

# EMPLOYEES RETIREMENT SYSTEM OF TEXAS (ERS) PENSION SOLVENCY ANALYSIS

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Prepared by:

**Pension Integrity Project at Reason Foundation**

**September 21, 2020**





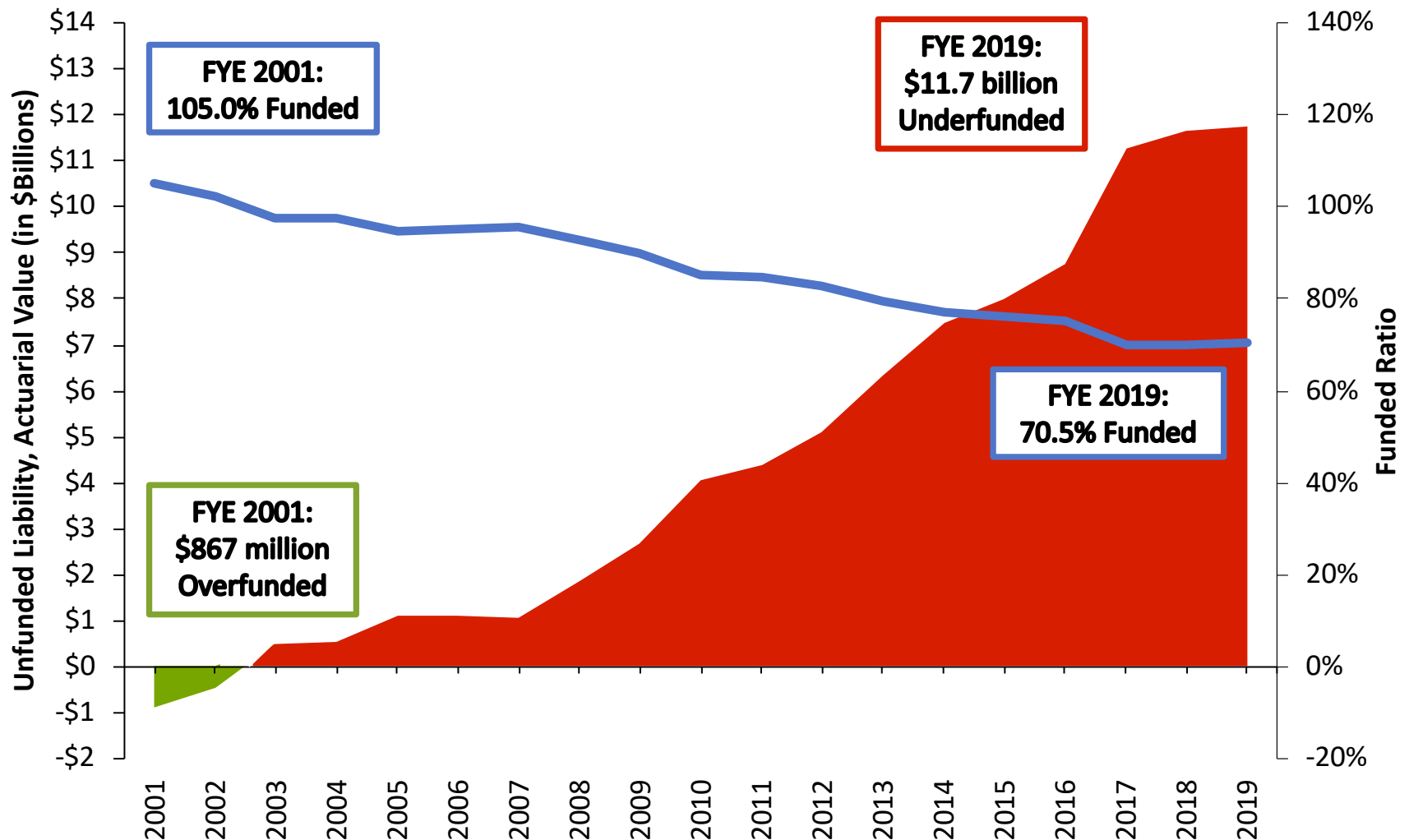
# About the Pension Integrity Project

We offer pro-bono technical assistance to public officials to help them design and implement pension reforms that improve plan solvency and promote retirement security, including:

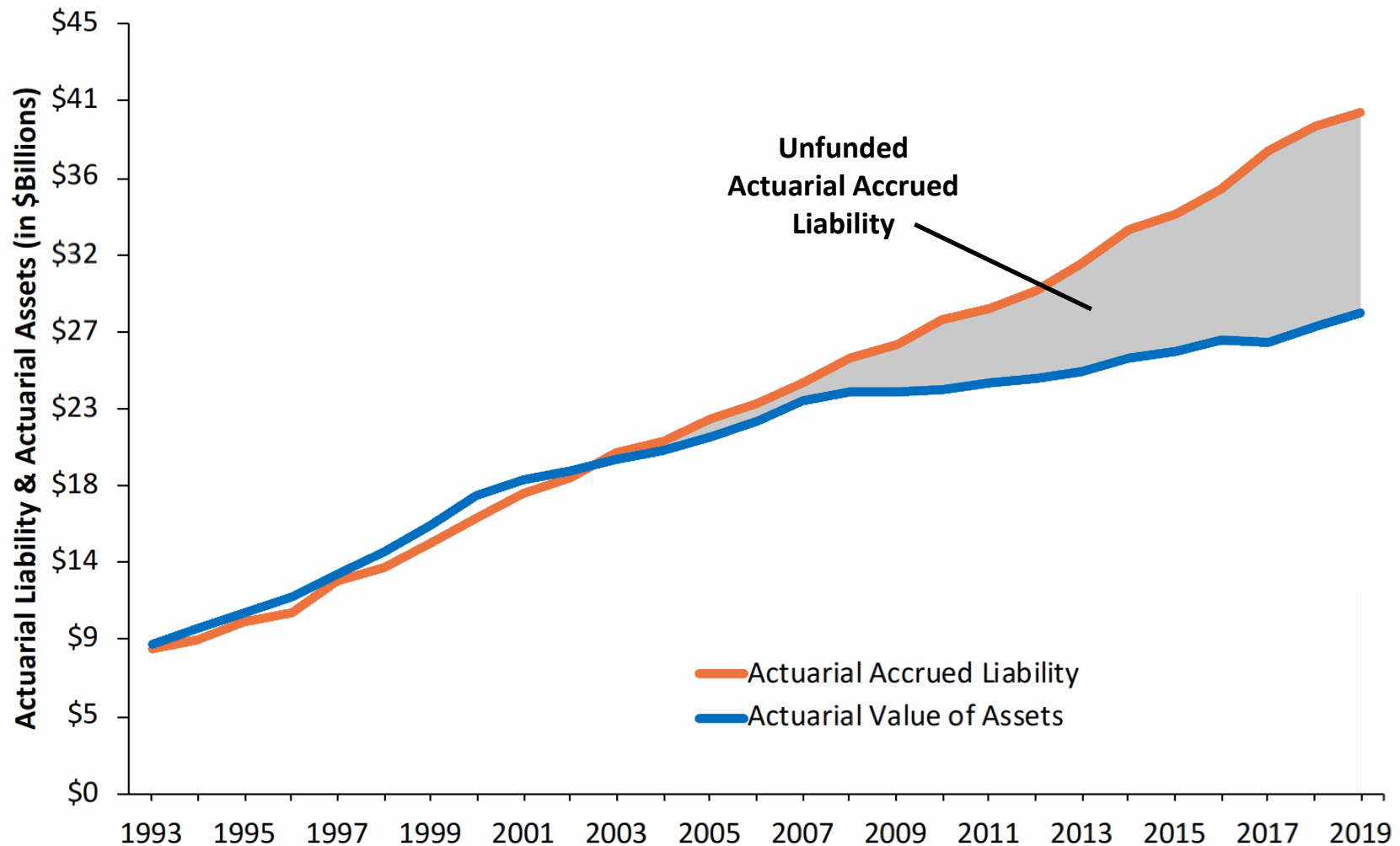
- *Customized analysis* of pension system design, trends
- *Independent actuarial modeling* of reform scenarios
- Consultation and modeling around *custom policy designs*
- Latest pension reform *research and case studies*
- *Peer-to-peer mentoring* from state and local officials who have successfully enacted pension reforms
- Assistance with *stakeholder outreach*, engagement and relationship management
- Design and execution of *public education programs* and media campaigns



# A History of ERS Solvency (1993-2019)

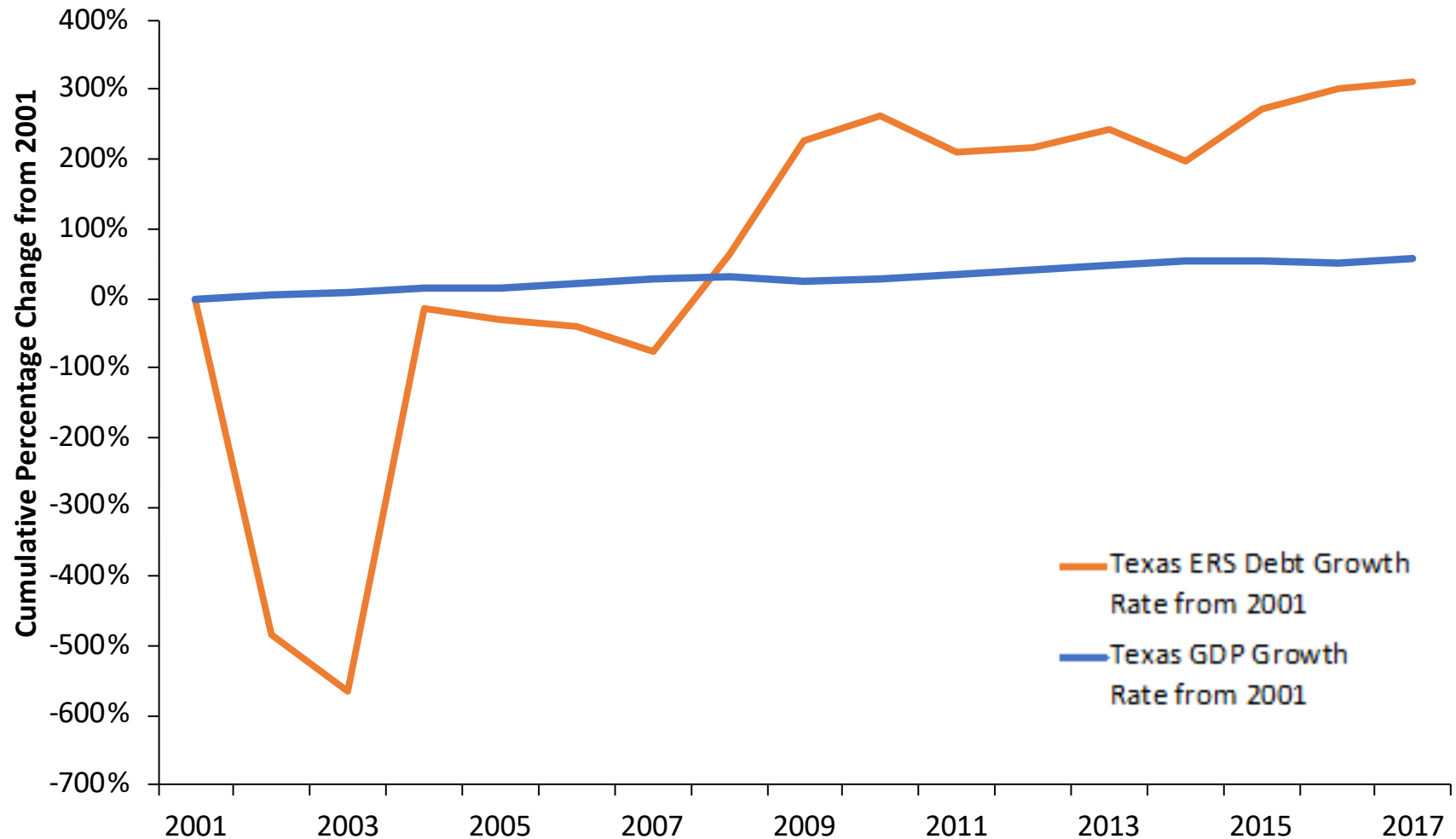


# ERS Liabilities are Growing Faster than Assets



Source: Pension Integrity Project analysis of ERS actuarial valuation reports through FY2019.

# ERS Unfunded Liabilities are Growing Faster than the Texas Economy



Source: Pension Integrity Project analysis of ERS actuarial valuation reports and CAFRs, Federal Reserve of St. Louis Data for Texas' gross domestic product.



# Makeup of ERS Contributions

	FY2019 Contributions	
	% of Payroll	\$ Value
<b>Total Employee</b>	9.50%	\$694,788,598
State (Normal Cost)	4.26%	\$319,566,204
State (Debt Amortization)	5.24%	\$375,222,394
Agency (Required Agency Contribution)	0.50%	\$17,859,041
<b>Total Employer</b>	10.00%	\$712,647,639
<b>Total ERS Contributions</b>	19.50%	\$1,407,436,237

## 10% Cap

The Texas Constitution caps state contributions to ERS at 10% of payroll, which can only be exceeded under an emergency declaration.

Article 16, Section 67(b)(3)

*"The current financial outlook for ERS is very poor. It is important to understand that the currently scheduled contributions are not expected to accumulate sufficient assets in order to pay all of the currently scheduled benefits when due."*

