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NEW YORK CITY TEACHERS' RETIREMENT SYSTEM
INVESTMENT MEETING
Held on Thursday, April 2, 2015
at
55 Water Street
New York, New York
9:53 a.m.

ATTENDEES:
MELVYN AARONSON, Chairman, Trustee
SANDRA MARCH, Trustee
THOMAS BROWN, Trustee
SCOTT EVANS, Trustee
JOHN ADLER, Trustee
SUSANNAH VICKERS, Trustee
CHARLOTTE BEYER, Trustee
PATRICIA REILLY, Teachers' Retirement System
THAD McTIGUE, Comptroller's Office
MARTIN GANTZ, Comptroller's Office

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ATTENDEES (Continued):
SUSAN STANG, Teachers' Retirement System
JOHN DORSA
MICHAEL FULVIO, Rocaton
ROBIN PELLISH, Rocaton
ALLISON TUMILTY
VALERIE BUDZIK, Teachers' Retirement System
PAUL RAUCCI
RENEE PEARCE
Alex Done, Comptroller's Office
JOHN MERSEBURG, Comptroller's Office
JIMMY YAN, Comptroller's Office
LIZ SANCHEZ, Teachers' Retirement System

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Proceedings

MS. REILLY: Good morning. Welcome to the April 2, 2015, Teachers' Retirement System investment meeting. I will start by calling the roll.

Melvyn Aaronson?

MR. AARONSON: Here.

MS. REILLY: Charlotte Beyer?

MS. BEYER: Here.

MS REILLY: Thomas Brown?

MR. BROWN: Here.

MS. REILLY: Sandra March?

MS. MARCH: Present.

MS. REILLY: Susannah Vickers?

MS VICKERS: Present.

MS. REILLY: John Adler?

MR. ADLER: Here.

MS. REILLY: We do have a quorum and I would turn it over to the chair.

MR. AARONSON: Thank you very much. May I request that everyone speak loud enough so both the stenographer can hear us and the TV can hear us. And remember to watch your language; you are on television.

The order of business today is going to be in the public session the Passport Funds

first and then the Pension Fund, and then in the executive session it will be Passport Funds first and then Pension Fund second.

So that leads up to you guys.

MR. FULVIO: So we will start with the performance report for the month of February. It's this document. All the numbers on the cover. So we will start with the Diversified Equity Fund for the month of February. I should say as of month end, assets were about 11.6 billion dollars, so up from the prior month given the strong month in the equity markets during February in both the US and abroad. And in addition to strong markets that were up in the area of 6 percent for both U.S. and non-U.S. markets, it was a strong month for active management as well with the active composite up about 7.2 percent, contributing to that 6.6 percent return for the fund as a whole.

So the fund for the month was up on a relative basis by over 100 basis points relative to the hybrid benchmark and up relative basis to the Russell 3000 by about 80 basis points.

On a year-to-date basis, the fund is ahead as well against both of those proxies, and a lot of that performance has been helped by the active managers in the plan. I will point out the Defensive Strategies Composite, which you can see for the first couple of months of this year are up about 3.4 percent as a whole relative to their benchmark of about 2.8 percent, which happens to be pretty close in line with the Russell 3000 at 2.8 percent. So some strong performance there. You might recall that's a composite of strategies that use a variety of asset classes, not just U.S. equity, but also convertible bonds, non-U.S. equity, and also some other lower volatility equity strategies and global bonds as well.

And you can see just below that, the actively managed U.S. equity composite on a relative basis for the year to date also having added some value, over 1 percent there. And just below that, the international equity composite up about 6 percent as well, although lagging a little bit on a relative basis. So in all it was a strong month for the managers

across the Diversified Equity Fund. So we are very pleased to see that.

Just below that, the Bond Fund with assets of about 340 million dollars at the end of February. The fund for the month was down about 40 basis points roughly in line with its benchmark. For the year-to-date period, the fund was up about 60 basis points, also in line with its benchmark.

Just below that, the International Equity Fund with assets of about 108 million dollars at the end of the month. That fund on a relative basis has lagged somewhat over both the shorter term and longer term time periods. However, year to date, the fund is up about 5.9 percent, and over the longer term, the fund more closely -- the 12-month period that is -- more closely tracking the benchmark, up about just over 10 basis points relative to the market return of about 40 basis points.

The Inflation Protection Fund with about 44 million dollars at the end of the month also had a modestly positive month, up about 20 basis points, and on a relative basis, very slightly ahead of its benchmark. Over the last 12 months, that strategy is up about 2 percent, relative to its benchmark, modestly negative. Over the longer term, that fund is up about over 6 percent relative to its benchmark proxy, which is just shy of 3 percent.

The Socially Responsive Equity Fund --

MR. AARONSON: Before you get there, can I just ask a question?

MR. FULVIO: Sure.

MR. AARONSON: Can we see the inflation rate as well in the benchmark since it's the Inflation Protection?

MR. FULVIO: Absolutely. We will definitely add that.

Just below that, the Socially Responsive Equity Fund at the end of the month was approximately 100 million dollars in assets. The fund was up just shy 5 percent for the month trailing its benchmark about 1 percent. Over the longer term, the fund more closely tracks its benchmark. However, it has lagged over the trailing three- and five-year time periods. But in all, the absolute returns of that strategy, given the strong returns in the

U.S. equity markets, have been quite positive.

We did add a couple of pages to this report based on the feedback we received at last month's meeting, so we did want to point out page 12, which provides on the Y-axis the five-year trailing performance for each of the strategies and their benchmarks and then on the X-axis the strategies' volatility.

So you can see comparing the colors here each of the funds relative to their benchmark on a risk and return basis, so what we like to see or prefer to see is that the performance of the funds over long time periods is to the up and left of their respective benchmarks.

The Bond Fund that you see here, this performance is not quite for the five-year time period because that fund's inception only goes back to 2012, but for that time period, as you can see, as we expect the fund tracks very closely to its benchmark both risk and return basis.

Just to the right of that you can see the Inflation Protection Fund benchmark, the triangle there. Now, that fund -- that benchmark compares to the fund, the square up to the right. You can see that fund has added quite a bit of value relative to that benchmark over the five-year time period. What I would do is remind you that that benchmark is reflective of the strategy that we were using prior to the current strategy within the Inflation Protection Fund, and the benchmark for that strategy was at 1-to-10-year TIPS benchmark, which tends to have very low volatility. Has had quite notable volatility over the last five years so we do see higher performance but also some higher volatility for the fund.

I am actually, rather than moving in the upward direction, going all the way to the right of the page. You can see the International Equity Fund, that tan square, and to the right of that, the MSCI EAFE Index, and as I mentioned before, the International Equity Fund has lagged somewhat over the trailing five-year period, but you can see the volatility of that fund is below that of the benchmark.

And then towards the top of the page, you can see the strategies that are

predominantly U.S. equities, and U.S. equity has had pretty strong returns as we have discussed over the last five years.

So all of these -- all of these points are up in excess of 14 percent over the last five years, and their volatilities are all clustered around the volatility of the broad U.S. equity market, the Russell 3000 Index. They all tend to be a little less volatile, but you can see the Diversified Equity Fund is that blue square very close to the hybrid benchmark, which we would expect to see, and just above that, the red square, the Socially Responsive Equity Fund as I mentioned modestly lagging the returns of the S & P 500 Index over the last five years, but the volatility profile of that strategy is right where we would expect. Just right about where the S & P 500 is so we thought that was definitely a helpful addition to the report.

We are happy to, going forward, add improvements. As you mentioned, Mel, the CPI, we would be sure to add to that chart as well.

MS. PELLISH: So I think one of the things that's worth noting when we are providing an array of options for investors, for participants in the Passport Funds, what we want to do is make sure we have an array of risk-reward alternatives. So if you drew a line from the Bond Fund up to the U.S. equity fund, you could see that there are low-risk/low-return choices and much higher-risk/higher-return choices, and the Inflation Protection Fund falls somewhere in the middle.

If we pulled out, for example, the Defensive Strategies Fund, that would also be somewhere in the middle. So over time we may want to consider populating the middle of this range.

MR. FULVIO: So that concluded my comments on the performance of the funds for February for the performance for the trailing time periods. Any questions?

MR. AARONSON: Anybody have any questions about it?

MS. BEYER: Is page 5 the same as -- that's showing the same data?

MR. FULVIO: The same type of data. The difference here is the data points are the

composites that comprise Variable A.

MS. BEYER: Okay. Great. Thank you.

