

The Economic Club of New York

The Honorable Charles I. Plosser
President and Chief Executive Officer
Federal Reserve Bank of Philadelphia

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Roger Ferguson: Welcome everyone and good morning. I'm Roger Ferguson. I'm the Chairman of the Economic Club of New York. And it's my honor to introduce our speaker, the Honorable Charles Plosser who has served as President and CEO of the Federal Reserve Bank of Philadelphia since 2006. He is currently a voting member of the Federal Reserve Open Market Committee. Before joining the Philadelphia Fed, Mr. Plosser held a number of positions at the University of Rochester's William E. Simon Graduate School of Business Administration. He was the John M. Olin Distinguished Professor of Economics and Public Policy and Director of the Bradley Research Center, and he served as Dean from 1993 to 2003. Mr. Plosser was also a senior research associate at the Rochester Center for Economic Research and a research associate at the National Bureau of Economic Research. He's also been a visiting scholar at the Bank of England and the Federal Reserve Bank of Minneapolis. So last but not least, he is a member of our own Economic Club of New York so he is coming home today to give a speech. His speech today will be on the record. At its conclusion we'll open the floor to questions from members, and then the press knows that there will be a press conference afterwards. As is our practice at these breakfasts, we will adjourn at 9:00 a.m. Charles, the floor is now yours. Thank you.

The Honorable Charles I. Plosser

Good morning everyone, and thank you for coming here. And Roger, thank you for that kind introduction. You know I've been called a lot of things in my life, but I think this is the first time I've been referred to as honorable. You can infer what you will from that. But I want to thank you for that nice introduction. And congratulations to you, Roger, on your term as

chairman of this August organization. You've continued to deliver great programs and speakers that people have come to expect from this club and I think it's terrific.

As many of you know, this is the 100th anniversary of the Federal Reserve System. The Federal Reserve Act was signed in December of 1913. And so in the spirit of anniversaries, though, I want to say my hat goes off to the Economic Club of New York which was founded 107 years ago. What a great and storied history this organization has had, and I'm truly honored to be here participating in it with you.

Now you know Congress did create a decentralized central bank 100 years ago. That decentralized structure of our bank is actually one of its great strengths I believe. But that decentralized structure also requires that I notify you with the usual disclaimer that the views I express are my own and not necessarily shared by the Federal Reserve System or my colleagues on the Federal Open Market Committee, and they are always so thankful that I say that.

So my remarks this morning, I want to focus on the benefits of rule-like, systematic behavior in the design and conduct of monetary policy. Such behavior combined with greater transparency leads to communication that is more effective. This in turn helps the public understand the FOMC's strategies, their individual policy decisions, and the likely path of policy going forward. I'm also going to take one step further and illustrate how the FOMC might take a step toward a more systematic policy framework by introducing a detailed monetary policy report similar to

those issued by many central banks around the world. One aspect of such a policy report could highlight the policy paths implied by a few, let me say Taylor-type rules or robust rules, and use them as benchmarks to set and to communicate policy in a more systematic or rule-like manner.

But let me begin with a few brief thoughts on the economy and the FOMC's recent policy decisions before I discuss the role of systematic policy and the role I think it can play in our communications. First the economy, my overall view of the economy is fairly optimistic. After a first quarter buffeted by winter storms, I believe that the economy is poised to grow at a rate slightly above trend for the remainder of this year and into next year, before reverting back to trend, and trend I believe is about 2.4 percent, something in that neighborhood. I think steady employment growth and healthier household balance sheets will support consumption activity in this framework I'm describing.

The current data suggests that economic strength is fairly broad-based. That's evidenced by recent economic indicators, the optimism expressed by many firms and their CEOs, both in the manufacturing and service sectors. As for inflation, recent readings have moved up a bit mitigating at least somewhat the concerns that low inflation will persist or decline further. I believe we have ample monetary accommodation in the economy to ensure that we will achieve our 2 percent target over time. It's important, however, that we continue to reinforce that commitment to the public and to all others so that we are successful in maintaining expectations, in anchoring those expectations that we will meet our target.

Now at the meeting last week, the FOMC released its latest Summary of Economic Projections. We affectionately call them the SEPs. The outlook going forward was largely unchanged. While GDP growth for 2014 was marked down for the year which just simply reflected the disappointment in the first quarter, the outlook for the second half of the year and into the projections of 2015 and 2016 were essentially unchanged. Employment projections were reduced slightly, and the inflation forecast remained stable.

My own submission for economic growth was generally in line with that of my colleagues. My forecast for unemployment was a bit lower in the near term. Specifically I think the unemployment rate may reach 5.8 percent by the end of this year and 5.6 percent by the end of 2015. My view of inflation is that it will stabilize to about 2 percent in 2015 as well.

