

FLORIDA RETIREMENT SYSTEM

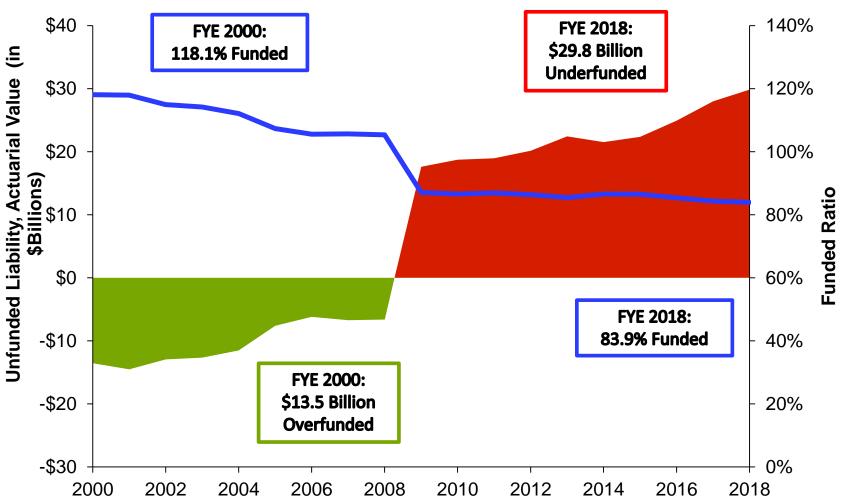
Despite Reforms, Remaining Challenges are Undermining FRS Member Retirement Security

Prepared by:

Pension Integrity Project at Reason Foundation August 21, 2019—Preliminary Draft

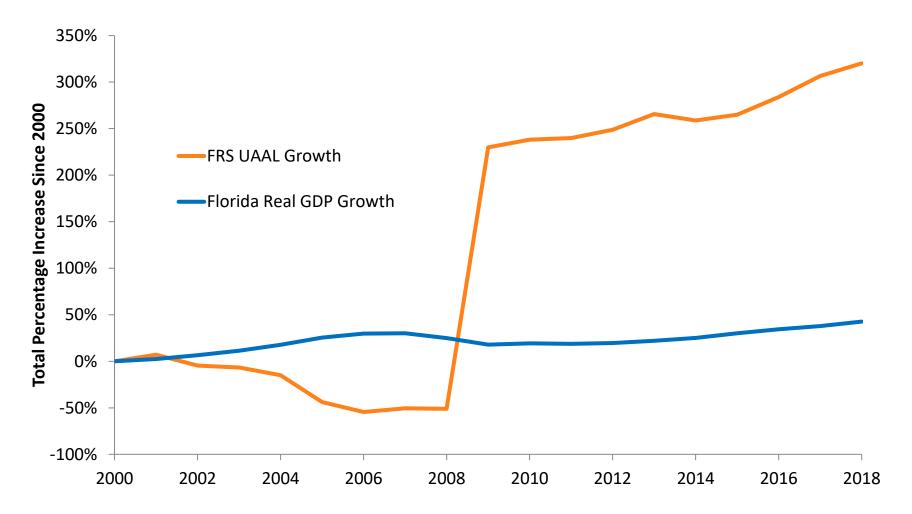
A History of Weakening Solvency (2000-2018)





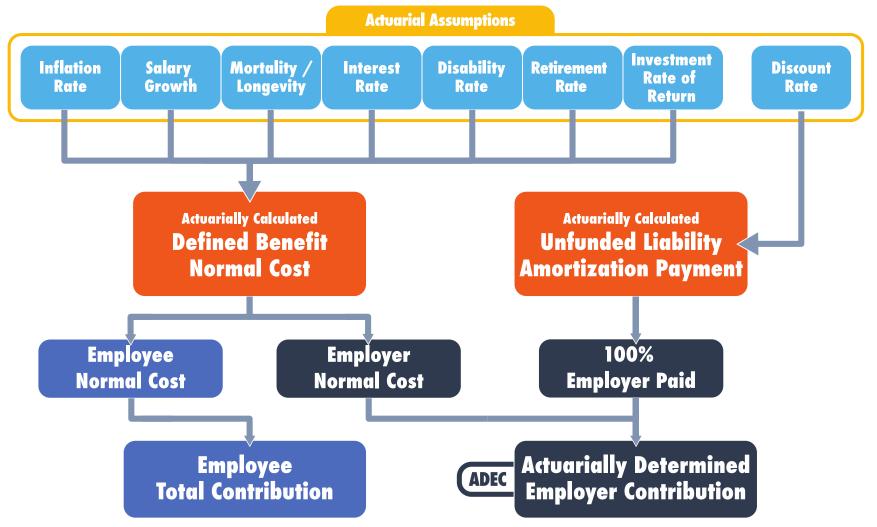
FRS Unfunded Liabilities are Growing Faster than the Florida Economy





How a Pension Plan is Funded







REVIEWING PRIOR REFORMS

Major Reforms to FRS

2000 - House Bill 2393

- Provided a defined, participant-directed contribution (DC) plan option to FRS members.
- One-year vesting for the portability of employer contributions.
- Based retirement benefits on market returns rather than a fixed benefit guarantee.
- Existing members given the option to switch future FRS participation into the DC plan without losing their already earned pension benefits.

2011 – Senate Bill 2100

- Created a new benefit tier for "special-risk" new hires.
- Renamed the FRS defined benefit plan the Florida Retirement System "Pension Plan".
- Renamed the FRS defined contribution plan from the Public Employee Optional Retirement Program to the Florida Retirement System "Investment Plan."
- Eliminated post-retirement increases on pension benefits earned after July 2011.
- Decreased both employer and employee contribution rates effective July 2012.
- Led to unfunded accrued liabilities decreasing from \$16.7 billion to \$15.6 billion.

2017 - Senate Bill 7022

Defaults new employees hired after January 2018 into the FRS Investment Plan (DC plan) if no election taken after eight months of employment.

