

Florida Retirement System Actuarial Assumption Estimating Conference Executive Summary

The Florida Retirement System Actuarial Assumption Conference met on October 8, 2020, to consider the demographic, methodological and economic assumptions to be used for the actuarial valuation of Florida's Retirement System (FRS). The preliminary results for July 1, 2020, show that the FRS continues to have an unfunded actuarial liability (UAL). Using the 2019 data and 2019 assumptions, the projected UAL is expected to increase slightly from the \$30.3 billion shown in 2019's final valuation to \$32.1 billion in 2020 preliminary valuation. Similarly, the system's funded status would drop from the 84.2% shown in the 2019 final valuation to 83.7% funded. These results were derived using a 7.20% investment return assumption (as adopted in 2019), the individual entry age normal (Individual EAN) cost allocation method, and a 30-year (level percent) amortization period. The Conference adopted changes to several assumptions; these adjustments will affect the final results reported in December 2020.

Asset performance over the next thirty years is expected to be relatively flat. The return in FY 2016-17 came in strong at 13.77%; however, the return for each subsequent fiscal year has declined over the prior year. The final FY 2019-20 return was 3.08%. The tables below show the actual investment returns for the past five fiscal years and the cumulative returns over a 5-year, 10-year, 15-year, and 20-year timeframe.

Fiscal Year	Investment Return
2015-16	0.54%
2016-17	13.77%
2017-18	8.98%
2018-19	6.26%
2019-20	3.08%

	Investment Return
3-year	6.08%
5-year	6.43%
10-year	8.69%
15-year	6.72%
20-year	5.61%

The state's actuary (Milliman), the State Board of Administration (SBA), and the SBA's financial consultant Aon Investments USA Inc. (Aon) all recommended a reduction in the investment return assumption primarily due to market volatility and an increase in the risk premium. The conference presenters suggested return assumptions within the range of 6.46% (Aon) to 6.56% (Milliman), with a relatively lower inflation assumption of 2.1% to 2.2% relative to the previous conference assumption of 2.6%.

The conference principals ultimately agreed to lower the investment return assumption to 7.0% and to decrease the inflation rate to 2.4% in accordance with the long-range inflation assumption used by the Office of the Chief Actuary for Social Security (75-year). In addition, the Conference shifted to an amortization policy of 25 years on new bases (level percent) from its current 30-year period. The Individual EAN cost allocation method was continued, and all demographic changes suggested by Milliman were adopted.

The table on the following page displays the nominal returns, inflation rates, and real returns used in the three most recent valuations, as well as the new assumptions that will be applicable in 2020.

2017	2018	2019	2020
7.50% Investment Return	7.40% Investment Return	7.20% Investment Return	7.00% Investment Return
2.60% Inflation	2.60% Inflation	2.60% Inflation	2.40% Inflation
4.78% Real Return	4.68% Real Return	4.48% Real Return	4.49% Real Return

Note: The real return takes into account administrative expenses, so the numbers in this table are not additive.

The 2020 Legislature fully funded the UAL at the recommended contribution rate provided as part of the 2019 valuation report. This action and continued full funding of the recommended UAL rate, as committed to by the Legislature, will result in the gradual increase of the funded ratio in future years. The contribution rates should remain stable as long as contributions are made as recommended, and actual experience mirrors projections. However, many factors affect these calculations and can cause the contribution rates to increase or decrease over time. For example, investment returns have been and will continue to be a relatively volatile factor. If actual investment results are lower than assumed, there could be a significant impact on the UAL and future contribution rates.

The final actuarial valuation for July 1, 2020, will be released in December 2020. Those results will differ from the preliminary numbers reviewed by the Conference principals.

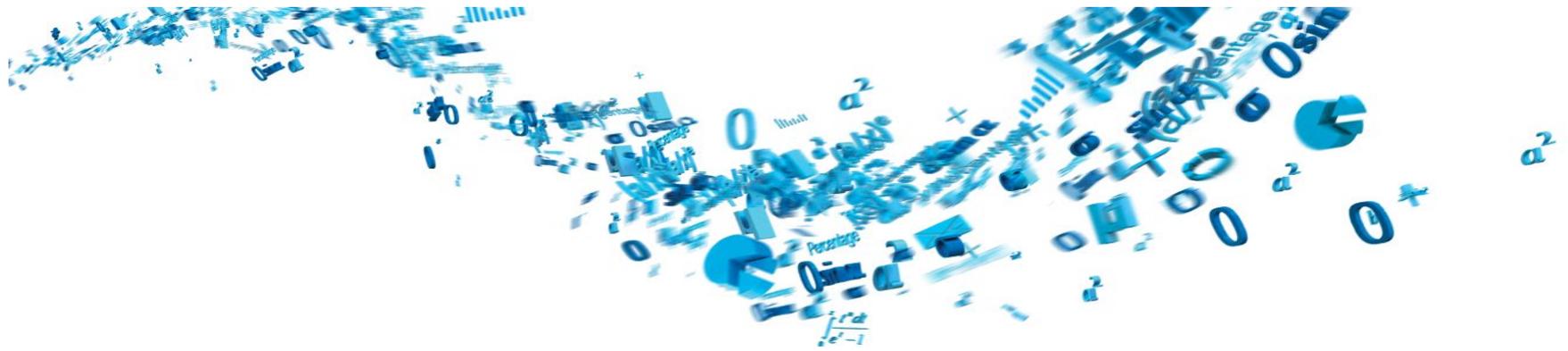


Historical Review of SBA Expected Return on Pension Assets

Florida State Board of Administration
October 2020

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Executive Summary

Executive Summary

Purpose of this Presentation

- Review SBA's approach to capital market expectations and its implications on the 2020 asset-liability study

SBA Approach to Assumption Development

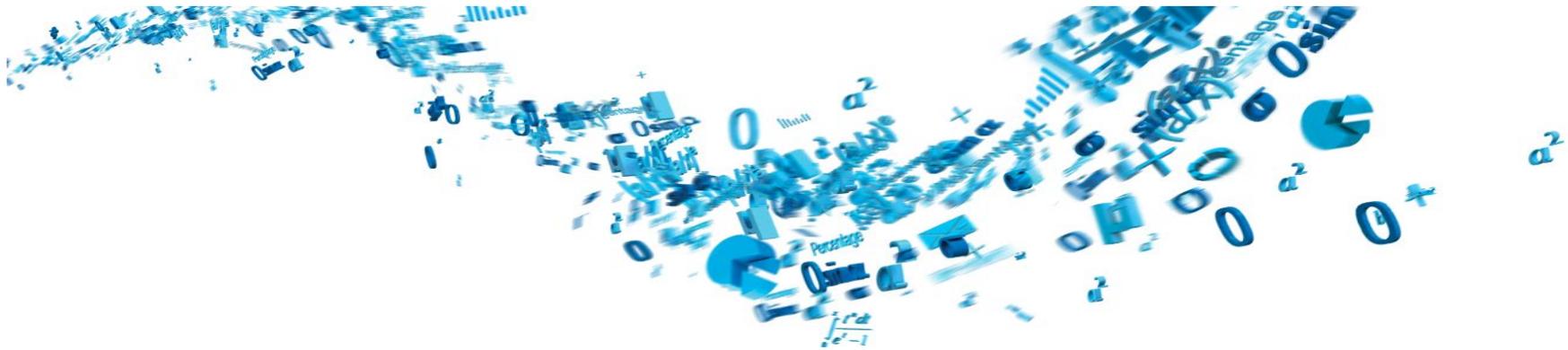
- SBA uses the equity risk premiums from three consulting firms (Aon, Mercer, and Wilshire) to remove any biases from any one firm
- Using the SBA approach, the assumed equity risk premium increased from 3.88% in 2019 to 5.15% in 2020 resulting in an expected return assumption of 6.46% for the 2020 asset-liability study
 - The equity risk premium applies to 81% of the target asset allocation (i.e., the “return-seeking assets”)

Peer Comparisons

- Compared to the public pension universe, FRS' assumed rate of return for FYE 2019 (7.20%) is just below the median (7.25%) relative to its peers

Horizon Survey for Assumption Benchmarking

- The Horizon Survey reflects assumptions from dozens of investment advisors each year
- Aon's assumptions tend to be middle of the pack relative to other investment advisors in the Horizon Survey, with a few minor exceptions



SBA Approach to Assumption Development

SBA Approach to Assumption Development

Overview

The SBA approach averages the global equity risk premiums¹ from three investment advisors (Aon Investments, Mercer, and Wilshire)

- Callan was previously included in the averaging but removed starting in 2019 because its capital market assumption date did not coincide with the same timeframe as the other consultants and the asset-liability study; Callan only updates their capital market assumptions once a year while the other consultants update quarterly

Building block approach is used

- Price inflation and fixed income returns reflect market conditions and yields
- For all other asset classes (“risk assets”), a risk premium is added to fixed income returns

Average risk premium is used to scale Aon Investments’ expected returns for the “risk assets”

¹Equity Risk Premium is defined as the excess return earned over bonds that compensates investors for taking on higher risk; all returns are 15-year geometric average (compounded) expected returns

SBA Approach to Assumption Development

Equity Risk Premium¹

The SBA averages the global equity risk premiums from three consulting firms² and then uses that average risk premium to scale Aon Investments' expected returns for the "risk assets"

2020 Average Global Equity Risk Premium = Average (Global Equity Return – U.S. Bond Return) = 5.15%

	Aon Investments	Mercer	Wilshire	Callan ²	Average
2020 Assumptions (15-year geometric average expected returns)					
- As of Date	June 2020	July 2020	June 2020		
- Global Equity	7.10%	6.50%	6.45%	N/A	6.68%
- Core U.S. Bonds	1.60%	1.73%	1.25%	N/A	1.53%
- Global Equity Risk Premium	5.50%	4.77%	5.20%	N/A	5.15%
2019 Global Equity Risk Premium	4.55%	3.70%	3.40%	N/A	3.88%
Change 2020 vs. 2019	0.95%	1.07%	1.80%	N/A	1.27%
Prior Years:					
- 2018 (based on Global ERP)	4.10%	3.53%	2.90%	3.93%	3.62%
- 2017 (based on Global ERP)	3.75%	4.13%	3.05%	3.93%	3.72%
- 2016 (based on Global ERP)	3.70%	4.40%	3.20%	4.45%	3.94%

¹ Equity Risk Premium is defined as the excess return earned over bonds that compensates investors for taking on higher risk.

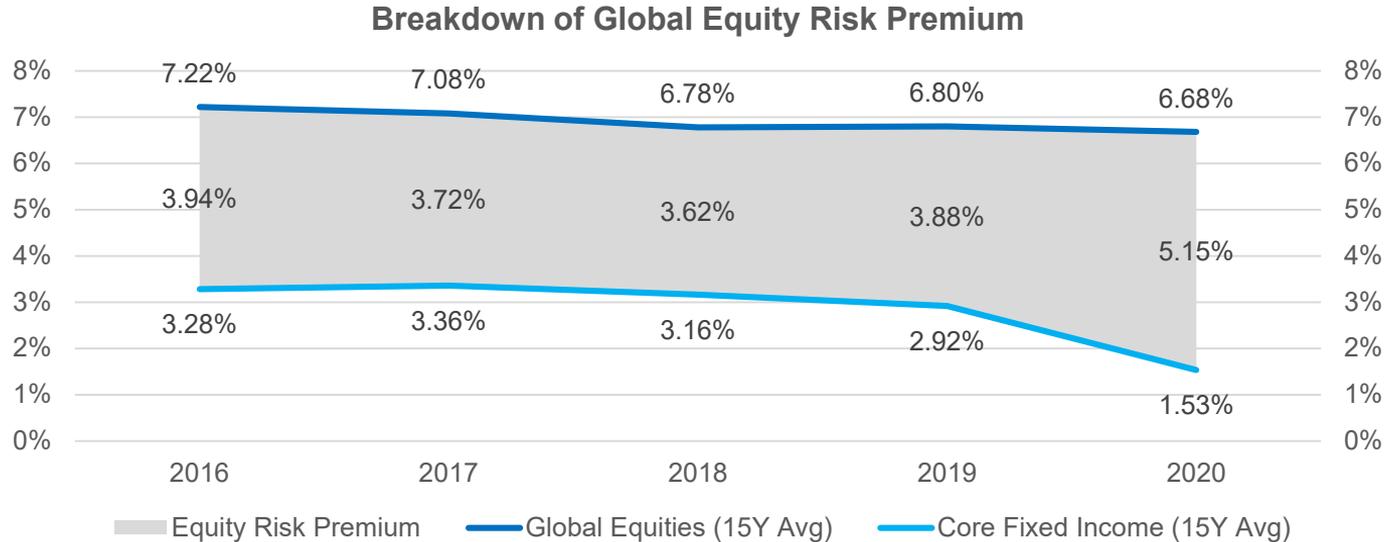
² Callan was previously included in the averaging but removed starting in 2019 because its capital market assumption date did not coincide with the same timeframe as the other consultants and the asset-liability study; Callan only updates their capital market assumptions once a year while the other consultants update quarterly. Calculations may not sum to total due to rounding.

SBA Approach to Assumption Development

Breakdown of Equity Risk Premium (ERP) Assumption¹

The increase in the 2020 equity risk premium was primarily driven by lower fixed income returns

- Below is a 5 year historical look at the breakdown of the global equity risk premium

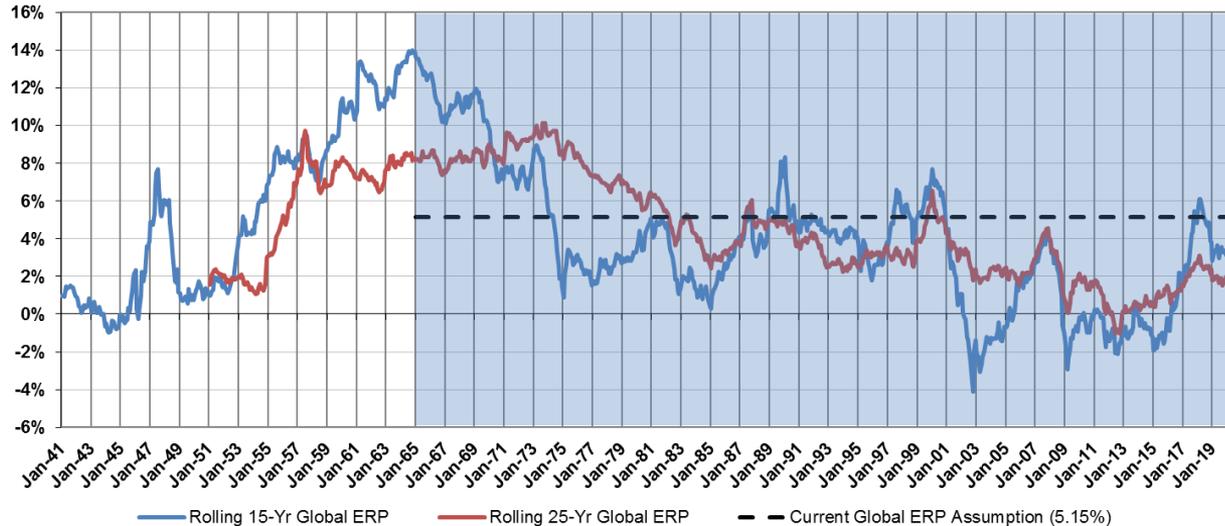


¹Equity Risk Premium is defined as the excess return earned over bonds that compensates investors for taking on higher risk; all returns are 15-year geometric average (compounded) expected returns

SBA Approach to Assumption Development

Historical and Expected Equity Risk Premium

This graph shows the historical moving average of the global equity risk premium. The shaded section captures the experience since 1950. During this period, the average rolling 15-year global ERP has been 3.69%.



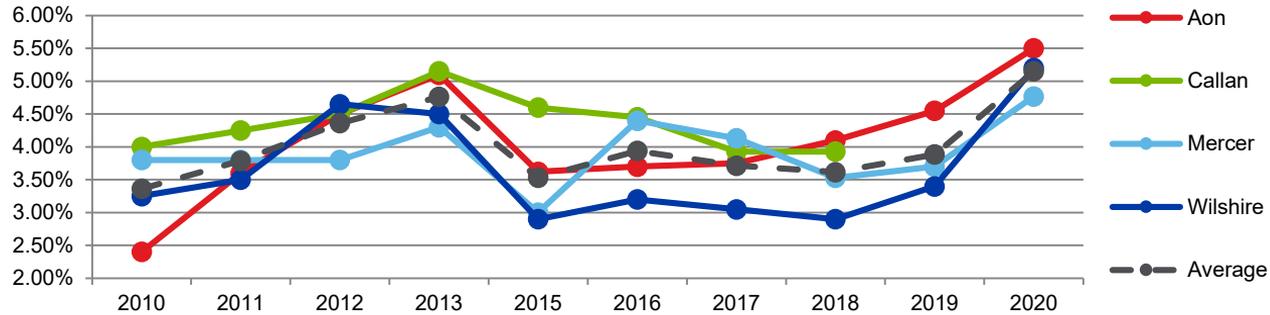
Notes:

- Global equity risk premium measured as the difference between Global Stock returns and U.S. Bonds.
- Global Stocks: January 1926 to December 1969 – 50% U.S. [CRSP 1-10 Deciles Data (cap-based)] / 50% International stock data from Global Financial Database; January 1970 to present – MSCI All-Country Index
- U.S. Bonds: January 1926 to December 1975 – Long-Term Government Bond returns from Ibbotson; January 1976 to present – Barclays Capital Aggregate Bond Index

SBA Approach to Assumption Development

Historical Equity Risk Premium (ERP) Assumption¹

Average Global Equity Risk Premium = Average (Global Equity Return – U.S. Bond Return)



Equity Risk Premium ²	Asset-Liability Study/Update ³									
	2010	2011	2012	2013	2015	2016	2017	2018	2019	2020
Aon	2.40%	3.60%	4.50%	5.10%	3.62%	3.70%	3.75%	4.10%	4.55%	5.50%
Callan	4.00%	4.25%	4.50%	5.15%	4.60%	4.45%	3.93%	3.93%		
Mercer	3.80%	3.80%	3.80%	4.30%	3.00%	4.40%	4.13%	3.53%	3.70%	4.77%
Wilshire	3.25%	3.50%	4.65%	4.50%	2.90%	3.20%	3.05%	2.90%	3.40%	5.20%
Average	3.36%	3.79%	4.36%	4.76%	3.53%	3.94%	3.72%	3.62%	3.88%	5.15%

Aon Investments' capital market assumptions for risk assets will be scaled by **-35bps**

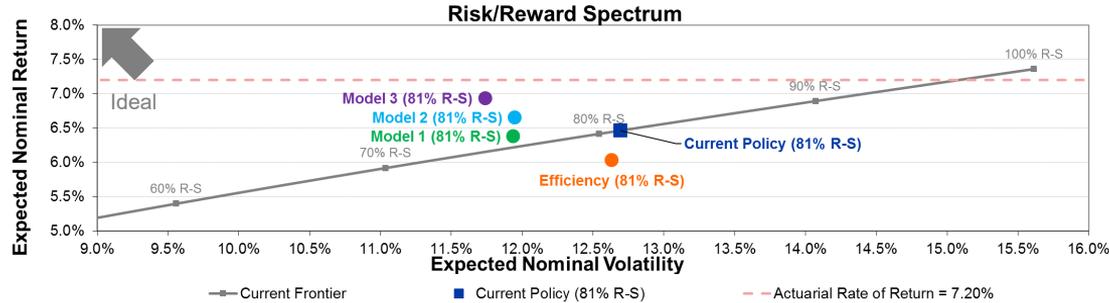
¹Equity Risk Premium is defined as the excess return earned over bonds that compensates investors for taking on higher risk; all returns are 15-year geometric average (compounded) expected returns

²Global equity risk premium used starting in 2016; prior years were based on U.S. equity risk premiums

³An asset-liability study was not completed in 2014

SBA Approach to Assumption Development

Investment Analysis | Current Frontier (From 2020 A-L Study)



Key Takeaways:

- The current portfolio is well-diversified
 - Return-seeking assets are broadly diversified
 - Safety asset allocation should withstand stressed markets

				Return-Seeking Assets								Risk-Reducing / Safety Assets				
	Expected Nominal Return ¹	Expected Nominal Volatility	Sharpe Ratio	Global Equity	Private Equity	Liquid Alts	Strategic Allocation ²	Multi Asset Credit	Private Debt	Real Estate	Infra-structure	Cash & Short Duration Bonds	Core Bonds	Intern. Gov't Bonds	Intern. Credit	Market-Duration (5-Yr) Non-Govt Bonds
Current Policy (81% R-S)	6.46%	12.69%	0.423	53%	6%	0%	12%	0%	0%	10%	0%	1%	0%	9%	9%	0%
Efficiency (81% R-S)	6.03%	12.63%	0.390	61%	0%	0%	0%	8%	0%	12%	0%	1%	18%	0%	0%	0%
Model 1 (81% R-S)	6.38%	11.94%	0.442	51%	5%	10%	0%	5%	0%	10%	0%	1%	13%	0%	0%	5%
Model 2 (81% R-S)	6.65%	11.95%	0.465	46%	10%	10%	0%	3%	3%	8%	3%	1%	13%	0%	0%	5%
Model 3 (81% R-S)	6.93%	11.74%	0.497	35%	15%	10%	0%	0%	5%	10%	5%	1%	13%	0%	0%	5%
Current Frontier																
60% Return-Seeking	5.40%	9.56%	0.450	39%	4%	0%	9%	0%	0%	7%	0%	1%	0%	20%	20%	0%
70% Return-Seeking	5.92%	11.04%	0.437	46%	5%	0%	10%	0%	0%	9%	0%	1%	0%	15%	15%	0%
80% Return-Seeking	6.42%	12.54%	0.424	52%	6%	0%	12%	0%	0%	10%	0%	1%	0%	10%	10%	0%
90% Return-Seeking	6.89%	14.07%	0.412	59%	7%	0%	13%	0%	0%	11%	0%	1%	0%	5%	5%	0%
100% Return-Seeking	7.36%	15.61%	0.401	65%	7%	0%	15%	0%	0%	12%	0%	0%	0%	0%	0%	0%

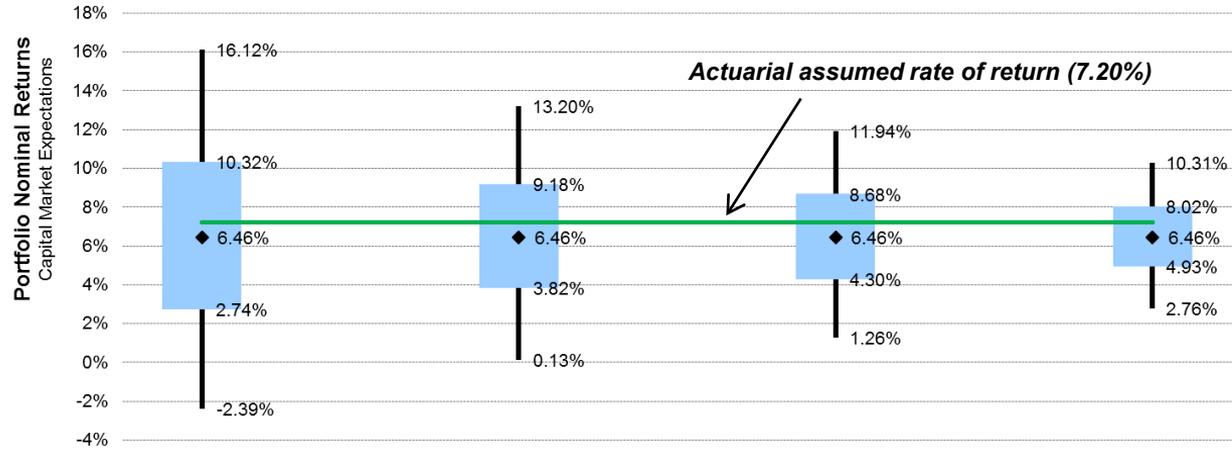
¹ Expected return assumptions are based upon the Aon Investments capital market assumptions adjusted for the delta in Global Equity Risk Premium (ERP) among three investment advisors: Mercer, Wilshire, and Aon Investments (-35bps adjustment)

² Strategic assumption breakdown is found in the Appendix

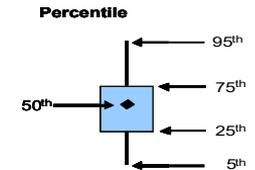
³ Current Real Estate assumption was modeled as 76.50% Core Real Estate / 13.50% Non-Core Real Estate / 10.00% REITs
Percentages in table may not sum to 100% due to rounding

SBA Approach to Assumption Development

Investment Analysis | Range of Nominal Returns (From 2020 A-L Study)



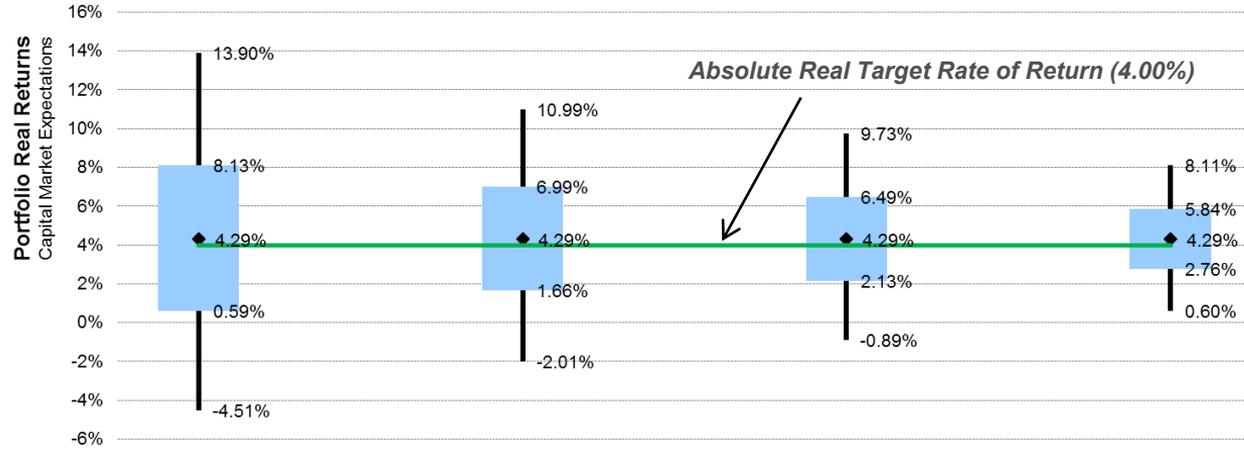
Percentile	Current Policy – 5 Year	Current Policy – 10 Year	Current Policy – 15 Year	Current Policy – 30 Year
5 th	-2.39%	0.13%	1.26%	2.76%
25 th	2.74%	3.82%	4.30%	4.93%
50 th	6.46%	6.46%	6.46%	6.46%
75 th	10.32%	9.18%	8.68%	8.02%
95 th	16.12%	13.20%	11.94%	10.31%



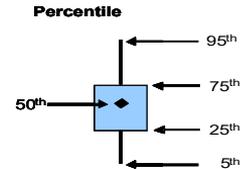
Note: Returns based on Aon Investments' 30 Year Capital Market Assumptions as of June 30, 2020 adjusted for the average global equity risk premium

SBA Approach to Assumption Development

Investment Analysis | Range of Real Returns (From 2020 A-L Study)



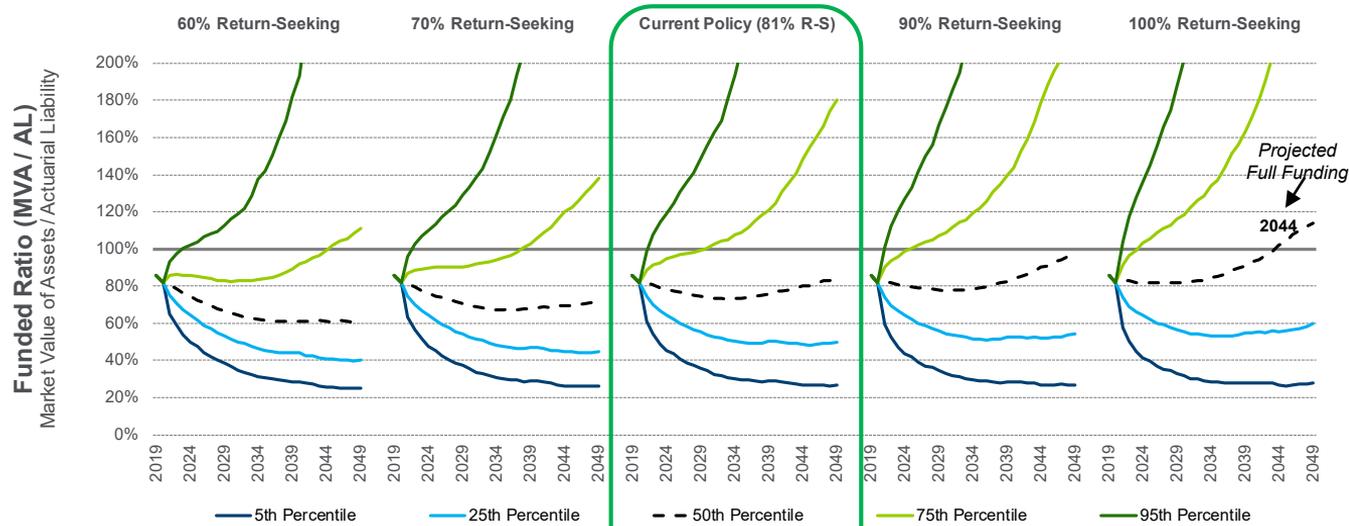
Percentile	Current Policy – 5 Year	Current Policy – 10 Year	Current Policy – 15 Year	Current Policy – 30 Year
5 th	-4.51%	-2.01%	-0.89%	0.60%
25 th	0.59%	1.66%	2.13%	2.76%
50 th	4.29%	4.29%	4.29%	4.29%
75 th	8.13%	6.99%	6.49%	5.84%
95 th	13.90%	10.99%	9.73%	8.11%



Note: Returns based on Aon Investments' 30 Year Capital Market Assumptions as of June 30, 2020 adjusted for the average global equity risk premium

2020 Asset-Liability Projection Results (Stochastic Results)

Market Value of Assets / Actuarial Liability Funded Ratio

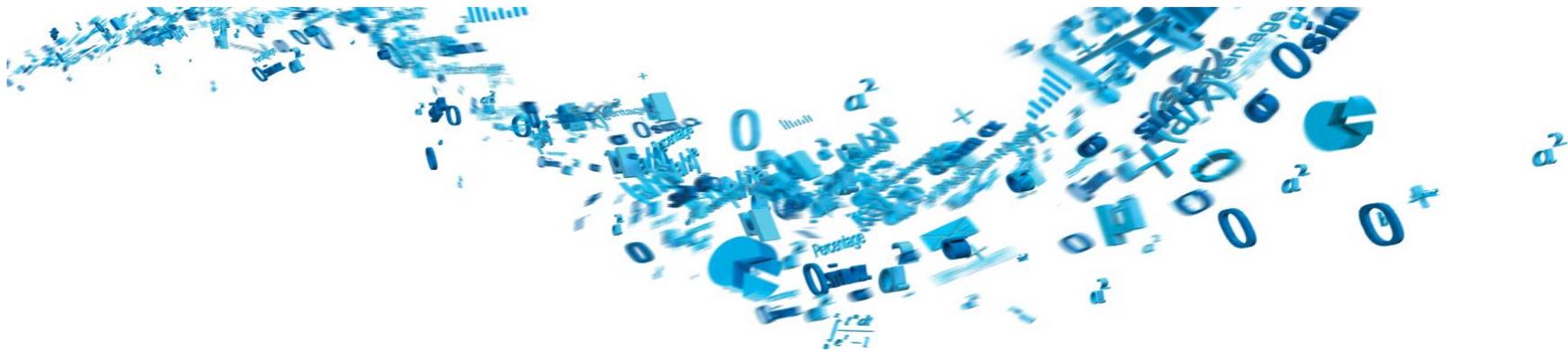


Strategy	60% Return-Seeking			70% Return-Seeking			Current Policy (81% R-S)			90% Return-Seeking			100% Return-Seeking		
Year	2029	2039	2049	2029	2039	2049	2029	2039	2049	2029	2039	2049	2029	2039	2049
5th Percentile	38%	29%	25%	37%	29%	26%	36%	29%	27%	35%	28%	27%	33%	28%	28%
25th Percentile	53%	44%	40%	54%	47%	45%	55%	50%	50%	56%	53%	54%	56%	55%	60%
50th Percentile	67%	61%	61%	70%	68%	72%	74%	75%	85%	78%	83%	98%	82%	91%	114%
75th Percentile	83%	89%	111%	90%	103%	138%	99%	121%	180%	107%	140%	>200%	116%	163%	>200%
95th Percentile	113%	182%	>200%	129%	>200%	>200%	149%	>200%	>200%	167%	>200%	>200%	188%	>200%	>200%
Probability > 100%	14%	23%	30%	20%	27%	39%	25%	36%	46%	31%	42%	50%	37%	47%	56%

Key Takeaways:

- Under the Current Policy (81% R-S), the funded ratio is expected to decline in the near-term before increasing later in the period in the central expectation (50th percentile outcome)
- Higher return-seeking allocations will increase the central trendline of funded ratio, albeit with greater downside risk
- Downside risk (5th percentile outcomes) illustrates a small likelihood of significant funded ratio deterioration over the projection period

* Projections assume constant 7.20% discount rate for pension liabilities for all investment policies studied

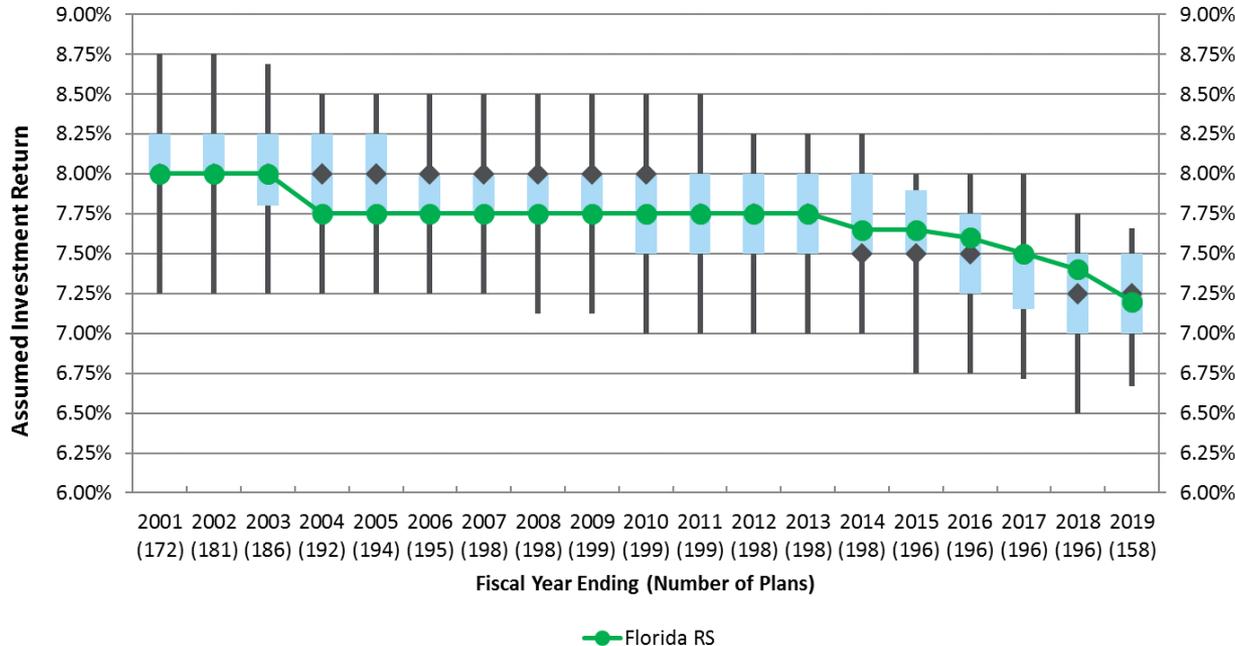


Peer Comparisons

Florida Retirement System (FRS)

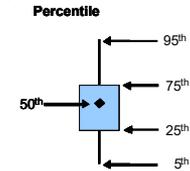
Expected Return Assumption versus Peers¹

Distribution of U.S. Public Pension Investment Return Assumptions



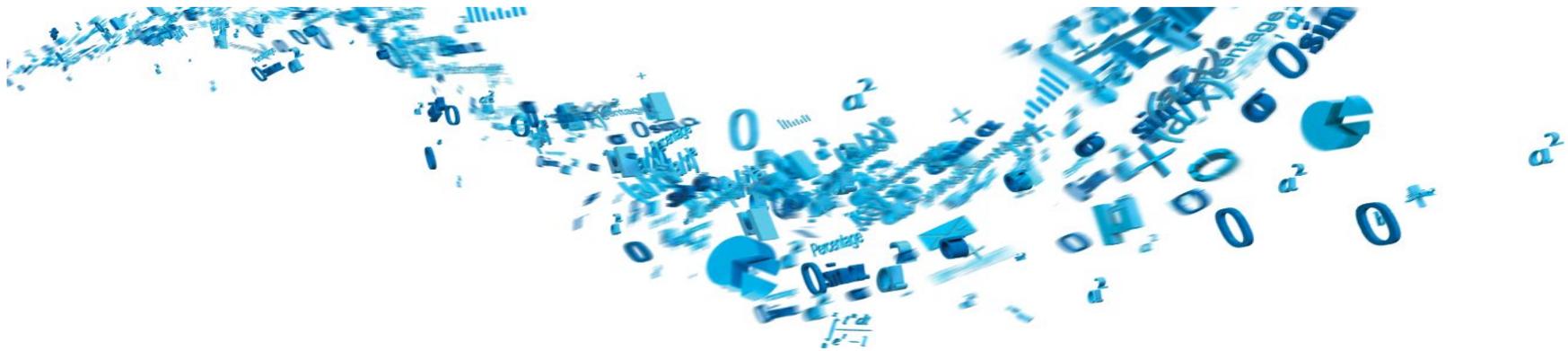
Key Takeaways:

- Median actuarial assumption for investment return has declined from 8.00% in 2001-2010 to 7.25% based on the latest survey data
- FRS' assumption for FYE 2019 (7.20%) fell just below the 50th percentile relative to its peers
- If FRS exceeds (or falls short of) the actuarial return assumption, lower (or higher) funding will be needed in future years



Sources: Public Plans Data (publicplansdata.org) as of July 2020; Expected Returns are the assumptions made by the plans included in the data set.

¹ Peers defined as public funds published within publicplansdata.org as of July 2020; Number of plans per year are shown in parentheses



Horizon Survey of Capital Market Assumptions

2020 Horizon Survey Results

What is the Horizon Survey?

Since 2010, Horizon Actuarial Services, LLC has conducted a capital market assumption survey of investment firms to aid in determining reasonable assumptions for a pension plan's expected return on assets

- While Aon does not seek to change our approach based on how we stack up to peers, it is a helpful double-check to make sure we are not too far off from others in the industry

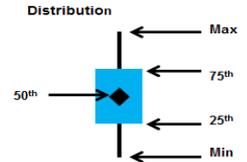
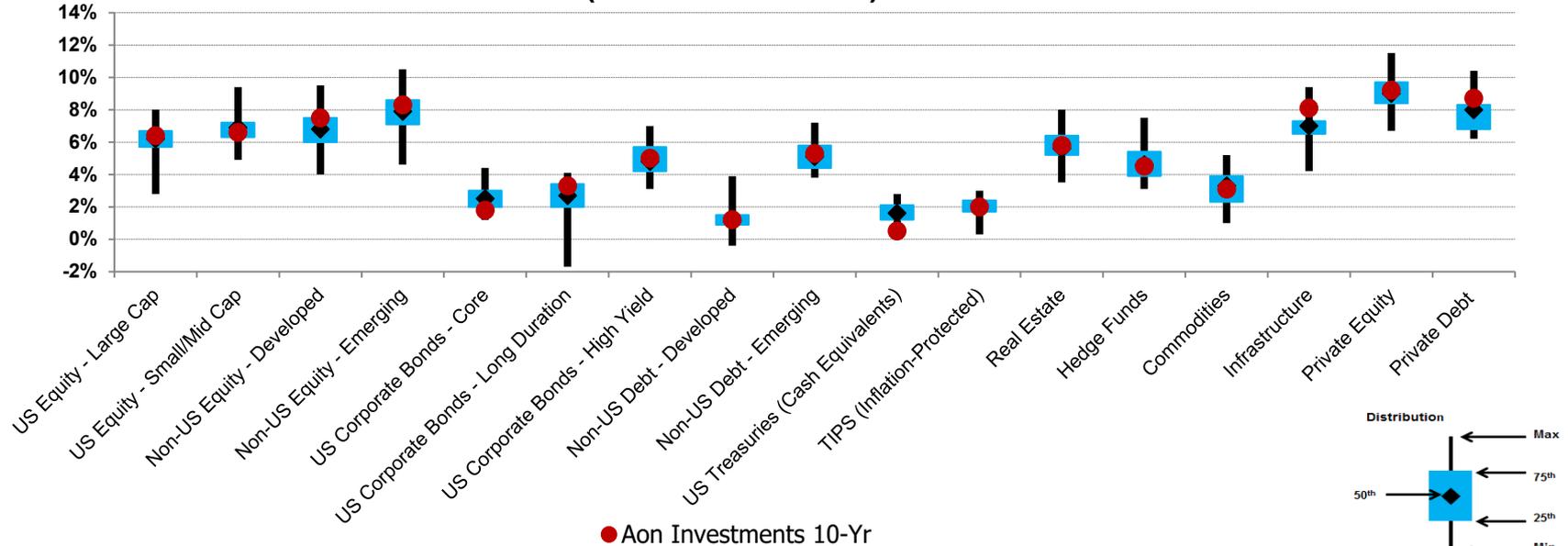
How does Aon compare to the 2020 survey results?

2020 Aon Investments' 10-year forecast assumptions (as of March 31, 2020)

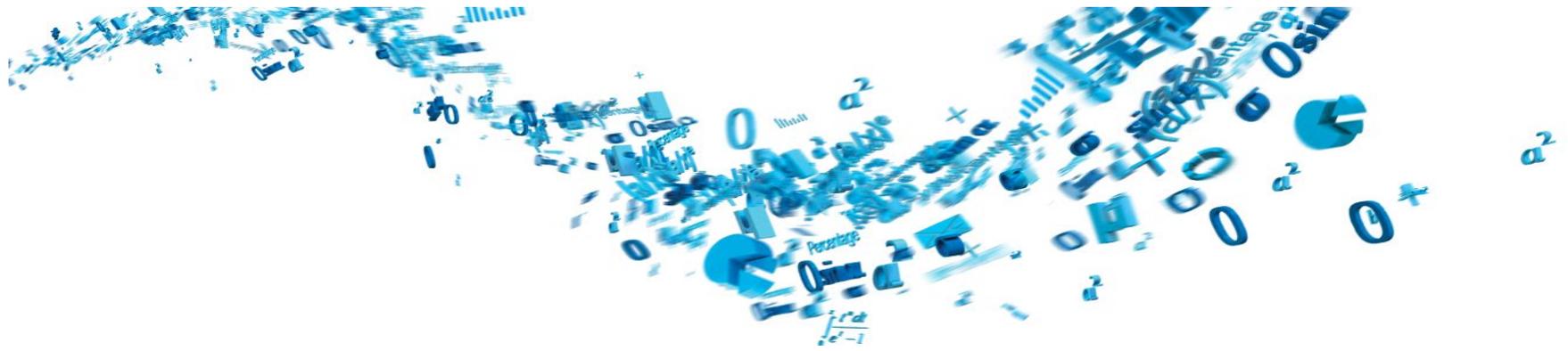
- **Equities:** approximately middle of the pack for US equities and slightly higher for Non-US equities relative to the survey's median level
- **Fixed Income:** approximately middle of the pack relative to the survey's median level; lower for US Treasuries
- **Alternatives:** approximately middle of the pack relative to the survey's median level; slightly higher for Infrastructure and Private Debt

Aon Investments' Capital Market Assumptions vs. Horizon Survey

Expected Geometric Returns of 39 Investment Advisors (10 Year Forecast)



SOURCE: Horizon Actuarial Solutions, LLC survey of 2020 capital market assumptions from 39 independent investment advisors
 Expected returns of the survey are annualized over 10-years (geometric).
 Aon Investments' expected returns are annualized over 10-years as of 2Q 2020 (3/31/2020)



Conclusions

Conclusions

SBA Approach to Assumption Development

- SBA uses an averaging approach to reduce the bias of any one firm's capital market assumptions
- Using the SBA approach, averaging the equity risk premiums from three consulting firms, the expected return on pension assets from the 2020 asset-liability study was 6.46%

Peer Comparisons

- FRS' assumption for FYE 2019 (7.20%) is slightly below the median (7.25%) relative to its peers

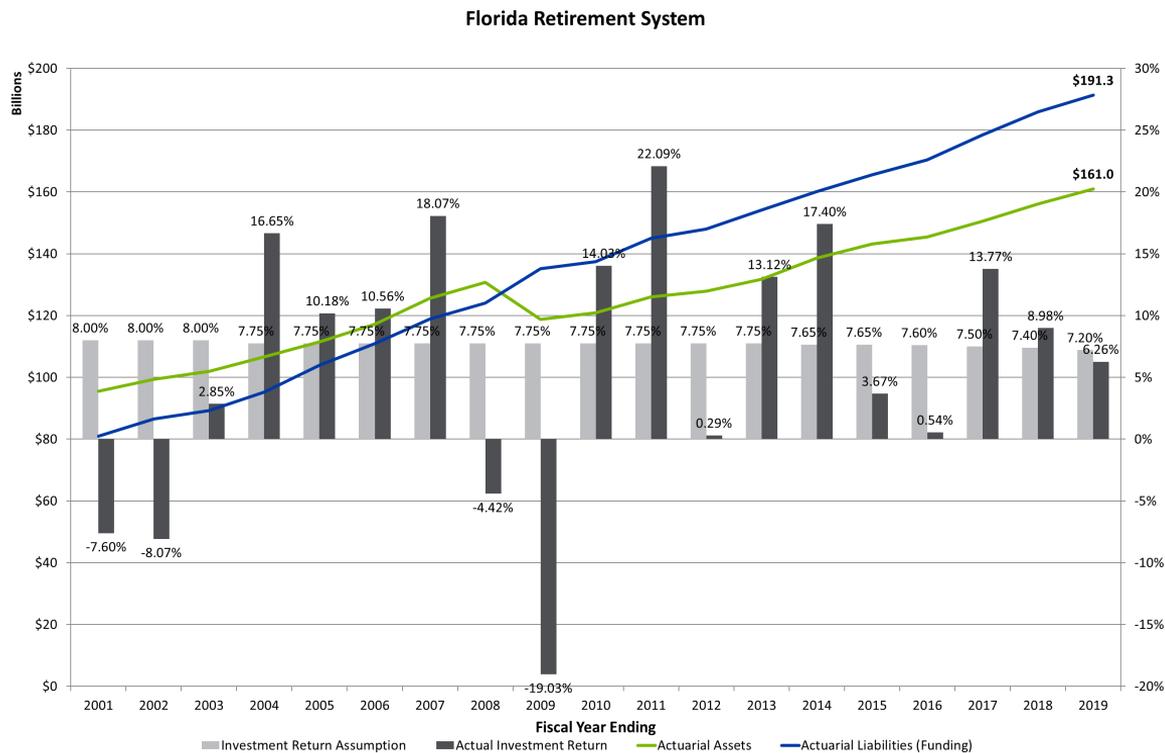
Horizon Survey for Assumption Benchmarking

- Aon's assumptions tend to be middle of the pack relative to other investment advisors in the Horizon Survey, with a few minor exceptions



Appendix

Florida Retirement System (FRS) Historical Information



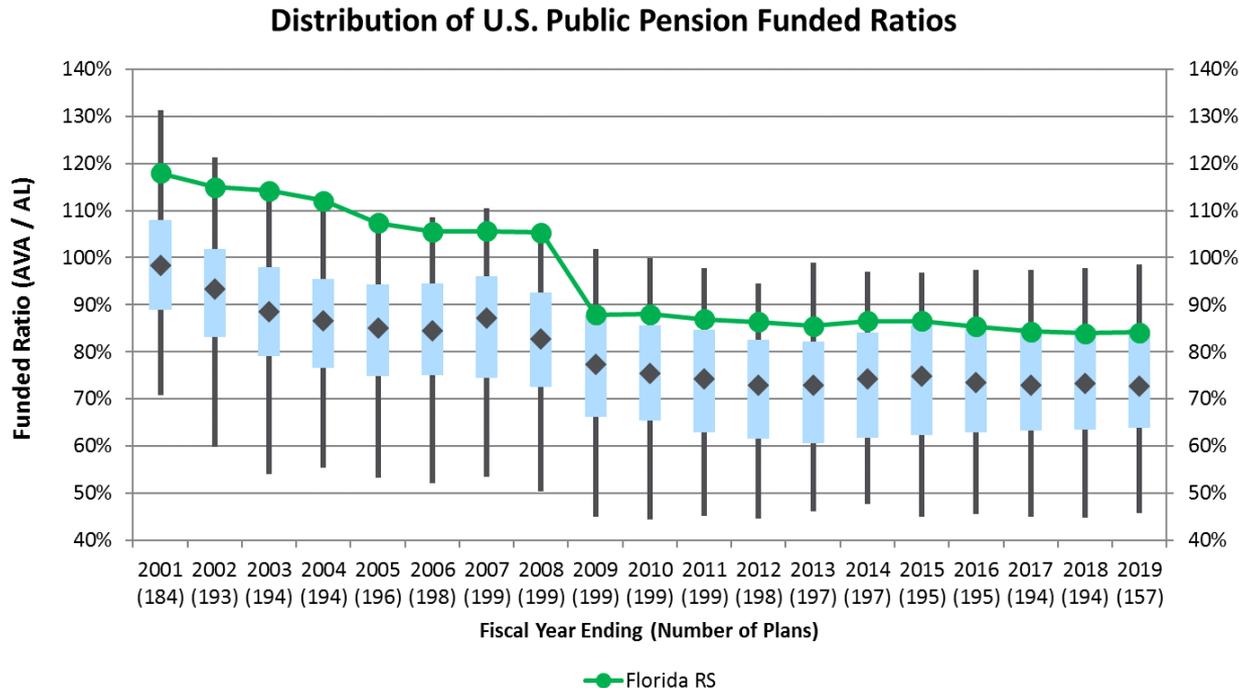
Key Takeaways:

- **Blue line** represents the actuarial liabilities over time
 - Adding to the increase in liability has been the decrease in the assumed investment return in recent years (**light gray bar**)
- **Green line** represents the actuarial value of plan assets over time
 - Assets reflect smoothing parameters to the actual return on assets (**dark gray bar**)

Sources: Public Plans Data (publicplansdata.org) as of July 2020

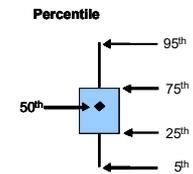
Florida Retirement System (FRS)

Funded Ratio (Based on Actuarial Value of Assets) versus Peers¹



Key Takeaways:

- The median funded ratio as of FYE 2019 was 73% based on the latest survey data
- FRS' FYE 2019 funded ratio (84%) fell just below the 75th percentile relative to its peers



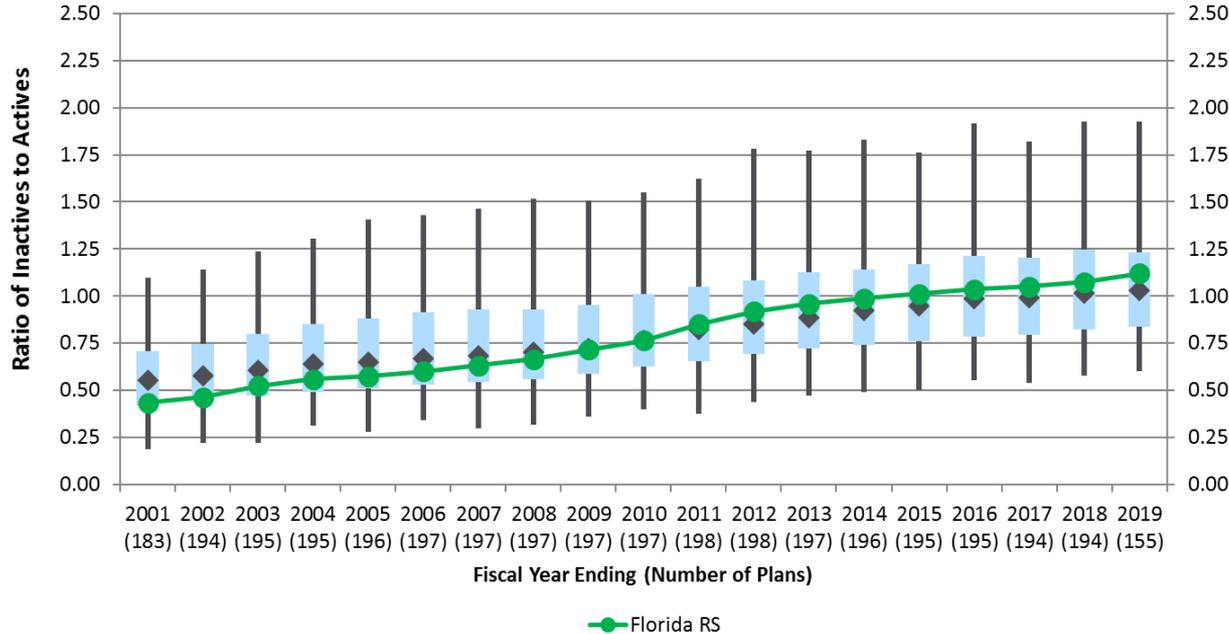
Sources: Public Plans Data (publicplansdata.org) as of July 2020; Expected Returns are the assumptions made by the plans included in the data set.

¹ Peers defined as public funds published within publicplansdata.org as of July 2020; Number of plans per year are shown in parentheses

Florida Retirement System (FRS)

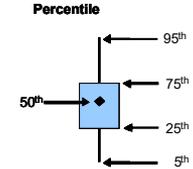
Support Ratio versus Peers¹

Support Ratio Distribution Amongst U.S. Public Pension Plans



Key Takeaways:

- “Support Ratio” defined as the ratio of inactive participants to active participants
- The ability for new hires to elect the Investment Plan has subdued the increase in active employees, increasing the Support Ratio over time



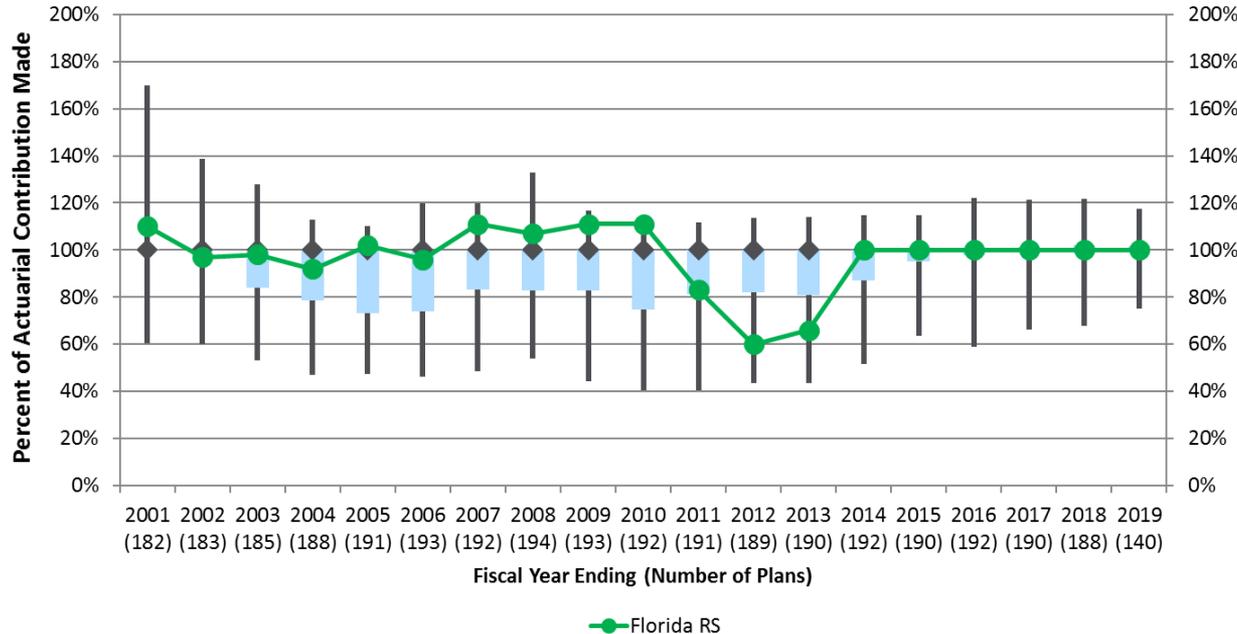
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Florida Retirement System (FRS)

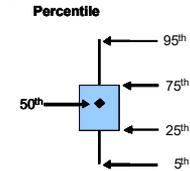
Percentage of Actuarial Contribution Made versus Peers¹

Distribution of U.S. Public Pension % of Actuarial Contribution



Key Takeaways:

- Median contributions of plans within the data, as a percentage of the actuarial amount, have been approximately 100% since FYE 2001
- FRS has made at least the full actuarial contribution in the last 6 fiscal years

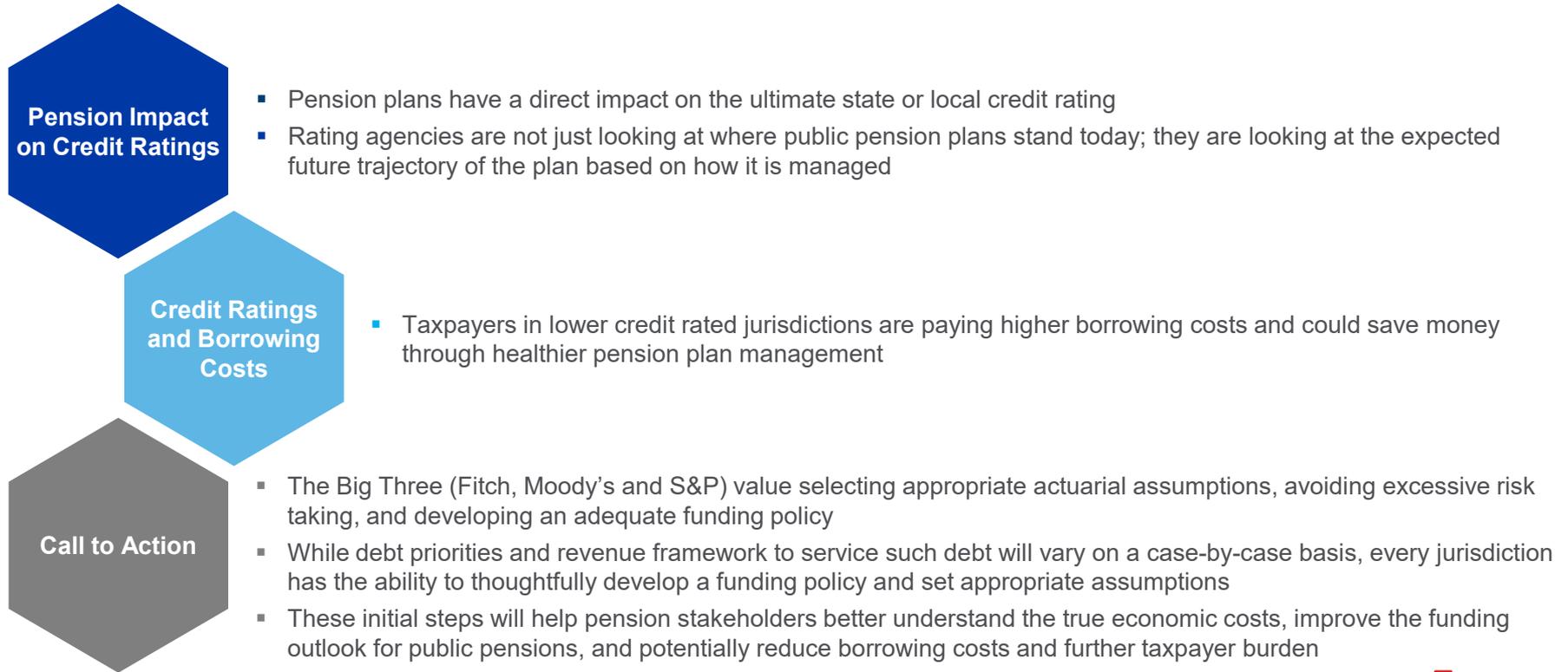


Sources: Public Plans Data (publicplansdata.org) as of July 2020

¹ Peers defined as public funds published within publicplansdata.org as of July 2020; Number of plans per year are shown in parentheses

How Do Public Pensions Impact Credit Ratings?

