

It is a real pleasure to be here. What I am going to try to do today is to talk about some of the issues facing Japan, but I am going to try to approach it from a more theoretical perspective. There is a book that I have written with my colleague at Columbia, Bruce Greenwald, called *The New Paradigm of Monetary Economics* that will be coming out fairly shortly. What I want to do today is to first talk about this new paradigm of monetary economics and then to comment on how that new paradigm sheds some light on the particular problems that are facing Japan today.

I am going to begin with a brief and fairly quick discussion of some of the problems of traditional Keynesian macroeconomics. This goes back sometime, these concerns go back several decades. The problem was that it was recognized that much of traditional Keynesian microeconomics was not based on micro-foundations. And in particular in the 1970s there was concern that the behavior could not be deduced from hypotheses of rational actors maximizing utility of profits.

A second aspect was that traditional Keynesian economics did not seem to address the problems of the day and made assumptions that seem inconsistent with what was widely observed. In particular, Keynesian economics as it was traditionally formulated focused on problems arising from price rigidities. In the 1970s, the problem was not price rigidity, the problem was inflation. And today, many countries are worried about deflation. So obviously, the notion that there are rigid prices does not make any sense in a world in which we are worried about prices coming down year after year. And indeed, interestingly, even in the 1930s, the assumption of price rigidities really did not make a lot of sense. Prices actually fell by about 30 percent during the Great Depression. And it is one of the great swindles that we persuade students for generations, the idea of wage and price rigidities by never showing them the data. But in fact, prices and wages fell down enormously and that means that we have to think about times of economic downturn, think about problems of downward price movements, that is to say deflation.

A second important problem with standard theory was that at the core of macroeconomics, of course, is monetary theory. But the theory of money that has been the basis of much of macroeconomics does not make a lot of sense. Again, it is one of those great ideas that if you repeat it long enough and often enough, students come to believe it, but it really makes no sense, and it has made less and less sense over time. The basic standard idea is that money is needed for transactions. You need money to engage in transactions. And that leads to a transaction's demand for money. The equilibrium interest rate is determined as the intersection of the demand and supply for money. And that determines the interest rate and the interest rate then determines investment, and there is a chain of reasoning that goes along that way.

If you think about it for a minute, one recognizes that money is not needed for most transactions. Today, we almost never use money. Typically when I visit another country, I do not even change any money. I use my credit card completely and that is true with most transactions today. Moreover, most money is interest bearing. In fact, the interest rate on money is simply the T-bill rate minus a little transaction cost. I will show you a slide in a few minutes illustrating that, but the basic point is, that the interest rate that people get on their demand deposit which is what most money is, has nothing to do with the transaction's demand for money. It is just determined by the transaction cost of converting T-bills into

money. That means that the opportunity cost of money, that is the difference between interest rate on-I use the term cash management account, I should be careful because that saying a registered trademark of Merrill Lynch and in United States I would be hold before intellectual property for using a brand name, but I think you will understand what I mean. These are interest-bearing brokerage accounts that most people keep their money in today, most people with money keep their money in. That is to say people who do not have any money do not keep their money there, but people with large deposits use these kinds of brokerage accounts. So the opportunity cost of money is only the difference between interest rate on CMA accounts and T-bills and that is simply determined by the transaction cost of CMA accounts and it is unrelated to economic activity.

Thirdly, most transactions are trades in assets and not directly related to income generation. In fact, if you look at the volume of transactions, it is in trillions of dollars, and that is people buying and selling stocks and currencies, and that is to say not related to income generation, but that is what monetary theory is supposed to be about-not transactions but about income generation. That would not be a problem if there were stable relationship between income generating transactions and total transactions. But in fact, the relationship between the two was not stable over the business cycle.

And finally, the one of the basis of transactions demand for money was based on the stability of velocity or the stability of the demand curve for money. But in fact, it has exhibited enormous instability, which has led to the end of monetarism in most countries, fortunately.

This leads to a number of empirical puzzles and problems. One of them is that the standard theory puts a great deal of emphasis on the role of real interest rates, in determining economic activity. But as that first chart shows, real interest rates for long periods of time have been almost constant. You cannot explain anything by a constant. You cannot explain the business cycle by a constant. So in fact, what one sees there is yes there are periodic changes but they are not cyclical in nature. So it is very hard to use variability in real interest rates as a central feature of a business cycle theory.

