



SHAWN T. WOODEN
TREASURER

State of Connecticut
Office of the Treasurer

DARRELL V. HILL
DEPUTY TREASURER

M E M O R A N D U M

TO: Members of Investment Advisory Council

FROM: Shawn T. Wooden, State Treasurer and Council Secretary

DATE: August 6, 2021

SUBJECT: Investment Advisory Council Meeting – August 11, 2021

Enclosed is the agenda package for the Investment Advisory Council meeting on Wednesday, August 11, 2021 starting at 9:00 A.M.

The following subjects will be covered at the meeting:

- Item 1: Approval of the Minutes of the July 14, 2021 IAC Meeting**
- Item 2: Opening Comments by the Treasurer**
- Item 3: Update on the Market and the CRPTF Performance**
Steven Meier, Interim Chief Investment Officer, will provide an update on the capital market environment.
- Item 4: Cash Flow Analysis**
Raynald Leveque, Deputy Chief Investment Officer and Peter Gajowiak, Senior Investment Officer, will present the Cash Flow Report projections for Fiscal Year 2021 and provide an update on actual cash flows for Fiscal Year 2020.
- Item 5: Peer Performance Review Analysis**
Meketa Investment Group will present a public pension plan peer performance review analysis.
- Item 6: Other Business**
- Discussion of the preliminary agenda for the September 8, 2021 IAC meeting
- Item 7: Comments by the Chair**
- Item 8: Executive Session**
- Consideration of personnel matters

Item 9: Vote to approve the Revised Relocation Policy

We look forward to reviewing these agenda items with you at the August 11th meeting.

Please confirm your attendance with katrina.farquhar@ct.gov as soon as possible.

STW/kf

Enclosures

INVESTMENT ADVISORY COUNCIL

Wednesday, July 14, 2021

MEETING NO. 494

Members present:

**10:30am departure

D. Ellen Shuman, Chair**
Treasurer Wooden, Secretary
Thomas Fiore, representing Secretary Melissa McCaw
Joshua Hall

*9:06am arrival

Michael Knight
Michael LeClair*
Steven Muench
William Murray

Members absent:

Patrick Sampson

Others present:

Steven Meier, Interim Chief Investment Officer
Kevin Cullinan, Chief Risk Officer
Patricia DeMaras, Legal Counsel
Mark Evans, Principal Investment Officer
Lyndsey Farris, Principal Investment Officer
John Flores, General Counsel
Karen Grenon, Legal Counsel
Darrell Hill, Deputy Treasurer
Barbara Housen, Chief Compliance Officer, Deputy General Counsel
Danita Johnson, Principal Investment Officer
Harvey Kelly, Pension Fund Analyst
Peter Gajowiak, Senior Investment Officer
Felicia Genca, Pension Fund Analyst
Raynald Leveque, Deputy Chief Investment Officer
Paul Osinloye, Principal Investment Officer
Veronica Sanders, Executive Secretary
Christine Shaw, Assistant Treasurer for Corporate Governance & Sustainable Investment
Michael Terry, Principal Investment Officer
Olivia Wall, Investment Officer

Guests:

LaRoy Brantley, Meketa Investment Group
Judy Chambers, Meketa Investment Group
Gary Hudepohl, Hudepohl Associates
Emily Kunkle, Meketa Investment Group
Peter Woolley, Meketa Investment Group
Public Line

With a quorum present, Chair D. Ellen Shuman called the Investment Advisory Council (“IAC”) meeting to order at 9:01 a.m.

Approval of Minutes of the June 9, 2021 IAC Meeting

Chair Shuman called for a motion to accept the minutes of the June 9, 2021 IAC Meeting. **William Murray moved to approve the minutes. The motion was seconded by Steven Muench. There was one abstention from Thomas Fiore. There being no further discussion, the Chair called for a vote and the motion passed unanimously.**

Comments by the Treasurer

Treasurer Wooden welcomed IAC members and began by providing a few updates. He stated that with respect to the State's fiscal standing, Connecticut ended fiscal year 2021 with an estimated \$157.0 million surplus, as well as another historically high Budget Reserve Fund, commonly known as "The Rainy Day Fund," which is projected to be nearly \$4.38 billion. He continued to say that this unprecedented amount exceeds the 15% volatility cap threshold by \$1.2 billion, which means that for the second year in a row and only the second time in Connecticut's history, the excess will be transferred to either the State Employees' Retirement Fund or the Teachers' Retirement Fund later this year.

Next, Treasurer Wooden discussed that on July 1, CT Baby Bonds, a groundbreaking, anti-generational poverty, racial equity, and economic growth program that he proposed during this year's legislative session, went into effect. So, as of the beginning of this month, children born into poverty whose births are covered by HUSKY, the State's Medicaid program, are now eligible for CT's Baby Bonds program.

Last, he announced his decision to commit \$125 million into the Basis Investment Group Real Estate Fund II, L.P, approximately \$178 million, equivalent to 150 million Euros, in the ICG Europe Fund VIII and \$150 million in the Strategic Value Special Situations Fund V.

Update on the Market and the Connecticut Retirement Plans and Trust Funds Performance for Month Ending May 31, 2021

Steven Meier, Interim Chief Investment Officer ("CIO"), provided an update on the Connecticut Retirement Plans and Trust Fund's performance and commented on the capital market environment and the economic outlook.

Vote to approve the Treasurer's selection of a Chief Investment Officer

Chair Shuman called for a motion to approve the Treasurer's selection of a Chief Investment Officer. **A motion was made by Mr. Murray, seconded by Mr. Fiore, to approve the Treasurer's selection of a Chief Investment Officer.** There was one abstention by Mr. Muench. There being no further discussion, Chair Shuman called for a vote and the motion passed.