Now some market participants and commentators have focused on the so-called dot charts and the movement in the implied median funds rate for 2014 - 2016. Let me first remind everybody that the dot charts are not forecasts of what policymakers think the committee will actually do. They are a reflection of the policymakers' individual views about what the appropriate path of policy should be, not what they think it will be.

Now some have noted that the median path steepened ever so slightly in this last set of projections. I remind you this should not come as a particular surprise as it actually just reveals greater confidence that the economy is improving and we're making progress towards our goal.

The rebound after the bad winter seems to be progressing as expected, the outlook for unemployment is a bit better, and the inflation rate appears to be firming. The changes in the dots thus simply tell us something about individual policymakers' reaction to the change in economic conditions. The FOMC statement after all notes that the Committee will adjust future funds rate decisions based on the progress we make towards our objectives.

So it's entirely reasonable that the expected path of appropriate policy should adjust as we close in on our objectives. Indeed, it would be very surprising if they did not behave in such a manner. I believe that we are closing in on our objectives, perhaps faster than many people might think. So while I supported the recent policy statement, I do have growing concerns that we may have to adjust our communications in the not too distant future. Specifically, I believe that forward guidance in the statement may be a bit too passive given the underlying economic conditions.

So let me now turn to conducting monetary policy in a systematic way. By systematic policy, I mean conducting policy in a rule-like manner as opposed to relying on discretion. Decisions are always made period by period. But in a rule-based policy approach, the decisions are guided by a set of rules. Discretion, of course, is the opposite of rules-based policymaking. Discretionary decisions are made without being constrained by past promises or previously made forward-looking statements.

The monetary policy debate over whether rule-like behavior for policy is preferred to pure

discretion dates back at least to Henry Simons in 1936. But more recently, in their Nobel Prize-winning work, Finn Kydland and Ed Prescott demonstrated that a credible commitment by policymakers to behave in a systematic, rule-like manner leads to better economic outcomes than discretion. Since that time, numerous papers using a variety of models have investigated the benefits of rule-like behavior in monetary policy, and indeed, they have found that there are significant benefits. Policies characterized by commitment have been shown to lead to more economic stability. In fact, the mainstream theoretical models that we use for monetary policy and macroeconomic analysis, both in academia and in central banks around the world, are built on the notion that policymakers behave in a rule-like way. And so using those models for policy decisions is like using models presuming that we follow rules when in fact we may not be doing so. The benefit of a rule-like approach arises, in part, because consumers and businesses are forward looking. When policymakers credibly commit to a rule-like approach to setting policy, they actually can alter expectations in ways that make policy more effective and less uncertain.

The appropriate way to make policy systematic or rule-like is to base policy decisions on the state of the economy. That is, policymakers should describe reaction function that determines how current and future policy will be set depending on the evolution of economic conditions. Now, of course, policymakers are no more certain about the future course of the economy than anyone else is for that matter. And so policymakers cannot commit realistically to particular future values of the policy rate. Nonetheless, describing a reaction function or a rule that explains how the policy rate will be determined in the future as a function of economic

conditions can be highly informative both to the economy and to markets.

However, unfortunately, the science of monetary policy has not progressed to the point where we can specify the optimal rule for setting monetary policy. Given our current stage of knowledge, judgment is still required in the setting of policy. One reason is that optimal policy rules, that is, those that maximize economic welfare are highly dependent on the particular model from which they are derived. And there's no broad-based consensus on what the right model is. Another factor is that the optimal rule for one model could lead to very bad outcomes in a very different kind of model. A third reason is that optimal rules can often be quite complex, thus making them difficult to implement and to communicate to the public. In other words, they may not be terribly transparent.

However, these challenges or limitations to implementing optimal policy should not deter us as policymakers from efforts to adopt a more systematic and rule-like approach in our conduct to policy. Indeed, there's been a great deal of progress made in identifying simple, robust rules that appear to perform well in a variety of models and a variety of environments and circumstances. Of course, the most well known of these is attributable to John Taylor. The Taylor Rule is a reaction function that indicates how to set monetary policy rates as functions of deviations of inflation from a goal and some measure of economic slack.

The attractiveness of Taylor rules, Taylor-like rules, goes beyond the intuitive appeal they have

or the fact that they actually describe actual behavior of monetary policy reasonably well. The reality is that Taylor-like rules, and I'm speaking of this as a class of rules, yield very good results in a variety of theoretical models. While this is surprising to some, it is of enormous practical importance. Given our uncertainty about the true model of the economy, and knowing that systematic policy in the form of some Taylor-like rule delivers good outcomes in a variety of economic environments means that these simple, robust rules can provide useful guidance for policy. In addition to guidance for policy, rule-like policies also play an important role in central bank communication.

