



RETIREMENT BOARD MEETING CALENDAR SHEET

November 13, 2024

To: Retirement Board

Through: Alison Romano
CEO & CIO

From: Janet Brazelton
Actuarial Services Coordinator

Date: November 13, 2024

Agenda Item: Economic Assumptions Review for the July 1, 2024 actuarial valuation.

Recommendation:

Select the economic assumptions for the July 1, 2024 actuarial valuation:

Wage Inflation and Amortization Payment Growth Rate	3.25%
Price Inflation	2.50%
Discount Rate	7.20%

Background:

The Retirement Board reviews the long-term economic assumptions annually. The set of assumptions below have been in place since the 2021 actuarial valuation.

Assumption	July 1, 2021 – July 1, 2023
Discount Rate	7.20%
Price Inflation	2.50%
Ultimate Wage Inflation	3.25%
Amortization Payment Growth Rate	3.25%

Cheiron proposes no changes to the above set of assumptions for the July 1, 2024 actuarial valuation.

Recommendations for July 1, 2024

Price and Ultimate Wage Inflation and Amortization Payment Growth Rate

Cheiron is not recommending any changes, and I concur as our current assumptions remain reasonable.

Discount Rate

Cheiron recommends maintaining a 7.2% discount rate. I agree with this recommendation:

- Wilshire's 10-year timeframe capital market assumptions produce an expected annualized return for our portfolio of 7.0%.
- SFERS' discount rate is in the top quartile nationally and is the second highest in California.
 - Median discount rate for California Public Retirement Systems for 2023 was 6.75%.
- Many public pension plans include an explicit margin in the discount rate for adverse experience:
 - Desire to increase probability of meeting or exceeding the long-term investment assumption;
 - Improves both resilience and security of benefits.

Attachment:

Cheiron's presentation, Review of Economic Assumptions, dated November 13, 2024

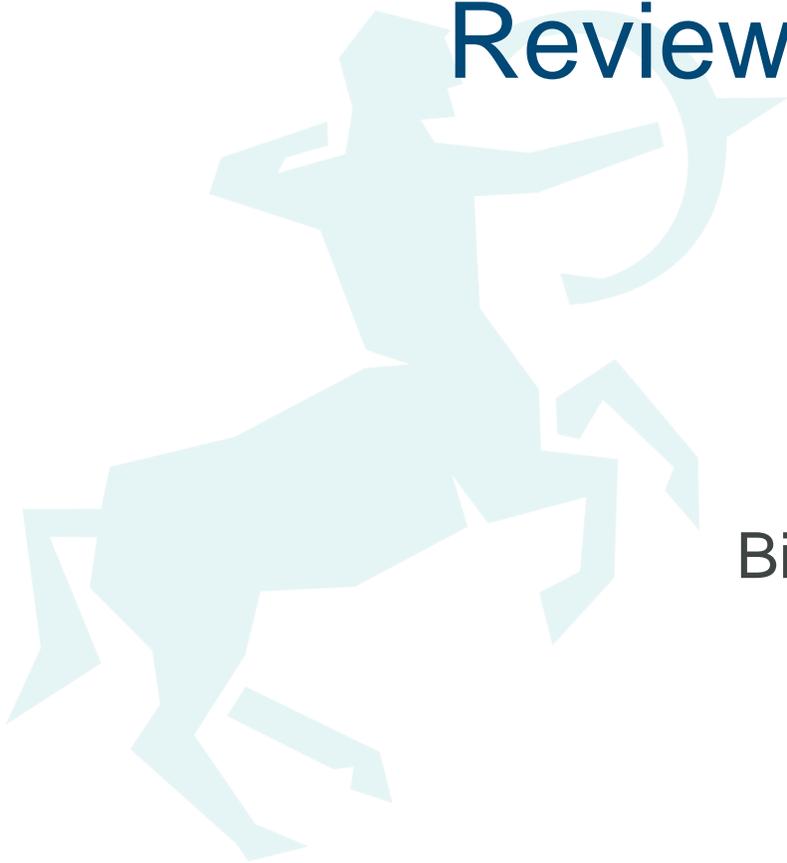
San Francisco Employees' Retirement System



Review of Economic Assumptions

November 13, 2024

Bill Hallmark, ASA, EA, FCA, MAAA





Background

Economic Assumptions

- Price Inflation
- Wage Inflation / Amortization Payment Growth Rate
- Discount Rate

Board Discussion



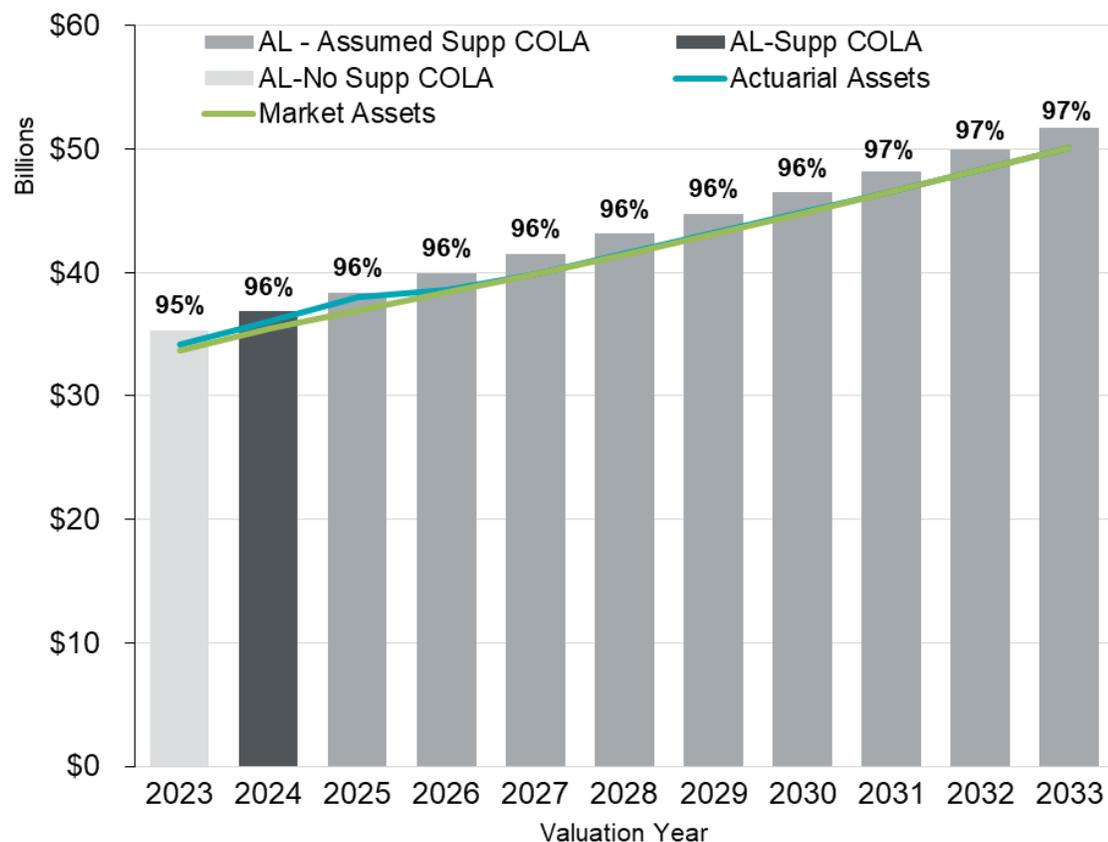
- Investment returns* for FYE 2024 were slightly more than the assumed 7.2% rate of return
 - FYE 2024 preliminary returns ~7.8%
 - Prior returns
 - FYE 2023 = 5.2%
 - FYE 2022 = -6.5%
 - FYE 2021 = 35.8%
 - FYE 2020 = 3.7%
- Supplemental COLA as of July 1, 2024
 - Estimated excess returns of \$139 million
 - Preliminary funded ratio on a market value basis of 96%
 - We estimate a partial Supplemental COLA of 0.5% or 1.0% will be payable for most retirees except Prop C retirees

* Investment returns are estimated on a dollar-weighted basis assuming cash flows other than City contributions all occur in the middle of the year.

