THE INVESTMENT COMMITTEE
OF THE
MARYLAND STATE RETIREMENT AND PENSION SYSTEM

MINUTES OF <u>OPEN</u> MEETING

September 21, 2021

The Investment Committee convened on Tuesday, September 21, 2021 at 9:40 a.m., via video-conference call with the host site at the Maryland State Retirement Agency, SunTrust Building, 120 East Baltimore Street, 16th Floor, Board Room, Baltimore, Maryland.

| Committee Members Attending: | Michael K. Barry | Douglas Prouty |
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| | David Brinkley | Anne L. Shelton |
| | Eric Brotman, Chairman | Michael J. Stafford, Jr., Vice Chair |
| | Peter Franchot | Lamont Tarbox |
| | Nancy K. Kopp | |

| Also Attending: | Linda Allen (Trustee) | Danita Johnson |
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| | Michael Baker | Faina Kashtelyan |
| | Anish Bedi | Larry Katsafanas |
| | Frank Benham (Meketa) | Rob Kochis (Townsend Group) |
| | Bernadette Benik (Treasurer's office) | Ratna Kota |
| | Malcolm Blake (Townsend Group) | Charles Lee |
| | Scott Bolander (live stream) | Michael McCord |
| | Tom Brandt, Jr. (Trustee) | Nitin Mathew |
| | Robert Burd, Deputy CIO | Kyongdo Min |
| | Antionette Butcher | Katie Moore (Hamilton Lane) |
| | Jonathan Camp (Meketa) | Mary Mustard (Meketa) |
| | Rachel Cohen, OAG | Stephen Muturi |
| | Melody Countess | Minh Nguyen |
| | James Daly, Jr. (Trustee) | Martin Noven, Exec. Director |
| | Benjamin Eckroth (Hamilton Lane) | Lars Pace (Hamilton Lane) |
| | Mike Fang | Ashu Pal |
| | Eric Farls | Andrew Palmer, CIO |
| | David Ferguson | Steven Pytlar |
| | Mimi Forbes | Stephen Reilly |
| | Anne Gawthrop | Greg Ricci |
| | Michael Golden | David Rongione, Internal Auditing |
| | Dimitri Grechenko | Dan Schick |
| | Kenneth Haines (Trustee) | Jody Shaw, OAG |
| | Alex Harisiadis, OAG | Janet Sirkis |
| | John Harris (Meketa) | Kevin Slack |
| | Justin Hayes (Comptroller's office) | Frederick "Beau" Smith |
| | Angie Jenkins | Toni Voglino |
| | Dana Johns | Jack Wheatley |

Mr. Noven conducted a roll call to establish a quorum. Chairman Brotman called the meeting to order.

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**Item 1: Ratification of Open Session Minutes**

On a motion made by Mr. Prouty and seconded by Treasurer Kopp, the Investment Committee ratified the May 18, 2021 open meeting minutes.

**Item 2: Investment Committee Roles and Responsibilities**

Mr. Brotman noted that the roles and responsibilities of the Investment Committee are listed for the Committee's review. He asked if there were any additional questions. Hearing none, the Committee moved on to the next item.

**Item 3: Investment Division Fiscal Year 2021 Budget**

Mr. Burd stated that the Investment Division spent $14.7 million in FY 2021. The reasons for the lower spending included: lower cost in staff compensation, given the slower hiring pace due to Covid-19, the cost of private equity consultant was lower due to uncertainty in the procurement process, travel was restricted, thus lowering travel expenses, and the cost for trade order management system was lower because of half-year implementation. Overall, FY 2021 was within budget.

Mr. Burd recommended the Investment Division's budget for FY 2023 to be $18.4 million, which is 7.75% higher than FY 2022 budget. The increase is largely due to higher staff compensation and benefit costs. In addition, the Investment Division will incur costs for two new services. The first service is for a credit research provider, which would be especially helpful for the internal corporate bond portfolio. The other service is for a diversity assessment provider, which would be helpful for the Division's assessment of the diversity of existing and potential managers.

Mr. Burd mentioned that the Investment team will conduct an operational review and as a result of this analysis, may request additional positions in the future. The additional positions may be in the areas of fixed income, accounting, and executive positions. Mr. Burd did not include these additions in the budget proposal.

Treasurer Kopp asked if the diversity assessment service provider will offer suggestions relating to the System's current diversity efforts. Mr. Palmer replied that the focus of the service provider will likely be a more comprehensive and accurate measurement capability, as well as providing benchmarking to the portfolio's diversity measures.

Mr. Brotman asked what is driving the increase in the budget request. Mr. Burd replied that the increase is mainly due to increases in compensation as staff moves toward targeted levels.

Mr. Brotman asked if there are new outliers in the budget year over year. Mr. Burd responded that the proposed budget includes costs associated with two new services. Mr. Burd explained that staff is often able to negotiate lower vendor fees in the early years of a contract, with the expectation that the fees will gradually normalize in the later years.

On a motion made by Treasurer Kopp and seconded by Mr. Tarbox, the Investment Committee unanimously approved the estimated budget request for the Investment Division for fiscal year 2023.

