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          NEW YORK CITY TEACHERS' RETIREMENT SYSTEM
                     INVESTMENT MEETING
             Held on Thursday, January 6, 2022
 6
                            Via
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                    Zoom Videoconference
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    ATTENDEES:
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    DEBRA PENNY, Chairperson, Trustee, TRS
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    THOMAS BROWN, Trustee, TRS
12
    DAVID KAZANSKY, Trustee, TRS
13
    CYNTHIA COLLINS, Trustee, Mayor's Office
14
    JOHN DORSA, Trustee, Comptroller's Office
15
    RUSSELL BUCKLEY, Trustee
    ALISON HIRSH, Trustee
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17
    PATRICIA REILLY, TRS, Executive Director
18
   THADDEUS MCTIGUE, TRS, Deputy Executive Director
19 BRAD LANDER, Comptroller
20 VALERIE BUDZIK, TRS
21
    LIZ SANCHEZ, TRS
22
    SUSAN STANG, TRS
23
    STEVE YUAN, Mayor's Office
24
    DEVON ALEXANDER, Rocaton
25
    MICHAEL FULVIO, Rocaton
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   ATTENDEES (Continued)
   ROBIN PELLISH, Rocaton
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 3
    DEV SUBHASH
    SUMANTA RAY, Mayor's Office
 5
   MIKE HADDAD, Comptroller's Office
    JOHN GLUSZAK, Comptroller's Office
 7
    DAVID LEVINE, Groom Law Group
   ENEASZ KADZIEL, Comptroller's Office
   DANIEL HAAS, Comptroller's Office
10
   RONALD SWINGLE
    SHERRY CHAN, Chief Actuary
11
12
    GREG ZELIKOVSKY, Office of the Actuary
13
    SANFORD RICH
14
    ARISTEA AFTOUSMIS, TRS
15
    KOMIL ATAEV
16
   ANTONIO RODRIGUEZ
17
    JIM BROWN
    LIN ZHENG
18
19
   MARC RIVITZ, StepStone
20
   MICHAEL KOENIG, Hamilton Lane
21
    JUSTIN THIBAULT
    GREG LAU, WCAS
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23
    SEAN BARBER
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0003
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          PROCEEDINGS
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                         (Time noted: 10:10 a.m.)
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           MS. REILLY: Good morning. Welcome
 5
     to the investment meeting of the Teachers
 6
     Retirement Board for January 6, 2022.
 7
     I'll start by calling the roll.
 8
           Thomas Brown?
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           MR. BROWN: Here.
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           MS. REILLY: Cynthia Collins?
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           MS. COLLINS: Here.
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           MS. REILLY: David Kazansky?
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           MR. KAZANSKY: Present.
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           MS. REILLY: Brad Lander.
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           MR. LANDER: Here.
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           MS. REILLY: Debra Penny?
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           CHAIRPERSON PENNY: Here.
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           MS. REILLY: We have a quorum.
19
           I think the Comptroller wanted to
20
     give us a greeting.
21
           MR. LANDER: Good morning. It's
22
     such an honor to be with you guys.
23
     think I started by, that I had the honor
24
     to meet with David and Thomas.
25
           But my mom was a lifelong public
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     school teacher and guidance counselor.
 2
     She's actually retired now from the
     public schools that she worked for for
 4
     40 years, although she still volunteers
 5
     to teach mindfulness to kindergartners
 6
     and first graders and second graders who
 7
     have an amazing quidance counselor. Of
     course, she's lucky to have been -- she's
     a lifelong union member and has her
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     pension.
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           And so the idea that I'm stepping
12
     into this role as Comptroller, you know,
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     in that kind of tradition, it just feels
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     very personal to me. Both my kids, who
15
     are now 18 and 22, went pre-K to 12 in
16
     the public school system. (Unclear).
17
           It's almost just like the love that
18
     you have for your elementary school and
19
     what it means; like your kids go in like
20
     anxious, don't know how to read or write,
21
     you know, like don't have any valuable
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     social skills, and out like beautiful
23
     human beings that are extraordinary.
24
           I have an enormous love for the
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     public school system for teachers and all
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                         They just do an
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     the staff in them.
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     amazing job. It's tough work even when
     you're not in a pandemic -- we'll come
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back to the pandemic in a minute. It is not the most highly compensated work in the world. We'd be shocked to learn for where it is relative to what society ought to -- write it down -- most people -- what are the most important things, like the professions we should value, just no doubt teachers would be way up at the top of the list.