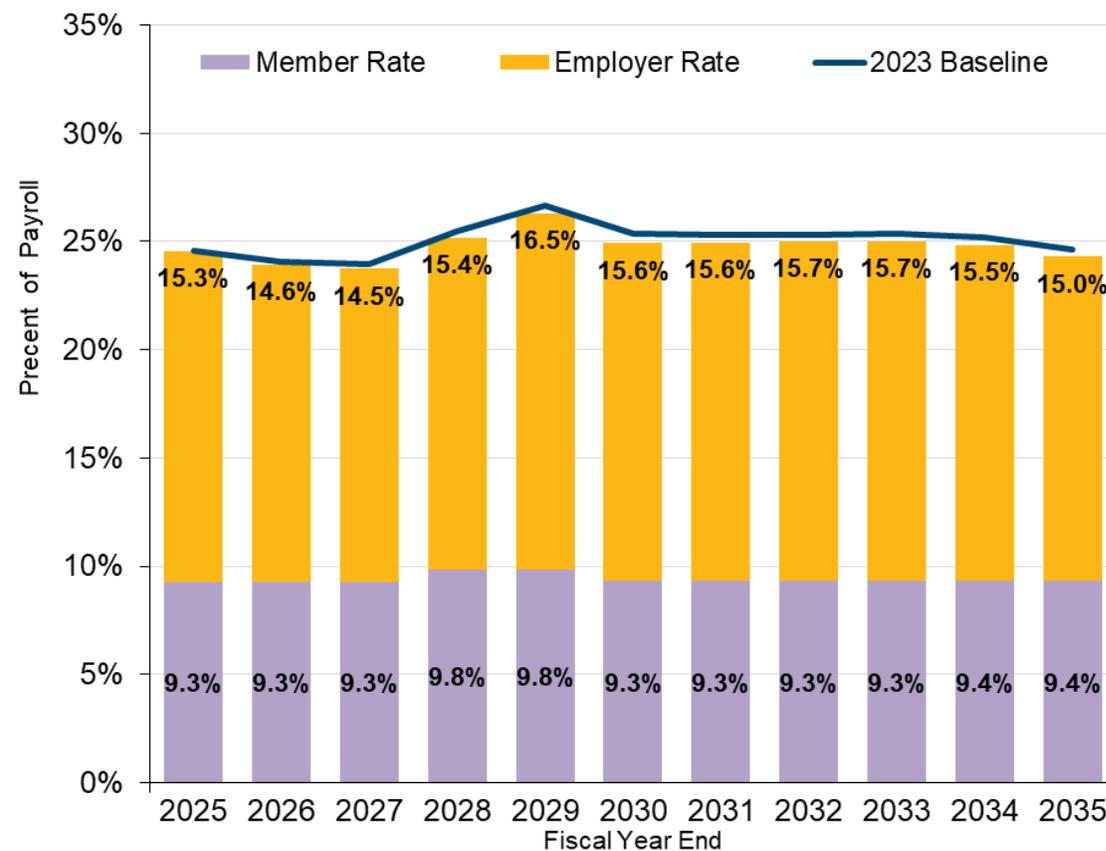
Projections Based on Preliminary Asset Information



Funded Ratio on Market Assets Expected to Remain Below 100%



Contribution Rates Very Close to 2023 Valuation Projection



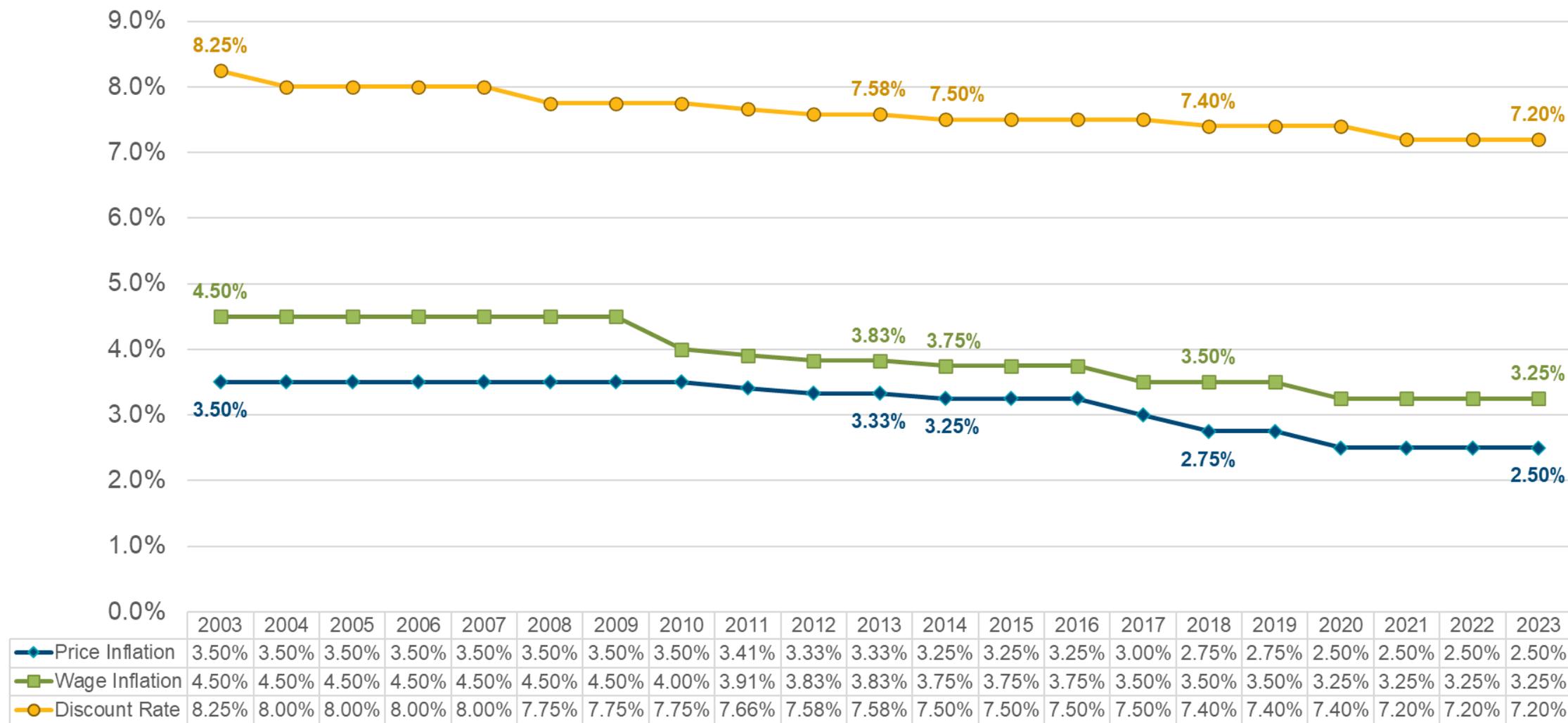
Economic Assumptions





- Economic assumptions → review every year
 - Price inflation
 - Wage inflation
 - Amortization payment growth rate
 - Discount rate
- Demographic assumptions → review every five years
(Next review in 2025)
- Adopted assumptions will be used for
 - 2024 actuarial valuation
 - FYE 2026 contributions

Historical Economic Assumptions



Summary of Recommendations



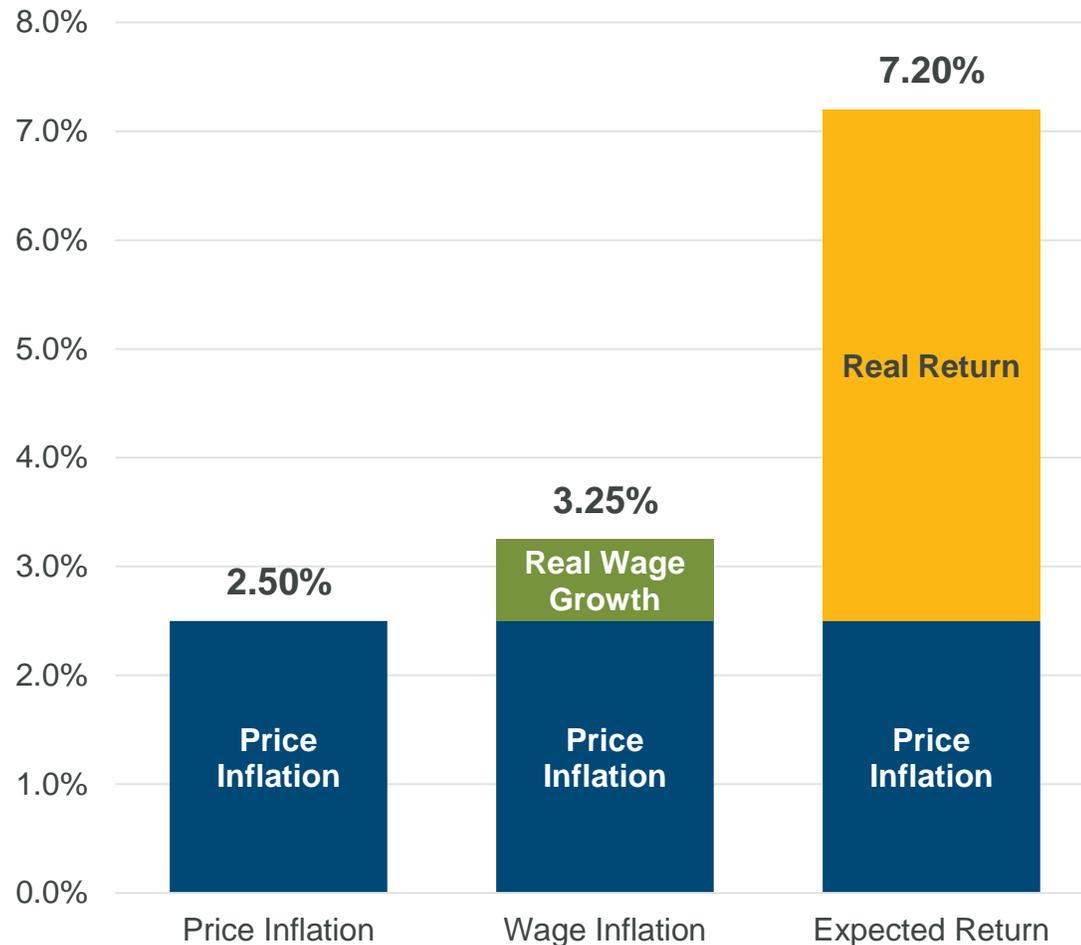
- No changes
 - Price Inflation = 2.50%
 - Ultimate wage inflation = 3.25%
 - Amortization payment growth rate = 3.25%
 - Discount rate = 7.20%

