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NEW YORK CITY TEACHERS' RETIREMENT SYSTEM
INVESTMENT MEETING
55 Water Street
New York, New York
March 1, 2018

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A T T E N D E E S:

JOHN ADLER, Chairman, Trustee
THOMAS BROWN, Trustee
DEBRA PENNY, Trustee
SUSANNAH VICKERS, Trustee, Comptroller's Office
DAVID KAZANSKY, Trustee
PATRICIA REILLY, Teachers' Retirement System
CYNTHIA COLLINS, Mayor's Office
SUSAN STANG, Teachers' Retirement System
RON SWINGLE, Teachers' Retirement System
MICHAEL FULVIO, Rocaton
ROBIN PELLICH, Rocaton
SHERRY CHAN, Actuary
THAD McTIGUE, Teachers' Retirement System
VALERIE BUDZIK, Teachers' Retirement System
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LIZ SANCHEZ, Teachers' Retirement System
MELVYN AARONSON, UFT

REPORTED BY:
GINAMARIE DeMARCO

PROCEEDINGS

MR. ADLER: Good morning, everyone. Welcome to the Teachers' Retirement System of the City of the New York investment meeting for March 1, 2018. Patricia, will you please call role?
MS. REILLY: John Adler?
MR. ADLER: I am here.
MS. REILLY: Thomas Brown?
MR. BROWN: Here.
MS. REILLY: David Kazansky?
MR. KAZANSKY: Present.
MS. REILLY: Debra Penny?
MS. PENNY: Here.
MS. REILLY: Raymond Orlando?
MR. ADLER: Not here. He's supposed to come in late.
MS. REILLY: Susannah Vickers?
MS. VICKERS: Actually here.
MS. REILLY: We have a quorum.
MR. ADLER: Thank you very much. And I'll pass it over to our friends from Rocaton to take us on the reporting.
MR. FULVIO: Good morning, everyone. So

we thought we would start off by just very

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quickly reviewing 2017 now that the quarterly reporting has been completed. So I'm in the larger book. And we don't have to flip pages, but I was just going to note was the performance for each of the passport funds for the 2017 calender year. The Diversified Equity Fund with the strong markets returns in the markets we saw last year. That fund was up about 21.1 percent. Roughly in line with the return of the Russell 3000 index.

As you know, the fund also includes allocations to non-U.S. equities and defensive strategies. The benchmark we used, which included those asset classes goes up about 21.8 percent. So while the fund was in line with the broad U.S. market, it lagged a little bit that Hybrid benchmark.

The -- yes, worth noting the particular the five year number for the Russell 3000 was up about 15.6 percent. So even when you look out beyond last year, really strong numbers for the last five years, in particular.

So during that time period, the overall fund returned 13.4 percent. So still a strong

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return. Though somewhat lagging the U.S. which over that longer term time period, you'll recall did continue to out perform non-U.S. developed in emerging markets.

So that allocation within the Diversified Equity Funds might have helped you last year, but over the longer term, that five-year time period the fund lagged the U.S. because of that.

And when you look at the different components within the Diversified Equity Fund, the defensive composite last year even though it didn't it keep pace with the U.S. equity markets, we're still up about 14 percent. So you saw the defense composite really capture a lot of that upmarket more than three quarters of that upmarket that we say in the U.S., which was certainly favorable.

When we look at the international portion -- last year the international portion our composite of the Diversified Equity Fund, that was up about 27 percent last year. And that was enough to outpace the custom benchmark you have in the international equity space, which was up about 26.6 percent.

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So again, these are very large numbers and why in the first meeting of the year, last month, we talked about, again, some of the concern that we approach a market when we see numbers that are stark and so positive. It was probably the day after the meeting in February, that the market volatility really picked up where we started to see some more interesting numbers that we will talk about for sure.

Maybe very quickly I'll comment on the other passport funds. So Variable B, you're recall at the end of last year began to undergo a transition to the balanced fund.

So we weren't going to comment on the total performance of what was the bond fund just given that it was the full years worth of performance. But what I will comment on are the other passport funds. There's information on the those beginning on page 13. And really what I highlight there, as what I mentioned before, the international composite -- with the international composite. The overall international funds was up about 26.8 percent last year. Out paced a custom benchmark, which

is up about 26.6 percent.

I commented earlier on the five-year time period for the Diversified Equity Fund. If you look at the three year number for the international equity fund, that fund is up about 9.5 percent over the last three years. Roughly in line with the custom benchmark.

And though it's not on page 13, I'll comment on the international equity funds five year number which is about 8.6 percent.

So again, really strong numbers over that long five year time period, relatively longer than five year time period.

The inflation protection fund during 2017, that was up about 4.1 percent. That was enough to out pace its custom benchmark up about 3.1 percent and in inflation last year. Last year it was up about 2.1 percent.

Over the longer term, that funds had more muted performance. The fund as a whole has been 1.6 percent over the last five years. That's enough to out pace it's custom benchmark which was roughly a flat return over that time period.

CPI over the last five years has averaged

about 1.4 percent. The Socially Responsive

Equity fund, last year that fund was up about 18.3 percent. Compared to the S&P 500, that was -- there was relative underperformance there. The S&P was up about 21.8 percent. So while the Socially Responsive fund did keep up with the high double digit team returns didn't quite keep pace with the S&P 500.

