

NEW MEXICO PERA PENSION SOLVENCY ANALYSIS

Prepared by:

Pension Integrity Project at Reason Foundation

July 16, 2020



reason
FOUNDATION



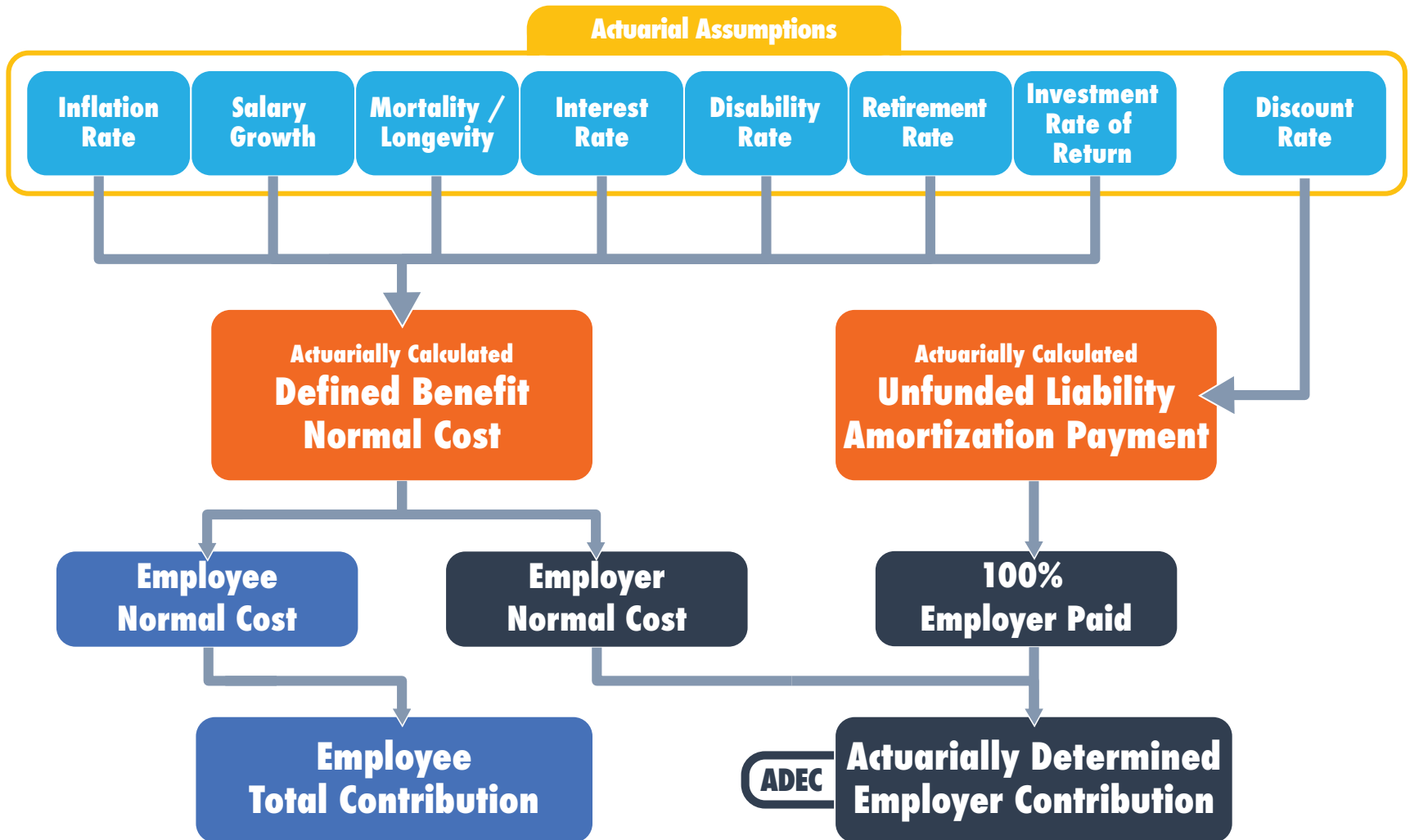
About the Pension Integrity Project

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

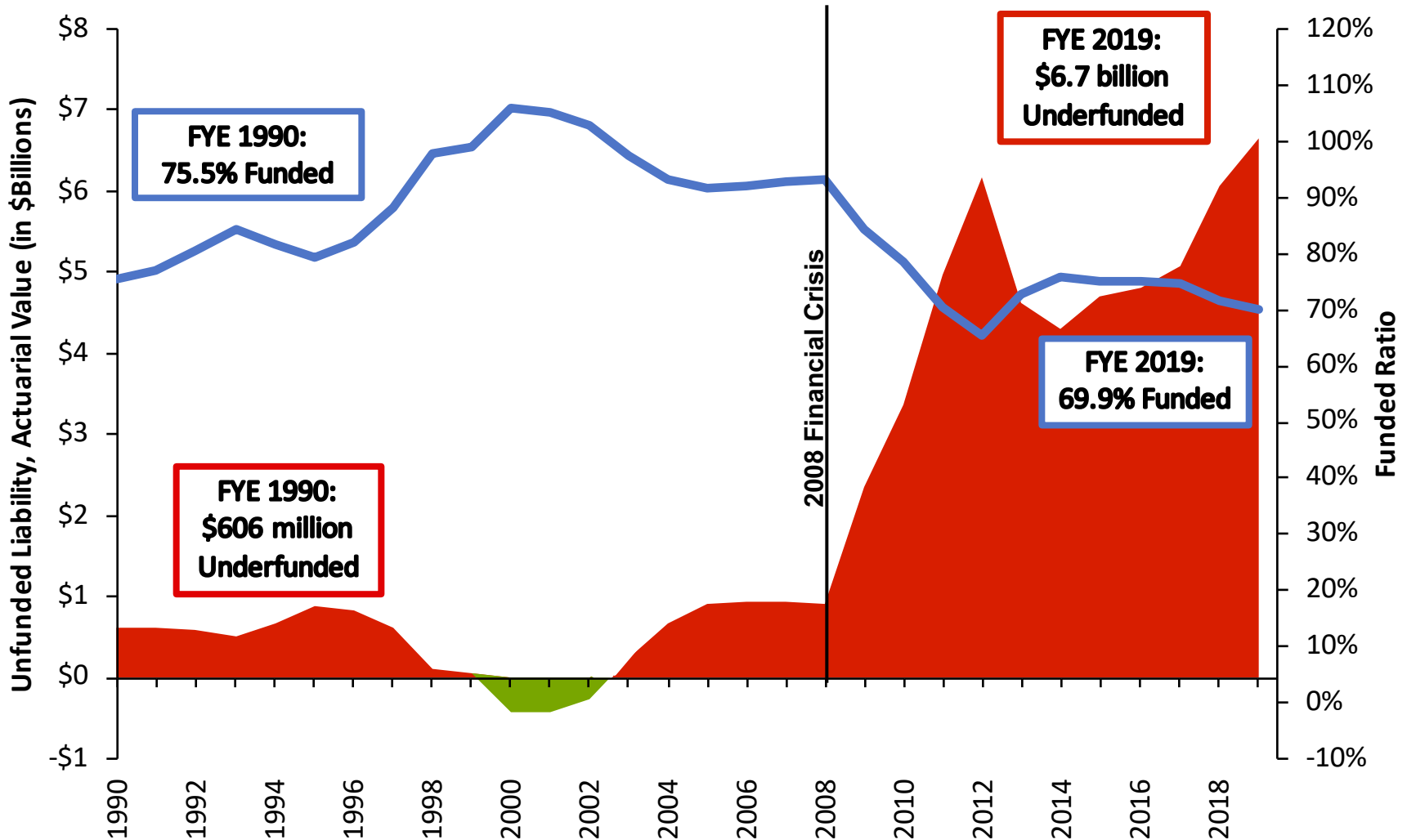


How a Pension Plan is Funded



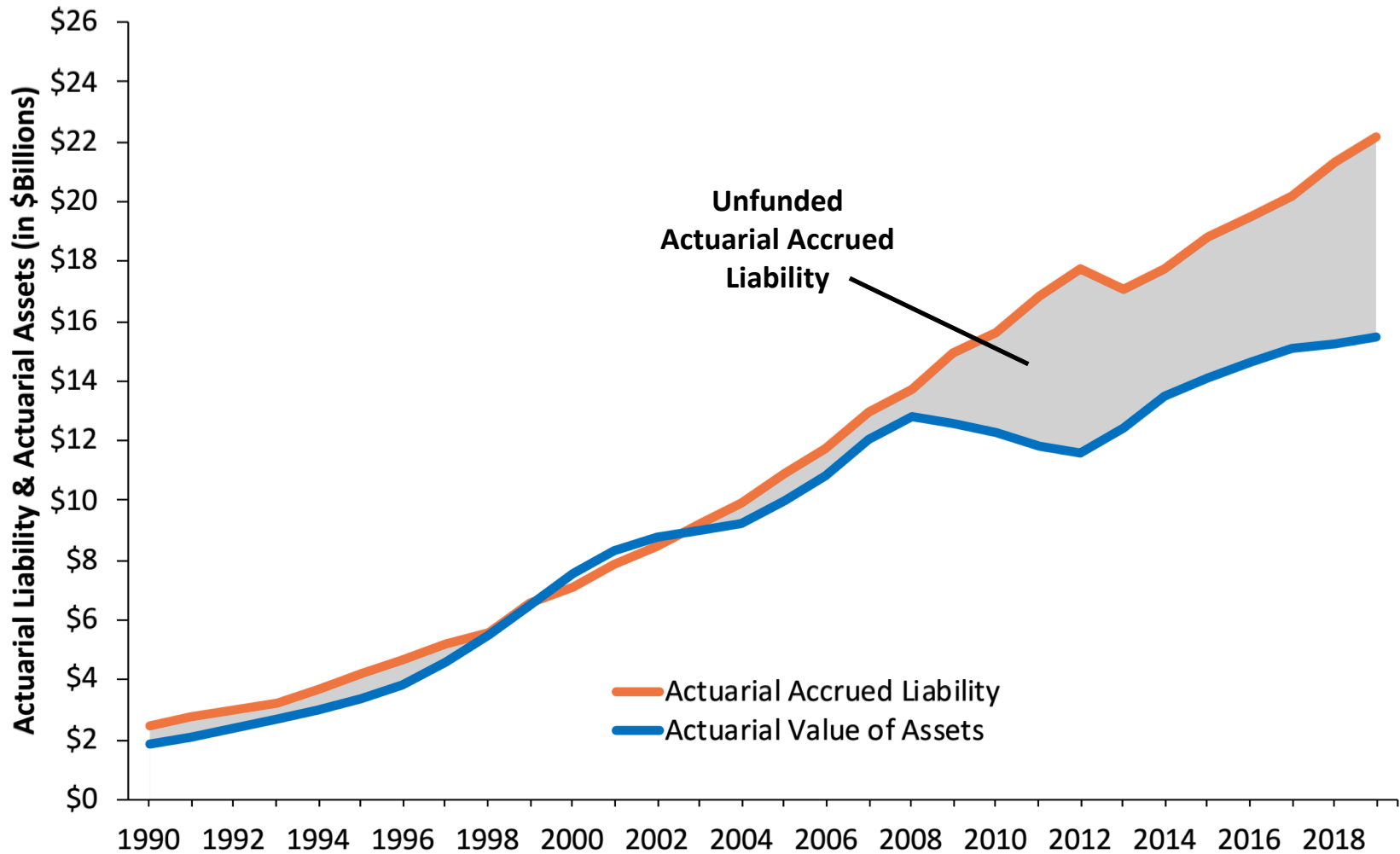


History of PERA's Unfunded Liabilities (1990-2019)



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

PERA Liabilities are Growing Faster than Assets



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



Makeup of PERA Contributions

	FY2019 Contributions	
	% of Payroll	\$ Value
Employees (Normal Cost)	12.03%	\$274,026,281
Employer (Normal Cost)	5.06%*	\$116,054,091*
Employer (Debt Amortization)	9.75%	\$223,622,012
Total Employer	14.81%	\$339,676,103

In FY 2021, PERA contribution rates are scheduled to begin increasing in increments of 0.5% over 4 years – totaling a 2.0% increase for employers and employees by FY2024.

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

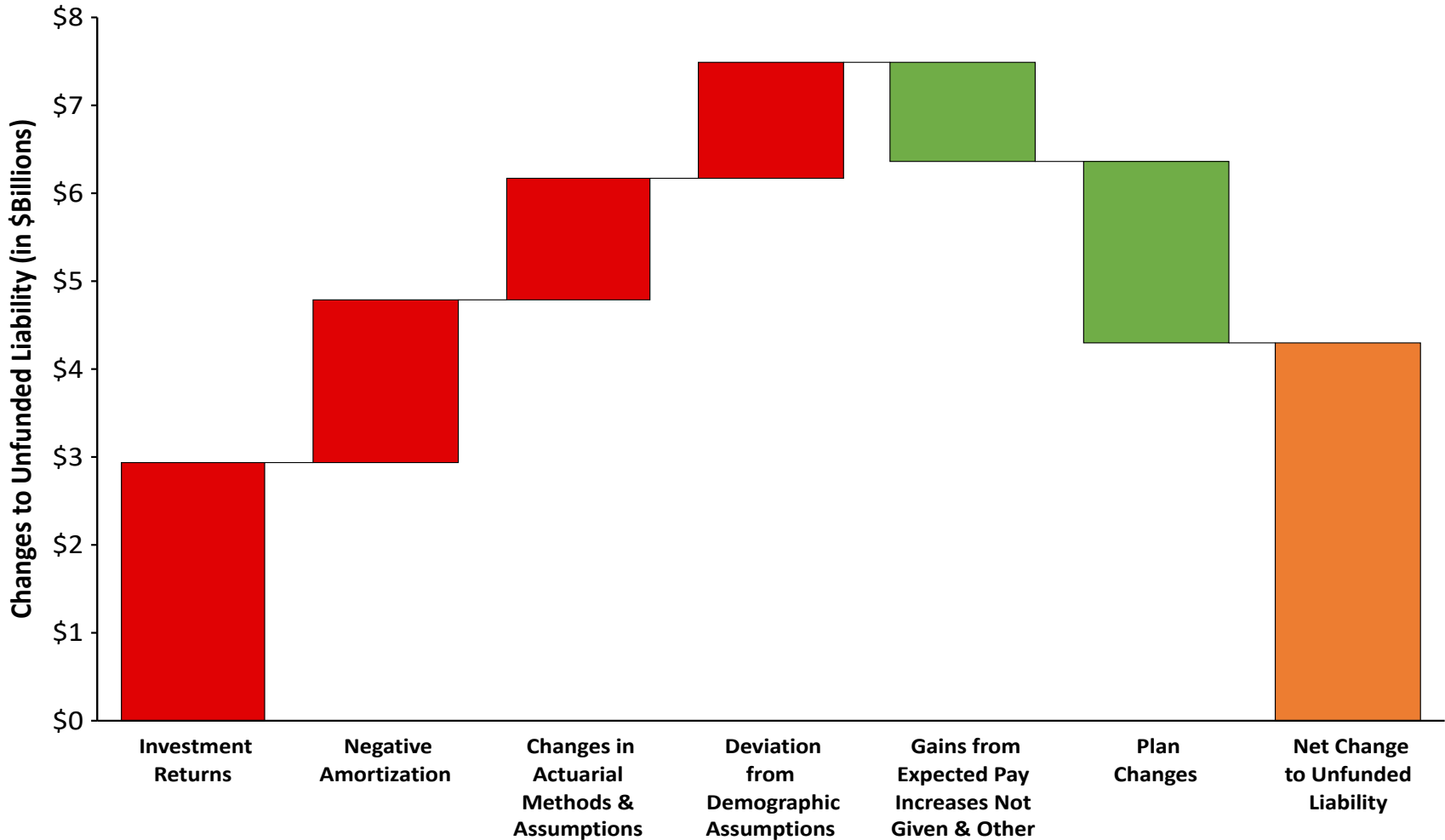
*Employer Normal Cost includes 0.5% in administrative expenses.



CHALLENGES CONTINUING TO FACE PERA

The Causes of the Pension Debt

Actuarial Experience of PERA, 2010-2019



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



Driving Factors Behind PERA Challenges

1. **Deviations from Investment Return Assumptions** have been the largest contributor to the PERA unfunded liability, adding \$2.93 billion since 2010.
2. **Extended Amortization Timetables and Statutory Contribution Limits** have resulted in interest on PERA debt exceeding the actual debt payments (aka negative amortization) since 2010 and a net \$1.85 billion increase in the unfunded liability.
3. **Changes in Actuarial Methods and Assumptions** have uncovered around \$1.40 billion in hidden and unfunded liability over the last decade.
4. **Deviations from Demographic Assumptions** – including deviations from the plan’s withdrawal, retirement, disability, and mortality assumptions - added \$1.31 billion to the unfunded liability since 2010.
5. **Undervaluing Debt** through discounting methods has led to the tacit undercalculation of required contributions.



