NEW YORK CITY TEACHERS' RETIREMENT SYSTEM

INVESTMENT MEETING

Held on Thursday, September 3, 2020

Via

Zoom Videoconference

ATTENDEES:

DEBRA PENNY, Chairperson, Trustee, TRS

THOMAS BROWN, Trustee, TRS

DAVID KAZANSKY, Trustee, TRS

JOHN ADLER, Trustee, Mayor's Office

CYNTHIA COLLINS, Trustee, Mayor's Office

JOHN DORSA, Trustee, Comptroller's Office

SUZANNE VICKERS, Trustee, Comptroller's Office

NATALIE GREEN GILES, Trustee

RUSSELL BUCKLEY, Trustee

PATRICIA REILLY, TRS, Executive Director

THADDEUS MCTIGUE, TRS, Deputy Executive Director

VALERIE BUDZIK, TRS

LIZ SANCHEZ, TRS

SUSAN STANG, TRS

RON SWINGLE, TRS

SHERRY CHAN, Chief Actuary

STEVE YUAN, Mayor's Office

SUMANTA RAY, Mayor's Office

ATTENDEES (Cont'd)

ARISTEA AFTOSMIS, TRS

DAVID LEVINE, Groom Law Group

ISAAC GLOVINSKY, TRS

ROBIN PELLISH, Rocaton

EMMA O'BRIEN, Rocaton

P R O C E E D I N G S

(Time noted: 10:09 a.m.)

MS. REILLY: Good morning. Welcome to the September 3, 2020 investment meeting of the Teachers' Retirement System.

I'm going to start by calling the roll.

John Adler?

MR. ADLER: I'm here.

MS. REILLY: Thomas Brown?

MR. BROWN: I'm here.

MS. REILLY: Natalie Green Giles?

MS. GREEN GILES: Here.

MS. REILLY: David Kazansky?

MR. KAZANSKY: Present.

MS. REILLY: Russell Buckley?

MR. BUCKLEY: Present.

MS. REILLY: Debra Penny?

CHAIRPERSON PENNY: Here.

MS. REILLY: Susannah Vickers?

MS. VICKERS: Here.

MS. REILLY: We have a quorum.

I'll turn it over to the Chair.

CHAIRPERSON PENNY: Good morning, everyone. Welcome to September. We start with the Passport funds, and we will go to Robin to start that off. Thank you.

MS. PELLISH: Thank you, Madam Chair.

Hello, everyone. I hope your summer went all right for everyone.

I want to mention that my colleague Emma O'Brien is joining me today in place of Michael Fulvio. Mike is on parental leave until year end, although he's responding to questions and e-mails on an as-needed basis. And Emma has been part of Rocaton for about ten years, and she and I have collaborated on a number of client relationships, and she will be providing some information today, as well.

We're going to start off with the second quarter 2020 Passport funds' performance. We are then going to move into the July performance and then look at August benchmark performance. And then that will be followed by a presentation by the chief global market strategist at Invesco, one of your portfolio managers, at about 10:30.

So, if I can ask you to turn to -- I don't have the ability to present this deck on Zoom, but everyone should have the attachment of the second quarter performance; is that correct?

MS. VICKERS: Robin, if you want to, you can share your screen.

MS. PELLISH: Emma, can you do that?

MS. O'BRIEN: No, I can't either.

MR. ADLER: I can do it if you want.

MS. SANCHEZ: I can do it. I have it up.

CHAIRPERSON PENNY: Thank you so much, Liz.

MS. PELLISH: Liz, if you could turn to page 3 of the deck. This does seem a little bit (indicating) -- I don't know if you have the ability to enlarge that.

I'm going to talk a little about capital market performance as of the end of the second quarter, and we're going to talk in more detail about performance in July and August. But I think that it's likely that everyone recalls that the second quarter was a very good quarter for equity markets, particularly U.S. equity markets; a little less so international markets. And fixed income assets generally had positive performance, as well as credit spreads came in.

So the lower quality fixed income markets did particularly well as credit spreads came in. So you can see some of the numbers quoted on this slide (indicating), for the second quarter the Russell 3000 was up 22 percent; the S&P was up 20.5 percent again for the second quarter. And you can see mid-cap stocks did well. The global index was up almost 20 percent, and so forth.

And then we get to the high yield index, which is up almost 10 percent. So, a very good quarter for credit linked securities.

One thing that is worth noting is that there was still a very strong bifurcation of performance. We will see that as we go through the Passport fund performance. Still a very strong bifurcation in terms of growth versus value stocks.

And so, I will tell you that, for the year to date performance, which is not on this chart, but I'm going to give you some numbers. For the year to date through June, the S&P was up about 2 percent.

The five largest stocks in the S&P, which are FaceBook, Amazon, Apple, Microsoft and Google, or Alphabet, were up 35 percent. The other 495 stocks were down 5 percent.

So the market performance over all, reasonably robust, but really a very strong divide between large growth technology-oriented stocks and the rest of the market.

With that, I'd like to ask you to -- again, there's a lot of detail in this report. I'm going to just go back to slide 26, if we can.

Liz, if you don't mind (indicating). Thank you.

This is the flash report that everyone would have received for the period ending June 30. And you can see that Variable A, the diversified equity fund, was up to close to $14.7 billion. That was up versus $12.3 billion at the end of March.

So being heavily invested in U.S. equities in this fund, the assets grew significantly. You can see for the three months ending June, this fund was up about 20.7 percent. And while that lagged behind the Russell 3000, again, because we weren't entirely invested in U.S. equities, relative to the hybrid benchmark we kept pace in a very strong market.

