
Source: Pension Integrity Project analysis of TRSL actuarial valuation reports and CAFRs.
## Degrading Solvency: Growing Debt and Declining Funded Status

<table>
<thead>
<tr>
<th></th>
<th>1998</th>
<th>2008</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Market Value of Assets</strong></td>
<td>$10.4 billion</td>
<td>$15.0 billion</td>
<td>$21.0 billion</td>
</tr>
<tr>
<td><strong>Actuarially Accrued Liability</strong></td>
<td>$13.2 billion</td>
<td>$22.1 billion</td>
<td>$30.9 billion</td>
</tr>
<tr>
<td><strong>Unfunded Liability</strong></td>
<td>$2.7 billion</td>
<td>$7.1 billion</td>
<td>$9.8 billion</td>
</tr>
<tr>
<td><strong>Funded Ratio</strong></td>
<td>79.2%</td>
<td>67.9%</td>
<td>68.2%</td>
</tr>
</tbody>
</table>

Source: Pension Integrity Project analysis of TRSL actuarial valuation reports and projections using actuarial models. All 2018 values are based on GASB reports and show total pension liability, fiduciary net position, and net pension liability. Unfunded liabilities reflected as the market value. Figures are rounded.
TRSL Unfunded Liabilities are Growing Faster than the Louisiana Economy

Source: Pension Integrity Project analysis of TRSL actuarial valuation reports, CAFRs, and data from the Bureau of Labor Statistics and Federal Reserve of St. Louis.
TRSL Contributions are Growing While the State Budget is Trending Down

Source: Pension Integrity Project analysis of TRSL actuarial valuation reports, and data from the Bureau of Labor Statistics and NASBO (Fiscal Survey of the States).
PROBLEMS CURRENTLY FACING TRSL
How a Pension Plan is Funded

**Actuarial Assumptions**

- Inflation Rate
- Salary Growth
- Mortality / Longevity
- Interest Rate
- Disability Rate
- Retirement Rate
- Investment Rate of Return
- Discount Rate

**Actuarially Calculated**

- Defined Benefit Normal Cost
- Unfunded Liability Amortization Payment

**Employee Normal Cost**

- Employee Total Contribution

**Employer Normal Cost**

- Employer Normal Cost
- 100% Employer Paid

**Actuarially Determined Employer Contribution**

ADEC

May 21, 2019
The Causes of the Pension Debt

Actuarial Experience of TRSL, 2000-2018

Source: Pension Integrity Project analysis of TRSL valuation reports and CAFRs. Data represents cumulative unfunded liability by gain/loss category. Negative Amortization reflects contributions below accrued debt interest. Experience Account Allocations fund ad hoc permanent benefit increases.
Driving Factors of TRSL Problems

1. **Underperforming Investment Returns** have been the largest contributor to the unfunded liability growth, adding $4.2 billion to the unfunded liability since 2000.

2. **Changes to Actuarial Methods and Assumptions** have added roughly $1.2 billion to the unfunded liability since 2000.

3. **Amortization Methods** have resulted in accrued interest exceeding amortization payments (aka negative amortization) and a net $1.2 billion increase in the unfunded liability since 2000.

4. **Experience Account Allocations**, which redirect 50% of positive investment returns to fund ad hoc Permanent Benefit Increases, have added roughly $833 million to the unfunded liability since 2000.
   - Redirected funds fail to earn expected investment returns or reduce the pension debt

5. **Undervaluing Debt** through discounting methods has led to an under calculation of required contributions.
PROBLEM 1: ASSUMED RATE OF RETURN

- **Unrealistic Expectations:** The Assumed Return (ARR) for the TRSL pension plan is exposing taxpayers to significant investment underperformance risk.

- **Underpricing Contributions:** The use of an unrealistic Assumed Return has likely resulted in underpriced Normal Cost and an undercalculated Actuarially Determined Contribution.
TRSL Problem: Underperforming Assets

Investment Return History, 1992-2018

Since 2007, average returns are consistently below the plan’s return assumptions

Average Market Valued Returns
- 25-Years (1994-18): 7.8%
- 20-Years (1999-18): 6.5%
- 15-Years (2004-18): 8.0%
- 10-Years (2009-18): 6.7%

Source: Pension Integrity Project analysis of TRSL actuarial valuation reports and CAFRs. Returns are shown for the plan’s total assets. For illustrative purposes, rate of return assumptions prior to FYE1996 are kept at 8.25%.
TRSL Problem: Underperforming Assets

Investment Returns Have Underperformed

- TRSL’s assumed rate of return has decreased from 8.25% to 7.65% over the past two decades.
- TRSL has expanded risky holdings in a search for greater investment returns (i.e. greater yields)
- However, the investment portfolio’s experience has not matched the long-term assumptions:

<table>
<thead>
<tr>
<th>Average Market Valued Returns</th>
<th>Average Actuarially Valued Returns</th>
</tr>
</thead>
</table>

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

Source: Pension Integrity Project analysis of TRSL actuarial valuation reports and CAFRs. Average market valued returns represent geometric means of the actual time-weighted returns.
TRSL Problem: Underperforming Assets

Tracking 20-Year Compound Return Values

Source: Pension Integrity Project analysis of Louisiana TRSL actuarial reports, CAFRs, and the investment advisory report "An Examination of State Pension Performance 2000-2018" (2019) released by Cliffwater LLC.
New Normal: Markets Have Recovered Since the Crisis—TRSL Funded Ratio Has Not

Source: Pension Integrity Project analysis of TRSL actuarial valuation reports and Yahoo Finance data.
New Normal: The So-Called Recovery Has Already Happened, the Market Has Changed

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

1. Over the past two decades there has been a steady change in the nature of institutional investment returns.
   • 30-year Treasury yields have fallen from around 8% in the 1990s to consistently less or around 3% today.
   • Globally, interest rates are at ultralow historic levels, while market liquidity continues to be restrained by financial regulations.

