

Non-Conventional Monetary Policy¹

Having examined conventional monetary policy, we now examine the other actions that the Federal Reserve has taken in response to the macroeconomic downturn. Before looking at specific examples, we consider a few broad types of non-conventional monetary policy. Some specific policies will fit more than one of these:

1. Buying assets even when $i_t \approx 0$. Recall from your earlier coursework that conventional expansionary monetary policy works by purchasing assets with new money in order to reduce interest rates. Even when interest rates have approached their lower bound, the monetary authority can continue making these purchases. Doing so will no longer affect short-term rates, but it does continue to increase the monetary base and perhaps the money supply. One motivation behind this type of policy is to prevent deflation.

2. Buying longer-term securities. As discussed in the last topic, more economic decisions depend on intermediate or long term interest rates than short term rates. The monetary authority can directly affect longer term rates by purchasing longer term debt, such as 2-30 year Treasuries, directly. The mechanism that lowers interest rates is the same one that normally applies to short term rates.

3. Buying troubled assets. Consider, for example, mortgage backed securities. During the worst of the recession, the return on these assets became *ambiguous*, where buyers and sellers did not even know the distribution of payoffs. This is in contrast to risk where the exact return is not known, but the probability distribution of these returns is known. Financial markets are generally good at pricing risk.

Suppose, for example, that this ambiguity exists and that you own a MBS that I am considering buying. You then ask for a price of \$100. Because I don't know the distribution of payoffs, I worry that your willingness to sell for \$100 reflects your private information that the asset is not worth

¹These are undergraduate lecture notes. They do not represent academic work. Expect typos, sloppy formatting, and occasional (possibly stupefying) errors.

that much. I thus choose not to make the purchase. The same may be true for all potential prices. Ambiguity thus causes the market to fail whereas risk does not.

Ambiguity was a serious problem in the MBS market. Bid-ask spreads (the difference between the lowest selling price and the highest buying price) rose to high levels, demonstrating the market's failure.

When banks and other lenders held difficult to price MBS on their books, this incentivized them to reduce their risk by lessening access to credit. Buy purchasing these assets, a Central Bank hopes to spur lending.

4. Direct lending. Among its statutory duties, the Fed acts as a lender of last resort (the original purpose of Central Banks) by making loans, when the private sector will not, to firms whose failure jeopardizes overall macroeconomic stability.

Specific Non-Conventional Monetary Policies

Example #1. Open Market Purchases Beyond the Zero Lower Bound.

Figure 1 (from the Cleveland Fed), shows the composition of the Fed's balance sheet since January 2007.

Recall that the the Federal Funds Rate target reached its zero lower bound in late 2008. At this time, the Fed's balance sheet (sum of assets owned) equaled about \$2 trillion. After that time, however, Fed continued open market operations to the point where its balance sheet equaled about \$4.5 trillion by late 2014. Given the decline in velocity and the money multiplier, this additional increase helped stabilize the price level and prevent deflation. The balance sheet remained near \$4.5 trillion until late 2017 when the FOMC began its ongoing program to reduce the balance sheet to a yet unknown level.

Example #2. Repeated Purchases of Longer Term Treasuries:

Figure 1: The Fed's balance sheet

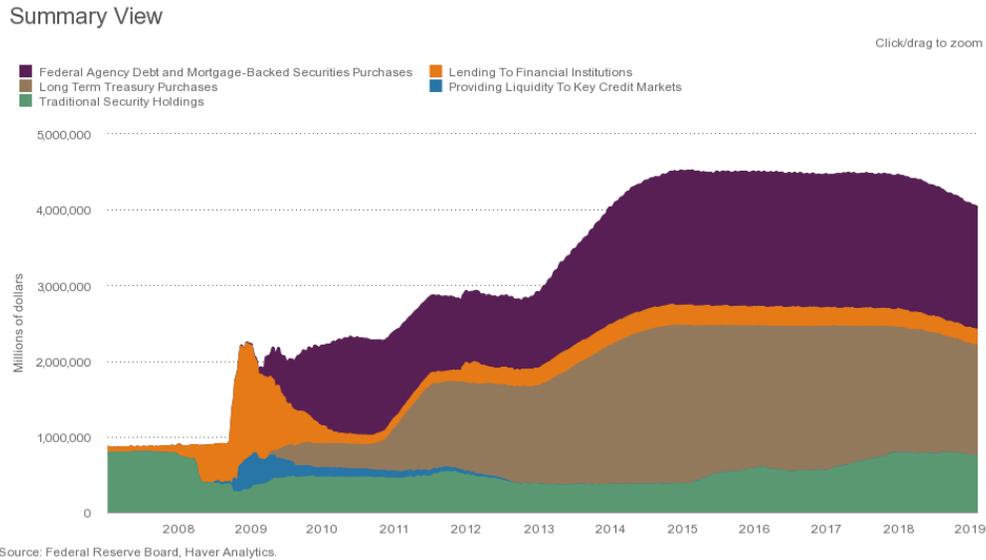


Figure 1 shows that prior to the Spring of 2009, the Fed's holdings of treasuries was limited to short-term debt. At this time, however, the Fed began a series of programs designed to increase its holdings of longer term Treasuries:

i. Quantitative Easing I:² The exact dates of this program are vague. But it generally refers to the Fed's purchases of \$1.75 trillion in assets in mid to late 2009, after the Federal Funds Rate target had reached its lower bound. These purchases included \$300 billion of longer term Treasuries.

ii. Quantitative Easing Too:³ On November 3, 2010, the Fed announced a second round of quantitative easing. This program entailed \$600 billion of purchases of 2-8 year Treasuries.

iii. Quantitative Easing III: In September 2012, the Fed announced a third round of quantitative easing. Its statement read in part:

²If the term "quantitative easing" seems opaque to you, don't worry. Nobody really knows what it means. Think of it as the Fed buying stuff even after $i_t \approx 0$.

³No this is not a typo. It is a subtle reference to *Teen Wolf Too*, the somewhat disappointing sequel to the breathtakingly profound *Teen Wolf*. The sequel probably would have been better had it been able to cast Michael J. Fox instead of the talentless Jason Bateman. Bateman represents the second worst re-casting of the entire 1980s. The worst, of course, being Mr. Dream in *Mike Tyson's Punchout* for the NES.

To support a stronger economic recovery and to help ensure that inflation, over time, is at the rate most consistent with its dual mandate, the Committee agreed today to increase policy accommodation by purchasing additional agency mortgage-backed securities at a pace of \$40 billion per month. The Committee also will continue through the end of the year its program to extend the average maturity of its holdings of securities as announced in June, and it is maintaining its existing policy of reinvesting principal payments from its holdings of agency debt and agency mortgage-backed securities in agency mortgage-backed securities. These actions, which together will increase the holdings of longer-term securities by about \$85 billion each month through the end of the year, should put downward pressure on longer-term interest rates, support mortgage markets, and help to make broader financial conditions more accommodative.

The Fed continued \$85 billion in monthly purchases through September 2013. At this point, the Fed began to “taper” the policy, reducing its purchases in stages until ending them altogether in October 2014. The program seems to have had a large effect on financial markets with many analysts connecting it with surging stock market prices into 2014. When Fed officials made statements that QE3 was to taper or end relatively soon, stock markets typically declined. When job market reports were positive, stock prices also often fell, possibly because markets were concerned that the Fed would use that news as a basis for winding down QE3.

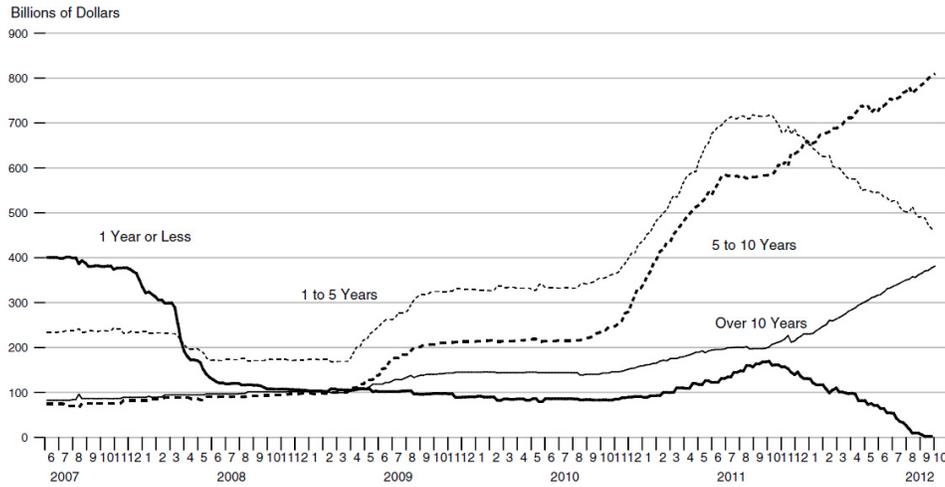
iv. Operation Twist: In 2011 and 2012, this program converted about \$650 billion of short-term Treasury holdings into longer term securities. There is some redundancy between this program and other programs that have the same effect (thus some long term purchases are being counted more than once on this list). The official name of this program is the Maturity Extension Program.

