ASSET/LIABILITY STUDY DISCUSSION

EMPLOYEES' RETIREMENT SYSTEM OF THE STATE OF RHODE ISLAND

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ASSET/LIABILITY STUDY BACKGROUND

- **The most recent asset/liability study for the ERSRI was completed in 2019.**

- **NEPC will begin working on an updated asset/liability study in the first half of 2023 with a final recommendation likely before year-end.**

- **The purpose of this discussion is to review the goals and objectives from the 2019 study, provide a timeline for this year's study, and review NEPC's latest capital market assumptions.**

GOALS AND OBJECTIVES FROM 2019 STUDY

- **Asset Allocation Review process should incorporate philosophy expressed in current IPS document**
  - Desire to maintain a diversified portfolio
  - Use of active and passive management
  - Consideration of inflation sensitivity and hedging

- **Understanding of risk tolerance should incorporate liabilities**

- **Continue progress towards full funding of plan liabilities**
  - Preference to mitigate potential declines in funded status
  - Staff, NEPC and GRS to evaluate appropriate thresholds vs. down market scenarios

- **Evaluate impact of any changes in assumptions or to Policy portfolio on required plan contributions**

QUANTITATIVE OBJECTIVES FROM 2019 STUDY

SIC Goals

Improving Fund sustainability and progressing towards a fully funded plan

- Maintain or improve probability of 100% funding ratio in 20 years

Risk Constraints

Achieve a more stable return path by managing and mitigating risks accordingly

- Limit the probability of funding level falling below 50% in next 5 years (current funding level 54%) to ~15%
- Limit the probability of a 2% absolute increase in employer contribution rate (expressed as a percentage of payroll) to ~25% in any given year within next 10 years
- Within 90% confidence, maintain at least 3x the annual benefit payment amount in assets with daily/weekly liquidity profile in a recessionary scenario

DRAFT ASSET/LIABILITY STUDY TIMELINE

- **We anticipate the full asset/liability study will take 4 to 5 months to complete.**
- **The schedule below provides a high-level overview of the steps involved and the estimated timing to complete each step.**

Step/Milestone	Timing
Kickoff – Capital Market Assumptions, Asset Class Opportunity Set, Return Target, Risk tolerance	Month 1
NEPC Coordinates with Plan Actuary on Data Needs	Month 1
NEPC Prepares Baseline Forecast Results	Month 2
Discuss Baseline Results and Alternative Portfolios	Month 2
NEPC Prepares Analysis of Alternative Portfolios	Month 3
Discuss Alternative Portfolios and Preliminary Findings	Month 3
NEPC and State of RI Staff Prepare Recommendation	Month 4
Final Recommendation Delivered to SIC	Month 4
Portfolio Implementation Discussion	Post-A/L Study

Note: Timing is estimated and subject to change.

STRATEGIC ASSET ALLOCATION OUTLOOK

We have transitioned to an investment regime characterized by higher interest rates with **central banks focused on managing inflation not investor sentiment**

