```
0001
 1
        NEW YORK CITY TEACHERS' RETIREMENT SYSTEM
                   INVESTMENT MEETING
             Held on Thursday, May 5, 2022
 5
                            Via
 6
                   Zoom Videoconference
 7
 8
   ATTENDEES:
 9
    DEBRA PENNY, Chairperson, Trustee, TRS
10
   THOMAS BROWN, Trustee, TRS
11
   DAVID KAZANSKY, Trustee, TRS
12
   ALISON HIRSH, Trustee, Comptroller's Office
13
   RUSSELL BUCKLEY, Trustee
   DAMIAN LAUGHER, Trustee, Mayor's Office
14
15
   PATRICIA REILLY, TRS, Executive Director
   THADDEUS MCTIGUE, TRS, Deputy Executive Director
16
17
    VALERIE BUDZIK, TRS
18
   LIZ SANCHEZ, TRS
19 SUSAN STANG, TRS
20 PHILIP DUKES, Finance
21 MICHAEL HADDAD, Comptroller's Office
22
   DEVON ALEXANDER, Rocaton
   ROBIN PELLISH, Rocaton
24
    GREGORY ZELIKOVSKY, Office of the Actuary
25
    SUMANTA RAY, Mayor's Office
0002
1
   ATTENDEES (Cont'd)
   YING LIN, BAM
 2
 3
   PETYA NIKOLOVA, BAM
   DAVID LEVINE, Groom Law Group
 5
   ARISTEA AFTOUSMIS, TRS
   ISAAC GLOVINSKY, TRS
 7
    JOHN GLUSZAK, Comptroller's Office
   ENEASZ KADZIELA, Comptroller's Office
   JENNIFER GAO, Comptroller's Office
10 BLAIR BARBERINO, BAM
    JACKIE YE, BAM
11
12
   HANS KUMAR, BAM
13
   SANFORD RICH
14
   SEAN BARBER, Hamilton Lane
   JAMES MAINA
15
16 KOMIL ATAEV, TRS
17 MARC RIVITZ, StepStone
18
   BEN CARLIN
19
    MARINA BORSCH
20
21
22
23
24
25
0003
1
              PROCEEDINGS
```

2 (Time noted: 10:21 a.m.) 3 4 CHAIRPERSON PENNY: Good afternoon, 5 everyone. We're going start with the 6 Passport funds March 22 performance 7 review. 8 MS. PELLISH: Good morning, 9 everyone. So, I'm looking at the Passport fund performance for the period 10 11 ending March 31. And I think we're going 12 to spend a lot of time on April 13 performance in a few minutes, which is 14 certainly much more disappointing than 15 March performance. 16 You can see in the numbers on the 17 first slide that developed equity markets 18 in the month of March were positive. 19 Russell 3000 was up about 3 1/4 percent. 20 And the international equity composite 21 was positive as well. Emerging market 22 equity declined during the month of 23 March, as did fixed income. 24 For the month of March we can see 25 that the diversified equity fund was up 0004 1 2.3 percent. That leaves us with a year 2 to date return of negative 6.1 percent. The return of the diversified equity fund 4 was slightly behind its benchmark. 5 is largely due to performance of the 6 domestic equity managers during the 7 market quarter period. 8 If we look at the balance fund total 9 in the month of March, we can see it 10 declined 60 basis points again. And this 11 is due to the fact that 70 percent of 12 this fund is invested in relatively short 13 term investment grade bonds, which 14 experienced a negative period during the 15 the month of March. 16 For the year to date period again, 17 returns of the balanced fund option are 18 negative 4.3 percent. 19 The international equity fund 20 recorded a modestly positive return 21 during the month. The active managers in 22 that sector of the fund actually added 23 value over all. 24 If we look at the year to date 25 period for the international fund again, 0005 1 we see a negative number, like almost 2 negative 7 percent for the year to date period. Remember, that is a composite of