Summary and Conclusions



How Do Public Pensions Impact Credit Ratings?

Call to Action: Plan Sponsors Have Ability to Impact Credit Rating

Below are three specific actions plan sponsors can take today to directly improve the impact a pension plan will have on the credit rating of its locality:

Action	Considerations
 <p>1. Conduct an actuarial assumption audit</p> <ul style="list-style-type: none">Review reasonability of key assumptions:<ul style="list-style-type: none">Salary scale, Mortality, Retirement rates, Turnover rates	<ul style="list-style-type: none">Assumptions set to plan-specific expectations will lead to lower contribution volatilityAggressive assumptions may provide short-term relief but may have long-term consequences
 <p>2. Consider adjustments to expected return assumption</p> <ul style="list-style-type: none">Adjustments should be in line with forward-looking expectations for asset returns	<ul style="list-style-type: none">Contributing an actuarial amount?<ul style="list-style-type: none">Yes: Failing to achieve target returns will necessitate increases in future contributions and make what was intended to be a smooth, budget-friendly progression of contribution increases far more volatileNo: The funding gap will widen and become highly volatile as contribution policy will not add enough dollars to replenish losses
 <p>3. Review the plan's funding policy</p> <ul style="list-style-type: none">Look far enough into the future to identify potential pain points	<ul style="list-style-type: none">Conduct "tread water"/hurdle rate analysis to ensure short-term contributions are sufficient to keep pace with growth of plan liabilitiesConsider asset-liability study to understand range of potential future outcomes rather than a single deterministic scenario

Aon Investments' Capital Market Assumptions

Background

- Long-term (10 and 30 year forecasts) forward-looking assumptions (asset class geometric return, volatility, and correlations)
- Building Block approach, primarily based on consensus expectations and market based inputs
- Best estimates of annualized returns (50/50 better or worse)
- Market returns: no active management value added (except for certain assets classes, such as hedge funds)
- Net of investment fees
- Updated quarterly
- We show Aon's long-term (i.e., 30-year) capital market assumptions throughout this material

Custom FRS Capital Market Assumptions—Q3 2020¹

	Expected Real Return ¹	Expected Nominal Return ¹	Expected Nominal Volatility	
Equity				
1	Global Equity IMI	4.8%	7.0%	18.5%
Fixed Income				
2	Cash (Gov't)	-1.0%	1.1%	2.0%
3	Intermediate Gov't Bonds (4-Year Duration)	-0.8%	1.3%	3.5%
4	Intermediate Corporate Bonds (4-Year Duration)	0.2%	2.3%	5.0%
Alternatives				
5	Strategic Allocation (Custom) ²	5.1%	7.3%	9.0%
6	Real Estate (Custom) ³	3.7%	5.9%	15.5%
7	Private Equity	6.9%	9.1%	25.0%
Inflation				
8	Inflation	0.0%	2.1%	1.5%

¹ Expected return assumptions are based upon the Aon Investments' capital market assumptions adjusted for the delta in Global Equity Risk Premium (ERP) among three investment advisors: Mercer, Wilshire, and Aon Investments (-35bps adjustment)

² Strategic assumption breakdown is found on the next page

³ Real Estate assumption was modeled as follows:

- 76.50% Core Real Estate
- 13.50% Non-Core Real Estate
- 10.00% REITs

FRS Capital Market Assumptions—Q3 2020

Strategic Investment Allocation

The Strategic Investment allocation was modeled as follows, per Staff input:

Capital Market Assumption	% of Total Asset Allocation	% of Strategic Investment
Commodities	0.36%	3.00%
Global Public Equities	1.20%	10.00%
Hedge Funds - Buy List (Diversified Portfolio of Direct HFs)	1.44%	12.00%
Hedge Funds -- CTAs (Buy List)	0.72%	6.00%
Hedge Funds -- Distressed Debt (Buy List)	0.36%	3.00%
Hedge Funds -- Equity Long/Short (Buy List)	0.24%	2.00%
Hedge Funds -- Event Driven (Buy List)	0.12%	1.00%
Hedge Funds -- Global Macro (Buy List)	0.36%	3.00%
Infrastructure	1.44%	12.00%
Insurance-Linked Securities (Catastrophe Bonds)	0.96%	8.00%
Non-Core RE	0.30%	2.50%
Private Debt -- Commercial Mortgages	0.30%	2.50%
Private Debt -- Direct Lending	0.84%	7.00%
Private Equity	0.60%	5.00%
Private Equity -- Distressed Debt	1.80%	15.00%
Private Equity -- Mezzanine	0.60%	5.00%
Timberland	0.36%	3.00%
Total	12.00%	100.00%

Aon Investments' Capital Market Assumptions—Q3 2020

Nominal Correlations		1	2	3	4	5	6	7	8
1	Global Equity IMI	1.00	0.08	-0.06	0.08	0.88	0.46	0.67	0.07
2	Cash (Gov't)	0.08	1.00	0.61	0.46	0.14	0.14	0.08	0.57
3	Intermediate Gov't Bonds (4-Year Duration)	-0.06	0.61	1.00	0.75	-0.06	0.03	-0.05	0.26
4	Intermediate Corporate Bonds (4-Year Duration)	0.08	0.46	0.75	1.00	0.21	0.09	0.07	0.20
5	Strategic Allocation (Custom)	0.88	0.14	-0.06	0.21	1.00	0.47	0.69	0.14
6	Real Estate (Custom)	0.46	0.14	0.03	0.09	0.47	1.00	0.37	0.09
7	Private Equity	0.67	0.08	-0.05	0.07	0.69	0.37	1.00	0.06
8	Inflation	0.07	0.57	0.26	0.20	0.14	0.09	0.06	1.00

Aon Investments vs. Peers (2020 Horizon Survey)—10-Year Forecast

Asset Class	Horizon Survey		Aon Investments		Difference
	10 Year Horizon		10 Year Forecasts		
	Expected Return	Expected Risk	Expected Return	Expected Risk	
US Equity - Large Cap	6.2%	16.2%	6.4%	17.0%	Aon Investments- Horizon Survey 0.2%
US Equity - Small/Mid Cap	6.9%	20.2%	6.6%	23.0%	-0.3%
Non-US Equity - Developed	6.8%	18.1%	7.5%	20.0%	0.7%
Non-US Equity - Emerging	7.9%	24.2%	8.3%	27.0%	0.4%
US Fixed Income - Core	2.5%	5.5%	1.8%	4.0%	-0.7%
US Fixed Income - Long Duration Corp	2.7%	10.2%	3.3%	11.5%	0.6%
US Fixed Income - High Yield	4.8%	9.8%	5.0%	12.0%	0.2%
Non-US Fixed Income - Developed	1.1%	7.0%	1.2%	5.5%	0.1%
Non-US Fixed Income - Emerging	5.1%	11.0%	5.3%	13.0%	0.2%
Treasuries (Cash Equivalents)	1.6%	1.8%	0.5%	1.0%	-1.1%
TIPS (Inflation-Protected)	2.1%	6.1%	2.0%	4.5%	-0.1%
Real Estate	5.6%	16.8%	5.8%	15.0%	0.2%
Hedge Funds	4.6%	8.0%	4.5%	9.0%	-0.1%
Commodities	3.3%	17.6%	3.1%	17.0%	-0.2%
Infrastructure	7.0%	14.6%	8.1%	14.5%	1.1%
Private Equity	9.0%	22.0%	9.2%	25.0%	0.2%
Private Debt	8.0%	12.1%	8.7%	16.0%	0.7%
Inflation	2.0%	1.7%	2.1%	1.0%	0.1%

Notes (Horizon Survey):

Source: Horizon Actuarial survey of 2020 capital market assumptions from 39 independent investment advisors

Expected returns are median annualized (geometric).

Notes (Aon Investments' Forecasts):

Aon Investments' Forecasts are for Q2 2020

- US Equity - Small/Mid Cap forecasts represents Aon Investments' forecasts for US Small Cap
- US Fixed Income - Long Duration forecasts represents Aon Investments' forecasts for Long Duration Credit
- Non-US Fixed Income - Developed forecasts represents Aon Investments' forecasts for Non-US Fixed Income - Developed (50% Hedged)
- Non-US Fixed Income - Emerging forecasts represents Aon Investments' forecasts for Emerging Market Bonds - Sovereign USD
- Real Estate forecasts represents Aon Investments' forecasts for Core Real Estate
- Hedge Funds forecasts represents Aon Investments' forecasts for Direct Hedge Funds (Universe)

Leading Methodologies & Reasons for Differences

Leading Methodologies

- Building Block
- Global Capital Asset Pricing Model (Global CAPM)
- Surveys
- Historical data (as a guide to future)
- Black-Litterman (combination of building block and CAPM)

Reasons for Differences

- Methodology
- Time Horizon
- Arithmetic vs. Geometric forecasts*
- Alpha (active management)*
- Inflation
- Investment Fees*
- Asset class definition

* While some firms in the Horizon survey responded with arithmetic forecasts, the results have been converted to geometric forecasts for comparison purposes. Additionally, the return expectations included in the Horizon survey are generally market returns that do not reflect active management. Returns for asset classes where passive investments are not available (e.g., hedge funds and private equity) are net of fees.

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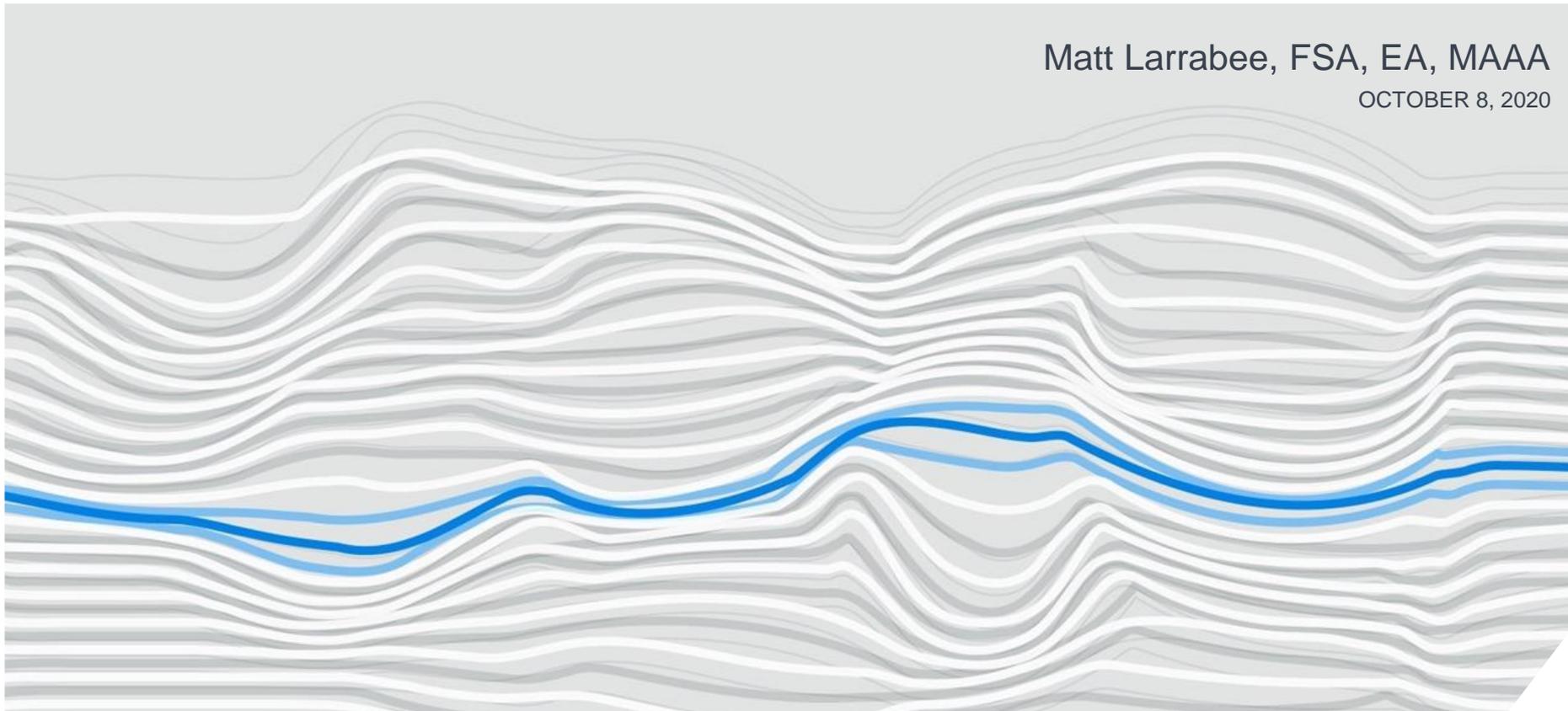
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Florida Retirement System

2020 FRS Actuarial Assumption Estimating Conference
Including Preliminary July 1, 2020 Actuarial Funding Valuation Results

Matt Larrabee, FSA, EA, MAAA

OCTOBER 8, 2020



Executive Summary

- Preliminary 2020 valuation results at a 7.2% investment return assumption are similar to final 2019 valuation results
 - Funded status decreased by 0.5% to 83.7% in part due to a +6.8% return on the smoothed asset measure and individual member salary increases above assumption
 - The blended Pension Plan/Investment Plan composite employer contribution rate increased by 0.17% of payroll to 11.54%, and projected 2021-2022 employer contributions increased by \$220 million to \$4.28 billion
- The 2021-2022 contribution cost increase for a potential 0.20% decrease in the investment return assumption is similar to last year: 1.01% of payroll / \$380 million
 - Aon's median investment return outlook decreased 0.13% to 6.46%, and Aon's median outlook for real return also decreased by 0.13% to 4.27%
 - The current 2.60% inflation assumption is above both Social Security's intermediate long-term outlook (2.40%) and other inflation forecasts
 - If the inflation assumption is simultaneously decreased by 0.20%, that assumption change would mitigate between \$70 million and \$120 million of the increase noted above

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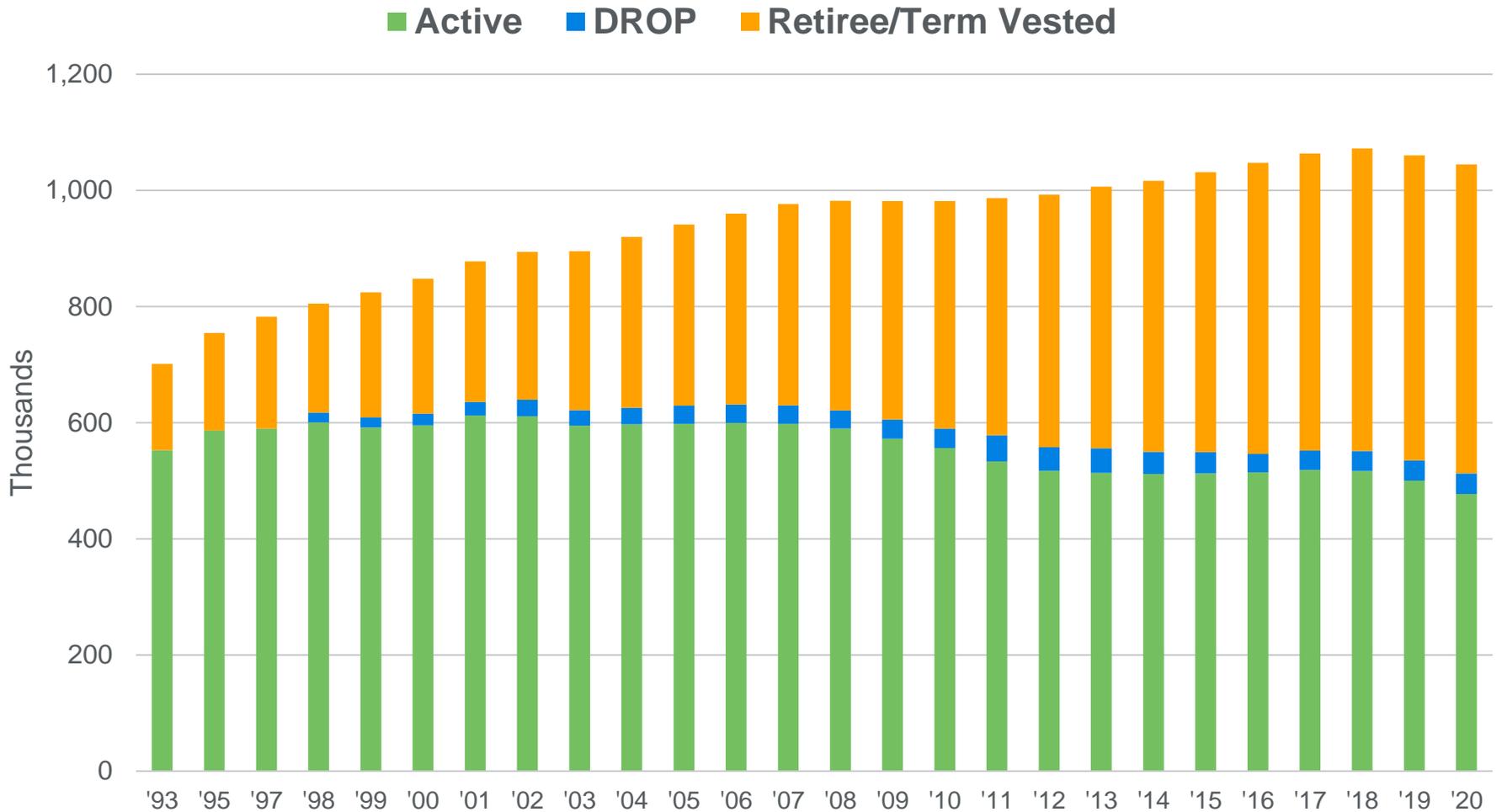
Agenda

- Preliminary 2020 actuarial funding valuation results
- Investment return assumption for system funding
- Inflation-related assumptions
- Unfunded actuarial liability (UAL) amortization policy
- Needed guidance for FRS Pension Plan funding valuation
- Discount rate and other assumptions for Florida Health Insurance Subsidy (HIS) and Florida National Guard GASB valuations
- Needed guidance for HIS and National Guard

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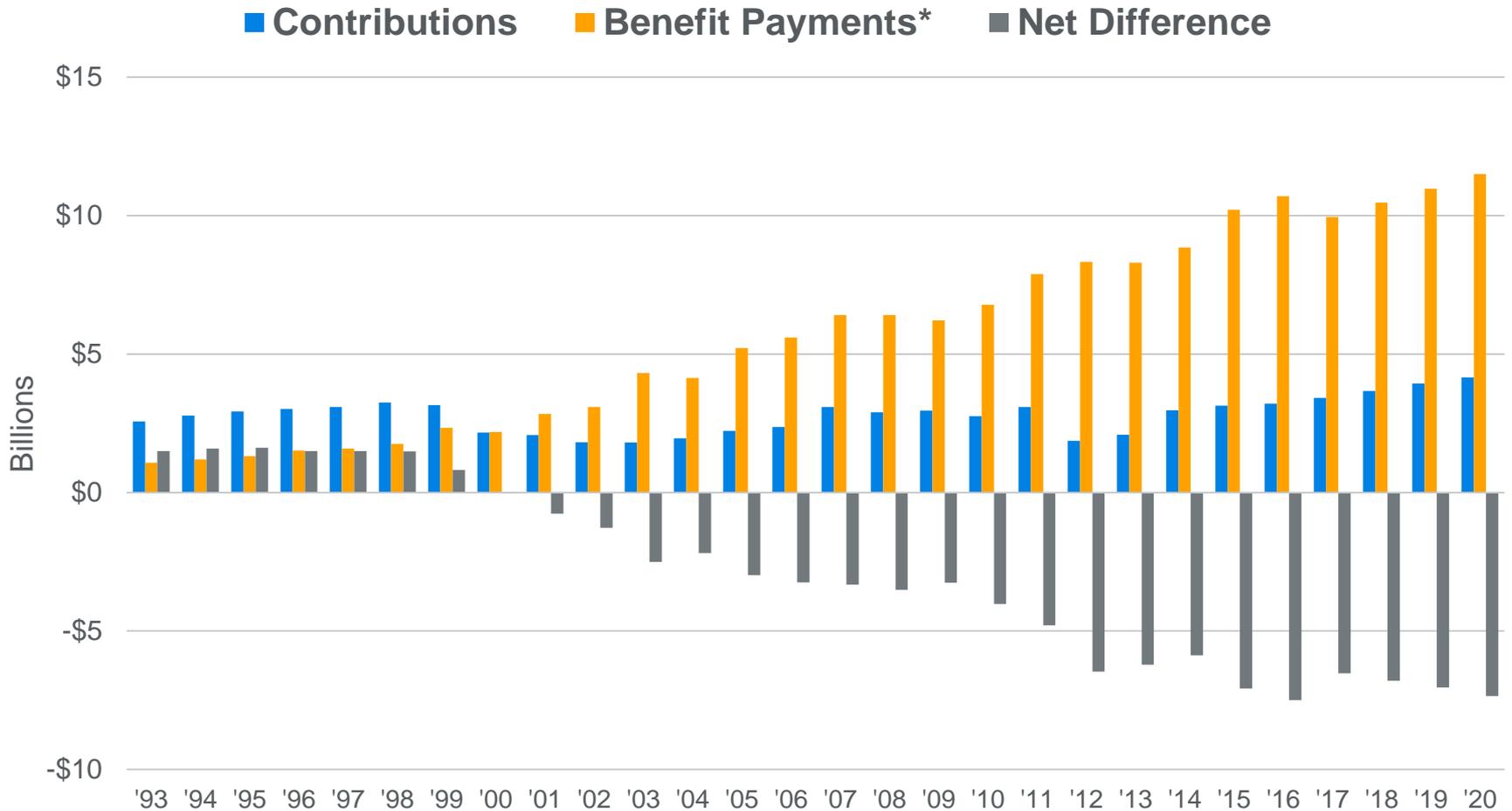
FRS Pension Plan Assets, Member Demographics

FRS Pension Plan Membership



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Contributions and Benefit Payments

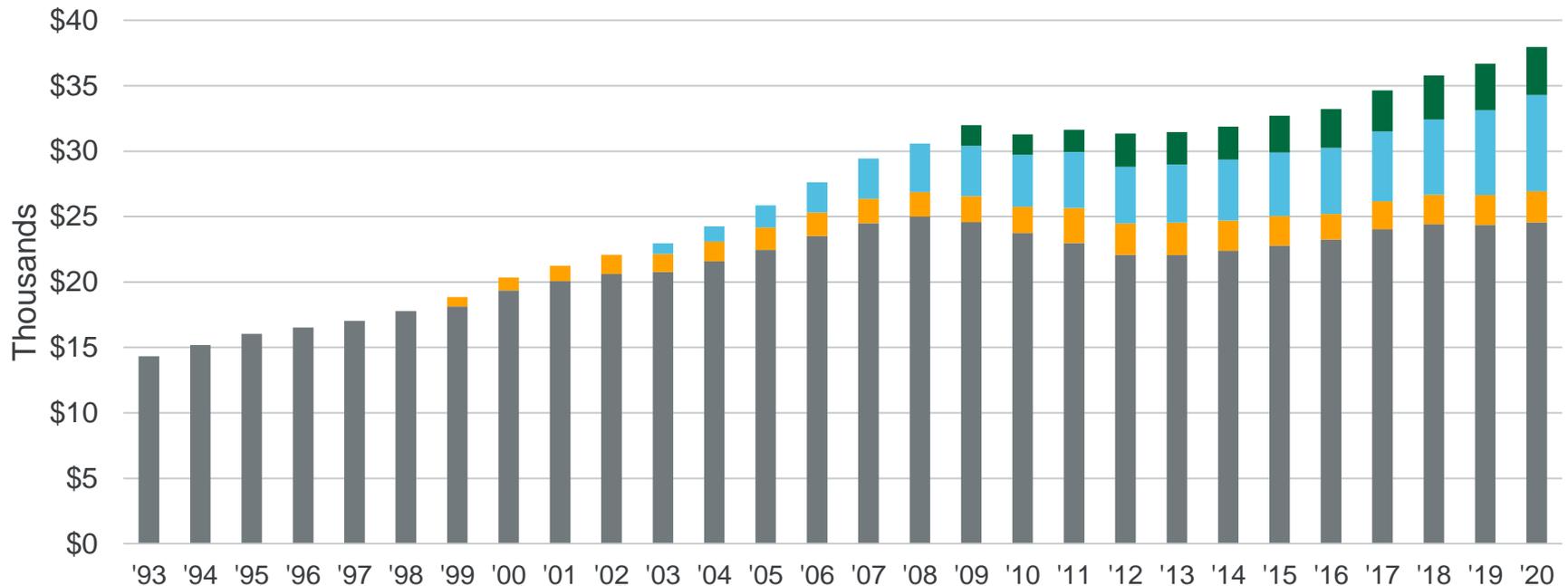


* Includes transfers to Investment Plan in 2013 and subsequent years.

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Payroll: FRS + Non-FRS UAL Contributory

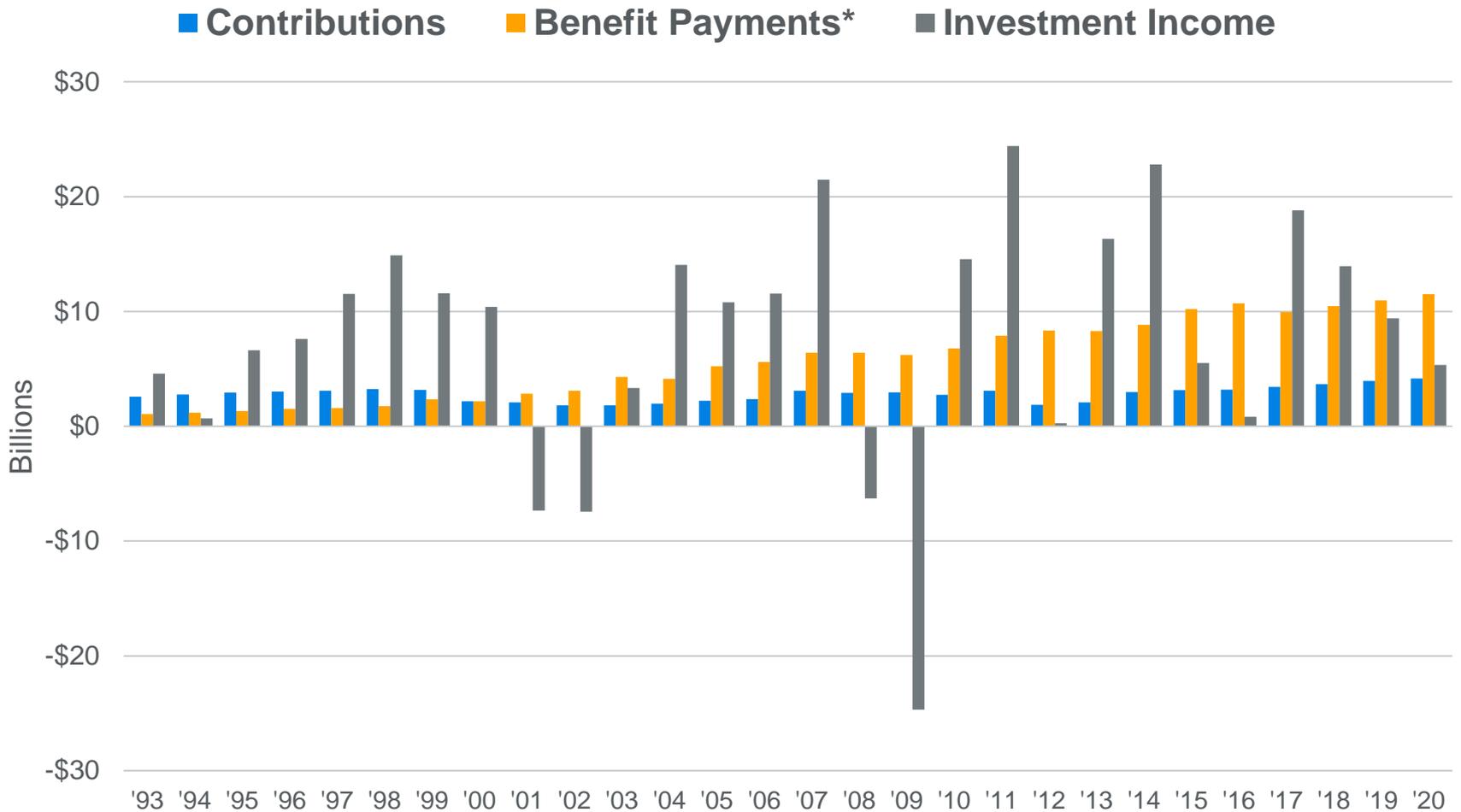
- Additional Payroll Subject to UAL Contributions*
- Investment Plan Payroll
- DROP Member Payroll
- Non-DROP Pension Plan Payroll



**Includes payroll for participants in certain non-FRS defined contribution plans upon which UAL Rate contributions to the FRS Pension Plan are made. This payroll component is projected to be \$3.8B in the 2020-21 plan year.*

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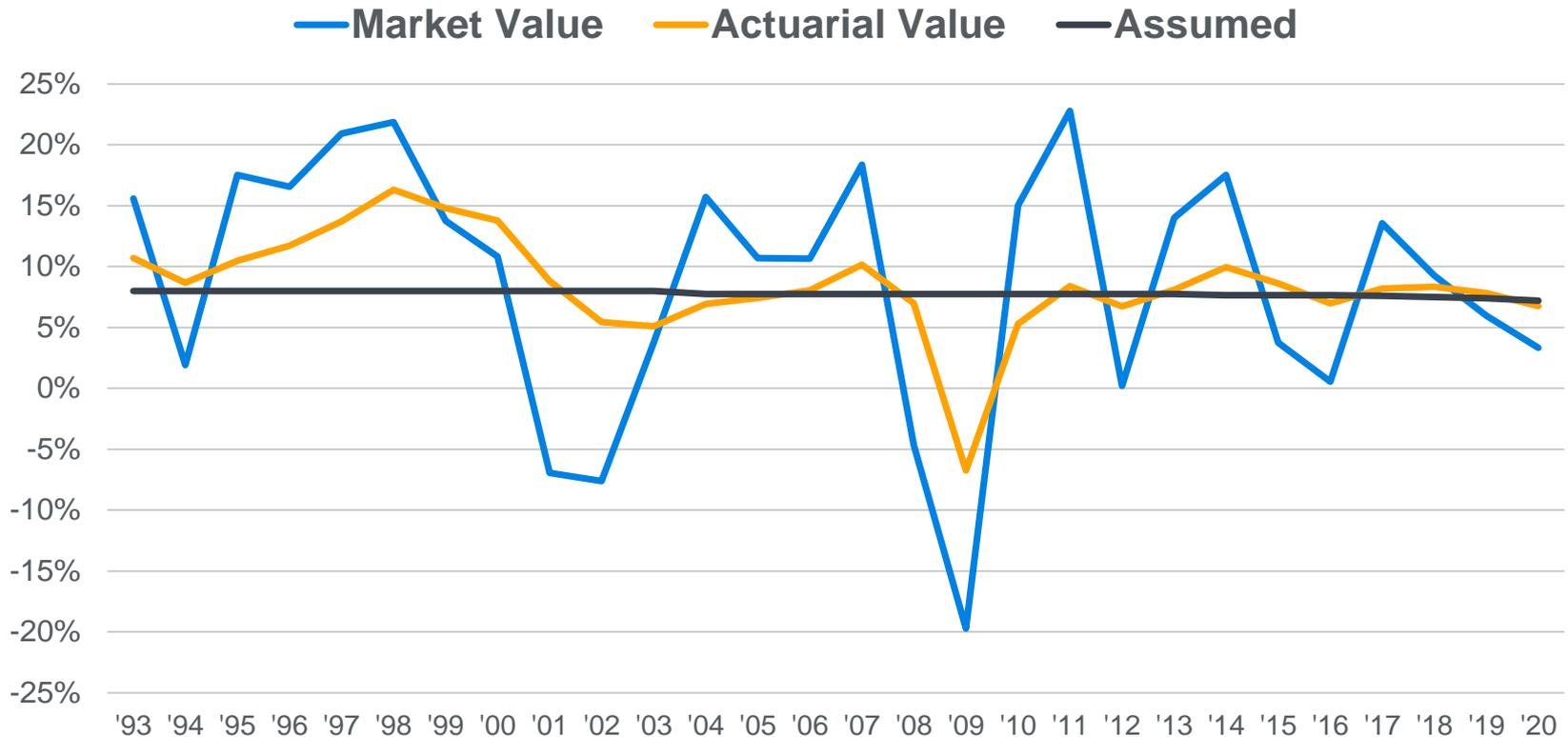
Pension Plan Cash Flows



* Includes transfers to Investment Plan

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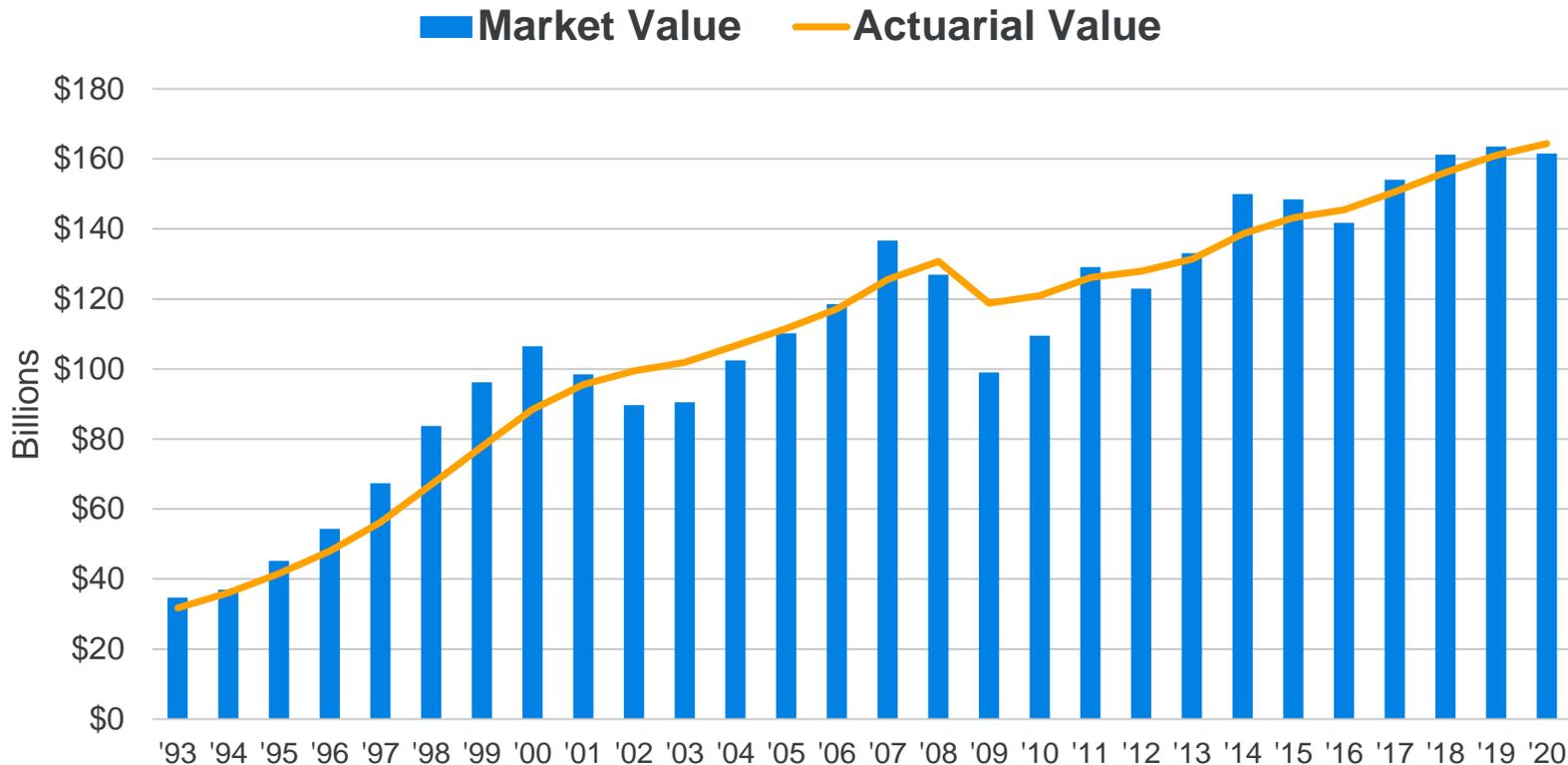
Historic Asset Returns



- The 2019-20 return was +3.3% on a market value of assets (MVA) basis and +6.8% on a smoothed actuarial value of assets (AVA) basis
 - AVA return is determined by market value returns over the prior five years

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Market & Actuarial Value of Assets



- Market value of assets (MVA) is \$2.7 billion **below** Actuarial Value of Assets (AVA) at July 2020. That **deferred investment loss** will be recognized in lower AVA returns (and associated **contribution rate increases**) in subsequent valuations if future market investment performance fails to exceed assumption

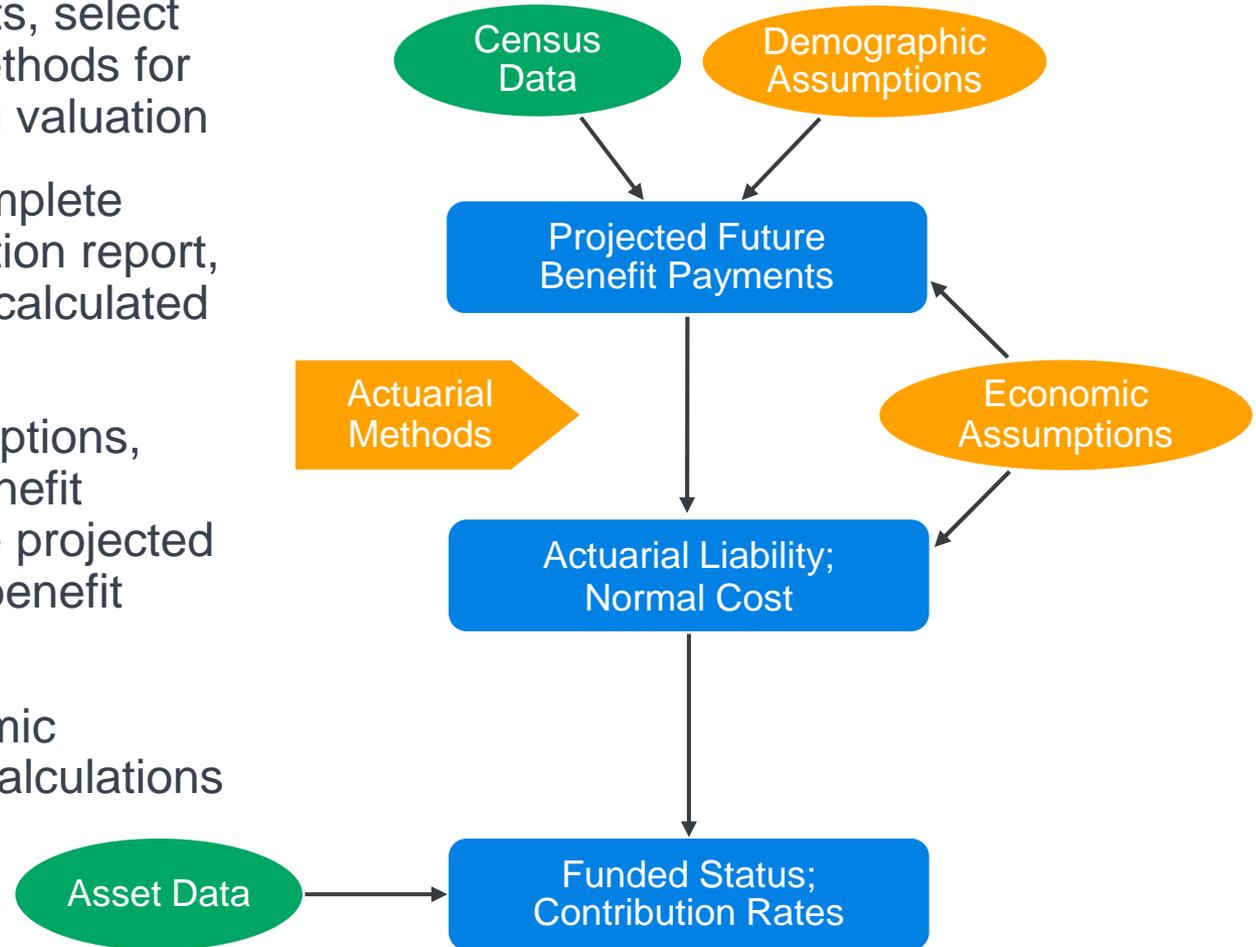
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Valuation Process and Projected Benefit Payments

Actuarial Valuation Process

- Today: Discuss preliminary 2020 valuation results, select assumptions and methods for 2020 system funding valuation
- By December 1: Complete 2020 actuarial valuation report, including actuarially calculated contribution rates
- Demographic assumptions, census data, and benefit provisions determine projected future year-by-year benefit payments
- Methods and economic assumptions affect calculations of funded status and contribution rates

Legend
Provided by FRS
Adopted by Conference
Calculated by actuary



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Overview of an Actuarial Valuation

Two Pension Plan valuations are conducted annually in parallel to:

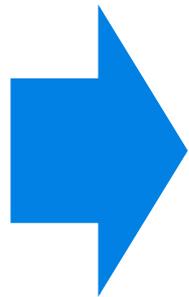
- Calculate funded status (funding valuation)
- Develop actuarially calculated contribution rates (funding valuation)
- Satisfy financial reporting requirements (separate GASB valuation)

Data

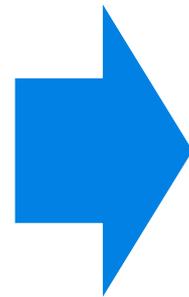
Assumptions

Methods

Provisions



**Projected
Benefit
Payments**



Funded Status

**Actuarially Calculated
Contribution Rates**

GASB Reporting

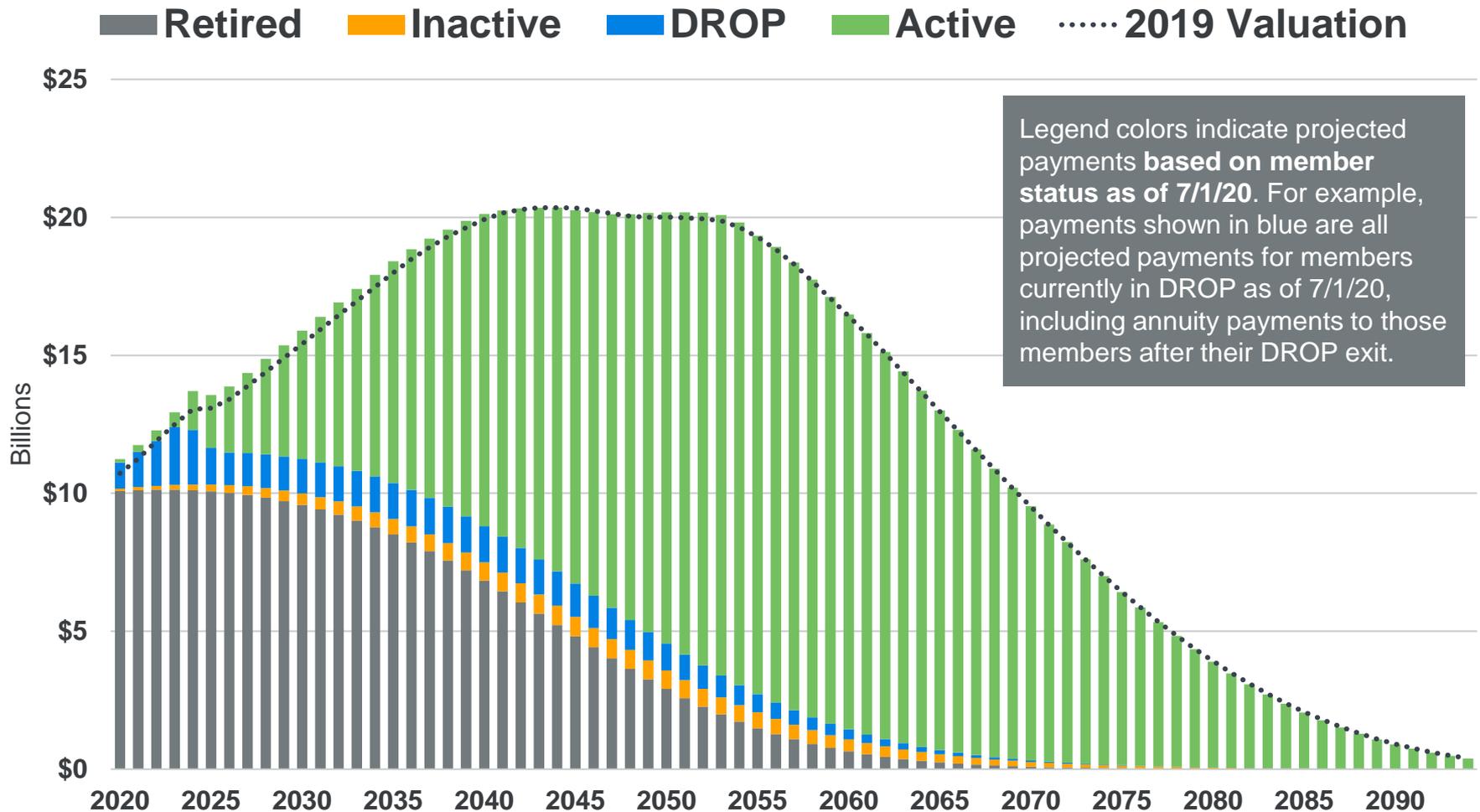
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Projected Benefit Payments

- Projected benefit payments are developed using:
 - Census data provided by the Division of Retirement
 - Demographic assumptions
 - Life expectancy (i.e., mortality)
 - Likelihood and timing of immediate unreduced retirement or DROP entry
 - Likelihood of termination of employment prior to unreduced retirement eligibility
 - Annual salary increase assumption for individual members
 - Incidence of disability
- Membership demographic data is provided annually by DMS
- Assumptions listed above are typically formally reviewed in detail every five years as part of an actuarial experience study

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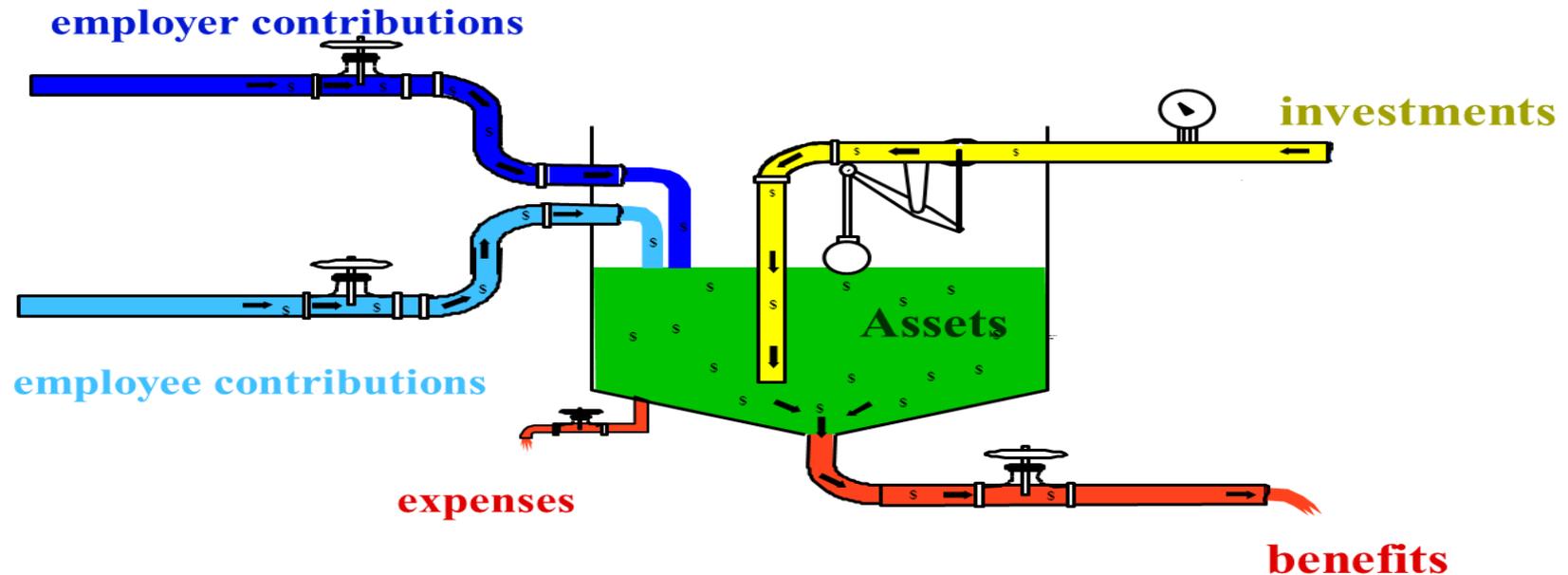
Projected Benefit Payments – 2020 Valuation



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Actuarial Methods and Assumptions for System Funding Calculations

The Fundamental Cost Equation



- Methods & assumptions do not determine ultimate long-term System cost, only the budgetary **timing** of cost incurrence

Ultimately, the “Fundamental Cost Equation” always governs:

$$\text{Contributions} + \text{Investments} = \text{Benefits} + \text{Expenses}$$

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Actuarial Methods for Funding Valuation

- Key actuarial methods previously adopted by the Conference in 2019:
 - Individual Entry Age Normal (Individual EAN) cost allocation method
 - This method sets the normal cost rate as a level percent of payroll contribution needed during a member's full career to fund that member's projected cost of total benefits if experience follows assumptions. Accordingly, Tier I members will have higher normal cost rates than similarly situated Tier II members.
 - 30-year amortization over a closed period, as a level percent of projected payroll, of previously unanticipated changes in UAL that arise since the prior actuarial valuation
 - This approach has an extended period of net negative amortization for each amortization tranche in the UAL contribution rate structure:
 - The unamortized balance increases for the first 11 to 13 years
 - The balance decreases after that, with the original unamortized balance effectively being paid off in the last 10-12 years of the 30-year amortization period

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Preliminary 2020 Actuarial Funding Valuation Results

Calculation of Valuation Results

- Projected year-by-year benefit payments are converted to a present value projected cost of total benefits using the return assumption
 - The present value is allocated between past (Actuarial Liability) and projected future service (Normal Costs) via the cost allocation method
- This establishes “2020 Preliminary” funding valuation results using:
 - Actual 2019-20 investment returns
 - Member demographic census data as of July 2020
 - Methods and assumptions as adopted by the 2019 FRS Actuarial Assumption Conference, based on the 2019 Experience Study

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Pension Plan UAL and Funded Status

	2019 Final (2019 data; 2019 assumptions)	2020 Preliminary (2020 data; 2019 assumptions)
Actuarial Liability (AL)	\$ 191.3	\$ 196.4
Actuarial Value of Assets (AVA)	<u>161.0</u>	<u>164.3</u>
Unfunded Actuarial Liability (UAL)	\$ 30.3	\$ 32.1
Funded Status	84.2%	83.7%

(Amounts in \$ billions)

- Market Value of Assets (MVA) is \$2.7 billion **below** AVA at July 2020. That **deferred investment loss** will be recognized in lower future AVA returns (and associated **future UAL contribution rate increases**) if future market value investment performance fails to meet or exceed 7.20%.
- Results shown above use a 7.20% investment return assumption and the individual entry age cost allocation method

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Blended Proposed Statutory Rates at 7.20%

Weighted Average of Rates Across All Membership Classes	Final 2020-21 Rates (7.20% Assumption)			Preliminary 2021-22 Rates (7.20% Assumption)		
	NC	UAL	Total	NC	UAL	Total
PP composite employer rate	7.03%	5.80%	12.83%	6.97%	6.28%	13.25%
IP composite employer rate	4.83%	0.00%	4.83%	4.70%	0.00%	4.70%
Blended PP / IP employer rate	6.60%	4.77%	11.37%	6.48%	5.06%	11.54%
Employee contribution rate			3.00%			3.00%
Composite blended employer plus employee rate			14.37%			14.54%

- Pension Plan (PP) contribution rates are blended with Investment Plan (IP) contribution rates to create blended PP/IP proposed statutory employer rates
- Statutory IP rates by membership class are unchanged, but the 2021-22 IP payroll is more heavily weighted to Regular Class, which decreases the IP composite employer rate

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Projected Contributions in Dollars at 7.20%

Total For All Membership Classes	Normal Cost Rate	Applicable Normal Cost Payroll	UAL Rate	Applicable UAL Payroll	Blended PP/IP Rate	Employer Contribution
Final 2020-21	6.60%	\$34.2 billion	4.77%	\$37.9 billion	11.37%	\$4.06 billion
Preliminary 2021-22	6.48%	\$35.4 billion	5.06%	\$39.2 billion	11.54%	\$4.28 billion
Change	-0.12%		+0.29%		+0.17%	\$0.22 billion

- $(\text{Normal cost rate} \times \text{Normal cost payroll}) + (\text{UAL rate} \times \text{UAL payroll}) = \text{Contribution}$
- Pension Plan (PP) contribution rates are blended with Investment Plan (IP) contribution rates to create blended PP/IP proposed statutory employer rates
- Preliminary 2021-22 rates above reflect actual 2019-20 investment performance and July 1, 2020 FRS member census, along with all actuarial methods and assumptions used in the July 1, 2019 valuation

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Results Under Current Methods, 7.20% Return

Valuation Results at 7.2% Assumption	Blended PP/IP Employer Rate	UAL (AVA)	Funded Status
Final 2020-21	11.37%	\$30.3 B	84.2%
Preliminary 2021-22:			
- 7.20% return assumption, 30-year level % of projected pay amortization of newly established UAL amortization bases	11.54%	\$32.1 B	83.7%

- Based on projected 2021-22 PP/IP payroll of \$39.2 billion (including payroll subject to only UAL contributions), estimated combined 2021-22 PP/IP employer contribution of:
 - \$4.28 billion** reflecting actual 2019-20 investment performance and July 1, 2020 FRS member census, but before any potential modification to the return assumption, inflation-related assumptions or amortization policy

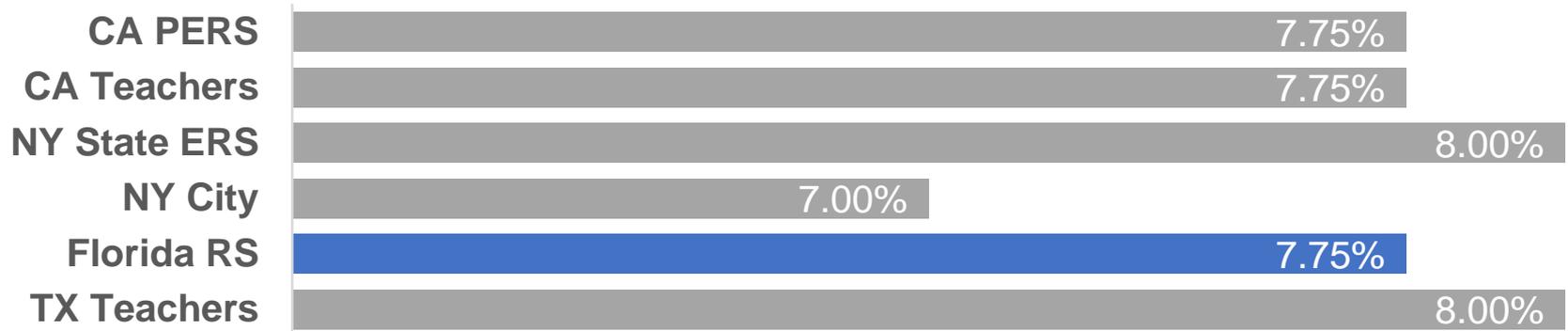
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Investment Return Assumption for System Funding

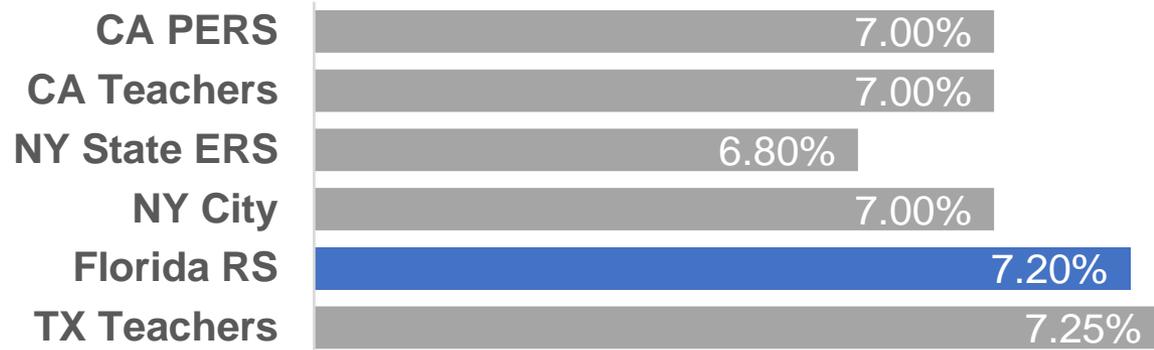
Note: Today's Milliman speaker is not a
credentialed investment advisor

What Are FRS's Jumbo Peer Systems Doing?

