

GEORGIA'S TEACHERS RETIREMENT SYSTEM

Historic Solvency Analysis And Prospects for the Future The fiscal challenges facing the Teachers Retirement System of Georgia run deeper than just the dollar amount of its pension debt. By Jen Sidorova and Anil Niraula



Georgia Public Policy Foundation



Georgia TRS: Historic Solvency Analysis and Prospects for The Future

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I. Introduction

The Teachers Retirement System of Georgia (TRS) surprised many during the 2017 legislative session by requesting an additional \$223.9 million in annual funding, then did so again in 2018, requiring an additional \$364.9 million in contributions. The nearly \$600 million in annual increases to teacher pension funding have been necessary in large part because of growing unfunded liabilities – colloquially known as pension debt – which were reported at \$23.6 billion in 2016. Since then the debt has grown to \$24.8 billion, but in contrast with previous years TRS requested a relatively smaller annual increase of just \$25 million for 2019. Does that mean TRS is experiencing "improving financial strength," as a teachers association leader recently told The Atlanta Journal-Constitution?¹

Unfortunately, the answer is no. The increases in annual contributions may have slowed down this year, but the growth in costs is still continuing. The fiscal challenges facing TRS run deeper than just the dollar amount of its pension debt.

This policy brief will summarize some of the primary causes of Georgia's \$24.8 billion² in unfunded teacher pension liabilities (see Figure 1) and highlight key indicators that further contribution rate increases are likely in coming years without a meaningful change to the status quo.

Operationally, TRS is a strong system that provides a valuable service to its members – but there are factors outside of its control that suggest it would be prudent for the TRS board and Georgia Legislature to consider a slate of improvements to improve solvency, help the pension system better manage risk and, ultimately, ensure that the state can deliver the promised retirement benefits to teachers.

² In fiscal year 2017 the unfunded pension liability of Georgia TRS amounted to \$24.77 billion on actuarial basis and \$18.59 billion on market value basis (as reported under the new GASB 67/68 standards).



¹ James Salzer, "<u>State payments to Georgia teachers' pension fund should begin to ease</u>," The Atlanta Journal-Constitution, June 4, 2018.



Figure 1. TRS's History of Volatile Solvency, 1998-2017

II. A Summary of Problems for TRS: What is Causing Pension Debt?

Over the past 20 years, contributions from the Georgia state budget and school districts into the TRS pension fund have outpaced the economic growth of the state. The pace of contribution increases became particularly pronounced starting in 2012 and, as of last year, TRS pension contributions have grown by 67 percent since 2002, while Georgia's economy only grew by 23 percent during the same timeframe.³ This trend is now surfacing in the form of annual increases that demand more and more of the state budget each year.

What's driving this trend is not simply something like the 2008-09 financial crisis. While the market crash certainly hurt TRS, more than a decade later markets have fully recovered – yet TRS has not returned to the funded status it had before the crisis. As shown in Appendix A, since 2009, both the S&P 500 and Dow Jones Industrial Average have been on a pronounced upward trajectory relative to pre-crisis levels, reaching historic highs, whereas TRS's funded ratio effectively flat-lined during that same period.

Overall, unfunded liabilities have not returned to the pre-crisis level. The reality is that the risks facing TRS are much deeper than a reaction to economic shocks or cyclical fluctuations. The experience of the last decade shows any expectation TRS will recover together with the market is no longer realistic. And the deep, underlying problems – most importantly, actual experience not

³ The estimates are adjusted for inflation.



matching actuarial assumptions and the funding structure of the pension plan resulting in negative amortization – are becoming clearer.

Figure 2 presents the component parts of today's current teacher pension unfunded liability in Georgia. The largest component of TRS's unfunded liability is underperforming investments. Since 2001, investment returns have averaged 5.5 percent, lower than the assumed 7.5 percent return the TRS board has targeted (see discussion in Appendix B). This is not to say the 5.5 percent average return was necessarily a bad result over that period compared to internal investment benchmarks or the performance of other statewide pension plans, but it wasn't enough compared to the assumed return. Overall, this problem created \$9.7 billion in unfunded liabilities between 1998 and 2017.⁴ This is particularly alarming, because the interest earned through investing contributions is the primary source of the income for TRS's funds.



Figure 2. Actuarial Experience of TRS, 1998-2017

Source: Pension Integrity Project analysis of TRS CAFRs. The values show cumulative year-over-year change in unfunded liabilities by gain/loss category and may not exactly match the reported unfunded actuarial liability change for the same period due to rounding, revisions and other factors.

