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Chairman, The Economic Club of New York

Introduction

Chairman Marie-Josee Kravis

I'd like to first thank our Centennial members, some of whom are at the head table and at the front of the room. I want to thank you for your steadfast support. It is really thanks to you that the Economic Club has become and remains the leading nonpartisan platform for discussions of social, political and economic issues. So I thank you for your continued support. I'd also like to welcome attending members of the 2019 Economic Club of New York Class of Fellows. We have, as you know, a fellows program that identifies young leaders and affords them a separate program of conversations and meetings with leading authorities on political, economic and financial issues. And so I welcome the 2019 Class of Fellows.

But it's really a great pleasure to welcome here to New York this afternoon our speaker, Eric Rosengren, who is the President and Chief Executive Officer of the Federal Reserve Bank of Boston. Eric is also a participant in the Federal Open Market Committee, the monetary policymaking committee of the United States.

Eric has had a very long career at the Federal Reserve Bank of Boston starting as a researcher – he's an economist – starting as a researcher and then as Head of Supervision and Regulation. And his experiences also brought him on the world stage and he was one of the leading participants in the formulation, both discussion and formulation of the Basel II Capital Accords.

So he brings a very experienced and enlightened perspective on a number of financial issues. He's an expert in real estate and financial crises, but also a longstanding observer and participant and shaper also of monetary policy and thinking about monetary issues, not only in the US but across the world. He's written more than 100 articles on related topics.

So we are especially thrilled that Eric has agreed not only to make a presentation but to take questions and answers from Club members. So it'll be a very interactive discussion today. I should just say in passing, in closing, that Eric holds a bachelor's degree in economics from Colby College where he's now the current Chair of the Board of Trustees, and he earned his master's and doctorate in economics from the University of Wisconsin, Madison.

So, without further ado, Eric, I welcome you to make your presentation and then I'll come back and try to field some of the Q&A that will follow. So, please...(Applause)

Eric S. Rosengren

President and Chief Executive Officer

Federal Reserve Bank of Boston

Thank you very much. Is the mike fine for everybody? Great. So, just a quick overview of what I'm going to talk about today. I'm going to start by leading off a little bit talking about trade. Since I know I was going to get plenty of questions about it anyway, I figured I ought to lead off

with it so at least have a bit of that conversation. Then I want to give the outlook for the economy. And I think it's a particularly interesting time to talk about the outlook of the economy partly because of the uncertainty from trade, partly because we're in a situation where we have both a very low unemployment rate and very low inflation rate. So during the period where we had a very high unemployment rate and a very low inflation rate, it was very clear what to do. Both sides of our mandate said we should be easing. But in an environment where the two elements of the mandate are in some ways in opposition, it's a slightly different discussion about how we should think about that. And so I want to give you my own views of that and then talk about what the current implications are for monetary policy.

So, let me start with the trade concerns. So, over the last two weeks it looked like things, until the last two weeks had been somewhat resolved or leading towards a resolution, but certainly over the last two weeks we've seen a lot more volatility in financial markets reflecting kind of the uneven negotiations that are occurring between the United States and China right now.

Tariffs are a tax on imported goods, so it affects both the price and quantity of goods purchased subject to the tariff. And even the threat of tariffs can have an impact. So we saw that actually with the first round of tariffs and how much soybeans were being shipped and it was enough to change some of the GDP statistics, just because so much was trying to get in under the wire. And once again we're likely to be in a situation where the threat of tariffs are going to be such that we're going to see potentially a surge of goods that actually try to get in under the wire in case

tariffs actually do occur.

So just the threat of tariffs can start having inter-temporal decision making change particularly for retailers that are, for example, thinking about Christmas sales. It's very important right now to think about, gee, if I'm going to be importing from China, when are the tariffs going to go into effect? How should I prepare for that? To the extent that tariffs do go into effect, what will the effects be on consumer behavior? And should I be worried that I'll be holding a lot more inventory than I was planning on? So, I think right now is a time when a lot of retailers are making those decisions. So it is creating quite a bit of uncertainty at this time.

If tariffs are widespread and prolonged, one of the things we're not very good at estimating is what the financial market effects will be. So those financial market effects may be much more substantial than have occurred to date and that would certainly be something that would be of concern in terms of slowing down the overall economy. And you would expect, if it was widespread and prolonged, that it might have an effect not only on US GDP but on global GDP.

In terms of inflation, so it both has an effect on GDP but it also has an effect on inflation. So obviously if you're taxing imported goods, it's going to change the price of that specific product. How much it changes the pricing of that specific product is not exactly clear because it depends on a number of substitutabilities and I'm just going to talk about two here.

