NORTH Dakota Be Legendary. | Teachers' Fund For Retirement
RETIREMENT & INVESTMENT

ND TFFR Board Meeting
Thursday, September 25, 2025, 1:00 p.m.
WSI Board Room (In Person)
1600 E Century Ave, Bismarck ND
Click here to join the meeting

AGENDA

I. **CALL TO ORDER AND ACCEPTANCE OF AGENDA** ***(Board Action)***
   A. Pledge of Allegiance
   B. Roll Call & Conflict of Interest Disclosure
   C. Introduction of New CFO/COO

II. **ACCEPTANCE OF MINUTES (July 24, 2025)** ***(Board Action)***

III. **EDUCATION (15 minutes)** ***(Information)***
   A. Fiduciary Duties & Ethics – Ms. Tuntland

IV. **REPORTS (75 minutes)** ***(Board Action)***
   A. Quarterly & Annual Investment Report – Mr. Anderson
   B. Asset Allocation Study - NEPC
   C. Annual Internal Audit Report – Ms. Seiler

(Break)

V. **GOVERNANCE (30 minutes)**
   A. Governance & Policy Review Committee Update *(Information)* – Mr. Mickelson, Ms. Smith
      1. Second Reading – Policy I. D-2 *(Board Action)*
   B. Administrative Rules Update *(Information)* – Ms. Smith
   C. Business Continuity Update *(Information)* – Ms. Smith
   D. Delinquent Accounts Update *(Information)* – Mr. Roberts

VI. **OTHER BUSINESS**
   A. Board Reading Materials – Material References Included
   B. Next Meetings:
      1. TFFR GPR Committee – Thursday, November 6, 2025, at 3:30 p.m.
      2. TFFR Board Meeting – Thursday, November 20, 2025, at 1:00 p.m.

VII. **ADJOURNMENT**

Any individual requiring an auxiliary aid or service, please contact the Retirement and Investment Office (701) 328-9885 at least three (3) days prior to the scheduled meeting.

NORTH DAKOTA TEACHERS' FUND FOR RETIREMENT
MINUTES OF THE
JULY 24, 2025, BOARD MEETING

BOARD MEMBERS PRESENT: Dr. Rob Lech, President
Mike Burton, Vice President
Scott Evanoff, Trustee
Cody Mickelson, Trustee

BOARD MEMBERS ABSENT: Kirsten Baesler, State Supt. DPI
Thomas Beadle, State Treasurer
Alexis Rasset, Trustee

STAFF PRESENT: Scott Anderson, Chief Investment Officer
Deneen Gathman, Retirement Accountant
Jayme Heick, Retirement Spec.
Missy Kopp, Exec. Assistant
Denise Leingang-Sargeant, Retirement Spec.
Chad Roberts, DED/CRO
Sara Seiler, Internal Audit Supvr.
Jodi Smith, Interim Exec. Director
Rachelle Smith, Retirement Admin. Assistant
Dottie Thorsen, Internal Auditor
Tami Volkert, Compliance Spec.
Denise Weeks, Retirement Program Mngr.

OTHERS PRESENT: Members of the Public

CALL TO ORDER:

Dr. Lech, President of the Teachers' Fund for Retirement (TFFR) Board of Trustees, called the meeting to order at 1:00 p.m. on Thursday, July 24, 2025. The meeting was held in-person.

THE FOLLOWING MEMBERS WERE PRESENT REPRESENTING A QUORUM: MR. BURTON, MR. EVANOFF, DR. LECH, AND MR. MICKELSON.

ACCEPTANCE OF AGENDA:

The Board considered the agenda for the July 24, 2025, meeting.

IT WAS MOVED BY MR. EVANOFF AND SECONDED BY MR. BURTON AND CARRIED BY A VOICE VOTE TO APPROVE THE JULY 24, 2025, AGENDA AS DISTRIBUTED.

AYES: MR. BURTON, MR. MICKELSON, MR. EVANOFF, AND PRES. LECH
NAYS: NONE
ABSENT: SUPT. BAESLER, TREASURER BEADLE, AND MS. RASSET
MOTION CARRIED

ACCEPTANCE OF MINUTES:

The Board considered the minutes for the April 24, 2025, June 16, 2025, and July 10, 2025, TFFR Board meetings.

IT WAS MOVED BY MR. MICKELSON AND SECONDED BY MR. EVANOFF AND CARRIED BY A VOICE VOTE TO ACCEPT THE APRIL 24, 2025, JUNE 16, 2025, AND JULY 10, 2025, MINUTES AS DISTRIBUTED.

AYES: MR. MICKELSON, MR. EVANOFF, MR. BURTON, AND PRES. LECH
NAYS: NONE
ABSENT: SUPT. BAESLER, TREASURER BEADLE, AND MS. RASSET
MOTION CARRIED

GOVERNANCE:

Election/Appointment of Officers:

Board members made the following nominations:

- Dr. Lech as Board President
- Ms. Rasset as Board Vice President
- Dr. Lech and Mr. Mickelson as State Investment Board (SIB) Representatives
- Mr. Evanoff as SIB Alternative
- Mr. Mickelson as SIB Audit Committee Representative
- Mr. Burton, Mr. Mickelson, and Dr. Lech as TFFR GPR members

IT WAS MOVED BY MR. MICKELSON AND SECONDED BY MR. EVANOFF AND CARRIED BY A ROLL CALL VOTE TO APPROVE AND APPOINT THE NOMINATION SLATE.

AYES: MR. EVANOFF, MR. BURTON, MR. MICKELSON, AND PRES. LECH
NAYS: NONE
ABSENT: SUPT. BAESLER, TREASURER BEADLE, AND MS. RASSET
MOTION CARRIED

Annual Governance & Policy Review Report:

Mr. Mickelson reviewed the annual Governance and Policy Review report which outlined the workplan for the Governance and Policy Review (GPR) Committee's review of the board governance manual for fiscal year (FY) 2025. There was only one substantive change in section 1, subsection D, which added designee language to the State Treasurer and Superintendent to comply with legislation.

IT WAS MOVED BY MR. BURTON AND SECONDED BY MR. MICKELSON AND CARRIED BY A VOICE VOTE TO APPROVE THE INTRODUCTION AND FIRST READING OF CHANGES TO TFFR POLICY I – D-2.

AYES: MR. BURTON, MR. MICKELSON, MR. EVANOFF, AND PRES. LECH
NAYS: NONE
ABSENT: SUPT. BAESLER, TREASURER BEADLE, AND MS. RASSET
MOTION CARRIED

Annual TFFR Program Review:

The board was provided with the TFFR program monitoring summary for FY 2025 which monitors established activities which fulfill the Board's responsibilities to monitor the TFFR program. All activities were completed.

Ms. Mudder reviewed recent member feedback included in the meeting packet. Website comments initially reflected typical launch frustrations but have become increasingly positive and less frequent over time. Customer satisfaction cards, historically mailed with retirement packets, remain positive but will be phased out as manual mailings end. Future feedback will primarily come from the website, which now shows improved user satisfaction, and from event evaluations that inform the strategic plan.

Regional Education Association access to TFFR program systems and data:

Staff reported two incidents in which regional education associations (REAs) sought TFFR data or fee waivers in ways that raised confidentiality and governance concerns. Because TFFR's confidentiality statutes are strict, the Assistant Attorney General provided a preliminary opinion and advised that only the board—not staff—has limited authority to waive interest. The board discussed establishing clearer procedures requiring proof of a contractor's authority, such as a district-approved contract or separate agreement, before any confidential data is released or waiver requests are considered. A formal interest-waiver request will be deferred until these legal and procedural issues are resolved.

BOARD EDUCATION:

Mr. Roberts discussed the performance metrics available from the *My*TFFR system which can be utilized for program monitoring of retirement services, account claims, and membership data. The data can be used in quarterly and annual reports to the board. Board discussion followed.

REPORTS:

Quarterly Investment Report:

Mr. Anderson reviewed performance for the quarter ending April 30, 2025. Despite historically poor fixed-income and equity markets, the fund achieved a 5.1% policy return and 40 basis points of excess return, near top-quartile performance over five years. Two long-tenured private real estate managers remain the main drag on results due to heavy office and medical-office exposure; however, their processes are sound, and capital cannot be easily redeemed or sold without steep discounts. Staff continue close monitoring, expecting eventual recovery while maintaining the current holdings.

Mr. Anderson discussed the preliminary findings from a continuous asset-allocation study comparing the current TFFR portfolio with two alternative mixes. Both proposed mixes (Mix 1 and Mix 2) offer higher expected returns or lower risk than the current allocation and outperform it across multiple economic scenarios—including recession, stagflation, and depression—while maintaining or improving the plan's funding ratio. Mix 1 generally delivers the best balance of return and risk, while Mix 2 provides the lowest overall risk. Staff plan to bring additional information to the next board meeting. Board discussion followed.

Quarterly Internal Audit (IA) Report:

Ms. Seiler provided that quarterly IA report for the quarter ending June 30, 2025. The Audit Committee met on May 15 to review and approve third-quarter audit activities, receive an update on the ongoing financial statement audit, and discuss the interim audit work plan in light of agency vacancies. Internal Audit continues to work with consultant Weaver, shifting some audit hours to advisory services consistent with IA standards. A special meeting was held in June to launch the external financial statement audit with UHY, selected by the State Auditor's Office, which will conduct the financial and GASB 68 audits over the next three years. The financial statement report is expected by November, with the GASB 68 report by year-end.

Quarterly Update and Annual Strategic Communications Plan:

Ms. Mudder provided a quarterly communications update highlighting improved tracking of targeted outreach following the first integration between *My*TFFR and GovDelivery, which now provides more accurate metrics on employer, active-member, and retiree subscribers. Social media engagement, particularly on YouTube, remains strong. The annual strategic communications plan for the coming year focuses on five goals: positioning RIO as an industry leader, strengthening transparency and demonstrating value, modernizing digital and public communications, educating and engaging stakeholders, and supporting continuity and crisis readiness. A key initiative will be a campaign encouraging retired members to use *My*TFFR for account security and beneficiary updates, with success measured by growth in retiree account activity. The agency recently upgraded to GovDelivery's advanced package to enable email automation. Website improvements are planned to meet Department of Justice ADA accessibility requirements and enhance user experience. After the Board retreat staff discussed the next steps for the retirement education initiative. Staff plan to issue an RFP to bring in an expert to design a structured curriculum, ensuring content is comprehensive and effectively organized. Once created, these materials can be easily added to the website, allowing staff to focus on delivery rather than development. Board discussion followed.

Quarterly TFFR Ends:

Mr. Roberts provided the TFFR Ends report for the quarter ending June 30, 2025. The report highlights exceptions to normal operating conditions. The previously reported fraud incident has been resolved. The last temporary position to support the pension system project ended on April 30, 2025. Ms. Smith was appointed as the permanent Executive Director (ED). Mr. Roberts discussed staff development.

Quarterly Executive Limitations/Staff Relations Report:

Ms. Smith provided the Executive Limitations/Staff Relations report which outlined numerous staffing and operational updates. Several positions remain open, and succession plans for key leadership roles—including the Executive Director, Chief Investment Officer, Chief Financial Officer, and Chief Retirement Officer—are in draft form, with completion targeted for early next year. Office space has been reconfigured to improve efficiency and prepare for additional staff as the agency expands internal investment management.

Major initiatives include a project to replace the aging fiscal IT system before vendor support ends in 2029, ongoing business process modeling to streamline operations, and preparation

for a comprehensive governance audit by the State Investment Board. The agency is also beginning work on a Legacy Fund transparency website as part of broader website updates.

IT WAS MOVED BY MR. MICKELSON AND SECONDED BY MR. EVANOFF AND CARRIED BY A VOICE VOTE TO ACCEPT THE REPORTS AS DISTRIBUTED.

AYES: MR. EVANOFF, MR. MICKELSON, MR. BURTON, AND PRES. LECH
NAYS: NONE
ABSENT: SUPT. BAESLER, TREASURER BEADLE, AND MS. RASSET
MOTION CARRIED

CONSENT AGENDA:

IT WAS MOVED BY MR. MICKELSON AND SECONDED BY MR. BURTON AND CARRIED BY A ROLL CALL VOTE TO APPROVE THE CONSENT AGENDA ITEMS, QDRO 2025-03 AND DISABILITY APPLICATION 2025-4D.

AYES: MR. BURTON, MR. EVANOFF, MR. MICKELSON, AND PRES. LECH
NAYS: NONE
ABSENT: SUPT. BAESLER, TREASURER BEADLE, AND MS. RASSET
MOTION CARRIED

ADJOURNMENT:

With no further business to come before the Board, Dr. Lech adjourned the meeting at 3:01 p.m.

Prepared by,

Missy Kopp, Assistant to the Board

Fiduciary Duty & Ethics

Kirsten Tuntland
Assistant Attorney General
General Counsel Division
ND Office of Attorney General

Fiduciary Duties of TFFR Board Members

3 Fiduciary Duties

- **TFFR Board Program Manual** Page 5, E. TFFR Board – Duties and Responsibilities

Fiduciary Duties of TFFR Board Members

1. **Duty of Loyalty**

- Act for the exclusive benefit of the plan participants and beneficiaries

- Put the interests of plan participants and beneficiaries above your own interests and the interests of any third parties

Fiduciary Duties of TFFR Board Members

2. Duty of Care

- Administer the plan efficiently and properly

- Includes consideration and monitoring of the financial sustainability of funding practices and the effective administration of plan benefits in compliance with applicable laws

Fiduciary Duties of TFFR Board Members

3. Duty of Prudence

- Act prudently in exercising power or discretion over the interests that are subject of the fiduciary relationship

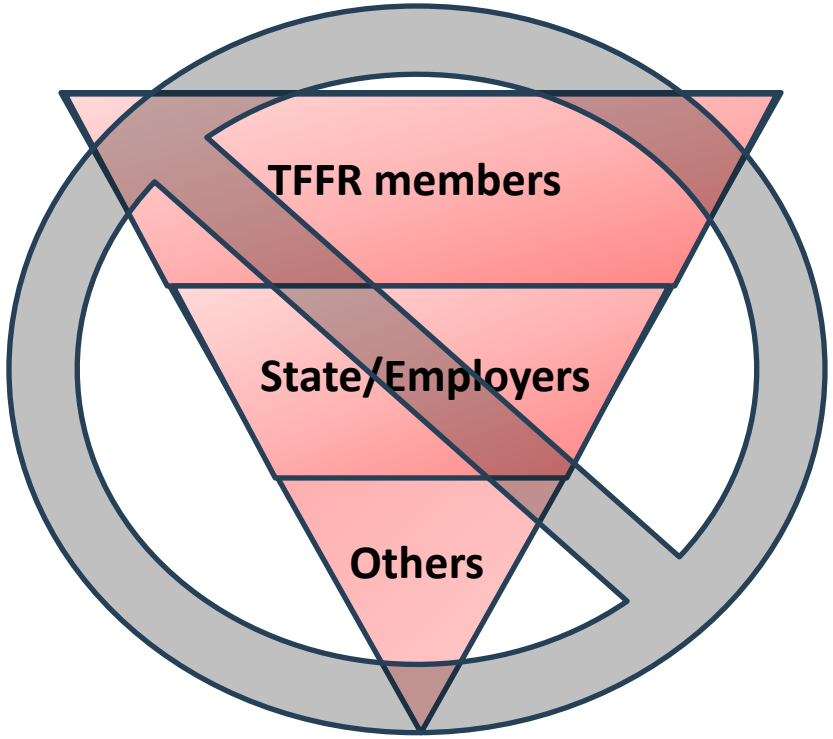
- Act in a manner consistent with a reasonably prudent person exercising care, skill, and caution

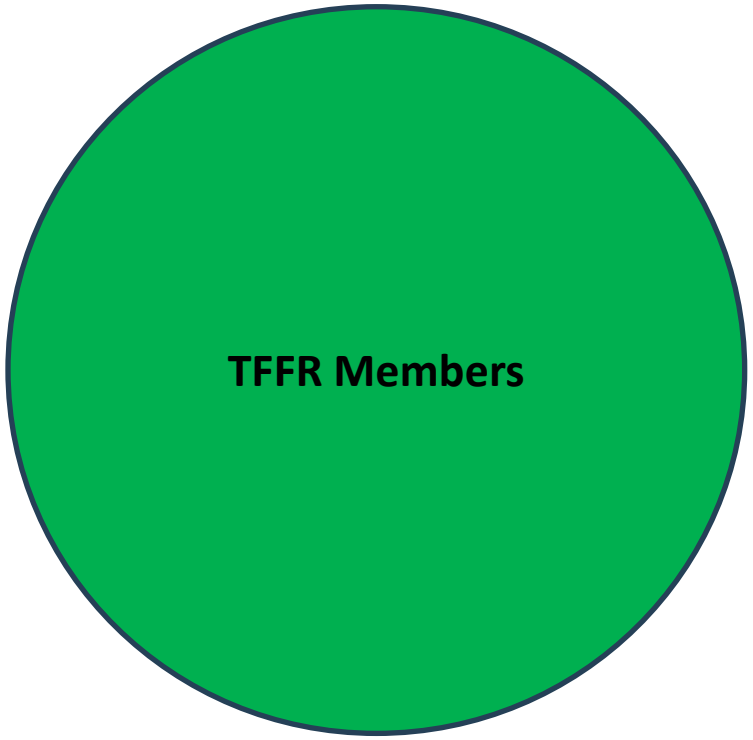
Fiduciary Duties of TFFR Board Members

2 Key Rules

Fiduciary Duties of TFFR Board Members

1. **Undivided loyalty to TFFR members**
   - Act exclusively for the benefit of TFFR members
   - Not for the State, employers, yourself, or others





Fiduciary Duties of TFFR Board Members

2. Procedural Prudence

- Conscientious processes in decision-making:
  - Understand the facts
  - Identify and actively avoid potential bias
  - Investigate the options
  - Seek expert advice and question experts if the advice is not clear

- **Requires process, not outcome and prudence, not perfection**

Fiduciary Duties of TFFR Board Members

- **Resources**
  - TFFR Board Program Manual
  - North Dakota Century Code Chapter 15-39.1
  - North Dakota Administrative Code Title 82
  - Internal Revenue Code section 401(a)

Ethical Obligations of TFFR Board Members

6-Step Process for Disclosing Conflicts of Interest

Step 1 - Identify Potential Conflicts

"Potential conflict of interest" means a public official, as part of his or her duties, must make a decision or take action in a matter where the public official has:

1. received a gift from one of the parties;

2. a significant financial interest in one of the parties or the outcome of the proceeding; or

3. a relationship in a private capacity with one of the parties.

For definitions of these terms *see* N.D. Admin. Code § 115-04-01-01.

Step 2 - Declare the Potential Conflict

Declare any potential conflict on the record, if possible.

Provide enough facts for others to understand the potential conflict.

You must draw the connection from the potential conflict to the action or decision before you.

Step 3 - Two Options

After disclosure, two options to move forward.

(1) Recuse and file the form; or

(2) Ask the neutral reviewer for help.

Who is the neutral reviewer?

Identified by a government body's policy or rule.

If no policy or rule, Ethics Commission rules identify a default neutral reviewer.

Step 4 - Neutral Reviewer Evaluation

Neutral reviewer must evaluate 5 factors from N.D. Admin. Code § 115-04-01-03(7).

(1) Weight and deference to public official to perform duties

(2) Materially affect the independence of judgment

(3) Any law that would preclude recusal or abstention

(4) The size of the personal benefit

(5) Any guidance from the Ethics Commission

Step 5 - Neutral Reviewer Determination

SHSND 00003

1967 Legislative Assembly

Neutral reviewer determines whether a potential conflict of interest = a disqualifying conflict of interest.

No disqualifying conflict of interest exists?
The public official may participate.

A disqualifying conflict of interest exists?
The public official must recuse.

No ethics violation if:
(1) consult and adhere to neutral reviewer;
(2) public official acts in good faith; and
(3) the disclosed material facts are substantially the same as any complaint allegations.

Six-Step Process

Step 6 - File the Form

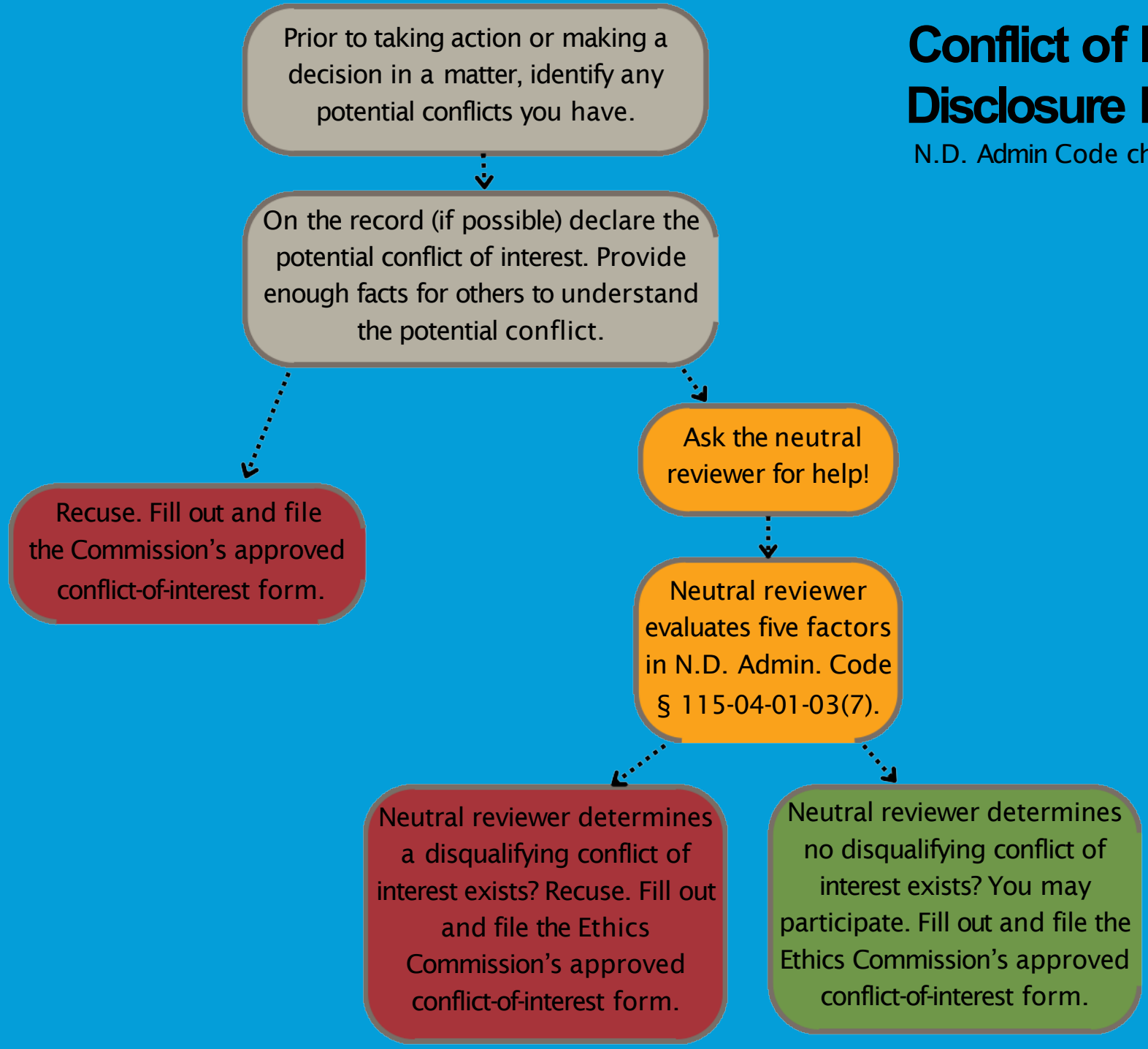
Always file the Ethics Commission's approved form with your governing body and the Ethics Commission.

Minutes must document any recusal.

Form requirement does not apply in the legislative process. *See* Ethics Commission Advisory Opinion 23-01.

Conflict of Interest Disclosure Process

N.D. Admin Code ch. 115-04-01



Six-Step Process

INVESTMENT PERFORMANCE

Scott M. Anderson, CFA – Chief Investment Officer

September 25, 2025

NORTH Dakota | Retirement & Investment

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PERFORMANCE – BENCHMARK INDICES

Summary of Returns June 30, 2025					
Benchmark Indices (% change, annualized)	**YTD**	**1 Yr**	**5 Yr**	**10 Yr**	**10 Yr Volatility**
Russell 3000	5.8%	15.3%	16.0%	12.9%	18.7%
Russell 1000	6.1%	15.7%	16.3%	13.3%	18.6%
Russell 2000	-1.8%	7.7%	10.0%	7.1%	23.5%
S&P 500	6.2%	15.2%	16.6%	13.6%	18.4%
MSCI ACWI IMI Net	9.8%	15.9%	13.4%	9.7%	14.7%
MSCI World ex US	19.0%	18.7%	11.5%	6.6%	14.8%
MSCI Emerging Markets	15.3%	15.3%	6.8%	4.8%	16.1%
Bloomberg Aggregate	4.0%	6.1%	-0.7%	1.8%	4.8%
Bloomberg Gov/Credit	3.9%	5.9%	-0.8%	1.9%	5.1%
Bloomberg US High Yield	4.6%	10.3%	6.0%	5.4%	5.2%
NCREIF Property Index	2.5%	4.2%	3.7%	5.2%	4.0%

Source: Bloomberg

PERFORMANCE – BENCHMARK INDICES

Summary of Returns September 15, 2025					
Benchmark Indices (% change, annualized)	**YTD**	**1 Yr**	**5 Yr**	**10 Yr**	**10 Yr Volatility**
Russell 3000	13.3%	19.2%	15.3%	14.2%	18.6%
Russell 1000	13.5%	19.5%	15.5%	14.5%	18.4%
Russell 2000	8.9%	11.7%	10.8%	9.0%	23.4%
S&P 500	13.5%	19.2%	15.9%	14.8%	18.2%
MSCI ACWI IMI Net	17.3%	19.4%	12.7%	11.2%	14.5%
MSCI World ex US	25.1%	18.8%	10.9%	8.0%	14.6%
MSCI Emerging Markets	25.8%	25.3%	6.1%	7.6%	15.9%
Bloomberg Aggregate	6.6%	2.9%	-0.4%	2.0%	4.8%
Bloomberg Gov/Credit	6.4%	2.7%	-0.6%	2.1%	5.1%
Bloomberg US High Yield	7.2%	8.4%	5.4%	5.8%	5.2%
NCREIF Property Index (06/30/2025)	2.5%	4.2%	3.7%	5.2%	4.0%

Source: Bloomberg

RISK SUMMARY

Macro and Economic Risks

- Sticky Inflation: Core CPI +3.1% y/y (Aug 2025); persistent pressure keeps Fed cautious, eroding real returns.
- Higher-for-Longer Rates: Fed policy rate 4.25–4.50%, 10y Treasury ~4.05%; impacts liabilities & bond valuations.
- Growth Volatility: Q2 GDP +3.3% annualized; stop-start cycle complicates return forecasts.

Market Risks

- Equity Valuation: S&P500 Shiller CAPE ~38; forward PE at >22; top 10 stocks = ~30–40% of S&P 500.
- Credit Stress: HY OAS ~275 bps; default rates could rise to 3–4% in downturn scenarios (Rating Agencies).
- USD Volatility: DXY ~96.6 (-11% YTD); swings impact EM, global equity earnings

Geopolitical & Political Risks

- Tariff Shock: New tariffs = $80–88B YTD revenue; Aug customs receipts $20–30B; raises inflation & costs.
- Geopolitical Tensions: Gaza ground assault, Ukraine conflict; commodity, defense & risk premium volatility.
- U.S. Fiscal/Policy Risk: Large deficits & Treasury issuance; politicization of Fed adds tail policy outcomes.

PERFORMANCE

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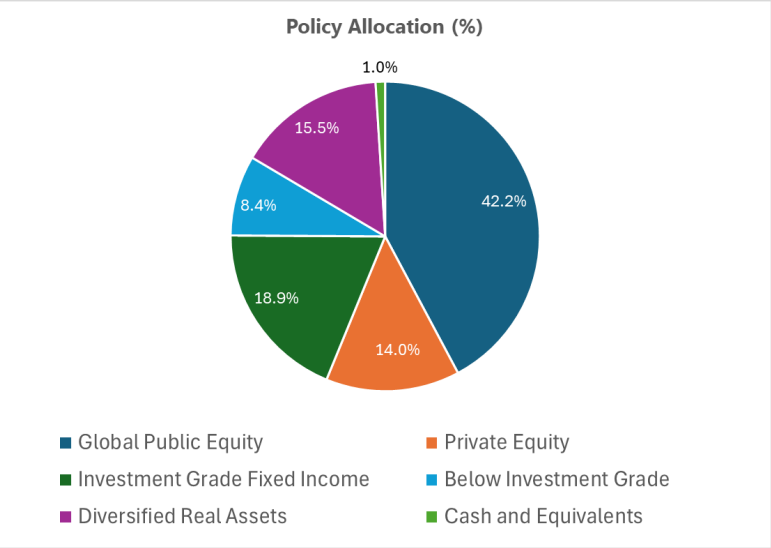
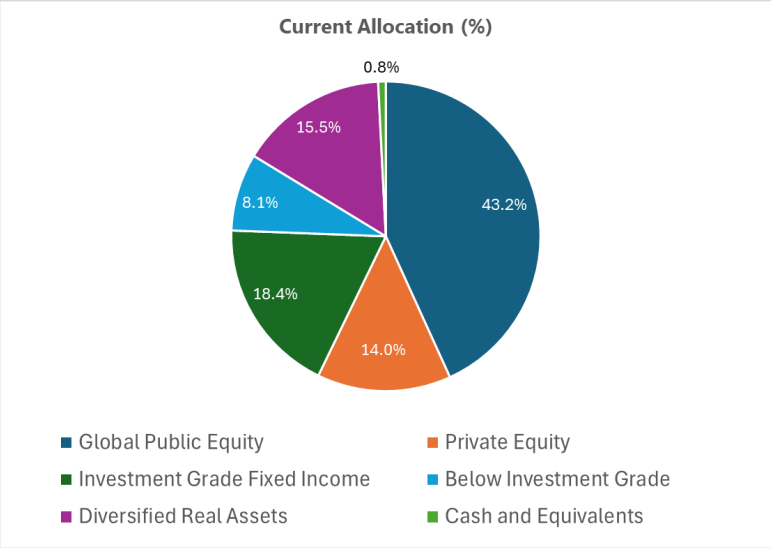
TFFR ASSET ALLOCATION





Asset Category		Current Balance ($)	Current Allocation (%)	Policy Allocation (%)		Differences ($)
Global Public Equity	$	1,543,908,404	43.2%	42.2%	$	31,352,646
Private Equity	$	502,750,805	14.0%	14.0%	$	10,414
Investment Grade Fixed Income	$	659,358,283	18.4%	18.9%	$	(16,586,453)
Below Investment Grade	$	291,802,462	8.1%	8.4%	$	(8,609,460)
Diversified Real Assets	$	554,882,801	15.5%	15.5%	$	55,726
Cash and Equivalents	$	29,600,155	0.8%	1.0%	$	(6,222,874)
Total	$	3,582,302,910	100.0%	100.0%	$	-

1. June 2025 values – Verus

TFFR PERFORMANCE

TFFR $3.6 Billion	Year to Date	1 Year	3 year	5 Year	10 Year	Risk (5 Year)
Total Fund Return - Net	7.4%	11.4%	9.0%	8.9%	7.6%	8.1%
Policy Benchmark Return	5.9%	9.7%	8.6%	8.3%	7.1%	8.5%
Total Relative Return[1]	1.5%	1.7%	0.4%	0.6%	0.5%	

ASSET-LIABILITY ANALYSIS AND ASSET ALLOCATION RECOMMENDATION

NORTH DAKOTA STATE INVESTMENT BOARD – TFFR

SEPTEMBER 2025

PLAN AND ASSET ALLOCATION PROFILES

OVERVIEW

- Today's discussion covers the Asset-Liability analysis for TFFR.
- The plans' liability structure, funded status and discount rate (i.e., long-term return assumption) vary and are reviewed later in the deck; these factors were considered in the final recommendation
- Return expectations across the plans range from 6.50% to 7.25%; based on the NEPC March 31, 2025 capital market assumptions, it seems reasonable to expect that the long-term (30-year) return expectations could meet or exceed the current assumptions
- In addition to the Current policy, we have presented in this deck two specific implementable allocations (one lower risk and one similar risk) as an alternative to the current policy

WORK PLAN / ROADMAP

North Dakota State Investment Board
2025 Pension Asset/Liability Project Plan

Step/Milestone	Estimated Timing
Collect all data relative to plan liabilities and structure	December 2024
Review of NEPC capital market assumptions, current policy expectations and plan objectives (with NDRIO Staff)	January 2025
Review, discuss, and consider revisions to portfolio/plan objectives (with NDRIO Staff)	February 2025
Discuss and identify potential alternatives to the current policy	May 2025
Scenario modeling for Current and Alternative Policies	May 2025
Review modeling results (with NDRIO Staff)	June 2025
Prepare draft of Board materials	July 2025
Board Materials and Recommendations Finalized	August 2025
Study Presented to Board and Decision Finalized	September Board Meeting

TFFR PENSION PLAN: CURRENT STATE

Plan	TFFR
Plan Year	7/1 - 6/30
Actuary	GRS
Participants (Total)	25,663
Actives	11,945
Terminated Vesteds	4,025
Retirees & Beneficiaries	9,693
Payroll	879,276,401
Actuarial Accrued Liability	4,758,417,607
Market Value of Assets	3,351,007,841
Actuarial Value of Assets	3,408,483,045
Unfunded Actuarial Liability	1,349,934,562
Funded Status (AVA)	71.6%
Discount Rate	7.25%
Payroll Growth Rate	3.25%
Normal Cost Rate	12.3%
Remaining Amortization Period	19
Asset Valuation Method	5-Year Smoothing
COLA	Ad-hoc, but none assumed
Open/Closed	Open
Funding Policy	ER: Fixed Rate EE: Fixed Rate Contribution sufficiency measured against normal cost plus closed 30-yr amortization of unfunded liabilities ending 2043 (19 yrs left as of '24)

CORE ASSET CLASS RETURN ASSUMPTIONS

	Asset Class	3/31/2025 10-Year Return	3/31/2024 10-Year Return	Delta
	Cash	3.9%	4.1%	-0.2%
	U.S. Inflation	2.6%	2.6%	-
Equity	U.S. Large-Cap Equity	6.4%	4.1%	+2.3%
	Non-U.S. Developed Equity	5.1%	4.3%	+0.8%
	Emerging Market Equity	7.7%	8.3%	-0.6%
	Global Equity*	6.5%	5.1%	+1.4%
	Private Equity*	8.8%	8.8%	-
Fixed Income	U.S. Treasury Bond	4.4%	4.4%	-
	U.S. Municipal Bond	4.0%	3.7%	+0.3%
	U.S. Aggregate Bond*	4.8%	4.8%	-
	U.S. TIPS	4.5%	4.7%	-0.2%
	U.S. High Yield Corporate Bond	6.5%	6.1%	+0.4%
	Private Debt*	8.3%	8.3%	-
Real Assets	Commodity Futures	4.4%	4.3%	+0.1%
	REIT	5.3%	6.1%	-0.8%
	Gold	4.5%	4.8%	-0.3%
	Real Estate - Core	5.6%	5.8%	-0.2%
	Private Real Assets - Infrastructure	5.8%	6.7%	-0.9%
Multi-Asset	60% S&P 500 & 40% U.S. Aggregate	6.1%	4.7%	+1.4%
	60% MSCI ACWI & 40% U.S. Agg.	6.1%	5.3%	+0.8%
	Hedge Fund*	6.5%	6.1%	+0.4%

*Calculated as a blend of other asset classes. NEPC's capital market assumptions reflect proprietary forecasts for expected returns, volatility, and correlations. Return expectations may differ from an investor's realized returns after accounting for fees, taxes, or other aspects that can influence actual returns. Return forecasts and methodology are reviewed on an ongoing basis and are subject to change over time.