2. McKinsey & Co. forecast the returns to equities will be 20% to 50% lower over the next two decades compared to the previous three decades.
   • Using their forecast model, the best case scenario for a 60/40 portfolio of equities and bonds is likely to earn less than a 5% return.

3. As TRSL awaits for the “recovery” its unfunded liabilities continue to grow.
TRSL Asset Allocation (1999-2018)

Expanding Risk in Search for Yield

Source: Pension Integrity Project analysis of TRSL actuarial valuation reports and CAFRS.
Cash Equivalents show domestic and international short-term investments, with maturity of one year or less.
New Normal: Forecasts for Future Returns are Significantly Lower than Past Returns

The past 30 years saw returns that exceeded the long-run average
- Historical real returns
- Last 100 years average return

The next 20 years could be more challenging
- Growth-recovery scenario
- Slow-growth scenario

### US equities
- **Last 30:** 7.9%
- **Next 20:** 4.0–6.5%

### European equities
- **Last 30:** 7.9%
- **Next 20:** 4.5–6.0%

### US bonds
- **Last 30:** 5.0%
- **Next 20:** 0–2.0%

### European bonds
- **Last 30:** 5.9%
- **Next 20:** 0–2.0%

New Normal: Market Trend Towards Risk

TRSL Has Changed its Asset Allocation Towards More Risky Investments Resulting in Higher Annual Standard Deviation of Returns

1996 | 2006 | 2018
---|---|---
US Equities | 50% | 40% | 40%
US Equities | 50% | 40% | 40%
Private Equity | 10% | 20% | 20%
Private Equity | 10% | 20% | 20%
Real Estate | 5% | 10% | 5%
Real Estate | 5% | 10% | 5%
Other Alternatives | 5% | 5% | 5%
Other Alternatives | 5% | 5% | 5%

TRSL Expected Return: 8.25% 8.25% 7.65%
Standard Deviation: 9.0% 12.9% 12.1%

Source: Pension Integrity Project Monte Carlo model based on TRSL asset allocation and reported expected of returns by asset class. Asset class returns are based on estimates as of 2018.
New Normal: Volatile TRSL Investment Returns
Experiencing Greater Volatility and Underperformance

Source: Pension Integrity Project analysis of TRSL actuarial valuation reports and CAFRs. Average returns and volatility measured are geometric.
# Probability Analysis: Measuring the Likelihood of TRSL Achieving Various Rates of Return

<table>
<thead>
<tr>
<th>Possible Rate of Return</th>
<th>Louisiana TRSL Expectations</th>
<th>BlackRock Long-Term Forecast</th>
<th>BNY Mellon 10-Year Forecast</th>
<th>JP Morgan 10-15 Year Forecast</th>
<th>Research Affiliates 10-Year Forecast</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.0%</td>
<td>37.1%</td>
<td>17.6%</td>
<td>14.8%</td>
<td>13.2%</td>
<td>12.3%</td>
</tr>
<tr>
<td>8.0%</td>
<td>51.2%</td>
<td>27.4%</td>
<td>25.6%</td>
<td>23.6%</td>
<td>20.8%</td>
</tr>
<tr>
<td>7.65%</td>
<td>56.6%</td>
<td>31.6%</td>
<td>30.0%</td>
<td>27.9%</td>
<td>24.6%</td>
</tr>
<tr>
<td>7.0%</td>
<td>66.3%</td>
<td>40.1%</td>
<td>39.1%</td>
<td>36.7%</td>
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<tr>
<td>6.5%</td>
<td>72.8%</td>
<td>46.9%</td>
<td>46.9%</td>
<td>44.4%</td>
<td>39.2%</td>
</tr>
<tr>
<td>6.0%</td>
<td>78.8%</td>
<td>53.9%</td>
<td>54.5%</td>
<td>52.3%</td>
<td>45.7%</td>
</tr>
<tr>
<td>5.0%</td>
<td>87.9%</td>
<td>67.2%</td>
<td>69.0%</td>
<td>67.7%</td>
<td>59.7%</td>
</tr>
</tbody>
</table>

Source: Pension Integrity Project Monte Carlo model based on TRSL asset allocation and reported expected returns by asset class. Forecasts of returns by asset class generally by BNYM, JPMC, BlackRock, and Research Affiliates were matched to the specific asset class of TRSL. Probability estimates are approximate as they are based on the aggregated return by asset class. For complete methodology contact Reason Foundation.
TRSL is Taking on More Investment Risk as Assets Underperform Relative to Assumptions

• Despite considerably muted equity and fixed income returns over the past decade and a half, TRSL continues to use an unrealistic 7.65% return assumption.

