

Mad Money

Brilliant economists have written thousands of pages surrounding the long-term implications of the ongoing government deficits, soaring debt levels and extensive monetary/ fiscal stimulus programs, leading to daily debates regarding the timing and magnitude of future inflation/deflation, currency and interest rate changes. I am neither brilliant nor an economist, but believe I have sufficient understanding of the roles Congress, the U.S. Treasury and Federal Reserve play in coordinating economic policy. I could give broad definitions of what Money Supply, Quantitative Easing or Debt Monetization are, but I often have to read these economic pieces multiple times to grasp the intended message and even then some seem like a confusing circular reference. I find most economist follow the Alan Greenspan tactic of “if you understood what I said, I must have misspoken” style of communication. As a result, I have attempted to simplify and summarize the primary entities and major concepts of fiscal and monetary policy along with illustrating how the system works, giving investors a better understanding of news headlines they hear about the “US Hits its Debt Ceiling” or the “End of QE2”.

To begin, the primary entities that impact/create/administer fiscal (government spending) and monetary (money supply) policies will be defined.

FISCAL POLICY

Congress is responsible for implementing fiscal policy, which is an attempt to influence the economy through taxation and spending policies. Desired outcomes can be stimulative, typically lower taxes and/or increased government spending, or restrictive, typically higher taxes and/or reduced government spending. The government has **NO authority to create money** therefore as government spending exceeds taxes collected, the government must finance the deficit by issuing debt and selling it into the existing market. Additionally, Congress is responsible for establishing limits on total outstanding U.S. Government debt called the “Debt Ceiling”. In December 2009, Congress increased the ceiling to \$14.294 trillion (an increase of \$1.9 trillion) and on May 17th of this year the new ceiling was reached. Despite hitting the cap, the U.S. has emergency funds available, including access to federal pension funds to continue paying its bills, but the ceiling will almost assuredly be raised, as Democrats and Republicans are actively negotiating the timing and magnitude of this increase.

The United States Department of the Treasury is an executive department of the federal government responsible for managing federal finances – including collecting all taxes, paying all bills and issuing/managing all government debt. When debt is issued by the Treasury, it announces a quantity then utilizes an auction system to set the interest rate. There are two types of bids; Competitive bids specify a quantity and yield, while Non-Competitive bids specify only a quantity and accept the yield set by the competitive bid auction. For example, suppose the Treasury needed to raise \$11 billion on June 1st and planned to issue 10-year Treasuries. On the day of the auction, the Treasury receives non-competitive bids of \$1 billion and the following competitive bids:

Auction	Quantity	Yield
Bidder 1	\$3.0 billion	3.05%
Bidder 2	\$2.0 billion	3.06%
Bidder 3	\$3.0 billion	3.07%
Bidder 4	\$2.0 billion	3.08%
Bidder 5	\$2.0 billion	3.08%
Bidder 6	\$3.0 billion	3.09%
Bidder 7	\$2.0 billion	3.10%

The Treasury would accept the \$1 billion in non-competitive bids and would allocate the remaining \$10 billion to the competitive bidders from lowest yield to highest yield until the entire quantity is filled. In the event there are multiple bidders at the Stop Yield (yield where

entire quantity is filled); those bidders will get a pro-rata share of their requested quantity. The above auction would have the following results:

To complete the example; on June 1st, the Treasury would issue \$11 billion in 10-Year

Results	Quantity	Yield	Auction Result	Cumulative Quantity
Bidder 1	\$3.0 billion	3.05%	Accepted	\$ 3.0 Billion
Bidder 2	\$2.0 billion	3.06%	Accepted	\$ 5.0 Billion
Bidder 3	\$3.0 billion	3.07%	Accepted	\$ 8.0 Billion
Bidder 4	\$2.0 billion	3.08%	\$1 Billion Accepted	\$ 9.0 Billion
Bidder 5	\$2.0 billion	3.08%	\$1 Billion Accepted	\$ 10.0 Billion
Bidder 6	\$3.0 billion	3.09%	Rejected	
Bidder 7	\$2.0 billion	3.10%	Rejected	

Treasuries with a yield of 3.08%, the highest accepted yield. When the U.S. Treasury conducts an auction, the vast majority (approximately 90%) of the securities are sold to Primary Dealers.

