Joint Meeting of The Board of Trustees And Investment Advisory Committee Minutes

December 9, 2020

Presented for Review and Approval

March 10, 2021

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JOINT MEETING OF THE
BOARD OF TRUSTEES AND
INVESTMENT ADVISORY COMMITTEE
EMPLOYEES RETIREMENT SYSTEM OF TEXAS

The December 9, 2020 meeting of the ERS Board of Trustees was held by video conference call as authorized under Section 551.127 of the Texas Government Code, in accordance with the governor's authorization concerning suspension of certain open meeting law requirements in response to the covid-19 (coronavirus) disaster. A quorum of members of the Board participated in the meeting remotely and will be visible and/or audible to the public.

TRUSTEES PRESENT
Craig Hester, Chair
Catherine Melvin, Vice Chair
Brian Barth, Member
Ilesa Daniels, Member
Dr. James Kee, Member

INVESTMENT ADVISORY COMMITTEE (IAC) PRESENT
Bob Alley, Chair
Gene Needles, Vice-Chair
Caroline Cooley, Member
Laurie Dotter, Member
James Hille, Member
Milton Hixson, Member
Ken Mindell, Member

ERS DIRECTORS PRESENT
Porter Wilson, Executive Director
Catherine Terrell, Deputy Executive Director
Paula A. Jones, Deputy Executive Director and General Counsel
Tony Chavez, Director of Internal Audit
Diana Kongevick, Director of Group Benefits
Kathryn Tesar, Director of Benefits Communications
Tom Tull, Chief Investment Officer

ERS STAFF PRESENT
Georgina Bouton, Group Benefits
Carlos Chujoy, Investments
Michael Clements, Investments
Kelley Davenport, Executive Office
Bernie Hajovsky, Executive Office
Andrew Hodson, Investments
Lauren Honza, Investments
Lanesia Jones, Investments
Tressie Landry, Audit
Bruce Marton, Information Systems
Michael McCrary, Investments
Roger Nooner, Benefits Communications
Tanna Ridgway, Investments
Benjamin Schuman, Investments
Bob Sessa, Investments
Pablo de la Sierra Perez, Investments
John Streun, Investments
Ariana Whaley, Government Relations

VISITORS PRESENT
Tom Aaron, Moody's Investors Service
Sam Austin, NEPC
Ryan Falls, Gabriel, Roeder, Smith and Company
Michael Malchenko, NEPC
Joe Newton, Gabriel Roeder & Smith
Thomas Nun, GWI Portfolio Strategist
Robert Prentice, University of Texas at Austin
Nick Samuels, Moody's Investors Service
Dana Woolfrey, Gabriel, Roeder, Smith and Company
Richard Whymark, AV Vendor

Call to Order the Joint Meeting of the ERS Board of Trustees and Investment Advisory committee

24. Call Meeting of the Board of Trustees to Order

Mr. Craig Hester, Chair of the Board of Trustees (Board) for the Employees Retirement System of Texas (ERS), called to reconvene with the Investment Advisory Committee (IAC) to take up the following Joint Meeting of the Board of Trustees and Investment Advisory Committee agenda items.

A public notice of the ERS Board of Trustees containing all items on the proposed agenda item was filed with the Office of the Secretary of State at 1:22 p.m. on Monday, November 23, 2020 as required by Chapter 551, Texas Government Code, referred to as "The Open Meetings Law."

25. Call Meeting of the Investment Advisory Committee to Order

Mr. Bob Alley, Chair of the IAC for ERS, called the meeting to order and read the following statement:

A public notice of the ERS Board of Trustees containing all items on the proposed agenda item was filed with the Office of the Secretary of State at 1:22 p.m. on Monday, November 23, 2020 as required by Chapter 551, Texas Government Code, referred to as "The Open Meetings Law"

26. Review and Approval of the Minutes to the August 19, 2020 Joint Meeting of the Board of Trustees and Investment Advisory Committee – (Action)

Mr. Bob Alley, IAC Chair, opened the floor for a motion on the approval of the minutes from the August 19, 2020 Joint Meeting of the Board of Trustees and Investment Advisory Committee.

The IAC then took the following action:

Motion made to move that the Investment Advisory Committee of the Employees Retirement System of Texas approve the minutes of the Joint Meeting of the Board and IAC held on August 19, 2020.

Motion by Gene Needles, seconded by Caroline Cooley
Final Resolution: Motion Carries
Aye: Robert G. Alley, Gene Needles, James R. Hille, Milton Hixson, Ken Mindell, Caroline Cooley, Lauri Dotter

The Board of Trustees then took the following action:

Motion made to move that the Board of Trustees of the Employees Retirement System of Texas approve the minutes of the Joint Meeting of the Board and IAC held on August 19, 2020.

Motion by Brian Barth, seconded by James Kee
Final Resolution: Motion Carries
Aye: Ilesa Daniels, James Kee, Craig Hester, Brian Barth, Catherine Melvin, Brian Barth

There were no questions or further discussion.

27. *Discussion and Training Regarding Ethics

Ms. Paula A. Jones, Deputy Executive Director and General Counsel, and Dr. Robert Prentice, Department Chair and Professor, University of Texas at Austin, McCombs School of Business presented the annual training on ethics.

Ms. Jones revisited the ERS policies and noted that ERS employees are required to perform their duties in an ethical manner while working from home, just as they would when they are in their office

environment, as required by the ERS Personnel Policy and Procedure Manual. She further noted that ERS works very hard to promote an ethical work environment.

Ms. Jones noted that all new employees receive ethics-related training during new hire orientation from the Deputy Executive Director and General Counsel who also serves as the ERS Ethics Officer.

Ms. Jones stated that employees, at all levels, are encouraged to discuss issues with supervisors, Human Resources, or the Ethics Officer. She further stated that possible ethics violations can be reported via the ERS Intranet site, and the alleged violations can be reported anonymously as well. She noted the reports come directly to her, the Director of Human Resources and the Director of Internal Audit. She highlighted that all reports are investigated.

Ms. Jones reported that there were no reports of ethics violation for Fiscal Year 2020.

Ms. Jones discussed that all ERS staff are required to complete annual ethics training and that all ERS staff completed the ethics training in FY20. She went on to say that the Investment policy requires that the ERS Board of Trustees, IAC members, and Investment-related staff must receive ethics training annually.

Dr. Prentice presented the ethics training on various topics of ethics. He focused on the importance of being self-aware and cognizant of our own biases, and other topics. His presentation included tips on how to identify and manage ethical situations and provided suggestions on managing ethical situations.

There were no questions or further discussion, and no action was required on this item.

28. *Review of Retirement Program Actuarial Valuations and Financial Status

Ms. Ariana Whaley, ERS Pension Policy Analyst, Governmental Relations, introduced Mr. Ryan Falls, Mr. Joseph Newton and Ms. Dana Woolfrey, actuaries from Gabriel, Roeder, Smith and Company (GRS), ERS' independent consulting actuaries for retirement, to present the results of the annual actuarial valuations on the pre-funded pension plans as of August 31, 2020.

Mr. Falls started the presentation by explaining that the message for the plans have not changed since discussion in May 2020 during the Experience Study. All three pre-funded plans are on a path to run out of funds to pay benefits. The ERS and Judicial Retirement System (JRS) 2 Plans are expected to deplete within the next 40 years based on current expectations for retiree lifetimes, contributions and investments earnings. The supplemental plan for law enforcement and custodial officers (LECO) will run out of money in 20 years based on current expectations. Two decades is a very short timeframe in pension terms. Mr. Falls reiterated the dire situation of all three pension plans and the need to do something because delays allow the liability hole to get deeper and changes become even more extreme to fix the funding problem.

Mr. Falls presented the "pension funding equation" to explain that a pension plan needs to receive contributions over time that accumulate investment returns to have money on hand to pay benefits. It is actually a simple formula that money in (through contributions and investment earnings) must equal the money out (through benefit payments and administrative expenses). When a portion of this equation is out of balance then another portion must change to rebalance it. The investment returns are a large piece of the revenue, but additional investment earnings is not a realistic lever to get this equation in balance. The board has internal staff and consultants that monitor risk tolerance and adjust the asset allocation accordingly to get the best returns. This leaves the contributions in and benefit outs as the levers that must change to rebalance the ERS plans.

Mr. Hester asked when the Board will have to shift to a more conservative allocation to maintain appropriate liquidity to pay benefits, which will compound the funding problem. Mr. Newton responded that it is sooner than expected. If no payment plan is put into the place during the upcoming session, then the next time ERS performs an asset allocation study, there will be real concerns about liquidity issues.

Ms. Jones interjected that when performing an Experience Study as fiduciary it is important for the board and IAC to make appropriate decisions from a risk perspective without regard to an expected actuarial return. Mr. Hester reiterated that the benefits are defined and ERS has to manage the fund through the current investment and economic environment, leaving the need for an increase in contributions to the plans. After Mr. Falls brought up benefit security, Ms. Melvin commented that the outlook of the LECOS plan is particularly concerning given the front-line law enforcement officials and custodial officers that it serves.

Mr. Falls reported that investment returns for FY20 were just under the 7% assumption which helped keep the projections in line with what was previously discussed during the Experience Study discussions. He noted that some of the previously smoothed investment shortfalls from last year's 3% return will impact the actuarial value of assets but roughly still in line with expectations. As of August 31, 2020 the actuarial value of ERS plan assets was $28 billion, with liabilities valued at $43 billion, resulting in an unfunded liability of almost $15 billion and a funding ratio of 66%. The largest driver of the change from last year's $11.7 billion unfunded liability is due to the assumption changes which adjusted the expected return from investments. The ERS plan has an infinite funding period and is on a path to run out of money in 41 years.

