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A CONVERSATION WITH FEDERAL RESERVE
BOARD GOVERNOR JEREMY STEIN

Washington, D.C.
Thursday, October 11, 2012

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Welcome:

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Keynote Address:

JEREMY STEIN
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Moderator:

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P R O C E E D I N G S

MS. DYNAN: Good Morning. I'm Karen Dynan Vice President and Co-Director of the Economics Studies Program here at Brookings.

I'm pleased to introduce one of the newest Governors of the Federal Reserve Board Jeremy Stein. Governor Stein swore the oath of office on May 30, 2012 to fill an unexpired term ending January 31, 2018.

This is not his first tour of duty in Washington. In 2009, Governor Stein served in the Obama Administration as a senior advisor to the Secretary of the Treasury and on the staff of the National Economic Council. Prior to his appointment to the Fed Board, Governor Stein was the Safra Professor of Economics at Harvard University where he taught courses in finance in the undergraduate and Ph.D. programs. Previously, Governor Stein taught finance at MIT Sloan School of Management. Before that he was an assistant professor at the Harvard Business School.

Governor Stein has a distinguished research record. He's covered many topics including behavioral finance and stock-market efficiency, corporate investment and financing decisions, risk management, capital allocation inside firms, banking, financial regulation and monetary policy. In 2008, Governor Stein served as president of the American Finance Association.

He is a Chicago native and he received his undergraduate degree from Princeton University and his Ph.D. in economics from MIT. I'd also like to note in a shameless plug for Brookings -- Governor Stein has been a participant at the Brookings Papers on Economic Activity serving as a discussant for former Fed Chairman Alan Greenspan's 2010 paper entitle *The Crisis*. Jeremy, I am wondering whether your comments on Chairman Greenspan's paper would be different now that you have four months under your belt at the Fed.

Upon his nomination the Harvard Crimson interviewed fellow economics professor Philippe Aghion who said "Jeremy Stein is a brilliant economist who understands monetary issues extremely well. He'll be a great edition to the Board."

The article goes on to say that Aghion noted that Stein will serve as a strong bipartisan candidate, maintaining a core Democratic set of ideals but retaining the trust of Republican figures.

Today marks Governor Stein's first public speech as a Board member and we're please to host him for what is sure to be an interesting talk about recent Fed actions. After the speech, Brookings Senior Fellow and former Vice Chair Donald Kohn will moderate a discussion with Governor Stein.

With that, please join me in welcoming Fed Governor Jeremy Stein. (Applause)

MR. STEIN: Thank you very much. Thank you, Karen. Thank you for that nice introduction.

So, it's a pleasure for me to be here and I want to say that it's a special thrill and honor for me to be here along side Don Kohn. One of my only regrets about coming to the Fed, other than maybe the dress code is my timing. I wish I'd had the good sense to get here a few years earlier so I could have had Don as a colleague and had the opportunity to learn from him. Now the only way I get to learn from him is indirectly. It's notable that some of the best advice I've gotten from people at the Board since I joined has often come in the form of here's what Don Kohn would have done in this situation. So, Don, indirectly thank you very much and I look forward to our discussion.

So, what I was hoping to do was to take this opportunity to describe the framework I've been using to think about monetary policy in the current environment and focusing primarily on the role of large scale asset purchases. Before doing so let me just

note the usual disclaimer. The thoughts I'm about to give you are my own and do not necessarily reflect the views of others on the FOMC.

There is a considerable diversity of views within the FOMC and within, among economists more generally about the use of large scale asset purchases, LSAPs, and other unconventional policy tools. And this is both inevitable and healthy given the unprecedented circumstances in which we find ourselves.

Let me be clear on where I stand. I support the Committee's decision of last month. Namely to initiate purchases of mortgage backed securities, MBS, at a rate of $40 billion a month in tandem with the on-going Maturity Extension Program of Treasury securities and to plan to continue those purchases if the Committee does not observe a substantial improvement in the labor market outlook. Given where we are and given what we know I firmly believe that this was the right decision.

In my comments today I'm only going to briefly review the case for taking that action, as that ground has been well covered most notably in Chairman Bernanke's recent Jackson Hole speech.

Instead I'm going to explore in more detail the factors that make decisions about LSAPs so challenging. The Chairman discussed these challenges in his recent speech saying "estimates of the effects of nontraditional policies on economic activity and inflation are uncertain and the use of nontraditional policies involves costs beyond those generally associated with more standard policies. Consequently, the bar for use of nontraditional policies is higher than that for traditional policies."

So, with that principle in mind, my aim here is to layout the thought process that I'm bringing to bear in an effort to decide just how high the bar should be and whether proposed action clears that bar. Along the way I hope to highlight some gaps in economists collective understanding of LSAPs and maybe to provoke a little bit of

further research on some of these questions.

But let me start by setting the context. The point of departure for any analysis of monetary policy is our dual mandate to foster maximum employment and price stability. And in my view the first pass here is pretty clear. That is to say, unemployment remains painfully high and, in my opinion, well above the long run structural rate of unemployment. Moreover, if you smooth through the ups of this sort of inevitable ups and downs of incoming data it appears that the economy is growing at such a pace that absent policy action progress in reducing unemployment will likely be slow for some time.