**Item 4: Report from CIO**

Mr. Palmer shared a tear sheet of the fund's most recent performance as of July 31, 2021. Total assets were $67.96 billion, up 36 bps for the month. As of August 31, 2021, the plan is valued at $69.61 billion, returning 2.85% for the month. The Private Equity portfolio was the System's top performer for the fiscal year, registering a return in excess of 50%. Mr. Palmer indicated that staff expects the return for Private Equity will be roughly 12% for the first quarter of fiscal year 2022. The Fixed Income portfolio, Public

Equity portfolio, Credit portfolio, and Real Assets portfolio also did well. Mr. Palmer noted that the fund is likely down slightly for the current month of September.

Mr. Palmer then discussed the executive summary of the plan's performance. For FY 2021, the total plan returned 26.69%, exceeding the policy benchmark by 227 bps. All component returns from all asset classes were strong. Most of the excess return came from Public Equity, Private Equity, and Real Estate.

Treasurer Kopp noted that in the performance table, the 1-month performance measure should be noted as return in excess of the actuarial rate. Mr. Palmer agreed to include the footnote in future reporting.

Mr. Palmer then provided a staffing update. In FY 2021, the Investment team hired a new Sr. Portfolio Manager in the public equity portfolio. Unfortunately, this new hire resigned in September of 2021 to return to his former employer. The Investment Division also added three new associates, introducing Jack Wheatley as one of the new Associates. Mr. Wheatley will be working with the Absolute Return team. Mr. Palmer also noted that Danita Johnson was hired as the Managing Director of the Real Assets portfolio. Mr. Palmer stated that the Investment Division plans to fill two new positions in fiscal year 2022, a Senior Corporate Governance Manager and Administration Associate.

Mr. Palmer then explained that the Investment Division is in the process of integrating a new risk analytics system, specifically Blackrock's Aladdin system. The division's risk team is implementing this system across asset classes. Other than the risk system initiative, Mr. Palmer mentioned the diversity assessment service provider initiative, as discussed by Mr. Burd earlier in the meeting. Another initiative is the implementation of the Responsible Contractor Policy, discussed in past Committee meetings. Mr. Palmer indicated that staff is having on-going with discussions with Meketa and relevant fund managers in the portfolio.

Mr. Palmer discussed the internal management effort of the Investment Division. The internal investment-grade Corporate Bond portfolio was officially implemented at the beginning of July 2021. Currently, there are efforts to internalize the Small Cap US Equity portfolio and the Securitized Bond portfolio, both of which are expected to be officially implemented in October 2021. Mr. Palmer expected fee savings from these transitions.

Mr. Palmer then discussed the return and risk attribution of the portfolio. He emphasized that much of the information in the slide deck is interrelated. Mr. Palmer discussed the 12-month excess return attribution. He demonstrated that, at the asset class level, rate sensitive was not the best performing asset class relative to its benchmark. The decision to underweight the rate sensitive asset class added to the excess return of managers to move rate sensitive to the top of the list. Mr. Palmer showed that other exhibits provided insight into how the allocation to managers and overlay portfolios worked together to create the desired exposure. Still, other exhibits showed how these decisions impacted the implementation risk.

Mr. Palmer concluded by discussing how the rate sensitive asset class and overlay showed up in the plan's report on leverage and liquidity.

Mr. Brotman appreciated the presentation from Mr. Palmer and commended him and the investment staff for strong performance. There were no follow-up questions related to Mr. Palmer's presentation.

Mr. Palmer noted that there will be meetings of the Joint Committee on Pensions in October. The focus of these meetings will be climate change risk and in-state investing. Mr. Palmer also stated that the plan has a mandate to invest in Maryland companies, so the meeting may focus on how to create a governance system that promotes investment and job creation in Maryland. The meetings are expected to be held on October 7th and October 21st.

Treasurer Kopp added that, assuming the meeting is livestreamed and recorded, the meetings might be of interest to the Trustees and Advisors.

Before moving to the next item, Mr. Palmer introduced Ms. Danita Johnson as the Managing Director of the Real Assets portfolio. Ms. Johnson has extensive experience in Real Assets investments and is in the process of familiarizing herself with the team and the portfolio.

### Item 5: The Townsend Group Report
Ms. Johnson introduced Rob Kochis of the Townsend Group as the consultant to the System's Real Estate portfolio.

Mr. Kochis started the discussion with an overview of the real estate market and portfolio. He stated that the real estate market rebounded significantly from the Covid-19 downturn last year, especially with the re-opening of the economy in the second half of 2020. Covid-19 had differentiated impacts on real estate and created opportunities in the market. The amount of stimulus in response to Covid-19 is significant, and increases the likelihood of inflation, which affects material and labor costs, rental income and operating expense. Additionally, the real estate market has attracted a lot of investors, resulting in high levels of uncalled capital. He noted that real estate prices have increased and appear elevated from a historical perspective.

Mr. Kochis added that certain sectors in the real estate market benefited from the change of space uses that occurred during Covid-19. He said that there has been a significant shift from offices and retail to industrials, logistics, and data centers. The market has continued to diversify into niche sectors.

Mr. Kochis then indicated that the industrial sector has benefited from the impact of e-commerce, which accelerated prior to and during the Covid-19 crises, with growth rates of 10-15% in e-commerce.

