

The Real Problem wasn't Real, it was Nominal

by

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Note: The appendices are a relatively important part of the paper, so please read them if you have time. If you are short of time the main text lays out the central arguments.

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A recent series of articles in *The Economist* argued that the current financial crisis has exposed important flaws in modern economic theory. I will make a slightly different argument. The sub-prime crisis that began in late 2007 was probably just fluke, and has few important implications for either financial economics or macroeconomics.¹ The much more severe crisis that swept the entire world in late 2008 was a qualitatively different problem, which has been misdiagnosed by those on both the left and the right. Most economists simply assumed that a severe intensification of the financial crisis depressed spending throughout much of the world. In fact, the causation reversed in the second half of 2008, as falling nominal income began worsening the debt crisis.

Because central bankers misdiagnosed the problem, they were not able to come up with an effective policy response. It was as if a doctor prescribed medicine for a common cold to someone whose illness had progressed to pneumonia. And because economists were confused by the nature of the problem, it appeared as if modern macro offered no solutions. Thus policymakers turned in desperation to old-fashioned Keynesian fiscal stimulus, an idea that had been almost totally discredited by the 1980s.

We cannot hope to understand what happened late last year without first recognizing that the proximate cause of the crash was not a financial crisis, but rather a steep decline in nominal spending. Like any other fall in aggregate demand, this represented a failure of monetary policy. Severe demand-side recessions are almost never the result of special interest politics, the losses are too great and too widespread, but instead represent an intellectual failure by well-meaning public servants and the academic economists who advise them. To see how this happened I'll trace out a brief history of monetary theory, and then show how the current crisis resulted not from a failure of modern macroeconomic theory, but rather a failure to take seriously some of the most promising recent developments in the field.

Here is a puzzle. Almost everything we have learned from recent research in monetary history, theory and policy, all points to the Fed as being the cause of the crash of late 2008. More specifically, an extremely tight monetary policy in the US (and perhaps Europe and Japan) seems to have sharply depressed nominal spending after July 2008. And yet it is difficult to find any economist who believes this. More surprisingly, few economists are even aware that their views conflict with the standard model, circa 2009. Even if I am wrong, and the standard view of the crisis is correct, there is an important message in this paper. The standard view of the current recession conflicts with some of the most important concepts that we currently teach our students in monetary economics courses. I'd like to keep our textbooks intact, and have the profession rethink what went wrong in 2008. But something must change.

¹ That is not to say there are no lessons for regulation. I would like to see the government retreat from its policy of encouraging homeownership through sponsored entities such as Fannie Mae and Freddie Mac. But we shouldn't kid ourselves that we will be able to enact regulations that rely on bureaucrats figuring out which bank loans are not in the private interest of the banks making those loans. My view is that we should try to reduce the moral hazard problem by requiring 20% down on all mortgage loans (as many other countries do.)

1. A very brief history of monetary economics

In the mid-1700s David Hume developed all of the key ideas necessary to understand the current crisis. He is most famous for his exposition of the quantity theory of money, which explains why autonomous changes in the money supply lead to a proportional change in the price level. He also noticed that in the period before wages and prices have had time to fully adjust, a change in the money supply caused output to move in the same direction. Hume even understood that a change in the velocity of money had an identical effect to a change in the money supply:

“If the coin be locked up in chests, it is the same thing with regard to prices, as if it were annihilated.” David Hume — *Of Money*

If we think of Hume’s theory in terms of the famous equation of exchange ($M*V = P*Y$), we can see that he had a fairly sophisticated understanding of all four variables. What we would call an “aggregate demand shock” was triggered by either a change in the money supply and/or the velocity of circulation. In the long run the effects of less nominal spending show up in the form of lower prices, but in the short run output would also fall. And this is exactly what happened in late 2008. The level of nominal GDP (NGDP) began falling rapidly. No one should be surprised that real output also fell sharply. The only question is why did NGDP fall?

You might wonder whether I was being intentionally provocative with my assertion that Hume had the answer to all our problems. Maybe a little bit, but Milton Friedman made a similar observation in 1975 regarding the Phillips Curve:

“As I see it, we have advanced beyond Hume in two respects only: first, we now have a more secure grasp on the quantitative magnitudes involved; second, we have gone one derivative beyond Hume.” (p.177)

The importance of “quantitative magnitudes” is obvious, but what about the phrase “one derivative beyond Hume?” Friedman simply meant that Hume thought of nominal shocks in terms of one-time changes in the price level, or NGDP, whereas Friedman suggested that what really mattered were changes in the growth rate of prices. Today we think in terms of unanticipated changes, although in practice we haven’t advanced far beyond Friedman’s focus on changes in the rate of growth.

Between the early 1990s and 2007, NGDP grew at just over 5%/year. Because the real GDP growth rate averaged nearly 3%, we ended up with a bit more than 2% inflation, which was widely believed to be the Fed’s implicit target. Beginning in August 2008, however, NGDP slowed sharply, and then fell at a rate of more than 4% over the following several quarters. Indeed the decline in NGDP during 2009 is likely to be the steepest since 1938. This produced what may end up being the deepest and most prolonged recession since the 1938.

Some conservative economists favor lowering the rate of NGDP growth to a pace consistent with stable prices, or even mild deflation. This may or may not be a good idea as a long run goal, but as of early 2008 the US economy featured many wage and debt contracts negotiated under the expectation that NGDP would keep growing at about 5%/year. Because

nominal GDP is essentially total gross national income, if it falls sharply it becomes much harder for debtors to repay loans, and much harder for companies to pay wages and salaries. The almost inevitable consequence is that unemployment rises sharply, and debt default rates soar.

At this point the reader may be a bit exasperated, as I seem to be ignoring two very obvious problems:

1. The “real problem” was obviously the financial crisis, and NGDP fell as a consequence.
2. Monetary policy was obviously highly expansionary, and so one can hardly evoke Hume’s “tight money” explanation for this crisis.

But is there any reason to accept these two “obvious” assumptions? I will show that neither assumption is well-supported, and that this misdiagnosis explains how the world stumbled into a deep slump. The real problem was not a “real” problem at all, it was a nominal problem, and the severe intensification of the debt crisis was a symptom of an ordinary Humean nominal shock. Furthermore, monetary policy was not “easy” but rather was highly contractionary in the only sense that matters, that is, *relative to the stance expected to hit the Fed’s implicit nominal targets*.

My brief history of macro from Hume to Friedman left out one important strain of monetary economics, the interest rate approach developed by Knut Wicksell and taken to an extreme by John Maynard Keynes. Wicksell argued that central banks should adjust the interest rate on short term loans as needed to stabilize the price level. The rate that maintained a stable price level was called the “natural rate” and could vary with the business cycle. Keynes’ most important contribution to this theory was to argue that in a depressed economy with falling prices the natural rate might become negative. Because central banks cannot reduce nominal interest rates below zero, this would seem to make monetary stimulus relatively ineffective in a deep depression. This scenario is often called a ‘liquidity trap.’

Today we know that there are important flaws in the interest rate approach to monetary policy, and two competing approaches suggest ways of escaping from a liquidity trap. The monetarists recommend “quantitative easing,” or injecting more cash into the economy than the public wishes to hold. The only way to get rid of these excess (real) cash balances is to spend them on goods, services, and assets, thus driving aggregate demand higher.

