The Federal Reserve and the Financial Crisis
Origins and Mission of the Federal Reserve, Lecture 1
George Washington University School of Business
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[Applause]

President Steve Knapp: Well, good afternoon. I think the students here may know who I am but for those who are watching the broadcast, I'm Steve Knapp, President of George Washington University. And it's really a pleasure to welcome you to today's first class in the series entitled Reflections on the Federal Reserve and its place in today's economy, featuring the Chairman of the Federal Reserve, Dr. Ben Bernanke. I'm pleased to acknowledge that we have with us two of the university's trustees, Nelson Carbonell and Mark Shenkman, and also a number of faculty members are here in the audience and some of them will be teaching later in the series. Today is the first university lecture series delivered by a sitting Chairman of the Federal Reserve. I think it does provide an extraordinary opportunity for the students who are here in the classroom, but also for those watching online. They have an opportunity to gain insight into the nation's central banking system and a wide range of issues that affect this country and the world. I do want to say that there are microphones available for the students, and certainly encourage you when the Chairman's lecture is over to avail yourself of those and we hope there'll be a lively exchange of questions and answers at the end of the lecture. It's now a distinct honor to introduce the Chairman of the Board of Governors of the Federal Reserve System, Dr. Ben Bernanke. Dr. Bernanke took office in 2006, and is now serving a second term as Chairman. He also serves as Chairman of the Federal Reserve's Open Market Committee. Before his appointment as Chairman, Dr. Bernanke was involved with the Federal Reserve in several roles as a Member of the Board of Governors, as a visiting scholar, and as a member of the Academic Advisory Panel at the Federal Reserve Bank of New York. He also served as Chairman of the President's Council of Economic Advisers from June 2005 to January 2006.

Now Chairman Bernanke is no stranger to academia. He's been a faculty member at Princeton, Stanford and New York University, as well as the Massachusetts Institute of Technology. He's held a Guggenheim and a Sloan Fellowship, and is a fellow of the Econometric Society and the American Academy of Arts and Sciences. Chairman Bernanke received a Bachelor of Arts from Harvard University and a PhD from MIT. Ladies and gentlemen, please join me in welcoming Chairman of the Federal Reserve, Dr. Ben Bernanke.

[Applause]

Chairman Ben Bernanke: Thank you very much, President Knapp. Gee, this is great. This is what I used to do before I got in this line of work for 23 years and I've always enjoyed engaging with college students. So thank you for being here, and I hope we do have a good conversation. Let me particularly thank President Knapp and Professor Fort and George Washington University. As everybody here knows, these lectures are part of a real course and after I get off the scene there will be other professors talking about other aspects of the Fed and you'll hear different points of view which is great. And you'll have to do some papers and all those kinds of things and I'm going to read a few of the paper. So, I look forward to doing that.

So, I'll be talking from slides, which is in part for the purpose of making this available to others who might be interested. These slides will be posted on the Federal Reserve's website, federalreserve.gov, as we go through. And so, if you need extra copies, by all means do that. And as President Knapp said, I'm going to be talking for a while from the presentation but at the end, I hope we can have some questions and answers.

So, let me get started. So what I want to talk about in these four lectures is the Federal Reserve and the financial crisis. Now, my thinking about this is very much conditioned by my experience as an economic historian. I think when you talk about the issues that just occurred of the last few years, it makes the most sense to think about it in the broader context of central banking as its taking place over the centuries. So, even though we're going to be focusing a good bit of the lectures, particularly next week, on the financial crisis and how the Fed responded. I think we need to go back and look at the broader context. So, as we talk about the Fed we'll be talking about the origin and mission of central banks in general, and we're looking at previous financial crises, most notably the Great Depression, and see how that informed the Fed's actions and decisions in the recent crisis. So let me just give you a roadmap of the four lectures. Today, lecture one, we won't touch on the current crisis at all. Instead, we'll talk about what central banks are, what they do, how central banking got started in the United States and we'll do some history. We'll talk about how the Fed engaged with its first great challenge, the Great Depression of the 1930s. The second lecture on Thursday, we'll take up the history. We'll review developments in central banking and with the Federal Reserve after World War II talking about the conquest of inflation, the great moderation and other developments that occurred after World War II. But we'll spend a good bit of time lecture two, in lecture two, talking about the build-up to the crisis and some of the factors that led to the crisis of 2008, 2009.