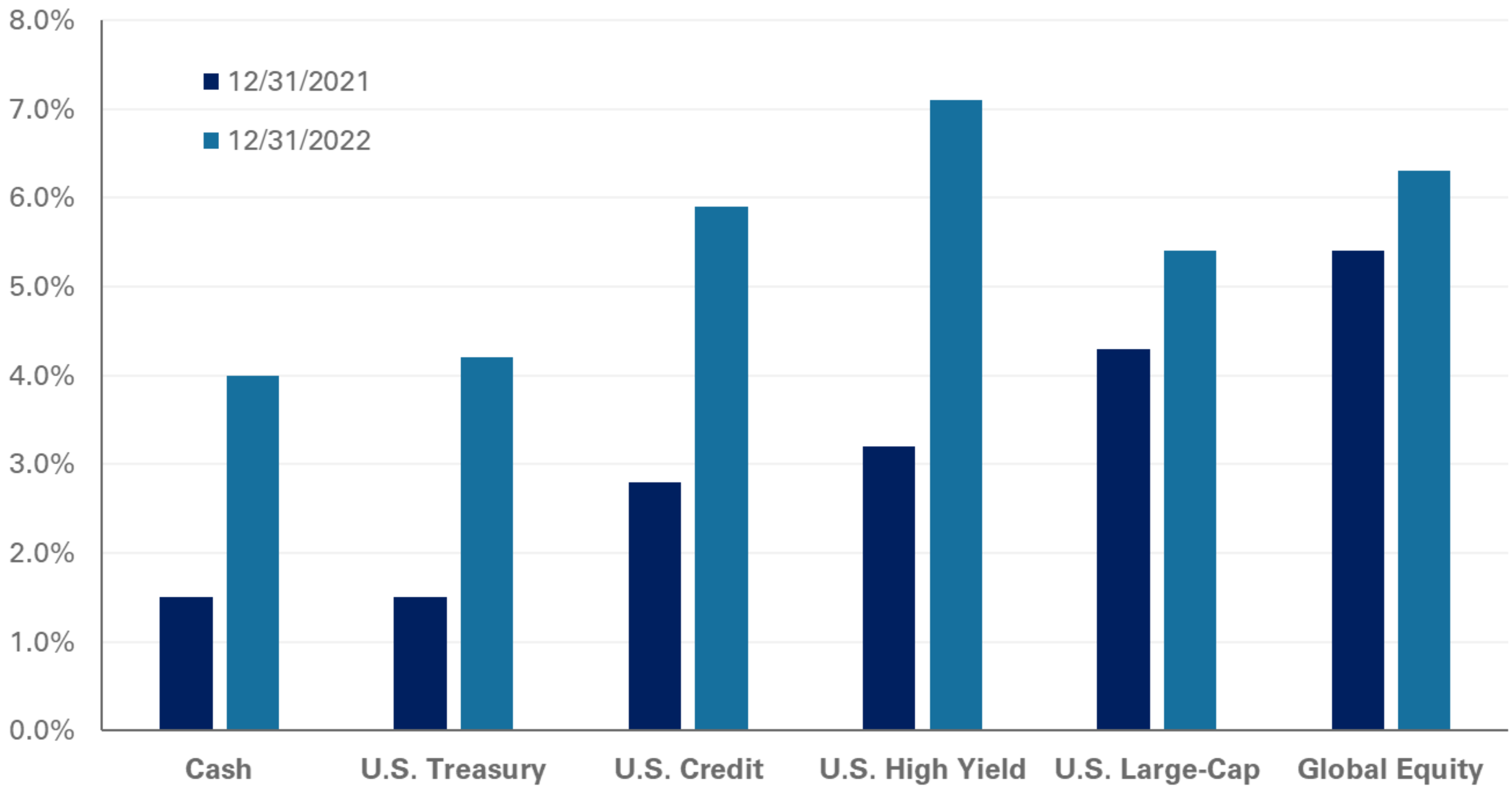
The **outlook for investment-grade bonds has improved** and is additive relative to existing strategic allocation targets for safe-haven fixed income exposure

Diversification and portfolio balance are critical and shifts in stock-bond correlation dynamics increase the relative benefit of diversifying asset classes, such as opportunistic credit and private markets

The **emergence of stagflationary trends** challenges investors' behavioral biases and calls for new approaches to asset allocation and investment selection