If we total up the gains and losses from all actuarial assumptions other than investment returns, it is clear they are also driving a considerable amount of the unfunded liabilities, cumulatively adding about \$12.7 billion. This breaks down in some ways that are important to understand:

• Actual demographic experience has been different than expected. People are living longer, employee turnover rates have been higher, and older teachers are not retiring as

⁴ The \$9.7 billion figure reflects the net total of actuarial gains and losses for investment returns and interest rate smoothing, as reported in actuarial valuation reports from the TRS.



quickly as expected. Since 1998, missing on these assumptions has added \$7.4 billion to unfunded liabilities.

- Meanwhile, actual changes to salaries have been less than expected. This has resulted in lower teacher pay, lower total payrolls and, thus, lower pension benefits. Ironically, such stagnation in compensation is a "gain" to the pension plan, something that has pushed down unfunded liabilities about \$2.5 billion between 1998 and 2017.
- A significant portion of the rest of today's unfunded liabilities are the result of negative amortization. Over the past two decades there have only been five years when the unfunded liability amortization payments have been greater than the interest accruing on TRS pension debt. This has made for a more challenging fiscal environment and in the long run will make it more expensive to pay off unfunded liabilities.

III. Has TRS Turned a Corner on These Problems?

During the fiscal year ending June 2017, TRS earned a 12.5 percent return. In the fiscal year that ended June 2018, TRS earned a reported 8.94 percent⁵ return. It is tempting to suggest this performance above the 7.5 percent assumed return portends a bright future for the teacher pension system. But while these are certainly positive experiences, they need to be considered in the context of the "new normal" of lower investment returns for the current and coming decade, relative to historic average returns. In Appendix B, we show how the probability of reaching a 7.5 percent return in the coming years is at best a 50/50 toss-up, and perhaps much less than that. Averaging even a 6 percent rate could be challenging.

The risk that investments will underperform assumptions in the long run creates the potential for future volatility in contribution rates. What might not seem like a big deviation from the actual demographic or asset performance rates right now will accumulate into a significant unfunded liability over time. For TRS to work as it is, all assumptions need to become a reality without the slightest deviation. But the sensitivity analysis in Appendix C shows that even with assumptions relying on up-to-date experience investigations, if actual experience does not match those assumptions then there could be a range of increases in required contributions.

⁵ Teachers Retirement System of Georgia, "Teachers Retirement: Policy, Sustainability, & Maximizing the System for Supporting Education in Georgia," Presentation to the Georgia Association of Educational Leaders. July 10, 2018. Available at: http://www.gael.org/uploads/conference_presentation/1531921085a50b97b9d05ecd0a8/TRS_presentation.pdf



IV. Conclusion

The Teachers Retirement System of Georgia's \$24.8 billion in unfunded liabilities is a sustainability threat for the pension plan, its members, school districts and Georgia taxpayers. Where there is no near-term threat of the pension fund becoming insolvent, the growing costs for the plan based on current funding policies and assumptions are beginning to crowd out other public services. School districts are left with less money for teacher salaries, classroom supplies, infrastructure, equipment, maintenance, etc. Growing unfunded pension liabilities could also eventually threaten the state's credit rating.

Georgia needs to address the core problems driving up the pension liabilities. It needs to consider not only the amount of unfunded liabilities already generated, but also the factors driving the creation of that pension debt and how future changes can avoid further accumulation. Such changes may include adjusting assumptions to have less risk of underperformance and changing the funding policy to pay debt down faster – and any set of changes along these lines would require a significant increase in near-term contributions, though with the objective of reducing long-term contributions. Georgia may also want to consider how alternative plan designs – such as defined-benefit pension plans designed to better manage risk, hybrid or cash-balance plans, or income-focused defined-contribution plans – that can help mitigate against building up further pension debt.

The price future generations will pay for not addressing TRS challenges now is not only measured in dollars paid for debt financing; it is also measured in forgone opportunities. If TRS is not put on a more realistic path to long-term solvency, future generations will have to pay for the presently created debt and will struggle to realize their potential because of the redirection of resources that could otherwise be used to focus on the primary functions of the education system.