In addition to the interest rate and quantity of money approaches, there is also a third “price of money” approach to monetary policy. According to this view it is always possible to produce inflation by lowering the price of money, in terms of either a commodity like gold, or in terms of foreign exchange. This was the approach used by FDR in 1933, when conventional monetary tools seemed ineffective. Although FDR’s dollar depreciation policy was highly effective in boosting NGDP, a promising recovery in real GDP was aborted in late 1933 by the ill-advised National Industrial Recovery Act, which sharply raised wage rates. Nevertheless, the price of money approach is so effective that Lars Svensson (2003b) has called it a “foolproof” escape from a liquidity trap.

Much of recent macro theory has focused on showing how and why monetary policy can be highly effective in a liquidity trap. Thus I was quite surprised to observe the general sense of powerlessness that seemed to grip the world's central bankers as the crisis intensified last fall. In early October 2008 the world economy was in free fall, with forecasts of falling prices and output going well into 2009. And yet there was a general sense that monetary policy could do nothing to arrest this collapse, despite the fact that the Fed's target rate was still 200 basis points above zero, and the ECB's target rate was 425 basis points above zero. By the time the Fed cut rates close to zero in December 2008, almost all of the attention was focused on fiscal stimulus. How did this happen? Why did policymakers ignore what we teach our students in best-selling money and banking textbooks?

“Monetary policy can be highly effective in reviving a weak economy even if short-term interest rates are already near zero.” (Mishkin, 2007, p. 607.)

In the next two sections I will trace out the series of errors that led to this policy failure.

2. Misdiagnosing the stance of monetary policy

Twentieth century macroeconomics reached its nadir in 1938, when zero interest rates and falling prices led many economists to dismiss the importance of monetary policy. Keynes had argued that monetary policy could only impact demand by changing interest rates, and Joan Robinson drew the logical implication that easy money couldn't possibly have caused the German hyperinflation, as interest rates were not particularly low. Today we tend to sneer at that sort of crude Keynesianism, but when I argued with my fellow economists that money was actually very tight last fall, the most common retort was “how can that be, interest rates have been cut close to zero?” Some might argue that at least the real interest rate is a good indicator of the stance of monetary policy. But this is also false, as Robert King (1993) showed that tight money can easily depress real rates in a forward-looking model. And even if it were true, real rates rose very sharply in the late summer and fall of 2008, so one can hardly use that as an excuse for the profession's failure to recognize tight money.

The second most common rationale for believing money was “easy” was to point to the huge expansion of the monetary base that began in the fall of 2008. But the monetary base is not much more reliable than interest rates. Friedman and Schwartz (1963) showed that money was very tight during the early 1930s, and yet the monetary base rose sharply during that period. It is true that the increase in the base was even more rapid in this recession, but that simply reflects the fact that beginning in October 2008 the Fed began paying banks to hoard excess reserves. According to James Hamilton, the Fed did this to prevent its large injections of liquidity during the banking crisis from creating high inflation. This is probably true, but then begs the question of why so many economists thought monetary policy had become ineffective. The Fed certainly had it within their power to boost NGDP last fall, indeed the Fed's official excuse for paying interest on reserves was called a “confession of the contractionary effect” by Robert Hall and Susan Woodward (2008.)

When I point out that neither interest rates nor the base are reliable indicators of the stance of monetary policy, the final fall-back position is often that the broader aggregates also increased during the past year. But these broader aggregates were widely viewed as being

discredited during the 1980s, when they sent out false alarms about high inflation. In fact, that episode did much to discredit monetarism, or at least the more dogmatic form that advocated targeting the money supply. Late in his life even Milton Friedman endorsed Robert Hetzel's (1990) proposal for the Fed to target indexed bond market inflation forecasts. If they had done so last September, I believe the current unemployment rate would be about 5%. Instead, policymakers turned to fiscal policy.

In a recent paper criticizing fiscal stimulus John Cochrane made this impassioned plea:

“Some economists tell me, “Yes, all our models, data, and analysis and experience for the last 40 years say fiscal stimulus doesn't work, but don't you really believe it anyway?” This is an astonishing attitude. How can a scientist “believe” something different than what he or she spends a career writing and teaching?”

I had the same sense of frustration regarding monetary policy. Here is what Mishkin's best-selling text says about indicators of monetary policy:

“It is dangerous always to associate the easing or the tightening of monetary policy with a fall or a rise in short-term nominal interest rates.” (p. 606.)

Mishkin then argues that:

“Other asset prices besides those on short-term debt instruments contain important information about the stance of monetary policy because they are important elements in various monetary policy transmission mechanisms.” (p. 606.)

I looked at 7 key economic indicators during the summer and fall of 2008, and between July and November each one signaled that monetary policy was highly contractionary:

1. Real interest rates soared much higher.
2. Inflation expectations fell sharply, and by October were negative.
3. Stock markets crashed.
4. Commodity prices fell precipitously
5. Beginning in August, industrial production plunged.
6. The dollar soared in value against the euro.
7. In the spring and early summer of 2008 housing prices had briefly stabilized, but in August a renewed decline set in. This time there were also sharp declines in markets (mostly in the middle of the country) that had avoided the sub-prime excesses. At this point the housing downturn also spread to Canada.

By early October it was obvious that monetary policy had completely lost credibility. This means that the market expectation for inflation and NGDP growth over the following 12 months had fallen far below any plausible estimate of the Fed's implicit target. At the time few noticed this problem, as economists focused all their attention on what to do about banking.

Even when the fall in aggregate demand was noticed, its implications were not understood. Many economists associate a loss of monetary credibility with high inflation, not excessively low inflation. This bias was mirrored in the media; which frequently made the bizarre assertion that inflation was "no longer a problem," when in fact millions were losing their jobs precisely because inflation was far too low.

A third problem was that many economists assumed that the financial crisis was causing the decline in aggregate demand, whereas the reverse was more nearly true. This should come as no surprise; monetary policy almost never appears to be the cause of deflation to those living in the same time and place. And how could it be otherwise? Deflationary policies cause massive losses to an economy, and would never be intentionally undertaken except when absolutely necessary to maintain an external currency peg. In both 1930s American and 1990s Japan, local observers failed to see the monetary origins of their deflation, and instead blamed it on problems with the financial system. Only with the perspective of time and distance were economists able to look dispassionately at the falling price level data and ask why monetary policy was not more expansionary.

A fourth problem was that many economists focused on inflation, whereas NGDP growth is a far more revealing indicator of deflationary policies. It is true that headline inflation rates did turn negative toward the end of 2008, but this could be brushed off as merely reflecting a sharp fall in energy prices. After all, the Fed had (correctly) discounted the high inflation rate of mid-2008, noting that the core rate remained relatively low, so why shouldn't they take comfort from the fact that in late 2008 and early 2009 the core rate never turned negative? There are several reasons. First, because many wages and prices are very sticky, a deflationary monetary policy may affect output before it has much impact on inflation. But the more important reason is that the core rate almost certainly understated the decline in prices during the past 12 months. For instance, BLS data shows housing prices (which comprise nearly 40% of the core index) rising 2.1% in the 12 months ending June 2009, whereas it is obvious that the housing sector was experiencing severe deflation. Even if the government data correctly measure the "rental equivalent," which they do not, those prices are not relevant for considering the macroeconomic impact of deflation. Construction workers lose their jobs when house prices fall, the fact that rents under existing 12 month leases respond much more slowly is of little importance. Thus economists ended up being reassured by economic data that was highly misleading.