Mr. Falls moved on to present the funded ratio trajectories of the ERS Plan to give additional context of the status of the plan to the investment returns. He explained that the current trajectory would head towards 0% funded based on a 7% rate of return assumption. However, if the ERS fund earned 6% over the next 30 years, the depletion date would accelerate by about 10 years. Further, if the next 20 years would look like the returns of the last 20 years starting with the two major financial crises of the 2000s but still average to about a 6% return, the fund depletion would accelerate an additional four or five years.

Since it is unlikely that the fund will return 6% or 7% every year, he presented a stochastic projection which accounts for the volatility or variance in the returns averaging around a 7% return but taking different annual return paths to get there. He explained when considering the order of the various returns that ultimately average to a 7% investment return, there are scenarios where the fund would run out of money in the next 15 or 20 years. Mr. Newton added that the point of these projections are to demonstrate urgency to focus on addressing these issues now. Mr. Falls noted that the focus has been on the downside risk of not meeting the assumed investments return since it could impact the ability to pay benefits, but there are also more favorable scenarios.

Mr. Falls touched on the Board's Pension Funding Priorities and Guidelines. Given how far off the plan is from where it needs to be, the policy lays out a multi-level goal to work towards the current best practice for financing pension liabilities. To start, the plan sponsor must pay the current costs for benefits that are being accrued, or the normal cost. The next vital goal is to avoid fund depletion. The next goal is to meet the statutory requirement of eliminating or paying down the unfunded liability. However, this is not a best practice level of funding to actually reduce the unfunded liability each year. The ultimate goal would be to meet a funding period of around 20-25 years, which pays down the unfunded liability within the average service years of retirees.

Mr. Falls provided an idea of how far the ERS plan is from the funding goals given the current contribution rates. The plan currently receives 19.5% total contributions from members, the state and employers. Contributions need to increase approximately 6% for the actuarially sound contribution (ASC) to pay off the unfunded liability in 31 years. He added that to immediately start decreasing the liability and align with the ultimate funding goal of the funding guidelines, the plan would need an additional 9% of pay over what it's getting now.

Mr. Falls then illustrated projections of the unfunded liability when considering different future contribution rates. He compared the unfunded liability to a home mortgage where there's interest accruing on the debt. If the interest is accruing at a faster rate than payments, the debt will increase, requiring higher payments in the future. This is the exact situation that the plan is in. Even if the ERS plan immediately receives the ASC rate, the state would pay $29 billion in interest charges to pay off the unfunded liability. Although any commitment to funding a payment plan is a step in the right direction,

there is a cost of waiting to increase contributions. If contributions would increase 1% each year for the next seven or eight years to phase into the ASC rate, the interest charges would increase by an additional $11.5 billion. Mr. Newton interjected that if the plan received the contribution rate needed to decrease the unfunded liability immediately, it can avoid a lot of the interest charges and future risk from adverse experiences. Mr. Hester asked what the cost to the state would be to get the plan to the rate that would immediately decrease the unfunded liability. Mr. Falls estimated that the plan would need approximately $1.2 billion to get to that rate. He went on to reiterate that the industry is moving toward best practice to decrease unfunded liability to better manage risk management and for clearer stakeholder communication. When the unfunded liability isn't decreasing, the plan must depend on other metrics that are less intuitive to show improvement from the agreed upon payment plan. Whatever payment plan is selected, we must set clear expectations of how the plan will work on all the metrics to best measure and defend if the strategy worked as expected in the future.

Ms. Woolfrey explained that a majority of the focus is on the ERS plan because the plan size is an order of magnitude greater than that of the LECOS and JRS 2 Plans but both have similar funding concerns. She reported that both plans had a decrease in funding status due to the assumption changes and contributions are not sufficient to sustain the plan. The LECOS plan is expected to run out of money in about 20 years and the JRS 2 Plan will run out of money in about 40 years. The funded ratio for the LECOS and JRS 2 Plans dropped from 65% to 60% and 87% to 82% respectively.

Ms. Woolfrey moved on to illustrate the contribution shortfalls compared to the same funding goals used for ERS. LECOS is receiving about 1.79% of pay including an estimate for collected court cost fees which is not covering the normal cost for the plan of 1.96% of payroll. The ASC rate to pay off unfunded liabilities in 31 years would be 4.22% of payroll. To immediately start paying down the unfunded liability the required contribution is 4.72% of payroll. Mr. Newton added that these members are not an independent group and also receive benefits from the ERS Plan. Ms. Woolfrey reported JRS 2 is also short on receiving the normal cost of 26.26% of payroll, receiving 25.08% of payroll in contributions. The plan would need an additional 8-9% of payroll to get the ASC rate.

Ms. Woolfrey shifted conversations to the accounting results that are for reporting purposes. The underfunding of the state's pensions significantly impacts the obligation the state must report on the state's financial statement. A commitment to fully fund the plan over the long term could significantly change the outcome of the accounting results. When accounting liabilities are measured, a blended discount rate is used which factors in when the plan runs out of money and can no longer earn the assumed investment rate of return. The blended rate for this report was 3.62% from a weighted average of the 7% assumed rate of return and a bond index rate based on the time to depletion. When the same liabilities are measured using a blended discount rate of 3.62% instead of 7%, the ERS unfunded liability on the state's financial statement is $38 billion. Mr. Falls noted that with a certain contribution increase, the state's unfunded liability on their balance sheet could drop by $23 billion.

Mr. Falls stated that the trajectory of the plan has to change and change significantly. Doing nothing is no longer an option for the plan and it can no longer handle a decision to do nothing. The plan needs to move more toward an actuarially determined rate that responds to what is needed to pay down the unfunded liability.

There were no questions or further discussion, and no action was required on this item.

29. *Educational Presentation – Overview of Credit Rating Agency Metrics, Methodologies and Impact on State Ratings

Ms. Cathy Terrell, Deputy Executive Director, Nicholas Samuels and Tom Aaron, Moody's Investors Service, presented the Overview of Credit Rating Agency Metrics, Methodologies and Impact on State Ratings.

Ms. Terrell stated that Moody's is looking at the same numbers as ERS, but from a different lens and a statewide perspective. She stated that Moody's looks at pensions and their impact on the state bond rating.

Mr. Samuels commented that he is on the State Ratings Team and has been the lead analyst for the State of Texas Credits for about 15 years, and that Mr. Aaron is the dedicated Public Finance Pension Specialist.

Mr. Samuels stated that Moody's rates Texas with a triple A rating, the highest rating. He stated that 2/3 of their state ratings are AAA or AA. He stated that state credit is very strong. Globally, of the corporate finance credits, only eight8 are AAA. He stated that state credit is very strong because they are essentially sovereign and they choose their own tax regime, their own regulatory environments, and the business climate in which they operate in. He stated that no corporate entity can do this.

Mr. Samuels explained how the state is viewed quantitatively. He stated that Moody's starts out using a scorecard system for the state's credit analysis. It is not a state credit generator, but it takes a variety of quantitative factors and the scorecard's indicated rating is used to begin the actual credit discussions. The four factors of the scorecard are economy, finances, governance, and debt and pensions.

Mr. Samuels stated that with pensions, Moody's looks at their measure of adjusted net pension liability, and tax supported net as a ratio of GDP. With Texas' GDP being so large, it rates Texas as AAA in that category. If the ratio was greater than 7%, but less than 20%, on the state rating scorecard, that rating would move down to a AA rating.

Mr. Aaron stated that credit ratings are related to debt or bonds that the government issues. Moody's does not assign rates to pensions. He explained that pensions are a key consideration for state credit worthiness and that in Moody's view, pensions must pay obligations. While credit quality remains high for most states and local governments, pension affordability ratios are more challenging than ever for many.

Mr. Aaron stated that the way Moody's looks at pension affordability is through service solvency. If a government is having difficulty servicing pensions, death services, or health services, it crowds out its ability to provide on its core service mission. He stated that is when Moody's sees bond defaults or bankruptcy, it usually precedes pension benefits default. He stated that if pensions become unaffordable, then so does the debt.

Mr. Aaron stated that the state and local pension risks are larger than ever, with unfunded liabilities, higher annual costs, weaker cash flow, and lower scales of assets. He explained that pensions are becoming more retiree heavy, with heavier benefit outflow and that translates to weaker non-investment cash flows. Simply put, that means that the contributions coming in are less than the benefits going out. He stated that to dig out of an unfunded liability with negative non-investment cash flow, combined with investment return volatility, acerbates the risk of the down years forcing the system to dig into the asset corpus to keep benefit checks going. Governments today have less capacity to push cost out in the future without inflicting some material pension fund damage. He commented that the focus for Moody's is the strength of ongoing contributions.

Mr. Samuels discussed Moody's credit profile for Texas. He stated that some of the strengths for Texas is that it has strong longer term demographics and employment trends that drive tax revenue. It also has an economic diversification that helps buttress the state from energy market volatility, and it has conservative revenue forecasting and a rainy day fund that provides an ample budgetary cushion.

Mr. Samuels discussed that one of the credit challenges on Texas' credit profile is the weak pension funding practice. The budget balance pressure amid growing state spending for K-12 education, and demand for transportation funding in a political environment that is generally adverse to tax increases, and social pressures like being the nation's state with the highest healthcare uninsured rate, are other areas of credit challenges for the state of Texas.