Basics of Defined-Benefit Pension Financing

Understanding the TRS Defined-Benefit Pension		
Definition	A traditional defined-benefit pension plan design has retirement benefits	
	determined by a formula based on years of service and some averaged	
	amount of salary, with future monthly payments guaranteed by future	
	taxpayers.	
TRS Benefit	Members are eligible to retire at age 60 with at least 10 years of service, or at	
Formula	any age with 25 years of service. The monthly pension benefit is calculated	
	as:	
	(Years of service) x (2%) x (the member's average annual compensation	
	during the two consecutive years producing the highest average)	
Who Carries the	Taxpayers and school districts bear the risk of any investment losses because	
Investment Risk?	they guarantee pension payments. If historic contributions are not enough to	
	pay out benefits because investments have underperformed or other actuarial	
	assumptions have been wrong, then tax increases or budget cuts are	
	necessary to make up the difference.	
How are COLAs	Cost-of-living adjustments (COLAs) are provided by the Georgia Legislature	
Paid For?	on an "ad hoc" basis whenever there is the political desire to provide the	
	necessary funds. COLAs are not pre-funded with annual contributions in the	
	same way that pension benefits are pre-funded.	

Important Definitions and Terms for Pension Finance

Normal Cost is the actuarially determined amount that needs to be contributed to the pension fund today for it to grow over time and be sufficient to pay out benefits in the future. For the normal cost to be adequate, the actuarial assumptions that go into its calculation must be correct. If any of the assumptions – such as mortality, retention, assumed rate of return, etc. – are overly optimistic or underestimate future experience, they may lead to unfunded liabilities.

Unfunded Liability Amortization Payments are regular contributions made to reduce the unfunded liability. Similar to paying off a loan or bond, they are paid on a set schedule. The TRS board determines the time period to pay off certain portions of unfunded liabilities, and the actuary calculates how much should be paid each year. Such payments may be equal dollar amounts each year, or the dollar amount of payments may be tied to a predetermined percentage of payroll each year.

For TRS, the total (transitional) unfunded liability as of 2013 is being paid off over a 30-year period on a level-percentage of payroll. Payments in FY2018 will be for year 26 of the schedule, which will count down to zero by 2043. Beginning after 2013, any new (incremental) unfunded liabilities that arise in a given year are put on their own, separate 30-year schedule. Thus, the total unfunded liability amortization payments for TRS for year 2017 represent the total amount needed for all debt schedules.

Assumed Rate of Return (ARR) is the assumption about how much all of the contributions into the pension fund will earn as investments. The ARR is a rate chosen by the TRS board based on



what investment advisors think the pension fund's portfolio can earn in the near term and long term. Typically, pension boards choose an ARR close to the "expected" rate of return, which is the rate of return investment advisors think the fund has a 50 percent chance of earning. The ARR is used to determine how much the employer should contribute to the pension plan on an annual basis to honor the retirement benefits for all employees. (The "assumed rate of return" is technically different from the "expected rate of return," although the two terms are frequently used interchangeably.)

Negative Amortization occurs when unfunded liability amortization payments are less than the interest accruing on that same unfunded liability. This is the opposite of what the amortization payments are supposed to do – paying off a loan with regular payments so the total amount owed goes down with each payment. With negative amortization, even though payments go into the plan, the amount of pension debt can still grow.

Discount Rate is used to determine the net present value of all of the already-promised pension benefits. Actuaries count up all expected future pension checks that will be paid, then "discount" the value of those back to current dollars. The higher the discount rate, the lower the estimated value of promised benefits; the lower the discount rate, the higher the estimated value of promised benefits. Standard practice for actuaries is to use the assumed rate of return on assets as the discount rate for estimating the value of liabilities. If a pension plan chooses to target a high rate of return with its portfolio of assets, and that high assumed return is then used to calculate the value of the existing promised benefits is less than actually promised, and vice versa. Note that formally promised pension benefits are called "accrued liabilities."





Appendix A: Comparing the TRS Funded Ratio to Stock Market Indices Figure A1. S&P 500 Index and TRS Funded Ratio

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



Figure A2. Dow Jones Industrial Average and TRS Funded Ratio

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



Appendix B: Georgia's Investment Risk and the "New Normal" for Returns

Since 2003, Georgia has used a 7.5 percent assumed investment return on assets, despite significant market changes leading to lower-than-expected returns. Several reasons make this assumption worrisome.

 Low average market returns. The average market-valued returns in the past 17 years have been 5.5 percent. This statistic captures much of the buildup and bursting of the dot-com bubble (2000-2002) and the financial crisis of 2008-09, as well as any positive investment return shocks and tendencies. Figure B1 shows the rate of return history over the past two decades, including the fact that a rolling 10-year average has been consistently below the assumed return target. Table B1 shows a few snapshot average returns based on different time periods.



Figure B1: Investment Return History, 2001-2017



Period	Average Market-Valued Returns
17 Years (2001-17)	5.52%
15 Years (2003-17)	6.93%
10 Years (2008-17)	6.14%
5 Years (2013-17)	9.44%

Table B1. Average Rates of Return Over Different Periods of Time

Source: Pension Integrity Project analysis of TRS actuarial valuation reports. Average market-valued returns represent geometric means of the actual time-weighted returns.