Assumptions in 2010



Assumptions in 2020



Source: NASRA Public Fund Survey (Sep. '20)

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Last Year's Return Models and Assumption

- Median (50th percentile) average annual long-term future investment returns from two real return investment models presented at the 2019 Conference are summarized below:
 - “SBA Approach” model developed in Q3 of 2019 by Aon using average global equity risk premiums from several large investment consultancies: **6.59%** median return
 - Used Aon’s outlook for inflation at that time of 2.1%
 - Inferred: Aon median real (in excess of inflation) return outlook of **4.40%**
 - Milliman model: **6.7%** median return
 - Used Conference’s adopted inflation assumption of **2.6%**
 - Inferred: Milliman median real (in excess of inflation) return outlook of 4.00%
 - The default inflation assumption in Milliman’s model at that time was 2.2%
- The Conference lowered the return assumption from **7.4%** to **7.2%** for the 2019 actuarial valuation for funding purposes

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Updates to Return Models for This Year

- Aon’s “SBA Approach” model from its Q3 2020 asset-liability study that blends the global equity risk premiums of four large investment consultancies: **6.46%** median return
 - Reflects Aon’s current outlook for inflation of 2.1%
 - Inferred: Aon median real (in excess of inflation) return outlook of **4.27%**
- Milliman model: **6.56%** median return
 - Uses the Conference’s most recently adopted inflation assumption of **2.6%**
 - Inferred: Milliman median real (in excess of inflation) return outlook of 3.86%
 - The current default inflation assumption in Milliman’s outlook model is 2.2%

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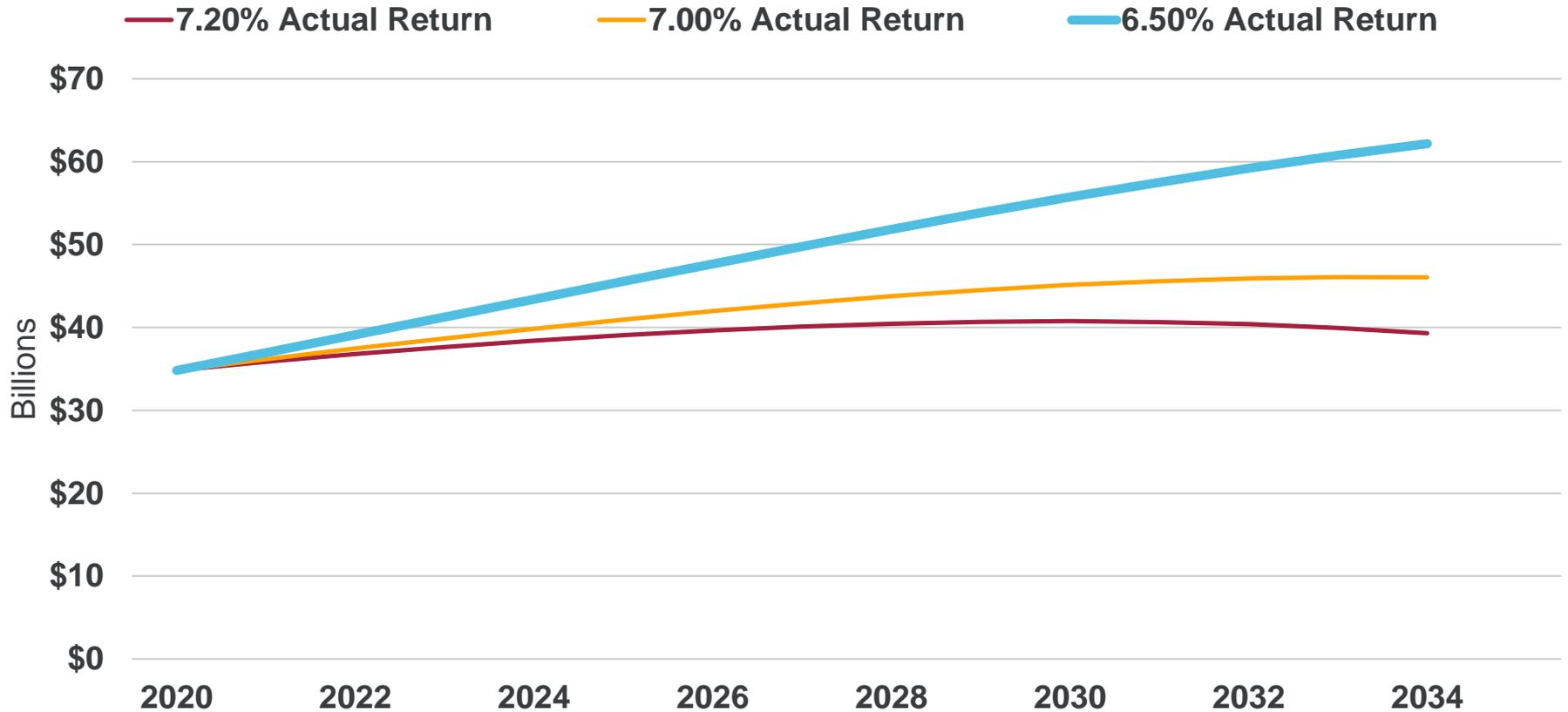
Milliman Investment Return Model

Percentile	30-Year Average
65 th	7.41%
60 th	7.12%
55 th	6.83%
50th	6.56%
45 th	6.28%
40 th	6.00%
35 th	5.71%

- Based on the current target asset allocation, model results are geometric annual average net returns based on:
 - A series of average annual real returns by asset class, plus asset class correlations
 - The 2.6% inflation assumption most recently adopted by the Conference
 - In this table, the 60th percentile means that in the Milliman model 60% of possible 30-year average annualized returns are at or below 7.12%
 - Details on the model inputs in the appendix

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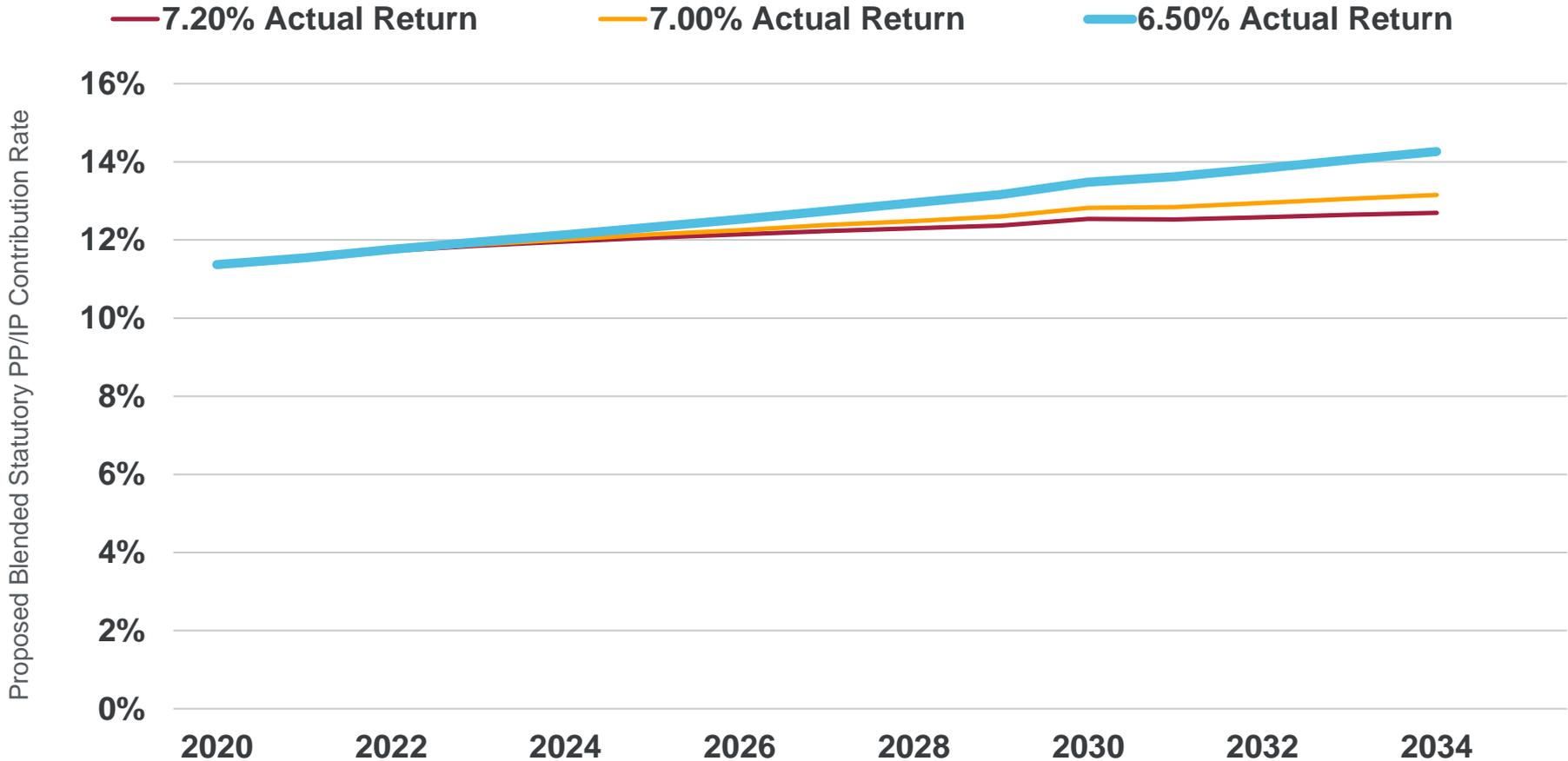
Unfunded Liability under Varying Actual Returns



Using a 7.20% adopted assumption for the actuarial valuation's assumed return, this chart projects unfunded liability on a **market value of assets basis** under three scenarios for actual annual investment return on a market value of assets basis

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Contribution Rate under Varying Actual Returns



Using a 7.20% adopted assumption for the actuarial valuation's assumed return, this chart projects the proposed blended statutory composite Pension Plan/Investment Plan employer contribution rate under three scenarios for actual annual investment return on a fair market value of assets basis

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Setting the Assumption for System Funding

- Per statute, the Conference selects the assumption for the valuation report that determines actuarially calculated contribution rates
- To comply with Actuarial Standards of Practice (ASOPs), the actuary assesses the reasonableness of the selected assumption
 - Per the ASOPs, if, in the actuary's professional judgment, the selected assumption “**significantly conflicts** with what...would be **reasonable** for the purpose of the measurement”, the actuary must disclose that conflict in his or her written report

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What Makes an Assumption “Reasonable”?

- Per the relevant Actuarial Standard of Practice (ASOP), an assumption is **reasonable** for the purpose of the measurement if it:
 - Takes into account current economic data, and
 - Reflects the actuary’s estimate of future experience, and
 - It has no “**significant bias** (i.e., it is not significantly optimistic or pessimistic), except when provisions for adverse deviation...are included and disclosed”
- The actuary can incorporate experts’ views (such as those of credentialed investment professionals) in assessing reasonableness

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What is “Significant Bias” in an Assumption?

- The governing Actuarial Standard of Practice acknowledges that the meaning of “significant” varies by situation
- For return assumption selection, the relevant meaning is that “a result may be **significant** because it is of consequence”

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Effect of Various Return Assumptions

System Average Valuation Results	Blended PP/IP Employer Rate	UAL (AVA)	Funded Status
Final 2020-21 at 7.20% assumption	11.37%	\$30.3 B	84.2%
Preliminary 2021-22:			
- At 7.20% assumption ¹	11.54%	\$32.1 B	83.7%
- At 7.10% assumption ²	12.04%	\$34.3 B	82.7%
- At 7.00% assumption ³	12.55%	\$36.6 B	81.8%
- At 6.95% assumption ⁴	12.79%	\$37.8 B	81.3%
- At 6.50% assumption	15.10%	\$48.5 B	77.2%

- Based on projected 2021-22 PP/IP payroll of \$39.2 billion (including payroll subject to only UAL contributions), estimated combined 2021-22 PP/IP contribution of:

¹ **\$4.28 billion** at 7.20% return assumption

² **\$4.47 billion** at 7.10% return assumption [**\$190 million** increase from 7.20% return assumption]

³ **\$4.66 billion** at 7.00% return assumption [**\$380 million** increase from 7.20% return assumption]

⁴ **\$4.75 billion** at 6.95% return assumption [**\$470 million** increase from 7.20% return assumption]

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Inflation-Related Assumptions

Inflation-Related Assumptions

- If the Conference adopts a lower return assumption, a decision between two implementation options is needed:
 - Decrease the assumed real (in excess of inflation) investment return, and/or
 - Decrease the inflation assumption
- If the inflation assumption is decreased, then implementation decisions on two other inflation-related assumptions are also needed:
 - Decrease the individual salary increase assumptions for members?
 - Decrease the assumption for future growth in statutory UAL Cost payroll?

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Components of Current Return Assumption

Investment Return 7.20%

Inflation 2.60%

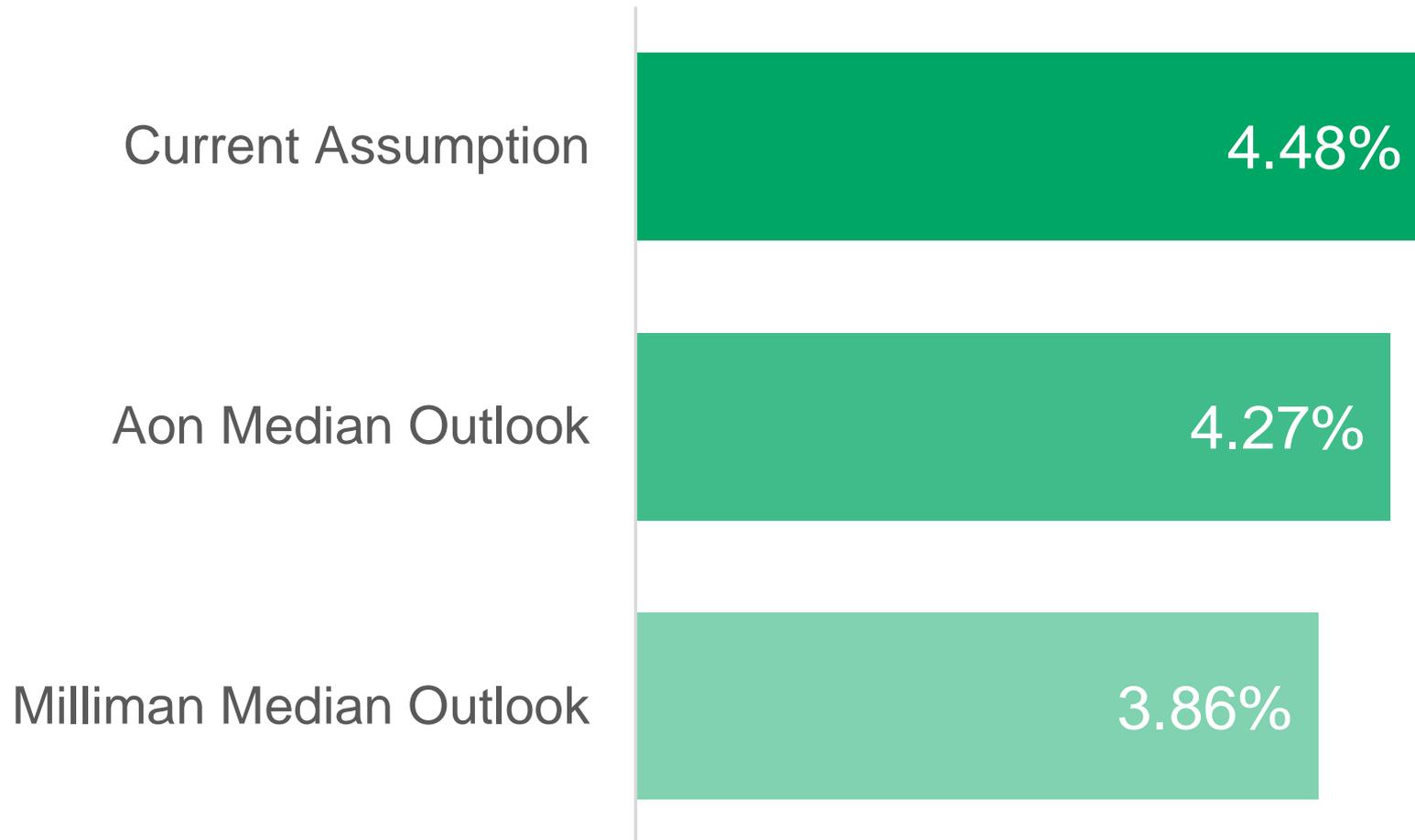
Real Return 4.48%

- The governing formula is:

$$(1 + \textit{Investment Return}) = (1 + \textit{Inflation}) \times (1 + \textit{Real Return})$$

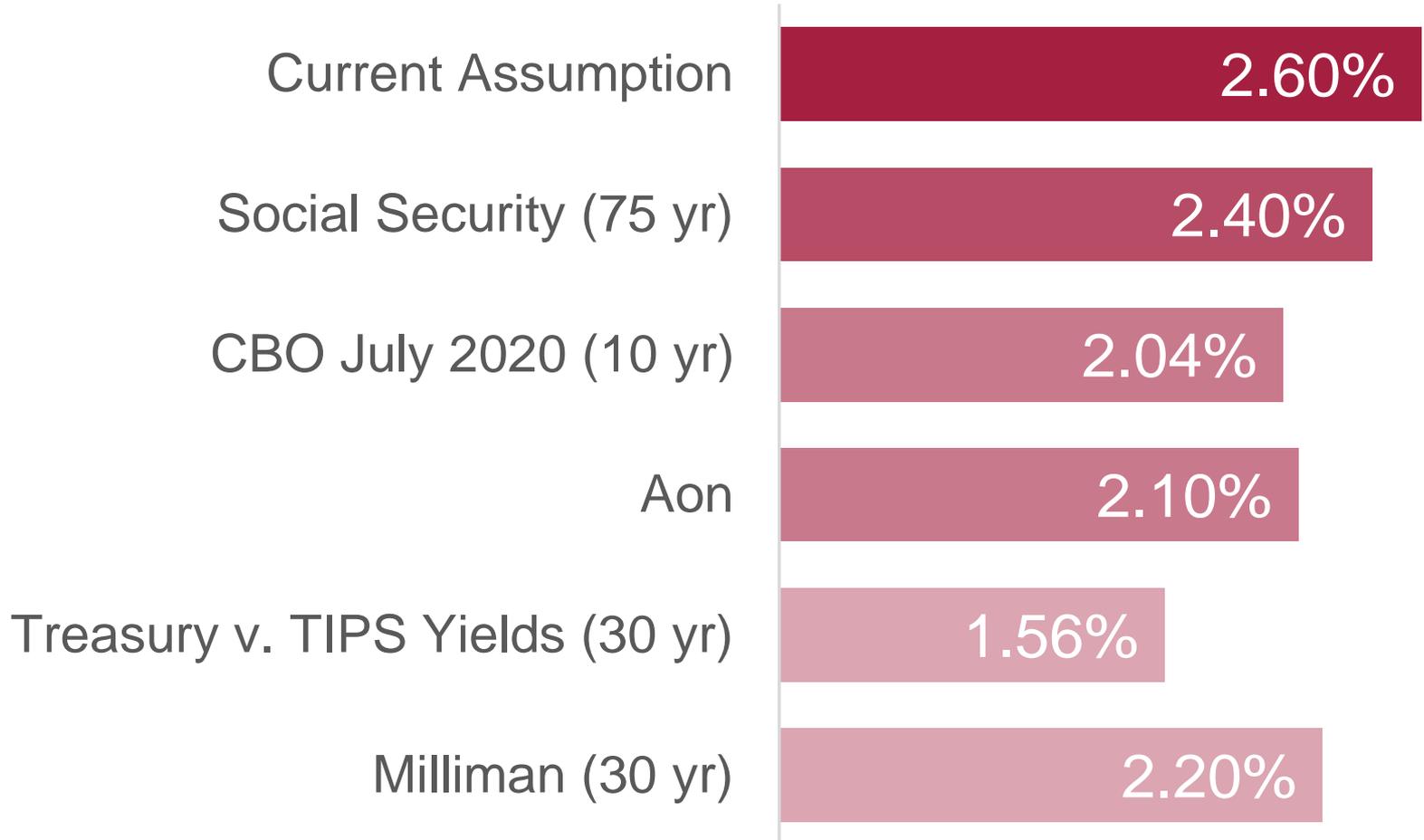
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Guidance on Real Return Assumption



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Guidance on Inflation Assumption



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Inflation-Related Assumptions

- Say the Conference adopts a lower return assumption and implements it via a decrease in the inflation assumption
 - As an illustrative example, say both assumptions are decreased by 0.20%
 - Investment return decreases from 7.20% to 7.00%
 - Inflation decreases from 2.60% to 2.40%
- In this example's case, then the Conference should also decide:
 - If the assumptions for annual salary increases for individual members should decrease by 0.20% or remain unchanged
 - Salary increase assumptions vary by membership class, age, and length of service
 - If the assumption for the annual future increase in statutory UAL Cost payroll should decrease by 0.20% or remain unchanged
 - The current assumption is 3.25%, consisting of 2.60% inflation and 0.65% real wage growth assumptions
 - Actual payroll growth since the prior valuation was 3.5%, and annualized growth over the prior five and ten years has been 3.0% and 2.0%, respectively

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Inflation-Related Assumptions at 7.0% Return

Preliminary 2021-2022 Results at 7.0% Assumption	Blended PP/IP Employer Rate	Combined PP/IP Employer Contribution
Real return assumption is lowered by 0.20%; Inflation assumption remains at 2.60%; All inflation-related assumptions left unchanged	12.55%	\$4.66 billion
Inflation, individual member salary increase, and system UAL Cost payroll growth assumptions all lowered by 0.20%; Real return assumption is left unchanged	12.37%	\$4.59 billion
Inflation and individual member salary assumptions lowered by 0.20%; System UAL Cost payroll growth assumption left unchanged at 3.25%; Real return assumption is left unchanged	12.24%	\$4.54 billion

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Amortization Policy

Effect of Amortization at 7.20% Return

Preliminary 2021-22 Valuation ¹ at 7.20%:	Blended PP/IP Employer Rate	Employer Contribution
30 yr level % amortization on new bases	11.54%	\$4.28 B
25 yr level % amortization on new bases	11.57%	\$4.29 B
25 yr level % amortization on all bases	11.66%	\$4.32 B
20 yr level % amortization on new bases	11.62%	\$4.31 B
20 yr level % amortization on all bases	12.01%	\$4.46 B

¹ Reflecting current demographic assumptions and individual entry age normal cost method, and based on projected 2021-22 PP/IP payroll of \$39.2 billion (including payroll subject only to UAL contributions)

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Effect of Amortization at 7.10% Return

Preliminary 2021-22 Valuation ¹ at 7.10% ² :	Blended PP/IP Employer Rate	Employer Contribution
30 yr level % amortization on new bases	12.04%	\$4.47 B
25 yr level % amortization on new bases	12.11%	\$4.49 B
25 yr level % amortization on all bases	12.20%	\$4.53 B
20 yr level % amortization on new bases	12.21%	\$4.53 B
20 yr level % amortization on all bases	12.61%	\$4.69 B

¹ Reflecting current demographic assumptions and individual entry age normal cost method, and based on projected 2021-22 PP/IP payroll of \$39.2 billion (including payroll subject only to UAL contributions)

² Reflecting a decrease in the real return assumption, with inflation and other inflation-related assumptions left unchanged

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Effect of Amortization at 7.00% Return

Preliminary 2021-22 Valuation ¹ at 7.00% ² :	Blended PP/IP Employer Rate	Employer Contribution
30 yr level % amortization on new bases	12.55%	\$4.66 B
25 yr level % amortization on new bases	12.65%	\$4.70 B
25 yr level % amortization on all bases	12.74%	\$4.73 B
20 yr level % amortization on new bases	12.81%	\$4.76 B
20 yr level % amortization on all bases	13.21%	\$4.92 B

¹ Reflecting current demographic assumptions and individual entry age normal cost method, and based on projected 2021-22 PP/IP payroll of \$39.2 billion (including payroll subject only to UAL contributions)

² Reflecting a decrease in the real return assumption, with inflation and other inflation-related assumptions left unchanged

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Effect of Amortization at 6.95% Return

Preliminary 2021-22 Valuation ¹ at 6.95% ² :	Blended PP/IP Employer Rate	Employer Contribution
30 yr level % amortization on new bases	12.79%	\$4.75 B
25 yr level % amortization on new bases	12.92%	\$4.80 B
25 yr level % amortization on all bases	13.01%	\$4.83 B
20 yr level % amortization on new bases	13.11%	\$4.87 B
20 yr level % amortization on all bases	13.51%	\$5.03 B

¹ Reflecting current demographic assumptions and individual entry age normal cost method, and based on projected 2021-22 PP/IP payroll of \$39.2 billion (including payroll subject only to UAL contributions)

² Reflecting a decrease in the real return assumption, with inflation and other inflation-related assumptions left unchanged

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Needed Guidance for FRS Pension Plan

Needed Guidance for FRS Pension Plan

- From Conference Principals for system funding calculations, identification of **methods** and **assumptions** to use in the 2020 FRS Pension Plan valuation calculations for system funding purposes to calculate blended proposed 2021-22 statutory contribution rates:
 - Investment return assumption (currently 7.20%)
 - Inflation assumption (currently 2.60%)
 - If inflation assumption is changed:
 - Individual member salary increase assumption
 - System statutory UAL Cost payroll (includes both Pension Plan and Investment Plan) growth assumption (currently 3.25%) consisting of inflation plus real wage growth
 - Amortization policy - currently 30-year amortization as a level percent of projected future payroll for newly arising UAL bases

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Discount Rate Assumption for HIS and National Guard GASB Valuations

GASB Discount Rate Assumption

- Currently, the Florida Health Insurance Subsidy (HIS) and Florida National Guard benefits are effectively funded on a pay-as-you-go basis
- Accounting standards first effective several years ago (GASB 67 & 68) give direction on the discount rate assumption to be used for financial reporting of programs funded on a pay-as-you-go basis
 - The assumption should reflect an **index of 20-year, tax exempt, high quality (AA/Aa or higher) general obligation municipal bonds**
 - The assumption selected should be based on **market conditions as of the measurement date** of the financial reporting in question
- After consideration of these requirements at the time of initial implementation of the accounting standards, the Conference adopted the **Bond Buyer General Obligation 20-Bond Municipal Bond Index** for use in HIS and National Guard GASB calculations
 - That index has been used for pay-as-you-go GASB financial reporting valuations by all public systems with which I am familiar

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Historical Values of the Bond Index

- The table below shows the value of the Bond Buyer General Obligation 20-Bond Municipal Bond Index as of the last five fiscal year-end measurement dates

June 30	Index
2020	2.21%
2019	3.50%
2018	3.87%
2017	3.58%
2016	2.85%

- The **higher** the index, the **lower** the calculated liability, with an index decrease from 3.50% to 2.21% estimated to **increase** HIS liability and National Guard liability by approximately \$2.05 billion and \$260 million, respectively

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Other Assumptions for HIS and National Guard GASB Valuations

HIS GASB Valuation Assumptions

- In addition to the discount rate assumption, other assumptions about member behavior (e.g., timing and nature of cessation of employment) and life expectancy are used in the HIS valuation
- The assumptions used in the last full valuation, conducted in 2018, mirrored those used in the 2018 valuation of the FRS Pension Plan and were established by the most recent Experience Study at that time (conducted in 2014)
- For this valuation, we recommend updates to mirror those used in the 2019 and 2020 FRS Pension Plan valuations, reflecting the Experience Study conducted in 2019

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HIS GASB Valuation Assumptions (Cont.)

- Specific to the HIS valuation, we use additional assumptions relating to member elections at time of retirement
 - Percentage of eligible members who elect HIS coverage at retirement
 - Prior valuation assumed **95%**
 - We recommend new assumption of **90%**, based on observed experience
 - Percentage of eligible members who elect a spousal protection form of benefit:
 - Prior valuation assumed **30%**, applicable to both Pension Plan (PP) and Investment Plan (IP) retirees
 - We recommend bifurcating the assumption:
 - **30%** of retiring PP members elect a spousal protection form of benefit (since HIS spousal continuance is tied to Option election of PP benefit)
 - **80%** of retiring IP members elect a spousal protection form of benefit (since HIS spousal continuance is not tied to IP retiree election)

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National Guard Valuation Assumptions

- The initial valuation for the National Guard program was conducted in 2014 to comply with the new GASB financial reporting standards
- Assumptions used in valuations prior to this year incorporate FRS Pension Plan assumptions along with estimates of future military experience as National Guard benefits are tied to federal pay levels and retirement benefits
- Only changes recommended are to update mortality / life expectancy assumptions to mirror those developed with the Experience Study conducted in 2019

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Needed Guidance for HIS and National Guard

Needed Guidance

- From Conference Principals for GASB financial reporting calculations of HIS and National Guard:
 - Re-confirmation of the continued use of the Bond Buyer General Obligation 20-Bond Municipal Bond Index as the discount rate for the GASB valuations of the two programs
 - Adoption of updates to demographic assumptions to reflect assumptions used in the 2019 and 2020 FRS Pension Plan valuations, as developed by the 2019 Experience Study
 - Adoption of updates to HIS-specific assumptions on percentage of members electing a) coverage at retirement and b) a spousal protection form of benefit payment
 - Adoption of updates to the mortality assumption to reflect assumptions used in the 2019 and 2020 FRS Pension Plan valuations, as developed by the 2019 Experience Study, along with re-confirmation of the previously used assumptions other than discount rate and mortality for the National Guard program

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Appendix

Milliman Capital Market Outlook Assumptions

For assessing the expected portfolio return under Milliman's capital market assumptions, we considered FRS investments to be allocated among the model's asset classes as shown below. This allocation is based on our understanding of the current target allocation policy, as provided to us by Aon Hewitt Investment Consulting via email on September 17, 2020.

	Policy Allocation	Annual Arithmetic Mean	Annualized Geometric Mean	Annual Standard Deviation	
US Cash	1.0%	2.40%	2.39%	1.20%	*2.6% is the inflation assumption most recently adopted by the FRS Actuarial Assumption Conference. That 2.6% assumption is then applied to real return assumptions in Milliman's capital market outlook model to calculate a median (50 th) percentile return. Real return assumptions in the Milliman model are set semi-annually by a committee of credentialed investment professionals. The default inflation assumption in the Milliman model is currently 2.2%.
US Interm Bonds	18.0%	3.20%	3.15%	3.40%	
US Gvt Bonds	1.0%	3.14%	3.03%	4.80%	
US Bank / Leveraged Loans	1.1%	5.40%	5.16%	7.40%	
Global Equity	54.2%	8.18%	6.92%	17.05%	
US REITs	1.0%	7.93%	6.31%	19.30%	
Private Real Estate Property	9.3%	6.45%	5.81%	12.00%	
Timber	0.4%	6.66%	5.91%	13.00%	
Infrastructure	1.4%	6.66%	5.91%	13.00%	
Private Equity	9.0%	12.08%	8.42%	30.00%	
Commodities	0.4%	5.50%	3.91%	18.85%	
Hedge Funds - MultiStrategy	1.4%	5.93%	5.61%	8.45%	
Hedge Funds - Event-Driven	0.1%	6.09%	5.76%	8.70%	
Hedge Funds - Equity Hedge	0.2%	6.50%	5.96%	11.05%	
Strategic Investments	1.1%	5.54%	5.26%	7.90%	
Hedge Funds - Distressed	0.4%	5.88%	5.51%	9.15%	
US Inflation (CPI-U)*			2.60%	1.65%	
Total Fund	100%	7.2%	6.56%	12.2%	

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Regular - Various Return Assumptions

Regular Membership Class	Blended PP/IP Employer Rate	Estimated PP/IP Contribution
Final 2020-21 at 7.20% assumption	8.28%	\$2.26 B
Preliminary 2021-22:		
- At 7.20% assumption	8.44%	\$2.39 B
- At 7.10% assumption	8.85%	\$2.51 B
- At 7.00% assumption	9.27%	\$2.63 B
- At 6.95% assumption	9.48%	\$2.69 B
- At 6.50% assumption	11.42%	\$3.25 B

- Based on projected 2021-22 PP/IP payroll subject to UAL contributions of \$30.4 billion
 - Does not include projected contributions on DROP payroll (estimated for 2020-21 to be \$0.362 billion in contributions on \$2.36 billion of applicable payroll)

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Special Risk - Various Return Assumptions

Special Risk Membership Class	Blended PP/IP Employer Rate	Estimated PP/IP Contribution
Final 2020-21 at 7.20% assumption	22.73%	\$1.16 B
Preliminary 2021-22:		
- At 7.20% assumption	22.89%	\$1.21 B
- At 7.10% assumption	23.76%	\$1.25 B
- At 7.00% assumption	24.61%	\$1.30 B
- At 6.95% assumption	25.06%	\$1.32 B
- At 6.50% assumption	29.09%	\$1.53 B

- Based on projected 2021-22 PP/IP payroll subject to UAL contributions of \$5.30 billion
 - Does not include projected contributions on DROP payroll (estimated for 2020-21 to be \$0.362 billion in contributions on \$2.36 billion of applicable payroll)

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Regular – Amortization at 7.20%

Regular Membership Class	Blended PP/IP Employer Rate		Estimated PP/IP Contribution
	NC	UAL	
Final 2020-21 at 7.20% assumption	4.84%	3.44%	\$2.26 B
Preliminary 2021-22 at 7.20%:			
- 30 yr level % amortization on new bases	4.75%	3.69%	\$2.39 B
- 25 yr level % amortization on new bases	4.75%	3.71%	\$2.40 B
- 25 yr level % amortization on all bases	4.75%	3.80%	\$2.43 B
- 20 yr level % amortization on new bases	4.75%	3.75%	\$2.41 B
- 20 yr level % amortization on all bases	4.75%	4.11%	\$2.52 B

- Based on projected 2021-22 PP/IP payroll subject to UAL contributions of \$30.4 billion
 - Does not include projected contributions on DROP payroll (estimated for 2020-21 to be \$0.362 billion in contributions on \$2.36 billion of applicable payroll)

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Special Risk – Amortization at 7.20%

Special Risk Membership Class	Blended PP/IP Employer Rate		Estimated PP/IP Contribution
	NC	UAL	
Final 2020-21 at 7.20% assumption	15.13%	7.60%	\$1.16 B
Preliminary 2021-22 at 7.20%:			
- 30 yr level % amortization on new bases	14.88%	8.01%	\$1.21 B
- 25 yr level % amortization on new bases	14.88%	8.04%	\$1.21 B
- 25 yr level % amortization on all bases	14.88%	8.16%	\$1.22 B
- 20 yr level % amortization on new bases	14.88%	8.09%	\$1.21 B
- 20 yr level % amortization on all bases	14.88%	8.67%	\$1.24 B

- Based on projected 2021-22 PP/IP payroll subject to UAL contributions of \$5.30 billion
 - Does not include projected contributions on DROP payroll (estimated for 2020-21 to be \$0.362 billion in contributions on \$2.36 billion of applicable payroll)

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Regular – Amortization at 7.10%

Regular Membership Class	Blended PP/IP Employer Rate		Estimated PP/IP Contribution
	NC	UAL	
Final 2020-21 at 7.20% assumption	4.84%	3.44%	\$2.26 B
Preliminary 2021-22 at 7.10%:			
- 30 yr level % amortization on new bases	4.91%	3.94%	\$2.51 B
- 25 yr level % amortization on new bases	4.91%	4.00%	\$2.53 B
- 25 yr level % amortization on all bases	4.91%	4.08%	\$2.55 B
- 20 yr level % amortization on new bases	4.91%	4.09%	\$2.56 B
- 20 yr level % amortization on all bases	4.91%	4.45%	\$2.67 B

- Based on projected 2021-22 PP/IP payroll subject to UAL contributions of \$30.4 billion
 - Does not include projected contributions on DROP payroll (estimated for 2020-21 to be \$0.362 billion in contributions on \$2.36 billion of applicable payroll)

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Special Risk – Amortization at 7.10%

Special Risk Membership Class	Blended PP/IP Employer Rate		Estimated PP/IP Contribution
	NC	UAL	
Final 2020-21 at 7.20% assumption	15.13%	7.60%	\$1.16 B
Preliminary 2021-22 at 7.10%:			
- 30 yr level % amortization on new bases	15.29%	8.47%	\$1.25 B
- 25 yr level % amortization on new bases	15.29%	8.56%	\$1.26 B
- 25 yr level % amortization on all bases	15.29%	8.68%	\$1.26 B
- 20 yr level % amortization on new bases	15.29%	8.70%	\$1.27 B
- 20 yr level % amortization on all bases	15.29%	9.29%	\$1.30 B

- Based on projected 2021-22 PP/IP payroll subject to UAL contributions of \$5.30 billion
 - Does not include projected contributions on DROP payroll (estimated for 2020-21 to be \$0.362 billion in contributions on \$2.36 billion of applicable payroll)

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Regular – Amortization at 7.00%

Regular Membership Class	Blended PP/IP Employer Rate		Estimated PP/IP Contribution
	NC	UAL	
Final 2020-21 at 7.20% assumption	4.84%	3.44%	\$2.26 B
Preliminary 2021-22 at 7.00%:			
- 30 yr level % amortization on new bases	5.08%	4.19%	\$2.63 B
- 25 yr level % amortization on new bases	5.08%	4.28%	\$2.66 B
- 25 yr level % amortization on all bases	5.08%	4.36%	\$2.68 B
- 20 yr level % amortization on new bases	5.08%	4.42%	\$2.70 B
- 20 yr level % amortization on all bases	5.08%	4.78%	\$2.81 B

- Based on projected 2021-22 PP/IP payroll subject to UAL contributions of \$30.4 billion
 - Does not include projected contributions on DROP payroll (estimated for 2020-21 to be \$0.362 billion in contributions on \$2.36 billion of applicable payroll)

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Special Risk – Amortization at 7.00%

Special Risk Membership Class	Blended PP/IP Employer Rate		Estimated PP/IP Contribution
	NC	UAL	
Final 2020-21 at 7.20% assumption	15.13%	7.60%	\$1.16 B
Preliminary 2021-22 at 7.00%:			
- 30 yr level % amortization on new bases	15.69%	8.92%	\$1.30 B
- 25 yr level % amortization on new bases	15.69%	9.07%	\$1.31 B
- 25 yr level % amortization on all bases	15.69%	9.19%	\$1.31 B
- 20 yr level % amortization on new bases	15.69%	9.31%	\$1.32 B
- 20 yr level % amortization on all bases	15.69%	9.89%	\$1.35 B

- Based on projected 2021-22 PP/IP payroll subject to UAL contributions of \$5.30 billion
 - Does not include projected contributions on DROP payroll (estimated for 2020-21 to be \$0.362 billion in contributions on \$2.36 billion of applicable payroll)

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Regular – Amortization at 6.95%

Regular Membership Class	Blended PP/IP Employer Rate		Estimated PP/IP Contribution
	NC	UAL	
Final 2020-21 at 7.20% assumption	4.84%	3.44%	\$2.26 B
Preliminary 2021-22 at 6.95%:			
- 30 yr level % amortization on new bases	5.17%	4.31%	\$2.69 B
- 25 yr level % amortization on new bases	5.17%	4.42%	\$2.73 B
- 25 yr level % amortization on all bases	5.17%	4.51%	\$2.75 B
- 20 yr level % amortization on new bases	5.17%	4.58%	\$2.78 B
- 20 yr level % amortization on all bases	5.17%	4.95%	\$2.89 B

- Based on projected 2021-22 PP/IP payroll subject to UAL contributions of \$30.4 billion
 - Does not include projected contributions on DROP payroll (estimated for 2020-21 to be \$0.362 billion in contributions on \$2.36 billion of applicable payroll)

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Special Risk – Amortization at 6.95%

Special Risk Membership Class	Blended PP/IP Employer Rate		Estimated PP/IP Contribution
	NC	UAL	
Final 2020-21 at 7.20% assumption	15.13%	7.60%	\$1.16 B
Preliminary 2021-22 at 6.95%:			
- 30 yr level % amortization on new bases	15.92%	9.14%	\$1.32 B
- 25 yr level % amortization on new bases	15.92%	9.33%	\$1.33 B
- 25 yr level % amortization on all bases	15.92%	9.45%	\$1.34 B
- 20 yr level % amortization on new bases	15.92%	9.62%	\$1.35 B
- 20 yr level % amortization on all bases	15.92%	10.2%	\$1.38 B

- Based on projected 2021-22 PP/IP payroll subject to UAL contributions of \$5.30 billion
 - Does not include projected contributions on DROP payroll (estimated for 2020-21 to be \$0.362 billion in contributions on \$2.36 billion of applicable payroll)

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Setting the Investment Return Assumption

Actual future investment returns are not knowable in advance, so how should the assumption be set?

- Prudently select a best estimate
- Review return models from credentialed investment professionals
- Remain cognizant that hoping for a result does not make it happen; the assumption selected does not affect actual investment returns
- Avoid myopia – the objective is to make a prudent long-term estimate, not to get a single individual year right
- Neither ignore historical results nor be beholden to them
- Since actual results will vary from assumption, review a return model's probability range and consider a margin for variance

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Contribution Rate Calculations

- Pension Plan-specific contribution rates have two components:
 - Normal cost rate
 - Cost assigned to current year benefits by the allocation method
 - UAL rate
 - Rate calculated to eliminate UAL in a systematic manner over a specified time period if future experience follows assumptions
- To calculate the UAL rate, an additional assumption and an additional method are needed
 - For amortizations as a level percentage of projected payroll, the system's **general wage increase** assumption affects the rate
 - In addition, the length of the **amortization period** affects the rate

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Asset Measurement Method

- Contribution rates established annually based on the reported unfunded actuarial liability (UAL)
 - UAL compares Actuarial Liability against a system asset measure
- The Actuarial Value of Assets (AVA) measure used by FRS to calculate UAL is specified by statute, and employs an “asset smoothing” technique
 - The mandated method annually recognizes 20% of investment return deviations from assumption
- The statutory calculation approach includes a “corridor” to ensure smoothed assets vary no more than 20% from fair market value

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Asset Smoothing

- The objective of asset smoothing is to keep long-term contribution levels appropriately linked to actual investment performance, and to have year-to-year contribution rate changes be less volatile and more predictable
- Five-year smoothing method recognizes heavy losses gradually following times of unfavorable asset performance
- The smoothing is symmetrical, so that any large investment gains are also not “felt” all at once, but instead serve as a cushion against potential future unfavorable asset performance

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Disclaimer

At your request, we have provided these draft results prior to completion of the July 1, 2020 Actuarial Valuation Report. Because these are draft results, Milliman does not make any representation or warranty regarding the contents of the presentation. Milliman advises any reader not to take any action in reliance on anything contained in this presentation. All results from this presentation are subject to revision or correction prior to the release of the final July 1, 2020 Actuarial Valuation Report, and such changes or corrections may be material.

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Certification

This presentation summarizes key preliminary results of an actuarial valuation of the Florida Retirement System (“FRS” or “the System”) as of July 1, 2020. The valuation, when finalized, will develop actuarially calculated contribution rates for the Plan Year ending June 30, 2022. The results in this presentation are preliminary in nature and may not be relied upon to, for example, prepare the System’s Consolidated Annual Financial Report (CAFR). The reliance document will be the formal July 1, 2020 Actuarial Valuation Report.

In preparing this presentation, we relied, without audit, on information (some oral and some in writing) supplied by Division of Retirement (“Division”) staff. This information includes, but is not limited to, statutory provisions, employee data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

Preliminary results have been determined on the basis of actuarial assumptions and methods as most recently adopted by the 2019 FRS Actuarial Assumption Conference. At the time of their review and adoption, those assumptions, with the exception of the investment return assumption as disclosed in the July 1, 2019 Actuarial Valuation Report, were individually reasonable (taking into account the experience of the System and reasonable expectations); and offered a reasonable estimate of anticipated future experience affecting the System.

Future actuarial measurements may differ significantly from the current measurements presented in this presentation due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the plan's funded status); and changes in plan provisions or applicable law. Due to the limited scope of our assignment, we did not perform an analysis of the potential range of future measurements. The FRS Actuarial Assumption Conference has the final decision regarding the selection of assumptions for System funding calculations.

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Certification

Computations presented in this presentation are for purposes of preliminarily estimating the actuarially calculated contribution rates for funding the System. Computations prepared for other purposes may differ. The calculations in the presentation have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this presentation have been made on a basis consistent with our understanding of the plan provisions described in the appendix of our formal actuarial valuation report as of July 1, 2019. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this presentation. Accordingly, additional determinations may be needed for other purposes.

Milliman's work is prepared solely for the internal business use of the Florida Department of Management Services ("DMS"). To the extent that Milliman's work is not subject to disclosure under applicable public records laws, Milliman's work may not be provided to third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of its work product. Milliman's consent to release its work product to any third party may be conditioned on the third party signing a Release, subject to the following exception(s):

(a) The System may provide a copy of Milliman's work, in its entirety, to the System's professional service advisors who are subject to a duty of confidentiality and who agree to not use Milliman's work for any purpose other than to benefit the System.

(b) The System may provide a copy of Milliman's work, in its entirety, to other governmental entities, as required by law.

No third party recipient of Milliman's work product should rely upon Milliman's work product. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are pension actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel. The presenting actuaries are independent of the plan sponsors. I am not aware of any relationship that would impair the objectivity of Milliman's work.

On the basis of the foregoing, I hereby certify that, to the best of my knowledge and belief, this presentation has been prepared in accordance with generally recognized and accepted actuarial principles and practices. I am a member of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

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Actuarial Basis

Data

We have based our calculations on demographic member census data as of July 1, 2020 as supplied by the Division of Retirement (“Division”). That data will be summarized in our formal actuarial valuation report for funding purposes as of July 1, 2020, which will be published in the 4th quarter of this year. Assets as of June 30, 2020, were based on values provided by the Division.

Methods / Policies

Actuarial Cost Method: Individual Entry Age Normal, using the interpretation of that method as most recently endorsed by the 2019 FRS Actuarial Assumption Conference.

UAL Amortization: Newly arising UAL each plan year is amortized as a level percentage of projected payroll over a closed 30-year period, except where explicitly modeled as a policy alternative in the body of the presentation.

Actuarial Value of Assets: A smoothed asset value specified by Florida Statutes that annually recognizes 20% of deviations in investment performance from the long-term assumption systematically over time. The statutory calculation approach includes a “corridor” to ensure smoothed assets vary no more than 20% from fair market value.

Assumptions

Assumptions for preliminary 2020 valuation calculations use assumptions as detailed July 1, 2019 Actuarial Valuation Report for funding purposes.

Provisions

Provisions valued are as summarized in the July 1, 2019 Actuarial Valuation Report for system funding purposes as subsequently modified by Senate Bill 426, which was enacted into law during the 2020 legislative session.

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State Board of Administration

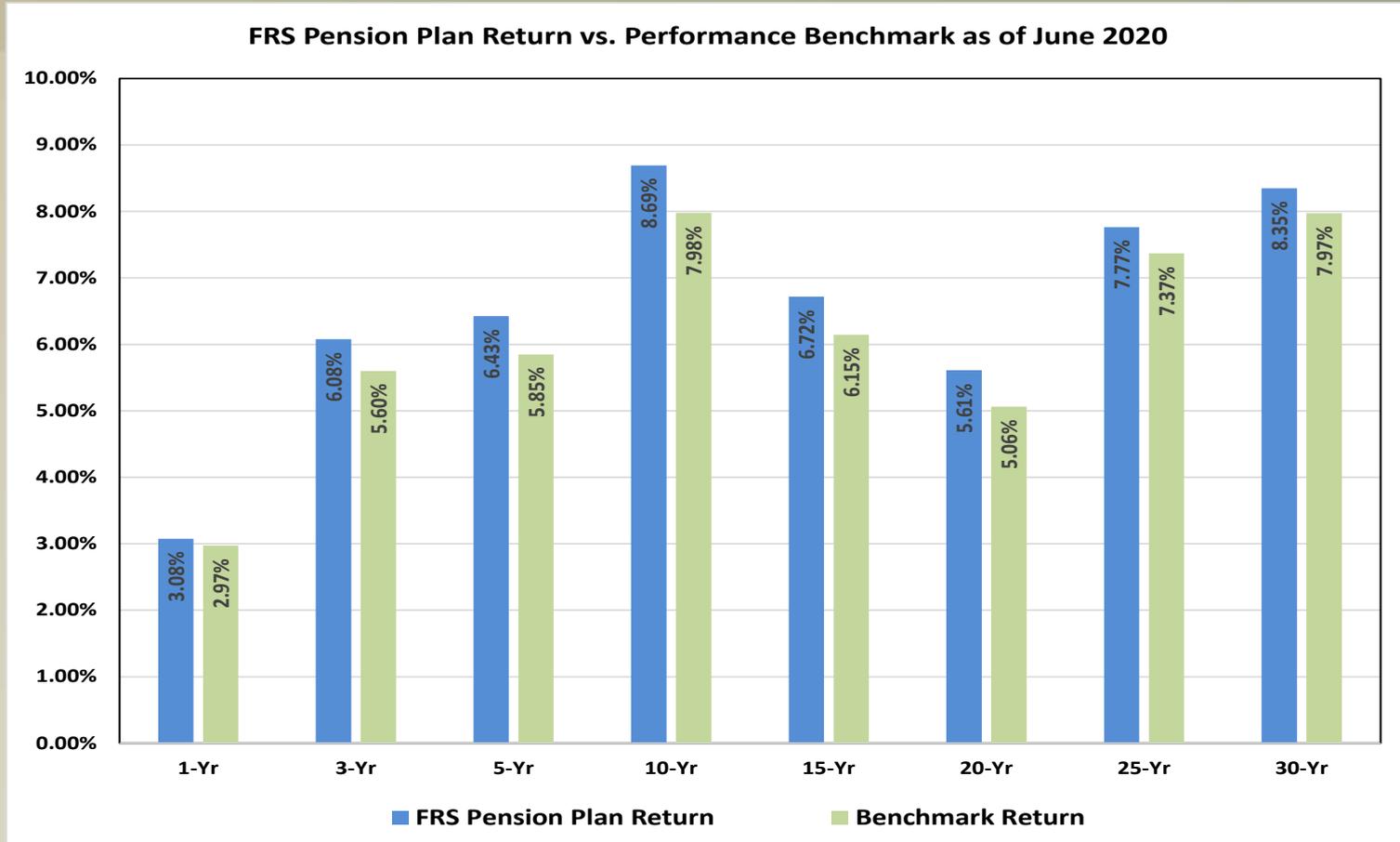
FRS Pension Plan Performance Review

Actuarial Assumptions Estimating Conference

October 8, 2020

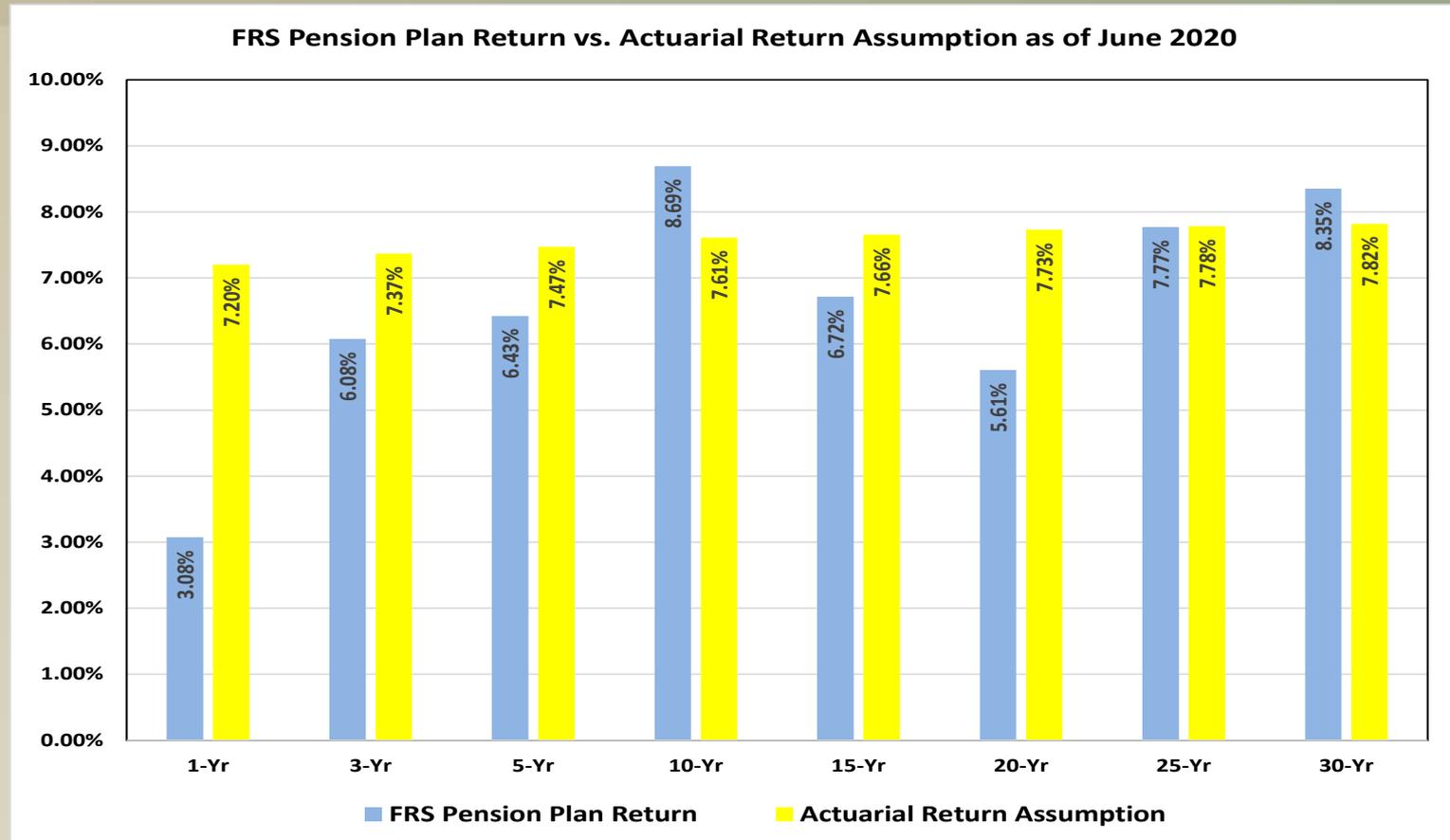


FRS Pension Plan Return vs. Performance Benchmark



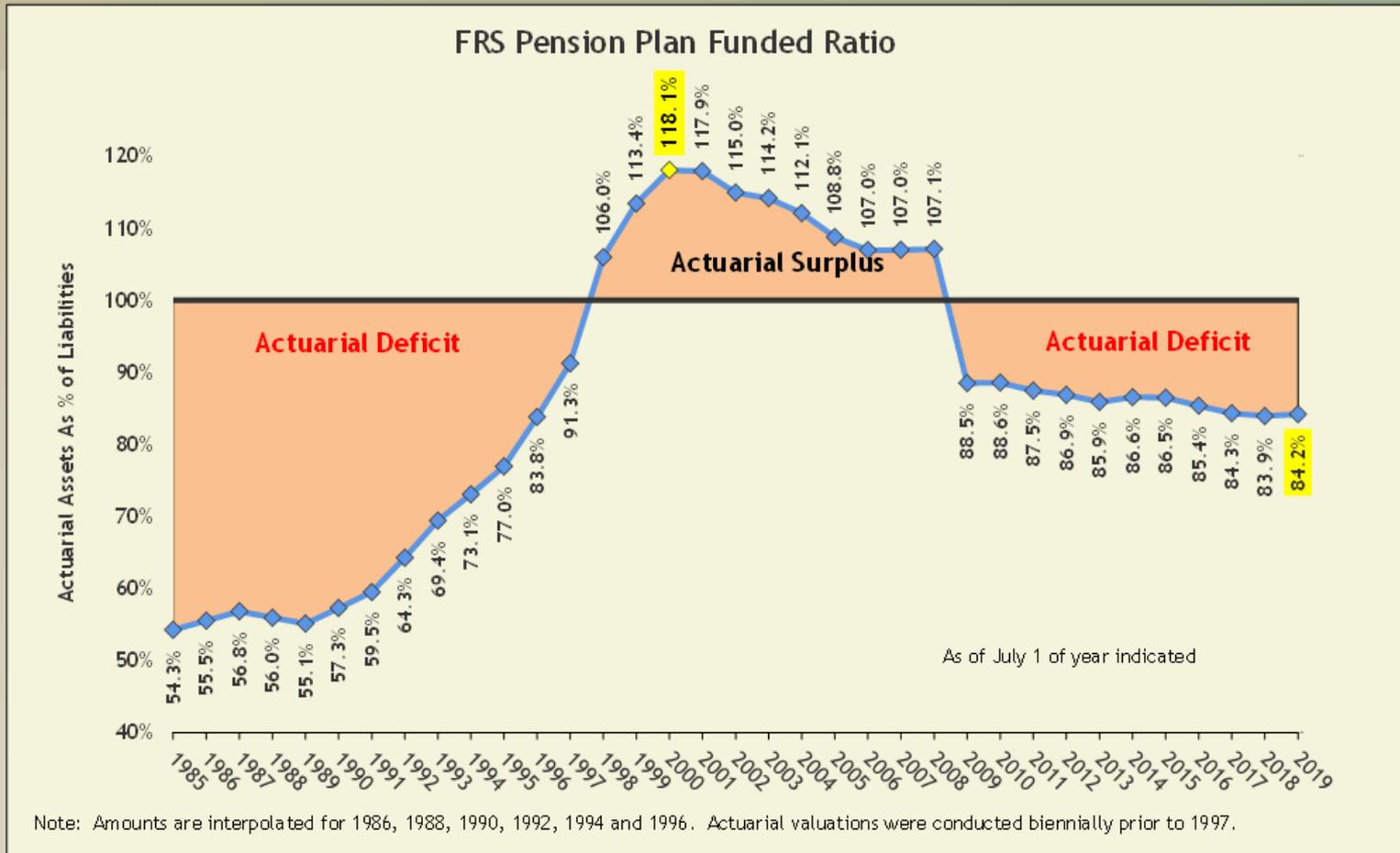
- The FRS Pension Plan has outperformed its performance benchmark over all time periods
- Current equity markets are now near all-time highs despite the global pandemic and continuation of higher returns in this space appears increasingly unlikely.