NDRIO ASSET ALLOCATION

LONG-TERM (30-YEAR) RETURN EXPECTATIONS ABOVE 7.25%

	TFFR	PERS	Bismarck Police	Bismarck Employees	Grand Forks Employees	Grand Forks Parks
Cash	1.0%	0.0%	0.0%	0.0%	1.0%	0.0%
Total Cash	**1.0%**	**0.0%**	**0.0%**	**0.0%**	**1.0%**	**0.0%**
Global Equity	45.0%	51.0%	46.0%	42.0%	55.0%	47.0%
Private Equity	10.0%	7.0%	5.0%	4.0%	5.0%	7.5%
Total Equity	**55.0%**	**58.0%**	**51.0%**	**46.0%**	**60.0%**	**54.5%**
US Aggregate Bond	18.0%	16.0%	22.0%	27.0%	17.0%	18.0%
US High Yield Corporate Bond	4.0%	3.5%	3.5%	3.5%	3.5%	3.8%
Private Debt - Direct Lending	4.0%	3.5%	3.5%	3.5%	3.5%	3.8%
Total Fixed Income	**26.0%**	**23.0%**	**29.0%**	**34.0%**	**24.0%**	**25.5%**
Real Estate - Core	6.8%	8.3%	9.0%	8.6%	5.3%	7.5%
Real Estate - Non-Core	2.3%	2.7%	3.0%	3.4%	1.8%	2.5%
Private Real Assets - Natural Resources	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
Private Real Assets - Infrastructure	8.0%	7.0%	7.0%	7.0%	7.0%	9.0%
Total Real Assets	**18.0%**	**19.0%**	**20.0%**	**20.0%**	**15.0%**	**20.0%**

Expected Return 10 yrs (Geometric)	**6.8%**	**6.7%**	**6.6%**	**6.5%**	**6.6%**	**6.7%**
Expected Return 30 yrs (Geometric)	**7.7%**	**7.7%**	**7.5%**	**7.5%**	**7.6%**	**7.7%**
Standard Deviation	**13.2%**	**13.6%**	**12.4%**	**11.6%**	**13.4%**	**13.1%**
Sharpe Ratio (10 years)	**0.22**	**0.20**	**0.21**	**0.22**	**0.20**	**0.21**
Sharpe Ratio (30 years)	**0.32**	**0.31**	**0.32**	**0.34**	**0.31**	**0.32**

ALTERNATIVE ASSET ALLOCATION PROFILES

NORTH DAKOTA TEACHERS' FUND FOR RETIREMENT

	Mix 1	Mix 2	10-Year Return	Volatility	Income Yield	Net Alpha
Global Equity	**40%**	**40%**	6.5%	18.2%	2.8%	0.5%
Private Equity	**15%**	**10%**	8.8%	25.8%	0.0%	1.0%
Total Equity	**55%**	**50%**				
US Aggregate Bond	16%	**21%**	4.8%	5.8%	4.9%	0.3%
US High Yield Corporate Bond	**2.5%**	**2.5%**	6.5%	11.3%	8.1%	0.3%
Private Debt - Direct Lending	**7.5%**	**7.5%**	8.2%	11.0%	9.5%	1.0%
Total Fixed Income	**26%**	**31%**				
Real Estate - Core	8.3%	8.3%	5.6%	14.7%	5.4%	0.0%
Real Estate - Non-Core	2.7%	2.7%	7.2%	25.0%	7.2%	0.5%
Private Real Assets - Natural Resources	1.0%	1.0%	8.1%	32.5%	3.9%	0.5%
Private Real Assets - Infrastructure	7.0%	7.0%	5.8%	10.6%	3.2%	0.5%
Total Real Assets	**19%**	**19%**				

10-Year Expected Return (Geo)	**7.0%**	**6.8%**
30-Year Expected Return (Geo)	**8.0%**	**7.8%**
Asset Volatility	**13.8%**	**12.6%**
Sharpe Ratio (10 years)	**0.22**	**0.23**
Sharpe Ratio (30 years)	**0.33**	**0.34**
Portfolio Income Yield	**3.73%**	**3.98%**
Portfolio Alpha (Net)	**0.52%**	**0.49%**

Probability of 1-Yr Return Under 0%	**30.5%**	**29.4%**
Probability of 30-Yr Return Over 6.5%	**58.5%**	**55.9%**
95% 1-Year Max Drawdown	**-14.7%**	**-13.0%**

Liquidity Profile

Tier 1 (Daily Liquidity)	**40%**	**40%**
Tier 2 (Semi-liquid)	**18.5%**	**23.5%**
Tier 3 (Illiquid)	**41.5%**	**36.5%**

ASSET-LIABILITY ANALYSIS

PURPOSE OF ASSET-LIABILITY STUDY

- **Review the current/projected financial status of the plan over long-term horizon**
- **Determine appropriateness of current asset allocation with consideration of:**
  - Expected progress of liabilities and cash flows/liquidity needs
  - Path of funded status
- **Test sensitivity of plan (Assets and Liabilities) to various range of outcomes**
  - Market performance across range of economic environments
  - Contribution volatility
  - Range of liquidity environments
- **Consider appropriate asset mixes and expected return on assets**
  - Assess return target against tradeoff of volatility/range of outcomes
  - Analyze inclusion/exclusion of various asset classes/strategies

FIRST PRINCIPLES

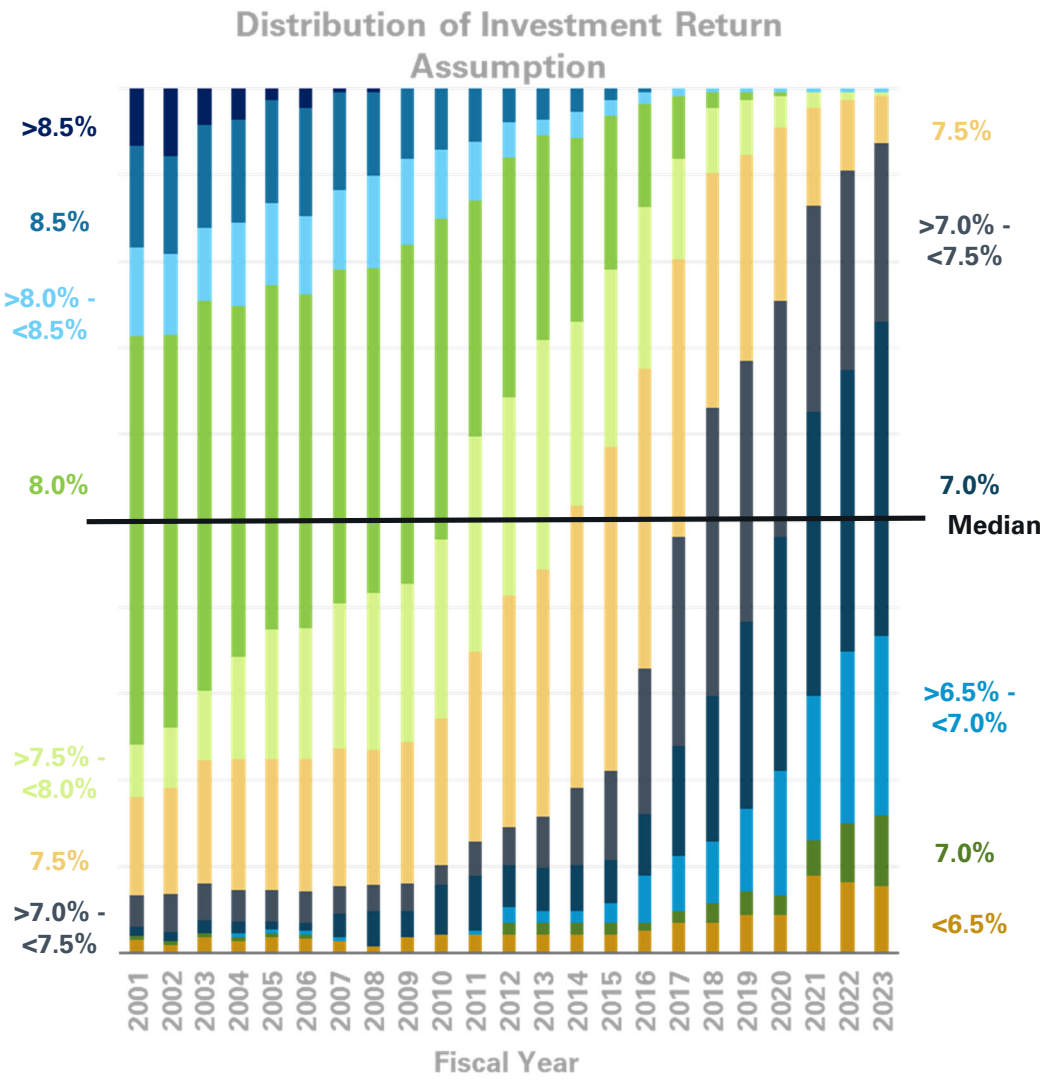
- **All the complexities of pension plans boil down to the classic equation:**

$$B + E = C + I$$

- **Benefits (B), Expenses (E), Contributions (C), and Investment Earnings (I)**
- **The funding of pension benefits is made possible through the combination of member and employer contributions and returns on investment**
- **The long-term expected return on assets drives the selection of an appropriate discount rate for public pension liabilities**
- **Expected return on assets is based on assumptions – actual experience will likely depart from those assumptions**
- **Long-term nature of pension obligations positions well-funded pension plans to take advantage of long-term investment opportunities**
- **It is critical and healthy for pension trustees to regularly review fundamental characteristics of the pension plan:**
  - Risk tolerance
  - Viability of long-term investment return
- **Risk is multi-dimensional and should be considered from different perspectives – Risk is not just volatility!**
  - Volatility, potential for drawdowns, illiquidity, exposure to economic factors, etc.
- **Return expectations are generally lower than historical returns, forcing many investors to reconsider both return expectations and appropriate levels of risk**

EXPECTED RETURN

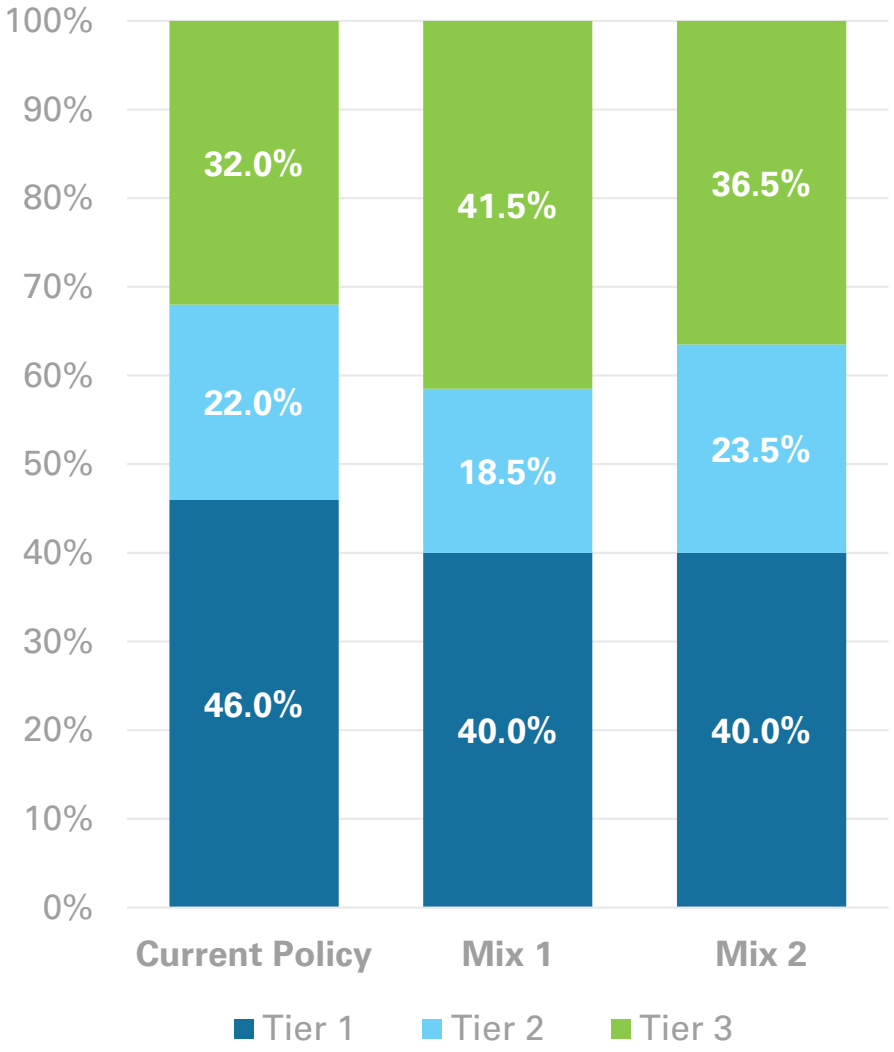
- **Expected return and liability discount rate are closely linked for public pension plans**
  - Corporate DB: stringent regulations
  - Going-concern of government entities has historically provided comfort in public plans taking longer term approach
  - Expected returns are forward-looking
- **Historical market environment has led to downward trend in EROAs for public pensions**
  - Median 2023 EROA = 7.0%
- **Low expected returns put pressure on assumptions and outcomes but…**
  - Market re-pricing and higher inflation may push return expectations higher looking forward



Source: Public Plans Data, NEPC

LIQUIDITY PROFILE

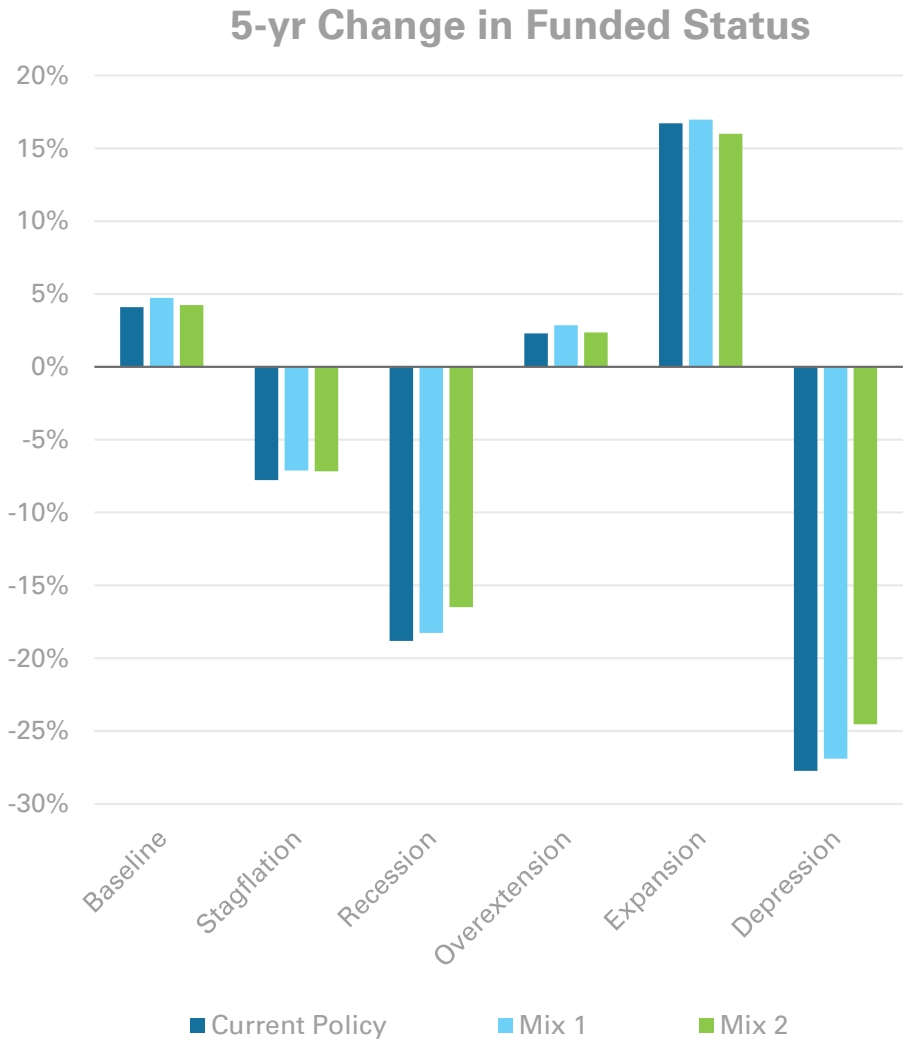
TEACHERS' FUND FOR RETIREMENT

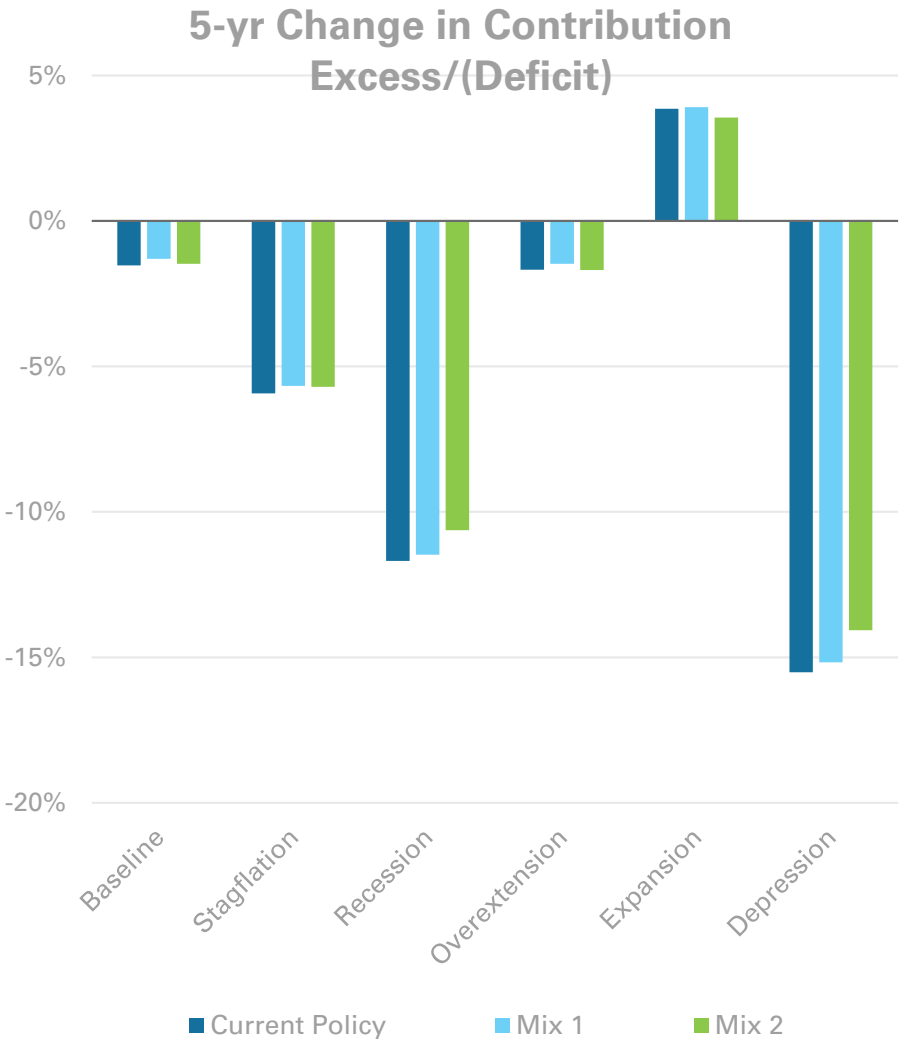


- **Net cash flow is expected to remain negative over next 10 years, averaging -1.5% outflow**
  - Public funds average between -2% and -4% net cash flow
- **Negative cash flow is typical for a mature pension plan**
- **Fixed contribution model provides consistent and predictable cash inflows**
- **NEPC believes the plan can take on the recommended increase in illiquids with no material impact in the plan's ability to meet its obligations**

ECONOMIC SCENARIO ANALYSIS

TEACHERS' FUND FOR RETIREMENT

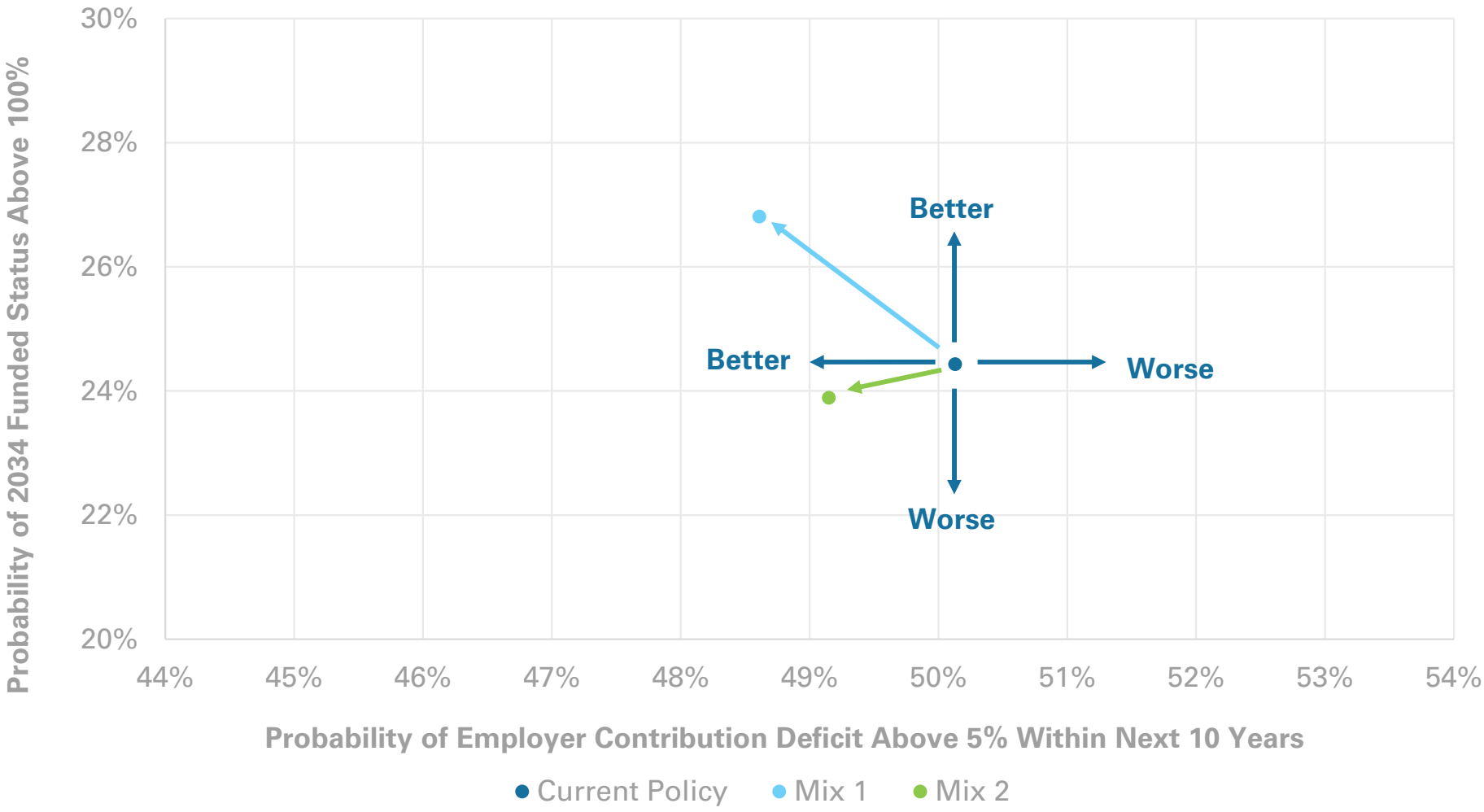




Notes: Scenarios reflect a 5-year market cycle. Change in funded ratio is relative to 71.6% as of July 1, 2024 and change in contribution excess/(deficit) is relative to 0.3% for FY2025

STOCHASTIC ANALYSIS

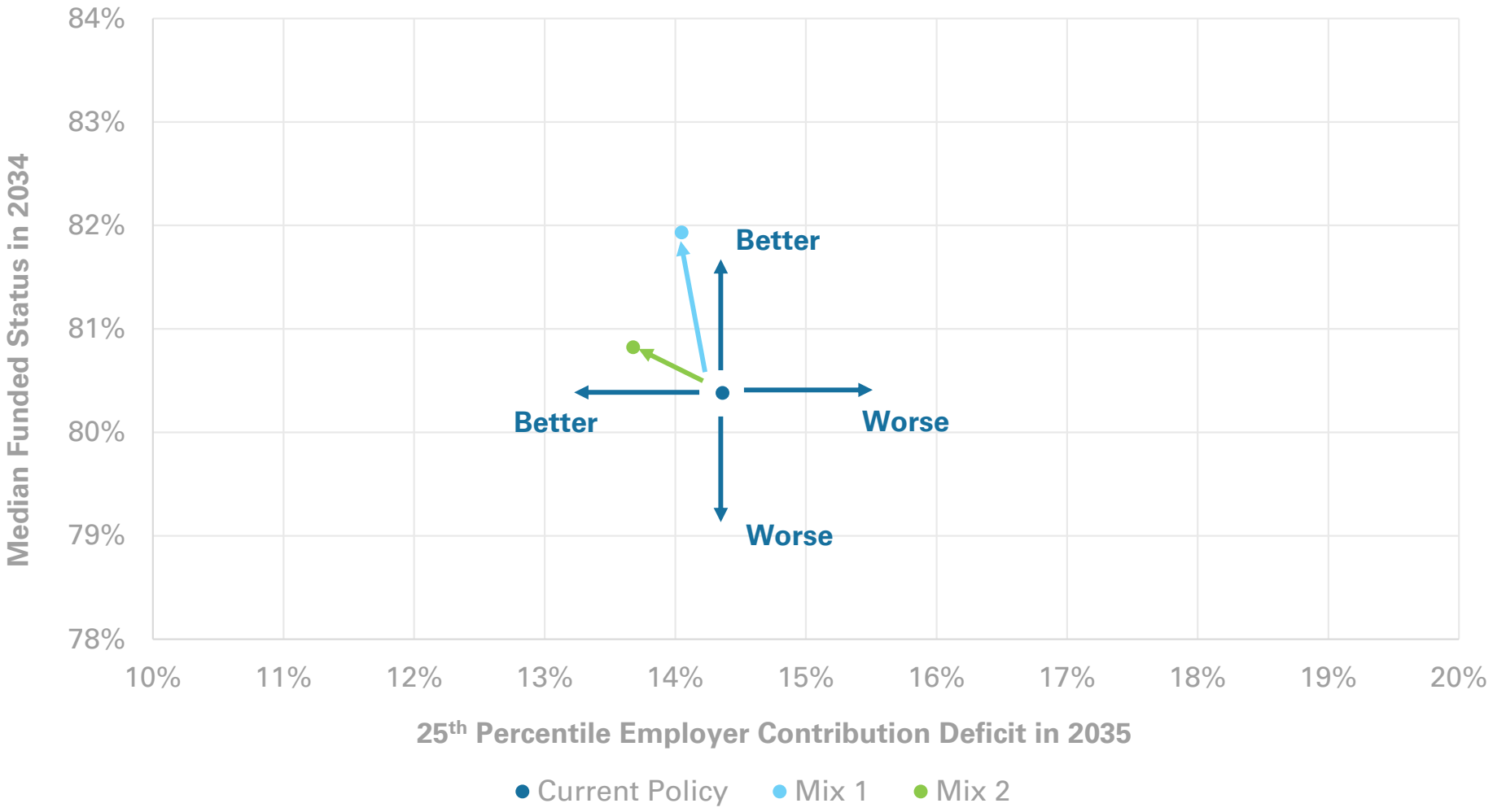
TEACHERS' FUND FOR RETIREMENT



Notes: Reflects 10,000 simulations based on mean expected return equal to each allocation's 10-year arithmetic return and with each allocation's annual volatility

STOCHASTIC ANALYSIS

TEACHERS' FUND FOR RETIREMENT



Notes: Reflects 10,000 simulations based on mean expected return equal to each allocation's 10-year arithmetic return and with each allocation's annual volatility

CONCLUSION AND RECOMMENDATION

JN1

CONCLUSIONS AND NEXT STEPS

ADOPT MIX 1 FOR TFFR

	Mix 1	TFFR
Cash	**0.0%**	1.0%
Total Cash	**0.0%**	**1.0%**
Global Equity	**40%**	45.0%
Private Equity	**15%**	10.0%
Total Equity	**55%**	**55.0%**
US Aggregate Bond	**16.0%**	18.0%
US High Yield Corporate Bond	**2.5%**	4.0%
Private Debt - Direct Lending	**7.5%**	4.0%
Total Fixed Income	**26.0%**	**26.0%**
Real Estate - Core	**8.3%**	6.8%
Real Estate - Non-Core	**2.7%**	2.3%
Private Real Assets - Natural Resources	1.0%	1.0%
Private Real Assets - Infrastructure	**7.0%**	8.0%
Total Real Assets	**19.0%**	**18.0%**

