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MONETARY POLICY IN THE US DURING THE DOT-COM BUBBLE (1996–2001)

Our paper concerns the changes in the US monetary policy between 1996 and 2001. It is divided into three parts, we are going to explain what the monetary policy exactly is, and then present its main tools, and what is strictly connected with them, the main institution responsible for implementing it. At the end, authors are going to present changes in the economy, federal funds rate, discounts rate and discuss the dot-com bubble and how it affected the US stock market.

Broadly speaking, there are two main tools of controlling and adjusting the economic operations on the market. Fiscal policy and monetary policy. The first one includes taxes and government spending, while the second type, of which most people are not aware, comprises of adjusting the supply of money, the availability of money and the cost of it – the interest rate.

The main goal of the monetary policy in the US is to: stimulate maximum sustainable output (the amount of goods and services the economy produces), and employment, as well as the promote stable prices (these goals are prescribed in the 1977 amendment to the Federal Reserve Act).

In practice, not only has this kind of policy a great impact on all kinds of economic and financial decisions people make in the country, but also it has significant effect on other countries. Monetary policy has an impact on such decisions as whether to get a loan, buy a house, invest in a new plant, or where to invest money- into the bank account, a stock market or bonds.

Moreover, it is worth mentioning that the economy goes through business cycles and the output as well as employment are above or below their long-run levels. Taking it into account, the monetary policy is not able to maintain these values in a long run, but just in a short time, making the peaks and valleys of it smoother, and the fluctuations less dangerous for the economy and businesses.

The next part refers to the institution in charge of the monetary policy – The Federal Reserve (FED). It is a central bank of United States. Since its beginnings in 1913 FED has had the same leading mission – to establish and maintain the public's confidence and order in the monetary and banking system in the country. Furthermore, it is important for FED to find the balance between its short-term goal of stabilization and its long-term aim of maintaining low inflation.

President Woodrow Wilson signed the Federal Reserve Act in December 1913, to supply the US with 'an elastic currency'. Since then, FED has had the power to increase or decrease the supply of money when necessary, providing the country with a safer and more flexible than before financial system.

As far as the structure is concerned, it is called 'decentralized central bank', governed by the Board of Governors. Moreover, FED includes 12 regional Reserve Banks. To make the structure decentralized, every Reserve Bank Boards employed among local citizens as well. It helps to avoid a direct impact of the governmental control.

While presenting the FED structure, one cannot ignore the significance of the Federal Open Market Committee (FOMC), which is a primarily responsible for conducting the monetary policy. It is led by seven members of the Board of Governors and five 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.

The FOMC meets regularly 8 times per year. Sometimes it is possible to call on a special meeting or a telephone conference, for instance after the terrorist attack of 11 September 2001. At these meetings, the Committee assess the economic and financial conditions, and decides about the appropriate stance and changes in the monetary policy, according to the risk, price stability and pace of the economic growth.

What exactly the FOMC does? First of all, it evaluates the signs of inflationary pressure that may be disastrous to the price stability, and in this case, it tries to decrease the supply of money. Otherwise, when the supply of money is too high, people of course spend more and when the production can't keep up with the demand- it leads to inflation.

On the other hand, when the supply of money as well as the demand for goods is not sufficient, the FOMC has to cope with the economic slowdown or even a recession.

To handle these problems, the three main tools can be used:

Discount rate- it is an interest rate used when banks or other financial institutions want to borrow money directly from the FED. Any changes in this rate can encourage or discourage banks lending and investment activities as well as influence indirectly interest rates that bank pays depositors and at which banks offer loans to individuals and businesses.

Reserve requirements- it is the amount of money, or in reality, the percentage of money banks hold in the reserve. The FED can decrease this amount when it wants to give banks more money to lend in order to stimulate the supply of money. Conversely, the FED can also increase it, hampering banks' less ability to lend, and restraining the supply of money.

