

Asset Allocation/Impact on Liability Funding Review of Decision Making Process

TMRS Board Meeting

October 28, 2021

Marcia Beard and Spencer Hunter, RVK

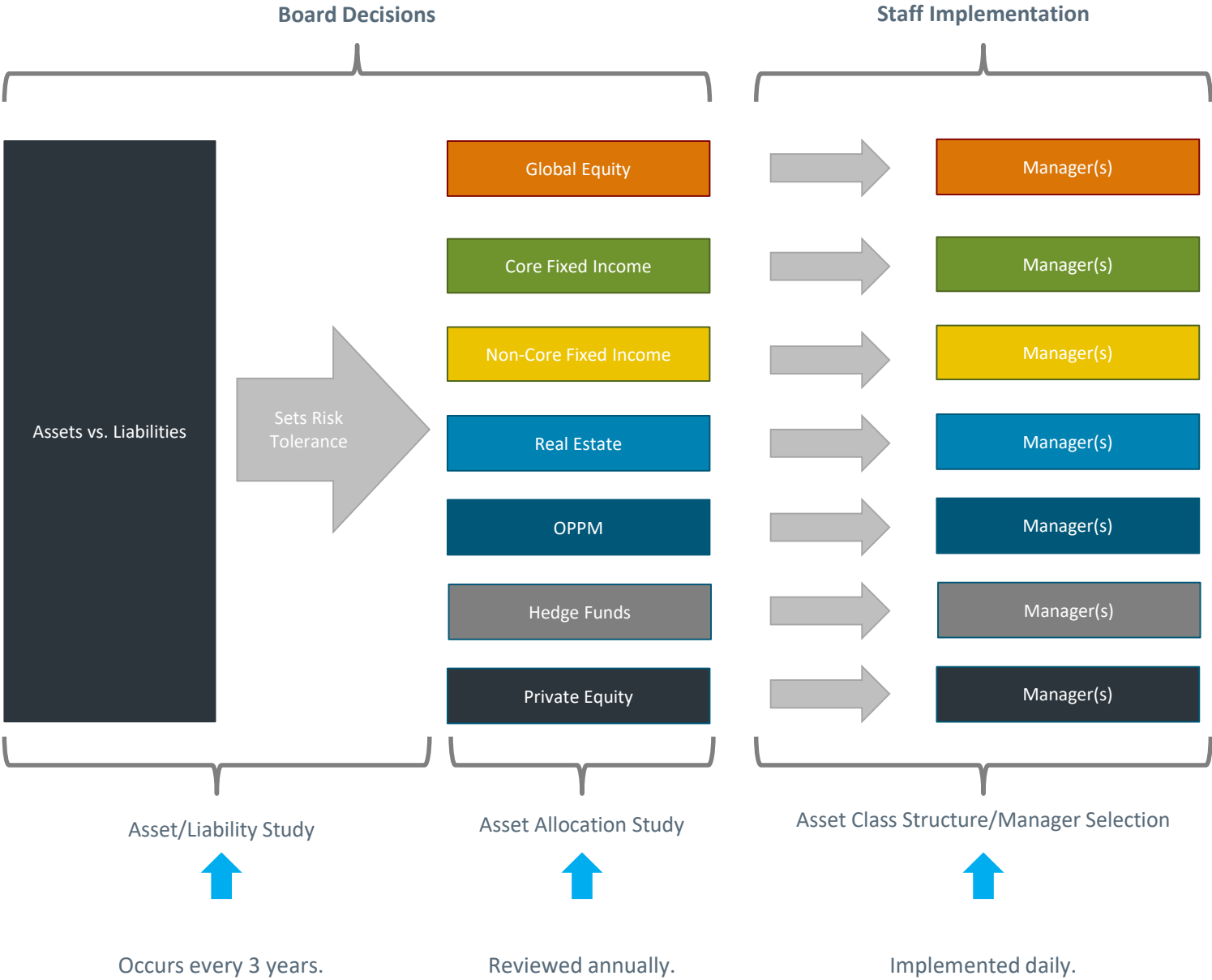
Joe Newton, GRS



Framing the Question

- During the September Board meeting a question was posed regarding how asset allocation and liabilities are related, with the request for more information on projected outcomes.
- There was an additional request that more information be provided on how asset allocation decisions are made with the change made in June 2021 as the main focus.
- After discussion with GRS and TMRS staff, we believe addressing the following questions is the best approach to satisfy these requests:
 1. What is the best process for the Board to examine the Strategic Target Allocation? And what are the key steps and deliverables along the way?
 2. How will the recent changes to the Strategic Target Allocation impact the System's ability to fund the liabilities?