In the mean time, inflation is subdued running at or below our long run objective of 2 percent. While longer run inflation expectations remain well anchored. So, if the federal funds rate were say at 3 percent we would have, in my view, an open and shut case for lowering it. Now the complication, of course, is that the funds rate is essentially at its lower bound, which means we can't turn that dial further. Instead we have to use unconventional tools such as LSAPs and guidance about the future path of the funds rate.

With respect to LSAPs, my belief, and this echoes the views that Chairman Bernanke expressed at Jackson Hole, is that prior rounds of LSAPs have played a significant role in supporting activity and in preventing a worrisome undershoot of our inflation objective. And the case is especially strong with respect to the first round of LSAPs, which was a very potent piece of policy action that helped to bring the economy back from the brink in 2009.

However, we now face a harder set of questions. Not about the value of past LSAPs, but about the marginal costs and benefits of future LSAPs. A number of observers have raised concerns about either diminishing returns or escalating costs. I

think that at least in the limit, these concerns must be right. We could in principle push this tool to the point that the hurdle for additional usage would become very high.

As policy makers, I believe it's our responsibility to be as clear as possible about the nature of these costs and benefits and how they might evolve. So, in that spirit, I'm going to try in what follows to outline the mechanisms that can give rise to either decreasing marginal efficacy of LSAPs or to increasing marginal costs.

Now, while much of my discussion is going to focus on what you might call the direct hydraulic effects of LSAPs on the economy. It should be emphasized that their overall impact can be augmented via what you might call a signaling or a confidence channel. That is to say that another important tool in the Committee's arsenal these days is its use of forward guidance about the expected path of the funds rate. And a change in this guidance was a key part of the September FOMC Statement with the Committee stating that a highly accommodative stance of monetary policy will remain appropriate for a considerable time after the economic recovery strengthens.

I believe that the LSAPs component of the statement helped to bolster the credibility of the forward guidance component by pairing an immediate and concrete set of actions with a statement about future intentions. And I suspect that this complementarity helps us to understand the, the relatively strong reactions of the stock market, for example, in the immediate wake of the release of the statement in September.

Now, in addition to this signaling channel, LSAPs also, as I just said, have a variety of direct effects on the economy. Now to understand, to better understand these effects it's useful to compare them with those that make monetary policy work in normal times. Away from the zero lower bound, monetary policy is typically thought to work through an expectations channel. That is to say, when the Fed cuts the funds rate

long term rates also fall primarily because expectations of future short term rates are moving down as well. Okay? Now, by contrasts, a principle motive for doing LSAPs is to influence interest rates, not to just expectations, but through effectively -- just direct supply and demand effects in the long term bond market. Okay?

As the Fed buys long term, more long term bonds their price goes up and their yield falls, even holding fixed expectations about the future path of short terms rates. Another way to say the same thing is that the so called term premium on long term bonds declines which is just a, sort of, jargony way of saying that after an LSAP, long term bonds are expected to perform less well as an investment relative to short term. So there's a relative price pressure mechanism.

Now, there's a large body of evidence building that suggest that LSAPs do in fact exert significant pressure in this way on long term Treasury yields.

So, you know, estimates of the cumulative effect -- so this is starting with QE 1 and through the present, estimates of the cumulative effect of past LSAPs on ten year Treasury yields are in the range of 80 to 120 basis points. And these past actions are one reason why Treasury term premiums are now near historic lows, and these are somewhat model dependant, but according to one well known model that is used by Fed staff, the term premium is in the neighborhood of minus 80 basis points.

So, here's the central theme, or a central theme of my talk today which is the following: when policy works by moving term premia, as opposed to -- by simply shifting the path, the expectation of the path of short rates, the transmission to the real economy can be altered in subtle, but important, ways. Okay? And these differences can have implications for the benefits of a policy action, for its costs and even its consequences for financial stability. Okay?

Moreover, to really address these issues, we need to understand not

only the hydraulic question of how much an LSAP moves term premia, but also the underlying economics of why it does so. Okay? I should just note that in many macro-models this distinction that I'm making between moving rates via expectations versus moving rates via term premia is essentially set aside.

So, for example, in the Board staff's main workhorse model, the FRB/U.S. Model, a fall in the long term rate is assumed to have the same effect on economic activity irrespective of whether that fall in the rate was caused by a change in expectations of future short rates or caused by a move in the term premium. Okay?

So, for the sake of concreteness in what follows, let's just think -- this is purely a hypothetical, but let's think in terms of a $500 billion LSAP conducted entirely by buying long term Treasuries. Later I'll come back and I'll speak to the differences that arise when the LSAP is conducted with mortgage backed securities instead. But for concreteness I'll start with Treasuries.

A reasonable estimate based on the empirical literature would be that such a program reduces the term premium and thus the ten year Treasury yield by something on the order of 15 to 20 basis points. That would be the effect of an incremental 500 billion.

Now in my mind this is the best empirically understood and least controversial piece of the transmission mechanism. Not surprisingly because we can observe, sort of, observe relatively directly the effects on rates. And, moreover, I should say I have no reason to expect diminishing efficacy on this particular piece of the transmission mechanism. You know, all evidence suggests that the past is likely to be a reasonably good guide to future outcomes here.