Open market operations-refer to the FED buying or selling government securities on the open market. To make the interest rates rise, the FED sells these securities to banks, banks have smaller reserves, and the supply of money is falling. Similarly, to make the interest rates fall, the FED buys securities from banks, banks have more money and it can lend more, making the supply of money grow.

Apart from these main tools, we can also distinguish federal funds rates- short-term interest rates of borrowing the reserves between banks and federal funds market- a 'place' where loans from one bank to another are performed as they need more reserves on a short-term basis.

Changes To The Fed Funds And Discount Rates (31 I 1996–6 XI 2002)

Intended federal funds rate

As we can see, the Intended federal funds rate has been changed 23 times during the researched period. Seven times the rate has been raised; sixteen times it has been reduced. The US economy started the year 1996 with intended federal funds rate at 5,25% level although at the end of 2002 it was at the level of 1,25%.

Discount rate

Discount rate has been changed 21 times. Five times it has been reduced; Sixteen times raised. At the beginning of the 1996 it was 5% and in the end of 2002 – 0,75%.

The level of the discount rate is lower than the intended federal fund rate, usually by 0,25% point – 0,5% point. Changes in the discount rate stated by the FED are different to those stated by FOMC. However the direction of the changes in both cases is similar. That is why, we decided to analyze those two rates together.

January 31, 1996	▼	0,25%	5,25%	▼	0,25%	5,00%
March 25, 1997	▲	0,25%	5,50%			
September 29, 1998	▼	0,25%	5,25%			
October 15, 1998	▼	0,25%	5,00%	▼	0,25%	4,75%
November 17, 1998	▼	0,25%	4,75%	▼	0,25%	4,50%
June 30, 1999	▲	0,25%	5,00%			
August 24, 1999	▲	0,25%	5,25%	▲	0,25%	4,75%
November 16, 1999	▲	0,25%	5,50%	▲	0,25%	5,00%
February 2, 2000	▲	0,25%	5,75%	▲	0,25%	5,25%
March 21, 2000	▲	0,25%	6,00%	▲	0,25%	5,50%
May 16, 2000	▲	0,50%	6,50%	▲	0,50%	6,00%
January 3, 2001	▼	0,50%	6,00%	▼	0,25%	5,75%
January 4, 2001				▼	0,25%	5,50%
January 31, 2001	▼	0,50%	5,50%	▼	0,50%	5,00%
March 20, 2001	▼	0,50%	5,00%	▼	0,50%	4,50%
April 18, 2001	▼	0,50%	4,50%	▼	0,50%	4,00%
May 15, 2001	▼	0,50%	4,00%	▼	0,50%	3,50%
June 27, 2001	▼	0,25%	3,75%	▼	0,25%	3,25%
August 21, 2001	▼	0,25%	3,50%	▼	0,25%	3,00%
September 17, 2001	▼	0,50%	3,00%	▼	0,50%	2,50%
October 2, 2001	▼	0,50%	2,50%	▼	0,50%	2,00%
November 6, 2001	▼	0,50%	2,00%	▼	0,50%	1,50%
December 11, 2001	▼	0,25%	1,75%	▼	0,25%	1,25%
November 6, 2002	▼	0,50%	1,25%	▼	0,50%	0,75%

