
Master Thesis
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1. PREFACE

1.1 Introduction

Monetary policy is certainly one of the most important tools that a central bank can use in order to achieve its goals. The goal of the Federal Reserve (the American central bank) is to foster sustainable economic growth in the economy of the United States of America. It is natural therefore that in times like the one we are currently in, defined by tragic developments of the global economy, the monetary operations and policies adopted by the central banks are questioned.

Recently there has been a lot of discussion about the operations of the Federal Reserve in the years before the bust of the housing bubble (approximately from the beginning of 2001 to the end of 2006). Everybody recognizes the cyclical trends of the economy. Periods of economic expansion are followed by period of contraction and this has always been the case in the history of every economic system. What is then the role of a central bank, if the economy cannot avoid contractions in its cyclical development? What does it mean to foster economic growth, given this cyclical development? Does a central bank really have the possibility to influence the economic cycle? If so, what frameworks does it use?

These questions are open to discussion, now more than ever before. We believe that these issues have to be clarified before entering into the technicalities of the specific policies implemented by the Fed.

Our opinion is that it is responsibility of a central bank to try to intervene if it recognizes a negative trend in the economy. We are sure everybody would agree on this issue, but we would like to go a bit further in the analysis of the problem. We believe that a central bank has the duty to intervene not only after it observes the negative trend of the economy but also in the very moment it recognizes the beginning of a trend that can create imbalances in the system and eventually lead to a crisis. In other words we think that the role of the central bank has to be proactive and not reactive with respect to the economic situation. This is the case if it wants to obey to its mandate. We believe
that for a central bank to be proactive implies the use of a clear framework of intervention. If there is not such a thing than the independency and accountability of the policies adopted by the central bank can be questioned.

We think that these are interesting and important issues that cannot be underestimated anymore. In our work we will study what the Fed has done in the last thirteen years and we will try to understand the mistakes it did and if these mistakes were caused by a lack of knowledge or by a misrepresentation of the role of the central bank. We think that this analysis can help in the interpretation of what will happen in the future and what needs to be done in order to stabilize the economic system.

1.2 Problem statement

The goal of our thesis is to analyze the monetary policy that the Federal Reserve adopted in order to respond to what is commonly known as the dot-com bubble. We want to focus on the actions taken by the FED during the crisis and in the years that followed in order to understand the rationale behind the decisions that the American central bank took. We want to look at these decisions under critical lenses in order to have a motivated say in judging the actions that the FED is currently implementing to respond to the subprime crisis. The ultimate goal of our work is therefore to comment on the monetary policy that the FED is now implementing and to give some predictions for how the economy will respond to these monetary decisions.

What interests us is the possibility to use our thesis as an opportunity to go into much detail about what have been the operations of the FED and what these have caused in the real economy. We believe that there is ground for investigation with respect to the rationale behind the monetary policy adopted by the FED during the years that followed the 2001 crash of the markets and more interestingly we believe that this investigation can be used as a starting point to evaluate the current actions of chairman Bernanke and to try to predict a set of possible outcomes given the direction that the FED has undertaken. There is a lot of discussion going on about these topics and the main reason why this is the case is that monetary policy has crucial effects and influences not only the degree of liquidity in the system but also the general equilibrium of the economy.
Moreover the link between the fed fund rate (which is the main instrument of monetary action) and other macroeconomic variables has been challenged by the recent turmoil of the economy and some of the principles that were given for granted before the bust of the housing bubble in the summer of 2007, are now questioned again. This opens the horizon to a set of discussions that we will not address in our work but which will be at the very earth of the future stability of the global economy.

1.3 Methodology

1.3.1 Method of work

Set the goal of our thesis, we now want to explain the methodology we intend to use in our work. We are going to operate mainly in two directions: on one hand we will make an extensive use of the models and of the theory that is available in the economic literature. On the other hand we will perform an empirical analysis of some time series that we think are relevant to the purpose of analyzing the impact of monetary policy on the overall state of the economy. Let us now explain and justify these two sources of our work.

The first one comprehends the scientific literature and all the other sources that helped us to have a better understanding of the terms of the problem and of the background that surrounds it. In this sense one of the most precious sources that we found was the book written by Alan Greenspan (the former Fed Chairman) “The Age of Turbulence”. This was a really inspiring book because it gave us a sense of the reasoning process of the former Chairman of the Federal Reserve. The use we did of this source was not specific to a particular argument but was more of an overall guidance that helped us to clarify why Greenspan operated in the way he did. The scope of this chapter is not to make a list of all the authors that gave us a relevant contribution for our work; nevertheless we want to make one more name: John Taylor. The study of his recent work has been really crucial to us.
We wanted to mention these two economists (Greenspan and Taylor) but we also used other relevant material in order to build our thesis. In particular we focused a lot on the minutes of the FOMC (Federal Reserve Open Market Committee) meetings and on the other relevant documentation that is available on the website of the Fed and of the Bank for International Settlements. We used all this material for two purposes: the first one was to gain a theoretical knowledge regarding the macroeconomic mechanisms associated with monetary policy, while the second one was to understand the monetary policy adopted by the Federal Reserve in the years that interest us. We also tried to understand the positive comments and the major critics to these policies and we did so in order to gain an independent and unbiased view of the actions of the American central bank.

Let us now talk a bit about the other main source of inspiration that we used in our thesis.

We believe that every research has to be based on facts. In economics the way in which one can have a direct understanding of a certain fact is by measuring in some way the fact “per se”. This measurement process produces data. We therefore thought that analyzing some data that we believed were relevant for our study was the only way we had to produce a “true” research. We extracted the data we were interested in; furthermore we made some analysis on these data so that we could originate more relevant information. All this work produced an alternative source of information for us, alternative to the one we gained from the study of the relevant literature and documentation. We proceed with these two sources, noting when the two were in disagreement and trying to understand what both were really saying.

This is the method we used in our thesis. Given this, in the following paragraph we want to warn the reader about the main limitations that such an approach has.

1.3.2 Limitations

There are of course a number of issues that need to be specified about our work and that can be viewed as problems that limit the reliability of our thesis.
The choice of a cut-off date

The first one is the obvious consideration that, because we are considering a topic that has implications in the current development of the economy and because the arguments we are using are based also on the more recent actions of the economic actors, we had to decide whether it was proper to set a cut-off date for our analysis. We decided not to do so.

We have therefore considered also the most recent monetary interventions as well as the latest economic literature. We operated in this way because the situations we are analyzing are still open to discussion and we thought that everything that could have improved our understanding of them was worth of being considered. We did not find any problems in considering also the more recent articles that were relevant for our analysis.

We believe that not to have chosen a cut-off date could have been considered a limitation in the sense that one could argue that to analyze a situation that is evolving over time and that does not present a clear ending point can create interpretation problems and does not guarantee the necessary level of impartiality, being the researchers (in this case us), too involved in the situation they are considering. We acknowledge this risk but we also recognize that to study such a topic, without considering the current developments would be a poor and insufficient exercise.

Other influences on monetary policy

One thing we did not consider into much detail is the role that “other influences” can have on monetary policy. With other influences we mean all the forces that in an indirect way can alter the decision making process of the Federal Reserve or the results of the actions the Fed implements. We will now propose a short list of the main forces that can be thought of influencing the Fed in the two ways we described above.

The first “force” we would mention for the capacity of influencing the decision making process of the Fed is the political power. The Fed is an autonomous organisation and does not have to respond to the political authorities. It is not questionable though that the decisions it adopts will have consequences on a broad number of sectors and not only on the economic one. It is natural therefore that the political spheres will have an interest in the Fed to behave in a certain manner. From here to say that the politicians
want to influence the decisions of the Fed the step is not automatic but still we are keen to believe that, given the state of the world, a certain amount of pressure will be rather physiological. This issue is worsened by the fact that the nominee of the Fed’s Chairman is done by the President of the United States.

Other institutions that certainly play a role in this game are the other central banks. Apart from the explicit coordination that took place after the explosion of the subprime crisis, we believe that also under “normal conditions” the central banks look at each other before implementing their strategies. We think that it is rather normal that in such a global economy some attention is given to the actions of the other players and therefore it is natural that the policies adopted by the other major central banks will influence the decisions of the Fed.

The last influence we will mention is the one brought by the other international economic organizations such as the International Monetary Fund or the World Bank. The mandate of these organizations does not directly overlap with the one of the Fed, but the importance that such organizations have, especially in the solution of some specific issues of global interest, make us think that a central bank cannot avoid considering their decisions.

In the second part of this paragraph, after having mentioned three forces that can influence the decisions the Fed takes, we will look at what can alter the effectiveness of the policies implemented by the central bank. These are limitations of our work in the sense that, as for the forces presented above, the analysis of all these elements is not in depth discussed in our work. Again the scope is not to make a comprehensive list but to mention two of the main factors, so that the reader can have an understanding of this unavoidable limitation. The first element we will mention is the role of China. Its economy has recently developed at an incredibly fast pace and the political power in this country is still difficult to frame. For example the decision of the Chinese central bank to have a fixed exchange rate is currently under discussion. A change in this respect would significantly alter the effects of the monetary policies adopted so far.

The second aspect we think is worth considering is the role that, especially in a critic situation like the current one, the psychology plays both at an individual and at a collective level. We did not focus specifically on this issue though we think it is one of
the factors that can direct the reaction to a monetary decision, in a non-expected, non-predictable way.

Before concluding this paragraph about the limitations of our work we want to re-emphasize that this is not an exhaustive list rather an indication of the aspects which, for different reasons, can limit the precision of our work.

1.3.3 Definition of key concepts

In this paragraph we want to give a concise but accurate definition of some of the main concepts that we will extensively use in our work. We do this in order not to leave ground for misunderstandings. It is true that most of the terms we will define can be interpreted in different ways, but our explanation will try to be the most broad and comprehensive possible. In order to be consistent in the definition of the main terms we will provide the official definitions given by the FED in its website.

**Monetary policy**

The term *monetary policy* refers to the actions undertaken by a central bank, such as the Federal Reserve, to influence the availability and cost of money and credit as a means of helping to promote national economic goals.

**Federal Reserve mission**

The Federal Reserve is the central bank of the United States. It was founded by Congress in 1913 to provide the nation with a safer, more flexible, and more stable monetary and financial system. Over the years, its role in banking and the economy has expanded.

Today, the Federal Reserve's duties fall into four general areas:

- Conducting the nation's monetary policy by influencing the monetary and credit conditions in the economy in pursuit of maximum employment, stable prices, and moderate long-term interest rates
• Supervising and regulating banking institutions to ensure the safety and soundness of the nation's banking and financial system and to protect the credit rights of consumers
• Maintaining the stability of the financial system and containing systemic risk that may arise in financial markets
• Providing financial services to depository institutions, the U.S. government, and foreign official institutions, including playing a major role in operating the nation's payments system

Federal Open Market Committee (FOMC)
The Federal Open Market Committee (FOMC) is the monetary policymaking body of the Federal Reserve System. It is responsible for formulation of a monetary policy designed to promote economic growth, full employment, stable prices, and a sustainable pattern of international trade and payments.
The FOMC sets monetary policy by specifying the short-term objective for open market operations--purchases and sales of U.S. government and federal agency securities. Open market operations, the principal tool of monetary policy, affect the provision of reserves to depository institutions and, in turn, the cost and availability of money and credit in the U.S. economy. Currently, the objective is a target level for the federal funds rate (the rate that depository institutions charge on overnight sales of immediately available funds among themselves).
The FOMC also directs Federal Reserve operations in foreign currencies; such operations are coordinated with the U.S. Treasury, which has responsibility for formulating U.S. policies regarding the exchange value of the dollar.

How does the Fed implement monetary policy?
The Federal Reserve implements monetary policy using three major tools:

• **Open Market operations.** The buying and selling of U.S. Treasury and federal agency securities in the open market

• **Discount window lending.** Lending to depository institutions directly from their Federal Reserve Bank’s lending facility (the discount window), at rates set by the Reserve Banks and approved by the Board of Governors
• **Reserve requirements.** Requirements regarding the amount of funds that depository institutions must hold in reserve against deposits made by their customers.

Using these tools, the Federal Reserve influences the demand for and supply of balances that depository institutions hold on deposit at Federal Reserve Banks (the key component of reserves) and thus the federal funds rate—the interest rate charged by one depository institution on an overnight sale of balances at the Federal Reserve to another depository institution. Changes in the federal funds rate trigger a chain of events that affect other short-term interest rates, foreign exchange rates, long-term interest rates, the amount of money and credit in the economy, and, ultimately, a range of economic variables, including employment, output, and the prices of goods and services.

**Federal Funds rate**

The federal funds rate is the rate charged by one depository institution on an overnight sale of immediately available funds (balances at the Federal Reserve) to another depository institution; the rate may vary from depositor institution to depositor institution and from day to day. The target federal funds rate is set by the Federal Open Market Committee (FOMC). By setting a target federal funds rate and using the tools of monetary policy—open market operations, discount window lending, and reserve requirements—to achieve that target rate, the Federal Reserve and the FOMC seek "to promote effectively the goals of maximum employment, stable prices, and moderate long-term interest rates," as required by the Federal Reserve Act.

Now that we have explicated also these necessary preliminary remarks, we are ready to start our work. Our thesis is organized as follows: in chapter two and three we will describe and analyze the operations of the Fed from 1995 to today. In chapter four we will present our own view and interpretation about what went wrong and why. In this last chapter we will also propose some ideas for how the Fed should be tackling the problems that it is currently facing and for what, in our opinion, will be the discriminating forces that will need to be considered in order to restore a good economic climate.
2. MONETARY POLICY AROUND THE DOT-COM BUBBLE

In this chapter we will be describing and analyzing the actions that the FED took in the period that goes from 1995 to 2006. The chapter is divided as follows: we will start with a short introduction about the dot-com bubble; we will then provide a description of the actions taken by the Fed from 1995 to 2006. The third paragraph will be an analysis of the reasons that were at the basis of these actions while in the following one we will present the critics that can be moved to the policies adopted. We will conclude with a section in which we will present some evidence that we extracted from the analysis of relevant time series.

We work on this broad period and not more specifically on the quarters immediately preceding and following the dot-com bubble because we are interested not only in the immediate reaction to the crisis but also in the policies that were adopted in a broader time period. Let us now clarify why we chose this specific time period. With regards to the 2006 boarder we would say that this is the year that precedes the bust of the housing bubble that would eventually turn into a much broader recession. Signs of the crisis started to become evident during this year and also Greenspan, who was the chairman of the Fed at that time, publicly recognized that the surprising housing boom would have eventually come to an end (Greenspan 2007). In the first part of our thesis we therefore chose to analyze the monetary policy of the Fed up to the point where the subprime crisis started to become evident.

With respect to the starting point of our analysis we chose the 1995 because this is the year which is usually indicated as the starting point of the dot-com bubble. On August 9, 1995 the incredible story of the initial public offering of Netscape was the first sign of the mounting bubble that was about to start and that would have involved most of the companies related to the new business of the internet.

We therefore chose these two years because we want to see the decisions of the Fed over the all range of time that went from the starting of the dot-com boom to the complete recovery and the start of the current crisis. As mentioned in the introduction we will focus on the actions taken by the Fed to respond to the current subprime crisis in a following chapter.
2.1 The dot-com bubble

We will now shortly define the way in which we use the term “dot-com bubble”. From an academic point of view, the dot-com bubble is defined as the speculation on the technological shares that took place at the end of the nineties. In our work we will take the 1995 as the starting date of this period even though there are many interpretations about the specific point in time in which the bubble started. We chose the 1995 because in this year an event happened that made it clear that the sentiment of the market was going in a non-rational direction. This was the IPO of Netscape: the little two year old company which operated in the software industry. On the day in which its stock started to trade it went all the way up from 28$ per share to 71$ per share: the internet gold rush was on (Greenspan 2007).

Other interpretations about the starting point of the dot-com bubble are, for example, the one that chooses as the starting date the 1996, precisely the 5th of December 1996. This is the date in which the former chairman of the Fed, Alan Greenspan, pronounced the famous “irrational exuberance” speech. During an after dinner speech at the Washington D.C.-based American Enterprise Institute, Greenspan for the first time mentioned (though implicitly) that the stock market might have taken speculative directions. The last interpretation we will mention is the one adopted also by DeLong and Magin (2006) who state that is inappropriate to speak of a bubble before the 1998 because only from that year the market showed clear signals of “exuberance”.

Apart from the precise starting point what characterizes this period is the incredible boom that involved most of the shares issued by the companies related to the new business of the internet. This boom was often disconnected from the true value of the companies and is today commonly recognized as one of the best examples of the irrational behaviour that the stock market sometimes has. We want to present some data we think are useful in order to understand the real entity of the event. Apart from the many stories of the tech stocks that boomed during the late nineties and eventually burst at the end of 2000 or in 2001, we think that the most significant evidence can be derived from a broad market data. We take the NASDAQ COMPOSITE index (a tech heavy index). From January 1998 to March 2000 the index went from a value of around 1500
points to one of around 4900 points. This is an astonishing increase of more than 300% of the value of the index in a little more than two years. On the contrary from that peak in March 2000 to September 2002 the index went from around 4900 to 1200 points. This is another incredible swing. In two and a half years the NASDAQ lost around 75% of its value. These data per se show the mounting of the bubble and its burst. In this paragraph we just want to clarify what we intend with dot-com bubble; the event per se, the causes and the consequences of this epochal shock will be discussed in the following paragraphs.

2.2 Actions taken by the Fed

Before starting this paragraph we want to clarify that for the purposes of our thesis we will spend most of our analysis on the decisions that the Fed took with respect to the Fed Fund rate. Figure 1 shows the movements of the Fed Fund Rate for the period that interests us.

