



# TEACHERS' RETIREMENT SYSTEM OF LOUISIANA SOLVENCY ANALYSIS

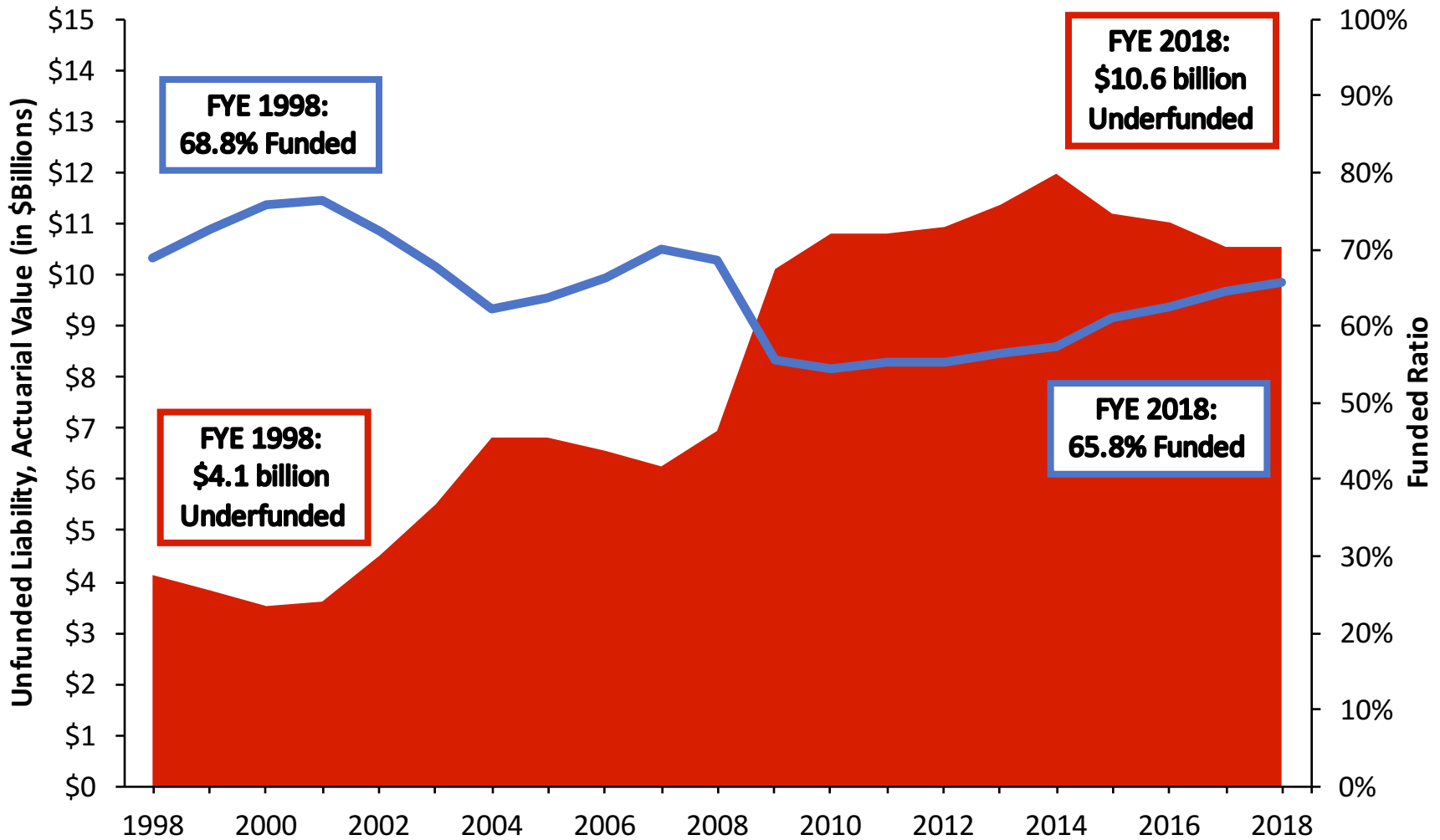
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Prepared by:

**Pension Integrity Project at Reason Foundation**

**PRELIMINARY DRAFT — June 18, 2019**

# A History of Weakening Solvency (1998-2018)



Source: Pension Integrity Project analysis of TRSL actuarial valuation reports and CAFRs.

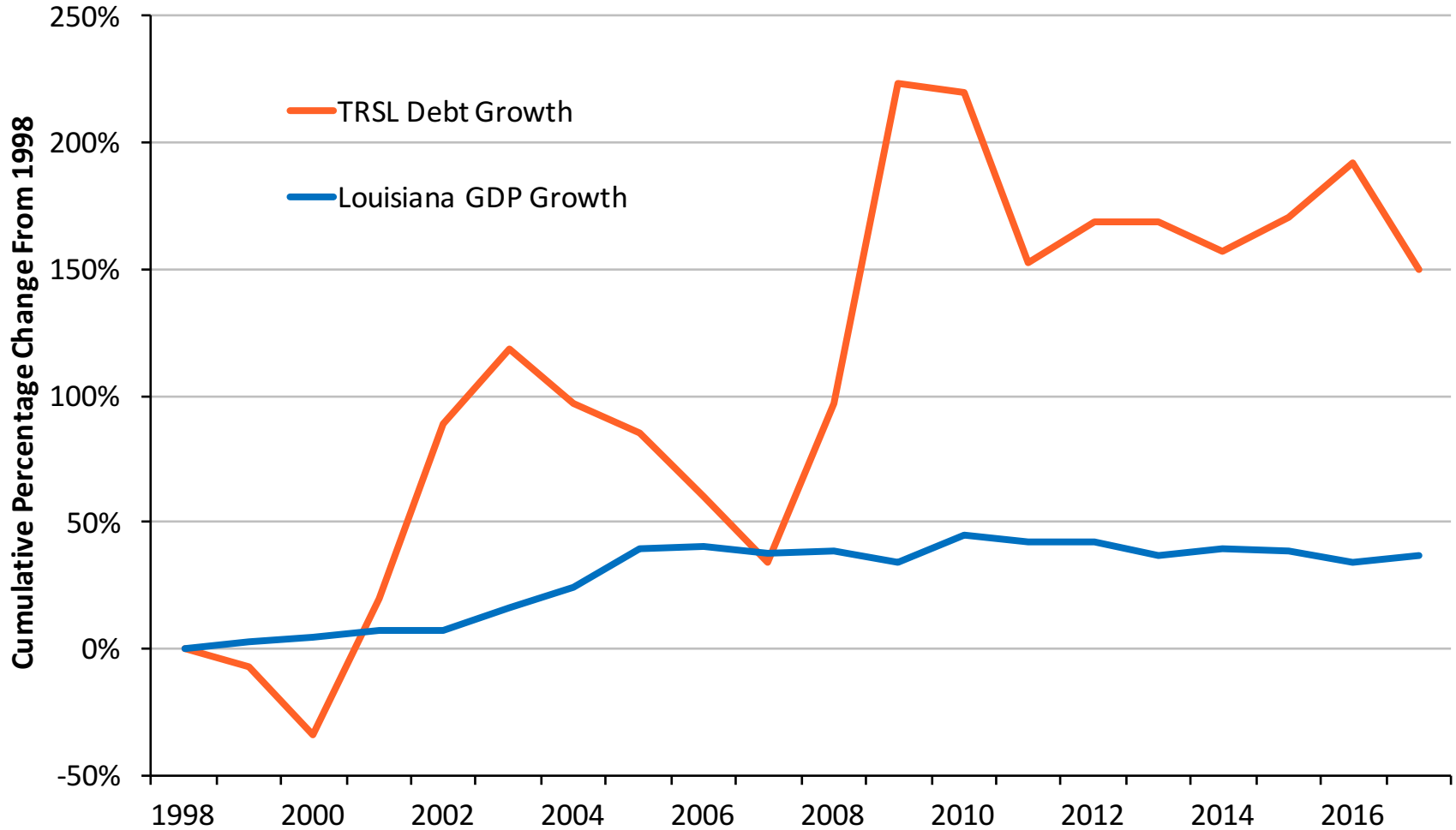
# Degrading Solvency: Growing Debt and Declining Funded Status



	1998	2008	2018
<b>Market Value of Assets</b>	\$10.4 billion	\$15.0 billion	\$21.0 billion
<b>Actuarially Accrued Liability</b>	\$13.2 billion	\$22.1 billion	\$30.9 billion
<b><i>Unfunded Liability</i></b>	\$2.7 billion	\$7.1 billion	\$9.8 billion
<b><i>Funded Ratio</i></b>	79.2%	67.9%	68.2%

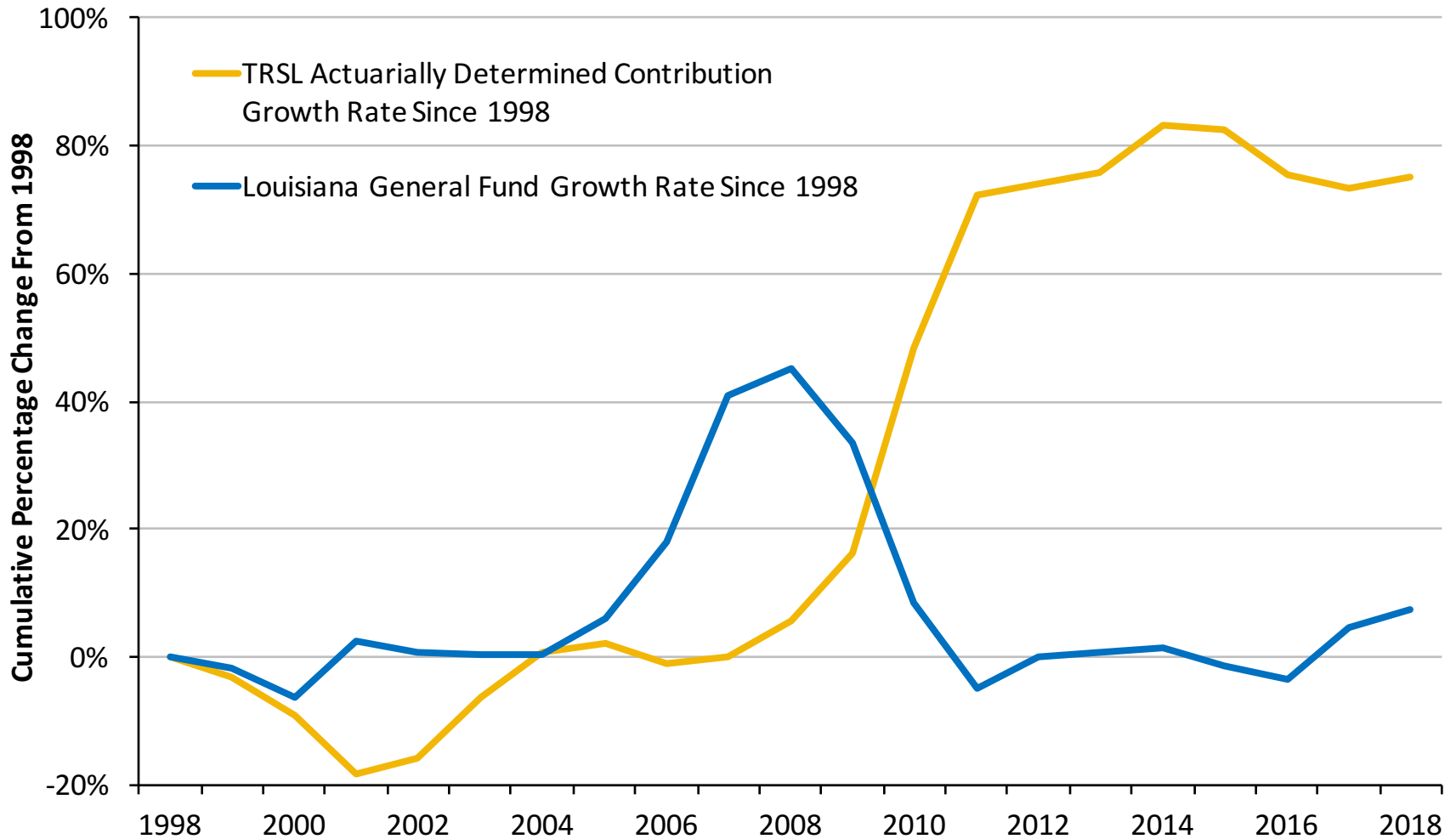
Source: Pension Integrity Project analysis of TRSL actuarial valuation reports and projections using actuarial models. All 2018 values are based on GASB reports and show total pension liability, fiduciary net position, and net pension liability. Figures are rounded.

# TRSL Unfunded Liabilities are Growing Faster than the Louisiana Economy



Source: Pension Integrity Project analysis of TRSL actuarial valuation reports, CAFRs, and data from the Bureau of Labor Statistics and Federal Reserve of St. Louis.

# TRSL Contributions are Growing While the State Budget is Trending Down



Source: Pension Integrity Project analysis of TRSL actuarial valuation reports, and data from the Bureau of Labor Statistics and NASBO (Fiscal Survey of the States).

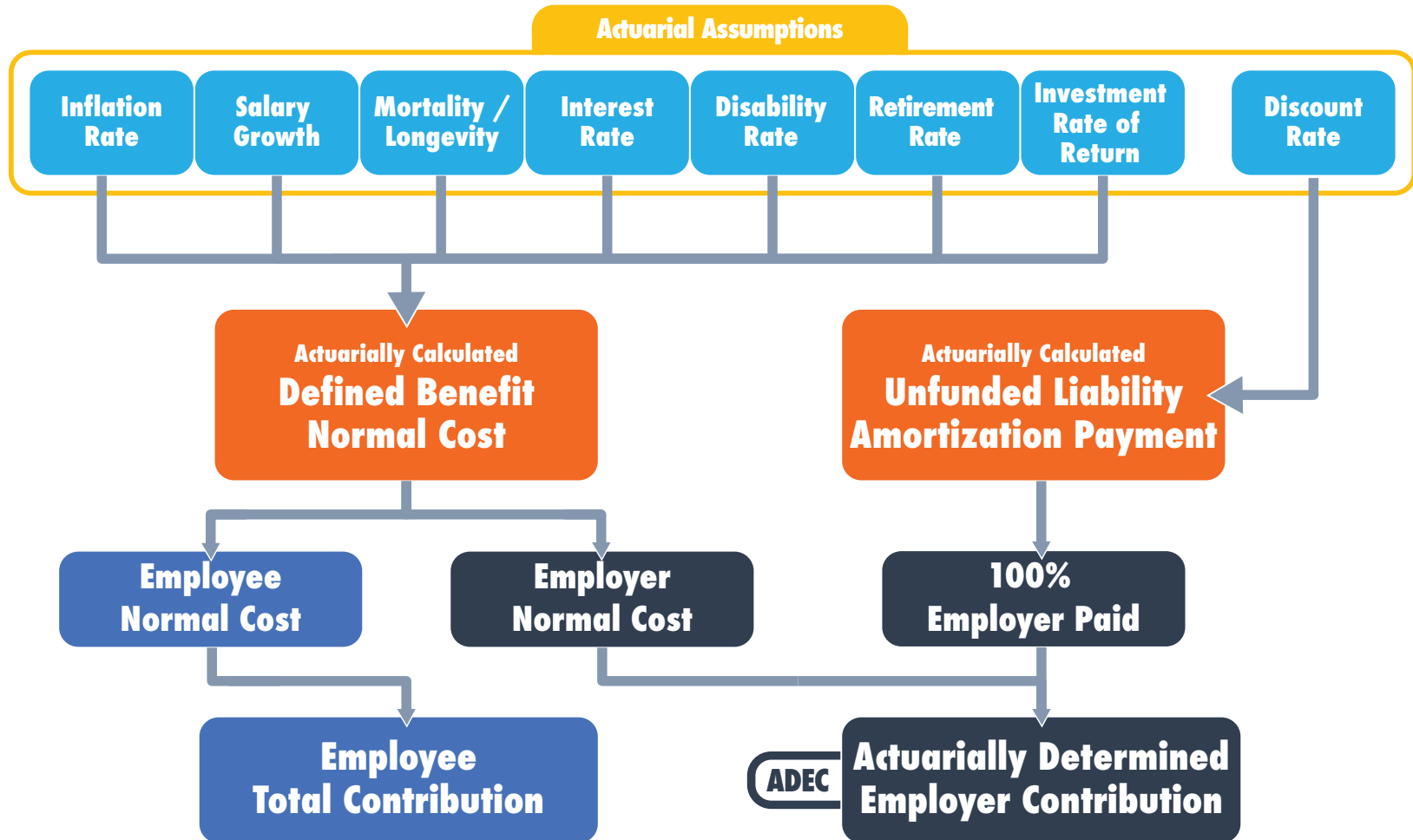


# PROBLEMS CURRENTLY FACING TRSL

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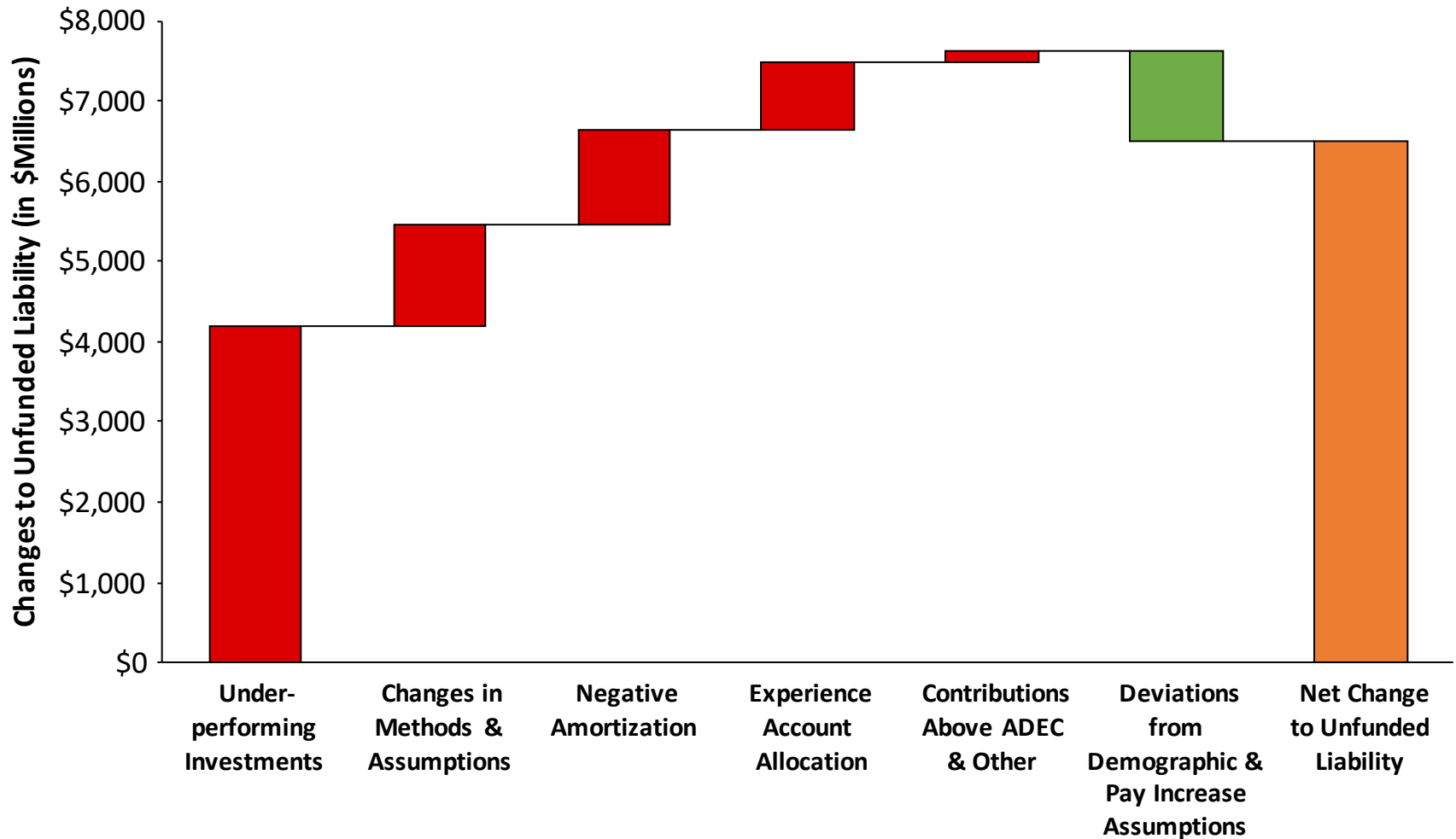
# How a Pension Plan is Funded





# The Causes of the Pension Debt

## Actuarial Experience of TRSL, 2000-2018



Source: Pension Integrity Project analysis of TRSL valuation reports and CAFRs. Data represents cumulative unfunded liability by gain/loss category. Negative Amortization reflects contributions below accrued debt interest. Experience Account Allocations fund ad hoc permanent benefit increases.