So let me turn to communication for a moment. The fundamental reason that communication is so important is that monetary policy is more appropriately viewed as the path of policy, not simply the current rate. This is certainly evident today as markets seem highly attentive to signals regarding the future path of the funds rate, even though it may be some point in the future.

Because systematic policy is easily communicated to the public, it also provides a transparent and predictable form of monetary policy in which monetary policy surprises are reduced.

Businesses and consumers are more informed about the course of policy because they understand how policymakers are likely to react to changing economic conditions even if they are not certain what those changes might be. Equally important in my view is that greater clarity about policymakers' reaction functions strengthens accountability. A systematic policy communicated

transparently strengthens accountability and serves to preserve the central bank independence.

Taylor-like rules have many of these desirable features. They are systematic. They're based on a limited number of variables, perform well in a variety of models, and can therefore provide important guidance for policy decisions. If our policy is guided by state-contingent rules like these, then by reporting our assessment of the future, that is our future forecast of the key variables, the public will get a better understanding and appreciation of the likely path of policy going forward. And indeed, communicating that sort of information about the likely path of policy is likely to be the best information that we can possibly provide regarding the future path of policy. And indeed, we may not be able to get much more specific than that.

Given model uncertainty and data measurement problems, there are, of course, limitations to the use of simple rules. A robust rule is intended to work well on average. But central banks don't always think about averages, they look at many different variables in determining policy. And inevitably there will be times when economic developments fall outside the scope of our models and warrant unusual monetary policy action. Events such as 9/11, the Asian financial crisis, the collapse of Lehman Brothers, and the '87 stock market crash all may require departures from simple rules.

However, in such unusual circumstances, policymakers will be expected to explain the departures from the rule. With the rule as a baseline, departures can be quantified and inform us

how excessively tight or easy perhaps policy is going to be relative to normal or relative to what might be expected. If events are temporary, policymakers will have to explain how and when policy is likely to return to normal. Thus, a simple policy rule provides valuable benchmarks for assessing and communicating the appropriate stance of policy.

So the operational question is, how might we go about doing this? How might we go about taking a step forward to implement policy that was a bit more systematic? So one strategy would be to indicate the likely behavior of interest rates going forward based on a few robust Taylor-like rules that have been consistent with the conduct of monetary policy in the past or ones, rules that are considered robust because they do well in a wide range of models. Doing so might require the FOMC to agree on a particular model in order to produce such forecasts in rule-like behavior. And for the Fed, the model developed by the Board's staff seems like a reasonable place to start. But I would also submit we could do the same exercise for other classes of models and we'd learn a lot, by using these dynamic stochastic general equilibrium models or what economists call DSGE models. There have been a number of those developed within the Federal Reserve System at the various banks. We could experiment with those as well.

As a start, the results of this type of exercise could be published in the FOMC's current biannual monetary policy report to Congress. Now I don't know how many of you have ever read that, but right now it's pretty drab, and it is mostly backward-looking, very little forward-looking in that report. Perhaps we might consider releasing these reports on a quarterly basis, developing

them on a quarterly basis like other central banks do. The Committee, in the context of these reports, then could indicate whether and why it anticipates policy to be somewhat more restrained or more accommodative relative to the projections given by these rules. The monetary policy report could also include various views on different assessments of what the baseline case might be or how people might differ across the Committee.

A major benefit of such an exercise would be to illustrate the various dimensions of uncertainty that policymakers actually face. Financial markets oftentimes want the Fed to be certain, give a specific number and action about the future path of monetary policy. But that's unrealistic. We don't know the future. So it's unrealistic and actually not even desirable. For example, this exercise could indicate the extent of model uncertainty, forecast uncertainty, and variations in the rules you might apply. Actually many central banks, or least two or three central banks actually do very close to exactly what I'm proposing. Many central banks use fan charts to illustrate the degree of uncertainty that we actually face about the future path of the economy. We should do the same.

Overall, my view is this exercise would provide a better sense of the likely direction of policy and the variables most related systematically to those policy choices. This exercise will also lead the FOMC to discuss policy in the context of various rules. And that would change the way we make decisions going forward. It would incorporate a more systematic discussion among the choices we face, the uncertainties we face, and what the rules might be telling us. I think this

will make for better decision making and therefore better economic outcomes in the long run. In addition, it would make our communication with the public about our monetary policy strategies clearer, more articulate, and more focused.

