

Exit strategies and the Federal Reserve

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Quite a few remarkable changes have taken place in the United States in the past two years. The first African-American president was elected; the economy went into it what looks like the largest recession since the Great Depression; and Tiger Woods became a villain in spite of being as good at playing golf as ever. These and other changes have been amply dissected by the media. But one other change has gone largely unnoticed by the general public: the Federal Reserve System and the conduct of U.S. monetary policy have changed more in the last two years than perhaps in any other given period since the system was founded in 1913.

The Fed, as it is commonly called, has for most of its history limited its actions to buying and selling government bonds from a select group of banks in exchange for money that it prints. Sometimes, it has also lent money to a few banks directly for very short periods in time and against sound collateral, and it has bought and sold some gold and foreign currencies. Over the past two years,

the Fed has extended its reach in ways that few had imagined before. It made loans to a myriad of different institutions, it started buying securities directly, like a regular investor, and it found itself supporting failed companies like Bear Sterns and AIG. While discussions about the Fed had before only referred to the state of the economy and the odds of a recession, over the past two years there have been questions about the state of the Fed's balance sheet and the odds it could suffer heavy losses in its investments. While the Fed still sets interest rates, the news about the Fed are now more often about discussions in Congress about its powers, or the success and failure of its latest credit program.

For the most part, these changes were not planned well in advance. They did not follow long debates, with arguments discussed in numerous conferences, and opposing views put forward in the public arena. This is perhaps why most people have not realized that something has changed. Rather, the Fed has been forced to react and adapt to the unusual circumstances of a financial and real crisis that few had anticipated.

The goal of this chapter is to look forward to how the Fed should proceed from now onwards. It starts with a brief review of the main changes over the past two years, before turning to the three main questions that it tries to address. The first question is: what are the dangers of the current situation? There are both

economic concerns, regarding the traditional goals of controlling inflation and promoting economic stability, as well as political concerns on what role the Fed occupies within the U.S. government. The second question is: can the Fed get back to its old usual role? A catch-phrase for the discussion of the future of monetary policy has been “exit strategies,” referring to the way by which the Fed could return to its old tranquil state of affairs. This chapter discusses the viability of these strategies. This leads to the final question addressed here: should the Fed get back to its old usual role? Some of the changes may have been desirable even without a crisis. Now that we have them, it may be a good idea to keep them.

The extraordinary times of the last two years

At the most basic level, a central bank prints money. While there are many definitions of money, one that is both simple to understand and well-controlled by the Fed is the sum of currency in circulation and the reserves that banks hold, mostly in deposits at the Fed. This is called the monetary base, and because the Fed is the sole entity that can print currency in the United States and that sets minimum requirements for the amount of reserves that banks have to hold, it has good control (close to perfect control) over this measure of money.

In December of 2007, the monetary base was \$836 billion, approximately 6% of annual Gross Domestic Product (GDP) that year. In December of 2009, the monetary base had grown to \$2026 billion, which will be about 14% of that year's (estimated) GDP. To have a sense of how unprecedented this 142% increase in the monetary base is, you have to realize that the average 2-year increase in the monetary base between 1959 and 2007 was 13%, and the highest-ever increase had been 24%. There is more money in the U.S. economy than there has ever been, and it has grown many times faster than it ever had.

There is another measure of money, called M1, which equals currency in circulation plus checking deposits. This matches more closely what people in their everyday life think of as money. If banks had to keep as reserves all of the deposits that they get (sometimes called full-reserve banking), then M1 and the monetary base would be the same. Because, instead, banks can use the deposits to make loans keeping only a fraction as reserves, and because these loans in turn are deposited by other people, this system (known as fractional reserve banking) leads to M1 exceeding the monetary base. The ratio between the two is called the money multiplier.

Looking at the data on M1, it was equal to \$1395 billion in December of 2007. Two years later, it had risen to \$1719 billion. While impressive, this increase

is considerably smaller than the increase in the monetary base. This contrast uncovers the main reason for the increase in the base: a rise in the reserves held by banks. The money multiplier has fallen, or in other words, banks have been making fewer loans preferring to keep their customer's deposits stored inside the Fed's vault. These two events---the rapid increase in the monetary base and the large decline in the money multiplier---had not occurred in this magnitude at any time in the last 50 years.

Most people identify the Fed not with money but with interest rates. Since the early 1990s, the Fed has been publicly announcing targets for the Federal Funds Rate, the interest rate in a market (the Federal Funds market), where a select group of banks lends money to each other overnight. How can the Fed set a market price like an interest rate? By using its ability to issue money to buy and sell government bonds from some of these banks in exchange for crediting the reserve accounts of these banks at the Fed, the Fed can almost control the demand for money in the Federal funds market and therefore effectively control the interest rate. These are called open-market operations, and because this buying and selling of government bonds is taking place every day, the Fed only interacts in this way with a small group of banks (currently 19), that are

sufficiently large and credible so that the Fed need not worry about the transactions it is involved in being honored.