MR. AARONSON: Okay? Thank you for that. Now --

MR. FULVIO: So then we will just jump into the returns for March. That's this report.

MR. AARONSON: Can we exchange the February report for the March report?

MR. FULVIO: We would like to.

MS. MARCH: We could do it.

MS. PELLISH: You have the power as the chairman.

MR. FULVIO: So the U.S. equity markets, as you can see here, were down about 1 percent for the month of March. As a whole though through -- I'm sorry through March, U.S. markets are still up about 2 percent.

MS. PELLISH: For the calendar year.

MR. FULVIO: Calendar-year-to-date time period. For the fiscal year, U.S. equity markets still up over 7 percent, and you can see over quite a few long-term trailing time periods here, going out very positive absolute returns for U.S. stock market, the U.S. stock

market as a whole.
Just below that, the MSCI EAFE Index, again, a proxy for developed non-U.S. markets, down about 1.4 percent in U.S. dollar terms. Calendar-year-to-date, ahead of the U.S. equity markets, which is quite a reversal from what we have seen over the last 12 months, and if you look at the last 12 months, that one-year time period, you can see the U.S. has added about 12 percent positive whereas the non-U.S. equity markets were down about half a percent.
MS. PELLISH: Most of which was currency, so if you look at these markets on a local currency basis, they are modestly positive, but because of the strong dollar, the returns to U.S.-based investors like our participants is negative.
MR. FULVIO: Just below that, the Defensive Strategies benchmark you can see protecting somewhat on the downside relative to the U.S. and non-U.S. equity markets, down about 75 basis points. Year to date, up about 2 percent. And over the longer term time periods, you can see going across the page

still some pretty strong absolute returns in excess of 13 percent over the last five years, for example.
And below that, the Diversified Equity Funds hybrid benchmark, which again is a rollup of those benchmarks we just mentioned. Also down about 1 percent, which is where we would expect to see the fund in that neighborhood.
Below that, you can see the other benchmarks, the Bond Fund's benchmark was up about 40 basis points during March. We already talked about the International Equity Fund's benchmark, the EAFE Index down about 1.5 percent.
The underlying strategy for the Inflation Protection Fund also down about 1 percent and the Socially Responsive Equity Fund's underlying strategy down about a half a percent but also ahead of its S & P 500 benchmark by about 1 percent. And that concludes, unless there is any questions, the performance for March.
MR. AARONSON: Anybody? Questions? Comments? Thank you very much and now we can

move to the Pension Funds.

Scott.

MR. EVANS: Thank you, Mr. Chairman. If we turn to the flip book for February, that's page 37, and you look at the bottom third column over, you can see at the end of February, the portfolio was -- involved 60 billion dollars and increased in value 2.83 percent on the semiannual return during the month of February, 5 basis points ahead of the benchmark.

If we turn back to page 30, you can see that we are on plan with our rebalancing plan, nontactical asset plan, if you will, to stay pretty close to the benchmark in equities on the left and to stay close to the benchmark on the right except for an underweight in long-term bonds and overweight in short-term bonds getting down to a duration that's similar to the market as a whole as measured by the Barclays Aggregate. We are on plan for this. As cash comes in and out of the fund, we have to adjust it, and there you see a snapshot at the end of February.

I will now turn to Martin. We don't

want to duplicate what's been said about February and March, but we will take you through some additional highlights that we see during the month of February.

Martin?

MR. GANTZ: Thank you, Scott.

So I am not going to duplicate what Mike just went through for the returns for February, March, but I do want to take you through a couple of pages. You have the U.S. economy is growing, but there are some hiccups along the way. Retail sales isn't as strong as it could be. Unemployment seems to be okay. Inflation is definitely under control. But it's definitely a mixed picture because growth overall isn't as strong as it could be still.

The February numbers are on page 27 and 28. The one-month numbers on the left, I am not going to repeat what Mike said. It was a great month in February. I liked it. It was a great month in February, but taking you to the bottom line, on page 29, the return for the month on the left was 2.83 percent, bringing the fiscal year to date, which is in the middle, to 3.69 percent.

So we had mentioned to you that we expected a pretty -- if you remember at this time last month that we expected a good month for February and there you go. As far as March goes, he gave you the numbers. So slightly negative, not very big negative for U.S. equity, around 1 percent. Slight positive for fixed income so probably going to be a slight negative for the month of March. As far as the market value, I would like you to turn to page 35 because I hinted this to you last month unofficially and I can now tell you officially: You are now over 60 billion dollars as of February. So congratulations. And that's the first time that's occurred as of the month end.

MR. AARONSON: That includes about 12 billion dollars of tax-deferred annuity money fixed income?

MR. GANTZ: Approximately. Correct. So that's a new high on page 35.

On page 36 we have the same chart except it's not by month for the last year. It's the last ten years, and you will notice on the

bottom, the ten-year return is exactly 7 percent so we are --

MR. AARONSON: Mr. North will thank you.

MR. GANTZ: Mr. North will thank me wherever he is right now.

MS. VICKERS: He is the only one watching.

MR. ADLER: The whole world is watching.

MR. GANTZ: So where are we as of today? An estimate where we are as of March, it was a slight negative but probably right on the cusp of 60 billion. I think we still hold it but it was probably -- a slightly down month but it was very -- again, not a big down month. It was a slight down month.

Starting on page 37, you see the asset class returns. On page 38, the manager returns versus their benchmarks. So unless there are any questions, those were my prepared remarks.

MR. AARONSON: Anybody? No question or comment? Thank you, Martin.

MR. GANTZ: Thank you.

MR. EVANS: Okay. The second item on our agenda is a proposal that we have regarding diversity, and if you turn to page 68 of the big book, which isn't so big this month, we can take a look at this. Just giving you the highlights here. We are not going to go into any depth.

We are very proud of the progress that we made together on the topic of diversity in the asset management business. We now have systemwide 11 billion dollars with emerging managers, over 6 and a half percent of the portfolio widely measured. It's a very proud tradition that we plan to go beyond, and one of the ways we think we need to go beyond, without giving up any of the efforts that we had historically in emerging managers, is to begin to evaluate diversity of prospective and existing managers across all asset classs. So not just endeavor to have a certain percent of managers that are diverse, 51 percent owned by minorities and women MWBEs, but to go beyond that and look for diversity across the entire portfolio in all of our managers and that's a big step and so I want to take you through why I think it's a fiduciarily sound step and one that is in the best interest of our

participants viewed purely from the prism of their financial well-being.

I think we want to recognize managers with strong diversity profiles just like we want to recognize managers that have strong succession plans, managers that have robust decision-making cultures, managers that have strong performance records, and managers that have sound practices with regard to society and the environment and so forth. This is good business. It's indicative of strong managements and it's indicative of well-performing organizations.

We would like to integrate diversity into our consultant searches as well as their manager selection, and we would like to promote consideration of diversity in decision-making by the managers that we have by other institutional investors in the management evaluation process.

So why do I say this? Is this a social agenda that I have or the Comptroller has or that you have? No, I don't think that's the reason for it. I think the reason for it is it's sound decision-making. It's good business. And that's because, simply stated, diverse groups make better decisions. There is just absolutely no question about the fact; it's scientifically proven. Diversity improves decision-making, and most importantly, there is evidence -- and I will get through some of the evidence in the next slide -- that it fights groupthink. And groupthink where an organization or any decision-making team will begin to talk themselves into a certain course of action because they all agree with each other and they are talking to themselves is one of the most dangerous group phenomenon in investment management. Many investment firms and in fact, the whole industry is occasionally subject to groupthink and it is very dangerous and it can lead to very bad outcomes.

So if you have a person or multiple people in any decision-making group that think differently, the group is going to come to a stronger decision. So when we underwrite managers, when we look at consultants, when we hire vendors, when we see diverse decision-making teams, we think that's a good

thing because they have not surrounded the leaders with people that think like themselves, that are effectively talking to themselves. They surround themselves with people that think different, act different, approach problems differently.

So we think this creates a competitive advantage, and we think as well in this society, which is beginning to value diversity on other dimensions that it can decrease litigation and regulatory risk. But the real reason that I think that we ought to consider this as sort of putting it in as part of our formal decision-making process is the decisions made by diverse groups tend to be stronger.

You can see in the next page, National Academy of Sciences in 2014, they studied traders and they found that the traders who were diverse decision-making groups had a greater ability to calculate accurate pricing and true value. McKinsey in a broader study also in 2014 kept finding companies in the top quartile of racial and ethnic gender basis were more likely to have above-average immediate returns, and Credit Suisse did one study on women in the board that concluded that they were associated with higher returns.