• TRSL tried to adjust to the “new normal” lower yield environment by reallocating more of its assets towards riskier investments, including private equity, mezzanine financing, and real estate. Despite this, we estimate that TRSL still has less than a 50% chance of achieving its investment return assumption.

• This shift away from safer fixed incomes resulted in higher year-to-year volatility of investment returns.
  • Using the “Sharpe Ratio” to measure risk-adjusted returns received per one unit of volatility taken, we find that TRSL faces increasing portfolio volatility without being adequately compensated. The Sharpe Ratio for the 10-year historic returns has fallen from 0.66 in 2001 (already risky) to just 0.18 in 2017, and to 0.32 in 2018.
  • In short, TRSL’s portfolio not only consistently underperforms relative to the rate of return assumptions. But is experiencing increasingly more volatility than in the past, exposing TRSL to considerable asset losses in future.
The New Normal: Expanding Risk

TRSL Must Take Significant Investment Risks to Earn the Assumed 7.65% Return

Source: Pension Integrity Project analysis of TRSL actuarial valuation reports and CAFRs. Return forecasts by asset class generally by BNYM, JPMC, Research Affiliates, and BlackRock were matched to the specific asset class of TRSL. For complete methodology contact Reason Foundation. The volatility (risk) of returns shows the aggregate standard deviation of the forecasted portfolio returns, weighted by volatility of each asset class.
RISK ASSESSMENT

• How resilient is TRSL to volatile market factors?
Current TRSL Baseline: Normal Cost + Amortization

What Happens if TRSL Hits its Investment Target?
Discount Rate: 7.65%, Assumed Return: 7.65%, Actual Return: 7.65%, Amo. Period: 20-Year, Closed

Source: Pension Integrity Project actuarial forecast of TRSL plan. Scenario assumes the plan reduces ARR to 7.65% in FY2018 according to current Board policy, continues contributing at ADC rate each year, hits all actuarial assumptions, and makes continual progress on the amortization of unfunded liability. Years are TRSL fiscal years.
TRSL Scenario 1:
What Happens if TRSL Underperforms?
Discount Rate: 7.65%, Assumed Return: 7.65%, Actual Return: 6.00%, Amo. Period: 20-Year, Closed

A 6% average return (FY2018-2047) would require $6.30 billion additional employer contributions (Inflation adjusted)

Source: Pension Integrity Project actuarial forecast of TRSL plan. Scenario assumes the plan reduces ARR to 7.65% in FY2018 according to current Board policy, continues contributing at ADC rate each year, hits all actuarial assumptions, and makes continual progress on the amortization of unfunded liability. Years are TRSL fiscal years.
TRSL Scenario 2:
What if the Next 15 Years are the Same as the Last 15?
Discount Rate: 7.65%, Assumed Return: 7.65%, Actual Return: Same as last 15 years, 7.65% Following Years

Returns identical to the previous 15 years would require $3.39 billion additional employer contributions (Inflation adjusted)

Source: Pension Integrity Project actuarial forecast of TRSL. Scenario assumes the state continues paying 100% of the actuarially determined contribution each year. Figures are rounded and adjusted for inflation.
TRSL Scenario 3:

What Happens if TRSL Experiences Another Crisis?

Discount Rate: 7.65%, Assumed Return: 7.65%, Actual Return: Crisis Returns 2020-24, 7.65% Thereafter

Another financial crisis identical to 2008-2012 would require $5.54 billion additional employer contributions (Inflation adjusted)

Source: Pension Integrity Project actuarial forecast of TRSL. Scenario assumes that the state continues paying 100% of the actuarially determined contribution each year. Figures are rounded and adjusted for inflation.
30-year Employer Contribution Forecast

Timing of Returns Affects What Louisiana Pays
Long-Term Average Returns of 7.65%

Alternative Scenario: Slow First Decade
(7.65% Long-Term Returns with 5.5% Returns 2019-2028)

Alternative Scenario: Strong First Decade
(7.65% Long-Term Returns with 9.5% Returns 2019-2028)

Source: Pension Integrity Project actuarial forecast of TRSL. Figures are adjusted for inflation. Scenarios assume TRSL applies contribution minimums.
30-year Employer Contribution Forecast

If TRSL Performs as Expected, Rates Can Still Vary
Based on Long-term Average Expected Returns of 7.65%

With long-term expected returns of 7.5%, employer contribution rates can vary greatly depending on returns of each individual year.