Primary Dealer is a formal designation of a firm that makes a market (offers to buy or sell) for government securities and is able to trade directly with the Federal Reserve System. These firms are required to make bids (buy) or offers (sell) when the Fed conducts open market operations (explained in Monetary Policy section). There are currently twenty Primary Dealers:

When a Primary Dealer is awarded securities through the auction process, the securities

- PRIMARY DEALERS AS OF 2/2/2011 -

BNP Paribas Securities Corp.	J.P. Morgan Securities LLC
Barclays Capital Inc.	Merrill Lynch, Pierce, Fenner & Smith Incorporated
Cantor Fitzgerald & Co.	MF Global Inc.
Citigroup Global Markets Inc.	Mizuho Securities USA Inc.
Credit Suisse Securities (USA) LLC	Morgan Stanley & Co. Incorporated
Daiwa Capital Markets America Inc.	Nomura Securities International, Inc.
Deutsche Bank Securities Inc.	RBC Capital Markets, LLC
Goldman, Sachs & Co.	RBS Securities Inc.
HSBC Securities (USA) Inc.	SG Americas Securities, LLC
Jefferies & Company, Inc.	UBS Securities LLC.

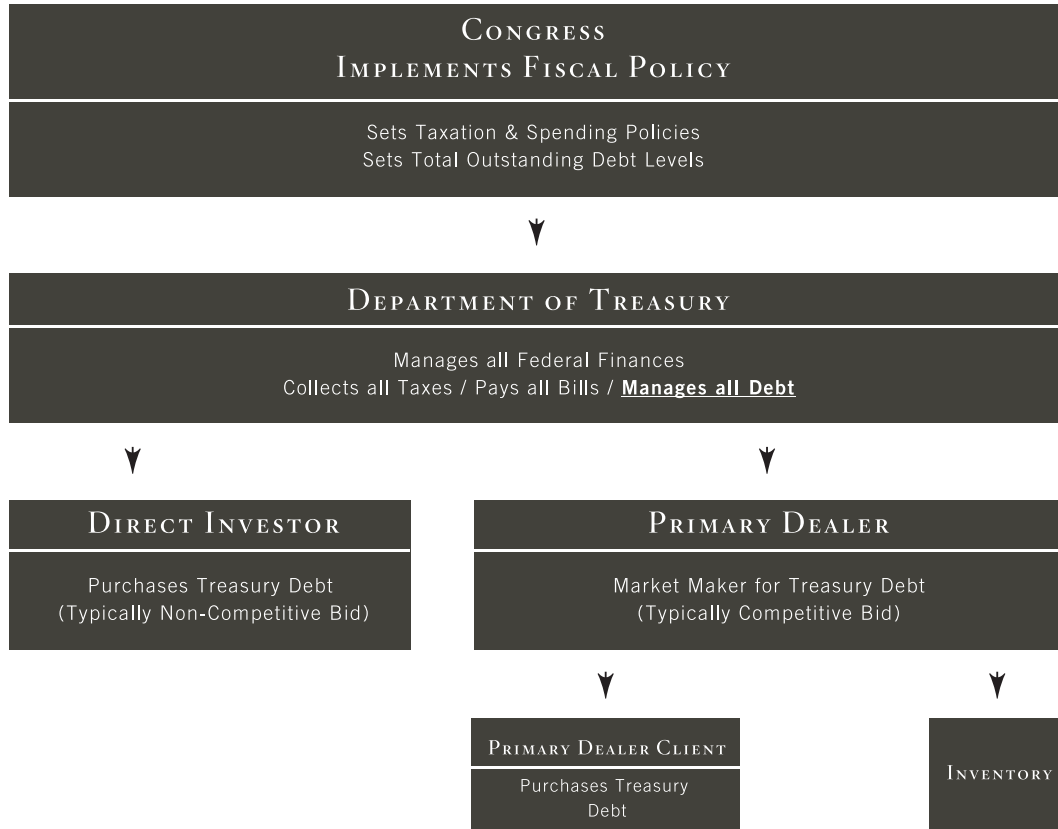
Source : Federal Reserve Bank of New York

are generally re-sold to clients of the Primary Dealer with the dealer receiving the spread between the bid (purchase price) and ask (sales price). However, the dealer may keep some bonds in inventory for future trading.