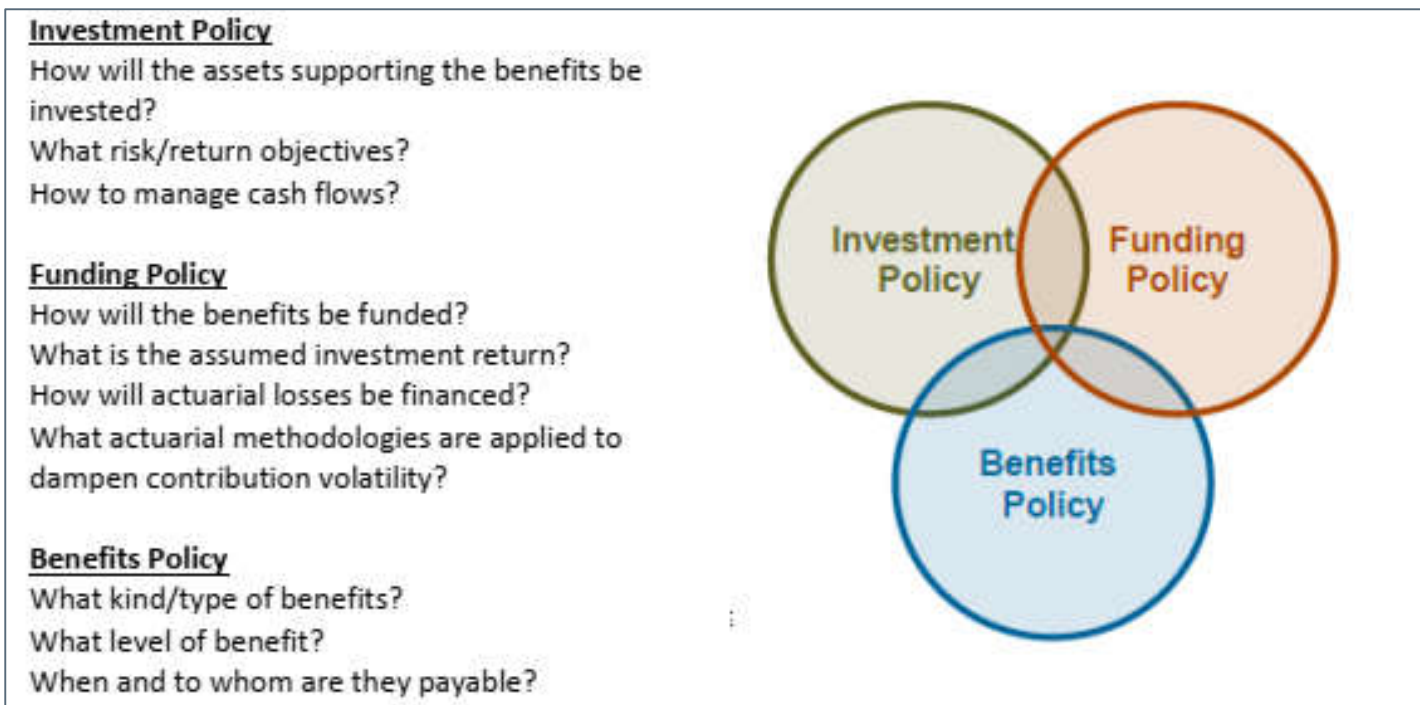
TMRS – Investment Decision Making Process



TMRS Decision Making – 2019 Asset/Liability Study

Key takeaways relating to investment risk:

- Given the characteristics of the System’s contribution and benefit policies, some amount of additional investment risk may be warranted.
- The additional risk (and expected return) comes with certain complexity, namely illiquidity, active management, and higher fees.



TMRS Decision Making – 2019 Asset Allocation Study

Key decisions made by the Board based on a better understanding of risk tolerance resulting from the 2019 Asset/Liability study:

- Increase expected return/risk of the portfolio by moving 5% from Global Equity to Private Equity.
- A decision was made to not adopt an “Interim Target.”

Efficient Allocations

The table below shows the range of possible optimal allocations given the selected asset classes and constraints listed under "Min" and "Max." This range illustrates the tradeoff between return and risk; additional return can only be achieved by undertaking additional risk.

