BB Chapter 12: Monetary Policy

Monetary policy refers to the practice of changing the supply of money in an economy to try to influence growth, unemployment and inflation. Monetary policy generally has the same goals that fiscal policy does.

Monetary policy is generally conducted by a country’s central bank. A central bank serves the following roles:
1. It regulates a country’s banks
2. It serves as a bank for banks, that is, it is a place that banks keep their deposits on reserve and it is a place that banks can go to for loans if they have insufficient reserves. To be clear about this, if a bank falls short of necessary reserves, it must borrow money to get enough reserves.
3. It controls the nation’s money supply and, thus, conducts monetary policy.

Just about all modern economies have central banks. They include (or did include) Germany’s Bundesbank, Great Britain’s Bank of England and, in the U.S., the Federal Reserve System.

The Federal Reserve System
The Federal Reserve is the central bank of the U.S. It is comprised of 12 district banks and a large number of member banks.

The Federal Reserve system was created by the Federal Reserve Act of 1913.

The seven members of the Board of Governors are appointed by the President and confirmed by the Senate to serve 14-year terms of office.

The primary responsibility of the Board members is the formulation of monetary policy. The seven Board members constitute a majority of the 12-member Federal Open Market Committee (FOMC), the group that makes the key decisions affecting the cost and availability of money and credit in the economy.

The other five members of the FOMC are Reserve Bank presidents, one of whom is the president of the Federal Reserve Bank of New York. The other Bank presidents serve one-year terms on a rotating basis. By statute the FOMC determines its own organization, and by tradition it elects the Chairman of the Board of Governors as its Chairman and the President of the New York Bank as its Vice Chairman.
The Board sets reserve requirements and shares the responsibility with the Reserve Banks for discount rate policy. These two functions plus open market operations constitute the monetary policy tools of the Federal Reserve System. In addition to monetary policy responsibilities, the Federal Reserve Board has regulatory and supervisory responsibilities over banks that are members of the System.

The Federal Reserve System is self-funded. It generates income through lending money to its member banks while paying no interest on reserves it holds.

Because the Fed is self-funded, it is very independent of the government and Congress. This makes the Fed a very undemocratic institution. This is also tremendously important to the health of our economy.

**How the Fed Controls the Money Supply**

The Fed has three tools at its disposal for controlling the money supply. They are, in decreasing order of importance:

1. Open Market Operations – the buying and selling of bonds
2. The Discount Rate – the rate at which the Fed lends to member banks
3. Reserve Requirements – member banks’ required reserve ratios

1. Open Market Operations
   
   Money that is inside the Fed is not in circulation. When money leaves the Fed, it enters circulation and becomes part of the money supply.

   So, if the Fed buys something (U.S. treasury securities, in particular) the money that it pays for that thing leaves the Fed and enters circulation.

   If the Fed sells something (again, U.S. treasury securities) the money that it collects on the sale enters the Fed and leaves circulation.

   The money that enters or leaves the Fed is a change in the monetary base and is also a change in total reserves.

   This is the basis for open market operations, the sale or purchase of U.S. government debt by the Fed. When the Fed wants to increase the money supply, it buys bonds, so bonds enter the Fed and money leaves the Fed. When the Fed wants to reduce the money supply it sells bonds, so bonds leave the Fed and money enters it, leaving circulation.

   Once the money leaves the Fed, the usual process of the money multiplier occurs and the total increase in the money supply is equal to:

   \[ \Delta M_S = \Delta \text{Reserves} \times \text{MoneyMultiplier} \]
The money multiplier depends in part on excess reserves and how much money people choose to hold on to and not deposit in their bank, so the Fed has imperfect control over the money supply.

The relationship between open market operations, interest rates and bond prices is given by the graphs below. The key to understanding this is to remember that bond prices and interest rates move in opposite directions.

When interest rates rise, bond prices fall.

When interest rates fall, bond prices rise.

**The Fed Sells Bonds and Reduces the Money Supply**

When the Fed sells bonds, it increases the supply of bonds and reduces the money supply. Increasing the supply of bonds should decrease their price, which is consistent with higher interest rates. Reducing the money supply is also consistent with higher interest rates.

When the Fed buys bonds, it reduces the supply of bonds and increases the money supply. Reducing the supply of bonds should increase their price, which is consistent with lower interest rates. Increasing the money supply is also consistent with lower interest rates.

The Fed doesn’t directly control interest rates (other than the discount rate) but when it conducts open market operations it usually does so with the goal of bringing the *federal funds rate*, the rate at which member banks lend to each other overnight, to a certain level.
2. The Discount Rate
By changing the rate at which it lends to banks, the Fed can affect the amount of money member banks borrow and put into circulation and, thus, can affect the money supply.

It may also be the case that a higher discount rate causes member banks to hold higher levels of excess reserves as insurance against the possibility that they might have to borrow from the Fed.

A lower discount rate will increase the money supply and a higher discount rate will reduce the money supply.

3. Reserve Requirements
These are currently set at 10% and haven’t changed since 1992, according to the textbook.

It would be insane to use these for monetary policy, but if the Fed wanted to, it could increase the money supply by reducing reserve requirements.

