The Impact of GASB 67 & 68 on Pension Plan Discount Rates and Unfunded Liabilities

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Background about GASB 67 and 68

- Statements 67 and 68 establish standards for measuring and recognizing net pension liabilities, enhancing the transparency, understandability, consistency, and usefulness of pension information for users of government financial reports.
- **GASB 67**: Provides guidelines for pension plan reporting, effective after June 15, 2013.
- **GASB 68**: Focuses on pension obligations for government employers, effective after June 15, 2014.
- **Blended Discount Rate** (1) long-term expected rate of return on plan investments to the extent that current and expected future plan net assets are projected to be sufficient to make benefit payments; and (2) a high-quality municipal bond index rate beyond the point at which plan net assets are projected to be fully depleted.

Timeline of GASB Standards

- **2010**: On June 16, 2010, the Governmental Accounting Standing Boards (GASB) published a preliminary view on the issues related to Pension Accounting and Financial Reporting by Employers and request public comments by September 17, 2010.
- **2012**: In June 2012, GASB issued Statements 67 and 68 to provide updated guidelines for pension systems (Statement 67) and government employers (Statement 68) to improve pension accounting and financial reporting
- **2013**: GASB 67 takes effect for fiscal years beginning after June 15, 2013
- **2014**: GASB 68 takes effect for fiscal years beginning after June 15, 2014

Literature review on major viewpoints on GASB 67 and 68.

- Some anticipated outcomes of the new standards, such as a possible downward trend in discount rates and an increase in reported net liabilities (Aubry et al., 2017; Mortimer & Henderson, 2014; Weinberg & Norcross, 2017)
- Some studies identified some impacts of GASB 68 in making government financial reporting more transparent by increasing awareness of the financial costs of pension obligations (Dambra et al., 2023; Weinberg & Norcross, 2017).
- Some concerns on the effectiveness of the new standards in creating a universal accounting methods and assumptions for pension reporting (Allen & Petacchi, 2023; Schrager, 2024; Thornburg & Rosacker, 2018)
- Studies found that pension plans as well as the government-sponsoring those plans might adjust their funding policies or investment strategies changes following the introduction of GASB 67/68 (Allen & Petacchi, 2023; Mortimer & Henderson, 2014;

Research Questions

1. How have public pension plans' discount rates changed since GASB 67 and 68?
2. What impact have these standards had on pension liabilities and funded ratios?
3. How do well-funded and underfunded plans respond differently to these changes?