10-Year Expected Return (Geo)	**7.0%**	**6.8%**
30-Year Expected Return (Geo)	**8.0%**	**7.7%**
Asset Volatility	**13.8%**	**13.2%**

- Mix 1 offers meaningfully better long-term returns than the current policy
- Volatility for Mix 1 is like the current policy for TFFR
- Mix 1 offers improved (combination of lower risk and higher return) plan financials over the long-term relative to the current policy

Slide 18

JN1 Combine mixes for all six plans with Mix 1; add bullet points for recommendation on right side of slide

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RATIONALE FOR PRIVATE MARKETS

RELATIVELY ATTRACTIVE MARKET EXPOSURE

- **Private market investments offers differentiated market exposure and fundamental advantages to add value**

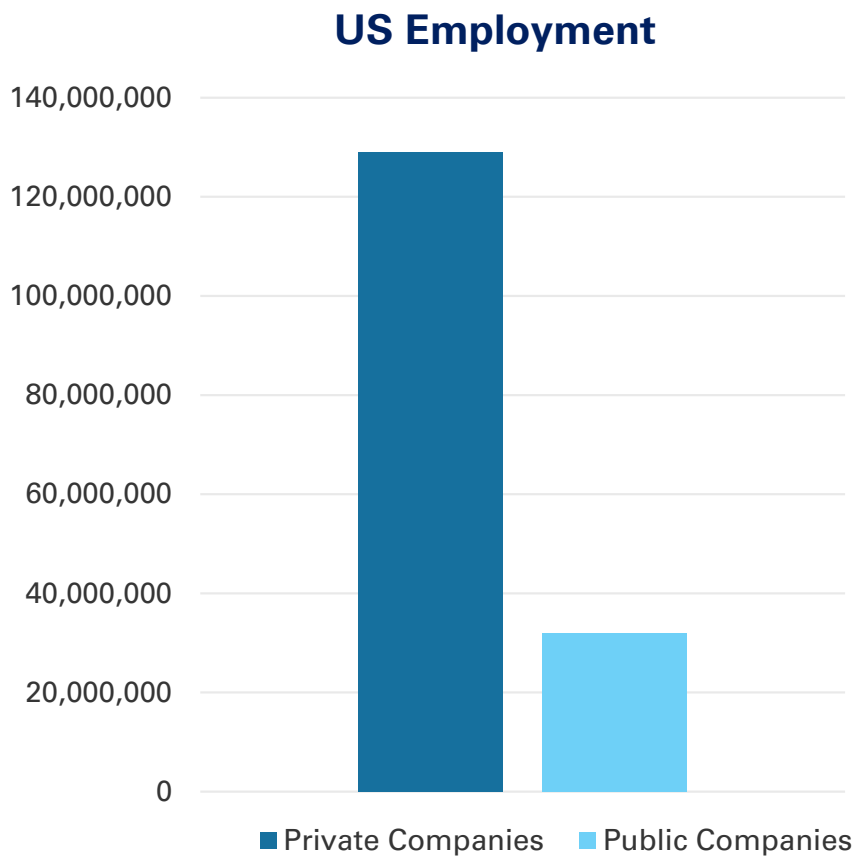
- **1. Differentiated market exposure with attractive expected returns**
- **Private markets combine systematic (beta) and active (alpha) returns**
  - Private assets offer relatively attractive expected returns vs comparable public markets (NEPC assumes 300-400bps of annual excess returns vs public equity)
  - In contrast to public markets, allocators cannot easily separate the beta and alpha components of private market returns
- **Private markets offer an "illiquidity premium" relative to public market assets**
  - Illiquidity premiums compensate investors for long-term capital commitments
- **Smoother private valuations and illiquidity are both an advantage and challenge**
  - Periodic updates in private asset valuations smooth accounting volatility, which is sometimes seen as an advantage by plan sponsors
  - However, smoother valuations complicate rebalancing of the total portfolio and evaluating risk and return relative to marked-to-market public market assets
  - Illiquidity also requires robust management of total fund liquidity

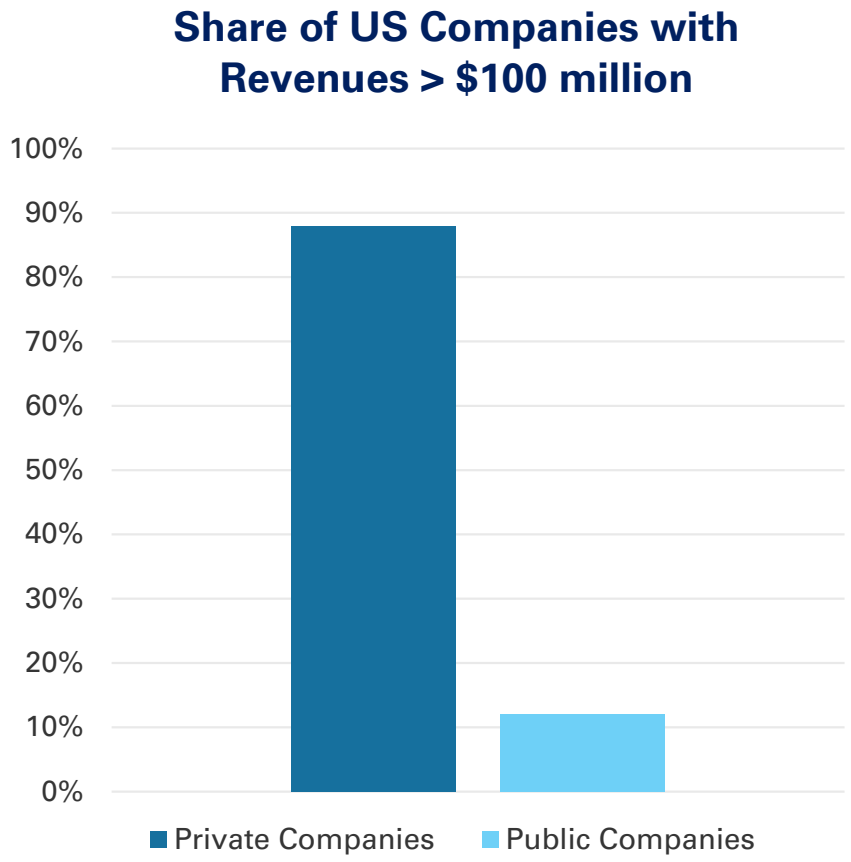
ADVANTAGES IN ADDING VALUE

- **2. Fundamental advantages in adding value (using Private Equity as an illustration)**
- **Governance benefits**
  - Closer integration reduces the principal/agent problem
  - Board control and more frequent CEO touchpoints lead to quicker decision-making and improved ability to see through strategies
- **Financial benefits**
  - Capital structures with higher debt create discipline and tax benefits
  - Incentives are aligned; management has significant equity
- **Operational benefits**
  - Less regulatory burden; focus less on legal compliance
  - Ability to command additional resources to improve operations
  - "Punch above weight" in ability to attract staff
  - Assistance in generating acquisitions, customer introductions, etc.

MAJORITY OF U.S. COMPANIES ARE PRIVATE

The universe is sizable as more than 85% of U.S. companies are privately held, representing a large share of employment and production not captured by listed stocks.

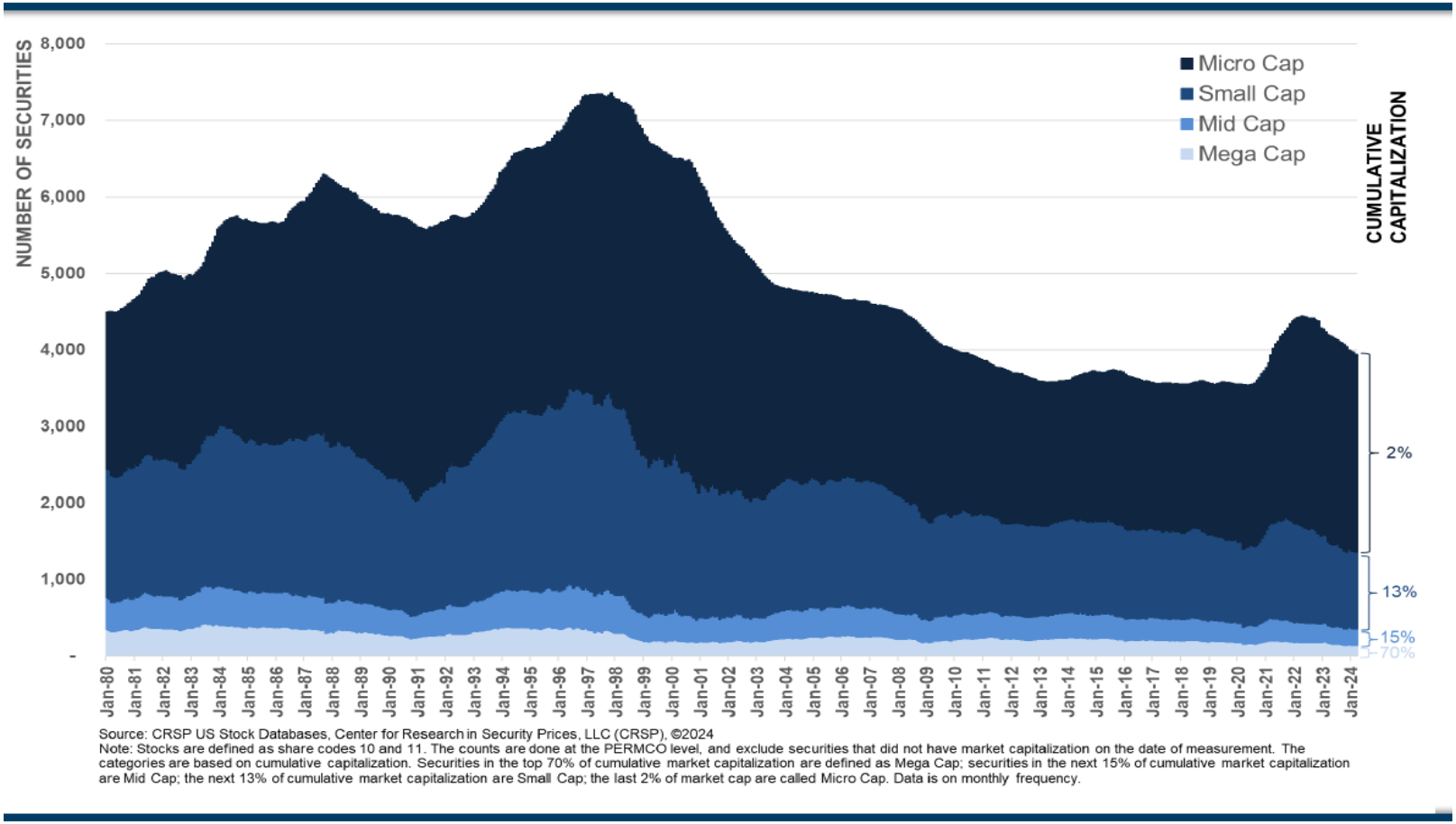




Source: U.S. Bureau of Labor Statistics

REDUCTION IN PUBLIC COMPANIES CONTINUES

In 1996 there were over 8,000 public companies across all US exchanges. Today it's around 3,700.

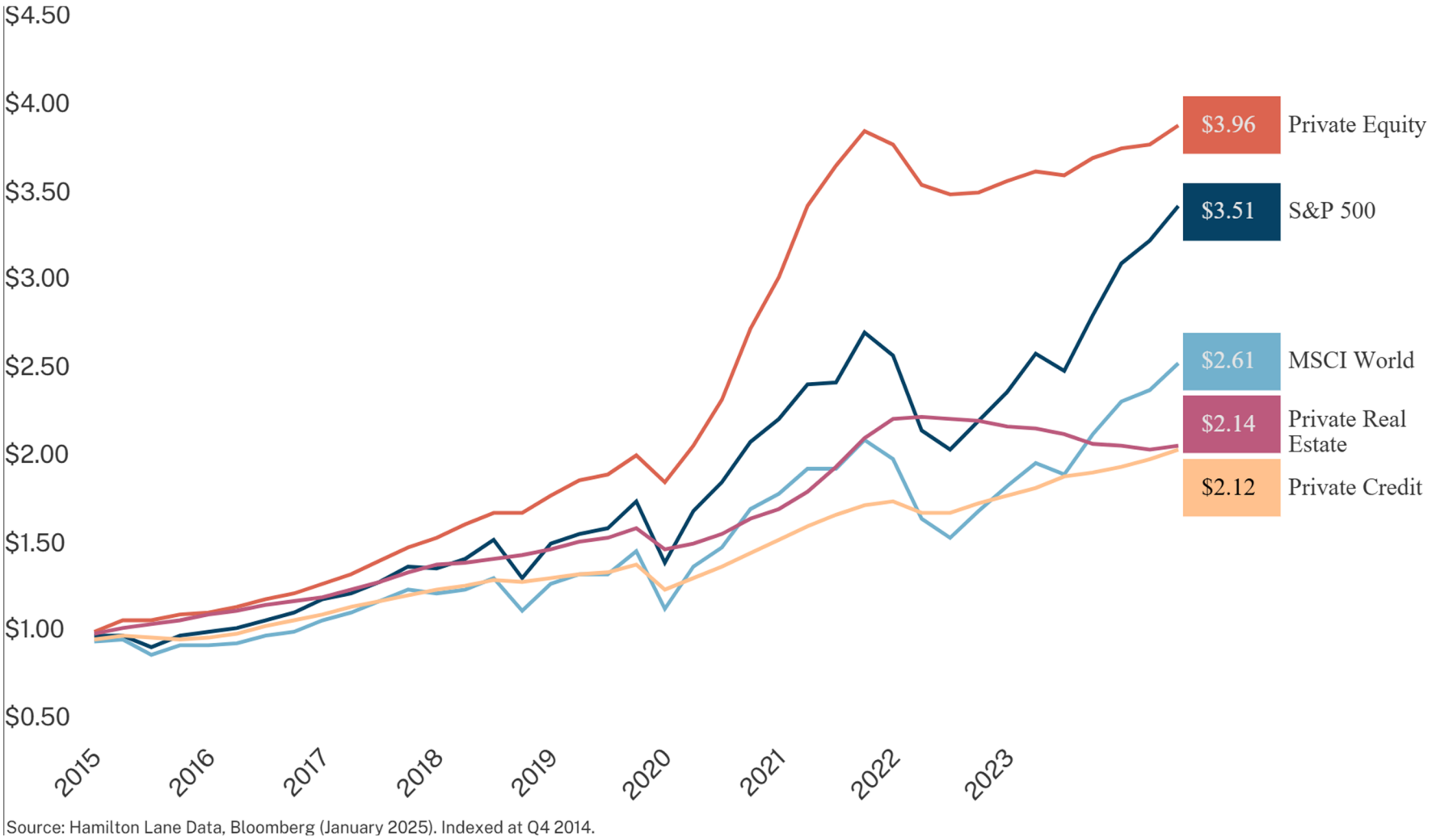


Source: CRSP US Stock Databases, Center for Research in Security Prices, LLC (CRSP), ©2024
Note: Stocks are defined as share codes 10 and 11. The counts are done at the PERMCO level, and exclude securities that did not have market capitalization on the date of measurement. The categories are based on cumulative capitalization. Securities in the top 70% of cumulative market capitalization are defined as Mega Cap; securities in the next 15% of cumulative market capitalization are Mid Cap; the next 13% of cumulative market capitalization are Small Cap; the last 2% of market cap are called Micro Cap. Data is on monthly frequency.

CRSP | CENTER FOR RESEARCH IN SECURITY PRICES
An Affiliate of the University of Chicago

Source: Center for Research in Security Prices (CRSP)

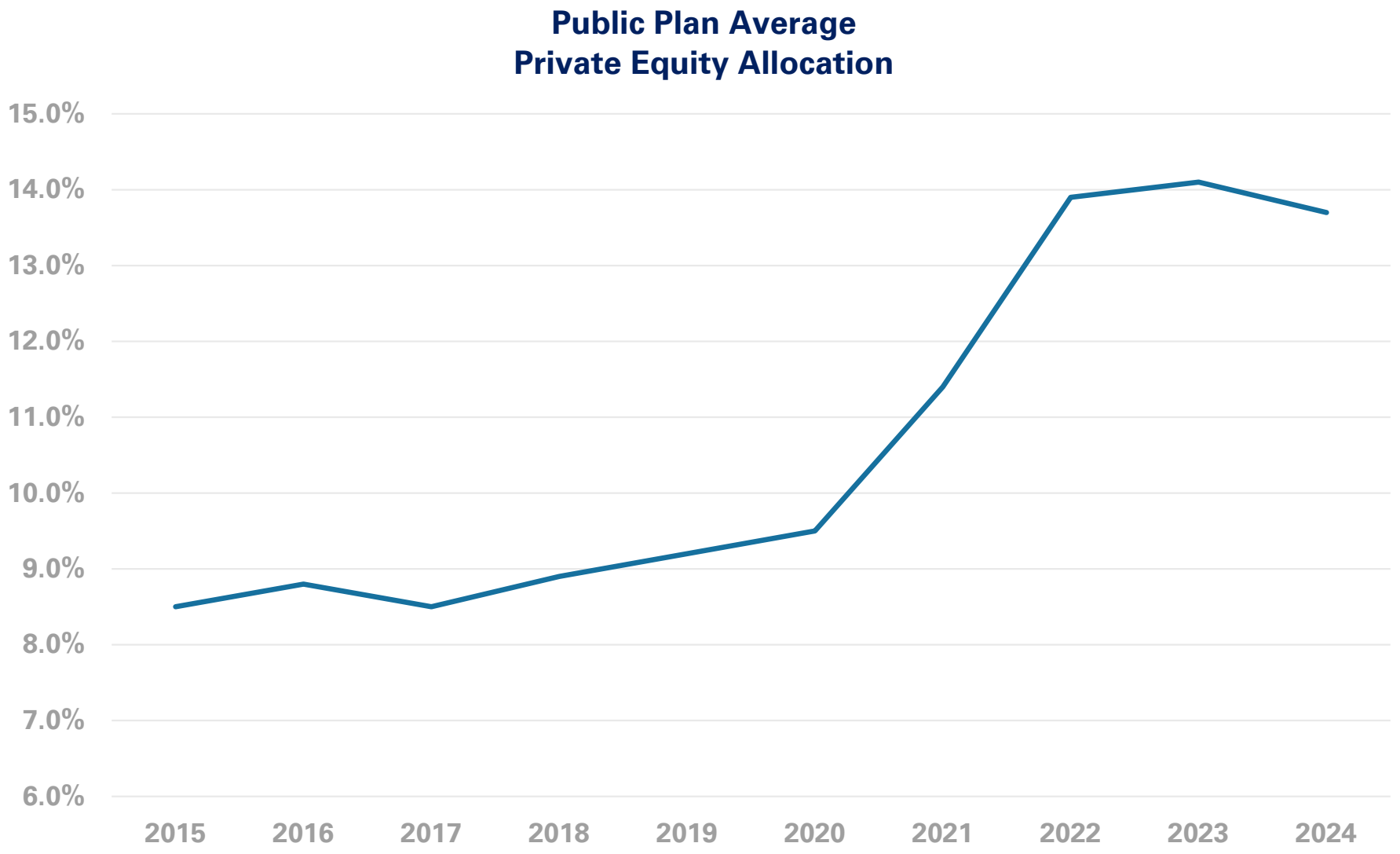
PRIVATE EQUITY HAS GENERATED SIGNIFICANT VALUE



Source: Hamilton Lane Data, Bloomberg (January 2025). Indexed at Q4 2014.

- **For the 10 years ending 12/31/24, Private Equity (Hamilton Lane Private Equity Universe) has generated annualized net-of-fee returns of 5.8% in excess of public equity markets (MSCI ACWI). Using the Cambridge Buyout Index, the spread is 4.5% annually.**

PUBLIC PLAN PRIVATE EQUITY ALLOCATIONS HAVE BEEN STEADILY INCREASING



Source: Public Plans Data

APPENDIX

ASSUMPTIONS AND METHODS

TEACHERS' FUND FOR RETIREMENT

- **Deterministic and stochastic return projections are based on NEPC's 3/31/2025 capital market assumptions**
  - Reflects return of 4.12% for the period 7/1/2024—331/2025 then NEPC's return expectations thereafter
- **Asset-liability projections follow a roll-forward methodology based on the July 1, 2024 Actuarial Valuation Report**
  - Benefit payment projection provided by GRS
  - Other than those described herein, all assumptions remain unchanged from the valuation
  - No gains or losses are assumed other than those attributed to investment experience
- **Employer contribution based on statutory funding policy**
  - Statutory contribution rate of 12.75% until 100% funded, 7.75% thereafter
  - Actuarially Determined Contribution calculated in order to measure contribution excess/(deficit):
    - Normal cost plus amortization of unfunded liability plus administrative expenses
    - Level percent of payroll 30-year closed amortization of unfunded liability with 19 years remaining as of 7/1/2024 assumed to remain at 10 years once reached and remain open thereafter
- **Employee contribution base on statutory funding policy**
  - Statutory contribution rate of 11.75% until 100% funded, 7.75% thereafter

INFORMATION DISCLAIMER

Past performance is no guarantee of future results.

NEPC, LLC is an investment consulting firm. We provide asset-liability studies for certain clients but we do not provide actuarial services. Any projections of funded ratio or contributions contained in this report should not be used for budgeting purposes. We recommend contacting the plan's actuary to obtain budgeting estimates.

The goal of this report is to provide a basis for substantiating asset allocation recommendations. The opinions presented herein represent the good faith views of NEPC as of the date of this report and are subject to change at any time.

Information on market indices was provided by sources external to NEPC. While NEPC has exercised reasonable professional care in preparing this report, we cannot guarantee the accuracy of all source information contained within.

The projection of liabilities in this report uses standard actuarial projection methods and does not rely on actual participant data. Asset and liability information was received from the plan's actuary, and other projection assumptions are stated in the report.

All investments carry some level of risk. Diversification and other asset allocation techniques do not ensure profit or protect against losses.

This report is provided as a management aid for the client's internal use only. This report may contain confidential or proprietary information and may not be copied or redistributed to any party not legally entitled to receive it.

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MEMORANDUM

TO: **TFFR Board**
FROM: **SIB Audit Committee**
DATE: **August 28, 2025**
RE: **Fiscal Year End Audit Committee Activities**
July 1, 2024 to June 30, 2025

The Audit Committee is a standing committee of the State Investment Board (SIB) authorized under the SIB Governance Policy B-6, Standing Committees. Its primary function is to assist the SIB in fulfilling its oversight responsibilities of the Retirement and Investment Office (RIO) internal and external audit programs, including the financial reporting process, internal controls, and compliance with laws, regulations, policies, and procedures.

The Audit Committee consists of five members selected by the SIB. Three members of the Audit Committee represent the three groups on the SIB (Legacy & Budget Stabilization Fund Advisory Board, a Teachers' Fund for Retirement representative, member-at-large). The other two members are selected from outside the SIB, that are both independent and financially literate. Members of the Audit Committee for the 2024 – 2025 fiscal year were:

Treasurer Thomas Beadle, Legacy Fund & Budget Stabilization Fund Advisory Board, Chair
Cody Mickelson, TFFR Board, Vice Chair
Adam Miller, Member-at-large
Dina Cashman, External Member
Todd Van Orman, External Member

The Audit Committee held four regular meetings and two special meetings for the fiscal year ended June 30, 2025. The meetings occurred: August 14, 2024, November 18, 2024, February 5, 2025 (special), March 25, 2025, May 14, 2025, and June 19, 2025 (special).

Activities of the Audit Committee during the past year included:

The Committee approved July 1, 2024, through June 30, 2025, Internal Audit workplan. Progress was monitored on a quarterly basis. Audit activities included:

- State Investment Board Self-Evaluation was administered by Internal Audit. The SIB requested Internal Audit's assistance in administering the self-evaluation and presenting the results. The SIB self-evaluation was presented at the April 25, 2025. SIB meeting.
- Executive Search Committee - The Executive Director and the Chief Financial Officer/Chief Operating Officer (CFO/COO) resigned from RIO as of January 3, 2025. The Supervisor of IA was appointed as staff member to assist the Executive Search Committee. Assisted in the drafting and scoring of the RFP to hire a search firm. CBIZ EFL Associated was selected by the Executive Search Committee. An executive director was appointed in June 2025.

- Executive Review and Compensation Committee (ERCC) – Internal audit administered surveys for the Deputy Executive Director/Chief Retirement Officer and the Chief Investment Officer on behalf of the ERCC.
- Internal Audit Maturity Development Process Review – IA had an internal audit business process review completed by a consultant. Weaver evaluated the maturity of Internal Audit Division function modeled after the International Professional Practices Framework (IPPF) developed by the Institute of Internal Auditors (IIA). The review was to show the current level of maturity of the IA division and to provide a roadmap towards the future state on both a short and long-term basis. A final report was reported on the audit committee meeting in August 2024. Part of this process review an internal audit manual was created, audit charters updated, and a risk assessment was completed. The audit committee and SIB approved revisions to the audit committee and internal audit charter to align with the IIA standards as a part of the process review.
- Internal Audit Co-Sourcing RFP- To meet the needs of the agency additional resources were needed to focus on internal audits of the fiscal and investment divisions. An RFP was created and issued for a co-sourcing relationship to perform these audits. The Audit Committee approved Weaver for the co-sourcing relationship.
- External Investment Oversight Audit - The scope of this audit is the public and private Market teams including selection and oversight of external managers, secondary investing, valuation, material non-public information, portfolio construction, contracting and monitoring LPA terms, alignment with special mandates, and oversight of fees and expenses. This audit is a co-sourced audit through Weaver and is currently in process.
- Internal Audit Advisory for Fiscal Division – Internal audit shifted co-sourcing audit resources with Weaver to advisory hours to help through staffing shortage in the fiscal division. This included attending business process mapping sessions, rebalancing, and performance discussions.
- Investment Compliance Program - The Supervisor of IA serves in an advisory capacity with the investment compliance consultant (Weaver). Attending meetings with the consultant and RIO staff.
- SIB Governance Assessment – As approved by the SIB, assisted with the development and scoring of the RFP for a governance assessment.
- Alignment of Continuous Improvement – Internal audit JDQs were updated. Internal audit participated in the current business process mapping of the fiscal division.
- Employee Exit Review – The Internal Audit Division conducted exit interviews throughout the fiscal year.
- TFFR File Maintenance Audit – Internal Audit will review system generated (CPAS) audit tables to ensure transactions initiated by staff are expected and appropriate given an individual's role with the organization. Member account information from member action forms, address change forms, and direct deposit authorization forms are reviewed to verify that contact and demographic information has been updated correctly. A sample of purchases, refunds, and deaths will be reviewed as part of the audit. The fieldwork for this audit is complete and audit is being drafted.
- TFFR Pioneer Project – Internal Audit staff participated in the design, elaboration, training, and testing sessions of the Pioneer project. The project successfully launched in February 2025. Internal audit staff continued to attend meetings after the launch.

- RIO's Internal Audit division assisted our external audit partners, UHY, LLP, during the 2023-2024 and 2024-25 financial audit of RIO as well as the GASB 68 Census Data Audit.

- Internal audit staff attended all day RIO training, quarterly NDIT training, and annual training on RIO policies, Workforce Safety, and Risk Management.

- The Committee received the results of the RIO financial audit for the fiscal year ended June 30, 2024, from independent auditors, UHY, LLP at the November 2024 meeting. They issued an unmodified "clean" opinion.

- The Committee reviewed the RIO financial audit plan for the fiscal year ended June 30, 2024, with independent auditors, UHY, LLP at the June 2024 special Audit Committee meeting. Discussion included scope and approach for the audit to ensure complete coverage of financial information and GASB 68 Audit.

- The Committee adopted an interim audit workplan in May 2025 for the fiscal year 2024-25.

The above activities support the Committee's fulfillment of its oversight responsibilities. Please inform the Committee if there are special audits or activities the Board would like to have reviewed.

BOARD ACTION. Acceptance of report.

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MEMORANDUM

TO: **TFFR**
FROM: **Jodi Smith, Executive Director**
DATE: **September 26, 2025**
RE: **Governance & Policy Review Committee Update**

The TFFR Governance and Policy Review (GPR) Committee meeting was called to order on September 11, 2025, virtually.

GPR Committee Members Present	RIO Staff Present
Cody Mickelson (Chair)	Jodi Smith (Executive Director)
Mike Burton	Denise C. Weeks
Robert Lech	Rachelle Smith

Committee Update

Review Proposed Policy Manual for Changes for 2nd TFFR Board Reading
Presented was the proposed policy manual for changes for the second board reading. There are no significant changes, mostly grammatical, punctuation, and capitalization corrections, along with the addition of an appendix containing definitions.

The committee decided to reject this revision and revert the word on page 10 back to "apprised". A motion to accept these changes for the second board reading, with the exception of the revision on page 10, was moved by Robert Lech, seconded by Mike Burton, and passed.

Review FY2026 Committee Work Plan
Presented was the Fiscal Year 2026 Committee work plan, which was similar to previous plans. Highlighted was the possibility of future additions to the work plan, particularly in the February-April 2026 timeframe. These potential additions would be based on lessons learned from a governance audit assessment currently underway for the State Investment Board (SIB) governance manual. The SIB is expected to receive final recommendations in December 2025, with their board action starting in January 2026. Dr. Lech agreed that while TFFR may not have the same level of need as SIB, some insights from SIB's governance framework could be incorporated into TFFR's structure. The committee accepted the work plan, understanding that it could be subject to future modifications based on new information and lessons from the SIB's governance review. A motion to approve was made by Robert Lech, seconded by Mike Burton, and passed.

Board Action Requested: Motion to Approve the second reading and final adoption of the Board Composition Policy (Policy I. D-2).

2. Board Composition

a. The Board is composed of seven trustees consisting of:

1) Two elected state officials:

- State Treasurer or designee (ex officio)
- State Superintendent of Public Instruction or designee (ex officio)

2) Five members appointed by the Governor:

- Two board members who are actively employed as elementary or secondary teachers in full-time positions not classified as school administrators. The appointment is made from a list of three nominees submitted to the Governor by ND United (NDU).
- One board member who is actively employed as a full-time school administrator. The appointment is made from a list of three nominees submitted to the Governor by the ND Council of Educational Leaders (NDCEL.
- Two board members who are retired members of the Fund. The appointment is made from a list of three nominees submitted to the Governor by the NDRTA.

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MEMORANDUM

TO: **TFFR**
FROM: **Jodi Smith, Executive Director**
DATE: **September 26, 2025**
RE: **Administrative Rules Update**

As part of our ongoing efforts to ensure compliance, consistency, and transparency in agency operations, it is important to highlight the critical role of administrative rules in guiding the actions of our agency — particularly in areas where statutes provide broad authority, but additional clarity is needed to ensure effective implementation. One current example is the development of an **administrative rule for delinquent employer reporting**, which is underway in collaboration with legal counsel.

Why Administrative Rules Matter for North Dakota State Agencies

Administrative rules are essential tools that allow state agencies to interpret and apply the laws (statutes) passed by the North Dakota Legislative Assembly. While statutes provide the overarching legal authority, they often leave implementation details to the discretion of the administering agency. This is where administrative rules come in — providing a legally enforceable framework for how a law will be applied in practice.

Rules also allow agencies to:

- Respond to operational issues that arise from repeated patterns of noncompliance or ambiguity,
- Ensure due process and clarity for regulated entities,
- Maintain public trust by using a transparent process that includes board review, public notice, a hearing, and a comment period, and
- Reduce legal risk by clearly aligning agency practices with the law.

Statute vs. Administrative Rule vs. Board Policy

Type	Definition	Created By	Legal Status
Statute	Law passed by the North Dakota Legislature	Legislative Assembly	Highest legal authority
Administrative Rule	Regulation adopted by an agency to implement or clarify statutes	Agency (via formal process, NDCC 28-32)	Has the force of law when adopted properly
Board Policy	Internal guidelines or operating procedures	Agency Board or Commission	Advisory/internal — not legally enforceable like rules or statutes

A board policy can guide day-to-day operations but cannot replace or contradict a statute or administrative rule. In contrast, an administrative rule, once adopted, carries the force of law and can be enforced in cases of noncompliance.