But at the very least, we say, you know what, go on time in your schools. We're going to pay you okay. There will be some other benefits. You're going to have a good pension to retire on. But that's a pretty sacred trade that we make, and I really feel it very personally. So to get this done in here with all of you and make sure we're guaranteeing that for the long term so that all of your members who are already retired and that are working today know that they're (uncleark feeling like it's 

a heavy but also really wonderful responsibility (unclear). I'm super excited to step into it with you.

I know -- and it's no secret -- that we are in the process of figuring out how to strengthen the relationships of trust and support and work together between the Comptroller's Office and the Bureau of Asset Management and the labor trustees on the funds.

And I'll just say a welcome back to like the -- it's our job to try to figure out how to do it as well together as we possibly can. And I know we share a common goal; right? Like the goal is how to invest in the resources that we have most efficiently in a way that guarantees the most value for the long term. And that's what we all want.

And I really believe we'll be able to put some of the history and of the some politics aside and say, let's roll up our sleeves together and find the best ways to do that.

So that's why I wanted to be here

1 today in person. I'm really happy that
2 Mike Haddad as CIO is here today in
3 person. I'm thrilled that Alison Hirsh
4 agreed to be the trustee (unclear) for
5 pensions, as you know. She is somebody

with a deep history both in the labor 6 7 movement and in government, including 8 some experience working on schools. So 9 feel really lucky there. 10 And we've all learned a lot from John Dorsa. So we're so delighted that 11 12 he -- (Laughter.) So whether good or bad 13 -- well, I don't know. 14 (Talking over each other.) 15 MR. LANDER: I know that several of 16 you have worked in the Comptroller's 17 Office. So that's fun too, and there's 18 a good long tradition of collaboration, 19 and we're looking forward to both 20 continuing that long history and 21 confronting some of the more recent 22 challenges just as honestly and openly as 23 we can so we achieve that goal of finding 24 good investments, making wise decisions 25 together, thinking about the long-term as 8000 1 fiduciaries both as collaboratively and responsibly as we can. 2 3 Great to be here. I'm not going to stay the whole time, but I will say for a 4 5 little bit. Then you'll be obviously in 6 good hands with Alison and John. 7 CHAIRPERSON PENNY: Thank you. 8 And Alison, we welcome you to our 9 board family. 10 I see on Zoom we have our actuary Sherry Chan. And it is with great 11 12 sadness I say that Sherry is leaving her 13 position tomorrow. So today is the last 14 time that she will be with us. We thank 15 her for her service. She has been a 16 wonderful actuary on behalf of New York 17 City. We appreciate everything that she 18 has done for us, and she is back. 19 We appreciate you, Sherry Chan. 20 thank you for everything. We wish you 21 only wonderful things in your new 22 endeavors. With Sherry leaving, we have 23 Mike Samet who will be the deputy who 24 will be taking her place while we start 25 our search for the New York City actuary. 0009 1 So Sherry, if you want to say 2 anything, we're happy to hear from you. 3 MS. CHAN: Thanks. I just want to thank everybody on this call, because I 5 think as I look back to my almost seven 6 years in New York City and it's been

