

AGENDA

BOARD OF RETIREMENT

Boardroom

832 12th Street Suite 600 Modesto, CA 95353

February 28, 2023
1:30 p.m.

The Board of Retirement welcomes you to its meetings, which are regularly held on the fourth Tuesday of each month. Your interest is encouraged and appreciated.

The StanCERA boardroom, is currently open to public access. Members of the public who wish to attend Board meetings may also do so by teleconference, by calling **(209) 689-0007**. The access code is **414752**. If you wish to make a general public comment during the Public Comment section of the meeting, or if you wish to comment on a specific agenda item, please press 5* on your phone to alert the Chair that you wish to speak. As permitted by Gov. Code § 54954.3(b)(1), each public comment is limited to three minutes.

You may also submit public comments in writing. If you wish to make a general public comment or a comment on a specific agenda item in writing, please submit your comment via email or fax no later than 4:30 p.m. on the day before a Board meeting. Comments can be submitted via email at gomesk@stancera.org or via fax at (209) 558-4976. If your comment pertains to a specific agenda item, please include the agenda item number in the subject line. As permitted by Gov. Code § 54954.3(b)(1), each public comment is limited to 400 words. Comments submitted in writing will be read aloud during the meeting.

CONSENT/ACTION ITEMS: Consent matters include routine administrative actions and are identified under the Consent Items heading. All other items are considered to be action items, "Action" means that the Board may dispose of any item by any action, including but not limited to the following acts: approve, disapprove, authorize, modify, defer, table, take no action, or receive and file.

BOARD AGENDAS & MINUTES: Board agendas, minutes and copies of items to be considered by the Board of Retirement are customarily posted on the Internet by Friday afternoon preceding a meeting at the following website: www.stancera.org.

AUDIO/VIDEO: All Board of Retirement regular meetings are audio and visually recorded. Audio/Video recordings of the meetings are available after the meetings at <http://www.stancera.org/agenda>.

NOTICE REGARDING NON-ENGLISH SPEAKERS: Board of Retirement meetings are conducted in English and translation to other languages is not provided. Please make arrangements for an interpreter if necessary.

In compliance with the Americans with Disabilities Act: If you require an accommodation, auxiliary aid, or service in order to participate in this meeting, please contact StanCERA at (209) 525-6393 as far in advance as possible but no later than 48 hours before the scheduled event.

1. Call Meeting to Order
2. Pledge of Allegiance
3. Roll Call
4. Announcements
5. Public Comment

6. Teleconference Request

- a. Trustee Teleconference Request Pursuit to **Government Code Section § 54953(f)(2)(a)(1)**.

7. Consent Items

- a. Approval of the January 24, 2023 Meeting Minutes [View](#)
- b. Application for Service-Connected Disability– **Government Code 31724**
- i. Avitia, Valerie – Stanislaus County – Effective Date 09/27/2019
- c. Applications for Service Retirement(s) – **Government Code Sections 31499.14, 31670, 31662.2 & 31810** See attachment for details. [View](#)
- d. Application of Death Benefit – **Government Code Section 31781, 31781.1, 31781.3.**
- i. Yerzy, Collin – Stanislaus County – Non-Service Connected – Effective 1-27-23 – Active Member
- e. Investment Matrix [View](#)
- f. 2023 Cost of Living
Agenda Item [View](#) Attachment 1 [View](#)

8. NEPC – Investment Consultant

- a. January Flash Report [View](#)
- b. Investment Performance Quarter 4 [View](#)
- c. December 2022 Asset Class Assumptions [View](#)

9. Investment

None

10. Administrative

- a. June 30, 2022 Actuarial Valuation and Contribution Rate for StanRTA
Agenda Item [View](#) Attachment 1 Valuation [View](#) Attachment 2 StanRTA [View](#)
- b. Methodology for Calculating Social Security Offset Amounts for Tier 3 Benefits
Agenda Item [View](#) Attachment 1 [View](#)
- c. Quarterly Verbal Staff Update

10. Administrative (Cont.)

d. Fiduciary Training Overview provided by Maytak Chin, Reed Smith

e. Cheiron EFI – Actuarial Services Contract

Agenda Item [View](#)

Attachment 1 [View](#)

11. Closed Session

a. Conference with Legal Counsel – Pending Litigation – One (1) Case: Stanislaus County Employees' Retirement Association v. Buck Consultants, LLC, Mediation Pursuant to Evidence Code Sections 1115, 1119, 1152 Government Code Section 54956.9(d)(4)

12. Members' Forum (Information and Future Agenda Requests Only)

13. Adjournment

BOARD OF RETIREMENT MINUTES
January 24, 2023

1. Call Meeting to Order
2. Pledge of Allegiance
3. Roll Call

Trustees Present

Donna Riley
Mandip Dhillon - Chair
Delilah Vasquez
Darin Gharat – Vice Chair
Mike Lynch
Terry Withrow – arrived at 1:32 p.m.
Rhonda Biesemeier
Jeff Grover

Trustees Absent

Michael O'Neal
Joshua Clayton

Others Present by Conference Call: NONE

Others Present:

Tom Stadelmaier, Executive Director
Stan Conwell, Retirement Investment Officer
Brittany Smith-Atkins, Retirement Fiscal Manager
Kellie Gomes, Business and Operations Manager
Joanna Saucedo, Executive Assistant
Fred Silva, General Legal Counsel
Daniel Hennessy, NEPC Investment Consultant

4. Announcements
 - a. Kellie announced rotation of Officers: - Pursuant to Bylaws Section 1.5, Trustee Mandip Dhillon is the Chair of the 2023 Board of Retirement and Trustee Darin Gharat is Vice-Chair
 - b. Chair Dhillon welcomed new Board member Delilah Vasquez, Seat 3 representing general members
 - c. Chair Dhillon welcomed Tom Stadelmaier to his first meeting as StanCERA's new Executive Director.
 - d. Chair Dhillon expressed sincere thanks on behalf of the Board, to Trustee Riley for her services as Chairperson last year.

5. Public Comment - NONE

6. Teleconference Request - NONE

- a. Trustee Teleconference Request Pursuit to **Government Code Section § 54953(f)(2)(a)(1)**.

7. Consent Items

- a. Approval of the December 6, 2022 Meeting Minutes
b. 2023 BOR Committee Assignments
c. Education Summary Report
d. Investment Matrix
e. Investment Fee Summary, Value Added, and Cash Flow Reports as of September 30, 2022
f. Application for Service-Connected Disability– **Government Code 31724**
 i. Jones, Dawn – Stanislaus County, Effective Date 07/20/2021
g. Applications for Service Retirement(s) – **Government Code Sections 31499.14, 31670, 31662.2 & 31810** See attachment for details.

Motion was made by Trustee Gharat and seconded by Trustee Riley to approve all consent items as presented.

Roll Call Vote was as follows:

| | |
|--------------------|-----|
| Trustee Riley | YES |
| Trustee Dhillon | YES |
| Trustee Vasquez | YES |
| Trustee Gharat | YES |
| Trustee Lynch | YES |
| Trustee Withrow | YES |
| Trustee Biesemeier | YES |
| Trustee Grover | YES |

Motion passed unanimously

8. NEPC – Investment Consultant

Daniel Hennessy, NEPC Investment Consultant reported on the following:

- a. November Flash Report
b. December Flash Report

9. Investment

Stan Conwell, Retirement Investment Officer reported on the following:

- a. Private Markets Program Report as of September 30, 2022
b. Raven III Continuation Fund Onsite Due Diligence

10. Administrative

Brittany Smith-Atkins, Retirement Fiscal Manager reported on the following:

- a. Year-end Finance Update

11. Closed Session

- a. Conference with Legal Counsel – Pending Litigation – One (1) Case: Stanislaus County Employees' Retirement Association v. Buck Consultants, LLC, Mediation Pursuant to Evidence Code Sections 1115, 1119, 1152 Government Code Section 54956.9(d)(4)


No closed session items were heard.

12. Members' Forum (Information and Future Agenda Requests Only)

13. Adjournment – meeting adjourned at 2:29 p.m.

Respectfully submitted,

APPROVED AS TO FORM



Tom Stadelmaier, Executive Director

By 

Fred A. Silva, General Legal Counsel

STANCERA APPLICATIONS FOR SERVICE RETIREMENT(S)
GOVERNMENT CODE SECTIONS 31499.14, 31670,
31662.2, 318/10 & 31700
2/28/23 Item 7.c

1. Arroyo, Manuel - Stanislaus County - Effective 01/11/2023
2. Bush, Samantha - Stanislaus County - Effective 01/18/2023
3. Connors, Nohemi - Stanislaus County - Effective 02/03/2023
4. Do, Mothou - Stanislaus County - Effective 02/10/2023
5. Eichbaum, James - Stanislaus County - Effective 02/01/2023
6. Gallardo, Lauralene - Stanislaus County - Effective 02/11/2023
7. Johnsen, Gregory - Stanislaus County - Effective 01/25/2023
8. LIU, PAUL - City of Ceres - Effective 02/28/2023
9. Murphy, Paul - Stanislaus County - Effective 02/11/2023
10. Nunes, Ronda - Stanislaus County - Effective 02/10/2023
11. Plantz, Janet - Stanislaus County - Effective 02/25/2023
12. Ryman, Vicki - Stanislaus County - Effective 02/04/2023
13. Streit, Rosemarie - Stanislaus County - Effective 02/11/2023
14. Thomas, Rachel - Stanislaus County - Effective 01/31/2023

February 28, 2023

Retirement Board Agenda Item

TO: Retirement Board

FROM: Stan Conwell, Retirement Investment Officer

- I. SUBJECT: Investment Matrix
- II. ITEM NUMBER: 7.e
- III. ITEM TYPE: Information Only
- IV. STAFF RECOMMENDATION: N/A
- V. ANALYSIS:

a) *Investment Program Activities:*

Private market fund due diligence picked up in the last month with three potential funds currently in the legal due diligence stage of underwriting. One private credit direct lender, a value-add real estate fund and a venture capital fund are in various stages of review. Staff is also continuing the review of the Raven III continuation fund which includes working with NEPC and Verus on formulating a recommendation and reference calls with fellow LPs. With a new executive director now on board, introducing him to StanCERA's investment managers, consultants, and service providers is an important priority as is familiarizing him with StanCERA's investment tasks, policies, and practices.

b) *Money Transfer Report:*

January 2023

| From | | | To | | |
|----------------------|---------------|-----------------|--------------------------|---------------------|----------------|
| Manager | Asset Class | Amount | Manager | Asset Class | Amount |
| NT Russell 3000 Fund | Public Equity | \$-3,650,970.00 | Vista Foundation Fund IV | Private Equity | \$3,650,970.00 |
| StanCERA Cash | Cash | \$-498,713.00 | SVSS V | Private Credit | \$498,713.00 |
| StanCERA Cash | Cash | \$-230,233.00 | Grandview II | Private Real Estate | \$230,233.00 |
| StanCERA Cash | Cash | \$-248,150.12 | Genstar Capital X | Private Equity | \$248,150.12 |

| | | | | | |
|-------------------------|------------------|-----------------|--------------------------------|---------------------------|----------------|
| StanCERA Cash | Cash | \$-506,512.00 | Grandview II | Private Real Estate | \$506,512.00 |
| NT Russell 3000 Fund | Public Equity | \$-3,714,974.00 | Blue Wolf Capital Fund V | Private Equity | \$3,714,974.00 |

c) *Manager Meetings:*

Monroe Capital

Staff met with a fund portfolio manager and the extended client account team for an update call on the Monroe IV Fund. Monroe IV is a private credit fund in the direct lending sub portfolio from the 2020 vintage year. A major topic of discussion was the current lending environment given the increase in interest rates. When compared to a year ago loans can be made at much higher yields with similar risk. Deal flow has also remained consistent. The loans within the fund are floating rate loans meaning the coupon payments and ultimately the distributions from the fund should increase with interest rates. The risk of default will likely increase as the threat of a recession looms, but Monroe's focus on defensive industries and well-established companies with healthy interest coverage ratios should help minimize downside risk. They also employ a dedicated team to workout nonperforming loans as well an asset management group to handle more complex situations.

Raven Capital Management

On February 07,2023 Raven Capital Management announced they entered into an agreement to be acquired by Metlife Investment Management (MIM) the asset management division of MetLife, Inc. Metlife will benefit from the deal by building out their private credit offerings in differentiated areas and Raven will benefit from MIM's operational scale and distribution network. Staff, NEPC and Verus will continue to review the details of the deal and the impact of the acquisition will be integrated into the Raven III continuation fund recommendation.

d) *Conferences & Trainings:*

NEPC Public Fund Workshop

Staff attended the NEPC public fund workshop in Tempe, AZ. The annual event brings together NEPC's public pension clients for education and networking. The workshop is designed to be more participatory in nature similar to a roundtable event. This is achieved by dedicating time for each plan to introduce themselves and discuss their recent activities with the other participants. The number of attendees was also smaller than other events to encourage more frequent engagement. Agenda topics ranged from capital markets updates to attracting and retaining staff. Overall, the workshop was an excellent opportunity to network and share best practices and ideas with similarly situated public pension plans who face many of the same challenges and opportunities as StanCERA.

VII. STRATEGIC PLAN: N/A

VIII. ADMINISTRATIVE BUDGET IMPACT: None

February 28, 2023

Retirement Board Agenda Item

TO: Retirement Board

FROM: Tom Stadelmaier, Executive Director

- I. SUBJECT: 2023 Cost of Living Adjustment
- II. ITEM NUMBER: 7.f
- III. ITEM TYPE: Consent
- IV. STAFF RECOMMENDATION: Approve Cheiron's recommendation for a 3% Cost of Living Adjustment (COLA) for all StanCERA's non-tier 3 retired member's monthly benefit beginning April 1, 2023 for those that retired prior to April 2, 2023. For those non-tier 3 members that retired prior to April 2, 2023, increase the carry-over allowances by 2.0%.
- V. EXECUTIVE SUMMARY: Attachment 1 contains Cheiron's recommendation for the Cost of Living Adjustments referenced in staff's recommendation.

Currently, StanCERA bases its COLA increases on the All-Urban Consumer Index for the San Francisco/Oakland/Hayward (previously San Francisco/Oakland/San Jose) area. The COLA change for retirees' 2023 benefit is based on the change in the December over December measures (2021 to 2022). The 2021 and 2022 measures turned out to be 315.805 and 331.222, respectively. This equates to an increase of 4.882%, which when rounded, results in a final value of 5.0%.

However, based on Code Section 31870.1 which StanCERA and its employers adhere to, members are to receive the lesser of 3% or the actual year over year change in the index. Whenever the change is greater than 3%, the overage is banked for use in future years when the change is less than 3%. Consequently, all non-tier 3 members that retired prior to April 2, 2023 should receive a 3% cost of living adjustment to their benefit and an increase of 2.0% in their accumulated bank.

VI. RISK: None

VII. STRATEGIC PLAN: N/A

ADMINISTRATIVE BUDGET IMPACT: None

January 19, 2023

Mr. Tom Stadelmaier
Executive Director
Stanislaus County Employees' Retirement Association
832 12th Street, Suite 600
Modesto, California 95354

Re: Cost of Living Adjustment (COLA) as of April 1, 2023

Dear Tom:

Pursuant to the scope of retainer services under Cheiron's agreement to provide actuarial services to the Stanislaus County Employees' Retirement Association (StanCERA), we have computed the Cost of Living Adjustment (COLA) percentages to be used as of April 1, 2023. The calculations outlined herein have been performed in accordance with 31870.1 of the County Employees Retirement Law of 1937.

Background

The Cost of Living Adjustment (COLA) is determined annually based on increases in the December Consumer Price Index (CPI) for All Urban Consumers in the San Francisco-Oakland-Hayward (previously San Francisco-Oakland-San Jose) area, using a base period of 1982-1984. The ratio is calculated and rounded to the nearest one-half percent.

COLA Calculations

The CPIs described above were 331.222 and 315.805 for December 2022 and December 2021, respectively. This represents an increase of 4.882%, which is rounded to 5.00%. As a point of comparison, the U.S. City CPI increased by 6.45% over the same time period.

Retirees – other than members of Tier 3 – are subject to the provisions of Section 31870.1, which limits annual COLA increases to 3.0% annually. Therefore, these members should receive an increase in benefits of 3.0%, based on the current year change in the CPI. The carry-over balances will increase by 2.0%, based on the difference of the rounded CPI increase versus the current year COLA adjustment. The enclosed exhibit summarizes the COLA calculations and carry-over balances for these Tiers. Tier 3 members do not receive an automatic COLA from the Association.

Mr. Tom Stadelmaier

January 19, 2023

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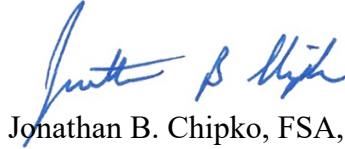
Please contact us if you have any questions regarding these calculations.

Sincerely,

Cheiron



Graham A. Schmidt, ASA, FCA, MAAA, EA
Consulting Actuary



Jonathan B. Chipko, FSA, MAAA, EA
Consulting Actuary

STANISLAUS COUNTY EMPLOYEES' RETIREMENT ASSOCIATION

COST OF LIVING ADJUSTMENTS (COLA) - Section 31870.1

As of April 1, 2023

Maximum Annual COLA: 3.0%

| Initial Retirement Date | April 1, 2022 | Increase in the Annual Average CPI ¹ | | April 1, 2023 | |
|--------------------------|------------------------|---|---------|---------------|------------------------|
| | Accumulated Carry-Over | | | COLA | Accumulated Carry-Over |
| | | Actual | Rounded | | |
| | (A) | (B) | (C) | (D) | (E) |
| On or Before 4/1/1970 | 68.0% | 4.88% | 5.0% | 3.0% | 70.0% |
| 04/02/1970 to 04/01/1971 | 65.5% | 4.88% | 5.0% | 3.0% | 67.5% |
| 04/02/1971 to 04/01/1972 | 63.5% | 4.88% | 5.0% | 3.0% | 65.5% |
| 04/02/1972 to 04/01/1973 | 62.5% | 4.88% | 5.0% | 3.0% | 64.5% |
| 04/02/1973 to 04/01/1974 | 62.0% | 4.88% | 5.0% | 3.0% | 64.0% |
| 04/02/1974 to 04/01/1975 | 59.0% | 4.88% | 5.0% | 3.0% | 61.0% |
| 04/02/1975 to 04/01/1976 | 52.0% | 4.88% | 5.0% | 3.0% | 54.0% |
| 04/02/1976 to 04/01/1977 | 45.0% | 4.88% | 5.0% | 3.0% | 47.0% |
| 04/02/1977 to 04/01/1978 | 42.5% | 4.88% | 5.0% | 3.0% | 44.5% |
| 04/02/1978 to 04/01/1979 | 38.0% | 4.88% | 5.0% | 3.0% | 40.0% |
| 04/02/1979 to 04/01/1980 | 31.5% | 4.88% | 5.0% | 3.0% | 33.5% |
| 04/02/1980 to 04/01/1981 | 26.0% | 4.88% | 5.0% | 3.0% | 28.0% |
| 04/02/1981 to 04/01/1982 | 14.0% | 4.88% | 5.0% | 3.0% | 16.0% |
| 04/02/1982 to 04/01/1983 | 4.0% | 4.88% | 5.0% | 3.0% | 6.0% |
| 04/02/1983 to 04/01/2017 | 1.5% | 4.88% | 5.0% | 3.0% | 3.5% |
| 04/02/2017 to 04/01/2022 | 1.0% | 4.88% | 5.0% | 3.0% | 3.0% |
| 04/02/2022 to 04/01/2023 | 0.0% | 4.88% | 5.0% | 3.0% | 2.0% |

¹ All Urban Consumers, San Francisco-Oakland-Hayward Area (1982-84 base). (G.C. 31870.1)



MONTHLY PERFORMANCE REPORT

STANISLAUS COUNTY EMPLOYEES'
RETIREMENT ASSOCIATION

JANUARY 31, 2023

Dan Hennessy, CFA, CAIA, Senior Consultant
Sam Austin, Partner
Leah Tongco, Consulting Analyst



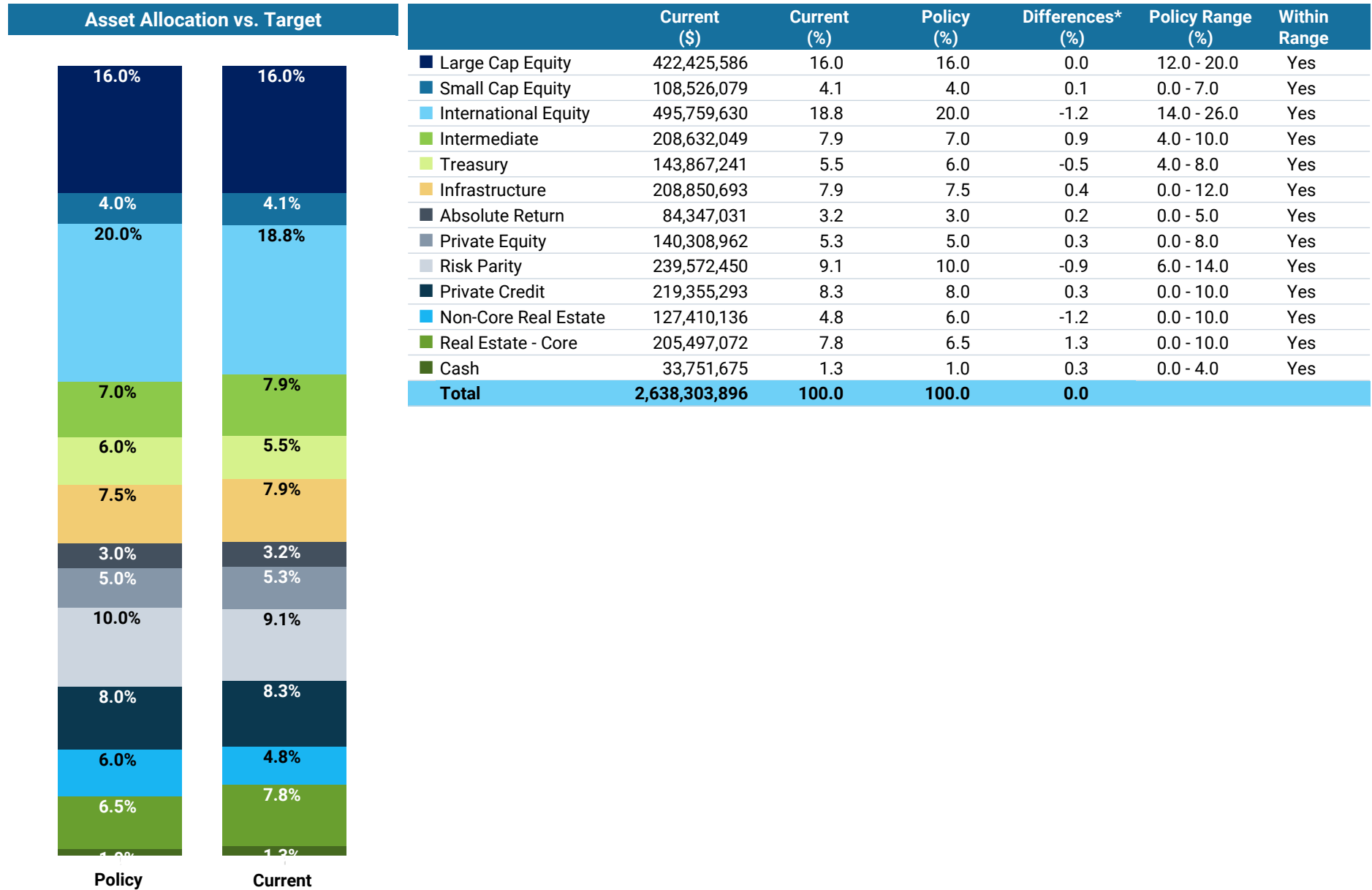
CALENDAR YEAR INDEX PERFORMANCE

| | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | Jan | YTD |
|---------------------------------|--------|--------|--------|-------|-------|--------|-------|--------|-------|--------|-------|-------|
| S&P 500 | 32.4% | 13.7% | 1.4% | 12.0% | 21.8% | -4.4% | 31.5% | 18.4% | 28.7% | -18.1% | 6.3% | 6.3% |
| Russell 1000 | 33.1% | 13.2% | 0.9% | 12.1% | 21.7% | -4.8% | 31.4% | 21.0% | 26.5% | -19.1% | 6.7% | 6.7% |
| Russell 2000 | 38.8% | 4.9% | -4.4% | 21.3% | 14.6% | -11.0% | 25.5% | 20.0% | 14.8% | -20.4% | 9.7% | 9.7% |
| Russell 2500 | 36.8% | 7.1% | -2.9% | 17.6% | 16.8% | -10.0% | 27.8% | 20.0% | 18.2% | -18.4% | 10.0% | 10.0% |
| MSCI EAFE | 22.8% | -4.9% | -0.8% | 1.0% | 25.0% | -13.8% | 22.0% | 7.8% | 11.3% | -14.5% | 8.1% | 8.1% |
| MSCI EM | -2.6% | -2.2% | -14.9% | 11.2% | 37.3% | -14.6% | 18.4% | 18.3% | -2.5% | -20.1% | 7.9% | 7.9% |
| MSCI ACWI | 22.8% | 4.2% | -2.4% | 7.9% | 24.0% | -9.4% | 26.6% | 16.3% | 18.5% | -18.4% | 7.2% | 7.2% |
| Private Equity | 12.6% | 22.3% | 14.6% | 10.4% | 10.3% | 21.0% | 13.1% | 17.2% | 45.0% | -9.8% | - | -9.7% |
| BBG TIPS | -8.6% | 3.6% | -1.4% | 4.7% | 3.0% | -1.3% | 8.4% | 11.0% | 6.0% | -11.8% | 1.8% | 1.8% |
| BBG Municipal | -2.6% | 9.1% | 3.3% | 0.2% | 5.4% | 1.3% | 7.5% | 5.2% | 1.5% | -8.5% | 2.9% | 2.9% |
| BBG Muni High Yield | -5.5% | 13.8% | 1.8% | 3.0% | 9.7% | 4.8% | 10.7% | 4.9% | 7.8% | -13.1% | 4.4% | 4.4% |
| BBG US Corporate HY | 7.4% | 2.5% | -4.5% | 17.1% | 7.5% | -2.1% | 14.3% | 7.1% | 5.3% | -11.2% | 3.8% | 3.8% |
| BBG US Agg Bond | -2.0% | 6.0% | 0.5% | 2.6% | 3.5% | 0.0% | 8.7% | 7.5% | -1.5% | -13.0% | 3.1% | 3.1% |
| BBG Global Agg | -2.6% | 0.6% | -3.2% | 2.1% | 7.4% | -1.2% | 6.8% | 9.2% | -4.7% | -16.2% | 3.3% | 3.3% |
| BBG Long Treasuries | -12.7% | 25.1% | -1.2% | 1.3% | 8.5% | -1.8% | 14.8% | 17.7% | -4.6% | -29.3% | 6.4% | 6.4% |
| BBG US Long Credit | -6.6% | 16.4% | -4.6% | 10.2% | 12.2% | -6.8% | 23.4% | 13.3% | -1.2% | -25.3% | 6.7% | 6.7% |
| BBG US STRIPS 20+ Yr | -21.0% | 46.4% | -3.7% | 1.4% | 13.7% | -4.1% | 20.9% | 24.0% | -5.2% | -39.6% | 9.7% | 9.7% |
| JPM GBI-EM Global Div | -9.0% | -5.7% | -14.9% | 9.9% | 15.2% | -6.2% | 13.5% | 2.7% | -8.7% | -11.7% | 4.3% | 4.3% |
| JPM EMBI Glob Div | -5.3% | 7.4% | 1.2% | 10.2% | 10.3% | -4.3% | 15.0% | 5.3% | -1.8% | -17.8% | 3.2% | 3.2% |
| CS Hedge Fund | 9.7% | 4.1% | -0.7% | 1.2% | 7.1% | -3.2% | 9.3% | 6.4% | 8.2% | 1.1% | - | 0.0% |
| BBG Commodity | -9.5% | -17.0% | -24.7% | 11.8% | 1.7% | -11.2% | 7.7% | -3.1% | 27.1% | 16.1% | -0.5% | -0.5% |
| Alerian Midstream | - | 16.4% | -37.3% | 33.8% | -2.4% | -13.3% | 24.0% | -23.4% | 38.4% | 21.5% | 4.8% | 4.8% |
| FTSE NAREIT Equity REITs | 2.5% | 30.1% | 3.2% | 8.5% | 5.2% | -4.6% | 26.0% | -8.0% | 43.2% | -24.4% | 10.7% | 10.7% |

*Private Equity return represents calendar year pooled IRR and is subject to a one quarter lag
Source: FactSet, Barclays, Thomson One



ASSET ALLOCATION VS. POLICY



*Difference between Policy and Current Allocation

TOTAL FUND PERFORMANCE DETAIL

| | Allocation | | Performance (%) | | | | | | | |
|---|----------------------|----------------|-----------------|-------------|-------------|------------|-------------|-------------|---------------|----------------|
| | Market Value (\$) | % of Portfolio | 1 Mo (%) | 1 Yr (%) | 3 Yrs (%) | 5 Yrs (%) | 7 Yrs (%) | 10 Yrs (%) | Inception (%) | Inception Date |
| Total Fund | 2,638,303,896 | 100.0 | 4.1 | -3.6 | 5.8 | 5.1 | 8.0 | 7.2 | 8.6 | Jan-95 |
| Policy Index | | | 4.7 | -2.2 | 6.2 | 5.4 | 8.0 | 7.2 | 7.9 | |
| Allocation Index | | | 4.7 | -4.6 | | | | | | |
| Liquidity Sub-Portfolio | 242,383,724 | 9.2 | 1.4 | -1.3 | 0.9 | 2.6 | 2.0 | | 1.8 | Aug-14 |
| StanCERA Liquidity Blended BM | | | 1.7 | -4.3 | 1.0 | 1.8 | 1.5 | | 1.4 | |
| Cash | 33,751,675 | 1.3 | 0.4 | 2.1 | 2.1 | 1.9 | 1.7 | | 1.5 | Aug-14 |
| FTSE 1 Month T-Bill | | | 0.3 | 1.8 | 0.7 | 1.2 | 1.0 | | 0.9 | |
| Cashflow-Matched Bonds | 208,632,049 | 7.9 | 1.5 | -2.5 | 0.2 | 2.3 | | | 2.1 | Jul-17 |
| Blmbg. Intermed. U.S. Government/Credit | | | 1.9 | -5.1 | -1.1 | 1.3 | | | 1.1 | |
| Insight | 208,632,049 | 7.9 | 1.5 | -2.5 | 0.2 | 2.3 | | | 2.1 | Jul-17 |
| Blmbg. Intermed. U.S. Government/Credit | | | 1.9 | -5.1 | -1.1 | 1.3 | | | 1.1 | |
| Growth Sub-Portfolio | 1,928,133,451 | 73.1 | 4.4 | -3.2 | 7.8 | 6.3 | 10.0 | 9.1 | 8.0 | Jan-04 |
| StanCERA Growth Blended BM | | | 5.2 | -0.7 | 9.0 | 7.2 | 10.4 | | | |
| US Equities | 530,951,665 | 20.1 | 7.0 | -6.9 | 10.7 | 8.9 | 12.7 | 11.8 | 9.5 | Jan-04 |
| Russell 3000 Index | | | 6.9 | -8.2 | 9.5 | 9.1 | 13.0 | 12.3 | 9.2 | |
| US Large Equity | 422,425,586 | 16.0 | 6.3 | -9.3 | 10.3 | 9.5 | 13.2 | 12.6 | 12.3 | Jan-95 |
| Russell 1000 Index | | | 6.7 | -8.5 | 9.7 | 9.4 | 13.2 | 12.5 | 10.2 | |
| BlackRock Russell 1000 Growth | 195,713,375 | 7.4 | 8.3 | -16.0 | 9.9 | 11.2 | 15.2 | 14.5 | 14.9 | Aug-10 |
| Russell 1000 Growth Index | | | 8.3 | -16.0 | 9.9 | 11.2 | 15.2 | 14.5 | 14.9 | |
| BlackRock Russell 1000 Value | 114,945,048 | 4.4 | 5.2 | -0.5 | 8.6 | 7.0 | 10.8 | 10.2 | 11.6 | Aug-09 |
| Russell 1000 Value Index | | | 5.2 | -0.4 | 8.5 | 6.9 | 10.7 | 10.2 | 11.5 | |
| Dodge & Cox-Equity | 111,767,162 | 4.2 | 3.9 | -4.7 | 11.5 | 8.0 | 13.0 | 11.8 | 11.8 | Jan-95 |
| Russell 1000 Value Index | | | 5.2 | -0.4 | 8.5 | 6.9 | 10.7 | 10.2 | 9.8 | |
| US Small Equity | 108,526,079 | 4.1 | 10.0 | 3.9 | 12.5 | 6.8 | 11.0 | 9.4 | 12.2 | Jan-09 |
| Russell 2000 Index | | | 9.7 | -3.4 | 7.5 | 5.5 | 10.8 | 9.4 | 11.6 | |
| Attucks Small Cap | 108,526,079 | 4.1 | 10.0 | 3.9 | 12.5 | 6.8 | 12.1 | 9.7 | 12.4 | Jan-09 |
| Russell 2000 Value Index | | | 9.5 | -0.5 | 9.9 | 5.8 | 10.7 | 8.8 | 10.6 | |
| International Equity | 495,759,630 | 18.8 | 7.7 | -5.1 | 5.2 | 2.0 | 7.7 | 5.0 | 6.1 | Oct-04 |
| MSCI AC World ex USA (Net) | | | 8.1 | -5.7 | 3.6 | 1.4 | 7.0 | 4.2 | 5.6 | |
| LSV Int'l Large Cap Value | 260,813,311 | 9.9 | 7.0 | -2.0 | 5.2 | 1.3 | 7.7 | 4.9 | 5.9 | Oct-04 |
| MSCI AC World ex USA Value (Net) | | | 7.8 | -2.4 | 4.2 | 0.3 | 6.5 | 3.0 | 4.9 | |
| Fidelity Int'l Growth | 234,946,319 | 8.9 | 8.6 | -8.4 | 5.1 | 2.6 | 7.5 | 5.0 | 4.1 | May-06 |
| MSCI AC World ex USA Growth (Net) | | | 8.5 | -9.2 | 2.7 | 2.1 | 7.4 | 5.2 | 4.0 | |

- Cash Composite includes the Transaction Account Value.

TOTAL FUND PERFORMANCE DETAIL

| | Allocation | | Performance (%) | | | | | | | |
|--|--------------------|----------------|-----------------|-------------|-------------|-------------|-------------|------------|---------------|----------------|
| | Market Value (\$) | % of Portfolio | 1 Mo (%) | 1 Yr (%) | 3 Yrs (%) | 5 Yrs (%) | 7 Yrs (%) | 10 Yrs (%) | Inception (%) | Inception Date |
| Core Real Estate | 205,497,072 | 7.8 | 0.4 | 1.5 | 6.4 | 6.9 | 6.0 | 6.7 | 3.2 | Apr-08 |
| NCREIF Property Index | | | 0.0 | 5.5 | 8.1 | 7.5 | 7.5 | 8.8 | 6.5 | |
| Prime Property Fund | 103,829,403 | 3.9 | 0.0 | 6.1 | 9.3 | 8.4 | 8.6 | | 8.6 | Oct-15 |
| NCREIF ODCE | | | 0.0 | 7.5 | 9.9 | 8.7 | 8.5 | | 8.6 | |
| BlackRock Real Estate Securities | 7,265,405 | 0.3 | 11.0 | -12.2 | 1.8 | 5.4 | 5.3 | 6.4 | 6.8 | Oct-12 |
| Dow Jones U.S. Select RESI | | | 11.0 | -12.2 | 1.9 | 5.5 | 5.4 | 6.5 | 6.8 | |
| PGIM Real Estate US Debt Fund | 94,402,264 | 3.6 | 0.0 | 5.2 | 5.0 | | | | 5.1 | Sep-18 |
| Blmbg. U.S. Investment Grade: CMBS Index | | | 2.6 | -7.1 | -1.6 | | | | 1.5 | |
| Value-Add Real Estate | 127,410,136 | 4.8 | 0.0 | 2.3 | 10.8 | 11.2 | 11.3 | | 11.0 | Aug-14 |
| NCREIF Property Index +2% | | | 0.2 | 7.6 | 10.2 | 9.6 | 9.6 | | 10.6 | |
| American Strategic Value Realty | 88,716,589 | 3.4 | 0.0 | 7.4 | 9.5 | 9.3 | 9.7 | | 10.6 | Jan-15 |
| NCREIF Property Index | | | 0.0 | 5.5 | 8.1 | 7.5 | 7.5 | | 8.1 | |
| Greenfield Acquisition Partners VII | 1,873,971 | 0.1 | 0.0 | 10.9 | 5.6 | 9.0 | 10.4 | | 10.3 | Aug-14 |
| NCREIF-ODCE +1% | | | 0.1 | 8.5 | 11.0 | 9.8 | 9.6 | | 10.7 | |
| Grandview Property Partners I | 20,974,149 | 0.8 | 0.0 | -11.1 | 18.5 | | | | 20.8 | Apr-18 |
| NCREIF-ODCE +1% | | | 0.1 | 8.5 | 11.0 | | | | 9.6 | |
| Grandview Property Partners II | 15,845,427 | 0.6 | 0.0 | 5.5 | | | | | -0.4 | Dec-21 |
| NCREIF-ODCE +1% | | | 0.1 | 8.5 | | | | | 14.7 | |
| Infrastructure | 208,850,693 | 7.9 | 1.8 | -2.1 | -1.1 | 4.1 | 6.7 | | 4.7 | Jun-15 |
| CPI + 5% (Unadjusted) | | | 1.2 | 11.7 | 10.3 | 9.0 | 8.6 | | 8.2 | |
| MS Infrastructure Partners II | 28,212,207 | 1.1 | 0.0 | 15.0 | 7.5 | 9.4 | 10.5 | | 8.1 | Jun-15 |
| CPI + 5% (Unadjusted) | | | 1.2 | 11.7 | 10.3 | 9.0 | 8.6 | | 8.2 | |
| Palistar Communications Infrastructure Fund II | 11,097,925 | 0.4 | 0.0 | 8.4 | | | | | 7.7 | Jan-22 |
| CPI + 5% (Unadjusted) | | | 1.2 | 11.7 | | | | | 12.1 | |
| JP Morgan IIF Hedged LP | 32,097,892 | 1.2 | 0.0 | | | | | | 8.8 | Apr-22 |
| CPI + 5% (Unadjusted) | | | 1.2 | | | | | | 8.4 | |
| Northern Trust Infrastructure Fund | 84,897,637 | 3.2 | 4.1 | -5.2 | | | | | -3.2 | Jul-21 |
| 67% STOXX Global Broad Infra / 33% Bloomberg US TIPS | | | 3.7 | -4.8 | | | | | -3.0 | |
| IFM Global Infrastructure Fund | 52,545,032 | 2.0 | 0.8 | | | | | | 5.1 | Jul-22 |
| CPI + 5% (Unadjusted) | | | 1.2 | | | | | | 3.9 | |

- Greenfield Acquisition Partners VII, Grandview Property Partners, Grandview Property Partners II, MS Infrastructure Partners II, Palistar Communications Infrastructure Fund II, and IFM Global Infrastructure Fund are preliminary and subject to change once finalized.

TOTAL FUND PERFORMANCE DETAIL

| | Allocation | | Performance (%) | | | | | | | Inception Date |
|---|--------------------|----------------|-----------------|--------------|-------------|-------------|-------------|-------------|---------------|----------------|
| | Market Value (\$) | % of Portfolio | 1 Mo (%) | 1 Yr (%) | 3 Yrs (%) | 5 Yrs (%) | 7 Yrs (%) | 10 Yrs (%) | Inception (%) | |
| Private Equity | 140,308,962 | 5.3 | 2.7 | -4.5 | 12.1 | | | | 14.4 | Dec-18 |
| Russell 3000 + 3% | | | 7.2 | -5.5 | 12.8 | | | | 14.6 | |
| Private Equity | 87,027,253 | 3.3 | 0.0 | 5.2 | | | | | 18.8 | Apr-20 |
| Russell 3000 + 3% | | | 7.2 | -5.5 | | | | | 23.1 | |
| Private Equity Proxy | 53,281,709 | 2.0 | 6.9 | -8.3 | 9.5 | 10.2 | 13.6 | 12.9 | 9.6 | Dec-03 |
| Russell 3000 Index | | | 6.9 | -8.2 | 9.5 | 9.1 | 13.0 | 12.3 | 9.4 | |
| Private Credit | 219,355,293 | 8.3 | 1.7 | 2.4 | -0.1 | 0.1 | 0.7 | | 2.2 | Jun-13 |
| S&P/LSTA Leveraged Loan Index +2% | | | 2.9 | 3.8 | 5.3 | 5.7 | 7.0 | | 5.9 | |
| Private Credit | 105,270,698 | 4.0 | 0.0 | 10.5 | 3.4 | 2.3 | 2.2 | | 3.4 | Jun-13 |
| S&P/LSTA Leveraged Loan Index +2% | | | 2.9 | 3.8 | 5.3 | 5.7 | 7.0 | | 5.9 | |
| Private Credit Proxy | 114,084,595 | 4.3 | 3.3 | -4.2 | | | | | -3.4 | Jul-21 |
| ICE BofA US High Yield Master II Constrained | | | 3.9 | -5.2 | | | | | -4.0 | |
| Risk-Diversifying Sub-Portfolio | 467,786,722 | 17.7 | 4.3 | -5.6 | 0.0 | 1.7 | 2.3 | 2.3 | 4.1 | Dec-03 |
| StanCERA Risk-Diversifying Blended BM | | | 4.1 | -7.1 | -0.1 | 1.7 | 1.3 | 1.3 | | |
| Risk Parity | 239,572,450 | 9.1 | 6.3 | -11.6 | 0.2 | 2.9 | | | 3.0 | Dec-17 |
| 60% MSCI ACWI (Net)/ 40% Bloomberg Global Agg | | | 5.6 | -9.3 | 2.7 | 3.1 | | | 3.9 | |
| HFR Risk Parity Vol 10 Institutional Index | | | 5.4 | -11.9 | -1.4 | 1.6 | | | 1.9 | |
| AQR Global Risk Premium - EL | 121,886,549 | 4.6 | 4.0 | -10.5 | 0.0 | | | | 3.4 | Apr-18 |
| 60% MSCI ACWI (Net)/ 40% Bloomberg Global Agg | | | 5.6 | -9.3 | 2.7 | | | | 4.0 | |
| PanAgora Risk Parity Multi Asset | 117,685,901 | 4.5 | 8.8 | -12.7 | 0.3 | 3.0 | | | 3.1 | Dec-17 |
| 60% MSCI ACWI (Net)/ 40% Bloomberg Global Agg | | | 5.6 | -9.3 | 2.7 | 3.1 | | | 3.9 | |
| US Treasury Bonds | 143,867,241 | 5.5 | 3.0 | -9.8 | -3.1 | 0.6 | 1.5 | 1.8 | 3.8 | Dec-03 |
| Blmbg. U.S. Treasury: 7-10 Year | | | 3.2 | -10.1 | -3.2 | 0.9 | 0.4 | 1.2 | 3.6 | |
| Northern Trust Intermediate Gov't Bond | 100,576,051 | 3.8 | 1.6 | -5.1 | -1.4 | 0.9 | | | 0.6 | Aug-17 |
| Blmbg. U.S. Government: Intermediate | | | 1.6 | -5.0 | -1.3 | 1.0 | | | 0.6 | |
| Northern Trust Long Term Gov't Bond | 43,291,190 | 1.6 | 6.4 | -19.2 | -6.7 | 0.2 | | | 0.2 | Aug-17 |
| Blmbg. U.S. Government: Long Term Bond Index | | | 6.4 | -21.4 | -7.5 | -0.3 | | | -0.3 | |
| Liquid Absolute Return | 84,347,031 | 3.2 | 1.1 | 21.5 | | | | | 16.5 | Oct-21 |
| 30 Day T-Bill + 4% | | | 0.7 | 5.9 | | | | | 5.4 | |
| Graham Global Investment Fund I SPC LTD | 56,498,094 | 2.1 | 0.8 | 24.9 | | | | | 21.7 | Nov-21 |
| HFR Macro (Total) Index | | | 0.1 | 8.3 | | | | | 6.0 | |
| Invesco Global Targeted Return | 27,848,936 | 1.1 | 1.6 | 4.8 | | | | | 3.8 | Dec-21 |
| 30 Day T-Bill + 4% | | | 0.7 | 5.9 | | | | | 5.6 | |

- Private Credit Composite includes Medley Capital, which is preliminary and subject to change once finalized.

- PanAgora Risk Parity Multi-Asset is preliminary and subject to change once finalized.

NOTES

- All performance is shown net of investment management fees.
- Performance history is provided by Verus through June 2020. As of July 1, 2020 performance is calculated and reported by NEPC.
- Policy Index history:
 - **Inception - 6/30/2017:** 14.4% Russell 1000 Value, 11.3% Russell 1000 Growth, 4.8% S&P 500, 4% Russell 2000 Value, 3.7% Russell 2000 Growth, 18% MSCI ACWI ex USA Gross, 29.8%Bloomberg US Aggregate TR, 3.5% DJ US Select RESI TR USD, 7.5% 9% Annual, 3% CPI + 4%
 - **7/1/2017 - 8/31/2018:** 18.5% Russell 1000, 5.5% Russell 2000, 24% MSCI ACWI ex USA Gross, 19% Bloomberg US Govt/Credit 1-3 Yr. TR, 1% FTSE T-Bill 1 Month TR, 3% Bloomberg US Treasury 7-10 Yr TR, 7.7% NCREIF Property Index, 1.7% NCREIF Property Index +2%, 0.6% CPI + 5%, 5% Bloomberg US High Yield + 2%, 14% 60% MSCI ACWI Net/40% Bloomberg Global Aggregate
 - **9/1/2018 - 5/30/2019:** 10% Russell 1000, 3% Russell 2000, 6% Russell 3000 +3%, 27% MSCI ACWI ex USA Gross, 20% Bloomberg US Govt/Credit 1-3 Yr. TR, 1% FTSE T-Bill 1 Month TR, 3%Bloomberg US Treasury 7-10 Yr TR, 5% NCREIF Property Index, 5% NCREIF Property Index +2%, 1% CPI + 5%, 6% S&P/LSTA Leveraged Loan Index+2%, 13% 60% MSCI ACWI Net/40% Bloomberg Global Aggregate
 - **6/1/2019 - 6/30/2020:** 14% Russell 1000, 3% Russell 2000, 6% Russell 3000 + 3%, 23% MSCI ACWI ex-USA, 19% Bloomberg US Gov't/Credit 1-3 Yr, 1% Citi 1 Month T-Bills, 3% Bloomberg US Treasury 7-10 Yr, 5% NCREIF Property, 5% NCREIF Property +2%, 2% CPI +5%, 6% S&P/LSTA Leveraged Loan Index + 2%, 13% 60% MSCI ACWI / 40% Bloomberg Global Aggregate
 - **7/1/2020 - 12/31/2020:** 14% Russell 1000, 3% Russell 2000, 6% Russell 3000 + 3%, 23% MSCI ACWI ex-USA, 8% Bloomberg US Gov't/Credit 1-3 Yr, 1% Citi 1 Month T-Bills, 3% Bloomberg US Treasury 7-10 Yr, 5% NCREIF Property, 5% NCREIF Property +2%, 2% CPI +5%, 6% S&P/LSTA Leveraged Loan Index + 2%, 13% 60% MSCI ACWI / 40% Bloomberg Global Aggregate, 11%Bloomberg US Intermediate.
 - **1/1/2021 - 06/30/2021:** 16% Russell 1000, 3.5% Russell 2000, 6% Russell 3000 + 3%, 23% MSCI ACWI ex-USA, 8% Bloomberg US Gov't/Credit 1-3 Yr, 1% Citi 1 Month T-Bills, 5% Bloomberg US Treasury 7-10 Yr, 6% NCREIF Property, 5% NCREIF Property +2%, 2% CPI +5%, 4.5% S&P/LSTA Leveraged Loan Index + 2%, 13% 60% MSCI ACWI / 40% Bloomberg Global Aggregate, 7%Bloomberg US Intermediate.
 - **07/01/2021 - Present:** 16% Russell 1000, 4% Russell 2000, 5% Russell 3000 + 3%, 20% MSCI ACWI ex USA Gross, 6.5% NCREIF Property Index, 6% NCREIF Property Index + 2%, 7.5% CPI + 5% (Unadjusted), 8% S&P/LSTA Leveraged Loan Index +2%, 6% Bloomberg US Treasury 7-10 Yr TR, 10% 60% MSCI ACWI (Net)/ 40% Bloomberg Global Agg, 3% 30 Day T-Bill + 4%, 1% FTSE T-Bill 1 Month TR, 7% Bloomberg US Govt/Credit Int TR.
- Starting July 1, 2020, the small Capital Prospects transition cash balance is moved from the Cash composite to the Capital Prospects account. Historical performance for Capital Prospects, US Small, US Equities, Growth Sub-Portfolio, Cash, and Liquidity Sub-Portfolio prior to July 1, 2020 reflects performance of these composites before this change.
- Private Equity investments are valued one quarter lagged and adjusted for capital calls and distributions between quarter-end months.
- Value-Add Real Estate managers are valued quarterly adjusted for current cash flows.

DISCLAIMERS & DISCLOSURES

Past performance is no guarantee of future results.

Returns for pooled funds, e.g. mutual funds and collective investment trusts, are collected from third parties; they are not generally calculated by NEPC. Returns for separate accounts, with some exceptions, are calculated by NEPC. Returns are reported net of manager fees unless otherwise noted.

A “since inception” return, if reported, begins with the first full month after funding, although actual inception dates (e.g. the middle of a month) and the timing of cash flows are taken into account in Composite return calculations.

NEPC’s preferred data source is the plan’s custodian bank or record-keeper. If data cannot be obtained from one of the preferred data sources, data provided by investment managers may be used. Information on market indices and security characteristics is received from additional providers. While NEPC has exercised reasonable professional care in preparing this report, we cannot guarantee the accuracy of all source information contained within. In addition, some index returns displayed in this report or used in calculation of a policy index, allocation index or other custom benchmark may be preliminary and subject to change.

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

The opinions presented herein represent the good faith views of NEPC as of the date of this presentation and are subject to change at any time. Neither fund performance nor universe rankings contained in this report should be considered a recommendation by NEPC.

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Source of private fund performance benchmark data: Cambridge Associates, via Refinitiv





QUARTERLY PERFORMANCE REPORT

STANISLAUS COUNTY EMPLOYEES'
RETIREMENT ASSOCIATION

DECEMBER 31, 2022

Dan Hennessy, CFA, CAIA, Senior Consultant
Sam Austin, Partner
Leah Tongco, Consulting Analyst



MARKET ENVIRONMENT

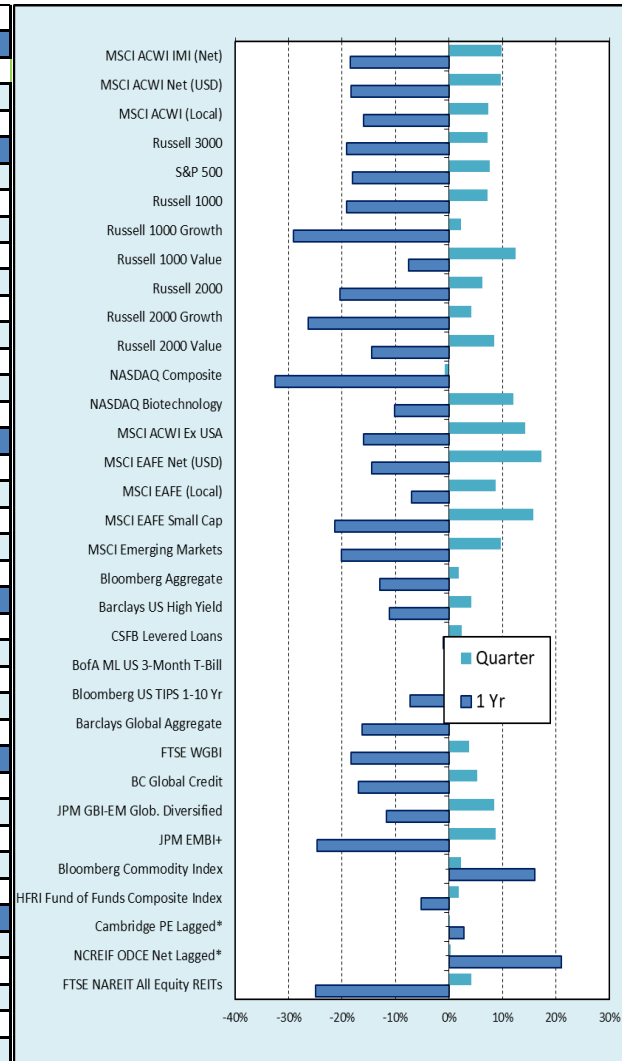
ECONOMIC ENVIRONMENT

- **Q4 Real GDP (advance estimate) increased at an annual rate of 2.9%.**
 - Retail sales ended October at +6.4% on a YoY basis. In the same period last year the YoY growth rate was +16.0%.
 - Corporate profits as a percent of GDP ended June 2022 at 11.2%, down from 12.0% in the same period last year and remain elevated relative to historical levels.
 - The inventory-to-sales ratio ended October was 1.35 up from 1.26 one year ago. Levels have remained relatively constant since early 2010 with a spike to 1.7 in April 2020.
 - The U.S. trade deficit narrowed in November as imports decreased more than exports.
- **The unemployment rate was 3.5% ended Q4, down from 3.7% in Q3; U-6, a broader measure of unemployment, decreased to 6.5% in Q4 from 6.7% in Q3.**
 - The labor force participation rate ended Q4 unchanged from Q3 at 62.3%. Labor force participation declined to 60.2% in April 2020 and is at levels below the 10 year pre-pandemic average of 63.0%.
- **The Case-Shiller Home Price Index (ended October) declined to 298.99 from 300.59 in September and remains at levels higher than that of pre-financial crisis levels of 150.9.**
- **Rolling 12-month seasonally-adjusted CPI ended Q4 at 6.42% down from Q3 at 8.2%. In the same period last year, it was 7.09%; Capacity Utilization decreased to 78.75% in Q4 from 80.07% in Q3.**
- **Fed Funds rate increased in Q4 by 1.25% to a targeted range of 4.25%-to-4.50% up from a targeted range of 3.00%-to-3.25% ended Q3. The 10-year Treasury Yield (constant maturity) finished Q4 at 3.62% up from 3.52% in Q3.**
- **The Fed continues scaling back asset purchases. The Fed continues to reduce the size of its balance sheet after a period of rapid growth post-pandemic.**
- **S&P valuations decreased in Q4 to 27.96 from 28.42x in Q3 and are lower than the 10-year average of 28.99x.**
 - Cyclically adjusted Shiller PE ratio remains above the long-term average of 16.99x.

MARKET ENVIRONMENT

Q4 2022 OVERVIEW

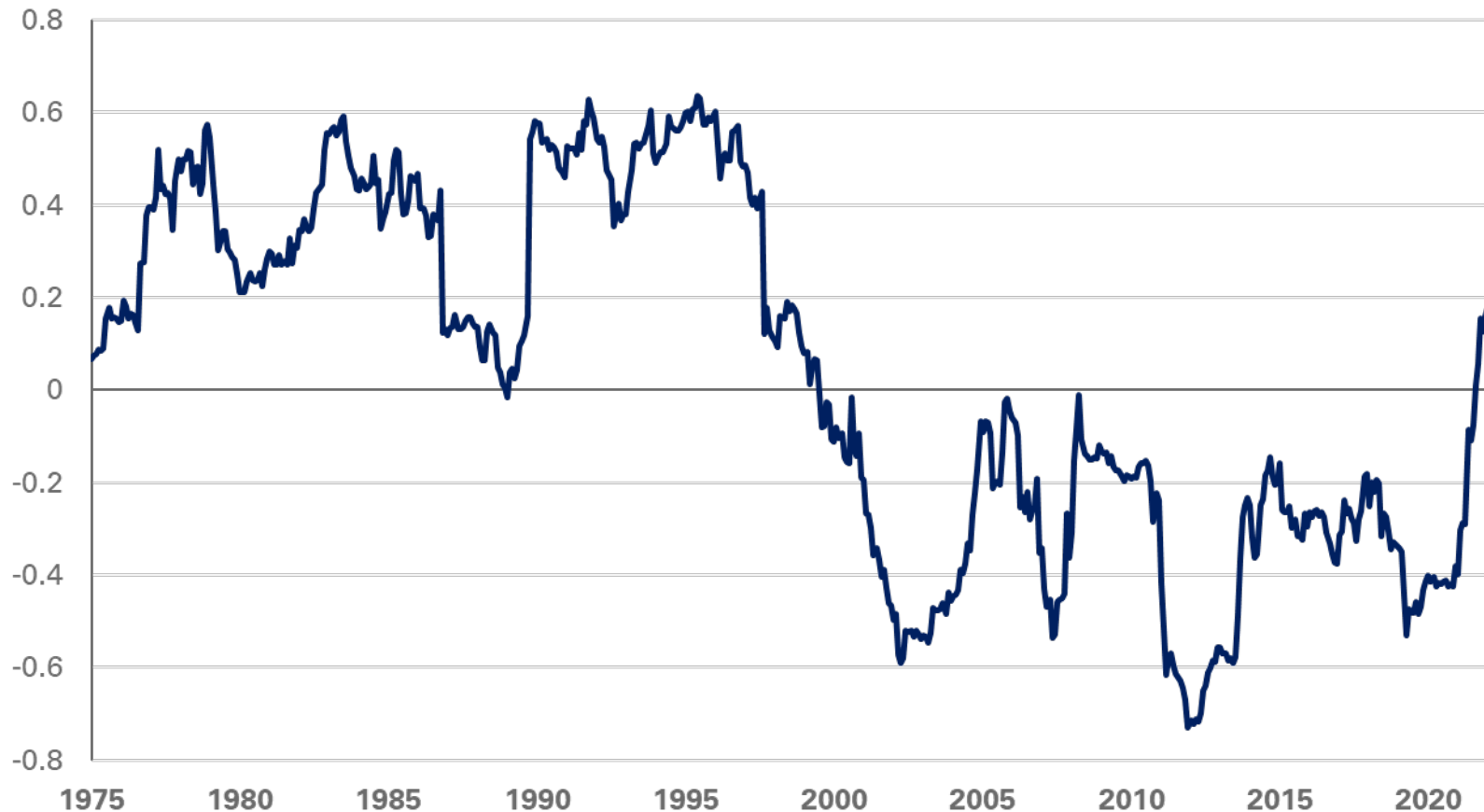
| | | Qtr. | 1 Yr. | 3 Yr. | 5 Yr. | 10 Yr. |
|---|----------------------------------|--------|---------|--------|--------|--------|
| World Equity Benchmarks | | | | | | |
| MSCI ACWI IMI (Net) | World with Small Cap | 9.84% | -18.40% | 3.89% | 4.96% | 7.94% |
| MSCI ACWI Net (USD) | World W/O Small Cap | 9.76% | -18.36% | 4.00% | 5.23% | 7.98% |
| MSCI ACWI (Local) | World (Local Currency) | 7.36% | -15.98% | 5.07% | 6.10% | 9.33% |
| Domestic Equity Benchmarks | | | | | | |
| Russell 3000 | Domestic All Cap | 7.18% | -19.21% | 7.07% | 8.79% | 12.13% |
| S&P 500 | Large Core | 7.56% | -18.11% | 7.66% | 9.42% | 12.56% |
| Russell 1000 | Large Core | 7.24% | -19.13% | 7.35% | 9.13% | 12.37% |
| Russell 1000 Growth | Large Growth | 2.20% | -29.14% | 7.79% | 10.96% | 14.10% |
| Russell 1000 Value | Large Value | 12.42% | -7.54% | 5.96% | 6.67% | 10.29% |
| Russell 2000 | Small Core | 6.23% | -20.44% | 3.10% | 4.13% | 9.01% |
| Russell 2000 Growth | Small Growth | 4.13% | -26.36% | 0.65% | 3.51% | 9.20% |
| Russell 2000 Value | Small Value | 8.42% | -14.48% | 4.70% | 4.13% | 8.48% |
| NASDAQ Composite | Large Growth | -0.79% | -32.54% | 6.10% | 9.67% | 14.43% |
| NASDAQ Biotechnology | Biotech | 12.01% | -10.12% | 4.36% | 5.32% | 11.92% |
| International Equity Benchmarks | | | | | | |
| MSCI ACWI Ex USA | World ex-US | 14.28% | -16.00% | 0.07% | 0.88% | 3.80% |
| MSCI EAFE Net (USD) | Int'l Developed | 17.34% | -14.45% | 0.87% | 1.54% | 4.67% |
| MSCI EAFE (Local) | Int'l Developed (Local Currency) | 8.72% | -7.00% | 3.64% | 3.81% | 7.56% |
| MSCI EAFE Small Cap | Small Cap Int'l | 15.79% | -21.39% | -0.93% | -0.05% | 6.21% |
| MSCI Emerging Markets | Emerging Equity | 9.70% | -20.09% | -2.69% | -1.40% | 1.44% |
| Domestic Fixed Income Benchmarks | | | | | | |
| Bloomberg Aggregate | Core Bonds | 1.87% | -13.01% | -2.71% | 0.02% | 1.06% |
| Barclays US High Yield | High Yield | 4.17% | -11.19% | 0.05% | 2.31% | 4.03% |
| CSFB Levered Loans | Bank Loans | 2.33% | -1.06% | 2.34% | 3.24% | 3.78% |
| BofA ML US 3-Month T-Bill | Cash | 0.84% | 1.46% | 0.72% | 1.26% | 0.76% |
| Bloomberg US TIPS 1-10 Yr | Inflation | 1.64% | -7.34% | 2.01% | 2.50% | 1.29% |
| Global Fixed Income Benchmarks | | | | | | |
| Barclays Global Aggregate | Global Core Bonds | 4.55% | -16.25% | -4.48% | -1.66% | -0.44% |
| FTSE WGBI | World Gov. Bonds | 3.82% | -18.26% | -5.75% | -2.54% | -1.22% |
| BC Global Credit | Global Bonds | 5.28% | -16.96% | -4.01% | -1.06% | 0.60% |
| JPM GBI-EM Glob. Diversified | Em. Mkt. Bonds (Local Currency) | 8.45% | -11.69% | -6.11% | -2.51% | -2.03% |
| JPM EMBI+ | Em. Mkt. Bonds | 8.70% | -24.67% | -8.34% | -3.87% | -0.35% |
| Alternative Benchmarks | | | | | | |
| Bloomberg Commodity Index | Commodities | 2.22% | 16.09% | 12.65% | 6.44% | -1.28% |
| HFRI Fund of Funds Composite Index | Fund of Hedge Funds | 1.79% | -5.25% | 3.71% | 3.02% | 3.51% |
| Cambridge PE Lagged* | Private Equity | 0.08% | 2.86% | 19.37% | 16.75% | 15.02% |
| NCREIF ODCE Net Lagged* | Real Estate | 0.35% | 21.05% | 11.41% | 9.28% | 9.92% |
| FTSE NAREIT All Equity REITs | REIT | 4.14% | -24.95% | 0.20% | 4.43% | 7.10% |



* As of 9/30/2022

ASSET CLASS CORRELATIONS SHIFTED

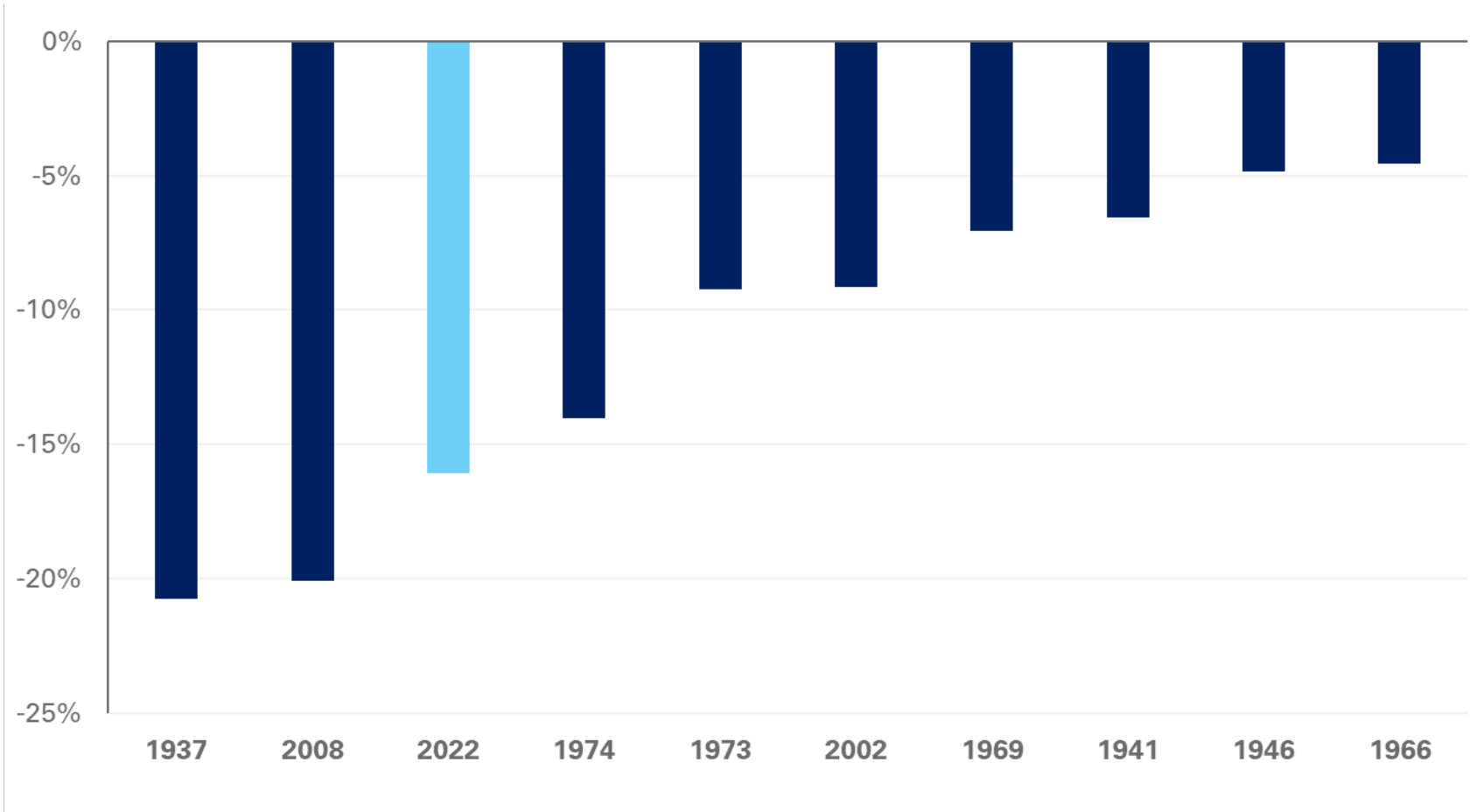
ROLLING CORRELATION BETWEEN THE S&P 500 AND TREASURIES



Correlations are calculated based on a rolling 3-year time horizon
Source: S&P, Bloomberg, FactSet

MOST ASSET CLASS RETURNS WERE CHALLENGED

WORST ANNUAL RETURNS: 60/40 PORTFOLIO



60/40 Portfolio represents 60% S&P 500 and 40% U.S. Aggregate Bonds (post 1975) and 40% Treasury (prior to 1974)

Data calculated from 12/31/1936

Sources: S&P, Bloomberg, FactSet

THE S&P 500 INDEX REMAINS IN A BEAR MARKET

LENGTH AND DEPTH OF S&P 500 BEAR MARKETS

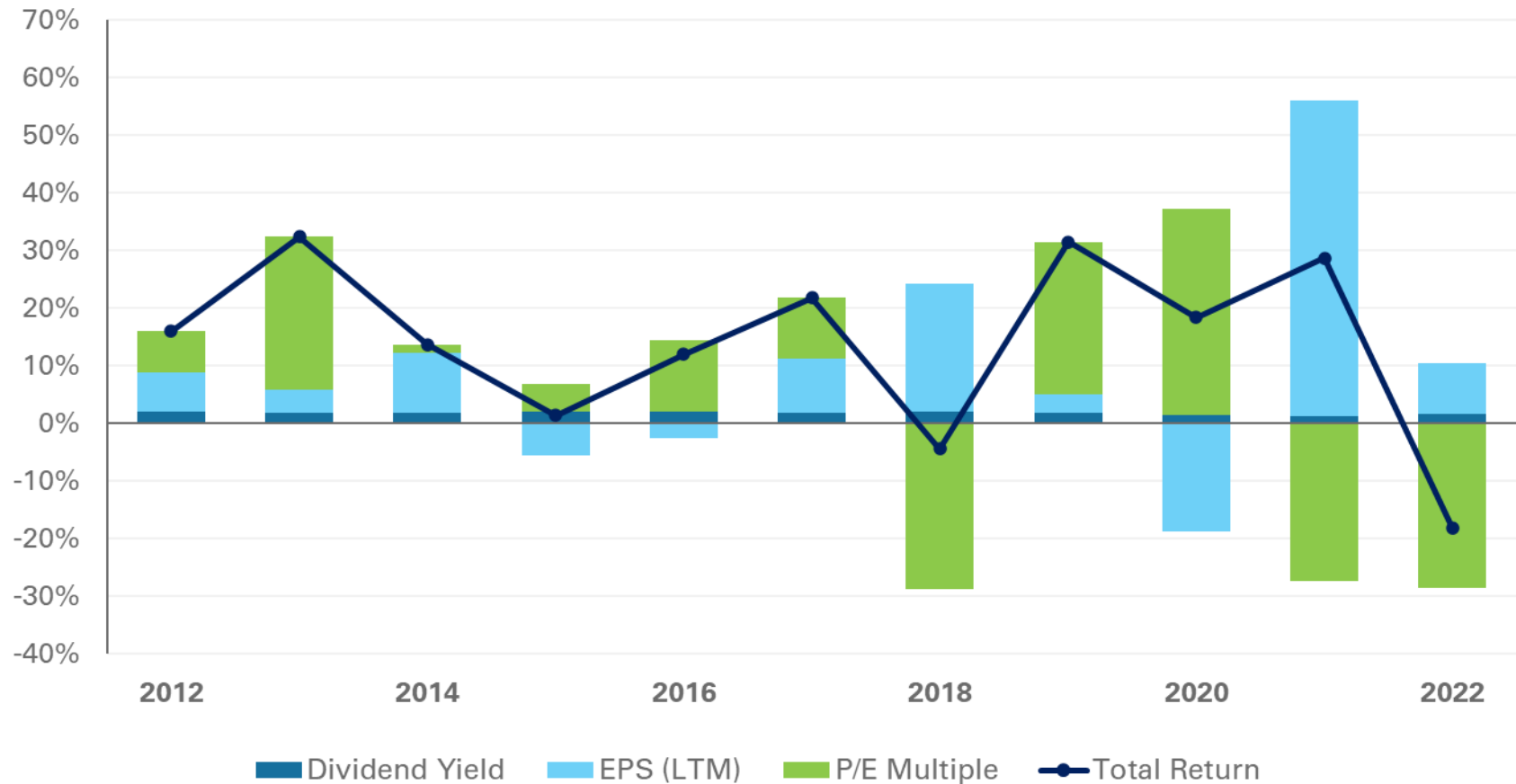
| Start | End | Length of Bear Market (Months) | Length of Recovery* (Months) | S&P 500 Decline |
|------------|------------|--------------------------------|------------------------------|-----------------|
| 01/03/2022 | ? | 12* | ? | -18% |
| 02/19/2020 | 03/23/2020 | 1 | 5 | -34% |
| 10/09/2007 | 03/09/2009 | 17 | 59 | -57% |
| 03/24/2000 | 10/09/2002 | 31 | 80 | -49% |
| 08/25/1987 | 12/04/1987 | 3 | 20 | -34% |
| 11/28/1980 | 08/12/1982 | 21 | 3 | -27% |
| 01/11/1973 | 10/03/1974 | 21 | 69 | -48% |

Notes: 2022 bear market is ongoing; represents historical bear markets since 1970. *Length of Recovery represents time to recoup losses from the start of the bear market.

