



The Hayek Rule: A New Monetary Policy Framework for the 21st Century

by Marius Gustavson
Project Director: Anthony Randazzo



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By Marius Gustavson *

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Executive Summary

For decades, Federal Reserve (Fed) policy has been to try and create soft landings for the economy in times of economic crisis, in an attempt to shield the nation from the painful adjustments that come along with market-wide corrections in investments and production. However, this has not proved a long-term solution for sustainable economic growth, and the recent financial crisis has called into question conventional wisdom related to macroeconomic thought and stabilization policy.

It is necessary for the economy to cleanse itself of bad investments after a bubble bursts and readjust itself through a reallocation of misplaced resources. As a result, some of the Fed's policy responses to the crisis have prolonged this painful process, dragging out the economic woes of the country.

This paper takes a look at the monetary origins of the financial excesses in the first decade of the 21st century and the connections between monetary policy and the housing bubble. We also closely examine the intimate connections between monetary policy and movements in asset prices. We find that experiences with the current monetary policy regime—in light of the financial imbalances of the boom years, the ensuing crisis and its aftermath—clearly demonstrate the urgent need for monetary reform.

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So far the debate surrounding financial reform has hardly addressed the central question of the monetary policy framework. This is a serious omission. What is needed is a wholesale reform of the monetary policy regime, returning the central bank to what should be its core mission, namely to ensure a stable and sound monetary system in which credit growth is held in check.

We propose a new policy framework for monetary policy, one that looks at monetary aggregates and factors in the connections between monetary policy and asset prices. Our proposed “Hayek rule” is a symmetrical approach that seeks to stabilize nominal income, in both good and bad times, through a system in which the annual flow of money—what we will refer to as the “circulating medium of exchange,” which is equal to nominal spending (MV)—remains at a constant level.

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Part 1

Introduction

The recent financial crisis and global recession have called into question conventional wisdom related to macroeconomic thought and stabilization policy. The Federal Reserve (Fed), tasked with a dual mandate to maintain price stability and full employment, seemed to be successful in its endeavors during the two decades preceding the crisis—a period referred to as the “Great Moderation” in which consumer price volatility and inflation were low and recessions mild and short-lived. However, beneath this calm surface economic imbalances were building up, both in the financial sector as well as the wider economy.

In 2007–2009 these imbalances surfaced, dragging the U.S. and global economy into the worst economic crisis since the Great Depression of the 1930s. With high unemployment and virtually every sector of the economy struggling, the Fed is facing some major challenges: What is the proper role of a central bank in the economy? What is the relationship between asset bubbles—such as bubbles in housing and housing-related securities—and monetary policy? What should the monetary authorities do to prevent such bubbles from getting out of hand?

During the last couple of decades, Fed policy has tended to create soft landings for the economy, to shield the nation from the painful adjustments that come along with market-wide corrections in investments and production. When the dot-com boom came to an abrupt end in 2000–2001, the Fed responded quickly, cutting interest rates and injecting liquidity into the financial sector, as they had done before on several occasions. Investors, politicians and voters could breathe a sigh of relief. The monetary response cushioned the downfall, and only a modest recession followed. However, the Fed’s monetary response gave immediate rise to a new credit cycle, even more vicious and destructive than the last one.

At the end of the decade, the U.S. economy once more found itself in a similar situation. A financial bubble burst, and following in its trail was another recession. Once more interest rates were cut in a drastic fashion and once more the federal government came to the rescue of investors, bailing them out of their bad investment decisions.

But this time around has also been different in many respects, as the cascade of events paralyzed the functioning of the entire global financial system. Though the Fed reacted promptly and

decisively by cutting interest rates and injecting new liquidity into the market, this was not enough to stave off a full-blown depression-like downturn.

First, this paper will take a look at the monetary origins of the financial excesses in the first decade of the 21st century and the connections between monetary policy and the housing bubble. Experts are still divided over the actual causes of the financial crisis. Many have argued that the severity of the crisis could have been avoided if better regulation and more vigilant supervision were in place in the build-up to the crisis. Federal Reserve Chairman Ben Bernanke is among the proponents of this view.

Others believe that loose monetary policy facilitated the credit bubble, thereby laying the groundwork for the financial excesses that led to such a disastrous outcome. This view holds that record low interest rates—in large part a result of measures taken to “help” the economy recover from the dot-com crash as well as to preempt any remote chance of the U.S. falling into a Japanese-style deflationary trap—led to record low mortgage rates, which in turn spawned an unsustainable housing bubble.

Furthermore, monetary expansion on a global scale over the last decades led to record low interest rates, giving rise to a “search for yield” among investors world-wide; money was borrowed short at low cost and invested in long-term securities with higher interest rates. Rapidly rising U.S. housing prices made housing-related securities seem like a sure bet. Credit poured into this market from all directions, not the least from the rapidly expanding Chinese economy, as well as oil-exporting countries, which ran up huge trade surpluses, making credit ever cheaper and pushing up the demand for U.S. bonds.

On a deeper level, several experts have commented that, through its commitment to cushion off economy-wide drops in asset prices and stimulate the economy out of even moderate recessions, the Federal Reserve has created a false sense of security that has led to a system-wide underpricing of risk and encouraged highly leveraged investment strategies.

Second, we will more closely examine the intimate connections between monetary policy and movements in asset prices, as well as the contentious debate over how the Fed and central banks of other countries should react to asset booms and busts.

Once the crisis hit, Fed officials responded with unprecedented and dramatic measures, inventing new policy tools as they went along. Some of these measures were arguably necessary to stop the credit crunch from sending the country into a destructive deflationary spiral, hurting viable businesses and investments on its way. However, it is also necessary for the economy to cleanse itself of bad investments after a bubble bursts and readjust itself through a reallocation of misplaced resources. Some of the Fed’s policy responses to the crisis have prolonged this painful process, dragging out the economic woes of the country.

The precedents created by the Fed's newly acquired expansion of authority could create significant problems for the future course of monetary policymaking in the United States. One major concern is the way in which recent policy responses will exacerbate future cycles of boom and bust, through even stronger expectations of Fed bailouts of financial markets. A more pressing concern in the short run is how low interest rates in the U.S. are causing a spike in capital inflows to emerging markets, such as Indonesia, creating potentially destabilizing mini-bubbles.

As we will argue, policy actions by the Fed lay at the very heart of the global imbalances that emerged in the decade preceding the crisis, and they continue to create painful unintended consequences. And at the same time, the debt overhang afflicting the economy has, to a large degree, rendered monetary policy impotent in stimulating bank lending and influencing the overall policy goals of inflation, output and employment.

Third, this report argues that experiences with the current monetary policy regime—in light of the financial imbalances of the boom years, the ensuing crisis and its aftermath—clearly demonstrate the urgent need for monetary reform. So far the debate surrounding financial reform has hardly addressed the central question of the monetary policy framework. This is a serious omission. In the words of Stephen Roach, Chief Economist at Morgan Stanley, “it ignores the 800-pound gorilla that is also in the same room.”¹ Only a few economists and members of Congress have even touched upon this issue. While legislation in the U.S. House of Representatives and Senate has considered limiting or expanding the regulatory responsibilities of the Federal Reserve, the only serious monetary reform proposals so far have been some kind of formal inflation target for the U.S.

However, the combination of the domestic goal of price stabilization and a rapidly growing global economy eventually leads to an excessively expansionary monetary policy. In the 2000s, when strong productivity growth put downward pressures on prices, the Fed (and central banks in other countries) responded by keeping interest rates historically low and rapidly expanding the money supply. Repeating the same policy course would only perpetuate a cycle of short-term “fixes” that led to increased excesses and more severe crises.

Furthermore, the more immediate concern is that low interest rates and other forms of monetary expansion will feed a worldwide imbalance in asset markets and global capital flows.

What is needed is a wholesale reform of the monetary policy regime, returning the central bank to what should be its core mission, namely to ensure a stable and sound monetary system in which credit growth is held in check. Therefore, this report concludes with a new monetary policy prescription dubbed the “Hayek Rule”—named after famed economist F.A. Hayek—that is based on stabilizing the circulating money supply.

Part 2

The Monetary Origins of the Crisis

When former Fed Chairman Alan Greenspan retired in 2006, he was at the height of his power, hailed by many as the world’s most important economic policymaker. He had presided over nineteen years of robust growth and two relatively mild recessions. He was widely cherished as some sort of economic genius who had rescued the economy from the brink by cutting interest rates and injecting liquidity as never seen before whenever there was trouble in the making. Bob Woodward dubbed him the “Maestro” in a best-selling biography.²

In 2005, several prominent economists spoke with high regard of Greenspan. Alan Blinder, a former Fed Vice Chairman, stated that Greenspan “has a legitimate claim to being the greatest central banker who ever lived. His performance as chairman of the Fed has been impressive, encompassing, and overwhelmingly beneficial—to the nation, to the institution, and to the practice of monetary policy.”³ Central banking expert John B. Taylor concurred and spoke favorably of the “price stability” and “economic stability” of the Greenspan years, stressing the principled way the Greenspan Fed had conducted policy:

Monetary policy decisions under Alan Greenspan’s leadership have been guided by a clear set of monetary policy principles. Good judgment and leadership have been essential to implementing these principles, but the principles are by no means a secret. These principles, along with their judicious implementation, are a major reason for the extraordinary economic performance during the Greenspan era.⁴

The principles Taylor was referring to were those which are in line with his own “Taylor Rule”—a rule of thumb for how central banks should set interest rates when looking at inflation figures and the economic growth rate.⁵ The rule is based on the belief that price stability—i.e., low and constant year-on-year growth in consumer prices—is tantamount to economic stability.

But as Ben Bernanke stepped into the biggest economic leadership shoes in the country *The Economist* warned of the dangers ahead stemming from what they called “the biggest economic imbalances in American history.”⁶ Their main quarrel with the Maestro was what they diagnosed as the Greenspan Fed’s “myopic view” of monetary policy. Greenspan let seemingly short-run benefits outweigh the need for long-run stability, especially his “asymmetrical policy of never raising interest rates to curb rising asset prices, but always cutting rates after prices fall,” something which “encourages excessive risk taking and allows the imbalances to grow ever larger,

making the eventual correction even worse.” Thus, they warned that Fed policies over the preceding decade were likely to have “painful long-term costs.”⁷

In the fall of 2008, the old Maestro became a falling star. Politicians, journalists and economists increasingly started to question the wisdom of the former Fed Chairman as the full market meltdown materialized with the collapse of Lehman Brothers and the rescue of insurance giant AIG. Greenspan responded to some of his critics by undertaking what at the time was interpreted as a “mea culpa” before the U.S. Congress; on October 23, 2008, he admitted to being in a “state of shocked disbelief” by the disclosed business practices of lending institutions. However, the question of monetary policy mistakes never came up, and Greenspan only admitted to a somewhat inadequate understanding of the workings of financial markets, implying that the main shortcoming of the Fed had been insufficient regulation of banks.⁸

As the critiques mounted, Greenspan reaffirmed his views in a March 11, 2009 op-ed in *The Wall Street Journal* stating emphatically, “The Fed didn’t cause the housing bubble.” Instead he placed the blame on forces outside of the Fed’s control, mainly on money streaming in from abroad during the boom years. He believed that the only “solutions for the financial-market failures revealed by the crisis,” were regulatory, more specifically “higher capital requirements and a wider prosecution of fraud.”⁹

The op-ed was largely written as a response to Greenspan’s “good friend and former colleague,” Stanford University economist John Taylor, who, according to Greenspan, “unequivocally claimed that had the Federal Reserve from 2003–2005 kept short-term interest rates at the levels implied by his ‘Taylor Rule,’ it would have prevented this housing boom and bust.”¹⁰

Taylor had gone from being one of the Fed’s staunchest supporters to one of the most pronounced of Greenspan’s critics. In light of unfolding events in financial markets from the fall of 2007, reaching its apex in the market meltdown in the fall of 2008, Taylor had come to the conclusion that the Fed had somehow gotten “off track” in the boom years preceding the financial crisis and that “Monetary excesses were the main cause of the boom.”¹¹

Taylor commented that a tighter policy, in line with his own policy recommendations based on how the Fed conducted policy from the late-80s through the 90s, “would have prevented the boom and the bust.” But Greenspan brushed off this critique, replying:

*If it is monetary policy that is at fault, then that can be corrected in the future, at least in principle. If, however, we are dealing with global forces beyond the control of domestic monetary policy makers, as I strongly suspect is the case, then we are facing a broader issue.*¹²

Several other economists joined in this controversy, siding with either one of the two combatants. David Henderson, a colleague of John Taylor at Stanford’s Hoover Institution, and the editor of *The Concise Encyclopedia of Economics*, came out in defense of Greenspan, identifying “a sudden increase in savings” outside the U.S. as the main culprit. In contrast, Gerald P. O’Driscoll, a former vice president of the Federal Reserve Bank of Dallas, put the blame squarely on the shoulders of

Mr. Greenspan. He was joined by others including monetary commentator Judy Shelton who didn't mince words: "The Fed owns this crisis."¹³

There are two leading hypotheses explaining the monetary origins of the crisis: one emphasizing destabilizing money flowing in from abroad ("savings glut" hypothesis) and the other emphasizing destabilizing monetary expansion at home ("money glut" hypothesis). Taylor's attacks on Greenspan were only the most visible sign of an economics profession divided in how to assess these monetary origins, and thereby what the correct policy response during the boom should have been. The outcome of this debate will be of great importance to the future course of monetary policy.

A. Savings Glut?

Greenspan and Bernanke have argued that the main explanation of the monetary origins of the housing bubble was money flowing in from abroad. This combined with what Bernanke identifies as "lax oversight" of the financial services industry, especially lending institutions' underwriting standards during the boom years.¹⁴

The "savings glut" hypothesis was developed as an explanation of what Greenspan described as a "conundrum": After the Fed raised short-term interest rates in mid-2004, long-term interest rates continued to *fall* for some time. This gave rise to the idea of a "disconnect" between short-term and long-term interest rates. As Greenspan later explained, defending his view that domestic monetary policy was not at fault:

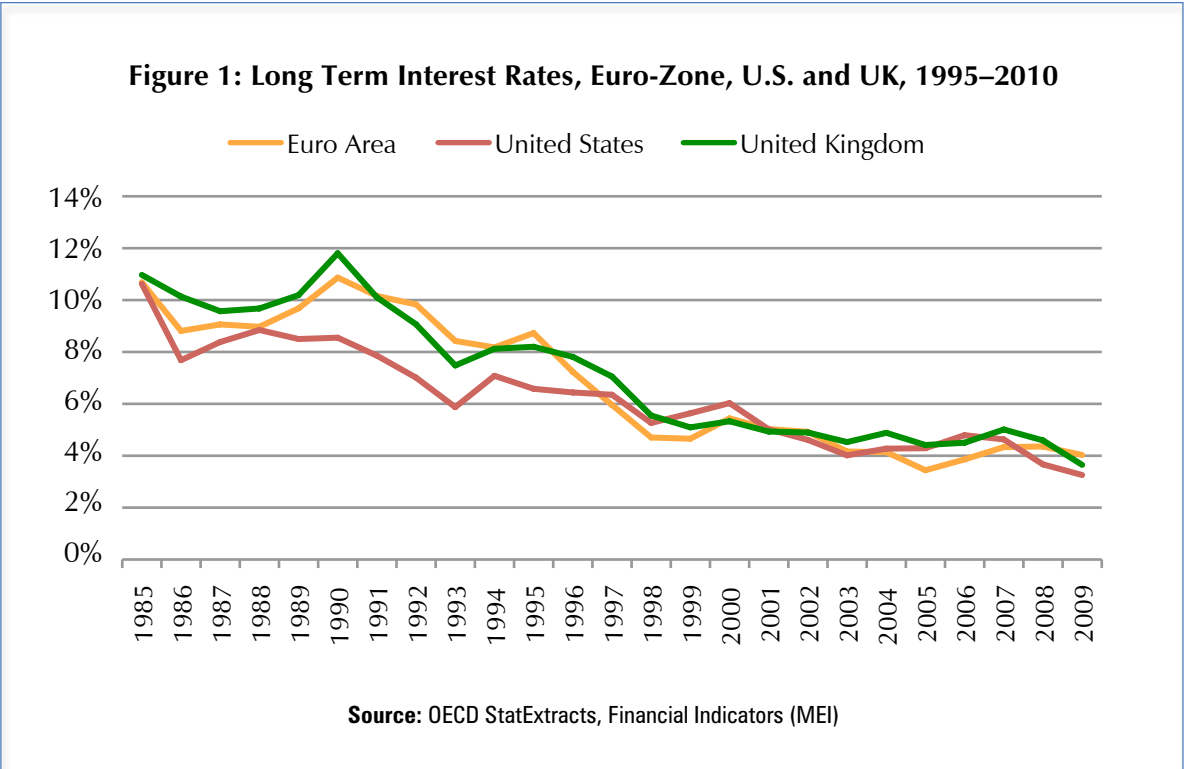
*The Federal Reserve became acutely aware of the disconnect between monetary policy and mortgage rates when the latter failed to respond as expected to the Fed tightening in mid-2004. Moreover, the data show that home mortgage rates had become gradually decoupled from monetary policy even earlier...*¹⁵

Greenspan held that mortgage rates are long-term interest rates, whereas the Fed, through its open market operations (whereby it purchases and sells bonds in the open market, thus injecting or draining the banking sector of liquidity), seeks to influence short-term money market rates, thereby only indirectly affecting long-term rates. According to Greenspan, the correlation between long-term mortgage rates and the Fed's policy rate (the overnight federal funds rate) had traditionally been strong—a correlation of 0.85 between 1971 and 2002. However, during the boom years—between 2002 and 2005—the correlation declined.