not only developed markets but emerging 5 markets. 6 The sustainable equity fund, which 7 is a large growth fund that is focused on 8 businesses which are taking advantage of 9 opportunities in sustainable industries, 10 had a strong return of 2.6 percent, 11 slightly lagging the large cap growth 12 benchmark for the year to date period. 13 That fund has had negative double digit 14 returns, almost negative 13 percent. 15 Finally, we have the U.S. equity 16 index fund, up about 3 percent. The 17 international equity index was about 18 flat. 19 We can -- I think for the sake of 20 completeness we should look at slide 3, 21 which gives you some detail on the U.S. 22 equity managers. And those numbers have 23 generally been disappointing for the 24 month and the quarter. 25 We see particular underperformance 0006 1 among the growth managers, which is not 2 unusual in the broader manager universe. If you look at the Morningstar peer 4 universes, you would see for the first 5 quarter of 2022 that less than a third of 6 of the large cap growth managers outperformed their benchmark for that 7 8 period of time. 9 It was a very difficult period of 10 time for equity markets first quarter, 11 and a difficult time for active managers 12 in the U.S. 13 So, happy to answer questions. 14 CHAIRPERSON PENNY: Any questions 15 for Robin? 16 (No response.) 17 Okay. April 2022. 18 MR. ALEXANDER: Brace yourself for 19 this one. So preliminary monthly reports 20 for April, we did see a difficult month 21 across the broad equity markets. So high 22 single digit losses in developed markets 23 and mid to high in international markets. 24 Particularly -- was the large cap 25 growth funds in the U.S. as well. For 0007 1 the month we have seen 8 percent loss for 2 the month for the diversified equity benchmark and -- expected to see about 50 4 percent loss as well. 5 There's a bright spot. On the

balanced fund we did see a slightly 7 better performance, and that's because there's a lot of shorter term fixed 9 income in this, so we did see a loss of 10 just over 3 percent. 11 Again, on the international front we 12 did see slightly better performance, 13 although still at a loss of roughly 6 14 percent. We were expecting to see a loss 15 of about 12 percent calendar year to 16 date. 17 I think the best indication of the 18 actual month performance would be the 19 brown -- which is primarily on growth. 20 We did see a loss of 13 percent and for 21 the year 24 percent. 22 I don't know if I can end this with 23 any good news, but if there are any 24 questions, please feel free. 25 CHAIRPERSON PENNY: Any questions 8000 1 for Devon? 2 (No response.) 3 Okay. Seeing none, a capital market 4 update? MS. PELLISH: So, we thought, given 5 6 volatility in capital markets, that it 7 might make sense, although painful, to 8 talk in more detail about what happened 9 during the month of April. I know Mike 10 Haddad and his team will be talking about this as well when they discuss the 11 pension fund performance. 12 13 But we could look at the monthly 14 market review and take a look at the 15 performance --16 Let's move to slide 3 (indicating). 17 And this is, I think this page is 18 useful in terms of large asset classes, 19 so equity and fixed, primarily asset 20 classes for the Passport funds, and the 21 pension fund invested. 22 And we can see them side by side. 23 So if we look at the top right hand 24 corner, the table there, again, we 25 mentioned that in April the broad U.S. 0009 1 equity markets, the Russell 2000 was down 2 almost 9 percent. That brings us to a year to date loss of close to 14 percent. 3 I think it's worth noting, given the 5 very, very strong performance we had in 6 the prior ten years, that the three year return to the Russell 3000 is still a

double digit average annual return of a 9 little over 13 percent -- including this 10 year. Because this is a three year 11 average annual return through April 2022. 12 THE SPEAKER: Focus on that. 13 (Laughter.) 14 MS. PELLISH: Yes, we have at this 15 table for many years talked about the 16 fact that returns were unsustainably 17 strong, and global equity markets, 18 particularly the U.S. equity market. And 19 at some point we were going to live 20 through some pain. And we're living 21 through that right now. 22 But I think, again, it's worth 23 noting that we're seeing on a 3, 5 and 10 24 year average annual basis, double digit

returns for the U.S. equity markets.

25

0010 1

2

3

4

5

7

8

9

10

11

12

13

14

15

16

17

18

19

20

21

22

23

24

25

0011 1

2

3

5

7

For international equity markets you can see on a year to date basis slightly lower losses of 12 percent versus close to 14 percent. But over the annualized period of 3, 5 and 10 years, mid single digit -- that to the U.S. equity market was really the strongest capital market among global --

If we look at fixed income for a moment, the Bloomberg aggregate, you can see that because of rising rates we're experiencing losses even among high quality bonds. So for the month of April we see losses of close to 4 percent, and almost 10 percent losses on a year to date basis.

On an average annual basis over the past two years, at the point where fixed income again measured by the Bloomberg aggregate, which is the universe of investment grade fixed income in the U.S., that return is basically flat over the past five years -- less than 2 percent on an average annualized return.

That's not exclusively the result of

losses during the year to date period, it's really a function of having lived through a period of very, very low interest rates combined with losses on a year to date basis.

We can see on the bottom left hand corner on this slide (indicating), a metric that helps to define and measure volatility in the U.S. equity markets.

10 So this is the volatility index. On 11 average over long periods of time it's 18 12 or 20. We see the spike in April of 13 2020, and we see that volatility in the 14 U.S. equity market is currently much 15 higher than typical.

It's just a metric of what we all are reading about and living through every day.

If we turn to the following page, this provides a little more perspective on U.S. equity returns. We mentioned the growth equities have been, on a global basis, have been particularly hard hit.

