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Monetary Policy: A Lecture Series

Edited by Norbert J. Michel, PhD

Foreword

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Contributors

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George Gilder is the co-founder of the Discovery Institute and the chair of the Institute's Center on Wealth, Poverty, and Morality. The author of several books, he is widely known for his influential book *Wealth and Poverty,* an international bestseller on supply-side economic theory first released in 1981. He has served as chairman of the Lehrman Institute's Economic Roundtable and as program director for the Manhattan Institute. His writing has appeared in *Forbes*, *Harper's*, *National Review,* and *The Wall Street Journal*, among other publications. He lives in New York with his wife.

James Grant is the founder and editor of *Grant's Interest Rate Observer,* a twice-monthly journal of investment markets. He began his career in journalism in 1972 at *The Baltimore Sun,* then joined the staff of *Barron's* in 1975, where he originated the "Current Yield" column. His newest book, *The Forgotten Depression—1921: The Crash That Cured Itself,* provides a history of America's last governmentally unmedicated economic downturn. He is the author of several other books, including *Bernard Baruch: The Adventures of a Wall Street Legend*; *Money of the Mind*; *Minding Mr. Market*; *The Trouble With Prosperity*; *Mr. Market Miscalculates*; *John Adams: Party of One*; and *Mr. Speaker! The Life and Times of Thomas B. Reed, the Man Who Broke the Filibuster.* His financial journalism has appeared in many publications, including the *Financial Times* and *The Wall Street Journal*, and he has appeared on multiple well-known television news programs, including *60 Minutes* and *Jim Lehrer's News Hour*. He also contributed an essay to the sixth edition of Graham and Dodd's *Security Analysis*. A former Navy gunner's mate, he holds a master's degree in international relations from Columbia University, and he is a member of Phi Beta Kappa and a trustee of the New York Historical Society. He and his wife Patricia live in Brooklyn; they are the parents of four grown children.

Steve Forbes was born in 1947 in Morristown, New Jersey; he earned a bachelor's in history from Princeton in 1970, and for approximately 10 years, he served on the Board of Trustees at Princeton. Currently, he is chairman and editor in chief of Forbes Media. The company's flagship publication, *Forbes*, is the nation's leading business magazine, with a circulation of over 900,000. The combined Forbes publications have reached more than five million readers worldwide. A widely respected economic prognosticator, Steve Forbes is the only writer to have won the highly prestigious Crystal Owl Award four times—a prize given to the financial journalist whose economic forecast for the coming year proved most accurate. He is the author of several books, and he serves on the boards of several organizations, including the Ronald Reagan Presidential Foundation, the Foundation for the Defense of Democracies, and The Heritage Foundation.

Norbert J. Michel, PhD is the director of The Heritage Foundation's Center for Data Analysis, where he specializes on issues pertaining to financial markets and monetary policy. He edited, and contributed chapters, to two books published by Heritage: *The Case Against Dodd–Frank: How the "Consumer Protection" Law Endangers Americans* and *Prosperity Unleashed: Smarter Financial Regulation*. Before rejoining Heritage in 2013, Michel was a tenured professor at Nicholls State University's College of Business, teaching finance, economics, and statistics. His earlier stint at Heritage was as a tax policy analyst in the think tank's Center for Data Analysis from 2002 to 2005. He previously was with the global energy company Entergy, where he built a logistic regression model to help predict bankruptcies of commercial clients. His work allowed Entergy to better monitor monetary losses caused by customers' delinquent payments. Michel holds a PhD in financial economics from the University of New Orleans. He received his bachelor of business administration degree in finance

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George Selgin is a senior fellow and director of the Center for Monetary and Financial Alternatives at the Cato Institute, and Professor Emeritus of Economics at the University of Georgia. His research covers a broad range of topics within the field of monetary economics, including monetary history, macroeconomic theory, and the history of monetary thought. He is the author of *The Theory of Free Banking*; *Bank Deregulation and Monetary Order*; *Less Than Zero: The Case for a Falling Price Level in a Growing Economy*; and, most recently, *Good Money: Birmingham Button Makers, the Royal Mint, and the Beginnings of Modern Coinage, 1775–1821*. Selgin is one of the founders, along with Kevin Dowd and Lawrence H. White, of the Modern Free Banking School, which draws its inspiration from the writings of F. A. Hayek on denationalization of money and choice in currency. He received his PhD from New York University.

Scott Sumner has taught economics at Bentley University for the past 30 years. He earned his bachelor's degree at the University of Wisconsin and his PhD at the University of Chicago. He is well published in top journals in economics, and he has written extensively on monetary economics as well as on the role of the gold standard in the Great Depression. He blogs about financial and monetary issues at themoneyillusion.com.

John Taylor is the George P. Shultz Senior Fellow in Economics at the Hoover Institution and the Mary and Robert Raymond Professor of Economics at Stanford. He has also taught economics at both Princeton and Columbia. He chairs the Hoover working group on economic policy and is the director of Stanford's introductory economics center. He received a bachelor's in economics, summa cum laude, from Princeton in 1968 and earned his PhD from Stanford in 1973. He has been an economic adviser to Presidents Ford, Carter, George H. W. Bush, and (during his 2000 campaign) George W. Bush, as well as to presidential candidates Bob Dole and John McCain. He was a member of the Congressional Budget Office's Panel of Economic Advisers from 1995 to 2001; from 2001 to 2005 he served as undersecretary of the Treasury for International Affairs. He has won numerous awards for his work, including the Bradley Prize, the Adam Smith Award, the Adolf G. Abramson Award, the George P. Shultz Distinguished Public Service Award, the Hoagland Prize, the Rhodes Prize, the Alexander Hamilton Award, the Treasury Distinguished Service Award, and the medal of the Republic of Uruguay. He is a fellow of the American Academy of Arts and Sciences in the Econometric Society, and he formerly served as vice president of the American Economic Association. He is the author of several books, including *Getting Off Track* and *First Principles* (winner of the 2012 Hayek Prize). Widely regarded as an expert on monetary policy, he developed a policy rule that bears his name, "the Taylor Rule."

Lawrence White is a professor of economics at George Mason University and a member of the Mercatus Center Financial Markets working group. He has published numerous peer-reviewed articles in top-tier journals such as *The American Economic Review*, *Journal of Economic Literature*, and *Journal of Money, Credit, and Banking*. In 2008, Professor White received the Distinguished Scholar Award of the Association for Private Enterprise Education. He is a senior fellow at the Cato Institute as well as a member of the Academic Advisory Council of the Institution of Economic Affairs. The author of several books, including *The Clash of Economic Ideas*, *The Theory of Monetary Institutions*, and *Free Banking in Britain*, White specializes in monetary theory and is one of the world's preeminent scholars on the theory and history of money and banking. He received his PhD from the University of California, Los Angeles.

Monetary Policy: A Lecture Series

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Foreword

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Abstract

Good monetary policy helps Main Street America's workers, retirees, and savers by ensuring that the economy does not stall due to an insufficient supply of money. It also helps Main Street by safeguarding against an excessive supply of money that could overheat the economy. To accomplish this task, the Federal Reserve needs to supply the amount of money the economy needs to keep moving, no more and no less, and it needs to do so in a neutral fashion, rather than allocate credit to preferred sectors of the economy. This standard dictates that the Fed maintain a minimal footprint in the market so that it does not distort markets, crowd out private credit and investment, create moral hazard problems, or transfer financial risks to taxpayers. Finally, the Federal Reserve should conduct monetary policy in a transparent manner, with maximum accountability to citizens through their elected representatives. Nothing can provide as powerful a check on the government's ability to diminish the quality of money as allowing competitive private markets to provide it. The Heritage Foundation looks forward to continuing to engage policymakers on these issues to help improve monetary policy for all Americans.

The report you are holding is a collection of speeches[1] given at The Heritage Foundation over a span of 14 months, from February 2014 to March 2015. Monetary policy, of course, is one of the key components of the economy. Several historical incidents have highlighted the importance of sound monetary policy. Two clear examples are the Great Depression and what some people are calling the Great Recession of 2008. The debate over the Federal Reserve's role in these two incidents is strikingly similar: Was monetary policy too loose for too long, thus contributing to the crisis? Was it too tight at exactly the wrong time, thereby exacerbating the problem? Does the central bank perform well in its attempts to engineer a stable macroeconomy? Even in the best possible fiscal situation—which America does not currently have—major problems can still result from mistakes in monetary policy.

To help address these questions, including Federal Reserve performance and various approaches to monetary policy reform, several experts have come to The Heritage Foundation to present their ideas. They have demonstrated—in agreement with Heritage's own research—that the Federal Reserve's track record warrants a critical appraisal, to say the least. Overall, after Congress created the Federal Reserve in 1913, recessions have not become less frequent. They have not become shorter in duration, and output has not become less volatile.

So, how might America do better? One way would be for Congress to require the Federal Reserve to implement a rules-based monetary policy. Two Nobel Prize–winning economists recommended this idea in the 1970s.[2] However, no central bank has ever put the idea into practice, arguing instead that discretion is necessary to conduct monetary policy. In one sense, this should not be too surprising, because no bureaucracy is likely to support rules that reduce its active role. This mindset also helps to explain some

criticisms of anti-interventionist economists by those who reject the notion that an economy can recover without massive government intervention.

These discussions provided a locus for conversation about what types of monetary policy frameworks might reverse the current downturn and promote new growth. The report begins with a 2014 panel discussion on "The Federal Reserve at 100: How Well Has It Done?" The panel featured Dr. Lawrence White of George Mason University, an expert on the theory and history of money and banking; Dr. George Selgin of the Cato Institute, an expert in monetary thought, monetary history, and macroeconomic theory; and Dr. Gerald Dwyer of Clemson University, a former vice president at the Federal Reserve Bank of Atlanta and an expert on the history of the recent financial crisis and its implications for America's future economic growth. By presenting a range of viewpoints, these three panelists furthered the conversation about how to establish the right monetary policy for America in the 21st century.

Second in the series was George Gilder, the well-known economic thinker and author of the 1981 best-seller *Wealth and Poverty*. In his talk, Gilder argues that there is a real crisis in the way that economists—even those who tend to favor free markets—view money, and that the digital currency bitcoin offers a solution to this crisis. The crisis, in his view, is that economists typically assume that providing money must be a centralized function of government. Consequently, the constant growth of the money supply under central control has led to permanent inflation, thus defeating the inherently beneficial deflationary tendencies of capitalism. Nonetheless, history demonstrates that people do control money, and thus, that centralized management of money is ultimately unnecessary. Gilder sees bitcoin as an appropriate resolution of this monetary dilemma that arose with the rise of monetarism within conservative circles because it is peer-to-peer, it is global, it is distributed, and it is perfectly adaptable to a global Internet that increasingly has to accommodate global commerce.

Third in the series, a Heritage audience heard from Dr. Scott Sumner, who contributed a discussion of nominal gross domestic product (NGDP) targeting.[3] Sumner was one of the only people at the beginning of the subprime crisis to argue that Fed policy was actually too tight. This seemed counterintuitive to many monetary economists and economists in general. So, Sumner started a blog to discuss what he termed the "endlessly perplexing has initiated what some people are now calling the "market monetarist school." Sumner's idea of NGDP targeting has gained a great deal of attention in the past few years. NGDP targeting is basically a type of monetary policy rule. Many economists agree that some sort of rules-based policy would produce better macroeconomic outcomes than the full discretionary framework America uses now, but exactly which rule to implement is a point of disagreement. Sumner has argued that one good policy option is a rule that targets nominal GDP growth.

The fourth talk in this book was given by the widely respected economic prognosticator and media entrepreneur Steve Forbes. The talk highlighted issues covered in Forbes's new book, *Money: How the Destruction of the Dollar Threatens the Global Economy—and What We Can Do About It*, co-authored with Elizabeth Ames. The book won the prestigious Leonard E. Read Book Award. Like many of Forbes's previous books—to name two, *The Freedom Manifesto: Why Free Markets Are Moral and Big Government Isn't* and *The Flat Tax Revolution: Using a Postcard to Abolish the IRS*—the book deals, obviously, with money. Broadly speaking, this most recent book argues for the importance of sound money and culminates with a recommendation for "a gold standard for the 21st century," also the focus of Forbes's talk here.

Fifth, financial journalist James Grant addressed and debunked some criticisms of his most recent book, *The Forgotten Depression—1921: The Crash That Cured Itself*. A great deal of that criticism, interestingly, countered arguments that were not even in the book. Grant did not argue, for example, that the 1921 event refutes everything that has been learned about macroeconomics since the 1920s,[4] nor did he argue that the 1920 event proves that the government—including the Federal Reserve—should have done absolutely nothing in 2008. Nor did he argue that the government should institute a deliberate policy of deflation. Grant openly admits in his book that it is impossible to know what might have happened if Presidents Woodrow Wilson and Warren Harding had intervened in 1921, as Presidents of the late 20th and 21st centuries are wont to do. In any case, the book is an excellent set of narratives expertly woven together. It highlights a quandary that policymakers have consistently faced in the post–World War II era; the recent housing bubble is a perfect example of this quandary. Policymakers instituted government policies that inflated housing prices, and then prices

crashed, and in the wake of the crash, policymakers have been tripping over themselves to stop prices from falling. In his talk, Grant reviews the history of the economic downturn that preceded the Roaring Twenties and its possible applications to contemporary economic thinking.

This brings us to the final event, when highly regarded economist John Taylor—originator of the "Taylor rule"—visited Heritage to discuss rules-based monetary policy. This area of policy has seen significant applications since Taylor's work first became known, and so in his talk Taylor addressed the historical relationship between monetary policy and economic outcomes. He also touched on nominal GDP—the topic of Sumner's earlier talk—and he made recommendations about the roles of the legislature and the Federal Reserve in setting monetary policy.

Good monetary policy helps Main Street America's workers, retirees, and savers by ensuring that the economy does not stall due to an insufficient supply of money. It also helps Main Street by safeguarding against an excessive supply of money that could overheat the economy. To accomplish this task, the Federal Reserve needs to supply the amount of money the economy needs to keep moving, no more and no less, and it needs to do so in a neutral fashion, rather than allocate credit to preferred sectors of the economy. This standard dictates that the Fed maintain a minimal footprint in the market so that it does not distort markets, crowd out private credit and investment, create moral hazard problems, or transfer financial risks to taxpayers. Finally, the Federal Reserve should conduct monetary policy in a transparent manner, with maximum accountability to citizens through their elected representatives. Nothing can provide as powerful a check on the government's ability to diminish the quality of money as allowing competitive private markets to provide it. The Heritage Foundation looks forward to continuing to engage policymakers on these issues to help improve monetary policy for all Americans.

Endnotes

1. This report is derived from transcripts of a series of six talks given at The Heritage Foundation in Washington, DC, from 2014 to 2015. The talks have been lightly edited for clarity and ease of reading. Where it has been necessary to add substantive words or phrases to clarify the speaker's intended meaning, these appear in brackets.
2. Finn Kydland and Edward Prescott, "Rules Rather than Discretion: The Inconsistency of Optimal Plans," *The Journal of Political Economy*, Vol. 85, No. 3 (June 1977), pp. 473–492. Kydland and Prescott won the 2004 Sveriges Riksbank Prize in Economic Sciences for their work on dynamic macroeconomics and business cycles.
3. NGDP is a commonly used measure of the monetary value of a nation's total economic output of final goods and services. It is usually measured quarterly or yearly.
4. For an example of this criticism, see Paul Krugman, "Warren Harding and the Emperor Diocletian," *The New York Times*, December 2, 2014, http://krugman.blogs.nytimes.com/2014/12/02/warren-harding-and-the-emperor-diocletian/?_r=0 (accessed March 30, 2016).

The Federal Reserve at 100: A Panel Discussion

A Brief Tour of the Fed's Historical Performance

Lawrence White

I am going to try to give you a kind of whirlwind tour through a hundred years of Federal Reserve history, so that we have the track record in front of us that we want to evaluate. If you go back to the founding of the Fed, you find out that the Federal Reserve Act doesn't say anything about monetary policy. This issue came up when Alan Greenspan was visiting *The Daily Show* plugging the first book he wrote after he retired from the Fed—I believe the title was *The Crisis*. Somebody wrote a very good question for Jon Stewart, which he posed to Alan Greenspan, "If you believe in free markets, why do we have a Federal Reserve setting interest rates?" Greenspan's response was, "Well, that is a good question, and actually you didn't need a central bank"—I guess he meant to run a monetary policy—"when we were on the gold standard, which was back in the 19th century." Actually, the gold standard continued when the Federal Reserve Act was passed, so Greenspan was actually saying we did not need to have a Federal Reserve to run monetary policy at the time the Federal Reserve Act was passed.

Well, that is water over the dam. How well has the Fed done compared to the pre-Fed gold standard? That is one way to compare the Fed's track record to an alternative. There are other ways; you could compare it to other leading central banks in the world, but that is the standard I am going to use. You see a dramatic change in the behavior of the price level almost immediately after the Federal Reserve gets up and running in 1914. Of course, something else happened in 1914: World War I began, and when World War I began, the major combatant nations in Europe all left the gold standard. So the international gold standard was pretty much kaput, and the constraint on the Federal Reserve system from international gold flows was pretty much neutralized, which meant the Fed now had a free hand to print money, and it did, to support the Wilson Administration's war efforts. You see what happened to the behavior of the price level—it had been pretty much confined within a small range until the money printing to finance the war expenditures began, and the price level jumped.

If we look at it in terms of the inflation rate, I want to break down the Fed's track record in terms of decades. The period of World War I was characterized by inflation around 20 percent, and continuing at 20 percent even after the war ended, reaching a peak of about 22 percent before a massive correction in 1921. Associated with that, of course, was a very deep recession from which the economy rebounded pretty quickly. The period of actual deflation was part of the correction from the high price level created during the war; if you measure the areas of inflation versus deflation, you can find out that the price level remained higher than it had been before the war began, so there was still inflation in the system that remained to be wrung out, which would come later in the decade. But 22 percent inflation was not a very good starting point.

The Fed, had some hand in amplifying the boom in the 1920s to the point where it could not be sustained; there was going to be a bust.

The Fed's second decade, of course, was the Roaring Twenties. I am not going to go into this point here, but some other economic historians, and, I think the Fed, had some hand in amplifying the boom in the 1920s to the point where it could not be sustained; there was going to be a bust. But the recession that followed the bust, of course, became the Great Depression, which was much deeper than necessary just to correct the previous excesses. Milton Friedman and Anna Schwartz call this period the "great contraction," where the money supply shrank a great deal—much more than necessary to restore equilibrium to the system—and so there were several years of 10 percent deflation, which put the economy through quite a wringer.

The Roosevelt Administration, together with Congress, decided to try to bring the price level back up by devaluing the dollar and taking the right of gold ownership away from U.S. citizens. Americans had to turn their gold in to the Federal Reserve system, so that the Fed would have more reserves on the basis of which it could issue more Federal Reserve notes. So that was the idea, and gold ownership remained illegal for several decades.

Not only had the international gold standard been pretty much neutralized, but the U.S. was now officially off of a domestic gold standard. There were still efforts to restore gold convertibility between central banks so that the U.S. could still pay gold, or lose gold, to other central banks in the world, or gain gold from them. But the system that had been counted on when the Federal Reserve Act was passed in order to constrain the growth in the quantity of money in an appropriate [way] is pretty much non-functional now. It was up to the discretion of the Federal Reserve how much money they wanted to create.

The price level eventually recovered, but then the Depression was followed by World War II, during which inflation rose, of course, as money was being printed to buy the Treasury debt that was being used to finance the war. That did not have to happen. You can fight a war with debt without monetizing the debt. Again, inflation reached about 20 percent, until price controls were imposed, and so there was a lot of inflation during World War II that was underreported. You couldn't actually buy things at the official prices; you needed a ration coupon, and even then there was not enough to go around.

When the price controls came off after the war, inflation shot up even more—it reached nearly 20 percent again—until the Fed took control of the money supply again, brought inflation down, and in 1951 came to an agreement with the U.S. Treasury that it was no longer bound by the wartime rules to monetize all the debt [that the Treasury] wanted it to monetize. So the Fed gained a greater measure of independence in what is known as the Treasury-Fed Accord.

In the period following that, inflation came down and actually stayed fairly low and stable for the next decade. So the period from 1954 to 1964 was not bad. I don't want to be accused of only heaping criticism on the Fed. It [supported] a pretty remarkably stable and low inflation rate during this period. Inflation [stayed] between 1 percent and 2 percent for several years. That is pretty good, compared to the previous decades, certainly.