Update: Delinquent Employer Reporting Administrative Rule

RIO is in the developmental process of an administrative rule addressing delinquent employer reporting to the TFFR. As of now, the rule is being drafted with assistance from the Attorney General's office. It aims to establish clear, enforceable procedures when employers fail to submit contributions on time.

Recent communications have gone out to three school districts. The letters required the school districts make a payment by the August 27 deadline. If payment is not received, foundation aid payments will be withheld beginning October 1, in coordination with the Department of Public Instruction (DPI). Additionally, letters are being prepared with the Assistant Attorney General to notify individual members that contributions deducted from their paychecks have not been deposited into their TFFR accounts — a serious fiduciary concern.

The proposed rule is also being modeled, in part, on processes used by the Public Employees Retirement System (PERS) and includes provisions for earlier triggers for intervention in cases of employer delinquency.

<u>Next Steps in the Rulemaking Process</u>
The process for formal rule adoption under North Dakota law includes:

1. Drafting by staff and legal counsel
2. Review by the board
3. Public comment period and hearing
4. Final rules hearing and adoption

If all steps proceed on schedule, the rule could be finalized by spring (April) of the next year. In the meantime, the development of this rule reinforces the necessity of having clear administrative regulations in place — particularly when dealing with employer noncompliance, member protections, and fiscal integrity.

Board Action: Information Only

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MEMORANDUM

TO: **TFFR**
FROM: **Jodi Smith, Executive Director**
DATE: **September 26, 2025**
RE: **Business Continuity Plan**

In today's increasingly complex risk environment, it is imperative that RIO establish a comprehensive Business Continuity Plan (BCP). A well-documented and tested BCP ensures that RIO can continue to operate critical functions and safeguard member assets and data in the face of unexpected disruptions.

Why a Business Continuity Plan is Critical

As the steward of over $25 billion in pension and investment assets, RIO has a fiduciary responsibility to ensure the continuity of operations that directly affect:

- The timely and accurate payment of retirement benefits
- Investment management and trading operations
- Data security and integrity
- Compliance with state and federal laws and regulations

Any disruption — whether from cyberattacks, natural disasters, infrastructure failures, or pandemics — could jeopardize the agency's ability to fulfill its obligations to members, retirees, school districts, state agencies, and other stakeholders. A BCP is not just a best practice — it is an operational necessity and a matter of public trust.

Risk Management, Collaboration, and Statewide Expectations

To ensure the BCP reflects both agency-specific needs and broader state standards, RIO will be collaborating with the North Dakota Information Technology (NDIT) agency and the software vendors to:

- Conduct a risk assessment and identify critical vulnerabilities
- Align BCP development with statewide IT continuity and cybersecurity frameworks
- Ensure system recovery strategies are coordinated with NDIT's infrastructure and support capabilities

NDIT brings valuable expertise in information security, disaster recovery planning, and technology risk mitigation, which will strengthen the effectiveness and alignment of RIO's continuity efforts. This partnership ensures that RIO's plan is both technically sound and strategically aligned with the State of North Dakota's broader business continuity goals.

Benefits of a Business Continuity Plan

A formal BCP will allow RIO to:

- Identify and prioritize essential business functions
- Establish clear communication and response protocols
- Define roles and responsibilities during a crisis
- Minimize downtime and financial loss
- Protect member data and assets
- Maintain stakeholder confidence and agency credibility

Next Steps

It is recommended that RIO initiate the BCP development process immediately, including:

1. **Risk assessment and business impact analysis**, in partnership with NDIT
2. **Documentation of continuity strategies** for each critical function
3. **Creation of a communication plan** to guide internal and external outreach during disruptions
4. **Coordination with IT for disaster recovery planning**
5. **Regular testing, training, and updates** to ensure the plan remains relevant and actionable

A draft BCP should be completed for initial review within this fiscal year, with implementation and testing in the following cycle.

Establishing a Business Continuity Plan — especially in close coordination with NDIT — is a proactive and essential step to ensure RIO can continue to meet its mission, even under the most challenging circumstances. It reflects our commitment to operational excellence, fiscal responsibility, and the long-term security of North Dakota's public servants and retirees.

Board Action: Information Only.

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MEMORANDUM

TO: **TFFR**
FROM: **Chad Roberts, DED/CRO**
DATE: **September 22, 2025**
RE: **Delinquent Employer Reporting Accounts Update**

Three employers responsible for reporting teacher salaries and employer and employee contributions to the TFFR fund were significantly past due as of the end of the 2024-25 fiscal year. Those three employers are the Selfridge, Flasher, and Twin Buttes School Districts.

As of fiscal year-end, Selfridge had not reported or contributed since December 2024, Flasher had not reported or contributed since December 2024, and Twin Buttes had not reported since October 2024.

The failure to report earnings and submit contributions not only negatively impacts the efficient operations of the RIO agency, but more importantly it has an adverse impact on the retirement accounts of the teachers working for those employers and the overall membership of the fund through the opportunity cost of lost investment earnings.

Extensive steps were taken by RIO staff to attempt to bring these accounts current included **1)** emails to business managers, superintendents, and board presidents, **2)** phone calls to business managers and superintendents, and **3)** demand letters from the Attorney General's Office and the Department of Public Instruction (DPI) were sent via certified mail to the school and board presidents.

In the final demand letters sent on August 13, 2025, the three employers were informed that if delinquent reporting issues were not corrected by August 27th, 2025, foundation payments administered by DPI would be withheld effective October 1, 2025.

In addition to the steps being undertaken to resolve these three specific employer accounts; the Board and RIO staff, working with the Attorney General's Office and the DPI, began developing a comprehensive approach to strengthening the compliance enforcement administrative rules and policies to mitigate future significant reporting delinquencies by employers.

As of the date of this memorandum, both Twin Buttes and Selfridge are compliant with reporting or contributions to the TFFR Fund through June 2025. Selfridge is presently in the process of reporting for July 2025. Flasher is compliant with reporting through May 2025 and is currently working to finalize the June 2025 report.

While the three employers have not come into full compliance with their reporting, it is important to note that progress has been made by each entity to become compliant, and the organizations are now actively communicating and responding to RIO staff.

Action: Board Information Only

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MEMORANDUM

TO: **TFFR**
FROM: **Chad R. Roberts, DED/CRO**
DATE: **September 18, 2025**
RE: **Board reading materials for September 2025 TFFR Board of Trustees**

Three suggested readings for Board education are included with this memo.

The first suggested reading is an article from Segal. Published on September 10, 2025, “Why a VAPP May Be the Future of Pension Plan Design” provides an overview of the traction that variable annuity pension plans are gaining in the public pension industry as an alternative plan design.

The second suggested reading is a July 2025 study by the Center for Retirement Research of Boston College titled “*The Funded Status of Public Plans Keeps Improving – Albeit Modestly.*” It provides a thorough analysis of the current funding landscape in the public pension industry.

The third suggested reading is a report by the National Institute on Retirement Security published in June 2025 titled “Evolution and Growth: How Public Pension Plans Have Diversified Their Investments Amid Changing Markets”.

Board Action Requested: Information only

Segal

Articles | September 10, 2025

Why a VAPP May Be the Future of Pension Plan Design

By John Redmond & Megan Yost

In today's competitive labor market, a variable annuity pension plan (VAPP) offers a compelling alternative to traditional defined benefit (DB) and defined contribution (DC) retirement plans, which have long been the cornerstone of employer-provided retirement benefits. A VAPP uses a hybrid approach to plan design that combines the best features of DB and DC plans in ways that address those plans' shortcomings.

While DB plans provide lifetime income to participants, they also expose plan sponsors to significant risks that are outside of their control like declining interest rates and investment volatility, which can negatively impact a plan's ability to fund and provide benefits to participants over the long term. Conversely, DC plans allow sponsors to make predictable contributions to their participants' retirement accounts but they also place investment and longevity risk (i.e., responsibility for growing and making savings last through retirement) squarely on employees.

A VAPP mitigates risks for both plan sponsors and participants.

Understanding Variable Annuity Pension Plans

VAPPs are a type of DB plan. As with traditional DB plans, VAPPs accrue benefits based on a specified accrual rate (e.g., percent of salary, flat dollar amount, percent of contributions) and provide determinable benefits that guarantee monthly payments for the lifetimes of participants.

What differentiates a VAPP from a traditional DB plan is the way annual accruals are adjusted each year based on how the plan's assets perform compared to a pre-defined benchmark return (referred to as the hurdle rate). This feature helps plan sponsors better manage the plan's liability (i.e., the present value of the benefit it owes to participants). These adjustments can continue even into a participant's retirement, allowing their monthly benefit to increase in most years, similar to Social Security.

Additionally, participants benefit from VAPP's pooled investments, which are professionally managed and seek long-term growth to maximize the potential benefit for everyone in the plan. This contrasts with DC plans in which individuals manage their own investments and often seek to de-risk those investments as they approach retirement.

Take an example of a 45-year-old participant, looking to retire in 20 years:

	DC Plan	VAPP
Pre-retirement investment returns	6.44%[1]	7.70%[2]
Post-retirement investment returns	4.87%[3]	7.70%[2]
Cost to provide $1,000 monthly benefit at age 65	$43,745	$34,176
Expected annual increases to monthly benefit of $1,000 after retirement	None	2.57% per year

[1] Average since-inception return (21 years) of the Vanguard 2025 Target Date Fund
[2] Average annual return over last 21 years of the Vanguard 60/40 ETF
[3] Average annual return of the Vanguard Target Retirement Income Fund

While VAPPs have existed for more than 70 years, they have gained traction within the last decade among organizations concerned about the risks associated with traditional DB plans. Plan sponsors can amend their existing DB plan to adopt a VAPP design, making the transition relatively easy. A VAPP may also be a more efficient alternative to providing retirement income in a DC plan.

How VAPPs mitigate risk

In traditional DB plans, sponsors must manage various risks, including interest rate volatility, investment performance and longevity risk. Poor investment returns and declining interest rates increase the likelihood of underfunded plans, which then must manage payouts for participants potentially living increasingly longer in retirement. VAPPs help mitigate these risks by balancing them more evenly between the sponsor and participants.

In a VAPP design, benefits vary in line with the plan's investment returns. This feature allows liabilities to move in tandem with assets. In this way, the participants' benefits — what they expect to receive in retirement — fluctuate over time with the financial markets. Additionally, plan liabilities are measured using an interest rate based on the hurdle rate, as opposed to a market-based interest rate (which fluctuates each year). Because the interest rate remains constant, it removes interest rate risk and helps to minimize unfunded liabilities and funded status volatility. What makes a VAPP more like a traditional DB plan than a DC plan, is how it provides participants with guaranteed lifetime income in retirement, therefore solving a significant need for many participants.

Other advantages of VAPPs

By managing key risks for both plan sponsors and participants, VAPPs offer a compelling way to design a retirement benefit that has broad appeal to many plan sponsors.

Organizations that sponsor a single-employer plan may be able to use a VAPP to help attract and retain top talent since the benefit offers participants meaningful, lifetime income in retirement. It also has the potential to provide benefit increases that keep up with inflation.

Single-employer plan sponsors in the private sector might also find VAPPs attractive because they may help reduce their PBGC variable rate premiums, which can be a significant expense for plans. The more underfunded a plan is, the higher that premium is.

By offering a VAPP, sponsors of multiemployer pension plans may be able to attract new contributing employers, allowing them to share costs across a larger group of employers and gain scale — and increased contributions — with a larger number of plan participants.

Customizing a VAPP for any organization

VAPPs can be customized in a variety of ways to meet any organization's specific needs.

For example, plan sponsors can determine the following features:

- **The hurdle rate.** Typically, the hurdle rate is set in the 5–6 percent range. A participant's benefit will be adjusted annually based on the VAPP's market return.
- **The return adjustment period.** Plans may decide the timing for when they realize returns after a plan year ends. For example, they could use estimated or final returns (such as estimated returns three months after the plan year ends or final returns 12 months after). Additionally, plans may elect to use a period of multiple years to calculate the return adjustment.
- **Whether to provide lump-sum distributions in addition to annuity options at retirement.** For example, are lump sums available, or required, for smaller benefits (e.g., payouts under a certain threshold)?

Additionally, plan sponsors can choose to use a number of strategies to mitigate the downside investment risk to participants and beneficiaries. This includes how a VAPP realizes gains and losses from an accounting perspective (a process known as smoothing), and how it uses any reserve funds it generates from surplus market returns above its hurdle.

These strategies are ways the plan can minimize volatility for retirees (either by smoothing the returns or cushioning against negative adjustments through a reserve account). Both options can be adopted without any significant impact on employers' contributions and can be designed to keep the plan at or near 100 percent funded (or above) while providing comfort to future retirees.

VAPPs are poised to become a key component of future retirement benefits

VAPPs present a viable and sustainable way of providing participants with lifetime income with less financial risk to the plan sponsor.

In recent years, our actuaries and consultants, have assisted in the design of dozens of VAPPs for corporate and multiemployer clients. As more organizations recognize the advantages of VAPPs, their numbers are likely to grow.

CENTER for RETIREMENT RESEARCH at BOSTON COLLEGE

July 2025 Number 25-15

THE FUNDED STATUS OF PUBLIC PLANS KEEPS IMPROVING – ALBEIT MODESTLY

By Jean-Pierre Aubry and Alicia H. Munnell*

Introduction

The projected funded ratio for state and local pension plans in FY 2025 is 77.7 percent, 1.5 percentage points higher than 2023 – the date of our last funding update. These gains seem quite modest, given that the S&P index increased more than 40 percent between June 2023 and June 2025. Moreover, as discussed below, state and local governments have become more diligent in their procedures for funding their plans, and have increasingly realized benefit cuts enacted in the wake of the Great Recession as "new hires" have replaced departing employees.

This *brief* reports the most recent estimates in the funded status of state and local pension plans. The discussion proceeds as follows. The first section shows that over the two-year period of FY 2024 and FY 2025, the funded ratio increased from 76.2 percent to an estimated 77.7 percent. The second section describes the positive trend in the funding process, such as the adoption of more realistic estimates of the actuarially required contribution and a continued increase in the likelihood of making that contribution. The third section investigates the cost side of the equation, which shows how the increasing share of new hires – and the benefit cuts associated with this group – has checked the growth in liabilities. The fourth section explores why, despite a lot of positive developments, the gains in the funded ratio have been so modest.

The final section concludes that the gradual improvement in the funded status of state and local pensions reflects gains in the fundamentals as a result of policies to both improve plan funding and slow the growth in liabilities. But, even if governments continue to contribute the full actuarially determined contribution and investment performance remains mostly positive, improvements in funded ratios due to two persistent features of pension funds will be modest – the annual growth of liabilities and the impact of negative cash flows, associated with mature plans, on accumulated assets.

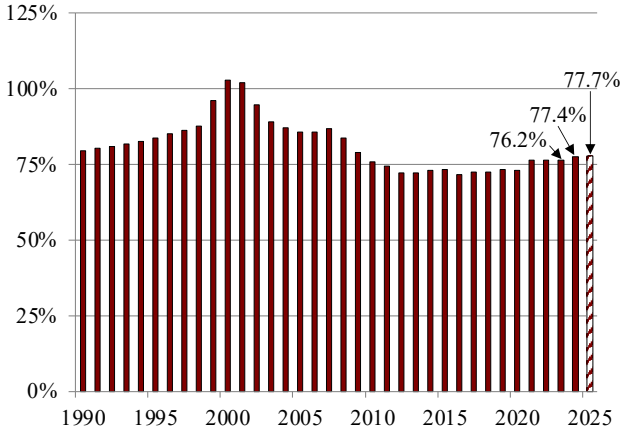
Funded Status of Public Plans

As of July 2025, just over half of the roughly 200 major state and local pension plans in the *Public Plans Database* (PPD) had reported their 2024 funded levels. None had reported 2025 levels. To describe the current status of public plans, this analysis makes plan-by-plan

* Jean-Pierre Aubry is associate director of retirement plans and finance at the Center for Retirement Research at Boston College (CRR). Alicia H. Munnell is a senior advisor at the CRR.

projections using data provided in each plan's most recently released reports. Based on the 2024 data and projections for 2025, the aggregate actuarial funded ratio increased about 1 percentage point in 2024 and about half a percentage point in 2025 (see Figure 1). Thus, despite the recent growth in the stock market, pension funded ratios have increased only slightly over the last two-year period.

Figure 1. Aggregate Funded Ratio for State and Local Pension Plans, FY 1990-2025

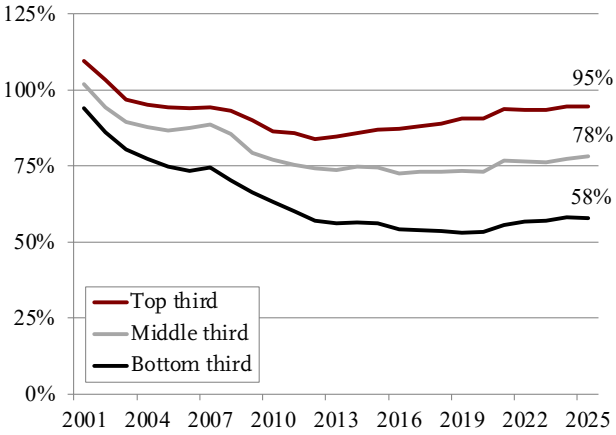


Note: 2025 is authors' estimate.
Source: Authors' calculations using the *Public Plans Database* (PPD) (1990-2025).

While the aggregate funded ratio provides a useful measure of the public pension landscape at large, it can also obscure variations in funding at the plan level. Figure 2 separates the plans in the PPD into thirds based on their current actuarial funded status and tracks the aggregate funded status for each group from 2001 to 2025. Importantly, each group has experienced a steady increase in funded ratio since 2020, with the aggregate 2025 funded ratio being 58 percent for the bottom third, 78 percent for the middle third, and 95 percent for the top third.

The general improvement in funded status can be ascribed to two positive developments: 1) plans are become more realistic about defining how much they need to contribute and more consistent in paying that amount; and 2) costs have been held in check by reforms adopted in the wake of the Great Recession, as well as the slow growth in employment.

Figure 2. Distribution of Plans by Funded Ratio, FY 2001-2025

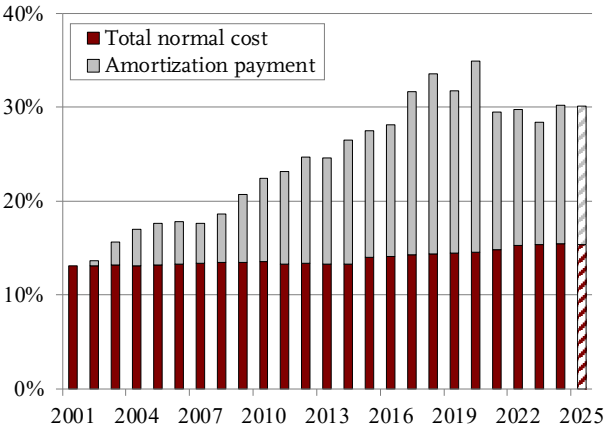


Note: 2025 is authors' estimate.
Source: Authors' calculations using the PPD (2001-2025).

Actuarial Contributions Have Become More Reliable

The actuarially required employer contribution rate – the rate required to keep the plan on a steady path toward full funding – appears to have stabilized around 30 percent of payrolls (see Figure 3). Roughly half of these payments cover the ongoing or "normal" cost of the program and the other half goes to paying down the unfunded liability.

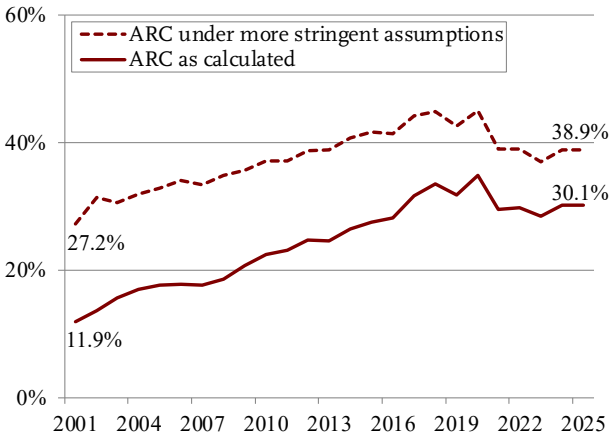
Figure 3. Actuarially Required Contribution Rate (ARC), FY 2001-2025



Notes: This rate is contributions as a share of payroll. 2025 is authors' estimate.
Source: Authors' calculations using the PPD (2001-2025).

Many pension researchers (and some practitioners) have questioned the adequacy of actuarially required contributions as they are commonly calculated. Critics highlight the use of overly optimistic investment return assumptions and relatively lax methods for amortizing the unfunded liability. If investment return assumptions more closely reflected actual performance since 2001, and plans adopted more stringent approaches to amortizing their unfunded liabilities, the average required contribution in 2025 would have been 39 percent of payroll instead of 30 percent. It is important to note, however, the difference between the actual required contribution and that under more stringent assumptions has narrowed over time (see Figure 4). Two factors have contributed to the convergence of these measures – a gradual lowering of the assumed rate of return from 8.0 percent in 2001 to 6.9 percent in 2024 and a more rapid amortization of the plans' unfunded liabilities.

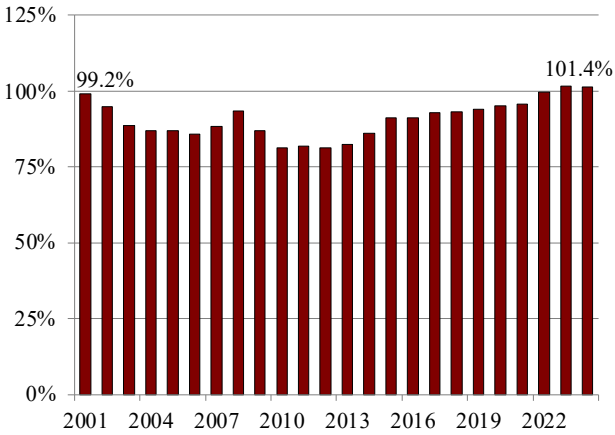
Figure 4. ARC as Calculated and Under More Stringent Return and Amortization Assumptions, FY 2001-2025



Note: 2025 is authors' estimate.
Source: Authors' calculations using the PPD (2001-2025).

In addition to the required contribution becoming more realistic, the aggregate percentage paid now exceeds 100 percent – above the level before the bursting of the dotcom bubble at the turn of the century (see Figure 5). And, at this point, more than 80 percent of plans are receiving the full actuarially determined contribution.

Figure 5. Aggregate Percentage of Actuarially Determined Contribution Paid, FY 2001-2024



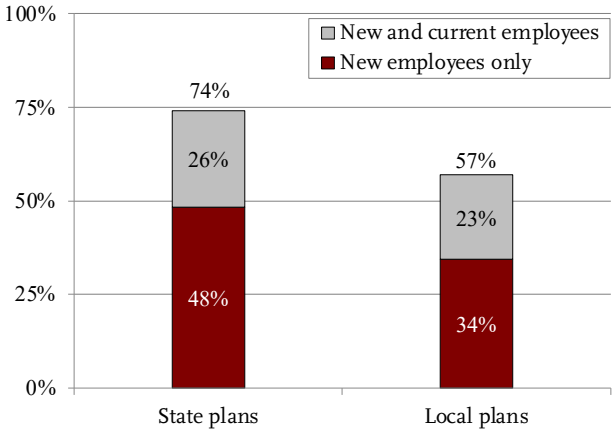
Source: Authors' calculations using the PPD (2001-2024).

Benefit Cuts Have Increasingly Taken Hold

At the same time that plans have become more responsible on the contribution side, many of the benefit cuts enacted in the wake of the Great Recession have taken hold as new hires replace departing employees. Between 2009-2014, 74 percent of state plans and 57 percent of local plans made some type of reduction to their pension benefits. Given that many states have legal protections that constrain their ability to alter benefits, the majority of plans reduced benefits only for new employees, although about one-quarter also cut benefits for current employees (see Figure 6 on the next page).

The most common benefit reductions for current employees were increases in their pension contributions and reductions to the cost-of-living adjustment (COLA). While the increase in employee contributions does reduce an employee's net pension benefit, the prevalence of the reform suggested that it is viewed differently than direct reductions to benefits. In terms of the COLA, our prior research revealed that, in many states, COLAs were not viewed as "core" benefits and have less protection under the law. As a result, they appear easier to cut than the benefit factor, the final average salary period, or retirement age and tenure provisions.[1]

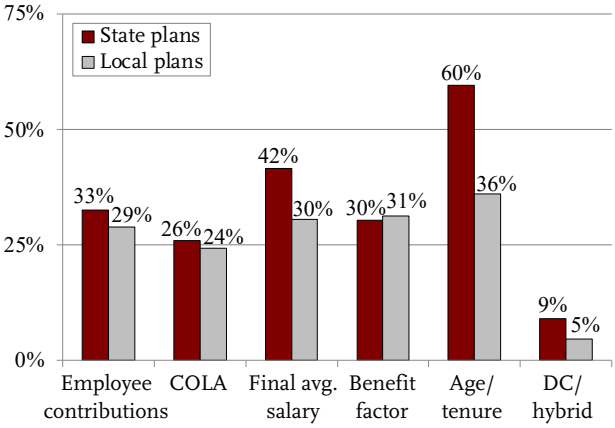
Figure 6. Percentage of Plans Making Benefit Changes, by Type of Employee, FY 2009-2014



Source: Aubry and Crawford (2017).

For new employees, reductions to core benefits were much more common (see Figure 7). The most common change was to increase the age and tenure required to claim benefits. The next most prevalent

Figure 7. Percentage of Plans Making Benefit Changes for New Employees, by Type of Reform, 2009-2014

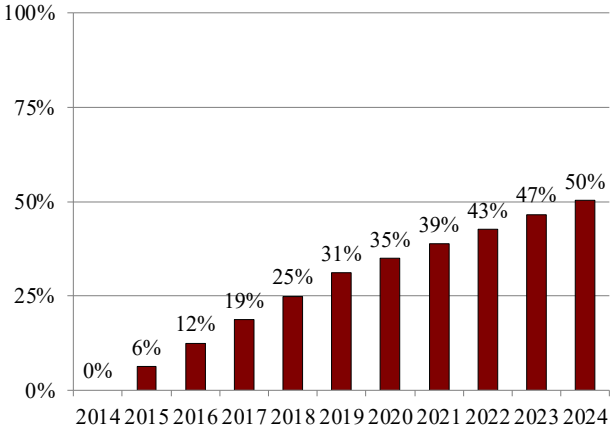


Source: Aubry and Crawford (2017).

changes were to lengthen the period used to calculate final average salary, increase employee contributions, and reduce the benefit factor. Interestingly, local plans are much less likely to increase age and tenure requirements than state plans. A possible explanation is that most police and fire plans are administered at the local level, and their employee unions are particularly sensitive to altering retirement ages.

The impact of cuts for new hires depends crucially on the turnover in public plans. Since 2014, new hires – defined as employees hired after 2014 – as a share of the workforce have gone from zero to 50 percent (see Figure 8). As the cuts made in the wake of the Great Recession take hold, the cost per employee declines.

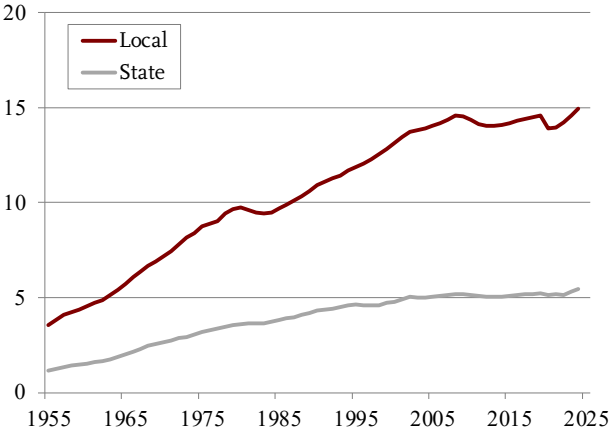
Figure 8. Percentage of State and Local Government Work Force Hired after FY 2014



Note: Numbers for 2019 and 2024 are based on actual data, intermediate years are interpolated.
Source: Authors' estimates based on a sample of the 50 largest PPD plans (2014-2024).

At the same time, employment in the public sector has stabilized (see Figure 9).

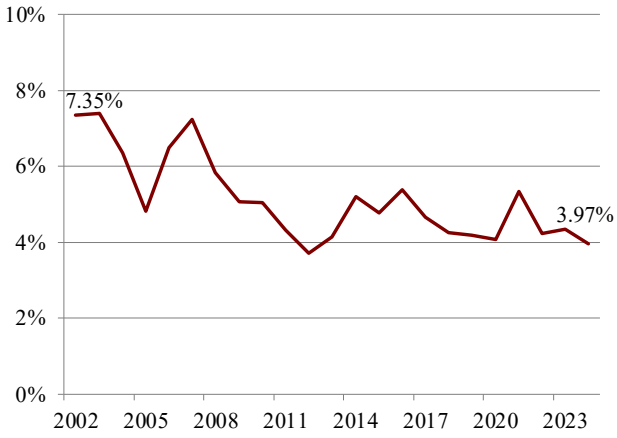
Figure 9. Number of State and Local Government Employees, 1955-2024, in Millions



Source: Authors' analysis using U.S. Bureau of Labor Statistics, *Current Employment Statistics* (1955-2024).

The combination of benefit reductions and stabilizing employment has substantially slowed the annual growth of liabilities. Today, liabilities are increasing at about 4 percent each year – roughly half the rate seen at the turn of the century (see Figure 10).

Figure 10. Aggregate Annual Liability Growth, FY 2002-2024



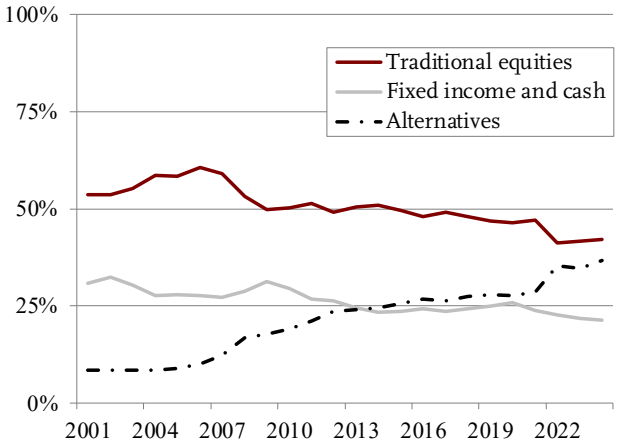
Source: Authors' calculations using the PPD (2002-2024).

Why Was Improvement in Funding So Modest?

So, the question is why has the funded ratio grown so modestly since FY 2023 when the stock market has risen over 40 percent, plans have been making their full contributions, and liability growth has stabilized at a relatively low clip? The answer is that changes in the funded ratio are determined by the growth in assets relative to the growth in liabilities. As shown above, liabilities have been increasing at their relatively low stabilized rate of about 4 percent since 2023 – resulting in 8-percent growth in liabilities over the last two years. So, for the funded ratio to improve over that period, assets must grow by more than 8 percent.

The change in assets is attributable to two components: investment returns and cash flows (contributions minus benefits). Even though the stock market grew by more than 40 percent from 2023 to 2025, pension funds only earned a 15-percent return on their assets over that period, because: 1) about one-quarter of assets are invested in fixed income securities; and 2) a sizeable share is in alternative assets such as real estate that have struggled in the higher interest-rate environment (see Figure 11). While concerns remain regarding the long-term utility of the pension fund's complex investment approach, their investment performance over the last two years has both exceeded their expected return and been roughly comparable to the performance of a simple 60/40 stock and bond index.[2]

Figure 11. Investment Allocation for State and Local Plans, FY 2001-2024

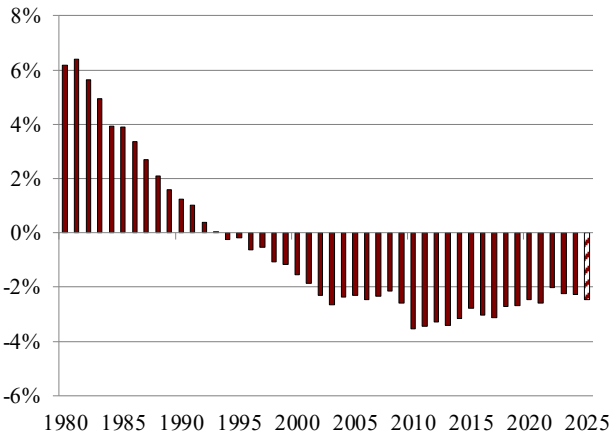


Note: Cash makes up roughly 2 percent of assets each year.
Source: Authors' calculations using the PPD (2021-2024).