Mr. Kochis said that there has been strong demand in the housing sector. In addition, location of demand shifted, and the affordability of housing has declined due to high prices. The trend in migration shifted the demand dynamics in real estate, with people moving from metro areas to suburban locations. The southeast and southwest of the US witnessed high housing demand, with people moving to these regions.

Mr. Kochis stated that the healthcare sector was impacted by the aging population. The demand for healthcare facilities has been stimulated by Covid-19, especially in the pharma and research facilities. There was also increased demand for medical office buildings, lab space, and senior housing facilities. This demand is still present, which signifies that the healthcare sector may be an attractive area to invest.

Mr. Kochis noted that office and traditional retail sectors are challenged, as they are still affected by Covid-19 with high uncertainty regarding long-term impacts of the pandemic.

Mr. Brotman asked if there are retail and office exposure in the System's Real Estate portfolio. Mr. Kochis replied that 80-90% of the portfolio is invested in office, apartment, and industrials and retail, the traditional four real estate sectors. The majority of new investments in the System's portfolio is targeting the healthcare and industrial sector and the smaller niche sectors. Mr. Palmer added that 10% of assets of the pension plan is targeted to the Real Estate portfolio. The portfolio is working to meet this 10% target. The amount of uncalled capital is over $1 billion, which is dry powder that can take advantage of the current market condition.

Mr. Kochis continued with a discussion of the portfolio performance and characteristics. He commented that the Real Estate portfolio is an efficient portfolio, with 23 managers and 39 investment vehicles. The

portfolio is at the low end in terms of the ratio of mangers to vehicles. This concentration has enabled staff to leverage relationships and scale to negotiate lower fees.

Mr. Kochis also mentioned that the Real Estate portfolio is core-centric, with 80% of the investments in cash flow generating sectors with low risk. He said that Townsend has been working with the Real Estate team to take more risk in the portfolio. Mr. Kochis summarized that the Real Estate portfolio is core, has a high level of dry powder in the form of unfunded commitments, and has capacity to commit further capital in riskier assets.

Mr. Kochis then said that the performance of the portfolio is good overall, both in absolute terms and relative to the benchmark. He clarified that the performance analysis is using data as of March 31, 2021. Overall, the portfolio has performed well, except for a dip during the beginning of Covid-19. Mr. Kochis expects that the 1-year return of the portfolio will grow substantially by the quarter ending September 30, 2021.

Mr. Brotman asked if the difference between gross and net returns was entirely due to fee reduction and negotiation. Mr. Kochis replied that fee savings and negotiation was one factor. The other factor is that the portfolio was tilted to core funds. The concentrated number of large manager relationships in the portfolio allowed staff to negotiate lower fees.

Mr. Brotman asked whether the fees would depress return if the System moves into more non-core investments. Mr. Kochis replied that he did not expect lower returns, as the returns generated from non-core investments should exceed the higher costs.

Mr. Kochis discussed the concentration of relationships in the Real Estate portfolio. The top three relationships in terms of allocation are Morgan Stanley, JP Morgan, and Heitman, which are mostly core funds. The bottom three relationships are more tactical and value-added investments. They are small commitment sizes and tend to recycle capital quickly.

Mr. Brotman asked if the Real Estate portfolio is divesting from the relatively smaller investments listed near the bottom. Mr. Kochis confirmed that is the case. Additionally, the portfolio has some legacy investments that are in the process of liquidation. Mr. Kochis expects that the portfolio will onboard new managers as legacy managers are liquidated. He also expects that the number of relationships will stay roughly the same, and the number of vehicles will increase.

Mr. Kochis mentioned that the portfolio is diversified. In addition to the four main property types, the portfolio also has commitments in senior housing and self-storage. Mr. Kochis expects growth in other property categories going forward, with different strategies and types of investments. Mr. Kochis added that the portfolio has investments in all sectors in the U.S. He noted that the level of diversification in the Real Estate portfolio is appropriate.

Mr. Kochis stated that the Real Estate portfolio is projected to reach the 10% target allocation by the end of 2024. The portfolio had significant investment in 2020 and the beginning of 2021, with an aim to increase the allocation closer to target. The strength of the market is growing the total plan assets, and Real Estate assets are catching up. Going forward, Mr. Kochis expects the portfolio to invest $1 billion per year to get to the target allocation level.

Mr. Kochis discussed the ESG status of the Real Estate portfolio. The measure of ESG status is GRESB and the portfolio is graded highly. The primary drivers of the scoring are the core fund concentration in the portfolio, transparency, and long-term oriented asset management. In addition, the underlying properties in the portfolio utilize the best energy efficient technology and have made efforts to conserve and recycle.

Mr. Kochis said that looking ahead, the portfolio should be roughly 70% core, instead of the current 80% allocation. The portfolio should also explore diversification into international markets. Mr. Kochis encouraged vehicles such as co-investments or alternative methods to get improved fees and performance.

Mr. Palmer commented that the performance shown by the Townsend Group's analysis is slightly different from the performance measures shown in the State Street reports. Specifically, there is a timing mismatch in return measurement between State Street return data and Townsend return data. However, Mr. Palmer stated that the Townsend analysis is the best representation of the performance of the Real Estate portfolio because it reports all the data with reference to the same date. Such analysis can be included in future IC meetings.