Then next week, we'll get into the more recent events. In lecture three, we'll talk about the intense phase of the financial crisis, its causes, its implications, and particularly, the response to the crisis by the Federal Reserve and by other policymakers. And then, in the final lecture, lecture four, we'll look at the aftermath. We'll talk about the recession that followed the crisis, the policy response of the Fed including monetary policy, the broader response in terms of the changes in financial regulation, and a little bit of forward-looking discussion about how this experience will change how central banks operate and how the Federal Reserve will operate going forward. So this is our topic today is origins and missions of the Federal Reserve. So let's talk in general about what a central bank is. If you've had some background in economics you know that a central bank is not a regular bank, it's a government agency, and it stands at the center of the monetary and financial system of a country. Central banks are very important institutions, they have helped to guide the development of modern financial systems, modern monetary systems and they play a major role in economic policy. Now, we've had various arrangements over the years but today, virtually, all countries have central banks. The Federal Reserve in the United States, the Bank of Japan in Japan, Bank of Canada, and so on. The main exception is only cases where you have what's called a currency union where a number of countries collectively share a central bank. The most important example by far of that is the European Central Bank which is central bank to 17 European countries who share the common currency, the Euro. But even in that case, each of the participating countries does have its own central bank which is part of the overall system of the Euro. So central banks are now ubiquitous, even the smallest countries typically have central banks. Now, this is a very important theme here, what do Central Banks do? What is their mission? And as I'll discuss throughout the lectures, it's convenient to talk about two broad aspects of what central banks do. The first is to try to achieve macroeconomic stability. And by that, I generally mean stable growth in the economy, avoiding big swings, recessions and the like, and keeping inflation low and stable. So that's the economic function of a central bank. The other function of central banks, which is going to get a lot of attention, obviously, in these lectures, is the financial stability function. Central banks try to keep the financial system working normally and in particular, they either, they try to prevent or if unsuccessful in preventing they try to mitigate financial panics or financial crises. And I'll talk more about what those are. Now what are the tools that central banks use to achieve these two broad objectives? Very, in very simple terms, there are basically two broad sets of tools. On the economic stability side, the main tool as I'm sure everyone knows is monetary policy. In normal times, the Fed, for example, can raise or lower short-term interest rates. It does that by buying and selling securities in the open market. And again, in normal times, if the economy is growing too slowly or inflation is falling too low, the Fed can stimulate the economy by lowering interest rates. Lower interest rates feed through to a broad range of other interest rates that encourages spending, acquisition of homes for example, construction, investment by firms, borrowing. It just generates more demand, more spending and more investment in the economy, and that creates more thrust in growth so that to stimulate an economy, you lower interest rates. And similarly, if the economy is growing too hot, if inflation is becoming a problem, then the normal tool of central bank is to raise interest rates. So by raising the overnight interest rate, known in the United States as the federal funds rate, higher interest rates feed through the system and help to slow the economy by raising the cost of borrowing, of buying a house, of buying a car, or of investing in capital goods and that will slow the economy and reduce pressure of overheating. So, monetary policy is the basic tool that central banks have used for many, many years to try to keep the economy at a more or less even keel in terms of both growth and inflation.

Now, a little less familiar is the main tool of central banks in dealing with financial panics or financial crises. And that tool is the provision of liquidity. So to address financial stability concerns and for reasons I'll explain, one thing that central banks can do is make short-term loans to financial institutions. As I'll explain, providing short-term credit to financial institutions during a period of panic or crisis can help calm the market, can help stabilize those institutions and can help mitigate or bring to an end a financial crisis. So this activity which is an old one, as I'll discuss, is known as the lender of last resort tool. So again, if financial markets are disrupted, financial institutions don't have alternative sources of funding, then the central bank stands ready to service the lender of last resort providing liquidity to the system and thereby helping to stabilize the financial system.

Now, there's a third tool which the Fed has had from the beginning and most central banks have which is financial regulation and supervision. Central banks usually play a role in supervising the banking system, assessing the extent of risk on their portfolios, making sure their practices are sound, and in that way, trying to keep the financial system healthy. To the extent that financial system can be kept healthy and its risk-taking within reasonable bounds, then the chance of a financial crisis occurring in the first place is reduced. However, this activity, and I will come back to it, this is something which is not unique to central banks. In the United States, for example, there are a number of different agencies, like the FDIC or the Office of the Comptroller of the Currency that work with the Fed in supervising the financial system. So this is not unique to central banks and so I'll be down playing this for the time being and focusing on the two principle tools, monetary policy and lender of last resort activities.

Now, where do central banks come from? One thing people don't appreciate, I think, is that central banking is not a new development. It's been around for a very long time. The Swedes set up a central bank in 1668, three and a half centuries ago. The Bank of England was founded in 1694 and that of course for many decades or if not centuries was the most important and influential central bank in the world, and France in 1800. So, central bank theory and practice is, again, not a new thing. We have been thinking about these issues collectively as an economics profession and in other contexts for many, many years. Now, I've exaggerated slightly in a sense that, say, the Bank of England in 1694 wasn't set up from scratch, it's a full-fledged central bank, it was originally a private institution. And over time, it acquired some of the functions of a central bank such as issuing money or serving as lender of last resort. But over time, these central banks became essentially government agencies, government institutions as they all are today. Certainly, one important responsibility of central banks for much of the period that I'm talking about was to manage the gold standard to issue paper money that was backed by gold and I'll talk more about gold in a few moments.

Now, the lender of last resort function, which I mentioned earlier, became important in the--mostly in the 19th century. Early in the 19th century, the Bank of England was doing a lot of this type of activity and they became very good at it. And as we'll see, while the United States was suffering with banking panics in the latter part of the 19th century, banking panics in the United Kingdom were quite rare. So the Bank of England sort of set the pace in some sense. It was the most important central bank and it helped establish the practices and the approaches that we still use today. Now, I need to talk a little bit because it's less familiar about what a financial panic is. In general, a financial panic is sparked by a loss of confidence in an institution and I think the best way to explain this is to give a familiar example. How many of you have ever seen the movie "It's a Wonderful Life"? No? Less people are watching Christmas movies than they used to be, I guess [laughter]. Well, one of the problems that Jimmy Stewart runs into as a banker in “It’s a Wonderful Life” is a threatened run on his institution. And what is a run? Well, let's imagine a situation like Jimmy Stewart's situation before there was any deposit insurance, no FDIC. And imagine you have a bank on the corner, just a regular commercial bank, the first bank of Washington, D.C., and this bank makes loans to businesses and the like, and it finances itself by taking deposits from the public and deposits are demand deposits, which means that anybody can pull out their money anytime they want which is important because people use deposits for ordinary activities, like shopping.

