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NEW YORK CITY TEACHERS' RETIREMENT SYSTEM
INVESTMENT MEETING

Held on Thursday, April 2, 2020, via videoconference

ATTENDEES:
DEBRA PENNY, Chairperson, Trustee
DAVID KAZANSKY, Trustee
THOMAS BROWN, Trustee
JOHN ADLER, Trustee, Mayor's Office
NATALIE GREEN-GILES, Trustee
SUSANNAH VICKERS, Trustee, Comptroller's Office
RUSSELL BUCKLEY, Trustee

REPORTED BY:
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JOB NO. 4467785

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ATTENDEES (Continued):
PATRICIA REILLY, Teachers' Retirement System
THAD McTIGUE, Teachers' Retirement System
SUSAN STANG, Teachers' Retirement System
ROBIN PELLISH, Rocaton
MICHAEL FULVIO, Rocaton
VALERIE BUDZIK, Teachers' Retirement System
LIZ SANCHEZ, Teachers' Retirement System
SHERRY CHAN, Office of the Actuary
DAVID LEVINE, Groom Law Group
ALEX DONE, Comptroller's Office
MICHAEL HADDAD, Comptroller's Office
JOHN DORSA, Comptroller's Office
ENEASZ KADZIELA, Comptroller's Office
WESLEY PULISIC, Comptroller's Office
BRENT PASTERNACK, Comptroller's Office
TINA SUO, Comptroller's Office
ROBERT FENG, Comptroller's Office
KOMIL ATAEV, Teachers' Retirement System
ISAAC GLOVINSKY, Teachers' Retirement System
CYNTHIA COLLINS, Mayor's Office

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MS. PENNY: Okay, good morning, everyone. Welcome to the Teachers' Retirement System of the City of New York investment meeting, the online version. Today is April 2, 2020, and it is 10:00 a.m.

Patricia Reilly, will you please call the roll?

MS. REILLY: John Adler?

MR. ADLER: Here.

MS. REILLY: Thomas Brown?

MR. BROWN: 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?

MS. PENNY: Present.

MS. REILLY: Susannah Vickers?

MS. VICKERS: Here.

MS. REILLY: We have a quorum. I will turn it back over to the chairwoman.

MS. PENNY: Thank you. Okay, we will

start the public meeting with the Passport Funds. Mike Fulvio, will you begin?

MR. FULVIO: Yes. Good morning, everyone. Everyone should have received their multiple e-mails, but there was one packet or PDF which included all of the public session materials. Everyone should have that. At the front of that section we included the February flash report which I will just touch upon briefly since these numbers also roll up into the full quarterly year-to-date numbers we review later, but you will recall from our prior meeting on March 5th that February was the beginning of all the volatility we started to see in the markets. That certainly showed up in the returns for the month.

If you are looking at the flash report, what will certainly jump off the page was the negative 8.2 percent return for US equity markets during the month. Developed nonUS equity markets, we are down about 9 percent during February, and emerging markets, they protected a bit on the downside but still down about 5 percent. So obviously those numbers

will have a meaningful impact in the overall performance of the Passport Funds. And if you are looking at year-to-date numbers, they were about comparable to slightly negative beyond those numbers given that January was roughly flat to slightly negative as well.

So if we are looking at the specific numbers for the Passport Funds -- and I will comment on a few of the market dynamics that were present in February but also continued through March, and these numbers certainly had an impact -- what we saw generally speaking was large cap stocks outperforming small cap stocks. So if you are looking at the Russell 1000 Index, that was down about 5 percent in February and small cap stocks down about 11.4 percent. The other thing we saw which has been an ongoing theme, if you will, value stocks significantly underperformed growth stocks year to date through February. Value down 11.8 percent if you are looking at the Russell 3 and growth down about 5 percent. So these will have a meaningful impact to the returns of the Passport Funds including the

Diversified Equity Fund, which for the month of February was down about 8 percent. So slightly ahead of the US equity market but a few basis points behind the hybrid benchmark which was down also about 8 percent.

And if you are looking at the overall results, you will note that the Defensive Strategies Composite did provide some down-market protection during February. So it captured about 67 percent of the US equity down market with a return of negative 5.5 percent. If you are looking further down the page, you will see the actively managed composite. That lagged for the month relative to the Russell 3000 Index that had a return about negative 8.8 percent, and again, the numbers I noted or the comments I made earlier about the large cap/small cap dynamic and the growth/value dynamic, those were very much present in the actively managed composite and the tilts there led to a good portion of that underperformance.