-Gabriel Roeder Smith & Company, FY 2019 ERS Actuarial Valuation

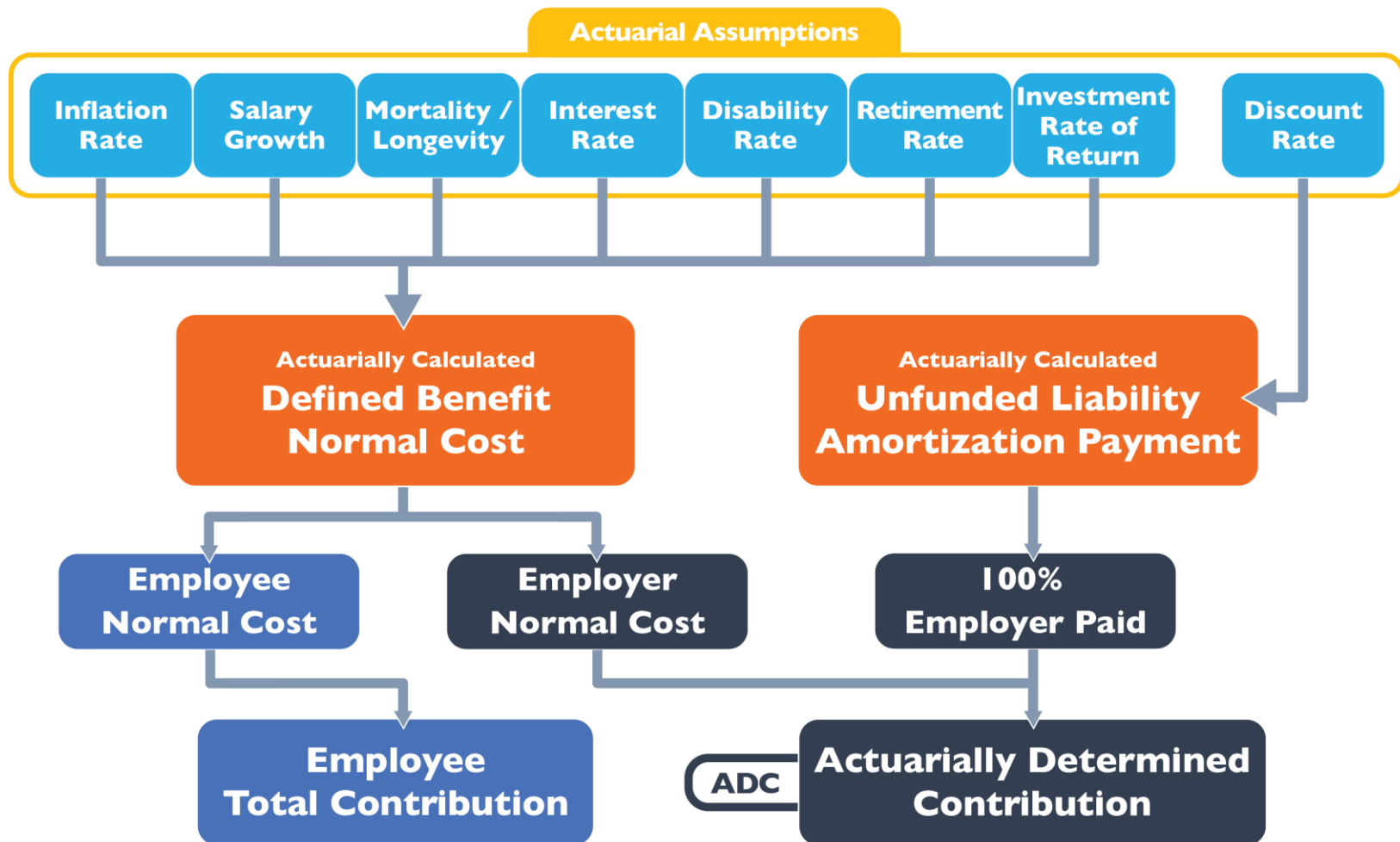


# CHALLENGES CONTINUING TO FACE ERS

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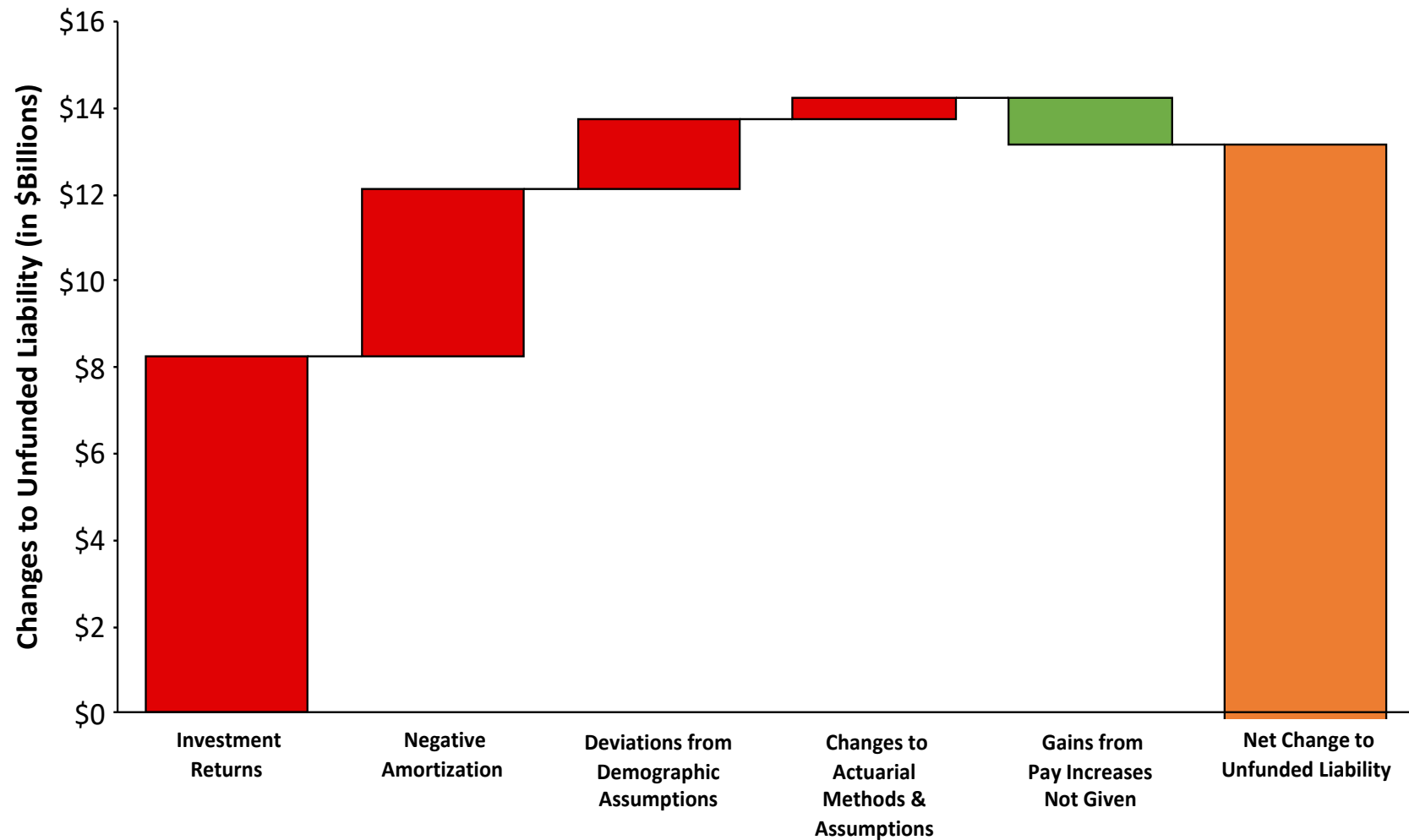
# How a Pension Plan is Funded





# The Causes of the Pension Debt

Actuarial Experience of ERS, 2001-2019



Source: Pension Integrity Project analysis of ERS CAFRs. Data represents cumulative unfunded actuarial liability by gain/loss category. "Negative Amortization" is calculated using ERS valuation reports as a difference between interest accrued on the debt and amortization payments for all 5 ERS sub-plans combined.



# Driving Factors Behind ERS Challenges

1. **Deviations from Investment Return Assumptions** have been the largest contributor to the ERS unfunded liability, adding \$8.26 billion since 2001.
2. **Extended Amortization Timetables and Statutory Contribution Limits** have resulted in interest on ERS debt exceeding the actual debt payments (negative amortization) since 2001 and a net \$3.88 billion increase in the unfunded liability.
3. **Deviations from Demographic Assumptions** – including deviations from withdrawal, retirement, disability, and mortality assumptions — added \$1.14 billion to the unfunded liability since 2001.
4. **Changes in Actuarial Methods & Assumptions** have exposed over \$600 million in previously unrecognized unfunded liabilities over the last decade.
5. **Undervaluing Debt** through discounting methods has led to the tacit undercalculation of required contributions.



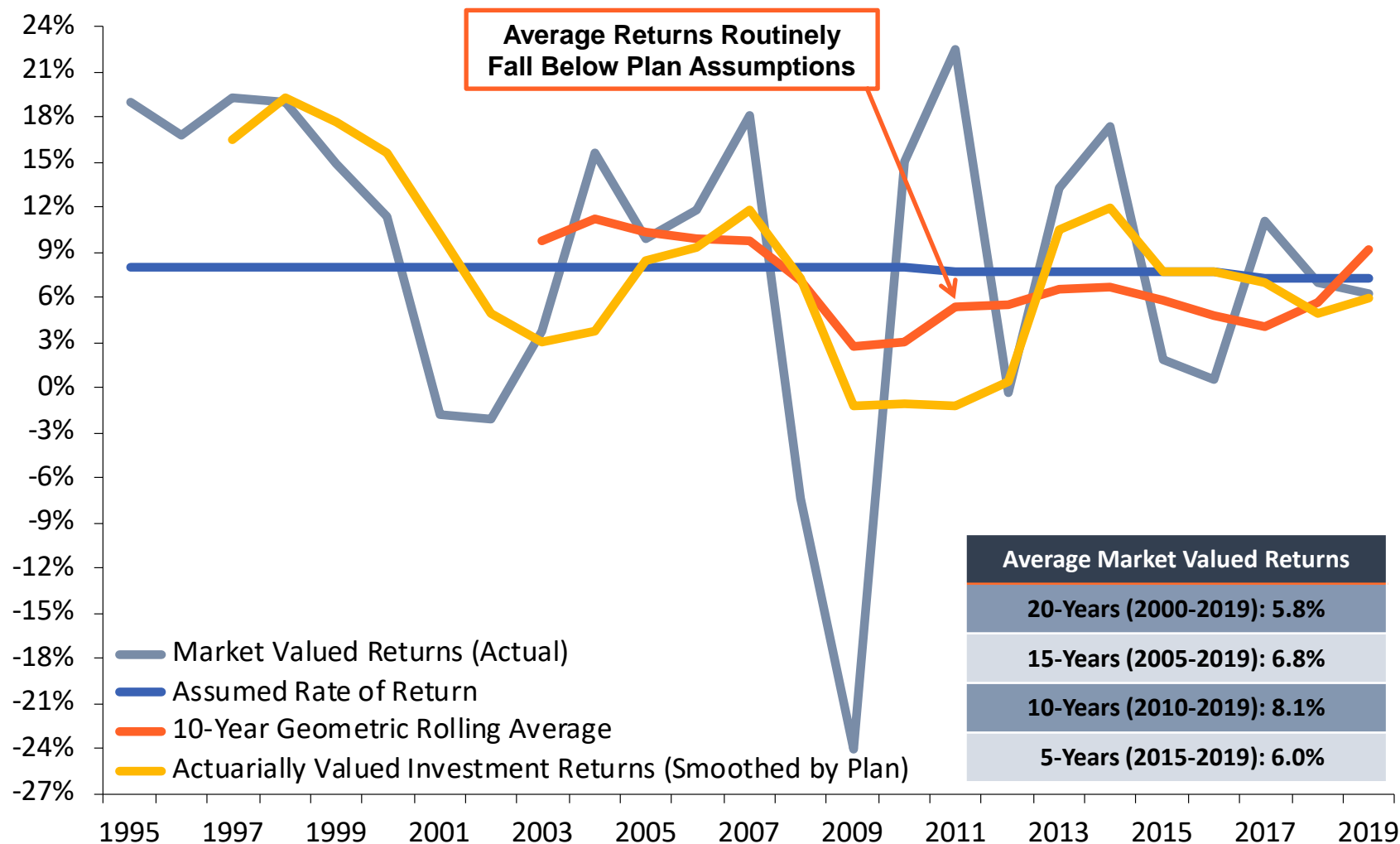
# CHALLENGE I: ASSUMED RATE OF RETURN

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- **Unrealistic Expectations:** Despite recently lowering the investment return assumption to 7.0%, ERS remains exposed to significant investment underperformance risk.
- **Underpricing Contributions:** Using an overly optimistic investment return assumption leads to underpricing benefits and an undercalculated actuarially determined contribution rate.

## ERS Challenge I: Underperforming Assets

## Investment Return History, 1995-2019



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

## ERS Challenge I: Underperforming Assets

# Investment Returns Have Underperformed

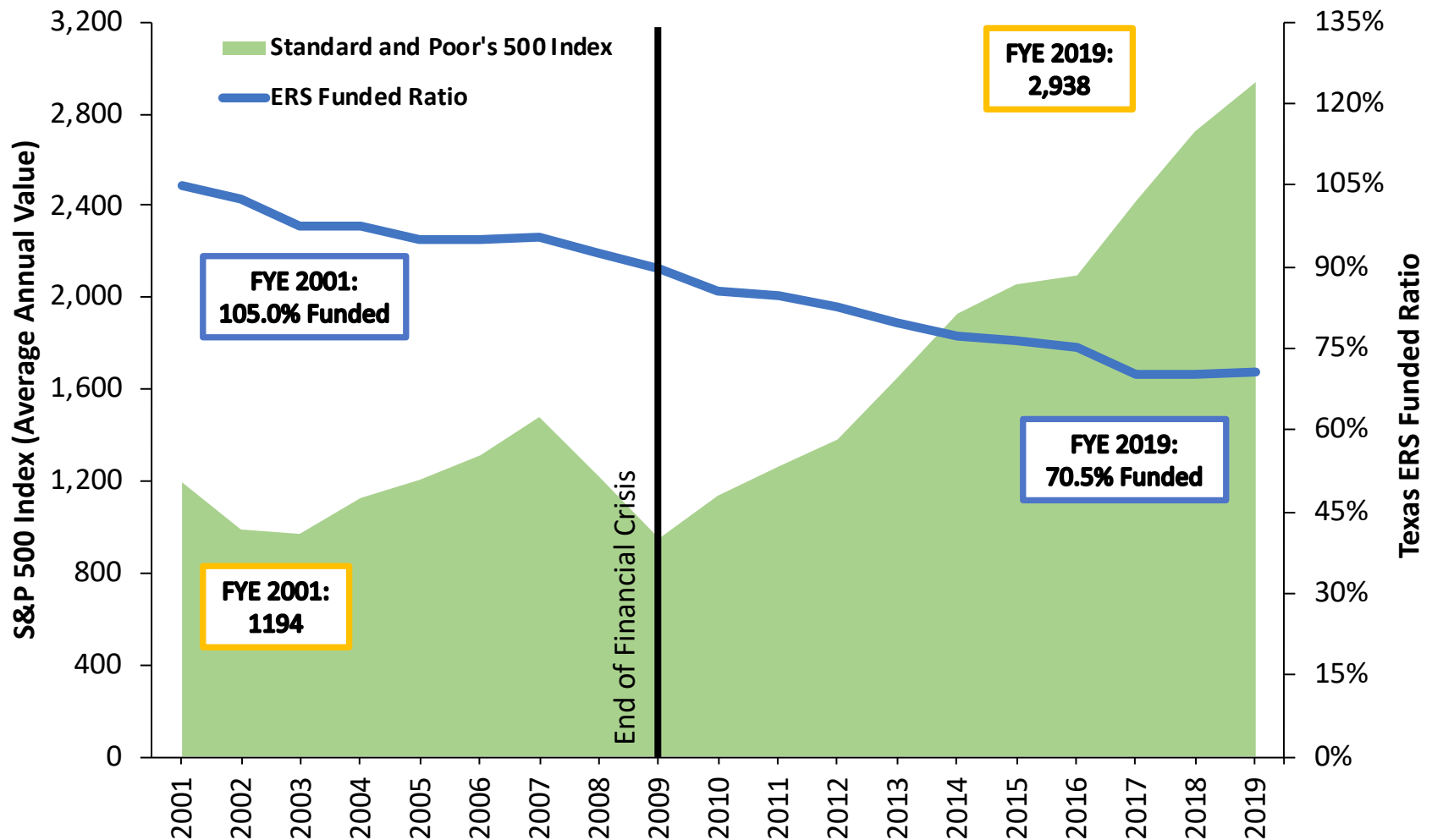


- ERS actuaries have historically used an 8% assumed rate of return to calculate member and employer contributions, slowly lowering the rate to 7% over the past two decades in response to significant market changes.
- Average long-term portfolio returns have not matched long-term assumptions over different periods of time:

Average Market Valued Returns	Average Actuarially Valued Returns
20-Years (2000-2019): 5.83%	20-Years (2000-2019): 6.28%
15-Years (2005-2019): 6.84%	15-Years (2005-2019): 5.99%
10-Years (2010-2019): 8.10%	10-Years (2010-2019): 5.72%
5-Years (2015-2019): 6.01%	5-Years (2015-2019): 5.91%

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

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



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



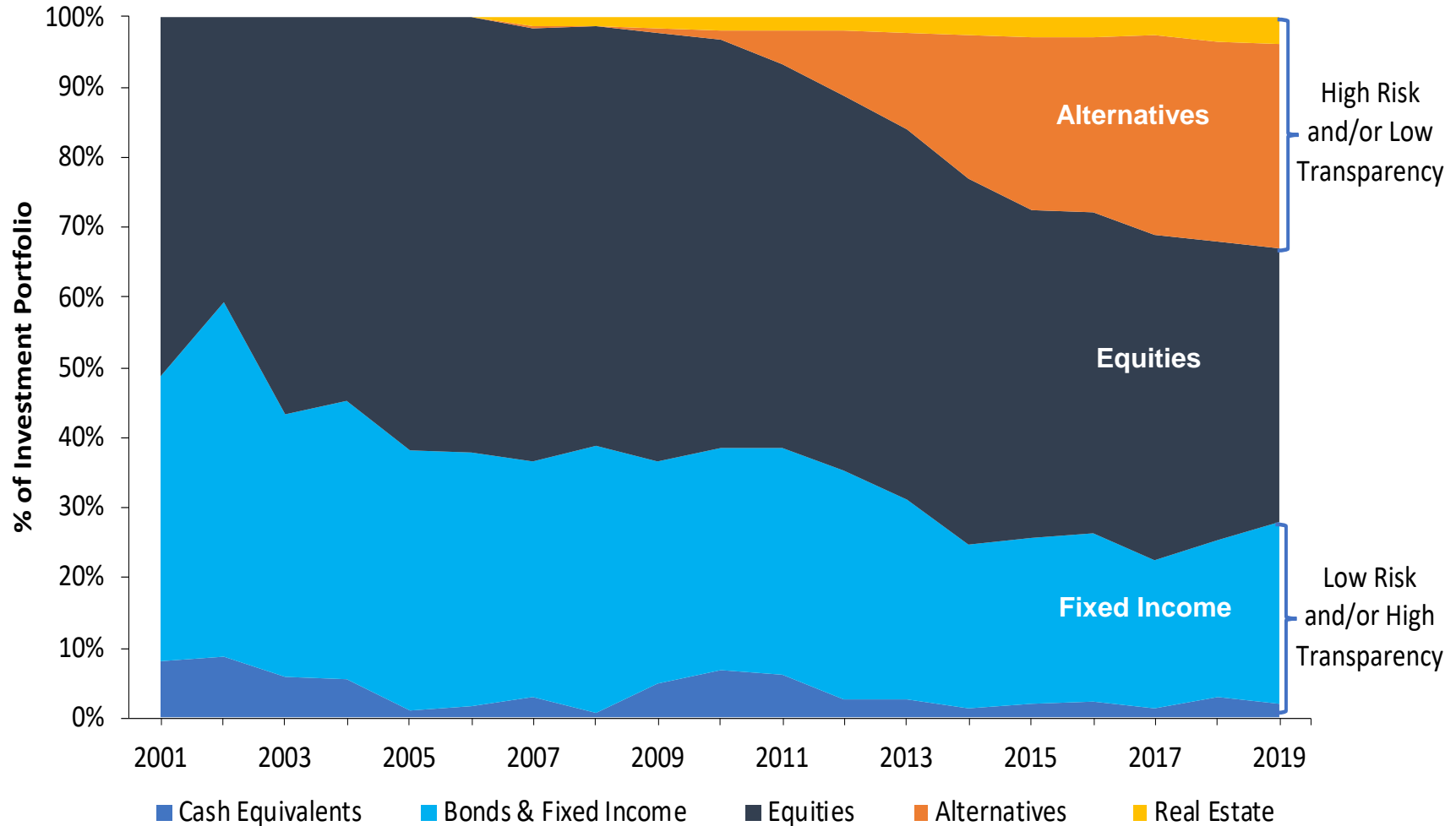
# New Normal: The Market Has Changed

The “new normal” for institutional investing suggests that achieving even a 6% average rate of return in the future 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 near 8% in the 1990s to consistently less than 3%.
  - New phenomenon: negative interest rates, designates a collapse in global bond yields.
  - The U.S. just experienced the longest economic recovery in history, yet average growth rates in GDP and inflation are below expectations.
2. McKinsey & Co. forecast the returns on equities will be 20% to 50% lower over the next two decades compared to the previous three decades.
  - Using their forecasts, the best-case scenario for a 70/30 portfolio of equities and bonds is likely to earn around 5% return.
3. ERS consulting actuary comments\*:
  - “[...] if the investment experience had met the current assumptions over the last 20 years, ERS would effectively be fully funded [...]”
  - “[...] actual returns have not been available in the market to meet the assumption.”