Now imagine what would happen if for some reason, a rumor goes around that this bank has made some bad loans and is losing money. As a depositor, you say to yourself, "Well, I don't know if this rumor is true or not." But what I know is if that I wait and everybody else pulls out their money and I'm the last person in line, I may end up with nothing." So what's--what are you going to do? You're going to go to the bank and say, "Well, I'm not sure if this is a true rumor or not, but knowing that everybody else is going to come to the bank, I'm going to pull my money out." And so, depositors line up, they pull out their cash, no bank holds cash equal to all their deposits, they put that cash into loans. So the only way the bank can pay off the depositors, once it gets through its minimal cash reserves, is to sell or otherwise dispose of its loans. But it's very hard to sell a commercial loan, it takes time, you get--you have to sell it at a discount. And by the time you've gotten around to doing that, depositors are at your door and saying, "Where is my money?" And so ultimately, a panic can lead the bank to close and be a self-fulfilling prophecy. The bank will fail, it will have to sell off its assets at a discount price and ultimately, many depositors might lose money as happened in the Great Depression, for example. So a bank panic is a problem which is faced by any institution where it has loans or other illiquid-type assets and it finances itself by short-term deposits or other short-term lending. Now, panics can be a serious problem. Obviously, if one bank is having problems, people--the bank next door might begin to worry about problems in their bank. And so, a bank run can lead to widespread bank runs or a banking panic, more broadly. Sometimes, banks again, pre-FDIC, banks would respond to a panic or a run by refusing to pay out deposits and they would just say, "No more, we're closing the window." So that restriction on the access of the depositors to their money was another bad outcome and caused problems for people who had to make a payroll or had to buy their groceries. Many banks would fail and beyond that, banking panics often spread into other markets, were often associated with stock market crashes for example. And all those things together, as you might expect, were bad for the economy. And so, a banking panic could lead to a crash in the economy as well.

So here's a formal definition just for your reference unless you see people around, standing around in the corner waiting to take out their money, but a financial panic is--can occur anytime you have an institution that has longer term illiquid assets, so think of a bank that has loans that are long-term loans that are illiquid in the sense that it takes time and effort to sell those loans and which are financed on the other side of the balance sheet by short-term liabilities like deposits but could be other things for short-term liabilities. Anytime you have that situation, you have the possibility that the people who put their money in the bank or the lenders or the depositors may say, "Wait a minute, I don't want to leave my money here, I'm pulling it out," and you have a serious problem for the institution. So now to come back to what we were talking about before, how can--how could the Fed have helped Jimmy Stewart? Well, again, lender of last resort is a basic tool. Imagine that Jimmy Stewart is paying out the money to his depositors. He's got plenty of good loans but he can't change those into cash and he's got people at the door looking for money. Well, if the Federal Reserve was on the job, Jimmy Stewart could call up to the local Fed office and say, "Look, I got a whole bunch of good loans, I can offer them as collateral, give me cash, give me a cash loan against this collateral." Okay? So the central bank would act in this way as a lender of last resort. The--Jimmy Stewart can take the cash from the central bank, he can pay off his depositors and then, so long as he really is solvent, that is, as long as his loans are really are good, the run will be quelled, will be stopped and the panic will come to an end. So by providing short-term loans, taking his collateral, the illiquid assets of the institution, central bank can put money into the system, pay off depositors, pay off short-term lenders, and calm the situation and end the panic. This was something that the Bank of England figured out very early. In fact, a very key person in the--in intellectual development here was a journalist named Walter Bagehot who thought a lot about banking, central banking policy. And he had a dictum which said that during a panic, central bank should lend freely, whoever comes to your door as long as they collateral, give them money, this is during a banking panic. Against good assets, to make sure that you get your money back, you need to have collateral and that collateral has to be good or it has to be discounted and they could lend half the value of the collateral, for example, and charge a penalty interest rate so that people don't just take advantage of the situation but rather they signal that they really need the money because they're willing to pay a slightly higher interest rate. So again, if you follow Bagehot's rule, you can stop financial panics. As a bank or other institution finds that it's losing its funding from depositors or other short-term lenders, it borrows from the central bank. The central bank provides cash loans against collateral. The company then pays off its depositors and again, things calm down. Without that source of funds, without that lender of last resort activity, many institutions would have to close their doors, they could go bankrupt. If they had to sell their assets at discount fire sale prices, that would also create problems because other banks would find the value of their assets are going down. And so, the panic through fear or through rumor or through declining asset values could spread throughout the banking system. So it's very important to get in there aggressively. As a central banker, provide that short-term liquidity and avoid the collapse or at least the serious stress on the system. So again, using the assets as collateral, banks borrow from the central bank. So that's a little bit of general theory about central banks and what they do. Again, their two broad functions are macroeconomic stability and financial stability. And they have tools on both sides of that equation. So let's talk a little bit about specifically the United States and the Federal Reserve. And what we'll find is that the Federal Reserve which was founded--the law was passed in 1913, it was founded eventually in 1914--we'll find that concerns on both sides of this equation motivated the decision of Congress and President Wilson to create the Federal Reserve. Let's talk first about financial stability in the United States. Now, after the Civil War and into the early 1900s, there was no Federal Reserve, there was no central bank. So any kind of financial stability functions that couldn't be done, say, by the Treasury had to be done privately. And there were some interesting examples of private attempts to create lender of last resort functions. So, for example--a very interesting example is the New York Clearing House. The New York Clearing House was a private institution, it was basically a club of ordinary commercial banks in New York City and it was called the Clearing House because initially, it was--it served as a place where banks could clear checks against each other. They came at the end of each day and they traded, you know, my checks against you and your checks against me and it was just a way of reducing the cost of managing checking. But as time evolved, clearing houses began to function a little bit like central banks. So, for example, if one bank came under a lot of pressure, the other banks might come together in the clearing house and lend money to that bank so it could pay its depositors. And so in that respect, they served as a lender of last resort. Another possibility was sometimes, the clearing houses would all agree that we're just going to shut down the banking system for a week, all banks, and then they would go look at the bank that was in trouble and evaluate its balance sheet and determine whether it was in fact a sound bank. If it was, it would reopen and normally, that would calm things down. So there was some private activity to try to stabilize the banking system. However, in the end, these kinds of private arrangements were just not sufficient. They didn't have sufficient resources. They didn't have the credibility of an independent central bank. After all, people could always wonder whether the banks were acting in other than the public interest since they were all private institutions. And so, it was necessary for the United States to get a lender of last resort that could stop runs on illiquid but still solvent commercial banks. So this is not a hypothetical issue. Financial panics in the United States were a very big problem. So here's the period basically from the restoration of the gold standard after the Civil War in 1879 through the founding of the Federal Reserve. And the graph here shows the number of banks closing during each of these six major banking panics that occurred during that time in the United States. You can see in the very severe financial panic of 1893, more than 500 banks failed across the country. So that was a really big panic and it had significant consequences for the financial system and for the economy. Now, 1907 was also a pretty sharp financial crisis. The banks that failed were larger. And it was after that crisis that the Congress began to say, "Well, wait a minute, maybe we need to do something about this, maybe we need a central bank, a government agency that can address the problem of financial panics." So that process began, there was a very substantial amount of research done. A 23-volume study was prepared for the Congress about central banking practices and Congress moved deliberatively towards creating a central bank. Before the new central bank was established though, there was another serious financial panic in 1914. So as you can see, this really was a very serious problem for the U.S. economy. So financial stability concerns were a major reason why Congress decided to try to create a central bank in the beginning of the 20th century.