incredible. I've learned so much, and my

career has catapulted to levels that I 8 9 wouldn't even have dreamed of before this 10 opportunity. 11 And I thank everybody here because 12 everybody did do a part in helping me 13 succeed in my role; that everything that 14 I've learned to date and achieved to 15 date, everybody had to do with that 16 because it was everything from my staff 17 helping me to deliver the materials that 18 the board needs for me to be able to 19 present with such accuracy and confidence 20 that the work is of great quality. 21 So I thank my staff, from myself 22 that's not here right now -- I thank the 23 board members because no pain, no gain, 24 right. 25 (Laughter.) 0010 1 You challenged me to do my utmost 2 best in the board room, and every 3 experience that you have given me is 4 something that will help me in my future, 5 and then just the efforts of some beyond that too. I know Rocaton is here, we've 7 worked together on some projects 8 throughout the term that I've been here. And again, I just thank everybody, and I hope to keep in touch. And I'm 10 11 always going to be on LinkedIn. So you 12 can definitely find me there. 13 Congratulations to the new 14 Comptroller. Sorry our terms didn't 15 overlap that much, but I look forward to 16 observing you and your success from the 17 from sidelines. 18 MR. LANDER: And thank you for your 19 service to the City. I've heard, you 20 know, whatever. But we really, really 21 appreciate it. Good luck in the future. MS. CHAN: Thank you. 22 23 CHAIRPERSON PENNY: Thank you, 24 Sherry. 25 (Applause.) 0011 1 MS. REILLY: Let's take the time to 2 point out that you have those calendars 3 for each of the board meetings, both the investment meetings and the regular 5 meetings. I want to point out that the 7 Teachers' Retirement System, both the 8 investment meeting and the board meeting,

regular meetings, does not meet during

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the summer months, July and August.
11
     come back in September, and that's when
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    the first -- (unclear) the calendar
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     (unclear) list -- will make sure you have
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     the calendar starting in September 2022
15
     for the next year for the meetings of the
16
    board. I just wanted to point that out.
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           So here are the dates; so you should
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     have them down because they are
19
     (unclear).
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           CHAIRPERSON PENNY: Thank you,
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     Patricia.
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           So we'll start off with Mike Haddad,
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     who is the interim CIO for the Bureau of
24
     Asset Management.
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           Mike, do you have anything for
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    public agenda?
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           MR. HADDAD: I do not.
           CHAIRPERSON PENNY: So I thank you.
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     Have a Happy New Year.
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           As we go to our Passport Funds.
           Robin Pellish, do you want to start,
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 7
     or is Mike going to start with us?
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           MS. PELLISH: Mike Fulvio will
 9
     begin. Thank you.
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           MR. FULVIO: Good morning, everyone.
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     Happy New Year.
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           We'll begin with the November
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     performance for the Passport Funds.
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     Everybody should have received that in
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     the materials that were circulated.
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           And it feels like a while back now,
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    but as you will recall, November was a
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     down month for equities in the U.S. and
19
     abroad. What started out as a positive
20
    month for many markets changed when news
21
    of the discovery and the spread of the
22
    Omicron variant became really a dominant
23
     headline going into the end of the month.
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           So what we saw was in the last
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     couple of weeks those early gains were
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    more than erased, and the U.S., for
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     example, ended the month down about
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     1.5 percent, emerging markets down about
     4 percent, and non-U.S. equity markets
 5
     down about 4.7 percent.
 6
           And what we saw in the Passport
 7
     Funds, as you'd expect, largely reflected
     the returns we saw in the markets for
 9
     that period.
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           So you can see at the top of the
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     page here is the diversified equity fund
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was down about 2.4 percent during the 12 13 month, roughly in line of slightly behind 14 its benchmarks. 15 What I will note there is what we 16 did see was mixed results among the 17 active equity managers for the month. 18 It's still quite strong year to date. 19 That's certainly a positive there. 20 For the balanced fund, that fund you 21 can see for the month is down about 22 1 percent, the international equity is 23 down 4.5 percent. 24 Beyond that, the sustainable equity 25 fund -- November was a tough month for 0014 1 that fund which lagged its benchmark by almost 200 basis points. But what you 2 will note as well is still year to date through November, that fund was still ahead by nearly 400 basis points. 6 And then for the index funds below 7 that, as you'd expect, tracking their benchmark quite closely with the U.S. 8 9 index fund, down about 1.4 percent, and 10 the international equity index fund down 11 about 4.3 percent. 12 I'll pause there and see if there's 13 any questions on November before we make 14 comments on December. 15 CHAIRPERSON PENNY: Any questions 16 for Mike for November? 17 Hearing none, ready for December. 18 MR. FULVIO: Great. Everyone should 19 have that one-pager with the preliminary 20 market performance for December. 21 And Robin is going to go into a lot 22 more detail about what we saw in the 23 markets for the full year. 24 But I'll just comment, at a high 25 level, December was a much better month 0015 1 as you can see from the numbers in the 2 first column on this page. So market 3 returns positive in spite of continued concerns around the surge in the Omicron 4 5 variant and the surge in case numbers. So the U.S. equity market as a whole 7 was up almost 4 percent in the month of December, and abroad we saw over 5 percent for developed equity markets, 10 developed ex-U.S., and emerging markets 11 up almost 2 percent. So pretty strong 12 numbers. 13 Robin is going to go into the full