In my view the expected growth rate in NGDP is the best indicator of whether monetary policy is too loose or too tight. But even if we end up targeting inflation instead, it is essential that policymakers engage in "level targeting." This does not necessarily mean keeping prices absolutely level—you could target a price level path that rose at 2% per year—but it does require that policy have a "memory," and make up for past under- or over-shooting of the target. The most devastating demand shocks are those that change the expected trajectory of NGDP and inflation many years out into the future. Oddly, these almost always occur around the September

to November period, and in 1929, 1937, and 2008 we saw very similar stock and commodity market crashes in the autumn as investors realized NGDP growth was moving to a much lower trajectory for years to come. Only the 2008 crash was associated with a banking crisis, but the three inflection points had many similar characteristics.

Robert Hetzel (2009) showed that during the summer of 2008 all sorts of indicators were signaling that money was too tight well before the failure of Lehman in mid-September. Although there is no doubt that the intensification of the financial crisis further reduced aggregate demand, most observers lost sight of how falling demand worsened the banking sector. Even in normal times going from 5% NGDP growth to a nearly 5% rate of decline would place a severe burden on banks. But these weren't ordinary times. This massive deflationary shock was superimposed on a banking system that was already reeling from the earlier sub-prime crisis.

The results were predictable. All sorts of commercial and industrial loans that were unrelated to the sub-prime mess, and which would have been repaid with healthy NGDP growth, became much more questionable. As asset prices declined sharply from the deflationary monetary policies, bank balance sheets deteriorated. Policymakers misdiagnosed the problem as financial, and thought it could be "fixed" by injecting more capital into the banking system. But with NGDP falling rapidly each bailout never seemed to be enough. The policies were about as effective as bailing water out of a boat, without first plugging the leak in the hull.

I also think a lot of economists got hung up on a false reading of what the Fed actually "did" or "didn't do." I constantly hear economists tell me that at worst it was errors of omission, the Fed didn't actually "do anything" contractionary. The implication is that if everything had been exactly the same, except that the Fed had raised the target rate from 2% to 8% in August 2008, they'd be willing to buy into my hypothesis. But that is an extraordinary admission, as Milton Friedman correctly argued that ultra-low rates aren't easy money, they are the result of very tight money.

A corollary of this argument looks at all the things the Fed did do. People say to me in exasperation: "Look, the Fed slashed interest rates close to zero, they doubled the monetary base, what else can you expect them to do?" The problem with these laundry lists is that adding zero to zero still leaves you at zero. Cutting rates is not necessarily expansionary, it may reflect a weak economy. Massively increasing the monetary base is not expansionary if you are paying banks interest on those reserves at a rate higher than they can earn on alternative assets. The Fed took similar steps in the early 1930s, and economists (including Ben Bernanke) have now mostly accepted the Friedman and Schwartz view that money was actually quite tight. The one and only useful indicator of the stance of monetary policy is the public's expectation of growth in the nominal target variable.

Here is a useful thought experiment. Imagine the tightest monetary policy possible. Not just tight enough to stop inflation, or produce mild deflation, but so tight the rate of deflation was expected to exceed the real interest rate. What would that sort of tight money actually look like? At first people imagine high interest rates, but in the scenario I just described interest rates would actually fall to zero, which would cause demand for base money to soar. And all sorts of asset prices would plummet. And if wages were sticky you'd see high unemployment. And loan

defaults would soar. In other words the tightest monetary policy that could be imagined would produce stylized facts *almost identical to what actually occurred in late 2008*. The great irony is that a central bank that did this would not be viewed as a villain, but rather as a hero (for cutting rates and boosting the base to meet demand) or at worse an innocent bystander. The Fed chairman might even be re-appointed for another 4 years. (This reminds me of the first Gulf War, when President Bush showed great strength of purpose and leadership by putting together a big coalition and driving Saddam out of Kuwait. Yes, but he was only able to show those skills because he had earlier showed great weakness and incompetence by practically inviting Saddam to invade with his diplomatic message that the Iraq/Kuwait border dispute was none of our business.)

3. Targeting the Forecast

Lars Svensson (2003a) has advocated a policy of targeting the forecast; which means setting the central bank's policy instrument at the level most likely to hit its policy goal. Thus if a central bank had a goal of 2% inflation, it should set the fed funds rate at a level where its own forecasters were forecasting 2% inflation. Once one starts to think of monetary policy this way, any other policy seems unacceptable. After all, why would any central bank ever want to adopt a policy stance *that was expected to fail*? Ben Bernanke (2007) also seemed to find the logic of Svensson's idea to be quite appealing, and hinted that the Fed also saw things this way, at least with regards to its longer term forecasts:

"The [macroeconomic] projections also function as a plan for policy—albeit as a rough and highly provisional one. As I mentioned earlier, FOMC participants will continue to base their projections on the assumption of 'appropriate' monetary policy. Consequently, *the extended projections will provide a sense of the economic trajectory that Committee participants see as best fulfilling the Federal Reserve's dual mandate*, given the initial conditions and the constraints imposed by the structure of the economy." (Italics added.)

As we all know by now, things didn't turn out this way. Beginning in the fall of 2008 it became apparent that the Fed's forecast was well below any plausible target. (They have no official inflation target, but it is assumed that most FOMC members favor a rate of roughly 2%.) Any doubts about whether policy had lost credibility were erased when Bernanke asked for fiscal stimulus. In the standard new Keynesian model where the central bank targets the inflation rate, there is no role for fiscal policy in stabilizing nominal spending. His move was a tacit admission of failure.

It is difficult to understand how this happened, but three conceptual errors may have played a role. First, monetary policymakers may have assumed that they were "running out of ammunition" as rates approached zero. But on closer examination this cannot have been the whole story, as the target rate was still 2% in early October, and at that time the Fed adopted a policy of paying interest on reserves to *prevent* market rates from falling below their target.

A second problem was that policy was too backward-looking. Hetzel (2009) argued that the Fed was frightened by the high inflation rates in the "headline CPI" during mid-2008, and thus was reluctant to ease aggressively. In their meeting of September 16, 2008, after both the failure of Lehman and a severe stock market decline, the Fed refused to cut rates. Keep in mind

that the US had already been in a mild recession for the first seven months of 2008, and the recession intensified greatly in August and September. Furthermore, the market forecast of inflation over the next 5 years had plunged to an annual rate of only 1.23% just before the meeting. Both the inflation and growth outlook called for aggressive easing. How did the Fed explain their passivity? They argued that the risks of recession and inflation were roughly equally balanced. Not a risk of low inflation, but rather a risk of *high* inflation. There can be no more perfect example of the problem with backward-looking policy that ignores market forecasts.

The third problem resulted from misreading the lessons of monetarism. As I noted earlier, monetarism was pretty much spent after the 1980s. Nevertheless many monetarist insights became a part of the consensus new Keynesian model. Some of these were very valuable, ideas such as the importance of expectations, and also that monetary policy was more effective than fiscal policy. But one idea turned out to cause great mischief. This was the belief that any large increase in the money supply must inevitably be followed by high inflation. This idea still holds sway despite the fact that prices have trended downward in Japan since 1994, despite huge monetary injections. Part of the problem is a widespread belief in a mysterious “long and variable lags” in the impact of monetary policy. Although monetarists are generally associated with the view that markets are efficient, they ignored the fact that any increase in the money supply expected to be inflationary should immediately show up in the financial markets, particularly in the so-called TIPS spreads, which is the difference in yields between indexed and conventional bonds.