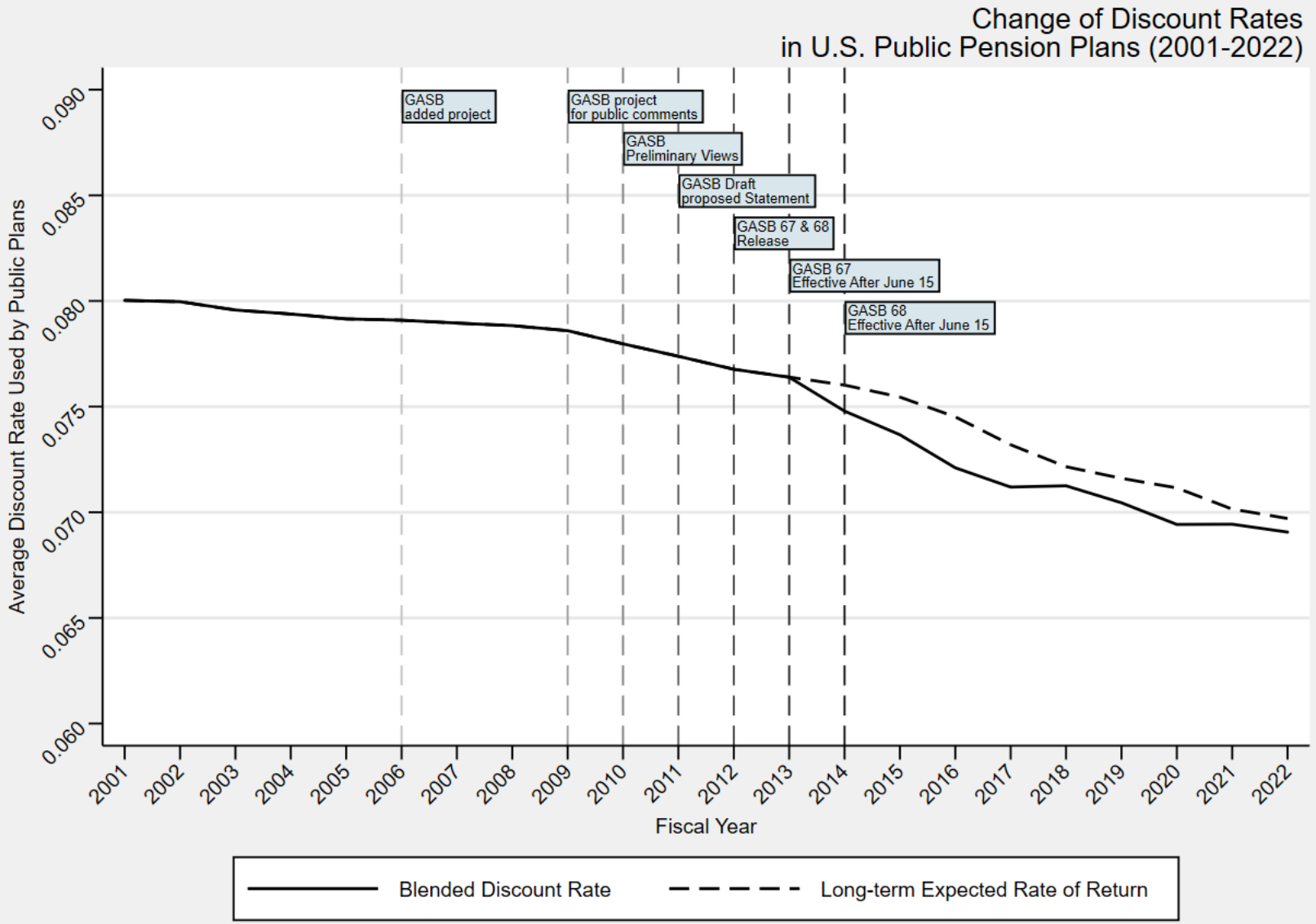
Data and Research Methods

1. We use the 2013-2022 qualitative information hand collected from the pension plans Annual Comprehensive Financial Reports (ACFRs) to examine nuances in how public pension plans implement Standard 67
2. We also use the Public Plan Database (PPD) for our descriptive and regression analysis to better understand the extent to which public pension plans changes their actuarial assumptions.