One is product substitutability, so to what extent can a consumer choose a different product that isn't tariffed? And if they're highly substitutable goods, then you're not going to see nearly as much of an impact. And second is from the supplier standpoint, if you can purchase the goods from some other country not subject to the tariff, it's not going to have that much of an effect on price either. Those things are not all that easy to determine. There are a wide number of products that are being affected so we'll see over time exactly how extensive any tariffs are going to be over the course of this year.

There are also indirect price increases that you have to think about. One of those is that it's not costless when you move from China, which may be the most efficient producer of some goods, to some other country, say Vietnam, in order to produce it. They may not have the same infrastructure in terms of ports. They may not have the same governmental structure. They may not have the same labor and the kinds of specialized labor to produce the good. So you may be moving goods to parts of the world that may be low-cost relative to the United States but still may not be as efficient a provider as the Chinese currently are.

And finally, you may see opportunists with price increases, particularly at a time when we have very tight labor markets. So even goods that may not be subject to the tariff may be an opportunity when wage growth is starting to pick up, that you see other goods starting to raise prices given that the tariffs in some sense mask why exactly that price increase is occurring. So there can be effects on inflation.

My own outlook is with an assumption that tariffs don't become terribly disruptive. Now that's an assumption, not a forecast. I don't have much more insight as to whether or not we have an agreement over the course of this year than anybody else in this room. So when I'm doing a forecast, for example when we do the Summary of Economic Projections and I have to provide a forecast for the SEP, my assumption is that the effects are going to be pretty temporary and that both sides have an incentive to actually reach an agreement. That may turn out to be a bad assumption. I hope it's not a bad assumption, but it is an underlying assumption.

But if we take tariffs off the table and ask how is the economy doing, I would say overall the economy has been in pretty good shape over the first quarter. So equity markets have certainly rebounded from the fourth quarter. So relative to where we were at Christmas or the beginning of the year, equity markets – both in the United States and around the world – have recovered pretty substantially despite some declines in the last two weeks.

Foreign growth concerns have subsided somewhat. There was a lot of concern about how substantial the slowdown was in China. There were also concerns about Europe, in particular Germany and Italy were hitting a soft spot so there were some questions about how much that slowdown might occur. And some of those concerns, I think, have subsided. And first quarter growth turned out to be much stronger than many economists forecast at least at the beginning of the year.

So all three of those would be consistent with actually a stronger economic outlook. If you look at the Survey of Professional Forecasters, which is roughly 50 forecasters, all private sector economists who forecast the economy, they have a growth for real GDP of 2.6%. That's a little bit above my own forecast for what the economy will be over the course of this year. But it's substantially above what potential is but a little bit below where we were last year. So it's somewhat of a step-down from what we were seeing in 2018. But, nonetheless, that would be enough momentum in the economy to push the unemployment rate down further. We're already at very low unemployment rates. The unemployment rate is currently 3.6%. So it would continue to make labor markets that are already tight a little bit tighter.

What is the implication for monetary policy? Well, as you know, we have a dual mandate. We're mandated to focus on maximum employment consistent with stable prices. If we take those two and look at them separately, the unemployment rate at 3.6%, the FOMC actually has asked what we think the unemployment rate will be in the long term as part of the SEP exercise, and the average is 4.3%. And, in fact, no member of the FOMC currently has a number for the unemployment rate in the long run below 4%. So at 3.6%, we're below everybody's estimate on the Committee of what unemployment will be in the longer run. So if you think the unemployment rate is a little bit lower than what's going to be sustainable in the long run, you would indicate that maybe we should have a somewhat restrictive policy if all we're doing is focusing on the labor markets.

If instead what you were focusing on was inflation, the other element of our mandate, core inflation currently is at 1.6%. That's obviously below our 2% inflation target. Not only is it below currently, but it's been below for a number of years. And I'll show you a chart later on just showing you how persistently we've been under 2%. So if you're focused only on inflation, you'd probably argue for a more accommodative policy.

So now we have two things in opposition. The labor market is very tight. That would argue for somewhat more restrictive policy. Inflation has come in a bit lower than we were expecting. That would argue for the opposite. So when they're in opposition, what should the Fed do? Well, according to our framework document, we should take a balanced approach. What does a balanced approach mean? It asks how large are the misses and how persistent are those misses likely to be? So, how large a miss is pretty easy, 1.6% to 2%, you're missing by 4/10ths of a percent. If you have a 4.3% on the unemployment rate for the SEP and you're at 3.6%, you're missing a little bit more on the labor market. But an important question is how persistent are the misses? And a couple of people, prior to coming into this room, were talking about, well, is it transitory or not? And that's where the persistence becomes important. If you think it's just transitory, then it shouldn't have a big impact on how you're thinking about policy. If you think it's more persistent, then it probably should.

