MACRO Voices
with hedge fund manager Erik Townsend

Jeff Snider: U.S. Treasury Yield Curve Deep Dive

March 22, 2018

Erik: Joining me next on the program is Alhambra Investments CIO Jeffrey Snider. The subject today is, of course, going to be yield curves.

Jeff, I think most people know that there is this statistic that every major post-war recession has been predicted by an inverted yield curve. The thing that strikes me is, first of all, I think there's probably more information to gain from just whether or not the curve is inverted.

But, particularly, the statistic about all these post-war recessions – all of those recessions happened before the current era of central bank intervention in the Treasury market. And it was also before the breakdown in the Eurodollar system, which you described in Eurodollar University as not really occurring until 2007.

So why don't we start with the big picture? What should we be thinking about when we think "yield curve?" What does it tell us? Is it just the inverted or not? Or is there more to it? And how has the picture changed since 2007–2008, when so many things about the structure of the market are different now?

Jeff: Well, first, Erik, you're exactly right. The yield curve tells us a lot more than just when it's inverted and when we should expect recession. There's a whole lot of dynamic information embedded within the curves – and various parts of the curves – that we can look at that tell us a lot about where we are and where we're going.

And it's more than just recession or not. We can look at an even bigger picture than that. What is the baseline economic growth? What is the bond market telling us about not just the baseline economic condition, but how that relates to monetary policy.

And, in some ways, the yield curve is almost like a check on monetary policy. Because the short end relates to what the Fed is doing and monetary alternatives that the Fed can create through its various programs. While the long end says: Well, are those programs effective?

So the combination of the short end and the long end in real time gives us a lot of dynamic and very useful information. Far more than when it inverts in the recession. There's a lot there that we need to pay attention to. And a lot there that people should have been paying attention to for a very long time.

Erik: Jeff, let's go ahead and get into your excellent slide deck. I'm looking at Slide 4, which is where your first chart is. For anyone who is not familiar, when we talk about a yield curve we're talking about the comparison of a shorter-duration Treasury yield to a longer-duration Treasury

yield.

Here, you're actually displaying two different curves. The 2s10s curve, the difference between the 2-year Treasury and the 10-year Treasury (in dark blue). And the 5s10s curve, which is the difference between the 5- and 10-year Treasury yields (in the lighter blue color).

It certainly seems as though, in the era that we now have of targeting interest rates, that the action towards the right end of the chart is showing us steeper curves. Is that because of central bank policy?

Jeff: Absolutely. That is definitely the hallmark of interest rate targeting, and introduction of interest rate targeting especially under the Greenspan regime. And all it really says is that the Fed, in an attempt to try to smooth out the business cycle, they have been far more hyperactive at the short end – the federal funds target, which they used as their policy lever – than they had been at any point in the past.

And that's simply because monetary policy before the 1970s was not set by an interest rate target. The Fed went through a couple of different regimes in the '70s, which, obviously, we know as the Great Inflation. And, therefore we can say they experimented in a lot of different failures.

But from the 1980s forward, they thought they had settled on a positive regime where they could influence the yield curve and, therefore, influence the economy through their monetary policy techniques. And the practical effect of that was it ended up steepening the yield curve in these situations clustered around recession.

Obviously, that makes sense in a technical way because when the Fed reduced its federal funds rate that had the effect of lowering or reducing monetary alternatives. And therefore short-term Treasury yields and other monetary equivalents would fall in yield in sympathy.

However, the issue is not just short-term rates, but what does that mean in the long term? So that's, I think, what we really need to discuss as the yield curve steepens. What does that actually mean?

Erik: Okay, Jeff. Why don't we touch on that question, then, of what does a steepening yield curve mean? I think the simple understanding that a lot of people have been told is that a flattening yield curve is an indication of a weakening economy. A steepening yield curve is an indication of an improving economy. Because better, higher, longer-dated rates means that people are optimistic about the economic future, and the market is essentially anticipating that in the longer term there's going to be economic growth and so forth.

Is that the right way to interpret the yield curve? Or is there other meaning that people should be interpreting the signal that the yield curve is giving them?

Jeff: That's certainly the general impression that you get. A steeper yield curve is a very positive sign. And that's actually what monetary policy is looking for. In driving down short-term rates via the federal funds interest rates target, the idea from the Fed's perspective is exactly that: to make it look like things are going to be better in the future.

If they can point to a steeper yield curve and tell the public and the investing public and say, look, the bond market thinks that things are going to be better down the road, don't worry about what's bad today, it's all going to be good tomorrow.

And the question is: Is that a really steeper yield curve? Or are there artificial elements to it? And if there are artificial elements to it, what does that mean? And we can flip that question around.

If you look at Slide 5, which is when the yield curve inverts, what does it actually mean when the yield curve inverts? Is there artificiality there too? What are we really looking at in this regime of interest rate targeting, where the yield curve has become steeper overall in these various periods – what is the Fed's role in steeping and flattening the yield curve? And what does that actually tell us?

Erik: Well let's go ahead and answer that question, Jeff. What does it tell us?

On the one hand, I could see an argument that says: if the Fed is suppressing those short-term rates, it really is providing an immediate stimulus to the economy by making money cheap. So maybe it really does stimulate the economy.

On the other hand, frankly, a lot of what you just said to me sounded like a con job. The way that the Fed tricks people into thinking that things are better than they really are is by supressing the short end of the curve in order to create this steepening shape, which everybody historically associates (back from the days of when free markets determined all these things) with an improving economy.

So which is it? Is it an indication of manipulation that is concealing the truth? Or is there really truth there, because, after all, when the Fed makes money cheap in the short run that has a stimulative effect?

Jeff: What we're really trying to get at here is what is the yield curve telling us about that very fact? Is what we're seeing at the short end, what the Fed does in trying to influence short-term rates, what does that mean? What does that do to the market? What does that do to the economy?

And that's where the long end comes in. As I said earlier, it's a check on those assumptions. In the '90s and the 2000s, we were led to believe that the Fed knew what it was doing. Not only that it knew what it was doing, but that it had immense power to do these kinds of things through these various programs and through these various targets to achieve these goals.

But if we actually step back and look at the yield curve during these periods – I want to go into the last rate hike cycle in the middle of the 2000s, because I think that's instructive in telling us how we should view the yield curve under this kind of influence and this kind of a regime.

If you go to Slide 6, what you see is the entire cycle, starting with the Fed reducing rates in 2000 and 2001. And then completing that with rate hikes through 2004 and 2006. What stands out to me on that chart isn't the V-shape of short-term rates. It's the relative stability of the 10-year.

In other words, through that whole period, the long bond – remember there was no 30-year throughout most of that period – the long end of the yield curve didn't really move. No matter what the Fed did, no matter what the 2-year did – which was steepening of the yield curve at that point – the 10-year was really pretty stable the entire time.

Which, importantly, tells us that the long end of the yield curve, or the long end of the bond market – where economic alternatives are supposed to be, and where that all plays out in very deep and dramatic and liquid fashion – the long end of the curve wasn't convinced that things were fixed. Again, because the nominal 10-year stayed in a pretty vary narrow range the entire time up and down.

