



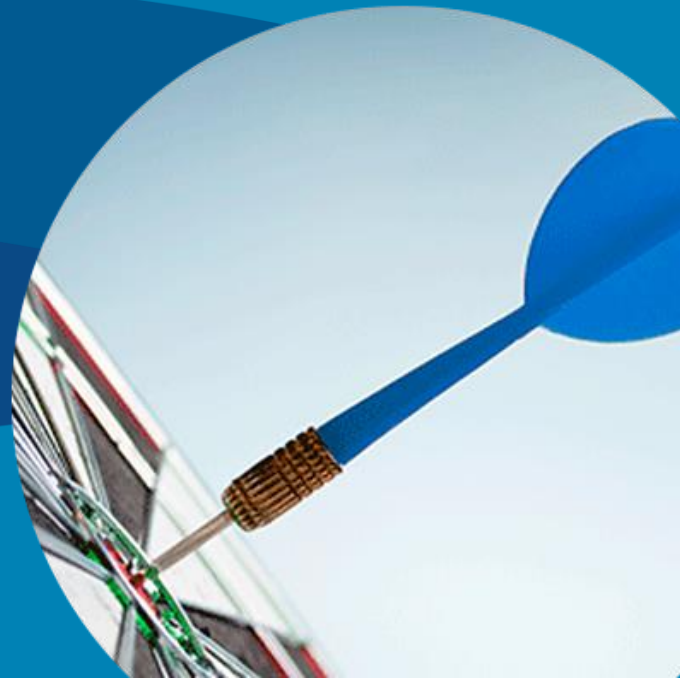
New Hampshire Retirement System 2026 Risk Report

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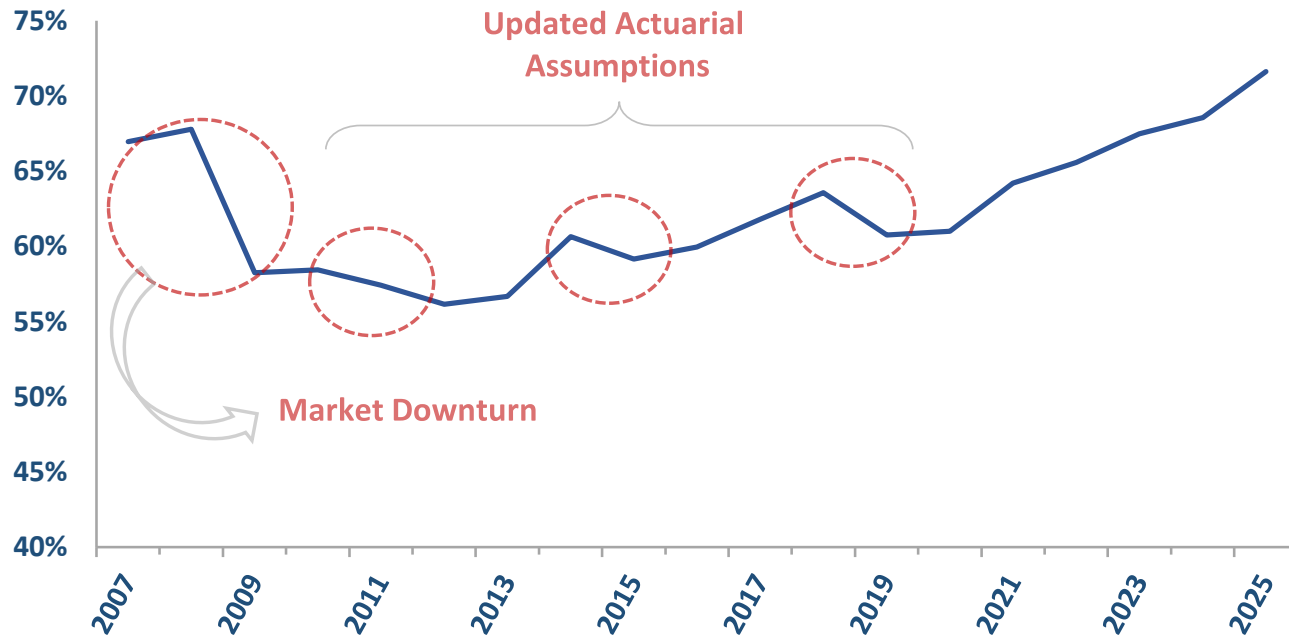
Risk Report – Purpose

- To identify risks posed to NHRS objectives and demonstrate the potential impact of experience not materializing as expected, and the effects of potential changes in the underlying expectations themselves
- **Sensitivity Analysis**
 - There is a reasonable range of assumptions an actuary could select in calculating results, but only one set of assumptions can be used
 - What effect does the use of one assumption set have on funding measure versus another?
- **Scenario Testing**
 - Examining the impact of a specific series of events and the manner in which funding and contributions would be affected

Metrics to Use – Funded Ratio

Funded Ratio: Measuring changes in the ratio of the System's assets to its actuarial liabilities