So my own view is that right now there's no clarion call for monetary policy to change. My own view is that I do view the inflation misses as predominantly being temporary. I think labor

markets are tight and we are going to get much closer to 2%. If the tariffs go into effect as announced, it will be probably get to 2% a little bit more quickly than we were anticipating. So I'm not as worried as some of my colleagues about the extent of the inflation misses that we have right now.

Nonetheless, I do think we can kind of wait and see what happens. And, in particular, one of the downside risks is that trade negotiations may become much more disruptive than I'm anticipating. In that case I'd be much more worried about some of the downsides to the economy of things were they not to go as smoothly as I'm hoping.

So let me go through a few charts just to illustrate what I'm talking about. So this first chart is just total inflation and core inflation. As you know, core inflation takes out the food and energy. So why do we take food and energy out? Why do we even focus on core? And the reason is because food and energy tends to be very volatile. So what we care about is not measured inflation as of today, we care about what the underlying inflation rate is over time. And so what is the best measure of what underlying inflation rate is over time?

Well, if you look back to the 2015 period, you can see that there's a big difference between total and core. That was because oil prices came down quite substantially. Some of the food prices came down at the same time. So the total PCE is much more volatile than the core. You can see from the core, we've been generally trending up, but it goes up and down depending on what's

occurring in the various components. We are currently at the far right at 1.6% so that's pretty far below 2%. And certainly if what you're talking about is a 2% symmetric inflation target, that would mean we should see inflation half the time above 2%, half the time below 2%. As you can see from here, that's certainly not been the case over the last few years. It's more like we're looking at inflation as a ceiling rather than as a symmetric target.

So, if you think about inflation by adding a third line, this is the Dallas Trimmed Mean. So the Dallas Trimmed Mean is basically the same kind of concept for underlying inflation, but instead of picking a category that's very volatile, which is food and energy, it says I'm not really going to have any particular view about which areas are volatile, I'm just going to throw out the outliers. And by throwing out the outliers, I'm going to focus on the main bulk of the distribution as being an estimate of what actually is happening with underlying inflation. So in concept it's not that different than food and energy. It just doesn't identify one particular area as being of particular interest because of its volatility.

You can see that when you look at the Trimmed Mean, you get a much smoother series. And, in fact, there's a general trend that's going up. We're currently at 1.96%, rounded to two digits, we're at 2%. So at least by the Trimmed Mean measure of inflation, we're not missing by all that much. One way of thinking of that is because the Trimmed Mean is throwing out those outliers, that the outliers are driving a lot of the 1.6% and that over time you would expect that outliers will no longer be driving the series and we will be very close to 2% inflation. So that is my basic

presumption is that the Dallas Trimmed Mean is actually giving us a better sense of what underlying inflation, which is why I'm not as concerned as some about the 1.6% on core inflation.

Just to highlight the role of outliers, this is two series that the Chair mentioned in the press conference. The first one is the clothing and footwear and the second is portfolio management. If you look at left axis, you can see it's a much bigger index than what I was showing before which had a much more compressed. And let's just use clothing and footwear as an example, you can see over the last couple of years that clothing and footwear has been growing, having price increases that have been relatively substantial and above the 2% that we're talking about.

More recently, you can see a very sharp dip. One of the reasons for that is a change in the way the government calculates those statistics. And, in particular, changing the way that they gather the data had an effect of lowering the calculation for the price index for clothing and footwear. But it probably doesn't reflect anything about the underlying path of clothing and footwear. So if you have something like the Trimmed Mean, that would be an outlier that you'd be throwing out, in which case it wouldn't be telling you that much about the underlying series.

Similarly, portfolio management tends to be very tied to what's happening in the stock market. So if you take those two series out, the Trimmed Mean is giving you an indication that inflation is not that far away from what our underlying target is.

Now, if that were true, you would expect that forecasters would be thinking those were one-time events for some of the sub-components of the index and as a result, the forecast going forward should be much closer to 2%. So using that same Survey of Professional Forecasters, that roughly 50 private sector forecasters, you can see that they're expecting that for this year we're going to be a little bit low, but by 2020, 2021, we're going to be very close to our 2% inflation target. So the underlying assumption by most private sector forecasts is very similar, that we're not going to be that far away from where we want to be.