So let me end with an example here for a few minutes. As I discussed, communication is an important aspect of monetary policy. I have long been an advocate of the Fed producing these systematic or periodic monetary policy reports similar to what other central banks do. It is simply too difficult to convey monetary policy design and strategy within the confines of a brief statement issued after the conclusion of each FOMC meeting. Some of you may have noticed that over the last eight years those statements have gotten longer and longer and longer and longer. So what I'm going to be suggesting here, I'm going to show you, is not to be necessarily viewed in isolation but as one part of such a policy report that we should make to the public.

So let me illustrate how we might go about doing this. So what my example is going to do is I'm going to consider five simple rules. These are rules that are in the literature – they've been discussed in the literature – and describe their implications for the projected path of the funds rate from now through the end of 2015. Now since these rules are contingent on economic conditions, I need a forecast to play out what these rules might look like. For that forecast, I'm going to use the midpoint of the forecast derived from the most recent SEP, I'm going to apply Okun's law relationship to convert projections of unemployment into projections of economic slack. Now before anybody gets all upset, this is not a completely coherent exercise and it's not

exactly the way I would recommend us go about it.

Each participant's projections in the SEP come from their own model, are based on different policy assumptions, and therefore it doesn't represent the outcome of any model or anything else for that matter. It's just a set of numbers. But I wanted to use those, not because I thought they were the right numbers to use, but simply because I wanted to easily replicate, you know, how this exercise might work. Thus, results, because of the nature of the data I'm using, the results are likely to be a little more diverse or diffuse than one might otherwise expect it if you did this exercise with the same model for all the rules. But as I said, this is easily replicable.

So the rules I've chosen, the five rules I've chosen are: first, the original Taylor rule from 1993; second, a variant of Taylor's original rule, sometimes called Taylor 99 which he doesn't really like because he says it's not his rule at all, but in the literature it's come to be called the Taylor 99 rule. And this rule places greater emphasis on the output gap than Taylor 93. A third version of the Taylor is also the Taylor 99 rule that allows for considerable interest rate smoothing or inertia as economists refer to it. And therefore, it's called the inertial Taylor 99 rule. The fourth rule is a performance, or what we call an outcome-based rule, developed by the staff at the Philadelphia Fed. And this is basically simply a rule that mimics, that estimates the actual behavior of the Fed in the past, so it's just a fitted rule if you will. And fifth, what I call a first-difference rule. It's based on the academic work of Athanasios Orphanides. This rule is designed to take into account the imprecision, and therefore it's robust, the imprecision and the

uncertainties of our measures of economic slack or output gaps, and the underlying, and also uncertainty about the underlying steady state real rate of interest.

So I've plotted the outcome of these rules in this exercise here in Figure 1. So there are five rules and five paths. So what do we take away from this picture? Well, first, I'll note the liftoff of the funds rate from the zero bound should occur next quarter. All of them, all of the rules indicate raising the funds rate. This is considerably sooner than many seem to be expecting. Second, we can also see that although the rules all point towards tighter policy going forward, they do represent somewhat different profiles of that policy path for interest rates. So, for example, if you look at the top two rules, Taylor 93 and Taylor 99, they have a very steep path in the early stages of this profile, over the next several quarters, than the other rules do. So why is that? Well, the primary reason why Taylor 99 and 93 rules have a steeper path is that both of these rules are playing catch up. That is, those rules would have told you the Fed should have lifted off the zero bound earlier. And so given that you've kept the rate at zero, at the zero bound, they have to catch up to where they think you should be already even though we haven't gotten there.

So those rules are steep in the short run because they're playing catch up, and then they flatten out and the slope becomes less steep.

The dispersion also reflects model uncertainty, but we always have model uncertainty. Ignoring

model uncertainty or dismissing rules because of monetary policy doesn't solve the problem. It just sweeps it under the rug. Those uncertainties about our models and about the forecast continue to exist. On the other hand, robust rules explicitly designed to be robust across models and have worked on that, tend to have better outcomes on average. And indeed that's what some of these are. Third, Taylor 93 and Taylor 99, the top two, and the performance-based rules, note they begin to converge near the end of 2015. They're going to the same place. They're taking a little different paths to get there, but they're going to the same place.

Now my own assessment of policy, appropriate policy is it actually looks a bit like the first-difference rule, okay. Note that it rises a bit slower, but it's eventually going to the same place as well. Now my point here is not – the first-difference rule kind of falls kind of midway at least within the range – is not to decide which rule in particular or which path in particular I think is correct. But what I want to illustrate is how to use this information to communicate and talk about our policy.