Secondly, if you turn to the next statement, there is a little evidence of the fact that real interest rates on investment in the United States. As I say, there are a large number of empirical studies, but in general, these studies suggest that the dependence on investment on real interest rates is very limited. And what we see in the United States, for instance, in the most recent recession is that as the Fed has cut the nominal in the real interest rates there has been no effect on the investment. It has had some effect on consumer behavior through refinancing a mortgage, but very little effect on the investment. Interestingly, a number of empirical studies suggest that there is considerable evidence of effects of nominal interest rates on the investment, which is of course, inconsistent with standard neo-classical theory which says that just real interests rate matter.

And part of explanation lies with the final observation on this chart, which is that investment equations in which cash flow and net worth appear significant. This is an interesting episode in intellectual history. The first investment equations that were done by Meyer and Kuh in the 1950s show cash flow effects that were significant. Then Modigliani and Miller wrote their paper and neo-classical theory grew and everybody said you cannot have cash flow effects, that is inconsistent with economic theory. So it became a heresy to

have a cashflow affecting your investment equation. That continued until basically the 1980s when the imperfect information theories developed, which said that cashflow and real balance effects are important. Then it became permissible to run regressions again with cash flow and real balance effects in. And lo and behold, what they found was what Meyer and Kuh found in the 1950s that those are very significant. So the standard investment equations basically of Paul Jorgenson do not work as well as alternate specifications.

There are host of other anomalies in questions. For instance, one of the standard theories in macroeconomics is that inventories are supposed to be stabilizing. They should be a buffer. You should invest inventories in downturns and reinvest in booms. In fact, if you look at the data, they are pro-cyclical rather than anti-cyclical. A second example is that the experts often do not seem to increase as much as one would have expected after a large devaluation, large depreciations, which were seen very clearly in the East Asia crisis. And finally, there are problems with the movements of real product consumption wages over the business cycle, which are either anomalous or not addressed by the standard theory.

Two of the important questions which the standard theory does not really address are why some shocks get amplified, which while the standard theory says that the economy has a number of buffers that should stabilize the shock rather than amplify them. And finally, why the effect of some shocks seem so persistent. There are number of phenomena, reasons why you would expect that if you have a shock, one period negative, another period should be positive and the two should go against each other. Therefore, you should find a great deal inter-temporal stability. But in fact, we see persistence in adverse shocks.

These problems on the empirical side have gone hand in hand with some advances in economic theory, which have undermined much of the standard theory. And there were two aspects of that that I want to mention. One related to the Nobel Prize in 2001 and the other one to the Nobel Prize in 2002. One of them focused on imperfect asymmetric information, which leads to imperfections in product, labor and capital markets. The others are the systematic irrationalities in behavior which Kahnemann, Tversky and many others have identified, which have really undermine some of the basis of rational behavior. In particular, I will comment about that in a few minutes, some of the implications. Anyway, to go back to the fundamental problem that was posed two, three decades ago, the fact that there was the lack of micro-foundations for standard macroeconomics. There were two alternative approaches. One was a theory of new classical and real business cycle theories that were based on the standard microeconomics and tried to form an aggregate macroeconomics based on standard, neo-classical economics. And second are a set of new Keynesian theories.

I first want to explain why the new classical and real business cycle theories failed. Of course, I do not think they would agree with me on this, but I think this is quite overwhelming, the failures. The fundamental problem, of course, is that the models assumed away the problems that were to be explained. If you are going to try to explain unemployment, you cannot begin with the model that assumes full employment. As Chairman of the Council of Economic Advisors, one of the problems I faced with, we had a higher macroeconomists and many of the very good macroeconomists were coming out of

places like the University of Chicago and Minnesota. And all these economists believed that there was no such thing as unemployment. I had this image of hiring one of these and then having a meeting with the President, and you have to remember President Clinton was elected on the platform of jobs, jobs, jobs and he was very worried about unemployment. I just could imagine this meeting between this economist from the University of Chicago and President Clinton and President Clinton says, "I am very worried about unemployment" and this economist saying, "There is no such thing as unemployment. People are just enjoying leisure." And they might say, "They do not seem very happy about all this leisure. Leisure, you are supposed to be enjoying yourself." And he says, "That is a problem for the psychiatrist and psychologist, not the problem for the economist." So I decided not to hire one of the Chicago, Minnesota economists. Because I felt that he would fire me instead and I would join the unemployed.