Now, of course, this evidence on the direct Treasury market impact is just a starting point. To fully evaluate the effects of an LSAP one needs to take several

further steps, some of which are more open to debate. In so doing, it's helpful to clarify the specifics of the supply and demand story.

Now one version of this story works through the market price of duration risk, which is another word for the interest rate risk borne by an investor in long term bonds. Now in this version of the story all bonds, be it Treasury bonds, corporate bonds, mortgage backed securities, can roughly be thought of as close substitutes for one another. And an LSAP, by reducing the total quantity of interest rate risk or duration risk in private hands, lowers the price of this risk and thereby lowers the yields on all bonds roughly speaking by an amount proportional to their duration. Okay?

Going further you might argue that to the extent that equities, as a long term asset, also embed some duration risk. The return investors require to hold them should fall commensurately thus giving a significant boost to stock prices.

However, in other versions of the story markets are somewhat more segmented and Treasuries and other bonds are not such close substitutes for one another. There are effectively separate investors who hold the different assets. In such a case an LSAP would have differential effects. And an LSAP that absorbs Treasury supply might be expected to lower the yields on Treasuries relative to the yields on other assets or alternatively to increase the Treasury corporate spread or to increase the Treasury and the S spread. And a similar logic would say, in this case, that an LSAP might have only a more modest effect on stock prices. Okay?

So, with this as a backdrop let me start with the efficacy side of the question. So take out $500 billion LSAP and as mentioned earlier let's just stipulate based on the evidence in the literature that its going to reduce the ten year Treasury yield by 20 basis points. Now a simply way to proceed would be to essentially plug this 20 basis point change into one of our macro-econometric models and ask what are the

consequences that emerge for G.D.P growth and for unemployment?

Now, just to be concrete, if you did this exercise with the Fed's workhorse FRB/U.S. model it would tell you that a $500 billion LSAP which moves the ten year Treasury rate by 20 basis points should be expected to bring down unemployment by approximately 2/10 of a percentage point at a two year horizon. This is an economically meaningful effect.

So, naturally all models rely on a host of assumptions so the true effect could be larger or smaller than what comes out of the FRB/U.S. or any model in that vein. But I would like to focus on two sources of uncertainty in particular.

The first uncertainty relates to a point that I mentioned, which is that a given impact on Treasury bonds may not pass through fully to other rates that are more relevant for consumption investment decisions such as corporate bond rates or primary mortgage market rates.

Now, if you read the recent academic literature on this question it seems somewhat divided. Some papers argue effectively that the pass through is quite strong, near 100 percent, others argue that it's quite low. My own kind of attempt at synthesizing this evidence is that, you know, thus far there has been fairly substantial pass through from LSAP to things like corporate bonds and to mortgages. Somewhat less, some but considerably less, pass through to distant asset categories like, for example, equities. That's kind of my reading.

Now, leaving aside this one set of complications so that we suppose that a $500 billion LSAP will have a 20 basis point impact not only on Treasury rates but on say corporate bond rates, there is a second, and I think, maybe more fundamental issue. How should we expect a company to respond? How should we expect a company to respond when it's long term borrowing costs fall but they fall not because of a change in

the expected path of short run rates, but rather, they fall because of a change in the term premium?

As I noted before, many macro-models assume that the effect will simply be the same. But is there any reason to believe that in reality the response to the two types of movements in rates might differ?

A basic corporate finance analysis suggests the answer may be yes. To see why, let me suggest the following example: imagine a firm that faces a rate on its ten year bond of 2 percent. Okay? So, the long term rate is 2 percent. At the same time, that firm's expectation of the rolled over sequence of short rates is 3 percent. So, that's what I mean by a 1 percent term premium. Okay? Long rate is 2 percent; the expected path of the short rate is 3 percent. Okay? So there's a term premium of minus 1 percent.

So what should this firm do? Well, clearly it feels like it should take advantage of the cheap long term debt by issuing long term bonds. But it's less obvious that this bargain 2 percent rate on these long term bonds should exert an influence on its capital spending plans. Okay? After all, it can take the proceeds of the bond issue and use these to pay down short term debt, to repurchase its stock, to buy short term securities.

That is to say to make a variety of capital structure adjustments as opposed to just capital spending changes. And these capital structure adjustments implicitly yield an effective return of 3 percent. You can see that most clearly in the case when it basically issues the long term bond and uses the proceeds to invests in -- to pay down short term debt, let's say. Okay?

As a result, the hurdle rate for new investment might remain pinned at 3 percent even as the long term bond rate continues to fall. So, as a result, at least in this highly stylized example, the negative term premium matters a lot for financing behavior,

but investment spending is somewhat decoupled from the incremental movements in the term premium and is instead more influenced by the expected path of short term rates, as opposed to simply the long term rate.

So this is, in my view, the reasoning that suggests why one might, in principle, think that, expect future rounds of LSAPs might be expected to have diminishing returns. Okay?

As I noted above, the data are quite clear, that past round of LSAPs have pushed down rates and have pushed down term premia. But this argument would suggest that the further term premia are driven into negative territory, the more the previous logic comes into play and hence the weaker is likely to be the response of aggregate spending to further downward pressure on long term rates. Okay?