24 If you look at the top right hand 25 corner of page 4, and look at the Russell

1000 growth versus the large cap growth in the U.S., you can see for the month of April it's down 12 percent. For the year to date basis it's down just about 20 percent.

If we compare that to the value index, we can see that the same year to date period, again through the first four months of 2022, the Russell 1000 value is down about 6 percent.

Again, there are many explanations. One explanation of this very wide disparity between large cap growth and large cap value, which is actually the largest disparity in over twenty years. So large cap growth has not underperformed large cap value to this extent for the past 20 years.

And one, I think, valid explanation is, as interest rates rise the rate at which you're discounting future earnings of these growth oriented companies rises as well; and that brings the present value of those future earnings down, lowering the value of those stocks.

So many reasons, but that is certainly one factor in the underperformance of growth.

You can see the small cap has also been very hard hit, whether you're talking -- across the board, but particularly getting growth, Russell 2000 growth on a year to date basis is down --

I think it is also interesting to look at slide 4 and look at the bottom left-hand chart. What this chart tries

to do is give you a sense of the impact 12 13 of foreign exchange rate changes, being a 14 U.S. investor investing in non-U.S. 15 markets. 16 So if we look at the MSCI we see 17 Again, that's the developed market that. 18 index ex-North America. And when we talk 19 about returns in the EAFI index we're 20 talking about from the perspective of a 21 U.S. based investor. So we're taking 22 U.S. dollars, we're buying hard currency 23 and buying those securities. 24 So we have, when we look at returns, 25 we have to translate the impact, not only 0014 1 of the company's stock price changes, but 2 also any change in the exchange rate of 3 return. 4 And so, you can see, for example, in 5 the month of April for U.S. dollar based 6 investors, the return was about negative 7 6.4 percent. But the local currency 8 investors, someone who wasn't exchanging 9 dollars for foreign currency and then 10 back into dollars, the return was 11 negative 1.3 percent. 12 So that gives you a sense of how big 13 an impact the appreciation of the dollar 14 has had. 15 Does that make sense? Sort of? 16 So when you're buying foreign stocks 17 you're buying two things. You're buying 18 a hard company and you're buying foreign currency, by definition; right? Because 19 20 you have to buy the company stock in a 21 currency at which its trading on that 22 local exchange. 23 THE SPEAKER: The increase in the 24 value of dollar has helped us? 25 MS. PELLISH: Has hurt the 0015 1 dollar-based investor, because we are 2 buying foreign currency and then 3 exchanging that foreign currency back 4 into dollars every time --5 THE SPEAKER: So when you buy --6 MS. PELLISH: Yes. If the dollar is 7 appreciating you are buying more 8 expensive dollar stocks. That's --9 MR. KAZANSKY: Question. 10 I know a while ago we had had 11 conversations about hedging. And so, if 12 memory serves, we decided that it just 13 wasn't worth the time, the effort, the

risk, whatever the case may be. 14 15 Is this simply something that's 16 going to be temporary and doesn't require 17 reevaluating that decision, or is this 18 now an opportunity for us to decide 19 whether or not -- something we should 20 dive into, or at least look into? 21 MR. HADDAD: By definition we don't 22 know where -- are going. So we start --23 You talk about diversification 24 across asset classes and diversification 25 across geographies. Geographies commonly 0016 1 march to different tunes, and you get 2 exposure to non-dollar currencies. this environment it has hurt us. And in other environments it has helped. 5 If we looked at a 50 year chart of 6 the dollar you would see some swings over 7 time. And do we want to hedge that? It 8 is a very difficult question. We decided 9 I think, BAM, a few years ago, given the 10 complexities of it, given the hedge ratio 11 of that and concerned about all those 12 always different -- we thought it was not 13 a good idea -- at that time. 14 And then long term -- given the 15 events on January 6, given the exposure 16 of our deficit, given what us and Europe 17 did to the Russian central bank -- three 18 and a half billion dollars disappeared 19 from Russia's central bank -- diversified 20 -- if someone can do that to you, why 21 would you (unclear). 22 So I think long term we got less --23 exposure to dollars. I would not --24 (Unclear/inaudible conversation in 25 the board room.) 0017 1 PELLISH: Turning to the next slide 2 (indicating). This slide focuses on 3 fixed income markets. There is relatively little fixed income in the 5 Passport funds, primarily in that 6 balanced fund which is 70 percent short 7 of an investment grade, fixed income. 8 But the movement of rates certainly 9 affects the Passport funds in general and 10 certainly has a very big impact on total 11 returns for the pension fund. So let's 12 spend a minute here. 13 The story of interest rates on a 14 year to date basis is really captured in

the bottom right-hand chart, which is the

15

current -- Treasury yield curve. And you 16 17 can see the top chart, the top line is 18 the yield curve as of the end of April; 19 and the bottom line are yield curves as 20 of the end of December, historical yield 21 curves.