The process above is the basic implementation of Fiscal Policy and is illustrated:



MONETARY POLICY



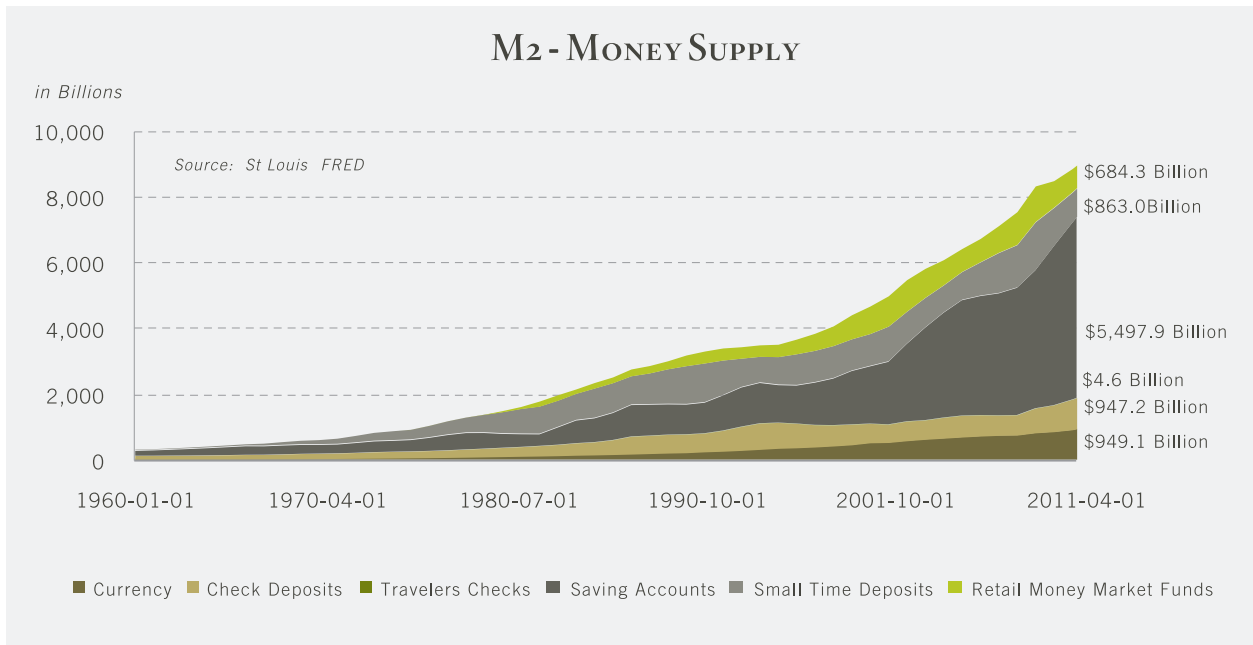
The Federal Reserve System (the Fed), the central banking system of the United States, is responsible for administering Monetary Policy, an attempt to influence the economy by controlling the supply of money. Similar to Fiscal policy, Monetary policy is either expansionary (increase in money supply) or contractionary (decrease in money supply) trying to affect economic growth, inflation, exchange rates and unemployment. There are six goals (listed below) of the Federal Reserve System that were established in the Employment Act of 1946 and the Full Employment and Balanced Growth Act of 1978.

- Stability in the financial system
- Price Stability – fighting inflation
- Full Employment
- Economic growth
- Interest Rate Stability
- Currency Stability

The Fed is technically independent within government, meaning decisions made by the Fed do not require approval by Congress or the President. However, the members of the Board of Governors, the main governing body of the Federal Reserve System, are all appointed by the President and approved by Congress. There are seven members of the Board of Governors (today two positions are vacant), headed by the Chairman (Ben Bernanke). This group is responsible for overseeing the twelve district Federal Reserve Banks and setting national Monetary Policy.