# Driving Factors of TRSL Problems

1. **Underperforming Investment Returns** have been the largest contributor to the unfunded liability growth, adding \$4.2 billion to the unfunded liability since 2000.
2. **Changes to Actuarial Methods and Assumptions** have added roughly \$1.2 billion to the unfunded liability since 2000.
3. **Amortization Methods** have resulted in accrued interest exceeding amortization payments (aka negative amortization) and a net \$1.2 billion increase in the unfunded liability since 2000.
4. **Experience Account Allocations**, which redirect 50% of positive investment returns to fund ad hoc Permanent Benefit Increases, have added roughly \$833 million to the unfunded liability since 2000.
  - *Redirected funds fail to earn expected investment returns or reduce the pension debt*
5. **Undervaluing Debt** through discounting methods has led to an under calculation of required contributions.



# PROBLEM I: ASSUMED RATE OF RETURN

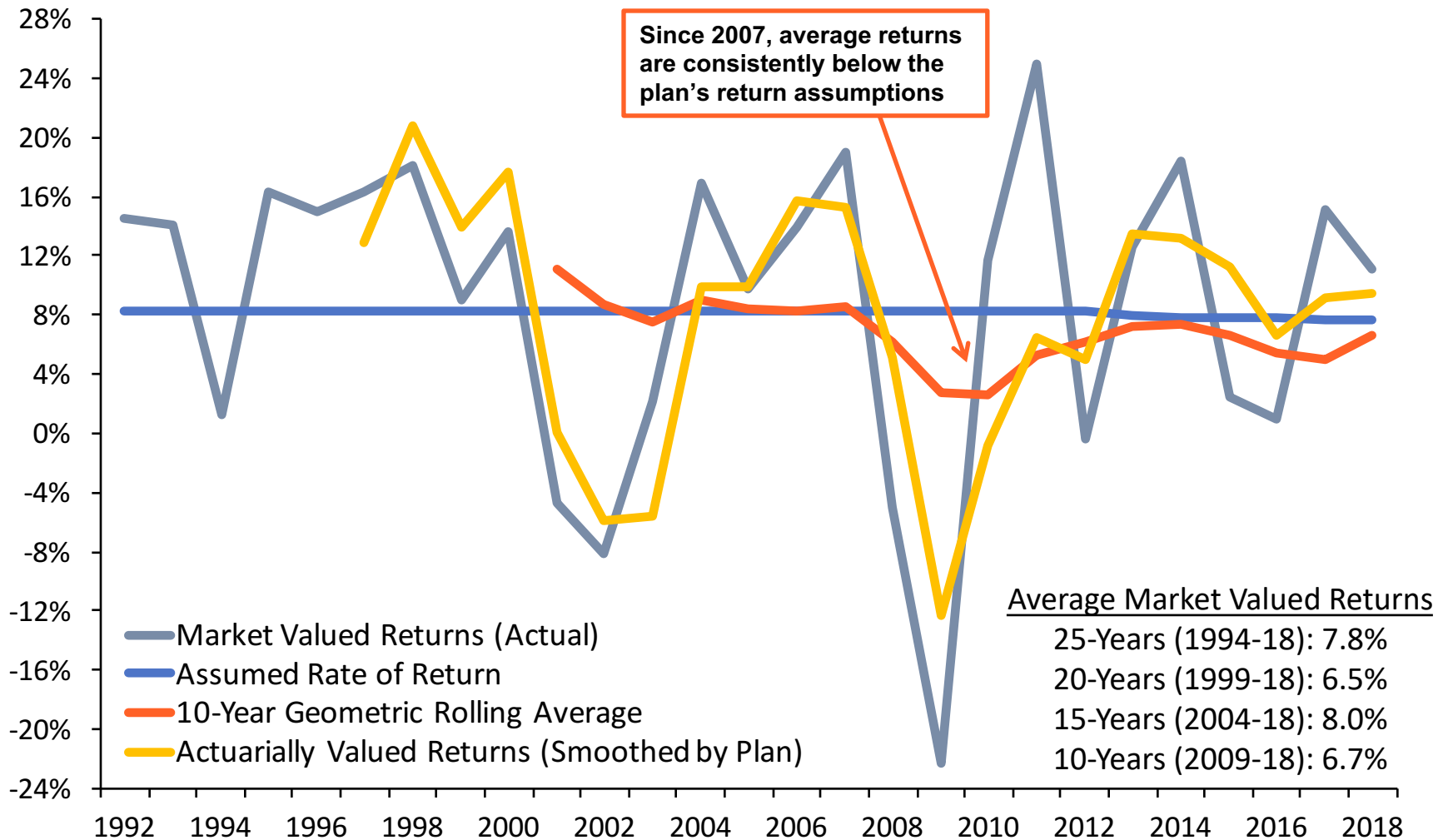
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- **Unrealistic Expectations:** The *Assumed Return* (ARR) for the TRSL pension plan is exposing taxpayers to significant investment underperformance risk
- **Underpricing Contributions:** The use of an unrealistic *Assumed Return* has likely resulted in underpriced *Normal Cost* and an undercalculated *Actuarially Determined Contribution*



# TRSL Problem: Underperforming Assets

## Investment Return History, 1992-2018



Source: Pension Integrity Project analysis of TRSL actuarial valuation reports and CAFRs. Returns are shown for the plan's total assets. For illustrative purposes, rate of return assumptions prior to FYE1996 are kept at 8.25%.

## TRSL Problem: Underperforming Assets

# Investment Returns Have Underperformed



- TRSL's assumed rate of return has decreased from 8.25% to 7.65% over the past two decades.
- TRSL has expanded risky holdings in a search for greater investment returns (i.e. greater yields)
- However, the investment portfolio's experience has not matched the long-term assumptions:

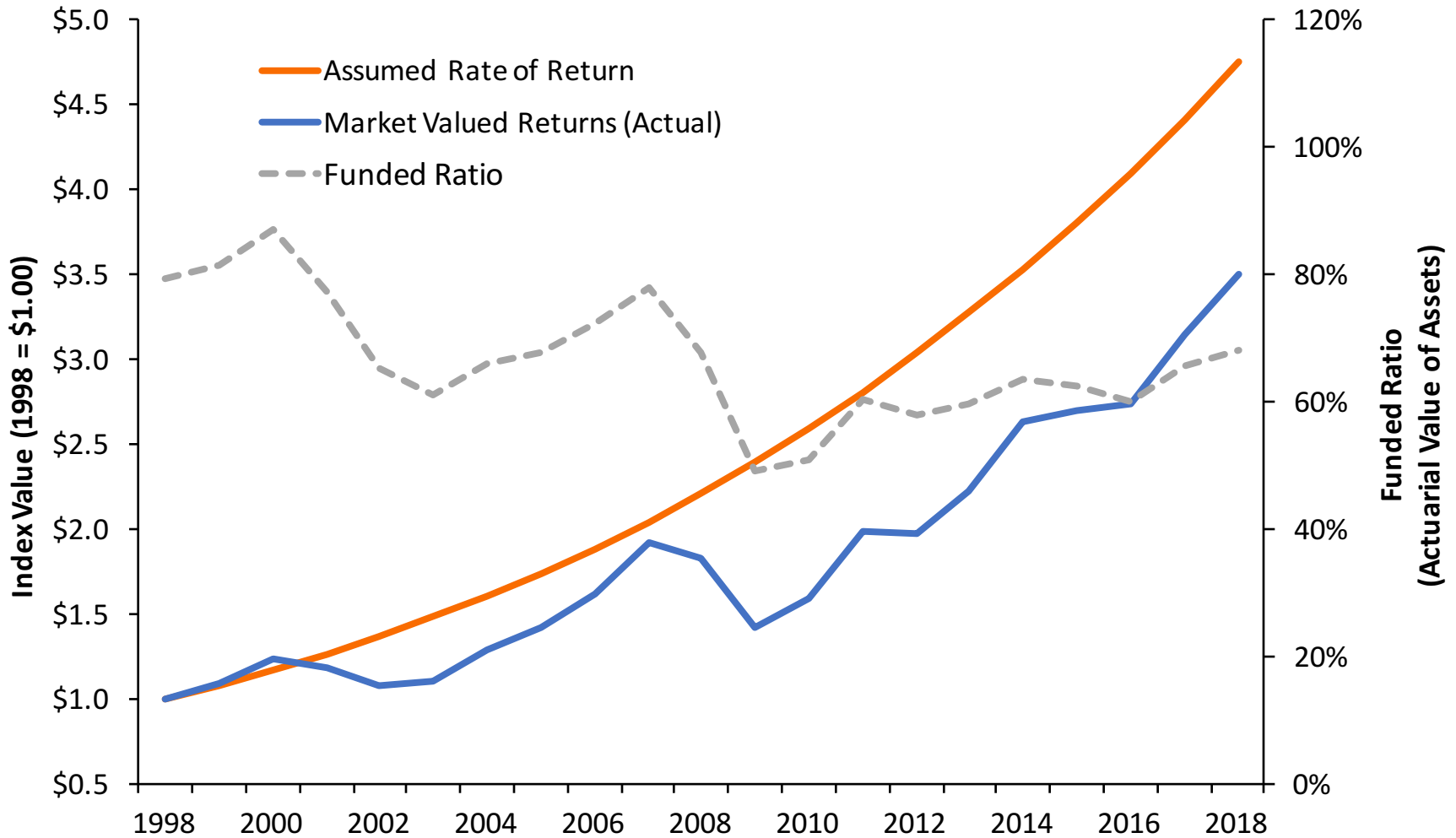
Average Market Valued Returns	Average Actuarially Valued Returns
<b>25-Years (1994-2018): 7.77%</b>	<b>25-Years (1994-2018): 8.33%</b>
<b>20-Years (1999-2018): 6.46%</b>	<b>20-Years (1999-2018): 7.07%</b>
<b>15-Years (2004-2018): 7.97%</b>	<b>15-Years (2004-2018): 8.63%</b>
<b>10-Years (2009-2018): 6.69%</b>	<b>10-Years (2009-2018): 7.49%</b>

Note: past performance is not the best measure of future performance, but it does help provide some context to the problem created by having an excessively high assumed rate of return.



# TRSL Problem: Underperforming Assets

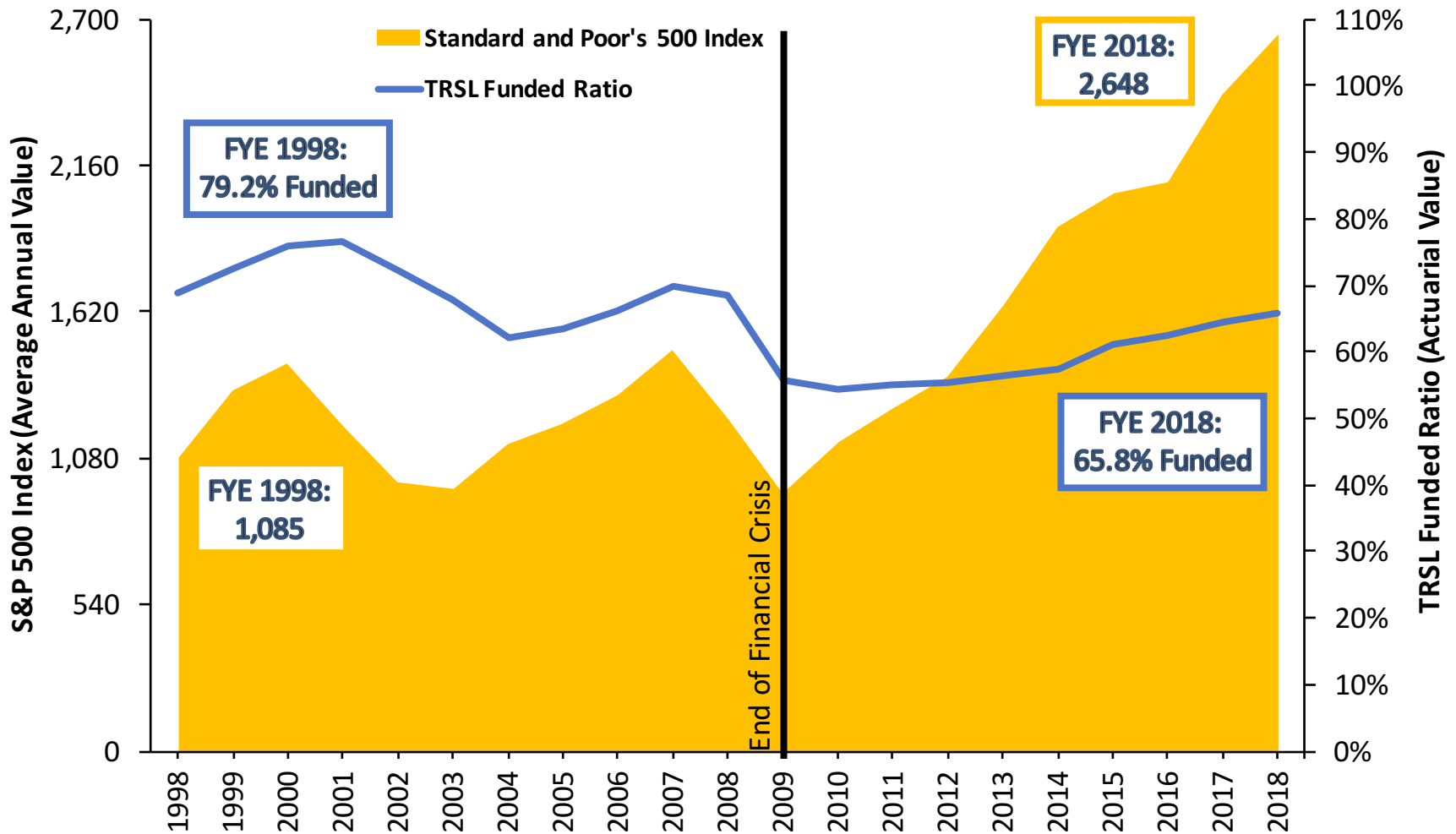
## Tracking 20-Year Compound Return Values



Source: Pension Integrity Project analysis of Louisiana TRSL actuarial reports, CAFRs, and the investment advisory report “An Examination of State Pension Performance 2000-2018” (2019) released by Cliffwater LLC.



# New Normal: Markets Have Recovered Since the Crisis—TRSL Funded Ratio Has Not



Source: Pension Integrity Project analysis of TRSL actuarial valuation reports and Yahoo Finance data.

# New Normal: The So-Called Recovery Has Already Happened, the Market Has Changed



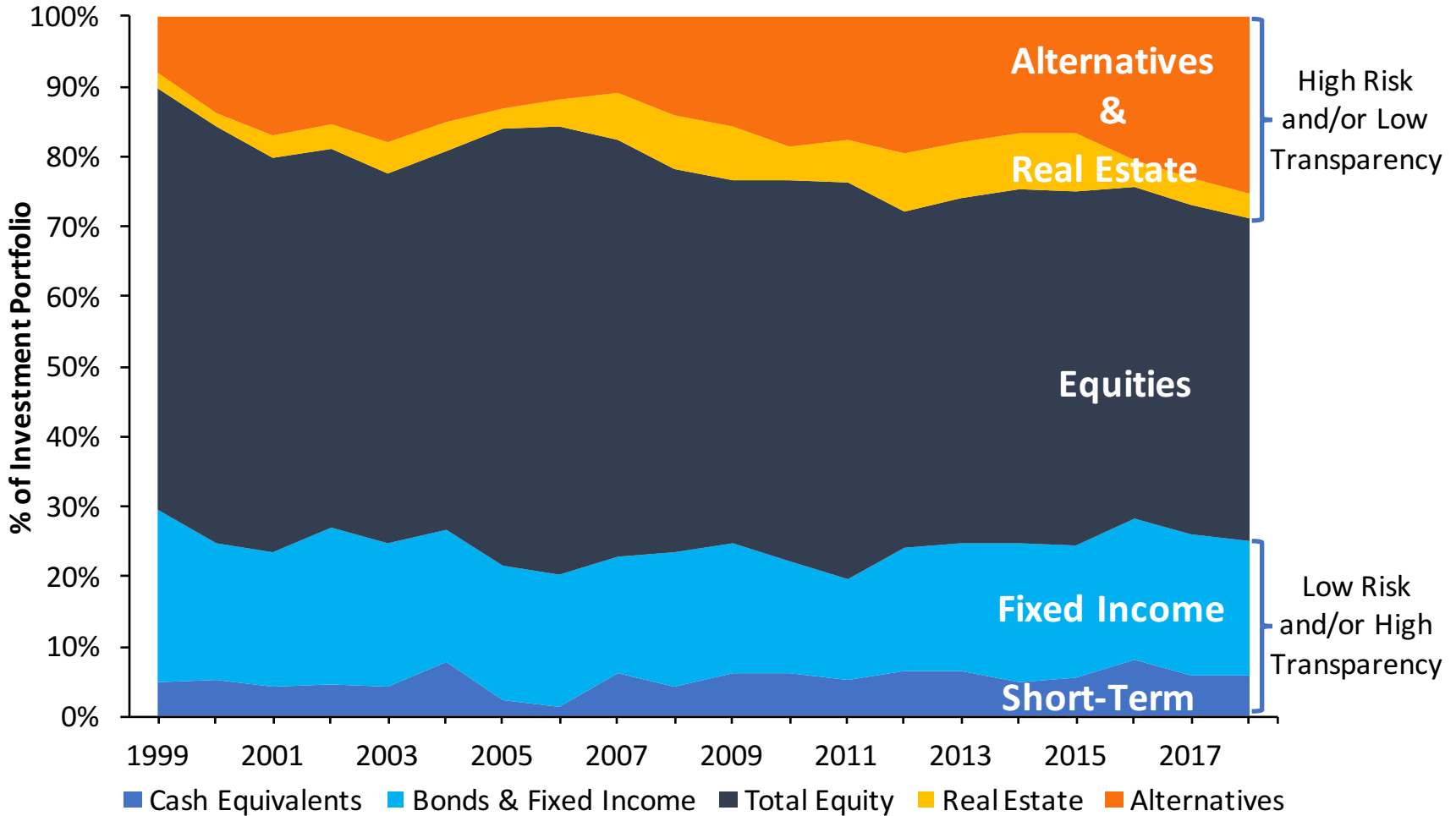
The “new normal” for institutional investing suggests that achieving even a 6% average rate of return is optimistic.

1. Over the past two decades there has been a steady change in the nature of institutional investment returns.
  - 30-year Treasury yields have fallen from around 8% in the 1990s to consistently less or around 3% today.
  - Globally, interest rates are at ultralow historic levels, while market liquidity continues to be restrained by financial regulations.
2. McKinsey & Co. forecast the returns to equities will be 20% to 50% lower over the next two decades compared to the previous three decades.
  - Using their forecast model, the best case scenario for a 60/40 portfolio of equities and bonds is likely to earn less than a 5% return.
3. As TRSL awaits for the “recovery” its unfunded liabilities continue to grow.



# TRSL Asset Allocation (1999-2018)

## Expanding Risk in Search for Yield



Source: Pension Integrity Project analysis of TRSL actuarial valuation reports and CAFRS.  
 Cash Equivalents show domestic and international short-term investments, with maturity of one year or less.