More broadly, it ignored mounting theory and evidence concerning imperfect, asymmetric information and irrationalities. This is really an important problem because the basic methodology in the Chicago kind of approach is that the representative agent model. Now, think about a minute, all the work on asymmetric information on how capital markets have problems, based in asymmetric information, which I happen to think very important. If you have a representative agent, the only way you can have asymmetries of information, are if you have people with schizophrenia. That is to say, half their brain does not know what the other half the brain knows. And that does not make any sense. If you have only one person in the economy, you cannot have problems of asymmetric information. So the very basic methodology that underlay new classic economics and real business cycle are the representative agent was doomed to failure if you think that one of the key problems is lack of imperfections of information and asymmetry of information. It was just a methodology that could not work. Moreover, Shiller and others have emphasized that the stock markets exhibit irrational exuberance and pessimism, herd behavior. I think there is a recognition that this plays a very important part in the economy. Allan Greenspan, for instance, has emphasized the importance of irrational exuberance and I think he today might talk about irrational pessimism.

Obviously, I think the problem of asymmetries of information are important and in fact, the host of corporate, accounting and banking scandals in the United States and Europe are related to imperfections of information and those scandals today are having, I think, significant macroeconomic effects. Moreover, if you look in greater detail at the rational expectations model, you discover that most of the results have nothing, nothing to do with rational expectations, but depend on perfect market assumptions. In fact, in some work that I did a number of years ago with Peter Neary in Dublin, was that with market imperfections and rational expectations, the efficacy of government policies actually increased, not diminished. So rational expectations may actually make government policy more effective. What gave all the results of the rational expectation schools is the assumption of market clearing. But of course, that was what you were trying to analyze. Just to try to explain why that is so, think about the following way:

one of the reasons that the government policies has limited efficacy has to do with leakages—that if I increase incomes today, some of that is saved and leads to increased income tomorrow. But if people have rational expectations and they realize that, and they

realize their income tomorrow is going to be higher, that means they are going to consume more today. So there are these inter-temporal feedbacks that actually increase the efficacy of policy if you have strong rational expectations.

Finally, rested on a number of implausible assumptions such as the major source of disturbance and technology shocks, and the economy randomly becomes less efficient. I think to me it was absolutely clear that those sets of approaches based on trying to move from standard, perfect market models to an aggregate macroeconomics was not going to succeed in explaining most important macroeconomic phenomena. So that leads one to try to think about alternative formulations. And in fact there were two branches of what are sometimes called new Keynesian economics. One is based on a more traditional rigid wages and prices, but as I said before, wages and prices are not rigid and many of the theories like those of the new Chairman of the Council Economic Advisers, Greg Mankiw, are very unpersuasive and I hope he has better luck in his economic advice than he does in this economic theory. The alternative approach is based on debt deflation theories. Irvin Fisher, who was a Professor at Yale, emphasized the problems caused in the Great Depression by the fact that wages and prices were falling and the fall decreases in asset prices. And in many ways what I am going to try to argue is this is the intellectual framework that one ought to be using in Japan and many other countries. This is a theory that I have developed with my colleague Bruce Greenwald and in particular it is based on theories of asymmetric information and asymmetries in the speeds of price adjustment. Obviously today, I can only hint at the broad outlines, but I want to talk about a few of those. The underlining idea is that we emphasize a great deal of imperfections of capital markets, and in particular, this leads to credit rationing of what we call inequity rationing. That is to say, imperfections of capital markets that limit the use of equity markets in raising new funds, and therefore limits the ability to spread risk. And that means that firms act in a risk averse way, it also means that firms' balance sheets matter, matter for production, investment, employment and all decisions and so do firm cash flows. It provides, in another words, explanation, for instance, the kinds of investment equations I described earlier where real balance effects in cash flow effects do matter, as well as, what is happening in the banking system. I will come to that in a second. It also means that household and government balance sheets and cash flow also matter. One of the interesting aspects of this theory is that it focuses not only on the demand side but also on the supply side. But it is very different from Reaganite supply side economics. In other words, it focuses on some of the limitations on the willingness and ability of firms to produce. In particular, since production is risky, and risk cannot be fully divested, shocks to the economy can affect the willingness and ability of firms to produce. It is especially relevant in small open economies. The reason why—and this is one of the observations that actually led us to the development of this theory—for small open economies, there should never been an aggregate demand problem. Simply by changing their exchange rate, they should face a horizontal demand curve. They should be able to sell as much as they want in the market. So if demand were the only problem, you would never see unemployment. Because just by adjusting exchange rate, you can get as much demand as you wanted. The fact is that aggregate supply is as important as aggregate demand and when there is a shock to the economy, the ability and willingness of firms to supply may be