Mr. Samuels stated that bonded debt for Texas is low in comparison to other states. However, Texas has the third highest "tread water metrics" for pensions. The "tread water metric" is the amount that a government would be contributing to pensions assuming it met all of its assumptions in order to keep

the net liability from growing, The highest, relative to that metric, is Illinois, second is New Jersey and Texas is third. These metrics indicate that these states have the highest pension challenges.

Mr. Aaron mentioned that when they look at governments, they look at all of their pension systems. The 2019 financial statements, used for the state of Texas, used 2018's pension measurements in their audited financial statement. He stated that the adjusted pension liability for the state was $131 billion dollars. Three quarters of that was attributable to Teacher Retirement System of Texas (TRS), 24% to ERS, and the remainder was for smaller miscellaneous pension systems. Moody's stated that the fact that Texas assumes the cost of TRS is one of the largest drivers of the unfunded liability.

Mr. Aaron stated that asset volatility and reduced "smoothing" capacity remains the key pension risk driver for governments and that if volatility continues to rise, for example 12% - 18%, and the current contribution rates remain the same, then depletion or asset deterioration can result.

In Moody's view paying more into contributions and sooner, is better for the states credit quality, as opposed to pulling back and creating a bigger challenge down the road. Mr. Aaron stated that the issue to focus on is to increase contributions or change benefits in order to change the trajectory.

Mr. Samuels stated that what could cause the credit rating to go down is the failure to reach some sustainable solutions on pension funding, and that is an active part of Moody's credit analysis.

Dr. Kee asked Moody's to give an example of policy that leads to a low or high governance score.

Mr. Samuels stated that Illinois has constitutional restrictions that inhibit its ability to make changes in its benefit and pension structure and that has led to a host of other poor governance choices as it sought ways to balance its budget. He stated that 20 years ago Illinois was rated AAA, but today it is rate as BAA3 negative which is at the bottom of the investment grade portion of the rating scale.

Dr. Kee asked if Texas, like Illinois, can get away with not funding pensions for over a five year period. Mr. Aaron stated that Illinois made a lot of decisions in the 90's that resulted in an increase of unfunded pension liability by not contributing, and that Texas, like Illinois, has the ability to make decisions as a sovereign entity as well. He stated that the two situations are different as Illinois has had a long history of late budgets and another component of its governance that involves a super majority approval if things are not voted on by May. He stated that it depends on how much flexibility the state has in making changes to the budget quickly.

Ms. Terrell stated that according to the constitution, Texas has an obligation to make a 6% payroll contribution to the ERS plan and cannot take a pension funding holiday.

Mr. Alley asked for examples of offering pension obligation bonds in this environment and how changing to a DC plan might affect the credit rating.

Mr. Aaron reiterated that they are not making any recommendations, but merely addressing whether they view these items as increasing or decreasing credit risk. He explained that pension bonds would be a neutral effect on the credit rating. Often it can be negative for a state or local government. These bonds would have to be issued on a taxable basis due to the IRS' requirements, which will increase the exposure of the sponsoring government to asset volatility risk.

Mr. Hille asked what happens in the next couple years if there are drawdowns.

Mr. Aaron responded that from Moody's perspective, they look at a portfolio with lower asset volatility risk, as less risky. Moody's does not assume that the returns are going to materialize. Moody's values the liabilities, and they do not grant any credit for any assumed premium for prevailing market rates.

Mr. Alley stated that there isn't any asset allocation that improves the risk and return to solve the problem unilaterally, and it is truly a funding issue that needs to be taken care of, or that the state has to adjust the benefits in the plan.

Mr. Tull agreed that doing nothing is not an option. He stated that ERS is at the point where if there is another drawdown there will be little latitude to take opportunities where it can invest due to liquidity concerns. He added that the Fund already has annual net negative cash flows of $1.3 billion.

Mr. Wilson asked Moody's if they had evaluated the state's credit score since the last legislative session, and what was their opinion on the legislature's decision regarding TRS.

Mr. Aaron responded that in the case of TRS, it impacts the credit evaluation for the state and the local school districts that carry TRS pension obligations on their balance sheets as well. Paying more and sooner is viewed as a positive step in improving the Fund's trajectory. He stated that he felt that as a plan sponsor, with an assumed return of 7%, the Fund is fighting a form of compounded interest. He concluded saying that for a high level of government, putting in a bit more and bolstering the cash flow of the Fund helps to fight against the implied interest that is coming at the plan sponsor's liability.

There were no questions or further discussion, and no action was required on this item.

30. Review, Discussion and Consideration of the Texa$aver^SM Program Updates: Texa$aver Product Review Committee Recommendations– (Action – Board Only Vote)

Porter Wilson, Executive Director, noted that staff would be discussing the Texa$aver program more often during the joint Investment Advisory Committee (IAC) and Board meetings to benefit from IAC member's investment expertise for the program. The deferred compensation Texa$aver 401(k)/457 Program is a defined contribution plan with assets totaling in excess of $3 billion. The program is fully funded by participant contributions; there is no employer contribution match. Two current IAC members participate in the Texa$aver Program's Product Review Committee. The expertise of the broader IAC would be of additional benefit to the members and the board.

Ms. Diana Kongevick, Director of Group Benefits, introduced Georgina Bouton, Assistant Director of Group Benefits, and Tom Nun, Portfolio Strategist with Great West Investments.

Ms. Kongevick provided an overview of the Texa$aver Program. She reported that the program is an award-winning program for its participant communication campaigns. She explained that the 401(k) plan is a defined contribution plan which was established in 1985 and is available to employees of state agencies. ERS procures a plan administrator and investment advisory service provider through a competitive bid process. She reported that the plan started automatic enrollment for new hires beginning January 1, 2008. The 401(K) plan also offers both traditional and Roth contributions.

Ms. Kongevick reported that the 457 plan was established in 1974 and is available to higher education employees, in addition to state agency employees. Again, the plan administrator and investment advisory service provider is procured through ERS' competitive bid process. The 457 plan also offers both traditional and Roth contributions.

Ms. Kongevick shared an executive summary of the program as of September 30, 2020. Assets under management (AUM) for the 401(k) were reported just over $2.8 billion with 218,749 accounts. For the 457, the AUM is just over $1.0 billion with 26,263 accounts. She explained that the program has an investment policy and offers a diversified assortment of mutual funds, collective trust funds, a self-directed brokerage account, and target date funds. The plans are institutionally priced and are identically priced between the plans. Additionally, all fee reimbursements are paid to participants. Ms. Kongevick reported that through September 30, 2020, approximately $1.4 million in fee reimbursements were paid to plan participants.

Ms. Bouton provided an overview of the investment offerings available within the Texa$aver Program categorized by asset class. She reported updates to the program's mid cap offerings since the 2019 year end close. First, BlackRock Mid Capitalization Equity Index F (BlackRock Mid Cap Equity), a passively managed mid cap value fund, replaced the First Eagle Fund of America and Victory Munder Mid Cap Core Growth Y funds in March 2020. Second, Wellington's CIF II Mid Cap Opportunities (Wellington Mid Cap), an actively managed fund, was added as a new offering in May 2020.

Ms. Bouton explained that the program uses an investment Product Review Committee (PRC) to provide guidance and oversight of the investment options offered within both plans. The nine-person committee serves in a consultative capacity in all matters related to the investment options, as well as with the fund managers. The committee's experience and expertise extends to ERS leadership, as well as to internal and external investment professionals. The PRC may appoint sub-committees for a specific purpose to assist the PRC in fulfilling its duties. The sub-committee is made up of no more than four PRC members plus appointed ERS staff members with subject matter expertise.

The semi-annual meeting held on July 28, 2020, was the PRC's strategic review of Texa$aver. Ms. Bouton explained that during this meeting, Mr. Tom Nun facilitated an overall investment review of the program's investment offerings, a strategic gap analysis to identify enhancement opportunities for the fund line-up, and a performance review for specific underperformers. As part of this discussion, the PRC had specific due diligence discussions regarding Davis NY Venture (NYVTX) – the program's large cap blend fund. Ms. Bouton introduced Mr. Nun to provide further details.

Mr. Nun explained that in mid-2020 the PRC and Texa$aver staff performed a strategic review of the program's investment offerings. As the portfolio strategist on this relationship, Mr. Nun assisted in this project. The scope of this strategic review included a review of (a) the investments currently available to participants and (b) more broad review of the plan design and investment options available. The objective was designed to highlight areas where participants might benefit from additional choices either at the asset class level or from specific investment vehicles. Following its strategic review, the PRC determined that the program has adequate coverage of major equity and fixed income categories. The PRC identified opportunities to enhance the fund line-up by exploring a passive international equity fund and a high yield bond fund. Mr. Nun reported that a sub-committee had been convened for the required due diligence for the fund enhancement opportunities identified.