As mentioned, Monetary Policy is implemented by manipulating the money supply. However, the term “Money Supply” is probably one of the most misunderstood terms for many investors. Most people associate an increase in the Money Supply as the Government turning on the printing press and creating more currency; but physical

currency only accounts for approximately 10% of the “money” the Federal Reserve closely monitors. Some people have probably heard references to M1 or M2 when economists talk about Money Supply, but most people do not have a clear understanding of what they are. When discussing money, M1 represents physical currency, checking deposits and travelers’ checks while M2, the measure the Federal Reserve is focused on, includes M1 plus Savings Accounts, Small Time Deposits (i.e., CDs under \$100,000) and retail money market funds. The breakdown of M2 is:



So, how does the Fed use monetary policy to influence economic activity? Consider Irving Fisher’s Equation of Exchange

$$M \times V = P \times Q$$

- M** = the total nominal amount of Money in circulation
- V** = the velocity of money – the frequency each unit of money is spent
- P** = the price level
- Q** = Real quantity of assets, goods and services sold during the year

The Fed attempts to manipulate **M** and **V** in hopes of influencing **Q** without triggering significant inflation/deflation as measured by the change in **P**. The tools the Fed uses are:

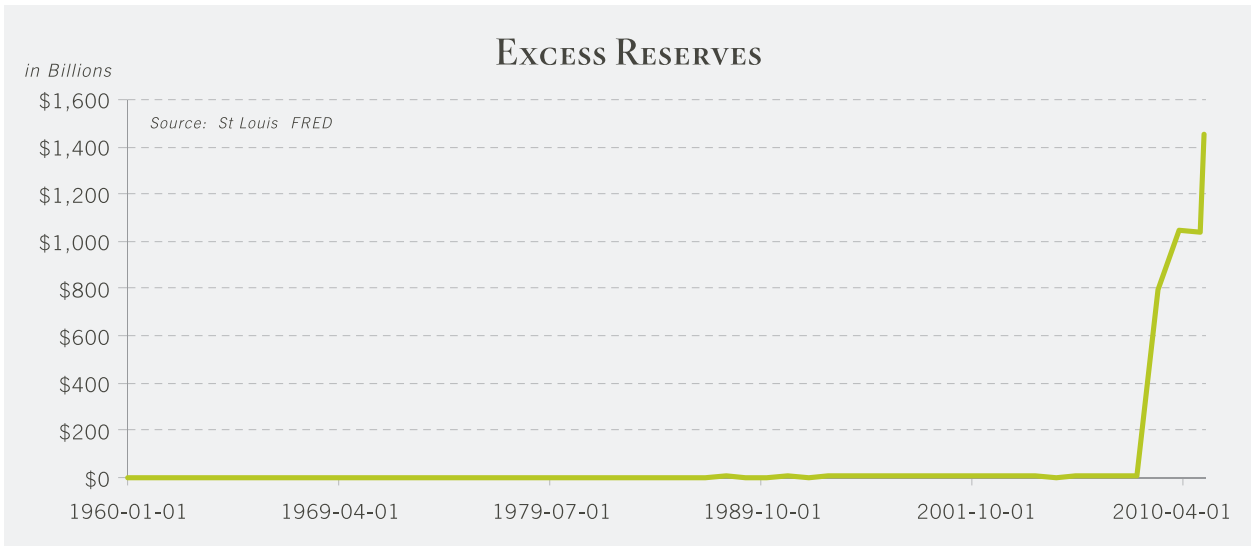
Fractional Reserve Banking is when a bank receives a deposit, the Fed requires the bank to reserve a percentage of the deposit for potential withdrawals, but can utilize the remaining funds to make new loans. This is essentially how a bank makes money - earning the spread between the interest earned on a loan (or investment) less the interest it pays on a deposit. If the Fed increases the required reserve amount, the bank has fewer dollars to loan out, while a decrease in the required reserve will increase the available funds for

new loans. For example, assume the reserve requirement was 10% and the bank received a deposit of \$1. The bank would need to reserve \$0.10 and would have \$0.90 in funds available to loan. In a closed economy (no money leaves the system) where every available loan dollar was loaned out and spent, a 10% reserve requirement on a \$1 deposit would create \$10 of total money.