Historical Changes in Pension Funded Ratio

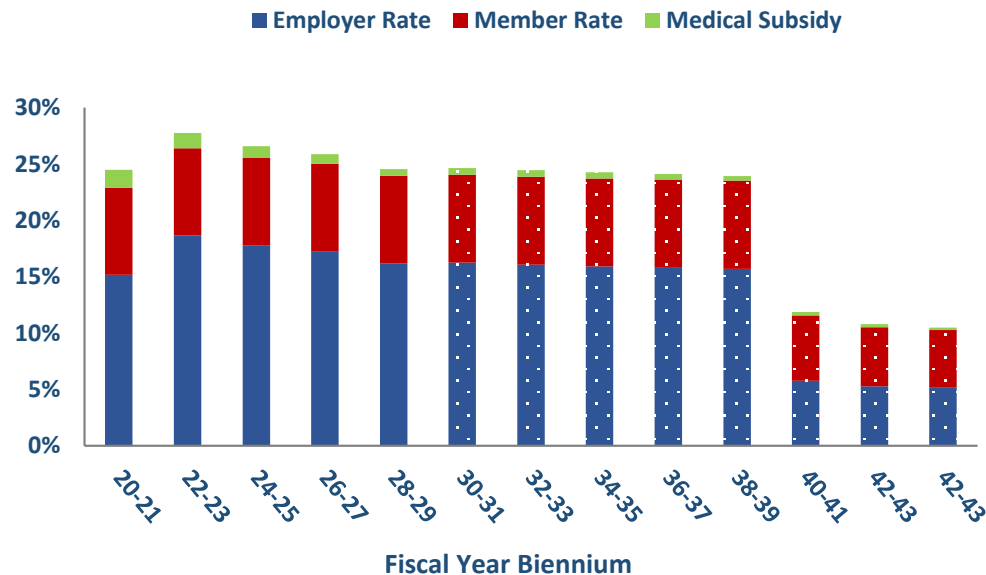


Metrics to Use – Employer Contributions

Employer Contribution Rates are variable, and consist of the employer portion of normal cost as well as a payment to amortize unfunded liabilities (most volatile component)

For NHRS, employer rates are calculated on a biennial basis, which presents unique risks

Projection of Contribution Rates (% of Payroll)



Historical Gains and Losses

The table below shows the gains and losses for NHRS' pension fund over the past decade, split out by economic and demographic experience.

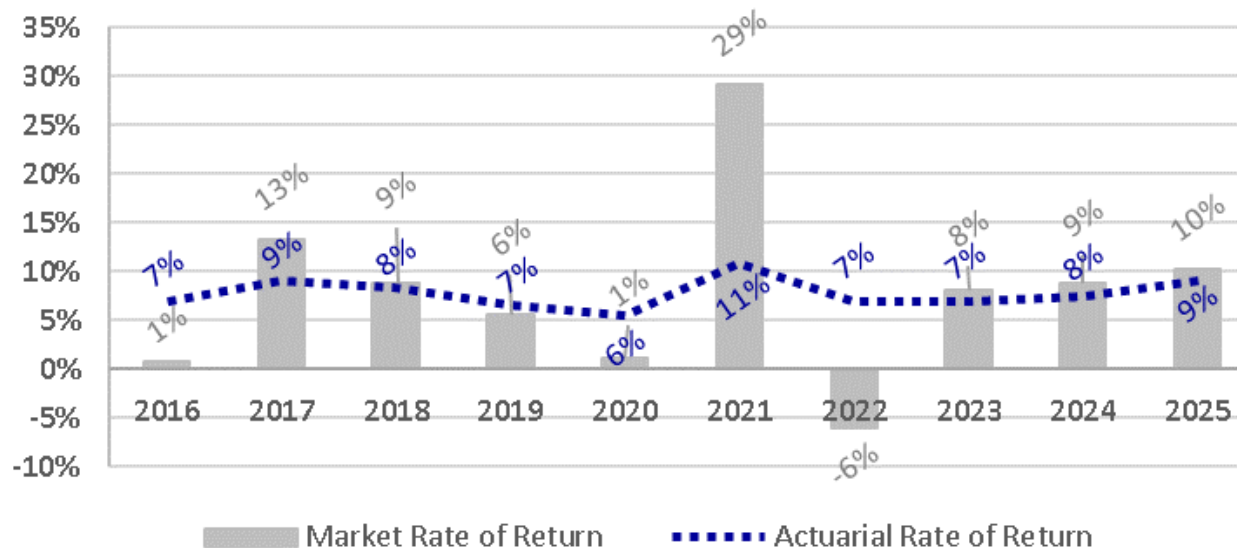
Year	UAAAL Gains/(Losses)		
	Assets	Liabilities	Total
			\$-Millions
2016	(30.1)	35.8	5.7
2017	141.4	(26.2)	115.2
2018	93.3	67.4	160.7
2019	(60.3)	(18.1)	(78.4)
2020	(109.3)	6.5	(102.8)
2021	382.1	(17.2)	364.9
2022	18.8	(88.1)	(69.3)
2023	17.1	(39.1)	(22.0)
2024	88.9	(301.5)	(212.6)
2025	275.9	1.9	277.8