Presentation by and Consideration of Aldrich Capital Partners II

Mark Evans, Principal Investment Officer ("PIO"), provided opening remarks and introduced representatives of Aldrich Capital Partners II ("Aldrich"), a Real Assets Fund opportunity.

Aldrich, represented by Raz Zia, Managing Partner and Mirza Baig, Managing Partner, made a presentation to the IAC.

Roll Call of Reactions for Aldrich Capital Partners II

Messrs. Fiore, Muench, Murray, Joshua Hall, Michael Knight, Michael LeClair, and Chair Shuman provided feedback on Aldrich. There being no further discussion, Chair Shuman called for a motion to waive the 45-day comment period. **A motion was made by Mr. Hall, seconded by Mr. Murray, to waive the 45-day comment period for Aldrich. The Chair called for a vote and the motion passed unanimously.**

Presentation by and Consideration of Centerbridge Real Estate Fund II

Raynald Leveque, Deputy Chief Investment Officer, and Olivia Wall, Investment Officer, provided opening remarks and introduced Centerbridge Real Estate Fund II (“Centerbridge”), a Real Assets Fund (“RAF”) opportunity.

Centerbridge, represented by William D. Rahm, Senior Managing Director and Jennifer L. Wilcox, Managing Director, made a presentation to the IAC.

Roll Call of Reactions for Centerbridge Real Estate Fund II

Messrs. Fiore, Hall, Knight, LeClair, Muench and Murray provided feedback on Centerbridge. Mr. Murray (on behalf of Chair Shuman) called for a motion to waive the 45-day comment period. **A motion was made by Mr. Muench, seconded by Mr. Fiore, to waive the 45-day comment period for Centerbridge. There being no additional discussion, the Chair called for a vote and the motion passed unanimously.**

Consideration of Leeds Equity Partners VII

Mark Evans, PIO, provided opening remarks and discussed an increase in commitment amount for consideration regarding Leeds Equity Partners VII (“Leeds”), a current PIF investment.

Roll Call of Reactions for Leeds Equity Partners VII

Messrs. Fiore, Hall, Knight, LeClair, Muench, and Murray provided feedback on Leeds. Mr. Murray called for a motion to waive the 45-day comment period. **A motion was made by Mr. Fiore, seconded by Mr. LeClair, to waive the 45-day comment period for Leeds. There being no additional discussion, the Mr. Murray called for a vote and the motion passed unanimously.**

Consideration of the Core Fixed Income Fund Investment Manager Search

Lyndsey Farris, PIO, reviewed the project plan and scope of services for the Core Fixed Income Fund investment manager search.

Report on the Connecticut Inclusive Investment Initiative

Raynald Leveque, Deputy Chief Investment Officer, provided a report on the Connecticut Inclusive Investment Initiative.

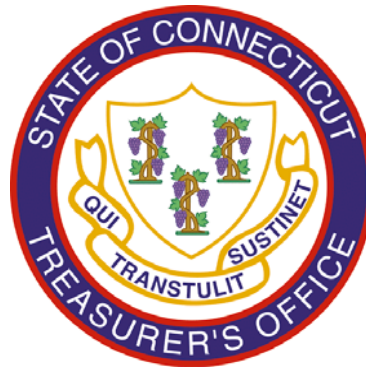
Other Business

Mr. Murray invited the council members to submit agenda items for the next meeting being held on August 11, 2021.

Comments by the Chair

There being no further business, Mr. Murray called for a motion to adjourn the meeting. **Mr. Fiore moved to adjourn the meeting and the motion was seconded by Mr. Muench. There being no discussion, the meeting was adjourned at 1:05 p.m.**

Connecticut Retirement Plans & Trusts Pension Funds Management



Fiscal 2020 and 2021 Plan Activity

Executive Summary

- Objective of the presentation is to highlight liquidity requirements, current cash management practices and future initiatives to optimize cash operations.
- Across CRPTF's three largest plans (TERF, SERF, and MERF), total cash required for benefit payments net of member, state, and federal/other contributions is approximately \$1.0bn per year.
- Capital calls for private market commitments are a separate and variable cash requirement.
- This presentation is not intended to validate Actuarial Analysis, Sustainability or Funding needs for the respective Plans.

Pension Plans Activity (as of June 30, 2020, and 2021)

FYE 2020	TERF	SERF	MERF	Total ⁽¹⁾
Total contributions 2020	\$1,527.8	\$1,809.1	\$130.1	\$3,467.0
Total benefit payments for 2020	\$(2,150.2)	\$(2,131.0)	\$(190.8)	\$(4,472.0)
Net cash (deficit) for 2020	\$(622.4)	\$(321.9)	\$(60.7)	\$(1,005.0)

FYE 2021	TERF	SERF	MERF	Total ⁽¹⁾
Total contributions 2021	\$1,565.7	\$1,989.2	\$148.2	\$3,703.1
Total benefit payments for 2021	\$(2,168.7)	\$(2,220.4)	\$(202.1)	\$(4,591.2)
Net cash (deficit) for 2021	\$(603.0)	\$(231.2)	\$(53.9)	\$(888.1)

⁽¹⁾ Total column is calculated via a summation of the three plans, as presented, and is not actuarially determined.

TERF – 2020 / 2021 Investment Activity

Line Item	Fiscal Year 2020	Fiscal Year 2021
1. Beginning market value - Fiscal 2020/2021	\$18,441.1	\$18,159.9
2. Realized Gain/Loss and Interest Income from LF	2,063.2	306.1
3. Unrealized Gain/Loss	(1,716.2)	4,079.3
4. Total investment returns (realized and unrealized) ⁽¹⁾	347.0	4,385.4
5. Ending market value - Fiscal 2020/2021	\$18,159.9	\$21,942.3
6. Net change in investment balance	<u>(281.2)</u>	<u>3,782.4</u>
7. Total rate of return (%)	1.86%	24.28%

(1) Total investment returns are from the perspective of the respective Plan's ownership of shares in the CIFs. Realized gain / (loss) is determined upon sales of shares and unrealized gains/(losses) represent the combined change in value in the CIFs from their respective operations.