But in the '60s, the Fed started to become more ambitious than just trying to keep inflation low and steady. The result of that was the peacetime great inflation, where inflation grew up to 8 percent, came back down again, and then reached double digits. On the way to double digits, finally a decision was made to put somebody in charge who knew how to fight inflation, and that was Paul Volcker. So it was not an accident that G. William Miller moved from the Fed to the Treasury and Paul Volcker was appointed—and you can see that he did bring inflation down dramatically. But it was a painful experience, and I think it happened [because] the Fed had been inspired by the idea that a little bit of inflation can buy you a lot of unemployment relief—the famous Phillips curve. It looked like there was a stable trade-off, and the Fed was working the trade-off. The Fed kept reducing the unemployment rate by increasing the inflation rate, although they were facing diminishing returns.

In the '60s, the Fed started to become more ambitious than just trying to keep inflation low and steady. The result of that was the peacetime great inflation, where inflation grew up to 8 percent, came back down again, and then reached double digits.

But this trade-off turns out not to be sustainable. It only works if people don't anticipate the inflation that is coming, because when workers anticipate inflation, they will start raising the wages they are holding out for, and it is going to take more inflation just to get the same rate of unemployment. That was the theory that Edmund Phelps and Milton Friedman presented in '67 and '68 while it still looked like there was a trade-off, so they got Nobel Prizes for seeing that it was not going to last. In the 1970s, suddenly the economy was not working the way that it used to. Even the head of the Fed, Arthur Burns, said in a speech: "The economy is not working the way the textbooks tell us. Inflation and unemployment are going up together. What do we do?" Well, as his critics told him and Milton Friedman told him, you do what you always need to do, which is control money growth, which Volcker eventually did.

The period after the Volcker disinflation is another relatively mild period of Fed behavior, as judged by the inflation rate. Again, I should say that the inflation rate is not a direct measure of what the Fed is doing, but an indirect measure, and it is something the Fed can control if they [the FOMC members] put their minds to it, so they can be held responsible for it—not on a month-to-month basis, but on a year-by-year basis. Anyway, this 20-year period from '84 to

somewhere around 2004 has become known as the Great Moderation, and there was a lot of optimism that the Fed had finally settled on the right model of the economy and now knew what to do; now it was steering the ship in an appropriate way.

The inflation rate was behaving itself not quite as well as it had in the '50s, but better than it had in the '60s and '70s, so there was a lot of optimism, and those of us who started out as critics of the Fed were not getting much of a hearing in those days, because everything was going swimmingly. Then that all fell apart, too. What happened, of course, was the housing bubble or boom followed by the Great Recession. Of course, it began during Greenspan's tenure, but it continued and then fell apart during the Bernanke era. Ben Bernanke came in as someone who was very concerned about combating deflation. He was worried even when negative inflation was not evident or in the offing to prevent it, and so he encouraged Greenspan with very expansionary monetary policy. The irony is that in the middle of Bernanke's era, there is a period of deflation. At the beginning of the quantitative easing (QE) program, the Fed started paying interest on reserves, which led to banks bottling up so many bank reserves and therefore lending so much less, and that combined with the velocity of money slowing down—something the Fed is not responsible for, but which it should be offsetting if it could forecast better than it has. Anyway, irony of ironies, there was a very harmful deflation in the middle of Bernanke's tenure.

In a congressional hearing, somebody was criticizing Bernanke for his inflation record, and he said, "I'll have you know, I have the best inflation record of any Fed chairman." He must have meant the average rather than the variation, because if you throw in a year of negative inflation, you do bring down your average.

But one way to diagnose what happened during this decade is in terms of the Taylor rule, which has become a kind of standard way of evaluating what the Fed is doing: It is setting the interest rate target appropriately. According to the Taylor rule, which described the Great Moderation years, it seems to be a guideline to keeping problems contained, keeping inflation contained. Compared to that, the Fed held interest rates too low for too long. So these parallel bands describe where the Fed funds' rate, the overnight interest rate between banks, should have been in order to keep inflation within a certain range. But the Fed was keeping inflation much below that—inspired, I think, by Bernanke's fears of deflation. The result of that was the housing bubble, because [lower interest rates] made housing mortgage loans cheaper than they otherwise would have been. It is true that this is a short-term interest rate, and most housing loans are long-term loans, but the proportion changed during the housing boom. More and more one-year adjustable-rate mortgages were issued, and so housing finance became more sensitive to short-term interest rates, because it was so much cheaper than financing long term.

If you look at the rates, housing finance was expanding at double-digit rates for a number of years. Well, if you are lending 10 percent more to the housing market every year, either house prices go up 10 percent or the quantity expands or both, and the U.S. economy was building more houses than were necessary, as we found out in retrospect. Housing projects had to be abandoned midway to completion.

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Part of the reason for this over-exuberance in housing was housing regulatory policy and many, many policies intended to put more people in owner-occupied housing. But the Fed provided the fuel for this, or provided the punch bowl for the party, made it possible to finance more housing than was really needed. During the crisis—and here I am switching away from monetary policy for a minute—the Fed itself switched away from monetary policy exclusively, or predominantly, and started pursuing what you might call credit allocation programs. [There is] a long list of special-directed lending programs for particular segments of the financial industry, and in some cases for a particular firm—[for example,] the Bear Stearns case; AIG got bailouts financed by the Fed; Citibank and Bank of America had special lines of credit.

At the end of my list, I have the quantitative easing programs one and three, which have been described as monetary policy, defended as monetary policy by the Fed—but they are not monetary policy, because

they are purchases of mortgage-backed securities, which is an unusual asset for the Fed to acquire. If you ask why are they buying mortgage-backed securities instead of Treasury securities—the usual thing they buy when they want to expand the money supply—the switch from Treasuries to mortgage-backed securities does not have any impact on the size of the change in monetary aggregates, but it changes what securities get purchased and what prices get supported. [Buying mortgage-backed securities] was an attempt to support the price of a particular kind of financial asset, which the Fed thought was underpriced. So the Fed was substituting its judgment about how financial assets ought to be priced for the market's judgment; that is a credit-allocation policy. They are trying to influence relative prices and the allocation of resources in the financial sector. That is not monetary policy—and none of these items on the list are; [it is] lender-of-last-resort policy, which is a traditional role of the Fed.

The person who described this most classically was Walter Bagehot, and Bagehot's approach was [that] if you have centralized the reserves in your banking system—you don't need to do that, but if you have—then the holder of that reserve has a responsibility to make liquidity available to banks that are fundamentally solid but that are having temporary difficulties. So you are supposed to lend to illiquid banks short-term, but at a high interest rate to make them regret having gotten into trouble, and in order to make it clear that it is not going to be a subsidy operation. It's not supposed to make it comfortable for a bank to get into liquidity trouble.

But that was not the way the Fed pursued it. The Fed lent at low interest rates during the financial crisis. One estimate of the implicit subsidy to the borrowers at the Fed's credit lines was about $13 billion. If you look into the details, there are some things you can quibble with, but the Fed was still one of the cheapest lenders in town in some of these programs.

A more general point is [that] making these policies up as they went along was not consistent with the bedrock principle of a free society, which is the rule of law. People ought to be able to know in advance what the rules are going to be and to count on them being enforced impartially. The executive branch of government should not be playing favorites, deciding to make up new rules, deciding not to enforce old rules.

Here is another piece of evidence that the quantitative easing (QE) policies are not monetary policy. If you look at the path of M2, which is a standard measure of the money supply, it remains on a fairly smooth path at the same time that the monetary base, the Fed's balance sheet liabilities, are jumping. So the first jump is QE 1, the next jump is QE 2, and then the ongoing jump we are in now is QE 3. Those don't change the monetary aggregate, so QE is not a monetary policy. It's not designed to change the path of the money supply. It's a credit-allocation policy to raise the price of mortgage-backed securities.

Let me wrap it up by going back to what I said I was going to do, which was compare the Fed's track record to the gold standard's track record. During the pre-Fed period, the price level ends almost exactly where it began. So in 1914, it was the same as what it was in 1879. The average inflation rate is within a hair of zero. But between 1971 and 2013, the average inflation rate has been over 4 percent, so that is quite a difference. The Fed has been worse on inflation.

This one is a little more subtle, but the Fed has created more uncertainty about what the future value of the dollar is going to be, where the price level is going to be five, 10, 20, 30 years from now. That discourages long-term investments, because it makes it harder to issue long-term bonds. There are not going to be as many buyers for a 30-year bond if you don't know what the dollar is going to be worth 30 years from now. A paper that George Selgin and Bill Lastrapes and I published in 2012 has these measures of uncertainty, which show that uncertainty is higher today than it was in the pre-Fed period.

Even if you take out the Great Depression and just start in the post-war period, you find that the volatility of the real economy is basically back to where it was in the pre-Fed period, despite the economy being much better diversified, much less agricultural.

A lot of people defend the Fed by saying, Okay, inflation is higher, but haven't we smoothed out the business cycle? The answer is no, you haven't—certainly not over the Fed's entire history, because remember, the Great Depression happened under the Fed's watch. Okay, maybe the Great Depression is just a practice period; that shouldn't count against

the Fed. I stole that joke from George. But even if you take out the Great Depression and just start in the post-war period, you find that the volatility of the real economy is basically back to where it was in the pre-Fed period, despite the economy being much better diversified, much less agricultural. So it seems like the Fed has made a negative contribution if you think the economy on its own would have been more stable.

Lastly, one reason people give for leaving the gold standard was that we save all the resources it takes to dig gold out of the ground. We haven't even done that, because we have made the price level so unstable people now buy gold as an inflation hedge. The real price of gold is higher now than when we were on the gold standard—let that sink in—so there is more gold mining now for people to buy bars and Krugerrands and other coins to store in their safety deposit boxes or in their backyards.

Finally, the Fed hasn't reduced unemployment. Now, you shouldn't expect it to, because unemployment is not the sort of variable that depends on the price level, for the reasons that Friedman and Phelps gave us.

So, in summary: The Fed has not improved over the pre-Fed period. It hasn't delivered the benefits that we could have hoped for, and it has added moral hazard to the system through its bailout policies; it has not run a monetary policy that has given us benefits. It has raised inflation, and it has not smoothed out business cycles.

So how could we get better results? Well, here is an analogy. The Federal Reserve system is like an early-20th-century locomotive that was designed with a self-governing engine—the gold standard—but early in its history the self-governing engine was replaced by strapping some rockets on the train: the ability to print money at liberty. That leads to a train in great danger of jumping off the tracks if the rockets aren't precisely controlled.

So what do you do about that? Well, you could remove the rockets; try to go back to a self-governing system. If that is politically impossible, you might try to think about strengthening the rails that the locomotive is running on so it doesn't jump the track so much. What would that mean? That would mean imposing some kind of rule on Federal Reserve monetary policy—either a Taylor rule or a price-level target, or better than that, a nominal-income target. I don't have time to go into the details of those, but there are various ways we could think about making Fed policy more policy-based and less discretionary.

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The Federal Reserve's Mythical Reputation

George Selgin

Thank you all for giving me a chance to talk about how the Fed manages to give people the impression that it has been doing a wonderful job. Larry referred to our joint work with my colleague Bill Lastrapes on how the Fed has actually performed in its first 100 years, and he summarized some of the results of that work. Suffice it to say that in terms of price-level stability, predictability, business-cycle fluctuations, crises, and banking failures, things have not been better since the Fed's establishment than they were in the decades preceding the Fed's establishment. That fact is all the more important when you consider that the banking system we had before the Fed's establishment was crummy. I'll talk a little bit about it. It's not that we couldn't do any better than we did before 1914—not at all—but we have done worse, and that certainly is a very unfortunate record.

I want to talk about how the Fed has managed to convince so many people that it has done a very good job, that it has accomplished its mission. The Fed's reputation is actually rather high. Although of course there are plenty of us who criticize it, there are many more who insist that it is doing a great job—and this is to a considerable extent the result of the Fed's own very successful propaganda efforts. It is those efforts I want to talk about.

Those efforts amount to the creation of a myth, a mythology as it were, of a U.S. monetary history, including the history of the period before the creation of the Federal Reserve. I want to point out some of the ways in which the Fed's propaganda misrepresents that history in order to make the Fed appear to be a much more successful institution that it actually has been.

One of the first pieces of propaganda crucial to this effort is the claim that before the Fed—and particularly before the Civil War—banks simply were not regulated, and therefore the problems with the antebellum

banking system were consequences of a lack of regulation, particularly a lack of federal regulation. In fact, that is not true at all. As Bray Hammond—the most prominent, the most famous historian of antebellum banking in the United States—has pointed out, banking has been regulated from the very beginning of U.S. history, and very strictly regulated. As he put it in his famous book *On Banks and Politics Before the Civil War*, the issue—at least until 1836—was between prohibition of private banking and state control of private banking with no thought of free enterprise. This is coming from someone [Hammond] who is not himself necessarily a fan of free enterprise or laissez-faire, but no state allowed freedom of entry and freedom from regulation of its banks, and many prohibited banking altogether.

One of the first pieces of propaganda crucial to this effort is the claim that before the Fed—and particularly before the Civil War—banks simply were not regulated, and therefore the problems with the antebellum banking system were consequences of a lack of regulation, particularly a lack of federal regulation.

One thing that almost all states did—though some in the South were exceptions—was to prohibit any kind of branch banking. Not only did states jealously prevent out-of-state banks from doing business across their borders, but they generally also didn't allow their own banks to set up any branches. Every bank was a unit bank or a one-office bank. This fact alone was a source of tremendous weakness in the U.S. banking system, because the banks in question naturally could not diversify their assets, or for that matter their liabilities—and that single fact alone was probably one of the most potent causes of failures in the banking industry in the United States right up until the Great Depression, and even to some extent afterwards.

Now, another consequence of the fact that banks could not branch was the lack of a uniform currency. Now, one of the Federal Reserve banks has a video, which I show a shot of here, of a couple of farmers trying to do a deal involving (I think) a horse and staring at a batch of non-uniform bank notes trying to figure out what it is all worth. Well, that was a problem before the Civil War, but what the Fed doesn't tell you in any of its propaganda is that this was not a natural consequence of lacking a single source of currency—which is how the Fed makes it seem. It was simply the fact that banks could not branch, so when their notes traveled far from their single offices, they would tend to go to a discount, reflecting the cost of trying to get them back to where they could be redeemed in silver or in gold. Countries that had many banks—that is, competing banks—but that also had branching, like Scotland and Canada in fact, for a closer-to-home example, had uniform currencies even when they didn't have monopoly banks of issue, when they had competition with multiple brands of bank note currency all circulating at their full gold values, because there was always a nearby branch where they could be redeemed.

On the eve of the Civil War, or in this case a little bit into the Civil War, the discounts on state bank notes, despite the lack of branch facilities, had actually fallen quite a bit. These are calculations I did myself. If you bought up every state bank note in the North—in the South, at this point, the banks are basically out of business—and brought them all to a central market like New York or Chicago and sold them for what gold you could get from a broker there, having paid full face value for the notes, your loss would have been less than 1 percent of that face value.

Now, I mention this because Fed apologists—and other historians who followed their lead—argue that we had to get rid of the state banks and nationalize the currency system because of this non-uniform currency. Moreover, they argue that that is exactly why this was done during the Civil War. During the Civil War, national banks were set up that were nationally chartered, and they got the right to issue notes under specific circumstances. Subsequent to that legislation, state banks were taxed out of the currency business by a prohibitive tax. But this was not because the currency wasn't uniform—you can see that that problem wasn't so severe by the [time of the] Civil War—and indeed state banks would have continued in business in many regions of the country and were competing effectively with national banks until that prohibitive tax put them out of business. The reason for the whole thing was to finance the Civil War, and you can understand that more readily if you realize

that a condition for national banks to issue currency was that the currency had to be backed 110 percent by U.S. government securities. The idea was to have a captive market for union bonds so that the war could be financed. It wasn't, as is so often the case with financial legislation—and U.S. financial legislation in particular—a case of trying to provide a better monetary system; it was a system of fiscal urgencies driving monetary legislation, even when the consequences for the monetary system, especially in peacetime, were not so great.

Here is a currency supply that surely must be being administered by a central bank—those Canadians must have gotten the idea before we were smart enough to get around to it. Oh, except that Canada didn't have a central bank until 1935.

Now, in this case, the consequences were not so great, specifically because after the Civil War we had some of our most calamitous financial panics. These are the panics that famously led to the creation of the Fed. The Federal Reserve publications, of course, emphasized the fact that bank runs and financial panics continued to plague the nation after the Civil War. What they don't tell you is that the reason for these panics was the bond requirement. This meant that the supply of currency was now linked to outstanding government debt. If the government retired its debt, if it retired it all, the total [money] supply of national banks would have had to fall to zero.

So the scarcity of government debt, which became greater and greater in the last decades of the 19th century as the U.S. government ran surpluses and retired its debt—something we would normally like to see happen—meant that the country was occasionally deprived of adequate supplies of currency. Now, the other things that these Fed propaganda sources will tell you, is that only a central bank could solve the problem. In fact, some of them expressed the problem [as] the absence of a central bank. Well, of course, if you put it that way, then the solution is, presto, a central bank.

The stock of national bank notes starting in 1880 began shrinking dramatically from a peak of just about 350 million to less than half that amount. In a growing economy, you can imagine, this was not a healthy situation. Worse still was the fact that the supply couldn't at all adjust seasonally, and in those days, there was a tremendous peak demand for currency every harvest season.

Now, the Fed wants you to believe that this was an inherent problem of not having a central bank; that it was a problem that only a central bank could solve. But the supply of currency in Canada, our northern neighbor, during the same period, shows not only secular growth, consistent with the fact that Canada, too, was a growing economy, but lovely seasonal peaks. Here is a currency supply that surely must be being administered by a central bank—those Canadians must have gotten the idea before we were smart enough to get around to it. Oh, except that Canada didn't have a central bank until 1935. What it had was a competitive system of large nationally branched banks, which was remarkably robust, supplying currency that seemed to adjust in supply just as a perfect central planner might adjust it—but not as our true monetary central planners have ever been capable of adjusting currency. There were no crises in Canada, therefore no movement to create a central bank until during the Great Depression—when, incidentally, the creation of the Bank of Canada was not because the previous system had caused problems as great as in the United States. Canada in fact had zero bank failures during the Great Depression.

We got the Federal Reserve Act—not the first-best solution to our problems; not the second best; probably the third, fourth, or fifth best.

American reformers were very conscious, before the creation of the Fed, of the advantages of the Canadian-style system. They tried through numerous pieces of legislation to get a system like it into existence for the U.S.—the Baltimore Plan, the Carlyle Plan, the Gauge Plan, the Fowler Plan. All of them ran afoul of unit banking opposition, and also the opposition from Wall Street, which interestingly enough was aligned with the unit bankers. Why? Because when the country bankers needed access to the New York money market, they had no choice but to deal

with Wall Street correspondents. So the status quo system was as lucrative, or more lucrative, for Wall Street than it was for the country bankers themselves. So this odd coalition fought any reform that would have introduced nationwide branch banking. Also the populists—and let's not forget that William Jennings Bryan was Treasury Secretary under Wilson—put the kibosh on any plan that would have allowed private banks to continue to be responsible for controlling currency. They wanted government to handle it all.

So we got the Federal Reserve Act—not the first-best solution to our problems; not the second best; probably the third, fourth, or fifth best that you could think of. Every one of those other plans [would have] been wiser than this one, if not politically easier to get through.

Here is how Ben Bernanke in his George Washington University lecture recently summarized the story that I just presented to you. In his view, after 1907, Congress simply began to say, Well, wait a minute; maybe we need to do something about this—meaning all these crises. Maybe we need a central bank. Well, that is nice and short, but it gives a quite misleading impression of what the true alternatives were.

One of the things that Federal Reserve publications like to ballyhoo about is how independent the Fed is. Well, the Fed has never been independent in any meaningful sense. When it was first formed, the Secretary of the Treasury and the Comptroller of the Currency were, respectively, president and vice president of the Federal Reserve Board, and believe me, they had some say. Larry already explained to you how they got the Fed to finance World War I by generating over 20 percent monthly inflation rates for awhile.