For example, an analysis of this exercise might suggest that policy choices that fall outside of these bounds given by this range of rules, the policy choices that fall outside those bounds would require some caution. That is, you were behaving in a way that's outside the bounds of past behavior and so outcomes might be highly questionable or uncertain. That doesn't mean that behaving outside these bounds is necessarily the wrong decision. I'm not making a judgment about that. But if you follow this framework of saying, if we're going to behave outside these

bounds or drastically different from what past behavior suggested we should do, if we're going to behave outside that range, we've got some 'splainin' to do. We need to talk about it. We need to explain why we're doing that and justify it. That's part of good communication. So this exercise forces you to engage in more careful and thoughtful discussion of policy and how you communicate it.

Even policy choices that might fall within the bounds of this example, such an exercise can prove useful and give meaning, this actually gives meaning to phrases such as "rates are expected to be lower than normal." It depends on what you think normal is. What information does that really provide? This provides you a way of talking about what the Committee might mean by being lower than normal.

So there's another way of highlighting uncertainty. Another way of highlighting uncertainty surrounding the future path of policy is to consider different paths for the economy. And so in this case, I want you to consider one more figure, very short figures. So here I'm going to employ one rule. I'm going to take the first-difference rule that was kind of the mid-range of the other SEP. And I'm going to employ the first-difference rule, but I'm going to consider three different paths for the economy going forward. The middle path is the midpoint. That's the path that I used in the previous chart. So it's the midpoint of the SEP projections. But I'm also going to consider implications from a stronger path, stronger economy, as well as a weaker economy.

The first takes the combination, and this is again the SEPs and let me repeat, this is not the coherent way to do this but it's more for illustrative purposes. So the first takes the combination of the lowest inflation and the highest unemployment rate which I'm calling a weak forecast. Low inflation and high unemployment. And I just draw those, that path, from the SEP. So it's just a collection of points.

The second is the opposite of that. It's taking the SEP extremes at each point in time for the highest inflation rate and the lowest unemployment rate, a strong forecast. Again neither of these forecasts represent a true forecast or a particular model. They just combine elements of other forecasts. So this exercise represents a fairly extreme construction of forecast uncertainty. It's not clear that anybody would forecast what I put in here. It may not even be coherent forecast in any meaningful sense.

In any event, we observe a wide range of predicted funds rate in this experiment. The weakest fund rate, funds rate forecast, anticipates a funds rate nearly 1 percent near the end of 2015 while the strongest forecast envisions a funds rate of 4.7 percent. You might say why so high? Well, the reason is as the forecast gets higher, because in this strong path, taking the numbers I used from the SEP, not only is economic growth higher, unemployment is lower, and inflation overshoots 2 percent. So you have kind of overshoot, if you will, on both the unemployment and the inflation forecasts so that means your funds rate path is going to be higher than it ultimately will be in the longer term. But note, still all of these forecasts indicate liftoff in the very near

future. So one way of thinking about this picture, it's not a precise analogy, but you can think about, this is a way of thinking about a fan chart because it tells you the range of outcomes that may exist. And notice, it's big. It's big.

So I've indicated throughout my talk the imprecision of our knowledge about the economy. My understanding is no more precise about the underlying, about the understanding of my colleagues, or I don't know any more about the future than any of the rest of you do, let's put it that way. What these exercises in this framework allows you to discuss is it highlights the uncertainty that policymakers actually face. People talk about policymakers' forecasts changing by a tenth of a percentage point here or a tenth of a percentage point there, and you'd think the world had come to an end. And we just don't know that degree of precision, it's just vastly overrated. We just don't have it.

So rather than trying to predict a target value for some point of the funds rate in the future of monetary policy, under a rules-based approach you're actually conveying not only something about an expected path but you're conveying the degree of uncertainty that policymakers really face. That's important. That's important.

However, these two exercises indicate a need to explain more fully why policy is deviating from any of these rules, as I alluded to earlier. Now, and this framework I give you is just an illustration, but it does begin, I think, to sort of share with you a little bit about how we could go

about talking about policy and systematic policy in a framework that gives us more latitude to communicate and communicate effectively.

There obviously will be a variety of views on this issue, but I think the process itself is important. And our communication of policy would greatly benefit from producing something that looks like these in a detailed monetary policy report and incorporating some of the features that I've offered today. So I want to thank you for your patience. I've covered a lot of ground this morning. I appreciate your patience and attention and so I'd be happy to take some questions. Thank you very much.

QUESTION AND ANSWER PERIOD

ROGER FERGUSON: Charlie will self-moderate. We have some microphones so please wait for Charlie to call on you and wait for the mike to get to you.

THE HONORABLE CHARLES I. PLOSSER: Wait for the mike so I can hear you.