So let's look at the other part of the mandate. Three lines here, or two lines and some shading. The actual unemployment rate is that dash line. The median of the SEP estimates for the long-run unemployment rate are the dark line down the middle. And the shaded region is the range of estimates for what the long-run unemployment rate will be based on the Committee. So, if we have a full component of FOMC members, that's 12 Reserve Bank Presidents, and we haven't had a full component of Governors for quite some time, but it would be 7 Governors if we did.

And you can see a couple of things from the shaded area. First of all, if you go back to 2014, we had a much different estimate of what the natural rate of unemployment was then than we do right now. It's generally been coming down. That actually isn't that unusual. If you look at estimates in real time about what the natural rate of unemployment is, you'll see that over the last 30 or 40 years, it's been a pretty standard practice that during good times we tend to lower what we think is the natural rate and during bad times when we're in a recession we tend to raise it.

The CBO has an estimate looking backwards and saying with the information we have now, what was the actual NAIRU, it doesn't move nearly as much as the real-time estimates.

So I take it with a bit of a grain of salt that I think economists in general, including economists at the Fed, probably over-rate current information relative to the information they have over the entire cycle. Nonetheless, you can see that in the shaded region, this is a quarterly chart so the most recent quarterly estimate for the unemployment rate is 3.9%, but the most recent monthly estimate is 3.6%. You can see that the shaded region, nobody is below 4% meaning that no member of the Committee currently thinks that the natural rate is as low as the current rate of unemployment. So that would be consistent with being concerned over time that maybe we've overshot what we think is going to be the natural rate.

What would be the evidence of the natural rate? Since obviously we're not very good at estimating the natural rate, we've changed it quite substantially over time, so you need to be pretty humble about how well economists actually estimate that. Well, one indicator would be that you start to see wages going up. So this chart shows you two different ways of calculating wages. One is from the Employment Report, the average hourly earnings. The other is the Employment Cost Index.

So, coming out of the Great Recession, wages were quite low. So if you think of a 2% inflation target and 1% productivity is about where you would expect wages to be, you can see that wages

weren't even covering the inflation rate, what our inflation target was coming out of the financial crisis. If you look to where we are now, between 3 and 3.2%, that actually is pretty consistent with the 2% inflation and productivity at 1 to 1.2%. So that's about what you would expect.

Now the question is whether that trend is going to continue to go up, which if you believe we're below the natural rate by as much as the previous chart showed, it would indicate that there's no reason not to expect that to continue to go up. Will that be inflationary? Well, there are a couple of things that would say it may not be. One is if productivity is really going up, then it's not inflationary. A higher productivity, you can afford to compensate workers more. So if productivity is going up, you have more leeway to pay those wages.

The second is the profit margins have been historically high recently so at least initially any wage increases can be funded in part by accepting a lower profit margin. But at some point if that trend continues, you can't – in an unlimited way – squeeze your profit margin, you're not going to expect productivity to solve all the problems. So if that trend were to continue and significantly surpass productivity and be much more substantial that it couldn't be absorbed by profit margins, that's when you would expect that it would become a little bit more inflationary.

Now these things happen with long lags. We're in a world where it's an instantaneous world, but actually labor markets don't move instantaneously. They move quite slowly. So this is exactly the kind of pattern I would actually expect if we thought we were a bit below what the natural

rate was. And if we were continuing to be below the natural rate for some time, I would expect that trend to continue.

Now there has been some positive news on productivity, so this is one measure of looking at productivity and it's a 20-quarter moving average. The highlight is that on the right side you can see that productivity, we've had some recent productivity reports that have actually been reasonably strong. And actually, usually when I get questions people are expecting productivity to be much stronger than it actually, at least the measured productivity is, you can see relative to where we were between the last two recessions, that it's still substantially below where we were. So it's good news that it's trending up, it's bad news that we're still well below where we were before. That's one reason why people are not expecting that in the long run we're going to be getting GDP growth that's substantially above 3% because it would imply that we'd have to be getting much more productivity. We'll see. Economists are not very good at measuring productivity or forecasting productivity, but nonetheless it would be a pretty big move from where we are right now if you're trying to get persistent 3% and above.

Turning one more time to inflation, this looks at inflation both total and core. And it looks over a longer period of time, so it looks at a 5-year average, 10, 15, 20, and 25-year average. So I said that our inflation target is symmetric which would mean over longer periods of time we'd actually expect that both of these series would be very close to 2%. What this chart shows is that we haven't been so close to 2% for quite some time, that it's much closer to a ceiling than

actually a symmetric target right now. And so regardless of the time period that you're looking at, we have been undershooting.