Sources: S&P, FactSet, NEPC

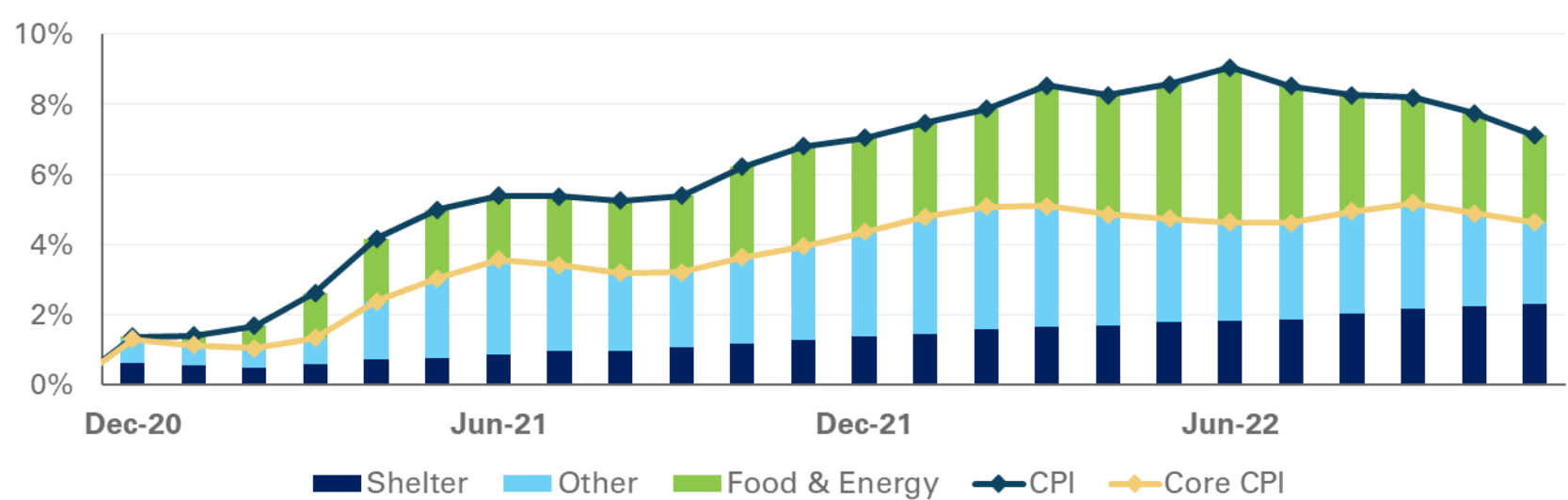
P/E RATIO CONTRACTION LED TO LOWER RETURNS

S&P 500 ATTRIBUTION TO TOTAL RETURNS



U.S. HEADLINE AND CORE CPI REMAIN ELEVATED

ANNUAL U.S. CPI-U CHANGES



Annual Change in U.S. CPI-U Subcategories



+11.2%
Food



+33.5%
Utilities



+14.7%
Transportation
Services



+19.7%
Motor Fuel



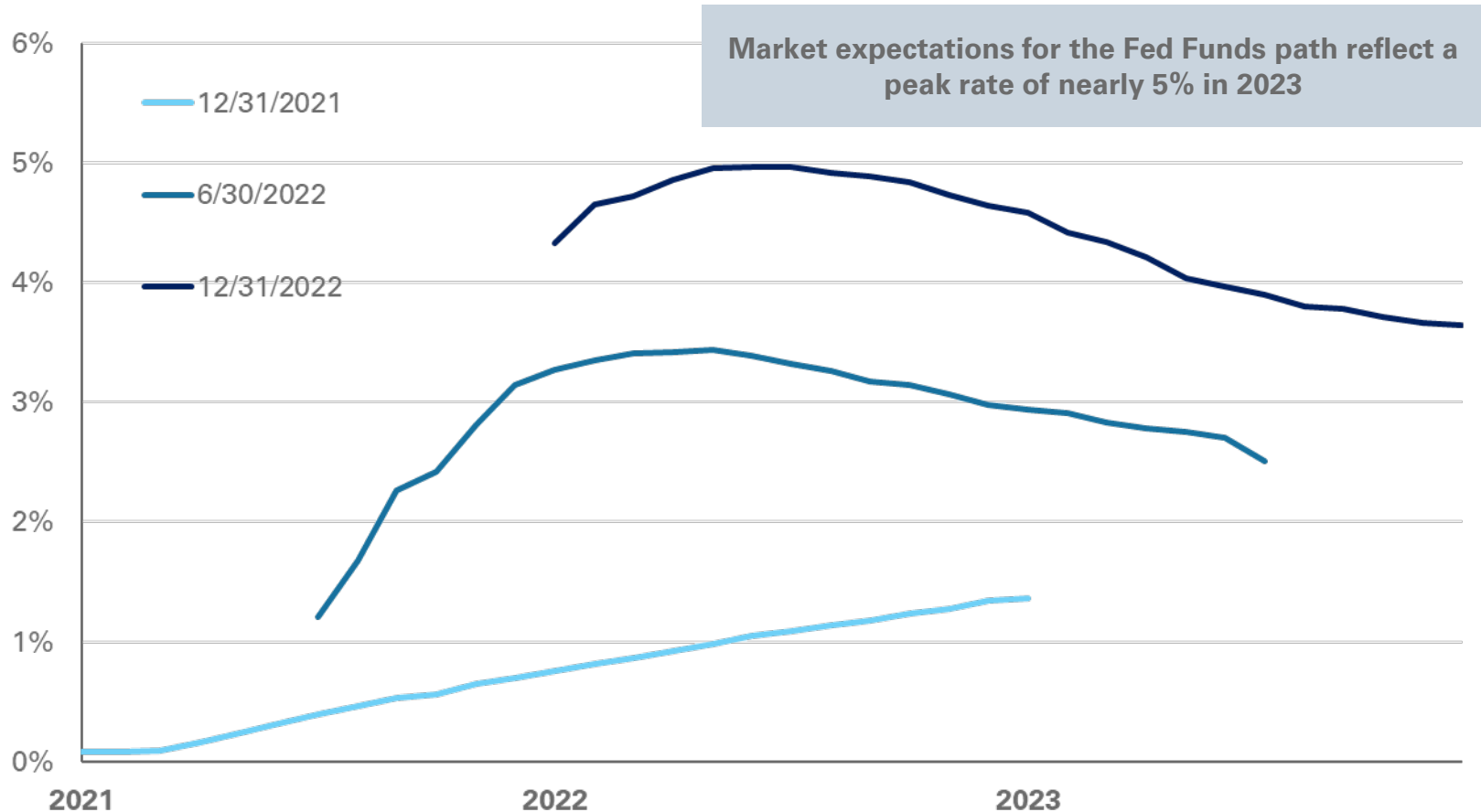
+7.4%
Used Cars
and Trucks



+6.6%
Shelter

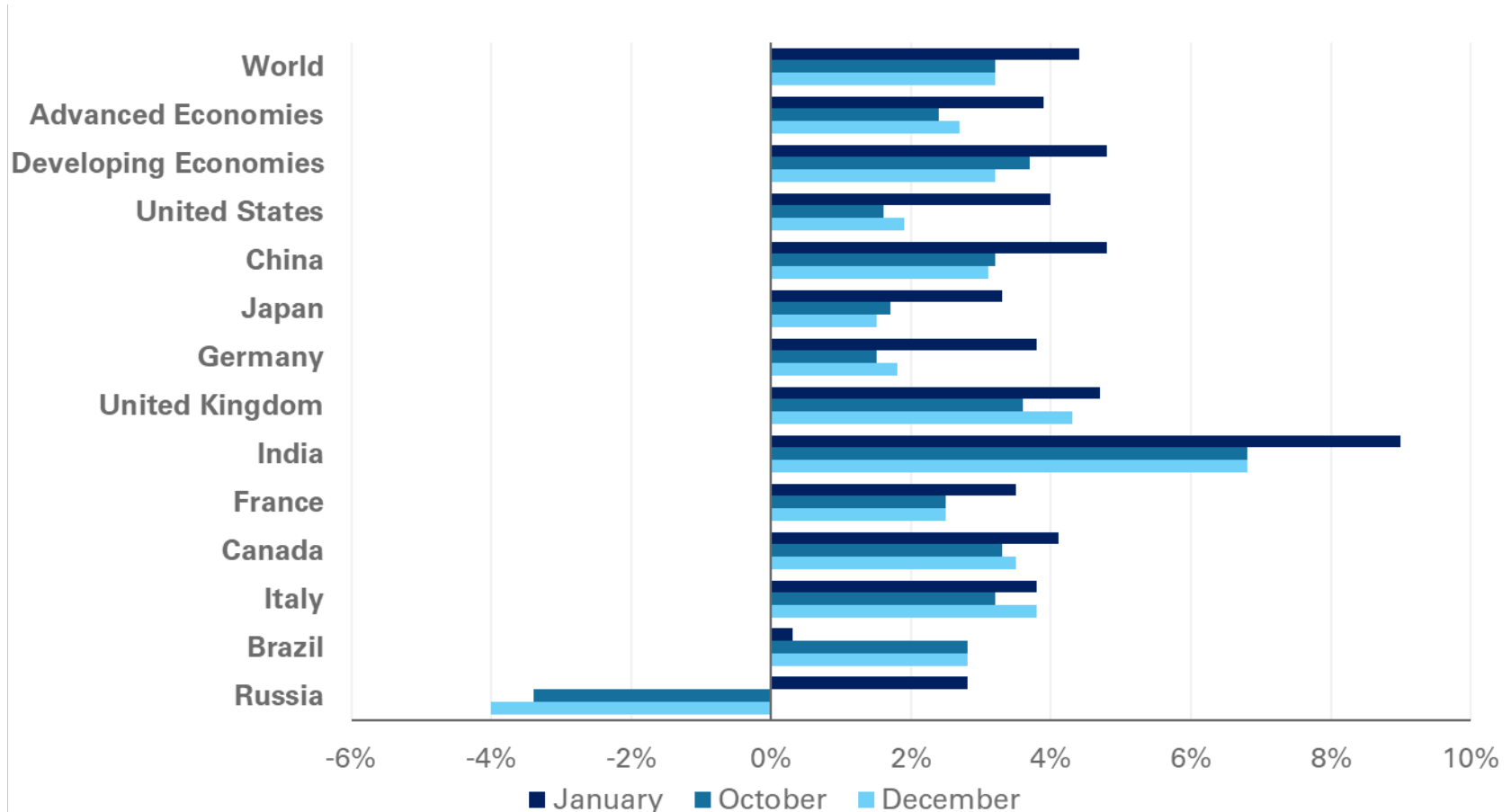
RATE EXPECTATIONS INCREASED DRAMATICALLY

FED FUNDS EXPECTATIONS



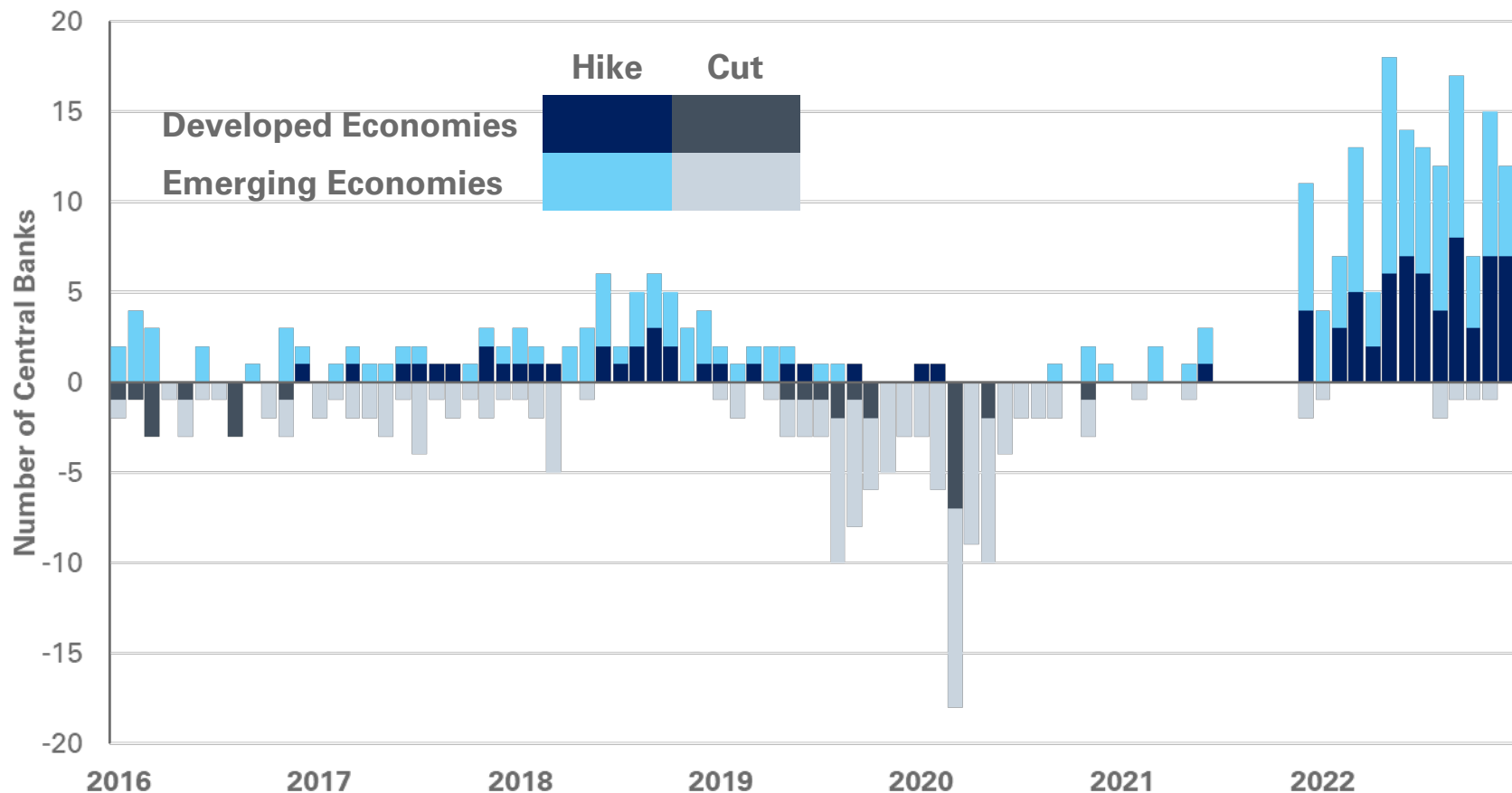
GLOBAL GROWTH EXPECTATIONS WEAKENED

2022 REAL GDP PROJECTIONS



THE MONETARY POLICY BACKDROP IS TIGHTER

INTEREST RATE CHANGES BY GLOBAL CENTRAL BANKS



Notes: Developed Economies include Australia, Canada, countries governed by the European Central Bank, Japan, New Zealand, Norway, Sweden, Switzerland, United Kingdom, and the United States. Emerging Economies include Argentina, Brazil, Chile, China, Egypt, Ghana, India, Malaysia, Mexico, Pakistan, Peru, Philippines, South Africa, Thailand, and Turkey.
Source: FactSet

2023 KEY INVESTMENT THEMES

NEPC MARKET OUTLOOK



Stagflation Trends

Stagflation trends challenge the investment landscape and are the driving force for market dynamics



Recession Outlook

Changes in unemployment, wages, and service sector inflation will inform the likelihood and potential severity of a U.S. recession



European Energy Transition

Europe is on the clock to secure new sources of natural gas supply or face severe energy shortages



China Reopening

China's reopening will have global implications for growth, trade, and inflation and may drive a consumer resurgence in China



U.S. Dollar Trajectory

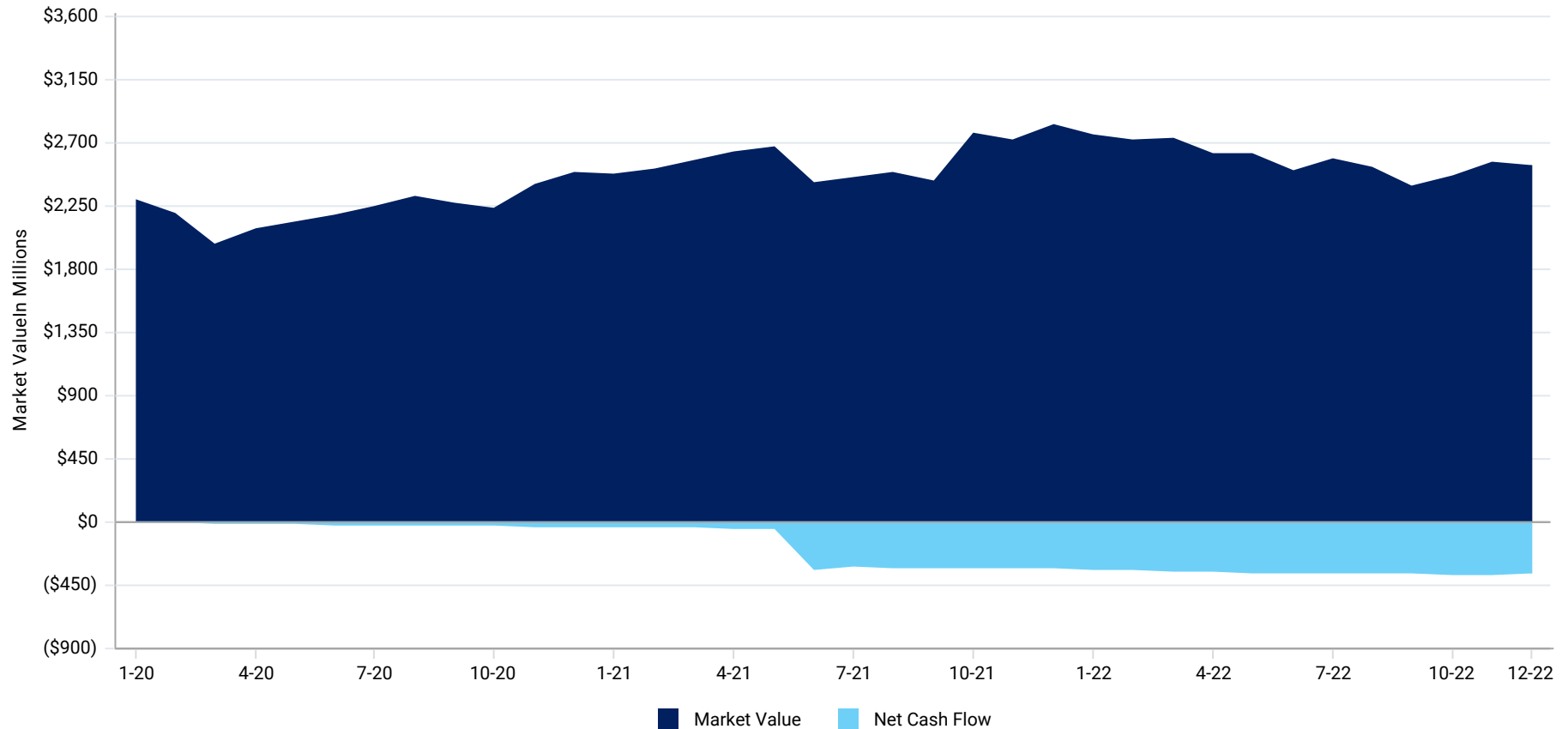
U.S. Dollar strength reveals risks in the global financial system and is a tightening of financial conditions



TOTAL FUND PERFORMANCE

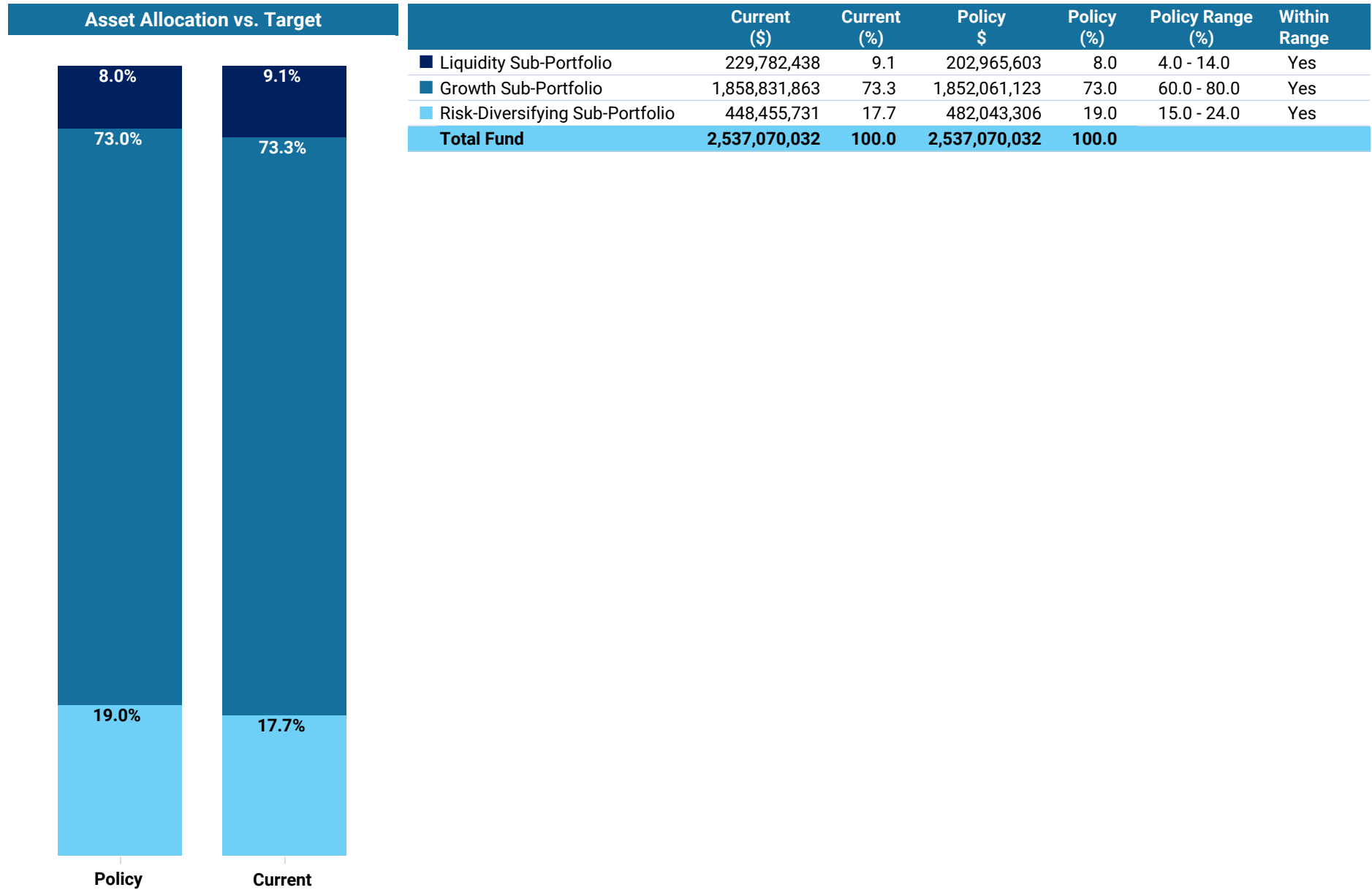
ASSET GROWTH SUMMARY

3 Years Ending December 31, 2022



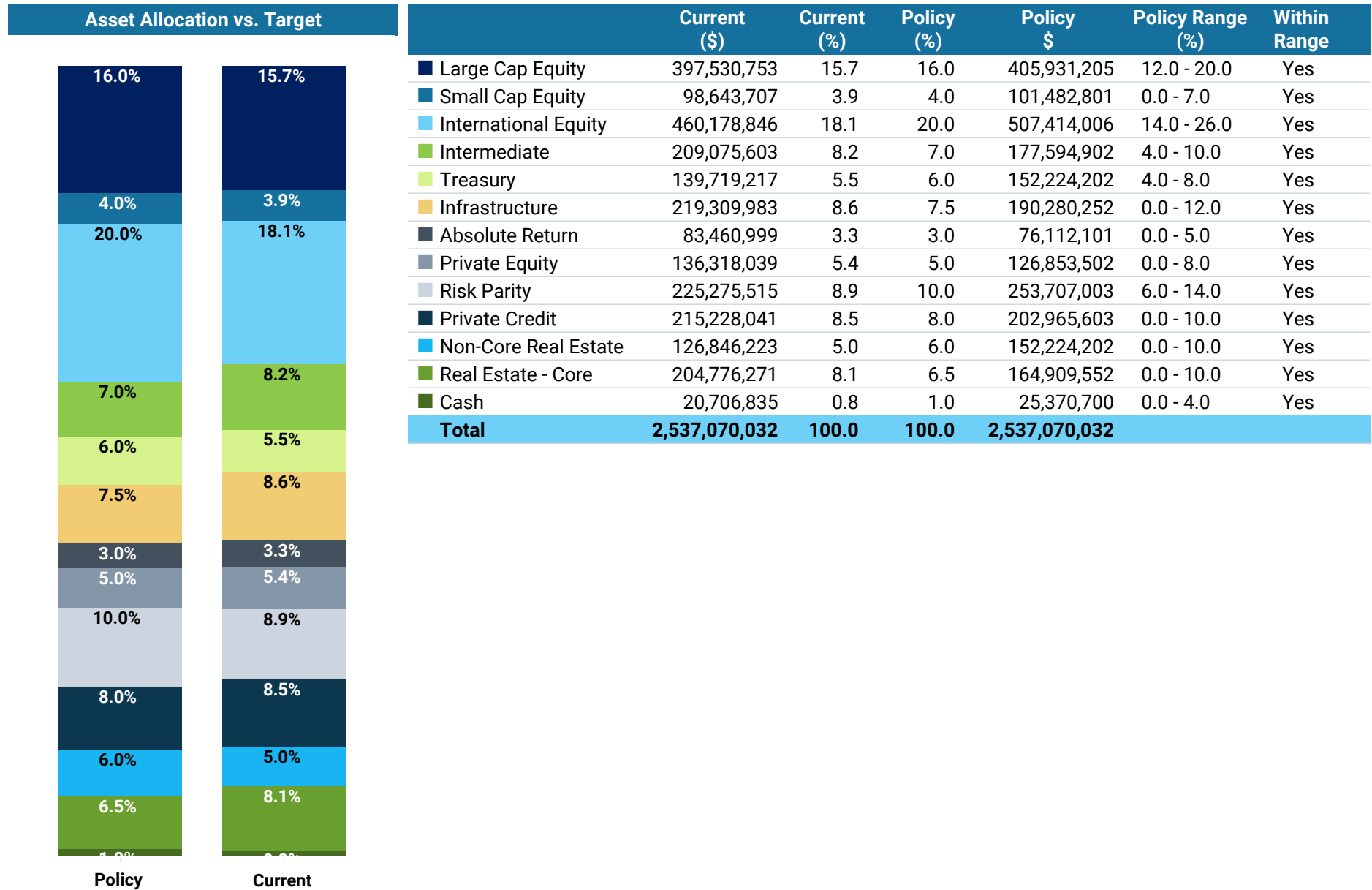
| | Last Three Months | FYTD | 1 Year |
|----------------------------|----------------------|----------------------|----------------------|
| Beginning Market Value | 2,398,021,638 | 2,507,413,470 | 2,832,546,787 |
| Net Cash Flow | 6,755,528 | -146,182 | -27,265,731 |
| Net Investment Change | 132,292,866 | 29,802,744 | -268,211,025 |
| Ending Market Value | 2,537,070,032 | 2,537,070,032 | 2,537,070,032 |
| Net Change | 139,048,394 | 29,656,561 | -295,476,756 |

ASSET ALLOCATION VS. POLICY



*Difference between Policy and Current Allocation

ASSET ALLOCATION VS. POLICY



*Difference between Policy and Current Allocation

PERFORMANCE DETAIL

| | Allocation | | Performance (%) | | | | | | | | |
|---|----------------------|----------------|-----------------|-------------|--------------|-------------|------------|------------|------------|---------------|----------------|
| | Market Value (\$) | % of Portfolio | 3 Mo (%) | FYTD (%) | 1 Yr (%) | 3 Yrs (%) | 5 Yrs (%) | 7 Yrs (%) | 10 Yrs (%) | Inception (%) | Inception Date |
| Total Fund | 2,537,070,032 | 100.0 | 5.3 | 1.0 | -9.7 | 4.2 | 4.9 | 6.7 | 7.1 | 8.5 | Jan-95 |
| Policy Index | | | <u>5.7</u> | <u>1.7</u> | <u>-9.1</u> | <u>4.5</u> | <u>5.1</u> | <u>6.8</u> | <u>7.0</u> | <u>7.7</u> | |
| Allocation Index | | | <u>5.4</u> | <u>0.8</u> | <u>-11.9</u> | | | | | | |
| InvMetrics Public DB > \$1 Billion Rank | | | 42 | 39 | 34 | 62 | 62 | 61 | 50 | 1 | |
| Liquidity Sub-Portfolio | 229,782,438 | 9.1 | 1.7 | -0.1 | -3.4 | 0.9 | 2.2 | 1.8 | | 1.6 | Aug-14 |
| StanCERA Liquidity Blended BM | | | <u>1.5</u> | <u>-1.2</u> | <u>-7.1</u> | <u>0.6</u> | <u>1.4</u> | <u>1.3</u> | | <u>1.2</u> | |
| Cash | 20,706,834 | 0.8 | 0.9 | 1.3 | 1.7 | 2.0 | 1.9 | 1.6 | | 1.5 | Aug-14 |
| FTSE 1 Month T-Bill | | | <u>0.9</u> | <u>1.4</u> | <u>1.5</u> | <u>0.7</u> | <u>1.2</u> | <u>1.0</u> | | <u>0.8</u> | |
| Cashflow-Matched Bonds | 209,075,603 | 8.2 | 1.8 | -0.4 | -4.9 | 0.2 | 1.9 | | | 1.9 | Jul-17 |
| Blmbg. Intermed. U.S. Government/Credit | | | <u>1.5</u> | <u>-1.6</u> | <u>-8.2</u> | <u>-1.3</u> | <u>0.7</u> | | | <u>0.7</u> | |
| eV US Government Fixed Inc Rank | | | 1 | 4 | 5 | 4 | 1 | | | 1 | |
| Insight | 209,075,603 | 8.2 | 1.8 | -0.4 | -4.9 | 0.2 | 1.9 | | | 1.9 | Jul-17 |
| Blmbg. Intermed. U.S. Government/Credit | | | <u>1.5</u> | <u>-1.6</u> | <u>-8.2</u> | <u>-1.3</u> | <u>0.7</u> | | | <u>0.7</u> | |
| eV US Government Fixed Inc Rank | | | 1 | 4 | 5 | 4 | 1 | | | 1 | |
| Growth Sub-Portfolio | 1,858,831,863 | 73.3 | 6.7 | 2.2 | -9.8 | 5.9 | 6.2 | 8.3 | 9.2 | 7.8 | Jan-04 |
| StanCERA Growth Blended BM | | | <u>6.4</u> | <u>2.6</u> | <u>-8.3</u> | <u>6.9</u> | <u>7.0</u> | <u>8.9</u> | | | |

PERFORMANCE DETAIL

| | Allocation | | Performance (%) | | | | | | | | |
|-------------------------------------|--------------------|----------------|-----------------|-------------|--------------|-------------|-------------|-------------|-------------|---------------|----------------|
| | Market Value (\$) | % of Portfolio | 3 Mo (%) | FYTD (%) | 1 Yr (%) | 3 Yrs (%) | 5 Yrs (%) | 7 Yrs (%) | 10 Yrs (%) | Inception (%) | Inception Date |
| US Equities | 496,174,460 | 19.6 | 8.2 | 3.4 | -17.0 | 7.9 | 8.6 | 10.5 | 11.7 | 9.2 | Jan-04 |
| Russell 3000 Index | | | <u>7.2</u> | <u>2.4</u> | <u>-19.2</u> | <u>7.1</u> | <u>8.8</u> | <u>11.0</u> | <u>12.1</u> | <u>8.9</u> | |
| US Large Equity | 397,530,753 | 15.7 | 7.6 | 2.2 | -18.6 | 8.0 | 9.6 | 11.3 | 12.5 | 12.1 | Jan-95 |
| Russell 1000 Index | | | <u>7.2</u> | <u>2.3</u> | <u>-19.1</u> | <u>7.3</u> | <u>9.1</u> | <u>11.3</u> | <u>12.4</u> | <u>10.0</u> | |
| eV US Large Cap Equity Rank | | | 65 | 64 | 63 | 30 | 27 | 26 | 26 | 3 | |
| BlackRock Russell 1000 Growth | 180,654,360 | 7.1 | 2.2 | -1.5 | -29.1 | 7.8 | 10.9 | 12.9 | 14.1 | 14.3 | Aug-10 |
| Russell 1000 Growth Index | | | <u>2.2</u> | <u>-1.5</u> | <u>-29.1</u> | <u>7.8</u> | <u>11.0</u> | <u>12.9</u> | <u>14.1</u> | <u>14.2</u> | |
| eV US Large Cap Growth Equity Rank | | | 70 | 60 | 48 | 24 | 19 | 12 | 12 | 8 | |
| BlackRock Russell 1000 Value | 109,280,497 | 4.3 | 12.4 | 6.1 | -7.6 | 6.0 | 6.7 | 9.2 | 10.4 | 11.3 | Aug-09 |
| Russell 1000 Value Index | | | <u>12.4</u> | <u>6.1</u> | <u>-7.5</u> | <u>6.0</u> | <u>6.7</u> | <u>9.1</u> | <u>10.3</u> | <u>11.2</u> | |
| eV US Large Cap Value Equity Rank | | | 56 | 53 | 67 | 76 | 68 | 67 | 60 | 51 | |
| Dodge & Cox-Equity | 107,595,896 | 4.2 | 12.9 | 5.0 | -7.1 | 8.9 | 8.4 | 11.3 | 12.1 | 11.7 | Jan-95 |
| Russell 1000 Value Index | | | <u>12.4</u> | <u>6.1</u> | <u>-7.5</u> | <u>6.0</u> | <u>6.7</u> | <u>9.1</u> | <u>10.3</u> | <u>9.6</u> | |
| eV US Large Cap Value Equity Rank | | | 48 | 71 | 63 | 26 | 32 | 15 | 16 | 3 | |
| US Small Equity | 98,643,707 | 3.9 | 10.4 | 8.5 | -9.8 | 7.3 | 5.2 | 8.0 | 9.0 | 11.5 | Jan-09 |
| Russell 2000 Index | | | <u>6.2</u> | <u>3.9</u> | <u>-20.4</u> | <u>3.1</u> | <u>4.1</u> | <u>7.9</u> | <u>9.0</u> | <u>10.9</u> | |
| eV US Small Cap Value Equity Rank | | | 56 | 18 | 33 | 36 | 40 | 61 | 54 | 50 | |
| Attucks Small Cap | 98,643,707 | 3.9 | 10.4 | 8.5 | -9.8 | 7.3 | 5.2 | 9.4 | 9.3 | 11.7 | Jan-09 |
| Russell 2000 Value Index | | | <u>8.4</u> | <u>3.4</u> | <u>-14.5</u> | <u>4.7</u> | <u>4.1</u> | <u>8.2</u> | <u>8.5</u> | <u>10.0</u> | |
| eV US Small Cap Value Equity Rank | | | 56 | 18 | 33 | 36 | 40 | 28 | 48 | 42 | |
| International Equity | 460,178,846 | 18.1 | 16.8 | 4.3 | -13.1 | 1.6 | 1.5 | 5.4 | 4.7 | 5.7 | Oct-04 |
| MSCI AC World ex USA (Net) | | | <u>14.3</u> | <u>3.0</u> | <u>-16.0</u> | <u>0.1</u> | <u>0.9</u> | <u>4.8</u> | <u>3.8</u> | <u>5.1</u> | |
| eV ACWI ex-US Large Cap Equity Rank | | | 22 | 50 | 22 | 39 | 58 | 43 | 52 | 52 | |
| LSV Int'l Large Cap Value | 243,755,527 | 9.6 | 18.0 | 5.0 | -8.2 | 1.5 | 1.0 | 5.4 | 4.6 | 5.5 | Oct-04 |
| MSCI AC World ex USA Value (Net) | | | <u>15.7</u> | <u>3.6</u> | <u>-8.6</u> | <u>0.1</u> | <u>-0.1</u> | <u>4.2</u> | <u>2.7</u> | <u>4.5</u> | |
| eV ACWI ex-US Large Cap Equity Rank | | | 16 | 33 | 4 | 42 | 69 | 42 | 55 | 60 | |
| Fidelity Int'l Growth | 216,423,319 | 8.5 | 15.5 | 3.5 | -18.0 | 1.6 | 1.9 | 5.1 | 4.6 | 3.6 | May-06 |
| MSCI AC World ex USA Growth (Net) | | | <u>12.9</u> | <u>2.3</u> | <u>-23.1</u> | <u>-0.4</u> | <u>1.5</u> | <u>5.2</u> | <u>4.7</u> | <u>3.5</u> | |
| eV ACWI ex-US Large Cap Equity Rank | | | 38 | 62 | 49 | 41 | 43 | 54 | 55 | 37 | |

PERFORMANCE DETAIL

| | Allocation | | Performance (%) | | | | | | | | |
|--|--------------------|----------------|-----------------|-------------|-------------|-------------|-------------|-------------|------------|---------------|----------------|
| | Market Value (\$) | % of Portfolio | 3 Mo (%) | FYTD (%) | 1 Yr (%) | 3 Yrs (%) | 5 Yrs (%) | 7 Yrs (%) | 10 Yrs (%) | Inception (%) | Inception Date |
| Core Real Estate | 204,776,271 | 8.1 | -1.0 | -0.5 | -1.4 | 6.3 | 6.1 | 5.8 | 7.0 | 3.2 | Apr-08 |
| NCREIF Property Index | | | -3.5 | -3.0 | 5.5 | 8.1 | 7.5 | 7.5 | 8.8 | 6.5 | |
| Prime Property Fund | 103,829,403 | 4.1 | -3.7 | -3.7 | 6.1 | 9.3 | 8.4 | 8.6 | | 8.7 | Oct-15 |
| NCREIF ODCE | | | -5.0 | -4.5 | 7.5 | 9.9 | 8.7 | 8.5 | | 8.7 | |
| BlackRock Real Estate Securities | 6,544,604 | 0.3 | 4.7 | -6.2 | -26.1 | -1.5 | 2.4 | 3.2 | 5.7 | 5.8 | Oct-12 |
| Dow Jones U.S. Select RESI | | | 4.7 | -6.2 | -26.0 | -1.4 | 2.5 | 3.2 | 5.7 | 5.8 | |
| PGIM Real Estate US Debt Fund | 94,402,264 | 3.7 | 1.7 | 3.3 | 5.2 | 5.0 | | | | 5.2 | Sep-18 |
| Blmbg. U.S. Investment Grade: CMBS Index | | | 1.0 | -2.9 | -10.9 | -1.7 | | | | 0.9 | |
| Value-Add Real Estate | 126,846,223 | 5.0 | -2.5 | -3.3 | 2.3 | 12.6 | 11.7 | 11.3 | | 11.1 | Aug-14 |
| NCREIF Property Index +2% | | | -3.0 | -2.0 | 7.6 | 10.2 | 9.6 | 9.6 | | 10.6 | |
| American Strategic Value Realty | 88,716,589 | 3.5 | -3.5 | -2.0 | 7.4 | 9.5 | 9.3 | 9.7 | | 10.8 | Jan-15 |
| NCREIF Property Index | | | -3.5 | -3.0 | 5.5 | 8.1 | 7.5 | 7.5 | | 8.2 | |
| Greenfield Acquisition Partners VII | 2,046,544 | 0.1 | 0.0 | 6.3 | 10.9 | 8.0 | 10.4 | 10.4 | | 10.5 | Aug-14 |
| NCREIF-ODCE +1% | | | -4.7 | -4.0 | 8.5 | 11.0 | 9.8 | 9.6 | | 10.8 | |
| Grandview Property Partners I | 20,974,408 | 0.8 | 0.0 | -7.2 | -11.1 | 25.3 | | | | 21.2 | Apr-18 |
| NCREIF-ODCE +1% | | | -4.7 | -4.0 | 8.5 | 11.0 | | | | 9.7 | |
| Grandview Property Partners II | 15,108,682 | 0.6 | 0.0 | 3.3 | 5.5 | | | | | -0.4 | Dec-21 |
| NCREIF-ODCE +1% | | | -4.7 | -4.0 | 8.5 | | | | | 15.9 | |

PERFORMANCE DETAIL

| | Allocation | | Performance (%) | | | | | | | | |
|---|--------------------|----------------|-----------------|-------------|--------------|-------------|------------|------------|------------|---------------|----------------|
| | Market Value (\$) | % of Portfolio | 3 Mo (%) | FYTD (%) | 1 Yr (%) | 3 Yrs (%) | 5 Yrs (%) | 7 Yrs (%) | 10 Yrs (%) | Inception (%) | Inception Date |
| Infrastructure | 219,309,983 | 8.6 | 2.0 | 0.7 | -5.6 | 0.0 | 4.2 | 6.4 | | 4.5 | Jun-15 |
| <i>CPI + 5% (Unadjusted)</i> | | | <u>1.2</u> | <u>2.6</u> | <u>11.8</u> | <u>10.2</u> | <u>9.0</u> | <u>8.5</u> | | <u>8.1</u> | |
| eV Infrastructure Rank | | | 100 | 31 | 42 | 82 | 71 | 80 | | 66 | |
| MS Infrastructure Partners II | 42,409,945 | 1.7 | 0.0 | 12.2 | 15.0 | 9.4 | 9.9 | 10.5 | | 8.2 | Jun-15 |
| <i>CPI + 5% (Unadjusted)</i> | | | <u>1.2</u> | <u>2.6</u> | <u>11.8</u> | <u>10.2</u> | <u>9.0</u> | <u>8.5</u> | | <u>8.1</u> | |
| eV Infrastructure Rank | | | 100 | 4 | 3 | 8 | 9 | 4 | | 4 | |
| Northern Trust Infrastructure Fund | 81,564,703 | 3.2 | 7.9 | -2.2 | -10.8 | | | | | -5.9 | Jul-21 |
| <i>67% STOXX Global Broad Infra / 33% Bloomberg US TIPS</i> | | | <u>7.9</u> | <u>-1.6</u> | <u>-10.6</u> | | | | | <u>-5.5</u> | |
| Palistar Communications Infrastructure Fund II | 11,097,925 | 0.4 | 0.0 | 4.5 | 8.4 | | | | | 8.4 | Jan-22 |
| <i>CPI + 5% (Unadjusted)</i> | | | <u>1.2</u> | <u>2.6</u> | <u>11.8</u> | | | | | <u>11.8</u> | |
| JP Morgan IIF Hedged LP | 32,097,892 | 1.3 | 5.2 | 6.9 | | | | | | 8.8 | Apr-22 |
| <i>CPI + 5% (Unadjusted)</i> | | | <u>1.2</u> | <u>2.6</u> | | | | | | <u>7.1</u> | |
| IFM Global Infrastructure Fund | 52,139,518 | 2.1 | 4.0 | | | | | | | 4.3 | Jul-22 |
| <i>CPI + 5% (Unadjusted)</i> | | | <u>1.2</u> | <u>2.6</u> | | | | | | <u>2.6</u> | |

PERFORMANCE DETAIL

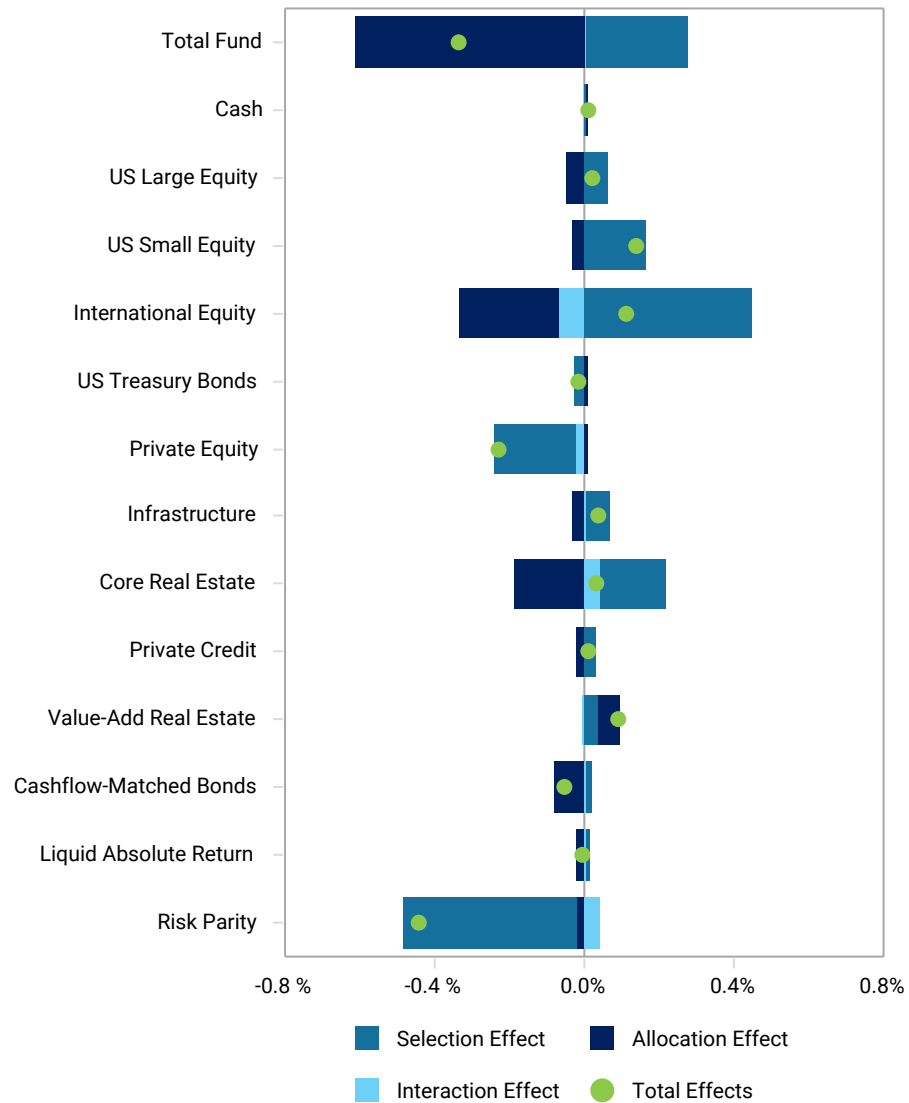
| | Allocation | | Performance (%) | | | | | | | | |
|---|-------------------|----------------|-----------------|----------|----------|-----------|-----------|-----------|------------|---------------|----------------|
| | Market Value (\$) | % of Portfolio | 3 Mo (%) | FYTD (%) | 1 Yr (%) | 3 Yrs (%) | 5 Yrs (%) | 7 Yrs (%) | 10 Yrs (%) | Inception (%) | Inception Date |
| Private Equity | 136,318,039 | 5.4 | 3.7 | -0.9 | -10.5 | 11.1 | | | | 14.0 | Dec-18 |
| Russell 3000 + 3% | | | 8.0 | 3.9 | -16.8 | 10.3 | | | | 13.0 | |
| Private Equity | 79,413,158 | 3.1 | 0.9 | -4.2 | 5.2 | | | | | 19.5 | Apr-20 |
| Russell 3000 + 3% | | | 8.0 | 3.9 | -16.8 | | | | | 20.8 | |
| Private Equity Proxy | 56,904,880 | 2.2 | 7.2 | 2.4 | -19.3 | 7.0 | 9.9 | 11.7 | 12.7 | 9.2 | Dec-03 |
| Russell 3000 Index | | | 7.2 | 2.4 | -19.2 | 7.1 | 8.8 | 11.0 | 12.1 | 9.1 | |
| eV US Large Cap Equity Rank | | | 68 | 63 | 67 | 48 | 20 | 20 | 20 | 37 | |
| Private Credit | 215,228,041 | 8.5 | 3.6 | 4.4 | -0.9 | -2.4 | 0.3 | 0.5 | | 2.1 | Jun-13 |
| S&P/LSTA Leveraged Loan Index +2% | | | 3.2 | 5.2 | 1.4 | 4.6 | 5.4 | 6.5 | | 5.6 | |
| Private Credit | 104,771,985 | 4.1 | 1.2 | 3.5 | 10.5 | 1.7 | 2.8 | 2.2 | | 3.4 | Jun-13 |
| S&P/LSTA Leveraged Loan Index +2% | | | 3.2 | 5.2 | 1.4 | 4.6 | 5.4 | 6.5 | | 5.6 | |
| Private Credit Proxy | 110,456,056 | 4.4 | 6.2 | 5.3 | -9.8 | | | | | -4.7 | Jun-21 |
| ICE BofA US High Yield Master II Constrained | | | 4.0 | 3.3 | -11.2 | | | | | -5.5 | |
| Risk-Diversifying Sub-Portfolio | 448,455,731 | 17.7 | 2.1 | -2.9 | -11.6 | -1.1 | 0.7 | 1.8 | 1.9 | 3.9 | Dec-03 |
| StanCERA Risk-Diversifying Blended BM | | | 4.7 | -0.6 | -13.1 | -1.0 | 0.7 | 0.9 | 0.9 | | |
| Risk Parity | 225,275,515 | 8.9 | 3.1 | -5.7 | -19.9 | -1.5 | 1.6 | | | 1.8 | Dec-17 |
| 60% MSCI ACWI (Net)/ 40% Bloomberg Global Agg | | | 7.7 | 0.4 | -17.3 | 0.8 | 2.7 | | | 2.9 | |
| HFR Risk Parity Vol 10 Institutional Index | | | 3.4 | -3.8 | -19.5 | -3.0 | 0.6 | | | 0.9 | |
| AQR Global Risk Premium - EL | 117,108,326 | 4.6 | 2.4 | -4.3 | -16.9 | -1.1 | | | | 2.6 | Apr-18 |
| 60% MSCI ACWI (Net)/ 40% Bloomberg Global Agg | | | 7.7 | 0.4 | -17.3 | 0.8 | | | | 2.8 | |
| PanAgora Risk Parity Multi Asset | 108,167,189 | 4.3 | 3.8 | -7.2 | -23.0 | -2.0 | 1.2 | | | 1.4 | Dec-17 |
| 60% MSCI ACWI (Net)/ 40% Bloomberg Global Agg | | | 7.7 | 0.4 | -17.3 | 0.8 | 2.7 | | | 2.9 | |

PERFORMANCE DETAIL

| | Allocation | | Performance (%) | | | | | | | | |
|--|--------------------|----------------|-----------------|--------------|--------------|-------------|-------------|------------|------------|---------------|----------------|
| | Market Value (\$) | % of Portfolio | 3 Mo (%) | FYTD (%) | 1 Yr (%) | 3 Yrs (%) | 5 Yrs (%) | 7 Yrs (%) | 10 Yrs (%) | Inception (%) | Inception Date |
| US Treasury Bonds | 139,719,217 | 5.5 | 0.5 | -4.6 | -14.4 | -3.2 | -0.3 | 1.2 | 1.5 | 3.7 | Dec-03 |
| Blmbg. U.S. Treasury: 7-10 Year | | | <u>1.0</u> | <u>-4.6</u> | <u>-14.9</u> | <u>-3.2</u> | <u>-0.1</u> | <u>0.4</u> | <u>0.7</u> | <u>3.4</u> | |
| eV US Government Fixed Inc Rank | | | 87 | 96 | 96 | 93 | 86 | 5 | 4 | 1 | |
| Northern Trust Intermediate Gov't Bond | 99,016,707 | 3.9 | 1.0 | -2.1 | -7.8 | -1.4 | 0.4 | | | 0.3 | Aug-17 |
| Blmbg. U.S. Government: Intermediate | | | <u>1.0</u> | <u>-2.1</u> | <u>-7.7</u> | <u>-1.4</u> | <u>0.5</u> | | | <u>0.4</u> | |
| eV US Government Fixed Inc Rank | | | 31 | 18 | 19 | 20 | 15 | | | 22 | |
| Northern Trust Long Term Gov't Bond | 40,702,510 | 1.6 | -0.6 | -10.2 | -27.1 | -6.6 | -1.7 | | | -0.9 | Aug-17 |
| Blmbg. U.S. Government: Long Term Bond Index | | | <u>-0.6</u> | <u>-10.1</u> | <u>-29.2</u> | <u>-7.4</u> | <u>-2.2</u> | | | <u>-1.4</u> | |
| eV US Long Duration Fixed Inc Rank | | | 95 | 95 | 70 | 91 | 90 | | | 92 | |
| Liquid Absolute Return | 83,460,999 | 3.3 | 2.3 | 7.3 | 23.3 | | | | | 16.7 | Oct-21 |
| 30 Day T-Bill + 4% | | | <u>1.9</u> | <u>3.4</u> | <u>5.5</u> | | | | | <u>5.2</u> | |
| Graham Global Investment Fund I SPC LTD | 56,063,118 | 2.2 | -2.3 | 3.4 | 30.7 | | | | | 22.6 | Nov-21 |
| HFRI Macro (Total) Index | | | <u>-1.3</u> | <u>0.4</u> | <u>9.0</u> | | | | | <u>6.3</u> | |
| Invesco Global Targeted Return | 27,397,881 | 1.1 | 5.4 | 7.9 | 0.0 | | | | | 1.3 | Nov-21 |
| 30 Day T-Bill + 4% | | | <u>1.9</u> | <u>3.4</u> | <u>5.5</u> | | | | | <u>5.3</u> | |

ATTRIBUTION ANALYSIS

Attribution Effects 1 Quarter Ending December 31, 2022



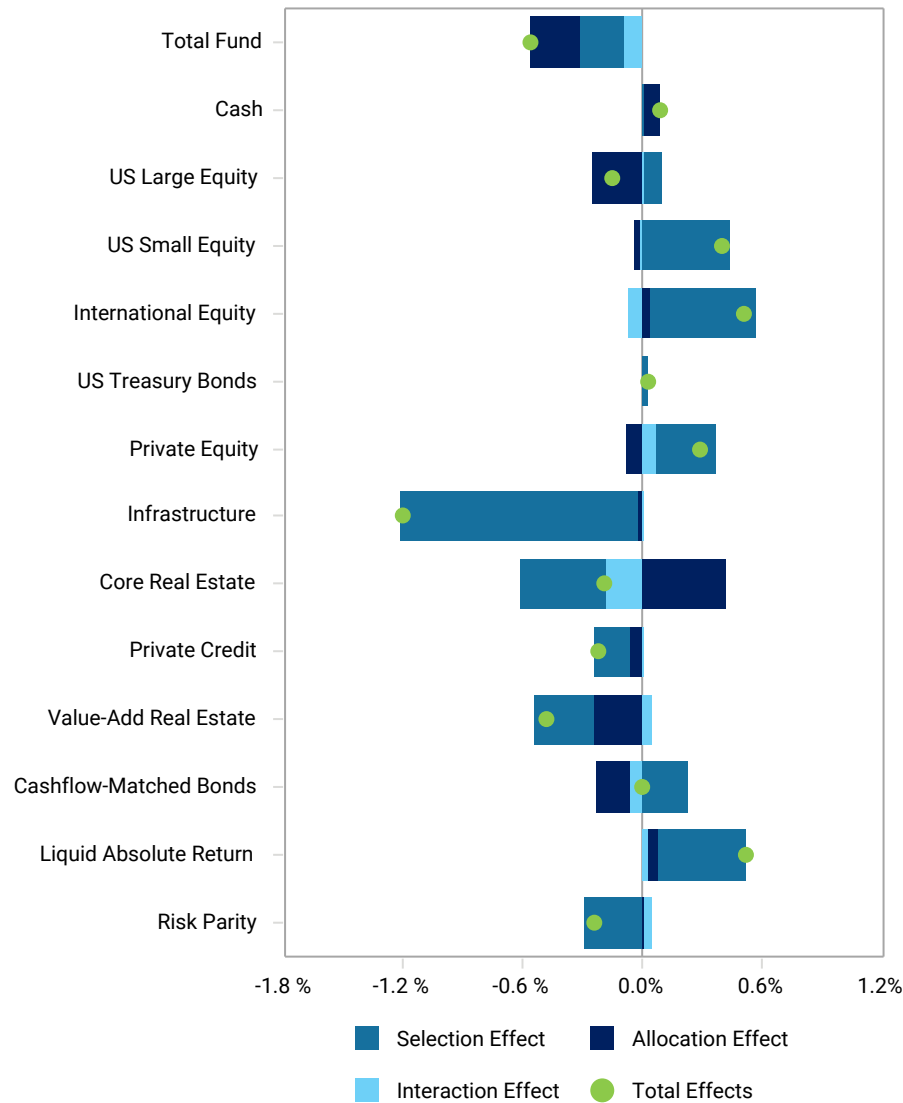
Attribution Summary 1 Quarter Ending December 31, 2022

| | Wtd. Actual Return (%) | Wtd. Index Return (%) | Excess Return (%) | Selection Effect (%) | Allocation Effect (%) | Interaction Effects (%) | Total Effects (%) |
|------------------------|------------------------|-----------------------|-------------------|----------------------|-----------------------|-------------------------|-------------------|
| Cash | 0.9 | 0.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| US Large Equity | 7.6 | 7.2 | 0.4 | 0.1 | 0.0 | 0.0 | 0.1 |
| US Small Equity | 10.4 | 6.2 | 4.2 | 0.2 | 0.0 | 0.0 | 0.2 |
| International Equity | 16.8 | 14.4 | 2.4 | 0.4 | -0.3 | -0.1 | 0.0 |
| US Treasury Bonds | 0.5 | 1.0 | -0.4 | 0.0 | 0.0 | 0.0 | 0.0 |
| Private Equity | 3.7 | 8.0 | -4.2 | -0.2 | 0.0 | 0.0 | -0.2 |
| Infrastructure | 2.0 | 1.2 | 0.8 | 0.1 | 0.0 | 0.0 | 0.1 |
| Core Real Estate | -1.0 | -3.5 | 2.5 | 0.2 | -0.2 | 0.0 | 0.0 |
| Private Credit | 3.6 | 3.2 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 |
| Value-Add Real Estate | -2.5 | -3.0 | 0.6 | 0.0 | 0.1 | 0.0 | 0.1 |
| Cashflow-Matched Bonds | 1.8 | 1.5 | 0.3 | 0.0 | -0.1 | 0.0 | -0.1 |
| Liquid Absolute Return | 2.3 | 1.9 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 |
| Risk Parity | 3.1 | 7.7 | -4.7 | -0.4 | 0.0 | 0.0 | -0.4 |
| Total Fund | 5.3 | 5.7 | -0.3 | 0.3 | -0.6 | 0.0 | -0.3 |

*Total Actual and Index returns are weighted average calculations.

ATTRIBUTION ANALYSIS

Attribution Effects 1 Year Ending December 31, 2022



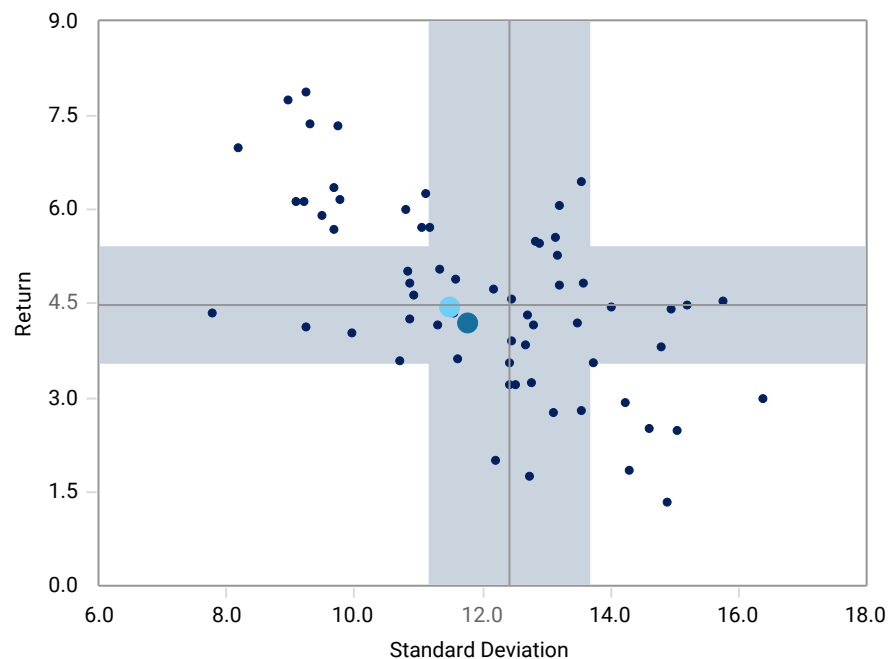
Attribution Summary 1 Year Ending December 31, 2022

| | Wtd. Actual Return (%) | Wtd. Index Return (%) | Excess Return (%) | Selection Effect (%) | Allocation Effect (%) | Interaction Effects (%) | Total Effects (%) |
|------------------------|------------------------|-----------------------|-------------------|----------------------|-----------------------|-------------------------|-------------------|
| Cash | 1.7 | 1.5 | 0.3 | 0.0 | 0.1 | 0.0 | 0.1 |
| US Large Equity | -18.6 | -19.1 | 0.5 | 0.1 | -0.2 | 0.0 | -0.1 |
| US Small Equity | -9.8 | -20.4 | 10.6 | 0.4 | 0.0 | 0.0 | 0.4 |
| International Equity | -13.1 | -15.6 | 2.5 | 0.5 | 0.0 | -0.1 | 0.5 |
| US Treasury Bonds | -14.4 | -14.9 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 |
| Private Equity | -10.5 | -16.8 | 6.2 | 0.4 | -0.1 | 0.1 | 0.3 |
| Infrastructure | -5.6 | 11.8 | -17.3 | -1.2 | 0.0 | 0.0 | -1.2 |
| Core Real Estate | -1.4 | 5.5 | -7.0 | -0.6 | 0.4 | -0.2 | -0.2 |
| Private Credit | -0.9 | 1.4 | -2.3 | -0.2 | -0.1 | 0.0 | -0.2 |
| Value-Add Real Estate | 2.3 | 7.6 | -5.3 | -0.2 | -0.2 | 0.1 | -0.5 |
| Cashflow-Matched Bonds | -4.9 | -8.2 | 3.3 | 0.2 | -0.2 | -0.1 | 0.0 |
| Liquid Absolute Return | 23.3 | 5.5 | 17.8 | 0.5 | 0.0 | 0.0 | 0.5 |
| Risk Parity | -19.9 | -17.3 | -2.6 | -0.2 | 0.0 | 0.0 | -0.2 |
| Total Fund | -9.7 | -9.1 | -0.6 | -0.4 | -0.3 | -0.1 | -0.6 |

*Total Actual and Index returns are weighted average calculations.