QUESTION: Shall I start? Okay. Hi. Jean Manas of Foros. Thank you for that excellent speech and it makes us all want to move to Philadelphia. My question is if John Taylor were in the room he might say two things. One, he might say the Fed has been rule-like for the several past decades, but over the past 15 years, it has put a greater emphasis on the output gap than the

period preceding that. And the result of that has been a feeding of the boom bust economy. First the 2007-2008 crisis because of the over-emphasis on the output gap in the early 2000s. And then this period where he would be at 1.25 already and feeding another boom bust. Two questions that come out of that observation he would make. The first one, do you agree as an empirically matter, that there has been a shift in the Fed's emphasis on the output gap in the last 15 years compared to the couple of decades preceding that? And second, could you comment on the critique that would follow that observation?

THE HONORABLE CHARLES I. PLOSSER: So let me try to answer that by not answering it probably. That's what we're trained to do at the Fed, right? So I know John well and we've talked a lot about these sorts of things. I guess the way I want to think about it is since the Fed is not explicitly acknowledging that it's operating by some systematic way, I think it's pretty hard to make the case that, oh, we're looking at a different rule than we've looked at in the past. The only way you could, the only way you can really talk about that is sort of look at actually what happened in terms of behavior. So those are very different, it's not like we had a rule and we changed it because we never had a rule. We've never admitted that we had a rule. And so this is why communication is such a difficult problem, because even if we behaved in some kind of rule like...which actually this rule suggests that we have, we've never admitted it. So we've actually behaved in one way but have been sort of afraid to talk about it. So I guess I would say John may be right, okay, I'm not saying he's wrong. But I think the way I want to think about it is sort of saying I don't, the reality is the FOMC is not going to pick a rule. It's 19 people. They

have different models of the economy. Even if they behave in a rule-like manner, it's different, different rules. So what I'm trying to do is sort of figure out how to take a small step forward to change the way we talk about policy. And for that, I don't need to pick a rule. I can do something like this and not necessarily pick one, but then this can guide me how I talk about actual policy. Now it's clear that over the last certainly five or six years unemployment rates have been much higher than most of the period that we've talked about since the mid-80s when, you know, some of this work that you're speaking of was done. Does that mean we put more weight on the unemployment rate? I don't know. We certainly talk about it a lot. I think it wasn't until 2008 or 2009 that for the first time the unemployment rate phrase showed up in one of our policy statements. So I think there's, you know, you can make a case for that. But I'm not sure that's the right way to think about moving forward. And I do think that if you go back to the previous chart, what I would say, if you describe for me a policy path that said the FOMC is going to be below that red line for as far out as you can see, that's a reason for caution. Why do we think that's a good forward guidance or good indication of what we ought to be doing in the future? That would certainly be outside the boundaries of sort of past experience. And I think that's cause for some concern. And it's a concern that I've stated before in other contexts. For example, if you tell me we're at full employment and inflation is at 2 percent and I've still got a funds rate that's telling you the real funds rate is zero or negative, I'm nervous. It makes me nervous to talk about it that way. So I guess that really doesn't answer your question. I think John has made lots of, he's obviously talked about this for many years, and I think it's a little harder to make strong statements about what the cause, whether our departures from putting a

larger weight on unemployment was good or bad. That depends on the model that you have. And so rather than go down that road, what I'd rather do, all these rules put different weights on unemployment in effect, what I'd rather do is sort of begin narrowing the set of things that we look at so that we can talk more intelligently about what policy is supposed to be about and how we're setting it. And I think that would, again this is, I think I said in my remarks, I view this sort of exercise as one step in a journey, not the end result. So I think I evaded your real question.

QUESTION: Thank you for your presentation. Imbedded in these rules there is always a structural or natural interest rate and recently there has been a lot of talk that maybe that interest rate is very low in the U.S. because of demographic issues and lack of productivity and so on. And also we saw that the expectations of the members of the Committee were reduced in the long run. I would like to hear your thoughts on if this is a reasonable argument that maybe the interest rate in the long run is lower or not. Thank you.

THE HONORABLE CHARLES I. PLOSSER: Who knows? It's part of the challenge, okay. So the reason, so I'm going to give you a bit of a, I won't say it's peculiar because it's really not, but the way I think about that. So there are two things. All of these rules have things that look like output gaps. And one of the things, as a proxy, in most economic models what the Feds should be doing in lots of context is moving the funds rate around with the natural rate of interest. That is, as the real interest rate varies over time, subject to shocks and other things, the