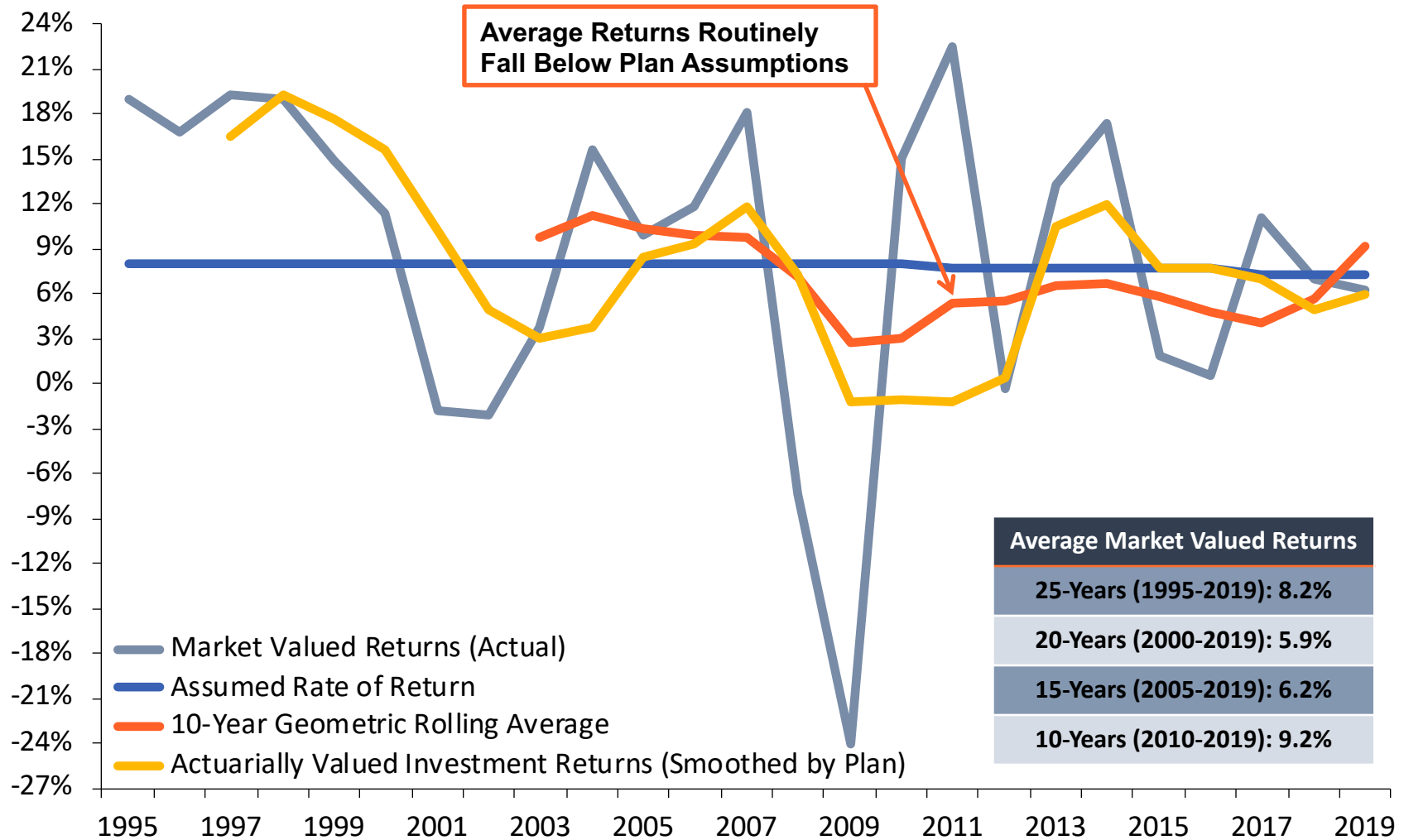
CHALLENGE I: ASSUMED RATE OF RETURN

- **Unrealistic Expectations:** Despite recently lowering the investment return assumption to 7.25%, PERA remains exposed to significant investment risk.
- **Underpricing Contributions:** Using an overly optimistic investment return assumption leads to underpricing benefits and an undercalculated actuarially determined contribution rate.



PERA Challenge I: Investment Returns

Investment Return History, 1995-2019



Source: Pension Integrity Project analysis of PERA valuation reports and CAFRs. The assumed return was 8% between 1995-2010, and lower to 7.5% in 2017.

PERA Challenge I: Investment Returns

Investment Returns vs. Assumptions



- PERA actuaries have historically used an 8% assumed rate of return to calculate member and employer contributions, slowly lowering the rate to 7.25% 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
25-Years (1995-2019): 8.18%	25-Years (1995-2019): N.A.
20-Years (2000-2019): 5.91%	20-Years (2000-2019): 6.23%
15-Years (2005-2019): 6.17%	15-Years (2005-2019): 5.84%
10-Years (2010-2019): 9.20%	10-Years (2010-2019): 5.26%

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.



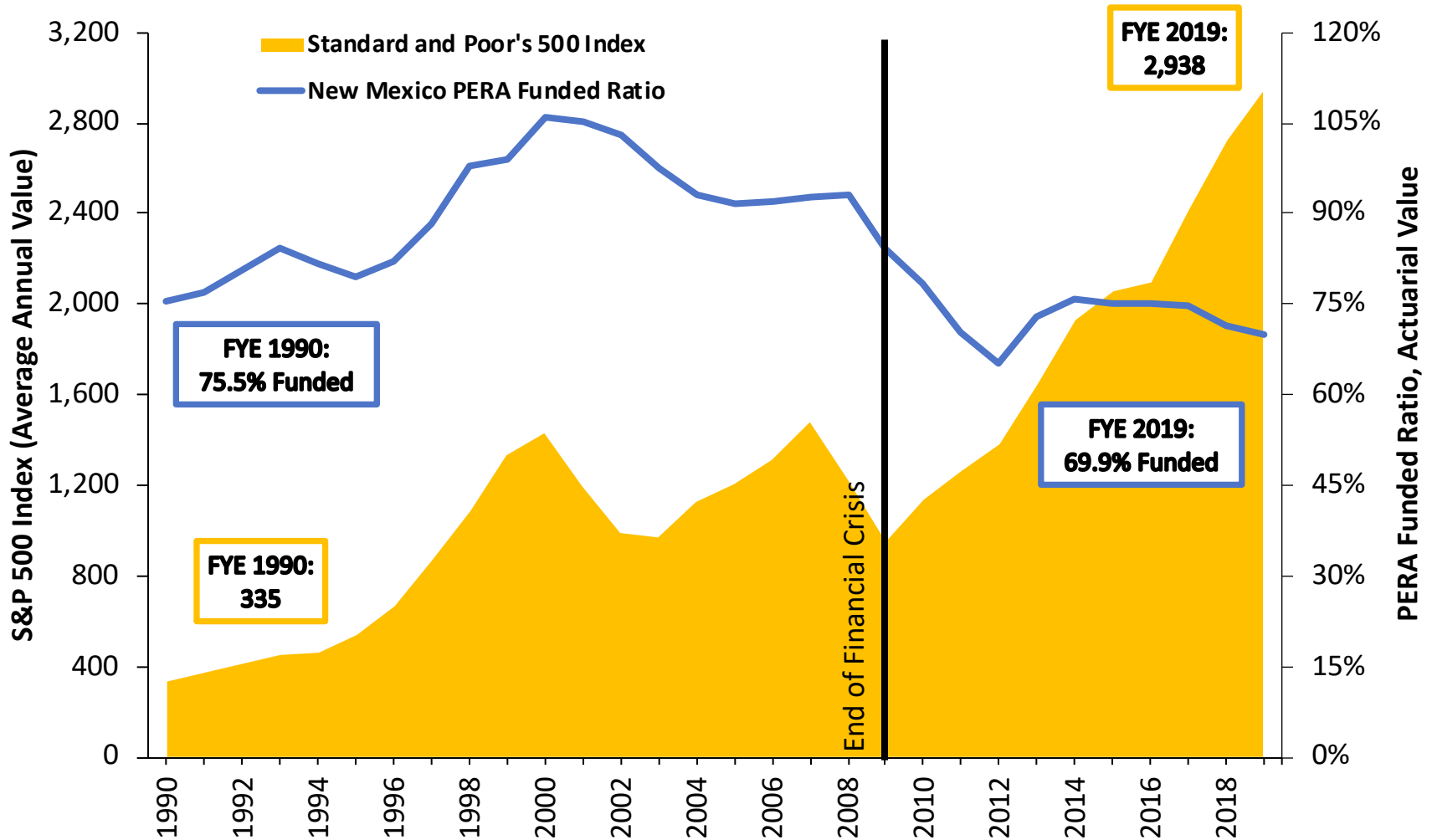
New Normal: The Market Has Changed

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. New Mexico PERA’s chief investment officer, and a member of the Governor’s Solvency Task Force, recently [characterized](#) the current 7.25% return assumption as a “rosy scenario.”
 - He added, “We need this system to be resilient to bad outcomes” (i.e. reduce downside risks).



New Normal: Markets Have Recovered Since the Crisis—Pension Funding Has Not



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



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

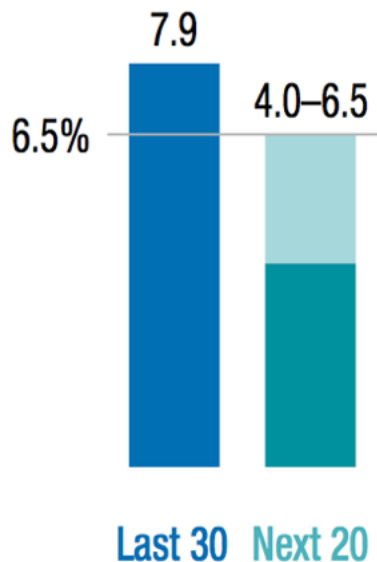
The past 30 years saw returns that exceeded the long-run average

The next 20 years could be more challenging

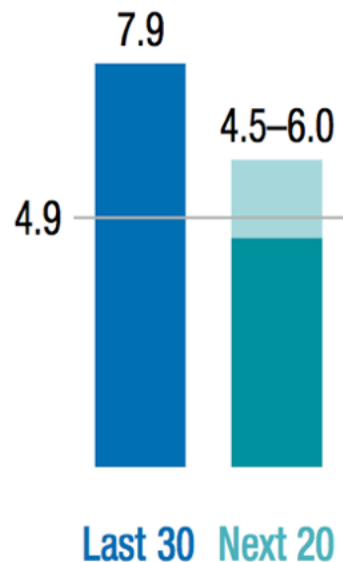
- Historical real returns
- Last 100 years average return

- Growth-recovery scenario
- Slow-growth scenario

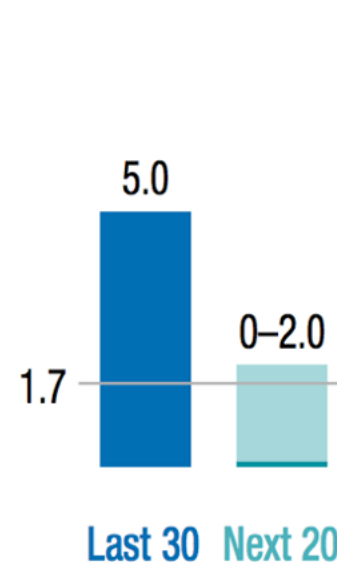
US equities



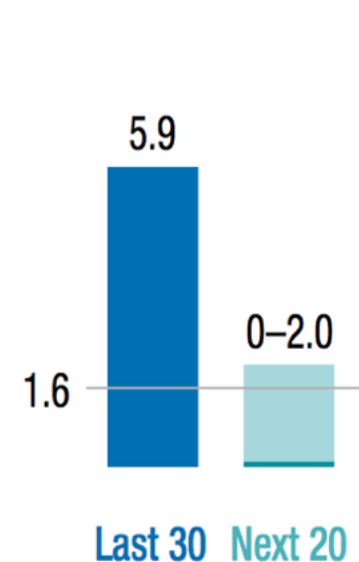
European equities



US bonds

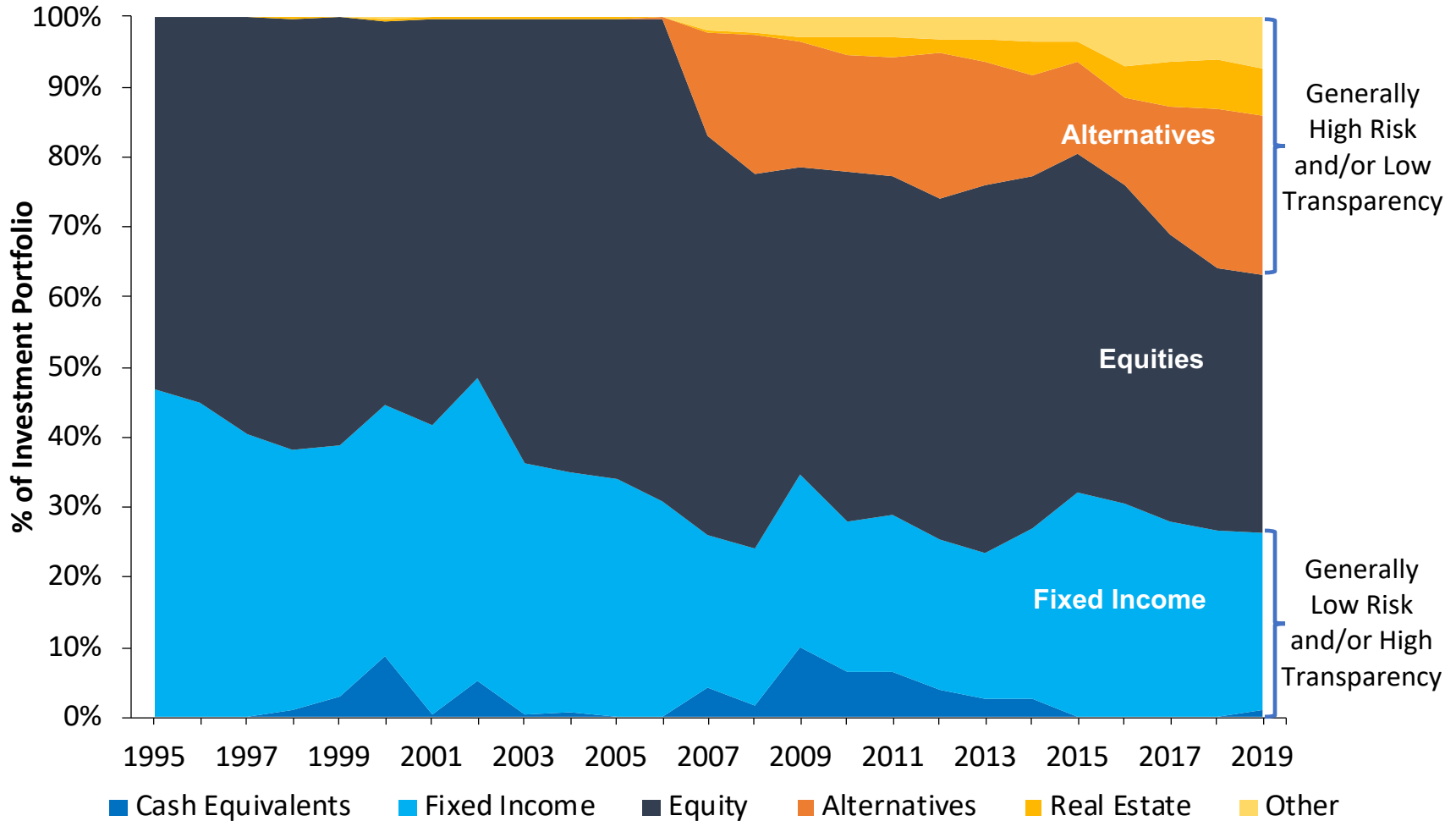


European bonds



PERA Asset Allocation (1995-2019)

Expanding Alternatives in Search for Yield



Source: Pension Integrity Project analysis of PERA actuarial valuation reports, CAFRs and quarterly Investment Performance Overviews. Assets categorized as "Other" includes deferred compensation funds and security lending collateral.