Previous FRS Reforms Have Not Put the Florida Retirement System on a Path to Sustainability



- The historic 10-year bull market has not helped FRS recover.
 - The 2008 financial crisis weakened FRS's funded status, but since then markets have recovered while pension funding has not
- Reducing benefits in 2011 reduced some costs at the expense of inflation protection for retirees, but it did not fundamentally address why pension debt continues to grow
- Defaulting new FRS members into the Investment Plan in 2018 was better aligned with workforce mobility trends and reduced future financial risk, but it did not address why pension debt has persisted for a decade
- For three straight years (2016, 2017 & 2018) FRS's consulting actuary has warned that the assumed rate of return is not reasonable
- Additional reforms are necessary to ensure long-term solvency

Current Retirement Option Sets



FRS Investment Plan

*default option as of January 1, 2018

Type:

 Defined Contribution Retirement Plan

Employee Contribution:

• 3%

Employer Contribution:

- 3.3% to member IP account
- 3.56% to legacy FRS Pension Plan unfunded liabilities

Vesting:

1 year

Investment Options:

 Investment Funds, Target Date Funds

Default Investment Strategy:

Target Date Funds

FRS Pension Plan

*available to all new hires as of January 1, 2018

Type:

 Final Average Salary Defined Benefit Pension Plan

Final Average Salary:

Average of the 8 highest years

Multiplier:

• 3%

Vesting:

8 years

Normal Retirement Eligibility:

Any age @ 33 YOS or vested by age 65

Employer Contribution:

- 3.09% for Normal Cost
- 4.30% for Unfunded Liability Payment (beginning FY2019-20)

Employee Contribution:

• 3%

FRS Remains Unsustainable Despite Recent Reforms



Problem #1 - FRS Defined Benefit Pension Plan Still Not on a Path to Solvency

- Challenge 1-A: Overly optimistic assumed rate of return creates unnecessary risk
- Challenge 1-B: Insufficient employer contributions inhibits plan assets from compounding growth over decades
- Challenge 1-C: Discount rate misaligned with risk, underpricing pension cost and undervaluing FRS unfunded liabilities

Problem #2 - FRS Defined Contribution Retirement Plan Not Built for Retirement Security

 Inadequate contribution rate shortchanging worker retirement security



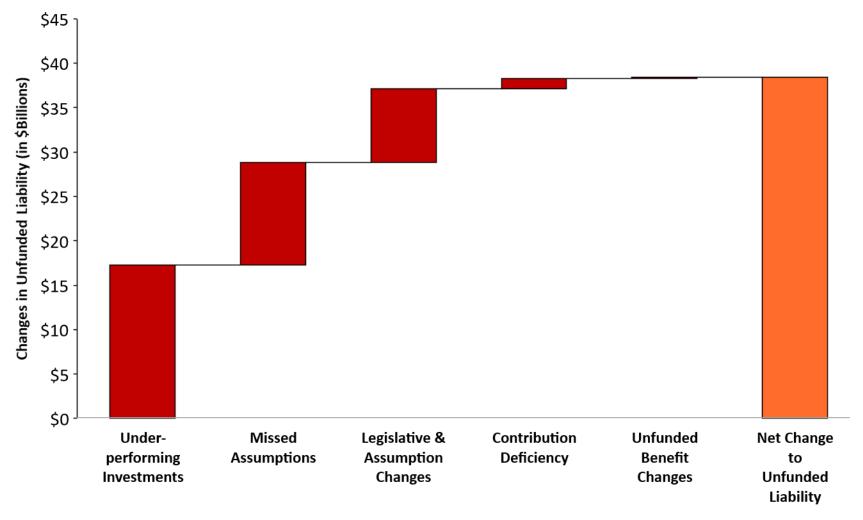
PROBLEM #1

FRS PENSION PLAN STILL NOT ON A PATH TO SOLVENCY

Examining the Sources of Pension Debt

Actuarial Experience of FRS, 2008-2018





Driving Factors Behind FRS Pension Debt



- 1. <u>Underperforming investment returns</u> have been the largest contributor to the unfunded liability, adding \$17 billion since 2008.
- Missed assumptions have consistently diverged from actuarial expectations since 2008, contributing nearly \$12 billion to the unfunded liability.
- 3. Prudent changes in actuarial assumptions and methods since 2008 to better reflect current market and demographic trends required the recognition of previously unrecognized pension cost and the acknowledgment of \$8.3 billion to the unfunded liability.
- 4. <u>Insufficient contributions</u> contributed \$1.2 billion to FRS unfunded liability since 2008.



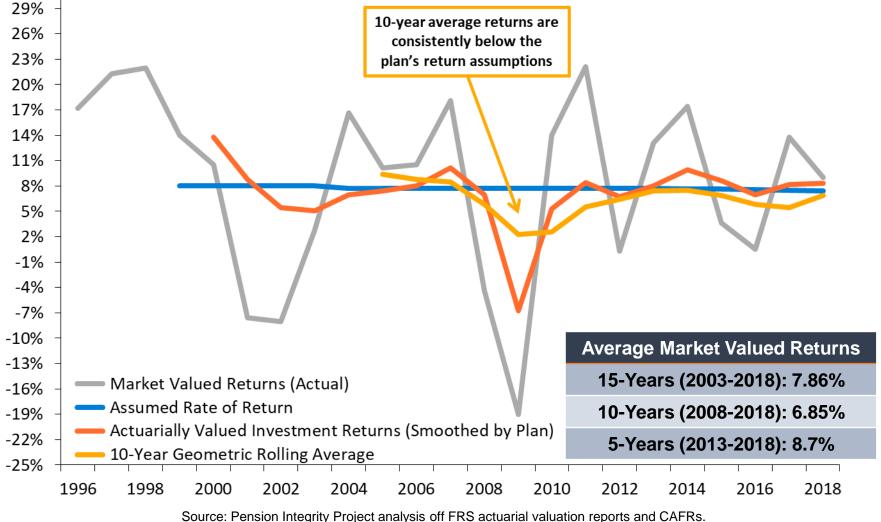
CHALLENGE I-A: ASSUMED RATE OF RETURN

- Unrealistic Expectations: Despite the recent change to 7.4%, the Assumed Investment Return for FRS continues to expose taxpayers to significant investment underperformance risk
- Underpricing Contributions: The use of an unrealistic
 Assumed Return has likely resulted in underpriced Normal Cost
 and an undercalculated Actuarially Determined Contribution

Challenge I-A: Underperforming Assets

Investment Return History, 1996-2018





Challenge IA: Underperforming Assets

Investment Returns Have Underperformed



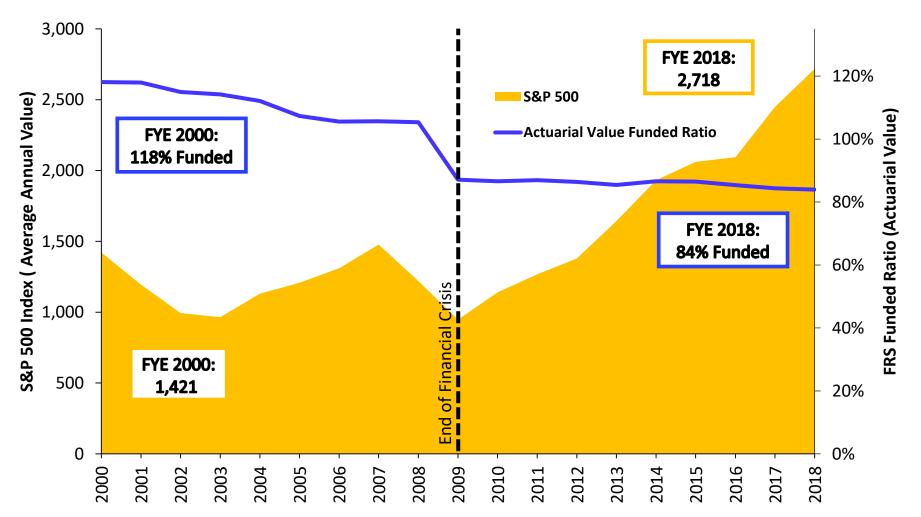
- FRS historically assumed an investment return rate as high as 8.00% before lowering the assumption to 7.75% in 2004 but began adjusting the assumption annually in 2014 to reach the current 7.4% in response to significant market changes.
- FRS expand investments in high-risk holdings in a search for greater investment returns over the past decade.
- The FRS Pension Plan investment portfolio's trends have not matched long-term assumptions:

Average Market Valued Returns	Average Actuarially Valued Returns
15-Years (2003-2018): 7.86%	15-Years (2003-2018): 6.82%
10-Years (2008-2018): 6.85%	10-Years (2008-2018): 6.28%
5-Years (2013-2018): 8.7%	5-Years (2013-2018): 8.42%

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

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





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



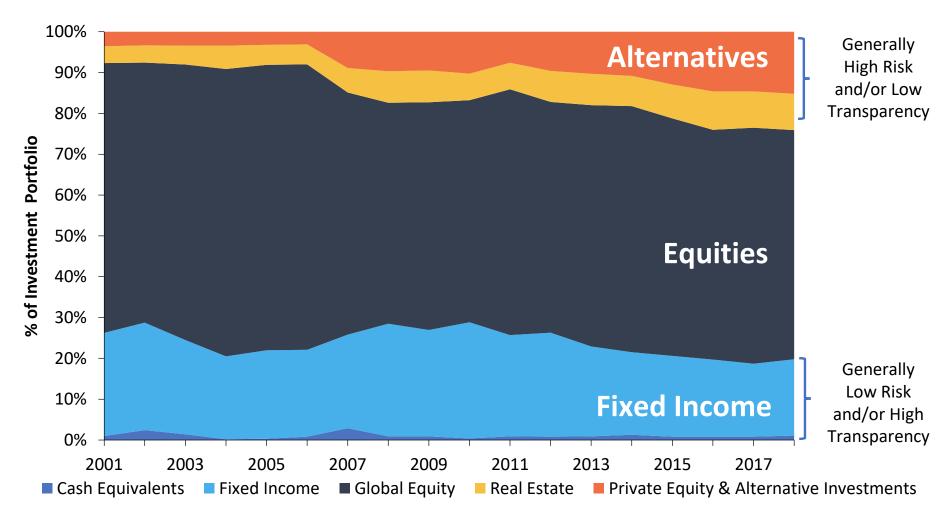
The "new normal" for institutional investing suggests that achieving even a 6% average rate of return is optimistic.

- Over the past two decades there has been a steady change in the nature of institutional investment returns.
 - 30-year Treasury yields have fallen from around 8% in the 1990s to consistently less than 3% today.
- 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 similar to FRS is likely to earn around 5% return.
- 3. FRS actuary Milliman Inc. believes the 7.4% investment return assumption prescribed by the FRS Actuarial Assumption Conference does not meet acceptable accounting standards.
 - "The prescribed assumption conflicts with our professional judgment regarding what would constitute a reasonable assumption for the purpose of the measurement as discussed in ASOP 27." (FRS 2018 Actuarial Valuation, p1)

FRS Asset Allocation (2001-2018)

Expanding Risk in Search for Yield





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

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

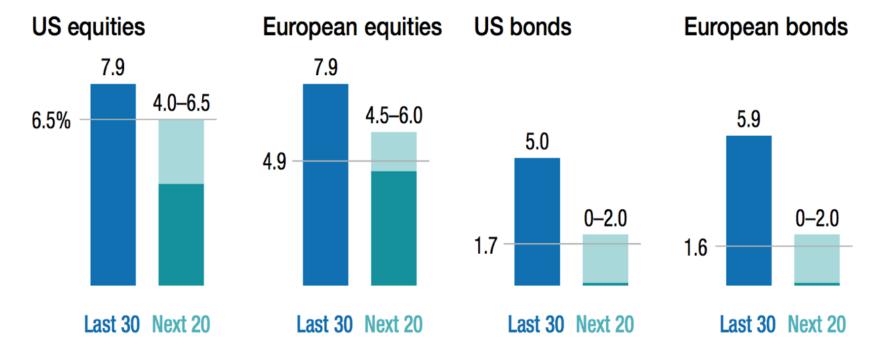


The past 30 years saw returns that exceeded the long-run average

- Historical real returns
- Last 100 years average return

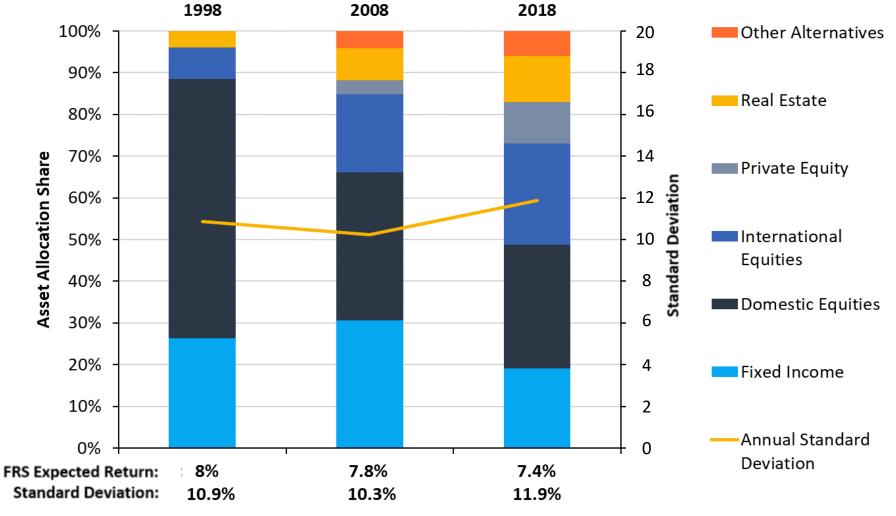
The next 20 years could be more challenging

- Growth-recovery scenario
- Slow-growth scenario



New Normal: More Risky FRS Asset Allocation Resulting in Higher Standard Deviation of Returns





Source: Pension Integrity Project Monte Carlo model based on FRS asset allocation and reported expected of returns by asset class. Based on 2018 estimates.

FRS Actuaries on Current Return Assumption



According to Milliman Inc., FRS's consulting actuary:

- ✓ The current 7.4% return assumption "[…] conflicts with our judgment regarding what would constitute a reasonable assumption for the purpose of the measurement […]"
- Models developed in 2018 by Milliman Inc. and Aon Hewitt indicate a less than 35% chance of FRS actual long term future returns meeting or exceeding 7.40%.