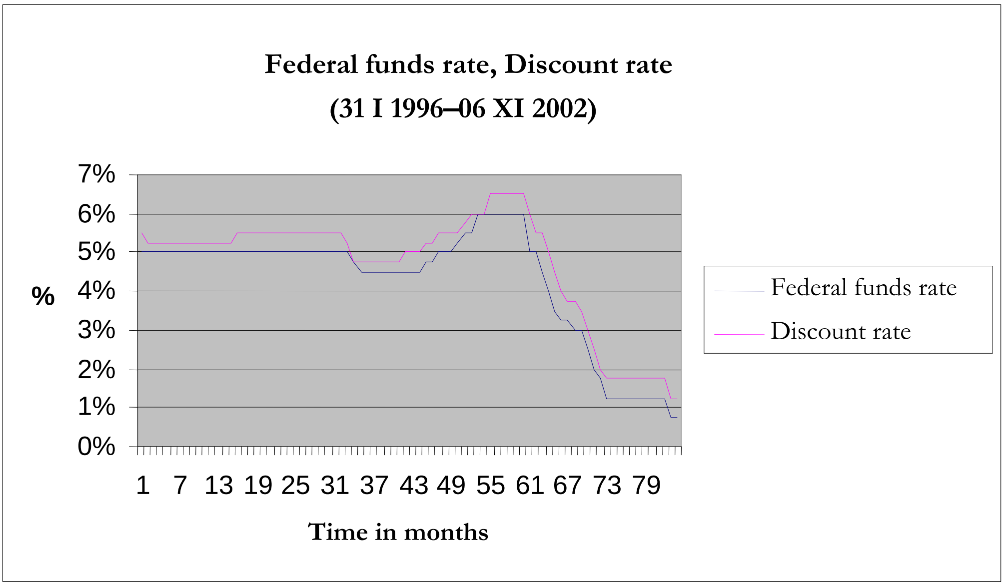
We can separate two main periods in changes of the rates:

1. It started in June 1999 and ended in January 2001. Rates had risen by 1,25% point each. Ascending trend was connected with good situation in the economy.
2. It has begun in January 2001 and till and of the 2002 both rates fallen dramatically. The discount rate has been cut buy 5,25% points. In January 2001 the discount rate

has been cut 3 times from 6% to 5% and the sum of these changes was very close to those which were made in the whole previous trend.

In the whole 2001 year rates were cut twelve times. Intended federal funds rate from 6,5% to 1,75 (reduction over 70%). Discount rate 6% to 1,25% (5,75% point reduction). What is more in 2002 the Federal Reserve Bank decided to reduce level of the rates even more.

The second trend, during which the rates felt drastically, was connected to unexpected changes in whole US economy. Effects of these changes are going to be a core point of our further analysis.



The influence of the discount rate

In this chapter we are going to analyze the growth of the United States economy in the end of 90's and its slowdown at the beginning of XXI century. Many economist state that discount rate and decisions which are made by Federal Reserve Bank are not effective in a long time period. On the other hand they say that the results of monetary policy can appear in the real economy as early as two years later.

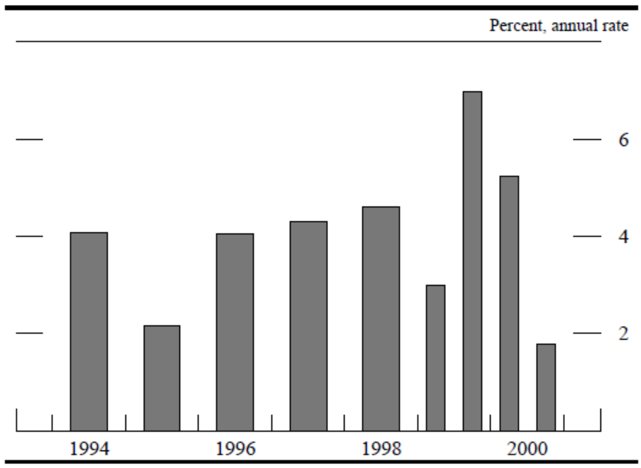
As we can read in the materials '[…] monetary policy can not affect either output or employment in the long run, it can affect them in the short run'[1]. This statement is similar to the position of the whole Fed at the beginning of the XXI century. This institution believed that monetary intervention will save the US economy from the recession. How did it work? Was it efficient?

<u>The situation in the end of XX century</u>

From the beginning of the 90's United Stats economy was in good condition. In 1999 gross domestic product (GDP) was growing in 3–4% rate. Inflation was low and the change in personal consumption expenditures, excluding food and energy during the majority of decade was under 2%. The business sector developed well. The investments were growing rapidly, especially those in the Equipment and software and in to inventories.