Areas of Risk

- The areas of risk that may reasonably be anticipated to significantly affect the future financial condition of NHRS include
 - Investment risk
 - Sustained investment returns below the assumed rate of return can significantly increase unfunded liabilities and future contribution requirements
 - Demographic risk
 - The potential for demographic experience, or experience related to the activity of the covered members, to differ from what the actuarial valuation assumes
 - Assumption Change risk including a change in interest rate assumption
 - The potential that assumptions will need to change from what they are currently to reflect the circumstances surrounding future actuarial valuations
 - Payroll risk
 - Contributions are developed as a percent of payroll and the extent to which overall pay growth is less than assumed may lead to lower contribution inflows than necessary to pay off unfunded liabilities

Investment Risk

**Historical Rates of Investment Return
(Market vs. Actuarial)**



Investment Risk

- Market risk represents the largest source of uncertainty for the System
- Contributions are developed assuming that investment return on assets will fund a substantial portion of promised benefits
- Sustained investment returns below the assumed rate of return can significantly increase unfunded liabilities and future contribution requirements
- Depletion of assets from a short-lived downturn in capital markets, although often followed by periods of favorable returns, can likewise stifle funding progress and lead to acute contribution volatility
- Baseline projection scenarios commonly assume that the System will earn the investment return assumption each and every year
 - In reality, the System will experience volatility in investment returns each year

Demographic Risk

- Demographic risk is the potential for demographic experience, or experience related to the activity of the covered members, to differ from what the actuarial valuation assumes. For example, members may live longer or shorter than expected and receive pensions for a period of time other than assumed; and members may terminate, retire, or become disabled at times or with benefits other than assumed resulting in actual future accrued liability and contributions differing from expected.
 - **Mortality** – Increased longevity among benefit recipients results in benefit payments lasting longer than expected. Higher rates of mortality among active members can lead to more benefits being paid than expected.
 - **Retirement** – Active members retiring at earlier ages than expected will result in benefits commencing earlier than assumed.
 - **Withdrawal** – Active members terminating service at higher rates than expected will generally result in lower benefits being paid out than assumed.

Assumption Change Risk

- Assumption change risk is the potential that assumptions will need to change from what they are currently to reflect the circumstances surrounding future actuarial valuations
 - Significant shifts in capital market expectations would require a reduction in the investment return assumption
 - Prolonged periods of inflation often are followed by increases in wage growth which would likely lead to adjustments in assumed wage inflation
 - Persisting longevity improvements would require the use of lower mortality rates
 - Changes in the labor market could lead to significantly different rates of retirement and withdrawal
- The assumptions used by the actuary should not be unnecessarily optimistic, nor unnecessarily conservative
 - Having assumptions which are too optimistic is likely to result in contributions not being sufficient to fund accrued benefits, requiring more contributions occurring later
 - Too much conservatism will likely result in front-loaded contributions in excess of what is required to fund benefits, potentially diverting monies from funding sources that could have been otherwise allocated
 - The assumptions themselves do not determine the amount of the benefits that will be paid, only the timing of the contributions to fund those benefits
- While the emergence of individual risks may be manageable in isolation, adverse outcomes occurring simultaneously may have a materially greater impact than the sum of their individual effects
 - An actuarial experience study performed on a regular basis (every four years) to review actuarial assumptions to ensure that the assumptions align with actual experience, as best as possible

Sensitivity Testing – Assumption Sets

Conservative Demographic Assumptions:

- Retirement rates were increased by 25% at first eligibility
- Withdrawal rates were decreased by 5% at all ages
- Mortality rates were decreased by 10%

Optimistic Demographic Assumptions:

- Retirement rates were decreased by 25% at first eligibility
- Withdrawal rates were increased by 5% at all ages
- Mortality rates were increased by 10%

Conservative Economic Assumptions:

- 5.75% assumed rate of investment return
- 3.50% wage inflation

Optimistic Economic Assumptions:

- 7.75% assumed rate of investment return
- 2.50% wage inflation

The “intermediate” assumption set represents those currently in use.