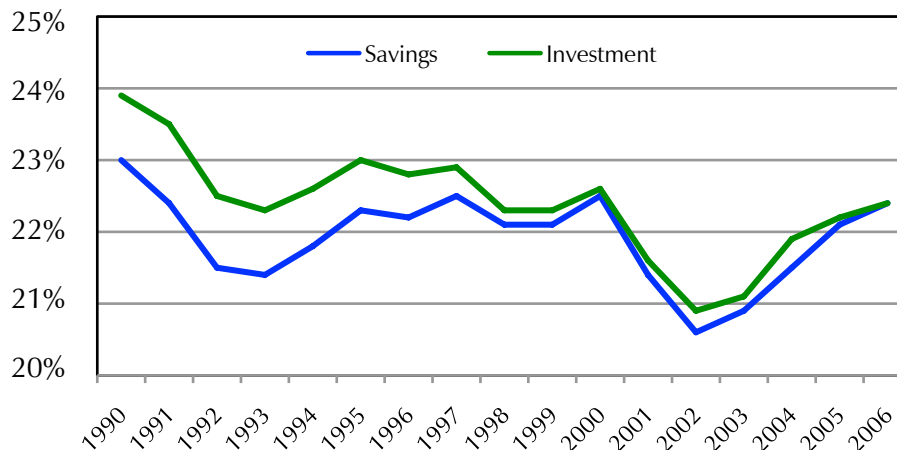
Greenspan and Bernanke identified the main source of the declining long-term interest rates as excess savings stemming from export surpluses among new entrants to the globalized world economy, most notably China, as well as the surpluses of Middle East oil exporting countries, stemming from rising commodity prices during the 2000s.

In 2005, Bernanke presented his hypothesis before the Virginia Association of Economics, stating that “over the past decade a combination of diverse forces has created a significant increase in the global supply of saving—a *global saving glut*—which helps to explain both the increase in the U.S. current account deficit and the relatively low level of long-term real interest rates in the world today.”¹⁶ (Emphasis added)

In the 2000s this deficit increased significantly. At the same time, long-term interest rates fell. Figure 1 shows this trend, depicting the yields on 10-year government bonds for the U.S., the UK and the Eurozone from the mid-90s up until today.



The first problem with the Bernanke story is that while long-term interest rates were falling, the level of global savings was falling as well, as illustrated in Figure 2.

Figure 2: Global Savings and Investment, 1990–2006 (share of global GDP)

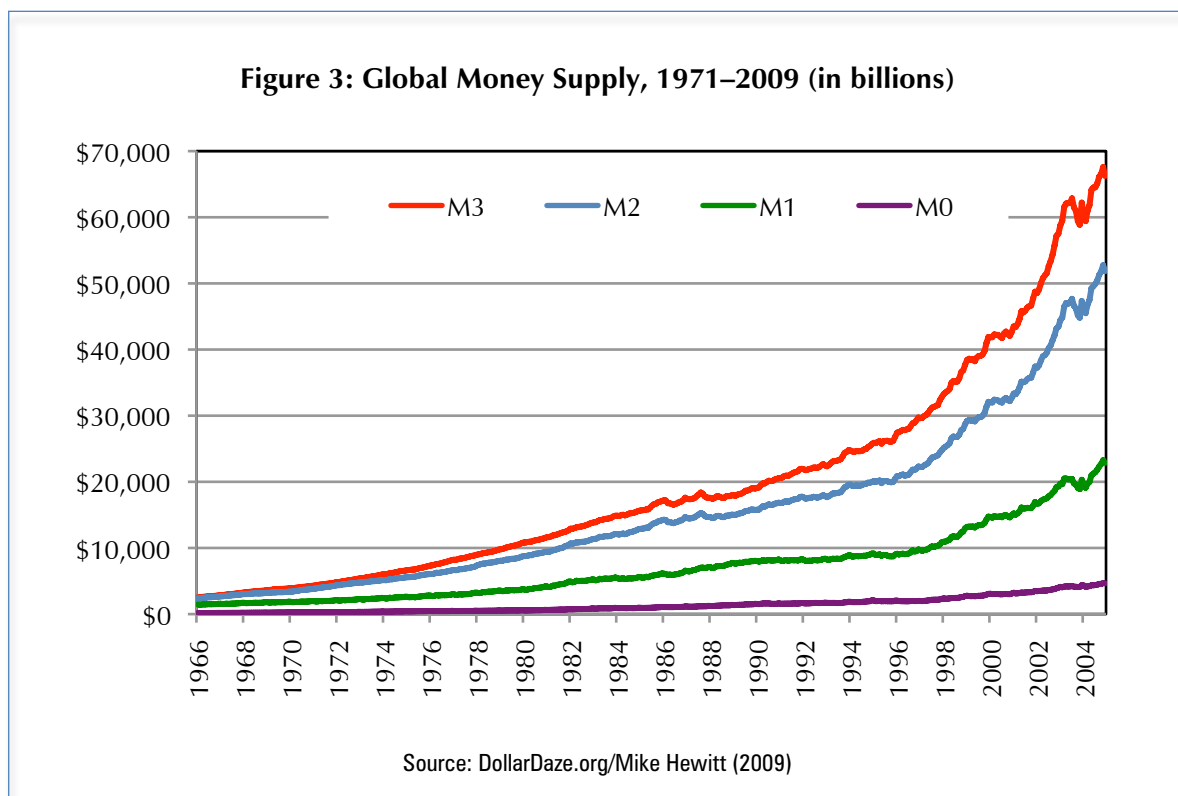
Source: IMF, World Economic Outlook Database

A 2005 IMF report affirmed this trend in the data: “Global saving and investment have been trending downward since the early 1970s. They reached historic lows in 2002, and have recovered modestly since then.” Taylor reiterated this important point while formulating his critique of Fed policies three years later.¹⁷

This downward trend in global savings strongly suggests that it would be wrong to ascribe the 2000s boom to a “global” savings glut. If anything, it would be more appropriate to describe it as an “Asian-Middle Eastern” savings glut, leading to historically strong capital flows into the U.S. economy and some other industrial countries, most notably Spain and the UK.¹⁸

The second problem is that a savings glut in these countries could not have been the main origin of cheap credit in the U.S. As pointed out by Charles Bean, Deputy Governor for Monetary Policy at the Bank of England, the money flowing in to the U.S. from abroad only amounts to about one-third of the total amount of household, corporate and government debt that was taken on in the period from 2000 to 2007. The savings glut hypothesis should thus, according to him, mainly be seen as an explanation of the low long-term interest rates of this period.¹⁹

The final major problem with the official Fed story is that Bernanke does not address the central question of where the ample liquidity floating around in the world economy during this period was coming from in the first place. Looking at historical data in Figure 3, we see that the global money supply expanded rapidly from 1985 to 2007, in the period inaptly dubbed the “Great Moderation.”



By looking at these data, it seems more plausible to ascribe the global boom during the last two decades to historically low policy rates and rapid monetary expansion orchestrated by the world’s major central banks: The Federal Reserve (Fed), the Bank of Japan (BoJ), and the European Central Bank (ECB).

The proxy world interest rate reached historically low levels in the 2000s, and the real interest rate (the nominal rate adjusted for inflation) became negative at the peak of the financial bubble, i.e., in the years around 2004–2005. This strongly suggests that a “money glut” hypothesis is a more plausible explanation of recent economic imbalances.

This view is partially confirmed in a recent paper published by the European Central Bank, in which economists Thierry Bracke and Michael Fidaro test the validity of the two hypotheses—a savings glut or a money glut. Their conclusion is that “monetary shocks potentially explain the largest part of the variation in imbalances and financial market prices.” Hence a money glut “may have been a more important driver of real and financial imbalances in the US and emerging Asia than a ‘savings glut’.”²⁰

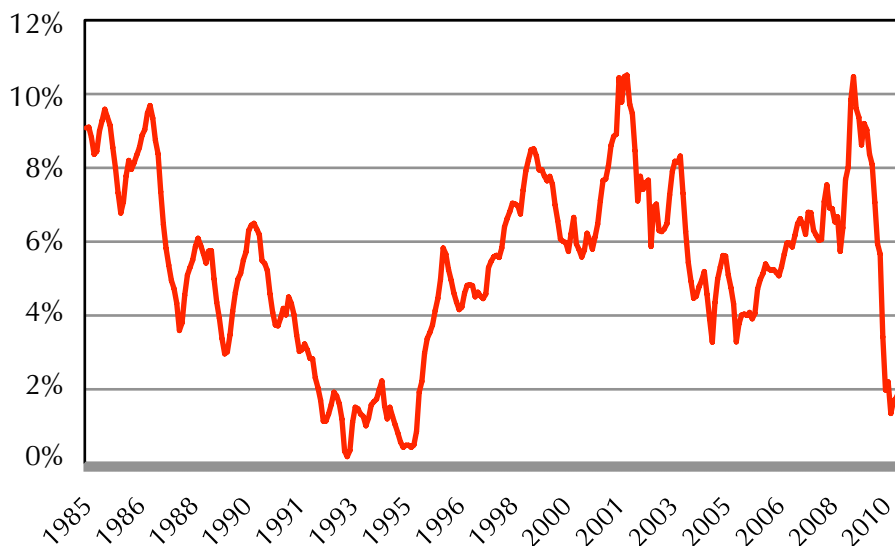
B. Money Glut?

By looking solely at U.S. monetary aggregates, some have contested this money glut explanation. Economists David Henderson and Jeffrey Hummel argue that the growth in the domestic money supply had in fact fallen steadily since the early 2000s.²¹ For instance, in 2001 the growth in the M2 money aggregate (so-called “broad money”) grew at more than 10 percent, whereas it only grew at around 2 percent in 2006.²²

However, there are some serious flaws in this argument. First, they only compare data for two years, of which one was characterized by massive monetary easing to contain the fallout of a potential financial crisis (2001). The other year was one in which the Fed was tightening, due to expectations of inflationary pressures and overheating (2006). Monetary conditions should therefore be expected to be much tighter at the end of this period than at the beginning.

By looking at annual data for the whole period, and stretching the time-series back to 1985, as done in Figure 4, the picture becomes clear: the 2000s were indeed characterized by strong monetary expansion.

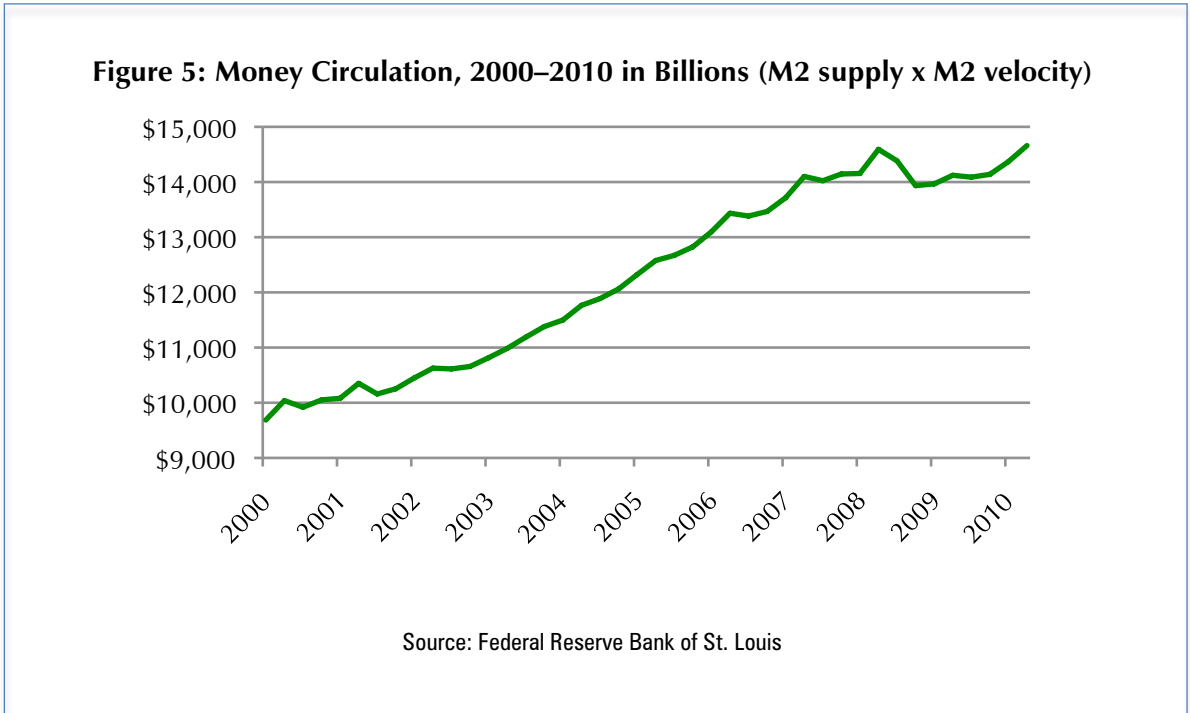
Figure 4: Money Supply M2, 1985–2010 (percentage change from a year ago)



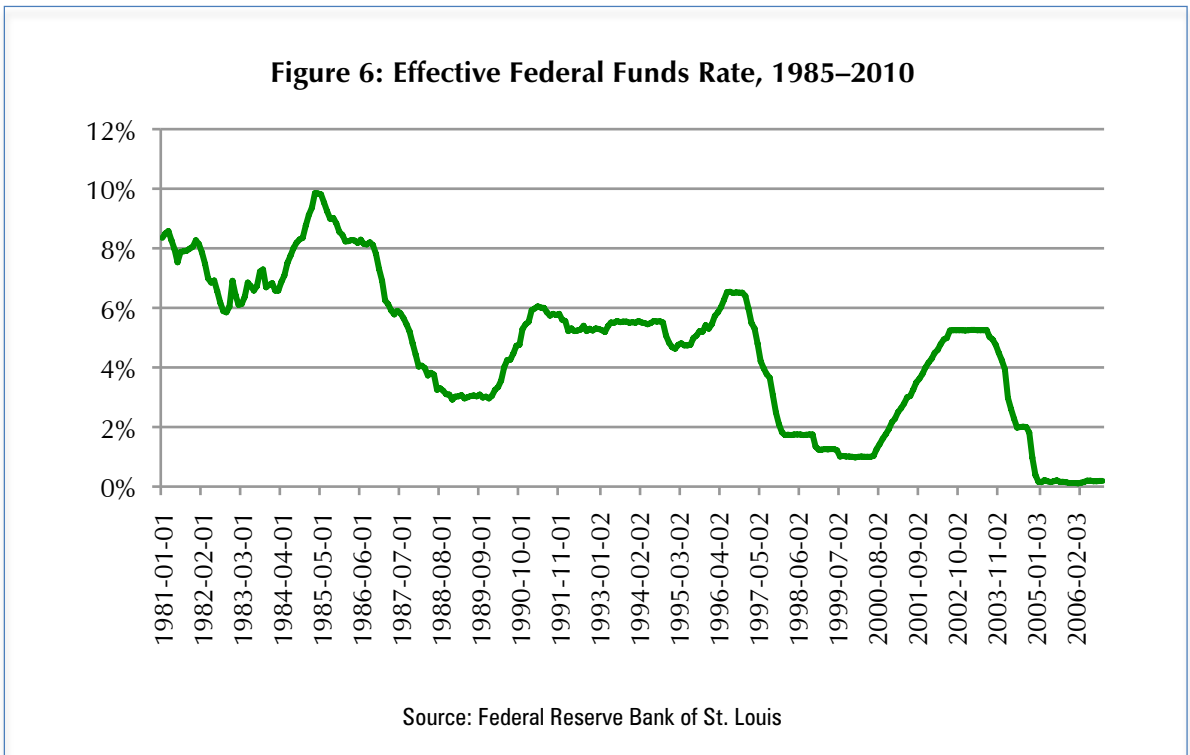
Source: Federal Reserve Bank of St. Louis

As shown in these figures, the broad money supply (M2) expanded rapidly in the years of the dot-com boom. It was expanded even more rapidly in response to the dot-com bust, and then slowed down in 2005–2006.