So why would that be a potential concern? Well, one concern is if the Fed is saying 2% but we never hit 2%, that people's inflation expectations change and they start lowering to what we're actually hitting. The worst example of this is Japan where they were consistently not getting much inflation at all and when all of a sudden you're announcing you're going to hit a 2% inflation target, it's really hard to change behavior if over the previous 10, 15, 20, 25 years you've been actually showing actions that are not consistent with those words. So the same concern – to a much lesser degree – applies to the United States. We've been highlighting a symmetric 2% inflation target but we haven't done a very good job of hitting it.

So concluding observations, I think current policy is roughly appropriate. I do think labor markets are tight and I do think that there's a significant upward trend in wages. But inflation still right now is below 2% and we have been undershooting that inflation target. A balanced approach doesn't give us much of an impetus right now to actually do anything. So I think we are at the appropriate spot.

In terms of the framework discussion, the Bank of Canada every five years looks at their monetary policy framework and asks should we do something different? We have historically not done that. We are in the process of doing it right now.

So we're actually in the process of a listening tour. We actually had a session up in Boston last week. I think the New York Fed had one of their events very recently as well which the Vice Chair was speaking at. And one of the things they were thinking about with that framework discussion is should we consider a range for inflation. I actually think that would be a much better way of thinking about inflation than what we're currently doing for a particular reason. During good times you never allow inflation to get above 2%. You're never going to hit an average of 2. So you need to be able to be willing to be between 2% and 2 ½% during the good times realizing than when the economy is in a recession you're very unlikely to hit 2%. You're much more likely to be between 1 ½% to 2%. So if you have more of an inflation range where it's acceptable to be a bit above during good times, a bit below during bad times, you're much more likely to hit a 2% target over time. So it doesn't change where we're trying to aim over time, but it is a way of reinforcing expectations of really being at 2% but it's 2% over the cycle. So I think this is one of many things that we should be considering about in the framework. So I am worried that we have not done a very good job of persistently getting closer to our 2% inflation target and this would be at least one way to address it is to have a little bit more flexibility, make clear that we were a little bit more comfortable with overshoots above 2% because in the past at least we seem to have been overly sensitive to not being over that number and the result is we've been averaging consistently below the number that we're saying is our target. So I'll stop there and take some questions.

QUESTION AND ANSWER PERIOD

CHAIRMAN MARIE-JOSEE KRAVIS: Thank you so much. Thoughtful and so clear and we really appreciate your insights, and I think we're going to try to dig a little deeper. Shall we take questions? Ed or here.

If people could just identify themselves as well when they're about to speak and wait for the mike to actually appear so everybody can hear.

QUESTION: Thanks very much for sharing your thoughts.

CHAIRMAN MARIE-JOSEE KRAVIS: Is your mike on?

I can repeat part of the question if people don't hear it.

QUESTION: So last week there were two articles in the *Wall Street Journal,* on a general topic that is CPI focused ___. I'm sure you've thought about this quite a bit. Mark ____and Alan Greenspan have made the point. One is because when prices go up, people use less of that so it doesn't get pushed down in weight. And another is that products that have a big drop, you'll have a big drop in the price before it really exists in the consumer space. And then when it finally gets popular, the price has dropped a lot and then it gets included in the CPI but you missed a lot of the drop in prices. So what's your view of the possibility that CPI is overstating inflation? And if it is, what are the implications of that?

ERIC S. ROSENGREN: So there's no perfect price index first of all. So you have to pick one. There's the CPI, there's the PC, you can look a lot of different components. I think the biggest challenge for inflation indices is actually the change in technology that's going on. So it's very easy if you're talking about apples because apples don't change over time. But if you look at your phone, if the phone, the phone has changed a lot over time, how well are we able to capture the functionality of those goods over time I think is of question. I think another concern with the price indices is much more the service economy. So it's pretty easy to figure out what the price of a car is. It's not as easy sometimes to figure out the price of health services or even portfolio management services. So thinking about service sector and the service sector being two-thirds of the economy, I think both of those are reasons why it's hard to fully capture exactly what inflation is. Nonetheless, the Fed has picked the PCE as its inflation index that it does focus on. And the reason I care about inflation not going down, however measured, is that I'm worried about having enough space in the next recession that monetary policy can offset the negative shock. So currently the federal funds is at 2.4% roughly. Most recessions we dropped it by 500 to 600 basis points. So in the current environment, if we stayed right at the interest rate we're at whenever the next negative hit that caused a recession occurred, we'd more than likely hit zero again. That would force us to do quantitative easing. But even the long end of the market is not as far from zero as it used to be either. So we were used to seeing 4% and 5% for ten-year treasuries, we're not seeing anything like that now. So even with quantitative easing, how far we can actually push long-term rates has probably been limited. So one reason to make sure that inflation expectations don't slip further is to make sure that when you think about the nominal