Source: Pension Integrity Project actuarial forecast of TRSL plan based on TRSL return and risk assumptions. Range of Reasonable Outcomes represents the 50% of possible outcomes closest to the median.
30-year Employer contribution Forecast

All Paths to a 7.65% Average Return Are Not Equal
Long-Term Average Returns of 7.65%

Source: Pension Integrity Project actuarial forecast of TRSL plan. Strong early returns (TWRR = 7.65%, MWRR = 8.92%), Even annual returns (Constant Return = 7.65%), Mixed timing of strong and weak returns (TWRR = 7.65%, MWRR = 7.65%), Weak early returns (TWRR = 7.65%, MWRR = 6.52%). Scenario assumes that TRSL pays the actuarially required rate each year. Years are TRSL fiscal years.
30-year Employer Contribution Forecast

If TRSL Underperforms, Expect Higher Contribution Rates
Based on More Conservative Long-term Average Expected Returns

Source: Pension Integrity Project actuarial forecast of TRSL plan using the return and risk assumptions of the Monte Carlo analysis. Conservative returns are 6.74%, which are the result of combining the long-term capital market assumptions from four prominent financial firms (see slide 17)
30-year Funded Ratio Forecast

Funded Ratios are Expected to Improve
Based on Long-term Average Returns of 7.65%

With long-term returns of 7.65%, TRSL is likely to improve its funding over the next 30 years.

Source: Pension Integrity Project actuarial forecast of TRSL plan based on TRSL return and risk assumptions.
Range of Reasonable Outcomes represents the 50% of possible outcomes closest to the median.
30-year Funded Ratio Forecast

How Do Missed Returns Impact Funded Ratios?

Based on More Conservative Long-term Average Returns

More conservative return assumptions show that TRSL is more likely to maintain its current funding and less likely to achieve full funding over the next 30 years.

Source: Pension Integrity Project actuarial forecast of TRSL plan using the return and risk assumptions of the Monte Carlo analysis. Conservative returns are 6.74%, which are the result of combining the long-term capital market assumptions from four prominent financial firms.
# Sensitivity of Normal Cost Under Alternative Assumed Rates of Return (Aggregate NC)

(Amounts to be Paid in 2018 Contribution Fiscal Year, % of total payroll)

<table>
<thead>
<tr>
<th>Assumed Return</th>
<th>Employer Normal Cost</th>
<th>Employee Normal Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.65% (Current Baseline)</td>
<td>3.01%</td>
<td>8%</td>
</tr>
<tr>
<td>6.65%</td>
<td>3.62%</td>
<td>8%</td>
</tr>
<tr>
<td>5.65%</td>
<td>4.39%</td>
<td>8%</td>
</tr>
<tr>
<td>4.65%</td>
<td>5.36%</td>
<td>8%</td>
</tr>
</tbody>
</table>

Note: These alternative gross normal cost figures should be considered approximate guides to how much more normal cost should be under different discount rates. Any policy changes should be based on more precise normal cost forecasts using detailed plan data.

Source: Pension Integrity Project forecasting analysis based on TRSL actuarial valuation reports. Normal Cost represents a weighted aggregate for 4 sub-plans.
PROBLEM 2: NEGATIVE AMORTIZATION

• Methods for paying off unfunded liabilities have made the existing pension debt problems worse.
• The interest accrued on unfunded liabilities routinely exceeds amortization payments, adding $1.2 billion to the unfunded liability since 2000.
Actuarial Methods Have Created a Structural Underfunding Problem for TRSL

1. Negative amortization: The TRSL actuary reports that contributions available to cover the unfunded liability are less than the interest accruing on the pension debt each year.

2. In 13 of the past 19 years, employer contributions have been less than the interest accrued on the pension debt (i.e. negative amortization), which allowed for the unfunded liability to grow in absolute terms.

3. The 30-year amortization in use by TRSL is greater than the Society of Actuaries’ recommended funding period of 15 to 20 years, resulting in higher overall costs for the plan.
   • Due to the long 30-year closed amortization schedule used to pay off the annual unfunded liability prior to Act 497 of 2009, employer pension contributions have not always kept up with the interest accrued on the pension debt.
Understanding Current Funding Policy: Negative Amortization

1. By setting amortization period closing dates for legacy debt (FYE 2029 for debt accrued before 2001; FYE 2040 for debt accrued from 2001 to 2008), Act 497 ensured that the legacy unfunded liability will eventually be eliminated.

2. However, given the long, 30-year closed amortization schedules used to pay off the annual unfunded liability prior to Act 497 of 2009, employer pension contributions have not always kept up with the interest accrued on the pension debt.
Louisiana TRSL Negative Amortization Growth, 2000-2018
Interest on the Debt v. Accrued Liability Payments

- Contributions in Excess of Interest on Unfunded Liabilities
- Contributions Towards Unfunded Liabilities
- Contributions Less than Interest on Unfunded Liabilities

Contributions Greater than Interest: $0.74 billion
Contributions Less than Interest: $1.93 billion

Source: Pension Integrity Project actuarial analysis of Louisiana TRSL plan valuation reports and CAFRs
Louisiana TRSL Negative Amortization Growth, 2000-2018

Interest on the Debt as a Portion of Unfunded Liability

Source: Pension Integrity Project analysis of Louisiana TRSL actuarial valuation reports and CAFRs
PROBLEM 3: ACTUARIAL ASSUMPTIONS AND METHODS

- Failure to meet actuarial assumptions, and delay in updating those assumptions, has led to an underestimation of the total pension liability.