Even though pension funds' recent investment performance has been adequate, most public sector retirement systems are extremely mature, which means they face significant benefit payments to retirees each year. So, despite the fact that pension funds receive the full actuarially required contribution, they still experience negative net cash flows of about 2 percent of assets each year (see Figure 12 on the next page). Over the two-year period since FY 2023, these negative cash flows reduce the growth of assets from 15 percent to 11 percent.

In the end, the roughly 11-percent growth in assets since 2023 was higher than the roughly 8-percent growth in liabilities over that same period, and sufficient to increase the funded ratio by 1.5 percentage points – from 76.2 to 77.7 percent.

Figure 12. Cash Flows as a Percentage of Market Assets for State and Local Plans, FY 1980-2025



Note: 2025 is authors' estimate.
Sources: Authors' calculations using the U.S. Census Bureau (1980-2024) and PPD (2001-2025).

Conclusion

The gradual improvement in the funded status of state and local pensions reflects gains in the fundamentals. These gains include more stringent calculations of actuarially required contributions and the increased likelihood of actually making the payment, as well as the ongoing effect of benefit cuts introduced after the Great Recession and the implementation of further cuts as new hires replace old employees. But, even if governments continue to contribute the full actuarially required contribution and investment performance remains mostly positive, we should only anticipate incremental improvements in funded ratios due to two persistent features of pension funds – the annual growth of liabilities and the impact of negative cash flows, associated with mature plans, on accumulated assets.

Endnotes

1 Munnell, Aubry, and Cafarelli (2016).

2 Given the relatively complex investment approach that is typical of pension funds, it is interesting to note that they have not outperformed a simple 60/40 stock and bond index portfolio over the long term – and have significantly underperformed a 60/40 portfolio since the Great Recession (see Aubry and Yin 2024).

References

Aubry, Jean-Pierre and Caroline V. Crawford. 2017. "State and Local Pension Reform Since the Financial Crisis." *State and Local Plans Issue in Brief* 54. Chestnut Hill, MA: Center for Retirement Research at Boston College.

Aubry, Jean-Pierre and Yimeng Yin. 2024. "How Do Public Pension Plan Returns Compare to Simple Index Investing?" *Issue in Brief* 24-13. Chestnut Hill, MA: Center for Retirement Research at Boston College.

Munnell, Alicia H., Jean-Pierre Aubry, and Mark Cafarelli. 2015. "How Will Longer Lifespans Affect State and Local Pension Funding?" *State and Local Plans Issue in Brief* 43. Chestnut Hill, MA: Center for Retirement Research at Boston College.

Public Plans Database. 1990-2025. Center for Retirement Research at Boston College, MissionSquare Research Institute, the National Association of State Retirement Administrators, and the Government Finance Officers Association. Available at: https://publicplansdata.org/

U.S. Bureau of Labor Statistics. *Current Employment Statistics,* 1955-2024. Washington, DC.

U.S. Census Bureau. *Annual Survey of Public Pensions,* 1980-2024. Washington, DC.

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EVOLUTION AND GROWTH: How Public Pension Plans Have Diversified Their Investments Amid Changing Markets

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By Tyler Bond, Katie Comstock, and John Sullivan

June 2025

EXECUTIVE SUMMARY

Public pension investing has undergone remarkable changes during the twenty-first century. After decades of primarily investing in bonds and other fixed income assets, public pension plans have shifted to much more diverse investment portfolios, with significant allocations to both public and private equity as well as real estate, hedge funds, and other alternative asset classes. The reasons for this shift in allocation are many and varied, but the impact of the Global Financial Crisis (GFC) of 2008 and the decade of ultra-low interest rates that followed is significant.

Public pension plans have successfully navigated a challenging economic period by reallocating their investment portfolios and seizing opportunities in new asset classes. This change has enabled them to outperform their investment return expectations in many cases and continue to provide earned benefits to their members, while recovering their asset base from a once-in-a-century market downturn.

This research examines the changing economic and market forces that have contributed to the shift in public pension plan asset allocation and assesses how well public plans have navigated this shifting terrain by comparing their investment returns to various benchmarks. This research does not offer advice for how public pension plans should invest nor does it weigh the relative merits of different asset classes. Rather, this paper explains the structural forces that have led to much more diverse investment portfolios today and offers metrics to evaluate the effectiveness of the added diversification.

Key findings:

- **Public pension plans have significantly diversified their portfolios.** From 2001 to 2023, the average plan reallocated about 20 percent of its assets from public equity and fixed income into private equity, real estate, hedge funds, and other alternative investments.

- **Public pension plans adopted the prudent investor rule throughout the twentieth century.** During their early years in the 1920s and 1930s, U.S. public pension plans largely followed an investing philosophy known as "fiscal mutualism" in which they invested primarily in municipal bonds. By the mid-twentieth century, most plans had adopted the "prudent investor rule" instead. This shift in investment philosophy opened the door for the more diverse portfolios seen today.

- **Pension funds responded to significant changes in financial market conditions.** Changes in the broader economy and financial markets, such as the long-term reduction in interest rates and the decline in the number of publicly traded companies, have led plans to adjust their investment portfolios in response to changing market conditions.

- **The decade of ultra-low interest rates was a notable period of transition and change for public plan investments.** This fiscal policy decision following the financial crisis had major consequences for how public plans invest.

- **More diverse pension plan portfolios have performed strongly in recent years.** When compared to a "traditional" 60/40 or 70/30 public stock/bond portfolio, the diversified portfolios of public pension plans in the U.S. mostly outperformed following the GFC, measured net-of-fees over rolling five-year periods. Moreover, the diversified portfolio exhibited less volatility and greater upside and downside benefits.

- **Public pension plans have met their investment return expectations more frequently since the GFC.** When compared to their own return expectations (defined as the actuarial assumed rate of return), U.S. public plans have largely met or exceeded these expectations over rolling five- and 10-year periods that correspond with greater diversification and lower actuarial assumed rates of return. Furthermore, the diversified portfolio met these objectives more frequently than the traditional portfolios.

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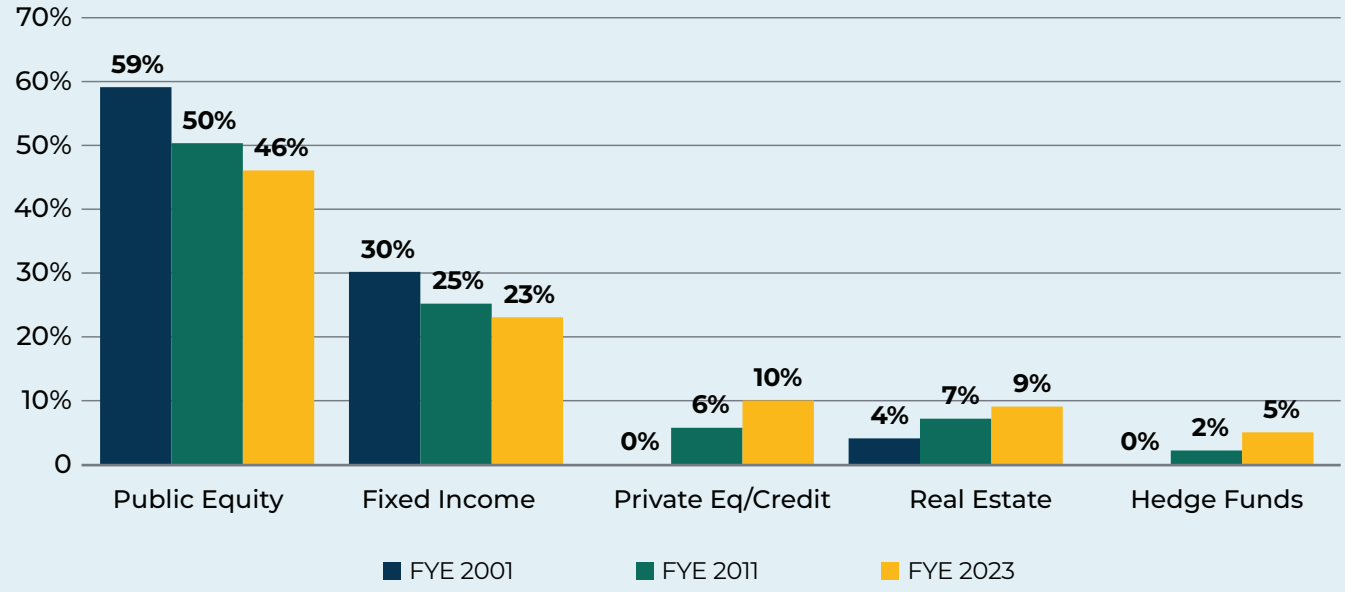
INTRODUCTION

Institutional investors represent a broad range of stakeholders—from corporate and public pension plans to endowments, foundations, and insurance funds. These investors are responsible for managing assets worth more than $34 trillion,[1] of which state and local government pension plans manage more than $6 trillion.[2] Institutional investors play an important role in the financial markets and broader economy of the U.S., and the investment decisions they make have a substantial economic impact. But these investors also are affected by changes in financial markets. For the past 20 years, public pension plans have significantly adjusted how their assets have been invested. **Figure 1** shows the shift in median asset allocation between 2001 and 2023. Public plans went from having nearly 90 percent of their assets allocated to public equities and fixed income in 2001 to less than 70 percent in 2023. The roughly 20 percent of assets that were reallocated were mostly invested in private equity, real estate, and other alternative asset classes, such as hedge funds.

This research examines the changing economic and market forces that have contributed to the shifts in asset allocations of public plans.[3] It also assesses how well public plans have navigated this shifting terrain by comparing public plan returns to various benchmarks. This research does not offer advice for how public pension plans should invest nor does it weigh the relative merits of different asset classes. Rather, this paper explains the structural forces that have led to much more diverse investment portfolios today and offers metrics to evaluate the effectiveness of the added diversification.

It also should be said that there are more than 3,000 public pension plans in the U.S. The majority of those plans are small local plans that largely do not invest in alternative asset classes. Many of those small plans invest their plan assets in public indices. This research focuses primarily on larger public pension plans that have both the scale and resources to be broadly invested in alternative asset classes. This report is not meant to suggest that all public pension plans should be invested in alternative asset classes.

Figure 1: Evolution of Median Target Asset Allocations



Source: Public Plans Data (publicplansdata.org) as of December 2024

Why Public Pension Plans Invest

Defined benefit pension plans always have been a collective effort for a collective benefit. The typical state and local government pension plan receives revenue from three sources: employee contributions, employer contributions, and investment earnings, with investment earnings accounting for a majority of long-term revenue.[4] The assets of pension funds always have been invested. These are not savings plans in which workers save a portion of their disposable income for future use. The combined contributions of workers and their employers are pooled and invested in the financial markets for the purpose of defraying the cost of providing benefits to retired workers and other beneficiaries; however, plans can only invest in the markets that are available to them. As financial markets have grown and developed, and new investable asset classes have become available, public pension funds have responded by adapting their investment strategies.

Investing the combined contributions of employees and employers has generated a solid return on investment for taxpayers, who ultimately provide the contributions made via the employer. Each taxpayer dollar contributed to state and local government pension plans supported $7.79 in total economic output nationally in 2022.[5] It is difficult to find another investment that produces so strong a return, but pension funds are only able to do so because they take the risk of being broadly invested in financial markets. The investment return is the reward for the investment risk. Accepting and navigating that risk-return relationship leads to the complex world of pension investing that exists today.

The goal of investing for maximum return at an appropriate level of risk has not always been the guiding philosophy of public pension investing.[6] Early in their history, public pension funds were guided by a concept known as "fiscal mutualism" in which public plans invested almost exclusively in municipal government bonds. This was seen as a benefit both to the plan and the plan sponsor because the plan was guaranteed a reliable rate of return for its investment and the city government was guaranteed a purchaser for its bonds to fund municipal projects. The next section examines this history in more depth.

HISTORY OF U.S. PUBLIC PENSION FUNDS

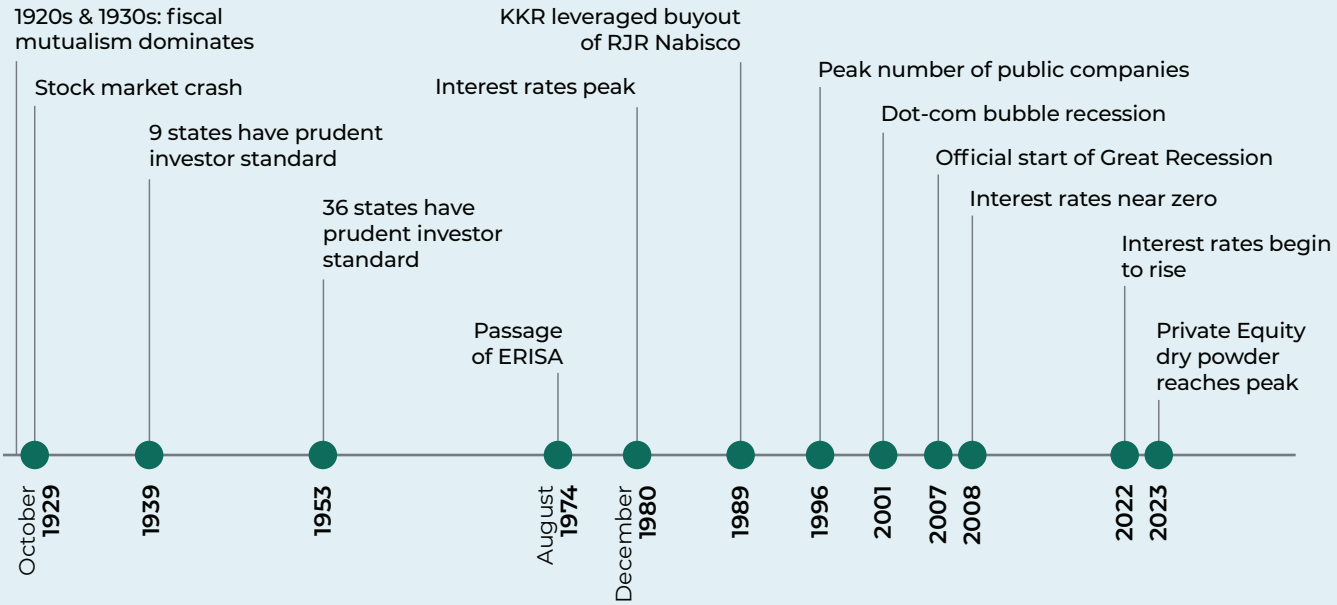
Public pension funds in the U.S. began as modest institutions. The first public pension plan in the U.S. was created in New York City in 1857 to provide a lump sum benefit to retired police officers.[7] Eventually this benefit was extended to NYC firefighters as well, and the lump sum benefit was converted into an annuity payment.[8] Still, the number of retired police officers and firefighters in late nineteenth century New York was small and their life expectancies fairly low by modern standards.

More public pension plans were established during the Progressive Era of the early twentieth century, mostly by states in the northeast. Many of these plans were for teachers, although some were also for general government employees. A primary motivation in creating these plans was facilitating the transition into retirement of elderly public servants, who likely had no other source of income or savings. The federal government simultaneously was debating providing retirement benefits to civil servants, which resulted in the creation of the Civil Service Retirement System in the 1920s.[9] Again, a key motivation was to retire older civil servants who struggled to continue in their jobs but couldn't be fired due to civil service protections and had no financial resources to fall back on in many cases.[10]

The number of state and local government pension plans continued to grow throughout the twentieth century, especially in the postwar era. Many of the public pension plans that exist today were established by the 1950s and 1960s. These plans have provided reliable benefits to retired public servants for decades.

The earliest public pension funds starting in the 1920s largely engaged in an investment practice known as "fiscal mutualism."[11] The pension fund invested primarily, if not exclusively, in municipal bonds. This was seen as mutually

Figure 2: Timeline of Pension Investing History



beneficial: the local government had a reliable investor that would purchase its bonds to facilitate the construction of schools, roads, police departments, and other necessary public infrastructure. Meanwhile, the pension fund would be guaranteed a decent rate of return on the bonds, and most pension plans targeted benefit payments to conform with the expected rate of return from those municipal bonds, typically around four percent.

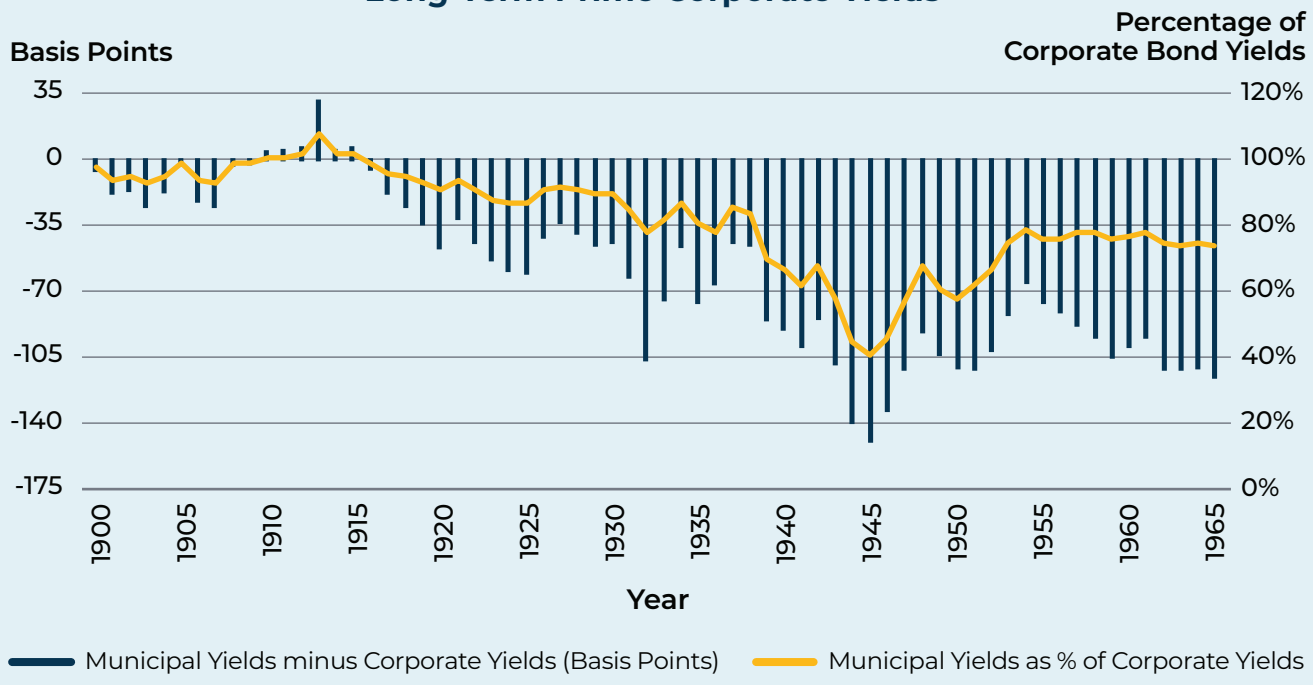
Fiscal mutualism often was pursued through the use of legal lists of permitted investments.[12] The plan sponsor would detail the specific investments in which public plans could engage, and the types of bonds in which plans could invest had to meet certain quality standards. The assets of the plan largely were not invested with the goal of growing the assets. Rather, the plan viewed its role as conserving the assets that were contributed by members and their employers.

Fiscal mutualism prevailed for years, but, over time, changes in the economy and other forces at work in American society and government made the appeal of fiscal mutualism less compelling. The Great Depression harmed many types of investments, including the municipal bonds in which public plans invested, revealing that no investment is truly safe. When some municipalities suspended interest payments on their bonds during the depression, the bonds became ineligible for investment per the rules of the legal lists.[13] This also drove down the yields generated by these municipal bonds as the number of investment-eligible bonds declined and investors piled into the bonds that remained eligible.

Other changes occurring during the New Deal period and World War II continued to drive down municipal bond yields.[14] High-income individual investors increasingly purchased tax-free municipal bonds to avoid higher federal income taxes implemented during the New Deal. As more investors sought to purchase these bonds, the yields on the bonds correspondingly declined. This acted as yet another force driving down yields and, therefore, impacting the investment returns of public pension funds. The yields on municipal bonds declined relative to the yields available from corporate bonds throughout the first half of the twentieth century (**Figure 3**).

The lower yields from municipal bonds created an opening to argue for the liberalization of public pension investment. Professional asset managers began to offer their services to pension plan trustees as a way to earn higher investment returns for their funds.[15] This also allowed pension plans to increase benefits since benefit levels were closely tied to the returns on the bonds in which the plans invested. U.S. corporate bonds were seen as being fairly safe investments, and some corporate bonds already had been included on the legal lists. Thus, there was little reason not to make this subtle shift in investment strategy.

Figure 3: Long-Term Prime Municipal Yields vs. Long-Term Prime Corporate Yields



Source: Sidney Homer, "Factors Determining Municipal Bond Yields," in State and Local Public Facility Needs and Financing: Volume 2, Public Facility Financing (Washington, DC: Government Printing Office, 1966), 269-298 (Glass & Vanatta, 2021, p. 438).

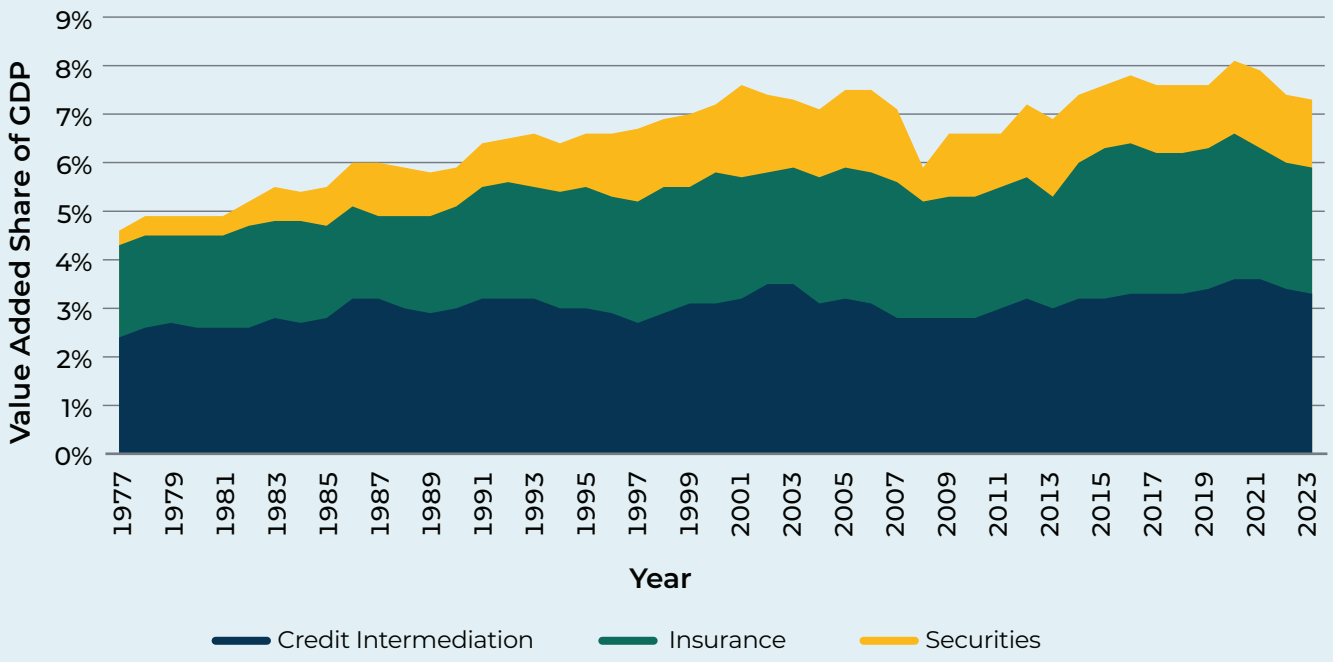
Plan sponsors also faced pressure from labor unions representing public employees to increase benefits during the postwar period. Earning greater investment returns by investing in higher-yielding corporate bonds (and some equities) enabled public pension plans to target higher benefit levels than was possible under the more tightly constrained bounds of fiscal mutualism. The period from the second World War into the postwar economic boom generally saw growth in employee benefits ranging from pension plans to health insurance as workers gained greater power in the economy.[16]

After public pension funds began investing in corporate bonds, it was not difficult to persuade them of the logic of investing in U.S. public equities as well. The strong postwar economy provided a compelling case for investing in a mix of American corporate equities and bonds. During the twenty year period from 1945 to 1965, the S&P 500 Index returned an annualized 14.9 percent.[17] During the next twenty year period, 1965 to 1985, the S&P 500 Index delivered an annualized return of 7.8 percent. Because stocks and bonds do not move in lockstep, the pension funds asserted that investing in these two asset classes provided balance and protection against risk, allowing the plans to maximize their return potential and meet their benefit obligations to their members.

Changes in bond markets were not the only force pushing against fiscal mutualism. While the use of legal lists of permitted investments dominated in most states, some states already had begun to follow the "prudent investor" rule, originally referred to as the "prudent man standard."[18] This represented a fundamentally different approach to pension investing than the legal list approach. The prudent investor rule states that an investment decision is permissible so long as an investor acting prudently would have made that same investment, i.e., the investment isn't motivated by some personal bias or, worse yet, outright bribery. The logic of the prudent investor rule meant that public pension funds became able to invest in a more diverse mix of asset classes, so long as those investments were deemed prudent.

There was a decadeslong movement to have more public pension plans adopt the prudent investor rule. While only nine states had a prudent investor standard in 1939, only 12 states *did not* have a prudent investor standard by 1953.[19] Today, every state operates under this standard, required either by state law or retirement board policy.[20] Ultimately, this shift in approach was cemented by a law that does not even apply to public pension funds.

Figure 4: The Growth of Financial Services



Source: this chart follows and expands upon Figure 1 from Robin Greenwood and David Scharfstein, "The Growth of Finance", Journal of Economic Perspectives—Volume 27, Number 2—Spring 2013—Pages 3–28.

The Employee Retirement Income Security Act (ERISA) of 1974 enshrined the prudent investor rule into law as the guiding principle for the investments of pension plans in the private sector. ERISA does not apply to state and local government pension plans, but the enshrinement of the prudent investor rule seems to have functioned as a signal. As noted above, most states had already adopted a prudent investor standard by 1974, but ERISA seems to have been the final push needed for plans to widely embrace it.

This shift in investing philosophy also occurred during a time of significant growth in the financial services sector of the American economy (**Figure 4**). Financial services as a value added share of gross domestic product (GDP) had reached a low point of nearly two percent in the early 1940s, but was already above four percent by the mid-1970s and would eventually surpass eight percent of GDP by the early 2000s.[21] The strong growth in this sector of the economy presented a prime investing opportunity for public pension funds.

Throughout much of the 1980s and into the early 1990s, most fixed income investments provided double digit returns. U.S. public equities were also strong. As a result, most public pension funds could stay primarily in the "traditional" mix of stocks and bonds and achieve their investment return targets each year without taking on too much risk. Many public plans at this time were still invested mostly in fixed income with only a smaller portion of their assets in public equities, mostly U.S. equities.

Some of the "alternative" asset classes so common today, such as hedge funds or private equity, were only starting to develop in the 1980s and were much smaller than they are now. Many public pension plans didn't even consider these alternative assets for investment because they simply weren't needed (or weren't widely accessible). Even in the mid-1990s, as the investment consulting firm Callan has shown in their *Risky Business* report, a public pension fund could achieve a seven percent investment return with little risk by being primarily invested in fixed income.[22]

The era of the "traditional" stock and bond portfolio seemed to reach its zenith with the Dot-com bubble of the late 1990s. Investment returns swelled as equities delivered outsized returns. Fixed income, while already beginning its long-term decline, was still delivering attractive yields roughly between 5 percent and 8 percent in the late 1990s.[23] Investment returns for many plans were so strong that some public employers took "pension holidays" in which they did not make required contributions to the plan for a year or two because the markets were delivering consistently

positive returns and the plans were well-funded. Alan Greenspan, then the chairman of the Federal Reserve, was speculating about paying off the entire U.S. national debt because markets were strong and the federal government had a budget surplus.[24] Unfortunately, as often happens in financial markets, nothing lasts forever. The bursting of the Dot-com bubble beginning in early 2000 not only caused a minor recession, but delivered some unwelcome news for public pension funds.

The funding ratios of nearly all public pension funds declined in the early 2000s as the sky-high returns of the Dot-com bubble came down to earth. Funding ratios had begun to recover by the mid-aughts, however, and were on an upward trajectory in 2006 and 2007… and then the Global Financial Crisis (GFC) occurred. Investors didn't expect such a bad decade, including two recessions, one of which was the worst in nearly a century.[25] The back-to-back impacts of the two recessions in the 2000s hampered many public pension funds. Those plans that had taken a pension holiday or had a lax history of making full and timely contributions were especially affected because their asset base was already smaller.

The post-GFC era marked another turning point for public pension funds. For starters, short- and medium-term risks associated with investing in public equity were front and center and many plans recognized that their fixed income exposure hadn't provided enough, or the expected, balance and protection that may previously have been anticipated. In addition, the investment environment was radically altered from what they had known before, primarily due to the Federal Reserve holding interest rates artificially low at almost zero. This meant there was little return investors could expect to earn from their fixed income allocation and other yield-oriented investments. This new focus on diversifying public equity risk combined with a notably different and evolving financial environment altered public plans' investment approach. Callan's research finds that a public pension fund now must take on greater complexity and more risk to achieve the same seven percent return that it could have earned with a simpler, lower risk portfolio three decades ago.[26] This is not a reflection of the abilities of public plan investment staff to invest. Rather, it's a result of evolving risk management and changes in the market.

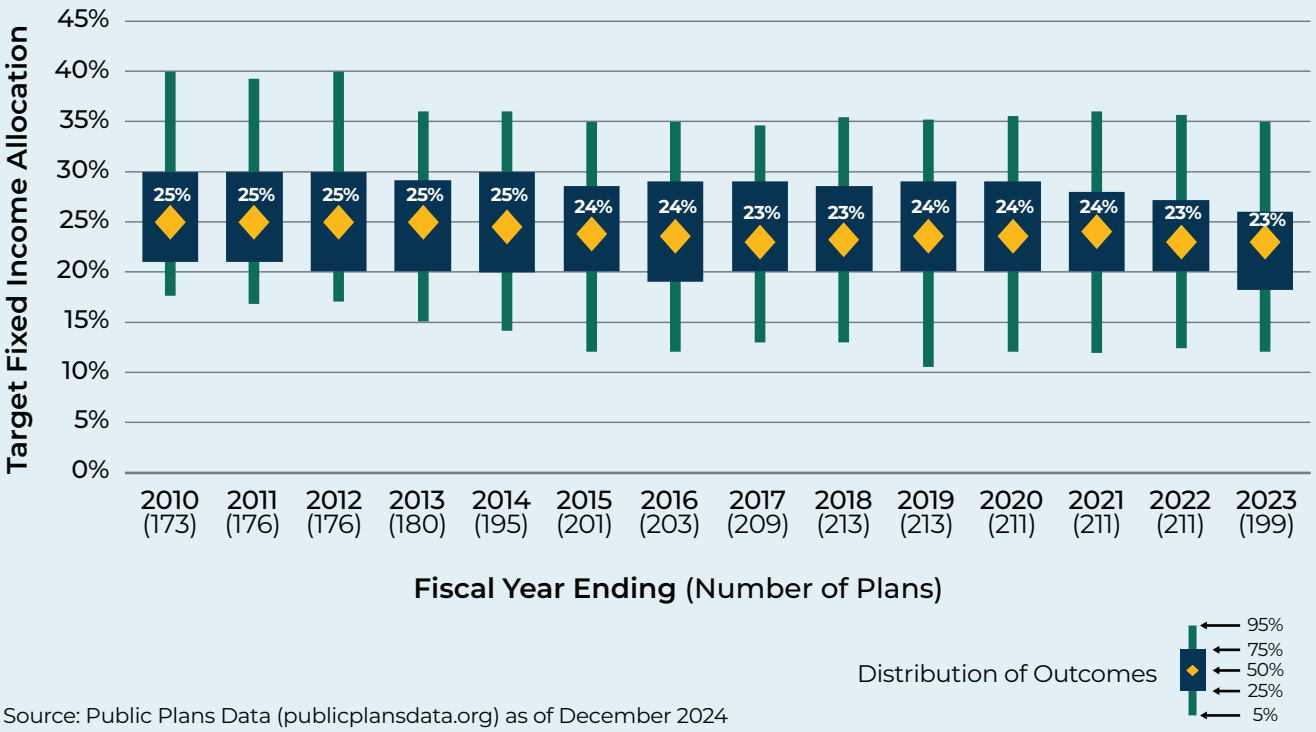
The next two sections explore the two major, and interrelated, drivers for why public pension portfolios evolved to the more diversified asset allocations seen today: the decade of ultra-low interest rates and the rise of private markets.