This example is also, this corporate finance example is also consistent with what we have observed in markets in recent months. Issuance of both investment grade and high yield bonds has been robust. In fact, domestic nonfinancial corporate bond issuance is on pace to set a record in 2012 and the speculative grade, the high yield segment, may also register a new high for the year.

At the same time a large fraction of this issuance has been devoted to refinancing, either to retiring existing debt or to pay outs to equity holders via either dividends or stock buy backs. These uses of proceeds have accounted for about 2/3 of all issuance by speculative grade firms so far this year. And, as I've tried to suggest, such patterns are what one would expect in a world of segmented markets and negative term premiums.

This caveat about the diminishing effectiveness of LSAPs can be thought of as a specific version of what is sometimes referred to as Goodhart's law. It may be that under normal circumstances changes in ten year rates have significant explanatory

power for economic activity, perhaps in part because they are a proxy for the expected future path of the short rate or for other aspects of financial conditions. But it doesn't follow that when one sets out to influence the ten year rate directly, via asset purchases, without changing the future path of the short rate that the usual historical relationships will continue to apply.

While we should acknowledge these doubts it's also important to keep them in perspective. In addition to lowering interest rates, LSAPs also boost equity prices and other asset values. Taken together these effects of LSAPs seem likely to be meaningful, even if the benefits of a given impetus to rates are less than in the base line scenario sketched above. And to be sure, there is a wide confidence interval around any estimate we might make of the benefits.

Moreover, it's worth repeating a point made earlier, which is: what ever direct hydraulic effects LSAPs have by pushing down term premia and discount rates, there overall effect may be substantially reinforced via signaling effect whereby they enhance the credibility of forward guidance about the future path of the funds rate. Indeed the signaling benefits strikes me as an important part of the argument for LSAPs in the current environment.

Okay, let me now turn to the cost side of the equation. Several potential costs of LSAPs have been discussed by others.

One is the exit problem, namely that a large balance sheet may make it harder for the FOMC to raise rates when the time comes. Between the ability to pay interest on reserves as well various reserve draining methods that the Fed has been methodically testing, I'm confident that we have the tools to raise rates. If FOMC needs to act in the face of an emerging threat to price stability, there is little doubt in my mind that we can. As to whether we will, the Federal Reserve has repeatedly made clear its

commitment to both sides of its mandate to price stability as well as to maximum employment.

A second set of costs has to do with the possible effects of further asset purchases on various aspects of market function including bid-ask spreads and market depth. And it would indeed be a concern if Fed ownership, if large Fed ownership of sub-segments of the Treasury or MBS market were to cause market liquidity to deteriorate significantly. We've seen little evidence of such problems thus far and we continue to closely monitor market conditions. If problems do begin to crop up, we will know it and we'll be able to adjust.

A final notion of costs relates to the currently low yields and term premiums on Treasury bonds that I've been alluding to. At an intuitive level, one might think that for the Fed as for any other buyer contemplating a large asset purchase, information on prices and expected returns should be a relevant factor in the decision. Said differently, the case for LSAP might seem more appealing if the term premium on Treasury bonds was plus 200 basis points instead of its current level of roughly minus 80 basis points. However, this turns out to be a little subtle and to make sense of this intuition, we have to return to the underlying question of why LSAPs move term premium.

One interesting, and I would say admittedly speculative, possibility is that in a world where other sovereign debt has come into question, long-term Treasuries, the reason that they are valued so highly, is that they are uniquely able to provide a money-like safe-haven to certain investors. And by analogy here, think of currency which investors are willing to hold at a low, in fact, zero yield because the flow of services, of convenient services that currency provides.

Similarly, the negative term premia on long term Treasuries may in part reflect the scarcity of this money-like asset. If so, it would be economically costly to

remove Treasuries from the system. And this is -- this logic is really an application of what is often called the “Friedman Rule” in honor of Milton Friedman.

So a key question is to what extend this analogy holds? That is to say, to what extend is it the case that removing Treasuries is like removing currency? This is a hard question to answer and it turns out to depend on the details of how you tell the story.

If you believe that only nominal Treasuries, but not something similar like agency securities or AAA corporate bonds, if only nominal Treasuries provide money like services to investors you can try to measure the value of these money-like services by looking at the spread on a Treasury bond relative to something else that’s very safe but not exactly a Treasury bond.

So, for example, you could look at corporate bonds coupled with a credit default swap to eliminate the credit risk. Arvind Krishnamurthy and Annett Vissing-Jorgensen at Northwestern University have done a study along these lines. And their conclusion is that between 24 and 70 basis points of the yield premium on Treasuries is attributable to this money-like effect. Numbers in this ballpark suggest that the costs of further LSAP on this dimension are likely to be nonzero but modest relative to even a conservative estimate of their potential benefits.

Now a couple of caveats are worth noting: first this methodology probably provides a lower bound on the costs of an LSAP since it’s plausible that not only Treasuries, but also agency securities and AAA corporate bonds could have some degree of moneyness to them. In which case, a spread of the sort that I’ve just described might conceivably underestimate the value of the monetary services provide by safe and near safe assets.

So as I mentioned before in terms of future research, this area is one in

particular where both our conceptual understanding and our measurement techniques remain someone underdeveloped and where more work would be of great value in informing policy.