# New Normal: Forecasts for Future Returns are Significantly Lower than Past Returns

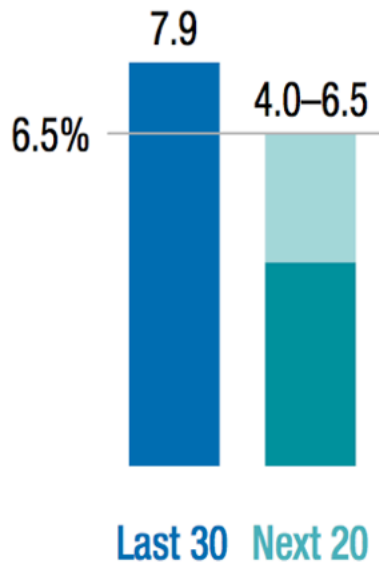
The past 30 years saw returns that exceeded the long-run average

The next 20 years could be more challenging

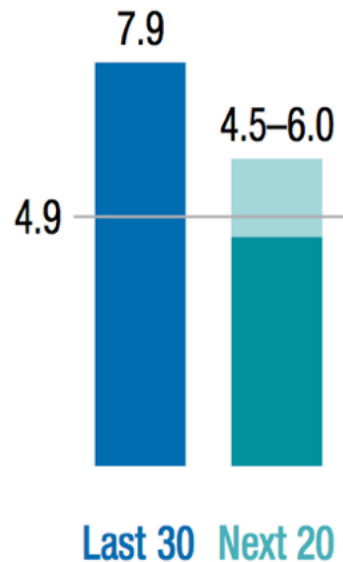
- Historical real returns
- Last 100 years average return

- Growth-recovery scenario
- Slow-growth scenario

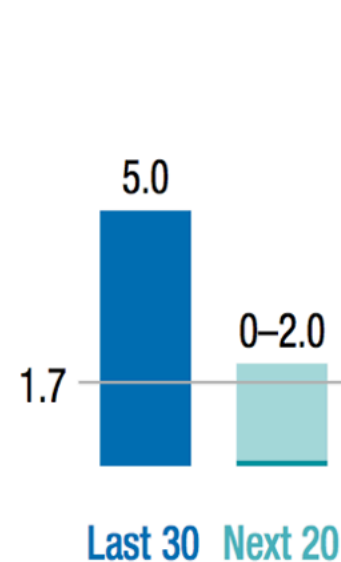
**US equities**



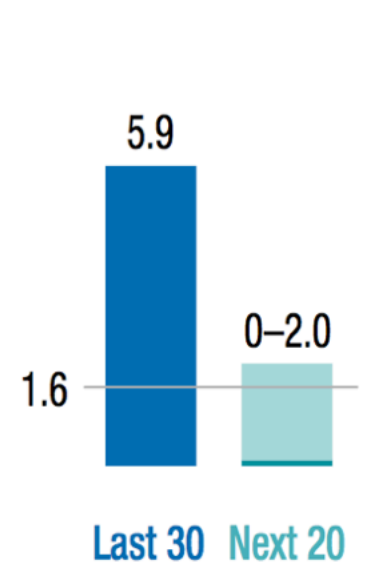
**European equities**



**US bonds**

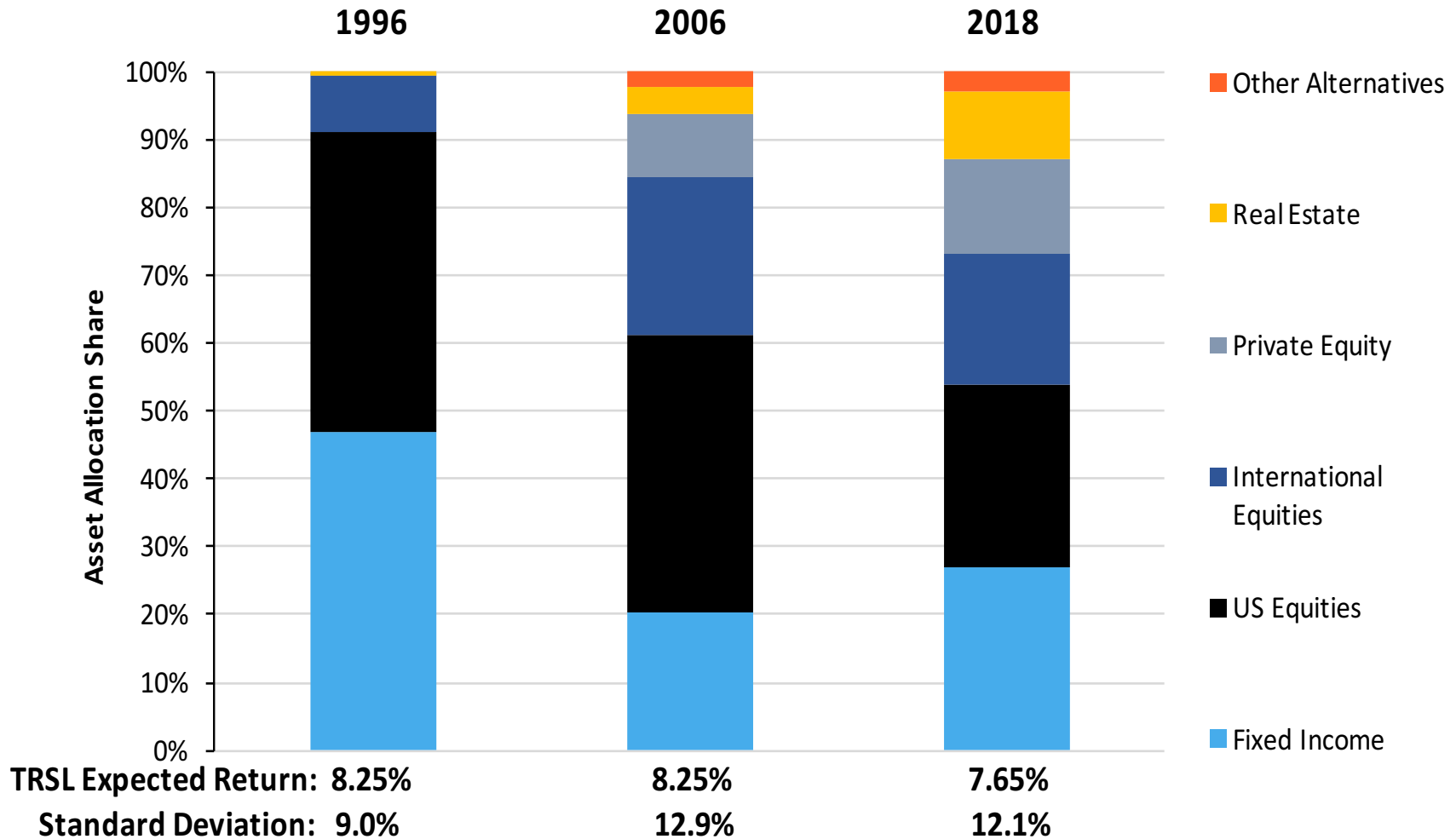


**European bonds**



# New Normal: Market Trend Towards Risk

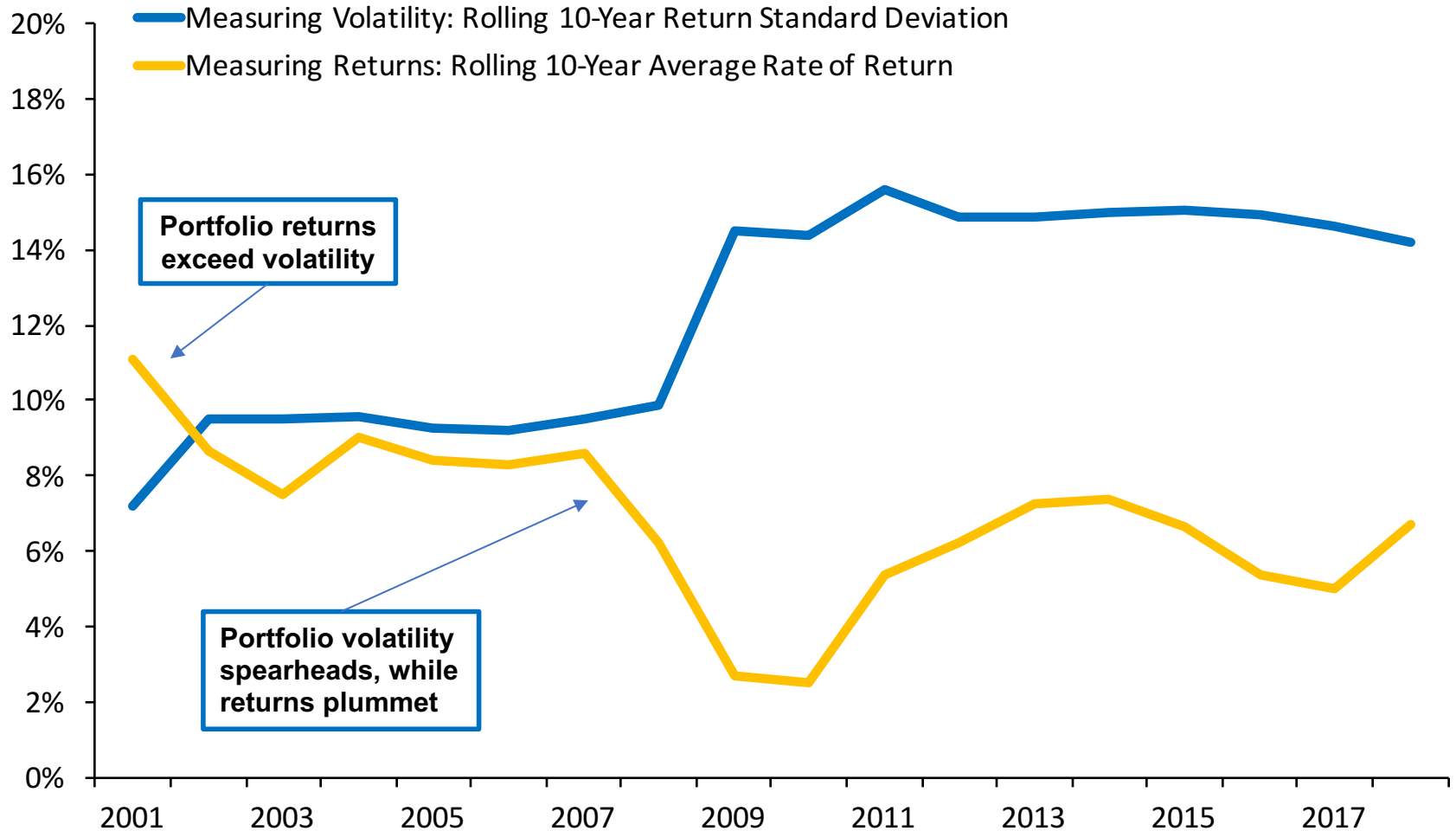
TRSL Has Changed its Asset Allocation Towards More Risky Investments Resulting in Higher Annual Standard Deviation of Returns



Source: Pension Integrity Project Monte Carlo model based on TRSL asset allocation and reported expected of returns by asset class. Asset class returns are based on estimates as of 2018.

# New Normal: Volatile TRSL Investment Returns

## Experiencing Greater Volatility and Underperformance



Source: Pension Integrity Project analysis of TRSL actuarial valuation reports and CAFRs. Average returns and volatility measured are geometric.

# Probability Analysis: Measuring the Likelihood of TRSL Achieving Various Rates of Return



Possible Rates of Return	Probability of TRSL Achieving A Given Return Based On:							
	TRSL Forecast		Short-Term Market Forecast				Long-Term Market Forecast	
	TRSL Forecast	TRSL Historical Returns	BNY Mellon 10-Year Forecast	JP Morgan 10-15 Year Forecast	Research Affiliates 10-Year Forecast	Horizon 10-Year Market Forecast	BlackRock 20-Year Forecast	Horizon 20-Year Market Forecast
9.0%	38.0%	16.1%	15.4%	16.8%	11.2%	21.0%	33.9%	35.1%
8.0%	52.6%	27.6%	27.1%	28.1%	19.4%	32.3%	47.1%	49.1%
7.65%	57.8%	32.4%	32.2%	32.8%	23.5%	37.1%	51.5%	54.2%
7.0%	66.9%	41.6%	41.6%	42.5%	31.2%	46.2%	60.0%	63.1%
6.5%	73.2%	49.1%	49.5%	50.3%	37.6%	53.3%	66.7%	69.3%
6.0%	78.9%	57.4%	57.6%	58.2%	44.8%	60.3%	72.9%	75.4%
5.0%	87.9%	72.0%	72.7%	72.0%	59.4%	73.3%	82.4%	85.9%

Source: Pension Integrity Project Monte Carlo model based on TRSL asset allocation and reported expected returns by asset class.

Forecasts of returns by asset class generally by BNYM, JPMC, BlackRock, Research Affiliates, and Horizon Actuarial Services were matched to the specific asset class of TRSL. Probability estimates are approximate as they are based on the aggregated return by asset class. For complete methodology contact Reason Foundation.

# Probability Analysis: Measuring the Likelihood of TRSL Achieving Various Rates of Return



## TRSL Forecast

- A probability analysis of TRSL historical returns over the past 20 years (1999-2018) indicates only a modest chance (32%) of hitting the plan's 7.65% assumed return.
- TRSL actuaries calculate a 58% chance of achieving their investment return target each year.

## Short-Term Market Forecast

- Returns over the short to medium term can have significant negative effects on funding outcomes for mature pension plans with large negative cash flows like TRSL.
- Analysis of capital market assumptions publicly reported by the leading financial firms (BlackRock, BNY Mellon, JPMorgan, and Research Affiliates) suggests that over a 10-15 year period, TRSL returns are likely to fall short of assumptions.

## Long-Term Market Forecast

- Longer-term projections typically assume TRSL investment returns will revert back to historical averages.
  - ✓ The “reversion to mean” assumption should be viewed with caution given historical changes in interest rates and a variety of other market conditions that increase uncertainty over longer projection periods, relative to shorter ones.
- Forecasts showing long-term returns near 7.65% being likely also show a significant chance that the actual long-term average return will fall far shorter than expected.
  - ✓ For example, according to the BlackRock's 20-year forecast the probability of achieving an average return of 7.65% or higher is about 52%, the probability of earning a rate of return below 5% is about 18%.



# RISK ASSESSMENT

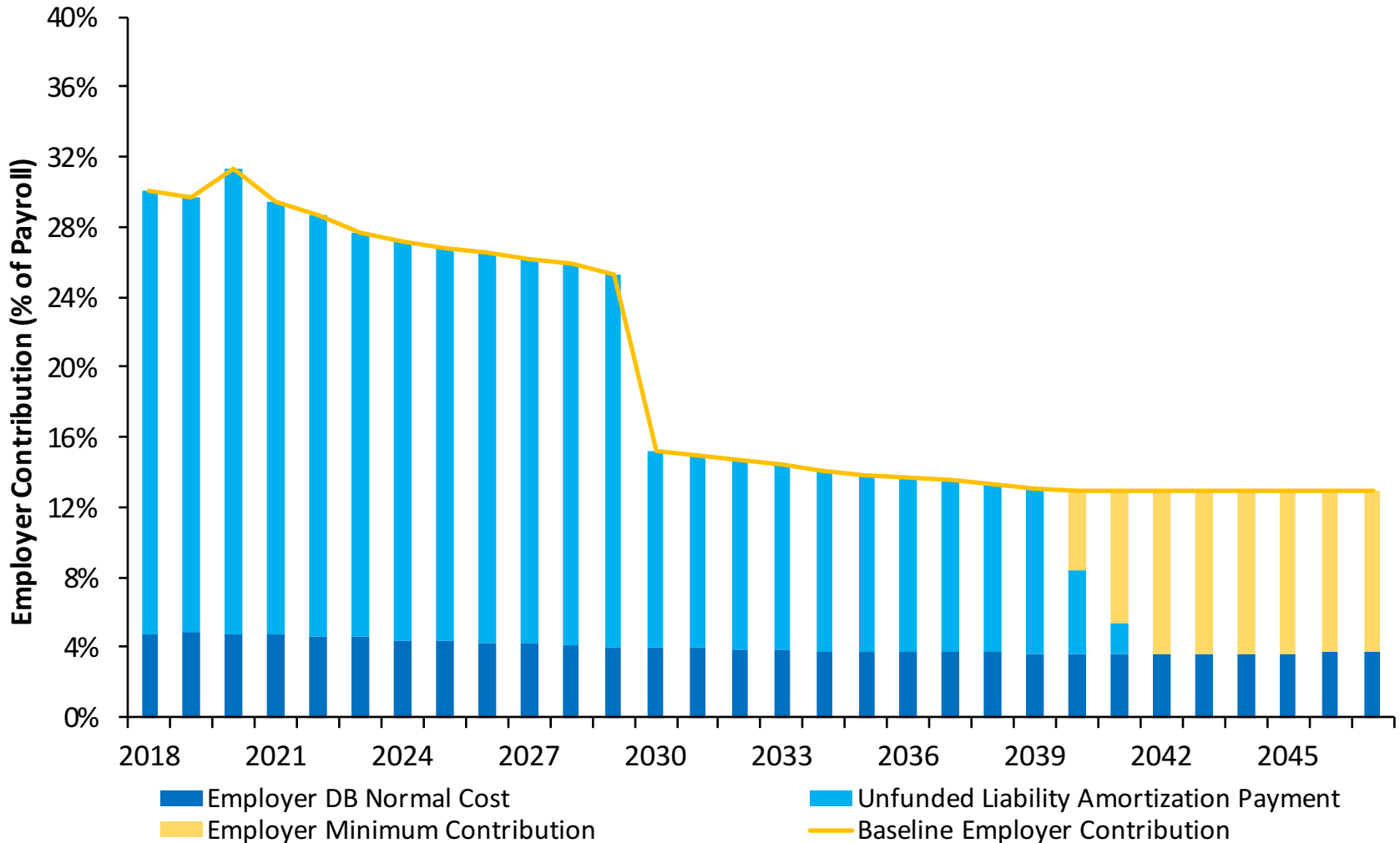
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- How resilient is TRSL to volatile market factors?

