

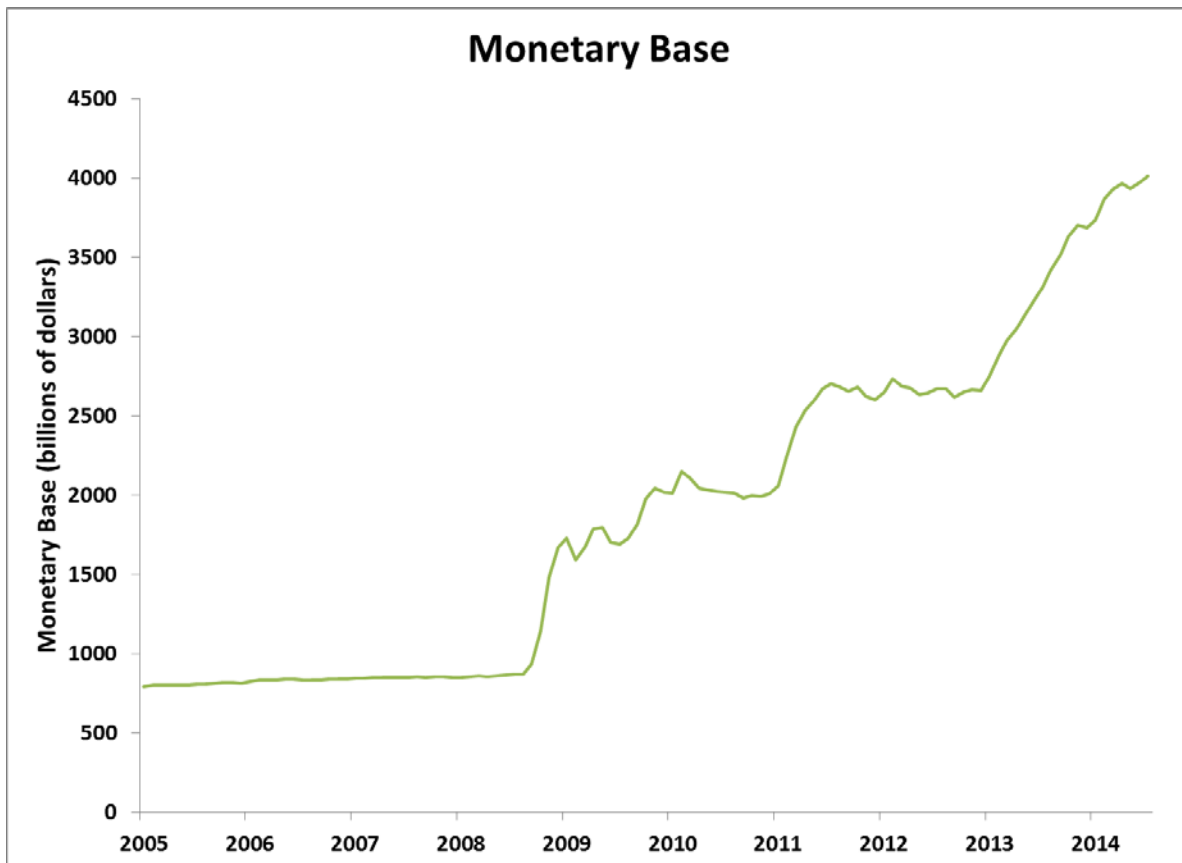
## Dean Croushore Blog about Monetary Policy