A fuller picture emerges when looking at the total circulation of money, i.e., the money supply (M2) multiplied by the velocity of money (how often M2 changes hands). Figure 5 shows the rapid expansion from the start of the decade, before flattening out in 2007.



The monetary easing becomes even clearer when looking at the federal funds rate from this period, shown in Figure 6.

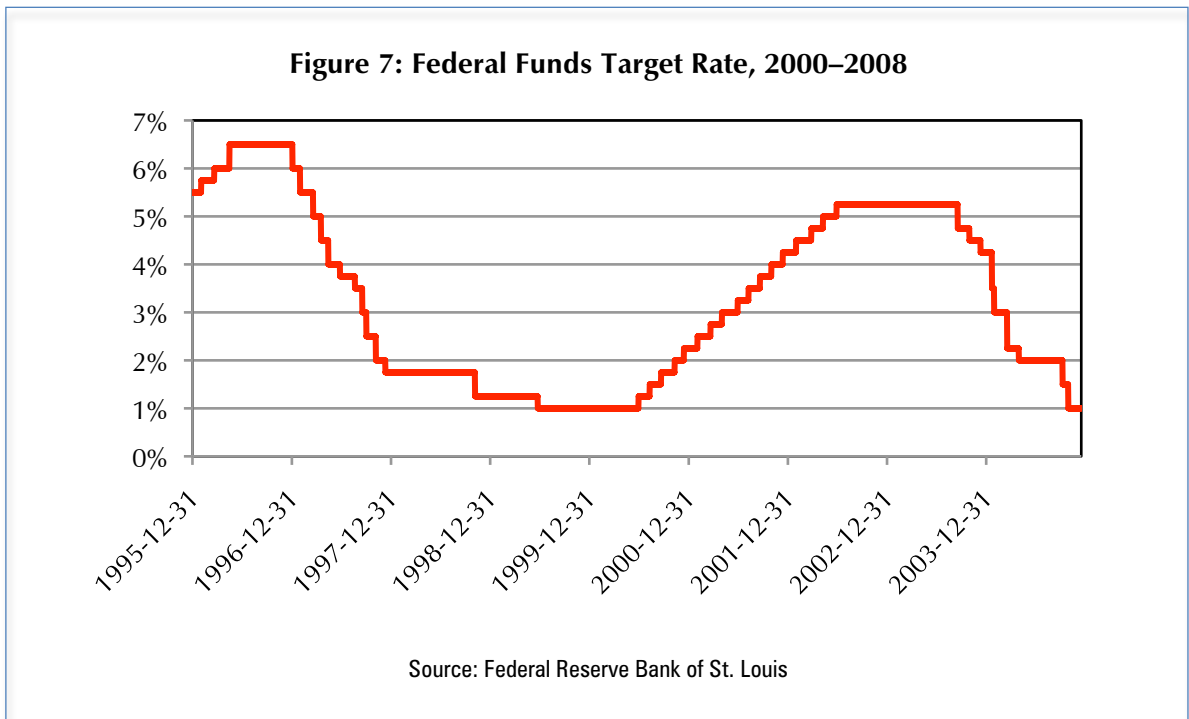


The fed funds rate is an important money market rate—the rate at which banks lend reserves to each other through the federal funds market. The Fed seeks to influence this rate through a procedure known as “open market operations.” By purchasing or selling U.S. government securities in the open market (transacting with private banks), through money creation or destruction, the Fed expands or contracts the amount of reserves in the banking sector.²³

Banks ultimately determine how much they will lend based on the reserves available. Liquidity injections by the central bank in normal times typically lead to an expansion of credit, and thus an expansion of the wider money supply, such as M2.

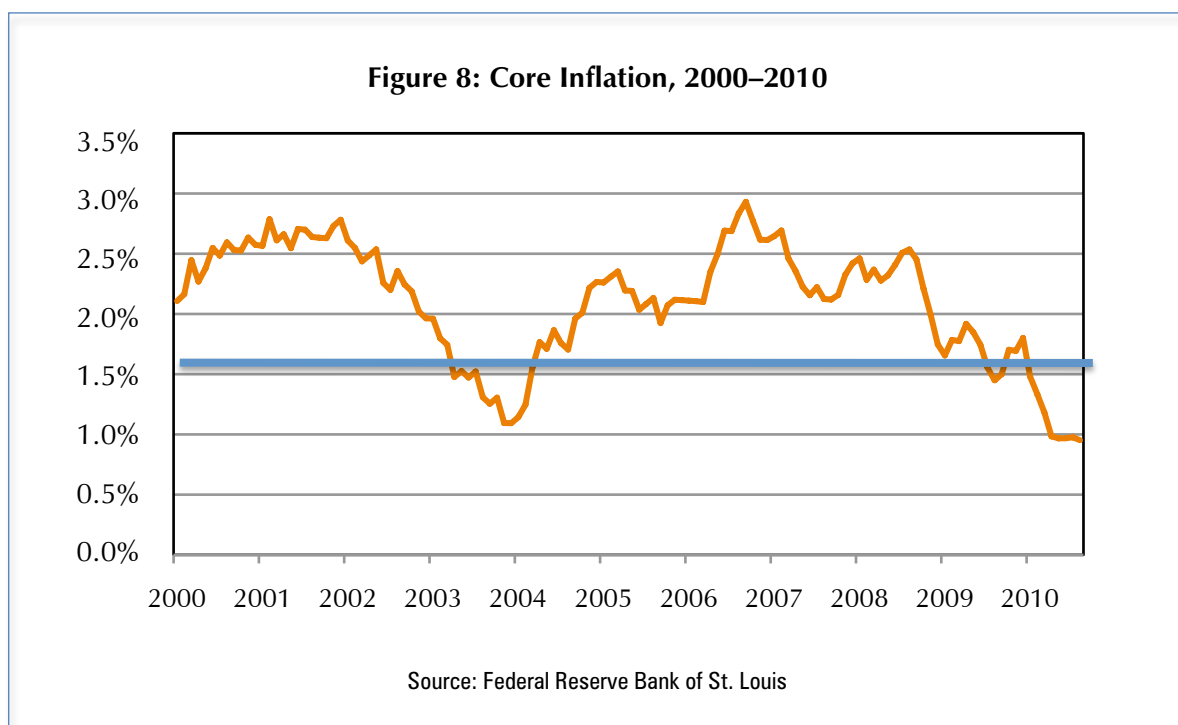
By controlling the interbank rate through its open market operations, the Fed indirectly controls the broader money supply, and also attempts to manage the changes in the general price level (consumer prices), as well as output and employment. Open market operations are thus the main monetary instrument in the conduct of stabilization policy.

During the first half of the 2000s, the Fed’s policy rate reached historically low levels, both nominally and adjusted for inflation (the “real” fed funds rate). In the wake of the dot-com crash, the nominal rate was cut from 6.5 to 1.75 percent in 2001. It was cut further in 2002, reaching its lowest point in mid-2003 at 1 percent, where it stayed for almost a year. Adjusted for inflation, the interest rate was negative in real terms for more than two years. The fed funds rate was then gradually hiked in successive steps from 2004 to 2006, as can be seen from Figure 7.



That this easing should cool down at the end of the housing boom only strengthens the argument that monetary easing in the early 2000s spawned the boom. As well, monetary tightening in the middle of the decade made sure that this boom came to an abrupt end, even though this was not the intention of Fed monetary policymakers, who were mainly concerned with output and inflation. The Fed thus inadvertently both spawned the boom and ended it.

Moreover, inflation figures clarify why the Fed kept tightening and held the nominal policy rate above 5 percent all the way up to late 2007, even though a full housing and financial crisis was in the making. Figure 8 shows core consumption figures exceeded the Fed's 2 percent limit from the fall of 2004 until the fall of 2008.



In addition, headline inflation, which includes food and energy prices, reached alarmingly high levels in the fall of 2005 and in the months preceding the full market meltdown in 2008, 4.7 and 5.6 percent respectively.²⁴

However, consumer price growth earlier on in the 2000s was held back by economic circumstances, both domestically and in the global economy, enabling the Fed and other central banks to keep interest rates at a low point. The global interest rate and global money supply (see Figure 5) show that the central banks of the major economies engaged in rapid monetary expansion. This wave of liquidity fueled a global credit boom, feeding into asset and commodity prices.

This rapid monetary expansion did not show up in domestic consumer prices for several reasons. Low interest rates in the U.S. put pressure on foreign monetary authorities to intervene in currency markets to shield off potentially destabilizing capital flows coming into their economies. Moreover, these countries, notably China, saw an undervalued currency as a means to boost exports and dampen imports, leading to a favorable balance of trade. Currency interventions led to a rapid build-up of dollar-reserves, which in turn were plowed back into U.S. financial markets. These foreign savings put downward pressures on long-term interest rates, such as interest rates on bonds with long maturities.

The “generosity” of China and other surplus countries made funds available to the U.S. authorities at a low cost. Cheap capital also flowed into U.S. markets for housing-related securities, such as mortgage-backed securities.

The prerequisite for the rapid accumulation of Chinese holdings of U.S. securities, today amounting to more than 2 trillion dollars, was the rapid expansion of the Chinese export sector. The main recipient of both cheap Chinese goods and cheap Chinese capital was the U.S., running up unprecedented deficits in its current account—the most widely defined trade balance. By keeping its own currency (yuan) at an artificially low level relative to the dollar, the Chinese government ensured a “favorable” exchange rate, boosting exports, dampening imports and building up extensive currency reserves.

Because this meant a tidal wave of cheap imports from China into the U.S., low prices on imported consumer goods put a lid on the domestic American consumer price index (CPI), the so-called “China effect.” This in turn made it possible for U.S. monetary authorities (the Fed) to keep interest rates at historically low levels for a long time, thereby fueling the U.S. asset boom even more.

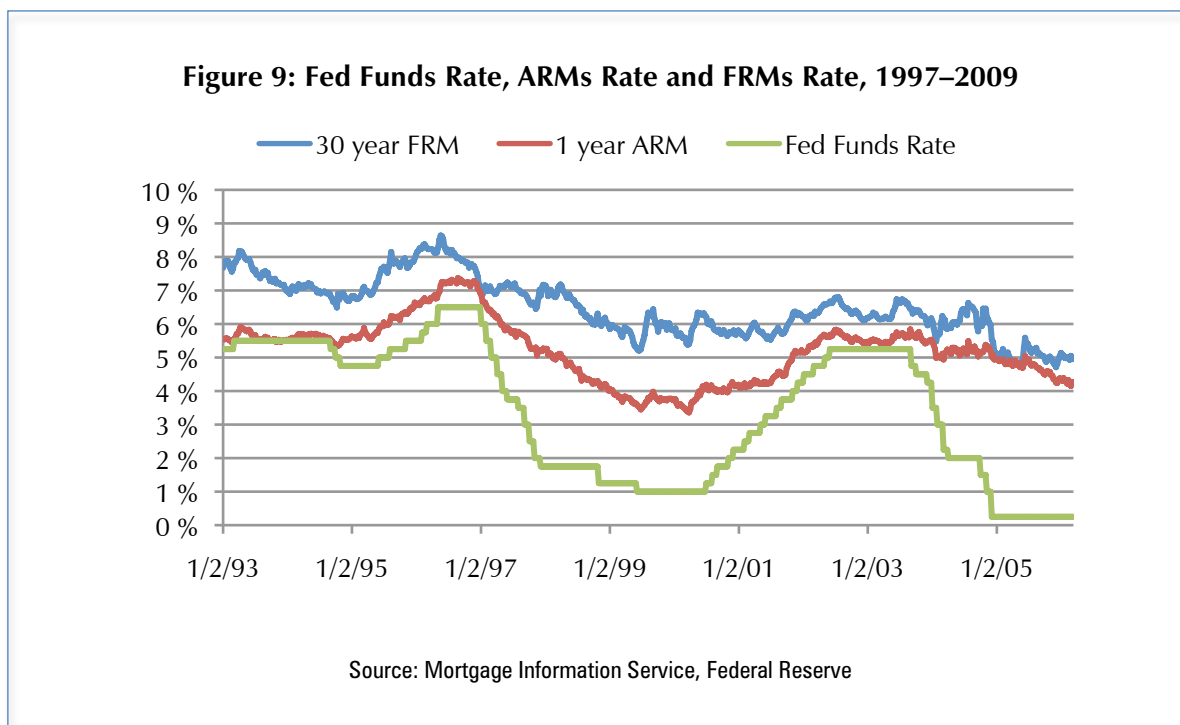
This all points to some of the main problems with inflation targeting, whether informal as in the U.S. or formal as in most other industrialized countries: good economic times, both in domestic industry and for the global economy, imply rapid productivity gains, which put downward pressures on prices. This makes it possible for the Fed and the central banks of other countries benefiting from cheap goods to keep interest rates lower than they otherwise would have been.

There is thus some truth to Greenspan’s argument that U.S. interest rates were driven down by China and other export surplus countries, though he omits to address the role of the Fed and other central banks to feed the global economic boom through low short-term interests and monetary expansion—the real drivers of the financial and real imbalances witnessed during the last couple of decades.

Even if Greenspan was right in ascribing some of the recent developments to a savings glut in the major export surplus countries, such as China, this would still not relieve him of the responsibility of record low mortgage rates and rapidly rising housing prices. Greenspan firmly holds that there was a disconnect between the Fed’s policy rate and mortgage rates, because he identifies the latter

as mainly long-term fixed mortgage rates, which has been the main staple of the U.S. mortgage market since the late 1930s. However, by driving down short-term interest rates in the money market, short-term mortgage rates were pulled down as well, thereby encouraging borrowers to shift from fixed rate mortgages (FRMs) to adjustable rate mortgages (ARMs).

George Mason University economist Todd Zywicki looked at these developments and found that the spreads between ARMs and FRMs rose substantially during the early 2000s, meaning that the interest rates on loans with adjustable rates became substantially lower than those of FRMs. At the same time, the percentage of loans with adjustable rates—in other words loans with short-term interest rates—quadrupled in the first half of the 2000s. Zywicki thus concludes that “the Fed’s artificial lowering of short-term interest rates and the resulting substitution by consumers to ARMs triggered the bubble and subsequent crisis.”²⁵ The connection between the Fed policy rate (fed funds rate) and the short-term mortgage rates (ARMs rate) is displayed in Figure 9.