Current TRSL Baseline: Normal Cost + Amortization

# What Happens if TRSL Hits its Investment Target?

Discount Rate: 7.65%, Assumed Return: 7.65%, Actual Return: 7.65%, Amo. Period: 20-Year, Closed



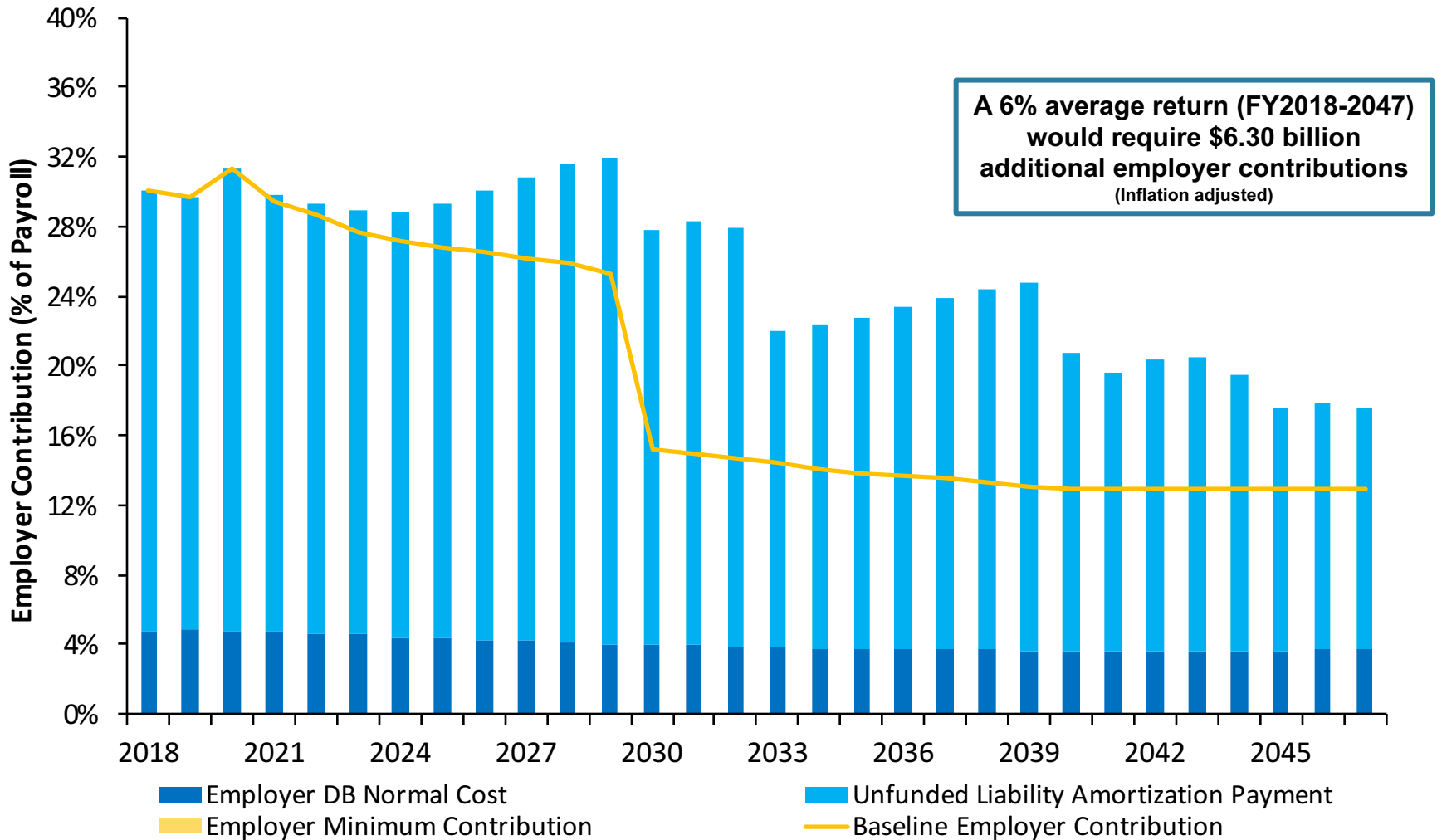
Source: Pension Integrity Project actuarial forecast of TRSL plan. Scenario assumes the plan reduces ARR to 7.65% in FY2018 according to current Board policy, continues contributing at ADC rate each year, hits all actuarial assumptions, and makes continual progress on the amortization of unfunded liability. Years are TRSL fiscal years.



## TRSL Scenario I:

# What Happens if TRSL Underperforms?

Discount Rate: 7.65%, Assumed Return: 7.65%, Actual Return: 6.00%, Amo. Period: 20-Year, Closed



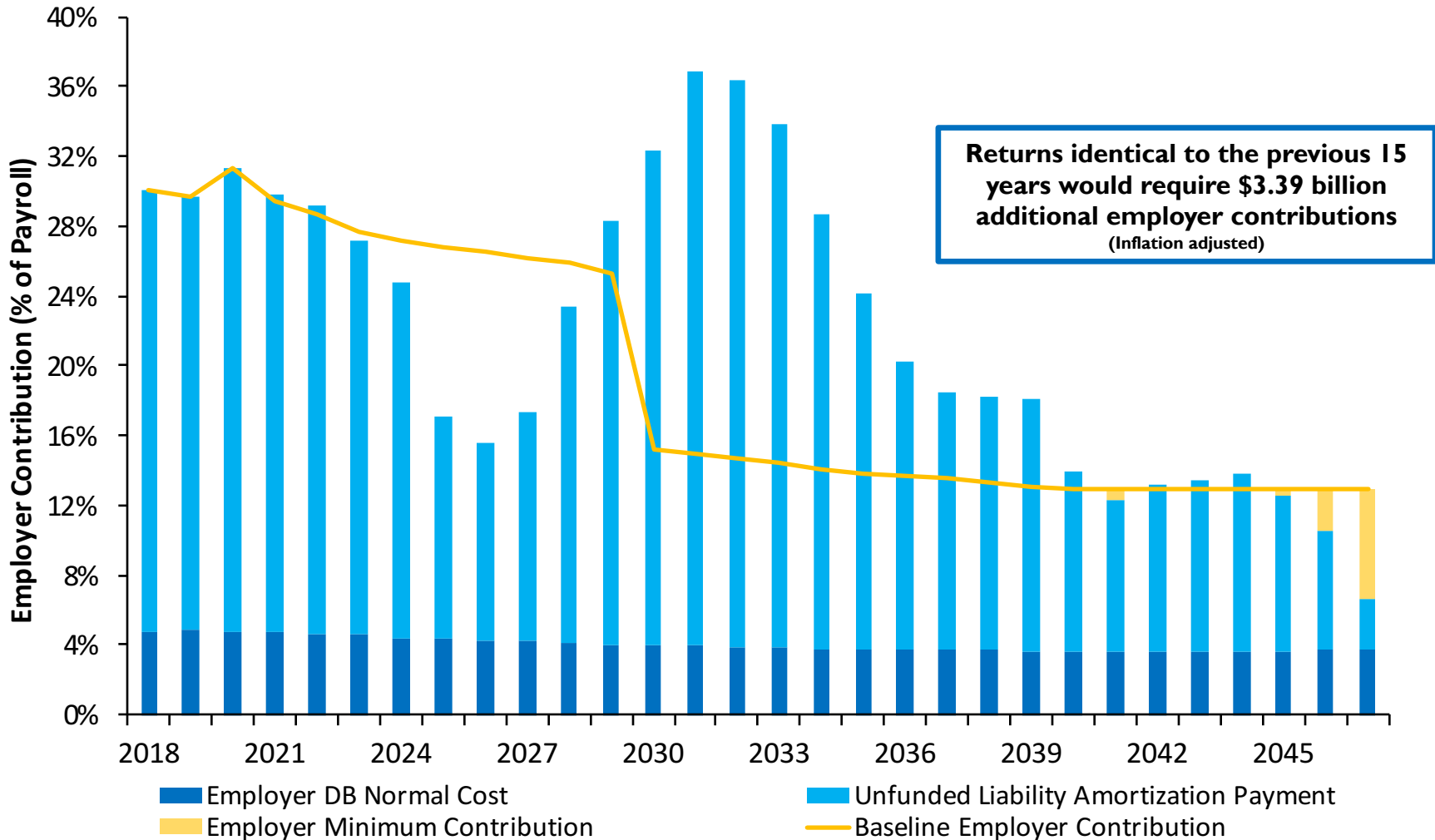
Source: Pension Integrity Project actuarial forecast of TRSL plan. Scenario assumes the plan reduces ARR to 7.65% in FY2018 according to current Board policy, continues contributing at ADC rate each year, hits all actuarial assumptions, and makes continual progress on the amortization of unfunded liability. Years are TRSL fiscal years.



TRSL Scenario 2:

# What if the Next 15 Years are the Same as the Last 15?

Discount Rate: 7.65%, Assumed Return: 7.65%, Actual Return: Same as last 15 years, 7.65% Following Years

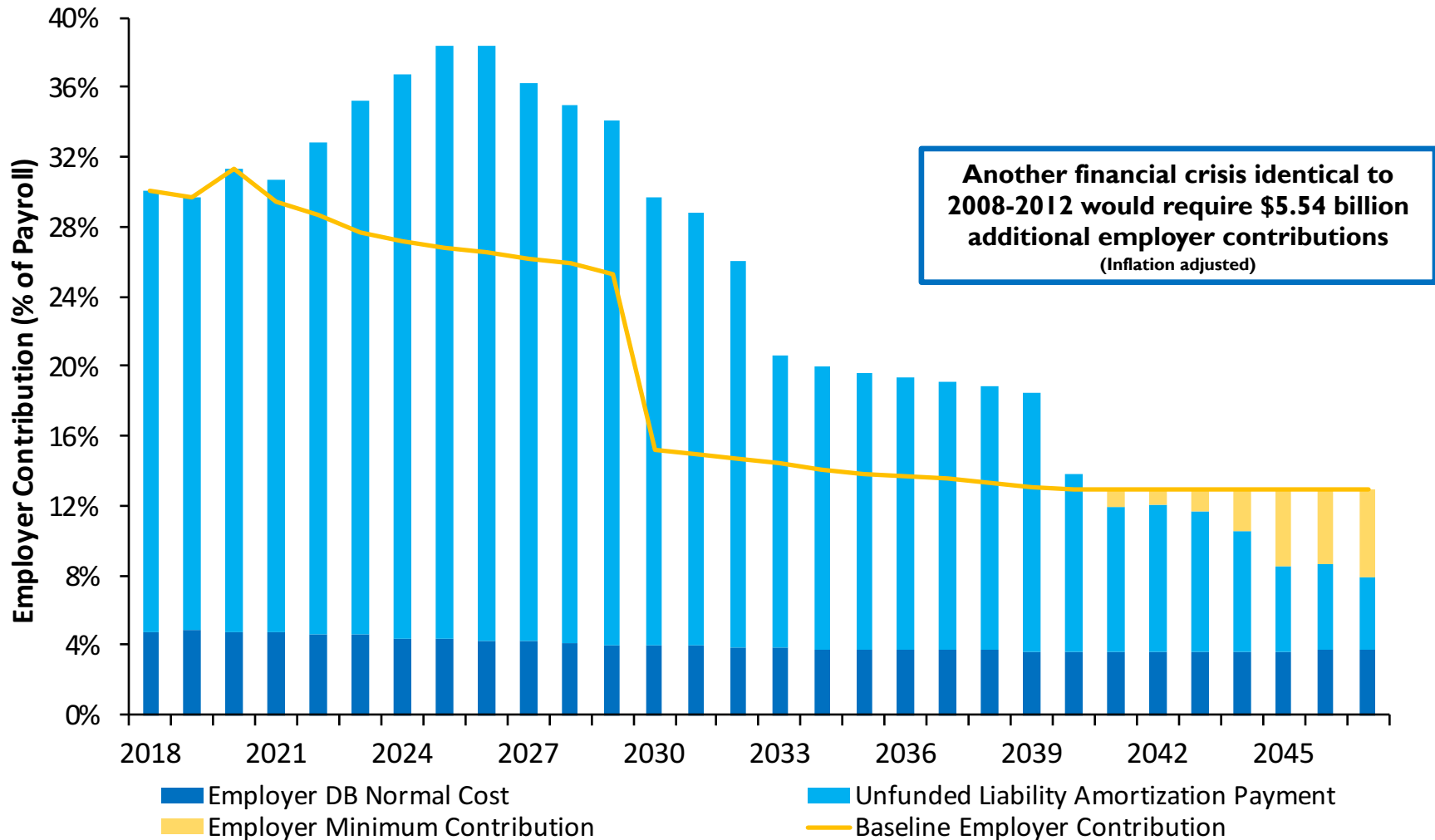


Source: Pension Integrity Project actuarial forecast of TRSL. Scenario assumes the state continues paying 100% of the actuarially determined contribution each year. Figures are rounded and adjusted for inflation.

TRSL Scenario 3:

# What Happens if TRSL Experiences Another Crisis?

Discount Rate: 7.65%, Assumed Return: 7.65%, Actual Return: Crisis Returns 2020-24, 7.65% Thereafter

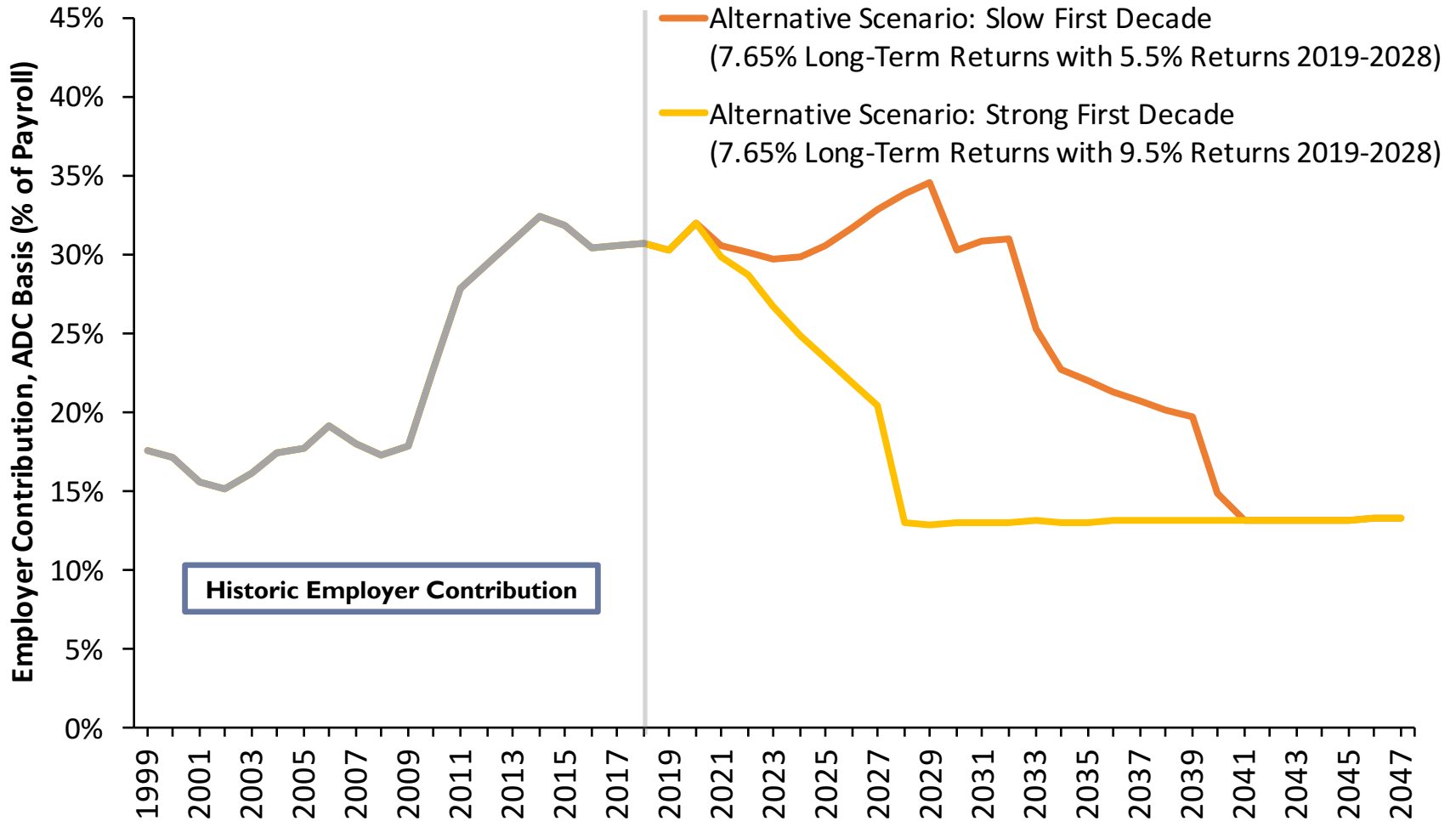


Source: Pension Integrity Project actuarial forecast of TRSL. Scenario assumes that the state continues paying 100% of the actuarially determined contribution each year. Figures are rounded and adjusted for inflation.

### 30-year Employer Contribution Forecast

# Timing of Returns Affects What Louisiana Pays

Long-Term Average Returns of 7.65%

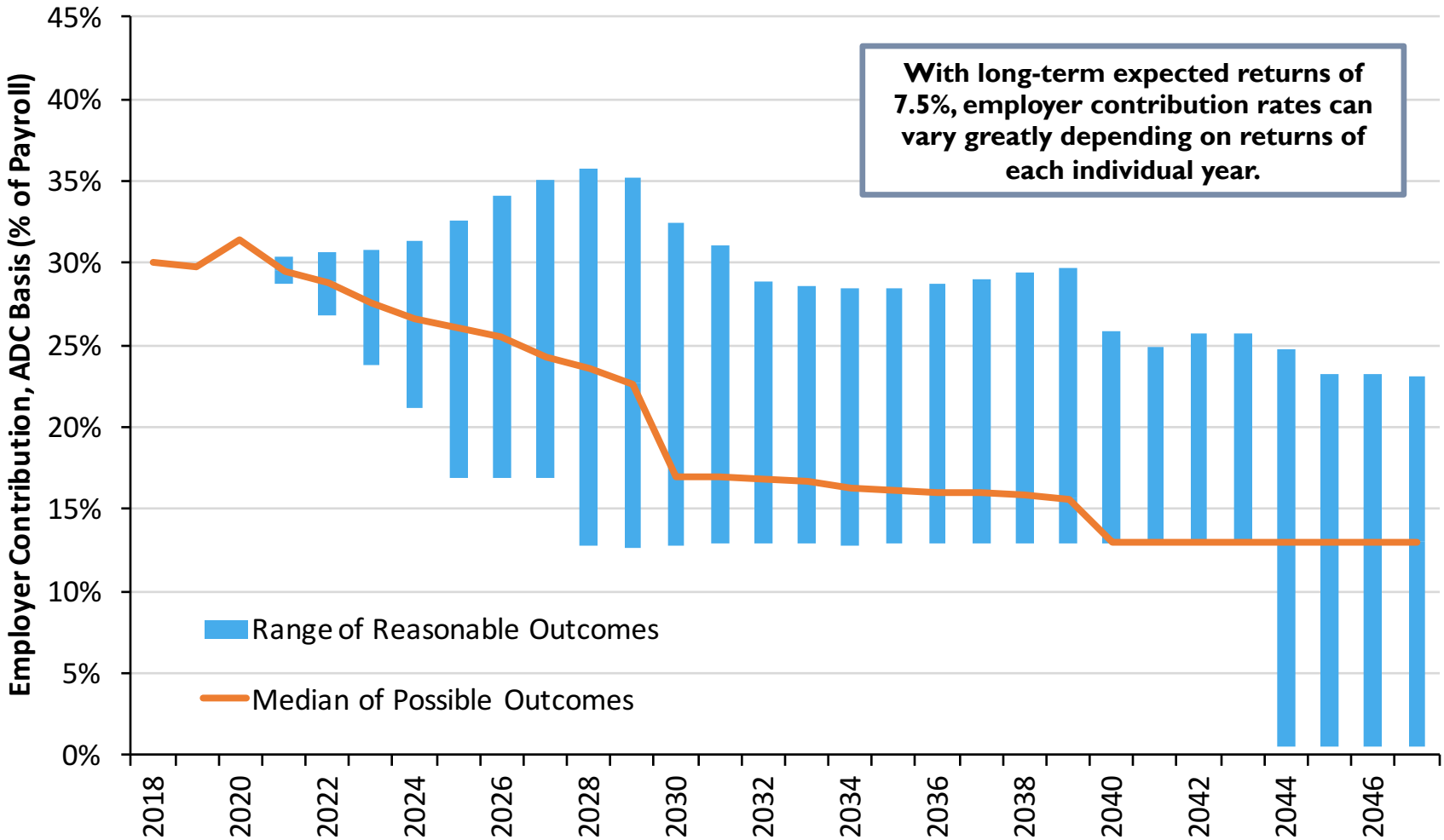


Source: Pension Integrity Project actuarial forecast of TRSL. Figures are adjusted for inflation. Scenarios assume TRSL applies contribution minimums.