Within the International Equity Composite, you can see those were down about

8.4 percent. It did slightly do better than the international composite benchmark. So year to date through February, Diversified Equity Fund down about 8.8 percent, and we will provide some more input on specific performance in the preliminary update for March.

For the Balanced Fund you can see assets about 400 million for February. That fund was down 1.6 percent. Again, you will see comparatively better than the other options on the page given that about 70 percent of that fund is allocated to short-term gov credit fixed income. Year to date that fund was down about 1.5 percent. The International Equity Fund again mimics the structure of the International Equity Composite of variable A. That fund was down 8.3 percent for the month with a year-to-date return of negative 10.6 percent.

The Inflation Protection Fund, that fund was down 2 and a half percent during February and down about 3.3 percent year to date. Those returns slightly lagged the benchmark or

the fund's custom benchmark over that time period. The Sustainable Equity Fund with assets of about 250 million at the end of the February, that fund was down about 5.6 percent which was enough to outpace the return of the Russell 1000 growth index during February. And year to date that fund through February was up about 1 percent relative to the benchmark.

Below that you can see the two newer variable funds, each index fund. For the US Equity Index Fund, that fund was down 8.7 percent for February and the International Equity Index Fund about 6.8 percent for the month of February. I will pause there and see if there are any questions. Yes, Robin?

MS. PELLISH: Do you want to comment on the tracking error between the foreign and the funds and the benchmark?

MR. FULVIO: So I think you are referring specifically to the two variable funds that are comprised of underlying index funds. The performance at the total variable fund level is impacted if you will recall from

both from the timing and cash flows both during the month as well as there is some very modest cash positions for a portion of the month within those funds as there is rebalancing going on between the funds, and that will impact the relative results given the very modest fund size at this point. There is also some positive tracking within the variable G fund, the International Equity Index Fund, and we have talked about that in the past as well. There is some fair value pricing impact, and given the really heightened volatility we are seeing in equity markets with a lot of trading happening in the last hour of the day in the US, you know, there is some notable fair value pricing impact to these funds on a day-to-day basis and that -- over the long term that fair value pricing tends to wash out.

So not hearing any questions, we can move ahead to March. If everyone wants to take a deep breath before we do that, feel free, but that begins on slide 15 of the same set of material that we were in. So everyone

should have or be looking at the page with the title preliminary benchmark report as of March 31st. So very high level obviously there was a lot of volatility during the month of March. Anyone who has been following the news is aware of that.

The US equity markets were down about 14 percent. Roughly in line or slightly ahead of what we saw from nonUS markets. The Defensive Strategies Composite during the month was down about 11.2 percent, so capturing about 80 percent of the down market that we saw for the Defensive Composite Strategies Benchmark. And the Diversified Equity Fund's hybrid benchmark was down about 14.6 percent for the month. So we will get into a little bit more detail as we peel those numbers back further in the agenda, but we wanted to highlight obviously some pretty stark negative numbers.

The calendar year-to-date numbers obviously more negative than that. US down about 20 percent -- 21 percent year to date. NonUS developed markets down about 23 percent and EM also down about 23, 24 percent. Within

the Balanced Fund, you can see the relative strength of the fixed income holdings there. Gov credit index, one-to-five-year gov credit index data up about 2 percent and the Global Equity Index, that fund down about 22 percent. All told, the Balanced Fund benchmark of the calendar year return of negative 5.5 percent. Or I commented a little bit earlier on the dynamic between large cap and small cap in the US. You can see that show up here a little bit within the International Equity Fund benchmarks. It's a very consistent story.

So if you are looking at the EAFE Index, I noted earlier that was down about 23 percent. By comparison the two line items below that are both small cap indices for nonUS stocks, and those were both down about 29 percent in the month. So some notable differences between large and small cap, those persisted abroad as well. I commented earlier about emerging markets roughly in line with developed markets for the month, and you can see all told the international composite benchmark down about 24 percent year-to-date

through March.