FRS Pension Plan Return vs. Actuarial Return Assumption



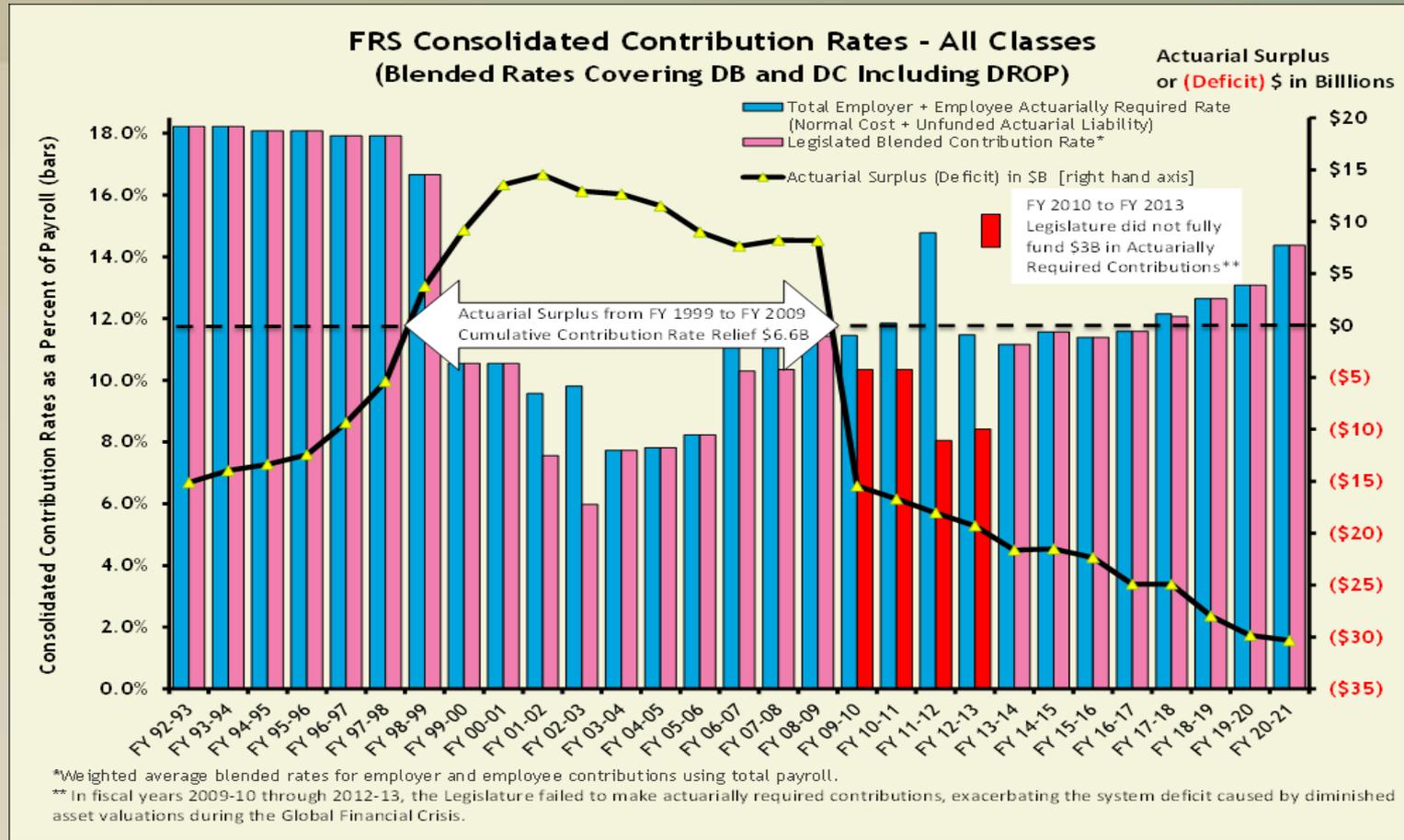
- Relative to historical actuarial return assumptions, the Pension Plan's performance is mixed.
- SBA is projecting a long-term return assumption of 6.46%

FRS Pension Plan's Funded Status



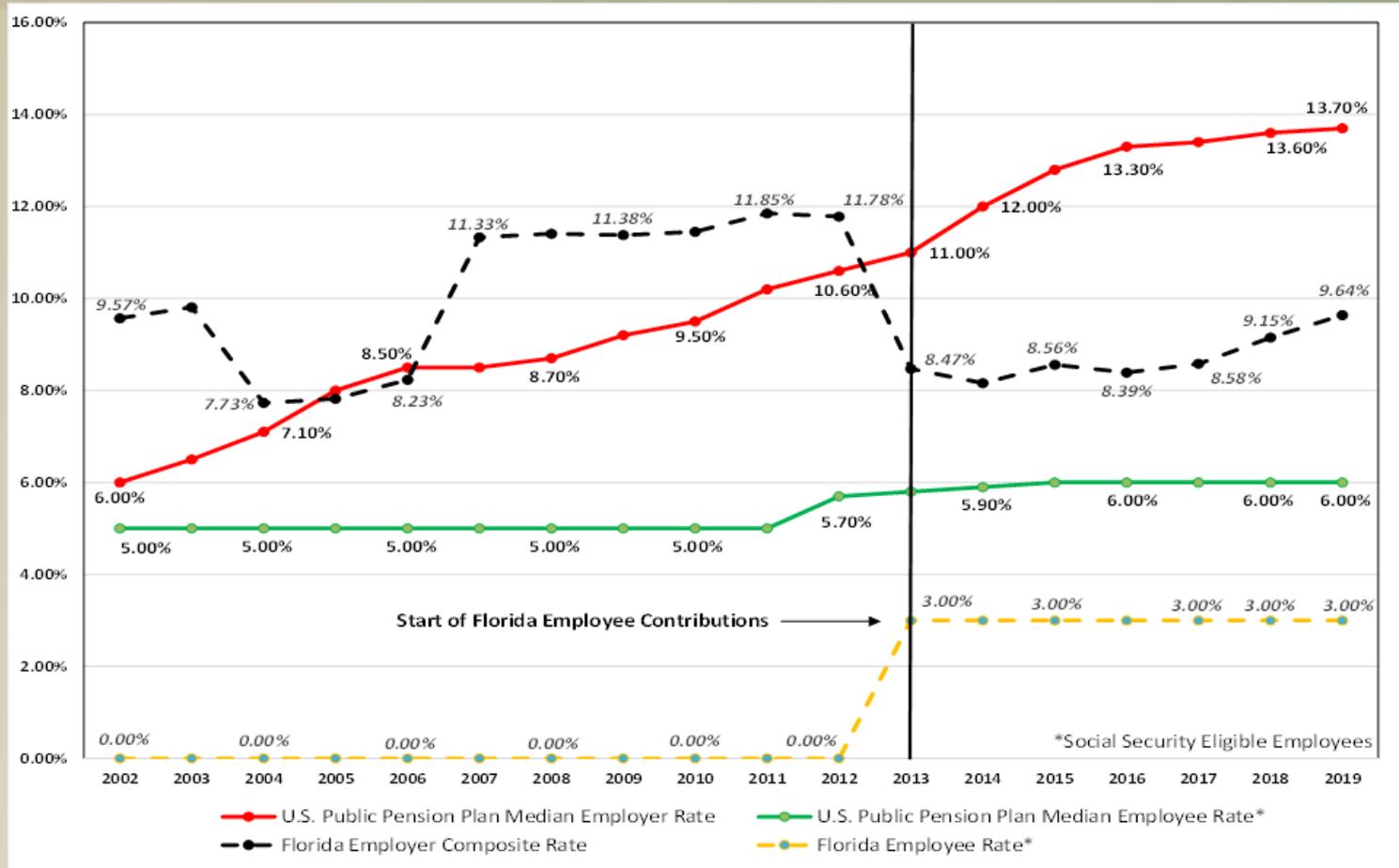
- The “Global Financial Crisis” that began in 2007 led to marked to market asset value declines, creating an unfunded liability.
- The FRS Pension Plan’s funded status continues to be in deficit.

Contributions and Funded Status



- 11-years of actuarial surpluses from 1998 thru 2008 and employers saving a cumulative \$6.6B through reduced contributions.
- \$3B in actuarially required contribution rates were not funded due to budgetary constraints from 2010 to 2013. Missed an opportunity to gain an estimated \$6.0B in asset value as of June 30, 2020.

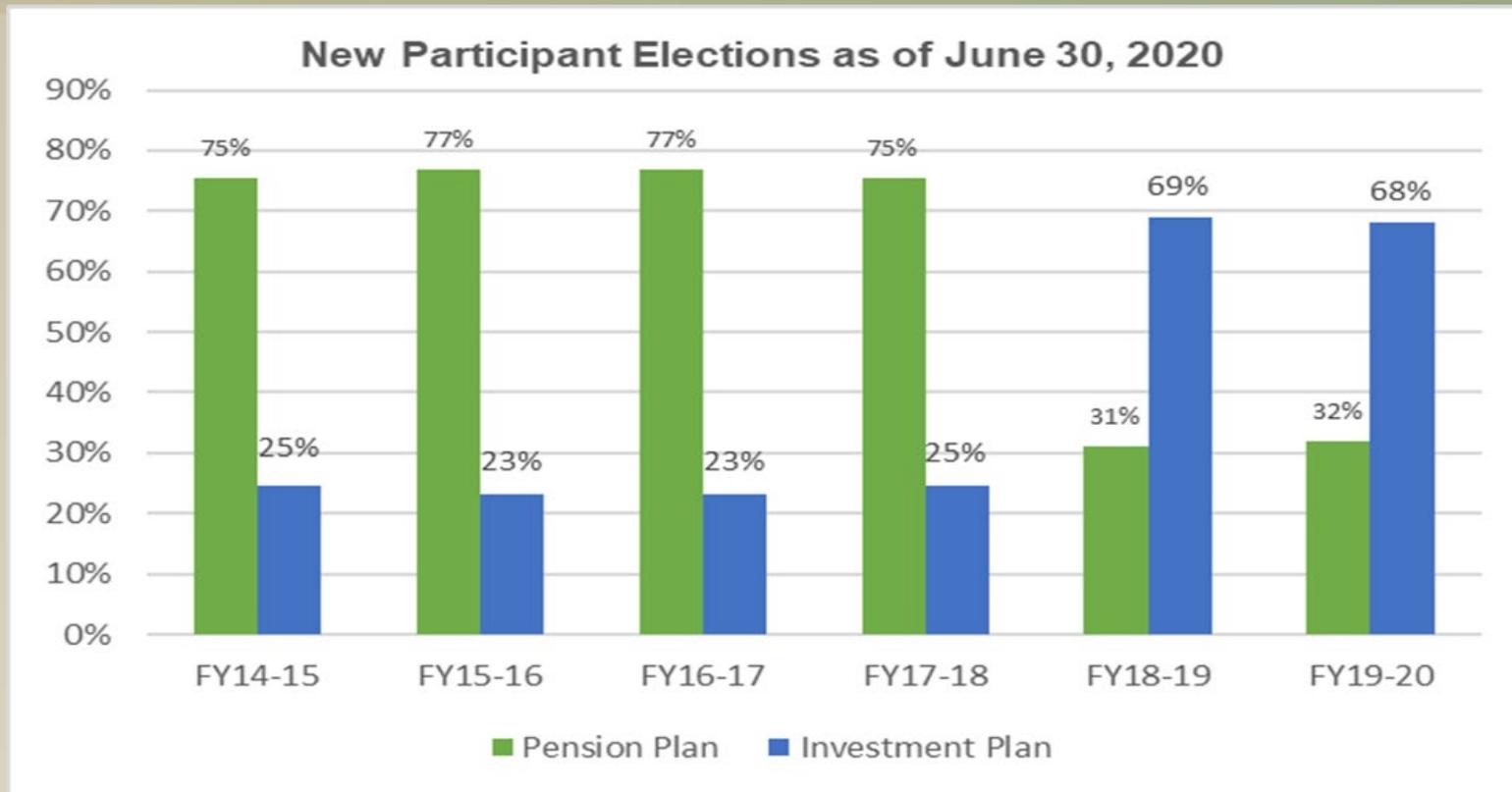
Florida's Contribution Rates Continue to Be Significantly Lower Than Other States



Source: NASRA (National Association of State Retirement Administrators)

When employees started contributing 3%, employers' composite contribution rate was lowered by more than 3%

Since the Default Change Went into Effect, A Dramatic Shift in New Participant Elections



- The 2018 change in the default plan for new hires (other than Special Risk employees) may drive investment asset allocation toward more liquid, less volatile investments, resulting in lower return expectations
- Significantly lower number of new hires going into the Pension Plan will accelerate the FRS Pension Plan's maturity and net cash outflows



1455 SW Broadway Street, Suite 1600
Portland, OR 97201
Tel 503 227 0634

1301 Fifth Avenue, Suite 3800
Seattle, WA 98101
Tel 206 624 7940

milliman.com

December 1, 2020

Mr. David DiSalvo
State Retirement Director
Florida Department of Management Services, Division of Retirement

Re: **Blended Proposed Statutory Rates for the 2021-2022 Plan Year
Reflecting a Uniform UAL Rate for All Membership Classes and DROP**

Dear Director DiSalvo:

As requested, we have calculated the uniform or “blended” proposed statutory employer rates for the 2021-2022 plan year based on the statutory contributions for the FRS Investment Plan and the actuarially calculated 2021-2022 rates for the defined benefit FRS Pension Plan, as specified in the FRS 2020 Actuarial Valuation Report. The blended rates reflect a uniform Unfunded Actuarial Liability (UAL) Contribution Rate for all payroll bases on which the Blended UAL Contribution Rate is assessed.

Analysis

We determined the uniform blended 2021-2022 employer rate for each membership class and subclass of the Florida Retirement System by projecting contributions for both the FRS Pension Plan and the FRS Investment Plan. We did this by dividing the projected combined amount that would be contributed for both the FRS Pension Plan and the FRS Investment Plan by the total projected combined payroll for both plans. The uniform blended rate calculation assumes plan year 2021-2022 contributions for the FRS Pension Plan will be made at the actuarially calculated rate levels. The actuarially calculated rate levels are based on the July 1, 2020 actuarial valuation of the FRS Pension Plan, as presented in Table 4-11 of the FRS 2020 Actuarial Valuation Report. The FRS Investment Plan rates are the sum of the rates in Sections 121.72, 121.73, and 121.735 of Florida Statutes and assume those rates continue in effect during plan year 2021-2022. The employer contribution rates shown in the attached table are net of the 3% of payroll employee contribution rate.

The payroll for some employee groups is subject to only the UAL Cost component of the FRS Pension Plan’s contribution rate (e.g. participants in SUSORP, SMSOAP, and SCCORP, and reemployed retirees not eligible for renewed membership in a state-sponsored retirement program). The payroll for those employee groups is included in the calculation of the Blended UAL Contribution Rate, but is excluded from the calculation of the Blended Normal Cost Contribution Rate.

Based on the data provided to us for this study, as of July 1, 2020 FRS Investment Plan payroll comprised between 21% and 22% of total payroll. On a headcount basis, FRS Investment Plan members constitute between 25% and 26% of active FRS membership. Please note, Senate Bill 7022 enacted by the 2017 Florida legislature changed the default plan for initial enrollments on and after January 1, 2018

from the FRS Pension Plan to the FRS Investment Plan for all membership classes other than Special Risk. As a result of the enactment, new entrants who would have defaulted into the FRS Pension Plan under prior statute will now default into the FRS Investment Plan in the absence of an active election. The actual levels of participation in the FRS Pension Plan and the FRS Investment Plan as of July 1, 2020 reflect that Investment Plan payroll comprises an increased percentage of total payroll than it did one year ago.

Results

Table I shows the results of our study based on actual levels of participation in the FRS Pension Plan and the FRS Investment Plan as of July 1, 2020, projected to plan year 2021-2022 using the long-term payroll growth assumption of 3.25%.

Section A of the table includes the Normal Cost Rates developed in the July 1, 2020 funding actuarial valuation of the FRS Pension Plan. Section A does not include the UAL Cost. UAL Cost Rates are applied to a larger total payroll than the Normal Cost Rates and are developed in a later section. Section A, line 3 shows the total employer Normal Cost of the FRS Pension Plan as the product of Normal Cost Rates and projected Normal Cost payroll.

Similarly, Section B calculates the total employer cost of the FRS Investment Plan as the product of applicable employer contribution rates in effect since July 1, 2019 and the projected FRS Investment Plan payroll. FRS Investment Plan payroll is projected as described above.

Section C of the table shows the sum of the FRS Pension Plan employer Normal Cost and FRS Investment Plan employer cost as dollars and as a percentage of total projected combined payroll (FRS Pension Plan projected Normal Cost payroll plus FRS Investment Plan projected payroll).

Section D of the table shows the UAL Cost as of July 1, 2020 of the FRS Pension Plan, as shown in Table 4-11 of the FRS 2020 Actuarial Valuation Report.

Section E shows the projected payroll of the FRS Investment Plan. There is no UAL Cost attributable to the FRS Investment Plan.

Section F calculates the “Blended” UAL Cost as dollars and as a percentage of total payroll (FRS Pension Plan projected UAL payroll plus FRS Investment Plan projected payroll).

Section G shows the Total “Blended” Contribution Rates as the sum of the “Blended” Normal Cost Contribution Rates from Line (C3) and the “Blended” UAL Contribution Rates from Line (F3). The employers of employee groups subject to only the UAL Contribution Rate would contribute the “Blended” UAL Contribution Rates shown in Line (G2) of the table on applicable payroll. The Total “Blended” Contribution Rates shown in Line (G3) of the table will be applied to all other payroll subject to employer contributions.

The contribution rates shown in Table I exclude the 0.06% contribution rate for FRS Investment Plan administration and education (applied to all classes except DROP) and the 1.66% contribution rate for the Florida Retiree Health Insurance Subsidy (HIS) program, which apply across the board to the FRS Pension Plan and the FRS Investment Plan.

The calculations are based on census and payroll data provided to us by the Florida Department of Management Services, Division of Retirement for the July 1, 2020 actuarial valuation. We have not audited or verified this data and other information. If the underlying data or information is inaccurate or incomplete, the results of our analysis may likewise be inaccurate or incomplete. These calculations are based on the Individual Entry Age actuarial cost allocation method, as described in the FRS 2020 Actuarial Valuation Report for use in developing 2021-2022 actuarially calculated contribution rates for the FRS Pension Plan.

Certification

We performed a limited review of the data used directly in our analysis for reasonableness and consistency and have not found material defects in the data. If there are material defects in the data, it is possible that they would be uncovered by a detailed, systematic review and comparison of the data to search for data values that are questionable or for relationships that are materially inconsistent. Such a review was beyond the scope of our assignment.

Except where otherwise noted in this letter, this analysis is based on the FRS Pension Plan provisions, actuarial methods and actuarial assumptions as summarized in the FRS 2020 Actuarial Valuation Report as published on December 1, 2020. Further, the data used in these calculations were based on FRS Pension Plan data as summarized in the FRS 2020 Actuarial Valuation Report and FRS Investment Plan census data as of July 1, 2020 as provided to us by the Florida Department of Management Services, Division of Retirement. The results of our study depend on future experience conforming to those actuarial assumptions discussed earlier in this letter. Future actuarial measurements may differ significantly from the current measurements presented in this analysis due to many factors, including: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period) and changes in plan provisions or applicable law. Due to the limited scope of our assignment, we did not perform an analysis of the potential range of future measurements.

Milliman's work product was prepared exclusively for the internal business use of Florida Department of Management Services, Division of Retirement. It is a complex technical analysis that assumes a high level of knowledge concerning the Florida Retirement System's operations, and uses Division data, which Milliman has not audited. To the extent that Milliman's work is not subject to disclosure under applicable public record laws, Milliman's work may not be provided to third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of its work product. Milliman's consent to release its work product to any third party may be conditioned on the third party signing a Release, subject to the following exceptions:

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of confidentiality and who agree to not use Milliman's work for any purpose other than to benefit the System.

- (b) The Florida Department of Management Services, Division of Retirement may provide a copy of Milliman's work, in its entirety, to other governmental entities, as required by law.

No third party recipient of Milliman's work product should rely upon Milliman's work product. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are retirement actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the plan sponsor. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices which are consistent with the principles prescribed by the Actuarial Standards Board and the *Code of Professional Conduct and Qualification Standards for Actuaries Issuing Statements of Actuarial Opinion in the United States* published by the American Academy of Actuaries.

We are consulting actuaries for Milliman, Inc. We are also members of the American Academy of Actuaries and meet their Qualification Standards to render the actuarial opinion contained herein. Please call if you would like to further discuss this project.

Respectfully submitted,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Daniel Wade, FSA, EA, MAAA
Principal and Consulting Actuary

Kathryn Hunter, FSA, EA, MAAA
Consulting Actuary

Enclosures

FLORIDA RETIREMENT SYSTEM
FISCAL IMPACT ANALYSIS

Blended Proposed Statutory Normal Cost Plus UAL Rates for 2021-2022 Plan Year
Please see the attached letter for details regarding data, assumptions, methodology, and plan provisions used
(Dollars in Thousands)

Blended Proposed Statutory Normal Cost Contribution Rates	Regular	Special Risk	Special Risk Administrative	-----Elected Officers' Class----			Senior Management	Composite (excluding DROP)	DROP	Composite (including DROP)
				Judicial	Leg-Atty-Cab	Local				
A. Defined Benefit FRS Pension Plan Normal Cost										
1. Employer Cost										
a. Normal Cost Rate ¹	5.34%	15.57%	11.31%	13.82%	9.19%	10.97%	7.09%	7.23%	7.23%	7.23%
b. Rate Reduction Techniques	<u>0.00%</u>	<u>0.00%</u>	<u>0.00%</u>	<u>0.00%</u>	<u>0.00%</u>	<u>0.00%</u>	<u>0.00%</u>	<u>0.00%</u>	<u>0.00%</u>	<u>0.00%</u>
c. Total Adjusted Contribution Rate ² -PYE 2022	5.34%	15.57%	11.31%	13.82%	9.19%	10.97%	7.09%	7.23%	7.23%	7.23%
2. Projected Payroll	\$20,140,287	\$4,478,301	\$3,743	\$110,266	\$5,697	\$42,635	\$556,372	\$25,337,301	\$2,441,285	\$27,778,586
3. Total Employer Normal Cost [(1c) x (2)] -PYE 2022	\$1,075,491	\$697,271	\$423	\$15,239	\$524	\$4,677	\$39,447	\$1,833,072	\$176,505	\$2,009,577
B. Defined Contribution FRS Investment Plan (IP) Employer Cost										
1. Employer Rates effective July 1, 2019 (Sec 121.72, Sec 121.73 and Sec 121.735)	3.60%	13.54%	5.43%	11.05%	6.94%	8.95%	4.98%	4.70%	0.00%	4.70%
2. Projected Payroll	\$6,543,939	\$783,132	\$1,365	\$20,932	\$2,616	\$22,066	\$223,533	\$7,597,583	\$0	\$7,597,583
3. Total Employer Cost [(1) x (2)] -PYE 2022	\$235,582	\$106,036	\$74	\$2,313	\$182	\$1,975	\$11,132	\$357,294	\$0	\$357,294
C. Total System Normal Cost (FRS Pension Plan + FRS Investment Plan)										
1. Total Normal Cost Contribution [(A3) + (B3)]	\$1,311,073	\$803,307	\$497	\$17,552	\$706	\$6,652	\$50,579	\$2,190,366	\$176,505	\$2,366,871
2. Total System Projected Payroll [(A2) + (B2)]	\$26,684,226	\$5,261,433	\$5,108	\$131,198	\$8,313	\$64,701	\$779,905	\$32,934,884	\$2,441,285	\$35,376,169
3. "Blended" Normal Cost Contribution Rate As a Percentage of Total Payroll [(C1) / (C2)] ²	4.91%	15.27%	9.73%	13.38%	8.49%	10.28%	6.49%	6.65%	7.23%	6.69%

¹ As reported in the July 1, 2020 actuarial valuation report - Table 4-11.

² Rates shown do not include the Health Insurance Subsidy contribution rate or FRS Investment Plan education and administration assessment.

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FLORIDA RETIREMENT SYSTEM
FISCAL IMPACT ANALYSIS

Blended Proposed Statutory Normal Cost Plus UAL Rates for 2021-2022 Plan Year
Please see the attached letter for details regarding data, assumptions, methodology, and plan provisions used
(Dollars in Thousands)

	Regular	Special Risk	Special Risk Administrative	-----Elected Officers' Class----			Senior Management	Composite (excluding DROP)	DROP	Composite (including DROP)
				Judicial	Leg-Atty-Cab	Local				
Blended Proposed Statutory UAL Contribution Rates										
D. Defined Benefit FRS Pension Plan UAL Contribution										
1. Employer UAL Contribution Rate ^{1 & 2}	5.34%	10.45%	35.91%	30.68%	75.47%	57.81%	28.92%	6.80%	9.45%	7.00%
2. Projected Payroll	\$23,882,565	\$4,506,267	\$3,743	\$111,077	\$6,382	\$47,294	\$572,644	\$29,129,972	\$2,441,285	\$31,571,257
3. Total Employer UAL Contribution [(1) x (2)] -PYE 2022	\$1,275,329	\$470,905	\$1,344	\$34,078	\$4,816	\$27,341	\$165,609	\$1,979,422	\$230,701	\$2,210,123
E. Defined Contribution FRS Investment Plan Projected Payroll										
	\$6,543,939	\$783,132	\$1,365	\$20,932	\$2,616	\$22,066	\$223,533	\$7,597,583	\$0	\$7,597,583
F. Total System UAL Contribution (FRS Pension Plan + FRS Investment Plan)										
1. Total UAL Contribution [(D3)]	\$1,275,329	\$470,905	\$1,344	\$34,078	\$4,816	\$27,341	\$165,609	\$1,979,422	\$230,701	\$2,210,123
2. Total System Projected Payroll [(D2) + (E)]	\$30,426,504	\$5,289,399	\$5,108	\$132,009	\$8,998	\$69,360	\$796,177	\$36,727,555	\$2,441,285	\$39,168,840
3. "Blended" UAL Contribution Rate As a Percentage of Total Payroll [(F1) / (F2)] ²	4.19%	8.90%	26.31%	25.81%	53.52%	39.42%	20.80%	5.39%	9.45%	5.64%
Blended Proposed Statutory Uniform Contribution Rates ³										
G: Total Employer Contribution Rate (FRS Pension Plan + FRS Investment Plan)										
1. "Blended" Normal Cost Contribution Rate [(C3)]	4.91%	15.27%	9.73%	13.38%	8.49%	10.28%	6.49%	6.65%	7.23%	6.69%
2. "Blended" UAL Contribution Rates [(F3)]	<u>4.19%</u>	<u>8.90%</u>	<u>26.31%</u>	<u>25.81%</u>	<u>53.52%</u>	<u>39.42%</u>	<u>20.80%</u>	<u>5.39%</u>	<u>9.45%</u>	<u>5.64%</u>
3. Total Blended Contribution Rate ² -PYE 2022 [(G1) + (G2)]	9.10%	24.17%	36.04%	39.19%	62.01%	49.70%	27.29%	12.04%	16.68%	12.33%

¹ As reported in the July 1, 2020 actuarial valuation report - Table 4-11.

² Rates shown do not include the Health Insurance Subsidy contribution rate or FRS Investment Plan education and administration assessment.

³ Employers of employee groups subject to only the UAL contribution rate will pay the rates shown in line (G2).

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Florida Retirement System Pension Plan

Actuarial Valuation as of July 1, 2020

Prepared by:

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Daniel Wade, FSA, EA, MAAA
Principal and Consulting Actuary

Kathryn Hunter, FSA, EA, MAAA
Consulting Actuary

1455 SW Broadway Street, Suite 1600
Portland OR 97201
Tel 503 227 0634

1301 Fifth Avenue, Suite 3800
Seattle, WA 98101
Tel 206 624 7940

milliman.com



1455 SW Broadway Street, Suite 1600
Portland, OR 97201
Tel 503 227 0634

1301 Fifth Avenue, Suite 3800
Seattle, WA 98101
Tel 206 624 7940

milliman.com

December 1, 2020

David DiSalvo
State Retirement Director
Florida Department of Management Services, Division of Retirement

Re: Actuarial Valuation as of July 1, 2020

Dear Director DiSalvo:

We have conducted an annual actuarial valuation of the Florida Retirement System (FRS) Pension Plan as of July 1, 2020, for assessing plan funded status and determining actuarially calculated contribution rates prior to blending with FRS Investment Plan contribution rates to create proposed blended statutory contribution rates for the July 2021 - June 2022 plan year. The major findings of the valuation are contained in the following report.

Section 1 contains an Executive Summary of the results of our valuation followed by four sections containing detailed information on Assets (Section 2), Liabilities (Section 3), Contributions (Section 4), and Accounting Statements (Section 5). In the Appendices, we provide information regarding actuarial methods and assumptions, a summary of plan provisions, membership statistics, cost projections, comparisons/reconciliation, risk disclosure and a glossary of terms.

All costs and liabilities shown in this report have been determined on the basis of actuarial assumptions and methods set forth in Appendix A. Preliminary 2020 valuation results were presented by the actuary to the 2020 FRS Actuarial Assumption Conference held on October 8, 2020. The assumptions are based on Milliman's most recent review of the System's experience, which was for the observation period from July 1, 2013 through June 30, 2018. Additional details on that review of System experience can be located in our October 8, October 23, and October 28, 2019 presentation materials to the 2019 FRS Actuarial Assumption Conference and our formal 2019 Experience Study report, which was issued on December 20, 2019. The assumptions used in this valuation are unchanged from those used in the prior valuation as of July 1, 2019 except for decreases to the assumptions for investment return, inflation and individual pay increases, as adopted by the 2020 FRS Actuarial Assumption Conference. The investment return assumption for purposes of developing actuarially calculated contribution rates decreased from 7.20% to 7.00%; the inflation assumption decreased from 2.60% to 2.40% and individual pay increase assumptions decreased by 20 basis points (0.20%). The 2020 FRS Actuarial Assumption Conference also adopted a 25-year amortization period for bases established on or after July 1, 2020. Bases established prior to July 1, 2020 remain on their existing amortization schedules.

In our professional opinion we believe the assumptions and methods used in this report for purposes of developing actuarially calculated contribution rates are reasonable. The accounting calculations for the FRS Pension Plan's financial reporting and its June 30, 2020 CAFR in compliance with the GASB Statement No. 67 use an investment return assumption that differs from that used in this report. The GASB financial reporting information, which is issued under separate cover, uses assumptions and methods which in our professional opinion are also reasonable. The results of this report are dependent upon future experience conforming to the

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assumptions disclosed in this report. Future actuarial measurements may differ significantly from the current measurements presented in this report due to many factors, including: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period); and changes in plan provisions or applicable law. Due to the limited scope of our assignment, we did not perform an analysis of the potential range of future measurements.

The valuation results were developed using models intended for valuations that use standard actuarial techniques.

Actuarial computations presented in this report are for purposes of assessing funded status and determining the actuarially calculated contribution rates for the FRS Pension Plan. The calculations in the enclosed report have been made on a basis consistent with our understanding of the FRS Pension Plan's funding requirements and goals. Determinations for purposes other than meeting those requirements referenced in this paragraph may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

In preparing our report we relied, without audit, on information (some oral and some written) supplied by the Florida Department of Management Services, Division of Retirement. This information includes, but is not limited to, statutory provisions, employee census, and financial information. In our examination of these data, we have found them to be reasonably consistent and comparable with data used for other purposes. Since the valuation results are dependent on the integrity of the data supplied, the results can be expected to differ if the underlying data is incomplete or missing. It should be noted that if any data or other information is inaccurate or incomplete, our calculations may need to be revised.

This actuarial valuation was prepared and completed by us and those under our direct supervision, and we acknowledge responsibility for the results. To the best of our knowledge, the results are complete and accurate. In our opinion, the techniques and assumptions used are reasonable. In our opinion this valuation meets the requirements and intent of Part VII, Chapter 112, Florida Statutes. There is no benefit provision or related expense to be provided by the plan and/or paid from the plan's assets for which liabilities or current costs have not been established or otherwise taken into account in the valuation. To the best of our knowledge, there were no known events that were not taken into account in the valuation.

Milliman's work product was prepared exclusively for the internal business use of Florida Department of Management Services, Division of Retirement, for a specific and limited purpose. It is a complex technical analysis that assumes a high level of knowledge concerning the Florida Retirement System's operations, and uses Division data, which Milliman has not audited. To the extent that Milliman's work is not subject to disclosure under applicable public record laws, Milliman's work may not be provided to third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of its work product. Milliman's consent to release its work product to any third party may be conditioned on the third party signing a Release, subject to the following exceptions:

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The consultants who worked on this assignment are retirement actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the plan sponsor. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices which are consistent with the principles prescribed by the Actuarial Standards Board and the *Code of Professional Conduct and Qualification Standards for Actuaries Issuing Statements of Actuarial Opinion in the United States* published by the American Academy of Actuaries.

We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Respectfully submitted,

A blue ink signature of Matt Larrabee, consisting of stylized cursive letters.

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

A blue ink signature of Daniel Wade, written in a cursive style.

Daniel Wade, FSA, EA, MAAA
Principal and Consulting Actuary

A blue ink signature of Kathryn M. Hunter, written in a cursive style.

Kathryn Hunter, FSA, EA, MAAA
Consulting Actuary

ML/DW/KH/nlo

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1. Executive Summary

This report presents the results of our July 1, 2020 actuarial valuation of the defined benefit Florida Retirement System (FRS) Pension Plan. This valuation is used to determine actuarially calculated Pension Plan-specific employer contribution rates for the July 1, 2021 – June 30, 2022 plan year. The Pension Plan-specific rates developed in this valuation report are then combined with contribution rates from the defined contribution FRS Investment Plan to create blended proposed statutory employer contribution rates. The actual contribution rates paid by employers during the 2021-2022 plan year will be determined by Florida Statutes. The statutory contribution rates in effect for the current 2020-2021 plan year are identical to the blended proposed statutory rates developed in conjunction with the July 1, 2019 actuarial valuation.

On the smoothed Actuarial Value of Assets (AVA) basis used to determine actuarially calculated contribution rates and the Unfunded Actuarial Liability (UAL), Pension Plan funded status decreased from 84.2% to 82.0%. On a Market Value of Assets (MVA) basis, Pension Plan funded status calculated on the assumptions and methods in this report for system funding purposes decreased from 85.5% to 80.7% due to actual plan year investment return of approximately +3.34%, which is below the assumed prior year return of 7.20%¹, along with a decrease in the investment return assumption for funding purposes.

As noted above, actuarially calculated employer contribution rates for the Pension Plan are combined with FRS Investment Plan contribution rates to create proposed blended statutory employer contribution rates. At a system-wide composite level, the blended employer contribution rate increased by 0.96% of payroll from 11.37% of payroll in the 2020-2021 plan year to 12.33% in the 2021-2022 plan year. Please note that the blended rate study is issued under separate cover shortly after the publication of this valuation report. Approximately 77% of the 0.96% of payroll increase was related to the assumption and amortization changes adopted effective July 1, 2020. The remaining 23% of the increase related to actual plan experience during the year.

Due to cumulative market value investment performance lower than the funding valuation's investment return assumption over the past five years, the MVA is lower than the smoothed AVA used for funded status and contribution rate calculations by approximately \$2.7 billion as of July 1, 2020. That \$2.7 billion not yet recognized market investment loss will be systematically recognized as a sequence of actuarial investment losses in the UAL via recognition in the AVA over the next several years. If actual market value investment experience during that period fails to meet or exceed the 7.00% assumption used in this valuation, new investment losses will arise. Absent market returns above assumption, those prior market investment losses not yet recognized in the AVA as of July 1, 2020 will lead to future increases in actuarially calculated employer contribution rates, which are based on the smoothed AVA measure.

For this valuation, a long-term average annual future investment return assumption of 7.00% was selected by the 2020 FRS Actuarial Assumption Conference. That assumption is 0.20% lower than the assumption used in the previous valuation. In our professional opinion, the 7.00% assumption does **not** significantly conflict with our judgment regarding what would constitute a reasonable assumption for the purpose of the measurement Actuarial Standard of Practice No. 27 (ASOP 27). Our basis for that opinion is that both the 4.27% 50th percentile geometric average annual long-term future real return assumption developed by the Florida State Board of Administration's

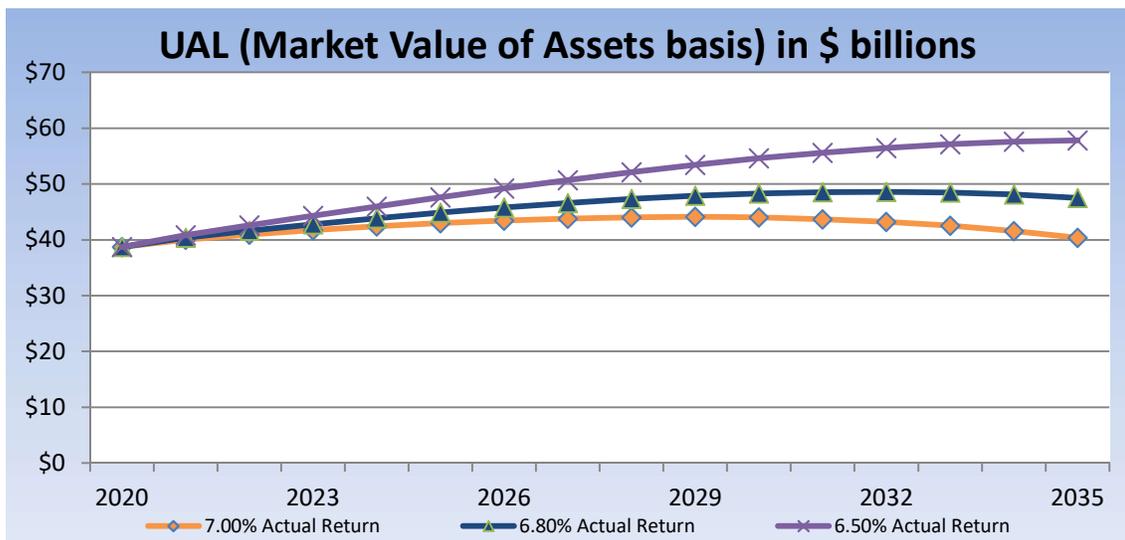
¹ The required financial reporting information under GASB 67 also uses Market Value of Assets but has an investment return assumption different from those used in this valuation for funding purposes. GASB 67 information was issued under separate cover and indicated a funded ratio of 78.85% as of June 30, 2020 using a 6.80% investment return assumption.

outside investment consultant (Aon) and the 2.40% average annual future inflation assumption selected by the Conference are individually reasonable. Combined, those two individually reasonable assumption components would produce a geometric average annual nominal return assumption of 6.77%, which in our opinion is clearly reasonable. The Conference's selected 7.00% investment return assumption does not significantly conflict with the clearly reasonable 6.77% assumption level. More details on the return assumption are shown in our 2020 FRS Actuarial Assumption Conference presentation materials.

All else being equal, the lower the selected investment return assumption, the higher the likelihood the FRS Pension Plan will meet or exceed its assumed investment return in future years. A lower assumption would result in higher short-term actuarially calculated contribution rates for employers but would also serve to lessen the magnitude of actuarially calculated contribution rate increases in the event that actual future investment performance fails to meet the assumption.

Actual future investment return experience for the FRS Pension Plan is not affected by the assumption used in the actuarial valuation. Applying the 7.00% assumption used in this valuation, the following graph illustrates the UAL (Unfunded Actuarial Liability) on a Market Value of Assets basis under three scenarios for steady actual future investment returns:

- 7.00%, which is the assumption selected for this valuation by the 2020 FRS Actuarial Assumption Conference
- 6.80%, which is the assumption used for GASB 67 calculations as of a June 30, 2020 Measurement Date
- 6.50%, which is effectively equal to the 50th percentile assumption of 6.46% in the asset/liability model developed for the SBA by Aon in consultation with the 2020 FRS Actuarial Assumption Conference (the Aon model's 6.46% return consists of the geometric combination 4.27% median real return and 2.1% inflation)



As illustrated in the graph, if actual future investment returns match the 7.00% assumption the UAL would be approximately the same as the current level by the end of the illustrated 15-year period. Currently, there are market investment losses that are not yet recognized in the smoothed Actuarial Value of Assets as of the valuation date. When that is the case, the pattern shown over the first 15 years in the 7.00% actual return scenario is typical of the method of closed 25-year amortization periods used to calculate contribution rates in the valuation. (The UAL still remaining after 15 years is amortized over the latter 10 years of the 25-year amortization schedule if actual investment performance continues to match the assumption.)

If actual returns underperform the 7.00% assumption by 0.20%, the UAL would increase by approximately \$9 billion over the illustrated 15-year projection period. If actual investment returns equal the 50th percentile return of 6.5% from the 2020 Aon model, the UAL would increase by 49% over the modeled 15-year period even if actuarially calculated contributions are made and all other experience follows the assumptions used in this valuation. Note that if a 30-year amortization had continued to be used, the UAL would increase by 56% over the modeled 15-year period with actual investment returns equal to 6.5%.

This 2020 actuarial valuation uses the Individual Entry Age Normal (Individual EAN) actuarial cost allocation method. The actuarial cost allocation method divides the present value of total projected benefits for each active member between past service (Actuarial Liability, or AL) and future service (present value of future normal costs). The actuarial cost allocation method does not impact the calculation of the present value of total projected benefits. Prior to the 2019 valuation, the Ultimate Entry Age Normal (Ultimate EAN) actuarial cost allocation method was used. The 2019 change in the actuarial cost allocation method increased the Normal Cost Rate and decreased the Actuarial Liability and UAL Rate when compared to the prior method. The Individual EAN methodology is mandated by GASB for financial reporting calculations under GASB Statements Nos. 67 & 68 and has been used for GASB reporting in all years those two statements have been in effect.

The tables immediately following compare July 1, 2019 actuarial valuation results with July 1, 2020 actuarial valuation results. The difference column shows the change between the July 1, 2019 valuation results and the July 1, 2020 valuation results.

A. Assets, Liabilities, and Funded Status

A comparison of the Actuarial Liability and Actuarial Value of Assets (AVA) follows. These figures are based upon the actuarial assumptions used to determine the actuarial costs of the FRS Pension Plan (see Appendix A). Under current methodology, and as required by Florida law, the AVA cannot be less than 80% or greater than 120% of the Market Value of Assets (MVA). This corridor restriction does not come into play unless there are dramatic asset gains or losses in the prior plan year. The purpose of the corridor is to ensure that the “smoothed” value of assets does not vary from the market value by more than 20%. As of July 1, 2020, the AVA is 101.7% of the MVA.

		Valuation Results (numbers in \$ billions)		
		July 1, 2019	July 1, 2020	Difference
1.	Actuarial Liability	\$191.3	\$200.3	\$9.0
2.	Actuarial Value of Assets	\$161.0	\$164.3	\$3.3
3.	Unfunded Actuarial Liability (1 - 2)	\$30.3	\$36.0	\$5.7
4.	Funded Percentage (2 / 1)	84.2%	82.0%	-2.2%

In Section 5 of this report we present an additional measure of funded status based on a different liability measure, the "Accumulated Benefit Obligation" (ABO), based on both the AVA and the MVA.

B. Contributions

Actuarially calculated contribution rates by class are determined annually in the actuarial valuation. Actual contribution rates paid by employers for each class are set by statute and consist of Normal Cost and UAL Cost components. For the 2020-2021 plan year, the actuarially calculated rates determined by the July 1, 2019 valuation and the legislated rates are equivalent. The 2021-2022 actual contribution rates will be set by the 2021 session of the Florida Legislature, with advice from this valuation and the associated 2021-2022 Blended Rate Study that will be issued subsequent to the publication of this valuation. The Unfunded Actuarial Liability (UAL) amortization payment will consist primarily of costs or savings associated with plan changes, assumption changes, differences between actual and assumed experience, and changes in actuarial methodology. As of July 1, 2020, the FRS Pension Plan has a UAL of \$36.0 billion on a smoothed Actuarial Value of Assets basis. The UAL Cost is calculated to eliminate the UAL over a pre-determined amortization period if actual future experience follows assumptions and contributions are made in accordance with the funding policy.

The comparative FRS Pension Plan-specific employer contribution rates for the Regular and Special Risk membership classes resulting from this valuation and the prior valuation are as follows. See Section 4 for more details on rate development and valuation results for all membership classes.

	July 1, 2019 Valuation (2020-2021 Rates)		July 1, 2020 Valuation (2021-2022 Rates)		Difference	
	Regular	Special Risk	Regular	Special Risk	Regular	Special Risk
Employer Normal Cost Rate	5.19%	15.41%	5.34%	15.57%	0.15%	0.16%
UAL Contribution Rate ¹	<u>4.26%</u>	<u>8.95%</u>	<u>5.34%</u>	<u>10.45%</u>	<u>1.08%</u>	<u>1.50%</u>
Employer Contribution Rate Prior to Blending with FRS IP Payroll	9.45%	24.36%	10.68%	26.02%	1.23%	1.66%

¹ The 1.08% increase in UAL Contribution Rate for the Regular class represents a 0.79% increase in rates due to assumption and amortization method changes and a 0.29% increase due to other experience. The 1.50% increase in UAL Contribution Rate for the Special Risk class represents a 1.19% increase in rates due to assumption and method changes, and a 0.31% increase in rates due to other experience.

C. Membership

The total membership (active, terminated vested, retired, and DROP) of the FRS Pension Plan decreased by 15,543 members from 1,060,132 as of July 1, 2019 to 1,044,589 as of July 1, 2020, a decrease of 1.5%. The total annualized projected payroll of non-DROP active Pension Plan members increased by 0.7%, from \$24.37 billion for the 2019-2020 plan year to \$24.54 billion for the 2020-2021 plan year, a \$0.17 billion increase in payroll. Note that the payroll on which UAL Cost rates are determined is higher and includes the payroll of DROP and members in Optional Retirement Plans subject to the UAL contribution.

A summary of Pension Plan membership change by status follows:

	Valuation Results: Counts		
	July 1, 2019	July 1, 2020	% Change
Active Members	500,111	477,495	-4.5%
Terminated Vested Members	103,709	103,458	-0.2%
Retired Members	421,130	428,396	1.7%
DROP Members	<u>35,182</u>	<u>35,240</u>	0.2%
Total Members	1,060,132	1,044,589	-1.5%

D. Experience

Changes to assets and liabilities between July 1, 2019 and July 1, 2020 are described in this section.

1. Assets:

Changes in the smoothed Actuarial Value of Assets (AVA) during the plan year were due to:

▪ Contributions received	\$4.161	
▪ Payment of benefits and administrative expenses	(11.507)	
▪ Assumed plan year investment returns	11.328	
▪ Investment plan year gain/(loss) experience	<u>(0.684)</u>	
Total plan year Actuarial Value of Assets increase	\$3.298	Billion

The actual plan investment return on the AVA was 6.77% compared to the prior valuation's assumed return of 7.20%. On a market-value basis, the assets earned 3.34%. On a year-by-year basis, asset returns were as follows:

	Rates of Return ¹		
	2017/2018	2018/2019	2019/2020
Market Value	9.26%	5.97%	3.34%
Actuarial Value	8.36%	7.82%	6.77%

¹ Assumes net cash flow occurs mid-year.

2. Actuarial Liability (AL):

Changes in the Actuarial Liability during the plan year were due to:

▪ Expected increase, due to combined effects of Normal Cost plus interest-related growth in Actuarial Liability less benefit payments during plan year	\$4.483
▪ Change in plan provisions	0.000
▪ Changes in assumptions	3.896

Liability Plan Year (Gain) / Loss Experience

▪ Active member salary increases different than assumption	0.201
▪ New active members	0.302
▪ Retirement and DROP entry behavior	0.562
▪ Inactive mortality	0.019
▪ Other demographic sources not noted above ¹	<u>(0.517)</u>
▪ Liability plan year (gain) / loss experience	0.567

Total plan year Actuarial Liability increase \$8.946 Billion

1. Reflects the combined effects of all other liability (gain)/loss sources for actuarial experience compared to assumptions used in the July 1, 2019 actuarial valuation. These include actual experience for pre-retirement turnover, second election transfers to the Investment Plan, active member death and disability, and all other actual experience not otherwise noted in the table above compared to assumed on the demographic assumptions used to calculate July 1, 2019 actuarial valuation results.

3. Unfunded Actuarial Liability (UAL):

The net change in the UAL of the FRS Pension Plan was an increase of \$5.648 billion², from \$30.326 billion to \$35.975 billion. The net increase is attributable to the following:

Change due to:

▪ Expected increase, based on the net combined effect of plan contributions received, interest, and assumed investment and demographic experience	\$0.501
▪ Change in plan provisions	0.000
▪ Changes in assumptions	3.896
▪ Investment plan year (gain)/loss experience	0.684
▪ Liability plan year (gain)/loss experience	<u>0.567</u>

Total plan year increase/(decrease) in UAL \$5.648 Billion

See table on the following page for total gains/losses by class.

2. The UAL increased from \$30,326,363,000 to \$35,974,651,000, the difference of which is \$5.648 when rounded to the nearest million.

2019-2020 Plan Year (Gain)/Loss Experience¹

(\$ in Thousands)

	Regular	Special Risk	Special Risk Administrative	-- Elected Officers' Class --			Senior Management	Grand Total
			Judicial	Leg-Atty-Cab	Local			
Investment plan year (gain)/loss experience	\$518,779	\$145,462	\$325	\$4,253	\$253	\$1,308	\$13,184	\$683,564
<u>Liability plan year (gain) / loss experience by source</u>								
Assumption changes	2,811,077	922,025	1,592	28,778	2,474	12,910	117,055	3,895,911
Active member salary increases different than assumption	327,428	(130,771)	(453)	(7,313)	(429)	(2,844)	15,243	200,861
New active Pension Plan members ²	239,889	45,420	(22)	1,516	200	835	14,545	302,383
Retirement and Drop Entry Behavior	335,723	199,158	290	10,036	(14)	(255)	17,424	562,362
Inactive Mortality	(28,277)	37,043	717	1,400	1,219	3,134	3,753	18,989
Other demographic sources not noted above ³	(490,182)	(19,448)	267	(17,809)	(4,316)	(6,290)	20,774	(517,004)
Liability plan year (gain) / loss experience	\$3,195,658	\$1,053,427	\$2,391	\$16,608	(\$866)	\$7,490	\$188,794	\$4,463,502

¹ For purposes of this exhibit, liabilities and assets associated with members in DROP are allocated to their respective membership classes. This differs from their representation in Section 4, where UAL bases are tracked separately for the DROP.

² Includes transfers and re-hires.

³ Reflects the combined effects of all other liability (gain)/loss sources for actuarial demographic experience compared to assumptions used in the July 1, 2019 valuation. This includes the effects of second election transfers to the Investment Plan and changes to census data reporting.