Over the last five years, that fund has returned about 14.7 percent and that's lagged the S&P, which was returned about 15.8 percent.

So I'll pause there and see if there are any questions on how the funds have done in the last year and longer term but we can dive in for more recent numbers.

MS. PELLICH: Could I just make one comment? If we flip back to page 3, and just focus on some of these numbers, particularly for the U.S. equity market. So you heard a lot of numbers from Mike about the fund and the passport funds and their benchmarks. But we are going to have a discussion about Smart Beta strategies today. And there's going to be another discussion about Smart Beta tomorrow.

And part of the rational for the Smart Beta discussion and part of -- the premise really behind BAM's interest in adding these strategies to the pension fund is the question about, what level of risk are we taking on at this point in the cycle in capitalization weighed benchmark. So the S&P 500, the Russell 3000 are capitalization weighed benchmarks. Meaning the largest caps stocks are the biggest weights.

And if you look at some of these numbers Russell 3000, the S&P 500 average returns close to 16 percent for the last five years.

Fairly high PE ratios. Yes, there's economic growth, but we've had sustained -- pretty sustained above expectation returns. And at some point this is going to turn over. And we have no crystal ball. No one has a crystal ball. And it's not clear whether it will turn over abruptly, or whether it will be just a slow degradation of returns. But this level of return of is clearly unsustainable. And so that's why we diversify it to things like non-U.S. and emerging markets. But also into strategies that aren't capitalization weighted.

So one of -- the basis for actively managed strategies and -- which Smart Beta is a category of actively managed strategies -- is the capitalization weighed benchmarks have done so well, and over this time period better than most managers in both style categories. That maybe we should be looking at something a little bit different for the next three to five years, because it may be the case that these capitalization -- these largest cap stocks are so fully priced that the expect of return going forward over the next three to five years may be lower than we want. And I think for our outlook for the ten-year period our U.S. equity outlook is --

MR. FULVIO: 4.7 percent.

MS. PELLICH: So a little bit under 5 percent. So we're trying -- so the Smart Beta strategy all of the active management recommendations are based on the premise that U.S. equity returns are going to be lower over the next five years -- or likely to be lower over the next five years than they were over the past five years. And can we do something, even

around the edges that marginally approves that single digit return.

MR. ADLER: Any other questions or comments on the performance report?

[No response.]

MR. ADLER: Do you want to talk about February for a minute?

MR. FULVIO: So maybe -- let me spend two minutes just on January.

MS. PELLICH: Let's just enjoy the moment.

MR. FULVIO: So as you'll recall when we were here last month, we talked about January markets continued to be gang busters. The U.S. equity market as a whole is up about 5 and a quarter percent. The Diversified Equity Fund during the month of January was able to keep pace about 5 percent.

So another strong month on the heels of what's been a very strong environment as we've discuss. What contributed to the 5 percent returns? Well, there were strong returns in non-U.S. markets as well as U.S. equity markets. Both of those have contributed to the performance of the Diversified Equity Fund, the

defensive strategies composite also was up about 3 percent.

So while that detractive a little bit from the relative results of Variable A, that's certainly -- the positive performance there is certainly helpful.

Taking a step back I'm going to look a little bit at some of the other funds. You can see the balance funds was one of the newer funds -- which was the new fund that lanched the beginning of the year. That was up about 1.26 percent in the month of January. The international equity fund up about 5 percent. So again, really strong returns.

The Inflation Protection Fund marked there was a little bit softer in January. You'll recall that that fund hold a variety of asset classes including commodities, banks loans, tips, real estate securities. And so there the market was a little bit more mixed with the modestly positive return with about 0.17 percent.

And then finally, the Socially Responsive of Equity Fund, that was up about 5 and half

percent in January. Where the S&P was about 5.7 percent.

So we got the year started off on the right foot and then it was beginning, I want to say the first day of some really noticeable market volatility was February 2nd.

So you right recall big headlines with regard to vicks flowing through what would have been really quiet levels for quite some time. And if you -- it was interesting, there's was a lot going on in the first two weeks of February. And that you had -- let's say you fell asleep at the end of last year, and woke up in the middle of February, it would have been as nothing had happened.

So it was very interesting what were down days to the tune of 3, 4, 5 percent in some markets. But at the end of the day, if you looked back at the beginning of the year there wasn't much to write home about.

So this report which -- the preliminary report, you'll note that it's actually through Tuesday. But I'll comment a little bit on how yesterday impacts this.

The main take away was, yesterday was a down day to the tune of 1 percent to 1.1 percent depending on which market you looked at. So through Tuesday the U.S. market was down about 2.6 percent. Up to date, February, figure about 3.6 percent. But if you look at calendar date through Tuesday market had already been up -- or continue to be up about 2.5 percent. So take about a percent off of that number.

The Diversified Equity Fund which obviously includes U.S and non-U.S. and that defensive strategies composite the defensive, we would have expected to have certainly helped protect in February. Through Tuesday we're showing a down number of 1.9 percent.

So providing some of that that cushion on the downside. Through Tuesday the Diversified Equity Fund would have been down about 2.8 percent and perhaps a little higher because of the down day yesterday and hopefully the defensive will continue to protect yesterday as well there.