## ERS Asset Allocation (2001-2019)

## Expanding Risk in Search for Yield



Source: Pension Integrity Project analysis of ERS actuarial valuation reports, CAFRs.



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



Possible Rates of Return	Probability of ERS Achieving A Given Return Based On:							
	ERS Assumptions & Experience		Short-to-Mid-Term Market Forecast				Long-Term Market Forecast	
	Based on ERS Assumptions	ERS 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
8.0%	60.5%	9.9%	16.6%	17.8%	10.3%	25.6%	40.0%	39.7%
7.0%	74.4%	25.0%	30.5%	32.3%	21.0%	40.4%	55.3%	55.9%
6.5%	80.4%	36.0%	38.7%	40.6%	27.6%	48.3%	63.3%	64.2%
6.0%	85.4%	48.6%	47.5%	48.9%	35.2%	56.0%	70.2%	71.3%
5.5%	89.8%	60.6%	56.4%	57.4%	43.8%	64.1%	76.5%	78.3%
5.0%	92.9%	71.5%	65.2%	66.4%	52.6%	71.2%	82.1%	83.8%

Source: Pension Integrity Project Monte Carlo model based on ERS 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 ERS. 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 ERS Achieving Various Rates of Return



## ERS Assumptions & Experience

- A probability analysis of ERS historical returns over the past 18 years (2001-2018) indicates a very modest chance (25%) of hitting the plan's 7.0% assumed return.
- ERS's own investment return forecasts only imply a 74% chance of achieving their investment return target over the next 20 years.

## 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 ERS.
- 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, ERS returns are likely to fall short of assumptions.

## Long-Term Market Forecast

- Longer-term projections typically assume ERS 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 7.0% 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, while the probability of achieving an average return of 7.0% or higher is about 55%, the probability of earning a rate of return below 5% is about 18%.



# RISK ASSESSMENT

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**How resilient is ERS to volatile market factors?**

# Important Funding Concepts



## Employer Contribution Rates

- *Statutory Contributions*: ERS employers make annual payments based on rates set in Texas statute, which are currently at the maximum 10% rate allowed by the Texas Constitution.
- *Actuarially Determined Employer Contribution (ADEC)*: Unlike statutory contributions, ADEC is the annual required amount ERS's consulting actuary has determined is needed to be contributed each year to avoid growth in pension debt and keep ERS solvent.

## All-in Employer Cost

- The true cost of a pension is not only in the annual contributions, but also in whatever unfunded liabilities remain. The "All-in Employer Cost" combines the total amount paid in employer contributions and adds what unfunded liabilities remain at the end of the forecasting window.

## Baseline Rates

- The baseline describes ERS current assumptions using the plan's existing contribution and funding policy and shows the status quo before the 2020 market shock.

## Employer & Employee Rates

- The Statutory scenarios in this analysis assume a 9.5% employee contribution rate and a 10% employer contribution rate. ADEC recession scenarios produce unfunded liabilities when over the 10% cap.

### Quick Note:

With actuarial experiences of public pension plans varying from one year to the next, and potential rounding and methodological differences between actuaries, projected values shown onwards are not meant for budget planning purposes. **For trend and policy discussions only.**

# Stress Testing ERS Using Crisis Simulations



## Stress on the Economy:

- Market watchers expect dwindling consumption and incomes to severely impact near-term tax collections – applying more pressure on state and local budgets.
- Revenue declines are likely to undermine employers' ability to make full pension contributions, especially for those relying on more volatile tax sources (e.g., sales taxes) and those with low rainy-day fund balances.
- Many financial advisors project double-digit drops in U.S. GDP for Q2 2020. In Q1 2020 alone the S&P500 dropped by 20%, while the Federal Reserve lowered federal funds rate virtually to zero.

## Methodology:

- Adapting the Dodd-Frank stress testing methodology for banks and Moody's Investors Service recession preparedness analysis, the following scenarios assume one year of -24.0% returns in 2020, followed by three years of 11% average returns.
- Recognizing expert consensus regarding a diminishing capital market outlook, the scenarios assume a long-term investment return on 6% once markets rebound.
- Given the increased exposure to volatile global markets and rising frequency of Black Swan economic events, we include a scenario incorporating a second Black Swan crisis event in 2035.
- In the event plan sponsors are unable to appropriate their full actuarially determined or statutory contributions amid budget stress, additional scenarios show the impact of a five-year employer contribution freeze.

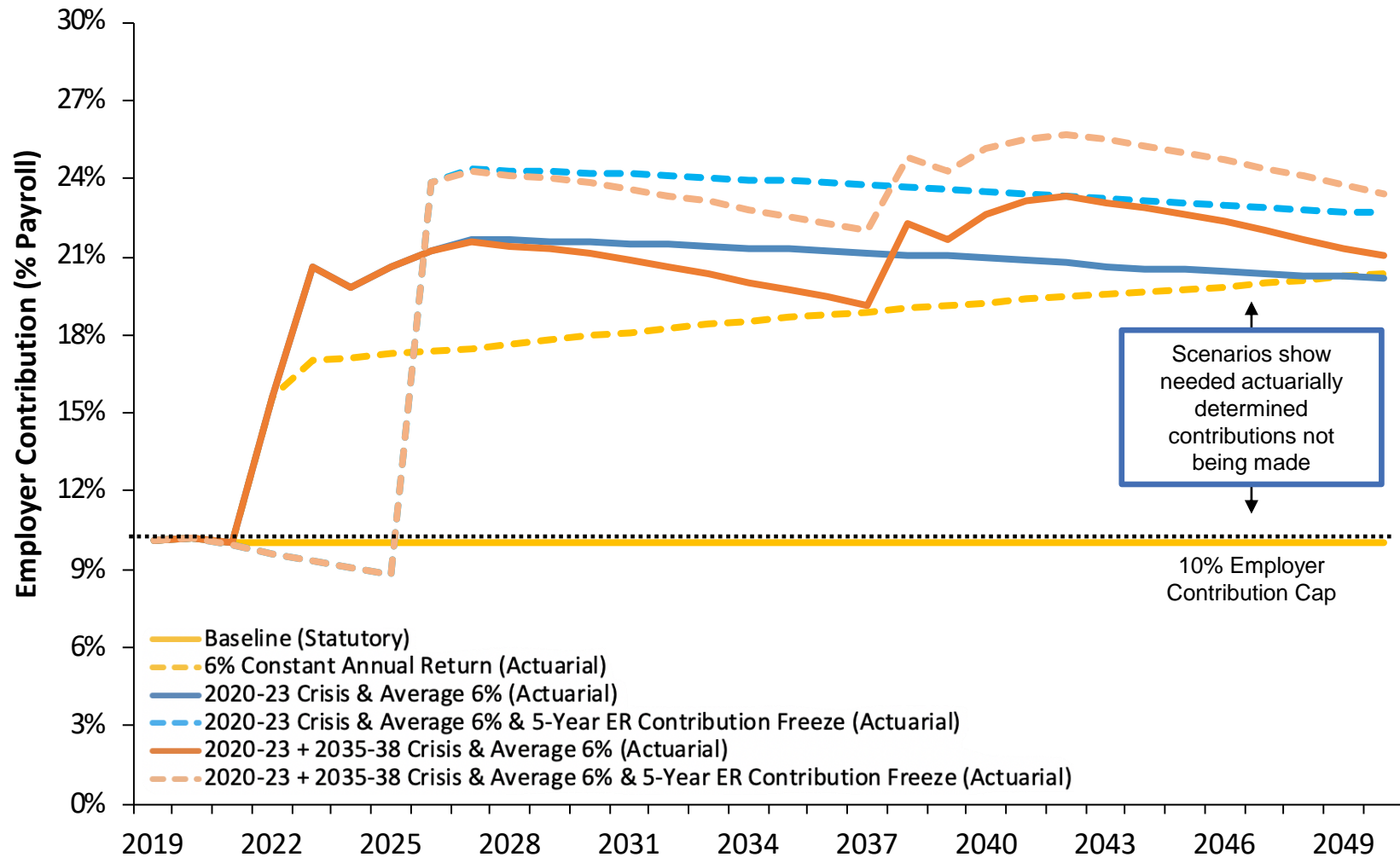
## Stress Testing Scenarios:

1. 6% Fixed Annual Return
2. 2020-23 Crisis + Average 6.0% Long-Term
3. 2020-23 Crisis + 2035-38 Crisis + Average 6.0% Long-Term
4. Scenario 1 + 5-Year Employer Contribution Freeze
5. Scenario 2 + 5-Year Employer Contribution Freeze

## ERS Stress Testing: All-in Employer Cost Projections

## Statutory Contributions are Actuarially Insufficient

Discount Rate: 7.0%, Assumed Return: 7.0%, Actual Return: Varying, Amo. Period: Current

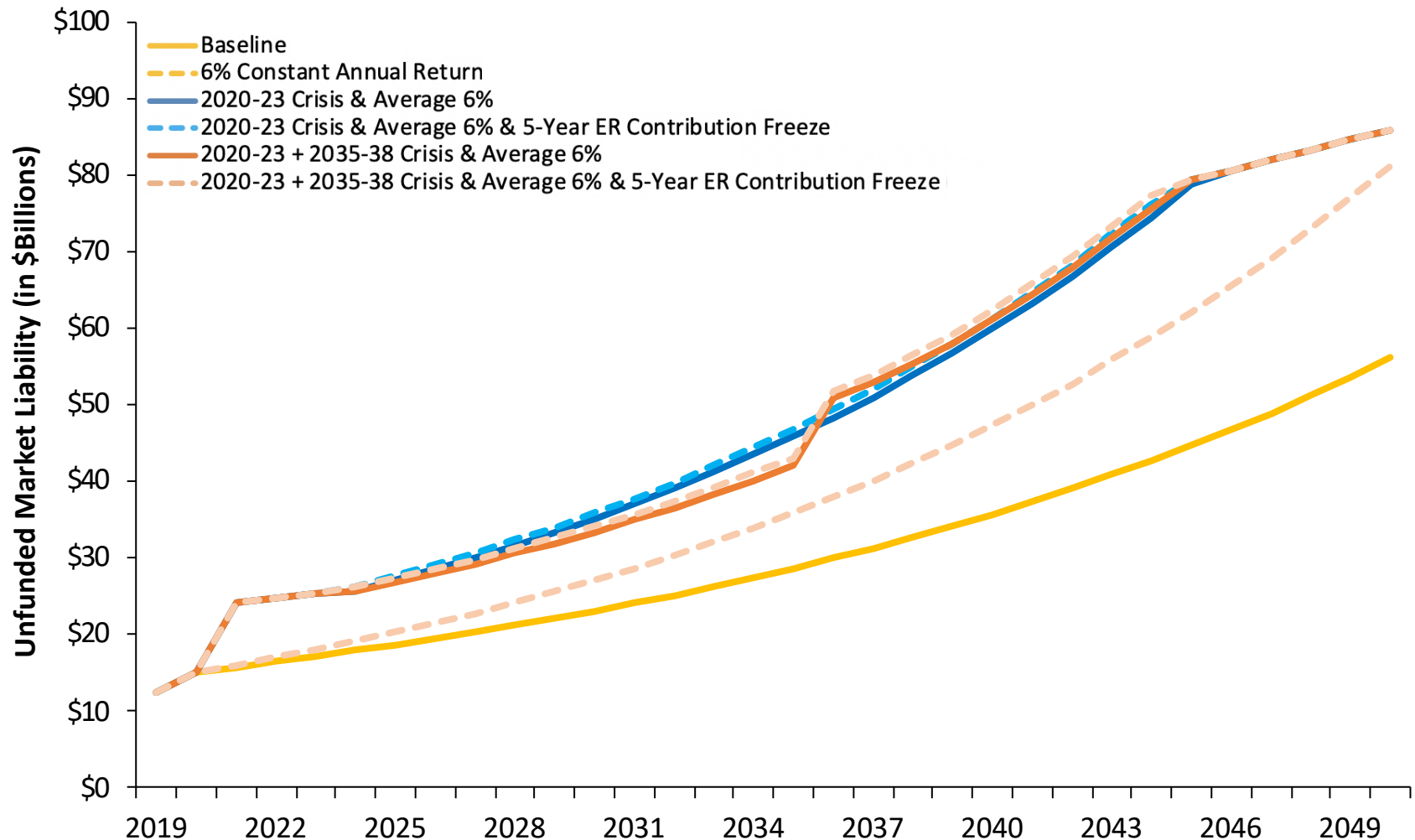


Source: Pension Integrity Project actuarial forecast of ERS. Values are rounded and adjusted for inflation. State is assumed to make 100% *actuarially* required contributions in all scenarios except the current baseline. The "All-in Cost" includes all employer contributions over the 30-year timeframe, and the ending unfunded liability accrued by the end of the forecast period.