reduced. Particularly important in this area is the supply of credit can be a critical constraint. Here in East Asia, one saw that in a very important way in the East Asia crisis. Because even as the country devalued, and their exchange rates fell, exports increased very little. And the reason was they could not get the working capital that they needed to increase their production. Actually Japan played a very important role in the Miyazawa Initiative in providing some of the working capital that allowed the expansion of production that helped reunite these economies.

One of the consequences of this is that demand and supply are very closely intertwined. Demand shocks at one period have consequences for supplies in subsequent periods. Adverse effects on from balance sheets lead to lower production, and adverse effects on bank balance sheets lead to lower credit supply. So the important notion here is that shocks to demand in one period affect supply in the next period. And remember what I said earlier, one of the difficult questions that one needs to explain is the persistence of the effects of shocks. This theory then explains that in a very neat way. Because it says if you have a demand shock one period, it has effects on the ability and willingness to both demand and supply in future periods. Finally, it also emphasizes the importance of redistributions. Redistributions, for instance caused by large price changes, matter because of important non-linearities. In other words, many of the changes that go on the economy are changes in prices. Say the price of oil goes up, that makes oil producers better off, oil consumers worse off. In a closed economy, in a standard economic theory, that would make no difference because the gains to one would be offset by the lost to another. You think of the global economy the same way. You have an oil price shock. The gains to some should be offset by the losses to others. But once you recognize that there are these real balance cash flow effects and they are non-linearities. The gains to one may not offset the losses to the other. Losses are felt more strongly than the gains. And therefore, shocks can have a very strong negative effect. Again, let me give you an example where that was brought home very forcefully. There were the oil price shocks that affected the United States negatively and most other countries in the early 1970s, 1973 and 1979.

But interestingly, in 1986 there was another oil price shock, in which the prices went down. Now, standard theory said when the prices went up, you are worse off, when the prices go down you should be better off. But in fact, the US economy was hurt both times. That is because of these large distribution effects.

So leads to the new monetary paradigm which focuses not on base money, not on money that the transactions demand for money. It focuses on credit, credit as the real engine in the economy. In fact, you can think of it as the generalization of loanable funds theory that was developed actually parallel to the Keynesian theory by Robertson in Cambridge. But it is markedly different from the old loanable funds theory because the key issue in the supply of credit is the problem of information, certifying who is credit worthy, monitoring credit worthiness and that brings one to the institutions, the banks, which provide credit. Firms also provide credit. In our fully developed theory we look at credit supply not only by banks but also by firms and by other institutions in society. But the important point is that banks are specialized institutions that focus on the problems of information, ascertaining credit worthiness and monetary enforcing loan contracts. One can view banks as firms that engage in these credit services. But that entails risk bearing. And the reason why I cannot

describe here in full detail, but one can separate out the information services from the risk bearing. Those are intimately intertwined and the result of that is that as it provides credit information and provides credit, it has to bear risk. But the willingness in ability to perform this risk depends on bank's balance sheets. So that when the bank's balance sheets are adversely affected, the supply of credit gets adversely affected.

The theories focus then, on how shocks to the economy and policy—both macro policy and regulatory policy—affect banks and others, including firm's ability and willingness to provide credit. One of the important aspects of this is that there is often been this dichotomy that you think of regulatory policy as a micro-policy and central banks involved in macro policy. One of the important things that this emphasizes is that regulatory policy—bank regulations—have major macroeconomic effects. Again, to turn to the United States as an example, the reforms and regulations that were part of the 1989 US Banking Law were the major factors leading to the economic recession in 1990-91. One of the things that the Clinton administration did in 1993 to help the economy get out of the recession was to change the regulatory structure. So we very much view regulations as part of macroeconomic policy. The problem was that everybody recognized there was a problem of credit crunch. And that had to do with the ability and willingness of banks to supply credit. So we had to think about how we would affect the willingness and ability of banks to provide credit and that has to do with regulatory policy.