14 year. So I won't read those off the 15 page. But I will say, given what we saw 16 earlier in the year and the strength we 17 saw in December, it was a pretty good 18 year for equities across the board with 19 the exception of EM, which was down about 20 2-and-a-half percent. 21 So I will pause there and see if 22 there are any questions. Otherwise, I 23 will turn it back to the Chair. 24 CHAIRPERSON PENNY: Any questions 25 for December? 0016 1 (No response.) 2 Hearing none, I guess, Robin, we're 3 ready for you. MS. PELLISH: Good morning, 4 5 everyone. Thank you. 6 We thought that given that we're 7 having this first meeting of 2022 so 8 shortly after year end that it might be 9 helpful to provide some retrospective of 10 the last calendar year. So much news, so 11 much information being thrown at us all 12 year long -- obviously not just about the 13 markets but about the economic 14 developments, about the pandemic -- that 15 we thought it might be useful to take a 16 few minutes and look back at the capital 17 markets over the past 12 months. 18 So if we can turn to the first slide 19 in that deck, the capital market up 20 reviews, we were just looking at calendar 21 year returns for 2021 in this first bar 22 chart. 23 And you can see looking at the S&P 24 500 as the proxy for U.S. equities. 25 largely, a very large cap, U.S. equities. 0017 1 You can see almost up 29 percent for the 2 calendar year non-U.S. developed market 3 equities up about less than half of that, of 12 percent. 5 As Mike mentioned, emerging markets 6 equities had modest losses for the 7 calendar year. So distinct difference 8 across geographies during 2021 9 (indicating.) 10 We can look at the fixed income asset classes where there's core fixed 11 12 income, long duration Treasury, long 13 duration credits. Investment grade fixed 14 income had incurred modest losses during 15 the year as we saw interest rates rise.

With below investment grade high yield, as the spreads came in, we saw modest increases, a return of over 5 percent for the U.S. high yield asset class.

And then if we look to the right of the slide, you can see that REITs had an extraordinary year, up 43 percent as folks were looking for yield alternatives as inflation fears, and increased

valuations.

And we can also see the commodities whereby energy had a strong year in 2021.

So again, takeaway, very strong U.S. equity markets, double-digit returns for non-developed -- for developed non-U.S. equity markets, investment grade fixed income, modest losses as we saw from interest rates rise.

If we go to the next slide (indicating), of course the constant drum beat of inflation has been present in the news for at least the last half of this year. And we ask see U.S. — on the left-hand side of this slide, we can see calculation of U.S. CPI year over year, and we can see that the U.S. in 2021 experienced its highest level of inflation in nearly 40 years, as headline inflation CPI increased to almost 7 percent as of the end of November.

So significant increases we can see in inflation. We can see that outside the U.S. there were pockets of even higher inflation, particularly in some of

the emerging markets. In Brazil almost 11 percent, Mexico over 7 percent, and Russia over 8 percent.