## ERS Stress Testing: Unfunded Liability Projections

# Unfunded Liabilities Skyrocket Under Crisis Scenarios

Discount Rate: 7.0%, Assumed Return: 7.0%, Actual Return: Varying, Amo. Period: Current

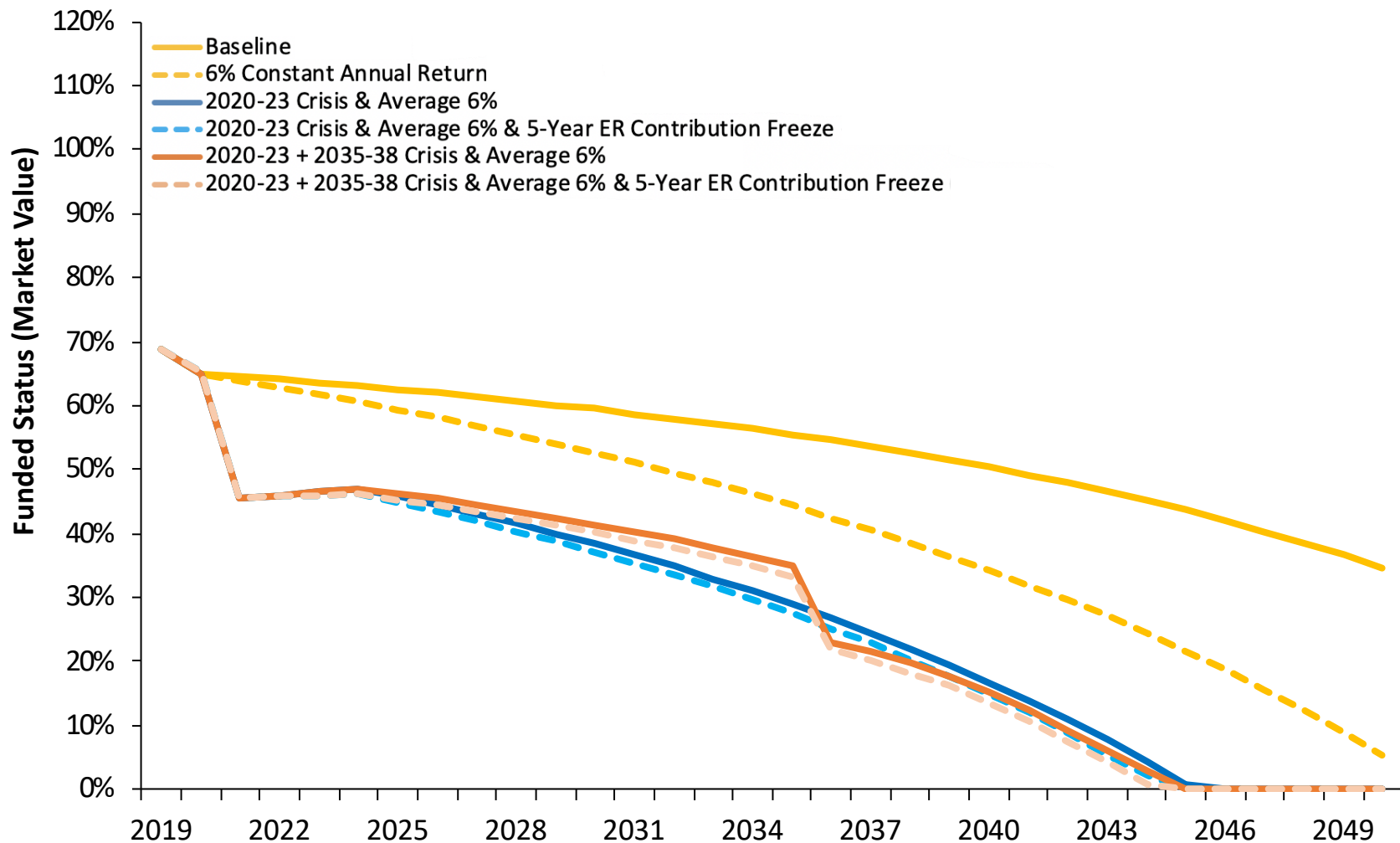


Source: Pension Integrity Project actuarial forecast of ERS. Values are rounded and adjusted for inflation. State is assumed to make *statutory* contributions under both baseline and under crises scenarios. The "All-in Cost" includes all employer contributions over the 30-year timeframe, and the ending unfunded liability accrued by the end of the forecast period.

## ERS Stress Testing: Funded Status Projections

## ERS Solvency Degrades Under Crisis Scenarios

Discount Rate: 7.0%, Assumed Return: 7.0%, Actual Return: Varying, Amo. Period: Current



Source: Pension Integrity Project actuarial forecast of ERS. Values are rounded and adjusted for inflation. State is assumed to make *statutory* contributions under both baseline and under crises scenarios. The "All-in Cost" includes all employer contributions over the 30-year timeframe, and the ending unfunded liability accrued by the end of the forecast period.



# Scenario Comparison of Employer Costs

Scenarios	Statutory Contributions			Actuarial Contributions		
	30-Year Employer Contributions	2050 Unfunded Liability (Market Value)	Total All-in Employer Costs	30-Year Employer Contributions	2050 Unfunded Liability (Market Value)	Total All-in Employer Costs
Pre-Crisis Baseline	\$23.4B	\$26.8 B	\$50.2 B	\$36.7B	-\$2.1 B	\$34.6 B
6% Constant Annual Return	\$23.4B	\$38.7 B	\$62.1 B	\$43.3 B	\$4.9 B	\$48.2 B
2020-23 Crisis + Average 6%	\$23.4B	\$48.4 B	\$71.8 B	\$47.8 B	\$0.2 B	\$48.0 B
Two Crises + Average 6%	\$23.4B	\$49.1 B	\$72.5 B	\$48.8 B	\$-0.4 B	\$48.3 B
2020-23 Crisis + Average 6% + 5-Year Cont. Freeze	\$23.4B	\$49.0 B	\$72.4 B	\$50.1 B	\$0.8 B	\$50.8 B
Two Crises + Average 6% + 5-Year Cont. Freeze	\$23.4B	\$49.7 B	\$73.1 B	\$51.1 B	\$0.0 B	\$51.1 B

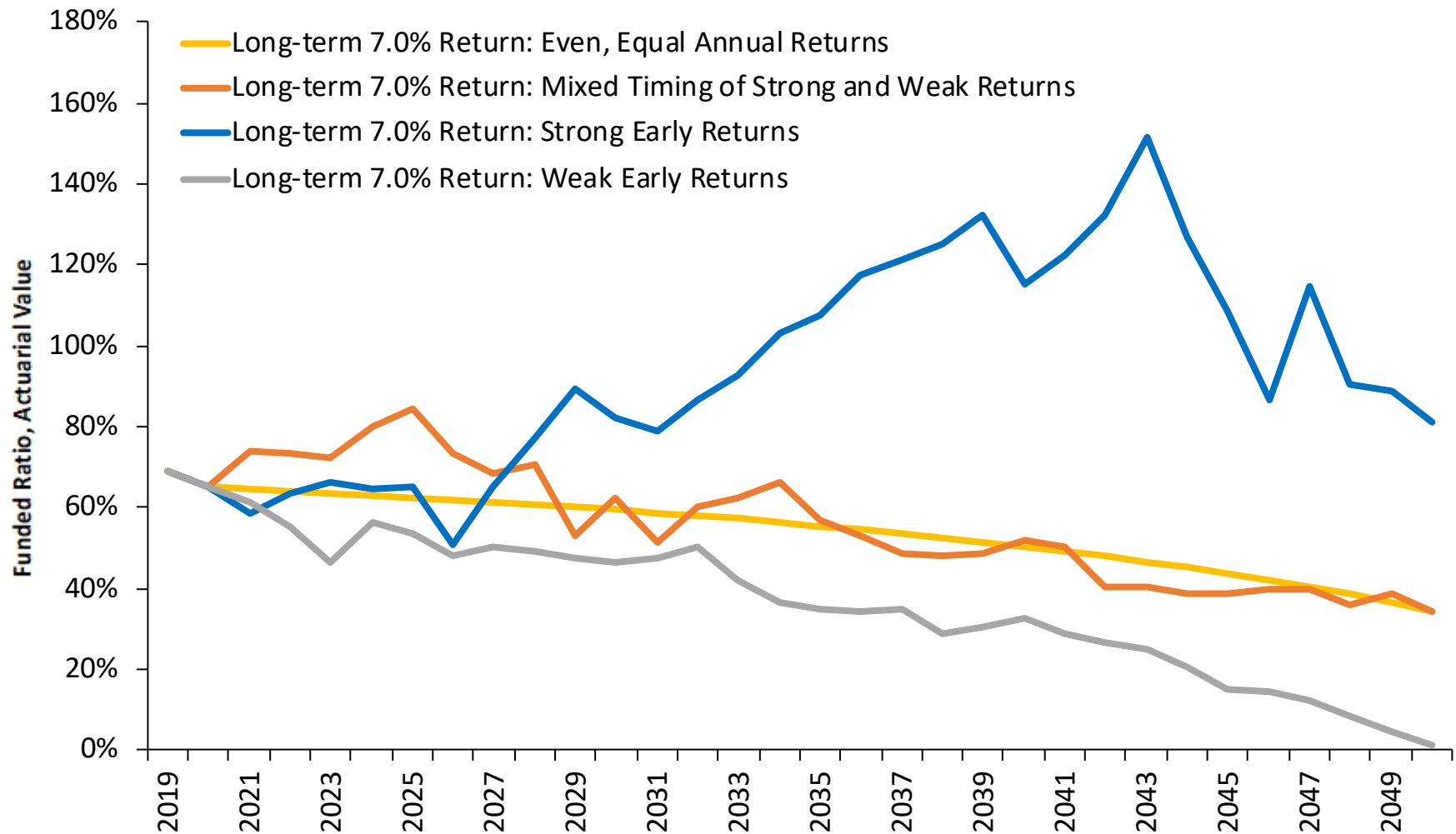
Source: Pension Integrity Project actuarial forecast of ERS. All values are rounded and adjusted for inflation.

The “All-in Cost” includes all employer contributions over the 30-year timeframe, and the ending unfunded liability accrued by the end of the forecast period.

## 30-year Funded Ratio Forecast

# All Paths to a 7.0% Average Return Are Not Equal

Long-Term Average Returns of 7.0%



Source: Pension Integrity Project actuarial forecast of ERS plan. Strong early returns (TWRR = 7.0%, MWRR = 8.1%), Even, equal annual returns (Constant Return = 7.0%), Mixed timing of strong and weak returns (TWRR = 7.0%, MWRR = 7.0%), Weak early returns (TWRR = 7.0%, MWRR = 5.8%) Scenario assumes ERS pays statutory contribution rates each year. Years are plan's fiscal years.



# Forecasting the Impact of Market Volatility

## Random Variable Analysis

### What is it?

- Model generates 10,000 different random investment return scenarios, creating ranges in required contributions and funding outcomes
- This analysis displays 50 percent of all outcomes that are closest to the median outcome

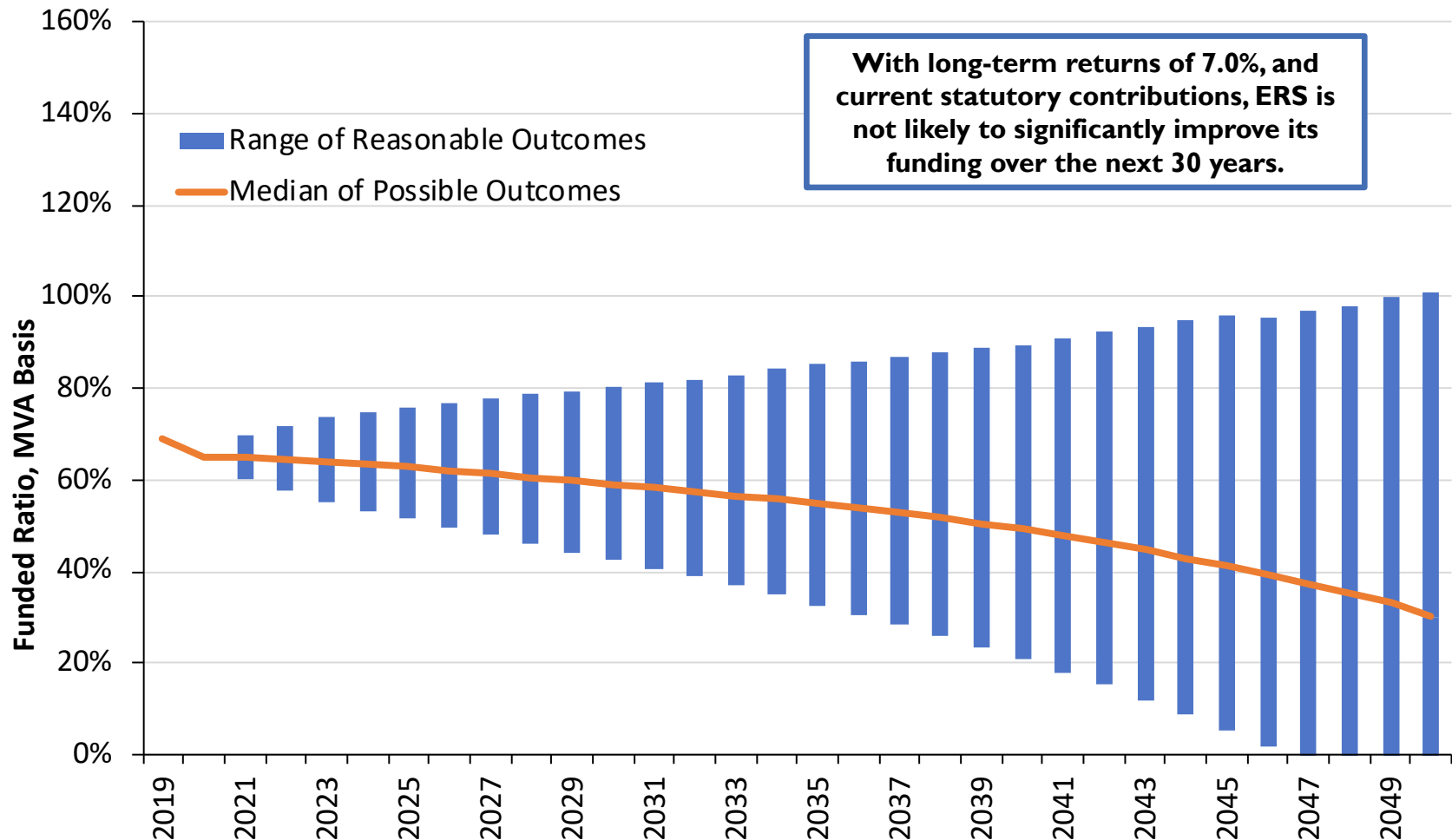
### Why use it?

- Using a large sample of potential 30-year return scenarios can show the differences in how plan's funding will react to high or low investment fluctuations.
- The cone of displayed outcomes and the median illustrates the level of risk placed on the plan
- A narrow cone suggests a plan is more resilient—and has less investment risk—than that of a wider cone

## 30-year Funded Ratio Forecast (Statutory Contribution Policy)

## Funded Ratios are Not Expected to Improve

Long-Term Average Returns of 7.0%

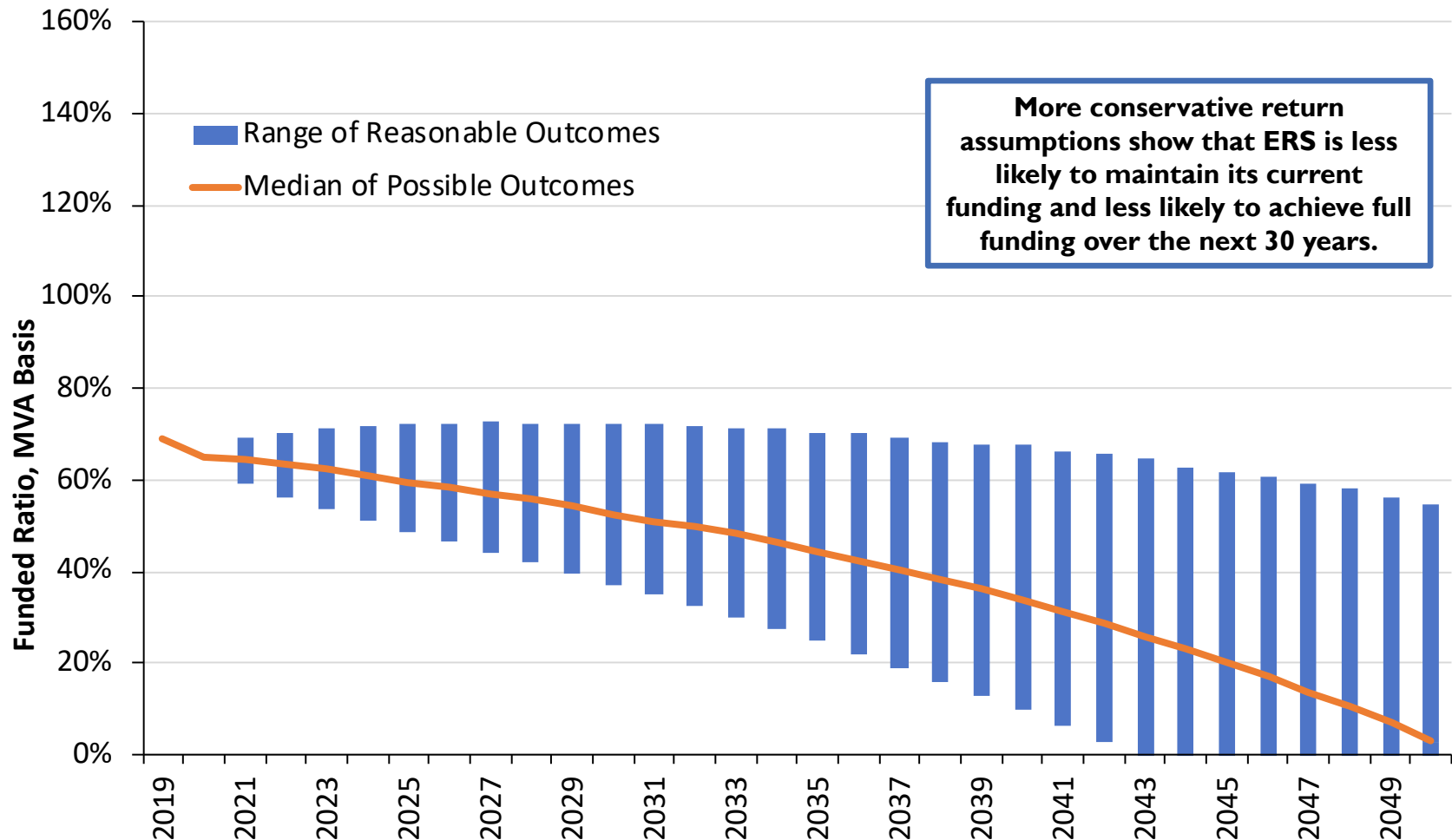


Source: Pension Integrity Project actuarial forecast of ERS plan based on ERS return and risk assumptions.  
Range of Reasonable Outcomes represents the 50% of possible outcomes closest to the median.