Sensitivity Testing

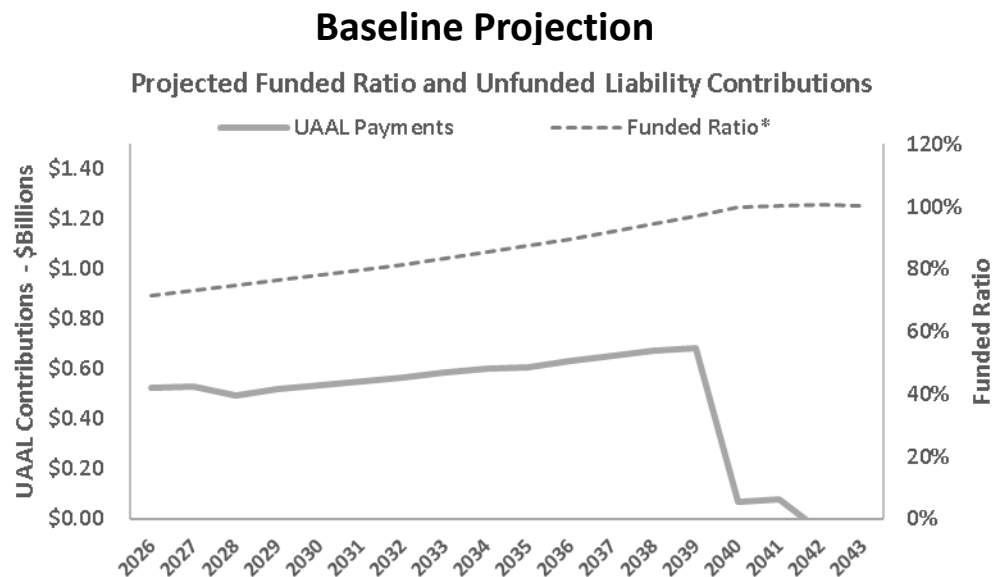
Sensitivity Matrix: NHRS Pension Funded Ratio under Varying Actuarial Assumption Sets		Economic Assumption Set		
		Optimistic	Intermediate	Conservative
Demographic Assumption Set	Optimistic	81.4%	72.9%	64.9%
	Intermediate	80.0%	71.6%	63.7%
	Conservative	78.5%	70.3%	62.5%

Deterministic Scenario Testing

- Funding Projection Scenarios
 - One scenario with one set of results
 - Identifies the magnitude of the impact of a certain event happening
 - Specific investment experience scenarios
 - Payroll growth experience
 - Demographic experience

Measuring the Impact – Funding Projection

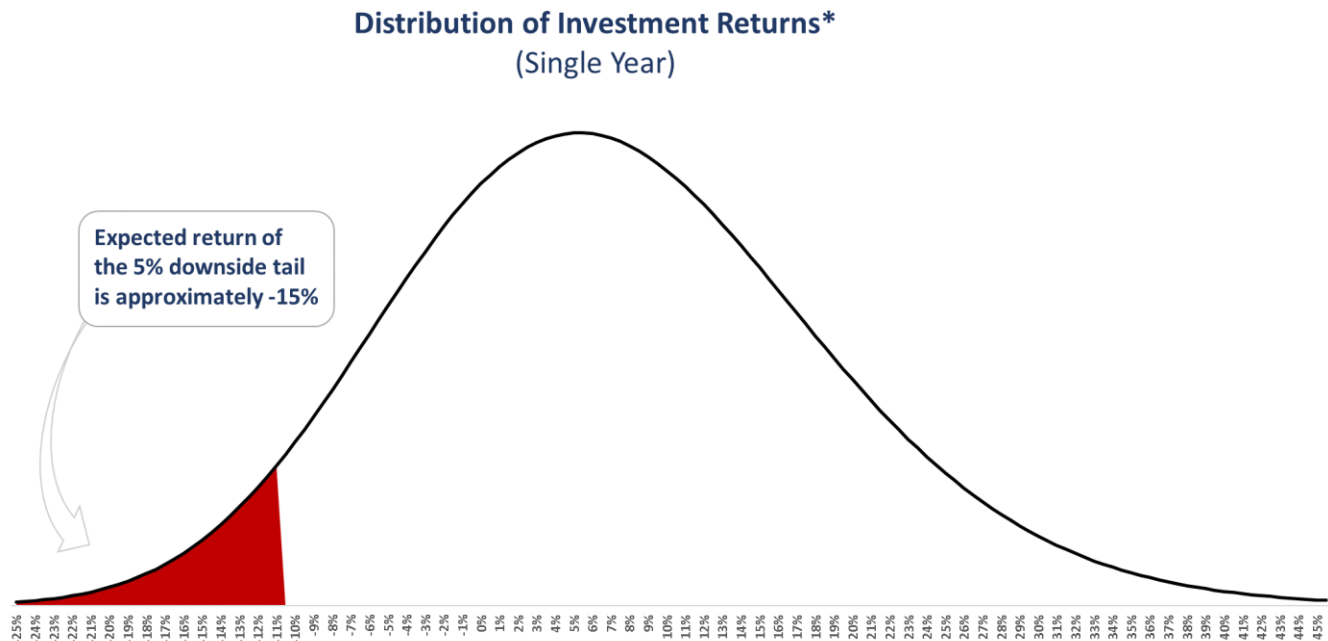
Based on funding policy and actuarial results, the actuaries prepare a funding projection that represents the plan to reach full funding. For the purposes of this assessment, a “risk” will be defined as any event, or series of events, that will result in funding progress falling short of the projection. The determination as to the impact of the risk event will be the difference from the baseline projection consistent with the June 30, 2025 funding valuation.



* Unfunded actuarial accrued liabilities (UAAL) and funded Ratio at beginning of fiscal year.