This control of the Fed through fiscal forces exerted by the Treasury continued very clearly right up through World War II, when the Fed was still handmaiden to the Treasury. Now, there is a myth (again, perpetuated by the Fed) that in 1951, a Treasury accord was arrived at—and of course, that part is true—and that this accord ended the Fed being pressured by or influenced by the Treasury, being near-handmaiden to the Treasury, and so on. One Fed source even credits William McChesney Martin with battling for the accord on the Fed's part. One problem with that is that McChesney Martin was involved in the negotiations, but for the Treasury; he was not at the Fed. He was rewarded with a chairmanship of the Fed by Truman, who was so annoyed by the accord that the previous Fed chairman, Thomas McCabe, had reached, that he fired him and gave McChesney Martin the job.

Here you have the Fed saying that McChesney Martin got the Fed from under the Treasury's thumb. But Martin himself subscribed to what he later called the notion of "independence for the Fed within government." That's what he called it. I'll tell you exactly what this means. It means that the Fed could be independent so long as it did whatever the Administration wanted it to do. There are actually memos in Arthur Burns's diaries [and in Martin's writings] where [they say] things to the Fed Board like, "We have to do what Nixon wants because they are threatening to take away our independence if we don't." So there's Fed independence for you. Even Volcker's anti-inflation campaign had nothing to do with Fed independence; at that time, the Administration—and Carter's Administration, too, which appointed Volcker—had turned the focus to fighting inflation. So now the Fed was still doing the Administration's bidding, it just so happened that it was not inflating for it, it was *dis*inflating.

The way the Fed tries to say that its performance has actually been successful with regard to such things as price level stability...well, it has to be very careful, of course, because there are statistics about this sort of thing. But here is an example—I think this is from the Atlanta Fed. One Fed publication says: "Fluctuations in the purchasing power of gold"—this is by way of saying that the old system wasn't any good—"made gold a poor standard on which to base our measure of value, and that made trade difficult, since no one knew what a dollar would buy from day to day." The publication goes on to say, "When we got away from the gold standard, finally we could have a stable measure of value." Well, maybe we could, but we didn't.

There is inflation, the big red blob; there is the Fed, Superman jamming his elbow into it, trying to get that inflation out of the system.

The other thing the Fed does with regard to claims about being successful at dealing with inflation is to treat inflation as some kind of problem that invades the economy from without, so the Fed is always

fighting the inflation. There is inflation, the big red blob; there is the Fed, Superman jamming his elbow into it, trying to get that inflation out of the system. Another Federal Reserve Bank of Atlanta publication: "The price level begins to rise; central banks like the Fed will try to adjust monetary policy in order to slow this advance if the price level begins to rise." Well, how come it is beginning to rise? Who did that?

I was going to talk about deflation; suffice it to say that sometimes deflation is good. Well, it was good, mostly, when it happened before the Fed. But there are bad deflations that involve collapses of spending; all the worst ones have happened since the Fed. This episode comes to mind as another problem for the Fed. In his George Washington University lecture, Bernanke talks about what I now call the Frank Capra theory of bank crises. The crises happen because everybody panics, runs on the bank, and then what do you do? But if you have a good central bank, it can come to the rescue. Bernanke actually uses Frank Capra's movie to illustrate how this sort of thing can happen. There is a good reason for that: There have never been random panics in U.S. history—not even in the '30s. The big run in 1933 was a panic, all right, but it was because people suddenly realized that FDR [President Franklin Delano Roosevelt] might devalue the dollar, so they were running on gold. In any event, the Fed wasn't legally allowed to bail out building and loan associations, so it couldn't possibly have done Bailey's Bank any good. It didn't do many banks any good, as we all know—even though the Fed was there during the Great Depression. It was supposed to stop runs.

[In] a record of actual bank failures in the U.S., viewed either by total number of failures or by deposits, [the problem of bank failure] actually got worse after the creation of the Fed. Now, it's not all the Fed's fault, of course. There is a lot going on, namely problems in agriculture, but for the Fed to claim that it has improved things, it would have to explain why these numbers go way up after 1914, not down. Now, after 1934, for many years you have fewer bank failures, but that's not the Fed, that's the FDIC [Federal Deposit Insurance Corporation], and before it, the RFC [Reconstruction Finance Corporation].

Deposit insurance would eventually create a big moral-hazard problem, especially after the repeal of Regulation Q, but far worse was the doctrine of "too big to fail," which really started with the bailout of Continental Illinois Bank in Chicago in 1984. That is what I wanted to add to what Larry had to say about the Fed's conduct in the crisis. The Fed's behavior in the crisis, among other things it did wrong, was to not act according to the classical notion of the lender of last resort. Now, the Fed—Bernanke in particular—pays a lot of lip service to Bagehot, to lend at a high rate freely on good collateral. But the whole idea of Bagehot's rule is that you are not going to hold out the hope of a rescue for any insolvent institutions.

Now, the problem was not that the Fed only bailed out obviously insolvent institutions. In fact, from that perspective, it seems to have done the right thing. It bailed out Bear Stearns, but Bear might have been solvent. But then it didn't bail out Lehman, which was definitely insolvent. The problem, though, is what it said when it bailed out Bear. Geithner, Bernanke, and others all said, "We're doing this because it's big and systematically important." They didn't say, "We're doing this only because it's solvent." That was "too big to fail." As soon as that doctrine was made the basis for the rescue, of course, Lehman and every other bank or financial institution that was bigger than Bear had every reason to think that whether it was solvent or not, it was going to get bailed out, and the creditors acted accordingly. So when they didn't get bailed out, of course the disaster was huge.

There has never been a recovery worse than this. Never. Nothing like it.

One of the biggest successes of the Fed was to claim that it has done a great job combating the recent crisis and expediting recovery. I'm reminded of an episode from *The Beverly Hillbillies* where the word gets out that Granny has a cure for the common cold. A whole episode is spent with people trying to get the cure out of her, because, of course, they could really make hay with it. But then at the very end, finally Granny fesses up and says, "Yes, you just take some of this potion, and in a week to ten days, you're going to be good as new." The difference is that the recovery from the recent crisis has been one of the worst recoveries ever. It has been extremely slow, whether you look at the rate at which output recovered or—worse still—the rate at which employment recovered. There has never been a recovery worse than this. Never. Nothing like it.

Of course, the implication is—and it is especially true if you go back and look at 19th-century

crises—that doing nothing would have been better than what the Fed did. At least there is no reason to think otherwise. Yet we have economists who claim that had it not been for the Fed, we would have had another Great Depression. This is a counsel of despair, of course. If the Fed creates the second-worst crisis in U.S. history, instead of calling that a bad thing, you refer to the first-worst crisis in order to claim that this was actually a success. This is what I call making lemonade out of your very worst lemons. Thank you very much.

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The Fed's Performance During the 2008 Crisis

Gerald Dwyer

I am pretty libertarian, actually, and in some ways I feel like I've been invited into the lion's den. But I don't *really* feel that way. You'll find out what I think. Sometimes I have been introduced as Milton Friedman's last student. I was asked to talk about the Federal Reserve—what they did in the financial crisis, how they handled it all. Now that I'm not at the Federal Reserve, [I can] say: Well, what do I think about the various things that were done? What are the arguments that could be made, on one side or the other? You can decide what you think. Different people come to different conclusions. A lot of discussions are about counterfactuals, in the sense [that] if you had done something different, then something different would have happened. We don't really know for sure what would have happened, because we haven't run that version of the world, nor can we.

The Fed has done a lot of things. It bailed out some of the creditors in Bear Stearns; it let Lehman Brothers go into bankruptcy; it bailed out some creditors in AIG—mostly foreign banks; it has had a lot of programs to provide funds to banks and other firms; and you have the Troubled Asset Relief Program (TARP), which nobody has mentioned yet. The Federal Reserve was involved in doing that, in the sense that Bernanke was sitting at the table when they were twisting banks' arms to take funds. I view TARP as part of the response to the financial crisis. You don't have to, but I do. So I'm going to talk about all those things.

I want to start off with the beginning, so that we remember how this happened. Let's leave aside the low-interest-rate stuff—maybe that is correct, maybe it is not correct. Again, that is a counterfactual, and there is actually not a lot of evidence. But we can be sure of one thing: The financial crisis revolved around housing. It also revolved around securities—specific securities, actually: what are called "collateralized debt obligations"—backed by subprime mortgages. From the beginning of 2006 through 2012, some of these securities fell by—20 percent, 60 percent, over 60 percent, 80 percent. A lot of securities that were rated double-A in 2007 had become totally worthless by 2009. All of these were backed by subprime mortgages. I am not saying this caused the crisis—that's for sure—because it was a consequence of the crisis. But these securities were intimately involved in the way [the crisis] unfolded. I will explain that.

LIBOR—the London Interbank Offered Rate—is intended to be a measure of the perceived riskiness of lending to banks. Early on—in 2006, in the first half of 2007—it was really close to zero. This is really just marginal risk, transactions cost. Then from 2009 onwards, it was a lot lower—not as low as it was before, but it was pretty low—and in between, it has some really big spikes. Those spikes are informative about various developments and how important they were.

What were those developments? The first thing that happened is August 9, 2007. What happened on August 9, 2007? Why would I even mention that? BNP Paribas, French banking group, actually suspended a redemptions fund that was holding these securities. The European Central Bank (ECB) provided funds to BNP Paribas. Then what was the next big jump? It was a run on a bank in the U.K. called Northern Rock. In fact, Northern Rock failed; the English government still owns it.

What was the next big peak? Well, it was the end of the year. And what is after that? After that, is really what we think of as the crisis. September 16, 2008, there was a huge jump. Then there was another big jump—the run on the money market funds. I am going to argue that that is actually central to understanding the financial crisis. You may not have thought about it—or you may have thought about it, or you may already think it is a central thing—but I am going to

argue that it is central to understanding the developments, what the Fed did, and what it didn't do.

What is related to that, and to a set of interest rates that I'm going to focus on more now that I have the dates, is commercial paper rates—that is, rates at which firms borrow on a short-term basis. This is 30-day commercial paper. So they borrow for 30 days. The other thing it shows is Treasury security rates. Commercial paper rates ticked up on certain dates, like August 9, 2007. Treasury rates actually drop. It's what is called a flight to quality—people bailed out of commercial paper and said, "Wow, I really want to be in Treasury securities. Maybe they are not very good long-term, but on a short-term basis, if I buy Treasury securities, they are what I call nominally risk-free. If the government promises to pay me $100, it will pay me $100. Now, what that $100 will buy, that's a different question. But I'll get my $100, at least—whereas with commercial paper, you may not get your $100."

The run on Northern Rock at the end of the year, the run on the money market funds—these things had implications through financial markets and the way [the crisis] developed and everything else. I mention those two things in combination because a key aspect of the financial crisis was that people couldn't figure out who was solvent and who was not. Why? Because investors were holding these collateralized debt obligations, and they were not sure what they were worth. (I have a couple of papers related to this issue, and I am happy to provide them, of course.) But people were concerned about the solvency of institutions. That made them concerned about lending. That is why you have this LIBOR (less OIS, the overnight index swap) rate going on.

The run on Northern Rock got people concerned. Northern Rock did not hold these securities, by the way. It did write mortgages in the U.K.

Government investment funds in the U.S. [also became a concern]. The Florida government pool was like a money market fund. It held some of these securities, and they went down in value, and they actually had a run. I had no idea there was such a thing as government investment pools until the run on the Florida one. I was at the Atlanta Fed—Florida is not that far away—and it is in the district. Bear Stearns—there are firms called monoline insurers. Those are firms that just sell one kind of insurance. Monoline insurers actually guarantee municipal debt. But they were also issuing credit-default swaps related to these securities. So they became insolvent.

The credit-rating agencies—when you look at something like triple-A securities, and over the course of a year and a half they fall by 80 percent, you start to wonder, What are the credit rating agencies doing? Now, these are different securities. Everybody loves to hate the credit-rating agencies. There is not a financial economist out there—except maybe me—who doesn't want to pile on them.

Bear Stearns was taken over by JP Morgan Chase with Fed involvement—they still have some stuff on their books—in March of 2008. Fannie and Freddie were put into conservatorship on September 7, 2008. They were government-sponsored enterprises; everybody thought nothing could possibly go wrong there. Well, they were holding securities related to subprime mortgages.

This was a run on the money market fund, and that is what you got. It was not a big loss.

September 15: The Bank of America announced the purchase of Merrill Lynch; Lehman Brothers filed for bankruptcy, and that was when everything went really bad. September 16: AIG was given $85 billion to make a "bridge loan" by the Fed and reserve primary fund breaks [in] the black. The reserve primary fund is related to those developments up above. Reserve Primary Fund: It was a money market fund. Prime funds hold commercial paper in addition to holding Treasury securities, and then you have Treasury funds that only hold Treasury securities. So they were holding Lehman paper; Lehman filed for bankruptcy; that paper was not worth what it was before. It doesn't take a big difference, a big fall in value. If you say, This money market fund, they'll pay me a dollar—well, they have losses. Maybe if I wait a week I'll only get 99 cents; well, take the dollar. Why would you want to wait to get 99 cents later? So everybody wants to take their money out now.

This was a run on the money market fund, and that is what you got. It was not a big loss. Reserve Primary Fund [shareholders] actually calculated: Okay, suppose that the Lehman Brothers paper is worthless; then how much are our assets worth? It was 97 cents on the dollar. So it wasn't like it was 50 cents on the dollar or anything like that, but it doesn't take very much—it's just like a bank, actually. If you think they

might not have the money, you want to be the first one in line. This is a picture from the Depression. If there are runs on banks, you want to be there early. You want to be there, and you want to get your money out of the bank, and if other people don't get all their money, well, it's their problem. You feel bad for them, but it's not going to make you wait until after they get their money.

The run on the money market funds was like that. There were no lines like that; money market funds don't operate that way, where you go into the office and get your funds and all of that. What you do is you call them up—or now you go online—transfer the funds from your money market account to your bank account, and you're out of there and in great shape.

Looking at the change in the quantities in the money market funds, the total only went down a little, actually, so it was not a run on funds in general. But it was a run on prime funds. [With] the failure of Lehman Brothers—bankruptcy filing, to be precise—the money market funds went down. Government funds went up. People said: "Oh, you're holding Treasury securities; I'll get my money. Oh, you're holding commercial paper, maybe I'll get my money, maybe I won't. I think I like getting it for sure better."

This showed up in interest rates. I want to highlight that big spike with the run on money market funds. So you had a big increase in commercial paper rates, and you had a decrease in Treasury rates basically down to zero. If I could get my dollar back 30 days from now, hey, that's good. By the time you got to the middle of September in 2008—now remember, the stock market did not go down that week this much, but it did end up going down in the U.S. almost 50 percent—people's retirement accounts were evaporating, so [at this time] Treasury paper looked pretty good.

So you have this run, and it is showing through interest rates. It's not like a run on the prime money market funds [was] the end of it. It was really tough for the prime money market funds, or for the people who have deposits in it, but it was affecting financial markets as well. It was affecting Treasury rates; it was affecting commercial paper rates.

Now, there is an argument you can make—I have a little bit of trouble with this, as an economist, in the following way. There is a big increase in this interest rate—it's up to 6 percent. That's a big rate? It doesn't sound all that big. Now, at the time, people were saying they were locked out of the market; that is, they couldn't borrow at any rate. Why were people borrowing? At some interest rate, people will loan to you. A loan shark will give you money if nobody else will. Now, if you are a treasurer of General Electric, for example, you probably don't want to go to a loan shark. It doesn't really sound like a good deal.

So firms were having trouble borrowing. They borrow on commercial paper to do things like make payroll; they borrow on commercial paper to do things like pay for goods that they bought so that they can make other things. It was all very disruptive. Now, life itself is disruptive. But on the other hand, this was a significant event in the economy, and maybe you could do something about it, and it [would not be] as big.

Now, why did the Federal Reserve do anything at all? You could argue that the Federal Reserve was a mistake from day zero—I don't want to go there at the moment. It's just not the topic I'm supposed to talk about. So the Fed was created to do something about banking panics. Now, the Great Depression, without a doubt, was partly the Federal Reserve's fault, but let's leave that aside. The thing is that when people in the U.S.—at least my age, even, certainly my mother's age—when my mother thought about the financial crisis, she thought: Oh no, this is like the start of the Depression. Obviously I have gray hair, so my mother was relatively old, too. But nonetheless, it is what we think of because we don't have these little crises, little banking panics, anymore that we used to have before. We used to have them every 10 or 20 years, for better or for worse.

Now, why did the Federal Reserve do anything at all?

So the Federal Reserve intervened. Now, the contraction during the recession in the United States [was] –5.64 percent. Now, suppose we compare that to [three] contractions before the Federal Reserve and to the Great Depression. This contraction was –5.64 [percent]; the severe business cycles with runs on banks before the creation of the Federal Reserve are 1.83 [percent]; –11.75 [percent], that was much bigger; –12.58 [percent], that was much bigger; the declines in real GNP were much bigger; and then the Depression, of course, that was really horrible.

The decline in real GNP [gross national product] for having a severe banking crisis was relatively small.

Now, maybe that was [due to the] Federal Reserve, maybe not. I am going to argue it was in part, actually. If we look at what led to all of this, part of [it was] the unemployment rate. From 1980 up to 2008, there were not very many recessions. The increases in unemployment were not particularly big. Of course, when we get to 2008, that was really bad. So we have this period that was relatively quiet and calm, and then we had a big increase.

One of the things that monetary policy—at least from my point of view—is supposed to do is control the growth rate of the money supply and make it consistent, in some sense, with reasonable behavior by the economy. What it might do during a financial crisis or a run on banks is keep the growth rate of the money supply from falling like it did during the Depression. From 2007 to 2013, the growth rate of the money supply is kind of knocking around. It actually went up a little bit after the financial crisis, but it was pretty steady. You wouldn't really know, Oh, this is the biggest—the only financial crisis of my life occurred during this period. It was really pretty steady. Arguably that is one of the reasons why the decline in real GNP was not as bad as it could have been otherwise.

Now, the monetary base is something else again. The monetary base, this is currency plus reserves. This is what is on the Federal Reserve balance sheet or is related to it, and this behaved quite differently; that is, it was pretty flat, and it has really gone up quite a lot. That is quantitative easing at work.

One of the things that lots of people are worried about: They look at the Federal Reserve's balance sheet, and they have a lot of currency and reserves out there; might that not cause inflation? This is a Zimbabwean hundred-trillion-dollar bill. They had lots of inflation. You could buy ten of these for seven dollars on eBay—that gives you some idea of how much inflation there was. Brand-new ones, not used ones.

So quantitative easing worries people, because you have all this currency in reserves; this could turn into growth of the money supply. It doesn't have to; it could. So what is my evaluation of it? Quantitative easing, I think, cannot accomplish the goal of lowering the unemployment rate substantially. I don't think the Fed can change the unemployment rate predictably, but at the very least, quantitative easing is unlikely to have any big effect on the unemployment rate. If you want to affect the real economy, [quantitative easing] is a particularly poor way of doing it.

Larry talked about the Federal Reserve as credit allocator. I think that is a really bad idea, because it gets the Fed involved in allocating credit across sectors of the economy. That puts it in a very different position than just being a central bank in the sense of controlling inflation. So it seems to me like quantitative easing is running a large risk for a small or nonexistent effect.

Now, the financial crisis itself, could it have been handled better? The answer is: Sure. It is always easier after the fact. People did the best they could given what they knew, and that is the good news and the bad news. The good news is, they are not malevolent; they were not trying to make things worse. They were doing the best they could, given what they knew at the time.

So how about all these actions that were taken along the way? What do I think about those? This is a big thing: Bear Stearns, Lehman Brothers, and AIG were inconsistent. Arguably, this was the single biggest problem in everything that occurred. Some people think about this a lot; most people don't think about it at all. Bear Stearns, the creditors were bailed out. The stockholders got some value out of it. Lehman Brothers was allowed to fail. AIG was an insurance company—it wasn't even a bank. It wasn't even an investment bank. It was bailed out. It was bailed out the day after Lehman Brothers was allowed to fail. At that point, all you could say was, What are they doing? I don't know. This is exactly what you don't want during a financial crisis—people are uncertain. They are already uncertain; you're making them more uncertain, because now they don't know what you are going to do.

So how about all these actions that were taken along the way? What do I think about those? This is a big thing: Bear Stearns, Lehman Brothers, and AIG were inconsistent. Arguably, this was the single biggest problem in everything that occurred.

Now, most of the people I know at the Federal Reserve say, "So we should have bailed out Lehman Brothers, obviously." I go the opposite way, and I say, "No, they should have all been allowed to fail."