For the Inflation Protection Fund, you can see the underlying strategy there year-to-date down about 14.5 percent. Where we -- you know, what's driving that return, you will recall that fund is comprised of a variety of different strategies which -- some of which helped with respect to relative performance. Others have lagged. So that fund is comprised of inflation protection bonds, levered loans, bank loans, mortgage, a couple different slices of the REITS market so both REITS equities as well as REITS debt and commodities and commodity-related equities. So you can see there that fund all told down 14 and a half percent, a little better than straight equities given the level of diversification, but nonetheless a pretty notable negative number for the month, year to date and month.

The underlying strategy for the Sustainable Equity Fund, that outpaced its benchmark by a little bit over 1 percent for the month. Pretty similar to what we saw in

relative performance terms during February. All told that fund is ahead by a couple percent year to date and again -- then again just below that the underlying returns for variable F and G, the index funds, you can see those funds roughly in line with their benchmarks for the month and year to date.

So I know we kind of glossed over what was going on in the background with markets so we wanted to spend some more time as usual taking the Board through that as we work through the rest of the public agenda, and there is a lot of materials behind this that we are certainly happy to address or answer any questions that folks have. Otherwise we can start to go through the materials and talk about what we are seeing with respect to the markets and some of the economic indicators that, you know, have been in yours of late.

MR. ADLER: I just have one question before you move on. The Sustainable Fund, it really markedly outperformed the broader equity indices. Any explanation of that?

MR. FULVIO: Yes. So this fund you will

recall has a bit of a growth tilt. And what we have seen broadly speaking is that growth has done notably better than the rest of the market. So it's not surprising that we have seen this fund do better compared to the broad market. It's also outperformed the growth index, which we are happy to see as well even though the growth index has done better than the broad market. So I think we haven't yet started to peel back specifically what's going on there, but one of the things that folks have been talking about in the market, it's a current theme and one that I think we are going to explore together further is how a lot of companies in some of the traditional value sectors, if you think about oil and gas producers and the energy sector, you know, there is a lot of questions about whether or not those businesses are sustainable looking forward given the stresses on their business today, given the outlook for supply and demand in energy markets. So that's an example of one of the themes where we are seeing and maybe questioning how realistic it is that

some of these businesses which are especially challenged but what we have seen going on in the markets over the last month, how are they going to be able to sustain themselves looking forward if we continue to see not only the continued stresses, but was this the type of catalyst that maybe forces the world to evolve. And so you know, what we have seen and think about the holdings in those funds, those growthier companies have generally done a lot better than the value stocks where, you know, there is a lot more pressure. I guess the exception to that would be the financial sector which is also part of the value benchmark and has done really poorly. There doesn't seem to be the same types of concerns with financial companies at this point, but financials have also been beat up quite a bit more than the benchmark and you will see that show up in some of the manager numbers we are going to talk about a little bit later. There is less concern about the long-term sustainability of financials in this crisis or this market as there were back in 2008, 2009.

MS. PELLISH: So the answer is Brown has done very well for a long time through stock selection and the fact that they are a growth manager and that pattern has continued, and the real question that Mike is talking about is, you know, we have been looking for a bounce back from value for years now and the question that I think deserves to be addressed is whether there are some structural issues with many of the industries that are heavily weighted in the value benchmark and that deserves -- not ready to declare value is dead, but there could be some fundamental structural issues with those sectors.

Can we move on to the market deck, or are there other questions?

MS. PENNY: Seeing none, I guess we are good.

MS. PELLISH: Okay, great. So as Mike said, what we tried to do in this market update -- and I am sure all of you have been listening to the news for many hours of the day. And what we tried to do is select some of the highlights or lowlights and both at the

macro level and at the asset class level. This deck is not about managers. I want to say one of the things that Rocaton is working on to deliver in a very near term is some indication about how active management has done in Q1. The data that's most immediately available is mutual fund data, so we will be looking at the mutual fund data as a proxy for how active managers have handled it or not during this crisis.

So if we start -- this should be slide 17 in the deck that we sent out. So what you can see here is both actual -- some actual results as well as projected results in terms of real GDP analyzed quarterly growth, and there is a lot of numbers on this page. I think the point here is really to emphasize that the sharp decline that is expected to be reported for Q2. The solid red line is the current forecast and what we are showing here is Goldman Sachs's forecast and the dotted red line was the previous forecast just a matter of weeks ago.