THE DECADE OF ULTRA-LOW INTEREST RATES

Figure 5 depicts the shift in the allocation to fixed income among public plans from 2001 to 2023. The median plan shifted from having nearly a third of their portfolio to having less than a quarter allocated to fixed income. This largely reflects the impact of the decade of ultra-low interest rates on depressing bond yields.

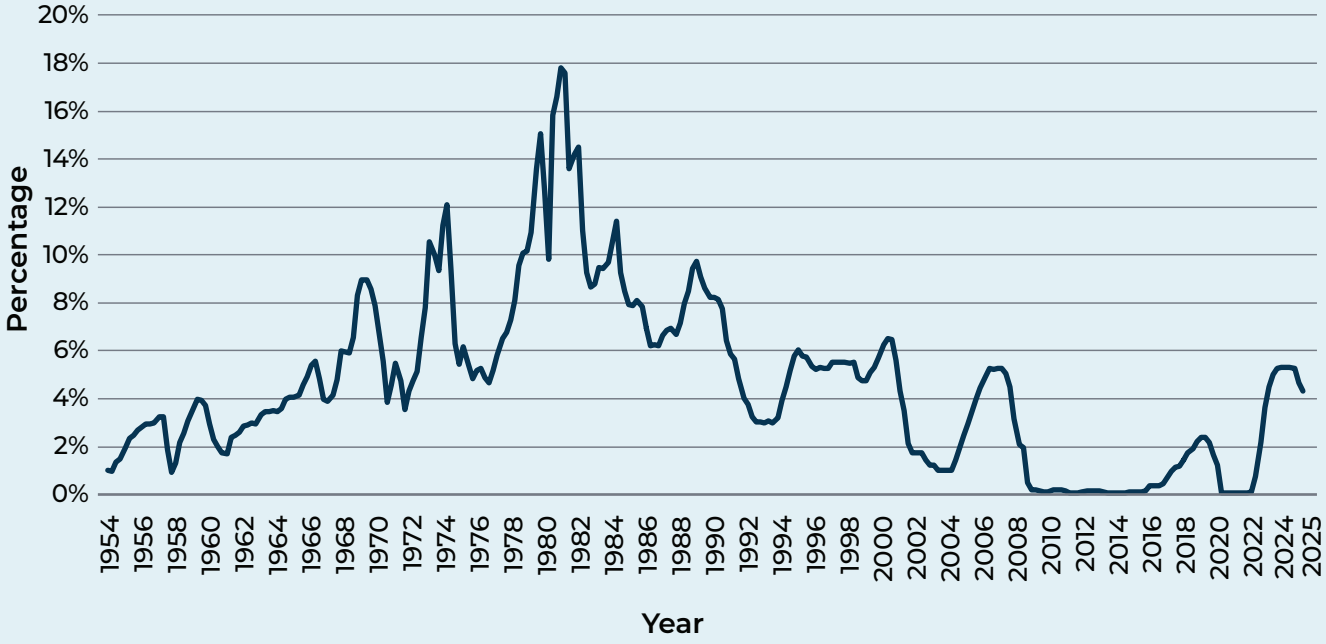
Among the major differences in financial markets following the GFC was the change related to interest rates. Interest rates began their long-term decline in the 1980s. From a peak of 22 percent in December 1980, the federal funds rate had declined to just under eight percent in December 1989. After returning to 9.5 percent in October 1990, the federal funds effective rate has never been that high since (**Figure 6**). The federal funds rate fluctuated between three and seven percent for much of the 1990s, but it moved even lower following the recession caused by the bursting of the Dot-com bubble. The rate had risen to just over five percent before the GFC, but was then held near zero for most of the decade following the crisis. Only in the past few years since the disruption caused by the Covid-19 pandemic has the federal funds rate returned to above five percent.

Figure 5: Distribution of U.S. Public Pension Target Fixed Income Allocations



Source: Public Plans Data (publicplansdata.org) as of December 2024

Figure 6: Federal Funds Effective Rate



Source: Board of Governors of the Federal Reserve System (US) via FRED®

The impact of ultra-low interest rates for all types of savers and investors, but especially for public pension funds, has been undeniable. The lowering of interest rates pushed down the yields from fixed income. The market yield on ten-year U.S. Treasury securities has been below five percent for most of this century and was near or below 2.5 percent for much of the 2010s (**Figure 7**). Yields on Moody's seasoned AAA corporate bonds have been similarly low.

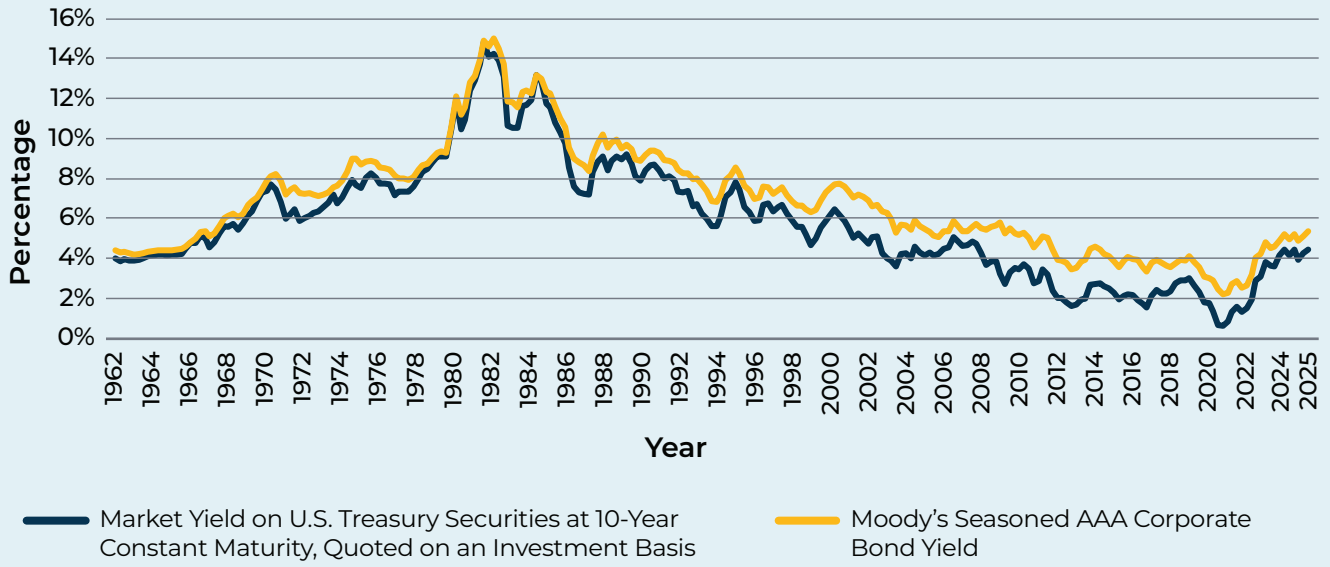
This decline in yields from fixed income changed how public pension funds invested. Investors with money to lend always will look for the highest source of return with the least amount of risk or will charge a higher rate of interest for a riskier investment. Pension funds achieved consistent returns with a small amount of risk for many years by investing primarily in fixed income. This allowed plans to balance their objectives of earning strong returns for their members and keeping costs low for plan sponsors and active members. Ultra-low interest rates scrambled this calculation. In this environment, public pensions with roughly 20 to 30 percent in public fixed income exposure, which was returning little to no investment earnings, had to "reach for yield." This became a common phrase as public pensions needed to look outside of the traditional equity and bond markets to achieve their actuarial assumed rates of return.

Ultra-low interest rates were not the only consequence of the GFC that affected fixed income investing for public pension funds. Banking regulations were tightened in response to some of the actions that sparked the financial crisis. This tightening of regulations was almost certainly well-intentioned and arguably justifiable in response to a major financial crisis that had devastating effects on many in the U.S. and around the globe. However, unintended outcomes often result from major public policy decisions and restricting how banks can lend changed who banks lend to and how they make those loans.

One significant regulatory change for banks following the GFC was higher minimum requirements for the quantity and quality of bank capital.[27] These tighter capital requirements have made it costlier for banks to hold loans with no rating or low ratings. This created a supply and demand imbalance and an opportunity for non-banks to lend directly to these borrowers, commonly referred to as direct lending, which is a type of private credit. The growth in direct lending has been a significant development since the GFC and has created new investment opportunities for public plans.

These more stringent banking regulations occurred against a backdrop of consolidation within the banking sector. The number of banks declined from more than 14,000 to less than 6,000 between 1980 and 2022.[28] This happened largely because of changes in laws that had previously prohibited a bank from having branches in multiple states. As these restrictions were lifted, a smaller number of banks began to operate in multiple states. As the number of banks declined, so did the number of lenders available to potential borrowers, contributing to the gap that institutional investors have helped fill.

Figure 7: 10-year Treasuries and Corporate Bond Yield

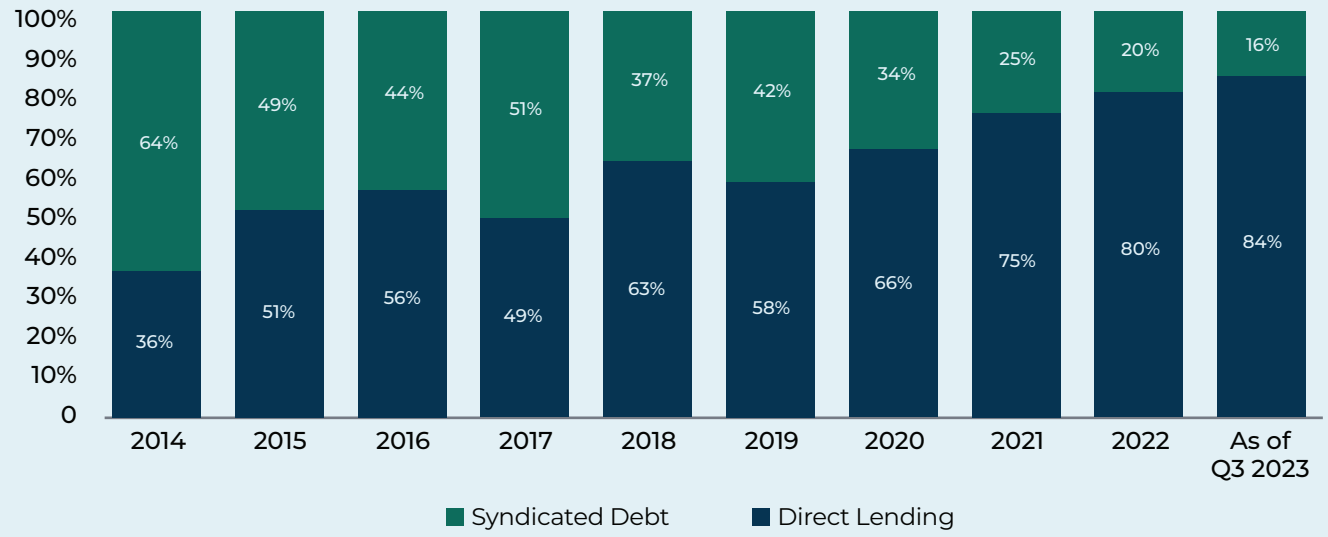


Sources: Board of Governors of the Federal Reserve System (US); Moody's via FRED®

One consequence of bank consolidation is that commercial and industrial (C&I) loans have declined as a percentage of bank balance sheets from 29 percent in 1982 to 16 percent in 2023.[29] Meanwhile, bank lending to non-banks is growing at five times the rate of C&I loans. When there were more banks, they lent to middle-market companies. Now more of that direct lending is done by non-banks (**Figure 8**).[30]

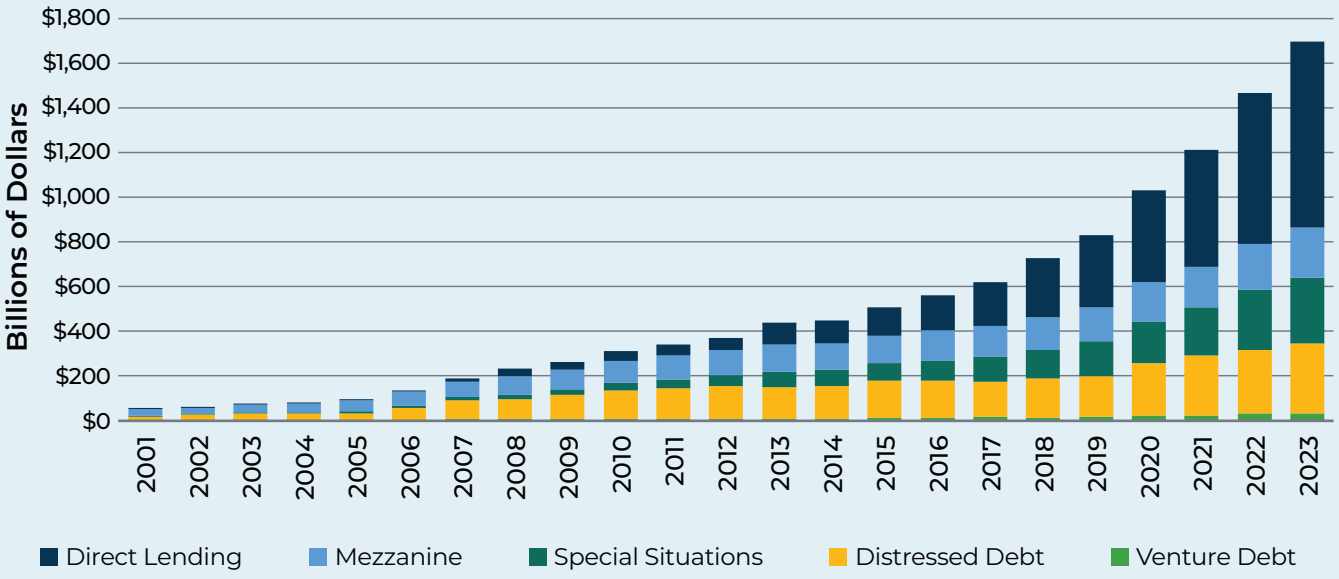
The combination of ultra-low interest rates, tighter banking regulations, and fewer banks led to the significant growth in the private credit and private debt markets (this paper will generally use "private credit" to refer to this asset class). Private credit as a distinct asset class across institutional investors was almost nonexistent at the turn of the century. This asset class has only existed for about twenty years, and most of its growth occurred after the GFC (**Figure 9**).

Figure 8: Nonbank Financing of Middle-Market Deals



Source: Young Soo Jang and Steven Kaplan, "Some Thoughts on Private Markets", Presentation to BIS Pension Fund Workshop on Private Markets, March 2024; Figure 10, slide 13.

Figure 9: Global Private Debt AUM by Strategy



Source: Preqin Pro

Private credit as an asset class consists of several different types of loans or investments:

- Direct lending (to a single company)
- Asset-based lending (e.g., real estate or infrastructure debt)
- Alternative credit
- Opportunistic credit

Each of these occurs outside of the traditional banking sector. As a result, non-bank lenders have been taking market share from traditional banks.[31]

Private credit offers several perceived benefits to both lenders and borrowers. For investors, private credit has a high return-for-risk profile (Sharpe ratio) meaning lenders are better compensated for the level of risk they are taking.[32] This is due to several factors, though primarily due to ties to floating rate loans and the privately negotiated contractual terms. As shown in **Figure 10**, private credit has offered public pensions a strong source of return that is income-oriented and diversified from public equity risk. For borrowers, private credit offers flexibility in lending arrangements relative to what banks can do. For both lenders and borrowers, non-banks tend to hold loans to maturity. This means non-banks hold the risk of default, which promotes an alignment of interests between lender and borrower.[33]

Figure 10: Private Credit Has Outperformed Other Types of Fixed Income

Annual Returns

	Short-term Treasuries	Long-term Treasuries	Private Credit	IG Corp	HY Corp	Leveraged Loans
2017	0.9%	2.4%	12.2%	6.5%	7.5%	4.1%
2018	1.8%	0.8%	2.9%	-2.2%	-2.3%	0.4%
2019	2.3%	7.0%	7.2%	14.2%	14.4%	8.6%
2020	0.6%	8.2%	6.3%	9.8%	6.2%	3.1%
2021	0.1%	-2.4%	20.9%	-1.0%	5.4%	5.2%
2022	1.6%	-12.9%	4.8%	-15.4%	-11.2%	-0.8%
2023	5.1%	3.9%	8.8%	8.4%	13.5%	13.3%
Average	1.8%	1.0%	9.0%	2.9%	4.8%	4.9%

Negative | 0.1 to 4.99 | 5 to 9.99 | 10 to 14.99 | 15 and above

Sources: Bloomberg, Prequin, ICE BofA, Apollo Chief Economist

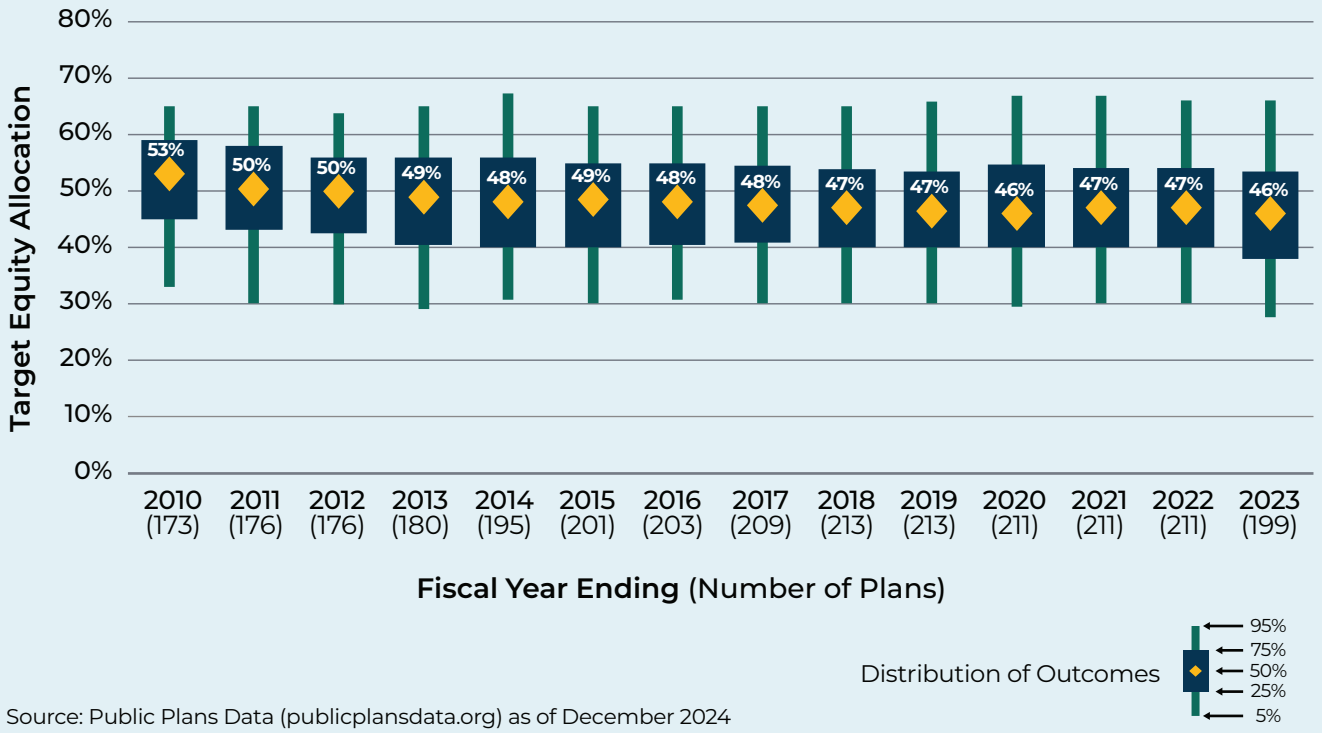
The growth of private credit isn't surprising. The history of finance clearly teaches that there always will be people looking to borrow and people willing to lend. The only question is how they arrange the relationship between debtor and creditor. Private credit may be new as a standalone asset class, but loaning capital at interest is as old as human civilization. Once yields from public fixed income declined so sharply, investors with money to lend went looking for investments with higher rates of return. After banking regulations restricted borrowing opportunities, especially for middle-market companies, those seeking to borrow looked beyond the banks for someone willing to lend. Private credit is the marriage of those looking to borrow and those willing to lend outside of the traditional banking sector.

As will be discussed in the following section, the rise of private credit is tightly connected with the even greater growth in private equity. Many private equity deals are financed now via private credit. This back-and-forth between private credit and private equity has fueled the robust growth of private markets.

FEWER PUBLIC COMPANIES AND THE RISE OF PRIVATE EQUITY

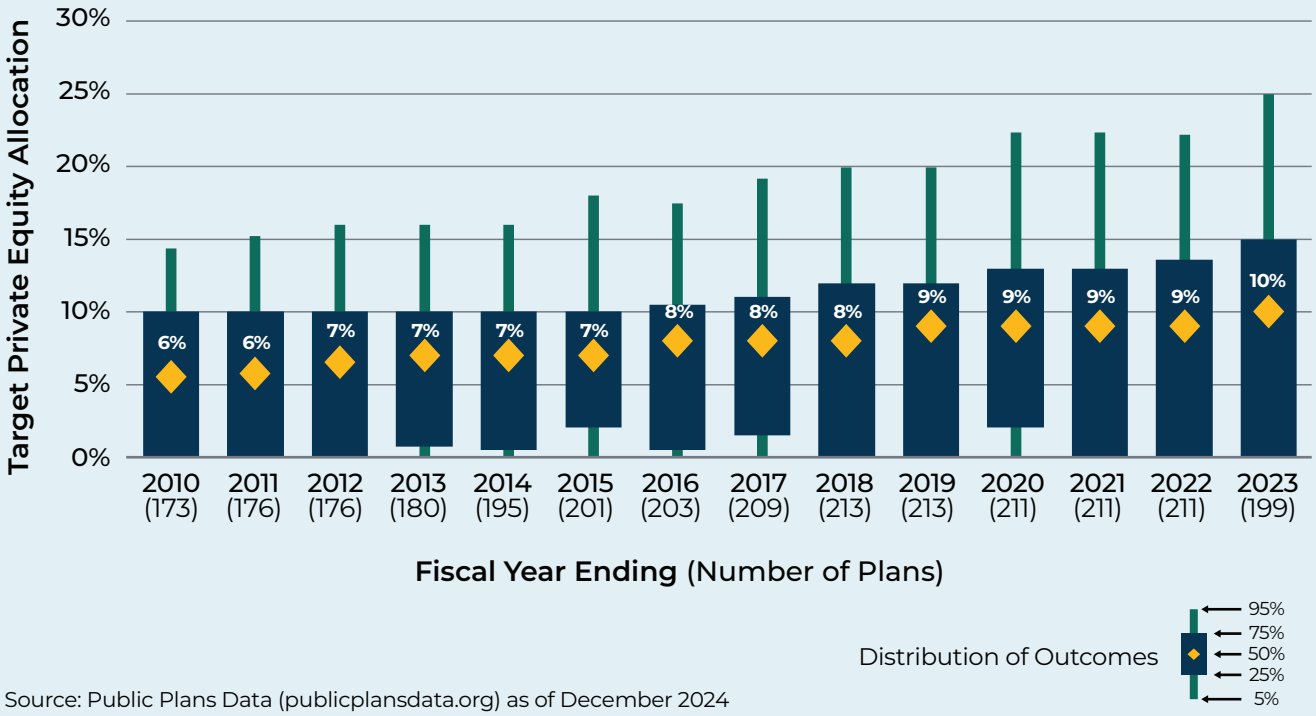
Figures 11 and 12 demonstrate one of the most noteworthy shifts in public plan investing this century. Allocations to public equity remain the largest portion of the typical plan's portfolio, but that allocation has declined from 59 percent at the turn of the century to 46 percent in 2023. Figure 12 reveals that nearly all of that reallocation has gone to private equity/credit, which grew from no allocation in the median plan's portfolio to 10 percent in 2023, with some plans allocating nearly a quarter of their portfolio to private equity. This section discusses the forces behind that shift in allocation.

Figure 11: Distribution of U.S. Public Pension Target Public Equity Allocations



Source: Public Plans Data (publicplansdata.org) as of December 2024

Figure 12: Distribution of U.S. Public Pension Target Private Equity/Credit Allocations



Source: Public Plans Data (publicplansdata.org) as of December 2024

While private credit is a newer standalone allocation for public pension plans, the growth in private equity represents an even more substantial shift to private markets. While the history of private equity extends back to 1946 and, arguably, even earlier than that, it caught the attention of the business and finance worlds in the 1980s with the leveraged buyout boom.[34] The most high-profile leveraged buyout of the 1980s was that of RJR Nabisco by KKR (Kohlberg Kravis Roberts) in 1989.

A number of high-profile leveraged buyouts occurred again in the early 2000s, including, among others, Toys "R" Us, the Hertz Corporation, and Metro-Goldwyn-Mayer. Private equity firms and deals continued to grow right up until the financial crisis. Despite the impact of the GFC, which temporarily reduced the size of private equity deals, private equity has remained a large and growing asset class for institutional investors.[35] A cause-and-effect relationship in a few areas has created the conditions for this sustained growth.

First, the number of publicly traded companies in the U.S. today is half its peak in 1996, declining from 8,090 listed companies in 1996 to 4,642 in 2022 (**Figure 13**).[36] However, it's important to keep in mind that the peak in 1996 represented significant growth from the 5,164 listed companies in 1980, so the endpoints of this comparison matter greatly. Nevertheless, this decline in the number of publicly listed companies has been both a cause and a consequence of private equity investing. Additionally, a portion of the decline in the number of public companies can be attributed to consolidation in a few industries, such as banking.

As discussed earlier, laws were used to tightly regulate interstate banking, meaning there was a greater number of banks serving mostly regional and local clientele. As the laws changed and more banks were able to cross state lines, banks were consolidated and the number of banks in the U.S. decreased from more than 14,000 to fewer than 6,000. This has arguably been to the benefit of consumers, and some maintain that the American banking industry remains too fragmented, but it did contribute to the decline in the number of publicly traded companies.

Banking is not the only industry that has experienced consolidation over the past thirty years. Industrial companies and technology firms, especially those that produce hardware and semiconductors, have also declined since the mid-1990s.[37] A significant force driving consolidation in these two industries has been a broader shift from an economy centered on firms that produce tangible assets, which were the majority in the 1990s, to an economy with more companies that make intangible assets,

Figure 13: Number of Listed Domestic Companies

Sources: World Bank, Macrobond

like software.[38] Additionally, much of the research on new pharmaceutical drugs is conducted by start-up companies that receive venture capital funding, another type of private equity financing. These start-ups then go public at a later date, rather than being public while conducting research.[39]

Waiting to go public, or never being taken public, is another economic phenomenon related to the rise of private equity. Companies today spend more time private before becoming publicly traded (**Figure 14**). Relatedly, the size of initial public offerings (IPOs) has increased.[40] While there are fewer small IPOs today, the number of larger IPOs has remained relatively stable. Some argue that the increase in small IPOs during the late 1990s contributed to the Dot-com bubble.[41]

Again, as with private credit, regulatory changes also have contributed to the growth in private equity. Public companies face more reporting and disclosure requirements today than in the past. Some of these disclosures resulted from the Sarbanes-Oxley Act, which was passed to protect investors and in response to the scandals at Enron, WorldCom, and other companies in the early aughts. These required disclosures from publicly traded companies may be perceived as costly and burdensome by businesses and, especially in certain sectors, companies may wish to avoid disclosures in order to avoid sharing too much information with their rivals.[42]

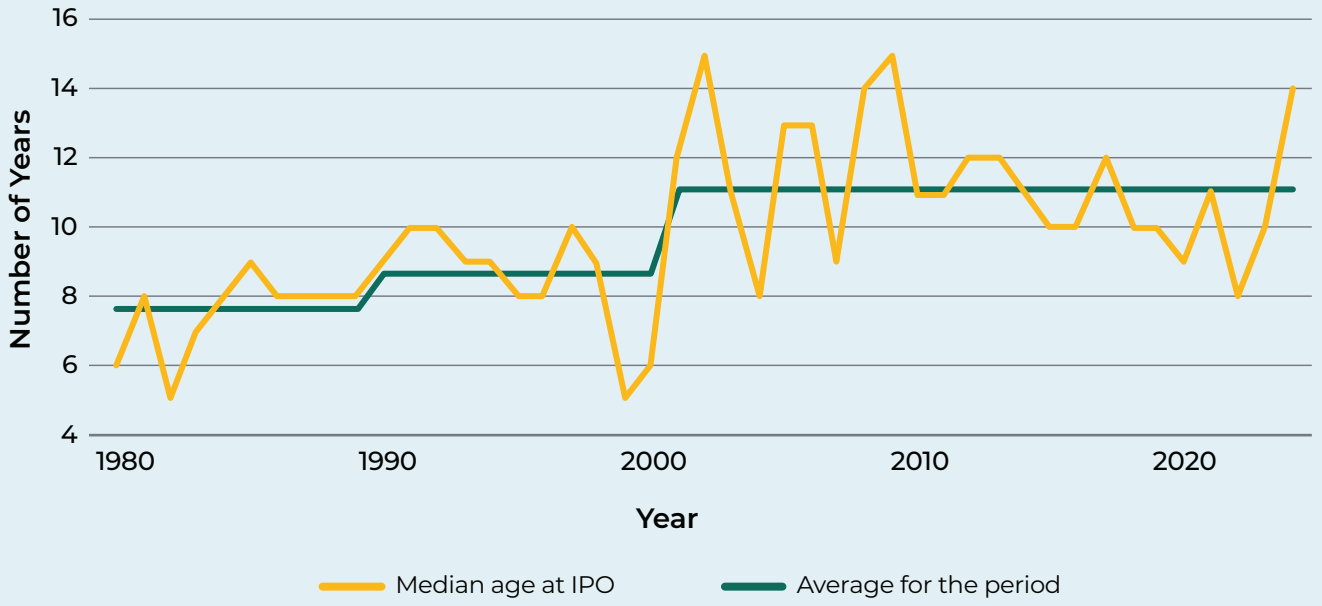
Another reason private companies may decide to stay private for longer is for easier alignment of management decisions with long-term strategic goals. Publicly traded companies are bound by quarterly earnings reports and market reaction. Managing short-term results may be counter to the decisions that otherwise would be made to reach long-term strategic goals, which makes staying private for longer more attractive in certain instances.