Price Inflation



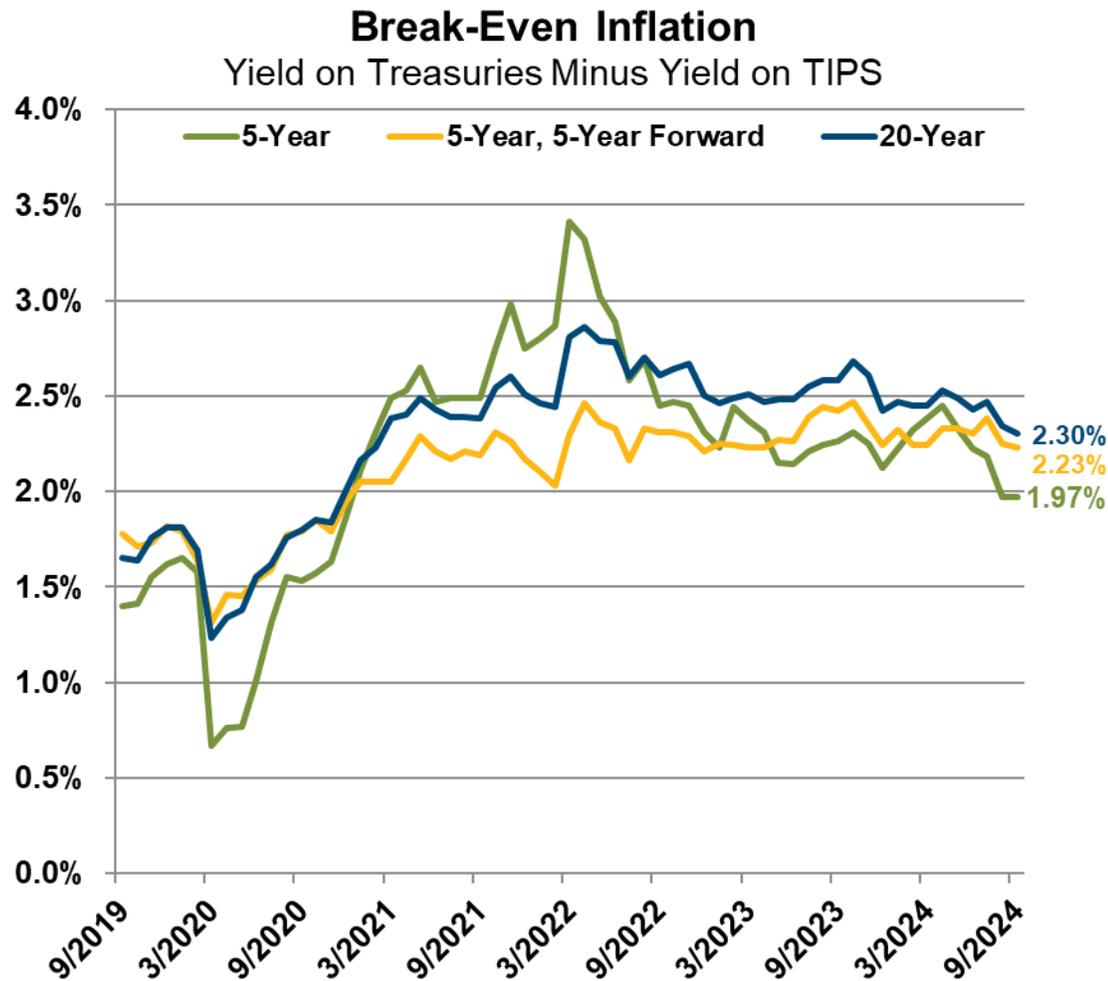


Traditional Building Blocks



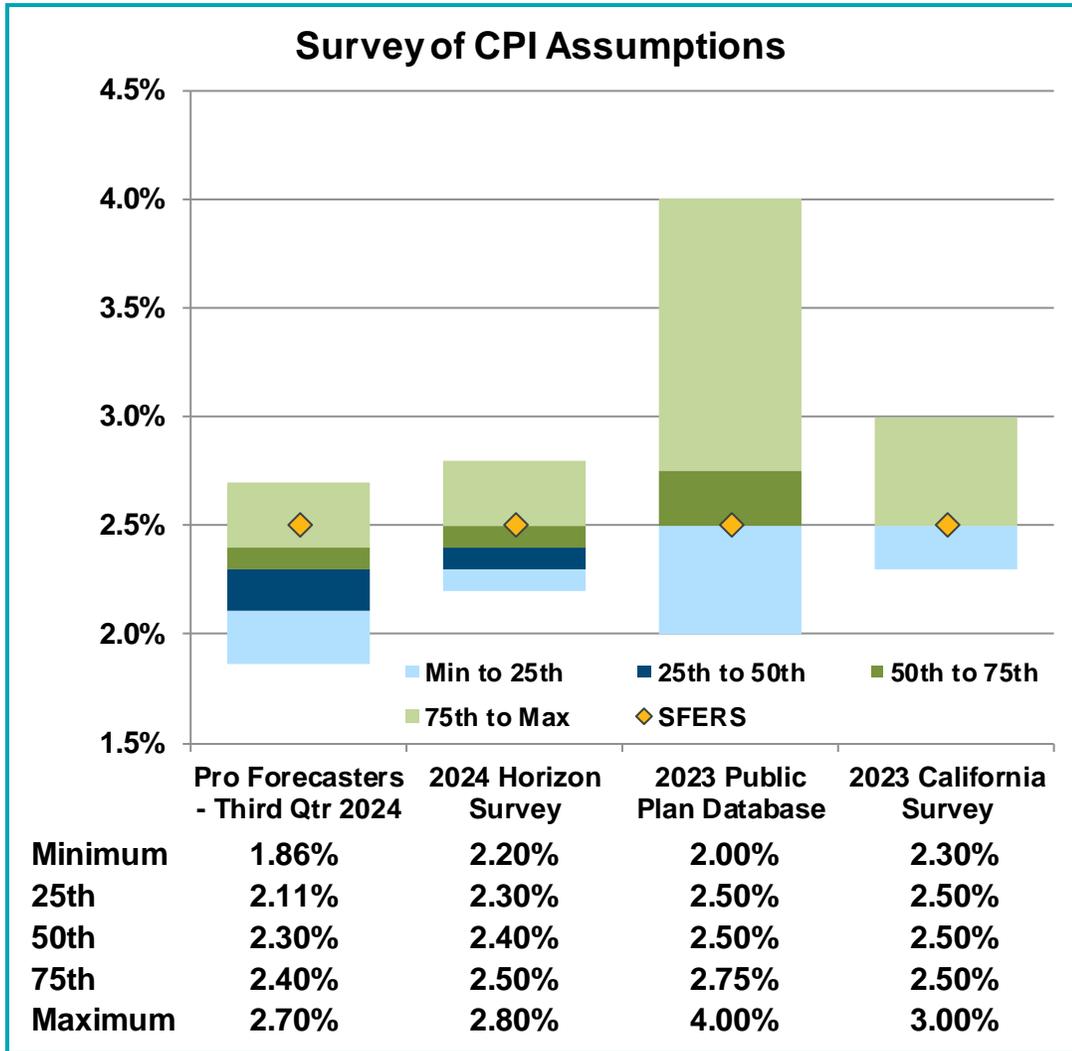
- Price inflation – Foundation for all economic assumptions
 - Wage inflation = Price inflation + Real wage growth
 - Expected return = Price inflation + Real return
- Current price inflation assumption = 2.50%
- No direct impact on the valuation
 - Future Basic COLAs capped at 2.0%
 - If price inflation assumption is above 2.0%, it has no direct impact on the valuation results

Break-Even Inflation



- Inflation (CPI-U) for the year ended September 30 was 2.4%
 - Continuing downward trend
 - Expectations for the future remain lower
- Break-even inflation represents a consensus expectation of future inflation by investors
 - 1.97% over next 5 years
 - 2.23% over the following 5 years
 - 2.30% over 20 years