Figure 1: Fed Funds rate in % from 1996 to 2006

![Fed Funds rate in % from 1996 to 2006](image_url)

Source: Federal Reserve; own elaboration
As we see from the chart the rate went down from 1995 until the June 1999 meeting in which the FOMC decided to change monetary direction, and started to raise the rate again after more than four years of monetary expansion. The only exception to this period was the decision taken in the meeting held on March 25th, 1997. In this occasion the FOMC decided to increase the rate by 25 basis points. This decision was then reverted approximately one year later. From 1999 the Fed implemented a monetary tightening until the meeting of January 3rd, 2001. In this meeting the FOMC decided to change direction again and started to cut the rate at a fast pace. In only one year the rate went down from 6 percent to 1.75 percent and the expansionary process continued also in 2002, 2003 and the first half of 2004. Only on June 30th, 2004 the Fed started to raise the rate again and it did so with much less impetus than before, though at a constant peace. At the end of 2006 the Fed eventually stopped the tightening process, when the intended Fed fund rate was set at 5.25 percent. One thing we would like to point out is the relative stability that characterized the operations of the FOMC from 1995 to 2000 as opposed to the high volatility in the rate changes that characterized the 2001. After this turbulent year a period of much greater calm followed for the next three years, followed again by two years characterized by more significant swings.

2.3 Reasons behind the actions taken

Let us now look at the reasons that influenced the decisions of the Fed regarding the fund rate. We need to say that this kind of analysis is by its very nature open to different interpretations and can be tackled with very different approaches. The one we used was to read and analyze the press releases from the FOMC meetings and the other documentation that is publicly available from the web sites of the Fed (like the monetary policy reports to the congress). Given this necessary preliminary remark we will now start with the analysis.

In 1995 the Fed had just achieved what became known as the soft landing. Given the good shape of the economy, and the recovery that the US lending system experienced after a few years of difficulties, in 1994 the American central bank decided to start
rising the fed fund rate in order to try to maintain a good balance between the growth in the economy and the risk of inflation. Chairman Greenspan explained to the congress that the best way to fight inflation was to act in advance, before inflation took actually place. He explained that acting after that inflation appeared would have been much more difficult and would have implied a much stronger action. The FOMC therefore agreed to try to reach what was then defined a “soft landing”.

After this period, which was probably one of the greatest successes in the many years in which Greenspan chaired the Fed, a slightly different approach was undertaken. In 1996 the US economy was clearly starting to “heat”. The innovation brought by the new technology (the internet) was creating an environment of excitement and many sectors of the economy flourished as a result. In a situation like this the “text-book” monetary response would be to tighten the money supply by raising the fund rate. Despite this basic consideration the Fed chose not to move the interest rate for more than one year (from January 1996 to March 1997). According to the words of Alan Greenspan (2007) this was the case because the Fed was concerned that the data it was given, in particular the one regarding productivity, were not reliable, in the sense that they were not adjusted to consider the productivity shock that the internet had brought. They thought that given a strong growth in productivity they could have avoided the inflation risk without raising further the fund rate. From his book “An age of Turbulence” we understand that the reason Greenspan uses to sustain his choice is that “you can’t just decide monetary policy based on an econometric model” (Greenspan 2007, p. 164). Only one year later, in March 1997 he raised the rate to the level of 5.50 percent. To be honest we need to admit that this decision of not being too quick in raising the interest rates was probably among the factors that helped to boost the American economy for four more years.

We now move on to analyze what happened in 1997 and 1998 that made the Fed to cut the interest rates three times in a row in September, October and November 1998. In 1997 a strong crisis hit the Asian economy: Thailand and Malaysia plunged into recession and countries like Honk Kong, the Philippines, Singapore and Japan were hard-hit too. This caused a first moment of pressure on the internationals markets. In August 1998 another catastrophic event occurred: Russia’s default. This hit the US stock market in a much harder way than the Asian crises. Also the bond market was
hardly hit as investors fled to the safety of treasuries. Banks accordingly raised the interest rates on commercial loans. This turmoil was a sign of the increased dependency of the American economy on what was going on in the rest of the world. It was one of the first times when the globalization of capital markets showed its downside risks. In the same year, and partially as a consequence of Russia’s default, Wall Street observed the crisis of one of its major hedge funds, Long-Term Capital Management (LTCM). This fund was among the most respectable investment firms operating in the US but this did not prevent it to run into a death spiral. LTCM was eventually bailed out by the New York Fed causing panic in the markets and disappointment in the society that considered the government help to such a speculative fund bad positioned.

This series of events caused a “rush to liquidity” in 1998 and the Fed decided to calm down the general sentiment through a sound easing in its fund rate. In three months the Fed cut the rate three times from 5.50 to 4.75 percent. After a short period of turbulence the markets fully recovered from the Russian shock and from the other events that had shaken it. The 1999 was the year when it became clear that the US stock market was in the middle of a bubble. Despite many indicators that pointed towards this evidence the FOMC decided not to change the Fed fund rate for the first half of the year. The reason for this choice was that the Fed did not believe that an incremental tightening would have brought to good results. They thought that an incremental move would have more likely reinforced the power of the boom rather than calm it. Indeed they thought that the only way they had to stop the speculation was by a strong monetary intervention which was not welcome by the committee (Greenspan later defined it like “to kill the patient to cure the disease”). Even though this was the belief of the Fed at that time they ended up raising the interest rate during the second half of 1999 and they continued such a tightening policy throughout the all 2000. The reasons, in this case, were different: the Fed wanted to “take back” some of the liquidity put into the system because of the international tensions of the previous years. Apart from this reason the other force that drove the actions of the Fed was the desire to try to achieve another soft landing, after the one successfully completed in 1995.

The last increase in the Fed fund rate took place in March 2000 (the rate was set at 6.50 percent). More or less in this period the stock market started its downward turn. Eventually the bubble burst. The NASDAQ lost fifty percent of its value from March to
the end of the year and even though the gains that US investors had experienced during the years of bull market were still offsetting the losses they were now suffering, what was concerning the Fed was the overall state of the economy, rather than the dark horizon over the stock market. Instead of experiencing a mild cyclical slowdown, which was what the Fed tried to achieve with his soft landing policy, the numbers started to tell a different story. The risk of a deep recession was there. Therefore, after realizing that what was going on was not a soft landing but a harsh one, the Fed started to lower interest rates with decision. The first rate cut happened in January 2001. The concerns about the economy were so serious that the Fed monetary reaction was among the strongest in his history. From January to August 2001 the rate went from 6 to 3.50 percent. Despite great concerns, after few months of monetary easing, the data that were available to the Fed showed that the downturn in GDP was less serious than predicted. As the Chairman put it “…instead of being in a deep valley we were on a plateau” (Greenspan 2007, p. 225). While the Fed was realizing that the crisis, after all, was not going to be a deep recession, an event occurred that shocked the global equilibrium: the 9/11. This was such an unimaginable and tragic shock that all the countries in the world held their breath. The all world was looking at New York. The US economy was in a limbo. On the one hand the consciousness that the economic downturn was not the catastrophic one early predicted, on the other the global uncertainty spread by the terrorist attack.

The decision of the Fed was to keep lowering the fund rate so much that by the end of 2001, the value was set at 1.75 percent.

The end of 2001 and the 2002 also presented some turbulent situations in the international scene. The war in Afghanistan, Enron’s bankruptcy, the terrorist bombing of a nightclub in Bali, WorldCom’s collapse, the SARS crisis in China and in other Asian countries are among the difficult situations that the world had to face. On the background the US economy was still recovering from the dot-com bubble and the GDP showed a slow recovery. Given this global uncertainty and the internal economic situation, the FOMC decided to keep its policy of lowering short term interest rates. In November 2002 they voted a 50 basis point cut that brought the fund rate to 1.25 percent, a level that only a few years before would have seemed impossible to reach. As mentioned above the reason behind the decision of keeping the rates this low was
mainly the uncertainty in the international landscape. At this point inflation was not a concern to the Fed who understood the deflationary effects of globalization, and had no signs that the easy-money policy was accelerating inflation. On the contrary, in 2002 and more strongly in 2003, the Fed started to worry about the possibility that a deflationary force could infect the US system. Because of this concern the FOMC decided to cut rates further, and in June 2003 they set the Fed Fund rate at 1.00 percent. The concern about the deflationary pressure was also alimented by the experience of the Japanese economy. The Asian country entered a deflationary spiral during the nineties and the government, which recognized this only at a later stage, have had serious problems in fighting his war against deflation. The late reaction of the authorities brought a situation in which the eventual cut of the interest rates (all the way down to 0 percent) did not have the desired consequences and the country experienced a long recession.

After three years of monetary easing in June 2004 the Fed changed the direction of his monetary policy and started to raise the fund rate again. The international scenario was less problematic than what has been in the years before, and the internal economy had finally started to grow at a strong pace, pushed by an extraordinary boom in the housing market. Because of these reasons the Fed raised the interest rate with decision in 2004, 2005 and 2006. The rate went up from 1 percent (in 2004) to 5.25 percent (at the end of 2006).

This concludes our analysis of the reasons behind the actions taken by the Fed in the years we consider. The next paragraph will be an explanation of the critics that can be moved to the Fed for its operations and for its policies in the years we are analyzing in this chapter.

2.4 Critics to the monetary policy adopted

In this paragraph we will be describing the major critics that can be pointed out with respect to the monetary policy adopted by the Fed in the years from 1995 to 2006. In the paragraph before we explicitly indicated the reasons that guided the Fed in his work, mainly because we want to be rational and serious in judging the operations of the
American central bank. We also want to make a note before starting with the list of critics. The note is that these critics are inspired by the contribution of many academics and practitioners and in most of the cases are then refined and developed by our analysis. We want to clarify that this is only a first draft of the critics. In a following chapter we will go into much detail and analyze also the implications that the most relevant critics have. Eventually in our work we will also propose some predictions for the economic outlook of the near future, based on our previous assessments.

The main critics are:

- The Fed did nothing to cool down the markets when it became evident that a bubble was mounting among the technological shares. In particular in the period that goes from January 1996 to March 1997, Greenspan chose not to move the fund rate even though it was clear that the evolution of the stock market was going in a speculative and dangerous direction (Bosworth and Flaaen 2009). To be honest the markets kept on growing until 2000, therefore this decision cannot be completely condemned. Moreover the monetary intervention of the central bank cannot be automatically translated in a specific reaction of the stock market. In our opinion though, if the mandate of the Fed is also to maintain the stability of the financial system, then the Fed needs to intervene in the case it understands that a speculative wave is threatening the stock market. Another related critic is that when the Fed finally decided to intervene they waited for too long (Taylor 2009a). In 1999 the FOMC started to raise the interest rate, but at that time the bubble was already impossible to control. Moreover Greenspan, after having declared that an incremental tightening would not be a good solution to calm the market (implicitly saying that a strong action would have been more effective), ended up doing exactly that. He started a series of five 25 basis point actions that brought the fund rate from 5 to 6.50 percent. This action was late and not strong enough. The Fed had to realize this and could not avoid the burst of the dot-com bubble.

- Another critic we would like to make is that the degree, to which the Fed lowered the rates after the 2000 crash in the markets, was exaggerated (Taylor 2008). In only one year the Fed lowered the rate more than 4 percentage points. To be honest this seems a bit too much. It is true that the stock market in 2000
and 2001 crashed, and that the 9/11 has been a global catastrophe and brought a lot of political uncertainty, but still the real economy of the country was not in such a bad shape. The GDP (one of the most important economic indicators) of the US held steady also in 2001. Another aspect that we think is a bit controversial is that the Fed did not seem to have understood how to implement monetary policy so that it could have had a more effective impact. In 2000 when they started to lower the rates they implemented a stronger approach compared to the years before: they used 50 basis points actions for the first five times they moved the rates. Then they lowered the rate two times with twenty-five basis points actions, then again three fifty basis point actions, then one twenty-five basis point. With this boring list we just want to point out that probably, during the 2001, the Fed did not quite understand if the stronger approach (the fifty basis point action) was more effective than the soft one (the twenty-five basis point action). One could say that these actions are specific to the particular situation at hand and that there is not one approach which works in every situation. This is certainly true, but in a year where the rate goes from 6.50 to 1.75 percent and where the direction of the intervention is clear, we think that the Fed could have been more brave and lower the rate with stronger actions (therefore at a faster pace).

- The next critic we would like to move to the Fed is that after the easy-money policy adopted to respond to the market crash of 2000 and 2001 they kept the Fund rate at an extraordinary low level for too long a period (Taylor 2008). After more than three years of easing, they started to raise the rate only in the second half of 2004. Given that the level of the fund rate in those years was an extraordinary low one (around 1.50 percent), this decision seems exaggerated. The economy in the US did not experience a strong recession and, even though the capital markets had one of the weakest periods in their history and some concerns about the ability of the system to recover were still present (Greenspan 2008a); the base of the US production was strong. We think that the situation in the economy did not justify this low rate for such a long period. Another aspect that was concerning the Fed at that time and that played an important role in
orienting the decisions of the Fed was the international landscape (Greenspan 2007). The 9/11 spread a lot of uncertainty in the civilized world. The wars that followed were an economic shock that cannot be underestimated. We certainly recognize this shock but we think that the war “per se” cannot be used to justify an easy monetary policy. Surely an event like a war is a factor that can inhibit the trade and that can reduce the willingness of people to invest in certain countries or sectors. Moreover the fact that the war that followed the 2001 attacks involved a country which is one of the biggest suppliers of oil is another aspect that put some pressure on the financial markets as well as in the real economy. We recognize all of this but we also want to point out that typically a war has also the effect of stimulating the economy of the country. There is no doubt that certain sectors of the production chain receive a strong stimulus from the needs that a war creates. Therefore the overall effect of the war cannot be clearly seen as triggering monetary easing or monetary contraction. We need to say that the US economy was also challenged by other problematic situations during these years. The collapse of Enron and of WorldCom, two giants of the American economy, the spread of the SARS disease in some Asian countries and other terrorist attacks are among the situations that challenged the economy of the United States and were probably among the reasons that induced the Fed to keep the rates at a low level. We understand that in a situation of uncertainty like the one that the Fed was facing during the period from 2001 to 2004 a monetary easing can be welcome but we criticize the duration of this intervention. At the meeting held on May 6th 2003 the FOMC recognized that the geopolitical tension went down significantly, but the FOMC did not raise the rate until more than one year after that meeting. We do not see any reason for keeping the Fed Fund rate at 1 percent during that year. We think that the Fed underestimated the downside risks of keeping the rates at an extraordinary low level for such a long period. They looked at the inflation indicators and they were seeing that despite low rates the inflation expectations were under control. What they missed, in our opinion, was the “big picture”. Clearly the globalization had the effect of pushing the rates down, significantly diminishing the inflationary pressures, but a fund rate at such a low level for such a long
period affects also other aspects of the economy. Given that inflation will not be a concern despite low rates (mainly because of globalization), the Fed should have studied better the consequences that its policy could produce on other aspects of the economy. We have already stated that the mandate of the Fed is to promote sustainable economic growth. This implies that the overall state of the economy has to be accessed by the Fed officials. Our opinion is that the Fed has to be blamed for being, during those years, too narrowly focused on inflation and growth indicators. We surely recognize the importance of these indicators but we also recognize that in a complex economy, like the American one, there are many other factors that need to be considered in order to achieve a balanced growth. The most evident imbalance that the long period of low rates after the dot-com bubble brought was the mounting of another bubble, the housing one (Taylor 2008). This speculation is widely recognized as the starting point of the current crisis of the global economy. We do not want to oversimplify the origin of the speculation that involved the housing market in the US, but the facility to access the credit was driven, at least partially, by the low rates that the Fed kept in those years. The link between the Fed policy and the housing bubble is recognized by various authors, Shiller (2007) in particular noted that the beginning of the growth in residential investment happened in 2000 when the Fed started to cut the Fund rate significantly and that the housing investment fell sharply after that the Fed started to tighten the money supply in 2003 (even though there has been a lag of two years or so). It is impressive to observe the almost mirror-opposite shape of the series of the housing investment and of the Fed Fund rate since 2000 (Figure 2).
To be fair it has to be recognized that this interpretation (that the easy-money policy of the Fed caused the housing bubble) is not the only way in which this situation can be read. Greenspan, for example, in a recent article published on the Wall Street Journal, (Greenspan 2009) defends the operations of the Fed and states that this interpretation is not accurate. The argument he uses is that, starting from 2002, the link between the federal fund rate and the home mortgage rate diminished significantly. This link has always been tight so that for decades the monetary policy actions were followed by rapid adjustments in the long term rates (among which are the home mortgage ones). Greenspan notes that this link seems to have evaporated after 2002. In particular he notes that the Fed tightening started in mid 2004 was not followed by an increase in the home mortgage rates. He explains that the shift of many developing countries from a central-planning economy to a market-based one is probably what pushed the
long term interest rates down. He therefore argues that what led the speculation on the housing prices was the incredible low level of the interest rates on home mortgages but that this extraordinary low level was not caused by the Fed’s monetary policy, rather by other global forces that pushed the rates down on a global scale. We believe that this interpretation is partial. We acknowledge the existence of global macroeconomic forces that pushed the rates down at the beginning of the new millennium, but we believe that the Fed remains responsible for keeping the Fund rate at a low level for too long. Furthermore we believe that the disconnection of the link between mortgage rates and the Fed Fund rate is partially due to the fact that once a speculation starts (the one regarding the housing prices started approximately at the end of 2001) then it becomes increasingly difficult to control or to calm down. Therefore we argue that when the Fed finally decided to tighten the money supply, in order to calm down the housing market, the monetary operation did not have the desired effect because the speculation on mortgage rates, which is strictly connected to the one on housing prices, was already at an advanced stage and therefore impossible to control. We believe that this has to be considered as one of the main reasons why the rate on home mortgages did not respond as expected to the tightening that the Fed operated at the end of 2004. This is why we think that the Fed remains partially responsible for the mounting of the housing bubble.