Second point to note is that things can change over time. One episode of interest is the Clinton Era Debt Buy Back Program, which in many ways was analogous to an LSAP. As many of you might remember, between earlier 2000 and late 2001, the Treasury repurchased long bonds with a face value of 63-1/2 billion which was about 10 percent of the then outstanding stock of Treasury securities. Much as with an LSAP, this repurchase program appears to have had a powerful negative effect on the term premium with long term rates falling sharply relative to short term rates. But in contrasts to what we've see with an LSAP, with LSAPs thus far, it was also associated with what appeared to be a quite pronounced increase in Treasury specific scarcity and one way this scarcity manifested itself at the time was a widening, and this is a little bit of a techi thing, was a widening of something called the Treasury swap spread which rose to something like 120 to 130 basis points in the spring of 2000. We have not seen anything like that in the current environment.

So the lesson I just want to, to highlight is that we should continue to develop and monitor a variety of metrics of this scarcity phenomenon because they may be helpful on a going forward basis in terms of providing an earlier warning if LSAP costs do begin to rise relative to benefits.

For the sake of concreteness, I have been talking in terms of a hypothetical all-Treasury LSAP. In light of our recent initiation of MBS purchases, it's natural to ask what the salient differences are between buying treasuries and buying MBS. In my view there are two, both of which suggest that MBS purchases may offer a better cost-benefit profile than treasuries at least in the current environment.

First, on the cost side, I just alluded to the idea that treasuries may provide money-like safe haven services to certain investors such that removing them from the system could entail a cost. Presumably, MBS are somewhat less money-like than treasuries, so this element of cost would be reduced when buying MBS.

Second, if the efficacy of Treasury purchases is diminished by the fact that many corporate borrowers already have plentiful access to low-cost funds, it's natural to focus on a sector that is more sensitive to financing costs. And the housing market would arguably fit this bill in the current environment. So to the extent -- and this relies on market segmentation -- but to the extent that markets are segmented and MBS purchases therefore have a more direct and powerful affect on primary mortgage rates than do Treasury purchases, this possibility might be another appeal of going the MBS route.

Finally, let me touch on the implications of LSAPs for financial stability. Some observers have argued that a long period of low rates can create an incentive among market participants, such as banks, insurance companies, pension funds, to reach for yield by taking on higher levels of risk with potentially adverse consequences for stability. These concerns should be taken very seriously, and there's a lot of work ongoing at the Fed devoted to monitoring such risks. A short summary would be to say that there is some qualitative evidence of reaching-for-yield behavior in certain segments of the market, but we're not seeing anything quantitatively alarming at this point. Of course, the worry is that one often sees the tip of the iceberg in these kind of situations, so one needs to be always careful interpreting the data.

But taking as given that reaching for yield could be a problem, what are the implications at the margin for monetary policy and for LSAPs in particular? First, it's just a fact of life that we are likely to be in a low-rate environment for a considerable

period of time given the economic outlook. It's not a choice at the margin. While we're going to have to pay careful attention to the attendant financial stability issues and be prepared to intervene with supervisory and regulatory tools as needed, I would find it hard to accept the proposition that we should attempt to preemptively resolve them by, say, starting to raise the federal funds rate today. The potential damage that could be caused by choking off the recovery is too great.

Second, one can argue that by reducing term premiums LSAPs in particular actually have potentially significant benefits in terms of financial stability. If you think about the recent crisis, a major source of problems was excessive maturity transformation by financial firms. That is to say, these firms relied too much on short-term debt.

And one of the thrusts of regulatory reform has been an effort to attack this problem with regulation, for example, via the constructs of the Liquidity Coverage Ratio and the Net Stable Funding Ratio that are a part of Basel III. However, a complementary way to deal with the maturity transformation problem is to influence the underlying incentives for short-term debt issuance. And these incentives are in turn shaped by the structure of rates and the structure of term premiums in the market.

As I noted earlier, a natural response for any firm facing an unusually low term premium is a financing response. That is to say, it makes sense to alter your capital structure by issuing cheaper long-term debt to replace your short-term debt. It's therefore not surprising that if you look at the data the average debt maturity of large nonfinancial firms has increased notably in the last few years. It's a natural response to the rate environment. Moreover, the same pattern shows up among large financial firms. They too have been significantly lengthening their average debt maturity.

Now, it should be noted that the current cheapness of long-term debt

contrasts with the pre-crisis configuration where there was frequently a pronounced advantage favoring issuers not at the long end of the yield curve, but at the very short end. In other words, the fact that the yield curve often tended to be steeply upwards-sloping at the very front end tended to give financial firms a strong incentive to issue overnight paper. The bottom line of this is that I suspect that LSAPs have, by just changing the structure of term premium in the market, helped to encourage an extension of debt maturity by both financial and nonfinancial firms. And all else being equal, I think this development is a good thing from a financial stability perspective.