For all the attention that private equity receives, there remain advantages to investing in public equity markets. They provide access to capital for businesses, offer increased liquidity, and facilitate wealth creation. Public exchanges remain an important part of capital formation. For all of these reasons, investors likely will continue to look to public equity markets for reliable investments. However, given changing circumstances, private equity markets have become increasingly appealing for both borrowers and lenders. One consequence is that there are now five times as many private equity-backed firms as there are public companies.[43]

The significant growth in private equity has been aided by the growth in private credit. There is more private financing available to companies today, which makes it easier for companies to remain private since they don't need to access public markets to raise capital. While private credit may be facilitating the financing of private equity deals, the money

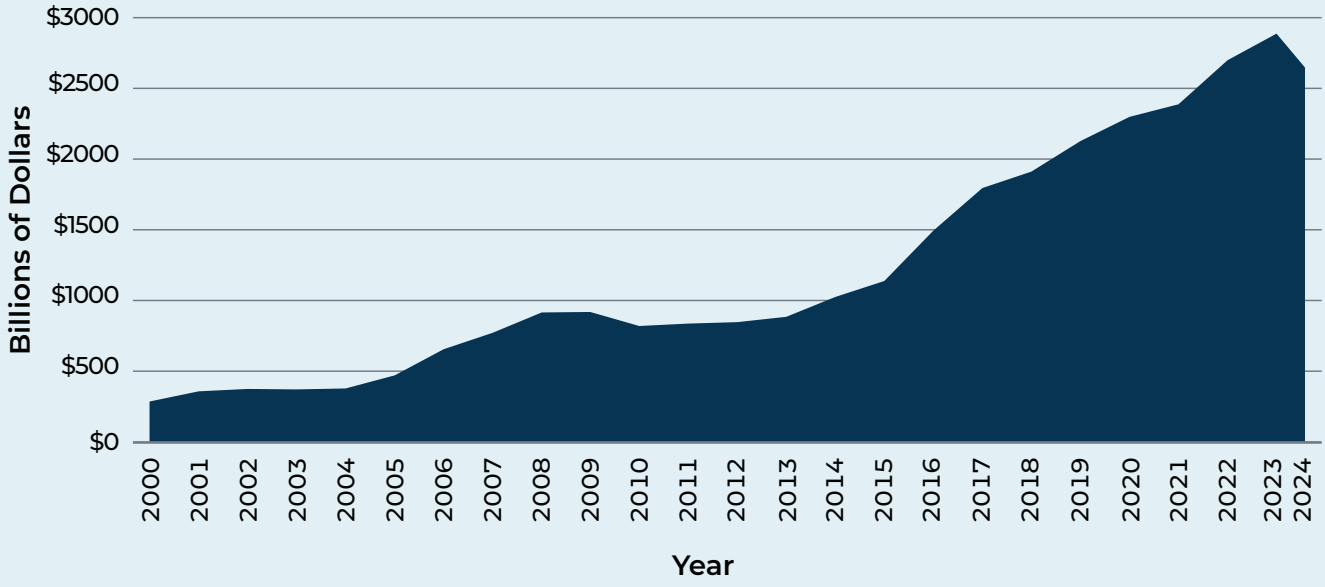
is coming from the significant amount of so-called "dry powder" held by private equity firms. Dry powder represents the as-yet uninvested assets held by private equity firms. Private equity dry powder reached a record amount of $2.62 trillion in the middle of 2024 (**Figure 15**).[44]

Figure 14: Companies Are Waiting Longer To Go Public



Source: Apollo Global Management: Apollo Chief Economist analysis of data from Jay Ritter

Figure 15: Private Equity Dry Powder



Source: Preqin Pro

Whatever the reason for the growth, private equity as a major asset class seems here to stay. The significant amount of outstanding dry powder strongly suggests that more private equity deals will come when conditions are favorable. And as more private companies stay private longer, allocations to both private and public equity are necessary for public pension plans to capture the full equity opportunity set and associated economic growth.

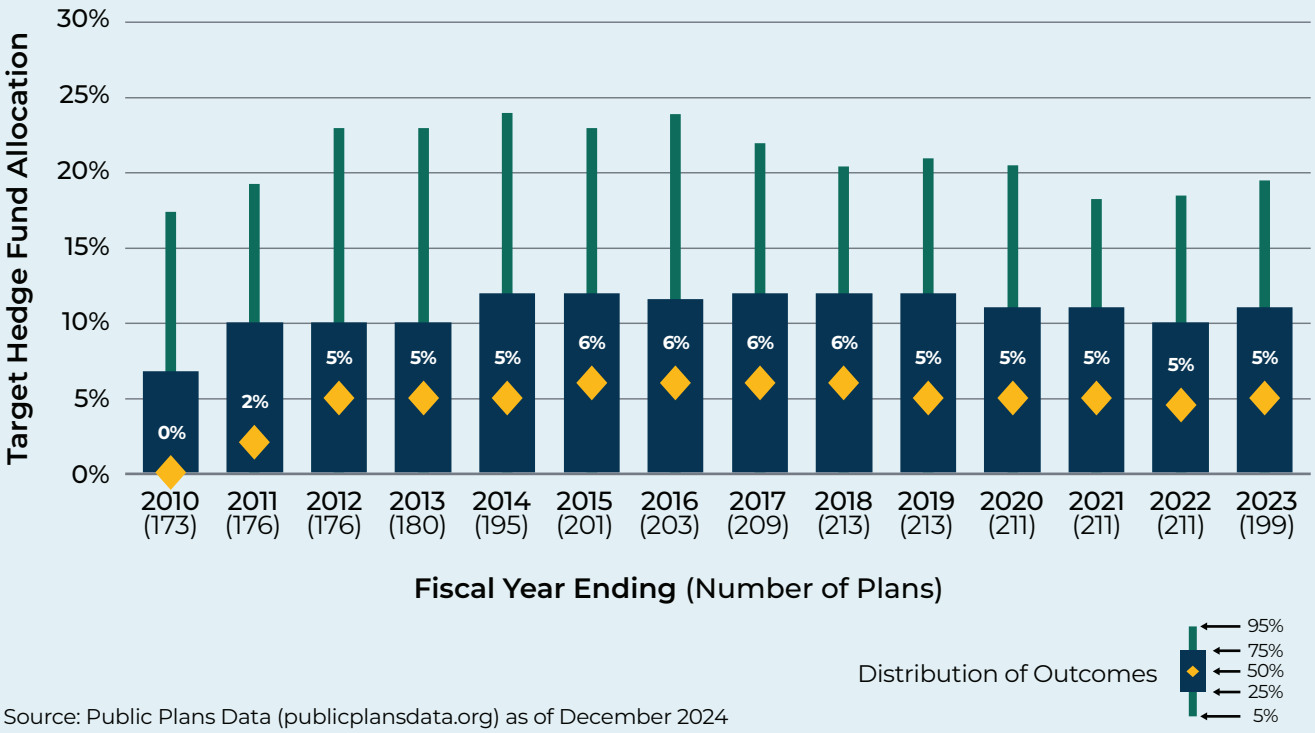
Hedging Their Bets

Hedge funds are another investment that has seen greater allocation from public pension funds since the GFC, as shown in **Figure 16**. As with private equity, hedge funds are not a new investment, but one that has experienced notable growth over the past two decades. A hedge fund, at its core, is an investing strategy. Arguably, private equity and private credit represent new ways that portions of the economy function, e.g., how certain companies are financed. Hedge funds are different. Hedge funds don't indicate the economy is working in a different way, rather they are a means for investors to pool their resources and invest following a specific strategy, e.g., a long/short strategy.

The premise of a hedge fund is that the fund is making a long-term bet that one thing will happen rather than another. This is why hedge funds typically require a lockup period for invested assets: short-term investments don't work with hedge funds because the investor and fund manager need to see if the hedge works out in the long term. This is also why manager selection is so important. An investor needs to trust that the fund manager knows what they're doing and can make a good decision.

Hedge funds often are used by institutional investors such as pensions or insurance funds or by high net worth individuals. Since hedge funds typically require a minimum amount of money to invest and a lockup period for that investment, they are not accessible for the average individual investor. But for precisely these reasons, they can make sense for long-term investors like pension funds. Pension funds already function according to the logic of pooling contributions for the long-term, so investing a portion of those assets in a hedge fund that may be more illiquid but offers the potential of above-average returns and/or downside risk protection is consistent with the goals of pension funds.

Figure 16: Distribution of U.S. Public Pension Target Hedge Fund Allocations



Source: Public Plans Data (publicplansdata.org) as of December 2024

Hedge funds did not appear in the average aggregate asset allocation at the turn of the century, but in the post-recession period grew to be five percent of the typical public pension plan portfolio, a level that has remained fairly consistent over the past decade. As returns declined within "traditional" asset classes, more long-term investors like pension funds looked to hedge funds as a source of return within their portfolios. A pension fund, in many ways, is the ideal investor for a hedge fund due to its long-term outlook. The staff of the pension fund can manage the relationship with the hedge fund over years and seek the most favorable terms for their investment.

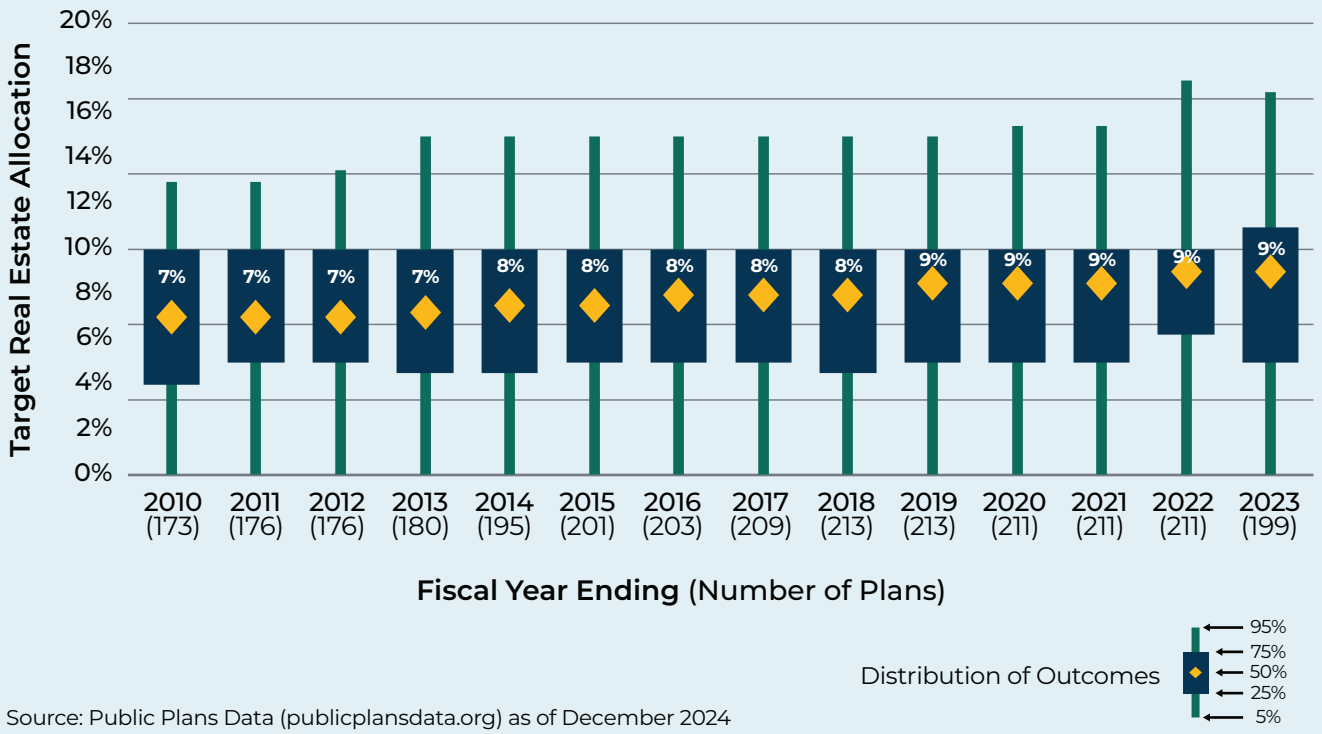
The growth of pension investment in hedge funds seems to be another consequence of the low return environment prevailing after the GFC. Global hedge fund assets under management (AUM) topped $2 trillion in 2007 before declining in the post-recession period. However, hedge fund AUM began to rise again in 2013 and has soared since then, topping $5 trillion in 2023.[45] The period during which assets managed by hedge funds rose corresponds with the increase in public pension fund investment in this asset class.

While the assets managed globally by hedge funds has continued to grow, the portion of their portfolio allocated to hedge funds by public plans seems to have plateaued. Goldman Sachs noted in early 2023 that pension plans were shrinking as a portion of the investment base for hedge funds.[46] While pensions were nearly 40 percent of the investors in hedge funds in 2018, that number had declined to less than 30 percent by 2022.

Real Estate, Real Assets, and Infrastructure

Real estate is yet another asset class that has seen increased investment from public pension funds in the post-GFC period (**Figure 17**). Pension funds had invested in real estate for decades before the 2007–2009 recession with the median fund allocating about four percent of its portfolio to real estate in 2001. This median plan allocation held steady around five percent for most of the aughts before rising above seven percent in 2012 and nearly ten percent by 2022. While still a small portion of the overall portfolio, this is a noticeable increase in allocation, doubling over two decades, and it is reflected in the changing aggregate asset allocation from FY01 to FY23.

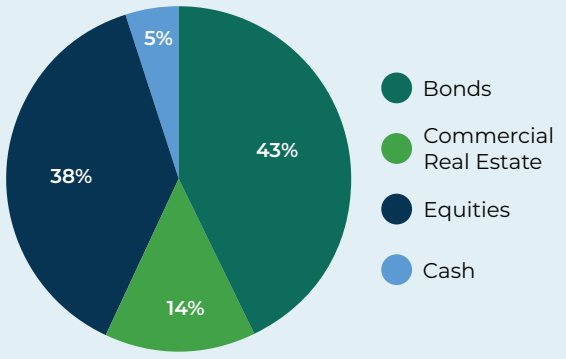
Figure 17: Distribution of U.S. Public Pension Target Real Estate Allocations



Source: Public Plans Data (publicplansdata.org) as of December 2024

Pension funds invest in real estate with the goal of diversifying their portfolios. **Figure 18** shows real estate as a portion of the total investable market in the U.S.[47] While bonds—comprising both government and corporate bonds and the various forms of private credit/debt—and equity—both public and private—remain by far the largest portions of the investment market, real estate is a fundamentally different asset class than either of those with different dynamics driving its outcomes. Therefore, the argument has long been that a successful investment in real estate can offer returns that are uncorrelated to other asset classes.

Figure 18: Commercial Real Estate of Investable Market Basket, 2020Q4



Sources: Stock and bond data from Board of Governors of the Federal Reserve, Financial Accounts of the United States, 2020:Q4; commercial real estate market size data based on Nareit analysis of CoStar property data and CoStar estimates of commercial real estate market size.

Investing in real estate can take different forms, just as with investing in equities or fixed income. A real estate investment can mean directly owning a property, such as an office building. It also can mean investing in a publicly traded real estate investment trust (REIT) or commercial mortgage-backed security (CMBS). REITs function more like equities while CMBSs are fixed-income products. As with the equity markets, real estate investing increasingly has been done through private equity real estate investments.

Along with greater investment in real estate, public pension funds also have begun to invest more in real assets, such as infrastructure. While infrastructure investing has existed for decades, the nature of that investment is changing.[48] Infrastructure investing used to involve owning a single, large asset such as a toll road or port. While that type of investment still occurs, infrastructure investing seems to be moving toward building out the infrastructure needed to support both the energy transition and the growth of the artificial intelligence (AI) industry. AI, for example, requires the use of data centers, which are heavy users of energy. Energy production will need to increase to support this rapidly expanding industry, and some companies are building the means of producing this energy. These companies could represent a new investment opportunity for institutional investors like pension funds.

More recently the growth in infrastructure exposure also has been driven by the evolution of investment vehicles that institutional investors can access. Infrastructure previously had been dominated by closed-end, long-term investment partnerships that had investment lives of 10+ years. With the development of open-end infrastructure fund vehicles that function similarly to the core open-end real estate market, more institutional investors can access this asset class with lower fees, less illiquidity, and less complexity.

Public Pension Plans Have Adapted to Changing Market Conditions

Following the GFC, remarkable changes to financial markets converged with public plans' need for return and diversification and resulted in the more diversified portfolios seen today. The growth of private markets has transformed how companies are financed and has altered the opportunity set available to institutional investors. Exposure to private markets is necessary for plans to gain exposure to the full investable opportunity set. That is the reality of markets today: public markets have shrunk and private markets have grown in response.[49]

HAS DIVERSIFICATION INTO ALTERNATIVES BEEN SUCCESSFUL?

The shift into alternative investments that largely took place over the past fifteen years often has been met with critiques that cite higher fees, greater illiquidity, less transparency, and more complexity. This ultimately results in questions such as "was it worth it?" or "has diversifying away from traditional assets worked?" These questions are valid and have recently bubbled up as public equity markets reached new highs in early 2025 and as fixed income is again offering respectable yields. The second part of this research seeks to evaluate if the move to a more diversified asset allocation was successful.

Before answering these questions, it is important to first define success. Success across public pension investing has a myriad of definitions that can include reducing unfunded liabilities, controlling the costs associated with the plan, meeting expected asset growth rates, outperforming a primary benchmark, and outperforming a peer group, to name a few. In keeping with the scope of this research, the focus is on asset performance success metrics. That said, it is important to acknowledge that asset performance is only one piece of the puzzle, and to truly be successful in managing a public pension plan, the full asset and liability picture must be considered.

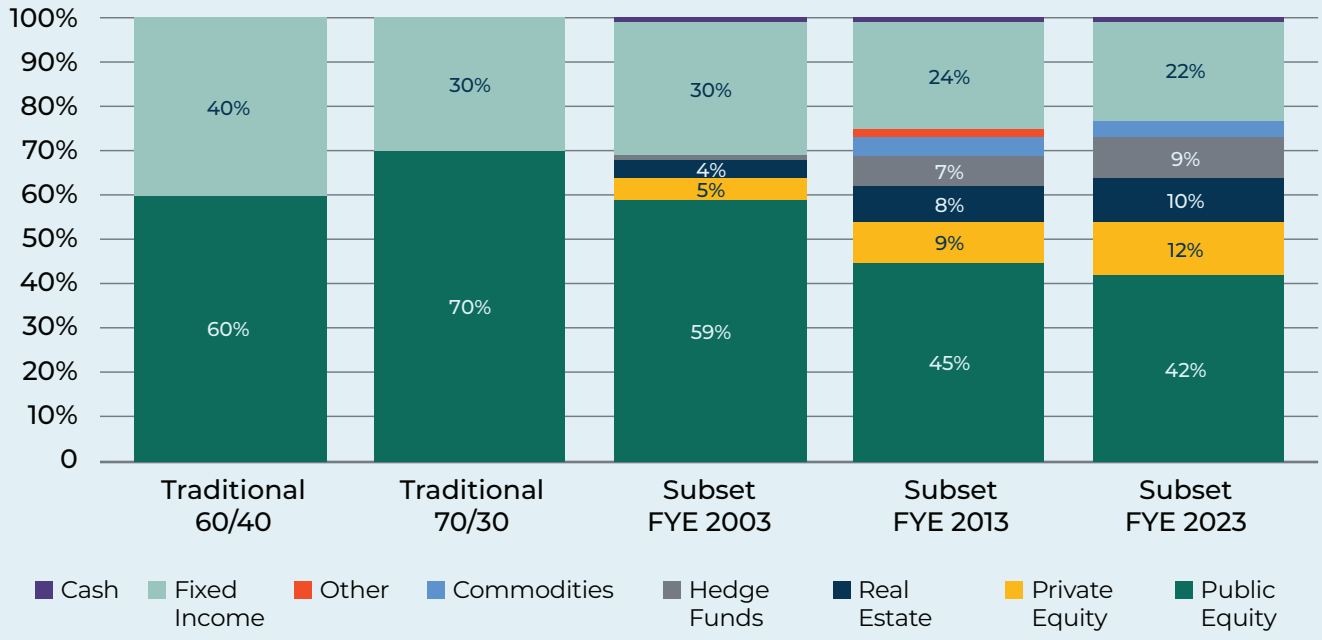
Specifically, this research answers the following questions:

- Has diversification been additive compared to a traditional public equity / public bond portfolio?
- Have public pension plans met their own investment objectives and could traditional portfolios have achieved the same results?

Research Data Definitions

The dataset used in this research represents the net-of-fee returns of 44 public pension plans with fiscal years ending June 30th.[50] The data is sourced from the Public Plans Database (PPD), which contains plan-level data from 2001 through 2023 for about 230 major state and local

Figure 19: The Evolution of Asset Allocation



Source: Public Plans Data (publicplansdata.org) as of December 2024

government pension plans. The subset of plans studied is broadly representative of the public pension universe, but results for this group of plans may not be representative of every public pension plan due to individual facts and circumstances.

Definitions used in this analysis include the following:

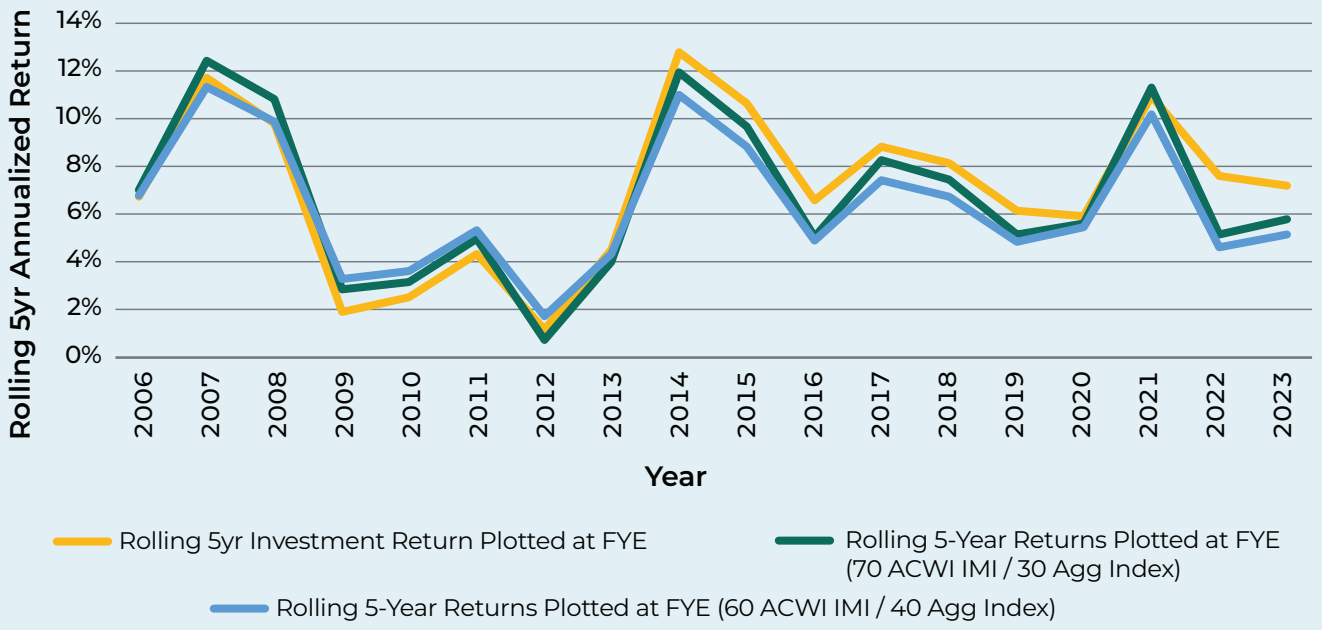
- Actual performance: The average annualized net-of-fee return of the universe of 44 public pension plans. This represents a portfolio that is diversified into alternative investments.
- Actuarial Assumed Rate of Return (AAROR): The average actuarial assumed rate of return of the universe of 44 public pension plans
- FYE: Fiscal Year Ending June 30th
- Traditional portfolios: 70/30 and 60/40 percentage splits to Global Equity (MSCI ACWI IMI) / Bonds (Bloomberg Aggregate Bond Index)

The table on the prior page (**Figure 19**) compares the average asset allocation of the public plan universe across time periods to the traditional 70/30 and 60/40 portfolios. As shown, the average public plan had a similar asset exposure to the traditional portfolios in the early 2000's. Public plans have gradually diversified away from traditional asset classes and into alternatives, with the bulk of this transition occurring after the GFC.[51]

HAS DIVERSIFICATION BEEN ADDITIVE COMPARED TO A TRADITIONAL PUBLIC EQUITY / PUBLIC BOND PORTFOLIO?

This paper has discussed the significant changes in public pension investing over the past 50 years, and particularly the shift into alternative assets over the most recent 15 years. Certainly, alternative investments add complexity to a portfolio and thus it is often asked whether a simple equity/bond portfolio could have performed just as well. The following analysis is a direct comparison of actual public plan performance, representing diversification into alternatives, versus traditional portfolio performance. This research studies both a 70/30 and 60/40 equity/bond split to broadly capture the risk profile of most public pension plans. This comparison directly assesses whether diversifying away from public equity and fixed income and into alternatives such as private equity/credit, real assets, hedge funds, and other alternative investments has been additive to asset performance. The analysis focuses on rolling five-year, net-of-fee returns to allow for a true evaluation of performance through full and different market cycles.

Figure 20: Investment Performance: Simple vs. Diversified Portfolios



Source: Public Plans Data (publicplansdata.org) as of December 2024

The data in **Figure 20** suggests that, for most periods studied and particularly following the GFC, actual performance outperformed traditional portfolios both on the upside and downside. Compared to a traditional portfolio, this research suggests that the evolution into alternative assets has allowed actual portfolio assets over long-term periods to:

- Grow more, net-of-fees, than they otherwise would have
- Grow at a lower level of risk (standard deviation, or volatility of returns)
- Mitigate drawdowns during periods of equity market weakness

Key Observations:

1. The rolling five-year returns are not dramatically different between the actual performance and traditional portfolios, and largely track one another.

The highly correlated relationship between actual and traditional performance is expected given that public equity, the largest driver of investment risk (return volatility), continues to be the dominant asset exposure in actual portfolios as well as traditional portfolios. Additionally, many other asset classes maintain some tie to public equity risk and thus, the pattern of returns between the actual performance and the traditional performance is expected to be largely correlated. That said, there is more difference post-GFC as alternative exposures grew across public pension portfolios. These differences, even if marginal, can offer meaningful benefits to public pension stakeholders through greater stability, potentially lower costs, and/or higher funded statuses.

2. Actual performance has outperformed traditional performance for most periods studied

Observable outperformance of actual returns begins following the GFC. This outperformance is driven by a combination of 1) the diversification benefits of alternatives, 2) the level of alternatives in portfolios, which has grown substantially over the most recent 15 years, and 3) generally and in aggregate, higher returns from alternatives than public markets. It is worth acknowledging that for most of the past decade fixed income returns were severely muted given the low-interest rate environment.

Diversification is often cited for its benefits of balancing market risk and providing a smoother pattern of returns. This benefit is highlighted when diversification improves downside scenario outcomes by mitigating certain risk exposures. The five-year periods ending in 2016 and recently in 2022 underscore this benefit. When public equities, or both

equities and bonds as was the case in 2022, produce weak or negative returns, exposures to alternative assets that provide differentiated market risk and return opportunities may help provide a buffer to the dynamics in public markets. This downside protection can be particularly helpful to plans with negative cash flow profiles and/or that are more sensitive to funded ratio volatility. A more diversified portfolio will reduce potential drawdowns during negative markets, which have the potential to be amplified if weak asset returns coincide with large cash needs.

What is also notable about the results in Figure 20 is that during periods of rising capital markets, actual performance not only kept up, but outperformed traditional portfolios. Often it is the case that when public equity markets rally, a more diversified portfolio will lag a traditional portfolio. This becomes particularly evident over shorter periods of time. That said, as shown in Figure 20, actual performance of the diversified portfolio peaked higher for the five year period ending in 2014 compared to the traditional portfolios. During this period, both public and private equity performed extremely well, and though public fixed income generated positive returns, diversification to alternatives such as private equity/credit, real estate, and infrastructure were additive to results due to return premiums over public markets and the positive impact of diversification. Subsequent to 2014, actual performance remained above traditional portfolio results through 2023 with one exception. For the five-year period ending in 2021, the traditional 70/30 portfolio did keep up with actual results, as public equity exceeded expectations and ended the five-year period with a positive 14.6 percent return.

From a pure risk and return perspective, these results suggest that over long-term periods (rolling five years), diversification into alternatives has generated better results compared to traditional portfolios. Importantly, these results are dependent on a plan's access to the right investment and administrative resources, tolerance for illiquidity, and ability to source skilled managers. These latter factors are not to be taken lightly; however, the results in Figure 20 are evidence that if done right, the inclusion of alternative assets can improve outcomes.

3. Actual performance was earned at a lower level of risk (return volatility).

Headlines for public pension plans, and most institutional investors for that matter, tend to focus on the returns generated. Return is important, but so is return volatility. Notwithstanding Harry Markowitz's Modern Portfolio Theory, which presumes investors always prefer less risk to more risk, reducing volatility has real dollar implications for public pension systems.[52] Traditional portfolios, with greater exposure to public equity, typically have higher volatility.[53] From a return perspective, this translates into higher highs and lower lows, but over the long-term the higher risk is expected to generate higher returns. Most public pension systems in the U.S. have a negative cash flow profile, which means that more dollars are paid out in benefit payments and expenses than are received from contributions. If large cash needs overlap with significant market drawdowns, it can force plans to make adversely timed asset sales, leaving plan assets impaired while increasing their unfunded actuarial liability. Plan circumstances can mitigate or amplify this and thus the importance of return volatility can differ from plan to plan.

For example, a plan with an actuarial funding policy (meaning contributions react to the plan's actuarial funding requirement) may be more sensitive to return volatility as market drawdowns may increase contributions, or the cost of the plan. That said, in this scenario, the assets may not be as impaired because of the higher contributions expected from funding. On the other hand, for plans with a static funding policy, all else equal, a market downturn will not impact the contributions coming into the plan. However, in this scenario, the assets may be more impaired and have a worse impact on funded ratio as the contributions are not making up for the investment losses. Lower volatility portfolios would help mitigate the downside risk of impaired assets and funded ratio erosion.

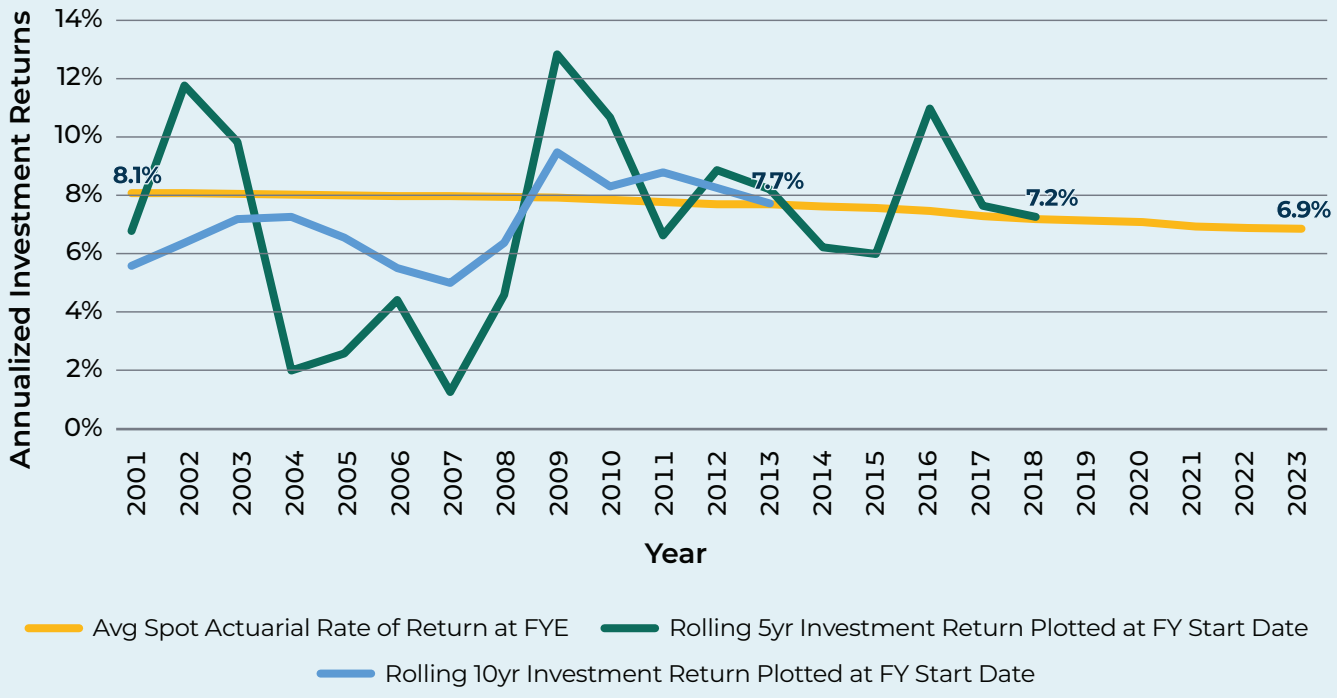
Reviewing past long-term performance has shown that diversifying into alternative investments has, over most time periods, outperformed traditional portfolios at a lower level of risk. While the results in most cases appear to offer the best of both worlds, higher returns and lower risk, it's important to be pragmatic with expectations. A more diversified portfolio may not always work better than a traditional portfolio. There have been, and will be in the future, periods of time when alternative investments do not keep up. This also will likely be true more frequently for shorter time periods (ex. trailing 1- and 3-years). For these reasons, it is important to balance short- and long-term performance evaluation with a preference towards the longer-term. Most public pensions have the benefit of a long-term time horizon due to their open and ongoing nature. This provides them the opportunity to take market risk while constructing portfolios that can weather a variety of market environments and harness the benefits of diversification.