- The last critic we will make about the monetary policy adopted by the Fed during the years from 1996 to 2006 is more a general consideration than a specific critic. The argument is that the monetary policy of the Fed during those years seems rather discretionary and not justified by a solid theoretical base (Taylor 2009d). We want to express our perplexity about the fact that reading the minutes of the FOMC meetings we had the impression that the data and the relevant information were presented with rigour and professionalism but that the phase in which the information was elaborated and the decision was made, missed a bit of a framework. We are aware of the fact that the real world presents many more complexities than the theoretic models and we also recognize that a model (especially a macroeconomic one) is always based on
assumptions that most of the times oversimplify the reality (Greenspan 2008c); nevertheless we believe that the same models represent an important starting point and that they can be adjusted to take into account the specific situations (The Curious Case of Greenspan Bashing 2004). We think that the Fed in some circumstances operated in an arbitrary way. We refer in particular to two situations. The first one is the decision regarding the so called “soft landing”. In the years we are analyzing in this paragraph we recall two situations in which the Fed tried to achieve a soft landing. The first one is in 1995 and the second one is at the end of 1999. The first one is a successful story while the second one is the story of a mistake. When the Fed chairman says that he wants to achieve a soft landing he is implicitly saying that he wants to cool down the economy. This decision is a tough decision to make in the sense that it implies that the Fed recognizes that after certain limits the growth of the economy can produce imbalances and speculations that are dangerous. In other words the growth is not always welcome. We believe that it is true that after certain limits even a growth can be risky, therefore we do not condemn the intent of the Fed, what we condemn, is the fact that the indicators of an “over-heating” in the economy cannot be arbitrary. We think that Greenspan took the decisions regarding when to try to cool down the economy in a non transparent way (Zalewski 2007). This creates two problems: the first one is that not having a clear decision framework can lead to mistakes, like the one the Fed did in 1999. The second one is that it can increase the probability that the economic actors will not understand the actions of the central bank and will therefore react in a not-rational way, creating further imbalances in the system. The second situation in which we recognize an arbitrary policy by the Fed is in the years from 2002 to 2005. During those years the Fed decided to keep the interest rate at an extraordinary low level. This decision was due to different situations that we have already analyzed in this chapter. We believe that the issues that caused the Fed to keep the rates at this low level were serious concerns and we completely recognize the difficulty of taking decisions in such situations. What make us suspicious about the operate of the Fed is not the level of the rates “per se”, rather the fact that during those years the Fed abandoned the monetary framework that worked so well for the
previous twenty years. We do not want to oversimplify the technicalities of setting the interest rate at a balanced and equilibrated level and we recognize that monetary policy is not a perfect science but we would like to have the chance to ask those policy makers which “science” they were following when they chose to implement that monetary policy. This critic is strongly sustained by John B. Taylor. Taylor, professor of economics at Stanford University and one of the most prominent macroeconomist of his generation, sustains that there is no clear explanation for why the Fed in 2001 decided to leave the framework that it followed during the period which is commonly known as the “Great Moderation”. In particular it is very interesting to have a look at the Figure 3 which is a graph that was first published on the Economist on the 18th of October 2007. That chart gives us the immediate impression of how far away the actual Fed Fund rate was from the policy rule that guided the Fed throughout the twenty years before. Taylor goes even further in the analysis and presents a model that tries to predict the behaviour of the housing market had the interest rate been the one suggested by the model that the Fed has historically adopted. The result is astonishing: the bubble in the housing prices would have been much weaker with the result that also the speculation on the financial markets would have been significantly reduced.
We need to say that even though Taylor is a great expert of the subject, the model he uses to predict the results of a different monetary policy on the residential market is open to discussion and not exhaustive. We believe that it is not possible to say with certainty what the reaction of the housing market would have been had the Fed adopted a different policy. We think that there are a number of factors that play a role in this sense and whose reaction to a different interest rate level cannot be easily modelled. The last thing we want to say about the issue of the discretionary in the Fed policies is that if policy does not go back to a monetary policy framework, then questions must be raised about the fundamental role, independence, and governance structure of the Federal Reserve (Taylor 2008).
2.5 Data analysis

In the following paragraph we will take a closer look at the data. The goal is to get an unbiased picture of the economic situation during the timeframe analyzed in this paragraph. This analysis should build the basis for further comparison with the official minutes and statements of the Federal Reserve about the economic situation. We are only considering the main economic data and the key market data. In other words, we are looking at numbers, that the Fed was also considering at that time. We decided to take this approach because it would be unfair to consider new indicators that became popular only after the burst of the IT bubble.

2.5.1 GDP

The first key economic indicator we have chosen is the GDP growth rate. The gross domestic product is the total nominal amount of all goods and services produced by a specific country in a specific timeframe. Mayor drivers of the GDP are retail consumption, government spending and inventory levels. The GDP growth rate is the percentage change of the GDP compared to the previous year.

We took the GDP growth rate as one of our indicators, because it is largely recognized as being one of the most important economic indicators. A growing gross domestic product shows that the income, employment and production are growing. A slowing GDP growth rate means that an economy is or moves into a recession as the production does not increase anymore, unemployment rises and companies stop the expansion. Instead an economic depression is characterized by a severe economic downturn, basically by a negative GDP growth rate for a longer period.

We have taken the data from the national bureau of economic analysis, that every quarter publishes the data regarding the most important economic indicators. It publishes the nominal GDP and the real GDP growth rate. It is important to note that the real GDP is not calculated as per definition (Nominal GDP / GDP Deflator) * 100, but with a different formula. The real GDP is expressed in prices of a Base Year (in our analysis we use the year 2005) times the quantities of the current year.
We start the analysis in 1996. The real GDP growth rate on an annual basis was at +3.63%, showing a very strong increment of the national domestic product. The same positive picture can be seen through the whole 1997 with a real GDP growth rate of 4.40%. Nevertheless the last quarter of 1997 was a little bit less positive than the previous one and this can probably be attributed to the first signs of the Asian crisis. The first quarter of 1998 was again slightly better than the last quarter of 1997 with a real GDP growth rate of 1.1% compared to the 0.73% of the previous quarter. In the second quarter again we observed a little set back with a positive performance of only 0.63%. The two coming quarters were again more positive with an overall performance for 1998 standing at just above 4%.

Starting with slower growth pace in the beginning of 1999, the last two quarters of that year had a very good performance concluding with a real GDP growth rate of 4.35%.

The years 2000 and 2001 are showing an overall positive real GDP growth rate of 0.75% and 1.59% respectively, but during these years there have been some signs that the economic situation was becoming more difficult. In 2000 we saw one quarter with a negative growth while in 2001 there have been two quarters that showed a decrease of the real gross domestic product.

It is important to note that during the years 2000 and 2001 we have not seen three consequent quarters with a negative GDP growth rate. Many professionals and experts believe that a true economic recession can only be confirmed if the GDP growth rate is negative for a period of two or more consecutive quarters. In fact the national bureau of economic research defines a recession as a “significant decline in economic activity lasting more than a few months.”

In 2002 the US economy started already to bottom up. All quarters had a positive GDP growth and the overall real GDP increase was 1.59%. In the upcoming years the growth was accelerating. Remarkably during the 3rd quarter of 2003 we saw a jump of the real GDP of 1.8%, up to the overall growth of 2.5%. This result was even improved in 2004 with a 3.5% growth.

This good performance continued until mid 2006 when the quarterly GDP growth started again to weaken.
2.5.2 Unemployment

A recession is when your neighbor loses his job. A depression is when you lose your job. This is a very popular saying in times of crisis, and it shows how important the employment situation is for individuals. When something is very important for individuals then also the aggregate will be important for the whole.

Being aware of this, it was natural for us to take a closer look at the unemployment in the United States. The statistics are provided by the bureau of labor statistics. The unemployment rate is calculated by the number of unemployed persons who are willing to work and actively looking for a job, divided by the total work force. Additionally to the unemployment rate we have also taken into consideration the change in Non-Farm Payrolls as the unemployment rate is important, but is considered to be an incomplete indicator as it is confirming but not forecasting long-term market trends.

The change in Non Farm Payrolls is considered to be a leading economic indicator. It represents the total number of paid workers in the United States excluding the following sectors:
- general government employees
- private household employees
- employees of nonprofit organizations that provide assistance to individuals
- farm employees

It represents approximately the 80% of workers who produce the entire GDP. It is so popular because it is published every month (first Friday of the month) and is considered as one of the most important economic indicators to assess the current situation and to try to predict the future evolution. When companies are growing and more orders are received, the companies have to hire new staff to be able to deliver the product on time. In times of recession overcapacity has to be reduced and employees are laid off. Therefore this indicator shows into which direction the economy is adjusting.

Starting in 1996 the unemployment rate was approximately around 5.5% and during the entire year 2.796.000 additional Non–Farm Payroll jobs were created. From 1997 to 1999, slightly more than 3 million jobs per year were created in the non agricultural sectors, bringing the unemployment rate to 4% by the end of 1999. Remarkable is that only in September, October and November 1998 the unemployment did not decrease as
fast as previous or afterwards. During these months only around 200.000 jobs were created every month, which is roughly 25%-50% less than the statistic for the same months of the previous year. This can be probably attributed to the collapse of LCTM and the Asian crisis.

The year 2000 started out well with a positive net change in Non-Farm Payrolls of approximately 1.400.000. In June instead for the first time since many years companies laid off more people than new jobs were created. Due to the burst of the it-bubble especially in that sector many people lost their job. Nevertheless the situation was not so dramatic. In June 2000 the change in Non – Farm Payrolls was at minus 46.000, but for the rest of the year the number was again positive, expect for October with (minus 11.000). Overall we had two negative months, but the situation in 2000 was still positive as the yearly net change was plus 1.950.000 new jobs with the unemployment rate reaching 3,9%.

In 2001 the situation was much more negative. Overall about 1.700.000 jobs had been lost with the figures that clearly showed a negative trend month after month. The unemployment rate jumped to over 5%. The following year was also characterized by a rising unemployment level, but the layoffs were already decreasing at the beginning of 2002 and in June we had the first signs of a positive change (plus 7.000 jobs) in the Non-Farm Payrolls. Usually this is clear sign that the bottom of the recession is already behind. In 2003 the unemployment statistics were still a bit weak in the beginning of the year but were clearly getting better by the end of the year. The overall result was 87.000 new jobs created in the United States. The unemployment rate reached its maximum level in the second quarter of 2003 at a 6,3%.

In the following three years the US job engine was working again very well and 2.000.0000 new jobs were created each year, bringing the unemployment rate at the end of 2006 down again to 4,4%.

### 2.5.3 Equity Markets

The Equity market is a good indicator of the investors’ sentiment. Shares are priced by discounting future dividend payments of the underlying companies. That means that stock prices imply the market expectations of future dividend payments. Rising equity
markets are showing that the market participants expect high future earnings for companies. A rising equity market index shows that the market expects higher profits for the majority of the listed companies. Therefore we can say that rising stock markets show that the investors are predicting a stronger economic growth and that shrinking indices imply that the participants are more negative about future earnings.

In the past we have seen that the equity markets do not always follow the fundamentals, that is when a bubble is created or when the market is oversold due to a complete loss of confidence. As we cannot analyze the whole stock market we will take a look at some stock indices. We took the Dow Jones Index and the Standard and Poor’s 500.

The Dow Jones is the typical Blue Chip Index consisting of the 30 biggest listed American companies; it is a price weighted index. The standard and Poor’s 500 Index instead is a market value weighted index and is much broader as it comprehends the 500 biggest listed companies by market value in the New York Stock Exchange and the Nasdaq. The SP500 is less volatile and more representative. These two indices are generally accepted as being the most representative indicators of the stock market in the United States of America. The Nasdaq is the technology index and is heavily influenced by the tech industry, therefore if we want to see an overall picture of the market we will not look at the Nasdaq.

In 1996, the starting point of our analysis, the Dow Jones Industrial Average was trading at 5117.12 in the beginning of the year. In the following 12 month the performance was very strong and the index gained more than 26%. Also in the coming year the direction was the same. The bullish market reached net gains of more than 22% in 1997 without any bigger correction to the downside. One year later the overall performance was + 16, 7 % compared to the year before. Although this very good performance in 1998 we note that the volatility was much higher and there was also a correction of almost -17% from the top during the year. In July and August 1998 the market dropped from above 9000 down until it reached 7640 in September. Already in October the market recovered from this drop and at year end the Dow Jones was at 9181.

The 1999 was again a year of optimism in the market and the indexes increased sharply in beginning of the year and had a higher volatility compared to the last months of the year. Overall the performance was still extremely positive. The S&P performed a + 21%
and the Dow Jones a + 25%. In the year 2000 the IT bubble burst at the beginning of March and the Nasdaq (the IT INDEX) collapsed. At the beginning the Dow Jones and the SP500 were not hit that hard and slumped less than the Telecom, Multimedia and Internet sectors. The final start of the bear market for the SP500 and the Dow Jones was around September 2000. The investors realized that the IT crisis would have involved also the real economy. The Dow closed around 6% lower compared to 1999 and the SP500 dropped by around 9%.

The years 2001 and 2002 were typical bear markets where the big indices lost around 7-10% in the first and approximately the double in the second year. The negative trend stopped only between the last months of 2002 and the first months of 2003. The recovery in the market was very fast, in 2003 the S&P500 increased, by almost 29% and the Dow Jones Industrial Index by 25%. The new bull market was still present in 2004 with small profits for the major indexes, flat in 2005 and again very strong in 2006 with the S&P500 increasing 15% and the Dow 16% in 12 months.

2.5.4 The debt securities

The Market for debt securities is another fundamental indicator of the market sentiment as it is seen as the safe haven for investors. With increasing risk aversion people tend to invest money in “safe” securities like government bonds. Most of the debt securities are traded over the counter and are not listed on exchanges, only corporate bonds are often listed. In our analysis we will especially focus on the yield of the 3 and 10 years US Government Bond and the London interbank offer rate (LIBOR). The LIBOR rate shows which interest rate top tier banks charge each other for overnight loans. We have extracted the data from DataStream.

In the beginning of 1996 the yield of the 3 and the 10 years US government bonds were at 5.2% and 5.65% respectively. In the following months the yields were increasing as investors were investing the money more into the stock market and not into the debt market. In the 1997 the yield went down although the Fed increased slightly the target rate. One year later the demand for treasuries increased and therefore the yield decreased, this was clearly to be attributed to the decrease in the Fed fund rate and to the lower risk appetite due to the Russian and Asian crisis and to the failure of LCTM. In
December 1998 a 3 year treasury bill had a yield of 4.48% and a 10 year note was trading at 4.65%. As the 1998 crisis was a very soft one the treasury yields started to increase again very fast until the dot-com bubble burst. The maximum yield was reached in February 2000 with 6.65% for the 3 year note and 6.52% yield for the 10 year note.

This means that there was an inverse yield curve; normally this is a clear sign that the market expects a recession in the coming years and consequently a reduction in the short term interest rate. Normally an inverse yield curve is caused because market participants are shifting their portfolio from risky assets like shares into more safe investments like T-Notes. This normally happens as the investors are scared of shrinking share prices in the near futures. Lower share prices indicate lower GDP growth and as reaction to this the Central Banks will usually lower the interest rate. This causes again a drop in the short term interest rate. Therefore the only solution for investors to assure themselves a decent return without massive downside risks is to buy in time long term US Treasury notes with a quite high yield. When many investors are doing that at the same time, the yield decreases sharply. So an inverse yield curve is a clear sign that investors are very negative about the short term economic outlook and are willing to accept quite a low long term yield instead of short term bills or even shares.

Shortly after we saw the inverse yield curve in 2000 the Fed started to decrease rapidly the fund rate and therefore the short-term yield decreased much more than the long term and the yield structure became “normal” again.

The minimum yields were reached in mid 2003 with the short term rate at the extremely low level of 1.51% and also the 10 year note at a 3.33% yield level. From that moment on the yields started to increase again until they reached again an inverse situation at the end of 2006. The 10 yeas US Government note had a yield 4.56% and the 3 year note was offering 0.02% more.

2.5.5 Chase Shiller House Price Index

Another main indicator for one of the most important variables of this crisis is the Chase Shiller Home Price Index. The index named after the creators Karl Chase and Robert
Shiller keeps track of the US residential home prices. It tracks growth in value of real estate by following the purchase price and resale value of homes. The data is published each month with a delay of two months. It takes track of the real estate values in 10 different metropolitan areas.

The data can be found on the homepage of Standard and Poors and is freely available.

Our analysis starts as usual in 1996. After 6-7 years in which the residential real estate market in the United States of America has not have any major price movements finally in 1996 the prices started to increase slightly. Year over Year the housing prices raised almost 2% in value. This number does not seem that strong, but compared with the previous years were the growth was slightly negative it can be seen as a turnaround in the market. In the following years the trend started to strength further. The growth rate already more than doubled in 1997 (almost 6%), the following year was even stronger with a performance of 8,55%. In 1999 the bullish market increased by 10,5% and in year 2000 the growth was also double digit with an incredible increase of +13,6%.

In 2001 although the US economy was hit by the dot-com crisis, real-estate showed still a positive performance. The prices increased by 7,8%. One year later, while economic problems were still present, the housing market was taking off again with a performance of almost 15%. The years 2003, 2004 and 2005 had the same extreme price increases of approximately 15% year over year.

In July 2006 the indicator showed for the first time a negative performance. The last time the real estate market in the United States decreased was for one month in 2001 and for one month in 1998. This time instead the trend would continue for more than just a month, actually there has not been a positive month anymore since then. Overall 2006 showed only a slight decrease of roughly 0,5%, but in the following months the market basically collapsed.

2.5.6 Summarizing the Data

From our analysis of the key economic indicators we are clearly able to see that in 1996 the US economy was in a very good shape. All the indicators were going in the same direction, a strong GDP growth, shrinking unemployment, healthy capital markets and also no negative sign from the housing market. This positive trend continued also in the
following years, the first important facts we have to look closer at, are in the end of 1997 and the beginning of 1998. Within this timeframe we had a short crack in the economic growth. Nevertheless the recovery from this little set back was quick and very strong.

An important question is if this crisis was so mild because the Central Bank intervened in the right way or if, despite the appearances, the Fed did over-react and maybe also create the basis for future bubbles.

In the end of 1998 this small crisis was already over and the optimism was back again. The equity markets rallied, treasury yields increased as well and more new jobs were created. Basically the risk appetite came back pretty fast. Important to note is that the housing prices started to increase significantly in their growth rates.

In the following years we have seen a bull market with growing equity markets, shrinking unemployment and a very high risk appetite. The housing prices continued to increase even further and faster than ever before. This positive scenario was stopped by the burst of the dot-com bubble in 2000. A few months later this event has also swapped over to the real economy halting the GDP growth and particularly many people in the IT industry lost their Job. The Silicon Valley was in a crisis and furthermore the terrorist attacks in New York and Washington were harming the economy. The housing prices instead still increased.