	Min	Max	1	2	3	4	5	6	7	8	9	10	Current Target	Current Alloc.	Interim Target
Global Equity	30	100	30	30	30	34	38	43	53	67	78	90	35	36	32
US Agg Fixed Income	0	15	15	15	10	6	2	0	0	0	0	0	10	14	10
TMRS Non-Core Fixed Income	0	20	20	16	20	20	20	20	17	3	0	0	20	18	20
TMRS Real Return	0	10	10	10	10	10	10	10	10	10	2	0	10	11	10
TMRS Real Estate	0	10	10	10	10	10	10	10	10	10	10	0	10	9	10
TMRS Absolute Return Strategies	0	10	10	10	10	10	10	7	0	0	0	0	10	8	10
TMRS Private Equity	0	10	5	9	10	10	10	10	10	10	10	10	5	2	8
Cash Equivalents	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0
Total			100	100	100	100	100	100	100	100	100	100	100	100	100
Capital Appreciation			46	49	51	55	59	64	73	82	91	100	51	48	51
Capital Preservation			15	15	10	6	2	0	0	0	0	0	10	16	10
Alpha			19	17	19	19	19	16	8	2	0	0	19	16	19
Inflation			20	19	20	20	20	20	19	17	9	0	20	20	20
Expected Arithmetic Return			6.63	6.78	6.94	7.10	7.26	7.41	7.57	7.73	7.89	8.04	6.83	6.57	6.90
Expected Risk (Standard Deviation)			9.8	10.1	10.6	11.3	12.0	12.7	13.7	15.0	16.4	18.2	10.7	10.1	10.6
Expected Compound Return			6.18	6.31	6.42	6.51	6.59	6.67	6.71	6.70	6.66	6.54	6.30	6.09	6.38
Expected Return (Arithmetic)/Risk Ratio			0.68	0.67	0.65	0.63	0.61	0.58	0.55	0.52	0.48	0.44	0.64	0.65	0.65
RVK Expected Eq Beta (LCUS Eq = 1)			0.49	0.52	0.54	0.57	0.60	0.65	0.71	0.79	0.87	0.97	0.53	0.50	0.54
RVK Liquidity Metric (T-Bills = 100)			55	54	51	51	51	53	59	67	73	82	55	60	53

Please see the Glossary for statistics descriptions.

RVK

TMRS Decision Making – 2021 Asset Allocation Study

Key decisions made by the Board:

- Increase the overall risk of the portfolio by reducing the Hedge Fund and Core Fixed Income allocations in favor of increases to Global Equity, OPPM, and Real Estate.
- The Board also gave direction to hold any underweight to Private Equity in Global Equity during the transition to its 10% target weight.


Asset Allocation – Modeled Portfolios

2021 Assumptions

	Constraints		Current Allocation	Current Target	Target Allocation Effective 7/1/2021
	Min	Max			
Global Equity	30	50	34	30	35
Core Fixed Income	5	10	11	10	6
Non-Core Fixed Income	0	20	18	20	20
Other Public & Private Markets	0	12	11	10	12
Real Estate	0	12	9	10	12
Hedge Funds	0	10	10	10	5
Private Equity	0	10	4	10	10
Cash Equivalents	0	0	3	0	0
Expected Geometric Return, %			5.71	5.99	6.22
Expected Standard Deviation, %			10.42	10.85	11.66
*5 Yr Probability of Achieving 6.75%			45	48	50

Return assumptions are generally passive-based and assume no investment manager excess return.

*5 Yr probability numbers are from a Monte Carlo Simulation. Undergoing a Monte Carlo simulation provides insight into the expected performance of the asset allocation mixes by examining thousands of randomly sampled outcomes. Current Allocation as of 3/31/2021.



Impact of Recent Asset Allocation Change on Funding Risk (Liabilities)

- Moving from the Prior Strategic Target Allocation to the New Strategic Target Allocation decreases the expected contribution requirements and has no meaningful impact to, if not improves, the funding risks.