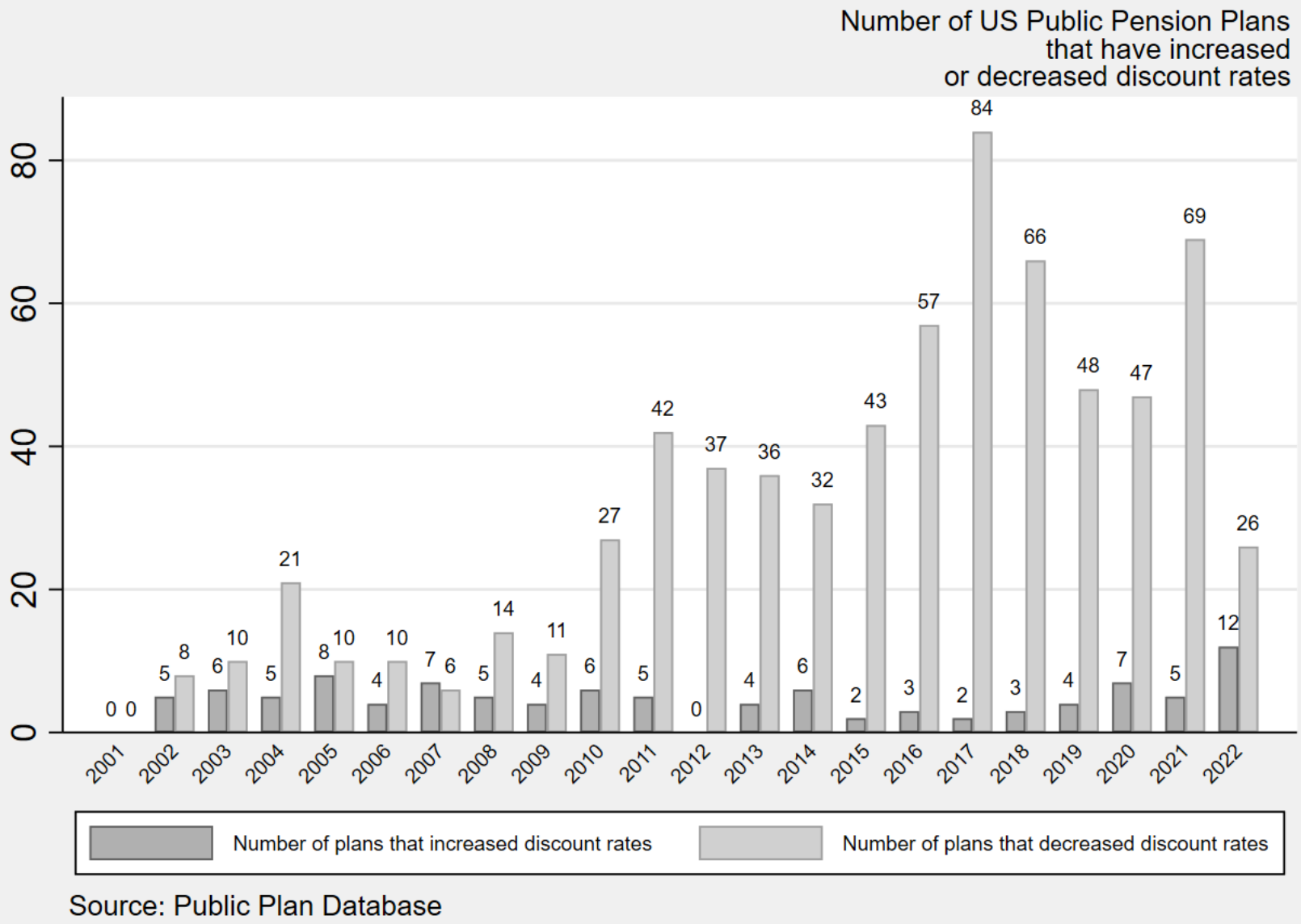
Administor	**Single**	**Agent**	**Cost-sharing**	**Total**	**Percentage (%)**
State	7	17	94	118	56.19
County	9	0	8	17	8.09
City	63	0	5	68	32.38
School	3	0	4	7	3.33
Total	**83**	**17**	**110**	**210**	**100**