Scenario 1 – Market Downturn

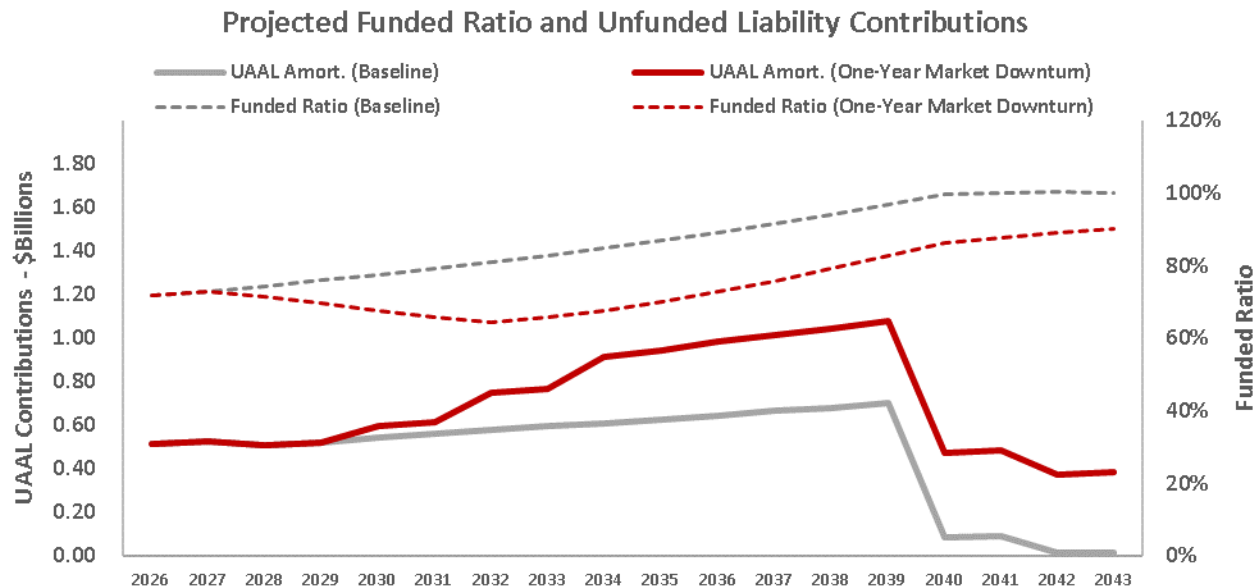
For the purposes of modeling the likely fallout of a market downturn, this risk scenario assumes that for fiscal year 2027 there will be a return on assets equal to the 5% Tail Value at Risk (-15%)



** Calculated assuming lognormally distributed asset prices using parameters based on 2026 capital market expectations gathered by GRS from various investment professionals across the United States.*

Scenario 1 – Market Downturn

This scenario assumes an investment return of 6.75% in fiscal year 2026 followed by a -15.0% return in fiscal year 2027. Thereafter, investment returns are assumed to revert to the long-term actuarial assumption of 6.75% per year.