But remember, the other major mission of central banks is economic stability, monetary and economic stability. Now, the monetary history of the United States is pretty complicated. I won't try to go through it all, but in the period after the Civil War towards until World War I and then really all the way into the '30s, the United States was on a gold standard. And as you probably know, a gold standard is at least a partial alternative to a central bank. Now, what is a gold standard? What a gold standard is is it's a monetary system in which the value of the currency is fixed in terms of gold. So for example, by law in the early 20th century, the price of gold was set at $20 dollars and 67 cents an ounce. So there was a fixed relationship between the dollar and a certain weight of gold. And that in turn helped set the money supply; it helped set the price level in the economy. There were central banks that helped manage the gold standard, but to a significant extent, a true gold standard creates an automatic monetary system. Basically, money is tied to gold. Now, unfortunately, gold standards are far from perfect monetary systems. One small problem which is not on the slides but I'll just mention is that there's an awful big waste of resources. I mean, what you have to do to have a gold standard is you have to go to South Africa or some place and dig up tons of gold and move it to New York and put it in the basement of the Federal Reserve Bank in New York, and, that's a lot of effort and work and it's a, you know, it's a--Milton Friedman used to emphasize that that was a very serious cost of a gold standard that all this gold was being dug up and then put back into another hole. So there is some cost to having a gold standard. But there are some other more serious financial and economic concerns that practically experience showed were part of a gold standard. One of them was the effect of a gold standard on the money supply. Since the gold standard determines the money supply, there's not much scope for the central bank to use monetary policy just to stabilize the economy. And in particular, under a gold standard, typically the money supply goes up and interest rates go down in periods of strong economic activity. So that's the reverse of what a central bank would normally do today. So again, because you had a gold standard which tied the money supply to gold, there was no flexibility for the central bank to lower interest rates in recession or raise interest rates in an inflation. Now some people view that as a benefit of the gold standard, taking away the discretion from central banks and there's an argument for that, but it did have the implication that there was more volatility year-to-year in the economy under a gold standard, and there has been in modern times. So, for example, movements in output variability was much greater under the gold standard, and even year-to-year movements in inflation, the volatility was much greater under the gold standard. There are other concerns also with the gold standard. Now, one of the things that a gold standard does is it creates a system of fixed exchange rates between the currencies of countries that are on the gold standard. So for example, in 1900, the value of a dollar was about 20 dollars per ounce of gold. At the same time, the British set their gold standard in saying, roughly, roughly 4 pounds, 4 British pounds per ounce of gold. So 20 dollars equals 1 ounce of gold, 4 pounds equals 1 ounce of gold, so 20 dollars equals 4 pounds. So what that's saying is basically that a pound is 5 dollars. So essentially, if both countries are on the gold standard, the ratio of prices between the two exchange rates is fixed. There's no variability as we see today when the Euro can go up and the Euro can go down. Now, again, some people would argue that's beneficial, but there is at least one problem which is that if there are shocks or changes in the money supply in one country and perhaps even a bad set of policies, other countries that are tied to the currency of that country will also experience some of the effects of that.

So I'll give you a modern example. Today, as you probably know, China ties its currency to the dollar. It's become more flexible lately, but for a long time there's been a close relationship between the Chinese currency and the U.S. dollar. Now what that means is that if the Fed lowers interest rates and stimulates the U.S. economy because, say, we're in a recession, that means also that essentially monetary policy becomes easier in China as well because interest rates have to be the same in different countries with essentially the same currency. And those low interest rates may not be appropriate for China, and as a result China may experience inflation because it's essentially tied to U.S. monetary policy. So fixed exchange rates between countries tend to transmit both good and bad policies between those countries and take away the independence that individual countries have to manage their own monetary policy.

Yet another issue with the gold standard has to do with speculative attack. Now normally, a central bank with a gold standard only keeps a fraction of the gold necessary to back the entire money supply. Indeed, the Bank of England was famous for keeping, as Keynes called it, a thin film of gold. The British Central Bank only kept a small amount of gold, and they relied on their credibility to stand by the gold standard under all circumstances to--so that nobody ever challenged them about that issue. But if for whatever reason, if markets lose confidence in your willingness and your commitment to maintaining that gold standard relationship, you can get a speculative attack. This is what happened in 1931 to the British. In 1931, for a lot of good reasons, speculators lost confidence that the British pound would stand gold, so just like a run on the bank, they all brought their pounds to the Bank of England and said, "Give me gold." And it didn't take very long before the Bank of England was out of gold cause they didn't have all the gold they needed to support the money supply and then, there was essentially--they've essentially had to leave the gold standard, so there was a lot of financial volatility created by this attack on the gold standard.