### 30-year Employer Contribution Forecast

# If TRSL Performs as Expected, Rates Can Still Vary

Based on Long-term Average Expected Returns of 7.65%

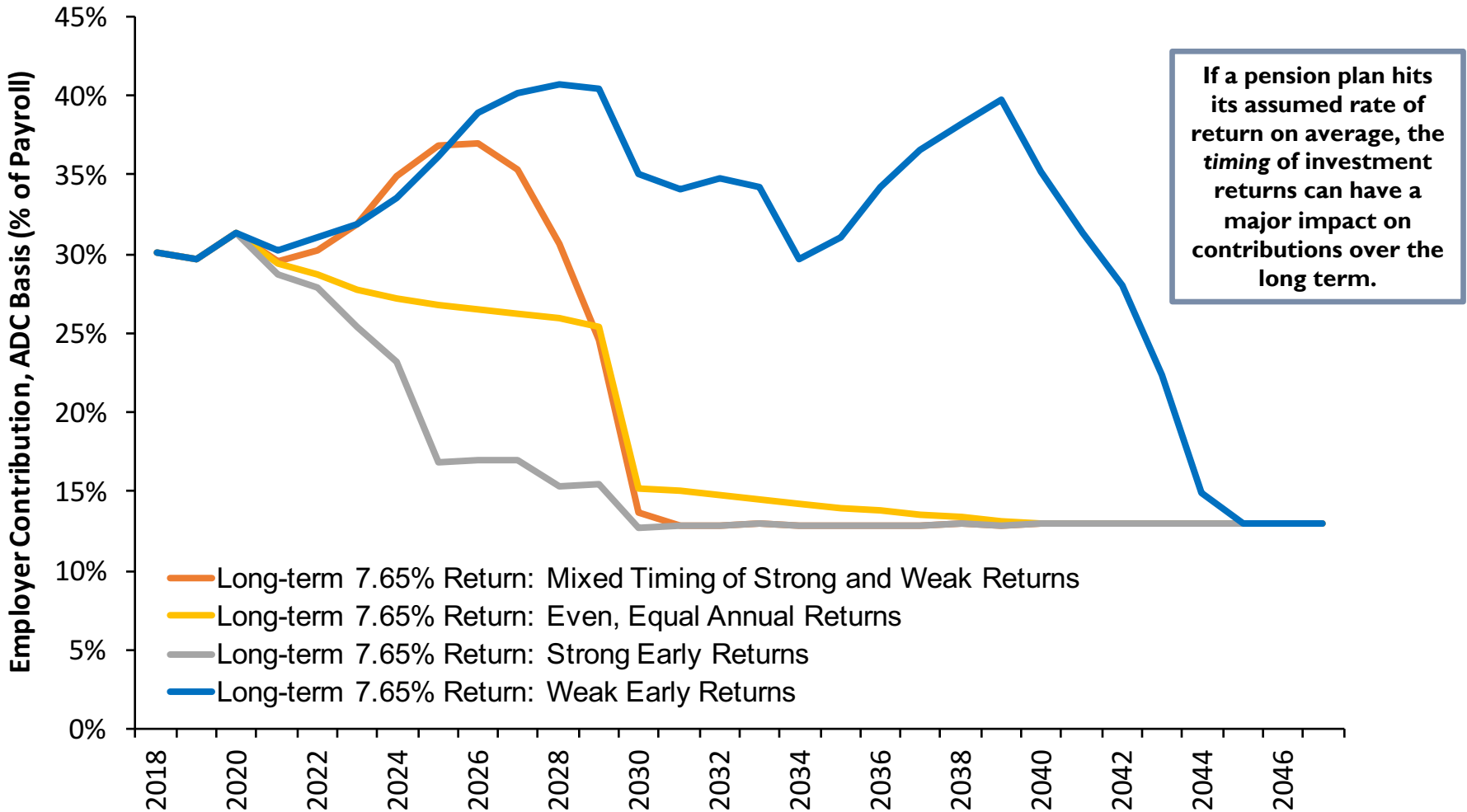


Source: Pension Integrity Project actuarial forecast of TRSL plan based on TRSL return and risk assumptions. Range of Reasonable Outcomes represents the 50% of possible outcomes closest to the median.

### 30-year Employer contribution Forecast

# All Paths to a 7.65% Average Return Are Not Equal

Long-Term Average Returns of 7.65%

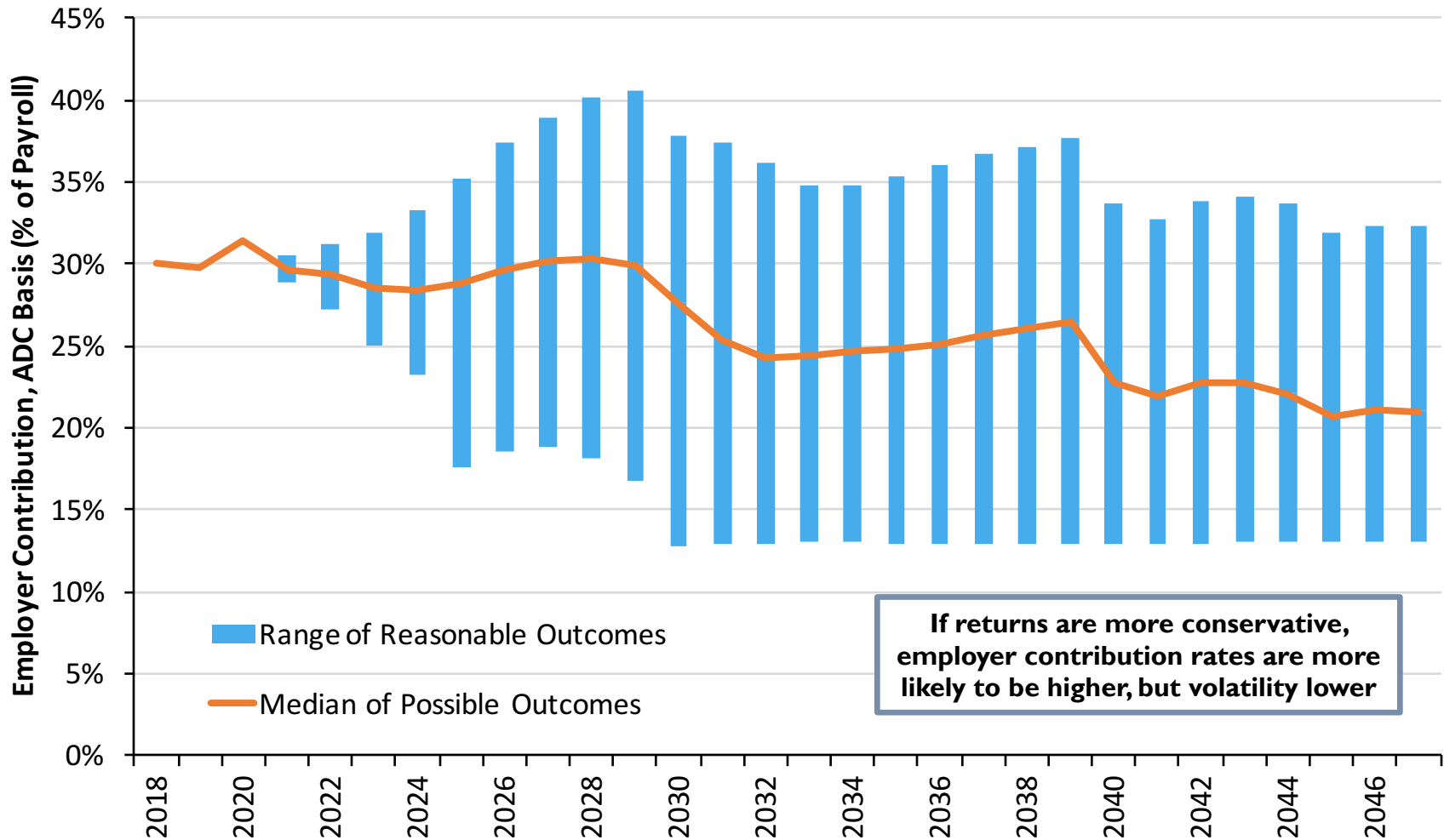


Source: Pension Integrity Project actuarial forecast of TRSL plan. Strong early returns (TWRR = 7.65%, MWRR = 8.92%), Even annual returns (Constant Return = 7.65%), Mixed timing of strong and weak returns (TWRR = 7.65%, MWRR = 7.65%), Weak early returns (TWRR = 7.65%, MWRR = 6.52%). Scenario assumes that TRSL pays the actuarially required rate each year. Years are TRSL fiscal years.

### 30-year Employer Contribution Forecast

# If TRSL Underperforms, Expect Higher Contribution Rates

Based on More Conservative Long-term Average Expected Returns



**If returns are more conservative, employer contribution rates are more likely to be higher, but volatility lower**

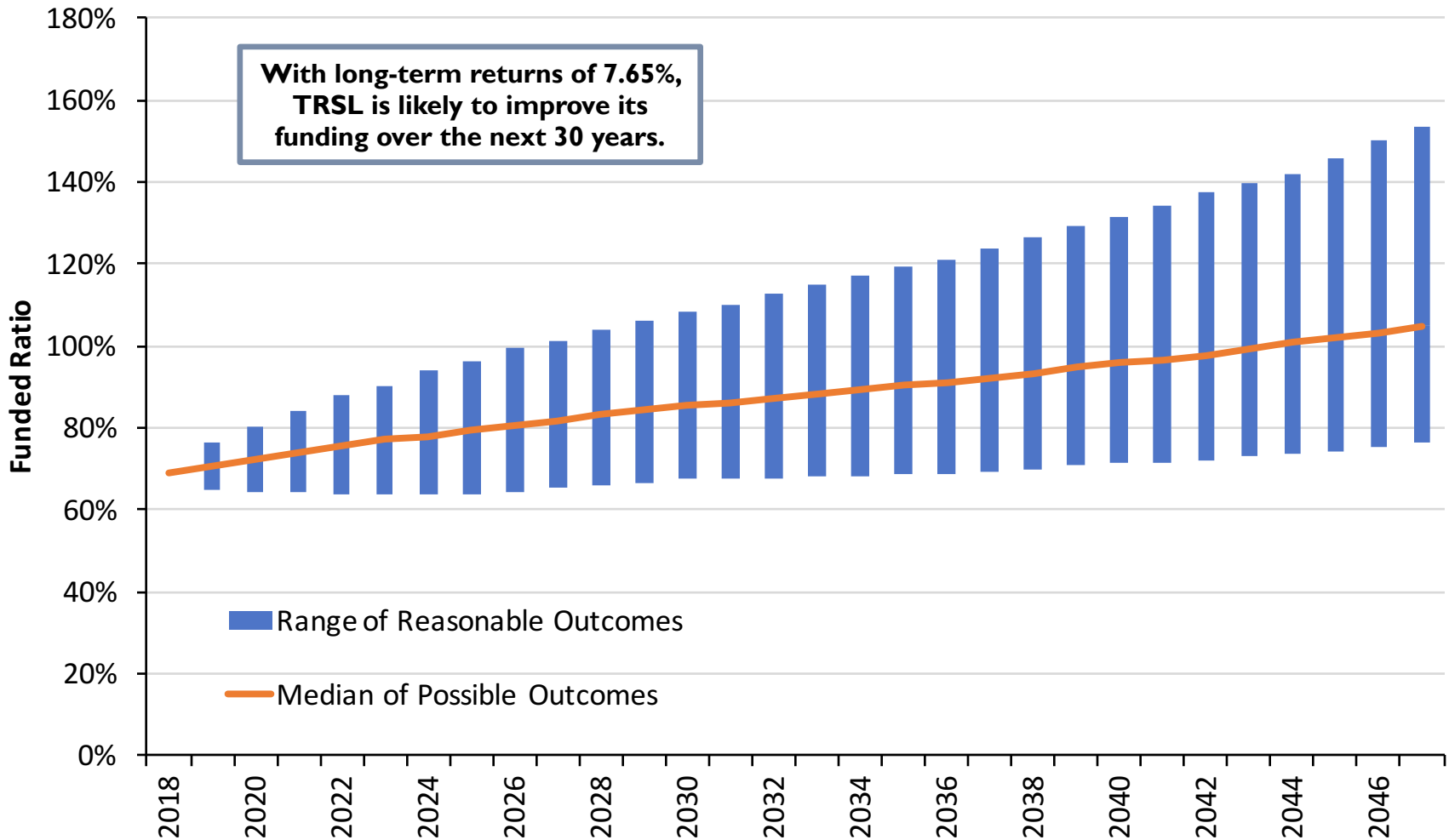
Source: Pension Integrity Project actuarial forecast of TRSL plan using the return and risk assumptions of the Monte Carlo analysis.

Conservative returns are 6.74%, which are the result of combining the long-term capital market assumptions from four prominent financial firms (see slide 17)

### 30-year Funded Ratio Forecast

# Funded Ratios are Expected to Improve

Based on Long-term Average Returns of 7.65%



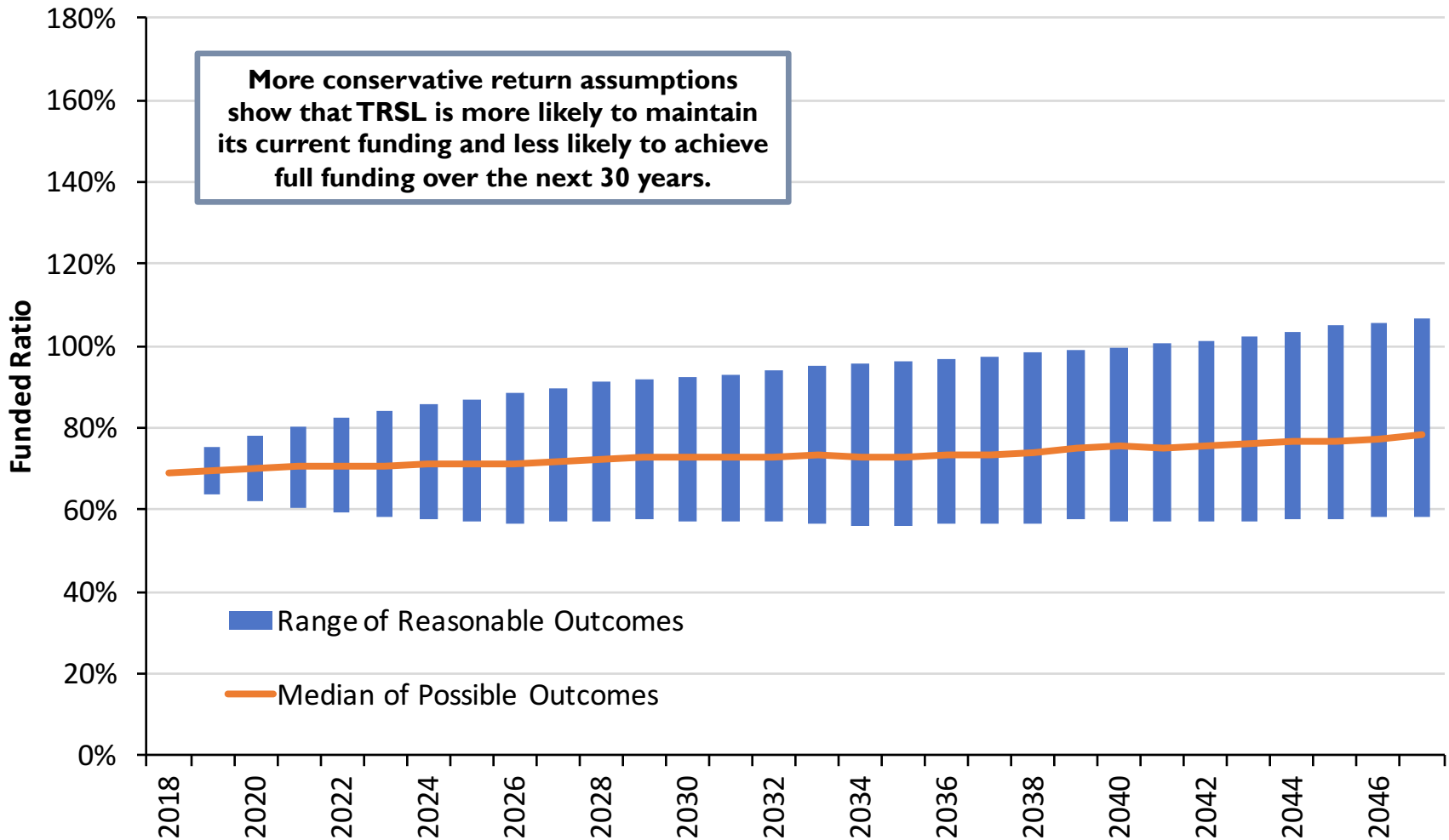
Source: Pension Integrity Project actuarial forecast of TRSL plan based on TRSL return and risk assumptions.

Range of Reasonable Outcomes represents the 50% of possible outcomes closest to the median.

### 30-year Funded Ratio Forecast

# How Do Missed Returns Impact Funded Ratios?

Based on More Conservative Long-term Average Returns



Source: Pension Integrity Project actuarial forecast of TRSL plan using the return and risk assumptions of the Monte Carlo analysis. Conservative returns are 6.74%, which are the result of combining the long-term capital market assumptions from four prominent financial firms.



# Sensitivity of Normal Cost Under Alternative Assumed Rates of Return (Aggregate NC)



(Amounts to be Paid in 2018 Contribution Fiscal Year, % of total payroll)

	Employer Normal Cost	Employee Normal Cost
<b>7.65%</b> Assumed Return (Current Baseline)	3.01%	8%
<b>6.65%</b> Assumed Return	3.62%	8%
<b>5.65%</b> Assumed Return	4.39%	8%
<b>4.65%</b> Assumed Return	5.36%	8%

Note: These alternative gross normal cost figures should be considered approximate guides to how much more normal cost should be under different discount rates. Any policy changes should be based on more precise normal cost forecasts using detailed plan data.



## PROBLEM 2: NEGATIVE AMORTIZATION

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- Methods for paying off unfunded liabilities have made the existing pension debt problems worse.
- The interest accrued on unfunded liabilities routinely exceeds amortization payments, adding \$1.2 billion to the unfunded liability since 2000.

# Actuarial Methods Have Created a Structural Underfunding Problem for TRSL



1. Negative amortization: The TRSL actuary reports that contributions available to cover the unfunded liability are less than the interest accruing on the pension debt each year.
2. In 13 of the past 19 years, employer contributions have been less than the interest accrued on the pension debt (i.e. negative amortization), which allowed for the unfunded liability to grow in absolute terms.
3. The 30-year amortization in use by TRSL is greater than the Society of Actuaries' recommended funding period of 15 to 20 years, resulting in higher overall costs for the plan.
  - Due to the long 30-year closed amortization schedule used to pay off the annual unfunded liability prior to Act 497 of 2009, employer pension contributions have not always kept up with the interest accrued on the pension debt.

# Understanding Current Funding Policy: Negative Amortization

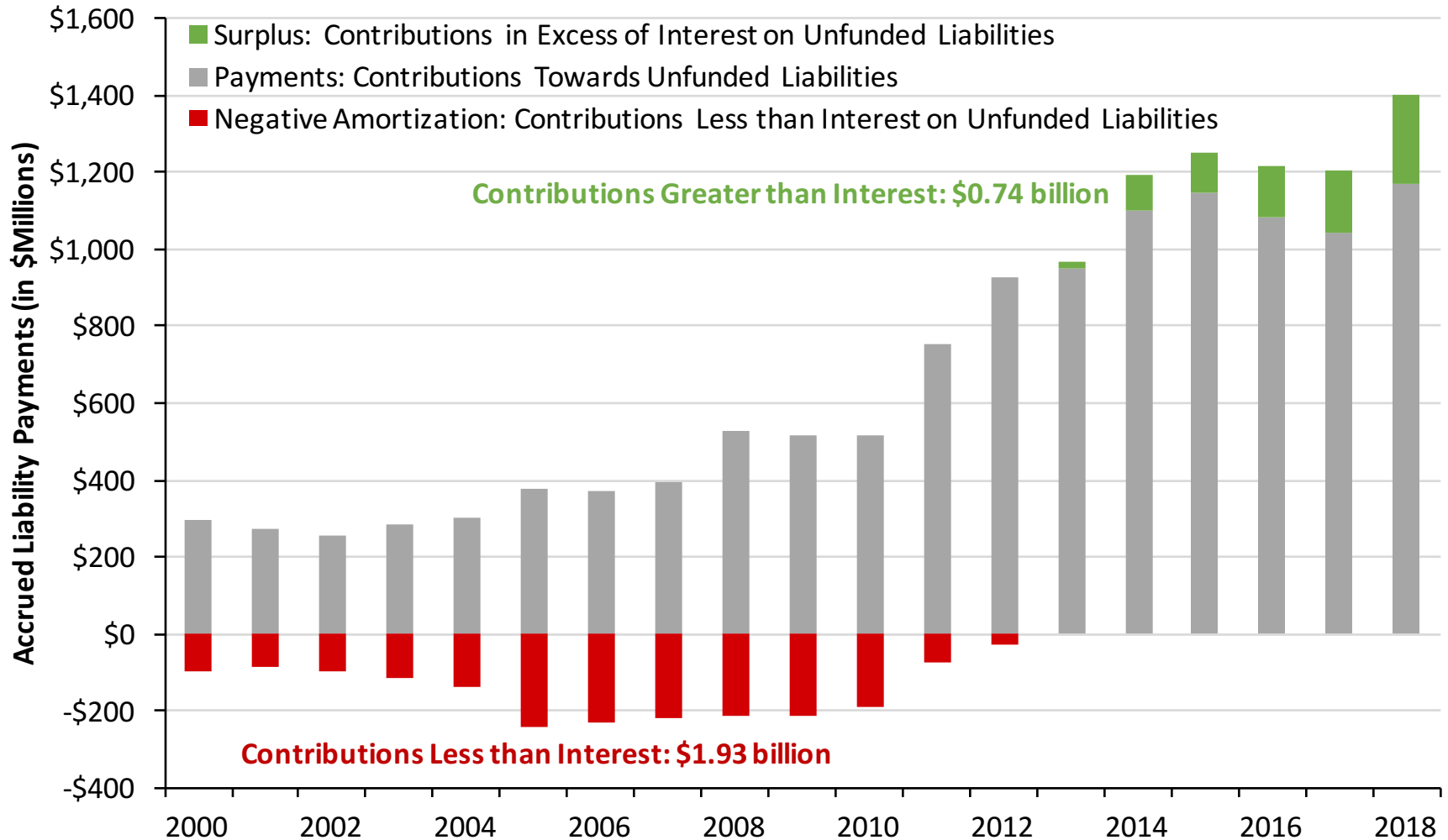


1. By setting amortization period closing dates for legacy debt (FYE 2029 for debt accrued before 2001; FYE 2040 for debt accrued from 2001 to 2008), Act 497 ensured that the legacy unfunded liability will eventually be eliminated.
2. However, given the long, 30-year closed amortization schedules used to pay off the annual unfunded liability prior to Act 497 of 2009, employer pension contributions have not always kept up with the interest accrued on the pension debt.