[1] Federal Reserve Bank of San Francisco, http://www.frbsf.org.

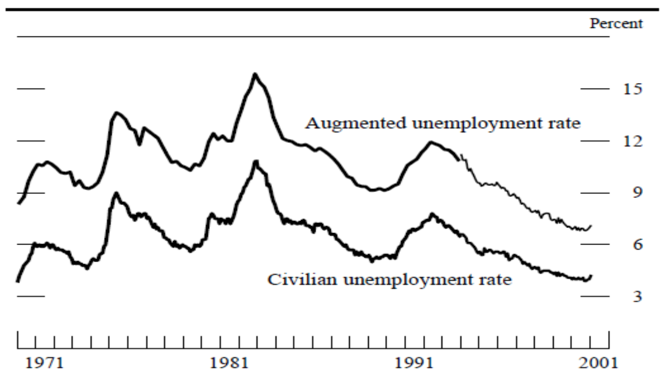
Change in real GDP



NOTE. Here and in subsequent charts, except as noted, annual changes are measured from Q4 to Q4, and change for a half-year is measured between its final quarter and the final quarter of the preceding period.

The unemployment started to fall down in the end of 1991. The good situation on the labor market was connected with the growth of companies and the whole economy. We can say that 90's were the employees market. It means that there was not enough people who want a job and employer had to do their best to get competence worker. This situation started to change when we went into 2001 year.

Measures of labor utilization



NOTE. The augmented unemployment rate is the number of unemployed plus those who are not in the labor force and want a job, divided by the civilian labor force plus those who are not in the labor force and want a job. The break in data at January 1994 marks the introduction of a redesigned survey; data after that point are not directly comparable with those of earlier periods. The data extend through January 2001.

According to Federal Reserve Bank data US economy started to slow down in the third quarter of 2000. Furthermore, the specialists were aware of the fact that year 2001 is going to be not as good as the whole 90's. In the economy projection for 2001 they wrote: 'Although the economy appears likely to be sluggish over the near term, the members of the Board of

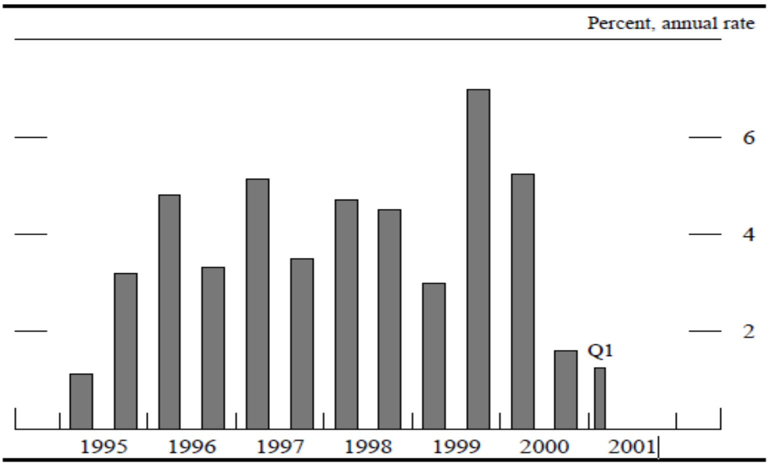
Governors and the Reserve Bank presidents expect stronger conditions to emerge as the year progresses. For 2001 overall, the central tendency of their forecasts of real GDP growth is 2 percent to 21⁄2 percent, measured as the change from the fourth quarter of 2000 to the fourth quarter of 2001'[2]. However they were not able to take the impact of incidental events under consideration.

Year 2001 and 9 September attacks.

In January 2001 FOMC realized that 2000 forecast was a miscalculation. Data from the market showed that holiday sales had come in below expectations and the condition of the manufacturing sector is worse then it was expected. What is more, corporate profit forecasts had been marked down. The prices of the energy and rough materials were growing, what had a big influence on the production sector.