You can see the defensive strategy composite lagged its benchmark a little bit at 17.5 percent. The actively managed U.S. equity composite was actually ahead for this three month period, but continues to lag significantly on its year to date basis.

I will take ten seconds to say that this is a conversation we've had periodically and particularly over the last several meetings. And we have spent a fair amount of time during the summer working on an analysis of this U.S. equity composite within Variable A. That will be an agenda item at the October investment meeting.

Finally, the international equity composite during the second quarter was up over 17 percent and continues to do well relative to the international composite benchmark. Just to remind you, this composite is about a third passively invested with the rest of the composite actively managed.

The balanced fund, which is slightly below -- I'm looking at slide 4 -- the balanced fund generated a return of about 6 1/2 percent. This is an indexed fund. It has an allocation to a global equity index and a short term bond index to Vanguard indices, and those are 70/30 weighting.

And you can see that there is some tracking error for the three months ending June. And that's because of the fact that because of the volatility of the markets, this fund wasn't always at a 70/30 target weighting. And so because the asset allocation was off slightly, we lagged behind the benchmark for three months.

The international equity fund, as we've noted, did very well in the second quarter, slightly ahead of its benchmark. So up over 17 percent. Still negative for the year to date period, but again, ahead of the more negative benchmark.

The sustainable equity fund did very, very well in the second quarter, up almost 29 percent. We're going to see that performance relative to the benchmark fell off during July. But you can see, this is a growth-oriented sustainable fund, the benchmark is growth oriented. So you can see that the fund was up almost 29 percent for the quarter, for the year to date period, up almost 13 percent. So dramatically strong performance for the benchmark and the fund.

And then, of course we have, if you go down a little bit lower (indicating screen), we have the U.S. equity index fund, which is a relatively new fund, only has $20 million in it. And because the fund is relatively small in assets, cash flow and the timing of those cash flows have a significant impact on this fund's performance.

So what you see in this U.S. equity index fund, which Susan can also talk to, is the actual Passport performance. And on a year to date basis this Passport fund is actually way ahead of the index and that's because of the fact that, again, relatively small assets fund.

And because of the very significant volatility of the market during this period of time, the actual date on which the contributions flowed into this index fund had a very significant impact on relative performance.

So the mutual fund in which this Passport fund is invested tracked the benchmark, but because of the cash flows and the timing of those cash flows, the Passport fund actually has outperformed the index significantly on a year to date basis.

Same is true for the international equity fund. Relatively new fund, relatively small assets, $3 million on a year to date basis. Because of the timing of cash flows this Passport fund has outperformed the benchmark.

The mutual fund that its invested in has tracked the benchmark, but the actual dollar-weighted returns of the Passport funds are way ahead of the benchmark.

And so, I'm going to stop there. There's a lot more detail in this report. And I'm happy to go into any detail you would like.

MR. ADLER: Question. You

mentioned, what is the issue that we're going to discuss at the October TDA meeting that you raised, Robin?

MS. PELLISH: The actively managed U.S. Equity composite within Variable A.

MR. ADLER: Thank you.

MS. PELLISH: If there are no further questions on the June report, we have a July month-end report that Emma's going to present, briefly.

CHAIRPERSON PENNY: Welcome, Emma.

MS. O'BRIEN: Thank you. Good morning.

MS. PELLISH: Liz, do you think you could bring that up? Really appreciate your help. Thank you.

MS. O'BRIEN: I want to spend a minute walking through what we saw broadly with the capital markets.

In July there was positive performance across most major asset classes. U.S. large cap markets were up almost 6 percent. U.S. small cap markets were up almost 3 percent. Non U.S. developed up about 2 and a quarter, and emerging markets up 9 percent for the month of July.

We also saw broad market fixed income with positive performance, returning 1.5 percent in July. As Robin had noted as she was going through her market commentary, we've seen a continued dispersion between growth and value. And this has been the case over the last several years, really over the last decade. And it's especially pronounced year to date.

So if we look at the Russell 3000 growth, which is a measure of the U.S. Equity market and the growth stocks within that market, that was up 17.1 percent year to date. The Russell 3000 value was down 13.5. That's about a 30 percent dispersion between growth and value stocks within the U.S. market.

We also continued to see large cap markets outperformed small cap markets, particularly within the year to date period. The Russell 1000, which is a measure of large cap equity markets within the U.S., that was up about 3 percent; whereas the small cap market as measured by the Russell 2000 was down 10 and a half. That's about a 13 percent dispersion between large cap and small cap stocks.

If we look at performance for the Passport funds, starting with the diversified equity fund, this returned 5.4 percent in July, which beat the hybrid benchmark by 11 basis points, and trailed the broader Russell 3000 benchmark by about 30 basis points.

If we look over the year to date period, the diversified equity fund is down 1 percent, versus a return of about 40 basis points for the hybrid benchmark, and 2 percent for the Russell 3000.

There's really three key drivers of performance for the year to date period relative to the Russell 3000. First, you have the international equity allocation. If you look at the international equity composite line item, that was down 5 percent for the year to date period. And while performance relative to the benchmark is strong, and your active managers have delivered strong performance, the international markets have not kept pace with the U.S. markets. So when comparing to the Russell 3000, it's detracted on an absolute basis.

Within your defensive strategy composite, your low volume managers in particular, didn't protect on the downside during the first quarter. And that return of 2.8 percent was really driven by the convertibles allocation, but not necessarily performing as designed as a result of the low volume managers.

And lastly, your actively managed U.S. equity composite. This was down 9.7 percent for the year to date period, relative to 2 percent return for the Russell 3000 index. And that's really driven by the value tilt within the portfolio.

If you look under the hood, the relative performance for your active managers within the U.S. equity composite is really strong. Six of the seven managers are outperforming their relative benchmarks. But you do have a value tilt, and as value has underperformed growth, you've seen this composite lag the Russell 3000.