Looking at the target for the federal funds rate, available since December of 1982, interest rates are now lower than they had ever been. From December 2008 onwards, the Fed has been announcing that it is targeting a value for the Federal funds rate between 0% and 0.25%, and as of December of 2009 it continues committed to keep the rate at this low value for the near future. Zero is not just the lowest interest rates have been; it is also (approximately) the lowest they can ever be. If interest rates were negative, then banks would prefer to hold on to the reserves rather than lending them to other banks, and people in turn would prefer to hold cash in their pockets rather than to effectively pay a bank to keep them. Interest rates can perhaps be slightly negative, as keeping money in one's pocket may be inconvenient and there is a chance it can be stolen or lost, but there is still a lower bound on interest rates, which is plausibly quite close to zero.

There has been another significant change in the Fed's policy regarding interest rates. Starting in October 2008, the Fed began paying interest on the reserves that banks hold in its vaults. The expense that this involves has been small, given that the interest rate set by the Fed has been only 0.25% since

December of 2008. But paying interest on reserves is an entirely new tool at the disposal of the Federal Reserve, one that it never had before.

Of all these changes, perhaps the more remarkable is the one that I have left for last: the composition of the Fed's assets. Since the end of the Bretton Woods system, traditionally the Fed has held mostly U.S. Treasuries that it can use in its open-market operations. The only other relevant assets are small amounts of gold and of foreign currency. As a result, The Fed's balance sheet has traditionally taken less than one page, changing little from year to year. The only relevant default risk in this balance sheet has been the very remote risk that the U.S. treasury defaults on its debt.

Over the last two years, the balance sheet has expanded to take on many pages, including multiple assets with different default risks, and a myriad of financial firms on which the Fed now has credits. Some of the changes have come through a menu of different liquidity programs that the Fed introduced in the past two years, dealing with new financial institutions in forms never tried before. The most conservative is the TAF (Term Auction Facility), through which the Fed now lends to a wider set of banking institutions providing credit for 28 or 84 days, with terms determined by auction. Because this credit is given against high-quality collateral, the risk default is very low. Its desirability stems from it giving banks

access to funding for longer than just overnight. Slightly more distant from the Fed's usual actions is the TSLF (Term Structure Lending Facility) and the PDCF (Primary Dealer Credit Facility), through which the Fed also gives credit overnight and at 28 days against collateral, but now to primary dealers of securities. The third set of programs extended the credit to even more financial firms, many of which had never before engaged in transactions with the Fed. This was composed of the AMLF (Asset-Backed Commercial Paper Money Market Mutual Fund Liquidity Facility) and the MMIFF (Money Market Investor funding Facility) where credit was now provided to money market funds. Finally, the Fed entered a series of swap agreements with foreign central banks, through which it exchanged dollars for their currency, with a promise to receive the dollars back in a short period of time.

The next set of liquidity programs was more out of line with the tradition of the Fed. Through the TALF (Term Asset-Backed Securities Loan Facility), the Fed lent widely accepting as collateral any asset-backed security as long as it was rated AAA and was backed by student, auto, credit card, and small business loans. For commercial standards, the risk of these defaulting is very small; for the standards of the Fed, that used to take nothing but Treasury securities as collateral, the risk is quite high. The final liquidity facility is the CPFF (Commercial

Paper Funding Facility) through which the Fed now is willing to lend against commercial bonds issued by companies that had trouble selling them to private agents in the markets. De facto, the Fed started providing credit to some U.S. non-financial firms.

Beyond these loans, the Fed also started buying assets directly. The first innovation was the purchase of mortgage-backed securities, in an attempt to provide some demand in a market that has been deeply affected by the financial crisis and prevent a rise in mortgage rates. The second innovation was the creation of a series of corporations (Maiden Lane LLCs) that purchased assets from Bear Sterns and AIG, as part of the government bail-out of these companies. The Fed also made loans to Citigroup and Bank of America, although these have already been mostly paid back.

The combination of all of these programs means that the Fed's balance sheet was radically different in the past two years from its historical norm since the Federal Reserve Act of 1913. From dealing with only a few banks, and dealing with almost no risk in its mostly-government assets, the Fed made loans to and bought assets from a myriad of different private agents, with different risks associated both with changes in the price of these assets as well as with possible defaults on the loans.