So you can see that the depth of the

decline was originally I think understated. And they are forecasting a pretty sharp rebound in Q3 and then a rebound in Q4. Obviously no crystal balls and the jury is out about the length and depth of the decline and we are all waiting -- and you know this as well as anyone else -- to see how the medical crisis resolves.

So with that, what we are going to do is turn to the next page and talk about interest rate moves and Fed actions. So on the right-hand side of this, you see a listing of all of the actions by the Federal Reserve, the response to the crisis. Most important thing I think to note is that the Federal Reserve has moved very quickly, much more quickly than it did in '08 and so we can -- so we can see that there has been some -- a lot of very significant action set in motion including 700 billion in quantitative easing, all sorts of liquidity provided to money market funds, to small businesses, to the municipal market.

And you can see on the left-hand side the decline in rates over the past several

months. And today the 10-year bond debt yield is at about 60 basis points. A year ago that figure was close to 2 and a half percent and the long-term average was north of 4 percent so as I am sure everyone has observed a dramatic decline in treasury rates.

If we turn to the next slide -- I am going to keep going unless I hear any questions, and I know Mike and Alex are on the call so if they have anything they would like to add to that, I welcome any comments they have on any of these slides.

So we wanted to include a slide on global oil, on the global oil market which is, of course, a very important factor in what's going on in the global economy and this slide focuses on global oil demand destruction resulting from COVID-19, and I am sure you all know that simultaneously there is this price war that's going on between Saudi Arabia and Russia which has exacerbated the issue.

So on this slide we note that price of oil has dipped below 20 dollars a barrel per day. I think it's a little bit of north of 20

dollars per barrel, but there is some discussion about whether, in fact, oil prices might go negative as storage becomes overwhelmed and producers actually pay buyers to take the oil off their hands. So that's a possibility. Just as yields have gone negative outside of the US, there is always a risk that oil prices could go negative. But this is an incredibly important event and metric going on in the global economy and it is driving enormous change in the US oil industry, particularly among shale oil producers, and we think there will be a very, very significant change in that industry as many of those businesses which are fairly highly leveraged and cannot produce profitably below price much above 20 dollars a barrel will be forced out of business and that in turn will have a significant impact on the high yield market and elsewhere.

If we turn to the next slide, slide 20, on the bottom right-hand side of this slide, you see the same performance numbers that Mike has already gone through, so I am not going to

focus on those. I did want to focus on volatility, which is on the top right hand on the slide, and you can see the VIX, which is a measure of equity volatility which in March went up slightly higher than the peak we saw in '08 and '09. So the enormous volatility everyone has seen that day-to-day, but this is a visual reminder of that looking at the US equity market through a slightly different lens.

On the next slide these are historical drawdowns, so what this chart displays is downward performance of the S & P 500 going back many years, and you can see that the market has not declined to the levels that we saw in '08 or '09 or even in '02, but we are moving in that direction. So this gives you some historical context for the US equity market decline that we have seen, and what this seems to indicate is that there is a potential for continued significant decline.

We have -- now, if you look at the table on the bottom, it's sort of interesting. We are now in the mid-30s percent, call it 34, 35

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percent drawdown. So from peak to where we are today in the '07, '08, '09 time frame, you saw a drawdown of 55 percent. So lots of happy news.

If we go to the next slide, now we are pivoting from equity markets into fixed income sectors. We talked about the treasury yield curve and movements in the 10-year treasury bond but that doesn't adequately describe what's going on within fixed income sectors and there is a very wide range of outcomes among those fixed income sectors. So as you know, we talked about the spreads versus treasuries and we can see the performance for different fixed income sectors for the month of March as well as calendar year to date for all these different sectors. So you can see treasuries, this is across the spectrum of treasury maturities up 8 percent for year to date and 3 percent in March alone. Agency mortgage backed, similarly positive return for the year to date and the month of March, and then as we go into other sectors that take credit risk relative to the US government

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sector, you can see that we have an increasingly negative return for both the month of March and the year to date. And so sectors that have quality concerns such as US high yield, you can see very negative returns. So for year to date for US high yield, down almost 13 percent and 12 percent in the month of March alone. And I am sure there will be more discussion about this in the executive session when we talk about the pension fund.