TERF – 2020 / 2021 Plan Level Cash Activity

	Fiscal Year 2020	Fiscal Year 2021
Total Plan Cash Sources		
1. Member Contributions	\$318.2	\$317.7
2. State Contributions	1,209.6	1,248.0
3. Total cash provided by contributions	1,527.8	1,565.7
Total Plan Cash Usage		
4. Total benefit payments	<u>(2,150.2)</u>	<u>(2,168.7)</u>

- To meet benefit payment obligations, PFM liquidates plan investments through sales of shares of the Combined Investment Funds (“CIFs”).

Cash Management Practices and Considerations

- CIF level realized gains and investment income are reinvested.
- Plans generate cash from sales (redemptions) of CIF shares to fund benefit payment obligations.
- Income (dividends and interest) from liquid asset classes and income producing real estate investments is reinvested.
- Private Market L.P. distributions may be used to meet capital call obligations.
- Capital calls for private market commitments are a separate and variable cash requirement.

Private Markets – Projected Cash Required per June 2021 Pacing Plans

	2021 (proj.)	2022 (proj.)	2023 (proj.)	Total
Total RAF capital calls ^{(1), (2)}	\$1,295.0	\$941.0	\$1,038.0	\$3,274.0
Total PCF capital calls ⁽³⁾	279.5	384.6	630.9	1,295.0
Total PIF capital calls ⁽⁴⁾	928.6	1,013.3	1,075.1	3,017.0
Total capital calls	2,503.1	2,338.9	2,744.0	7,586.0
Less:				
Total RAF capital distributions ^{(1), (2)}	134.0	184.0	405.0	723.0
Total PCF capital distributions ⁽³⁾	42.0	96.1	167.9	306.0
Total PIF capital distributions ⁽⁴⁾	1,104.7	1,007.0	1,054.5	3,166.2
Total capital distributions	<u>1,280.7</u>	<u>1,287.1</u>	<u>1,627.4</u>	<u>4,195.2</u>
Net cash funding requirement	\$1,222.4	\$1,051.8	\$1,116.6	\$3,390.8

(1) Source: NEPC Real Estate Market Review & 2021 Investment Plan, June 2021 (real estate)

(2) Source: Meketa Real Assets Pacing Study, June 9, 2021 (infrastructure and natural resources)

(3) Source: Hamilton Lane Pacing Plan – Private Credit Portfolio, June 2021 (assumes midpoint of target pacing plan as basis of projection)

(4) Source: Hamilton Lane Pacing Plan – Private Investment Fund Portfolio, June 2021 (assumes midpoint of target pacing plan as basis of projection)

Private Markets – Cash Funding Needs

- Private market investment net funding requirements (total capital called less distributions received) for Fiscal Years 2021, 2022, and 2023 are projected to be in excess of \$1.0bn annually; totaling approximately \$3.4bn.
- Capital calls are variable and create meaningful additional funding requirements each month.
- PFM staff projects cash needs and initiate tactical decisions to ensure sufficient liquidity.
- Projections of uncertain capital calls requires liquidity buffers to avoid potential short falls.

Liquidity Fund Structural Challenges

- Liquidity Fund's ("LF") objective is to meet CRPTF's cash flow and retirement benefit payments.
- CRPTF's accounting structure consists of 26 sub-accounts spread across the 15 plans and trusts and 11 Combined Investment Funds (CIFs). All plan assets are internally managed as a single portfolio.
- CRPTF's once a month plans and trusts unit valuation process adds operational complexity to efficient cash management practices.
- Effective cash management will be achieved through daily unit valuation and implementation of a simplified cash sweep mechanism.

APPENDIX

- SERF Investment and Cash Activity
- MERF Investment and Cash Activity
- TERF 2020 Actuarial Assumptions

SERF – 2020 / 2021 Investment Activity

Line Item	Fiscal Year 2020	Fiscal Year 2021
1. Beginning market value - Fiscal 2020/2021	\$13,214.4	\$13,115.2
2. Realized Gain/Loss and Interest Income from LF	1,500.6	150.1
3. Unrealized Gain/Loss	(1,259.7)	3,045.1
4. Total investment returns (realized and unrealized) ⁽¹⁾	240.9	3,195.2
5. Ending market value - Fiscal 2020/2021	\$13,115.2	\$16,156.0
6. Net change in investment balance	<u>(99.2)</u>	<u>3,040.8</u>
7. Total rate of return (%)	1.85%	24.36%

(1) Total investment returns are from the perspective of the respective Plan's ownership of shares in the CIFs. Realized gain / (loss) is determined upon sales of shares and unrealized gains/(losses) represent the combined change in value in the CIFs from their respective operations.