Okay. Let me conclude. Just to restate, I believe that our recently announced policy of MBS purchases, coupled with the change in our forward guidance, that these are strong positive steps. I am hopeful that these actions by the Federal Reserve will help to give economic growth a much needed boost. At the same time, I am keenly aware of the many uncertainties we still have about the workings of nonconventional policies and of LSAPs in particular. As I've tried to explain, LSAPs really are something of a different animal, and it is important for us to try to better understand these differences and to do our best to take them into account when making policy judgments. In short, there is a lot left for us to still learn. Thank you very much. (Applause)

MR. KOHN: Thank you, Jeremy. That was a very thoughtful and thought-provoking talk. I too am sorry we didn't overlap at the board. And I think most of the learning would have gone in that direction.

Let me start off with a few questions arising out of the talk. The talk was focused on the LSAP channel for monetary policy easing at the zero lower bound. The other channel, of course, is the expectations channel, the rate guidance channel. Am I correct in interpreting you to say that that channel might be less subject to some of the

diminishing benefits and rising costs than the LSAP channel and therefore perhaps a more effective way of promoting economic activity if more promotion is needed? And then do you have any ideas on how the Federal Reserve might reinforce their guidance, extend it further out, make that a more effective and more used channel, rather than the LSAP channel?

MR. STEIN: So, yes. I mean I think in some sense the forward guidance more directly maps into monetary policy in the standard way because, although we're in some ways reaching further out into the future, we're using the same tool that is used in normal times which is changing the expected future path of the funds rate. So my expectation would be that that would work more as it normally does and I think that's the reason why you see, you know, an effort to use this in complementarity with large-scale asset purchases.

So, in terms of making forward guidance more effective, as I noted in the talk, I think that in addition to the direct benefits of LSAPs, there's a supportive signaling value. And then to the other aspect to which you're alluding is effectively how we go about doing our communication. Here it's maybe useful to take a little bit of a step back and to say that, you know, in my view, the goal of our communication policy is to try and articulate as best we can the nature of our reaction function. That is to say how the Fed will behave under various contingencies.

When you say that, you can see I think something of a shortcoming of the type of pure calendar-based guidance that we've been using before. So when you make a statement, for example, like, you know, we anticipate that economic conditions will warrant keeping the funds rate at such and such a level to 2014 that has the problem that it potentially confounds a statement about your reaction function with something about your own internal forecast. And that I think muddles the objective.

Having said that, I think that the step that we took in September to change the way that the forward guidance is articulated is a meaningful step forward where now the idea is to separate a little bit and to say even after the economy strengthens, there's going to be a desire to have accommodative policy. That has that kind of conditionality, that reaction function thing in there. What can be done to kind of take that further, this naturally leads, I think, to the question of triggers and thresholds and so forth. And I think that's a very interesting and timely discussion for us to be having. And, you know, there'll be sort of a variety of views on that. But I think, you know, the way I kind of conceive this, there has been that the underlying constant here has been to do a better job of articulating the reaction function and we're sort of working on that job.

MR. KOHN: All right. Thank you. The thrust of a lot of the discussion was: what can policy do to promote greater economic activity given the level of the unemployment rate. Maybe we'll come back to that in a second. But the other aspect of monetary policy obviously is inflation. And inflation expectations did jump at least a little on the recent Fed announcement. And some people have interpreted where the Federal Reserve is going as consistent with some of the academic, like Mike Woodford at Jackson Hole, who have said the Federal Reserve should be deliberately seeking at least in the short and the medium term inflation above its 2 percent target. This would lower real interest rate, stimulate, the economy, etc.

So, I'd be interested in hearing your views on your reaction to the fact that those inflation expectations did jump, whether you perceive the Federal Reserve moving in the direction of this academic advice to -- how do they say it -- behavior responsibly for a short period of time with respect to inflation.

MR. STEIN: So let me take the Mike Woodford question first and just

clarify that the views that I'm going to express are my own and not necessarily shared by everybody. But I understand that the sort of economic logic -- I understand how the model works when you write down a model in which you say that it might make sense to proactively in some sense try to create inflation. My own view is that's just not right. I just disagree fundamentally with that. I think it would be a mistake to seek higher inflation not only because it would do damage to our inflation leg of the mandate. I don't accept the proposition that actively seeking higher inflation would be helpful on the activity and employment leg of the mandate.

I think, you know, again, I understand the logic of the models, but they're quite sensitive to the assumptions. And one assumption, you know, you have to believe here is that when you generate kind of inflation that people are really tuned to the real rate and that the higher nominal rates that go along with inflation don't discourage activity and don't discourage investment. And we can think of a lot of behavioral or accounting or other reasons why that might not so easily be the case. So I would just, you know, distance myself a little bit from that proposition.

MR. KOHN: Great. All right. Thank you. The other side of this is the economic activity side. You've stated -- Chairman Bernanke has stated many times -- that you thought what the Federal Reserve is doing has been very helpful for economic activity. At the same time, I think it's fair to say there's a lot of skepticism out there because the economy has been so sluggish, growth hasn't really picked up. If anything, it's slowed down a little this year after all the Fed's actions. How do you go about convincing somebody that those actions actually have been effective, that easier policy affected through LSAPs and guidance is having a positive effect on economic activity?

MR. STEIN: Well, I mean it's a very good and very difficult question at some level and it's not a question that's really specific to the current environment. It's

always hard and there's, you know, as you well know, decades of research trying to understand what the effect of monetary policy on the economy is because we can't really run the counterfactual. So what can we do? There's pieces of the transmission mechanism that we can kind of observe that are tangible enough that we can feel them. So the effect of either the forward guidance or of LSAPs on interest rates is directly observable. Almost directly observable is the effect on, you know, mortgage refinancing which surges in the immediate aftermath.