So this continues to be a strong factor in the capital markets. Our expectation -- when I say "our," Rocaton is part of Goldman Sachs, as you know. So Goldman Sachs's expectation continues to be that while more persistent than expected, inflation is expected to moderate over the next 12 to 24 months as some of the supply chain bottlenecks, unwind.

If we turn to the next slide, the other big news in capital markets during 2021 were the movement of interest rates, moving higher. We can see on the

18 left-hand side of this slide, ten-year 19 Treasury yields. And as economies reopen 20 following 2020's (unclear) pandemic, you 21 can see that there is an increase in 22 interest rates for most developed market 23 countries.

24 So we see on the right-hand side not 25 only U.S. rates -- this is an interesting 0020

bar chart on the right-hand side. You can see at the start of the year ten-year Treasury yields were at 92 basis points, they rose to a peak of 1.7 percent, fell to a little below 90 -- a little above 90 basis points, and then ended the year at 1.5 percent.

We see interestingly in the right-hand side of this bar chart, negative yields continued -- despite the increase in government bond yields, in some of the developed markets such as Germany you can see that we continue to have absolute -- this is not real yields, this is nominal yields. In Germany nominal yields continue to be negative as of year end.

If we turn to the next slide (indicating) -- and I'm going fairly quickly, would welcome any questions or comments as we go through these slides.

So increases in interest rates, as you can see on the next page, have delivered negative returns, for core fixed income investment grade fixed

## income.

So we're using U.S. aggregate bond index as the measure of investment grade bond returns in the U.S. And as we note on this slide, the loss of 1.5 percent for the year places the aggregate as just the fourth calendar year loss for this index since its inception in 1976.

So it's a very unusual year in investment grade fixed income, but still fairly modest losses, minus 1.5 percent. And again, over the history of the index, which began in 1976, this is just the fourth calendar year loss for that benchmark.

16 If we turn to the next slide, lots 17 of small type on the slides, and I'm 18 certainly not going to read it to you. 19 But I thought it was very interesting just to put the ten year Treasury yield in perspective. So this shows the ten-year Treasury yield back to the late 1700s. And of course, I'm not sure that that's a particularly relevant comparison as we go back hundreds of years.

But you can see the historical lows that we're facing as we're awash in this sea of liquidity and a very accommodative monetary and fiscal policy.

So we continue to be -- despite the increases in interest rates over calendar year 2021, we continue to be at historical lows, which has obviously significant implications for our outlook for the pension fund and the Passport Funds fixed income holdings.

And we can talk about outlooks at the next investment meeting. But I thought that this was an interesting way to put current government bond yields in historical context.

 $\mbox{\sc SPEAKER:}$  There were many more panics before the creation of the Federal Reserve.

MS. PELLISH: Yes; good point.

If we go to the next slide, I just want to briefly note what's happened to commodities over 2021. So we can see that price of oil moved up sharply during the year. So while oil markets were up,

pending what measure of oil markets you use, about 50 percent, including natural gas.

Precious metals declined. Despite concerns over inflation, which is interesting because the common wisdom is those fears, as inflation expectations rise, precious metals prices go up. But that did not happen during calendar year 2021, and we can see some other commodity price increases.

But again, major message here is rising price of energy drove commodity indexes higher during 2021.

And then on the next slide, we note some other benchmark returns that I thought might be interesting, and we talk a little bit about dispersion of U.S. equity stock prices.

So if we look on the left-hand side of this slide (indicating), we can see

that some other market we read about --23 Bitcoin, for example, gained 60 percent 24 during the year. We've already talked 25 about crude oil. We can see that large 0024 1

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capped stocks outperform smaller capped stocks.

Again, towards the end of this list of benchmarks, we can see that our investment grade bonds incurred modest losses due to interest rates increasing.

I think it's interesting to note that the dispersion of returns within the U.S. stock market was actually slightly below average for 2021.

