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*Lessons from the financial crisis  
for monetary policy*

The years preceding the financial crisis that began on August 9, 2007, were in many respects the most economically successful in human history. These years have been called the Great Moderation, as output growth, inflation, unemployment, and interest rates stabilized at comfortable levels and remained steady. Most developed countries experienced remarkably little volatility. Japan's lost decade was an exception to the several other emerging Asian countries – especially China, but also South Korea, India, and Indonesia – that grew even faster, taking millions out of poverty.

Expert commentators awarded much of the credit for this improved performance to a new regime of monetary policy. In academia, the extent to which the better outcome was the result of good policy, good luck (for example, the effect China's entry into world markets had on limiting inflation), or yet other factors is still debated. Under this new regime, a nation's central bank raised interest rates whenever inflation was forecast to rise above a predetermined low target level, and lowered them if inflation was expected to fall below that level. Indeed, in most countries – excepting the United States –

this policy was termed “inflation targeting.” Although policy in the United States was managed in very much the same way as elsewhere, the objectives for the Federal Reserve Board's policy had been established earlier, in the Humphrey-Hawkins Act of 1978, and included a requirement that the Federal Reserve System maintain maximum sustainable output as well as stable prices.

In practice, this difference in stated objectives made little difference to policy outcomes. Changes in the rate of inflation are believed to be determined by whether output – otherwise called the pressure of demand – is above the “natural” level the economy can generate when employment/unemployment is at a normal level, or equilibrium. The margin between actual and equilibrium output is called the output gap, though this is not accurately measured, and there are continuous disputes about the size, sometimes even the sign, of this gap.

Thus, whether a country (like most) was an explicit inflation targeter or not (like the United States), the standard operational behavior of central banks was essentially the same. Central banks raised interest rates whenever the output gap (actual minus equilibrium) was positive and inflation was expected to be above target. Rates were generally

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calibrated by a Taylor reaction function, named for John Taylor, the Stanford University economist. In the Taylor reaction function, the current interest rate decision responds to the output gap – as the gap will drive inflation further up (or down) if output is assessed to be above (or below) its equilibrium level – and to the deviation of inflation from its target level.

This policy relied on the general assumption that as long as the monetary authorities (that is, central banks) kept the macroeconomy stable, then broad and efficient financial markets could be expected to monitor financial stability. Although most economies, including the United States, had remained remarkably stable over the fifteen years from 1992 to 2007, experience had shown that even in stable macroeconomic conditions, financial markets can be subject to waves of optimism and pessimism, greed and fear, bubble and bust. Indeed, the financial climate oscillated even during the Great Moderation: the information technology (IT) and NASDAQ bubble-and-bust cycles of 2000 and 2001 are the most recent and perhaps best remembered.

Prior to the start of the financial crisis in August 2007, the monetary authorities, notably the Fed, were able to defang the “bust” in each case and limit its virulence by a program of quick and aggressive interest rate reductions. These swift reactions gave most people in financial markets confidence not only that the general economy would remain more stable than in the past, but also that any residual financial tremors would soon be righted by a vigilant and powerful Federal Reserve System; Chairman of the Federal Reserve Board Alan Greenspan would always support financial markets in any collapse, so the belief went.

Central bankers, like most of us, believed in this context that financial sta-

bility was under control, and a few, including the Bank of England (BoE), even deemphasized their financial stability divisions. Generally forgotten was the analysis, developed earlier by economist Hyman Minsky, that price and macroeconomic stability do not equate to financial stability; rather, the former may have an inverse effect on the latter. Minsky argued that confidence in financial markets incentivizes financiers to take on additional leverage and more risk, while sometimes failing to notice the existence of such risks. Margins and liquidity ratios decline so much that when something goes wrong (such as the subprime mortgage crisis in 2007), the system lacks sufficient equity and liquidity buffers to absorb the loss and the system becomes overextended. Banks are forced to sell assets into unwilling markets in order to restore their own liquidity; these sales so reduce the market value of other banks’ assets that they, too, come under pressure to sell their own assets. This scenario and similar factors converge to amplify the collapse. Earlier serious financial collapses (such as the Great Depression in 1929 and Japan’s collapse in the 1990s) were also preceded by periods of strong growth, enhanced confidence, and rising asset prices.