Calendar year to date to Tuesday, the Diversified Equity Fund would have been up about

2.2 percent. So again, you could adjust that a little in your mind for another down day in the equity market yesterday.

What I'll highlight here is the balanced fund benchmark, which you'll see was down about 1.1 percent through Tuesday. And roughly flat year to day through Tuesday.

Developed equity markets, EAFE market. You can see it was down about 3.8 percent in February, with a calendar year to day return of positive of about 1 percent. That's probably more like zero or flat today or yesterday rather.

And merging equity markets were actually down about 2.8 percent. So a little bit less than developed markets so far in February. And more positive return to date of about 3.4 percent.

EM was also down yesterday by about 1 and a quarter percent. So you can haircut that one as well.

MS. VICKERS: I have a question, Mike. You had mentioned how you at the beginning of February when things were happening with vicks

and going crazy. Now, where is that or other indicators becomes more volatile. What's happening with those other indicators?

MR. FULVIO: So the Vicks continues to be at an elevated price level.

MS. VICKERS: Increasing?

MR. FULVIO: I wouldn't say it's at an increasing price level. It got to a point where it increased and then over -- where it typically trends is that it spikes up very quickly and then sort of tails down.

MS. PELLICH: But it's at an elevated level relative to a very low level.

MS. VICKERS: Where's it's been for the past couple of years.

MR. FULVIO: Yeah.

MS. PELLICH: So it's moving back into more typical levels if you look longer term history.

MS. VICKERS: Thanks.

MR. ADLER: I just have a question about CPI. The January report shows CPI up 50 basis points, which is a lot for a month. And I don't know if what -- but, is inflation seriously,

like -- I know interest rates are rising. Is inflation going up like that kind of number?

MR. FULVIO: It's -- yeah. I think it's had something to do with the way they -- every time they report return, they analyze it. So I have a feeling.

MR. ADLER: So that is an annual --

MR. FULVIO: Yeah, that will be analyzed a lot more.

MS. PELLICH: Inflation is running about -- CPI is running about 2 percent.

MR. FULVIO: That might be --

MS. PENNY: Seasonally.

MR. FULVIO: -- seasonally adjusted, yeah. This is seasonally adjusted for all urban consumers.

MR. ADLER: Okay. Whatever.

Any other --

MR. FALVIO: It's probably a half of percent on the 2 percent, is what you would see.

MS. REILLY: What does that mean?

MR. ADLER: I don't know what that means.

MR. FULVIO: So if CPI runs at annualized level of about 2 percent, the mark in January

increased by a half percent. So half percent on 2 percent.

MS. PELLICH: So it's running at 2 and half percent?

MR. FULVIO: No. It's a percent of a percent. You're not getting --

MR. ADLER: Half percent of 2 percent is, like, nothing.

Okay. All right. Any other questions? Comments?

[No response.]

MR. ADLER: Great. Thank you.

Next item is the Divestment Policy.

MS. BUDSIK: Okay. So everyone should have a copy of the post final policy in front of them. I point one change since the document was distributed, I believe on Monday. And this was is just to -- I think it tightens the policy. It's not subsultive change in the sense of what the board was intending.

So it's in the scope section Initial C. As it was to address a point that John raised that some of our, what we would consider, public market managers, or managers where we control

the investment guidelines, they can hold private security. We're talking particularly in the High Yield area.

So just reflect that those agreements, those types of relationships with mangers would be covered by the policy. That's all this change is intended to catch.

MR. ADLER: I just want to give an example particularly for Susannah. For example, this board has divested from gun manufactures, and there is a very large gun manufacture that is not publically traded. Who is was formally known as the -- as Freedom Group but is now called Remington Outdoor Company. And it's owned by Cerberus, a private equity firm. And it's is possible and I don't know this for a fact that that company issues publically traded debt that high yield managers could buy and own. But it probably doesn't appear on the list of specific securities that we exclude from our portfolio.

So I think we want to be clear that we want to executed the securities of those companies as well. Even if they're not

publically -- even if the equity is not publically traded. But they may have publically traded debt. So I think that's something actually want BAM to look into for existing conclusions.

MS. PELLICH: I believe they did look at that issuance of gun manufactures, as well as publically traded equity.

MR. ADLER: For High Yield for example to ensure --

MS. PELLICH: I don't know --

MR. ADLER: -- because --

MS. PELLICH: -- what was written into the

guidelines, but the list included debt securities too.
MR. ADLER: Well, it says that securities but the list of companies, I don't think it includes privately owned like Freedom Group/Remington Outdoor Group. We can check.
MS. VICKERS: Yeah, we can double check.
MR. ADLER: And there may be instances in other industries. Like, that's one that, you know, I know about. I mean, I've looked at it. Thinking about the High Yield, but since we're
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doing the High Yield tomorrow. And there may be coal companies, there may be privately owned companied in the industries that we have divested from that we want to ensured that they didn't show up, you know, in any part that publically trade debt portfolios.
MS. VICKERS: And I think with some of our new systems, we're able to kind of take a deeper look and slice it and dice it in that way.
MR. ADLER: Yeah, that would be good. Great.
MS. VICKERS: If I could just reserve the right to come back to this?
MS. BUDSIK: Sure.
MS. VICKERS: You know, like I think we should try to move ahead with discussing and maybe approving a policy. But for some reason, Scott Evans or, if it affects High Yield, Wesley, has a question, we might have to come back to this point.
MS. BUDSIK: Okay. So, yeah, this was on for discussion for today. The idea would be if everybody is comfortable with the policy, we would bring it to the board meeting.
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MS. VICKERS: Okay.
MR. ADLER: Wait a minute --
MS. BUDSIK: But the regular board meeting. If between now and then, you have any concerns with this, by all means.
MS. VICKERS: And maybe we can talk about it tomorrow if there is.
MS. BUDSIK: Okay.
MS. VICKERS: Thank you.
MR. ADLER: Anything else on Divestment Policy?
[No response.]
MR. ADLER: So let me just ask, typically we would, at the investment meeting, see if there's consensus and then recommend it for