How Monetary Policy Works
Monetary policy changes the supply of money and impact interest rates in the credit market or the market for loanable funds.

The cost of holding money is the interest that could be earned on it, so at higher interest rates, the quantity demanded is smaller.

The demand for money
There are three motives for holding money
- Transactions motive (effects of changes in the price level and GDP)
- Precautionary motive (for emergencies)
- Speculative motive (as a stable asset)
Anything that affects these motives will affect the demand for money

Things that affect the demand for money
- Price level
- GDP changes
- Financial innovations
- Expectations about other assets
- Uncertainty about the future

The effectiveness of monetary policy depends on the slope of the money demand curve.
Changing $M_s$ will change interest rates and shift AD
   An increase in the money supply increases AD
   A decrease in the money supply decreases AD

**Paul Volcker**

Volcker's Fed was responsible for ending the United States' inflation crisis of the early 1980s. This was achieved by constricting the money supply through a sharp increase in interest rates. In addition to disinflation, this policy caused a severe recession and the worst unemployment since World War II. By 1985 the economy was nearly back to full employment, and inflation was considerably lower: from 9 percent in 1980 to 3.2 percent in 1983.

Here's the story as told by data from the Economic Report of the President

<table>
<thead>
<tr>
<th>Year</th>
<th>Real GDP</th>
<th>Price Level*</th>
<th>Nominal M1</th>
<th>Unemployment Rate</th>
</tr>
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<tbody>
<tr>
<td>1978</td>
<td>4760</td>
<td>48</td>
<td>356.9</td>
<td>6.1</td>
</tr>
<tr>
<td>1979</td>
<td>4912</td>
<td>52</td>
<td>381.4</td>
<td>5.8</td>
</tr>
<tr>
<td>1980</td>
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<td>57</td>
<td>408.1</td>
<td>7.1</td>
</tr>
<tr>
<td>1981</td>
<td>5021</td>
<td>62</td>
<td>436.2</td>
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<td>1982</td>
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<td>66</td>
<td>474.3</td>
<td>9.7</td>
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<tr>
<td>1983</td>
<td>5132</td>
<td>69</td>
<td>520.8</td>
<td>9.6</td>
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<tr>
<td>1984</td>
<td>5505</td>
<td>71</td>
<td>551.2</td>
<td>7.5</td>
</tr>
</tbody>
</table>

*This is the GDP Price Deflator

<table>
<thead>
<tr>
<th>Year</th>
<th>Real GDP</th>
<th>Price Level</th>
<th>Nominal M1</th>
<th>Unemployment Rate</th>
<th>% change in Real GDP</th>
<th>Inflation Rate</th>
</tr>
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<tr>
<td>1978</td>
<td>4760</td>
<td>48</td>
<td>356.9</td>
<td>6.1</td>
<td>743.5</td>
<td>8.33%</td>
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<tr>
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<td>3.19%</td>
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<tr>
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<td>57</td>
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<td>7.1</td>
<td>716.0</td>
<td>-0.24%</td>
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<tr>
<td>1981</td>
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<td>7.6</td>
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<td>2.47%</td>
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<tr>
<td>1982</td>
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<td>9.6</td>
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<td>4.33%</td>
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<td>1984</td>
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<td>71</td>
<td>551.2</td>
<td>7.5</td>
<td>776.3</td>
<td>7.27%</td>
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Equation of Exchange
- Concept of velocity – how many times a year does a typical dollar change hands
- \( V = \frac{Y}{P} \)
- velocity equals nominal GDP divided by the money supply
- Percent changes and the equation of exchange

\[ \%\Delta M + \%\Delta V = \%\Delta Y + \%\Delta P \]

where
- \( M \) is the money supply
- \( V \) is velocity
- \( Y \) is real GDP
- \( P \) is the price level

Quantity Theory of Money
The quantity theory of money consists of three parts:
1. Equation of exchange
2. Velocity is constant
3. \( Y \) doesn't change in response to a change in \( M \)
The result is that changes in the money supply only change price level.

EX: Imagine an economy where velocity is constant (so \( \%\Delta V = 0 \)), and real GDP grows at an average annual rate of 3% (so \( \%\Delta Y = 3\% \)). Putting these numbers into the above equation gives us a relationship between the rate of growth of the money supply (\( \%\Delta M \)) and the inflation rate (\( \%\Delta P \))

\[ \%\Delta M + 0\% = 3\% + \%\Delta P \]

So, if the money supply grows at 3% each year, inflation should average 0%. Increasing the money supply at a greater rate will, in this model, simply create inflation.
**Activist Monetary Policy**
Activist monetary policy suffers from most of the problems that afflict activist fiscal policy, except that the Fed acts with one voice and can act much more quickly than can Congress and the president. The Fed is also fairly well insulated from political stuff, so it can act in the best long term interest of the national economy.

Milton Friedman says that the Fed should abandon activist monetary policy and just let the money supply grow at the same rate that the economy usually grows at, thus eliminating uncertainty about the future growth of the money supply.

This has good implications for demand side shocks, but not supply side shocks.