Treasurer Kopp asked if Mr. Palmer and Ms. Johnson share or would like to add to the analysis and recommendations presented by Townsend. Mr. Palmer replied that staff is prepared to do so, but noted that the presentation itself is the product of the collaboration between Townsend Group and the Real Estate team. Mr. Palmer stated that staff is happy to have a follow-up discussion with the Investment Committee regarding the Real Estate portfolio. Treasurer Kopp appreciated the effort and expressed enthusiasm in following the trajectory of the Real Estate portfolio.

### Item 6: Hamilton Lane Report

Mr. Palmer introduced Hamilton Lane, who is the consultant for the Natural Resources and Infrastructure portfolio. The Hamilton Lane team consists of Ms. Katie Moore, Mr. Lars Pace, and Mr. Ben Eckroth. Mr. Palmer noted that the report is a collaborative effort between the Real Assets team and Hamilton Lane.

Ms. Moore explained the goal of the presentation is to focus on the macro headwinds and tailwinds to the Real Assets portfolio, to briefly discuss the portfolio, and to discuss strategies to construct the portfolio. She expressed that the role of Real Assets in the portfolio should be for enhanced return and diversification purposes. These assets typically exhibit cash flows, ability to return cost, inflation protection, and uncorrelated performance with other traditional asset classes. Ms. Moore noted that comments from Hamilton Lane are backed by data and research in the presentation. She then introduced Mr. Pace to continue the presentation.

Mr. Pace said that the Real Assets market consists of two categories – Infrastructure and Natural Resources. The Infrastructure market consists mostly of transportation, energy, and logistics. Overall, Infrastructure is attractive based on stable cash flows, ability to return cost, inflation protection, and uncorrelated performance with other traditional asset classes. For Infrastructure investments, capital is usually invested over a five-year period. In terms of market needs, the U.S. government proposed a bill which includes a $1.5 trillion investment in Infrastructure. In addition, there is always a need for Infrastructure investment across the globe. Infrastructure is usually complex to operate, and usually involves long-term contracts.

Mr. Pace continued with the discussion on Natural Resources. This asset class includes the sub-categories of Agriculture, Timber, and Energy & Materials. Natural Resources assets typically have modest correlation with other asset classes, with more upside during improving market conditions. There is a consolidation trend in the energy and mineral sector, with large buyers buying smaller assets.

Mr. Pace then discussed the investment opportunities in the Real Assets market. The Wastewater Management sector needs investment for upgrades. The Transportation sector is attractive due to the pending U.S. infrastructure bill. The Energy sector is attractive due to the need for oil pipelines to bring energy to major markets. The data facility sector is attractive due to continual investments in cloud technology, 5G, data centers, and fiber technology. Traditional and renewable energy sectors are attractive

given the need to enhance the electricity grid, renewable energy, and battery storage. These investments have good cash flow underpinning the underlying assets and have potential for high returns.

Mr. Pace mentioned that Hamilton Lane examined the Real Assets market in different inflation environments. He observed that when inflation is significantly above 3%, Real Assets performs well due to Real Assets' higher correlation with inflation. The performance of other asset classes are not as strong as Real Assets in similar inflation periods.

Mr. Pace said that the dispersion of returns in private market strategies in general is quite large, roughly 2000 bps difference between good managers and bad managers. He noted that the Infrastructure sector accounts for half of the spread and has a median IRR of 9%, which is relatively good. Additionally, Mr. Pace mentioned that the 1st and 2nd quartile IRRs of the Real Assets funds are quite high and represent targeted investments for the Real Assets portfolio. Lastly, Mr. Pace mentioned that the private Infrastructure and Natural Resources markets are relatively uncorrelated with stocks and the public Infrastructure and Natural Resource market.

Mr. Stafford mentioned that the Real Assets portfolio has two benchmarks – one is the CPI+5%, and the other is a blended benchmark of public Natural Resource and Infrastructure indexes. He noted that the blended benchmark invests mostly in public companies, whereas the Real Assets portfolio consists mostly of private investments. Given the correlation analysis in the presentation, he questioned whether the pension plan is using the right benchmark. He asked what other indices the plan can use. Ms. Moore replied that the CPI+5% benchmark is probably the least bad benchmark. Broader public indexes are mostly core companies. Ms. Moore mentioned that if investors are looking at any public indexes for benchmarking, they should look with a long-term view. She reminded the Committee that the objective of this asset class is to be uncorrelated to traditional asset classes, not just beating the benchmark. She also mentioned that the portfolio is trying to get inflation protection, so choosing the CPI as a benchmark makes sense, and a 5% premium is reasonable. Ms. Moore noted that the best public benchmark available is expected to produce 8% in return, and the Real Assets portfolio is targeting 8.5%+ return in the long term. In summary, Ms. Moore said that there aren't any perfect public benchmarks, but the portfolio has a good benchmark for the reasons given, in her view.