# Louisiana TRSL Negative Amortization Growth, 2000-2018

## Interest on the Debt v. Accrued Liability Payments

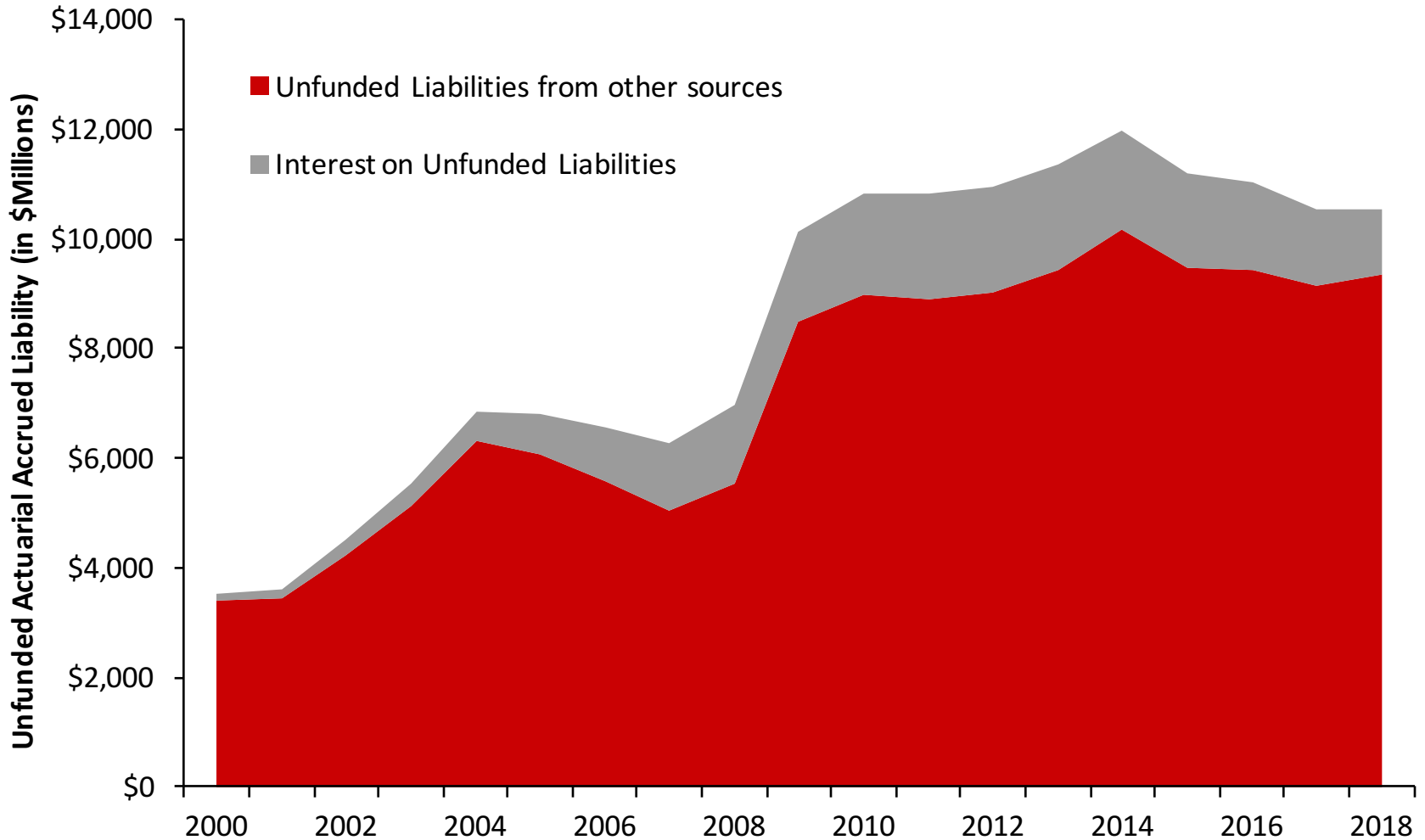


Source: Pension Integrity Project actuarial analysis of Louisiana TRSL plan valuation reports and CAFRs



# Louisiana TRSL Negative Amortization Growth, 2000-2018

## Interest on the Debt as a Portion of Unfunded Liability



Source: Pension Integrity Project analysis of Louisiana TRSL actuarial valuation reports and CAFRs



# PROBLEM 3: ACTUARIAL ASSUMPTIONS AND METHODS

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- Failure to meet actuarial assumptions, and delay in updating those assumptions, has led to an underestimation of the total pension liability.
- Adjusting actuarial assumptions to reflect the changing demographics and new normal in investment markets exposes hidden pension cost by uncovering existing but unreported unfunded liabilities.

## Challenges from Aggressive Actuarial Assumptions

# Actual Experience Different from Actuarial Assumptions



- **(-) Actuarial Assumption and Methods**
  - TRSL's unfunded liability has increased by \$1.25 billion between 2000-2018 due to updates in actuarial assumptions, such as lowering the assumed rate of return, and actuarial methods.
- **(-) Experience Account (Permanent Benefit Increases)**
  - TRSL's unfunded liability has increased by \$0.83 billion between 2000-2018 because of the allocations to and withdrawals from the Experience Account meant to fund PBIs (i.e. COLAs).
- **(+) Contributions Above ADEC and Other Experience**
  - TRSL's unfunded liability has decreased by \$144 million between 2000-2018 per employer contributions being above the actuarially required amounts and because of other experience.





## Challenges from Aggressive Actuarial Assumptions

# Actual Experience Different from Actuarial Assumptions

### **(+) Withdrawal Rate, Service Retirement, and Salary Increase Assumptions**

1. TRSL's unfunded liability has decreased by \$1.13 billion between 2000-2018 due to misaligned demographic and salary increase assumptions.
2. This likely stems from a combination of one or more of the following factors:
  - Actual withdrawal rates before members have reached either a reduced or normal retirement threshold have been higher than anticipated.
  - TRSL members have been retiring later than expected, receiving fewer pension checks.
  - TRSL employers have not raised salaries as fast as expected, resulting in lower payrolls and thus lower earned pension benefits - a common case for many state-level pension plans.

# Challenges from Aggressive Actuarial Assumptions

## Actual Experience Different from Actuarial Assumptions

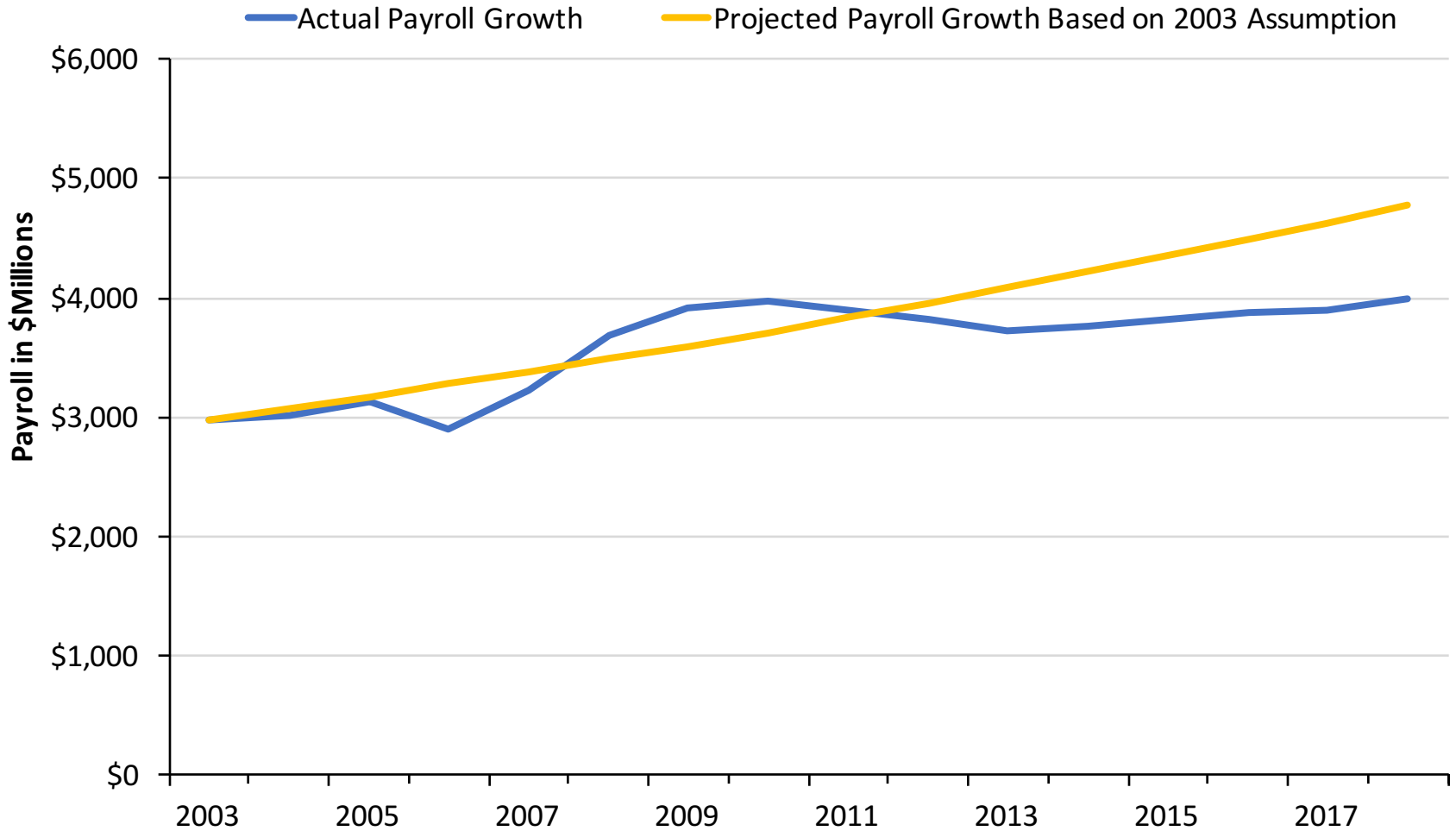


### (-) Overestimated Payroll Growth

1. Overestimating payroll growth may create a long-term problem for TRSL in combination with the level-percentage of payroll amortization method used by the plan.
2. This method *backloads pension debt payments* by assuming that future payrolls will be larger than today (a reasonable assumption).
3. While in and of itself, a growing payroll is a reasonable assumption, if payroll does not grow as fast as assumed, employer contributions must rise as a percentage of payroll.
  - This means the amortization method combined with the inaccurate assumption is delaying debt payments.



# Challenges from Aggressive Actuarial Assumptions, Actual Change in Payroll v. Assumption

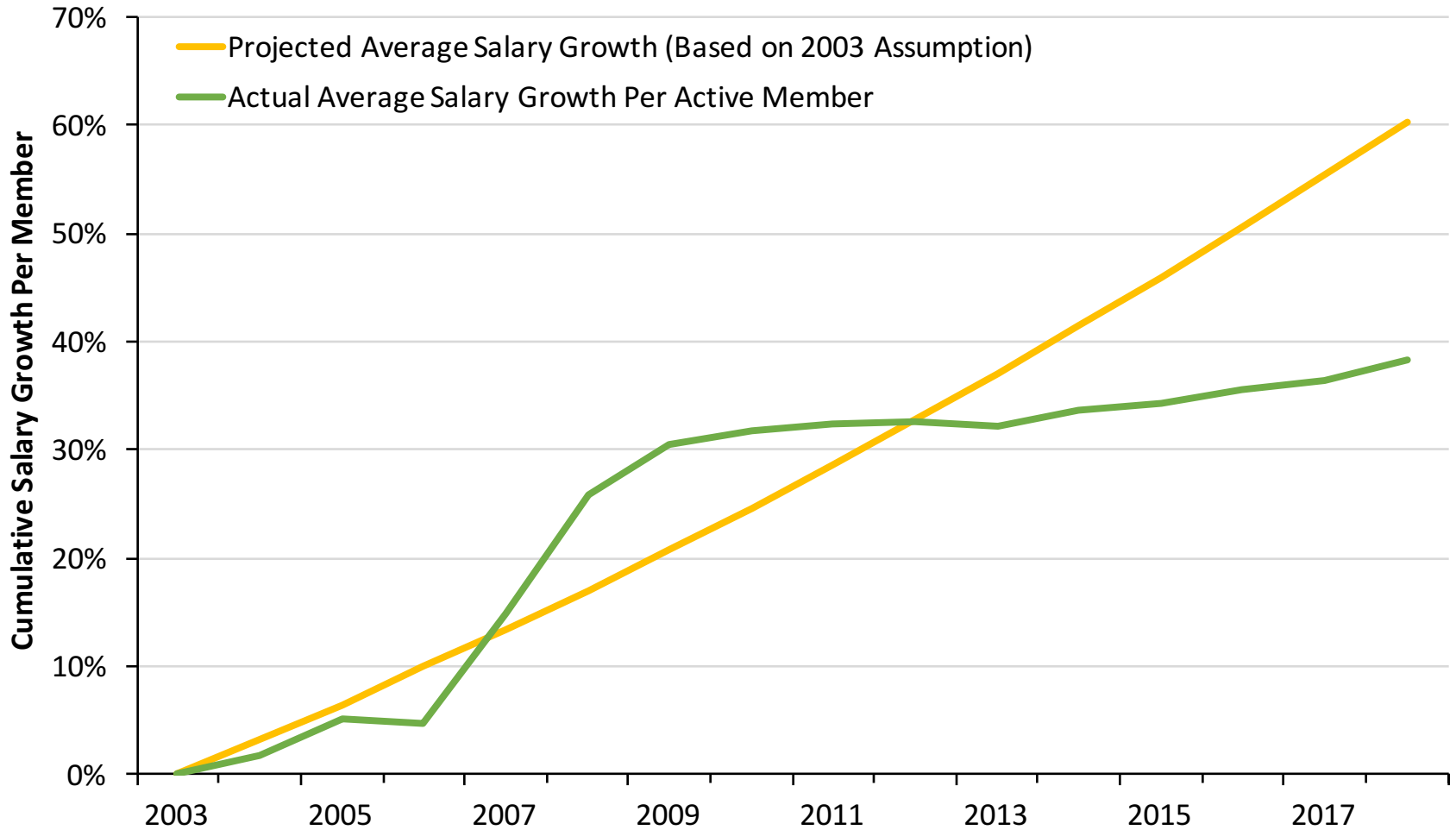


Source: Pension Integrity Project analysis TRSL actuarial valuation reports and CAFRs.



# Challenges from Aggressive Actuarial Assumptions

## Actual Change in Average Salary v. Assumption

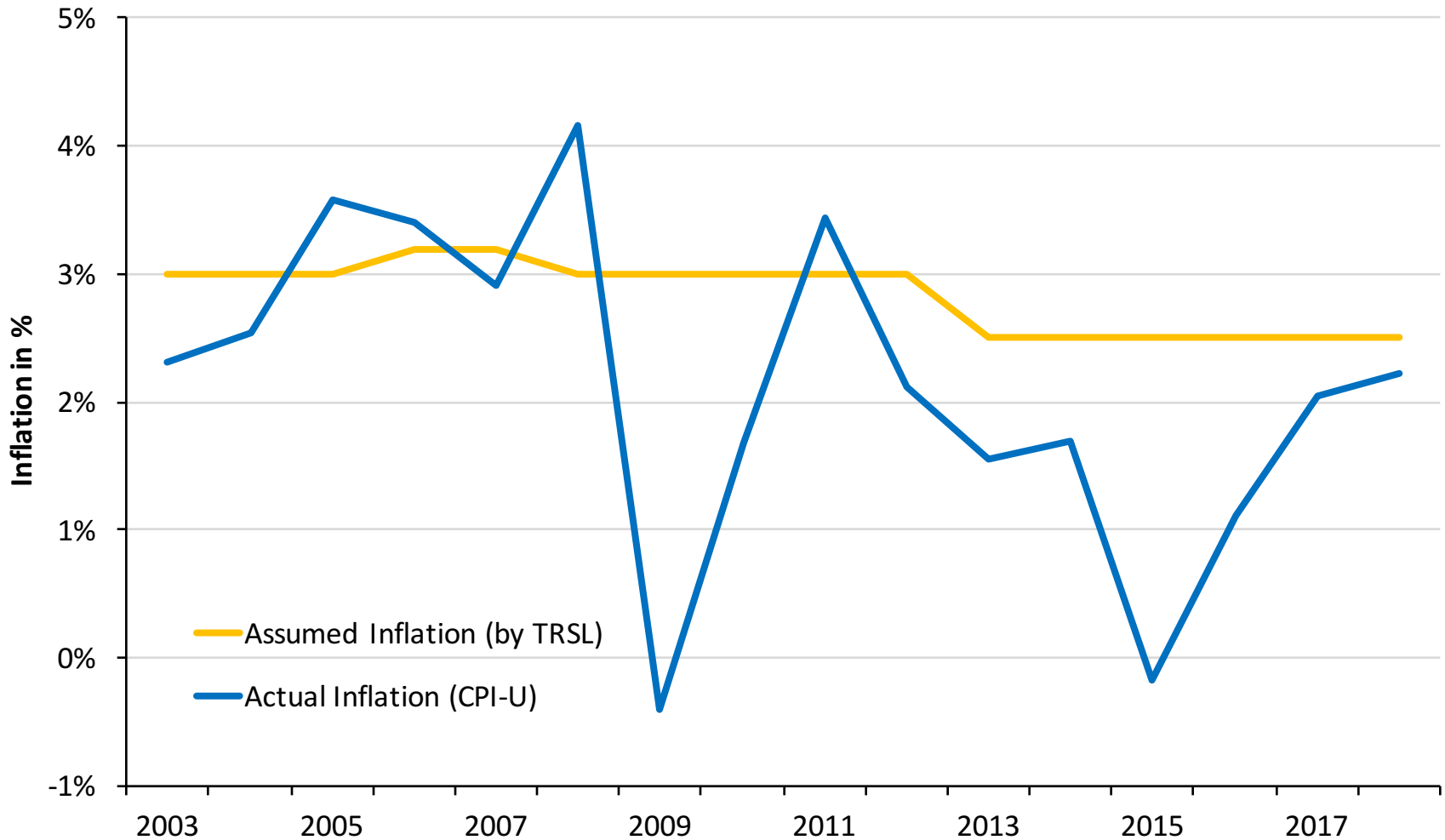


Source: Pension Integrity Project analysis TRSL actuarial valuation reports and CAFRs.