Table 1: Distribution of Public Pension Plans by Administrator Type

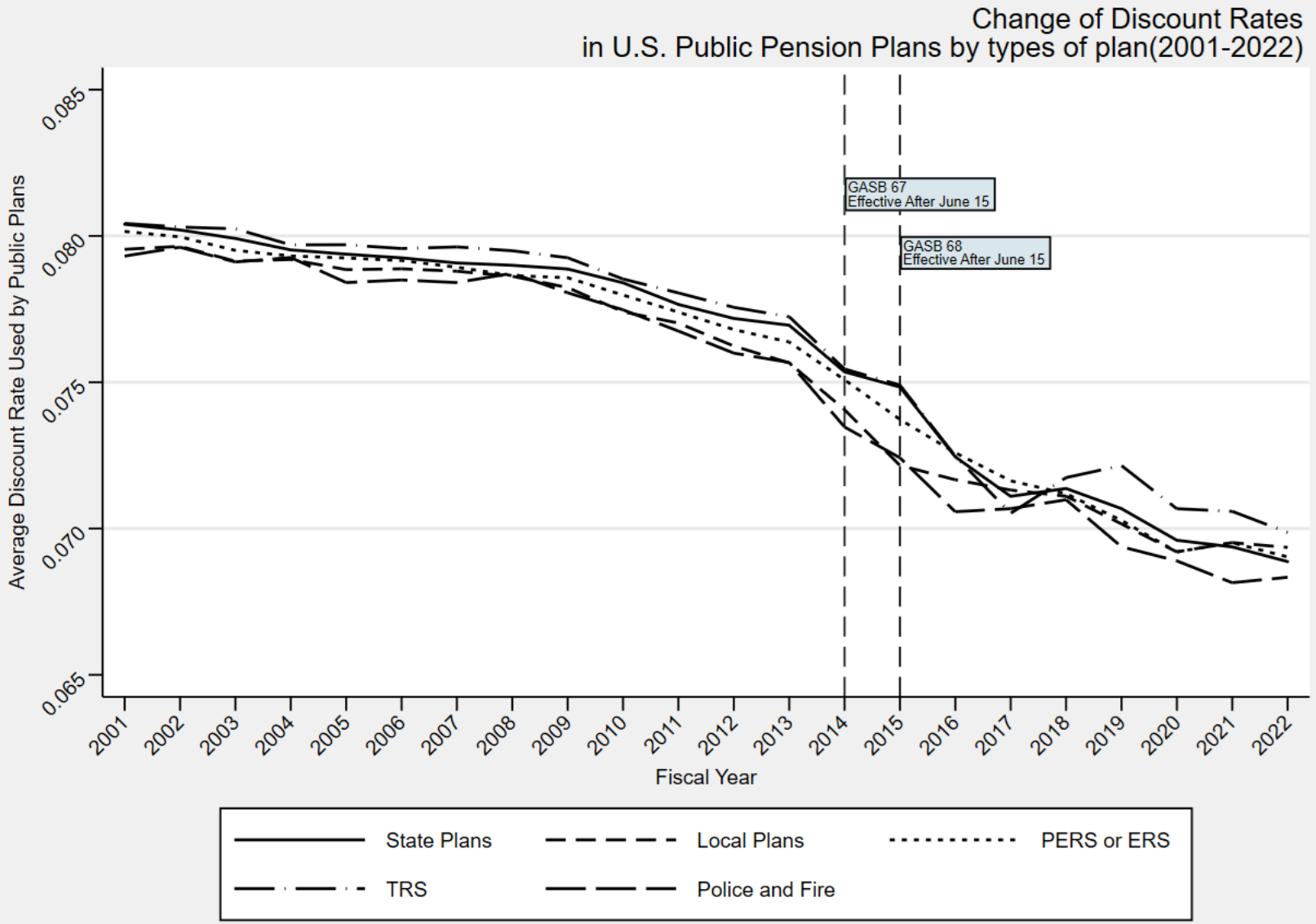
Change of Discount Rates



Plans that have changed the discount rates



Change of Discount Rate by Types of Plan



Regression Equations

Equation 1:

$$Y_{st} = \beta_0 + \beta_1 \cdot \text{Post\_GASB67}_t + \beta_2 \cdot PC_{st} + \text{trend} + \nu_s + \epsilon_{st}$$

Equation 2:

$$Y_{st} = \delta_0 + \sum_{m=1}^{5} \delta_{-m} \cdot \text{GASB67}_{t-m} + \sum_{q=1}^{5} \delta_{+q} \cdot \text{GASB67}_{t+q} + \delta_2 \cdot PC_{st} + \text{trend} + \nu_s + \epsilon_{st}$$

Equation 3:

$$Z_{st} = \gamma_0 + \gamma_1 \cdot \text{Post\_GASB67}_t + \gamma_2 \cdot PC_{st} + \text{trend} + \nu_s + \epsilon_{st}$$

Variables

- **Dependent Variables**:
  - Blended Discount Rate (BDR) & Rate of Return (ROR)
  - Total Pension Liability (TPL) & Actuarial Liabilities (AL)
  - GASB 67 funded ratio (FR_GASB67) & Actuarial Funded Ratio (AFR)
  - ("Z") Contribution Rate, Amortization Period, Asset Smoothing Period
- **Independent Variables**:
  - Post-GASB 67 (2014 as the first year)
- **Control Variables**:
  - plan characteristic variables: percent of required contribution paid, amortization period, asset smoothing period, normal cost rate, 5-year average investment return, retiree to worker ratio, open or closed amortization method, total membership (log), Social Security coverage (yes or no), open or closed plan, employment types (teachers, police and firefighter, or general public employees), and plan types (multi-employer plans and single plans)