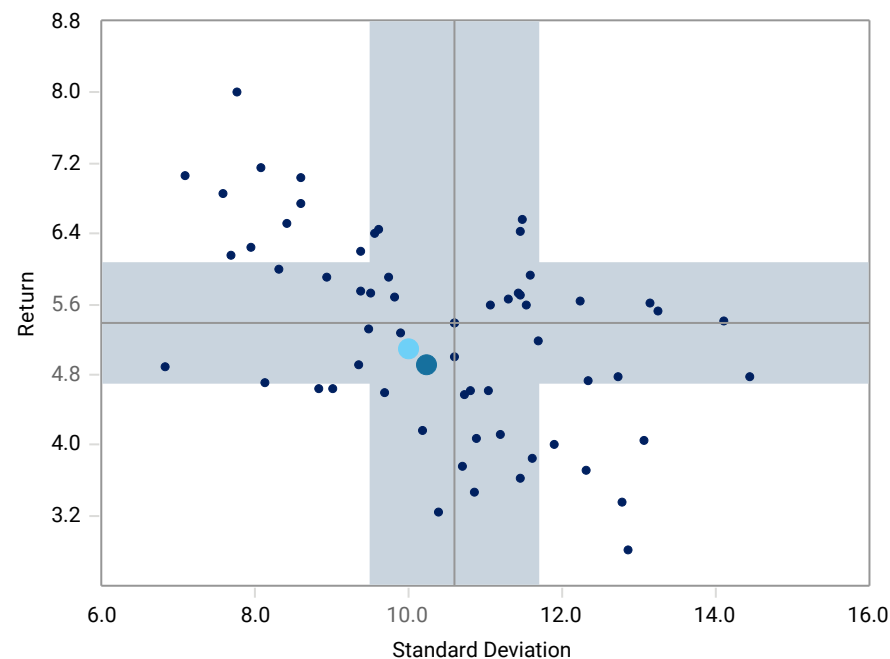
RISK VS. RETURN

3 Years Ending December 31, 2022



● InvMetrics Public DB > \$1 Billion ● Total Fund
● Policy Index

5 Years Ending December 31, 2022



● InvMetrics Public DB > \$1 Billion ● Total Fund
● Policy Index

3 Years Ending December 31, 2022

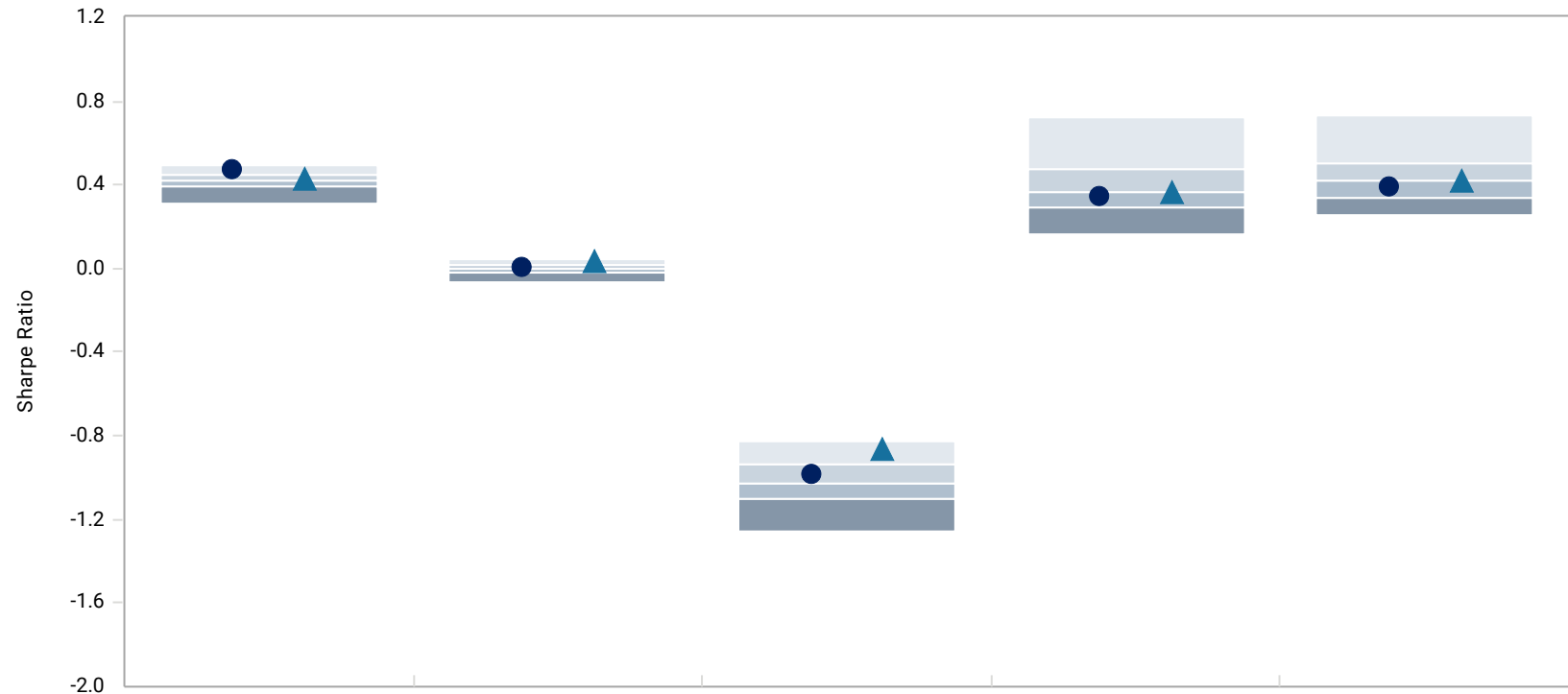
| | Return | Standard Deviation | Sharpe Ratio |
|--------------|----------|--------------------|--------------|
| Total Fund | 4.2 (62) | 11.8 (43) | 0.3 (58) |
| Policy Index | 4.5 (52) | 11.5 (39) | 0.4 (48) |
| Population | 63 | 63 | 63 |

5 Years Ending December 31, 2022

| | Return | Standard Deviation | Sharpe Ratio |
|--------------|----------|--------------------|--------------|
| Total Fund | 4.9 (62) | 10.2 (43) | 0.4 (59) |
| Policy Index | 5.1 (57) | 10.0 (41) | 0.4 (52) |
| Population | 62 | 62 | 62 |

TOTAL FUND SHARPE RATIO RANKINGS

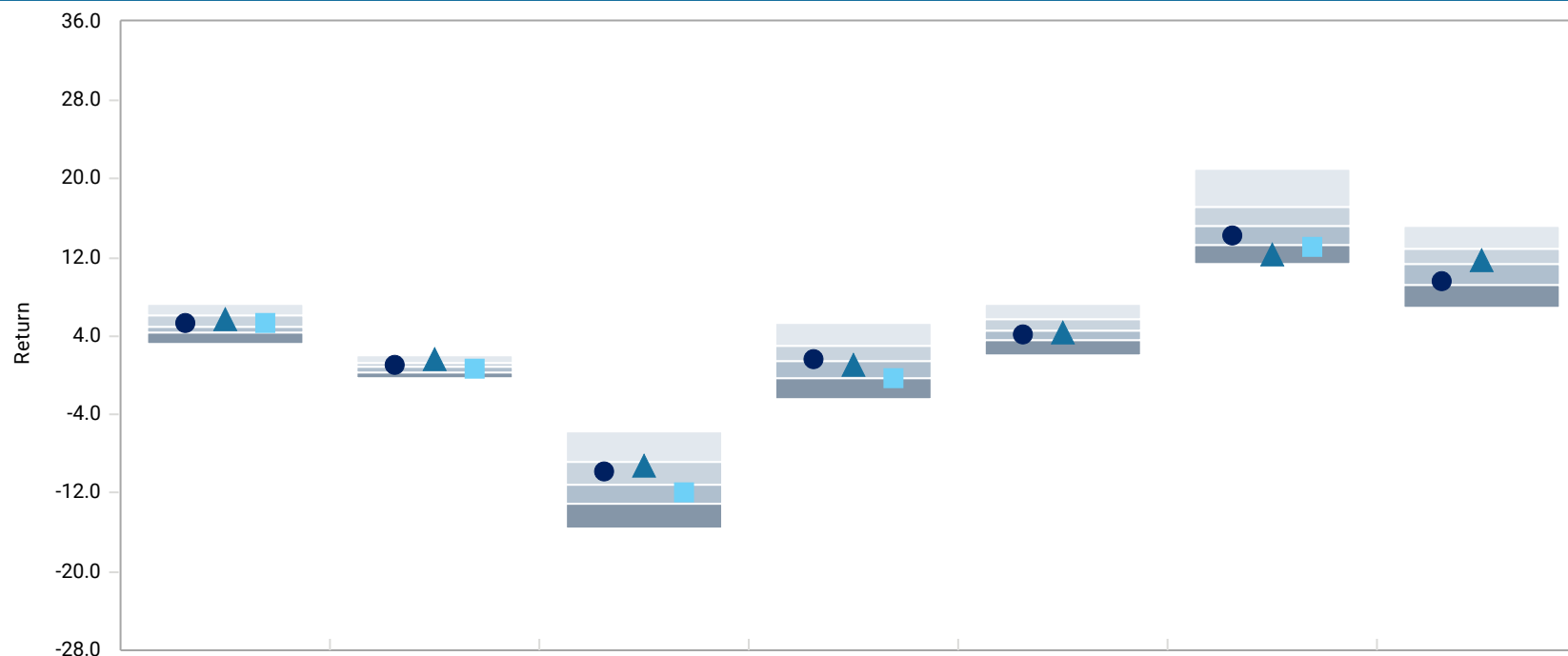
Total Fund vs. InvMetrics Public DB > \$1 Billion



| | 3 Mo (%) | FYTD (%) | 1 Yr (%) | 3 Yrs (%) | 5 Yrs (%) |
|-----------------|-------------|-------------|-------------|--------------|--------------|
| ● Total Fund | 0.5 (15) | 0.0 (44) | -1.0 (34) | 0.3 (58) | 0.4 (59) |
| ▲ Policy Index | 0.4 (41) | 0.0 (13) | -0.9 (10) | 0.4 (48) | 0.4 (52) |
| 5th Percentile | 0.5 | 0.0 | -0.8 | 0.7 | 0.7 |
| 1st Quartile | 0.5 | 0.0 | -0.9 | 0.5 | 0.5 |
| Median | 0.4 | 0.0 | -1.0 | 0.4 | 0.4 |
| 3rd Quartile | 0.4 | 0.0 | -1.1 | 0.3 | 0.3 |
| 95th Percentile | 0.3 | -0.1 | -1.3 | 0.2 | 0.3 |
| Population | 65 | 65 | 65 | 63 | 62 |

RETURN SUMMARY VS. PEER UNIVERSE

Total Fund vs. InvMetrics Public DB > \$1 Billion



| | 3 Mo | FYTD | 1 Year | 2 Years | 3 Years | 2021 | 2020 |
|--------------------|----------|----------|------------|-----------|----------|-----------|-----------|
| ● Total Fund | 5.3 (42) | 1.0 (39) | -9.7 (34) | 1.6 (48) | 4.2 (62) | 14.3 (62) | 9.6 (73) |
| ▲ Policy Index | 5.7 (36) | 1.7 (13) | -9.1 (28) | 1.0 (55) | 4.5 (52) | 12.2 (91) | 11.7 (47) |
| ■ Allocation Index | 5.4 (42) | 0.8 (55) | -11.9 (62) | -0.2 (73) | | 13.0 (79) | |
| 5th Percentile | 7.3 | 2.1 | -5.7 | 5.3 | 7.3 | 21.1 | 15.2 |
| 1st Quartile | 6.1 | 1.3 | -8.8 | 3.1 | 5.7 | 17.2 | 13.0 |
| Median | 5.1 | 0.8 | -11.2 | 1.4 | 4.5 | 15.3 | 11.4 |
| 3rd Quartile | 4.4 | 0.4 | -13.1 | -0.3 | 3.6 | 13.3 | 9.3 |
| 95th Percentile | 3.3 | -0.3 | -15.6 | -2.4 | 2.1 | 11.4 | 6.9 |
| Population | 65 | 65 | 65 | 64 | 63 | 130 | 148 |

FEE SCHEDULE

| Account Name | Fee Schedule | Market Value (\$) | Estimated Annual Fee (\$) | Estimated Annual Fee (%) |
|--|---|-------------------|---------------------------|--------------------------|
| Cash Account | 0.1 % of Assets | 20,538,717 | 20,539 | 0.1 |
| Transition Account | | 168,117 | | |
| Insight | 0.1 % of Assets | 209,075,603 | 250,891 | 0.1 |
| BlackRock Russell 1000 Growth | 0.0 % of Assets | 180,654,360 | 36,131 | 0.0 |
| BlackRock Russell 1000 Value | 0.0 % of Assets | 109,280,497 | 21,856 | 0.0 |
| Dodge & Cox-Equity | 0.4 % of First \$10 M 0.2 % of Next \$90 M 0.2 % Thereafter | 107,595,896 | 231,394 | 0.2 |
| Channing | 0.5 % of Assets | 26,412,788 | 132,064 | 0.5 |
| Pacific Ridge | 0.6 % of Assets | 17,232,106 | 103,393 | 0.6 |
| Walhausen | 0.5 % of Assets | 11,006 | 55 | 0.5 |
| Seizert | | 31,322,865 | | |
| Phocas' | | 23,664,941 | | |
| LSV Int'l Large Cap Value | 0.3 % of Assets | 243,755,527 | 609,389 | 0.3 |
| Fidelity Int'l Growth | 0.3 % of Assets | 216,423,319 | 541,058 | 0.3 |
| Prime Property Fund | 0.8 % of Assets | 103,829,403 | 872,167 | 0.8 |
| BlackRock Real Estate Securities | 0.1 % of First \$100 M 0.1 % Thereafter | 6,544,604 | 5,890 | 0.1 |
| PGIM Real Estate US Debt Fund | | 94,402,264 | | |
| American Strategic Value Realty | 0.8 % of First \$25 M 0.7 % of Next \$25 M 0.6 % of Next \$50 M 0.5 % Thereafter | 88,716,589 | 562,941 | 0.6 |
| Greenfield Acquisition Partners VII | | 2,046,544 | | |
| Grandview Property Partners I | | 20,974,408 | | |
| Grandview Property Partners II | | 15,108,682 | | |
| MS Infrastructure Partners II | | 42,409,945 | | |
| Palistar Communications Infrastructure Fund II | | 11,097,925 | | |
| JP Morgan IIF Hedged LP | | 32,097,892 | | |
| Northern Trust Infrastructure Fund | | 81,564,703 | | |
| IFM Global Infrastructure Fund | | 52,139,518 | | |

FEE SCHEDULE

| Account Name | Fee Schedule | Market Value (\$) | Estimated Annual Fee (\$) | Estimated Annual Fee (%) |
|--|---|----------------------|---------------------------|--------------------------|
| Vista Foundation Fund IV | | 11,056,955 | | |
| Insight Partners XI | | 23,286,286 | | |
| Gryphon Partners VI LP | 0.0 % of Assets | 13,568,763 | 2,714 | 0.0 |
| Clayton, Dublier, & Rice | | 12,745,496 | | |
| Genstar Capital Partners X | | 7,742,611 | | |
| Sole Source Capital Partners II | | 9,982,560 | | |
| Great Hill EP VIII | | 1,030,487 | | |
| Northern Trust Russell 3000 | 0.0 % of Assets | 56,904,880 | 11,381 | 0.0 |
| Medley Capital | | 2,905,948 | | |
| Owl Rock First Lien Fund | 0.7 % of Assets | 8,286,428 | 58,005 | 0.7 |
| Raven Opportunity III | | 58,431,825 | | |
| White Oak Pinnacle | | 25,565,403 | | |
| Abry Senior Equity VI, L.P. | | 5,431,946 | | |
| Strategic Values Special Situations Fund V, L.P. | | 4,150,435 | | |
| Blackrock High Yield Fund | | 93,384,138 | | |
| Monroe Private Credit IV | | 17,071,918 | | |
| AQR Global Risk Premium - EL | 0.4 % of Assets | 117,108,326 | 445,012 | 0.4 |
| PanAgora Risk Parity Multi Asset | 0.4 % of Assets | 108,167,189 | 378,585 | 0.4 |
| Northern Trust Intermediate Gov't Bond | 0.1 % of First \$25 M 0.0 % Thereafter | 99,016,707 | 42,107 | 0.0 |
| Northern Trust Long Term Gov't Bond | 0.1 % of First \$25 M 0.0 % Thereafter | 40,702,510 | 18,781 | 0.0 |
| Graham Global Investment Fund I SPC LTD | | 56,063,118 | | |
| Invesco Global Targeted Return | | 27,397,881 | | |
| Investment Management Fees | | 2,537,070,032 | 4,344,352 | 0.2 |

RISK STATISTICS

| 3 Years Ending December 31, 2022 | | | | | | | | | | | |
|---|--------|---------------|--------------------|-------|------|----------------|-----------|--------------|-------------------|------------|--------------|
| | Return | Excess Return | Standard Deviation | Alpha | Beta | Tracking Error | R-Squared | Sharpe Ratio | Information Ratio | Up Capture | Down Capture |
| American Strategic Value Realty | 9.5 | 8.6 | 6.8 | 1.1 | 1.0 | 1.4 | 1.0 | 1.3 | 1.0 | 112.0 | 84.8 |
| NCREIF Property Index | 8.1 | 7.3 | 6.4 | 0.0 | 1.0 | 0.0 | 1.0 | 1.1 | | 100.0 | 100.0 |
| AQR Global Risk Premium - EL | -1.1 | -1.2 | 11.0 | -1.8 | 0.7 | 6.0 | 0.8 | -0.1 | -0.4 | 65.6 | 74.8 |
| 60% MSCI ACWI (Net)/ 40% Bloomberg Global Agg | 0.8 | 1.1 | 14.2 | 0.0 | 1.0 | 0.0 | 1.0 | 0.1 | | 100.0 | 100.0 |
| BlackRock Real Estate Securities | -1.5 | 0.8 | 24.4 | -0.1 | 1.0 | 0.0 | 1.0 | 0.0 | -1.9 | 99.8 | 100.1 |
| Dow Jones U.S. Select RESI | -1.4 | 0.9 | 24.4 | 0.0 | 1.0 | 0.0 | 1.0 | 0.0 | | 100.0 | 100.0 |
| BlackRock Russell 1000 Growth | 7.8 | 9.5 | 23.8 | 0.0 | 1.0 | 0.0 | 1.0 | 0.4 | -0.9 | 99.9 | 99.9 |
| Russell 1000 Growth Index | 7.8 | 9.5 | 23.8 | 0.0 | 1.0 | 0.0 | 1.0 | 0.4 | | 100.0 | 100.0 |
| BlackRock Russell 1000 Value | 6.0 | 7.4 | 21.5 | 0.0 | 1.0 | 0.1 | 1.0 | 0.3 | 0.6 | 100.0 | 99.9 |
| Russell 1000 Value Index | 6.0 | 7.4 | 21.6 | 0.0 | 1.0 | 0.0 | 1.0 | 0.3 | | 100.0 | 100.0 |
| Capital Prospects Transition | 0.0 | -0.7 | 0.0 | 0.0 | 0.0 | 27.7 | | -2.1 | -0.3 | 0.0 | 0.0 |
| Russell 2000 Value Index | 4.7 | 7.7 | 27.7 | 0.0 | 1.0 | 0.0 | 1.0 | 0.3 | | 100.0 | 100.0 |
| Channing | 5.1 | 8.2 | 28.2 | 0.7 | 1.0 | 8.1 | 0.9 | 0.3 | 0.1 | 100.1 | 98.7 |
| Russell 2000 Value Index | 4.7 | 7.7 | 27.7 | 0.0 | 1.0 | 0.0 | 1.0 | 0.3 | | 100.0 | 100.0 |
| Dodge & Cox-Equity | 8.9 | 10.7 | 24.4 | 2.5 | 1.1 | 5.4 | 1.0 | 0.4 | 0.6 | 110.7 | 100.8 |
| Russell 1000 Value Index | 6.0 | 7.4 | 21.6 | 0.0 | 1.0 | 0.0 | 1.0 | 0.3 | | 100.0 | 100.0 |
| LSV Int'l Large Cap Value | 1.5 | 2.9 | 21.0 | 1.4 | 1.0 | 2.2 | 1.0 | 0.1 | 0.6 | 103.8 | 98.9 |
| MSCI AC World ex USA Value (Net) | 0.1 | 1.6 | 21.3 | 0.0 | 1.0 | 0.0 | 1.0 | 0.1 | | 100.0 | 100.0 |
| Fidelity Int'l Growth | 1.6 | 2.9 | 20.4 | 2.2 | 1.0 | 5.9 | 0.9 | 0.1 | 0.4 | 101.1 | 92.6 |
| MSCI AC World ex USA Growth (Net) | -0.4 | 0.7 | 19.3 | 0.0 | 1.0 | 0.0 | 1.0 | 0.0 | | 100.0 | 100.0 |
| Greenfield Acquisition Partners VII | 8.0 | 7.4 | 8.9 | 7.4 | 0.1 | 11.7 | 0.0 | 0.8 | -0.2 | 62.6 | 0.0 |
| NCREIF-ODCE +1% | 11.0 | 10.1 | 8.5 | 0.0 | 1.0 | 0.0 | 1.0 | 1.2 | | 100.0 | 100.0 |
| Grandview Property Partners I | 25.3 | 24.3 | 22.9 | 14.3 | 1.1 | 21.1 | 0.2 | 1.1 | 0.7 | 192.7 | 0.0 |
| NCREIF-ODCE +1% | 11.0 | 10.1 | 8.5 | 0.0 | 1.0 | 0.0 | 1.0 | 1.2 | | 100.0 | 100.0 |

RISK STATISTICS

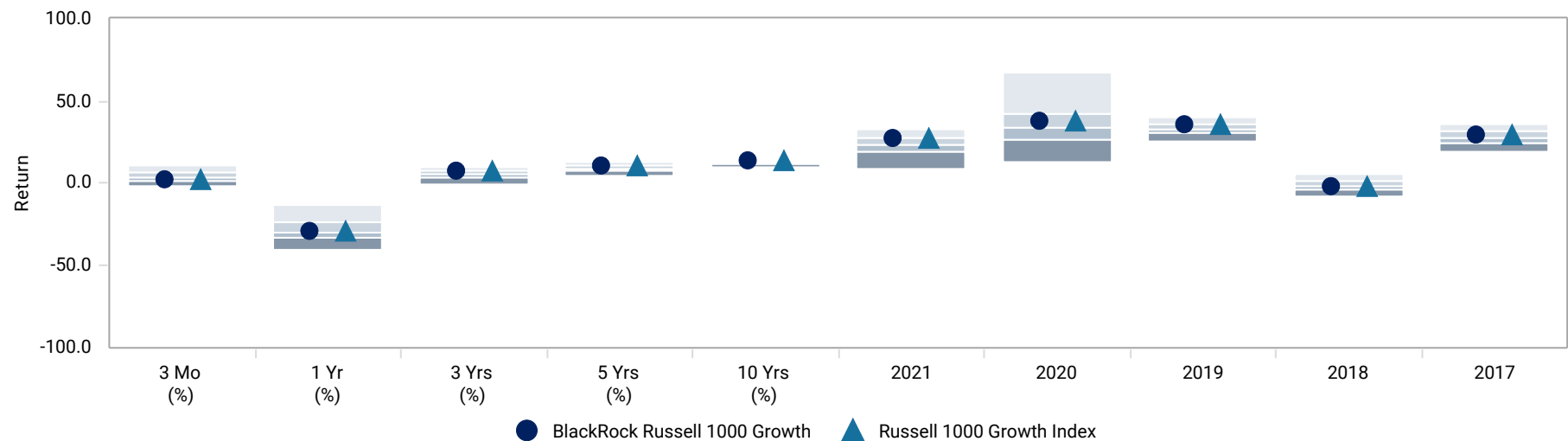
| | Return | Excess Return | Standard Deviation | Alpha | Beta | Tracking Error | R-Squared | Sharpe Ratio | Information Ratio | Up Capture | Down Capture |
|---|--------|---------------|--------------------|-------|------|----------------|-----------|--------------|-------------------|------------|--------------|
| Medley Capital | -6.3 | -6.4 | 13.3 | -4.6 | -0.2 | 16.9 | 0.0 | -0.5 | -0.6 | -47.7 | 1.4 |
| S&P/LSTA Leveraged Loan Index +2% | 4.6 | 4.2 | 8.9 | 0.0 | 1.0 | 0.0 | 1.0 | 0.5 | | 100.0 | 100.0 |
| MS Infrastructure Partners II | 9.4 | 8.7 | 9.5 | 3.7 | 0.6 | 9.5 | 0.0 | 0.9 | 0.0 | 102.7 | 760.7 |
| CPI + 5% (Unadjusted) | 10.2 | 9.0 | 1.6 | 0.0 | 1.0 | 0.0 | 1.0 | 5.1 | | 100.0 | 100.0 |
| Northern Trust Intermediate Gov't Bond | -1.4 | -2.1 | 3.6 | 0.0 | 1.0 | 0.2 | 1.0 | -0.6 | -0.2 | 99.1 | 100.1 |
| Blmbg. U.S. Government: Intermediate | -1.4 | -2.0 | 3.6 | 0.0 | 1.0 | 0.0 | 1.0 | -0.6 | | 100.0 | 100.0 |
| Northern Trust Long Term Gov't Bond | -6.6 | -6.5 | 14.3 | 0.8 | 1.0 | 2.0 | 1.0 | -0.5 | 0.4 | 101.0 | 97.0 |
| Blmbg. U.S. Government: Long Term Bond Index | -7.4 | -7.4 | 14.3 | 0.0 | 1.0 | 0.0 | 1.0 | -0.5 | | 100.0 | 100.0 |
| Pacific Ridge | 3.6 | 7.3 | 29.2 | -1.7 | 1.0 | 9.7 | 0.9 | 0.2 | -0.2 | 90.7 | 94.1 |
| Russell Microcap Value Index | 6.1 | 9.3 | 28.4 | 0.0 | 1.0 | 0.0 | 1.0 | 0.3 | | 100.0 | 100.0 |
| Prime Property Fund | 9.3 | 8.5 | 8.2 | 0.0 | 0.9 | 1.9 | 1.0 | 1.0 | -0.3 | 92.1 | 85.0 |
| NCREIF ODCE | 9.9 | 9.1 | 8.5 | 0.0 | 1.0 | 0.0 | 1.0 | 1.1 | | 100.0 | 100.0 |
| PGIM Real Estate US Debt Fund | 5.0 | 4.2 | 2.1 | 4.9 | -0.1 | 6.3 | 0.1 | 2.1 | 1.0 | 33.4 | -35.0 |
| Blmbg. U.S. Investment Grade: CMBS Index | -1.7 | -2.3 | 5.4 | 0.0 | 1.0 | 0.0 | 1.0 | -0.4 | | 100.0 | 100.0 |
| Raven Opportunity III | 10.4 | 9.6 | 8.3 | 11.5 | -0.1 | 13.0 | 0.0 | 1.2 | 0.4 | 41.8 | -80.2 |
| S&P/LSTA Leveraged Loan Index +2% | 4.6 | 4.2 | 8.9 | 0.0 | 1.0 | 0.0 | 1.0 | 0.5 | | 100.0 | 100.0 |
| Walhausen | 8.4 | 10.4 | 24.3 | 4.5 | 0.8 | 12.1 | 0.8 | 0.4 | 0.2 | 84.4 | 72.3 |
| Russell 2000 Value Index | 4.7 | 7.7 | 27.7 | 0.0 | 1.0 | 0.0 | 1.0 | 0.3 | | 100.0 | 100.0 |
| PanAgora Risk Parity Multi Asset | -2.0 | -1.6 | 14.7 | -2.7 | 1.0 | 5.2 | 0.9 | -0.1 | -0.5 | 85.9 | 99.4 |
| 60% MSCI ACWI (Net)/ 40% Bloomberg Global Agg | 0.8 | 1.1 | 14.2 | 0.0 | 1.0 | 0.0 | 1.0 | 0.1 | | 100.0 | 100.0 |
| White Oak Pinnacle | 0.4 | 0.4 | 11.8 | 2.1 | -0.2 | 15.8 | 0.0 | 0.0 | -0.2 | 25.8 | 28.7 |
| S&P/LSTA Leveraged Loan Index +2% | 4.6 | 4.2 | 8.9 | 0.0 | 1.0 | 0.0 | 1.0 | 0.5 | | 100.0 | 100.0 |

MANAGER PROFILES

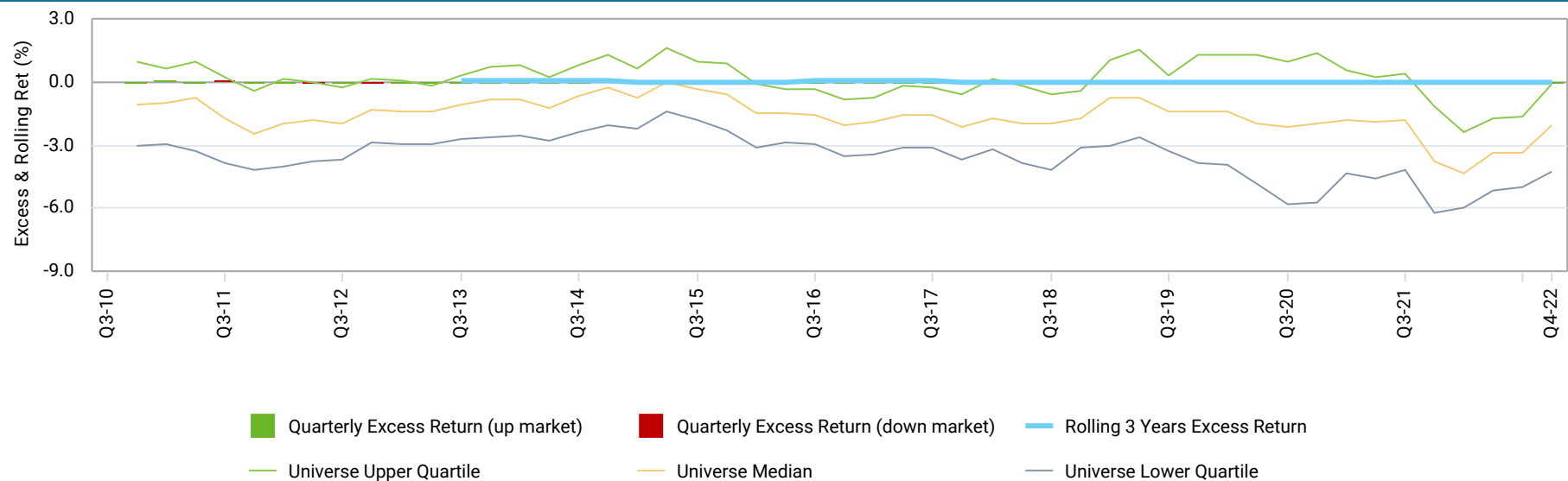
DOMESTIC EQUITY

BLACKROCK RUSSELL 1000 GROWTH

eV US Large Cap Growth Equity (net of fees)

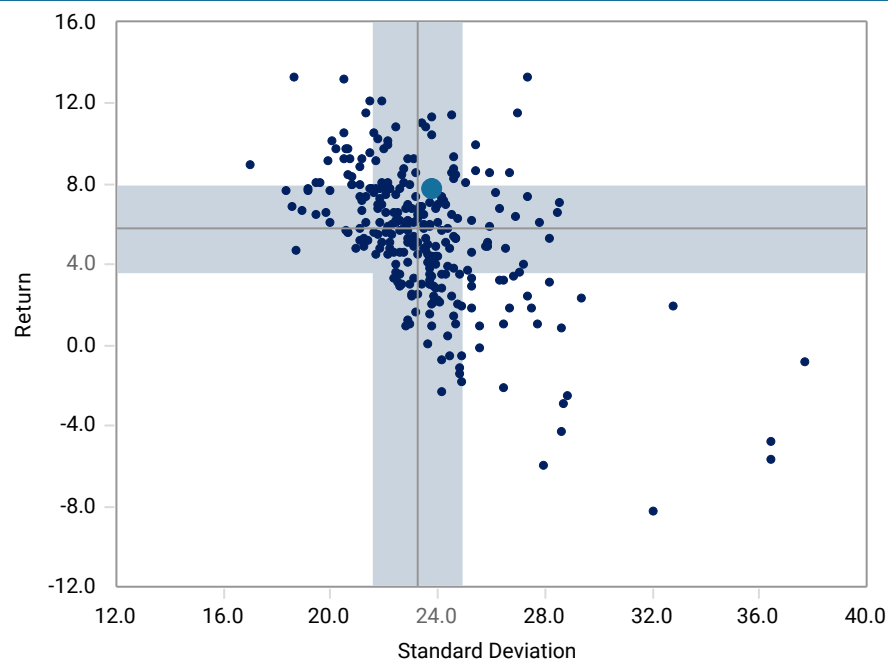


Quarter Excess Return with a Rolling 3 Years Excess Return over Since Inception Ending December 31, 2022



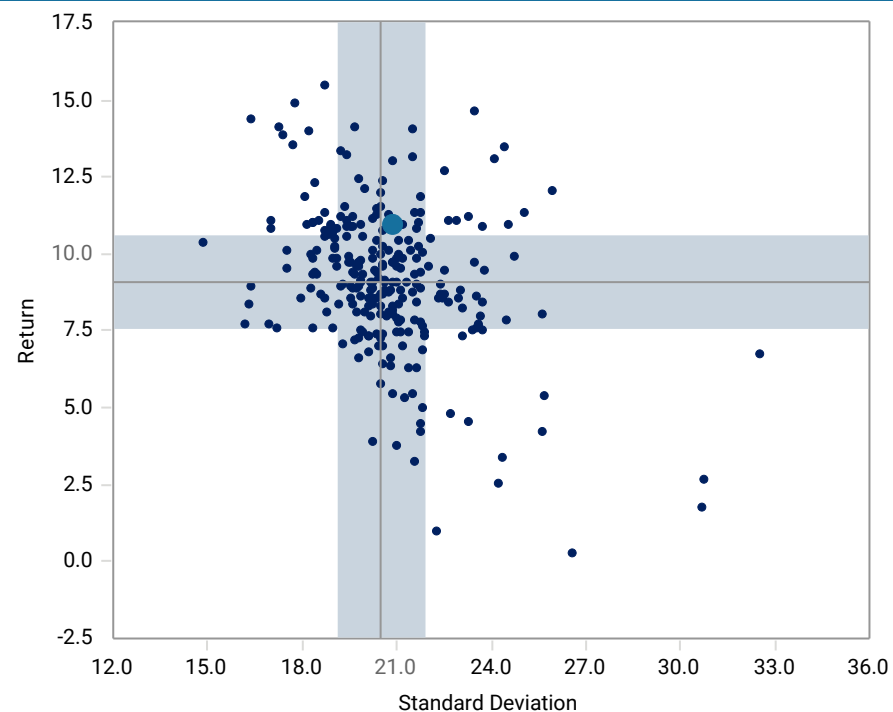
RISK VS. RETURN

3 Years Ending December 31, 2022



● eV US Large Cap Growth Equity
● BlackRock Russell 1000 Growth

5 Years Ending December 31, 2022



● eV US Large Cap Growth Equity ● BlackRock Russell 1000 Growth

3 Years Ending December 31, 2022

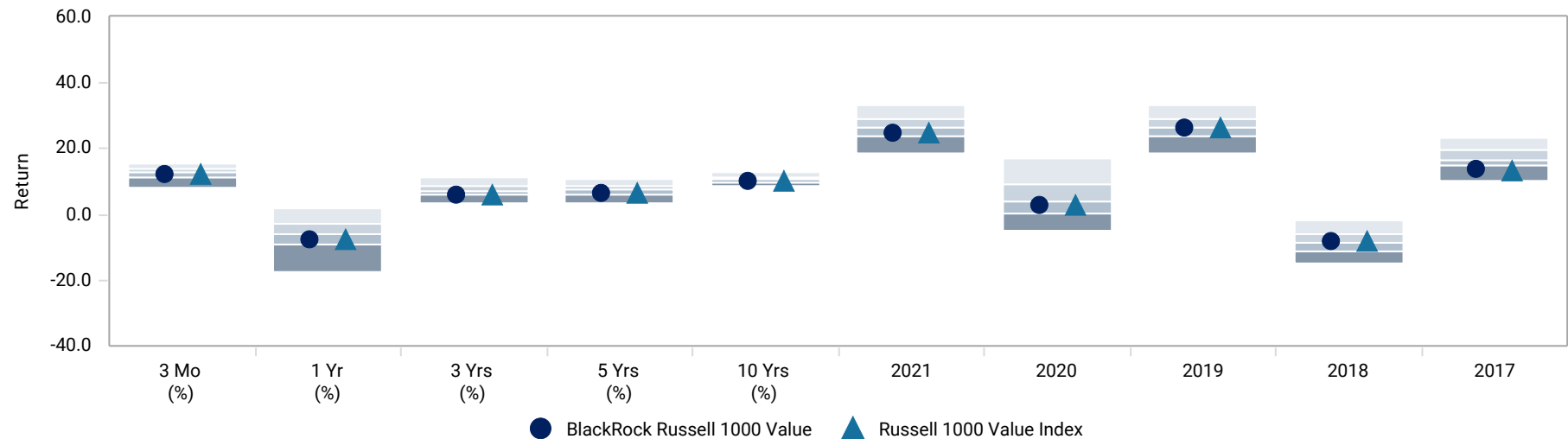
| | Return | Standard Deviation | Sharpe Ratio |
|--------------------------------------|----------|--------------------|--------------|
| BlackRock Russell 1000 Growth | 7.8 (24) | 23.8 (62) | 0.4 (28) |
| Russell 1000 Growth Index | 7.8 (23) | 23.8 (62) | 0.4 (28) |
| eV US Large Cap Growth Equity Median | 5.8 | 23.3 | 0.3 |
| Population | 278 | 278 | 278 |

5 Years Ending December 31, 2022

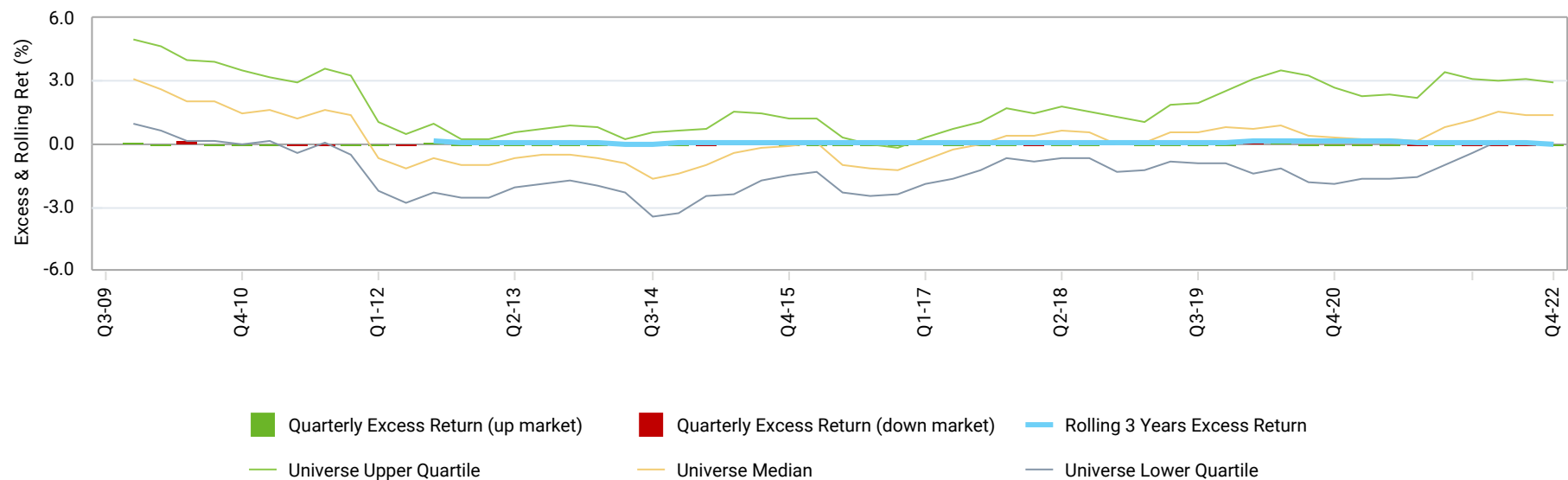
| | Return | Standard Deviation | Sharpe Ratio |
|--------------------------------------|-----------|--------------------|--------------|
| BlackRock Russell 1000 Growth | 10.9 (19) | 20.9 (59) | 0.5 (23) |
| Russell 1000 Growth Index | 11.0 (19) | 20.9 (59) | 0.5 (23) |
| eV US Large Cap Growth Equity Median | 9.1 | 20.5 | 0.5 |
| Population | 259 | 259 | 259 |

BLACKROCK RUSSELL 1000 VALUE

eV US Large Cap Value Equity (net of fees)

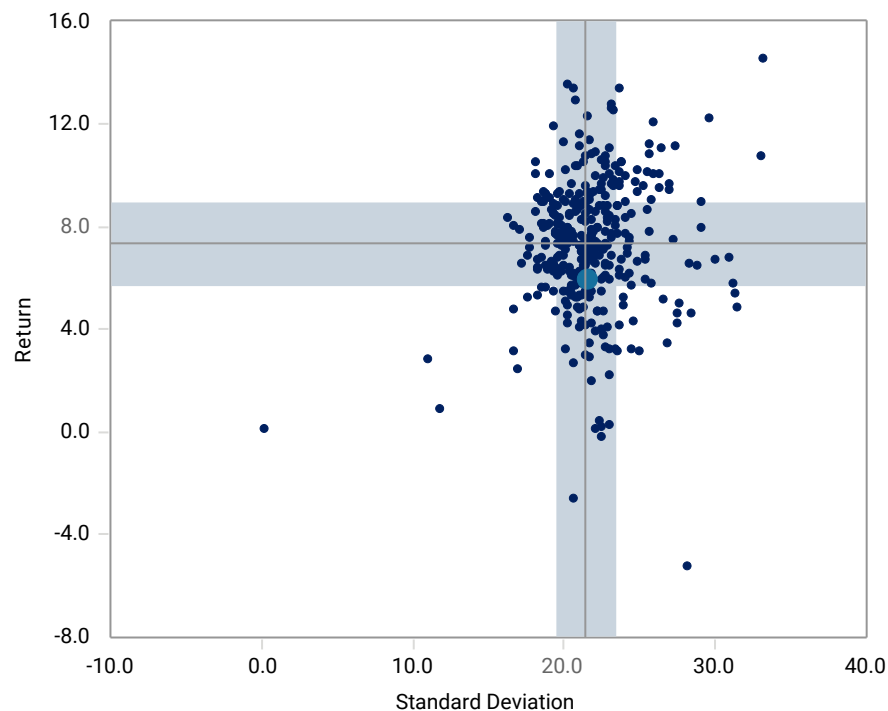


Quarter Excess Return with a Rolling 3 Years Excess Return over Since Inception Ending December 31, 2022



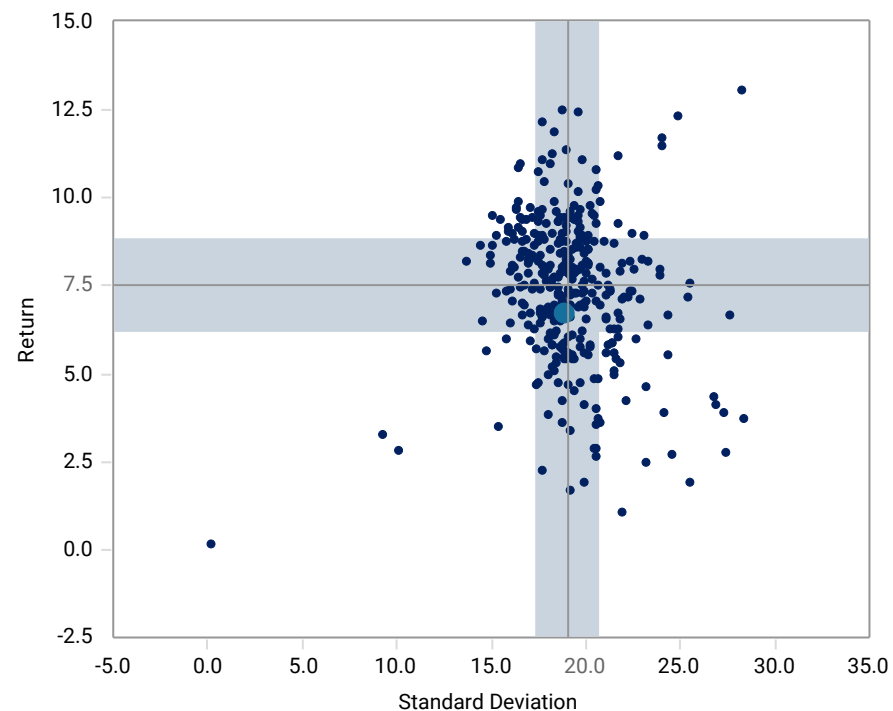
RISK VS. RETURN

3 Years Ending December 31, 2022



● eV US Large Cap Value Equity ● BlackRock Russell 1000 Value

5 Years Ending December 31, 2022



● eV US Large Cap Value Equity ● BlackRock Russell 1000 Value

3 Years Ending December 31, 2022

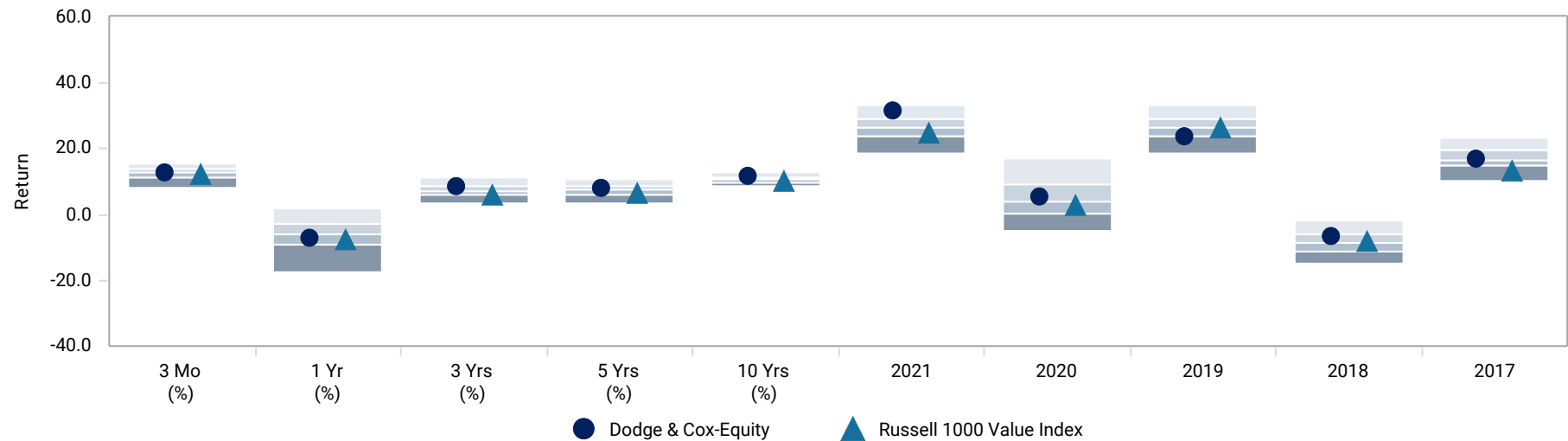
| | Return | Standard Deviation | Sharpe Ratio |
|-------------------------------------|----------|--------------------|--------------|
| BlackRock Russell 1000 Value | 6.0 (76) | 21.5 (51) | 0.3 (75) |
| Russell 1000 Value Index | 6.0 (77) | 21.6 (51) | 0.3 (75) |
| eV US Large Cap Value Equity Median | 7.4 | 21.5 | 0.4 |
| Population | 363 | 363 | 363 |

5 Years Ending December 31, 2022

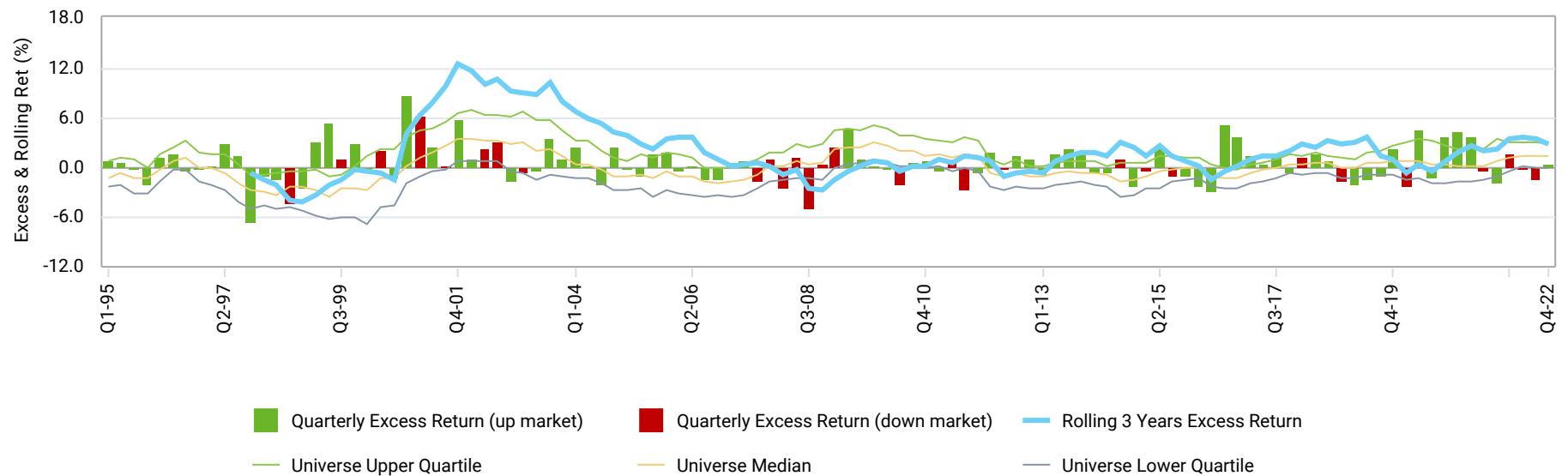
| | Return | Standard Deviation | Sharpe Ratio |
|-------------------------------------|----------|--------------------|--------------|
| BlackRock Russell 1000 Value | 6.7 (68) | 18.8 (46) | 0.4 (67) |
| Russell 1000 Value Index | 6.7 (70) | 18.9 (46) | 0.4 (69) |
| eV US Large Cap Value Equity Median | 7.5 | 19.0 | 0.4 |
| Population | 351 | 351 | 351 |

DODGE & COX-EQUITY

eV US Large Cap Value Equity (net of fees)

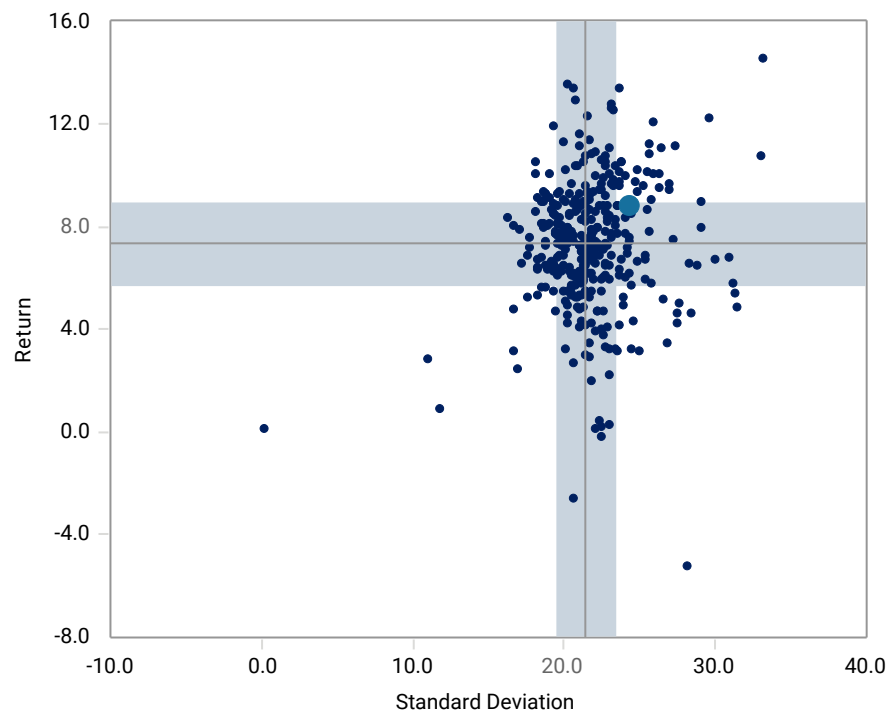


Quarter Excess Return with a Rolling 3 Years Excess Return over Since Inception Ending December 31, 2022



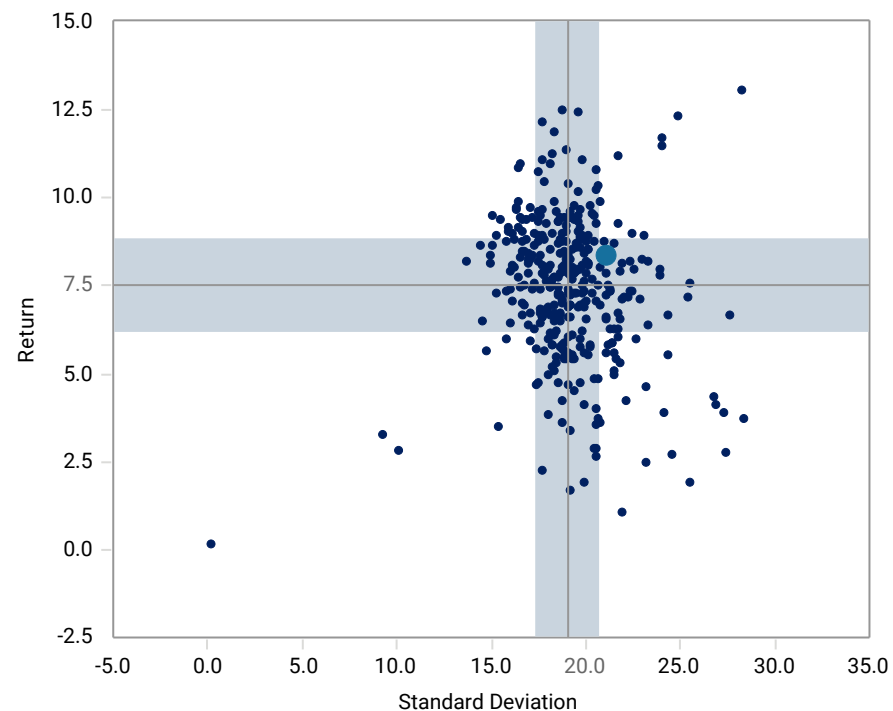
RISK VS. RETURN

3 Years Ending December 31, 2022



● eV US Large Cap Value Equity ● Dodge & Cox-Equity

5 Years Ending December 31, 2022



● eV US Large Cap Value Equity ● Dodge & Cox-Equity

3 Years Ending December 31, 2022

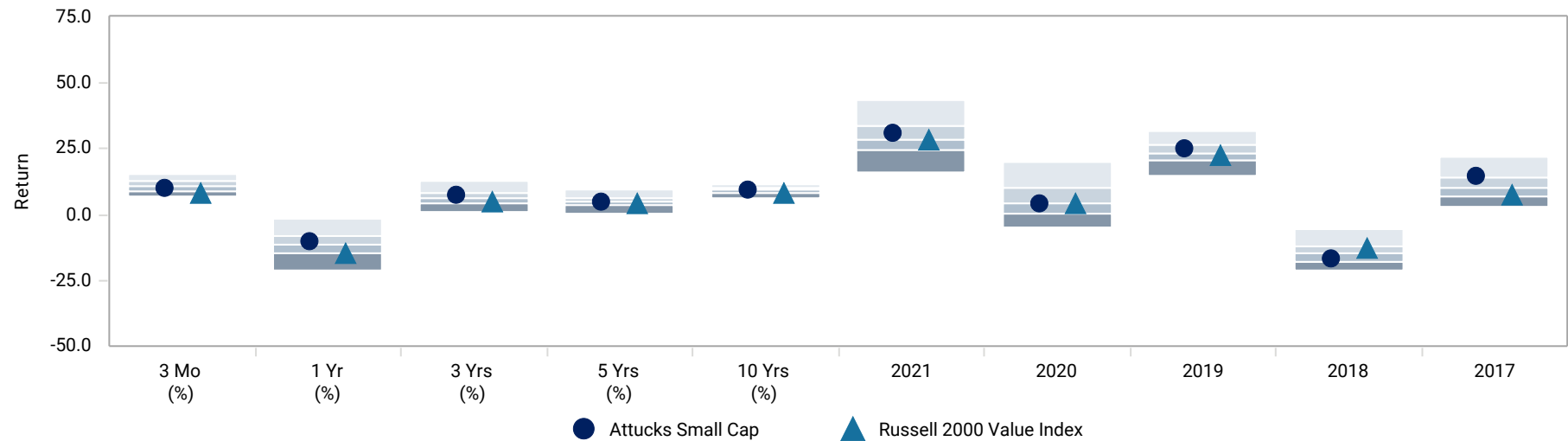
| | Return | Standard Deviation | Sharpe Ratio |
|-------------------------------------|----------|--------------------|--------------|
| Dodge & Cox-Equity | 8.9 (26) | 24.4 (86) | 0.4 (37) |
| Russell 1000 Value Index | 6.0 (77) | 21.6 (51) | 0.3 (75) |
| eV US Large Cap Value Equity Median | 7.4 | 21.5 | 0.4 |
| Population | 363 | 363 | 363 |

5 Years Ending December 31, 2022

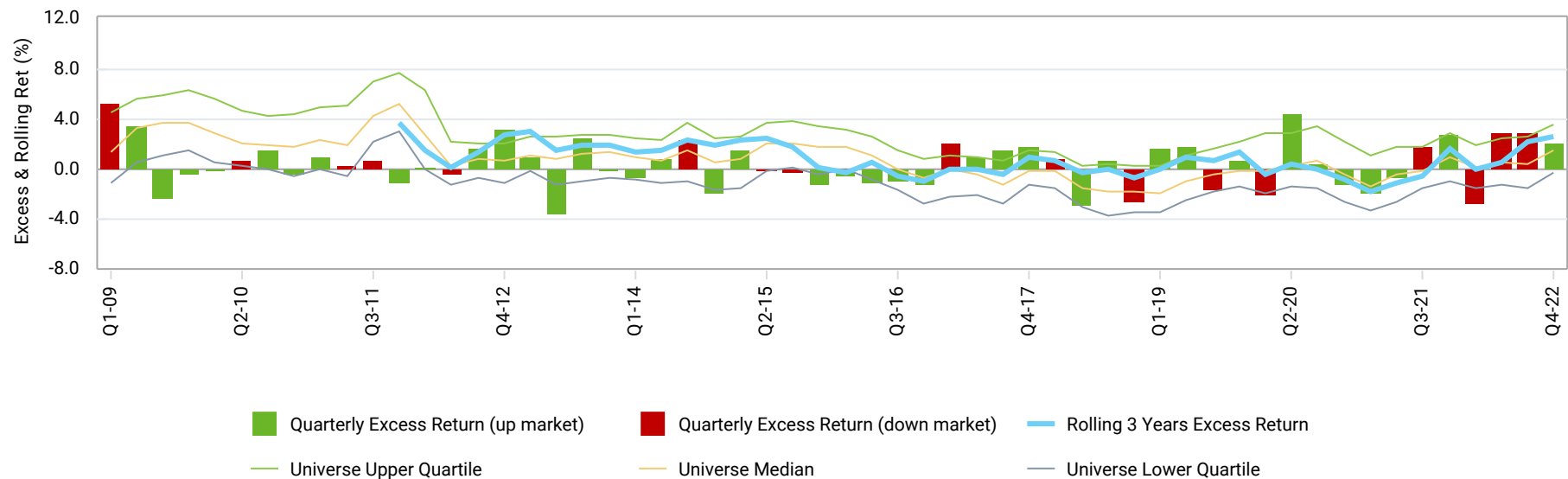
| | Return | Standard Deviation | Sharpe Ratio |
|-------------------------------------|----------|--------------------|--------------|
| Dodge & Cox-Equity | 8.4 (32) | 21.1 (82) | 0.4 (45) |
| Russell 1000 Value Index | 6.7 (70) | 18.9 (46) | 0.4 (69) |
| eV US Large Cap Value Equity Median | 7.5 | 19.0 | 0.4 |
| Population | 351 | 351 | 351 |

ATTUCKS SMALL CAP

eV US Small Cap Value Equity (net of fees)

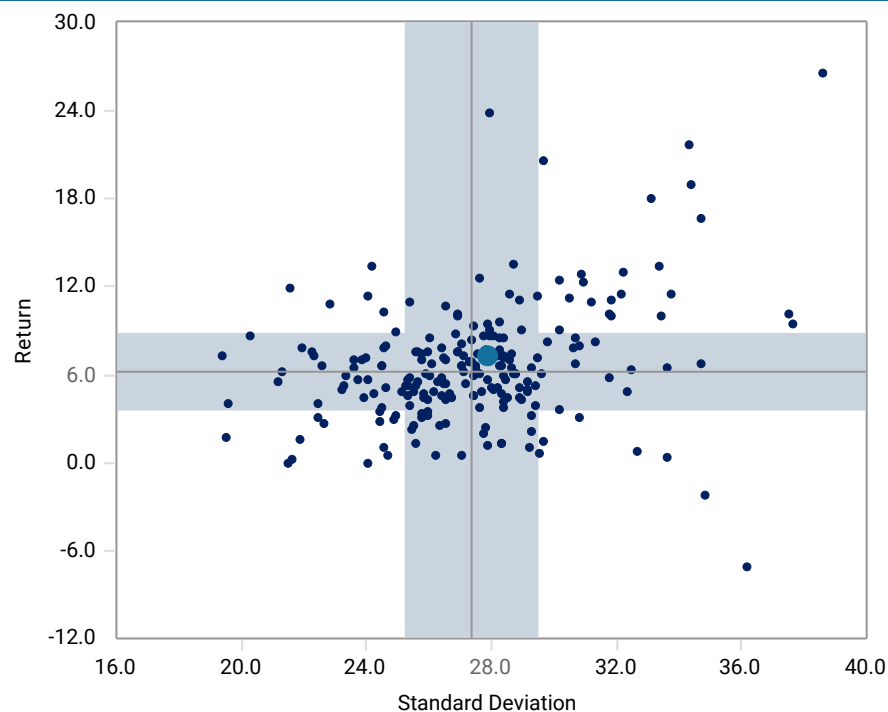


Quarter Excess Return with a Rolling 3 Years Excess Return over Since Inception Ending December 31, 2022

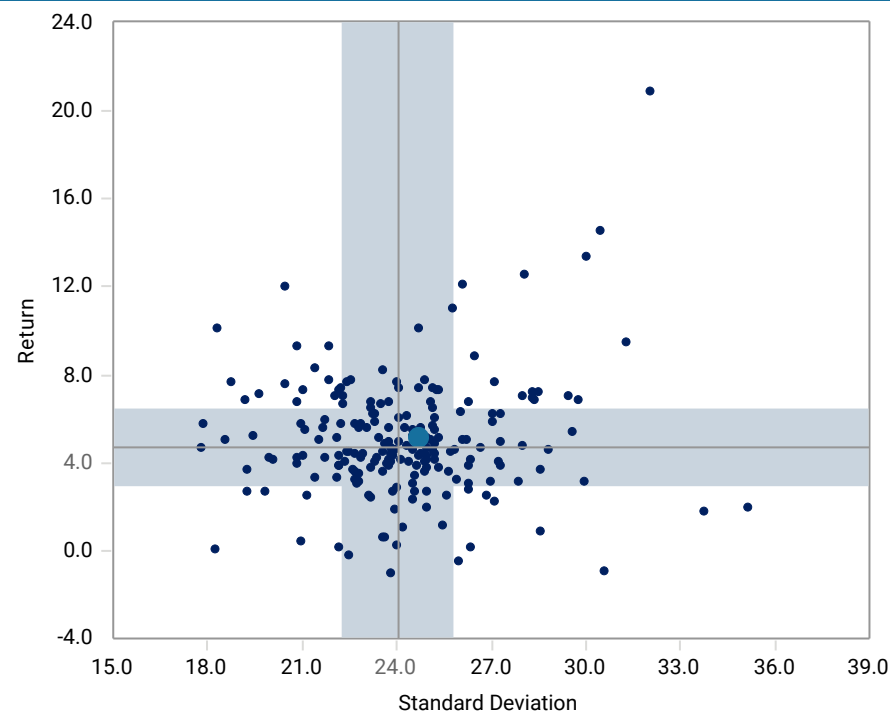


RISK VS. RETURN

3 Years Ending December 31, 2022



5 Years Ending December 31, 2022



3 Years Ending December 31, 2022

| | Return | Standard Deviation | Sharpe Ratio |
|-------------------------------------|----------|--------------------|--------------|
| Attucks Small Cap | 7.3 (36) | 27.9 (57) | 0.4 (36) |
| Russell 2000 Value Index | 4.7 (72) | 27.7 (54) | 0.3 (72) |
| eV US Small Cap Value Equity Median | 6.2 | 27.3 | 0.3 |
| Population | 217 | 217 | 217 |

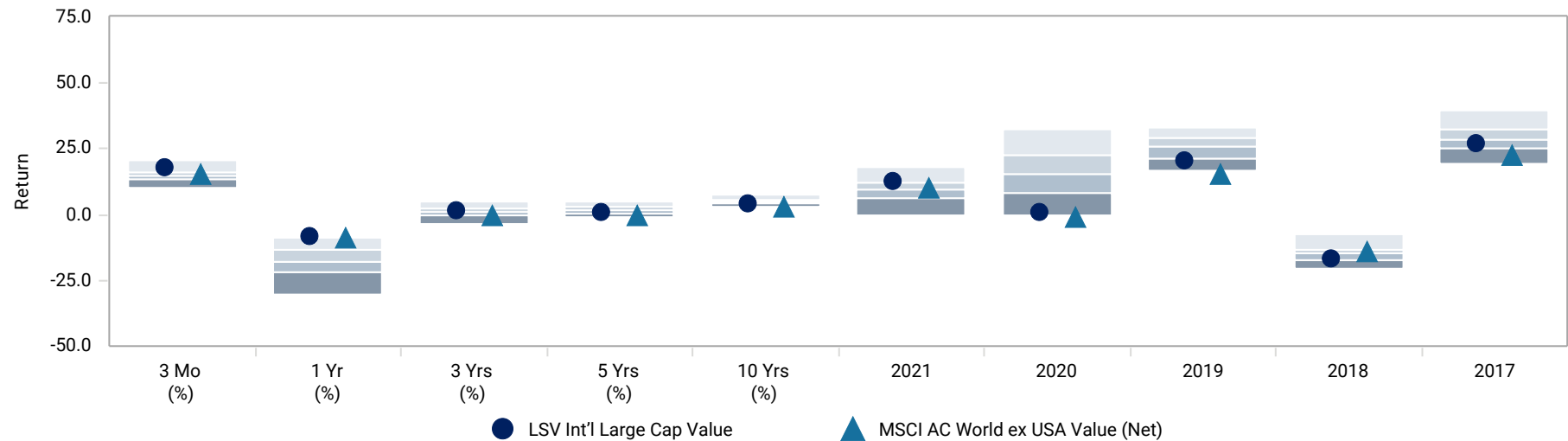
5 Years Ending December 31, 2022

| | Return | Standard Deviation | Sharpe Ratio |
|-------------------------------------|----------|--------------------|--------------|
| Attucks Small Cap | 5.2 (40) | 24.7 (59) | 0.3 (41) |
| Russell 2000 Value Index | 4.1 (66) | 24.2 (52) | 0.2 (67) |
| eV US Small Cap Value Equity Median | 4.7 | 24.0 | 0.3 |
| Population | 207 | 207 | 207 |

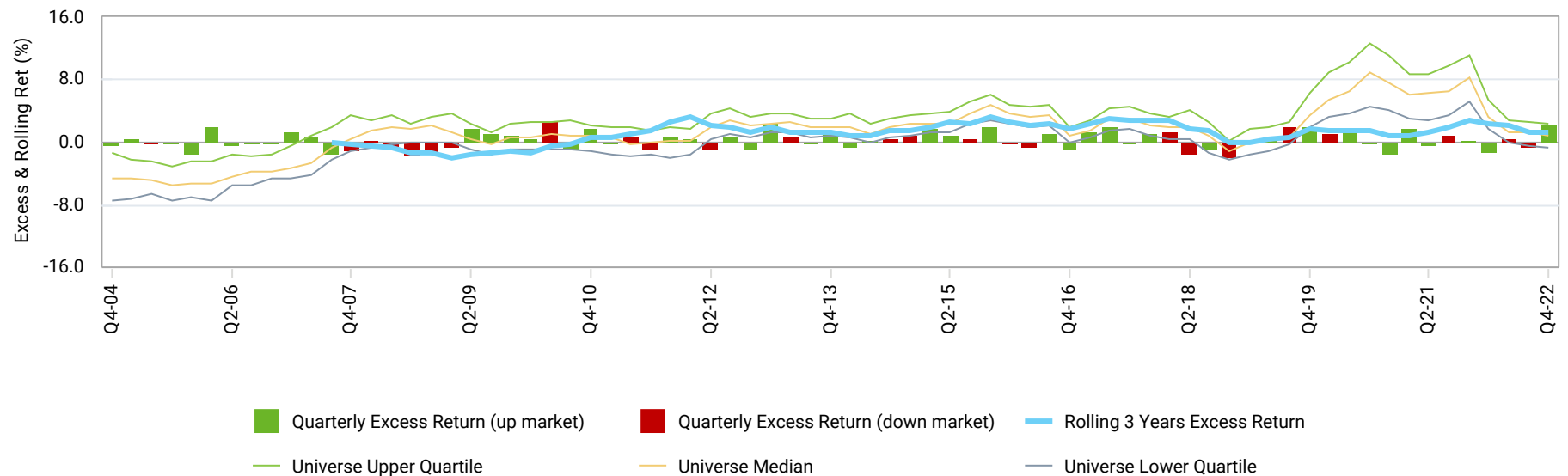
INTERNATIONAL EQUITY

LSV INT'L LARGE CAP VALUE

eV ACWI ex-US Large Cap Equity (net of fees)