FRS Actuaries on Current Return Assumption



There is notable disagreement regarding the investment return assumption:

- Florida statutes indicate that the FRS Actuarial Assumption Conference holds the statutory authority to determine the investment return assumption for purposes of developing actuarially calculated contribution rates.
- Evidence suggests the FRS Actuarial Assumption Conference has been slow to adopt prudent assumptions, likely leading FRS to underestimate its unfunded liability
- The 7% return assumption recommended by FRS' consulting actuaries (Milliman Inc.) differs from the 7.4% investment return assumption chosen by the 2018 FRS Actuarial Assumption Conference.
- Models developed in 2018 by Milliman and Aon Hewitt show the average annual long-term future returns in the 6.4-6.7% range.

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



Probability of FRS Define Pension Plan Achieving A Given Return Based On:									
Possible Rates of Return	FRS Forecast		Short-Term Market Forecast				Long-Term Market Forecast		
	FRS Forecast	FRS 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%	28%	25%	24%	24%	18%	30%	44%	48%	
7.4%	37%	33%	32%	33%	24%	38%	52%	57%	
7.0%	43%	40%	39%	38%	29%	43%	58%	62%	
6.5%	53%	48%	47%	46%	35%	50%	64%	68%	
6.0%	61%	56%	55%	53%	43%	58%	71%	75%	
5.5%	69%	65%	63%	61%	50%	64%	77%	80%	
5.0%	76%	72%	70%	68%	58%	71%	82%	84%	

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



FRS Forecast

- A probability analysis of FRS historical returns over the past 20 years (1999-2018) indicates only a modest chance (33%) of hitting the plan's 7.4% assumed return.
- While long-term capital market forecast project a near 50% chance of achieving the FRS investment return target, the capital assumptions produced by the plan's own consulting actuary Milliman Inc. and Aon Hewitt indicate a less than 35% chance of FRS actual long-term future returns meeting or exceeding 7.40%.

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 FRS.
- 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, FRS returns are likely to fall short of their assumption.

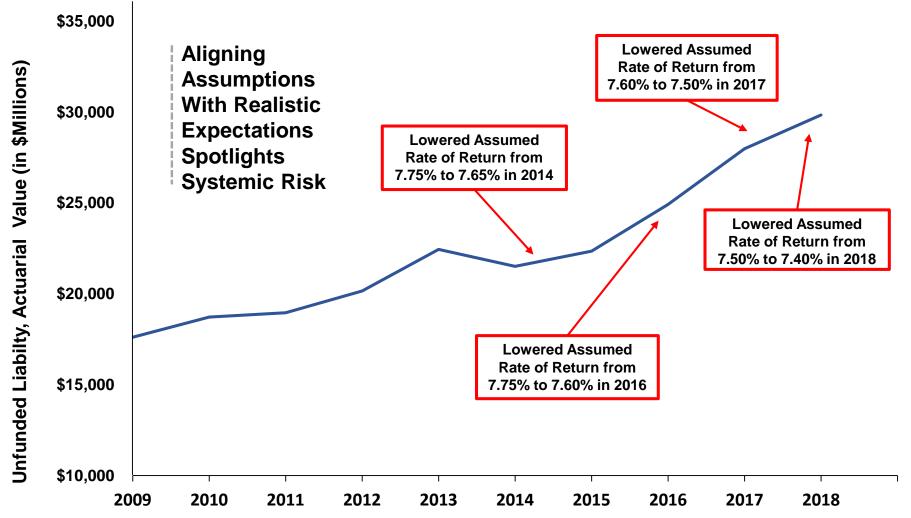
Long-Term Market Forecast

- Longer-term projections typically assume FRS 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 7.4% 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 7.4% or higher is about 52%, the probability of earning a rate of return below 5% is about 21%.

Benefits of Making Prudent Assumptions

Recognition of More Accurate Debt Levels







RISK ASSESSMENT

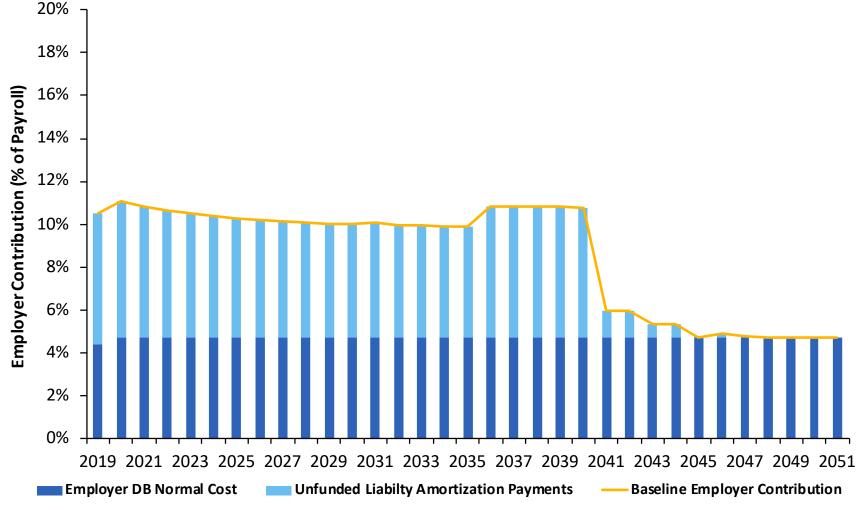
How resilient is FRS to volatile market factors?

Current FRS Baseline: Normal Cost + Amortization

What Happens if FRS Hits its Investment Target?

Discount Rate: 7.40%, Assumed Return: 7.40%, Actual Return: 7.40%, Amo. Period: 30-Year, Closed



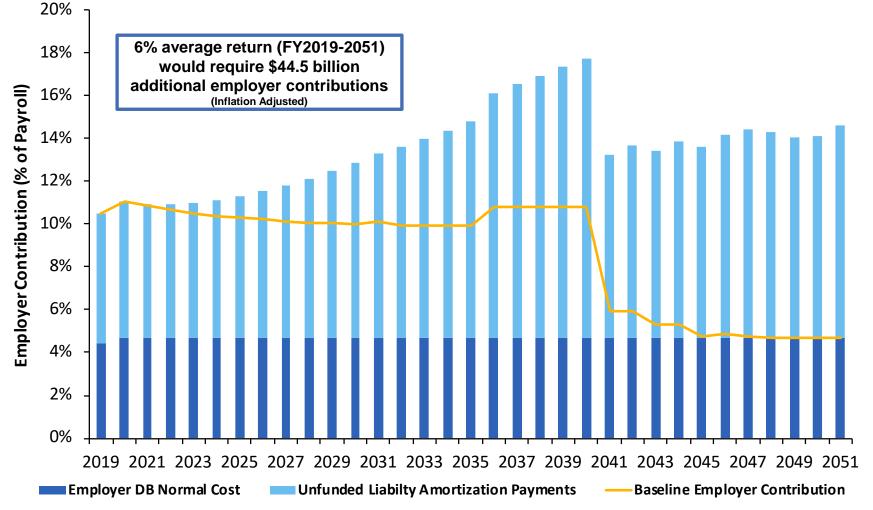


FRS Scenario 1:

What Happens if FRS Underperforms?

