THOMAS GOLONKA
VPIC CHAIR

KIMBERLY GLEASON
VPIC VICE-CHAIR

STATE OF VERMONT
VERMONT PENSION INVESTMENT COMMISSION

TO: Vermont House and Senate Committees on Government Operations

FROM: Thomas Golonka, Chair
Kimberly G. Gleason, Vice Chair

DATE: January 15, 2024

Re: Vermont Pension Investment Commission Annual Report

In 2021, the General Assembly of the State of Vermont enacted Act 75, relating to the membership and duties of the Vermont Pension Investment Commission (VPIC) and the creation of the Pension Benefits, Design, and Funding Task Force. Act 75 requires the VPIC to submit a comprehensive report to the House and Senate Committees on Government Operations on or before January 15th of each year and we are happy to submit it herewith.

Executive Summary

- Following a challenging fiscal year 2022, VPIC generated fiscal year 2023 returns in excess of the 7.0% actuarial assumed rate of return. Returns for the Vermont State Teachers' Retirement System (VSTRS), the Vermont State Employees' Retirement System (VSERS) and the Vermont Municipal Employees' Retirement System (VMERS) were 7.64%, 7.65%, and 7.69%, respectively. VPIC's prudent oversight of the assets of these three statewide pension plans generated actuarial gains exceeding $35 million based on the Plans' market value of assets.

- VPIC recently engaged an actuary to assess the actuarial assumed rate of return, the actuarial assumed inflation rate, and the actuarial smoothing method. On July 25, 2023, VPIC affirmed 7% as the actuarial assumed rate of return, 2.3% as the inflation assumption, and five years as the smoothing method.

- VPIC continues to focus its efforts on maximizing long-term investment returns within prudent levels of risk and liquidity.

- As VPIC continues to implement its autonomy under Act 75 of 2021, we respectfully request the legislature's assistance implementing staffing recommendations from an independent study by Mercer conducted at your request in 2022. VPIC has made great strides in professionalizing staffing and improving investment performance. Market-based compensation is essential to continued progress in this area and VPIC faces significant flight-risk as its compensation levels are well below market.

- Following extensive debate of S.42 during the 2023 legislation session, the legislature asked VPIC to engage an independent consultant to analyze its carbon footprint and recommend strategies to mitigate risks associated with a transition to a low carbon economy. VPIC engaged Meketa Investment Consulting to conduct this study and is now finalizing the report. The final report is expected to be submitted on or before January 31, 2024. Initial findings note VPIC's leadership in engagement with companies on the transition to a low-carbon economy and commend its effort to invest opportunistically in the transition.

Fiscal Year 2023 Investment Performance

Fiscal Year 2023 (FY23) investment performance is detailed in Appendix A. Returns for the Vermont State Teachers' Retirement System (VSTRS), the Vermont State Employees' Retirement System (VSERS) and the Vermont Municipal Employees' Retirement System (VMERS) were 7.64%, 7.65%, and 7.69%, respectively.

A composite performance report aggregates all three Plans' results on page 19 of Appendix A. Individual Plan results are detailed on page 56 (VMERS), 71 (VSERS), and 86 (VSTRS). This strong performance exceeded the 7.0% assumed rate of return and is the result of VPIC's efforts to maximize long-term returns within prudent levels of risk and liquidity. Russia's invasion of Ukraine, inflationary pressures, elevated interest rates, and declining globalization continued to create economic headwinds, though VPIC's investments in indexed equities and actively managed equities all generated double-digit returns. While we have in recent years expected continued downward pressure on future returns, increases in interest rates and moderating inflation are supportive of our 7.0% assumed rate of return. Investments have a propensity to deviate back to the average historical return and we are pleased to see such performance following the many investment challenges that arose simultaneously during FY22.

We still believe that most asset class valuations remain high relative to history and, as relative valuation tends to be a powerful driver of future returns, we expect a challenging investment climate for the foreseeable future. Empirically, high valuations tend to be followed by periods of lower investment performance and low valuations tend to be followed by periods of higher investment performance. Indeed, our consultant's capital market assumptions had declined in recent years, but were largely increased during FY23 to reflect

higher interest rates and moderating inflation. as outlined on page 6 of Appendix B. As a result of FY23's strong public equity performance, we believe valuations remain high relative to history.