interest rate, it's a combination of an inflation rate plus the real rate. The real rate we can't do too much about. We can make sure that we don't let that 2% slip that much. So I think it does make sense that we hit our 2% inflation target. Even if there's mis-measurement going on, we should be comfortable having a little bit more inflation than what we've had over the last 15 or 20 years. And that is being cognizant of the fact that we don't do a great job of measuring what actual inflation is. And even when you look at something like the CPI, it's a basket of goods for some people, but the basket of goods my daughter purchases and I purchase is completely different. And so it's an average basket, but it's not an average basket for every single person. So there are lots of problems with any kind of price index, but I think taking, averaging through all that, most of the inflation indices move pretty closely together. And they're pretty much bunched around the same general area. So even though some are fixed weights, some are not fixed weights, they don't diverge by dramatic amounts and the general trends tend to be the same. And I'd say all of them are showing a little bit of slippage recently.

CHAIRMAN MARIE-JOSEE KRAVIS: I'll repeat. Please identify yourself.

Ken Lipper. Are you implying that the companies do not have the pricing power in passing on higher wages and, therefore, will have to resort by necessity to lower profit margins even though they've been higher in the last few years? Is that because they don't have pricing power? And if so, how deep an impact are you expecting on the profit margins of say S&P 500 companies?

ERIC S. ROSENGREN: So it's not making a specific forecast about what earnings are, it's more making the observation that if wages continue to trend up, if you don't want it to be inflationary, it either has to come from more productivity or a reduced profit margin. And so to the extent that there is pricing pressure, and I think there is pricing pressure for many firms particularly with international competition, that means that over time as wages go up, it's going to be impacting profit margins. And when it stops affecting profit margins, if wages continue to go up, it means prices are going to have to go up more quickly than they've been going up. Now the difference between the goods sector and the service sector, so if you look at those two split, the service sector has pretty much consistently been above 2%. Those are non-traded goods by and large. The goods sector, which are traded goods, have consistently been below 2% reflecting technology change, reflecting different labor costs around the world. So even thinking about those kinds of splits make a difference. So it's less a forecast of what will happen to earnings, but saying if we continue to be in a very tight labor market, at some point it affects inflation.

Charlie Rose. The question I have is basically about the level of corporate debt and government debt because in an environment where rates are so suppressed, the cost of debt is quite manageable, but in a different environment that would be a very different story. And I'm wondering how the Fed looks at the environment today for the continued growth of debt particularly in the corporate sector. And more importantly, now even in the government.

ERIC S. ROSENGREN: So the Chair gave a very good speech on this the other day.

CHARLIE ROSE: I wasn't there. I'm sorry.

ERIC S. ROSENGREN: I do have some views on that as well. So corporate leverage has definitely increased. And it's particularly increased at the lower end of the ratings distribution so congregated just above low investment grade. The reason that's worrisome is whenever the next – I talked about policy space before when I was talking about why I would be concerned about inflation slipping – the same thing applies actually to thinking about a more levered economy. So if monetary policy has less room, and let's take for granted that fiscal policy may have less room as well, then that means you don't necessarily want a more levered economy over time. The more levered the economy with fewer policy tools means that the severity and duration of the recession, whenever it does occur, is likely to be longer than it otherwise would be. So I think we should be thinking about how comfortable we are with the amount of corporate leverage that's being taken on. Now, as you're highlighting, the ability to make those payments is much easier when we're in a low interest rate environment. I'm not so sure that we're suppressing interest rates at this point. I think it's really a reflection of where the equilibrium interest rate actually is at this time. So our balance sheet is not that far from being normalized at this point so I don't think it's actually providing a whole lot of suppression. I could easily imagine, as we get towards the end of this year, that we're going to be finding that at the current levels we may need to start thinking about expanding our balance sheet which would say that we fully normalized our balance sheet. Now it's normalized at a much higher level than you were used to prior to the crisis, but one way to think about that is that prior to the crisis we had a trillion dollar roughly

balance sheet, but we were holding, roughly three-quarters of that was cash. Well, cash is now roughly one and three-quarters trillion, so we couldn't possibly go back to that same balance sheet. So you have to think about the liabilities as well as the assets over time. And our balance sheet is actually pretty close to normalized. In terms of the short-term interest rate, I don't think that's particularly suppressed either. We want the interest rate to be sufficient that we hit our inflation target and hit our maximum employment. Arguably, we're pretty close to that right now. So I don't think, if you look at, one of the things we're asked for the SEP is what we think the short-term interest rate will be in the long term. There's a range of estimates for that but roughly around 2 3/4 is what the Committee thinks in the longer run will be the short-term interest rate. We're at 2.4% on the fed funds rate. We're not that far away from where at least the Committee thinks the short-term rates are likely to be in the long run, which is to say I don't think monetary policy is particularly suppressing interest rates at the short end or at the long end at this point. So I think it is a reality that when you're in a low interest rate environment, that that's going to be a situation where more leverage is going to occur. But I do worry about the composition of that leverage, and I do worry, not so much that the leverage will trigger a bad outcome, but that it will exacerbate a bad outcome.