Discount Rate: 7.40%, Assumed Return: 7.40%, Actual Return: 6.00%, Amo. Period: 30-Year, Closed



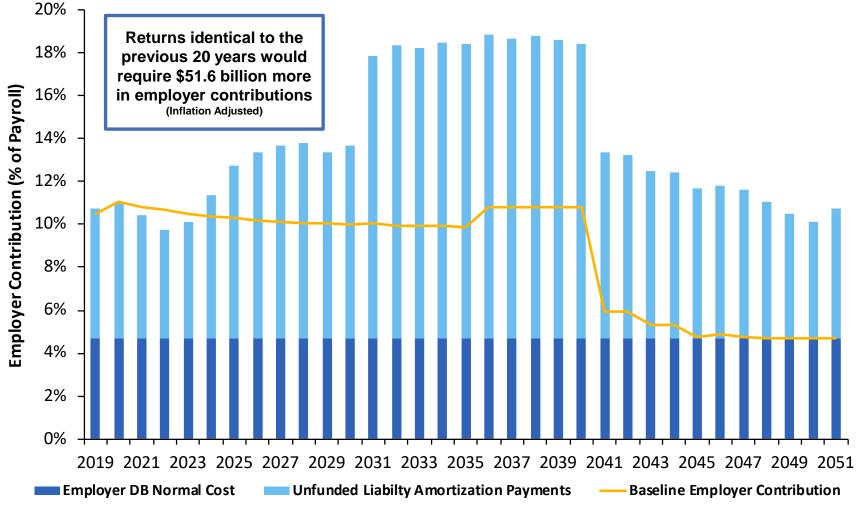


FRS Scenario 2:

What if the Next 20 Years are the Same as the Last 20?

Discount Rate: 7.40%, Assumed Return: 7.40%, Actual Return: Same as Last 20 Years, 7.40% Following Years



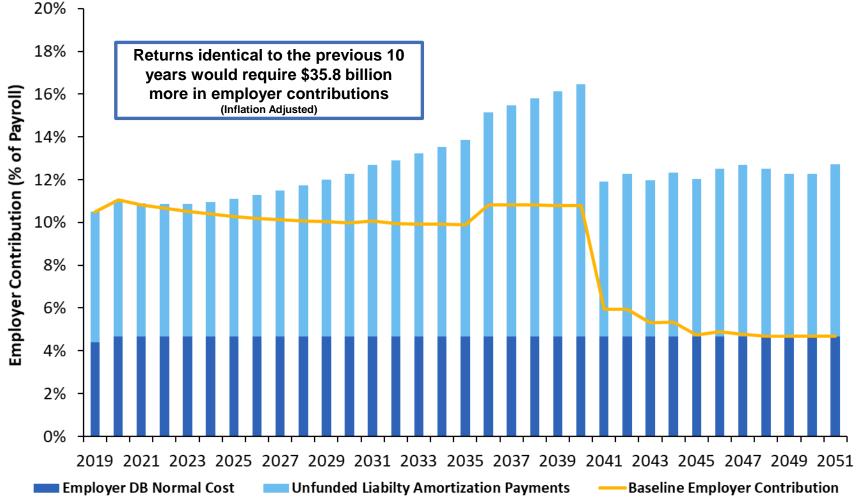


FRS Scenario 3:

What if the Next 10 Years are the Same as the Last 10?

Discount Rate: 7.40%, Assumed Return: 7.40%, Actual Return: Same as Last 10 Years, 7.40% Following Years



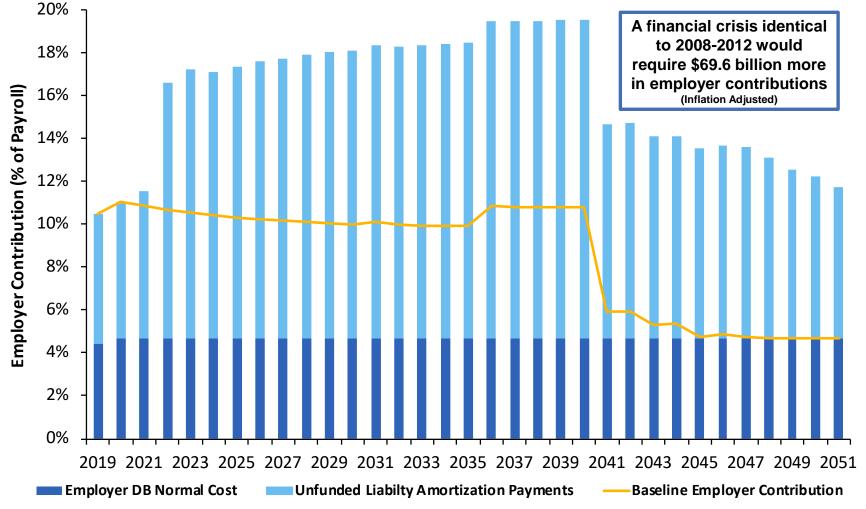


FRS Scenario 4:

What Happens if FRS Experiences Another Crisis?

Discount Rate: 7.40%, Assumed Return: 7.40%, Actual Return: Crisis Returns 2019-2023, 7.40% Following





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



(Amounts to be Paid in 2018-19 Contribution Fiscal Year, % of projected payroll)

	Gross Normal Cost	Employer Normal Cost	Employee Normal Cost
7.4% Assumed Return (FYE 2018 Baseline)	7.68%	4.68%	3.0%
7.0% Assumed Return	8.4%	5.4%	3.0%
6.5% Assumed Return	9.39%	6.39%	3.0%
6.0% Assumed Return	10.51%	7.51%	3.0%

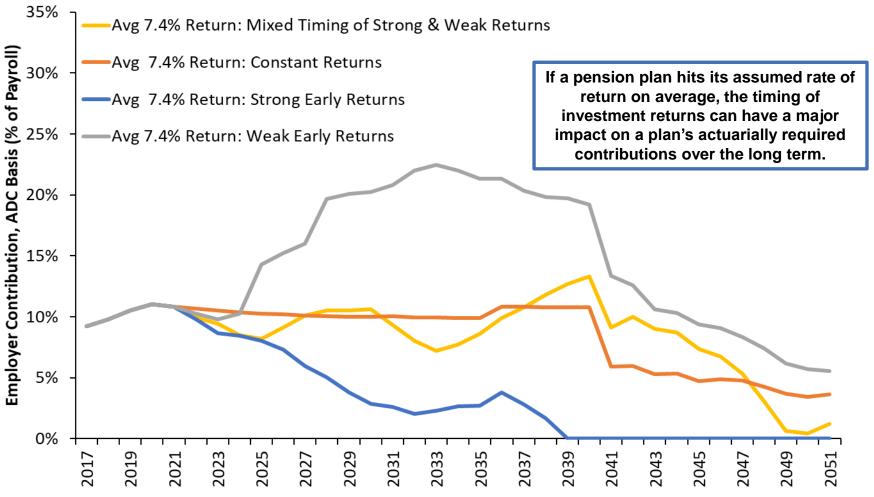
Note: These alternative gross normal cost figures should be considered approximate guides to how much more normal cost should be under different discount rates. Any policy changes should be based on more precise normal cost forecasts using detailed plan data. Alternative normal cost rates based reported liability sensitivity from the FYE 2018 FRS CAFR.

