Executive Summary

• Rising interest rates in response to the highest inflation rate in 40 years have significantly impacted valuations in both public equities and fixed income markets, resulting in lower performance for the FRS Pension Plan in 2022

• Funded status appears will remain flat given significant positive performance in 2021; Florida’s Pension Plan remains healthy at over 80% funded

• Structural challenges continue to impact the plan
  • Participant growth is slowing significantly due to change in default plan
  • Plan now has more annuitants than active members
  • Net negative cash flow is projected to grow from approximately $7 billion today, to over $10 billion by 2033 and over $17 billion by 2045

• Current SBA projected rate of return is 6.87%, but volatility around expected return, combined with path dependency risk, current investment environment and statutory investment constraints support more conservative assumed rate of return assumption than current equity risk premium and capital market assumptions indicate

• Considerations: Increase contributions, reduce amortization period, switch to level dollar amortization
What Changed?

10/12/22 Treasury Yield Curve

10/8/21 Treasury Yield Curve
Bond Math Is Driving Correlations
The FRS Pension Plan has outperformed its performance benchmark over all time periods.

A dramatic rise in inflation, the war in Ukraine and global supply chain shortages have stressed financial markets.

The Fed’s policy to fight inflation and shrink its balance sheet, even at the risk of causing a recession, has also contributed to the market downturn.
• The FRS Pension Plan has exceeded actuarial return assumptions for the 3, 5, 10 and 30-year time periods.
• Actuarial return assumptions are long-term projections, so short-term performance comparisons, i.e., less than 10-years, are less relevant.
• SBA is projecting a long-term nominal return assumption of 6.87% based on current equity risk premia and capital market assumptions, but there are reasons to be cautious.
FRS Pension Plan’s Funded Status Remains Strong

- 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 actuarial deficit.
The median funded ratio as of FYE 2021 was 76% based on the latest survey data.

FRS’ FYE 2021 funded ratio (83%) fell just below the 75th percentile relative to its peers.¹

¹Peers defined as public funds published within publicplansdata.org as of July 2022; Number of plans per year are shown in parentheses.
In 2018, the Legislature designated the Investment Plan as the default retirement plan for non-Special Risk new hires.

Approximately two thirds of all new hires either default or elect into the Investment Plan, slowing the growth of contributions into the Pension Plan and reducing its liability duration.
Challenges - Maturity of Pension Plan

• Most recent numbers from Division of Retirement indicate more Pension Plan Retirees than Active Pension Plan Members
“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 participants, increasing the Support Ratio over time.
Historical Cash Flows

Chart from Milliman showing the progression of negative cash flow since 2001
Projected Cash Flows

- Chart showing projected cash flows going forward
- Increasing from negative $7 billion today to over negative $18 billion in 2045
- Large projected increase in 2038 (nearly doubling) as amortization of 2009 UAL rolls off

Sources: Aon, State Board of Administration of Florida
The median net outflow as of FYE 2021 was 2.4% based on the latest survey data.

FRS’ FYE 2021 net outflow (4.3%) fell between the 75th and 95th percentile relative to its peers.¹

Higher net outflows contribute to higher funding and liquidity risks.

Sources: Public Plans Data (publicplansdata.org) as of July 2022

¹Peers defined as public funds published within publicplansdata.org as of July 2022; Number of plans per year are shown in parentheses
Projected Cash Flows As A Percent Of Projected Assets

- Net negative cash flows are projected to increase as a percentage of assets as well

Sources: Aon, State Board of Administration of Florida, based on 2021 Asset/Liability presentation
Estimated Forward Rate of Return Is A Median Expectation

- Expected 6.87% Rate of Return is the 50th percentile expectation
- There is a large range of possible outcomes in the early years that narrows over time

### Portfolio Analysis

Range of Nominal Returns

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<tbody>
<tr>
<td>5th</td>
<td>-1.185%</td>
<td>-1.95%</td>
<td>0.56%</td>
<td>1.69%</td>
<td>3.18%</td>
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<tr>
<td>25th</td>
<td>-1.24%</td>
<td>3.26%</td>
<td>4.23%</td>
<td>4.71%</td>
<td>5.34%</td>
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<tr>
<td>50th</td>
<td>6.87%</td>
<td>6.87%</td>
<td>6.87%</td>
<td>6.87%</td>
<td>6.87%</td>
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<tr>
<td>75th</td>
<td>15.65%</td>
<td>10.71%</td>
<td>9.57%</td>
<td>9.07%</td>
<td>8.42%</td>
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<tr>
<td>95th</td>
<td>29.56%</td>
<td>16.48%</td>
<td>13.58%</td>
<td>12.31%</td>
<td>10.69%</td>
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1. Expected returns are using AUSA Q3 2022 20-Year Capital Market Assumptions (CMAs) as of June 30, 2022 adjusted for the delta in Global Equity Risk Premium (ERP) among three investment advisors: Mercer, Wharton, and Aon/Hewitt. (5% adjustment), which are projections about the future returns of asset classes. For asset classes that can be implemented passively, which includes most public assets, alpha and active management fees are not included in the return expectations. For asset classes that can only be implemented actively, such as hedge funds and private assets, we assume alpha and higher active manager fees. Expected returns are geometric (long-term compounded). Expected returns presented are models and do not incorporate embedded options. The stated expected return assumes no inflation will be reduced by your advisory fees and other expenses you may incur as a client. AUSA’s advisory fees are described in Part 2A of AUSA’s Form ADV. Not a guarantee of future results. See appendix for capital market assumptions disclosure pages.
Actual Ensuing Returns Compared to Previous Actuarially Assumed Rates of Return (How Did We Actually Do)