Mr. Nun reported that the PRC had decided to prioritize the passive international fund and provided an overview of the due diligence performed. The formal subcommittee was appointed in early September. Criteria was formulated (e.g., AUM, cost, benchmark, tracking error, etc.) for an initial screening. In mid-October, the Passive International Fund Due Diligence Questionnaire (DDQ) was finalized for those funds advancing to the next screening phase. On October 13, 2020, the sub-committee reviewed initial screening results and determined five funds to advance to the next screening phase: the Passive International Fund DDQ. On October 26, 2020, the sub-committee presented the results of its due diligence to the PRC. The PRC agreed that the DDQs would be sent to all five finalists; responses would be due back to ERS mid-November. At present, the sub-committee is reviewing the DDQ responses. Mr. Nun reported that the sub-committee would identify one or two finalists from this phase of the review. He explained next steps include a sub-committee meeting scheduled for December 14, 2020 to identify finalists from the DDQ responses. Then, finalist interviews will be conducted. A formal recommendation for a passive international fund provider will be presented by the PRC to the board in the first quarter 2021. Mr. Nun pointed out that the new passive international fund, if approved by the board, would be offered alongside the existing international fund, Fidelity Diversified International fund. The passive international equity fund would be a new fund offering to the line-up; there would not be a transfer of funds to this core fund offering.

Mr. Nun continued in his update for fund line-up opportunities by addressing a high yield bond fund offering, as well as a large cap value fund. Both of these offerings are potential fund enhancements for the program. Both of these initiatives are being targeted after the passive international fund and scheduled for the third quarter of 2021. Mr. Nun did point out that of the bond fund offerings, a high yield bond fund is one option that is commonly utilized by other plans, but is not currently available in the program. The addition of an ancillary asset class such as high yield, which is specifically mentioned by Morningstar, would allow Texa$aver program's asset allocation to qualify as an enhanced asset allocation.

Mr. Nun reported on the next steps required for Davis New York Venture A fund (Davis). The Davis fund has received close attention from the PRC due to persistent performance issues. After a thorough review, the PRC is recommending removal of the Davis fund from the program's line-up. Mr. Nun noted the fund's peer performance has been challenging across short and long-term time periods.

Likewise, benchmark performance has been similarly challenged. Other issues identified during the due diligence process include the fact that the fund is highly concentrated, with some sizable sector concentrations and its large non-US exposures. Mr. Nun explained the due diligence efforts taken regarding the fund which included meetings with Davis to discuss performance, investment process, philosophy, the team, the firm, etc. The results were discussed with PRC. On July 20, 2020, a subsequent meeting with Davis was held. PRC members and Texa$aver staff also attended to further discuss performance, risk management, and sector allocations. During the July 18, 2020 PRC meeting, Davis performance issues were presented to the PRC and discussed. At that time, the PRC's view was to recommend the fund's removal from the line-up. The PRC appointed a sub-committee to determine a fund for potential asset mapping.

Mr. Nun explained that the sub-committee recommended transferring assets from the Davis fund to the Vanguard Institutional Index (VIIIX), a large cap blend fund which is already an offering within the Texa$aver Program fund line-up. The rationale for this recommendation includes that the Vanguard fund is highly rated by Morningstar holding a 5-star rating, also recognized as a Gold rated fund, competitively priced, and replicates the target index – the S&P 500 index.

Catherine Melvin inquired as to how many accounts would be affected by this change. Ms. Bouton responded that over 32,000 accounts are invested in the Davis fund.

Ms. Kongevick reported that if this action is approved, the program's third party administrator (TPA) will coordinate with ERS on the asset transitions and notifications to program participants. The targeted transition date for this process is March 5, 2021, subject to board approval.

Motion made to move that the Board of Trustees of the Employees Retirement System remove the Davis New York Venture A (NYVTX) Fund from the Texa$aver 401(k)/457 Program with the program assets thereafter being mapped to the Vanguard Institutional Index (VIIIX) fund.

Motion by Dr. Jim Kee seconded by Catherine Melvin
Final Resolution: Motion Carries
Aye: Craig Hester, Brian Barth, Ilesa Daniels, Jim Kee, Catherine Melvin

31. *Educational Presentation – Environment, Social and Governance (ESG)

Mr. Tom Tull, Chief Investment Officer, and Mr. Benjamin Schuman, Global Equity Portfolio Manager, presented the Educational Presentation - Environment, Social, and Governance.

Mr. Tull provided an overview of ESG (Environment, Social, and Governance). Mr. Tull stated that ESG has been around for years and it has had an increased rate of growth resulting from six major influences, which are: public policy, corporate initiatives, technological change, changes to social norms around sustainability and the environment, and emergence of ESG data sources. Mr. Tull stated that as fiduciaries for the Trust, ERS cannot accept lower rates of returns or take greater risk, in order to secure collateral benefits. He stated that the best interest of the plan and annuitants will always come first, but if there is a way ERS can utilize ESG to improve risk-adjusted returns, it is something ERS will continue to work on.

Mr. Schuman explained that ESG is the application of environmental, social, and governance factors to investing. He went over the three applications of ESG factors. He explained that exclusion-based ESG involves complying with ESG mandate by avoiding certain investments. This type of ESG excludes certain sectors or excludes certain regions. Mr. Schuman stated that SRI (Impact/Socially responsible Investing ESG) seeks to promote the ESG agenda with targeted deployment of capital. Some examples of this are investing in renewable energy investments, which has been very popular in Europe. Mr. Schuman stated that Integrated ESG, which he feels is most relevant to ERS moving forward, is where the combination of ESG data with traditional fundamental investing analysis is used to improve returns or reduce risk with a focus on ESG factors that are deemed to financially material and that can be aligned with the Fund's fiduciary responsibility.

Mr. Schuman discussed integration within different asset classes industry wide. He stated that public equities is at the top of the list with a high level of ESG integration. He stated that Europe has led the way with this public equity ESG integration. He explained that other asset classes have a more moderate integration, such as fixed income, private equity, and real estate, but not at a high level as public equities. He further explained that Hedge Funds strategies are trying to find a way to integrate ESG, but this asset class still has a low level of ESG integration.

Mr. Schuman explained that ESG is potentially important to ERS, being that ESG fund flows were up four-fold in 2019, and on track to double again in 2020. He stated that 40% of U.S. asset managers have adopted some form of ESG integration. He went on to say that the driving factors for the adoption of ESG integration is policy, demographics, corporate behavior, technology, social trends, and data availability with many of ERS' external managers already having integrated ESG.

Mr. Schuman stated that from a fundamental perspective there is some academic research that suggests firms with higher ESG scores tend to attract higher paying customers, increased productivity due to higher employee morale, and tend to attract lower-cost capital. Research suggests that managers who integrate ESG tend to avoid short-term decision making which decreases the firm's risks. He stated that the investment performance data track record is somewhat inconclusive in regard to ESG integration because the nascent nature of ESG data makes an integrated approach hard to study and makes the sample size fairly limited. He stated that longer term studies show a neutral to slight – positive impact of ESG, although ESG outperformed recently based on Morning Star studies on a 1, 3, and 5 year basis.

Mr. Kee asked if a lot of the outperformance is based on overweighted technology.

Mr. Schuman said that looking at the performance without normalizing for that sector tilt, the outperformance has been significant, but with normalizing for it, there has still been some outperformance. He stated that when reviewing some studies the sector has to be taken into account because the technology sector has been a big driver of the outperformance.

Mr. Schuman stated private voluntary retirement plans, such as 401(k)s, are subject to the jurisdiction of Department of Labor (DOL) under the Employee Retirement Income Security Act (ERISA). Recently the DOL finalized a set of rules around ESG investing, stating that ERISA plans must prioritize financial objectives. Anything that is not deemed a financial objective has to be clearly subordinate to the financial objectives. This could clearly prevent ESG strategies from being included in plan assets when this goes into effect in 2022. He stated that state plans aren't subject to ERISA oversight, but this could be seen as a guide for oversight of state plans and reiterated that it reinforced a need for fiduciary alignment for any ESG adoption.

Mr. Schuman spoke about why ESG is important to look at now. He stated that he has seen broad adoption within the investment landscape appearing to be at a tipping point based on adoption rates, asset flows, and corporate behavior in terms of corporate sustainability. He went on to say that reporting standards and best practices appear to be evolving quickly with many external managers already integrating ESG and that it is important for ERS to understand what impact that could make in regards to investment decisions they are making for ERS.

ERS currently has to administer the investment program in compliance with Texas state law such as prohibitions on investments in Sudan, Iran, companies boycotting Israel, and terrorist organization. The statutes allow for the administration to remain consistent with ERS' fiduciary responsibility. He stated that ERS will not change its due diligence or prudent processes for the sole purpose of ESG investments and does not plan to do so going forward.

ERS will continue to actively evolve the research and monitoring processes with annual updates to the Board and IAC ERS looks to define ESG on ERS' terms that can be beneficial to competitive risk adjusted rate of return and keep building key relationships and knowledge, including possible participation in working groups and standard bodies. ERS continues to engage with external managers on the ESG integration process for educational purposes to understand how it applies to managers investments and

will evaluate the use of growing the pool of ESG information in conjunction with ERS' investment processes to help maximize long term risk adjusted returns.

Ken Mindell asked what percentage of ERS portfolio would qualify as ESG.

Mr. Schuman stated there are no clear standards that qualify as ESG and it largely depends on who is asking the question.

Ms. Melvin asked was there a rating system that is used for ESG.

Mr. Schuman stated that there are several rating systems. He went on to say that two systems have emerged as the more significant ones such as MSCI and Sustainalytics that was recently sold to Morning Star. The issue is there are so many and not all agree, which makes it hard to blindly trust the rating systems that are available and ERS would have to look at more of the data and how that correlates with the risk factors.

Mr. Mindell asked according to the S&P 500, what companies would qualify as an ESG Company or fund.