So these things put together I think gives us strength that we ought to think about this. There is another thing that's going on here, and I know I am preaching to the choir. We are living in an increasingly diverse society. We just got a couple population issues on the bottom here. The national minority population will be a majority by 2060 currently in New York City. If you look at the makeup of our population in the five boroughs, white people in the white group are about 35 percent. That's a good number. It's 33 actually. That's a good number to hang onto as I go to the next slides because in our industry, an industry that should be more likely than most to have diverse decision makers for the reasons that I articulated, the numbers don't look like that at all.

The financial businesses are headquartered in New York City, yet when you look at portfolio managers broadly, as you can see, 83 percent of portfolio managers are

white, 82 percent of senior portfolio managers are male, and 90 percent of senior portfolio managers are white. The worst by far is something that's irrelevant to you guys but it's emblematic to the industry.

MS. MARCH: White men. Don't leave that out.

MR. EVANS: I am about to get there, Sandy. The hedge fund industry, which is the strongest case here, 97 percent of managers are white males. So when it comes to the diversity, it's not so much a diversity problem. It's the homogeneity problem. The business we are in is very homogenous with white men dominating the business, and that leads to a disequilibrium in terms of achieving diversity. So we need to be proactively searching out groups that in spite of these population statistics are finding ways to get diverse decision-making.

MR. AARONSON: Can I just -- I have to brag about Teachers' Retirement System for a moment. Teachers' Retirement System is an important part of a group called Mass Fast Track. Under the Fast Track program, the Mass

Group tries to get inner-city youths to get jobs in the investment area, and I would like to say that Teachers' Retirement System every year hires several people from that group for some summer work. I know that some of the Police Department hires at least one -- Police Pension Fund at least one person in that. I don't know what the figures are for the Comptroller's Office. The Mayor's Office I believe the figure is zero but this summer is just coming, and we are looking to get as many of these minority youths who participate in the Fast Track program internships of various kinds. We have the greatest need for high school students. Many of our Fast Track college kids do get placed but our high school kids do not, and even if it's a job working with the professionals in our various agencies -- they don't have to do necessarily professional work. If they see how people dress when they go to work, they see how people talk to one another when they go to work, and all of these things, we weed down to the good of these kids.

So the Fast Track program, I urge the

Comptroller's Office, I urge the Mayor's Office to see and get in touch with them, and we can help you get in touch with them and see if we can put to work some inner-city youth in the summer in the investment area.

MS. VICKERS: Absolutely.

MS. MARCH: And I want to add one other thing and it is impatient, but the other thing that this Board has done, and it's 30 years in passing with our tax-deferred annuity money, 30 years ago working with our consultant, at that point we set up a baseball team and that's what we called it. And 30 years ago, we gave minority managers 15 million dollars each, and some of them graduated into the big leagues.

But what is very frustrating is Scott, how do we do it? How do we break the barriers down? Not what we have to do. We know what we have to do. I am looking for the formula of how do we call in all those large investment firms and get them to do what on paper we know about because the pieces of paper don't mean anything. We have been looking at the paper for the 30 years that I have served as a trustee and you know what? For the 54 years that I have been an educator, we have not been able to educate the Street. So tell us what we have to do. We know it. What I need to know is how are we going to do it.

MR. EVANS: Excellent. Great lead-in. So what I was trying to set up is the reason we do it, which I knew I was preaching to the choir but I had to go through the motions and, I think the Mass program and others are fantastic because they are helping us solve the problem of not enough people of color and women in the workforce in our industry.

But I think one of the central problems is that when we -- when we look to support and recognize diversity in the workplace in the asset management business, we are doing it sort of exclusively in the MWBE realm. So I will just give an example.

The Comptroller's office looks like the United Nations. When I walk through the halls of BAM, when I walk through the halls of auditing, through the halls in the accountancy and I look around the executive boardroom,

there are a huge number of women, there is a huge number of people of color. White males are actually in the minority in this department. But it happens to be headed by a white male, and if it were a private company, he would no doubt not qualify as an MWBE and the problem is that there are firms like that. Maybe not quite to the extent of Teachers' Retirement and the Comptroller's office that are actively working in programs at the bottom levels of the organization as well as promoting and grooming talent at the mid and upper levels, and we have no way of calling that out and recognizing that and distinguishing the Wall Street that is proactively trying to address the diversity problem in the asset management business from the Wall Street that's ignoring it. And an awful lot of Wall Street is ignoring it looking at these stats.

So what we want to do is be able to call out the good guys and give them recognition but we also -- and here is where the rubber meets the road, Sandy, from our perspective. If we formally put having a diverse decision-making team as one of the attributes that we look for when we select managers, now we are doing something that is going to get attention.

The other thing that we need to do in order to make this real, in order to have people not just kind of have their decision-making teams with the folks that helped the team to look diverse, we want to look at not only representation. We want to look at compensation.

The only way to really understand who the decision makers are that matter is to understand compensation. So when we survey these firms or we get to whether or not these firms are truly diverse, we will look at the diversity on the board from a race and gender profile. We will look at the diversity of the investment professionals, and we will look at the composition of the compensation by race and gender of the investment decision-making team.

I have already been to meet with HR managers in some of the largest Wall Street firms. We have been to some mid-size firms.

We have a number of Wall Street firms that are actively engaged with us to do this. I think the Wall Street that is trying to solve the diversity issue is active or is actively wanting to show what they have done and get credit for it.

Make no mistake about it. Their interests are selfish. Wall Street's interests are always selfish. But their selfish interest is diverse decision-making groups make better decisions. So they recognize this and there are some firms trying to capitalize on this and make a competitive advantage of that.

For all the reasons I outlined, we want to recognize them. We want to give them as much credit as we give to emerging managers. We are not going to stop at all giving credit to emerging managers, but we need your permission to involve this type of things in the due diligence questions that we have when we do proposals and in seeking the information as a formal part of our procurement process. The Comptroller can't do this alone. The Comptroller is one vote on the board.

MS. MARCH: Listen, as an individual and I think as a board, we have no problem asking the firms the questions. And you know what? If you went into any agency and most private places in the City of New York, you are going to find diversity in employment. Because the people who live there happen to be, many of them, minorities. But you know what? The problem is not going to be resolved by having a sheet of paper that tells me these Wall Street firms have a lot of minority employment. The problem is only going to be resolved when those minorities are getting the same compensation and are at the same level and we have --

MR. EVANS: This is why we ask the question about compensation.

MS. MARCH: We can do it. I don't have a problem with it. I just think it's another step. I am really not sure what it resolves. I am truly not sure what it resolves.

MR. EVANS: So let me take that challenge, Sandy, because I think it's a good question. We have three different firms, okay, that we are looking at and they are

equal in all other regards. We cannot make this -- legally we cannot make this -- we can't score -- and Jimmy Yan is here. He has done a lot of the work on this, has researched it. We cannot have a formal score on this item. It has to be part of the mosaic that we use to select the firms. So that's why I am going to set up the following things.

The firms are identical. This would never happen but they are identical in all other ways, these three firms. However, one firm -- and there are eight people in each firm. They are a small firm. One firm is all white guys from Williams. I can almost say -- I am a white guy from Tufts but it doesn't rhyme, so they are all white guys from Williams and they do a good job. We are close to hiring, they are a fine firm and there would be nothing wrong with hiring but we can only hire one firm.

The next firm is eight people, and you have got three white males, the rest are women, minorities, variety of things. Good diversity, certainly relatively to the all-white-male firm, but when we get the compensation information back, we find out that 85 percent of the compensation goes to the three white males.

Okay, and then the third group, it has the same racial and ethnic division. But in that case, you know, an exactly pro rata version. More than, you know -- way less than 85 percent is going to the white males. So it's diverse not only in number and in representation, but it's diverse in weighted compensation. So the people of color and the women are actually getting paid like the people -- the white males and it's that element and it's essential to have that element. I think you are quite right, but it's that element that I think differentiates this and makes it more real.

MR. AARONSON: You don't think if Jamie Dimon knew he couldn't get any business, he wouldn't hire a couple of people, pay them large sums of money to do nothing anyhow just so he can say diverse and paying high money? These people have no ethics. They are irresponsible. As you said, they are only interested in making money, and yes, all these

things we should try but --

MS. MARCH: -- let's not color them differently than they should be colored.