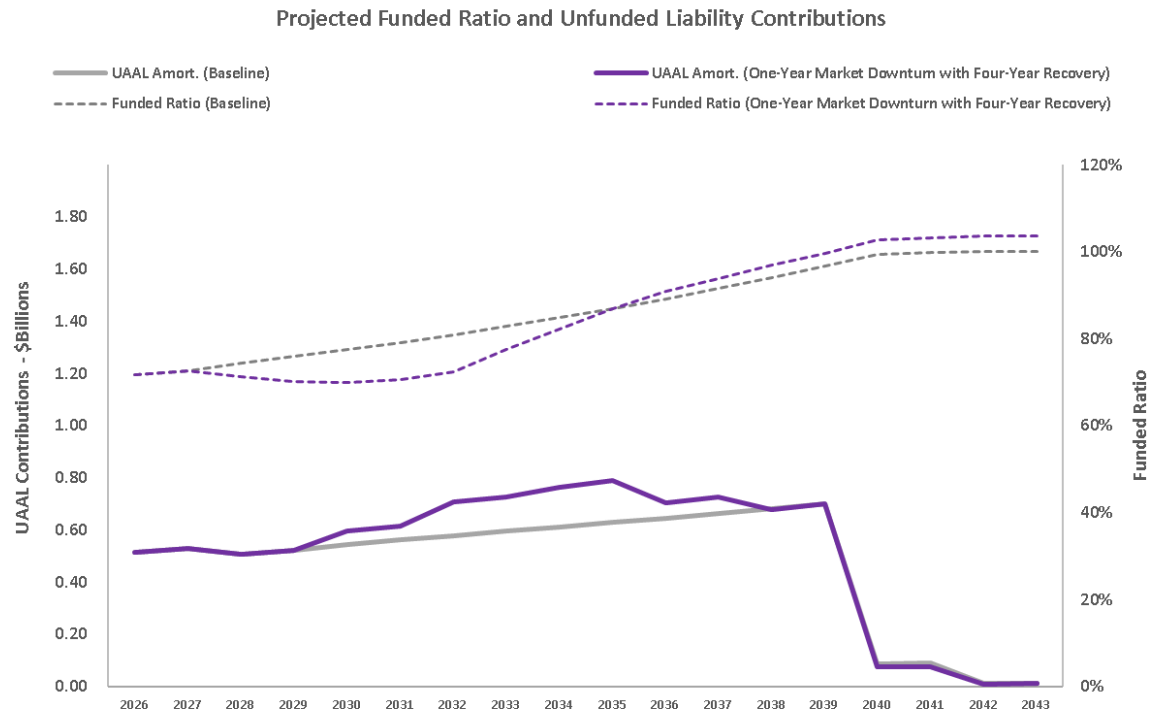


Scenario 1 – Market Downturn

- The full magnitude of the 2027 investment losses would be recognized over the subsequent 5-year smoothing period
 - Only 20% of the asset loss would be reflected in funding contributions calculated for the June 30, 2027 valuation applicable for the 2030-2031 biennium; 60% of losses recognized for the 2029 valuation applicable to FY 2032-2033; with full recognition for the 2031 valuation with contributions applicable to FY 2034-2035
 - The losses will be amortized in 20-year layers in each biennium, meaning the fully recognized losses would be scheduled to be paid off in 2051
- The funded ratio would decline gradually to around 64% in 2032 as the full loss is recognized, and before the biennial funding contributions have completely reflected the impact on unfunded liabilities
- By 2032 the projected annual contributions will be \$170 million greater than the baseline projection, at which point the funded ratio will begin to gradually increase
- Rather than being fully funded by the end of 2039, the System would be 86% funded, by which time there would have been about \$2.5 billion in additional contributions

Scenario 2 – Market Downturn Followed by Market Rebound

This scenario assumes an investment return of 6.75% in fiscal year 2026 followed by a -15.0% return in fiscal year 2027. Thereafter, investment returns are assumed to revert to the long-term actuarial assumption of 6.75% per year. Note that this scenario of returns results in compounded average annual investment return over the projection period which is equal to the assumed rate of 6.75%.