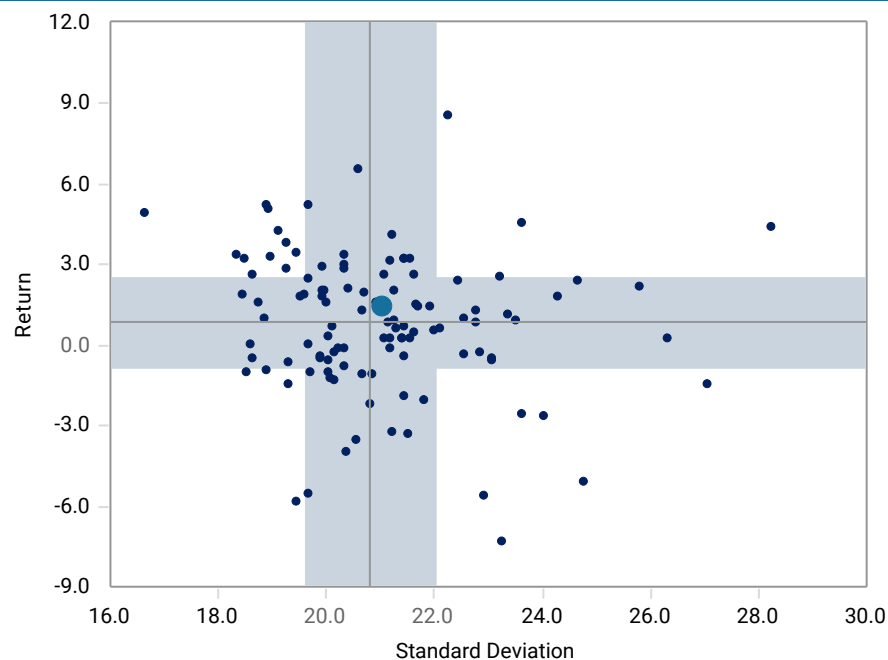


Quarter Excess Return with a Rolling 3 Years Excess Return over Since Inception Ending December 31, 2022



RISK VS. RETURN

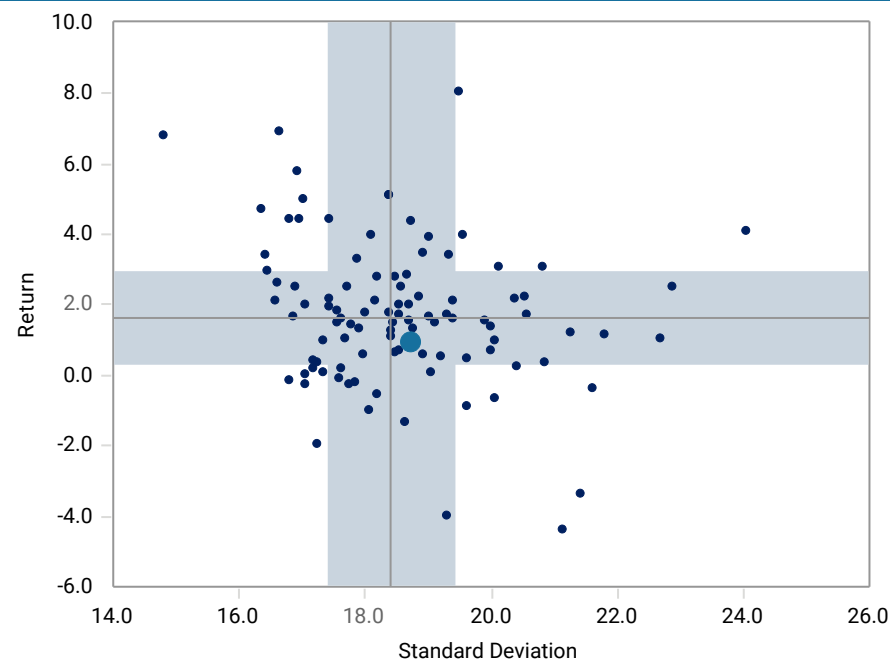
3 Years Ending December 31, 2022



● eV ACWI ex-US Large Cap Equity

● LSV Int'l Large Cap Value

5 Years Ending December 31, 2022



● eV ACWI ex-US Large Cap Equity

● LSV Int'l Large Cap Value

3 Years Ending December 31, 2022

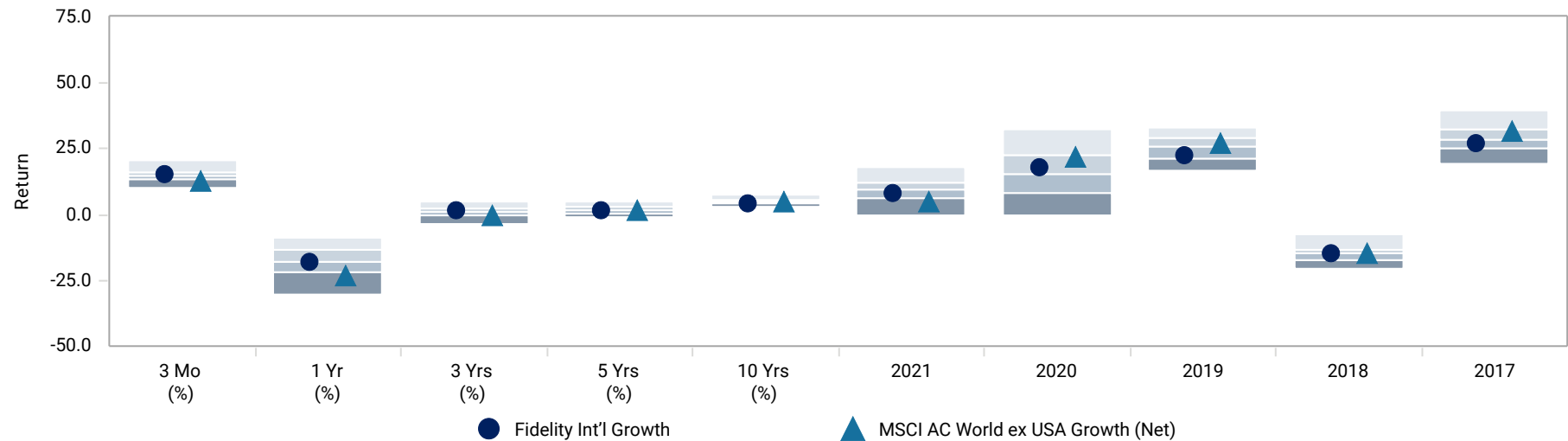
| | Return | Standard Deviation | Sharpe Ratio |
|---------------------------------------|----------|--------------------|--------------|
| LSV Int'l Large Cap Value | 1.5 (42) | 21.0 (52) | 0.1 (42) |
| MSCI AC World ex USA Value (Net) | 0.1 (64) | 21.3 (62) | 0.1 (64) |
| eV ACWI ex-US Large Cap Equity Median | 0.8 | 20.8 | 0.1 |
| Population | 111 | 111 | 111 |

5 Years Ending December 31, 2022

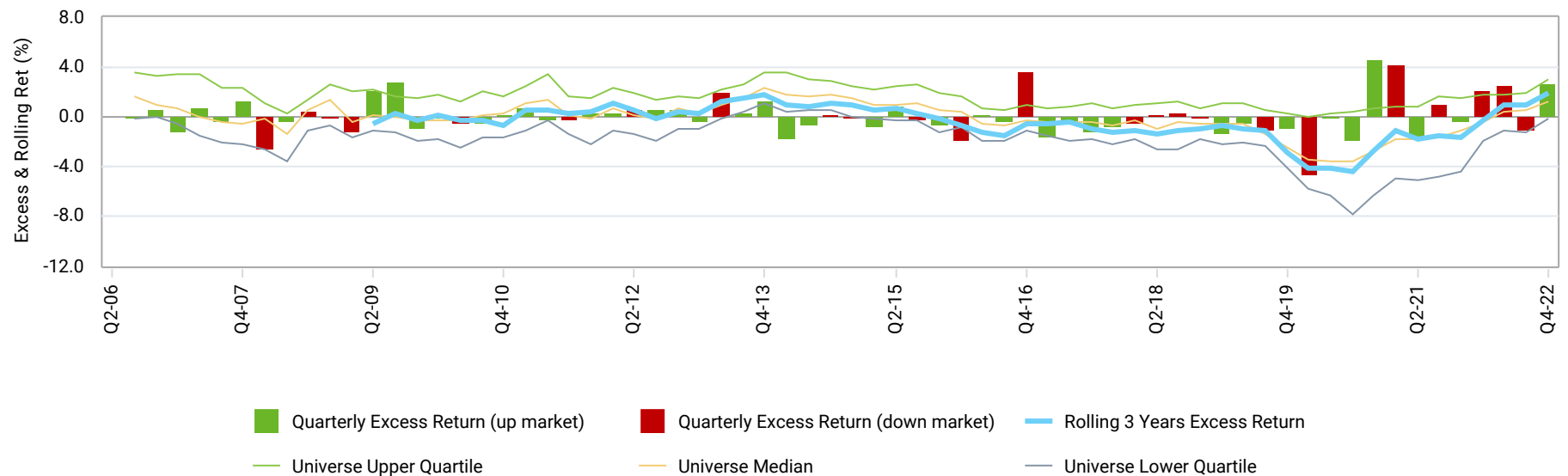
| | Return | Standard Deviation | Sharpe Ratio |
|---------------------------------------|-----------|--------------------|--------------|
| LSV Int'l Large Cap Value | 1.0 (69) | 18.7 (61) | 0.1 (68) |
| MSCI AC World ex USA Value (Net) | -0.1 (86) | 18.6 (57) | 0.0 (85) |
| eV ACWI ex-US Large Cap Equity Median | 1.7 | 18.4 | 0.1 |
| Population | 100 | 100 | 100 |

FIDELITY INT'L GROWTH

eV ACWI ex-US Large Cap Equity (net of fees)

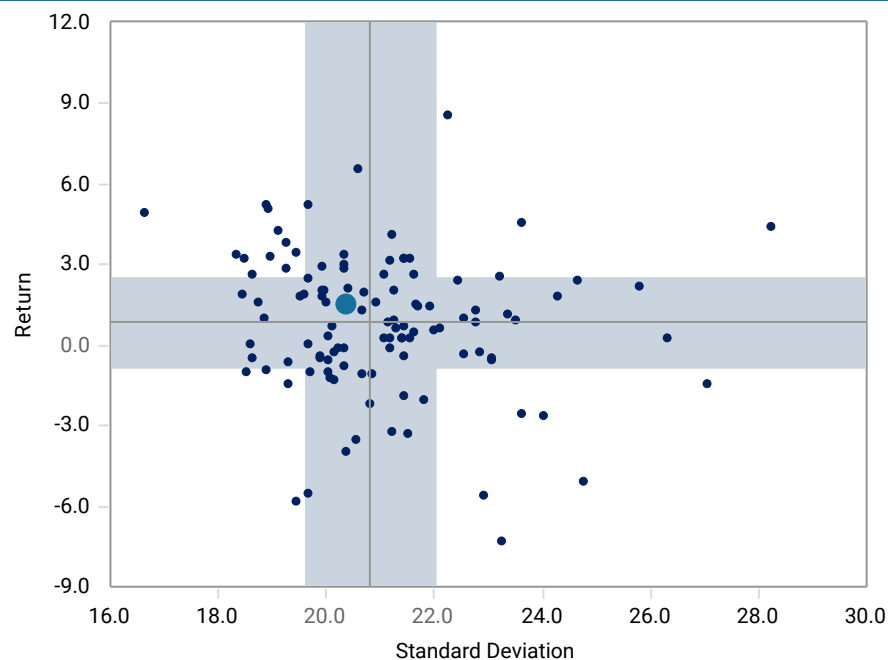


Quarter Excess Return with a Rolling 3 Years Excess Return over Since Inception Ending December 31, 2022



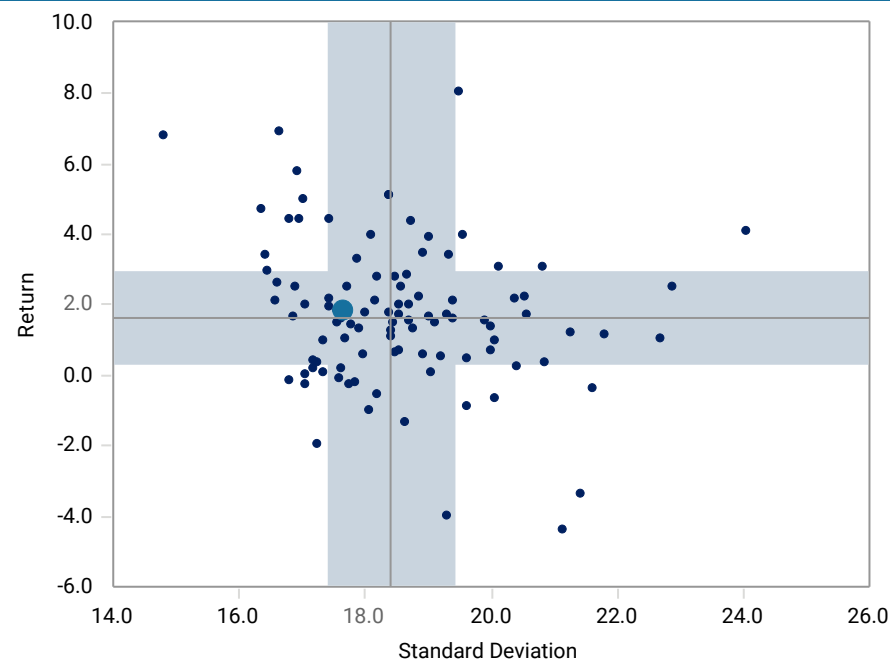
RISK VS. RETURN

3 Years Ending December 31, 2022



- eV ACWI ex-US Large Cap Equity
- Fidelity Int'l Growth

5 Years Ending December 31, 2022



- eV ACWI ex-US Large Cap Equity
- Fidelity Int'l Growth

3 Years Ending December 31, 2022

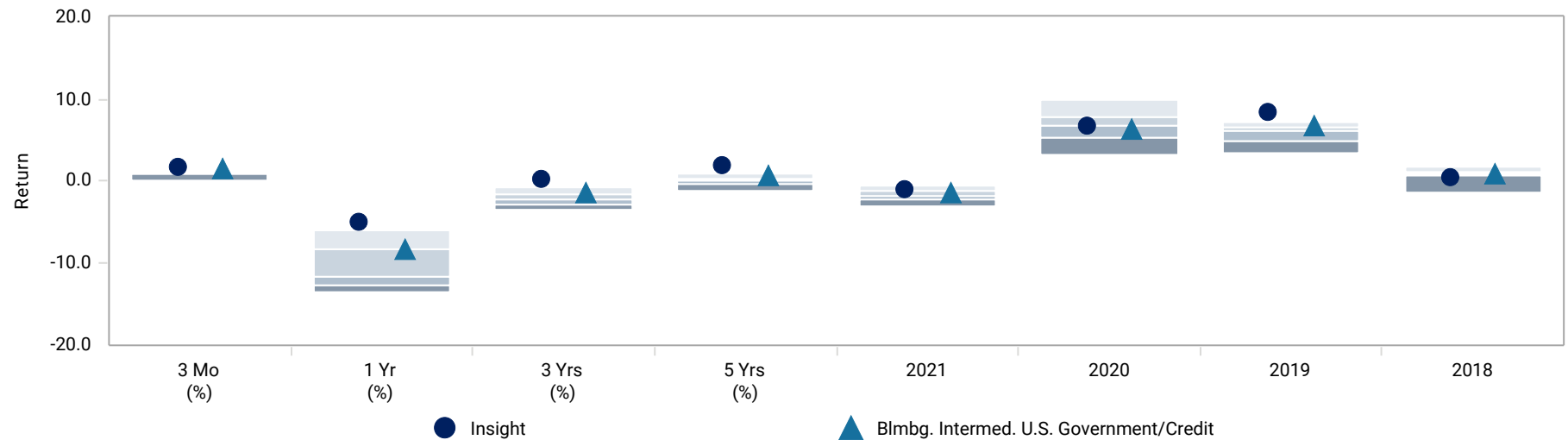
| | Return | Standard Deviation | Sharpe Ratio |
|---------------------------------------|-----------|--------------------|--------------|
| Fidelity Int'l Growth | 1.6 (41) | 20.4 (43) | 0.1 (41) |
| MSCI AC World ex USA Growth (Net) | -0.4 (71) | 19.3 (14) | 0.0 (77) |
| eV ACWI ex-US Large Cap Equity Median | 0.8 | 20.8 | 0.1 |
| Population | 111 | 111 | 111 |

5 Years Ending December 31, 2022

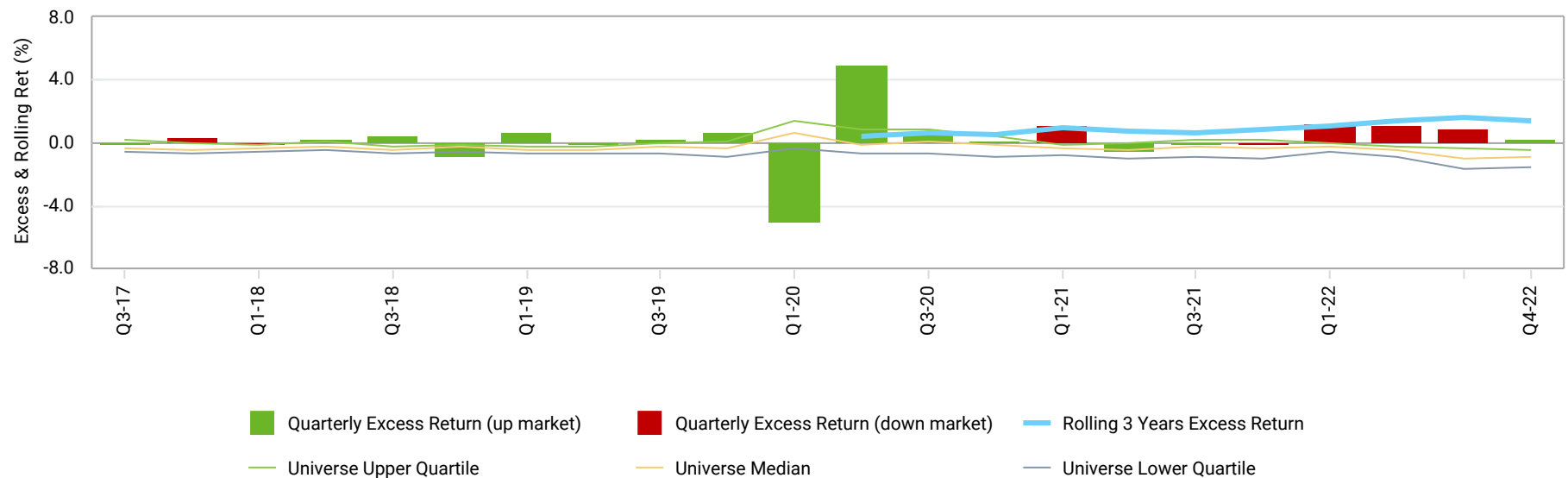
| | Return | Standard Deviation | Sharpe Ratio |
|---------------------------------------|----------|--------------------|--------------|
| Fidelity Int'l Growth | 1.9 (43) | 17.7 (30) | 0.1 (44) |
| MSCI AC World ex USA Growth (Net) | 1.5 (57) | 17.1 (16) | 0.1 (63) |
| eV ACWI ex-US Large Cap Equity Median | 1.7 | 18.4 | 0.1 |
| Population | 100 | 100 | 100 |

DOMESTIC FIXED INCOME

eV US Government Fixed Inc (net of fees)

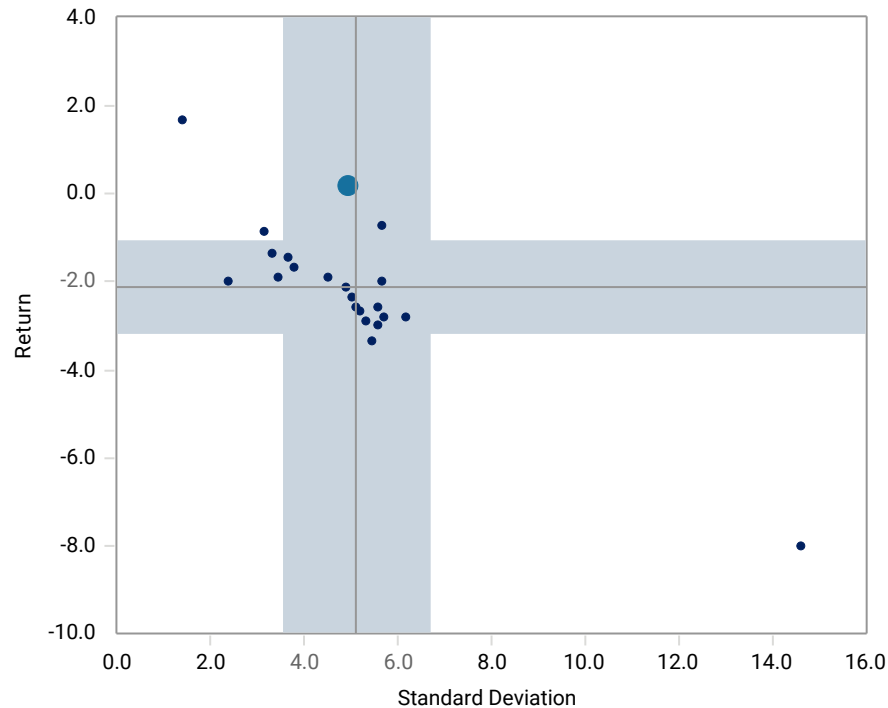


Quarter Excess Return with a Rolling 3 Years Excess Return over Since Inception Ending December 31, 2022



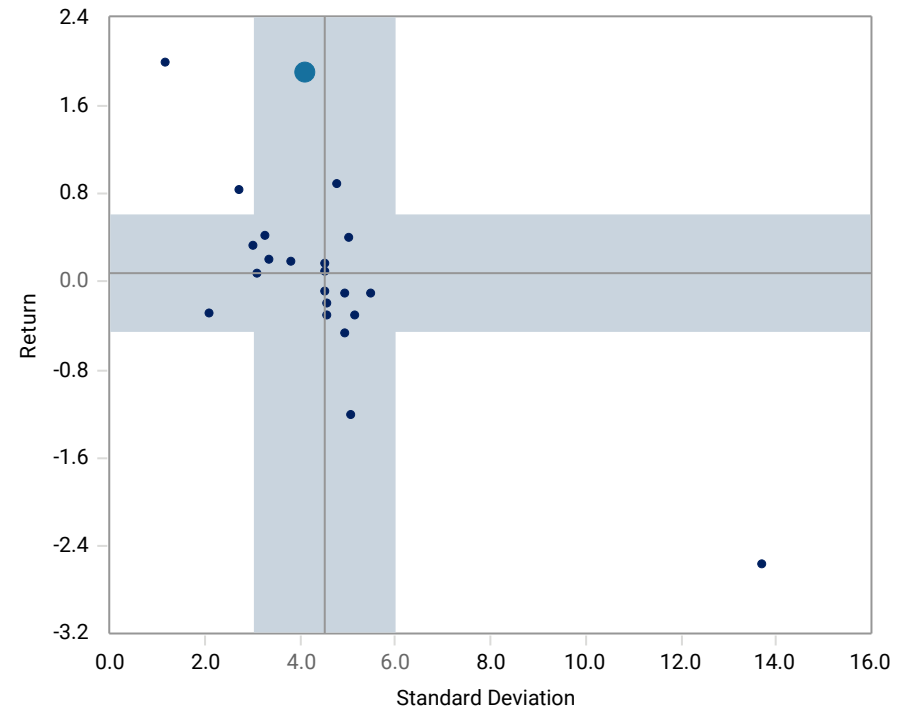
RISK VS. RETURN

3 Years Ending December 31, 2022



● eV US Government Fixed Inc ● Insight

5 Years Ending December 31, 2022



● eV US Government Fixed Inc ● Insight

3 Years Ending December 31, 2022

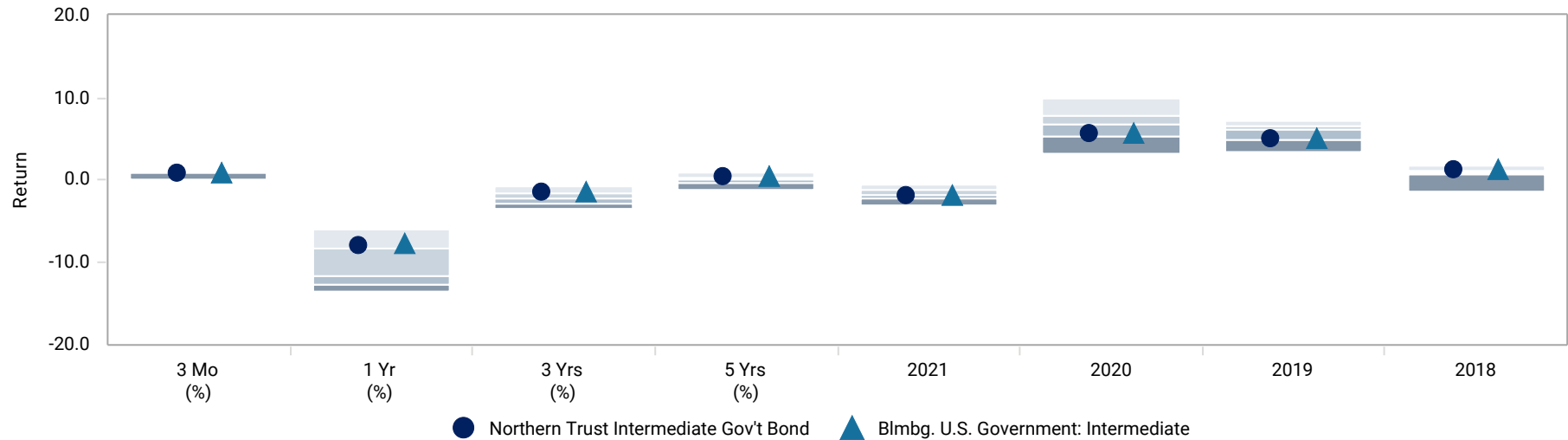
| | Return | Standard Deviation | Sharpe Ratio |
|---|-----------|--------------------|--------------|
| Insight | 0.2 (4) | 5.0 (41) | -0.1 (5) |
| Blmbg. Intermed. U.S. Government/Credit | -1.3 (15) | 3.9 (30) | -0.5 (16) |
| eV US Government Fixed Inc Median | -2.1 | 5.1 | -0.6 |
| Population | 21 | 21 | 21 |

5 Years Ending December 31, 2022

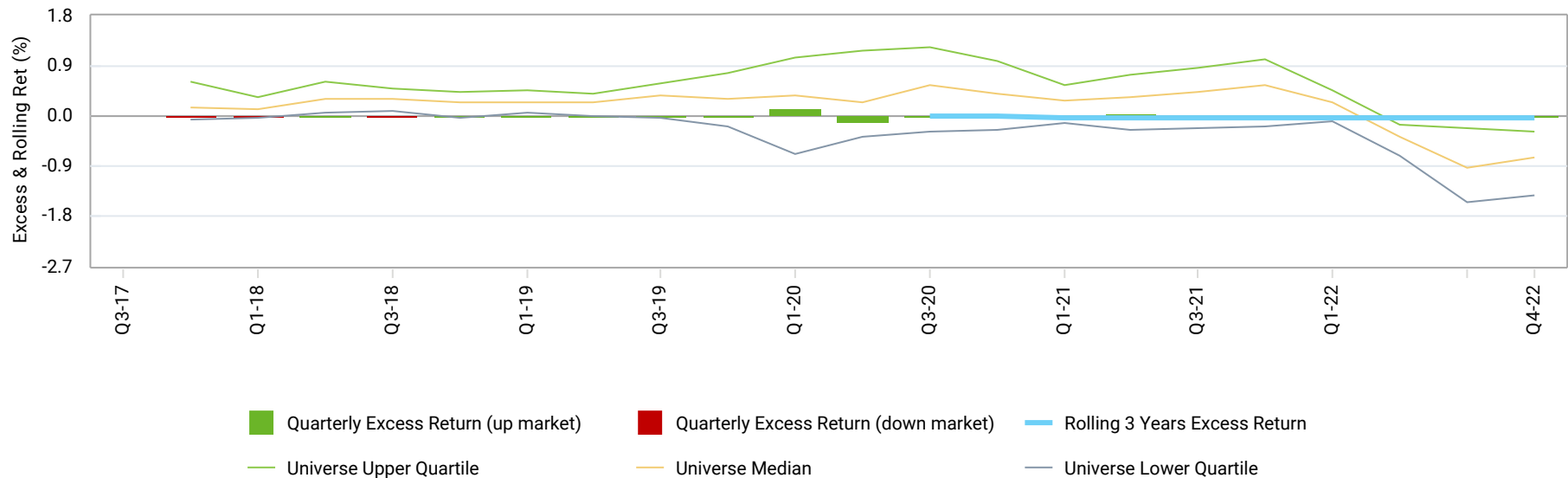
| | Return | Standard Deviation | Sharpe Ratio |
|---|----------|--------------------|--------------|
| Insight | 1.9 (1) | 4.1 (37) | 0.2 (4) |
| Blmbg. Intermed. U.S. Government/Credit | 0.7 (12) | 3.4 (30) | -0.1 (10) |
| eV US Government Fixed Inc Median | 0.1 | 4.5 | -0.3 |
| Population | 21 | 21 | 21 |

NORTHERN TRUST INTERMEDIATE GOV'T BOND

eV US Government Fixed Inc (net of fees)

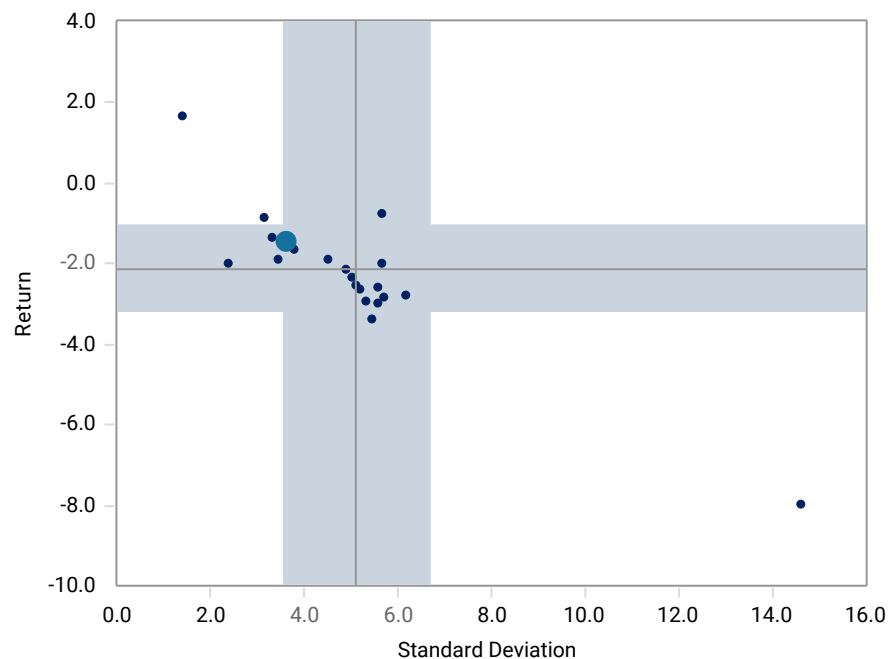


Quarter Excess Return with a Rolling 3 Years Excess Return over Since Inception Ending December 31, 2022



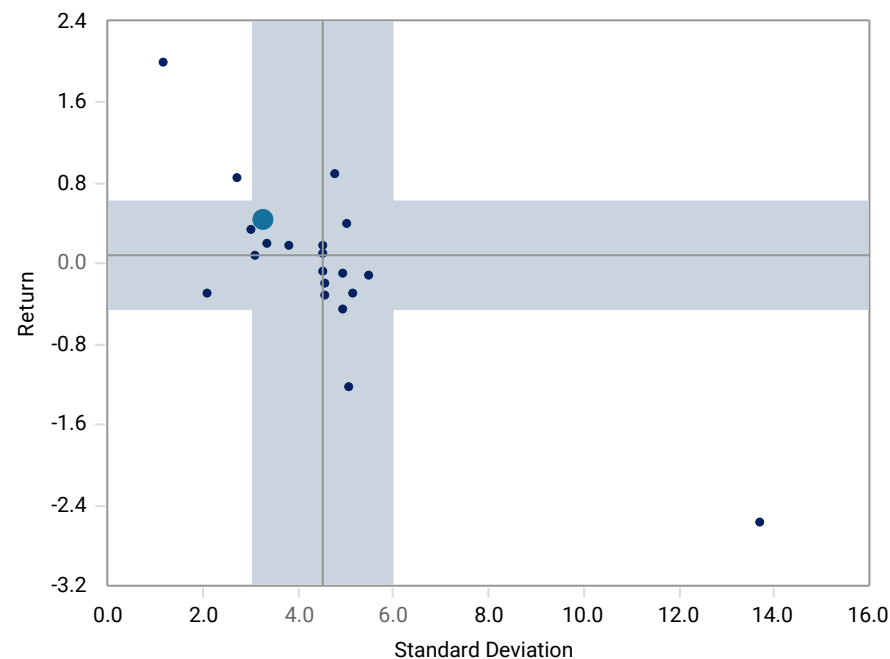
RISK VS. RETURN

3 Years Ending December 31, 2022



● eV US Government Fixed Inc
● Northern Trust Intermediate Gov't Bond

5 Years Ending December 31, 2022



● eV US Government Fixed Inc
● Northern Trust Intermediate Gov't Bond

3 Years Ending December 31, 2022

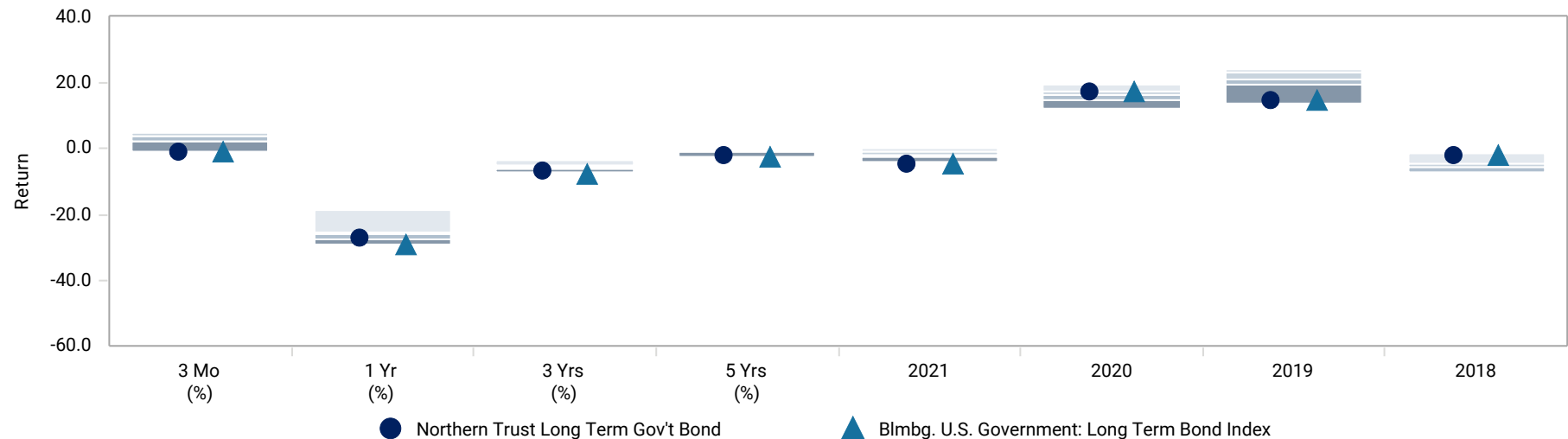
| | Return | Standard Deviation | Sharpe Ratio |
|--|-----------|--------------------|--------------|
| Northern Trust Intermediate Gov't Bond | -1.4 (20) | 3.6 (24) | -0.6 (48) |
| Blmbg. U.S. Government: Intermediate | -1.4 (17) | 3.6 (24) | -0.6 (46) |
| eV US Government Fixed Inc Median | -2.1 | 5.1 | -0.6 |
| Population | 21 | 21 | 21 |

5 Years Ending December 31, 2022

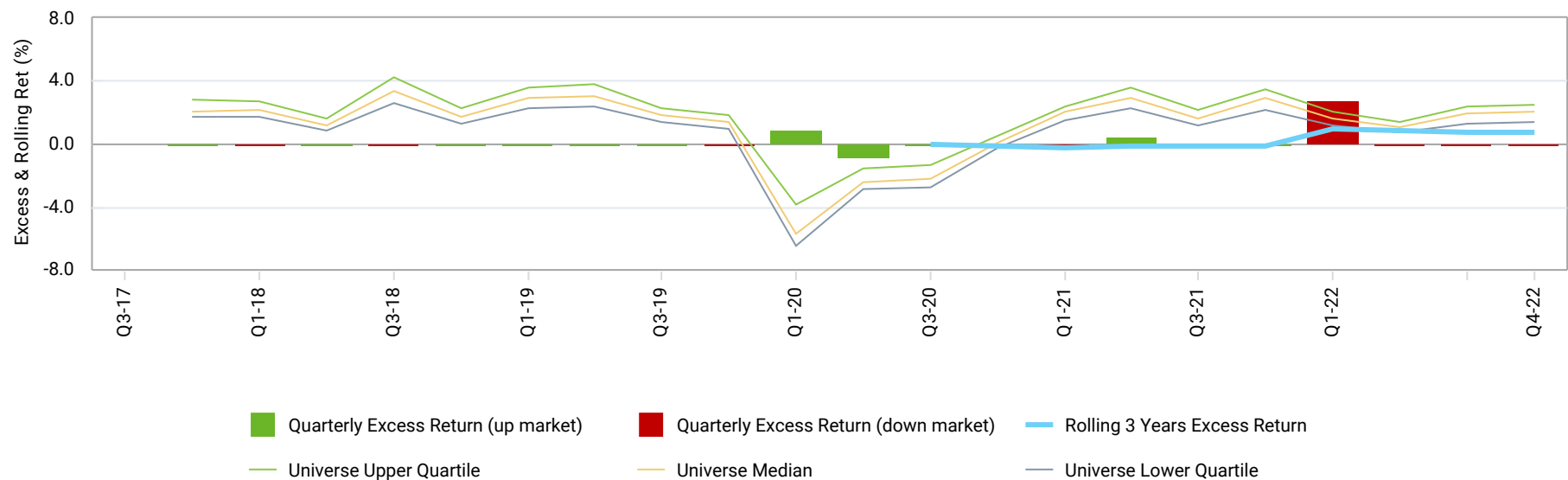
| | Return | Standard Deviation | Sharpe Ratio |
|--|----------|--------------------|--------------|
| Northern Trust Intermediate Gov't Bond | 0.4 (15) | 3.3 (24) | -0.2 (41) |
| Blmbg. U.S. Government: Intermediate | 0.5 (15) | 3.2 (23) | -0.2 (35) |
| eV US Government Fixed Inc Median | 0.1 | 4.5 | -0.3 |
| Population | 21 | 21 | 21 |

NORTHERN TRUST LONG TERM GOV'T BOND

eV US Long Duration Fixed Inc (net of fees)

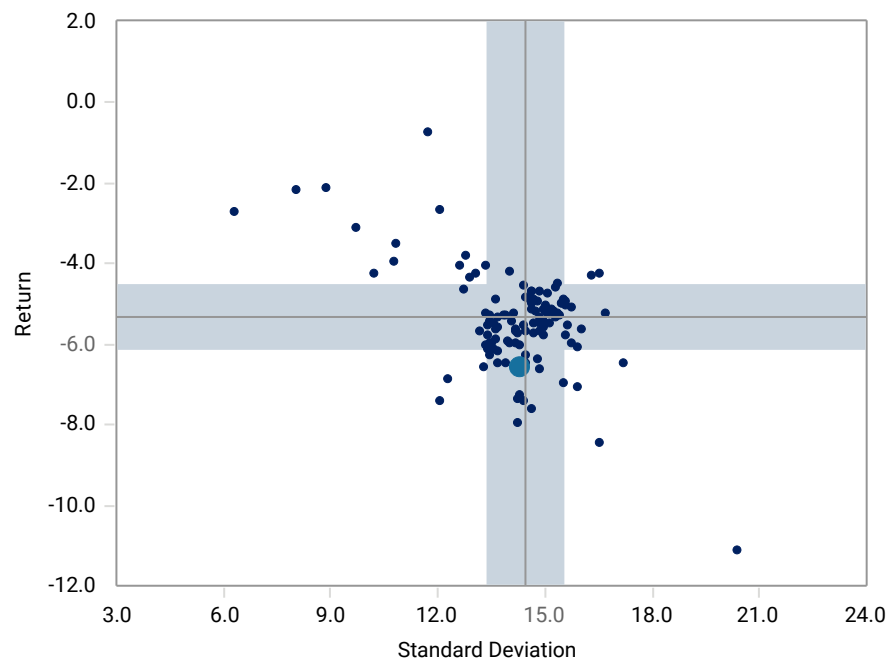


Quarter Excess Return with a Rolling 3 Years Excess Return over Since Inception Ending December 31, 2022



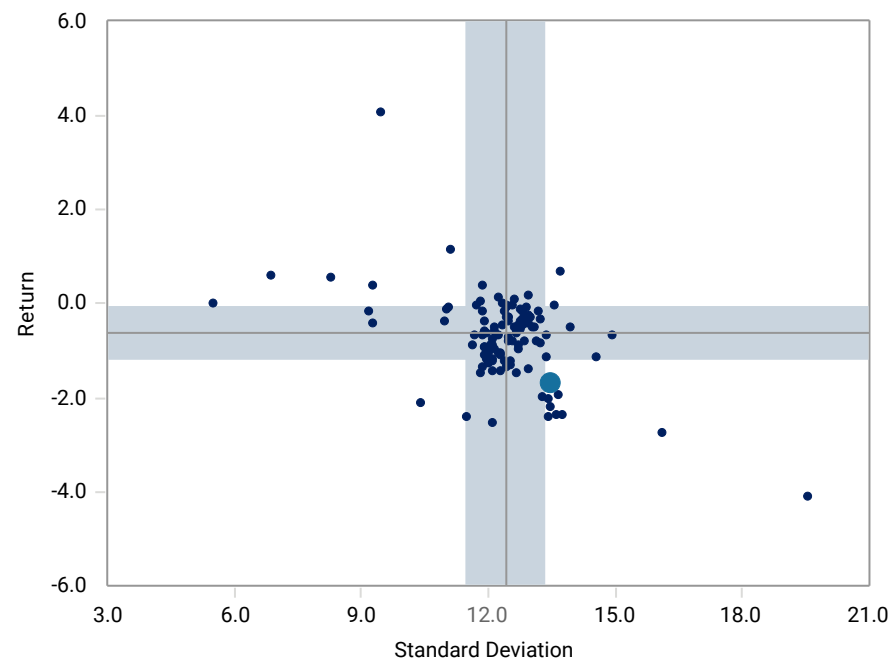
RISK VS. RETURN

3 Years Ending December 31, 2022



● eV US Long Duration Fixed Inc
● Northern Trust Long Term Gov't Bond

5 Years Ending December 31, 2022



● eV US Long Duration Fixed Inc
● Northern Trust Long Term Gov't Bond

3 Years Ending December 31, 2022

| | Return | Standard Deviation | Sharpe Ratio |
|---|-----------|--------------------|--------------|
| Northern Trust Long Term Gov't Bond | -6.6 (91) | 14.3 (46) | -0.5 (89) |
| <i>Blmbg. U.S. Government: Long Term Bond Index</i> | -7.4 (96) | 14.3 (45) | -0.5 (97) |
| <i>eV US Long Duration Fixed Inc Median</i> | -5.3 | 14.4 | -0.4 |
| Population | 121 | 121 | 121 |

5 Years Ending December 31, 2022

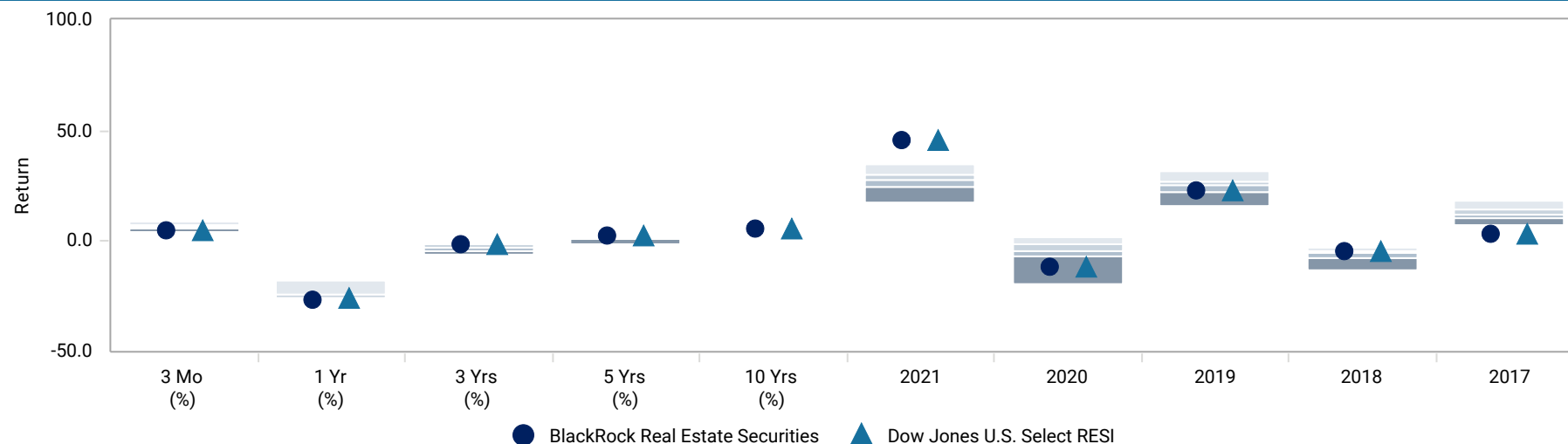
| | Return | Standard Deviation | Sharpe Ratio |
|---|-----------|--------------------|--------------|
| Northern Trust Long Term Gov't Bond | -1.7 (90) | 13.5 (91) | -0.2 (85) |
| <i>Blmbg. U.S. Government: Long Term Bond Index</i> | -2.2 (94) | 13.5 (91) | -0.2 (94) |
| <i>eV US Long Duration Fixed Inc Median</i> | -0.6 | 12.4 | -0.1 |
| Population | 116 | 116 | 116 |

REAL ESTATE

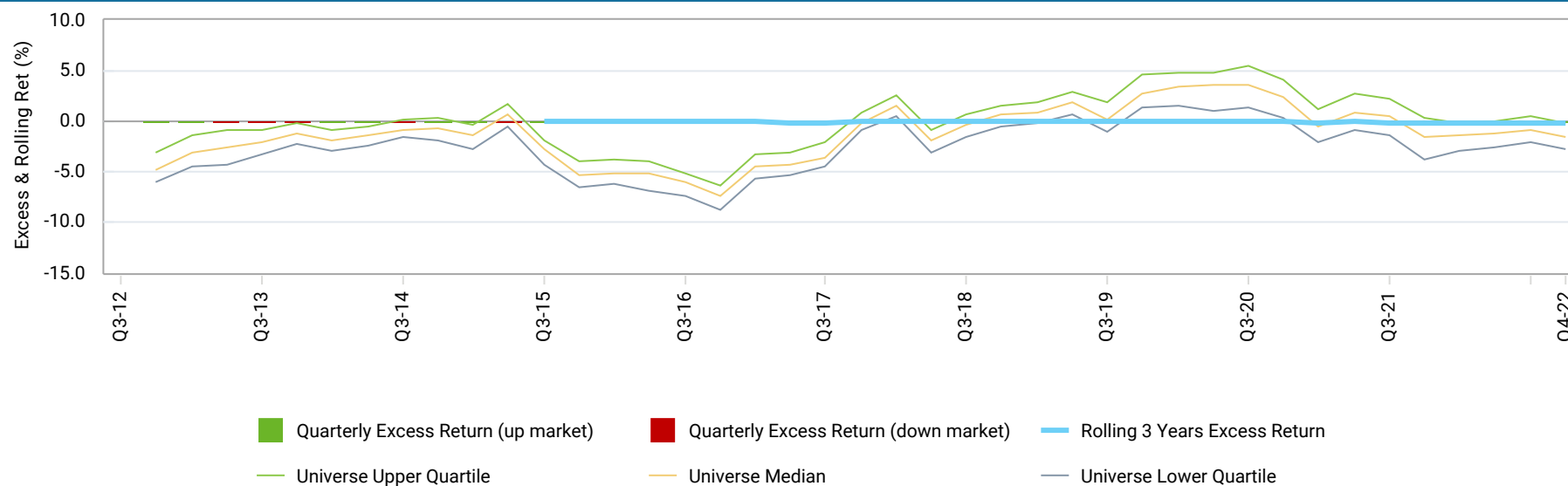


BLACKROCK REAL ESTATE SECURITIES

eV Global REIT (net of fees)

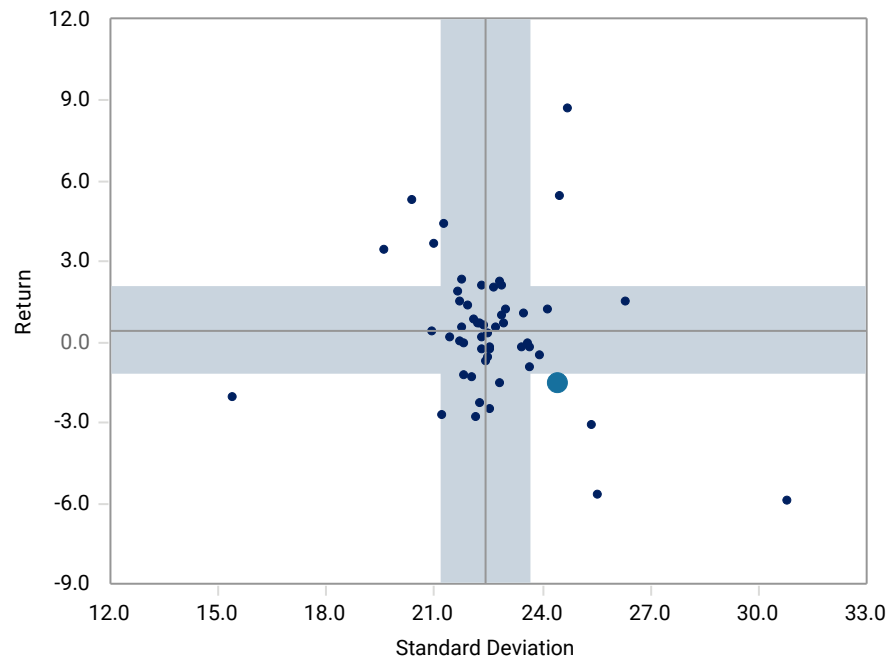


Quarter Excess Return with a Rolling 3 Years Excess Return over Since Inception Ending December 31, 2022



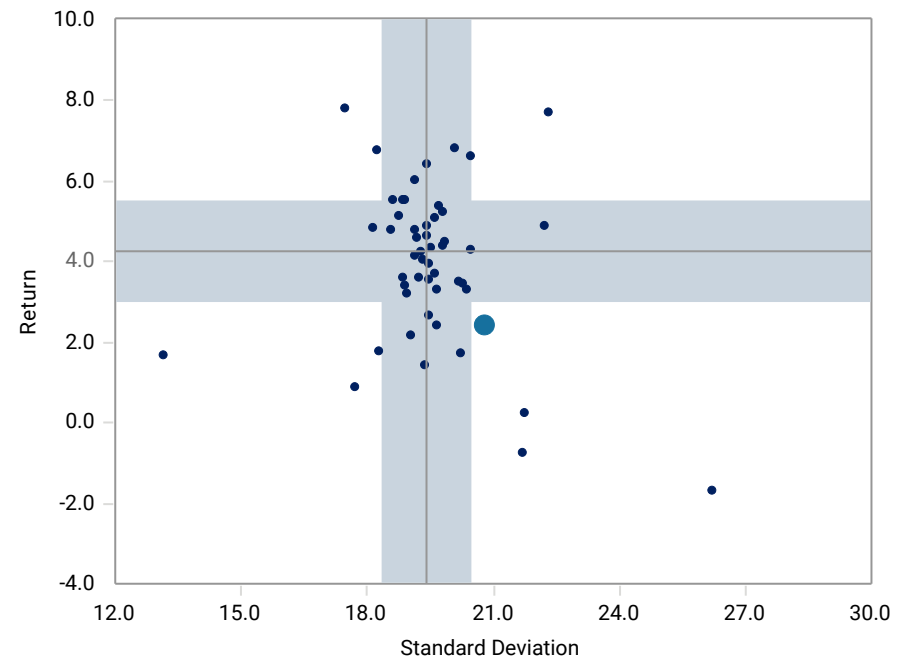
RISK VS. RETURN

3 Years Ending December 31, 2022



● eV US REIT
● BlackRock Real Estate Securities

5 Years Ending December 31, 2022



● eV US REIT
● BlackRock Real Estate Securities

3 Years Ending December 31, 2022

| | Return | Standard Deviation | Sharpe Ratio |
|----------------------------------|-----------|--------------------|--------------|
| BlackRock Real Estate Securities | -1.5 (85) | 24.4 (89) | 0.0 (81) |
| Dow Jones U.S. Select RESI | -1.4 (84) | 24.4 (90) | 0.0 (81) |
| eV US REIT Median | 0.5 | 22.4 | 0.1 |
| Population | 53 | 53 | 53 |

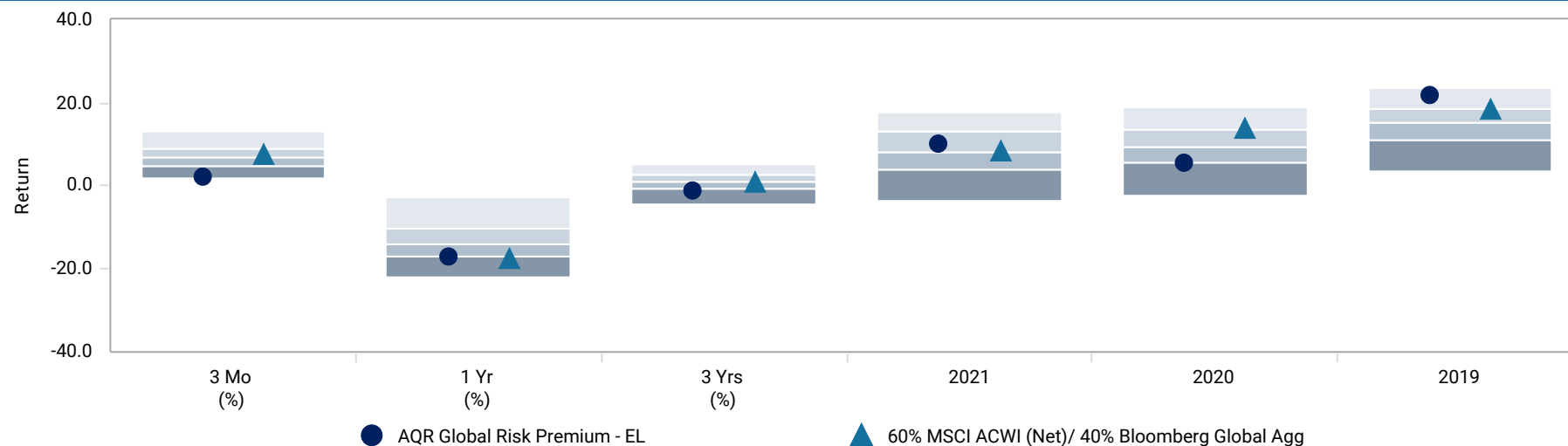
5 Years Ending December 31, 2022

| | Return | Standard Deviation | Sharpe Ratio |
|----------------------------------|----------|--------------------|--------------|
| BlackRock Real Estate Securities | 2.4 (82) | 20.8 (90) | 0.2 (82) |
| Dow Jones U.S. Select RESI | 2.5 (82) | 20.8 (90) | 0.2 (81) |
| eV US REIT Median | 4.3 | 19.4 | 0.2 |
| Population | 50 | 50 | 50 |

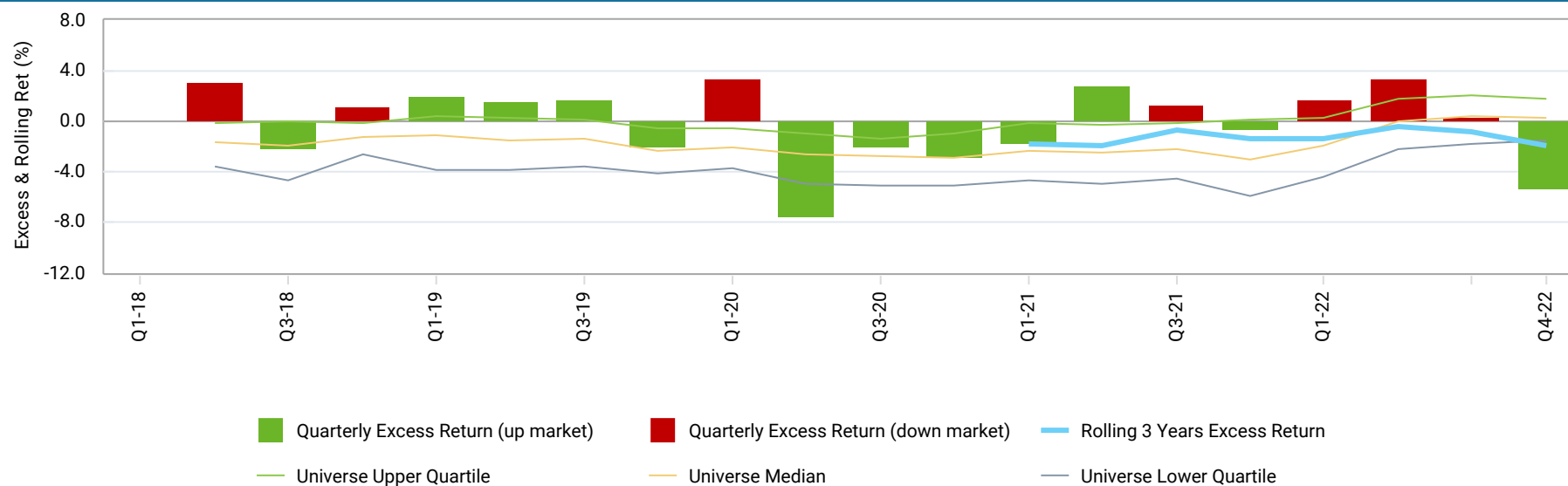
RISK PARITY

AQR GLOBAL RISK PREMIUM - EL

eV Global TAA (net of fees)

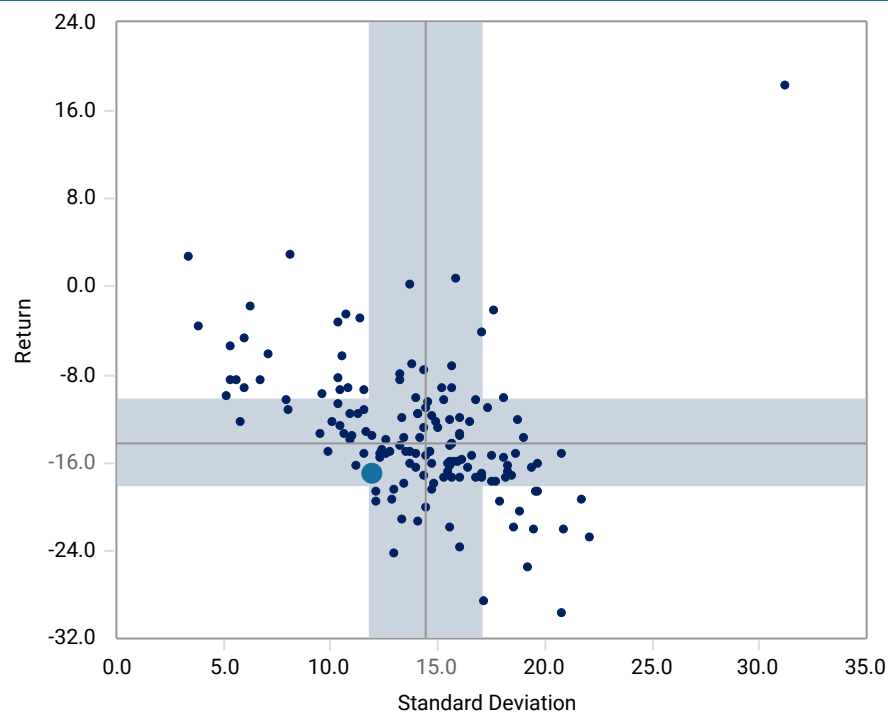


Quarter Excess Return with a Rolling 3 Years Excess Return over Since Inception Ending December 31, 2022



RISK VS. RETURN

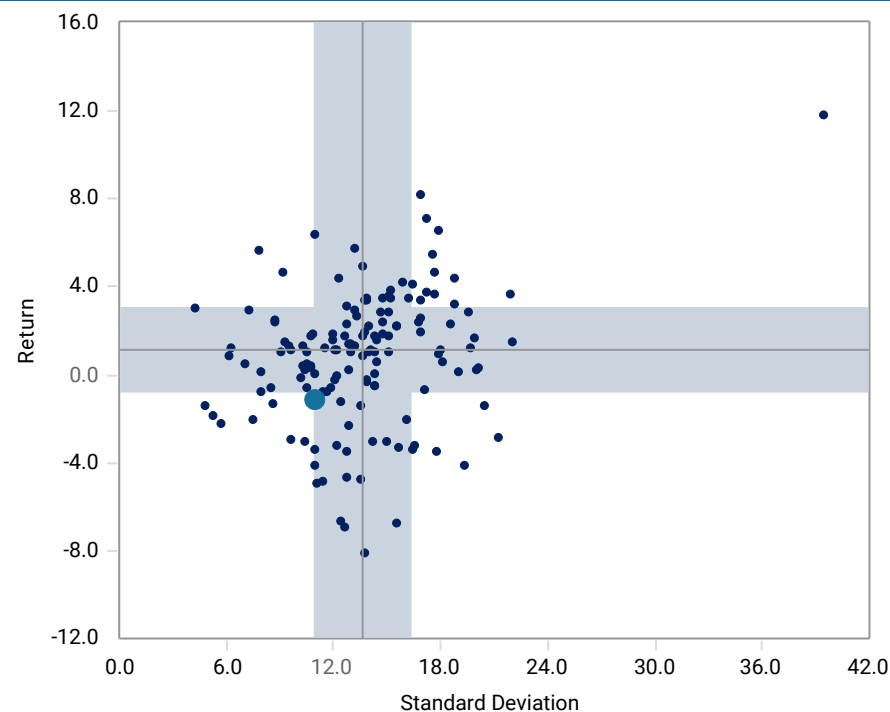
1 Year Ending December 31, 2022



● eV Global TAA

● AQR Global Risk Premium - EL

3 Years Ending December 31, 2022



● eV Global TAA

● AQR Global Risk Premium - EL

1 Year Ending December 31, 2022

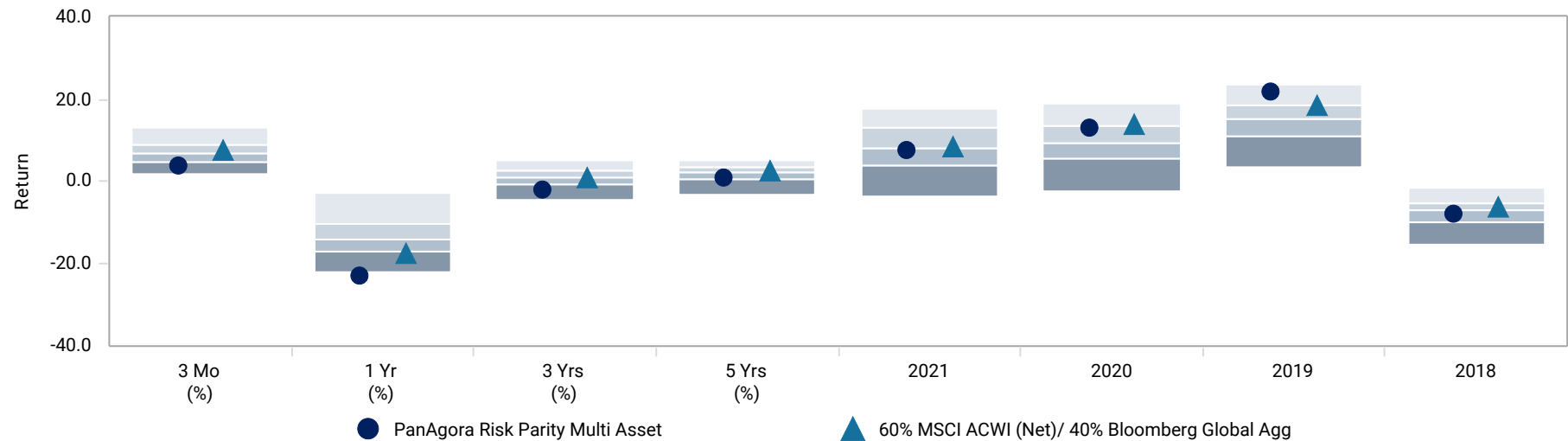
| | Return | Standard Deviation | Sharpe Ratio |
|---|------------|--------------------|--------------|
| AQR Global Risk Premium - EL | -16.9 (76) | 11.9 (26) | -1.6 (88) |
| 60% MSCI ACWI (Net)/ 40% Bloomberg Global Agg | -17.3 (81) | 16.2 (73) | -1.2 (60) |
| eV Global TAA Median | -14.2 | 14.4 | -1.1 |
| Population | 147 | 147 | 147 |

3 Years Ending December 31, 2022

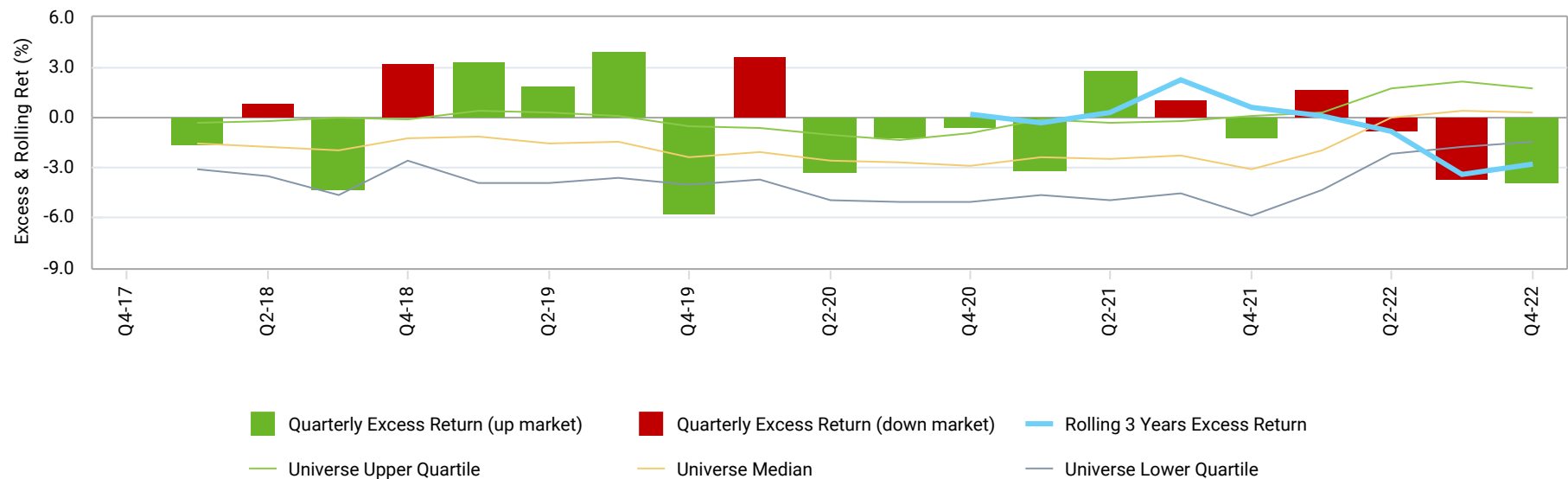
| | Return | Standard Deviation | Sharpe Ratio |
|---|-----------|--------------------|--------------|
| AQR Global Risk Premium - EL | -1.1 (79) | 11.0 (24) | -0.1 (81) |
| 60% MSCI ACWI (Net)/ 40% Bloomberg Global Agg | 0.8 (57) | 14.2 (59) | 0.1 (58) |
| eV Global TAA Median | 1.1 | 13.6 | 0.1 |
| Population | 145 | 145 | 145 |

PANAGORA RISK PARITY MULTI ASSET

eV Global TAA (net of fees)

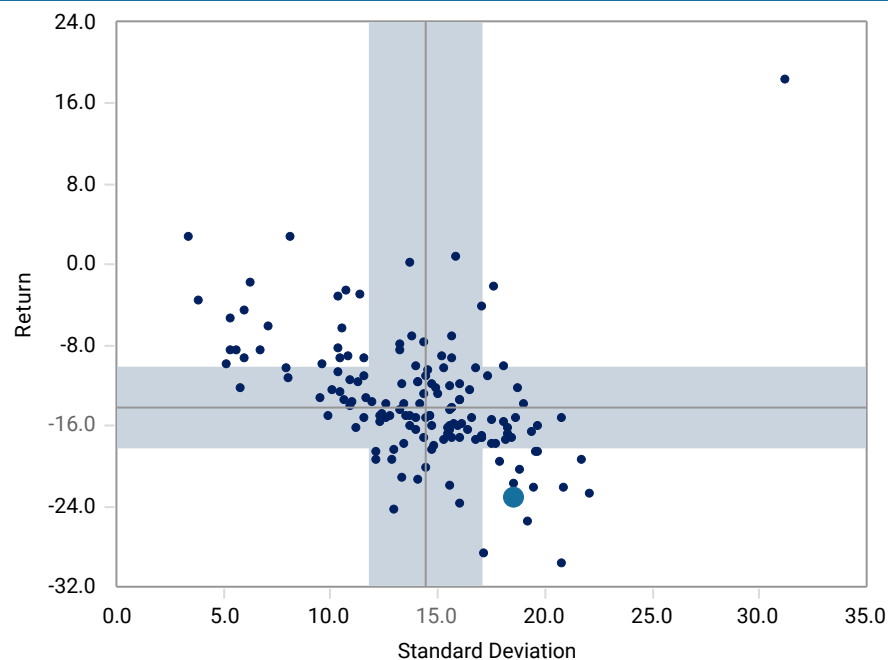


Quarter Excess Return with a Rolling 3 Years Excess Return over Since Inception Ending December 31, 2022



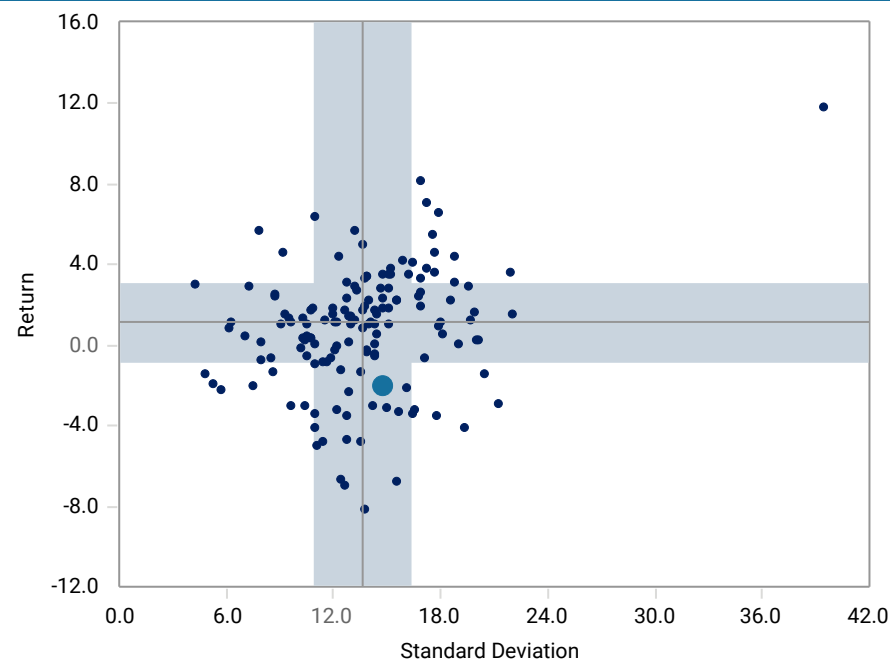
RISK VS. RETURN

1 Year Ending December 31, 2022



● eV Global TAA
● PanAgora Risk Parity Multi Asset

3 Years Ending December 31, 2022



● eV Global TAA
● PanAgora Risk Parity Multi Asset

1 Year Ending December 31, 2022

| | Return | Standard Deviation | Sharpe Ratio |
|---|------------|--------------------|--------------|
| PanAgora Risk Parity Multi Asset | -23.0 (97) | 18.5 (89) | -1.4 (79) |
| 60% MSCI ACWI (Net)/ 40% Bloomberg Global Agg | -17.3 (81) | 16.2 (73) | -1.2 (60) |
| eV Global TAA Median | -14.2 | 14.4 | -1.1 |
| Population | 147 | 147 | 147 |

3 Years Ending December 31, 2022

| | Return | Standard Deviation | Sharpe Ratio |
|---|-----------|--------------------|--------------|
| PanAgora Risk Parity Multi Asset | -2.0 (83) | 14.7 (65) | -0.1 (81) |
| 60% MSCI ACWI (Net)/ 40% Bloomberg Global Agg | 0.8 (57) | 14.2 (59) | 0.1 (58) |
| eV Global TAA Median | 1.1 | 13.6 | 0.1 |
| Population | 145 | 145 | 145 |

APPENDIX

NOTES

- All performance is shown net of investment management fees.
- Performance history is provided by Verus through June 2020. As of July 1, 2020 performance is calculated and reported by NEPC.
- Policy Index history:
 - **Inception - 6/30/2017:** 14.4% Russell 1000 Value, 11.3% Russell 1000 Growth, 4.8% S&P 500, 4% Russell 2000 Value, 3.7% Russell 2000 Growth, 18% MSCI ACWI ex USA Gross, 29.8%Bloomberg US Aggregate TR, 3.5% DJ US Select RESI TR USD, 7.5% 9% Annual, 3% CPI + 4%
 - **7/1/2017 - 8/31/2018:** 18.5% Russell 1000, 5.5% Russell 2000, 24% MSCI ACWI ex USA Gross, 19% Bloomberg US Govt/Credit 1-3 Yr. TR, 1% FTSE T-Bill 1 Month TR, 3% Bloomberg US Treasury 7-10 Yr TR, 7.7% NCREIF Property Index, 1.7% NCREIF Property Index +2%, 0.6% CPI + 5%, 5% Bloomberg US High Yield + 2%, 14% 60% MSCI ACWI Net/40% Bloomberg Global Aggregate
 - **9/1/2018 - 5/30/2019:** 10% Russell 1000, 3% Russell 2000, 6% Russell 3000 +3%, 27% MSCI ACWI ex USA Gross, 20% Bloomberg US Govt/Credit 1-3 Yr. TR, 1% FTSE T-Bill 1 Month TR, 3%Bloomberg US Treasury 7-10 Yr TR, 5% NCREIF Property Index, 5% NCREIF Property Index +2%, 1% CPI + 5%, 6% S&P/LSTA Leveraged Loan Index+2%, 13% 60% MSCI ACWI Net/40% Bloomberg Global Aggregate
 - **6/1/2019 - 6/30/2020:** 14% Russell 1000, 3% Russell 2000, 6% Russell 3000 + 3%, 23% MSCI ACWI ex-USA, 19% Bloomberg US Gov't/Credit 1-3 Yr, 1% Citi 1 Month T-Bills, 3% Bloomberg US Treasury 7-10 Yr, 5% NCREIF Property, 5% NCREIF Property +2%, 2% CPI +5%, 6% S&P/LSTA Leveraged Loan Index + 2%, 13% 60% MSCI ACWI / 40% Bloomberg Global Aggregate
 - **7/1/2020 - 12/31/2020:** 14% Russell 1000, 3% Russell 2000, 6% Russell 3000 + 3%, 23% MSCI ACWI ex-USA, 8% Bloomberg US Gov't/Credit 1-3 Yr, 1% Citi 1 Month T-Bills, 3% Bloomberg US Treasury 7-10 Yr, 5% NCREIF Property, 5% NCREIF Property +2%, 2% CPI +5%, 6% S&P/LSTA Leveraged Loan Index + 2%, 13% 60% MSCI ACWI / 40% Bloomberg Global Aggregate, 11%Bloomberg US Intermediate.
 - **1/1/2021 - 06/30/2021:** 16% Russell 1000, 3.5% Russell 2000, 6% Russell 3000 + 3%, 23% MSCI ACWI ex-USA, 8% Bloomberg US Gov't/Credit 1-3 Yr, 1% Citi 1 Month T-Bills, 5% Bloomberg US Treasury 7-10 Yr, 6% NCREIF Property, 5% NCREIF Property +2%, 2% CPI +5%, 4.5% S&P/LSTA Leveraged Loan Index + 2%, 13% 60% MSCI ACWI / 40% Bloomberg Global Aggregate, 7%Bloomberg US Intermediate.
 - **07/01/2021 - Present:** 16% Russell 1000, 4% Russell 2000, 5% Russell 3000 + 3%, 20% MSCI ACWI ex USA Gross, 6.5% NCREIF Property Index, 6% NCREIF Property Index + 2%, 7.5% CPI + 5% (Unadjusted), 8% S&P/LSTA Leveraged Loan Index +2%, 6% Bloomberg US Treasury 7-10 Yr TR, 10% 60% MSCI ACWI (Net)/ 40% Bloomberg Global Agg, 3% 30 Day T-Bill + 4%, 1% FTSE T-Bill 1 Month TR, 7% Bloomberg US Govt/Credit Int TR.
- Starting July 1, 2020, the small Capital Prospects transition cash balance is moved from the Cash composite to the Capital Prospects account. Historical performance for Capital Prospects, US Small, US Equities, Growth Sub-Portfolio, Cash, and Liquidity Sub-Portfolio prior to July 1, 2020 reflects performance of these composites before this change.
- Private Equity investments are valued one quarter lagged and adjusted for capital calls and distributions between quarter-end months.
- Value-Add Real Estate managers are valued quarterly adjusted for current cash flows.