Any questions on the diversified equity fund before I move on?

MR. ADLER: I have a question, Emma. I didn't understand, when you were talking about the defensive strategy composite. I think about performance driven by the convertibles managers and that the low volume managers underperformed.

So when you're saying the convertible managers outperformed? Or are you saying the underperformance is a result of their underperformance? I just didn't understand what you were saying.

MS. O'BRIEN: When thinking about it on an absolute basis, your low vol managers were down about 1 percent for the year to date period relative to the broader market return of 2 percent for the Russell 3.

Your convertibles managers were up double digit returns; so, in the 13 to 15 percent range. So that 2.81 percent return that you are seeing for the year to date period, that's really driven by your convertibles allocation.

MS. PELLISH: I think it's driven by the low volume allocation; right?

(Talking over each other.)

MS. PELLISH: The issue is the low volume managers in that composite have had negative performance for the year to date. The convertibles managers have generally performed as expected.

MR. ADLER: The convertibles market has outperformed? Is that what you are saying?

MS. PELLISH: Yes. The convertibles market has been strong.

MR. ADLER: Got it.

(Talking over each other.)

MS. O'BRIEN: When looking at the balance fund return, this was in line with the benchmark for the month of July. On a year to date period it's trailing by about 40 basis points. And as Robin had mentioned for the June update, this is really just a function of the extreme market moves and not being constantly the 70/30 target.

The international equity fund outperforming for the month of July, outperforming year to date. You've seen strong relative performance, particularly from your Core and growth managers.

Lastly, to hit on the U.S. equity index fund, international equity index fund; both were trailing the benchmark for the month period.

If you look at the year to date you will see the performance dispersion from the benchmark in some higher tracking, as Robin mentioned, is due to some cash flows that occurred in March during periods of market volatility.

I will stop there and see if there are any questions on the July performance.

(No response.)

CHAIRPERSON PENNY: Okay.

Robin, are we ready for the presentation, then?

MS. PELLISH: I did want to refer to the benchmark performance for August that was distributed by Liz, I think yesterday. And I think the only thing to note is that more of the same equity market, the U.S. equity market was up over 7 percent for the month of August. International stocks were up about 5 percent.

And so, our estimate for Variable A for the month, the hybrid benchmark, is about 6.7 percent. And that will get us to a calendar year to date return of 7 percent.

So, continued strong equity market returns over the month of August contributing to offsetting the losses we saw in the first quarter. More of the same. That's a good thing for as long as it lasts.

So, because this is the first

meeting of the school year, and because it's been such an interesting calendar year to date -- using air quotes for the word "interesting," I thought it might make sense to have one of your managers talk about what they're seeing going on in the capital markets and what their outlook is.

And so, Invesco, one of your managers in the Passport funds, we invited them to present. Hopefully they're in the waiting room.

(Discussion off the record.)

(The Invesco people entered the meeting.)

MS. ELLIS-BECKHAM: Good morning to everyone. I'm Dyice Ellis-Beckham. I'm the relationship manager for the convertible mandate we manage on behalf of New York City Teachers retirement, the forward review plan. And honored to work with all of you. A pleasure to meet those I do not know. And for those I do know, great to see your faces.

And thank you for your partnership

and our relationship. We thank Robin and Rocaton for being able to share our macro overview.

Christina has presented to quite a few boards of late and -- apprised of value. And we look forward to your interest and your questions.

MS. HOOPER: Thank you.

Is it okay for me to get started?

MS. PELLISH: Kristina, can you talk about your role in Invesco?

MS. HOOPER: Absolutely. So, I'm the chief global market strategist. And I run a team of strategists and analysts based around the world. Several of my colleagues are in Asia-Pacific, several of my colleagues are in Europe, and several are in North America.

And that enables us to give not just a top-down perspective, but really a bottom-up grass roots perspective on what's going on in different major economies that helps us form our world view.

What we try to do, though, is always

be as holistic as possible in terms of looking at all the potential factors impacting the economic outlook. This is particularly important now in the midst of a pandemic, but is something we consistently try to do.

And then, of course, also talk about the investment implications of what's going on. Sometimes we can all get so caught up in a macro discussion that we forget about what it means for markets, what it means for our investments. So we try to do that as well.

So that's a little on me. I have to tell you, I'm really excited to be with you all today. My grandmother was a proud New York City educator. She taught, I want to say, for over 40 years, and she spent about 25 of those years in Jamaica Estates. Although my mom couldn't remember offhand the PS number, but she was a kindergarten teacher. So it is really awesome to be with you all.

Let me get started.

Dyice, you have the slide deck. So,

if we could move to the second slide (indicating).

One of the big questions we get is on -- I'm just going to talk while we wait for it to pop up on screen. But one of the big questions of course on everyone's mind is, What is the shape of this recovery?

(Discussion off the record.)

MS. HOOPER: So one of the big questions of course is, What does this look like? And so this gives a sense of historically what we have seen, including the Great Depression. We are certainly not in a great depression, but there are real threats to how this economic recovery materializes.

And so, there are still question marks. I don't think this is a true V-shaped recovery. But there are certainly question marks about what kind of recovery it is, which I'll talk about in a moment.

If you turn to the next slide (indicating), some of the factors we think are playing a critical role in the shape of the recovery. It's not just about infection rates, it's about the development of therapies as well as a vaccine. The best experts that we've heard from -- what we try to do is get a lot of expert opinions to help us understand what's going on, especially in an area where we don't have a high level of expertise like health care.

It sounds as though it's most likely that a vaccine is arrived at by the second quarter of 2021; although distribution is already being queued up, so it should be a more rapid distribution than what we've seen in the past.