MR. AARONSON: We understand they are going to do every trick they can to respond to you, including investing a few hundred thousand dollars in salary so they could get millions of dollars in commissions and income.

MR. EVANS: So this is a really important detail and we have thought a lot about this. First of all, without agreeing with everything you just said because I don't agree with all of it, but I agree with the sentence that Wall Street firms, their objective function is to maximize the present value of their cash flow. So that's their job and they -- that's the lens that they look through everything. In order to get business, they will do a lot of things to look good. The one thing they won't fool with is compensation. And the reason that they won't fool with that is the whole ethos of the place, the whole way that the relative value works out gets destroyed.

And so they might fool with

compensation, Mel, if we just looked at what are the -- what the portfolio management team that works for New York City looks like. I agree they might fool with that. That's not what we are asking. We want to see all the investment professionals in the firm. They are not going to fool with that.

New York City, as big as it is, and the public pension systems, as big as it is, it's not worth it for these Wall Street firms to fool with this because it will destroy the whole fabric of the organization if they were to begin paying people in a nonmeritorious way. So I think we really are zeroing in on the heart of how these firms are built, and I think that there are a lot of firms that are trying very hard to deal with this, and I think we ought to recognize those that are doing a better job than others because how are we going to get the herd to move in the right direction.

MS. MARCH: Let me tell you how far they go. The retirement systems here in the city, whichever one you are talking about, they have a reputation out in the world. And what they

have learned to do is bring in an attractive woman who they make a market of to sit on the other side of the table so that those of us who are from the City of New York and understand that women in the City of New York have the ability to go as far as men can go, feel more comfortable. They play with us all the time, Scott. They have.

The bottom line here is this is a program, if it works so that we will select an investment company because they have become truly naturally diversified in their employees, then that will be a wonderful thing. If it's a statistic that is going to be on paper, it's not any different than they have been doing for years.

MR. EVANS: But you see, the showing up at the meeting with, you know, their diversity team, what members they can get together for the team -- and I always make sure to ask everyone questions when they come to visit us, but you can't do that if you are asked to supply information for your entire professional work force. In these jobs, you can't, you know, sort of select one or two that come. So that's the reason we are asking the questions the way that they are.

I believe this will move the ball forward. Do I think this is the be-all and end-all, Sandy, that this will solve diversity on Wall Street? No, no, I am not suggesting that. I am saying this is a reasonable next step for us to take in our ambition to promote a more diverse Wall Street and to basically recognize those that have become enlightened or relatively enlightened about the importance in diversity.

MS. MARCH: I think my reaction is Scott, I think I just want you to know that this is something that we have been trying --

MR. EVANS: I know it is.

MS. MARCH: -- for years.

MR. EVANS: I know it is.

MS. MARCH: And if this step helps it a little bit more, fine, but this is not a new item to us.

MR. EVANS: I know it isn't. Look, I completely realize that I am preaching to the choir here, that you guys are worked for years and years and years to make progress and we

have made progress. Six and a half percent of the portfolio, 11 billion dollars across the systems. It's a proud history and I am honored to be part of an organization that's done this. I just am looking for something that we can push further, and that's why I make this proposal.

MR. AARONSON: So I think you have the complete support of the Teachers' members and this only -- we will keep watching and seeing.

John?

MR. ADLER: I just want to say that the Mayor's office supports this initiative as well. I have sat in on different public pension fund investment committee meetings over the years where the managers that have come to present have been explicitly questioned about the diversity of their professional ranks, and the presentations that are provided to the trustees include that information. So for example -- you know, so we are not getting that currently. So if we think about the presentations that we recently had, those books and the analyses from our consultants don't indicate what is the diversity of the professional ranks of these managers. So that would be an immediate step that I think the Comptroller's office could take is ask the managers who are presenting to the Board to tell us what is the diversity of their ranks up and down, from the senior portfolio manager or higher executive ranks down through the organization.

MR. EVANS: So in this proposal, John, which is not quite as far-reaching as what you just said, we would -- because we want to get participation in this, we are asking for very deep data on a particular group of investment professionals, which is where we keep it.

MR. ADLER: That's fine.

MR. EVANS: So if we keep it as a formal question in our procurement process, it will have that desired effect. We can also ask them to report on it when they come before the Board to make their pitch, but it has to be a part of the procurement process in order for us to make --

MR. ADLER: But for example, consultants do due diligence. For example, you know, like it's -- take the real estate investments that

we just approved recently. No information -- I am saying this is a new initiatve, I understand, but you can easily ask our consultants to provide that information as part of the diligence process.

MR. EVANS: That's part of the portfolio.

MR. ADLER: Fantastic.

MS. MARCH: It should -- I think what John is saying when you select the group of managers that we are going to consider to be investors of our money, then I think what John is saying is when we get your book of material, it should include that information.

MR. ADLER: Right.

MR. EVANS: Yes. We will work towards that. We want to.

MS. MARCH: But I think that that's what we are requesting. If we are going to do this, this is not a secret society. This has got to be -- once the Comptroller's office as our investment advisor gathers that information, during the process of selecting managers, I think the trustee should know the result of that, and we should understand just like we understand everything else if we are doing this.

MR. EVANS: You would have the same right to understand that -- you know, the answers to questions of any procurement process, and we will make sure that we put together a disclosure that is acceptable to everyone.

MR. ADLER: Great.

MR. EVANS: We want to be careful because we are asking for pretty deep information from managers that we protect what needs to be confidential and disclose what needs to be disclosed and so we will --

MS. MARCH: Well, there is nothing secret in my public life about me, so therefore I am saying in their private life, I want the same information. The whole world knows what my earnings are. The whole world knows my age. They know everything and I want to know the same thing about them.

MR. EVANS: We will work to find the right balance.

MS. BEYER: Mr. Chairman?

MR. AARONSON: Charlotte?

MS. BEYER: What about current managers? Are we asking for the same thing from them? And then second part of my question is you mentioned the word "recognize those who do". What mechanism do you anticipate there other than the mosaic of your judgment?

MR. EVANS: So when we go out and talk about the diversity in the portfolio today -- when I first got here, we talked about the statistics about emerging managers. And emerging managers legally are just small managers. And I looked through the list and I saw quite frankly too many firms that were white guys from Williams that happen to have small firms that qualified as emerging managers. I said this doesn't make sense to me. The whole point of this program is diversity. They said well, it's illegal in California to talk about, you know, diversity. So I said we are not in California; we are in New York, as far as I know. And so we went through this, and you know, worked with legal and so forth and so our emerging manager program is still broad. It still includes small firms, and it could include all-white-male small firms but we don't -- we don't talk about the emerging manager totals anymore. We talk about the MWBE totals, so when I talk about our progress in diversity and minority and women managers, these are certified MWBEs either in New York City or in New York State and have met those criteria and that's the 11 billion dollars, the 6 and a half percent. The emerging managers totals is actually higher, so when we talk going forward, Charlotte, we would talk about MWBE and diverse managers, and diverse managers will be defined based on these criteria, and diverse managers can be very large managers. There is nothing, you know, that would benefit them from their size. It would have to do with what's the diversity, racial and ethnic diversity of their board, their investment professionals. By the way, if there is too much slippage between the compensation diversity and representation diversity, they wouldn't qualify.

MS. BEYER: But the first question, what about current managers because when you talk about recognizing and making a change, one of

the best ways to get change is to measure it, and it would seem to me since nothing is private, what about that?

MR. EVANS: Well, we are today giving our current managers the opportunity to disclose this information to us and the opportunity to be recognized as diverse managers. It will have to be that with existing managers. However, if you want to be a new manager and new procurement, it will be required that you disclose this information, with your blessing, as part of the procurement process.

MS. BEYER: And the recognition factor it would seem to be, if you look at something like minimum wage, gets contagious. So now McDonald's is doing it, international. Aetna was the first and I am just wondering if by recognizing the current managers who are doing a decent job about this, if there are, it would be perhaps contagious, and people will say oh, we better get cracking.

MR. EVANS: Charlotte, you are absolutely right. This is why I spent a fair amount of time in the past few months in

Midtown talking to HR directors. I point you to proxy access and the success we had. Look what happened since General Electric voluntarily decided to let shareholders have a vote in proxy access. Suddenly firms are falling all over themselves to get on the right side of Scott Stringer and Ted Eliopoulos and Chris Ailman and so forth. So -- and TIAA-CREF. So this is what we are hoping for and we have some firms that are actually pretty progressive in their thinking on this topic. It's tough. I mean, you see in the population statistics, real tough. Well, you guys don't see hedge fund managers, but we have hedge fund managers. It's over 250 million dollars in our system, but when you see real diversity at the senior levels in our business, it is truly rare. It is very difficult to achieve, and we need to recognize it when it happens.