Probability Analysis: Measuring the Likelihood of PERA Achieving Various Rates of Return



Possible Rates of Return	Probability of PERA Achieving A Given Return Based On:							
	PERA Forecast		Short-to-Mid-Term Market Forecast				Long-Term Market Forecast	
	PERA Forecast	PERA Historical Returns	Horizon 10-Year Market Forecast	JP Morgan 10-15 Year Forecast	BNY Mellon 10-Year Forecast	Research Affiliates 10-Year Forecast	Horizon 20-Year Market Forecast	BlackRock 20-Year Forecast
9.0%	31.9%	14.5%	10.4%	6.0%	5.2%	2.2%	19.0%	18.3%
8.0%	48.7%	25.5%	20.5%	14.8%	13.2%	6.5%	33.8%	24.7%
7.25%	61.6%	36.0%	30.6%	25.1%	22.9%	12.3%	46.7%	37.0%
6.5%	73.3%	47.8%	43.6%	38.2%	34.9%	21.1%	60.4%	51.0%
6.0%	80.4%	56.0%	52.4%	48.1%	44.8%	28.6%	68.9%	59.9%
5.5%	85.8%	64.0%	61.7%	58.1%	54.8%	37.4%	76.7%	67.9%
5.0%	90.1%	71.5%	70.6%	67.3%	63.9%	46.1%	83.0%	75.6%

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



PERA Forecast

- A probability analysis of PERA historical returns over the past 18 years (2001-2018) indicates a very modest chance (36%) of hitting the plan's 7.25% assumed return.
- PERA's own investment return forecasts only imply a 62% 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 PERA.
- 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, PERA returns are likely to fall short of assumptions.

Long-Term Market Forecast

- Longer-term projections typically assume PERA 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 7.25% 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 7.25% or higher is about 37%, the probability of earning a rate of return below 5% is about 24%.



RISK ASSESSMENT

How resilient is New Mexico PERA to volatile market factors?

Important Funding Concepts



Employer Contribution Rates

- *Statutory Contributions*: PERA employers make annual payments based on a rate set in New Mexico state statute, meaning contributions remain static until changed by legislation
- *Actuarially Determined Employer Contribution (ADEC)*: Unlike statutory contributions, ADEC is the annual required amount PERA's consulting actuary has determined is needed to be contributed each year to avoid growth in pension debt and keep PERA 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 PERA's 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 scenarios in this analysis assume that both employee & employer continuation will increase in 0.50% increments by 2.0% in total from 2021--2024. And both will be reduced by 0.5%/1.0%/2.0% upon PERA reaching 80%/90%/100% funded status, respectively.

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 PERA 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 -26.4% 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.

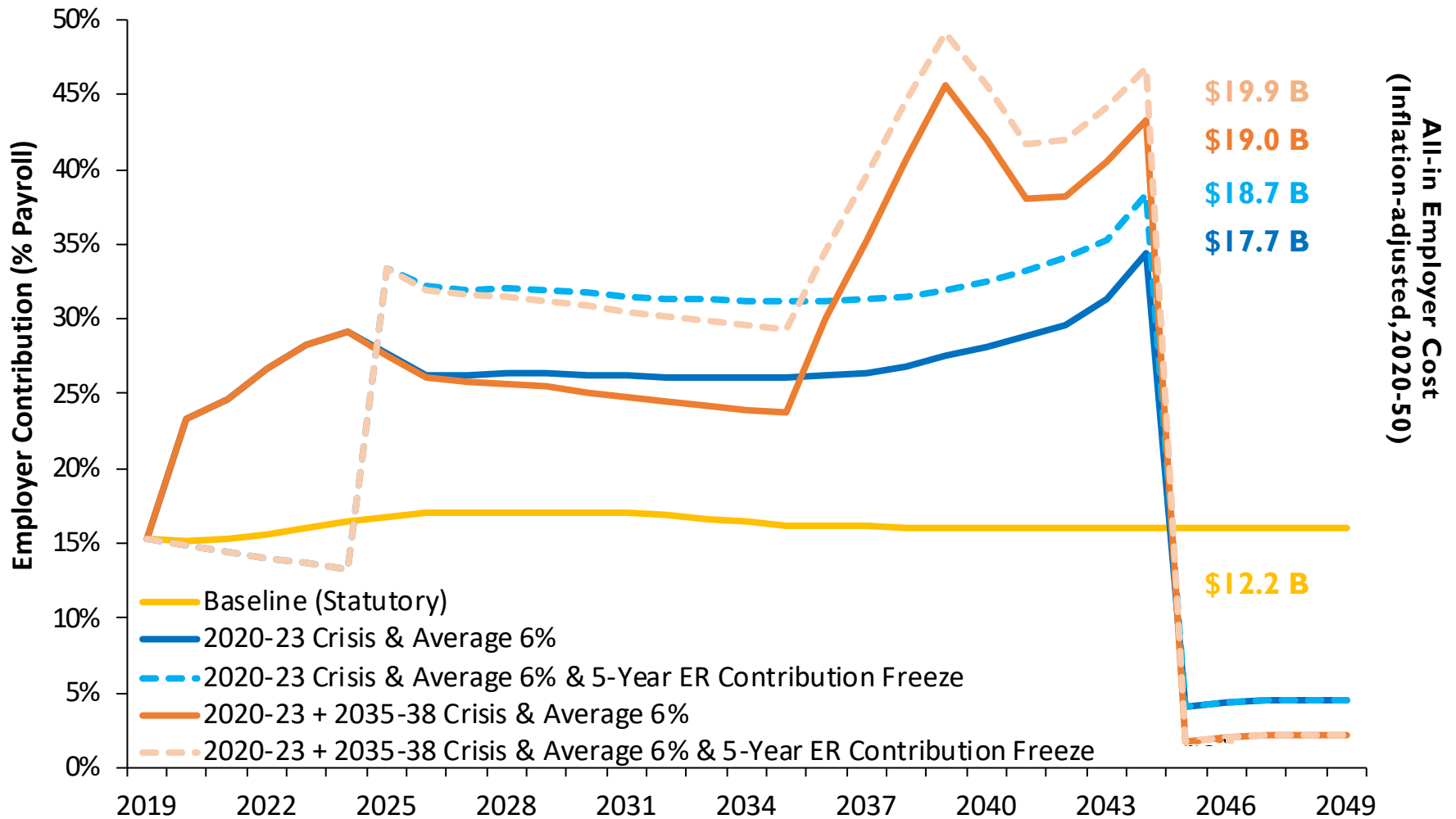
Stress Testing Scenarios:

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

Post SB72 PERA Stress Testing: All-in Employer Cost Projections

How a Crisis Increases PERA Costs

Discount Rate: 7.25%, Assumed Return: 7.25%, Actual Return: Varying, Amo. Period: Current

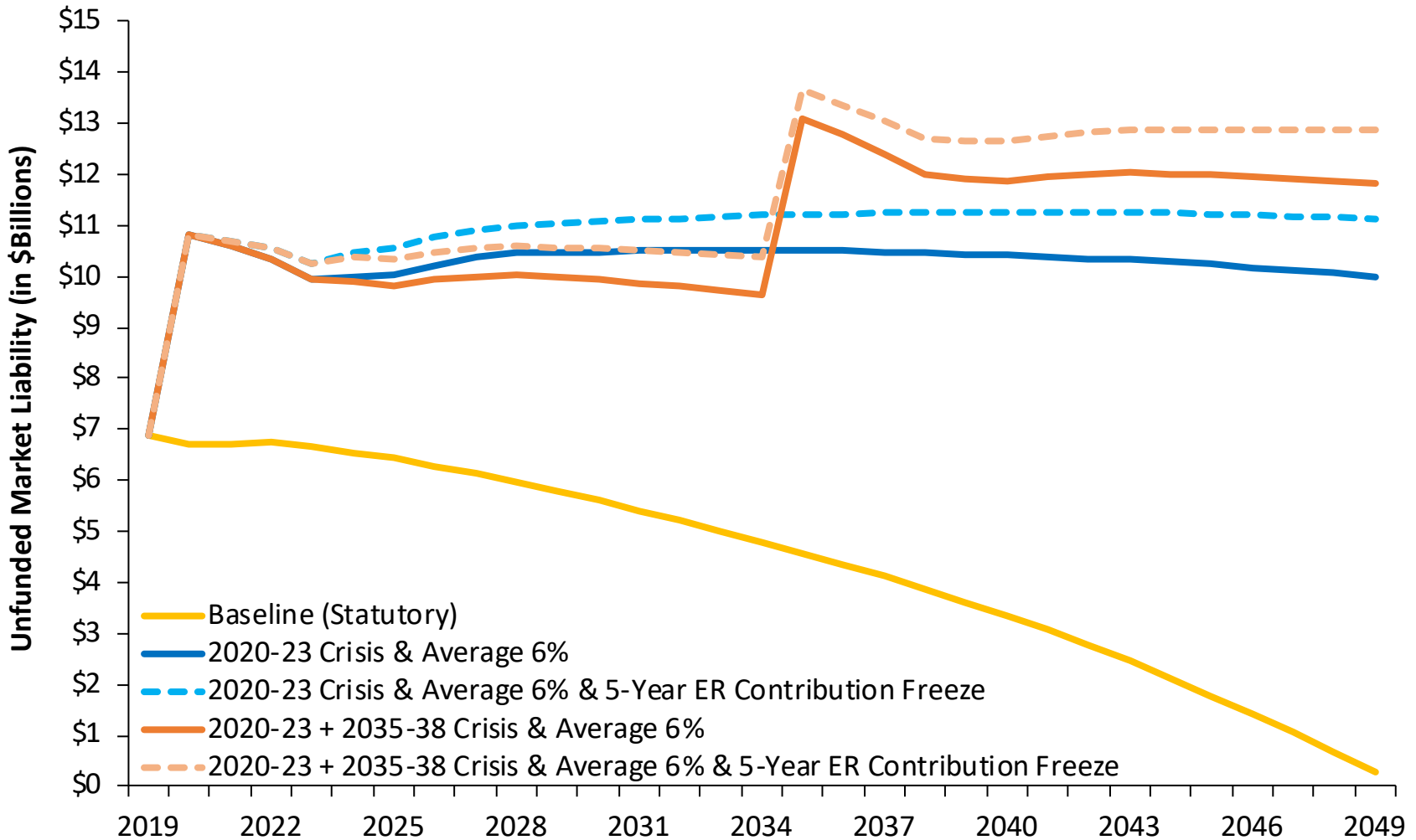


Source: Pension Integrity Project actuarial forecast of PERA. Values are rounded and adjusted for inflation. State is assumed to make 100% actuarially required contributions. The "All-in Cost" includes all employer contributions over the 30-year timeframe, and the ending unfunded liability accrued by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

Post SB72 PERA Stress Testing: Unfunded Liability Projections

Unfunded Liabilities Skyrocket Under Crisis Scenarios

Discount Rate: 7.25%, Assumed Return: 7.25%, Actual Return: Varying, Amo. Period: Current



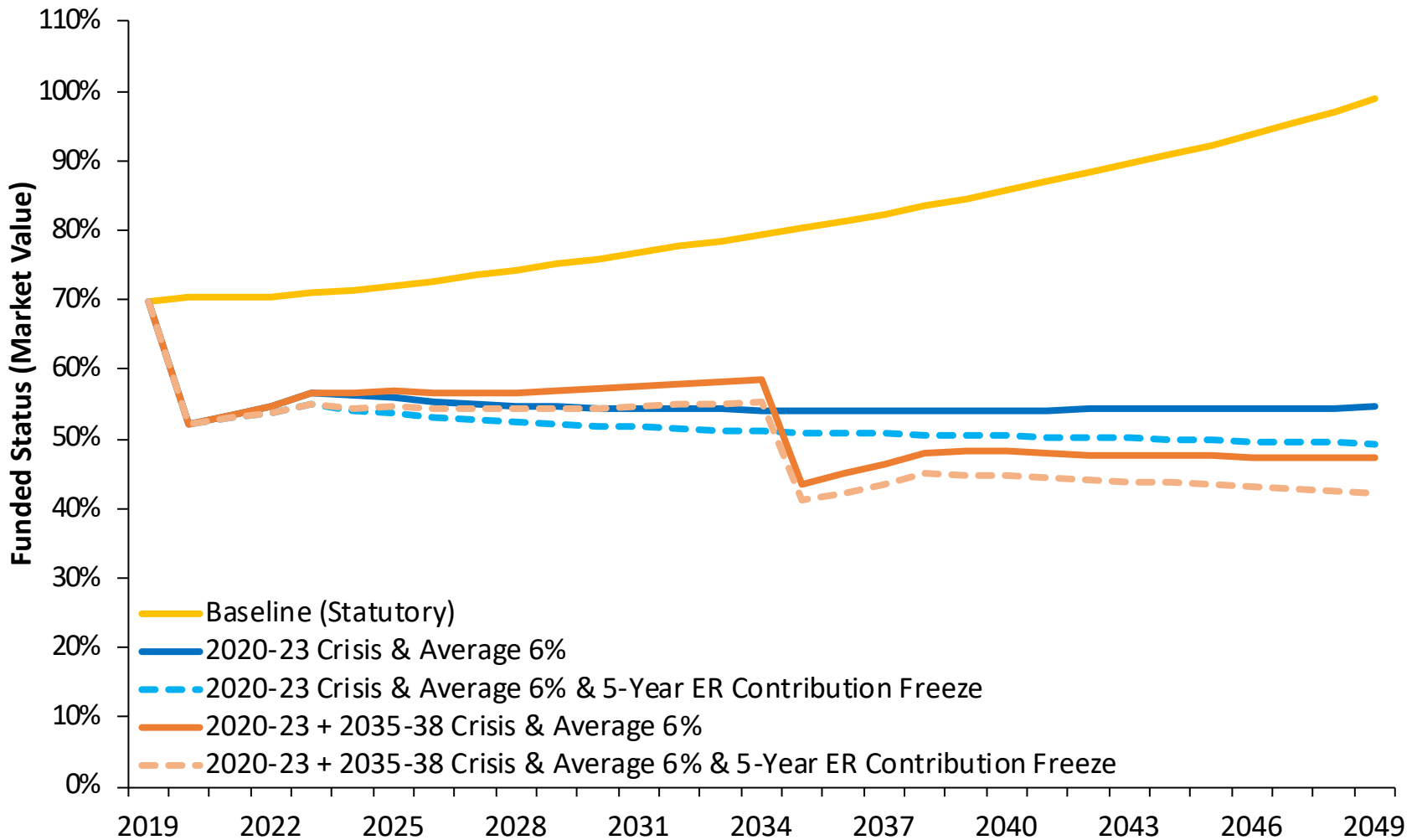
Source: Pension Integrity Project actuarial forecast of PERA. Values are rounded and adjusted for inflation. State is assumed to make statutory contributions. All Projections are based on SB72 2020 legislative changes.

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.

Post SB72 PERA Stress Testing: Funded Status Projections

PERA Solvency Degrades Under Crisis Scenarios

Discount Rate: 7.25%, Assumed Return: 7.25%, Actual Return: Varying, Amo. Period: Current



Source: Pension Integrity Project actuarial forecast of PERA. Values are rounded and adjusted for inflation.

State is assumed to make *statutory* contributions. All Projections are based on SB72 2020 legislative changes.