So I share that with you as something of a base case. We'll see what happens there, but that is a critical factor. Even the development of therapies. If, for example, therapies like Remdesivir, which have already shown some promise, continue to be utilized and have good results, that can make a difference as well in the kind of recovery we see.

Stringency measures, mobility. I will say stringency measures mattered a lot more in the spring when governments were very serious about lock-downs. Not so much anymore. Now it's up to individuals to decide what they're doing. And so, mobility plays a bigger role.

So we used Google mobility tracking to understand just how much of the population in a given economy is moving around.

Of course, that all leads to economic activity. And what we're actually spending on, what we're doing, and how the economy is moving. And there certainly, it's a situation where there are haves and have-nots, which I'll get into in a moment.

And of course fiscal stimulus and monetary stimulus all play an important role. Now, I should delineate this. Fiscal stimulus has a much greater impact on the economy. Monetary stimulus on the margins can certainly help the economy.

We've seen the Fed create specific facilities.

But the reality is that monetary policy in general has a much greater impact on capital markets than it does on the economy.

So, if you turn to the next slide (indicating), what you will see is our five different scenarios. Now, we felt as though, to be true to the process of creating an outlook, we really needed to consider a variety of different scenarios, given there are so many factors at play.

So, our central scenario, our base case so to speak, or intermediate case, as you can see here, is a Nike swish-shaped recovery. Think of it as something that ultimately looks more like a V-shaped recovery, but is very halting and uneven, much weaker in its initial stages. And we find that the highest probability of any scenario. You can see a 40 percent probability. And that assumes a gradual return to normal behavior.

I have to give a caveat that that assumes there will not be a significant second wave, and I think that remains to be seen, especially as we are in the midst of back to school season, and then of course as we head into flu season, this could very well not ultimately be reality.

But right now we believe that the United States has become better equipped at managing the virus. We know other countries have become much better equipped at managing it, especially Asian countries. They have just done a great job with creating a contact tracing infrastructure, et cetera. So any kind of spike gets tamped down very quickly.

Our worst case scenario, which we only assign 5 percent probability to, is that W-shaped recovery. That would look a lot like what you saw in that earlier slide in terms of a great depression.

We don't expect to see that, but that would be multiple waves of the infection requiring strong lock-downs. Again, we think governments have moved away from the idea of having wholesale, very, very strict lock-downs.

Bad case scenario has a 25 percent probability. So we should pay attention to it. That suggests a second wave in later 2020. And that would be something of a partial reimposition of lock-downs. Of course, what we see more and more is that individual behavior is changing, doing less and reacting to any kind of increase in infection rates without actually having state-mandated lock-downs.

We think there's a good chance of a U-shaped recovery that we see in advances in therapies, helping along a faster development of a vaccine, all of which could return a back to normal behavior sooner rather than later. That's a 20 percent probability.

And of course, the best case scenario would be very hard to have happen, but has a higher probability than worst case scenario. And that's the idea that we see that rapid easing of lock-downs, a speedy return to normal behavior.

The problem is that, that would also mean we've made fiscal stimulus very quickly. And fiscal stimulus is very significant, and that is one of the things we think is unlikely to happen any time soon. I'll get into that in a minute.

If you turn to the next slide (indicating), what you will see -- actually, I'll move on. In the interest of time I'll keep going. You don't need this, it's just to give a sense of where we are relative to other pandemics.

But what you can see is, the United States has had real difficulty bending the curve. We're not alone. There are certainly a number of EM countries that have had issues as well.

Quite frankly, India is a real problem because it has not been able to bend the curve and is already rolling back lockdown measures. So, something we want to pay close attention to. That's why we believe very strongly that we can't look at EM as one asset class, we really have to break it down because of the differing levels of success there with combating the virus.

If you turn to the next slide (indicating) you will see more on that. This will give you a sense of how curve flattening has evolved, and this is a rolling seven day average, which smooths things out a bit.

We had a spike in some countries in the euro zone that we're concerned about and that we're following closely. In particular, Spain and France are issues. Italy also had a higher number of cases in recent days than it had in May. So it's something we want to watch closely.

If you turn to the next slide (indicating), this will give you more on what's happening. I'll scroll through again to the next slide (indicating). And you will see the United States.

It's hard to talk about the United States in gross generalizations, because we know that different regions are in very, very different places. The Northeast managed this crisis earlier. We also had a very high level of deaths. And that has a lot to do with the learning that comes from living through something as horrific as this pandemic.

Doctors learned that they were too quickly putting people on ventilators, for example. And those best practices that were learned in the Northeast enabled other parts of the country to really dial down the mortality that was seen in the Northeast.

But as you can see, this is not a situation that is extremely well under control. There are states where cases are on the rise. And in fact, Iowa and Alabama are two of those states right now. And we're very concerned and following closely school re-openings and what that could do.

The CDC came out with a report on a

Georgia camp in late June, in which every camp staffer was required to wear a mask, campers weren't. And in the course of four days, 76 percent of those at the camp that were tested were positive for Covid-19. That's a worst case scenario.

There are also stories about, for example, there are four camps in Maine where they were able to avoid it using better practices than at the Georgia camp.

But of course, back to school is a real area of concern. As I said, Iowa and Alabama, two areas where a lot of that has been tied to college re-openings.

If you turn to the next slide (indicating), and I'll move through these quickly so we have enough time for questions. Also, feel free if you want to interrupt me as I'm going through this, if there's anything that catches you. Otherwise I'll leave ample time for questions.