action at the board meeting. Should we hold off on that given that this is a new little change that one or more trustees might come back with comments on them, or should we go ahead and do that pending leaving, you know, leaving the trustees the right to come back in advance of the board meeting? What's your recommendation?

MS. BUDSIK: It's up to the board. But I think you would have consensus with --

MR. ADLER: With that caveat.

MS. BUDSIK: -- with that caveat.

MR. ADLER: So let me see, is there consensus with that caveat?

MS. VICKERS: Yes.

MR. ADLER: Thank you. Thank you for all the work on this. Both Susannah, Valerie and the other trustees as well.

Okay. I think that takes us to our educational topic for today and tomorrow. And we have better be very smart about Smart Beta by the end of day tomorrow.

MS. PELLICH: I think everyone has a deck. This is the same deck that was e-mailed.

So the reason we thought it might be useful to talk about Smart Beta and capital investing as an educational topic today -- well, a couple of things. One is, I think it fits into what we're trying to accomplish. At least part of the agenda for -- just to talk about something that's being -- that is a topic of interest to large institutional investors and that is being pursued by at least some large institutional investors, in which the board

might be interested in learning about.

And secondly, because this deck focuses at a higher level in discussing Smart Beta and Factor-Based Investing.

Tomorrow I think what you'll see in BAM's presentation is more a focus on implementation alternatives. And what tried to do today, is to talk about the Smart Beta as an active management strategy and what are the pros and cons of the concept. And why are some investors embracing it and others not embracing it.

So that's the prospective that we're approaching this discussion with today.

The thing that I wanted to say that I think is the most important thing to know is that Factor-Based Investing also known as Smart Beta is a newer buzzword, but it's active management. It is really another way to pursue active managers. And factors are simply, in equity markets, are simply sources of return for the market.

And every active manager you hire, or have ever hire, used factors in their portfolio constructions. So we hire value managers.

They're using value as a factor. Value is a factor that you can buy Smart Beta, but you have managers that focus on value factors. You have managers that focus on momentum. You have managers that focus on earnings on growth.

So every active manager selects securities using a win or win approach that identifies factors that they're interested in. And then they try to find the best companies that display those factors and they build a portfolio. And that's what factor-based investing is.

Yes.

MR. ADLER: But you would say that active managers use factors.

MS. PELLICH: Yes.

MR. ADLER: But you wouldn't say that all active managers are Smart Beta managers.

MS. PELLICH: No.

MR. ADLER: Right.

MS. PELLICH: So what the --

MR. ADLER: You could say all Smart Beta is active, but you wouldn't say all active is Smart Beta.

MS. PELLICH: Yes. So what is Smart Beta

mean, aside from a catchy product name.

Smart Beta means that managers are using quantitative methodologies to select securities that display certain factors. And you're active managers are using fundamental research methodologies primarily to select companies that display certain factors.

So there's a lot of similarity across traditional active management and the Smart Beta or the factor-based strategies.

The factor-based investors would say they're pure because of focusing very explicitly on these factors. They are lower cost. So their fees typically are between traditional active managers and passive managers. And they're more systematic. Because they're using quantitative methodologies and they're less influenced by stories about management or stories about new products. They are really focusing on characteristics that these companies display rather than the stories behind the characteristics. And I think that's really lost in a lot of discussion about factor-based investing. It's just more quantitative

systematic approach to investing and it's very similar in many ways to traditional investing that we've become familiar with over the past several decades.

So Mike is going to talk a little more about the details.

MR. FULVIO: That was a good introduction. But maybe I'll start by talking a little bit more beta. So when people throw around the term "beta" portion, they're referring to market beta, or the sensitivity or a stock or a group of stocks sensitivity to how the market moves as a whole. And you can call market of that broad movement of the market that in itself -- you can call that a factor. That is a factor.

So you can look at sensitivity of your portfolio to have a market moves. And you know, the expectation is that the market goes up 1 percent, and you have a beta of 1 percent --

MS. PELLICH: A beta of 1.

MR. FULVIO: A beta of 1, rather. Your stocks should move like the market.

Now, what factor-based strategies are doing. They are essentially assigning a factor

weighing or a factor score to different companies based on different betas that go beyond just marketing.

So maybe the slide four is one way to illustrating it. So there's been a lot of academic research around factors. And I believe, Mel sent an interesting article the other day that noted at least there were 300 published factors by academics. So it's really interesting to see how many times and different ways this thing can be sliced and diced. But some of them were a popular academic work that was done -- in the space that was done by Eugene Fama and Ken French in the early 90s.