Variable Definitions

Variables	**Definitions**
Blended Discount Rate (BDR)	Blended discount rate * 100
Rate of Return (ROR)	Long-term investment rate of return * 100
Total Pension Liability (TPL)	Total pension liability / payroll * 100
Actuarial Liability (AL)	Actuarial Liability / payroll * 100
Funded Ratio (FR) GASB67	Funded ratio based on TLP (%)
Actuarial Funded Ratio (AFR)	Funded ratio based on AL (%)
ADC paid	Percent of required contribution paid
Amortization (AMORT)	Remaining amortization period for unfunded liabilities (years)
Asset Smoothing (SMOOTH)	Asset Smoothing Period (years)
Normal Cost Rate	Total normal cost / payroll
5-year Return Rate	Average of 5-year returns (%)
Retiree-to-worker ratio	Total beneficiaries / total active members
Open Amortization	Open amortization funding method (Yes=1; No=0)
Membership (log)	Total number of members (log)
Social Security Coverage	Plan members are covered by Social Security (Yes=1; No=0)
Closed Plans	Plans are closed to new members (Yes=1; No=0)
Teachers' Retirement Plans	Whether the plan type is Teachers' Retirement System
Police and Fire Plans	Whether the plan type is Public Safety Plan (Yes=1; No=0)
Single Employer Plans	Whether the plan is a single employer plan (Yes=1; No=0)

Table 2: Variable Definitions for Public Pension Plan Analysis

Results - Discount Rate, Liabilities and Funded Ratios

VARIABLES	BDR	ROR	TPL	AL	FR_GASB67	AFR
Post GASB 67	-0.60***	-0.36***	0.79***	0.48***	-6.33***	-3.91***
	(0.06)	(0.04)	(0.12)	(0.09)	(1.04)	(0.90)
Normal Cost Rate	-1.08	-2.22***	9.77***	10.03***	-13.20	-23.50
	(0.72)	(0.55)	(2.86)	(1.96)	(18.63)	(18.36)
ADC paid	0.00	-0.15*	-0.42**	-0.25	7.74***	6.96***
	(0.10)	(0.08)	(0.20)	(0.17)	(2.39)	(2.42)
5-year Return Rate	0.02***	0.01***	-0.01*	-0.01	1.10***	0.65***
	(0.00)	(0.00)	(0.01)	(0.01)	(0.06)	(0.06)
Retiree-to-worker ratio	-0.30***	-0.45***	4.60***	4.70***	-6.85**	-8.71**
	(0.11)	(0.12)	(0.41)	(0.40)	(3.32)	(3.70)
Amortization Period	0.00	0.01***	-0.01	-0.01	-0.31***	-0.27***
	(0.00)	(0.00)	(0.01)	(0.01)	(0.09)	(0.08)
Asset Smoothing Period	-0.01	-0.01	0.06	0.06	-0.79**	-0.81**
	(0.02)	(0.02)	(0.04)	(0.04)	(0.40)	(0.40)
Open Amortization	-0.00	0.15***	0.11	-0.02	3.03***	4.20***
	(0.05)	(0.04)	(0.13)	(0.11)	(1.04)	(0.91)
Observations	2,630	2,630	2,630	2,630	2,630	2,630
R-squared	0.253	0.270	0.731	0.766	0.210	0.169
Control Variables	Yes	Yes	Yes	Yes	Yes	Yes