Erik: Moving on to Slide 7, we're getting into rate hikes. So give us an understanding of why the central bank undertakes these rate-hiking programs that always seem to – it always has felt to me like one day they announce, okay, we're going to have a 25-basis-point rate hike every meeting until the economy blows up. And we're not sure how long that's going to take. And, when it does, then we'll deal with it at that point.

I guess there must be more to it than that. That's just the way it seemed to me. How does this work?

Jeff: Well, in theory, it's pretty simple. The Fed believes that things are getting better, therefore they have to get ahead of it. Because if things get better too much, it produces inflation and all sorts of nasty consequences. That's the dominant orthodox economic theory, that we can't have things be too good. Therefore we have to put the brakes on.

And so, between June 2004 and June 2006, in a 2-year period, the Fed raised rates 17 times. They brought the federal funds target up – which was then at an unbelievably low level of 1% – all the way to 5.25% over two years.

And in that time, because they thought things were getting better economically – and I mean in really fundamental terms (the economy was turned around). It had shaken off not just the dot com recession, which was pretty mild, but, more importantly, the lack of recovery following it. Which is what really concerned the Fed in the first place.

The last rate cuts in that cycle regime were done well after the dot com recession had ended.

Because they realized – and I think a lot of people realized – that the recovery, for some reason, it wasn't igniting the way that it had in the past. There was no V-shape to it.

They wanted to make sure, keeping the low 1% federal funds target all the way to 2004, the Greenspan's Fed wanted to be sure that the economy was really on a recovery footing before they started to get back to normal.

And that's what they were aiming at there. In 2004 to 2005 and 2006, they really thought that they were going to bring everything back to what they thought was normal. The federal funds rate, before they had started the rate cuts in 2000, had been as high as 6.5%.

And that's where they were trying to get back to. They wanted to get everything back to normal, because they thought the economy was going back to the same way it was in the late '90s.

What they found out was that, pretty quickly on in their rate hike regime, the long term rates, the long term Treasury rates, were not reflecting the same thing that Alan Greenspan thought was taking place. If he was right about everything, if we were going back to solid growth like that of the '90s, the 10-year Treasury should have been rising in concert with short-term rates. The yield curve would compress a little bit, but not as much as it was, because the long end wasn't moving at all.

By early 2005, Alan Greenspan testified to Congress that they had run into this conundrum, as he called it. He couldn't explain why the long end of the Treasury curve wasn't moving the way he thought it would move.

And he wasn't alone in that. In fact, that was the consensus view. Bill Gross, who has made a name for himself (especially in the last ten years), calling an end to the 30-year bull market in Treasury bonds – By the way, I hate that term. There is no such thing as a bull market in Treasury bonds. But, anyway, Bill Gross, back in 2005, was just as confused as Alan Greenspan was about the long rate. And he actually said it in his Pimco investment outlook, that he has been befuddled by it.

And what it was really telling us was that the market did not see the economy the same way that Alan Greenspan did. Alan was going to raise the interest rates no matter what, because he was sure that the economy was on its way to better days. And a long-term Treasury market reflected in the 10-year was saying, wait a minute, things are not really that good.

And, not only that, there are an inordinate number of risks out there that I don't think the Federal Reserve is paying attention to (of course, then, at the time, being the housing mania). But not just the housing bubble but also the Eurodollar level as a whole.

And that had the effect of the Federal Reserve pushing short-term rates back up, just as they drew them down in 2000 and 2001, all the way to 2003. They were now pushing short rates

back up against an obstinate long-term rate.

That had the effect of, of course, very much flattening the yield curve to the point where, toward the end of the cycle – first half of 2006 – they all pretty much equalized. It was all one big mass where the short-term rates – the federal funds targets – and long-term bond rates were all basically the same thing.

And they stayed that way for several months before the long bond then said: You know what? We don't buy it at all. And that's when the yield curve inverted in 2006.

The idea being, again, that the market doesn't necessarily have to reflect exactly what the Federal Reserve is trying to tell us. Because the Federal Reserve doesn't have a monopoly. They don't have a crystal ball about the future. And in fact, as we have observed over the last 15 years, they are more often wrong than right.

So I think that the long-term bonds' skepticism about short-term rates and what the Fed is trying to do with them is a healthy one. And that's the main lesson, I think, that we need to take out of that last rate hike cycle.

And there's a difference between long rates and short rates. It's the idea that there doesn't have to be harmony there. The Fed can get it wrong.

Erik: Jeff, as you were talking, something that really occurred to me is in the same timeframe that you're talking about, early 2000s, the other big trend that was going on was a lot of mortgage debt. Particularly subprime junk-quality mortgage debt that was secured by dubious collateral, was being securitized. In a lot of cases sold to people who didn't understand what they were buying. So there was a tremendous demand and a tremendous tolerance for buying what were really low-quality bonds.

Is there a contagion effect?

Now, that was in housing, not in Treasury rates. But, of course, housing is such a big part of the debt market. Was there a contagion that – maybe this demand for low-quality housing because of the rating abuses that were going on and so forth – low-quality mortgage-backed securities – could have somehow had a contagion to help suppress the long end of the Treasury curve?

Jeff: I don't think there's any doubt that there were related effects. And direct spillovers, even. Back at that point, the idea was any risk was good risk. It didn't matter what it was. You could buy the most toxic of toxic waste (which is what they called it back then – or they called it that after the fact).

But, at the time many, people knew that some of the securitization, especially the CDO-squared – and not just subprime but even prime stuff – was just absolutely the worst junk out there. And, even though people were buying it and there were ready buyers for all of that stuff, there

were a lot of smart people who said that this is risky stuff. Therefore, they were willing to hedge. And they actually did hedge, using the Treasury market.

So that's embedded in the long-term Treasury rate too. Not just economic risk, but financial risk of all of this stuff blowing up. And that was a portfolio effect that I don't believe the Federal Reserve really very well understood. Because in a lot of ways it didn't want to.

If you go back to the idea of interest rate targeting to begin with, the impetus for it in a lot of ways is that economic growth covers up all ills. You can go back to World War II. The US racked up a massive amount of debt trying to win the war in World War II. And, rather than have to face default afterward, everybody said the way we get out of this is we grow our way out of it. We inflate our way out of it, essentially.

That idea has taken hold in smaller ways, including in what we see here. The Fed was very much trying to – and trying to believe in – the idea that it could just create growth from nothing by its manipulation of interest rates in the short-term part of the yield curve. In the long-term end of the 10-year and out – because the 30-year hadn't been introduced by that point – what they were saying is, no, you can't just do these things willy-nilly.

There are consequences to everything that's happened. And we're going to have to pay attention to those consequences because we're the ones on the hook for it.

Erik: Now, we're looking at Slide 7. I see this goes up through 2006. So, up to the financial crisis. As we move on to Slide 8, it looks like we're looking at a much more recent series. So what is the relationship to the previous slide?