MR. AARONSON: So do I hear some reluctance on your part, Scott, for going into our current managers and asking them the same exact question?

MR. EVANS: No. I just can't require

it. I can only require it as part of the procurement process.

MS. MARCH: Can we have a legal opinion that we can't require it?

MR. AARONSON: You can ask them and then give us a list of those who refuse, and their contracts come up, I mean, we may not be able to --

MS. VICKERS: When their contract comes up during the next procurement cycle.

MR. AARONSON: That's what I think. If we ask each of our current managers and then any that do not want to respond, let us know which ones.

MR. EVANS: You know, Mel, what I want to do first, if it's okay with you, what I would like to do first is get one or two big ones to sign up and make a big splash about it when they do and we can recognize them as diverse and give everybody a little chance to fall into line. I think that will happen pretty quickly and I think that means the list of those that refuse to give this information will be quite small, but if we go negative right from the beginning, it will create sort

of an unnecessary adversarial relationship. I think this will actually -- to Charlotte's point, I think this will --
MR. AARONSON: As long as we understand, start it the way you think. You are looking at it for a long time, much longer than I have been thinking about this for the last half hour.
MR. EVANS: Well, you have been thinking about the topic a lot longer than that.
MR. AARONSON: On and off different times but not months.
MR. EVANS: Not this specifically.
MR. AARONSON: So you have a plan in your head. Go after the ones now, but remember that this board would like eventually -- and "eventually" doesn't mean in decades -- that we would like to have each of our managers be asked the same question that we are going to be asking.
MR. EVANS: I get it. I have your total support to be pretty strong with them.
MS. MARCH: Because I would think historically -- I don't know how often we change over managers a lot. So if we

historically looked at our last 30 years, how diversified is our manager selection especially with the largest portion of our assets, so if we are not starting with that, then this will be another 30 years before we move the penny anywhere.
MR. EVANS: And not to play lawyer, but I just want to caution you that we are not able to make this the sole reason that we, you know, decide for or against.
MR. AARONSON: Don't you have sort of a box graph when you --
MS. VICKERS: It's one factor among many.
MR. AARONSON: When we hire somebody, I see often a chart, this is 10 percent, this is 15 percent, and how they rate in each thing. So make this 10 percent. You know, I don't have any figure but it's a required part and it has a certain percentage whether we hire or not.
MR. EVANS: Absolutely right. We will be on that and thank you for your consensus on this.
MR. AARONSON: Good.

John?

MR. ADLER: I have just one more question which I am not clear on and maybe you are not either yet which is -- you know, so we are going to recognize managers that are diverse. How do you define "diverse"?

MR. EVANS: So the thought I have in my mind is not scientific at all. Sort of what's the bar look like in the absence of any information. Well, I have to anchor it to something and the state definition for MWBE is 33 percent, so I have that 33 percent number. So no more than two-thirds and I prefer to look at it in homogenous terms. So you know, the white males, for instance -- or any group but it's usually white males -- couldn't be more than two-thirds of the group.

But I want to get the numbers because we are dealing with a population that is so challenged in this topic that we may have to start the bar lower so to recognize those that are leaders, and then as people begin to get better, we will keep it sort of top quartile or something like that in terms of diversity.

So I don't have a total answer for you

and I think the -- you know, a good sense of what's the appropriate bar will come in when we do get all that information and say okay, this is a top quartile manager in terms of diversity so -- and that's top quartile sort of where I am going or top third.

MS. VICKERS: We would like to come back to the boards once we get permission to move to the next level and talk through all those details together.

MR. AARONSON: I am sure if any board member came to you with an idea that we don't think of right at this moment, we will incorporate it.

MR. EVANS: Oh, yes. Look, the work that you guys have done over the past 30, 40 years has spurred us to try to think outside the box of what we can do to continue the good work. We are all ears if you guys have any ideas about how we could do this better. We really are and we appreciate your support.

MS. TUMILTY: Hi.

MR. AARONSON: Why don't you introduce yourself?

MS. TUMILTY: Sure. I am not David

Levine. I am Ally Tumilty. I work with David Levine at Groom Law Group. We are outside counsel.
Thank you, Scott, for playing lawyer. I think you actually did a very good job on it, and I want to follow up on a little mismatch I thought I heard. You spoke about not assigning an actual value to diversity, and I believe Mel used the term like 10 percent.
MR. EVANS: What we will do -- and Jimmy is my lawyer and can direct me, but what we will do is there will be a score sort of rating on diversity so we can compare one firm to the other. That score won't be a fixed weight in the scoring process. There is legal precedent that has found that to be illegal.
MR. YAN: We can continue more of this discussion in executive session too.
MS. BUDZIK: Right.
MR. EVANS: So we are going to be very careful when we do this on absolutely safe legal ground and will not push this too far, but for the same reason that we look at track record, we look at succession plans, right, there is no specific number on succession

plans, but it's part of our due diligence process. Is the decision-making team diverse is something we think is important.
MS. TUMILTY: Thank you.
MR. AARONSON: Okay. Anybody else have any comment? Yes? Thank you. I think this is a project that everybody is going to look forward to working on and accomplishing.
MR. EVANS: I guess our next thing is the education presentation from Rocaton.
MS. PELLISH: I think everyone received this electronically already but we have additional copies, and this is intended to be responsive to the Board's request for both BAM and Rocaton to collaborate on a series of brief, hopefully helpful educational topics and this is the first in the series. I think we talked about a potential list of topics at the last meeting, so what we are going to focus on today is what investor manager performance can tell us.
And if we can turn to the introduction, we wanted to spend some time on this topic because the Board spends a lot of time on this topic and the investors, both in general and

retail, spend a lot of time on this topic and I thought it would be useful to have a discussion about what historical performance can and can't tell us. What is it useful for?

The art of performance measurement -- and it is an art -- has expanded over the past decade beyond simple examination of actual returns to include examination of risk characteristics, to look at style-specific benchmarks, and to look at peer groups and we are going to look at what all of that means. I think if I had one takeaway from this topic, it would be that historical performance is most useful as a guide to whether a manager is meeting risk and return expectations or not, and if they are not, to spur additional due diligence. Beyond that, performance -- historical performance simply doesn't tell us much. We spend a lot of time looking at it, but I think it's really most useful as a guide or an indication as to when you really need to dig deeper and ask more questions and uncover potential events or issues that are causing the pattern of returns to deviate from expectations.

So if we can move forward, we have on the next page, page 3, some definitions. I suspect this group is very familiar with all these definitions because we use them a lot, but just to set a common ground, in performance, when we talk about both absolute returns, which are just really the numbers that have been generated, and relative returns, because while absolute returns are important because that's what you have generated, we, in many asset classes -- not all asset classes but in many asset classes, we have the option to index.

And I would say I think it's been the Board's practice in the past and it's certainly Rocaton's perspective that the retention of any active management strategy has to always be contrasted against the low-cost alternative, which is indexing. And the default decision is to index where possible. That's not possible in every asset class, but it's certainly possible in the asset classes that are most heavily used in both the Variable and Pension Funds and so we always want to be looking at returns relative to the low-cost passive alternative.

And we are assuming here, although we didn't explicitly state it, that we are always looking at returns net of fees because returns gross of fees simply aren't that useful. We also want to make sure we are not only looking at returns, we are looking at the risks that's been assumed to generate those returns, and I use a simple example of if you have two managers, one that at the end of five years generated an average annual return of 7 percent per year but one has had significant volatility and one has had very little volatility, you always prefer the manager with less uncertainty. Volatility is nothing more than uncertainty, and so less risk is better. Less risk is also typically associated with less return.

But we want to make sure that the pattern of risk is consistent with what we expect both in terms of volatility or standard deviation as well as downside volatility, which is just what you have experienced in terms of negative returns, and then we also want to look at tracking error because each of

these in the public markets, we are retaining managers to outperform their benchmarks. We want to understand what risk they are taking relative to the benchmark.

Now, risk is not a bad thing necessarily. But we want to make sure we are compensated for risk, and we want to make sure that the risk that is being taken is consistent with what we expect. So we marry the performance information and the risk information to generate risk-adjusted performance and you see that in the Variable Funds returns that the reports have been adjusted and I think improved to reflect those. So we will look more at risk-adjusted returns.