And what they were trying to do, is they were trying to take beta and disaggregate that into different factors. So how much of the return of a stock or a group of stocks could be attributed to other things outside of market. How much of it could be attributed to size of the company? How much could be attributes to how the company trades, or what's the valuation of that company on a relative price -- stock price to earnings metric? What's -- how does

the company appear to peers on a quality basis? Usually what they say then in that regard is on a debt to equity ratio, how much leverage does the company have.

And then one of the popular factors is that comes up quite a bit is momentum. So for stocks that are rising quickly, can you find some credence in their ability to actually produce better when their associated with stocks that are moving more quickly.

So there's a number of factors and what Smart Beta or factor based strategies are doing is they're trying score or assign some weighting to all of these factors for each country -- each company rather in the universe. And as Robin said, systematic process to re-weighting portfolios based on these factors.

So when you talk one of your traditional active managers, they might say, "Yeah, factors are important, but we don't care about factors." They'll say, "We meet with companies. We like to talk about products. We like to talk about management. We think management is very important."

So we're not concerned with whether or not you think a company a growth company or has a lot of debt, we're not concerned with how a factor score impacts our portfolio process. We're picking companies. But you dig a little bit deeper, and you talked to about managers about their process entails, their process usually entails, like Robin said, focusing on certain aspects of how the company's financials. Certain aspects of how the company's conduct their business who their peers and who their competitors are. You can use that information to look at their portfolio and understand what are the basis associated with active managers.

So in that regard, they are also using factors to come up with how they view companies. How they construct their portfolios. It's really embedded in their philosophy, they just won't say, at the onset, that they're doing that way.

And not to say they're trying to hide, but they don't think of it that way. In a lot of cases, for them it's about trying to exploit some of the interesting creatic things that they

can find in -- their process. But if you look at any portfolio, you can assign factor exposures to any portfolio using quantitative process and using the different factors that have been published in Macadamia. And understand what's my exposure to value. What's my exposure to momentum. You can understand how the manager performance has sort of been driven by those factors.

So I'll pause there and see if that resinates or if there's any questions.

MR. KAZANSKY: So would it be fair to say that the factor based in investing, they're basically putting on blinders. They're forgetting about all this other stuff that other folks may look at. And just saying these are the categories that we care about, nothing else matters? Or do they primarily say that but also kind of weigh some other stuff, or it just a very narrow vision of just these issues?

MR. FULVIO: They try to take all the subjective and behavior, all aspects of the process our of their methodology by doing this very systematic usually in a computer quantitive

orientated way.

MS. PELLICH: It's a very, very focused process. They're not meeting with management. They're not looking at new product introductions. They're really trying to understand what has driven this company's stock price movement historically, and whether they think there is persistent incremental returns associated with that factor.

So the academic research has stated among other things, that over time you get rewarded for having a value exposure. Over time you get rewarded for having a quality exposure. And what a factor-based manager would say is, all of the other stuff is noise. And it's nice is management is good. But what really is driving the stock is the sources of return for that stock.

MR. KAZANSKY: Wouldn't it -- I mean then isn't every factor that they're looking at ultimately just, as we call it, past performance? Because they're not trying to glean any information about what may happen in the future outside of what is already happen in the past.

MR. FULVIO: I think where the discussion does go further to your point, is you have managers in the Smart Beta space. What they'll do is they'll construct portfolios of multiple factors and they'll use that, what they're call there, multiple factor model. So they'll be cognoscente of they exposures to all those factors but they'll also take into account how those factors are priced relative to history.

So they might make a determination in their portfolio that today value is very underpriced, and I would want to overweight my factor exposure to value and potentially away from momentum. So if momentum has been really strong which many will say, especially text space last year, you say companies up 30, 50 percent. Those companies would have had to hire a momentum score. Okay. Maybe that's not sustainable. And so as the Smart Beta manager, I can use all this information to take some judgment on about how I could tilt my portfolio in a way that might be better position to take advance of some of the relative value between

factors.

MS. PELLICH: So they are looking at historical data to understand the factor exposures in the portfolio. But they're looking forward to understand whether that factor is attractively priced today.

MR. KAZANSKY: Oh, okay.

MR. ADLER: The thing about -- don't many managers offer many factor funds?

MS. PELLICH: Yes.

MR. ADLER: So in other words, you know, BlackRock has, I don't know, dozens, scores hundreds --

MS. PELLICH: I don't think what the number is either.

MR. ADLER: Right. Or different factor funds.

MS. PELLICH: Yes.

MR. ADLER: Single factor, multi-factor whatever, and so they're not -- the manager is not necessarily making a call on which factor is the best factor. And they -- and some ways I think what they're saying to investors is, "Here's our deck of factor funds, you make the

call." What was that? That used to be a TV commercial. You know, "You make the call."

MR. FULVIO: AT&T.

MR. ADLER: Here's your -- you make the call factor -- no, just joking.

MS. VICKERS: But you cover your bets by investing in all of those.

MR. ADLER: Which is what an index is truthfully.

MR. McTIGUE: It is March.

MR. ADLER: What's that?

MR. McTIGUE: Basketball you make the call.