This gives you a sense of what's

happening in key economies. You can see there has been a resurgence in South Korea, also a very low base. South Korea has never had significant issues. And really such a low, low mortality rate. Japan has had more of a resurgence. But most countries, as I mentioned, France and Spain are areas of concern. Even Brazil has been able to control it somewhat. China of course I think is a best case model scenario for what other countries can do. But again, South Korea also is in very good shape, and contact tracing has been excellent.

So that spike again is a very small number. You have to look at the scale that each of these countries are on. So there's really no comparison between, say, South Korea and the United States.

If you turn to the next slide, you'll just see Asia in particular. This will give you a sense of where we are there.

I'm going to move on to the next slide and keep going, if you don't mind (indicating). This will give a sense of the cases in North America. Mexico has been able to manage this a bit better as of late. Canada is in a good place as well.

If you move on to the next slide (indicating), what you'll see is, another key component of our outlook has to be the development of therapies and a vaccine.

So this gives a sense of where we are today. Certainly Operation Warp Speed is pushing biotech companies and pharmas to come up with a vaccine as quickly as possible. You can see there are a significant number of companies that are already in phase 3.

But phase 3 trials can take some time. I think Dr. Fauci has suggested we could have something viable by the end of this year. Again, we think, based on our conversations with experts, that's probably a very optimistic scenario, but could happen. But we're watching this closely because it has a lot to do with the outlook.

But again, once we have developed a vaccine, it should be very positive for markets. But it will take longer to filter into the economy because of the time it takes to distribute the vaccine. Some of the vaccines being developed will require two inoculations rather than one. So there are a lot of issues about exactly how long it would take to impact enough of the population to allow for a return to normal.

If you turn to the next slide, what you'll see is stringency (indicating). I mentioned that this spring stringency was a great indicator of economic activity. Because the lock-downs were so severe, that it told us how much we would see in the way of economic activity as deteriorating. There was such a strong correlation.

But that has changed, because so many governments have decided against having those broad lock-downs.

If you turn to the next slide

(indicating), what you will see is mobility tracking. In this particular chart we're looking at global mobility. That's not really that helpful, because so many economies are reacting differently because they have different levels of control over the infection.

But this should give you some sense, first of all, the ability to track activity by a variety of different categories, which is so helpful. And again, this is coming from Google. They made this available, at least temporarily, for free. So it's a wonderful way to track what's going on. And this gives us a sense of how the economy is picking up and improving.

Retail and recreation include restaurants, visits to shopping centers and restaurants. And certain that's something we follow very closely. And as you can see, has improved a lot. Really started improving in April; but has for the most part remained at a pretty steady level recently.

We don't think we'll see much change until there's something that moves the needle in terms of a therapy or vaccine. And of course we have the potential for it to go down if we see any kind of increase in infection rates.

If you turn to the next slide (indicating), there certainly is a relationship between of course mobility, we think, and what we're seeing in terms of stimulus packages, and of course the impact on stocks.

And so, what we've done is juxtapose the MSCI World Price Index, which is the royal blue line (indicating) with the darker blue line, which is the seven day moving average of mobility, with stringency.

So, stringency has become relatively irrelevant now. It's really handed over the reins in terms of performance to mobility. But there's an interesting correlation there, I would argue, between mobility and the stock market; certainly helped along I think by some stimulus.

If you turn to the next slide (indicating), this gives a sense of mobility across the globe and gives you some insight into specific nature economies. And, of course, mobility has, as you saw on the global slide, mobility has improved very dramatically from spring to summer.

And that explains a lot of the very, the much improved economic data we've seen. We just haven't seen much in the way of improvement in mobility data recently. And if you look at the Euro zone, mobility data has gone down. That should be no surprise given that we've seen that spike in infections in some of the countries in Europe.

If you turn to the next slide (indicating), of course we're looking at a lot of high frequency data. Not just mobility, but we're looking at consumer spending, we're looking at sentiment. And that of course helps us formulate our views.

What we do is get together every

quarter to specifically tackle those five scenarios and decide whether or not we need to alter them, in terms of in particular what our base case might be, but of course what other cases might be and the probabilities we would assign to them.

If you turn to the next slide (indicating), you'll certainly see that improvement in green, in economic activity, Q2 and Q3. Again, a levelling off in Q3 that I think is important to note. I think there needs to be some kind of catalyst going forward.

In Europe, it could very well be the kind of fiscal stimulus we're seeing coming from, not just the European Union, but individual countries. In the U.S. certainly we would be helped by another fiscal stimulus package.

If you turn to the next slide (indicating), this gives insight into the U.S. in particular. While we had some very positive job data, we have to recognize we had a massive, massive loss of jobs. And my concern is that a lot of companies are continuing to lay off workers.

So yes, some have been hired back. Others are at risk of losing their jobs. And unfortunately, this is one of those crises that has disproportionally affected lower income Americans. I can't say enough about how vulnerable they were before this crisis.

The Fed does a survey of consumer finances every three years. The most recent survey came out actually soon before the pandemic began. And it showed that 37 percent of households in America would not have enough savings to cover a $400 emergency expense.

And of course, many of those households are under extreme pressure now, and it's a real problem.

One other area I should call out is something we're concerned with, is local and state government employees. Jay Powell, the chair of the Federal Reserve, has been very clear about the importance of government employees, I think something that can often be overlooked by policy makers.

The reality is that 13 percent of those employed in the United States derive their employment from governments. And a lot of those are state and local governments. So of course, state and local government are under enormous pressure. Some states of course have balanced budget requirements. This is a very serious issue.

The Heros Act allocated almost $1 billion in aid to state and local governments. It doesn't look like anything like the Heros Act is going to get passed if we do see a stimulus bill.

So again, we're very, very concerned about employment and the employment situation, even though certainly the headlines note that we have seen big gains in the last few months.