Also this recession ended quite quickly and without any very negative event. The Federal Reserve decreased heavily the interest rate and economy stabilized in the end of 2002 and early 2003. It ended out not to be a very severe recession and the recovery started also quite fast. Here again we have to ask and to investigate if that was due to the actions of the FED or to the other circumstances. The next years were characterized by housing prices that were skyrocketing and historical low interest rates. The Stock markets increased as well sharply after the dot-com bubble, but not as excessively as before. The newly created bubble was not based on the stock market, but on the housing one. In the beginning of 2006 that housing market started to weaken for the first time since decades, but it was not yet predictable that the bubble would burst soon.
3. MONETARY POLICY AROUND THE SUBPRIME CRISIS

In this chapter we will be describing and analyzing the actions that the Fed took in 2007 and 2008. After having considered the actions implemented in the years around the dot-com bubble we now look at the policies adopted to respond to the current crisis. This chapter, as the previous one, will be divided in five parts. In the first one we will make a short presentation about the subprime crisis. In the second paragraph we will look at the decisions about the Fed Fund rate for the period that interests us. In the third one we will provide an explanation about the reasons that drove the Fed in its operations, while in the fourth one we will analyze some of the critics that can be moved to the Fed with respect to its monetary decisions. In the last paragraph of the chapter we will look at some relevant data to see what they are saying about the same issues.

3.1 The subprime crisis

In this chapter we will discuss a period which is characterized by an event: the subprime crisis. As we did for the chapter before we want to start with a brief definition of this event so that the reader can have an overview about the most important aspects of it. With the term subprime asset we intend all “the less than highly creditworthy assets that yield higher interest rates than do prime assets with similar non credit risk” (Ryan 2008, p.5). During the first years of the new millennium this type of investment knew an incredible boom. In particular the subprime mortgage market exceeded 20% of the total mortgage origination market in 2004, 2005, 2006 and also at the beginning of 2007. We do not want to discuss the reasons of this boom here, we only want to say that related to the explosion of this type of mortgages, was the proliferation of derivative products that the financial world created mainly in order to shift the risk (or at least the default risk component of the total risk) embedded in these assets from their balance sheets to someone else’s balance sheets. This was the origin of products such as the Mortgage Backed Securities. Almost all the major investment banks and investment firms (hedge
funds but also more conservative pension funds) had gained great exposures to products such as the MBS in the period that goes from 2002 to 2006. Unfortunately at the end of 2006 and more evidently in 2007 and 2008 the housing market, which for different reasons experienced an incredible boom after 2000, cooled down significantly and an incredibly high number of subprime borrowers defaulted on their obligations, triggering a collapse in the value of all the derivative products based on these mortgages. All the major banking institutions were therefore in great troubles and the most evident consequence of this situation was an impressive credit crunch that in turn destabilized also the real economy of the US. The government, the Fed and the international institutions (such as the World Bank and the IMF) did intervene in different ways and with different approaches but seem only partially to have the situation under control.

The last note we want to make about the subprime crisis regards the housing boom that the US and also many Europeans countries experienced after 2000. It is not in doubt that this speculation was one of the factors that created the ground for the crisis but the origins of such speculation are much debated today. Of course the expansion of the subprime mortgage market had the effect of increasing the demand for houses, therefore increasing the prices, but it would be superficial to explain the housing boom only in terms of subprime mortgages. So much that today the cause effect relationship between these two aspects is not completely clear. Among the other factors that are indicated as possible causes of the housing speculation is the abnormal low level that the Fed Fund rate had during the years following the dot-com bubble.
3.2 Actions taken by the Fed

Figure 4: Fed Funds Rate in % from 2006 to 2009

Figure 4 shows the levels of the Fed Fund rate for the period that interests us. We note that these two years have been characterized by monetary expansion. The Fed started an easing monetary process in 2007 and kept lowering the interest rate with constancy throughout the all 2007 and 2008. In two years the Fed Fund rate went from 5.25 percent to the actual value which is the range from 0 to 0.25 percent. The expansion has been constant (the direction of the interventions has always been the same during these two years) but the operations differed a lot in the way they were implemented.

The Fed started with a 50 basis-points cut, then it operated two 25 basis-points cuts, then one extraordinary 75 basis-points cut only one month after the previous intervention. In the same month (January 2008) of this extraordinary intervention, the Fed lowered the rate again with another significant 50 basis-points cut. Only a month and a half after this the Fed operated another extraordinary 75 basis-points cut. This
means that from January 2008 to March 2008 the Fed fund rate went from 4.25 to 2.25 percent. This represents an incredibly strong action by the Fed. This action, though strong, did not seem to have the desired effects, so that the Fed had to keep lowering the rates. In particular in October 2008 the rate went down by another percentage point (from two to one percent) and on December 16th 2008 the Fed made another extraordinary intervention bringing the rate to an astonishing low range of 0 to 0.25 percent. This is where the rate is today. During these two years the monetary tool has been used often and with decision. Let us now see why this has been the case.

3.3 Reasons behind the actions taken

As we did for the corresponding paragraph of the previous chapter, we want to clarify that at this stage our interpretation of the reasons that made the Fed to operate in the way they did is based only on what can be extracted from the minutes of the FOMC meetings and from the other relevant documentation that is publicly available.

We would like to start by saying that it is clear that the monetary intervention in these two years have had the overall goal of reducing some of the pressure that the US system experienced. To be honest reading today the minutes of the FOMC meetings we are surprised by the fact that even though the committee recognized at various stages some of the problems that affect and affected the American economy, they seemed to believe until a very late stage, that the current conjuncture was nothing more than a cyclical slow down. Let us now look at the specific interventions.

The first meeting in which the FOMC decided to lower the interest rate was the one held on the 18th of September 2007. In the previous 2007 meetings the FOMC decided not to alter the Fed Fund rate and it is clear that their main concern was that the inflation “will fail to moderate”. This risk was assessed to be predominant given that “the economy seems likely to expand at a moderate pace over coming quarters” (FOMC Press Release 2007). During the month of August the FOMC met three times and started to recognize a number of issues among which were that the “housing correction is ongoing” and that “the financial markets conditions have deteriorated and tighter
credit conditions have increased uncertainty” (FOMC Press Release 2007). In the September meeting they voted a 50 basis point cut that was justified by the fact that despite a moderate economic growth the credit conditions were deteriorated putting further pressure on the housing market. One month after the September meeting the FOMC cut the rates again by a 25 basis-point action. The reason was that the housing market was starting to cool down and the Fed recognized this event as triggering a contraction in the economic expansion. It is significant though that apart from this consideration on the housing market the Fed was quite positive with respect to the economic growth and the financial markets.

The Fed implemented another 25 basis-point cut in December of the same year and again the main reason was the intensification in the “housing correction”.

The first meeting of 2008 was held on the 22nd of January and it seems to be the first occasion in which the FOMC fully recognized the downside potentials of the crisis. The action they took in this meeting was a 75 basis-point cut. We have not seen many cuts of this importance in the history of the Fed. It was a clear signal to the markets and more generally to the economy. Even clearer was the press release that came after the meeting. It was probably the first time in which the Fed clearly stated that the economic outlook of the US was in a bad shape. This is the earth of the press release:

“The Committee took this action in view of a weakening of the economic outlook and increasing downside risks to growth. While strains in short-term funding markets have eased somewhat, broader financial market conditions have continued to deteriorate and credit has tightened further for some businesses and households. Moreover, incoming information indicates a deepening of the housing contraction as well as some softening in labour markets” (FOMC Press Release 2008a)

It is clear that the FOMC tried to take a strong action in order to invert the trend of the economy. Only one week after the Fed operated another significant cut. On the 30th of January they cut the Fed Fund rate by another 50 basis-point. The motivations here are (of course) similar to those of the week before: considerable stress in the financial markets, tightening in the credit processes, a strong negative trend in the housing sector and signals of stress also in the labour market.
The Fed did not seem to reach the desired goal of inverting the negative trend of the economy and on the 18th of March they operated another strong intervention: a 75 basis-point cut. The motivations for this action are pretty much those of the months before (apart from the fact that this time they mentioned also the slowdown of consumer spending). For these same reasons the Fed decided another cut of the Fund rate in April. This time it was only a 25 basis-point cut.

After this series of cuts the FOMC did not intervene with interest rates changes for some months, until October. This was the case mainly because the FOMC was receiving negative signals from the inflation indicators. If in the months before, the main focus of the Fed was the critic situation of the economy and the negative trend of the growth indicators, from May to September 2008, the Fed seemed to have shifted its focus in favour of inflation. The steep increase in energy prices and the elevated state of some of the indicators of inflation expectations worried the Fed more than the downside risk of growth (that was still present). The Fed eventually changed its priority and in October cut the rate two times with 50 basis-point actions. The inflationary pressures that motivated the Fed not to cut the rates further during the summer months, had diminished significantly (in particular the energy prices) and on the other side of the balance, the contraction in the economic system, and the turmoil in the financial markets, was such that the Fed thought that a further easing in the money supply would have helped the economy. A thing we would like to mention with respect to the action taken on the 8th of October is that this action followed a joint statement of some of the central banks of the biggest economies in the world (Fed, ECB, Bank of England, Bank of Canada, Swiss National Bank and Sveriges Riksbank). In this statement these central banks recognized the issues that the global economy was facing and decided to implement a joint reduction in the relevant policy rates. This action is not the first case in which the central banks of the major economies of the world gather together with the agenda of finding a way to address with coordinated actions the problems of the global economy. During the two years we are now analyzing it happened also in December 2007 and in March 2008. The reaction of the markets was very positive in the first occasion while in March and October 2008 the economic operators received the news with less enthusiasm. We think that the interactions among central banks during these
two years have been more formal than substantial and that these interactions did not influence the monetary decisions of the Federal Reserve.

The last action of the FOMC we are analyzing in this paragraph is the cut it implemented on December 16th 2008. This is up to today the last monetary intervention on the Federal Fund rate. On that day the Fed decided to set the Fund rate at a level in the range from 0 to 0.25 percent, reducing the interest rate by a level that goes from 75 to 100 basis-points. The explanation for this move is not very sophisticated. The press release refers to “weak economic conditions”. To be honest we do not think to oversimplify the situation if we say that the Fed implemented this policy because, given the economic disaster it was facing, it felt the pressure to use the monetary leverage to its maximum extent. We understand that at this stage of the crisis the political pressure on the central bank can play a fundamental role in the decision making process.

We now move to the analysis of the critics that we think can be reasonably made to the monetary decisions of the Fed during these last two years.

### 3.4 Critics to the monetary policy adopted

Starting this paragraph in which we use critical lenses to look at the operate of the Fed, we want to clarify that the operations of the American central bank might sometimes depend upon factors (internal information) that we do not have the possibility to consider. We recognize that there might be an information gap between us and them and therefore some of the critics we will make might not be funded. We nevertheless propose these critics because we think that they are justified based on what is publicly available.

- The first critic is that the Federal Reserve waited for too long in 2007 before lowering the interest rate. After two and a half years of monetary contraction, in September 2007 the Fed changed the direction of its intervention. We think that the Fed can be blamed for recognizing too late that the economy needed easier money (Tucker 2008). It is astonishing that until August 2007 the economists of the Fed described the status of the economy as “likely to continue to expand at a
moderate pace in the coming quarters” (FOMC Press Release 2007). This means that when the subprime crisis had already started to show its first effects the economists of the Fed were clueless about the potential entity of the event. Frankly this seems unacceptable to us. We would rather think that they did not want to spread too much of a negative sentiment in the investors and therefore chose not to explicitly anticipate the real state of the economy. This explanation would also be in line with the fact that during the summer of that year the markets started to experience some of the volatility that characterized them during the last two years. It is therefore plausible that the Fed, in doubt about the consequences of the crisis, tried a “think positive” approach in order to stabilize the markets or at least to calm them down.

- A second issue, though related to the first one, is that the Fed missed that the real priority in these two years had to be the growth and stability of the economy rather than the control of the inflation (Bosworth and Flaaen 2009). We say so because we think it is questionable that the FOMC in different meetings identified as its priority number one the risk of inflation, when (in particular at a later stage) it was clear that the economy was challenged by a recession. Of course this point is open to discussion and different arguments can be used to tell different stories, but we think that too often the FOMC overestimated the risk of inflation and underestimated that of a downturn in growth. In this sense this critic is related to the first one. Not only the Fed recognized the current crisis at a very late stage but also, when it recognized the negative conjunction, it had a misrepresented idea of it.

In particular what makes us think that the Fed made a mistake is the policy it adopted in the summer of 2008. In the months from May to September they decided not to step in with monetary actions. At this point the housing bubble had already bust, the financial markets had started their decline and other events happened (like the bail out of Bear Sterns) that made it clear that the magnitude of the crisis was dramatic. This is why when we read that in the press release of the FOMC meetings, for the period from May to September 2008, the major concern seemed to be the risk of inflation we were a bit confused. Of course
there are good reasons why the Fed was so worried about inflation that did not cut the interest rates during these summer months. The main one was that the price of commodities and in particular that of energy, was going over the roof. This is a fact and we recognize it. But still we think that the FOMC was incredibly far away from having a good understanding of the dynamics of the recession. We think that if the Fed had a better understanding of the situation it would have lowered the rates before and at a faster pace. To give a sense of how much the estimates of the Fed were off we report part of the press release that followed the meeting held on the 25th of June 2008:

“...The substantial easing of monetary policy to date, combined with ongoing measures to foster market liquidity, should help to promote moderate growth over time. Although downside risks to growth remain, they appear to have diminished somewhat, and the upside risks to inflation and inflation expectations have increased.” (FOMC Press Release 2008b)

In our opinion it is clear that the implicit decision of the Fed to focus more on the control of inflation than on boosting the economy, during those five months (from May to September), was wrong. We could understand the decision of not using the monetary leverage had the FOMC thought that this was not the appropriate tool for fighting the problems it was facing. The situation though was different. The FOMC used the monetary tool all the times from when they recognized the crisis. We therefore deduce that they believe that this kind of action (to move the Fed Fund rate) can be successfully used in order to respond to this particular crisis. Given this, and given the dramatic status of the economy, it follows that during those five months the FOMC individuated in the inflation the main issue to focus on. We believe that, even though the inflationary pressures were serious, this time the Fed made a dramatic mistake in not giving the priority to the growth of the economy.

Another way in which this situation can be red is that the Fed during that period had some data that made it think that monetary actions would not have led to an improvement in the status of the economy. We think this would be a rightful
point to make. The current crisis is definitely a complex one and what has been a fundamental tool to cope with the contractions of the economy so far, might not be the most appropriate policy this time. If this was the case we would be confused by the extensive cuts they operated in the last quarter of 2008; or at least we would think that the information they had was not accurate or not properly interpreted.

A third way to read the policy the Fed implemented is that they wanted to “wait and see” if the economy would have adjusted spontaneously or if the interventions of other actors (like the Government, the Treasury, the other central banks) would have brought a recovery in the system. This last interpretation is probably the only one that would not hold responsible the Fed for not intervening during those famous five months. We leave to the reader the choice of to which interpretation to adhere, but, in our opinion, the most credible one remains the original point that the Fed did prioritize the inflation and not the stability of the economy.

- The next critic we will make of the monetary policy that the Federal Reserve adopted in 2007 and 2008 is that in some circumstances they have been a bit shy in the intervention. To be fair we have to say that, with this respect, the operations of the Fed improved if compared to how they behaved in the years before. During these two last years the Fed left the 25-50 basis-points staticism that characterized it during the previous years. We have to admit that we have seen stronger interventions (50 and also 75 basis-points actions) this time. We acknowledge that, but we think that there is still room from improvement. Our critic follows an argument that we have already stated in the previous chapter: if at a certain point it is clear that the Fed Fund rate has to go down significantly in order to foster the recovery of the economy, we think that the FOMC should be willing to adopt stronger interventions. We know, or at least we can imagine, that the risks associated with stronger interventions increase proportionally, but we think that sometimes not to take these risks is a mistake. Nobody has the crystal ball and you have to be willing to take important decisions based on partial information if you want to be proactive in monetary policy.
To support our critic we propose the following arguments:

1. In 2008 the Fed Fund rate went down from 4.25 to 0 percent. For the all year therefore the Fed recognized the need for easier money. Why was it not possible to cut the rate at a faster pace given that extreme need of liquidity that the system seemed to have?

2. Another good example that explains what we intend when we say that the Fed has been “shy” in its intervention is what happened between the months of January and March 2008. On the 22\textsuperscript{nd} of the month the Fed decided a 75 basis-points cut. As explained by the press release the Fed took this action because of the “...weakening of the economic outlook and increasing downside risks to growth” (FOMC Press Release 2007). One week later, on the 30\textsuperscript{th}, the Fed made another 50 basis-point cut. A month and a half after this second cut the Fed lowered the rate again by others 75 basis-points. To sum up the Fed cut the rate three times in less than two months. The rate went from 4.25 percent to 2.25 percent. Now the point we want to make is that we do not think that the information the FOMC used to make its decisions changed significantly in these two months. So why, if the situation is so critic, not to take a stronger action before?

Another similar situation occurred at the end of October 2007: on the 31\textsuperscript{st} of October the Fed cut the rate by 25 basis-points and only ten days later, on the 11\textsuperscript{th} of December, another 25 basis-points cut was operated. This situation differs from the previous one in the fact that here we are commenting upon less relevant interventions than before, but the kind of policy we want to criticize is the same.

We have already talked about the risks related to stronger actions but we also think that there are some benefits related to it. First of all the fact that a stronger action has an important “symbolic” effect. It is clear that the signal that you send to the economy depends mostly upon the size of the intervention. Now we understand that the Fed does not want to panic the system but we believe that under those dramatic conditions a certain amount of fear can be helpful in directing the economy towards a more realistic direction.
Another benefit the economy would have, had the Fed operated through stronger actions, is that the system would have gained liquidity before and this could have improved the performance of the economy. Apart from being symbolic a stronger intervention would also have had “real effects” on companies’ life. The last benefit we will mention is that the markets would have had an important indicator that would have told them the real status of the economy so that they could have adjusted accordingly before.