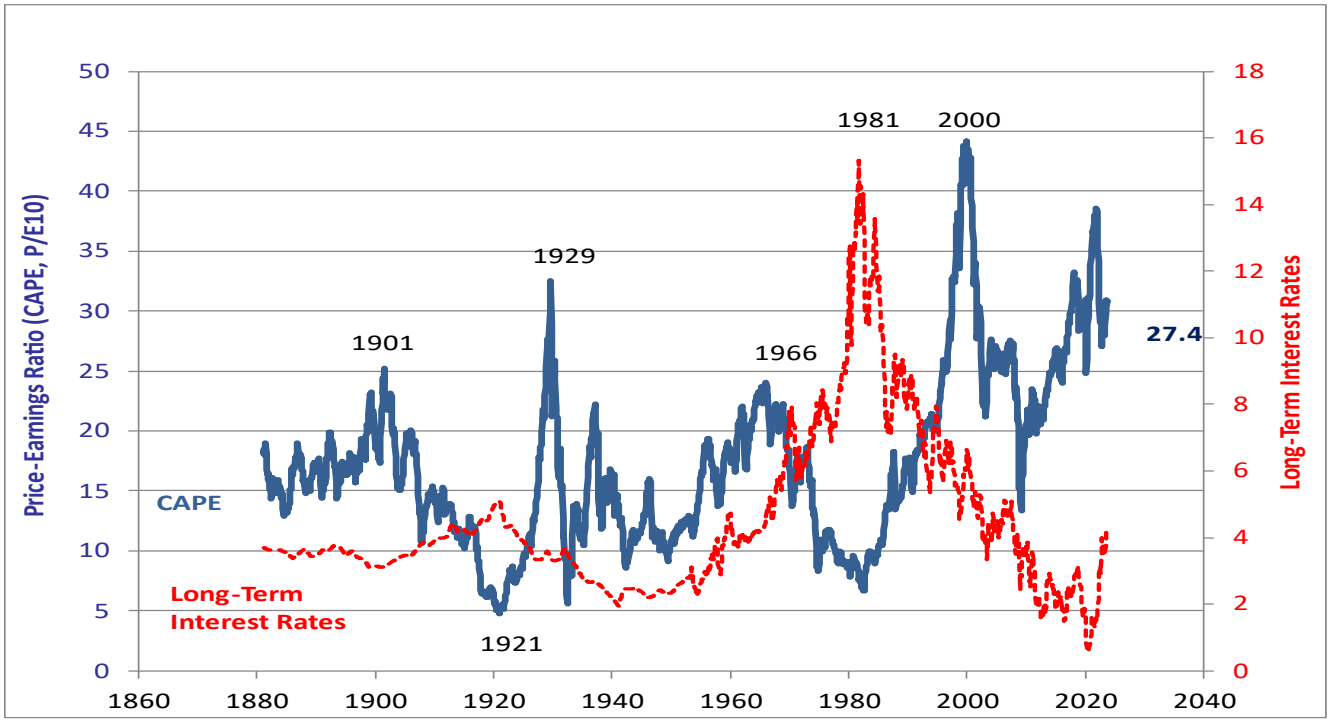
Pension Plan Funding Overview

As outlined on the chart in Appendix C, FY23's strong investment performance generated actuarial gains of $17.8 million for the Vermont State Teachers' Retirement System (VSTRS), $13.0 million for the Vermont State Employees' Retirement System (VSERS), and $5.0 million for the Vermont Municipal Employees' Retirement System (VMERS), based on these Plans' market value of assets. Both VSTRS and VSERS saw improvements in funded status during the fiscal year, though VMERS' actuarial experience losses more than offset its investment gains during the fiscal year and its funded status declined by 2.0%.