Jeff: This is what I think is the major point that people need to pay attention to today. The major point about using what happened in the last rate hike cycle as maybe a template for expectations about this current one. It starts with the idea that the process here, the Fed is trying to push short-term rates up with the idea that it would push the whole yield curve up, therefore reflecting what the Fed wants everybody to believe, which is inflation and growth.

And that's just the part that's similar. If you look at between Slide 8 and Slide 7, you see the same kind of thing happening. The Fed is pushing short-term rates up, but the long-term rates aren't actually moving all that much.

I do want to point out on Slide 7 that, toward the end of the Fed's rate hike cycle (early 2006), when all of those rates started to compress together, they did have some success in pushing the long rate up about 50 or 60 basis points. Simply because there was no space beneath it. In other words, there was no spread left, there were no term premiums left. So the long rate rose a little bit because it had nowhere else to go.

Until later in 2006 when something happened, something changed. Which was the housing bubble started to burst. And then the long rates said: We don't care about the Fed anymore,

we're just going to go down in rates. And that's when the curve inverted.

We see the same kind of process here in 2017 and 2018. The Fed is compressing all of those rates together. And over the last few months that has resulted in the long bond, the 10-year and the 30-year, rising a little bit in nominal yields. But not all that much. While short-term rates are pushed up much more. That has flattened the yield curve.

The key difference between 2004–2006 and what we have now is – and what I tried to present here, the difference between these two slides and using the same scale for them – is that the Fed is compressing the yield curve at a much, much lower nominal level. And that is significant.

And that's what, really, curves tell us. And it's not just the Treasury curve. We could use the Eurodollar curve and other curves. And they all tell us the same thing. We have the idea of the Fed pushing against the long-term wall, if you will, at 2.5% for the 10-year rather than 5% for the 10-year. And that is incredibly significant.

Erik: As we move on to Slide 9, I see that you're showing different segments of the curve: the front end; the middle, or the belly as people call it; and the long end of the curve.

What is this slide telling us?

Jeff: Again, we're trying to get a real sense of what's going on with the yield curve. In many ways, the yield curve is two different things. At the front end, or the short end, you have monetary alternatives, or money alternatives. Because, as a short-term investor, whether you're an insurance company, a pension fund, a big bank, a big Japanese bank, whatever, you have alternatives for extra additional excess funds.

You could invest them in something like the reverse repo, which is a Fed policy rate. Or you could invest them in a short-term Treasury bill. If the Fed is going to offer a higher rate on, say, the reverse repo, then you have less incentive to invest in a four-week Treasury bill yielding a little bit less. Of course, there's obviously complications in that.

But, by and large, what we're looking at, at the shorter end of the curve, is money alternatives. That's where monetary policy has the most effect and where it hopes to have more than just a money effect.

At the long end, alternatively, what we're looking at is economic alternatives. Because if you're a bank, and you're holding 10-year Treasury paper, your alternative is not a four-week Treasury bill. You're looking at whether or not you want to make a loan, whether you want to securitize, whether you want to do any other economic things with your balance sheet.

So, at the long end is where all of these economic alternatives, where all of these economic considerations and perceptions play out. And where they sort of start to meet is in the middle. Which is why I pay attention to the 5/10 part of the yield curve rather than the 2/10.

I think that's more instructive about where the long end of economic alternatives really tells us about how the short end and the money alternatives are having any effect. Or whether or not there's disagreement or disharmony there.

So it's important to look at the yield curve as really two parts that come together in the middle to tell us a lot about not just on-the-surface stuff with monetary policy, but the effects of it. And more than just the immediate effects, but the long-term effects. You know, what are the baseline economic considerations the market is trying to play out, versus all of the short-run or short-duration scenarios?

Erik: Going back to the big picture, Jeff. We got into this conversation talking about how the Fed is trying to push up from the short end of the curve, trying to influence the long end of the curve, and get the curve to steepen. But it doesn't seem to be happening.

So how do we analyze that? How do we diagnose why it's not doing what the Fed wants it to do?

Jeff: I think one of the most important parts of that is, again, we want to pay attention to the yield curve all the time. If you just pay attention to the yield curve when it's inverting, you're missing a whole lot. And so I think it's important to go back ten years and retrace the steps. And even more than ten years. And retrace all of the steps that the yield curve has taken to get from there to here. Because what does it mean when the yield curve flattens at such a low nominal level?

And that's what the curve has been telling us for the last ten years, what that actually means. If we go back to 2007–2008, the first thing – yield curves are not supposed to be steep. We talked about that before. There's an artificiality to the steep yield curve. In a normal environment, there really isn't very much steepness to it.

We can get into a lot of different discussions about term premiums and things like that. But, by and large, the yield curve is not supposed to be steep. And it was always meant to flatten at some point. However, the point at which it is flattening is significant. In order for us to really understand that significance, we have to go back and figure out how it got here in the first place.

In 2007 and 2008, amidst financial panic and crisis, the yield curve just collapsed from where it was early on in that period. Back in August of 2007, just before everything really started to hit, it had flattened and inverted a little bit at the front end. But it did so at still a high nominal level, around 5%. By the end of 2008, when the Fed decided it was going to do QE and ZIRP in December of 2008, which is the zero interest policy, the curve had again collapsed.

And what that was saying at the short end, obviously, was that the Fed was going to do a zero interest-rate policy. And, at the long end, the bonds market was saying: This is really bad. It's

going to impact economic growth and economic growth baseline for the foreseeable future.

That's what the curve at that moment in time was saying. That the Fed was going to have to do extraordinary monetary policy just to have a chance to get out of what the long end was saying was a very bleak economic future.

Erik: And, of course, what you're describing now is what we're looking at on Slide 10. As we move into Slide 11, you're showing the effects of zero interest-rate policy and quantitative easing. What's going on in this slide?

Jeff: What I'm trying to show here is what theoretically was supposed to happen. The idea that the short end would be suppressed down to nothing via monetary policy of QE and ZIRP. And what that would have done, if the market accepted that these things were going to be effective, that would have dramatically steepened the long end of the yield curve. Because, obviously, the long end is seeing a better economic future, a better economic baseline, over the long run.

And so, in the short term, if it was going to work, or if the market perceived that monetary policy was going to work, that's what would have happened to the yield curve. It would first have steepened way up to really very high levels between the short and the long run, as the Fed kept the short-term rates down closer to zero. And the long-term rates kind of went up in anticipation of those things working.

That was the curve that the Fed really wanted to see, although they were careful about not doing it too quickly (which gets into issues about forward guidance and things like that – which we can set aside for now).

But, in terms of the yield curve, that's what would have happened if the monetary policy was successful. The long end of the curve would have gone back up closer to (and maybe even up to) normal, or at least the pre-crisis levels (what we considered normal), even as short-term rates were still left very low and towards zero. That is success.

If we go to Slide 12, what we're really looking at is that, at various points in time along the last ten years, the Treasury market at the long end was – briefly and intermittently – projecting success. The yield curve did steepen in these three different reflation points, which was the market, the long end especially, saying that maybe this is going to work.