But from that point forward, it is certainly the case that we're using a model which says, you know, based on history and based on past experience, a certain change in interest rates tends to translate into a certain change in activity. And all we can really do to refine that is ask ourselves are there reasons to think that the model wouldn't apply now as it normally applies. So, you know, in deference to your question, you know, some of what I was talking about in my talk was one reason why the model through this term premium effect might not apply. In my own view, the part, the expectational channel, the part that we work on with forward guidance, I don't see a reason to think that that would be stronger or weaker in the current environments. Of course there are lots of uncertainties, but my baseline estimate would be to say those effects ought to work as they normally do.

And, of course, you know, there's so many headwinds facing the economy, it's hard to kind of unscramble and to do the counterfactual.

MR. KOHN: One of the channels that you mentioned, and the Federal Reserve often mentions, is the channel through wealth and equity prices. And I think sometimes that gives rise to a sense that somehow monetary policy is favoring better-off people because less well-off people have savings accounts, the rate they're getting on that is declining, they have less holdings of equity, equity prices are being boosted. How

do you deal with this sense that the effects of policy aren't being equitably felt in all parts of society?

MR. STEIN: So, I mean you're certainly right to say, you know, monetary policy is a blunt tool and certainly it's a blunt tool for working on income distribution. But, you know, the first order thing I would say that we can do for income distribution type concerns is make progress on economic growth and unemployment. Obviously, unemployment almost by definition is something that effects people at the lower end of the income distribution. So, you know, to the extent that the policy has some potency, I think that's extremely important.

The other thing, I mean, implicit in your question is the absolutely correct premise that at the lower end of the income and wealth distribution there's less stock ownership. Of course, there's also more borrowing. So, if you just look at the demographic data, people at the bottom of the income and wealth distribution, tend to be on net borrowers rather than investors. So, while they may be losing on the one hand by earning less interest in their savings account, they're also paying less interest if they've been able to refinance their mortgage, and, I should say, even with the difficulties in mortgage world. Auto loans have become much cheaper; have become quite broadly available, you know, across the income and wealth distribution -- small business loans. So, again, if you take the sort of broader perspective where you look at both sides of the balance sheet, I think, you know, it doesn't sweep all these things under the rug, but I think gives you a somewhat different picture.

MR. KOHN: Thank you very much.

We have some time for some questions from the audience. Yes?

MS. WALSH: That's a very rough -- oh I'm sorry.

MR. KOHN: Wait for the mic. Identify yourself, please, and then state

your --

MS. WALSH: My name is Cindy Walsh and I'm an academic, a national academic, a political activist. This is a very broad subject, so I'm going to try to make a concise question.

MR. KOHN: Please.

MS. WALSH: Chairman Bernanke is claiming that these QE3, QE whatever, are answers to Main Street's problems. I would like to represent Main Street in saying that we actually feel that these policies are creating the stagnation. When you're giving banks and corporations the ability to have free money, they're going to use it to invest globally and not actually work for their money. And so that is what we feel is causing this economic stagnation.

Number two, as you said, the asset and mortgage security buy-backs are making Main Street invest into stock situations that are risky. The low interest rates are making it impossible for us to put our money into savings accounts that we would rather do instead of being in the market. So we're seeing all of these policies as actually working against Main Street and not for.

MR. KOHN: Why don't we give a Jeremy a chance to respond?

MS. WALSH: I just want to end it by saying it appears that the Fed's policy is more -- the long-term philosophy is that domestic Main Street will profit after companies are able to expand globally to their fullest extent and middle class around the world is lifted. Then that will come back domestically to Main Street and that will be decades away. So that seems to be what the policies are promoting.

MR. KOHN: Thank you. Jeremy?

MR. STEIN: Well, maybe not surprisingly, I don't completely agree. I'll just restate what I said to Don. I think we're extremely focused on Main Street and the

best Main Street policy that I can think of is one that helps to foster job creation and to reduce the unemployment rate, okay? And in terms of the workings of, you know, the more granular workings of the policy, again, if you look at the data, you'll see, you know, it's not just stuff going on in markets. It's the primary mortgage rate that families face and refinancings at those lower mortgage rates have gone up. The rates that people pay for auto loans and so forth are going down. So, of course, there are collateral effects in financial markets but the clear focus of the policy and I would say the evidence supports that the policy has been of a benefit to Main Street.

MR. KOHN: Thank you. All right. I think is that Craig back there?

MR. TORRES: I'm Craig Torres from Bloomberg and I'm not an academic. So, Governor Stein, the Fed's exit strategy written in June 2011 didn't contemplate extending the maturity of the portfolio which means the runoff rate is going to be slower than it was. So, I'm wondering if in your financial stability analysis you're including very large asset sales out of the Fed's portfolio? And then the question is do you think inflation expectations would hold in if you didn't sell any assets and just kept the portfolio around $3 trillion?