MR. ADLER: Right. But then I imagine that there are some more active -- I mean those are really passive factor funds, I think. I mean that's a little bit of a oxymoron. But as you say, I they're low cost. There's also ETFs, factor-based EFTs.

MR. FULVIO: Yes. So this is -- it's really interesting. There's a lot. If you watch it at all, any of the financial press, or anything, there's a ton of money being spent on marketing factor-based strategies and Smart

Beta. And so the index managers like this a lot. The index providers like this a lot. So index provider, I mentioned before 300-plus factors.

I also saw snip-bit that one of the index providers itself offers over 4,000 different factor indices. So I don't know that there's a product for everyone of those indices. But there's certainly an incentive that we come licensed by asset managers. Asset managers who turn around and then market product. Because it could be a very quick asset grab. And even though the fees are not as high as active management, traditional active management, we're definitely higher than if you went out and bought a capitalization-weight fund.

MR. ADLER: What's the order of management, if you can?

MS. PELLICH: Their fees?

MR. ADLER: Yeah. You know, a typical -- and I'm sure there's a difference between -- I know we pay virtually nothing for the capitalization --

MS. PELLICH: Yes.

MR. ADLER: -- weighted index funds. But a typical investor, you know, is going to pay -- that typical investor is going to pay single digit basis points, I think for U.S., you know, Russell 3000, or an S&P 500.

MR. FULVIO: Yeah. So it might be double the mid-single digit. And then figure active management could be anywhere, like, 10 times that.

MS. PELLICH: So there are some very active manager. You know, I'll through out one name like HUR, who manages factor-based strategies.

MR. ADLER: Who?

MS. PELLICH: HUR.

MR. ADLER: HUR, right.

MS. PELLICH: Yeah. Manages factor-based strategies and they certainly have reasonable high fees.

So in every case, they're higher than higher than a capitalization-weighted benchmarks. But it depends whether they're actually providing any discretionary managements.

MR. ADLER: Right.

MS. PELLICH: So the index, they're passive -- they're are passive factor-based strategies. They're still higher fees than capitalization-weighted indexes and then it goes up from there.

And just one other thing. So there are proliferation of products. What the multi-factor managers do, is they collect factors and they re-weight factors based on how attractive they think any factor is in the market in any given point in time.

MR. ADLER: So they are, in other words, not the fund is advertising that we're 30 percent momentum and 40 -- in other words, they say here's the factors that we utilize --

MS. PELLICH: Yes.

MR. ADLER: -- and then based on market conditions, we're going to overweight or underweight --

MS. PELLICH: Exactly.

MR. ADLER: I see. That is totally active management.

MS. PELLICH: Yes.

MR. FULVIO: I would say to some degree -- I shouldn't even say to some degree. To a large degree, there are active managers, Smart Beta managers that are coming up with ways that they think an improvement over how the traditional academics have identified factors.

So if we think they're defining value in a way that's not as good as the way we can do it, we try to exploit that as well.

So there's active management in the way they define and build the factor as well. So the HUR would be an example, a firm that does a lot of research around that. And they incorporate that into many of their strategies. Not just the factor-based strategies.

MR. ADLER: So it might be not -- in other words, the value might not be based on the traditional earnings. It might be priced on something else.

MR. FULVIO: Right. Is it prices to -- yeah. Or is it priced to five-year earnings -- five-year past earnings. Five-year projected earnings. There's a whole -- the timing of when you lineup which price and which earnings report

you're looking at. There's a lot of different ways --

MR. ADLER: Slice and dicing.

MS. PELLICH: So you know, we have a lot of information in here. And you are going to hear about this tomorrow. But I think the most important take-aways are, this is a active management. You're going to pay high fees. And the premise for this is that by systematically identifying an investing in attractively priced factors that drive market returns. You can generate better returns after the capitalization-weighted benchmark. That's the theory.

One of the challenges of investing in this area is that they're relatively few products that have a long record. It's a pretty new field. There's a lot academic literature that says over long periods of time, certain factors, like value, like, small, size, yield, incremental returns that you get paid for taking that risk.

But it can take a long time to realize those returns, and they don't always incorporate

all the trading costs, and other costs associated with those investment strategies.

So as with any -- as with the evaluation of any active management strategy, you have to bring a fair amount of skepticism. You have a strategy that has performed very well at pretty close to zero cost in terms to fees. And the rational for moving into these kinds of strategies if you believe that capitalization-weighted benchmarks in the U.S. have done so well, that we should apply some other informational, analysis, methodology to try to generate incremental return. Because we don't think the capitalization-weighted benchmarks could continue performing at this level.

And that's -- at the risk of over simplifying that is really is the challenge.

MS. VICKERS: So what's the overlap between some of the factors we already have actively managers like working on the value, and then what we would maybe moving into kind like a cheaper option of doing the same thing in just a different way?

MS. PELLICH: In this fund you have you have virtually no active managers in the U.S. market. So all those factors are present in the Russell 3000, but you don't have style-based managers, active managers in the pension market.

MR. ADLER: Only in pension fund. We do in TDA.

MS. PELLICH: Yes, but this is being considered for the pension fund.

MR. ADLER: So not for the TDA?

I mean because we do have different styles.

MS. PELLICH: In the TDA --

MR. ADLER: -- which you are telling me today really is Smart Beta.

MS. PELLICH: What I'm telling you is factor-based. Smart Beta is just a marketing phrase.