Maybe after QE3 and QE4 were done in 2012, that was going to do the trick. Remember, that was supposed to be open-ended. And it was supposed to be a much different, more forceful monetary policy. And, for a very brief time in late 2013, the yield curve did steepen. And that was for that period, that reflation period, the market reflecting on the fact that maybe this could work.

Now, of course, as you see from the history of the curve, these were only brief periods of belief.

They didn't last. Because after a period of just several months, in some cases the market began to see that monetary policy wasn't working. Things weren't really changing. And, therefore, the curve just went back to flattening again.

Erik: So what conclusions should we draw?

We're going up to the beginning of 2018, which is when we recorded this interview. What should we conclude from the fact that it seems like we're almost back to where we were during the Financial Crisis, in terms of how much these curves just are stubbornly not wanting to cooperate and go up the way policy makers want them to?

Jeff: What's important about all of that – especially looking at the history of the curve over the last ten years, and even in these reflations, which are really failed reflations – what it's telling us is that there's a great deal of uncertainty, first of all. Because nobody knows, with all of these experimental policies, whether they actually do work.

And, more than that, I think there's an almost a default position that people want them to work. Because nobody wants to be stuck in a no-growth period. And I think at these particular moments where there is an injection of optimism, there is the idea that, hey, you know what, this is a good thing. Maybe, if monetary policy works, that gets us back to normal. That's a positive thing. We should all be happy about it.

But, ultimately, reality has set in. Which is: Nothing has changed. Over the last ten years we've heard about recovery. We've talked about economic recovery. GDP growth is positive. But that's not the same thing as an actual recovery.

What the curves are telling us in their stubbornness, really, outside of those intermittent brief reflation periods, is that the economy hasn't recovered. And, furthermore, the economy doesn't look like it's going to. Even after ten years in this situation – the curve flattening at such a low nominal level with the Fed pushing up the short-term rates now – it's saying that nothing has changed. The Fed is making a mistake.

Erik: And does that mean, in your opinion, that the Fed should be doing something different and not raising rates right now? Or does it just mean that the Fed has made a mistake in the sense of thinking this whole thing was going to work from the beginning?

Jeff: I think it's a little bit of both. And, taking the second part first, if you go to Slide 14 for example, look at a recent yield curve for the end of the year 2017, what immediately stands out is how similar it is to the yield curve from December 17, 2008, which is the day they voted for a zero interest-rate policy.

In the space of nine years, through all that happened in between, which is a whole bunch of monetary experimentation, the long end of the yield curve is practically at the same point as it was during one of the worst and darkest times in US financial history.

I mean, that is an astounding result. That's something that is incredibly important to understand exactly what that means and what that is telling us: That all of the things the Fed did at the short end, and all of the brief reflations aside, it didn't accomplish what it set out to accomplish.

The market view of the long-term baseline economic growth in 2008 is still with us. And that is an incredibly depressing scenario which is reflected in the flattening yield curve.

Erik: Now, I want to make sure, Jeff, that I'm understanding you correctly. Because it seems to me that during this period, through several rounds of quantitative easing, we have conjured (not "we" – the central banks of the world) have conjured literally trillions of dollars of money out of thin air. And that comes at a cost.

When you do quantitative easing, you're diluting the value of all of the other money that's already in circulation. Everybody paid a cost for that. You're saying that what we got for our money is basically nothing? We're back to where we started? Am I reading too much into it to say that?

Jeff: Well, it's even more basic than that, Erik. If you get back to Eurodollar University, what it's saying is that quantitative easing was not creating money. And that's a very difficult concept to get. I know it's one that we didn't cover during the Eurodollar University. But quantitative easing, all it created was bank reserves. And bank reserves are a particular, and not even a very interesting, bank liability. They are a particular form of bank liability, nothing more. The Fed did not print money.

And that's exactly what the yield curve is saying, by the way. If we go back to Milton Friedman's interest rate fallacy: low nominal long-term interest rates are a sign of tight (not loose) money. And so the curve's obstinance at the long end reflects – what I've been saying in Eurodollar University is that QE is not money printing.

And that's why the Fed failed. Because they thought they were printing money when the market is saying, no, you're not. You're just doing a bunch of bank reserves, which is unimportant to the problem at hand.

And so the economic results of the Fed thinking it's doing one thing, and the economy is doing another – not recovering – is what we see in the yield curve in 2017 at the long end being equivalent to the same yield curve in 2008.

Erik: Okay, Jeff, as I try to pull all of this together, help me understand this. Are you saying that the whole idea of doing quantitative easing (several rounds of it) was a bad idea, and failed, and was completely ineffective?

Or are you saying the way they went about it contained mistakes, perhaps the fact that they

allowed banks to receive interest payment on depositing their excess reserves or something.

Was it a question of little policy blunders along the way that prevented a good idea from being effective? Or was it just a dumb idea to start with?

Jeff: It was a dumb idea to start with.

It was a 1950s solution to a 21st century banking problem. Quantitative easing has nothing to do with the actual Eurodollar system. And I think that's why the results speak for themselves in that way.

First of all, if you have to do more than one quantitative easing it doesn't work. The term itself is *quantitating easing*. The second part being the easing, but the first part being – you know exactly what quantity to do in order to effect the easing.

So if you have to do it twice, then obviously you didn't know the right quantity. If you have to do it three or four times, then maybe it's not easing. So the whole idea of repeating quantitative easing is repeating failure. Doing the same dumb thing over and over again.

And what the curves are telling us is why was that a dumb thing? Because bank reserves, which are the by-product of quantitative easing, are not printing money. And that's something, by the way, that the Federal Reserve will actually tell you.

If you go back to the literature of 2009–2010, in the early days of quantitative easing, they know that it really wasn't money printing. In fact, that wasn't their actual goal. Their point was more psychology and rational expectations, as well as portfolio effects.

So the idea that the Fed was printing money has been conclusively shown over the last ten years – because it's been done not just here but everywhere else around the world – it doesn't work, because it's not actually printing money.

And that's a very important point. And that's what's embedded in the curves, and especially the long-end stubbornness over the last ten years. Even now, as the Fed is trying to raise the federal funds target corridor and the long bond just says: Nothing has changed here.

Erik: As we move on in the slide deck, starting on Slide 15, you're getting into deconstructing what you say here is the mainstream story of the long end. And what drives it. I'm hoping you'll get to the real story as well as the mainstream story.

Tell us more about what's going on here, starting at Slide 15.

Jeff: If we go back to Alan Greenspan's conundrum in 2005, because he didn't really understand what was going on in the long end, that kind of sparked a flurry of mainstream economic interest in what exactly is the longer-term rate telling us?

There is a history of economists trying to break down long-term rates going back to – not just Irving Fisher in the 1920s and '30s, but even before that. There's always been an idea that we can quantify everything, including breaking apart and deconstructing the long-term rate, so that we can put together the pieces of it, so that we can understand what a long-term rate is telling us in its various different pieces.