DISCLAIMERS & DISCLOSURES

Past performance is no guarantee of future results.

Returns for pooled funds, e.g. mutual funds and collective investment trusts, are collected from third parties; they are not generally calculated by NEPC. Returns for separate accounts, with some exceptions, are calculated by NEPC. Returns are reported net of manager fees unless otherwise noted.

A “since inception” return, if reported, begins with the first full month after funding, although actual inception dates (e.g. the middle of a month) and the timing of cash flows are taken into account in Composite return calculations.

NEPC’s preferred data source is the plan’s custodian bank or record-keeper. If data cannot be obtained from one of the preferred data sources, data provided by investment managers may be used. Information on market indices and security characteristics is received from additional providers. While NEPC has exercised reasonable professional care in preparing this report, we cannot guarantee the accuracy of all source information contained within. In addition, some index returns displayed in this report or used in calculation of a policy index, allocation index or other custom benchmark may be preliminary and subject to change.

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

The opinions presented herein represent the good faith views of NEPC as of the date of this presentation and are subject to change at any time. Neither fund performance nor universe rankings contained in this report should be considered a recommendation by NEPC.

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Source of private fund performance benchmark data: Cambridge Associates, via Refinitiv





ASSET CLASS ASSUMPTIONS UPDATE

STANISLAUS COUNTY EMPLOYEES'
RETIREMENT ASSOCIATION

FEBRUARY 28, 2023

Dan Hennessy, CFA, CAIA, Senior Consultant
Sam Austin, Partner
Leah Tongco, Consulting Analyst





ASSET CLASS ASSUMPTIONS

| | |
|----------------------|----|
| ▪ Introduction | 3 |
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| ▪ Real Assets | 29 |
| ▪ Alternative Assets | 35 |
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INTRODUCTION

ASSET CLASS ASSUMPTIONS

OVERVIEW

- **NEPC's capital market assumptions are available each quarter and reflect December 31, 2022 market data**
- **A tighter policy backdrop weighed on broad market performance, but higher interest rates have lifted forward-looking return expectations**
- **The interest rate reset has increased yields in public fixed income and lowered valuations in public equities, both of which are positive contributors to forward returns in each asset class**
- **We encourage investors to hold a dedicated safe-haven fixed income allocation to be a source of portfolio liquidity and downside protection**
- **NEPC's expectation for inflation is elevated over the near-term, but the long-term outlook reflects a more subdued inflation environment**

ASSET CLASS ASSUMPTIONS

DEVELOPMENT

- **Assumptions are published for over 70 asset classes**
 - NEPC publishes return forecasts for 10-year and 30-year periods
- **Market data as of 12/31/2022**
 - Assumptions are developed with NEPC valuations models and rely on a building block approach
- **The 10-year return outlook is intended to support strategic asset allocation analysis**
- **30-year return assumptions are used for actuarial inputs and long-term planning**

Asset Allocation Process

1. Finalize list of new asset classes
2. Calculate asset class volatility and correlation assumptions
3. Set model terminal values, growth, and inflation inputs
4. Model data updated at quarter-end
5. Review model outputs and produce asset class return assumptions
6. Assumptions released on the 15th calendar day after quarter-end

ASSET CLASS BUILDING BLOCKS

METHODOLOGY

- **Asset models reflect current and forecasted market data to inform expected returns**
- **Systematic inputs are paired with a long-term trend to terminal values**
- **Model inputs are aggregated to capture key return drivers for each asset class**
- **Building block inputs will differ across asset class categories**

Illiquidity Premium

Valuation

Inflation

Real Growth

Yield

CHANGE IN ASSET CLASS EXPECTATIONS

| | Asset Class | 12/31/22 10-Year Return | 12/31/21 10-Year Return | Delta |
|--------------|--------------------------------------|----------------------------|----------------------------|-------|
| | Cash | 4.0% | 1.5% | +2.5% |
| | U.S. Inflation | 2.5% | 2.4% | +0.1% |
| Equity | U.S. Large-Cap Equity | 5.4% | 4.3% | +1.1% |
| | Non-U.S. Developed Equity | 5.6% | 5.2% | +0.4% |
| | Emerging Market Equity | 9.6% | 8.3% | +1.3% |
| | Global Equity* | 6.3% | 5.4% | +0.9% |
| | Private Equity* | 9.2% | 9.0% | +0.2% |
| Fixed Income | US Treasury Bond | 4.2% | 1.5% | +2.7% |
| | US Municipal Bond | 4.4% | 1.6% | +2.8% |
| | US Aggregate Bond* | 4.8% | 2.0% | +2.8% |
| | US TIPS | 4.4% | 1.4% | +3.0% |
| | US High Yield Corporate Bond | 7.1% | 3.2% | +3.9% |
| | Private Debt* | 8.8% | 6.6% | +2.2% |
| Real Assets | Commodity Futures | 4.2% | 0.4% | +3.8% |
| | REIT | 6.2% | 4.5% | +1.7% |
| | Gold | 5.1% | 3.3% | +1.8% |
| | Real Estate - Core | 4.0% | 4.7% | -0.7% |
| | Private Real Assets - Infrastructure | 6.6% | 5.3% | +1.3% |
| Multi-Asset | 60% S&P 500 & 40% U.S. Aggregate | 5.4% | 3.7% | +1.7% |
| | 60% MSCI ACWI & 40% U.S. Agg. | 6.0% | 4.4% | +1.6% |
| | Liquid Absolute Return* | 6.5% | 4.2% | +2.3% |

*Calculated as a blend of other asset classes

STANCERA ASSET ALLOCATION EXPECTATIONS

| | Current Policy |
|--|----------------|
| Cash | 1.0% |
| Cashflow-Matched Bonds | 7.0% |
| Total Liquidity Sub-Portfolio | 8.0% |
| US Large-Cap Equity | 16.0% |
| US Small/Mid-Cap Equity | 4.0% |
| Non-US Public Equity | 20.0% |
| Private Equity | 5.0% |
| Private Credit | 8.0% |
| Core Real Estate | 6.5% |
| Value-Add Real Estate | 6.0% |
| Private Infrastructure | 7.5% |
| Total Growth Sub-Portfolio | 73.0% |
| Risk Parity | 10.0% |
| Liquid Absolute Return Strategies | 3.0% |
| US Treasury Bond | 6.0% |
| Total Risk-Diversifying Sub-Portfolio | 19.0% |

| | 2021 Assumptions | 2022 Assumptions |
|---------------------------------|------------------|------------------|
| 10-Year Expected Return | 5.50% | 6.70% |
| 30-Year Expected Return | 6.75% | 7.47% |
| Standard Deviation (Volatility) | 12.00% | 12.41% |

| | | |
|--|-----|-----|
| Probability of 10-Year Return Over 6.75% | 37% | 50% |
| Probability of 30-Year Return Over 6.75% | 50% | 62% |
| Probability of 1-Year Return Under 0% | 32% | 30% |
| Probability of 5-Year Return Under 0% | 15% | 11% |

RISK VERSUS RETURN BY ASSET CLASS

EXPECTED IMPACT FROM ADDING 5% TO EXISTING CLASSES



MACROECONOMIC

INFLATION ASSUMPTIONS

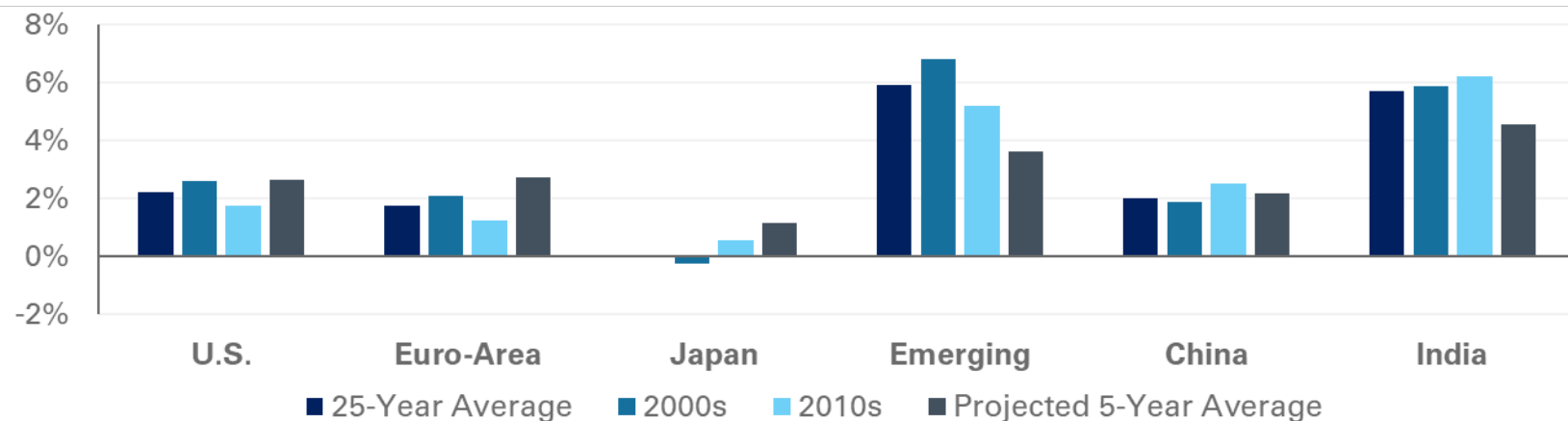
OVERVIEW

- **Inflation is a key building block to develop asset class assumptions**
- **Inflation assumptions are model-driven and informed by multiple inputs for both the U.S. and global assets**
 - Includes forecasts from international organizations (e.g. IMF), local consumer and producer price indices, global interest rate curves, and break-even inflation expectations
- **NEPC's U.S. inflation expectations reflect stickier inflation over the near-term, but a stable inflation outlook over the long-term**
 - We anticipate continued volatility among inflation measures as market-based inflation expectations diverge from current consumer inflation metrics

| Region | 10-Year Inflation Assumption | 30-Year Inflation Assumption |
|---------------|------------------------------|------------------------------|
| United States | 2.5% | 2.6% |

GLOBAL INFLATION

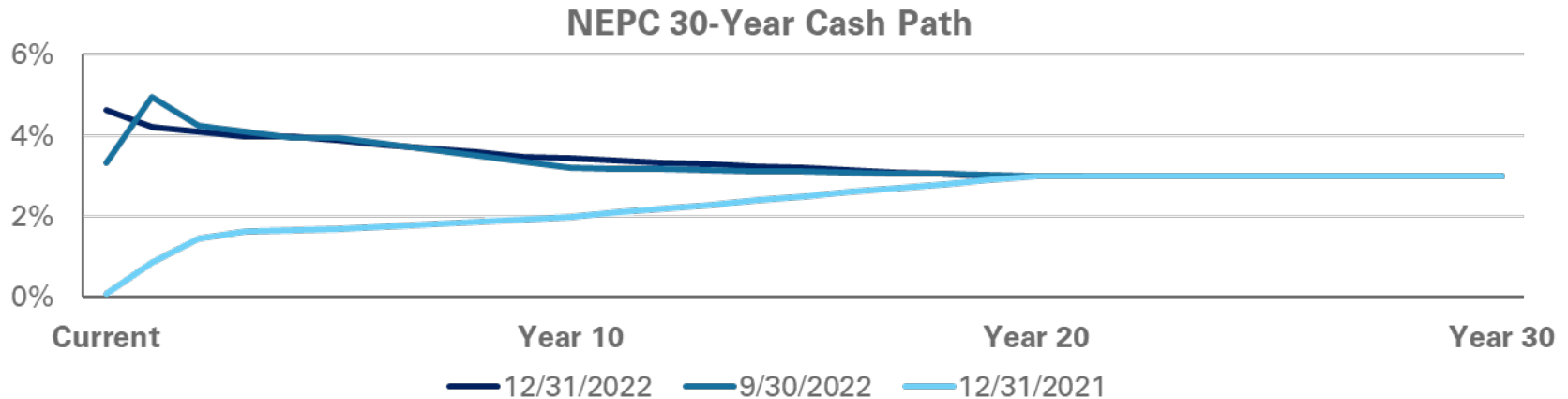
HISTORICAL INFLATION



- **Near-term inflation levels are elevated relative to stated central bank inflation targets**
 - Long-term inflation assumptions are subdued and reflect market-based break-even inflation expectations
- **Emerging market inflation levels are projected to decline, but generally remain above the developed world**

U.S. CASH

EXPECTATIONS

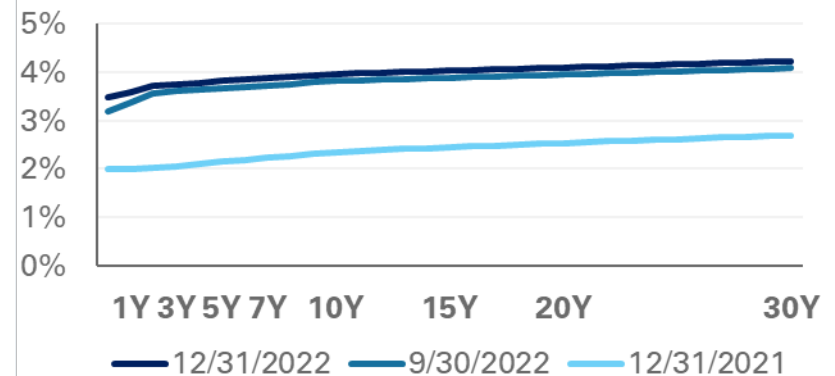


- **Cash is a foundational input for all asset class return expectations**
 - Cash + risk premia is an input for long-term asset class return projections
- **Cash assumptions reflect inflation and real interest rates**
- **U.S. nominal rate forecasts reflect continued tighter policy in the near-term, but long-term expectations remain subdued relative to history**

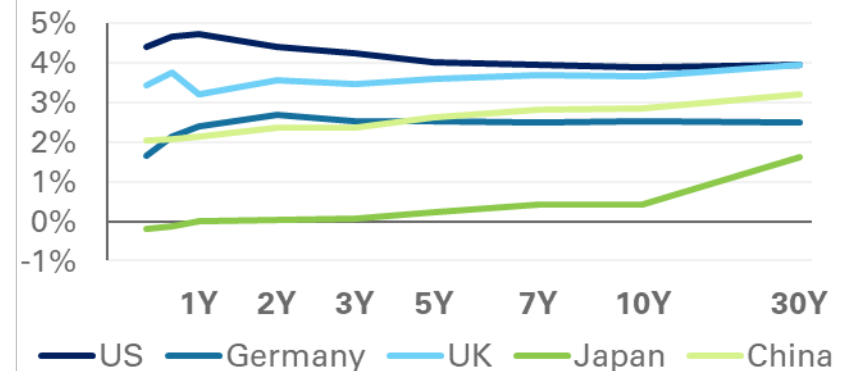
GLOBAL INTEREST RATE EXPECTATIONS

- **Real yields have normalized, reflecting the transition to a tighter policy environment**
 - Higher real rates support returns in the long-term, but also signal a shift in risk posture for markets
- **The transition to tighter Fed policy has lifted bond yield forecasts**
- **The outlook is relatively poor for Non-U.S. developed markets due to the nominal yield differential**
- **Emerging market real rates and nominal interest rates are higher relative to the developed world**

NEPC 10-Year Forward Curve



Global Yield Curves



PUBLIC EQUITY

PUBLIC EQUITY ASSUMPTIONS

OVERVIEW

- **Current valuation multiples across public equities have moved lower, reflecting a tighter monetary policy and elevated inflation environment**
 - Equity valuation multiples are sensitive to higher interest rates, though inflation can positively impact nominal revenue growth
- **Long-term valuation multiples underlying equity return assumptions have lowered as well, reflecting the impact of higher interest rates**
- **NEPC's strategic equity targets reflect a bias to the U.S. and Emerging Markets over Non-U.S. Developed relative to the MSCI ACWI IMI**
 - The return assumption for emerging markets is highest among public equities, driven by the long-term opportunities in Asia
- **NEPC encourages a strategic bias to small-cap with the use of active management relative to small-cap exposure in the MSCI ACWI IMI**

PUBLIC EQUITY ASSUMPTIONS

BUILDING BLOCKS

| | |
|-----------------------------|--|
| Illiquidity Premium | The return expected for assets with illiquidity risk |
| Valuation | Represents P/E multiple contraction or expansion relative to long-term trend |
| Inflation | Market-specific inflation based on country-level revenue exposure |
| Real Earnings Growth | Market-specific real growth based on a weighted-average of country revenue exposure and GDP growth |
| Dividend Yield | Income distributed to shareholders adjusted to reflect market trends |

| Asset Class | 12/31/22 10-Yr Return | 12-Month Change |
|-------------------------------------|--------------------------|--------------------|
| U.S. Large-Cap Equity | 5.4% | +1.1% |
| U.S. Small/Mid-Cap Equity | 6.5% | +0.9% |
| Non-U.S. Developed Equity | 5.6% | +0.4% |
| Non-U.S. Developed Small-Cap Equity | 6.7% | +0.8% |
| Emerging Market Equity | 9.6% | +1.3% |
| Emerging Market Small-Cap Equity | 9.3% | +1.7% |
| China Equity | 8.7% | -0.1% |
| Hedge Fund - Equity | 6.0% | +1.9% |
| Global Equity* | 6.3% | +0.9% |
| Private Equity* | 9.2% | +0.2% |

Source: NEPC

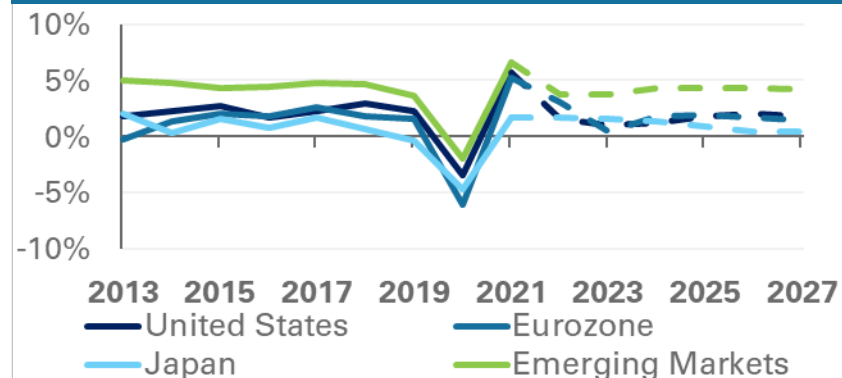
*Calculated as a blend of other asset classes

PUBLIC EQUITY

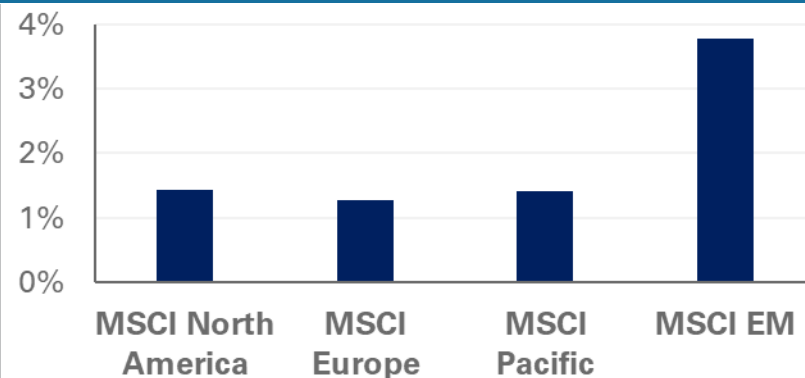
REAL EARNINGS GROWTH

- **Global growth rates have slowed from recent highs**
- **Regions reliant on revenue from emerging markets are forecasted to benefit from higher earnings growth**
 - Non-U.S. stocks benefit from a greater portion of revenue from EM than U.S. stocks
- **We expect elevated real earnings growth for small-caps over the long-term relative to large-cap**
 - Over the long-term we expect a forward-looking risk premium for small-cap and mid-cap equities relative to large-cap stocks

Real GDP Growth Projections

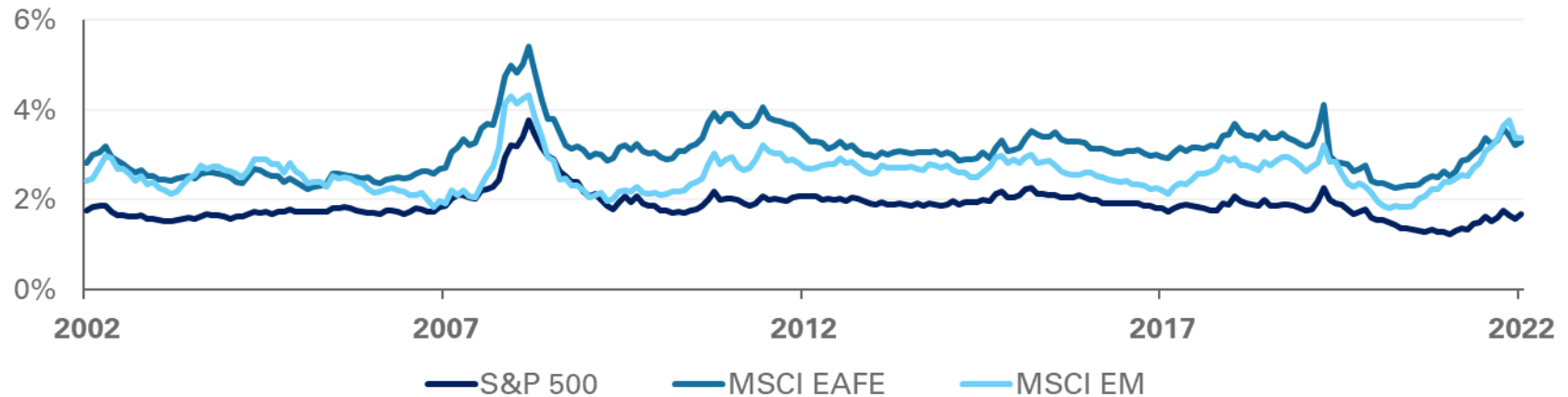


Expected 5-Year Real Growth



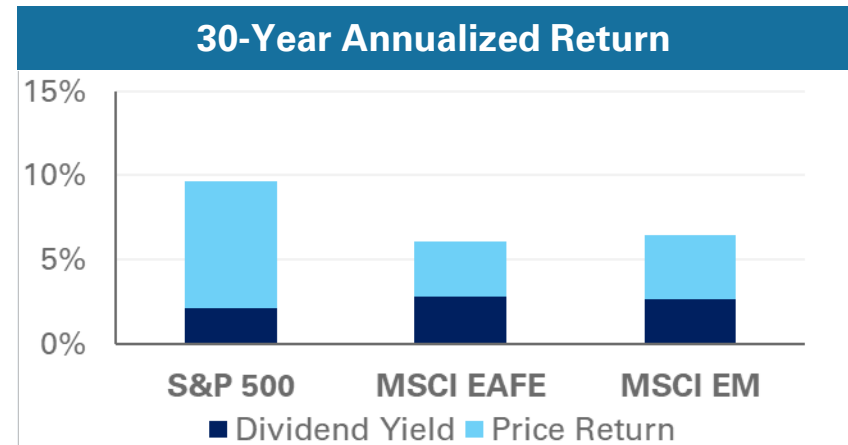
PUBLIC EQUITY

DIVIDEND YIELD



- **Non-U.S. equities provide higher dividend yields relative to the U.S. over the long-term**

- Terminal value dividend yield inputs for MSCI EM and EAFE are 2.5% and 3.0%
- Terminal value dividend yield input for S&P 500 is 2.50%

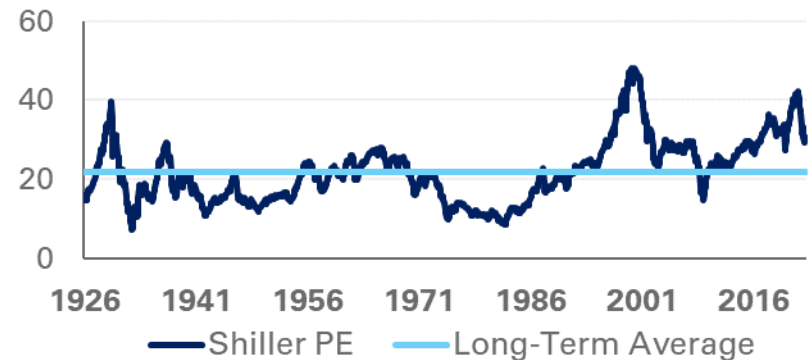


PUBLIC EQUITY

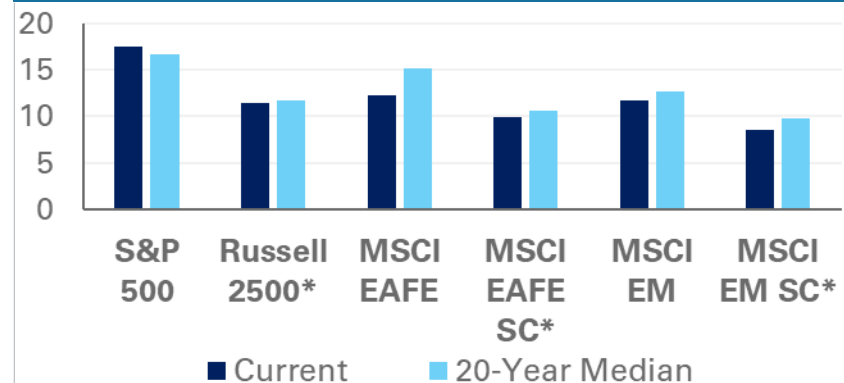
VALUATION

- **U.S. stock valuations have declined and are now trading closer to long-term averages**
- **P/E terminal value inputs are lower, reflecting the impact of higher nominal interest rates**
- **EAFE P/E inputs reflect more subdued market sentiment levels**
- **Emerging market stocks offer an elevated total return opportunity relative to developed markets**

S&P 500 Shiller PE Ratio



Trailing PE Relative Median

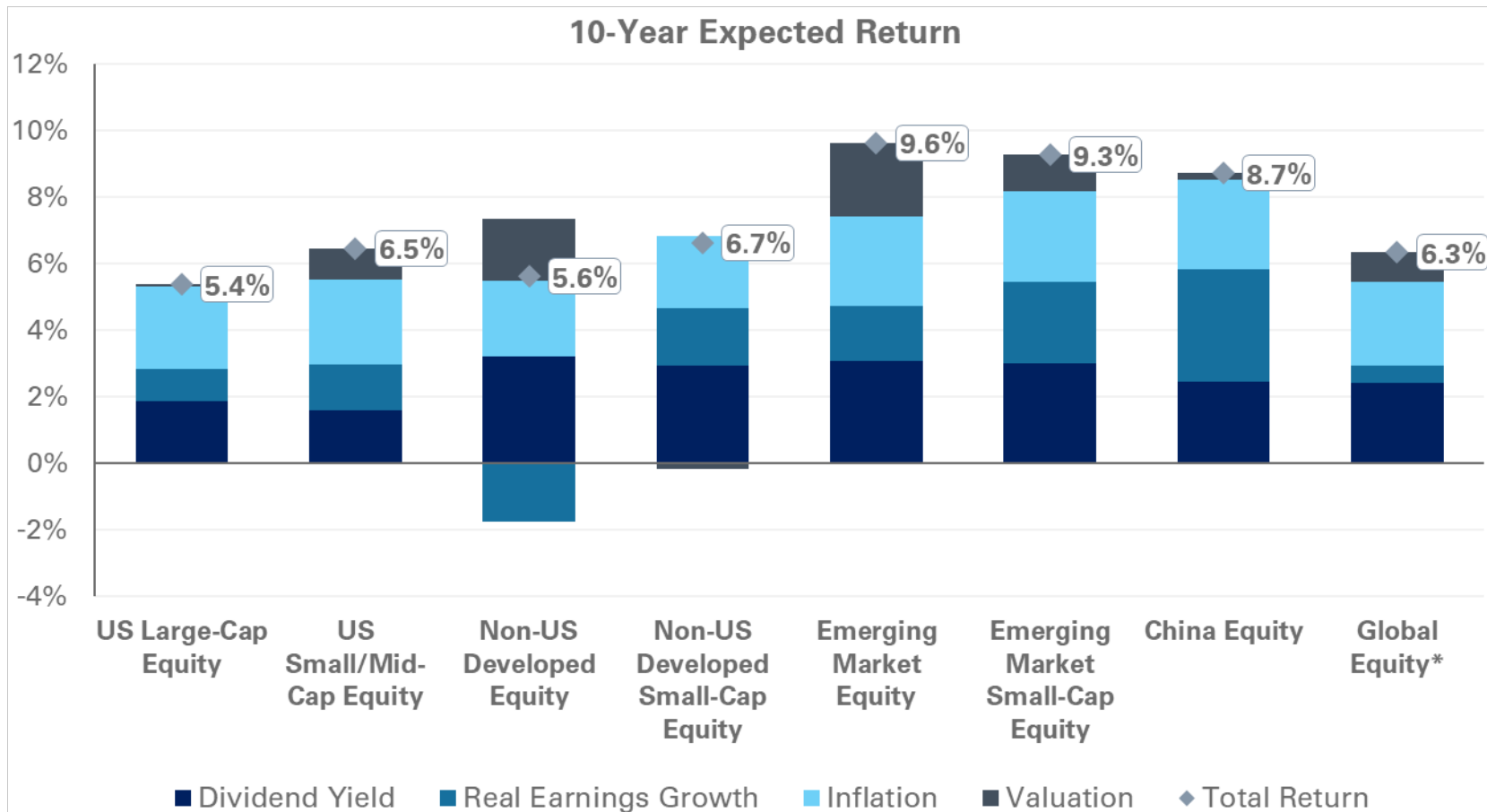


Sources: S&P, Shiller, Russell, MSCI, FactSet, NEPC; Shiller PE long-term average beginning in 1926

Note: *Small cap indices valuations based on EV/EBITDA multiples; MSCI EM Small Cap median calculated since 3/31/2003

PUBLIC EQUITY

BUILDING BLOCKS



Source: NEPC

*Calculated as a blend of other classes

FIXED INCOME

FIXED INCOME ASSUMPTIONS

OVERVIEW

- **Fixed income return assumptions are higher, reflecting the transition to tighter monetary policy to offset ongoing inflationary pressures**
- **NEPC remains committed to a dedicated Treasury allocation given the upward movement in interest rates and return expectations**
- **Safe-haven fixed income exposure is a critical liquidity source for the portfolio and offers downside protection in periods of market stress**
 - Sizing of the safe-haven exposure is a strategic exercise and reflects investor return objectives, risk-tolerance, and private market pacing plan needs
- **High-quality fixed income is an asset class designed to support lower volatility portfolios and larger strategic targets to fixed income**
 - Investment grade credit and TIPS offer exposure to nominal and real interest rates plus cyclical diversification benefits to the overall fixed income portfolio
- **The use of return-seeking credit investments requires a more dynamic posture to manage shifts in credit spreads and market cycles**

FIXED INCOME ASSUMPTIONS

BUILDING BLOCKS

| | |
|--------------------------------------|---|
| Illiquidity Premium | The return expected for assets with illiquidity risk |
| Government Rates Price Change | Change due to shifts in current yields relative to forecasted rates |
| Credit Deterioration | The average loss for credit assets due to defaults and recovery rates |
| Spread Price Change | Valuation change due to changes in credit spreads relative to long-term targets |
| Credit Spread | Yield premium provided by securities with credit risk |
| Government Rates | The yield attributed to sovereign bonds that do not have credit risk |

| Asset Class | 12/31/22 10-Yr Return | 12-Month Change |
|----------------------------|--------------------------|--------------------|
| U.S. TIPS | 4.4% | +3.0% |
| U.S. Treasury Bond | 4.2% | +2.7% |
| U.S. Corporate Bond | 5.9% | +3.1% |
| U.S. MBS | 4.5% | +2.7% |
| U.S. High Yield Corporate | 7.1% | +3.9% |
| U.S. Leveraged Loan | 7.8% | +3.1% |
| EMD External Debt | 7.1% | +3.0% |
| EMD Local Currency Debt | 7.2% | +1.5% |
| Non-U.S. Govt. Bond | 2.6% | +1.5% |
| U.S. Muni Bond (1-10 Year) | 3.2% | +2.0% |
| U.S. High Yield Muni Bond | 5.7% | +3.6% |
| Hedge Fund – Credit | 7.1% | +2.9% |
| U.S. Aggregate Bond* | 4.8% | +2.8% |
| Private Debt* | 8.8% | +2.2% |

Source: NEPC

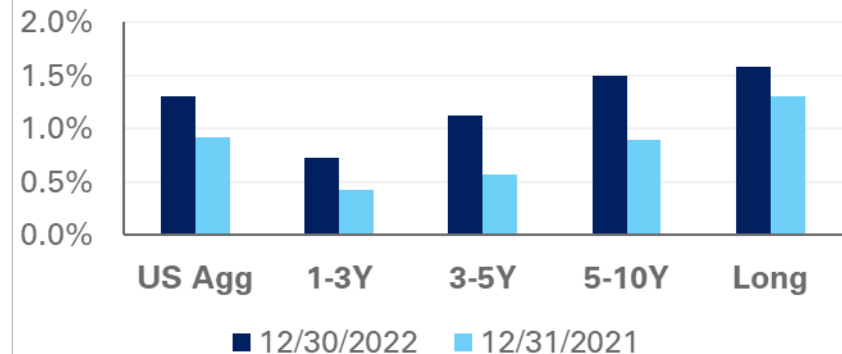
*Calculated as a blend of other asset classes

FIXED INCOME

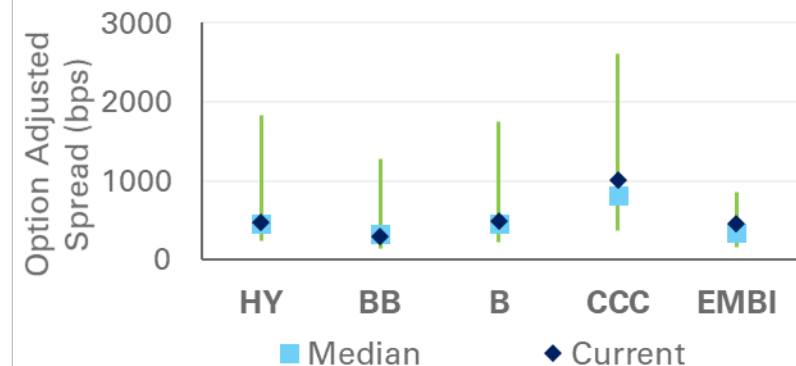
CREDIT SPREADS

- **Credit spreads have increased and are above median levels**
- **Higher credit spread levels raise future return expectations**
- **Credit spread assumptions reflect potential disruption**
 - With a record number of BBB rated corporates, fallen angel downgrades are a greater risk
 - CCC spreads reflect broad economic concerns and have diverged from the rest of high yield
- **Default and recovery rates are informed by long-term history**

U.S. Corporate OAS by Maturity



Return-Seeking Credit Spreads



FIXED INCOME

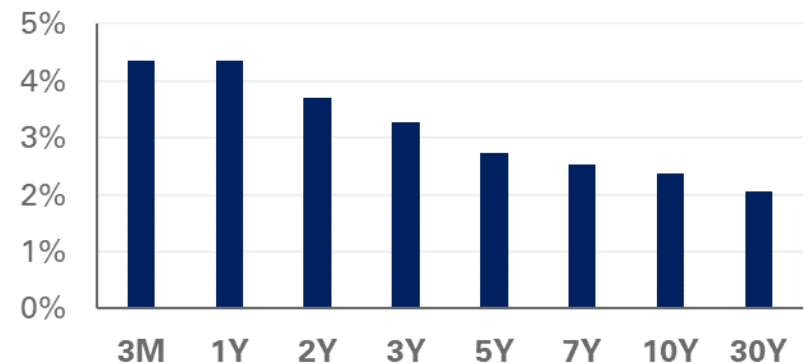
GOVERNMENT RATES

- **Government rates price change reflects shifts in interest rates, the yield curve, and roll down**
 - Roll down refers to the price change due to the aging of a bond along the yield curve
- **Expectations for rising rates are a headwind for return expectations**
 - However, higher interest rates boost the long-term return due to the increased yield benefit
- **A steeper yield curve relative to forward interest rates can offer relief from rising rates**

Barclays U.S. Aggregate Bond

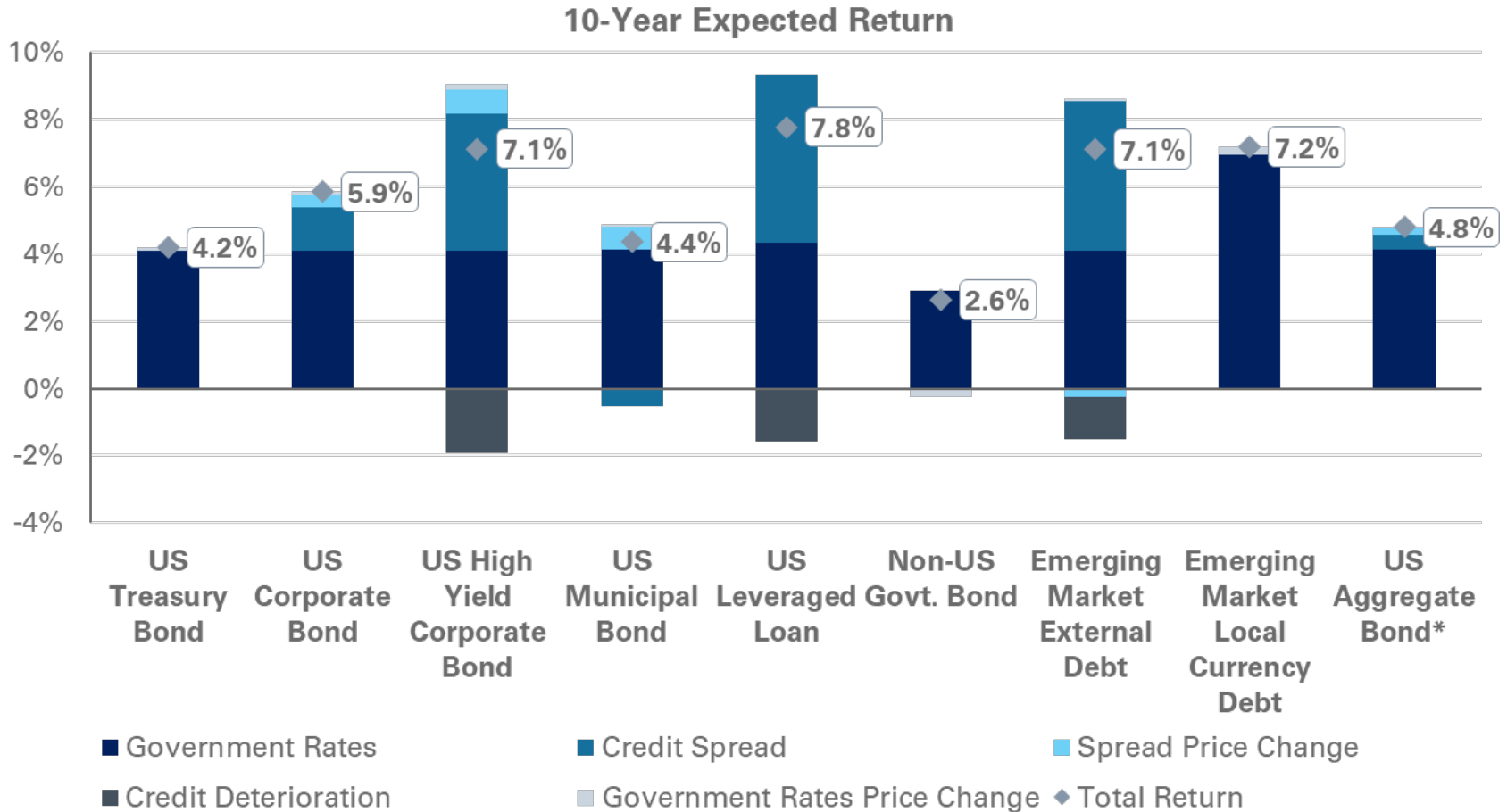


Annual Change in Treasury Yields



FIXED INCOME

BUILDING BLOCKS

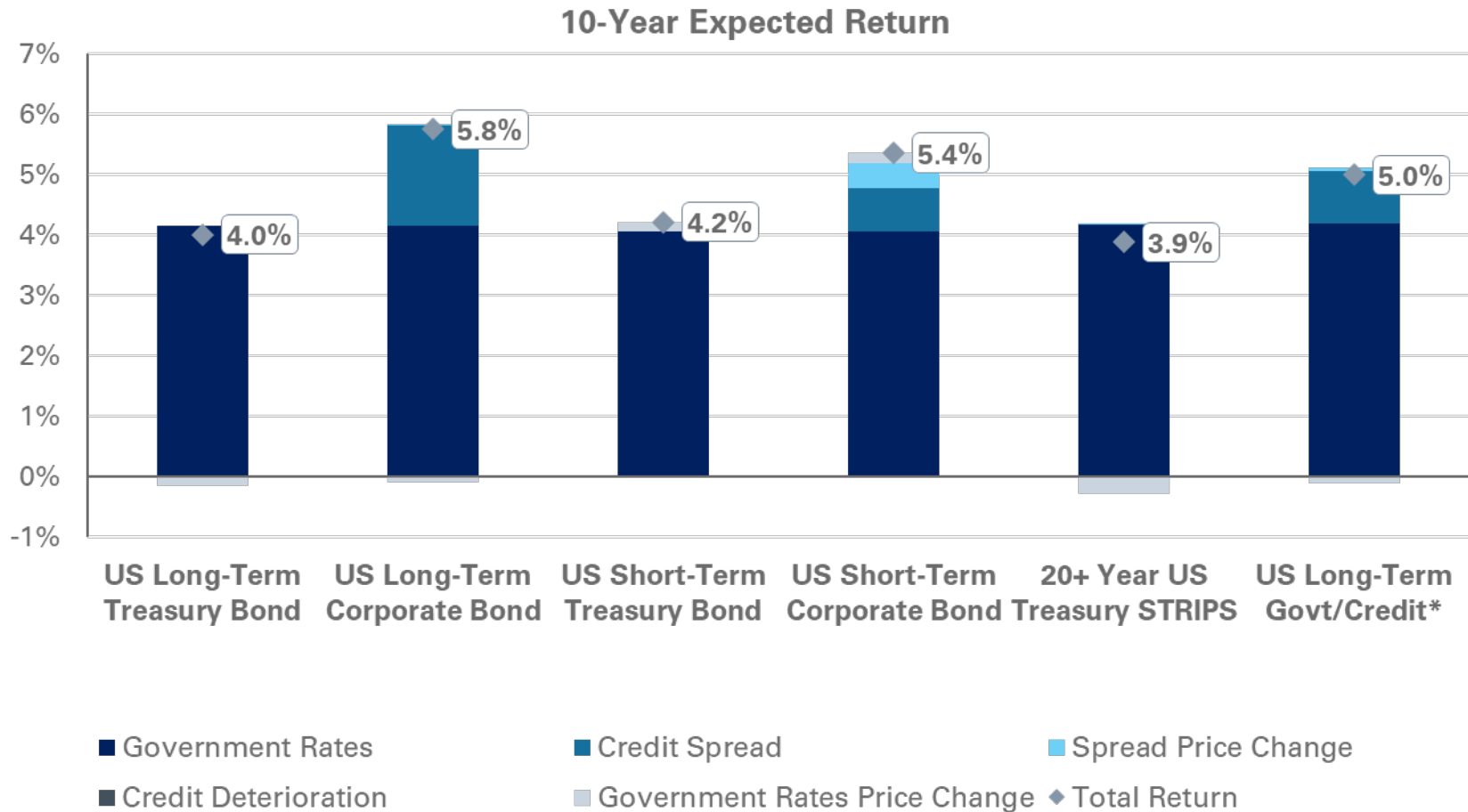


Source: NEPC

*Calculated as a blend of other classes

FIXED INCOME

BUILDING BLOCKS



Source: NEPC
 *Calculated as a blend of other classes

REAL ASSET

REAL ASSET ASSUMPTIONS

OVERVIEW

- **The strategic outlook for real assets reflects a high level of uncertainty due to the elevated near-term inflation environment**
 - Real assets offer a meaningful portfolio diversification benefit, but are sensitive to a wide range of potential inflation scenarios
- **Real assets exhibit different betas to inflation and each asset class is exposed to various economic factors**
 - Diversification and correlation benefits are helpful to a portfolio but must be carefully considered relative to the expected risk premium
- **Strategic asset allocation targets for real assets are determined by investor objectives, including the need for portfolio inflation sensitivity**
 - Short-term changes in market inflation dynamics should not dictate a portfolio's strategic need for real asset exposure
- **Building portfolio inflation sensitivity is a strategic exercise and is well-aligned with an appropriately sized private real assets pacing program**
 - The strategic outlook for real assets is volatile as market expectations conflict with the near-term inflation path and longer-term deflationary forces

REAL ASSET ASSUMPTIONS

BUILDING BLOCKS

| | |
|----------------------------|--|
| Illiquidity Premium | The return expected for assets with illiquidity risk |
| Valuation | The change in price of the asset moving to a terminal value or real average level |
| Inflation | Based on the inflation path as defined by breakeven-inflation rates and NEPC assumptions |
| Growth | Market-specific real growth based on a weighted-average of country-level revenue exposure and GDP growth |
| Real Income | The inflation-adjusted income produced by the asset |

| Asset Class | 12/31/22 10-Yr Return | 12-Month Change |
|---|--------------------------|--------------------|
| Commodity Futures | 4.2% | +3.8% |
| Midstream Energy | 6.0% | -0.7% |
| REIT | 6.2% | +1.7% |
| Global Infrastructure Equity | 5.6% | - |
| Global Natural Resources Equity | 5.5% | - |
| Gold | 5.1% | +1.8% |
| Real Estate - Core | 4.0% | -0.7% |
| Real Estate – Non-Core | 5.3% | -0.6% |
| Private Debt - Real Estate | 5.8% | +1.2% |
| Private Real Assets - Natural Resources | 8.1% | +1.0% |
| Private Real Assets - Infrastructure | 6.6% | +1.3% |

Source: NEPC

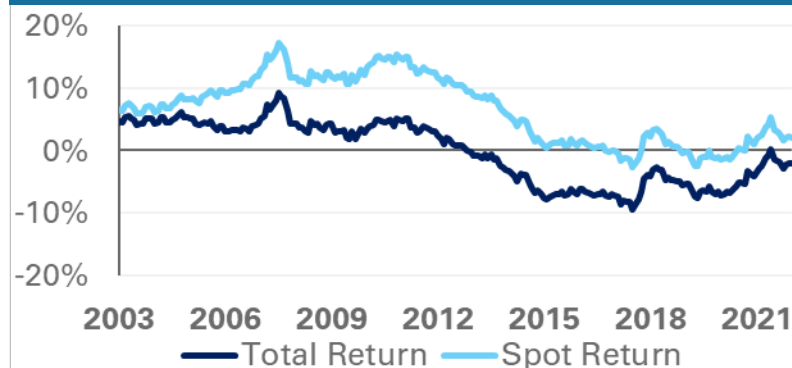
*Calculated as a blend of other asset classes

REAL ASSET

REAL INCOME

- **Equity: Real income is inflation-adjusted dividend yield**
 - Includes public infrastructure, REITS, midstream energy, and natural resource equity
- **Real Estate: Real income is net operating income (NOI)**
 - NOI growth tracks the business cycle and economic regimes
- **Commodity Futures: Real income reflects collateral return and the futures roll yield**
 - Collateral is based on a cash proxy over the time horizon

Commodities Rolling 10-Year Returns



Real Assets Yields

| | 12/31/22 | 12/31/21 |
|--------------------------------|----------|----------|
| Midstream Energy | 5.6% | 5.9% |
| Real Estate - Core | 2.7% | 3.1% |
| US REITs | 4.4% | 2.9% |
| Global Infrastructure Equities | 3.2% | 2.8% |
| Natural Resource Equities | 3.8% | 3.8% |
| US 10-Year Breakeven Inflation | 2.3% | 2.6% |
| Commodity Index Roll Yield | 5.7% | 2.4% |

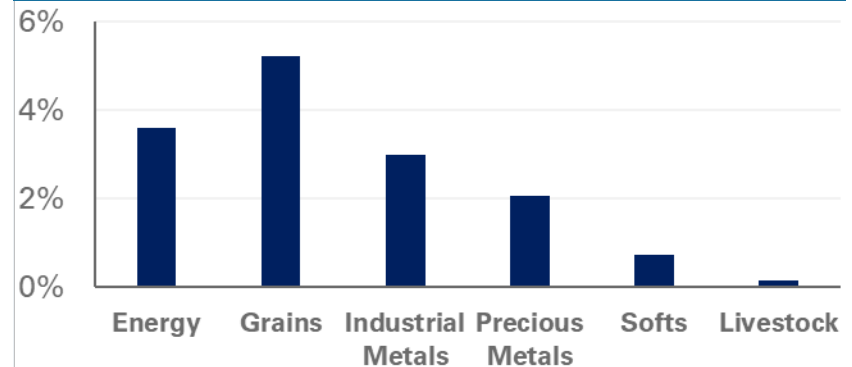
Sources: Bloomberg, NCREIF, Alerian, NAREIT, S&P, FactSet, NEPC

*Commodity Index Roll Yield represents a proprietary calculation methodology

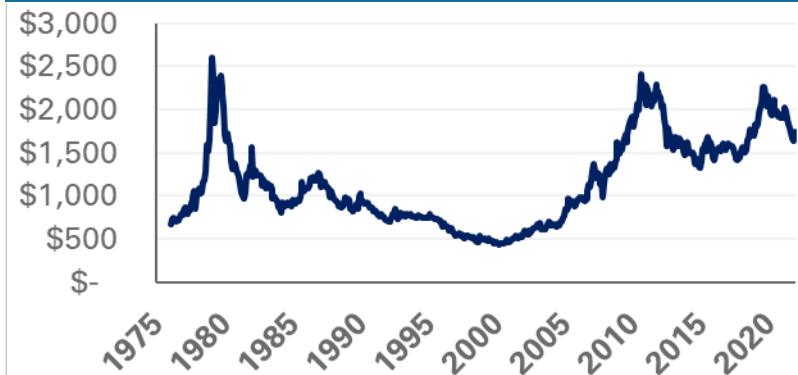
REAL ASSET VALUATION

- **Commodity valuation inputs reflect the long-term average of spot prices**
 - Many areas of the commodity index are trading at a premium to long-term real averages
- **Valuation assumptions for other real assets are based on asset-specific valuation inputs**
 - Capitalization rates are used for core real estate, price-to-earnings for global infrastructure and global natural resources equity
 - Gold's valuation incorporates the asset's historical risk premia and the impact of the macroeconomic market regime

Discount/Premium to 10-Year Real Average



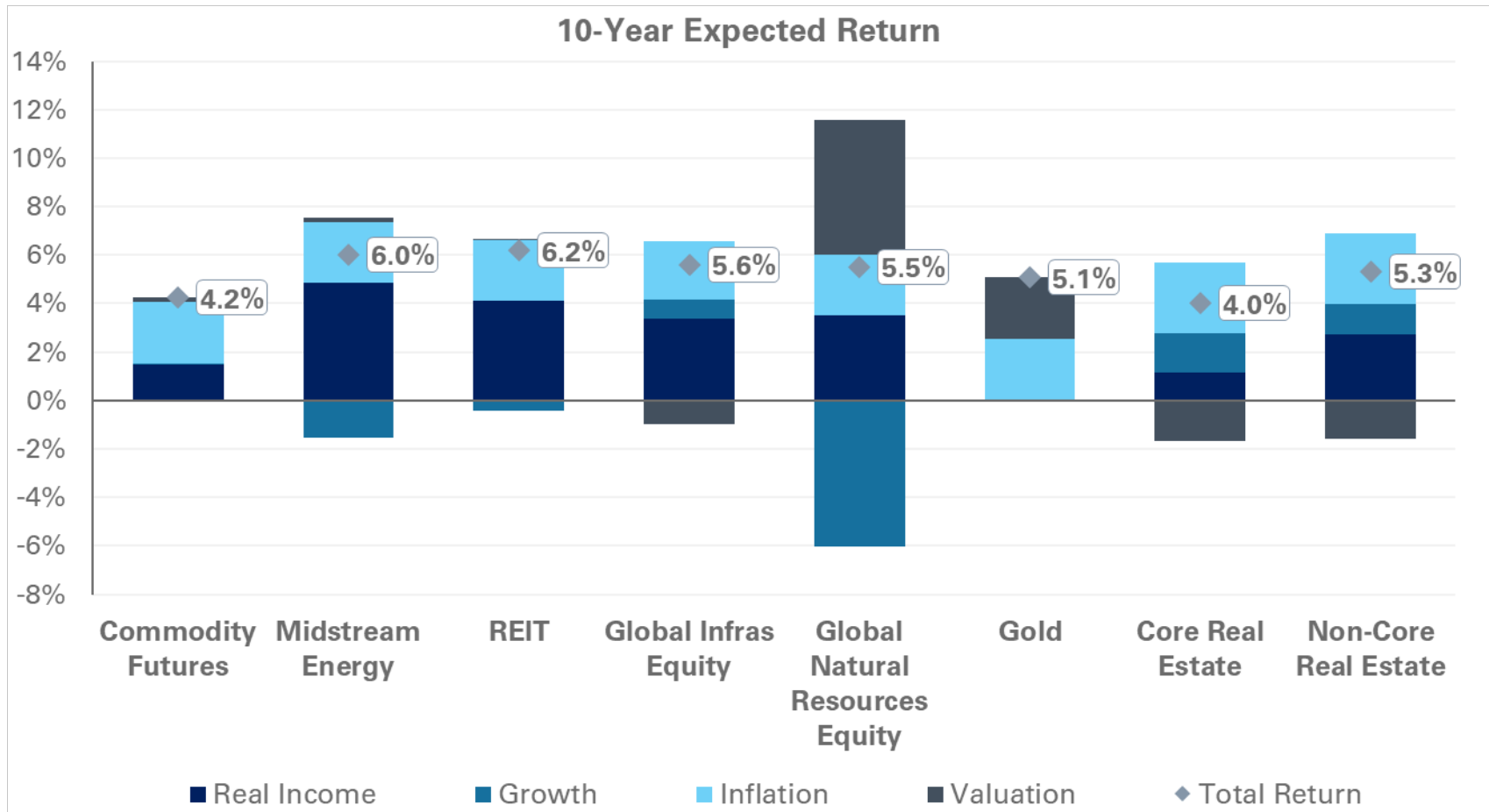
Real Price of Gold



Sources: FactSet, NEPC

REAL ASSET

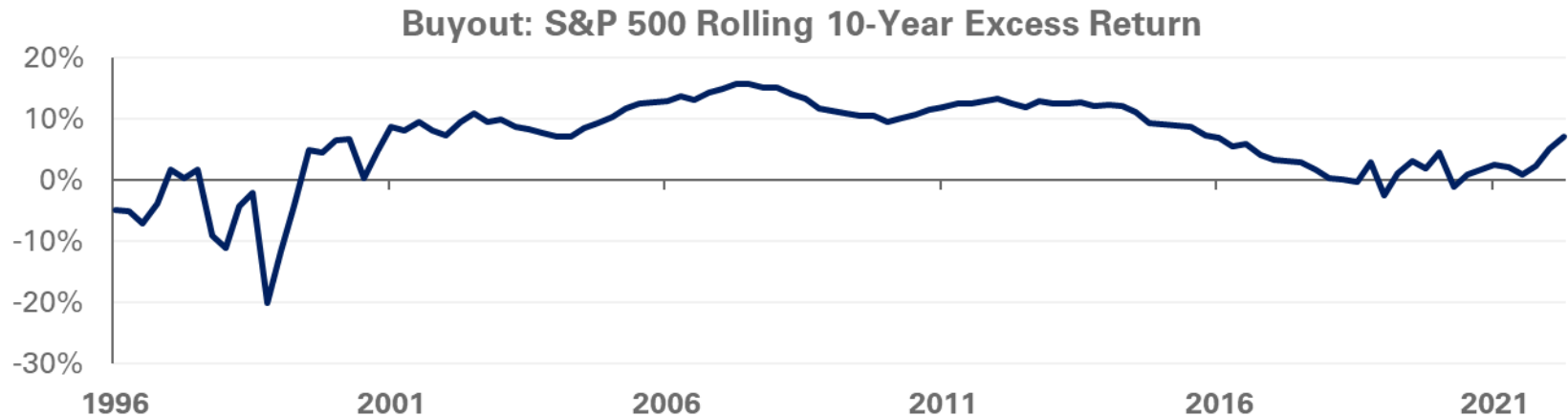
BUILDING BLOCKS



ALTERNATIVE ASSETS

ALTERNATIVE ASSETS

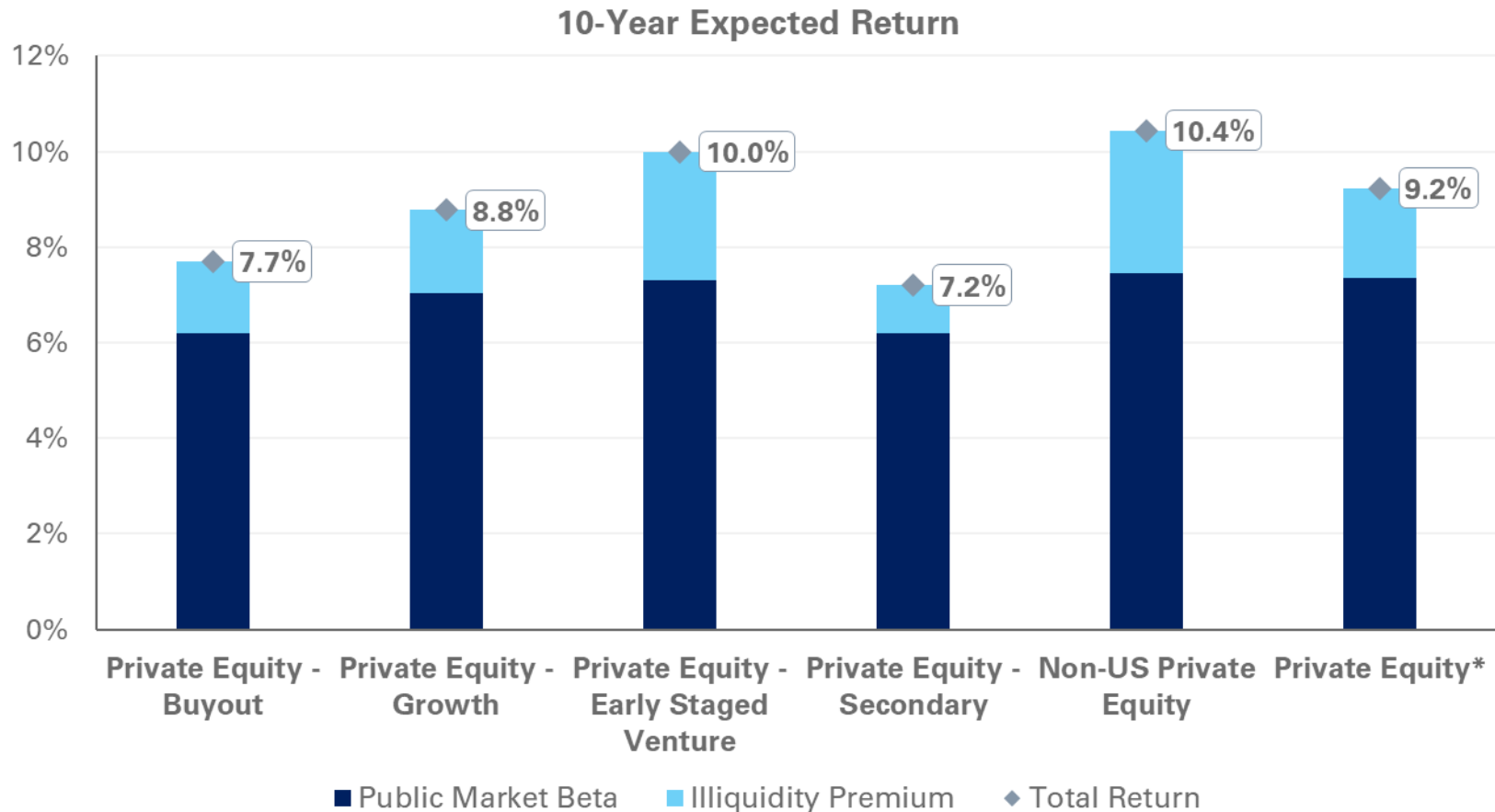
METHODOLOGY



- **Private market assumptions are constructed from betas to public markets with an added illiquidity premia**
 - Historically, the observed illiquidity premium has been a significant component driving private market returns
- **Hedge fund assumptions are constructed from betas to public markets with an added alpha assumption**