During the fiscal year, VPIC engaged actuarial firm GRS to advise it on the assumed rate of return, the inflation assumption, and the smoothing method, all of which are now VPIC responsibilities. After an extensive analysis, GRS recommended, and VPIC approved, keeping these three actuarial factors unchanged. Specifically, the assumed rate of return remains at 7.0%, the inflation assumption remains at 2.3%, and the smoothing method remains at 5 years. These factors assume that VPIC will continue to invest prudently in low-cost efficient global equity index funds and illiquid private market assets that drive long-term investment returns. If future legislation precludes the continuance of VPIC's successful long-term investment strategy, we would revisit the assumed rate of return assumption. While this assumption is simply a factor in determining the actuarially determined employer contribution to the three Plans, statutorily limiting VPIC's investment options could negatively impact the assumed rate of return and increase future expected taxpayer funding requirements. We believe S.42 from last year, if enacted, would have limited VPIC's access to top-tier illiquid private market investment funds.

The actuarial valuations for both FY23 and FY22 reflect a 7.0% actuarial assumed rate of return, though actual returns were above and below, respectively. As we think about future investment returns, we do so with an eye on current equity valuations and interest rates. As outlined in the chart below, both the Shiller Cyclically Adjusted Price/Earnings Ratio (CAPE) and the yield on the 10-year Treasury indicate that the valuations of both equity and debt investments are high relative to history despite some narrowing of that gap during FY22 and FY23[1]. Further detail on current valuations relative to history can be seen on pages 4-10 of Appendix A. While accurately forecasting if, when, and how such metrics revert to more historically normal levels is very difficult, we do expect future returns to be lower than those of the recent past as the tailwinds of zero interest rates, globalization, and low inflation have abated.

[1] Shiller, Robert J., Data Used in "Irrational Exuberance" Princeton University Press, 2000, 2005, 2015, updated



Asset Allocation Study and Portfolio Design

According to the National Association of State Retirement Administrators, since 1992, investment returns have provided 63% of public pension plan funding nationwide.[2] Because investments provide more than half of required pension contributions, it is essential that we develop a thoughtful asset allocation model that reflects both the demographic and economic characteristics of the three Vermont statewide pension plans, as well as the risk appetite and liquidity needs of VPIC. Portfolio design is based on and supported by comprehensive Vermont specific asset allocation studies, the most recent of which can be seen in Appendix B.

Annually, Segal, the actuary for the three statewide pension plans tabulates demographic data for all members and retirees and calculates a pension liability. This is essentially the present value of the obligation to provide a defined benefit pension plan to state employees, teachers, and municipal employees in Vermont. The actuary also tabulates the assets on hand to fund these pension liabilities and, ultimately, an unfunded actuarial liability (UAL). The UAL represents the shortfall between assets on hand and the liability to the members and beneficiaries of the Plans that must be made up by future investment returns and contributions from both members and their employers. These annual actuarial valuations, as described above, are meaningful inputs to VPIC's annual asset allocation studies. The goal of these studies is to assure that the portfolio is strategically aligned with the actuarial characteristics of the three statewide pension plans. By incorporating a