What economists say are the three pieces of a long-term bond yield are: the expected path of short-term rates, which makes sense; the expected future inflation, which also makes sense; and something called term premiums.

Term premiums are simply what a bond investor requires in additional yield to hold a longer-term bond. What is the difference between the yield for holding a 5-year bond versus a 4-year bond? If you're going to hold a 5-year paper, no matter what (it doesn't have to be a Treasury or whatever else), you're going to demand a little bit of extra yield for that additional time. That's called a term premium.

If we go to Slide 17, getting back to around 2015–2016, what economists found out was that we were essentially beginning another conundrum. Because what they found was that long-term interest rates fell more outside of QE than inside of QE. In other words, the long-term rate, the 10-year yield, whatever you want to select as your long-term proxy, were lower after QE than during QE.

And that really bothered them, as it should. Because their whole point was to affect the Treasury market through their direct action and direct policy.

What they came up with, on Slide 18, was they said, no, the bond market was behaving. What it was doing was reducing term premiums. And so the lower long-term yields up until 2015 and 2016 was really the bond market agreeing with the Fed – just that it reduced term premiums for various reasons I won't get into here because it's kind of a tangent – and that was their way of deconstructing the long rate so that it made sense to them.

So that they could say: Now the bond market is really doing what we think it's doing. It's just that these term premiums have collapsed.

So what they expected (Slide 19) was that, as the Fed moved to exit its emergency policy, as they moved to raise rates on IEOR and the reverse repo, that term premiums would rise in addition to the expected future inflation as well as the expected path of short-term rates.

And that would have the effect of increasing nominal long bond rates. And that would mean that the yield curve would steepen a little as the Fed raised rates. But not by all that much. So the whole curve would shift up back to where it was and hopefully somewhere near 2007–2006 level. So it would flatten out, not with the 10-year at 2.5%, but it would flatten out with the 10-year like it did in 2006, maybe at 5% or something like that.

And the idea of term premiums, and what economists kept saying about term premiums in the last couple of years, was that it was their excuse for why the bond market was behaving what otherwise had been taken as irrationally.

Erik: So what was really going on in the bond market, then?

Jeff: Well, that's what we're getting to, and that's why we're reviewing the history of the yield curve. There's a lot of information embedded in it that's important to understanding where we are and how we got this way.

The idea is, if you have to appeal to term premiums, which to me is a ridiculous concept to begin with, it's one of those things that economists have come up with to try to understand the bond market that they clearly don't understand. So if you have to depend on shrinking term premiums to try to explain the way bond yields were resisting what the Fed is doing with monetary policy, you don't have much of an argument or a case to begin with.

And so, as the Fed is now looking to raise rates, and they're doing so with the idea the term premiums are going to rise. And that's going to force long-term bond rates to go up along with short rates? That was a pretty dumb expectation to begin with.

So the bond market – the history of the yield curve, and, again, not just the yield curve, but the Eurodollar curve and some other things, some other indications – what they're trying to tell us is that economists, once again, have it all wrong.

Again, go back to 2006. Go back to the dot com monetary policy cycle and what the long-term rate did during that. It didn't move. Because the long-term rate was saying: Maybe the Fed, maybe Alan Greenspan isn't a maestro. Maybe he doesn't know what he's doing.

And so the long end of the curve in the last ten years has continued that tradition at a much, much lower level. Because it's telling us: Not only did the Fed fail in its QE, now it's seeing a recovery that just isn't there.

And we can go through any number of economic statistics, whether they be inflation, the labor numbers, the participation problem – all of these economic statistics point to the same thing. That the economy never recovered. That's the problem. That's why the long-term rate is stuck at a low nominal level. That's why the yield curve is compressing at such a low nominal level. Because the Fed has failed at everything it's done. And the economy that's resulted from that isn't likely to change anytime soon.

Erik: But I would say that what has changed is that the Fed's ability to be accommodative in order to accommodate the next downturn has diminished greatly. They can't dramatically reduce rates from here the way they did last time, because they're already still very low.

And at the same time I think that their ability to consider at this point more rounds of quantitative easing is going to be impaired by both political opposition and the fact that it didn't really work very well last time.

So it seems like, if what you're saying is true and we never really got any economic recovery of substance out of all of this effort that went into the last nine years, when we get the next inevitable recession it could really be a doozy. And the Fed's hands could be tied in terms of how they react to it.

Am I reading too much into it to say that?

Jeff: You've got that exactly right. And that's something that the Federal Reserve actually is very much aware of. And very much afraid of. If you actually read the literature, especially recently, it's been a major point of debate internally. There's various reasons for it and various explanations they have come up with to try to characterize it a little differently than you did. But I think your characterization is exactly right.

They talk about things, like a Low R-star, or a natural interest rate or neutral interest rate that's maybe even zero or negative. What all that means in Fed-speak, and getting out of Fed-speak and into regular parlance, is what you just said. They're very much aware that, even though they're trying to hike rates here, they may not get very far. They're certainly not going to get back to where they were in 2006. And there is absolutely no chance they go back to where they were in the 1990s.

And they know that.

Now, what the debate is about is why? They are trying to figure out why can't they – why is 3% perhaps the maximum of this rate hike cycle? And what does that mean? For them it means something entirely different. They've gone on to, well, there's a drug problem in America. It's a labor force. There's a Low R-star which relates to that. There is no supply side growth. They have come up with a whole range of really silly and convoluted explanations for what I think is incredibly simple.

The simple part is the yield curve. It's telling us not only that there is a problem, it's telling us what the problem is. So, if we look at what is the maximum level of federal funds, and it's completely different from what it has been in the past, it gets back to what you just said, which was, they screwed up.

They screwed up in a very basic and fundamental way, which was they had no idea what was going on in the monetary system.

Erik: As we go back to this conversation that started on Slide 21 with deconstructing interest rates, I'm looking at Slide 24 here. It seems like some of the things that even the Fed said they got right, your slides are telling us that they actually got wrong.

Jeff: That's an important point, too. There's a tremendous amount of denial in the Fed's position. Again, Bernanke was saying, in his attempt to explain low nominal long-term Treasury rates, was that the expected path of short-term rates as well as expected future inflation expectations were rising – like the Fed thought it was supposed to – when, in fact, we have all sorts of evidence that the opposite took place. Especially inflation expectations.

From August 2014 forward, inflation expectations, market-based inflation expectations, collapsed. Which were saying that the Fed thinks that we're going to have an inflation year period here. And that's ultimately why they're raising interest rates to get ahead of a period of inflation, when the market was saying the opposite was going to happen.

There was a much higher probability in the market estimation for lower inflation moving forward than higher inflation. In five-year forward, inflation rate is particularly focused on long-term expectations. The baseline setting for perceptions – or, as the Fed would say, anchoring – if we use that as part of deconstructing the long-term rate, that's one part that the Fed thinks it got right of the long-term Treasury rate that it didn't. The market is saying: No. Inflation expectations are lower, not higher.

Back to the yield curve, in Slide 25, the shape of the yield curve along with the inflation expectations. And you can see after 2013 – it's right there – inflation expectations go along very much with the flattening with the yield curve at low nominal rates.