Prior to the recent recession, moreover, there had been a long-term trend of credit expansion growing faster than retail bank deposits. Banks and investment houses had financed the credit expansion by reducing holdings of public sector liquid assets; relying more heavily on (short-term) borrowing from wholesale markets; and selling earning assets to various other nonbank financial intermediaries. The latter is known as securitization (the originate-to-distribute model). The start of the crisis was marked by a malfunction in the wholesale money market, whereby banks could access such

*Lessons from the financial crisis for monetary policy*

funds only at elevated spreads or costs, if at all, and by halting securitization.

Thus the banking system had become steadily more fragile. High reported profits disguised this decline during the preceding asset price boom, a façade enhanced by changes in accounting practices that allowed bank assets to be revalued at current market prices (mark-to-market accounting). Neither bankers nor regulators were really aware of the fragility underlying the financial system (though some evidence suggests that bankers had miscalculated risk and were not, in fact, cynically betting on a taxpayer bailout). A combination of untoward confidence in the strength of the financial system; an unfortunate coincidence of an inflationary bubble in commodity prices, notably in oil; and excessive concern about moral hazard led central banks around the world to delay aggressive cuts in interest rates until after the sky fell, on September 15, 2008, with the Lehman Brothers bankruptcy.

We have learned that the achievement of price stability does not in itself guarantee financial stability: these are two separate objectives for central banks. How can they be simultaneously achieved, and what changes, if any, should this assessment make for the conduct of monetary policy?

There are two, not necessarily mutually exclusive, main adjustments that have been proposed. The first is to relax the focus on targeting the price inflation for current goods and services and to give more weight to asset prices, a strategy termed “leaning into the wind.” The second recommendation is to devise a second set of macro-prudential, counter-cyclical regulatory instruments that can be *directly* deployed to diminish asset price bubbles and busts.

I favor the second approach. As of 2010, the idea of relaxing adherence to an inflation target has little support. Many fear the likelihood of severe deflation, sharp inflation, or even one followed by the other. The extraordinary stimulus to both fiscal and monetary policies, the sharply rising debt ratios (both public and private), and intensifying political difficulties for most incumbents at a time of economic recession and high unemployment all provide a fertile basis for an inflationary upsurge. At the same time, the (broader) money stock and bank lending continue to decline as banks, under pressure from public and regulatory authorities, seek to retrench and reduce their dependence on (wholesale market) debt finance (deleveraging). Both the public and private sectors are also trying to raise savings and pay off debt. The crisis is not over, particularly as evidenced by the debacle in Greece, and further debt or deflation remains possible. Against this background of uncertainty and the fear of both inflation *and* deflation, it is now more than ever important to provide reassurance that monetary policy will remain focused on achieving price stability.

Identifying unsustainable asset price bubbles at the time they occur is extremely difficult – although it always looks easy *after* the fact. Asset prices could not go to such heights if there were not large parts of the market that expected them to go higher yet, and there are always persuasive reasons why they might. During their expansionary phase, asset price bubbles are extremely popular, not only with almost everyone in the market, but also with politicians, who see the rise in asset prices as the due market response to their own successful policies; when you believe that you have abolished boom and bust, as then-Prime Minister Gordon

Brown announced in 2008, you would expect a stronger market.