[2] NASRA, Public Pension Plan Contributions

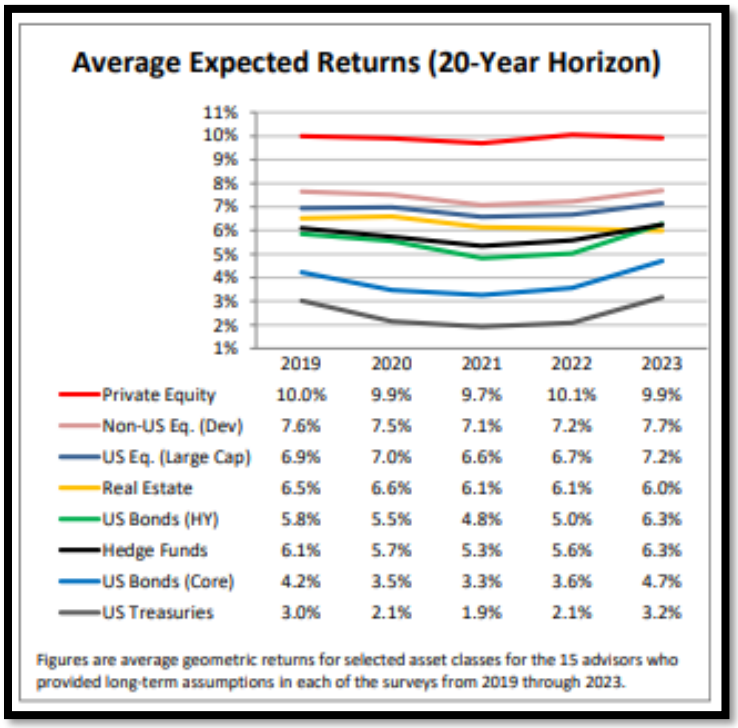
thorough analysis of each Plan's demographic and economic characteristics, VPIC seeks to generate strong long-term returns to fund long-term pension liabilities at minimal cost to taxpayers, to maintain sufficient liquidity to fund current pension payments to retirees, and to balance these factors at prudent risk levels. The actuarial valuations and experience studies are important inputs to portfolio design, and they dictate prudent limits on illiquidity and risk factors, both of which drive investment returns.

VPIC evaluates these factors among three broad classes of investments: growth assets, downturn-hedging assets, and inflation-hedging assets. The portfolio design process begins with a high-level analysis of each Plan's funding and cash flow metrics. Understanding these characteristics is essential to fully understanding each Plan's tolerance for illiquidity, which, we believe, adds to long-term investment returns. Investors expect to be compensated for investing their money for longer periods of time.

Working with its staff and investment consultant, VPIC examines a variety of model efficient investment portfolios with varying levels of liquidity and risk. Within each portfolio, VPIC assigns expected returns, risk, and asset class correlations to each component and runs *Monte Carlo* analyses. Such analyses show VPIC how each model portfolio is expected to perform on several metrics over the long-run and give VPIC important insights into expected investment returns, cash flows, funded status, and required employer (i.e., taxpayer) contributions.

It is important to note that VPIC's *Monte Carlo* simulations assume a normal distribution of returns and factors. We know, however, that investment outcomes are not always normally distributed. In fact, they are impacted by events like periods of high inflation, falling interest rates, high growth, low growth, and other abnormal trends. Further, more amplified market disruptions do occur periodically (e.g. tech bubble, great financial crisis, Covid-19, Ukraine invasion, deglobalization). To better understand the impact of such events, VPIC conducts additional scenario analyses on the portfolios under consideration. The intent of these analyses is not to forecast any future trend; rather, it is to better understand the tradeoffs among alternative portfolios during different economic scenarios and market dislocations. This allows VPIC to prudently design a resilient portfolio that can withstand market shocks and meet the financial commitments to the beneficiaries of the funds.

Capital market assumptions determine the portfolio's expected return over the long run