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

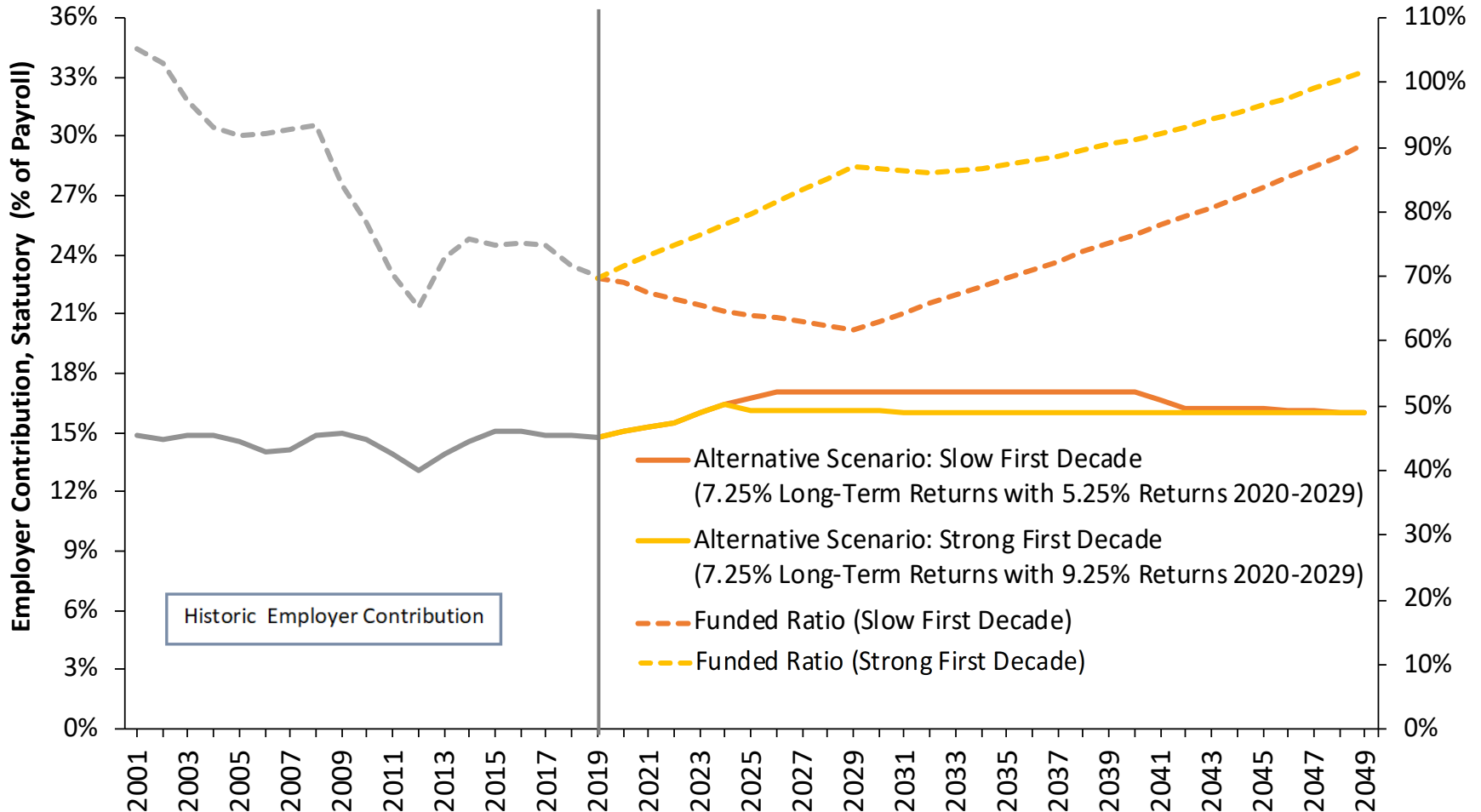
Scenarios	(Post-SB72) Statutory Contributions			(Post-SB72) Actuarial Contributions		
	30-Year Employer Contributions	2049 Unfunded Liability (Market Value)	Total All-in Employer Costs	30-Year Employer Contributions	2049 Unfunded Liability (Market Value)	Total All-in Employer Costs
Pre-Crisis Baseline	\$12.0 B	\$0.2 B	\$12.2 B	\$11.9 B	-\$0.6 B	\$11.3 B
2020-23 Crisis + Average 6%	\$12.3 B	\$10.0 B	\$22.3 B	\$17.7 B	\$0.3 B	\$17.7 B
Two Crises + Average 6%	\$12.3 B	\$11.8 B	\$24.2 B	\$19.2 B	-\$0.2 B	\$19.0 B
2020-23 Crisis + Average 6% + 5-Year Cont. Freeze	\$12.1 B	\$11.1 B	\$23.2 B	\$18.4 B	\$0.3 B	\$18.7 B
Two Crises + Average 6% + 5-Year Cont. Freeze	\$12.1 B	\$12.9 B	\$25.0 B	\$20.1 B	-\$0.2 B	\$19.9 B

Source: Pension Integrity Project actuarial forecast of PERA. All values are rounded and adjusted for inflation. State is assumed to make 100% actuarially required contributions. 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.

Post-SB72: 30-year Employer Contribution Forecast

Timing of Returns Will Affect What New Mexico Pays

Long-Term Average Returns of 7.25%



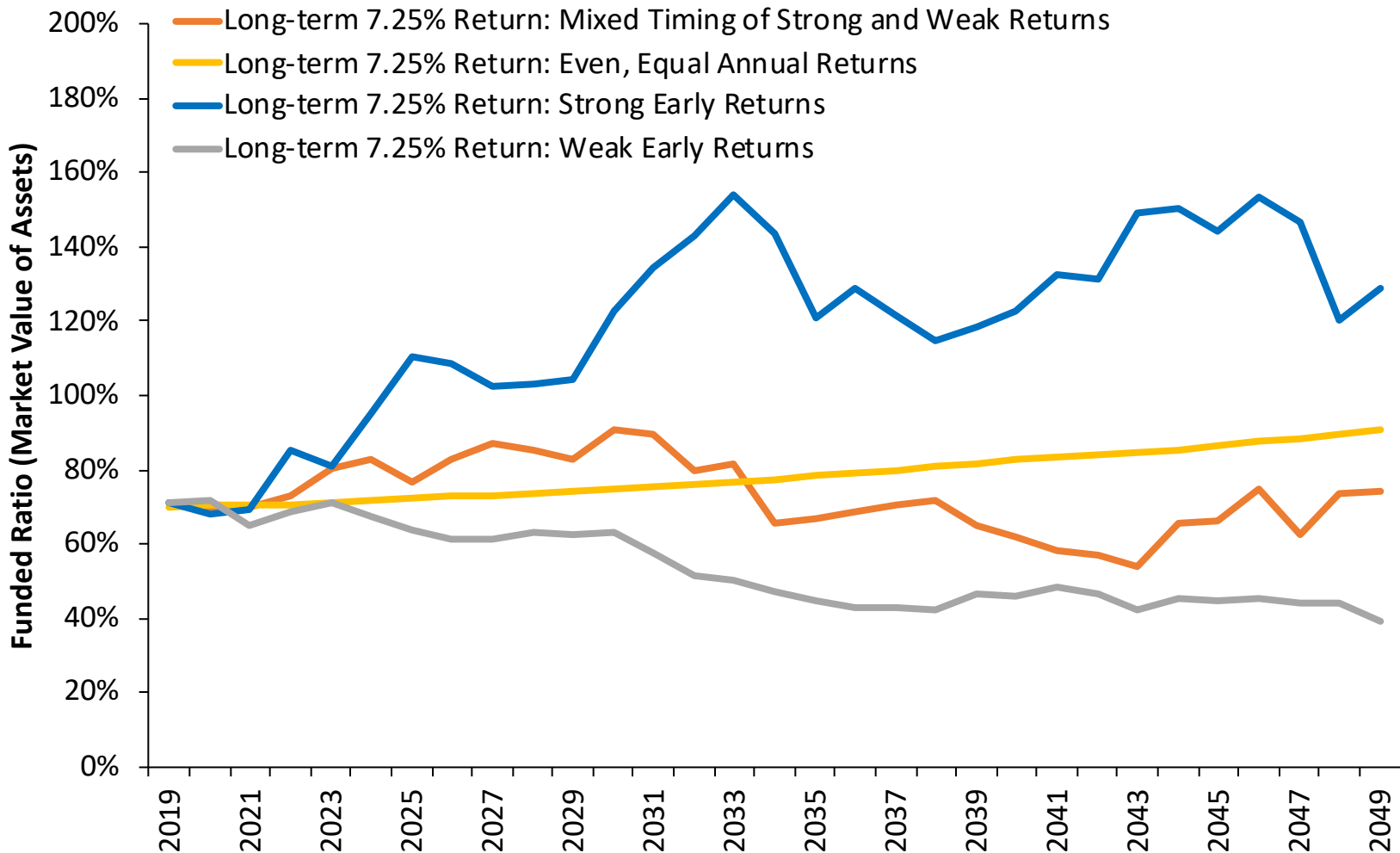
Source: Pension Integrity Project actuarial forecast of PERA. Figures are adjusted for inflation. Scenarios assume PERA receives statutory-based contributions. Slow and Strong first decade would require 8.26% and 6.26% average returns in 2030+, respectively.



Post-SB72: 30-year Funded Ratio Forecast (Statutory Contribution Policy)

All Paths to a 7.25% Average Return are Not Equal

Long-Term Average Returns of 7.25%



Source: Pension Integrity Project actuarial forecast of PERA plan. Strong early returns (TWRR = 7.2%, MWRR = 8.0%), Even, equal annual returns (Constant Return = 7.25%), Mixed timing of strong and weak returns (TWRR = 7.3%, MWRR = 7.2%), Weak early returns (TWRR = 7.2%, MWRR = 6.3%) Scenario assumes that PERA 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?

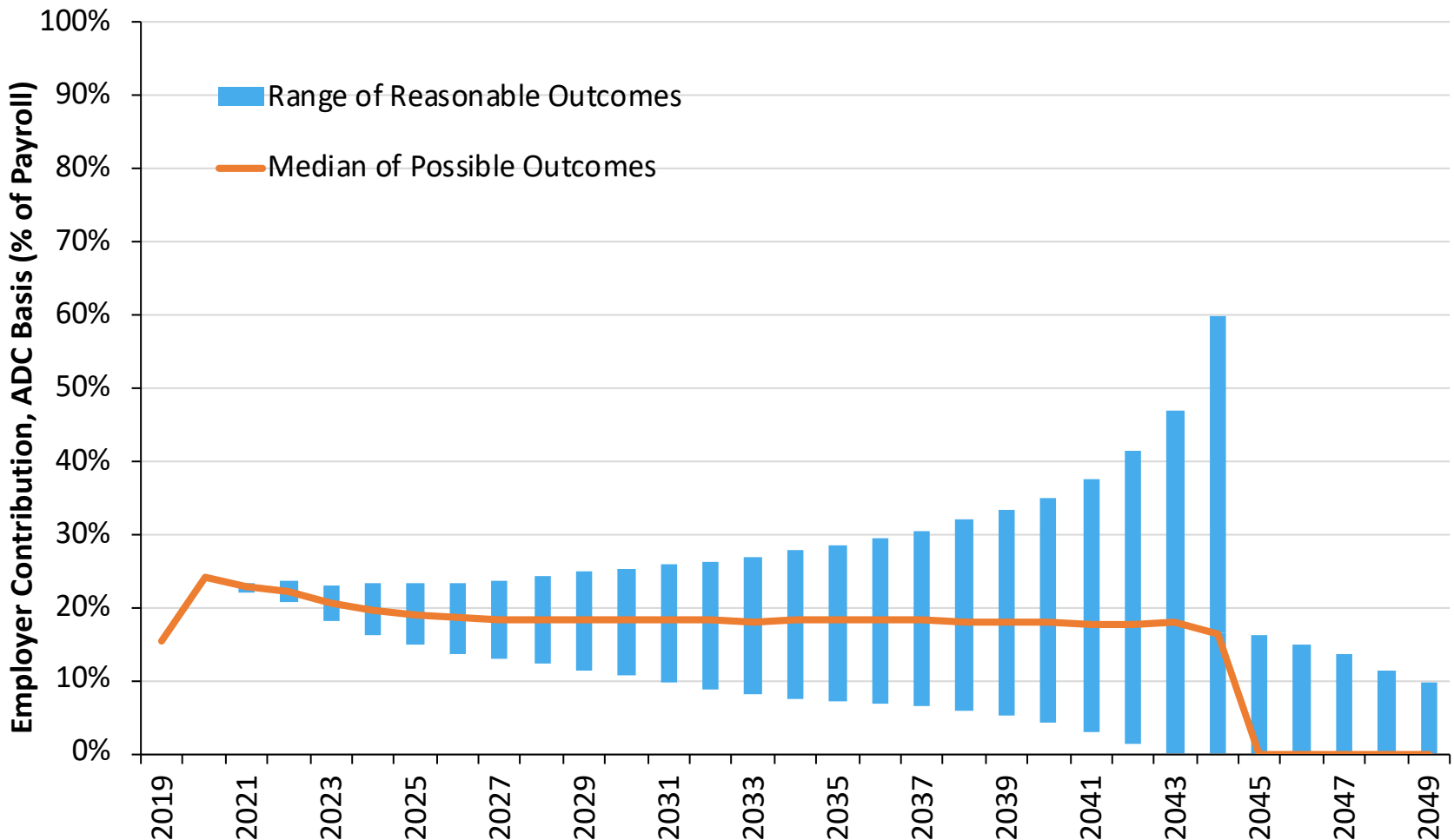
- Using a large sample of potential 30-year return scenarios can show the differences in how plan's funding will react to high or low investment fluctuations.
- The cone of displayed outcomes and the median illustrates the level of risk placed on the plan
- A narrow cone suggests a plan is more resilient—and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



Post-SB72: 30-year Employer Contribution Forecast (ADEC Contribution Policy)

If PERA Performs as Expected, Rates Can Still Vary

Long-Term Average Returns of 7.25%



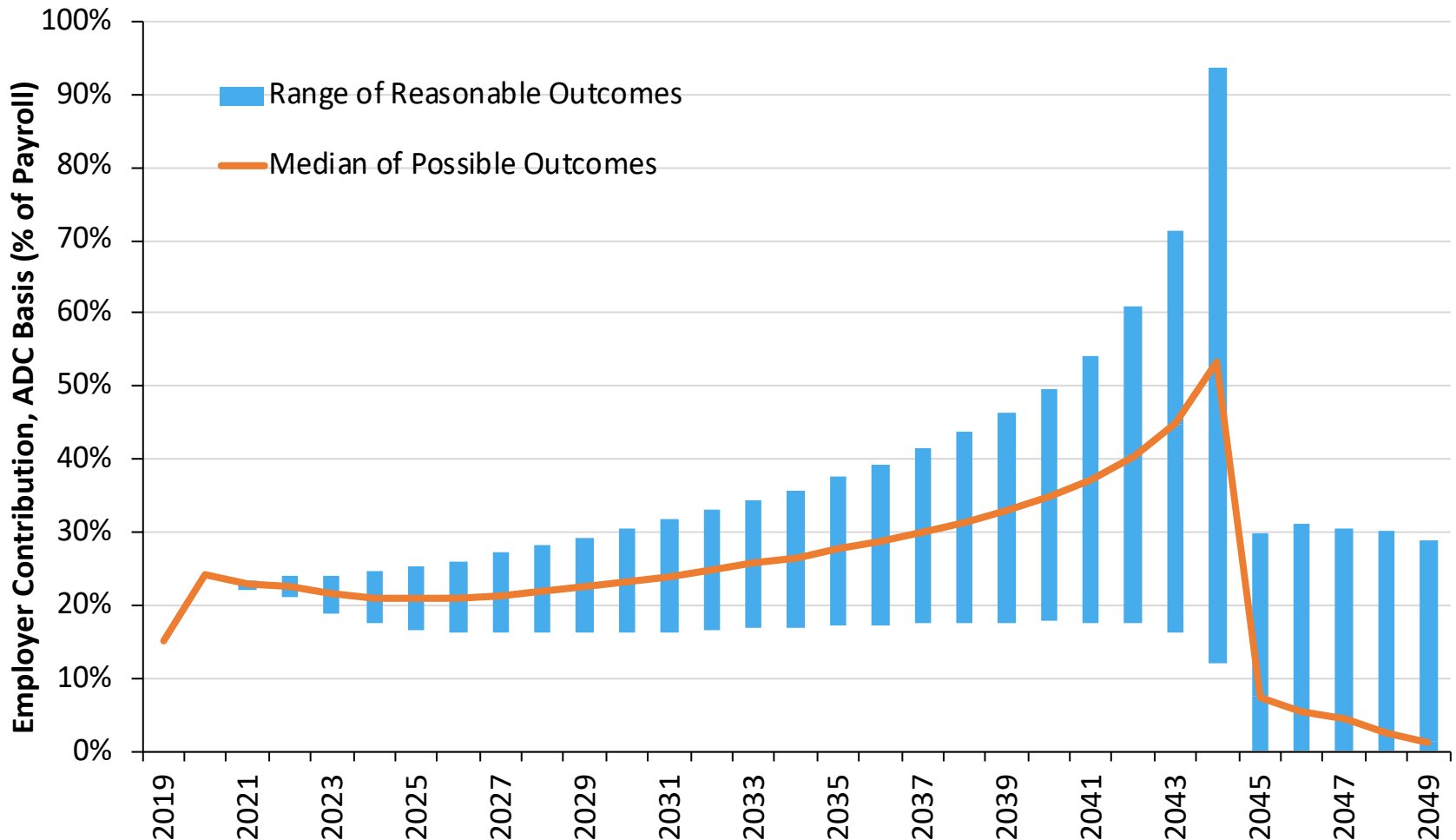
Source: Pension Integrity Project actuarial forecast of PERA plan based on PERA return and risk assumptions. Scenario assumes that the state pays 100% of the actuarially determined contribution each year. Range of Reasonable Outcomes represents the 50% of possible outcomes closest to the median.