It would take an extraordinarily self-confident and brave central banker to raise interest rates at a time when inflation seemed under control simply because he felt that some asset price was too high. Increasing interest rates often depresses the real economy, while likely having little effect on the asset market in question. And even if those asset prices did subside, the event would provide ammunition for claims that the initial rise in asset prices was not so dangerous after all. In my assessment, “leaning into the wind” never amounts to much in practice – not enough to make a difference, at least. The central bank that came closest to leaning into the wind was the European Central Bank (ECB), which, because it paid greater attention to time trends in the monetary aggregates (its second monetary pillar, the first pillar of its analysis being the usual forecast of current inflationary developments within the eurozone), appeared to have a generalized concern about financial expansion; close observers of the ECB have, however, doubted whether following the movements of this pillar ever made more than a difference of twenty-five or, at most, fifty basis points (a basis point is equal to one one-hundredth of a percentage point) to the ECB’s interest rate judgment.

This is not to state that there is no case for any alterations in the practice of inflation targeting. One consideration raised by the recent crisis is whether the interest rate entered into central banks’ Taylor reaction function should be a *risk-adjusted* short-term interest rate, rather than the official rate. The primary risk in this case is that a borrower may default, that is, not be able to pay back the loan. In order to offset that risk, lenders will increase the interest rate charged to bor-

rowers. In a recession, especially one triggered by a financial collapse, most borrowers seem considerably riskier. Consequently, the margin – or spread – of average borrowing rates above the riskless rate, say, on U.S. Treasury bills and bonds, increases. In extreme cases, the average rate facing private sector borrowers may rise at the same time that official rates fall.

In the standard macroeconomic models employed up until 2007, however, the risk (of counter-party default) was assumed to be low – in effect, zero – and constant. In practice, under the influence of bubble confidence, increased leverage, and enhanced competition for business, risk margins were gradually pared down over the course of 2002 to midsummer 2007. Thus, *effective* rates facing private sector borrowers were declining over the years 2002 to 2006 while some commentators (again John Taylor) had already criticized the Fed for keeping official rates too low. The fact that such risk margins reached their nadir in Summer 2007, just before the financial system entered into crisis, should also temper faith in the wisdom of markets.

After the start of the crisis, and especially after the Lehman bankruptcy in September 2008, risk margins spiked higher; so did the effective cost of capital to private sector borrowers. If central banks had placed more emphasis on risk-adjusted rates, and less on the basic official rate, they might have raised official interest rates earlier and faster before August 2007, and then lowered them more quickly and by a larger amount in the period from August 2007 to October 2008. During its first few months, the crisis was generally (but mistakenly) seen as a pure liquidity emergency, rather than as a solvency problem as well. A liquidity crisis occurs when a firm does not have suffi-

*Lessons  
from the  
financial  
crisis for  
monetary  
policy*

cient ready cash to meet a payment that is due; a solvency crisis arises when the value of a firm's liabilities is greater than that of its assets. Such crises tend to occur together because firms known to be clearly solvent can almost always borrow money to meet upcoming payments. Moreover, there was never any shortage of overnight liquidity. Instead, bankers were concerned with how they might replace their one- or three-month wholesale market borrowing once it matured and likely might not be rolled over in a crisis, largely because of lurking concerns about default.

For the foreseeable future – two or three years ahead at most – banks will be under pressure to reduce their reliance on wholesale funding, to delever, to become safer and smaller. As a result, they will be stricter and more cautious in extending new credit. This prudence will be evidenced by higher margins between loan rates and the official rate. Whatever the level of official rates, the risk-adjusted effective rate that private sector borrowers face will be higher than in the past. Put differently, the “equilibrium” (real) official interest rate likely will need to be lower in the next few years than it should have been in 2001 to 2007 in order to keep average private-sector borrowing rates at a level consistent with a recovery to economic equilibrium.