These three changes---an increase in the amount of money (or liquidity), low and new interest rates, and a whole new set of Fed investments ---mean that although the Fed is still occupying the same buildings through its districts, and most of the people in them are also the same, the role that this institution has on the U.S. economy has changed dramatically in response to the financial and economic crisis of the last two years. Is this dangerous? If so, in what way? How can the Fed get back to its old mode of operations? And should it do so, or are at least some of these changes for the best? These are the three questions that I will try to answer next.

What are the dangers of the current situation?

The Federal Reserve's mandate, as determined by law, is "to promote effectively the goals of maximum employment, stable prices and moderate long-term interest rates." Because it is conventionally understood that the third of these goals follows if the first two are achieved, this is often referred to as the dual mandate. Let us start by asking: what are the dangers of all of these changes to Fed's procedures when it comes to inflation and employment in the present and next few years?

The dangers for inflation

A powerful strand of thought, called monetarism, links inflation to the growth rate of money. Milton Friedman famously once said that "inflation is always and everywhere a monetary phenomenon" and looking at the evolution of the monetary base should give some signs on what will happen to inflation. This is indeed the simple model that undergraduates in macroeconomics still learn. With the monetary base rising faster than it ever has, a naive application of monetarism would lead to expecting unprecedentedly high inflation, well into the two digits.

However, figure 1 shows year-on-year inflation since January of 2000. In this 10-year period, inflation rose slightly until it peaked in 2008 a little above 4%, and has since fallen sharply to the neighborhood of zero. But what about future inflation, you may ask? Instead of offering one particular, and surely flawed, prediction of the future, we can look at surveys for what people think. There are only a few surveys of expected inflation more than a few years out, and one of the most used is the Survey of Professional Forecasters, that provide their forecasts for inflation for the next 5 and the next 10 years. According to the latest numbers, released in November of 2009 and surveying 41 forecasters, the median forecast is 1.89% for 2009-2013 and 2.26% for 2009-2018. Two years earlier,

before the crisis hit, these forecasts were 2.5% and 2.4% respectively. There is little evidence that inflation is getting out of hand here as well.

[.....FIGURE 1.....]

This apparent disconnect between theory and reality arises because the theory stated in the first paragraph was too naive and flawed to apply to current times. A more sophisticated application of monetarism realizes that linking the growth rate of the monetary base to inflation relies on two pillars. The first is that the money multiplier is stable. Then, and only then, does an increase in the monetary base map into an increase in M1. The second is that there is a stable relation between interest rates and the amount of money people want to hold, so that there is a link between M1 and the price of goods. Both of these pillars fail when nominal interest rates are zero as they have been in the U.S.

The money multiplier breaks down because at zero interest rates banks are indifferent between holding new printings of money as excess reserves or lending them out. Whereas with positive interest rates, banks want to hold as few reserves as possible, and end up holding only the minimum legal requirements, with zero interest rates they are happy to hold a large amount of reserves.

Therefore, an increase in the monetary base does not imply an increase in M1, and the money multiplier falls. While the monetary base has increased at an extraordinary rate, the growth rate of M1 over the past two years, while high on average is not so out of line with what we saw in 1987, 1993, or in 2001-2003.

The relation between interest rates and money demand also breaks down because at zero interest rates, people are not rushing to exchange any extra money for goods. When a person decides to hold money, his/her loss is the foregone interest that he/she could be earning by buying a bond. With a positive nominal interest rate, and keeping it fixed, an increase in the amount of money M1 must come with an increase in prices of similar proportion so that the real amount of money held by people is still in line with the interest rate. In other terms, if there is more money out there, but the same number of goods being produced and motivating the desire to hold money, then the price of these goods in dollars must go up. But when the nominal interest rate is zero, people are happy to hold as much money in the bank as there is out there, as long as it is enough for them to engage in their transactions. There is no new demand for goods, and therefore no reason to expect inflation.

If, with zero nominal interest rates, the monetary base no longer is a reliable signal of the evolution of inflation, then what takes its place? A related

theory of what determines inflation, more reliable with zero nominal interest rates, looks not at money but at nominal interest rates directly. As with the monetarist theory, it is based on two pillars. The first is the Fisher equation, named after late economist Irving Fisher. It states that the interest rate is equal to inflation plus a real interest rate, which is higher when consumption is growing faster. The second pillar is the premise that the central bank chooses to target the nominal interest rate with an aggressive response to inflation, increasing the Federal funds rate by more than one if inflation goes up by 1%. Most evidence seems to show that this has been the case for the last 25 years in the United States, and this policy has received the name the "Taylor principle," after economist John B. Taylor.