In the next six months the situation has become even worse. The GDP felt under 2% in the first quarter of the year. The inflation was still growing.

Change in real GDP



NOTE. Here and in the subsequent charts, except as noted, change is measured to the final quarter of the indicated period from the final quarter of the preceding period.

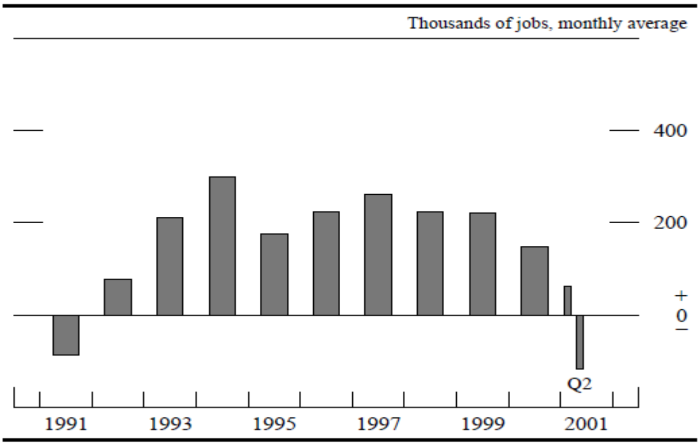
The year 2001 was the first year (from 1996) when the investments in Equipment and software were below zero. Companies did not want to change their equipment any more. What is more the first quarter was supposed to be the beginning of this process.

The most dramatic situation took place at the labor force market. Since July 2000, manufacturing employment has fallen by nearly 800,000. Private payroll after average growth of 149,000 per month in 2000, in the first quarter of 2001 increased only 63,000 per month, and it has declined of 117,000 per month in the second quarter[3]. More and more people were without a job. Unemployment started to grow up rapidly.

[2] Board of Governors of the Federal Reserve Monetary Policy Report to the Congress Pursuant to section 2B of the Federal Reserve Act July 20, 2000.

[3] Board of Governors of the Federal Reserve Monetary Policy Report to the Congress Pursuant to section 2B of the Federal Reserve Act February 27, 2002.

Net change in private nonfarm payroll employment

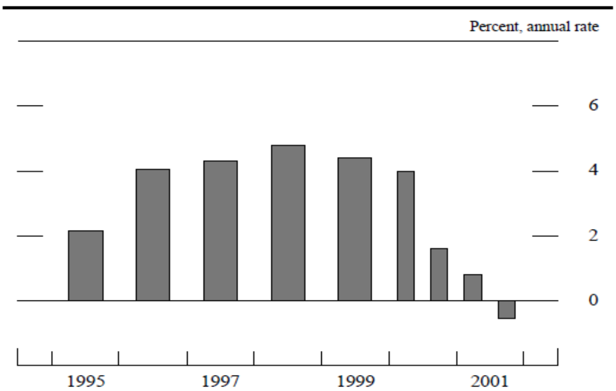


The second half of the year was even worse. GDP reached minus levels. It was connected with the impact of terrorist attacks from 9 September. After that day US citizens started to doubt in the power of the United States and in the power of its economy.

Investments in companies felt dramatically, the annual rate of fixed investments in structure has reached – 20%. The most interesting thing is that not only did the capital expenditure go down but also people consumption.

Companies have started preparation for the crisis and stared redundancies. Most people lost their jobs in certain sectors like airline transportation and health service. It was directly connected with terrorist attacks of 9 September, which had extremely affected those sectors. The unemployment rate moved up from 4 percent in late 2000 to 5,8 percent by December 2001.

Change in real GDP



Note. Here and in subsequent charts, except as noted, annual changes are measured from Q4 to Q4, and change for a half-year is measured between its final quarter and the final quarter of the preceding period.