The standard macroforecasting and analytical models used up until 2007 defined no role for banks, financial intermediaries, money, or default and risk. Precisely how the economics profession allowed itself to be sidetracked into this extraordinary dead end will be a subject of fascination to students of the history of thought for decades. Be that as it may, the implication is that central banks *should* have a continuous concern for monetary developments. At Milton Friedman's ninetieth birthday celebra-

tion, Ben Bernanke, Greenspan's successor as chairman of the Fed, acknowledged that the Fed was partially to blame for the debacle of 1929 to 1933 and promised that (his) Fed would not allow that to happen again: “I would like to say to Milton and Anna [Schwartz]: Regarding the Great Depression. You're right, we did it. We're very sorry. But thanks to you, we won't do it again.” What is odd about this statement is that Friedman and Schwartz, in their epic *Monetary History of the United States*, primarily blamed the Fed for allowing the (broad) money supply to diminish sharply during 1929 to 1933. Meanwhile, as of Spring 2010, the Fed ceased credit expansion at a time when bank lending to the private sector has been declining, and broad money supply appears almost stagnant. (The monetary aggregate M2 declined from an annual rate of 8 to 9 percent in Spring 2009 to just over 1 percent in 2010.) Certainly, current methods of interpreting the monetary data are problematic. But if inflation *and* deflation are monetary phenomena, central banks must put more effort into data interpretation. Focusing on the transmission of official interest rates into real expenditures, and then inflation, without concern for financial intermediation along the way, is no longer a sufficient means of analysis and should be discarded. This is not to suggest that analyzing monetary developments is easy or can be reliant on a single statistic from one or another of the several monetary and credit aggregate statistics, which only rarely move in lockstep.

But whether or not central banks choose to increase their focus on risk-adjusted interest rates, they should continue to set rates with the primary objective of maintaining price stability and providing an anchor for the private sector's inflation expectations. Given that

inflation expectations are now accorded a key role in determining how the economic system works, the achievement of financial stability must be realized by other means, namely, a combination of financial structure reform and the introduction and use of specific macro-prudential controls, such as counter-cyclical required capital ratios.

In the 1960s, when almost everyone, including Richard Nixon, professed to being believers in Keynesian theory, governments generally tried to steer the economy with fiscal policy. They were skeptical of the effectiveness of monetary policy (apart from its influence on international capital flows), and preferred to keep interest rates low and steady to encourage productive investment. Between then and 2007, Keynesian theory went out of fashion. Monetary policy – via setting the official interest rate – was to be steered so as to keep the ship of state on the straight and narrow, while fiscal deficits were to be kept low and stable, once again, to encourage productive investment in the private sector. An extreme version of this latter dogma was incorporated in the Stability and Growth Pact in Europe, which proposed that eurozone countries should never run a deficit greater than 3 percent of GDP, a limit that has been regularly transgressed, and by most of the countries hardest hit in the current recession.

The 2007 crisis led simultaneously to a collapse in private sector investment, especially in housing, and to a realization among consumers that they had overextended their indebtedness, triggering a rise in the desired savings ratio. The private sector surplus of savings over investment escalated sharply. Of course, all policy-makers would like to see the counterbalance to the net savings of the private sector in their own

economy be a current account surplus (that is, with the rest of the world running a deficit). But across the global economy as a whole, current accounts sum to zero. So the counterpart to the greater private sector surplus *has to be* a larger public sector deficit. The only real question is whether this relationship is achieved by deflation, via reducing tax receipts *and* private sector savings, or by Keynesian fiscal stimulus, thereby maintaining income levels. Besides Hyman Minsky, the other great intellectual winner from this crisis has been John Maynard Keynes.

The problem herein is that the private sector's shift into surplus has been so great in scale that its counterpart, the public sector deficit, has ballooned to levels never before seen in peacetime. Moreover, the aging population and its associated medical needs offer a dire outlook for public sector deficits in the longer term; in the immediate future, the crisis has left the financial system so weakened that the economic recovery is expected to be slow and hesitant. In these circumstances, the so-called sovereign risk of public sectors is everywhere under strain, especially in countries, such as Greece, and subsidiary states, such as New York and California, that are not fully "sovereign," insofar as they do not have their own independent currencies and cannot, at an inflationary pinch, print more of it to meet the interest on their debt.

How soon, then, must states begin to rein in the extent of fiscal deficit? Too soon and one risks a "double dip" deflation; too late, and markets, notably the bond and foreign-exchange market vigilantes, will take fright, as they already have in Greece, and thereby deliver a "double dip" deflation by another route.