- Adjusting actuarial assumptions to reflect the changing demographics and new normal in investment markets exposes hidden pension cost by uncovering existing but unreported unfunded liabilities.
Challenges from Aggressive Actuarial Assumptions

Actual Experience Different from Actuarial Assumptions

• (-) Actuarial Assumption and Methods
  • TRSL’s unfunded liability has increased by $1.25 billion between 2000-2018 due to updates in actuarial assumptions, such as lowering the assumed rate of return, and actuarial methods.

• (-) Experience Account (Permanent Benefit Increases)
  • TRSL’s unfunded liability has increased by $0.83 billion between 2000-2018 because of the allocations to and withdrawals from the Experience Account meant to fund PBIs (i.e. COLAs).

• (+) Contributions Above ADEC and Other Experience
  • TRSL’s unfunded liability has decreased by $144 million between 2000-2018 per employer contributions being above the actuarially required amounts and because of other experience.
Challenges from Aggressive Actuarial Assumptions

Actual Experience Different from Actuarial Assumptions

(+) Withdrawal Rate, Service Retirement, and Salary Increase Assumptions

1. TRSL’s unfunded liability has decreased by $1.13 billion between 2000-2018 due to misaligned demographic and salary increase assumptions.

2. This likely stems from a combination of one or more of the following factors:
   - Actual withdrawal rates before members have reached either a reduced or normal retirement threshold have been higher than anticipated.
   - TRSL members have been retiring later than expected, receiving fewer pension checks.
   - TRSL employers have not raised salaries as fast as expected, resulting in lower payrolls and thus lower earned pension benefits - a common case for many state-level pension plans.
Challenges from Aggressive Actuarial Assumptions

Actual Experience Different from Actuarial Assumptions

(1) Overestimated Payroll Growth

1. Overestimating payroll growth may create a long-term problem for TRSL in combination with the level-percentage of payroll amortization method used by the plan.

2. This method backloads pension debt payments by assuming that future payrolls will be larger than today (a reasonable assumption).

3. While in and of itself, a growing payroll is a reasonable assumption, if payroll does not grow as fast as assumed, employer contributions must rise as a percentage of payroll.
   • This means the amortization method combined with the inaccurate assumption is delaying debt payments.
Challenges from Aggressive Actuarial Assumptions, Actual Change in Payroll v. Assumption

Source: Pension Integrity Project analysis TRSL actuarial valuation reports and CAFRs.
Challenges from Aggressive Actuarial Assumptions

Actual Change in Average Salary v. Assumption

Source: Pension Integrity Project analysis TRSL actuarial valuation reports and CAFRs.
Challenges from Aggressive Actuarial Assumptions

Actual Inflation vs. Assumption

Source: Pension Integrity Project analysis TRSL actuarial valuation reports and CPI-U data from the Bureau of Labor Statistics.
Challenges from Aggressive Actuarial Assumptions

Assumption Changes Expose Hidden Unfunded Liabilities

Unfunded Liability, Actuarial Value (in $Billions)

End of Financial Crisis

TRSL revised normal cost method, and lowered its discount rate from 8.00% to 7.75%

TRSL lowered its inflation assumption from 3.0% to 2.5%, and discount rate from 8.25% to 8.00%

Louisiana legislature increased COLA to 3% (Act 1172)

TRSL revised mortality rates to RP-2000 Table

Source: Pension Integrity Project analysis of TRSL actuarial valuation reports.
PROBLEM 4: PERMANENT BENEFIT INCREASES

• The PBI mechanism deprives TRSL of the extra cash flow needed to pre-fund primary pension benefits and pay down the debt faster
Experience Account Allocations

- TRSL’s unfunded liability increased by $832 million between 2000-2018 as a result of granting a specific type of ad hoc cost of living adjustments (COLA) for retired members, known as permanent benefit increases (PBI).

- Under Title 11 of the Louisiana Revised Statutes, TRSL is allowed to grant PBIs by skimming 50% off positive investment returns above the first $200 million, and putting them into an “experience account” used to pay out PBI benefits.
  - The cost of PBI is factored into the net discount rate (i.e. the assumed rate of return netted out with PBI, investment, and administrative expenses).

- More transparent and commonly used methods used by pension systems to adjust retiree benefits over time are fixed prefunded, annual COLAs, or preferably, prefunded COLAs linked to the change in consumer price index. Both are usually factored into annual normal cost.
PBIs Deprive TRSL of Needed Cash Flow

• According to a 2018 Louisiana Legislative Auditor report featuring a stochastic analysis of PBI funding, during each of the next 20 years there is a 30% to 45% chance of a transfer to the Experience Account (approximately two out of every five years).

• Once a transfer occurs, it may not be used for anything other than benefit increases (under current provisions).

• Such asset transfers prevent TRSL from using the full benefit of investment gains above the return assumption to help pay down unfunded liabilities faster, generating long-term savings relative to the current fiscal forecast.
PBIs Complicate Pension Cost Projections

- The current actuarial method used by TRS assumes an implicit recognition of future COLAs by *reducing the rate of return assumption* by expected average transfers into the experience account.

- For example, in 2017 the System assumed 8.20% as the total rate of return (net of investment-related expenses). TRSL then *reduced the rate of return assumption* by 0.40% to accommodate the estimated cost of PBIs and by another 0.10% for the administrative expenses, resulting in a final discount rate of 7.70%.