If you turn to the next slide (indicating), this gives you a sense of the room for maneuvering in terms of fiscal stimulus. And what you can see is, that not only are a lot of countries under pressure in terms of not having balanced budgets, but many have high debt to GDP levels. This should be some indicator of how much can be taken on.

If you turn to the next slide (indicating), this gives a sense of where the U.S. is relative to other countries. And, as you can see, we're not nearly as much of a percentage of GDP as some of the other countries. And there is really a need for more there.

Direct fiscal stimulus is most important, that's in dark blue.

And if you keep moving (indicating), this just gives you more on the CARES Act and how it's broken down.

But let me stop there because I recognize we're running out of time, and I apologize for running over a bit. What questions do you have for me? I'd like to give you the bottom line.

Our expectation is the economy is going to recover, but it's not going to be as strong a recovery in the next few months. And there is that potential for some kind of slowing of the pace of the recovery. But we do think that changes, and later stages are much more robust.

But what that means for capital markets is not a lot, because the Fed is really dominating what's happening there. And that means risk assets are supported. There's an upward bias for stocks and other risk assets like high yield bonds, like convertible bonds. Even investment grade, there are specific Fed facilities that are supporting parts of the fixed income market, in fact.

Of course, there's a place for alternatives. I think this is an environment where we have high geopolitical risk. Some investors are concerned about inflation. So we're going to see alternatives like gold continue to be popular and probably make some price gain.

But let me open up for questions from you. Again, sorry for going on.

MR. ADLER: The first time I think I heard you utter the word "political" was when you talked about the most recent geopolitical risks. And there is a somewhat important political event happening later this year in the United States. And I wondered what your view is of the risks associated with either a Biden victory, a Trump victory, or maybe none of the above for some extended period of time.

MS. HOOPER: The big risk with a Trump victory is, of course, in the near term, trade policy issues. The United States could very well embark on trade wars with a number of different countries. And that could create an environment where we become even more de-globalized, which is a huge risk for companies because it makes production less efficient.

I think that's the single biggest shorter term risk from a Trump presidency. The longer term risks of course are the erosion in stature of the

United States, a lack of control over foreign policy, essentially, creating a power vacuum; things that have less to do with markets but are obviously important issues.

The biggest risk with a Biden presidency is that he has told everyone he's going to raise taxes. And of course corporations are concerned because the target would be an increase in corporate taxes.

I will say that I'm not sure that in a Biden presidency he would be able to get passed any tax increases anytime soon. In looking at the composition of the Senate, there are some more conservative Democrats, certainly supporters of Joe Biden, but wouldn't be supportive of a tax hike, which makes sense in an environment right now where the economy is very much in recovery mode and needs time to heal and needs more stimulus, not less.

So to me, that's the situation and what the risks are for those two potential outcomes.

Of course, everyone is worried about that third outcome, which is litigation of the election. And in particular, President Trump refusing to step down. And that could be very, very problematic for markets in the short run. We could see a high level of volatility. I don't think we would see a massive correction for stocks, because the Fed has become even more accommodative with the policy change on inflation targeting last week.

Where I think we would see the impact for not just volatility going up, but gold would be going up. It remains to be seen what would happen with U.S. Treasuries, but they probably would be perceived as a safe haven, not as much as gold, in an environment with so much uncertainty.

But I think it could be very problematic in the short term for markets, because, let's face it, markets don't like uncertainty

MR. ADLER: Thank you.

CHAIRPERSON PENNY: Any other questions for Kristina?

MS. COLLINS: I have a question. You briefly touched on the issue of city and municipal and state finances. The challenges of budgets, two budgets that all of us are facing. If there is no support, then we start seeing municipalities and cities having to lay off governmental workers, including teachers, police and fire.

How do you see those types of actions impacting the markets? For instance, the City of New York floated potential layoffs of 22,000 city employees. That's a huge number. How those type of actions would impact the markets, given that doesn't look like -- from Washington.

MS. HOOPER: So, there really has been a true decoupling of the stock market from the economy. It's something we also saw in the global financial crisis, once the Fed stepped in and started QE. And that really has been the case this time as well.

I think what that does is insulate markets from damage done to the economy. So I don't think that we would see any kind of significant impact on markets if we saw a big loss of jobs for municipal, for government workers. As much as that doesn't seem logical, that's really what's happening, really because monetary policy accommodation has become just so over-accommodative.

That doesn't mean it won't impact the economy. It will, it will be problematic. And that's why Jay Powell is stepping out of his comfort zone and really becoming very, very vocal on this issue and urging Congress to act with an appropriate stimulus package.

And I think the positive is, that if you do get a Biden presidency, it would not be dissimilar to what we saw in the changeover from Bush to Obama. Remember, the global financial crisis started with Bush. We didn't get much in the way of fiscal stimulus, but we did get more once

Obama was elected and we had enough legislators come in on his coattails.

Now, I would argue that the fiscal stimulus even from Obama wasn't enough, but it certainly was an improvement. And we would see a scenario like that where we get more in the way of fiscal stimulus from a Biden presidency.

Have I done enough to talk about investment implications? Are there any questions on that, especially specific asset classes?

CHAIRPERSON PENNY: I think you did a great job. We appreciate it. Thank you.

MS. HOOPER: My pleasure. I'm sorry I didn't go through all the slides. I wanted to give you enough time to ask questions. But let me just leave you with some broad themes, if you don't mind.

We have very significant debt levels right now in the United States. In fact, the projection for next year is that our debt reaches GDP, and we haven't seen that since the World War II era. So we have to recognize that's going to be an issue in future years. I don't think it's an immediate concern. But I think in general what we're going to see is monetary policy that's a lot lower for a lot longer. So yield scarcity is going to be an issue. We're going to have to continue to look creatively for yields.