Mr. Schuman said that it would be a sliding scale on how "good" companies are from an ESG standpoint and that could hinder a blind application of scores as a screening tool and that such application of scores is only one way of approaching it.

Mr. Tull added that more homework is needed before ERS implements this integration.

Mr. Alley asked if ERS is seeing this information coming back via the proxy voting process and if ERS is seeing more companies including ESG as part of those proxy statements.

Mr. Schuman responded that ERS is seeing more in terms of being part of management compensation criteria and activist campaigns. He went on to say that ERS is seeing it more around governance and capital deployment decisions.

Mr. Tull added that it depends on the country as well. Some countries have a big push of governance to broaden the directorships. He stated beyond that it is mixed and some are seen in proxy voting, but not ESG specific.

Ms. Dotter stated that she is seeing ESG discussion at the Board level and in Audit Committees. She stated that a lot of major companies have a more defined approach to risk and that some consumer companies are more advanced than others, such as the oil and gas industry, and that there is more movement forward in trying to put more definition around it for Board purposes. She stated that she feels more ESG items will be seen in proxy statements.

Mr. Hester stated he sees it more on the institutional side and he feels ERS will see more of it as society changes and are more evolved on focusing on the environment and on treating employees fairly. He stated it could possibly shrink the "universe" of companies to invest in and that ERS needs to be careful with that.

Mr. Tull stated that ERS is seeing more companies providing ESG scores. He stated that he would not be surprised if more RFPs incorporate more ESG requirements in the near future.

Mr. Alley asked if it is building more traction with companies.

Mr. Schuman commented that with certain sectors it is becoming more impactful to the companies' business and ERS is seeing it addressed more directly within those sectors from senior executives before seeing it pushed from the ground up.

There were no questions or further discussion, and no action was required on this item.

32. *Review of Investment Performance for 3rd Quarter of 2020, Risk Update, and Liquidity

Mr. Tom Tull, Chief Investment Officer, Mr. Sam Austin and Mr. Michael Malchenko, NEPC, presented the Investment Performance Review for the third calendar quarter of 2020.

Mr. Austin said that the Fund continues to perform slightly better than peers in the down markets and is keeping up with the average of peers in the years going forward.

In Fiscal Year 2020 the Fund's performance was 6.8%~~,~~ a bit below the 7% assumed rate of return. Returns were somewhat skewed due to lagging Private Equity returns. He stated that Private Equity was the biggest contributor to the outperformance adding 1.6% returns in the third quarter from asset evaluations that are lagged by three months.

Mr. Austin stated that the Fund's performance has brought ERS back to where it started a year ago on September 30, 2019, at $28.64 billion. The market value of the portfolio at September 30, 2020 was $28.62 billion in assets, which is slightly down from the $28.64 billion in the last calendar year, which includes an investment gain of approximately $1.3 billion for the year.

Mr. Austin stated that the performance for the third quarter was 5.5%, putting ERS in the 31 percentile of its peer universe. Year to date (YTD) the return through January 31 through September 30 was 0.8%, which is at the median of the large public fund group of peers. The one year return was a 4.7% return which was in the 66 percentile of ERS' peer group. The three year return was 5.6% and the 10 year was 7.4% which exceeds the 7% assumed rate of return, putting ERS in the median of its peer groups for these years.

Mr. Austin then turned the Board's attention to the amount of active risk in the portfolio. Mr. Austin stated that for the three year period ending on September 30, 2020, the return for the Fund was 5.55% and that it outperformed the benchmark by 0.07%. On a risk adjusted basis for the three year period, the Sharpe Ratio, which measures the excess return over the benchmark, was 0.52 and the Sortino Ratio, which is an adjusted Sharpe Ratio that measures downside risk, was 0.56, both of these ratios outperformed the benchmark and are near the top quartile of ERS' peer group.

Mr. Austin stated that for the five year period ending on September 30, 2020, the Fund returned 7.47% and underperformed the policy benchmark by 0.16%. On a risk-adjusted basis, for the five year period, the Fund's Sharpe Ratio of 0.94 and the Sortino Ratio 0.94 outperformed the benchmark and suggests that active management of the Fund benefitted the plan.

Mr. Hester asked if the significant underweight in private equity resulted in ERS being in the middle of its peer groups. Mr. Austin agreed, stating that the 15.8% allocated to Private Equity as of June 30 was lower than most of ERS' peer's allocation.

Mr. Austin discussed the allocation across asset classes, reiterating that the private equity allocation has been as high as 17.8% in the first quarter, but was lower in the third quarter. He went on to say that the global equities allocation has increased to 38.6% from 34.0% as of March 31, adding more risk. He went on to say that some of the allocation to the Rates portfolio was reduced to add more risk to the Fund. Rates went from 17.4 %, at the end of March 31, which was initially added for protection in a down quarter and is now down to 11.5%.

Mr. Austin stated that Fund withdrawals are in excess of contributions by about $6 billion, bringing the net negative cash flow up to -4.6% from -3.6% in the first quarter, providing some liquidity concerns. Mr. Austin stated that this is something for which ERS should watch.

Mr. Austin stated that the Fund is in compliance with all of the long term target ranges for all asset classes. He stated that the Fund was overweight in public equity being currently at 38.6% with a long-term target rate of 37%. Opportunistic credit is underweight and has not been built out yet, therefore not reaching its long term commitment level of 3.0%. Infrastructure is also underweight, currently at 3.9%, being halfway built out to the 7% target commitment level.

Mr. Austin stated that the Fund returned 5.55% over the three year period versus the median return of 5.48%. The Trust's standard deviation of 7.69% compared very favorably to the industry median of 9.6% over a three year period, indicating a good risk adjusted return.

Mr. Malchenko stated that the excess return of 1.6% from private equity is a result of volatility related to the First Quarter. Mr. Malchenko stated on a one year basis the total plan would have underperformed around 60 basis point, returning 2.3%, on a non-lagged basis.

Ms. Cooley asked if ERS was doing well on asset allocation vs. selection effects over a longer time frame. Mr. Malchenko stated that ERS is doing well on an asset allocation basis. He responded saying that Private Real Estate contributed 20 basis points due to strategic initiative in the Portfolio vs. the benchmark return that was -1.8% in the quarter as well as Rates. He stated that Rates returned 0.3%, but was underweight and led to a positive effect of about 20 basis points.

Mr. Mindell asked when ERS receives the best pricing for the Private Equity being they don't always mark as well on a quarterly basis, but that they seem to be marked better at the year end. Mr. Malchenko responded that from a broad statement that this is true. He stated that the year end is fully audited, but the quarter ends are estimated at fair market value.

Mr. Alley asked if the one quarter lag effect from Private Equity and Private Real Estate will always be an issue. Mr. Malchenko this is an issue with all plans that invest in Private Markets. He stated that there is volatility that will not always be seen. In highly volatile markets it is the valuation practice that happens in Private Markets. He stated that the best estimation is done with assets with all available data points that are available.

Mr. Malchenko went on to say that over the one year period of underperformance of -1.3% was driven by Global Public Equity and Total Credit. Global Public Equity performance was primarily driven by underperformance in manager selection in domestic equities. In contrast, the Rates Portfolio outperformed its benchmark and it had a positive allocation that added about 30 basis points to contributions in excess returns.

He stated that focusing on long term results, the biggest takeaway is that since 2014 (rolling 10 year results) results have been above the benchmark, above the long term public index, and above the total fund policy benchmark.

Mr. Malchenko stated that the Information Ratio (excess return divided tracking error) is a measure of manager's skill. He explained that this number needs to be above "0". Since 2004 the data shows that there is skill when measured across a rolling three year period.

Mr. Malchenko stated that the tracking error's (Active Risk) tick up reflects extraordinary volatility in the markets and that ERS staff's view is on weighting risk assets, specifically the overweight to Global Public Equity.

Mr. Malchenko concluded the presentation by saying that over the past ten years, the total fund return has outperformed the actuarial rate of return. On a risk adjusted basis for the 10 year period the Fund is near top quartile rankings, ranking 28 in its peer group. In the five year ranking ERS ranks 25 on a risk adjusted basis in its peer group, resulting from a solid outcome of asset allocation and solid implementation by the staff.

Mr. Chujoy from the Risk Management and Applied Research Team was then introduced to discuss the risk dynamics of the Trust. Mr. Chujoy stated that ERS had a very strong year to date performance coming from technology stocks, resulting from the pandemic pushing everyone to work from home and causing many to use more technology. He stated this caused a lot more revenue in the technology sector.

Areas that remain challenged are the energy and oil industries, resulting from a lower aggregated demand, lower utilization rates, and higher inventory levels. In the case of financial services, there were

concerns of the lack of visibility in profits due to lower interest rates. As well as concerns regarding the increase in demands on non-performing loans as a result of the higher levels of unemployment rates.

Mr. Chujoy stated that gold did extremely well with the re-opening of the economy, resulting in high yield performing well. The weakness of the U.S. dollar helped the trading of domestic branded products.

Mr. Chujoy stated that September proved to be a very different month for the financial markets. There were mounting concerns about market valuations being high and early indications about the economy stalling. The market responded to concerns about when the next fiscal stimulus would come into play and brewing concentration risk, all played a role in the pullback of financial markets in the month of September.

Mr. Chujoy explained that according to Bank of America's Global Stress Financial Indicator (GFSI), which is the best indicator to asses stress in the marketplace, there were continued concerns showing that the financial market suffered the most on the stress level indicator. When the stay at home policy was enacted, financial markets suffered tremendously, not only in the U.S., but everywhere. As the economy reopened and stimulus started coming in, the market saw the majority of stress levels receding. The fund flow spoke to the momentum in change of flows into risk assets and a deceleration in momentum coming to risk assets certainly during the third quarter.