SERF – 2020 / 2021 Plan Level Cash Activity

	Fiscal Year 2020	Fiscal Year 2021
Total Plan Cash Sources		
1. Member Contributions	\$192.7	\$193.8
2. State Contributions	1,342.8	1,474.8
3. Federal / Other Contribution	273.5	320.6
4. Total cash provided by contributions	1,809.0	1,989.2
Total Plan Cash Usage		
5. Total benefit payments	<u>(2,131.0)</u>	<u>(2,220.4)</u>

MERF – 2020 / 2021 Investment Activity

Line Item	Fiscal Year 2020	Fiscal Year 2021
1. Beginning market value - Fiscal 2020/2021	\$2,702.3	\$2,693.8
2. Realized Gain/Loss and Interest Income from LF	322.3	37.3
3. Unrealized Gain/Loss	(268.6)	614.0
4. Total investment returns (realized and unrealized) ⁽¹⁾	53.7	651.3
5. Ending market value - Fiscal 2020/2021	\$2,693.8	\$3,290.1
6. Net change in investment balance	<u>(8.5)</u>	<u>596.3</u>
7. Total rate of return (%)	2.03%	24.39%

(1) Total investment returns are from the perspective of the respective Plan's ownership of shares in the CIFs. Realized gain / (loss) is determined upon sales of shares and unrealized gains/(losses) represent the combined change in value in the CIFs from their respective operations.

MERF – 2020 / 2021 Plan Level Cash Activity

	Fiscal Year 2020	Fiscal Year 2021
Total Plan Cash Sources		
1. Member Contributions	\$27.4	\$31.2
2. State Contributions	102.7	117.0
3. Total cash provided by contributions	130.1	148.2
Total Plan Cash Usage		
4. Total benefit payments	<u>(190.8)</u>	<u>(202.1)</u>

TERF – 2019 / 2020 Plan Level Actuarial Assumptions



Section III: System Assets

The actuarial valuation assumes the investment income on the assets of the System is 6.90% annually. This assumption is based upon the reasonable long-term expected return on the assets. In each year, the System will experience actuarial gains and losses due to the actual investment return of the assets.

Table III-3: Calculation of Actuarial Investment Gain/(Loss)

	June 30, 2019	June 30, 2020
1. Actuarial Value of Assets at Beginning of Year	\$17,951,755	\$18,501,575
2. Total Net Cash Flow	(\$465,473)	(\$625,808)
3. Expected Return on Actuarial Value of Assets: $(1 \times 6.90\% + 2 \times 6.90\% \times .5)$	<u>\$1,222,612</u>	<u>\$1,255,018</u>
4. Expected Actuarial Value of Assets at End of Year: $(1 + 2 + 3)$	\$18,708,894	\$19,130,785
5. Actual Actuarial Value of Assets at End of Year	<u>\$18,501,575</u>	<u>\$19,055,144</u>
6. Actuarial Gain/(Loss) Due to Investment Experience: $(5 - 4)$	(\$207,319)	(\$75,641)

All dollar amounts are in thousands.

Cavanaugh Macdonald Consulting, LLC Connecticut State Teachers' Retirement System Actuarial Valuation as of June 30, 2020, issued on November 5, 2020.

State of Connecticut Retirement Plans and Trust Funds

August 11, 2021

Meeting Materials

Agenda

1. Background
2. Benchmarking Overview
3. Peer Comparison

Background

Background

- Today we will be discussing the use of benchmarks, and more specifically peer comparisons.
- Our materials include an overview on benchmarking, where we will highlight some of the considerations when identifying and defining benchmarks.
- In addition, earlier this year we prepared a public plan peer comparison that looked at the asset allocation and performance of other large public defined benefit funds as compared to the Connecticut Retirement Plans.

Benchmarking Overview

What is a Benchmark?

Objective way to evaluate the performance of an investment.

- Benchmarks are used at all levels of investing.
 - For funds/managers, asset classes, and the whole portfolio.
- Benchmarks are often based upon the performance of the most appropriate opportunity set.
 - For example, a US large-cap equity manager might be compared to the Russell 1000 index.
- Benchmarks may also facilitate comparison to long-term financial objectives.
 - For example, a pension plan would be compared to its actuarial assumed rate of return.

What Objectives Do Benchmarks Serve?

- Allow investors to assess whether they are achieving their goals.
 - Compare relative performance of portfolio with another reasonable option.
 - Allows for measurement of value added.
 - Enables performance attribution analysis.
- Facilitate better-informed investment decisions.

What are Criteria in Selecting Effective Benchmarks?

Six widely accepted criteria¹ for benchmarks:

- Unambiguous – well-defined identities and weights of constituents;
- Investable – one can own portfolio of the benchmark's constituents;
- Measurable – can calculate performance at reasonable intervals;
- Appropriate – consistent with composition of portfolio for which it is a benchmark;
- Reflective of current investment options – represents market of the asset class; and
- Specified in advance – constructed before evaluation period.

Unfortunately, many common benchmarks (e.g., peer comparisons) fail one or more of these criteria.

- While we acknowledge this makes them less than ideal, they are often the best choice available.

¹ The Bailey Criteria: Financial Analysts Journal, CFA Institute, 1992.

The Big Picture: Portfolio Level Benchmarks

It is often helpful to have more than one benchmark, at both the asset class and portfolio level.

- Portfolio benchmarks represent a weighted average of benchmarks for the component asset classes.
- Weights can be actual or target allocations.
 - Policy benchmark – based on the target allocation.
 - Informs how the portfolio performed due to having different allocations and through manager implementation.
 - Dynamic or actual allocation benchmark – based on the actual allocation.
 - Informs how the portfolio performed primarily due to manager implementation.

	1Q21 (%)	1-Year (%)	3-Year (%)	5-Year (%)
Example Total Plan	2.1	31.4	8.2	9.5
Policy Benchmark	3.0	26.4	9.2	9.9
Excess Return	-0.9	5.0	-1.0	-0.4
Actual Allocation Benchmark	2.8	28.3	9.0	9.9
Excess Return	-0.7	3.1	-0.8	-0.4

- For example, in the first quarter, the plan underperformed the Policy Benchmark by 90 bp and the Actual Allocation Benchmark by 70 bp.
 - Tactical positioning detracted approximately 20 bp of value while active management within the portfolio detracted roughly 70 bp of value relative to the indices.