My own research on the Great Depression convinces me that most monetarists (and Keynesians as well) underestimate the difficulty of identifying monetary shocks. Modern macro theory suggests that what really matters is not a change in today’s money supply, but rather a change in the expected future path of money.² Fed actions that do not have this effect, such as the injections of liquidity into the banking system in the spring of 1932, or late 2008, do not raise inflation expectations. Actions that do credibly raise the future expected path of the money supply, such as the 1933 devaluation of the dollar; have an immediate effect on all sorts of asset prices, especially stocks and commodities. For those who wonder whether monetary policy alone could actually boost NGDP in the midst of a financial crisis, consider the following: In the first few days of March, 1933, the US was in the midst of its worst financial crisis. Only weeks later NGDP was growing at the fastest rate in modern US history. How did this miracle occur? Eggertsson (2008) argued that expectations shifted dramatically after FDR adopted an explicit policy of boosting the price level back to pre-Depression levels, and committed to do whatever was necessary to achieve that goal.

A sharp devaluation of the dollar would not have been appropriate in the second half of 2008, as much of the world faced the same problems as the US. But we did need some type of credible policy of price level or NGDP targeting. I have advocated a policy where the Fed pegs the price of a 12-month forward NGDP futures contract, and lets purchases and sales of that contract lead to parallel open market operations. In essence, this would mean letting the market determine the monetary base and the level of interest rates expected to lead to 5% NGDP growth. When I first proposed this idea in the 1980s, I envisioned the advantage in terms of traders

² I made this argument in a 1993 paper. Krugman (1998) applied the idea to liquidity traps.

observing local demand shocks before the central bank. The logic behind this idea is often called “the wisdom of the crowds.” But I no longer see this as its primary advantage. Although last fall the market forecast turned out to be far more accurate than the Fed’s forecast, in general the Fed forecasts pretty well.³

This crisis has dramatized two other advantages to futures targeting, each far more important than the “efficient markets” argument. One advantage is that the central bank would no longer have to choose a policy instrument. Their preferred instrument, the fed funds rate, proved entirely inadequate once nominal rates hit zero. Under futures targeting each trader could look at their favorite policy indicator, and use whatever structural model of the economy they preferred. A few years ago I published this idea under the title “Let a Thousand Models Bloom.” I am not an “Austrian” economist, but this proposal is very Austrian in spirit. (And my preferred policy target (NGDP) is also the nominal aggregate that Hayek thought was most informative.)

Only last fall did I realize that there was another, even more powerful advantage of futures targeting—credibility. The same people forecasting the effects of monetary policy would also be those setting monetary policy. Under the current regime the Fed sets policy and the market forecasts the effects of policy. To consider why this is so important, consider the Fed’s current dilemma. They have already pumped a lot of money into the economy, but prices have fallen over the past year as base velocity plummeted. Certainly if they pumped trillions more into the money supply at some point expectations would turn around. But when this occurred velocity might increase as well, and that same monetary base could suddenly become highly inflationary. This problem does not occur under a futures targeting regime. Rather, the market forecasts the money supply required to hit the Fed’s policy goal, under the assumption that they will hit that goal. Today we have no idea how much money is needed, because the current level of velocity reflects the (quite rational) assumption that policy will fail to boost NGDP at the desired rate. In very simple terms, policy credibility uncertainty creates velocity uncertainty, which makes it hard to estimate the appropriate money supply.

Futures targeting will not happen in the near future. But this thought experiment provides insights into what sort of policy would have worked last fall. The most important thing that policymakers could do right now would be to set an explicit CPI or NGDP target path and commit to make up for any future under- or over-shooting. Perhaps the easiest way to see the value of this approach is to recall the stabilizing speculation that occurs under a credible currency peg. If a government commits to peg a currency within a band plus or minus 1% around a par value, then speculators will tend to buy the currency if it falls toward the lower limit, and vice versa. And most importantly, stabilizing speculation will tend to occur even if the central bank is slow to respond to shocks. All you really need is confidence that the peg will be restored in the not too distant future.

Now consider a price level target rising 2% each year. Robert Barro (1986) argued that if inflation undershot a price level target, investors would expect higher future inflation. These expectations will immediately increase velocity and hence aggregate demand, thus mitigating the original deflationary shock. In contrast, under our current “memory-less” inflation targeting

³ Bernanke and Woodford (1997) criticized a version of this idea that I published in 1995. But their critique does not apply to the versions I published in 1989, and 2006.

regime just the opposite occurs. After the 1.4% deflation over the past year, investors are (quite rationally) expecting below target inflation for years to come. The sort of severe downturns in aggregate demand that occurred in the fall of 1929, 1937, and 2008, when long term expectations became unanchored, cannot occur under a credible regime of price level targeting.

Yes, NGDP is very different from an exchange rate, and certainly cannot be pegged so easily. But Barro is right that the same principles apply. If there is confidence that NGDP will get back on track at some date in the not-so-distant future, this expectation greatly limits the amount NGDP can fall below target in the short run.

Of course it is theoretically possible that even if the Fed committed to keeping NGDP growing at 5% per year, and even if the market believed they could do that over an extended period of time, the market might expect a sharp decline in near term NGDP, followed by a sharp bounce back to the announced policy trajectory. But in practice this type of expectation is almost inconceivable, for all sorts of reasons. For instance, it would imply a time path of commodity futures that would violate intertemporal arbitrage conditions. Thus if AD was expected to fall sharply in the short run, but then return to the trend line over the medium term, then commodity prices would be expected to show a similar pattern. Now there is nothing unusual about commodity prices showing great instability. But what would be unusual would be for oil prices in the spot market to plunge from say \$100 to \$50 a barrel, as the 2-year forward price of oil stayed around \$100.

As a practical matter, a very sharp decline in near term NGDP is almost always accompanied by declines in medium term (and often even long term) expected NGDP. In the current crisis as the “spot” NGDP was falling roughly 8% below trend over a 12 month period, the two to five year “forward” expected NGDP was falling by even large amounts. Indeed the severity of the near term decline would have been impossible without the concurrent decline in the longer term expected NGDP. In a very real sense last fall’s rapid decline in expectations of two to five year forward NGDP triggered the dramatic plunge in the current NGDP.

If there is one idea I would point to, one important concept that I think the profession fails to grasp, it is this linkage between current aggregate demand and changes in expected future AD. This is a point that Michael Woodford emphasized in his important treatise on monetary economics. But somehow the importance of this idea has not been absorbed by the profession as a whole. I believe that failure was the root cause of the policy errors in 2008, and the crash itself.

In commenting on an earlier version of this paper, James Hamilton (2009) suggested that while a more expansionary monetary policy would have been desirable late last year, actually implementing such a policy would have been “harder than it looks.” I understand why people think my argument seems simplistic, but I also think many people miss how much of the Fed’s difficulty is created by their own errors. Deflationary policies drive nominal rates to zero, which makes conventional stimulus much harder to achieve. But if the Fed has a credible promise to target the CPI or NGDP with level targeting, then expectations would immediately move in a way that makes their job much easier. Failure begets failure, success begets success.

Some might argue that Fed promises to regain an announced target trajectory over time would not be credible. But how can we know that if the Fed hasn't even tried? Few people seemed to notice how strongly stocks rallied after expansionary Fed moves in December 2008 and March 2009, moves that were woefully inadequate. Can you imagine how stocks would have responded last October to a powerful Svenssonian statement by the Fed that all tools would be employed to prop up NGDP? Instead they started bribing banks to hoard reserves.