There's a story told that a British official, Treasury official was taking a bath. An aid came running in saying, "We're off the gold standard, we're off the gold standard," and he said, "I didn't know we could do that." [Laughter] But they could, and they had to. They had no choice because there was a speculative attack on the pound. Moreover, and related to this, as we saw in the case of United States, gold standard had plenty of financial panics associated with it. So, financial stability was not always assured by the gold standard. And finally, just one last word on the gold standard, one of the strengths that people cite for the gold standard is that it creates a stable value for the currency. It creates a stable inflation, and that's true over very long periods. But over shorter periods, maybe up to 5 or 10 years, you can actually have a lot of inflation, rising prices, or deflation, falling prices, in a gold standard. And the reason is that in a gold standard, the amount of money in the economy varies according to things like gold strikes. So for example, if United States, if gold was discovered in California and the amount of gold in the economy goes up, that will cause an inflation, whereas if the economy is growing faster and there's a shortage of gold, that will cause a deflation. So over shorter periods of time, you frequently had both inflations and deflations. Over very long periods of time, decades, prices were quite stable.

Now this again was a very significant concern in the United States. Here's a famous figure who we can see was a very good public speaker. [Laughter] William Jennings Bryan, 3-time democratic candidate for president. In the latter part of the 19th century, there was a shortage of gold relative to economic growth, and since there wasn't enough gold in some sense, money supply was shrinking relative to the economy, the U.S. economy was experiencing a deflation, that is, prices were gradually falling over this period. Now this caused some problems, and the people who were most concerned about it were farmers and other agriculture-related occupations. Think about this for a moment. If you're a farmer in Kansas and you have a mortgage with the bank and that mortgage requires, say, a fixed payment of $20 dollars each month, that amount of money you have to pay is fixed. But how do you pay that, you pay it by growing your crops and selling the crops in market. Now if you have a deflation going on, that means that the prices of your corn or your cotton, or your grain is falling over time, but your payment to the bank stays the same. So a deflation created a grinding pressure on farmers as they saw the prices of their products going down, and as their debt payments remained unchanged. And so, farmers were squeezed by this decline in their crop prices, and they recognized that this deflation was not an accident. The deflation was being caused by the gold standard. And so William Jennings Bryan ran for president, and his principal, his principal platform, principal plank in his platform, was the need to modify the gold standard. In particular, he wanted to add silver to the metallic system so that there would be more money in circulation and more inflation. But he spoke about this in the usual, very eloquent way of 19th century orators. He said, "You shall not press down upon the brow of labor this crown of thorns, you shall not crucify mankind upon a cross of gold." And again, what he was trying to say is that the gold standard is killing honest, hardworking farmers who are trying to make their payments to the bank and find the price of their crops going down over time. So the gold standard also created problems and again was a motivation for the founding of the Federal Reserve. In 1913, finally after all the study, Congress passed the Federal Reserve Act which established the Federal Reserve which opened in 1914. Now there's a picture which hangs in the Fed of President Woodrow Wilson signing the Federal Reserve Act in 1914. President Wilson viewed this as his primary most important domestic accomplishment in his first--in his term. So again, why did they want a central bank? The Federal Reserve Act called on the newly established Fed to do two things. First, to serve as a lender of last resort and to try to mitigate the panics that banks were experiencing every few years, and secondly to manage the gold standard that is to take the sharp edges off the gold standard to avoid sharp swings in interest rates and other macroeconomic variables. So that was the objective of the Federal Reserve. Now interestingly, the Fed was not the first attempt by Congress to create a central bank. There have been two previous attempts, one of them suggested by Alexander Hamilton, and the second somewhat later in the 19th century. In both cases, Congress let the central bank die and basically the problem was that there was a lot of disagreement between what would today we would call Main Street and Wall Street. The folks on Main Street could include farmers, for example, feared that the central bank would be mainly an instrument of the moneyed interests in New York and Philadelphia and would not represent the entire country, would not be a national central bank, and both the first and the second attempts at creating a central bank failed for that reason. So Woodrow Wilson had I think a better idea and he tried a different approach, and what he did was, is he created not just a single central bank say in Washington, but he created 12 Federal Reserve banks located at major cities across the country. And so the picture shows the 12 Federal Reserve districts that we still have today, and each one has a Federal Reserve Bank in it, and then a Board of Governors which oversees the whole system is in Washington, D.C. Notice, by the way, how many of the little black dots are to the right. In 1914 most of the economic activity in United States was in the eastern part of the country. Now, of course it's much more even but the reserve banks are in the same locations as they were in 1914. But anyway, the point here, the value of this structure was again creating a central bank where everybody, all parts of the country, would have a voice and where information about all aspects of our national economy would be heard in Washington, and that is in fact still the case. When the Fed makes monetary policy, it takes into account the views of the Federal Reserve banks around the country and therefore we have a national approach to making policy.