Mortgages with adjustable rates were not the only interest rates that were affected by the Fed’s monetary easing in the early 2000s. Importantly, financial firms have increasingly come to rely upon short-term borrowing to fund their highly geared investment activities. Some of these loans are literally overnight, with an interest rate set in the money markets. These interest rates reached historically low levels as well in the first half of the 2000s, thereby encouraging this sort of short-term funding. At the same time, low interest rates usually lead to what economists call a “search for yield,” i.e., investors borrow (usually short-term) money at low interest rates to place them in (usually longer-term) higher-yielding securities, such as bonds—a phenomenon referred to as a “carry trade.”

This is exactly what happened during this period, something that should have been foreseen by the monetary authorities. More specifically, short-term commercial paper—a form of debt instrument to take out short-term loans, often overnight—funded investments in long-term mortgage-backed securities—a form of bonds backed by pools of underlying mortgages.²⁶

In other words, the exceptionally low short-term interest rates helped fund all sorts of mortgages in this period, as financial firms were able to borrow cheaply in the money markets to invest in mortgage-related securities, thereby channeling cheap credit into the mortgage market.

Greenspan did not address any of these problems in responding to his critics, either because he felt the need to defend the Fed's actions during his tenure, or because they simply didn't fit into the intellectual framework that Fed officials base their interest rate decisions on. By failing to seriously address the apparent connections between the financial imbalances and monetary policies of this period, the Fed risks to have learned close to nothing by the recent boom and bust. Unfortunately this has derailed the Bernanke Fed's attempts at identifying current problems and addressing them to prevent future financial calamities. Bernanke, in the words of economic commentator John Cassidy, sadly seems to have “learned nothing and forgotten nothing.”²⁷

C. Regulatory Failure?

In response to the emerging climate of opinion during the recent crisis, Fed Chairman Bernanke has increasingly come to place greater emphasis on the role of regulatory actions by the Fed and other financial services industry supervisors to address the build-up of financial imbalances in the future. In a January 2010 speech he said:

*The best response to the housing bubble would have been regulatory, not monetary. Stronger regulation and supervision aimed at problems with underwriting practices and lenders' risk management would have been a more effective and surgical approach to constraining the housing bubble than a general increase in interest rates.*²⁸

During the boom years, though, Bernanke shared Greenspan's rosy view of the financial state of the economy. Back in 2002, while Fed Governor, he stated that over “the years, the U.S. economy has shown a remarkable ability to absorb shocks of all kinds, to recover, and to continue to grow,” adding that a “particularly important protective factor in the current environment is the strength of our financial system: Despite the adverse shocks of the past year, *our banking system remains healthy and well-regulated*, and firm and household balance sheets are for the most part *in good shape*.”²⁹ (Emphasis added)

The financial crisis flew in the face of these assessments, exposing the underlying fragilities of the U.S. financial system, and demonstrating the need for a thorough overhaul to ensure its future soundness. Bernanke and Greenspan now believe the answer to these problems lies wholly within

the sphere of financial regulation—not ascribing any constructive role to monetary policy in this regard.

Toward the end of 2009, Bernanke sought to address the mounting critique of Fed actions, both those that had taken place during the boom and the drastic measures to save the financial sector in the ensuing crisis. He conceded that the “Federal Reserve, like other regulators around the world, did not do all that it could have to constrain excessive risk-taking in the financial sector in the period leading up to the crisis. We have extensively reviewed our performance and moved aggressively to fix the problems.”³⁰

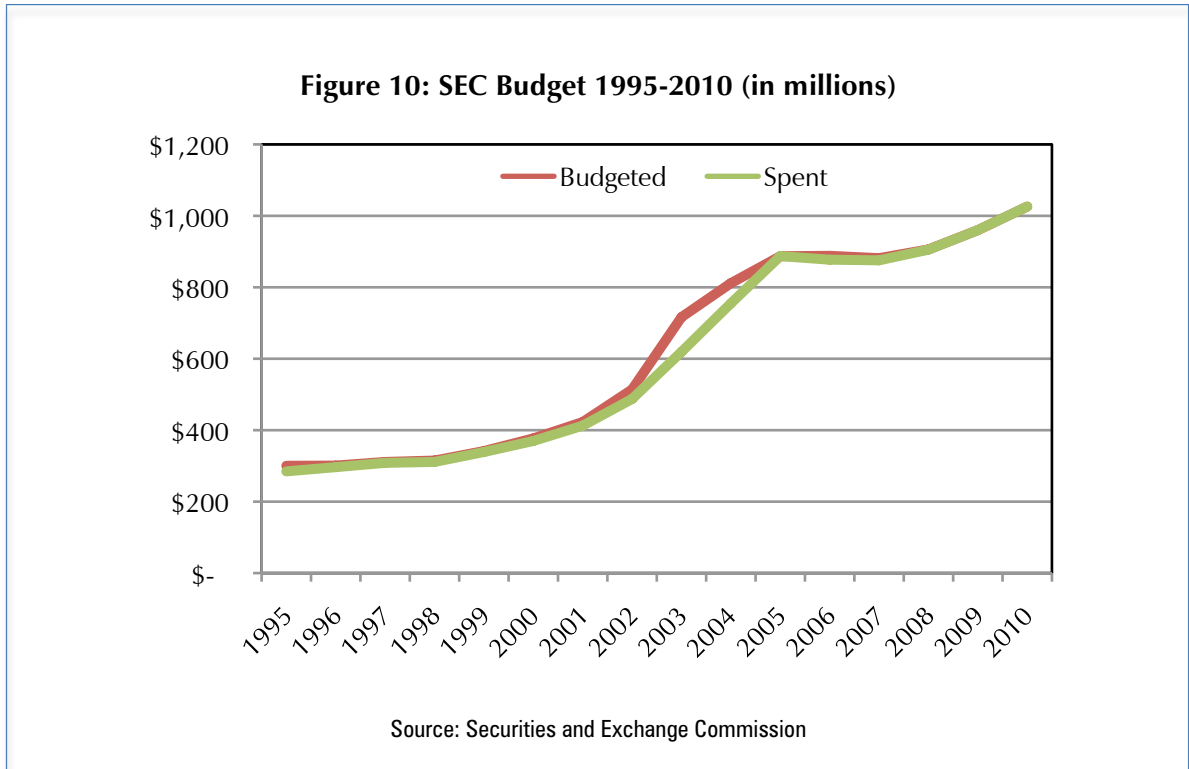
In line with the Obama administration proposals for financial sector reform, Bernanke called for extended regulatory powers for the Fed in order to prevent future crises, pointing to the “unique strength of the Fed” in its “unparalleled economic and financial expertise” that it would draw upon in its future oversight of banks. He adds that this “expertise is essential for supervising highly complex financial firms and for analyzing the interactions among key firms and markets.”³¹

Such a claim is curious, since the Fed’s “expertise” was unable to detect trouble during the boom years of the 1990s and 2000s when financial imbalances were rapidly building up only to eventually come crashing down. There was not a regulator in sight who took any substantial steps to question what was going on as the housing bubble took form. As for Greenspan and Bernanke, these two highly intelligent men with intimate knowledge and expertise on financial matters as well as an army of Fed experts to draw upon, both emphasized the soundness and resilience of the U.S. financial system. And both turned out to be painstakingly mistaken.

Statements by Greenspan and Bernanke furthermore give undue credence to the view that somehow “deregulation,” not government macroeconomic mistakes (as well as microeconomic interventions into housing and mortgage markets), was a root cause of the crisis.

Several leading politicians, especially Democrats, have made this the main staple of their explanation of what went wrong. For instance, President Barack Obama has repeatedly made the point that “the biggest problem in this whole process was the deregulation of the financial system.”³² Likewise, House of Representatives Speaker Nancy Pelosi, commenting on the crisis the day after the collapse of the investment bank Lehman Brothers, put the blame squarely on President George W. Bush and his administration’s “eight long years of failed deregulation policies.”³³

However, this story of deregulation doesn’t seem to fit well with the historical record. To begin with, the financial sector, both in the U.S. and most other countries, is highly regulated, though not always regulated in a sensible way. In fact, in the wake of the accounting scandals of Enron and other corporations that rode the dot-com boom, financial regulation was significantly tightened and regulatory budgets increased. Figure 10 shows the dramatic rise in financial regulatory outlays for the Securities and Exchange Commission (SEC) during the first term of President George W. Bush.



Beyond this kind of regulatory expansion, changes to the regulatory code contributed to the crisis, not the least of which were poorly designed capital regulations. The international standards for capital requirements—known as the Basel rules—were designed to be foolproof and increase the soundness of the financial services industry. Instead these rules encouraged commercial banks to hold securitized loans in their portfolios, thereby concentrating risk, at the same time being able to leverage up, thereby increasing their exposure to risk.³⁴

Unwilling to admit to any monetary mistakes, Greenspan’s solutions “for the financial-market failures revealed by the crisis” are, as mentioned, “higher capital requirements and a wider prosecution of fraud.” Both of these issues, however, were addressed in the wake of the dot-com bubble—the last boom-bust—without preventing the next and much more severe boom and bust. In fact, it could be argued that both regulatory responses actually fed into the next crisis.

The tightening of accounting rules that extended the SEC’s regulatory grasp in the 2000s led to a false sense of regulatory control. In addition, the media attention given to corporate scandals would seem to have led to a hunt for high-profile public figures and minor accounting transgressions rather than focusing in on true problems in the financial sector.

Even with a massive expansion in the SEC’s budget, its power was used to put down Martha Stewart who, according to charges, avoided losing a little less than fifty *thousand* dollars by inside information on stocks she owned. But the regulators were not able to detect fifty-*billion*-dollar fraudster and Ponzi scheme artist Bernard Madoff. Amazingly, the SEC visited him on several occasions over the years, but it was only after the market meltdown in the fall of 2008 that his

deception came apart, forcing Madoff to turn himself in to the SEC in order to be protected from clients he had defrauded.

Even more discomfoting than the many stories of the Fed's and SEC's shortcomings is the fact that the deliberate attempt at designing foolproof international standards for capital requirements turned out to be an abject failure. The risk-weighted capital standards that were at the core of the so-called Basel rules are now widely believed—among both central bankers themselves as well as leading experts on the financial services industry—to be a major contributing factor to the imbalances that were building up in the global financial sector during the boom years, as they inadvertently encouraged banks to invest heavily in mortgage-backed securities and other complex debt instruments. The combination of these capital requirements and the tightening of accounting rules amplified both the boom and bust in housing-related securities.³⁵

Besides the question of what led banks to concentrate risky, mortgage-related securities in their portfolios during the housing boom, there is another, perhaps even more important, question that needs to be addressed in order to understand how the financial sector went off track: why were creditors willing to fund these risky investment activities of financial firms? And why were they willing to do this at exceptionally low interest rates with historically low risk premiums?

To address this question, it is necessary to look at factors that could have led these lenders to believe that risk was not as pronounced as it later turned out to be. One explanation for this could be the way in which the authorities have created expectations that financial market participants will be bailed out if conditions turned sour. To understand how these expectations formed, we need to take a closer look at how Fed policies toward asset price movements evolved during the tenure of Alan Greenspan.

Part 3

Monetary Policy and Asset Bubbles

During the last three decades, the world has seen a number of episodes of financial instability with serious macroeconomic costs in both industrial and emerging markets.³⁶ Questions regarding why such crises are taking place and what to do about them have increasingly moved to the top of policy agendas, both at the domestic level and in international forums, such as the G20. The recent financial crisis and the unresolved global imbalances has obviously made the need to find an answer to this problem more acute.

Among those researchers who have spent a lot of time exploring this topic is a group of economists at the Bank for International Settlements (BIS) in Basel, Switzerland. They have developed a specific set of views on the nature of such booms and busts and how the authorities should react to them. The leading figure among these monetary policy analysts and advisors is William White, former chief BIS economist, who is among the very few within the mainstream institutional orbit who actually warned of the coming financial crisis.

One obvious problem with financial crises, looking at it from a policy perspective, is that financial imbalances and distress are not built into the economic models that policymakers make use of. According to White, “the prevailing paradigm of macroeconomics allows no room for crises of the sort we are experiencing.”³⁷

Based on his understandings of the importance of asset bubbles and how they are related to monetary policy, White strongly believes that “price stability was not enough” to ensure stable and sustainable economic growth during the period usually referred to by central bankers as the Great Moderation.³⁸ In contrast, to ensure long-run sustainability the monetary authorities should address financial imbalances—using, in his mind, both monetary as well as regulatory tools—in order to prevent a financial crisis like the one recently experienced, a view he developed during the 2000s.

BIS economists define these “imbalances” as “marked and sustained deviations from historical norms.” Among the main indicators of such imbalances during the 2000s were “very low household saving rates in many countries, with associated high internal and external debt levels” (debt held by domestic and foreign creditors), as well as “unusually high asset prices (houses, equities, high-risk bonds, etc.).”³⁹

In order to counter, curb and correct these imbalances, White and other BIS economists have been leading proponents of the need for central banks to “lean against the wind,” by raising interest rates and tightening money. This is the opposite view of the one held by Fed economists, namely that the central bank should do nothing to curb asset bubbles, but merely mop up the mess after the bubble bursts.

The Fed view on asset booms and busts emerged during the dot-com bubble of the 1990s—mainly explaining asset booms as a psychological matter.⁴⁰ In 1999, Alan Greenspan gave a testimony before Congress in which he delineated his views on financial bubbles, stating what has later been dubbed “the Greenspan put,” namely that, rather than preventing bubbles from forming, the Fed should “mitigate the fallout when it occurs and, hopefully, ease the transition to the next expansion.”⁴¹

The reasons given for this policy stance, as reiterated later, were that it is “very difficult to definitively identify a bubble until after the fact—that is, when its bursting confirmed its existence.”⁴² Furthermore, even if the Fed would be able to identify an unsustainable bubble, this would still not warrant a pre-emptive policy of bubble-bursting, since this could induce “a substantial contraction in economic activity”—an outcome the Fed “would be seeking to avoid.”⁴³

The official Federal Reserve view on how to respond to asset booms and busts is perhaps best formulated in a speech given by Greenspan in 2002 at the annual Kansas City Fed symposium at Jackson Hole, Wyoming. Thus, this view has been referred to as the “Jackson Hole consensus.”⁴⁴ Greenspan formulated this policy ideal in quite strong terms: “But is there some policy that can at least limit the size of a bubble and, hence, its destructive fallout? From the evidence to date, the answer appears to be no.”⁴⁵

Greenspan gained intellectual support from none other than Ben Bernanke, who became a Fed Governor in 2002. The same year, Bernanke posed a timely question:

*Can the Federal Reserve (or any other central bank) reliably identify “bubbles” in the prices of some classes of assets, such as equities and real estate? And, if it can, what if anything should it do about them?*⁴⁶

Bernanke agreed with Greenspan that “Identifying a bubble in progress is intrinsically difficult” and that using rate hikes—tightening money through increases in the Fed policy rate—would lead to a slow-down of the economy, a cost considered too high to contemplate.

However, Bernanke also diverged somewhat from Greenspan’s main views, giving some scope for Fed interventions into financial markets to correct asset bubbles. Though he firmly agreed with Greenspan that monetary policy should not factor in asset price developments, he instead placed hopes in the Fed’s use of its “regulatory, supervisory, and lender-of-last-resort powers to help ensure financial stability.”

Bernanke went on to express that this was “a *robust* strategy, in that—although it certainly does not eliminate all economic and financial instability—it protects the economy against truly disastrous outcomes, which history has shown are possible when monetary policy goes severely off track.” (Emphasis in original) Bernanke confirmed the Greenspan put by stating that “if a sudden correction in asset prices does occur,” if necessary, “the Fed should provide ample liquidity until the immediate crisis has passed,” adding that Greenspan’s actions when the U.S. financial market crashed in 1987 was a “good example” of how the Fed should conduct policy.