NO. The Fed, in deconstructing the long-term rate on that part of the equation, or that part of the segment of long-term rates, they didn't get that right. There was no reason to expect that the market was expecting higher inflation. Because the market is saying, NO. We don't expect higher inflation.

The TITS market is pretty much in universal agreement that, compared to not just recently but also the pre-crisis period, there was much more of a downside to inflation risk than any kind of upside.

So that basis for the Fed expecting higher nominal long rates, as well as their entire thesis of increasing short-term rates as they have been, is undercut directly here.

Erik: So we're talking about expected path of long-term rates. What about expected path of short-term rates?

Jeff: It's the same thing as inflation. The Fed thinks that it got that right. Those are the two parts the Fed believes it got right. Expected inflation was going to rise and that was going to help increase the bond rate. As well as the expected path of short-term rates. Which is – the Fed would believe that because they believe they control short-term rates.

If you look on Slide 26, for example, if you look at Eurodollar futures, that's what it's been

telling us over the last ten years, too. That the market is expecting lower short-term interest rates, not higher short-term interest rates.

We're not talking about relative to last year. The market doesn't care what the federal funds was doing last year. It's in relation to the entire period. Where are short-term interest rates? Where are money alternative rates going to ultimately land when everything shakes out with this cycle?

What the market is saying is that the expected path of short-term rates is hugely stunted. Like we just talked about before, the Fed doesn't even believe it's going to get all that high. And the market agrees.

So for deconstructing the long-term bond yield (the two bottom portions, as I showed them before), the Fed thinks it got right. The market is saying: You didn't. The market is saying: You got it wrong. Inflation expectations are low, as well as the market in Eurodollar futures. Not just Eurodollar futures either.

It's saying that the Fed is never going to get very high at all. No matter how many rate hikes it thinks it's going to do, it may not ever get to that level.

If we go to Slide 27, that's reflected in the Eurodollar futures curve, in various points along the way. And what we see is it collapsing like the Treasury curve. It's flattening out at a very low rate. And that is, again, a negative reflection on both monetary policy and the products of monetary policy, which are a lack of recovery in the foreseeable future where that lack of recovery remains the baseline case.

Erik: Jeff, as I hear you talking, I keep being reminded of a view that we've heard from several different guests on the MacroVoices podcast, particularly Dr. Lacy Hunt, who has opined that we're just stuck for the foreseeable future – and I think he's talking decades – in a low-yield environment, for the simple reason that there has been this explosive, explosive growth of debt.

We've doubled the Treasury debt from the Financial Crisis until now. And private debt around the world is increasing too. There's so much debt – The argument that Dr. Hunt makes is just, with that amount of debt, it could never be serviced at higher rates. We are stuck. We're turning Japanese, essentially. We're stuck with very low yields for a very long time to come.

Is there merit to that view? Is it correct? Does it jibe with what you see in the work that you do? And if not, why not?

Jeff: I think it does in a way. I don't think it's a primary consideration with what's driving yields. But I think it's absolutely a serious enough and substantial consideration in what's keeping rates low. Again, if we go back to our conversation earlier, where the Treasury market reflects risk –

And he's absolutely right. There is absolutely so much debt – not just here, but all around the world – China for example – there is so much debt that it is an inordinate risk that we have to pay attention to. As unpleasant as it is, and as much as we may want to have economic growth just inflate everything away, there is a tremendous risk that that never happens.

And so we do kind of get into a situation very much like Japan's, where it's not unreasonable to expect that low term rates are now structural. Again, you wouldn't call the Japanese government bond market a bull market for that reason. Because it was a structural problem that has never been solved. They've never been able to create economic growth, and they've been left with the overhang of debt. Which depresses everything. It really does.

We're in a similar situation, I think, for a lot of the same reasons, where we should look at structurally low nominal interest rates. And I believe that's also what the Fed is actually thinking too. They don't want to admit it, and they don't want to admit the reasons for it.

Again, they're trying to come at it from a very different angle, a very convoluted angle, in order to arrive at a conclusion where everybody agrees that interest rates – if they go higher, they're not going a hell of a lot much higher – and what that means for everything.

Erik: As I look back to your slide deck, Jeff, I see that you're deconstructing interest rates beginning at Slide 28. Does that relate to what we just talked about? Maybe you can walk us through this.

Jeff: That gets back to the idea of structurally low interest rates, or structurally low nominal rates. Especially at the long end and how that will play out in the short end. And that's why, ultimately, the curve is flattening where it is, rather than where it should be.

If we go back into our different parts of the long-term bond yield – you know, we just went through, the expected path of short-term rates structurally is a lot lower, not higher. The expected future inflation, lower, not higher. Term premiums – I think that what Dr. Lacy Hunt talked about and what you just talked about, Erik, was risk in terms of massive amount of debt and the overhang of it and what that does to depress economic growth. And the lack of monetary growth that goes along with everything here. Including Eurodollar University.

What that all works out to in terms of term premiums, expected path of future rates, expected path of – is that we should expect Japanification. Especially in the government bond market.

Long-term interest rates are not going to rise all that much, if they rise at all. In fact, I'm not convinced that we haven't seen the low in long-term rates yet. I don't think we've seen the low in the US 10-year. I don't think we've seen the low in the 30-year. I think that we're actually moving between dollar events, where the next one is going to take everything even lower.

If we look at what the yield curve is telling us, especially from the example of 2000 to 2006, and

use that as a template for our expectations in the current curve, what it tells us is a great deal of information far above whether or not the yield curve is going to invert and whether that means a recession.

There's a whole lot of stuff there that we need to pay attention to that impacts a lot more than just where we are in the business cycle.

Erik: Jeff, help me understand what, in my mind, is kind of a paradox. When I hear Dr. Lacy Hunt talk about the problem is way too much debt, just excessive, therefore we have to have low interest rates because you couldn't service it otherwise – well, on the face of it, that logic seems to make sense.

But when I step back and think about it, I think, wait a minute. Normally, when you have concern about the ability of a borrower to repay, to meet the – you know, Greece is defaulting, everybody's concerned that they're not going to be able to pay their debt back – normally, when you're concerned that somebody cannot pay their debt back, yields go through the roof to the upside. Because in order for anyone to want to buy that paper, they have to be compensated for the risk they're taking of default.

So help me understand. If you've got what everybody seems to agree is just a ridiculously large amount of debt, meaning that it could be argued that it's impossible to repay it in real terms – of course, you could inflate it away – but in terms of real purchasing power, it may be impossible to repay the amount of debt that exists in the system.

If we need to be worried about the ability of borrowers to repay their debt, why wouldn't that be causing yields to go in the other direction to reflect risk premium?

Jeff: I think you're right. And I don't think it's really a paradox at all. If the market was concerned about the payment, which is really credit risk, interest rates would be skyrocketing. We've seen countless examples of that, even recently. So I think that points us in the opposite direction.