How about TARP? There were a bunch of liquidity programs, so the Federal Reserve intervened to provide credit to money market funds, for example, provided commercial paper funding to firms. Why? Well, because you had this big spike in commercial paper rates. People were streaming into government securities, so the Federal Reserve provided an alternative source of doing that and provided more government securities for people to hold—which is not obvious, and it was temporary, by the way. Now, I think TARP was a terrible idea, and it wasn't any better in execution.

Quantitative easing, purchases of mortgage-backed securities, and long-term Treasury securities—I think the issue there is: Do you want the Fed to be a credit allocator or not? If you want it to be a credit allocator, this is a great deal. If you don't, it's not. It's really that simple.

So I think the Federal Reserve should focus on inflation, and I think one thing to be aware of is [that] any kind of fix, restricting behavior in a crisis, is hard to do. If you are in a policy position during a financial crisis, you're not any [more certain] than lots of other people about what is going on or what is going to happen next, and you are going to try to do the best you can. That is not necessarily a good thing, but that is what people are going to do, and that is actually what they did.

—***Gerald Dwyer*** *is a visiting professor and BB&T scholar at Clemson University*

An Introduction to Bitcoin and Its Regulatory Environment

George Gilder

We're at Heritage today to talk about bitcoin. Why should bitcoin be of interest to Heritage? Heritage is a conservative organization that tends to support the dollar, the existing financial structure, to some degree. Why is there a fundamental need for conservatives to confront the bitcoin challenge and bitcoin opportunity?

I think it's because of a fundamental problem in the economic ideology that originated with one of all our heroes, Milton Friedman. Milton Friedman was the great exponent of libertarian and conservative economics—really probably the greatest of this era. Yet there was a fundamental division between his libertarian affirmations of celebrations of human freedom and his monetary theory that assumed that money was necessarily a centralized function of government. This division has really paralyzed conservatives in addressing the issues of money.

When I was in China with Friedman in 1998, his chief advice for the Communist government of China at that time was, Get control of your money supply. He believed that money was necessarily a centralized function, and it derived from his canonical formula: MV = PT. That is, money times velocity of money (turnover of money) equals prices times transactions, or general nominal output across the economy, roughly. The reason his focus was on the money supply is that he believed that M ruled, in MV = PT. He believed that the money supply ruled—that velocity was kind of a psychological factor that was exogenous to the system—that the money supply itself ruled the economy, and that you had to have some kind of central governance of the money supply.

The last 20 years have almost completely demolished these assumptions. The velocity has been wildly gyrating for the last 20 years, and for the last 30 years in Japan, where there was a vast quadrupling of the money supply with virtually no impact on economic activity. As it turns out, V is how we control money. Fundamentally, we've demonstrated over the last 20 years that the people essentially do control money, and thus you do not need to have centralized management of money; indeed, a system like bitcoin—and I think bitcoin is an exemplary digital breakthrough—is an appropriate and desirable resolution of the monetary dilemma that arose with the rise of monetarism within conservative circles, and it's embraced by Keynesians as well. Paul Krugman today is the most passionate exponent of Friedman's monetarism. He cites Friedman regularly in his books and says that this need for centralized control of money is crucial to economic growth and expansion, and other conservatives and liberals join in believing that the money supply has to expand regularly in order to accommodate economic growth.

Again, this is only true if velocity is a constant; if velocity can adapt to whatever monetary conditions obtain, then the steady expansion of the money supply is not needed to accommodate economic growth.

My last book, *Knowledge and Power*, explored the information theory of money and the information theory of capitalism. The heart of it was that wealth is knowledge. We can tell that because material resources haven't expanded since the Stone Age. The only difference between our age and the Stone Age is the growth of knowledge. Knowledge is wealth, and growth is learning. Any capitalist economy is pervaded with learning curves. Every business consultancy supports the concept of the learning curve that shows that with every doubling of total units sold, costs drop between 20 percent and 30 percent. This means that capitalism is intrinsically deflationary, because growth is learning, and throughout capitalist economies, businesses are launching learning curves, and that's how they expand their commerce.

Wealth is knowledge...Material resources haven't expanded since the Stone Age. The only difference between our age and the Stone Age is the growth of knowledge. Knowledge is wealth, and growth is learning.

So what we have here is a real crisis of conservative economics that focuses on money, and we have a solution to this crisis, namely bitcoin, which is emerging from the Internet and represents really a next step in Internet infrastructure. Because the Internet currently only comprises about 6 percent of global commerce, a new infrastructure of the Internet does not threaten the whole structure of global currencies;

it's a necessary next step for Internet commerce. It's peer-to-peer, it's global, it's distributed, and it thus is perfectly adaptable to a global Internet that increasingly has to accommodate commerce from around the globe.

It's also an advance in information theory. Information theory is really the foundation of the Internet and the computer age. Claude Shannon is the most notable exponent of it. In 1948, he developed the information theory as a way to gauge the bandwidth of networks. In order to build global networks, you need to be able to measure information, which is what is passed across global networks, and his measure of information was chiefly surprisal—that is, unexpected bits. If everything I tell you today you already know, no information is being transmitted. Information is unexpected bits.

I believe the Internet today suffers from the limitations of Shannon information. All across the network, we have information that is not qualitatively differentiated. It is measured chiefly by its unexpectedness. Bitcoin represents a new step in information theory that allows the Internet not only to transmit information in Shannon terms—in raw bits and bytes—but also to have provable transactions, contracts, titles, time-stamped data, provable facts, patents. All the various instruments of a commercial civilization are not really possible today on the Internet without resort to parties beyond the Internet.

By incorporating bitcoin, we can move to a new generation of Internet commerce that can accommodate an "Internet of things," where you have constant transactions between machines that can't readily tap resources outside the Internet or run their transactions through banks. We can have micropayments, which are critical to avoiding the current corruption of the Internet by the constant promise of free goods. Free goods are a contradiction in terms; there's no such thing. Because the Internet is constantly driven to offer free goods in the absence of micropayments that were suitable to small transactions, we have constant offer of free things in exchange for our mother's maiden name, the last four numbers of our Social Security Number, the security codes on our credit cards. In order to do a transaction on the Internet, we really have to relinquish enough information to allow our very identities to be phished or usurped.

There is a real crisis on the Internet that is the counterpart of the crisis in global currencies that brought down the world economy over the last 10 years and has plunged the world into economic stagnation over the last few years. The current financial system is really preposterous on the surface if you contemplate it. Wall Street really likes volatile currencies. It likes currency volatility with the downsides protected by government. Main Street and Silicon Valley want stable currencies for long-term commitments with the upside protected by the rule of law. The future of our economy will depend on whether the power brokers chiefly prevail with volatile currencies and currency trading, which now really dominates financial transactions in the world.

Currency trading is 100 times larger than all the trading in the stock market put together. It's 25 times larger than all the world trade in goods and services. It's preposterous that most of the transactions in the world revolve around shuffling currencies back and forth. The banks that really focus on trading currencies are not going to tell you this, but this really is a crisis of the world economy, and we need stable long-term money to accommodate long-term commitments of new learning curves of capitalism. I think bitcoin is the open-sourced, distributed global system that will start as infrastructure for the Internet and new information, theoretical advances for the Internet, and then will grow as Internet commerce grows, as enabled by a new infrastructure for global networks.

*—**George Gilder** is the Co-founder of the Discovery Institute and the Chair of the Institute's Center on Wealth, Poverty, and Morality.*

Nominal Gross Domestic Product Targeting as a Policy Rule

Scott Sumner

Nominal GDP [gross domestic product] targeting—which I'm actually not going to get to for about 15 minutes—is something that, interestingly, has bipartisan support in the economics community. There have been a number of economists—George Selgin is a good example—who have talked about this over the years, and [Vennitt McHelms] and other prominent right-of-center economists have done so, but recently a lot of economists on the left or center-left have endorsed nominal GDP targeting. I see this as not a particularly ideological proposal, but as a pragmatic solution for monetary policy—making it so monetary policy does less damage, or the least amount of damage possible.

Now, before I get into nominal GDP targeting, I am going to spend some time talking about the crisis period. My perception of what actually happened is different from how most people on either side of the spectrum view the crisis, and I am going to argue that if you look at it this way, it makes the case for nominal GDP targeting much more powerful. I'm going to argue that a lot of people on the Right have misinterpreted the recession. It is possible that money was too easy in the period leading up to the housing bubble, but I don't think that was really the primary cause of the recession. Even if in retrospect [money] should have been a little bit tighter, it was not easy enough that you could really explain something like a great recession as resulting from it. We have had much more expansionary monetary policy in other decades, other recent decades—higher inflation rates, higher nominal GDP growth rates—without being followed by this kind of crisis. So I think we have to look a little deeper.

As far as the name "market monetarist," obviously this is a nod toward the traditional monetarists like Milton Friedman. He passed away in 2006, but I believe if he were alive today, he would be sympathetic to at least some of the ideas I am presenting today—not all, certainly, but at least some of the key ideas. So that is something to keep in mind.

Now, this is a quote I like that will hopefully get you in the right frame of mind to be receptive to what I am going to claim, from Ludwig Wittgenstein: "Why do people always say it was natural for man to assume that the sun went around the earth rather than the earth was rotating?" His friend replied, "Well, obviously because it just looks as though the sun is going around the earth." Wittgenstein responded, "Well, what would it look like if it looked as though the earth was rotating?" I am going to ask you to consider over the next few minutes what the last six years would look like if the market monetarists' interpretation was right, and I am going to try to claim that it would look exactly like it has played out—very different from what you might have assumed.

Now, this is more the consensus view. This is from Robert Hall, a very prominent macroeconomist. It is the very first paragraph of a survey article discussing the crisis, published a few years ago. What struck me when I started reading this article is that the first few sentences seemed almost entirely incorrect—incorrect in kind of an interesting way. Let's start with the first two: "The worst financial crisis in the history of the U.S. and many other countries started in 1929. The Great Depression followed."[5] I don't think that is accurate. The severe financial crisis that occurred about that time actually occurred in 1931. There was a major international financial crisis.

Now, why am I so picky about the dates? Because I would argue that a more reasonable interpretation is that the Great Depression caused the financial crisis of 1931. So he's reversing causality. The huge plunge in prices and incomes and output during the period from 1929 to 1933 led to some of the bank failures, the international currency crises, and so on—international debt crises.

I would argue that a more reasonable interpretation is that the Great Depression caused the financial crisis of 1931.

Next sentence: "The second worst [financial crisis] struck in the fall of 2008, and the Great Recession followed." Actually, the Great Recession began about the beginning of 2008, and more importantly, it intensified about the middle of the year in 2008. Now, GDP data is only available quarterly, but macroeconomics advisers estimate monthly GDP by looking at the components that they build it out of. So these monthly estimates show that real GDP took a significant plunge between June and December of 2008. I

am going to refer to this six-month period again and again over the next few minutes, because I think that is really when the key mistake was made: between June and December of 2008. Even in early 2009, the economy got a little bit worse, but most of the decline took place in late 2008.

Now, the crisis that Robert Hall was referring to took place after Lehman failed in September of 2008, and especially in October and November, the international banking crisis got quite severe. I would argue that that crisis was partly caused by the Great Recession, much like the earlier 1931 crisis was caused by the Great Depression. Now, to be fair, I am not suggesting that all of our financial problems were caused by the recession. So for instance: The subprime problems developed earlier and really reflected other problems with our banking system, which I would argue is due to moral hazard and inept regulation and so on. But the intensification of the crisis—and it got much worse in the second half of 2008—I think was due to macroeconomic policy errors.

Now, if you look at nominal GDP, you see almost an identical pattern: peaking in June, and by December most of the decline took place. I believe nominal GDP is the best indicator of the stance of monetary policy, so this is an indication that monetary policy was too tight during this period of time and that the fall in real GDP was resulting from essentially inaccessibly contractionary monetary policy.

Now, this is where I have two big problems convincing audiences—whether it is an audience of noneconomists or economists, I run into the same problem. Two things: People think it is crazy to suggest that monetary policy rather than the financial crisis caused the Great Recession, and they think it's double crazy to claim that monetary policy was contractionary during 2008 when the Federal Reserve was cutting interest rates and, toward the end of the year, pumping money into the banking system. So we have to look at those objections as well.

Now, the number-one textbook of monetary economics in the U.S. is written by Frederic Mishkin; he is a moderate, well-respected economist at Columbia. He served on the Federal Reserve Board. He summarizes his views on monetary policy and makes several points that he believes were very important, and yet that I believe were almost completely ignored in 2008. The first one is that it is dangerous to associate easing or tightening of monetary policy with a fall or rise in short-term nominal rates. In other words, low interest rates don't mean easy money. Yet when I started blogging—and partly the reason I started blogging—all I was seeing in the media was, "the Fed has very low interest rates, therefore money is easy." Yet we have been teaching our students exactly the opposite over the recent decades.

Monetary policy can be highly effective in reviving a weak economy even if short-term rates are already near zero. Again, everything I was reading in early 2009 when I started blogging was: There is nothing the Fed can do; interest rates have already been cut close to zero. So it really struck me as odd that we have been teaching our students this for years, but even many mainstream economists didn't seem to believe what was in the textbooks. I think the truth is actually in the textbooks, and we were reacting to the crisis in an irrational way—especially in the intense period of late 2008 and early 2009.

It is dangerous to associate easing or tightening of monetary policy with a fall or rise in short-term nominal rates.

Other asset prices besides short-term debt instruments contain important information about the stance of monetary policy. In the next few minutes, I will show you that almost every other asset price was signaling extremely tight money in late 2008. Here is Milton Friedman, making sort of a similar point to Mishkin: "Low interest rates are generally a sign that money has been tight"—and notice, he is not saying it is always tight at the moment interest rates are low, because it is true that if you cut interest rates, on that particular day you have eased monetary policy. Friedman would agree with that. But what Friedman is really saying here is that if you have had in the past a period of contractionary policy, it will drive an economy toward deflation or recession or depression, and those economic forces will result in low interest rates. So when interest rates have been low for an extended period of time—like in Japan in recent decades—it is because they have pursued deflationary monetary policy, not because they have a very expansionary monetary policy. Again, this is very different from the newspaper interpretation of what goes on with monetary policy.

And notice the last phrase there: "I thought the fallacy of identifying tight money with high interest

rates and easy money with low rates was dead; apparently old fallacies never die." Unfortunately, he wasn't alive to instruct us on this recent crisis, but I had this same feeling. I was really surprised to find in 2008 and 2009 that a lot of my colleagues did not agree with me as to low interest rates not being a good indicator. Now, some of my colleagues will say, oh yeah, that's true; nominal interest rates are not reliable because of inflation. Certainly, if you have hyperinflation, you will have high interest rates; that does not mean tight money. It means easy money if you have hyperinflation, yet interest rates will be high.

So they accept that, but then they will say: Surely real interest rates are reliable. In fact, real interest rates are also not reliable, but what really interests me is that most of them had never looked at the second half of 2008. If you want to look at real interest rates between July and the end of November, the real interest rate on what is called a TIPS—that is a Treasury bond indexed to inflation—went from a little over 0.5 percent to over 4 percent. That is one of the sharpest rises in real Treasury yields ever seen in a short period of time—five months. So if economists really believe that, no, it is real interest rates that matter, they should have been complaining about extremely tight Fed policy in the second half of 2008. Apparently they weren't paying much attention.

Commodity prices—here is another indicator—fell by half in the second half of 2008. Obviously that is not an expansionary monetary policy. The value of the dollar rose about 15 percent against other currencies on average in the second half of 2008. Now, here is what makes the dollar especially interesting. A lot of people will tell me, whenever there is a big banking crisis, a long and deep recession [is inevitable], and there is a book by Kenneth Rogoff and Carmen Reinhart that cited some data to this effect. Actually it is not inevitable, but it does often occur.

But one thing that they overlook is that most of the world's financial crises were very different from the U.S. case this time around. In almost every case, the currency will depreciate sharply in the teeth of the crisis—whether it is the Mexican peso, the Thai baht, the Russian ruble, whatever—you see those currencies fall sharply. Here is the dollar right in the teeth of our post–Lehman Brothers crisis, appreciating strongly. Has this ever happened before where a currency has appreciated strongly in a financial crisis? Yes. The dollar in the early '30s was appreciating against other currencies like the British pound. Argentina around the turn of the century had a contractionary monetary policy, and it was tied to a rising dollar, so the Argentine currency was actually rising against most currencies around the world, and Argentina had deflation.

Interestingly, those two cases—Argentina around the turn of the century and America in the early '30s—are now viewed by most economists as contractionary monetary policies. So I believe someday there will be a re-evaluation here. Other asset markets, stocks crashed in late 2008; commercial real estate prices, which had held up for the first two years of the subprime debacle, when it was concentrated in housing mortgage problems, started going down when nominal GDP fell. Residential real estate in states that didn't have a bubble, like Texas and a lot of heartland states, started to fall in price only in the second half of 2008. Prices fell much earlier in the so-called bubble states like Nevada, California, Arizona, and so on.

One thing that they overlook is that most of the world's financial crises were very different from the U.S. case this time around.

TIPS spreads indicating inflation expectations fell very sharply in late 2008. This is one of the most amazing quotes I found in my years of blogging. So I have already given you Mishkin and Friedman; here is Ben Bernanke talking before he was head of the Federal Reserve, when he could freely speak his mind. Notice, he is saying money growth and interest rates are not reliable indicators of the stance of monetary policy—the same sort of things you get in Mishkin. Well, Friedman would not like interest rates; he might go with money supply. But then Bernanke ends up saying we need to look at indicators like nominal GDP growth and inflation.

Now, why do I like nominal GDP growth better? Inflation can affect either demand-side factors—excessive spending—or supply shocks—bad regulations, energy crisis, whatever—which also could be inflationary. But those are actually two very different types of inflation with different effects on the economy. So nominal GDP growth is really the one that gives you the best indicator of whether a monetary policy is too expansionary or not. Even though if you

average these two—and this is an important point—the five years after mid-2008, if we simply average these two that Ben Bernanke said are the right indicator, we had the tightest monetary policy since Herbert Hoover was President, the tightest since the early '30s.

Now, Ben Bernanke during this period was saying that monetary policy was extraordinarily accommodative, meaning expansionary. I think in fairness—I personally like Ben Bernanke; I think he was trying to do a good job—he was not really free to speak his mind as an academic could when he wrote this. What is interesting to me is that if you look at what he said as an academic, it is exactly the opposite of what he said as chairman of the Federal Reserve. I don't know if he has changed his mind or if he just wasn't able to speak completely freely.

Anyway, one counterargument I get is that while these low interest rates are not a sign of a weak economy or low inflation or whatever, they are caused by recent Fed policy: all the quantitative easing, buying all the government bonds, and so on. But one thing I would point out is that long-term real interest rates have been declining for many decades. I don't know all the reasons why, but I suspect it probably has something to do with the fact that not just in the U.S. but globally, the trend rate of real GDP growth seems to be slowing—perhaps for a number of reasons—and that may have nothing to do with monetary policy. These are real interest rates, by the way, going down from the 7 [percent] to 10 [percent] range in the early '80s to close to zero on the 10-year bond today. So [the slowdown] doesn't seem like it is just something that began with this crisis, but it's part of a longer-term trend.

Here is the rise in the amount of debt outstanding, and [here is] the amount that is purchased by the Fed. The quantitative easing (QE) 3 program pushed this [purchased amount] somewhat higher. But the deficit is also rising every year. So even though the Fed has bought a lot of debt, the amount that the Fed does not own that the Treasury has to sell to the public is still increasing a lot. So it is not the case that interest rates are low because the Fed is buying all this debt and the government doesn't have to sell it to the public anymore, but that is a common misperception.

Another argument I get is that this was just a bubble; we had a real estate bubble, it burst, and that is the end of the story. There are all kinds of problems with this. First of all, bubbles are actually very hard to spot or even to define. What exactly does the word "bubble" mean? If markets are efficient, there should not really be bubbles that are irrational. That is, there shouldn't be a point where it is obvious that prices have to fall. Now, in retrospect, a lot of people believe that when American housing prices went up so high in 2006, they were clearly overvalued and obviously had to fall back to reality. On the other hand, if you look at some other English-speaking countries, you will see that four other English-speaking countries that also had big run-ups in house prices—Australia, Canada, New Zealand, and Britain—never crashed; they are still up at high levels. If you look at more countries, you see the same sort of pattern. Some went up and leveled off, some went up and went higher, a few went down—so it is not necessarily the case that what goes up has to go down. Partly, probably there were irrational decisions in the U.S. housing market, in retrospect, but I think the severity of the recession in the U.S. also contributed to the downturn.