2. The new normal in investment returns. Virtually all capital market assumptions about the next 10 to 20 years hold that average returns will be less than the last 20 to 30 years. This is not to say investments will be negative, or that strong single years are impossible; certainly, returns over the past few years have been solid, including a 9.4 percent average five-year return. But markets have fundamentally changed since the high interest-rate years in the 1980s and 1990s, and structural changes in the global and U.S. economies have created an environment where expectations of investment returns consistently as high as 30-year averages are unreasonable. Consider how much interest rates have fallen over the past few decades (Figure B2), and consider how much more risk will be required to get higher investment returns.





Figure B2. Comparing Changes in Discount Rate and Risk Free Rate, 2000-2017

3. Taking on more investment risk to maintain the same assumption. Generally speaking, TRS has always been invested in stocks and bonds, with restrictions against alternative forms of investing. Over the past few decades, however, the ratio of stocks and bonds in the portfolio has shifted. Figure B3 shows that around 2009 there was a sharp drop in the percentage of fixed income, from about 40 percent before to roughly 30 percent today. The advantage of this shift is to increase the earnings potential of the portfolio; equities typically return higher yields than fixed income. However, this has also increased the volatility of returns and added risk.





Figure B3. TRS Asset Allocation (2001-2017)

Source: Pension Integrity Project analysis of TRS actuarial valuation reports and CAFRS.



Appendix C: Contribution Rate Volatility Risk

All defined-benefit pension plans have some risk that actuarial assumptions will not line up with actual real-world experience in the future. Underperformance, overestimation or underestimation – depending on the assumption – can all lead to an increase in the need for additional contributions in the future. But how much of an increase is possible?

In Appendix B, we provided some analysis suggesting the average investment return over the next few decades is more likely to be less than 7.5 percent than to reach that level or surpass it. Since 2001, the average return has been 5.5 percent, and a range of capital-market forecasts suggests a 6.5 percent return may be more likely for the current portfolio. Figure C1 shows how contribution rates might increase in the future if the actual average returns matched either scenario, falling short of projections by 100 and 200 basis points, respectively.



Figure C1. Sensitivity Analysis: Employer Contribution

Source: Pension Integrity Project actuarial forecast of TRS (current as of September 2018).

A 6.5 percent actual return over the next few decades will raise the employer contribution to 22 percent of payroll by FY2040, which would result in a \$4.7 billion inflation-adjusted increase (\$7.7 billion nominal difference) from the current number. Similarly, a 5.5 percent average return would increase the employer contribution to approximately 27 percent of payroll over the same period. It is important to also keep in mind that if the employer is not able to fully contribute at the appropriate time, amortization payments will keep rising, creating greater unfunded liability and even higher contributions than forecasted here.



It is important to note that no matter what the average return, forecasts like this are only intended to give a sense of the direction of future contribution rates under different scenarios. Actual investment performance from year to year has more variance, and the timing of returns can matter a lot. If the next 10 years have relatively low returns, then even a strong performance in later years might not be enough to prevent contribution rate increases. Figure C2 illustrates how even if TRS were able to reach an average return of 7.5 percent, *when* the strong returns land matters a lot in determining the contribution rates. Another thing to keep in mind is that every year the assumptions are not met, the debt keeps growing, increasing the employer contribution even as it pays down the original unfunded liability.





Source: Pension Integrity Project actuarial forecast of TRS plan (current as of September 2018). Strong early returns (TWRR = 7.4%, MWRR = 8.5%), Even, equal annual returns (Constant Return = 7.5%), Mixed timing of strong and weak returns (TWRR = 7.5%, MWRR = 7.5%), Weak early returns (TWRR = 7.5%, MWRR = 6.5%) Scenario assumes that TRS pays the actuarially required rate each year. Years are plan's fiscal years.

TWRR = Time-Weighted Average Rate of Return; MWRR = Money-Weighted Average Rate of Return



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The Pension Integrity Project at Reason Foundation (<u>reason.org/pension</u>) offers pro-bono consulting to public officials and other stakeholders to help them design and implement pension reforms that improve plan solvency and promote retirement security. The project team provides education, reform policy options, and actuarial analysis for policymakers and stakeholders to help them design reform proposals that are practical and viable. The project aims to promote solvent, sustainable retirement systems that provide retirement security for government workers while reducing taxpayer and pension system exposure to financial risk and reducing long-term costs for employers/taxpayers and employees.

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