(Inaudible...)...the longer term debt structure seems to be still low. Not the fed funds rate but the longer duration debt seems to be still in the 2s which doesn't, it seems hard to fathom ten years into an expansion that you're still in the 2s. And more importantly, in Europe, Germany are in the negatives and in Japan you're still at zero.

ERIC S. ROSENGREN: So let me focus on the US first, which is if you're talking about a 10-year rate, you're talking about what the short-term interest rate will be compounded over the cycle. So a different answer, if you think we're going to hit a recession sometime in the next ten years, which would probably be a pretty good bet, and if you think that recession is going to force us to zero, and if you think the amount of policy space for fiscal and monetary policy may not be that great, you might be much closer to Europe and Japan in the future than you want to be, which means that the reason the long rate is so low is because we are in a low interest rate environment. We have less policy tools to react to the next recession. And that's being reflected in the fact that people are willing to take a 10-year or a 30-year instrument at a much lower rate than they might have been in an environment where productivity was much stronger, where the population was growing much more quickly and where, as a result, we had much higher real interest rates.

Peter Coy from Bloomberg Businessweek. You mentioned early on that higher import prices would help the Fed achieve its 2% inflation target, but not all forms of inflation are created equal. Inflation that's caused by tight labor markets, strong domestic demand, you'd want to combat with rising interest rates, but an exogenous shock like that would actually be recessionary and would not imply higher rates, right?

ERIC S. ROSENGREN: So how you react to it depends on how persistent you think it's likely to be. So I gave two examples of reasons why inflation might actually be somewhat more persistent

than you think. So if you think producers that are currently in China are going to move to the rest of Southeast Asia, that's going to take an extended period of time. It's probably going to be at a less efficient production, at least initially, than what we're currently seeing in China. So it's going to result in a series of price increases that are actually going to be very hard to distinguish from the underlying inflation rate. And at the same time we have very tight labor markets. So if you persistently start seeing prices coming in higher, how does that start affecting labor negotiations, inflation expectations more generally? So I don't think it's a clear-cut process. You're right, if it's a one-time event, so a temporary change in prices right now and you think it's going to go off in two months from now, we shouldn't certainly react to a transitory change in a tax on imported goods. But if we're seeing a more systematic change in the composition of where things are produced and the price they're produced at, it's going to be really hard to distinguish that particularly in a tight labor market. So I think it's a more nuanced answer than the typical answer would be that a one-time price change doesn't affect inflation. And that's true if it's purely just a one-time price change, you'll see inflation, measured inflation go up for one period and then come down after that. If instead what we're seeing is a lot of persistent higher inflation rates than we were expecting, the signal and the noise is going to be really hard to separate. And as a result, I think that it could start having more of an impact in a tight labor market.

Thank you. Seamus Smyth from Stone Harbor Investment Partners. You've talked a little bit about the ongoing framework review that the Fed is taking place and when you're thinking about

the potential for changes, do you think that you're going to have to do take some form of action to convince the market that there really is a change if you really are trying to reverse this potential slippage of longer term inflation expectations? Do you think it's likely to be enough to just say we promise we're going to be different in the future? Or do you think that you're going to have to actually take some, to show the market that you are changing? And then sort of a follow on, based on what you were talking about, about the amount of policy space you might have in the next recession, one way that a lot of other countries have looked at the amount, increasing the amount of policy space that they've had is taking rates below zero. The Fed seems like they are reluctant to contemplate that step going forward. But is this the sort of thing where you could use this framework review to get around, to start to prepare the markets for some of the institutional features that the US has that might be problems thinking about money market funds and other issues such as that with negative rates?