If you go to Slide 30, what we're really talking about is the interest rate fallacy. What Milton Friedman said was the interest rate fallacy is that low long-term interest rates are a sign of tight money and what tight money means. In other words, tight money, in the real economy, means that there's a great amount of economic risk as well as liquidity risk. And those two perceptions overwhelm any kind of credit risk.

In other words, you could be concerned about the Bank of Japan and the government of Japan's ability to pay back Japanese debt. However, if the economy is atrocious, and the monetary system is tight, then liquidity risks overwhelm credit risk. And so you're going to hold Japanese government debt because it's the most liquid interest instrument, even though it embeds a whole lot of credit risk.

That's why interest rates stay low, is because there are other risk considerations that have become paramount over and above credit risk.

And I think we have a similar situation in the United States, where, especially US Treasuries as the primary safe asset in the entire Eurodollar system – there is a tremendous amount of liquidity premium, if you want to call it that, embedded in long-term interest rates – as long as money in the Eurodollar system remains tight and as long as the Eurodollar system remains relevant, then there is liquidity risk that is reflected in structurally lower nominal long-term yields.

And, again, economic risk as well. Because if you're a bank, like JP Morgan and its fortress portfolio, are you going to lend to reignite another housing bubble? Or is it just easier to hold the 10-year paper? Especially with its funding capabilities in the repo market and rehypothecation.

So I don't think there is any mystery to lower long-term interest rates. Especially when Milton Friedman's interest rate fallacy has been proven throughout history. What he said was the fallacy is that everybody believes that when interest rates are low that is stimulus. And that's a good thing. That's because of what we talked about with the Federal Reserve, the myth of the Federal Reserve and everybody believing the Federal Reserve has total control over these spaces.

The interest rate fallacy says NO. Lower long-term rates, as had happened in the United States during the Great Depression, tells us that money is tight in the system and the real economy. And that's where we see low long-term interest rates when money is tight.

Conversely, long-term interest rates were rising, and rapidly, when? In the 1970s, during the Great Inflation, when money was plentiful and, in fact, abundant. Too abundant. It's the opposite of what we end up thinking.

Interest rates tell us a lot more about what's going on and, more than that, why it's going on. And so, if we deconstruct interest rates, especially at the long end, and their obstinance against what the Federal Reserve is trying to do with short-term rates, it's telling us, not just what's wrong, but why.

The money is tight, which is an enormous drag on the global economy, which creates all of these risks that get reflected back into lower long-term interest rates on a structural basis.

Erik: Moving on to Slide 31, you're showing baseline growth and a divergence in US real GDP that's pretty significant. What's going on in this this slide? What's this telling us?

Jeff: It's the economic consequences of monetary breakdown. That's what the long-term interest rate and the yield curve collapse is telling us. That, no matter what the Fed does – and, again, as we talked about before, quantitative easing only created bank reserves – it's pretty

clear to me, and I think it should be pretty clear to everybody, there is no correlation there.

What the Fed did and what the economy did – two separate things. And so the Fed created a bunch of bank reserves that had no bearing on the monetary situation globally. And the consequence of that is the US economy shrunk.

And it isn't just the US economy, if we go to Slide 32, the European economy. And it's not just the US and Europe. We can see the same pattern repeated all over the world. Where the economic system, whatever the pre-crisis baseline growth was, has been completely obliterated. We don't grow nearly the same way we used to.

And that's not something that just happens randomly. It's not something that you can expect to happen everywhere, either. What is the only way that we can tie all of these things together? These low structural interest rates. These low levels of economic growth. Radical departures in economic growth. The fact that the global economy hasn't recovered.

What is the only thing that is common to all of these elements? We get back to the interest rate fallacy, which is tight money, which is the Eurodollar system.

Erik: Jeff, you've got several more slides in the presentation here, starting at Slide 32, which I think are basically evidence to support what you've just told us. Please walk us through the slides in terms of what each one of them is telling us about the picture that you've just painted for us.

Jeff: Going by the comparison of the yield curve and the flattening where it is, if the interest rate fallacy is a valid theory, then we should be able to observe it somewhere other than the yield curve or the Eurodollar curve.

If it's that bad, and if it's a global problem, we should be able to easily find evidence for it. And that is, in fact, the case. We can find it in all sorts of different ways. Whether it be the tick data on cross-border US dollar financing, which you can see on Slide 33 – massive growth up until Bear Stearns. So between 2002 and 2008, rapid growth, which accords with our sense of what was going on in that period. High risk, but rapid monetary growth.

But since Bear Stearns, or since 2008, almost no growth. And not just no growth, but much more volatile growth. Or a much more volatile pattern of behavior. Where each of these reflation points that we talked about before in the yield curve are reflected in monetary conditions.

Ultimately, what we take away from this chart and from the others – if you go to Slide 34 – is that we had a system, the Eurodollar system – that up until 2007–2008 was growing and growing rapidly. Which, again, that matches up with our sense of what was happening during those periods.

Since then, no matter what the Fed has done with quantitative easing or what the European Central Bank has come up with, all of its various programs – or the Bank of Japan, or anybody else around the world – no matter what the central banks do, since 2007–2008 there has been, largely, and in general, no monetary growth. Tight money.

We can even look at it on Slide 35 in terms of derivatives. Derivative growth is a very central component of the Eurodollar system, as we talked about in Eurodollar University. It's one of the ways, and one of the primary ways, that banks transform their balance sheet to – as you put in on several occasions, Erik – to create credit and money out of thin air. They did that through the ability to trade derivatives.

And, again, what we find out is, up until 2007–2008, rapid growth. Since 2007–2008, we have not just lack of growth, but actual shrinking. Banks are shrinking their derivative books, for various reasons. Among them, the lack of recovery in the economy.

And so, no matter where we look, the rest of the slides are various incarnations, various indications of tight money. We can look at all of these different places, and they all tell us the same thing that the yield curve does. That is the monetary system broke on August 9th, 2007. The Eurodollar system broke and it has never been repaired.

And the economic consequences of that are what we saw in the slides earlier, with the global economy never recovering. And so what we've put together here is a comprehensive picture, not just of the yield curve, but corroborating what the yield curve is telling us, in the sense that Milton Friedman had, which is the interest rate fallacy, which is tight money and the effects of tight money.

And, in many ways, it's really just a textbook case of it. The difference is, and why the economists and why the policy makers and central banks can't get it, is because their definition of money isn't Eurodollars, isn't balance sheet capacity, is not the Eurodollar system.

They're looking at the wrong thing. And they're making all sorts of mistakes because they're looking at the wrong thing. Starting with what happened in 2008 to begin with.

Erik: Jeff, you've made several references to they're looking at the wrong thing. And, because they're looking at the wrong thing, they've done the wrong thing. And the policy actions, you think, that have occurred since 2009 have been ineffective.

Is there something they should have done? If you were in charge what would you have done differently in order to effect more effective monetary policy?

Jeff: What they should have done was reset everything in 2008. That was the perfect opportunity to do it. The best time – I use that word reluctantly, it's not really the best – but the best time to do some kind of structural change like that is when everything is bad. Because there is consensus. Not just consensus, there's urgency behind the consensus to do the hard

things.