HAVE PUBLIC PENSION PLANS MET THEIR OWN INVESTMENT OBJECTIVES AND COULD TRADITIONAL PORTFOLIOS HAVE ACHIEVED THE SAME RESULTS?

The second question this research sought to answer ties investment performance more directly to a public pension plan's investment return objectives. **Figure 21** compares the actuarial assumed rate of return (AAROR) to the actual performance public pensions earned. The AAROR is used to represent the long-term return expected from the portfolio's asset allocation at the time the asset allocation is set. The actual performance reflects the returns for the subsequent five and 10-year periods. Long-time periods were used to align with how the AAROR is interpreted and with how asset allocation strategy is set. A 10-year time period is preferred to better align with the long-term nature of the AAROR; however, we included the rolling five-year period as well to obtain more data points.

As an example, Figure 21 shows that at fiscal year-end 2013 (FYE = 6/30/2013) the average actuarial assumed rate of return was 7.7 percent. One can interpret this to mean that in 2013, this universe of plan sponsors expected their investment portfolios to earn an annualized 7.7 percent return (on average) looking forward over the long-term. The *actual subsequent* five-year return (FYs 2014 - 2018) was 8.2

Figure 21: Average Actuarial Rate of Return vs. Rolling 5/10 - Year Investment Experience



Source: Public Plans Data (publicplansdata.org) as of December 2024

percent and the *actual subsequent* 10-year return (FYs 2014 – 2023) was 7.7 percent. These specific data points would suggest that public pension portfolios met or exceeded the investment objectives for these time periods.

We then contrast these results with what a traditional portfolio would have earned. For the same five year and 10-year periods, neither a 70/30 nor a 60/40 portfolio would have met the average AAROR.

Figure 21 also reveals two different experiences for public plan portfolios. Prior to 2008, when most plans were expecting their assets to earn eight percent, actual performance fell short of those expectations. This is not surprising as the 10-year periods plotted from 2001 through 2008 (representing 10-year returns ending 2010 – 2017) include two of the worst stock market crashes in modern history: the Dot-com bubble and the GFC. The reality is that public pension portfolios did not meet expectations for these periods. However, we would re-direct this takeaway to address the intent of this research, which is to assess whether *diversifying into alternative investments* has worked. While we cannot claim for certain given most plans had little to no alternative exposure prior to 2008, one could argue that having a more diversified portfolio, and specifically one with less exposure to public equity during the equity market downturns, may have helped mitigate losses that public pensions experienced during these times.

As these market crashes roll out of the return periods, we see a different story. Actual performance has mostly met or exceeded expectations since the GFC. For each of the five 10-year periods studied ending FY 2018 through FY 2023, actual performance has met or exceeded return expectations. For the ten five-year periods studied that followed the GFC, 60 percent of those periods outperformed expectations. It was also during this period when exposure to alternative investments grew the most. After 2009, public pensions began to invest in more alternative assets, and those alternative portfolios that were started earlier began to mature and offer the portfolio diversification benefits.

While it is evident that there will be periods when portfolios may fall short of their long-term return expectations, after the GFC, public pension portfolios have mostly met or exceeded their investment objectives. Further, the diversification into alternatives has, net-of-investment fees, assisted public pension assets to meet return expectations at a greater frequency than what traditional portfolios would have achieved, as shown below.

Periods of Outperforming the Actuarial Assumed Rate of Return

	Rolling 5Y Periods (18 total)	Rolling 10Y Periods (13 total)
Peer Average	9	5
Traditional 60/40	5	0
Traditional 70/30	6	2

"Actual performance has mostly met or exceeded expectations since the GFC (Global Financial Crisis)."

EXTENDING RESULTS BEYOND ASSET PERFORMANCE

The primary focus of this research is to evaluate the asset performance of public pension portfolios and study if diversification into alternatives has been beneficial. The periods examined for this report largely support the notion that alternative investments have benefited public pension portfolio performance from both a risk and a return perspective over long-term periods. So why is there still so much criticism of public pension investing?

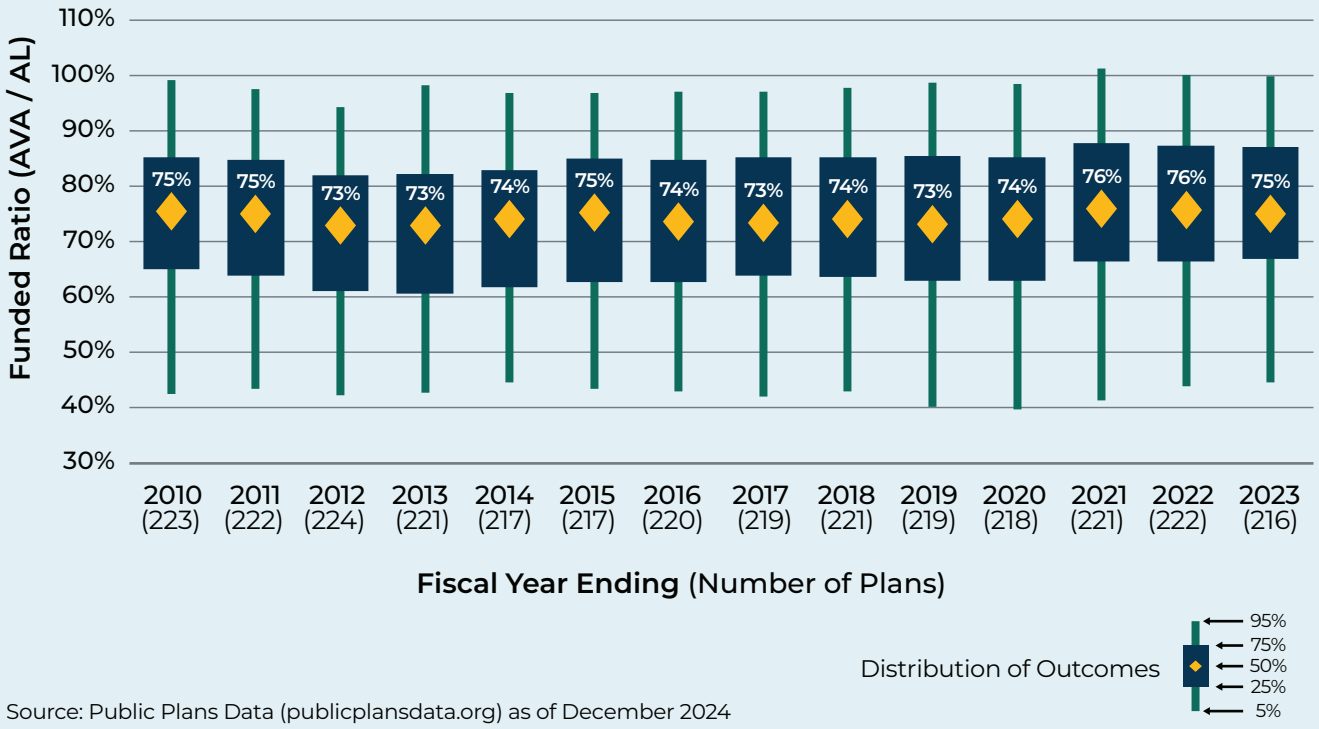
One reason is the trend of public pension plans' funded ratios. As shown in **Figure 22**, the median public pension plan is approximately 75 percent funded as of FYE 2023 and has been at this level for the past 10-15 years.

Figure 23 shows that public pension assets have more than doubled since the GFC to more than $6 trillion today. That is triple what it was in the early aughts right after the Dot-com bubble burst. It's worth acknowledging that public pension plans paid well over $1 trillion in benefits from 2007 through 2013 while recovering their asset base following losses during the GFC.[54]

Some of the asset growth in recent years is certainly attributable to greater contributions by both public employees and their employers, but that level of asset growth does not occur without strong investment returns. As shown above, asset performance over recent years has met or exceeded performance expectations. All else equal, one would expect strong performance to boost funding levels; however, all else has not been equal. The primary reason strong asset returns have not translated into improved funded ratios is because actuarial assumptions have changed.

An earlier National Institute on Retirement Security (NIRS) report examined the experiences of public pension plans since the GFC.[55] Part of that research focused on the changes in actuarial assumptions since the GFC and the role those changing assumptions have played in keeping public plan funding ratios where they are today. The previous research emphasized that, focusing solely on investment performance, many plans would have experienced improved funding ratios since the recession.

Figure 22: Distribution of U.S. Public Pension Funded Ratios

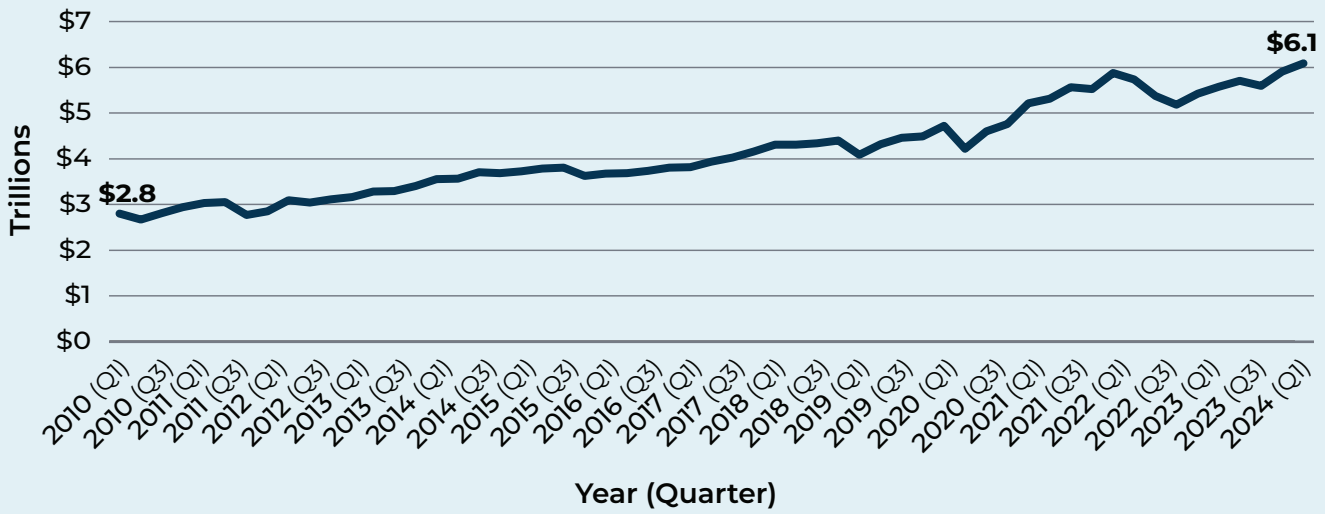


Source: Public Plans Data (publicplansdata.org) as of December 2024

That is, the investment performance of the plans has been strong enough that not only would they have recovered their investment losses, but they would have made sufficient gains to improve their funded status. The relatively flat funded ratios of public plans in aggregate since the GFC have been largely attributable to changes in actuarial assumptions, which were necessary to more accurately reflect the realities of the contemporary public sector workforce and today's capital markets.

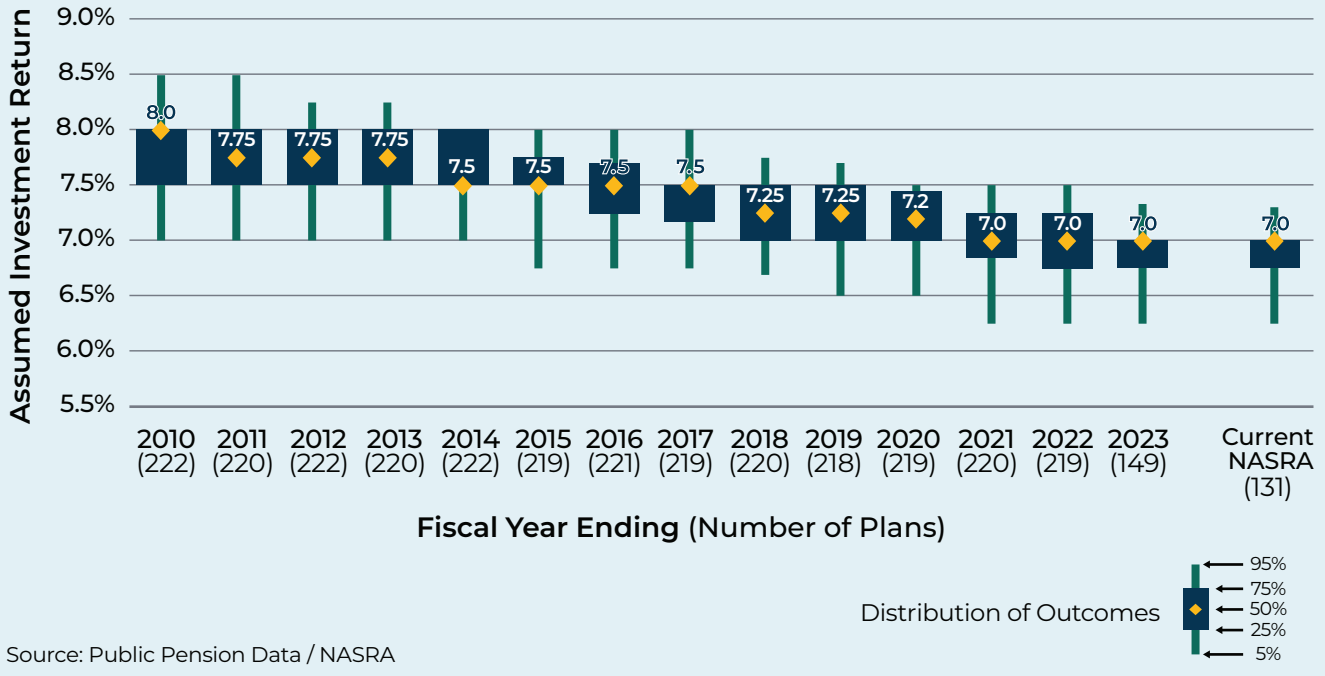
The largest influence has been the change in the assumed rate of return (**Figure 24**). The AAROR has come down from a median of eight percent in early 2000s to a median of seven percent today. Reducing the AAROR increases the

Figure 23: Public Pension Assets (as reported by the Federal Reserve)



Source: Federal Reserve Board as of July 2024

Figure 24: Distribution of U.S. Public Pension Investment Return Assumptions

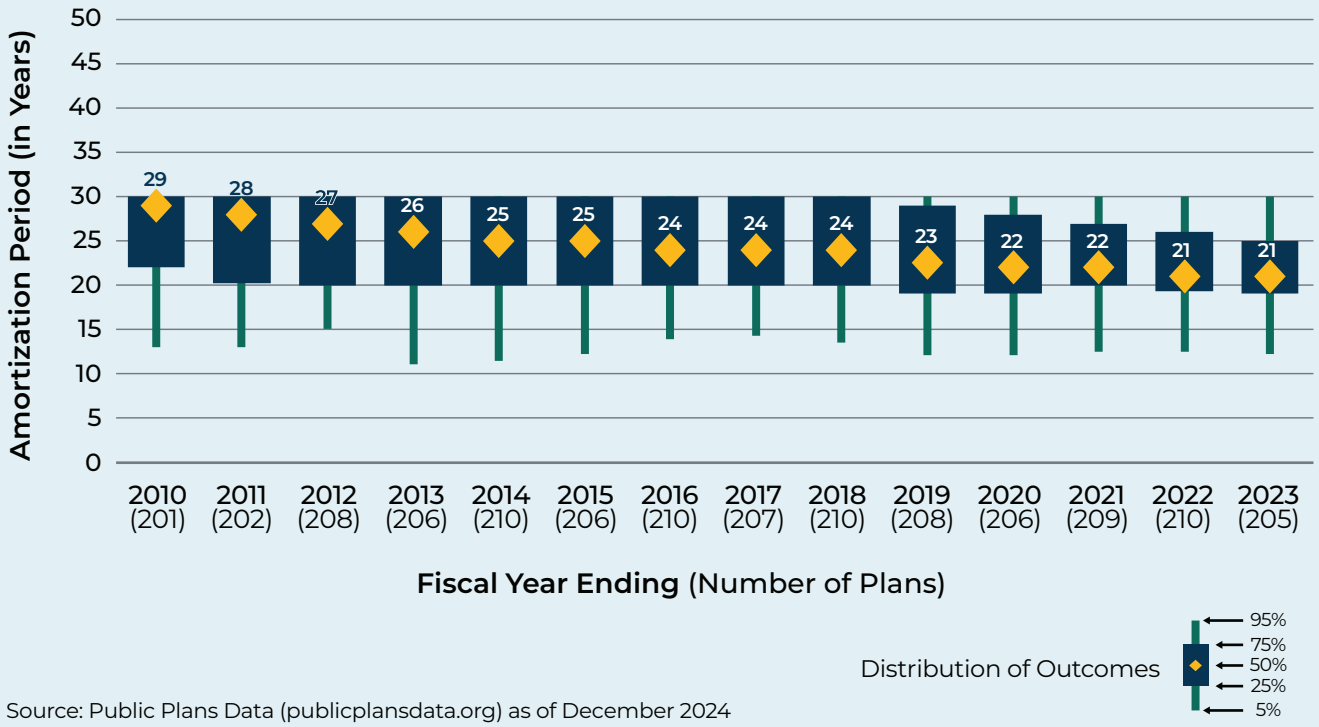


Source: Public Pension Data / NASRA

plan's liability (by assuming the plan will earn less) and has essentially offset strong asset performance; however, lowering the AAROR should mean that plan assumptions are more aligned with forward-looking return expectations. Thus, while funded ratios plateauing may not appear to be a successful outcome, when the underlying dynamics are understood, the reduction in the AAROR should result in public plans that are in a more favorable position to trend towards full funding.

Another reason public pension plans are better positioned today is that many contribution and funding policies have been adjusted to amortize unfunded liabilities more quickly. As shown in **Figure 25**, the median amortization period used by public pension plans has decreased from 29 years in FYE 2010 to 21 years in FYE 2023. Shortening these periods is expected to fill in any funding shortfalls faster – i.e., roughly during the working lifetime of the covered active population – and mitigate any intergenerational transfer of unfunded liabilities.

Figure 25: Distribution of U.S. Public Pension Amortization Periods



Source: Public Plans Data (publicplansdata.org) as of December 2024

STRATEGY SETTING PROCESS AND LOOKING AHEAD

Public pension investing has evolved with capital markets. But this evolution has not occurred blindly in lockstep as financial and capital markets have changed. Public pension plans use a rigorous process when setting asset allocation and employing investment strategy. The strategic investment policy-setting process most plans follow includes a rigorous asset-liability study. An asset-liability study is a process that factors in market risk and return expectations, liability profile, investment horizon, contribution policy, and stress testing across various economic scenarios.

These studies inform plan sponsors of the appropriate investment strategy and provide fiduciaries with the information to conclude that the studied asset allocation will

serve to achieve the plan's investment objectives considering its unique circumstances. This process, intended to provide confidence for both long-term periods and through periods of market volatility, should be conducted on a regular basis, typically every three to five years. This allows fiduciaries to evaluate new and existing allocations in light of updated circumstances. Given the changing dynamics discussed throughout this report, there is an expectation that more plans will trend toward full funding due to improved financial positions which may warrant changes in their future asset allocation strategy.

There is no doubt that capital markets will continue to evolve and so too will the nature of public pension investment portfolios. New investment options may come to market, and the attractiveness of available investments may change. Today's interest rate environment impacts the relative attractiveness of many types of assets where the returns are tied to interest rates (e.g., direct lending), where leverage is used (e.g., core real estate), or where performance is influenced by cash returns (e.g., some hedge funds using derivatives). Public pension systems will continue to assess the attractiveness of such strategies—both now and in the future—and continue to evolve with the global capital markets.

Speculation about the future is always uncertain, but there are some reasonable questions that could be asked about the future of public plan investment portfolios given current trends. For example:

- Has public plan investment in private markets plateaued?
- Relatedly, what would be the impact on public funds if private equity investments become available to individual, retail investors?
- Will pension funds pull back on alternative asset classes now that bond yields have risen again?
- Will cryptocurrencies begin to be included in some public pension fund portfolios?
- What could be the long-term impact of Artificial Intelligence (AI) on public plan investing, both in terms of the investment decision-making process and the companies in which public plans invest?

CONCLUSION

Public pension plans do not invest in a vacuum, and they do not get to choose the market environment. Public funds invest in the real world, which is constantly changing. This requires not only flexibility and adaptation on the part of public funds, but also regular review, scrutiny, and analysis of their investment portfolios to ensure investments are aligned with market expectations and plan circumstances.

Much changed in a short period of time for the investments of public funds, and they received a great deal of scrutiny for this change, especially given the relative quickness of the shift. At the same time, many public plans were criticized for the slowness and caution with which they were lowering their AARORs as they processed new information from capital markets about future investment returns. As more time has passed since the start of this reallocation, new data is starting to provide answers regarding the success of this change. Public pension plans have successfully navigated a challenging economic period by reallocating their investment portfolios and seizing opportunities in new asset classes. This has enabled them to meet or outperform their investment return expectations in many cases and continue to provide earned benefits to their members, while recovering their asset base from a once-in-a-century market downturn.

Most recently, the rise in interest rates over the past few years from the decade of ultra-low interest rates during the 2010s has shifted the discussion around various asset classes. Specifically, many public pension funds are re-evaluating fixed income, which has historically been a source of reliable returns. The investment portfolios of public pension plans seem likely to adjust once again to the new environment, which is different than the post-GFC period of the 2010s. While this may again raise pertinent questions about the specific investment decisions made, the track record for public fund investment portfolios is largely one of successfully navigating changing markets and economic terrain.

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ENDNOTES

1. Schroders. *Institutional Investor Study 2023.* Available on the web at: https://www.schroders.com/en-us/us/institutional/institutional-investor-study-2023/.
2. National Association of State Retirement Administrators (NASRA). "Public Pension Assets: Quarterly Update Q4 2024". Available on the web at: https://www.nasra.org/content.asp?admin=Y&contentid=200.
3. Unless noted otherwise, "public pension plans" will refer to state and local government pension plans throughout this report.
4. NASRA. "Contributions". Available on the web at: https://www.nasra.org/contributions.
5. Ilana Boivie and Dan Doonan. *Pensionomics 2025.* National Institute on Retirement Security. January 2025. Available on the web at: https://www.nirsonline.org/reports/pensionomics2025/.
6. Harry Markowitz. "Portfolio Selection". *The Journal of Finance.* Mar., 1952, Vol. 7, No. 1 (Mar., 1952), pp. 77-91.
7. National Conference on Public Employee Retirement Systems (NCPERS). *The Evolution of Public Pension Plans: Past, Present, and Future.* March 2008. Available on the web at: https://www.ncpers.org/files/ncpers-evolution-of-public-pensions-2008.pdf.
8. Ibid.
9. Clark, Robert, Lee Craig, and Jack Wilson. *A History of Public Sector Pensions in the United States.* Pension Research Council. 2003. Pg. 5.
10. Reticker, Ruth. "Benefits and Beneficiaries Under the Civil Service Retirement Act." *Social Security Administration Bulletin,* April 1941. Pg. 29.
11. Sean Vanatta. "The Financialization of U.S. Public Pension Funds, 1945-1974". University of Glasgow. August 2023. Available on the web at: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4271045.
12. Ibid.
13. Ibid.
14. Ibid.
15. Ibid.
16. Richard Schumann. "Compensation from World War II through the Great Society". *Compensation and Working Conditions,* U.S. Bureau of Labor Statistics. Fall 2001. Available on the web at: https://www.bls.gov/opub/mlr/cwc/compensation-from-world-war-ii-through-the-great-society.pdf#:~:text=As%20a%20result%20of%20wage%20restrictions%2C%20employers,medical%20insurance%2C%20and%20paid%20holidays%20and%20vacations.
17. S&P Global: S&P Dow Jones Indices

18. Vanatta, op. cit.
19. Ibid.
20. The state pages on NASRA's website describe whether the prudent investor rule is required by state law or is adopted by the board of the public pension plan. Each state's page can be accessed via https://www.nasra.org/states.
21. Robin Greenwood and David Scharfstein. "The Growth of Finance", *Journal of Economic Perspectives*—Volume 27, Number 2—Spring 2013—Pages 3–28.
22. Julia Moriarty. "Risky Business Update: Challenging Environment Tests Strong CMAs." Callan. January 29, 2025. Available on the web at: https://www.callan.com/blog-archive/risky-business-2025/.
23. 10-year Treasury Note Yield (TNX)
24. Richard Stevenson. "Down Into the Fray", *The New York Times*. January 27, 2001. Available on the web at: https://www.nytimes.com/2001/01/27/business/down-into-the-fray.html?smid=url-share.
25. Since the end of World War II, the U.S has suffered through 12 recessions, or an average of one every 6.5 years (source: https://www.kiplinger.com/slideshow/investing/t038-s001-recessions-10-facts-you-must-know/index.html).
26. Moriarty, Op. Cit.
27. Marc Labonte and Andrew Scott. "Bank Capital Requirements: Basel III Endgame". Congressional Research Service. November 30, 2023. Available on the web at: https://www.congress.gov/crs-product/R47855#:~:text=The%20proposal%20would%20apply%20to,approaches%20for%20the%20first%20time.
28. William Emmons. "Slow, Steady Decline in the Number of U.S. Banks Continues" Federal Reserve Bank of St. Louis. December 9, 2021. Available on the web at: https://www.stlouisfed.org/on-the-economy/2021/december/steady-decline-number-us-banks
29. Ares Management. "Understanding Private Credit: the History and Current State of the Asset Class"
30. Young Soo Jang and Steven Kaplan, "Some Thoughts on Private Markets", Presentation to BIS Pension Fund Workshop on Private Markets, March 2024; Figure 10, slide 13.
31. Jordan Pandolfo, Chris Acker, and Phillip An. "Interest Rates and Nonbank Market Share in the U.S. Mortgage Market". Economic Review, Federal Reserve Bank of Kansas City. February 13, 2025. Available on the web at: https://www.kansascityfed.org/research/economic-review/interest-rates-and-nonbank-market-share-in-the-us-mortgage-market/.
32. Carlin Calcaterra and Brendan McCurdy. "Private Debt Dominance: What drives private credit's outsized yield and lower risk, and is it sustainable?" *Private Market Insights,* Ares Wealth Management Solutions.
33. Ibid.
34. Preqin. "The Past, Present, and Future of the Industry: Alternatives: an Early History". Available on the web at: https://www.preqin.com/academy/lesson-1-alternative-assets/past-present-future-of-the-alternative-assets-industry.
35. Michelle Celarier. "The Private Equity Market Has Stalled — And There's No Easy Fix", *Institutional Investor.* March 20, 2024. Available on the web at: https://www.institutionalinvestor.com/article/2cztq2fsgr9ld7xpfghkw/corner-office/the-private-equity-market-has-stalled-and-theres-no-easy-fix and Neuberger Berman. "The Historical Impact of Economic Downturns on Private Equity". December 2022.
36. World Bank Group. "Listed domestic companies, total - United States" Available on the web at: https://data.worldbank.org/indicator/CM.MKT.LDOM.NO?locations=US.
37. Vartika Gupta, Tim Koller, and Peter Stumpner. "Reports of corporates' demise have been greatly exaggerated". McKinsey & Company. October 21, 2021. Available on the web at: https://www.mckinsey.com/capabilities/strategy-and-corporate-finance/our-insights/reports-of-corporates-demise-have-been-greatly-exaggerated.
38. Daniel Ackerman. "The number of publicly traded companies in the U.S. is in decline. Here's why that matters." Marketplace. May 13, 2024. Available on the web at: https://www.marketplace.org/story/2024/05/13/the-number-of-publicly-traded-companies-in-the-us-is-in-decline-heres-why-that-matters.
39. Gupta et al., Op. Cit.
40. Meketa Investment Group. "Decreasing Number of Public Companies". January 2019. Chart 4: https://meketa.com/wp-content/uploads/2012/10/Decreasing-Number-of-Public-Companies-FINAL.pdf.

41. Ibid.
42. Ernst and Young, prepared for the American Council for Capital Formation. "The declining number of public companies and mandatory reporting requirements". June 2022.
43. Nicole Goodkind. "America has lost half its public companies since the 1990s. Here's why" CNN. June 9, 2023. Available on the web at: https://www.cnn.com/2023/06/09/investing/premarket-stocks-trading. See also: Chao Ma. "Alternatives Spotlight: Private Markets' Expanding and Diverse Opportunity Set." Wells Faro Investment Institute. July 15, 2024.
44. Dylan Thomas and Annie Sabater. "Private equity dry powder growth accelerated in H1 2024". S&P Global, Market Intelligence. July 12, 2024. Available on the web at: https://www.spglobal.com/market-intelligence/en/news-insights/articles/2024/7/private-equity-dry-powder-growth-accelerated-in-h1-2024-82385822#:~:text=Private%20equity%20dry%20powder%20accumulated,Concentration.
45. Statista. "Value of assets managed by hedge funds worldwide from 1997 to 2024". April 2025. Available on the web at: https://www.statista.com/statistics/271771/assets-of-the-hedge-funds-worldwide/.
46. Nell Mackenzie. "Pension schemes' share of hedge fund investments hits lowest in 5 yrs – Goldman". Reuters. February 15, 2023. Available on the web at: https://www.reuters.com/business/finance/pension-schemes-share-hedge-fund-investments-hits-lowest-5-yrs-goldman-2023-02-15/.
47. Meredith Despins. "The Role of Real Estate in Pension Funds". Nareit. August 7, 2019. Available on the web at: https://www.reit.com/news/blog/nareit-developments/role-real-estate-pension-funds.
48. Patrick O'Hara, Russell Metcalfe, and Dave LaBrie. "Real Assets 2.0: Riding the Next Wave in Infrastructure Investing". Barings. July 2023.
49. Emma Charlton. "The global supply of equities is shrinking – here's what you need to know". World Economic Forum. April 24, 2024. Available on the web at: https://www.weforum.org/stories/2024/04/equities-stock-market-health-investing/ ; Duncan Lamont. "How should investors respond to the stock market's dwindling status?" Schroders. July 24, 2023. Available on the web at: https://www.schroders.com/en-us/us/individual/insights/how-should-investors-respond-to-the-stock-market-s-dwindling-status-/ ; and Nicole Goodkind. "People are exiting the stock market in droves". CNN. June 5, 2024. Available on the web at: https://www.cnn.com/2024/06/05/investing/premarket-stocks-trading/index.html.
50. Includes a meaningful number of plans that report net-of-fees and returns from FYE 2001. Subset of plans determined to largely represent the broad public pension investment universe.
51. Apollo Global Management identified four periods of asset allocation for institutional investors that concurs with the analysis of the change in asset allocation described in this report. See: Torsten Slok. "The Evolution of Asset Allocation". Apollo Academy. January 28, 2025. Available on the web at: https://www.apolloacademy.com/the-evolution-of-asset-allocation/.
52. Markowitz, Op. Cit.
53. An analysis conducted by Apollo Global Management found that the primary source of return in the 60/40 public equity and bond portfolio is the stock market. See: Torsten Slok, "The Source of Returns in the 60/40 Portfolio". Apollo Academy. February 14, 2025. Available on the web at: https://www.apolloacademy.com/the-source-of-returns-in-the-60-40-portfolio/.
54. Tyler Bond, Dan Doonan, Todd Tauzer, and Ron Temple. *Examining the Experiences of Public Pension Plans Since the Great Recession.* National Institute on Retirement Security. October 2022. Available on the web at: https://www.nirsonline.org/reports/greatrecession/.
55. Ibid.

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