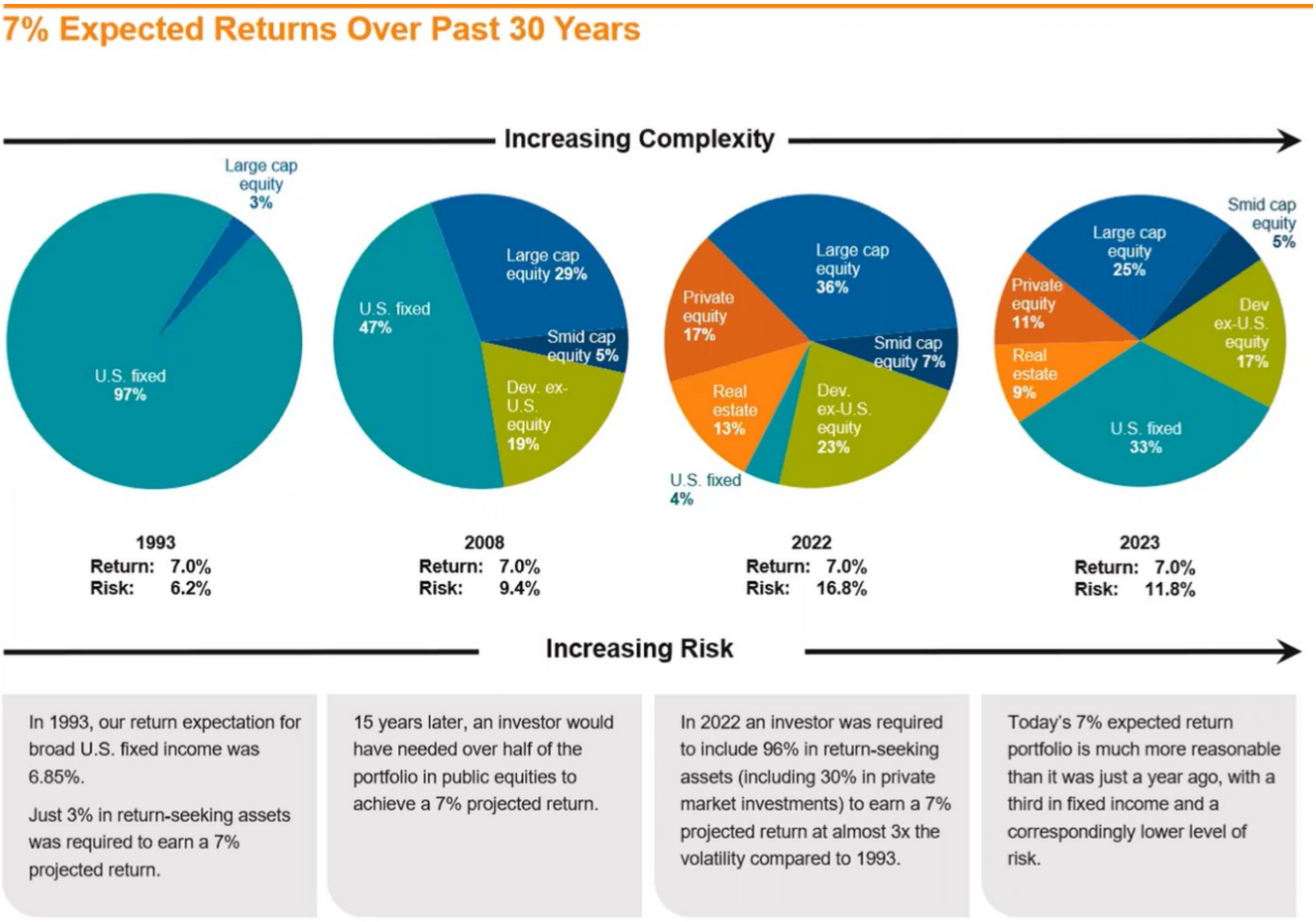


Capital market assumptions are long term predictions of investment return and risk (standard deviation) for each asset class, as well as correlations with other asset classes. These factors drive the *Monte Carlo* modeling described above. Many investment managers and consultants release their capital market assumptions on an annual basis, with interim updates when market volatility warrants. Such assumptions are specific to each firm's market outlook and, when applied to a portfolio's asset allocation targets, show the expected range of returns that will result if the capital market assumptions come to fruition. The capital market assumptions are based on long-term expectations and exhibit small deviations year-over-year. The chart to the right shows the results of an annual study conducted by Horizon Actuarial Services and evaluates the capital market assumptions of 39 investment firms[3]. The expected long-term return for each asset class has on average seen a small downward shift. This is in line with our expectation that the current high valuations will put downward pressure on future investment returns.