Of course we keep in mind that whatever decision the Fed takes it is the result of a process that tries to balance the risks and the benefits associated with the different actions. What we want to state is that the balance the Fed and the FOMC used during these two last years (and probably also before), was not equilibrated. We think they have been too “conservative” in their interventions and, given what happened, they would have achieved better results had they been more “brave”.

- The last critic we want to move to the Fed for the policies adopted in 2007 and 2008 is that they probably did not investigate enough to understand the root causes of the crisis. We think that this is the most important mistake they did during the period we are analyzing. Of course this is not something for which you can blame only the Fed. It is true that the subprime crisis kept almost everyone unprepared and that also today we are still unsure about the reasons that caused such a dramatic recession. We think that, once we will have recovered from the crisis, the all economic community should ask himself why it was possible that such a deep crisis was not recognized in its dramatic potentials until a very late stage. We do not think that the responsibility for this can be attributed to someone in particular. It is more a collective guilt than a direct responsibility. Nevertheless we think that being among the goals of the Fed to maintain the stability of the financial system they are among the institutions that should have had a better understanding of the situation and therefore a faster reaction (Huston and Spencer 2009).

Let us now justify the statement that the Fed did not have a good understanding of the causes and the evolution of the subprime crisis. At a certain point (around
the summer of 2007) it became clear that there was significant pressure on the term money market. This is, more or less, the time when the Fed started its monetary intervention and lowered the interest rate (they started the easing process in September 2007). It is clear that at this time few had understood what the real entity of the crisis was. Also the causes of the problems were not clear. The scandal of the subprime mortgages was indicated as the main cause and apparently everybody seemed to think that the crisis could have been easily controlled. The Fed from its part intervened with the most classic approach: in order to calm the liquidity tensions, it lowered the Fed Fund rate. What in our opinion went wrong at this point, and also at a later stage, is that the Fed did not investigate enough on the causes of this tension. It is interesting to report what the Bank for International Settlements said about this issue:

“If tensions were caused by liquidity concerns, they would in principle be addressable by central bank actions to improve the supply and distribution of liquidity. However, if they were driven by counterparty credit risk concerns, then central bank liquidity operations would be ill positioned to tackle the problem” (Papadia 2008, p. 18)

At a later stage of the crisis, it became clear that in fact the problem was not mainly a liquidity problem but much more a counterpart credit risk problem. The reason why we observed a “credit crunch” is probably the bad state of the balance sheet of the main investment banks in the world. This spread a sentiment of uncertainty about the creditworthiness of these institutions and froze the liquidity canals. It is therefore clear now, that those interventions (the cuts of the Fed Fund rate) were not going to solve the tensions in the term money market. If you do not think that the counterpart has the capacity to pay back its debts you will not lend, independently on the interest rate.

We believe this is a central issue to be studied and analyzed in order to grasp the origins and reasons of the crisis, and we think that the Fed did not quite understand it until a very late stage.
3.5 Data Analysis

In this paragraph we will propose a data analysis which is complementary to the one we did for the previous chapter. The only difference is that here we take into consideration figures starting from 2007 until now. To be consistent and to allow for comparisons with the outcomes from 1996 until 2006 we will use the same data series.

3.5.1 GDP

The first quarter of 2007 had a real GDP growth of 0,8%, the following two quarters were again positive and in the fourth quarter the US economy had a slightly negative growth of 0,04%. The first two quarters of 2008 were again slightly positive, so that many could have argued that we were experiencing something like a soft landing. Instead the last two quarters turned out to be negative again. Especially the last quarter had a significant decrease of the real GDP of around 1,6% and the first quarter of 2009 was as bad as the previous one. We have not seen such a massive decrease in the Gross Domestic Product since World War 2 and this can be seen as the first truly global economic crisis since the big recession.

At that point it was already clear that we were in a deep recession and from the GDP figures we are not able to see yet if the downturn will continue or if there is already some light at the end of the tunnel.

3.5.2 Unemployment

During the first half of 2007 more jobs were created than eliminated; only in the second half of the year the job market started to weaken. Nevertheless the situation in 2007 did not look that dramatic and also in the last quarter the change in non Farm payrolls was positive. Instead the 2008 started out already negative and continued to get worse and worse. At the beginning of the year we had net job losses of around 100.000 per month, in December the number rose to minus 681.000. Overall more than 3 Million jobs were
lost in 2008! Unfortunately in 2009 the situation continued to worsen further with around 700,000 job losses each month in the first quarter. In April 2009 instead the number was at minus 540,000 and the market took this data as a very positive outcome. A so called green shoots. Nevertheless we take this number very skeptical as especially the public sector was creating jobs in that month (about 70,000), therefore if we cancel out the public sector, we would almost reach the same number as the month before.

3.5.3 Equity Market

The overall returns of the main benchmark indexes (the SP500 and the Dow Jones) were positive in 2007 with returns of around 5-6%. But much more important to note is that during 2007 the positive trend in the market was clearly broken. For the first time in the beginning of the summer the market dropped, but was able to recover the losses around September/October. From the end of October the market started to decrease again and this time it did not come back. As mentioned before the performance was still positive on a yearly basis, but the market has clearly shown that at that time the future was very uncertain.

In 2008 the market started out like it ended a few months before. It was a clear bear market. In the first months the markets were declining, but still functioning in a proper matter. Starting from the end of September, when Lehman Brothers one of the biggest US Investment banks failed, the market started to panic. The main indexes lost almost 30% of their value from the end of September until mid October. There was absolutely no trust in the markets anymore and the sentiment was that capitalism has failed and would have been over soon. The Federal Reserve, the SEC and the government had to intervene strongly to stabilize the markets. For example the SEC implemented short sale restrictions, the government backed many bailouts and the FED was pumping heavily liquidity into the markets. Nevertheless the markets were still very pessimistic and the sales continued. In 2008 the Dow Jones Index closed at 8776 points about 34% less than the opening of the year. The Standard and Poor’s had an even worse performance and lost 38,50% of his value.

The beginning of 2009 did not yet show any turnaround in the market. On March 6th the SP500 was trading below 700 points or to be more precise as low as 683. This
represents a historical low. To reach such levels we have to go back to 1996. In the following 6-8 weeks the marked rallied impressively and reach as much as 929 points. This increase of around 36% within a few weeks is seen by many market participants as the turnaround. Others instead are saying that we are only seeing a so called bear market rally, driven by a short squeeze and massive availability of liquidity. Analysts say that the markets were driven up, by the so called greens shoots: leading economic indicators that showed an improvement in the economic situation.

3.5.4 Debt market

The yield of short term US Government Bonds decreased heavily from the beginning of 2007 until now. The 4.5% yield of short term US government bonds investors received in early 2007, was like a dream only a few months later. Due to the collapse of the equity market the yield in the end of 2008 was only at slightly above 1%. The 10 years US T-note was trading at a 4.56% yield early in 2007 and went down to roughly 2.5% by the end of 2008.

These numbers already show how nervous the market was during the last months, but to ultimately understand how dramatic the situation was we have to take a look at the interbanking credit market. In mid September right after the failure of Lehman Brothers and the Fire Sales of Merrill Lynch to Bank of America the credit market among banks was almost frozen. The Libor, the London Interbanking Offer Rate normally at a very similar level than a short term T-Bill was trading at a very high spread. Actually right after the collapse of Lehman the interbank market was practically frozen and it was not easy anymore for banks to finance or optimize their cash structure overnight. There was absolutely no trust in the market. Everybody was buying US treasury Bills or Gold because these were seen as the last safe heavens for the money. Another consequence was that all the currencies of smaller countries were sold off and everybody was looking for the safe US dollar!
3.5.5 Chase Shiller House Price Index

The decrease in real estate prices started in the middle of 2006 and it continued at full speed during 2007. Year over Year the average prices in American metropolitan areas decreased by more than 12%. This trend continued in 2008 when the houses lost approximately 22% of their value. In the first two months of 2009 the prices were shrinking even more and it looks like the bottom has not been reached yet. Right now it looks like many Americans are again buying or looking again forward to buy real estate properties, but maybe this is the case only because the interest rate is at an incredible low level and many tend to believe that this is a once in a life opportunity to buy. We believe that this negative trend will continue for the simple fact that the foreclosures are still very high and sooner or later the interest rate will increase again and will make it more difficult to buy for those looking for a bargain. Instead there will still be enough people that have to fire sale their homes as they cannot repay the loan. This is a negative spiral, because as long as people lose their job, they will also not be able to pay back their mortgages. If people have to sell their house then this creates more losses for banks, less consumer confidence/spending and therefore less growth for the economy. If that is true then we will have to see first a stabilization in the housing market before we can see a rebound in the economy and unfortunately the Chase Shiller Indicator is not yet showing any stabilization in the housing market!

3.5.6 Summarizing

The trigger of the subprime crisis was the decline in house prices; therefore it is obvious that the first indicator showing a negative tendency was the Chase Shiller House price index. The house prices were under pressure already in 2006 and continued to lose value until today. At the beginning of 2007 it was not clear yet that the situation would have been so dramatic, but only slowly this passed over to the rest of the economy. The next indicators to react were the capital markets, first with a decrease in equity prices and then with an inverse yield curve in the debt market. These negative effects reached by the end of 2007 the job market and continued the negative performance in 2008 and 2009. The GDP reacted only at the end of 2008 and
remains very negative until today. The housing numbers are still looking very bad, but
the capital markets are already showing a rebound, that indicates that the market is
speculating that the worst of the crisis is already behind us. Normally the equity markets
start to increase around 6 months earlier than the real economy and in fact we cannot yet
see any significant improvements in the real economy. The only good thing is that the
negative numbers are getting less bad on a month to month basis. It is not easy to say if
we have seen already the bottom or not, pre-indicators are showing some
improvements, but maybe it is only a bear market rally what we are seeing in the market
right now! One thing we can definitely say is that the confidence in the financial
markets has been re-established again. After the collapse of Lehman it looked like there
was no future for the capitalism and only very strong interventions by the Government
and the Federal Reserve have prevented even more negative outcomes. Now the panic is
over, the next step should be that the green shoots swap over to the real economy, but
unfortunately it is yet too early to call for the end of the crisis.
4. CRITICISMS AND PREDICTIONS

In this conclusive chapter we want to present what can be seen as our own judgment about the issues we discussed in our thesis. The question we formulated at the beginning of our work was about the monetary operations of the Fed during the last thirteen years. We therefore start with a paragraph that responds to the general but fundamental point of whether the monetary policy during these years has been successful or not. After this broad introduction we will discuss in detail the problematic issues that, in our opinion, arose during the period studied. We will then see if, in dealing with these issues, the Fed has been able to develop over time its skills and behaviour. With the first three paragraphs we intend to judge the operations of the Fed. After completing this part we will (in paragraphs 4, 5 and 6) move on and present an economic forecast for the near future.

4.1 Has the Fed monetary policy been successful?

It is, of course, not easy to respond to such a question. Furthermore we are aware that different interpretations can be presented and that among those no one can be considered to be the “right answer”. The issue is complex and can be looked under different lenses. What we think is more rational is to start the analysis by looking at the explicit mandate of the Fed. Looking at that we will have a term of comparison so that our judgement will not be arbitrary, at least in terms of what the benchmark is. As already seen the mandate of the Federal Reserve is divided into four general areas:

- conducting the nation's monetary policy by influencing the monetary and credit conditions in the economy in pursuit of maximum employment, stable prices, and moderate long-term interest rates
- supervising and regulating banking institutions to ensure the safety and soundness of the nation's banking and financial system and to protect the credit rights of consumers
• maintaining the stability of the financial system and containing systemic risk that may arise in financial markets
• providing financial services to depository institutions, the U.S. government, and foreign official institutions, including playing a major role in operating the nation's payments system

We will now proceed with an analysis of these four objectives.

The first one calls into play three different economic indicators: the employment level, the price level and the level of long term interest rates. We start with the considerations regarding the latter. The level of the long term interest rates has been under control in the years from 1996 to today. This means that we have not seen excessively high levels of the long term rates. We argue that this “good behaviour” of the rates is not due primarily to a clever policy by the American central bank but much more to the influence played by other external forces. In particular we think that the process of globalization (that started approximately in the middle of the nineties) has played a deflationary role, therefore helping in keeping down the interest rates. We are aware of that but at the same time we do not want to underestimate the role of the Fed. For the moment we will only say that the movements of the long term interest rates during the period we are considering were under control. We therefore give a positive judgement to the operations of the Fed in this area. One thing we feel the need to mention though is that recently the long term interest rate has reached astonishing low peaks. This is not a “moderate level” and even though high levels of the rates are more dangerous than low ones, such a low interest rate can create imbalances in the economic system. We recognize this but we also recognize that given the current economic outlook, the Fed is willing to take the risks associated with low interest rates, if they are necessary for the recovery of the economy.

With respect to the price stability there are many considerations that can be made. The arguments vary a lot depending upon which prices we consider. If we consider the consumer good prices we can probably say that the inflation has been under control in the period we are considering. Therefore if we interpret this part of the Fed’s mission as
maintaining stability in the prices that regard the consumer goods we can certainly say that they had been able to do so. The problematic situations arise when we consider the price levels of other types of goods. In particular we refer to two other types of goods: the financial assets and the real estates. It is evident that during the period that goes from 1996 to 2009 there have been two situations in which the Fed did not manage to maintain stable prices in these two fundamental markets. The first speculation regards the dot-com bubble, a situation in which the prices of the assets related to the explosion of the internet business went literally over the roof. In this case it is not clear if the Fed did not want or did not manage to cool down the prices in order to maintain the stability. Another dramatic speculation is the one that happened in the US, starting at the beginning of the new millennium and concerning the prices of the real estates. This situation (which is one of the causes of the current financial crisis), represents another example in which it is not in doubt that the prices of a certain asset (i.e. houses), fail to be anchored to the fundamental value implied by the asset itself. It is therefore another situation in which the Fed lost control (given that it wanted to control) over the price level of a specific type of asset. What we think is important here is that it needs to be clarified if the Fed now a days can focus only on the consumer price index or if it has to be worried also about other types of goods (like the houses) that can influence the stability of the system. We do not want to say that the Fed did not consider at all also these prices but we want to point out two things:

1. In the Fed mission it needs to be clarified to what prices we refer when we talk about price stability.
2. The Fed did not manage to maintain price stability in the stock market and in the real estate one and this is certainly one aspect for which the Fed can be blamed.

We now move on to consider the last aspect of the first goal of the Federal Reserve: the employment level. We believe that the employment level has been under control from 1996 until the end of 2007 but that this has not been the case for the last two years (2008 and 2009). When we say that it has been under control we do not mean that the unemployment during this period has been at its desired rate but only that it did not reach dramatic peaks. Unfortunately this happened recently (in particular in 2008). What we think is the most important consideration to make at this point is that during
the Greenspan’s era the Fed did not seem to use a precise framework to target inflation (and therefore unemployment) while today Ben Bernanke seems to have recognized the need to go back to a monetary framework with explicit targets. In general we think that the question of whether or not to use a framework for the monetary decisions is important but that the use of a model cannot be considered as the magic solution for the problems of the economy. We doubt what we have read in some articles that had the Fed used a framework for its monetary policy the unemployment would have been easier to control and would not have reached the dangerous levels that it recently has. We believe that the tensions in the labour market are also responsibility of the Federal Reserve but that they are directly related to the dramatic financial crisis that hit the America and the rest of the world starting in the summer of 2007. Therefore we do not see any particular mistakes of the Fed in dealing with the labour market issues.

One aspect we would like to underline is that with respect to the labour market it is undeniable that the political power plays a predominant role. Most of the economic decisions of the government have an impact on the labour market and most of the times the decisions taken by the governments are independent from the policies and the beliefs of the central bankers. Our point here is that if we consider the level of the interest rates, the stability of the prices and the unemployment level we probably need to recognize that the latter is by far the sphere in which the central bank has less impact, or at least less direct impact. Therefore we think it needs to be used caution in blaming a central bank for tensions in the labour market.

The second goal that is mentioned in the Fed mission is the role of supervisor and regulator of the banking system. This is probably one of the most problematic aspects of the Fed’s mission. The goal here is to “ensure the safety and soundness of the nation’s banking and financial system”. After what has recently happened in the US banking and financial system we can definitely say that the Fed has not been able to do so. The dramatic stories that involved many of the most respectable financial institutions of the world make us think that the supervisory role of the Fed has not been properly managed by the institution. One can argue that until the last year and a half the banking system has proved to be stable and reliable and that if we consider the thirteen years the performance of the Fed has not been so terrible. We do not agree with this argument
because we believe that even though the tensions and the bail outs happened primarily in a short time window at the end of the period we are considering, the root causes of these dramatic situations started to manifest themselves some years ago. The bankruptcy of Lehman Brothers and the bail outs of Bear Sterns and Merrill Lynch cannot be explained as isolated events. Among the reasons that caused the crisis there certainly is the fact that some of the derivative products that these (and also other) banks were extensively using were not completely understood by the public and probably also by the regulators. We think that the Fed failed to recognize the risks related to these products and therefore failed in its mandate.

It is now evident that not only the private investors but also the banks themselves did not have a clear understanding of the risks related to products such as the Mortgage Backed Securities and more generally the Asset Backed Securities. Part of the blame goes also to the rating agencies that rated these products as triple A also at a later stage, when it became clear that the foreclosure rate on some of the mortgages that backed these assets were much higher than predicted. It is therefore clear how the responsibility for the financial disaster that started in 2007 has to be divided among many different operators. We argue that they all failed to fully understand the products they were using. That is why we are very critic also in judging the supervisory performance of the Federal Reserve. They missed, until a very late stage, the problems and the exposures of the main banking institutions of the country. If they were to ensure the safety and soundness of the banking and financial system, we can definitely say that they failed to do so.