	Prior Strategic Target Allocation	New Strategic Target Allocation (as of 7/1)
Median Expected Return	5.99%	6.22%
Standard Deviation	10.85%	11.66%
Expected Contribution Rate	16.5%	14.8%
Probability Funded Ratio >100% by 2040	49%	55%
Probability Funded Ratio is Less than 80% at Any Time by 2040	29%	27%
Probability Contribution Rate Exceeds 20% Any Time by 2040	35%	31%
Worst Case One Year Change in Contribution Rate	2.77%	2.87%

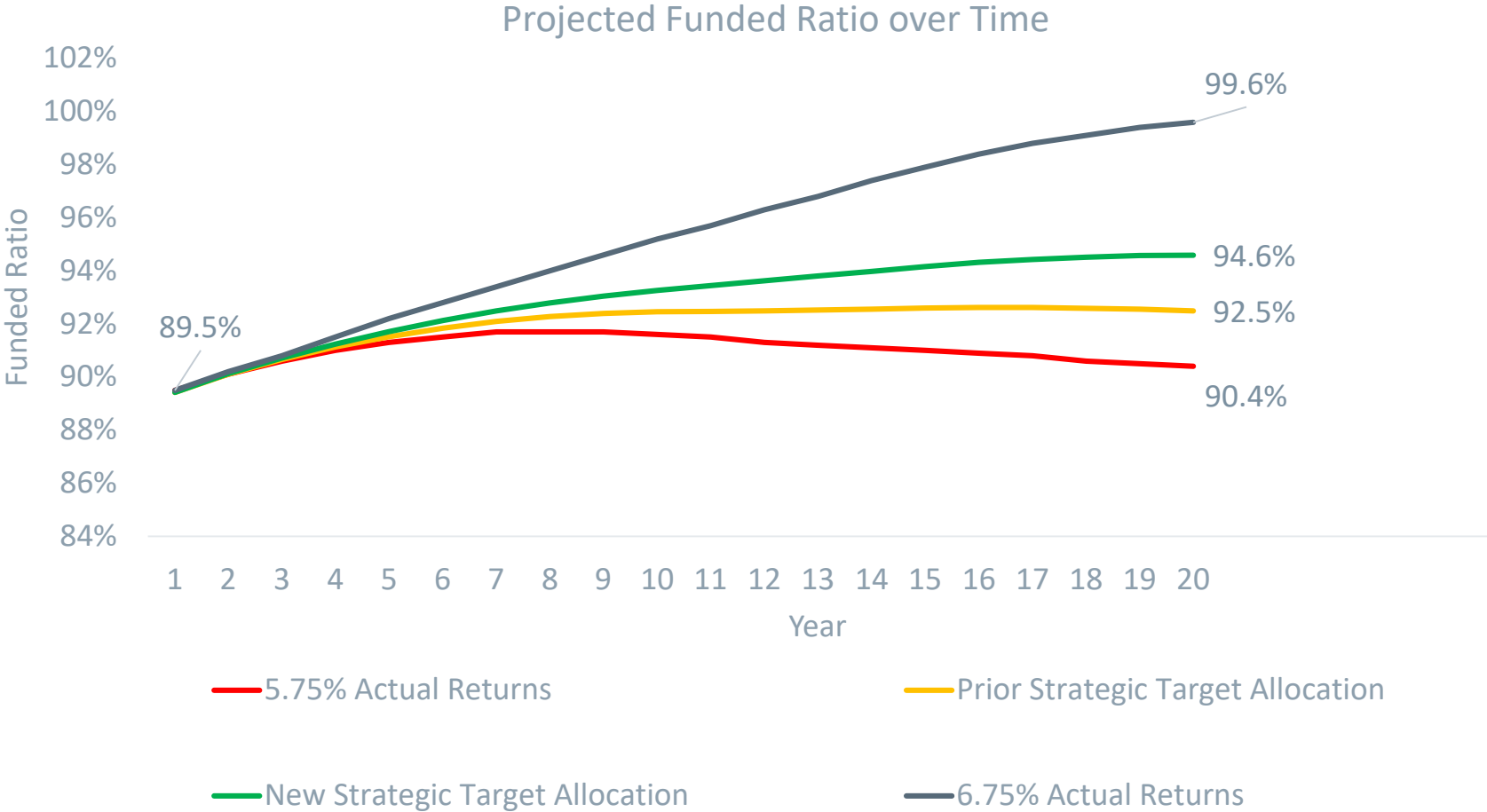
How Are Investment Returns and Contributions Related?