And finally, I would just say that we do have to pay attention to those bigger themes like de-globalization. If that were to continue to occur, it would have an impact on the multi-national companies. So, more of the S&P 500 companies, in terms of how they do business and their expenses and how efficient they can be.

So a few things to think about. But I have to tell you, I've been pleasantly surprised so far with the level of economic activity we've seen. It could have been worse, actually, given the kind of environment we've been in globally. China in particular has made a very strong recovery.

CHAIRPERSON PENNY: Okay.

MS. HOOPER: Thank you so much for having me. I know it's hard to do justice to this topic in half an hour. But if you have any follow-up questions, and I apologize for running over; if you have any follow-up questions I'm more than happy to answer them by e-mail, send them back through Dyice. And really, if there's anything you need in terms of follow-up information, I'm happy to provide them and slides as well. You may have questions, especially after you go through all the slides.

CHAIRPERSON PENNY: Thank you, Kristina. Thank you, Dyice, thanks for joining us. Be well.

MS. ELLIS-BECKHAM: You too. Enjoy the rest of your board meeting and your holiday weekend as well. Good to see everyone.

MS. HOOPER: Thanks for having me.

(The Invesco people left the meeting.)

CHAIRPERSON PENNY: We're back. We have one more thing. We have the review of the Passport funds investment policy statement.

Susan, are you going to speak on that?

MS. STANG: John, thanks a lot for your comments. They were very helpful. We're prepared to address some of them today.

First off, you're exactly right, the balance fund is all passive. That was an error, so we will correct that. We should put in a sentence about the actuary's role about, in the rebalancing between the TDA and the pension fund, that's correct.

And two more substantive issues that we can address today are sec lending and the basket clause. I'll talk about the sec lending and then punt it to legal. I don't know if that's going to be Isaac or Valerie, to talk about the basket clause.

On the sec lending topic, yes, we do do it. Yes, the section should be beefed up as you suggested, you are exactly correct.

We want to go into on a very high level our collateral pool is as conservative as possible. It's governments or agencies, Ginnie Maes, the average collateral level is 104 percent. Because it's so conservative and because interest rates are so low, we don't make a whole lot of money from the program, we make like $2 million a year. But we have very few loans outstanding in general, basically because our collateral pool is so conservative, the only things that go out on loan are things that are quote/unquote "on special." People who are shorting are really paying extra.

So that's the bottom line on the securities lending program.

MR. ADLER: Can I ask a question about it? At least since I've been here, I don't think we ever talked about securities lending. So I'm not actually familiar with the program here at Teachers. And I think my question is, I hear you saying it's kind of a low risk securities lending program. I would still appreciate a conversation about whether the benefits are worth the risk. And also I'd like to understand what happened at Teachers in 2008 when a lot of securities lending programs ran into trouble, including at the City's DCP, and I believe at the QPP as well. But I wasn't here, so I don't know for a fact. We don't have to do that today.

MS. STANG: We can do the whole thing in October. We've done some of the securities lending, but obviously not often enough or you wouldn't have had the question.

MR. ADLER: My guess is that some of the other Trustees may have similar questions.

MS. STANG: Exactly.

MR. KAZANSKY: Not to disagree with you, John. I recall several discussions we've had about the securities lending program over the years. We have discussed it, maybe not in the detail you want.

MR. ADLER: Great.

MS. VICKERS: As a reminder, we worked on an updated description of the program for the updated QPP IPS.

MR. ADLER: That's different, I think, than the TDA program, I believe.

MS. VICKERS: You mentioned the QPP. I wanted to remind you there's a whole overview of the program which I think is similar to the TDA.

MS. STANG: Ours is more -- we'll have a presentation for that for October and we can hash it all out then in detail.

Now I'm punting it to Isaac or Valerie to talk about the basket clause and how it does apply to the TDA.

MS. BUDZIK: I will start. There is a section on eligible investments in the IPS. And the variable program does invest pursuant to a legal list. And that's in the administrative code and the RSSL.

Both the administrative code and the

RSSL have basket clauses. And John, I think your question specifically was, you were not familiar with the basket clause in the administrative code.

MR. ADLER: That's the one with --

MS. BUDZIK: Fifteen percent.

MR. ADLER: I never heard that one.

MS. BUDZIK: It does exist. And how the administrative code works with the RSSL, your head could explode if you tried to go into the details, I would say.

MS. STANG: Avoid it.

MS. BUDZIK: So we won't.

(Laughter.)

We thought it was appropriate to mention the basket clause in the administrative code, which is why you see it. More often than not, if we were to bump up against the basket it would be the RSSL 25 percent limitation that would apply. There arguably are instances where it would be the 15 percent.

As a practical matter, we are nowhere near basket limitations on the variable program. So we could discuss it further. But, again, as a practical matter, us hitting any of these limitations is extremely remote.

What's the biggest difference between what is permissible under the administrative code versus the RSSL? And I think it will resonate with the Board because of requested legislation. There is actually not that 10 percent limitation for securities for the variable. That technically could be 100 percent foreign securities. Maybe restrictions on the type, but we don't have that 10 percent limitation after which that counts toward the baskets.

If you have any other questions, we could answer them.

MR. ADLER: Let me ask one question. In the RSSL section it says "pooled investment vehicles." And we do have some investments I think in pooled investment vehicles like the mutual funds that the balance fund is invested in now. I think there's a handful of others.

Does that count towards the 25 percent basket?

MS. BUDZIK: I don't think so; is my answer.

MR. ADLER: Pooled investment vehicles, what does that refer to?

MS. BUDZIK: To me that's a commingled fund.