When nominal GDP started falling sharply in the second half of 2008, that was when unemployment soared in all sorts of industries.

Now, if you look at the unemployment rate, we had two years and three months of declining housing production—look at the data, from over two million starts at an annual rate to about a million starts on April 2008. In that 27-month period, the unemployment rate barely budged; in fact, 5 percent is considered roughly full employment. Then we had another decline during the Great Recession, which was actually smaller than the first one, and unemployment doubled to 10 percent. Why did unemployment rise so much more in the second period? Because during the initial decline in housing, the rest of the economy was still growing, because nominal GDP was still rising. So jobs lost in housing were being replaced by jobs in manufacturing, export services, and so on. But then when nominal GDP started falling sharply in the second half of 2008, that was when unemployment soared in all sorts of industries.

The banking crisis was already pretty bad in April of 2008 due to the subprime mortgages, but the Great Recession made the estimated losses to the banking system go up a lot—and real GDP and CPI (consumer

price index) forecasts were going down at the same time. So the severity of the Great Recession worsened the banking crisis.

Now we finally get to nominal GDP. I have this model I call the musical-chairs model of the business cycle. It's actually a very simple concept: Nominal income, or nominal GDP—the dollar amount of income—is the resources that we [U.S. employers] have to pay workers' salaries. Total wages and salaries are a big part of GDP—well over half. Now, the problem we have is that hourly wages tend to be kind of sticky, or slow to adjust. So workers sign a contract for a year to be paid at a certain hourly wage rate, typically. When nominal GDP falls suddenly, it need not have any real effect. This is a point worth emphasizing.

I should probably go back and talk a little about where you saw both nominal and real GDP decline at the same time. You might think, well, what do you expect? If we are spending less on goods and services, we would naturally have a recession and vice versa. No. There is no natural link between real and nominal GDP. In 2008, Zimbabwe had a big fall in real GDP, and nominal GDP went up [dramatically] due to inflation. The two variables are not necessarily related at all. They tend to be related in the short run in the United States, due to a quirk of the way our economy and other economies work. The wages and prices are a little bit sticky or slow to adjust in the short run.

So when there is less nominal income, and the hourly wage rate is about the same, there are fewer hours worked. It's that simple. It's like a game of musical chairs, where when you stop the music, you pull away a couple of chairs, and a couple of the contestants will be sitting on the floor. If you suddenly pull away a certain percentage of nominal GDP, some workers will be unemployed. Between the middle of 2008 and the middle of 2009, nominal GDP fell about 4 percent. That doesn't sound like very much, but people usually expect about a 5 percent increase—or did back then; now it is a little slower. So actually nominal GDP fell about 9 percent below the trend rate of growth, so both borrowers and workers signing contracts were anticipating income growth in aggregate much greater than they actually got in 2009.

When this happens, you take the hourly wage rate on average, and you divide it by the nominal GDP per capita. Since nominal GDP is in the denominator, when that falls, the ratio goes up. Essentially, it is more costly to hire workers. Each worker's salary takes up a bigger percentage of nominal income available than before, so there is less money to hire as many workers. This is a very simple model.

As you may know, while the U.S. has done poorly since 2008, Europe has done even more poorly; the nominal GDP growth in Europe, as you can see, is well below [that of] the U.S. That is an extremely low rate for a five-year period. One of the criticisms I often get when I talk about boosting nominal GDP growth is, "Won't this be inflationary?" I would point out that both in the U.S. and even more in the eurozone, inflation is actually running a little bit below the target. So that actually is not the issue right now. I know that is a counterintuitive idea, given all it seems like the Fed has done—lowering interest rates, QE, and so on—but the way monetary policy works, it is kind of like an *Alice in Wonderland* world where things are often upside-down from what they appear. The country that has probably done the least in terms of QE and so on is Australia. They have had the fastest growth in nominal GDP and the highest interest rates among the major developed countries.

When you have a policy that is too contractionary for the needs of the economy, the economy will go into a deep slump with falling inflation—possibly even deflation, as in Japan.

Now, why is that? Well, here is what happens. When you have a policy that is too contractionary for the needs of the economy, the economy will go into a deep slump with falling inflation—possibly even deflation, as in Japan. When that happens, market interest rates will naturally fall, sometimes to zero. At zero interest rates, banks will just sit on a lot of excess reserves, so the central bank will pump money into the banking system, and it will just sit there not circulating in the economy. The low interest rates and all the money pumped into the banking system will look like easy money, but it is more of a defense mechanism by the central bank trying to prevent the Great Recession from being the Great Depression.

Australia did not have a recession this time around—hasn't had one since 1991. They did actually slow during the global crisis of 2008, but if you take a longer span of time, you will notice that from 2006 to 2012, they were still on track with their nominal

growth, which is faster than other developed countries because they have more population growth and so on. So Australia never hit the zero interest rate, they had a healthier economy, and the central bank was able to keep nominal GDP growing at its historical trend rate.

Here are the points I would like to emphasize: Stabilize nominal GDP growth in order to achieve these objectives. Number one: labor market stability. So that is very important. We would like to prevent these severe recessions where we have mass unemployment. Number two: credit market stability. The same sort of musical-chairs analogy applies there. If people have borrowed a lot of money, anticipating a certain income they will have in the future, and the income comes in collectively much lower than was expected, there will tend to be a debt crisis. It is not coincidence that other cases of falling nominal GDP, like America in the early '30s, [lead to a] debt crisis—global debt crisis, in fact. Argentina is another example—in the early 2000s, they had a debt crisis with falling nominal GDP. For the recent crisis, in the U.S., we see both falling nominal GDP and a debt crisis. And, we see both falling nominal GDP and a debt crisis in Europe.

Now, it manifests itself often in different ways. So for instance, in the United States we had the subprime fiasco, as I'll call it, which I believe would have occurred even with stable growth in nominal GDP. I think there were other mistakes, so even if we hadn't had a bad recession, we would have had the subprime debt crisis. But the Great Recession made the debt crisis spread to many other types of assets—other mortgages, better mortgages, commercial loans, developer loans, and so on. Many banks that failed [did so] not because of mortgages but because of loans to business developers that went bad.

In Europe, the equivalent of the subprime fiasco was, let's say, Greek sovereign debt. Greece over-borrowed—and even in normal times Greece would have had debt problems—but some of the other countries that were drawn into the crisis, although they didn't have optimal fiscal policies, probably would not have reached crisis stage if not for the Great Recession. So that huge slowdown in nominal GDP growth in Europe tipped some of them over the edge from just stagnating a little bit to a crisis situation.

What I think happens, when these crises play out, [is that] people naturally think that whatever is occurring at the beginning is just getting worse and worse, as if someone has a cold and it is turning into a worse and worse cold. But a better analogy would be like someone who gets a cold, a viral infection, and it turns into pneumonia, which needs treatment by antibiotics. What I am arguing here is that we had low-level problems in both Europe and the United States, and the failures of monetary policy turned these into a qualitatively different problem that needed a qualitatively different solution.

The Great Recession made the debt crisis spread to many other types of assets—other mortgages, better mortgages, commercial loans, developer loans, and so on. Many banks that failed [did so] not because of mortgages but because of loans to business developers that went bad.

So I am not saying that the standard view of the early stages of the crisis is wrong; many of the things that people talk about with both U.S. and European policy are correct, but this is also important monetary policy. So a lot of the problems that we tend to associate with inflation are actually better dealt with by controlling nominal GDP growth at a steady rate of growth. Things like debt or creditor unfairness due to unexpected rises or falls in inflation are actually more closely correlated with movements in nominal GDP growth. Another thing I would point to is the so-called bias against savers due to the taxation of capital income. The returns on capital income are more closely correlated with nominal GDP growth, so if that becomes higher, we tax capital more highly, and that of course punishes savings and investment.

Fourth point: Statist policies—and I assume almost everybody in this room is opposed to statist policies—tend to thrive when nominal GDP falls. Now, why is that? Because monetary policy, as I have been trying to show you, works in sort of an invisible way. It doesn't look like tight money when it is happening, because you see the low interest rates. So the public and even many economists say no, monetary policy did not cause the crisis; it was caused by the failures of capitalism. We heard this in the early 1930s. Only with Milton Friedman and Anna Schwartz in the '60s do we begin to re-evaluate what actually went wrong in the '30s. But at the time, that [re-evaluation] led

to a lot of statist policies that were counterproductive and actually slowed the recovery. The only thing FDR did to speed up the recovery was to devalue the dollar—that did boost monetary policy [to be] more expansionary. Everything else he did slowed the recovery.

Argentina, same story: Argentina was actually doing some promising free-market reforms in the early 1990s. They got faster growth, but the Achilles heel of their program was that they got locked into an overvalued dollar on the currency board when other countries were devaluing in the late '90s crisis. That pushed Argentina into recession, it tended to discredit capitalism in Argentina, and they swung far to the left and again put in a lot of counterproductive statist policies.

This time around we saw bailouts of automakers, banks, all this stuff going on, and of course, all the policies in recent years in the U.S. under the Obama Administration. But there is this perception when nominal GDP falls that it is a failure of capitalism, when actually it is a failure of monetary policy. Conversely, when there is fairly steady growth in nominal GDP, like in the '90s, even the more left-wing party in the U.S., the Democrats, were more moderate in their views of economics; they were more open to things like welfare reform, because it seemed like jobs were there for people who would be reformed out of the welfare program. Free trade is easier to sell if there is not mass unemployment—or not bailing out General Motors is easier to sell if you have 5 percent unemployment compared to 10 percent unemployment. So it's a friendlier environment for free-market policies.

There is this perception when nominal GDP falls that it is a failure of capitalism, when actually it is a failure of monetary policy.

So the policy implications here are to stabilize nominal GDP growth. The policy of targeting the forecast; the analogy I use here is steering a ship. Let's say you were on an ocean liner, and you were casually talking to the captain and said, "When do you expect to reach New York?" and the captain said, "Well, we expect to land in Boston in about three days." And you said, "Wait a minute, isn't this ship scheduled to go to New York?" and the captain said, "Well, yes, but because of currents and wind conditions, we've kind of drifted off course, and now we're forecasting that we'll end up in Boston." You might ask the captain, "Why not adjust the steering so that the city that you forecast you'll end up in is the one that you want to end up in, your goal city?" Right?

Believe it or not, central banks around the world—with a few exceptions—act like the captain who just drifts off course passively. They issue forecasts for inflation one, two, three years out that are different from where they want inflation to be. Well, this is if they were targeting inflation. Why wouldn't you adjust your policy then? Why, in late 2008, when the Fed had such depressing views of where the economy went, wasn't it adjusting its policy more rigorously? Do you know that in the second half collapse I showed you, interest rates were above zero that whole time until mid-December? They weren't even at the zero bound when this was occurring.

Now, Lars Finskud talks about using internal Fed forecasts, so he wants to make it so that the Fed, its internal economic forecasting unit, believes the forecasts will hit the target. If they are not expected to [do so, the Fed will] adjust the policy instruments until you do expect to hit the target. My preference is to use market forecasts because I trust them more than the Fed—by the way, the Fed has been overly optimistic about growth for five years in a row, so it doesn't seem to be learning. I am working now on trying to create some nominal GDP futures markets as a demonstration project. But really I think that the Fed should create—it wouldn't cost the Fed very much money—a nominal GDP futures market just to get a sense of where the market thinks this key variable will be in a year or two years from now. That is an important piece of information for monetary policy. By the way, it is more important than inflation forecasts, and we know the Fed looks at inflation forecasts because it talks about TIPS spreads in its meetings, as the minutes of the meetings show.

A perfect example of this occurred after Lehman failed in September 2008. Now, the meeting occurred two days later. You might think the Fed would have cut interest rates after Lehman's failure. No, they left them unchanged at 2 percent that day. The minutes of the meeting indicated that they saw equal risks of recession and high inflation. I understand why they saw a risk of recession—we were already in one for nine months—but what about this risk of high inflation?

Well, it is true that looking back over the previous 12 months, inflation had been pretty high up until about July of 2008 because of a huge surge in oil prices.

So yes, there had been an overshooting of inflation; arguably, that is a problem. But if you are trying to target the forecast—that is, drive the car by looking down the road, not in the rearview mirror—what were the markets telling us going forward about what inflation was going to be? The five-year TIPS spread was 1.23 percent—that is below the Federal Reserve's 2 percent target—and guess what, over the next five years—I don't remember the exact number, but the actual inflation rate over the next five years was around 1.2 [percent] to 1.4 [percent]. Now, the markets don't always get it right, but in that case, if the Fed had looked at the market forecast, it would have made a more intelligent decision at a key point in the business cycle. The markets were looking ahead and seeing that below-target inflation was coming as well as recession. You put recession and below-target inflation together, and you have a big drop in nominal GDP.

The gold standard did not really protect us against a major monetary policy mistake. The only thing the gold standard can really definitely protect us from is high inflation.

Now, many conservatives like the gold standard. This is a complex debate, because there are debates about—what was the gold standard? Which period do we want to look at? The problem I have here is that in the modern world, governments are inevitably involved in things; it is almost impossible to keep them out. So it is hard to know how a pure gold standard would work. Probably a pure gold standard would have worked better, for instance, in the early '30s than the actual gold standard we had.

But here is something I would caution conservatives about. One of the criticisms of my ideas for nominal GDP targeting is: "Well, we can't trust the government with fiat money." It is a good idea if you sketch it out, but it will be corrupted in the political process. But I would argue that that could also happen to a gold standard. Some of the decisions made in the early '30s were not consistent with the rules of the game of the gold standard, and that led to a much worse outcome than should have occurred. But the gold standard did not really protect us against a major monetary policy mistake. The only thing the gold standard can really definitely protect us from is high inflation. So it will protect our money from losing a lot of value, but as I said, severe business cycles like the Depression of the '30s can lead to statist policies, and that should also be a big concern to conservatives.

Here are some other advantages. The futures approach I have outlined would create a nominal GDP futures market, and then the futures market would essentially set monetary policy. So the money supply would automatically adjust until the market expected nominal GDP to grow along the path set by the government—it might be 3, 4, 5 percent, whatever. In that kind of regime, actually, the market would be implicitly determining the money supply and interest rates. So a lot of conservatives don't like the idea of the Fed setting the interest rate. They think it should be the market that determines that. Well, if we had futures targeting, [if we] worked automatically to adjust the money supply to keep to the point where the markets expected on-target growth in nominal GDP, then essentially the market would be determining the money supply and the level of interest rates that they thought would lead to successful policy.

Also, [nominal GDP targeting is] easier for the public to understand. The public does not understand inflation targeting, and a lot of economists do not know this. Ben Bernanke himself was shocked in 2010 when the core rate of inflation fell to 0.6 [percent], and he said, "We have to do some stimulus to raise inflation." And of course all you heard on the radio and TV was people complaining, "The Fed says it's trying to raise your cost of living in the midst of this bad recession we're in." That doesn't make any sense to an ordinary person. Why? Because average people think of inflation as supply-side inflation; that is, they think of their income as fixed but the cost of living going up. But the Fed was trying to create what economists would call demand-side inflation. So not only was Ben Bernanke engaging in bad PR, but it was also inaccurate. Bernanke did not really want higher inflation; what he wanted was more nominal GDP growth, and he hoped most of that would be real GDP growth and as little as possible would be inflation.

But because they have had this inflation target, they use the language of inflation targeting. Economists consider it symmetrical: More than 2 percent is bad, less than 2 percent is bad. You aim for 2 percent.

The public believes the Fed is just trying to keep inflation low—below 2 [percent]—because the public thinks inflation is always a bad thing. So the signaling from the central bank just totally confuses the public with inflation targeting.

With nominal GDP targeting, it's different. Ben Bernanke could have said, "You know, we've noticed at the Fed that the American economy is healthier when we have 4 percent growth in the total income of Americans each year. That seems to produce a healthy economy, so we're going to do some stimulus to try to get American incomes growing at 4 percent a year instead of the big drop we had in 2009." And that would make sense to the average American.

And then another advantage here, it can be combined with free banking—again, I won't get into that today, but Bill Woolsey has done some papers on that. I believe that macroeconomics has to join the 21st century. There is too much playing the role of Nostradamus [among economists], trying to forecast all sorts of things. That is not what economists are good at; that is what markets are good at. Instead, what we should do is essentially start to think in terms of market forecasts as telling us what policies are expected to do. And that means when a new policy is announced, we basically know within five minutes everything we are ever going to know about that policy and whether it "works."

Let me give you an example. Suppose the policy is targeting inflation, and you announce QE 4, and the TIPS spread—which is the market's forecast of inflation—goes up from 1.7 to 1.9 percent on the news. That policy is likely to lead to an extra 0.2 percent of inflation. That is all we ever learn. You might [say]: Wait, let's play it out and see what inflation turns out to be. Well, inflation could rise by more or less than that amount because of other factors that occur—after all, we can't hold other things equal, right? When we are doing policy, we are doing it in a very complex world. But the market's forecast of the likely effect of that policy is still, even a year later, probably the best forecast we have of its independent effect.

One reason I got into blogging in 2009 is that I was looking at the markets, and they were telling me that Obama's fiscal stimulus and the Fed's monetary policy combined were not going to produce an adequate path of nominal GDP. My personal view is that fiscal stimulus basically doesn't work. But the monetary stimulus was not adequate, and I was getting that from the markets. I think it turned out to be correct. The Fed was consistently disappointed. It would do QE 1, then it would stop; it thought it had done enough; oops, we haven't done enough, let's do QE 2—all this back-and-forth. They weren't looking at market indicators.

I have talked already about the scandal of not having this futures market. It would be very inexpensive to set up. There are lessons for the left and the right. Here is [a quote from] Matt Yglesias, a very talented left-wing blogger. He says the Great Recession has revealed the lack of capacity for engaging in monetary issues to be a weakness of the progressive movement. Basically, the left ignored monetary policy almost entirely. They thought fiscal policy was the way to go, and it turned out fiscal policy was very ineffective.

One quick example: At the beginning of 2008, we did a lot of what is called austerity; that is, we cut some government spending with the sequester; we raised income taxes; we raised the payroll tax by 2 percentage points; we did bring the deficit down significantly in 2013. The Keynesians said that was really going to slow the recovery. Well, during 2013, from the beginning to the end of the year, the real growth rate was considerably higher than 2012. As we market monetarists said, it would not slow the recovery. We said it would not because at the end of 2012, the Fed did some stimulus—two programs, QE 3 and forward guidance—expressly because they were worried about the austerity.

For conservatives especially, I would think monetary stimulus is much preferable to fiscal stimulus, which leads to higher taxes and spending over time.

Paul Krugman said in early 2013, "2013 will be a test of market monetarism"—this idea that central bank policies essentially offset the effect of austerity. At the end of the year, of course, he walked away and said, "Well, who thought it was going to be a test?" because we passed with flying colors. Growth actually sped up despite all this austerity, and it was because of the Fed's monetary stimulus. For conservatives especially, I would think monetary stimulus is much preferable to fiscal stimulus, which leads to higher taxes and spending over time.

On the right, I think the mistake—and I am a University of Chicago economist—many economists

whom I really revere, like Al Meltzer, I think made mistakes in forecasting by looking too much at the QE and assuming that the past relationship between money supply and inflation would hold, but at the zero bound you can't really make that prediction. I don't think conservatives were paying enough attention to markets, like TIPS spreads, which were telling us that inflation was likely to stay low. I think that hurt the conservative movement over the last six years—forecasts of high inflation that didn't pan out. The market monetarists—we were not making this kind of forecast, but by the way, you saw the same thing in the Depression. This quote at the end by Ralph Hawtrey, people "crying fire, fire, in Noah's flood"; in the Great Depression, people were saying, "Inflation, inflation is coming," because the Fed did QE in the Great Depression. Even under Herbert Hoover in 1932, they did some QE.

The Fed does basically what a consensus of macroeconomists wants done most of the time, and the consensus view has been among American economists that the Fed was doing it about right, so I blame the economics profession, not the bankers, for the Great Recession.

I am a student of the Great Depression, and I see the same mistakes in interpreting what is going on occurring in recent years as occurred in the Great Depression.

So I believe the Fed does basically what a consensus of macroeconomists wants done most of the time, and the consensus view has been among American economists that the Fed was doing it about right, so I blame the economics profession, not the bankers, for the Great Recession.