Fed ought to be trying to kind of keep the funds rate kind of near that natural rate. One of the reasons, the way I think about it, one of the reasons that output gaps appear in these models, and they work, is that those movements in the output gaps are signaling actually movements in real rates of interest. When the economy is weak, that is, there's lots of slack, real rates will be low, and therefore the funds rate ought to drop. So in some ways moving, you know, having a gap variable in there is trying to help the rule tell you to move the funds rate around, okay. So that's one thing to keep in mind. The other thing to keep in mind is that, for the most part, in the Taylor rule he had an intercept term which was the real rate, long run real rate of interest fixed at 2. There's a lot we don't understand as economists about how to estimate long run equilibrium values particularly if they're changing. And in real time we often don't know they've changed until many, many years, or even decades after it's changed. So here's my caution about that. It's true. Fundamental structural changes in an economy can make an economy run at a lower rate that have nothing to do with monetary policy particularly. You know productivity growth could fall. We could have policies, tax policies, regulations that may lead to slower growth in the name of a more equal distribution of income. I'm not advocating it. You can imagine policies that change that longer term profile that have nothing to do with monetary policy. But here's my caution about that. I believe that the bar needs to be very high to change that. And the reason I say that is these rules are there because they discipline your behavior. That is, they tell you what to do under a certain set of circumstances. And as you make, let me call it the real rate of interest, that ___ determine these rules, if you make that what economists would call a free parameter, that you can change it whenever you want to or whenever you think it might change,

you've thrown out the value of the rule. You've thrown out its disciplining value because you're letting that move around perhaps to fit what you want to do anyway and this is a way to justify it. I'm not saying that's what people do, but I think for me I would be very cautious and very reluctant to make major changes in how we think about the long run real interest rate. Twenty-five basis points here or there, who cares? It's not a big deal. If the long run equilibrium real rates drop by 25 basis points, so what? That's not going to change this picture particularly. It may change the endpoint but it's really not going to change much in that picture. But if you want to argue that that real equilibrium real rate is now close to zero, boy, to me that's a scary scenario because that says, talk about secular stagnation. I don't know of any equilibrium model in economics where we could survive or do very well in a steady state where real interest rates are zero. So, you know, yes, you can move that number around a little bit, maybe demographics is just playing a role, or other things. But I think you ought to do so with great reluctance and not use that as kind of a free tool where you can change the policy path just because you think that's changing recently, or even over the last ten years. We can't even make those decisions usually until decades after these changes are made. So that's a long answer but my belief is that if you want to engage in such an exercise, you need to be very disciplined about how you do it and not treat it as if it's just a matter of convenience because I want to run a lower policy and therefore I'm going to claim that the interest rate in the Taylor rules needs to be lower. You know that's not the way, that's not a good way to conduct policy. I'm not saying anybody's doing that, but that's, what I'm pointing to is the importance of having that discipline of how you would decide in fact whether or not you want to adjust that. Was that helpful? Or maybe not.

QUESTION: Thank you Dr. Plosser, very interesting. I'm David Malpass with Encima Global. Could you discuss inflation a bit? The Fed, my impression is, uses inflation expectations and also looks at the core PCE deflator. There's problems with both in that inflation expectations can be, the Fed is itself giving assurances to the public on inflation so that changes people's inflation expectations. And then with regard to core PCE deflator, it lags substantially and then gets revised. And so it will be years in the future before we know what the core PCE deflator actually was during a given meeting period. So could you discuss the modeling that the Fed does on inflation and how can that work?

THE HONORABLE CHARLES I. PLOSSER: So let me try to answer that in two ways. One, in terms of modeling, I think that the Fed, it really doesn't just look at core. In fact, our statement of goals, long run goals and objectives, says our target is 2 percent on the headline PCE, not on the core. So that means core may or may not be informative at times and also it may mean that we look, it does mean we look at other things. We look at the CPI, we look at core CPI. We look at medians, trimmed means, you know, all the things that everybody else looks at, to get our sense of how inflation is actually behaving. So in our statement of long run goals and objectives, we did specify the headline PCE. My personal preference would have been headline CPI. And the only reason I say that is because it doesn't get revised which I think has some advantages to it. But, you know, frankly, it's not so different that it's going to make it important. So I'm not too worried about that. Yes, it can get revised. Yes, our forecasting from

models for inflation are not terribly good and they haven't been good for a long, long time. Most models these days about inflation, economic models, you know, inflation begins to look a lot, a straight line. It just, we're just not very good at predicting changes in inflation. So my own view is that anchoring expectations is incredibly important. One of the things that we have learned over the years is that keeping those expectations anchored is a valuable, an important way of helping maintain stability of inflation. And so when I say we need to reassert and recommit to that, our commitment to that, that's an important thing to do, and so I think that's important, and one of the few things that we potentially can control or try to control. But that means our messages have to be credible. They have to be committed. And also it means we have to act at times when the data tell us to. You know words are nice, but actions speak louder than words so to speak. So I do think that the Fed is committed to its 2 percent target over the longer term. I do think we're going to be capable of hitting that. We've got enough monetary policy accommodation in the system that as inflation begins to pick up, I believe in the next three or four years, our challenge may be to control it rather than getting it up. But there's trillions of dollars of excess reserves sitting in the banking system. When that money flows out into the economy as it surely will at some point, I don't know exactly when, but when it does that will be the time that inflation is really likely to rise. And that's what exit strategies are all about. So it's a tough problem. We're not very good at forecasting inflation but we do look at lots of different measures and don't really put too much weight on any one of them.