Mr. Stafford suggested doing some more work on identifying a good policy benchmark for the Real Assets portfolio. Ms. Moore reiterated that there is no perfect benchmark for these asset classes. She also cautioned that, given the plan to ramp up the Real Assets portfolio, it would be difficult to perform such an analysis to truly identify the best benchmark. Mr. Tarbox added that the analysis would be looking for something that does not exist, and the System uses the best benchmark that it can. He believed that such an analysis is unnecessary and recalled that the Investment Committee has encountered the same issue with the Private Equity portfolio. Mr. Tarbox also suggested that Mr. Stafford's concern may relate to a compensation consideration and that the Committee should discuss this issue from a compensation perspective another time.

Mr. Stafford asked why the System did not use the CPI+5% benchmark as the official benchmark. Mr. Palmer replied that the System had such a benchmark in place in the past. However, the System realized that such a benchmark is not a good short-term benchmark for performance. Consequently, the System attempted to find an alternate benchmark that reflects the volatility of the markets. Staff worked with Meketa to implement the current blended benchmark. Ms. Moore added that the CPI+5% benchmark and the blended benchmark are close in terms of performance over a long time period. Mr. Palmer added that there are efforts to build a good benchmark for the private markets and that Hamilton Lane has their own database to construct private benchmarks.

Mr. Stafford asked how much of the underlying investment in the Real Assets portfolio is in the public market. Mr. Palmer said that of the current 4% allocation to Real Assets, around 3% is in public assets and 1% is in private assets. Ms. Johnson confirmed the numbers.

Mr. Eckroth discussed the cash flow analysis of the portfolio. He stated that there were no commitments in this portfolio over the past year. The Real Assets portfolio experienced positive cash flow, primarily from distributions of older vintage commitments. The performance of the portfolio is 4.5%. Currently, 30% of the funded commitments are in energy. Mr. Eckroth also compared the portfolio performance against three benchmarks – the CPI+5%, the blended benchmark, and the Hamilton Lane Real Assets benchmark. Overall, the Real Assets portfolio performed well in the past year but lagged over the long term.

Mr. Eckroth then mentioned that, going forward, the Real Assets portfolio is expected to reach the 4% allocation target. To do so, the portfolio is expected to invest $600 - $750 million per year. Mr. Eckroth said the Real Assets team and the Hamilton Lane team targets diversified strategies. Diversification of the core investment component is important, and the portfolio is expected to invest in 5-7 core fund managers with $75–100 million per commitment. The Real Assets portfolio will also target non-core and value-added strategies, with diversification in term of strategies and geography. Mr. Eckroth stated that a majority of the investments should be in the private market funds according to the pacing plan.

Ms. Moore added that the Real Assets team and Hamilton Lane team have plans to layer in co-investments over time, to reduce fees and enhance returns. She also mentioned that staff and Hamilton Lane will monitor the legacy portfolio and possibly add-in tactical strategies, such as contrarian investments. Lastly, she mentioned that midstream energy infrastructure and natural resources can be interesting.

**Item 7: Asset Allocation Recommendation**
The presentation was led by Meketa, the consultant to the Board. The presenters were Mr. Frank Benham, Ms. Mary Mustard, and Mr. Jonathan Kamp.

Mr. Benham stated that an asset allocation review does not need to be conducted every year, and it can be harmful to do so. Therefore, the Meketa team reviews the asset allocation every four to five years. The last asset allocation review was completed two years ago, with minor changes. Mr. Benham noted that the review is being done this year due to the change in the System's actuarial rate and because Meketa has new tools for the analysis – optimization of asset to liability, climate risk modeling, and inflation risk modeling.

Mr. Benham said that the review process incorporates modeling tools and extensive conversation with staff. The Meketa team and staff discussed several different asset allocation options. Meketa also discussed convexity to potentially improve upside/downside capture ratios, a barbell approach, leverage, risk-adjusted performance against peers, impact of allocation size, and confidence in modeling assumptions. As a result of these discussions, Meketa and staff came up with one ultimate asset allocation recommendation.

Mr. Benham noted that the current portfolio is very diversified, and the recommended asset allocation does not deviate significantly from the current portfolio. However, the recommended asset allocation has a slightly higher return and risk expectation. The recommended asset allocation has a higher allocation to Private Equity and the Rate Sensitive portfolio, which reflects the barbell approach and hedges against inflation. The allocation to Absolute Return is reduced by 2%, and Real Assets portfolio increases by 1% for better inflation protection.

Mr. Benham also discussed the other policy options – Liability Efficient, Leverage, Climate Sensitive and the Peer Average.

Mr. Benham noted that the tracking error of the current asset allocation is 1.5%. Over the same timeframe of the analysis, other asset allocation options have higher tracking error relative to the peer-average asset allocation portfolio. Mr. Benham noted that the recommended asset allocation portfolio has the lowest tracking error of all options.

Mr. Benham also looked at downside risk by running historical negative scenario analysis. The recommended portfolio performs better than the current portfolio, especially in severe scenarios. Mr. Benham noted that the liability efficient option performs well in a stagflation environment, due to higher allocations to Commodities and Gold. Mr. Benham analyzed the portfolio in forward-looking stress testing scenarios, in which interest rates increase sharply, credit spreads widen, and the equity risk premium is expands by varying degrees. He noted that the recommended portfolio performs better than the current portfolio, the liability efficient and climate sensitive options are best positioned in any scenario. Lastly, Mr. Benham talked about inflation stress testing, which includes a varying degree of inflation and growth shocks. The current portfolio allocation performs worse than any other asset allocation options under these high-inflation regimes.