Post-SB72: 30-year Employer Contribution Forecast (ADEC Contribution Policy)

Under Lower Returns, Expect Higher Contribution Rates

More Conservative Long-term Average Expected Returns



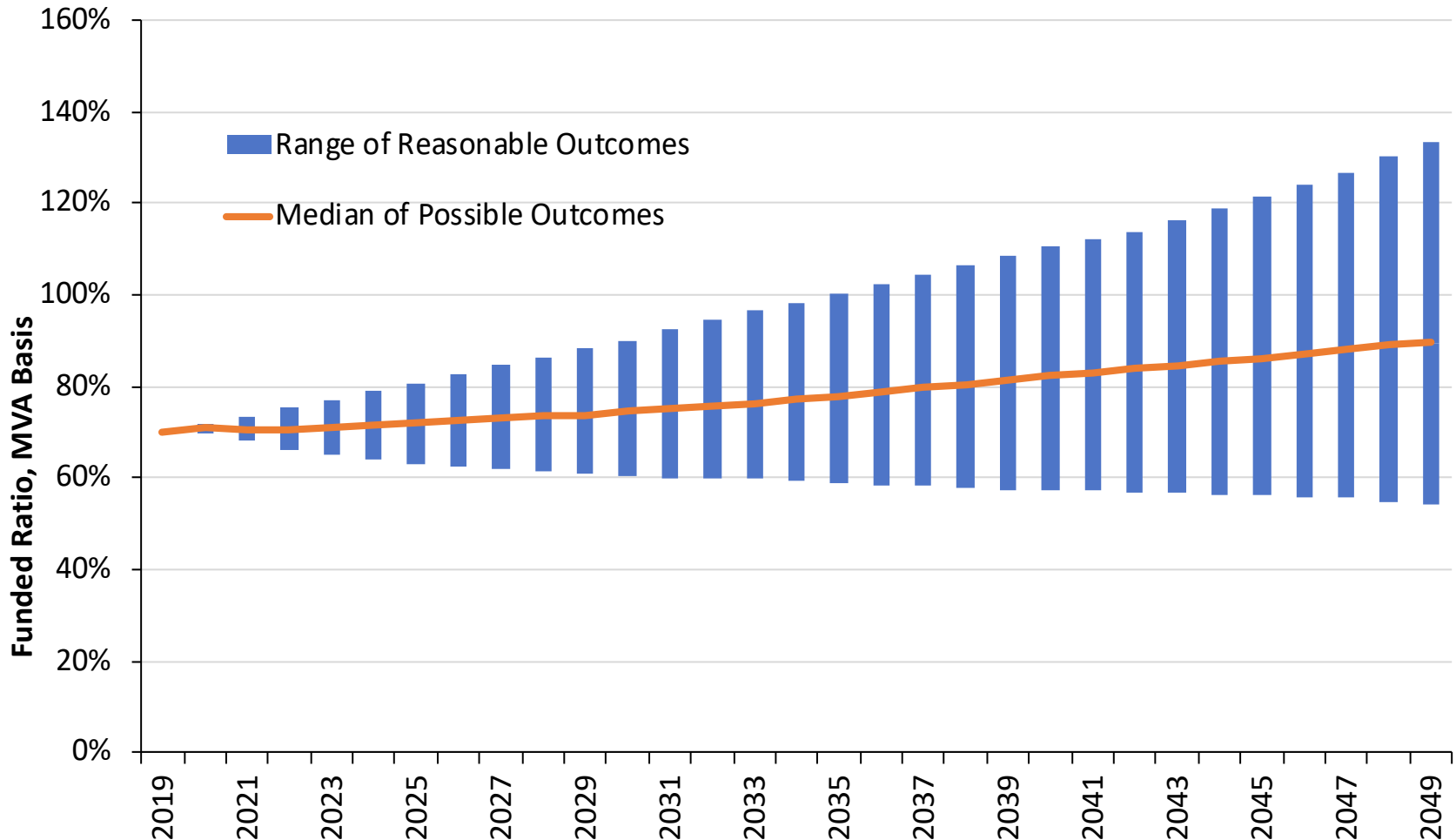
Source: Pension Integrity Project actuarial forecast of PERA plan using the return and risk assumptions of the Monte Carlo analysis. Conservative returns are 6.13%, which are the result of combining the short-term and long-term capital market assumptions from prominent financial firms.

Post-SB72: 30-year Funded Ratio Forecast (Statutory Contribution Policy)

Funded Ratios are Expected to Somewhat Improve



Long-Term Average Returns of 7.25%



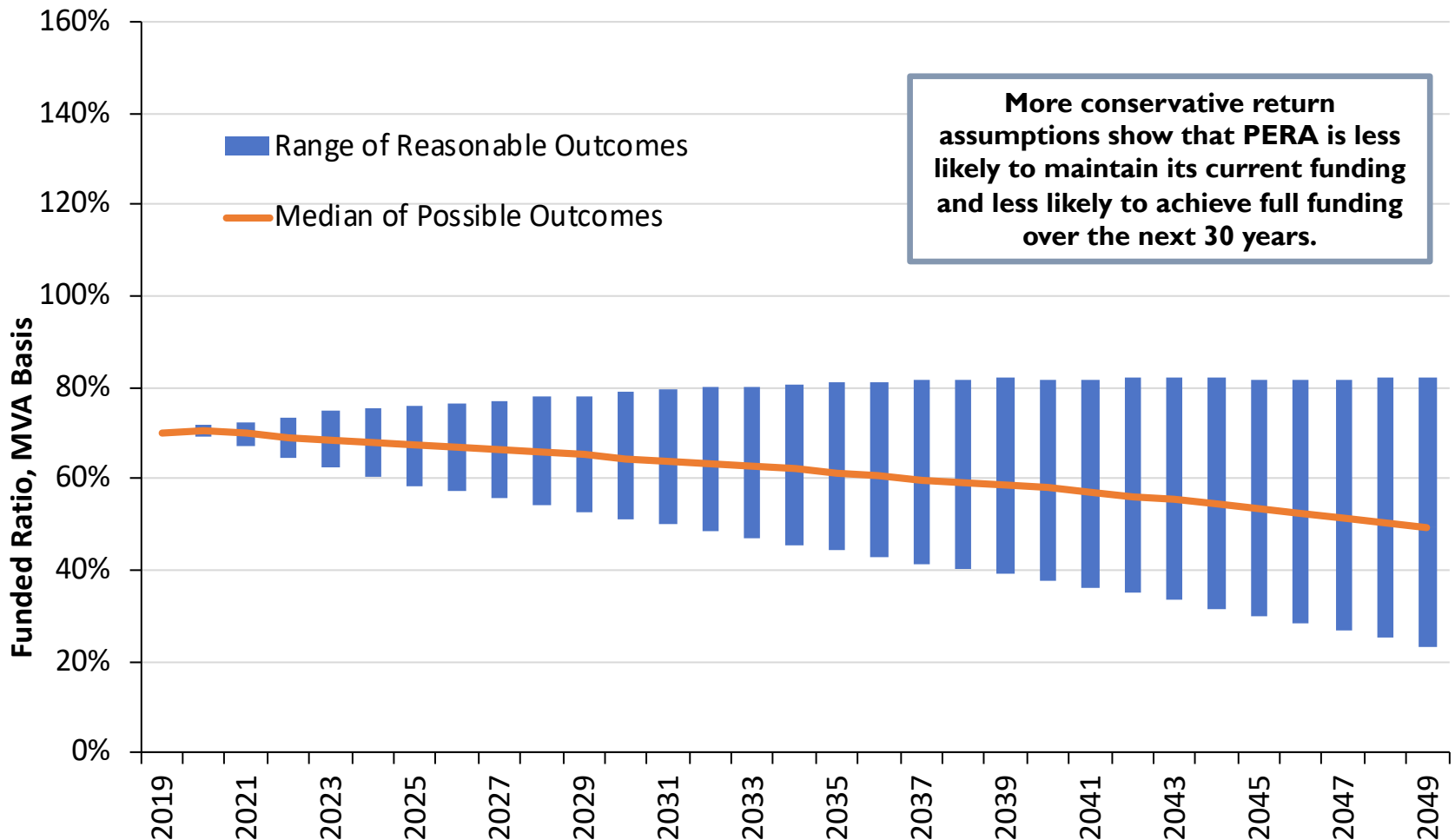
Source: Pension Integrity Project actuarial forecast of PERA plan based on PERA return and risk assumptions. Range of Reasonable Outcomes represents the 50% of possible outcomes closest to the median.



Post-SB72: 30-year Funded Ratio Forecast (Statutory Contribution Policy)

PERA Funding in a “New Normal” Future

More Conservative Long-term Average Returns



Source: Pension Integrity Project actuarial forecast of PERA plan using the return and risk assumptions of the Monte Carlo analysis. Conservative returns are 6.13%, which are the result of combining the short-term and long-term capital market assumptions from prominent financial firms.

Sensitivity of Normal Cost

Alternative Assumed Rates of Return

(Amounts to be Paid in 2020-21 Contribution Fiscal Year, % of projected payroll)



	Gross Normal Cost	Employer Normal Cost	Employee Normal Cost
7.25% Assumed Return (FYE 2020 Baseline)	16.26%	4.25%	12.01%
6.25% Assumed Return	17.30%	5.29%	12.01%
5.25% Assumed Return	18.66%	6.65%	12.01%
4.25% Assumed Return	20.51%	8.50%	12.01%

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 reported liability sensitivity from the FYE 2019 PERA CAFR.



CHALLENGE 2: INSUFFICIENT EMPLOYER CONTRIBUTIONS

- For 10 of the past 15 years, employer contributions have fallen short of even the interest accrued on the pension debt, resulting in a need for much higher contributions today.

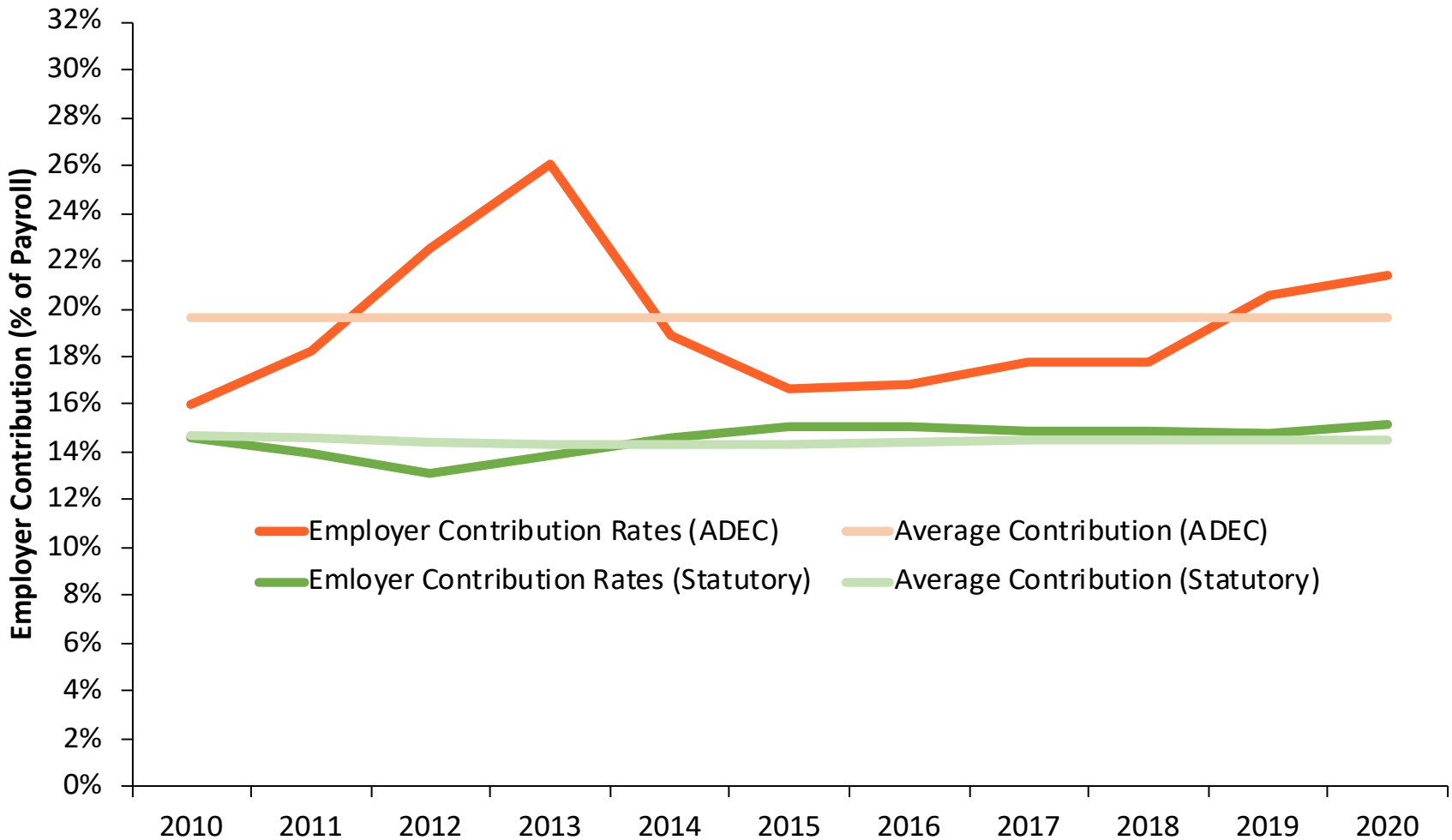
State Statutes Have Created a Structural Underfunding Problem for PERA



- Over the past ten years, statutory employer contributions have consistently fallen short of the actuarially determined employer contribution (ADEC) rate.
- Employer contribution rates determined by legislative statute are not enough to keep up with the actual amount necessary to amortize the debt.
- **2019: Employer ADEC v. Statute**
 - *Statutory* Employer Contribution: 14.81% of payroll
 - *Actuarially Determined* Contribution: 20.54% of payroll

Employer Contribution Trend, 2010-2020

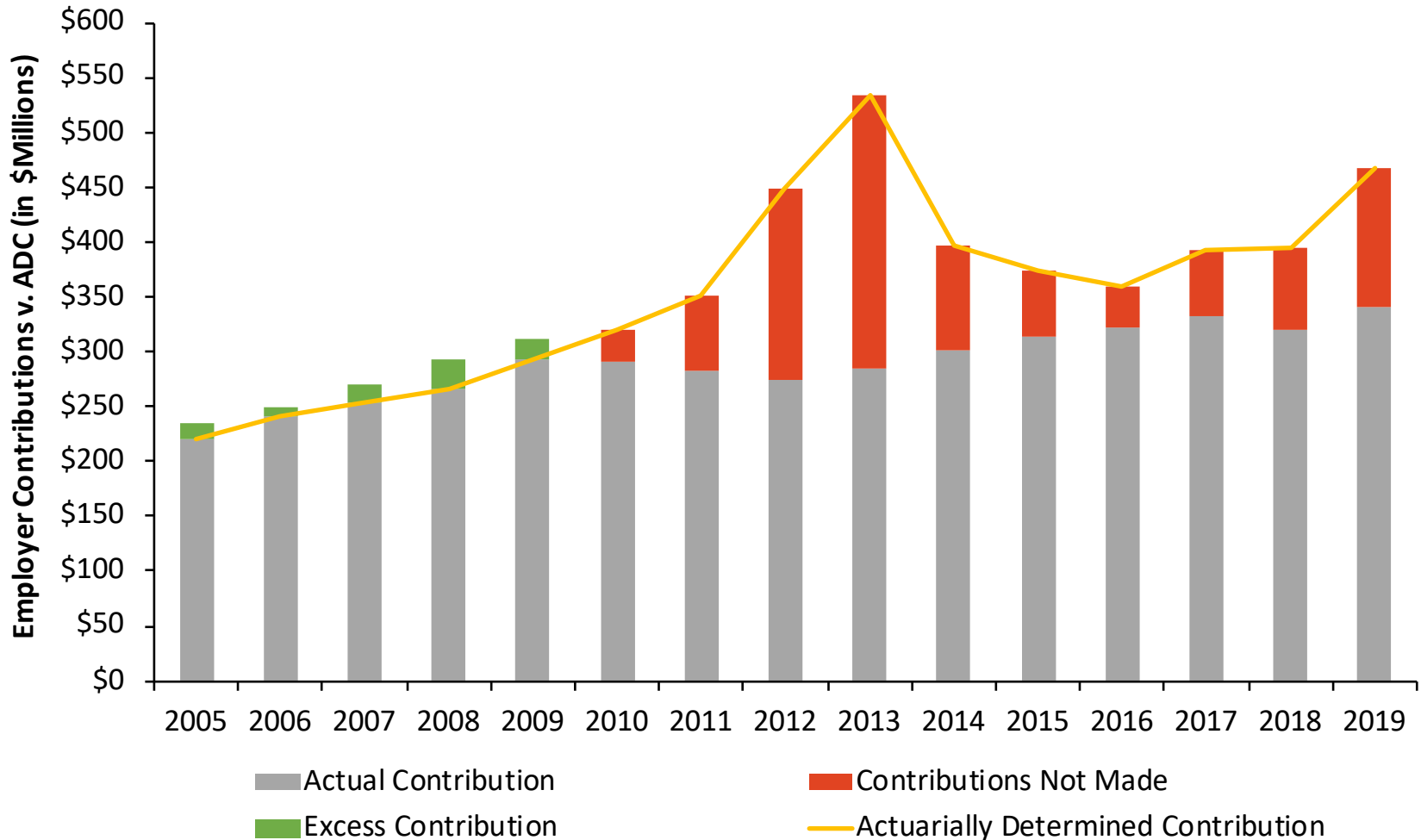
ADEC v. Statutory Contribution Rates



Source: Pension Integrity Project analysis of PERA actuarial reports and CAFRs. Years are contribution fiscal years. Contribution rates are 1-year projections.