Reserve Example	Deposit	Reserve	Loan	
Initial Deposit	\$1.00	\$0.10	\$0.90	Loan 1
Deposit Loan 1	\$0.90	\$0.09	\$0.81	Loan 2
Deposit Loan 2	\$0.81	\$0.08	\$0.73	Loan 3
Deposit Loan 3	\$0.73	\$0.07	\$0.66	Loan 4
.....	\$6.56	\$0.66	\$5.90
Total	\$10.00	\$1.00	\$9.00	

Simply, the maximum money multiple created by the Fed's Fractional Reserve Banking decisions is the inverse of the reserve requirement ($1/\text{Reserve Requirement}$ so $5\% = 20x$, $10\% = 10x$, $20\% = 5x$). While this seems like a great tool to increase money (M), the Fed cannot change the reserve requirement frequently because banks need time to adjust their reserve (an increase would require loans to be repaid or new deposits to be received). Also, while this tool increases the capacity for higher velocity (V), if the demand for new loans is low or banks are hesitant to make new loans, the Fed does not receive the full benefit. This environment has contributed to a recent spike in excess reserves for depository institutions.





While weaker loan demand and higher credit standards have contributed to the sudden increase in excess reserves held at the Federal Reserve, the primary contributor was the Fed's decision to pay interest on the excess reserves in October 2008 (prior to this no interest was paid on these balances). Currently, the Fed is paying 0.25% on excess reserve balances, significantly higher than the 0.06% current T-Bill rate, attracting increased levels of capital. While the above market yield is attractive, banks should prefer to loan the excess reserve totals out and earn the spread, which is artificially high today given the slope of the yield curve that basically starts at zero, the interest rate paid on most deposits.

As noted, velocity (V) is heavily influenced by lending and spending practices. The Federal Reserve attempts to increase/decrease loan demand/supply and spending patterns with its interest rate policies. The primary instrument the Fed manipulates is the **Fed Funds** rate; the rate banks charge other banks to borrow money. As outlined, banks are required to maintain a certain level of reserves and should they fall below the minimum threshold, they are able to borrow funds generally at the Fed Funds rate from depository institutions that have excess reserves to increase their cash/reserve balances.

The Fed Funds rate directly shapes the short-end of the Treasury yield curve (T-bill) as each item competes for the same capital. This direct relationship impacts the entire economy since most debt is priced based on the risk-free rate (T-bill) plus a constant risk premium. When the Fed lowers the Fed Funds rate, T-bill yields also fall resulting in a lower cost of capital for borrowers and increasing the demand for debt. Also, when the Fed Funds rate falls, investors receive very little interest on their checking accounts, saving accounts, money market funds thus diminishing the incentive to save and increasing the incentive to spend or invest in riskier assets.

While the Fed sets a target for the Fed Funds rate, the actual rate is established by the market. However, the Fed conducts open market operations to insure the market rate is in line with the stated target. **Open Market Operations** is a simple process that injects liquidity when the fed funds rate is higher than the stated target or withdraws liquidity when the fed funds rate is lower than the stated target. To inject liquidity, the Fed will purchase T-bills from Primary Dealers, which as previously defined are able to trade directly with the Federal Reserve and **required** to make a market in Government Securities. This transaction will increase the reserve balances of the Primary Dealer, injecting cash/liquidity into the system. This short-term liquidity boost is typically done through a repurchase agreement where the Primary Dealer agrees to buy the security back at a later date. To withdraw liquidity, the process reverses and the Primary Dealer's reserve balance declines.

In the event banks are not willing to lend to other banks as experienced in 2008, the Federal Reserve also acts as the lender of last resort for short-term liquidity needs. Banks are able to borrow short-term funds **directly** from the Federal Reserve through the **Discount Window**. When a bank utilizes the Discount Window and borrows funds directly from the Federal Reserve it must put up collateral (various government and investment grade debt). The interest rate for borrowing directly from the Federal Reserve is called the Discount Rate and is typically 0.50% - 0.75% higher than the Fed Funds rate.