Mr. Chujoy stated that stress levels were extremely high across all sectors and asset classes when the economy shut down. In the third quarter the technology sector was down 2/3 and that spoke to market participants' pricing risk for the technology sector. The market saw momentum in risk on assets decelerate, and risk concerns around growth related sectors such as technology and communication services grew.

Mr. Chujoy explained that some of the risk that dominated the market during the quarter included the Fed Chairman's address to the Federal Reserve open market committee in September which was particularly pivotal in the financial markets. Investors were awaiting to hear about the news of more stimulus coming down the line which never materialized. Given the strong performance of the markets in the third quarter and the risk of missing out on the continuation of the rally, the market saw an unprecedented level of options trading activity stocks, i.e. technology stocks.

Mr. Chujoy stated that concerns that stood in investors' minds included the resurgence of a second wave of COVID-19 cases in Europe, the potential for a U.S. contested presidential election, continuation and delay of Brexit negotiation, and its impact from an economic standpoint to the regions, delayed the fiscal policy response, and escalating tension between the U.S. and China.

Mr. Chujoy informed the Board that technology garnered a lot of attention during the month of September. He explained that a call option provides the buyer side contract the possibility to participate in the upside should markets appreciate, likewise a put option provides the purchaser such contract with the possibility to protect investments if the market shifted to the downside. Premiums were consistently higher for order trades less than 50 indicating that there was strong retail activity dominating the landscape in the month September.

Mr. Chujoy stated more importantly the notional in the amount of dollars were driven by the options contracts and that companies like Facebook, Amazon, Netflix, Google, Microsoft, and Tesla, the call volume traded on these names reached an all-time high of $180 billion, a six time increase relative to the call volume traded in entire year of 2019.

He explained that this is important because it resulted in a market highly speculative, causing broker dealers to short on these positions. This required them to hedge and re-hedge the books and ever increasing the amount of the price of stocks further away from their original strike prices. Mr. Chujoy stated that what the implications of this hedging and re-hedging really meant a source of buying/selling pressure on the market which only helped to exacerbate the amount of volatility in the market.

Mr. Chujoy stated that the price rationing for technology caused a rippling effect throughout the entire financial market, which is certainly a reflection of the level of concentration risk that had been building up throughout the year, especially on earnings the third quarter.

Dr. Kee asked what calculations were made by the ERS Risk Team. Mr. Chujoy responded that the team takes the spread in returns between a couple of indices. For growth the team takes the cumulative returns of the SP 500 growth and the SP500 to compute the spread. For the value, the team takes cumulative returns of the SP500 value index and the SP500 to get the spread. Mr. Chujoy went further to say the relative outperformance of growth and value accelerated its pace this year due to the Global Pandemic.

Mr. Chujoy stated that market outperformance dominated by the largest companies by market cap, irrespective of size, style, or geography, the majority of cases of the spread in performance of the mega cap companies were extremely high. The major characteristics across all styles and geographies were dominated by a change in consumer behavior pushing these different stocks during the Global Pandemic. The largest spread was found to be in the domestic markets.

Mr. Chujoy noted that two additional risks during the quarter were the acceleration of COVID-19 cases around the world threatening the economic recovery and that the US contested Presidential Election event was being priced as all tenors in the market. He added that near-dated contracts pricing of the US election risk and lower pricing on longer tenors suggest that the market expected a low risk of a contested election.

Mr. Chujoy discussed concentration risk that the Fund holds He noted that the Fund has 11% allocated to Technology stocks. The technology sector is well represented, but the Fund is clearly diversified. Of all the asset classes that ERS has, Global Public Equities has more exposure to technology. From an asset class level, Global Public Equities has a healthy 20% allocated to the technology sector.

Mr. Chujoy stated that ERS' factor analysis showed ERS' policy exposure to growth and momentum factors were very close to zero and these factors are key characteristics of technology. There was no additional concentration risk from allocation to technology above those present in the ERS policy benchmark. He stated that largest contribution to ERS' total risk comes from the volatility factor. He explained that Global Public Equity seems to drive this risk in the plan.

Ms. Cooley asked if ERS is modeling everything in the plan. Mr. Chujoy responded that it is the whole plan and that the team takes the total return for the total plan and takes time series for all factors and then computes metrics.

Mr. Chujoy discussed liquidity for the plan and stated that the Risk Team, in coordination with various class directors, and produced potential projections for liquidity needs for the entire plan. He noted that the projected total of unfunded commitments by the end of 2020 is $5.8 billion dollars. Net operating cash flow, what the Fund pays out on a monthly basis relative to what the Fund receives in contributions amounted to a cash flow of $1.4 billion dollars. To offset these liquidity needs, assets that were kept in the Rates Portfolio and the cash account through the end of October stood at $4.25 billion and he added that the Team also keeps enough liquid assets in Global Public Equities, Global Private Credit, and Global Real Estate in the amount of $14.7 billion dollars.

Mr. Chujoy stated that the Fund is well positioned to take on any significant liquidity needs at the present time. He stated that the liquidity needs are earmarked to address three different activities; to pay monthly bills, to be able to fund allocation in illiquid assets as necessary, and to take advantage of opportunities arising from the market dislocations.

Mr. Chujoy discussed that the team conducts an internal risk survey to capture staff's view on concerns and opportunities seen in the marketplace. Mr. Chujoy stated that some key takeaways are that the staff views some of the outside risk to come from a variety areas, some of which include views that the economy is now in a bull market and really early in cycle. He went on to say that the staff views that

the economy, company profits, and margins will improve and staff expects that the market will have high quality, high momentum, and low volatility assets performing better in the near term.

Mr. Chujoy concluded that key points from the presentation are that concentration risk and left tail risk in the markets dominated the end of the third quarter, driven by large cap stocks with growth orientation. Secondly, the option activity taking place in June and August was five times the average relative to 2019. He reiterated that areas of concern in the marketplace revolved around the resurgence of COVID-19 cases, U.S, China trade war, and the potentially contested presidential election in the U.S., and that delayed stimulus were at the forefront of investors' minds. By all counts, these implied levels of risk that were higher than average and that risk on assets experienced a market correction towards the end of the quarter. He stated that, from a plan level risk standpoint, higher volatility and higher growth momentum contributed the most to the active portfolio risk. Mr. Chujoy stated that rotation risk stands at its highest stemming from concentrating risk in style, sector positioning, and size exposure.

Mr. Chujoy stated to the Board that the ERS' liquidity profile suggests that ERS' portfolio is properly positioned to absorb cash needs and market volatility. Mr. Chujoy reiterated that collective risk concerns revolved around three main issues: COVID-19, uncertainty about the US elections and delayed stimulus.

Mr. Hille asked if the team had reduced the risk profile for the Fund to account for possible extreme factors that are most prone to revert and he also asked what the team is going to do with the information gathered going forward, to the effect of possibly balancing to a much more neutral position.

Mr. Chujoy said that the Team communicated to investment leadership that the extreme conditions that the team was seeing in order to help foster a discussion as to how the ERS Fund was positioned in this new market environment so that corrective action could be taken as needed.

Mr. Tull added that ERS was fortunate in taking risk off prior to the pandemic, and the Investment Risk Committee Team felt markets were ahead of themselves and it seemed appropriate to do so. In February the team began to put risk back on because they felt markets were cheap, stimulus programs were great, as well as fiscal policy. Mr. Tull stated that they carried that approach into August.

He stated that at the time, the team felt markets had run too fast, too far, and were due for some consolidation, with concerns over a COVID-19 resurgence and US election uncertainty. He stated that the team has been more modest in recent months by making adjustments to portfolio risk in October, November and December. He went on to say that based on US Government stimulus money that is expected to come into the market, plus improved consumer sentiment and spending once vaccines are available, markets should do well. The team is constructive on the equity markets. With respect to alternative investments like private equity and private real estate, the team has been a bit more constrained with commitments being reduced.

Mr. Hille asked if risk of the pandemic induced in relation to the real estate market will require system changes to real estate utilization being that the Fund has a fair amount of exposure.

Mr. Tull stated that 7.9% was allocated to Private Real Estate, which is below the objective. He added that the areas that were hit the hardest were Leisure, Retail and Hotels and that ERS has been moving more into Data Centers, property tech and areas that should benefit rather than the areas that have been constrained. However, some of the hardest hit areas are beginning to show some signs of improvement such as New York and multi-family. He stated that the team is concentrating on more opportunistic areas like medical centers, manufactured housing and avoiding things like leisure and hotels at present.

Mr. Sessa added that real estate team is trying to determine if it is a long term secular or cyclical change in real estate. He stated that if it is a secular change the Team feels it's just going to be a matter of getting the supply demand back in balance and that people still need to go into the office. He went on to say that a lot of subjective productivity that still needs to get done in person and that will be realized in time. Mr. Sessa explained that telecommuting was reversing its trends before the pandemic and that

people were coming back into the office before the pandemic and that being in the office physically adds value in building teamwork.

He stated that Central Business Districts are not going away and that the economic ecosystem is enormous and will still be relevant in the future. Mr. Sessa stated that the Fund is underweight in the office and retail sectors, adding that 5% of the fund was in hotels and that is manageable and that eventually that sector will come back when people begin to meet up again in person. He stated that on office demand may drop 5%-10%. Mr. Sessa stated that from a bigger picture, inflation, with all the stimulus that has been pushed into the market, could increase and he added that real estate is an impartial inflation hedge, depending on property type and that is a benefit as well.