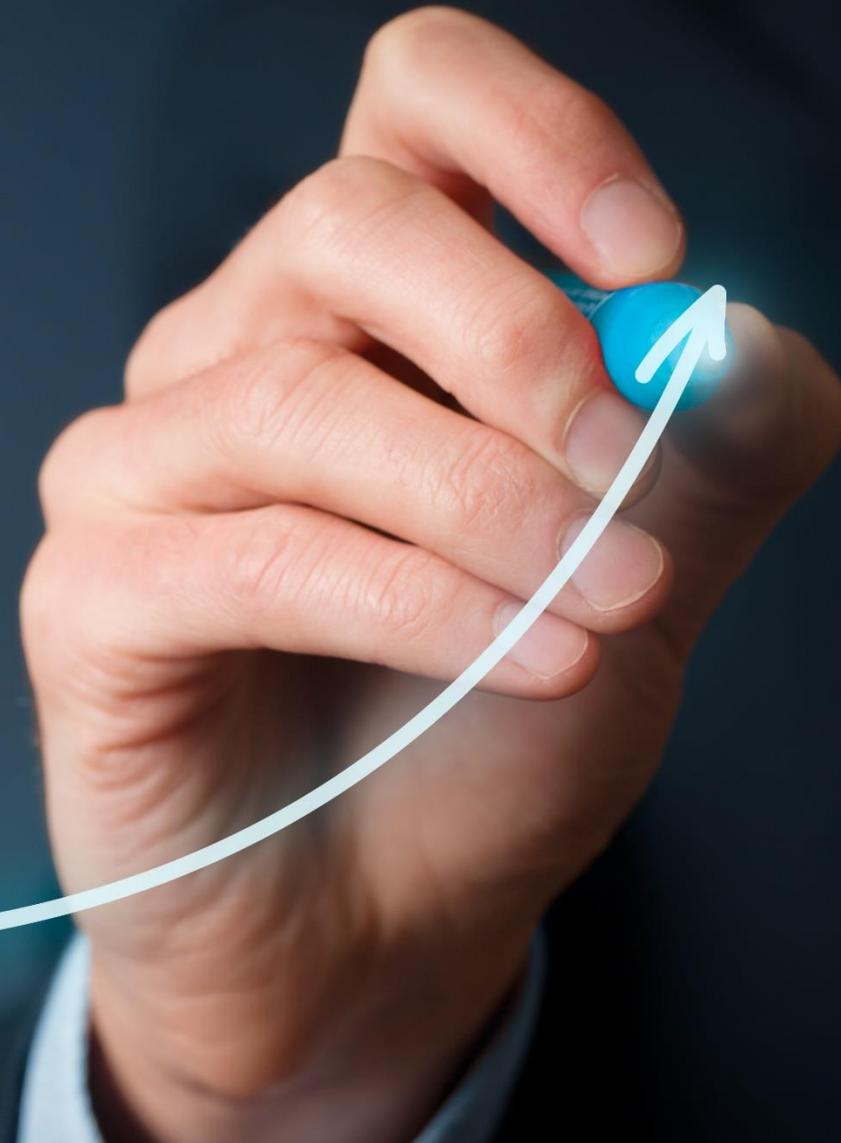
Price Inflation Forecasts



- Forecaster expectations have dropped and the range of forecasts has narrowed
 - 5-year forecasts range from 1.9% to 2.8%
 - Following 5-year forecasts range from 1.7% to 2.6%
- Wilshire’s assumptions:
 - 2.25% over 10 years
 - 2.40% over 30 years
- Propose no change (2.50%)

Wage Inflation

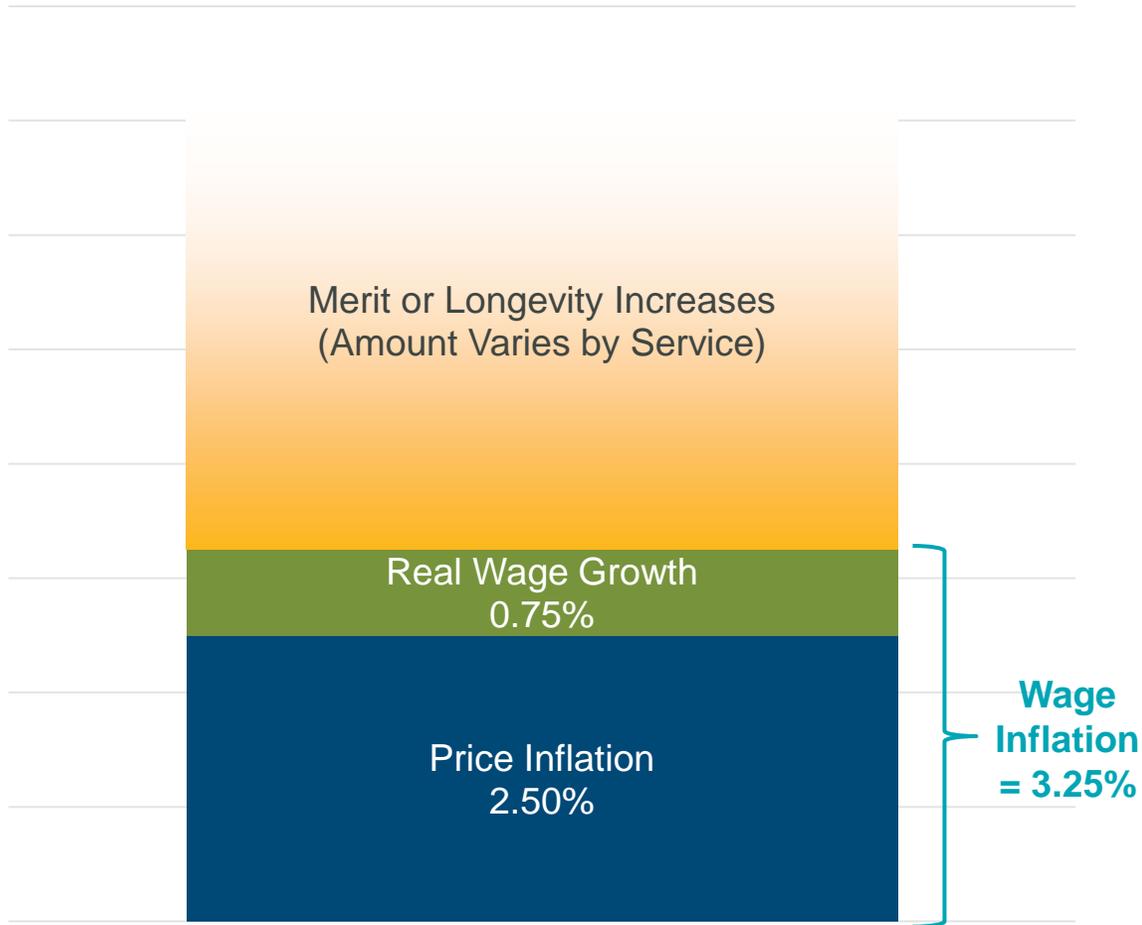
wage

A hand holding a blue marker is shown drawing a white upward-curving arrow on a dark background. The arrow starts from the left and curves upwards to the right, ending in a white arrowhead. The hand is positioned on the right side of the frame, and the marker is held between the thumb and index finger. The background is a dark, textured surface, possibly a chalkboard or a similar material.

Wage Inflation



Components of Salary Increases

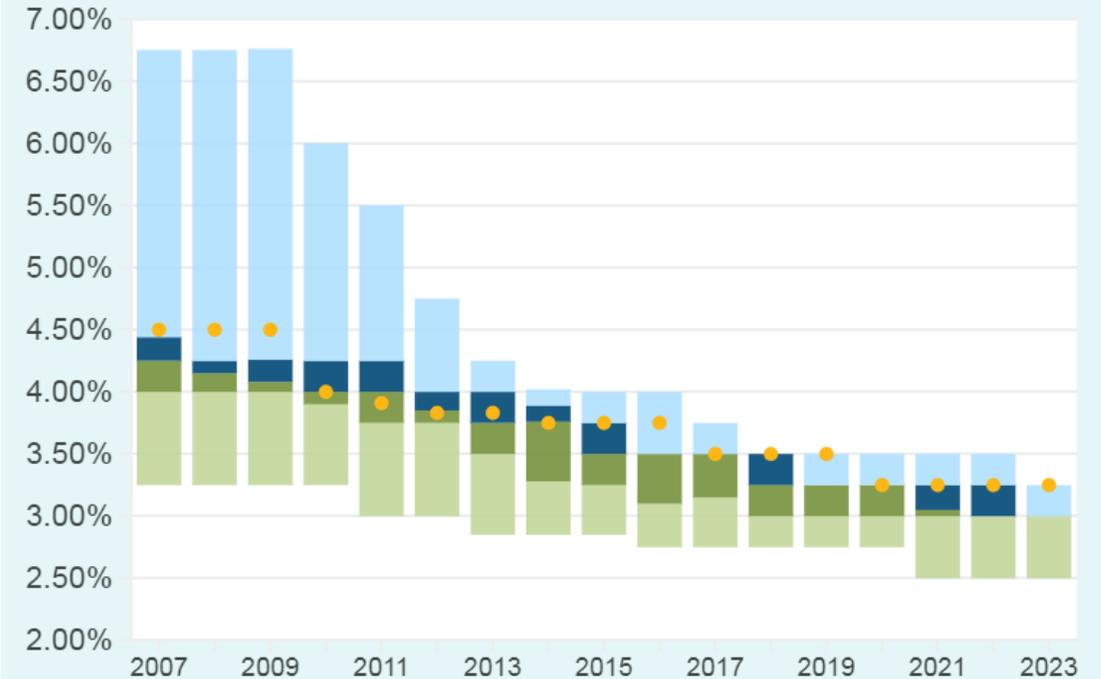


California Public Retirement Systems - Distribution of Wage Inflation Assumptions