Combining these two premises leads to the conclusion that inflation is determined by a weighted average of current and future interest rates as well as current and future economic growth. If the economy is expected to go into a deep recession, this pushes down real interest rates, which for a given nominal interest rate pushes down inflation. Alternatively, lowering nominal interest rates below what the rate of inflation justifies according to the usual policy choice has the effect of raising inflation.

We get from this theory a different interpretation of the current events. A deep recession pushed inflation down, to the point where without intervention by the Fed, we might even have had prices falling. The Fed lowered the Federal Funds rate as low as it could, all the way down to zero, trying to push inflation up. This has not been enough to offset the effect of the recession on inflation and so we have had lower than usual inflation, in spite of the aggressive monetary expansion.

What about the risk of future inflation? It depends mostly on what will happen to interest rates in the future. There are no signs that the Fed will keep interest rates this low for longer than it is absolutely necessary. As soon as a recovery in the economy gets under way and inflation gives signs of picking up, raising interest rates would be enough to keep inflation under control. According to this theory, the present situation only brings dangers to inflation insofar as the Fed will be too slow to act in the future. Otherwise, there is no reason to expect an increase in inflation.

The danger for employment

The danger for employment is clear: that we may slip into a depression as in the 1930s. Thus, it is good to start by comparing the current recession with the

1981-83 recession, the previous largest recession in the post-war United States, as well as with the first few years of the Great Depression. Figure 2 plots the unemployment rate in the United States since December of 2007 when the recession officially started, together with the same measure starting in July of 1981, as well as unemployment during the start of the Great Depression using circles to represent the available annual data.

[.....FIGURE 2.....]

The recession of the past year is clearly visible and as of December of 2009 there is still no sign of a recovery. Moreover, both in level as well as in the rate of change, the last two years are as bad or worse than anything we had seen in the post-war. Still, we are very far from the catastrophic events of the Great Depression. Exceptionally bad times they are; a new depression they are not, at least not yet.

Whether this was caused by the financial crisis, by events in the real economy, or by a third factor perhaps causing both, is not the point of this chapter. The goal is instead to understand what can the Federal Reserve do to stop this increase in unemployment?

Conventional wisdom says that lowering nominal interest rates (or printing money) would be the answer. The lower return on savings that they induce would encourage people to increase the demand for goods today boosting up production and employment. However, interest rates are already at zero: they cannot go any further down.

The danger is that even zero nominal interest rates are not enough. To see why, recall the Fisher equation stating that nominal interest rates equal real interest rates plus expected inflation. Imagine now that the crisis in the U.S. economy is so serious that it would take significantly negative real interest rates to stimulate spending. Well, if inflation expectations are sticky at around 2%, as the surveys seem to show, then lowering nominal interest rates to their lower bound of zero will at best generate slightly negative real interest rates. In this case, even though they are already negative, real interest rates are still too high, and thus employment is too low, relative to what may be desirable.

By driving the nominal interest rate to zero, is the Fed already doing all that it can? In theory, no, since raising inflation expectations would lower the real interest rate and stimulate the economy. Since, ultimately, the Fed affects inflation by setting nominal interest rates, the arguments of the previous section suggest that if the Fed was able to credibly commit to keeping nominal interest

rates at zero for a prolonged period of time, given beyond the trough of the recession, it should be able to raise inflation expectations. The Fed's policy announcements have been clear that it will do all it can to prevent inflation from becoming negative, including keeping nominal interest rates at zero for as long as it takes. It therefore seems that, at least according to theory, the Fed is trying to minimize the employment risks as far as it can.

Another way of stating this commitment to lower nominal interest rates for a prolonged period of time is to try to lower long-term nominal interest rates today. The Fed has also moved in this direction by shifting the composition of the Treasury securities it holds from short-term Treasury bills to long-term Treasury bonds. Buying Treasury bonds may raise their price and lower their return, but more importantly it provides a signal of the commitment to keep interest rates low in the future.

The danger to the Fed's independence

Whereas the dangers for employment and inflation were related to the novelties in interest-rate and money-supply policies, the danger for the Fed's

independence is mostly tied to the new assets in the Fed's balance sheet. It is less direct but potentially more long-lasting.

The motivation for the several liquidity programs was to promote financial stability. While this is not explicitly an objective of the Fed, there is a presumption (justified by the Great Depression) that financial instability can turn a recession into a depression. The Fed lent to different financial agents, and bought assets in different financial markets usually with the goal of keeping those markets operating and ensuring that the financial system as a whole was still reallocating funds from lenders to borrowers.