VPIC's current target portfolio, using its current consultant's (RVK) capital market assumptions, has a median expectation to generate a long-term return of 6.6%. This assumes the capital market assumptions in the model come to fruition. This represents a significant increase in expected returns from the prior year's 5.6%. Our supporting capital market assumptions can be seen on page 5 of Appendix B. While there is some dispersion among the different sources of capital market assumptions, there has been a consistent trend lower on average across the 39 investment firms surveyed by Horizon Actuarial Services over the past 20 years, reflective of high valuations and low interest rates. The chart below shows the increasing difficulty of generating a 7.0% rate of return over the past thirty years.[4] It is our view, that designing a portfolio that is expected to generate a 7.0% return within the capital market assumptions provided by our consultant, is now largely achievable, particularly with prudent use of illiquid private market assets. Our actuary, GRS, studied our economic assumptions (assumed rate of return and inflation assumption) and recommended, and VPIC approved, maintaining them at 7.0% and 2.3%, respectively. VPIC plans to proactively revisit these assumptions on an annual

[3] Horizon Actuarial Services, "Survey of Capital Market Assumptions", 2023 Edition
[4] Callan Institute, "2021 Capital Market Assumptions", January 2021, P. 46

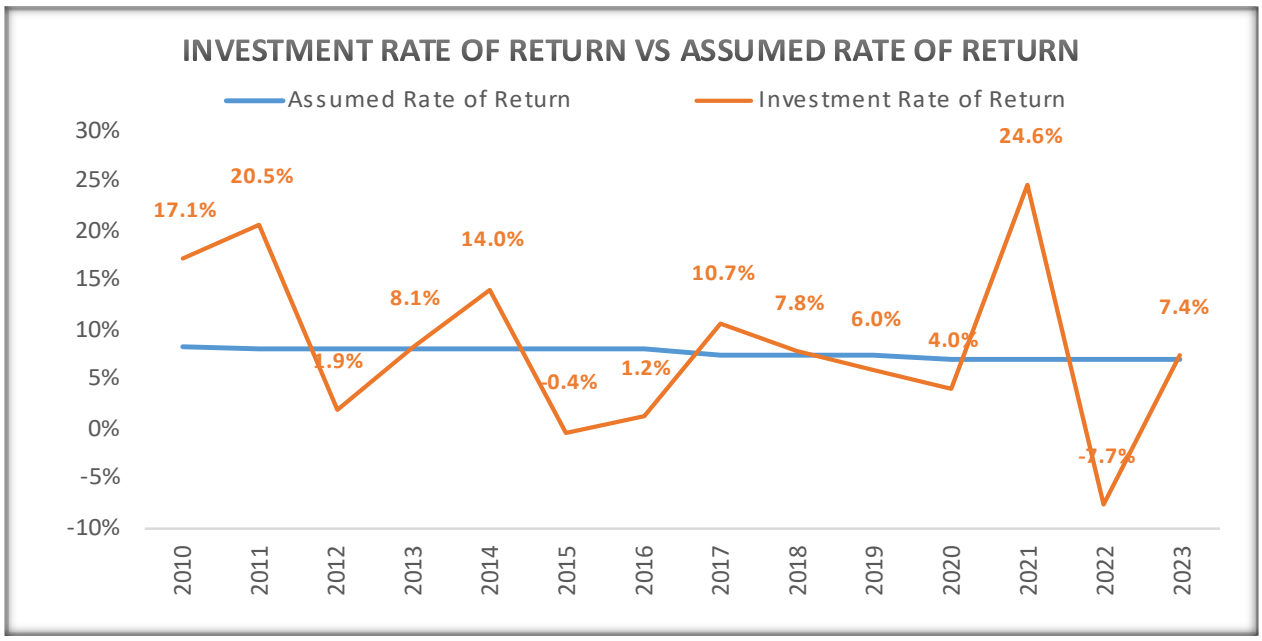
basis to assure sound actuarial funding of the three Plans. It is important to bear in mind that we do not view the actuarial assumed rate of return as a return target. Rather, it is an actuarial tool for calculating pension contributions necessary to assure sound funding. Instead, we design the VPIC investment portfolio to maximize long-term returns within prudent levels of risk and liquidity.