Due to these facts Federal Reserve Bank could not wait with the intervention any longer. The view of the recession and high unemployment gave green light to the interference not only by changing the interest rates but also by using others available tools. The operation has started in January 2001, it was the second trend which we have marked in the interest rates analyze.

Dot-com bubble.

In the US economy, the stock market plays a significant role. The most famous stock exchange is NYSE, which started its operations in 1792. Apart from it, there is also NASDAQ- a special kind of stock exchange with the largest electronic screen-based equity securities trading market in the United States.

All in all, stock prices should reflect the value of a company and value of its future earnings. Sometimes, when a stock price is growing very fast, a kind of 'bubble' may be formed. In addition, there is a lot of information and data available on the US stock market, the problem is that, nobody knows when exactly the bubble is being formed. It is hard, even for FED to conclude, why the share prices are increasing,. That is why the FED is not clear about the appropriate monetary policy. Unfortunately, the evidence of such a bubble is easy to find only after its burst.

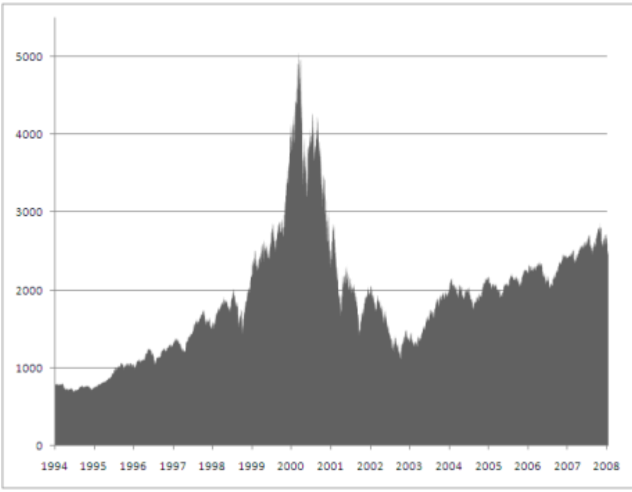
What is a dot-com bubble and how stock market reacted to it?

Generally, a bubble occurs when speculators note the fast increase in value and decide to buy in anticipation for further rises. The dot-com bubble was caused mainly by the rise of Internet sites and technological industry. Why did investors put money in this sector? It was because the differences in productivity growth in late 1990s between the IT industry and the rest of the economy was relatively high, and similarly, it made a big difference between NASDAQ Index compared to the rest indexes. In 1995–2000 a lot of Internet start-ups were set up, and initially, they generated huge profits, as they were overvalued. It was relatively easy for entrepreneurs to get money, e.g. from venture capital. The only condition was a good idea for an Internet business. Their strategy was to "get big faster', they just tried to enlarge their customer base at the expense of the bottom line and profitability.

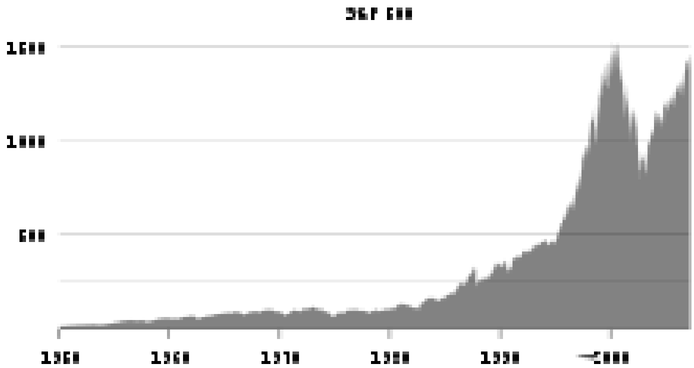
This bubble burst when the FED has increased interest rates six times in order to "counter irrational exuberance'. The high rates influenced a massive multi-billion dollar sell order from the leading high-tech companies such as Dell, Cisco and IBM. It triggered a chain reaction for other investors. It was 10 March 2000, when the NASDAQ Composite index reached a peak. Then, it fell dramatically in just 5 days by roughly 9%.