So the Fed was established in 1914 and for a while life was not too bad. The Roaring Twenties, the 1920s, this is called the Charleston, I think, Life Magazine, you never heard of that, but it was a very famous magazine for a long time. Anyway the 1920s, the so-called Roaring Twenties was a period of great prosperity in the United States. The U.S. was an absolutely dominant economy in the world at that time because most of Europe was still in ruins from World War I. There were lots of new inventions. People gathered around the radio and automobiles became much more available. And so there were a lot of new consumer durables and just a lot of economic growth during the '20s. So that was a, again a period of prosperity, particularly in United States and the Fed had some time to sort of get its feet wet and establish its procedures. Unfortunately in 1929, the world was hit by the first great challenge to the Federal Reserve into--also all U.S. economic policy makers, which was the Great Depression. As I'm sure you know, the U.S. stock market crashed in October 29th, and what you may not know is that the financial crisis of the Great Depression was not just the U.S. phenomenon, it was global. Large financial institutions collapsed in Europe and other parts of the world. Perhaps the most damaging financial collapse was of the large Austrian Bank called the Credit-Anstalt that collapsed in 1931 and brought down with it many other banks in Europe. So it was a global--a global phenomenon. And as you know, of course, the economy contracted very sharply and the depression lasted for an incredibly--it seems like an incredibly long time from 1929 and it only ended when the United States entered the war after Pearl Harbor in 1941. So here are a few facts about the depression. I think it's important to understand how deep and severe this episode was. Here's the stock market, and you can see the straight line at the left, a vertical line showing October 1929, a very sharp decline in stock prices unsurprisingly. This was the crash that was made famous by many writers including John Kenneth Galbraith and others who told colorful stories about brokers jumping out of windows and all of those things. But what I want you to take from this picture is that the crash of '29 was only the first step in what was a much more serious decline. You see how the stock prices kept falling and by mid-1932, stock prices had fallen an incredible 85 percent from their peak. So this was much worse than just a couple of bad days in the stock market. The real economy, the non-financial economy also suffered very greatly. The left-hand picture shows growth in real GDP. And so if it's a--if the bar is--going pointing up, it's a growth period. If it's pointing down, it's a contraction period. So in 1929, the economy grew by more than 5 percent and was still growing very substantially. But you can see that from 1930 to 1933, the economy contracted by very large amounts every year. So it was an enormous contraction of GDP close to the third overall, between 1929 and 1933. At the same time, the economy was experiencing deflation. Deflation is falling prices. And as you can see from the right picture, in 1931 and 1932, prices fell by about 10 percent. So if you were a farmer who had a trouble in the late 19th century, imagine what's happening to you in 1932 when crop prices are dropping by half or more and you still have the same payment to the bank for your mortgage. As the economy contracted, unemployment soared. We did not have the same survey of individual households in the 1930s that we have today, and so these numbers are estimated, they're not precise numbers. But as best we can tell, at its peak, unemployment came close to 25 percent in the early 1930s. And you can see that the light blue line is the recession period. Even at the end of the '30s before the war changed everything, unemployment was still around 13 percent. So unemployment grows tremendously. Bank failures, as you might guess, with all that was going wrong in the economy, a lot of depositors ran on their banks. The picture on the right, the graph on the right shows the number of bank failures in each year, and you can see an enormous spike in the early '30s in number of failures.

What caused this colossal calamity, which again I would reiterate, was not just a U.S. problem, but a global problem. One country in fact that had a worst depression than the United States was Germany, and that led probably more or less directly to the election of Hitler in 1933. So why would--why was there--what happened? What caused the Great Depression? This is a tremendously important subject and has received a lot of attention as you might imagine from economic historians. And as often as the case for very large events, there were many different causes. I mentioned a few here, the repercussions of World War I, problems with the international gold standard, which was being reconstructed but with a lot of problems after World War I, the famous bubble in stock prices in the late 1920s and the financial panic that spread through the world. So there were a number of factors that created the depression. But the ones that I want to focus on here--let me say one more word before turning on. Part of the problem was intellectual, rather than policy per se. At the time of the 1930s, there was a lot of support for a--approach or thinking about the economy called the liquidationist theory. And the idea behind it was the 1920s was too good a time. The economy expanded too fast. There were--there was too much growth. There was too much credit extended. Stock prices went too high. So what you need when you have a period of excess is a period of deflation, a period where all the excesses are squeezed out. So there was a point of view which said that the depression is unfortunate, but it's kind of necessary. We've got to squeeze out all of the excesses that accumulated in the economy in the 1920s. And there's a famous statement by Andrew Mellon who was Hoover's Secretary of the Treasury, “liquidate labor, liquidate stocks, liquidate the farmers, liquidate real estate,” sounds pretty heartless and I think it was, but what he was trying to convey here was that we've got to get rid of all of the excesses of the '20s and bring the country back to a more fundamental sound economy.

Alright, so, what I wanted to get into here in the last few minutes is what was the Fed doing during this period? Unfortunately, the Fed met its first great challenge in the Great Depression and it failed, both on the monetary policy side and on the financial stability side. On a monetary policy side, basic bottom line here is that the Fed did not ease monetary policy the way--the way you would expect it to in a period of deep recession for a variety of reasons because it wanted to stop the stock market speculation, because it wanted to maintain the gold standard, because it believes in the liquidationist theory. For a variety of reasons, the Fed did not ease monetary policy, or at least not very much. And so we didn't get the offset to the decline that monetary policy could have provided. And indeed, what we saw was the sharply falling prices, I mean I think, you can argue about causes of the decline and output in employment, but when you see 10 percent declines in the price level, you know monetary policy is much too tight. So the deflation was in fact an important part of the problem because again, it bankrupted farmers and others who relied on to sale products to pay fixed debts. To make things even worse, as I mentioned before, if you have a gold standard, then you have fixed exchange rates. So the Fed's policies were essentially transmitted to other countries which also essentially therefore came under excessively tight monetary policy and that also contributed to the collapse. Now again, as I mentioned, one reason why the Fed kept money tight was because it was worried about a speculative attack on the dollar. Remember in 1931, the British had faced that situation. The Fed was worried that there would be a similar attack that would drive the dollar off gold. So to preserve the gold standard, they raised interest rates rather than lower them. They argued by keeping interest rates high, that would make U.S. investments attractive and prevent money from flowing out of the

United States. But again, that was a wrong thing to do relative to what the economy needed. In 1933, Franklin Roosevelt abandoned the gold standard and suddenly, monetary policy became much less tight and there was a very powerful rebound in the economy in '33 and '34. The other part of the Fed's responsibilities of course is to be lender of last resort. And once again, the Fed did not read its mandate. It responded inadequately to the bank runs, allowing essentially this tremendous decline in the banking system as many banks failed. And as a result, bank failures swept the country. As I mentioned before, very large fraction of the nation's banks failed, almost 10,000 banks failed in the '30s. And that continued until deposit insurance was created in 1934. Now, why did the Fed not more aggressively be lender of last resort? Why didn't it lend to these failing banks? Well, in some cases, the banks were really insolvent. There wasn't much could be done. They had made loans in agricultural areas and their loans were all going bad because of the crisis in the agricultural sector. But part of it was the Fed appeared, at least to some extent, to agree with the liquidationist theory which said that there is too much credit, you know, that we're overbanked. Let the system contract, that's really the healthy thing, but that was unfortunately not the right prescription.