This venture into unfamiliar territory comes with two great dangers though. By interfering into many domains that were previously under the sole interference of Congress and the Treasury, the Fed has raised questions regarding its independence relative to these bodies. The Fed is today one of the most independent branches of the U.S. government. Given the goals set by the Federal Reserve Act, it has the autonomy to set monetary policy in whatever way leads to stable inflation and employment, without any direction from the president or interference from Congress. The Fed manages its own budget, and is only directly influenced by Congress and the president at the time of the appointment of the governors of the Federal Reserve.

One of the great lessons in the study of central banking in the last twenty years is that independent central banks can achieve both lower inflation and more economic stability. This has been confirmed by several empirical studies, and has found support in theories that partly gave a Nobel Prize to Finn Kydland and Edward Prescott. An independent central bank is able to resist the pressure from the government to always print a little more money to either pay for government debts or slightly increase employment. Because markets and people realize this, independent central banks are more credible and lead to lower inflation expectations and interest rates, as well as more stable employment.

However, these virtues of central bank independence applied to the old regime, where the Fed kept its job narrowly constricted to printing money and buying and selling marginal amounts in the very deep Treasury securities market. Now that the Fed has started intervening in many other markets, this raises legitimate questions as to how these markets were chosen, and within them, why some securities were purchased instead of some others. More to the extreme, participating in the bail-out of some financial companies like AIG and Bear Sterns, but not others, sometimes in close cooperation with the Treasury, raises the issue of using public money without Congress's approval in a stretched interpretation of the Fed's mandate.

A related danger of Congress interference in the conduct of monetary policy is that, by taking on risky assets, the Fed incurs in losses. This is particularly worrying for the assets in Maiden Lane associated with Bear Sterns and AIG, as well as for the mortgage-backed securities. In normal times, the risk that the Fed makes any losses in its holdings of Treasury securities is very small. Since it collects some seigniorage revenues from printing money, the Fed usually has more than enough funds to run its operations, and is still left with a few million to remit to the Treasury. But if the Fed suffers a substantial loss it may find itself without funds to pay for its bills. Two potential sources of funds would be to sell some of these assets or to print money. If both of them are incompatible with the employment and inflation goals of the Fed, the only other alternative is to ask for money from Congress. Once this happens, it is only a small step for Congress to start trying to condition how monetary policy is conducted, effectively ending the independence of the Fed.

The chance that the Fed suffers such large losses that it needs to turn to the Congress for funds are still remote. Yet, even the presence of this open door can already embolden members of Congress to attack the Federal Reserve Act and remove some of the Fed's independence that has had such beneficial effects over the past few decades.

It is important to emphasize that, given what we know today, there is no reason to doubt that the Fed has done nothing but pursue financial stability and general welfare in the U.S. economy. The Fed has been more transparent than most government agencies, explaining carefully the rationale behind most of its actions, in spite of the confidentiality constraints that come with some of its loans. Moreover, given how quick events took place in the financial markets, the Fed was often the only agent of the U.S. government that could respond, even if in an ideal better-designed regulatory system, some other branch of the government should have stepped in.

The final danger to the Fed's independence is the more subtle and remote, but still one to keep in mind. By engaging in financing relations with so many financial institutions, the Fed has become an important agent in many markets, and has opened the door for future interventions. Financial market participants now have available to them a strategy that they did not have two years ago: to lobby the Fed to intervene and cover their losses. When the Fed dealt only with banks, and heavily regulated them in exchange for rare interventions, this problem may have been under control. Once the Fed entered credit transactions with so many other financial firms, there is no longer a natural barrier preventing

them from trying to steer policy in ways that are privately profitable but socially costly.

Can the Federal Reserve get back to its usual, pre-crisis, role?

Regarding interest rates, the answer to this question is a clear yes. Nothing prevents the Fed from raising its target for the Federal Funds interest rate whenever it wishes to. Likewise, even though the Fed now has the power to pay interest on reserves, it has full freedom to set them at whatever level it wishes, including zero forever. Returning to the pre-crisis policy regime in regards to interest-rates would be very easy.

Reversing the more than doubling of the monetary base would be a little harder although it still falls within the normal set of actions used by the Fed. When the Federal Funds rate rises above the interest rate paid on reserves, banks will again face a cost of holding money on reserves. The money multiplier would go back to normal, and as banks try to unload their excess money, the Fed can stand ready to absorb it by giving them government bonds in return. Standard open-market operations, the bread and butter of the Fed's activities, should naturally take care of lowering the amount of money in circulation.

Turning to the assets of the Fed, reversing the maturity of the Treasury securities it holds would not be difficult. By simply selling the Treasury bonds it holds and using the proceeds to buy Treasury bills, this could be accomplished in a few weeks. The markets for these securities are sufficiently liquid that if done in an orderly fashion this would have a small impact on their operation. It may cause some challenges for the Treasury in managing the desired maturity of outstanding public debt, but there is no reason why they would not be able to deal with them. This change does not even need to affect private holdings of government securities, since if the Treasury does the reserve purchases and sales, the operation becomes just a matter of accounting between two branches of the U.S. government.