Recent market volatility highlights returns' end-point sensitivity

VPIC does not view its capital market assumptions, expected rate of return, or the actuarial assumed rate of return as accurate forecasts of future returns, especially over short periods of time. Instead, it uses these factors to better understand the tradeoffs among a variety of model efficient portfolios over varying economic scenarios. Indeed, a look at past returns reveals that, even over short periods of time, actual portfolio results can vary significantly and rarely equate with expectations. The chart below shows actual VPIC returns versus the actuarial assumed rate of return over time. To highlight this point, consider the nearly 25% return for fiscal year ended June 30, 2021, well above the 7.0% actuarial assumption. One year later, VPIC generated an investment return of -7.7%.

While FY22's return ranked above median among its peers, it fell well short of the actuarial assumed rate of return. In FY 23, as outlined above, VSTRS, VMERS, and VSERS returns were 7.64%, 7.65%, and 7.69%, respectively. Again, the AROR does not represent VPIC's targeted investment return. Its role is simply to determine pension contributions necessary to assure sound actuarial funding. That said, our returns over time, as well as recent analysis by VPIC actuary GRS affirm that 7.0% is a reasonable assumed rate of return for VPIC's current investment strategy.



To account for these differences between actual and expected performance, the actuary uses a variety of smoothing techniques to minimize volatility in employer funding requirements and to assure intergenerational equity. VPIC plans to conduct a comprehensive analysis of the Plans' smoothing method in the spring.

VPIC investment themes

We have embraced several overarching themes in managing the investments of the three statewide pension plans, as summarized below:

Simplify: Simplifying the construction of the VPIC portfolios allows for stronger oversight by a lean investment team.

Reduce fees: Outperforming passive benchmarks consistently is difficult. Because most passive indices are investable at a very low fee, the bar is high for active managers and their higher fees.

Underwrite everything: Understanding each investment manager's strategy, holdings, and role in the portfolio is essential for a prudent level of oversight by staff and VPIC. This theme resulted in the avoidance of an $80 million loss in the terminated Allianz Structured Global Alpha product.

Illiquidity premium increases returns: Illiquid assets (i.e., private equity, private credit, and non-core real estate) have a proven ability to outperform their public market equivalent benchmarks. Accordingly, we have targeted 24% of the fund to illiquid growth assets and are systematically building them out over a prudent number of vintage years. VPIC evaluates these investments versus their public market equivalent indices to ensure the illiquidity premium remains attractive for the additional risk.

Liquidity needs must be fully understood and assured: While illiquid assets tend to generate higher returns than their liquid counterparts, building a prudently diversified portfolio is not simply adding higher-returning assets and removing lower-returning assets. Because illiquid assets cannot be readily monetized to pay retirement benefits, their use is limited by the need for liquidity. Having a full understanding of current liquidity needs and a source for liquidity, especially during economic downturns, is essential to avoid the need to sell discounted assets and locking in losses.

Net returns must justify all investment manager fees: While we can and do invest in fully liquid stock and bond index funds for a very low fee, we also utilize select active managers we believe have an ability to consistently add value in excess of their fees. To that end, we analyze all investment managers' performance net of all fees, and we have a formalized process for dealing with those that fall short of expectations.

Conclusion

Managing the investment portfolios of the three statewide pension plans is an exercise in balancing risk and liquidity with the need for higher investment returns. Instead of just seeking to maximize investment returns, we are tasked with strategically aligning the portfolios with the pension fund's demographic and financial characteristics. As fiduciaries, our goal is to maximize long-term investment returns within acceptable levels of risk and liquidity. To that end, we have engaged best-in-class investment advisors to work with our professional staff to prudently oversee these important assets for the exclusive purpose of providing retirement benefits to Vermont Teachers, state employees, and municipal employees, at best cost to Vermont taxpayers.

We thank the legislature and Governor Scott for recognizing the importance of VPIC's independence and autonomy. We believe Act 75 positions us well for future oversight of the assets of the three statewide pension plans.

We look forward to discussing our annual report with you and your colleagues at your convenience.