And what the hard thing would have been, would have been to look at the Eurodollar system and say that the thing just doesn't work. And I mean that, not just in the practical sense that it broke on August 19th, 2007, but it never really worked before that. Because it was, essentially, a rapid unchallenged monetary growth that affected the entire global economy in a way that even today we still don't really understand the ramifications of it. So it was never an inherently stable system to begin with.

I think that really is what they should have done in 2008: Realize, first of all, that we have a Eurodollar system, not a dollar system. And number two, we need to replace the Eurodollar system with something that's actually stable, as best as possible, something that can be sustainably stable. Not just stable for a couple of years at a time, but a system that was robust enough that it could withstand the rigors of the modern global economy.

You know, that was the best part of the Eurodollar system, or at least what made it grow as fast and as far as it did, was that it was incredibly adaptable to technological change from the 1960s to the 21st century. It evolved pretty much in lockstep with the economy. So it was not an easy task in 2008 to say: What can we replace the Eurodollar system with?

But that was the time to do it. To at least be able to say that we need to do something, because this is a big problem here. If we don't fix the monetary system, we're not going to get a recovery. I don't know if anybody would have been brave enough to say that, but that's really what would have happened. The realization that, if we don't get this right, we're screwed. We're screwed in the long run.

So that's what they should have done is look at a complete monetary realignment, which is not as drastic and as dangerous as it sounds. Because we've had them throughout history before. It's just that it would have taken enough political will and urgency to do it. And that's why I think that was the time to have done it.

Erik: Moving forward from here, what are the lessons of all this. What should investors be interpreting from the yield curve? How should they be using it? And what signals should they be looking for from the yield curve as we go forward from this point?

Jeff: I think the main idea, or the major general impression, is Slide 39 here. If you look at where the yield curve is now, or where it was recently, compared to where it should be if everything was going to be as is described in the media and such.

If we're actually heading into a period of higher inflation and better economic growth, then the yield curve would be flattening where the green line is in 2007, rather than where it is now.

And so the yield curve flattening here, at a low nominal rate, tells us that the chances of all of that happening are very, very low. At least in the market estimation. You can decide that the

market is wrong if you wish, but the Treasury market is as deep and as large and as liquid as there is in the world. So if we're going to pay attention to one market, I think that would be it.

And, again, the point of the presentation here is that it's corroborated by a whole bunch of other things. What that's telling us is that the economy hasn't much changed since 2008, because the curve hasn't much changed since 2008.

The Fed is raising rates based on a lot of the wrong ideas about both the economy and the monetary system. And that, therefore, the downside risks to whatever your investment choice might be are serious, substantial, and sustained. They're persistent. They don't go away. Because nothing really has changed over that period.

Erik: There's a viewpoint that a lot of people expressed shortly after quantitative easing was implemented. They said this is the wrong thing and, among other things, it's going to set us up where we're going to end up in a trap situation. When the next crisis hits, it's going to be guaranteed to be much worse than the 2008 crisis, because we will have gotten ourselves to this point where there is no room to accommodate and we're really in a pickle. And it's that next crisis that's going to be the real killer.

Back in 2009–2010 that that was a very commonly held view. It seems like these days a lot of people have forgotten that view. It feels like, hey, maybe this thing actually worked and there is no ill effect after all.

Is that a false sense of security? Are we still looking at a situation where the next crisis is going to necessarily be worse than the last because of what has maybe been a failed set of remedies to the last crisis? And, if so, what do investors look for in terms of signals from the yield curve or elsewhere, in order to tell them when that next crisis is upon us?

Jeff: I think what you're saying is really two different things. One relates to monetary policy and one relates to the real economy and everything else outside of it. As far as monetary policy, you're right. And I think that's the part that the Fed's going to have to come up with. They're going to have to try to explain how do they deal with the next crisis, starting from such a weakened position to begin with.

And I mean that not just in terms of monetary policy, because they're not going to get interest rates – the short-term rate very high to begin with, so they'll have less room to reduce it. Not that it – in my opinion, it doesn't make much difference to begin with. But in their minds, it certainly does because that raises the possibility that they're going to have to do some other experimental policies to, in their mind, make up for what they may call lack of altitude in the federal funds rate.

So there is risk there. I mean, what is the next step for the Fed? It can't just be quantitative easing. It's got to be something like super quantitative easing. Or a different form of quantitative easing. Or, if you really want to get weird, they can get into negative interest rates

or even something like a negative imposition on cash, which has been raised before by several prominent economists.

So it raises the probability the Fed doing something even more stupid than what it has done in the past. Because they're going to feel the pressure to do something even bigger, given all of those past failures.

Now, the other part of it – I think what you said is pretty relevant to today – is that we go through these periods, or at least over the last ten years in these reflation periods where, when the yield curve is steepening, as it had in, say, late 2013, people get this false sense of confidence that, things are working. The system may be actually recovering. There may actually be something going on here.

And I think it's important to realize that what follows from that is – you go 2014, we heard then all of the same things that we hear now. Economists were adamant in 2014 that inflation was about to hit in 2015. Of course, it did the opposite.

They were adamant in 2014 that economic growth was going to pick up, and pick up in a big way. And remember, in the middle two quarters of 2014, GDP was plus 4%, plus 5%. And they were talking like that was going to be the baseline case moving forward. At the same time, the yield curve was flattening as nominal rates were falling, which was telling them that they were making a big mistake.

I think that's instructive to setting our expectations in 2017–2018 is that the yield curve is saying maybe there is a possibility things get better here, that inflation is going to pick up. But not really. It's not really a good chance that this stuff happens.

Back to Slide 39. The yield curve flattening at a low nominal level. Ultimately, what a low nominal level is – we don't really know – but there really isn't any difference with the 10-year at, say 2.5% or 3%. It's not 5% or 6%. So as long as the nominal rate and the flattening takes place at a low nominal level, the yield curve is telling us – in corroboration with all of this other stuff – that we really shouldn't expect that things are going to change in a meaningful fashion.

Erik: Well, Jeff, I can't thank you enough for a fantastic set of insights into the yield curve and the whole situation that we find ourselves in as we look forward into the end of this decade.

Before we close, though, please tell us a little bit more about what you do at Alhambra Investments. What business are you guys in, and where can people who are interested in following your work learn more about what you do there?

Jeff: Alhambra Investments is a registered investment advisor, based out of Florida. We manage portfolios for the retail investor. Anybody with, you know, $50,000 up to $10 million. We have clients that run the gamut, whether it be retirement funds or just personal funds, whatever they have investable.

My role at Alhambra is trying to set the baseline for understanding how we should invest in getting a real and honest sense of where we are, so that we can invest intelligently. Understanding the risks of investing in this kind of situation. Because, frankly, this is the most challenging investment environment, I think, probably since the 1930s. I might be overstating it a little bit, but probably not as much as maybe people might think. Our goal at Alhambra is to try to bring understanding of risk so that we can be better investors with that in mind.