Greenspan’s rescue of the financial market in the face of real or feared asset price contractions, starting with his famous rescue in 1987, has been given the name the “Greenspan put.” Financial market participants rightfully expected Bernanke to continue the same kind of policy toward asset prices when he took over the helm of the Fed in 2006, thus giving rise to the notion of a “Bernanke put.”

In other words, both Greenspan and Bernanke were of the strong belief that asset bubbles are hard to detect, and if the central bank could somehow detect them, it should not make use of monetary policy instruments to curb the boom, but rather clean up the mess afterwards.

The two opposing views—the Fed view and the BIS view—gave rise to a debate on whether the central bank should “lean” against asset prices in the boom phase, or “clean” up the mess afterwards. The strongly diverging views and the associated policy prescriptions for how central banks should respond to asset booms and busts are summarized in Table 1 below.

Table 1: Fed vs. BIS Views in the Years Preceding the Financial Crisis	
Fed view	BIS view
Asset bubbles can’t be identified before they burst.	There are several indicators of financial imbalances, among others rapid credit growth and household and corporate debt as well as asset prices diverging strongly from historical trends.
The central bank should “clean up” the mess after a bubble bursts.	The central bank should “lean” against asset bubbles by tightening money.
The costs of raising interest rates, in the form of lost output in the short run, are too high.	The costs of letting financial bubbles getting out of hand are too high in the long run.
Price stability should be the central bank’s main goal.	Price stability is not enough.
Pre-emptive easing should be used to help distressed financial markets.	Pre-emptive tightening should be used to make sure financial imbalances don’t get out of hand.

The Fed view’s one-sided, myopic focus on containing the fallout of asset busts—as opposed to considering both the imbalances of the boom, as well as the distress of the bust—is symptomatic of current Fed thinking and has characterized Alan Greenspan’s “risk management paradigm” that has guided Fed actions on many occasions through the years.⁴⁷

If a certain outcome was seen as especially daunting, then this scenario should be avoided at almost any cost, even if the chances of it coming to pass actually were slim. The most feared scenario for Greenspan and his colleagues at the FOMC was the threat of deflation. The implications from this line of reasoning were clear: “These considerations have inclined Federal Reserve policymakers toward policies that limit the risk of deflation *even though* the baseline forecasts from most conventional models *would not* project such an event.” (Emphasis added)

In other words, since models are not to be completely relied upon, and since deflation is an outcome that Fed officials thought should be avoided, it followed that to be on the safe side, any remote chance of deflation should be preempted through monetary easing, cutting interest rates and expanding the money supply. This is exactly what was done around the time of Greenspan’s “risk-management” speech, in the early 2000s.

Donald L. Luskin, chief investment officer of Trend Macrolytics, succinctly explains the Fed’s rationale:

*The Fed makes its policy decisions under extreme uncertainty and therefore must err on the side of avoiding unacceptable risks even if that means deliberately taking on acceptable risks. To the Fed, deflation is an unacceptable risk. Most economic historians, including Ben Bernanke, believe that deflation was the greatest single cause of the Great Depression.*⁴⁸

One kind of incident seen to have the potential to lead into the much-dreaded deflation and an associated economic downturn, was a financial crisis. To avoid such a scenario, it would therefore be necessary to “undertake actions intended to provide some insurance against the emergence of especially adverse outcomes.”⁴⁹ This “insurance” policy was the explicit rationale given by Greenspan to “ease policy” when, for instance, the Russian debt default rattled financial markets in 1998. This monetary expansion was conducted despite the FOMC’s “perception that the economy was expanding at a satisfactory pace and that, even without a policy initiative, was likely to continue to do so,” because Fed decision-makers “were concerned about the low-probability risk that the default might severely disrupt domestic and international financial markets, with outsized adverse feedback to the performance of the U.S. economy.”⁵⁰

The only cost imputed into this “insurance” was a “risk of higher inflation at some future date,” a cost that “was viewed as relatively low at the time, largely because increased competition, driven by globalization, thwarted employers’ ability to pass through higher labor costs into prices.”⁵¹ In this last quote, Greenspan displays a New Keynesian style of reasoning. Inflation is seen as the only cost of monetary easing. There is no mention of how this expansion could affect asset prices or create other distortions in the economy. Neither is there mention of how this “insurance” scheme could lead to unforeseeable problems in the future through the kind of moral hazard this one-sided precautionary policy stance of necessity creates: a monetary guarantee to cushion off market-wide falls in asset prices. Furthermore, inflation is seen as a “cost-push” phenomenon, in which producers and workers drive up prices in the short run, now “thwarted” by increased competition from abroad.

Furthermore, Greenspan points to a central cause of the frequently lowered interest rates during the last couple of decades, namely that increased globalization puts downward pressure on consumer prices, thereby making it possible for the Fed to hold interest rates at exceedingly low levels, without abrogating its core mission, as stated in its official mandate, namely to maintain low price growth.

Greenspan's "risk-management" practice was thereby facilitated by external developments taking place in the global economy, as well as domestic productivity gains which contributed to keeping consumer prices in check during a period of almost unprecedented monetary ease.

William White firmly believes that the Fed needs to "lean against the wind" by raising interest rates and tightening monetary conditions when certain central indicators of financial imbalances surface, such as rapid asset price appreciation and credit growth. How the central bank conducts its policies could have long-term repercussions, because "monetary policies designed solely to deal with short term problems of insufficient demand," i.e., policies aimed at short-term stabilization of output, "could make medium term problems worse by encouraging a buildup of debt that cannot be sustained over time."⁵²

Putting this reasoning in the context of recent developments, by cushioning the collapse of asset busts in the short-run, in order to avoid, or at least dampen, a fall in output and prices, the central bank could inadvertently contribute to even more dangerous financial imbalances in the long run, for several reasons.

First, credit and bad debt are not flushed out of the system, but continue to build up—as happened in the wake of the dot-com crash, leading straight into the subprime boom. Second, this halt and reversal of an ongoing market correction only makes the economy continue on its unsustainable path, leading to even more misallocation of resources that will have severe repercussions for growth and prosperity in the long run. Third, this asymmetrical policy stance creates moral hazard, which leads to an even more rapid build-up of debt, soaring asset prices and falling risk premiums on credit. All of these factors could—and most certainly would, as evidenced by the recent crisis—come back to bite both market participants' as well as the monetary authorities' ability to stabilize the economy in the long run. This is exactly what happened in the 2000s.

White has been an outspoken critic of the asymmetrical Fed policy toward financial markets and asset prices. Looking back at events, he reiterates his view that "monetary policy should be more focused on 'preemptive tightening' to moderate credit bubbles than on 'preemptive easing' to deal with after effects."⁵³ Such a shift in policy focus would place greater weight on the long-run sustainability of markets than on easing short-term pain after the fact.

According to a recent IMF report, "inflation and output are poor leading indicators" when it comes to the kinds of imbalances discussed in this section, because inflation and output do not typically display unusual behaviors ahead of asset busts.⁵⁴ There are, in contrast, other indicators that

typically display unusual behavior, such as credit, the share of investment in GDP, current account deficits and rapidly rising asset prices.⁵⁵

The main focus of the Fed and central banks of other industrial countries, however, has been price and output stability, i.e., conducting policy in order to achieve a certain rate of inflation as well as ensuring a certain rate of economic growth. The belief in these policy goals is still strong, despite recent experiences of grave economic imbalances leading up to the current crisis.

The financial crisis strongly suggests certain shortcomings and flaws of current macroeconomic thought and policymaking, thus giving credence to the BIS views of monetary policy and asset bubbles. To quote William White: “The fact that conventional views about how the economy works have changed so much in the past also supports the view that our beliefs might yet change again.”⁵⁶ Unfortunately the BIS views have largely been dismissed by central bank policymakers and mainstream macroeconomists.

Part 4

In Search of a Policy Framework: The Hayek Rule

Asset bubbles come with great costs to the economy, as witnessed by the most recent financial crisis. Mitigating the consequences of asset busts—the Fed's "mopping up" policy—only creates even worse distortions and crises in the future. If financial markets and the wider economy had been allowed to self-correct in the wake of the dot-com crash, the current panic and recession could have been avoided.

The historical record also suggests that regulations are both an insufficient and inappropriate tool to prevent or curb asset bubbles, not the least because it is much harder for the authorities to micro-supervise financial firms than to conduct policy seeking to create a monetary macro-framework within which financial firms can operate. Furthermore, low interest rates and monetary expansion—the very cause of asset bubbles—follow directly from the inner workings of the current policy regime: price stabilization (or, to be more precise, inflation stabilization) will lead to strong monetary expansion in periods of rapid productivity gains and robust growth in the global economy.

If the current *modus operandi* of the Fed is unsustainable, the question becomes: what kind of policy regime should replace the one we have now? What kind of monetary arrangement or rule is most conducive to preventing asset bubbles, while at the same time functioning as a stable and non-distortive macroeconomic framework for investors, producers and households?

To get a better grip on this question, we need some kind of analytical framework that can help compare different approaches to monetary policy. One such device is the model known as the “quantity equation” (or “quantity identity”) of money. Like any other model, it should not be looked upon as a perfectly accurate, wholly realistic depiction of how the economy functions. Rather, it is a mental tool to simplify the basic relations between money, on the one side, and prices and production, on the other.

The basic model goes as follows: The quantity of money (M) times the velocity of money (V) equals the level of prices (P) times the real value of all goods and services sold in the market (T), or put in the form of an equation:

$$MV = PT$$

This is the model that was presented by Irving Fisher, the “grandfather of monetarism,” in the early 1900s. Fisher in turn attributes this “equation of exchange” to the 19th century mathematician Simon Newcomb.⁵⁷ In its modern variant, the equation is denoted as follows:

$$MV = Py$$

in which nominal spending (MV) equals the price level (P) times real output (y). Prices multiplied by real output (Py) is therefore equal to nominal output, or what is referred to as nominal GDP. In Keynesian terms this is usually denoted as a capital Y, so that

$$Py = Y$$

Nominal national output (GDP) equals nominal national income, or just nominal income for short.

There are some shortcomings to this basic model. If all changes in nominal spending (MV) affected all prices instantly and equally, and everything else was held constant, then this equation would hold true. However, as the Austrian economist Ludwig von Mises pointed out shortly after Fisher presented his “quantity theory of money,” when new money enters the economy, it spreads unevenly and over time.⁵⁸ Still, the model gives us a rough description of how changes in the money supply (and/or changes in the velocity of money) and changes in real output affect the overall price level in the economy.

Therefore, the following discussion will make use of this simple model to discuss what kind of policy rule the Fed and other central banks should contemplate in establishing a more stable monetary system than the one currently in operation.

A. The Taylor Rule

The monetary policy regime that evolved in most industrial countries, as well as some emerging ones, during the Great Moderation (1985–2007) is usually referred to as “inflation targeting.” However, most of these countries actually conduct monetary policy based upon some kind of “flexible” inflation target, which means that central banks make policy with an eye to both prices and output.⁵⁹

The output target can be defined in terms of the divergence of actual output to some assumed long-term “optimal” and “sustainable” growth rate. This divergence is usually referred to as the “output gap.” When there is no divergence, it is said that this gap is closed or that the output gap is zero.

As noted, the Fed has been given a dual mandate by Congress to maintain “price stability” and “maximum employment.” Even though the second part of the mandate is to stabilize employment,

it is assumed that the unemployment rate is at its “equilibrium” or “natural” level when the output gap is closed. Therefore, it seems to make sense to express the American goal of “full employment” in terms of the output gap—thus looking at the dual goal of price and output stabilization, as is done in other industrial countries.

The desire to affect output and employment is also seen as intimately connected to the ideal of price stability. In the words of Fed Vice Chairman Donald Kohn, “having inflation expectations anchored facilitates countercyclical monetary policy and improves the trade-off between output and inflation that policymakers face.”⁶⁰ Former President of the Federal Reserve Bank of St. Louis, William Poole, concurs, saying that he regards “inflation stability as the primary goal not because it is more important in a welfare sense than maximum employment, but because achieving low and stable inflation is prerequisite to achieving employment goals.”⁶¹

Weighing the goals of inflation and output targeting is formally done through the Taylor Rule, named after previously discussed macroeconomist John B. Taylor. By looking at the Fed’s performance in the period from when Greenspan took over as Fed Chairman in 1987 until Fed policy got “off track” in the early 2000s (according to Taylor) the Fed followed a set of implied policy prescriptions that in Taylor’s view “worked well.”⁶² Taylor’s rule says that, optimally, the output gap should be closed and that the inflation rate should be 2 percent per year.

The Fed relies upon this Taylor Rule when discussing the right course of action. In the words of Kohn, “Federal Reserve policymakers are shown several versions of Taylor rules in the material that we receive before each meeting of the Federal Reserve Open Market Committee,” adding that Taylor’s framework for interest rate decisions “has been enormously important to policymaking in the Federal Reserve, and it has yielded many benefits.”⁶³

The main problems with this approach to monetary policy are twofold. The first set of problems stems from the ironic fact that the Taylor Rule is actually not a policy “rule” in the strict sense of the word, but winds up giving ample room for discretion.⁶⁴ The Taylor Rule can only in retrospect tell the central bank if it actually followed the prescribed course of action, since inflation figures take some time to collect and construct, and, more importantly, because it is widely believed among monetary policymakers and macroeconomists alike that changes in the interest rate only affect consumer prices with a significant time lag. This time lag is uncertain and hard to measure, but could be somewhere around two years from the implementation of the new policy rate.⁶⁵

This implies that the central bank is basing its interest rates decisions on what it thinks the economy will look like in terms of output and inflation in (roughly) two years’ time, given a certain interest rate today. Furthermore, if it is believed that negative developments in the financial sector could spill over to the real economy as well as lead to changes in the circulation of money—something which would affect output and inflation—the central bank could factor this into its decisions, thereby setting interest rates to prevent the threat of too low output and inflation. As New York University economist Mark Gertler remarked, “the Fed follows a Taylor rule but not mechanically. They deviate when financial crises hit.”⁶⁶ To be more precise, the Fed follows an

implied Taylor rule, but deviates whenever the decision-makers of the Federal Open Market Committee (FOMC) perceive that some event in financial markets needs to be preemptively dealt with through interest rate cuts.

This discretion thereby makes it possible for the Fed to follow a course of action much to its own liking, as long as it does not stray too far away from the desired, implied “comfort zone” of the price level in the long run. In central bank jargon, the Fed should ensure that “inflation expectations” are well “anchored.”

This discussion also shows that macro-managing the economy through a centrally planned monetary system is a much less precise scientific endeavor than the tech-speak and confident forecasts of the central bank suggest. In the words of Frederic Mishkin, a recent FOMC member: “Monetary policy will always have elements of art as well as science.”⁶⁷

Taylor himself has commented upon the somewhat unconstrained nature of his “rule,” expressing that when he first proposed the Taylor rule, he was emphatic that “such rules cannot and should not be mechanically followed by policymakers.”⁶⁸ The “policy rule” should rather be looked upon as “a set of principles to follow.” The key principles which the Fed should focus on, according to Taylor, are as follows:

- Price stability should be front and center (thus giving priority to stable inflation).
- The interest rate should rise more than an increase in inflation (thus making sure that the real federal funds rate—the policy rate adjusted for inflation—is in fact rising, leading to tighter monetary conditions).
- Policy should react to the state of the real economy (thus ensuring that output and employment is at its “natural” level).
- Liquidity should be injected in response to a liquidity or payment crisis (to make sure that financial distress doesn’t turn into real economic crises).⁶⁹

This description of how the Fed should act certainly does not sound anything like a rule-bound exercise of authority, in the strict sense of the word. Rather it sounds like a mandate for excessive discretion based on the monetary policymakers’ ability to forecast a whole range of possible developments in the economy. The framework necessitates regulatory foresight and omniscience.