30-year Employer Contribution Forecast

All Paths to a 7.4% Average Return are Not Equal

Long-Term Average Returns of 7.4%





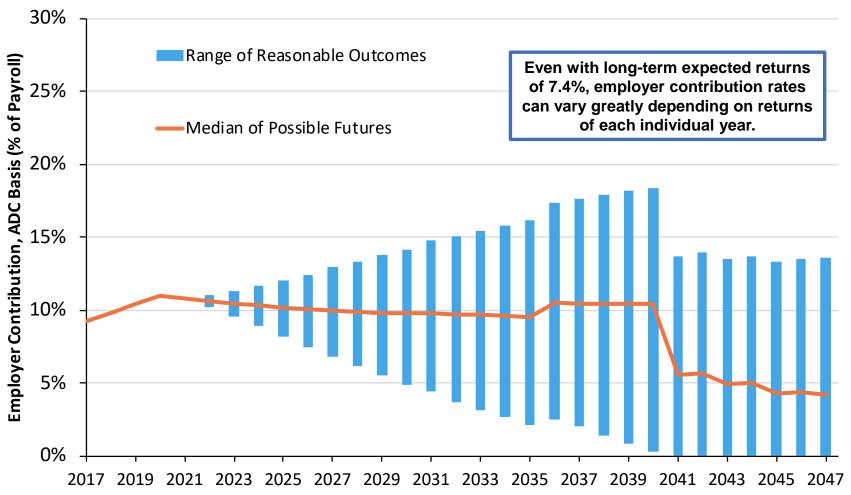
Source: Pension Integrity Project actuarial forecast of FRS plan. Strong early returns (TWRR = 7.4%, MWRR = 8.4%), Even, equal annual returns (Constant Return = 7.4%), Mixed timing of strong and weak returns (TWRR = 7.4%, MWRR = 7.4%), Weak early returns (TWRR = 7.4%, MWRR = 6.7%) Scenario assumes that FRS pays the actuarially required rate each year. Years are plan's fiscal years.

30-year Employer Contribution Forecast

If FRS Performs as Expected, Rates Can Still Vary

Based on Long-term Average Returns of 7.4%



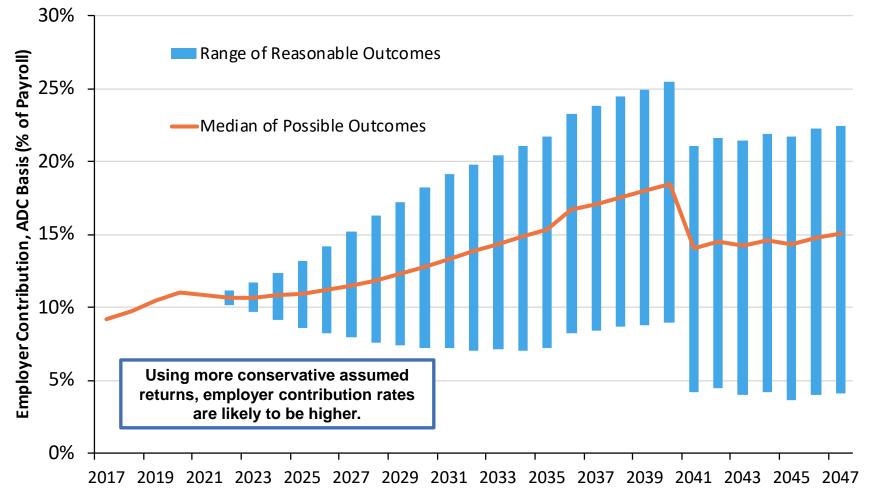


30-year Employer Contribution Forecast

If FRS Underperforms, Expect Higher Contribution Rates

Based on More Conservative Long-term Average Expected Returns



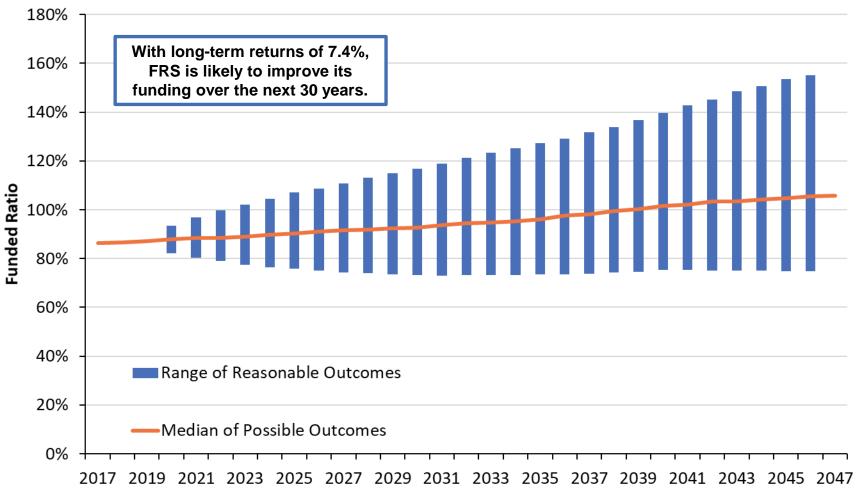


30-year Funded Ratio Forecast

Funded Ratios are Expected to Improve

Based on Long-term Average Returns of 7.4%



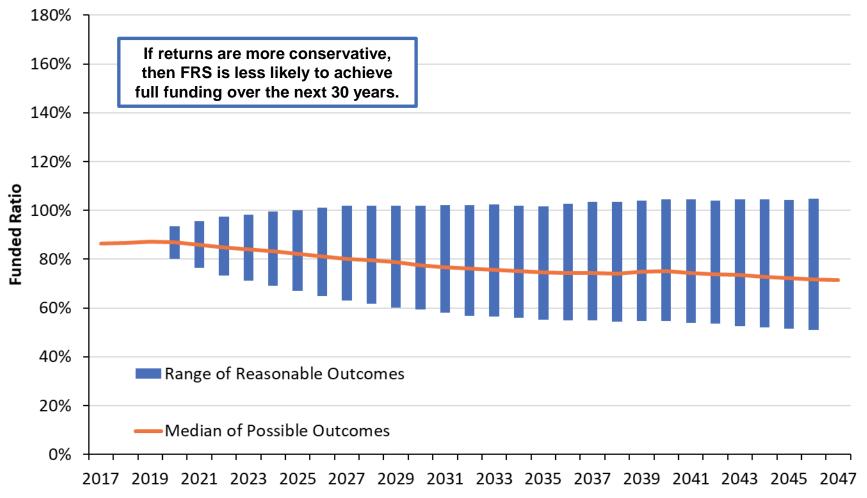


30-year Funded Ratio Forecast

How Do Missed Returns Impact Funded Ratios?