## 30-year Funded Ratio Forecast (Statutory Contribution Policy)

# How Do Missed Returns Impact Funded Ratios?

Based on More Conservative Long-Term Average Returns

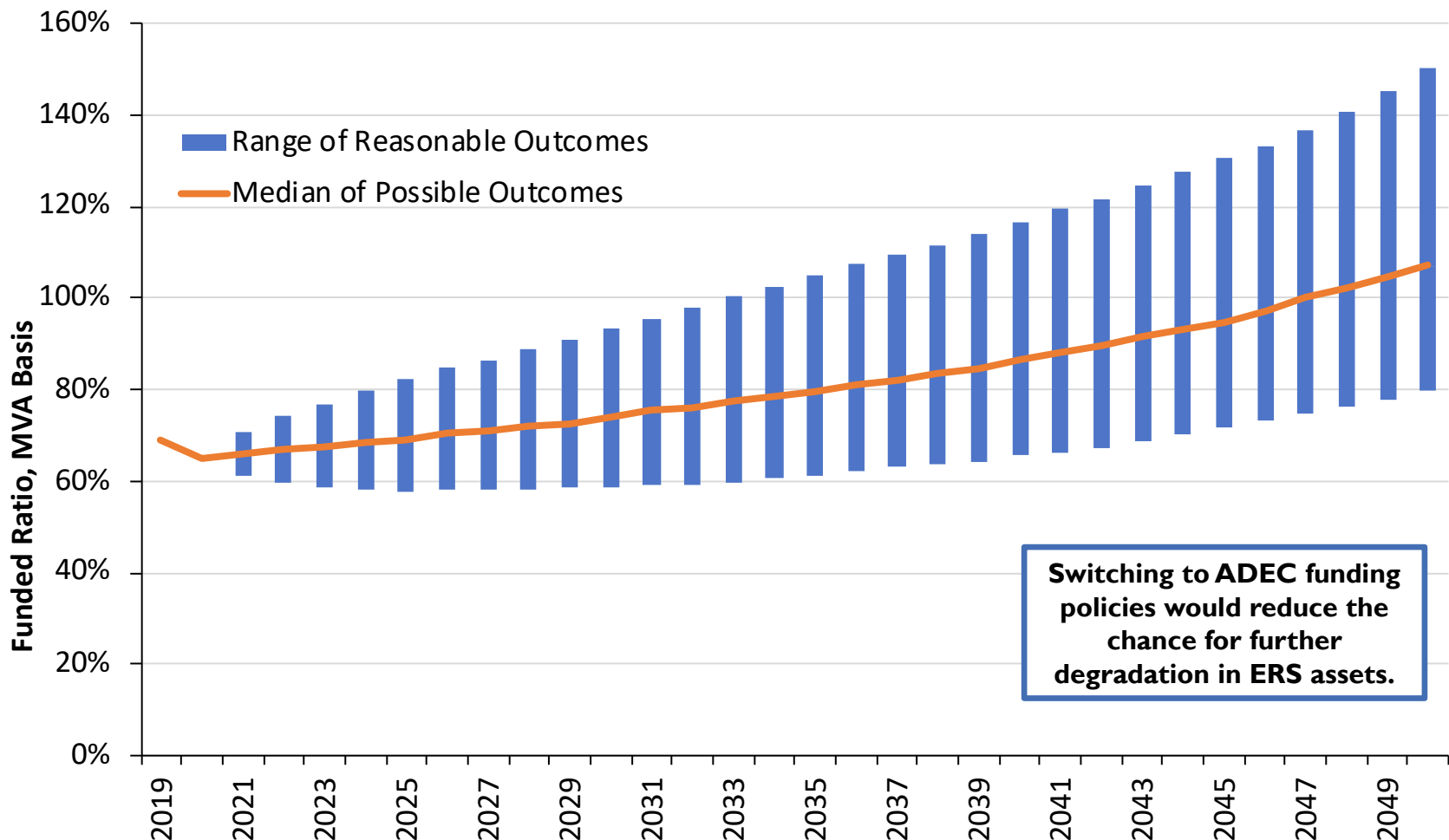


Source: Pension Integrity Project actuarial forecast of ERS plan using the return and risk assumptions of the Monte Carlo analysis. Conservative returns are 6.7%, which are the result of combining the short-term and long-term capital market assumptions from prominent financial firms.

## 30-year Funded Ratio Forecast (Conceptual ADEC Contribution Policy)

# How do Contribution Methods Affect Funding?

Long-Term Average Returns of 7.0%

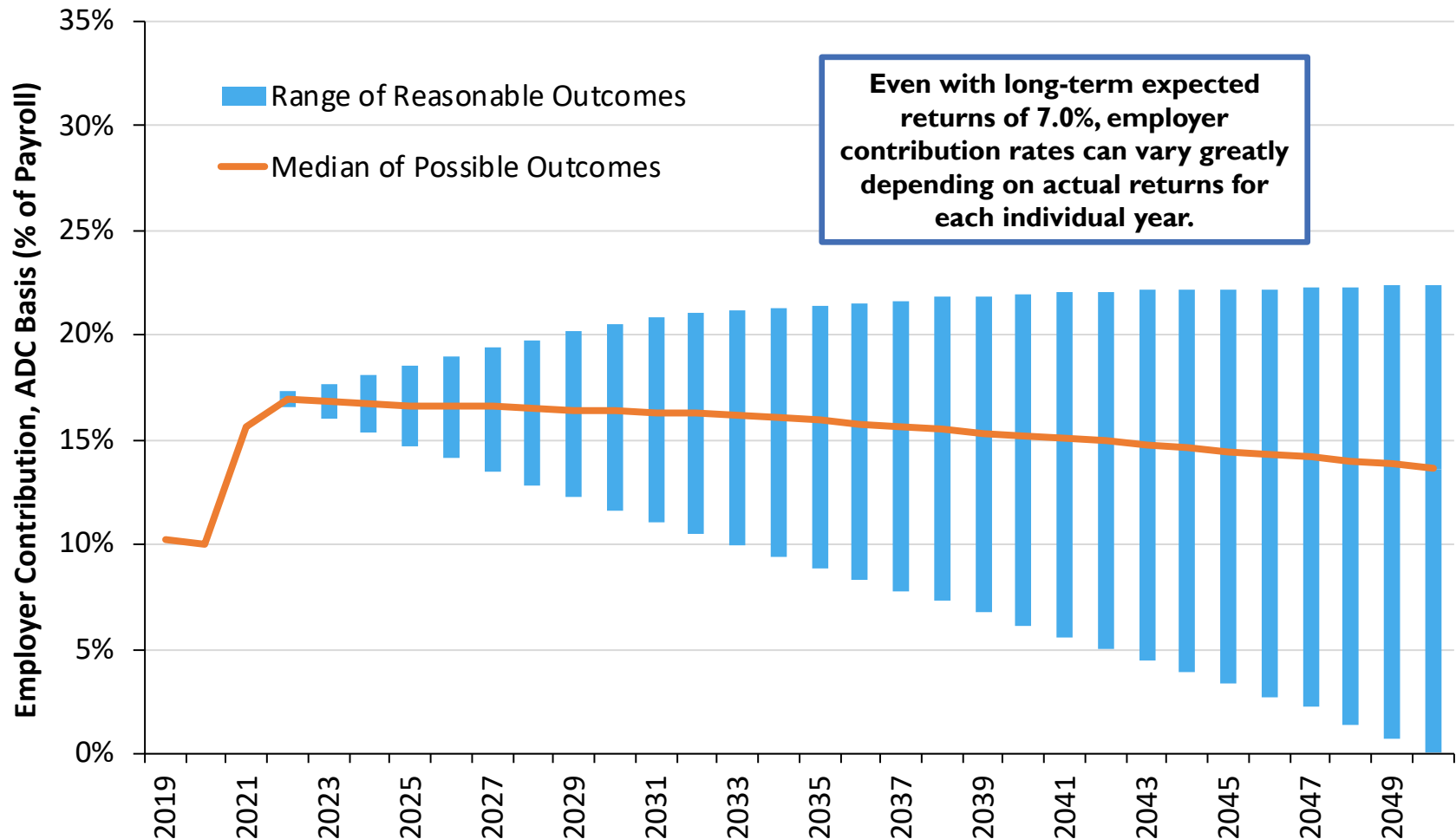


Source: Pension Integrity Project actuarial forecast of ERS plan based on ERS return and risk assumptions.  
Range of Reasonable Outcomes represents the 50% of possible outcomes closest to the median.

## 30-year Employer Contribution Forecast (Conceptual ADEC Contribution Policy)

### If ERS Performs as Expected, Rates Can Still Vary

Long-Term Average Returns of 7.0%

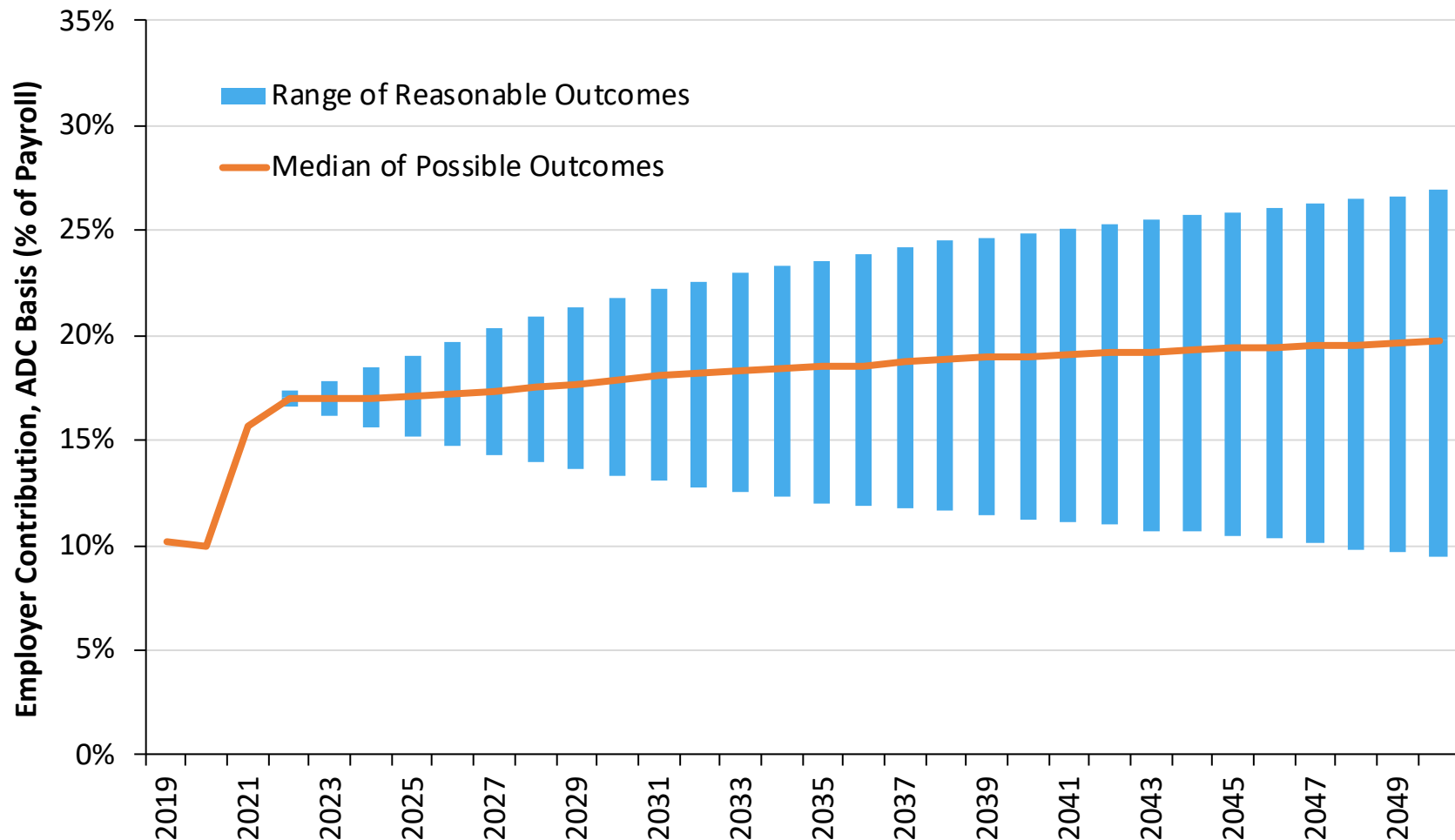


Source: Pension Integrity Project actuarial forecast of ERS plan based on ERS return and risk assumptions. Scenario assumes that the state pays 100% of the actuarially determined contribution each year. Range of Reasonable Outcomes represents the 50% of possible outcomes closest to the median.

## 30-year Employer Contribution Forecast (Conceptual ADEC Contribution Policy)

### If ERS Underperforms, Expect Higher Contributions

More Conservative Long-term Average Expected Returns



Source: Pension Integrity Project actuarial forecast of ERS plan using the return and risk assumptions of the Monte Carlo analysis. Conservative returns are 6.7%, which are the result of combining the short-term and long-term capital market assumptions from prominent financial firms.



# Sensitivity Analysis: Normal Cost Comparison Under Alternative Assumed Rates of Return



(Amounts to be Paid in 2019-20 Contribution Fiscal Year, % of projected payroll)

Assumed Return	Gross Normal Cost	Employer Normal Cost	Employee Normal Cost
<b>7.5%</b> (FYE 2019 Baseline)	13.76%	4.26%	9.50%
<b>6.5%</b>	15.18%	5.68%	9.50%
<b>5.5%</b>	17.88%	8.38%	9.50%
<b>4.5%</b>	23.14%	13.64%	9.50%

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. Alternative normal cost rates based on reported liability sensitivity from the FYE 2019 ERS CAFR.



# STATE CONSTITUTION PROVISIONS TO CONSIDER

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# Constitutional Limits to Consider

- The Texas Constitution creates a limit on the “state” share of ERS required contributions. Article 16, Section 67(b)(3):
  - *“The amount contributed by a person participating in [ERS] may not be less than six percent of current compensation. **The amount contributed by the state may not be less than six percent nor more than 10 percent of the aggregate compensation paid to individuals participating in the system.**”*
- Since risk analysis, sensitivity analysis, and stress test analysis all point to the need for larger contributions in general, how those are distributed amongst the state, school district employers, and participants will be an important factor to consider.



# Constitutional Limits to Consider

- The Texas Constitution provides an “emergency clause” allowing state contributions to ERS to exceed the 10% of payroll cap. Article 16, Section 67(b)(3):
  - *“In an **emergency**, as determined by the governor, the legislature may appropriate such additional sums as are actuarially determined to be required to fund [ERS] benefits authorized by law.”*
- The need for higher contributions is likely to be on-going for at least the next 20 to 30 years. Thus, the use of an emergency clause would likely not be a viable solution should the legislature desire to contribute above the 10% of payroll cap on contributions.



# Constitutional Limits to Consider

- The Texas Constitution requires that benefits should be financed in a way that is consistent with best practices. Article 16, Section 67(a)(1):
  - ***“Financing of benefits must be based on sound actuarial principles.”***
- The definition of actuarially sound principles is not expressly defined, and there will be some variance among professional actuaries.
  - The Society of Actuaries Blue Ribbon Panel outlined best practices such as ensuring the amortization schedule is less than 30-years and paid off over a fixed period.