- This creates confusion for both plan administrators and members and makes estimating the costs of providing PBIs—and ultimately, core pensions—more complicated.

- These so-called “implicit adjustments” to the return assumption lack transparency.
Frequency of PBI Asset Transfer

Probability of Transfers
(Mean Frequency of a Transfer Among 500 Trials)

Projected COLA Rates Transferred/Paid Out

Average COLA Transfer Rate
(Mean Transfer Rate Among 500 Trials)

PROBLEM 5:
DISCOUNT RATE AND UNDervaluing Debt

• The discount rate undervalues the measured value of existing pension obligations
TRSL Discount Rate Methodology is Undervaluing Liabilities

1. The “discount rate” for a public pension plan should reflect the risk inherent in the pension plan’s liabilities:

   - Most public sector pension plans — including TRSL — use the assumed rate of return and discount rate interchangeably, even though each serve a different purpose.

   - The Assumed Rate of Return (ARR) adopted by TRSL estimates what the plan will return on average in the long run and is used to calculate contributions needed each year to fund the plans.

   - The Discount Rate (DR), on the other hand, is used to determine the net present value of all of the already promised pension benefits and supposed to reflect the risk of the plan sponsor not being able to pay the promised pensions.
2. Setting a discount rate too high will lead to undervaluing the amount of pension benefits actually promised:
   • If a pension plan is choosing to target a high rate of return with its portfolio of assets, and that high assumed return is then used to calculate/discount the value of existing promised benefits, the result will likely be that the actuarially recognized amount of accrued liabilities is undervalued.

3. It is reasonable to conclude that there is almost no risk that Louisiana would not pay out all retirement benefits promised to members and retirees.
   • The state constitutional contract clauses provide an explicit protection of accrued past benefits when employee is vested.

4. The discount rate used to account for this minimal risk should be appropriately low.
   • The higher the discount rate used by a pension plan, the higher the implied assumption of risk for the pension obligations.
## TRSL Pension Debt Sensitivity
### FYE 2018 Unfunded Liability Under Varying Discount Rates

<table>
<thead>
<tr>
<th>Discount Rate</th>
<th>Funded Ratio (Market Value)</th>
<th>Unfunded Liability</th>
<th>Total Pension Liability (GASB Basis)</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.65% Discount Rate (Current Baseline)</td>
<td>68.2%</td>
<td>$9.83 billion</td>
<td>$30.87 billion</td>
</tr>
<tr>
<td>6.65% Discount Rate</td>
<td>61.8%</td>
<td>$13.02 billion</td>
<td>$34.06 billion</td>
</tr>
<tr>
<td>5.65% Discount Rate</td>
<td>55.6%</td>
<td>$16.81 billion</td>
<td>$37.85 billion</td>
</tr>
<tr>
<td>4.65% Discount Rate</td>
<td>49.7%</td>
<td>$21.32 billion</td>
<td>$42.37 billion</td>
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</tbody>
</table>

Source: Pension Integrity Project analysis of TRSL actuarial valuation reports and projections using actuarial modeling; figures are rounded.
Change in the Risk Free Rate Compared to TRSL Discount Rate (1997-2018)

Source: Federal Reserve average annual 30-year treasury constant maturity rate
Comparing Change in Discount Rate to the Change in the Risk Free Rate, 2000-2018

The "Alternative Discount Rate Scenario" imagines that TRSL linked the discount rate to changes in the 30-year Treasury yield, starting in the year 2000. This link would have served to adjust the TRSL discount rate based on changes in one measure of a so-called "risk free" rate of return. Such a link would have meant a consistent 231 basis point spread between the TRSL discount rate and the Treasury yield. As the risk free rate rose and fell, so too would the TRSL discount rate.

Source: Pension Integrity Project analysis of Louisiana TRSL actuarial reports and Treasury yield data from the Federal Reserve.
PROBLEM 6: THE EXISTING BENEFIT DESIGN DOES NOT WORK FOR EVERYONE

- The turnover rate for TRSL members suggests that the current retirement benefit design may not encourage the most effective retention rates.
Probability of Regular Teachers Remaining in TRSL

Probability of Participants Remaining
- 5-Years (initial vesting): 56%
- 20-Years (reduced benefits): 29%
- 37-Years (unreduced benefits): 15%

Source: Pension Integrity Project analysis of TRSL actuarial reports and CAFRs. Retention probabilities are shown for Regular K-12 Teachers only.
Does TRSL Retirement Plan Work for All Employees?

- **44%** of new teachers/educators leave before 5 years (vesting)
  - This teacher turnover rate exceeds the national occupation averages.

- Only **29%** of all teachers hired next year will still be working after 20 years, long enough to qualify for a reduced benefit.

- Only **15%** of all teachers hired on or after 2015 will still be working after 37 years, long enough to qualify for full benefits.

- Just **30%** of Louisiana teachers will “break even” on their pensions, according to TeacherPensions.org

  - Analysis by the Thomas B. Fordham Institute shows that a new teacher in the Jefferson Parish Public School System must remain in the pension system for **29 years** for the present value of their pension benefits to at least match the value of their own contributions.