So -- and please stop me if there are any questions or I am not being clear in the report. So let's go to page 4, and page 4 takes a look at some of the managers that are currently in the Variable Fund program. These are the managers that are in the Diversified Active Manager program. And it's a pretty eclectic group. Lots of different styles. And what we have done here is generate a score card. This is actually something we use with many of our clients. And what it does is it looks only at relative returns because for this exercise we are not interested in what the absolute returns are. These are all public equity managers so we could have indexed this entire allocation.

So we are interested in how the managers have done on both the risk and return basis relative to the appropriate style-specific benchmark. And on the first set of columns, you see excess returns. So we have 3-year average analyzed excess returns. So that's simply the return minus the benchmark return, whatever their appropriate benchmark was. Then we look at that over the past five years, and then importantly, we compare it to what we would expect. And these again, we are only looking at net returns. This is after management fees, and in a minute I will tell you how we developed those excess return expectations. Let me keep going.

The next set of columns are tracking error, and that's the risk relative to the benchmark. So that's just how volatile are

the patterns of the managers' excess returns relative to the benchmark. So if the managers' excess returns were exactly equal to the benchmarks every year, it would be zero tracking error and you wouldn't hire them. So you want some tracking error. You are hiring an active manager. They are supposed to have tracking error. That's the only way you can generate excess returns is to have some differences to the benchmark, but we have tracking error indications and we measured both the three- and five-year tracking error relative to expectations.

We marry the excess returns to the tracking error and we get a ratio and that's just called the information ratio. How much return over the benchmark have we generated for every unit of risk relative to the benchmark. So everything is relative to the index that we could have used, and we compare that to our expectations. So the most important thing about this chart is that we have expectations. So rather than trying to say is this a good, bad, or different number that we have generated from the manager, we have expectations. And the way we develop the information ratio expectations is that we actually look at peer groups that each one of these managers falls into, and we say over the past five years what was the -- over rolling five-year periods, what was the top 40th percentile? So slightly above median. What was the top 40th percentile of managers in those peer groups actually able to achieve?

MR. ADLER: That's in terms of information ratio or in terms --

MS. PELLISH: Information ratio.

MR. ADLER: Okay. So that number is the 40th percentile number?

MS. PELLISH: Yes.

MR. EVANS: So do you find -- while we are on this topic, you are basically saying what's good, what kind of information ratio is good. Well, large-cap value, good may be, you know, .2 or 20 percent of the chatter, the standard deviation of benchmark returns versus the portfolio return. Large-cap growth may be .08. How stable is that over very long time periods, you look at rolling five-year average. So you end up looking at different

regimes over -- you probably have 40 or 50 years of data. Are they stable or do we end up looking at last year's war?

MS. PELLISH: That's a very good point. It turns out -- and this is a sort of an interesting fact -- that risk is a pretty stable return and excess return is very unstable. So we try to look at and we do look at quite a few rolling five-year periods so we are not just looking at the last five years, and we talk a little bit about that further in the deck about end date dependency but that's a great point. You have to be very careful not to get in the trap of just looking back at recent performance experience. So it's multiple five-year periods.

So we look at the 40th percentile of peer group data, and then we look at the managers' historical tracking error so that number, the long-term tracking error expectation reflects what the manager historically has done because it turns out tracking error over long periods of time is pretty stable and then we simply use those two numbers to solve for the long-term performance

expectation.
So what we have said here is that for INTECH, our long-term excess returns expectations net of fees is 12 basis points, and you might say should we really bother for 12 basis points and that's a real question to ask. For a manager like Jackson Square, where they have lots of tracking error, we expect on average 130 basis points of excess return and the list goes down. So what this is basically saying is the more tracking error a manager has, the more uncertainty the pattern of their returns relative to the benchmark, the more excess returns we should get out of that manager, and that's the pattern that you see here. So this is really an art and we can generate numbers to the sixth decimal place, but there has to be a logic that there has to be some rigor, and what we are trying to do is say what is a reasonable set of return expectations for managers given their long-term risk characteristics.
MR. EVANS: As a user of this type of information, it's extraordinarily helpful because these guys have gone to the lengths to

stratify this information across many, many managers and build in expectations so that we can compare one manager to the other, and so it's very, very useful for an outfit like BAM to have this kind of information at our disposal.
MR. ADLER: Can I ask a question?
MS. PELLISH: Of course.
MR. ADLER: It's interesting to me that, you know, the numbers are the same for value and growth in terms of the long-term excess return expectation. You know, looking at the third and fourth lines yet obviously, you know, this last five-year period, three- and five-year periods have been much better for growth stocks than for value stocks. So in some ways it feels like that there ought to be -- there is a market cycle issue here, right?
MS. PELLISH: Yes.
MR. ADLER: Which is not reflected in the long-term return expectation vis-a-vis the actual returns for this period of time which, you know, we have been in this growth cycle so we haven't -- you know what I am saying?
MS. PELLISH: Yes.

MR. EVANS: You are almost asking shouldn't we look at what percentile is the information ratio of this growth fund versus other growth funds.
MS. PELLISH: We do. That's what we are doing.
MR. EVANS: In the expectation but he is saying in the -- you have a period where the cycle you are in is very different from the cycle you assumed, you might be giving too much credit or too little credit to the manager. If you were to sort of decile the information ratio among large-cap managers, wouldn't you be offsetting that cycle? I think that's what you are --
MS. PELLISH: I am not -- I want to understand better what you are saying. I am not following.
MR. ADLER: I guess what I am really getting at if you look at these numbers -- forget the red and green bars, right? You see, for example, the all cap value manager NewSouth has, you know, obviously underperformed during this period both vis-a-vis the long-term excess return

expectation and vis-a-vis the growth managers. Well, not actually the first growth manager. Just Clearbridge but that's not -- because of the point that we are in in this cycle, the market cycle.
MR. EVANS: Is that because all all-cap managers have underperformed expectations or just this one?
MR. ADLER: Well, all-cap value managers.
MR. EVANS: I'm sorry. All-cap value managers.
MR. ADLER: That's what I am saying.
MR. EVANS: That's where I am -- I was getting at. If you sort of hit the percentile within the category over a current period, you get a sense --
MR. FULVIO: So as Robin was mentioning before, this obviously is a very end-point sensitive analysis, and I think given the change of a cycle, we are coming out of a growth cycle or who knows if we are coming out of it but we have been in one for a while, and we have seen value cycles twice as long as this growth cycle has been, but when we are

looking at peer information for information ratios, we actually examine the styles separately. We examine all-cap growth, for example, on its own, separate from all-cap value, and what we found though there are differences over long-term time periods, the differences actually wash out over time. So the expectations themselves, we actually got to a kind of central view as opposed to having separate growth and value.

MR. EVANS: Because you rank them against each other anyway.

MS. PELLISH: I think a lot of this gets solved by the fact that we look at styles relative to style benchmarks and relative to style peers, so a lot of the sort of regime problem gets dealt with that way. Let me point out one other thing, which is the green and red bars. So one of the questions this raises is well, if you are different from your long-term excess return or risk expectation, how different do you have to be before you worry about it because we know the targets are just estimates.

You are going to be either above or

below the targets, so how much do you have to deviate before you really care and what we do is we develop expectations around these targets, and we say if you are more than one standard deviation away from that excess target, then we care. That's a big enough difference, and so if you are below that one standard deviation range, you are red. If you are above it, we also want to understand. If you are doing way better than we expected you to do, what's going on. That could also be a trigger for more due diligence. So we look at -- all of these numbers are going to be different than their actual point estimates of their expectations, but the range of difference, which is informed by their tracking error tells us whether we have to dig deeper.

MR. EVANS: So you are using this -- I am pretty sure you are saying this. I want to be sure. At a sort of first blush look, if you are red, it doesn't mean you have failed. It means you are creating performance that we care about finding more information. So being very red may call for a call or a visit or some sort of deep vetting with the manager to find out what is going on, but it's not necessarily a suggestion --

MS. PELLISH: This is a way -- yes, so this is a way to dig through, you know, if you have very large portfolios with lots of managers, and it's a way to look at the data and isolate and gather information from data and isolate data that is different than that which we would expect.

So I think I beat that to death. So if we go to page 5, I will just spend a little bit of time looking at this. The whole reason for looking at risk-adjusted performance -- so I will just do this briefly -- is to say it allows us to compare managers returns where the pattern of return is very different.