In normal environments, these are the standard tools the Federal Reserve uses to shape the economy but with the last few years being anything but normal, the Fed has opened up other sources of liquidity, most importantly through their two Quantitative Easing programs. **Quantitative Easing is an attempt to directly increase the money supply.**

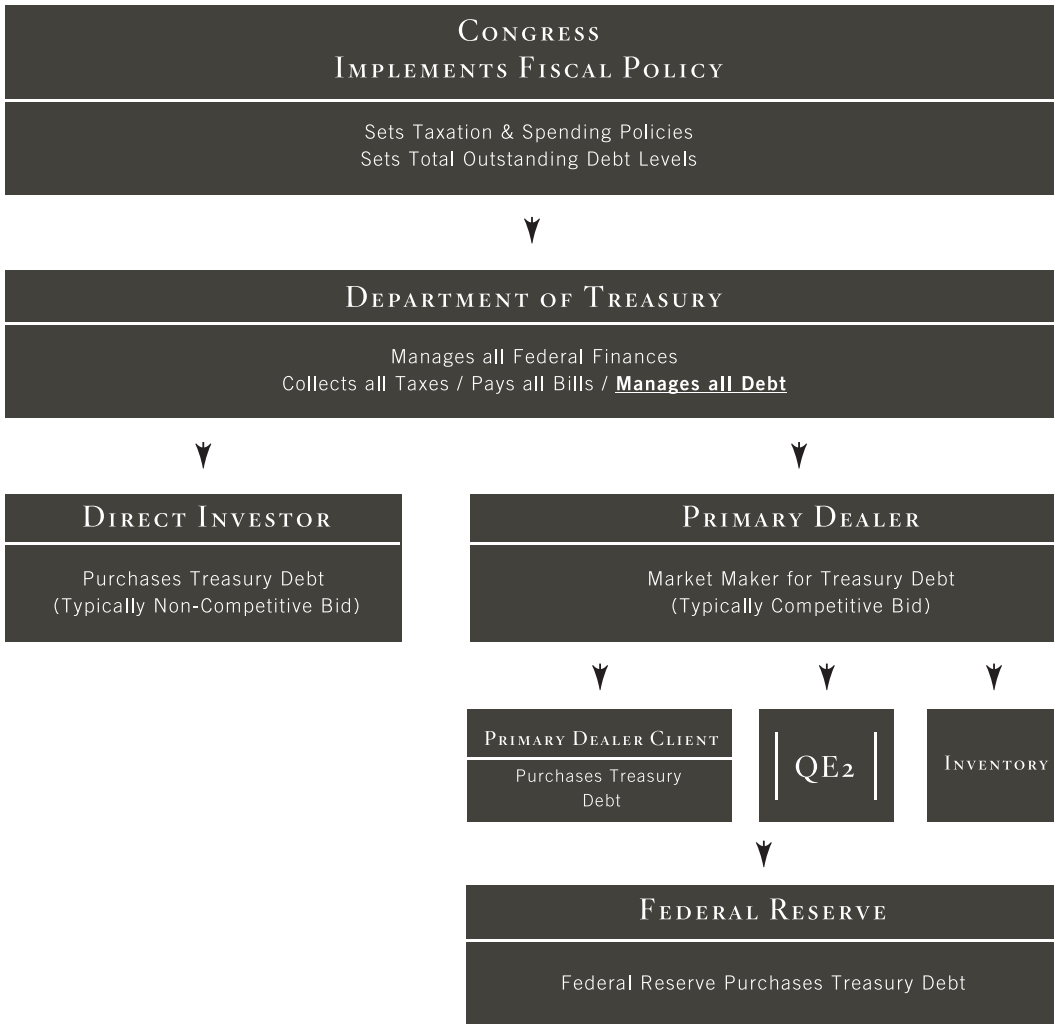
Quantitative Easing One (QE1) Program - Despite cutting interest rates to near zero and opening the Discount Window, liquidity continued to be tight in 2008 as depositors demanded their funds. In response, the Government began purchasing less liquid instruments from banks, providing immediate liquidity to these entities. In November 2008, the Federal Reserve began buying \$600 billion of Mortgage-Backed-Securities (MBS) from banks. By March 2009, the Federal Reserve's balance sheet consisted of