Source: Pension Integrity Project analysis of TRSL turnover, withdrawal, and retirement assumptions. Estimated percentages are based on the expectations used by the plan actuaries; if actual experience deviates substantially from the assumptions then these forecasts would need to be adjusted accordingly.
FRAMEWORK FOR SOLUTIONS & REFORM
Objectives of Good Reform

• **Keeping Promises:** Ensure the ability to pay 100% of the benefits earned and accrued by active workers and retirees
• **Retirement Security:** Provide retirement security for all current and future employees
• **Predictability:** Stabilize contribution rates for the long-term
• **Risk Reduction:** Reduce pension system exposure to financial risk and market volatility
• **Affordability:** Reduce long-term costs for employers/taxpayers and employees
• **Attractive Benefits:** Ensure the ability to recruit 21st Century employees
• **Good Governance:** Adopt best practices for board organization, investment management, and financial reporting
Pension Reform Strategies

**Problem 1: Assumptions**

1. Reduce assumed rate of return to a target the plan can realistically meet and de-risk investment portfolio.
2. Review and adjust assumptions related to withdrawal rates, new hire/headcount growth, payroll growth, retirement rates, service purchase rates, disability claim rates, inflation, and mortality based on experience studies.

**Problem 2: Permanent Benefit Increases**

1. Switch from PBIs to a standard COLA provision factored into the normal cost and pegged to local CPI-U capped at 2%, so TRSL could reinvest all portfolio gains.

**Problem 3: Amortization Periods**

1. Adjust amortization method to pay off new unfunded liability from the current 30 years too a shorter and more stable amortization schedule (e.g. 15-20 years).

**Problem 4: Benefit Design**

1. Consider whether adjustments to the current system could reduce risks and reduce overall costs while preserving retirement security.
2. Consider a new plan design(s) with conservative assumptions and funding policy aimed at preventing long-run underfunding.
Practical Policy Framework

1. Establish a plan to pay off the unfunded liability as quickly as possible.
   • The Society of Actuaries Blue Ribbon Panel recommends amortization schedules be no longer than 15 to 20 years

2. Integrate standard COLA provisions
   • Substitute PBI mechanism with a flexible COLA provision as part of annual normal cost calculations, pegged to local/regional CPI-U rates.

3. Adopt better funding policy, risk assessment, and actuarial assumptions
   • These changes should aim at minimizing risk and contribution rate volatility for employers and employees

4. Create a path to retirement security for all participants
   • Members unlikely to accrue a full pension benefit should have access to options for other plan designs, like cash balance, hybrid or DC
I. Establish a Plan to Pay Off the Unfunded Liability as Quickly as Possible

- The current amortization policy for all new unfunded liability targets time horizons that are too long
  - The TRSL targets a 30-year period to pay off its unfunded liabilities.
  - Putting additional unfunded liabilities onto such a long payoff schedule increases overall costs (e.g., amortization payments).
  - The Society of Actuaries Blue Ribbon Panel recommends amortization schedules be no longer than 15 to 20 years.
2. Adopt Standard COLA provisions

- Current PBIs squeeze cash flow generated by portfolio returns, which short-changes asset growth
  - By funneling 50% of positive investment returns to fund ad hoc PBIs TRSL deprives itself from additional gains it could have generated from reinvestment.
  - Subdued cash flow limits growth of the system’s assets, preventing the funded ratio from increasing and unfunded liabilities from falling.
  - Changing PBIs to automatic COLAs would provide more predictable budgeting, long-run savings, and ability to reinvest all, not a portion, of the investment yields received.
3. Adopt Better Funding Policy, Investment Policy, and Actuarial Assumptions

Funding Policy
- Consider requiring that future employees that accrue defined benefits make contributions that are an explicit share of all plan costs (such as a 50-50 split) as actuarially determined, using short (10-year or less) periods to pay off any unfunded liabilities that might accrue.

Risk Assessment and Actuarial Assumptions
- Look to lower the assumed return such that it aligns with a more realistic probability of success
- Adjust the portfolio to reduce high risk assets no longer needed with lower assumed return target
- Work to reduce fees and costs of active management
- Consider adopting an even more conservative assumption for a new hire defined benefit plan
- Require stress testing for contribution rates, funded ratios, and cash flows with look-forward forecasts for a range of scenarios
4. Create a Path to Retirement Security for All Participants of TRSL

- Louisiana TRSL is not providing a path for retirement income security to all members the plans
  - For example, only 56% of regular teachers vest into their benefits, while only 29% stay long enough for a reduced pension. And just 15% of teachers earn a full pension.
  - This means the majority of state employees would be better served by having the choice of an alternative, more portable plan design — such as a cash balance, hybrid or DC plan.

- Employees should have a choice to select a retirement plan design that fits their career and lifestyle goals
  - Cash balance plans can be designed to provide a steady accrual rate, offer portability, and ensure a path to retirement security.
  - Defined contribution retirement plans can be designed to auto-enroll members into professionally managed accounts with low fees that target specified retirement income and access to annuities.
Policy Reform Scenarios

Prospective Reform Options

• **Risk-Managed Defined Benefit Plans**
  - Create a new DB plan for new hires—built from the beginning with very conservative assumptions, explicit cost-sharing provisions, and a “trigger” mechanism to secure long-term solvency.