# Challenges from Aggressive Actuarial Assumptions

## Actual Inflation vs. Assumption

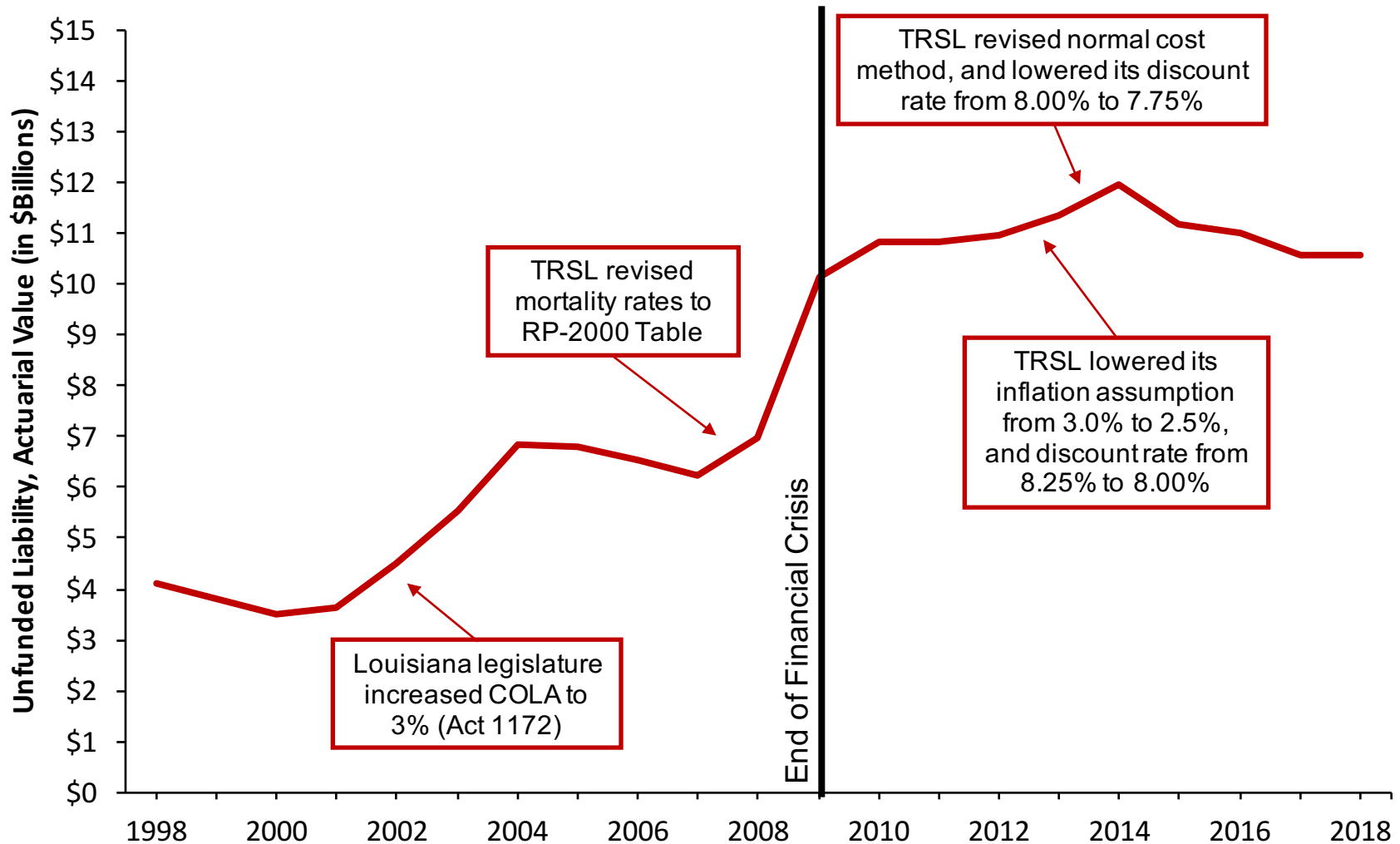


Source: Pension Integrity Project analysis TRSL actuarial valuation reports and CPI-U data from the Bureau of Labor Statistics.



# Challenges from Aggressive Actuarial Assumptions

## Assumption Changes Expose Hidden Unfunded Liabilities



Source: Pension Integrity Project analysis of TRSL actuarial valuation reports.



## PROBLEM 4: PERMANENT BENEFIT INCREASES

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- The PBI mechanism deprives TRSL of the extra cash flow needed to pre-fund primary pension benefits and pay down the debt faster



# Experience Account Allocations

- TRSL’s unfunded liability increased by \$832 million between 2000-2018 as a result of granting a specific type of ad hoc cost of living adjustments (COLA) for retired members, known as permanent benefit increases (PBI).
  - More transparent and commonly used methods used by pension systems to adjust retiree benefits over time are fixed prefunded, annual COLAs, or preferably, prefunded COLAs linked to the change in consumer price index. Both are usually factored into annual normal cost.
  - Under Title 11 of the Louisiana Revised Statutes, TRSL is allowed to grant PBIs by skimming 50% off positive investment returns above the first \$200 million, and putting them into an “experience account” used to pay out PBI benefits.
- The cost of PBI is factored into the net discount rate (i.e. the assumed rate of return netted out with PBI, investment, and administrative expenses).*





# PBIs Deprive TRSL of Needed Cash Flow

- According to a 2018 Louisiana Legislative Auditor report featuring a stochastic analysis of PBI funding, during each of the next 20 years there is a 30% to 45% chance of a transfer to the Experience Account (approximately two out of every five years).
  - *Once a transfer occurs, it may not be used for anything other than benefit increases (under current provisions).*
- Such asset transfers prevent TRSL from using the full benefit of investment gains above the return assumption to help pay down unfunded liabilities faster, generating long-term savings relative to the current fiscal forecast.



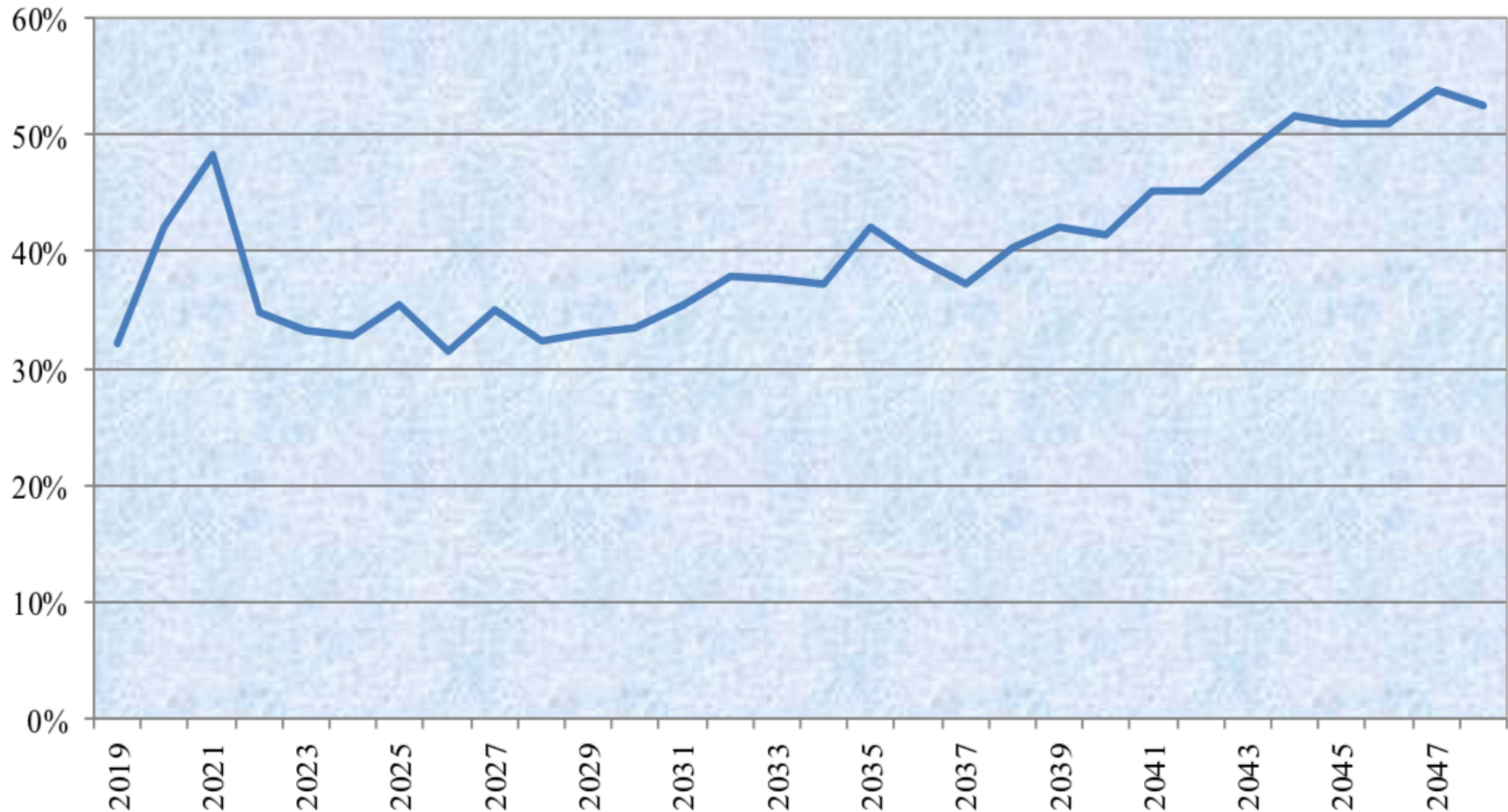
# PBIs Complicate Pension Cost Projections

- The current actuarial method used by TRS assumes an implicit recognition of future COLAs by *reducing the rate of return assumption* by expected average transfers into the experience account.
- This creates confusion for both plan administrators and members and makes estimating the costs of providing PBIs—and ultimately, core pensions—more complicated.
- These so-called “implicit adjustments” to the return assumption lack transparency.

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*For example, in 2017 the TRSL assumed 8.20% would be the total rate of return (net of investment-related expenses). TRSL then reduced the rate of return assumption by 0.40% to accommodate the estimated cost of PBI transfers and by another 0.10% for administrative expenses - resulting in a final discount rate of 7.70%.*

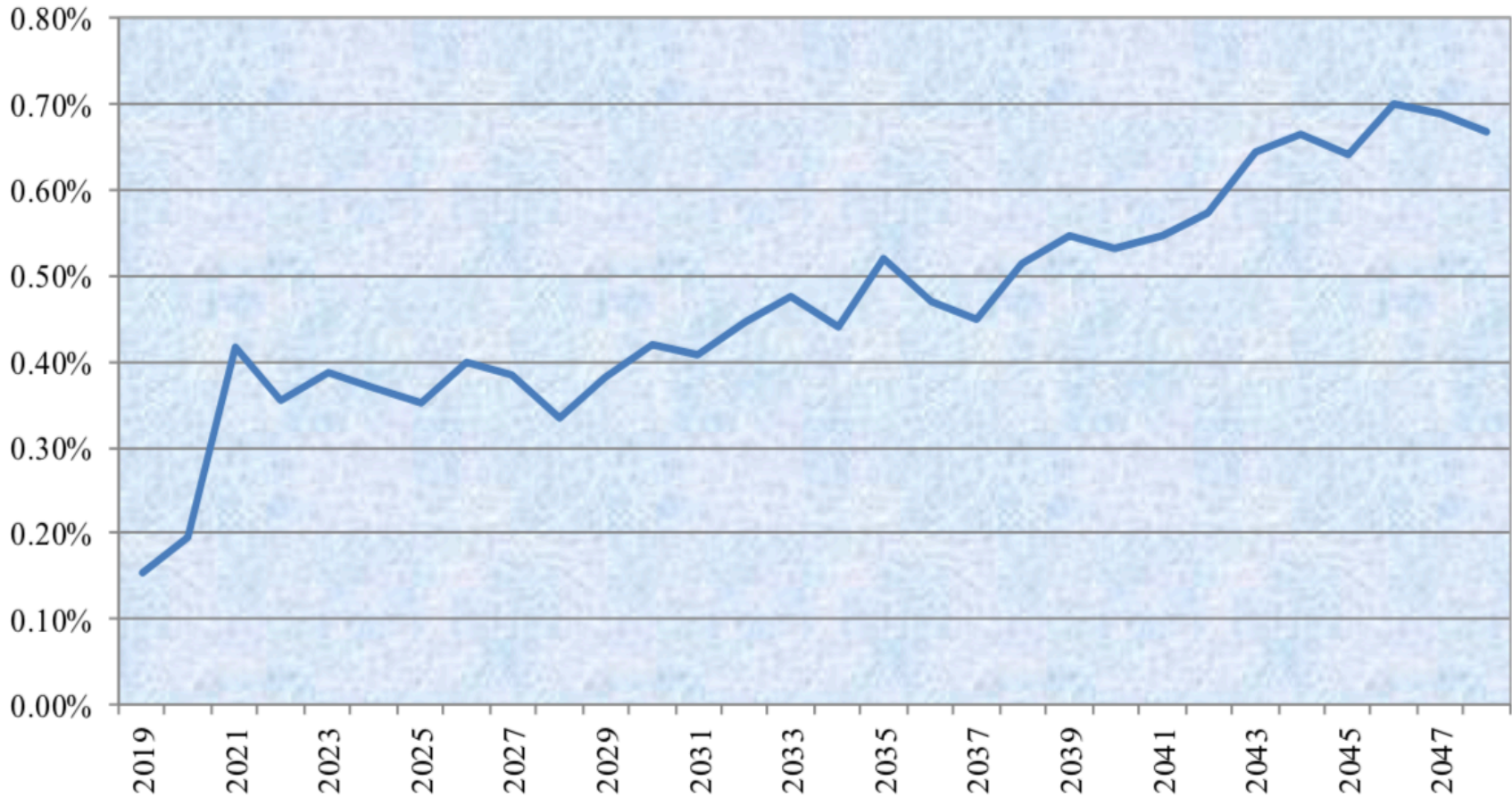
# Probability of Asset Transfers to Experience Account to Fund PBI



Source: "2018 Actuarial Valuation Report on the Teachers' Retirement System of Louisiana," produced by Gabriel, Roeder, Smith & Company on behalf of the Louisiana Legislative Auditor, State of Louisiana (2019)



# Average PBI Rate Expected to be Paid Out



Source: "2018 Actuarial Valuation Report on the Teachers' Retirement System of Louisiana," produced by Gabriel, Roeder, Smith & Company on behalf of the Louisiana Legislative Auditor, State of Louisiana (2019)



# PROBLEM 5: DISCOUNT RATE AND UNDERVALUING DEBT

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- The discount rate undervalues the measured value of existing pension obligations

# TRSL Discount Rate Methodology is Undervaluing Liabilities



1. **The “discount rate” for a public pension plan should reflect the risk inherent in the pension plan’s liabilities:**
  - Most public sector pension plans — including TRSL — use the assumed rate of return and discount rate interchangeably, even though each serve a different purpose.
  - The **Assumed Rate of Return (ARR)** adopted by TRSL estimates what the plan will return on average in the long run and is used to calculate contributions needed each year to fund the plans.
  - The **Discount Rate (DR)**, on the other hand, is used to determine the net present value of all of the already promised pension benefits and supposed to reflect the risk of the plan sponsor not being able to pay the promised pensions.

# TRSL Discount Rate Methodology is Undervaluing Liabilities



- 2. Setting a discount rate too high will lead to undervaluing the amount of pension benefits actually promised:**
  - If a pension plan is choosing to target a high rate of return with its portfolio of assets, and that high assumed return is then used to calculate/discount the value of existing promised benefits, the result will likely be that the actuarially recognized amount of accrued liabilities is undervalued.
- 3. It is reasonable to conclude that there is almost no risk that Louisiana would not pay out all retirement benefits promised to members and retirees.**
  - The state constitutional contract clauses provide an explicit protection of accrued past benefits when employee is vested.
- 4. The discount rate used to account for this minimal risk should be appropriately low.**
  - The higher the discount rate used by a pension plan, the higher the implied assumption of risk for the pension obligations.

# TRSL Pension Debt Sensitivity

## FYE 2018 Unfunded Liability Under Varying Discount Rates

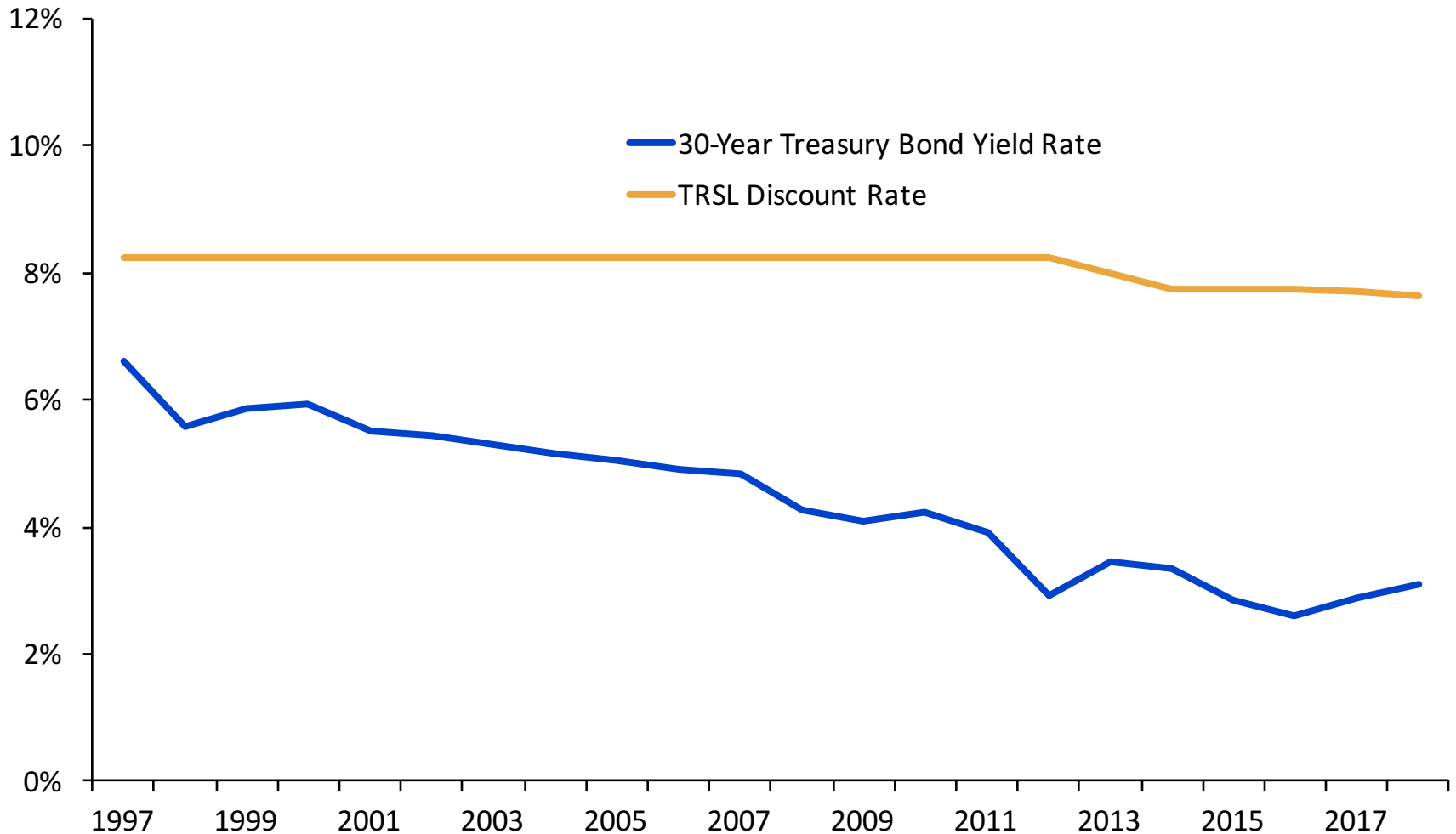


	<b>Funded Ratio (Market Value)</b>	<b>Unfunded Liability</b>	<b>Total Pension Liability (GASB Basis)</b>
<b>7.65% Discount Rate (Current Baseline)</b>	68.2%	\$9.83 billion	\$30.87 billion
<b>6.65% Discount Rate</b>	61.8%	\$13.02 billion	\$34.06 billion
<b>5.65% Discount Rate</b>	55.6%	\$16.81 billion	\$37.85 billion
<b>4.65% Discount Rate</b>	49.7%	\$21.32 billion	\$42.37 billion