Actuarially Determined Employer Contribution History, 2005-2019

Actual v. Required Contributions



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

Negative Amortization: Understanding the Current Funding Policy



- With the PERA contribution rate being fixed in statute, there will likely be high variances in the years needed to fully fund expected benefits owed to public employees.

PERA Amortization Period History:

- 2019: Infinite-year amortization period
- 2017: 55-year amortization period
- 2014: 40-year amortization period
- 2013: 128-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.

SB72 Changes:

Understanding the Current Funding Policy



- Statutorily-set 2019 PERA contribution rates (employee and employer contributions combined for all divisions) were set at 26.84% of payroll - falling 5.73% short of the level plan actuaries calculated was needed to move PERA toward full long-term funding.

SB72 Legislative Changes—Funding Policy Improvements:

- SB72 increased employer and employee contribution rates in 0.5% increments (2% total) over four years (2021-24), with a two-year delay for county and municipal employers and employees.
 - Employer contributions would be slated to decrease as PERA's funding status improves over the long-term (after PERA reaches 80% - 90% - 100% funded status).
- SB72 contribution increases will improve asset levels and shorten the PERA amortization period, thereby helping diminish PERA's unfunded liability and make PERA a more resilient system long-term.
 - However, the enacted 4% total contribution increase across both members and employers is still based on legislative discretion as opposed to true ADEC requirements. To match the 2019 ADEC level would have required a contribution increase well over 5% in SB72. Hence, structural underfunding is likely to persist.



CHALLENGE 3: PLAN MATURITY AND STRAIN ON CASH FLOW

- An aging membership & slow asset growth create cash flow challenges for PERA

Cash Flow Demands in a Low-Yield Environment Undermine Asset Growth



Two important factors are rapidly driving up PERA cash outflow demands:

- Benefit enhancements before the 2000s offered to PERA members resulted in higher benefit payouts than would otherwise be required without these increases
- Changing demographics strain PERA asset levels because as PERA matures the number of retired employees outgrow active members. This is exacerbated by the aging population phenomenon

Large negative cash flows may indicate:

- A need to adjust the return assumption from a long-term horizon to a near/mid-term projection, to better align with the average timing of pension payouts
- A need for additional pension contributions.
- Higher actuarial risks (from unrealistic actuarial assumptions)
- Higher reliance on investment returns to grow assets (e.g., plan is more exposed to downside risks).

Cash Flow Demands in a Low-Yield Environment Undermine Asset Growth



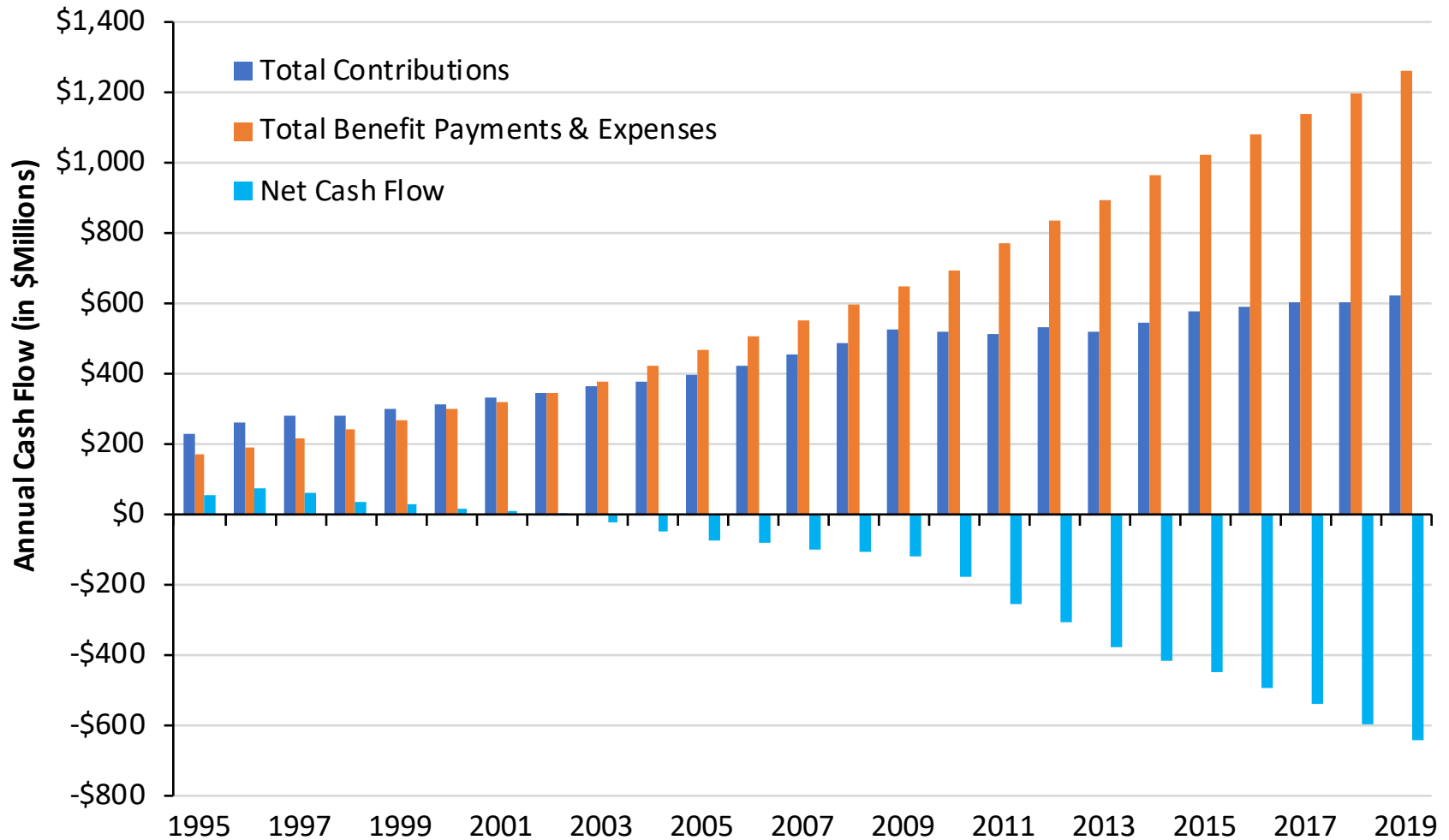
- Mature pension systems like PERA often pay out more in benefits than they take in from employees, employers, and investments - negative cash flow is expected.
- In the “New Normal” low-yield environment, as expenses strain PERA assets, timing is important.
- Unlike newly established plans, PERA will need to pay out a significant amount of pension benefits over the next 15 years, meaning a large portion of its current assets will not be around (in years 16-30) to make up for the lower earnings anticipated.
- As of 2019, the average duration of PERA actuarial liabilities was around 12.1 years.

Quick Fact:

- PERA paid out \$1.26 billion in benefits and refunds in 2019, while taking in only \$621 million.

Net Cash Flow, 1995-2019

PERA Expenses Outgrow Contributions

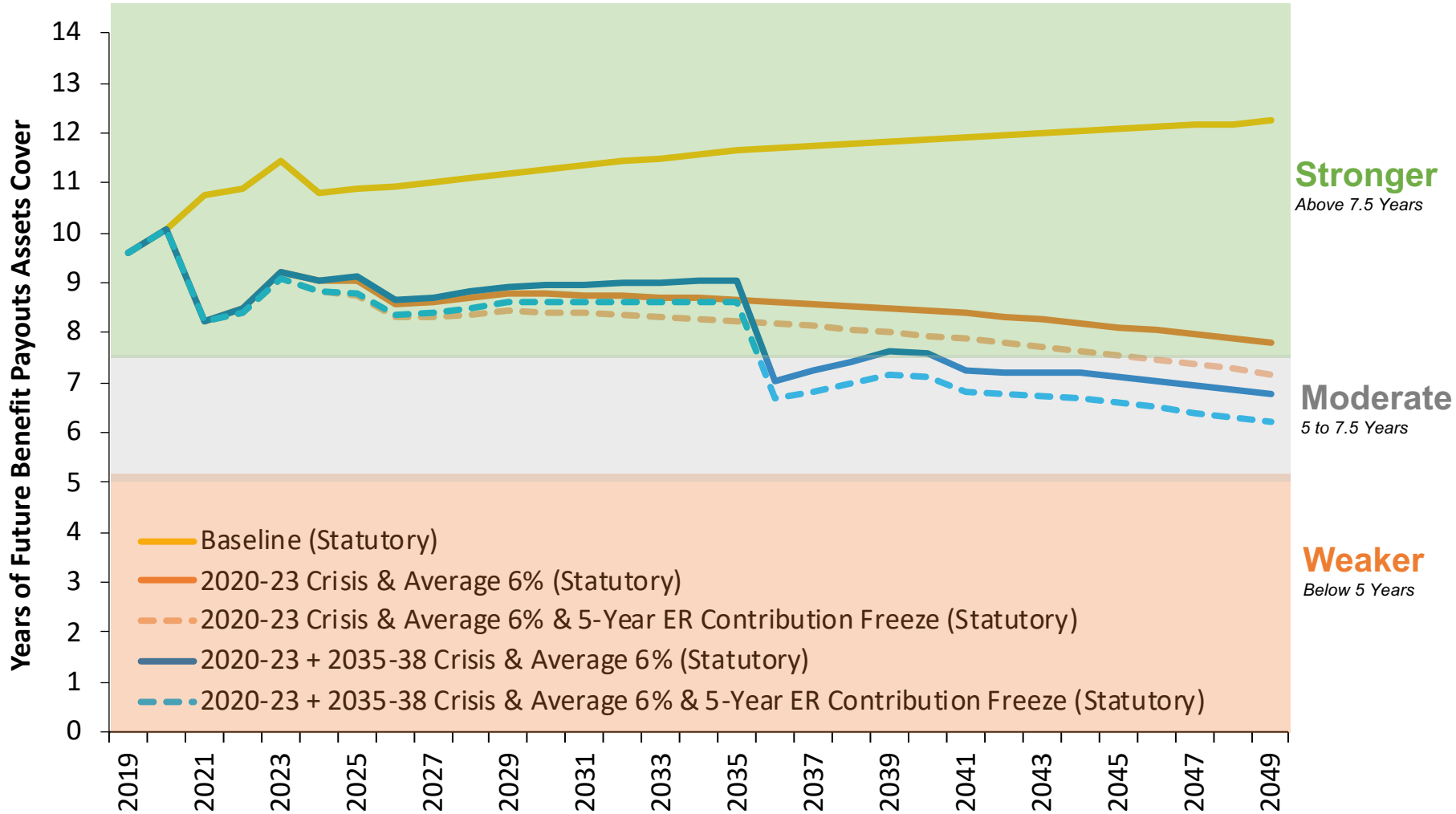


Source: Pension Integrity Project analysis of PERA actuarial reports and CAFRs. Net Cash Flow equals the difference between total contributions (net of investment income) and total expenses. Values are for PERA Fund only.

PERA Stress Testing: Cash Flow Projections

Crises Deplete PERA's Ability to Pay Promised Benefits

Discount Rate: 7.25%, Assumed Return: 7.25%, Actual Return: Varying, Amo. Period: 30-Year, Closed



Source: Pension Integrity Project actuarial forecast of PERA. Moody's Investors Service, "State government – US: Most states have the financial flexibility and reserves to manage a recession," May 2019. Scenarios assume that the state continues to pay 100% of the statutory contribution rates each year.



CHALLENGE 4: DEBT MANAGEMENT POLICIES

- In 14 of the past 17 years, employer contributions have been falling short of the interest accrued on the unfunded liabilities held by PERA.

Debt Management Policies

Shorting PERA Leads to Negative Amortization



1. PERA valuation reports show volatile amortization periods falling well outside industry best practices due to inadequate statutory rates and the 30-year level percent amortization method.
2. SB72 from 2019, requires PERA maintain a 25-year, level percent closed amortization target, which will fully amortize the debt by 2044.
3. Long amortization periods are indicators that plan amortization payments are insufficient to pay down PERA's unfunded liability and the interest that debt accrues.
4. Since 2010, employer contributions have fallen below the interest accrued on PERA's unfunded liability (negative amortization), leaving PERA to fall further behind its obligations in absolute terms.
5. Limiting PERA's amortization period to no more that 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:

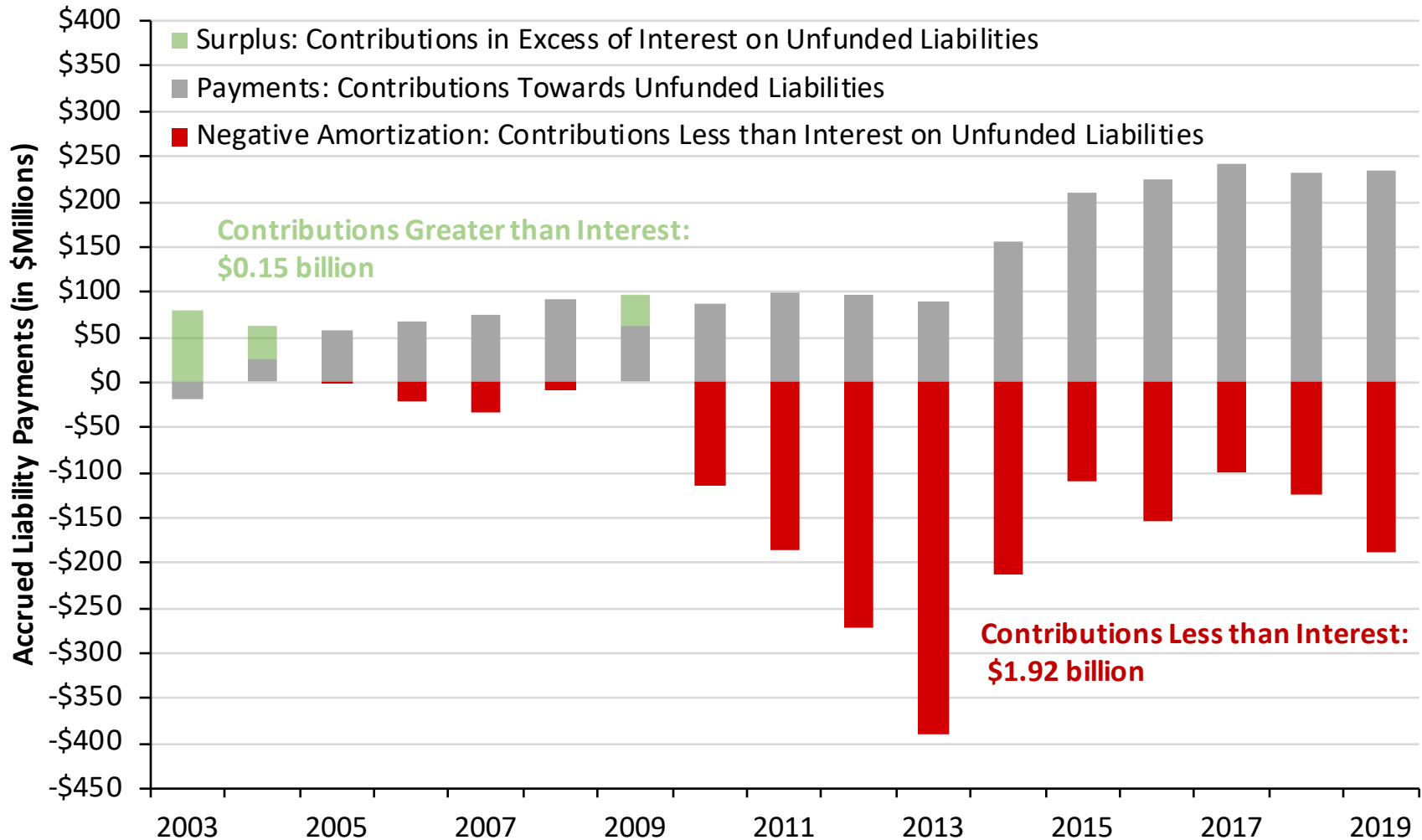
- The Society of Actuaries recommends amortizing new pension on a layered basis over a 15 to 20-year period.