Now of course in '33, Franklin Roosevelt came into power. Roosevelt had a mandate to do something about the depression. He took a variety of different actions. He was very experimental. Some of those actions were quite unsuccessful. For example, something called the National Recovery Act required--tried to fight deflation by requiring firms to keep their prices high. But that's--that wasn't going to help without a bigger money supply. So a lot of things that Roosevelt did didn't work so well, but he did 2 things which I would argue did a lot to offset the mistakes, the problems that the Fed created. The first was in 1934, the establishment of deposit insurance, the FDIC. Now, if you were a--ordinary depositor in a bank and the bank failed, you still got your money back and therefore there was no--there was no incentive to run on the banks. And in fact, once the deposit insurance was established, there were essentially, we went from literally thousands of banks failures to zero. It was an incredibly effective policy. The other thing that FDR did, although it would--he took a lot of smoke while he was doing it, but basically, he abandoned the gold standard. And by abandoning the gold standard, he allowed monetary policy to be released and allowed expansion of the money supply which ended the deflation and led to a powerful short term rebound in '33 and '34. So the two most successful things that Roosevelt did were essentially offsetting the problems that the Fed created or at least exacerbated by not fulfilling its responsibilities. So, what are the policy lessons? It was a global depression, had many causes, the whole story requires you to look at the whole international system. But policy errors in United States, as well as abroad, did play an important role. And in particular as I said, the Federal Reserve failed in this first challenge in both parts of its mission. It did not use monetary policy aggressively to prevent deflation and the collapse in the economy, so it failed in its economic stability function. And it didn't adequately perform its function as lender of last resort allowing many bank failures and a resulting contraction in credit and also with the money supply. So, in that respect, again, the Fed did not fulfill its intended mission. So these are key lessons and we want to keep these in mind as we consider how the Fed responded to the 2008, 2009 financial crisis, which we'll be getting to the beginning of next time and then in great detail next week. So next time, on Thursday, we'll review developments in central banking after World War II, but we'll spend plenty of time next time and then lead up to the crisis of 2008, 2009, and we'll begin to see how the history of central banking explains how the Federal Reserve responded to this most recent and severe crisis. Okay, I'd be happy now to take questions on the lecture. Yeah, Michael.

[Pause]

Student: You mentioned the tightening of monetary policy in 1928 and 1929 to stem the stock market speculation. Do you think that Federal Reserve should have taken different actions to stem the speculation like increasing margin requirements or was it wrong for them to take any action at all against the bubble?

Chairman Bernanke: That's--that's a good question. What the Fed did--well, I think the mistake they made--they were very concerned about the stock market and they believed that it was excessively priced and there was evidence for that. But what they did was they attacked it solely by raising interest rates without attention to the effect in the economy. So by raising interest rates, they wanted to bring down the stock market and they succeeded [laughs] of course. But the side effect of it was it also had major impacts on the economy as well. So, I think, yeah, I think that what we've learned about asset price bubbles, they are dangerous and we want to address them if possible but when you can address them through financial regulatory approaches, that's usually a more pinpoint approach than just raising interest rates for everything. So margin requirements are at least looking at the variety of practices. You know, there were a lot of very risky practices by brokers, you know, it was the equivalent of day traders. You know, every paper boy had a tip for you and there weren't very many checks and balances on trading and on who can make a trade and what margin requirements were, et cetera. So it's a good question. I think that the first line of attack should have been more focused on bank lending on financial regulation and on the functioning of the exchanges.

Wayne [phonetic], come take the--

Student: I have a question on the gold standard. Given everything that we know about monetary policy now and about the modern economy, why is there still an argument--some argument, for returning to the gold standard, and is it even possible?

Chairman Bernanke: So the argument I think has two parts. One is the desire to maintain "the value of the dollar." I mean basically it's a desire to have very long run price stability. So, the argument is that paper money is inherently inflationary, so we have a gold standard tool, you won't have deflation. And as I said, that's true to some extent over long periods of time. But from a year to year basis, it's not true and so looking at history is helpful there. The other reason, I think that gold standard advocates want to see return to gold, is that it removes discretion, it doesn't allow the Central Bank to respond with monetary policy, for example to booms and busts, and the advocates of the gold standard say it's better not to give that flexibility to a central bank. So those are basically the arguments. I think though that the gold standard would not be feasible for both practical reasons and policy reasons. On the practical side, it is just a simple fact there is not enough gold to meet the needs of a global gold standard and achieving that much gold would be very expensive, cost a lot of resources. But more fundamentally than that is that the world was changed, so the reason the Bank of England could maintain the gold standard even though it had very small number, amount of gold reserves was that everybody knew that they were going to--their first, second, third and fourth priority was staying on gold and that they had no interest in any other policy objective. But once there was concern that Bank of England might--you know, might not be fully committed, then there was a speculative attack that drove him off gold. Now, economic historians argue that after World War I, after World War I, the labor movements became much stronger and there was a lot more concern about unemployment. Before the 19th century, people don't even measure unemployment and after the World War I, you begin to get much more attention to unemployment and business cycles. So in a modern world, the commitment to the gold standard would mean that we are swearing that under no circumstances, no matter how bad unemployment gets, are we going to do anything about it using monetary policy. And if investors had 1 percent doubt that we would follow that promise, then they will have varying incentive to bring their cash and take out gold in this and in fact it will be a self-fulfilling prophecy. And we've seen that problem with various kinds of fix exchange rates that have come under attack during financial crisis. So I understand the impulse but I think if you look at actual history, you'll see that the gold standard didn't work that well and it worked particularly poorly after World War I. Indeed, well I won't go into it, there's a good bit of evidence that the gold standard was one of the main reasons that the depression was so deep and long. And a striking fact is that countries that left the gold standard early and gave themselves flexibility on monetary policy recovered much more quickly than the countries that stayed on gold to the bitter end.