The multiple liquidity programs (TAF, TSLF, etc.) mostly consist of loans with duration of at most three months. Just letting them expire would eliminate them entirely. Indeed, some of them, like the support to money market funds have already expired, and many others have had their balance reduce greatly in the past few months, quickly heading towards zero. The terms at which these loans were made were quite onerous for the borrowers. Once credit conditions return to normal, they will also be glad to let them go.

So far, reversing the changes of the past two years does not seem particularly hard. More complicated is the sale of the \$971 billion of mortgage-backed securities (MBS) held by the Fed. This action was motivated by the contraction in demand for these securities over the past two years, perhaps as a result of the fall in house prices and the deterioration of the finances of households with mortgages due to the economic crisis. The Fed acted to prevent increases in mortgage rates, or even at points in the financial crisis, to offset the near absence of MBS financing for new mortgages in the housing market. Unlike the liquidity programs, which have gradually unwound, the holdings of MBS have been steadily increasing and they now account for about 20% of all the assets held by the Fed.

To reduce the holdings of the MBS, the Fed could just hold them and collect their payments until they mature. However, this could take many years: while the Fed has not revealed the maturity of its portfolio of MBS, if it resembles the maturity of securities outstanding in the market, it is more than just a few years. Moreover, the value of the MBS will fluctuate over time, exposing the Fed to considerable financial risk.

An alternative would be to gradually sell these securities, as the market for housing recovers, and the private demand for MBS re-appears. There are two

difficulties with this strategy. First, it is unclear that the Fed would be the best "market-timer" at selling its positions, so that again there is a risk of incurring unexpected losses. Moreover, with the Fed being such a large holder of these securities, it may start paying for speculators to try to time the Fed itself. Many central banks around the world have faced these challenges in the last 30 years in another market, as they tried to reduce their holdings of gold, and have learned from this experience that doing it well requires time and patience.

Another difficulty with selling the portfolio of MBS goes back to the independence of the Fed. The Fed's holdings are approximately 10% of the outstanding amount in this market, not a small deal especially as mortgages have a high political visibility and the issuers of these MBS are Fannie Mae, Freddie Mac, and Ginnie Mae, government-sponsored enterprises that have for decades relied on support and implicit guarantees from Washington. The Fed may again come against political pressure in the management of its MBS that diverts its focus from the dual mandate and jeopardizes its independence.

Finally, left for last are the more difficult actions to reverse: the acquisitions of assets and outstanding guarantees held following the bailouts of Bear Sterns and AIG. It is unclear how liquid these assets are, nor even how valuable they are. The Fed's chairman has described these actions as very uncomfortable, and the

absence of a clear way to exit them is part of this discomfort. These funds accounted for approximately \$113 billion in January of 2010, so even though they do not have the same weight as the MBS in the Fed's balance sheet, it is not a small amount to have staked in such uncertain terms. The best exit strategy would be for the Treasury to take on these obligations, which for the start should have fallen under the domain of fiscal rather than monetary policy.

Should the Federal Reserve get back to its old ways?

Having discussed how the Fed could undo the many changes of the past two years, we now turn to the question of whether it should do so. Starting with the changes in the Fed's assets, there is no compelling reason why the support of AIG and Bear Sterns, the holdings of MBSs, or the many short-term liquidity programs should be continued. These actions are justified in response to the financial and credit crisis. Once these are gone, there is no reason to keep them. Moreover, as we already discussed, these assets come with the danger of capture by financial participants, and they may lead the Fed to lose focus from its dual mandate of maximum employment and price stability. Finally, by intervening directly in some financial markets for a prolonged period of time, the Fed would inevitably be interfering with the incentives in those markets in ways that are

neither justified by its mandate nor lead to any clear gain in efficiency. Going back to a boring Fed balance sheet, with Treasury securities as the main item on the asset side, may be best.

There is one exception to this broad conclusion: the Term Auction Facility (TAF). This liquidity program extends the actions of the Fed from the small set of primary dealer banks to potentially many more banking institutions. Instead of only buying and selling Treasury securities from them, the Fed can lend to banks for 28 or 84 days at terms determined by auction. This is one extra useful tool at the disposal of the Fed in conducting "plain vanilla" monetary policy. Indeed, many central banks, including the European Central Bank, have had in place similar mechanisms for some time. It provides one way for the Fed to inject liquidity quickly into the banking sector, and to obtain valuable information from the market price at which the auctions clear.