Similar tendencies can be observed in S&P 500 Index. It is a value weighted index published of the prices of 500 large cap common stocks in the United States. The stocks included in the S&P 500 are those of large publicly held companies that trade on either of the two largest American stock markets, the New York Stock Exchange and NASDAQ. Almost all of the stocks included in the index are among the 500 American stocks with the largest market capitalizations.

For 50 consecutive years after World War II it was increasing permanently, and only after the bubble burst and 11 September, it decreased to about 800 points.



The technology-heavy NASDAQ Composite index peaked at 5,048 in March 2000, reflecting the high point of the dot-com bubble.



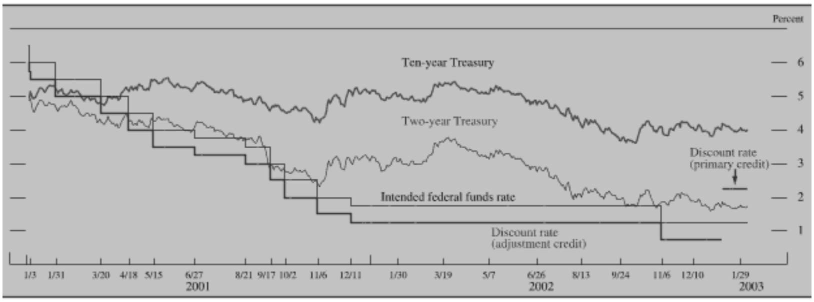
Linear graph of the price return S&P 500 from 1949 to March 2007

As a result of these tendencies on the stock market, several communication companies with huge debts, assets for cash or filed for bankruptcy. Nevertheless, some of dot-coms survived, learning a timeless lesson from this occurrence. If share prices are moved by a bubble, it will induce distortions into the market as well as misdirect the investment. The dot-com bubble crash wiped out $5 trillion in market value of technology companies between March 2000 and October 2002. Businesses sharply reduced their investment spending, with particularly dramatic cuts in outlays for the high-technology equipment. By contrast, household spending was reasonably well maintained, buoyed by lower interest rates and cuts in federal taxes.

How did the FED react to the dramatic situation in the economy ?

As the economic weakness was spreading, the FED aggressively lowered federal funds rate and the discount rate in 2001 from 6,5% to 1,75%. As I said before, in the event of economic recession the Central Bank tries to provide support to consumer spending and the housing sector by decreasing interest rates, which means that a loan is cheaper and more available. Low and declining interest rates increased outlays for durable goods and accelerated activities in the housing market. Low mortgage interest rates sustained a high level of home construction and allowed people to extract equity from homes to pay other debts. Even the fiscal policy provided an additional support to consumer spending – cuts in taxes. All in all, because of the substantial drop in energy prices, the GDP at the end of the year posted a much better performance that it was anticipated, and the price of the inflation remained subdued. In January 2002, as the economy began to stabilize, the FED left the rates unchanged.

Selected interest rates



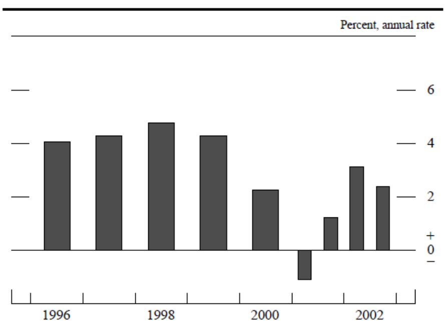
NOTE. The data are daily and extend through February 5, 2003. The dates on the horizontal axis are those of scheduled FOMC meetings and of any intermeeting policy actions. On January 9, 2003, the Federal Reserve changed the main credit program offered at the discount window by terminating the adjustment credit program and beginning the primary credit program.