August 28, 2014

### An Inflationary Scenario

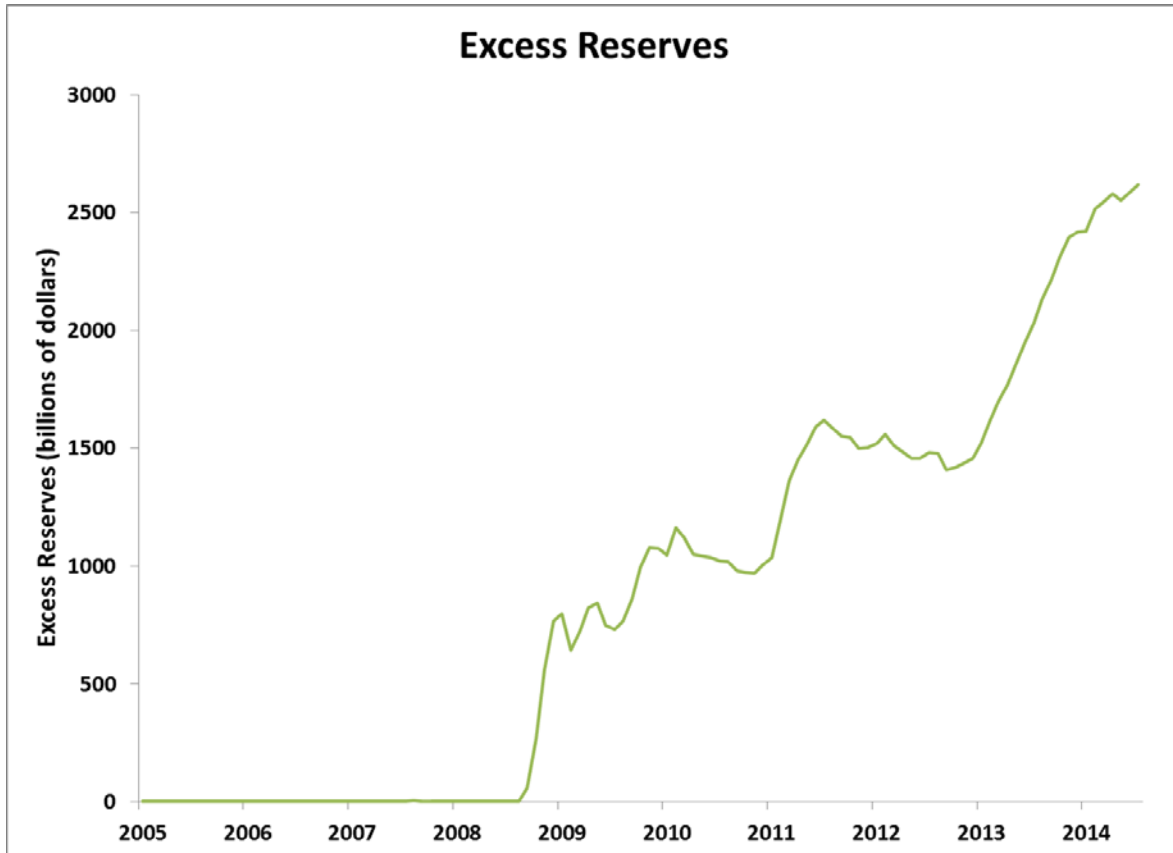
The mainstream economic forecast by private-sector economists is similar to that of the majority of the Federal Open Market Committee's members. That forecast calls for continued mediocre economic growth with low inflation and low interest rates for the next few years. But some economists are worried about the risk coming from the Fed's Quantitative Easing programs and whether the Fed will be able to keep inflation low if the economy strengthens.

The risk comes from the increase in the monetary base, which has grown by a factor of five since 2008. The monetary base consists of reserves held by banks and currency held by the public. Chart 1 shows the rise in the monetary base, which was fairly steady at about \$800 billion before the financial crisis. Each round of quantitative easing caused the monetary base to rise sharply and it now stands at about \$4 trillion.



**Chart 1. Monetary Base.** The monetary base (reserves at banks plus currency held by the public) has increased by a factor of five since 2008.

Some of the increase in the monetary base arose because of increased demand for currency in the financial crisis. But most of it shows up as excess reserves at banks, as Chart 2 shows. Excess reserves are reserves held by banks that exceed the amounts that they are required to hold to meet reserve requirements, which are roughly 10 percent of the balances in their customers' transactions accounts.