ERIC S. ROSENGREN: So a couple of points on our framework discussion. The first is the Bank of Canada does these regular five-year framework discussions. They frequently decide to do nothing. So just because we have a discussion doesn't mean that we're going to take an action. So that's probably the most important thing. I think it's a good time to have that discussion. It's a good time to be actually thinking about alternatives. It doesn't mean that we necessarily adopt them. So let's assume, just as an example, that we go, instead of a 2% inflation target to an inflation range, and right now I was talking about a balanced approach, I'm going to be much more patient before I raise rates if I have an inflation range rather than a balanced

approach that we're currently talking about. So one way you manifest that, you have to let labor markets get tight enough that you actually start seeing price inflation above 2%. So a change in the framework is not going to necessarily be apparent instantaneously and I don't think it needs to be, but it should change policy outcomes over time. And so I know, in my own view, if I have a different framework and I agree at the beginning of each year that that's a framework I'm using and we change the framework, it's going to have an implication about what my path of interest rates ought to be over that period. And finally, on your very last question on negative interest rates, I'm not a big fan of negative interest rates. One, I think it creates a real problem for financial intermediation and it's important for the transmission of monetary policy that we have healthy intermediaries that are able to pass through a monetary policy. I think it's very difficult in a prolonged period of negative interest rates to actually do that. Now obviously the Europeans and Japanese have a different view of that than I do. My personal view is that we should be quite reluctant and the fact that they've had negative interest rates for a long period of time and their economic growth has not been all that strong would make me even more leery even ignoring the financial intermediary issue to actually do it. So I think one of the last tools that I would be thinking about is negative interest rates. I don't think it's nearly as stimulative as some other central banks do.

CHAIRMAN MARIE-JOSEE KRAVIS: We'll do one more round of questions quickly. If it's okay.

ERIC S. ROSENGREN: Yes, sounds good, one more.

___ from C.V. Starr. In the event of an all-out lasting trade war between the United States and China, the Chinese government has indicated the possibility of rolling out a whole range of stimulus programs that you probably have read about. So my question to you is, under what circumstances would the Fed consider doing the same thing? And lastly, any general comments about the prospect of a trade war? Thank you.

ERIC S. ROSENGREN: So we have a balanced approach. So if we're persistently missing on inflation and labor markets, that would be a reason for changing our policy. So if whatever was happening with the trade agreement got severe enough, that would imply lower interest rates, both because you were concerned that inflation over time might be persistently below our 2% target and you might be worried that it was a severe enough shock that the unemployment rate would get above our estimates of full employment. In that case, that would certainly be a circumstance in which we would respond with monetary policy. One last comment to that, that's not my expectation. So that would be, if that were to happen, which I'm not expecting, then I think it would be appropriate to use monetary policy to partly offset it. But I'm not seeing that kind of problem. That's not my base assumption anyway.

CHAIRMAN MARIE-JOSEE KRAVIS: So we'll give you the last question, Anna.

QUESTION: Can you please talk about the recent inversion between the IOER and the fed funds rate?

ERIC S. ROSENGREN: So it gets back to the earlier questions about how much our balance sheet is actually suppressing interest rates. So one manifestation over time of the fact that we're getting to a more normalized balance sheet is that we start seeing movement in short-term interest rates that are reflecting that we're no longer on the flat part of the demand curve for reserves. And so it's not completely surprising that as our balance sheet has shrunk, as the amount of excess reserves have shrunk, we don't have as good an estimate of what the reserve target ought to be, in part because we've changed bank supervision so much in terms of our liquidity requirements. And so some banks are choosing to hold a lot more liquidity in reserves. We don't have a great estimate over time as interest rates get tighter how much excess reserves they're actually going to choose to hold. So the question is at what point do we start seeing short-term interest rates reflect the fact that banks need to have a higher rate in order not to hold that kind of reserve. So I think it's an indication that we're getting much closer to where we think the portfolio ought to be over time and where we actually should be thinking about expanding our balance sheet. And I think one manifestation of that is what we're seeing at the short-term interest rates.

CHAIRMAN MARIE-JOSEE KRAVIS: So, I apologize to all of those who didn't get a chance to ask a question. We could have gone on forever, and I thank you for being so generous with

your time. (Applause) So, just as a reminder to Club members, next week on May 30, we will be hosting for lunch, Richard Clarida, the Vice Chair of the Board of Governors of the Federal Reserve System. On June 4, a reception with Stan Druckenmiller, the CEO of Duquesne Family Office. Then on June 4...I'm sorry, June 3 is Stan Druckenmiller, June 4, Brian Moynihan, a luncheon. Brian Moynihan is the CEO of Bank of America. June 19, a luncheon with General David Petraeus, the former Director of the CIA. And finally on June 24, David Malpass, the President of the World Bank. So I hope I'll see you at most of these events. And thank you, and thank you again. It was a pleasure for us to host you, and we hope, Eric, that you'll be back again soon. Thank you. (Applause)