Statements by members of the Federal Open Market Committee confirm this view. For instance, former President of the St. Louis Fed William Poole thinks, “Departures from the rule make good sense when information beyond that incorporated in the rule is available.” Former Fed Governor Laurence Meyer has commented that while Alan Greenspan “is willing to play by the rules in normal times, he does not hesitate to depart from them in unusual circumstances.”⁷⁰ Such “unusual circumstances” would come to dominate Fed decisions from the late 1990s all the way up to the current crisis.

Taylor strongly believes that his framework for the conduct of monetary policy will provide stability: “If central banks continue to focus on price stability and keep inflation low and stable,

there is every expectation that the current degree of macroeconomic stability will continue.”⁷¹ These words were uttered in 2005, just one year before the onset of the U.S. housing crisis and two years before the credit crunch hit, which goes to show that most mainstream economists were led astray by the exaggerated hope they put on the ability of price stability to ensure economic stability.

It was only in 2007, after the credit crunch manifested itself, and at a time that the full subprime crisis was blowing up in policymakers’ faces, that his critique of Fed actions were being formulated. He chose to interpret these monetary policy mistakes as resulting from a deviation from his own rule, thereby still maintaining that his rule will continue to provide “macroeconomic stability.” This line of reasoning was, however, met with a full rejoinder by Fed Chairman Bernanke in early 2010, drawing upon the same sets of criteria that Taylor himself has put forth, though interpreted in a different way.⁷²

This goes to show that Taylor’s arguments of a continued use of his policy framework is not as clear-cut as he himself believes. One obvious reason for this is that the Taylor rule is not in any way a clear-cut rule for the conduct of monetary policy, but rather a heuristic device guiding the policymakers of the Fed in their decisions under “normal” circumstances.

The other major problem with this monetary policy rule stems from the fact that it does not account for monetary aggregates, overlooking the pace of credit growth. This is, as earlier noted, an important indicator to take into account in order to avoid unsustainable developments in both financial markets and the wider economy. Furthermore, when output is growing due to productivity gains, prices should actually fall. Instead the central bank aims to make them grow at the targeted inflation rate—or, as seen in the decade preceding the financial crisis, downward pressures on prices due to productivity growth makes it possible for the Fed to keep interest rates at very low levels for extended periods of time. To see why this is so, let’s return to the quantity equation of money ($MV = Py$).

As can be seen from this simple model, if nominal spending—the stock of money times the velocity of money (MV)—is constant, any growth in real GDP (y) would lead to a fall in the general price level (P) of a similar magnitude. Thus, the higher the productivity growth (including imported productivity growth through cheap imports from abroad), the more the central bank must inject new money (M) into the system to keep consumer prices (P) growing at the desired level. And the more new money that is injected into the economy through the central bank’s use of open market purchases of assets, paid for with new money, the lower money market interest rates become, which in turn will pull down all other commercial interest rates, such as short-term mortgage rates.

The lower the interest rate goes and the more money circulates through the economy, the more asset prices will rise. Asset prices react immediately to rate cuts (either in advance of the actual cut, if expected, or immediately following the cut, if not expected). However, as already pointed out, consumer prices are affected by monetary expansion only with a significant time lag. It is only

when consumer prices exceed the targeted level—or, in the case of the U.S., the informal comfort zone—that the central bank reacts through tightening monetary conditions by cooling off its monetary expansion, thereby letting interest rates rise again. In the meantime, low interest rates and ample liquidity have made a huge impact on assets and the decisions of households, producers and investors.

This strongly suggests that inflation targeting should be abolished altogether. In its place there should be an alternative rule that concentrates more closely on monetary aggregates. Milton Friedman, famously, has advocated such a monetary aggregate rule, which we turn to next.

B. The Friedman Rule

Milton Friedman is the main modern founder of “Monetarism.” According to him “inflation is always and everywhere a monetary phenomenon.” He thus placed much greater weight on monetary aggregates than Keynesian economists tend to do. Friedman was also acutely aware that monetary expansion impacts prices and output with a certain time lag, making it harder for the central bank to conduct monetary policy aimed at influencing certain economic targets, such as price and output growth, that would only be affected a couple of years after the initial interest rate decisions of the FOMC were made.

Through extensive studies of the monetary history of the United States, Friedman, along with his co-researcher Anna J. Schwartz, came across episodes of what they perceived as gross policy mistakes by the Federal Reserve. The most important mistake in the Fed’s history, according to this Monetarist interpretation, was without a doubt the Great Contraction of 1929–1933, in which the Fed let the broad money supply (M2) contract by around one third. Drawing upon an earlier generation of Chicago School economists, Friedman saw the inherent dangers in letting the central bank conduct discretionary monetary policies, because this could lead to serious mistakes, as in the case of the 1930s. As he wrote: “Any system which gives so much power and so much discretion to a few men, [so] that mistakes—excusable or not—can have such far reaching effects, is a bad system.”⁷³

Furthermore, experiences of the stagflation in the 1970s also displayed the inherent dangers in discretionary actions, when the expectations of producers and wage earners are factored in. By trying to push down the unemployment rate, monetary and fiscal authorities entered into an unsustainable mode of action in which every expansion changed the expectations of the population as to future inflation. This then gave rise to an out-of-control wage-price spiral with ever higher levels of inflation and unemployment.

The main lesson drawn from this episode was that there are limits to what can be achieved through discretionary macroeconomic policies, and, secondly, that expectations matter. This line of reasoning gave rise to the so-called “Lucas critique” of fiscal and monetary policies and the models they were based on, which gave new impetus to the emphasis of rule-bound authority.

A way to get around both such a vicious cycle of unintended consequences as well as the potential for flawed judgment calls would in other words be to tie the hands of the monetary authorities, i.e., the Federal Open Market Committee, by committing them to a strict monetary rule. Even though this rule would from time to time make the monetary authorities depart from a course of action that in their own eyes would seem more optimal given circumstances, it would lead to better results in the long run. Out of this line of reasoning rose a whole academic literature devoted to “rules rather than discretion,” as it was phrased by the Norwegian Nobel Prize winner in economics Finn Kydland.⁷⁴

Based on this firm belief in the desirability of a rule-bound monetary authority, Friedman set out to formulate what would be the best rule, in his eyes, for a monetary framework that hopefully would be tantamount to a stable and sustainable growing economy. Friedman reached the conclusion that the best monetary policy would be one that accommodated the long-term growth rate of the economy, thereby leading to zero inflation, i.e., stable consumer prices. In other words, Friedman thought that the optimal policy rule would be one in which the money supply grew at the same rate as the economy. To see why this would imply stable prices, let’s once more revisit the quantity equation of money:

$$MV = Py$$

If we assume, as Friedman did, that the velocity of money (V) is constant, then it would follow that any growth in the quantity of money (M) that would match a growth in real output (y), would over time lead to a price level (P) that neither rose nor fell. In *The Optimal Quantity of Money* Friedman thus writes:

*I have favored increasing the quantity of money at a steady rate designed to keep final product prices constant, a rate that I have estimated to be something like 4 to 5 percent per year for the U.S. for a monetary total defined to include currency outside of banks and all deposits of commercial banks, demand and time.*⁷⁵

Importantly, Friedman did not see such a monetary policy as “accommodation,” but rather as having a neutral impact on the economy, leading to a stable economic environment. His perspective thereby is not that far removed from the Taylor Rule. However, the Friedman Rule departs from the Taylor Rule in its preferred target and its associated policy tool: it targets the growth in the money supply rather than inflation. In other words, it is based on *monetary* targeting instead of *inflation* targeting. However, this approach implicitly embraces price stabilization, as an expansion in the money supply equal to the growth in real output would lead to zero inflation over time. Friedman commented upon this obvious connection:

With respect to ultimate objectives, it’s easy to cite the holy trinity that has become standard: full employment, economic growth, and stable prices... What is the special role of monetary policy in contributing to these objectives? [...] there is today a worldwide consensus, not only

among most academic economists but also among monetary practitioners, that the long-run objective of monetary policy must be price stability.⁷⁶ (Emphasis added)

Not unlike today's New Keynesians, Friedman looked at long-term price stability as an indirect way to achieve a stable economy in the short-run, thus "pursuing the long-run policy in a manner that contributes to minimizing economic fluctuation." Friedman implicitly defined price stability as zero inflation, whereas Taylor and New Keynesian economists would define it as moderate price growth, in Taylor's formula 2 percent per year.

The Friedman Rule would be preferable to the current monetary policy regime—which is based on some sort of inflation target and the Taylor Rule—since it would lead to lower inflation and, on average, higher and less distortive (real) interest rates. There are, however, several weaknesses to this approach. The most obvious one is that it should not be assumed that the velocity of money is more or less constant over time.

This was one of the major problems experienced in the 1980s during the heydays of Monetarism. Due to financial innovation and the lifting of some restrictions on banks, velocity changed quite profoundly. A Monetarist could of course counter this argument by saying that periods of financial re-regulation creates a less stable monetary framework in the short run, but absent such changes velocity would in fact behave more like Friedman assumed, thereby making his monetary policy rule feasible.

However, it seems unlikely that money velocity will remain stable in the short run, given the rapid pace of financial innovation as well as other factors influencing the public's preferences for holding cash balances.

One way to correct this apparent flaw to the Friedman Rule would be to factor in the velocity of money, saying that nominal spending—the money supply times the velocity of money (MV)—should grow at the same rate as the long-run rate of growth in gross domestic product (GDP). This would certainly be an important improvement, and could therefore be referred to as an "Improved Friedman Rule."

However, there are still problems connected to such an approach to monetary policy. The main problem is similar to the one discussed in connection to the Taylor Rule, namely that growth in real GDP (y) due to productivity gains would imply falling prices. To offset this effect, the Fed has to expand the circulating money supply (MV) by the same amount as the growth in real output (y). The stronger the growth rate, the more the money supply must be expanded, leading to lower interest rates. Then the same problems would surface as was discussed when looking at the connection between inflation targeting and unsustainable asset booms, though the effect would be more moderate, since zero inflation implies less monetary expansion and higher (real) interest rates than a goal of 2 percent inflation.

The main problem with the Friedman Rule then, even in its “improved” version, is that it is based on the belief that price stability equals economic stability. But there is no reason to believe that zero price growth, even when based on a constant and predictable growth in the money supply, would be tantamount to a stable economy. This becomes clear when contemplating what low interest rates and ample liquidity would entail when it comes to asset prices.

It is also suggested by actual economic history. The U.S. witnessed stable prices in the 1920s, 1990s and 2000s—three episodes characterized by the formation of unsustainable asset booms that ended in spectacular busts. What is needed, then, is a different kind of rule, one that also factors in financial markets and the all-important decisions of market participants when it comes to savings, investment and consumption. The only rule that takes these factors into consideration is one based on the writings of the Austrian economist Friedrich Hayek.

C. The Hayek Rule—A New Policy Framework

A monetary rule based upon the insights of F.A. Hayek would be one in which the annual flow of money—i.e., the total circulation of money in the economy, which is equal to nominal spending (MV)—remains at a constant level. According to the Austrian monetary theorist Ludwig von Mises, it does not matter what the actual supply of money is, as long as it does not go through substantial changes or fluctuations.⁷⁷

There are several reasons why fluctuations in the circulation of money should be avoided. First, a change in nominal spending (MV) would mean that all prices in the economy would have to change, not because of changes in the relative scarcity of goods, but simply because there are now fewer or more units of money during a certain span of time chasing a certain amount of goods and services. Since this process of price change would not be evenly spread around the economy, such a change would furthermore lead to actual changes in relative prices, i.e., the price relations between goods. In other words, fluctuations in the circulation of money cause distortions impacting the functioning of the economy.

Under normal circumstances, a constant money supply (M) would perhaps lead to few changes in the velocity of money (V), since changes in the stock of money and the financial imbalances they create is an important factor leading to changes in money velocity. However, there could be unforeseen events that could change household and business preferences for holding cash, thereby impacting velocity.

In order to stabilize nominal spending (MV), the central bank needs to target some other related variable, since it is not possible to measure the velocity of money directly. But, as noted, nominal spending (MV) is equal to nominal output (P_y), which is tantamount to nominal national income (Y). One way to stabilize the total circulation of money (MV) would thereby be to target nominal income, making sure it does not change—at least in any significant magnitude. There could for instance be a “comfort zone” defined as a certain bandwidth within which nominal GDP is allowed

to fluctuate, before the central bank intervenes. During the classical gold standard, a similar bandwidth with relation to the price of gold—the so-called “gold points”—was in place, giving room for some short-term fluctuation around a long-term target.⁷⁸

If the central bank detects changes in nominal income, it would know that there has been a change in the velocity of money—or, to put it differently, the demand to hold money has changed. If for instance there has been a rise in the demand for money, i.e., a drop in money velocity, as people are now for whatever reason “hoarding” more cash, the central bank could offset this negative impact on nominal spending by expanding the monetary base: purchase assets in the open market by printing new money.

To give a recent example, when the credit crunch and then the full financial meltdown hit the economy, a rush into liquidity increased the demand for money and velocity dropped. The Fed responded, starting in 2008, by increasing the monetary base by buying up assets and paying for them with newly created money. This dampened a contraction of nominal spending.

According to the Hayek Rule, the authorities should move to counteract a drop in overall spending. The question is how to react. Historically, it is uncertain how successful monetary expansion will be the face of a widespread banking and debt crisis. Even though the Fed more than doubled the monetary base during the fall of 2008, the wider money supply hardly reacted, due to the fact that banks are not lending as usual, but rather hoarding reserves.

For monetary policy to be successful, the monetary transmission mechanism must work through the private banking system. When lending comes to a halt, either because banks are shy of lending due to huge losses and the need to rebuild capital and reserve buffers, or because households and firms mired in debt are not willing to take on new debt, this will have a contractionary effect on the total circulation of money in the economy.

The way the Fed expanded the monetary base in the wake of the crisis—by buying of toxic assets and intervening in specific credit markets to prop up asset prices and pull down interest rates—has proved questionable. Such policies create widespread distortions and can postpone necessary restructuring of the economy.

Moreover, the rapid expansion of the monetary base witnessed in the wake of the financial crisis will most likely create huge problems for the Fed as it needs to unwind its balance sheet when economic conditions improve, which is why the Fed’s asymmetrical policy stance, reacting after a bubble has burst, is not a good policy in the long run.

Hayek formulated his policy rule in the 1930s during the Great Depression. Far from being a “do nothing” approach, as some claim, George Mason University economist Lawrence H. White says “Hayek’s monetary policy norm in fact prescribed *stabilization* of nominal income rather than passivity in the face of its contraction.” (Emphasis in original)⁷⁹ In other words, the policy implications of Hayek’s monetary reasoning calls for the stabilization of nominal income (MV).

When faced with a monetary contraction, the authorities should counteract to stabilize the total circulation of money.

In *Monetary Nationalism and International Stability* (1937), Hayek wrote explicitly that a constant “total money stream”—i.e., the total circulation of money or nominal spending (MV)—would be the preferred monetary framework for economic stability. Looking at developments during the Great Depression, he lamented “the most pernicious feature of our present system: namely that a movement towards more liquid types of money causes an actual decrease in the total supply of money and *vice versa*.” He thus concluded that the main task of the central bank lay in “offsetting as far as possible the effects of changes in the demand for liquid assets on the total quantity of the circulating medium.”⁸⁰

Unfortunately, Hayek did not formulate this policy response until 1937, and, according to White, regretted his “mistake in not promptly recognizing the need to prevent the damage done by the contraction of money and nominal income.”