4. Actuarially Calculated FRS Pension Plan-specific Contribution Rates prior to blending with the FRS Investment Plan:

On a level-rate-of-pay basis, the FRS Pension Plan-specific employer contribution rates for each membership class changed as follows:

	Regular	Special Risk	Special Risk Administrative	-- Elected Officers' Class --			Senior Management
				Judicial	Leg-Atty-Cab	Local	
A. 1. July 1, 2019 Employer Normal Cost Rate	5.19%	15.41%	11.13%	13.64%	8.76%	10.57%	6.90%
2. UAL Contribution Rate	<u>4.26%</u>	<u>8.95%</u>	<u>30.87%</u>	<u>28.26%</u>	<u>60.66%</u>	<u>52.59%</u>	<u>25.95%</u>
3. Total July 1, 2019 Actuarially Calculated Employer Contribution Rate (1.+2.)	9.45%	24.36%	42.00%	41.90%	69.42%	63.16%	32.85%
B. 1. July 1, 2020 Employer Normal Cost Rate	5.34%	15.57%	11.31%	13.82%	9.19%	10.97%	7.09%
2. UAL Contribution Rate (See Table 4-11)	<u>5.34%</u>	<u>10.45%</u>	<u>35.91%</u>	<u>30.68%</u>	<u>75.47%</u>	<u>57.81%</u>	<u>28.92%</u>
3. Total July 1, 2020 Actuarially Calculated Employer Contribution Rate (1.+2.)	10.68%	26.02%	47.22%	44.50%	84.66%	68.78%	36.01%
C. Change in Total Actuarially Calculated Employer Contribution Rate (B.3.-A.3.)	1.23%	1.66%	5.22%	2.60%	15.24%	5.62%	3.16%

E. Graphs

Chart A: Assets / Liabilities

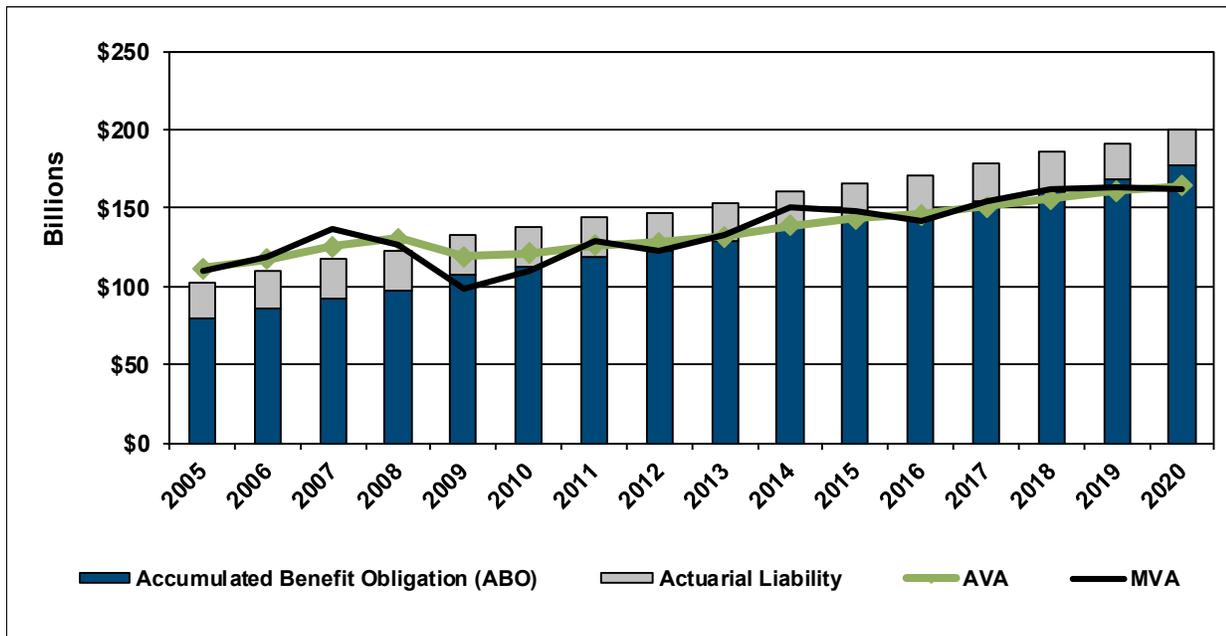


Chart B: Cash Flows

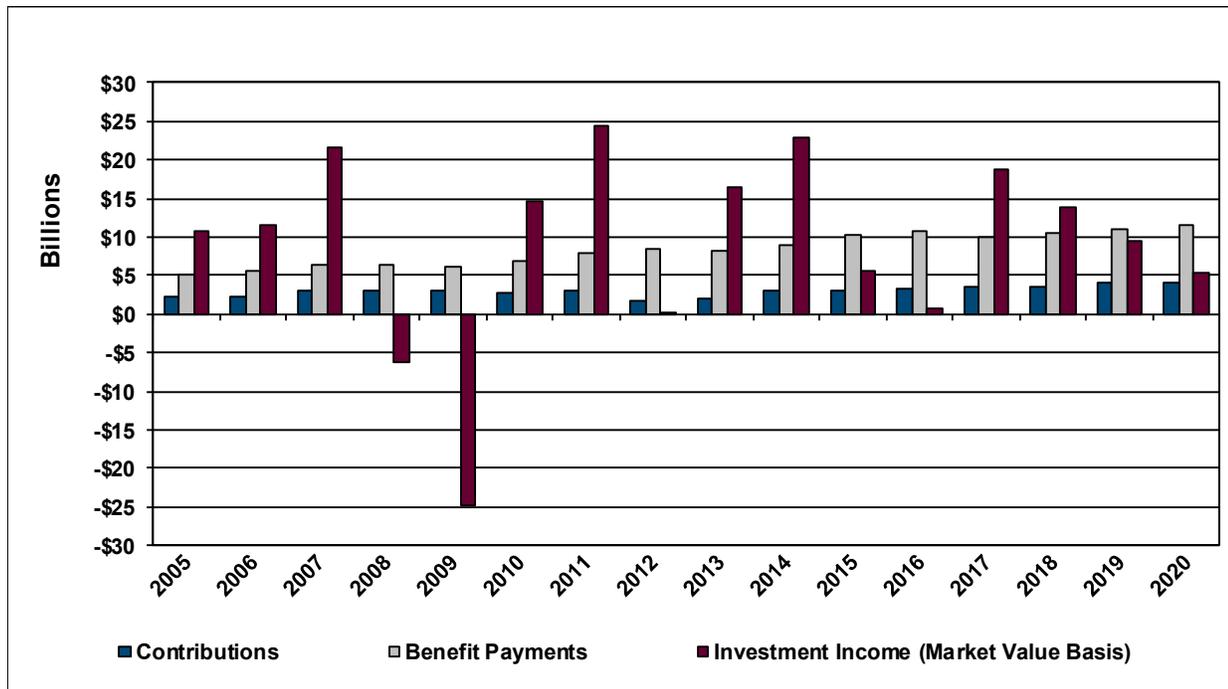


Chart C: Actuarially Calculated Pension Plan Contribution Rates¹ (as % of Payroll)

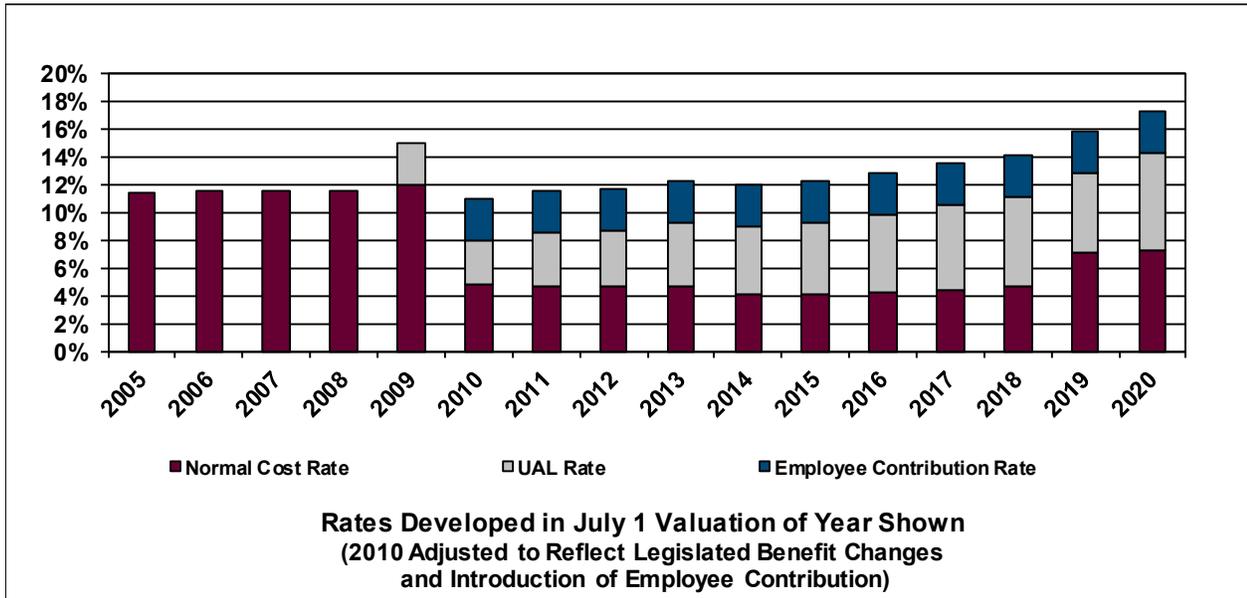
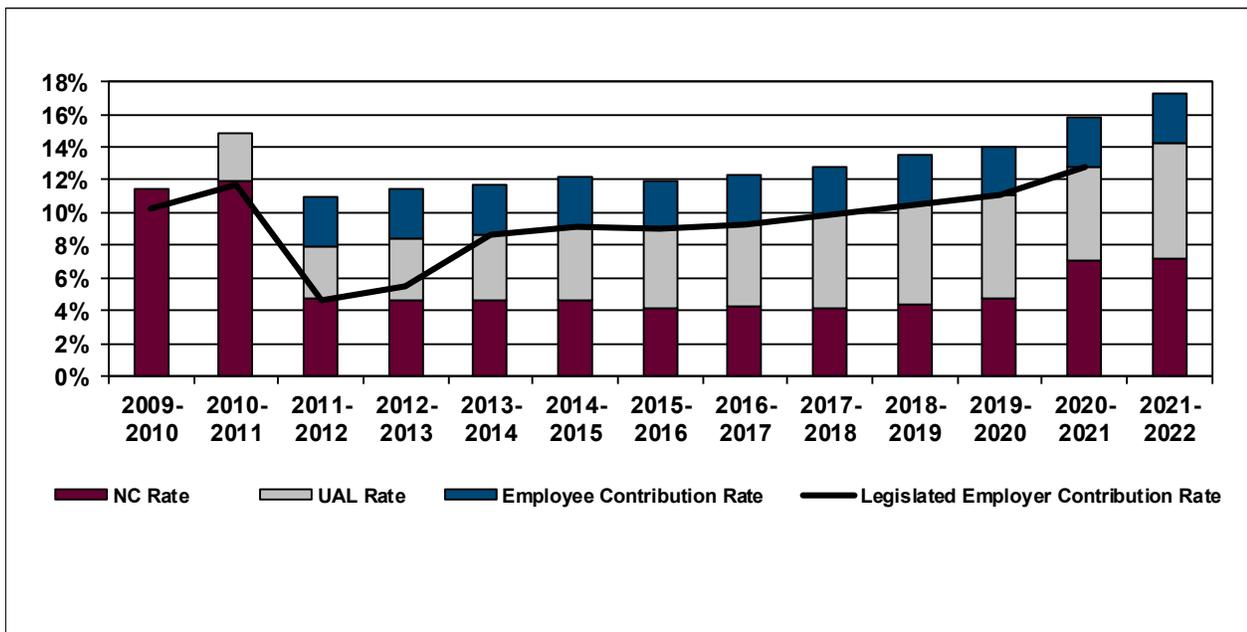


Chart D: Actuarially Calculated vs. Legislated Employer Contribution Rates¹ (as % of Payroll)



¹ Charts C and D show the Pension Plan components of proposed contribution rates prior to blending with Investment Plan contribution rates to create proposed statutory contribution rates. Historically, the Florida Legislature has enacted contribution rates which are charged uniformly on combined Investment Plan and Pension Plan payroll. Charts C and D reflect the Pension Plan component of proposed blended statutory rates, consistent with Table 4-12.

F. Summary Comments

We caution that the results herein are applicable only for the next plan year. More than anything, actual future investment results will impact long-term future contribution rates. The investment return assumption selected affects the timing and pattern of contributions but does not affect the long-term cost of the plan, which is governed by the Fundamental Cost Equation [Benefit Payments + Expenses = Contributions + Actual Investment Returns].

- The most recent experience study covered the period from July 1, 2013 to June 30, 2018. Experience studies are performed every five years and compare actual plan experience to the assumptions used in the annual valuations. This valuation reflects the method and assumptions changes proposed by the 2019 Experience Study and adopted by the 2019 FRS Actuarial Assumption Conference for use in the July 1, 2019 valuation.
- This valuation also reflects further changes to the assumptions for investment return, inflation and individual member pay increases adopted by the 2020 FRS Actuarial Assumption Conference. The Conference also adopted a 25-year amortization period for bases established on or after July 1, 2020.
- Subsequent FRS Assumption Conferences may, at the discretion of the Conference Principals, consider changes to items such as the investment return assumption or modifications to other assumptions and methods.

Future proposed blended statutory rates for the System will be impacted by choice elections for the defined contribution FRS Investment Plan (IP), which is available as an alternative to the defined benefit FRS Pension Plan for members. The existence of the IP affects the FRS Pension Plan contribution rates inasmuch as active members can elect to participate in either the FRS Pension Plan or the IP. Thus, member plan election decisions can affect the demographic composition of the FRS Pension Plan. Current IP membership is between 25% and 26% of total active membership on a headcount basis. Based on legislation effective January 1, 2018 the default plan for newly enrolled non-Special Risk members who do not make an active plan election is now the FRS Investment Plan.

We mention these caveats because the actuarial valuation process merely measures the impact of these factors on FRS Pension Plan costs and liabilities after they have occurred. Unanticipated benefit or salary changes, changes in member behavior (e.g., withdrawal rates, rates of retirement, etc.), or variations in actual investment return could necessitate changes in the actuarially calculated contribution rates.

Finally, we caution the readers of this report not to overemphasize the results of any single valuation as long-term trends are more important.

G. DROP Contribution Rate

The DROP (Deferred Retirement Option Program) started in 1998, with a study completed prior to the DROP's implementation showing an anticipated material cost increase due to its introduction. Since its introduction and consistent with legislative directive, employers have been charged a uniform DROP contribution rate on all DROP payroll without regard to a participant's membership class. In addition, the asset allocation developed in Table 2-5 is performed so that the DROP's funded percentage is set equal to the composite funded percentage of the FRS Pension Plan.

The DROP contribution rate has two components: Normal Cost and UAL Cost. The Normal Cost is set to the composite FRS Pension Plan average employer-paid Normal Cost Rate of 7.23%. The calculation of the UAL Cost for the DROP is consistent with the calculation of the UAL Cost component of the other membership classes. Essentially, the DROP is allocated a share of plan assets such that the DROP's funded percentage is

equal to the composite FRS Pension Plan's funded percentage. This asset allocation to DROP results in a UAL Cost for DROP payroll of 9.45%. The total DROP contribution rate (Normal Cost plus UAL Cost) in this valuation is 16.68%, compared to a DROP contribution rate of 15.32% in the prior valuation.

2. Assets

In many respects, an actuarial valuation can be considered similar to an inventory process. The inventory is taken annually as of the actuarial valuation date, which for this valuation is July 1, 2020. On that date, the assets available for the payment of current and future benefits are appraised. These assets are compared with the inventory of Actuarial Liability. This inventory process leads to a method of calculating what contributions by members and/or their employers are needed to systematically eliminate any shortfall if future experience follows assumptions. Prior to publication of this report, preliminary 2020 valuation results were presented by the actuary to the 2020 FRS Actuarial Assumption Conference.

This section of the report deals with the asset determination. In the next section, the Actuarial Liability will be discussed. Section 4 will deal with the process for determining actuarially calculated contribution rates in order to systematically eliminate any shortfall between the assets and Actuarial Liability.

Two measures of FRS Pension Plan assets are presented in the valuation:

1. The Market Value of Assets (MVA) provides the most accurate fair market “snapshot date” assessment of plan resources at a given date, and will be used on the balance sheet statements of position for the FRS Pension Plan and its participating employers for GASB financial reporting purposes.¹ It tends to be the more volatile of the two asset measures and is not used for determining the actuarially calculated contribution rates.
2. The Actuarial Value of Assets (AVA) is a second measure of FRS Pension Plan asset holdings. It is related to the MVA, but uses a smoothing technique applied to mitigate year-to-year market fluctuations by recognizing actual single year investment returns different from the long-term assumption systematically over a multi-year period. The AVA is the basis for determining actuarially calculated contribution rates, and the smoothing technique is used to stabilize year-to-year contribution rate changes.

The actuarial smoothed asset valuation measure, implemented in 1989, reflects a five-year averaging methodology, as required by Section 121.031(3)(a) of Florida Statutes. Under this method, the expected actuarial value of assets is determined by crediting the rate of investment return assumed in the prior valuation (7.20%) to the prior year’s AVA. Then, 20% of the difference between the actual market value and the expected actuarial value of assets is immediately recognized in the AVA. The AVA is also restricted by a 20% corridor around the MVA, so that the AVA cannot be greater than 120% or less than 80% of the MVA. Table 2-3 presents the details of this calculation. As of July 1, 2020, the AVA is 101.69% of the MVA.

Six tables are presented in this section, summarizing the financial resources of the FRS Pension Plan on July 1, 2020. Table 2-1 shows the reconciliation of valuation assets from June 30, 2019 to June 30, 2020. The assets are presented by category in Table 2-2. Table 2-3 provides a detailed development of the July 1, 2020 AVA. In Table 2-4, the AVA is initially allocated to each membership class, based on estimated cash flows. The table also shows the allocation of assets to/from the various classes from/to the DROP. Table 2-5 shows the derivation of the allocation of assets to/from the DROP in order that the DROP’s funded percentage is equal to the funded

¹ The financial reporting information under GASB 67 requirements is issued under separate cover and uses an investment return assumption different from that used in this valuation report, which is for the purpose of developing actuarially determined contribution rates.

percentage of the FRS Pension Plan as a whole. Finally, Table 2-6 presents rates of return for the 2019-2020 plan year and the two prior plan years.

The Market Value of Assets as of July 1, 2020 was based on information furnished to us by the Division of Retirement, Florida Department of Management Services. The values have been accepted for use in this report without audit but have been reviewed for consistency and reasonableness, when compared to prior reports.

Table 2-1
Florida Retirement System
Reconciliation of Market Value of Assets Used for Valuation
DB Plan Trust

Market Value of Assets for Actuarial Valuation as of June 30, 2019	\$163,573,726,217
Restatement of beginning net position ¹	940,602
Contributions by Source:	
Pension Contributions - Employer	3,322,556,872
Pension Contributions - Employees	744,128,220
Transfers from IP - Second Elections	89,899,880
Purchase of Time by Employees	4,326,661
Investment Income	
Interest Income	932,380,689
Dividend Income	1,729,371,995
Real Estate Income	499,900,219
Securities Lending Income	38,258,989
Other	2,292,420,576
Less Investment Activity Expense	(614,069,961)
Less Securities Lending Expense	(10,684,413)
Other Income	2,052,215
Net Realized and Unrealized Appreciation	470,277,997
Pension Payments ²	(10,906,559,331)
Contribution Refunds	(18,887,939)
Disbursements to IP - Second Elections	(560,218,195)
Administrative Expenses	(21,556,013)
 Market Value of Assets for Actuarial Valuation as of June 30, 2020	 \$161,568,265,280

¹ Restatement of beginning net position at July 1, 2019.

² Includes Accrued DROP Liability of \$298,095,791 representing single sum DROP benefits of members who retired from DROP on or before June 30, 2020.

Table 2-2
Florida Retirement System Pension Plan
Summary of Market Value of Assets for Actuarial Valuation ¹
 (by Asset Category; \$ in Thousands)

ASSETS	Market Value as of July 1,	
	2019	2020
Cash and cash equivalents	\$94,880	\$92,972
State Treasury Investment Pool	66,298	89,989
Total cash and cash equivalents	\$161,178	\$182,961
<u>Investments:</u>		
Certificates of Deposit	\$324,980	\$0
U.S. Government and Federally Guaranteed Obligations	13,968,174	14,837,162
Federal Agencies	8,366,296	8,169,761
Commercial Paper	3,121,322	1,127,836
Repurchase Agreements	800,000	800,000
International Bonds and Notes	2,057,940	2,448,364
Bonds and Notes	7,386,905	9,023,625
Real Estate Contracts	12,095,897	11,996,483
International Equity Commingled	8,401,273	7,089,845
Short Term Investment Funds	54,944	238,806
Domestic Equity / Domestic Equity Commingled	48,025,526	48,275,740
Alternative Investment	27,784,000	28,780,594
International Equity	32,463,860	31,129,943
Other Investments	115,326	58,858
Total Investments	\$164,966,443	\$163,977,017
<u>Receivables:</u>		
Contributions receivable	238,365	242,581
Pending Investment Sales	2,641,277	1,073,650
Forward Contracts receivable	0	0
Other Receivables	573,483	502,664
Total receivables	\$3,453,125	\$1,818,895
Security Lending Collateral	\$505,785	\$1,830,474
Prepaid items; Furniture & Equipment net Accumulated Depreciation	8,223	5,959
Restatement of beginning net position	941	N/A
Total Assets	\$169,095,696	\$167,815,306
LIABILITIES		
Accrued DROP liability ²	265,706	298,096
Obligations under Security Lending Agreements	537,066	1,846,482
Pending Investment Purchases	4,137,778	3,657,896
Forward Contracts payable	0	0
Other Liabilities and Payables	578,760	424,504
Total Liabilities	\$5,519,310	\$6,226,978
DEFERRED INFLOWS AND OUTFLOWS OF RESOURCES		
Deferred outflows related to other postemployment benefits	881	2,586
Deferred inflows related to other pension amounts	0	(19,101)
Deferred inflows related to other post employment benefits	(2,600)	(3,548)
Net Deferred Inflows and Outflows of Resources	(\$1,719)	(\$20,063)
FIDUCIARY NET POSITION		
Held in trust for pension benefits	\$163,574,667 ³	\$161,568,265

¹ Amounts shown in exhibit are rounded to the nearest thousand. As such, sums may differ from amounts displayed due to rounding.

² Per our understanding, the accrued DROP liability represents lump sum DROP exit payments made early in the subsequent plan year for members exiting the DROP on or shortly before the asset measurement date.

³ Reflects restatement of beginning net position at July 1, 2019.

Table 2-3
Florida Retirement System Pension Plan
Development of 2020 Actuarial Value of Assets

1. FRS Market Value of Assets on June 30, 2019 for Actuarial Valuation	163,573,726,217 ¹
2. Actuarial Value of Assets on July 1, 2019	\$161,004,532,913
3. 2019/2020 Net Cash Flow (Contributions less Benefits and Administrative Expenses)	(\$7,346,309,845)
4. Preliminary Actuarial Value of Assets, July 1, 2020, if Items 2 and 3 earned an assumed rate of 7.20%	\$164,986,082,284
5. Market Value of Assets, June 30, 2020 for Actuarial Valuation	\$161,568,265,280
6. Net Assets (Actuarial Value Basis) Available for Benefits Prior to Application of 80%/20% Corridor 4 + ((5 - 4) x 20%)	\$164,302,518,883
7. 120% of Market Value [120% (5)]	\$193,881,918,336
8. 80% of Market Value [80% (5)]	\$129,254,612,224
9. Actuarial Value of Assets on July 1, 2020 Lesser of (6) and (7), but not less than (8)	\$164,302,518,883
10. Ratio of July 1, 2020 Actuarial Value of Assets to Market Value on June 30, 2020 for Actuarial Valuation	<u><u>101.69%</u></u>

¹ As reported in July 1, 2019 Actuarial Valuation of the Florida Retirement System Pension Plan, before restatement of beginning net position.

Table 2-4
Florida Retirement System Pension Plan
Development of Actuarial Value of Assets
by Membership Class¹
(\$ in Thousands)

	Regular	Special Risk	Special Risk Administrative	– Elected Officers' Class –			Senior Management	DROP	Total System
			Judicial	Leg-Atty-Cab	Local				
1. Allocated Actuarial Value of Assets by Class, July 1, 2019	\$111,686,549	\$30,501,876	\$71,660	\$907,795	\$57,194	\$295,036	\$2,815,800	\$14,668,623	\$161,004,533
2. Total Contribution for the Plan Year	2,293,499	1,258,632	1,702	49,884	3,396	22,074	158,963	372,762	4,160,912
3. Benefit Payments and other Disbursements	(8,196,187)	(2,087,854)	(7,078)	(92,484)	(9,189)	(51,686)	(291,792)	(770,952)	(11,507,222)
4. Allocated Investment Earnings on AVA Basis	7,356,509	2,035,562	4,666	59,976	3,674	18,959	186,010	978,940	10,644,296
5. Unadjusted Actuarial Value of Assets (1) + (2) + (3) + (4)	113,140,370	31,708,216	70,950	925,171	55,075	284,383	2,868,981	15,249,373	164,302,519
6. Net Reallocation (see Table 2-5)	280,749	94,202	60	4,558	197	1,542	13,469	(394,777)	0
7. Allocated Actuarial Value of Assets by Class, July 1, 2020: (5) + (6)	\$113,421,119	\$31,802,418	\$71,010	\$929,729	\$55,272	\$285,925	\$2,882,450	\$14,854,596	\$164,302,519

¹ Information provided that aligns plan year contributions and disbursements to the individual membership classes does not sum to the exact total of the system-level totals reported in the financial statements. As a result, lines 2 and 3 above are allocated to the membership classes in proportion to class-level information provided, but "trued-up" to the totals reported at the system level.

Table 2-5
Florida Retirement System Pension Plan
Reallocation of Actuarial Value of Assets to/from DROP
by Membership Class
 (\$ in Thousands)

	<u>Regular</u>	<u>Special Risk</u>	<u>Special Risk Administrative</u>	<u>Judicial</u>	<u>-- Elected Officers' Class --</u>		<u>Senior Management</u>	<u>DROP</u>	<u>Total System</u>
					<u>Leg-Atty-Cab</u>	<u>Local</u>			
1. Actuarial Accrued Liability, July 1, 2020								\$18,106,528	\$200,277,170
2. Unadjusted Actuarial Value of Assets, July 1, 2020 prior to reallocation								15,249,373	164,302,519
3. Unfunded Actuarial Liability (UAL): (1) - (2)								\$2,857,155	\$35,974,651
4. Aggregate Funded Percentage: (2) / (1)								84.22%	82.04%
5. DROP Assets Required to Meet Aggregate Funded Percentage: (1) x (4) [Total System] - (2)								(\$394,777)	
6. Proportion of DROP Liability by Class	0.7112	0.2386	0.0002	0.0115	0.0005	0.0039	0.0341	N/A	1.0000
7. Assets to be Reallocated	\$280,749	\$94,202	\$60	\$4,558	\$197	\$1,542	\$13,469	(\$394,777)	\$0

Table 2-6
Florida Retirement System Pension Plan
Rates of Return on Investments
(Assumes net cash flow occurs mid-year)

Asset Bases	Rates of Return		
	2017/2018	2018/2019	2019/2020
Market Value	9.26%	5.97%	3.34%
Actuarial Value	8.36%	7.82%	6.77%

3. Liabilities

In the previous section, an actuarial valuation was compared to an inventory process, and an analysis was given of the inventory of assets of the FRS Pension Plan as of the valuation date, July 1, 2020. In this section, the discussion will focus on the projected future benefit commitments of the FRS Pension Plan allocated to service already performed under the actuarial cost allocation method, which will be referred to as its Actuarial Liability. In Section 5 other liability measures are presented based on accounting principles of the Financial Accounting Standards Board (FASB). Calculations required by the Governmental Accounting Standards Board (GASB) are developed and issued as part of a separate report. It is important to note that the accounting liabilities shown in Section 5 of this report and in the separate GASB report are for informational disclosure and comparison purposes, while the Actuarial Liability calculated in this section is used for determining the FRS Pension Plan actuarially calculated contribution rates prior to blending with FRS Investment Plan contribution rates to create blended proposed statutory rates.

A fundamental principle in financing a retirement program is that the projected cost of future retirement benefits should be allocated to the period in which service is performed, rather than during the post-retirement period of benefit distribution. There are several methods that can be used in making such an allocation.

Beginning with the July 1, 2019 actuarial valuation for funding purposes, the Individual Entry Age Normal (Individual EAN) actuarial cost allocation method was selected by the FRS Actuarial Assumption Conference. The actuarial cost allocation method used does not affect the calculation of overall projected Pension Plan benefits (Present Value of Benefits), but it does affect the allocation of those benefits over a member's projected working career between past (Actuarial Liability), current year (Normal Cost) and all future projected service (Present Value of Future Normal Costs). The Present Value of Benefits is equal to the sum of the Actuarial Liability and the Present Value of Future Normal Costs.

Members initially enrolled on or after July 1, 2011 (Tier II) have different benefit and retirement eligibility provisions than Tier I members. Under the Individual EAN method, the Normal Cost is calculated separately for each of the individual members, based on their ages at entry into the System, and the tier-specific benefit provisions. The individual Normal Costs of all members are then aggregated and divided by the total current compensation of the individuals included in the valuation to determine the Normal Cost rate as a percentage of compensation. The actuarial Present Value of Benefits of each individual included in the valuation is allocated as a level percentage of the individual's projected compensation between entry age and assumed exit. The portion of this actuarial present value allocated to a valuation year is called the Normal Cost. Individual EAN sets normal cost in a manner that is representative of the tier in which the member actually participates.

The difference between the Actuarial Liability and the Actuarial Value of Assets accumulated as of the actuarial valuation date is referred to as the Unfunded Actuarial Liability (UAL). (If the difference is negative, the excess of the funds accumulated over the liabilities may be referred to as the surplus.) The UAL Contribution Rate is calculated in a manner such that the UAL will fully amortize in accordance with the schedules in Section 4 of this report if actual future experience follows the assumptions used in the valuation and contributions are made each year at levels equal to actuarially calculated contribution rates.

The UAL will grow with interest and Normal Cost while contributions will reduce it.

Benefit improvements, actuarial gains and losses (variations in investment results and demographic changes from assumption), and changes in actuarial assumptions and methods will also have an effect on the Actuarial Liability and on the UAL.

After the amount of the UAL has been determined, as part of the rate calculation methodology, the actuarially calculated contribution rates include a component for the amortization of the UAL. A schedule of contributions is established to amortize the UAL. In Section 4 of the report, we discuss the contribution schedules in detail.

Table 3-1 contains a breakdown of the Actuarial Liabilities and Unfunded Actuarial Liabilities in the FRS Pension Plan for the 2019 valuation and the 2020 valuation. In Table 3-2, the 2020 liabilities are shown for each membership class.

Legislation enacted in 2001 “walls off,” for 25 years, the actuarial gains arising from former FRS Pension Plan participants electing to participate in the FRS Investment Plan. The “walled off” amount is called the contingent liability. The Actuarial Liabilities generally do not include the contingent liability. However, surplus, if any, used for contribution rate reductions is net of the contingent liability. Table 3-3 shows the contingent liability and the number of current active participants, by class, who elected to transfer from the FRS Pension Plan to the FRS Investment Plan during the original 2002-2003 election periods available to FRS Pension Plan members who were active when the FRS Investment Plan first became available for participation.

Table 3-1
Florida Retirement System Pension Plan
Actuarial Liabilities
 (\$ in Thousands)

	July 1, 2019 Valuation	July 1, 2020 Valuation
1. Actuarial Liabilities for:		
(a) Active Members	\$57,871,264	\$60,055,179
(b) Retired, Disabled and Beneficiary Members	110,810,614	116,598,497
(c) Terminated Vested Members	5,217,499	5,516,966
(d) DROP	17,431,519	18,106,528
2. Total Actuarial Liability	\$191,330,896	\$200,277,170
3. Actuarial Value of Assets	\$161,004,533	\$164,302,519
4. Unfunded Actuarial Liability / (Surplus)	\$30,326,363	\$35,974,651
5. Investment Plan Contingent Liability ¹	\$223,535	\$218,879
6. Surplus Available for Rate Reduction	\$0	\$0

¹ See Table 3-3.

Table 3-2
Florida Retirement System Pension Plan
Actuarial Liabilities by Membership Class
July 1, 2020
(\$ in Thousands)

	Regular	Special Risk	Special Risk Administrative	-- Elected Officers' Class --			Senior Management	DROP	Total System
			Judicial	Leg-Atty-Cab	Local				
1. Present Value of Benefits for:									
a. Active Members	\$57,673,806	\$23,538,490	\$19,818	\$546,086	\$24,624	\$184,532	\$2,136,376	\$0	\$84,123,732
b. Retired, Disabled and Beneficiary Members	87,114,838	24,342,285	72,233	1,025,483	95,226	513,696	3,434,736	18,106,528	134,705,025
c. Terminated Vested Members	4,609,240	654,290	1,482	21,704	10,579	18,053	201,618	0	5,516,966
d. Total Present Value of Benefits (a)+(b)+(c)	149,397,884	48,535,065	93,533	1,593,273	130,429	716,281	5,772,730	18,106,528	224,345,723
2. Present Value of Future Normal Cost (Actives):	\$14,520,557	\$8,890,144	\$4,122	\$158,986	\$4,616	\$39,040	\$451,088	\$0	\$24,068,553
3. Actuarial Liabilities for:									
a. Active Members (1a) - (2)	\$43,153,249	\$14,648,346	\$15,696	\$387,100	\$20,008	\$145,492	\$1,685,288	\$0	\$60,055,179
b. Retired, Disabled and Beneficiary Members (1b)	87,114,838	24,342,285	72,233	1,025,483	95,226	513,696	3,434,736	18,106,528	134,705,025
c. Terminated Vested Members (1c)	4,609,240	654,290	1,482	21,704	10,579	18,053	201,618	0	5,516,966
d. Total Actuarial Liability (a)+(b)+(c)	\$134,877,327	\$39,644,921	\$89,411	\$1,434,287	\$125,813	\$677,241	\$5,321,642	\$18,106,528	\$200,277,170
4. Actuarial Value of Assets	\$113,421,119	\$31,802,418	\$71,010	\$929,729	\$55,272	\$285,925	\$2,882,450	\$14,854,596	\$164,302,519
5. Unfunded Actuarial Liability / (Surplus)	\$21,456,208	\$7,842,503	\$18,401	\$504,558	\$70,541	\$391,316	\$2,439,192	\$3,251,932 ¹	\$35,974,651
6. Present Value of Future Pay	\$181,712,343	\$50,024,014	\$30,141	\$966,321	\$39,026	\$289,144	\$4,615,763	\$0	\$237,676,752

¹ This is a bookkeeping item. DROP liabilities include the total present value of benefits to all members currently in DROP. When a member leaves DROP, their liability is transferred to the class of membership from which they retired.

Table 3-3
Florida Retirement System Investment Plan
Contingent Actuarial Liabilities
July 1, 2020
 (\$ in Thousands)

	<u>Regular</u>	<u>Special Risk</u>	<u>Special Risk Administrative</u>	<u>-- Elected Officers' Class -- Judicial</u>	<u>Leg-Atty-Cab</u>	<u>Local</u>	<u>Senior Management</u>	<u>DROP</u>	<u>Total System</u>
<u>As of July 1, 2019</u>									
Contingent Liability	\$205,820	\$8,515	\$0	(\$656)	\$67	\$67	\$9,722	NA	\$223,535
Participant Counts	4,402	121	0	3	1	4	112	NA	4,643
<u>As of July 1, 2020</u>									
Contingent Liability ^{1 & 2}	\$202,545	\$7,996	\$0	(\$703)	\$72	\$36	\$8,933	NA	\$218,879
Participant Counts	4,041	106	0	3	1	2	96	NA	4,249

¹ The contingent liability is not included in the actuarial liabilities of FRS and is removed from the surplus.

² The contingent liability as of July 1, 2020 is calculated as the July 1, 2003 contingent liability increased by 17 years of interest, adjusted for the proportion of original transfers remaining in the Investment Plan.

4. Contributions

Differences between the Actuarial Liabilities and the assets can be made up through (1) future contributions in excess of the Normal Costs to amortize the shortfall and/or (2) actual future investment returns in excess of assumed returns. An actuarial valuation sets out a schedule of future contributions that will fully amortize the Unfunded Actuarial Liability (UAL) in a systematic manner if future experience follows the assumptions. By contrast, in prior years when the FRS Pension Plan had an actuarial surplus, legislated contribution rates were generally below the Normal Cost Rate. In this section we develop and present the FRS Pension Plan-specific contribution rates proposed to be effective for the Plan Year beginning July 1, 2021 based on the July 1, 2020 membership data. Under separate cover, the FRS Pension Plan-specific contribution rates calculated in this valuation are blended with contribution rates for the FRS Investment Plan to develop proposed blended statutory contribution rates for the Plan Year beginning July 1, 2021.

First, we present a description of the actuarial method used to determine the actuarially calculated FRS Pension Plan-specific contribution rates for the 2021-2022 plan year. This is followed by a series of tables presenting the details of our calculations.

A. Funding Methods

The actuarial cost method used to determine the pattern of future contributions is called the Individual Entry Age Normal (Individual EAN) actuarial cost allocation method. Under this method (as is the case for most actuarial cost allocation methods), the contribution rates calculated have two components:

- Normal Cost Rate
- UAL Contribution Rate, which amortizes the UAL if future experience follows assumptions.

These components are described in more detail below.

1. Normal Cost Rate

Under the Individual EAN method, the Normal Cost Rate is that level percentage of pay which would fully fund a member's benefit at retirement, if paid from the year of entry (i.e., "entry age") to the year of retirement if future experience were to exactly match the actuarial assumptions. Individual EAN sets normal cost in a manner that is representative of the tier in which the member actually participates.

We have determined the Normal Cost Rates for the FRS Pension Plan separately by membership class and type of benefit (e.g., retirement, disability). These are summarized in Table 4-1.

2. UAL Contribution Rate

The Actuarial Liability is the difference between the Total Present Value of Benefits (PVB) and the Present Value of Future Normal Costs (PVFNC).

The term "fully funded" can be used for a system where contributions at the Normal Cost Rate are projected to be completely adequate to fully fund the projected future benefits of all existing members if future experience follows assumptions. Currently, most systems are not fully funded. This can be because contributions for the estimated value of benefits earned in a year have not been fully made, benefit improvements for past service are granted but then are funded gradually over future years, actual experience has not been as favorable as assumed, or assumptions have been updated which increase liability compared to assumptions used in prior valuations. Under

these circumstances, a UAL exists. For the FRS Pension Plan, there has been a UAL for every valuation since the July 1, 2009 valuation. Prior to that time, the Actuarial Value of Assets exceeded the Actuarial Liability for the valuations from 1998 through 2008 and the UAL for those valuations was considered fully amortized.

Tables 4-2 through 4-10 show how the FRS Pension Plan-specific UAL contribution rates are derived. The FRS Pension Plan-specific contribution rates calculated in this valuation are blended with contribution rates for the FRS Investment Plan to develop proposed blended statutory contribution rates for the Plan Year beginning July 1, 2021. Table 4-2 shows the calculations on a composite basis, while Tables 4-3 through 4-10 show the calculations for each individual membership class and sub-class and for the DROP.

The funding policy approved by the FRS Actuarial Assumption Conference includes UAL amortization via a set of closed, layered amortization bases. 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 surplus position. Since then, new amortization bases were created whenever there were changes in plan provisions or changes in assumptions pursuant to an experience study or other action by the FRS Actuarial Assumption Conference to modify actuarial assumptions or methods. Since a UAL currently exists, all experience gains and losses are also subject to amortization. In this valuation, we show the amortization base of each plan/assumption/method change since 1998 and amortization bases for experience gains/losses starting in 2009, when the plan no longer had an actuarial surplus. In this July 1, 2020 valuation, the Conference approved amortization of newly established bases over a closed 25-year period. Generally, previously established bases were amortized over a closed 30-year period.

For a given base of UAL amortization, annual amortization payments in non-inflation-adjusted dollars are calculated as increasing by 3.25% per year ("level percent of projected payroll amortization"), consistent with the valuation's long-term annual UAL payroll growth assumption as adopted by the FRS Actuarial Assumption Conference. If future experience follows the actuarial assumptions, this should result in amortization payments that align with the assumed growth in overall UAL payroll. Please note that with the current closed amortization period of 25 years for new bases, amortization payments will not be large enough to cover interest on the UAL of those bases for several years, which means that as a dollar amount the UAL for each newly established amortization base is expected to grow for a period of time subsequent to its establishment. Under current assumptions, the projected remaining unamortized UAL for a newly established amortization base will grow until the amortization period is down to 21 years remaining. After that time, the amortization payments will be large enough that the amortization payments will cover both interest and principal, and the unamortized UAL as a dollar amount will be projected to decrease in each subsequent year. After approximately 7.5 years, the unamortized balance for the base will be approximately at the same level (in non-inflation-adjusted dollars) as the initial amount of the base.

The benefit changes effective in 2011 reduced the Normal Cost, PVFNC, and the PVB for current and future active members. All members initially enrolled before July 1, 2011 (Tier I) will continue to earn benefits at levels greater than those annually earned by members initially enrolled on or after July 1, 2011 (Tier II). While the base benefits are higher for Tier I members than Tier II members, the projected benefit levels for Tier I members are decreased from what they would have been before benefit changes in 2011 due to the determination of the annual COLA percentage being based on the ratio of pre-July 2011 service to total service.

As noted on the prior page, the Actuarial Liability is defined as PVB less PVFNC. In 2011, for some membership classes the decrease in the PVFNC from the 2011 benefit changes was larger than the decrease in the PVB, resulting in an increase in an Actuarial Liability. For the remaining membership classes, the decrease in the

PVFNC was smaller than the decrease in the PVB, resulting in a decrease in the Actuarial Liability. The variation is due to the different demographics, benefit multipliers and unique interrelation of the modified benefit provisions of each membership class under the actuarial cost allocation method approved for use in 2011 (Ultimate Entry Age Normal) by the FRS Actuarial Assumption Conference. The PVB will be lower in future valuations than it would have been had the 2011 benefit changes not been adopted.

Effective July 1, 2019, the FRS Actuarial Assumption Conference adopted the use of Individual Entry Age Normal (Individual EAN) for system funding calculations. The change in the actuarial cost allocation method increased the cost allocation of projected benefits to future service (via a higher normal cost rate than the prior method) and decreased the allocation of projected benefits to past service, meaning decreased actuarial accrued liability and UAL when compared to the prior method. The decrease in UAL arising from the cost method change is amortized separately from other UAL change amortization bases. The increase in Normal Cost and the decrease in UAL due to the actuarial cost allocation method change is specific to active Tier I Pension Plan members. There is no change, however, in the projected benefits for Tier I active members. Given this financial dynamic, the decrease in the UAL due to the July 1, 2019 actuarial valuation's cost allocation method change was amortized over a closed 30-year period in a manner that mirrors the projected payroll of the closed Tier I population in the FRS Pension Plan. This method was discussed and illustrated in Milliman's October 23, 2019 and October 28, 2019 presentation materials to the 2019 FRS Actuarial Assumption Conference.

B. FRS Pension Plan-Specific Employer Contribution Rates

Table 4-11 presents the actuarially calculated 2021-2022 employer contribution rates for the FRS Pension Plan prior to blending with FRS Investment Plan contribution rates to create 2021-2022 blended proposed statutory rates.

The reader should note that the payroll base for UAL Cost contributions is larger than the payroll base for Normal Cost contributions. Florida Statute requires the employers of certain defined contribution program participants and reemployed retirees who are not eligible for renewed membership to make UAL Cost contributions based on their payroll. The payroll base for UAL Cost contributions includes approximately \$3.7 billion of payroll for employees who are not currently participating in the FRS Pension Plan or the FRS Investment Plan. Thus, the total contribution rate shown is an arithmetic sum, but the actual contribution percentages will be determined on a blended rate basis so that employers pay the same contribution rate for FRS Pension Plan members and FRS Investment Plan members in the same membership class or subclass.

Table 4-12 compares the legislated FRS Pension Plan-specific employer contribution rates to those calculated in the actuarial valuations for the prior plan years. The legislated rates for the 2013-2014 through 2019-2020 plan years were the same as the actuarially calculated rates in the July 1, 2012 through July 1, 2018 actuarial valuations, respectively, as subsequently modified to reflect enacted legislation when necessary.

Table 4-1
Florida Retirement System Pension Plan
Normal Cost Rates by Decrement
July 1, 2020

	----- Elected Officers' Class -----						Senior Management	DROP	Total
	Regular	Special Risk	Special Risk Administrative	Judicial	Leg-Atty-Cab	Local			
1. Vested Benefits and Early Retirement	1.28%	1.95%	2.85%	1.24%	4.09%	3.00%	1.79%	NA	1.42%
2. Regular Retirement	6.58%	15.49%	11.03%	14.68%	7.49%	10.25%	7.78%	NA	8.20%
3. Non-Duty Death	0.16%	0.26%	0.22%	0.59%	0.36%	0.43%	0.23%	NA	0.18%
4. Line of Duty Death	0.01%	0.36%	0.01%	0.03%	0.02%	0.03%	0.02%	NA	0.08%
5. Non-Duty Disability	0.13%	0.17%	0.16%	0.26%	0.15%	0.16%	0.14%	NA	0.14%
6. Line of Duty Disability	0.01%	0.23%	0.01%	0.01%	0.01%	0.01%	0.01%	NA	0.05%
7. Refund of Employee Contributions	<u>0.17%</u>	<u>0.11%</u>	<u>0.03%</u>	<u>0.01%</u>	<u>0.07%</u>	<u>0.09%</u>	<u>0.12%</u>	<u>NA</u>	<u>0.16%</u>
8. Total Normal Cost Rate	8.34%	18.57%	14.31%	16.82%	12.19%	13.97%	10.09%	NA	10.23%
9. Expected Employee Contributions	<u>-3.00%</u>	<u>-3.00%</u>	<u>-3.00%</u>	<u>-3.00%</u>	<u>-3.00%</u>	<u>-3.00%</u>	<u>-3.00%</u>	<u>NA</u>	<u>-3.00%</u>
10. Employer Normal Cost Rate	5.34%	15.57%	11.31%	13.82%	9.19%	10.97%	7.09%	7.23% ¹	7.23%

¹ DROP Normal Cost Rate is set equivalent to the Pension Plan composite Normal Cost rate.

Table 4-2
Florida Retirement System Pension Plan
Unfunded Actuarial Liability (UAL) Bases
July 1, 2020
Composite Plan
(\$ in Thousands)

(a)	(b)	(c)	(d)	(e)	(f) = (d) / (e)	(g)	(h)	(i)	(j) = (h) / (i)
Date	Description	Remaining Payments as of Valuation Date	Balance as of Valuation Date	Amortization Factor ¹	Amortization Payment for FY 2020-2021	Remaining Payments one year after Valuation Date	Balance One Year After Valuation Date	Amortization Factor ¹	Amortization Payment for FY 2021-2022
June 30, 1999	Assumption Change from 1998 Experience Study	10	(\$331,091)	8.2045	(\$40,355)	9	(\$312,524)	7.5756	(\$41,254)
June 30, 2000	Special Risk 65% In-Line-Of-Duty Disability (2000)	11	(2,220)	8.8680	(250)	10	(2,117)	8.2768	(256)
June 30, 2000	Special Risk-Regular 12% Pre-2000 Retired Benefit Increase (2000)	11	282,798	8.8680	31,890	10	269,607	8.2768	32,574
June 30, 2004	Assumption Change from 2003 Experience Study	15	(3,370,417)	11.2865	(298,624)	14	(3,297,447)	10.8445	(304,067)
June 30, 2009	Assumption Change from 2008 Experience Study	20	6,971,126	13.8410	503,658	19	6,938,116	13.5793	510,933
June 30, 2009	2008-2009 Experience (Gains) / Losses	20	21,876,342	13.8410	1,580,549	19	21,772,753	13.5793	1,603,376
June 30, 2009	Unrecognized (Gains)/Losses while in Surplus	20	(6,399,023)	13.8410	(462,324)	19	(6,368,723)	13.5793	(469,002)
June 30, 2009	2009-2010 Plan Changes (HB 479)	20	(1,322,887)	13.8410	(95,578)	19	(1,316,623)	13.5793	(96,958)
June 30, 2010	2009-2010 Experience (Gains) / Losses	21	1,191,860	14.2968	83,365	20	1,189,057	14.0701	84,509
June 30, 2010	2010-2011 Plan Changes (SB 2100)	21	(1,305,514)	14.2968	(91,315)	20	(1,302,443)	14.0701	(92,568)
June 30, 2011	2010-2011 Experience (Gains) / Losses	22	2,913,548	14.7359	197,718	21	2,912,975	14.5438	200,290
June 30, 2012	2011-2012 Experience (Gains) / Losses	23	(117,468)	15.1587	(7,749)	22	(117,675)	15.0008	(7,845)
June 30, 2013	2012-2013 Experience (Gains) / Losses	24	2,964,508	15.5660	190,448	23	2,975,023	15.4418	192,660
June 30, 2014	Assumption/Method Change from 2013 Experience Study	25	2,129,909	15.9583	133,467	24	2,140,943	15.8674	134,928
June 30, 2014	2013-2014 Experience (Gains) / Losses	25	(2,888,669)	15.9583	(181,014)	24	(2,903,634)	15.8674	(182,994)
June 30, 2015	2014-2015 Experience (Gains) / Losses	26	591,033	16.3361	36,180	25	594,981	16.2780	36,551
June 30, 2016	Special Risk 100% In-Line-Of-Duty Death (2016)	27	45,007	16.7000	2,695	26	45,370	16.6742	2,721
June 30, 2016	2016 Assumption Changes	27	1,192,607	16.7000	71,414	26	1,202,219	16.6742	72,100
June 30, 2016	2015-2016 Experience (Gains) / Losses	27	1,313,373	16.7000	78,645	26	1,323,958	16.6742	79,401
June 30, 2017	Special Risk 100% In-Line-Of-Duty Death (2017)	28	93,634	17.0505	5,492	27	94,508	17.0566	5,541
June 30, 2017	2017 Assumption Changes	28	2,339,341	17.0505	137,201	27	2,361,173	17.0566	138,432
June 30, 2017	2016-2017 Experience (Gains) / Losses	28	516,212	17.0505	30,276	27	521,030	17.0566	30,547
June 30, 2018	2018 Assumption Changes	29	2,389,858	17.3881	137,443	28	2,414,976	17.4256	138,588
June 30, 2018	2017-2018 Experience (Gains) / Losses	29	(802,472)	17.3881	(46,151)	28	(810,906)	17.4256	(46,535)
June 30, 2019	Special Risk Cancer Presumption Disability and Death (2019)	30	11,638	17.7132	657	29	11,773	17.7816	662
June 30, 2019	2019 Assumption Changes	30	4,291,919	17.7132	242,301	29	4,341,716	17.7816	244,169
June 30, 2019	2019 Method Changes	30	(3,680,101)	9.0527	(406,519)	29	(3,517,202)	8.9173	(394,423)
June 30, 2019	2018-2019 Experience (Gains) / Losses	30	(428,573)	17.7132	(24,195)	29	(433,546)	17.7816	(24,382)
June 30, 2020	2020 Assumption Changes		3,895,911			25	4,168,625	16.2780	256,090
June 30, 2020	2019-2020 Experience (Gains) / Losses		<u>1,612,464</u> ²			25	<u>1,725,337</u>	16.2780	<u>105,992</u>
		UAL as of Valuation Date	\$35,974,651				\$36,621,298	Total:	\$2,209,782
								Projected FY 2021-2022 UAL Payroll Excluding FRS Investment Plan Payroll:	\$31,571,257
								FY 2021-2022 UAL Contribution Rate Prior to Blending with FRS Investment Plan Payroll:	7.00%

¹ The 2020-2021 amortization factors are based on the assumptions used in the July 1, 2019 actuarial valuation, which determined actuarially calculated contribution rates for 2020-2021.

The 2021-2022 amortization factors are based on the assumptions used in this July 1, 2020 actuarial valuation, which determines actuarially calculated contribution rates for 2021-2022.

² The experience (gains)/losses developed on this table and the subsequent tables in this section are derived using a methodology which assumes 2019-2020 UAL contributions precisely equaled the scheduled UAL amortization payments.

Actual System contributions differ somewhat from the amortization schedules in this section, and there is no clear delineation in actual contributions received between Normal Cost and UAL contributions.

The UAL (gain)/loss shown in the Executive Summary is derived using a methodology which incorporates actual 2019-2020 contributions.

Table 4-3
Florida Retirement System Pension Plan
Unfunded Actuarial Liability (UAL) Bases
July 1, 2020
Regular Class
(\$ in Thousands)

(a)	(b)	(c)	(d)	(e)	(f) = (d) / (e)	(g)	(h)	(i)	(j) = (h) / (i)
Date Established	Description	Remaining Payments as of Valuation Date	Balance as of Valuation Date	Amortization Factor	Amortization Payment for FY 2020-2021	Remaining Payments one year after Valuation Date	Balance One Year After Valuation Date	Amortization Factor	Amortization Payment for FY 2021-2022
June 30, 1999	Assumption Change from 1998 Experience Study	10	(\$252,224)	8.2045	(\$30,742)	9	(\$238,080)	7.5756	(\$31,427)
June 30, 2004	Assumption Change from 2003 Experience Study	15	(2,977,589)	11.2865	(263,819)	14	(2,913,124)	10.8445	(268,627)
June 30, 2009	Assumption Change from 2008 Experience Study	20	5,670,614	13.8410	409,697	19	5,643,763	13.5793	415,615
June 30, 2009	2008-2009 Experience (Gains) / Losses	20	34,835,456	13.8410	2,516,834	19	34,670,504	13.5793	2,553,185
June 30, 2009	Unrecognized (Gains)/Losses while in Surplus	20	(27,325,256)	13.8410	(1,974,228)	19	(27,195,866)	13.5793	(2,002,742)
June 30, 2009	2009-2010 Plan Changes (HB 479)	20	(1,040,006)	13.8410	(75,140)	19	(1,035,081)	13.5793	(76,225)
June 30, 2010	2009-2010 Experience (Gains) / Losses	21	1,328,627	14.2968	92,932	20	1,325,501	14.0701	94,207
June 30, 2010	2010-2011 Plan Changes (SB 2100)	21	(1,686,646)	14.2968	(117,974)	20	(1,682,678)	14.0701	(119,592)
June 30, 2011	2010-2011 Experience (Gains) / Losses	22	1,441,227	14.7359	97,804	21	1,440,943	14.5438	99,076
June 30, 2012	2011-2012 Experience (Gains) / Losses	23	521,185	15.1587	34,382	22	522,103	15.0008	34,805
June 30, 2013	2012-2013 Experience (Gains) / Losses	24	1,800,805	15.5660	115,688	23	1,807,193	15.4418	117,033
June 30, 2014	Assumption/Method Change from 2013 Experience Study	25	623,617	15.9583	39,078	24	626,847	15.8674	39,505
June 30, 2014	2013-2014 Experience (Gains) / Losses	25	(1,308,667)	15.9583	(82,006)	24	(1,315,446)	15.8674	(82,903)
June 30, 2015	2014-2015 Experience (Gains) / Losses	26	781,356	16.3361	47,830	25	786,575	16.2780	48,321
June 30, 2016	2016 Assumption Changes	27	808,269	16.7000	48,399	26	814,783	16.6742	48,865
June 30, 2016	2015-2016 Experience (Gains) / Losses	27	1,351,158	16.7000	80,908	26	1,362,047	16.6742	81,686
June 30, 2017	2017 Assumption Changes	28	1,569,512	17.0505	92,051	27	1,584,159	17.0566	92,877
June 30, 2017	2016-2017 Experience (Gains) / Losses	28	(322,977)	17.0505	(18,942)	27	(325,991)	17.0566	(19,112)
June 30, 2018	2018 Assumption Changes	29	1,585,610	17.3881	91,190	28	1,602,276	17.4256	91,950
June 30, 2018	2017-2018 Experience (Gains) / Losses	29	(1,149,411)	17.3881	(66,104)	28	(1,161,492)	17.4256	(66,655)
June 30, 2019	2019 Assumption Changes	30	4,159,257	17.7132	234,811	29	4,207,514	17.7816	236,622
June 30, 2019	2019 Method Changes	30	(2,053,762)	9.0527	(226,867)	29	(1,962,853)	8.9173	(220,116)
June 30, 2019	2018-2019 Experience (Gains) / Losses	30	(592,555)	17.7132	(33,453)	29	(599,430)	17.7816	(33,711)
June 30, 2020	2020 Assumption Changes		2,559,508			25	2,738,674	16.2780	168,244
June 30, 2020	2019-2020 Experience (Gains) / Losses		<u>1,129,101</u>			25	<u>1,208,138</u>	16.2780	<u>74,219</u>
	UAL as of Valuation Date		\$21,456,208				\$21,910,979	Total:	\$1,275,099
								Projected FY 2021-2022 UAL Payroll Excluding FRS Investment Plan Payroll:	\$23,882,565
								FY 2021-2022 UAL Contribution Rate Prior to Blending with FRS Investment Plan Payroll:	5.34%

Table 4-4
Florida Retirement System Pension Plan
Unfunded Actuarial Liability (UAL) Bases
July 1, 2020
Special Risk Class
(\$ in Thousands)

(a)	(b)	(c)	(d)	(e)	(f) = (d) / (e)	(g)	(h)	(i)	(j) = (h) / (i)
Date Established	Description	Remaining Payments as of Valuation Date	Balance as of Valuation Date	Amortization Factor	Amortization Payment for FY 2020-2021	Remaining Payments one year after Valuation Date	Balance One Year After Valuation Date	Amortization Factor	Amortization Payment for FY 2021-2022
June 30, 1999	Assumption Change from 1998 Experience Study	10	(\$76,362)	8.2045	(\$9,307)	9	(\$72,080)	7.5756	(\$9,515)
June 30, 2000	Special Risk 65% In-Line-Of-Duty Disability (2000)	11	(2,265)	8.8680	(255)	10	(2,159)	8.2768	(261)
June 30, 2000	Special Risk-Regular 12% Pre-2000 Retired Benefit Increase (2000)	11	282,798	8.8680	31,890	10	269,607	8.2768	32,574
June 30, 2004	Assumption Change from 2003 Experience Study	15	(608,295)	11.2865	(53,896)	14	(595,125)	10.8445	(54,878)
June 30, 2009	Assumption Change from 2008 Experience Study	20	556,975	13.8410	40,241	19	554,338	13.5793	40,822
June 30, 2009	2008-2009 Experience (Gains) / Losses	20	7,674,978	13.8410	554,511	19	7,638,636	13.5793	562,520
June 30, 2009	Unrecognized (Gains)/Losses while in Surplus	20	(2,546,765)	13.8410	(184,002)	19	(2,534,706)	13.5793	(186,659)
June 30, 2009	2009-2010 Plan Changes (HB 479)	20	(194,247)	13.8410	(14,034)	19	(193,327)	13.5793	(14,237)
June 30, 2010	2009-2010 Experience (Gains) / Losses	21	(422,117)	14.2968	(29,525)	20	(421,124)	14.0701	(29,930)
June 30, 2010	2010-2011 Plan Changes (SB 2100)	21	471,683	14.2968	32,992	20	470,574	14.0701	33,445
June 30, 2011	2010-2011 Experience (Gains) / Losses	22	268,589	14.7359	18,227	21	268,536	14.5438	18,464
June 30, 2012	2011-2012 Experience (Gains) / Losses	23	(581,187)	15.1587	(38,340)	22	(582,211)	15.0008	(38,812)
June 30, 2013	2012-2013 Experience (Gains) / Losses	24	515,421	15.5660	33,112	23	517,249	15.4418	33,497
June 30, 2014	Assumption/Method Change from 2013 Experience Study	25	1,405,735	15.9583	88,088	24	1,413,017	15.8674	89,052
June 30, 2014	2013-2014 Experience (Gains) / Losses	25	(916,594)	15.9583	(57,437)	24	(921,342)	15.8674	(58,065)
June 30, 2015	2014-2015 Experience (Gains) / Losses	26	(18,030)	16.3361	(1,104)	25	(18,150)	16.2780	(1,115)
June 30, 2016	Special Risk 100% In-Line-Of-Duty Death (2016)	27	45,007	16.7000	2,695	26	45,370	16.6742	2,721
June 30, 2016	2016 Assumption Changes	27	257,257	16.7000	15,405	26	259,330	16.6742	15,553
June 30, 2016	2015-2016 Experience (Gains) / Losses	27	225,136	16.7000	13,481	26	226,950	16.6742	13,611
June 30, 2017	Special Risk 100% In-Line-Of-Duty Death (2017)	28	93,634	17.0505	5,492	27	94,508	17.0566	5,541
June 30, 2017	2017 Assumption Changes	28	510,252	17.0505	29,926	27	515,014	17.0566	30,194
June 30, 2017	2016-2017 Experience (Gains) / Losses	28	509,101	17.0505	29,858	27	513,852	17.0566	30,126
June 30, 2018	2018 Assumption Changes	29	533,817	17.3881	30,700	28	539,428	17.4256	30,956
June 30, 2018	2017-2018 Experience (Gains) / Losses	29	205,445	17.3881	11,815	28	207,604	17.4256	11,914
June 30, 2019	Special Risk Cancer Presumption Disability and Death (2019)	30	11,638	17.7132	657	29	11,773	17.7816	662
June 30, 2019	2019 Assumption Changes	30	(26,362)	17.7132	(1,488)	29	(26,667)	17.7816	(1,500)
June 30, 2019	2019 Method Changes	30	(1,517,476)	9.0527	(167,626)	29	(1,450,305)	8.9173	(162,639)
June 30, 2019	2018-2019 Experience (Gains) / Losses	30	125,717	17.7132	7,097	29	127,176	17.7816	7,152
June 30, 2020	2020 Assumption Changes		827,918			25	885,872	16.2780	54,421
June 30, 2020	2019-2020 Experience (Gains) / Losses		<u>231,100</u>			25	<u>247,277</u>	16.2780	<u>15,191</u>
UAL as of Valuation Date			\$7,842,503			\$389,173	\$7,988,915	Total:	\$470,805
									Projected FY 2021-2022 UAL Payroll Excluding FRS Investment Plan Payroll: \$4,506,267
									FY 2021-2022 UAL Contribution Rate Prior to Blending with FRS Investment Plan Payroll: 10.45%

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Table 4-5
Florida Retirement System Pension Plan
Unfunded Actuarial Liability (UAL) Bases
July 1, 2020
Special Risk Administrative Support Class
(\$ in Thousands)