MR. ADLER: What's a commingled fund? If a mutual fund is not a commingled fund, what is it?

MS. BUDZIK: It would be a mutual fund or another fund that had more than one investor.

MR. ADLER: So my question is, right now. Let me ask something else, but first finish this. I want to understand what is applicable to the basket clause. So, we just created an equity index fund and an U.S. equity and an international index fund, which I believe are invested in mutual funds, if I'm not mistaken.

And also, the balance fund is invested in two mutual funds, I believe.

So, are those funds considered

pooled investment vehicles that would be counted against the basket in RSSL --

MS. BUDZIK: I think the answer is, they do not count towards the basket.

David, do you disagree?

MR. LEVINE: Valerie, I think they may. I was double-checking.

MR. GLOVINSKY: Under the RSSL.

MS. BUDZIK: We also have the administrative code. If it's authorized under the administrative code, that would be the relevant section.

MR. LEVINE: This could, to Valerie's point, and I think to Isaac's point a second ago as well, trying to harmonize the two. I believe under the -- I'm double checking --

MS. BUDZIK: I don't have the provision open.

MR. ADLER: You don't have to answer today. This language raised these questions for me. Because on re-pooled investment vehicles, or I think commingled funds -- it doesn't say commingled funds, it says "pooled investment vehicles" -- but I think mutual funds are that.

So my follow-up question is: Are the restrictions, the 25 percent for the RSSL or the 15 percent under the ADCO, do those refer to the variable program as a whole or to each fund within the variable program?

MS. BUDZIK: It's an aggregate, as a whole, and that is stated right here in the IPS. It says "These restrictions operate on the variable program aggregate assets and are not applied to each investment option separately."

MR. ADLER: Thank you for clarifying.

MS. STANG: And anything in a commingled fund or mutual fund, by asset size, would be relatively small compared to the whole $50 billion dollar shooting match.

MR. ADLER: Right. That is true right now. Presumably if the index funds grew that could change, but at the moment that's true for sure.

One other question. It says derivatives are permitted within the 5 percent and 2 percent, 15 percent or whatever.

Do we have any investments in derivatives in the variable funds? Maybe the Crescent, does that include derivatives?

MS. STANG: Our investment in GMO can have a very small amount of derivatives in it. And so, GMO, how much do we have in GMO? Maybe $400 million, I don't have the numbers in front of me. There could be a very small percentage of that $400 million that could be in some derivative format if you include futures.

In the 50 percent that's invested in the Russell 3000, there could be a modicum of futures in there. If you call futures derivatives it's possibly 2 percent. There's no way we get to the 15 percent limit or the 25 percent limit because it's very small. So it's targeted little bits.

MR. LEVINE: John, to follow-up. I

concur with Valerie, looking back. There's some little nuances behind it, but the general rule is you look at the actual mutual fund held at this point, not sort of complete -- everything. There are some nuances there, but that's the basics.

MS. BUDZIK: We can clarify that, because I didn't think the mutual funds counted towards the basket. If I need to be educated on that one too, that would be good. But we can clarify that.

MR. ADLER: Thank you.

CHAIRPERSON PENNY: Susan, the next steps with this, you'll address John's comments. And thank you, John, for all that.

MS. STANG: Yes. In general, we're going to incorporate the comments we've already talked about. I know there were other comments that John had that we're still working on the right language. But they are very helpful. We're moving forward. And thanks.

Anybody else who has any other

comments, the comment period is still open.

CHAIRPERSON PENNY: Perfect.

MR. ADLER: Thank you.

CHAIRPERSON PENNY: Anything else for public agenda?

(No response.)

Then, is there a motion to move into executive session?

I'll just say, it's 11:21. We'll make the motion, move to executive session, give everyone ten minutes and reconvene at 11:30. Sound fair?

(Brief discussion off the record.)

CHAIRPERSON PENNY: Is there a motion to move into executive session?

MR. BROWN: So moved.

MR. ADLER: Second.

CHAIRPERSON PENNY: All those in favor of moving, please say "Aye."

(A chorus of "Ayes.")

Any opposed say "Nay."

(No response.)

We'll move into executive session, and I'll see you at 11:30.

(Recess taken.)

(Whereupon, the Board moved into executive session.)

CHAIRPERSON PENNY: Nothing else. So then, we'll go back into public session.

Do I hear a motion to go back into public session?

MR. BROWN: So moved.

CHAIRPERSON PENNY: Second?

MR. KAZANSKY: Second.

CHAIRPERSON PENNY: All in favor?

(A chorus of "Ayes.")

All opposed say "Nay."

(No response.)

(Whereupon, the Board returned to public session.)

CHAIRPERSON PENNY: Susan, will you fill us in?

MS. STANG: In executive session two manager updates were provided. There was a discussion of the procurement of a service provider. Consensus was reached, which will be announced at the appropriate time.

CHAIRPERSON PENNY: Thank you.

Does anyone else have anything else for the investment meeting?

Is there a motion to adjourn?

MR. BROWN: So moved.

MS. VICKERS: Second.

CHAIRPERSON PENNY: All those in favor of adjourning please say "Aye."

(A chorus of "Ayes.")

Opposed?

We stand adjourned.

Thank you, everyone. See you at the next meeting. Have a wonderful weekend.

(Whereupon, at 12:10 p.m. the meeting was concluded.)

C E R T I F I C A T I O N

I, Jeffrey Shapiro, a Shorthand Reporter and Notary Public, within and for the State of New York, do hereby certify that I reported the proceedings in the within-entitled matter, on Thursday, September 3, 2020, and that this is an accurate transcription of these proceedings.

IN WITNESS WHEREOF, I have hereunto set my hand this 9th day of September, 2020.

JEFFREY SHAPIRO