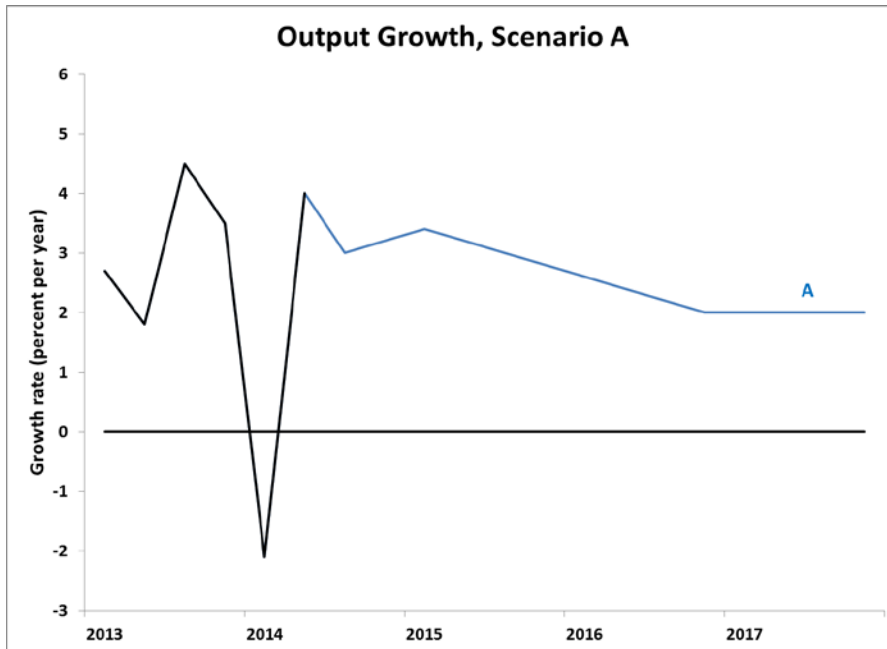


**Chart 2. Excess Reserves.** The increase in the monetary base shows up substantially as an increase in excess reserves at banks, which rose from near zero in early 2008 to \$2.7 trillion in mid-2014.

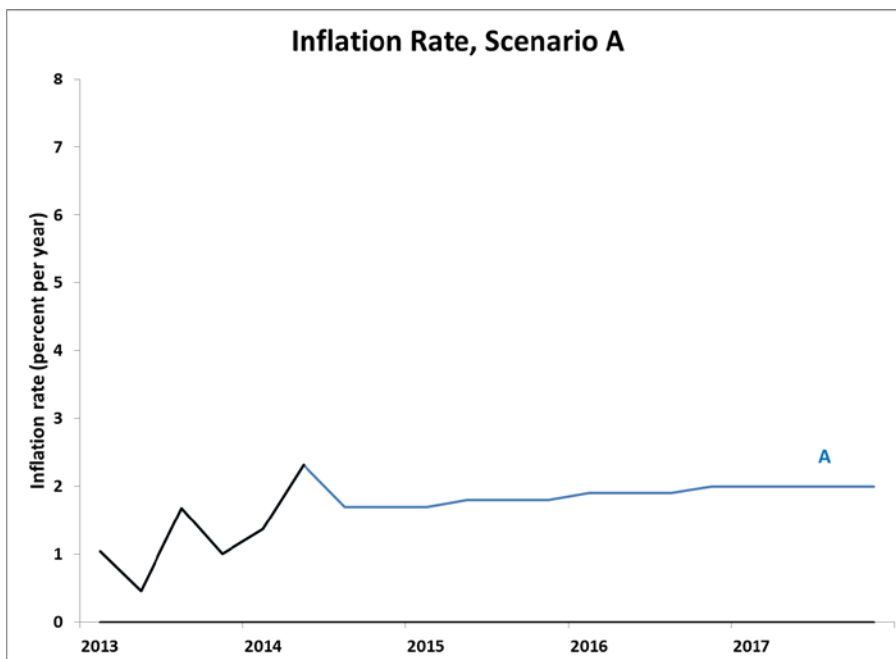
Despite the large amount of excess reserves, inflation has remained very low because economic activity has been weak since 2008. With interest rates near zero, banks are content to earn the 0.25% that the Federal Reserve pays on reserves, rather than lending the balances out. However, if the economy strengthens, banks may decide to make more loans using their excess reserves, leading to a rise in inflation. Here are some alternative scenarios that could play out.