(a)	(b)	(c)	(d)	(e)	(f) = (d) / (e)	(g)	(h)	(i)	(j) = (h) / (i)	
Date Established	Description	Remaining Payments as of Valuation Date	Balance as of Valuation Date	Amortization Factor	Amortization Payment for FY 2020-2021	Remaining Payments one year after Valuation Date	Balance One Year After Valuation Date	Amortization Factor	Amortization Payment for FY 2021-2022	
June 30, 1999	Assumption Change from 1998 Experience Study	10	(\$274)	8.2045	(\$33)	9	(\$259)	7.5756	(\$34)	
June 30, 2000	Special Risk 65% In-Line-Of-Duty Disability (2000)	11	45	8.8680	5	10	43	8.2768	5	
June 30, 2004	Assumption Change from 2003 Experience Study	15	10,155	11.2865	900	14	9,935	10.8445	916	
June 30, 2009	Assumption Change from 2008 Experience Study	20	1,340	13.8410	97	19	1,333	13.5793	98	
June 30, 2009	2008-2009 Experience (Gains) / Losses	20	20,140	13.8410	1,455	19	20,045	13.5793	1,476	
June 30, 2009	Unrecognized (Gains)/Losses while in Surplus	20	(22,352)	13.8410	(1,615)	19	(22,246)	13.5793	(1,638)	
June 30, 2009	2009-2010 Plan Changes (HB 479)	20	0	13.8410	0	19	0	13.5793	0	
June 30, 2010	2009-2010 Experience (Gains) / Losses	21	1,215	14.2968	85	20	1,212	14.0701	86	
June 30, 2010	2010-2011 Plan Changes (SB 2100)	21	(554)	14.2968	(39)	20	(553)	14.0701	(39)	
June 30, 2011	2010-2011 Experience (Gains) / Losses	22	2,936	14.7359	199	21	2,936	14.5438	202	
June 30, 2012	2011-2012 Experience (Gains) / Losses	23	611	15.1587	40	22	613	15.0008	41	
June 30, 2013	2012-2013 Experience (Gains) / Losses	24	2,934	15.5660	189	23	2,945	15.4418	191	
June 30, 2014	Assumption/Method Change from 2013 Experience Study	25	(6,071)	15.9583	(380)	24	(6,103)	15.8674	(385)	
June 30, 2014	2013-2014 Experience (Gains) / Losses	25	6,879	15.9583	431	24	6,914	15.8674	436	
June 30, 2015	2014-2015 Experience (Gains) / Losses	26	(6,050)	16.3361	(370)	25	(6,091)	16.2780	(374)	
June 30, 2016	2016 Assumption Changes	27	507	16.7000	30	26	512	16.6742	31	
June 30, 2016	2015-2016 Experience (Gains) / Losses	27	2,022	16.7000	121	26	2,038	16.6742	122	
June 30, 2017	2017 Assumption Changes	28	983	17.0505	58	27	992	17.0566	58	
June 30, 2017	2016-2017 Experience (Gains) / Losses	28	2,474	17.0505	145	27	2,497	17.0566	146	
June 30, 2018	2018 Assumption Changes	29	999	17.3881	57	28	1,010	17.4256	58	
June 30, 2018	2017-2018 Experience (Gains) / Losses	29	684	17.3881	39	28	691	17.4256	40	
June 30, 2019	2019 Assumption Changes	30	(2,828)	17.7132	(160)	29	(2,861)	17.7816	(161)	
June 30, 2019	2019 Method Changes	30	(2,009)	9.0527	(222)	29	(1,920)	8.9173	(215)	
June 30, 2019	2018-2019 Experience (Gains) / Losses	30	2,103	17.7132	119	29	2,127	17.7816	120	
June 30, 2020	2020 Assumption Changes		1,532			25	1,639	16.2780	101	
June 30, 2020	2019-2020 Experience (Gains) / Losses		980			25	1,048	16.2780	64	
UAL as of Valuation Date			\$18,401			\$1,151	\$18,498	Total:	\$1,344	
									Projected FY 2021-2022 UAL Payroll Excluding FRS Investment Plan Payroll:	\$3,743
									FY 2021-2022 UAL Contribution Rate Prior to Blending with FRS Investment Plan Payroll:	35.91%

Table 4-6
Florida Retirement System Pension Plan
Unfunded Actuarial Liability (UAL) Bases
July 1, 2020
Elected Officers' Class: Judicial Subclass
 (\$ in Thousands)

(a)	(b)	(c)	(d)	(e)	(f) = (d) / (e)	(g)	(h)	(i)	(j) = (h) / (i)
Date Established	Description	Remaining Payments as of Valuation Date	Balance as of Valuation Date	Amortization Factor	Amortization Payment for FY 2020-2021	Remaining Payments one year after Valuation Date	Balance One Year After Valuation Date	Amortization Factor	Amortization Payment for FY 2021-2022
June 30, 1999	Assumption Change from 1998 Experience Study	10	\$35	8.2045	\$4	9	\$33	7.5756	\$4
June 30, 2004	Assumption Change from 2003 Experience Study	15	26,833	11.2865	2,377	14	26,253	10.8445	2,421
June 30, 2009	Assumption Change from 2008 Experience Study	20	20,471	13.8410	1,479	19	20,375	13.5793	1,500
June 30, 2009	2008-2009 Experience (Gains) / Losses	20	517,874	13.8410	37,416	19	515,422	13.5793	37,956
June 30, 2009	Unrecognized (Gains)/Losses while in Surplus	20	(280,927)	13.8410	(20,297)	19	(279,597)	13.5793	(20,590)
June 30, 2009	2009-2010 Plan Changes (HB 479)	20	(25,872)	13.8410	(1,869)	19	(25,750)	13.5793	(1,896)
June 30, 2010	2009-2010 Experience (Gains) / Losses	21	(22,668)	14.2968	(1,586)	20	(22,615)	14.0701	(1,607)
June 30, 2010	2010-2011 Plan Changes (SB 2100)	21	3,258	14.2968	228	20	3,251	14.0701	231
June 30, 2011	2010-2011 Experience (Gains) / Losses	22	86,811	14.7359	5,891	21	86,794	14.5438	5,968
June 30, 2012	2011-2012 Experience (Gains) / Losses	23	6,836	15.1587	451	22	6,848	15.0008	456
June 30, 2013	2012-2013 Experience (Gains) / Losses	24	111,494	15.5660	7,163	23	111,890	15.4418	7,246
June 30, 2014	Assumption/Method Change from 2013 Experience Study	25	25,529	15.9583	1,600	24	25,662	15.8674	1,617
June 30, 2014	2013-2014 Experience (Gains) / Losses	25	(56,452)	15.9583	(3,538)	24	(56,745)	15.8674	(3,576)
June 30, 2015	2014-2015 Experience (Gains) / Losses	26	5,650	16.3361	346	25	5,688	16.2780	349
June 30, 2016	2016 Assumption Changes	27	7,524	16.7000	451	26	7,585	16.6742	455
June 30, 2016	2015-2016 Experience (Gains) / Losses	27	36,818	16.7000	2,205	26	37,115	16.6742	2,226
June 30, 2017	2017 Assumption Changes	28	14,544	17.0505	853	27	14,680	17.0566	861
June 30, 2017	2016-2017 Experience (Gains) / Losses	28	(2,669)	17.0505	(157)	27	(2,694)	17.0566	(158)
June 30, 2018	2018 Assumption Changes	29	15,295	17.3881	880	28	15,455	17.4256	887
June 30, 2018	2017-2018 Experience (Gains) / Losses	29	37,365	17.3881	2,149	28	37,758	17.4256	2,167
June 30, 2019	2019 Assumption Changes	30	(46,182)	17.7132	(2,607)	29	(46,718)	17.7816	(2,627)
June 30, 2019	2019 Method Changes	30	(24,956)	9.0527	(2,757)	29	(23,851)	8.9173	(2,675)
June 30, 2019	2018-2019 Experience (Gains) / Losses	30	32,155	17.7132	1,815	29	32,528	17.7816	1,829
June 30, 2020	2020 Assumption Changes		24,940			25	26,686	16.2780	1,639
June 30, 2020	2019-2020 Experience (Gains) / Losses		<u>(9,149)</u>			25	<u>(9,790)</u>	16.2780	<u>(601)</u>
		UAL as of Valuation Date	\$504,558			\$32,498	\$506,261	Total:	\$34,083
								Projected FY 2021-2022 UAL Payroll Excluding FRS Investment Plan Payroll:	\$111,077
								FY 2021-2022 UAL Contribution Rate Prior to Blending with FRS Investment Plan Payroll:	30.68%

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Table 4-7
Florida Retirement System Pension Plan
Unfunded Actuarial Liability (UAL) Bases
July 1, 2020
Elected Officers' Class: Legislature/Attorney/Cabinet Subclass
 (\$ in Thousands)

(a)	(b)	(c)	(d)	(e)	(f) = (d) / (e)	(g)	(h)	(i)	(j) = (h) / (i)
Date Established	Description	Remaining Payments as of Valuation Date	Balance as of Valuation Date	Amortization Factor	Amortization Payment for FY 2020-2021	Remaining Payments one year after Valuation Date	Balance One Year After Valuation Date	Amortization Factor	Amortization Payment for FY 2021-2022
June 30, 1999	Assumption Change from 1998 Experience Study	10	\$2	8.2045	\$0	9	\$2	7.5756	\$0
June 30, 2004	Assumption Change from 2003 Experience Study	15	2,020	11.2865	179	14	1,977	10.8445	182
June 30, 2009	Assumption Change from 2008 Experience Study	20	2,054	13.8410	148	19	2,045	13.5793	151
June 30, 2009	2008-2009 Experience (Gains) / Losses	20	62,927	13.8410	4,546	19	62,629	13.5793	4,612
June 30, 2009	Unrecognized (Gains)/Losses while in Surplus	20	(35,988)	13.8410	(2,600)	19	(35,817)	13.5793	(2,638)
June 30, 2009	2009-2010 Plan Changes (HB 479)	20	(817)	13.8410	(59)	19	(813)	13.5793	(60)
June 30, 2010	2009-2010 Experience (Gains) / Losses	21	2,951	14.2968	206	20	2,944	14.0701	209
June 30, 2010	2010-2011 Plan Changes (SB 2100)	21	134	14.2968	9	20	134	14.0701	10
June 30, 2011	2010-2011 Experience (Gains) / Losses	22	8,750	14.7359	594	21	8,749	14.5438	602
June 30, 2012	2011-2012 Experience (Gains) / Losses	23	(4,122)	15.1587	(272)	22	(4,129)	15.0008	(275)
June 30, 2013	2012-2013 Experience (Gains) / Losses	24	19,791	15.5660	1,271	23	19,861	15.4418	1,286
June 30, 2014	Assumption/Method Change from 2013 Experience Study	25	(3,064)	15.9583	(192)	24	(3,079)	15.8674	(194)
June 30, 2014	2013-2014 Experience (Gains) / Losses	25	(944)	15.9583	(59)	24	(949)	15.8674	(60)
June 30, 2015	2014-2015 Experience (Gains) / Losses	26	(7,505)	16.3361	(459)	25	(7,555)	16.2780	(464)
June 30, 2016	2016 Assumption Changes	27	634	16.7000	38	26	639	16.6742	38
June 30, 2016	2015-2016 Experience (Gains) / Losses	27	10,672	16.7000	639	26	10,758	16.6742	645
June 30, 2017	2017 Assumption Changes	28	1,280	17.0505	75	27	1,292	17.0566	76
June 30, 2017	2016-2017 Experience (Gains) / Losses	28	4,102	17.0505	241	27	4,141	17.0566	243
June 30, 2018	2018 Assumption Changes	29	1,320	17.3881	76	28	1,334	17.4256	77
June 30, 2018	2017-2018 Experience (Gains) / Losses	29	2,767	17.3881	159	28	2,796	17.4256	160
June 30, 2019	2019 Assumption Changes	30	(2,767)	17.7132	(156)	29	(2,799)	17.7816	(157)
June 30, 2019	2019 Method Changes	30	(812)	9.0527	(90)	29	(776)	8.9173	(87)
June 30, 2019	2018-2019 Experience (Gains) / Losses	30	1,025	17.7132	58	29	1,037	17.7816	58
June 30, 2020	2020 Assumption Changes		2,317			25	2,479	16.2780	152
June 30, 2020	2019-2020 Experience (Gains) / Losses		<u>3,811</u>			25	<u>4,078</u>	16.2780	<u>251</u>
	UAL as of Valuation Date		\$70,541			\$4,353	\$70,976	Total:	\$4,817
								Projected FY 2021-2022 UAL Payroll Excluding FRS Investment Plan Payroll:	\$6,382
								FY 2021-2022 UAL Contribution Rate Prior to Blending with FRS Investment Plan Payroll:	75.47%

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Table 4-8
Florida Retirement System Pension Plan
Unfunded Actuarial Liability (UAL) Bases
July 1, 2020
Elected Officers' Class: Local Subclass
 (\$ in Thousands)

(a)	(b)	(c)	(d)	(e)	(f) = (d) / (e)	(g)	(h)	(i)	(j) = (h) / (i)	
Date Established	Description	Remaining Payments as of Valuation Date	Balance as of Valuation Date	Amortization Factor	Amortization Payment for FY 2020-2021	Remaining Payments one year after Valuation Date	Balance One Year After Valuation Date	Amortization Factor	Amortization Payment for FY 2021-2022	
June 30, 1999	Assumption Change from 1998 Experience Study	10	\$4	8.2045	\$1	9	\$4	7.5756	\$1	
June 30, 2004	Assumption Change from 2003 Experience Study	15	33,964	11.2865	3,009	14	33,229	10.8445	3,064	
June 30, 2009	Assumption Change from 2008 Experience Study	20	11,945	13.8410	863	19	11,888	13.5793	875	
June 30, 2009	2008-2009 Experience (Gains) / Losses	20	245,180	13.8410	17,714	19	244,019	13.5793	17,970	
June 30, 2009	Unrecognized (Gains)/Losses while in Surplus	20	(60,705)	13.8410	(4,386)	19	(60,418)	13.5793	(4,449)	
June 30, 2009	2009-2010 Plan Changes (HB 479)	20	(7,411)	13.8410	(535)	19	(7,376)	13.5793	(543)	
June 30, 2010	2009-2010 Experience (Gains) / Losses	21	2,160	14.2968	151	20	2,155	14.0701	153	
June 30, 2010	2010-2011 Plan Changes (SB 2100)	21	308	14.2968	22	20	308	14.0701	22	
June 30, 2011	2010-2011 Experience (Gains) / Losses	22	14,458	14.7359	981	21	14,456	14.5438	994	
June 30, 2012	2011-2012 Experience (Gains) / Losses	23	(5,925)	15.1587	(391)	22	(5,935)	15.0008	(396)	
June 30, 2013	2012-2013 Experience (Gains) / Losses	24	114,293	15.5660	7,342	23	114,698	15.4418	7,428	
June 30, 2014	Assumption/Method Change from 2013 Experience Study	25	(24,355)	15.9583	(1,526)	24	(24,481)	15.8674	(1,543)	
June 30, 2014	2013-2014 Experience (Gains) / Losses	25	(10,821)	15.9583	(678)	24	(10,877)	15.8674	(685)	
June 30, 2015	2014-2015 Experience (Gains) / Losses	26	(10,791)	16.3361	(661)	25	(10,863)	16.2780	(667)	
June 30, 2016	2016 Assumption Changes	27	3,381	16.7000	202	26	3,408	16.6742	204	
June 30, 2016	2015-2016 Experience (Gains) / Losses	27	22,294	16.7000	1,335	26	22,474	16.6742	1,348	
June 30, 2017	2017 Assumption Changes	28	7,068	17.0505	415	27	7,134	17.0566	418	
June 30, 2017	2016-2017 Experience (Gains) / Losses	28	39,994	17.0505	2,346	27	40,367	17.0566	2,367	
June 30, 2018	2018 Assumption Changes	29	7,192	17.3881	414	28	7,268	17.4256	417	
June 30, 2018	2017-2018 Experience (Gains) / Losses	29	11,014	17.3881	633	28	11,129	17.4256	639	
June 30, 2019	2019 Assumption Changes	30	(8,819)	17.7132	(498)	29	(8,922)	17.7816	(502)	
June 30, 2019	2019 Method Changes	30	(5,898)	9.0527	(652)	29	(5,637)	8.9173	(632)	
June 30, 2019	2018-2019 Experience (Gains) / Losses	30	(2,093)	17.7132	(118)	29	(2,118)	17.7816	(119)	
June 30, 2020	2020 Assumption Changes		11,483			25	12,287	16.2780	755	
June 30, 2020	2019-2020 Experience (Gains) / Losses		<u>3,397</u>			25	<u>3,634</u>	16.2780	<u>223</u>	
UAL as of Valuation Date			\$391,316		\$25,983		\$391,831	Total:	\$27,341	
									Projected FY 2021-2022 UAL Payroll Excluding FRS Investment Plan Payroll:	\$47,294
									FY 2021-2022 UAL Contribution Rate Prior to Blending with FRS Investment Plan Payroll:	57.81%

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Table 4-9
Florida Retirement System Pension Plan
Unfunded Actuarial Liability (UAL) Bases
July 1, 2020
Senior Management Service Class
 (\$ in Thousands)

(a)	(b)	(c)	(d)	(e)	(f) = (d) / (e)	(g)	(h)	(i)	(j) = (h) / (i)
Date Established	Description	Remaining Payments as of Valuation Date	Balance as of Valuation Date	Amortization Factor	Amortization Payment for FY 2020-2021	Remaining Payments one year after Valuation Date	Balance One Year After Valuation Date	Amortization Factor	Amortization Payment for FY 2021-2022
June 30, 1999	Assumption Change from 1998 Experience Study	10	(\$2,273)	8.2045	(\$277)	9	(\$2,145)	7.5756	(\$283)
June 30, 2004	Assumption Change from 2003 Experience Study	15	208,626	11.2865	18,485	14	204,110	10.8445	18,822
June 30, 2009	Assumption Change from 2008 Experience Study	20	65,854	13.8410	4,758	19	65,542	13.5793	4,827
June 30, 2009	2008-2009 Experience (Gains) / Losses	20	1,282,601	13.8410	92,667	19	1,276,527	13.5793	94,005
June 30, 2009	Unrecognized (Gains)/Losses while in Surplus	20	(291,124)	13.8410	(21,034)	19	(289,746)	13.5793	(21,337)
June 30, 2009	2009-2010 Plan Changes (HB 479)	20	(54,535)	13.8410	(3,940)	19	(54,276)	13.5793	(3,997)
June 30, 2010	2009-2010 Experience (Gains) / Losses	21	35,764	14.2968	2,502	20	35,680	14.0701	2,536
June 30, 2010	2010-2011 Plan Changes (SB 2100)	21	(93,698)	14.2968	(6,554)	20	(93,478)	14.0701	(6,644)
June 30, 2011	2010-2011 Experience (Gains) / Losses	22	135,782	14.7359	9,214	21	135,756	14.5438	9,334
June 30, 2012	2011-2012 Experience (Gains) / Losses	23	70,002	15.1587	4,618	22	70,125	15.0008	4,675
June 30, 2013	2012-2013 Experience (Gains) / Losses	24	394,502	15.5680	25,344	23	395,901	15.4418	25,638
June 30, 2014	Assumption/Method Change from 2013 Experience Study	25	(155,331)	15.9583	(9,734)	24	(156,135)	15.8674	(9,840)
June 30, 2014	2013-2014 Experience (Gains) / Losses	25	62,675	15.9583	3,927	24	63,000	15.8674	3,970
June 30, 2015	2014-2015 Experience (Gains) / Losses	26	53,707	16.3361	3,288	25	54,065	16.2780	3,321
June 30, 2016	2016 Assumption Changes	27	31,950	16.7000	1,913	26	32,207	16.6742	1,932
June 30, 2016	2015-2016 Experience (Gains) / Losses	27	100,306	16.7000	6,006	26	101,114	16.6742	6,064
June 30, 2017	2017 Assumption Changes	28	60,139	17.0505	3,527	27	60,700	17.0566	3,559
June 30, 2017	2016-2017 Experience (Gains) / Losses	28	81,564	17.0505	4,784	27	82,325	17.0566	4,827
June 30, 2018	2018 Assumption Changes	29	62,009	17.3881	3,566	28	62,660	17.4256	3,596
June 30, 2018	2017-2018 Experience (Gains) / Losses	29	80,180	17.3881	4,611	28	81,023	17.4256	4,650
June 30, 2019	2019 Assumption Changes	30	22,782	17.7132	1,286	29	23,046	17.7816	1,296
June 30, 2019	2019 Method Changes	30	(75,188)	9.0527	(8,306)	29	(71,860)	8.9173	(8,058)
June 30, 2019	2018-2019 Experience (Gains) / Losses	30	127,477	17.7132	7,197	29	128,956	17.7816	7,252
June 30, 2020	2020 Assumption Changes		104,802			25	112,138	16.2780	6,889
June 30, 2020	2019-2020 Experience (Gains) / Losses		<u>130,620</u>			25	<u>139,763</u>	16.2780	<u>8,586</u>
UAL as of Valuation Date			\$2,439,192			\$147,849	\$2,456,999	Total:	\$165,619
									Projected FY 2021-2022 UAL Payroll Excluding FRS Investment Plan Payroll: \$572,644
FY 2021-2022 UAL Contribution Rate Prior to Blending with FRS Investment Plan Payroll:									28.92%

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Table 4-10
Florida Retirement System Pension Plan
Unfunded Actuarial Liability (UAL) Bases
July 1, 2020
DROP
(\$ in Thousands)

(a)	(b)	(c)	(d)	(e)	(f) = (d) / (e)	(g)	(h)	(i)	(j) = (h) / (i)
Date Established	Description	Remaining Payments as of Valuation Date	Balance as of Valuation Date	Amortization Factor	Amortization Payment for FY 2020-2021	Remaining Payments one year after Valuation Date	Balance One Year After Valuation Date	Amortization Factor	Amortization Payment for FY 2021-2022
June 30, 2004	Assumption Change from 2003 Experience Study	15	(\$66,133)	11.2865	(\$5,859)	14	(\$64,701)	10.8445	(\$5,966)
June 30, 2009	Assumption Change from 2008 Experience Study	20	641,872	13.8410	46,375	19	638,833	13.5793	47,045
June 30, 2009	2008-2009 Experience (Gains) / Losses	20	(22,762,814)	13.8410	(1,644,596)	19	(22,655,028)	13.5793	(1,668,348)
June 30, 2009	Unrecognized (Gains)/Losses while in Surplus	20	24,164,094	13.8410	1,745,837	19	24,049,673	13.5793	1,771,052
June 30, 2010	2009-2010 Experience (Gains) / Losses	21	265,928	14.2968	18,601	20	265,303	14.0701	18,856
June 30, 2011	2010-2011 Experience (Gains) / Losses	22	954,994	14.7359	64,807	21	954,806	14.5438	65,651
June 30, 2012	2011-2012 Experience (Gains) / Losses	23	(124,868)	15.1587	(8,237)	22	(125,088)	15.0008	(8,339)
June 30, 2013	2012-2013 Experience (Gains) / Losses	24	5,268	15.5660	338	23	5,286	15.4418	342
June 30, 2014	Assumption/Method Change from 2013 Experience Study	25	263,849	15.9583	16,534	24	265,216	15.8674	16,715
June 30, 2014	2013-2014 Experience (Gains) / Losses	25	(664,745)	15.9583	(41,655)	24	(668,189)	15.8674	(42,111)
June 30, 2015	2014-2015 Experience (Gains) / Losses	26	(207,305)	16.3361	(12,690)	25	(208,689)	16.2780	(12,820)
June 30, 2016	2016 Assumption Changes	27	83,086	16.7000	4,975	26	83,756	16.6742	5,023
June 30, 2016	2015-2016 Experience (Gains) / Losses	27	(435,032)	16.7000	(26,050)	26	(438,538)	16.6742	(26,300)
June 30, 2017	2017 Assumption Changes	28	175,562	17.0505	10,297	27	177,201	17.0566	10,389
June 30, 2017	2016-2017 Experience (Gains) / Losses	28	204,623	17.0505	12,001	27	206,533	17.0566	12,109
June 30, 2018	2018 Assumption Changes	29	183,616	17.3881	10,560	28	185,546	17.4256	10,648
June 30, 2018	2017-2018 Experience (Gains) / Losses	29	9,485	17.3881	546	28	9,585	17.4256	550
June 30, 2019	2019 Assumption Changes	30	196,837	17.7132	11,112	29	199,121	17.7816	11,198
June 30, 2019	2018-2019 Experience (Gains) / Losses	30	(122,403)	17.7132	(6,910)	29	(123,823)	17.7816	(6,964)
June 30, 2020	2020 Assumption Changes		363,411			25	388,850	16.2780	23,888
June 30, 2020	2019-2020 Experience (Gains) / Losses		122,605			25	131,187	16.2780	8,059
		UAL as of Valuation Date	\$3,251,932		\$195,985		\$3,276,839	Total:	\$230,675
									Projected FY 2021-2022 UAL Payroll Excluding FRS Investment Plan Payroll: \$2,441,285
									FY 2021-2022 UAL Contribution Rate Prior to Blending with FRS Investment Plan Payroll: 9.45%

Table 4-11
Florida Retirement System Pension Plan
Actuarially Calculated Employer Contribution Rates
Prior to Blending with FRS Investment Plan
July 1, 2020 Valuation for Fiscal Year Beginning July 1, 2021

No surplus available for rate reduction

	Regular	Special Risk	Special Risk Administrative	-- Elected Officers' Class -- Judicial	Leg-Atty-Cab	Local	Senior Management	Composite (excluding DROP)	DROP ¹	Composite (including DROP)
1. Employer Normal Cost Rate	5.34%	15.57%	11.31%	13.82%	9.19%	10.97%	7.09%	7.23%	7.23%	7.23%
2. UAL Contribution Rate ²	5.34%	10.45%	35.91%	30.68%	75.47%	57.81%	28.92%	6.80%	9.45%	7.00%
3. Total Employer Contribution Rate [(1) + (2)]	10.68%	26.02%	47.22%	44.50%	84.66%	68.78%	36.01%	14.03%	16.68%	14.23%
4. UAL Cost Paid from Surplus	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
5. Rate Reduction from Surplus	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
6. Total Adjusted Employer Contribution Rate for FRS Trust Fund [(3) + (4) + (5)]	10.68%	26.02%	47.22%	44.50%	84.66%	68.78%	36.01%	14.03%	16.68%	14.23%

¹ DROP rates are special charges to cover the assumed cost of DROP participants; they are not Normal Cost or UAL in the traditional sense. See Section G of Executive Summary for discussion of the DROP contribution rate.

² Prior to blending with FRS Investment Plan Payroll.

Table 4-12
Florida Retirement System Pension Plan
Actuarially Calculated vs. Legislated Defined Benefit Plan Contribution Rates (Before Blending) ^{1 & 2 & 3}

Membership Class	Plan Year 2019-2020		Plan Year 2020-2021		Plan Year 2021-2022	
	Actuarially Calculated	Legislated	Actuarially Calculated	Legislated	Actuarially Calculated	Legislated
1. Regular	7.39%	7.39%	9.45%	9.45%	10.68%	TBD
2. Special Risk	25.63%	25.63%	24.36%	24.36%	26.02%	TBD
3. Special Risk Administrative	43.30%	43.30%	42.00%	42.00%	47.22%	TBD
4. Elected Officers' Class - Judicial	44.05%	44.05%	41.90%	41.90%	44.50%	TBD
5. Elected Officers' Class - Leg-Atty-Cab	64.81%	64.81%	69.42%	69.42%	84.66%	TBD
6. Elected Officers' Class - Local	62.25%	62.25%	63.16%	63.16%	68.78%	TBD
7. Senior Management Service	30.22%	30.22%	32.85%	32.85%	36.01%	TBD
8. Composite without DROP	10.91%	10.91%	12.62%	12.62%	14.03%	TBD
9. DROP	12.94%	12.94%	15.32%	15.32%	16.68%	TBD
10. Composite with DROP	11.06%	11.06%	12.83%	12.83%	14.23%	TBD

¹ The above rates (applied to DB plan payroll) are combined with the Investment Plan contribution rates (applied to IP payroll) to derive the uniform blended rates employers contribute.

² Contribution rates shown above do not include the 3% required employee contribution rate.

³ The Plan Year 2019-2020 rates shown in this table differ from those developed in the July 1, 2018 actuarial valuation due to the modification of Special Risk cancer presumption disability and death benefit provisions by the Florida Legislature subsequent to the publication of the valuation report.

5. Accounting Statement

The liabilities presented in this report differ by section regarding whether future anticipated salary increases, or service credits, are included in the calculation. Actuarial Liabilities in Sections 3 and 4 are determined for plan funding purposes and include a provision for the projected effects of future salary increases and future service expected to be performed by current FRS Pension Plan members.

Statement No. 67 of the Governmental Accounting Standards Board (GASB) is the current standard for pension plan accounting disclosure by governmental pension systems. GASB 67 information for the FRS Pension Plan as of June 30, 2020 was provided under separate cover in November 2020.¹ GASB 67 liability calculations also include a provision for the projected effects of future salary increases and future service performed by current FRS Pension Plan members.

Accounting Standards Codification (ASC) 960 – Plan Accounting – Defined Benefit Pension Plans, formerly titled Statement No. 35 of the Financial Accounting Standards Board (FASB), specifies a different methodology for disclosure of certain information regarding pension plan funded status. Accounting liabilities calculated under ASC 960 do not include the effects of either projected future salary increases or projected future service performed.

The ASC 960 disclosures are intended to provide a “snapshot” view of how the Plan’s assets compare to its liabilities if contributions stopped and accrued benefit claims had to be satisfied. The Accumulated Benefit Obligation (ABO) is determined based on each member’s accrued benefit, that is, the benefit based on employee service performed and compensation earned up to the valuation date. We assume that the plan is ongoing and that members continue to terminate employment, retire, and otherwise act in accordance with the actuarial assumptions. Liabilities are discounted at the assumed valuation interest rate of 7.00% per annum.

Table 5-1 presents the ABO for the FRS Pension Plan determined as of July 1, 2020. All of the calculations presented in that table are based on the actuarial assumptions used in the valuation, as described in Appendix A, except salaries are not projected to increase and no future benefit service is credited for service performed after the valuation date. Values of the ABO are shown by type of member and by class. The active members’ values are also divided between the employee-financed (accumulated member contributions) and employer-financed portions, with the employer-financed portions shown separately for vested benefits and non-vested benefits. For purposes of calculating the ABO post-Senate Bill 2100, we estimated the COLA percentage for each member as 3% multiplied by service through June 30, 2011, divided by projected total service at the time of retirement.

Table 5-2 presents the total ABO for the FRS Pension Plan for the current and two prior valuations. The trend of the Pension Plan’s ASC 960 funded status, as measured by the ABO over a period of time, is one indication of the progress being made in accumulating sufficient assets to pay benefits when due. Past and future results are affected by changes in actuarial assumptions, benefit provisions, and accounting policies.

Table 5-3 reconciles the ABO determined as of the prior valuation, July 1, 2019, to the ABO as of July 1, 2020. This reconciliation indicates the impact of the assumption changes and plan changes, if any.

¹ The valuation report in prior years included Table 5-4 which showed the Net Pension Obligation under GASB Statement No. 27. That exhibit has been discontinued since GASB Statement No. 27 is not applicable after plan year 2013-2014. Please refer to the separate GASB 67 report for financial reporting information.

Table 5-1
Florida Retirement System Pension Plan
Accumulated Benefit Obligation - ASC 960
July 1, 2020
(\$ in Thousands)

	Regular	Special Risk	Special Risk Administrative	-- Elected Officers' Class --			Senior Management	DROP	Total
			Judicial	Leg-Atty-Cab	Local				
A. Accumulated Benefit Obligation									
1. Active Members									
a. Accumulated Member Contributions	\$3,575,738	\$735,569	\$871	\$20,816	\$1,167	\$8,397	\$100,659	\$0	\$4,443,217
b. Employer-Financed Vested Benefits	20,247,965	7,002,283	9,944	227,573	12,942	90,469	863,009	0	28,454,185
c. Employer-Financed Non-Vested Benefits	2,579,220	935,717	1,028	19,114	603	6,107	129,747	0	3,671,536
d. Total	\$26,402,923	\$8,673,569	\$11,843	\$267,503	\$14,712	\$104,973	\$1,093,415	\$0	\$36,568,938
2. Annuitants	\$87,114,838	\$24,342,285	\$72,233	\$1,025,483	\$95,226	\$513,696	\$3,434,736	\$18,106,528	\$134,705,025
3. Other Inactive Members	\$4,609,240	\$654,290	\$1,482	\$21,704	\$10,579	\$18,053	\$201,618	\$0	\$5,516,966
4. Total Accumulated Benefit Obligation	\$118,127,001	\$33,670,144	\$85,558	\$1,314,690	\$120,517	\$636,722	\$4,729,769	\$18,106,528	\$176,790,929
B. Assets Available for Benefits									
1. Market	\$111,533,613	\$31,273,175	\$69,828	\$914,257	\$54,352	\$281,167	\$2,834,481	\$14,607,392	\$161,568,265
2. Actuarial Basis	\$113,421,119	\$31,802,418	\$71,010	\$929,729	\$55,272	\$285,925	\$2,882,450	\$14,854,596	\$164,302,519
C. Unfunded / (Surplus) Total Accumulated Benefit Obligation, Assets at:									
1. Market	\$6,593,388	\$2,396,969	\$15,730	\$400,433	\$66,165	\$355,555	\$1,895,288	\$3,499,136	\$15,222,664
2. Actuarial Basis	\$4,705,882	\$1,867,726	\$14,548	\$384,961	\$65,245	\$350,797	\$1,847,319	\$3,251,932	\$12,488,410
D. Percent of Accumulated Obligation Funded, Assets at:									
1. Market	94.42%	92.88%	81.61%	69.54%	45.10%	44.16%	59.93%	80.67%	91.39%
2. Actuarial Basis	96.02%	94.45%	83.00%	70.72%	45.86%	44.91%	60.94%	82.04%	92.94%

Table 5-2
Florida Retirement System Pension Plan
Analysis of Funding Progress - ASC 960
 (\$ in Thousands)

	July 1, 2018 <u>Valuation Basis</u>	July 1, 2019 <u>Valuation Basis¹</u>	July 1, 2020 <u>Valuation Basis</u>
A. Accumulated Benefit Obligation			
1. Active Members			
a. Accumulated Member Contributions	\$3,666,837	\$4,059,603	\$4,443,217
b. Employer-Financed Vested Benefits	25,443,712	27,153,282	28,454,185
c. Employer-Financed Non-Vested Benefits	<u>2,960,330</u>	<u>3,439,272</u>	<u>3,671,536</u>
d. Total	\$32,070,879	\$34,652,157	\$36,568,938
2. Annuitants	\$106,808,859	\$110,810,614	\$116,598,497
3. Other Inactive Members	\$5,249,929	\$5,217,499	\$5,516,966
4. DROP	<u>\$16,672,788</u>	<u>\$17,431,519</u>	<u>\$18,106,528</u>
5. Total Accumulated Benefit Obligation	\$160,802,455	\$168,111,789	\$176,790,929
B. Assets Available for Benefits			
1. Market	\$161,196,881	\$163,573,726	\$161,568,265
2. Actuarial Basis	\$156,104,350	\$161,004,533	\$164,302,519
C. Unfunded/(Surplus) Total Accumulated Benefit Obligation, Assets at:			
1. Market	(\$394,426)	\$4,538,063	\$15,222,664
2. Actuarial Basis	\$4,698,105	\$7,107,256	\$12,488,410
D. Percent of Accumulated Benefit Obligation Funded, Assets at:			
1. Market	100.25%	97.30%	91.39%
2. Actuarial Basis	97.08%	95.77%	92.94%
E. Annual Salaries ²	\$26,669,323	\$26,663,415	\$26,905,267
F. Unfunded/(Surplus) Accumulated Benefit Obligation as a Percent of Salary, Assets at:			
1. Market	-1.48%	17.02%	56.58%
2. Actuarial Basis	17.62%	26.66%	46.42%

¹ As reported in July 1, 2019 Actuarial Valuation of the Florida Retirement System Pension Plan, before restatement of beginning net position.

² Includes DROP Salaries

Table 5-3
Florida Retirement System Pension Plan
Statement of Changes in Accumulated
Benefit Obligation
 (\$ in Thousands)

	ASC 960 Basis
Accumulated Benefit Obligation at July 1, 2019	\$168,111,789
Increase (Decrease) During Year Attributable to:	
Increase for Interest Due to Passage of Time	\$11,700,169
Benefits Paid - PY 2020	(\$11,417,322)
Benefits Accrued, & Other Gains/Losses	\$4,957,250
Plan Provision / Assumption Changes	\$3,439,043
Net Increase (Decrease)	\$8,679,140
Accumulated Benefit Obligation at July 1, 2020	\$176,790,929

Appendix A: Actuarial Methods, Procedures, and Assumptions

The actuarial assumptions are intended to estimate the future experience of FRS Pension Plan members, employers and investments. Any variations in future actual experience from these assumptions will result in corresponding changes in actuarially calculated contribution rates.

Assumption Tables

A complete listing of all the assumptions, methods, and procedures that are used in the 2020 actuarial valuation of the FRS Pension Plan are summarized on the following pages. These assumptions, methods, and procedures were approved by the 2020 FRS Actuarial Assumption Conference and the demographic assumptions are based on the 2019 Experience Study. The investment rate of return, inflation, and individual salary increase assumptions were lowered since the 2019 actuarial valuation.

Data

Except where noted, the analysis in this valuation was based on data as of June 30, 2020, as provided by the Division of Retirement, Florida Department of Management Services. The data used in this valuation consists of financial information and records of age, service and income of active members, annuitants, and other inactive members entitled to future benefits. The Division of Retirement, Florida Department of Management Services is solely responsible for the validity, accuracy and comprehensiveness of this information; the results of our analysis can be expected to differ and may need to be revised if the underlying data supplied is incomplete or inaccurate.

Methods and Procedures

Actuarial cost allocation method: The total cost of the FRS Pension Plan, over time, will be equal to the benefits paid and expenses less actual investment earnings and is not affected directly by the actuarial cost allocation method. The actuarial cost allocation method is simply a tool to allocate costs to past, current, or future years and thus primarily affects the timing of cost recognition.

The FRS Pension Plan uses Entry Age Normal (EAN), which is the most commonly used general cost method approach for state pension systems. Conceptually, EAN sets the normal cost rate level as a percent of payroll over a member's full projected working career. There are different categories of EAN, including Individual EAN, which is by far the most commonly used EAN category, and Ultimate EAN, which was the category of EAN used by the FRS Pension Plan prior to the 2019 actuarial valuation. Even each category of EAN contains different interpretations of how to calculate the key metrics. GASB Statements Nos. 67 & 68 mandate the use of a particular interpretation of Individual EAN for financial reporting purposes. GASB 67 & 68 information is provided under separate cover.

In October 2019, the FRS Actuarial Assumption Conference adopted the use of Individual EAN for system funding calculations starting with the 2019 valuation. The system now uses the same actuarial cost allocation method and interpretation for financial reporting purposes and for purposes of setting system funding policy.

Individual EAN sets normal cost in a manner that is representative of the tier in which the member actually participates. Members initially enrolled on or after July 1, 2011 (Tier II) have different benefit and retirement eligibility criteria than Tier I members initially enrolled prior to July 1, 2011. Cost methods do allocate benefits between past and projected future service, but do not affect the level of projected benefits; projected benefits are based on the actual tier of membership under either Ultimate EAN or Individual EAN. Compared to the Ultimate

EAN method, the Individual EAN method allocates more of the cost of projected benefits to future service (via higher Normal Cost) and hence produces a lower Actuarial Liability for past service as a counterbalance.

UAL amortization method: 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.

New UAL arises each year and is calculated in each new actuarial valuation. The newly arising UAL can be either positive or negative and can be due either to experience varying from assumptions or to changes in Actuarial Liability from modifications to assumptions, plan provisions, or actuarial methods. Each year's newly arising UAL is currently amortized over a closed 25-year period as a level percent of the projected payroll on which UAL rates are charged. Prior to the 2020 actuarial valuation, a closed 30-year period as a level percent of projected payroll was used for each newly arising UAL base. All existing bases were maintained, and all new bases will be amortized over 25 years.

The decrease in UAL arising as a result of changing the actuarial cost allocation method from Ultimate EAN to Individual EAN in 2019 is amortized separately from other UAL bases. The change in UAL due to the actuarial cost allocation method change is specific to active Tier I members whose calculated normal costs are higher under Individual EAN than under Ultimate EAN. Since there is no change in the projected benefits for Tier I members, there is a corresponding decrease in Actuarial Liability. Therefore, the decrease in the UAL due to the actuarial cost allocation method change is amortized over a closed 30-year period in a manner that mirrors the projected payroll of the closed Tier I population in the FRS Pension Plan. This method was discussed and illustrated in Milliman's October 23, 2019 and October 28, 2019 presentation materials to the FRS Actuarial Assumption Conference, including quantified year-by-year detail on the amortization schedule. The schedule adopted is summarized below:

Contribution Year	Percent of Total Amortization	Contribution Year	Percent of Total Amortization
2020 - 2021	6.1%	2035 - 2036	3.3%
2021 - 2022	6.0%	2036 - 2037	3.0%
2022 - 2023	5.9%	2037 - 2038	2.8%
2023 - 2024	5.7%	2038 - 2039	2.5%
2024 - 2025	5.6%	2039 - 2040	2.2%
2025 - 2026	5.4%	2040 - 2041	2.0%
2026 - 2027	5.3%	2041 - 2042	1.7%
2027 - 2028	5.1%	2042 - 2043	1.5%
2028 - 2029	4.9%	2043 - 2044	1.3%
2029 - 2030	4.7%	2044 - 2045	1.1%
2030 - 2031	4.5%	2045 - 2046	1.0%
2031 - 2032	4.3%	2046 - 2047	0.8%
2032 - 2033	4.1%	2047 - 2048	0.7%
2033 - 2034	3.8%	2048 - 2049	0.6%
2034 - 2035	3.6%	2049 - 2050	0.5%
			100.0%

Amortization periods longer than 20 years can incur significant negative amortization, wherein the calculated UAL increases for an extended period of time prior to final payoff even if all contributions are made and all assumptions are met. This was discussed and illustrated in Milliman's October 8, 2019 presentation materials to the FRS Actuarial Assumption Conference.

Asset valuation method: This method recognizes actual investment performance different from the long-term assumption systematically. The expected Actuarial Value of Assets (AVA) is determined by crediting the rate of investment return assumed in the prior valuation to the prior year's AVA. Then, 20% of the difference between the actual Market Value of Assets (MVA) and the expected AVA is immediately recognized in the AVA. To ensure that the AVA remains reasonably close to the MVA, the asset method includes a corridor whereby the AVA must remain within 80% to 120% of MVA.

Economic Assumptions

Assumption	
Inflation	2.40%
Payroll growth	3.25%
Investment Return	7.00%

Demographic Assumptions

Mortality

Healthy Inactive Mortality (Post-Employment)

Member Category (Non-Disabled Inactive)	PUB-2010 base table listed below, generational mortality using gender-specific MP-2018 mortality improvement projection scale
Female K-12 School Instructional Personnel	Headcount Weighted Teachers Healthy Retiree Female Table, set forward 1 year
Male K-12 School Instructional Personnel	Benefits Weighted Teachers Below Median Healthy Retiree Male Table, set forward 2 years
Female Special Risk	Headcount Weighted Safety Healthy Retiree Female Table, set forward 1 year
Male Special Risk	Headcount Weighted Safety Below Median Healthy Retiree Male Table, set forward 1 year
Female (other than Special Risk or K-12 School Instructional Personnel)	Headcount Weighted General Below Median Healthy Retiree Female Table
Male (other than Special Risk or K-12 School Instructional Personnel)	Headcount Weighted General Below Median Healthy Retiree Male Table, set back 1 year

Healthy Active Mortality (During Employment)

- For Special Risk members, 25% of future active member deaths are assumed to be in the line of duty.
- For all other members, 2% of future active member deaths are assumed to be in the line of duty.

Member Category (Non-Disabled Active)	PUB-2010 base table listed below, generational mortality using gender-specific MP-2018 mortality improvement projection scale
Female K-12 School Instructional Personnel	Headcount Weighted Teachers Employee Female Table, set forward 1 year
Male K-12 School Instructional Personnel	Benefits Weighted Teachers Below Median Employee Male Table, set forward 2 years
Female Special Risk	Headcount Weighted Safety Employee Female Table, set forward 1 year
Male Special Risk	Headcount Weighted Safety Below Median Employee Male Table, set forward 1 year
Female (other than Special Risk or K-12 School Instructional Personnel)	Headcount Weighted General Below Median Employee Female Table
Male (other than Special Risk or K-12 School Instructional Personnel)	Headcount Weighted General Below Median Employee Male Table, set back 1 year

Disabled Mortality

Member Category (Disabled Inactive)	PUB-2010 base table listed below, without mortality improvement projection
Female Disabled Special Risk	80% Headcount Weighted General Disabled Retiree Female Table; 20% Headcount Weighted Safety Disabled Retiree Female Table
Male Disabled Special Risk	80% Headcount Weighted General Disabled Retiree Male Table; 20% Headcount Weighted Safety Disabled Retiree Male Table
Female Disabled (other than Special Risk)	Headcount Weighted General Disabled Retiree Female Table, set forward 3 years
Male Disabled (other than Special Risk)	Headcount Weighted General Disabled Retiree Male Table, set forward 3 years

Retirement for Vested Terminated Members (Tier I and Tier II)

All current vested terminated members are assumed to begin receiving benefits on the normal retirement benefit age for the appropriate class and tier. All future members who terminate employment with a vested benefit are also assumed to commence benefit at the normal retirement benefit age.

Time in DROP for Active Members

All current active members who are eligible for DROP entry are assumed upon entry to remain in DROP for 48 months.

Optional Form of Payment

All future retirees are assumed to elect the straight life (Option 1) form of benefit. For current retirees and members in DROP, the actual elected form is used.

**Retirement Assumptions (Tier I)
 DROP Entry**

Age	Regular K-12 School Instructional		Regular Not K-12 School Instructional		Special Risk and Special Risk Admin		All Other	
	Female	Male	Female	Male	Female	Male	Female	Male
45	0.0%	0.0%	0.0%	0.0%	8.0%	13.0%	5.0%	5.0%
46	0.0%	0.0%	0.0%	0.0%	8.0%	13.0%	5.0%	5.0%
47	0.0%	0.0%	0.0%	0.0%	8.0%	13.0%	5.0%	5.0%
48	4.0%	4.0%	5.0%	5.0%	11.0%	15.0%	16.0%	16.0%
49	4.0%	4.0%	10.0%	9.0%	11.0%	15.0%	16.0%	16.0%
50	4.0%	4.0%	10.0%	9.0%	11.0%	15.0%	16.0%	16.0%
51	4.0%	4.0%	12.0%	9.0%	11.0%	15.0%	16.0%	16.0%
52	4.0%	4.0%	14.0%	9.0%	15.0%	36.0%	16.0%	16.0%
53	5.0%	4.0%	15.0%	11.0%	15.0%	27.5%	16.0%	16.0%
54	5.0%	4.0%	16.0%	12.0%	15.0%	27.5%	16.0%	16.0%
55	6.0%	4.0%	18.0%	12.0%	32.0%	27.5%	16.0%	16.0%
56	6.0%	5.0%	20.0%	15.0%	5.0%	5.0%	16.0%	16.0%
57	10.0%	8.0%	55.0%	55.0%	5.0%	5.0%	55.0%	55.0%
58	10.0%	8.0%	55.0%	50.0%	5.0%	5.0%	55.0%	55.0%
59	10.0%	9.0%	55.0%	50.0%	5.0%	5.0%	55.0%	55.0%
60	13.0%	9.0%	55.0%	50.0%	5.0%	5.0%	55.0%	55.0%
61	16.0%	14.0%	55.0%	50.0%	5.0%	5.0%	55.0%	55.0%
62	26.0%	19.0%	46.5%	42.5%	5.0%	5.0%	43.0%	43.0%
63	8.0%	6.0%	5.0%	5.0%	5.0%	5.0%	3.0%	3.0%
64	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	3.0%	3.0%
65	5.0%	3.0%	5.0%	5.0%	5.0%	5.0%	3.0%	3.0%
66	3.0%	3.0%	5.0%	5.0%	5.0%	5.0%	3.0%	3.0%
67	3.0%	3.0%	5.0%	5.0%	5.0%	5.0%	3.0%	3.0%
68	3.0%	3.0%	5.0%	5.0%	5.0%	5.0%	3.0%	3.0%
69	3.0%	3.0%	5.0%	5.0%	5.0%	5.0%	3.0%	3.0%
70-79	3.0%	3.0%	5.0%	5.0%	0.0%	0.0%	3.0%	3.0%
80	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Immediate Retirement when eligible for DROP

Age	Regular K-12 School Instructional		Regular Not K-12 School Instructional		Special Risk and Special Risk Admin		Elected Officers' Subclasses		Senior Management Service Class	
	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male
45	0.0%	0.0%	0.0%	0.0%	4.0%	5.0%	0.0%	0.0%	0.0%	0.0%
46	0.0%	0.0%	0.0%	0.0%	4.0%	5.0%	0.0%	0.0%	0.0%	0.0%
47	0.0%	0.0%	0.0%	0.0%	4.0%	5.0%	0.0%	0.0%	0.0%	0.0%
48	4.0%	4.0%	2.5%	2.5%	4.0%	5.0%	3.0%	3.0%	3.0%	3.0%
49	4.0%	4.0%	2.5%	2.5%	4.0%	5.0%	3.0%	3.0%	3.0%	3.0%
50	4.0%	4.0%	2.5%	2.5%	4.0%	5.0%	3.0%	3.0%	3.0%	3.0%
51	4.0%	4.0%	2.5%	2.5%	5.0%	5.0%	3.0%	3.0%	3.0%	3.0%
52	4.0%	4.0%	2.5%	2.5%	5.0%	5.0%	3.0%	3.0%	3.0%	3.0%
53	4.0%	4.0%	2.5%	2.5%	7.0%	7.0%	3.0%	3.0%	3.0%	3.0%
54	4.0%	4.0%	2.5%	2.5%	7.0%	7.0%	3.0%	3.0%	3.0%	3.0%
55	4.0%	5.0%	2.5%	2.5%	7.0%	7.0%	3.0%	3.0%	3.0%	3.0%
56	4.0%	5.0%	2.5%	2.5%	7.0%	7.0%	3.0%	3.0%	3.0%	3.0%
57	5.0%	5.0%	2.5%	2.5%	7.0%	7.0%	3.0%	3.0%	3.0%	3.0%
58	5.0%	6.0%	6.0%	7.0%	7.0%	7.0%	3.0%	3.0%	10.0%	10.0%
59	6.0%	6.0%	6.0%	8.0%	7.0%	7.0%	3.0%	3.0%	10.0%	10.0%
60	7.0%	6.0%	6.0%	8.0%	7.0%	7.0%	3.0%	3.0%	10.0%	10.0%
61	10.0%	10.0%	9.0%	8.0%	7.0%	7.0%	3.0%	3.0%	10.0%	10.0%
62	13.0%	12.0%	9.0%	9.5%	7.0%	7.0%	3.0%	3.0%	10.0%	10.0%
63	9.0%	9.0%	9.0%	9.5%	7.0%	7.0%	3.0%	3.0%	3.0%	3.0%
64	11.0%	11.0%	9.0%	9.5%	7.0%	7.0%	3.0%	3.0%	3.0%	3.0%
65	18.0%	15.0%	9.0%	9.5%	7.0%	7.0%	3.0%	3.0%	3.0%	3.0%
66	20.0%	17.5%	9.0%	9.5%	7.0%	7.0%	3.0%	3.0%	3.0%	3.0%
67	20.0%	17.5%	9.0%	9.5%	7.0%	7.0%	3.0%	3.0%	3.0%	3.0%
68	20.0%	17.5%	9.0%	9.5%	7.0%	7.0%	3.0%	3.0%	3.0%	3.0%
69	20.0%	17.5%	9.0%	9.5%	7.0%	7.0%	3.0%	3.0%	3.0%	3.0%
70-79	20.0%	17.5%	9.0%	9.5%	100.0%	100.0%	3.0%	3.0%	3.0%	3.0%
80	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Retirement Assumptions (Tier I) (continued)

Immediate Retirement when not eligible for DROP

Age	Regular Not K-12 School Instructional		Special Risk and Special Risk Admin		Elected Officers' Subclasses		Senior Management Service Class	
	Female	Male	Female	Male	Female	Male	Female	Male
45	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
46	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
47	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
48	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
49	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
50	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
51	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
52	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
53	0.0%	0.0%	5.0%	5.0%	0.0%	0.0%	0.0%	0.0%
54	0.0%	0.0%	5.0%	5.0%	0.0%	0.0%	0.0%	0.0%
55	0.0%	0.0%	5.0%	5.0%	0.0%	0.0%	0.0%	0.0%
56	0.0%	0.0%	5.0%	5.0%	0.0%	0.0%	0.0%	0.0%
57	0.0%	0.0%	5.0%	5.0%	0.0%	0.0%	0.0%	0.0%
58	2.0%	2.0%	5.0%	5.0%	3.0%	3.0%	6.0%	6.0%
59	5.0%	2.0%	5.0%	5.0%	3.0%	3.0%	6.0%	6.0%
60	5.0%	5.0%	7.0%	7.0%	3.0%	3.0%	6.0%	6.0%
61	5.0%	5.0%	9.0%	9.0%	3.0%	3.0%	6.0%	6.0%
62	8.0%	11.0%	20.0%	20.0%	3.0%	3.0%	6.0%	6.0%
63	8.0%	8.0%	14.0%	14.0%	5.0%	5.0%	11.0%	11.0%
64	8.0%	8.0%	14.0%	14.0%	5.0%	5.0%	11.0%	11.0%
65	15.0%	13.0%	20.0%	20.0%	5.0%	5.0%	11.0%	11.0%
66	15.0%	13.0%	25.0%	25.0%	5.0%	5.0%	11.0%	11.0%
67	15.0%	13.0%	25.0%	25.0%	12.0%	12.0%	11.0%	11.0%
68	15.0%	13.0%	25.0%	25.0%	12.0%	12.0%	11.0%	11.0%
69	15.0%	13.0%	25.0%	25.0%	12.0%	12.0%	11.0%	11.0%
70-79	15.0%	13.0%	100.0%	100.0%	12.0%	12.0%	11.0%	11.0%
80	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Retirement Assumptions (Tier II)

DROP Entry

Age	Regular K-12 School Instructional		Regular Not K-12 School Instructional		Special Risk and Special Risk Admin		All Other	
	Female	Male	Female	Male	Female	Male	Female	Male
50	4.0%	4.0%	10.0%	9.0%	11.0%	15.0%	16.0%	16.0%
51	4.0%	4.0%	12.0%	9.0%	11.0%	15.0%	16.0%	16.0%
52	4.0%	4.0%	14.0%	9.0%	11.0%	15.0%	16.0%	16.0%
53	5.0%	4.0%	15.0%	11.0%	11.0%	15.0%	16.0%	16.0%
54	5.0%	4.0%	16.0%	12.0%	11.0%	15.0%	16.0%	16.0%
55	6.0%	4.0%	18.0%	12.0%	17.0%	36.0%	16.0%	16.0%
56	6.0%	5.0%	20.0%	15.0%	11.0%	5.0%	16.0%	16.0%
57	10.0%	8.0%	20.0%	15.0%	11.0%	5.0%	16.0%	16.0%
58	10.0%	8.0%	20.0%	15.0%	11.0%	5.0%	16.0%	16.0%
59	10.0%	9.0%	20.0%	15.0%	11.0%	5.0%	16.0%	16.0%
60	13.0%	9.0%	55.0%	55.0%	20.0%	5.0%	55.0%	55.0%
61	16.0%	14.0%	55.0%	49.0%	5.0%	5.0%	50.0%	50.0%
62	16.0%	14.0%	49.5%	43.0%	5.0%	5.0%	45.0%	45.0%
63	16.0%	14.0%	43.0%	37.0%	5.0%	5.0%	40.0%	40.0%
64	16.0%	14.0%	36.5%	31.0%	5.0%	5.0%	35.0%	35.0%
65	16.0%	14.0%	30.0%	25.0%	5.0%	5.0%	30.0%	30.0%
66	3.0%	3.0%	5.0%	5.0%	5.0%	5.0%	3.0%	3.0%
67	3.0%	3.0%	5.0%	5.0%	5.0%	5.0%	3.0%	3.0%
68	3.0%	3.0%	5.0%	5.0%	5.0%	5.0%	3.0%	3.0%
69	3.0%	3.0%	5.0%	5.0%	5.0%	5.0%	3.0%	3.0%
70-79	3.0%	3.0%	5.0%	5.0%	0.0%	0.0%	3.0%	3.0%
80	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Retirement Assumptions (Tier II) (continued)

Immediate Retirement when eligible for DROP

Age	Regular K-12 School Instructional		Regular Not K-12 School Instructional		Special Risk and Special Risk Admin		Elected Officers' Subclasses		Senior Management Service Class	
	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male
50	4.0%	4.0%	2.5%	2.5%	4.0%	5.0%	3.0%	3.0%	3.0%	3.0%
51	4.0%	4.0%	2.5%	2.5%	5.0%	5.0%	3.0%	3.0%	3.0%	3.0%
52	4.0%	4.0%	2.5%	2.5%	5.0%	5.0%	3.0%	3.0%	3.0%	3.0%
53	4.0%	4.0%	2.5%	2.5%	5.0%	5.0%	3.0%	3.0%	3.0%	3.0%
54	4.0%	4.0%	2.5%	2.5%	5.0%	5.0%	3.0%	3.0%	3.0%	3.0%
55	4.0%	5.0%	2.5%	2.5%	5.0%	5.0%	3.0%	3.0%	3.0%	3.0%
56	4.0%	5.0%	2.5%	2.5%	7.0%	7.0%	3.0%	3.0%	3.0%	3.0%
57	5.0%	5.0%	2.5%	2.5%	7.0%	7.0%	3.0%	3.0%	3.0%	3.0%
58	5.0%	6.0%	2.5%	2.5%	7.0%	7.0%	3.0%	3.0%	3.0%	3.0%
59	6.0%	6.0%	2.5%	2.5%	7.0%	7.0%	3.0%	3.0%	3.0%	3.0%
60	7.0%	6.0%	2.5%	2.5%	7.0%	7.0%	3.0%	3.0%	3.0%	3.0%
61	10.0%	10.0%	9.0%	8.0%	7.0%	7.0%	3.0%	3.0%	10.0%	10.0%
62	10.0%	10.0%	9.0%	9.5%	7.0%	7.0%	3.0%	3.0%	10.0%	10.0%
63	10.0%	10.0%	9.0%	9.5%	7.0%	7.0%	3.0%	3.0%	10.0%	10.0%
64	10.0%	10.0%	9.0%	9.5%	7.0%	7.0%	3.0%	3.0%	10.0%	10.0%
65	20.0%	17.5%	9.0%	9.5%	7.0%	7.0%	3.0%	3.0%	10.0%	10.0%
66	20.0%	17.5%	9.0%	9.5%	7.0%	7.0%	3.0%	3.0%	3.0%	3.0%
67	20.0%	17.5%	9.0%	9.5%	7.0%	7.0%	3.0%	3.0%	3.0%	3.0%
68	20.0%	17.5%	9.0%	9.5%	7.0%	7.0%	3.0%	3.0%	3.0%	3.0%
69	20.0%	17.5%	9.0%	9.5%	7.0%	7.0%	3.0%	3.0%	3.0%	3.0%
70-79	20.0%	17.5%	9.0%	9.5%	100.0%	100.0%	3.0%	3.0%	3.0%	3.0%
80	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Retirement Assumptions (Tier II) (continued)

