest returns it could safely be earning. The profit motive directs each individual bank to expand the number of loans and securities it holds until reserves are reduced to the new equilibrium level. In the aggregate, the money supply is expanding to match the increase in money demand. And since individual banks need only print up more of their notes or credit electronic accounts, the supply of money can adjust much more rapidly in comparison to a strict commodity standard.

Absent a free market in money and banking, the supply of money must be consciously adjusted by a central bank if monetary equilibrium is to be maintained. Compared to free banking, central banks face at least three problems in conducting optimal monetary policy. First, they do not have access to the information that is readily available in the form of market prices to gold miners and bankers in the two regimes discussed above. Instead, the central bank must rely on costly aggregate data sets that arguably hold less informational content in comparison to prices. That these data sets become available to the central bank with a significant lag is also problematic, as it means they often do not know an adjustment is necessary until the very events the adjustment might have prevented begin to materialize. Relying on changes in

macroeconomic aggregates to signal the need to change the money supply to prevent changes in those very aggregates seems an unsolvable problem.

In addition to the information problem, central banks do not face the same incentives as private participants. Under free banking, for example, an overissuing bank would suffer reserve losses when adverse clearings manifest at the clearinghouse. Although a similar incentive might exist if politicians lose votes for continuously appointing highly inflationary central bankers, this incentive appears to be much weaker than those faced by market participants in alternative regimes.[17] After all, the U.S. public debt currently exceeds $13 trillion. As the world's largest debtor, the U.S. government stands to gain from a little unexpected inflation.

Finally, the monopoly status of central banks amplifies errors. Under a competitive free-banking system, where an individual bank might maintain only 20 percent of the total circulation, any single bank's overissuing by 10 percent would only result in a 2 percent overissue in the aggregate. Furthermore, this error could potentially be offset by the underissuing of another bank. Central banking, on the other hand, assigns the entire task of getting it right to a single central planner.[18] There is no possibility of offsetting errors, and a 10 percent overissue by the single bank is a 10 percent overissue by the banking system.

The early history of the central bank illustrates its potential for blunders. While productivity soared in the 1920s, for example, the Fed overexpanded the money supply,

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[17] The implicit promise by free banks to maintain monetary equilibrium is self-enforcing via profit and loss, while any explicit promise by central banks to do so lacks the incentive compatibility necessary to enforce such a promise.

[18] If equating central banking to central planning seems unwarranted, recall that former Fed Chairman Alan Greenspan was affectionately called "The Maestro."

resulting in a relatively constant price level.[19] It would be the error at the end of the decade however that would stand out in the twentieth century. As Friedman and Schwartz (1963: 299–407) detail, the money supply contracted by roughly a third from 1929 to 1933 because the Fed did not respond as it should have.[20] Had the Fed maintained monetary equilibrium, the period now know as the Great Depression might have turned out to be a garden-variety recession, along the lines of, though perhaps somewhat more severe than, the 1920–21 recession. Instead it became the worst economic crisis in U.S. history.

Because central bankers fear nothing more than being seen as responsible for another Great Depression, they have erred in the opposite direction of the deflationary mistakes made in the early 1930s. Selgin and Beckworth (2010: 1) show that—as was the case in the 1920s—the Fed's "occasional, unintentional exacerbation of the business cycle is largely attributable to its failure to respond appropriately to persistent changes in the growth rate of total factor productivity." Specifically, when factor productivity growth is high and monetary equilibrium theory would require a falling price level, the Fed expands the money supply to prevent prices from falling. In doing so, the Fed pushes the federal funds rate below the natural rate and leads entrepreneurs to generate

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[19] The Board of Governors of the Federal Reserve System (1937: 827–28) ultimately admitted to this error in describing monetary policy objectives: "No matter what price index may be adopted as a guide, unstable economic conditions may develop, as they did in the 1920s, while the price level remains stable; business activity can change in one direction or the other and acquire considerable momentum before changes are reflected in the index of prices. There are situations in which changes in the price level work toward maintenance of stability; declining prices resulting from technological improvements, for example, may contribute to stability by increasing consumption."

[20] The Fed's inaction was a result of the combination of (1) not quite understanding the dimensions of the problem; (2) holding to an incorrect monetary theory, in the form of the Real Bills Doctrine, that led many members to recommend a wrong cure; and (3) to the extent other voices had it right, their recommended actions were too little, too late.

malinvestment. Fearing deflation, the Fed consistently overexpands the money supply with little regard for the ill effects.

One other explanation for the inflationary bias of the Fed is that the costs of inflation are far more subtle and long run than those associated with deflation. The ways in which inflation plays havoc with prices and disrupts microeconomic coordination and entrepreneurship are widespread and hard to connect directly to the inflationary activities of the central bank (Horwitz 2003). In contrast, deflation usually makes itself known quickly, as the shortage of money begins to reduce the number of mutually beneficial exchanges that take place, which in combination with prices not falling immediately leads to surpluses of goods and labor. The shortage of money is felt acutely and its effects can be tied back to that cause. Not only does inflation benefit governments by reducing the real burden of their debt, it is politically less costly to the central bank directly, as its consequences cannot easily be connected with its cause.

The Fed's fixation with deflation was perhaps best exemplified in a November 2002 speech by then-Governor Ben Bernanke. Honoring Milton Friedman on his ninetieth birthday, Bernanke (2002) made it clear that those at the Fed understood the lesson of the Great Depression. He ended his talk by "abusing slightly" his "status as an official representative of the Federal Reserve" to address Friedman and coauthor Anna Schwartz directly with the following words:

> Regarding the Great Depression. You're right, we did it. We're very sorry. But thanks to you, we won't do it again.

Since being appointed chairman of the Fed in 2006, Bernanke has made good on his promise. Unfortunately, he has followed many of his predecessors in making precisely

the opposite error, setting the stage for the current recession and financial market instability.

The structure of a free-banking system not only eliminates these destructive incentive and information problems, it replaces both with market signals that provide the needed information wrapped in the necessary incentives, with the result that the banks' incentives are aligned with the goal of maintaining monetary equilibrium. Although such a dramatic change in monetary regimes may not be politically feasible in the near future, especially because central banks are very useful for governments that are trillions in debt, the increasing public scrutiny that the Fed and other central banks are under is one reason to continue to argue for a fundamental change in regimes. As we have argued, central banks along with other forms of government intervention have given us the Great Recession. It seems only fair that all of the parties responsible for the current mess be subject to equal critical scrutiny and that those who wish to avoid further damage to the world economy be willing to put on the table every proposal they believe will help, regardless of whether it is currently politically possible. Serious economic problems require the courage of radical, and potentially unpopular, solutions.

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