More conservative return assumptions show FRS is less likely to achieve full funding over the next 30 years





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

Conservative returns are 5.56%, which are the result of combining the long-term capital market assumptions from four prominent financial firms (see slide 15).



CHALLENGE I-B: INSUFFICIENT EMPLOYER CONTRIBUTIONS

- Since 2002, FRS pension contributions have fallen short of the level FRS actuaries have calculated is needed to ensure solvency, resulting in a need for much higher contributions today.
- Methods for paying off unfunded liabilities have made the existing pension debt problems worse.

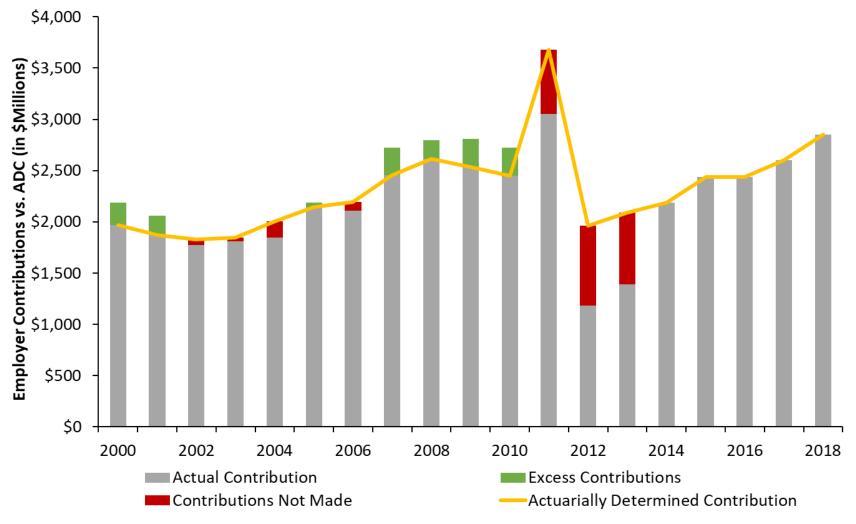
Imprudent Funding Policy is Creating Structural Underfunding for FRS



- 1. From 2011-2013, FRS employer contributions failed to meet the actuarially determined contribution (ADC) increasing the Unfunded Actuarial Liability by \$2.45 billion
- In 7 of the past 17 years, employer contributions have been less than the interest accrued on the pension debt (i.e. negative amortization), which allowed for the unfunded liability to grow in absolute terms
- 3. The 30-year period is greater than the Society of Actuaries' recommended funding period of 15 to 20 years, resulting in higher overall costs for the plan
 - Due to the long 30-year closed amortization schedule used to pay off the annual unfunded liability employer pension contributions have not always kept up with the interest accrued on the pension debt

Actual v. Required Contributions





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

Negative Amortization: Understanding the Current Funding Policy

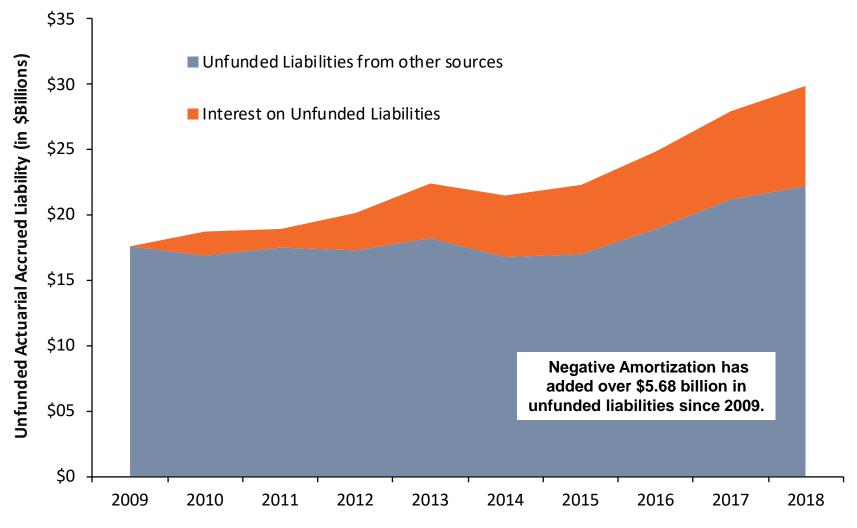


- From 2011-2013, FRS employer contributions failed to meet the actuarially determined contribution (ADC) increasing the Unfunded Actuarial Liability by \$2.45 billion.
- Starting in the 1998 actuarial valuation, the Legislature required all UAL bases in existence at that time to be considered fully amortized, since the Plan was in a surplus position.
- As part of the funding policy selected by the Florida Legislature, the actuarially calculated contribution rate is based on a "layered" approach that includes closed 30-year charge and credit bases for the amortization of the UAL.
- The Unfunded Actuarial Liability (UAL) is amortized as a level percentage of projected payroll on which UAL Rates are charged in an effort to maintain level contribution rates as a percentage of payroll during the specified amortization period if future experience follows assumptions.

Source: FRS actuarial valuation reports.

FRS Negative Amortization Growth, 2009-2018 Interest on the Debt v. Accrued Liability Payments





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



CHALLENGE I-C: DISCOUNT RATE AND UNDERVALUING DEBT

The discount rate undervalues the measured value of existing pension obligations

FRS 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 FRS 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 FRS 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.

FRS Discount Rate Methodology is Undervaluing Liabilities



- 2. Setting a discount rate too high will lead to undervaluing the amount of pension benefits actually promised:
 - If a pension plan is choosing to target a high rate of return with its portfolio of assets, and that high assumed return is then used to calculate/discount the value of existing promised benefits, the result will likely be that the actuarially recognized amount of accrued liabilities is undervalued.
 - Milliman, argues the discount rate for calculating the total pension liability should be equal to the 7.00 percent rate of return assumption.
- 3. It is reasonable to conclude that there is almost no risk that Florida would pay out less than 100% of promised retirement income benefits to members and retirees:
 - State law requires protect pension benefit payouts. Florida State Statutes § 121.011-121.40; 121.4501-121.5912 & Florida Administrative Code 60S-4
- 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.