## CHALLENGE 2: INSUFFICIENT CONTRIBUTIONS & DEBT MANAGEMENT POLICIES

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- For 18 of the past 22 years, employer contributions have fallen short of even the interest accrued on the pension debt, resulting in a need for much higher contributions today.

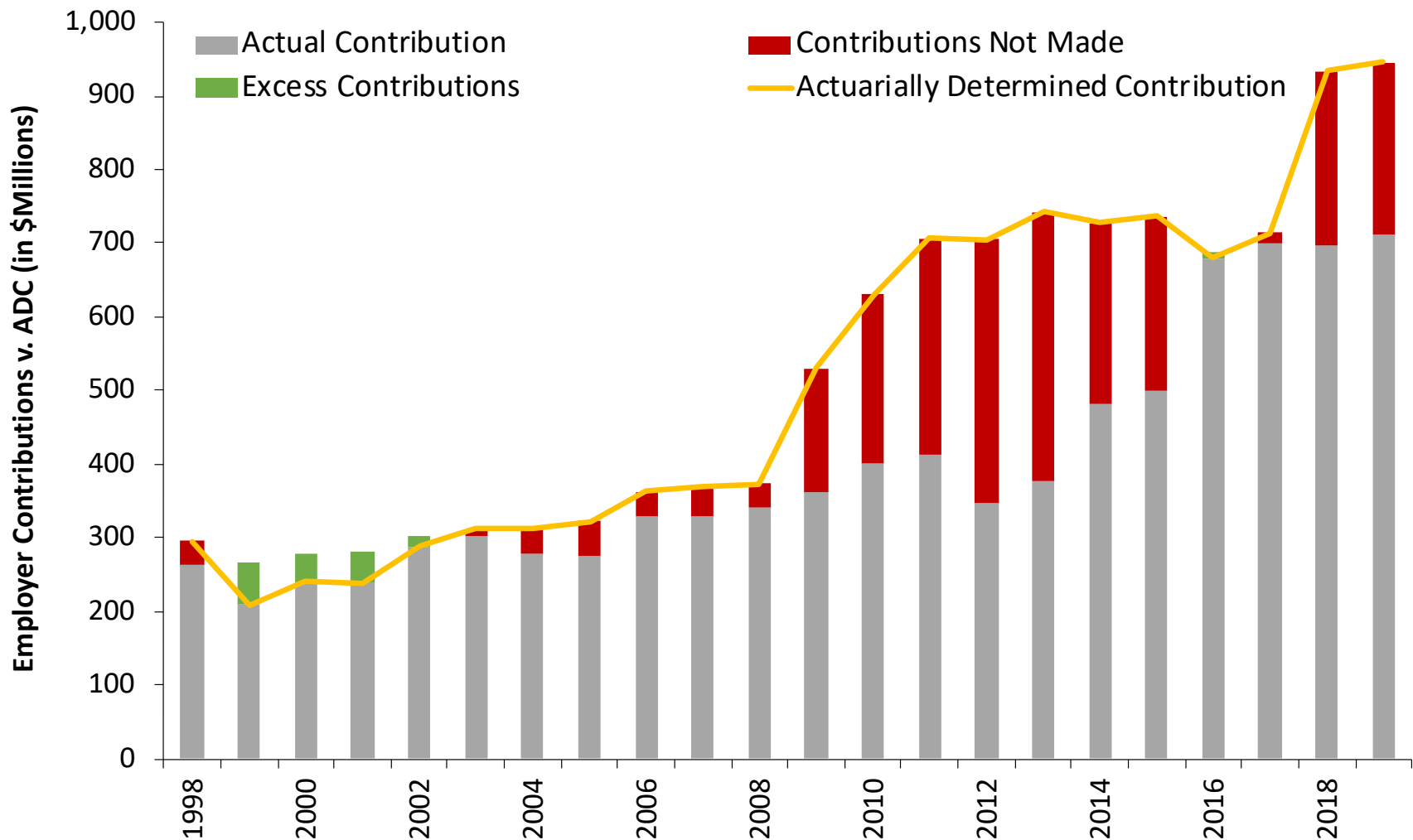
# State Statutes Have Created a Structural Underfunding Challenge for ERS



1. Over the past 17 years, statutory employer contributions have routinely fallen below actuarially determined contribution (ADC) rates.
2. Employer contribution rates determined by legislative statute are not enough to keep up with the actual amount necessary to amortize the debt.
3. 2019: Employer ADEC v. Statute
  - *Statutory* Employer Contribution: 10.00% of payroll
  - *Actuarially Determined* Employer Contribution: 13.76% of payroll

# Actuarially Determined Employer Contribution History, 1998-2019

## Actual v. Required Contributions



Source: Pension Integrity Project analysis of ERS actuarial reports and CAFRs. Years are contribution fiscal years.



# Negative Amortization: Understanding the Current Funding Policy



- With the employer contribution rate fixed in statute and a 31-year, open amortization policy, ERS now faces an infinite amortization period, meaning it is not projected to ever pay off its unfunded liabilities.

## **ERS Amortization Period History:**

- 2019: Infinite-year amortization period
- 2015: Infinite-year amortization period
- 2006: Infinite-year amortization period
- 2001: 40-year amortization period

- These long amortization periods are indicators that plan amortization payments are not sufficient to pay down the unfunded liability and subsequent interest it accrues (i.e. *negative amortization*).
  - The Society of Actuaries recommends amortization periods of 15 to 20 years.
  - Longer periods result in larger long-term costs, so the shorter the amortization period, the better.

## Debt Management Policies

# Shorting ERS Leads to Negative Amortization



1. Due to inadequate and capped statutory rates, ERS valuations routinely show infinite amortization periods, taking ERS well outside industry best practices.
2. ERS officially maintains a 31-year, level percent open amortization target. And as of 2019 ERS's actual amortization period was "Infinite", which means the system will never fully amortize the debt.
3. Long amortization periods are indicators that plan amortization payments are insufficient to pay down ERS's unfunded liability and the interest that debt accrues.
4. Since 2004, employer contributions have fallen below the interest accrued on ERS's unfunded liability (negative amortization), leaving ERS to fall further behind its obligations in absolute terms.
5. Limiting ERS's amortization period to no more than 20 years and addressing any new unfunded liabilities in a given year on separate schedules is the most direct way to limit the impact of unfunded liabilities long-term.

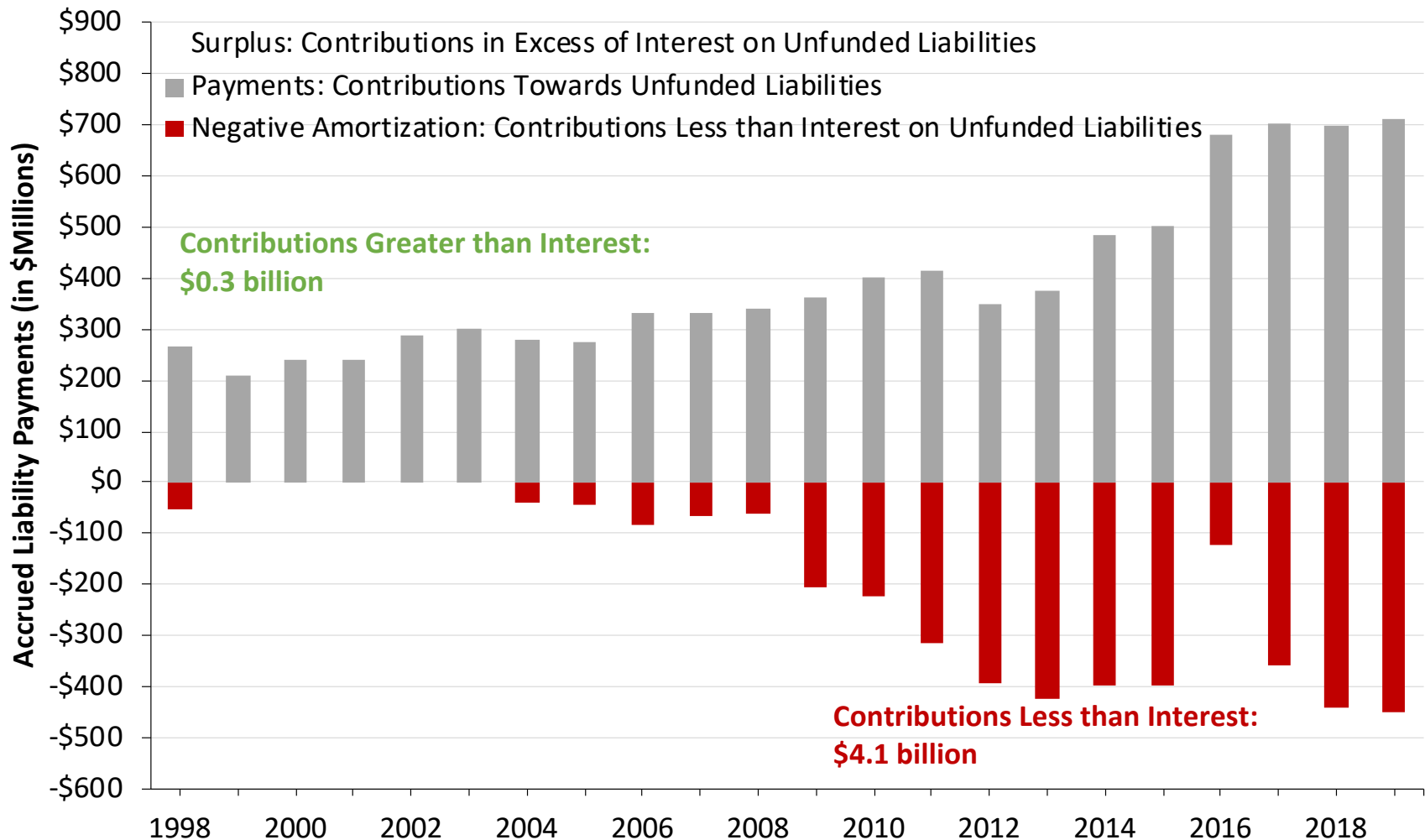
### Quick Facts:

- The Society of Actuaries recommends amortizing new unfunded pension liabilities on a layered basis over a 15 to 20-year period.

## Debt Management Policies

## Debt Interest v. Accrued Liability Payments

ERS Negative Amortization Growth, 1998-2019



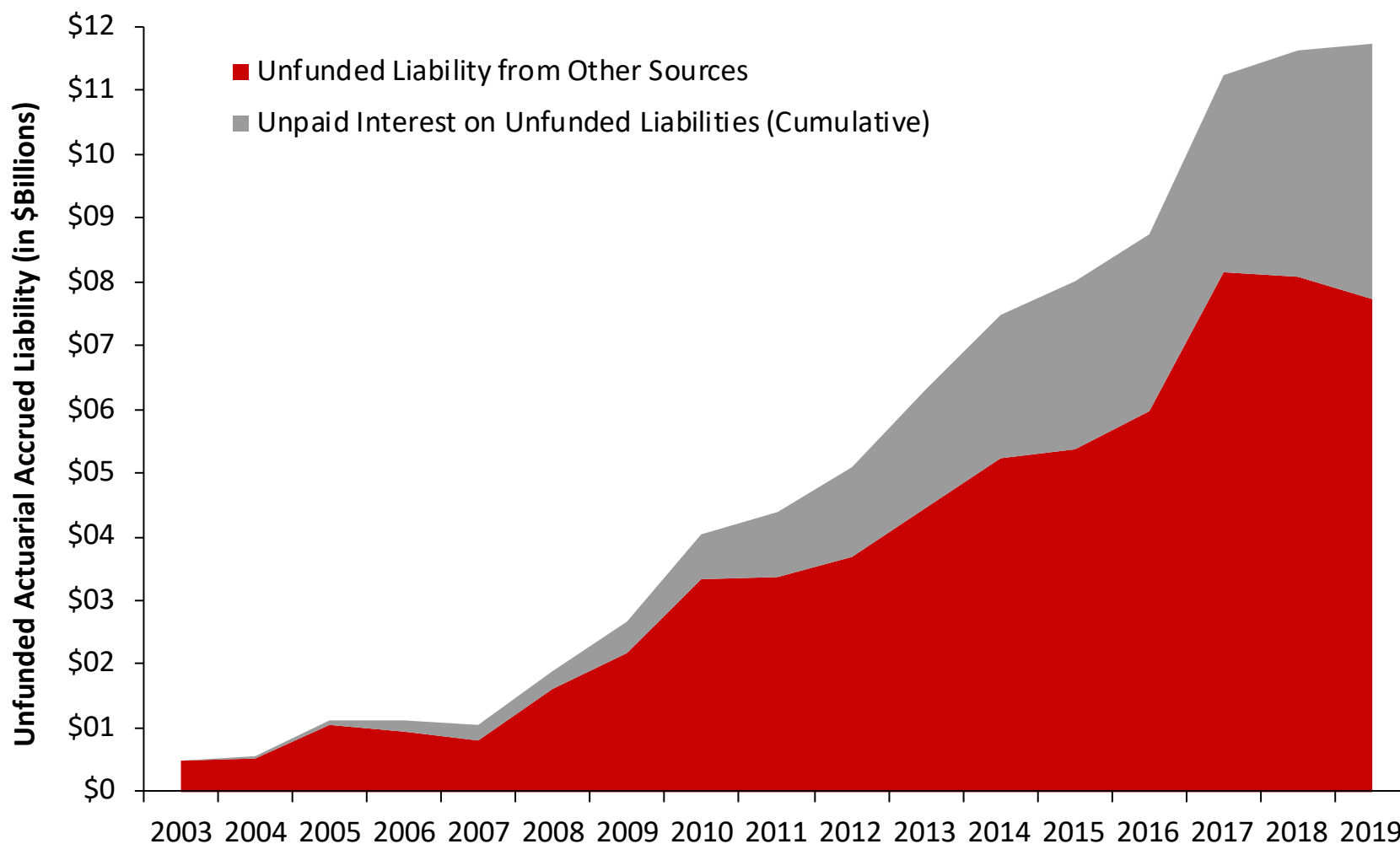
Source: Pension Integrity Project actuarial analysis of ERS plan valuation reports and CAFRs.

Grey and red bars combined designate amount of interest accrued. Green bars show what has been contributed above the interest.

## Debt Management Policies

# Interest Added to Unfunded Liability

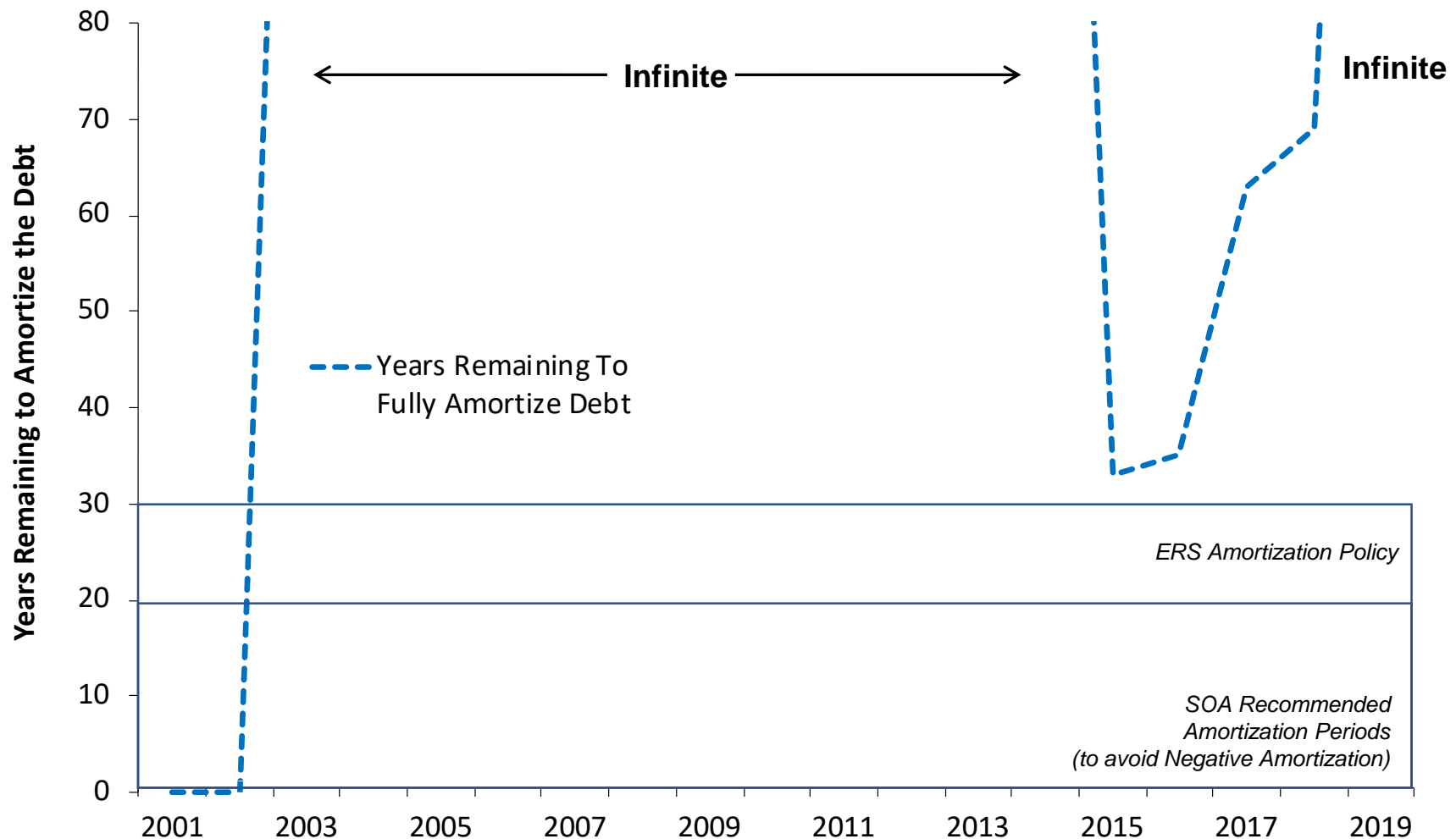
ERS Negative Amortization Growth, 2003-2019



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

## Debt Management Policies

## Infinite Amortization Means Perpetual Debt



Source: Pension Integrity Project analysis of ERS actuarial valuation reports and CAFRs.  
The Society of Actuaries Blue Ribbon Panel recommends amortization periods not exceed 20 years..