Wage Inflation = Price Inflation + Real Wage Growth

Gold dot = **San Francisco ERS**

Percentiles of Distribution ■ Min to 25th ■ 25th to 50th ■ 50th to 75th ■ 75th to Max

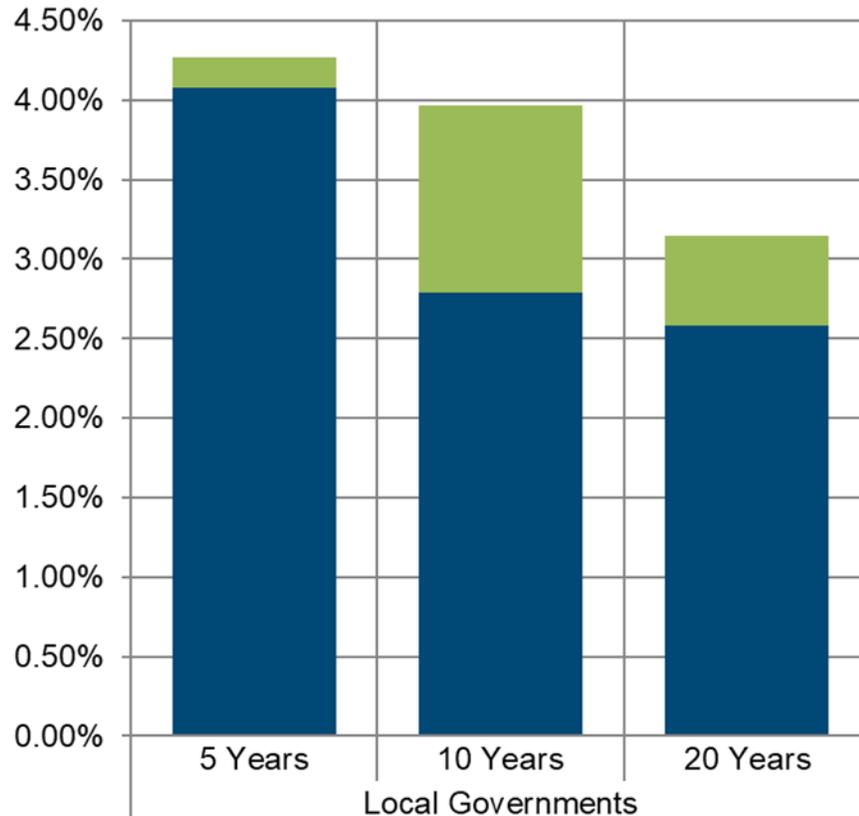


Hover over a bar to see the statistics for that year. **Click on a bar** to see a bee swarm of the plans for the year. **Close the tab** in the browser to return to the menu.

Wage Inflation



Wage Inflation Data



	5 Years	10 Years	20 Years
Real Wage Growth	0.20%	1.18%	0.57%
Inflation	4.07%	2.79%	2.58%
Wage Inflation	4.27%	3.97%	3.15%

Current Bargained Wage Increases

Date of Increase	Police	Fire	Misc
7/1/2024			1.50%
1/4/2025	3.00%	3.00%	1.50%
6/30/2025			1.00%
7/1/2025	3.00%	3.00%	1.00%
1/3/2026			1.50%
6/30/2026			2.00%
1/2/2027			2.00%
6/30/2027			2.50%

- Current assumption remains reasonable
 - Current bargained wage increases
 - 3.25% thereafter

Local government data from BLS Quarterly Census of Employment and Wages through 4th quarter of 2023.

Discount Rate

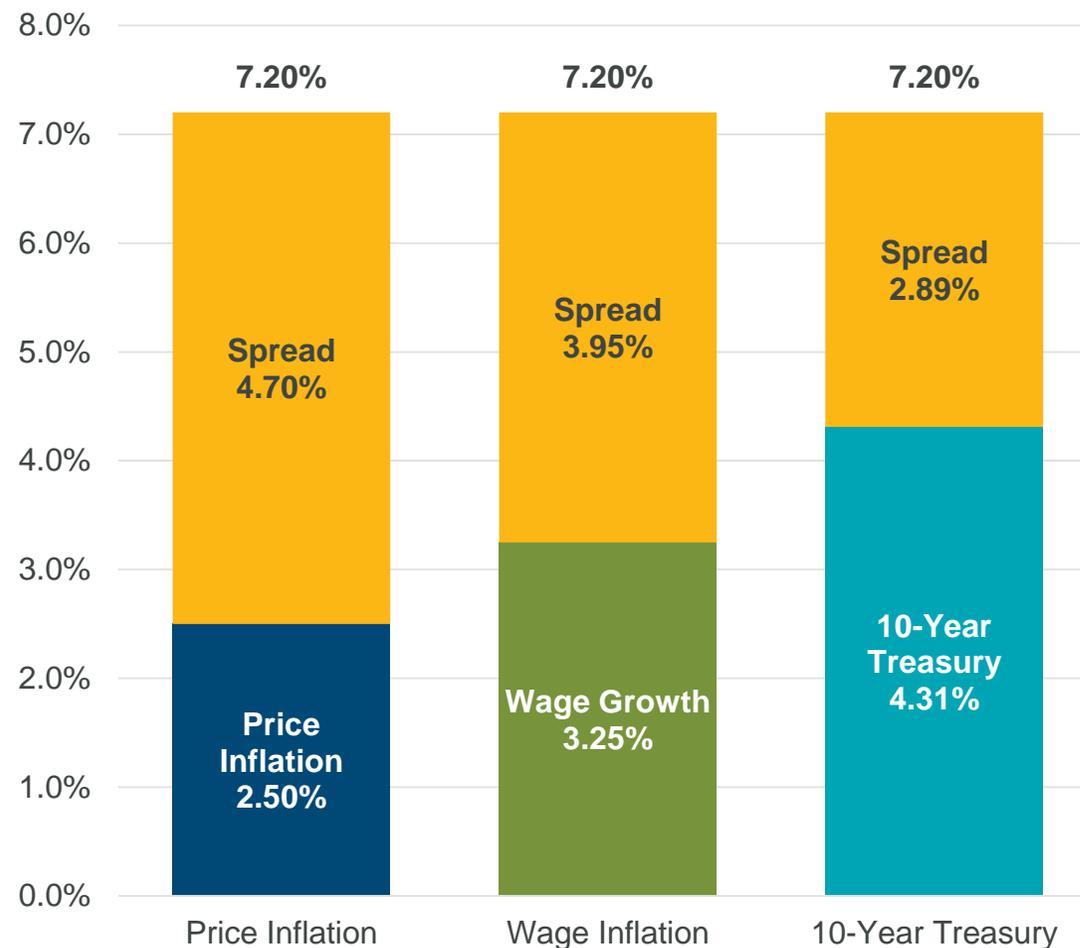


Discount Rate – Overview



- Most powerful single assumption
 - Higher expected return → Lower expected contributions
 - A higher assumption increases the likelihood that future contributions will be higher than expected
 - A lower assumption reduces the likelihood that future contributions will be higher than expected
- Over time, contributions will depend on actual, not expected, investment returns
- Current assumption = 7.20%