Mr. Mindell commented that inflation is beginning, but not a factor currently. He asked what the outlook for inflation is. Mr. Tull stated that the market is going to see more inflation over the longer term in response to the cost of financing the current economic environment. He continued saying that the US has thrown a lot capital into the marketplace and other countries have as well to address the same problems the US has. These factors could produce a weaker US dollar and higher rates of inflation as the US tries to pay off its substantial debt load.

Mr. Chujoy stated that the view in the marketplace, given the large amount of stimulus is that these programs will take time to play out. As such they may produce higher inflation, higher real rates and may possibly increase nominal rates that will certainly create implications from an asset allocation standpoint across the various risk assets the Fund holds.

Mr. Chujoy continued saying that the risk teams' view is that the pandemic created a lot of these dislocations and that the team has seen a lot of fiscal stimulus. Health care services may drive the consumer price index up, with all of the hospitalizations caused by the pandemic.

Mr. Austin added that NEPC is forecasting as of September 30, 2.1% of US inflation over a 30 year period.

Dr. Kee asked how the investment team views China. Mr. Tull noted that approximately 2% of the Fund is invested in China, which is a lot less than ERS' peers. He stated that companies that are China based and that are publically traded in the US are more likely to have investor constraints due to accounting conventions there, or lack thereof. He went on to say that China could be the largest contributor to world GDP with a share of 30% over the next 10 year period. Mr. Tull commented that ERS can participate with good companies that do comply with US regulatory constraints. As an investor ERS sees exciting rates of risk adjusted rates of return in China but recognize that relationships and rule of law are crucial.

Mr. Sessa stated that China is projected to be the largest economy of the world in the next 10 – 15 years. He said that ERS has not underwritten China centric managers in the real estate portfolio. He concluded stating that the real estate team gets exposure derivatively, through countries such as Australia and other Asian countries.

Mr. Tull stated that the team looks at China as more of an emerging market target and that the investment is more constrained because the inability to do the kind of due diligence they need to do.

In response to a question, Mr. Tull stated that 1.1% of the Fund is invested in India.

Mr. Sessa added that the Fund has some meaningful Real Estate exposure in India and it is the biggest emerging market exposure. He noted that India is increasing transparency, consumer protections, reforming bankruptcy laws that will help improve and help the economy have less friction there. Mr. Sessa stated that India will benefit from the supply chain reconfiguration and the cost of labor.

Mr. Hester asked if a distribution rate of 4% would be a concern to NEPC.

Mr. Austin stated that the 4% number is where NEPC would begin to be concerned and it remained below that number, up until the first quarter of the year. He stated that it is not an alarm right now, but that number is not a long term sustainable situation. He said he is hopeful the contributions will be brought in line with the benefit payments over the long term.

There were no questions or further discussion, and no action was required on this item.

33. *Global Public Equity Market Update and Program Overview

Mr. John Streun, Director of Public Equity, Michael McCrary, External Management Investment Analyst, and Michael Clements, Chief Trader, presented the Global Public Equity Program Market Update and Program Overview.

Mr. Streun explained that the investment objective of the portfolio is to outperform the Global Public Equity benchmark, which is the ACWI IMI (All Country World Investable Market Index). The team aims to do this over a longer time period of five years, by combining internal lower risk portfolios with higher risk external portfolios with a target tracking error of 150 basis points. The investment strategy aims to produce excess returns through combining lower risk and lower cost internal portfolios, with higher risk external portfolios.

Mr. Streun stated that the equity market has been strong over the last 6-9 months. He stated that just in the month of November, the equity portfolio was up 12%.After the election and the positive vaccine news, the market responded in a positive way.

Mr. Streun went over the Asset Class Performance Highlights of Calendar Year 2020. He highlighted that from September 30, 2019 to September 30, 2020 the asset class had a positive return of 8.50%. He stated that the asset class underperformed the policy benchmark by 141 basis points.

Mr. Streun stated that the good news was that four out of four fundamental portfolios outperformed their benchmarks. There was more mixed performance on the external side, with six out of 11 external portfolios outperforming their benchmarks. Mr. Streun stated that the stock selection from both internal and external portfolios was a positive contributor to the return.

Mr. Streun explained that there were several detractors of performance from the portfolio. One of the detractors was the underweight to US large cap stocks, being that the technology sector was the best performer and the asset class was underweight large cap technology stocks. A second detractor was the internal special situations portfolios, the Capitol Hill and spinoff portfolios. Capitol Hill was underweight in technology. He stated that the portfolio had historically provided alpha to the trust. Mr. Streun stated that the small allocation of 1% to cash in a rising market environment proved to be a cash drag. There was a significant drawdown of a portfolio that focused on equity options, from the external manager Allianz Global Advisors that cost the portfolio 70 basis points and hurt the performance.

Mr. Streun introduced the leadership team and thanked them for their efforts. He noted that John McCaffrey, a former equity analyst, joined Carlos Chujoy on the Risk Team. Mr. Tim Reynolds is head of the International Investing Program and Mr. Andrew Hodson is head of the domestic Investing Program. Mr. Streun stated there are three new team members: Jim Gassman on the Emerging Markets Team, Scott Schrier on the International Developed Team, and Aris Oglesby, an internal transfer from another area of the investments division, is on the SMIDCAP Team.

Mr. Streun presented the Global Portfolio Structure- Dollar Allocation. Mr. Streun noted that 39% of the total Fund Global Public Equity and 73% of the overall asset class is managed internally. Domestic assets are 55% and 45% are in the international bucket.

Mr. Streun went over active/risk and tracking error (a statistical measure of deviation from benchmark) is generally high with external managers and the internal portfolios are much closer to the benchmark.

Mr. Streun stated that forecast risk levels remained within policy limits even during times of high volatility. He noted the team pays close attention to the active risk and tracking error with daily emails that highlight the tracking error.

He then discussed the portfolio's position and structure. From a sector standpoint the team has become more cyclical over the last year, taking advantage of the opportunities as the market sold off in the spring. Mr. Streun stated that the market became more positive on potential economic recovery in 2021 and that the industrial and materials sectors increased at the expense of technology and healthcare.

The Fund is still underweight in the US, mostly still in large cap and that the Fund is overweight in US small cap and midcap stocks. The allocation to Japan has increased through the external manager, Templeton, who has a more positive view on Japan and the value opportunity there.

Mr. Streun discussed that the factor tilts are very modest. He added that there is some factor tilts in growth and momentum. Mr. Streun stated that this time last year the asset class was significantly more underweight in value. The team has been adding to value stocks, primarily through Industrial, Materials, and Financials.

He stated that the US Large cap Portfolio increased over 2020 to $4 billion. He highlighted that the new Special Situations Portfolio, Japan Activist Portfolio, aims to take advantage of changing governments and activists in Japan. He went on to say that the team has done a lot of research and believes there is a great alpha opportunity there.

Mr. Streun stated that the asset class went through a transformation at the end of Fiscal Year 2019. At the end of the year the portfolios went from six portfolios to four portfolios. He added that research efforts went from a global research effort, where analysts contribute their ideas to multiple portfolios, to a more focused effort, to contribute their ideas to one portfolio. He added this was done to increase focus and communication among staff. All four portfolios are outperforming their benchmark.

Mr. Streun stated that the Internal Emerging Market Process involves using many quantitative tools in screening and searching for ideas. He stated that Mr. Reynolds and staff are searching for ideas to help improve growth and fundamentals, but are keeping an eye on valuations. They use a bottom up analysis that gives a different insight from the quantitative models. When it is safe to do so, staff will resume in person research with companies.

Dr. Kee asked whether the team had been hampered by the inability to travel. Mr. Streun responded that they have better access to companies from a management and investor relations standpoint. Since the companies' managers are also not traveling, they have more availability to communicate. ERS does lose some of the on the ground nature of research, such as the culture of the company. He stated that it isn't something they want to be permanent, but feels they have managed around it well.

Mr. McCrary then went over the External Advisor Program. Mr. McCrary stated that 73% of Global Public Equities are managed internally and that 27% of those assets are externally advised to complement the internal portfolios with strategies that ERS does not have staff to handle internally.

Mr. McCrary stated there is a total of 13 external advisors, with the majority of the funded external managers being international. Only two external mangers are US focused. The Select Pool serves as a bench for managers and includes firms and strategies that have been through the full due diligence process, but have not yet been funded. He stated that five out of the six of these firms are international small caps.

The External Advisor Team is conducting an RFP for an international managers and is looking for strategies that are benched against the MSCI ACWI ex-US and the MSCI EAFE.

Mr. McCrary stated that in March 2021, ERS will start a Domestic Large Cap manager search. These strategies will be benched against the MSCI Large Cap, Large Cap Value, and Large Cap Growth.

He stated that there are only two funded domestic strategies and that there are none currently in the Select Pool. The last time an RFP was done for Domestic Large Cap was in 2010. He stated the process is identical to the International RFP and it takes about a year to a year and half to go through the full process, therefore the funding or allocation decisions will be made in 2022.

Mr. Michael Clements discussed the trading update and Global Public Equity Program commission rates. Commissions for 2020 were in-line with 2019 total commissions, but is about 9% lower than the five year average. He stated that 46% of the commissions come from the domestic portfolios and that 54% come from the international portfolios.