Mr. Kamp then presented the asset liability study on the current asset allocation. First, the study looked at 100 possible scenarios of pension plan asset trajectory. Mr. Kamp then discussed a simulation for the liabilities of the System. He noted that Meketa worked with the System's actuaries and assessed the market and plan liabilities. Inflation is the most material market risk affecting liabilities. However, the volatility in liabilities is very small, so Mr. Kamp claimed that most of the volatility effect of the plan comes from the assets.

Mr. Kamp also looked at the funded status of the plan over the next 20 years. He estimated that the median funded ratio would be 98% with average returns. However, there is a 5% chance that the funded ratio is 53% in 20 years under a poor economic scenario. Mr. Kamp highlighted that in plotting the funded status of the current asset allocation against the peer-average asset allocation, the current asset allocation is more optimal. Mr. Kamp also plotted other possible portfolios given the objective of maximizing the median funded ratio while minimizing the 5th-percentile funded ratio risk.

Mr. Benham then summarized the asset allocation recommendation presentation.

Ms. Shelton asked about the duration of the liabilities. Mr. Kamp estimated it to be 15 years.

Mr. Benham mentioned that volatility of returns can affect the funded status severely, so Meketa is not recommending higher volatility portfolios. The reason is that if the plan experiences negative cash flows or negative economic conditions in the first few years, such negative performance makes it difficult to compound returns into the future. As a result, the plan may experience a lower funded status.

Mr. Benham then talked about climate risks. He analyzed the asset allocation options in four scenarios – 1.5°C rise in temperature, 3°C rise in temperature with minimal mitigation, policy scenario with aggressive mitigation, and technology scenario with 3% improvement in energy efficiency. Ms. Shelton asked if these scenarios are mutually exclusive. Mr. Benham said that technically these scenarios are run independently from one another, but the scenarios may intertwine.

Mr. Benham said that all scenarios lead to lower baseline return levels on the portfolio, regardless of asset allocation options. He also noted that the recommended asset allocation performs the best in the 3°C rise in temperature scenario, outperforming the baseline return level by 7bps. In other scenarios, the climate sensitive asset allocation option performs the best.

Treasurer Kopp asked if the peer average asset allocation is unrealistic in the climate risk scenario analysis. She assumed that given climate risks, peers are likely to alter their asset allocations in the future, deviating from their current asset allocation. Mr. Benham replied that it is true that peers will alter their allocations, but since Meketa does not have an estimation of how the allocations might change, the current asset allocation from the peer average is valid in the analysis.

Mr. Benham concluded that the recommended asset allocation has higher expected returns, outperforms in most stress testing scenarios, and offers a higher probability of achieving return objectives. The proposed asset allocation increases the Private Equity allocation, which can achieve higher alpha given the skillset of staff. Possible investment themes to explore in the future include inflation hedges via CTA strategies, Commodities and Gold. The asset allocation also entails restructuring of Real Assets portfolio to be less in Natural Resources and more in Infrastructure.

Mr. Stafford asked why the standard deviation in U.S. Equity increases while the standard deviation in Private Equity decreases. Mr. Benham replied that the return expectation has come down dramatically over the last 10 years, which results in getting less return for the same amount of risk. For the standard deviation methodology, Meketa looks at the past 15 years, and adjusts for asset classes that are negatively skewed or don't have daily pricing.

Mr. Stafford noted that the Emerging Market Equity standard deviation declined while the Developed Market Equity standard deviation did not change at all. Combining the previous observation, Mr. Stafford believed that such changes affect the optimization exercise and consequently the recommended asset allocation. Mr. Brotman stated that the change in allocation to Private Equity may seem extreme, but noted that the current allocation to Private Equity is roughly around the recommended level. Ms. Shelton added that the current allocation to Private Equity is higher than the current target, but should be temporary, given that it is difficult to control the exact allocation of Private Equity.

Ms. Shelton asked if there will be a reduction in the current Private Equity allocation after near term distributions, given that much of the deviation from the target allocation likely comes from a write-up of assets and significant IPOs that are restricted stocks in the portfolio. Mr. Ferguson, the Managing Director of Private Equity portfolio, said that there is a large amount of unfunded commitments, so he does not expect a significant decline in allocation in the future. Mr. Palmer added that the Private Equity portfolio will maintain its size if valuations and assumptions hold.

Ms. Shelton asked about the assumption behind the modeling of the Private Equity portfolio. Mr. Benham said that the team modeled a blended portfolio of 80% to buyout and 20% to venture capital.

Ms. Shelton asked how much of the Emerging Market Equity modeling is predicated on China, and what is Meketa's opinion on the influence of China on Emerging Markets investing. Mr. Benham replied that Meketa has been considering China's impact on emerging markets as a result of the increased regulation recently. China has been an increasing driver of emerging market returns over the last 10 years. He recommended a paper by Meketa relating to China to the Investment Committee. He added that there is a great deal of risk investing in China, which was underappreciated by markets until recently. Mr. Benham said that China is the second largest economy in world, so completely ignoring China would be missing a sizeable component of global trade and growth. However, there is a struggle of balancing the unknown unknowns. Mr. Benham added that Meketa will continue to monitor these risks. He maintained the recommended asset allocation.