MR. STEIN: Well, I think the sort of important thing to note here, I mean with respect to inflation expectations, is that we have multiple tools to tighten -- I mean, I think it's much less different from the normal situation than it's often made out to be. There is always the situation when the economy strengthens when's the appropriate time to tighten, and we will face that judgment and we'll have to make that judgment. And how well we will do on inflation will hinge most importantly on whether we make that judgment correctly. But given the judgment, the tools are there to raise short-term rates through interest on reserves through the various reserve draining tools. And sort of there's an additional tool which is the sort of incremental effect that you have on long rates if you

vary a little bit the pace of asset purchases. But again, you know, the first order thing is we can always raise -- once you're away from the zero lower bound, which you by definition are once you start raising rates, I think we're back in a much more conventional world. And I have a high degree of confidence in reserve technological ability to move the funds right upward.

MR. KOHN: Thank you. Ted Truman?

MR. TRUMAN: Thank you. Ted Truman from Peterson Institute for International Economics. I thank you for your remarks which I think probably qualify as one of the more sophisticated presentations at Brookings in the last year. My question has to do with a channel and a criticism that you didn't mention as an international economist and that is the impact of this on the rest of the world in general, and whether in some sense a channel that you left out was the exchange rate effect. There is some suspicion I think in the world in general that in fact what you talked about was completely irrelevant and it's all about weakening the dollar, exporting unemployment, whatever you want to call it. And then the other part of it is you're also exporting asset (inaudible) to inflation to parts of the world that don't want it. So it seems to me -- I would be interested in your response to that kind of criticism of this policy.

MR. STEIN: Well, I mean, first of all, I will acknowledge, you know, your statement in the sense it is certainly the case that there is an element of the transmission mechanism that works through at the margin, you know. If the dollar weakens, that plays some role. Now, if you pan back a little bit and you kind of look, you know, over the last couple years, the evidence would suggest that that's not a dominant thing. So, for example, I alluded to the fact that the term premium -- you know, a durable effective LSAPs has been to lower the term premium on bonds by 80 to 120 basis points. If you look at kind of foreign exchange over the same time, there is no corresponding effect. I

mean obviously there are a lot of other headwinds and, you know, the dollar has been strengthened by safe haven flows and so forth. But one does not get the impression and it's not my view that a kind of dominant aspect of this is working for the dollar.

The other point I would just make is of course -- back to kind of considering the broader context, I think one of the things that the Federal Reserve and other central banks can do that's positive for other countries is to raise growth globally I think. So, to the extent that we're able to do that through these other channels, I think that'll ultimately be beneficial rather than harmful to others.

MR. KOHN: Thank you. All right. DJ, I can't -- okay. Yes?

MR. AVENT: Thanks. Ryan Avent at *The Economist*. Two quick questions: I guess, first, practically speaking, what's the difference between a policy in which you try to use LSAPs to raise real growth and also say you'll react more slowly to inflation after the recovery sort of strengthens and a policy of actually trying to gin up more inflation? And then, second, while there certainly are risks in the short term to hire nominal rates, given the cost and risks of the zero lower bound, is there not a case to be made that we'd actually nominal rates to be a bit higher in the long run?

MR. STEIN: Okay. So, first part of the question, again, I disagree with the premise that what we're doing is ginning up or seeking to gin up inflation. Let me try and explain to you how I think of the reaction function and why you might make a statement like it would make sense to keep rates low for a considerable time. This has nothing to do with inflation. It's precisely because we've talked about how life is difficult near the zero lower bound. Policy doesn't work as well or there are various costs. So life near the zero lower bound is sort of -- it's a bad place to be. That suggests that as you start to move away from the zero lower you want to take steps to make sure that you don't fall back. Okay? In my mind, that's the motivation for this lower for longer thing. It

doesn't have to do with kind of stimulating inflation expectation. Obviously, other people may think about it differently, but I think it's the logical counterpart to a bit of skepticism about LSAPs -- is to lean a little bit harder on the other piece.

Now, I'm sorry. Could you remind me of the second -- the second piece was --

MR. AVENT: The second piece was just whether -- because of the zero lower bound, wouldn't it be a good idea to get nominal rates up a bit over the long run? And I guess you sort of got at that with your answer.

MR. STEIN: Yeah.

MR. KOHN: Thank you. All right. One last one. Yes?

MR. SCARLIS: I am Basil Scarlis. I used to deal with economic policy at the State Department. And my question relates to a figure I thought I heard correctly that the LSAPs over a two year period have an impact of lowering unemployment by 0.2 percent. That seems modest. Unless I misunderstood something.

MR. STEIN: No, no, no -- yes, excuse me. That was a hypothetical of the incremental effect of a $500 billion LSAP --

MR. SCARLIS: Yes, yes.

MR. STEIN: So, first of all, the past LSAPs have been bigger cumulatively than $500 billion. I will fumble on the exact figure. Moreover, QE1, for example, was done at a time of quite serious market dislocation. So my subjective view would be that QE1 dollar per dollar had substantially more bang for the buck than that figure that I recited for you. So I would think that the cumulative effects have been substantially bigger than --

MR. SCARLIS: Thank you.

MR. KOHN: Okay. Jeremy, thank you very much.

MR. STEIN: Thank you.

MR. KOHN: Thank you. (Applause) Thanks a lot.

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