The theory pays special attention to bankruptcy, credit interlinkages among firms, which are as important as standard equilibrium product and factor interlinkages. The new paradigm provides a framework for thinking about deflation and alternative policy responses. Deflation and particularly unexpected deflation leads to real balance sheet effects which can adversely affect aggregate demand. In other words, what happens when you have deflation is that you pay back more than you thought you were going to have to pay back in real terms. You are worse off. The United States had a very important episode of deflation in the end of the 19th century and it was leading to some very serious problem for the US economy. Interestingly, the election of 1869 was fought the issues of monetary policy. It was the key issue in the election. The slogan of the Democratic candidate was that we shall not be crucified on the cross of gold. And what that meant was the Democrats, who represented small farmers that were the debtors, said we have to increase the money supply. At the time, for central banks, the major method of increasing money supply was going from the gold standard to bimetallic gold and silver standard. That would have increased the money supply that would have undone the deflation. So you think of monetary policy as something that should be reserved to independent central banks, here a hundred and some years ago, it was the central issue of the political debate of that time. This is in addition to the traditional real interest rate effects that many of the people have discussed here and elsewhere recently, when you have deflation, even when you have zero interest rates, nominal real interest rates can be quite high. In the Great Depression when the prices were falling ten percent a year, nominal interest rates were zero, real interest rates were 10 percent—nowonder economic activity was choked up. It is not that bad here in Japan, but the important point is that when there is deflation there are these real interest rates effects.

Globalization has led to some deflationary bias in the global economy. Closer integration could mean that there is deflationary contagion. Right now here in Japan, there is a lot of concern precisely about that issue, about whether the inexpensive supply of goods from China and deflation in China is leading to lower prices of inputs into Japan, and that is one of the structural factors leading to a deflationary bias in Japan. Moreover, there are some other structural features that more competition is also leading to downward pressure on prices.

There is another important aspect that I am not going to have much time to talk about today, but I just wanted to note it because I think that it is one of the most important issues on the global architecture. We had a lot of discussions five years ago about reforming the global financial architecture. Unfortunately, it did not get at what I view as some of the most important issues. And this is one of them. The global reserve system means substantial global income is simply 'buried' in the ground every year. What am I talking about? What I am talking about is the fact that there are now more than \$2 trillion of reserves and every year, something like several hundred billion dollars are added to reserves. What does that mean? That means that every year, several hundred billion dollars of income are taken and put into the ground. Now the form we should go with right now is US dollar bills. In the past, the deflationary bias associated with the global reserve system was offset by the fact that many countries ran loose monetary policies and this was offset by countries living by their means. But in today's global climate, that is no longer true. Everybody wants to have trade surplus. But you cannot have a trade surplus because one of the basic definitions is that sum of the trade surpluses have to equal sum of the trade deficits. So if China and Japan and few other countries are having surpluses and the rest of the world have deficits. But as they try to get rid of those deficits, it is like a hot potato as goes from one country to another. And the traditional way of getting rid of the deficit is trying to deflate your economy. That is, of course, what happened in Korea and East Asia. So it is a systemic problem in the global system.

Right now, we see this kind of mentality affecting Europe. At the same time, the stability pact in Europe means they have a limited ability to use expansionary fiscal policy. Meanwhile, the central bank focusing exclusively on inflation means that they cannot use the monetary policy and Europe is, therefore, in what you might call a low income deflationary bias.

Now I want to come fairly quickly to the prescriptions. The theory suggests that one ought to focus on the balance sheets. Shifting from deflation to inflation may help the balance sheets, undoing the damage that deflation has done in increasing the real value of debts. And the problems are particularly severe in Japan and other countries where there have been an asset bubble that breaks. Because when you have the asset bubble that breaks, it really destroys balance sheets. Moreover, shifting from deflation to inflation may lead to lower real interest rates.