Peer Benchmarks: Biases and Investability

For some asset classes, a peer group is the most common comparison because there is no other benchmark that meets the key criteria.

- These peer universes are often used for private markets and hedge funds.¹
- These benchmarks have several problems:
 - Rely on constituents' self-reported performance, introducing upward biases.
 - Selection bias occurs when funds report only when their returns are good.
 - Survivorship bias occurs when funds that do poorly and close stop reporting bad returns.
 - They are not investable.
 - The universe cannot be replicated due to lack of transparency, lack of access, and lack of liquidity.
 - May not represent the investor's opportunity set.
 - If skewed toward smaller funds, larger investors may be unable to get meaningful access.
 - Timing of valuations presents operational challenges.
 - Underlying assets are not regularly marked to market.
 - Their valuations are often estimates.
 - The valuation process takes time, usually resulting in lagged reporting.

¹ For example, Cambridge Associates Private Equity index is often used for private equity, the NCREIF ODCE is often used for private real estate, and the HFRI/HFRX is often used for hedge funds.

Challenges of Benchmarks: Using the Least Bad Comparison

For some asset classes, there is not even a suitable peer universe available for comparison.

- Private natural resources and infrastructure present particular challenges.
 - While funds in these spaces are tracked,¹ the universes are too narrow for meaningful comparisons.
 - For example, the Cambridge Associates private natural resources universe for vintage year 2018 is composed of four funds, and the 2017 vintage year includes 16 funds.
 - They may also be skewed to sub-sectors that do not represent the way an investor constructs their own portfolio.
- The alternative is to choose a public markets benchmark that most closely resembles the underlying opportunity set.
- While this may be a reasonable approach for long-term comparisons, there will be significant tracking error over shorter periods.

¹ Preqin and Cambridge offer composites.

Challenges of Benchmarks: The “Plus a Spread” Approach

Some investors use a “plus-a-spread” approach for making a long-term comparison.

- These may combine a benchmark that approximates the opportunity set with an additional hurdle.
 - Examples include:
 - A private equity program may seek returns of 200 bp over a public equity index.
 - A private real estate program that includes non-core investments may seek returns of 100 bp over a peer core fund universe.
 - The size of the hurdle may depend on expectations for manager alpha or compensation for additional risks (e.g., an illiquidity premium).
- Alternatively, they may combine a less-directly related measure with a hurdle.
 - Examples include:
 - An absolute return program may seek returns of 400 bp over 90-day T-Bills (i.e., cash).
 - A real assets program may seek returns of 500 bp over CPI-U (i.e., inflation).
 - The size of the hurdle should reflect the investor’s expectations for the program.
- Again, while this may be a reasonable approach for long-term comparisons, there will be significant tracking error over shorter periods.
 - Furthermore, these are not investable: one cannot own a portfolio of instruments that deliver these returns.

Summary

- Benchmarks are an objective way to measure the performance of an investment against a reasonable alternative and determine whether that investment is meeting the investor's goal.
 - They should be applied at different levels of the portfolio.
- There are a number of widely-accepted criteria for effective benchmarks.
 - Unfortunately, many common benchmarks fail one or more of these criteria.
 - Private market and hedge fund benchmarks have particular drawbacks.
 - Therefore, combined “total portfolio benchmarks” will have flaws in most cases.
- Institutional investors often utilize two or more total portfolio level benchmarks, being aware of the structure of each.
- It may be appropriate to use different benchmarks for different time horizons:
 - Over the short term, consider comparisons to weighted averages of market indexes or to peers.
 - Over the long term, fiduciaries may prefer to focus on benchmarks tied to their financial objectives.

Peer Comparison

Background

- Meketa was asked to provide asset allocation and performance data for public pension fund peers with assets of \$20 billion to \$70 billion as of December 31, 2020.
 - Specifically, we were asked to provide a breakout by quartile for asset allocation and performance over the trailing 1-, 3-, 5-, and 10-year periods along with the underlying data for each fund in the universe.
- Our primary source for peer comparisons is InvestMetrics. We supplement this information with data we have gathered from publically available sources (typically annual reports).
 - Neither source of data will allow us to answer the question exactly as requested.
- As a result, we have included information from both data sources in order to provide as comprehensive of an answer as possible.

InvestMetrics vs. Publically Available Information

- There are different benefits and drawbacks with each data source which impact our ability to answer the question as stated.

	Pro	Con
InvestMetrics	<ul style="list-style-type: none"> Can be generated quickly Can be run as of each quarter end Asset class definitions are preset, thus making it easier to aggregate the data 	<ul style="list-style-type: none"> Less robust peer group at larger asset sizes No transparency into underlying data
Publically Available Data	<ul style="list-style-type: none"> More robust peer group Have transparency into the underlying data 	<ul style="list-style-type: none"> Updated annually, performance lagged Time intensive to gather Unconstrained asset class categories which can be difficult to roll up into composites

- While we can create custom peer groups in InvestMetrics, the asset range requested will result in a limited number of funds (when reported net of fees) and thus may not be an appropriate comparison. In addition, we do not have transparency into the individual funds in the universe.
 - The peer group we compare the CRPTF to in the quarterly reports is the InvestMetrics public pension funds >\$1 bn, net of fees.
- Annually, Meketa compiles asset allocation on the largest public plans in the US through aggregating data found in annual reports and other publically available information.
 - While this peer group will be more robust and we have transparency into the underlying funds, the data will be lagged.