With respect to monetary policy, the various arms of policy, fiscal and mone-

*Lessons  
from the  
financial  
crisis for  
monetary  
policy*

tary in particular, must move in coordination. The more slowly and timidly fiscal policy is retrenched, the faster and more robustly interest rates will have to be normalized and credit (or quantitative) easing reversed. Per contra, any reduction in fiscal stimulus must be offset by further, even enhanced, easing in monetary policy.

A problem with fiscal policy is that it is far less flexible and reversible than monetary policy. Fiscal easing, either via extra expenditures or lower taxes, tends to create perceived entitlements. It often takes a long time to shift from announcement to economic effect; there are few “shovel ready” projects on hand. Given the lags and difficulties of getting fiscal retrenchment under way, together with the market risks of not doing so, my own preference (which is influenced by conditions in the United Kingdom) falls on the side of making an early start on fiscal retrenchment; in this case, the adverse effects on incomes and expenditures must be offset by further monetary expansion. But is monetary policy capable of offsetting fiscal retrenchment? Now that interest rates have effectively dropped to zero, would any additional attempt at monetary expansion be “pushing on a string”?

The zero interest rate bound (or zero interest rate policy [ZIRP]) was reached fairly quickly after the financial panic in September to October 2008. Fortunately, this event did not mark the limit of expansionary monetary policy. As financial markets and the economy weakened progressively until March 2009 – in a downturn worse than that of 1929 – central banks turned to unconventional policy measures: long-term loans by the ECB, quantitative easing by the BoE, and credit easing by the Fed. Although other (fiscal) stimulatory policies were introduced concurrently, the timing of these additional monetary policies coincided with

the recovery of financial markets, from their low point in March 2009 to the hesitant recovery in the real economy in the middle quarters of 2009 (Q2 and Q3). Studies have indicated that these quantitative- and credit-easing measures succeeded in bringing about some further easing in longer-term interest rates and revivifying those private sector markets, such as the mortgage-backed securities (MBS) market, at which they were targeted.

The additional unconventional measures were, therefore, partially successful. But they were not as successful as some may have initially hoped, though the prior experience of Japan – in which similar measures were applied in 2001 to 2006 – should have given warning not to expect too much. These measures primarily involve open-market operations, whereby a country’s central bank buys assets of one kind or another and pays for them by writing a check on itself. These checks are paid into commercial banks, which then hold the receipts as deposits with the central bank, thereby increasing the commercial banks’ own cash reserves. Under normal circumstances, when a commercial bank receives extra cash reserves, it uses them to make an extra loan, or to buy some other additional earning asset. But in the crisis conditions, the banks sat on the additional reserve base. Despite a vast increase in the banks’ cash base, the increase over the same period in their holdings of either private or public sector assets was minute; the multiplier had failed to work.

There were, of course, reasons why the banks were happy to accumulate cash reserves rather than putting them to work. During this recession, many corporations preferred to strengthen their balance sheets by repaying bank loans. In general, a recession makes

projects offered to banks by prospective borrowers seem, almost by definition, riskier. In view of the size and expected persistence of the fiscal deficit, the interest rate (and inflation) risk of buying longer-term government debt remains palpable, while the yield available on shorter-term debt has been exceptionally low. The interest rates are expected to rise in the future, the more so if inflation should also experience an uptick. When interest rates rise, bond values fall commensurately. Banks that hold such bonds suffer a capital loss.