So with that, I am going to turn to the next slide which talks about -- we just talked about performance relative to treasuries for the fixed income sectors. Now we are talking about widening spreads so the differential between yields in different sectors versus similar maturity treasury bonds. So you can see this peak in the early days of the month of March, the high yield sector where the spread relative to treasuries rose to almost

2,000 basis points from a level -- from a spread of about 500 basis points at the beginning of the month. So really dramatic changes within different fixed income sectors

and you saw these -- we are reporting spread limits but in many cases you couldn't even trade at these levels, liquidity was so constrained. So again, another measure of volatility in the markets, this time volatility in the fixed income markets.

I think the slide at the bottom of the same page is interesting. It talks about market yields in different fixed income sectors so we are talking -- so here we are talking about what yields were for different parts of the fixed income market at the end of 2019 and at the end of March 2020. So we talked already about the significant decline in the 10-year bond down from a level -- a yield of almost 2 percent at the end of 2019 down about 70 basis points at the end of March. You can see for corporate bonds, the yield rose about 60 basis points for again as we go down the quality scale down to high yield, we see yields and this is for the broad index rise from about 5.2 percent at the end of 2019 to almost 9 and a half percent at the end of March. So dramatic particularly from

lower quality.

The next slide talks about private markets and this is a lot of text. The reality is we won't know what the full impact is for private markets for several months until their mark to market are actually reported for private equity. That could be -- we might not see that result until August or September and again a lot of text here. Very limited new deals. Big surprise. Very limited new deals being closed in private equity, in real estate, and a lot of focus on cash flow of existing properties and businesses and trying to manage leverage. And with that, my comments conclude. I am happy to talk about anything in specific.

MS. PENNY: Okay. Anyone else have anything for public session? Okay. Seeing none, then do we have a motion to move into executive session?

MR. BROWN: So moved.

MS. PENNY: Thank you, Mr. Brown. Do we

have a second?
MS. VICKERS: Second, Susannah Vickers.

MS. PENNY: Thank you, Susannah. All those in favor? Aye.
MS. VICKERS: Aye.
MR. ADLER: Aye.
MS. GREEN-GILES: Aye.
MR. BUCKLEY: Aye.
MR. BROWN: Aye.
MR. KAZANSKY: Aye.
MS. PENNY: Any opposed? Okay. All right. Great. So we are going to move into executive session now.
So are we officially in executive session?
(Whereupon, the meeting went into Executive session.)
MS. PENNY: Okay, great. Thank you. All right. Having said that, do we have a motion to move into public session?
MR. BROWN: So moved.
MS. PENNY: Thank you, Mr. Brown. Do we have a second?
MS. VICKERS: Second.
MS. PENNY: Okay. Thank you, Ms. Vickers. All those in favor of moving into

public session? Aye.
MS. VICKERS: Aye.
MR. ADLER: Aye.
MS. GREEN-GILES: Aye.
MR. BUCKLEY: Aye.
MR. BROWN: Aye.
MR. KAZANSKY: Aye.
MS. PENNY: Any opposed? All right. Now we are moving into public session.
Welcome back. We are in public session. Susan, will you please report out?
MR. McTIGUE: During executive session a number of managers and portfolio issues were discussed. No action was taken.
MS. PENNY: Thank you, Thad. Do we have anything else? Okay, great.
Do I have a motion to adjourn?
MS. VICKERS: Motion to adjourn.
MS. PENNY: Do we have a second?
MR. BROWN: Second.
MS. PENNY: All those in favor? Aye.
MS. VICKERS: Aye.
MR. ADLER: Aye.
MS. GREEN-GILES: Aye.

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MR. BUCKLEY: Aye.

MR. BROWN: Aye.

MR. KAZANSKY: Aye.

MS. PENNY: Thank you. We are adjourned. Stay well, everyone.

(Time noted: 11:55 a.m.)

C E R T I F I C A T E

STATE OF NEW YORK)
: ss.
COUNTY OF QUEENS)

I, YAFFA KAPLAN, a Notary Public within and for the State of New York, do hereby certify that the foregoing record of proceedings is a full and correct transcript of the stenographic notes taken by me therein.

IN WITNESS WHEREOF, I have hereunto set my hand this 12th day of April, 2020.

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YAFFA KAPLAN