I'll just finish up with this imaginary conversation. Why do people always say it is natural to assume the Great Recession was caused by the financial crisis of 2008? Well, obviously because it looks as though the Great Recession was caused by the financial crisis of 2008. Well, what would it have looked like if it had been caused by Fed and ECB policy errors, which allowed nominal GDP to fall at the sharpest rate since 1938? Especially during a time when banks were already stressed by the subprime fiasco and when the resources for repaying nominal debts come from nominal income.

So if you replay the last six years and ask, what if Sumner is right, or what if money was tight and caused the fall in nominal GDP—what would we have expected to happen? In fact, if you go back to 2007, let's say, before the recession, or 2006, and just put 50 macroeconomists in the room—conventional macroeconomists—and give them a crystal ball and show them that big drop in nominal GDP in 2008 and 2009, and that's all you tell them—you say, "Here is what happened to nominal GDP. This is monetary policy. And there is no banking crisis. What do you think will happen to the real economy?" Most of those economists would have predicted a severe recession looking at that path of nominal GDP.

Here is another analogy. People will tell me the real problem is this or that. The real problem is our financial system. No, there is more than one real problem. Imagine you have pneumonia, and you're walking down the street to the hospital to be treated; someone mugs you and stabs you on the way there. You're brought into the ER. The doctor says, "Well, there's really no need to treat this person's knife wound, because the patient's real problem is pneumonia." You would probably ask for a different doctor, right? This is essentially what I'm trying to say here. Yes, there are many problems with the U.S. economy—there are structural problems, there are regulatory problems; we are not performing as well as we were even in the '90s, even ignoring monetary policy. I am not saying monetary policy is the only problem, but it was a major problem, and it has ripple effects on our other policy failures in other areas, I believe.

So that is what I would really encourage you to do: to re-evaluate this period and think about it from a different perspective.

—***Scott Sumner*** *taught economics at Bentley University between 1982 and 2015. He is currently a researcher in the Monetary Policy program at the Mercatus Center.*

Endnote

5. Robert E. Hall, "Why Does the Economy Fall to Pieces After a Financial Crisis?" *Journal of Economic Perspectives*, Vol. 24, No. 4 (2010), pp. 3–20, https://www.aeaweb.org/articles.php?doi=10.1257/jep.24.4.3 (accessed March 30, 2016).

Money: How the Destruction of the Dollar Threatens the Global Economy—and What We Can Do About It

Steve Forbes

Thank all of you for coming here on a nice December day just before the holidays, where you take time out from our dysfunctional government and take time out from shopping to get a few words on not the most exciting subject in the world. But if we don't get it right on monetary policy, it doesn't matter if we get it right on taxes, on regulation, on government spending—we are going to have a troubled economy.

Just before I go into money and monetary policy, let me just give you, especially for this holiday season, a travel tip. If you ever find yourself in an airplane in coach, middle seat, on the runway watching your life pass away, and you want a little bit of elbow room with your seatmates, start talking to them about monetary policy. They'll cut you a very, very wide berth. I see we have some young people here; if you're not yet married, you're on a bad date and want out, talk about monetary policy, and the rest of the evening will be yours very quickly.

But the question is: Why is money so important? Even though everyone acknowledges that it is, it's amazing how little critical and sustained oversight and study it gets. You go on Capitol Hill, and there you have people who can master very arcane subjects, but when it comes to monetary policy and the Federal Reserve, they just throw their hands up and say, "It's much too complicated for me." You see it in the hearings with Fed officials; you can see it in the confirmation hearings for Janet Yellen in late 2013.

The reason money is so important is because it is the starting point. Ask yourselves: How do you achieve progress in this world? How did we ever make our way out of the caves thousands of years ago? The way we did it was through buying and selling with each other, doing transactions with each other. We do it billions of times a day, and we don't think anything of it. But if you don't do trading with one another, if you don't invest, you don't make progress. Take, for example, something as simple as baking a cake. Let's say you want to bake a cake and sell it. You have to get the ingredients, like eggs, flour, and milk. How do you do that? Through transactions. You need measuring spoons and the like. You need a refrigerator, an oven, electricity, perhaps transportation to transport the cake from here to there. All of that requires transactions. It's all done through trading—buying and selling. Money simply makes this buying and selling, these billions of transactions each day, easier.

Now, in the old days, before we had money, we had barter, which of course was very inefficient—unless you had what economists call—and only they could come up with a phrase like this—a "coincidence of needs"; that is, I have something you want, and you have something I want. A barter was very, very cumbersome. Let's say, three thousand years ago, I wanted to sell an ad in *Forbes*. Let's say I did it. How would I get paid? Perhaps with a herd of goats. Let's say I want to buy iPads for our writers—I'm being a little facetious here—so I go to the Apple store, and the Apple store owner says, "I don't want goats, I want sheep," so I have to figure out how to swap the goats for sheep, perhaps have to hire a sheepherder and make sure the wolves don't eat the sheep. The sheepherder wants wine; I've got red wine, he wants white wine. Very, very cumbersome.

> If you understand that money measures value—money measures value the way clocks measure time, scales measure weight, rulers measure length—you are going to be ahead of virtually every central banker in the world.

And so money makes it possible to do these transactions much more easily. Money was not invented by government—although when money was invented, government soon got in the act, as you would expect—but money was invented in the marketplace to facilitate progress. Historians tell us that the first coins came out of [Lydia] near the Greek states 2,600 years ago; Athens soon adopted its own version. The Athenian owl, as they called it—a silver coin—helped make Athens a great cultural and commercial center in that part of the world. So whether it is a coin or a piece of paper, or now a [pixel] on a computer screen, money makes transactions easier.

Now, imagine if we still had barter today. Imagine trying to deposit, say, a cow in an ATM. Or trying to

fund your 401(k) with chickens and trying to keep the chickens alive so you can have something to retire with. It is just very cumbersome. But as you can tell, since money in and of itself—unless you have these old coins—has no intrinsic value, money works based on trust. If that trust is violated, it has all sorts of ugly consequences. So if you understand that money is not wealth, that money helps facilitate the creation of wealth; if you understand that money measures value—money measures value the way clocks measure time, scales measure weight, rulers measure length—you are going to be ahead of virtually every central banker in the world.

Money, if done right, promotes cooperation and trust; it is vital to commerce—I don't know some of you in the audience, but if we have money, we can easily do a transaction, so it breaks down barriers between strangers; and it works best when it has a fixed value, just as when you go buy a pound of cheese in the supermarket, you assume it is 16 ounces. It doesn't float 16 ounces one day, 13 the next, or 82 the day after. Imagine building a building or a bridge with a ruler that was floating; you know, 12 inches in a foot one day, eight inches the next. Imagine building a bridge, and you suddenly find you're halfway across the river; oops, sorry about that. It just makes things easy. Go to the gas station, buy a gallon of gas; you assume it is a certain measure. It doesn't fluctuate each day.

So just for a moment think of what would life be like if the Federal Reserve was allowed to do to clocks what it does to the dollar. Imagine a floating clock. So you have 60 minutes an hour one day, 48 minutes the next, 92 minutes the day after; you would soon have to have hedges and derivatives and futures to figure out how many hours you are working. Or let's say you are trying to bake that cake; it says bake the batter 40 minutes, and then you have to figure out, now, is that nominal minutes? Is that inflation-adjusted minutes? Is it a DC minute, a Maryland minute, a Mexican minute? It would be chaotic.

So remember, money is simply a common measure of value. This is why counterfeiting is illegal. You know, if I go to my basement and turn out some $20 bills, why is that illegal? Because I am creating money—if you understand that money is like a claim check, it is a claim on products and services—I'm conjuring this out of thin air, and therefore it's a form of stealing. So in the private sector when you do that, it is called counterfeiting; when the government does it, it's called quantitative easing or stimulus. But just think of it like coat checks in a restaurant—imagine a restaurant owner thinking: Gee, if we create more coat checks, that will stimulate the creation of more coats, and we'll have more business. No. They have it backwards.

Imagine a restaurant owner thinking: Gee, if we create more coat checks, that will stimulate the creation of more coats, and we'll have more business. No. They have it backwards.

So just as if you fool around with any fixed weight or measure, when you start to fool around with money, the perils are basic. As you know, prices give us what you might call priceless information: what is valuable, what isn't, what we think is useful, what isn't. So if something is going up in price, we tend to think, well, that means we need more of that commodity, or it is more valuable if it goes down—perhaps the opposite. But when you debase money, when you start to fool around with money, it's like a virus in a computer; it corrupts the information. We saw that, for example, in the '70s when we had that terrible inflation. Oil went from $3 a barrel to almost $40 a barrel. Now, as the prices went up, people assumed: Gee, it's going up so much, we must be running out of the stuff. So a lot of investment went in the oil patch. Then when the crash came in the early '80s after Volcker, who was then the head of the Federal Reserve, and Ronald Reagan killed that terrible inflation, oil crashed from $40 to $10 a barrel, then finally stabilized at $20 to $25; wildcatters [were] bankrupted—almost all of them went down. Big companies like Exxon and Mobil had to merge to try to survive in this environment. You saw it again in the early part of the last decade—and by the way, from the mid-1980s until we went off the rails again in the early part of the last decade, the average price of a barrel of oil was a little over $21. Now, today it is depressed at $60 a barrel. In 2008, it got even as high as $147.

So again, that was not supply and demand; that was corruption of money when you couldn't trust the prices anymore. You saw it in the early part of the last decade. In the early part of the last decade, the Federal Reserve, in cahoots with the Treasury Department,

started a gradual weakening of the dollar. Guess what happened? It was a version of what we had in the '70s. This time, housing became the big thing. Housing prices went up. What did that tell you? We needed more houses. So eventually, because prices kept going up, people felt: We can invent a new mortgage. The new mortgage was: Why have an income? What do you need an income for? The value of the asset kept going up and up. So when that happened, prices went up, and then the inevitable crash came, and we are still living with the consequences of it today. But the price of houses didn't go up because there was a sudden demand—what you might call a natural demand in the marketplace. It was stimulated, it was steroids, it was a corruption.

So in terms of investing, whenever you have that kind of uncertainty about money, you get less investing in productive things—less investing in the things unseen, and more investing in the things that already exist. When anyone ever asks me, "Should I invest in gold?" I know we have a problem. Why would you invest in gold unless you were a jeweler? The only time you would buy it is as an insurance policy against the mistakes of government. It's basic finance 101. If you ever take a finance course, the first thing they tell you [is]: How do you value a firm? How do you value a company? Well, it is the future stream of income given a present value. You make an investment—that is already risky enough—but if you don't know what you are going to get paid back in—is that going to be a 100-cent dollar, an 80-cent dollar, a 10-cent dollar? You get less of that kind of risk-taking, because the risk quotient has gone up.

If we had maintained since the early '70s the average growth rate that we had for those previous 180 years our economy today would be 50 percent bigger than it is now.

So that is why investing in recent years has been subpar. You get more in hard assets, more in these commodity booms. Since 1971—when we unnecessarily blew up the old Bretton Woods system based on gold, a gold standard—the average growth rate of this country has been less than it was before. For 180 years, from the 1790s to the 1970s, [America] had a gold standard. It started with Alexander Hamilton, with George Washington. If we had maintained since the early '70s the average growth rate that we had for those previous 180 years—and that 180 years accompanied, remember, [by a] Civil War, two World Wars, Great Depression, all sorts of political turmoil—if we had maintained that average growth rate, our economy today would be 50 percent bigger than it is now. That is what happens over 40 years when you have subpar growth. Imagine $8 trillion more of economic wealth today. A lot of problems would be a lot more [solvable]. Now, it wouldn't solve every problem, but life would be a lot better.

Peter Thiel—noted venture capitalist, the one who gave us PayPal, one of the early investors in Facebook—has written a new book. He noted that since the early '70s, we have had fewer major breakthroughs than we had before the '70s, which sounds counterintuitive because we think high tech is growing exponentially. But he never connected the dots [to sound money]. Was it just a coincidence that this [reduction in] new big things in technology came when we blew up the gold standard and got that [reduction in] investment in the future? Median incomes have not been doing very well. That is another thing that happens when you don't invest in the future. It also wastes brainpower.

Just one quick example: Back in the days when you had a gold standard, you didn't have much currency trading. You would exchange currencies if you went from one country to another, but you didn't have currency trading because [currencies are] fixed in value, fixed to each other. Now, since we have floating rates, they are all over the place. So today currency trading is huge. The nominal value of currency trading now is over $3 trillion a day—more than for stocks and bonds. You have tens of thousands of the best brains in the world focusing on commodity trading. You get fewer people, fewer brains, focusing on new products and services, as Peter Thiel noted. Fewer brains [are] focusing on finding cures for diseases. As I get older, I think we should find cures for diseases for the elderly; I have a vested interest in this. But it is not taking place on the scale that it should.

So when you understand that money reflects the economy, when you understand what the classical economists understood—the classical economists said the production of products and services is the real economy; money is the symbol economy, it represents the production of these products and

services—when you understand that, then you understand what the problem is today. Because what John Maynard Keynes did and a handful of others, going back to the '20s and even before, put the cart before the horse. They thought money controlled the economy; money was the real economy, and everything else responded to it, rather than the other way around. So they thought if you manipulated money, you controlled the economy. Keynes had disdain for entrepreneurs. He felt they all responded to what the government did in terms of interest rates, trying to manipulate money supply and the like. [This view] dominates today. Even conservatives say, if the Federal Reserve prints money that is one way to stimulate the economy. Absolutely wrong.

The Fed now controls over $3 trillion of assets. Who gave the authority to do that? Nobody.

So you look at what happened in the '70s, you look at what happened in the last decade, you look at what happened with quantitative easing. Now, the Fed did something new here with quantitative easing; they massively increased bank reserves, and then by crushing interest rates across the board and by having bank regulators pound banks that made loans, those reserves were not leveraged. They were not put to work in the economy. What [quantitative easing] did was finance the government deficit. The Fed bought up all the long-term bonds, which skewed the credit markets. You need long-term bonds for insurance companies and the like. When the Fed scooped them all up, it made a huge appetite for corporate bonds, which meant money went there rather than into financing things like inventories. You look at the amount of money, and it is just beginning to grow now after six years of flowing loans to small and new businesses, and that is stagnant. You have stagnant job creation, and only six years after all this nonsense are we finally starting to see a little bit of progress.

So what the Fed did was a form of credit allocation. It has announced [recently] that it will not reduce this massive amount of money it created. The Fed has created for itself what you might call a sovereign wealth fund, over $3 trillion, and Congress said not a peep. The Fed now controls over $3 trillion of assets. Who gave the authority to do that? Nobody. So it has hurt the economy; bank regulators have hurt the economy, suppressing interest rates. Most of you realize in the housing market, for example, when you put in rent controls it skews the market, means less housing—unless you are one of the lucky ones who have it. If you want to be a populist, in countries that have stable money, workers achieve a higher standard of living than they do in countries that don't. Period.

Now, it is not just GDP and incomes; this unstable money has another factor to it. It undermines what you might call "social trust." It undermines social cohesion. We have a chapter in the book—chapter five—which talks about how debasing money debases society. This is one thing Keynes got right. Keynes said, "Lenin was certainly right: There is no subtler, no surer means of overturning the existing basis of society than to debauch the currency. The process engages all the hidden forces of economic law on the side of destruction and does it in a manner which not one man in a million is able to diagnose." Now, he was talking about a hyperinflation such as hit Germany in the early 1920s, but you can have a slow-motion version of it, which is what we have had on and off for 40 years. It's an irony; even though he saw hyperinflation as doing what it did in Russia and then in Germany and other countries, he thought a slower version of it was actually stimulative to the economy. Economists today think you can control money in an economy like a thermostat.

[This] undermines social trust, social cohesion, because it arbitrarily changes relations between individuals doing a transaction, borrower and lender. You undermine money; one party may come out ahead, the other party gets hurt—not because of the nature of the deal; because of an arbitrary thing neither of them truly understands. You saw it in the housing debacle. There, both borrower and lender ended up getting damaged because of what government did. Studies show that the countries that continuously undermine their money have higher rates of crime than countries that don't. You see it, too, in terms of the feeling when this thing goes on—you see it in our country today: Weak and unstable money inflames perceptions of unfairness.

You see it, too, in terms of people feeling that work, honest effort, and reward don't work anymore; it seems to make a mockery of traditional values like thrift and saving. It gives people the perception that this young generation won't do as well as the current generation, and so it is an acid that eats away at social

cohesion, social trust. You see a rise of cronyism; the way you get ahead is through the connections you have rather than honest effort and resulting reward.

So how do you keep the dollar stable? How do you keep any currency stable? Well, [you do it] the way we did it for 180 years, and that is a gold standard. I say *a* gold standard because there are a variety of [gold standards], just as you can have a variety of democracies. Our system is different from the Canadian system, which is different from the British system, which is different from France's and Germany's. Each has its own variations. So if you look at the history of this thing, there are various ways to do it, but just like democracy is supposed to be based ultimately on the consent of the governed, so too a gold standard means you use gold to keep this money stable in value.

The thing to keep in mind is that [a gold standard] does not restrict money supply, just as a ruler having 12 inches does not restrict the size of a building you may wish to construct. All it means is that a foot is 12 inches. All it means here is that a dollar has a fixed value. So in terms of money supply, Nathan Lewis and others have calculated that if you look at the U.S. from the time we went on a gold standard in the late 1700s when we were a small agricultural East Coast nation, about four million people, until the end of the 1800s when we were over 60 million, 70 million people, the mightiest nation on earth, an industrial nation that surpassed Britain—during that time the amount of gold mined in the world went up 3.5-fold; the money supply in the U.S. went up 160-fold, even though the dollar was linked to gold. So think of gold as like a ruler; it is just a measure of stable value.

The thing to keep in mind is that [a gold standard] does not restrict money supply, just as a ruler having 12 inches does not restrict the size of a building you may wish to construct.

Now, why does gold work better than anything else, like copper or silver? Because it maintains its intrinsic value better than anything else, and we have four thousand years of experience. It is rare, but not too rare. You can't destroy it; you can heat it, freeze it, pound it, but you can't destroy it. If you have a gold ring, there may be grams, grains there, that go back to Egyptian [pharaonic] times; you don't have to worry about destruction; mice can't eat it; you don't have to worry about bulk like oil; it only grows in supply about 1.5 or 2 percent a year, so you don't get supply shocks. Even if you get a huge discovery, the biggest one in proportion to the outstanding gold supply in the world was the California Gold Rush, and a minor Australian gold rush at the same time, and then it went up a year about 4 or 5 percent and then went down again to the average. So it is pretty stable over time. It is malleable yet strong; it is portable. It gives stable value but also flexibility in meeting the needs of the marketplace. That is one of the myths: "Oh no, it's too rigid." No, it is not. All it means is—like when you buy that pound of cheese, the pound is a pound is a pound. So it is flexible but also meets the needs of the marketplace.

In terms of the cost of money when you have a gold standard, the real cost of money is much lower. You don't have to have the Fed engaging in games of artificial suppression. I'll give one example. When in France in 1800, they were wild in their money, government had to pay 15 percent to borrow money. At the end of the century, because they were then on a gold standard, the French government—even when it occasionally ran deficits—could borrow money long-term at about 3.5 percent a year. Britain, then the real exemplar of a gold standard, could issue bonds with no maturity for as little as 2.5 percent. That is how much the pound was trusted.

So the bottom line is, in terms of fighting political extremism, in terms of setting the stage to get this economy and the global economies back on track, we don't have to do anything really new. We just have to understand that we got it right for 180 years, and there is no reason why we can't do it again, because other things are going our way. Already there is a consensus on Capitol Hill to reform the corporate side of the tax code. I think after 2016 there will be a mandate to radically simplify the personal side of the tax code with something like the flat tax. There will be a mandate for it, because candidates are going to push it. On the tax side, you can see we are once again going to get it right as we did in the '80s. And on the money side, there is a little sign we are starting to move in the right direction. A few months ago, Paul Volcker, who headed the Fed in the '80s, noted that since we blew up the Bretton Woods system in 1971, it has not worked. He said we need a new rules-based system. Now, he didn't come close to endorsing

the gold standard, but what he said in effect was that we have had more crises, more turbulence; we have got to do something differently. That is the beginning of wisdom: recognizing we have a problem, that it is not sustainable, and that we have to start to discuss what we do next. What do we do next? We did it for 180 years. Thank you.