This relative failure was in part due to policy errors made by the central bank. In particular, because the aim was to induce the banks to make use of the cash base that the central bank created, it was a mistake to offer an attractive deposit rate on such holdings. When the Fed activated the permission to pay a positive interest rate to commercial banks on their deposits held at the Fed itself in October 2008, the move could not have come at a worse time. Just as the Fed increased required reserve ratios in 1936, fearing the possible inflationary consequences of banks' "excess" reserves (now perceived as a mistake), the Fed in 2008 likewise began to pay a positive interest rate on bank deposits, fearing the same potential inflationary consequences. Indeed, the exact opposite policy – seeking to impose a slight penalty on deposits, above requirements – would have been desirable (though also somewhat unfair, since the banking system in aggregate cannot avoid holding the cash base that the Fed creates). The ability to set and vary the upper limit of rates at which banks can obtain cash from the central bank, and the lower limit at which the banks can place deposits with it – a "corridor system" – is a new, useful, and flexible tool. But the experience of the last two years indicates

that central banks have, in general, not yet learned how to make full and best use of this capacity.

Central bankers are sensitive to the criticism that, in the past, they reacted to each financial bust by encouraging, via aggressive and maintained cuts in interest rates, a new asset price bubble. Eventually, so the argument goes, the super-credit cycle became so top-heavy that interest rate cuts could no longer cope; public sector (taxpayer) support was needed. But the capacity and the willingness of the public sector to provide further support to the financial sector are now exhausted. Against this background, the unconventional measures of monetary expansion are being phased out by the ECB, BoE, and Fed, (though not in Japan, where the government is pressing the Bank of Japan to restart such measures).

What we have currently is a continuation of the fiscal stimulus (until the recovery is fully established) and a cessation of the unconventional monetary measures (though the ZIRP is being maintained at least for the time being). My own preference, as earlier indicated, would be for the reverse, with some early fiscal retrenchment offset by continuing – indeed, reinforced – monetary expansion.

Monetary expansion will, however, be hard to achieve at a time when everyone wants to reform the banks into safer and smaller entities. Financial regulators (and even the general public) are like generals poised to fight the last war over again, especially since that battle ended in a major defeat. As a result, banks will be faced with:

- 1) New taxation on a base (whether on profits, assets, wholesale borrowing or transactions) and at a rate still to be determined;



- 2) Higher required capital ratios;
- 3) More restrictive leverage ratios, especially in Europe, which previously had no such restrictions; and
- 4) Enhanced liquidity requirements.

In this context, and after the traumatic shocks of the crisis, which will also make it more difficult to find creditworthy borrowers, the banking system is likely to shrink. The forthcoming bank tax – whatever its details – will be quite popular and will seem, superficially, almost painless, but will actually be paid mostly by depositors, in the guise of lower deposit rates, and through higher charges to borrowers. This scenario, together with the necessity of enacting fiscal retrenchment and the remaining debt overextension in the personal sector, points to a sluggish recovery at best. Monetary policy will need to remain expansionary for a considerable amount of time into the future.

The basic monetary policy regime of inflation targetry, achieved by adjusting the official interest rate, should remain. However, it should be subject to the following technical changes:

- a) In Europe, housing prices should be included in the relevant index.
- b) Central banks should target a risk-adjusted interest rate rather than the official rate.
- c) More attention should be paid to a range of monetary aggregates, despite the undoubted difficulty of interpreting their signals.

In recent years, the macroeconomy has been in large part steered by monetary policy adjustments, with fiscal policy primarily aimed at longer-term structural objectives. During the recent crisis, Keynesian demand management via

fiscal policy has, however, returned to center stage. How, then, must the coordination of the two arms of policy be achieved? I believe a quick start to fiscal retrenchment offset by continuing, possibly enhanced, monetary easing is the best available approach. This tack, however, is unlikely to be adopted for several reasons:

- 1) The unconventional expansionary monetary policy measures have not been as effective as might have been hoped.
- 2) It is so difficult to claw back fiscal expansion, especially when the recovery remains so hesitant, that it will not happen soon, except under extreme external pressure, as in Greece.
- 3) The imposition of extra regulatory constraints on banks, while fully understandable in view of past excesses, is hardly calculated to encourage current monetary expansion.

The implication of delayed fiscal retrenchment is that economic recovery will be slow-moving at best. The financial crisis is not behind us; there could easily be further alarms. It is likely that monetary policy will have to remain in its expansionary mode for longer than most commentators now appreciate.