Other considerations can be formulated with respect to the regulatory role of the Federal Reserve. Looking backwards it can be said that there were some problematic issues with the regulative framework that reigned in the system. Certainly there were some aspects of the system that could create the ground for unprofessional and unsafe behaviours. Nevertheless our considerations of the mandate of the Fed in this respect are less negative, because we think that to create a system where nobody under any circumstances can behave in a non-fair way is simply impossible. Further more other considerations can be made: the first one is that the light regulatory system that has always characterized the US economy is in line and reflects the culture of a country where the entrepreneurship and the risk taking attitude are part of the genetic heritage of
the people. The second one is that the Fed is directly responsible only for the regulation and supervision of the commercial banks. The investment banks are regulated and supervised by the Securities and Exchange Commission (SEC). To conclude the statement we want to say that we generally agree with the tendency of the US economic system to be very open to new possibilities and innovations also in the financial world. We think that the problems that arose were mostly related to a failure in the supervisory role and not to a lack in the regulatory system.

The third goal that the Fed states in its mission is to “maintain the stability of the financial system and to contain systematic risk”. A great discussion can start in the attempt of understanding what the concrete implications of this statement are. We will enter into this discussion later on in the paragraph. We first want to state our overall assessment of the Fed with respect to this part of its mission. We need to say that it looks a bit frustrating to talk about the stability of the financial system after two years in which every day we have been hearing discussions and comments about the instability of the financial markets. Everyone today could easily say that the financial system in the last two years has been everything but stable. The data clearly say that the volatility of the financial markets has dramatically increased because of the subprime crisis. This is an evident sign of instability and of nervous behaviour of the investors. Furthermore the stock market two years ago has undertaken a negative trend that only now seems to be over. Also with respect to the systemic risk we believe that the behaviour of the Fed has been insufficient. In September 2008 we have seen the collapse of one of the biggest financial institution of the world (Lehman Brothers). This caused a catastrophic reaction in the markets that rapidly manifested serious consequences also in the real economy. Apart from the collapse of Lehman Brothers, other financial institutions were put under serious pressures and we believe that after the dramatic crisis of the 1929 the subprime crisis is the situation in which the global economic system experienced the higher risk of a collapse. We therefore believe that the Fed did a poor job also in the management of the systemic risk of the economy and the consideration that now the risk of a global collapse seems over does not alter our opinion.

Unfortunately our critic to the Fed for its miss-management of the stability of the financial system does not only derive from the subprime crisis but takes also into
consideration the dot-com bubble. Also in that situation the markets experienced a deep speculation that eventually burst out, leaving Wall Street with a serious crisis. Probably the dot-com bubble is an even more interesting situation to analyze. This is because in this occasion the Fed clearly saw the mounting of the bubble and explicitly decided not to intervene to cool down the markets. The behaviour of the Fed during the Dot-com bubble is a significant situation and helps us in the understanding of how the Fed has concretely interpreted the aspect of its mandate that regards the stability of the financial system. We really see a bit of a contradiction in this part of the Fed mission. In order to maintain the stability of the financial system, the Fed would have to intervene in the case it believes that the economy is either to bold or to weak. Now we have seen many examples of interventions because of the latter situation but very few because of the former. Furthermore it is not clear to which indicators the Fed is looking at, in order to understand if the economy needs an intervention. We argue that there is a contradiction in this part of the Fed’s mandate because it is very difficult to imagine how a central banker would like to take action and curb on the economic development of a country. Apart from being unpopular this decision would also present a high level of technical difficulty. How can we be sure that a speculation is there? How are we to decide that this is the right moment to calm down the markets? Are we sure that the markets will react as expected to an intervention? These are among the issues that we would have to face. Another interesting consideration made by Alan Greenspan in his book “An age of Turbulence” is that when a bubble is there the only way to be sure that the intervention will effectively stop the speculation is to implement a very strong action. Greenspan argues that a moderate though constant intervention would not have the desired effect. Therefore the issue rises of whether it is proper to “kill the patient to cure the disease”. Of course one can argue that this is only a personal opinion and that maybe, in some circumstances, also a moderate intervention would have the desired effects. To be honest we tend to agree with the argument formulated by the former Fed’s Chairman. One occasion in which the Fed did manage to cool down the economy when it was starting to over-heat, without a brutal disruption of the system, was the so called “soft landing” that the Greenspan administration reached in 1995. In this situation, the Fed started a period of monetary tightening in order to slow down the economic cycle that was undertaking dangerous speeds. What make us sceptical, despite this example of
good intervention, is the fact that the situation the Fed was facing in 1995 and before is not comparable with the bubbles that threat the market in 2000 and 2007. In these two latter circumstances the speculation was already at an advanced stage, while in 1995 the Fed operated its tightening when the economy has just started to show signs of a possible over-heating.

We argue that this is the key ability that the Fed failed to have in the two speculations that took place in 2000 and 2007: the ability to act when the economic outlook, though still positive, started to show the first signs of weakness or of a dangerous orientation of its forces. It is not clear if this has been the case because the Fed rationally decided to “wait and see” or if the case was that the American central bank was not able to understand the early signs of the disequilibrium. In any case we think that this is the origin of the Fed failure in its attempt to maintain the stability of the financial system.

The last part of the Fed mission regards the role that the Fed has to play in providing financial services to depositary institutions, the government and to foreign official institutions. In commenting upon this aspect of the Fed’s mission we will start with the consideration that under “normal” circumstances this is probably the most straightforward among the tasks that the Fed has to perform. The situation changes significantly when we consider the recent economic turmoil. Under this very special conjunction we have seen how also this last part of the Fed’s mission is far from being automatic and straightforward. If we are to express a judgement about the Fed for this aspect of its mandate, for the period we are considering, this would be a positive one. It would be positive because we do not see any relevant tensions in the way in which the Fed managed the nation’s payment system and therefore in the relationships with the depositary institutions, the US government and the foreign official institutions. We believe that the Fed did a good job especially in 2007 and 2008 when it has been ready to react quickly to the stimulus it was receiving and has been able to properly manage the payment system of the United States even under those dramatic conditions.

This concludes the analysis of the four big concentrations in which the mission of the Federal Reserve is divided. To sum up we want to go back to a general vision of the
policies of the Fed and try to respond to the question we posed at the very beginning of this paragraph. Has the Fed monetary policy been successful?

After a careful and unbiased consideration of the Fed’s mandate, we believe that the monetary policy of the American central bank for the period that goes from 1996 to 2009 cannot be considered successful. We do not think we can be accused of being too harsh in our judgement. Despite the positive comments that we made when considering some aspects of what the Fed did in these years we think that the weight of the mistakes made in areas such as the management of the stability of the financial system, the monitoring of the systemic risk, the ability to supervise and to control over the tensions in the labour market or in the prices of some classes of goods, can justify a negative judgement of the Fed’s performance.

This concludes the paragraph about the overall assessment of the Federal Reserve for the period from 1996 to 2009. We want to recall that this was nothing but an introduction and a general tough critic review of the Fed’s performance. We will now continue with a section in which we will go into much detail about what went wrong in the policies of the Fed and therefore about the issues that, in our opinion, emerged during these years.

4.2 Problems arose during the dot-com

In this paragraph we will present the issues that in our opinion are the most significant shadows that lie over the behaviour of the Fed during the years from 1996 to 2007. This section is not to be interpreted as an exhaustive list with a detailed description of all the mistakes made by the central bankers, rather as a summary of the problematic that, in our opinion, were at the root of the poor performance of the Fed. We will analyze the years around the dot-com bubble because we think that in these years emerged the fundamental disequilibrium in the economic system of the US that would have eventually caused the subprime crisis. In a following paragraph we will see if and how the Fed approach to these problems changed during the recent economic turmoil. We will indicate four main areas of criticism, one for every sub-section.
4.2.1 Use of a framework

During the Greenspan administration the Federal Reserve decided to abandon the use of a monetary framework as a starting point for its policies. We argue that this was a bad decision. What is probably today the most common critic to the former Fed Chairman Alan Greenspan is in fact, that at a certain point in time he quit to follow the monetary rule that the Fed had successfully adopted in the years before. This was the so called “Taylor Rule”. It is of course very difficult to say with certainty that a central bank is following a precise monetary rule consequently it is also very difficult to say when it is not. We tend therefore to be very prudent in the statement that the Fed abandoned a monetary framework. Despite this preliminary remark, there are evident data that show how this indeed was the case. We want to make also another premise that we think is very pertinent to this argument, which is that when we say that the central bank uses a monetary framework we do not mean that it simply adopts the level of interest rate (or, which is the same, of money supply) implied by a formula, rather that it uses a precise framework to get a good approximation of where a predetermined economic indicator should be. This is to say that we are not so ingenuous to believe that a model can be blindly applied in such a complicated and important decision like the one regarding the cost of money. Still, if we look at the Fed fund rate in the years that are commonly known as the “Great Moderation” (approximately the eighties and the nineties) we see a very clear link with the value implied by the Taylor Rule. Also very evident is the disruption of this link approximately in 2001. We have already stated this issue in our thesis and we really believe that at that point in time the decision to abandon a model that so far had worked so well was probably not very wise. We believe that the Fed officials were aware of this decision, which was not a coincidence. Our opinion is that, at that time, the Fed believed they could have offered a better service to the economy of the country had they implemented a new approach to the decisions regarding the value of the fund rate. Evidently this has not happened. Apart from the fact that it turned out that it would have been a good idea to follow the levels indicated by the Taylor rule, we criticize the method itself. That is, we criticize the idea that the decision regarding the money supply of the country can be left to the arbitrary of some officials. Of course in such a decision there will always be a margin of discretionarily, but we believe that in
this case the boarders have been crossed in terms of personal influence (and we refer to Greenspan) on the decision of an institution that has to operate in the interest of such a large number of people. One of the causes why this could happen in our opinion is the fact that at that time the personal power of the Chairman was at its high peaks. Greenspan (with merit) was recognized by everybody to be one of the most successful Chairman in the history of the Fed and also the political power, from both sides, was happy with his operate until that point. We believe that in this occasion the question of “who is going to control the controllers” started to become a major issue in the life of the Federal Reserve. This was probably the first time in the history of the central bank in which the problem of the technical control and supervision over the decisions of the Fed become important. We think that this was the case because maybe for the first time, the political power, which has always accomplished this task, did not have particular incentives to take a critical perspective and to carefully analyze the operate of the Federal Reserve. This was the case because of the personal power that the Chairman has gained during his long mandate at the Fed.

We want to clarify that Greenspan had all the rights to do what he did in his mandate, given that there are no explicit rules about the merit of how the Fed has to operate in order to achieve its goals. We do not want to say that there should be a guideline for how the Fed has to do its job. We recognize that, depending upon the situation, there are different approaches that might lead to the best result. Our suggestion is simply that there should be a way to monitor the Fed operations in a more systematic and unbiased way. We think that what we have just stated could bring a marked improvement in the performance of the Fed. The last thing we want to say about this issue is that it is evident that to monitor a central bank is not going to be an easy task, especially because the decisions will always have a certain amount of personal judgement and because monetary policy is not a perfect science.

Our point is that, despite this last remark, the use of a commonly recognized framework as a base for the monetary decision, proved to be a successful tool and that, on the contrary, they opposed behaviour, apart from the poor results it recently brought leaves the space open for critics to the central bank (Taylor 2009b). We believe that a central bank does not have to be afraid of the critics that regard the merit of the decision it takes (these are not avoidable), but that it needs to be very careful in the case that the critics
regard the method it uses to take its decisions. We argue that a wise method to avoid such critics would be to use, at least as a starting point, a monetary model.

### 4.2.2 Proaction vs Reaction

When we analyzed the actions that the Fed took in the years around the dot-com bubble, we noted that a problem that often worried the central bankers of the Federal Reserve was whether it was proper to act in a preventive manner or whether the intervention of the central bank was justified only in the case that a critic situation was actually in place. Of course this problem refers only to what we could define as “exceptional situations”, that is situations in which it is clear that an extraordinary action is needed. The issue is not easy, especially because it is related to some political considerations that can alter the equilibriums in place. In this paragraph we will first see how the issue raised and the general considerations that can be made from an economic perspective, finally we will spend some time on the political implications that we have briefly mentioned.

Let us start with the analysis of how the problem that we have named “proaction vs reaction” came to our attention. This happened when we read the policies that the central bank adopted in two occasions in the second part of the nineties. In the first occasion (in 1995) the Fed started a monetary tightening because the indicators showed that the economic system would have been in danger had the business cycle kept on growing at the same speed. In this situation therefore the Fed step in and took action in what we would call a “proactive” manner. This means that they actually acted in order to guide the economy towards a more balanced growth. It has to be given credit to the Fed because in this occasion they really reached the goal, so much that during the second half of the nineties the US knew one of the most long and incredible economic booms of his history. The second situation that made us questioned ourselves is related to the first one. It is the behaviour of the Federal Reserve at the end of the nineties. In this period it was pretty evident that a financial bubble was mounting among the technological shares. Alan Greenspan publicly recognized that what was happening at that time was a speculation, but he did nothing to curb on the bubble. The proactive attitude that he manifested a few years before was not there anymore. He justified his
decision with the argument that it was not the job of the Fed to say whether a stock was overvalued or not. The impression we had was that he wanted to scare the economic operators so that they would have taken the necessary adjustments. In other words he did not want to take direct responsibility; he did not want to intervene until the situation did not leave any other possibility. This behaviour is what we intend when we talk about reaction, reaction in the sense that the Fed reacts to a crisis when the crisis is there as opposed to the policy of a central bank that is willing to act to orientate the economy in order to anticipate and avoid critic situations.

Now given that these are two possible ways in which the central bank can tackle the situation it faces, we would like to argue that if the mandate of the Fed is also to “maintain the stability of the financial system and contain systemic risk”, the central bank has to take action in case it sees a situation that can create imbalances in the system. The famous “Irrational Exuberance” speech by Alan Greenspan, the one in which he recognizes the speculation while “de facto” saying that it is not the duty of the Fed to intervene, in our opinion represents an example of poor understanding of the real mission of the central bank. To leave a speculation to mount can create dangerous imbalances that, once the bubble has burst, can have dramatic effects, much more complex than the simple depreciation of an asset. We believe that this was the case with the dot-com bubble and more importantly we believe that this is also the case with the current subprime crisis. In both cases the Fed was facing situations in which some markets (the stock one in the first case, the real estate one in the second case) presented evident signs of disequilibrium. Despite this was evidently recognized also by the Fed, its decision, in both cases, was not to directly intervene to calm down these markets.

The results of these decisions are now evident to everybody. What started as a problem in a particular market is now threatening the overall economy of the country.

Under the light of these dramatic developments we say that, because of the increasing interdependency among the different aspects of the economic system of such an advanced state as the US, to let an imbalanced situation to growth is a tremendous mistake. We believe that the recent developments in the financial engineering field, which have granted many interesting opportunities to both the companies and the investors, have also helped to reduce the distances between different sectors and have augmented the interconnections among different financial markets. This is among the
reasons why while the dot-com bubble did not have, apart from the stock market, heavy consequences, the subprime crisis is now threatening the overall economy of the world. The most important consideration at this point, in our opinion, is the following: “are we sure that the Fed has enough power to effectively direct and control the imbalances that sometimes we observe in the economy?” As always we do not have easy answers. The problems arise because the tools needed to solve a situation in a specific ambit can be very different from the ones needed in another ambit. Are we sure that the Fed has enough tools to influence the economy in all the different faces it presents? To be honest we would say that we are not. Even though we are dubious about this, we believe that the majority of the times the real issue is not that the Fed does not have enough power rather that it is not willing to use it. So to the question that the Fed cannot be blamed for something if it does not have all that it takes to solve the situation, we respond that certainly sometimes the action of the Fed alone will not be enough, but that this does not exempt it from intervening.

Now that we have discussed the economic aspect of this critic, we can focus a bit on the political side of it. After having suggested that the Fed would reach better results if it learns to act in a proactive manner we cannot avoid the discussion of whether this is licit and justified also from a political point of view. This is because to act in a proactive manner could be interpreted as an attempt by the Fed to direct the economy. Of course this would have political implications at least for two reasons:

1. It would partially overlap with the role of the Treasury
2. It would pose the question of whether it is allowable that the economy is driven and oriented by a public institution

We personally think that these are important issues and that, because of these, very few people in the US would agree with our point. Despite this we still believe that we were right in proposing what we did. We think that the turning point is to limit the situations in which the Fed acts in a proactive manner to the ones that, for some reason, present the potentials of being critical to the economic system of the country. We believe that this solution would be a good compromise between the need to contain systemic risk and maintain financial stability and the one of not impeding or influencing the economic activity of private institutions. Furthermore we believe that in a framework that needs radical changes, like the one that will come out of this crisis, a good way to avoid the
risk of using too much rules and regulatory institutions, is to give the explicit input to intervene to the Fed in particular predetermined situations, while keeping a light regulatory system. We believe that the most difficult aspect the solution we just proposed would present is the need to find a shared view about the situations in which an intervention by the Fed is justified. We think that, because of the ever-changing economic landscape, the best compromise would be to leave these specifications very general so that they would be adaptable to the different problems that can emerge over time.

To conclude this paragraph we would like to mention one more important aspect. If the Fed is to intervene in case it recognizes a critical problem in the development of the economy, a fundamental issue would then be to monitor that the central bank is not “influenced” in its decisions by external forces. There is no doubt that under this scenario the Fed would have much more influence than before therefore our point is simply that the more power an institution has, the more there will be incentives for externals to put pressure on the institution to have it to act in its own interest.