Turning to interest rates, raising them is less clearly good or bad. On the one hand, as we discussed in the context of the risks for inflation, raising interest rates once the economy starts recovering is crucial to ensure that inflation remains low and under control. On the other hand, as we discussed in the context of the risks for employment, keeping nominal interest rates low for a prolonged period of time may be the more effective way to raise inflation expectations,

lower the real interest rate and stimulate the economy. Whether it is a good idea to pursue this more expansionary policy or not depends on whether the Federal Reserve is willing to accept the risk of higher inflation in exchange for the prospect of less unemployment, a familiar dilemma for monetary policy.

The Federal Reserve so far has kept nominal interest rates at zero, but has not made a clear announcement on how it will act once the recession bottoms out. The experience of the late 1970s in the United States provides some support to the view that once inflation gets even only a few percentage points above average, it will be then hard to bring inflation expectations down.

At the same time, an unwillingness to accept higher inflation was one of the policy mistakes that contributed to prolonging the Great Depression and the Japanese slump of the 1990s. Of particular relevance is the U.S. experience in 1937-38. At the start of 1937, the U.S. the economy had been recovering from the 1929-33 tumble at a fast pace leading to optimism that the depression might very soon be over. Both the administration and the Fed reversed their anti-crisis stance and started publicly worrying about the increasing risk of inflation, and newspapers and commentators pointed to the large increase in the monetary base, just as some are doing now. The Fed raised the amount of legally required reserves that banks had to hold as an attempt at contracting the money supply,

raising nominal interest rates and curbing inflation. In the two years that followed, the U.S. had one of the sharpest contractions in industrial production in the history of the United States. Only when those policies were reversed back did the economy start expanding again. By then the damage was done and it took almost all the way to World War II to fully recover.

This lesson from history should give serious pause to the Fed if it starts focusing too much on avoiding future inflation when there is little evidence for it. While it is in the nature of central bankers to be conservative and to worry about inflation, during a deep crisis such as the one we are living through today, all things considered erring on the side of too loose monetary policy for a little too long may be the least bad of mistakes.

Finally, the last change in the past two years has been the introduction of interest paid on reserves and the more than doubling of the monetary base. This is a change that is dear to academics since for more than forty years, starting with the work of Milton Friedman, there has been a defense of the current situation as an almost ideal state of affairs. The argument is that money is a good which is created at close to no cost by society: all it takes is a few more digits in electronic records to create additional reserves and an insignificant cost in paper and ink to print currency. Yet, the liquidity they provide is socially useful. It is therefore

optimal, from the perspective of society, to flood the economy with liquidity until everyone's demand for it is fully satiated. If this takes many billions of dollars, then so be it.

A related way to make this point is to note that the opportunity cost of money for banks is that they earn only the interest rate on reserves on their holdings of money but could be earning the Federal Funds rate if they lent it out to other banks. If the two interest rates are the same, this opportunity cost disappears. Banks, and going down the chain households, are then effectively satiated in their desire for money, since holding it becomes costless. When the Fed could not pay interest on reserves, this outcome could only be reached when interest rates were zero. This has often been referred to as the “Friedman rule”.

Now that interest can be paid on reserves, it is possible to accomplish this Friedman rule by always setting that interest rate equal (or slightly below) the interest rate targeted in the Federal Funds market. The size of the money supply will then be whatever people happen to demand it to be, now that liquidity is free. It may fluctuate, and even change abruptly over time, but as long as the two interest rates that the Federal Reserve now controls are set the same, this will be inconsequential for inflation. What is important is that there is enough money (or liquidity) in the economy for it not to constrain people's actions unnecessarily.

Conclusion

Changes bring about worry, especially those that come unexpectedly. In the past two years, a deep financial and real crisis in the U.S. has forced the Fed to make many changes in the conduct of monetary policy. For an institution that prides itself on its conservatism, and where any significant reforms usually follow year-long (or even decade-long) debates, these changes were both unexpected and uncomfortable. Even if they were necessary, it is no surprise that there is already discussion of exit strategies, or ways to reverse all of the changes.

This chapter discussed the main changes and the dangers associated to them. It then looked forward and tried to understand whether it was possible to go back to the old regime and whether this was desirable. The answers to some of these questions are still tentative. Still, in spite of a few dangers, there are also a few ways out, and with the right combination of skill and luck, U.S. monetary policy may emerge better than what it was before.