- SBA has achieved the Actuarial Rate of Return in the long run, but volatility can impact medium term results

Dot Com Bust/9-11 and Great Financial Crisis smoothing out over time
Ending Investment Balances Are Path Dependent

Path Dependency – Isolating Returns (Illustrative Example)
Assuming a Similar Return Series, the Specific Path Implicates Asset Value

- The chart to the right assumes an annualized 6.87% return and static cash flows over a 30-year time horizon, testing one negative period of returns (-18.4%, representing a two standard deviation event) in various years
  - Each line refers to the year in which the negative event occurs
  - The earlier the negative event occurs, the lower the ultimate ending market value of assets

- This example uses a static level of cash flows and does not take into account contribution funding policy, which could materially affect results.
Change in Secular Rate Environment

- This chart shows headwinds from rising rates, namely rising inflation and Fed deleveraging.

- Additionally, Global macro factors suggest higher inflation in the future.

- Portends higher correlation and lower returns for Equity and Fixed Income in short to medium term.
Alternative Investments Could Help But We Are Capped

As shown in last year’s Assumption Conference Presentation, increasing alternative investments improves risk-adjusted returns, but current statute caps SBA to 20% of portfolio.
Considerations

- Increase employer and employee contribution rates. FRS employers and employees currently contribute 12.85% (composite rate) and 3.00%, respectively (combined 15.85%). The median public pension plan employer and employee contribution rates are 14.90% and 6.30%, respectively (combined 21.20%).

- Reduce further the amortization period for UAL. The Conference of Consulting Actuaries has recommended that an amortization period of 20 years or less as a best practice for public pension plans.

- Switch amortizing unfunded liabilities (UAL) from level percentage of payroll to level dollar method. Reduces underfunding risk if actual payroll is less than projected payroll.

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1Conference of Consulting Actuaries, Public Plans Community (CCA PPC), Actuarial Funding Policies and Practices for Public Pension Plans, October 2014
Appendix
Appendix: Contributions and Funded Status

- 11-years of actuarial surpluses from 1998 thru 2008 and employers saving a cumulative $6.6B through reduced contributions.
- From FY 2009-10 through 2012-13, the Legislature failed to make $3 billion in actuarially required contributions. Had the Legislature fully funded the required contributions, the FRS Pension Plan’s market value would have been approximately $7.3B higher by June 30, 2022. The FRS Pension Plan lost an opportunity for an investment gain of $4.3B (on $3B in missing contributions).
- Plan contributions have been approximately $285 million to $1.8 billion less (actuarial return assumption vs. SBA return forecast) than they should have been every year for the past 11-years (cumulative total $11.5B). The FRS-PP lost out on an opportunity for an investment gain of $5.0B on $11.5B in missing legislative contributions.
- Through time, the funding shortfalls have contributed to the increase in the UAL.
Appendix: Florida’s Contribution Rates Continue to Be Significantly Lower Than Other States

- When employees started contributing 3%, employers’ composite contribution rate was lowered by more than 3%.
- FRS’ composite contribution rate (2021) was 14.37% and the median U.S. public pension plan contribution rate (2021) was 21.20%.

Note: This chart shows only information through 2021, the latest date available for comparative data. For Fiscal Year 2022, the FRS blended (DB and DC) employer contribution rate was 12.85%, compared to 11.37% for Fiscal Year 2021. The FRS employer contribution may not be comparable to other Public Pension Plans that do not blend DB and DC contributions.

Source: NASRA (National Association of State Retirement Administrators)
Appendix: Investment Policy and Investment Objective

• The FRS Pension Plan’s investment objectives:

To achieve this, a long-term real return approximating 4.0% per annum (compounded and net of investment expenses) should be attained -

a. A real return objective instead of a nominal return objective.
b. An investment objective defined as a nominal amount will force risk levels to change as inflation ebbs and flows. To illustrate:

<table>
<thead>
<tr>
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<th>High Inflation</th>
<th>Low Inflation</th>
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<tbody>
<tr>
<td>Nominal Return Objective</td>
<td>8.0%</td>
<td>8.0%</td>
</tr>
<tr>
<td>Inflation</td>
<td>5.5%</td>
<td>3.5%</td>
</tr>
<tr>
<td>Real Return Objective</td>
<td>2.5%</td>
<td>4.5%</td>
</tr>
</tbody>
</table>

c. Ever changing levels of risk will constantly alter (not so long-term) asset allocation mix.
d. A real return objective will target a consistent long-term asset allocation mix and risk level.

Sources: Public Plans Data (publicplansdata.org) as of July 2022
1Peers defined as public funds published within publicplansdata.org as of July 2022; Number of plans per year are shown in parentheses
Appendix: Median Amortization Periods U.S. Public Pension Plans