### Scenario A: The Baseline

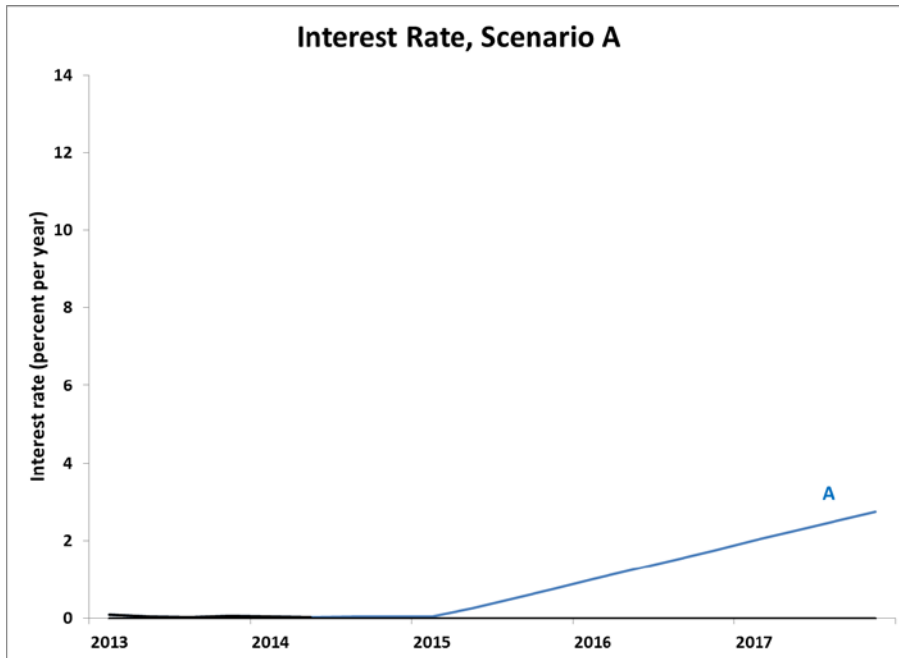
The typical macroeconomic forecast calls for fairly steady economic growth at a low pace, with inflation remaining tranquil. In this scenario, interest rates will rise slowly beginning in mid-2015. Charts 3, 4, 5 show what the outcome might look like in terms of GDP growth, inflation, and short-term interest rates.



**Chart 3. GDP Growth, Scenario A.** The black line shows realized GDP growth from 2013:Q1 to 2014:Q2. The blue line shows forecasts for GDP growth under Scenario A, with GDP growth gradually declining to about 2 percent in the long run.



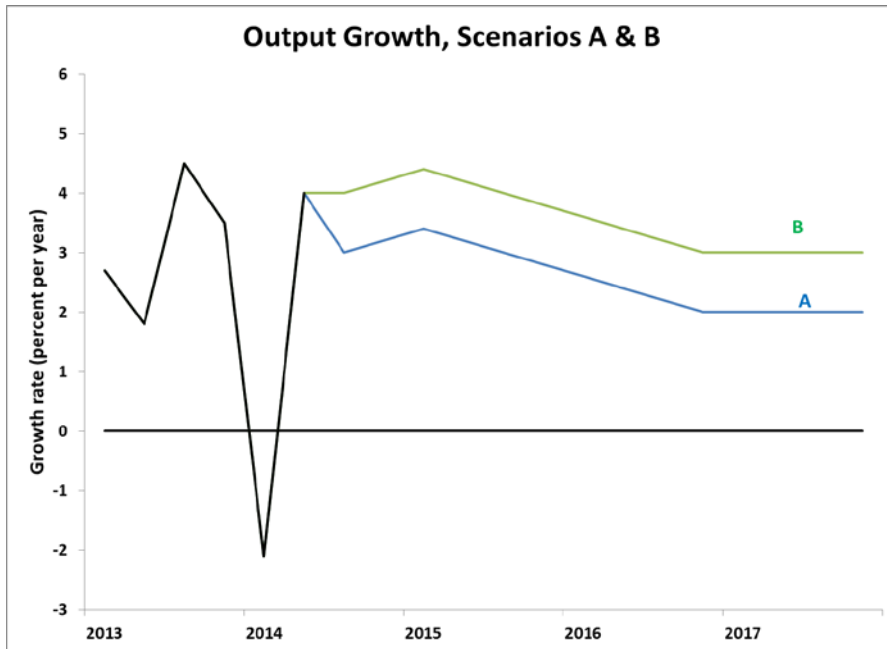
**Chart 4. Inflation Rate, Scenario A.** The black line shows realized inflation (based on the PCE price index) from 2013:Q1 to 2014:Q2. The blue line shows forecasts for inflation under Scenario A, with the inflation rate gradually rising to about 2 percent.