PRIVATE EQUITY

BUILDING BLOCKS

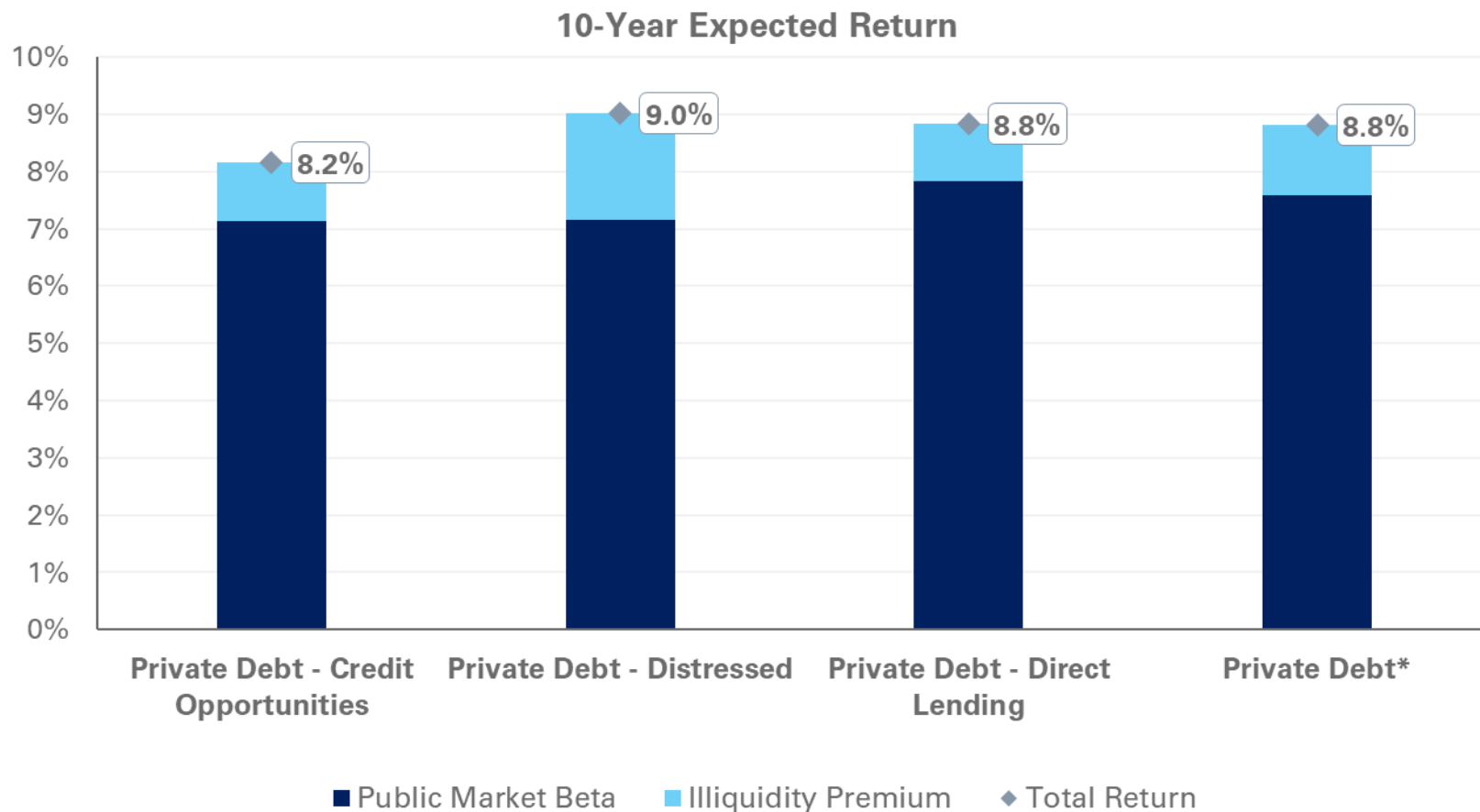


Source: NEPC

*Private Equity is a derived composite of 34% U.S. Buyout, 34% U.S. Growth, 8.5% U.S. Secondary, 8.5% U.S. Venture, 15% Non-U.S. PE

PRIVATE DEBT

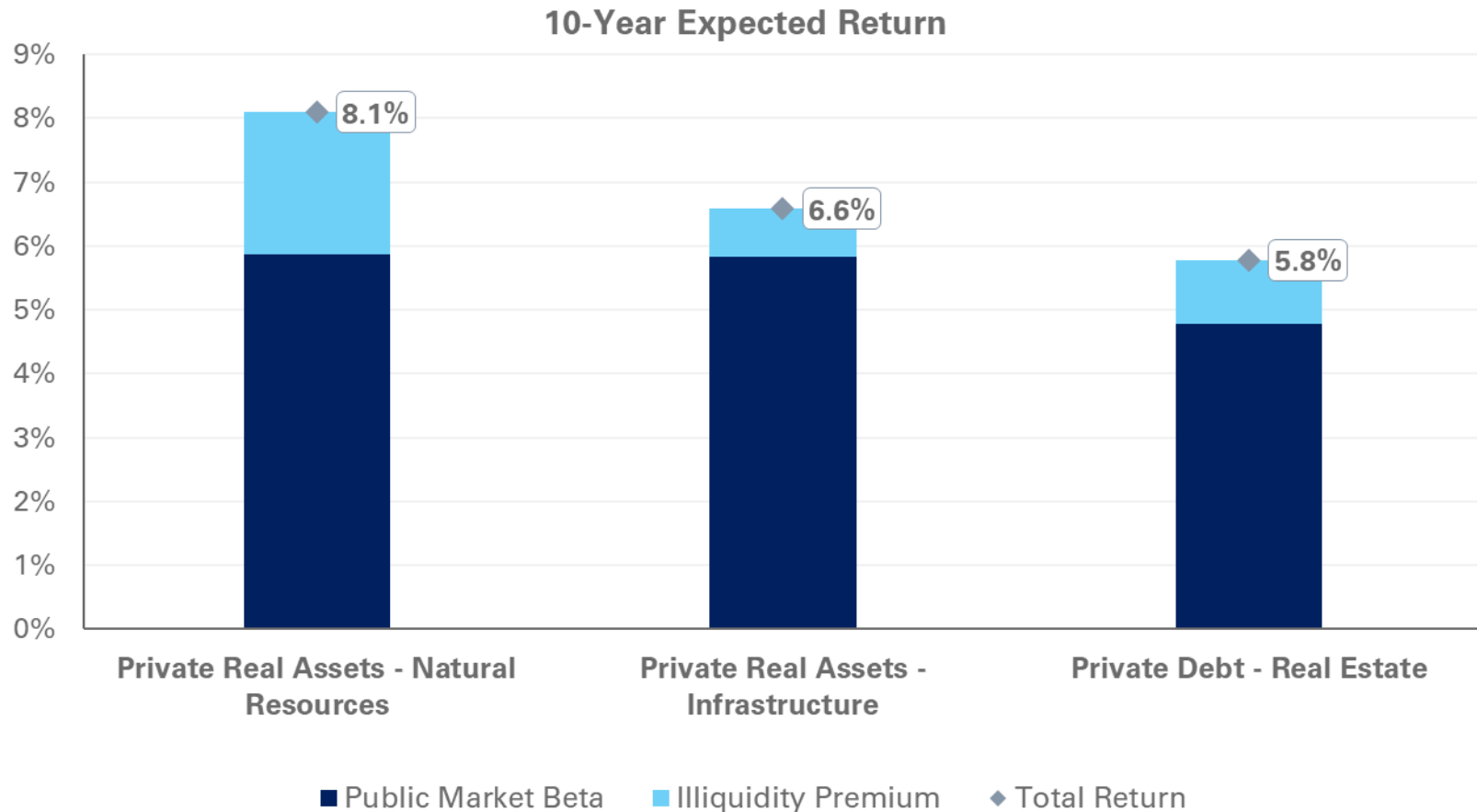
BUILDING BLOCKS



Source: NEPC

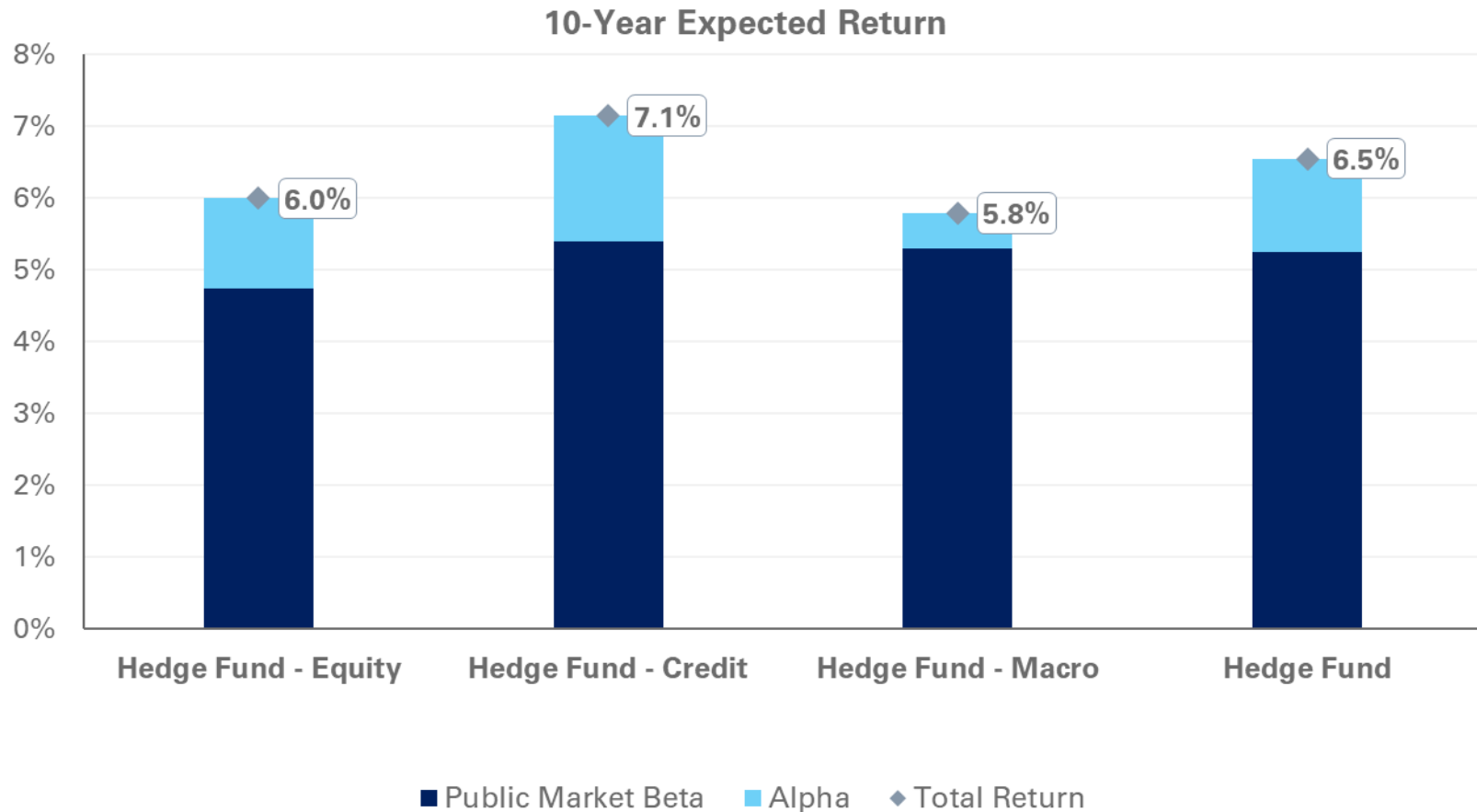
*Private Debt is a derived composite of 25% Mezzanine, 25% Distressed, 50% Direct Lending

PRIVATE REAL ASSET BUILDING BLOCKS



HEDGE FUND

BUILDING BLOCKS



Source: NEPC

*Hedge Funds is a derived composite of 40% Long/Short, 40% Credit, 20% Macro

APPENDIX

10-YEAR RETURN FORECASTS

EQUITY

| Geometric Expected Return | | | |
|---------------------------------------|------------|------------|-------|
| Asset Class | 12/31/2022 | 12/31/2021 | Delta |
| U.S. Large-Cap Equity | 5.4% | 4.3% | +1.1% |
| U.S. Small/Mid-Cap Equity | 6.5% | 5.6% | +0.9% |
| Non-U.S. Developed Equity | 5.6% | 5.2% | +0.4% |
| Non-U.S. Developed Equity (USD Hedge) | 5.8% | 5.4% | +0.4% |
| Non-U.S. Developed Small-Cap Equity | 6.7% | 5.9% | +0.8% |
| Emerging Market Equity | 9.6% | 8.3% | +1.3% |
| Emerging Market Small-Cap Equity | 9.3% | 7.6% | +1.7% |
| Hedge Fund - Equity | 6.0% | 4.1% | +1.9% |
| Private Equity - Buyout | 7.7% | 7.3% | +0.4% |
| Private Equity - Growth | 8.8% | 8.6% | +0.2% |
| Private Equity - Early Stage Venture | 10.0% | 10.0% | - |
| Private Equity - Secondary | 7.2% | 6.8% | +0.4% |
| Non-U.S. Private Equity | 10.4% | 10.3% | +0.1% |
| China Equity | 8.7% | 8.8% | -0.1% |
| U.S. Microcap Equity | 7.6% | 6.5% | +1.1% |
| Global Equity* | 6.3% | 5.4% | +0.9% |
| Private Equity* | 9.2% | 9.0% | +0.2% |

10-YEAR RETURN FORECASTS

FIXED INCOME

| Geometric Expected Return | | | |
|-----------------------------------|------------|------------|-------|
| Asset Class | 12/31/2022 | 12/31/2021 | Delta |
| Cash | 4.0% | 1.5% | +2.5% |
| US TIPS | 4.4% | 1.4% | +3.0% |
| US Treasury Bond | 4.2% | 1.5% | +2.7% |
| US Corporate Bond | 5.9% | 2.8% | +3.1% |
| US Corporate Bond - AAA | 4.9% | 2.2% | +2.7% |
| US Corporate Bond - AA | 5.0% | 2.2% | +2.8% |
| US Corporate Bond - A | 5.6% | 2.6% | +3.0% |
| US Corporate Bond - BBB | 6.2% | 3.1% | +3.1% |
| US Mortgage-Backed Securities | 4.5% | 1.8% | +2.7% |
| US Securitized Bond | 5.2% | 2.3% | +2.9% |
| US Collateralized Loan Obligation | 5.8% | 3.1% | +2.7% |
| US Municipal Bond | 4.4% | 1.6% | +2.8% |
| US Municipal Bond (1-10 Year) | 3.2% | 1.2% | +2.0% |
| US Taxable Municipal Bond | 5.5% | 2.7% | +2.8% |

10-YEAR RETURN FORECASTS

FIXED INCOME

| Geometric Expected Return | | | |
|---|------------|------------|-------|
| Asset Class | 12/31/2022 | 12/31/2021 | Delta |
| Non-US Government Bond | 2.6% | 1.1% | +1.5% |
| Non-US Government Bond (USD Hedge) | 2.9% | 1.3% | +1.6% |
| Non-US Inflation-Linked Bond (USD Hedge) | 3.4% | 0.7% | +2.7% |
| US Short-Term TIPS (1-3 Year) | 4.3% | 1.2% | +3.1% |
| US Short-Term Treasury Bond (1-3 Year) | 4.2% | 1.4% | +2.8% |
| US Short-Term Corporate Bond (1-3 Year) | 5.4% | 2.3% | +3.1% |
| US Intermediate-Term TIPS (3-10 Year) | 4.4% | 1.5% | +2.9% |
| US Intermediate-Term Treasury Bond (3-10 Year) | 4.2% | 1.6% | +2.6% |
| US Intermediate-Term Corporate Bond (3-10 Year) | 6.1% | 3.0% | +3.1% |
| US Long-Term TIPS (10-30 Year) | 4.5% | 1.3% | +3.2% |
| US Long-Term Treasury Bond (10-30 Year) | 4.0% | 1.4% | +2.6% |
| US Long-Term Corporate Bond (10-30 Year) | 5.8% | 2.8% | +3.0% |
| 20+ Year US Treasury STRIPS | 3.9% | 1.0% | +2.9% |
| 10 Year US Treasury Bond | 4.3% | 1.8% | +2.5% |
| 10 Year Non-US Government Bond (USD Hedge) | 2.2% | 0.3% | +1.9% |
| US Aggregate Bond* | 4.8% | 2.0% | +2.8% |

10-YEAR RETURN FORECASTS

FIXED INCOME

| Geometric Expected Return | | | |
|--|------------|------------|-------|
| Asset Class | 12/31/2022 | 12/31/2021 | Delta |
| US High Yield Corporate Bond | 7.1% | 3.2% | +3.9% |
| US Corporate Bond - BB | 7.5% | 4.0% | +3.5% |
| US Corporate Bond - B | 7.5% | 3.6% | +3.9% |
| US Corporate Bond - CCC/Below | 2.9% | -3.8% | +6.7% |
| US Short-Term High Yield Corporate Bond (1-3 Year) | 6.2% | 2.3% | +3.9% |
| US Leveraged Loan | 7.8% | 4.7% | +3.1% |
| Emerging Market External Debt | 7.1% | 4.1% | +3.0% |
| Emerging Market Local Currency Debt | 7.2% | 5.7% | +1.5% |
| US High Yield Securitized Bond | 8.9% | 3.4% | +5.5% |
| US High Yield Collateralized Loan Obligation | 8.5% | 5.5% | +3.0% |
| US High Yield Municipal Bond | 5.7% | 2.1% | +3.6% |
| Hedge Fund - Credit | 7.1% | 4.2% | +2.9% |
| Private Debt - Credit Opportunities | 8.2% | 6.5% | +1.7% |
| Private Debt - Distressed | 9.0% | 7.2% | +1.8% |
| Private Debt - Direct Lending | 8.8% | 6.2% | +2.6% |
| Private Debt* | 8.8% | 6.6% | +2.2% |

10-YEAR RETURN FORECASTS

REAL ASSETS

| Geometric Expected Return | | | |
|---|------------|------------|-------|
| Asset Class | 12/31/2022 | 12/31/2021 | Delta |
| Commodity Futures | 4.2% | 0.4% | +3.8% |
| Midstream Energy | 6.0% | 6.7% | -0.7% |
| REIT | 6.2% | 4.5% | +1.7% |
| Global Infrastructure Equity | 5.6% | 5.6% | - |
| Global Natural Resources Equity | 5.5% | 5.5% | - |
| Gold | 5.1% | 3.3% | +1.8% |
| Real Estate - Core | 4.0% | 4.7% | -0.7% |
| Real Estate - Non-Core | 5.3% | 5.9% | -0.6% |
| Private Debt - Real Estate | 5.8% | 4.6% | +1.2% |
| Private Real Assets - Natural Resources | 8.1% | 7.1% | +1.0% |
| Private Real Assets - Infrastructure | 6.6% | 5.3% | +1.3% |

30-YEAR RETURN FORECASTS

EQUITY

| Geometric Expected Return | | | |
|---------------------------------------|------------|------------|-------|
| Asset Class | 12/31/2022 | 12/31/2021 | Delta |
| U.S. Large-Cap Equity | 6.9% | 6.1% | +0.8% |
| U.S. Small/Mid-Cap Equity | 7.4% | 6.6% | +0.8% |
| Non-U.S. Developed Equity | 6.7% | 6.2% | +0.5% |
| Non-U.S. Developed Equity (USD Hedge) | 6.9% | 6.4% | +0.5% |
| Non-U.S. Developed Small-Cap Equity | 7.5% | 6.8% | +0.7% |
| Emerging Market Equity | 9.6% | 8.7% | +0.9% |
| Emerging Market Small-Cap Equity | 9.6% | 8.7% | +0.9% |
| Hedge Fund - Equity | 6.2% | 5.2% | +1.0% |
| Private Equity - Buyout | 8.8% | 8.5% | +0.3% |
| Private Equity - Growth | 9.8% | 9.7% | +0.1% |
| Private Equity - Early Stage Venture | 10.6% | 10.7% | -0.1% |
| Private Equity - Secondary | 8.2% | 7.9% | +0.3% |
| Non-U.S. Private Equity | 10.8% | 10.7% | +0.1% |
| China Equity | 9.1% | 8.8% | +0.3% |
| U.S. Microcap Equity | 8.2% | 7.5% | +0.7% |
| Global Equity* | 7.5% | 6.8% | +0.7% |
| Private Equity* | 10.1% | 10.0% | +0.1% |

30-YEAR RETURN FORECASTS

FIXED INCOME

| Geometric Expected Return | | | |
|-----------------------------------|------------|------------|-------|
| Asset Class | 12/31/2022 | 12/31/2021 | Delta |
| Cash | 3.4% | 2.3% | +1.1% |
| US TIPS | 4.3% | 2.6% | +1.7% |
| US Treasury Bond | 4.1% | 2.5% | +1.6% |
| US Corporate Bond | 5.9% | 4.2% | +1.7% |
| US Corporate Bond - AAA | 5.1% | 3.3% | +1.8% |
| US Corporate Bond - AA | 5.0% | 3.4% | +1.6% |
| US Corporate Bond - A | 5.5% | 3.8% | +1.7% |
| US Corporate Bond - BBB | 6.1% | 4.4% | +1.7% |
| US Mortgage-Backed Securities | 4.4% | 2.8% | +1.6% |
| US Securitized Bond | 5.1% | 3.6% | +1.5% |
| US Collateralized Loan Obligation | 5.2% | 4.0% | +1.2% |
| US Municipal Bond | 3.9% | 2.5% | +1.4% |
| US Municipal Bond (1-10 Year) | 3.4% | 2.3% | +1.1% |
| US Taxable Municipal Bond | 5.8% | 4.3% | +1.5% |

30-YEAR RETURN FORECASTS

FIXED INCOME

| Geometric Expected Return | | | |
|---|------------|------------|-------|
| Asset Class | 12/31/2022 | 12/31/2021 | Delta |
| Non-US Government Bond | 3.2% | 1.9% | +1.3% |
| Non-US Government Bond (USD Hedge) | 3.4% | 2.2% | +1.2% |
| Non-US Inflation-Linked Bond (USD Hedge) | 3.6% | 1.4% | +2.2% |
| US Short-Term TIPS (1-3 Year) | 3.9% | 2.4% | +1.5% |
| US Short-Term Treasury Bond (1-3 Year) | 3.8% | 2.4% | +1.4% |
| US Short-Term Corporate Bond (1-3 Year) | 4.9% | 3.4% | +1.5% |
| US Intermediate-Term TIPS (3-10 Year) | 4.4% | 2.8% | +1.6% |
| US Intermediate-Term Treasury Bond (3-10 Year) | 4.2% | 2.7% | +1.5% |
| US Intermediate-Term Corporate Bond (3-10 Year) | 6.0% | 4.4% | +1.6% |
| US Long-Term TIPS (10-30 Year) | 4.6% | 2.3% | +2.3% |
| US Long-Term Treasury Bond (10-30 Year) | 4.3% | 2.4% | +1.9% |
| US Long-Term Corporate Bond (10-30 Year) | 6.2% | 4.2% | +2.0% |
| 20+ Year US Treasury STRIPS | 4.3% | 2.1% | +2.2% |
| 10 Year US Treasury Bond | 4.7% | 3.0% | +1.7% |
| 10 Year Non-US Government Bond (USD Hedge) | 3.1% | 1.4% | +1.7% |
| US Aggregate Bond* | 4.7% | 3.1% | +1.6% |

30-YEAR RETURN FORECASTS

FIXED INCOME

| Geometric Expected Return | | | |
|--|------------|------------|-------|
| Asset Class | 12/31/2022 | 12/31/2021 | Delta |
| US High Yield Corporate Bond | 7.3% | 5.4% | +1.9% |
| US Corporate Bond - BB | 7.7% | 6.0% | +1.7% |
| US Corporate Bond - B | 7.2% | 5.4% | +1.8% |
| US Corporate Bond - CCC/Below | 2.1% | -0.6% | +2.7% |
| US Short-Term High Yield Corporate Bond (1-3 Year) | 5.5% | 3.7% | +1.8% |
| US Leveraged Loan | 6.9% | 5.6% | +1.3% |
| Emerging Market External Debt | 6.8% | 5.1% | +1.7% |
| Emerging Market Local Currency Debt | 6.1% | 5.3% | +0.8% |
| US High Yield Securitized Bond | 8.1% | 5.4% | +2.7% |
| US High Yield Collateralized Loan Obligation | 7.7% | 6.4% | +1.3% |
| US High Yield Municipal Bond | 5.7% | 3.9% | +1.8% |
| Hedge Fund - Credit | 7.1% | 5.7% | +1.4% |
| Private Debt - Credit Opportunities | 8.4% | 7.4% | +1.0% |
| Private Debt - Distressed | 9.4% | 8.2% | +1.2% |
| Private Debt - Direct Lending | 9.1% | 7.8% | +1.3% |
| Private Debt* | 9.1% | 7.9% | +1.2% |

30-YEAR RETURN FORECASTS

REAL ASSETS

| Geometric Expected Return | | | |
|---|------------|------------|-------|
| Asset Class | 12/31/2022 | 12/31/2021 | Delta |
| Commodity Futures | 3.2% | 3.3% | -0.1% |
| Midstream Energy | 6.7% | 6.7% | - |
| REIT | 7.3% | 6.3% | +1.0% |
| Global Infrastructure Equity | 6.7% | 6.3% | +0.4% |
| Global Natural Resources Equity | 6.6% | 6.7% | -0.1% |
| Gold | 4.8% | 4.0% | +0.8% |
| Real Estate - Core | 5.1% | 5.6% | -0.5% |
| Real Estate - Non-Core | 6.5% | 6.9% | -0.4% |
| Private Debt - Real Estate | 6.0% | 5.4% | +0.6% |
| Private Real Assets - Natural Resources | 8.4% | 8.2% | +0.2% |
| Private Real Assets - Infrastructure | 7.0% | 6.6% | +0.4% |

PRIVATE MARKETS COMPOSITES

PUBLIC MARKET BETA INPUTS FOR PRIVATE MARKETS

PRIVATE EQUITY

Buyout: 25% U.S. Large Cap, 75% U.S. Small/Mid Cap

Secondary: 25% U.S. Large Cap, 75% U.S. Small/Mid Cap

Growth: 50% U.S. Small/Mid Cap, 50% U.S. Microcap

Early-Stage Venture: 25% U.S. Small/Mid Cap, 75% U.S. Microcap

Non-U.S.: 70% International Small Cap, 30% Emerging Small Cap

Composite: 34% Buyout, 34% Growth, 15 % Non-U.S., 8.5% Secondary, 8.5% Early Venture

PRIVATE DEBT

Direct Lending: 100% Bank Loans

Distressed: 20% U.S. Small/Mid Cap, 60% U.S. High Yield, 20% Bank Loans

Credit Opportunities: 34% U.S. SMID Cap, 33% U.S. High Yield, 33% Bank Loans

Composite: 50% Direct Lending, 25% Credit Opportunities, 25% Distressed

PRIVATE REAL ASSETS

Energy: 30% Comm., 35% Midstream, 35% Public Resource Equity

Infra/Land: 30% Commodities, 70% Public Infrastructure

Private Real Estate Debt: 50% CMBS, 50% Real Estate - Core

INFORMATION DISCLAIMER

Past performance is no guarantee of future results.

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.

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.

February 28, 2023

Retirement Board Agenda Item

TO: Retirement Board

FROM: Tom Stadelmaier, Executive Director

- I. SUBJECT: June 30, 2022 Actuarial Valuation and Contribution Rate for StanRTA
 - II. ITEM NUMBER: 10.a
 - III. ITEM TYPE: Discussion and Action
 - IV. STAFF RECOMMENDATION: Accept the June 30, 2022 Actuarial Valuation and Contribution Rates for StanRTA
 - V. EXECUTIVE SUMMARY: This is the final June 30, 2022 actuarial valuation that was presented as preliminary at the December 2022 meeting.
 - VI. RISK: None
 - VII. STRATEGIC PLAN: N/A
- ADMINISTRATIVE BUDGET IMPACT: None



Stanislaus County Employees' Retirement Association

**Actuarial Valuation as of
June 30, 2022**

Produced by Cheiron

February 2023

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February 17, 2023

Board of Retirement
Stanislaus County Employees' Retirement Association
832 12th Street, Suite 600
Modesto, CA 95353

Dear Members of the Board,

At your request, we have conducted an actuarial valuation of the Stanislaus County Employees' Retirement Association (StanCERA, the Fund, the Plan) as of June 30, 2022. This report contains information on the Plan's assets and liabilities. This report also discloses employer contribution levels and required disclosures for the Plan's Annual Comprehensive Financial Report (ACFR). Your attention is called to the Foreword in which we refer to the general approach employed in the preparation of this report.

The purpose of this report is to present the results of the annual actuarial valuation of StanCERA. This report is for the use of StanCERA and its auditors in preparing financial reports in accordance with applicable law and accounting requirements. Any other user of this report is not an intended user and is considered a third party.

Cheiron's report was prepared solely for StanCERA for the purposes described herein, except that the Plan auditor may rely on this report solely for completing an audit related to the matters herein. It is not intended to benefit any third party, and Cheiron assumes no duty or liability to any such party.

This report 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 report. This report does not address any contractual or legal issues. We are not attorneys, and our firm does not provide any legal services or advice.

Sincerely,
Cheiron

A handwritten signature in blue ink, appearing to read "Graham Schmidt".

Graham A. Schmidt, ASA, EA, FCA, MAAA
Consulting Actuary

A handwritten signature in blue ink, appearing to read "Jonathan B. Chipko".

Jonathan B. Chipko, FSA, EA, MAAA
Consulting Actuary

**STANISLAUS COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JUNE 30, 2022**

FOREWORD

Cheiron has performed the actuarial valuation of the Stanislaus County Employees' Retirement Association as of June 30, 2022. The valuation is organized as follows:

- In Section I, the **Executive Summary**, we describe the purpose of an actuarial valuation, summarize the key results found in this valuation, and disclose important trends;
- The **Main Body** of the report presents details on the Plan's
 - Section II – Disclosures Related to Risk
 - Section III – Assets
 - Section IV – Liabilities
 - Section V – Contributions
 - Section VI – Required ACFR Exhibits
- In the **Appendices** we conclude our report with detailed information describing Plan membership (Appendix A), actuarial assumptions and methods employed in the valuation (Appendix B), a summary of pertinent Plan provisions (Appendix C), a glossary of key actuarial terms (Appendix D), and tables containing member contribution rates (Appendix E).

Future results may differ significantly from the current projections presented in this report due to such factors as the following: plan experience differing from that anticipated by the assumptions; changes in assumptions; and, changes in plan provisions or applicable law.

In preparing our report, we relied on information (some oral and some written) supplied by the StanCERA staff. This information includes, but is not limited to, Plan provisions, employee data, and financial information. We performed an informal examination of the obvious characteristics of the data for reasonableness and consistency in accordance with Actuarial Standard of Practice No. 23.

Cheiron utilizes ProVal, an actuarial valuation application leased from Winklevoss Technologies (WinTech), to calculate liabilities and project benefit payments. We have relied on WinTech as the developer of ProVal. We have reviewed ProVal, have a basic understanding of it, and have used it in accordance with its original intended purpose. We have not identified any material inconsistencies in assumptions or output of ProVal that would affect this report. The deterministic and stochastic projections shown in this report were developed using R-Scan, our proprietary stochastic projection tool for assessing probabilities of different outcomes. We have relied on Cheiron colleagues who developed the tool, and we have used the tool in accordance with its purpose.

**STANISLAUS COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JUNE 30, 2022**

SECTION I – EXECUTIVE SUMMARY

The primary purpose of the actuarial valuation and this report is to measure, describe, and identify the following as of the valuation date:

- The funded status of the Plan,
- Past and expected trends in the funding progress of the Plan,
- Employer and employee contribution rates for Plan Year 2023-2024, and
- An assessment and disclosure of key risks.

In the balance of this Executive Summary, we present (A) the basis upon which this year's valuation was completed, (B) the key findings of this valuation including a summary of all key results, (C) an examination of the historical trends, and (D) the projected outlook for the Plan.

A. Valuation Basis

This valuation determines the employer contributions required for the employers' fiscal years beginning July 1, 2023. The employers include the County of Stanislaus and related employers, the City of Ceres, and other participating Special Districts¹.

The Plan's funding policy is to collect contributions from the employers and employees equal to the sum of:

- The Normal Cost under the Entry Age Normal Cost Method,
- Amortization of the Unfunded Actuarial Liability (UAL), and
- The Fund's expected administrative expenses.

This valuation was prepared based on the data summarized in Appendix A, the assumptions and methods described in Appendix B, and the Plan provisions shown in Appendix C.

Actuarial experience studies are performed every three years. This valuation was performed based on the economic and demographic assumptions that were determined in the Actuarial Experience Study performed by Cheiron as of June 30, 2021 and reviewed by the Board on December 14, 2021. This valuation is the second to use the assumptions determined in the above experience study.

¹ Adjusted contribution rates for new employers – specifically for this valuation, the Stanislaus Regional Transit Authority – will be provided in a separate document.

**STANISLAUS COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
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B. Key Findings of this Valuation

The key results of the June 30, 2022 actuarial valuation are as follows:

- The actuarially determined employer contribution rate increased from 31.59% of payroll to 32.91% of payroll for the current valuation.
- The Plan's funded ratio, the ratio of Actuarial Assets over Actuarial Liability, decreased from 78.8% to 77.0%. Likewise, the Plan's funded ratio on a market value basis decreased from 85.9% to 74.0%.
- The Unfunded Actuarial Liability (UAL) is the excess of the Plan's Actuarial Liability over the Actuarial Value of Assets. The Plan experienced an increase in the UAL from \$669.3 million to \$775.8 million as of June 30, 2022. This increase in UAL was largely due to investment and demographic experience losses.
- During the year ending June 30, 2022, the return on Plan assets was -6.23% on a market value basis net of investment (but not administrative) expenses, as compared to the 6.75% assumption. The Actuarial Value of Assets recognizes 20% of the difference between the expected and actual return on the Market Value of Assets (MVA). This method of smoothing the asset gains and losses returned 6.37% on the smoothed value of assets, an actuarial asset loss of \$11.4 million. The loss in the Actuarial Value of Assets reflects the continued recognition of past investment gains and losses, with past investment gains offsetting the impact of the loss for the current year and leading to a higher actuarial value return than market value return.
- During the 2021-22 Plan Year, the actuarial liabilities of the Plan increased more than expected, with key factors being larger Cost of Living Adjustments (COLAs) than expected for members in pay status, increases in the projected COLA banks for members in pay status due to higher than expected inflation, and higher pay increases than expected for continuing actives. These and other unexpected changes resulted in a liability loss of \$115.1 million.
- Overall participant membership increased from 9,904 to 10,116 total members compared to last year. There were 644 new hires and rehires during 2021-2022 and the total active population increased slightly, from 4,321 to 4,323. Total projected pensionable payroll increased from \$306,344,007 to \$333,773,583, or 9.0%.

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In Tables I-1 and I-2 below, we summarize the key results of the valuation with respect to assets and liabilities, contributions, and membership. The results are presented and compared for both the current and prior Plan year.

| Table I-1 Stanislaus County Employees' Retirement Association Summary of Key Valuation Results (in millions) | | | |
|--|-------------------------------------|-------------------------------------|----------------------------------|
| Valuation Date Fiscal Year End | June 30, 2021 2023 | June 30, 2022 2024 | Absolute Change |
| Actuarial Liability | \$ 3,153.0 | \$ 3,379.6 | \$ 226.6 |
| Actuarial Value of Assets ¹ | <u>2,483.7</u> | <u>2,603.8</u> | <u>120.1</u> |
| Unfunded Actuarial Liability (Actuarial Value) | \$ 669.3 | \$ 775.8 | \$ 106.5 |
| Funding Ratio (Actuarial Value) | 78.8% | 77.0% | -1.8% |
| Market Value of Assets ¹ | <u>2,707.3</u> | <u>2,499.8</u> | <u>(207.5)</u> |
| Unfunded Actuarial Liability (Market Value) | \$ 445.7 | \$ 879.8 | \$ 434.1 |
| Funding Ratio (Market Value) | 85.9% | 74.0% | -11.9% |
| Net Employer Contribution Rate | 31.59% | 32.91% | 1.32% |

¹ Net of non-valuation reserves.

| Table I-2 Membership Total | | | |
|---|----------------------|----------------------|-----------------|
| Item | June 30, 2021 | June 30, 2022 | % Change |
| Actives | 4,321 | 4,323 | 0.0% |
| Deferred Members | 1,267 | 1,317 | 3.9% |
| Retired Members | <u>4,316</u> | <u>4,476</u> | <u>3.7%</u> |
| Total Members | 9,904 | 10,116 | 2.1% |
| Ratio of Inactive Members to Active Members | 129.2% | 134.0% | |
| Active Member Payroll (FYE 2022/2023) | \$ 306,344,007 | \$ 333,773,583 | 9.0% |
| Average Pay per Active | \$ 70,897 | \$ 77,209 | 8.9% |

The ratio of inactive members (i.e., those receiving benefits or those entitled to a deferred benefit) to active members is a measure of the maturity of the plan. It shows how many inactive members are supported by each active member. A higher ratio indicates a more mature plan and potentially higher risk since the retiree benefits are larger relative to the contribution base, i.e., the active member payroll. Table I-2 shows that the ratio of inactive members to active members increased this year due to an increase in inactive members and a level active workforce, indicating the ongoing maturation of the Plan.

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Changes in UAL

The Unfunded Actuarial Liability (UAL) for StanCERA increased by \$106.5 million, from \$669.3 million to \$775.8 million. Table I-3 below presents the specific components of the change in the UAL.

| Table I-3 | | |
|--|----|-------------|
| Change in Unfunded Actuarial Liability | | |
| Experience | | in millions |
| 1. Unfunded actuarial liability, 6/30/2021 | \$ | 669.3 |
| 2. Expected change in unfunded actuarial liability | \$ | (16.2) |
| 3. Unfunded increase due to investment loss | | 11.4 |
| 4. Unfunded decrease due to contribution surplus | | (3.8) |
| 5. Unfunded increase due to liability loss | | 115.1 |
| 6. Total change in unfunded actuarial liability | \$ | 106.5 |
| 7. Unfunded actuarial liability, 6/30/2022 | \$ | 775.8 |

As noted earlier, the return on the actuarial assets used to compute the UAL and the employer contribution rate was 6.37% during the 2021-22 Plan Year. Investment returns lower than the assumed rate of 6.75% increased the UAL by \$11.4 million.

Liability losses increased the UAL by \$115.1 million, driven by losses associated with larger Cost of Living Adjustments (COLAs) than expected for members in pay status, increases in the projected COLA banks for members in pay status due to higher-than-expected inflation, and higher pay increases than expected for continuing actives. The UAL also decreased by \$3.8 million due to contributions greater than the actuarially determined cost. This is primarily a result of the 12-month lag in the implementation of contribution rates and higher than expected payroll growth.

The expected change in the UAL due to the yearly amortization of the UAL balance – a decrease of \$16.2 million, as a result of the amortization schedule for the current year – combined with the above UAL changes to produce an overall increase of \$106.5 million.

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Changes in Employer Contributions

Thus far, the experience of the 2021-22 Plan year has been presented in terms of the UAL and funded ratio. Table I-4 below summarizes the impact of actuarial experience and changes in assumptions on the employer contribution rate.

| Table I-4 Employer Contribution Reconciliation | | | | |
|---|----------------------|----------------------|----------------------|---------------------|
| Item | Total | Normal Cost | Amortization | Admin Expense |
| <i>FYE 2023 Net Employer Contribution Rate</i> | <i>31.59%</i> | <i>11.18%</i> | <i>19.40%</i> | <i>1.01%</i> |
| Change Due to Asset Loss | 0.26% | 0.00% | 0.26% | 0.00% |
| Change Due to Contribution Surplus | -0.09% | 0.00% | -0.09% | 0.00% |
| Change Due to Demographic Changes | 2.48% | -0.18% | 2.66% | 0.00% |
| Change Due to Effect of Payroll on Amortization | <u>-1.33%</u> | <u>0.00%</u> | <u>-1.27%</u> | <u>-0.06%</u> |
| Total Change | 1.32% | -0.18% | 1.56% | -0.06% |
| <i>FYE 2024 Net Employer Contribution Rate</i> | <i>32.91%</i> | <i>11.00%</i> | <i>20.96%</i> | <i>0.95%</i> |

- Asset experience produced an investment loss on a smoothed basis, as described earlier. The smoothed loss increased the contribution rate by 0.26% of pay. The ratio of Actuarial to Market Value of Assets is 104.2%. There are now \$104.1 million in net deferred losses as of June 30, 2022. There is also \$25.2 million in a non-valuation Contingency Reserve.
- The Plan received a larger contribution than the actuarially determined cost for the prior plan year. The net impact of the surplus was a decrease in the employer contribution rate by 0.09% of pay.
- The demographic experience of the Plan – rates of retirement, death, disability, and termination, as well as salary and COLA changes – caused an increase in employer contribution rate of 2.48% of pay. Losses associated with COLA, COLA bank increases for members in pay status, and higher than expected pay increases for continuing active members were the largest factors contributing to an increase in the UAL and the associated amortization payment. The increase in the amortization payment was offset by a reduction in the employer-paid normal cost as a result of the continued transition of the active workforce to membership in the new PEPRA tiers, which reflect lower benefit levels for new hires.
- Overall payroll was higher than expected by about \$19.0 million, increasing 9.0% compared to the 2.75% assumption. As a result, the unfunded liability amortization payment and administrative expenses were spread over a larger payroll base than expected, and the employer contribution rate decreased by 1.33% of pay. We note that the pay for County members reflects expected pay increases of 3% in July 2022 and 5% in September 2022.

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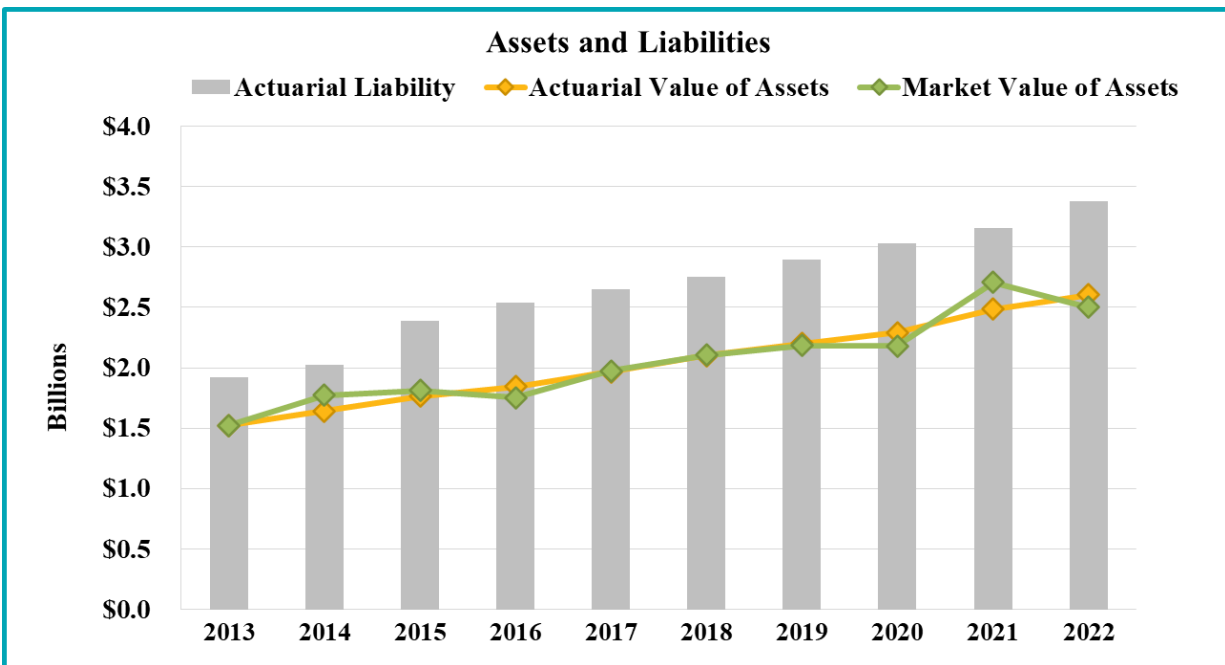
SECTION I – EXECUTIVE SUMMARY

C. Historical Trends

Despite the fact that for most retirement plans the greatest attention is given to the current valuation results and in particular, the size of the current UAL and the employer contribution, it is important to remember that each valuation is merely a snapshot in the long-term progress of a pension fund. It is more important to judge a current year's valuation result relative to historical trends, as well as trends expected into the future.

Assets and Liabilities

The chart below compares the Market Value of Assets (MVA) and Actuarial Value of Assets (AVA) to the Actuarial Liabilities. The percentage shown in the table below the graph is the ratio of the Actuarial Value of Assets to the Actuarial Liability (the funded ratio). The funded ratio has decreased from 79.4% in 2013 to 77.0% as of June 30, 2022. The large drop in the funded ratio in 2015 was primarily due to changes in assumptions. The decrease in the funded ratio from last year to this year was primarily a result of investment losses and higher than expected COLAs and pay increases.



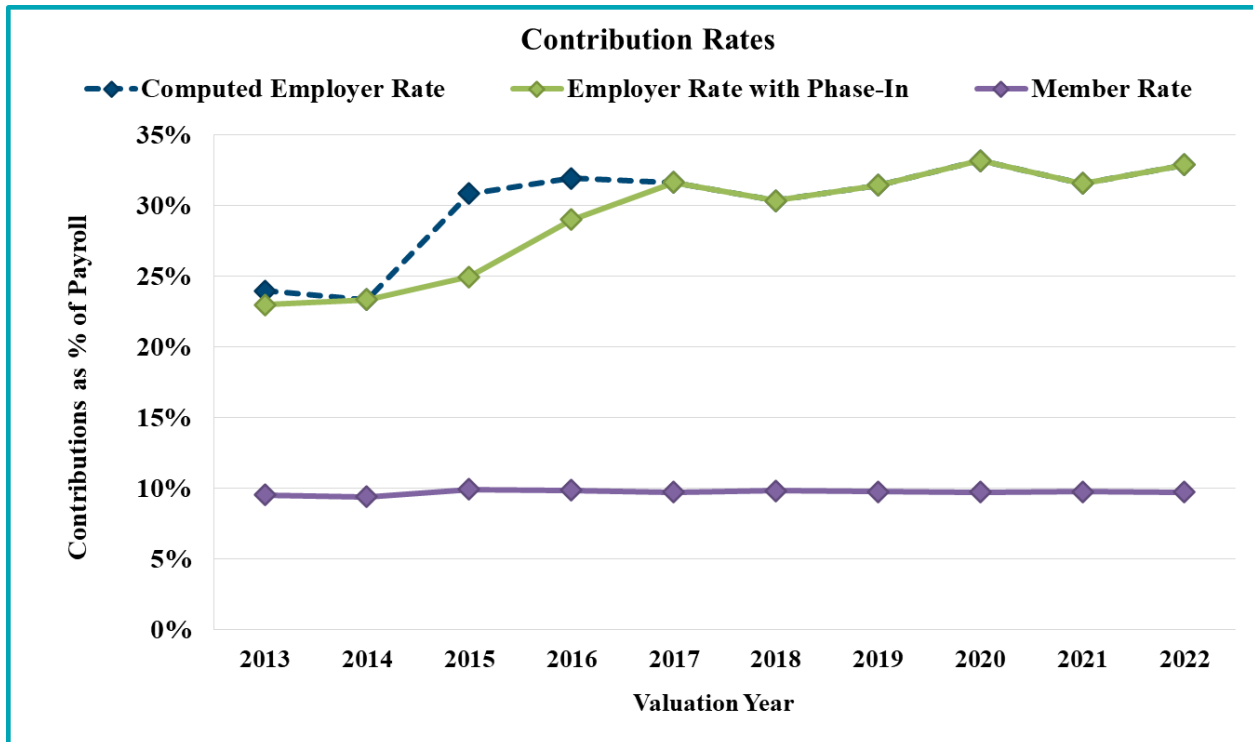
| Valuation Year | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 |
|----------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Funded Ratio | 79.4% | 81.1% | 73.7% | 72.8% | 74.3% | 76.4% | 75.9% | 75.6% | 78.8% | 77.0% |
| UAL (Billions) | \$ 0.40 | \$ 0.38 | \$ 0.63 | \$ 0.69 | \$ 0.68 | \$ 0.65 | \$ 0.70 | \$ 0.74 | \$ 0.67 | \$ 0.78 |

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Contribution Trends

In the chart below, we present the historical trends for the StanCERA contribution rates. The employer contribution rates have risen since 2013, primarily as a result of changes to the actuarial assumptions and methods. The average employee contribution rates have also increased as the Plan's economic and demographic assumptions have changed. The phase-ins shown from 2013-2016 recognized significant changes in the computed employer rate over a set period to help manage the financial impact for the Plan sponsors. The employer contribution rate increased this year due to investment and demographic experience losses.



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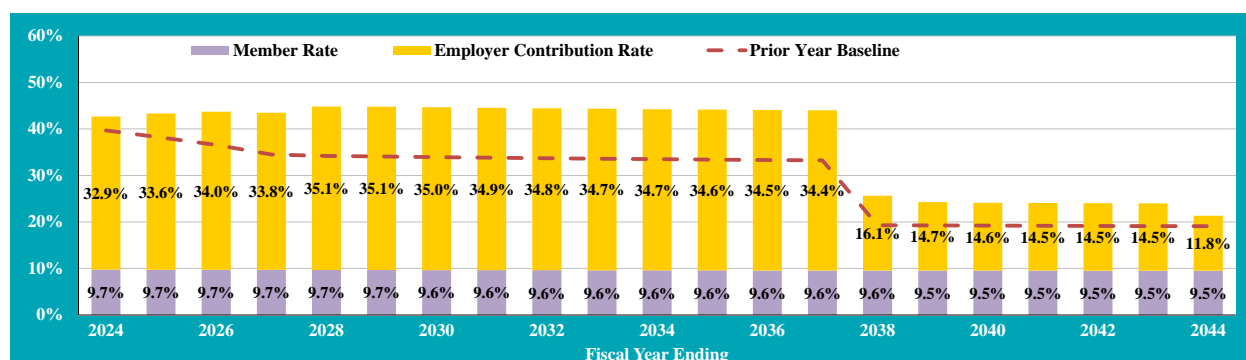
D. Future Expected Financial Trends

The analysis of projected financial trends is an important component of this valuation. In this Section, we present our assessment of the implications of the June 30, 2022 valuation results in terms of benefit security (assets compared to liabilities). All the projections in this section are based on the current investment return assumption of 6.75%. We have assumed future total payroll increases of 2.75% per year.

The graph below shows the expected employer and employee contribution rates based on achieving the 6.75% assumption **each year** for the next 20 years. This scenario is highly unlikely: even if the Plan does achieve an **average** return of 6.75% over this period, the returns in each given year will certainly vary. The expected total contribution rates based on the prior year valuation as of June 30, 2021 are shown (in the dashed line) for comparison.

The contribution rate graph shows that employer contribution rates are expected to increase gradually over the next four years as deferred investment losses are recognized in the actuarial value of assets and then stay relatively stable until the initial amortization base established in 2021, covering the bulk of the unfunded liability, has been paid down.

Projection of Contributions, 6.75% Return Each Year



The total contribution rate (employer plus employee) is approximately 43% of member payroll for the June 30, 2022 valuation. It is expected to gradually increase to approximately 45% through FYE 2028 if all actuarial assumptions are met, as recent market value asset losses are recognized in the actuarial value of assets. The total contribution rate (employer plus member) is expected to gradually decline after FYE 2028 as PEPRA members replace legacy members, lowering the average normal cost of the Plan.

After 14 years, the total contribution rate is expected to drop due to the end of the amortization period for the initial 2021 amortization base. Thereafter, the total contribution rate mostly represents expected normal cost plus administrative expenses, along with UAL amortization payments for any gains and losses than occurred after July 1, 2021. The end of the amortization periods only affects the employer contribution rate. It has no impact on the employee contribution rate.

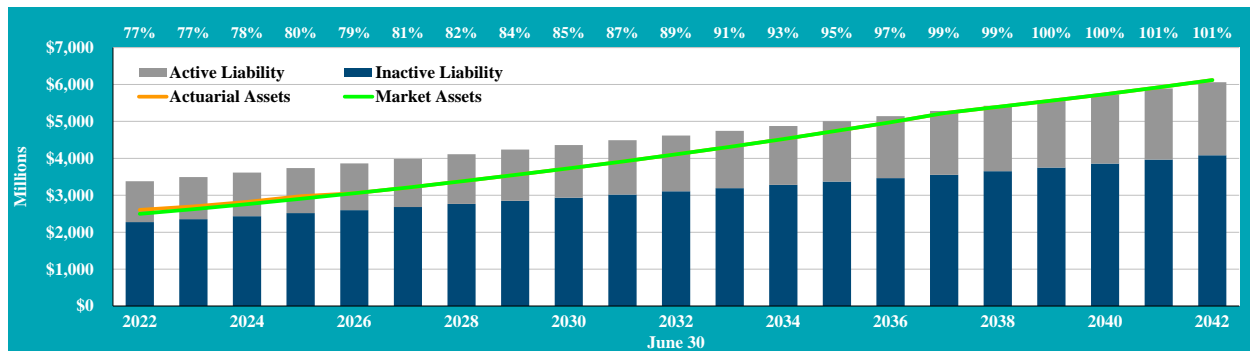
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Asset and Liability Projections:

The following graph shows the projection of assets and liabilities assuming that assets will earn the 6.75% assumption each year during the projection period. The funded ratio shown is based on the Actuarial Value of Assets. The Actuarial Value of Assets is more than the Market Value of Assets as of June 30, 2022; under the five-year smoothing policy, the two are assumed to be equal past 2025 if there are no additional asset gains/losses.

Projection of Assets and Liabilities, 6.75% Return Each Year
(\$ millions)



The graph above shows that the projected funded status remains relatively level for several years before increasing more steadily. The funded ratio approaches 100% after 15 years, as can be expected based on the amortization policy and the one-year contribution lag, assuming the actuarial assumptions are achieved.

However, it is the **actual** return on Plan assets that will determine the future funded status and contribution rate to the Fund.

We note that the funded ratio is expected to gradually climb above 100%; this is because under the PEPRA legislation, the employer contribution is not allowed to fall below the level of the Normal Cost unless the Plan reaches at least 120% funded (and other conditions are met).

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Actuarial valuations are based on a set of assumptions about future economic and demographic experience. These assumptions represent a reasonable estimate of future experience, but actual future experience will undoubtedly be different and may vary significantly.

Actuarial Standard of Practice (ASOP 51) requires actuaries to identify and assess risks that “may reasonably be anticipated to significantly affect the plan’s future financial condition.” This section of the report is intended to identify the primary risks to the Plan, provide some background information about those risks, and provide an assessment of those risks.

Identification of Risks

A fundamental risk to a pension plan is that the contributions needed to pay the benefits become unaffordable. Even in the case that the Plan remains affordable, the contributions needed to support the Plan may differ significantly from expectations. While there are a number of factors that could lead to contribution amounts deviating from expectations, we believe the primary risks are:

- Investment risk,
- Assumption change risk, and
- Contribution risk.

Other risks that we have not identified may also turn out to be important.

Investment Risk is the potential for investment returns to be different than expected. Lower investment returns than anticipated will increase the unfunded actuarial liability necessitating higher contributions in the future unless there are other gains that offset these investment losses. The potential volatility of future investment returns is determined by the Plan’s asset allocation and the affordability of the investment risk is determined by the amount of assets invested relative to the size of the plan sponsors or other contribution base.

Assumption change risk is the potential for the environment to change such that future valuation assumptions are different than the current assumptions. For example, declines in interest rates over the last three decades resulted in higher investment returns for fixed income investments but lower expected future returns, necessitating either a change in investment policy, a reduction in discount rate, or some combination of the two. Assumption change risk is an extension of the other risks identified, but rather than capturing the risk as it is experienced, it captures the cost of recognizing a change in environment when the current assumption is no longer reasonable.

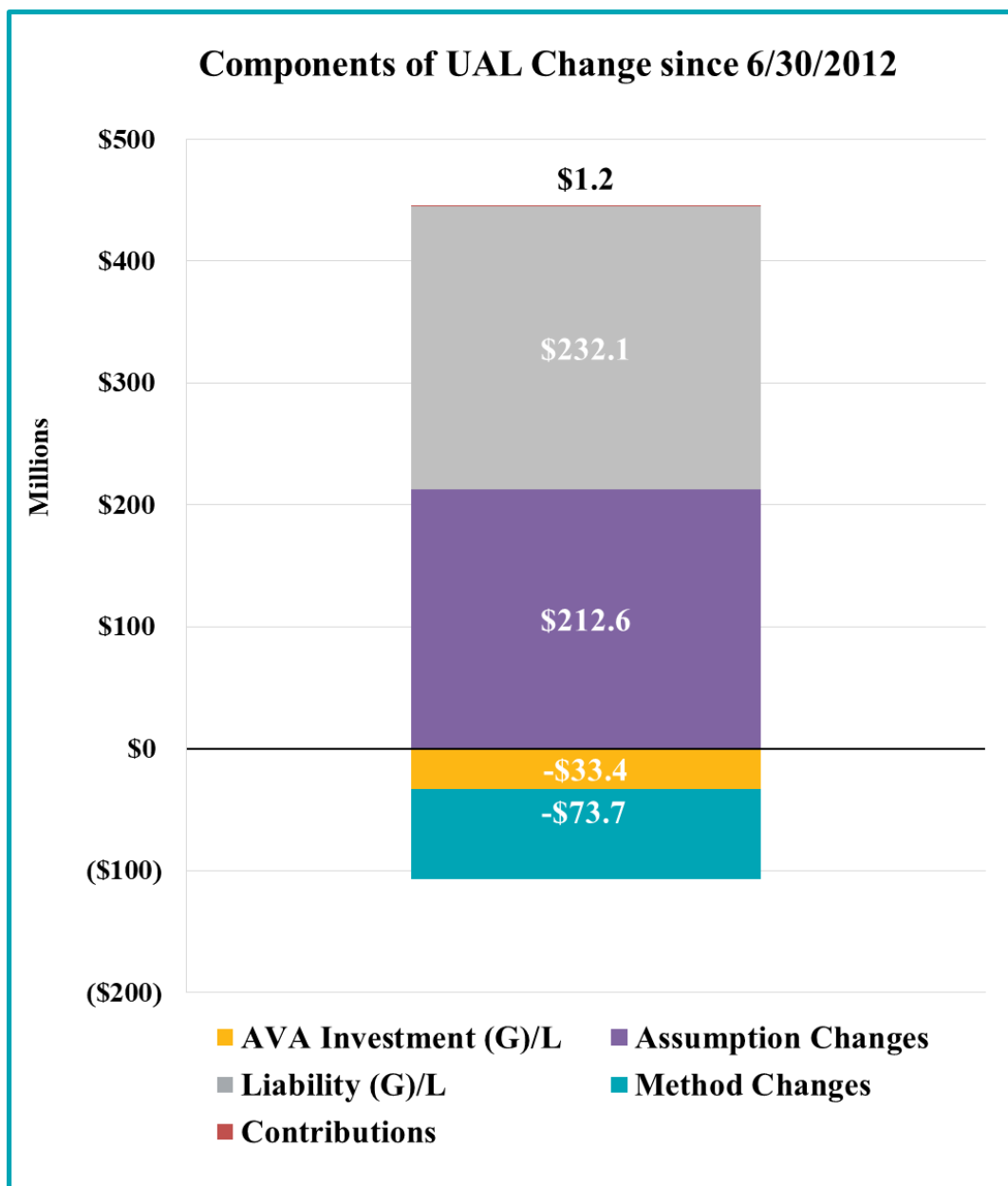
Contribution risk is the potential for actual future contributions to deviate from expected future contributions. There are different sources of contribution risk such as the sponsor failing to make contributions in accordance with the funding policy or the contribution requirement becoming such a financial strain on the sponsor as a result of material changes in the contribution base (e.g., covered employees, covered payroll) that it affects the amount of contributions the Plan can collect.

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The chart below shows the aggregated components contributing to the change in Unfunded Actuarial Liability (UAL) from June 30, 2012 through June 30, 2022. Over the last 10 years, the UAL has increased by approximately \$338.8 million. The net liability losses (gray bar) of \$232.1 million and assumption changes (purple bar) of \$212.6 million are the primary sources of the UAL growth, resulting in a total UAL increase of \$444.7 million. The contributions have been very close to the “tread water” level (described later in this section, shown in the red bar), resulting a small increase of \$1.2 million in the UAL. Method changes (teal bar) of \$73.7 million and investment gains (gold bar) of \$33.4 million have decreased the UAL since June 30, 2012.

Chart II-1

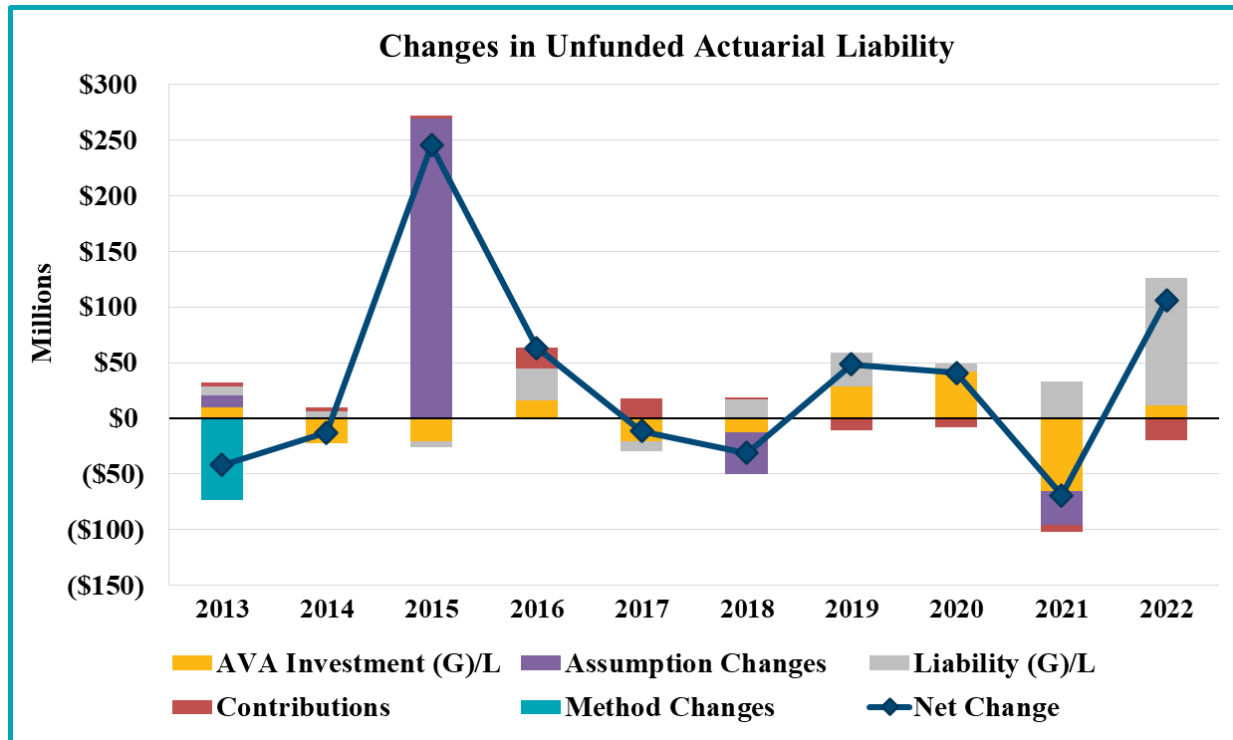


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SECTION II – DISCLOSURES RELATED TO RISK

Chart II-2 below details the annual sources of the UAL change (colored bars) for the plan years ending June 30. The net UAL change for each year is represented by the blue diamonds.

Chart II-2



Effective with the June 30, 2013 valuation, the actuarial cost method was modified from the Entry Age Normal-to-Decrement method to the Entry Age Normal-to-Final-Decrement method to comply with the accounting standards issued by the Government Accounting Standards Board. The impact of this was to shift some of the liability from past service to future, thereby decreasing the actuarial liability (by approximately \$74 million) and increasing the normal cost. This is represented by the teal bar.

On a market value basis, the average annual geometric return over the 10-year period has been 7.7% with investment gains on the AVA in five of those years decreasing the UAL, but investment losses in the other five years of the last decade. As of June 30, 2022, there are approximately \$104.1 million of deferred losses that will be recognized over the next four years, with the large loss from the most recent year contributing most of the deferred losses.

Over the same time period, the assumed rate of return decreased from 7.75% to 6.75%. It is important to note that these changes simply reflect a downward revision to the estimate of future investment earnings and ultimately costs will be determined by actual investment earnings.

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The impact of all assumption changes is represented by the purple bars and also includes decreases in mortality rates projected in the future. The assumption changes effective with the June 30, 2021 valuation included a change in the expected rate of return from 7.00% to 6.75%, but also contained demographic assumption changes, which reduced the UAL.

Each year the UAL is expected to increase for benefits earned in the current year (the normal cost), administrative expenses, and interest on the UAL. This expected increase is referred to as the tread water level. If contributions are greater than the tread water level, the UAL is expected to decrease. Conversely, if contributions are less than the tread water level, the UAL is expected to increase. The amortization policy (as well as the contribution-timing lag) can impact whether or not the contributions exceed the tread water level. For example, a long amortization period can result in contributions below the tread water cost. The contribution shortfalls in 2016 and 2017 were due to the phase-in of the 2015 assumption change impact.

Contributions did not meet the tread water level in the first six of the last 10 years, resulting in \$46.9 million of increases to the UAL over that period. However, the amortization period has declined such that positive contributions to reduce the UAL principal have been made in each of the last four years, bringing the overall impact from contributions almost back to neutral (a net \$1.2 million increase). The current funding policy amortizes unexpected changes in the UAL over closed periods of 20 years or less, which will likely continue the trend of contributions that reduce the UAL.

Table II-1 below numerically summarizes the changes in the UAL for each year by source over the last 10 years.