Immediate Retirement when not eligible for DROP

Age	Regular Not K-12 School Instructional		Special Risk and Special Risk Admin		Elected Officers' Subclasses		Senior Management Service Class	
	Female	Male	Female	Male	Female	Male	Female	Male
50	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
51	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
52	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
53	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
54	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
55	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
56	0.0%	0.0%	5.0%	5.0%	0.0%	0.0%	0.0%	0.0%
57	0.0%	0.0%	5.0%	5.0%	0.0%	0.0%	0.0%	0.0%
58	0.0%	0.0%	5.0%	5.0%	0.0%	0.0%	0.0%	0.0%
59	0.0%	0.0%	5.0%	5.0%	0.0%	0.0%	0.0%	0.0%
60	0.0%	0.0%	7.0%	7.0%	0.0%	0.0%	0.0%	0.0%
61	5.0%	5.0%	9.0%	9.0%	3.0%	3.0%	6.0%	6.0%
62	5.0%	5.0%	20.0%	20.0%	3.0%	3.0%	6.0%	6.0%
63	5.0%	5.0%	14.0%	14.0%	3.0%	3.0%	6.0%	6.0%
64	5.0%	5.0%	14.0%	14.0%	3.0%	3.0%	6.0%	6.0%
65	15.0%	13.0%	20.0%	20.0%	3.0%	3.0%	11.0%	11.0%
66	15.0%	13.0%	25.0%	25.0%	5.0%	5.0%	11.0%	11.0%
67	15.0%	13.0%	25.0%	25.0%	12.0%	12.0%	11.0%	11.0%
68	15.0%	13.0%	25.0%	25.0%	12.0%	12.0%	11.0%	11.0%
69	15.0%	13.0%	25.0%	25.0%	12.0%	12.0%	11.0%	11.0%
70-79	15.0%	13.0%	100.0%	100.0%	12.0%	12.0%	11.0%	11.0%
80	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Line-of-Duty Disability Annual Rates

Age	Special Risk Class	All Other Classes
<42	0.005%	0.001%
42-46	0.050%	0.001%
47-50	0.050%	0.002%
51-54	0.090%	0.004%
55-56	0.090%	0.005%
57-58	0.090%	0.006%
59	0.090%	0.007%
60-61	0.090%	0.006%
62	0.090%	0.003%
63	0.090%	0.002%
64+	0.090%	0.001%

Non-Duty Disability Annual Rates

Age	Special Risk Class	All Other Classes
20	0.020%	0.000%
21-27	0.020%	0.010%
28-35	0.040%	0.010%
36-40	0.040%	0.020%
41-44	0.040%	0.030%
45-46	0.040%	0.040%
47-50	0.070%	0.080%
51-54	0.070%	0.130%
55	0.070%	0.160%
56	0.070%	0.170%
57-58	0.070%	0.190%
59	0.070%	0.230%
60	0.070%	0.210%
61	0.070%	0.200%
62	0.070%	0.110%
63	0.070%	0.080%
64+	0.070%	0.040%

Withdrawal – Other Terminations of Employment Annual Rates

Combined Years of Service	Regular – Male					
	Under 25	25 to 29	30 to 34	35 to 44	45 to 54	55+
0	27.0%	25.0%	23.0%	22.0%	21.0%	27.0%
1	19.0%	17.0%	15.0%	13.5%	12.5%	12.5%
2	17.5%	13.5%	12.0%	10.5%	9.5%	9.0%
3	16.0%	11.5%	10.0%	9.0%	7.8%	7.8%
4	15.5%	10.0%	8.5%	8.0%	6.5%	6.5%
5	10.5%	9.0%	8.5%	7.5%	6.0%	6.0%
6	10.5%	8.5%	7.5%	6.5%	6.0%	6.0%
7	8.0%	8.0%	6.5%	6.0%	5.0%	5.0%
8	5.5%	5.5%	5.0%	5.5%	5.0%	4.0%
9	5.0%	5.0%	5.0%	4.5%	4.0%	4.0%
10	4.0%	4.0%	4.0%	4.0%	4.0%	3.0%
11	3.5%	3.5%	3.0%	3.5%	3.5%	3.0%
12	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
13	3.0%	3.0%	3.0%	3.0%	3.0%	2.5%
14	2.5%	2.5%	1.5%	2.5%	2.5%	2.5%
15	2.5%	2.5%	1.5%	2.0%	2.5%	2.5%
16	2.0%	2.0%	1.5%	2.0%	2.0%	2.0%
17	2.0%	2.0%	1.5%	2.0%	2.0%	2.0%
18	2.0%	2.0%	1.5%	1.5%	2.0%	2.0%
19	2.0%	2.0%	1.5%	1.5%	2.0%	2.0%
20	1.5%	1.5%	1.5%	1.0%	1.5%	1.5%
21	1.3%	1.3%	1.3%	1.0%	1.3%	1.3%
22	1.3%	1.3%	1.3%	1.0%	1.3%	1.3%
23	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
24	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
25	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
26	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
27	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
28	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%
29	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%
30+	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%

Withdrawal (continued)

Combined Years of Service	Regular – Female					
	Under 25	25 to 29	30 to 34	35 to 44	45 to 54	55+
0	28.0%	28.0%	27.0%	26.0%	25.0%	30.0%
1	18.0%	17.0%	16.0%	15.0%	12.5%	12.5%
2	16.0%	13.5%	12.5%	11.5%	10.0%	10.0%
3	16.0%	11.5%	10.5%	9.5%	9.0%	9.0%
4	16.0%	10.0%	9.0%	8.0%	7.5%	7.5%
5	13.0%	8.0%	8.0%	7.5%	7.5%	7.5%
6	12.0%	8.0%	8.0%	7.5%	7.5%	7.5%
7	7.5%	7.5%	7.5%	6.5%	6.5%	6.5%
8	6.0%	6.0%	6.0%	5.5%	5.5%	5.5%
9	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
10	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%
11	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%
12	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%
13	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%
14	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
15	3.0%	3.0%	3.0%	2.8%	2.8%	2.8%
16	3.0%	3.0%	3.0%	2.5%	2.5%	2.5%
17	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%
18	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
19	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
20	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
21	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%
22	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%
23	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%
24	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%
25	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
26	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
27	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%
28	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%
29	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%
30+	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%

Withdrawal (continued)

Combined Years of Service	Elected Officers' Class: Local					
	Under 25	25 to 29	30 to 34	35 to 44	45 to 54	55+
0	3.4%	3.4%	3.4%	3.4%	3.4%	3.4%
1	3.4%	3.4%	3.4%	3.4%	3.4%	3.4%
2	3.4%	3.4%	3.4%	3.4%	3.4%	3.4%
3	3.4%	3.4%	3.4%	3.4%	3.4%	3.4%
4	14.0%	14.0%	14.0%	14.0%	14.0%	14.0%
5	3.4%	3.4%	3.4%	3.4%	3.4%	3.4%
6	3.4%	3.4%	3.4%	3.4%	3.4%	3.4%
7	3.4%	3.4%	3.4%	3.4%	3.4%	3.4%
8	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%
9	3.4%	3.4%	3.4%	3.4%	3.4%	3.4%
10	3.4%	3.4%	3.4%	3.4%	3.4%	3.4%
11	3.4%	3.4%	3.4%	3.4%	3.4%	3.4%
12	3.4%	3.4%	3.4%	3.4%	3.4%	3.4%
13	3.4%	3.4%	3.4%	3.4%	3.4%	3.4%
14	3.4%	3.4%	3.4%	3.4%	3.4%	3.4%
15	3.4%	3.4%	3.4%	3.4%	3.4%	3.4%
16	3.4%	3.4%	3.4%	3.4%	3.4%	3.4%
17	3.4%	3.4%	3.4%	3.4%	3.4%	3.4%
18	3.4%	3.4%	3.4%	3.4%	3.4%	3.4%
19	3.4%	3.4%	3.4%	3.4%	3.4%	3.4%
20	3.4%	3.4%	3.4%	3.4%	3.4%	3.4%
21	3.4%	3.4%	3.4%	3.4%	3.4%	3.4%
22	3.4%	3.4%	3.4%	3.4%	3.4%	3.4%
23	3.4%	3.4%	3.4%	3.4%	3.4%	3.4%
24	3.4%	3.4%	3.4%	3.4%	3.4%	3.4%
25	3.4%	3.4%	3.4%	3.4%	3.4%	3.4%
26	3.4%	3.4%	3.4%	3.4%	3.4%	3.4%
27	3.4%	3.4%	3.4%	3.4%	3.4%	3.4%
28	3.4%	3.4%	3.4%	3.4%	3.4%	3.4%
29	3.4%	3.4%	3.4%	3.4%	3.4%	3.4%
30+	3.4%	3.4%	3.4%	3.4%	3.4%	3.4%

Withdrawal (continued)

Combined Years of Service	Elected Officers' Class: Leg-Atty-Cab					
	Attained Age					
	Under 25	25 to 29	30 to 34	35 to 44	45 to 54	55+
0	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
1	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
2	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
3	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
4	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
5	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
6	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
7	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
8	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
9	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
10	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
11	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
12	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
13	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
14	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
15	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
16	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
17	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
18	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
19	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
20	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
21	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
22	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
23	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
24	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
25	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
26	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
27	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
28	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
29	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
30+	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%

Withdrawal (continued)

Combined Years of Service	Elected Officers' Class: Judges					
	Attained Age					
	Under 25	25 to 29	30 to 34	35 to 44	45 to 54	55+
0	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
1	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
2	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
3	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
4	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
5	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
6	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
7	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
8	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
9	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
10	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
11	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
12	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
13	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
14	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
15	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
16	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
17	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
18	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
19	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
20	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
21	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
22	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
23	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
24	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
25	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
26	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
27	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
28	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
29	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
30+	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%

Withdrawal (continued)

Combined Years of Service	Senior Management – Male					
	Attained Age					
	Under 25	25 to 29	30 to 34	35 to 44	45 to 54	55+
0	9.0%	9.0%	9.0%	9.0%	9.0%	11.0%
1	10.5%	10.5%	10.5%	10.5%	10.5%	11.0%
2	17.0%	17.0%	17.0%	17.0%	17.0%	14.5%
3	16.0%	16.0%	16.0%	16.0%	16.0%	10.5%
4	12.0%	12.0%	12.0%	12.0%	12.0%	7.0%
5	10.0%	10.0%	10.0%	10.0%	10.0%	5.0%
6	9.5%	9.5%	9.5%	9.5%	9.5%	5.0%
7	7.0%	7.0%	7.0%	7.0%	7.0%	5.0%
8	6.0%	6.0%	6.0%	6.0%	6.0%	4.0%
9	6.0%	6.0%	6.0%	6.0%	6.0%	4.0%
10	5.0%	5.0%	5.0%	5.0%	5.0%	4.0%
11	5.0%	5.0%	5.0%	5.0%	5.0%	4.0%
12	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%
13	4.0%	4.0%	4.0%	4.0%	4.0%	3.5%
14	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
15	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
16	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
17	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
18	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
19	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%
20	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%
21	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%
22	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%
23	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
24	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
25	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
26	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
27	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
28	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
29	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
30+	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%

Withdrawal (continued)

Combined Years of Service	Senior Management – Female					
	Attained Age					
	Under 25	25 to 29	30 to 34	35 to 44	45 to 54	55+
0	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%
1	7.0%	7.0%	7.0%	7.0%	7.0%	7.0%
2	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%
3	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%
4	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%
5	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%
6	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%
7	7.0%	7.0%	7.0%	7.0%	7.0%	7.0%
8	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%
9	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%
10	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%
11	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%
12	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%
13	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
14	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
15	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
16	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
17	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
18	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
19	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
20	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
21	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
22	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
23	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
24	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
25	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
26	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
27	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
28	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
29	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
30+	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%

Withdrawal (continued)

Special Risk & Special Risk Administrative – Male						
Combined Years of Service	Attained Age					
	Under 25	25 to 29	30 to 34	35 to 44	45 to 54	55+
0	17.5%	15.5%	15.5%	17.5%	17.5%	17.5%
1	10.0%	9.0%	9.0%	10.0%	9.0%	9.0%
2	8.0%	8.0%	8.0%	8.0%	7.0%	8.0%
3	7.0%	7.0%	7.0%	7.0%	5.5%	7.0%
4	5.0%	6.0%	6.0%	6.0%	5.5%	6.0%
5	4.0%	5.0%	5.0%	5.0%	4.0%	5.0%
6	4.0%	5.0%	5.0%	5.0%	4.0%	5.0%
7	4.0%	5.0%	4.0%	4.0%	3.5%	4.0%
8	3.5%	4.5%	3.5%	3.5%	3.0%	3.5%
9	3.0%	3.5%	3.0%	3.0%	3.0%	3.0%
10	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%
11	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
12	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
13	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
14	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%
15	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%
16	1.0%	1.0%	1.0%	1.0%	1.5%	1.5%
17	1.0%	1.0%	1.0%	1.0%	1.5%	1.5%
18	1.0%	1.0%	1.0%	1.0%	1.5%	1.5%
19	1.0%	1.0%	1.0%	1.0%	1.5%	1.5%
20	1.0%	1.0%	1.0%	1.0%	1.5%	1.5%
21	1.0%	1.0%	1.0%	1.0%	1.5%	1.5%
22	0.8%	0.8%	0.8%	0.8%	1.0%	1.0%
23	0.5%	0.5%	0.5%	0.5%	1.0%	1.0%
24	0.5%	0.5%	0.5%	0.5%	1.0%	1.0%
25	0.5%	0.5%	0.5%	0.5%	1.0%	1.0%
26	0.5%	0.5%	0.5%	0.5%	1.0%	1.0%
27	0.5%	0.5%	0.5%	0.5%	1.0%	1.0%
28	0.5%	0.5%	0.5%	0.5%	1.0%	1.0%
29	0.5%	0.5%	0.5%	0.5%	1.0%	1.0%
30+	0.5%	0.5%	0.5%	0.5%	1.0%	1.0%

Withdrawal (continued)

Special Risk & Special Risk Administrative – Female						
Combined Years of Service	Attained Age					
	Under 25	25 to 29	30 to 34	35 to 44	45 to 54	55+
0	24.0%	24.0%	24.0%	26.0%	30.0%	30.0%
1	13.5%	13.5%	13.5%	13.5%	13.5%	13.5%
2	11.0%	11.0%	9.0%	10.5%	10.5%	10.5%
3	8.0%	8.0%	8.5%	10.5%	10.0%	10.0%
4	8.0%	8.0%	7.0%	7.0%	10.0%	10.0%
5	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%
6	6.5%	6.5%	6.5%	6.0%	6.0%	6.0%
7	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%
8	5.0%	5.0%	4.5%	4.5%	6.0%	6.0%
9	3.5%	3.5%	3.5%	3.5%	6.0%	6.0%
10	3.5%	3.5%	3.5%	3.5%	5.0%	5.0%
11	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
12	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
13	2.5%	2.5%	2.5%	2.5%	3.0%	3.0%
14	2.5%	2.5%	2.5%	2.5%	3.0%	3.0%
15	2.3%	2.3%	2.3%	2.3%	3.0%	3.0%
16	2.0%	2.0%	2.0%	2.0%	3.0%	3.0%
17	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
18	1.5%	1.5%	1.5%	1.5%	2.0%	2.0%
19	1.5%	1.5%	1.5%	1.5%	2.0%	2.0%
20	1.5%	1.5%	1.5%	1.5%	2.0%	2.0%
21	1.5%	1.5%	1.5%	1.5%	2.0%	2.0%
22	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%
23	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%
24	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%
25	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
26	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
27	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
28	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
29	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
30+	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%

Individual Member Salary Increase Assumptions

(Based on 2.40% inflation assumption)

Combined Years of Service	Regular	Special Risk	Special Risk Admin	ECO	ESO	Judges	Senior Management
0	7.80%	7.40%	3.70%	3.50%	3.25%	3.50%	8.20%
1	5.80%	5.70%	3.70%	3.50%	3.25%	3.50%	8.20%
2	5.40%	5.40%	3.70%	3.50%	3.25%	3.50%	7.30%
3	5.10%	5.40%	3.70%	3.50%	3.25%	3.50%	6.50%
4	4.70%	5.40%	3.70%	3.50%	3.25%	3.50%	6.10%
5	4.60%	5.40%	3.70%	3.50%	3.25%	3.50%	5.80%
6	4.60%	5.40%	3.70%	3.50%	3.25%	3.50%	5.40%
7	4.50%	5.30%	3.70%	3.50%	3.25%	3.50%	5.10%
8	4.40%	5.30%	3.70%	3.50%	3.25%	3.50%	4.60%
9	4.40%	5.30%	3.70%	3.50%	3.25%	3.50%	4.60%
10	4.40%	5.30%	3.70%	3.50%	3.25%	3.50%	4.60%
11	4.30%	5.10%	3.70%	3.50%	3.25%	3.50%	4.60%
12	4.20%	5.10%	3.70%	3.50%	3.25%	3.50%	4.60%
13	4.20%	5.00%	3.70%	3.50%	3.25%	3.50%	4.60%
14	4.20%	5.00%	3.70%	3.50%	3.25%	3.50%	4.60%
15	4.20%	5.00%	3.70%	3.50%	3.25%	3.50%	4.60%
16	4.20%	4.80%	3.70%	3.50%	3.25%	3.50%	4.60%
17	4.20%	4.80%	3.70%	3.50%	3.25%	3.50%	4.10%
18	4.10%	4.80%	3.70%	3.50%	3.25%	3.50%	4.10%
19	4.10%	4.80%	3.70%	3.50%	3.25%	3.50%	4.10%
20	4.10%	4.80%	3.70%	3.50%	3.25%	3.50%	4.10%
21	4.00%	4.80%	3.70%	3.50%	3.25%	3.50%	4.10%
22	4.00%	4.80%	3.70%	3.50%	3.25%	3.50%	4.10%
23	3.90%	4.80%	3.70%	3.50%	3.25%	3.50%	4.10%
24	3.90%	4.80%	3.70%	3.50%	3.25%	3.50%	4.10%
25	3.80%	4.80%	3.70%	3.50%	3.25%	3.50%	4.10%
26	3.70%	4.80%	3.70%	3.50%	3.25%	3.50%	4.10%
27	3.60%	4.80%	3.70%	3.50%	3.25%	3.50%	4.10%
28	3.50%	4.80%	3.70%	3.50%	3.25%	3.50%	4.10%
29	3.40%	4.80%	3.70%	3.50%	3.25%	3.50%	4.10%
30+	3.40%	4.80%	3.70%	3.50%	3.25%	3.50%	4.10%

Unused Annual Leave Available at Retirement

Membership Class	Hours
Regular	230
Special Risk	270
Senior Management Service	310
Others Not Listed Above	230

Eligible Survivors

It is assumed that 80% of deceased active members will have survivors eligible for lifetime benefits upon their deaths. Survivors are assumed to be opposite sex of the deceased member and males are assumed to be three years older than their female spouses.

Commencement of Survivor Benefits

It is assumed that survivors of deceased active members will defer commencement of benefits until the following:

Membership Class / Tier	Member Age
Special Risk / Tier 1	45
Special Risk / Tier 2	50
Other classes / Tier 1 and 2	55

Military Service and Out-of-State Service Credits

Active members are assumed to have purchased the following additional years of service credit.

Type of Service Credit	Special Risk Class		All other classes	
	Men	Women	Men	Women
Military Service Credit ¹	0.2818	0	0.1853	0
Out-of-State Service Credit ²	0	0	0.0910	0.0910

¹ Pre-1987 hires only; service is eligible for the COLA.

² Service for pre-July 1, 2011 enrollees is eligible for the COLA; assumption applies to both tiers.

No extra service credit was assumed for TRS and IFAS participants.

Changes to the Actuarial Assumptions and Methods

Changes to investment rate of return, inflation, and individual salary growth assumptions were adopted by the 2020 FRS Actuarial Assumption Conference during its meeting in October 2020. The investment return decreased from 7.20% to 7.00%, the inflation assumption decreased from 2.60% to 2.40%, and individual salary increase assumptions decreased by 0.20% for all membership classes and lengths of service, but not below the payroll growth assumption of 3.25%.

Appendix B: Summary of Plan Provisions

All actuarial calculations are based upon our understanding of Florida Statutes regarding the benefit and eligibility provisions of the retirement systems. These provisions are briefly summarized below for reference purposes, along with corresponding references to the Statutes. This summary encompasses the major provisions; it does not attempt to cover all of the detailed provisions.

Florida Retirement System (FRS)

The benefit, eligibility, and contribution provisions of the FRS are set forth in Chapter 121 of the Florida Statutes. Provisions relating to other State-administered retirement systems are set forth in other sections of the Florida Statutes, under Chapters 112, 122, and 238.

Effective Date

The effective date of the FRS was December 1, 1970. The FRS was created with closure and consolidation of the Teachers' Retirement System, the State and County Officers and Employees' Retirement System, and the Highway Patrol Pension Fund. In 1972, the Judicial Retirement System was also consolidated with the FRS. The FRS was created to provide a defined benefit retirement, disability, and survivor program for participating public employees. Social Security coverage is also required for all members.

Beginning in 2002, the FRS became one system with two primary programs, the existing defined benefit FRS Pension Plan and a defined contribution plan alternative known as the FRS Investment Plan (IP). The earliest that any member could participate in the IP was July 1, 2002.

As of July 1, 2007, the Institute for Food and Agricultural Sciences Supplemental Retirement Program was consolidated under the FRS as a closed group.

(Section 121.011(2))

Membership

Membership is a condition of employment for all new state, county, or other participating agency employees filling regularly established positions and employed on or after December 1, 1970, or who elected to transfer from an existing system. Employees may be full-time or part-time and can be elected, appointed, or employed in state government, county government, a state university, or a community college. A city or special district may join the FRS at its option.

Effective July 1, 1978, a member in an existing retirement system who is re-employed after termination of employment may remain in that system, provided his or her member contributions have not been withdrawn.

Members of the FRS Pension Plan when the FRS Investment Plan was created were provided an educational period about their plan choice options prior to a 90-day election period to elect between the FRS Pension Plan and the FRS Investment Plan (IP). Members newly hired after the IP became effective are provided eight months after their month of hire to file an election between the two primary programs. Members who do not make an election default into the FRS Investment Plan except for Special Risk Class members who default into the FRS Pension Plan.

After the initial active or default election to participate in the FRS Pension Plan or the FRS Investment Plan, the employee has one opportunity, at the employee's discretion before termination or retirement, to choose to move from the FRS Pension Plan to the FRS Investment Plan or vice versa.

(Sections 121.051, 121.4501)

Classification

There are five separate classes of members: Regular Class, Special Risk Class, Special Risk Administrative Support Class, Elected Officers' Class, and Senior Management Service Class. In addition, the Deferred Retirement Option Program (DROP) is available to FRS Pension Plan members who meet the requirements for normal retirement under the FRS Pension Plan.

Regular Class – members who are not classified as members of the Special Risk Class, Special Risk Administrative Support Class, Elected Officers' Class, or Senior Management Service Class.

Special Risk Class – members employed as law enforcement officers, emergency medical technicians, paramedics, firefighters, firefighter trainers, fire prevention inspectors, correctional officers, correctional probation officers, certain professional health care positions within the Department of Children and Family Services and the Department of Corrections, or certain forensic positions within a law enforcement agency, or a medical examiner's office who meet the criteria set forth in the Florida Retirement System law and administrative rules.

Special Risk Administrative Support Class – former Special Risk Class members employed as law enforcement officers, firefighters, correctional officers, or emergency medical technicians who have been moved or been re-assigned to non-Special Risk administrative support positions within a Florida Retirement System Special Risk employing agency.

Elected Officers' Class – members include the Governor, Lieutenant Governor, cabinet officers, legislators, Supreme Court justices, district court of appeals judges, circuit judges, county court judges, state attorneys, public defenders, and elected county officers. Also included are city and special district officers if the employer chose to place their elected officials in this class. All such elected officers may withdraw from the Florida Retirement System, elect membership in the Senior Management Service Class or, if state officers, elect membership in the Senior Management Service Optional Annuity Program if initially enrolled before July 1, 2017.

Senior Management Service Class – members who hold positions in the Senior Management Service of the State of Florida; community college presidents; appointed school board superintendents; county and city managers; selected managerial staff of the Legislature; the Auditor General and managerial staff; the Executive Director of the Ethics Commission; the State University System Executive Service and university presidents; selected managerial staff of the State Board of Administration; judges of compensation claims; selected managerial staff with the Judicial Branch; Chief Deputy Court Administrator; capital collateral regional counsels and assistant capital collateral regional counsels; assistant state attorneys; assistant public defenders; assistant statewide prosecutors or assistant attorneys general; and non-elective managerial positions designated for SMSC membership by local government agencies. Members in this class have either chosen not to participate or are not eligible to participate in the elective Senior Management Service Optional Annuity Program for state senior managers or to withdraw from the FRS if employed by non-state employers. This class became effective February 1, 1987, and members of an existing retirement system and members

of the Special Risk or Special Risk Administrative Support Classes who were employed prior to February 1, 1987, could elect to remain in such system or class.

Deferred Retirement Option Program (DROP) – allows members of the FRS Pension Plan in any of the above five classes to elect to retire when they reach normal retirement and have their FRS benefits accumulate in the FRS Trust Fund, earning interest, while the member continues to work for an FRS employer. DROP membership is for a specific and limited period.

(Sections 121.021(12), 121.0515, 121.052, 121.055, 121.091 (13))

Contributions

From January 1, 1975, for the state and for school boards, and from October 1, 1975, for other agencies, through June 30, 2011, the total cost of the System was paid by the participating employers.

Beginning July 1, 2011, all FRS Pension Plan and FRS Investment Plan members, except those FRS Pension Plan members participating in DROP, are required to pay member contributions equal to 3% of compensation. TRS members already pay required employee contributions. Member contributions do not accrue interest except for TRS members.

(Section 121.071 (2))

The employer contribution rates enacted for the July 1, 2020 – June 30, 2021 plan year are as follows:

	Regular	Special Risk	Special Risk Administrative	Judicial	Elected Officers Class		Senior Management	DROP
					Leg-Atty-Cab	Local		
Defined Benefit Plan								
- Normal Cost Rate	5.19%	15.41%	11.13%	13.64%	8.76%	10.57%	6.90%	7.03%
- UAL Rate	<u>4.26</u>	<u>8.95</u>	<u>30.87</u>	<u>28.26</u>	<u>60.66</u>	<u>52.59</u>	<u>25.95</u>	<u>8.29</u>
- Total DB Rate	9.45%	24.36%	42.00%	41.90%	69.42%	63.16%	32.85%	15.32%
Investment Plan								
- Employer Rate	3.60%	13.54%	5.43%	11.05%	6.94%	8.95%	4.98%	n/a
- UAL Rate	<u>0.00</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00</u>	<u>n/a</u>
- Total IP Rate	3.60%	13.54%	5.43%	11.05%	6.94%	8.95%	4.98%	n/a
Blended Uniform Contribution Rates								
- Normal Cost Rate	4.84%	15.13%	9.89%	13.31%	8.38%	10.07%	6.39%	7.03%
- UAL Rate	<u>3.44</u>	<u>7.60</u>	<u>24.23</u>	<u>24.70</u>	<u>48.81</u>	<u>37.39</u>	<u>19.18</u>	<u>8.29</u>
- Total Rate	8.28%	22.73%	34.12%	38.01%	57.19%	47.46%	25.57%	15.32%

The above rates exclude the 0.06% administrative charge for Investment Plan administration and education (except DROP), and the 1.66% for the financing of the Florida Retiree Health Insurance Subsidy program.

(Sections 121.71, 121.74)

Compensation

“Compensation” means the monthly salary paid a member by his or her employer for work performed arising from that employment.

- (a) Compensation shall include:
1. Overtime payments paid from a salary fund.
 2. Accumulated annual leave payments.
 3. Payments in addition to the employee's base rate of pay if all the following apply:
 - a. The payments are paid according to a formal written policy that applies to all eligible employees equally;
 - b. The policy provides that payments shall commence no later than the 11th year of employment;
 - c. The payments are paid for as long as the employee continues his or her employment; and
 - d. The payments are paid at least annually.
 4. Amounts withheld for tax sheltered annuities or deferred compensation programs, or any other type of salary reduction plan authorized under the Internal Revenue Code.
 5. Payments made in lieu of a permanent increase in the base rate of pay, whether made annually or in 12 or 26 equal payments within a 12-month period, when the member's base pay is at the maximum of his or her pay range. When a portion of a member's annual increase raises his or her pay range and the excess is paid as a lump sum payment, such lump sum payment shall be compensation for retirement purposes.
- (b) Compensation for a member participating in the FRS Pension Plan or the FRS Investment Plan may not include:
1. Fees paid professional persons for special or particular services or salary payments made from a faculty practice plan authorized by the Board of Governors of the State University System for eligible clinical faculty at a college in a state university that has a faculty practice plan; or
 2. Any bonuses or other payments prohibited from inclusion in the member's average final compensation.
- (c) For all purposes under this chapter, the member's compensation or gross compensation contributed as employee-elective salary reductions or deferrals to any salary reduction, deferred compensation, or tax-sheltered annuity program authorized under the Internal Revenue Code shall be deemed to be the compensation or gross compensation which the member would receive if he or she were not participating in such program and shall be treated as compensation for retirement purposes under this chapter. Any public funds otherwise paid by an employer into an employee's salary reduction, deferred compensation, or tax-sheltered annuity program on or after July 1, 1990 (the date as of which all employers were notified in writing by the division to cease making contributions to the System Trust Fund based on such amounts), shall be considered a fringe benefit and shall not be treated as compensation for retirement purposes under this chapter. However, if an employer was notified in writing by the division to cease making such contributions as of a different date, that employer shall be subject to the requirements of said written notice.
- (d) For any person who first becomes a member on or after July 1, 1996, compensation for any plan year shall not include any amounts in excess of the Section 401(a)(17), Internal Revenue Code limitation (as amended by the Omnibus Budget Reconciliation Act of 1993), which limitation of \$150,000 effective July 1, 1996, shall be adjusted as required by federal law for qualified government plans and shall be further adjusted for changes in the cost of living in the manner provided by Section 401(a)(17)(B), Internal Revenue Code. For any person who first became a member prior to July 1, 1996, compensation for all plan years beginning on or after July 1, 1990, shall not include any amounts in excess of the compensation limitation (originally \$200,000) established by Section 401(a)(17), Internal Revenue Code prior to the Omnibus Budget Reconciliation Act of 1993, which limitation shall be adjusted for changes in the cost of living since 1989, in the manner provided by Section 401(a)(17) of the Internal Revenue Code of 1991. This limitation, which has

been part of the Florida Retirement System since plan years beginning on or after July 1, 1990, shall be adjusted as required by federal law for qualified government plans.

“Annual compensation” means the total compensation paid a member during a year. A “year” is 12 continuous months.

(Section 121.021(22) and (23))

FRS Pension Plan

Normal Retirement Benefit

Eligibility – Members initially enrolled before July 1, 2011 (Tier I)

- Regular Class
 1. 30 years of creditable service at any age.
 2. Age 62 and 6 or more years of creditable service.(Section 121.021(29)(a)(1))
- Special Risk Class
 1. 25 years of special risk service at any age; or
 2. Age 55 and 6 or more years of special risk service; or
 3. Age 52 and 25 years of creditable service, including special risk service and up to a maximum of four years of active duty wartime military service credit.
 4. 30 years of any creditable service, at any age, or age 62 and 6 or more years of creditable service when the member has service in any other membership class in addition to Special Risk Class (same requirement as the Regular Class).(Section 121.021(29)(b)(1))
- Special Risk Administrative Support Class
(with six or more years of Special Risk Class service, the same requirements as apply to the Special Risk Class, otherwise same as apply to the Regular Class)
(Sections 121.0515(8) and 121.021(29)(b)(1))
- Elected Officers' Class
(same requirements as apply to Regular Class)
(Section 121.021(29)(a)(1))
- Senior Management Service Class
(same requirements as apply to Regular Class)
(Section 121.021(29)(a)(1))

Eligibility – Members initially enrolled on and after July 1, 2011 (Tier II)

- Regular Class
 1. 33 years of creditable service at any age.
 2. Age 65 and 8 or more years of creditable service.(Section 121.021(29)(a)(2))

- Special Risk Class
 1. 30 years of special risk service at any age; or
 2. Age 60 and 8 or more years of special risk service; or
 3. 33 years of any creditable service, at any age, or age 65 and 8 or more years of creditable service (same requirement as the Regular Class).(Section 121.021(29)(b)(2))
- Special Risk Administrative Support Class
(with eight or more years of Special Risk Class service, the same requirements as apply to the Special Risk Class, otherwise same as apply to the Regular Class)
(Sections 121.0515(8) and 121.021(29)(b)(2))
- Elected Officers' Class
(same requirements as apply to Regular Class)
(Section 121.021(29)(a)(2))
- Senior Management Service Class
(same requirements as apply to Regular Class)
(Section 121.021(29)(a)(2))

Normal Form

Straight life benefit (Option 1), payable on the last state working day of each month, with a guarantee that benefits paid will at least equal member contributions.

(Section 121.091(1))

Optional Forms

10-year certain and life benefit (Option 2), 100% joint and contingent benefit (Option 3), or 66-2/3% joint and survivor benefit (Option 4). If the joint annuitant is the member's non-disabled child, payment ceases upon attainment of the joint annuitant's 25th birthday under the 100% and 66- 2/3% joint and survivor benefit.

(Section 121.091(6))

Dual Retirement

In the event a member accumulates retirement benefits to commence at different normal retirement ages by virtue of having performed duties for an employer which would entitle him or her to benefits as both a Special Risk Class member and a member of another class, the amount of the benefits payable shall be computed separately with respect to each such age, and the sum of such computed amounts shall be paid. Note that this does not apply to a Special Risk Administrative Support Class member with at least 6 years of Special Risk Class Membership (8 years for members enrolled on or after July 1, 2011) when the Special Risk and Special Risk Administrative Support Classes are the only memberships held because such a member is treated as a Special Risk Class member.

(Section 121.091(2))

Regular Benefit Amount

The monthly FRS Pension Plan allowance is the product of:

1. Average final compensation
 - a. For members initially enrolled before July 1, 2011, the average of the highest five plan years of creditable service;
 - b. For members initially enrolled on or after July 1, 2011, the average of the highest eight plan years of creditable service;
2. Creditable service during the applicable period; and
3. The appropriate benefit percentage for periods of service.

All benefits are limited to 100% of average final compensation.

(Sections 121.021(17), (24) and (25), 121.091(1))

The appropriate benefit percentages are as follows:

- For Members initially enrolled before July 1, 2011, for Creditable Service as a Regular Class member Subsequent to November 30, 1970:

Retirement at:	Percentage
Age 62 with 6 years of creditable service, or 30 years of creditable service	1.60%
Age 63 with 6 years of creditable service, or 31 years of creditable service	1.63%
Age 64 with 6 years of creditable service, or 32 years of creditable service	1.65%
Age 65 with 6 years of creditable service, or 33 years of creditable service	1.68%

- For Members initially enrolled on or after July 1, 2011, for Creditable Service as a Regular Class member Subsequent to November 30, 1970:

Retirement at:	Percentage
Age 65 with 8 years of creditable service, or 33 years of creditable service	1.60%
Age 66 with 8 years of creditable service, or 34 years of creditable service	1.63%
Age 67 with 8 years of creditable service, or 35 years of creditable service	1.65%
Age 68 with 8 years of creditable service, or 36 years of creditable service	1.68%

(Section 121.091(1))

Service as a Special Risk Class member:

Retirement on or After July 1, 2001 with Service Performed During:	Percentage
December 1, 1970 to September 30, 1974	2.00%
October 1, 1974 and thereafter	3.00%

(Section 121.091(1))

- For Members initially enrolled before July 1, 2011, for Creditable Service as a Special Risk Administrative Support Class member Subsequent to November 30, 1970:

Retirement at:	Percentage
Age 55 with 6 years of creditable special risk service, or age 52 with 25 years of creditable service, which may include up to four years of active duty wartime military service, or 25 years of creditable special risk service	1.60%
Age 56 with 6 years of creditable special risk service, or age 53 with 26 years of creditable service, which may include up to four years of active duty wartime military service, or 26 years of creditable special risk service	1.63%
Age 57 with 6 years of creditable special risk service, or age 54 with 27 years of creditable service, which may include up to four years of active duty wartime military service, or 27 years of creditable special risk service	1.65%
Age 58 with 6 years of creditable special risk service, or age 55 with 28 years of creditable service, which may include up to four years of active duty wartime military service, or 28 years of creditable special risk service	1.68%

- For Members initially enrolled on or after July 1, 2011, for Creditable Service as a Special Risk Administrative Support Class member Subsequent to November 30, 1970:

Retirement at:	Percentage
Age 60 with 8 years of creditable special risk service or 30 years of creditable special risk service	1.60%
Age 61 with 8 years of creditable special risk service or 31 years of creditable special risk service	1.63%
Age 62 with 8 years of creditable special risk service or 32 years of creditable special risk service	1.65%
Age 63 with 8 years of creditable special risk service or 33 years of creditable special risk service	1.68%

(Section 121.0515(8) and 121.091(1))

- For Service as an Elected Officers' Class member:
 3% for each year of creditable service in such class, except 3-1/3% for service in the judicial class. Military service credit is at the rate for Regular Class members.

(Sections 121.052(5)(a) and (d), 121.091(1))

- For Service as a Senior Management Service Class member:
 2% for each year of creditable service in such class, after January 31, 1987.

(Section 121.055(4)(d))

Early Retirement

Eligibility

For members initially enrolled before July 1, 2011, six years of creditable service for all classes of membership.

For members initially enrolled on or after July 1, 2011, eight years of creditable service for all classes of membership.

(Section 121.021(30))

Benefit Amount

The normal retirement benefit accrued to the date of early retirement, reduced by 5/12% for each month that the early retirement date precedes the normal retirement date based upon age. The normal retirement date is as follows:

1. Special Risk Class members:
 - a. Initially enrolled before July 1, 2011: Age 55
 - b. Initially enrolled on or after July 1, 2011: Age 60

2. Members in all other Classes
 - a. Initially enrolled before July 1, 2011: Age 62
 - b. Initially enrolled on or after July 1, 2011: Age 65

(Sections 121.021(30), 121.091(3))

Non-Duty Disability Retirement

Eligibility

Members are eligible if totally and permanently disabled after completing at least eight years of creditable service (or after six years if disability retirement is ordered for a judge by the Supreme Court).

Benefit Amount

Same as for normal retirement but based on average final compensation and creditable service to the date of disability retirement.

Minimum Benefit Amount

25% of average final compensation.

If the Supreme Court orders disability retirement for a judge, the minimum is two-thirds of compensation at disability. This benefit for a defined benefit plan member is not paid from the FRS Trust Fund. This benefit for an Investment Plan member is paid from the FRS Trust Fund after the member's IP account balance is transferred to the FRS Trust Fund.

(Section 121.091(4))

Line-of-Duty Disability

Eligibility

Members are eligible if totally and permanently disabled during the actual performance of duty. There is no service credit requirement. This benefit for an Investment Plan member is paid from the FRS Trust Fund after the member's IP account balance is transferred to the FRS Trust Fund.

Benefit Amount

Same as for normal retirement but based on average final compensation and creditable service to the date of disability retirement.

Minimum Benefit Amount

42% of average final compensation, except for the Special Risk and the Special Risk Administrative Support classes whose members are entitled to 65% of average final compensation.

If the Supreme Court orders disability retirement for a judge, the minimum is two-thirds of compensation at disability. This benefit for a defined benefit plan member is not paid from the FRS Trust Fund.

(Section 121.091(4))

Post-Retirement Death Benefits

Based on the optional form elected.

Non-Duty Pre-Retirement Death Benefits

Eligibility

Employment is terminated by death after vested for all classes of membership.

Benefit Amount

The normal or early retirement benefit amount for which the member would have been eligible had the member retired on his or her date of death and elected the 100% joint and survivor (Option 3) form of payment in favor of his or her beneficiary who is the surviving spouse or other eligible dependent. The monthly benefit is normally payable to the member's beneficiary for the beneficiary's lifetime. If the beneficiary is the member's non-disabled child, payment ceases upon attainment of the beneficiary's 25th birthday.

If the member is more than 10 years away from normal retirement eligibility, the reduction is 5% for each year the member would be younger than the normal retirement age at retirement. There are exceptions if within 10 years of normal retirement eligibility:

1. For members initially enrolled before July 1, 2011, who were within 10 years of normal retirement eligibility, the reduction for early retirement is applied from the earlier of age 62 (age 55 for Special Risk Class and Special Risk Administrative Support Class members) or the date on which the member would have completed 30 years of creditable service, had he or she continued employment.
2. For members initially enrolled on or after July 1, 2011, who were within 10 years of normal retirement eligibility, the reduction for early retirement is applied from the earlier of age 65 (age 60 for Special Risk Class and Special Risk Administrative Support Class members) or the date on which the member would have completed 33 years of creditable service, had he or she continued employment. The value of this benefit may not be less than the member's accumulated contributions, if any.

(Sections 121.091(3) and (7))

Line-of-Duty Pre-Retirement Death Benefits

Eligibility

Member died during the actual performance of duty. There is no service credit requirement.

Benefit Amount

For members in all classes except the Special Risk Class, the surviving spouse will receive one-half of the member's base monthly compensation at death. If the spouse dies, or if there is no surviving spouse, the monthly benefits continue until the youngest child is 18.

For members in the Special Risk Class the surviving spouse will receive a benefit equal to 100% of the member's base monthly compensation at death. If there is no surviving spouse, the monthly benefits continue

until the youngest child is age 18 and surviving child payments may be extended up to age 25 if the child is unmarried and enrolled as a full-time student.¹

A surviving spouse may elect to receive a non-duty death benefit in lieu of the duty death benefit.

(Section 121.091(7))

Vesting

Eligibility

For members initially enrolled before July 1, 2011, six years of creditable service for all classes of membership. For members initially enrolled on or after July 1, 2011, eight years of creditable service for all membership classes.

Benefit Amount

The normal or early retirement benefit amount based on average final compensation and creditable service to the date of termination.

(Sections 121.021(45), 121.091(5))

DROP – Deferred Retirement Option Program

Eligibility

Except as allowed by statute, notably for K-12 instructional personnel², members have a limited eligibility window during which they can elect to enter the DROP. A member initially becomes eligible to enter DROP in the same month he or she first becomes eligible to file for unreduced immediate retirement benefits. Eligibility windows differ by tier and membership class and are initially reached via satisfying either service-only criteria or age-plus-service criteria.

¹ Effective July 1, 2016 and retroactive to the survivors of Special Risk Class members killed in the line of duty on or after July 1, 2013, the benefit increased from 50% to 100% of the member's base pay. Effective July 1, 2017 the same benefits were provided retroactively to the survivors of Special Risk Class members killed in the line of duty between July 1, 2002 and June 30, 2013.

² Instructional personnel in grades K-12 may defer DROP participation to any age.

For most members achieving DROP entry eligibility via service-only criteria, the window to enter DROP lasts more than 12 months, with the window's length varying by individual. (The window must be at least 12 months in length.) The window for members satisfying service-only eligibility criteria is shown in the table below.

DROP Entry Eligibility Window for Members Satisfying Service-Only Criteria			
Membership Class	Tier	Window Opens	Window Closes
Special Risk	Tier I	25 Years of Service	53 rd Birthday ¹
Special Risk	Tier II	30 Years of Service	56 th Birthday ¹
All Other Classes	Tier I	30 Years of Service	58 th Birthday ¹
All Other Classes	Tier II	33 Years of Service	61 st Birthday ¹

¹Or 12 months after the window opens, if later than the date listed above for the member

Members who do not reach unreduced retirement eligibility through service-only eligibility criteria become eligible to enter DROP upon satisfaction of age-plus-service criteria. For those members, the eligibility window to enter DROP lasts for 12 months.

DROP Entry Eligibility Window for Members Satisfying Age-Plus-Service Criteria			
Membership Class	Tier	Window Opens	Window Closes
Special Risk	Tier I	Age 55 and 6 Years of Service	After 12 months
Special Risk	Tier II	Age 60 and 8 Years of Service	After 12 months
All Other Classes	Tier I	Age 62 and 6 Years of Service	After 12 months
All Other Classes	Tier II	Age 65 and 8 Years of Service	After 12 months

The maximum length of DROP participation is five years. As such, members who satisfy service-only criteria and enter DROP prior to age 60 are required to exit DROP and terminate FRS-covered employment and cease providing services to FRS employers prior to becoming eligible for Medicare benefits at age 65.

Benefit Amount

Effective July 1, 1998, eligible members can retire without terminating their employment during DROP participation. Monthly retirement benefits will be invested in the FRS Trust Fund, earning tax-deferred interest while the member continues to work for a maximum of 60 months. The interest credit for those entering the DROP prior to July 1, 2011, is 6.5% annually. For those entering the DROP after that date, it is 1.3% annually. Upon completion of the maximum five-year period, DROP participation ends and participants must terminate employment with all FRS employers. At that time, the participant will receive payment of the accumulated DROP benefits and begin receiving his FRS monthly retirement benefit (in the same amount as determined at retirement, plus annual cost-of-living increases).

Effective July 1, 2003, participants employed in eligible instructional positions with a district school board, the Florida School for the Deaf and Blind, or a developmental research school can extend their participation beyond their initial 60-month period, for up to an additional 36 months. The employer must approve the request for DROP extension as well as the period of extension granted to an eligible DROP participant, if any, within the 36-month limit. Effective July 1, 2018, K-12 instructional personnel granted extended DROP

participation must complete their DROP at the end of the school year and K-12 school administrators whose DROP participation ends before the end of the school year may have their DROP participation extended to the end of that school year.

Disabled While in DROP

Participants that became disabled while participating in DROP will continue to accumulate the same monthly benefit in the FRS Trust Fund until termination. Since the normal retirement benefit commenced upon DROP participation, the participant is not eligible for a disability benefit.

Death While in DROP

The designated beneficiary of a participant who dies while participating in DROP will receive all accumulated DROP benefits, and a continuing monthly benefit, if the participant had elected Option 2, 3, or 4. Survivors of DROP participants are not eligible for FRS line-of-duty death benefits.

(Section 121.091 (13))

Return of Employee Contributions

A member who terminates employment but is not eligible to retire, receive a vested retirement allowance, or receive a disability pension will be entitled to a refund of any employee contributions. The beneficiary of a member who passes away before satisfying the requirement for a pre-retirement death benefit will be entitled to a refund of any employee contributions made by the member. No interest is credited on employee contribution accounts.

A vested terminated participant may elect to receive a return of employee contributions in lieu of a retirement benefit.

(Sections 121.071(2)(b), 121.091(7)(a), Sections 121.091(5)(a) and (c))

Cost-of-Living Adjustment

Legislation enacted in 2011 eliminated post-retirement benefit increases on service credit earned on and after July 1, 2011. FRS Pension Plan members who retired before July 1, 2011 receive post-retirement benefit increases of 3% per year. Tier II members (those initially enrolled on and after July 1, 2011) will receive no post-retirement benefit increases. Tier I members (those initially enrolled before July 1, 2011) who retire after July 1, 2011 will receive individual post-retirement benefit increases equal to 3% per year multiplied by a fraction, the numerator of which is service through June 30, 2011 and the denominator of which is total service at retirement. Cost-of-Living Adjustments take effect annually on July 1. A pro-rated rate may apply in the initial year of applicability.

(Section 121.101)

Additional Benefit Amount

In addition, members may receive an additional retirement allowance under the pre-1971 existing systems. The benefit is a percentage of average final compensation times the creditable service in that system up to November 30, 1970. The system percentages are:

State and County Officers and Employees' Retirement System:

2.00% for creditable service rendered under Division A prior to Social Security coverage; and 1.50% for creditable service rendered under Division B subsequent to Social Security coverage.

Teachers Retirement System:

Plan E: 2.00%

(Sections 121.091(1)(c), 122.28, 238.07(7)(a))

Minimum Benefit

Eligibility

The month following attainment of age 65 by a pensioner or, in the case of a beneficiary receiving the survivor's portion of a member's benefit, the 65th anniversary of the deceased member's birth. The member must have earned at least 10 years of creditable service and retired under normal retirement.

Benefit Amount

An eligible benefit recipient will receive a benefit adjustment to bring the benefit to the calculated minimum benefit. Effective July 1, 2020, the minimum monthly benefit is \$34.25 multiplied by years of creditable service prior to application of the reduction factor for electing an optional form of payment. For retirements on or after July 1, 1987, creditable service for the minimum benefit calculation does not include any service earned on or after that date.

(Section 112.362)

FRS Investment Plan (IP)

The FRS Investment Plan (IP) is a defined contribution plan offered to eligible members as an alternative to the FRS Pension Plan. The plan is qualified under sec. 401(a) of the Internal Revenue Code.

Benefits

Under the IP, benefits accrue in individual member accounts funded by employer and employee contributions made on or after July 1, 2011, and earnings thereon. Benefits are provided through employee-directed investments offered by approved investment providers. Vested benefits are payable upon termination or death as a lump-sum distribution, direct rollover distribution, or periodic distribution. In addition to normal benefits and death benefits, the plan also provides disability coverage as described below.

(Sections 121.4501, 121.591)

Contributions

The employer contributions deposited in each participant's IP account are based upon allocation rates established by law for each membership class. This statutorily prescribed percentage of the participant's gross compensation for the reporting month is deducted from the total amount paid by the employer on behalf of all members in the same class of membership based on the uniform contribution rate established by law. Current IP allocation rates are set forth in the following tables. The allocation rates shown in the first table below do not include the 0.06% charge for FRS Investment Plan administration and education, the separate employer contribution rates assessed

to fund the IP disability program and ILOD survivor benefit program, or the contribution of 1.66% for the financing of the Florida Retiree Health Insurance Subsidy program.

(Sections 121.71, 121.72)

Effective July 1, 2012, the employer allocations to the IP accounts are based on contribution rates as follows:

Classification	2020-2021 Plan Year Rates
Regular	3.30%
Special Risk	11.00%
Special Risk Administrative Support	4.95%
Elected Officers'	
- Judicial	10.23%
- Leg/Atty/Cab	6.38%
- Local	8.34%
Senior Management Service	4.67%

The employer contribution rates to fund the disability benefit under the IP are as follows:

Classification	2020-2021 Plan Year Rates
Regular	0.25%
Special Risk	1.33%
Special Risk Administrative Support	0.45%
Elected Officers'	
- Judicial	0.73%
- Leg/Atty/Cab	0.41%
- Local	0.41%
Senior Management Service	0.26%

(Section 121.73)

Effective July 1, 2019 the employer contribution rates to fund the line of duty death benefit under the IP are as follows:

Classification	2020-2021 Plan Year Rates
Regular	0.05%
Special Risk	1.21%
Special Risk Administrative Support	0.03%
Elected Officers'	
- Judicial	0.09%
- Leg/Atty/Cab	0.15%
- Local	0.20%
Senior Management Service	0.05%

(Section 121.735)

Non-Duty Disability Retirement

Eligibility

Investment Plan participants who have completed at least eight years of creditable service (or six years of creditable service if disability retirement is ordered for a judge by the Supreme Court) are eligible for regular disability benefits if they become totally and permanently disabled due to injury or illness suffered while actively employed in an FRS-covered position. Upon approval for disability retirement, the IP participant may choose either to retain his/her IP account balance or to surrender his/her account balance to the FRS Pension Plan and receive guaranteed lifetime monthly disability benefits, assuming the member remains disabled.

Benefit Amount

If the disabled IP participant chooses to retain his/her account balance, he/she may elect to receive the normal benefit payable under the IP. If he/she elects to surrender the account balance and receive lifetime monthly disability benefits, the amount of each monthly payment is calculated in the same manner as provided for regular disability retirement under the FRS Pension Plan and is subject to the same threshold benefit amounts.

(Sections 121.091(4), 121.591(1) and (2))

Line-of-Duty Disability

Eligibility

IP participants are eligible for in-line-of-duty disability benefits if they become totally and permanently disabled due to injury or illness suffered during the actual performance of duty while actively employed in an FRS-covered position. There is no service credit requirement for in-line-of-duty disability benefits. Upon approval for disability retirement, the IP member may choose either to retain his/her IP account balance or to surrender his/her account balance to the FRS Pension Plan and receive guaranteed lifetime monthly disability benefits, assuming the member remains disabled.

Benefit Amount

If the disabled IP participant elects to retain his/her account balance, he/she may elect to receive the normal benefit payable under the IP. If he/she elects to surrender the account balance and receive lifetime monthly disability benefits, the amount of each monthly payment is calculated in the same manner as provided for line-of-duty disability retirement under the FRS Pension Plan and is subject to the same threshold benefit amounts.

(Sections 121.091(4), 121.591(1) and (2))

Line-of-Duty Death

Eligibility

IP participants are eligible for in-line-of-duty death benefits if they die during the actual performance of duty while actively employed in an FRS-covered position. There is no service credit requirement for in-line-of-duty death benefits. The beneficiary of the IP member may choose either to retain the member's IP account balance or to surrender his/her account balance to the FRS Pension Plan and receive guaranteed monthly death benefits, payable for the life of the surviving spouse or, if the spouse dies or there is no spouse, until the 18th birthday of the member's youngest surviving child. Such payments may be extended until the 25th birthday of the youngest child of a Special Risk Class member if the child is unmarried and enrolled as a full-time student.

Benefit Amount

If the beneficiary of the IP participant elects to retain his/her account balance, he/she may elect to receive the normal benefit payable under the IP. If he/she elects to surrender the account balance and receive the annuity from the FRS Pension Plan, the amount of each monthly payment is calculated in the same manner as provided for line-of-duty death benefits under the FRS Pension Plan, and is subject to the same threshold benefit amounts.

(Sections 121.091(7), 121.591(1), (3) and (4))

Teachers' Retirement System (TRS)

The benefit and contribution provisions of the Statutes for this closed system are set forth in Chapter 238 of the Florida Statutes. Certain provisions are from other sections of the Florida Statutes.

Effective Date

The effective date of the Retirement System was July 1, 1939.

(Section 238.02)

Membership

All employees who were teachers in public schools, employees of professional non-profit teachers associations, county superintendents, Department of Education employees and the staff of the Teachers' Retirement System, and who were employed prior to December 1, 1970, are members of the Teachers' Retirement System. The benefit and contribution provisions of the Statutes are set forth in Chapter 238 of the Florida Statutes. Certain provisions are drawn from other sections of the Florida Statutes. TRS retirees are included with the Regular Membership Class in the valuation.

State and County Officers and Employees' Retirement System (SCOERS)

The benefit and contribution provisions of the Statutes are set forth in Chapter 122 of the Florida Statutes. Certain provisions are drawn from other sections of the Florida Statutes. This is a closed system that no longer includes any members in the high hazard or legislative categories. Effective with the July 1, 2013 valuation, there are no longer any actively employed members of this system. SCOERS retirees are included with the Regular Membership Class in the valuation.

Effective Date

The effective date of the Retirement System was July 1, 1955.

(Section 122.01(2))

Membership

All full-time employees of the state and its counties not covered by another system who were employed prior to December 1, 1970.

Institute of Food and Agricultural Sciences Supplemental Retirement Program (IFAS)

The benefit and contribution provisions of the Statutes are set forth in Chapter 121 of the Florida Statutes. Certain provisions are drawn from other sections of the Florida Statutes. This is a closed system. IFAS retirees are included with the Regular Membership Class in the valuation.

Effective Date

The effective date of the Supplemental Retirement Program was July 1, 1985.

(Section 121.40)

Membership

Employees hired on or before July 1, 1983 who:

- a. hold both state and federal appointments while employed at the Institute,
- b. are not entitled to any benefit from a state-supported retirement system or Social Security based on service as an employee of the Institute, and
- c. are participants in the Federal Civil Service Retirement System.

Appendix C: Membership Data

This valuation is based upon the membership of the Pension Plan as of July 1, 2020.

The membership of the FRS Pension Plan includes employees of the State of Florida and participating political subdivisions. The membership is divided into several categories by membership class and subclass.

Tables C-1 through C-5 present distributions of annuitants (including beneficiaries of deceased members), and potential annuitants (terminated vested members). The tables show the numbers of persons receiving benefits and the total annual benefits.

Table C-6 summarizes the DROP membership and provides total annual benefits.

Table C-7 presents a summary by category of active membership, payroll, and accumulated employee contributions.

Tables C-8 through C-17 contain summaries of the active members in each category of membership. Values shown in the tables are the numbers of members and their average annual salaries. Table C-17 is the grand total of active members included in this valuation.