Collectively, these programs allowed the Fed to accumulate about \$2.1 trillion in longer term Treasuries by late 2014 while its short term holdings dropped as low as \$360 billion. Since then, the FOMC has started to again increase its proportion of short-term (traditional) Treasuries. Figure 2 shows the composition of the Fed’s Treasury holdings by maturity through late 2012.⁴

⁴Source: St. Louis Fed.

Figure 2:

Maturity Distribution of U.S. Treasury Securities Held by the Federal Reserve



These actions compliment the Fed’s efforts at influencing long-term interest rates by managing expectations of future short term rates. Collectively, they have managed to drive long term interest rates to very low levels:





Example #3. Buying Troubled Assets. We consider two examples of this policy:

i. Fed purchases of mortgage backed securities. The biggest examples of this occurred during Quantitative Easing I, where the Fed purchased over a \$1 trillion of mostly agency mortgage backed securities, and Quantitative Easing Three. The Fed's holdings of these asset snow exceeds \$1.8 trillion. Keep this policy in mind when we discuss TARP, a program that many observers expected to purchase \$700 billion in mortgage backed securities, but which was instead used to purchase equity in financial institutions.

Most of the Fed's holding of mortgage backed securities are private label, \$1.74 trillion compared top just \$35 billion of agency MBSs.

ii. The Troubled Asset Relief Program (TARP).

TARP is one of the most important policy responses to the financial crisis. It is often referred to as "the bank bailout." Like most monetary policies, TARP is intended to increase access to credit. Like fiscal policy, however, it is administered mostly by the Treasury Department. Recognizing

this gray area, we will lump TARP in with monetary policy. TARP is an example of the government buying assets that are very risky and often hard to effectively price.

After the collapse of Lehman Brothers, policy makers including Ben Bernanke and Treasury Secretary Hank Paulson, feared that the macroeconomy was facing a severe contraction of credit. Recall that declining stock prices and exploding credit spreads reflected a concern that the U.S. could be facing a crippling recession. Markets were also having a hard time effectively pricing mortgage backed securities. There existed a large gap between the price at which firms were willing to sell and the price where anyone was willing to buy. Faced with this ambiguity, the holders of these asset backed securities had no choice but to hold onto them. To cover themselves in case the eventual price of these assets was low, they had an incentive to reduce their leverage ratios by holding more capital and making fewer loans.

To unclog credit markets, Paulson proposed that the Treasury Department be authorized to directly purchase MBSs and other troubled assets. By removing these assets from the system, the government could reduce the ambiguity and improve access to credit. The initial proposal was three pages long and allowed the Treasury Department to eventually purchase \$700 billion in troubled assets. The actual amount, however, turned out to be only \$428 billion.

The Treasury Department did not, however, purchase many MBSs. It instead chose to purchase equity in troubled financial institutions. It did this because it viewed the financial crisis as a liquidity crisis more than a solvency crisis. The government's non-voting equity thus provided the institutions with the funds that they needed to to continue in operation. If they recovered, the government would then sell its share, possibly at a profit. Figure 3 shows some of the biggest recipients of TARP funds, along with the government's initial share:⁵

This chart shows an odd feature of TARP. The Treasury Department persuaded almost all large financial institutions to accept TARP money, even if they did not need it. This was done to avoid having TARP money send a signal that a financial institution was in trouble.

⁵Source: doctorhousingbubble.com

Figure 3: Biggest TARP Recipients

Company	Preferred Stock purchased (millions USD)	October 3, 2008 stock price	Current stock price 3/5/2009	TARP A.D.
Citigroup	\$50,000	18.35	1.02	95%
Bank of America	\$45,000	34.47	3.17	91%
AIG (American International Group)	\$40,000	3.87	0.35	91%
JPMorgan Chase	\$25,000	45.90	16.60	66.70%
Wells Fargo	\$25,000	35.47	8.12	77%
General Motors	\$13,400	9.00	1.86	79.40%
Goldman Sachs	\$10,000	124.00	81.72	37.87%
Morgan Stanley	\$10,000	23.50	17.98	22.53%
PNC Financial Services Group	\$7,579	74.15	20.00	74.25%
U.S. Bancorp	\$6,600	34.79	9.01	75.12%
Capital One Financial	\$3,555	44.90	8.99	80.79%
American Express	\$3,389	30.87	10.33	67.86%
Bank of New York Mellon Corp	\$2,000 to \$3,000	29.78	19.65	35.89%
State Street Corp	\$2,000 to \$3,000	46.96	19.31	62.75%
www.doctorhousingbubble.com				

The Treasury Department was criticized for not actually purchasing MBSs. While this may be legitimate, TARP has to be viewed as part of a collective policy response that includes the Fed's expansion of its balance sheet (which includes \$1.8 trillion in MBSs) and expansionary fiscal policy. Complaints about not enough aid being provided to distressed homeowners or the mortgage market need to be evaluated in the context of the total policy response.