Mr. Clements stated that the average “all-in” blended commission rate paid by US Institutions to brokers on domestic shares was 2.4 cents per share, and that ERS’ average commission rate in the US was about 1.99 cents per share.

Mr. Clements said that due to MIIFD regulations, more institutional peers are paying out of pocket for research as opposed to paying out of execution costs. MIIFD is a European regulatory requirement that requires European institutions with European clients to pay for research out of pocket or through a separate commission bucket to make the cost of research more transparent.

He stated that the Greenwich Survey shows that ERS has competitive commission rates, while still maintaining the research as needed.

Mr. Clements stated that the international developed markets, when consolidating portfolios, has been the largest international portfolio by market value. International markets are expensively traded with commissions are traded in basis points, as opposed to US markets being paid cents per share.

Mr. Streun then moved on to the ERS Global Public Equity Outlook of 2020. Mr. Streun stated that the impact of COVID-19 was an increase in market volatility in February and March. He stated that when the impact of COVID was felt from a health and economic standpoint, the market responded negatively. The biggest impact of the portfolio was that the option manager had some significant breakdowns in risk management. He stated that some of the hedges that were in place did not work out. In April ERS defunded Allianz Investment Management.

Mr. Streun stated that the Information Technology sector was up 40% whereas Energy was down 40%, causing a huge spread between sectors. He went on to say that the dominance of the Technology sector drove sector returns, as well as factor returns. Mr. Streun noted that growth outperformed the value more than it ever has in a single year and that geographically in the US a lot of mega cap tech names outperformed the rest of the world. He stated that there is less upside in the tech sector than some other sectors. He added that this has resulted in the Team positioning the portfolio toward some of the more cyclical industries.

Mr. Streun concluded that the team will continue the Select Pool buildout, increase active share (measure of portfolio concentration) of the internal portfolios, and enhance the portfolio construction process. He added that the bulk of the assets will continue to be managed internally in a low tracking error manner, but they feel certain that external managers can complement internal efforts. The REMAR Team and the consultants will be assisting in the portfolio construction.

There were no questions or further discussion, and no action was required on this item.

34. *Emerging Manager Market Update and Program Overview

Ms. Lauren Honza, Portfolio Manager, presented an update on the emerging manager program.

Ms. Honza noted that statute defines emerging managers as firms that are smaller than $2 billion in Assets Under Management (AUM). She further noted that ERS is always interested and working with diverse teams but does not track metrics for larger firms.

Ms. Honza noted that ERS feels it's important to integrate the Emerging Manager Program in the asset classes, as opposed to having a standalone Emerging Manager Program. She added that the expertise inherent in each asset class leads to a better understanding of the market fluidity between established managers and newer firms and it is the starting point for any broker dealer interested in doing business with ERS.

Ms. Honza explained that the ERS' Emerging Manager approach is to find newer diverse managers in different ways. ERS developed the External Advisor Website in 2010 with the goal of creating a proprietary database of managers. The site is available to all interested managers across asset classes. She reported she is working with Information Systems to redesign the portal in order to provide a more user friendly application for managers.

The primary way staff learns about managers is through the Fund of Fund Partners. ERS partners with Legato Capital Management for Public Equity, Barings and GSM Grosvenor for Private Equity, PAAMCO for Hedge Funds, and Oak Street Real Estate Capital for Real Estate. Each of these firms specialize in their respective asset class and that gives ERS the opportunity to learn about firm formations, diverse talent, and asset flows. ERS also works with the consultant NEPC to learn about interesting firms that may be a good fit. ERS also works with NAA (New America Alliance) interest group (and others) to understand the challenges they have faced when trying to raise capital.

Ms. Honza stated that since August 31, 2020, that $13.5 billion is externally advised at ERS and that approximately $2.2 billion has been committed to small funds with a market value totaling about $1.6 billion. This is 12% of externally advised assets, exceeding the ERS goal of investing 10% in externally advised assets with emerging managers.

The two public equity portfolios, Legato International Small Cap Portfolio and Legato Emerging Markets Portfolio, are compared to their respective benchmarks, MSCI EAFE Small Cap Index and the MSCI Emerging Markets Index. The private markets emerging manager portfolios are benchmarked to the overall ERS private market portfolios. Ms. Honza noted that the Team is very pleased with the external manager's performance with all portfolios outperforming their benchmarks since 08/31/20.

Ms. Honza highlighted the 2020 activity, stating that ERS had the TRS/ERS Emerging Manager Conference with an attendance of 1,100 participants. This conference is at no cost to the managers. She went on to say that the REEM (Real Estate Emerging Manager) Conference was held earlier in the year. The conference had about 200 participants, allowing for richer content and networking opportunities.

The public equity asset class announced a new mandate with Legato Capital Management. In November 2019, ERS invested $150 million into an Emerging Markets Portfolio. Private Equity recently made a $25 million commitment to a new mandate with Barings with a fund strategy of providing seed and strategic capital to private equity managers, targeting emerging managers with less than $500 million in AUM. During Calendar Year 2020 Barings made five investments, totaling $12.9 million, including investments in healthcare, information technology, and energy. For private real estate there were several new emerging manager investments made in 2020, both in the Direct Portfolio and in Oak Street Private Real Estate Emerging Manager Program. In the broader program there were three new commitments made for a total of $130 million in areas of student housing, property technology, and data centers. For hedge funds, ERS launched a new seeding platform, with PAAMCO, referred to as Launchpad. The first investment, Cinctive Capital Management, performed well during Calendar Year 2020.

Ms. Honza said that the main focus in 2021 will be to maintain at least 10% of externally advised assets with smaller managers and the team will continue to work with the Fund of Fund partners to build out well constructed portfolios. The Hedge Fund Team will continue to work on the ERS PAAMCO Launchpad Portfolio with a goal to close on the second investment soon, with a target of closing on one to two new relationships in 2021. The team hopes to find opportunities to engage with emerging managers on a direct basis. She stated that the TRS/ERS Conference will be held on January 26, 2021 virtually.

Ms. Honza responded that ERS is tracking all of the funded managers that have been funded and that had money allocated to them. In the public equity space it's compared to the overall benchmark vs.

the respective Index benchmark and peer rankings. The private markets emerging managers are benchmarked against ERS' Total Private Market benchmarks. Ms. Honza reiterated that the number one goal is to get outsized performance from the managers.

Ms. Honza responded that the team is looking for smaller managers. The legislature's definition for ERS is anything under $2 billion is considered an emerging manager. She went on to say that the team is always looking for diversity-led managers, for example, managers that are women or minority owned.

Mr. Tull added that emerging managers are known to be thought leaders that can generate significant amount of returns. He added one of the biggest challenges is finding managers that can generate higher returns over different market cycles and that a lot of managers have difficulties in running their business over an extended period of time.

There were no questions or further discussion, and no action was required on this item.

35. Chief Investment Officer's Report

Mr. Tull shared his appreciation of the Investment Division, the IAC, the Board, the Texa$aver Product Review Committee, and the Office of General Counsel.

Mr. Tull stated that there were many challenges in 2020. COVID-19 had created a new normal for the economy in 2020. Fiscal Year 2021 will see additional challenges from COVID-19, as well as accommodating monetary and fiscal policy, political and geopolitical risk, and trade risk.

Mr. Tull discussed the investment opportunities for Fiscal Year 2021. The team will continue to develop the Opportunistic Credit Portfolio. There are a number of deals that are prospects for the Infrastructure Portfolio. ERS is ramping up the seeding platform for the Hedge Fund Portfolio and will continue to enhance the risk management and risk reporting to the Board.

Major initiatives for Fiscal Year 2021 include supporting legislative initiatives to address the unfunded pension liabilities. Investment staff will expand existing core competencies for innovative investment management by exploring new investment opportunities and refreshing the Select Pool of external advisors as they continue to refine the mix of internal and external management.

Staff will continue to be diligent in seeking the best economic deal terms. He commented that during the pandemic the Fund has been fortunate and negotiated good terms. He stated that staff continues to work on the ERS Emerging Program and leveraging external relationships for strategic resources and opportunities.

Lastly, Mr. Tull stated the investment division will enhance the career path development, communication, and succession planning and team development.

Mr. Alley thanked the IAC members, investment staff, legal, and compliance for their efforts in the year. He stated this has been a very trying year and that congratulations is in order for how the year was handled by everyone.

Mr. Wilson said that Mr. Tull announced his intent to retire and that ERS has commenced with the search for a replacement. He stated that the Board should have received questionnaire designed to help build a profile for the job by identifying the culture and values of the organization. An announcement for the job was put out in October. Mr. Wilson said that resumes will be received throughout the first of the year, with first round interviews happening in mid spring with the hopes to have someone in the position by the summer.

He added that Mr. Tull has been gracious enough to stay and ensure a seamless transition, and therefore ERS will have some flexibility.

Mr. Wilson stated that ERS staff will be talking to legislators and leadership in the House, Senate, and the Governor's office, about issues that were presented by the pension actuaries.

He said he believes that there is a realization that the problem should be addressed sooner rather than later, as the cost grows substantially each year that it is not addressed.

There were no questions or further discussion, and no action was required on this item.

36. Adjournment of the Joint Meeting of the Board of Trustees and Investment Advisory Committee

The Joint meeting of the Board of Trustees and Investment Advisory Committee adjourned at 3:18 p.m. There were no questions or discussion, and no action was required on this item.