4. Concluding Remarks.

I have devoted my career to three research areas, the Great Depression, liquidity traps, and forward-looking monetary regimes that utilize market expectations. The insights derived from this set of research gave me a unique and at times quite frustrating perspective on the crisis as it was unfolding. As a result I became something of a "monetary crank," arguing that a lack of money was causing or worsening many of our most pressing problems. Most of the time monetary cranks are spouting nonsense; economic problems can rarely be solved by printing money. But occasionally they are right. One of those times was 1933. I believe that late 2008 was another.

It is especially important for free market economists to never lose sight of the harm that can be done by deflationary monetary policies. Because falling NGDP is almost never blamed on monetary policy, the public will end up blaming the free market system. And I have some sympathy for this error. Monetary policy is incredibly counterintuitive, with tight money often accompanied by low interest rates and a bloated monetary base. It is no surprise that the public failed to see the role played by the Fed in the Great Depression, and instead blamed laissez-faire economic policies. The same process occurred in Argentina a few years ago, with the same political result as in America. We may (correctly) argue that the Hoover administration policies were not really laissez-faire, but the public instinctively understood that Hoover's deviations from laissez-faire were not big enough to cause national income to fall in half. And they were right.

Only when Friedman and Schwartz showed that the Depression was a failure of government monetary policy, not laissez-faire, was free market ideology able to regain real intellectual respectability. If I am right, we may have made essentially the same mistake in late 2008 as in the early 1930s. Fortunately, the downturn was much milder this time. But it was still very traumatic, particularly when added on to an economy already weakened by the sub-prime fiasco. I hope other free market economists will give serious consideration to the interpretation of this crisis discussed here and in an outstanding recent paper by Robert Hetzel. A forward-looking monetary policy aimed at low and stable inflation or NGDP growth is the best way to restore the prestige of free markets.

Economists need not agree with my view that tight money caused the current recession. But they do need to find counterarguments that do not rely of assumptions that have been thoroughly discredited by recent developments in monetary economics. Fed policy generally reflects the consensus view of elite macroeconomists. If I am right, it was a massive intellectual failure within the economics profession, not reckless bankers, which caused the crash of 2008. A failure to trust our own models.

I believe my approach offers something of interest for GMU economists. I am totally unequipped to compete with elite macroeconomists on their own turf. I lack the technical skills. But if the forward-looking approach that I and others have advocated is right, then most of that intimidating intellectual edifice is a waste of time, the modern-day equivalent of all those “money demand in Turkey” studies done in the 1970s and 1980s. Rather we need to develop an approach to monetary policy that relies on stabilizing market expectations of NGDP, and that uses the Hayekian insight that the collective wisdom of the markets exceeds that of policymakers. That was certainly true from September through November 2008 when the markets were consistently signaling that money was too tight. Unfortunately, the policymakers ignored those warnings.

Appendix A: Why the monetarists are wrong:

Anna Schwartz (2009) argues that monetary policy is now very easy. Her evidence is that:

It is standard practice for a central bank like the Federal Reserve to ease monetary policy to combat a recession, and then to tighten it as recovery gets under way. Mr. Bernanke so far has only had to do the first half, and has conducted a policy of extreme ease. The Fed’s Open Market Committee cut the federal funds rate in October to 1 percent from 1.5 percent, and then in December to a range of zero percent to 0.25 percent.

In contrast, Milton Friedman argued in 1997 that:

Low interest rates are generally a sign that money has been tight, as in Japan; high interest rates, that money has been easy. . . . After the U.S. experience during the Great Depression, and after inflation and rising interest rates in the 1970s and disinflation and falling interest rates in the 1980s, I thought the fallacy of identifying tight money with high interest rates and easy money with low interest rates was dead. Apparently, old fallacies never die.

At least Friedman’s not around to see 99% of the profession equating low interest rates with easy money, the same mistake Joan Robinson made in 1938 when she denied easy money could have caused the German hyperinflation.

Alan Meltzer has recently argued that high inflation is almost inevitable in countries that see rapid increases in the money supply and massive budget deficits. Paul Krugman pointed out that this hypothesis is contradicted by the recent case of Japan. I agree, but also see a much more serious problem with monetarism. The monetarists are generally free market economists who believe markets are relatively efficient. They also place great weight on the importance of inflation expectations. And yet in my research on the Great Depression I noticed that markets frequently failed to move in the appropriate direction following monetary “shocks” identified by Friedman and Schwartz. I concluded that F&S had misidentified key monetary shocks, relying on a theoretically dubious “long and variable lags” view of policy. In fact, auction-style markets should respond immediately to monetary shocks that are expected to be permanent, and I found that these markets did respond appropriately to the international gold market shocks of 1929-33, and 1936-38, but often ignored the traditional monetary shocks identified by F&S (OMOs, discount rate changes, and reserve requirement changes.)

In the recent crisis the policy of paying interest on bank reserves has meant that the monetary base is a misleading indicator of monetary policy. The broader aggregates are slightly better, but

the demand for bank deposits is also distorted by a flight to quality during a financial crisis. In the end, the only reliable indicator of the stance of monetary policy is the expected growth of the policy target, the price level or NGDP.

Appendix B: Why Bernanke is wrong:

I only met Bernanke once, when he presented a seminar at Bentley on his 1983 paper claiming that disintermediation played a big role in the Great Depression, independent of the contractionary monetary policy. I asked just one question: “What impact would the banking problems have had if the Fed had successfully targeted nominal GDP growth?” It was many years ago, and I don’t recall his precise answer, but I am fairly certain that he hemmed and hawed a bit and then said something to the effect that the bank failures would still have had an impact on output, but that impact would be somewhat lessened.

Isn’t it presumptuous of me to report on an answer I don’t clearly recall? Maybe, but any other answer would have been seared into my memory forever. Bernanke is known for his strongly held view that monetary policy can still be highly effective when rates hit zero, so it would have been stunning if he claimed that nominal GDP targeting was not feasible, at least as a thought experiment. And he is a conventional new Keynesian, who certainly wouldn’t argue that the collapse in NGDP had no impact on output. So he had to admit that the Depression would have been milder. At the same time he couldn’t argue that the Depression would never have occurred with NGDP targeting; or else his thesis that disintermediation was an independent shock would have been discredited.

In recent months I have often thought of how ironic it is that my only question for Ben Bernanke lies at the center of my current disagreement with Fed policy. I think Bernanke was wrong about the Depression; NGDP targeting would have prevented a depression regardless of whether there were lots of bank failures. (And of course there would have been far fewer bank failures.) I believe this error led Bernanke to misdiagnose the current crisis, and to focus on bailing out banks rather than boosting NGDP growth expectations.

Appendix C: Why the New Classical economists are wrong:

The Great Depression has always been a big stumbling block for ‘real business cycle’ (RBC) theories. It is hard to believe that so much unemployment could represent the equilibrium condition in the labor market, hence the tendency of Keynesians to mock the RBC theory of “The Great Vacation.” In recent years many RBC-types have accepted that there may be some nominal rigidities, and that severe nominal shocks can have some short run impact on real output. But I sense that they’d like to believe that these nominal rigidities are relatively unimportant, unless accompanied by perverse government policy such as wage and price controls. Lee Ohanian has argued that governmental policies to promote high wages did raise unemployment in the 1930s, and account for much of the difference between the sharp but brief 1921 depression, and the much longer and deeper downturn in the 1930s.