Debt Management Policies

Debt Interest v. Accrued Liability Payments

PERA Negative Amortization Growth, 2003-2019



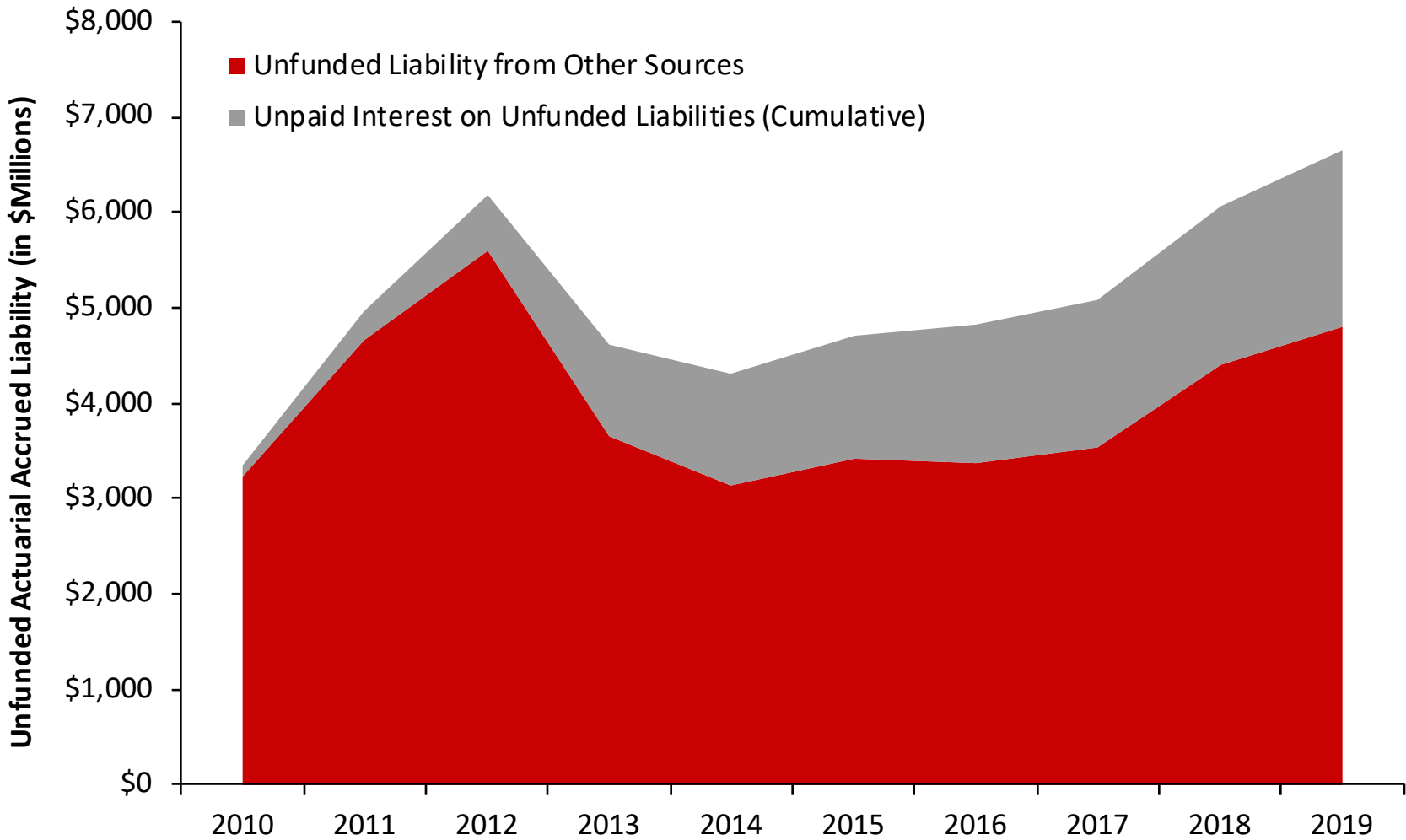
Source: Pension Integrity Project actuarial analysis of of PERA plan valuation reports and CAFRs.

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

PERA Negative Amortization Growth, 2010-2019



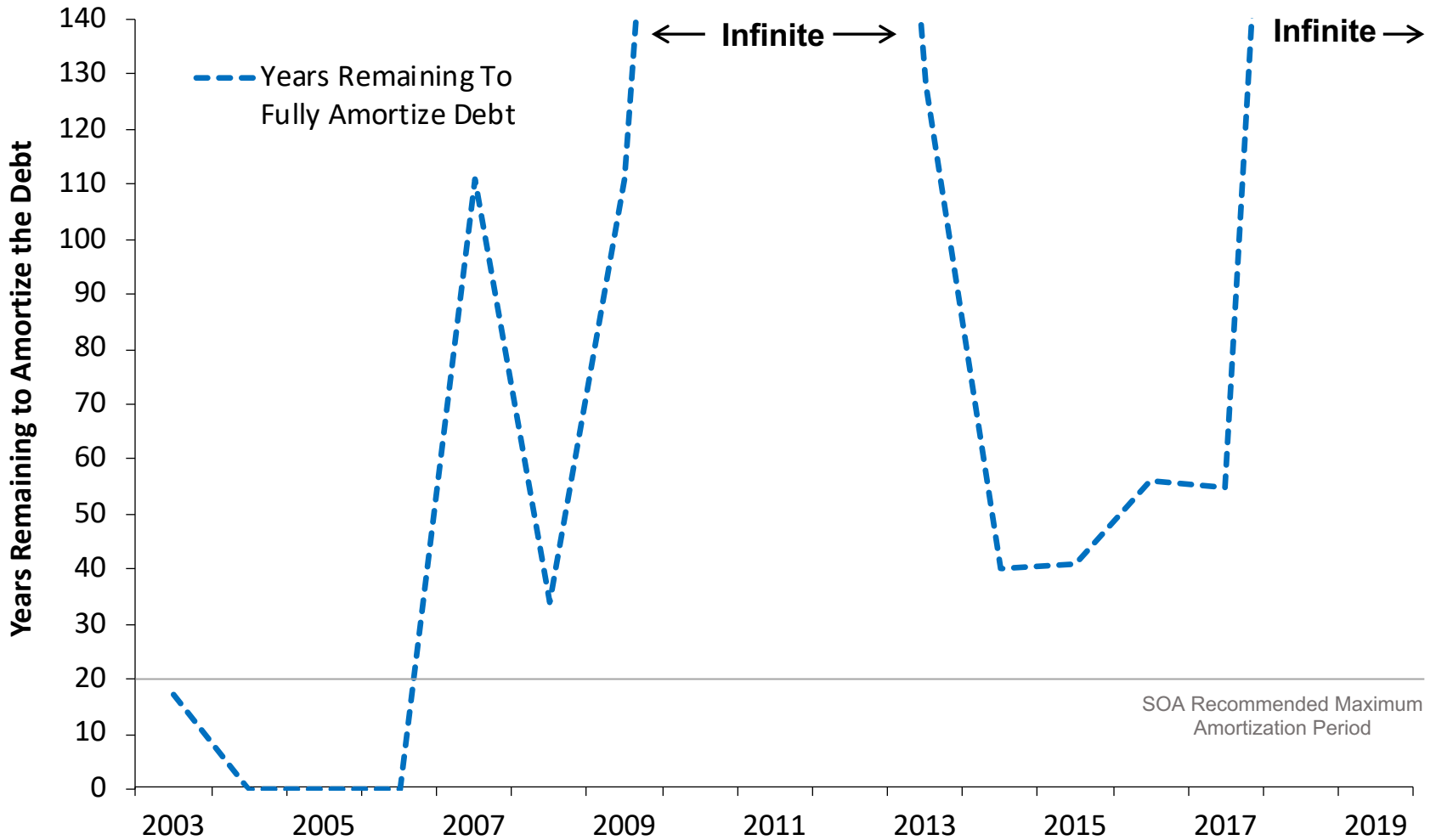
Source: Pension Integrity Project analysis of PERA actuarial valuation reports and CAFRs



Debt Management Policies

Long, Volatile Amortization Periods

PERA Negative Amortization Growth, 2003-2019



Source: Pension Integrity Project analysis of PERA 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



Post-SB72 - PERA uses 25-year, level-percentage 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 25-year amortization period mean?
 - The amount of time over which PERA 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 5: 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

- **(-) Extended Amortization Timetables and Statutory Contributions Limits**
 - Setting contribution rates in statute that are below ADEC and using optimistic return assumption resulted in interest on PERA debt exceeding the actual debt payments (aka negative amortization) and a net \$1.85 billion increase in the unfunded liability since 2010.
- **(-) Changes in Actuarial Assumptions and Methods**
 - PERA made alterations to its actuarial assumptions (e.g. changes in the assumed rate of return in 2011 and 2017) that have collectively unveiled \$1.40 billion of hidden unfunded liabilities from 2010-2019.
- **(-) Deviations from Service Retirement and Other Demographic Assumptions**
 - PERA's unfunded liability has increased by \$1.31 billion between 2010-2019 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



- **(+) Plan Changes**

- PERA has made several plan changes over the years. One of the major ones is Senate Bill 27 that decreased the COLA from 3% to 2% in 2013 and increased the COLA wait period for members retiring on or after July 1, 2016 to 7 years. These changes resulted in a decrease of \$1.69 billion to actuarial liabilities.
- Furthermore, changes to the member data used for annual compensation and pensionable earnings in 2016 resulted in unfunded liabilities decreasing by \$373.3 million.
- Cumulatively, these plan changes has meant a reduction in unfunded liabilities of \$2.1 billion from 2010 to 2019.

Challenges from Aggressive Actuarial Assumptions

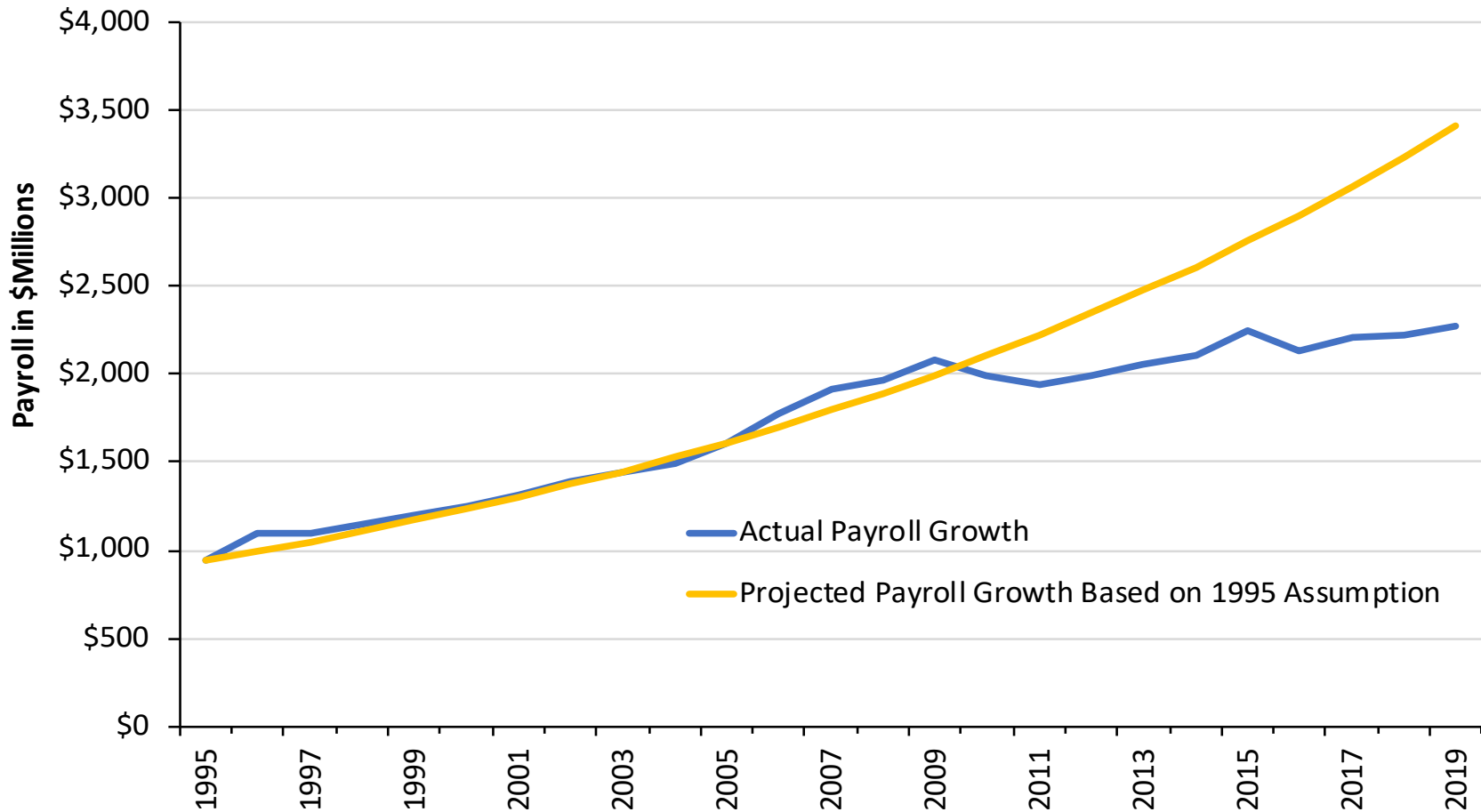
Actual Experience Different from Actuarial Assumptions



- **(+) Overestimated Payroll Growth**
 - PERA 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 2010 to 2019.
- **(-) Overestimated Payroll Growth**
 - However, overestimating payroll growth is creating a long-term Challenge for PERA 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

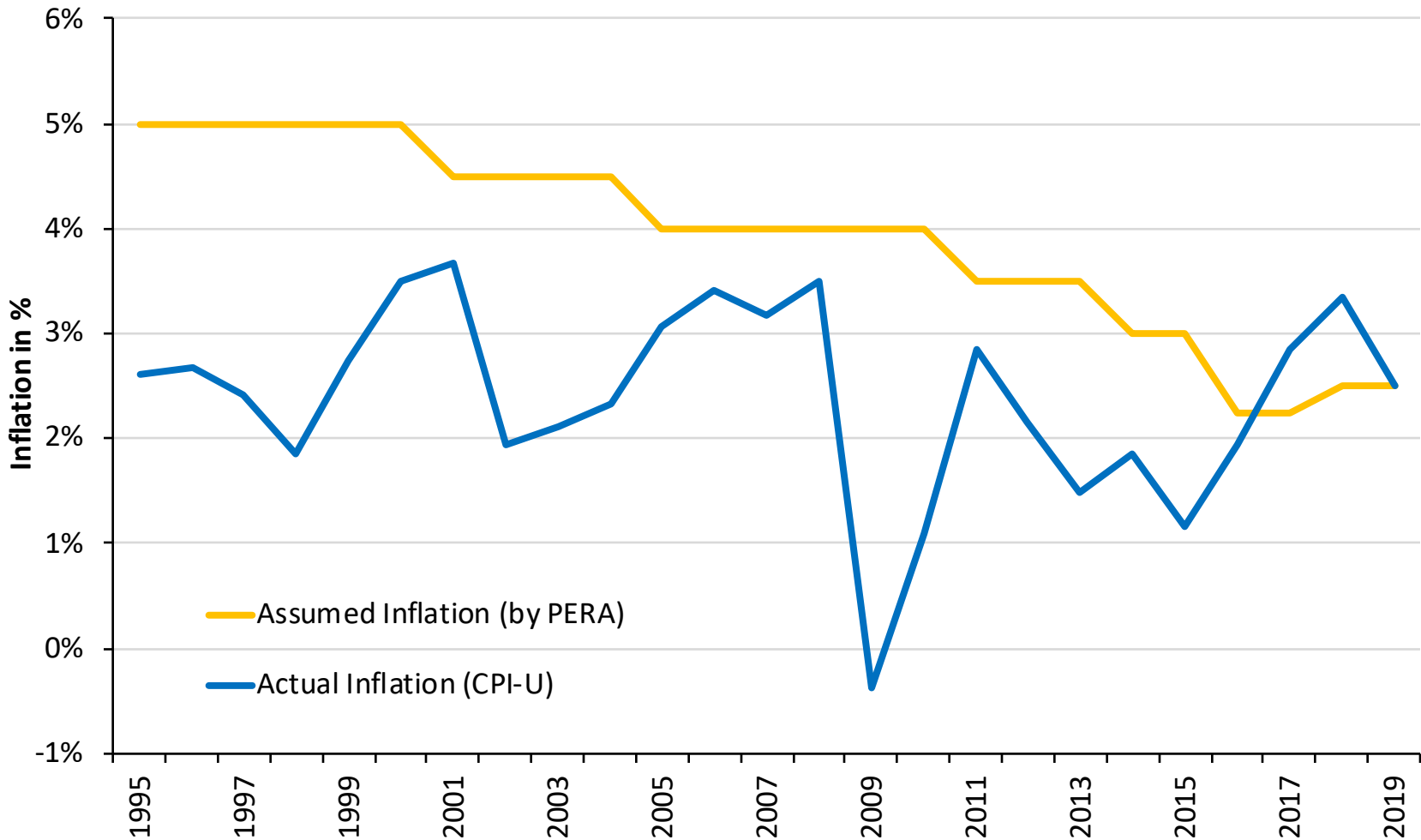


Source: Pension Integrity Project analysis of PERA actuarial valuation reports and CAFRs. Years represent fiscal year ended dates.