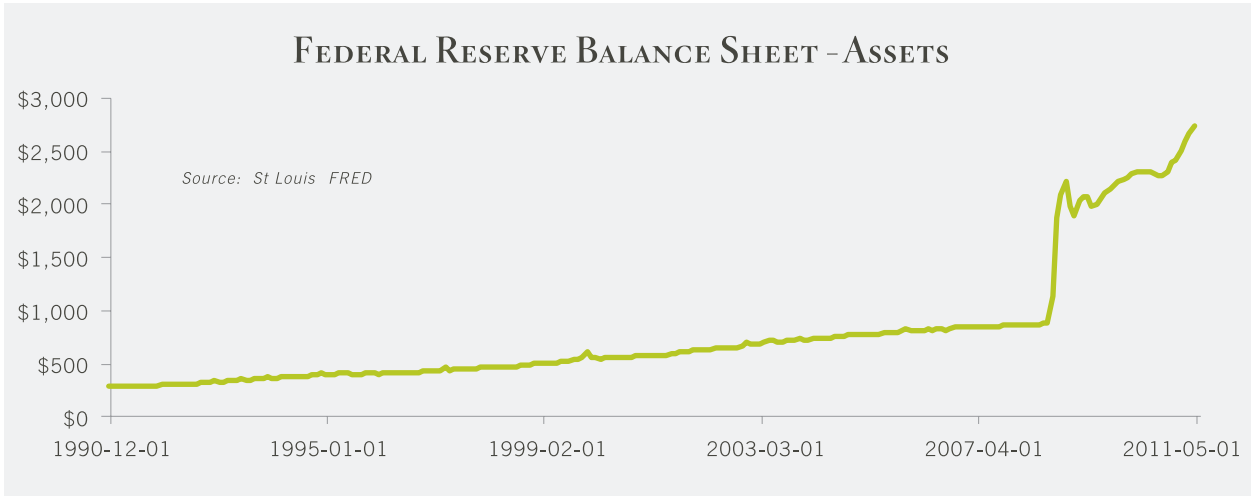
\$1.75 trillion of bank debt, MBS and Treasury Notes. The Fed purchases started to fade in June 2010 after the Fed's balance sheet peaked at \$2.1 trillion in assets amid signs the economy was improving. However, in November 2010, following signs of sluggish economic growth, the Fed announced its Quantitative Easing Two (QE2) Program created to target \$600 billion in purchases of longer-maturity U.S. Treasuries. The QE2 program was essentially **Debt Monetization**, with the government issuing debt to finance spending, while the Federal Reserve increases the money supply by purchasing this debt.

The potential benefits of QE2 were a further increase in liquidity while longer-term interest rates remained in check due to the heightened demand for Treasuries driven by the program's purchases. These purchases were scheduled to be made between November 2010 and June 2011.

The diagram above describing the typical Fiscal Policy implementation can be expanded to illustrate how QE2 has worked:



So now the question is, what does the Federal Reserve intend to do with its soaring balance sheet?



While QE2 is formally scheduled to conclude in June 2011, the Federal Reserve has stated their intention to reinvest proceeds from maturing Mortgage-Backed-Securities (MBS) positions to maintain the current asset level on the Fed's balance sheet. Ultimately, the Fed's decisions surrounding the long-term plan for its Treasury holdings (largest holder of Treasury securities) will determine whether investors punish the U.S. and its currency for monetizing its debt or view the dramatic liquidity injection as a useful tool to restart the economy. In the interim, the Federal Reserve will continue to receive its annual interest payments on its asset positions and forward all profits back to the U.S. Treasury.

While this is merely an educational overview that any investor could find in a Money & Banking 101 textbook, hopefully it provides a simple outline/framework that will be useful when reviewing the follow-up report that will provide my opinion of the long-term implications of the ongoing government deficits, soaring debt levels and extensive monetary/ fiscal stimulus programs; and more importantly, the potential investment implications of future inflation/deflation, currency and interest rate changes.

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