Now, there are three aspects of policy frameworks that I want to mention. The first is moving from the deflation to inflation. The second is depreciation of the currency, a weaker yen. And the third I want to talk very briefly about is the bank balance sheet because there are a lot of discussion of the problem of non-performing loans. In terms of - I should say

depreciation, not devaluation because it is a quasi-flexible exchange rate, so I meant depreciation. Obviously, it will improve Japan's balance sheet, given its large creditor status. The second point I want to emphasize, and this is quite important, the mindset of central bankers around the world has been largely set by the problems of the 1970s and 1980s when they were thinking about inflation, and that is what was taught at graduate schools, that is what was taught in the economic courses. There is a real challenge for both central bankers and macroeconomists more generally, to begin to think about not an inflationary world, but a deflationary world. And many of the things get turned upside down when you change your mindset. For instance, one of the arguments against depreciation is that it is inflationary because the cost of your inputs goes up. And it is one of the reasons that the IMF always is telling countries do not depreciate, do not devalue because they are always worried about inflation. They are fighting the war of the 1970s. That war is largely over. We want to go to the next war. In that world—the world of deflation—when the currency depreciates, it undoes the deflation. And that is a good thing. So what was bad in the inflationary world becomes good in the deflationary world. And there are lots of examples of this kind of change in mentality that one has to go through. And of course, these balance sheet effects, these anti-deflationary effects are in addition to the normal trade benefits that results from depreciation.

Finally, let me talk just a minute about the issue of the bank balance sheets and nonperforming loans. There is a lot of mystery and confusion in this area. One needs to separate out the issues of management from the issues of balance sheets. If you move nonperforming loans off the bank's balance sheets, move them into a government corporation or some other corporations, and you pay the full market value for them, you do not improve the balance sheet. It does not change the bank's net worth. You solve the management problem, banks may or may not be well suited for resolving these problems. They may not be well suited for dealing with nonperforming loans. But you do not solve their balance sheet problems simply by moving the nonperforming loans off the balance sheet. What does improve the bank balance sheet is if you take those nonperforming loans off the balance sheet, and you pay them as if they were performing loans. That is to say you subsidize the banks. But obviously, you can improve the bank balance sheets by subsidizing them in any way. So the real question is, is the agenda an agenda for subsidizing the banks or is it an agenda for management, which means, saying that they are not well equipped for restructuring loans. These two quite different agendas have been confused. It may well be that one wants to subsidize the banks and I think there are some good arguments for recapitalizing banking system, but if you do that, the government should get full value for it. It should get an equity interest in the banks if it recapitalizes them or has some other claims on the private banks. There is no reason why it should be giving these free gifts. But if you do not have that kind of transparency, you are likely to make some very significant mistakes and it has some serious problems.

I also want to point out, and this is the final point, there are some unconventional ways which provide, by which one can recapitalize the banking system which do not just move the problem of the, they do not, at the same time, worsen the government's balance sheets. In other words, there is a real problem here. If you have a hole in the bank's balance sheet and you fill that by government, you have just moved that from one place in the society

to another. And that may be a good thing to do, but you ought to recognize that you are not changing the underlying problems. You are just moving it around and that is where the redistribution issues that I talked about before make a difference. The theory that I described says that those distribution issues are important. They should not be ignored. But you should recognize again what you are doing.

I am running out of time, I have a slide here that you can look at, trying to explain why [break in tape] that I think one might want to think about, which is temporary consumption tax cut, may be more effective than income tax cuts for a couple reasons. First, the fact that it is temporary is more credible because given the huge debt GDP ratio, it is more likely that those taxes will be increased in the future, so that the temporary nature is credible. Whereas a permanent income tax cut is not credible. Secondly, by being temporary, you agree to inter-temporal substitution effect (i.e., induce people consume now while there is a sale on consumption).