> What you can really see is the move upwards of short term rates and then this very flat yield curve at the longer end of the yield curve.

25 0018 1

2

3

4

5

6

7

8

10

11

12

13

14

15

16

17

18 19

20

21

22 23

24

25

1

2

3

4

5

6

8

9

10

11

12

13

14

15

16

17

22

23

24

So that increase in interest rates has led to losses in April and losses on a year to date basis. We can see those losses in the top right hand corner of the same page.

Interestingly, if you look at high yield bonds, so lower quality bonds, we look at that on the bottom left hand corner, you can see that U.S. high yield bonds have actually done better than investment grade bonds over this recent period. Still negative.

And we're about to move to the only slide with positive numbers, the year to date period.

So the next page. You recall virtually none of this in the Passport funds. A little bit of this in the pension fund. And -- real assets, commodities and real estate. And the notable story here, I think you all are aware of this, is what happened in commodities.

And we can see in the bottom right hand chart on this page that, if we look 0019

> at just the energy index, it was up almost 9 percent for the month of April and up almost 60 percent for the year to date basis.

> So we've all watched energy prices go up and we know the sources, the geopolitical sources for that as well as the macro economic sources for the increase in energy prices. We can see that in the numbers on that slide at the bottom right hand side.

And so, with that I'm happy to talk about anything else, but wanted to give you a little more deeper dive into the global markets during the month of April.

Any questions?

CHAIRPERSON PENNY: Any questions

```
18
    for Robin?
19
           (No response.)
20
           We're speechless. That's the last
     agenda item for the public agenda today.
21
22
           Does anyone else have anything for
23
     the public agenda?
24
           (No response.)
25
           Seeing none, do I hear a motion to
0020
     go into executive session?
 1
 2
           MR. BROWN: So moved.
 3
           CHAIRPERSON PENNY:
                               Thank you, Mr.
 4
   Brown.
 5
           Do I have a second?
 6
           MR. KAZANSKY: Second.
 7
           CHAIRPERSON PENNY: Thank you, Mr.
 8
    Kazansky.
 9
           Any questions?
10
           (No response.)
11
           All those in favor please say "Aye."
12
           (A chorus of "Ayes.")
13
           All opposed?
14
           Any abstentions?
15
           (No response.)
16
           We are moving into executive
17
     session.
18
          (Whereupon, the Board entered
19
     executive session.)
20
21
22
23
24
25
0021
 1
           (Whereupon, the Board returned to
 2
    public session.)
 3
           CHAIRPERSON PENNY: Welcome back to
    Teachers' Retirement System public
 5
     session.
 6
           Susan, would you like to report out?
 7
           MS. STANG: In executive session we
 8
     received some preliminary unaudited
     performance numbers for the pension fund
 9
10
     and a market update.
11
           In executive session we also
12
    discussed some Board administrative
13
    matters.
14
           We received a presentation on
15
     infrastructure investment. Consensus was
16
    reached.
17
           We received a presentation on a
18
     private equity investment. Consensus was
```

```
19
    reached.
20
           We received a presentation on a real
21
    estate investment. Consensus was
22
    reached.
23
           CHAIRPERSON PENNY: Thank you so
24
   much.
25
           Does anyone have anything else?
0022
1
           (No response.)
 2
           Hearing none, do I hear a motion to
     adjourn?
 3
           MR. KAZANSKY: So moved.
 5
           CHAIRPERSON PENNY: Thank you.
 6
           Do I hear a second?
 7
          MS. HIRSH: Second.
 8
           CHAIRPERSON PENNY: Thank you.
9
           Any discussion?
10
           (No response.)
11
          All in favor please say "Aye."
12
          (A chorus of "ayes.")
13
           Any opposed?
14
           Any abstentions?
15
           (No response.)
16
           We stand adjourned.
17
           Thank you, everyone.
18
           (Whereupon, 12:27 p.m., the matter
19
   was concluded.)
20
21
22
23
24
25
0023
1
                     CERTIFICATION
 2
 3
                I, Jeffrey Shapiro, a Stenographic
 4
    Reporter and Notary Public, within and for the
 5
    State of New York, do hereby certify that I
     reported the proceedings in the within-entitled
 7
    matter, on Thursday, May 5, 2022, and that this
 8
     is an accurate transcription of these
 9
    proceedings.
10
                IN WITNESS WHEREOF, I have hereunto
11
     set my hand this 11th day of May, 2022.
12
13
14
15
16
                             JEFFREY SHAPIRO
17
18
19
20
```

23

25