I think Ohanian’s view of the Great Depression is defensible, especially for the period after 1933. But even the 1921 depression was severe, and I think he underestimates the amount of

wage and price stickiness in even a free market economy. In a recent debate with Ohanian I argued that the severe decline in NGDP growth (from a norm of roughly 5% to something closer to negative 4%) had a severe impact on employment. Ohanian wasn't convinced. I believe he thought that inflation was a better indicator of nominal shocks than NGDP, and inflation had declined much less than NGDP. He also argued that wages were now much more flexible than in the 1930s. As far as the severe decline in real output, a RBC economist might admit that wage and price stickiness played some role, but would be more likely to emphasize some real factor; the Bernanke disintermediation story, the Austrian misallocation of capital story, or even higher minimum wages. If so, then any attempt to boost NGDP growth back up to 5% might lead to much higher inflation.

This argument might be plausible if the severe financial crisis of late 2008 was an endogenous shock. But it wasn't. The crisis was exactly what one would expect from a highly deflationary monetary policy that caused NGDP to fall sharply. If individuals and business are earning much lower nominal incomes, and have borrowed money at interest rates that factored in 5% expected nominal income growth, then one would expect loan defaults to soar, and the financial crisis to spread beyond the sub-prime mortgage sector into all sorts of less risky mortgages, as well as consumer, commercial and industrial loans. And that is exactly what happened in late 2008, when an excessively tight monetary policy depressed NGDP.

So RBC economists made two mistakes. Their ideological preference for equilibrium models led them to underestimate the problem of wage stickiness on employment, and because they assumed money was not "tight" then overlooked the possibility that an easier monetary policy could have dramatically reduced the size of the financial crisis.

(I recently debated Lee Ohanian on CBSMoneywatch.com. Interested readers might want to look at [this link](#), in case I have mischaracterized Ohanian's views.)

Appendix D: Why international macroeconomists are wrong;

Here I am referring to those international economists who have studied dozens of financial crises in foreign countries, and have that slightly superior attitude toward us closed economy macroeconomists. They like to point out that this is nothing new, that there have been dozens of banking crisis in other countries and in every single case real output fell sharply. Even worse, some of these recessions were associated with highly inflationary monetary policies. "So what makes Sumner think that the Fed could have papered over the problem with easier money?"

The interesting question is how many of those crises occurred in countries where the currency *rapidly appreciated right in the teeth of severe financial distress*? I can only think of two examples, although there may be a few others. One occurred in 1930-33, when the US dollar (then pegged to gold) appreciated against a trade-weighted basket of currencies. And the other occurred in Argentina in the late 1990s and early 2000s, when the Argentine peso (then pegged to the dollar) appreciated against most currencies. And in both cases it is now believed that tight money was to blame for causing deflation, which severely intensified the banking crisis. So while I would agree that a policy of NGDP targeting would have been of limited value in many of the famous banking crises that have occurred in developing countries, a policy of NGDP

targeting would have made a huge difference in the two cases that are most relevant to the US in late 2008.

Appendix E: Why the Austrians are Wrong:

First an disclaimer. I am not as knowledgeable about Austrian business cycle theory as many of my readers. Nevertheless, I think I know enough to have a general sense of how Austrians tend to view the crisis:

1. An excessively expansionary monetary policy led to overinvestment in housing, and perhaps some other areas as well during 2004-06. After mid-2006 the housing bubble peaked and eventually prices started falling. Labor and capital then needed to be re-allocated out of sectors such as housing, and into other sectors of the economy. For a variety of reasons this re-allocation process requires a lengthy period of sub-normal economic activity. Laid-off construction workers are not immediately re-employed in high tech, or in the service sector. If I am not mistaken the bubble and the subsequent painful readjustment is often described as a sort of “co-ordination failure.”
2. If the economic crisis following a burst bubble is severe enough, it may interact with the monetary system, producing a “secondary deflation.” This shows up as falling NGDP, and can make the recession even worse. Monetary policy should not try to prevent the needed re-allocation of resources after the bubble bursts; to do so would either lead to inflation, and/or further misallocation. The only appropriate role for monetary policy would be to prevent a secondary deflation.

I don't disagree with any of these assertions. In my view the period from mid-2006 to mid-2008 represented the sort of painful adjustment that Austrians describe. And the steep downturn that occurred in late 2008 was a perfect example of a secondary depression. I do think people tend to somewhat overestimate the role of easy money in the housing bubble, but my primary objection to Austrian economics lies elsewhere. I believe that Austrians tend to overestimate the misallocation of capital problem and underestimate the secondary deflation problem. After the housing market peaked in mid-2006 there was a period of two years when resources were being re-allocated from housing to other sectors such as manufacturing and services. During this adjustment period real GDP did not decline, but rather grew at a below trend rate. Unemployment rose slightly.

The severe crisis that we now face was caused by the “secondary deflation,” the severe monetary shock of late 2008. My impression is that many Austrians misdiagnosed this problem, assuming we were experiencing “more of the same.” Some Austrian (and non-Austrian) economists assumed that the severe nationwide housing downturn of late 2008 was simply an intensification of the earlier slump in sub-prime markets, whereas in fact it was an entirely different problem caused by falling NGDP. In addition, as other sectors such as manufacturing (especially autos) began to decline, there was talk of “overcapacity” in those industries as well. It began to seem as if the mere fact that sales fell short of capacity was, *ipso facto*, evidence that too much capacity had been built, rather than that there was too little aggregate demand in the economy.

Perhaps the most revealing example occurred in my blog, where I discussed the housing slump that occurred late last year in China. Some commenters told me that this indicated that there had been a “bubble” in Chinese housing; that China had overinvested in housing. I was a bit incredulous that in a country where real GDP had been growing at 10% for 30 years, and where average living space was barely over 100 square feet per capita could be said to have “too much housing,” but it is certainly possible. What most bothered me, however, is that commenters didn’t seem to have any good reason for this assertion, other than that prices were now falling, or that there were unsold houses on the market. But that could also occur under a secondary deflation, where the problem is monetary. In any case the Chinese government stimulated AD and the economy is again booming. And guess what? The problem of “too much housing” in early 2009 has magically disappeared, as housing demand has risen along with the general recovery.

Let me be very clear that I don’t attribute all of the US housing slump to inadequate AD. The Austrians are absolutely right that too much housing was built in the middle of the decade, and that a contraction of housing was needed. But in my view the needed contraction was almost complete by mid-2008, and the subsequent decline in housing (which also occurred in markets not affected by the subprime lending-fueled speculative excesses) was an example of overshooting to the downside. That is, an example of the secondary deflation causing a generalized decline in the demand for all goods. Also keep in mind that virtually all business cycle theories predict that real investment should be especially cyclical, so it is not surprising that this secondary deflation hit housing, and even autos, much harder than services.

I also don’t think this Austrian misdiagnosis was a mere accident. In the early 1930s Hayek made a similar mistake, assuming that the Great Contraction represented the needed reallocation of resources after the speculative excesses of the late 1920s. As a result, he initially opposed monetary remedies to the Depression. According to Lawrence White (2008), Hayek later admitted his mistake, after he realized that what had actually occurred was a secondary deflation, and that monetary policy should have been expansionary enough to prevent NGDP from falling. But by that time the damage had been done. In the 1930s the Austrians seemed to have no answers for what was perceived as crisis of capitalism, or at least no answers beyond “next time around don’t pump up a bubble with easy money.” The world turned to an economist that did offer answers. Unfortunately, he also misdiagnosed the problem.