So we look at two managers. You have Sound Shore, which is a large-cap manager and Shapiro, which is a small-cap manager, both two very good firms. You have had Sound Shore for maybe 30 years. Literally maybe 30 years in the program and you had Shapiro for maybe a decade or more perhaps. Yes, time flies.

And so what we want to show you here is

that if you look over the last three years and just looked at their excess returns versus their benchmarks, you will see they are each generating about 300 basis points -- this is after fees -- relative to their benchmarks. Really amazing numbers. So if we just looked at the last three years, we will say boy, those managers returns are pretty similar, but if you look at the tracking error of the last three years, you will see Shapiro takes a lot more tracking error which we know and expect. So the information ratio for Shapiro is actually less than that of Sound Shore.

So this is just another narrower lens to look at, illustrate why we look at risk-adjusted returns, otherwise known as information ratio, because it helps us understand how different are the managers' patterns of returns and did we get paid for taking that risk relative to the benchmark.

So I would like to flip to a slightly different subject, which is page 6, and we have been talking about three-year returns and five-year returns and I want to emphasize that really what we want to examine is the pattern of returns, and we look at three-year and five-year returns because it's convenient and it's easy to look at three and five years and it's a nice way. It's consistent with the way we measure performance. It's just convenient but it also carries a little bit of danger, particularly for managers that have a lot of tracking error or a lot of volatility relative to the benchmark.

So this is a messy page so let me highlight the important data on this page. If you look at the solid gray peaks and valleys, the solid gray peaks and valleys -- let me first tell you, this is Walter Scott who are one of your large-cap international equity managers and we measure them based -- versus the EAFE Growth Index. So they are a growth international manager. We think the EAFE Growth Index is a reasonable proxy for their style, and we could invest in the EAFE Growth Index and pay a significantly lower fee.

So we know that Walter Scott has a lot of tracking error and I forget what the number is, but if you look back you can see -- oh, we don't have it here, but they are one of the

higher tracking error managers you have. So we want to look at the pattern of returns. So let's look at the light gray peaks and valleys. The light gray peaks and valleys reflect Walter Scott's returns, absolute returns. This is not relative to the benchmark. This is just what they have generated. So you see sometimes they are strongly positive returns, sometimes they are negative returns.

And let's look at the right side. They correspond to the right-hand axis. So that axis goes down to minus 20 and up to positive 35 percent, so you can see they have approached 30 percent annual returns and these are over three-year rolling periods. So we are looking at three-year rolling periods. So for example, if you look at their data in December '05, you would say over the past three years they have averaged an annual return approaching 30 percent. Pretty good absolute returns, but as we just talked about, the alternative is to index so we want to make sure that we haven't -- wouldn't have been better off just indexing at a lower fee.

So if we look at -- for relative returns is this red line. So the solid red line corresponds to the left-hand axis which goes from zero percent up to 15 percent and down to minus 9 percent, and it says over the same time periods, if we subtracted this total absolute return of Walter Scott from the benchmark, how would we have looked.

So there is a couple of interesting points here. One is that if you look at the peaks of the red lines, which again are excess returns, you can see that they are almost inversely correlated to the absolute return. So you see a peak around December '02 in the excess -- in the relative return line, which is that solid red line, and you see a valley in the absolute return, which is the light gray, and conversely you see that if you go around December '06, you see that the relative return hits negative 3 percent on a rolling three-year basis, but the absolute returns are pretty high. So what this is saying is this manager actually protects on the downside and lags on the upside, which we know and it's a consistent pattern and it's part of their

investment philosophy and it's what they seek to do and this pattern of returns says they have done that. And it doesn't always feel very good, but if you look at the overall pattern of returns, they have accomplished at least one of the tenets of their philosophy.

Let me tell you one other thing, which is in the bottom left-hand box, since inception for this product, your annualized average return over approximately 20 years has been 7.7 percent. Now, this happens to be a gross number because you haven't had them for this entire period of time so this is their composite returns. So let's subtract even 80 basis points. That would get you about 6.9 percent. The Index has returned 4.4 percent. So over this very long period of time, they have generated significant excess return. There has been a lot of volatility to that excess return, but they have outperformed when markets are bad.

So there is more data that shows here, but the point is the pattern of returns, not just the last three and five years is what is important.

MR. GANTZ: Robin, I will be very brief because I know Scott wants me to be very brief. The last three high-yield searches that we did are very unique. It just happens to be coincidental with market peaks and valleys. So we did the search in 2012 and we did the search in 2003. We have nine-year contracts. The search we did in 2002 -- actually 2002, we hired. In 2003, the end-date performance was June 30, 2002. That was the week of WorldCom, and in the high-yield market, the high-yield market basically collapsed that week. If you were an aggressive manager, your performance was wrecked to the point that some of the more aggressive managers, it went back ten years and it wrecked ten years of performance. So your end date, if you look at the ten-year period, if you look at just the horse race of the absolute returns, not risk adjusted returns, you would say you would never hire an aggressive manager in 2002.

Of course, who outperformed over the next nine years? The most aggressive managers. In 2012, when we did the search,

the same thing happened. It was a bull market in credit for the last few years, so who outperformed? The most aggressive managers. So you would never hire the most defensive managers.

Now, we want a portfolio that's risk adjusted, that hires aggressive, defensive, and core managers. So managers are zigging and zagging and taken together, you have a nice portfolio together, but if you just looked at the nonrisk adjusted numbers, in 2012, you would have never hired a defensive manager, and in 2003, you would never have hired an aggressive manager.

MR. EVANS: So it's important to have a portfolio within the portfolio of managers in each different group that work well together. Walter Scott is a very volatile manager. When you talk to them, they have a very straightforward, extremely long term -- they are Scottish -- extremely long-term outlook on things. They are in a very narrow portfolio. They are the perfect manager to buy when things are down and to sell when things are up, otherwise known as rebalancing. So if you are keeping sort of an equal exposure to your managers, they have terrible performance. That's when you want to buy. They have fantastic performance, that's when you want to sell.

So when we put our rebalancing program together this summer, their performance was terrible and we were buying. We were one of their only clients who were buying. We bought several hundred million dollars and their performance shot back up because they don't care about matching the index. They could care less. They are totally focused on the long term, and as a result, their numbers are all over the place. But you can't have a whole portfolio of them, which is why we work with Rocaton to look at numbers like this so we are with other managers that are compatible to make sure the whole portfolio is not jumping all around like the Walter Scott.

MS. PELLISH: I am just going to touch on one other topic which is peer group analysis. So we emphasized that we look at data relative to peer groups. We have established target information ratios based on

peer groups to make sure we are not penalizing or rewarding managers because of their styles they favor. We also look at managers' rankings within peer groups, but what we and many others have observed over time is that rankings within peer groups, most notably within equity peer groups, is notoriously unstable and unreliable as an indicator of anything going forward.

So let me turn you to page 8, and I will show you some interesting data. What we have done here is we have compared two five-year periods so they are not overlapping. We look at the five years ending 12/31/2009 and then we look separately at the five years ending 12/31/2014 so at a sample of two separate data groups. Two separate periods. And what we said is let's look at the top quartile managers among U.S. large-cap equity managers in the five years ending 2009, and let's follow those managers and see how they did in the five years ending 2014.

So if we took the top 25 percent of managers from 2009 and looked at the subsequent five years of that group, 38 percent fell above median and the remainder fell below median. So if you were just looking at things randomly, you would never invest in those top quartile managers from the first five-year period.

If we look at the bottom quartile managers from the first five-year period and we said how did they do in the next five-year period, we would have found that almost 60 percent of them were above median in the next five-year period. So sort of like the inverse.

And we show that is true on the next page with small-cap equity. We show it's true in developed international large cap equity, and we have looked at this. It is an anomalous result from just these two five-year periods. Whatever five years, we look at this every year and it's true every year and it's true not only -- you know, when they say in mutual funds historical performance is not predictive of future performance, they really mean it. It's really true and it's true for not only for absolute performance, not only for relative performance, but it's true for

peer group rankings as well. Yes.

MR. ADLER: So correct me if I am wrong, but that seems to be an argument for indexing.

MS. PELLISH: Yes.

MR. EVANS: Well, if you are going to do anything -- it says if you are going to do anything based on the odds and the odds aren't much better, you buy the guys that are down, but to me, this is just powerful stuff about persistence. If individual investors in the United States would somehow be able to inject this through their brains so their behavior didn't chase the hot performing bonds, we would create billions of dollars as well. John Bollinger had done studies. I am sure you guys have as well. Investors, particularly individuals, continually destroy wealth by chasing last year's hot funds.