—***Steve Forbes*** *is chairman and editor in chief of Forbes Media.*

The Forgotten Depression—1921: The Crash That Cured Itself

James Grant

The book [I will be discussing today] is a work of history, in length just over the decent minimum of 200 pages—which, as you baseball fans know, is kind of the authorial Mendoza Line. The title says the depression of 1921 is forgotten. Well, I hope that in future editions, the publishers will be a little more affirmative and say, perhaps, the "previously forgotten" depression of 1921. Anyway, it's an episode that I do hope you will remember.

Now, I wrote this [book] because in 2008, the Great Depression of the '30s monopolized the market in economic historical analogy—policymakers especially. The chairman of the Federal Reserve Board, Ben S. Bernanke, PhD, constantly invoked the 1930s with reference to the crisis of the "mangled mortgages and combusting banks." No intervention was too great to forestall a repeat of that calamity, they [policymakers such as Bernanke] said. Thus the drive to stimulate—to print money, and to spend it, and to push back deposit rates to the zero bound and beneath it—and we are still being stimulated today, seven years after the trouble started.

The business cycle downturn of the early '20s was the last governmentally unmedicated slump in American history.

The depression in 1920 and 1921 went unmentioned; as far as I know, not a single senior policymaker invoked it on the other side of the stimulus argument. I thought it was a regrettable omission. The business cycle downturn of the early '20s was the last governmentally unmedicated slump in American history. In response to plunging employment and very, very weak profits and falling prices, the successive Administrations of Woodrow Wilson and Warren G. Harding did essentially nothing—that is, nothing in the way of macroeconomic intervention. Indeed, the word "macroeconomic" had not yet come into the Washington vocabulary. Congress balanced the budget, and the still-new Federal Reserve raised—mind you, raised, not lowered—interest rates. Prices were allowed to fall, wages too; nobody was in charge, save Adam Smith's invisible hand. Yet 18 months after it started, the Depression ended, after which the 1920s proverbially roared.

You may say—many have said—that 1921 was a long time ago, and so it was. Then again, so was 1931. And you may observe that the world has changed since 1921, as it has since 1931. All I ask is something like parity of historical relevance between two very different cyclical events. This is contentious and politically charged, I know, so I want to be careful to separate the past from the present, and history from prescription.

They say that the past is a foreign country. The economic and financial past can seem especially alien. So the Great War—that is, World War I—ended on November 11, 1918. That at least is when the shooting stopped; the bills kept rolling in. The belligerent nations had fought the war on the cuff. They spent, and they borrowed, and they taxed, and they commandeered—and they printed money, just as we do today, though they actually had to round up the paper and the ink and the engravers, which presented difficulty of logistics. We today have the iPhone.

So wars are inherently inflationary. The aftermath of major war was known to be deflationary. What had followed the Napoleonic wars and America's Civil War was deflation—falling prices, collapsing debts, hard times. Not this time, though. In 1919, the oft-predicted post-war depression was a no-show. Quite the contrary; business was booming. It was an inflationary boom set aloft by easy money and suppressed interest rates. Still, it was surprising and unscripted. Maybe it would last. Expecting that it would, people made the appropriate adjustments—farmers planted fencepost to fencepost; they bought land and invested in tractors, just then displacing horses; bankers fed a booming demand for credit; Citicorp—accident-prone even then—went rather overboard by lending in Cuba against the single crop of sugar. General Motors built itself a $20 million headquarters building, the largest such structure of its kind in the world. This structure was named after the company's still-living founder, Billy Durant. Harry Truman and Eddie Jacobson, back from the war, founded a men's clothing store at the northeast corner of 12th and Baltimore Streets in Kansas City, and bank loans financed the inventory.

The music stopped on November 3, 1919. That was when the Federal Reserve Bank of New York lifted

its discount rate to 4.75 from three-quarters of one point. In that month, the Dow gave up no less than 12.8 percent of its value. Another turn of the screw in January lifted the discount rate to 6 percent, and then came the deluge—which took the form not of a break in the stock market, but rather of a succession of bear markets and commodities. In 1929, the great thunderclap came from the corner of Broad and Wall Streets. In 1920, the trouble started in Tokyo, where the silk market failed and banks failed in the aftermath.

One point of historical disagreement concerns the intensity of the downturn I describe as a depression. The eminent economist Christina Romer wrote a monograph in which she contended that really the events of 1920 and 1921 were a little short of a nasty recession, but nothing worse. I contend, on the contrary, that this was something for the record books. Now, macroeconomic data, like the macroeconomy itself, was a concept still to be invented. Data are sparse, but reportage is extensive, and some statistics do survive. Auto production from peak to trough [was] down 23 percent; number of companies reporting net income greater than $100,000 [was] down 45 percent; average farm income down 57 percent—no small difficulty when the agricultural economy still contributed about 18 percent to the national income. The year 1921 was the first year since 1899 to register a decline in the physical volume of American manufacturing.

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This was no era of good feelings. There had been a Red Scare; the Attorney General's front door was bombed. An influenza pandemic had killed 40 million people, including 675,000 Americans. On September 16, 1920, a bomb exploded on Wall Street, killing dozens. A grand jury convened to hear evidence concerning the possible fixing of the 1919 World Series, and ladies and gentlemen, all this was born with Prohibition. Can you imagine suffering through this sober?

As I say, Christina Romer, an econometrician of some renown, contends this was like nothing. However, I have a clinching item of non-econometric evidence to impart to you: The hit song of 1921 was the tuneful and mordant "Ain't We Got Fun?" which includes the lyrics, "The rich get richer and the poor get—children."

By the way, there was no such thing as the economy then, at least not something that people had conceptualized as such. When the Republicans met in 1920, the word "economy" occurred not once except in the context that the government ought to be spending less money: "economy in government." That was the only mention of the word. So the economy didn't exactly exist, except people could see that something was wrong; so what do we do about it?

Well, for better or worse, the incumbent of the White House—Woodrow Wilson—was in no position to do anything. He had been struck down late in 1919 by trying to sell his League of Nations. He was felled by a stroke; he was incapacitated, and so was his Administration; I call this "laissez-faire by accident." Now, do you remember—this is from contemporary times, but still from yesteryear—a financial secretary of the then-colony of Hong Kong named Sir John Cowperthwaite? Well, Cowperthwaite made his mark by his refusal to allow the collection of economic data for the thriving colony of Hong Kong, lest those data be used in the service of governmental improvement; that is, the intervention. He felt, as perhaps some of you feel—certainly I feel—as if, with a nonstop shower of macroeconomic data, something like statistical hypochondria is a clear and present risk. Certainly macroeconomic intervention seemed to him a clear and present danger. So there were no data really that we know of, as we know them now, to support intervention, and Woodrow Wilson was in no position to intervene.

The Federal Reserve was in business, and you are perhaps wondering what it was thinking about, having raised interest rates and having at least observed, if not quantified, the collapse in commodity prices and the evidence-sinking business activity. So I am going to read you a couple of lines from the remarks of Benjamin Strong, who was the Janet Yellen of his day—he ran the Federal Reserve Bank of New York, and effectively he was in charge of the entire system. The remarks are rather prescient. He uttered them before the trouble started, but he was thinking ahead—he realized that the wartime inflation had distorted the structure of production. He realized that if the price level were to return to something like normal, there would be a great deal of dislocation.

He said that "yes, there was going to be trouble, but the best way to meet it, was to allow it to happen." He

said: "Yes, this is going to be accompanied by some rather serious losses, because our increased prices have occurred in a country enjoying exceptional prosperity in which merchants and manufacturers have maintained two large stocks of goods as compared with their foreign competitors. I believe," he said, "this period will be accompanied by a considerable degree of unemployment, but not for very long, and that after a year or two of discomfort, embarrassment, some losses, some disorders caused by unemployment, we will emerge with an almost invincible banking position, with prices more nearly at competitive levels with other nations, and [we will] be able to exercise a wide and important influence in restoring the world to normal and livable conditions."

So, implicit in these remarks was the idea of a market economy in which the price level functioned and in which individuals seeking their own best outcomes would collectively—though not in any coordinated fashion—orchestrate the most expeditious end of an inflationary bubble. Strong, at least as [much] as one can know of anyone's true emotional state, seemed not to be a cruel man; he wasn't wishing bankruptcies and dislocation and unemployment on anyone, but he was saying that the fastest way to a new recovery, the fastest way to new prosperity, was to let the price mechanism sort out the errors of the boom. I guess he believed that booms not only precede busts, but also to a degree cause them.

He was summoning this thing we call the price mechanism: this idea of untrammeled markets, more or less uncoordinated through central command, to do their work.

Without actually saying so, he was summoning this thing we call the price mechanism: this idea of untrammeled markets, more or less uncoordinated through central command, to do their work. The standard of value as the gold dollar would remain the same, and prices and wages would adjust. These days, of course, in very, very stark contrast, it is the money supply and the level of interest rates and exchange rates in many countries that do the adjusting. So the value of money in the present day is meant to be variable, and wages and prices are meant only to go up. That is perhaps the greatest difference between that time and this. A very, very big difference indeed, of course.

[Here are] a couple of citations on just how bad things were, and then how things ever got better, and then I will welcome a question or two. These days, I don't know how many dozens of income maintenance programs the federal government has—in those days, not one. There was a difference in society with respect to adversity, and I am going to read to you a couple of [quotes] about how people thought about depressions and about suffering. So there was a federally sponsored post-mortem of the 1921 depression, and the functionaries sent around questionnaires to companies across the country, asking them what had happened to them and what they thought of the events of 1920 and 1921. This post-mortem observed that, actually, many were the uses of adversity. A Columbia University sociologist said, "This fortune is not always to be appraised at face value. It drives down one person to ruin and despair; it serves another as a whetstone to point ambition and to sharpen latent powers. Unemployment, then, is sometimes good, generally bad, and is infrequently disastrous beyond repair for those concerned."

Now, here is the human resources director of the American Rolling Mill Company in Middletown, Ohio, responding to this questionnaire about what the depression was like for him and for his community. "Within our experience, there are no specific outstanding cases of disaster as a result of unemployment, nor can we say that this individual or that was particularly benefited, but our general impression, gained through rather close observation, is that the moral fiber of our community was strengthened during the past 15 months." I read this to you to illustrate the difference in attitude between one generation and another, to underscore the idea that the past is indeed a foreign country. These words sound alien, so they are in good colloquial American.

Now, what did it look like at the bottom? What was the American enterprise? What face did it present to the world, to investors? How did things look? I am going to shock the investors in the room with a couple of quotations from stocks, and I'm going to quote from the head of the DuPont Company about what a major industrial enterprise looked like at the bottom of the cycle. Then I will tell you in a word or two how things ever recovered from this disaster.

First, goings-on at the DuPont Company: Now, if anyone, if any American business had cause to regret

the armistice of November 11, 1918, it was the world's largest maker of explosives. DuPont had a most prosperous Great War, and the peace was met, I dare say, in the state of Delaware with mixed emotions. So how did this thriving explosives and chemical maker deal with the rug being pulled out from under it? How did things work in 1921? Well, here is what DuPont did. It fired half the employees; it eliminated its bank debt; it wrote down its inventories by one-half; it showed earnings in 1921 of $2.35 a share, versus earnings in 1920 of $17 a share. Have you had enough, by the way, of "new normal"? Are you ready to scream if you hear it one more time? Well yes, I'm glad to hear that, because I too am sick and tired of it. But it's not a new concept. It's not a new query. Everyone wanted to know whether the world was embarked on a new age of—what is the phrase that Larry Summers favors? Ah yes, "secular stagnation." Is this something new and ugly and permanent?

The stock market was basically sawed in half, top to bottom, but without government management, prices fell low enough to entice value-seeking investors from all parts of the world to come back and to avail themselves of commanding bargains.

Well, here is what Irénée DuPont, the eponymous head of the DuPont Company, had to say about the future and about the recent past. He said to his stockholders, addressing the owners of the business: "The stockholders of this company are anxious to know whether this represents a new era of reduced business or whether the depression will quickly pass." [He replied] that the DuPont Company had been filling its needs for raw material out of its own stockpile for the past year, and it had cut its orders by, say, 50 percent. The businesses with which DuPont was associated—its vendors, for example—had done the same. So naturally the world had seemed to end. But DuPont held out hope that this too would pass, and when it did, there would be an abrupt acceleration of inventory building that would perhaps ignite a very up-tempo recovery. This indeed proved to be the case.

But here is how the stock market looked at rock bottom in 1921. For you investors, I hope you are gripping the arms of your chairs, because this is either very tempting to you if you are of a value-minded turn, or it could be terrifying—in any case, here are the facts. The stock market was basically sawed in half, top to bottom, but without government management, prices fell low enough to entice value-seeking investors from all parts of the world to come back and to avail themselves of commanding bargains. Coca-Cola, then new and seemingly promising growth stock, at the bottom was priced at less than two times what it would earn per share in 1922. The dividend was 5.25 percent. Gillette Safety Razor Company, which had sold as many razors and blades in 1921 as it had in 1920 and in 1919—it had a very good depression—was at five times immediately forward earnings, and it yielded more than 9 percent. RCA, Radio Company of America, not yet revealed as the growth stock of the age, was trading at exactly what it would earn in 1923: a dollar and a half.

So here we are at the bottom of the cycle; the government has done nothing except to make things worse; we have a new Republican Administration that is no more mindful of economic data—which didn't exist—than was its predecessor: Why are we not still in this depression? Why did it ever end? The answer that my book, and I vouchsafe to you, is that not only did prices fall, but also wages fell, and along about the bottom there was a coordination through market means of prices and wages, such that employers found it worthwhile to produce and to hire. Asset prices plunged—not just stocks, but also real estate, also bond prices. Money was mobile; gold came in and out of the country freely. America was the last country on a virtual gold standard—not quite pure in the 19th-century sense, but a pretty good first approximation of a pure gold standard, so gold freely entered the country and expanded the money supply, or the monetary base, in a way the Federal Reserve had chosen not to do. So individuals acting without central coordination came to a view that things were after all not so bad, and indeed in some respects quite promising.

Now, the government didn't literally do nothing—that is, the Republican Administration didn't literally do nothing; it helped to instill a sense of optimism and of possibility for the future. The President, Warren G. Harding, thought that the budget ought to be balanced, that the government ought to allow business to thrive, and that the clamor for redistribution of income, in the shape of a bonus to the veterans of World War I, ought not to pass Congress. Harding

expended a great deal of political capital to make sure that it did not pass. He went to the Senate personally and argued against it. Harding, in addition, sponsored a global disarmament conference. He wanted peace and prosperity through enterprise; that was the program. He had a Treasury Secretary named Andrew W. Mellon, one of the nation's foremost industrialists and bankers and financiers, who—in response to a Federal Reserve observation of there being a little speculation—said, "Well, the country can use some speculation." Under Mellon's influence, the Fed began to lower interest rates in 1921—a little. But the combination of market forces, of constructive government action, of the hope borne of constructive inaction, came together—and along about the autumn of 1921, there were reported labor shortages in Detroit.

John Maynard Keynes had said about this time in the early '20s, "The more troublesome the times, the worse does a laissez-faire system work." That has become writ. We see variations on this theme; we read them; we hear them. I submit to you that insofar as the doctrine can be refuted through example, the historical example of 1921 serves indeed to refute it. Thank you for listening to me.

—***James Grant*** *is the founder and editor of* Grant's Interest Rate Observer*, a twice-monthly journal of investment markets.*

Monetary Policy Based on Rules

John Taylor

I want to talk about something I haven't talked about here before, and that is monetary policy—[which is] near and dear to my heart and has been my whole career. What I would like to do is organize my remarks around a series of answers to what I will call "frequently asked questions" about this topic, because I get it all the time. This gives [me] the opportunity to put it together in, I think, a somewhat coherent way. But before that, I want to review a little bit of the history of the research that I have been involved in with others over the years, because I think it puts what we are doing here in context and actually answers a lot of the questions that people have about this important issue—a rules-based monetary policy.

I think you learn a lot from history, and I have a bit of history to talk about at this point. Believe it or not, I started working on policy rules 50 years ago. I was fortunate to take a course as an undergraduate in macroeconomics by a professor named Phil Howrey, who gave a terrific course—an unusual course. It wasn't this sort of static Keynesian IS-LM [investment-savings, liquidity-money] course. It was a course on the dynamics of the economy—how the economy evolved over time—with the emphasis on business cycles and dynamics, what we would call stochastic dynamic models now.

So as a sophomore I took this course, and it was really the only kind of macroeconomics I knew at the time; I just was fascinated by it. But what was really clear from this view of macroeconomics, which is quite modern, is that you could not think about monetary policy in any other way except as a rule, as a contingency. Because any effect on the economy would take place over time—dynamic economy, evolving over time. It really didn't make any sense to think of one-time discretionary changes in policy. It wasn't like there was a debate; it's just the way it fell out.

Now of course there was a big debate at the time about monetary policy—Milton Friedman arguing for fixed money growth rule, historical debates about the role of the gold standard and policy rules versus discretion more generally—a hot, very hot topic. Again, to me, it really wasn't much to debate, so I just proceeded in a fascinated way to get started. In a couple years before I graduated, I was working on finding optimal policy rules based on these dynamic models. I wrote a paper in 1968 and issued it in the econometric research program at Princeton on how to find good policy rules in one of these dynamic models. It was a money-growth rule where the money supply would respond to certain events in the economy, but it was a rule nonetheless. I would say at that point, I got hooked on this and haven't let it go since.

I was thinking at that point I was going to go to get an MBA at Stanford, and right away I said, "Well, I don't want an MBA, I'm going to get a PhD; I need a PhD to study this subject." So I changed from the business school to the economics department and got a PhD. At the time, macroeconomics was quite a bit [affirmant], so I decided I was going to work on the statistical aspects of this subject. And due to the extraordinary advice of a mathematical statistician, Ted Anderson, who is still a good friend—he is 96 years old now—we worked on ways to find policy rules that were robust to the fact that we didn't know the model of the economy. How would you change your policy when you don't know what is going on? It is a tough problem to model in macroeconomics.

With bringing rational expectations and forward-looking thinking into play, we also realized that part of our modeling of the economy was artificial.

I say the conclusion of that research—really high-powered statistical research—was that you could get a lot by a simple kind of rule. Don't get so complicated. You get a lot by a simple rule. It was a general theorem, but that came out of that work. And it was about that time, by the way, that rational expectations started to come into our thinking about policy. To me, that was an extra reason, on top of all things I had seen already, to think about monetary policy as a rule, because they [rational expectations] demonstrated the dangers that could occur from a move to discretion of absolutely a sub-optimal kind of policy, and the importance of time and consistency. So it is another really important aspect, which won the Nobel Prize.

With bringing rational expectations and forward-looking thinking into play, we also realized that part of our modeling of the economy was artificial. We

imagined that expectations were kind of "do whatever you want with them"—if they want to evolve slowly, adaptively; whatever you need to do to get a reasonable description of the economy moving, you just do it with expectations. Well, rational expectations say hey, you can't do that. They have to be roughly consistent with the model. I mean, people are out there making their forecasts not just willy-nilly; they are thinking about the future. So that forced us to think about better models of this wage-price process. I sometimes call staggered wage and price setting the only way you can make sense of the dynamics of the economy in a rational-expectations world.

So all through this process, we were developing theories, techniques, and model solution methods that I think enabled me and others to build models—and I emphasize models—that were sophisticated enough to at least get a handle on evaluating monetary policies. These are monetary models, but they are quantitative. Some were small, some were big, some were international—[we were] just trying everything we could to find out what theory tells us the monetary policy rule should be. We are always looking at rules; there is no other way to do it.

Soon we found that this goal of finding a rule for policy—and I would say this is not just thinking about it abstractly, but finding something that could work, something that would be useful to policymakers—what was coming out of this method were very complicated rules. If you have a complicated model, sometimes you are going to be forced into a complicated rule, because if everything is in a model, you are going to put everything into the rule. It is a natural tendency. And [we began to ask]: Where is this research going? Yes, you like rules. I like rules. But the computations and the theory were taking us in a way that really was too complicated. And anyone who has spent time in policy knows it can't be too complicated.

So there came a period where strong rules-based monetarists like David Laidler started to say: We have to give up. This is going nowhere. We just have to use discretion, sorry. But other monetarists like Alan Oster said, "No, no, let's keep at it." And he encouraged me and actually invited me to give a talk at one of his conferences he held in Pittsburgh and said, "Think about it some more, Taylor." So I started working with this goal of a simple way to take that theory and those ideas and make it more workable. That is really where what later became the Taylor rule came from. [I was] working with graduate students—John Williams was one of my students at the time. He is now in San Francisco, the Federal Reserve President. Volker Wieland is now in Germany with the Council of Economic Experts. So we were working...trying to find a way to make sense of all this.