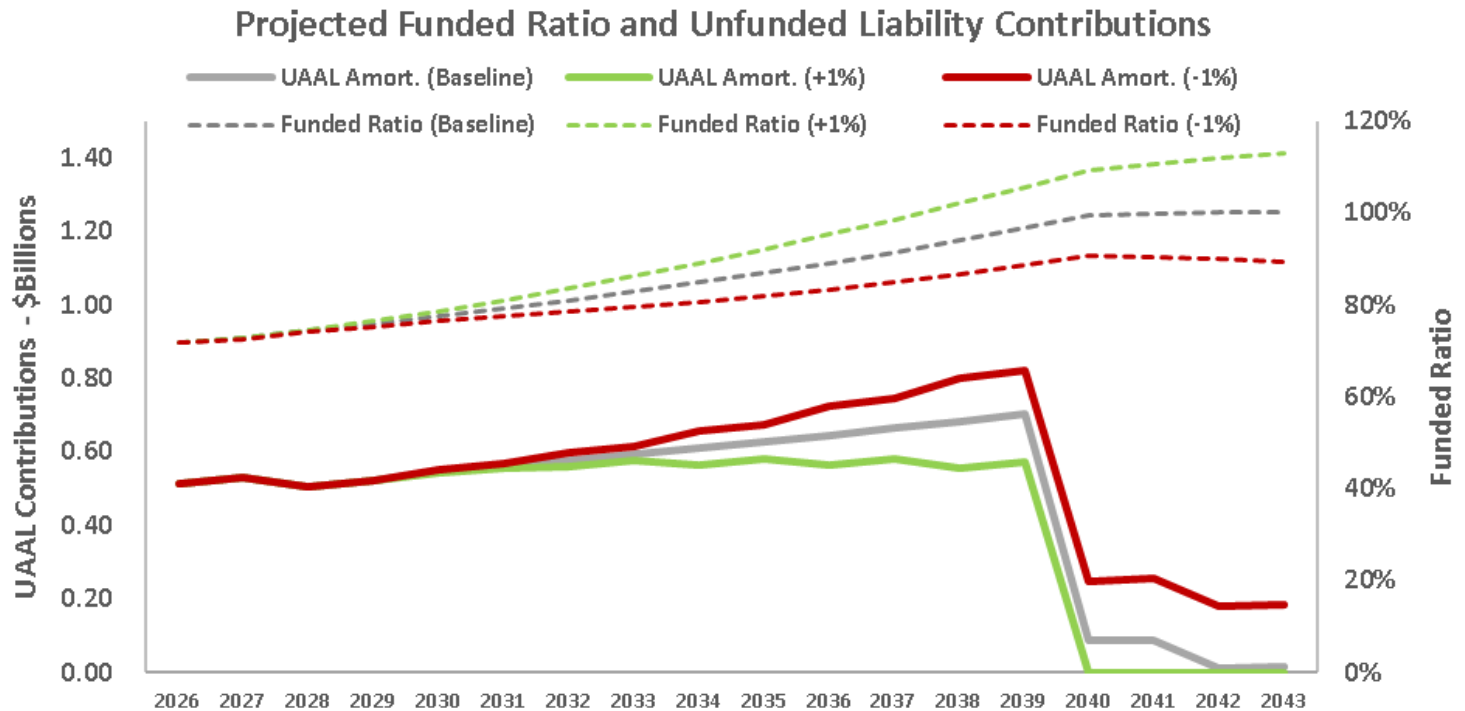


Scenario 2 – Market Downturn Followed by Market Rebound

- The funded ratio decrease resulting from initial recognition of the market loss will materialize in a similar manner to the previous scenario for fiscal year 2027
- Due to the smoothing method, the 2027 loss would result in recognized losses over the subsequent 5-year period despite the market value of the System's assets having already recovered
 - The funding ratio will begin to improve in 2032 after the 2027 losses are fully recognized and the gradual recognition of market gains from 2028 through 2031 are realized and will grow to 100%
- Contribution increases for 2030-2031 will be the same as the previous scenario
 - Contributions will continue to increase in future biennia as 2027 losses are being recognized, but at a lower rate than the previous scenario
- The greater unfunded liabilities in the period prior to full recognition of the market recovery would result in contributions being \$1 billion greater relative to the baseline scenario
- This scenario would ultimately result in the System reaching a funded ratio of over 100%, assuming that employer contribution rates do not decrease below the normal cost percentage
 - The gains will be amortized in 20-year layers in each biennium, meaning the gains would be fully recognized by 2055

Scenarios 3 and 4 – Prolonged Period of Lower or Higher Investment Returns (6.75% +/-1%)

We have modeled scenarios which incorporate annual investment returns that are consistently 1% lower and higher than assumed.



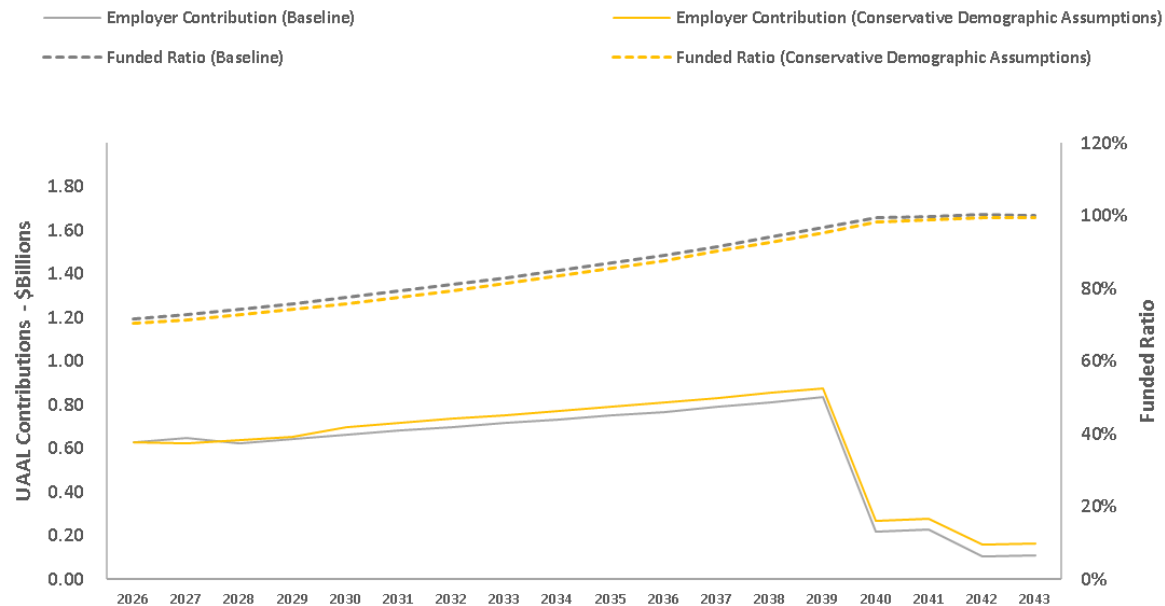
Scenarios 3 and 4 – Prolonged Period of Lower or Higher Investment Returns (6.75% +/-1%)

- Consistent returns 1% below the assumed rate of 6.75%
 - Will lead to slower funded ratio growth and ultimately higher contributions relative to the baseline
 - Due to the asset smoothing and biennial valuations, the effect on contributions would materialize gradually
 - The funded ratio would grow to about 90% in 2040 after which it will begin to very gradually decline indefinitely from the negative asset experience and due to the existing amortization bases having been paid off
 - By 2040, this suboptimal scenario would result in nearly \$2 billion of additional contributions through 2043 at which point the System would be less than 90% funded
- Consistent returns 1% above the assumed rate of 6.75%
 - Would accelerate funding progress
 - By 2040, after the bulk of the current amortization bases have been paid off, any minor layers that remain will have been more than offset by the asset gains and there will be no further payments toward unfunded liability
 - In this scenario, the funded ratio would grow indefinitely

Scenario 5 – Demographic Risk Scenario

In order to demonstrate the impact of demographic assumptions on future funding, we have used the conservative demographic assumption set to project future funded ratios and contributions (both employer normal cost and UAAL payments). Additionally, it is assumed for this projection that the active member population will decrease by 5% from its current level.