Table II-1

| Table II-1 Unfunded Actuarial Liability (UAL) Change by Source | | | | | | |
|---|--------------------------|-------------------------|-----------------------|-----------------------|--------------------|----------------------|
| June 30, | Investment Experience | Liability Experience | Assumption Changes | Method Changes | Contributions | Total UAL Change |
| 2013 | \$10,200,000 | \$8,500,000 | \$10,300,000 | (\$73,700,000) | \$2,901,000 | (\$41,799,000) |
| 2014 | (22,600,000) | 6,100,000 | 400,000 | 0 | 3,243,000 | (12,857,000) |
| 2015 | (20,600,000) | (5,600,000) | 269,800,000 | 0 | 1,999,000 | 245,599,000 |
| 2016 | 16,300,000 | 28,900,000 | 0 | 0 | 18,210,000 | 63,410,000 |
| 2017 | (20,800,000) | (8,900,000) | 0 | 0 | 18,328,000 | (11,372,000) |
| 2018 | (12,400,000) | 16,800,000 | (37,800,000) | 0 | 2,260,000 | (31,140,000) |
| 2019 | 28,700,000 | 30,800,000 | 0 | 0 | (11,023,000) | 48,477,000 |
| 2020 | 42,100,000 | 7,400,000 | 0 | 0 | (8,407,000) | 41,093,000 |
| 2021 | (65,700,000) | 33,000,000 | (30,100,000) | 0 | (6,240,000) | (69,040,000) |
| 2022 | 11,400,000 | 115,100,000 | 0 | 0 | (20,029,000) | 106,471,000 |
| Total | (\$33,400,000) | \$232,100,000 | \$212,600,000 | (\$73,700,000) | \$1,242,000 | \$338,842,000 |

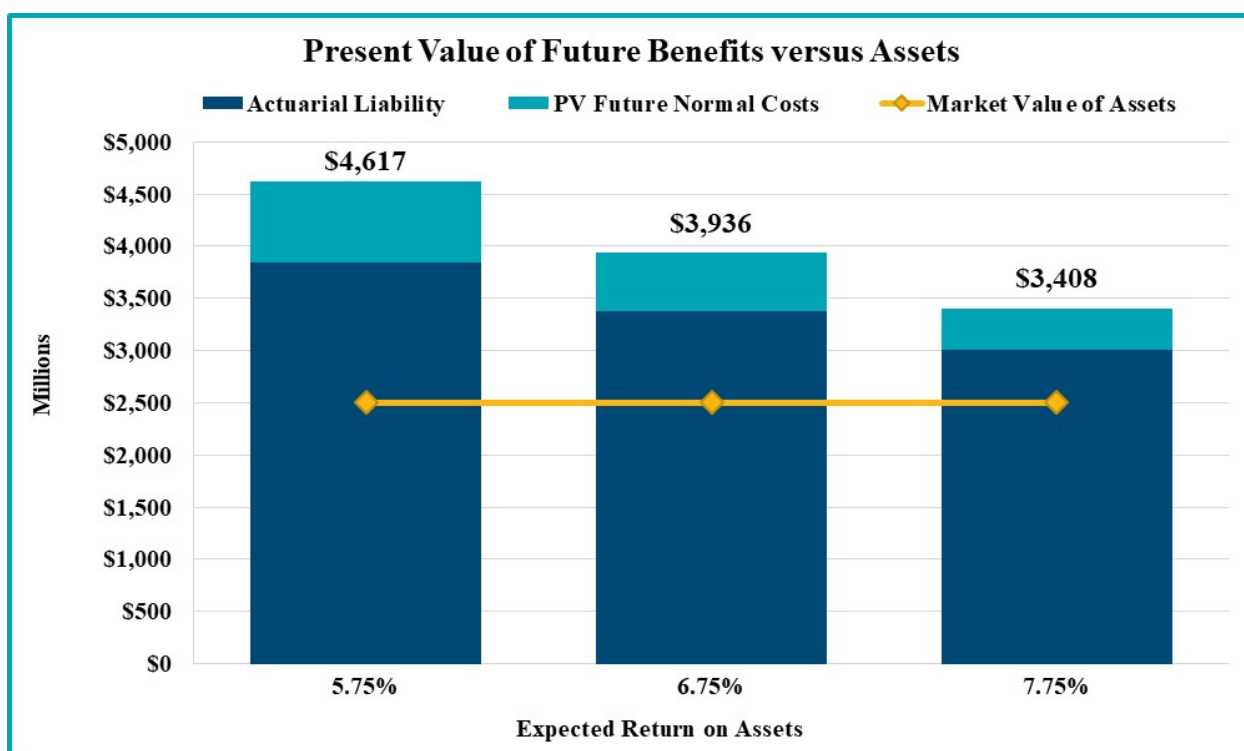
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SECTION II – DISCLOSURES RELATED TO RISK

Assessing Costs and Risks

Sensitivity to Investment Returns

The chart below compares assets to the present value of all projected future benefits discounted at the current expected rate of return and at discount rates 100 basis points above and below the expected rate of return. The present value of future benefits is shown as a bar with the portion attributable to past service in dark blue (Actuarial Liability) and the portion attributable to future service in teal (Present Value of Future Normal Costs). The Market Value of Assets is shown by the gold line.



If investments return 6.75% annually, the Plan will need approximately \$4.0 billion in assets today to pay all projected benefits compared to current assets of \$2.5 billion. If investment returns are only 5.75%, the Plan would need approximately \$4.6 billion in assets today, and if investment returns are 7.75%, the Plan would need approximately \$3.4 billion in assets today.

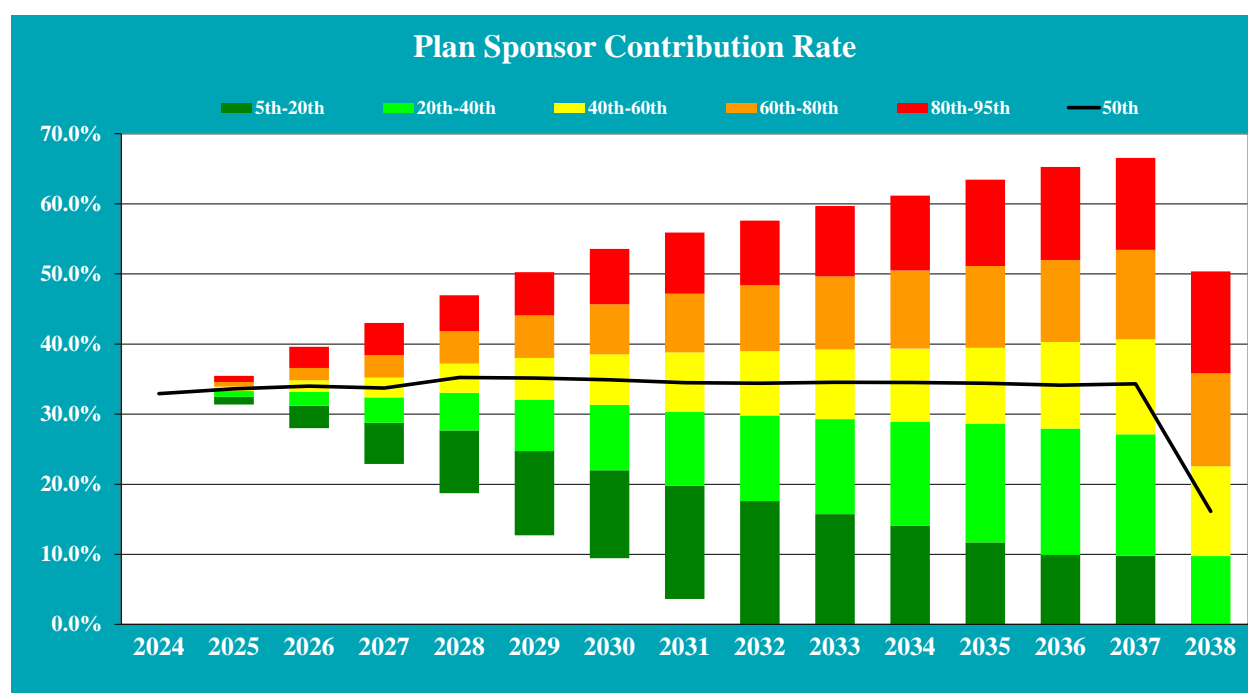
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SECTION II – DISCLOSURES RELATED TO RISK

Sensitivity to Investment Returns - Stochastic Projections

Stochastic projections serve to show the range of probable outcomes of various measurements. The graphs below and on the following page show the projected range of the employer contribution rate and of the funded ratio on an actuarial value of assets basis. The range in both scenarios is driven by the volatility of investment returns (assumed to be based on a 12% standard deviation of annual returns, as indicated in NEPC's March 31, 2021 capital market assumptions). The stochastic projections of investment returns are based on an assumption that each future year's investment return is independent from all other years and is identically distributed according to a lognormal distribution. This assumption may result in an unrealistically wide range of compound investment returns over longer periods.

Stochastic Projection of Employer Contributions as a Percent of Pay

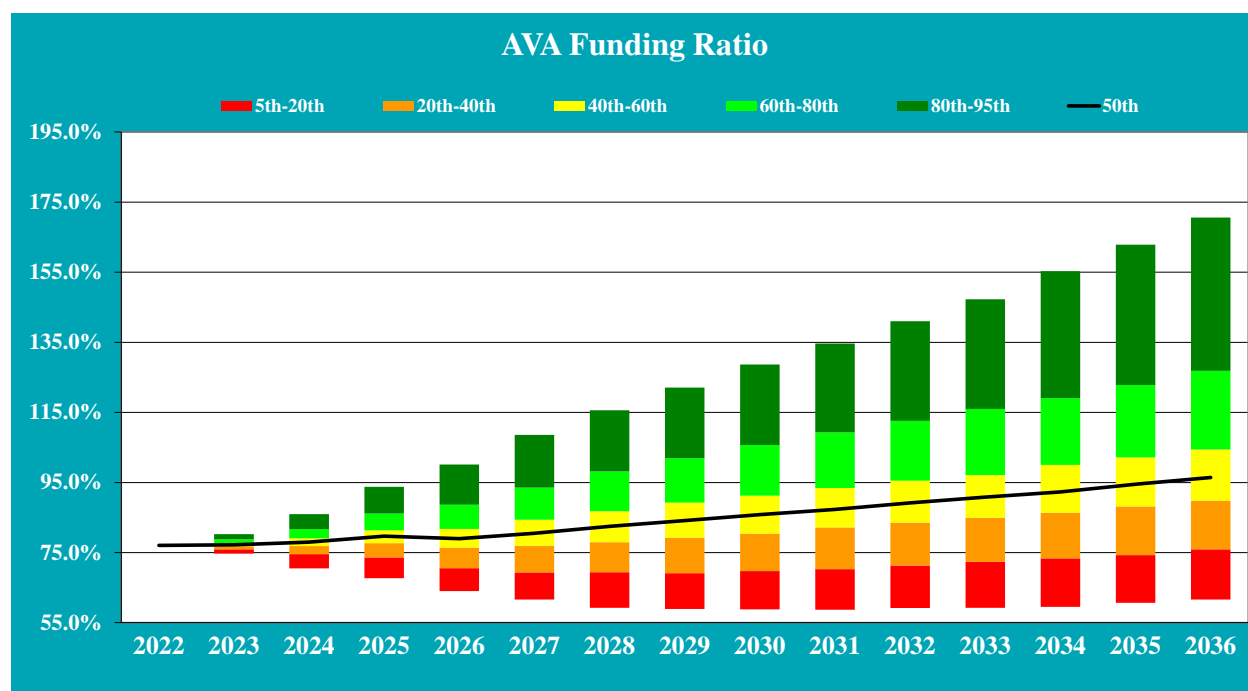


The stochastic projection of employer contributions as a percent of pay shows the probable range of future contribution rates. The baseline contribution rate (black line), which is based on the median of the simulations using an average return of 6.75%, aligns closely with the projections discussed in subsection D. of the Executive Summary of this report. In the most pessimistic scenario shown, the 95th percentile, the projected employer contribution rate surpasses 65% of pay by 2037. Conversely, the most optimistic scenario shown, the 5th percentile, the projected employer contribution rate declines to 0% by 2032. These projections allow the employer contribution to drop below the normal cost only if the Plan becomes extremely over-funded (above 120%), as required under PEPRA.

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Stochastic Projection of Funded Ratio on an Actuarial Value of Assets Basis



The graph above shows the projection of the funded ratio based on the Actuarial Value of Assets, under the current layered amortization policy. While the baseline-funded ratio (black line) is projected to approach 100% at the end of the 15-year period shown here, there is a wide range of potential outcomes. Good investment returns have the likelihood of bringing the funded ratio well over 100%.

Due to the current funding policy of the Plan, even in scenarios with unfavorable investment returns, the Plan is projected to remain over 58% funded on an actuarial value of assets basis, as long as the actuarially determined contributions continue to be made.

Contribution Risk

While investment returns are typically the dominant factor in volatility, contribution rates can also be sensitive to future salary increases and the hiring of new members. When member payroll growth stagnates or even declines, the dollar level of contributions made to the Plan also stagnates or declines since contributions are based on payroll levels, though this will generally only present a funding issue if there is an extended period of payroll reductions.

There is also a risk of the contribution rate increasing even higher when payroll decreases since the Plan's funding policy amortizes the UAL as a level percentage of pay. This means that the UAL payments increase at the assumed payroll growth rate of 2.75%, so that the payment is expected to remain constant as a percentage of payroll. If payroll growth is less than the expected 2.75% or there is a decline in payroll, the UAL payments are spread over a smaller payroll base

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SECTION II – DISCLOSURES RELATED TO RISK

and the contribution rate as a percentage of pay increases, making the Plan less affordable for those sponsors with declining payroll bases.

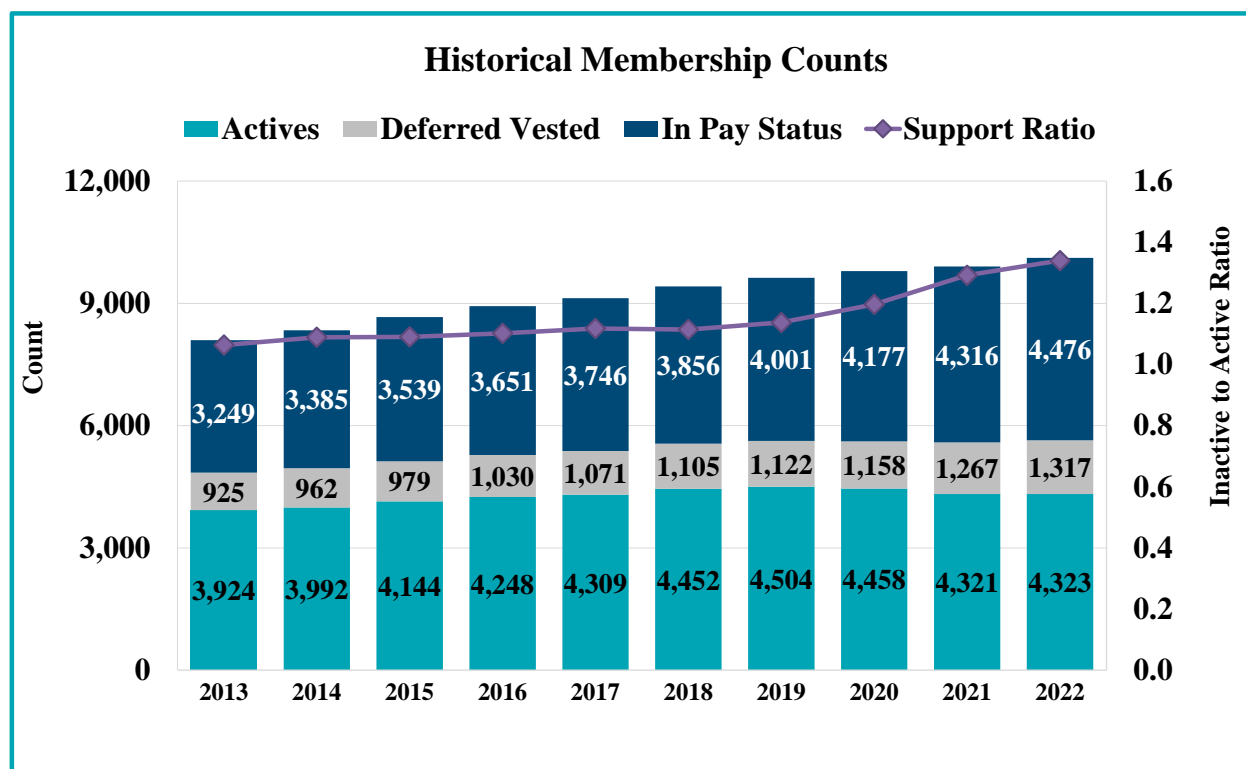
For example, the UAL Amortization rate as of June 30, 2022 for the FYE 2023 is 20.96%. If the projected payroll for FYE 2023 were 2.75% lower, all else being equal, the UAL Amortization rate would increase to 21.54%.

Plan Maturity Measures

The future financial condition of a mature pension plan is more sensitive to each of the risks identified above than a less mature plan. It is important to understand how the maturity has changed over time. Plan maturity can be measured in a variety of ways, but they all get at one basic dynamic – the larger the plan is compared to the contribution or revenue base that supports it, the more sensitive the plan will be to risk. The measures below have been selected as the most important in understanding the primary risks identified for the Plan.

Inactives per Active (Support Ratio)

One simple measure of plan maturity is the ratio of the number of inactive members to the number of active members. The Support Ratio is expected to increase gradually as a plan matures. The chart below shows the growth in the Support Ratio from 2013 to 2022 as the number of active members increased more slowly than the number of retirees and deferred members and then declined beginning in 2020.



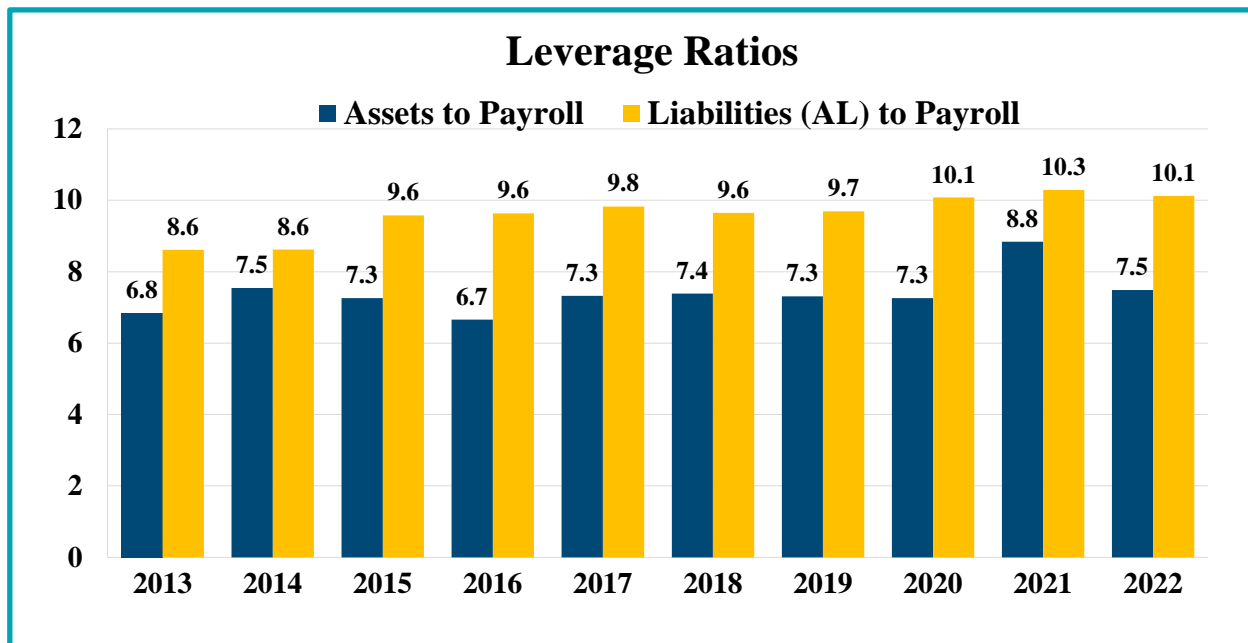
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Leverage Ratios

Leverage or volatility ratios measure the size of the plan compared to its revenue base more directly. The asset leverage ratio is simply the market value of assets to active member payroll and indicates the sensitivity of the Plan to investment returns. The liability leverage ratio is the plan's actuarial liability to active member payroll and indicates the sensitivity of the Plan to assumption changes or demographic experience.

The chart below shows the historical leverage ratios of the Plan. Both leverage ratios have increased since 2013, and the asset to payroll ratio has remained at or above 7.0 – assets are seven times member payroll – for all but one of the last nine years.



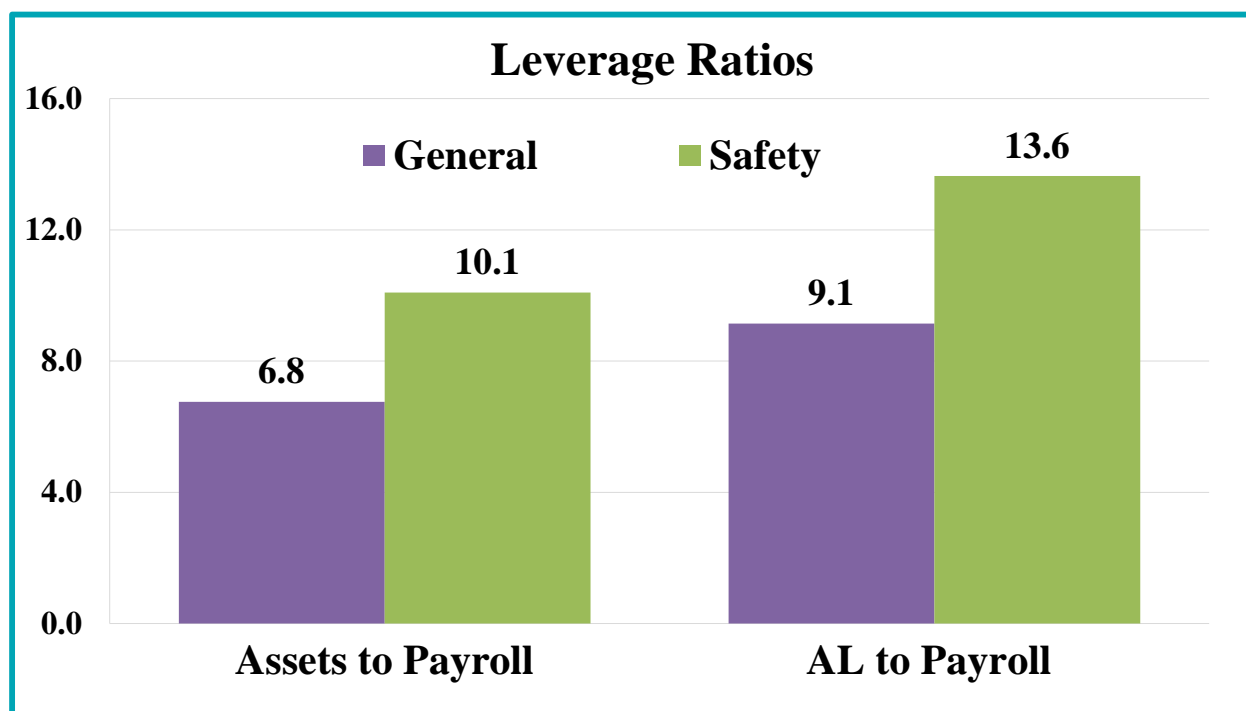
To appreciate the impact of the ratio of assets to payroll on plan cost, consider the situation for a new plan with almost no assets. Even if the assets suffer a bad year of investment returns, the impact on the plan cost is nil, because the asset level is so small.

As the Plan becomes better funded, the asset leverage ratio will increase, and if it were 100% funded, the asset leverage ratio would be about 10 times payroll, or the Actuarial Liability (AL) leverage ratio.

We note that the ratio of both assets and liabilities to payroll, and therefore the sensitivity to investment returns, is higher for the Safety members compared to the General members, because of the higher benefit amounts and the earlier average retirement ages for Safety.

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The General asset leverage ratio of 6.8 means that if the Plan's assets lose 10% of their value, which is a 16.75% actuarial loss compared to the expected return of 6.75%, the loss would be equivalent to 114% of payroll (16.75% times 6.8). The same investment loss for the Safety group with an asset ratio of 10.1 would be equivalent to approximately 169% of payroll. There is only one source of funding to make up for these investment losses: contributions. Consequently, barring future offsetting investment gains, the employer has to make up the asset loss in additional future contributions. In this example of a one-year loss of 10%, the shortfall will eventually require an additional annual amortization payment of approximately 8% and 12% of payroll for General and Safety, respectively, if amortized over 20 years. Contribution rates for the Safety members will generally be more volatile compared to General members.

If the Plan were fully funded, the 10% loss discussed above would translate to a loss of 153% of payroll for General and 228% of payroll for Safety. When amortized over 20 years, employer contributions would increase approximately 11% and 17% of payroll, respectively. Therefore, the Plan may become more sensitive to market variations in the future than it is today.

More Detailed Assessment

While a more detailed assessment is always valuable to enhance the understanding of the risks identified above, we believe the scenarios illustrated above cover the primary risks facing the Plan at this time. We would be happy to provide the Board with a more in-depth analysis at their request.

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SECTION III – ASSETS

Pension Plan assets play a key role in the financial operation of the Plan and in the decisions the Board may make with respect to future deployment of those assets. The level of assets, the allocation of assets among asset classes, and the methodology used to measure assets will likely impact benefit levels, employer contributions, and the ultimate security of participants' benefits.

In this section, we present detailed information on Plan assets including:

- **Disclosure** of Plan assets as of June 30, 2021 and June 30, 2022,
- Statement of the **changes** in market values during the year,
- Development of the **Actuarial Value of Assets**,
- An assessment of historical **investment performance versus inflation**, and
- An allocation of the Actuarial Value of Assets between the **cost-sharing groups**.

Disclosure

There are two types of asset values disclosed in the valuation, the Market Value of Assets and the Actuarial Value of Assets. The market value represents “snap-shot” or “cash-out” values, which provide the principal basis for measuring financial performance from one year to the next. Market values, however, can fluctuate widely with corresponding swings in the marketplace. As a result, market values are usually not as suitable for long-range planning as are the Actuarial Value of Assets, which reflects smoothing of annual investment returns.

Table III-1 on the next page discloses and compares each asset class as of June 30, 2021 and June 30, 2022.

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SECTION III – ASSETS

| Table III-1 Statement of Assets at Market Value | | |
|--|---|---|
| | Fiscal Year ending June 30, 2021 | Fiscal Year ending June 30, 2022 |
| Cash and Cash Equivalents | | |
| Total Cash and Cash Equivalents | \$ 82,503,136 | \$ 68,001,805 |
| Receivables | | |
| Interest and Dividends | \$ 5,961,917 | \$ 5,126,501 |
| Contributions | 4,093,616 | 4,757,769 |
| Securities Transactions | 101,836,428 | 432,933 |
| Total Receivables | \$ 111,891,961 | \$ 10,317,203 |
| Fixed Assets | | |
| Capitalized Software | \$ 0 | \$ 0 |
| Real Estate Occupied | 1,592,591 | 1,573,614 |
| Real Estate Leased | 1,062,447 | 1,049,794 |
| Other | 6,367,162 | 7,238,023 |
| Total Fixed Assets | \$ 9,022,200 | \$ 9,861,431 |
| Investments at Market Value | | |
| Fixed Income | \$ 271,051,232 | \$ 268,798,688 |
| Equities | 1,215,469,223 | 968,222,097 |
| Collateral on Loaned Securities | 66,220,680 | 81,116,101 |
| Other | 1,156,229,546 | 1,217,916,435 |
| Total Investments | \$ 2,708,970,681 | \$ 2,536,053,321 |
| Liabilities | | |
| Accounts Payable | \$ (13,927,586) | \$ (15,309,238) |
| Security Transactions Payable | (101,246,842) | (988,077) |
| Collateral Held for Loaned Securities | (66,220,680) | (81,116,101) |
| Other | (395,000) | (395,000) |
| Total Liabilities | \$ (181,790,108) | \$ (97,808,416) |
| Market Value of Assets | \$ 2,730,597,870 | \$ 2,526,425,344 |

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SECTION III – ASSETS

Changes in Market Value

The components of asset change are:

- Contributions (employers and employee)
- Benefit payments
- Expenses (investment and administrative)
- Investment income (realized and unrealized)

Table III-2 on the next page shows the components of change in the Market Value of Assets during the fiscal years ending June 30, 2021 and June 30, 2022.

STANISLAUS COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
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SECTION III – ASSETS

| Table III-2 Changes in Market Values | | |
|---|--|--|
| <u>Additions</u> | Fiscal Year ending <u>June 30, 2021</u> | Fiscal Year ending <u>June 30, 2022</u> |
| Contributions | | |
| Employer's Contribution | \$ 93,307,629 | \$ 100,768,249 |
| Members' Contributions | 29,553,123 | 29,998,079 |
| Total Contributions | <u>\$ 122,860,752</u> | <u>\$ 130,766,328</u> |
| Net Investment Income | | |
| Net Appreciation/(Depreciation) in | | |
| Fair Value of Investments | \$ 528,077,801 | \$ (191,378,355) |
| Interest and Dividends | 43,335,298 | 49,088,179 |
| Commission Recapture | 28,983 | 32,929 |
| Other Investment Income | 247,712 | 699,924 |
| Total Investment Income | <u>\$ 571,689,794</u> | <u>\$ (141,557,323)</u> |
| Investment Expense | (15,886,559) | (27,898,500) |
| Net Investment Income | <u>\$ 555,803,235</u> | <u>\$ (169,455,823)</u> |
| Securities Lending Activities | | |
| Securities Lending Income | \$ 560,422 | \$ 432,050 |
| Expenses from Securities Lending Activities | (168,008) | (130,119) |
| Net Securities Lending Income | <u>392,414</u> | <u>301,931</u> |
| Total Net Investment Income | <u>\$ 556,195,649</u> | <u>\$ (169,153,892)</u> |
| Total Additions | \$ 679,056,401 | \$ (38,387,564) |
| <u>Deductions</u> | | |
| Benefits | \$ 149,015,287 | \$ 158,258,447 |
| Refunds | 1,915,614 | 4,050,751 |
| Administrative Costs | 3,393,869 | 3,475,764 |
| Total Deductions | <u>\$ 154,324,770</u> | <u>\$ 165,784,962</u> |
| Net Increase/(Decrease) | \$ 524,731,631 | \$ (204,172,526) |
| Net Assets Beginning of Year | \$ 2,205,866,239 | \$ 2,730,597,870 |
| Net Assets End of Year | \$ 2,730,597,870 | \$ 2,526,425,344 |
| Approximate Return | 25.40% | -6.23% |

**STANISLAUS COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
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SECTION III – ASSETS

Actuarial Value of Assets (AVA)

The Actuarial Value of Assets represents a “smoothed” value developed by the actuary to reduce the volatile results that could develop due to short-term fluctuations in the Market Value of Assets. For this Plan, the Actuarial Value of Assets is calculated on a modified market-related value. The Market Value of Assets is adjusted to recognize, over a five-year period, investment earnings which are greater than (or less than) the assumed investment return. However, in no event will the Actuarial Value of Assets be less than 80% or more than 120% of market value on the valuation date.

The Valuation Assets are the portion of the Actuarial Assets dedicated to funding the basic pension benefits. The Valuation Assets exclude the value of any non-valuation reserves, such as reserves established for legal contingencies. The Valuation Assets also exclude the value of any non-valuation contingency reserves, which have been established according to the Board’s funding policy. In valuations prior to the June 30, 2014 valuation, a reserve associated with the Burial Allowance was excluded from the Valuation Assets; both the assets and liabilities associated with this benefit are included in this valuation.

The table on the following page shows the development of the actuarial asset and valuation assets values.

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SECTION III – ASSETS

| Table III-3 Development of Actuarial Value of Assets for 6/30/2022 | |
|--|-------------------------|
| Item | Total |
| 1. Market Value as of 6/30/2021 | \$ 2,730,597,870 |
| 2. Non-Investment Cash Flow for 2021-2022 | (35,018,634) |
| 3. Expected Return in 2021-2022 | 183,152,776 |
| 4. Expected Market Value as of 6/30/2022: (1 + 2 + 3) | \$ 2,878,732,012 |
| 5. Actual Return in 2021-2022 | (169,153,892) |
| 6. Actual Return Above Expected in 2021-2022: (5 - 3) | (352,306,668) |
| 7. Market Value as of 6/30/2022 | \$ 2,526,425,344 |
| 8. Deferred Recognition of Returns Above Expected | |
| A. 2021-2022 (80% of -\$352,306,668) | (281,845,334) |
| B. 2020-2021 (60% of \$402,867,628) | 241,720,577 |
| C. 2019-2020 (40% of -\$135,361,964) | (54,144,786) |
| D. 2018-2019 (20% of -\$48,987,388) | (9,797,478) |
| E. Total | \$ (104,067,021) |
| 9. Preliminary Actuarial Value of Assets: (7 - 8E) | \$ 2,630,492,365 |
| 10. Corridor Limit | |
| A. 80% of Net Market Value | 2,021,140,275 |
| B. 120% of Net Market Value | 3,031,710,413 |
| 11. Actuarial Value after Corridor as of 6/30/2022 | \$ 2,630,492,365 |
| 12. Rate of Return on Actuarial Value of Assets | 6.37% |
| 13. Ratio of Actuarial Value to Market Value: (11 ÷ 7) | 104.1% |
| 14. Special (Non Valuation) Reserves: | |
| A. Health Insurance Reserves | 0 |
| B. Special COL Reserve | 0 |
| C. Legal Contingency Reserve | 1,476,426 |
| D. Tier 3 Disability Reserve | 1,560 |
| E. Contingency Reserve | 25,190,780 |
| F. Total Special Reserves (Market Value) | \$ 26,668,766 |
| 15. Adjusted Total Special Reserves (104.1% of Market, Except Contingency) | \$ 26,729,646 |
| 16. Pension Reserves at Actuarial Value (Valuation Assets): (11 - 15) | \$ 2,603,762,719 |

**STANISLAUS COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
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SECTION III – ASSETS

Historical Investment Performance

The table shows the historical annual asset returns on a market value, actuarial value, and valuation asset basis, as well as the increase in the Consumer Price Index (CPI) since 1997. Note that the returns prior to 2013 are expressed net of investment and administrative expenses; the returns for 2013 and all following years are expressed net of investment expenses only.

| Table III-4 Net Return on Assets vs. Increase in Consumer Price Index | | | | |
|--|-------------------------------|----------------------------------|-----------------------------------|---|
| Year Ended June 30 | Net Return at Market Value | Net Return at Actuarial Value | Net Return at Valuation Assets | Increase in Consumer Price Index ¹ |
| 1997 | 20.4% | | | 2.3% |
| 1998 | 13.4% | | | 1.7% |
| 1999 | 10.6% | | | 2.0% |
| 2000 | 6.3% | | | 3.7% |
| 2001 | 7.0% | | | 3.2% |
| 2002 | -4.5% | | | 1.1% |
| 2003 | 5.2% | | 4.9% | 2.1% |
| 2004 | 6.1% | | 6.3% | 3.3% |
| 2005 | 8.2% | | 5.5% | 2.5% |
| 2006 | 9.9% | | 10.8% | 4.3% |
| 2007 | 16.0% | 10.8% | 0.6% | 2.7% |
| 2008 | -8.5% | 8.0% | 16.7% | 5.0% |
| 2009 | -17.2% | -9.6% | -9.4% | -1.4% |
| 2010 | 15.6% | 13.0% | 14.7% | 1.1% |
| 2011 | 22.1% | 3.5% | 4.2% | 3.6% |
| 2012 | 0.1% | 6.4% | 6.5% | 1.7% |
| 2013 | 13.9% | 7.0% | 7.2% | 1.8% |
| 2014 | 18.0% | 9.4% | 9.5% | 2.1% |
| 2015 | 3.9% | 9.1% | 9.0% | 0.1% |
| 2016 | -1.7% | 6.3% | 6.3% | 1.0% |
| 2017 | 14.4% | 8.3% | 8.4% | 1.6% |
| 2018 | 7.8% | 7.9% | 7.9% | 2.9% |
| 2019 | 4.7% | 5.6% | 5.6% | 1.6% |
| 2020 | 0.8% | 5.0% | 5.1% | 0.6% |
| 2021 | 25.4% | 9.8% | 9.9% | 5.4% |
| 2022 | -6.2% | 6.4% | 6.3% | 9.1% |
| 25-Year Compound Average | 6.4% | N/A | N/A | 2.5% |
| 20-Year Compound Average | 6.4% | N/A | 6.7% | 2.5% |
| 15-Year Compound Average | 5.5% | 6.3% | 7.0% | 2.4% |
| 10-Year Compound Average | 7.7% | 7.5% | 7.5% | 2.6% |
| 5-Year Compound Average | 6.0% | 6.9% | 6.9% | 3.9% |

¹ Based on All Urban Consumers - U.S. City Average, June indices.

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SECTION III – ASSETS

Allocation of Actuarial Value of Assets by Cost-Sharing Group

The following table shows the allocation of the Actuarial Value of Assets between the four cost-sharing groups, which covers the employer subgroups (County / Former County Members and City of Ceres / Special District Members) as well as the valuation subgroups (General and Safety). First, the actuarial asset value from the prior year for each cost-sharing group is increased by employee and employer contributions and decreased by benefit payments and expenses. Expected returns are added to get an expected asset value. A final adjustment is applied for the actual (smoothed) investment returns, proportionate to each groups' share of the expected assets, such that the sum of the valuation assets allocated to each group equals the total of the valuation assets for StanCERA. These AVA values are used to calculate each group's UAL and the associated amortization payment.

This is the first year using this allocation method. The change allows for the roll-forward of assets on a consistent basis, without requiring adjustments when there are changes in assumptions or in the covered population. Previously, the valuation assets were allocated by employer subgroup by first covering the liability associated with the inactive members and the refundable contribution balances for active members, and then allocating the remaining assets based on each subgroup's share of the active liability. Within the employer subgroups, the valuation assets were allocated between Safety and General groups based on liability.

| <p style="text-align: center;">Table III-5 Allocation of June 30, 2022 Actuarial Value of Assets (in thousands)</p> | | | | | |
|---|-------------------------------------|--------------------------------------|-------------------------------------|--------------------------------------|---------------------|
| | General | | Safety | | Total |
| | County and Former County | Ceres and Other Districts | County and Former County | Ceres and Other Districts | |
| 1. Actuarial Value of Assets | | | | | \$ 2,603,763 |
| 2. Allocated Actuarial Value of Assets as of 6/30/2021 | \$ 1,722,514 | \$ 53,675 | \$ 635,713 | \$ 71,810 | \$ 2,483,712 |
| 3. Contributions for 2021-2022 | 87,335 | 3,607 | 35,837 | 3,987 | 130,766 |
| 4. Benefit Payments for 2021-2022 | (117,552) | (3,264) | (37,873) | (3,620) | (162,309) |
| 5. Allocated Administrative Expenses for 2021-2022 | (2,271) | (91) | (996) | (118) | (3,476) |
| 6. Non-Investment Cash Flow for 2021-2022 [3 + 4 + 5] | \$ (32,489) | \$ 252 | \$ (3,031) | \$ 249 | \$ (35,019) |
| 7. Expected Return in 2021-2022 | 115,191 | 3,631 | 42,810 | 4,855 | 166,488 |
| 8. Expected Assets as of 6/30/2022 [2 + 6 + 7] | \$ 1,805,216 | \$ 57,559 | \$ 675,492 | \$ 76,915 | \$ 2,615,181 |
| 9. Net Assets for Distribution [1 - 8] | | | | | \$ (11,419) |
| 10. Allocation of Net Assets | 69.03% | 2.20% | 25.83% | 2.94% | 100.00% |
| 11. Remaining Assets | (7,882) | (251) | (2,949) | (336) | (11,419) |
| 12. Actuarial Value of Assets [8 + 11] | \$ 1,797,334 | \$ 57,307 | \$ 672,542 | \$ 76,579 | \$ 2,603,763 |

STANISLAUS COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
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SECTION IV – LIABILITIES

In this section, we present detailed information on Plan liabilities including:

- **Disclosure** of Plan liabilities on June 30, 2021 and June 30, 2022,
- Statement of **changes** in these liabilities during the year.

Disclosure

Several types of liabilities are calculated and presented in this report. Each type is distinguished by the people ultimately using the figures and the purpose for which they are using them. Note that these liabilities are not applicable for settlement purposes, including the purchase of annuities and the payment of lump sums.

- **Present Value of Future Benefits:** Used for measuring all future Plan obligations, represents the amount of money needed today to fully fund all benefits of the Plan both earned as of the valuation date and those to be earned in the future by current Plan participants, under the current Plan provisions.
- **Actuarial Liability:** Used for funding calculations, this liability is calculated taking the Present Value of Future Benefits and subtracting the present value of future Member Contributions and future Employer Normal Costs under an acceptable actuarial funding method. The method used for this Plan is called the **Entry Age Normal** (EAN) funding method.
- **Unfunded Actuarial Liability:** The excess of the Actuarial Liability over the Actuarial Value of Assets.

Table IV-1 on the following page discloses each of these liabilities for the current and prior valuations. With respect to each disclosure, a subtraction of the appropriate value of Plan assets yields, for each respective type, a **net surplus**, or an **Unfunded Actuarial Liability**.

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SECTION IV – LIABILITIES

| Table IV-1 Present Value of Future Benefits and Actuarial Liability (in thousands) | | | | | | |
|--|--------------------------------|---------------------------------|--------------------------------|---------------------------------|---------------------|---------------------|
| | General | | Safety | | June 30, 2022 | June 30, 2021 |
| | County and Former County | Ceres and Other Districts | County and Former County | Ceres and Other Districts | Total | Total |
| Present Value of Future Benefits | | | | | | |
| Actives | \$ 1,116,871 | \$ 38,163 | \$ 463,763 | \$ 42,207 | \$ 1,661,005 | \$ 1,556,363 |
| Terminated Vested | 136,246 | 8,936 | 48,674 | 23,228 | 217,084 | 206,338 |
| Retirees | 1,289,183 | 38,964 | 425,437 | 39,239 | 1,792,823 | 1,654,064 |
| Disabled | 46,929 | 2,162 | 84,574 | 12,104 | 145,770 | 141,014 |
| Beneficiaries | 79,882 | 1,814 | 35,567 | 2,230 | 119,493 | 108,480 |
| Total StanCERA | \$ 2,669,112 | \$ 90,040 | \$ 1,058,016 | \$ 119,008 | \$ 3,936,175 | \$ 3,666,259 |
| Actuarial Liability | | | | | | |
| Total Present Value of Benefits | \$ 2,669,112 | \$ 90,040 | \$ 1,058,016 | \$ 119,008 | \$ 3,936,175 | \$ 3,666,259 |
| Present Value of Future Normal Costs | | | | | | |
| Employer Portion | 193,769 | 8,812 | 89,130 | 7,406 | 299,117 | 276,857 |
| Employee Portion | 166,786 | 6,919 | 78,322 | 5,477 | 257,504 | 236,370 |
| Actuarial Liability | \$ 2,308,557 | \$ 74,309 | \$ 890,563 | \$ 106,124 | \$ 3,379,554 | \$ 3,153,032 |
| Actuarial Value of Assets | \$ 1,797,334 | \$ 57,307 | \$ 672,542 | \$ 76,579 | \$ 2,603,763 | \$ 2,483,712 |
| AVA Funded Ratio | 77.9% | 77.1% | 75.5% | 72.2% | 77.0% | 78.8% |
| Unfunded Actuarial Liability/(Surplus) | \$ 511,223 | \$ 17,002 | \$ 218,021 | \$ 29,545 | \$ 775,791 | \$ 669,320 |

**STANISLAUS COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
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SECTION IV – LIABILITIES

The table shows the Actuarial Liabilities for each of the valuation cost-sharing groups, split by members' status.

| Table IV-2 Liabilities by Group as of June 30, 2022 (in thousands) | | | | | |
|--|---|--|---|--|---------------------|
| | General | | Safety | | Total |
| | County and Former County | Ceres and Other Districts | County and Former County | Ceres and Other Districts | |
| Actuarial Liability | | | | | |
| Actives | \$ 756,317 | \$ 22,433 | \$ 296,310 | \$ 29,324 | \$ 1,104,384 |
| Terminated Vested | 136,246 | 8,936 | 48,674 | 23,228 | 217,084 |
| Retirees | 1,289,183 | 38,964 | 425,437 | 39,239 | 1,792,823 |
| Disabled | 46,929 | 2,162 | 84,574 | 12,104 | 145,770 |
| Beneficiaries | 79,882 | 1,814 | 35,567 | 2,230 | 119,493 |
| Total | \$ 2,308,557 | \$ 74,309 | \$ 890,563 | \$ 106,124 | \$ 3,379,554 |

**STANISLAUS COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JUNE 30, 2022**

SECTION IV – LIABILITIES

Changes in Liabilities

Each of the Liabilities disclosed in the prior tables are expected to change at each valuation. The components of that change, depending upon which liability is analyzed, can include:

- New hires since the last valuation
- Benefits accrued since the last valuation
- Plan amendments increasing benefits
- Passage of time which adds interest to the prior liability
- Benefits paid to retirees since the last valuation
- Participants retiring, terminating, or dying at rates different than expected
- A change in actuarial or investment assumptions
- A change in the actuarial funding method

Unfunded liabilities will change because of all of the above, and also due to changes in Plan assets resulting from:

- Employer contributions different than expected
- Investment earnings different than expected
- A change in the method used to measure Plan assets

| Table IV-3 Development of 2022 Experience Gain/(Loss) (in millions) | |
|---|----------------|
| Item | Cost |
| 1. Unfunded Actuarial Liability at June 30, 2021 | \$ 669.3 |
| 2. Middle of year actuarial liability payment | (59.4) |
| 3. Interest to end of year on 1 and 2 | <u>43.2</u> |
| 4. Expected Unfunded Actuarial Liability at June 30, 2022 (1+2+3) | \$ 653.1 |
| 5. Actual Unfunded Liability at June 30, 2022 | <u>775.8</u> |
| 6. Experience Loss: (4 - 5) | \$ (122.7) |
| 7. Portion of experience loss due to: | |
| A. Investment experience | \$ (11.4) |
| B. Contribution (shortfall)/excess | 3.8 |
| C. Other experience | <u>(115.1)</u> |
| D. Total | (122.7) |

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SECTION V – CONTRIBUTIONS

In the process of evaluating the financial condition of any pension plan, the actuary analyzes the assets and liabilities to determine what level of contributions is needed to properly maintain the funding status of the Plan. Typically, the actuarial process will use a funding technique that will result in a pattern of contributions that are both stable and predictable.

For this Plan, the actuarial funding method used to determine the Normal Cost and the Unfunded Actuarial Liability is the **Entry Age Normal (EAN)** cost method. There are three components to the total contribution: the **Normal Cost rate** (employee and employer), the **Unfunded Actuarial Liability rate** (UAL rate), and the **Administrative Expense** contribution.

The Normal Cost rate is determined in the following steps. First, an individual Normal Cost rate is determined by taking the value, as of entry age into the Plan, of each member's projected future benefits. This value is then divided by the value, also at entry age, of the member's expected future salary producing a Normal Cost rate that should remain relatively constant over a member's career.

The total normal cost is computed by adding the expected dollar amount of each active member's normal cost for the current year – known as the Individual Entry Age Method. The total normal cost is adjusted with interest to the middle of the year, to reflect the fact that the normal cost contributions are paid throughout the year as member payroll payments are made. Finally, the total Normal Cost rate is reduced by the member contribution rate to produce the employer Normal Cost rate. The member contribution rate for each subgroup is determined by adding the expected contributions for each member and dividing by the projected pay for each subgroup.

The EAN Actuarial Liability is calculated by subtracting the present value of future total normal cost from the Present Value of Future Benefits (as described at the beginning of Section IV).

The Unfunded Actuarial Liability (UAL) is the difference between the EAN Actuarial Liability and the Actuarial Value of Assets. The UAL payment is determined using the following pieces, and then divided by the projected payroll to calculate a UAL rate:

- The initial UAL as of June 30, 2021 is amortized over a period of 15 years (14 years remaining as of June 30, 2022) as level percentage of payroll, and
- Any subsequent unexpected changes in the UAL from actuarial gains or losses or assumptions changes are amortized over a period of 20 years as a level percentage of payroll, with new amortization layers established each year, and
- Any subsequent changes in the UAL due to plan amendments or other plan provision changes will be amortized over a shorter period, based on the lesser of 15 years or the average future working lifetime for changes affecting active members, or the lesser of 10 years or the average remaining life expectancy for changes affecting inactive members.

Administrative expenses are assumed to be \$3.2 million per year as of June 30, 2022, increasing 2.75% per annum. All administrative expenses are included with the employer's required contribution.

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SECTION V – CONTRIBUTIONS

The table below presents the calculation of the contribution rates for the Plan for this valuation and compares the total contribution rate with the prior year rate. The tables on the following pages contain more details on the calculation of the UAL amortization payments, as well as details on the calculation of the contribution rates for each group and tier.

**Table V-1
Development of the Net Employer Contribution Rate as of June 30, 2022 for FYE 2024**

| | General | | June 30, 2022 Safety | | COMPOSITE | June 30, 2021 COMPOSITE |
|---|--------------------------------|---------------------------------|--------------------------------|---------------------------------|---------------|----------------------------|
| | County and Former County | Ceres and Other Districts | County and Former County | Ceres and Other Districts | | |
| 1. Total Normal Cost Rate | 18.07% | 20.40% | 29.66% | 33.83% | 20.74% | 20.95% |
| 2. Member Contribution Rate | <u>8.63%</u> | <u>9.17%</u> | <u>13.57%</u> | <u>14.44%</u> | 9.74% | 9.77% |
| 3. Employer Normal Cost Rate (1-2) | 9.44% | 11.23% | 16.09% | 19.39% | 11.00% | 11.18% |
| 4. UAL Amortization | 18.39% | 15.46% | 28.97% | 50.56% | 20.96% | 19.40% |
| 5. Administrative Expense Rate | <u>0.83%</u> | <u>0.79%</u> | <u>1.34%</u> | <u>2.08%</u> | 0.95% | 1.01% |
| 6. Net Employer Contribution Rate (3+4+5) | 28.66% | 27.48% | 46.40% | 72.03% | 32.91% | 31.59% |

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SECTION V – CONTRIBUTIONS

Table V-2 summarizes the UAL rates for the Plan and its cost-sharing groups. The single equivalent amortization period (i.e., the length of time required to amortize the overall UAL as a level percentage of payroll based on the total current amortization payment) is approximately 15 years for StanCERA.

| Table V-2 Development of UAL Amortization Rates | | | | | | |
|--|-------------------------------------|--------------------------------------|-------------------------------------|--------------------------------------|----------------|--|
| | General | | Safety | | TOTAL | |
| | County and Former County | Ceres and Other Districts | County and Former County | Ceres and Other Districts | | |
| Projected Payroll | \$ 250,620,858 | \$ 10,091,237 | \$ 67,769,960 | \$ 5,291,528 | \$ 333,773,583 | |
| Unfunded Actuarial Liability (AVA) | \$ 511,223,014 | \$ 17,001,591 | \$ 218,021,123 | \$ 29,545,345 | \$ 775,791,073 | |
| UAL Amortization Payment | \$ 46,081,411 | \$ 1,559,797 | \$ 19,630,053 | \$ 2,675,499 | \$ 69,946,759 | |
| UAL Amortization Rate | 18.39% | 15.46% | 28.97% | 50.56% | 20.96% | |

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Tables V-3 through V-6 show the calculation of the UAL amortization payments for each cost-sharing group.

**TABLE V-3
Development of UAL Amortization Payment
General - County and Former County**

| Type of Base | Date Established | Initial Amount | Initial Amortization Years | 6/30/2022 Outstanding Balance | Remaining Amortization Years | Amortization Amount |
|--------------------------|------------------|----------------|----------------------------|-------------------------------|------------------------------|---------------------|
| Charges/(Credits) | | | | | | |
| 1. 6/30/2021 Initial UAL | 6/30/2021 | \$ 440,505,361 | 15 | \$ 429,834,549 | 14 | \$ 40,182,059 |
| 2. 6/30/2022 Loss | 6/30/2022 | 81,388,465 | 20 | <u>81,388,465</u> | 20 | <u>5,899,352</u> |
| | | | | \$ 511,223,014 | 15 ¹ | \$ 46,081,411 |

**TABLE V-4
Development of UAL Amortization Payment
General - Ceres and Other Districts**

| Type of Base | Date Established | Initial Amount | Initial Amortization Years | 6/30/2022 Outstanding Balance | Remaining Amortization Years | Amortization Amount |
|--------------------------|------------------|----------------|----------------------------|-------------------------------|------------------------------|---------------------|
| Charges/(Credits) | | | | | | |
| 1. 6/30/2021 Initial UAL | 6/30/2021 | \$ 15,981,192 | 15 | \$ 15,594,063 | 14 | \$ 1,457,774 |
| 2. 6/30/2022 Loss | 6/30/2022 | 1,407,528 | 20 | <u>1,407,528</u> | 20 | <u>102,023</u> |
| | | | | \$ 17,001,591 | 14 ¹ | \$ 1,559,797 |

¹ Single equivalent amortization period (i.e., the length of time required to amortize the overall UAL as a level percentage of payroll based on the total current amortization period)

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**TABLE V-5
Development of UAL Amortization Payment
Safety - County and Former County**

| Type of Base | Date Established | Initial Amount | Initial Amortization Years | 6/30/2022 Outstanding Balance | Remaining Amortization Years | Amortization Amount |
|--------------------------|------------------|----------------|----------------------------|-------------------------------|------------------------------|---------------------|
| Charges/(Credits) | | | | | | |
| 1. 6/30/2021 Initial UAL | 6/30/2021 | \$ 186,775,197 | 15 | \$ 182,250,750 | 14 | \$ 17,037,277 |
| 2. 6/30/2022 Loss | 6/30/2022 | 35,770,373 | 20 | <u>35,770,373</u> | 20 | <u>2,592,776</u> |
| | | | | \$ 218,021,123 | 15 ¹ | \$ 19,630,053 |

**TABLE V-6
Development of UAL Amortization Payment
Safety - Ceres and Other Districts**

| Type of Base | Date Established | Initial Amount | Initial Amortization Years | 6/30/2022 Outstanding Balance | Remaining Amortization Years | Amortization Amount |
|--------------------------|------------------|----------------|----------------------------|-------------------------------|------------------------------|---------------------|
| Charges/(Credits) | | | | | | |
| 1. 6/30/2021 Initial UAL | 6/30/2021 | \$ 26,058,366 | 15 | \$ 25,427,128 | 14 | \$ 2,376,994 |
| 2. 6/30/2022 Loss | 6/30/2022 | 4,118,217 | 20 | <u>4,118,217</u> | 20 | <u>298,504</u> |
| | | | | \$ 29,545,345 | 15 ¹ | \$ 2,675,499 |

¹ Single equivalent amortization period (i.e., the length of time required to amortize the overall UAL as a level percentage of payroll based on the total current amortization period)

**STANISLAUS COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
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SECTION V – CONTRIBUTIONS

Tables V-7 and V-8 contain the calculations of the employer contribution rates for each group and tier.

| Table V-7 Development of the General Member Contribution Rate as of June 30, 2022 for FYE 2024 | | | | | | |
|---|---------------|---------------|---------------|---------------|---------------|---------------------|
| | Tier 2 | Tier 3 | Tier 4 | Tier 5 | PEPRA | TOTAL |
| <u>County and Former County</u> | | | | | | |
| A. Total Normal Cost Rate | 18.79% | 3.00% | 19.46% | 19.63% | 16.91% | 18.07% |
| B. Member Contribution Rate | <u>8.20%</u> | <u>0.00%</u> | <u>4.43%</u> | <u>9.01%</u> | <u>8.45%</u> | <u>8.63%</u> |
| C. Employer Normal Cost Rate (A-B) | 10.59% | 3.00% | 15.03% | 10.62% | 8.46% | 9.44% |
| D. UAL Amortization Rate | 18.39% | 18.39% | 18.39% | 18.39% | 18.39% | 18.39% |
| E. Administrative Expense Rate | <u>0.86%</u> | <u>0.64%</u> | <u>1.00%</u> | <u>0.86%</u> | <u>0.80%</u> | <u>0.83%</u> |
| F. Net June 30, 2022 Contribution Rate (C+D+E) | 29.84% | 22.03% | 34.42% | 29.87% | 27.65% | 28.66% |
| <u>Ceres and Other Districts</u> | | | | | | |
| A. Total Normal Cost Rate | 16.80% | | | 23.32% | 18.29% | 20.40% |
| B. Member Contribution Rate | <u>8.11%</u> | | | <u>9.27%</u> | <u>9.14%</u> | <u>9.17%</u> |
| C. Employer Normal Cost Rate (A-B) | 8.69% | | | 14.05% | 9.15% | 11.23% |
| D. UAL Amortization Rate | 15.46% | | | 15.46% | 15.46% | 15.46% |
| E. Administrative Expense Rate | <u>0.72%</u> | | | <u>0.88%</u> | <u>0.73%</u> | <u>0.79%</u> |
| F. Net June 30, 2022 Contribution Rate (C+D+E) | 24.87% | | | 30.39% | 25.34% | 27.48% |

Administrative expenses allocated based on projected Employer Normal Cost and UAL Amortization contributions. See Table V-9.

**STANISLAUS COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
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SECTION V – CONTRIBUTIONS

| Table V-8 Development of the Safety Member Contribution Rate as of June 30, 2022 for FYE 2024 | | | | |
|--|---------------|---------------|---------------|----------------------|
| | Tier 2 | Tier 5 | PEPRA | TOTAL |
| <u>County and Former County</u> | | | | |
| A. Total Normal Cost Rate | 28.21% | 34.66% | 26.30% | 29.66% |
| B. Member Contribution Rate | <u>12.94%</u> | <u>14.26%</u> | <u>13.15%</u> | <u>13.57%</u> |
| C. Employer Normal Cost Rate (A-B) | 15.27% | 20.40% | 13.15% | 16.09% |
| D. UAL Amortization Rate | 28.97% | 28.97% | 28.97% | 28.97% |
| E. Administrative Expense Rate | <u>1.32%</u> | <u>1.47%</u> | <u>1.25%</u> | <u>1.34%</u> |
| F. Net June 30, 2022 Contribution Rate (C+D+E) | 45.56% | 50.84% | 43.37% | 46.40% |
| <u>Ceres and Other Districts</u> | | | | |
| A. Total Normal Cost Rate | | 35.98% | 29.54% | 33.83% |
| B. Member Contribution Rate | | <u>14.28%</u> | <u>14.77%</u> | <u>14.44%</u> |
| C. Employer Normal Cost Rate (A-B) | | 21.70% | 14.77% | 19.39% |
| D. UAL Amortization Rate | | 50.56% | 50.56% | 50.56% |
| E. Administrative Expense Rate | | <u>2.15%</u> | <u>1.95%</u> | <u>2.08%</u> |
| F. Net June 30, 2022 Contribution Rate (C+D+E) | | 74.41% | 67.28% | 72.03% |

Administrative expenses allocated based on projected Employer Normal Cost and UAL Amortization contributions. See Table V-10.

Tables V-9 and V-10 show the allocation of the administrative expense for each group and tier. The administrative expense is allocated to each group and tier based on its share of the projected employer contributions prior to inclusion of the administrative expense.

**STANISLAUS COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
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SECTION V – CONTRIBUTIONS

| Table V-9 Development of the General Member Administrative Expense Rate as of June 30, 2022 for FYE 2024 | | | | | | |
|---|------------------|---------------|---------------|-------------------|-------------------|-------------------|
| | Tier 2 | Tier 3 | Tier 4 | Tier 5 | PEPRA | TOTAL |
| <u>County and Former County</u> | | | | | | |
| A. Projected Payroll for FYE 2023 | \$ 16,862,417 | \$ 532,779 | \$ 125,891 | \$ 97,358,927 | \$ 135,740,844 | \$ 250,620,858 |
| B. Employer Normal Cost Rate | 10.59% | 3.00% | 15.03% | 10.62% | 8.46% | |
| C. UAL Amortization Rate | <u>18.39%</u> | <u>18.39%</u> | <u>18.39%</u> | <u>18.39%</u> | <u>18.39%</u> | |
| D. Employer Contribution Rate Prior to Administrative Expense (B+C) | 28.98% | 21.39% | 33.42% | 29.01% | 26.85% | |
| E. Projected Employer Contribution for FYE 2023 Prior to Administrative Expense | | | | | | |
| 1. Normal Cost (A*B) | \$ 1,785,730 | \$ 15,983 | \$ 18,922 | \$ 10,339,518 | \$ 11,483,676 | \$ 23,643,829 |
| 2. UAL Amortization (A*C) | <u>3,100,998</u> | <u>97,978</u> | <u>23,151</u> | <u>17,904,307</u> | <u>24,962,741</u> | <u>46,089,175</u> |
| 3. Total Prior to Administrative Expense (A*D) | \$ 4,886,728 | \$ 113,961 | \$ 42,073 | \$ 28,243,825 | \$ 36,446,417 | \$ 69,733,004 |
| F. Allocated Administrative Expense | \$ 145,512 | \$ 3,393 | \$ 1,253 | \$ 841,016 | \$ 1,085,264 | \$ 2,076,439 |
| G. Administrative Expense Rate (F÷A) | 0.86% | 0.64% | 1.00% | 0.86% | 0.80% | |
| H. Projected Employer Contribution for FYE 2023 Due to Administrative Expense (A*G) | \$ 145,017 | \$ 3,410 | \$ 1,259 | \$ 837,287 | \$ 1,085,927 | \$ 2,072,900 |
| <u>Ceres and Other Districts</u> | | | | | | |
| A. Projected Payroll for FYE 2023 | \$ 268,799 | | | \$ 4,290,750 | \$ 5,531,688 | \$ 10,091,237 |
| B. Employer Normal Cost Rate | 8.69% | | | 14.05% | 9.15% | |
| C. UAL Amortization Rate | <u>15.46%</u> | | | <u>15.46%</u> | <u>15.46%</u> | |
| D. Employer Contribution Rate Prior to Administrative Expense (B+C) | 24.15% | | | 29.51% | 24.61% | |
| E. Projected Employer Contribution for FYE 2023 Prior to Administrative Expense | | | | | | |
| 1. Normal Cost (A*B) | \$ 23,359 | | | \$ 602,850 | \$ 506,149 | \$ 1,132,358 |
| 2. UAL Amortization (A*C) | <u>41,556</u> | | | <u>663,350</u> | <u>855,199</u> | <u>1,560,105</u> |
| 3. Total Prior to Administrative Expense (A*D) | \$ 64,915 | | | \$ 1,266,200 | \$ 1,361,348 | \$ 2,692,463 |
| F. Allocated Administrative Expense | \$ 1,933 | | | \$ 37,704 | \$ 40,537 | \$ 80,173 |
| G. Administrative Expense Rate (F÷A) | 0.72% | | | 0.88% | 0.73% | |
| H. Projected Employer Contribution for FYE 2023 Due to Administrative Expense (A*G) | \$ 1,935 | | | \$ 37,759 | \$ 40,381 | \$ 80,075 |

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SECTION V – CONTRIBUTIONS

| Table V-10 Development of the Safety Member Administrative Expense Rate as of June 30, 2022 for FYE 2024 | | | | |
|---|------------------|------------------|-------------------|-------------------|
| | Tier 2 | Tier 5 | PEPRA | TOTAL |
| <u>County and Former County</u> | | | | |
| A. Projected Payroll for FYE 2023 | \$ 3,665,818 | \$ 27,020,662 | \$ 37,083,480 | \$ 67,769,960 |
| B. Employer Normal Cost Rate | 15.27% | 20.40% | 13.15% | |
| C. UAL Amortization Rate | <u>28.97%</u> | <u>28.97%</u> | <u>28.97%</u> | |
| D. Employer Contribution Rate | | | | |
| Prior to Administrative Expense (B+C) | 44.24% | 49.37% | 42.12% | |
| E. Projected Employer Contribution for FYE 2023 | | | | |
| Prior to Administrative Expense | | | | |
| 1. Normal Cost (A*B) | \$ 559,771 | \$ 5,512,215 | \$ 4,876,478 | \$ 10,948,464 |
| 2. UAL Amortization (A*C) | <u>1,061,987</u> | <u>7,827,886</u> | <u>10,743,084</u> | <u>19,632,957</u> |
| 3. Total Prior to Administrative Expense (A*D) | \$ 1,621,758 | \$ 13,340,101 | \$ 15,619,562 | \$ 30,581,421 |
| F. Allocated Administrative Expense | \$ 48,291 | \$ 397,228 | \$ 465,103 | \$ 910,623 |
| G. Administrative Expense Rate (F÷A) | 1.32% | 1.47% | 1.25% | |
| H. Projected Employer Contribution for FYE 2023 | | | | |
| Due to Administrative Expense (A*G) | \$ 48,389 | \$ 397,204 | \$ 463,544 | \$ 909,137 |
| <u>Ceres and Other Districts</u> | | | | |
| A. Projected Payroll for FYE 2023 | | \$ 3,550,996 | \$ 1,740,532 | \$ 5,291,528 |
| B. Employer Normal Cost Rate | | 21.70% | 14.77% | |
| C. UAL Amortization Rate | | <u>50.56%</u> | <u>50.56%</u> | |
| D. Employer Contribution Rate | | | | |
| Prior to Administrative Expense (B+C) | | 72.26% | 65.33% | |
| E. Projected Employer Contribution for FYE 2023 | | | | |
| Prior to Administrative Expense | | | | |
| 1. Normal Cost (A*B) | | \$ 770,566 | \$ 257,077 | \$ 1,027,643 |
| 2. UAL Amortization (A*C) | | <u>1,795,384</u> | <u>880,013</u> | <u>2,675,397</u> |
| 3. Total Prior to Administrative Expense (A*D) | | \$ 2,565,950 | \$ 1,137,090 | \$ 3,703,040 |
| F. Allocated Administrative Expense | | \$ 76,406 | \$ 33,859 | \$ 110,265 |
| G. Administrative Expense Rate (F÷A) | | 2.15% | 1.95% | |
| H. Projected Employer Contribution for FYE 2023 | | | | |
| Due to Administrative Expense (A*G) | | \$ 76,346 | \$ 33,940 | \$ 110,286 |

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SECTION VI – REQUIRED ACFR EXHIBITS

The GASB adopted Statement Nos. 67 and 68, which replaced GASB Statement Nos. 25 and 27. The disclosures needed to satisfy GASB requirements can be found in the StanCERA GASB 67/68 Report as of June 30, 2022.

In accordance with Government Finance Officers Association (GFOA) and their recommended checklist for Annual Comprehensive Financial Reports (ACFRs), we continue to prepare several schedules for the Plan that are not included in the GASB report.

The Schedule of Funded Liabilities by Type (Table VI-1, formerly referred to as the Solvency Test) shows the portion of actuarial liabilities for active member contributions, inactive members, and the employer-financed portion of the active members covered by the Actuarial Value of Assets. The Actuarial Liability is determined assuming that the Plan is ongoing and participants continue to terminate employment, retire, etc., in accordance with the actuarial assumptions, including a 6.75% discount rate for the most recent valuation.

The information needed to prepare the Actuarial Gain/Loss exhibit can now be found in Table II-1 (Unfunded Actuarial Liability Change by Source) in the Disclosures Related to Risk section. Each year there will be a gain or loss due to both assets and liabilities. In addition, there can be gains or losses due to changes in plan provisions or due to the adoption of new assumptions or methods. Finally, the unfunded liability will change based on whether the contributions exceed the interest on the unfunded liability plus the normal cost. A negative number in this column (“Contributions”) indicates that the contributions in the given year are greater than the interest on the unfunded liability plus the normal cost, and thus reduce the unfunded liability.

We have also included a Schedule of Funding Progress (Table VI-2), showing the historical assets, liabilities, and funded ratios for the Plan, along with the covered payroll and the Unfunded Actuarial Liability as a percent of payroll.