Could there be a simple type of rule, maybe even specified mathematically, even literally, that could embody these ideas about what good policy is? I think the answer was yes. What we came up with was first a decision that the instrument ought to be the interest rate. Well, that is a little different. In fact, it drew a lot of suspicion. Back in the early '90s, the Fed didn't even talk about the fact that it was setting the federal funds rate; that was a mysterious thing behind the scenes. So to say you were going to have a rule with the federal funds rate being the variable you are determining, [this raised] a lot of suspicion, a lot of criticism. Eventually, of course, that changed as the Fed became more transparent about its interest rate.

Could there be a simple type of rule, maybe even specified mathematically, even literally, that could embody these ideas about what good policy is? I think the answer was yes

There is also evidence that if you have a goal or a target for price stability, also of course a goal for stability in the economy, that you ought to be reacting to inflation as a move away from a target. Of course you have to have a target. What is a simple target? We chose 2 percent. Well, 2 percent actually has now become the most common target of all central banks. It wasn't then. But it made sense, I thought. Maybe we chose a number that was too high, but we chose it.

Then [we] had to decide: What should the central bank do when inflation moves away from the target? It has to change its instrument. Well, how much? The theory said it needs to raise the interest rate by more than 1 percent if the inflation rate grows by more than 1 percent. The number 1.5 seemed to make sense—easy to remember, not too far away from what our numbers were telling us. So the interest rate would increase by 1.5 percentage points if the inflation rate rose by 1 percentage point, and the reverse.

It also made sense to [react] to the real economy, [to the] GDP, and I think to some extent that idea came

from the old view of money-growth rules. Because in a money-growth rule, if you hold money growth constant, and when the economy picks up, the interest rate is going to rise. So building that into a rule is important, too, plus the models told us the same thing. So you have a reaction coefficient to GDP, at least relative to its potential. About 0.5 seemed right, based on the simulations of theoretical research. So that is where that came from.

Then, finally, you needed some kind of a baseline to judge these interest-rate decisions with—what is the equilibrium, short-term interest rate that you want to be aiming for. It is pretty important, if you are setting the interest rate, to have some concept of where you are going. So we thought about it and in various ways came up with 2 percent real. Two percent real federal funds rate is kind of the equilibrium, or 4 percent nominal if you have a 2 percent inflation target. That is really where the Taylor rule came from. In simple terms, do a little substitution: The interest rate should equal 1.5 times the inflation rate, plus 0.5 times the GDP gap, plus one. That's it. It's hard to see how it could be simpler. There is a lot that goes into something like this, and I emphasize that because it was not just writing it down, but there was a tremendous amount—25 years—of thinking and working on it.

Now, what is amazing to me is what happened later, and this is really where the theme policy rules based on the Taylor rule [comes into play]. Because it turned out that [when you look at that] work first presented in 1992—in 1993 and 1994, the federal funds decisions of the Fed matched that formula almost perfectly, and people said, "Hey, what's going on here?" If that hadn't happened, I don't think we would be calling it the Taylor rule, quite frankly. What happened was [that] I got people's attention. It looked like what was put forth as a normative procedure, a normative idea, was becoming positive at explaining things.

The next amazing thing that happened is that roughly for another decade, it was pretty close to this, and if you look to the recent past, it was pretty close to this. The next amazing thing that happened was that people—originally the San Francisco Fed, Rich Clarida, Mark Gertler, [and] Jordi Gali—said, "If you look at periods where policy seemed to be working well—[where] we have pretty steady inflation, price stability, pretty steady economy, not a lot of fluctuations—those are periods where the interest rate is being set pretty close to that formula. Slightly different versions, but pretty close to that formula." And even more amazing, the bad periods were when the Fed was off of that formula. So it was pretty remarkable. That all occurred after this, because [we] had experience with it. It is really just a description of events that followed—this history that followed.

More amazing, this same phenomenon seemed to be true of other countries that we looked at, and other people. But at this point the "we" is so broad because so many people were working on this, because it was, I think, a very fascinating set of developments.

The models that we were working on said that if not just the United States, but other countries in the world, would follow the same kind of rules-based policy—and again, it has to be exactly the same—then you would automatically get a better global economy.

There are other things to note that I think are surprising. One is [that] the models that we were working on said that if not just the United States, but other countries in the world, would follow the same kind of rules-based policy—and again, it has to be exactly the same—in fact, they could have different tastes, different coefficients, but roughly the same kind of formula, then you would automatically get a better global economy; things would work better globally. It was almost as if countries were cooperating. Economists called it a kind of Nash equilibrium that is close to optimal. So I call it a nearly internationally cooperative equilibrium—NICE. And I think this period, roughly the '80s and '90s until recently, was pretty NICE and so was consistent with the theory again; the international side coincided with the theory.

Another surprise to me [was] how robust the calculations were to different types of models. You know, I talked about the model work we were doing, but lots of other people had different models. Within a fairly wide range, these kinds of procedures seemed to be robust. Not exactly, but if you had more complicated things, they weren't robust; they kind of fell apart. You could also explain puzzles that people had trouble with before. So for example, people would find that a spurt in inflation would be causing an appreciation

of the currency. Well, that is kind of the opposite of what you would think if you were going in a period of inflation; you have a depreciation of currency. But if you thought about a policy rule on top of that, a spurt of inflation would call for a higher interest rate, which would tend to appreciate the currency.

So to me it was pretty amazing. But then something else happened; in a sense, this to me is the tragic part of all this. Not tragic for the theory and the ideas, but tragic for us. I think what happened—I pinpointed this originally in 2003, 2004, and 2005, writing about it in 2006 and 2007—is that the Fed began to deviate from these things that were working. This is a period some people call "too low for too long." The interest rate was extraordinarily low compared to this period, the great moderation period where things were working well. Lo and behold, things started to blow up. I think the reason had to do with the excess risk taking, a search for yield. [This was] not the only thing that was going on, of course—there were regulatory issues—but definitely before the mess—before the Great Panic, the Great Inflation, the Great Depression, the Great Recession—there was this change in policy.

So to me, again, [the deviation was] tragic in a way, but also confirming this thing that we have been finding over time. I think if you now look at what has happened for roughly 10 years, you have seen a massive move away from more rules-based policy. It is not just the interest rate. It is the other kinds of policy operations, which are hard to specify as rules—the quantitative easing, the forward guidance that keeps changing all the time. I think that in itself is another demonstration—it is harder to specify the reasons, but it seems to me quite clear that [this policy operation] is causing problems. Of course, internationally, we have certainly moved away from anything that could be called NICE. Spillover is talked about all the time; macroprudential policy [is] being used in countries that didn't use it before, because they are being affected by these policies.

So it seems to me that that is the situation. In a sense, this is why [many] people would like to go in a different direction with policy. I call it renormalized, because I can see aspects of where we were before that worked well. The world is different, so it might not be that, but I certainly don't think of a new normal like we have had in the last few years.

That is why, two or three years ago, I gave a speech at the Cato Institute—it was called "Legislating a Rule for Monetary Policy," and when I came up with these ideas about rules, I wasn't thinking about legislation; I was thinking about ways to make monetary policy better. But in light of what has happened, it seemed to me you need to think about legislating a policy rule. So that proposal was based on experience that we have had on legislation with monetary policy, which I studied, and the legislative history used to have many growth targets that the Fed was supposed to report on. They were put in the Federal Reserve back in 1977 and taken out in the year 2000. Nobody complained about it much of the time, because the monetary aggregates had lots of problems with velocity changing, technology, [and] the use of money, which made them less useful. But nothing was put in its place. It was like there was a void.

[The Fed] should report what [its strategy] is and be able to change it if it wants to, but also say what the reason is for the change.

So the simple idea was to fill that void with some legislation that would require the central bank, the Federal Reserve, to specify its strategy, its rule, for setting the interest rate. This seemed pretty straightforward. That is why I am strongly supporting this legislation that came out of the House Financial Services Committee recently—section 2 of H.R. 5018 at the last Congress—because that basically [would do] something very similar to this. Of course it is not exactly the same, but it has an attractive feature that is a degree of accountability [and] transparency that I think goes in the right direction, but does not tell the Fed what its strategy should be. It doesn't tell the Fed to follow a Taylor rule, thank God. [Setting strategy is] the Fed's job. That is the responsibility of this independent agency. But [the Fed] should report what [its strategy] is and be able to change it if it wants to, but also say what the reason is for the change.

Now, there are hearings about H.R. 5018 coming up; in the past there were hearings about it, and in the meantime there is other legislation such as the Fed bill, which I think reflects some of the same issues and concerns that I have gone through in this history. But given this history now, let me try to raise some questions and answer those that the people have asked. It is frequently said that monetary policy based on the

Taylor rule is mechanical. Is it true? No, it is not true. In fact, I have a quote from my original paper: "An objective of this paper is to preserve the concept of a policy rule in an environment where it is practically impossible to follow mechanically any particular algebraic formula that describes the policy rule." You don't sit down and follow a formula like this when you are doing policy. Some judgment is required, I believe. Maybe we can find a better way to do this, but the word "mechanical" is used pejoratively in describing this, and it is just not appropriate.

Second question: It is often said that the Taylor rule was the result of a curve-fitting exercise; you just looked at what the Fed was doing and described that. That is not true. As I mentioned to you a few minutes ago, a huge amount of monetary theorizing, quantitative work, went into that kind of calculation. If I had simply done a curve-fitting exercise, I would have gotten a completely different formula. Remember, I would have had to have gone back to the '70s, '60s, battle days, and would not have gotten that number. I did try to show that during Alan Greenspan's term, there were features quite close to that [original result], but emphasized more the deviations than the similarities.

What about the uncertainty about the output gap? Doesn't that mean the Taylor rule is useless? Well, I don't think so. It means policy is difficult. If you are a Federal Reserve official, a central bank official, even if your sole goal is targeting inflation or price stability, you have to look at the real economy. You have to make a judgment call on where you are relative to normal. It's not easy. It doesn't mean a rule is bad; it means policy is difficult, whether you use a rule or not.

Zero bound on interest rate: Doesn't that mean that a policy rule like this is useless? In all that work I summarized a few minutes ago, we always had a zero interest rate in mind. Whenever a simulation resulted in [a near-zero] interest rate—when it hit 1 percent, we would switch to a Milton Friedman money-growth rule. If you based your policy and your thinking on what we knew, it wouldn't tell you [to use] some massive quantitative easing. It wouldn't say: Throw out everything you knew about rules. It would say: When the rate hits zero, you have a policy rule with money growth. That is how we did all those simulations. So in other words, it was an interest-rate rule within limits, and those limits basically were the zero bound. So it is not true to say that this kind of thing is useless in that context.

What about the equilibrium interest rate and the Taylor rule? As I mentioned, it is 2 percent real, 4 percent nominal. Many people are now saying that is too high; growth is slower. It's part of the secular stagnation argument. Growth is slower; shouldn't we have a goal maybe of a 3 percent federal funds target in the long run, rather than 4 percent, or maybe even 2 percent, zero real? I don't really know. I don't think so. I don't think we have a lot of evidence for that. I noticed [that in] the FOMC [Federal Open Market Committee] poll, they have lowered their equilibrium nominal federal funds rate from 4 to 3.75 [percent]. It's not a big change yet, but they seem to be moving in that direction. They may be right. I think we need research. That doesn't mean you don't use a policy rule; that means you have some adjustment of what that rate should be.

That doesn't mean you don't use a policy rule; that means you have some adjustment of what that rate should be.

Now, there has been recently a whole revival of criticism of policy rules in general. Narayana Kocherlakota of the Minneapolis Fed and Larry Summers have been reviving this. Based on a debate I had recently with Larry Summers, the notion is that we can always do better with discretion than rules. Larry said to me in this debate, "If I were sick, I had a doctor, I would want a doctor that prescribes me the right medicine. I don't want him to follow a rule. I just want him to give me the right medicine." It's a very appealing kind of concept. Of course you have to have the right doctor. The truth is, though, what we know about medicine, it's really not that straightforward. They actually have checklists for doctors that show [medicine] can work a lot better if the doctors follow the rules, follow a checklist. Of course you have to have procedures and checklists. Of course you have to have rules for operating. But nonetheless, there has been this revival of interest in discretion completely.

I wonder if a Taylor-rule-type thing is just much too much leeway. Shouldn't we go back to the gold standard? I would like to find a way for there to be less leeway. I don't think we are there yet, but there are some constraints that come from that. Here is a question: Doesn't the policy-rule legislation require that the Fed follow the Taylor rule? No. It does ask

that the Fed compare its strategy to a reference rule, which is the Taylor rule, but there is absolutely no requirement that it follow [the Taylor rule]. That's kind of a false criticism that is out there. I think you need to take that and put it in its place.

What about alternative rules? I would be the first to say, especially if you read what I have written over the years, that there are alternatives that should be considered. Let me talk about nominal GDP targeting. I wrote papers about that in the 1980s. I think the Taylor rule delivers a pretty good outcome if your goal is nominal GDP stability. I mean, we were using [the stability of] real GDP and the price level or inflation as the metrics or the criteria to find out what a good policy rule was. They combined to a statement about stability of nominal GDP.

It really becomes a question about how you go about getting stability of nominal GDP. I think it is not enough to say you want it; you have to say how you get it.

So it really becomes a question about how you go about getting stability of nominal GDP. I think it is not enough to say you want it; you have to say how you get it. This is an issue I have always worried about in my work and talked about for many, many hours with Milton Friedman. Milton was so sure that any kind of policy rule had to be about the instruments of policy—the lags in policy, the difficulty of accountability if you didn't do that—so they would always emphasize that whether it is the money supply, or the federal funds rates, some notion of what the Fed does, what the central bank does, has to be part of the policy rule.

So nominal GDP targeting—if it says what the Fed should do, then let's talk about it. In the meantime, I think we have a pretty good rule that gets you stability of nominal GDP. What about adding other variables, the stock market, the exchange rate? I don't think it is a good idea. Those variables are quite volatile; they cause volatility of the interest rate. You could think about the 2003, 2004, or 2005 period. Many people say that is where the Fed should have been reacting to the housing bubble. Maybe. I think if they had just followed a better policy at the time, we wouldn't have had to worry about that. So before you start saying they [have] to react to other things, make sure they are doing the right thing in the first place—not causing the instability, if you like.

There are other questions, but let me wrap up, because I am sure you have questions that I have not listed. I think the most basic one is: Can we improve on the Taylor rule? I would say: Absolutely we can. One of the things I think about all the time, I would like my students to think about—I think it is a good place to conclude, because these ideas were put out as examples for discussion 20, 25 years ago. As I indicate, they were based on years of research by me and many other people. I am, of course, surprised that they have attracted attention and that they are still being discussed. It's amazing.

But it seems to me the important thing is that there is real advantage to having a strategy or policy rule for the central bank. There are debates about how to get it, but that is a theme I think we should not lose track of as we debate which strategy or which rule to put into place, because it is hard to know. We have, as I mentioned, an enormous amount of research and experience with some of these policy rules. But there is no reason not to keep it up, and there is no reason to think about only one. That is why I think the legislation that is out there is good. In a sense it says a strategy is important, a rule is important; it's your job to choose the rule, central bank, but we want you to be accountable about it.

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Conclusion

The basis of Heritage's stance on monetary policy is that the competitive process is, ultimately, the only way to discover what people view as the best means of payment. As George Gilder suggested, the federal government's monopoly on base money necessarily limits the extent to which competitive forces can strengthen money, and exposes the means of payment for all goods and services to the mistakes of a single government entity. Nothing can provide as powerful a check on the government's ability to reduce the quality of money as allowing competitive private markets to provide it. Optimally, Congress will no longer interfere with citizens' ability to choose whichever method of payment they prefer.

The federal government's monopoly of base money and of modern monetary policies is widely believed to have stabilized the economy, but, as Larry White mentioned, a great deal of evidence casts doubt on this belief. Still, given that the U.S. dollar is currently the preferred method of payment throughout the U.S., and that Congress has delegated its monetary responsibilities to the Federal Reserve, a key policy goal for Congress is: Enact a policy now to ensure that the Fed is a good steward of money. To achieve this goal, Congress should narrow the Fed's statutory mandate, which includes too many broad macroeconomic goals (see below), and require the Fed to implement, as discussed by John Taylor and Scott Sumner, a rules-based monetary framework to add clarity, accountability, and transparency to the central bank's operations.

When the Fed was created in 1913, the idea of maintaining price stability and maximum employment was nowhere to be found in the Federal Reserve Act. Instead, the main objective was "to furnish an elastic currency," one that—as George Selgin mentioned—would better meet the seasonal currency demands of the agriculture-based American economy. Decades later, Congress tasked the Fed with maintaining "long run growth of the monetary and credit aggregates commensurate with the economy's long run potential to increase production, so as to promote effectively the goals of maximum employment, stable prices, and moderate long-term interest rates." In addition to these ill-defined requirements, the Dodd–Frank Act enmeshed the Fed in the government's nebulous efforts to maintain financial stability. Compounding the lack of a clear statutory or objective economic definition for these items, Congress has given the Fed a great deal of discretion to interpret how these duties should be performed. As a result, Congress cannot possibly hold the Fed accountable for performing these tasks.

The stable price portion of the Fed's mandate provides the perfect example of why the current arrangement needs to be replaced. The Fed has interpreted "stable prices" to mean perpetual 2 percent price inflation, as measured by the annual change in the price index for personal consumption expenditures (PCE). This interpretation of price stability presents several problems, not the least of which is that it ignores that a growing economy should produce a mildly *decreasing* price level, thus allowing people to reap the benefits of higher productivity. More broadly, following a price rule requires the central bank to intervene by decreasing the money supply in the face of an adverse supply shock (such as the oil embargo of the 1970s) that leads to higher prices *and* fewer goods and services. This situation results in a counterproductive policy because it ensures that less money will be available to purchase fewer goods, thus exacerbating the shortage. Furthermore, many factors far outside of the Fed's control can affect prices, thus making it impossible for Congress to hold the central bank accountable for its actions when implementing a price rule.

A much better option would be for Congress to require the central bank to implement a simple rule that avoids this problem in the face of adverse supply shocks, one that Congress can easily monitor *and* use to hold the Fed accountable. (Central banks cannot "fix" adverse supply shocks with monetary policy because they can only increase or decrease the money supply, thus leading to the counterproductive policy described above). A good choice would be a demand-side rule, such as one based on the path of total nominal spending in the economy (the total quantity of money spent on final goods and services). A central bank following this type of rule would only accommodate changes in the demand for money, and could be required to use the monetary base—the only monetary aggregate that the Fed can actually control—as its policy instrument. Thus, this type of rule would allow the inflation rate to vary with productivity, as it should, and would allow Congress to hold the Fed accountable for its operations. (Both George Selgin and Scott Sumner call for this type of rule.)

In a managed fiat currency system such as the U.S. framework, good monetary policy safeguards against an excessive supply of money that could overheat the economy, and against an insufficient supply of money that could stall the economy. To accomplish this task, the Federal Reserve needs to supply the amount of money the economy needs to keep moving, no more and no less, and it needs to do so in a neutral fashion, rather than allocate credit to preferred sectors of the economy. (Larry White and Gerald Dwyer both discussed the Fed's credit allocation policies.) As Jim Grant and Steve Forbes both recognized, this standard dictates that the Fed maintain a minimal footprint in financial markets so that it does not distort prices, crowd out private credit and investment, create moral hazard problems, or transfer financial risks to taxpayers. Finally, the Federal Reserve should conduct monetary policy in a transparent manner, with maximum accountability to citizens through their elected representatives.

In summary, to improve monetary policy, Congress and the Federal Reserve should implement the following changes.

- Narrow the Federal Reserve's statutory mandate, which includes too many broad macroeconomic goals, and require the Fed to implement a rules-based monetary framework that strives for monetary neutrality.

- Ensure that the Fed's policy rule is not based on inflation targeting. A better choice would be a demand-side rule, such as one based on the path of total nominal spending in the economy.

- Ensure that the Federal Reserve conducts monetary policy with clarity, accountability, and transparency.

- Make certain that the Fed maintains a minimal footprint in financial markets so that it does not distort prices, crowd out private credit and investment, create moral hazard problems, or transfer financial risks to taxpayers.

The Heritage Foundation looks forward to continuing to engage policymakers on these issues to help improve monetary policy for all Americans.

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