Considerations When Reviewing Peer Data

- It is important to remember that each fund has its own unique objectives and constraints.
 - Differences in trustee preferences, expected return, net cash flows, funded ratio, etc. will all drive differences in the asset allocation policy and thus performance within the peer group.
- When reviewing peer comparisons, there are some caveats with the data to be aware of.
 - Investors will categorize their asset allocations differently.
 - For example, private debt may be broken out as its own asset class or it may be rolled up into private equity or fixed income or labeled generically as “opportunistic.” We have little to no transparency into this with either data source.
 - The median allocations do not sum across to 100% for the peer groups, as some investors may not have a data point for each asset class group.
 - For example, an investor may enter data for total public equity, but not break it out for US, Developed Markets, or Emerging Markets or they may use targets for US and non-US but not break out Developed Markets or Emerging Markets.
- As a result, when we compile this data, particularly from the publically available sources, we have to make reasonable assumptions in how we aggregate the data.

Public Pension Funds \$20 billion to \$70 billion: Asset Allocation Peer Comparison

	Total Public Equity	US Public Equity	Non-US Equity	Rate Sensitive	Credit	Hedge Funds	Private Equity	Real Assets	Real Estate	Cash & Cash Equivalents
25th percentile	49%	29%	22%	25%	14%	10%	14%	9%	11%	3%
Median	44%	24%	19%	19%	10%	8%	10%	5%	10%	1%
75th percentile	35%	19%	17%	11%	3%	5%	8%	3%	9%	1%
CRPTF Target	40%	20%	20%	18%	13% ¹	3%	10%	4% ²	10%	2% ³
Percentile Rank	57	70	45	57	33	94	50	67	50	33
# of Observations	27	19	19	27	20	15	26	14	27	17

- There were 27 public pension funds with assets between \$20 billion to \$70 billion.
- The asset classes included in the table offer the greatest amount of granularity possible while still maintaining a reasonable number of observations.
 - For example, there were only 10 funds that had dedicated targets to Developed Equity and Emerging Equity, but there were 19 funds that we could calculate with total Non-US Equity targets.
 - We show Non-US Equity since 10 funds is too small a sample.

¹ Includes the Private Credit Fund.

² Includes Infrastructure and Natural Resources. US TIPS are included in Rate Sensitive.

³ Includes cash and short-term bonds within the Liquidity Fund.

Public Pension Funds \$20 billion to \$70 billion Performance Peer Comparison

	1-Year	3-Year	5-Year	10-Year
25 th Percentile	4.1%	6.6%	6.9%	8.9%
Median	3.4%	6.4%	6.3%	8.5%
75 th Percentile	1.8%	5.6%	5.8%	7.7%
CRPTF	1.8%	4.9%	5.8%	7.7%
Percentile Rank	75	90	75	75

- This peer group includes **18 observations** and is as of June 30, 2020.
 - Some of the public plans listed in this peer group have either a different fiscal year end, the 2020 annual report was not available yet, or performance was reported gross of fees.
- Recall, 2020 may be a difficult year for comparison given the volatility of returns and different reporting methodologies for private markets.
- To provide a more timely performance comparison, the following pages include a similar analysis but for the InvestMetrics peer group.

InvestMetrics Public Pension Funds > \$1 Billion: Asset Allocation Peer Comparison

	Total Public Equity	US Public Equity	Developed Mkt ex-US Equity	Emerging Mkt Equity	Total Fixed Income	US Fixed Income	Emerging Markets Fixed Income	Hedge Funds	Private Equity	Real Assets	Real Estate	Cash & Cash Equivalents
25th percentile	54%	29%	9%	7%	27%	21%	5%	8%	14%	6%	9%	2%
Median	50%	23%	6%	6%	22%	14%	3%	5%	11%	3%	6%	2%
75th percentile	40%	16%	2%	4%	17%	10%	2%	1%	7%	1%	3%	1%
CRPTF Target	40%	20%	11%	9%	31% ¹	21%	5%	3%	10%	4% ²	10%	2% ³
Percentile Rank	75	66	23	9	5	25	25	61	53	41	12	50
Observations	58	42	29	42	58	41	28	40	51	31	53	58

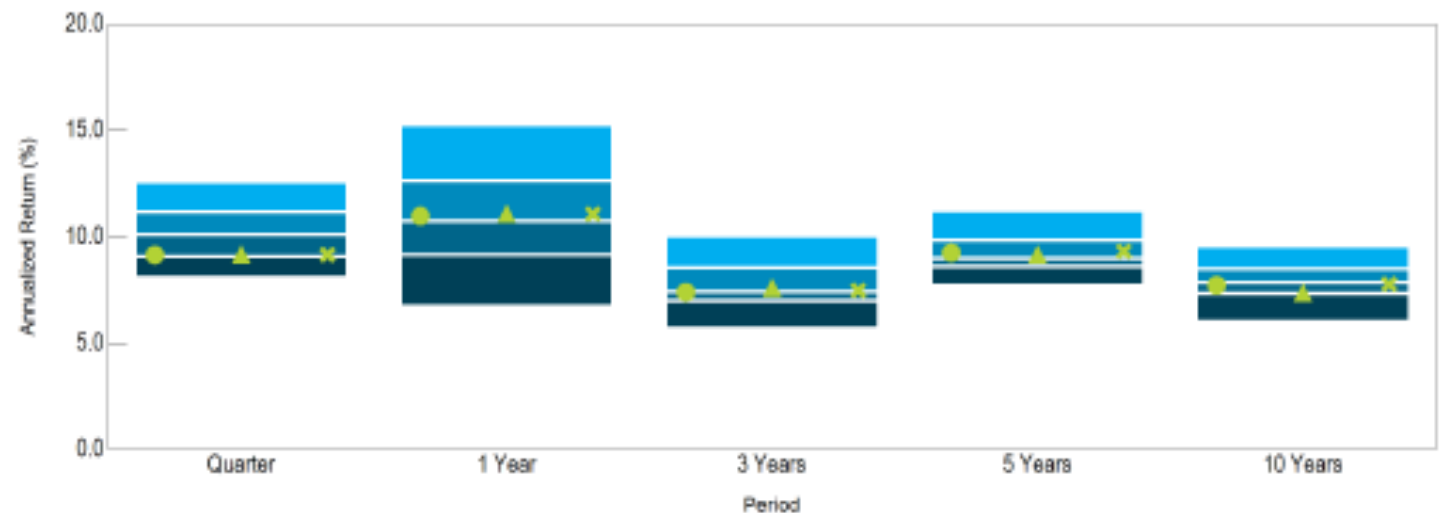
- This peer group includes at least 28 observations in each asset class.