Student: You mentioned, you mentioned that President Roosevelt used deposit insurance to help end the runs and also abandoning the gold standard to help end deflation? And I believe that in 1936 and 1937, up until 1941, we had a double dip and the recession sort of went on, and as you've seen today that we were sort of out of the recession. What do you think are things that we need to be careful of that possibly they had mistakenly done in the Great Depression that we in parallel should be doing today?

Chairman Bernanke: Right, it isn't generally appreciated. The Great Depression actually was 2 recessions. There was a very sharp recession in '29, '33, from '33 to '37, there was actually a decent amount of growth, stock market recovered some, but in '37, '38, there was a second recession that wasn't quite as serious as the first one but is still serious, and there's a lot of, I don't want to, you know, take a while to go through all of the discussion there, but there's a lot of controversy about it, but one view that was advanced early on was that the second recession came from a premature tightening of monetary and fiscal policy. So in '37, '38, there was--Roosevelt under a lot of pressure to reduce budget deficits and so on, tighten physical policy quite a bit. The Fed worried about inflation, tightened monetary policy. Now again, I don't want to claim it's all that simple, a lot was happening, but the early interpretations at least were that the reversal in policy too soon prevented the recovery from proceeding faster. I think, we'll talk about lessons later on, but I think if you accept that traditional interpretation it is that you need to be attentive to where the economy is, and not move too quickly to reverse the policies that are helping the recovery.

Student: Yes, based on a few of the graphs that we saw today and other historical trends, it seems that after an economic slump, recovery often takes five or more years as represented by the Great Depression and the oil crisis in the '70s, I was wondering, do you think it is common for unemployment to remain at high levels until sometimes a half decade after an economic slump, and that criticisms are often premature, and moreover, how do you address these concerns in a political environment when short-term fixes are often, they often rule the day?

Chairman Bernanke: Well, let me just comment that the depression was a sort of extraordinary event, I mean, there were many serious declines in economic activity in the 19th century, but nothing quite as deep or quite as long as the Great Depression. So, the high unemployment that lasted from 1929 until basically World War II, that was unusual. So, we wouldn't conclude that that was a normal state of affairs. Now, more generally, there is some research that suggests that following a financial crisis, it may take longer for the economy to recover because you need to restore the health of the financial system, and that may be one reason so argued that the recovery, this most recent recovery is not proceeding faster than it is. But that's, I think is still an open question, and there's a lot of discussion about that research, as well as discussion of, you know, what might underlie that sort of stylized fact that that is out there. So no, it's not always the case. I mean if you look at recessions in the postwar period in United States, you see very frequently that recoveries only take a couple of years, but very--and in fact, very sharp recoveries, typic-- recessions are typically followed by a faster recovery. That's been the pattern in the postwar period. What may be different about this episode, and again once more, this is a subject of debate, is that unlike the other recessions in the postwar period, this one was related to and triggered by a global financial crisis, and it's so it may be that it's going to take longer, it's already taking longer for the economy to recover, but again, a lot of issues still to be resolved. Last question, anyone else? Melanie.

Student: Since that you said depression was global recessions are global, is--shouldn't there, you feel like, be more global, like cooperation and central banks to have like a uniform type of fix they kind of court it on, instead of every country turning their own, like fixes?

Chairman Bernanke: Well, you set me up perfectly for my lecture next week, but I'll talk about-- I'll talk about how the Fed and how the central banks did cooperate, and continue to cooperate. One of the problems in the depression was the bad feelings left over from World War I. You know we--in the 19th century, there was a reasonable amount of cooperation amongst central banks, but in the 1920s, Germany was facing having to pay reparations, France, and England, the

U.S. were all bickering about war debts, and so the politics was quite bad internationally, and that impeded some of the cooperation of central banks. The other thing to say is that international central bank cooperation is probably even more important when you have fixed exchange rates. So you had fixed exchange rates in the '20s 'cause of the gold standard, that meant that monetary policy in one country affected everybody, so that was certainly a case for more coordination, didn't get it. At least today, we have flexible exchange rates which can adjust and tend to insulate other countries from the effects of monetary policy in a given country, so that reduces somewhat the need for coordination but there's still, I think, a need for coordination. Well, thanks, this has been great and I'll be back on Thursday, thank you.

[Applause]

Dr. Tim Fort: Well, we're just about out of time at 2 o'clock, and I told my friends at the Fed as we were setting this up, and we thought we might have 10, 15 minutes for question and answer after the Chairman left. I said this is an old professor, I mean, once he gets up there, he's going to have a good time and we're going to have Q and A that's going to go on for a while and I'm delighted with that. Students, great questions, wonderful questions, what I would like to ask you to do since we didn't have a lot of time for additional one is to send me an e-mail with 2 additional questions that you want to do follow-up on in 2 weeks. We will see you next Thurs--or this Thursday at 12:45. Great, thank you very much.

Thank you very much. [Applause]