Current Discount Rate Spreads

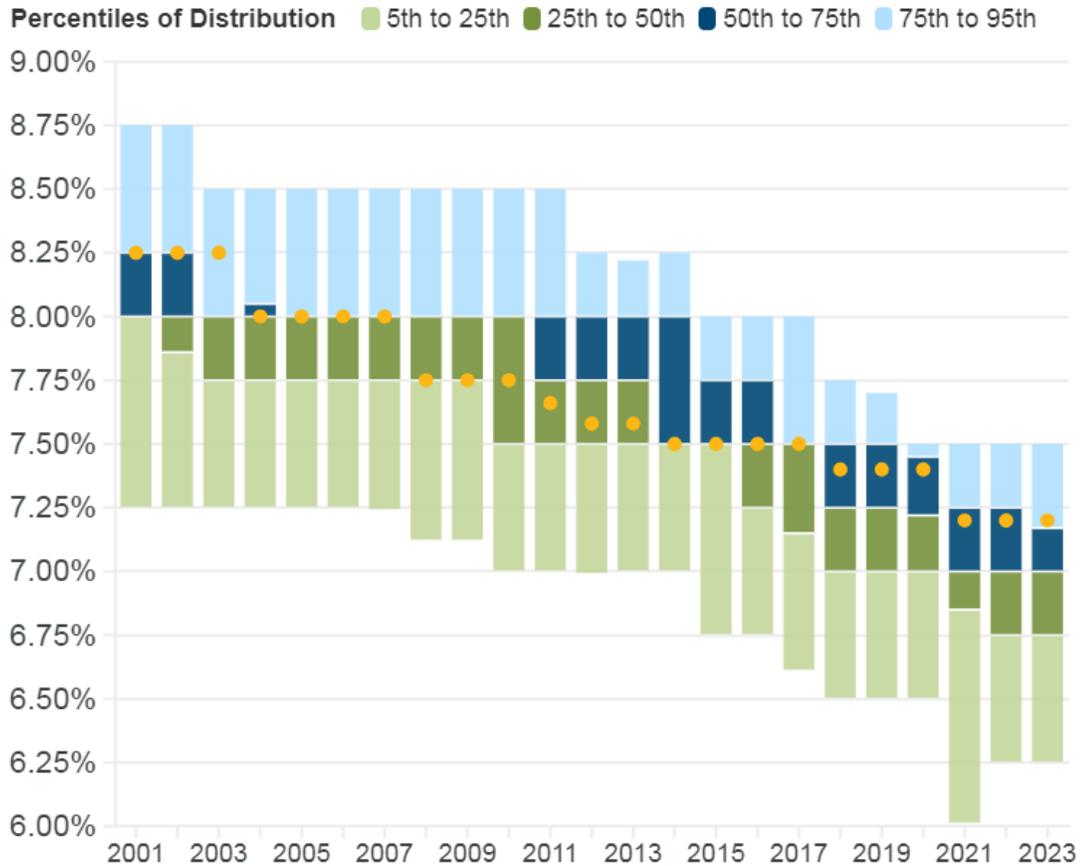


Discount Rate – National and California Trends



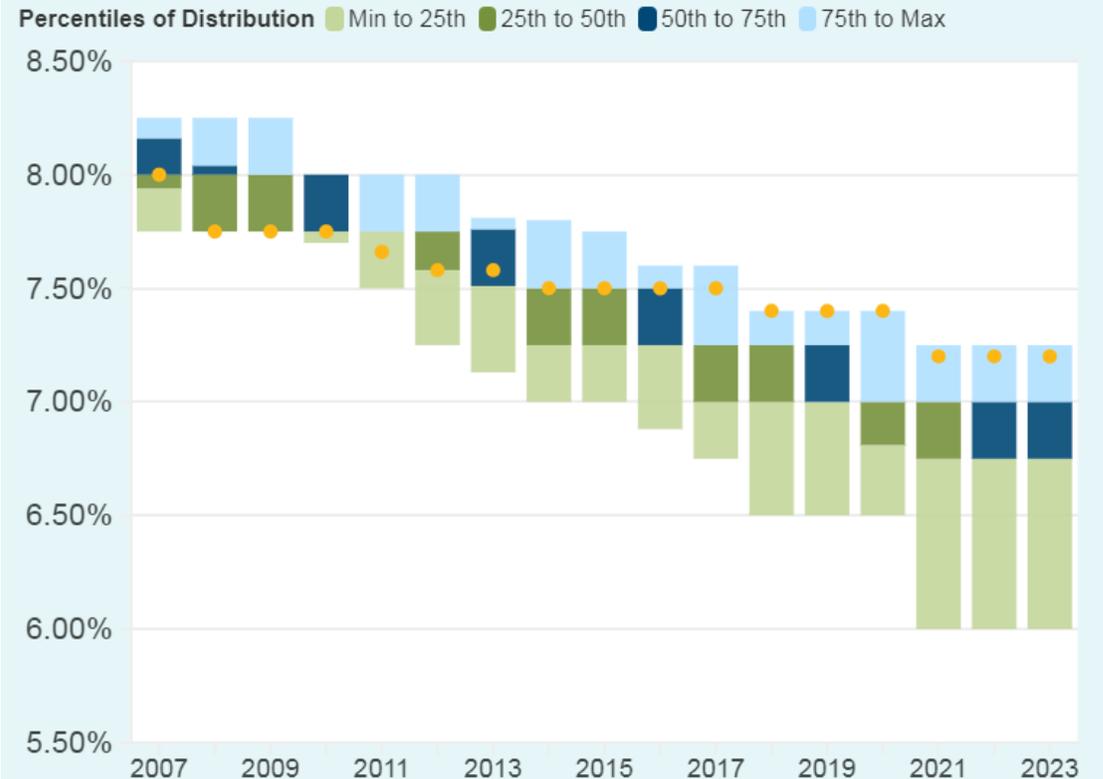
National Distribution of Discount Rates

Gold dot = **San Francisco City & County**



California Public Retirement Systems - Distribution of Discount Rates

Gold dot = **San Francisco ERS**

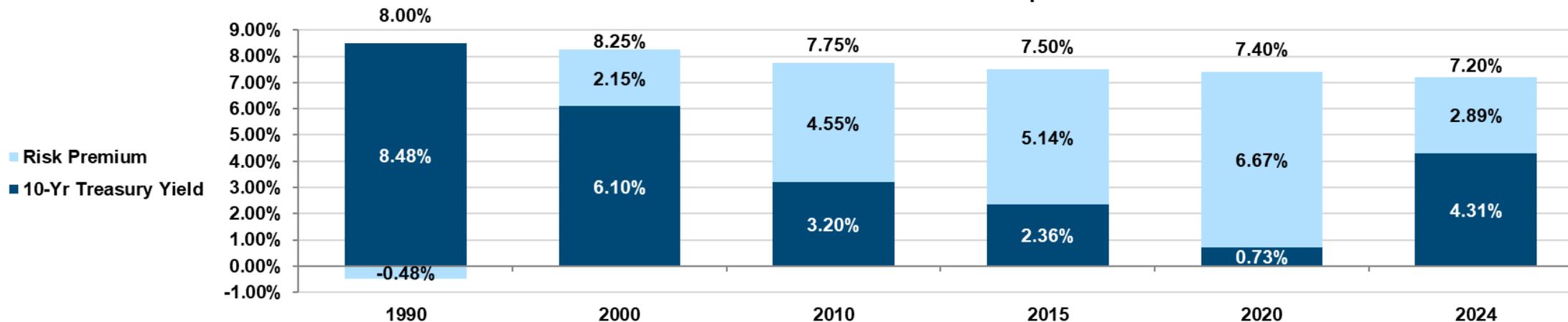


CHEIRON  Hover over a bar to see the statistics for that year. Click on a bar to see a bee swarm of the plans for the year. Close the tab in the browser to return to the menu.