Contributions + Investments = Benefits + Expenses

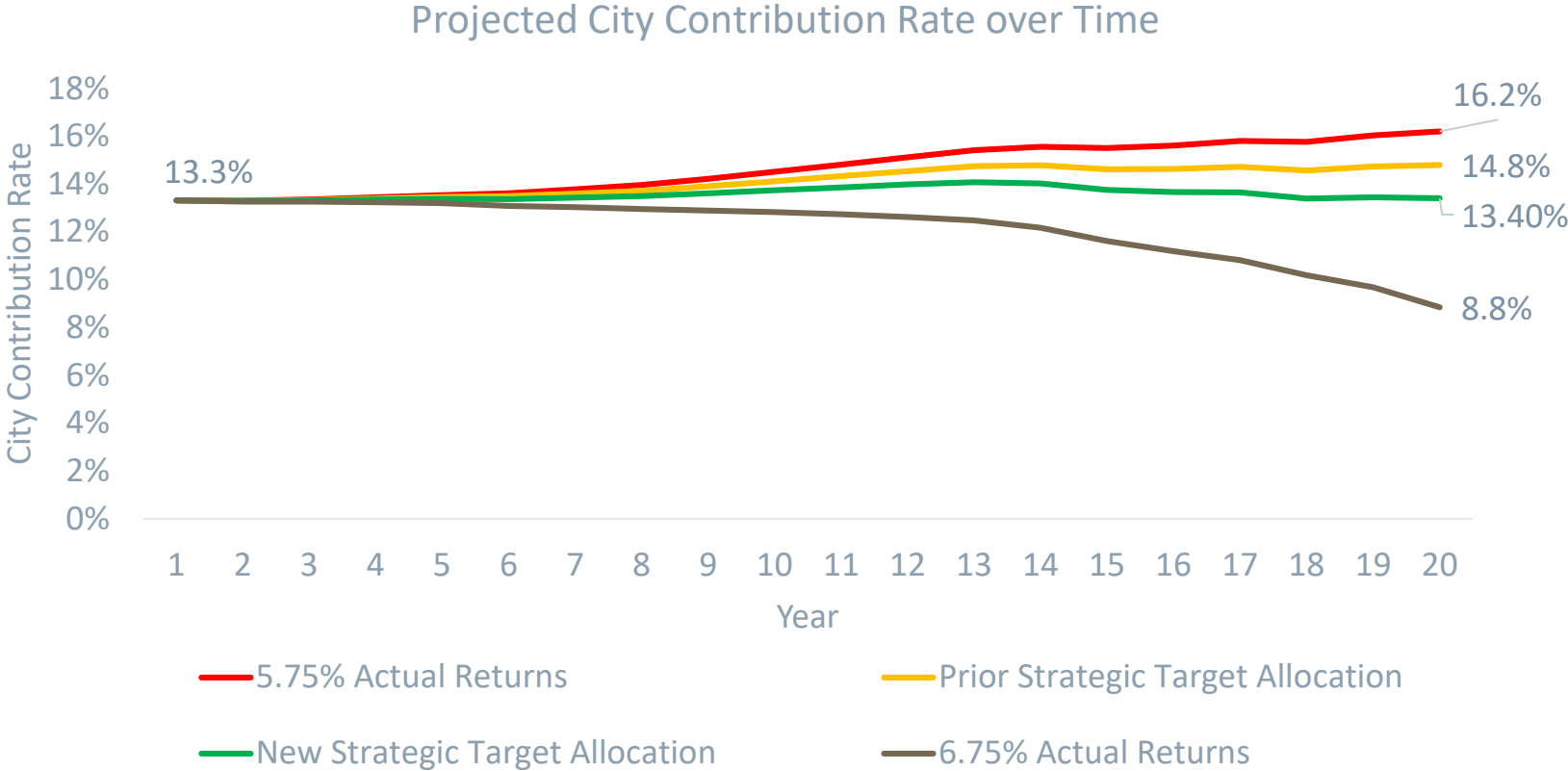
- In order to fully fund obligations, a retirement system must receive a combination of both investment income and contributions, but each individual system may have a different mix between the two factors.

2021 – Update to Projected Funded Ratio



Based on RVK 2021 Capital Market Expectations
 The data is TMRS System-wide
 Both projections based on current assumptions and benefits
 Only actual investment returns are different
 Projections provided by GRS

2021 – Update to Projected City Contribution Rates



Based on RVK 2021 Capital Market Expectations
 The data is TMRS System-wide
 Both projections based on current assumptions and benefits
 Only actual investment returns are different
 Projections provided by GRS

TMRS Decision Making – Concluding Remarks

- The Board has followed its Investment Policy Statement in selecting its Strategic Target Allocation with both investment and funding risk in mind.
- Next steps will include a formal asset allocation study in 2022 with the option for an asset/liability study in order to reaffirm the Board's risk tolerance.
- In the interim, RVK, GRS, and TMRS staff will continue to explore methods to show total System performance – investment and funding – relative to its stated goals and prior projections.