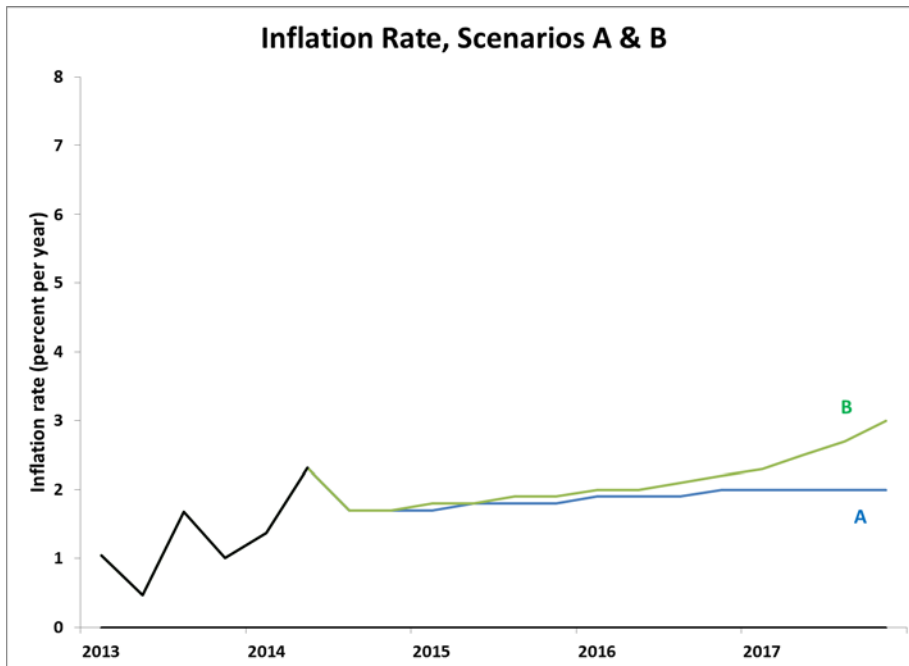
**Chart 5. Interest Rate, Scenario A.** The black line shows the realized interest rate on three-month T-bills from 2013:Q1 to 2014:Q2. The blue line shows forecasts for interest rate under Scenario A, with rates starting to rise in early 2015 and going up gradually through 2017.

#### **Scenario B: Faster Economic Growth**

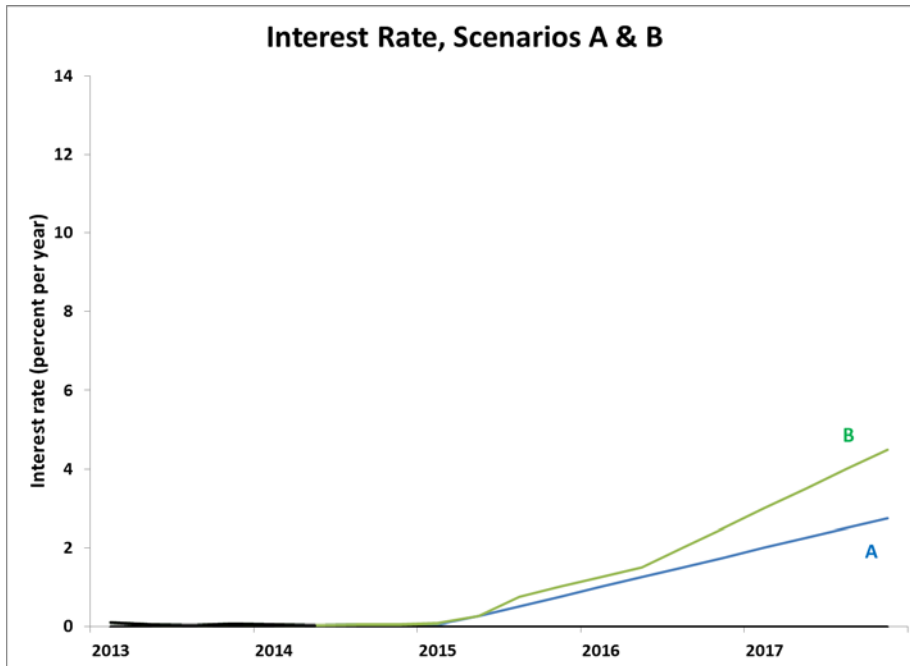
The economy may improve at a faster pace than in Scenario A. Modestly higher GDP growth (Chart 6) would lead banks to use their excess reserves to make more loans, with inflation rising faster (Chart 7). This would lead the Fed to raise interest rates more rapidly than in Scenario A, as Chart 8 shows.