One of major burdens after the bubble is that in the 1990's, government spending at all levels rose from less than $2 trillion in 1991 to over $3 trillion in 2001. Moreover, it is important to remember that the <u>September 11 attacks</u> also contributed heavily to the stock market downturn in 2001.

<u>Overview of economy and monetary policy in US after recovering from the crash</u>

In 2002 Intended Federal Funds Rates remained unchanged at about 1,75%. Economy started to gain momentum, sales and production were about to grow. Nevertheless around the midyear economy started to struggle again, e.g. because of Iraq situation, an geopolitical tensions, which elevated a lot of uncertainty on the market. Interest rates has been diminished to 1,25% in November. In 2003 economic expansion gathered strength, but there was still a danger connected with a war in Iraq. Interest rates were rather stable, with small reductions to 2004. The GPD has returned to the way of growth. In 2004 the labour market have become stabile and the growing number of the unemployed force was stopped efficiently.

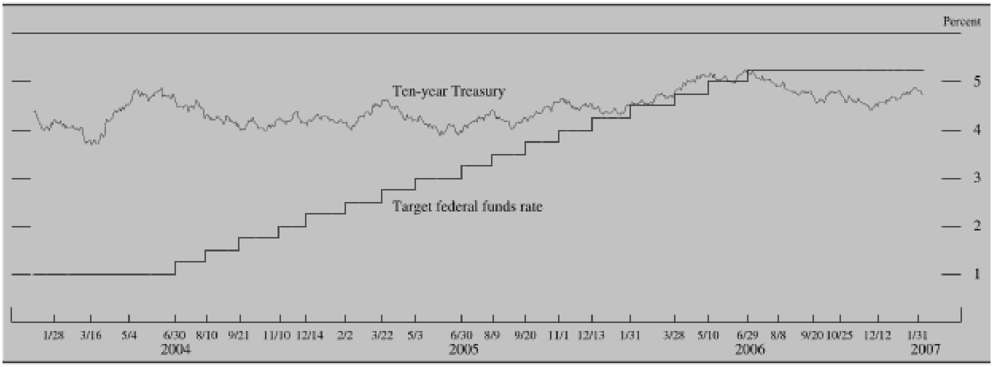
Change in real GDP



NOTE. Here and in subsequent charts, except as noted, annual changes are measured from Q4 to Q4, and change for a half-year is measured between its final quarter and the final quarter of the preceding period.

Taking into consideration grow in consumer spending, housing activity and business outlays Committee increased rates first time from a long time. From this time monetary policy stopped to ease the conditions in the market, and has been increasing federal funds rate permanently to about 5% in 2006.

Selected interest rates, 2004–07



NOTE: The data are daily and extend through February 7, 2007. The ten-year Treasury rate is the constant-maturity yield based on the most actively traded securities. The dates on the horizontal axis are those of FOMC meetings.

SOURCE: Department of the Treasury and the Federal Reserve.

Conclusions

The biggest question is whether a central bank should react to the price boom? Looking in the past, it is believed FED failed during the crash in 1920s just because of intervening in stock market. Central bank has been blamed for contributing to stock market booms. Nonetheless the answer is that FED has limited, but vital role in responding stock market crashes, sometimes a intervention is appropriate so as to avoid broader financial crisis, but it should be only a brief intervention not a shift in FED longer-term goals. It is believed that there is no additional gain from responding directly to such a crisis, since although it can lower the variability of output gap, it can as well increase the variability of inflation. Taking into account that stable prices is the main goal of FED, this variability may be disastrous for them. In this case short-run goal of stabilization (on stock marked and in the economy) has been reached, what is more longer-run goal of maintaining low inflation either. Many economists argued that FED policy at the beginning of 2001 was the background for the crisis in 2008. Cheap loans and credits which were available for almost everybody resulted in low savings. Gap in people's savings and oversupply consumption have retaliate. Is it truth? Probably it is to be proven in ten years time.