Table C-1
Florida Retirement System Pension Plan
Annuitants at July 1, 2020
Regular and Early Retirement by Age

Age	Number of Persons	Annual Benefits (in Thousands)
Under 50	2,282	\$29,285
50 to 54	4,269	139,317
55 to 59	16,933	513,778
60 to 64	47,428	1,188,265
65 to 69	93,127	2,200,335
70 to 74	102,786	2,479,405
75 to 79	68,448	1,608,508
80 & Up	79,482	1,817,121
Total	414,755	\$9,976,014

Table C-2
Florida Retirement System Pension Plan
Annuitants at July 1, 2020
Disability Retirement by Age

Age	Number of Persons	Annual Benefits (in Thousands)
Under 50	498	\$9,467
50 to 54	924	17,888
55 to 59	1,939	35,635
60 to 64	2,774	46,228
65 to 69	2,912	50,907
70 to 74	2,297	39,627
75 to 79	1,371	23,453
80 & Up	926	14,620
Total	13,641	\$237,825

Table C-3
Florida Retirement System Pension Plan
Potential Annuitants at July 1, 2020
Vested Terminated Members by Age for the Regular,
Senior Management Service, and Elected Officers' Classes

Age	Number of Persons	Annual Benefits (in Thousands) ¹
Under 30	106	\$244
30 to 34	2,130	8,820
35 to 39	7,342	39,081
40 to 44	11,250	68,109
45 to 49	15,239	96,700
50 to 54	19,889	130,131
55 to 59	20,834	149,272
60 & Up	<u>21,167</u>	<u>124,039</u>
Total	97,957	\$616,396

¹ Deferred to Age 62 (Tier 1) or Age 65 (Tier 2)

Table C-4
Florida Retirement System Pension Plan
Potential Annuitants at July 1, 2020
Vested Terminated Members by Age for the
Special Risk & Special Risk Administrative Support Classes

Age	Number of Persons	Annual Benefits (in Thousands) ²
Under 30	16	\$139
30 to 34	325	3,509
35 to 39	756	9,191
40 to 44	932	12,168
45 to 49	1,415	18,998
50 to 54	1,359	19,202
55 to 59	459	5,882
60 & Up	<u>239</u>	<u>2,926</u>
Total	5,501	\$72,015

² Deferred to Age 55 (Tier 1) or Age 60 (Tier 2)

Table C-5
Florida Retirement System Pension Plan
Annuitants and Potential Annuitants at July 1, 2020
All Types of Retirement by System

System	Annuitants	Potential Annuitants	Total
Number of Persons			
Regular	381,077	96,376	477,453
Senior Management Service	5,212	1,261	6,473
Special Risk	39,340	5,488	44,828
Special Risk Administrative	164	13	177
EOC: Judicial	965	48	1,013
EOC: Legislative/Attorneys/Cabinet	226	85	311
EOC: Local	1,412	187	1,599
Total	428,396	103,458	531,854
Annual Benefits (in Thousands)			
Regular	\$7,905,316	\$584,588	\$8,489,904
Senior Management Service	279,181	25,904	305,085
Special Risk	1,865,943	71,885	1,937,828
Special Risk Administrative	6,969	130	7,099
EOC: Judicial	96,813	2,651	99,464
EOC: Legislative/Attorneys/Cabinet	9,160	1,168	10,328
EOC: Local	50,457	2,085	52,542
Total	\$10,213,839	\$688,411	\$10,902,250

Table C-6
Florida Retirement System Pension Plan
Annuitants at July 1, 2020
DROP Members

Age	Number of Persons	Annual Benefits (in Thousands)
Under 50	359	\$25,611
50 to 54	2,298	129,591
55 to 59	8,509	336,831
60 to 64	15,993	408,683
65 to 69	7,809	162,849
70 to 74	244	5,384
75 to 79	21	347
80 & Up	7	107
Total	35,240	\$1,069,403

Table C-7
Florida Retirement System Pension Plan
Summary of Active Members at July 1, 2020

System	Number of Persons	Annual Salary (in Thousands) ¹	Accumulated Employee Contributions (in Thousands)
Regular	405,845	\$19,086,405	\$3,572,968
Senior Management Service	5,355	526,410	100,659
Special Risk	64,750	4,227,329	735,569
Special Risk Administrative	79	3,559	871
EOC: Judicial	665	104,958	20,816
EOC: Legislative/Attorneys/Cabinet	94	5,430	1,167
EOC: Local	697	40,583	8,397
Teachers' Retirement System (TRS)	8	726	2,770
Institute of Food and Agricultural Sciences (IFAS)	2	323	0
Total	477,495	\$23,995,723	\$4,443,217

¹ The salary shown in Tables C-7 through C-17 represents the salaries of the FRS DB plan members on July 1, 2020. The payroll on which normal costs are determined (\$24,539,759,000) equals the salaries for these DB plan members (excluding TRS and IFAS), adjusted to the middle of the plan year. The payroll on which UAL costs are charged additionally includes the payroll of certain other groups, and is described in Section 4 of the report.

Table C-8
Florida Retirement System Pension Plan
Member Counts and Average Salaries at July 1, 2020
Regular Class

Count	Years of Service												
	Age	Under 5	5 to 10	10 to 15	15 to 20	20 to 25	25 to 30	30 to 35	35 to 40	40 to 45	45 to 50	50 & Up	All Years
	Under 20	448											448
	20 to 24	7,284	160	1									7,445
	25 to 29	18,693	5,909	60									24,662
	30 to 34	16,878	16,932	3,669	145								37,624
	35 to 39	13,536	13,798	12,930	4,606	132							45,002
	40 to 44	11,454	10,926	10,532	13,305	3,863	76						50,156
	45 to 49	10,460	10,207	9,621	11,779	11,803	3,406	129					57,405
	50 to 54	9,879	9,583	9,663	11,492	11,160	10,231	3,019	82				65,109
	55 to 59	8,346	8,488	9,216	11,300	10,801	9,368	4,544	799	15			62,877
	60 to 64	4,456	5,580	6,300	7,363	6,779	5,471	1,759	816	141	5		38,670
	65 & Up	2,138	2,733	3,411	3,258	1,983	1,187	834	442	298	129	34	16,447
Total Count		103,572	84,316	65,403	63,248	46,521	29,739	10,285	2,139	454	134	34	405,845

Average Salary (\$)	Years of Service												
	Age	Under 5	5 to 10	10 to 15	15 to 20	20 to 25	25 to 30	30 to 35	35 to 40	40 to 45	45 to 50	50 & Up	All Years
	Under 20	13,491											13,491
	20 to 24	25,665	28,524	20,292									25,726
	25 to 29	34,736	40,442	39,600									36,115
	30 to 34	36,191	45,006	47,628	49,258								41,323
	35 to 39	36,438	45,292	51,796	53,431	54,966							45,359
	40 to 44	36,071	44,172	51,047	56,903	58,773	54,227						48,282
	45 to 49	36,193	42,752	48,375	54,746	61,915	64,957	62,609					50,263
	50 to 54	36,455	42,202	46,737	52,130	57,796	67,239	66,559	64,282				51,520
	55 to 59	35,103	40,797	44,863	49,246	53,302	62,722	69,953	67,134	62,477			50,017
	60 to 64	33,602	39,456	44,658	48,789	51,432	58,914	66,696	70,248	62,563	47,714		48,232
	65 & Up	23,835	34,024	42,573	46,669	48,886	55,835	62,415	77,083	85,243	87,517	101,778	44,428
Avg. Annual Salary		34,680	42,855	48,034	52,524	56,564	63,535	67,696	70,268	77,447	86,032	101,778	47,029

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Table C-9
Florida Retirement System Pension Plan
Member Counts and Average Salaries at July 1, 2020
Special Risk Class

Count	Years of Service											All Years	
	Age	Under 5	5 to 10	10 to 15	15 to 20	20 to 25	25 to 30	30 to 35	35 to 40	40 to 45	45 to 50		50 & Up
	Under 20	121											121
	20 to 24	4,702	31	1									4,734
	25 to 29	8,029	2,137	8									10,174
	30 to 34	5,052	4,500	1,598	22								11,172
	35 to 39	2,355	2,388	3,411	1,610	17							9,781
	40 to 44	1,180	1,176	2,185	2,985	1,036	15						8,577
	45 to 49	823	802	1,497	2,464	2,696	685	10					8,977
	50 to 54	656	605	979	1,544	1,945	1,041	164	7				6,941
	55 to 59	339	408	519	591	452	295	137	10				2,751
	60 to 64	115	162	263	277	170	108	51	28	4			1,178
	65 & Up	21	31	77	88	58	26	23	12	6	2		344
Total Count		23,393	12,240	10,538	9,581	6,374	2,170	385	57	10	2		64,750

Average Salary (\$)	Years of Service											All Years	
	Age	Under 5	5 to 10	10 to 15	15 to 20	20 to 25	25 to 30	30 to 35	35 to 40	40 to 45	45 to 50		50 & Up
	Under 20	26,756											26,756
	20 to 24	39,298	46,915	72,527									39,355
	25 to 29	46,150	54,779	50,474									47,966
	30 to 34	48,555	61,710	69,868	88,071								56,980
	35 to 39	47,696	61,962	77,347	84,562	82,344							67,648
	40 to 44	48,051	60,333	76,467	87,481	88,515	83,830						75,647
	45 to 49	49,575	60,144	73,945	87,293	92,422	98,597	99,813					81,601
	50 to 54	49,876	63,474	71,595	84,666	89,791	91,925	89,071	79,859				80,311
	55 to 59	48,329	65,786	70,890	81,725	82,430	81,022	81,807	76,359				73,227
	60 to 64	51,686	64,070	68,458	79,281	79,484	79,241	85,267	96,360	91,995			72,813
	65 & Up	39,572	54,604	63,047	85,047	83,442	76,479	91,198	65,945	107,881	145,946		74,182
Avg. Annual Salary		45,721	60,513	74,348	85,875	89,822	91,677	86,388	84,422	101,527	145,946		65,287

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Table C-10
Florida Retirement System Pension Plan
Member Counts and Average Salaries at July 1, 2020
Special Risk Administrative Support Class

Count	Years of Service											All Years
	Under 5	5 to 10	10 to 15	15 to 20	20 to 25	25 to 30	30 to 35	35 to 40	40 to 45	45 to 50	50 & Up	
Age												
Under 20												
20 to 24												
25 to 29		1										1
30 to 34		1	4									5
35 to 39		2	5	5								12
40 to 44			6	4	4							14
45 to 49			4	6	8	4						22
50 to 54		1	1	3	8	4	1					18
55 to 59			2	2								4
60 to 64				2		1						3
65 & Up												
Total Count		5	22	22	20	9	1					79

Average Salary (\$)	Years of Service											All Years
	Under 5	5 to 10	10 to 15	15 to 20	20 to 25	25 to 30	30 to 35	35 to 40	40 to 45	45 to 50	50 & Up	
Age												
Under 20												
20 to 24												
25 to 29		41,539										41,539
30 to 34		34,361	41,894									40,388
35 to 39		39,616	39,291	43,529								41,111
40 to 44			37,822	49,448	51,703							45,110
45 to 49			41,278	41,132	47,299	52,860						45,533
50 to 54		37,453	41,078	42,986	44,236	60,038	59,478					47,834
55 to 59			44,983	46,660								45,821
60 to 64				41,710		61,000						48,140
65 & Up												
Avg. Annual Salary		38,517	40,324	43,997	46,955	56,954	59,478					45,048

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Table C-11
Florida Retirement System Pension Plan
Member Counts and Average Salaries at July 1, 2020
Elected Officers' Class: Judicial Subclass

Count	Years of Service											All Years
	Under 5	5 to 10	10 to 15	15 to 20	20 to 25	25 to 30	30 to 35	35 to 40	40 to 45	45 to 50	50 & Up	
Age												
Under 20												
20 to 24												
25 to 29												
30 to 34	2											2
35 to 39	6	6	7									19
40 to 44	15	16	12	13	1							57
45 to 49	14	20	17	17	18							86
50 to 54	15	29	24	27	37	22						154
55 to 59	12	25	29	30	22	25	15	1				159
60 to 64	1	20	25	17	34	20	12	3				132
65 & Up	1	6	20	14	7	4	1	3				56
Total Count	66	122	134	118	119	71	28	7				665

Average Salary (\$)	Years of Service											All Years
	Under 5	5 to 10	10 to 15	15 to 20	20 to 25	25 to 30	30 to 35	35 to 40	40 to 45	45 to 50	50 & Up	
Age												
Under 20												
20 to 24												
25 to 29												
30 to 34	151,822											151,822
35 to 39	159,648	157,805	152,929									156,590
40 to 44	152,822	157,932	156,435	154,382	151,822							155,355
45 to 49	156,106	159,155	158,941	157,745	152,974							157,044
50 to 54	134,073	159,372	157,446	159,161	157,826	159,554						156,225
55 to 59	152,594	159,099	158,548	159,506	159,763	158,211	158,339	160,688				158,475
60 to 64	160,688	158,206	159,631	159,664	158,940	159,426	158,354	157,733				159,059
65 & Up	160,688	162,166	159,857	163,701	159,439	173,450	151,822	160,688				161,900
Avg. Annual Salary	150,044	158,961	158,315	159,129	157,813	159,828	158,113	159,421				157,832

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Table C-12
Florida Retirement System Pension Plan
Member Counts and Average Salaries at July 1, 2020
Elected Officers' Class: Legislators/Attorney/Cabinet Subclass

Count	Years of Service											All Years	
	Age	Under 5	5 to 10	10 to 15	15 to 20	20 to 25	25 to 30	30 to 35	35 to 40	40 to 45	45 to 50		50 & Up
	Under 20												
	20 to 24												
	25 to 29	1	1										2
	30 to 34	2	1										3
	35 to 39	1	5	2									8
	40 to 44	4	3	2	4								13
	45 to 49	5	3	2	4	2							16
	50 to 54	2	3	4	3	1	1						14
	55 to 59	3	2	1	3		1	2	1				13
	60 to 64		5	1	1	1	1	1	1				11
	65 & Up	1	2	2	4	2	2					1	14
Total Count		19	25	14	19	6	5	3	2			1	94

Average Salary (\$)	Years of Service											All Years	
	Age	Under 5	5 to 10	10 to 15	15 to 20	20 to 25	25 to 30	30 to 35	35 to 40	40 to 45	45 to 50		50 & Up
	Under 20												
	20 to 24												
	25 to 29	29,697	29,697										29,697
	30 to 34	30,192	29,697										30,027
	35 to 39	29,697	29,697	29,697									29,697
	40 to 44	29,697	29,697	29,697	29,078								29,507
	45 to 49	29,697	33,525	149,263	134,590	29,697							71,584
	50 to 54	29,697	29,697	29,697	33,525	169,554	169,554						50,497
	55 to 59	29,697	29,697	29,697	29,697		169,554	169,554	169,554	29,697			61,972
	60 to 64		29,697	29,697	29,697	169,554	169,554	169,554	169,554				80,554
	65 & Up	29,697	29,697	99,626	64,661	99,626	99,626					169,554	79,646
Avg. Annual Salary		29,749	30,156	56,768	59,615	99,626	141,583	169,554	99,626			169,554	57,763

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Table C-13
Florida Retirement System Pension Plan
Member Counts and Average Salaries at July 1, 2020
Elected Officers' Class: Local Subclass

Count	Years of Service												
	Age	Under 5	5 to 10	10 to 15	15 to 20	20 to 25	25 to 30	30 to 35	35 to 40	40 to 45	45 to 50	50 & Up	All Years
	Under 20												
	20 to 24												
	25 to 29	3	2										5
	30 to 34	6	4	1									11
	35 to 39	14	9	7	1								31
	40 to 44	16	14	6	7	4							47
	45 to 49	11	22	13	10	11	7						74
	50 to 54	16	28	20	15	10	14	11					114
	55 to 59	18	28	17	13	13	12	9	2				112
	60 to 64	23	21	11	29	12	15	9	4	1			125
	65 & Up	16	33	42	42	18	14	5	4	3	1		178
Total Count		123	161	117	117	68	62	34	10	4	1		697

Average Salary (\$)	Years of Service												
	Age	Under 5	5 to 10	10 to 15	15 to 20	20 to 25	25 to 30	30 to 35	35 to 40	40 to 45	45 to 50	50 & Up	All Years
	Under 20												
	20 to 24												
	25 to 29	8,842	8,360										8,649
	30 to 34	20,838	44,057	26,792									29,823
	35 to 39	32,900	45,900	47,813	109,477								42,512
	40 to 44	28,482	42,646	55,229	83,561	97,019							50,152
	45 to 49	27,085	43,134	79,679	71,486	63,372	79,901						57,486
	50 to 54	47,977	43,671	56,424	69,470	57,174	84,516	107,674					62,283
	55 to 59	47,763	41,663	68,678	81,735	110,783	89,213	90,773	79,355				69,132
	60 to 64	44,714	50,666	57,041	58,442	75,267	66,100	107,428	129,668	100,450			63,163
	65 & Up	34,972	48,042	55,163	55,411	64,351	45,288	76,136	70,993	98,155	3,600		53,619
Avg. Annual Salary		37,245	44,663	59,564	64,410	75,862	71,591	98,497	96,135	98,729	3,600		58,225

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Table C-14
Florida Retirement System Pension Plan
Member Counts and Average Salaries at July 1, 2020
Senior Management Service Class

Age	Years of Service											All Years
	Under 5	5 to 10	10 to 15	15 to 20	20 to 25	25 to 30	30 to 35	35 to 40	40 to 45	45 to 50	50 & Up	
Under 20												
20 to 24	4											4
25 to 29	252	9										261
30 to 34	289	267	18									574
35 to 39	97	231	177	49	2							556
40 to 44	65	95	147	199	62	3						571
45 to 49	60	87	86	187	273	84	9					786
50 to 54	62	70	105	159	216	293	75	2				982
55 to 59	66	81	89	119	141	259	140	17	1			913
60 to 64	29	56	70	84	79	92	42	18	2			472
65 & Up	2	20	47	59	36	26	17	17	10	2		236
Total Count	926	916	739	856	809	757	283	54	13	2		5,355

Age	Years of Service											All Years
	Under 5	5 to 10	10 to 15	15 to 20	20 to 25	25 to 30	30 to 35	35 to 40	40 to 45	45 to 50	50 & Up	
Under 20												
20 to 24	49,334											49,334
25 to 29	50,138	61,446										50,528
30 to 34	52,305	65,239	78,827									59,153
35 to 39	57,514	69,798	82,191	85,132	87,244							73,014
40 to 44	76,679	89,694	86,884	95,680	98,954	87,388						90,568
45 to 49	103,985	112,161	95,032	99,972	108,300	104,732	87,242					104,342
50 to 54	103,758	101,570	106,902	115,141	108,128	118,659	117,322	84,662				112,185
55 to 59	106,860	111,866	106,215	110,945	112,619	120,747	128,598	103,797	54,328			115,821
60 to 64	123,731	126,401	116,087	112,351	114,636	122,241	135,427	126,268	106,221			120,139
65 & Up	108,212	132,262	135,352	126,764	123,761	130,013	168,118	146,576	197,884	132,036		136,147
Avg. Annual Salary	66,999	85,446	97,533	105,529	109,545	118,529	127,682	124,046	172,740	132,036		98,302

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Table C-15
Florida Retirement System Pension Plan
Member Counts and Average Salaries at July 1, 2020
TRS – Teachers’ Retirement System

Count	Years of Service											
	Under 5	5 to 10	10 to 15	15 to 20	20 to 25	25 to 30	30 to 35	35 to 40	40 to 45	45 to 50	50 & Up	All Years
Age												
Under 20												
20 to 24												
25 to 29												
30 to 34												
35 to 39												
40 to 44												
45 to 49												
50 to 54												
55 to 59												
60 to 64												
65 & Up		1									7	8
Total Count		1									7	8

Average Salary (\$)	Years of Service											
	Under 5	5 to 10	10 to 15	15 to 20	20 to 25	25 to 30	30 to 35	35 to 40	40 to 45	45 to 50	50 & Up	All Years
Age												
Under 20												
20 to 24												
25 to 29												
30 to 34												
35 to 39												
40 to 44												
45 to 49												
50 to 54												
55 to 59												
60 to 64												
65 & Up		11,488									102,003	90,689
Avg. Annual Salary		11,488									102,003	90,689

Table C-16
Florida Retirement System Pension Plan
Member Counts and Average Salaries at July 1, 2020
IFAS – Institute of Food and Agricultural Sciences

Count	Years of Service											All Years
	Under 5	5 to 10	10 to 15	15 to 20	20 to 25	25 to 30	30 to 35	35 to 40	40 to 45	45 to 50	50 & Up	
Age												
Under 20												
20 to 24												
25 to 29												
30 to 34												
35 to 39												
40 to 44												
45 to 49												
50 to 54												
55 to 59												
60 to 64												
65 & Up									2			2
Total Count									2			2

Average Salary (\$)	Years of Service											All Years
	Under 5	5 to 10	10 to 15	15 to 20	20 to 25	25 to 30	30 to 35	35 to 40	40 to 45	45 to 50	50 & Up	
Age												
Under 20												
20 to 24												
25 to 29												
30 to 34												
35 to 39												
40 to 44												
45 to 49												
50 to 54												
55 to 59												
60 to 64												
65 & Up									161,401			161,401
Avg. Annual Salary									161,401			161,401

Table C-17
Florida Retirement System Pension Plan
Member Counts and Average Salaries at July 1, 2020
Grand Totals of All Active Participants

Count													
Age	Years of Service											All Years	
	Under 5	5 to 10	10 to 15	15 to 20	20 to 25	25 to 30	30 to 35	35 to 40	40 to 45	45 to 50	50 & Up		
Under 20	569												569
20 to 24	11,990	191	2										12,183
25 to 29	26,978	8,059	68										35,105
30 to 34	22,229	21,705	5,290	167									49,391
35 to 39	16,009	16,439	16,539	6,271	151								55,409
40 to 44	12,734	12,230	12,890	16,517	4,970	94							59,435
45 to 49	11,373	11,141	11,240	14,467	14,811	4,186	148						67,366
50 to 54	10,630	10,319	10,796	13,243	13,377	11,606	3,270	91					73,332
55 to 59	8,784	9,032	9,873	12,058	11,429	9,960	4,847	830	16				66,829
60 to 64	4,624	5,844	6,670	7,773	7,075	5,708	1,874	870	148	5			40,591
65 & Up	2,179	2,826	3,599	3,465	2,104	1,259	880	480	317	134	42		17,285
Total Count	128,099	97,786	76,967	73,961	53,917	32,813	11,019	2,271	481	139	42		477,495

Average Salary (\$)													
Age	Years of Service											All Years	
	Under 5	5 to 10	10 to 15	15 to 20	20 to 25	25 to 30	30 to 35	35 to 40	40 to 45	45 to 50	50 & Up		
Under 20	16,312												16,312
20 to 24	31,019	31,509	46,410										31,029
25 to 29	38,274	44,258	40,879										39,653
30 to 34	39,216	48,717	54,444	54,371									45,073
35 to 39	38,265	48,094	57,425	61,672	58,476								49,604
40 to 44	37,514	46,223	55,855	62,976	65,518	60,009							52,737
45 to 49	37,655	44,753	52,356	61,023	68,422	71,273	66,621						55,217
50 to 54	37,829	44,181	49,834	56,912	63,538	70,954	68,989	65,928					55,293
55 to 59	36,338	42,891	47,158	51,751	55,456	65,055	72,335	68,093	61,968				52,164
60 to 64	34,700	41,410	46,795	50,837	53,385	60,710	69,579	72,936	64,204	47,714			50,197
65 & Up	24,212	35,370	45,053	49,607	51,668	58,119	65,389	80,089	89,347	88,427	103,429		46,811
Avg. Annual Salary	36,991	45,608	52,321	57,646	61,539	66,898	70,242	72,397	80,700	86,963	103,429		50,253

This work product was prepared solely for the Florida Department of Management Services for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. Milliman recommends that third parties be aided by their own actuary or other qualified professional when reviewing the Milliman work product.

Appendix D: Projections

Table D-1 presents a projection of total costs of the employers covered by the FRS Pension Plan (exclusive of the Investment Plan) during the five-year period following the actuarial valuation date, July 1, 2020. The contributions shown beginning with plan year 2021-2022 are based on the assumption that the contribution levels calculated in this report are extended throughout the projection period. The contributions shown for plan year 2020-2021 are based on the legislated rates (before blending) on page B-3 of this report.

Table D-2 reflects, for each membership class and DROP, the outstanding UAL balance of all amortization bases combined as of July 1, 2020. The table develops the associated duration of the amortization of the combined amortization bases.

Beginning in the July 1, 1998 actuarial valuation with the emergence of the surplus, all UAL bases in existence as that time were considered to be fully amortized. While the Plan was in surplus, the UAL amortization payment or credit was made from the surplus for certain post-1998 benefit increases and the 1998 and 2003 experience studies prior to any use of the surplus for contribution rate reductions or any other FRS uses. Now that the plan is no longer in surplus, the UAL payment is made by employers as part of the contribution rate.

Table D-3 estimates the UAL payment / (available surplus) for the next three plan years based on Florida law. The estimates are projections of the July 1, 2020 valuation results, and assume experience occurs as stated in the July 1, 2020 valuation.

All three tables reflect that no surplus is available for rate reduction. The amortization methodology recognizes the time value of money.

Table D-1
Florida Retirement System Pension Plan
Projection of Retirement Costs (Excluding Member Contributions)
July 1, 2020
Based on Contribution Rates Before Blending

(\$ in Millions)

	2020 -2021	2021 -2022	2022 -2023	2023 -2024	2024 -2025
A. Employer Normal Cost ¹	\$1,904	\$2,010	\$2,075	\$2,142	\$2,212
B. UAL Payment / (Surplus Utilization) ²	<u>\$1,775</u>	<u>\$2,210</u> ²	<u>\$2,282</u> ²	<u>\$2,356</u> ²	<u>\$2,433</u> ²
C. Total	\$3,679	\$4,220	\$4,357	\$4,498	\$4,645

¹ Includes DROP contributions on behalf of DROP members.

² UAL Payment increase is based on assumed increasing payroll, but does not reflect the recognition and funding of deferred investment gains/losses.

Table D-2
Florida Retirement System Pension Plan
Funding of UAL by Duration of Amortization
July 1, 2020
 (\$ in thousands)

	Regular	Special Risk	Special Risk Administrative	-- Elected Officers' Class --			Senior Management	DROP
				Judicial	Leg-Atty-Cab	Local		
Valuation Date Outstanding UAL Balance	\$21,456,208	\$7,842,503	\$18,401	\$504,558	\$70,541	\$391,316	\$2,439,192	\$3,251,932
UAL Contribution Rate (see Table 4-11)	5.34%	10.45%	35.91%	30.68%	75.47%	57.81%	28.92%	9.45%
Projected UAL Payroll PY 2021 - 2022 ¹	\$23,882,565	\$4,506,267	\$3,743	\$111,077	\$6,382	\$47,294	\$572,644	\$2,441,285
Annual Payment for PY 2021 - 2022	\$1,275,099	\$470,805	\$1,344	\$34,083	\$4,817	\$27,341	\$165,619	\$230,675
Amortization Period in Years Calculated Assuming								
Level Dollar	NA ²	NA ²	34	53	49	41	52	39
Level Percent of Payroll	26	25	18	21	20	20	21	19

¹ The UAL payroll shown here includes salaries for defined contribution program members who pay only the UAL contribution rate, but excludes FRS Investment Plan Payroll.

² Current annual payment / (savings) will never accumulate to the UAL if the earned interest rate is 7.00%.

Table D-3
Florida Retirement System Pension Plan
Projected Annual Payments of UAL Amortization Bases¹
July 1, 2020

Projected PY 2021-2022 and Forward Based on 07/01/2020 Valuation Results and 07/01/2020 Assets

	<u>2021 - 2022</u>	<u>2022 - 2023</u>	<u>2023 - 2024</u>
1 Estimated Surplus Available Rate Stabilization Mechanism ²	\$0.0	\$0.0	\$0.0
2 (Increase)/Decrease in Available Surplus from prior year	\$0.0	\$0.0	\$0.0
UAL Bases			
3 1993 - 1998 Experience Study Assumption Changes ³	(\$41.3)	(\$42.6)	(\$44.0)
4 Special Risk Minimum In-Line-of-Duty Disability Increased to 65% ⁴	(\$0.3)	(\$0.3)	(\$0.3)
5 12% Increase in Special Risk benefits (in pay status before 07/01/2000) ⁵	\$32.6	\$33.6	\$34.7
6 1998 - 2003 Experience Study Assumption Changes ⁵	(\$304.1)	(\$313.9)	(\$324.2)
7 2003 - 2008 Experience Study Assumption Changes	\$510.9	\$527.5	\$544.7
8 2009 Experience (Gain)/Loss	\$1,603.4	\$1,655.5	\$1,709.3
9 Unrecognized (Gains)/Losses while in Surplus	(\$469.0)	(\$484.2)	(\$500.0)
10 2009 Plan Change (House Bill 479)	(\$97.0)	(\$100.1)	(\$103.4)
11 2010 Experience (Gain)/Loss	\$84.5	\$87.3	\$90.1
12 2010 Plan Change (Senate Bill 2100)	(\$92.6)	(\$95.6)	(\$98.7)
13 2011 Experience (Gain)/Loss	\$200.3	\$206.8	\$213.5
14 2012 Experience (Gain)/Loss	(\$7.8)	(\$8.1)	(\$8.4)
15 2013 Experience (Gain)/Loss	\$192.7	\$198.9	\$205.4
16 2008 - 2013 Experience Study Assumption/Method Changes	\$134.9	\$139.3	\$143.8
17 2014 Experience (Gain)/Loss	(\$183.0)	(\$188.9)	(\$195.1)
18 2015 Experience (Gain)/Loss	\$36.6	\$37.7	\$39.0
19 Special Risk 100% In-Line-Of-Duty Death (2016)	\$2.7	\$2.8	\$2.9
20 2016 Assumption Changes	\$72.1	\$74.4	\$76.9
21 2016 Experience (Gain)/Loss	\$79.4	\$82.0	\$84.6
22 Special Risk 100% In-Line-Of-Duty Death (2017)	\$5.5	\$5.7	\$5.9
23 2017 Assumption Changes	\$138.4	\$142.9	\$147.6
24 2016-2017 Experience (Gains) / Losses	\$30.5	\$31.5	\$32.6
25 2018 Assumption Changes	\$138.6	\$143.1	\$147.7
26 2017-2018 Experience (Gains) / Losses	(\$46.5)	(\$48.0)	(\$49.6)
27 Special Risk Cancer Presumption Disability and Death (2019)	\$0.7	\$0.7	\$0.7
28 2019 Assumption Changes	\$244.2	\$252.1	\$260.3
29 2019 Method Changes	(\$394.4)	(\$386.2)	(\$377.8)
30 2018-2019 Experience (Gains) / Losses	(\$24.4)	(\$25.2)	(\$26.0)
31 2020 Assumption Changes	\$256.1	\$264.4	\$273.0
32 2020 Experience (Gain)/Loss	<u>\$106.0</u>	<u>\$109.4</u>	<u>\$113.0</u>
Subtotal [(3) through (32)]	\$2,209.7	\$2,302.5	\$2,398.2
33 Across the Board Rate Reduction of 0% ⁶	<u>\$0.0</u>	<u>\$0.0</u>	<u>\$0.0</u>
Total [Subtotal + (33)]	\$2,209.7	\$2,302.5	\$2,398.2
34 UAL payment / (Surplus Available) [(1) + Total] =	\$2,209.7	\$2,302.5	\$2,398.2

1 Numbers exclude contributions to the Investment Plan.

2 Projected surplus based on 07/01/2020 valuation results. Using amortization method that reflects interest.

3 In the absence of a surplus there is an additional charge or credit to each class. See Tables 4-2 through 4-10 for details.

4 In the absence of a surplus there is an additional cost to the Special Risk Administrative Class of 0.14% and an additional cost to the Special Risk Class of -0.01% attributable to the Increase in Minimum ILOD Disability Benefit.

5 In the absence of a surplus there is an additional cost to the Special Risk Class of 0.72% attributable to the 12% increase in pre-2000 retired benefits.

6 No surplus available for rate reduction.

Appendix E: Comparisons/Reconciliation

This Appendix contains certain comparative information required by the state. Table E-1 compares actual investment return, aggregate payroll growth, and individual salary increases with the actuarial assumptions.

Table E-2 reconciles the flow of participants from the 2019 actuarial valuation to the 2020 actuarial valuation, while Table E-3 cross-references the required sections of 112.64 with this report.

Table E-1
Florida Retirement System Pension Plan
One-Year Comparisons

1. Annual Rate of Investment Return on Actuarial Value of Assets

Period	Actual	Assumed
July 2017 to June 2018	8.36%	7.50%
July 2018 to June 2019	7.82%	7.40%
July 2019 to June 2020	6.77%	7.20%

2. Annual Rate of Pension Plan Payroll Growth (Excludes IP Payroll)

Period	Actual ¹	Assumed ¹
July 2017 to June 2018	2.43%	3.25%
July 2018 to June 2019	0.58%	3.25%
July 2019 to June 2020	1.20%	3.25%

3. Annual Rate of UAL Payroll Growth

Period	Actual	Assumed
July 2017 to June 2018	3.30%	3.25%
July 2018 to June 2019	2.46%	3.25%
July 2019 to June 2020	3.42%	3.25%

4. Average Rate of Annual Salary Increase for Continuing Active Pension Plan Members

Year Ended June 30	Rate of Increase During Year					
	Regular		Special Risk		Composite Pension Plan	
	Actual	Assumed ²	Actual	Assumed ²	Actual	Assumed ²
2018	4.6%		8.0%			4.6%
2019	4.3%		6.8%			4.6%
2020	6.0%	4.5%	6.0%	5.3%	6.0%	4.6%

¹ The payroll base compared is used for UAL cost calculations and includes payroll for DROP members and certain defined contribution plan participants for whom only UAL contributions are due, but excludes FRS Investment Plan Payroll.

² Individual rates of salary increase vary by service and membership class. Single assumed rates shown above reflect the population and assumptions adopted with the 2014 experience study for years ending June 30, 2018 and June 30, 2019. The most recent experience study was for the period July 1, 2013 through June 30, 2018. The assumptions adopted as a result of that study are effective July 1, 2019 and are reflected for the year ending June 30, 2020. Effective July 1, 2020 the assumption for merit based salary increases were lowered by 0.2% and will be first reflected in this table for the year ending June 30, 2021. Assumed rates beginning with the year ended June 30, 2020 are weighted by individual member salaries, rather than headcount.

Table E-2
Florida Retirement System Pension Plan
Data Reconciliation

	Active Participants	Disabled Participants	Retired Participants and Beneficiaries	DROP	Terminated Vested Participants	Total
Number reported as of July 1, 2019	500,111	13,909	407,221	35,182	103,709	1,060,132
New Entrants ¹	46,990	0	0	0	0	46,990
Exits from Active Status ² or DROP	(60,805)	209	14,826	(8,770)	7,377	(47,163)
DROP Entry	(8,801)	0	0	8,801	0	0
Cessation of benefit payments	NA	(638)	(13,022)	0	0	(13,660)
Other reported status changes, including changes from Terminated Vested status	0	161	5,730	27	(7,628)	(1,710)
Number reported as of July 1, 2020	477,495	13,641	414,755	35,240	103,458	1,044,589

¹ Includes rehires

² Includes retirement, vested termination, IP transfer, non-vested termination and death

Table E-3
Florida Retirement System Pension Plan
Cross Reference to Section 112.64 Reporting Requirements

<u>Code Ref</u>		<u>Page/Section</u>
1 General Information:		
1.003 (3g)	Includes certification by the enrolled actuary (signed and dated)?	Cover Letter
1.003 (11)	Do procedures follow commonly accepted procedures and determinations?	Cover Letter
1.003 (4g)	Disclosure of events not taken into account by actuary?	Cover Letter
1.003 (4g)	Disclosure of trends not assumed to continue (by actuary)?	Executive Summary
2 Assumptions:		
1.003 (3e)	Description and explanation of all actuarial assumptions?	Appendix A
1.003 (3f)	Is there a comparison of actual to expected salary increases over the preceding 3-year period?	E-1
1.003 (3f)	Is there a comparison of actual to expected investment returns over the preceding 3-year period?	E-1
1.003 (6)	Do assumptions factor in actual experience?	Appendix A
1.003 (6)	Is impact of inflation considered?	A-3
1.003 (6)	Any consistent experience gains or losses to suggest assumption changes?	No
1.003 (7)	Listing of changed assumptions?	A-18
3 Plan Provisions & Funding Method:		
1.003 (4c)	Contain a summary of plan provisions?	Appendix B
1.003 (4d)	Contain a detailed summary of funding method?	Appendix A
1.003 (5)	Does funding method provide a contribution sufficient to meet the NC and amortize the UAL?	Section 4
4 Assets & Method:		
1.003 (3a)	Is the MVA breakdown included (by cash, bonds, stocks, and other)?	2-2
1.003 (3a)	Is the "statement value" breakdown included?	No
1.003 (3a)	Is the derivation of AVA included?	2-3
1.003 (8)	Are administrative expenses being paid on a current basis?	2-1
	Asset reconciliation, including:	Exhibit
1.003 (4j)	- contributions by source	2-1
1.003 (4j)	- interest and dividends	2-1
1.003 (4j)	- realized gains / (losses)	2-1
1.003 (4j)	- unrealized appreciation	2-1
1.003 (4j)	- pension payments	2-1
1.003 (4j)	- contribution refunds	2-1
1.003 (4j)	- expenses	2-1
1.003 (4j)	- other receipts (identified)	2-1 (transfer)
1.003 (4j)	- other disbursements (identified)	2-1 (IP)

<u>Code Ref</u>		<u>Page/Section</u>
	5 UAL & Amortization Schedule:	Exhibit
1.003 (3b)	Include a plan to amortize any UAL?	4-2 & D-3
	Does amortization schedule of UAL exist (as of the valuation date) ...	Page
1.003 (3c)	- on an annual basis for the next 3-years?	Exhibit D-3
1.003 (3c)	- for the final year?	No
1.003 (3c)	Is a statement as to how method was derived included?	A-2
1.003 (3d)	Is a description of actions taken to reduce the UAL included?	Section 4 Exec Summary
	Reconciliation of UAL (must include items below):	Exhibit
1.003 (4h)	- UAL for prior valuation (w/ start date)	Page 6
1.003 (4h)	- Normal Cost, contributions, & accrued interest	Page 6
1.003 (4h)	- Impact of changes (assumption, funding method, amendments, gain/loss)	4-2—4-10
1.003 (4h)	- UAL for current valuation	4-2—4-10
	6 Results:	Exhibit
1.003 (4a)	Valuation Date clearly indicated?	Page 1
1.003 (4e)	Are results separated by employee group?	3-2 and Sections 4 & 5
1.003 (4f)	Is there disclosure of any benefit and expense provided by and/or paid from plan assets for which no liabilities or current costs have been established?	Cover Letter
1.003 (4i)	Projection of emerging liabilities/cash flow needs for next 10-15 years (optional)	No
1.003 (4l)	Summary of principal results (for current and prior valuation) including:	
	- participant data (counts, total pay, total annual benefits by group)	Appendix C
	- assets (market and actuarial)	2-2, 2-3
	- PVB (split: active by decrement, tv, ret & ben, dis, and total)	3-2
	- PV of future benefit payments	3-2
	- AL and UAL, i.e., including amount, date, amortization period	3-2, 4-2
	- PVVB (by group), non-vested PVAB, Total PVAB	5-1, 5-2
1.003 (4l)	Reconciliation of PVAB, including:	
	- PVAB at beginning of year	5-3
	- changes due to amendment and/or assumptions	5-3
	- change due to decrease in discount period and benefits accrued	5-3
	- Benefits paid	5-3
	- Other changes	5-3
	- Net increase (decrease)	5-3
	- PVAB at end of year	5-3
1.003 (4l)	Pension Cost	
	- Normal cost (shown for each benefit and amount for admin expense)	4-1
	- Payment to amortize UAL	4-2—4-10
	- Expected plan sponsor contribution (i.e. total of above pieces with interest, also as % of pay)	4-11
	- Amount to be contributed by members (total and % of pay)	Pages B-3—B-4
1.003 (4l)	Past Contributions	
	- Required plan sponsor & member contribution	4-12

<u>Code Ref</u>		<u>Page/Section</u>
	- Actual contributions made by: plan sponsor, members, other	4-12
1.003 (4k)	Active member accumulated contributions with interest	5-2
1.003 (4l)	Net actuarial gain / loss	4-2—4-10
1.003 (4l)	Other (PVFS & PVFC at attained age and at entry age, PVFC from other sources, PVF Expected BP)	3-2
	7 Data:	Exhibit
1.003 (4i)	Are membership demographics and financial statistics included?	Appendix C
1.003 (4i)	Age/service table for actives included?	C-7—C-17
1.003 (4i)	Data reconciliation?	E-2
	8 Contribution Rate:	Page
1.003 (4a)	Applicable beginning and ending dates for recommended contribution indicated?	4
1.003 (4b)	Are ER and EE contribution rates adequate to meet benefits?	4
1.003 (4b)	Are contribution rate changes necessary to achieve or preserve funding?	Yes, Executive Summary and Exhibit 4-11
1.003 (7)	Is the impact of assumption or cost method changes indicated?	7, Exhibit 3-1
1.003 (9)	Were costs to be paid at a later date adjusted for interest and/or salary?	Yes 3—4
1.003 (10)	Is the effective date of recommended changes no later than the next fiscal year?	Yes 3—4

Appendix F: Risk Disclosure

The purpose of this appendix is to identify, assess, and provide illustrations of risks that are significant to the Plan, and in some cases to the Plan's members.

In addition, as plans mature, they accumulate larger pools of assets and liabilities. This increases the potential risk to plan funding and the finances of those who are responsible for plan funding. As shown by the Asset Volatility Ratio discussed later in this section, the System's assets are now much larger compared to UAL payroll than in the past. The Asset Volatility Ratio example shows that because of this, a 10% investment loss on assets today would cost more than two times as much, when measured as a percentage of UAL payroll, than a 10% investment loss would have cost in 1993. Since pension plans make long-term promises and rely on long-term funding, it is important to consider how mature the plan is today, and how mature it may become in the future.

The results of any actuarial valuation are based on one set of assumptions. Although we believe the current assumptions for the System provide a reasonable estimate of future expectations, it is almost certain that future experience will differ from the assumptions to some extent. It is therefore important to consider the potential impacts of these potential differences between assumptions and experience when making decisions that may affect the future financial health of the Plan, or of the Plan's participants.

Actuarial Standard of Practice No. 51 (ASOP 51) addresses these issues by providing actuaries with guidance for assessing and disclosing the risk associated with measuring pension liabilities and the determination of pension plan contributions. Specifically, it directs the actuary to:

- Identify risks that may be significant to the plan.
- Assess the risks identified as significant to the plan. The assessment does not need to include numerical calculations.
- Disclose plan maturity measures and historical information that are significant to understanding the plan's risks.

ASOP 51 states that if, in the actuary's professional judgment, a more detailed assessment would be significantly beneficial in helping the individuals responsible for the plan to understand the risks identified by the actuary, then the actuary should recommend that such an assessment be performed.

This Section uses the framework of ASOP 51 to communicate important information about significant risks to the System, the System's maturity, and relevant historical Plan data.

Identification of Risks

There are a number of factors that affect future valuation results. To the extent actual experience for these factors varies from the assumptions, this will likely cause either increases or decreases in the plan's future funding level and calculated contribution rates. Examples of factors that can have a significant impact on valuation results are:

- Investment return as this will impact the level of assets available to pay benefits
- Payroll variation as this will impact the ability to finance unfunded amounts as a percent of future pay
- Salary variation as this will impact the size of benefits members receive as a percent of final earnings
- Mortality as this will impact how long retirees receive benefits

- Service retirement as this will impact: how long retirees receive benefits, the size of retiree benefits, the amount of time to receive employer and employee contributions, and the amount of time for investment earnings to accumulate on those contributions
- Termination (members leaving active employment for reasons other than death, disability or service retirement) as this will impact the size of those members benefits

Investment Return

Of the factors listed above, we believe the factor with the greatest potential risk is future investment returns. For this reason, we studied this assumption in the executive summary of this report.

In that section, we performed deterministic projections to study the impact of various investment return scenarios on the UAL compared to the case in which the actual investment rate of return matches the assumed investment rate of return. See our October 8, 2020 presentation materials to the Actuarial Assumption Conference for additional details and discussion regarding the return assumption, including sensitivity analysis showing the impact on the UAL, Funded Status and blended employer contribution rate of changing the investment return assumption.

Demographic Experience

While future investment returns will likely cause the greatest deviation from expected experience, there are many other assumptions made in an actuarial valuation. For these assumptions, differences between actual and assumed experience will also result in actuarial gains and losses. The executive summary of this report provides a look at the impact in the past year of actual experience deviating from assumed.

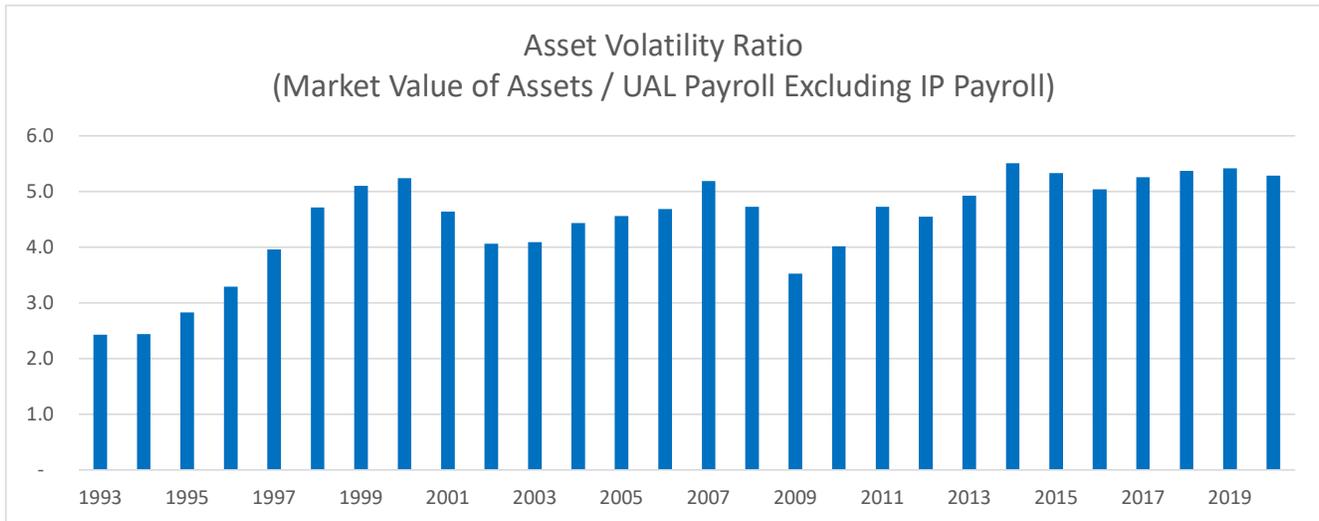
Maturity Measures and Historical Information

The remainder of this section contains historical information concerning the System's Asset Volatility Ratio (AVR) and Liability Volatility Ratio (LVR), plus a forward-looking projection of future benefit payments on behalf of current Plan members. Additional historical information can be found in the Executive Summary.

Asset Volatility Ratios and Liability Volatility Ratios

The magnitude of any contribution rate increase or decrease is affected by the System's maturity level. As systems mature, they accumulate larger pools of assets. Gains and losses on these larger pools of assets create more volatility in the contributions needed to fund the system.

One indicator of this potential volatility is the Asset Volatility Ratio (AVR), which is equal to the Market Value of Assets divided by total UAL payroll. As assets grow compared to UAL payroll, any percentage gain or loss on those assets will be larger compared to UAL payroll. This causes any resulting changes in required contributions from those gains or losses to also be larger when measured as a percentage of UAL payroll. Therefore, plans with a high AVR will be subject to a greater level of volatility in required contributions. The AVR is a current measure since it is based on the current level of assets and will vary from year to year.

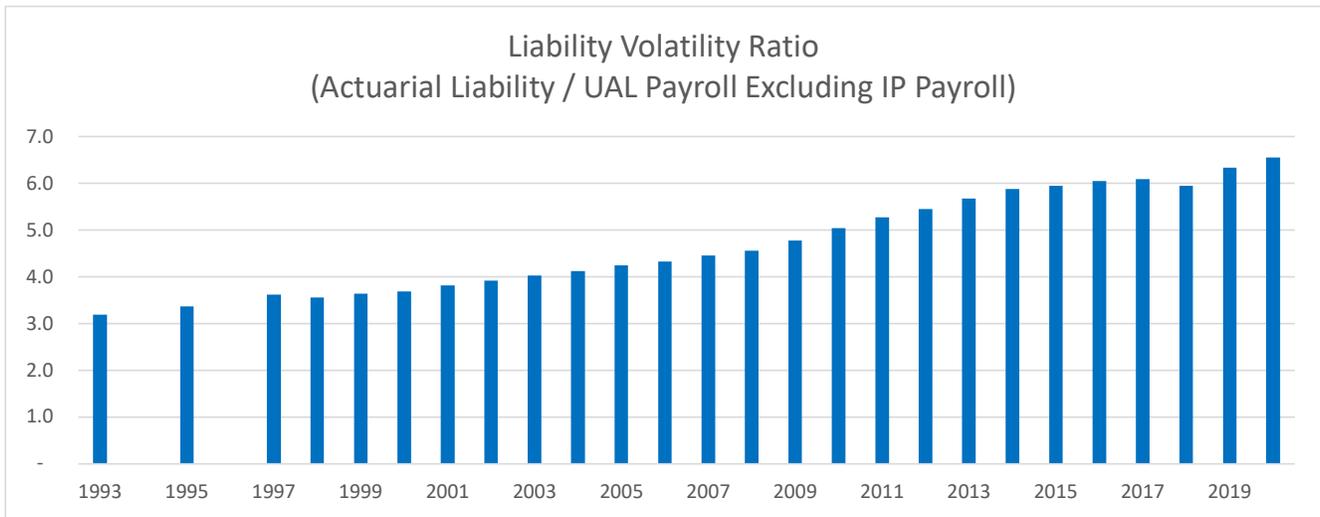


The current AVR for the FRS Pension Plan is 5.3. The AVR grew from 2.4 in 1993 to a high of 5.5 in 2014. The following table provides an illustration of how increases in the AVR increase the volatility of contributions from asset gains and losses.

Approximate eventual increase in contributions for an asset return 10% below the assumption if not offset by future gains	
Asset Volatility Ratio = <u>Assets / Payroll</u>	25-Year <u>Amortization</u>
2.4 (1993)	1.6%
5.3 (current)	3.5%

A return of negative 3.00% is approximately a 10% loss for FRS because it is 10% below the 7.00% investment return assumption. If a return of negative 3.00% were experienced and was not offset by future gains and the AVR was 2.4, the loss would be expected to increase contributions by about 1.6% of pay when amortized over 25 years. However, with the AVR of 5.3, the same return would be expected to increase contributions by about 3.5% of UAL payroll when amortized over 25 years.

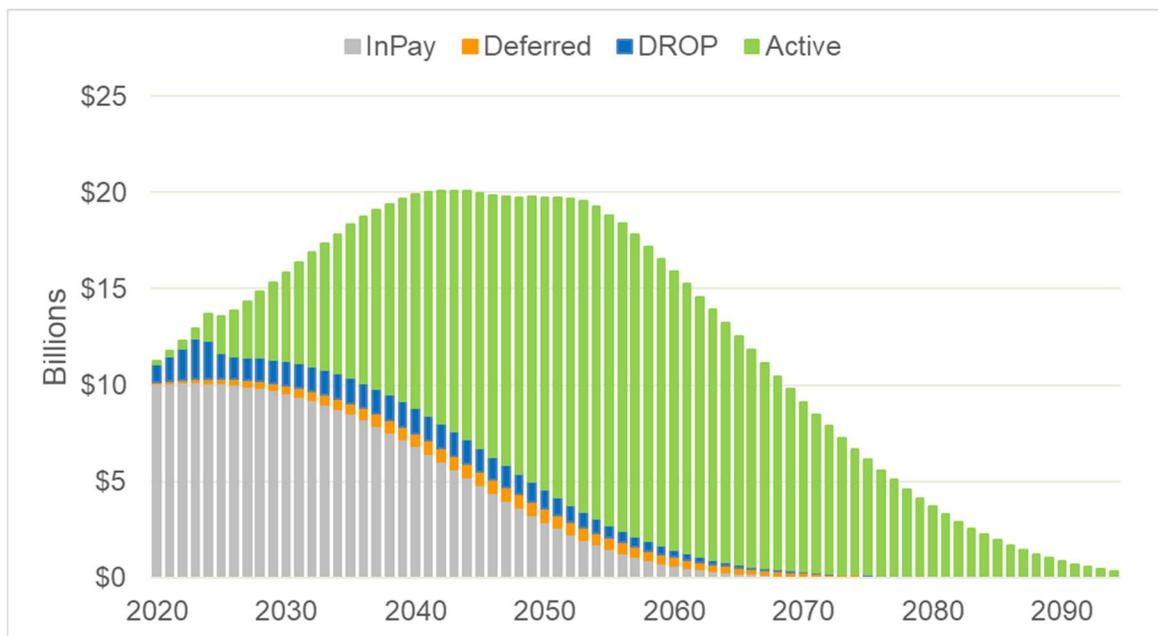
Another measure of a system’s maturity is the Liability Volatility Ratio (LVR), which is equal to the AL divided by the total UAL payroll. This ratio provides an indication of the longer-term potential for contribution volatility for any given level of investment volatility. In addition, this ratio provides an indication of the potential contribution volatility due to liability experience (gains and losses) and liability re-measurements (assumption changes). For FRS, the current LVR is 6.5.



The graph above shows the historical LVR since 1993¹. It is a similar pattern to the Asset Volatility Ratio, except the increase is more gradual and the year-to-year variance is significantly less.

Projected Benefit Payments

The graph below shows projected benefit payments based on member status as of July 1, 2020. For example, payments shown in blue are all projected payments for members currently in DROP as of July 1, 2020, including annuity payments to those members after their DROP exit.



¹ Prior to 1997, actuarial valuations were conducted biennially. Therefore, there was no measure of the Actuarial Liability at July 1, 1994 or July 1, 1996.

Appendix G: Glossary

The following definitions are largely excerpts from a list adopted in 1981 by the major actuarial organizations in the United States. In some cases, the definitions have been modified for specific applicability to the FRS.

Accrued Benefit

The amount of an individual's benefit (whether or not vested) as of a specific date, determined in accordance with the terms of a pension plan and based on compensation and service to that date.

Accumulated Benefit Obligation (ABO)

The actuarial present value of benefits attributed by the pension benefit formula to employee service rendered before a specified date and based on employee service and compensation prior to that date.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disability, and retirement; changes in compensation, rates of investment earnings, and asset appreciation or depreciation; procedures used to determine the Actuarial Value of Assets; and other relevant items.

Actuarial Cost Allocation Method

A procedure for determining the Actuarial Present Value of pension plan benefits and expenses and for developing an actuarially equivalent allocation of such value to time periods, usually in the form of a Normal Cost and an Actuarial Liability.

Actuarially Equivalent

Of equal Actuarial Present Value, determined as of a given date with each value based on the same set of Actuarial Assumptions.

Actuarial Gain/Loss

A measure of the difference between actual experience and that expected based upon a set of Actuarial Assumptions during the period between two Actuarial Valuation Dates, as determined in accordance with a particular Actuarial Cost Method.

Actuarial Liability (AL)

That portion, as determined by a particular Actuarial Cost Method, of the Actuarial Present Value of pension plan benefits and expenses which is not provided for by future Normal Costs.

Actuarial Present Value of Pension Plan Benefits

Total projected benefits include all benefits estimated to be payable to plan members as a result of their service through the valuation date and their expected future service. The actuarial present value of total projected benefits as of the valuation date is the present value of the cost to finance benefits payable in the future, discounted to reflect the expected effects of the time value (present value) of money and the probabilities of payment.

Actuarial Valuation

The determination, as of a valuation date, of the Normal Cost, Actuarial Liability, Actuarial Value of Assets, and related Actuarial Present Values for a pension plan.

Actuarial Value of Assets (AVA)

The value of cash, investments, and other property belonging to a pension plan, as used by the actuary for the purpose of an Actuarial Valuation.

Amortization

Paying an interest-bearing liability by gradual reduction through a series of installments, as opposed to one lump-sum payment.

Amortization Payment

That portion of the pension plan contribution which is designed to pay interest on and to amortize the Unfunded Actuarial Liability.

Level Percent of Pay: Produces a level series of payments when expressed as a percent of payroll.
Cash payment increases in line with payroll growth assumption.

Level Dollar: Produces a decreasing pattern of payments when expressed as a percent of payroll.
Cash payment remains level.

Entry Age Normal Actuarial Cost Method (EAN)

A method under which the Actuarial Present Value of the Projected Benefits of each individual included in an Actuarial Valuation is allocated on a level basis over the earnings or service of the individual between entry age and assumed exit ages. The portion of this Actuarial Present Value allocated to a valuation year is called the Normal Cost. The portion of this Actuarial Present Value not provided for at a valuation date by the Actuarial Present Value of future Normal Costs is called the Actuarial Liability.

Funded Ratio

Ratio of the assets of a pension plan to its liabilities.

Government Accounting Standards Board (GASB)

This Board sets standards of state and local accounting and financial reporting.

Interest Rate

The rate used to discount projected benefit payments to determine the present value in a valuation.

Market Value of Assets (MVA)

The price for which an asset could be sold at a particular date. May also be referred to as the Fair Value of Assets.

Normal Cost (NC)

That portion of the Actuarial Present Value of pension plan benefits and expenses which is allocated to a valuation year by the Actuarial Cost Allocation Method.

Present Value (PV)/ Actuarial Present Value (APV)

The value of an amount or series of amounts of cash flows payable or receivable at various times, determined as of a given date by the application of a particular set of Actuarial Assumptions, including selected interest rate.

Projected Benefits

Those pension plan benefit amounts which are expected to be paid at various future times under a particular set of Actuarial Assumptions, taking into account such items as the effect of advancement in age and anticipated future compensation and service credits.

Unfunded Actuarial Liability

The excess of the Actuarial Liability over the Actuarial Value of Assets. When the Actuarial Value of Assets exceeds Actuarial Liabilities a point-in-time actuarial surplus exists.

Valuation Date

The date as of which the liabilities are determined.