4.2.3 Independence of the Fed

The third critic we will make to the Fed regards its independence from the political power. We think that we are probably not the first ones to present this as a critical aspect of the Federal Reserve. It has to be said that from a theoretical point of view the Fed is independent from the political authorities in the sense that it does not have to report directly to the president of the United States and that the president (or any other political representative) does not take part in the decision making process of the central bank. In our opinion though, the fact that the chairman of the Fed is directly indicated by the president represents a bit of a contradiction. We think that we cannot really talk about independence if the Chairman knows that his re-election depends upon the judgement of the political power. This would be a minor problem if the sphere of the political decisions and the one of the Fed decisions were separated and not interconnected. The problem is that the mandate of the Fed is full of implications for the political decisions of the government and that also the contrary is true. If we read what the mission of the Fed is, we see that without a factive collaboration with the treasury
and the government the central bank would not have the possibility to truly work for the
goals it has. This is the issue: to be independent from someone that hires you and with
whose collaboration your success depends on.
The incentive for the political power to nominate a Chairman who is “close” to its views
is therefore significant, and also significant will be the incentive for the Fed to try to
keep good relationships with the political authorities. We honestly think that this
situation can create some problems; we believe that this was the case at the beginning of
the new millennium. In this occasion the very good relationship between the chairman
of the Fed and the president of the United States brought as a consequence the following
situation: the government, because of its complete trust in the Fed representatives, lost
any will or incentive to monitor what the Fed was doing. On the other hand, the Fed did
not feel the pressure to carefully and rationally justified its operate to anyone. This is
the risk that the American model of interaction between the Fed and the government
presents. The independence of the Fed, when coupled with an exaggerated political trust
in the institution, can cause a lack of control over the central bank, which, in certain
circumstances, might not have the right incentives to adhere to its mandate and operate
in the interest of the country. Because of these considerations we think that there is the
need to find a way to more effectively control and evaluate the policies of the Federal
Reserve. It needs to be clarified who is controlling the Fed and what are the specific
situations in which the supervisors have the responsibility to intervene. If who has this
responsibility will have the capacity to pragmatically clarify these aspects the risk of
failing in controlling the Fed will be significantly reduced. We do not think that there
are not enough “controllers”, we only believe that it needs to be more carefully
specified how they have to do their jobs.

4.2.4 “Technical” mistakes

The last critic we want to make to the mandate of the Fed for the years around the dot-
com bubble does not regard a specific mistake or a strategic problem of the system. It
regards the fact that during these years the Fed has committed, in our opinion, some
technical mistakes, that is mistakes in the way they responded to some stimulus or data. We are very prudent in saying so, but looking backwards we think that it can be said that the Fed has not always done the right thing. We are aware that deciding the monetary policy of a country with such a complex economy as the US presents a number of complications that can lead to errors. We are not worried about the Fed doing some mistakes, but we do worry for the frequency with which in some periods the Fed seemed to be going in the wrong direction. It is not a matter of being perfect rather that if you do the wrong thing for too long maybe you need to change something in the decision making process you use. In particular we refer to decisions regarding the movement of the Fed fund rate for one period: the one that follows the burst of the IT bubble, from 2001 to 2004. We believe that in these years the Fed did a poor job and set the fund rate at too low a level for too long a period. Again we want to underline that it is not a fifty basis points difference that make us nervous rather the consideration that for almost three years the target fund rate was not properly set.

Previously we said that if something goes wrong for too long a period then maybe there are some issues with the decision making process. We think that this was the case with the Fed for the period we mentioned. In particular reading the minutes of the FOMC we had the impression that the problem was that the economists of the Fed focused too narrowly on the inflation and growth indicators and missed the “big picture” of the overall state of the economy. So the mistake is that even though is right to analyze the data regarding these two fundamental macroeconomic indicators, these data alone cannot tell the all story. We have talked about this behaviour of the Fed also in a previous chapter (chapter 3) therefore we will avoid to repeat all the discussion, we only want to emphasize that this was a significant mistake made by the Fed and that can be considered of the same relevance of the ones mentioned before.

With this last point of criticism we have concluded the section of this chapter regarding the most relevant mistakes made by the Fed in the time frame that surrounds the dot-com bubble. After having recognized these mistakes, we are interested in the possibility of seeing whether the Federal Reserve has been able to improve in the following years. For every problematic aspect we underlined in this paragraph we want to note if the central bank recognized it as a possible point of improvement and actively changed its
way to approach it in the years that followed. In the case they did change approach we want to see if the new method implemented granted better results than the previous one.

### 4.3 Has the Fed been able to improve?

Has anticipated at the end of the previous section the goal of this paragraph is to analyze the policies of the Fed from an historic perspective. We want to see if the approach of the Fed improved during the years 2007, 2008 and 2009, therefore in the years around the subprime crisis. We also want to see if the American central bank has changed the way in which it reacts to an economic shock.

We will first propose the aspects in which we recognize an improvement by the Fed and then we will discuss the aspects in which we still do not see any significant improvement. It is needless to say that what we present now reflects only our own views and our understanding of the situation.

The issues in which we recognize a positive development are the followings:

- The Fed improved in the ability or willingness to take strong actions when needed. One of the most important problems that we mentioned before was that of operating in a non active way, waiting for too long before taking action. We have to admit that in the years from 2007 to 2009 the Fed had the ability to implement stronger policies. We refer in particular to the fact that in these two and a half years we have observed many adjustments in the fund rate of fifty or more basis points. This is in contrast with what we were used to see in the years before when the Fed very few times moved the Fund rate for more than twenty-five basis points. We believe that this represents an interesting aspect in the development of the Fed in the sense that it tells us that they are not anymore afraid of acting in a strong way. Of course this aspect alone is not enough for saying that the Fed is now operating in what we previously called a “proactive” way and there are many other factors that has to be changed if the Fed really wants to be considered active in this sense. Later on, in the section devolved to the analysis of the issues in which we have not still recognized a positive
development by the Fed, we will mention some of the aspects that in our opinion need to be changed if the Fed really wants to change this attitude.

- The second consideration we will make is related to the first one and regards the very recent signals that the US government is giving to the system. In particular we refer to the “Financial Regulatory Reform” that the government has submitted to the congress on the 18th of June 2009. One of the pillars of this reform is the new role that the Fed would have. As a premise we need to say that this reform has not been yet converted into law as when we are writing these pages, therefore we are not a hundred percent sure that what we read as a proposal will then be the actual reform. We still talk about this reform because we believe that the intent of the government is clear and will not be altered despite there can be some changes in the content of the reform.

We believe that in the part that regards the new role of the Fed this reform tries to address some of the issues that in our work we indicated as fundamental. We refer to the fact that the government wants the Fed to expand its controlling authority, in particular in the intent to more effectively control the systemic risk of the economy. They have to have recognized that without an explicit mandate the Fed did not have the authority and interest to control and intervene in the case it recognized situations that could have altered the equilibrium of the system. Our impression is that the political power, after the subprime crisis, understood the need to have someone to vigil upon the systemic risk of the economy, and thought that the Fed could have been the most suitable organization for this role.

- The third aspect in which we see a positive development in the behaviour of the Fed is that after the election of Ben Bernanke as the Chairman (which happened in 2006), the attitude of the central bank towards the use of a monetary framework changed significantly. Bernanke immediately after the election seemed to be willing to adopt an explicit inflation target and this intent, in our opinion, was very positive. Because of the financial turmoil and of the extraordinary measures that the central bank had to implement it is today very
difficult to talk about targeting a desired inflation level. Despite this we do think that the Federal Reserve after a few years in which thought that adopting an explicit rule could limit its impact, eventually felt the need to go back to a rule that could be recognized by every economic operator. We strongly believe that this represents a very positive development for the Fed and for the system in general.

We now consider the critic points:

- The first thing we want to say is to complete the discussion that we started above about the improvements of the Fed in the ability to take strong actions when needed. We previously wrote that in the years of the subprime crisis the Fed did a better job than before because it had the bravery to move the fund rate also with stronger actions. We have to say that despite this positive behaviour, we are still critic with the Fed. This is because in our opinion the Fed failed to operate with timely actions and waited for too long before stepping in and trying to restore the equilibrium. The Fed started the easing policy consequent to the crisis with a dramatic delay. In our opinion this was the case because the policy makers were unsure about their rights to intervene in order to direct the economy. As we stated before we believe that this doubt is natural and healthy under normal conditions, but that, once extraordinary situations are recognized, the Fed needs to rapidly intervene to limit the effects of the contraction.

- The second aspect in which we have not seen a clear improvement on the side of the Fed is in what we previously called “technical mistakes”. We therefore argue that the Fed, also during these years, has to be held responsible for a set of decisions which are, at least, questionable. What worries us is that also this time the root of the problem seems to be the fact that the economists of the Fed focused too much on some economic indicator that, though relevant, could not tell the all story. They therefore failed to have a broad and general view of the economic situation of the country and missed the dangerous disequilibrium that was mounting in the US economic system. What makes us think that this was
the case is for example the late reaction that the Fed officials had when the housing bubble started to burst. The first move that the Fed did in the direction of easier money for an economy in which the equilibriums were starting to collapse, was only in September 2007, while few months before all the indicators of the crisis were already there.

The impression we have is that the Fed does not understand that its mandate is so general that its priority has to be to have a good overall understanding of the economic situation not only of the United States, but of the entire world. If the Fed fails to understand this and focuses mainly on some economic indicators, then it will not properly stick to its mandate. Everybody knows that measures such as the inflation or the GDP are fundamental for the understanding of the economic outlook, but, in today’s economic environment, there are also many other indicators that need to be considered. Not to consider these is a terrible mistake and gives a misrepresented vision of the reality.

The last aspect we will mention regards the independence of the Fed from the political authorities. We believe that in these recent years the situation has not changed significantly and is still critic in the sense that the agency problems that we previously pointed out are still present. We think that the overall economy would benefit had the Congress the capacity to reform the system of relationships and connections between the political power and the central bank. Unfortunately this has not been the case so far. We believe though that this historic situation, which calls from changes in many different aspects of the economic and political system, would be a preferred moment for trying to produce some of the changes needed (Bernanke 2009).
4.4 Is the Fed monetary policy going in the right direction now?

The scope of this paragraph is to understand if, from a macroeconomic perspective, the direction that the Fed has currently undertaken is justified or not. For a moment we will not look at the past behaviour of the Fed, instead we will see if the general direction that the Fed has undertaken makes economic sense. We present this paragraph because we think it is important to give a judgment about the way in which the Fed is now operating. In the first paragraph of this chapter we did pretty much the same for the past operations of the Fed. Now we want to look at the present and at what can be inferred for the future.

The central banks all around the globe were carrying out an aggressive expansionary monetary policy in the last quarters. These actions were necessary due to the turmoil in the economy after the burst of the subprime crisis. The interest rates have decreased to historical low levels and massive liquidity has been injected into the market.

One of the main questions at the moment is if we have already seen the bottom of the downturn. This very general issue is in fact one of the main triggers for the monetary policy. The strategy behind the current actions of the central banks was simply to fight against this severe recession. Basically the central banks and especially the FED have done massive interventions to prevent the financial system from the collapse. The liquidity injection was thought to prevent a deflationary scenario like we have seen in the great depression. This strategy seems to have been successful so far, but is it already time to look forward or is it too early to make predictions? Mario Draghi governor of the Italian central bank and president of the financial stability board, on June 16 said that it is time to think about an exit strategy from this expansionary policy (Draghi 2009).

This statement shows that the current situation is quite difficult, because it is too early to actuate the so-called exit strategy, but probably we will see again a very dramatic situation will this exit program be implemented too late.

The main fear of the global financial community is that the economy will rebound because of too much liquidity in the markets and we will see a very high inflation.
Currently the deflationary scenario is still prevailing, but as we have never seen such a massive liquidity injection we do not know how easy or difficult it will be for the central banks to take back the liquidity in excess that is now present in the system. As it is very difficult to see in which phase of the current crisis we are, from our point of view it is too early to actuate an exit strategy, but it is time to work on it and to start thinking about such a solution. We think that a good framework for an exit strategy would be to prepare a clear picture of the different possible scenarios with some kind of guideline stating what to do under the specified scenarios. During the worst part of the crisis the decision had to be taken within a very short timeframe. There was no guideline and no plan, but the main actors, Ben Bernanke and Henry Paulson (Former Head of the US treasury), had to take decisions based mainly on their discretion or, better, their understanding. We think that nobody has the possibility to be sure about how the global economy will look like in a few months. Too many variables are in play here. Therefore the regulators and the central banks need to prepare different exit strategies for the different shapes that the economy could have in the future.

Actually it seems that there are some signs that the FED and the Obama Administration are heading into the direction of building some guidelines: the stress tests that all the major US Banks had to take included a scenario analysis. Many say that the stress tests were nothing but an orchestration for the media and the population to show that the government had everything under control, but in any case we think that it was a step in the right direction. Because of this and because there have been signs that the Fed and the other central banks have understood the importance of preparing a monetary and economic strategy for when the depression will be over, we think that the Fed is now operating in a meaningful way.

In the two following paragraphs we will propose our own judgements about the discussion that is at the heart of our thesis: now that we have expressed our ideas about how the Fed behaved in the period that we consider and about the direction that is now undertaking, it is time to present our views about what can be done in order to quickly recover from the crisis and to avoid a future turmoil. Naturally this discussion takes into account also non monetary issues. We will discuss them as well because the intent of
our thesis was to analyze the monetary aspects and to use them as a base to develop also more wide conclusions about the current crisis and the future of the economy.

4.5 Economic predictions for the near future

In the last few months most of the Medias have been very optimistic about the economic outlook. One of the most famous economists, the former winner of the prestigious Nobel Price Paul Krugman, recently said that the crisis will be over by the end of 2009 and that we should start to see a recovery already by the beginning of 2010. Only a few months ago the economic world was close to a melt down and now everybody is optimistic again. We are asking ourselves where is all that fear gone and why?

It is impossible to make a clear prediction of the economic future and even if it would be, then it would not be us to do so. What we think is smarter and more relevant is to look at some important points and facts that could influence the short term economic future. In other words, instead of saying how the world will look like, we want to identify which variables need to be carefully considered as important indicators of the economic situation.

4.5.1 Commercial real estate

The downturn in the prices of residential real estate’s was the trigger for this economic crisis. As we can see from Figure 5 and have already discussed before, we are still not confident about this sector. Even if we do not believe in a fast recover of this segment we have to say that we can see that on monthly basis the prices are bottoming. Furthermore most commercial and investment banks have already written down a consistent part of their related assets. Therefore we do not expect any further major impact on the overall economy.
The situation looks much more negative in the commercial real estate sector. The increase in prices has not been as massive as in the other sectors, but on the other hand the financial institutions have still a huge exposure related to commercial real estates. Commercial real estate’s are more stable as the rental for residential businesses have usually longer terms. That means that a short economic crisis should not really affect the commercial real estate prices as the companies have longer term contracts and the construction companies simply do not build anymore. The problem arises when the downturn is longer and deeper, because that would mean that slowly more and more rental contracts are expiring and will only get renewed at lower prices. A longer recession would also create the problem that more and more businesses would go bankrupt and could not honour anymore their financial obligation with the real estate company. Companies will also be very cautious in renting new office spaces because, even if they need it, they know that they would get the same office for less money in a few months. Therefore we are a bit scared about the commercial real estate in the US and not only there. From our point of view it only takes longer until the problems emerge, but the issue is there and can be as painful as the residential real estate one.
4.5.2 Consumer spending: private vs. public debt

The main driver for the world economy in the last decade has been the American consumer. Thanks to the continuative and massive consumption of the US citizens it was quite easy for American and also for European and Asian companies to sell their products. A big contribution to finance all these expenditures came from borrowing in the private sector. Due to the crisis the savings rate of American families has increased sharply and the private borrowing went into the negative territory. This stop in consumption was off-set by major stimulus packages of the US government as we can see in Figure 6. We do not believe tough that such a massive public debt level is sustainable in the long term nor do we believe that the asset allocation of the public government will be effective in the long run. Therefore it will be critical for the US economy to see if the willingness to consume will come back soon or not.

*Figure 6: Government Replaces the Consumer. Rise in Government Borrowing Offsets fall in Private Borrowing. Long term view from 1952 to 2009; Change in % (YoY).*

The government is definitely trying everything to allow again private households and corporations to borrow money. There are government sponsored re-mortgage campaigns
and other initiatives that have the only goal of bringing the American citizen to spend its money. This represents a determinant aspect of the current crisis. What would happen if the American people will lose their willingness to use their credit cards? This could have dramatic effects for the economy.

The next issue we identified is how to reduce, in the medium and long term, the public debt level. We are not big fans of public stimulus packages, but probably this time they were more than justified. Unfortunately as the public budgets were already under pressure due to smaller tax incomes (especially in the US), this additional spending will increase drastically the public debts. Figure 7 shows the US budget deficit compared to other crisis. The picture is clear. It is something never seen before not even in the great depression.

*Figure 7: US Federal Budget deficit in the last recessions*

![Graph showing US Federal Budget deficit over time](image)

Source: Council on Foreign Relations, US treasury

The government is doing so, because it wants to avoid a new great depression. Countries like the United States, the United Kingdom and Germany that had relatively low overall debt level compared to their GDP, increased this figure drastically. The new forecasts of the German finance minister estimate a deficit of roughly 80% of the GDP within 2010. Nevertheless these countries are still better off than the “PIGS”. Portugal,
Italy, Greece and Spain already had a high Public debt level and therefore cannot even make very strong stimulus packages.

Therefore a central issue is: “how can this very high debt level affect the future?”

In the most positive scenario, we would expect the economic recovery to be very fast (in a V-Shape) as it was the case for the last economic recessions. The GDP growth and the tax income would increase drastically. In such a situation the central bank could also decide to target an inflation level between 2 and 5 percent in order to reduce the debt level. We think that this would be necessary in a long term in order to reduce the debt levels otherwise we could see another very big problem soon, only this time concerning not a business but an entire country. If that was the case this could threaten the EURO if it was a European country to be under stress or it could even lead to a collapse of the entire economic system if the United States were the country troubled. Obviously we do not believe that the United States will ever go bankrupt, but we would not exclude it for other countries. We have already seen Latvia and Island in very deep troubles. Ireland, Hungary, Ukraine or even one of the PIGS could be the next candidate.

What we think will be the most probable scenario though is something similar to what has occurred in Japan in the last decade. We expect a longer period with only very moderate or zero growth and also a very low inflation and an extremely high public debt level. The main problem once you are in such a situation is that it is very difficult to come out of it again.

4.5.3 Leveraged Buy Outs

Leveraged buy outs are called special merger and acquisition activities and their main characteristic is that a high proportion of the paid price is finance by debt. LBOs are mostly done by Private Equity houses or by the Management of the company (Management Buy outs).

The strategy behind such deals is that the acquiring company believes to be able to create added value by acquiring a company and that the target company is able to
generate enough free cash flows to pay back the debts of the acquisition. Obviously the deal is only profitable if the company is able to generate more cash than needed for the debt payments. The buyers are normally using M&A advisers that help the companies in the operations related to the acquisition. They mostly support in legal and due diligence issues and very often they also organize a bridge loan for the acquisition. Generally these bridge loans have to be re-negotiated or paid back within 1-3 years. In this paragraph we are talking about Leveraged Buy Outs, as we have seen a lot of such deals in the world in the last years, especially from 2004 to 2007.