Ms. Shelton asked if the overweight to China was intentional and whether the System is being compensated for the political risk. Mr. Benham responded that the overweight has been intentional. He added that the recommended asset allocation decreases the allocation to Emerging Markets Equity by 1%.

Ms. Shelton asked for more information about the liquidity of the recommended asset allocation. She stated that she does not object to shifting toward more illiquid assets, but she would like to get the complete picture about the potential impact on the liquidity of the recommended asset allocation, especially from an increased allocation to Private Equity. She also noted the increased exposure to illiquid drawdown structures in the Credit and Real Assets portfolios over the last several years. She requested further analysis that would more accurately incorporate the System's current unfunded commitments, and how this amount might impact the fund's liquidity in a stressed scenario where capital calls were greater than distributions. Mr. Benham deferred the question to staff. However, he noted that the stress test scenarios assume no net distributions. When looking at the liquidity profile for different policies, the most illiquid asset allocation is the climate sensitive option. Mr. Benham said that illiquidity under different asset allocation options does not only come from Private Equity.

Mr. Palmer referred Ms. Shelton's question about illiquidity to Mr. Smith, the Senior Risk Manager. Mr. Smith said that internally, staff monitors overall liquidity of the plan on both a short term and long term basis. Overall, Mr. Smith believes that the pension plan has the capacity to take on more private commitments.

Ms. Shelton asked how the unfunded commitment would change over time given the recommended asset allocation. Mr. Smith said the analysis staff performs internally is a point in time analysis, not forward-looking analysis. However, he said that staff can model such unfunded commitments out in time. Mr. Smith also stated that currently, Private Equity constitutes most of the unfunded commitments. In addition, he expected that over the next 8-10 months, there will be new commitments made, new commitments under legal review, and new commitments under due diligence.

Ms. Shelton then asked whether Meketa incorporated unfunded commitments in the liquidity analysis. Mr. Benham said that he did not include capital calls and distributions in the analysis. Stress testing is more for severe liquidity scenarios, not for day-to-day expected operations. He also believed that the System has more than enough liquid assets to meet the cash obligations, especially in very extreme liquidity scenarios.

Ms. Shelton said that she did not believe the modeled cash outflow in year zero is a reliable estimate. She mentioned that during her past research with Cambridge Associates' data, she found that capital calls tended to exceed distributions by huge margins in times of market stress. She believed that we should factor in capital calls into the model. Mr. Palmer said that Meketa's analysis is for the long-term horizon, and that staff stress-tests liquidity for the short-term horizon. Mr. Smith added that to do such stress testing, the staff shocks the portfolio with the S&P 500 as a baseline. Staff then summarizes the scenario each day, with considerations on capital calls and distributions. The timeframe of the analysis is one month, and the capital is assumed to be called at 6% of the unfunded commitment per month. The 6% capital call assumption is based on discussions with peers and risk-networking groups.

Mr. Stafford asked if the difference between Mr. Smith's analysis and Meketa's analysis comes from consideration of the underlying capital calls and distribution. Mr. Benham said that is partially the reason but mentioned that the difference in time horizon of the analysis is the major factor explaining the difference. Mr. Smith agreed.

Ms. Shelton said that the long-term analysis is very important for strategic asset allocation. She expressed concern about the illiquidity trajectory if the recommended allocation was implemented and that the stress tests do not adequately reflect what could happen given unfunded commitments and potential capital calls. Ms. Shelton said that she is willing to trade off illiquidity for return but would prefer a more adequate stress test. Mr. Palmer suggested that staff should come back to this issue in the November meeting, and Ms. Shelton agreed.

Mr. Stafford noted that some of the asset classes have investments that are less liquid than the benchmark. He stated that it is difficult to discern this illiquidity when the Investment Committee looks at the reports. Mr. Brotman replied that the Investment Committee will review an enhanced liquidity analysis during its November meeting.

On a motion made by Treasurer Kopp and seconded by Mr. Tarbox, the Committee unanimously approved the recommended asset allocation. Mr. Brinkley had to leave meeting, but he left a message with Chairman Brotman and Treasurer Kopp that he was in support of motion.

The changes are summarized below:

- The total allocation to Equities would remain the same; however, the Private Equity target would increase by 3%, with 1% coming from each of the three public equity classes (US, non-US, and EM).
- The target allocation to Rate Sensitive assets would increase by 2%.
  The increase would be allocated 1% in investment grade bonds and 1% in TIPS.
- The target allocation to Credit would decrease by 1%, by trimming emerging market debt.
- The Real Assets target allocation would increase by 1%.
  This would be due to an increase in the Natural Resources and Infrastructure allocation.
  This would include a shift to a greater emphasis on infrastructure within that allocation.
- The target to Absolute return would decrease by 2%.