But the largest capped growth stocks were the FAANG stocks. There's a typo here. It should be FAANG. So when you think about the leading tech stocks --Facebook, Amazon, Apple, Netflix, Google -- they continue to dominate the U.S. equity market gaining about 37 percent. And because of their stock price increases, those five stocks within the S&P 500 representative almost a quarter of the aggregate market value of the S&P 500. So continued dominance of those large capped growth stocks, although in the fourth quarter we see a rotation towards value stocks. 0025

And then finally, I wanted to note private markets. I'm sure we'll be hearing much more about private market slows and results as the board reviews pension fund results for 2021. But I thought that this discussion would not be complete without reference to private markets and just the record-breaking levels of transactions and valuations particularly in private equity during 2021.

So again, I'm sure we'll hear much more about the details of private market results for the pension fund in subsequent meetings.

With that, I'd like to conclude my remarks. You have a lot more detail in the appendix, but I'm happy to entertain any questions or comments.

CHAIRPERSON PENNY: Questions for Robin?

22 (No response.) 23

CHAIRPERSON PENNY: Thank you.

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was great. Appreciate it.
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          MS. PELLISH: My pleasure.
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           MALE SPEAKER: I'm resisting my
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 2
     temptation to ask about the panic of
 3
     1873/1893.
 4
           (Laughter.)
 5
           CHAIRPERSON PENNY: I think we are
    finished with public session. If there's
 7
     anyone else, the people who joined us in
     public session, we thank you.
 9
           We will be back after our executive
    session. And Happy New Year to all of
10
11
     you who decided not to rejoin us.
12
           Do I hear a motion to go into
13
     executive session?
14
           MR. BROWN: So moved.
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           CHAIRPERSON PENNY: A second?
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           MR. KAZANSKY: Second.
17
           CHAIRPERSON PENNY: All those in
    favor of the resolution please say "Aye."
18
19
           (A chorus of "Ayes.")
20
           CHAIRPERSON PENNY: Any opposed?
21
           (No response.)
22
           CHAIRPERSON PENNY: Any abstentions?
23
           (No response.)
24
           CHAIRPERSON PENNY: Motion carries.
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           We're moving to executive session.
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            (Whereupon, the Board entered
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 2
     executive session.)
 3
            (Discussion off record)
 4
           (Whereupon, the Board returned to
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    public session.)
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           CHAIRPERSON PENNY: We are back.
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           Susan Stang, would you like to
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    update us?
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           MS. STANG: Absolutely.
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           In the executive session we received
11
     an update on a contract matter. We
12
     received presentations on two private
13
     equity investments. Consensus was
14
    reached.
15
           We received an investment
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    presentation of one real estate
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    investment where consensus was reached.
18
           And we received an update on certain
19
     transition events.
20
           CHAIRPERSON PENNY:
                              Thank you.
21
           Does anyone else have anything for
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    public session?
23
           (No response.)
24
           CHAIRPERSON PENNY: Okay. Hearing
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    none, do I hear a motion to adjourn?
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          MR. BROWN: So moved.
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          CHAIRPERSON PENNY: Thank you, Mr.
   Brown.
 4
          Do I hear a second?
 5
          MS. HIRSH: Second.
 6
          CHAIRPERSON PENNY: Thank you,
 7
    Ms. Hirsh.
 8
          All in favor, please say "Aye."
           (A chorus of "Ayes.")
9
10
          CHAIRPERSON PENNY: A happy and
11
    healthy new year to all.
12
           (Whereupon, at 12:27 p.m., the
13
    matter was concluded.)
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0029
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
 6
     reported the proceedings in the within-entitled
 7
    matter, on Thursday, January 6, 2022, and that
 8
    this is an accurate transcription of these
 9
    proceedings.
10
                IN WITNESS WHEREOF, I have hereunto
11
     set my hand this 18th day of January, 2022.
12
13
14
15
16
                             JEFFREY SHAPIRO
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