As of January 2019, *Propublica* estimates that the Treasury turned a \$96 billion profit from TARP.⁶

The Treasury Department believes that TARP worked, in that it prevented a much worse macroeconomic outcome.

TARP initially faced strong opposition. Opponents included both conservative Republicans, liberal Democrats, and many academic economists. Their objections included:

⁶See: <https://projects.propublica.org/bailout>. To analyze the economic success of TARP, we must also quantify and weigh the effects on the overall macroeconomy.

1. TARP is very vague. It is not clear what type of assets may be purchased under the program.
2. TARP, at least in the short run, resulted in a significant increase in the national debt.
3. TARP created moral hazard by allowing banks to keep profits but requiring that the public bear the losses. For the same reasons, many viewed the program as unfair.
4. TARP was potentially inflationary. This concern was not realized
5. TARP lacked sufficient oversight.
6. TARP was not accompanied by additional measures that directly helped troubled homeowners, the unemployed, etc.

Moderate politicians, both 2008 Presidential candidates, and many economists supported the proposal. They argued that, while not perfect or entirely fair, passing the bill was better than allowing the economy to enter a more severe and longer recession.

On September 29, 2008, the House of Representatives rejected TARP 228-205 (about two-thirds of Democrats voted for it while about two-thirds of Republicans voted against it). The DOW Jones index immediately fell 8% and the financial panic deepened.

On October 1, 2008, the Senate passed TARP 75-24. Affected by financial markets' reaction to their earlier vote, the House passed the bill two days later and President Bush soon signed the bill into law.

TARP included several other provisions:

1. It increased FDIC insurance from \$100,000 to \$250,000 per account.
2. For firms where the government holds an equity stake, executive compensation schemes may not “encourage unnecessary and excessive risks.” This is an attempt to solve the agency problems that contributed to the panic.

3. The final bill created an oversight panel and made the Treasury department's actions subject to judicial review.

TARP remains controversial. A few of the arguments are:

1. To many, TARP does appear to have stabilized the financial system. There have been no more failures of huge financial institutions since its passage (although some large banks have teetered on the edge of bankruptcy).

2. Critics argue that the banks involved with TARP used to influx of capital to improve their balance sheets rather than issuing new loans to the hoped for degree. The difficulty with judging this argument is that it is necessary to compare credit markets as they are to how they would be without TARP. If credit would have been even tighter without TARP, then the policy may have achieved its goal even if credit remains tight.

3. TARP has been far from transparent. Trying to determine the status of the TARP money is nearly impossible.

4. TARP is also very vague. Despite being intended for financial institutions, it was heroically stretched to allow for the automakers bailout in 2009. We will discuss the automakers bailout later in the semester.

5. Recently, there has been some scandal regarding the executive compensation at firms receiving TARP money. AIG has been especially egregious.

Another argument against TARP was made by Sarah Palin in her magnificent interview with Katie Couric:

That's why I say, I, like every American I'm speaking with, were ill about this position that we have been put in, where it is the taxpayers looking to bailout. But ultimately, what the bailout does is help those who are concerned about the health care reform that is needed to help shore up the economy helping the Oh, its got to be about job creation

too. Shoring up our economy and putting it back on the right track And trade weve got to see trade as opportunity, not as a competitive scary thing. But 1 in 5 jobs being created in the trade sector today. Weve got to look at that as more opportunity. All those things under the umbrella of job creation. This bailout is a part of that.

Example #4. Direct Loans

As discussed earlier in the semester, the Fed made loans to allow for the continued operation of AIG and Bear Stearns before the passage of TARP. The assets that the Fed acquired as part of these transactions were lumped together into the Maiden Lane limited liability companies. They appear as part of the yellow area in Figure 1.

Example #5. The Fed Pays Interest on Reserves

Commercial banks must hold 10% of their deposits as required reserves. Although some is held as vault cash, most is held on reserve at the Fed. Beginning in 10/08, the Fed has paid interest on these deposits (2.40% as of January 2019). There are two main motivations. First, the Fed has had difficulty ensuring that the actual Federal Funds Rate equals its target. In particular, the actual rate has been less than the target. In theory (though not always in practice), the interest rate paid by the Fed should set a lower bound on all overnight rates, including the Federal Funds Rate. Second, interest payments may encourage banks to hold excess reserves which, at least in 2008, seemed to offer greater financial stability.

Currently, excess reserves are seen by some as an impediment to successful monetary policy and credit. The Fed maintains that the rate is too low to significantly inhibit lending by incentivizing excess reserves. Some have suggested that the Fed may someday consider a tax on reserves to induce lending. The European Central Bank has stopped paying interest on reserves. Denmark's Central Bank has also started charging 0.20% on reserves.