**Chart 6. GDP Growth, Scenarios A and B.** Under Scenario B, GDP growth is about one percentage point higher than in Scenario A.



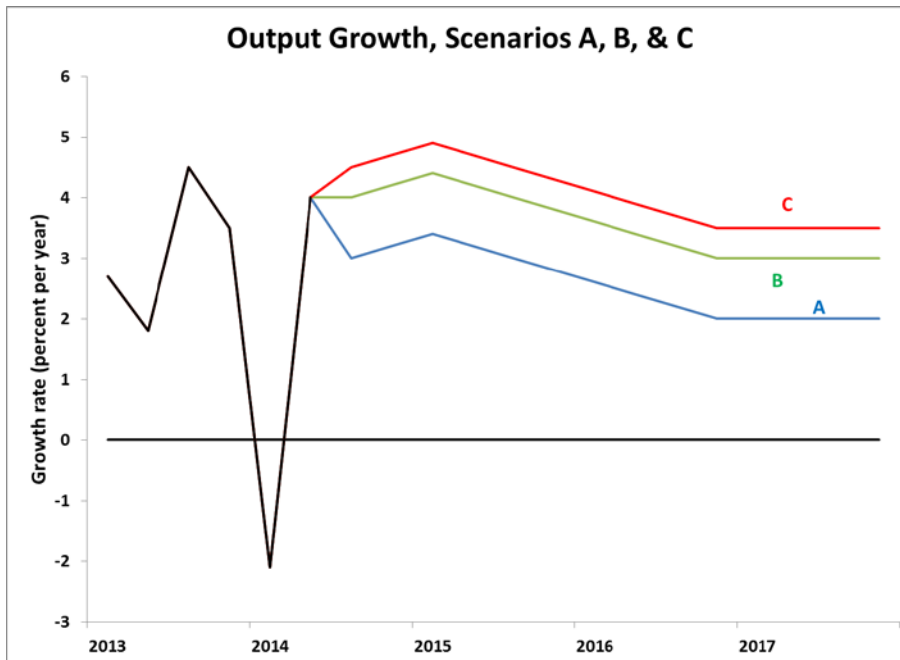
**Chart 7. Inflation Rate, Scenarios A and B.** Under Scenario B, the inflation rate is higher than in Scenario A, and it rises to about three percent by the end of 2017.



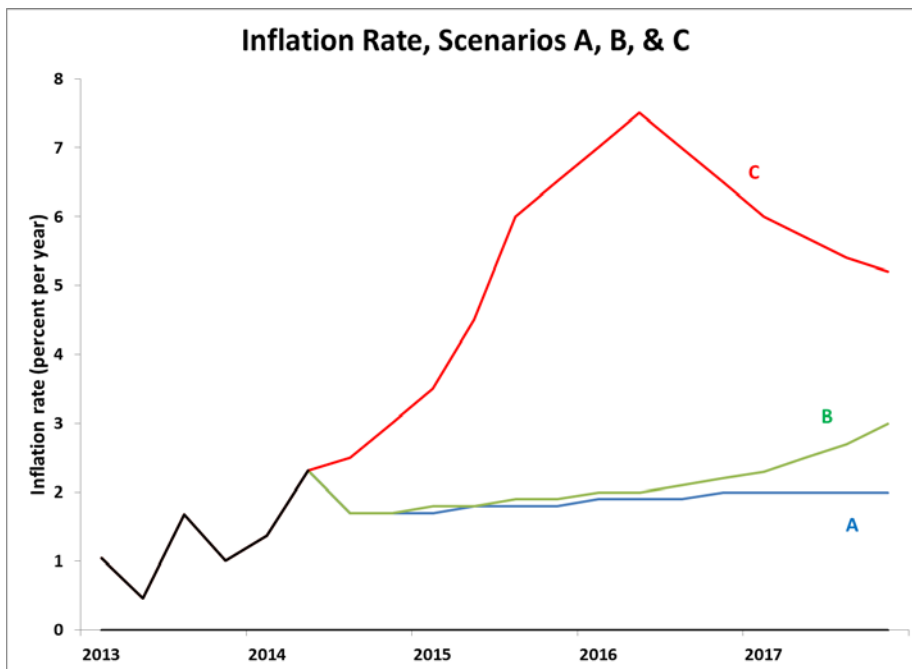
**Chart 8. Interest Rate, Scenarios A and B.** Under Scenario B, the Fed must tighten policy more sharply than in Scenario A, and the rate is almost two percentage points higher by the end of 2017.