• **Primary Retirement Income-Focused Defined Contribution Plans**
  - Fixed contribution rates; no additional unfunded liabilities

• **Choice-Based Retirement Plans**
  - *Example*: enroll members in a DC Plan, but offer choice of a ‘Risk-Managed DB’ Plan

• **Hybrid DB/DC Plans**
  - *Example*:
    - 1% multiplier for the DB, with normal cost split 50/50, and
    - 3% DC employer contribution rate
    - 4% or more DC employee contribution rate

• **Cash Balance Plans**
  - Defined benefit system that guarantees a certain rate of return on investment.
Pension Reforms and Addressing the Legacy Unfunded Liability

**Positive Approaches** to Addressing Legacy UAL

- *Utah (2014), Oklahoma (2015)* — included in statute a requirement that employers make amortization payments as a percentage of total payroll; effect has been that unfunded liability amortization payments in dollars have been effective the same as if there had been no changes

- *Arizona Police & Fire (2017), Arizona Corrections (2017), Michigan Teachers (2017)* — included in statute a requirement that employers make amortization payments as a percentage of total payroll + required future UAL to be paid off over 10-year, level-dollar layered amortization bases

**Negative Approaches** to Addressing Legacy UAL

- *Michigan State Employees (1996), Alaska State & Teachers (2005), Kentucky State and Local (2014), Pennsylvania (2017)* — made no change with respect to legacy UAL, then made limited or no changes to the assumed rate of return and amortization method + failed to pay 100% of actuarially determined rate, collectively leading to a growth in the legacy UAL

- *Arizona Elected Officials (2013)* — created a fixed payment schedule for legacy UAL + no change to assumed return over time; led to insufficient funding deemed unconstitutional by trial court in 2017
Risk-Managed Defined Benefit Plans

- Provide same general defined benefit structure, but include cost-sharing provisions for employers and employees.
- Part of 2016 & 2017 reforms for the Michigan Teachers (MPSERS) Arizona Police and Fire (PSPRS), and Arizona Corrections Officer Retirement Plan (CORP) pension systems.
- These plans split the total required contribution between the employer and the employee.
  - 50/50 employer/employee split for Michigan teachers and Arizona police and fire
  - 60/40 employer/employee split for Arizona probation officers.
- Plan design ensures contribution rate risk is shared between employer and employee.
  - Provides employee buy-in to ensure costs don’t spiral out of control.
Hybrid Plans

• **Michigan Teachers (2010)**
  - Created a DC-only plan and a hybrid plan for new employees
    - Hybrid Plan included small DC component, and DC-only plan offered low contribution rates.
    - Increased contribution rates for new employees.
  - Only modestly addressed the problem.

• **Connecticut State Employees (2017)**
  - Increased contribution rates, small reduction in multiplier, small DC component added.
  - Does not guarantee solvency and unevenly distributes benefits in favor of DB plan.

• **Pennsylvania Public Employees (2017)**
  - Created an optional DC only plan along with two hybrid plans.
  - Even split between DC and DB component with increased contributions.
Cash Balance Plans

• Cash balance plans guarantee a minimum rate of return on the plan while splitting investment returns above that level between the plan and the employee.

• Created in 2016 for the Omaha Employee Retirement System and in 2014 for the Kentucky Retirement System.
  - Kentucky guarantees a 4% return on investment with a 75/25 “upside sharing” split on returns above that level in favor of the employee.
  - Omaha guarantees a 4% return with a 75/25 “upside sharing” split in favor of the employee on returns greater than 7%.

• Cash balance plans preserve the value of accumulated contributions while minimizing the risk of underperforming assumptions.
Defined Contribution Plans

- **Michigan (1997)**
  - State employees’ plan reform in 1997 shifted all new employees into first state-level DC only plan.

- **Alaska Teachers and State Employees (2005)**
  - Both major state pension plans converted to DC

- **Arizona Elected Officials (2013)**
  - Legislation established statutory contribution rate for closed DB plan less than half the actuarially determined rate ultimately needed for solvency.
  - Rate successfully challenged in court under constitutional requirement for actuarially based methods.

- **Arizona Corrections (2017)**
  - DC plan for new state and local correctional officers was element of comprehensive, labor-supported reform effort.
CONCLUSION
Concluding Comments

1. Actual investment returns have historically underperformed the rate of return assumptions. Without measured steps in reassessing and adjusting the plan’s return expectations, liability risks for taxpayers and members will only rise.

2. Without addressing the range of aggressive actuarial assumptions and underperforming portfolio returns, major TRSL solvency risks will remain.

3. Funds diverted to permanent benefit increases are failing to earn any returns, while short-changing the funds necessary to amortize TRSL’s unfunded liability faster.

4. In the last five years TRSL has managed to get its negative amortization under control. However, long amortization schedules for any new debt could raise overall costs if no changes are made to these schedules going forward.

5. Budgetary pressures, including service crowd outs, might make it tempting for a future state legislature to modify the current amortization policy.

6. Offering future employees choices of alternative benefit design options could improve retirement security, help TRSL reduce future unfunded liabilities and lower taxpayer liability risks.
Questions?

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