QUESTION: Thank you. Krishna Guha with ISI, formerly New York Fed. Charlie, I

100 percent agree with your advocacy of a monetary policy report. I think it would be a big step forward in Fed communications. But as you indicated, using benchmark policy rules really just then shifts the debate to talking about deviations or adjustments of the kind the gentleman at the table next to me was referencing. So I want to just sort of pick up a little from that discussion. There's two areas where I think a number of your colleagues might suggest adjustments would be warranted at the moment. The first is that the intercept may be a time varying to a much greater degree than you were willing to acknowledge in your answer to the last question. A number of people would look at Laubach Williams for instance and say, you know, in the present the intercept could be close to zero even if the long run steady state five to ten years from now could be very different from that. And they would also say that if the neutral rate wasn't so deeply depressed, then the economy should be growing much faster than it actually is. So I'd be interested in your comments on that. And secondly, I suspect a number of your colleagues would say that there are problems using unemployment as a sufficient statistic for the full employment side of the mandate and that in some sense we should be trying to estimate an employment gap rather than an unemployment gap which would in turn give you somewhat different readings in terms of policy recommendations. Thank you.

THE HONORABLE CHARLES I. PLOSSER: Yes, so there are lots of ifs, ands and buts in life, right? And I think that, yes, this does shift, the value I see in an exercise like this is it does shift the debate. It shifts the debate to talking about specific understandings of how we execute policy. This just provides you with a framework for doing that. It doesn't give you the answers

necessarily. But it does force you to deal with those adjustments and I think that's a good thing. We have some of those debates already. There's nothing wrong with that. I don't view that as a drawback. I view this as a way of sharpening those debates in a more systematic and disciplined way. So all those issues are debates that we have. That does not make this discussion any less relevant for helping frame that debate which is really what I'm trying to do. As I said, you know, this is not about what the answer is, this is a way of framing a set of discussions about what's important and what's not important and how do we think about policy. So all those are debatable issues. I'm not necessarily taking a stand on any one of them. I mean I obviously have views on some of them. But I also think that, remember in the Laubach and Williams and others, the estimates over time of the natural rate, you know, are a little tricky because they combine movements in the gap with movements potentially in the intercept term. And since we observe neither of those, we're speculating about something that we can't really see. And so that's why I think the identification here at times is a bit tricky about which of these is moving. If you're allowing the gap to move to reflect weak real interest rates, you don't want to simultaneously adjust the constant term because you're kind of double counting. So you have to provide an identification that disciplines your way of doing that. So I'm not opposed to doing that. It's just that we haven't really done that yet, and I think one has to be careful to let kind of the momentum of the day drive how we go about doing that. I think it's true that, I've said in the past, one of the challenges for policymakers, monetary policymakers, oftentimes, and I've said this I can't tell you how many times over the last five or six years, is that the challenge is we need to think far enough ahead when we make a decision or a change, what implications does

that decision have for us as a Committee or as policymakers two years, three years, four years down the road? Are we going to be happy with that decision? And policymaking, whether it be at the Fed or a lot of other places, is driven a lot by what happens today. We'll worry about tomorrow when tomorrow comes. But the problem is the things you do today shape that tomorrow in ways that you may not like. In August 2011, the Fed made a policy decision at a very stressful time where we changed forward guidance to be this date-based forward guidance. As you know, I opposed that decision. I didn't think that was the right way to make, we weren't thinking far enough ahead about the consequences of that decision, so I disagreed with that decision. It turned out it took us a year, a little more than a year, but we realized that this really wasn't the best way to go about doing it after all. And it took a long time to unwind that to put something else in its place. So part of what this is trying to do, I think, is getting us to think more long term about what are the consequences and not just live day to day as policymakers.

ROGER FERGUSON: Charlie, thank you very, very much for that provocative and very insightful talk. It's not every club that has two slides for breakfast and a discussion of very detailed issues of monetary policymaking. Let me thank all of you for coming to breakfast. I wish you a very good summer and we will adjourn for now and reconvene in the fall. So thank you very, very much.