Results - Event Study

VARIABLES	BDR	ROR	TPL	AL	FR_GASB67	AFR
Pre GASB 67 (t-4)	0.25***	0.20***	-0.50***	-0.35***	6.85***	5.42***
	(0.05)	(0.03)	(0.12)	(0.07)	(0.98)	(0.87)
Pre GASB 67 (t-3)	0.16***	0.12***	-0.34***	-0.23***	4.73***	3.72***
	(0.04)	(0.02)	(0.08)	(0.05)	(0.74)	(0.60)
Pre GASB 67 (t-2)	0.13**	0.08***	-0.21*	-0.05	4.20***	2.15***
	(0.06)	(0.03)	(0.12)	(0.05)	(0.91)	(0.74)
GASB 67 (t)	-0.24***	-0.06	0.28	0.02	-0.58	-0.91
	(0.09)	(0.04)	(0.18)	(0.06)	(1.21)	(0.88)
Post GASB 67 (t+1)	-0.34***	-0.10***	0.44***	0.11**	-1.70*	0.82
	(0.08)	(0.03)	(0.17)	(0.05)	(0.97)	(0.72)
Post GASB 67 (t+2)	-0.46***	-0.17***	0.56***	0.23***	-3.10***	1.63***
	(0.08)	(0.03)	(0.11)	(0.06)	(0.84)	(0.55)
Post GASB 67 (t+3)	-0.60***	-0.31***	0.53***	0.25***	-1.51	0.96
	(0.07)	(0.04)	(0.10)	(0.07)	(1.00)	(0.83)
Post GASB 67 (t+4)	-0.56***	-0.40***	0.45***	0.31***	0.15	1.63**
	(0.06)	(0.03)	(0.10)	(0.08)	(0.94)	(0.80)
Observations	1,717	1,717	1,717	1,717	1,717	1,717
R-squared	0.255	0.301	0.730	0.769	0.119	0.0733
Control Variables	Yes	Yes	Yes	Yes	Yes	Yes

Robust standard errors in parentheses *** p<0.01 ** p<0.05 * p<0.1

Results by funded status

VARIABLES	BDR (>=80% Funding)	TPL (>=80% Funding)	BDR (<80% Funding)	TPL (<80% Funding)
Post GASB 67	-0.02	0.33***	-0.31***	0.64***
	(0.06)	(0.11)	(0.09)	(0.16)
Normal Cost Rate	-2.54***	9.60***	-0.75	9.84***
	(0.70)	(2.74)	(0.65)	(3.70)
ADC paid	0.03	-1.07***	0.13	-0.25
	(0.15)	(0.33)	(0.12)	(0.24)
5-year Return Rate	0.00	-0.01	0.01*	-0.00
	(0.00)	(0.01)	(0.00)	(0.01)
Retirees to Active Ratio	0.32**	5.84***	-0.06	4.05***
	(0.14)	(0.64)	(0.09)	(0.42)
Amortization Period	0.00	-0.00	-0.00	-0.00
	(0.00)	(0.01)	(0.00)	(0.01)
Asset Smoothing Period	0.00	-0.13**	-0.01	0.12**
	(0.02)	(0.06)	(0.02)	(0.06)
Open Amortization	-0.06	0.15	-0.05	0.16
	(0.10)	(0.18)	(0.06)	(0.16)
Observations	733	733	1,897	1,897
R-squared	0.297	0.787	0.359	0.702
Number of plans	55	55	127	127
Control Variables	Yes	Yes	Yes	Yes

Additional findings AMORT, SMOOTH, and ADC Paid

VARIABLES	AMORT	SMOOTH	ADC Paid
Post GASB 67	-0.94**	0.20**	0.06***
	(0.44)	(0.09)	(0.01)
Normal Cost Rate	-4.84	1.01	-0.26
	(6.16)	(1.33)	(0.19)
5-year Return Rate	-0.05*	-0.02***	0.00
	(0.03)	(0.01)	(0.00)
Retiree-to-worker Ratio	-0.99	0.31	0.06**
	(1.04)	(0.30)	(0.02)
Open Amortization	1.66***	0.16	-0.04*
	(0.53)	(0.11)	(0.02)
Observations	2,630	2,630	2,630
R-squared	0.144	0.0308	0.0954
Number of plans	182	182	182
Control Variables	Yes	Yes	Yes

Robust standard errors in parentheses. *** $p<0.01$, ** $p<0.05$, * $p<0.1$

Conclusion

- Since the implementation of GASB 67 & 68, we observed a decreasing trend in the public pension plans' discount rates. This impact is more pronounced in plans with insufficient funded ratios (<80%).
- Labilities reported under GASB 67 have increased compared to the period before its implementation, while the actuarial liabilities have also risen.
- The funded ratios reported under GASB 67 has declined, while the actuarial funded ratios are higher than the GASB 67 funded ratios.
- We noticed that following the implementation of GASB 67/68, the long-term rate of return on investments has also decreased.
- Using the qualitative information from plans' ACFRs, we found some public pension plans have adjusted their funding policies (i.e contribution rates, or benefit formula) and increase pension funding level.

Thank You

Thank you for your attention!