MS. VICKERS: In the TDA we have style-based, or factor-based active managers --

MS. PELLICH: Yeah, about 10 percent.

MS. VICKERS: -- but they're not using this stream-line quantitative approach.

MS. PELLICH: Exactly. So we could

consider it. If we found a compelling strategy that would be --

MR. FULVIO: One example, though, would be within the defense strategies' composite.

MS. PELLICH: Yes, that's a good point.

MR. FULVIO: They're low volatility strategies. Volatility in this case is a factor that those managers are using to weigh their portfolio or optimize their portfolio. Such as that the overall portfolio has less -- relatively less volatility compared to the broad market.

MS. PELLICH: That's a very good point. And we have two of those managers. They approach low volatility factor investing in some of different ways. The performance has been strong, and actually at different points of time one has out performed the other. But let's say over three years they haven't done as well. Over a longer period of time they generally kept up with the market.

MR. FULVIO: We don't expect them to keep up on the market. It's up 15 percent.

MS. PELLICH: Right. So those low vol

managers we're put into the defensive sector precisely because we thought they would protect on the down side. And that's the mandate to the defensive sector.

So we have pretty agnostic view on Smart Beta. We think there's some interesting product out there, but we think it should be considered as we would consider any active managers strategies.

MR. ADLER: Just again, on the QTP, I think that our U.S. equity is 85 percent index.

MS. PELLICH: More.

MR. ADLER: More than 85?

MS. PELLICH: Yeah.

MR. ADLER: So what we're thinking about on Smart Beta is just in that actively managed part, or taking some of the equity, some of the passive and moving it to the Smart Beta?

MS. PELLICH: The latter.

MR. FULVIO: Yeah. I believe the recommendation for TRS was 10 percent of the larger cap index allocation.

MR. ADLER: Would go to Smart Beta? That's pretty substantive.

And you guys are agnostic on that?

MR. KAZANSKY: He used air quotes.

MR. FULVIO: We're not agnostic the decision to do that. We're agnostic to make Smart Beta versus traditional -- we think it would approach --

MR. ADLER: Oh, traditional active management?

MR. FULVIO: Yeah.

MR. ADLER: But what about Smart Beta versus passive?

MR. FULVIO: So there's obviously an incremental cost that's notable particularly given the low base and what you pay today. We do think it's an interesting way of kind of -- it you believe that the equity markets have fun quite a bit over the last few years. And if you think there's a way to sort tilt a way and not have to catch the falling knife. That you might be forced to do if you're holding all cap indices. This might be an interesting way of tilting away at this particular point in time.

But you have to -- again, do you have the same kind of belief and confidence and

strategies to out perform or protect the way you would any other active manager, is the question.

MS. VICKERS: Just to clarify, tomorrow is more of a discussion. And then the following month, you know, there was a Smart Beta search. And we'll be coming back with the results of that.

MR. KAZANSKY: So we will -- well, will we be seeing tomorrow some sort of data as to how certain factors are doing compared to others, so far, what BAM may or may not have been looking at, so that they are making this recommendation or --

MS. VICKERS: I believe that the conversation -- I think we could ask that. But the general presentation is just similar to this --

MR. KAZANSKY: Just an overview.

MS. VICKERS: -- this is what Smart Beta is. This is how we're looking at. This is why.

MR. ADLER: This is a presentation in the portal on their Smart Beta.

MR. KAZANSKY: Yeah, I haven't looked at it.

MS. VICKERS: It's pretty brief.

MR. KAZANSKY: Okay. Because I mean, if we're talking about thousands and thousands of different factors --

MR. ADLER: And I know --

MR. KAZANSKY: Which ones are we going with, you know?

MR. ADLER: Yeah. Well, I assume that comes in the next month.

MS. VICKERS: But I think you should ask that.

MR. ADLER: The MCSI risk system, I think it has 3000 factors, or something like that that you can disaggregate. You know, for our current portfolio and obviously can do that for perspective managers as well, so.

MS. PELLICH: So again, what's being done here is by BAM is an effort to say, how can we protect ourselves against what will happened inevitability. We don't know when. We don't know how. Can we protect ourselves. Can we protect these outstanding gains that we generated. And this one avenue we should consider.

MR. ADLER: And the long duration treasuries was another.

MS. PELLICH: Well, that's a very different -- that's a good point. It's important to realize that just like any active management strategy, that if the equity market declined significantly. The Smart Betas strategies will decline significantly. All your active managers will decline significantly. The hope is that they decline a little less.

So these are marginal improvements. At the end of the day, what will drive the risk of your U.S. equity portfolio, no matter who's managing it, is the fact that you're investing in U.S. equities. And there's no escape from that.

You can do a little better, you can do a little worse. But you can't get away from a market down turn.

And that -- so whatever we do, even if we move 10 percent of the large cap U.S. equity exposure, it can only have a De Minimis impact on the total or the total pay out. Because it's going to follow the U.S. equity impact. Maybe

we're do a little better on that 10 percent of the large cap portfolio. It's a De Minimis impact.

The long treasury are an asset allocation decision, which could actually have a significant impact. Because in various -- in a number of scenarios when there are significant equity market down turns, there are actually significant gains in long treasuries. This does happen every time. But there are a number of situations, most notably a flight to quality. Which that does happen. So that could have a very significant impact in total returns.