References

The data used in this chapter came from four sources. The first is the FRED database of macroeconomic statistics maintained by the Federal Reserve Bank of Saint Louis, accessible at <http://research.stlouisfed.org/fred2/>. I use the series UNRATE for unemployment, PCEPI for inflation, M1 for money, BOGUMBNS for the monetary base, GDPA for Gross Domestic Product, and DFEDTAR for the Federal Funds target rate. The second source was the Millenium edition of the Historical Statistics of the United States, available at: hsus.cambridge.org, for unemployment during the Great Depression, series ba475. The third source was the Fed' balance sheet on January 21st, from Table H.4.1 of the Fed's statistical release, available here: <http://www.federalreserve.gov/Releases/H41/Current/>. Finally, the fourth source was the Survey of Professional forecasters, managed by the Federal Reserve Bank of Philadelphia, using their 2009, quarter 4 release: <http://www.phil.frb.org/research-and-data/real-time-center/survey-of-professional-forecasters/>.

Figure 1.

The three main recessions of the last 100 years: today, the early 1980s, and the Great Depression

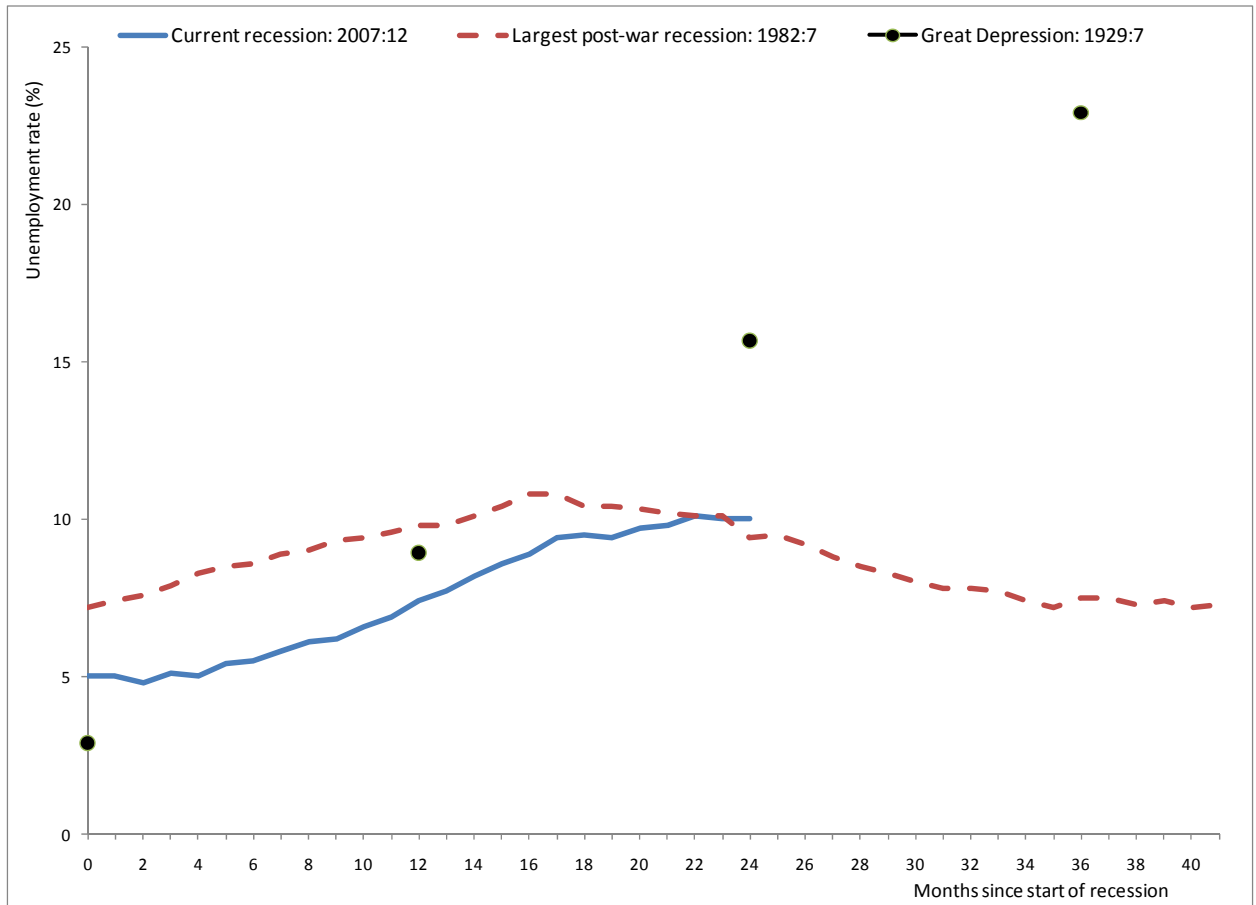


Figure 2.

Year-on-year inflation since January of 2000 for personal consumption expenditures