Appendix F: Why the old-style Keynesians are wrong.

Keynes argued that the Great Depression was caused by a decline in aggregate demand. The implication was that if NGDP had risen slightly, rather than fallen nearly in half, there would have been no depression in the early 1930s. To a modern economist this would suggest that Keynes thought the Depression was caused by a failure of monetary policy; either excessively tight money or at least a monetary policy that was insufficiently expansionary to offset non-monetary shocks to AD. But that was not Keynes’ view. Keynes developed a non-monetary theory of NGDP determination, which replaced the “quantity of money” approach ($M \cdot V$) with an expenditure approach ($C+I+G+NX$.) But this approach wasn’t able to deal with a world of changing inflation expectations, a weakness that eventually undermined his theory.

The so-called “classical economists” were well aware of the fact that all sorts of shocks such as changes in expectations could depress velocity, and also that because wages and prices were sticky a fall in NGDP would reduce real GDP in the short run. To build a new “general theory” of NGDP, Keynes had to first discredit the quantity theorists’ answer to depressions, which was to keep NGDP stable by offsetting any decline in velocity with a corresponding rise in the money supply. He did so by arguing that monetary policy would be ineffective in a deep slump. Both Hicks (1937) and Friedman (1974) saw the liquidity trap as the key innovation of Keynes, the assumption that gave the *General Theory* its radically different perspective on monetary and fiscal policy and also the role of saving and investment.

Friedman and Schwartz showed that Keynes was wrong in assuming that monetary policy was ineffective in the 1930s. Keynes had assumed that the low nominal interest rates of the early 1930s indicated that money was “easy” and thus had failed to boost AD. F&S showed that M1 and M2 declined sharply, and argued that interest rates were a very poor indicator of the stance of monetary policy. Krugman (2007) tried to rehabilitate Keynes by showing that the decline in M1 and M2 resulted not from “tight money” (i.e. a falling monetary base), but rather from the hoarding of cash and reserves, which led to a decline in the money multiplier. Krugman also argued that the same problem had occurred in Japan during the late 1990s. But it was too late, the Keynesian view of liquidity traps had already been fatally undermined by other developments in “new Keynesian” research, ironically including work by Krugman himself.

In 1998 Krugman showed that contrary to what Keynes had argued, monetary policy could still be highly effective in an economy with near zero rates and falling prices. What was needed was a credible policy to inflate. Because liquidity traps don’t last forever, the quantity theory prediction that more M will raise prices proportionately is still true in the long run. Thus to depress real interest rates the central bank merely had promise to permanently raise the money supply (relative to demand.) This would raise inflation expectations and lower real interest rates (assuming nominal rates were stuck at zero.) This was essentially the “inflation targeting” approach that had already become the consensus policy of the new Keynesians. Even better, new Keynesians like Lars Svensson (2003b) and Gauti Eggertsson (2008) showed that FDR tried exactly this policy in 1933, when he devalued the dollar to boost prices, and it succeeded in dramatically raising NGDP despite near zero interest rates.

Even worse, the rehabilitation of monetary policy had the side effect of relegating fiscal policy to the sidelines. If the monetary authority was already setting monetary policy at a level expected to produce on target demand growth, then what possible role could fiscal policy play? The so-called “multiplier” would be precisely zero in a world where the Fed targeted inflation or NGDP, as the monetary authority would simply offset the expected impact of fiscal stimulus on the target variable.

I like to divide old-style Keynesians into two groups; Paul Krugman, and all the rest. Most old-style Keynesians seem completely unaware that the Keynesian view of liquidity traps and monetary ineffectiveness has been fatally undermined by the developments that I just discussed. They still talk of the ineffectiveness of exchanging cash for perfect substitutes such as zero-interest Treasury debt. That is, they responded to the recent problem of the “zero rate bound” as if nothing had been learned in the past 70 years.

Krugman's case is a bit more complex, as you would expect. He did understand that inflation targeting offered a way out of the liquidity trap, and on occasion he even mentioned this possibility. But when he did so it was mostly to lament that the world's central bankers were just too conservative to promise to inflate, and that as a result any currency injections would be viewed as temporary, and hence would merely be hoarded. Thus he suggested that massive fiscal stimulus was the only way to boost AD. Sometimes Krugman would even forget to mention that a credible policy of targeting inflation could be highly effective, and simply asserted that monetary policy was ineffective once rates hit zero.

But Krugman's view seems highly suspect---why would the Fed view a 2% inflation target (or 5% NGDP growth target) as excessive? That rate of inflation would be slightly below the US average for the past 20 years. Thus there is no reason why the Fed could not have adopted a much more expansionary policy. Their failure to do so caused the sharp fall in NGDP and the accompanying recession.

Appendix G. Why the New Keynesians are wrong.

Everything I have said so far suggests that the new Keynesians fixed the problem with Keynes' original model. They understood that monetary policy should target inflation and that if it did so it could still be highly effective, even in an economy with near zero nominal rates. So why don't most new Keynesians see the crisis the way I do? I don't have any single answer, but will offer several possibilities.

1. New Keynesians misdiagnosed the problem as financial, not monetary. But this isn't a complete answer, because they understood that a sharp fall in NGDP would be extremely undesirable, whatever the root cause. So why not adopt a monetary policy expansionary enough to keep the financial crisis from depressing NGDP?
2. The new Keynesians tended to favor Taylor Rule-type monetary policies. There are two problems with the Taylor Rule.
 - a. It relies on a fed funds rate target, which becomes ineffective in a liquidity trap.
 - b. It is a backward-looking policy. This led some economists to (wrongly) suggest that a credible policy of inflation in early 2009 would require sharply negative nominal rates. That view may be a prediction of the Taylor Rule, but it ignores the fact that any monetary policy expected to be expansionary would sharply raise both the expected inflation rate, and the Wicksellian equilibrium real rate. From a forward-looking perspective the question isn't: "What interest rate does the Taylor Rule call for?" Rather the question is: "What nominal interest rate is consistent with a credible policy expected to produce on-target expected NGDP growth." Thus you had prominent economists like Krugman and Mankiw citing Fed research (and presumably agreeing with this research, although it's hard to be sure) that suggested something like 6% expected inflation was needed to escape the liquidity trap. But this was inconsistent with Krugman's other claim that the SRAS is relatively flat in a deep slump. For instance, think about the predicted effect of 6% NGDP growth in the new Keynesian model. If you are in a deep slump, and

wages and prices are sticky, then it is likely that 6% NGDP growth would result in only 1-2% inflation, and 4-5% real growth. Thus not only is 6% expected inflation not needed to achieve the policy goals of Taylor Rule proponents, even 2% might be more than enough. This is the sort of elementary error one can make if one approaches macro from a backward-looking perspective.

3. Many new Keynesians focus on inflation targeting. Because the core inflation rate is fairly stable I think many economists underestimated just how deflationary monetary policy had become in late 2008. Because tight money initially impacts output, and prices respond with a lag, NGDP is a better short term indicator of the stance of monetary policy than inflation. If your focus is on inflation it would have been easy to assume that monetary policy was not far off target in 2008. (Of course that begs the question of why so many new Keynesians supported the massive fiscal stimulus.)