Historical Assumptions and Asset Allocation



SFERS Valuation Assumptions

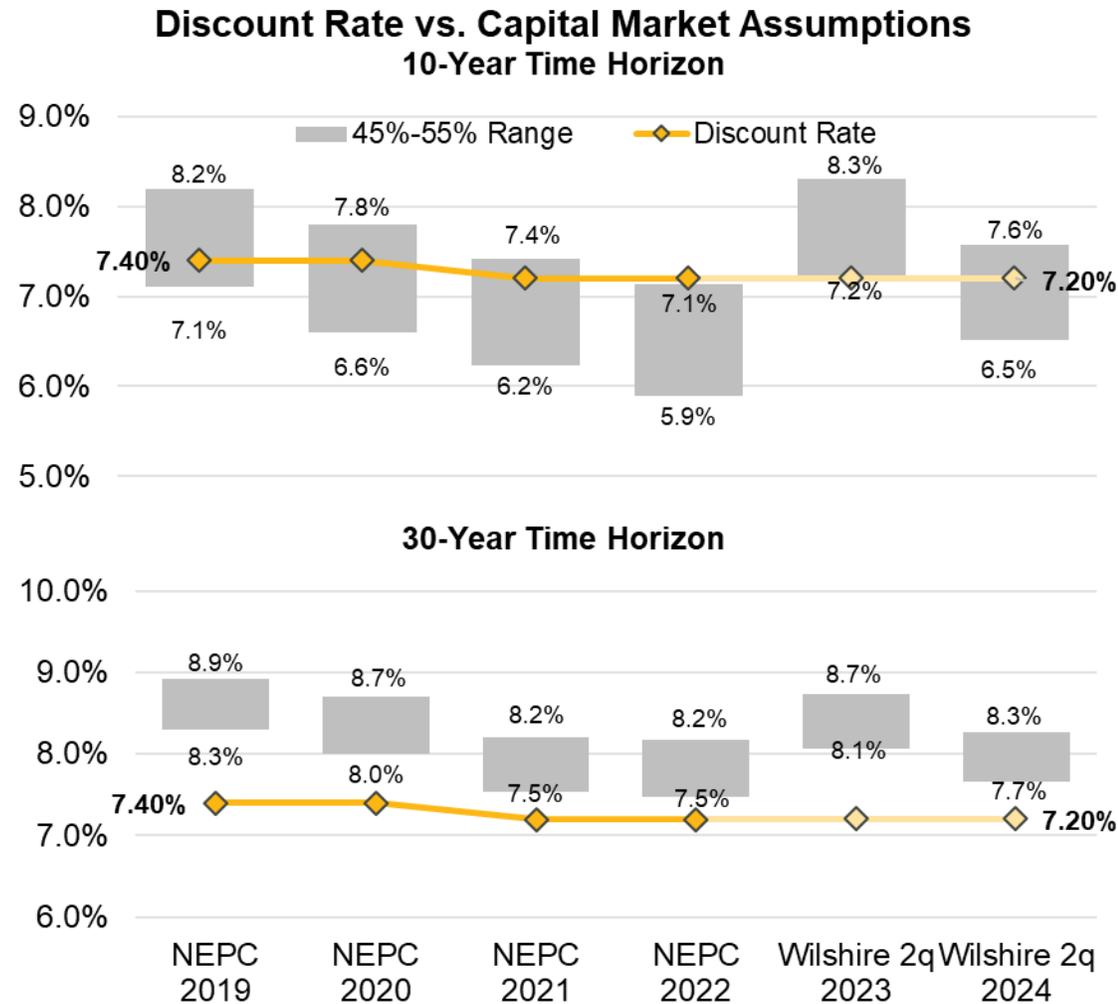


SFERS Target Asset Allocation



Public fixed income allocations are reduced for any leverage allocation

Capital Market Assumptions



- Capital market assumptions fluctuate
 - Interest rates
 - Valuations (Price / Earnings ratios)
- Time horizon considerations
 - **Consider shorter-term expectations.** Benefits expected to be paid out in the next 10 years comprise 40% of the liability
 - **Consider longer-term expectations.** Don't overreact to significant changes that may be short-term. Adjust for long-term trends and changes in asset allocation
- SFERS new asset allocation includes more fixed income and is less risky
 - 10-year expected return = 7.0%
 - 30-year expected return = 8.0%
 - Standard deviation decreased from 14.7% to 13.4%
- SFERS discount rate has generally fallen
 - Between the 45th and 55th percentiles of the 10-year expectations
 - Below the 45th percentile of the 30-year expectations
 - Current discount rate = 7.20%

Discount Rate Considerations



- No change proposed
 - Discount rate is between 45th and 55th percentiles of expectations on a 10-year horizon
- Capital market assumptions can be volatile
 - Sensitive to the level of current interest rates
 - Federal Reserve recently cut rates by 0.50% and has signaled further reductions in the future
 - Future capital market assumptions may be lower
- It is okay for the discount rate to be less than the expected return
 - Greater probability of achieving the expected return
 - Provides margin against adverse experience
 - The reverse is not true – it is not okay for the expected return to be materially less than the discount rate

Summary of Recommendations



- No assumption changes:
 - Price Inflation = 2.50%
 - Ultimate wage inflation = 3.25%
 - Amortization payment growth rate = 3.25%
 - Discount rate 7.20%



Board Discussion



The purpose of this presentation is to review the economic assumptions to be used in the July 1, 2024 valuation for the City and County of San Francisco Employees' Retirement System.

In preparing our presentation, we relied on information (some oral and some written) supplied by the Retirement System.

Projections in this presentation were developed using R-scan, a proprietary tool used to illustrate the impact of changes in assumptions, methods, plan provisions, or actual experience (particularly investment experience) on the future financial status of the Plan. R-scan uses standard roll-forward techniques that implicitly assume a stable active population. Because R-scan does not automatically capture how changes in one variable affect all other variables, some scenarios may not be consistent.

The distribution of expected returns using Wilshire and NEPC capital market assumptions has been calculated using internal software. We relied on Cheiron colleagues to develop this software. We have a basic understanding of the software and have reviewed the output for any material inconsistencies.

This presentation and its contents have been prepared in accordance with generally recognized and accepted actuarial principles and practices and our understanding of the Code of Professional Conduct and applicable Actuarial Standards of Practice set out by the Actuarial Standards Board as well as applicable laws and regulations. Furthermore, as credentialed actuaries, we meet the Qualification Standards of the American Academy of Actuaries to render the opinion contained in this presentation. This presentation does not address any contractual or legal issues. We are not attorneys, and our firm does not provide any legal services or advice.

This presentation was prepared exclusively for the City and County of San Francisco Employees' Retirement System for the purpose described herein. This presentation is not intended to benefit any third party, and Cheiron assumes no duty or liability to any such party.

William R. Hallmark, ASA, EA, FCA, MAAA
Consulting Actuary

Anne D. Harper, FSA, EA, MAAA
Principal Consulting Actuary

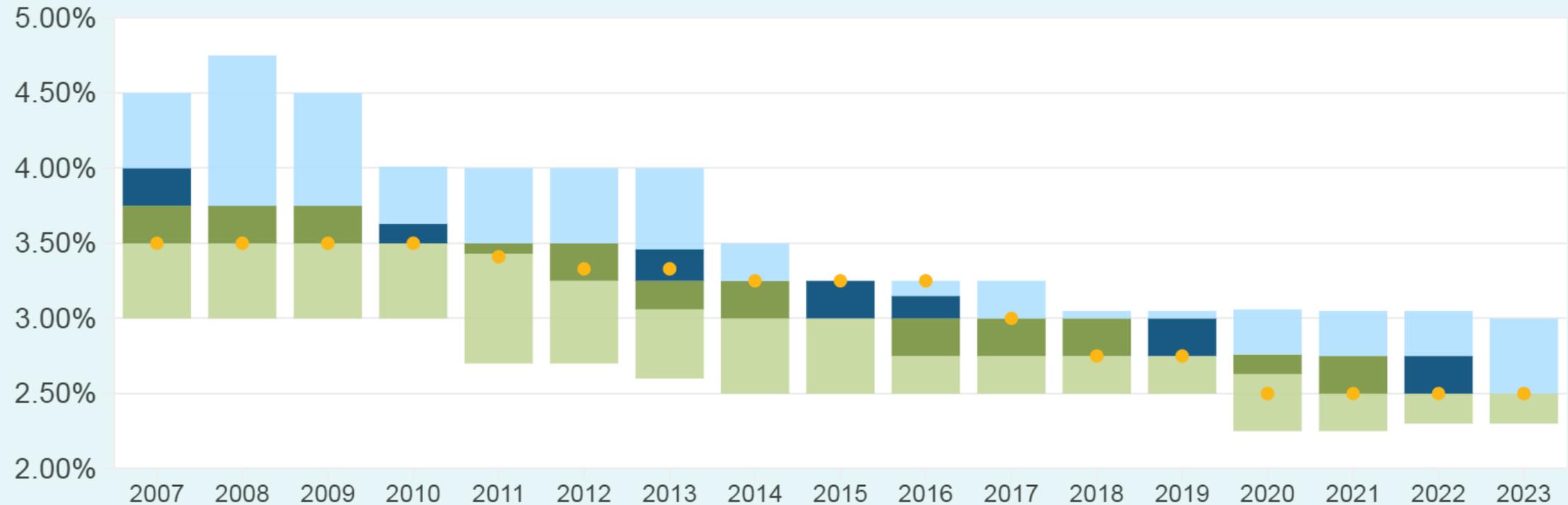
Appendix – Price Inflation – California Trends



California Public Retirement Systems - Distribution of Price Inflation Assumptions

Gold dot = **San Francisco ERS**

Percentiles of Distribution ■ Min to 25th ■ 25th to 50th ■ 50th to 75th ■ 75th to Max