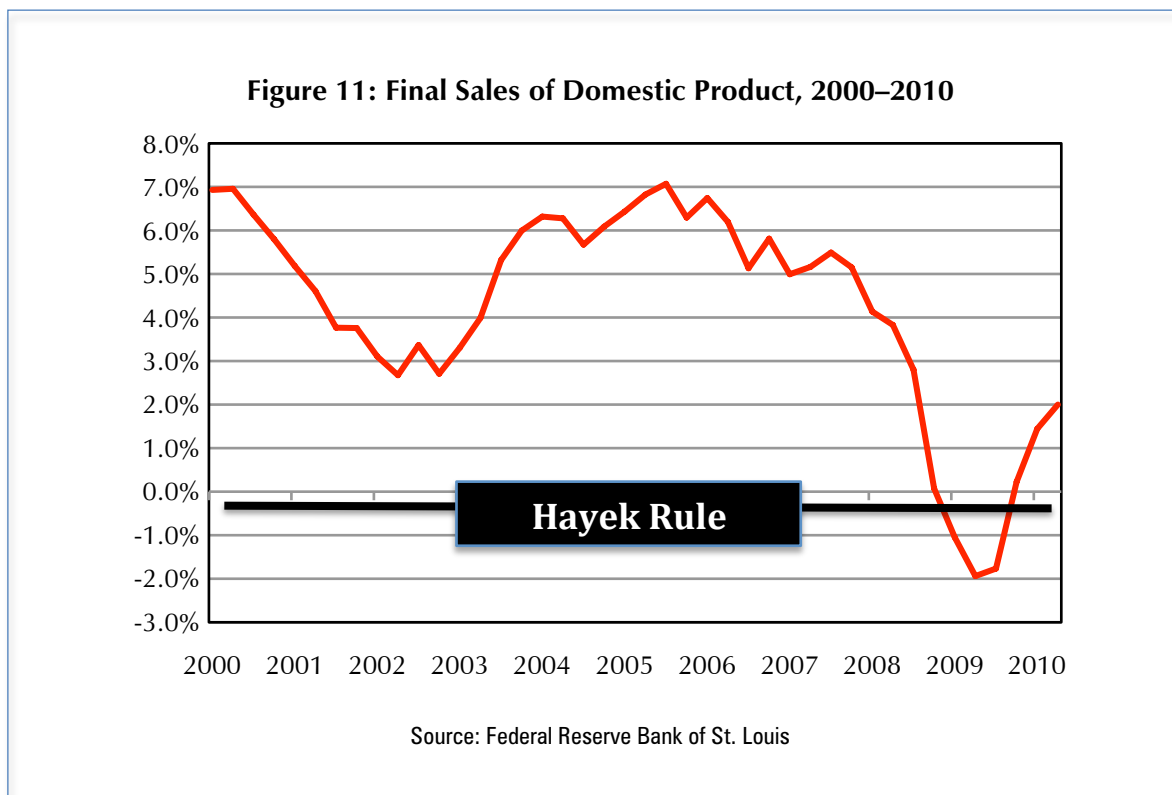
There is, however, an important piece missing in this picture, as described so far. According to White, Hayek was “as strongly opposed to contraction in nominal income as he was to excessive expansion.” In other words, Hayek’s policy prescriptions were highly *symmetrical*, as opposed to the asymmetrical nature of Fed policy actions during the tenures of Greenspan and Bernanke. Hayek did not only advocate what the Fed should do in the face of a contraction in nominal spending and nominal income. He fervently promoted the ideal of ending monetary expansions in the first place, thereby avoiding severe imbalances from building up.

It was exactly this important insight that led him to warn of the destructive consequences stemming from artificially lowered interest rates. This is the most important lesson to be drawn from Hayek’s business cycle theory, and his diagnosis of the grave imbalances that emerged during the interwar years.

In reviewing the monetary record of the 2000s in light of the Hayek Rule, it becomes clear that Fed policy was indeed way too expansionary. Monetary theorist and historian George Selgin makes this important point. By looking at the transactions side of the quantity equation of money, he finds that nominal spending, expressed as final sales (Py), expanded by up to 7 percent per year. The Hayek Rule, on the other hand, would call for 0 percent changes per year. This expansion took place during the boom years, as can be seen in Figure 11, and was too rapid even if assessed in light of the Friedman Rule or the Taylor Rule.⁸¹

By following a Hayek Rule, we strongly believe that a financial crisis of the magnitude as the one just experienced would have been avoided to begin with, thereby making it unnecessary for the central bank to intervene on such a grand scale by rapidly expanding the monetary base, as was done in the wake of the crisis. This is without doubt the most compelling reason for why such a policy rule should be contemplated. The Hayek Rule is the monetary policy framework which to the largest extent possible will prevent unsustainable asset bubbles from forming in the first place.

This is why we strongly recommend that, given the continued existence of the Fed, such a rule is the one that should replace the current policy regime.



Unfortunately, it could prove hard to convince mainstream macroeconomists and central bankers of the desirability of this rule, mainly because their theoretical framework tells them quite a different story. First and foremost, based on both historical experience and the predominant interpretation of significant monetary events—reflecting both Monetarist and New Keynesian theoretical underpinnings—mainstream policy-makers and policy-prescribers believe that *every* kind of consumer price deflation is bad, if not outright dangerous to the health of the economy.

A Hayek rule, on the other hand, would imply gradually falling prices, which can be ascertained from the quantity equation of money:

$$MV=Py$$

If the total circulation of money (MV) is held constant, ensuring a stable level of spending in the economy, prices (P) would have to fall in the face of growth in real output (y).

However, there needs to be a conceptual distinction between *good* deflation, resulting from productivity gains and economic growth, and *bad* deflation, resulting from financial crises and credit contractions. If we don't make this crucial distinction, we will find ourselves in an intellectual muddle that inevitably will lead to grave policy mistakes, as those committed by

Greenspan, Bernanke and the other members of the Federal Open Market Committee in 2002 to 2004.

Monetary deflation, defined as any fall in the circulating medium of exchange, is by nature a destructive force, especially if it is of a substantial magnitude. The central bank should thus counteract monetary deflation by adhering to the Hayek Rule. However, and more importantly, the Hayek Rule would make sure that there is no monetary inflation to begin with, which could lead to a monetary deflation later on. The emphasis on such a rule is thus prevention or preemption in the true meaning of the word: a policy to avoid credit expansion and financial imbalances, so that the possibilities of financial crises and bad deflation are minimized.

There will of course always be unforeseen events occurring in the real world that could have a negative impact on the economy, for instance foreign wars or natural disasters impacting the prices of important inputs such as oil or other essential commodities in the production processes of a modern economy. However, such “shocks” we will have to live with, and the resulting rise in prices is a “real” economic phenomenon reflecting actual increased scarcity of those goods that depend on the specific commodity as an input in their production process. The central bank should never act to counter necessary movements in relative prices. These are, after all, signals to scale back production and consumption of certain goods. Conversely, “positive shocks” stemming from technological innovation and new and better production processes should be allowed to change prices in the economy to reflect the decreased scarcity of those goods benefiting mostly from the productivity gains.

D. A Note on International Monetary Reform

Since the breakdown of the international monetary system known as Bretton Woods in the early 1970s the world has witnessed a much larger degree of financial crises. This is the reason why French President Nicolas Sarkozy announced that he would put international monetary reform on top of his agenda when taking over the chairmanship of the G20 in the summer of 2010. He furthermore suggested the formation of a new Bretton Woods-like system:

The prosperity of the postwar era owed much to Bretton Woods [...] we need a new Bretton Woods. [...] We cannot preach free trade and tolerate monetary dumping. France, which will chair G20 in 2011, will place reform of the monetary system on the agenda.⁸²

The call for a new Bretton Woods, however, is a misguided policy move on several grounds. First, this system of pegged, but adjustable, exchange rates in which the dollar was nominally linked to gold and all other currencies linked to dollar, contained the seeds of its own destruction. The whole system rested upon the premise of monetary and fiscal prudence in the U.S., a premise that was broken in the 1960s as soaring public spending, in main part caused by Lyndon B. Johnson’s two wars—the war in Vietnam and the domestic war on poverty (“The Great Society” program)—created inflationary pressures that brought the system down. During Richard Nixon’s first term,

both wars were escalated, which put too much burden on the system, leading to its full-scale collapse.

The monetary expansion of the U.S. was initially absorbed abroad, as the other countries participating in the system accumulated dollar reserves and ran up current account surpluses. But as things progressed, pressure from foreign countries, most notably France, to redeem dollars for gold, put too severe pressure on the system. Finally, in 1971, Richard Nixon was forced to close the so-called “gold window”—i.e., foreign central banks’ ability to redeem dollars for gold—which signaled the end of Bretton Woods.

Secondly, even though no formal agreement of the kind reached at Bretton Woods, New Hampshire in 1944 has been in place since the breakdown of this system in the 1970s, several economists have pointed to the way in which the international monetary system of the last decade has functioned in a similar way, with the U.S. dollar as the anchor currency and with emerging markets accumulating huge dollar reserves through undervalued currencies and high export growth.⁸³

This system turned out to be even more unstable than its predecessor, as witnessed by the “global imbalances” that fed into the financial excesses of the U.S. and other industrialized countries in the build-up to the Great Panic and Great Recession of 2008–2009.

Bretton Woods II, as this system has been called, would thus lead to grave global financial and real economic imbalances that erupted in the global financial crisis and recession of the late 2000s, which can be seen as the unwinding of these imbalances. By formally designing a new such system, the global economy would only prolong and amplify these imbalances, leading to new severe crises in the near future.

What is needed therefore is a radically different approach to reforming the international monetary and financial system. A full assessment of such a reform lies outside the scope of this paper, but should be an important part of any proposal for monetary and financial reform discussed both domestically and at international forums.⁸⁴

A Hayek rule, as the one just discussed, would go a long way in dampening the build-up of such imbalances, because it goes straight to the heart of the problem. As discussed, the global economy witnessed rapid monetary expansion during the 1990s and 2000s, stemming from the printing presses of the Fed and the central banks of other major economies, such as Japan and the Euro-zone. By moving toward a Hayek Rule, in which monetary expansion and artificially low interest rates would be constrained, the U.S. could entice these other economies to follow suit, thereby putting the global monetary and financial system on a sounder footing.

Part 5

Conclusion

The law of unintended consequences, which can be observed in so many areas of government intervention, also permeates the sphere of monetary intervention. As witnessed by the Fed's record during the tenures of Greenspan and Bernanke, the interaction between monetary interventions and the expectations they create among market participants is of central importance to understanding the dynamics of financial markets. How monetary policy impacts the everyday decisions of investors, producers and households in ways that can lead to different outcomes than those sought by the authorities must be anticipated.

By intervening in the monetary and financial system based on the belief that monetary policy-makers can "stabilize" the economy and improve economic outcomes, the Fed has in fact been a destabilizing force, creating conditions in which every intervention leads to the need for new intervention on an even larger scale at the next crossroad.

Some observers have referred to this vicious circle as a "Doomsday Cycle," predicting that current arrangements cannot last.⁸⁰ Our own prediction is that the current policy regime is unsustainable, and will experience severe stress during the coming years.

Greenspan's risk management paradigm led to asymmetrical policies, cutting interest rates rapidly at the slightest sign of trouble in the financial sector, but not "leaning against the wind" when asset prices were rising and credit expanding at rapid rates. This created moral hazard on a grand-scale, as investing in securities and real-estate became to some degree a one-way bet.

Greenspan's asymmetrical policies led to massive monetary expansion, especially from the mid-90s up to the mid-00s. This wave of liquidity fueled rapidly rising asset prices on a global scale, and created a buoyant demand for all kinds of new and exciting securities, not the least dot-com stocks in the 90s and mortgage-related securities in the 2000s.

By trying to cushion off every downturn and stop market corrections from running their full course, the Fed seems only to lay the groundwork for a new vicious round of boom and bust, making each crisis worse than the last one. This development can hardly continue, and at some time the whole policy regime could come crashing down, not unlike what happened to the post-war Keynesian policy regime during the 1970s.

The record of the Greenspan and Bernanke Fed should lead us to the conclusion that monetary reform should be high on the agenda for any financial reform proposal. Sadly, this has not been the case so far, as the story adhered to by the political elites of the causes of the crisis is a tale of bad mortgage brokers and greedy bankers that need to be reined in by tighter regulation.

However, as long as the Federal Reserve continues to promote its goals of price and output stabilization and as long as the asymmetrical idea of “pre-emption” when it comes to asset busts, but not booms, prevails, we will see new bubbles forming in financial markets.

Trying to prevent future calamities of the kind just witnessed will hardly be achieved by changing regulations to adjust for the failures of the previous crisis. Consider that tighter accounting standards after the dot-com bubble did nothing to prevent the subsequent housing bubble. Thus, in order to prevent the next crisis, we must look beyond the details of the mortgage bubble and analyze the underlying monetary system that helped facilitate it.⁸⁵

The regulatory mistakes during the boom years should be a reminder that regulators are humans, as capable of failure as any banker or trader, and that regulation can be a poor substitute for prudent and vigilant supervision by market participants themselves. Regulations do not provide a guaranteed blanket of security, since regulatory authorities can never have the necessary information to ensure that all is well in the marketplace. In the face of uncertainty, regulators trying to understand not only the financial fragility of single financial firms, but also the systemic risk stemming from the activities of all major financial actors, would have a hard time truly assessing what is going on and how financial regulators should respond to potential threats.

Neither Greenspan nor Bernanke was able to spot the asset bubbles forming in the housing market or the housing-related securities market.⁸⁵ Assessing this regulatory failure in the years preceding the crisis, no wonder *The New York Times* has questioned the Fed’s push for more regulatory power: “Why should Congress, or anyone else, have faith that future Fed officials will recognize the next bubble?”⁸⁶

In discussing financial sector reform, policymakers at the Fed, the Obama administration and members of Congress place great hope in the ability of regulators to prevent future financial crisis of the kind just witnessed. However, the regulatory authorities seem unaware of the intimate connection between monetary policy and asset booms and busts. Thus, the proposals so far omit addressing a major issue and cause of financial instability.

Inflation targeting, far from creating the sought-after stability of prices (constant year-on-year inflation) and output (robust and stable growth rates), in fact seems to lead to an unstable economic environment over time. Stable prices did not hinder some of the worst financial excesses in the industrial countries during the last 100 years, notably the U.S. stock market boom of the 1920s, the Japanese stock market and real-estate boom of the 1980s, the U.S. dot-com boom of the 1990s and the subprime boom of the 2000s.

Common to all these episodes were rapid monetary expansion, the build-up of unsustainable debt levels, and asset prices diverging strongly from their historical trends. None of these developments are factored into mainstream economic models. Thus, policymakers and most economists are blindsided by their belief in price stability as a sign of economic stability.

In order to prevent future real and financial imbalances from building up, we need a new policy-framework for monetary policy, one that looks at monetary aggregates and factors in the connections between monetary policy and asset prices. The Hayek rule—stabilizing nominal income, both in good and bad times—comes close to fulfilling such a role. Though not perfect—no monetary policy regime could ever be perfect—it will lead to a more stable macroeconomic framework as well as a higher degree of financial stability.