Challenges from Aggressive Actuarial Assumptions

Actual Inflation v. Assumption



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



CHALLENGE 6: DISCOUNT RATE AND UNDERVALUING DEBT

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

PERA 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 PERA — 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 PERA 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.

PERA 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 New Mexico would pay out less than 100% of promised retirement income benefits to members and retirees.**
 - Article XX, Section 22D of the New Mexico Constitution recognizes that public pensions give rise to vested property rights, protected by due process. *Pierce v. State*, 910 P.2d 288 (determining that state retirement statutes created vested property rights, but not contract rights).

- 3. 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.

Post-SB72 PERA Pension Debt Sensitivity

FYE 2020 Actuarial Liability Projections Under Varying Discount Rates

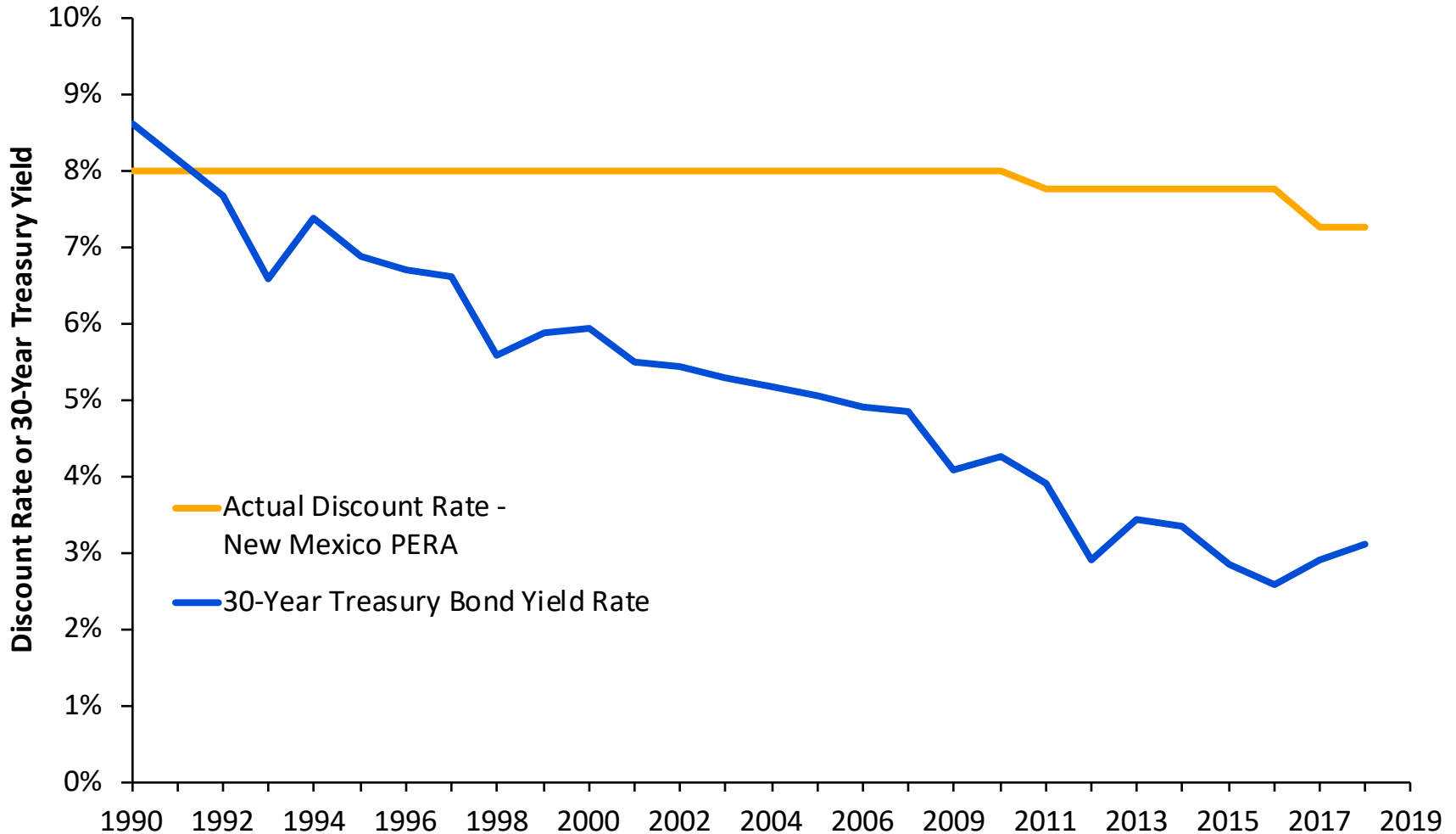


Discount Rate	Funded Ratio (Market Value)	Unfunded Liability (Market Value)	Actuarial Accrued Liability
7.25% (Post-SB72 Baseline)	70.4%	\$6.7 billion	\$22.6 billion
6.25%	62.5%	\$9.5 billion	\$25.4 billion
5.25%	55.1%	\$13.0 billion	\$28.9 billion
4.25%	48.1%	\$17.2 billion	\$33.1 billion

Note: Both Pre-SB72 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 PERA CAFR.

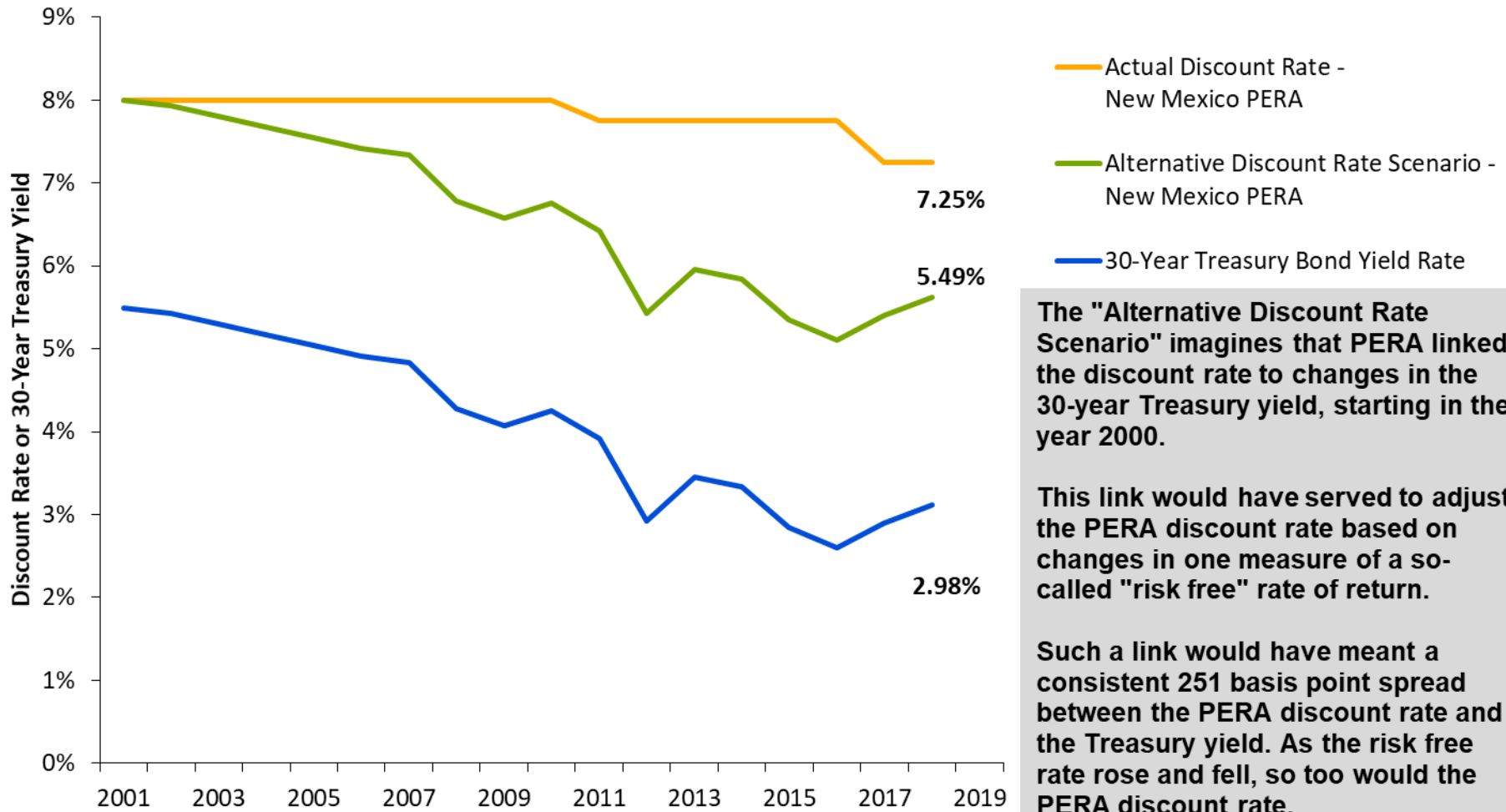
Source: Pension Integrity Project analysis of PERA actuarial reports and CAFRs.
Projections are based on market value of assets and actuarial accrued liability. Figures are rounded.

Change in the Risk-Free Rate Compared to PERA Discount Rate (1990-2019)



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

Change in the Risk-Free Rate Compared to PERA Discount Rate (2001-2019)



The "Alternative Discount Rate Scenario" imagines that PERA linked the discount rate to changes in the 30-year Treasury yield, starting in the year 2000.

This link would have served to adjust the PERA discount rate based on changes in one measure of a so-called "risk free" rate of return.

Such a link would have meant a consistent 251 basis point spread between the PERA discount rate and the Treasury yield. As the risk free rate rose and fell, so too would the PERA discount rate.

Source: Pension Integrity Project analysis of PERA actuarial valuation reports and Treasury yield data from the Federal Reserve.



CHALLENGE 7: THE EXISTING BENEFIT DESIGN DOES NOT WORK FOR EVERYONE

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



Understanding PERA's New COLA Design

SB72 Profit-Sharing COLA

- Under SB72, PERA will transition from a static, fixed 2.0% COLA most current and legacy members receive—regardless of any actual change in consumer prices in the economy—to a profit-sharing model for retirees with a 3% cap and 0.5% floor.
- New COLAs will be dependent on both investment performance and the plan's funded status.

New COLA Design Will Provide Sufficient Benefits & Would Improve Solvency

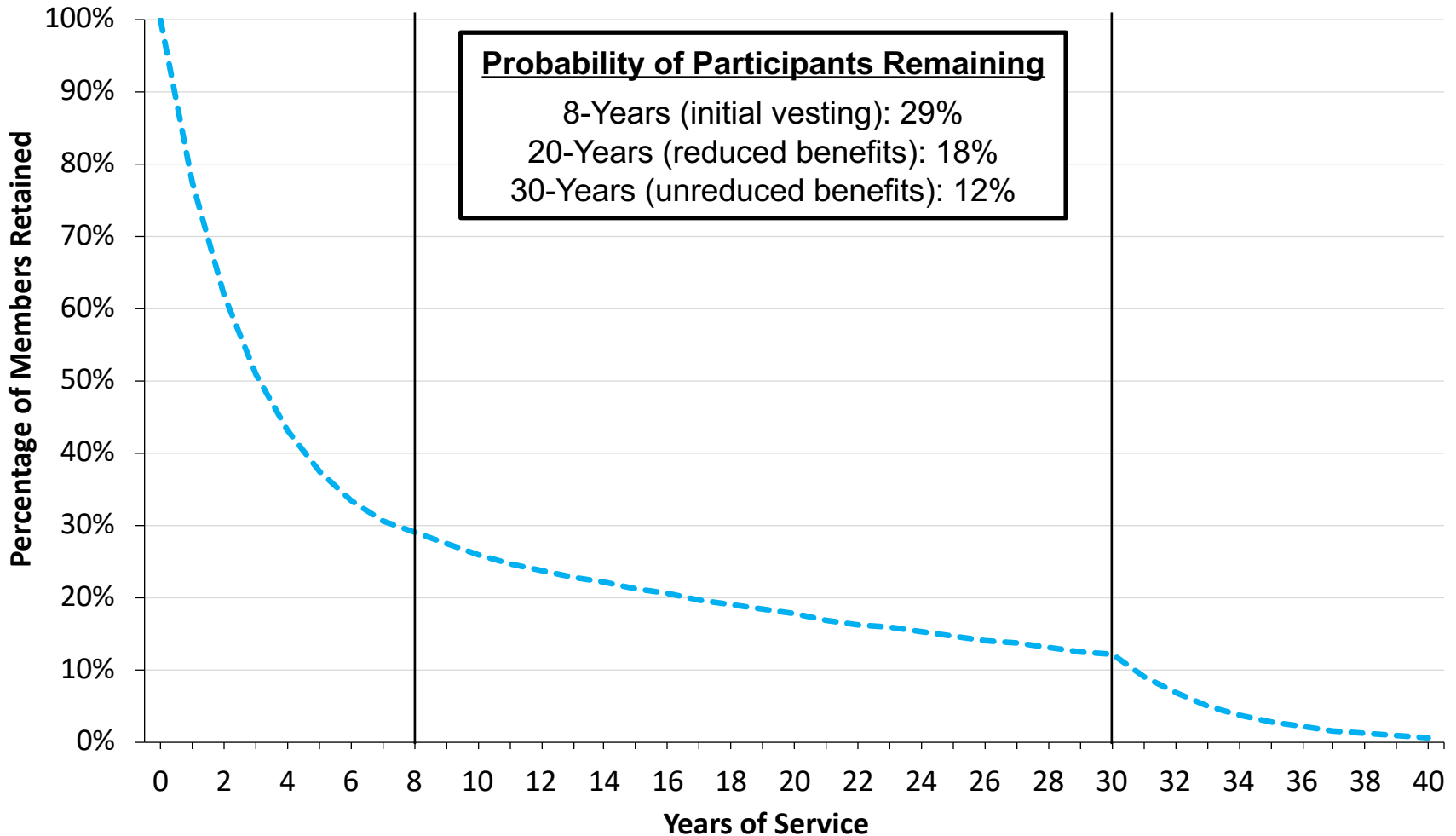
- Contribution increases and COLA adjustments are expected to generate \$700 million in long-term savings, eliminate all unfunded liabilities over the next 25 years if all assumptions are met.
- Actuarial modeling by the Pension Integrity Project finds that there is a 50 percent chance the SB 72 COLA for current and future retirees below age 75 would average at least 1.71% annually through 2049, on par with the PERA actuary's latest projection of a 1.61% average COLA.

	Pre-SB72 COLA	New SB72 COLA (stochastic, 2023-49)	10-Year Expected Inflation (Horizon, 2020-29)
75 th Percentile	2.0%	2.46%	2.3%
50th Percentile	2.0%	1.71%	2.2%
25 th Percentile	2.0%	1.25%	2.0%

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



Probability of Members Remaining in PERA



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

Illustration is based on plan's state general Tier 2 assumptions and a hypothetical analysis of an average member hired at the age of 25



Do PERA Retirement Plans Work for All Employees?

- **71%** of new PERA members leave before 8 years
 - State General Tier 2 employees must work 8 years before their benefits become vested.
 - Tier 2 members who leave the plan before then must forfeit contributions their employer made on their behalf.
 - Another 8% of new members who are still working after 8 years will leave before 15 years of service.
- **12%** of all State General Tier 2 members hired next year will still be working after 30 years, long enough to qualify for unreduced benefits
 - New Mexico ensures that all state employees have access to Social Security benefits.



Recruiting and Retaining Public Employees

■ Recruiting a 21st 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 PERA system, it is clearly not working, as nearly 70% of employees leave within 8 years.
- After 20 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.



FRAMEWORK FOR SOLUTIONS & REFORM



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



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.



Questions?

Pension Integrity Project at Reason Foundation

Len Gilroy, Senior Managing Director

leonard.gilroy@reason.org

Anil Niraula, Policy Analyst

anil.niraula@reason.org

Truong Bui, Senior Policy Analyst

truong.bui@reason.org

Steven Gassenberger, Policy Analyst

steven.gassenberger@reason.org