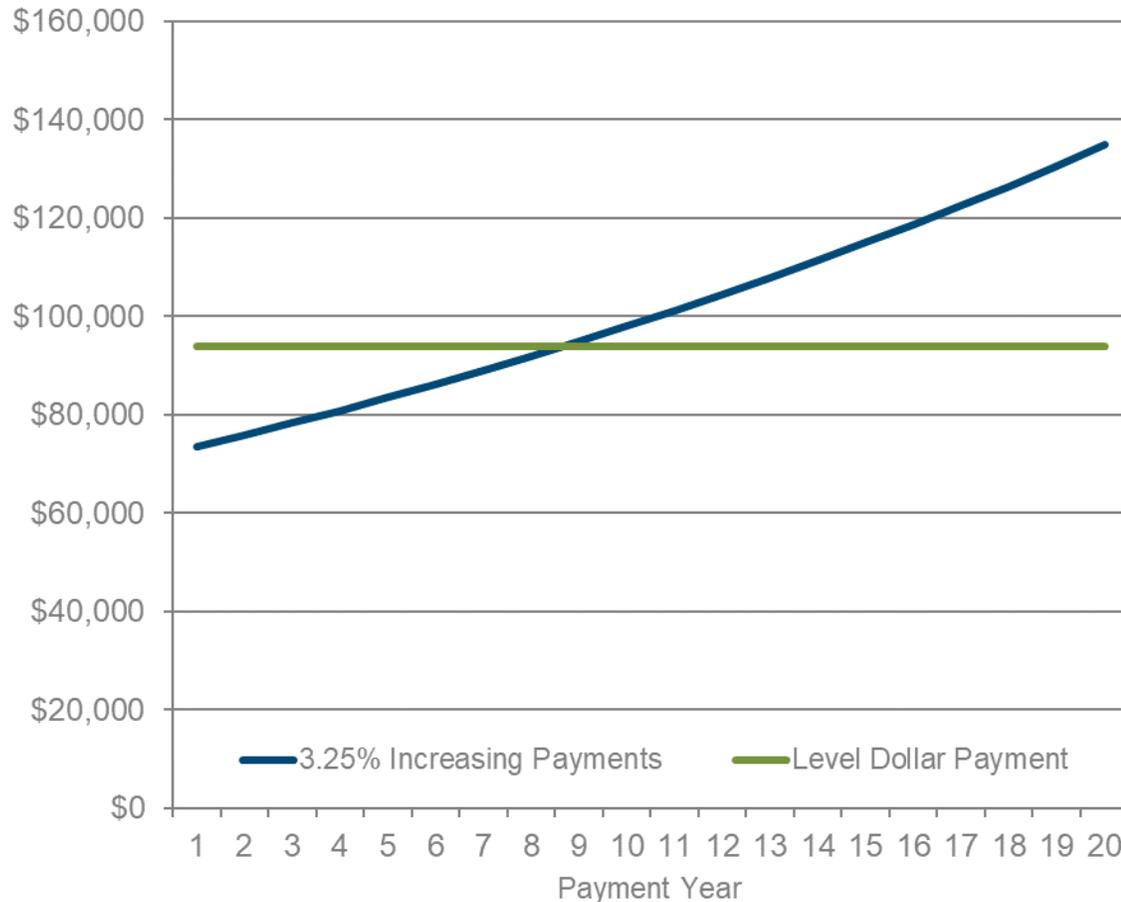
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Appendix – Amortization Payment Growth Rate



Amortization Payment Schedule on \$1,000,000



- Can range from 0% (level dollar) to ultimate wage inflation
- Current assumption = ultimate wage inflation (3.25%)
 - Payments are expected to be a level percentage of payroll
 - If payroll grows slower than expected, payments can become an increasing percentage of payroll
- No change proposed

Appendix – Assumed Asset Allocation



SFERS Asset Class	SFERS Asset Allocation Target	Horizon Survey Asset Class	Horizon Asset Allocation Target
Global Equity	32.0%	US Equity – Large Cap	19.9%
		Non-US Equity – Developed	8.7%
		Non-US Equity – Emerging	3.4%
Private Equity	20.0%	Private Equity	20.0%
Real Assets	10.0%	Real Estate	7.0%
		Infrastructure	2.0%
		Commodities	1.0%
Absolute Return	10.0%	Hedge Funds	10.00%
Private Credit	10.0%	Private Debt	10.00%
Liquid Credit	12.0%	US Corp Bonds – Core	6.0%
		US Corp Bonds – High Yield	6.0%
Treasuries	8.0%	US Treasuries	6.00%
Cash	1.0%		
US Leverage Cost	-3.0%		

Expected returns, standard deviations, and correlations for each Horizon Survey asset class are from the 2024 Horizon Survey.

November 13, 2024

Distribution of Expected Returns



Capital Market Assumptions

Wilshire's Assumptions

Asset Class	Allocation	Standard Deviation	Arithmetic Returns	
			10-Year	30-Year
Global Equity	32.0%	17.1%	6.44%	7.92%
Private Equity	20.0%	30.9%	12.02%	13.57%
Real Assets	10.0%	14.6%	7.81%	8.89%
Absolute Return	10.0%	6.1%	6.80%	7.01%
Liquid Credit	12.0%	7.0%	6.46%	6.51%
Private Credit	10.0%	11.9%	8.96%	8.95%
Treasuries	8.0%	3.1%	4.49%	4.29%
Leverage	-3.0%	0.8%	4.35%	3.97%
Cash	1.0%	0.8%	4.00%	3.63%
Total Portfolio	100.0%	13.4%	7.87%	8.78%
Geometric Return			7.04%	7.96%

Distribution of Annualized Compound Returns

Percentile	10-Year Timeframe		30-Year Timeframe	
	Horizon Survey	Wilshire	Horizon Survey	Wilshire
95th	13.9%	14.2%	11.5%	12.0%
75th	10.1%	9.9%	9.3%	9.6%
60th	8.5%	8.1%	8.4%	8.6%
55th	8.0%	7.6%	8.1%	8.3%
50th	7.5%	7.0%	7.8%	8.0%
45th	7.0%	6.5%	7.6%	7.7%
40th	6.5%	6.0%	7.3%	7.3%
25th	5.0%	4.2%	6.4%	6.3%
5th	1.4%	0.4%	4.3%	4.0%

Expected returns, standard deviations, and correlations for each Horizon Survey asset class are from the 2024 Horizon Survey.

Appendix – California Survey



Cheiron's 2023 Survey of Public Retirement Systems in California

System Name	Discount Rate	Wage Inflation	Price Inflation	Valuation Date	System Name	Discount Rate	Wage Inflation	Price Inflation	Valuation Date
AC Transit	6.75%	3.00%	2.75%	1/1/2023	Sacramento CERS	6.75%	2.75%	2.50%	6/30/2023
Alameda CERA	7.00%	3.25%	2.75%	12/31/2022	Sacramento Regional Transit	6.75%	2.75%	2.50%	7/1/2022
CalPERS	6.80%	2.80%	2.30%	6/30/2023	San Bernardino CERA	7.25%	3.00%	2.50%	6/30/2023
CalSTRS	7.00%	3.50%	2.75%	6/30/2022	San Diego City ERS	6.50%	3.25%	3.00%	6/30/2023
Contra Costa CERA	6.75%	3.00%	2.50%	12/31/2022	San Diego County ERA	6.50%	3.00%	2.50%	6/30/2023
East Bay Municipal Utility District	6.75%	3.00%	2.50%	6/30/2023	San Diego Transit	6.00%	2.50%	2.50%	7/1/2023
Fresno CERA	6.50%	3.00%	2.50%	6/30/2023	San Francisco ERS	7.20%	3.25%	2.50%	7/1/2023
Fresno City Employee System	6.75%	3.00%	2.50%	6/30/2023	San Joaquin CERA	6.75%	3.00%	2.75%	1/1/2023
Fresno City Fire & Police	6.75%	3.00%	2.50%	6/30/2023	San Jose Federated	6.625%	3.00%	2.50%	6/30/2023
Golden Gate Transit	6.75%	3.25%	2.75%	1/1/2023	San Jose Police & Fire	6.625%	3.00%	2.50%	6/30/2023
Imperial CERS	6.75%	3.00%	2.50%	6/30/2023	San Luis Obispo County	6.75%	3.00%	2.50%	1/1/2023
Kern CERA	7.00%	3.00%	2.50%	6/30/2023	San Mateo CERA	6.25%	3.25%	2.50%	6/30/2023
LA City ERS	7.00%	3.00%	2.50%	6/30/2023	Santa Barbara CERS	7.00%	3.00%	2.75%	6/30/2023
LA County ERA	7.00%	3.25%	2.75%	6/30/2023	Sonoma CERA	6.75%	3.00%	2.50%	12/31/2022
LA Fire & Police	7.00%	3.00%	2.50%	6/30/2023	Stanislaus CERA	6.75%	2.75%	2.50%	6/30/2023
LA Water and Power	6.50%	3.00%	2.50%	7/1/2023	Tulare CERA	7.00%	3.00%	2.75%	6/30/2023
Marin CERA	6.75%	3.00%	2.50%	6/30/2023	University of California	6.75%	3.25%	2.50%	7/1/2023
Mendocino CERA	6.50%	3.00%	2.50%	6/30/2023	Valley Transit Authority	6.75%	2.75%	2.50%	1/1/2023
Merced CERA	6.75%	2.75%	2.50%	6/30/2023	Ventura CERA	7.00%	3.00%	2.50%	6/30/2023
Orange CERS	7.00%	3.00%	2.50%	12/31/2022					

<https://cheiron.us/cheironHome/content/resources/databases/survey-of-california-public-retirement-systems>



CHEIRON



Classic Values, Innovative Advice.

***Cheiron** (pronounced kī·ron), the immortal centaur from Greek mythology, broke away from the pack and was educated by the gods. Cheiron became a mentor to classical Greek heroes, then sacrificed his immortality and was awarded in eternity as the constellation Sagittarius.*



Classic Values, Innovative Advice

November 13, 2024