APPENDIX A

VPIC Investment Performance Report[5]

(June 30, 2023)

[5] https://outside.vermont.gov/dept/VPIC/Shared%20Documents/VPIC%20Website/Investment%20Performance%20Reports/20220630_VPIC_IPR.pdf

APPENDIX B

RVK 2023 Asset Allocation Study[6]

[6] https://outside.vermont.gov/dept/VPIC/Shared%20Documents/VPIC%20Website/Asset%20Allocation%20Reports/2022/2022-06%20RVK%20AA%20Presentation%20-%20Second%20Read.pdf

APPENDIX C

Pension Plan Funding Overview

	VT State Teachers' Retirement			VT State Employees' Retirement			VT Municipal Employees' Retirement		
	6/30/23	6/30/22	Change	6/30/23	6/30/22	Change	6/30/23	6/30/22	Change
Fiscal Year Investment Return	7.64%	-7.41%	15.05%	7.65%	-7.42%	15.07%	7.69%	-7.88%	15.57%
Actuarial Metrics									
Actuarial funded percentage	59.30%	57.28%	2.02%	70.31%	69.85%	0.46%	75.06%	77.05%	-1.99%
Actuarial accrued liability	$ 4,410,041,941	$ 4,289,799,354	$ 120,242,587	$ 3,589,070,212	$ 3,444,133,789	$ 144,936,423	$ 1,260,908,766	$ 1,159,279,879	$ 101,628,887
Actuarially determined employer contribution	$ 201,182,703	$ 194,281,051	$ 6,901,652	$ 131,346,935	$ 121,873,370	$ 9,473,565	12.14%	11.60%	$ 0
Funding policy contribution rate (VMERS only)	n/a	n/a		n/a	n/a		6.94%	6.67%	
Assumed rate of return	7.00%	7.00%	0.00%	7.00%	7.00%	0.00%	7.00%	7.00%	0.00%
Inflation assumption	2.30%	2.30%	0.00%	2.30%	2.30%	0.00%	2.30%	2.30%	0.00%
Smoothing period (years)	5	5	-	5	5	-	5	5	-
Remaining amortization period	15	16	(1)	15	16	(1)	15	16	(1)
Actuarial Gains and (Losses)									
Investment (MV basis)	$ 17,758,260	$ (394,774,466)	$ 412,532,726	$ 13,043,367	$ (384,771,765)	$ 397,815,132	$ 5,048,306	$ (11,215,389)	$ 16,263,695
Net turnover	10,355,606	(8,153,540)	18,509,146	4,513,484	13,686,201	(9,172,717)	(1,402,050)	8,419,883	(9,821,933)
Retirement	(13,111,226)	(13,883,165)	771,939	(5,790,656)	(22,922,279)	17,131,623	(7,724,194)	(3,610,731)	(4,113,463)
Mortality	1,281,703	5,596,133	(4,314,430)	8,005,442	10,206,668	(2,201,226)	(1,784,365)	216,665	(2,001,030)
Disability retirements	(418,493)	44,922	(463,415)	(59,419)	(1,598,758)	1,539,339	(252,483)	(52,895)	(199,588)
Salary increases and service increases	(1,961,824)	7,256,908	(9,218,732)	(8,552,557)	(30,740,425)	22,187,868	(10,849,123)	(10,247,586)	(601,537)
COLA experience	5,467,039	(28,712,344)	34,179,383	3,240,429	(46,706,996)	49,947,425	813,080	(7,223,911)	8,036,991
Miscellaneous	(15,110,615)	(10,887,957)	(4,222,658)	(10,721,754)	(9,601,714)	(1,120,040)	(7,445,107)	(5,465,715)	(1,979,392)
Net experience gain/(loss)	$ 4,260,450	$ (443,513,509)	$447,773,959.00	$ 3,678,336	$ (472,449,068)	$ 476,127,404.00	$ (23,595,936)	$ (29,179,679)	$ 5,583,743.00

APPENDIX D

Mercer 2022 Compensation Study[7]

[7] https://outside.vermont.gov/dept/VPIC/Shared%20Documents/VPIC%20Website/Meetings/VPIC%20General%20Meetings/Meeting%20Materials/2022/11-01-2022/Mercer%20VPIC%20Compensation%20Study.pdf