FRS Pension Debt Sensitivity

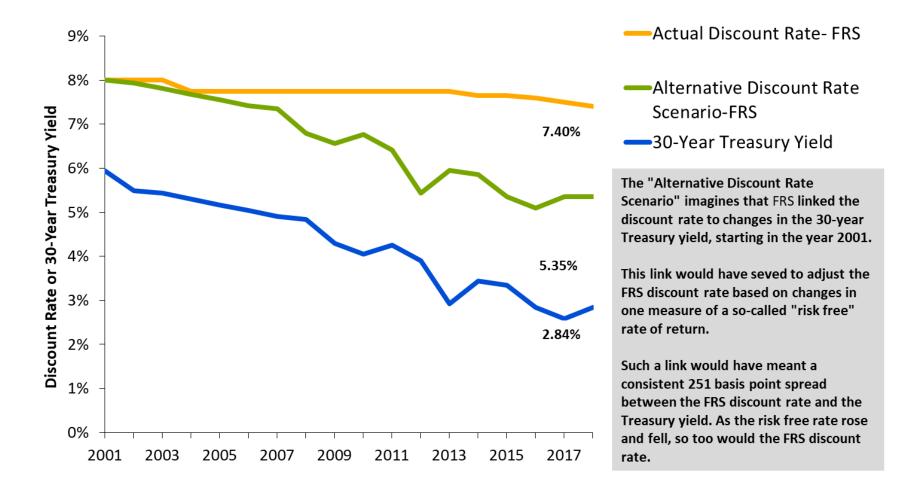
FYE 2018 Net Pension Liability Under Varying Discount Rates



	Funded Ratio (Market Value)	Unfunded Liability	Total Pension Liability
7.4% Discount Rate (Current Baseline)	86.7%	\$25.5 billion	\$186.0 billion
7 % Discount Rate (GASB Reported)	84.3%	\$30.1 billion	\$191.3 billion
6% Discount Rate	74.6%	\$55 billion	\$216.2 billion
5% Discount Rate	65.7%	\$84 billion	\$245.2 billion

Change in the Risk Free Rate Compared to FRS Discount Rate (2001-2018)







PROBLEM #2

FRS DEFINED CONTRIBUTION PLAN NOT BUILT FOR RETIREMENT SECURITY

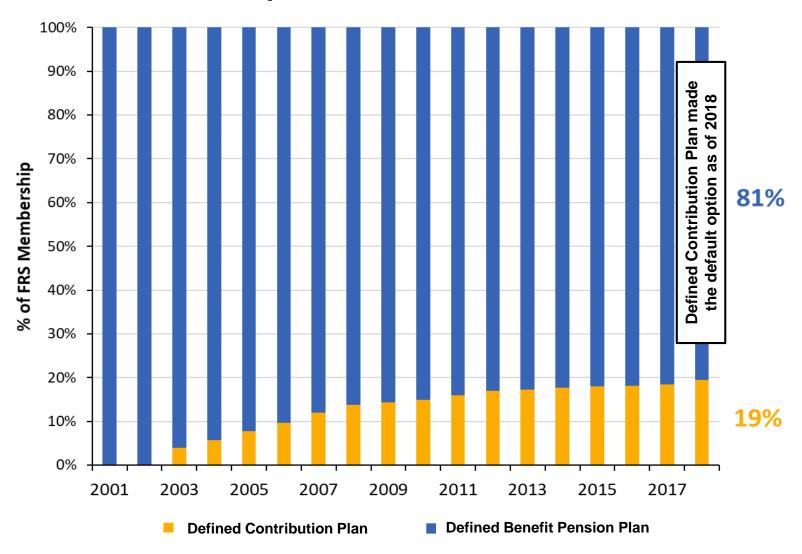
FRS Defined Contribution Plan Overview



- The FRS defined contribution retirement plan—the FRS Investment Plan—is the state's current default (as of 2018)
 - ✓ Members are vested after one year of service in the FRS Investment Plan.
- Employees may choose to receive their account balance at the end of employment as a lump sum or take periodic withdrawals either on demand or by a pre-determined payout schedule
- The FRS Investment Plan has shown consistent growth since its introduction in 2002
 - ✓ FRS Defined Contribution Plan members currently account for nearly 20% of total FRS membership and 23% of total FRS payroll.
- The Legislature can increase or decrease the amount employers and employees contribute to plan members' accounts

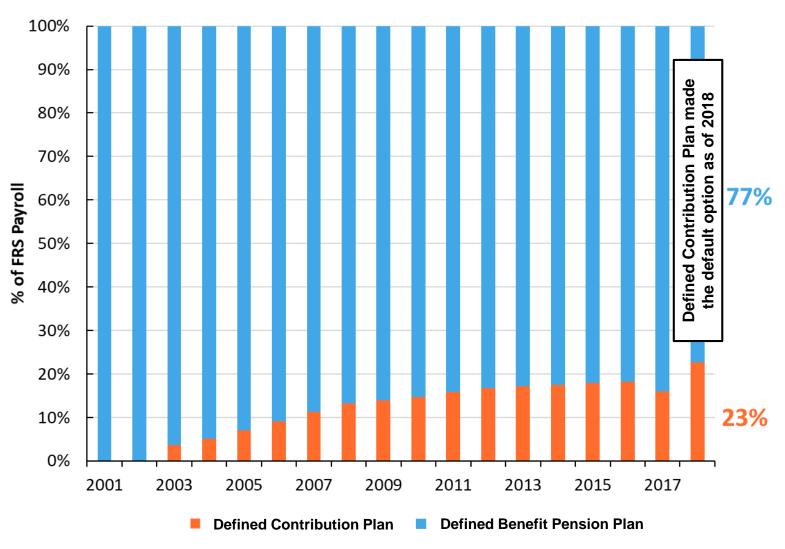
FRS Membership Allocation





Change in FRS Payroll Share: DB+DC Plans





FRS Investment Plan Funding



Current FRS Investment Plan contribution breakdown:

From Employee:		
3.0%	to member Investment Plan account	

From Employer:		
3.3%	to member Investment Plan account	
+ 3.56%	to legacy FRS Pension Plan unfunded liabilities	

 Best practice says employers should continue making payments towards their legacy pension debt as if all new hires were still entering the Pension Plan.

Inadequate Contribution Rates are Jeopardizing Retirement Security



- The aggregate 6.3% FRS Investment Plan contribution rate falls far below industry standards for retirement benefit adequacy
- Industry leaders, retirement experts and independent studies consistently estimate 10% to 15% of annual income to be required to provide adequate retirement income
 - For regular plan members alone contribution rates need to rise at least 400 basis points to provide retirement security.
 - Higher contribution rates may be required for older workers to achieve adequate savings for retirement due to chronic underfunding.



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



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 increasing default contributions, expanding annuity options, auto-escalation of contribution rates and other DC best practices within the FRS Investment Plan

Questions?



Pension Integrity Project at Reason Foundation

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