2023 CAPITAL MARKET EXPECTATIONS RESET

NEPC 10-YEAR EXPECTED RETURN



Source: NEPC Capital Market Assumptions as of 12/31/2021 and 12/31/2022

10-YEAR ASSET CLASS RETURN ASSUMPTIONS

	Asset Class	12/31/22 10-Year Return	12/31/21 10-Year Return	Delta
Equity	U.S. Large-Cap Equity	5.4%	4.3%	+1.1%
	Non-U.S. Developed Equity	5.6%	5.2%	+0.4%
	Emerging Market Equity	9.6%	8.3%	+1.3%
	Global Equity*	6.3%	5.4%	+0.9%
	Private Equity*	9.2%	9.0%	+0.2%
Fixed Income	Cash	4.0%	1.5%	+2.5%
	US Treasury Bond	4.2%	1.5%	+2.7%
	US Municipal Bond	4.4%	1.6%	+2.8%
	US Aggregate Bond*	4.8%	2.0%	+2.8%
	US TIPS	4.4%	1.4%	+3.0%
	US High Yield Corporate Bond	7.1%	3.2%	+3.9%
	Private Debt*	8.8%	6.6%	+2.2%
Real Assets	Commodity Futures	4.2%	0.4%	+3.8%
	REIT	6.2%	4.5%	+1.7%
	Gold	5.1%	3.3%	+1.8%
	Real Estate - Core	4.0%	4.7%	-0.7%
	Real Estate - Non-Core	5.3%	5.9	-0.6%
	Private Real Assets - Infrastructure	6.6%	5.3%	+1.3%

*Calculated as a blend of other asset classes

NEXT STEPS

- **NEPC and ERSRI Staff held a preliminary discussion with the plan's actuary in early February.**

- **We expect to receive updated actuarial information shortly at which point, we will begin the detailed modeling process.**

- **We will have regular discussions with the SIC to get their input and feedback on portfolio objectives, capital market assumptions, the asset class opportunity set, and potential portfolios to model.**

- **Once the final portfolio is selected, NEPC and the plan's other consultants will provide recommendations on implementation for each asset class.**

DISCLOSURES

NEPC DISCLOSURES

PRIVATE EQUITY, PRIVATE DEBT, REAL ESTATE AND REAL ASSETS PERFORMANCE BENCHMARKING METHODOLOGY AND INFORMATION DISCLOSURES

- Past performance is no guarantee of future results.
- Investment results include funds that were rated "1" by the NEPC Alternative Assets Due Diligence Committee. Investment results include those clients for which NEPC has discretionary authority as well as those where NEPC acts in an advisory capacity. They include all types of clients and plans for whom NEPC serves or served as a consultant and provided advice on private markets.
- Returns are based on the client commitment that had the earliest cash flow into each recommended product. Vintage year classifications are made based upon the year of the first cash flow from this client into the Fund.
- In cases where no current NEPC client is invested in a product (due to a client changing consultants), vintage year and return data was used from either the manager, Preqin or from another limited partner in the fund who publicly discloses investment returns.
- Each internal rate of return is net of management fees and carried interest (both paid and accrued) and is computed on an annualized, dollar-weighted basis. Performance aggregates are created by equal-weighting each fund included.
- Strategy classifications are made by NEPC based on a review of the stated strategy of each investment. Funds included are primarily limited partnerships, including funds-of-funds. Private equity investments include buyouts, venture capital, growth equity, special situations/turnarounds, equity-oriented distressed buyouts, co-investment funds, primary fund-of-funds and secondary funds. Private debt investments include direct lending, distressed debt & opportunistic credit, mezzanine debt, venture lending & royalties. Real estate investments include core, core-plus value-add, debt and opportunistic funds. Real assets investments include energy, energy credit/mezz, multi-strategy, natural resources, metals & mining and infrastructure funds.
- Only funds from vintage years 2007–2017 were benchmarked, as performance for funds who have been investing for less than three years is deemed to be too young to be meaningful.
- To compute the quartile performance of each fund, funds were matched against similar strategies and geographic regions tracked by Thomson One/C|A; however, it is important to note that some funds have investment strategies that could be benchmarked against multiple categories.
- Attempts were made to match the geographic strategy of each fund. In cases where the benchmark provider did not have a large data set a global strategy benchmark was used.
- For some vintage years, the benchmark provider may have provided median but not upper and lower quartile cut-off metrics. In these cases, to estimate the upper and lower quartile cut-offs, NEPC used the average quartile-to-median differential for the vintage years preceding and following the vintage year with the missing quartile cut-offs.
- All fund and benchmark returns are as of December 31, 2020.
- The information in this report has been obtained from sources NEPC believes to be reliable. While NEPC has exercised reasonable professional care in preparing this report, we cannot guarantee the accuracy of all source information contained within.