## Debt Management Policies

# Back-Loaded Pension Debt Payments



ERS uses a 31-year, level-percent of payroll amortization method to amortize accrued unfunded liability.

- What is level percent of payroll amortization?
  - Sets the amortization payment as a fixed share of total member payroll
  - Very sensitive to missed assumptions
  - Often results in back-loaded pension debt payments, especially if payroll growth slows
- What does a 31-year amortization period (or higher) mean?
  - The amount of time over which ERS spreads debt payments
  - Actuaries find amortizing new debt longer than 20 years stretches payments too thin
  - Makes it more likely unfunded liabilities will never be paid off
  - Often leaves debt payments each year short of the interest accrued on the debt (e.g. negative amortization)



# CHALLENGE 3: DEVIATIONS AND CHANGES TO ACTUARIAL ASSUMPTIONS AND METHODS

- 
- The combination of unmet actuarial assumptions and slow-paced changes to those assumptions is increasing the size of unfunded liabilities



## Challenges from Aggressive Actuarial Assumptions

# Actual Experience Different from Actuarial Assumptions

- **(-) Flawed Contribution and Debt Management Policies**
  - Setting contribution rates in statute that are below ADEC and using optimistic return assumption resulted in interest on ERS debt exceeding the actual debt payments (aka negative amortization) and a net \$3.88 billion increase in the unfunded liability since 2001.
- **(-) Changes in Actuarial Assumptions and Methods**
  - ERS made alterations to its actuarial assumptions (e.g. changes in the assumed rate of return in 2017) that have collectively unveiled \$0.64 billion of hidden unfunded liabilities from 2001-2019.
- **(-) Deviations from Service Retirement and Other Demographic Assumptions**
  - ERS's unfunded liability has increased by \$1.14 billion between 2001-2019 due to misaligned demographic assumptions (including deviations from plan's withdrawal, retirement, disability, and mortality assumptions).





## Challenges from Aggressive Actuarial Assumptions

# Actual Experience Different from Actuarial Assumptions

- **(+) Overestimated Payroll Growth**

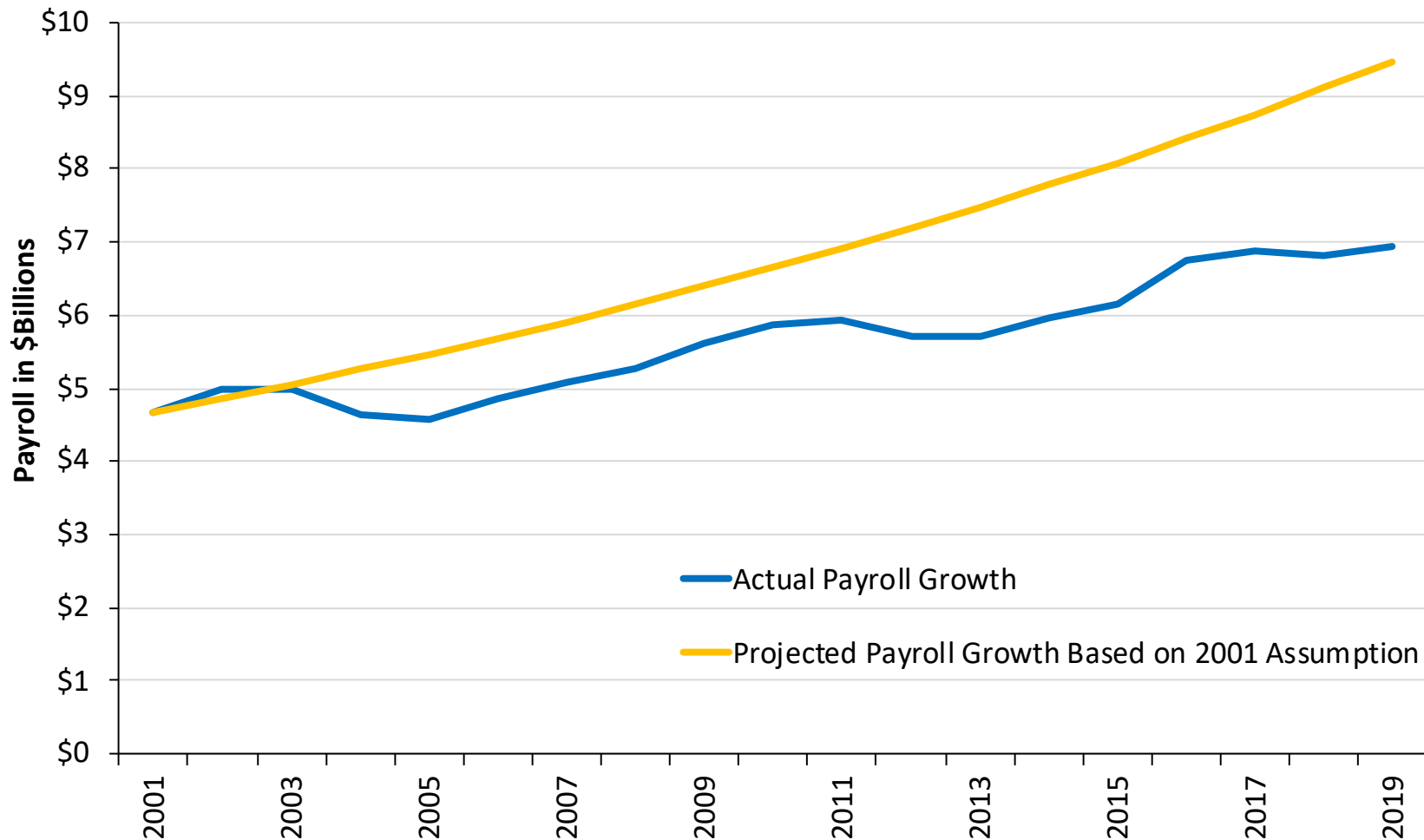
- ERS employers have not raised salaries as fast as expected, resulting in lower payrolls and thus lower earned pension benefits. This has meant a reduction in unfunded liabilities of \$1.1 billion from 2001 to 2019.

- **(-) Overestimated Payroll Growth**

- However, overestimating payroll growth is creating a long-term Challenge for ERS because of its combination with the level-percentage of payroll amortization method used by the plan.
- This method backloads pension debt payments by assuming that future payrolls will be larger than today (a reasonable assumption). But when payroll does not grow as fast as expected, 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

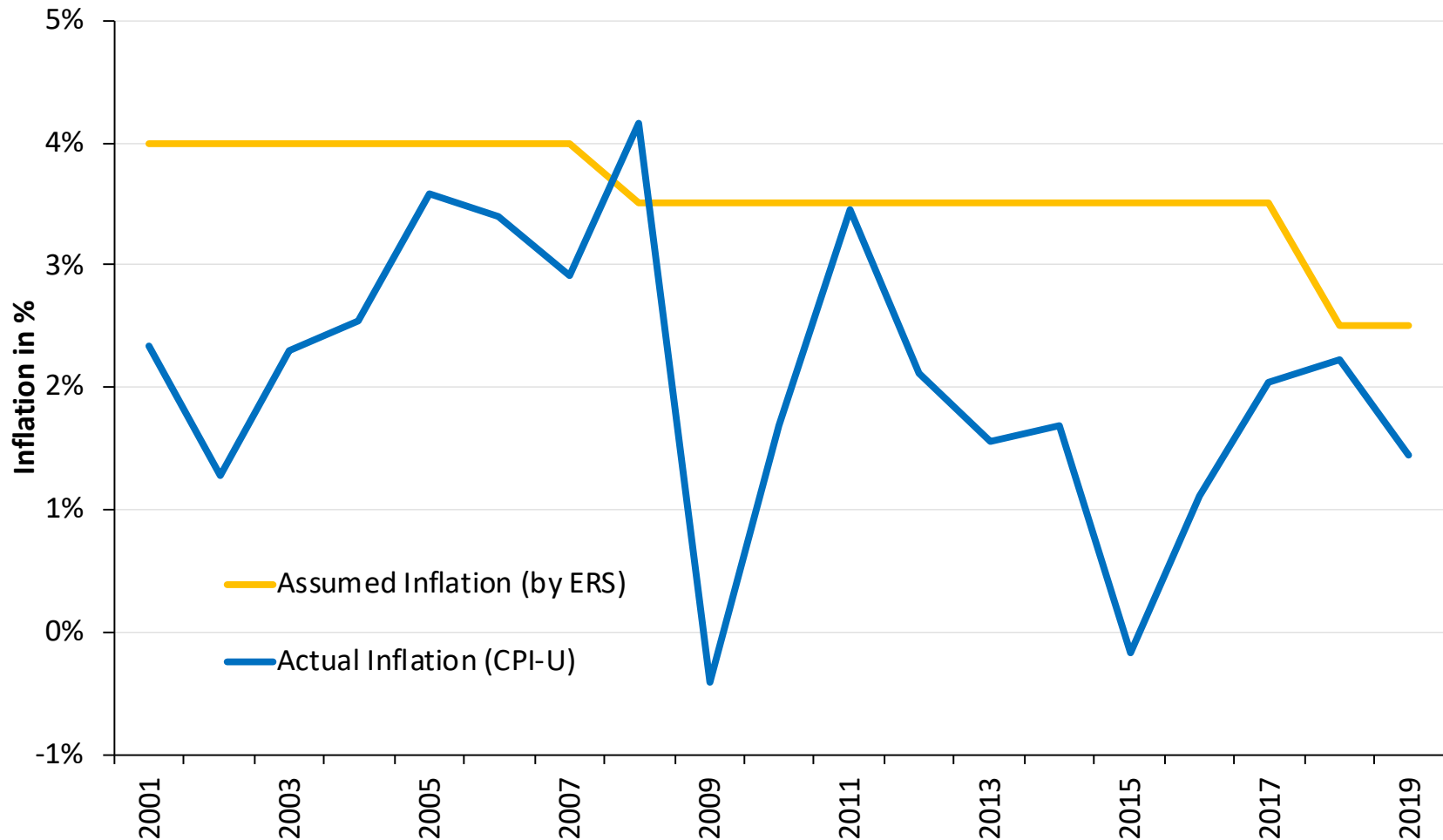
## Actual Change in Payroll v. Assumption



Source: Pension Integrity Project analysis of ERS actuarial valuation reports and CAFRs. Years represent fiscal year ended dates.

# Challenges from Aggressive Actuarial Assumptions

## Actual Inflation v. Assumption

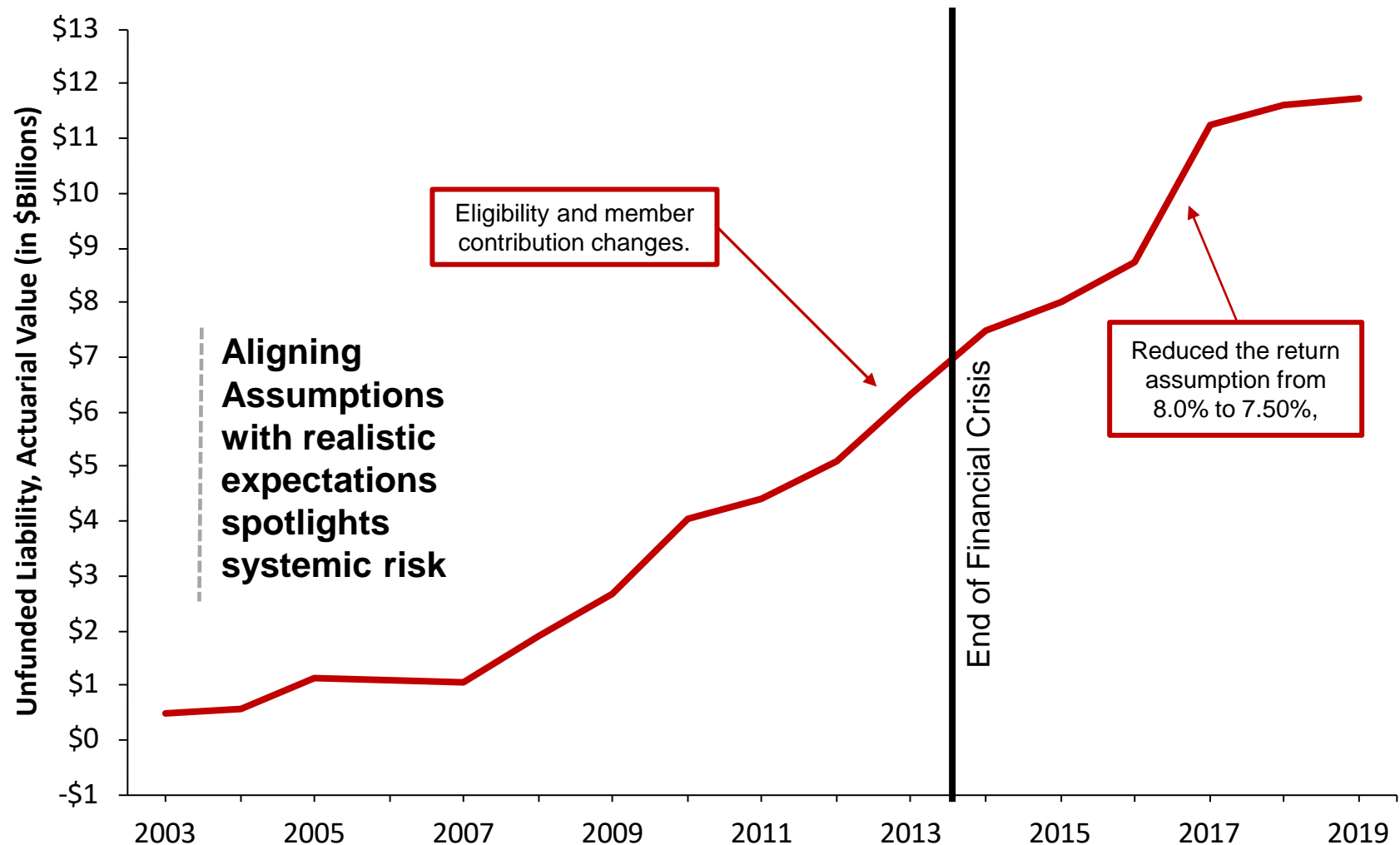


Source: Pension Integrity Project forecasting based on ERS actuarial valuation reports and CAFRs, and data from the Bureau of Labor Statistics.



# Challenges from Aggressive Actuarial Assumptions

## Assumption Changes Expose Hidden Unfunded Liabilities



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



# CHALLENGE 4: DISCOUNT RATE AND UNDERVALUING DEBT

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

# ERS 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 ERS — 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 ERS 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.

# ERS Discount Rate

## Methodology is Undervaluing Liabilities



- 2. Setting a discount rate too high leads to undervaluing the amount of accrued pension benefits:**
  - 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 Texas would pay out less than 100% of promised retirement income benefits to members and retirees.**
  - Article 16, § 66(d) of the Texas Constitution protects against impairment or reduction of accrued pension benefits "[A] change in service or disability retirement benefits or death benefits of a retirement system may not reduce or otherwise impair benefits accrued by a person..."
- 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.