¹ Includes the Private Credit Fund.

² Includes Infrastructure and Natural Resources. US TIPS are included in US Fixed Income.

³ Includes cash and short-term bonds within the Liquidity Fund.

State Employees' Retirement Fund, Teachers' Retirement Fund & Municipal Employees' Retirement Fund vs. InvMetrics Public DB > \$1B Net Universe As of December 31, 2020



	Quarter		1 Year		3 Years		5 Years		10 Years	
5th Percentile	12.6		15.2		10.0		11.2		9.6	
25th Percentile	11.2		12.7		8.6		9.9		8.5	
Median	10.1		10.8		7.4		9.0		7.9	
75th Percentile	9.1		9.2		7.0		8.6		7.3	
95th Percentile	8.1		6.8		5.7		7.7		6.0	
# of Portfolios	80		80		80		80		73	
Teachers' Retirement Fund	9.1	(72)	11.0	(47)	7.4	(51)	9.2	(42)	7.7	(59)
Municipal Employees' Retirement Fund	9.2	(71)	11.1	(43)	7.6	(48)	9.2	(42)	7.4	(75)
State Employees' Retirement Fund	9.1	(72)	11.1	(45)	7.5	(50)	9.3	(41)	7.8	(57)

Summary Peer Group Comments

- When reviewing the CRPTF asset allocation relative to the peer groups, similar observations can be made.
- The CRPTF is underweight public equity relative to the peers (more so in the broader peer group), however when you look within the public equity allocation you see a greater difference.
 - Specifically, the CRPTF has much less US equity and more non-US equity relative to peers.
- In addition, the CRPTF has more exposure to fixed income and in particular, credit.
 - This will include high yield, emerging market debt, and private debt.
- When comparing the allocations to alternative asset classes, the small peer group of larger plans typically has more exposure to private markets than the broader peer group which includes smaller public plans.
 - The CRPTF is roughly in line with the peer group median for private equity.
 - Relative to the real estate, real assets, and hedge fund asset classes, the CRPTF has less exposure than peers.
 - Please note, the spread between the top and bottom quartile for real estate with the peer group with larger plans is only 3%, meaning the underweight is not as extreme as the rank may imply.
- While peer comparisons can be useful for some purposes, because of reporting issues there is limited precision that can be gleaned from them. Inconsistent asset class definitions and return reporting methodologies (net vs. gross and private market lag policy) can make comparisons difficult.

Appendix

Public Pension Funds Performance Data as of June 30, 2020¹

	1 Year	3 Year	5 Year	10 Year
Alaska Public Employees	3.8%	6.6%	6.5%	ND
Connecticut Retirement	1.8%	4.9%	5.8%	7.7%
Illinois State Board	4.6%	6.4%	6.1%	8.7%
Illinois State Universities	2.6%	5.6%	5.8%	8.5%
Illinois Teachers	0.6%	4.7%	5.2%	8.3%
Indiana Public Retirement	2.6%	6.4%	5.6%	6.7%
Iowa Public Employees	3.4%	6.6%	6.7%	8.6%
Kansas Public Employees	1.7%	5.4%	5.7%	8.5%
Los Angeles County Employees	1.8%	5.7%	6.1%	8.2%
Louisiana Teachers	1.4%	6.6%	7.5%	9.9%
Maryland State Retirement	3.6%	6.0%	5.8%	7.6%
Mississippi Employees	3.4%	6.5%	7.1%	9.4%
Missouri Schools & Education	3.9%	6.6%	6.8%	9.0%
Nevada Public Employees	7.2%	8.1%	7.7%	9.6%
Pennsylvania School Employees	1.1%	5.6%	5.6%	7.7%
Tennessee Consolidated	4.9%	6.9%	6.9%	8.9%
Texas County & District	16.6%	9.5%	7.0%	8.1%
Texas Municipal Retirement	3.9%	5.9%	6.8%	6.2%

¹ Data gathered from fund comprehensive annual reports.