I think there are many investors who are comfortable with long treasuries because they're concerned about rising rates. And what will happen to long treasuries if rates will continue to rise significantly, which is a valid concern. But long treasuries can have a very significant defensive role to play in your portfolio. Smart Beta would have a De Minimis defensive role.

MR. ADLER: Is it fair to say that the decision about Smart Beta is more of a tactile decision, and the decision that we made about

long treasuries in the last asset allocation is more of a strategic decision, or is that unfair?

MS. PELLICH: I would say, I might use different words. I would say the Smart Beta strategies and implementation decision, you know you want this much U.S. equity, how are we going to apply it. The long treasure portfolio decision is an asset diversification.

MR. FULVIO: If you're going to call a factor, that's more of a macro factor decision. You're trying to diversify the equity factors as a whole with the interest rate imposer.

MR. ADLER: Just a question, you may not know the know the answer to. During the month of February planned equity markets declined across the board, do you know what happened to long treasuries?

MR. FULVIO: So long treasuries -- this is one of those instances where we have seen treasuries actually move directionally with the equity market --

MS. PELLICH: So they didn't protect.

MR. FULVIO: They didn't protect -- I want to say -- a recent period of volatility,

equities might have been down about 10 percent relative to their peak, long treasuries were down about 3 percent. But they didn't go up.

MR. ADLER: And part of this you had this where interesting rates were rising --

MS. PELLICH: That's right.

MR. ADLER: -- so in -- and you know, rising interesting rates do often have a negative effect on equity markets, right?

MS. PELLICH: Well, actually I just calculated those statistics for yesterday and less often than you might think. It's actually relatively small percentage at the time.

So, you know, in 2008 you would have been very, very happy to have long --

MR. ADLER: Right -- on the justification.

MS. PELLICH: Yeah. But it's not only

2008. If -- it depends why equity markets are falling. They're falling because of concerns about credit risk, long treasuries can do well in general.

MR. KAZANSKY: Would it be reasonable assumption that the down turn in February was so short, really just a week or so that there

wasn't that flight for quality? Because by the time people had to process it, the markets were already turning back around?

MS. PELLICH: No. I think it was really driven concerns about inflation and rates rising, and that affected the equity market and treasuries markets. And that may persist. So this -- there are no guarantees. But, you know to date the best diversifiers are against equity risks is high quality fixed income.

MR. ADLER: Other questions or comments?

[No response.]

MR. ADLER: Thank you for the presentation. Very informative. Sets a high bar for BAM for tomorrow.

MR. FULVIO: We collaborated together on this.

MS. PELLICH: Yes, we did. They -- we talked to them about this and we talked to them about their presentation. And we wanted to make sure they weren't --

MR. ADLER: I think that concludes our public agenda. We do have an executive agenda. So a motion to move into executive session would

be in order.

MS. PENNY: I move pursuant to Public Officers Law Section 105 to go into executive session for discussions regarding specific investment matters.

MR. ADLER: Thank you, Debbie.

Is there a second?

MS. VICKERS: Second.

MR. ADLER: Thank you, Susannah.

Any discussion?

[No response.]

MR. ADLER: All in favor of the motion to exit public and enter executive session, please say aye.

[Chorus of ayes.]

MR. ADLER: All opposed, please say nay.

[No response.]

MR. ADLER: Any abstentions?

[No response.]

MR. ADLER: Motion carries.
We're going into execution. I just want a brief break to refill my coffee, I invite others to do the same.
(Whereupon, a recess was taken at

this time.)
MR. ADLER: So a motion to return to public session would be in order?
MS. PENNY: So moved.
MR. ADLER: Is there a second?
MS. VICKERS: Second.
MR. ADLER: Okay. Moved and seconded.
Any discussion?
[No response.]
MR. ADLER: All in favor of the motion to go back into public session, please say aye.
[Chorus of ayes.]
MR. ADLER: All opposed, please say nay.
[No response.]
MR. ADLER: Any abstentions?
[No response.]
MR. ADLER: Motion carries.
Off the record.
(Whereupon, a discussion was held off the record.)
MR. ADLER: Okay. We're back in public session.
Susan, would you report out of executive session?

MS. STANG: Absolutely.
In executive session an issue with out custodian was discussed.
MR. ADLER: Thank you. I think that concludes our business for today.
A motion to adjourn would be in order.
MR. KAZANSKY: So moved.
MR. ADLER: Is there a second?
MS. VICKERS: Second.
MR. ADLER: Thank you. Any discussion?
[No response].
MR. ADLER: All in favor of the motion to adjourn, please say aye.
[Chorus of ayes.]
MR. ADLER: All opposed, please say nay.
[No response.]
MR. ADLER: Any abstentions?
[No response.]
MR. ADLER: Motion carries.
Thank you very much.
(Time Noted: 11:38 a.m.)

C E R T I F I C A T E

I, GINAMARIE DeMARCO, a shorthand reporter and Notary Public within and for the State of New York, do hereby certify:

That the within statement is a true and accurate record of the stenographic notes taken by me.

I further certify that I am not related to any of the parties to this action by blood or marriage, and that I am in no way interested in the outcome of this matter.

____

GINAMARIE DeMARCO