# ERS Pension Debt Sensitivity

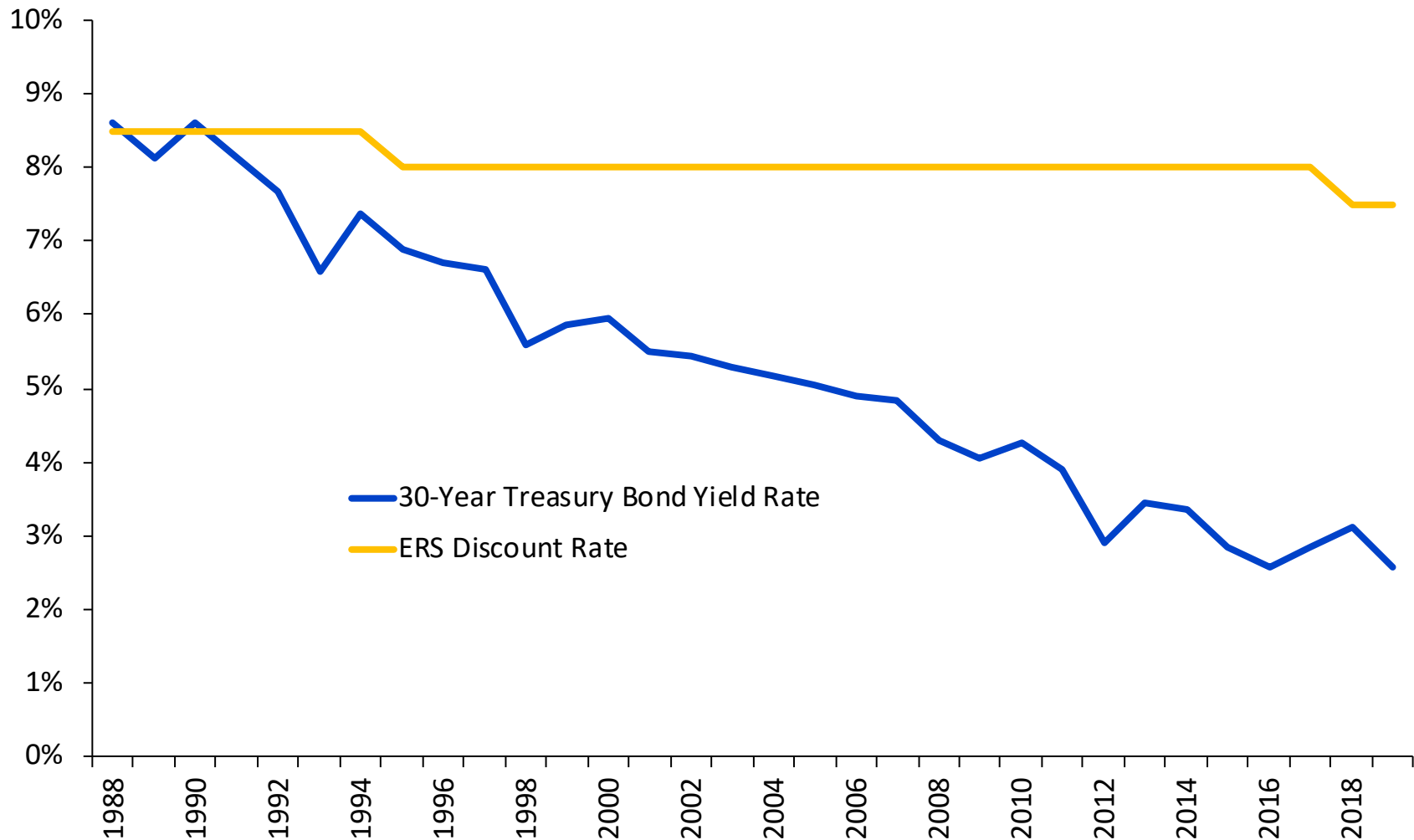
## FYE 2019 Actuarial Liability Projections Under Varying Discount Rates

Discount Rate	Funded Ratio (Market Value)	Net Pension Liability (Market Value)	Total Pension Liability
<b>7.5%</b> (FYE 2019 Baseline)	68.7%	\$12.4 billion	\$39.8 billion
<b>6.5%</b>	59.9%	\$18.3 billion	\$45.6 billion
<b>5.5%</b>	52.3%	\$25.0 billion	\$52.3 billion
<b>4.5%</b>	45.6%	\$32.6 billion	\$60.0 billion

Note: Both baseline and alternative unfunded liability figures should be considered approximate guides to unfunded liability projections under various discount rates. Any policy changes should be based on more precise actuarial liability forecasts using detailed plan data. Alternative unfunded liability is based on reported liability sensitivity from the FYE 2019 Texas ERS CAFR.

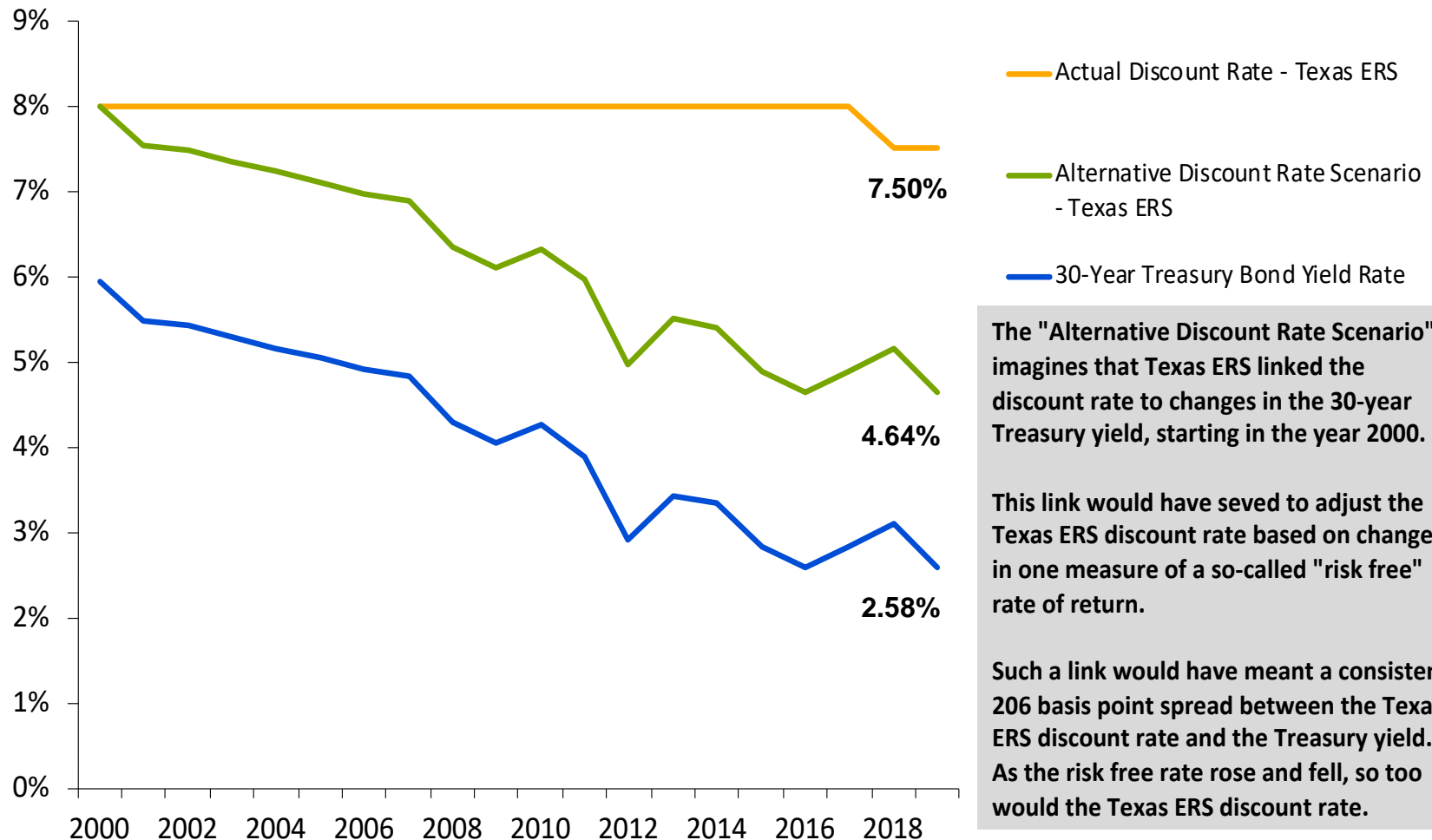


# Change in the Risk-Free Rate Compared to ERS Discount Rate (1988-2019)



Source: Federal Reserve average annual 30-Year Treasury constant maturity rate.

# Change in the Risk-Free Rate Compared to ERS Discount Rate (2000-2019)





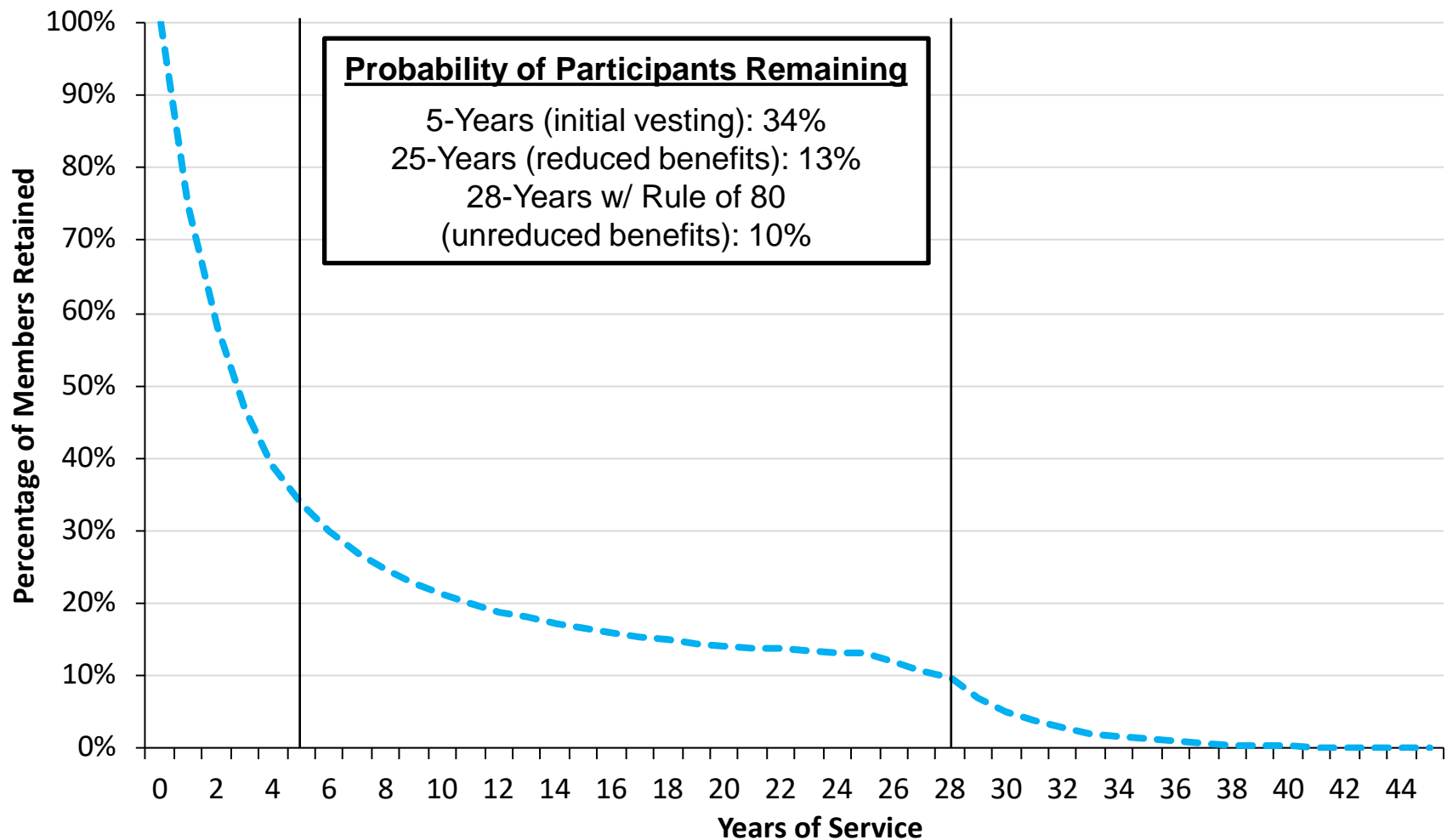
# CHALLENGE 5: THE EXISTING BENEFIT DESIGN DOES NOT WORK FOR EVERYONE

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- The turnover rate for members of ERS suggests that the current retirement benefit design is not supporting goals for retention



# Probability of Members Remaining in ERS



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

Illustration is based on plan's assumptions and a hypothetical analysis of an average Regular State Employee hired at the age of 25.

# Do ERS Retirement Plans Work for All Employees?



- **66%** of new ERS members leave before 5 years
  - Regular State employees must work 5 years before their benefits become vested.
  - Members who leave the plan before then must forfeit contributions their employer made on their behalf.
  - Another 17% of new members still working after 5 years will leave before 15 years of service.
- **10%** of all paid Regular State members hired next year will still be working after 28 years, long enough to qualify for unreduced benefits under Rule of “80” (Age + Service)



# Recruiting and Retaining Public Employees

## ■ **Recruiting a 21<sup>st</sup> Century Workforce:**

- There is little evidence that retirement plans — DB, DC, or other design — are a major factor in whether an individual wants to enter public employment.
- The most likely incentive to increase recruiting to the public workforce is increased salary.

## ■ **Retaining Employees:**

- If worker retention is a goal of the ERS system, it is clearly not working, as nearly 70% of employees leave within 5 years.
- After 15 to 25 years of service there is some retention effect, but the same incentives serve to push out workers in a sharp drop off after 30 years of service or reaching “Rule of 80” threshold.



# FRAMEWORK FOR SOLUTIONS & REFORM

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# Policy Objectives

- **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





# Practical Policy Framework

1. Adopt better funding policy, risk assessment, and actuarial assumptions.
  - Lower the assumed rate of return to align with independent actuarial recommendations.
  - These changes should aim at minimizing risk and contribution rate volatility for employers and employees.
2. 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.
  - Reducing the amortization schedule would save the state billions in interest payments.
3. Review current plan options to improve retirement security .
  - Consider offering additional retirement options that create a pathway to lifetime income for employees that do not stay in public service.

# I. Adopt Better Funding Policy, Risk Assessment, and Actuarial Assumptions

(1 of 2)



## ■ Funding Policy

- Switch from paying statutorily determined contributions to paying actuarially determined contribution.
- Determine what overall share employees will contribute, and what employers will contribute considering the current rate is already set at the 10% cap.
- Consider 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.

# I. Adopt Better Funding Policy, Risk Assessment, and Actuarial Assumptions

(2 of 2)



## ■ Risk Assessment and Actuarial Assumptions

- Look to lower the return assumption such that it aligns with a more risk adverse probability of success.
- Adjust the portfolio to reduce high risk, low transparency assets.
- Increase transparency in the reporting, pricing and valuation of alternative investment assets.
- 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.

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



- **Current amortization policy for both state systems target time horizons that are too long**
  - The ERS board targets a 31-year window to pay off unfunded liabilities.
  - The Society of Actuaries Blue Ribbon Panel recommends amortization schedules be no longer than 15 to 20 years.
  
- **The legislature could put maximum amortization periods in place and/or require a gradual reduction in the funding period to target a lower number of years**
  - Other states have phased in changes by reducing the amortization schedules one year at a time.
  - The legislature could require that ERS be funded on a certain time period under specific scenarios, such as alternative assumptions and/or stress test scenarios.

### 3. Create a Path to Retirement Security for All Participants of ERS



- **ERS is not providing a path for retirement income security to all teachers and school employees**
  - For example, only 10% of members make it to the 28 years necessary for a full pension. This means the majority of teachers would be better served by having the choice of an alternative plan design — such as a DC plan or Cash Balance plan.
- **Employees should have a choice to select a retirement plan design that fits their career and lifestyle goals**
  - Cash balance plans are a guaranteed return plan design that can provide a steady accrual rate, offer portability, and ensure a path to retirement security.
  - Defined contribution plans can be designed to auto-enroll members into professionally managed accounts with low fees that target specified retirement income and access to annuities across careers.



# Questions?

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