Source: Pension Integrity Project analysis of TRSL actuarial valuation reports and projections using actuarial modeling; figures are rounded



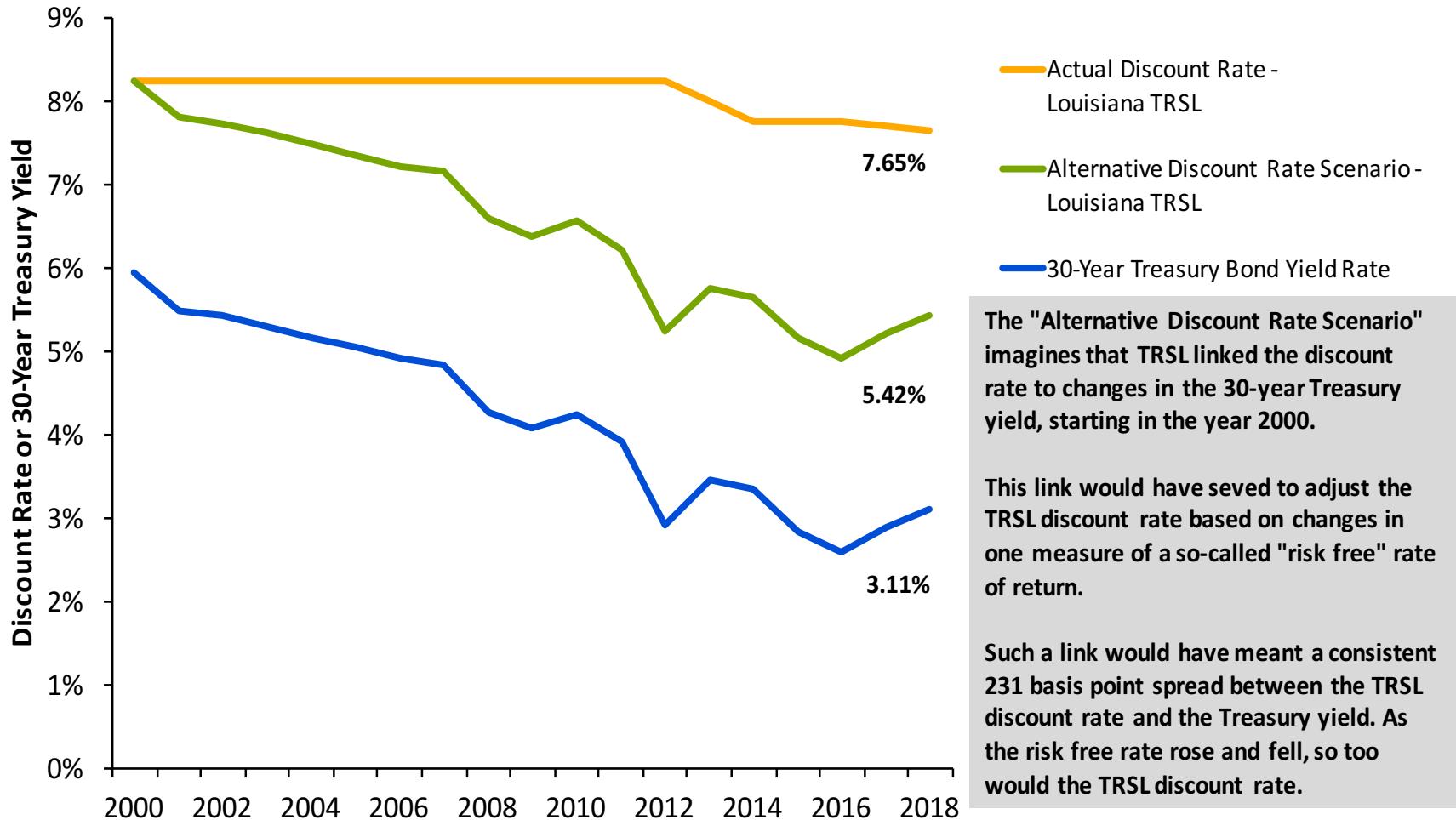
# Change in the Risk Free Rate Compared to TRSL Discount Rate (1997-2018)



Source: Federal Reserve average annual 30-year treasury constant maturity rate



# Comparing Change in Discount Rate to the Change in the Risk Free Rate, 2000-2018



Source: Pension Integrity Project analysis of Louisiana TRSL actuarial reports and Treasury yield data from the Federal Reserve

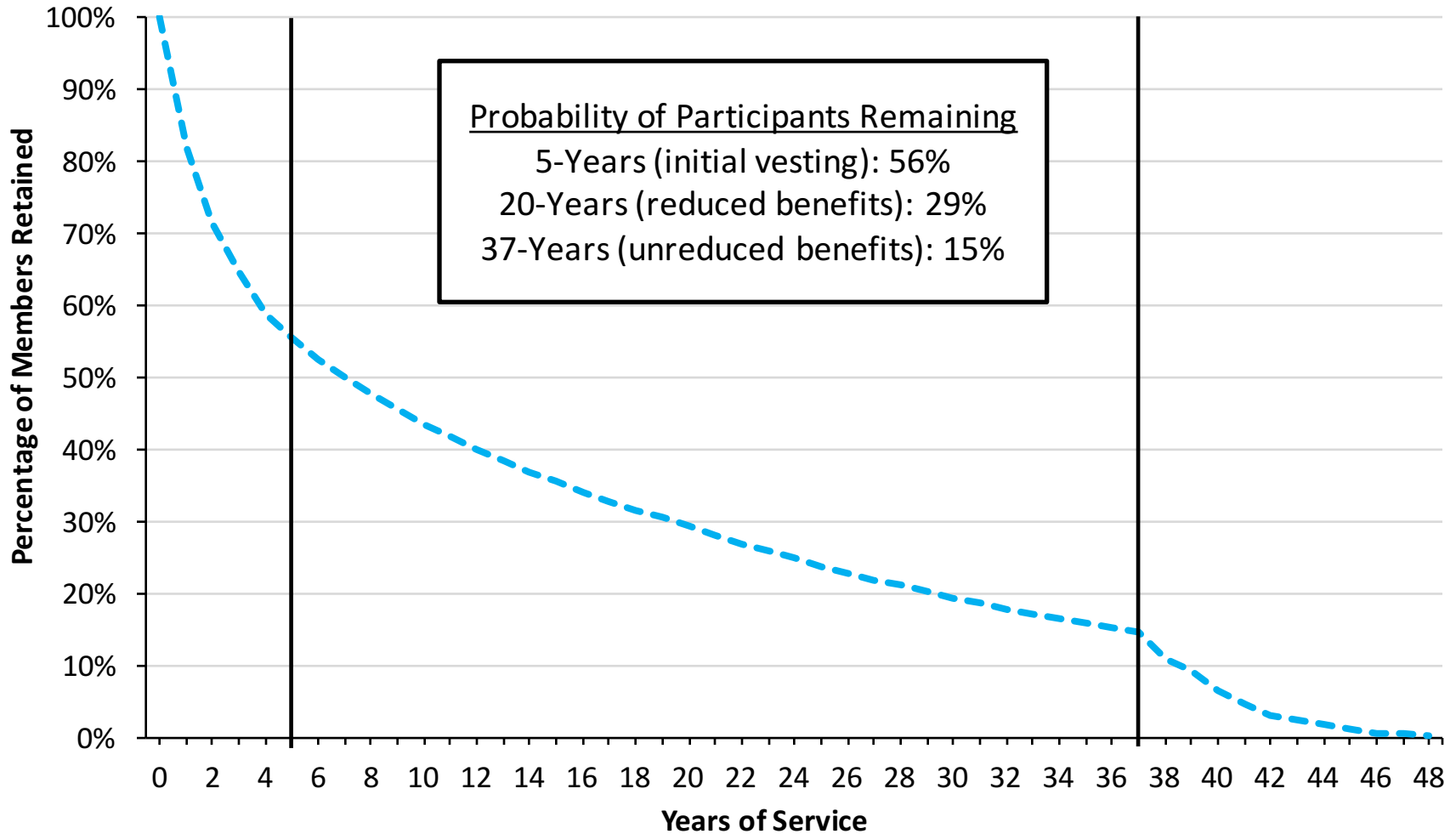


# PROBLEM 6: THE EXISTING BENEFIT DESIGN DOES NOT WORK FOR EVERYONE

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- The turnover rate for TRSL members suggests that the current retirement benefit design may not encourage the most effective retention rates.

# Probability of Regular Teachers Remaining in TRSL



Source: Pension Integrity Project analysis of TRSL actuarial reports and CAFRs. Retention probabilities are shown for Regular K-12 Teachers only.

# Does TRSL Retirement Plan Work for All Employees?



- **44%** of new teachers/educators leave before 5 years (vesting)
  - This teacher turnover rate exceeds the national occupation averages.
- Only **29%** of all teachers hired next year will still be working after 20 years, long enough to qualify for a reduced benefit.
- Only **15%** of all teachers hired on or after 2015 will still be working after 37 years, long enough to qualify for full benefits
- Just **30%** of Louisiana teachers will “break even” on their pensions, according to [TeacherPensions.org](http://TeacherPensions.org)
  - Analysis by the Thomas B. Fordham Institute shows that a new teacher in the Jefferson Parish Public School System must remain in the pension system for **29 years** for the present value of their pension benefits to at least match the value of their own contributions.



# FRAMEWORK FOR SOLUTIONS & REFORM

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# Objectives of Good Reform

- **Keeping Promises:** Ensure the ability to pay 100% of the benefits earned and accrued by active workers and retirees
- **Retirement Security:** Provide retirement security for all current and future employees
- **Predictability:** Stabilize contribution rates for the long-term
- **Risk Reduction:** Reduce pension system exposure to financial risk and market volatility
- **Affordability:** Reduce long-term costs for employers/taxpayers and employees
- **Attractive Benefits:** Ensure the ability to recruit 21st Century employees
- **Good Governance:** Adopt best practices for board organization, investment management, and financial reporting



# Pension Reform Strategies

## **Problem 1: Assumptions**

1. Reduce assumed rate of return to a target the plan can realistically meet and de-risk investment portfolio.
2. Review and adjust assumptions related to withdrawal rates, new hire/headcount growth, payroll growth, retirement rates, service purchase rates, disability claim rates, inflation, and mortality based on experience studies.

## **Problem 2: Permanent Benefit Increases**

1. Switch from PBIs to a standard COLA provision factored into the normal cost and pegged to local CPI-U capped at 2%, so TRSL could reinvest all portfolio gains.

## **Problem 3: Amortization Periods**

1. Adjust amortization method to pay off new unfunded liability from the current 30 years too a shorter and more stable amortization schedule (e.g. 15-20 years).

## **Problem 4: Benefit Design**

1. Consider whether adjustments to the current system could reduce risks and reduce overall costs while preserving retirement security.
2. Consider a new plan design(s) with conservative assumptions and funding policy aimed at preventing long-run underfunding.





# Practical Policy Framework

1. Establish a plan to pay off the unfunded liability as quickly as possible.
  - The Society of Actuaries Blue Ribbon Panel recommends amortization schedules be no longer than 15 to 20 years
2. Integrate standard COLA provisions
  - Substitute PBI mechanism with a flexible COLA provision as part of annual normal cost calculations, pegged to local/regional CPI-U rates.
3. Adopt better funding policy, risk assessment, and actuarial assumptions
  - These changes should aim at minimizing risk and contribution rate volatility for employers and employees
4. Create a path to retirement security for all participants
  - Members unlikely to accrue a full pension benefit should have access to options for other plan designs, like cash balance, hybrid or DC

# I. Establish a Plan to Pay Off the Unfunded Liability as Quickly as Possible



- **The current amortization policy for all new unfunded liability targets time horizons that are too long**
  - The TRSL targets a 30-year period to pay off its unfunded liabilities.
  - Putting additional unfunded liabilities onto such a long payoff schedule increases overall costs (e.g., amortization payments).
  - The Society of Actuaries Blue Ribbon Panel recommends amortization schedules be no longer than 15 to 20 years.



## 2. Adopt Standard COLA provisions

- **Current PBIs squeeze cash flow generated by portfolio returns, which short-changes asset growth**
  - By funneling 50% of positive investment returns to fund ad hoc PBIs TRSL deprives itself from additional gains it could have generated from reinvestment.
  - Subdued cash flow limits growth of the system's assets, preventing the funded ratio from increasing and unfunded liabilities from falling.
  - Changing PBIs to automatic COLAs would provide more predictable budgeting, long-run savings, and ability to reinvest all, not a portion, of the investment yields received.

### 3. Adopt Better Funding Policy, Investment Policy, and Actuarial Assumptions



#### ■ Funding Policy

- Consider requiring that future employees that accrue defined benefits make contributions that are an explicit share of all plan costs (such as a 50-50 split) as actuarially determined, using short (10-year or less) periods to pay off any unfunded liabilities that might accrue.

#### ■ Risk Assessment and Actuarial Assumptions

- Look to lower the assumed return such that it aligns with a more realistic probability of success
- Adjust the portfolio to reduce high risk assets no longer needed with lower assumed return target
- Work to reduce fees and costs of active management
- Consider adopting an even more conservative assumption for a new hire defined benefit plan
- Require stress testing for contribution rates, funded ratios, and cash flows with look-forward forecasts for a range of scenarios

## 4. Create a Path to Retirement Security for All Participants of TRSL



- **Louisiana TRSL is not providing a path for retirement income security to all members the plans**
  - For example, only 56% of regular teachers vest into their benefits, while only 29% stay long enough for a reduced pension. And just 15% of teachers earn a full pension.
  - This means the majority of state employees would be better served by having the choice of an alternative, more portable plan design — such as a cash balance, hybrid or DC plan.
  
- **Employees should have a choice to select a retirement plan design that fits their career and lifestyle goals**
  - Cash balance plans can be designed to provide a steady accrual rate, offer portability, and ensure a path to retirement security.
  - Defined contribution retirement plans can be designed to auto-enroll members into professionally managed accounts with low fees that target specified retirement income and access to annuities.

## Policy Reform Scenarios

# Prospective Reform Options



- **Risk-Managed Defined Benefit Plans**

- Create a new DB plan for new hires—built from the beginning with very conservative assumptions, explicit cost-sharing provisions, and a “trigger” mechanism to secure long-term solvency.

- **Primary Retirement Income-Focused Defined Contribution Plans**

- Fixed contribution rates; no additional unfunded liabilities

- **Choice-Based Retirement Plans**

- *Example:* enroll members in a DC Plan, but offer choice of a ‘Risk-Managed DB’ Plan

- **Hybrid DB/DC Plans**

- *Example:*
  - 1% multiplier for the DB, with normal cost split 50/50, and
  - 3% DC employer contribution rate
  - 4% or more DC employee contribution rate

- **Cash Balance Plans**

- Defined benefit system that guarantees a certain rate of return on investment.

# Pension Reforms and Addressing the Legacy Unfunded Liability



- **Positive Approaches** to Addressing Legacy UAL
  - *Utah (2014), Oklahoma (2015)* — included in statute a requirement that employers make amortization payments as a percentage of total payroll; effect has been that unfunded liability amortization payments in dollars have been effective the same as if there had been no changes
  - *Arizona Police & Fire (2017), Arizona Corrections (2017), Michigan Teachers (2017)* — included in statute a requirement that employers make amortization payments as a percentage of total payroll + required future UAL to be paid off over 10-year, level-dollar layered amortization bases
- **Negative Approaches** to Addressing Legacy UAL
  - *Michigan State Employees (1996), Alaska State & Teachers (2005), Kentucky State and Local (2014), Pennsylvania (2017)* — made no change with respect to legacy UAL, then made limited or no changes to the assumed rate of return and amortization method + failed to pay 100% of actuarially determined rate, collectively leading to a growth in the legacy UAL
  - *Arizona Elected Officials (2013)* — created a fixed payment schedule for legacy UAL + no change to assumed return over time; led to insufficient funding deemed unconstitutional by trial court in 2017



# Risk-Managed Defined Benefit Plans

- Provide same general defined benefit structure, but include cost-sharing provisions for employers and employees.
- Part of 2016 & 2017 reforms for the Michigan Teachers (MPSEERS) Arizona Police and Fire (PSPRS), and Arizona Corrections Officer Retirement Plan (CORP) pension systems.
- These plans split the total required contribution between the employer and the employee.
  - 50/50 employer/employee split for Michigan teachers and Arizona police and fire
  - 60/40 employer/employee split for Arizona probation officers.
- Plan design ensures contribution rate risk is shared between employer and employee.
  - Provides employee buy-in to ensure costs don't spiral out of control.





# Hybrid Plans

- **Michigan Teachers (2010)**
  - Created a DC-only plan and a hybrid plan for new employees
    - Hybrid Plan included small DC component, and DC-only plan offered low contribution rates.
    - Increased contribution rates for new employees.
  - Only modestly addressed the problem.
- **Connecticut State Employees (2017)**
  - Increased contribution rates, small reduction in multiplier, small DC component added.
  - Does not guarantee solvency and unevenly distributes benefits in favor of DB plan.
- **Pennsylvania Public Employees (2017)**
  - Created an optional DC only plan along with two hybrid plans.
  - Even split between DC and DB component with increased contributions.



# Cash Balance Plans

- Cash balance plans guarantee a minimum rate of return on the plan while splitting investment returns above that level between the plan and the employee.
- Created in 2016 for the Omaha Employee Retirement System and in 2014 for the Kentucky Retirement System.
  - Kentucky guarantees a 4% return on investment with a 75/25 “upside sharing” split on returns above that level in favor of the employee.
  - Omaha guarantees a 4% return with a 75/25 “upside sharing” split in favor of the employee on returns greater than 7%.
- Cash balance plans preserve the value of accumulated contributions while minimizing the risk of underperforming assumptions.



# Defined Contribution Plans

- **Michigan (1997)**
  - State employees' plan reform in 1997 shifted all new employees into first state-level DC only plan.
- **Alaska Teachers and State Employees (2005)**
  - Both major state pension plans converted to DC
- **Arizona Elected Officials (2013)**
  - Legislation established statutory contribution rate for closed DB plan less than half the actuarially determined rate ultimately needed for solvency.
  - Rate successfully challenged in court under constitutional requirement for actuarially based methods.
- **Arizona Corrections (2017)**
  - DC plan for new state and local correctional officers was element of comprehensive, labor-supported reform effort.



# CONCLUSION

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# Concluding Comments

1. Actual investment returns have historically underperformed the rate of return assumptions. Without measured steps in reassessing and adjusting the plan's return expectations, liability risks for taxpayers and members will only rise.
2. Without addressing the range of aggressive actuarial assumptions and underperforming portfolio returns, major TRSL solvency risks will remain.
3. Funds diverted to permanent benefit increases are failing to earn any returns, while short-changing the funds necessary to amortize TRSL's unfunded liability faster.
4. In the last five years TRSL has managed to get its negative amortization under control. However, long amortization schedules for any new debt could raise overall costs if no changes are made to these schedules going forward.
5. Budgetary pressures, including service crowd outs, might make it tempting for a future state legislature to modify the current amortization policy.
6. Offering future employees choices of alternative benefit design options could improve retirement security, help TRSL reduce future unfunded liabilities and lower taxpayer liability risks.



# Questions?

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