Many of these deals are due to re-financing in this period. LBOs are very complicated contracts and everyone is different, but normally they need to be refinanced and they have many covenants (debt restrictions, minimum cash flows, D/E Ratios). When such a covenant is not fulfilled then the companies have to pay a penalty or the banks can call the loans back. We think that this could be a major issue for the coming months, as many companies now have to re-finance their loans and some of these companies probably have also some operational problems right now. The re-financing could be very difficult for many companies and may cause some major defaults. We have already seen Chrysler filing for Chapter 11, and we know that it was acquired by Cerberus only a few months ago. In Germany we see the Schaeffer Group having massive problems with the acquisitions of Continental. Again in Germany there have been problems with ProSiebenSat1 and we could find plenty of such examples!

4.5.4 China

China has been the star of the emerging countries in the last ten years. The growth rate that China had in the last years was at levels that were not even imaginable for the majority of the western economies. The country in the Far East was benefitting a lot from the globalization and we can say that it was one of the biggest drivers of the world economy. Although most of the goods produced in the Republic of China are consumer goods that are exported especially to Europe and America, it looks like, despite the
recession, the economy in China is still growing. Official figures show that China’s GDP is still growing by more than 5% per annum. This fact was very positive for the stock markets and for the overall sentiment, as everybody was scared that also China was hit very hard by the crisis. We were also very optimistic after we saw the positive figures coming out of China, but we had a closer look at them and we are now not 100% sure that we can fully trust these numbers. Looking at the exports that are not growing and at the electricity consumption (see Figure 8) that has decreased by almost 10% it is very hard for us to imagine that a country is still able to growth by more than 5%. Therefore we think that there could be a negative surprise coming out of China in the following months and this would obviously have some dramatic effects on the world economy as it would mean that also the last economic engine is not working properly. Bad economic performance could also bring social problems in China and this would have a very negative echo for the economic performance of the country.

*Figure 8: Comparism of GDP growth, export growth and electricity production in China*

![chart](source: Saxo Bank)
4.5.5 Eastern Europe

The central and eastern European region has shown a very strong GDP growth rate in the last years. The fall of the Berlin Wall was the starting point of a new economical era. In 2008 the CEE region had an annual GDP growth rate of 4%. In 2009 though the analysts of Unicredit Eastern Europe division expect a contraction of 3.5%. From being one of the main engines of the world economy, the CEE region has become one of the main risk factors. Countries with wide external financing gaps will continue to face the most meaningful downwards pressure on economic growth, higher risk of skeletons in the closet and more challenging market prospects. This group includes the Baltic States, Bulgaria, Hungary and Ukraïne (CEE Quarterly 2009).

The diversity within the CEE countries is huge, but during a crisis the markets tend not to distinguish between them. Some countries like those mentioned above are really facing very critical economic situations and we believe that a strong further support from the IMF or the European Union will be needed in order not to let these countries to collapse. A collapse of one of these states would again increase dramatically the situation in the markets and we think it would create a situation similar to the one we experienced after the Lehman crash. Therefore we are also convinced that the international community will not allow a country in the CEE region to fail, as the consequences would be dramatic and difficult to predict. The consequences would affect first of all the other CEE countries as scared investors would withdraw as soon as possible all the funds. Austria would probably get hit almost as hard, as their banks have a massive exposure in the former soviet economies. The same is valid for Italy and Germany that also have massive exposures in the financial markets of the CEE countries.

This concludes the list of the key factors that, in our opinion, will determine the behaviour of the economy in the following years. We now move on to consider what the Fed and the policy makers should practically pursue in order to boost a recover of the economy.
4.6 What to pursue

Everybody is talking about a recovery; we want to talk about what is necessary to see a recovery. Again these are only some of the points, but we think that these are the most important ones. We shortly try to describe them and to articulate and suggest a solution to find a way out of the current crisis and prevent the system from further turmoil.

4.6.1 New supervisory authorities

The most important aspects that have to be addressed in the short term by the central banks and by the governments are the financial stability and the consumer confidence. Financial stability and transparency are necessary to avoid panic in the financial markets. These markets can only work properly under normal circumstances, moreover if the markets are frozen the real economy will suffer tremendously. Therefore step one has to be to calm the participants. So far we can say that the markets have almost reached normality again, although we think that this situation is very fragile and we do not need much to come back to the very dramatic scenarios we have seen before. A protocol released by the Financial Times Germany shows the details of the dramatic rescue of the German lender Hypo Real Estate. The Hypo Real Estate Bank is a group engaged in public financing and in the Repo business (Pfandbriefe). The main strategic problem was that the company was lending long-term and refinancing short term in the interbank market. Due to the financial crisis the Munich based bank was not able to re-finance itself anymore and asked for government support. The German government though was not willing to guarantee for a substantial part of the debt for the Munich based bank. The officials from Berlin and the BaFin (Institute for banking control in Germany) wanted the private banks to take the biggest chunk of the of the rescue program.

From the so far secret document we can see that the top executives of the biggest German institutions were not willing or, as they said, not able to safe Hypo Real Estate. In this case we see how close the world has been to experience the bankruptcy of
another big financial institution. It is evident that a collapse of that bank would have caused also a failure of Deutsche Bank and/or Commerzbank.

In a Sunday meeting the participants were under intense time pressures, because, due to a liquidity shortage, the Munich based bank had to refinance a substantial part of its balance sheet in the coming days. With a failure of the rescue plan the only possibility for Hypo Real Estate would have been to file for insolvency. A few hours before the opening of the stock exchange in Tokyo still no solution was found as the government was not willing to commit as many funds as apparently needed. The CEO of Commerzbank stated once more to the German government to intervene because such a bankrupt would have caused a domino effect on the others German banks. Mr. Ackerman, CEO of the German’s biggest institution and global tier 1 Investment bank “Deutsche Bank” said that if its institution would have taken a bigger part in the rescue plan of Hypo, its rating would have been downgraded and this would have created a massive bankruptcy risk. (Financial Times Deutschland 2009). Approximately thirty minutes before the trading day started in Tokyo the talks were that a failure was not avoidable and the board of the Hypo Real Estate was already preparing the note to the market in which the bankruptcy was declared; the Irish Central Bank and the German central bank were already informed. Only five minutes after the trading started in Tokyo the German chancellor agreed to bail out the bank and five minutes later this was communicated to the market.

This protocol seriously shocked us, because we did not believe that it was possible that a government would let another big bank to go burst. This document shows how close we were to another catastrophe in the financial markets and probably how close we still are. Therefore we really think that a serious reform of the overall financial regulation is necessary, and in particular what is needed is a bigger coordination. We are sure that if in the United States such a critical situation happens then the President, the Chairman of the Fed, the head of treasury and a few more people will take the necessary decisions in order not to let the institution to go bankrupt. We are not so sure about the reaction if another similar case happens in Europe. So far we have only seen cases of banks being bailed out in countries like the UK or Germany. Fortis was saved by the Benelux countries, but what would happen if a multinational bank collapsed? Probably it was a fortune that the US, UK and the German banks had the biggest problems as we cannot
imagine who would have saved Erste Bank or Raiffeisen International as their country is too small and the European Union would have needed too much time for such a tough decision.

The solution can only be to install an international body that is enforced and has the power to act and to prevent such cases. The International Monetary Fund is too bureaucratic and we also do not believe that the OSCE would be the right figure. We suggest that a separated US a European and an Asian financial supervisory and regulatory body should be in power in such cases and that these institutions should work very close together. They should be empowered to bail out also big banks without being influenced by the political power. We do not think that a global organization is feasible and realistic; the United Nations are a good example for inefficiency and political games.

4.6.2 The end of “Too Big To Fail” institutions

The expression “too big to fail” is referred to financial institutions that are critical for the entire system and whose default or bankruptcy would have dramatic effects for the economy.

During the last month some institutions have been bailed out by the US government and the Federal Reserve. Others instead have not been seen as fundamental for the system. The first institution that was merged thanks to the support of the FED was Bear Stearns. Shortly after a bigger bank than Bear Stearns, Lehman Brothers was not bailed out. The former CEO of Lehman Dick Fuld said at a hearing at the congress that he still cannot understand why only his Bank has not been bailed out. The collapse of Lehmann Brothers was comparable to a heart attack for the global financial system, after this event many financial intuitions came close to the collapse. To preserve the world from a financial meltdown the government and the FED had to step in aggressively and to bail out many US financial groups like AIG, Citigroup, and others.

We are not criticizing the bail outs, actually backward looking it would have been wise to safe also Lehman Brothers, but we are saying that the FED should now take care that something similar will not happen anymore. From our point of view one of the easiest ways to achieve this would simply be not to allow anymore a financial (but also non-
financial) group to become too big to fail. We have already seen some similar comments from the president of the Swiss national Bank Hildebrand. Instead in the United States we see the formation of new giants. Bank of America and JP Morgan Chase have become the successor of AIG and Citigroup in terms of importance and market share; we do not think that such major aggregations are bringing any advantage to the society. From our point of view it should be considered to split up these institutions as they significantly increase the systematic risk. Outside of the United States we have already seen what can happen when banks are becoming too big. The financial system in Island was too big compared to the whole economy and the state defaulted in the attempt to save the system.

The Credit Default Swaps for Austria, basically the premium you have to pay for insuring against a default of Austria is higher than the CDS premium for Italy or Spain although the economy in Austria is solid compared to the Italian one. This means that the market does not like the huge exposure of the Austrian financial system to the Eastern European countries. There is a massive systematic risk and the Austrian government would probably not be able to safe his financial system if the crisis in Eastern Europe would deepen. Another country that is facing this risk is Switzerland, the country known as the heart of banking and wealth management due to its banking secrecy, could probably not react on massive problems of UBS or Credit Suisse. The same is true for France with the giant Bnp Paribas and for Spain with Banco Santander.

The whole Credit Default Swaps Market was based on a few simple assumptions. The most important one was that the American International Group (AIG) could not fail. The second one was that all the risks are calculable and measurable by prediction models based on historic data.

In the late 1990 and the beginning of 2000 the US insurer under his long term CEO Greenberg started to launch the Credit Default Swaps. First the company started to insure only plain vanilla company bonds, but slowly the company started also to insure structured products like CDOs and subprime loans. The idea behind it was very simply and comparable to the normal AIG business. Insure against a negative scenario that you do not think will occur and collect the premium for it.
AIG started to write Credit Default Swaps worth 440 billion dollars and collected premiums for it (Davidson 2008). AIG was a name that everybody trusted. One of the biggest financial institutions and obviously triple A rated. The US insurer was mostly not hedged against its exposure; basically they were simply hoping that nothing negative would have happened as the amount of insured assets was not in any relation with the size of the company. In other words it was very clear that AIG could have never covered the claims. The main problem was that while the economic situation was getting worse and the company was making some losses on the CDS also the rating agencies started to downgrade the insurer. A downgrade means that the counterparts need more collateral (Cash) and once such a negative circle starts it is really difficult to stop. Only a massive equity injection or, as we have seen in this case, a state guarantee can solve the situation.

The question here is again was it necessary to commit more than 150 billions USD taxpayers money to safe AIG? We think so, it was definitely necessary as otherwise its bankrupt would have caused a final melt down in the financial markets. Only by taking a look at who have been the major counterparts of AIG shows that a lot of companies would have had massive problems. CNN reported that the following financial institutions were the most exposed against AIG. Societe Generale (France), Goldman Sachs (USA), Merrill Lynch (USA), Deutsche Bank (Germany), Caylon, Credit Agricole (France), UBS (Swiss), Barclays (UK), DZ Bank (Germany), Bank of Montreal (Canada), Rabobank (Netherlands), Royal Bank of Scotland (UK), Bank of America (USA), Wachovia (USA), HSBC (UK) (Loomis 2009). From these names we can only imagine what would have happened in the case of a collapse of AIG. How was it possible that a company was able to take so irresponsibly such a massive risk position? We think one reason was because AIG was too big to fail. It was not imaginable that AIG could ever collapse and therefore everybody trusted them. Also the business model of AIG was based on that, they did not consider that they could have lost their triple A rating and would have problems in re-financing. In this specific case we also would not completely exclude fraud, as we cannot imagine that nobody at AIG
was aware of this critical situation. We are sure that there will be many investigations about this and we are curious to see what the result will be.

### 4.6.3 New regulations for off balance sheet vehicles and Hedge Funds

To avoid that banks use again off balance sheet vehicles or that hedge funds try to escape the legislation we would propose that only assets that are respecting a regulatory framework imposed by these newly created international bodies can get a credit rating. Without a decent credit rating they could not get easy credit. Many investors would not be willing or allowed to invest into non rated assets or funds, because this would let to negative effects from a capital requirement point of view. So if somebody still wants to have an entity outside of the legislative framework that is fine with us as long as it does not damage the whole financial system. A fund without leverage cannot be really dangerous to the system and banks would not lend money to a non rated fund or instrument (at least not massively), because it would be penalizing for them accordingly to Basel 2. Obviously if the practice will show that this solution is not working then the supervisory bodies will have to find out further restrictions in order to avoid such bad behaviours.

### 4.6.4 Reform the rating agencies

The next big problem we see is related to the rating agencies. There is no doubt that they have completely failed. We think that the biggest problem in this field regards the fee structure. A whole thesis could be written about this but this is not our intention, we only want to point out that this is one of the key aspects of the current crisis. An idea could be that the rating agencies are remunerated based on their performance. For example should the credit default swap for a company rated with the highest rating become higher after a certain period than a peer group of companies with the highest ratios then the rating agency should have to pay a penalty. This money could be used by the regulatory bodies for the necessary future bail outs. This suggestion is very plain vanilla and not detailed, but the general idea is not to remunerate the rating agencies
simply by the amount of companies or assets they are rating. Instead we would like to see a clear link with performance.

4.6.5 Confidence

Jean Claude Trichet recently said in an interview (Reuters 2009) that confidence is necessary to start an economic recovery. We really believe that this is the most important issue. The stability and the other issues mentioned above are the based on confidence.

A turnaround in the consumer and industrial confidence will stop the negative circles. So far we have seen people spending less money as they are scared that the economic future will get worse and they may lose their jobs. Due to lower sales the companies have started to reduce capacity and workforce. Only if the people will be optimistic again and start to buy more goods the companies will stop to reduce the workforce and some will also start to hire again new staff. A really trivial number shows how serious the situation is. Figure 9 shows the Vehicle Distance Travelled in Million of Miles. The amount decreased by almost 10% in the last months. That is something that has never happened before and it is not only due to the gasoline prices. It is clear that the confidence is missing if the citizens are saving money on driving.
The question is about what the government can do in order to restore this confidence. One of the most important things is leadership, if you have a government that is proactive and in which everybody trusts then people will be more optimistic. So far we have seen many public spending and incentive programs. Generally this could be positive. The only problem that we see is that the government allocation of funds has not been so successful so far. Therefore the best solution would be to bring the citizens again to spend and the companies to invest. Fortunately the consumer and industrial confidence indices are already starting to increase again, and even though they are still at a very low levels, the direction is the right one.

4.7 A Final Word

To sum up this chapter and conclude our thesis we want to recall the most important aspects that emerged from this final chapter which are our own contribution to the field we have studied.
After having individuated the most important mistakes that the Fed committed during the dot-com bubble, we have seen if the Fed has been able to improve in dealing with
these critical issues during the subprime crisis. With this respect we found some evidence that the Fed has made some positive changes in the way it is tackling the current crisis when compared to what it did for the dot-com bubble. In particular we believe that the most important aspects in which the central bank made some very significant steps are:

- The willingness to intervene (also with strong and ad hoc actions) in order to direct the economy when it recognizes that this is needed
- The understanding of the need to find a way to more effectively control and monitor the systemic risk of the economy

So these are the aspects in which we see the Fed undertaking meaningful developments. Because of these and other considerations we formulated a positive judgment about the direction that the Fed seems to have now undertaken. We think it is worth to point out that such a judgment was not positive at all when the subject was the Fed behaviour during the years before.

We then move on and, in order to have a better understanding about how the future will look like, we indicated what, in our opinion, will be the fundamental aspects that will determine and indicate the state of the global economy (among these we want to recall the importance of the commercial real estate’s segment and of the balance between public and private debt).

Bearing in mind the areas in which the Fed already undertook positive steps, and the decisive factors for the economy, we were in the position to propose some more suggestions to the Fed and to the other economic authorities. Among all the aspects we mentioned, we want to recall the two points that, in our opinion, will be decisive for the future stability of the economic system. The first one is the urgency to find a way to organize the economic actors so that no one will ever be considered “too big to fail”.

We think that if the Fed really wants to control the systemic risk of the country, it has to carefully consider the ways in which it could reduce the size of giants such as JP Morgan or Bank of America. We acknowledge that the Fed and the Government have understood the importance of having a clear picture of the systemic risk of the country, and we believe that what just said could be a decisive step in this direction.

The second recommendation we want to make is the necessity to create specific international bodies that have the power to intervene and to bail out companies in the
case a critical situation arises. We believe that the most efficient way to organize this would be to create different institutions for the US, Europe and Asia and that these institutions closely cooperate. We propose this solution because we think that the economic world cannot anymore run risks like the one related to the bail out of Hypo Real Estate. Such international bodies will have to be “technical players” and therefore free from the political pressures and logics that often influence the governments and the central banks.
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Appendix

Appendix 1: Equity Market Performance from 1996 to 2009. SP500 and Dow Jones Industrial

Source: Google Finance

Appendix 2: Debt Market Performance in % from 1996 to 2009. London Interbank offer rate (Libor), yield of a 10 years and 3 years US Government Note

Source: Datastream, own elaboration
Appendix 3. Unemployment figures from the United States.

![Unemployment Rate - Official (U-3 & U-6) vs. SGS Alternate](shadowstats.com)

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Source: shadowstats.com

Appendix 4: Change in Non Farm Payroll from the United States; in thousands

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Source: US National Bureau of Labour statistics
Appendix 5: Quarterly; seasonally adjusted annual rates; GDP percent change based on chained 2005 dollars

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Source: US Bureau of Economic Analysis