### Scenario C: Much Higher Inflation

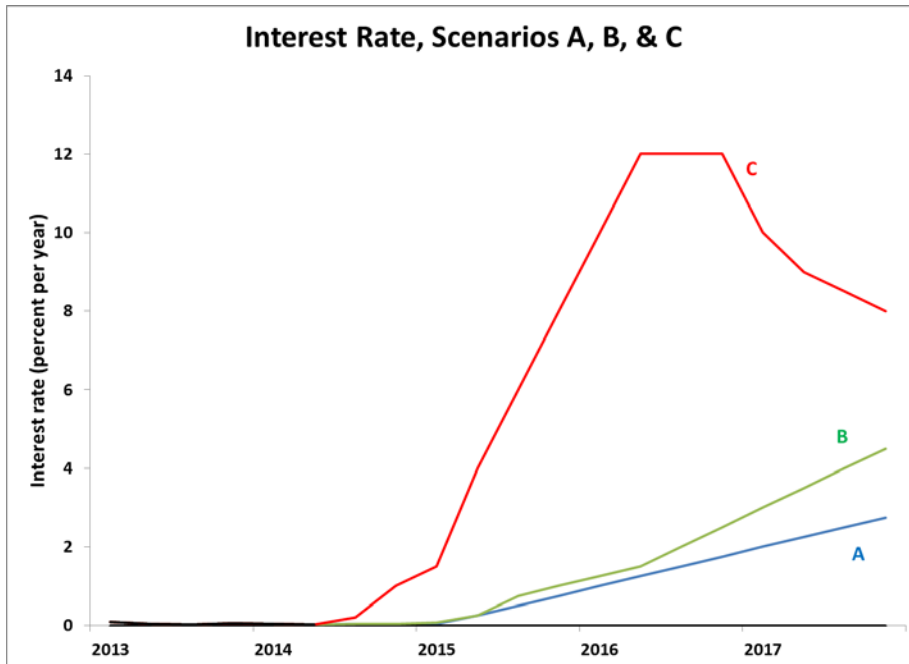
Economic growth might be even higher than in Scenario B (Chart 9), accompanied by higher inflation (Chart 10). The large quantity of excess reserves available for lending by banks might lead them to make many additional loans. The Fed would be forced to raise interest rates substantially to reduce inflation (Chart 11).



**Chart 9. GDP Growth, Scenarios A, B, and C.** Under Scenario C, GDP growth is slightly higher than in Scenario B.



**Chart 10. Inflation Rate, Scenarios A, B, and C.** Under Scenario C, the inflation rate rises much more rapidly than in Scenario B, exceeding 7 percent by 2016 and forcing the Fed to tighten policy substantially.



**Chart 11. Interest Rate, Scenarios A, B, and C.** Under Scenario C, the interest rate must rise much more rapidly than in Scenario B to prevent inflation from reaching double-digit levels. The Fed is forced to choke off bank lending with higher interest rates, to keep banks' excess reserves from being lent, which is the cause of higher inflation.

How likely are these alternative scenarios? Since the recovery began in mid-2009, many forecasters have been wrong about how fast the economy would grow, how high inflation would become, and how soon interest rates would begin to rise. The hawks on the FOMC see situations like Scenario C as a possibility that the Fed needs to prevent; the doves think Scenario C is impossible. Scenario C is clearly a nightmare for the Fed that would prove that Quantitative Easing was a failure. But knowing which scenario will occur is difficult because we have never been in a situation with such a huge volume of excess reserves. Only time will tell if Quantitative Easing can be reversed without problems or if Scenario C will become reality.