MR. AARONSON: These managers that went from below median to above median and so forth, is there any consistency in the ones that were above median so that in the first five-year period they were above median and the same ones were above median in the next, or is the fact that when you have active management, very few active managers even though some years they may regularly beat the index --

MS. PELLISH: Yes. So I am going to rephrase -- so we haven't been able to find and nor has anyone that I am aware of been able to find characteristics of managers that are predictive of future strong performance. The one -- the one predictive element that there seems to be some real data for is this concept about share. So managers that look very different from the benchmark, that seems to help their performance, but we, along with every other institutional investor and every other consultant in the world, spend a lot of time winnowing through thousands and thousands of active managers trying to find a few good men mostly but trying to find other people too.

But that's why we say in asset classes, where you can index -- and that's true in all of U.S. and international. Indexing is always your default, and the bar for hiring an active manager has to be high because not only are you paying fees -- fortunately, the New York

City and TRS have negotiated very, very competitive fees, but there is a lot of time and effort spent talking about these managers on the staff's part and consultants' part and most importantly on the Board's part.

So unless we really think we are going to be significantly rewarded, we shouldn't bother. Now, there are lots of asset classes including private asset classes, including things like yield and convertible where index for a variety of reasons isn't even possible and isn't a good idea, but your largest investments are not in those asset classes. So we have some other information about bank loans. Bank loans do show some persistence, but I will just conclude by saying there is a lot of data here, there is a lot of information that we gather, that TRS and BAM gather. And we want to make sure that we are using data wisely and winnowing through the data to really identify information that focuses our efforts on those managers that require additional due diligence.

MR. AARONSON: So my concern is the fees we are paying for active management, and I wonder is there some way to compare how TRS has done over the years between the asset allocation we had and the managers we have had, and if we purely indexed over that same period of time, how much difference would there have been.

For instance, when we started our program, we were 100 percent fixed income in 1970 -- in 1981 or so when I started. We got a new actuary at that time, and the new actuary said that's terrible; you should be invested in equities. And so we changed our investment. I don't recall exactly. It might have been 50 and 50 percent first and eventually went to 60 percent equities and 40 percent and it was just pure public equities and pure public fixed income investments and then over the years, we added alternative investments and -- but our asset allocations stayed about the same. For a while it was 70/30 in equities, which included many of these alternatives, and then now I believe our asset allocation recommendation is 67 percent equities, 33 percent fixed income.

It was -- we thought -- a few years ago,

the actuary recommended that we not be taking so much risk at 70 percent equities and cut our risk to 67 percent equities and all our changes that occurred, what I would like to see is is there anything that could show us we would have been better off indexing every time we made these changes.

It's my understanding -- I think about this frequently when I think about our investments. Wise people -- that's probably you -- told us that the asset allocation choice gives you about 90 percent of your return, and the managers that you select provide only 10 percent of the return. So may not be exactly right. I would like to see how we would have done. Is it possible to do that?

MS. PELLISH: Sure. Sure.

MR. AARONSON: Could you add that to the list of things to do?

MS. PELLISH: Yes, absolutely. We will have to use some assumptions about returns because the Pension Fund historical returns aren't net of fees.

MR. EVANS: We have been working on the

net of fees.
MS. PELLISH: We can collaborate and work on that.
MR. EVANS: We will take that challenge as well.
MR. AARONSON: When I heard the word "collaborate", it's not a very positive word. You are going to work together.
MR. EVANS: You have to realize we collaborate on everything. Rocaton is our partner. Without the type of data that they have, the type of analysis they have, we would need a far greater staff at BAM. We are built to work collaboratively with firms like Rocaton.
MS. MARCH: I want everybody to understand if we get to that point, my dream will finally come true.
MR. AARONSON: Are you finished with your presentation?
MS. PELLISH: I am. Thank you for your attention.
MR. AARONSON: Sorry I interrupted several times. Is there anybody here that would like to ask any questions about this?

MS. PELLISH: Thank you.
MR. AARONSON: Thank you guys very much for that. And we look forward to maybe at each board meeting or whatever it is some more education.
MS. PELLISH: That's the plan.
Well, we have one more -- oh, public. Sorry.
MR. AARONSON: Scott, is that --
MR. EVANS: I think that's it, Mr. Chairman, for our public session. We are ready to go into the private session when you are.
MS. MARCH: I move pursuant to Public Officer Law's Section 105 to go into executive session for discussion regarding the purchase of sale of securities and updates on specific investment managers.
MR. AARONSON: So do I hear a second?
MS. VICKERS: Second.
MR. AARONSON: Any discussion? Those in favor? Aye.
MS. BEYER: Aye.
MR. BROWN: Aye.
MS. MARCH: Aye.

MS. VICKERS: Aye.
MR. ADLER: Aye.
MR. AARONSON: Any opposed? Okay.
We are now in executive session and I suggest a 10-minute break.
(Recess taken.)
MR. AARONSON: Everybody good? Okay. I think we need -- do I hear a motion to move out of executive session?
MS. MARCH: So moved.
MR. AARONSON: Is there a second?
MR. ADLER: Second.
MR. AARONSON: Any discussion? Seeing none, everybody who wants to go out of executive session say. Aye.
MS. BEYER: Aye.
MR. BROWN: Aye.
MS. MARCH: Aye.
MS. VICKERS: Aye.
MR. AARONSON: Anybody who is opposed say no. The ayes have it. So we are now longer in executive session. We are back in public session, and we would like to put into the record a summary of what we did in the executive session.

Ms. Stang?
MS. STANG: Certainly. In the executive session for the Variable Funds, a presentation about changing the target allocation within the active sector of Variable A was received and discussed. Consensus was reached, which will be announced at the appropriate time.
In the executive session of the Pension Fund, there was a discussion of the process and scheduling in 2015 of RFPs for new investment managers which were received and discussed. Consensus was reached, which will be announced at the appropriate time.
Two manager updates were presented. There was a discussion about a real estate investment and different appraisal techniques within the real estate industry. There was a discussion of valuation techniques, industry practices and fees in the private equity industry and how it fits within the overall asset allocation.
MR. AARONSON: Thank you. Is there anybody who wants to add or subtract anything? Okay. So we are now ready for a motion to adjourn until our next meeting in May.

MS. MARCH: No, I am not ready. I am not ready. I would just like to -- I know everybody may or may not be aware of it. This is Mr. Aaronson's last --
MR. AARONSON: No.
MS. MARCH: Okay. I take it back.
MR. AARONSON: The next meeting is the meeting of May, and I will be a member of the retirement board until the beginning of May.
(Discussion off the record.)
MS. MARCH: It is Mr. Aaronson's last board meeting and it's all right. He always thought I was wrong but that's okay. And I just personally want to take the opportunity because of his 34 or 35 years here --
MR. AARONSON: 1980 so 35.
MS. MARCH: I have been there for 30 of those years and it has been -- was anybody here those 30 years? So I guess I am the only person. It has been a pleasure to work with you all of those years, Mr. Aaronson, and we wish you well and we hope to see you on a regular basis.
MR. AARONSON: Thank you very much. I plan to be around and to do what I can to help

in my new position as nobody to affect the retirement security for teachers. I am also going to be working hard on retirement security for all. I am going to be continuing my work with the National Conference on Public Employee Retirement Systems, and so I thank you very much, all of you, for I know your deep, deep concern for the members of the retirement system and for making sure that we provide them with retirement security and continue to do that, and investment staff at BAM I know works very hard in doing that. I know the Mayor's office for the last couple of months have worked hard in doing that, and I especially want to thank the people from Rocaton. Before there was a Rocaton, there were other companies that -- and for the whole 35 years that I have been on the Board, we have had really the same consultant and --
MS. PELLISH: But it wasn't always me.
MR. AARONSON: Not always Robin and I just want to say that when I became a member of the Board, the Board had 4 billion dollars in assets. We heard a report today that we have 60 billion dollars in assets, and in the

35 years I don't know how many billions of dollars we have paid to retirees and therefore put into the economy of New York State since most retirees stay here in New York State, and so I really feel good about that and I thank you all for all of your service to the system.

(Applause)

MR. AARONSON: We are adjourned.

(Time noted: 1:21 p.m.)

C E R T I F I C A T E

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

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

IN WITNESS WHEREOF, I have hereunto set my hand this 6th day of April, 2015.

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YAFFA KAPLAN