Projected Funded Ratio and Unfunded Liability Contributions

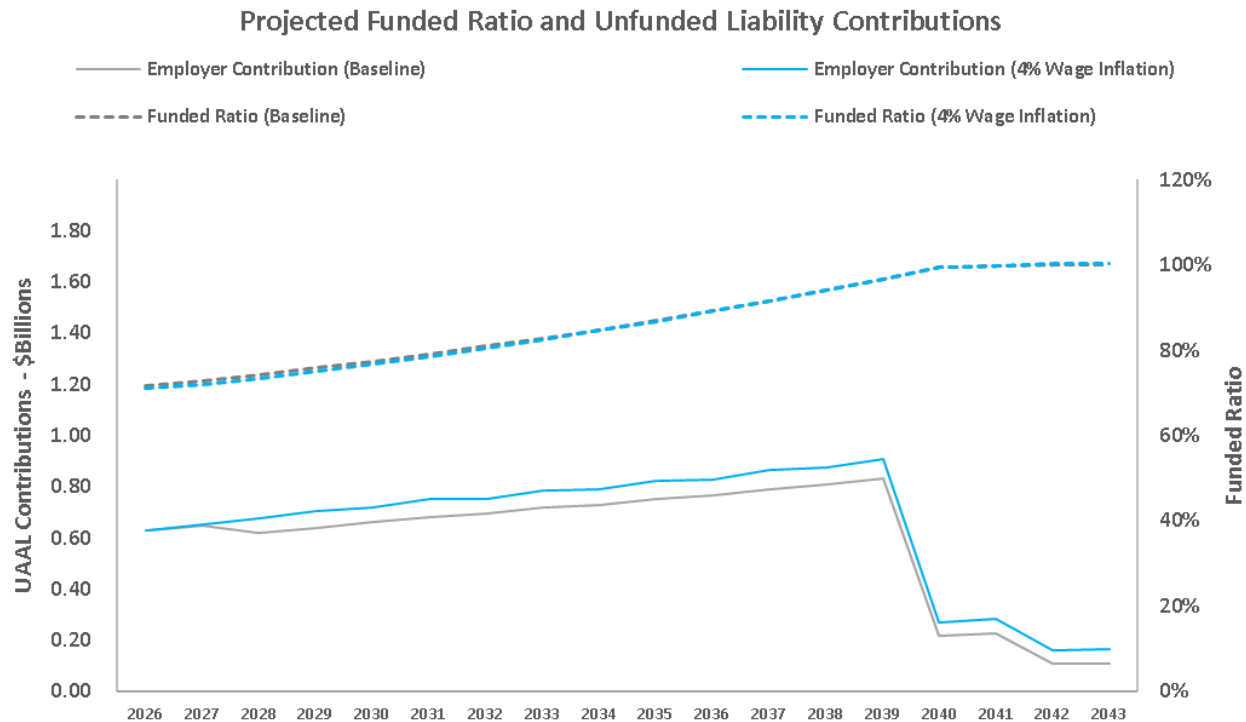


Scenario 5 – Demographic Risk Scenario

- More conservative demographic results in an initial decrease in the funded ratio of just over 1% (as shown in the sensitivity analysis).
- Contributions are developed as a percent of payroll and the extent to which overall pay growth is less than assumed may lead to lower contribution inflows than necessary to pay off unfunded liabilities.
- Lagging payroll growth resulting from declining active member population in the first few years of the projection leads to lower UAAL contributions on a dollar basis initially, which slightly dampens funding progress for 2 years, before future employer contributions are increased to correct for the increased normal cost and liabilities.

Scenario 6 – Wage Inflation Risk

To demonstrate the impact of higher-than-expected salary increases, we examine a scenario with wage inflation 1% above current assumption (4% vs. 3%). Higher pay increases than expected are typical in inflationary environments when the cost of living becomes more expensive.



Scenario 6 – Wage Inflation Risk

- Recent actuarial liability losses have been driven partially by larger-than-expected payroll increases. Benefits are based on a percentage of final average pays, and thus increases in salaries have a direct effect on liabilities.
- Contributions are also based on payroll, meaning the liability impacts from payroll increases are somewhat offset by larger contributions on a dollar-basis.
- The increased liabilities from the higher wage inflation assumption results in a slight decrease to the funded ratio.
- Normal cost contributions as a percent of payroll will not increase significantly, however contributions for UAAL amortization will increase, causing employer contributions on a dollar-basis that are higher relative to the baseline scenario due to the larger payroll base.

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