Public Pension Funds Target Asset Allocation Policies¹

	Total Public Equity	US Equity	Total Non-US	Rate Sensitive	Credit	Unspecified FI	Short- Term/Cash	Hedge Funds	Private Equity	Real assets	Real Estate	Multi- Asset	Other
Alabama Retirement	60	45	15	17	4		3		6		10		
Alaska Public Employees	45	23	22	11	10		1	6	11	10	7		
Colorado Employees	53	29	24	19	3		1		9		9		6
Connecticut Retirement	40	20	20	18	13		2	3	10	4	10		
Illinois Municipal	55	37	18	28			1				9		7
Illinois State Board	44	19	25	14	14		2	4	8	1	7		6
Illinois State Universities	34	19	15	7	14			10	15	4	16		
Illinois Teachers	22			27				10	14	8	7	12	
Indiana Public Retirement	40	22	18	28	3	4	1		11		8		6
Iowa Public Employees	44	23	21	22	16				7	2	10		
Kansas Public Employees	47	24	24	11	6		5		9		11		11
Los Angeles County Employees	35			19	12		1	4	10	10	9		
Los Angeles Fire & Police	50	29	21	17	3	2	1		12	5	10		
Louisiana Teachers	44	25	19	9	13				14	4	12		5
Maryland State Retirement	37	16	21	19	9			8	13	4	10		
Mississippi Employees	61	27	34	20			1		8		10		
Missouri Schools & Education	42	27	15	29	2			6	12		9		
Nevada Public Employees	60	42	18	28					6		6		
Pennsylvania Employees	48			11			3		16		12	10	
Pennsylvania School Employees	15	5	10	25	10	1	6	10	15	14	10		8
San Francisco City & County	31			9	10			15	18		17		
South Carolina Public Employees	44			15	16		1	10	7	8	8		
Tennessee Consolidated	49	31	18	20	10		1		10		10		
Texas County & District	31	15	17	3	27			8	20	2	9		
Texas Employees	37			22	3		1	5	13	7	12		
Texas Municipal Retirement	30			30				10	10		10		10
Utah State Retirement	39			23			7	10	5		16		

¹ Data gathered from fund comprehensive annual reports. Pennsylvania School Employees and South Carolina Public Employees will sum to over 100% due to leverage at the total fund level.



RELOCATION ASSISTANCE PROGRAM

The State of Connecticut Office of the Treasurer (hereinafter “the Treasury”) may pay certain expenses associated with relocation to Connecticut for newly hired senior investment professionals (e.g., principal investment officers, deputy chief investment officer and chief investment officer, hereinafter “employee”) appointed by the Treasurer with the advice and consent of the Investment Advisory Council.

Relocation expenses are defined as reasonable costs incurred by a new employee for moving household goods and personal effects to Connecticut. Relocation expenses may also include the cost of travel to Connecticut for the employee and his or her immediate family.

The Treasury will either reimburse the employee or pay a vendor on behalf of the employee for the expenses detailed below when such costs deemed reasonable and necessary have been incurred during the employee’s move and are properly supported by original invoices and receipts. This reimbursement may not exceed standard moving expenses based on distance and a minimum of three cost quotes. The allowance offered for a particular move constitutes the maximum commitment for reimbursement, rather than an entitlement of the employee.

The following costs are reimbursable:

- Packing, crating, transporting, unpacking, and uncrating the employee’s household goods and personal effects. Such costs are limited to one household move per employee.
- Actual and reasonable expenses related to insurance for the household goods while in transit, if incurred within any 30-day period after removal of the household goods and effects from the former primary residence.
- Actual and reasonable storage costs for household goods and personal effects for up to 30 days immediately after removal from the primary residence.
- Actual and reasonable expenses related to moving two personal motor vehicles per household (which may include motorcycles, but excludes vehicles listed below). Vehicles may be shipped or driven. If the employee decides to drive his or her personal vehicle, the employee will be reimbursed at the current mileage rate incorporated in the State of Connecticut’s Travel Regulations.

- Actual travel expenses for the employee and his or her immediate family, subject to the limitations of the State's Travel Regulations.
- Furnished temporary lodging for up to ~~36~~0 days.

The following costs are not reimbursable:

- Assembly and disassembly of unusual items such as swing sets, swimming pools, satellite dishes, hot tubs and storage sheds.
- Transporting animals (except for household pets consisting of domesticated animals normally kept or permitted in a residence) or kenneling of pets.
- Moving recreational vehicles, including boats, kayaks, canoes, airplanes, camping vehicles, snowmobiles and jet skis.
- Canned, frozen, or bulk foodstuffs.
- Building supplies, farm equipment, and firewood.
- Plants.

The Treasury will reimburse only qualified moving expenses consistent with Internal Revenue Code definitions. Under unusual circumstances, at the request of the employee, the Treasurer may specifically authorize reimbursement of non-qualified expenses, which would be included in the employee's gross income by the State Comptroller's Office. A tax gross-up calculation, if any is approved by the Treasurer, will be determined on a case-by-case basis. Any approved non-qualified expenses will be included in the maximum reimbursement amount specified below.

Repayment of Relocation Expenses

Should an employee leave the Treasury, either voluntarily or for cause, within the first twenty-four (24) months following his/her effective date of hire, funds paid to the employee for reimbursement of relocation expenses are immediately repayable to the Treasury. Repayment must be made on or before the last day of employment with the Treasury, according to the following schedule:

- ~~• 100 percent if employed less than 6 months;~~
- ~~• 75 percent if employed for 6 months but less than 12 months;~~
- ~~• 50 percent if employed for 12 months but less than 18 months; or~~
- ~~• 25 percent if employed for 18 months but less than 24 months.~~

An employee whose relocation expenses have been paid and who does not continue employment because of death, disability, prolonged illness, dismissal during the probation period (other than for cause) ~~or and~~ similar circumstances beyond the

employee's control, as determined by the Treasurer, will not be required to repay the reimbursement. The Treasurer, in his/her discretion, due to other extenuating circumstances that may not be covered above, may waive all or part of the required repayment of relocation expenses.

Procedures for Reimbursement

1. Employee must sign the Treasury's *Relocation Expense Reimbursement Agreement*.
2. Before a move is commenced, employee must solicit signed quotes from at least three vendors and provide said quotes to the Treasury.
3. The Treasury will pre-authorize the reimbursable amount based on the lowest of the three bids.
4. Employee may choose any of the three vendors with the understanding that the Treasury will only reimburse up to the lowest bid.
5. Employee will submit all original receipts prior to payment of reimbursement by the Treasury.

Maximum Reimbursement

The amount of relocation assistance shall not exceed \$18,000, unless revised by the Treasurer.