Mr. Stafford asked how the recommended asset allocation would change the range of allocation for Private Equity, given that the current allocation is within the recommended range. Ms. Shelton added that the current over-allocation to private equity is unintentional and common in the private asset classes. Mr. Brotman added that the current policy allows for ±7% around the target for the overall Equity/Growth allocation but does not specify in detail the allowed deviation for the Private Equity allocation. Mr. Palmer said that the current deviation in Private Equity is the result of strong performance. He added that staff and consultants have developed a pacing plan to reach the target allocation within a range of expectations. Mr. Brotman added that staff is well within the approved ranges. Mr. Brotman stated that the Investment Committee may need to discuss adjusting the Investment Policy Manual and asset class ranges. Mr. Palmer added that staff and Meketa will present a proposed implementation plan and changes to the Investment Policy Manual in the November Investment Committee meeting.

### Item 10:  Investment Reports
The Committee received the following investment reports:
- State Street Performance Reports
- Terra Maria Performance Reports
- TUCS Report
- Private Markets Performance Reports
- Securities Lending Report
- Division's FY22 Travel Plan - Update
- Quarterly ORP Performance Report
- OPEB-PHBT Update
- New Hire Manager Report

On the Directors Desk:
- Broker Commission Reports
- Quarterly Manager Fee Report

**Item 11:  Motion by the Investment Committee to meet in Closed Session**

On a motion made by Mr. Tarbox and seconded by Ms. Shelton, the Investment Committee voted without objection to meet in Closed Session at 12:58 p.m. for the purposes of:

(a) reviewing the closed session Investment Committee minutes, pursuant to General Provisions Art., § 3-103(a)(1)(i), the exercise of an administrative function, and General Provisions Art., § 3-305(b)(13), to comply with a specific statutory requirement that prevents public disclosure, namely, General Provisions Art., § 3-306(c)(3)(ii), requiring that the minutes of a closed session be sealed and not be open to public inspection;

(b) considering the award of financial incentives for certain employees of the Investment Division, pursuant to General Provisions Art., Section 3-305(b)(1)(i), to discuss the appointment, employment, assignment, promotion, discipline, demotion, compensation, removal, resignation, or performance evaluation of appointees, employees, or officials over whom it has jurisdiction;

(c) considering the award of financial incentives to the Chief Investment Officer pursuant to General Provisions Art., § 3-305(b)(1)(i), to discuss the appointment, employment, assignment, promotion, discipline, demotion, compensation, removal, resignation, or performance evaluation of appointees, employees, or officials over whom it has jurisdiction, and General Provisions Art., § 3-103(a)(1)(i), the exercise of an administrative function; and

(d) conducting an evaluation of the CIO's performance and compensation pursuant to General Provisions Art., Section 3-305(b)(1), consideration of a personnel matter, pursuant to General Provisions Art., Section 3-305(b)(1)(i), to discuss the appointment, employment, assignment, promotion, discipline, demotion, compensation, removal, resignation, or performance evaluation of appointees, employees, or officials over whom it has jurisdiction.

### CLOSED SESSION

| Committee Members Attending: | Michael K. Barry | Douglas Prouty |
| --- | --- | --- |
| | Eric Brotman, Chairman | Anne L. Shelton |
| | Peter Franchot | Michael J. Stafford, Jr., Vice Chair |
| | Nancy K. Kopp | Lamont Tarbox |
| | | |
| Also Attending: | Tom Brandt, Jr. (Trustee) | Kenneth Haines (Trustee) |
| | Robert Burd, Deputy CIO | Martin Noven, Exec. Director |
| | Antionette Butcher | Andrew Palmer, CIO |
| | Rachel Cohen, OAG | |
| | James Daly, Jr. (Trustee) | |

**Item 16:  Motion by Investment Committee to adjourn closed session**

On a motion made by Mr. Prouty and seconded by Treasurer Kopp, the Investment Committee voted to adjourn closed session at 1:33 a.m. and returned to open session.

During closed session, the Investment Committee discussed and took action on the following matters:

The Investment Committee reviewed and ratified the Closed Session minutes from the May 18, 2021 meeting.

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The Investment Committee approved Fiscal 2021-2022 Incentive Compensation Recommendations for Investment Division staff.

The Investment Committee took action on the Fiscal 2021-2022 Incentive Compensation Recommendation for the CIO.

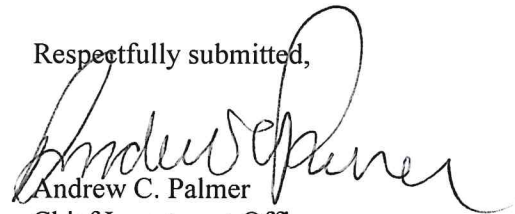Committee conducted an evaluation of the CIO's performance and compensation review.

## OPEN SESSION

| | | |
|---|---|---|
| Committee Members Attending: | Michael K. Barry<br>Eric Brotman, Chairman<br>Peter Franchot<br>Nancy K. Kopp | Douglas Prouty<br>Anne L. Shelton<br>Michael J. Stafford, Jr., Vice Chair<br>Lamont Tarbox |
| Also Attending: | Tom Brandt, Jr. (Trustee)<br>James Daly, Jr. (Trustee) | Kenneth Haines (Trustee)<br>Martin Noven, Exec. Director |

## Item 16:  Motion by the Investment Committee to adjourn meeting

Adjournment    There being no further business before the Investment Committee, on a motion made by Mr. Prouty and seconded by Treasurer Kopp, the meeting adjourned at 1:34 p.m.

Respectfully submitted,

Andrew C. Palmer
Chief Investment Officer