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- ¹⁷ John B. Taylor, “The Financial Crisis and the Policy Responses” Bank of Canada, a festschrift in honor of David Dodge, November 2008.
- ¹⁸ It should be noted that Germany built up a significant current account surplus as well, whereas Spain, another member of the Euro-zone, built up a significant current account deficit. Germany thus played a role in capital flowing into the current account deficit countries during this period.
- ¹⁹ Note: Mr. Bean writes, “Now while these flows are certainly likely to have added to the growth in credit, on the face of it they could only be a part of the explanation. For instance, the cumulative U.S. current account deficit over the 2000–2007 period was \$4.7 trillion. Over the same period, the stock of household, corporate and government debt outstanding rose by \$14.4 trillion, more than three times as much. But it is possible that the global imbalances may have played into the credit boom through another route. Bernanke’s ‘savings glut’ hypothesis was advanced primarily as an explanation for the decline in long-term real interest rates seen during this decade...” Charles Bean, “The Great Moderation, the Great Panic and the Great Contraction,” August 25, 2009.
- ²⁰ Thierry Bracke and Michael Fidora, “Global Liquidity Glut or Global Savings Glut?,” *Working Paper Series*, No 911, European Central Bank, 2008.
- ²¹ David R. Henderson and Jeffrey Hummel, “Greenspan’s Monetary Policy in Retrospect,” Cato Briefing Paper, No. 109, Washington, D.C., Cato Institute 2008.
- ²² Note: As Henderson writes in *The Wall Street Journal*, reiterating his arguments from the Cato Briefing Paper: “Since 2001, the annual year-to-year growth rate of MZM (money of zero maturity, which is M2 minus small time deposits plus institutional money market shares) fell from over 20% to nearly 0% by 2006. During that time, M2 (which is M1 plus time deposits) growth fell from over 10% to around 2%, and M1 (which is currency plus demand deposits) growth fell from over 10% to negative rates. The annual growth rate of the monetary base, the magnitude over which the Fed has the most control, fell from 10% in 2001 to below 5% in 2006. Moreover, nearly all of the growth in the monetary base went into currency, an increasing proportion of which is held abroad.” David Henderson, (2009), “Don’t Blame Greenspan,” Wall Street Journal Symposium, “Did the Fed Cause the Housing Bubble?,” March 27, 2009.
- ²³ Note: An open market purchase is the process by which the Fed buys a security from a bank and then credits it on its account at the Fed with newly created money. Conversely, an open market sale is when the Fed sells a security to a bank and then erases credit from its account. This way the central bank “prints” new money electronically or, in the case of open market sales, erases it electronically.
- ²⁴ See St. Louis Fed, FRED data, “Consumer Price Index for All Urban Consumers: All Items (CPIAUCNS), Percent Change from Year Ago, Monthly, Not Seasonally Adjusted,” which shows a temporary peak in September 2005 at 4.7 percent and a new peak in July 2008 at 5.6 percent.
- ²⁵ Note: Zywicki writes, “In the latest cycle the spread rose from under 50 basis points at the end of 2000 to 230 basis points in mid-2004 and the percentage of ARMs rose from 10 percent to 40 percent. The Fed’s subsequent increases on short-term rates caused short- and long-term

rates to converge, squeezing the spread to about 50 points by 2007 and reducing ARMs to less than 10% of the market.” Todd J. Zywicki, (2009), “Low Rates Led to ARMs,” Wall Street Journal Symposium, “Did the Fed Cause the Housing Bubble?,” March 27, 2009.

- ²⁶ Note: Gerald P. O’Driscoll makes this important point writing, “maturity-mismatches abounded and were the source of much of the current financial stress. Short-dated commercial paper funded investment banks and other entities dealing in mortgage-backed securities.” Gerald P. O’Driscoll Jr., “What Savings Glut?,” The Wall Street Journal Symposium, “Did the Fed Cause the Housing Bubble?,” March 27, 2009.
- ²⁷ John Cassidy, “Is Ben Bernanke Descended from the Bourbons?,” *Financial Times*, January 7, 2010.
- ²⁸ Ben S. Bernanke, “Monetary Policy and the Housing Bubble,” Speech at the Annual meeting of the American Economic Association, Atlanta, Georgia, January 3, 2010.
- ²⁹ Ben S. Bernanke, “Deflation: Making Sure ‘It’ Doesn’t Happen Here,” Remarks by Governor Ben Bernanke Before the National Economists Club, Washington, D.C., November 21, 2002.
- ³⁰ Ben S. Bernanke, “The Right Reform for the Fed,” *The Washington Post*, November 29, 2009.
- ³¹ Ibid.
- ³² Transcript of Second McCain, Obama Debate,” CNNPolitics.com, October 7, 2008.
- ³³ “Congress Pushes for Bigger Role in Solving Crisis,” Bloomberg.com, September 17, 2008.
- ³⁴ Viral V. Acharya and Philipp Schnabl, “How Banks Played the ‘Leverage’ Game,” in Viral V. Acharya and Mathew Richardson, *Restoring Financial Stability: How to Repair a Failed System* (Hoboken: Wiley Finance, 2009); V. Acharya and Matthew Richardson, “Playing by the Basel Rules,” *Critical Review*, Volume 21, nos. 2-3, 2009.
- ³⁵ Note: See Markus Brunnermeier et al., “The Fundamental Principles of Financial Regulation,” Centre for Economic Policy Research, 2009; and Viral V. Acharya et al., *Restoring Financial Stability: How to Repair a Failed System*.
- ³⁶ Claudio Borio and William White, “Whither Monetary and Financial Stability? The Implications of Evolving Policy Regimes,” BIS Working Papers, No. 147, 2004.
- ³⁷ William White, “Modern Macroeconomics Is on the Wrong Track,” *Finance and Development*, International Monetary Fund, 2009.
- ³⁸ William White, “Is Price Stability Enough?,” BIS Working papers, No. 205, 2006.
- ³⁹ William White, “Opening Remarks,” in “Whither Monetary Policy: Monetary Policy Challenges in the Decade Ahead,” BIS Papers No 45, March 2009.
- ⁴⁰ Note: In Greenspan’s words, “Bubbles thus appear to primarily reflect exuberance on the part of investors in pricing financial assets.” Furthermore, Greenspan thinks that one source of this exuberance is productivity growth, as witnessed in the 1990s, which could lead to “an unwarranted, perhaps euphoric, extension” of these developments which “can drive equity prices to levels that are unsupportable.” Alan Greenspan, “Opening Remarks,” at the Kansas City Fed Annual Symposium at Jackson Hole, Wyoming, 2002.
- ⁴¹ Alan Greenspan, “Opening Remarks,” at the Kansas City Fed Annual Symposium at Jackson Hole, Wyoming, 2002.
- ⁴² Ibid.

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- 43 Ibid.
- 44 Note: Financial historian Niall Ferguson describes this consensus on monetary policy and asset prices among Fed officials as follows: “Monetary policy evolved in a peculiar way in the 1990s towards de facto or de jure targeting of inflation, an increasingly narrow concept of inflation—core CPI. I thought it was a mistake at the time because it seemed to me crazy to ignore asset prices. Why differentiate? What’s the difference between pricing a loaf and pricing a house? Why do we care about one and not the other? In fact, we should probably care more about the price of a house than the price of a loaf, certainly in developed societies. I think there was a flaw in the theory there, that essentially you could call *the Jackson Hole consensus*. When the central bankers got together at Jackson Hole, the view that emerged from the debate in the late 90s was, *we shouldn’t really pay attention to asset prices in the setting of monetary policy.*” (Emphasis added) See “There will be blood,” interview with Niall Ferguson, *The Globe and Mail*, February 23, 2009.
- 45 Alan Greenspan, “Opening Remarks,” at the Kansas City Fed Annual Symposium at Jackson Hole, Wyoming, 2002.
- 46 Ben S. Bernanke, “Asset-Price ‘Bubbles’ and Monetary Policy,” Remarks by Governor Ben S. Bernanke before the New York Chapter of the National Association for Business Economics, New York, New York, October 15, 2002.
- 47 Alan Greenspan, “Monetary Policy under Uncertainty,” Remarks by Chairman Alan Greenspan at a symposium sponsored by the Federal Reserve Bank of Kansas City, Jackson Hole, Wyoming, 2003.
- 48 Donald Luskin, “Inflation Returns,” *Reason* magazine, September 22, 2009.
- 49 Alan Greenspan, “Monetary Policy under Uncertainty,” Federal Reserve Bank of Kansas City Symposium at Jackson Hole, WY, August 29, 2003.
- 50 “Minutes of the FOMC meeting of September 29, 1998,” referenced in Greenspan, Alan Greenspan (2003), “Monetary Policy under Uncertainty,” Remarks by Chairman Alan Greenspan at a symposium sponsored by the Federal Reserve Bank of Kansas City, Jackson Hole, Wyoming.
- 51 Greenspan, “Monetary Policy.”
- 52 White, Opening Remarks in “Whither Monetary Policy.”
- 53 Ibid.
- 54 IMF, “Lessons for Monetary Policy from Asset Price Fluctuations,” World Economic Outlook October 2009, International Monetary Fund.
- 55 Ibid.
- 56 William White, “Opening Remarks,” in “Whither Monetary Policy: Monetary Policy Challenges in the Decade Ahead,” BIS Papers No 45, March 2009.
- 57 Mark Skousen, *Vienna and Chicago: Friends or Foes*, Capital Press, Washington, D.C. 2005.
- 58 Ludwig von Mises, *Theory of Money and Credit*, Liberty Fund Inc., 1981, 5th edition, originally published in German in 1912.
- 59 Note: Then-Governor Bernanke commented on this development in a speech at the Annual Washington Policy Conference of the National Association of Business Economists, March 25, 2003, saying that the “inflation-targeting approach became more explicit with the strategies

adopted in the early 1990s by a number of pioneering central banks, among them the Reserve Bank of New Zealand, the Bank of Canada, the Bank of England, Sweden's Riksbank, and the Reserve Bank of Australia. Over the past decade, variants of inflation targeting have proliferated, with newly industrialized and emerging-market economies (Brazil, Chile, Israel, Korea, Mexico, South Africa, the Philippines, and Thailand, among others) being among the most enthusiastic initiates. Most recently, this policy framework has also been adopted by several transition economies, notably the Czech Republic, Hungary, and Poland.” For a discussion on the flexibility of inflation targeting in the U.S. and elsewhere, see Donald L. Kohn’s speech titled “Comments on Marvin Goodfriend’s ‘Inflation Targeting in the United States,’” at the National Bureau of Economic Research Conference on Inflation Targeting, Bal Harbour, Florida, January 25, 2003.

- ⁶⁰ Donald L. Kohn, “Comments on Marvin Goodfriend’s ‘Inflation Targeting in the United States’, Remarks by Governor Donald L. Kohn at the National Bureau of Economic Research Conference on Inflation Targeting, Bal Harbour, Florida, January 25, 2003.
- ⁶¹ Note: Poole quoted in Johan van Obertveldt, *Bernanke’s Test: Ben Bernanke, Alan Greenspan, and the Drama of the Central Banker*, p. 64.
- ⁶² John B. Taylor, “How Government Intervention Created the Financial Crisis,” *The Wall Street Journal*, February 9, 2009; John B. Taylor, *Getting Off Track: How Government Actions and Interventions Caused, Prolonged, and Worsened the Financial Crisis* (Stanford: Hoover Institution Press, 2009).
- ⁶³ Kohn quotes in Johan van Obertveldt, *Bernanke’s Test: Ben Bernanke, Alan Greenspan, and the Drama of the Central Banker*, p. 74.
- ⁶⁴ Note: In the words of former Vice Fed Chairman Alan Blinder “rules” such as inflation targeting “are not really rules at all, but rather, objectives that may require a great deal of discretion to achieve. Alan Blinder, *Central Banking in Theory and Practice*, (MIT Press, 1999).
- ⁶⁵ Note: In reviewing the U.S. postwar record, monetary historian Robert Hetzel identifies a seven-quarter lag in support of Milton Friedman’s “empirical generalization about the length of time required for a change in money growth to produce a change in inflation.” Robert L. Hetzel, *The Monetary Policy of the Federal Reserve: A History*, (Cambridge: Cambridge University Press, 2008).
- ⁶⁶ Gertler quoted in Johan van Obertveldt, *Bernanke’s Test: Ben Bernanke, Alan Greenspan, and the Drama of the Central Banker*, p. 75.
- ⁶⁷ Ibid, p. 14.
- ⁶⁸ John B. Taylor, “Lessons Learned from the Greenspan Era,” written version of comments on a paper by Alan Blinder and Ricardo Reis for the Federal Reserve Bank of Kansas City Conference, The Greenspan Era: Lessons for the Future, held in Jackson Hole, Wyoming, August 25-27, 2005; and Taylor in *The Greenspan Era: Lessons for the Future*, Jackson Hole Symposium, 2005, quoted in Johan van Obertveldt, *Bernanke’s Test: Ben Bernanke, Alan Greenspan, and the Drama of the Central Banker*, p. 76.
- ⁶⁹ John B. Taylor, “Lessons Learned from the Greenspan Era,” written version of comments on a paper by Alan Blinder and Ricardo Reis for the Federal Reserve Bank of Kansas City Conference, The Greenspan Era: Lessons for the Future, held in Jackson Hole, Wyoming, August 25-27, 2005.

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- ⁷⁰ Poole and Meyer quoted in Johan van Obertveldt, *Bernanke's Test: Ben Bernanke, Alan Greenspan, and the Drama of the Central Banker*, p. 77.
- ⁷¹ John B. Taylor, "Lessons Learned from the Implementation of Inflation Targeting," remarks prepared for a panel discussion on Design and Lessons from the Implementation of Monetary Policy under Inflation Targeting at the 80th Anniversary Conference of the Bank of Mexico, Stability and Economic Growth: The Role of the Central Bank, November 14, 2005.
- ⁷² Ben S. Bernanke, "Monetary Policy and the Housing Bubble," Speech by Chairman Ben S. Bernanke at the Annual Meeting of the American Economic Association, Atlanta, Georgia, January 3, 2010.
- ⁷³ Friedman quoted in Mark Skousen, *Vienna and Chicago: Friends or Foes*, (Capital Press, Washington, D.C., 2005).
- ⁷⁴ Finn Kydland and Edward Prescott, "Rules rather than Discretion: The Inconsistency of Optimal Plans," *Journal of Political Economy*, 85, pp. 473–490, 1977.
- ⁷⁵ Milton Friedman, *The Optimal Quantity of Money* (New Brunswick, New Jersey, Transaction Publishers, 2006) p. 47, originally published in 1969.
- ⁷⁶ Milton Friedman, "Monetary Policy: Theory and Practice," *Journal of Money, Credit, and Banking*, Volume 14, Issue 3, p. 100, 1982.
- ⁷⁷ Ludwig von Mises (1981), *Theory of Money and Credit*.
- ⁷⁸ Barry Eichengreen, *Globalizing Capital: A History of the International Monetary System* (Second Edition), (Princeton: Princeton University Press, 2008).
- ⁷⁹ Lawrence H. White (2008), "Did Hayek and Robbins Deepen the Great Depression?," *Journal of Money, Credit and Banking*, Volume 40, Issue 4, p. 751–768.
- ⁸⁰ Friedrich A. Hayek, *Monetary Nationalism and International Stability*, London, Longmans, Green; quoted in Lawrence H. White (2008), "Did Hayek and Robbins Deepen the Great Depression?," *Journal of Money, Credit and Banking*, Volume 40, Issue 4, p. 751–768, 1937.
- ⁸¹ George Selgin, "Guilty as Charged," mises.org, November 7, 2008.
- ⁸² "Sarkozy calls for action on currencies," *Financial Times*, January 27, 2010.
- ⁸³ Michael P. Dooley, David Folkerts-Landau, and Peter Garber, "The Revived Bretton Woods System: The Effects of Periphery Intervention and Reserve Management on interest Rates and Exchange Rates in Center Countries," Working Paper 10332, National Bureau of Economic Research, Cambridge, Massachusetts, 2004.
- ⁸⁴ Note: This important question is discussed at length in a recent book that incidentally draws heavily upon the monetary writings of Friedrich Hayek. In *Money, Markets and Sovereignty* (2009), Benn Steil and Manuel Hinds argue that globalization of trade and capital flows simply do not blend with independent national currencies, what Hayek referred to as "Monetary Nationalism" in the 1930s.
- ⁸⁵ Note: Back in 2004, Greenspan brushed off comments on disturbing developments in the housing market, saying that the rise in home values was "not enough in our judgment to raise major concerns." Bernanke echoed this sentiment in 2005, saying that a housing bubble was "a pretty unlikely possibility." And when the housing crisis hit, in May 2007, he said Fed officials "do not expect significant spillovers from the subprime market to the rest of the economy," adding that the "troubled lenders, for the most part, have not been institutions with federally

insured deposits. “Fed’s approach to regulation left banks exposed to crisis,” *Washington Post*, December 21, 2009; “Fed Missed This Bubble: Will It See a New One?,” *New York Times*, January 5, 2010.

⁸⁶ “Fed Missed This Bubble: Will It See a New One?,” *New York Times*, January 5, 2010.



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