4. As with the monetarists, new Keynesians put too much weight on policy lags and may have been intimidated by the Fed's massive injections of liquidity, which roughly doubled the monetary base in just a few months. Many economists did not seem to understand that the new policy of paying interest on reserves prevented these open market purchases from having any expansionary impact. In addition, new Keynesians such as Frederic Mishkin seemed to be content with a "wait and see" attitude, a willingness to give the Fed's extraordinary efforts more time to work. But there is no lag between monetary policy and expectations of future NGDP growth. One new Keynesian who wasn't lulled into a false sense of complacency about the stance of monetary policy was Lars Svensson. In the next appendix I will discuss why he was the exception.

5. And finally I think there is a tendency of economists to lack the courage of their convictions, and to revert back to a sort of crude Keynesianism when faced with an unfamiliar crisis. In a recent paper John Cochrane made the following comment in his response to Krugman's recent NYT critique of mainstream macro:

"Krugman is trying to say that a cabal of obvious crackpots bedazzled all of macroeconomics with the beauty of their mathematics, to the point of inducing policy paralysis. Alas, that won't stick. The sad fact is that few in Washington pay the slightest attention to modern macroeconomic research, in particular anything with a serious intertemporal dimension. Paul's simple Keynesianism has dominated policy analysis for decades and continues to do so. From the CEA to the Fed to the OMB and CBO, everyone just adds up consumer, investment and government "demand" to forecast output and uses simple Phillips curves to think about inflation. If a failure of ideas caused bad policy, it's a simpleminded Keynesianism that failed."

Bryan Caplan quoted this passage in his blog, and then added:

"As far as I can tell, Cochrane's right. The only thing weirder than the sharp disconnect between undergraduate and Ph.D. macro is the fact that for practical purposes, Ph.D.s rely on what they learned as undergrads."

I would add that for those with a backward-looking view of macroeconomics, which includes about 99% of the profession, an economic crisis can seem a bewildering and frightening event. The simple Keynesian model with its common-sense view that government spending on infrastructure can "put people back to work" seems like a comforting security blanket--much

more so than risky and unproven policies aimed at “targeting expectations.” It’s not surprising that many new Keynesians heard the siren song of fiscal stimulus.

Appendix H: Why the “forecast-targeting” economists were right.

In a recent blog post I discussed the striking similarity between the tiny group of economists who have written papers advocating policies that would effectively “target the forecast,” and the equally small group that believes monetary policy was too contractionary last fall. Here are the two lists I came up with:

| Did “targeting the forecast” research | Viewed Fed policy as too contractionary in late 2008 |
|---------------------------------------|--|
| 1. Earl Thompson | 1. Earl Thompson |
| 2. Robert Hall | 2. Robert Hall |
| 3. David Glasner | 3. David Glasner |
| 4. Me | 4. Me |
| 5. Robert Hetzel | 5. Robert Hetzel |
| 6. William Woolsey | 6. William Woolsey |
| 7. Lars Svensson | 7. Lars Svensson |
| 8. Aaron Jackson | 8. Aaron Jackson |
| 9. Kevin Dowd | 9. Tim Congdon |

A few caveats. I inferred Hall’s views on policy from comments in his blog. Svensson dissented from a recent decision of the Riksbank to cut rates to 0.25%; he favored a cut to zero. In addition, Svensson is responsible for the Riksbank’s decision to start paying negative interest on reserves (an idea I have been promoting since last fall.) So I inferred that he would not have supported the Fed’s decision to bribe banks to hoard reserves by paying positive interest, and also that he would have opposed the Fed’s attempt to hold rates slightly above zero. I recently came across two other economists who viewed money as being too tight last year, but who haven’t done targeting the forecast research. So the correlation is not perfect, and there may be few other exceptions. But the pattern is still striking, and calls for an explanation.

Because I believe in targeting the forecast, I always tend to judge the stance of monetary policy by trying to infer market expectations of NGDP growth. That is not easy, as it involves looking at TIPS spreads, commodity prices, stock prices, real output, and a host of other factors. But last October it became very easy; every single indicator was pointing toward a severe slowdown, and possible decline in NGDP. James Hamilton (2006) suggested that:

“You could argue that if the Fed is doing its job properly, any recession should have been impossible to predict ahead of time.”

We can generalize that even further. If at any time you can forecast that NGDP one, two, or three years out is far below any conceivable Fed target, then the Fed is not doing its job.

I was so shocked by what I saw that I went down to Harvard to have lunch with Greg Mankiw and Larry Ball. I asked: “Does the Fed realize that over the next 12 months the nominal aggregates are going to come in far below any plausible Fed target?” I seem to recall Mankiw saying something to the effect “Oh they certainly know this; they just don’t know what to do about it.” That meeting radicalized me; it led me to wonder if I had misjudged the state of modern macro, whether I had wrongly assumed that the Fed knew what it was doing.

Svensson’s maxim that the stance of monetary policy should always be set at a level where policy is expected to succeed had just seemed like common sense. I had assumed everyone thought that way. Now I realized that almost nobody looked at policy that way. Instead, almost everyone was still fixated on interest rates, a policy indicator that (I thought) had been thoroughly discredited by the late 1970s.

Appendix I. Why me?

The previous appendix discusses one reason why I ended up taking such a heterodox position on the current crisis. But two other factors also played a role. In addition to forward-looking monetary policy rules, I have also done extensive research on liquidity traps and on the Great Depression. My research on the Japanese liquidity trap of the late 1990s convinced me that the idea of monetary policy ineffectiveness at the zero bound was a myth. The term “trap” is highly misleading, as it suggests the Bank of Japan wanted to inflate, but was unable to. In fact, they intentionally ran a mildly deflationary policy, twice even tightening monetary policy by raising rates in the midst of more than a decade of continual deflation in the GDP deflator. In addition, at any time the BOJ could have depreciated the yen as sharply as they wished. If this policy was blocked by political pressure from the US and Europe (which I doubt), then that political pressure would have been the cause of Japan’s deflation, not the zero rate bound.

My research on the Great Depression convinced me of the importance of changes in expectations of inflation and NGDP growth. In late 1929 and again in late 1937 there was a sharp fall in expectations of NGDP growth going several years out into the future. This is what Keynes meant by his mysterious references to “confidence.” The onset of these deflationary expectations caused an immediate crash in stock and commodity prices, as well as industrial production. Nominal interest rates also declined. When I saw the same thing occur in late 2008, I immediately recognized the similarity to the earlier two crashes.

It was initially believed that financial turmoil caused the Great Depression, and that falling NGDP was a symptom. Only later was it determined that this reversed the causation, that falling NGDP has caused the financial crisis of the early 1930s. It was rather dismaying to see the profession making the same misdiagnosis in late 2008, simply assuming that the causation went from financial turmoil to falling NGDP, despite the fact that the sharp break in NGDP occurred a month before Lehman, and probably contributed to the worldwide banking crisis of late 2008.

I should add that many commenters on my blog helped me immensely with this project. The assistance from professional economists such as Bill Woolsey and David Glasner was especially valuable, but ordinary individuals were also extremely helpful. Here is a wonderful example of a comment I received from a Brazilian named Marcus while preparing this paper:

“You should stress that as late as the FOMC meeting in August 08, Dallas Fed President Fisher voted for an immediate rate increase! In the September meeting, 24 hours after Lehman, the official view was that inflation was still a risk and that the next rate move would probably be UP! . . . Bernanke ‘pursued’ his beliefs. He is the most forceful proponent of the ‘credit channel’. What happened is that he missed the fact that by his monetary policy decisions he was in effect helping to block the ‘credit arteries’.”

I wish Marcus had been on the FOMC.

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