The key questions are following. I think there is an increasingly broad sense of consensus that one needs to reverse the deflation. And one needs the advantages of depreciating the currency, the yen. So those two, there is a general, broad, increasing consensus on those two objectives. The problem is that those are endogenous variables. The rate of inflation or the rate of deflation is not a matter of government fiat and in the market economy the exchange rate is not a matter of government fiat. They are both endogenous variables. So the real question is and the hardest question is what government policies are there that will result in undoing the deflation and will result in a depreciation of the currency. There are number of policies which one can talk about and that have been discussed in Japan. I actually think that there is not one single panacea. One needs a whole set of policies because the problem is sufficiently severe. It is going on for decade that one should actually have several policies. So in this discussion today, I thought I would bring up one policy that is a little bit unconventional and when I raise it, I almost worry that I might lose my card as a credited economist because it is almost like heresy to say what is in the next sentence. Printing money, that is almost worst sin that economist commit. But one has to understand, again going back to the point I made before, when you are in an inflationary economy it is different from deflationary economy. In inflationary economy, you should take away my card, my Ph.D. in inflationary economy. If I say printing money, you should look at me and say where did he get his Ph.D. from? But in a deflationary economy, the things may be just the opposite. At the very least, it seems to be an idea that is worth discussing. So the idea is to finance some of the deficits by printing money. There is no evidence of a discontinuity. That is to say, if some people say "if you start printing money, won't you have hyper inflation." That is the theory that says that the world is very discontinuous and certainly my observation about the moderation of both the Central Bank and the Ministry of Finance in Japan is that once they start printing money, they will not just turn the printing presses faster and faster. It will be very moderate. In fact, the real danger is they will not do enough, not that they will do too much. So there is no evidence as I say of discontinuity, a moderate amount will not set off rampant inflation and economic theory would say that there is, you could adjust the amount to get the right amount of inflation. It has a number of advantages over debt finance. One of them is that with debt finance, you have to keep ruling over the

debt-every three months, six months, year, five years. By issuing money, you do not have to. It is permanently out there.

There is a second important advantage, that in most accounting frameworks, it is not treated as part of government debt. One of the problems of Japan today is that because it has run deficits year after year, the debt/GDP ratio now is the highest among the G7 by a considerable amount. And that is beginning to have some effect on rating agencies and one worries about a scenario in which we know markets are irrational, we know markets can panic and one worries with open capital markets that if the debt/GDP ratio gets too high, there could be that kind of panic. If you ask the question, if your deficit/GDP ratio is seven percent a year, in five years that is 35 percent. You add that to your already 135 percent debt/GDP ratio, and the number keeps getting larger and larger. So it is clear that the current strategy cannot continue and you have to think about an alternative. One of the points is that this printing money can be used to help recapitalize the banks. I talked about unconventional ways that would not add to the debt burden of the government. This is one way, one of these several possible ways. In fact, this is a strategy which worked in Sweden in the Great Depression.

There are some important lessons that even if the prescription works, it will not address Japan's longer run problems. There are structural problems, as well as aggregate demand problems. The two are intertwined. But I believe very strongly, that one cannot affectively address the structural problems until one addresses the aggregate demand problems. If you do not address the aggregated demand problems, you resolve some nonperforming loans, you will get more in nonperforming loans in another year or two years. And that, of course, has been the history in many countries.

I think there are opportunities for addressing some of the long-run productivity problems, structural problems. For instance, one of the issues is that the level of productivity increases in the service sector has not been matched at in the manufacturing sector. If you look around the world, the economies, there have been a major change in the structure of most of, many of the advanced industrial economies, moving from manufacturing to the service sector. And economies that have been most successful like the United States and UK have had enormous productivity increases in the service sector. And yet, this is one of these sectors which is lagged behind in Japan. So that in some sense, that structural problem is one of the things that I think needs to be addressed. But those structural issues as I set repeat can best be addressed when the economy is in a more robust situation. Unless Japan does something about the continuing short run lack of aggregate demand, there is a real risk that the structural reforms actually exacerbate these long run problems as financial problems mount and investments in new technology wane.

Let me just come to some general conclusions. There is I think a new need for a new macro theory and a new paradigm for monetary economics. I think the deficiencies in the standard Keynesian economics and the deficiencies in real business cycle in rational expectations theories are sufficiently great that there is a need for alternative theory, one particularly adapted to the kind of situation that Japan faces with deflation. I think the new theory that I tried to outline here very briefly provides a better explanation of a host of phenomena. Most importantly, the new theory actually provides insights into how to think about the variety of policy issues, approaches which are in many ways significantly different from those of

either the standard Keynesian economics and/or those of the rational expectations real business cycle theories. So I hope in the discussions that we have, we can try to talk about the extent to which this new theory provides insights into the situation in Japan. Thank you.

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