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SECTION VI – REQUIRED ACFR EXHIBITS

| <p style="text-align: center;">Table VI-1 SCHEDULE OF FUNDED LIABILITIES BY TYPE (dollars in thousands)</p> | | | | | | | | | |
|---|-----------------------------|----------------------------|-------------------------------|----------------------------------|------------|---|------|-----|--|
| Valuation Date | (1) | (2) | (3) | Actuarial | Valuation | Portion of Actuarial Liabilities Covered by Reported Assets | | | |
| June 30, | Active Member Contributions | Retirees And Beneficiaries | Active And Terminated Members | Accrued Liabilities ⁴ | Assets | (1) | (2) | (3) | |
| 2003 | \$ 176,622 | \$ 455,784 | \$ 325,689 | \$ 958,095 | \$ 928,022 | 100% | 100% | 91% | |
| 2004 | 166,806 | 518,922 | 349,617 | 1,035,345 | 993,180 | 100% | 100% | 88% | |
| 2005 | 205,556 | 551,810 | 358,994 | 1,116,310 | 1,049,691 | 100% | 100% | 81% | |
| 2006 ¹ | 219,907 | 619,109 | 355,888 | 1,194,904 | 1,154,048 | 100% | 100% | 89% | |
| 2008 ² | 272,657 | 739,838 | 536,329 | 1,548,824 | 1,317,167 | 100% | 100% | 57% | |
| 2009 | 298,342 | 781,082 | 574,292 | 1,653,716 | 1,171,767 | 100% | 100% | 16% | |
| 2010 | 323,940 | 829,323 | 584,561 | 1,737,824 | 1,325,801 | 100% | 100% | 30% | |
| 2011 | 337,201 | 897,384 | 523,133 | 1,757,718 | 1,372,046 | 100% | 100% | 26% | |
| 2012 | 351,569 | 987,546 | 549,598 | 1,888,713 | 1,451,764 | 100% | 100% | 20% | |
| 2013 ³ | 191,968 | 1,065,792 | 661,466 | 1,919,227 | 1,524,076 | 100% | 100% | 40% | |
| 2014 | 193,301 | 1,144,734 | 688,335 | 2,026,371 | 1,644,077 | 100% | 100% | 44% | |
| 2015 | 196,074 | 1,337,781 | 857,667 | 2,391,522 | 1,763,629 | 100% | 100% | 27% | |
| 2016 | 200,960 | 1,427,166 | 908,941 | 2,537,067 | 1,845,764 | 100% | 100% | 24% | |
| 2017 | 206,386 | 1,510,151 | 931,625 | 2,648,162 | 1,968,231 | 100% | 100% | 27% | |
| 2018 | 213,223 | 1,590,078 | 945,767 | 2,749,068 | 2,100,278 | 100% | 100% | 31% | |
| 2019 | 219,369 | 1,695,484 | 982,369 | 2,897,223 | 2,199,956 | 100% | 100% | 29% | |
| 2020 | 222,390 | 1,833,388 | 972,868 | 3,028,647 | 2,290,287 | 100% | 100% | 24% | |
| 2021 | 224,594 | 1,903,558 | 1,024,880 | 3,153,032 | 2,483,712 | 100% | 100% | 35% | |
| 2022 | 224,213 | 2,058,086 | 1,097,255 | 3,379,554 | 2,603,763 | 100% | 100% | 29% | |

¹ Results recalculated, reflecting Level 1 assumption changes (new retirement, termination and withdrawal decrements) & new EFI EAN methodology.

² Reflects transfer as of June 30, 2008 of \$50 million from Non-Valuation to Valuation Reserves.

³ Reflects change to include only refundable contribution balance.

⁴ The GFOA checklist uses the term Actuarial Accrued Liability, which is the same as the Actuarial Liability used elsewhere in this report.

**STANISLAUS COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JUNE 30, 2022**

SECTION VI – REQUIRED ACFR EXHIBITS

| <p style="text-align: center;">Table VI-2 Schedule of Funding Progress</p> | | | | | | | |
|---|-------------------------|---|---------------------|---------------------|------------------------|---|--|
| Actuarial Valuation Date ¹ | Valuation Assets | Actuarial Accrued Liability (AAL) ³ | Unfunded AAL | Funded Ratio | Covered Payroll | Unfunded AAL as a % of Covered Payroll | |
| 2008 ² | \$ 1,317,167,000 | \$ 1,548,824,000 | \$ 231,657,000 | 85.0% | \$ 275,580,000 | 84.1% | |
| 2009 | 1,171,767,000 | 1,653,716,000 | 481,949,000 | 70.9% | 248,316,000 | 194.1% | |
| 2010 | 1,325,801,000 | 1,737,824,000 | 412,023,000 | 76.3% | 248,830,473 | 165.6% | |
| 2011 | 1,372,046,000 | 1,757,718,000 | 385,672,000 | 78.1% | 226,706,796 | 170.1% | |
| 2012 | 1,451,764,000 | 1,888,713,000 | 436,949,000 | 76.9% | 220,918,009 | 197.8% | |
| 2013 | 1,524,076,000 | 1,919,227,000 | 395,151,000 | 79.4% | 219,028,318 | 180.4% | |
| 2014 | 1,644,077,000 | 2,026,371,000 | 382,294,000 | 81.1% | 223,028,288 | 171.4% | |
| 2015 | 1,763,629,000 | 2,391,522,000 | 627,893,000 | 73.7% | 237,717,727 | 264.1% | |
| 2016 | 1,845,764,000 | 2,537,067,000 | 691,303,000 | 72.8% | 250,447,580 | 276.0% | |
| 2017 | 1,968,231,000 | 2,648,162,000 | 679,931,000 | 74.3% | 256,143,684 | 265.4% | |
| 2018 | 2,100,278,000 | 2,749,068,000 | 648,790,000 | 76.4% | 270,755,220 | 239.6% | |
| 2019 | 2,199,956,000 | 2,897,223,000 | 697,267,000 | 75.9% | 284,008,303 | 245.5% | |
| 2020 | 2,290,287,000 | 3,028,647,000 | 738,360,000 | 75.6% | 285,326,282 | 258.8% | |
| 2021 | 2,483,712,000 | 3,153,032,000 | 669,320,000 | 78.8% | 291,650,438 | 229.5% | |
| 2022 | 2,603,763,000 | 3,379,554,000 | 775,791,000 | 77.0% | 303,594,687 | 255.5% | |

¹ Excludes value of Non-Valuation Reserves.

² Includes \$50 million transferred from Non-Valuation Reserves as of June 30, 2008.

³ The GFOA checklist uses the term Actuarial Accrued Liability, which is the same as the Actuarial Liability used elsewhere in this report.

**STANISLAUS COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JUNE 30, 2022**

APPENDIX A – MEMBERSHIP INFORMATION

The data for this valuation was provided by StanCERA as of June 30, 2022. Cheiron did not audit any of the data. However, we performed an informal examination of the obvious characteristics of the data for reasonableness and consistency in accordance with Actuarial Standard of Practice No. 23, Data Quality.

Active, Vested, and In Payment Member Data as of June 30, 2022

| | <u>General Members</u> | | <u>Safety Members</u> | | <u>Total</u> | |
|--|------------------------|-----------|-----------------------|-----------|--------------|-----------|
| | 7/1/2021 | 7/1/2022 | 7/1/2021 | 7/1/2022 | 7/1/2021 | 7/1/2022 |
| Active Participants | | | | | | |
| Number | 3,555 | 3,566 | 766 | 757 | 4,321 | 4,323 |
| Average Age | 44.78 | 44.50 | 37.31 | 37.31 | 43.46 | 43.24 |
| Average Service | 10.54 | 10.13 | 9.93 | 10.16 | 10.43 | 10.14 |
| Average Pay (does not reflect impact of furloughs) | \$ 64,176 | \$ 66,539 | \$ 82,905 | \$ 87,603 | \$ 67,496 | \$ 70,228 |
| Service Retired | | | | | | |
| Number | 2,997 | 3,094 | 501 | 526 | 3,498 | 3,620 |
| Average Age | 70.51 | 70.78 | 64.19 | 64.14 | 69.61 | 69.82 |
| Average Annual Total Benefit | \$ 33,879 | \$ 35,084 | \$ 60,435 | \$ 61,891 | \$ 37,682 | \$ 38,979 |
| Beneficiaries | | | | | | |
| Number | 390 | 422 | 118 | 126 | 508 | 548 |
| Average Age | 73.26 | 73.03 | 67.51 | 67.79 | 71.92 | 71.82 |
| Average Annual Total Benefit | \$ 21,321 | \$ 21,792 | \$ 32,093 | \$ 32,252 | \$ 23,823 | \$ 24,197 |
| Duty Disabled | | | | | | |
| Number | 90 | 86 | 142 | 141 | 232 | 227 |
| Average Age | 69.26 | 69.55 | 60.03 | 60.30 | 63.61 | 63.80 |
| Average Annual Total Benefit | \$ 26,644 | \$ 27,948 | \$ 41,405 | \$ 42,171 | \$ 35,679 | \$ 36,782 |
| Ordinary Disabled | | | | | | |
| Number | 71 | 74 | 7 | 7 | 78 | 81 |
| Average Age | 66.01 | 66.32 | 63.00 | 64.00 | 65.74 | 66.12 |
| Average Annual Total Benefit | \$ 19,513 | \$ 20,365 | \$ 26,678 | \$ 27,478 | \$ 20,156 | \$ 20,980 |
| Total In Pay | | | | | | |
| Number | 3,548 | 3,676 | 768 | 800 | 4,316 | 4,476 |
| Average Age | 70.69 | 70.92 | 63.92 | 64.04 | 69.49 | 69.69 |
| Average Annual Total Benefit | \$ 32,027 | \$ 33,095 | \$ 52,254 | \$ 53,446 | \$ 35,627 | \$ 36,733 |
| Terminated Vested | | | | | | |
| Number | 445 | 521 | 74 | 84 | 519 | 605 |
| Average Age | 48.88 | 48.00 | 42.95 | 42.36 | 48.04 | 47.21 |
| Average Service | 10.54 | 10.75 | 9.97 | 9.87 | 10.46 | 10.63 |
| Transfers | | | | | | |
| Number | 536 | 508 | 212 | 204 | 748 | 712 |
| Average Age | 46.88 | 47.17 | 41.40 | 41.93 | 45.33 | 45.67 |
| Average Service | 7.89 | 8.19 | 7.90 | 8.40 | 7.89 | 8.25 |
| Total Deferred | | | | | | |
| Number | 981 | 1,029 | 286 | 288 | 1,267 | 1,317 |
| Average Age | 47.79 | 47.59 | 41.80 | 42.05 | 46.44 | 46.38 |
| Average Service | 9.09 | 9.49 | 8.44 | 8.83 | 8.94 | 9.35 |

**STANISLAUS COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JUNE 30, 2022**

APPENDIX A – MEMBERSHIP INFORMATION

Schedule of Retirees & Beneficiaries Added to and Removed from Retirement Payroll

| Plan Year Ending | Added During Year | Allowance Added | Removed During Year | Allowance Removed | At End of Year | Annual Allowance | % Increase in Retiree Allowance | Average Annual Allowance |
|------------------|-------------------|-----------------|---------------------|-------------------|----------------|------------------|---------------------------------|--------------------------|
| 2008 | 369 | \$ 9,084,777 | (148) | \$ (1,731,738) | 2,666 | \$ 63,296,000 | 19.18% | \$ 23,742 |
| 2009 | 156 | \$ 2,168,425 | (71) | \$ (647,870) | 2,751 | \$ 66,720,003 | 5.41% | \$ 24,253 |
| 2010 | 159 | \$ 3,349,900 | (80) | \$ (751,427) | 2,830 | \$ 71,464,735 | 7.11% | \$ 25,334 |
| 2011 | 263 | \$ 4,724,416 | (78) | \$ (1,194,042) | 3,015 | \$ 74,826,404 | 4.70% | \$ 25,732 |
| 2012 | 226 | \$ 3,565,634 | (99) | \$ (978,729) | 3,142 | \$ 80,157,222 | 7.12% | \$ 26,737 |
| 2013 | 198 | \$ 6,036,138 | (91) | \$ (1,144,584) | 3,249 | \$ 89,975,736 | 12.25% | \$ 27,694 |
| 2014 | 222 | \$ 6,703,273 | (86) | \$ (1,725,066) | 3,385 | \$ 96,405,454 | 7.15% | \$ 28,480 |
| 2015 | 237 | \$ 7,778,716 | (83) | \$ (2,043,313) | 3,539 | \$ 104,052,097 | 7.93% | \$ 29,402 |
| 2016 | 211 | \$ 7,066,750 | (99) | \$ (2,160,689) | 3,651 | \$ 111,260,240 | 6.93% | \$ 30,474 |
| 2017 | 202 | \$ 6,749,973 | (107) | \$ (2,471,229) | 3,746 | \$ 117,901,627 | 5.97% | \$ 31,474 |
| 2018 | 233 | \$ 7,555,825 | (123) | \$ (3,109,178) | 3,856 | \$ 124,995,337 | 6.02% | \$ 32,416 |
| 2019 | 242 | \$ 8,421,538 | (97) | \$ (2,580,158) | 4,001 | \$ 133,601,799 | 6.89% | \$ 33,392 |
| 2020 | 283 | \$ 11,277,136 | (107) | \$ (3,164,436) | 4,177 | \$ 144,745,530 | 8.34% | \$ 34,653 |
| 2021 | 273 | \$ 9,937,557 | (134) | \$ (3,802,836) | 4,316 | \$ 153,764,029 | 6.23% | \$ 35,627 |
| 2022 | 279 | \$ 9,936,459 | (119) | \$ (3,132,862) | 4,476 | \$ 164,415,041 | 6.93% | \$ 36,733 |

**STANISLAUS COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JUNE 30, 2022**

APPENDIX A – MEMBERSHIP INFORMATION

Active and Vested Participant Data as of June 30, 2022

| | County and Former County | | | | | | Ceres and Other Districts | | | | | | Total County and Former County, Ceres and Other Districts | |
|----------------------------|--------------------------|-----------|----------------|-----------|-----------|-----------|---------------------------|-----------|----------------|------------|-----------|-----------|---|-----------|
| | General Members | | Safety Members | | Total | | General Members | | Safety Members | | Total | | | |
| | 7/1/2021 | 7/1/2022 | 7/1/2021 | 7/1/2022 | 7/1/2021 | 7/1/2022 | 7/1/2021 | 7/1/2022 | 7/1/2021 | 7/1/2022 | 7/1/2021 | 7/1/2022 | 7/1/2021 | 7/1/2022 |
| Active Participants | | | | | | | | | | | | | | |
| Number | 3,418 | 3,419 | 717 | 707 | 4,135 | 4,126 | 137 | 147 | 49 | 50 | 186 | 197 | 4,321 | 4,323 |
| Average Age | 44.74 | 44.49 | 37.15 | 37.08 | 43.43 | 43.22 | 45.72 | 44.77 | 39.69 | 40.64 | 44.13 | 43.72 | 43.46 | 43.24 |
| Average Service | 10.54 | 10.18 | 9.82 | 9.96 | 10.42 | 10.14 | 10.42 | 9.01 | 11.53 | 12.92 | 10.72 | 10.01 | 10.42 | 10.14 |
| Average Pay ¹ | \$ 64,248 | \$ 66,567 | \$ 82,458 | \$ 86,643 | \$ 67,406 | \$ 70,007 | \$ 62,363 | \$ 65,900 | \$ 89,451 | \$ 101,174 | \$ 69,499 | \$ 74,853 | \$ 67,496 | \$ 70,228 |
| Terminated Vested | | | | | | | | | | | | | | |
| Number | 427 | 499 | 71 | 81 | 498 | 580 | 18 | 22 | 3 | 3 | 21 | 25 | 519 | 605 |
| Average Age | 48.99 | 47.97 | 42.82 | 42.40 | 48.11 | 47.19 | 46.44 | 48.59 | 46.00 | 41.33 | 46.38 | 47.72 | 48.04 | 47.21 |
| Average Service | 10.45 | 10.60 | 9.78 | 9.85 | 10.36 | 10.49 | 12.60 | 14.33 | 14.51 | 10.57 | 12.88 | 13.88 | 10.46 | 10.63 |
| Transfers | | | | | | | | | | | | | | |
| Number | 490 | 464 | 138 | 139 | 628 | 603 | 46 | 44 | 74 | 65 | 120 | 109 | 748 | 712 |
| Average Age | 47.14 | 47.32 | 41.70 | 42.47 | 45.95 | 46.20 | 44.07 | 45.59 | 40.85 | 40.75 | 42.08 | 42.71 | 45.33 | 45.67 |
| Average Service | 7.85 | 8.16 | 7.35 | 7.96 | 7.74 | 8.12 | 8.26 | 8.48 | 8.93 | 9.34 | 8.68 | 9.00 | 7.89 | 8.25 |
| Total Deferred | | | | | | | | | | | | | | |
| Number | 917 | 963 | 209 | 220 | 1,126 | 1,183 | 64 | 66 | 77 | 68 | 141 | 134 | 1,267 | 1,317 |
| Average Age | 48.00 | 47.66 | 42.08 | 42.45 | 46.90 | 46.69 | 44.73 | 46.59 | 41.05 | 40.78 | 42.72 | 43.64 | 46.44 | 46.38 |
| Average Service | 9.06 | 9.42 | 8.17 | 8.66 | 8.90 | 9.28 | 9.49 | 10.43 | 9.15 | 9.40 | 9.30 | 9.91 | 8.94 | 9.35 |

¹ All payroll figures shown are annual.

**STANISLAUS COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JUNE 30, 2022**

APPENDIX A – MEMBERSHIP INFORMATION

Active and Vested Participant Data as of June 30, 2022

County and Former County Members

| | General Members | | | | | | | | | | | | Safety Members | | | | | |
|----------------------------|-----------------|----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|----------------|-----------|-----------|------------|-----------|-----------|
| | Tier 1 | | Tier 2 | | Tier 3 | | Tier 4 | | Tier 5 | | PEPRA | | Tier 2 | | Tier 5 | | PEPRA | |
| | 7/1/2021 | 7/1/2022 | 7/1/2021 | 7/1/2022 | 7/1/2021 | 7/1/2022 | 7/1/2021 | 7/1/2022 | 7/1/2021 | 7/1/2022 | 7/1/2021 | 7/1/2022 | 7/1/2021 | 7/1/2022 | 7/1/2021 | 7/1/2022 | 7/1/2021 | 7/1/2022 |
| Active Participants | | | | | | | | | | | | | | | | | | |
| Number | 0 | 0 | 206 | 192 | 8 | 8 | 2 | 2 | 1,315 | 1,160 | 1,887 | 2,057 | 36 | 36 | 267 | 239 | 414 | 432 |
| Average Age | 0.00 | 0.00 | 45.19 | 46.13 | 53.25 | 54.25 | 64.00 | 65.00 | 51.88 | 52.31 | 39.66 | 39.86 | 39.00 | 40.08 | 45.38 | 45.73 | 31.68 | 32.04 |
| Average Service | 0.00 | 0.00 | 10.73 | 12.03 | 21.55 | 22.42 | 32.41 | 33.41 | 19.71 | 20.48 | 4.05 | 4.11 | 10.49 | 11.52 | 18.43 | 19.13 | 4.25 | 4.80 |
| Average Pay ¹ | \$ 0 | \$ 0 | \$ 74,854 | \$ 80,618 | \$ 58,659 | \$ 61,270 | \$ 55,799 | \$ 57,910 | \$ 73,866 | \$ 77,611 | \$ 56,421 | \$ 59,056 | \$ 87,505 | \$ 93,059 | \$ 98,022 | \$ 103,495 | \$ 71,981 | \$ 76,785 |
| Terminated Vested | | | | | | | | | | | | | | | | | | |
| Number | 2 | 2 | 65 | 69 | 18 | 17 | 0 | 0 | 291 | 309 | 51 | 102 | 12 | 10 | 48 | 51 | 11 | 20 |
| Average Age | 67.00 | 68.00 | 50.28 | 48.61 | 60.67 | 62.12 | 0.00 | 0.00 | 49.32 | 49.52 | 40.59 | 40.11 | 47.00 | 48.30 | 44.29 | 45.08 | 31.82 | 32.60 |
| Average Service | 9.29 | 9.29 | 8.05 | 8.39 | 13.58 | 13.63 | 0.00 | 0.00 | 11.51 | 12.20 | 6.44 | 6.75 | 6.76 | 7.18 | 11.42 | 11.83 | 5.91 | 6.14 |
| Transfers | | | | | | | | | | | | | | | | | | |
| Number | 1 | 0 | 120 | 109 | 20 | 13 | 0 | 0 | 235 | 227 | 114 | 115 | 19 | 18 | 89 | 90 | 30 | 31 |
| Average Age | 66.00 | 0.00 | 49.13 | 48.81 | 54.95 | 54.85 | 0.00 | 0.00 | 49.42 | 49.98 | 38.83 | 39.80 | 44.32 | 45.00 | 44.20 | 45.06 | 32.60 | 33.52 |
| Average Service | 9.91 | 0.00 | 4.08 | 4.55 | 22.01 | 25.92 | 0.00 | 0.00 | 11.06 | 11.50 | 2.73 | 3.00 | 4.36 | 4.36 | 9.37 | 10.23 | 3.25 | 3.47 |
| Total Deferred | | | | | | | | | | | | | | | | | | |
| Number | 3 | 2 | 185 | 178 | 38 | 30 | 0 | 0 | 526 | 536 | 165 | 217 | 31 | 28 | 137 | 141 | 41 | 51 |
| Average Age | 66.67 | 68.00 | 49.54 | 48.73 | 57.66 | 58.97 | 0.00 | 0.00 | 49.37 | 49.71 | 39.38 | 39.94 | 45.35 | 46.18 | 44.23 | 45.06 | 32.39 | 33.16 |
| Average Service | 9.50 | 9.29 | 5.47 | 6.04 | 18.02 | 18.95 | 0.00 | 0.00 | 11.31 | 11.90 | 3.87 | 4.76 | 5.29 | 5.37 | 10.09 | 10.81 | 3.96 | 4.52 |

¹ All payroll figures shown are annual.

CERES and Other District Members

| | General Members | | | | | | | | | | | | Safety Members | | | | | |
|----------------------------|-----------------|----------|-----------|-----------|----------|----------|----------|----------|-----------|-----------|-----------|-----------|----------------|----------|------------|------------|-----------|-----------|
| | Tier 1 | | Tier 2 | | Tier 3 | | Tier 4 | | Tier 5 | | PEPRA | | Tier 2 | | Tier 5 | | PEPRA | |
| | 7/1/2021 | 7/1/2022 | 7/1/2021 | 7/1/2022 | 7/1/2021 | 7/1/2022 | 7/1/2021 | 7/1/2022 | 7/1/2021 | 7/1/2022 | 7/1/2021 | 7/1/2022 | 7/1/2021 | 7/1/2022 | 7/1/2021 | 7/1/2022 | 7/1/2021 | 7/1/2022 |
| Active Participants | | | | | | | | | | | | | | | | | | |
| Number | 0 | 0 | 4 | 4 | 0 | 0 | 0 | 0 | 59 | 52 | 74 | 91 | 0 | 0 | 28 | 30 | 21 | 20 |
| Average Age | 0.00 | 0.00 | 50.00 | 51.00 | 0.00 | 0.00 | 0.00 | 0.00 | 52.07 | 51.52 | 40.42 | 40.64 | 0.00 | 0.00 | 42.43 | 43.03 | 36.05 | 37.05 |
| Average Service | 0.00 | 0.00 | 15.54 | 16.54 | 0.00 | 0.00 | 0.00 | 0.00 | 18.70 | 18.36 | 3.57 | 3.40 | 0.00 | 0.00 | 16.06 | 17.44 | 5.42 | 6.14 |
| Average Pay ¹ | \$ 0 | \$ 0 | \$ 61,157 | \$ 65,076 | \$ 0 | \$ 0 | \$ 0 | \$ 0 | \$ 73,755 | \$ 79,756 | \$ 53,347 | \$ 58,020 | \$ 0 | \$ 0 | \$ 104,799 | \$ 114,002 | \$ 68,987 | \$ 81,932 |
| Terminated Vested | | | | | | | | | | | | | | | | | | |
| Number | 0 | 0 | 4 | 4 | 0 | 0 | 0 | 0 | 10 | 15 | 4 | 3 | 0 | 0 | 2 | 2 | 1 | 1 |
| Average Age | 0.00 | 0.00 | 54.75 | 55.75 | 0.00 | 0.00 | 0.00 | 0.00 | 46.80 | 48.40 | 37.25 | 40.00 | 0.00 | 0.00 | 44.00 | 45.00 | 50.00 | 34.00 |
| Average Service | 0.00 | 0.00 | 11.28 | 12.97 | 0.00 | 0.00 | 0.00 | 0.00 | 15.23 | 15.99 | 7.36 | 7.84 | 0.00 | 0.00 | 12.93 | 12.93 | 17.66 | 5.83 |
| Transfers | | | | | | | | | | | | | | | | | | |
| Number | 0 | 0 | 6 | 6 | 0 | 0 | 0 | 0 | 30 | 30 | 10 | 8 | 11 | 7 | 43 | 40 | 20 | 18 |
| Average Age | 0.00 | 0.00 | 54.33 | 58.17 | 0.00 | 0.00 | 0.00 | 0.00 | 43.50 | 44.10 | 39.60 | 41.75 | 52.09 | 50.14 | 42.02 | 42.58 | 32.15 | 33.06 |
| Average Service | 0.00 | 0.00 | 6.02 | 1.80 | 0.00 | 0.00 | 0.00 | 0.00 | 10.18 | 11.11 | 3.86 | 3.64 | 5.37 | 4.66 | 12.74 | 12.79 | 2.71 | 3.50 |
| Total Deferred | | | | | | | | | | | | | | | | | | |
| Number | 0 | 0 | 10 | 10 | 0 | 0 | 0 | 0 | 40 | 45 | 14 | 11 | 11 | 7 | 45 | 42 | 21 | 19 |
| Average Age | 0.00 | 0.00 | 54.50 | 57.20 | 0.00 | 0.00 | 0.00 | 0.00 | 44.33 | 45.53 | 38.93 | 41.27 | 52.09 | 50.14 | 42.11 | 42.69 | 33.00 | 33.11 |
| Average Service | 0.00 | 0.00 | 8.12 | 6.27 | 0.00 | 0.00 | 0.00 | 0.00 | 11.44 | 12.74 | 4.86 | 4.78 | 5.37 | 4.66 | 12.75 | 12.80 | 3.42 | 3.62 |

¹ All payroll figures shown are annual.

**STANISLAUS COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JUNE 30, 2022**

APPENDIX A – MEMBERSHIP INFORMATION

Schedule of Active Member Valuation Data

| Valuation Date | Plan Type | Number | Annual Payroll | Average Annual Salary | Increase in Average Pay |
|----------------------|-----------|--------|----------------|-----------------------|-------------------------|
| June 30, 2003 | General | 3,626 | \$163,505,000 | \$45,092 | 6.76% |
| | Safety | 637 | \$34,159,000 | \$53,625 | 3.98% |
| | Total | 4,263 | \$197,664,000 | \$46,367 | 5.23% |
| June 30, 2004 | General | 3,618 | \$164,462,000 | \$45,457 | 0.81% |
| | Safety | 630 | \$35,501,000 | \$56,351 | 5.08% |
| | Total | 4,248 | \$199,963,000 | \$47,072 | 1.52% |
| June 30, 2005 | General | 3,651 | \$173,399,000 | \$47,494 | 4.48% |
| | Safety | 687 | \$38,282,000 | \$55,723 | -1.11% |
| | Total | 4,338 | \$211,681,000 | \$48,797 | 3.66% |
| June 30, 2006 | General | 3,702 | \$179,767,000 | \$48,559 | 2.24% |
| | Safety | 689 | \$40,001,000 | \$58,057 | 4.19% |
| | Total | 4,391 | \$219,768,000 | \$50,050 | 2.57% |
| June 30, 2008 | General | 3,719 | \$230,942,000 | \$62,098 | 27.88% |
| | Safety | 731 | \$44,638,000 | \$61,064 | 5.18% |
| | Total | 4,450 | \$275,580,000 | \$61,928 | 23.73% |
| June 30, 2009 | General | 3,627 | \$201,144,000 | \$55,457 | -10.69% |
| | Safety | 739 | \$47,172,000 | \$63,832 | 4.53% |
| | Total | 4,366 | \$248,316,000 | \$56,875 | -8.16% |
| June 30, 2010 | General | 3,464 | \$202,200,198 | \$58,372 | 5.26% |
| | Safety | 685 | \$46,630,275 | \$68,073 | 6.64% |
| | Total | 4,149 | \$248,830,473 | \$59,974 | 5.45% |
| June 30, 2011 | General | 3,232 | \$184,906,498 | \$57,211 | -1.99% |
| | Safety | 637 | \$41,800,298 | \$65,621 | -3.60% |
| | Total | 3,869 | \$226,706,796 | \$58,596 | -2.30% |
| June 30, 2012 | General | 3,233 | \$179,260,736 | \$55,447 | -3.08% |
| | Safety | 661 | \$41,657,273 | \$63,022 | -3.96% |
| | Total | 3,894 | \$220,918,009 | \$56,733 | -3.18% |
| June 30, 2013 | General | 3,230 | \$176,437,755 | \$54,625 | -1.48% |
| | Safety | 694 | \$42,590,563 | \$61,370 | -2.62% |
| | Total | 3,924 | \$219,028,318 | \$55,818 | -1.61% |
| June 30, 2014 | General | 3,303 | \$179,606,090 | \$54,377 | -0.45% |
| | Safety | 689 | \$43,422,198 | \$63,022 | 2.69% |
| | Total | 3,992 | \$223,028,288 | \$55,869 | 0.09% |
| June 30, 2015 | General | 3,421 | \$188,550,804 | \$55,116 | 1.36% |
| | Safety | 723 | \$49,166,923 | \$68,004 | 7.91% |
| | Total | 4,144 | \$237,717,727 | \$57,364 | 2.68% |
| June 30, 2016 | General | 3,521 | \$198,457,059 | \$56,364 | 2.26% |
| | Safety | 727 | \$52,020,521 | \$71,555 | 5.22% |
| | Total | 4,248 | \$250,477,580 | \$58,964 | 2.79% |
| June 30, 2017 | General | 3,552 | \$201,758,423 | \$56,801 | 0.78% |
| | Safety | 757 | \$54,385,261 | \$71,843 | 0.40% |
| | Total | 4,309 | \$256,143,684 | \$59,444 | 0.81% |
| June 30, 2018 | General | 3,658 | \$211,919,963 | \$57,933 | 1.99% |
| | Safety | 794 | \$58,835,257 | \$74,100 | 3.14% |
| | Total | 4,452 | \$270,755,220 | \$60,817 | 2.31% |
| June 30, 2019 | General | 3,690 | \$220,393,008 | \$59,727 | 3.10% |
| | Safety | 814 | \$63,615,295 | \$78,151 | 5.47% |
| | Total | 4,504 | \$284,008,303 | \$63,057 | 3.68% |
| June 30, 2020 | General | 3,652 | \$221,652,587 | \$60,693 | 1.62% |
| | Safety | 806 | \$63,673,695 | \$79,000 | 1.09% |
| | Total | 4,458 | \$285,326,282 | \$64,003 | 1.50% |
| June 30, 2021 | General | 3,555 | \$228,145,063 | \$64,176 | 5.74% |
| | Safety | 766 | \$63,505,375 | \$82,905 | 4.94% |
| | Total | 4,321 | \$291,650,438 | \$67,496 | 5.46% |
| June 30, 2022 | General | 3,566 | \$237,279,320 | \$66,539 | 3.68% |
| | Safety | 757 | \$66,315,366 | \$87,603 | 5.67% |
| | Total | 4,323 | \$303,594,687 | \$70,228 | 4.05% |

Actuarial valuation was not performed for fiscal year ending June 30, 2007.

**STANISLAUS COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JUNE 30, 2022**

APPENDIX A – MEMBERSHIP INFORMATION

StanCERA Membership – Retired Members as of June 30, 2022

| Age | County and Former County | | | | Ceres and Other Districts | | | | Total | |
|----------|--------------------------|------------------------------|-----------------------|------------------------------|---------------------------|------------------------------|-----------------------|------------------------------|--------|------------------------------|
| | <u>General Members</u> | | <u>Safety Members</u> | | <u>General Members</u> | | <u>Safety Members</u> | | Number | Annual Average Benefit |
| | Number | Annual Average Benefit | Number | Annual Average Benefit | Number | Annual Average Benefit | Number | Annual Average Benefit | | |
| 35-39 | 0 | \$ 0 | 0 | \$ 0 | 0 | \$ 0 | 0 | \$ 0 | 0 | \$ 0 |
| 40-44 | 0 | \$ 0 | 1 | \$ 36,696 | 0 | \$ 0 | 0 | \$ 0 | 1 | \$ 36,696 |
| 45-49 | 0 | \$ 0 | 10 | \$ 50,786 | 0 | \$ 0 | 1 | \$ 77,667 | 11 | \$ 53,230 |
| 50-54 | 59 | \$ 27,579 | 74 | \$ 63,228 | 4 | \$ 25,559 | 13 | \$ 64,241 | 150 | \$ 48,290 |
| 55-59 | 188 | \$ 28,950 | 103 | \$ 70,773 | 4 | \$ 40,297 | 10 | \$ 39,625 | 305 | \$ 43,572 |
| 60-64 | 427 | \$ 36,597 | 65 | \$ 52,940 | 15 | \$ 30,207 | 4 | \$ 94,370 | 511 | \$ 38,940 |
| 65-69 | 675 | \$ 36,106 | 79 | \$ 50,846 | 26 | \$ 33,988 | 5 | \$ 126,179 | 785 | \$ 38,093 |
| 70-74 | 717 | \$ 37,621 | 71 | \$ 63,197 | 25 | \$ 27,963 | 2 | \$ 80,727 | 815 | \$ 39,659 |
| 75-79 | 503 | \$ 37,251 | 47 | \$ 66,891 | 11 | \$ 37,237 | 0 | \$ 0 | 561 | \$ 39,734 |
| 80-84 | 265 | \$ 30,702 | 30 | \$ 55,148 | 6 | \$ 43,934 | 0 | \$ 0 | 301 | \$ 33,402 |
| 85-89 | 97 | \$ 28,354 | 9 | \$ 83,336 | 1 | \$ 129,138 | 0 | \$ 0 | 107 | \$ 33,921 |
| 90-94 | 52 | \$ 25,873 | 1 | \$ 40,655 | 0 | \$ 0 | 0 | \$ 0 | 53 | \$ 26,152 |
| 95+ | 19 | \$ 23,051 | 1 | \$ 29,013 | 0 | \$ 0 | 0 | \$ 0 | 20 | \$ 23,349 |
| All Ages | 3,002 | \$ 35,126 | 491 | \$ 61,255 | 92 | \$ 33,713 | 35 | \$ 70,825 | 3,620 | \$ 38,979 |

**STANISLAUS COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JUNE 30, 2022**

APPENDIX A – MEMBERSHIP INFORMATION

StanCERA Membership – Service-Connected Disabled Members as of June 30, 2022

| Age | County and Former County | | | | Ceres and Other Districts | | | | Total | |
|----------|--------------------------|------------------------------|-----------------------|------------------------------|---------------------------|------------------------------|-----------------------|------------------------------|--------|------------------------------|
| | <u>General Members</u> | | <u>Safety Members</u> | | <u>General Members</u> | | <u>Safety Members</u> | | Number | Annual Average Benefit |
| | Number | Annual Average Benefit | Number | Annual Average Benefit | Number | Annual Average Benefit | Number | Annual Average Benefit | | |
| 25-29 | 0 | \$ 0 | 0 | \$ 0 | 0 | \$ 0 | 0 | \$ 0 | 0 | \$ 0 |
| 30-34 | 0 | \$ 0 | 0 | \$ 0 | 0 | \$ 0 | 0 | \$ 0 | 0 | \$ 0 |
| 35-39 | 0 | \$ 0 | 3 | \$ 26,023 | 0 | \$ 0 | 1 | \$ 44,027 | 4 | \$ 30,524 |
| 40-44 | 0 | \$ 0 | 8 | \$ 28,969 | 0 | \$ 0 | 3 | \$ 12,164 | 11 | \$ 24,386 |
| 45-49 | 2 | \$ 20,632 | 10 | \$ 31,198 | 0 | \$ 0 | 1 | \$ 59,994 | 13 | \$ 31,788 |
| 50-54 | 4 | \$ 24,853 | 18 | \$ 37,605 | 0 | \$ 0 | 1 | \$ 35,484 | 23 | \$ 35,295 |
| 55-59 | 5 | \$ 25,119 | 18 | \$ 39,104 | 1 | \$ 35,091 | 1 | \$ 38,251 | 25 | \$ 36,112 |
| 60-64 | 7 | \$ 27,196 | 18 | \$ 34,637 | 0 | \$ 0 | 4 | \$ 76,308 | 29 | \$ 38,588 |
| 65-69 | 21 | \$ 27,949 | 21 | \$ 49,819 | 2 | \$ 23,373 | 1 | \$ 46,729 | 45 | \$ 38,369 |
| 70-74 | 18 | \$ 27,698 | 16 | \$ 59,216 | 0 | \$ 0 | 2 | \$ 47,220 | 36 | \$ 42,790 |
| 75-79 | 13 | \$ 28,622 | 12 | \$ 44,318 | 2 | \$ 24,699 | 0 | \$ 0 | 27 | \$ 35,307 |
| 80-84 | 10 | \$ 33,580 | 2 | \$ 38,693 | 0 | \$ 0 | 0 | \$ 0 | 12 | \$ 34,432 |
| 85-89 | 1 | \$ 22,261 | 1 | \$ 56,539 | 0 | \$ 0 | 0 | \$ 0 | 2 | \$ 39,400 |
| 90-94 | 0 | \$ 0 | 0 | \$ 0 | 0 | \$ 0 | 0 | \$ 0 | 0 | \$ 0 |
| 95+ | 0 | \$ 0 | 0 | \$ 0 | 0 | \$ 0 | 0 | \$ 0 | 0 | \$ 0 |
| All Ages | 81 | \$ 28,053 | 127 | \$ 41,617 | 5 | \$ 26,247 | 14 | \$ 47,189 | 227 | \$ 36,782 |

**STANISLAUS COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JUNE 30, 2022**

APPENDIX A – MEMBERSHIP INFORMATION

StanCERA Membership – Nonservice-Connected Disabled Members as of June 30, 2022

| Age | County and Former County | | | | Ceres and Other Districts | | | | Total | |
|----------|--------------------------|------------------------------|-----------------------|------------------------------|---------------------------|------------------------------|-----------------------|------------------------------|--------|------------------------------|
| | <u>General Members</u> | | <u>Safety Members</u> | | <u>General Members</u> | | <u>Safety Members</u> | | Number | Annual Average Benefit |
| | Number | Annual Average Benefit | Number | Annual Average Benefit | Number | Annual Average Benefit | Number | Annual Average Benefit | | |
| 35-39 | 0 | \$ 0 | 0 | \$ 0 | 0 | \$ 0 | 0 | \$ 0 | 0 | \$ 0 |
| 40-44 | 0 | \$ 0 | 0 | \$ 0 | 1 | \$ 25,799 | 0 | \$ 0 | 1 | \$ 25,799 |
| 45-49 | 4 | \$ 18,360 | 0 | \$ 0 | 0 | \$ 0 | 0 | \$ 0 | 4 | \$ 18,360 |
| 50-54 | 6 | \$ 20,123 | 1 | \$ 26,575 | 0 | \$ 0 | 1 | \$ 41,760 | 8 | \$ 23,634 |
| 55-59 | 14 | \$ 19,113 | 0 | \$ 0 | 0 | \$ 0 | 0 | \$ 0 | 14 | \$ 19,113 |
| 60-64 | 7 | \$ 26,224 | 1 | \$ 30,314 | 0 | \$ 0 | 0 | \$ 0 | 8 | \$ 26,736 |
| 65-69 | 8 | \$ 20,746 | 2 | \$ 26,364 | 0 | \$ 0 | 0 | \$ 0 | 10 | \$ 21,869 |
| 70-74 | 14 | \$ 18,455 | 1 | \$ 16,971 | 0 | \$ 0 | 0 | \$ 0 | 15 | \$ 18,356 |
| 75-79 | 13 | \$ 23,065 | 1 | \$ 24,000 | 0 | \$ 0 | 0 | \$ 0 | 14 | \$ 23,132 |
| 80-84 | 6 | \$ 16,264 | 0 | \$ 0 | 0 | \$ 0 | 0 | \$ 0 | 6 | \$ 16,264 |
| 85-89 | 1 | \$ 14,138 | 0 | \$ 0 | 0 | \$ 0 | 0 | \$ 0 | 1 | \$ 14,138 |
| 90-94 | 0 | \$ 0 | 0 | \$ 0 | 0 | \$ 0 | 0 | \$ 0 | 0 | \$ 0 |
| 95+ | 0 | \$ 0 | 0 | \$ 0 | 0 | \$ 0 | 0 | \$ 0 | 0 | \$ 0 |
| All Ages | 73 | \$ 20,291 | 6 | \$ 25,098 | 1 | \$ 25,799 | 1 | \$ 41,760 | 81 | \$ 20,980 |

**STANISLAUS COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JUNE 30, 2022**

APPENDIX A – MEMBERSHIP INFORMATION

StanCERA Membership – Beneficiaries as of June 30, 2022

| Age | County and Former County | | | | Ceres and Other Districts | | | | Total | |
|----------|--------------------------|------------------------|-----------------------|------------------------|---------------------------|------------------------|-----------------------|------------------------|--------|------------------------|
| | <u>General Members</u> | | <u>Safety Members</u> | | <u>General Members</u> | | <u>Safety Members</u> | | Number | Annual Average Benefit |
| | Number | Annual Average Benefit | Number | Annual Average Benefit | Number | Annual Average Benefit | Number | Annual Average Benefit | | |
| 0-24 | 0 | \$ 0 | 2 | \$ 21,235 | 0 | \$ 0 | 0 | \$ 0 | 2 | \$ 21,235 |
| 25-29 | 0 | \$ 0 | 0 | \$ 0 | 0 | \$ 0 | 0 | \$ 0 | 0 | \$ 0 |
| 30-34 | 0 | \$ 0 | 0 | \$ 0 | 0 | \$ 0 | 0 | \$ 0 | 0 | \$ 0 |
| 35-39 | 1 | \$ 43,653 | 1 | \$ 45,003 | 0 | \$ 0 | 0 | \$ 0 | 2 | \$ 44,328 |
| 40-44 | 3 | \$ 6,737 | 1 | \$ 15,210 | 0 | \$ 0 | 0 | \$ 0 | 4 | \$ 8,856 |
| 45-49 | 8 | \$ 15,804 | 7 | \$ 18,561 | 1 | \$ 5,708 | 0 | \$ 0 | 16 | \$ 16,379 |
| 50-54 | 20 | \$ 14,088 | 14 | \$ 18,067 | 0 | \$ 0 | 0 | \$ 0 | 34 | \$ 15,727 |
| 55-59 | 33 | \$ 18,794 | 10 | \$ 33,012 | 1 | \$ 25,965 | 0 | \$ 0 | 44 | \$ 22,188 |
| 60-64 | 29 | \$ 15,478 | 12 | \$ 24,470 | 0 | \$ 0 | 2 | \$ 36,815 | 43 | \$ 18,980 |
| 65-69 | 46 | \$ 22,186 | 11 | \$ 31,644 | 1 | \$ 47,376 | 1 | \$ 52,703 | 59 | \$ 24,894 |
| 70-74 | 77 | \$ 22,721 | 18 | \$ 33,185 | 2 | \$ 13,806 | 0 | \$ 0 | 97 | \$ 24,479 |
| 75-79 | 77 | \$ 24,353 | 16 | \$ 52,001 | 1 | \$ 38,452 | 1 | \$ 95,016 | 95 | \$ 29,902 |
| 80-84 | 51 | \$ 22,768 | 21 | \$ 36,451 | 1 | \$ 20,778 | 0 | \$ 0 | 73 | \$ 26,677 |
| 85-89 | 36 | \$ 19,132 | 3 | \$ 24,164 | 0 | \$ 0 | 0 | \$ 0 | 39 | \$ 19,519 |
| 90-94 | 22 | \$ 32,052 | 6 | \$ 19,621 | 0 | \$ 0 | 0 | \$ 0 | 28 | \$ 29,388 |
| 95+ | 12 | \$ 24,087 | 0 | \$ 0 | 0 | \$ 0 | 0 | \$ 0 | 12 | \$ 24,087 |
| All Ages | 415 | \$ 21,760 | 122 | \$ 31,495 | 7 | \$ 23,699 | 4 | \$ 55,337 | 548 | \$ 24,197 |

**STANISLAUS COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JUNE 30, 2022**

APPENDIX A – MEMBERSHIP INFORMATION

StanCERA Membership – Benefit Form Elections as of June 30, 2022

| | County and Former County | | Ceres and Other Districts | | Total |
|---------------------------------------|--------------------------|------------|---------------------------|-----------|--------------|
| | General | Safety | General | Safety | |
| Service Retired | | | | | |
| Option #0 (Unmodified 60% to Spouse) | 2,482 | 434 | 71 | 30 | 3,017 |
| Option #1 (Cash Refund) | 238 | 13 | 7 | 2 | 260 |
| Option #2 (100% Continuance) | 242 | 37 | 14 | 2 | 295 |
| Option #3 (50% Continuance) | 38 | 5 | 0 | 1 | 44 |
| Option #4 (Other) | 2 | 2 | 0 | 0 | 4 |
| Total Service Retired | 3,002 | 491 | 92 | 35 | 3,620 |
| Ordinary Disability | | | | | |
| Option #0 (Unmodified 60% to Spouse) | 65 | 4 | 1 | 1 | 71 |
| Option #1 (Cash Refund) | 5 | 2 | 0 | 0 | 7 |
| Option #2 (100% Continuance) | 3 | 0 | 0 | 0 | 3 |
| Option #3 (50% Continuance) | 0 | 0 | 0 | 0 | 0 |
| Total Ordinary Disability | 73 | 6 | 1 | 1 | 81 |
| Duty Disability | | | | | |
| Option #0 (Unmodified 100% to Spouse) | 72 | 116 | 5 | 12 | 205 |
| Option #1 (Cash Refund) | 1 | 1 | 0 | 0 | 2 |
| Option #2 (100% Continuance) | 6 | 9 | 0 | 1 | 16 |
| Option #3 (50% Continuance) | 2 | 1 | 0 | 1 | 4 |
| Total Duty Disability | 81 | 127 | 5 | 14 | 227 |
| Total | 3,156 | 624 | 98 | 50 | 3,928 |

**STANISLAUS COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JUNE 30, 2022**

APPENDIX A – MEMBERSHIP INFORMATION

**Age & Service Distribution of Active Members by Count and Average Compensation as of June 30, 2022
General Members (County and Former County)**

Count

| Age | Years of Service | | | | | | | | | | | | Total Count |
|-------------|------------------|-----|-----|-----|-----|-----|-------|-------|-------|-------|-------|-----------|-------------|
| | 0 | 1 | 2 | 3 | 4 | 5-9 | 10-14 | 15-19 | 20-24 | 25-29 | 30-34 | 35 & Over | |
| Under 20 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 20-24 | 41 | 10 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 53 |
| 25-29 | 117 | 41 | 42 | 37 | 23 | 14 | 0 | 0 | 0 | 0 | 0 | 0 | 274 |
| 30-34 | 93 | 47 | 36 | 58 | 68 | 166 | 4 | 0 | 0 | 0 | 0 | 0 | 472 |
| 35-39 | 74 | 24 | 32 | 37 | 28 | 172 | 53 | 16 | 0 | 0 | 0 | 0 | 436 |
| 40-44 | 54 | 20 | 36 | 35 | 36 | 173 | 72 | 71 | 23 | 0 | 0 | 0 | 520 |
| 45-49 | 37 | 16 | 14 | 22 | 17 | 101 | 49 | 100 | 94 | 7 | 0 | 0 | 457 |
| 50-54 | 27 | 11 | 15 | 16 | 15 | 82 | 41 | 78 | 92 | 41 | 6 | 0 | 424 |
| 55-59 | 23 | 9 | 9 | 22 | 18 | 77 | 36 | 63 | 86 | 48 | 31 | 4 | 426 |
| 60-64 | 7 | 4 | 13 | 12 | 8 | 53 | 22 | 43 | 59 | 24 | 26 | 5 | 276 |
| 65-69 | 2 | 1 | 1 | 3 | 1 | 17 | 6 | 8 | 18 | 2 | 7 | 2 | 68 |
| 70 & Over | 1 | 0 | 0 | 0 | 0 | 3 | 4 | 1 | 2 | 2 | 0 | 0 | 13 |
| Total Count | 476 | 183 | 199 | 243 | 214 | 858 | 287 | 380 | 374 | 124 | 70 | 11 | 3,419 |

Compensation (\$)

| Age | Years of Service | | | | | | | | | | | | Avg. Comp. |
|-----------|------------------|--------|---------|--------|--------|---------|---------|--------|--------|--------|---------|-----------|------------|
| | 0 | 1 | 2 | 3 | 4 | 5-9 | 10-14 | 15-19 | 20-24 | 25-29 | 30-34 | 35 & Over | |
| Under 20 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 20-24 | 40,368 | 43,298 | 41,922 | 48,072 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 41,096 |
| 25-29 | 49,747 | 51,087 | 54,781 | 51,809 | 51,489 | 51,741 | 0 | 0 | 0 | 0 | 0 | 0 | 51,246 |
| 30-34 | 51,562 | 51,015 | 53,029 | 58,778 | 59,209 | 65,272 | 70,272 | 0 | 0 | 0 | 0 | 0 | 58,588 |
| 35-39 | 50,684 | 57,918 | 59,161 | 60,454 | 63,508 | 68,142 | 74,643 | 65,756 | 0 | 0 | 0 | 0 | 63,710 |
| 40-44 | 57,008 | 57,932 | 55,382 | 62,645 | 62,654 | 66,133 | 76,421 | 73,632 | 71,101 | 0 | 0 | 0 | 66,318 |
| 45-49 | 55,942 | 64,273 | 59,923 | 62,181 | 67,117 | 70,422 | 77,060 | 73,975 | 79,769 | 95,465 | 0 | 0 | 71,989 |
| 50-54 | 59,888 | 63,381 | 66,482 | 57,814 | 55,628 | 66,948 | 68,647 | 72,975 | 83,242 | 80,574 | 97,530 | 0 | 72,203 |
| 55-59 | 59,568 | 75,511 | 54,214 | 69,390 | 64,586 | 70,132 | 77,528 | 81,029 | 80,036 | 83,813 | 83,650 | 58,057 | 75,714 |
| 60-64 | 59,582 | 54,610 | 59,795 | 51,639 | 51,180 | 70,994 | 91,752 | 77,419 | 65,348 | 77,003 | 76,520 | 95,236 | 71,455 |
| 65-69 | 58,590 | 36,300 | 133,509 | 73,780 | 58,526 | 63,432 | 56,709 | 60,358 | 64,018 | 58,547 | 107,801 | 122,256 | 69,660 |
| 70 & Over | 35,802 | 0 | 0 | 0 | 0 | 121,331 | 134,303 | 50,575 | 51,373 | 70,161 | 0 | 0 | 94,665 |
| Average | 51,947 | 55,376 | 57,154 | 59,523 | 60,047 | 67,516 | 76,714 | 74,571 | 76,967 | 81,454 | 84,607 | 86,629 | 66,567 |

**STANISLAUS COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JUNE 30, 2022**

APPENDIX A – MEMBERSHIP INFORMATION

**Age & Service Distribution of Active Members by Count and Average Compensation as of June 30, 2022
General Members (Ceres and Other Districts)**

Count

| Age | Years of Service | | | | | | | | | | | | Total Count |
|-------------|------------------|----|---|----|---|-----|-------|-------|-------|-------|-------|-----------|-------------|
| | 0 | 1 | 2 | 3 | 4 | 5-9 | 10-14 | 15-19 | 20-24 | 25-29 | 30-34 | 35 & Over | |
| Under 20 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 20-24 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 25-29 | 6 | 0 | 2 | 2 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 13 |
| 30-34 | 7 | 2 | 3 | 1 | 1 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 18 |
| 35-39 | 9 | 1 | 0 | 2 | 0 | 4 | 1 | 0 | 0 | 0 | 0 | 0 | 17 |
| 40-44 | 7 | 4 | 0 | 2 | 1 | 3 | 3 | 3 | 1 | 0 | 0 | 0 | 24 |
| 45-49 | 0 | 1 | 0 | 1 | 2 | 4 | 1 | 3 | 3 | 1 | 0 | 0 | 16 |
| 50-54 | 5 | 0 | 2 | 1 | 1 | 0 | 2 | 6 | 1 | 1 | 0 | 0 | 19 |
| 55-59 | 1 | 4 | 1 | 3 | 0 | 1 | 0 | 4 | 3 | 1 | 1 | 0 | 19 |
| 60-64 | 2 | 1 | 0 | 1 | 0 | 2 | 3 | 1 | 3 | 0 | 2 | 0 | 15 |
| 65-69 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 70 & Over | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Total Count | 39 | 15 | 8 | 13 | 6 | 22 | 10 | 17 | 11 | 3 | 3 | 0 | 147 |

Compensation (\$)

| Age | Years of Service | | | | | | | | | | | | Avg. Comp. |
|-----------|------------------|--------|--------|---------|--------|--------|---------|--------|--------|---------|--------|-----------|------------|
| | 0 | 1 | 2 | 3 | 4 | 5-9 | 10-14 | 15-19 | 20-24 | 25-29 | 30-34 | 35 & Over | |
| Under 20 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 20-24 | 42,772 | 33,426 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 36,541 |
| 25-29 | 38,751 | 0 | 51,696 | 44,220 | 58,027 | 48,802 | 0 | 0 | 0 | 0 | 0 | 0 | 44,613 |
| 30-34 | 45,213 | 67,527 | 51,513 | 51,720 | 52,642 | 61,501 | 0 | 0 | 0 | 0 | 0 | 0 | 53,136 |
| 35-39 | 73,959 | 50,647 | 0 | 51,158 | 0 | 61,844 | 106,994 | 0 | 0 | 0 | 0 | 0 | 68,998 |
| 40-44 | 49,913 | 86,129 | 0 | 68,051 | 54,979 | 49,898 | 79,974 | 71,797 | 88,926 | 0 | 0 | 0 | 65,788 |
| 45-49 | 0 | 56,840 | 0 | 116,213 | 49,172 | 61,452 | 58,949 | 63,850 | 67,577 | 80,315 | 0 | 0 | 65,672 |
| 50-54 | 73,517 | 0 | 52,752 | 152,856 | 45,931 | 0 | 68,201 | 63,486 | 49,171 | 148,311 | 0 | 0 | 72,983 |
| 55-59 | 49,860 | 89,407 | 37,752 | 86,985 | 0 | 63,020 | 0 | 59,374 | 59,802 | 104,146 | 58,605 | 0 | 70,993 |
| 60-64 | 141,001 | 98,561 | 0 | 55,786 | 0 | 83,861 | 57,729 | 73,510 | 84,896 | 0 | 67,915 | 0 | 82,752 |
| 65-69 | 0 | 0 | 0 | 0 | 0 | 58,262 | 0 | 0 | 0 | 0 | 0 | 0 | 58,262 |
| 70 & Over | 145,344 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 145,344 |
| Average | 62,861 | 74,006 | 50,148 | 74,184 | 51,654 | 60,625 | 71,546 | 64,639 | 70,448 | 110,924 | 64,811 | 0 | 65,900 |

**STANISLAUS COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JUNE 30, 2022**

APPENDIX A – MEMBERSHIP INFORMATION

**Age & Service Distribution of Active Members by Count and Average Compensation as of June 30, 2022
Safety Members (County and Former County)**

Count

| Age | Years of Service | | | | | | | | | | | | Total Count |
|-------------|------------------|----|----|----|----|-----|-------|-------|-------|-------|-------|-----------|-------------|
| | 0 | 1 | 2 | 3 | 4 | 5-9 | 10-14 | 15-19 | 20-24 | 25-29 | 30-34 | 35 & Over | |
| Under 20 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 20-24 | 14 | 9 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 25 |
| 25-29 | 18 | 14 | 23 | 26 | 26 | 25 | 0 | 0 | 0 | 0 | 0 | 0 | 132 |
| 30-34 | 14 | 6 | 11 | 16 | 27 | 98 | 3 | 0 | 0 | 0 | 0 | 0 | 175 |
| 35-39 | 7 | 2 | 5 | 8 | 8 | 45 | 25 | 13 | 0 | 0 | 0 | 0 | 113 |
| 40-44 | 0 | 0 | 1 | 1 | 4 | 19 | 14 | 53 | 11 | 0 | 0 | 0 | 103 |
| 45-49 | 0 | 1 | 0 | 0 | 2 | 6 | 5 | 30 | 36 | 7 | 0 | 0 | 87 |
| 50-54 | 0 | 4 | 2 | 0 | 1 | 1 | 4 | 12 | 10 | 11 | 1 | 0 | 46 |
| 55-59 | 0 | 0 | 0 | 2 | 1 | 2 | 2 | 3 | 5 | 0 | 1 | 0 | 16 |
| 60-64 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 1 | 4 | 0 | 0 | 0 | 8 |
| 65-69 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 2 |
| 70 & Over | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Count | 53 | 36 | 44 | 53 | 69 | 199 | 53 | 113 | 66 | 18 | 3 | 0 | 707 |

Compensation (\$)

| Age | Years of Service | | | | | | | | | | | | Avg. Comp. |
|-----------|------------------|---------|---------|---------|---------|--------|---------|---------|---------|---------|---------|-----------|------------|
| | 0 | 1 | 2 | 3 | 4 | 5-9 | 10-14 | 15-19 | 20-24 | 25-29 | 30-34 | 35 & Over | |
| Under 20 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 20-24 | 58,064 | 62,757 | 72,923 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 60,942 |
| 25-29 | 63,073 | 64,487 | 63,526 | 75,220 | 78,949 | 82,215 | 0 | 0 | 0 | 0 | 0 | 0 | 72,447 |
| 30-34 | 74,273 | 71,489 | 72,725 | 75,685 | 75,348 | 81,854 | 94,953 | 0 | 0 | 0 | 0 | 0 | 78,975 |
| 35-39 | 72,930 | 94,935 | 68,297 | 74,974 | 74,323 | 85,027 | 95,402 | 103,389 | 0 | 0 | 0 | 0 | 86,651 |
| 40-44 | 0 | 0 | 95,274 | 106,132 | 85,448 | 87,172 | 90,004 | 101,869 | 117,909 | 0 | 0 | 0 | 98,598 |
| 45-49 | 0 | 100,537 | 0 | 0 | 88,134 | 87,202 | 88,959 | 98,333 | 112,282 | 118,481 | 0 | 0 | 104,210 |
| 50-54 | 0 | 93,630 | 113,306 | 0 | 62,407 | 91,250 | 108,386 | 99,032 | 100,077 | 121,351 | 113,899 | 0 | 104,918 |
| 55-59 | 0 | 0 | 0 | 96,484 | 132,479 | 96,484 | 96,131 | 89,681 | 101,650 | 0 | 83,562 | 0 | 98,221 |
| 60-64 | 0 | 0 | 0 | 0 | 0 | 96,852 | 0 | 84,651 | 90,335 | 0 | 0 | 0 | 92,068 |
| 65-69 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 109,248 | 0 | 0 | 92,398 | 0 | 100,823 |
| 70 & Over | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Average | 66,010 | 71,153 | 69,780 | 76,709 | 78,183 | 83,706 | 94,350 | 100,393 | 109,235 | 120,235 | 96,620 | 0 | 86,643 |

**STANISLAUS COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JUNE 30, 2022**

APPENDIX A – MEMBERSHIP INFORMATION

**Age & Service Distribution of Active Members by Count and Average Compensation as of June 30, 2022
Safety Members (Ceres and Other Districts)**

Count

| Age | Years of Service | | | | | | | | | | | | Total Count |
|-------------|------------------|---|---|---|---|-----|-------|-------|-------|-------|-------|-----------|-------------|
| | 0 | 1 | 2 | 3 | 4 | 5-9 | 10-14 | 15-19 | 20-24 | 25-29 | 30-34 | 35 & Over | |
| Under 20 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 20-24 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 25-29 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 30-34 | 1 | 1 | 1 | 2 | 1 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 10 |
| 35-39 | 3 | 1 | 0 | 1 | 0 | 5 | 3 | 0 | 0 | 0 | 0 | 0 | 13 |
| 40-44 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 2 | 2 | 0 | 0 | 0 | 6 |
| 45-49 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 2 | 5 | 1 | 0 | 0 | 12 |
| 50-54 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 3 | 0 | 0 | 0 | 4 |
| 55-59 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 2 |
| 60-64 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 65-69 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 70 & Over | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Count | 5 | 3 | 5 | 4 | 2 | 10 | 5 | 4 | 10 | 2 | 0 | 0 | 50 |

Compensation (\$)

| Age | Years of Service | | | | | | | | | | | | Avg. Comp. |
|-----------|------------------|--------|--------|--------|--------|---------|---------|---------|---------|---------|-------|-----------|------------|
| | 0 | 1 | 2 | 3 | 4 | 5-9 | 10-14 | 15-19 | 20-24 | 25-29 | 30-34 | 35 & Over | |
| Under 20 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 20-24 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 25-29 | 75,837 | 0 | 75,322 | 78,261 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 76,473 |
| 30-34 | 87,971 | 79,437 | 80,729 | 77,296 | 80,474 | 92,020 | 0 | 0 | 0 | 0 | 0 | 0 | 85,128 |
| 35-39 | 89,704 | 84,653 | 0 | 76,425 | 0 | 99,791 | 104,499 | 0 | 0 | 0 | 0 | 0 | 95,588 |
| 40-44 | 0 | 0 | 73,812 | 0 | 0 | 0 | 108,411 | 109,382 | 97,919 | 0 | 0 | 0 | 99,471 |
| 45-49 | 0 | 79,638 | 72,299 | 0 | 84,959 | 100,703 | 0 | 115,416 | 125,114 | 181,828 | 0 | 0 | 114,652 |
| 50-54 | 0 | 0 | 0 | 0 | 0 | 0 | 100,828 | 0 | 144,898 | 0 | 0 | 0 | 133,881 |
| 55-59 | 0 | 0 | 81,031 | 0 | 0 | 0 | 0 | 0 | 0 | 146,156 | 0 | 0 | 113,594 |
| 60-64 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 65-69 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 70 & Over | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Average | 86,584 | 81,243 | 76,639 | 77,320 | 82,716 | 96,774 | 104,548 | 112,399 | 125,610 | 163,992 | 0 | 0 | 101,174 |

**STANISLAUS COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JUNE 30, 2022**

APPENDIX A – MEMBERSHIP INFORMATION

**Reconciliation of Plan Membership Since Prior Valuation
All Members**

All Members

| | Actives | Transfers | Non Vested Terminations due Refunds | Vested Terminations | Ordinary Disabled | Duty Disabled | Retired | Beneficiaries | Total |
|---|--------------|------------|---|------------------------|----------------------|------------------|--------------|---------------|---------------|
| July 1, 2021 | 4,321 | 748 | 596 | 519 | 78 | 232 | 3,498 | 508 | 10,500 |
| New Entrants | 626 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 626 |
| Rehires | 18 | (1) | (14) | (3) | 0 | 0 | 0 | 0 | 0 |
| Duty Disabilities | (4) | (2) | 0 | 0 | 0 | 6 | 0 | 0 | 0 |
| Ordinary Disabilities | (2) | 0 | 0 | 0 | 1 | 0 | 0 | 0 | (1) |
| Retirements | (152) | (33) | (1) | (25) | 0 | 0 | 212 | 0 | 1 |
| Retirements from General with Safety Service | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Vested Terminations | (132) | 0 | 0 | 132 | 0 | 0 | 0 | 0 | 0 |
| Died, With Beneficiaries' Benefit Payable | (3) | 0 | 0 | 0 | (2) | (3) | (37) | 48 | 3 |
| Died, Without Beneficiary, and Other Terminations | (221) | (1) | 215 | (2) | 0 | (7) | (50) | 0 | (66) |
| Transfers | 0 | 6 | (1) | 0 | 0 | 0 | 0 | 0 | 5 |
| Beneficiary Deaths | 0 | 0 | 0 | 0 | 0 | 0 | 0 | (20) | (20) |
| Domestic Relations Orders | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 12 |
| Withdrawals Paid | (128) | (9) | (55) | (16) | 0 | 0 | 0 | 0 | (208) |
| Member Reclassifications | 0 | 4 | 1 | 0 | 4 | (1) | (3) | 0 | 5 |
| July 1, 2022 | 4,323 | 712 | 741 | 605 | 81 | 227 | 3,620 | 548 | 10,857 |

**STANISLAUS COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JUNE 30, 2022**

APPENDIX A – MEMBERSHIP INFORMATION

**Reconciliation of Plan Membership Since Prior Valuation
General Members (County and Former County)**

| | Actives | Transfers | Non Vested Terminations due Refunds | Vested Terminations | Ordinary Disabled | Duty Disabled | Retired | Beneficiaries | Total |
|---|--------------|------------|---|------------------------|----------------------|------------------|--------------|---------------|--------------|
| July 1, 2021 | 3,418 | 490 | 517 | 427 | 70 | 85 | 2,915 | 384 | 8,306 |
| New Entrants | 525 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 525 |
| Rehires | 16 | 0 | (13) | (3) | 0 | 0 | 0 | 0 | 0 |
| Duty Disabilities | (3) | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 |
| Ordinary Disabilities | (2) | 0 | 0 | 0 | 1 | 0 | 0 | 0 | (1) |
| Retirements | (119) | (23) | (1) | (22) | 0 | 0 | 166 | 0 | 1 |
| Retirements from General with Safety Service | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Vested Terminations | (111) | 0 | 0 | 111 | 0 | 0 | 0 | 0 | 0 |
| Died, With Beneficiaries' Benefit Payable | (2) | 0 | 0 | 0 | (2) | (2) | (32) | 41 | 3 |
| Died, Without Beneficiary, and Other Terminations | (193) | 0 | 186 | (2) | 0 | (3) | (45) | 0 | (57) |
| Transfers | 3 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| Beneficiary Deaths | 0 | 0 | 0 | 0 | 0 | 0 | 0 | (17) | (17) |
| Domestic Relations Orders | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 7 |
| Withdrawals Paid | (113) | (6) | (48) | (12) | 0 | 0 | 0 | 0 | (179) |
| Member Reclassifications | 0 | 1 | 1 | 0 | 4 | (2) | (2) | 0 | 2 |
| July 1, 2022 | 3,419 | 464 | 642 | 499 | 73 | 81 | 3,002 | 415 | 8,595 |

**STANISLAUS COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JUNE 30, 2022**

APPENDIX A – MEMBERSHIP INFORMATION

**Reconciliation of Plan Membership Since Prior Valuation
Safety Members (County and Former County)**

| | Actives | Transfers | Non Vested Terminations due Refunds | Vested Terminations | Ordinary Disabled | Duty Disabled | Retired | Beneficiaries | Total |
|---|------------|------------|---|------------------------|----------------------|------------------|------------|---------------|--------------|
| July 1, 2021 | 717 | 138 | 58 | 71 | 6 | 130 | 471 | 114 | 1,705 |
| New Entrants | 56 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 56 |
| Rehires | 2 | (1) | (1) | 0 | 0 | 0 | 0 | 0 | 0 |
| Duty Disabilities | (1) | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| Ordinary Disabilities | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Retirements | (25) | (4) | 0 | (2) | 0 | 0 | 31 | 0 | 0 |
| Retirements from General with Safety Service | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Vested Terminations | (15) | 0 | 0 | 15 | 0 | 0 | 0 | 0 | 0 |
| Died, With Beneficiaries' Benefit Payable | 0 | 0 | 0 | 0 | 0 | (1) | (5) | 6 | 0 |
| Died, Without Beneficiary, and Other Terminations | (14) | 0 | 15 | 0 | 0 | (4) | (5) | 0 | (8) |
| Transfers | (3) | 4 | (1) | 0 | 0 | 0 | 0 | 0 | 0 |
| Beneficiary Deaths | 0 | 0 | 0 | 0 | 0 | 0 | 0 | (3) | (3) |
| Domestic Relations Orders | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 5 |
| Withdrawals Paid | (10) | 0 | (5) | (3) | 0 | 0 | 0 | 0 | (18) |
| Member Reclassifications | 0 | 2 | 0 | 0 | 0 | 1 | (1) | 0 | 2 |
| July 1, 2022 | 707 | 139 | 66 | 81 | 6 | 127 | 491 | 122 | 1,739 |

**STANISLAUS COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JUNE 30, 2022**

APPENDIX A – MEMBERSHIP INFORMATION

**Reconciliation of Plan Membership Since Prior Valuation
General Members (Ceres and Other Districts)**

| | Actives | Transfers | Non Vested Terminations due Refunds | Vested Terminations | Ordinary Disabled | Duty Disabled | Retired | Beneficiaries | Total |
|---|------------|-----------|---|------------------------|----------------------|------------------|-----------|---------------|------------|
| July 1, 2021 | 137 | 46 | 16 | 18 | 1 | 5 | 82 | 6 | 311 |
| New Entrants | 40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 40 |
| Rehires | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Duty Disabilities | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ordinary Disabilities | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Retirements | (8) | (2) | 0 | 0 | 0 | 0 | 10 | 0 | 0 |
| Retirements from General with Safety Service | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Vested Terminations | (5) | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 |
| Died, With Beneficiaries' Benefit Payable | (1) | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| Died, Without Beneficiary, and Other Terminations | (12) | 0 | 12 | 0 | 0 | 0 | 0 | 0 | 0 |
| Transfers | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Beneficiary Deaths | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Domestic Relations Orders | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Withdrawals Paid | (4) | (1) | (1) | (1) | 0 | 0 | 0 | 0 | (7) |
| Member Reclassifications | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| July 1, 2022 | 147 | 44 | 27 | 22 | 1 | 5 | 92 | 7 | 345 |

**STANISLAUS COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JUNE 30, 2022**

APPENDIX A – MEMBERSHIP INFORMATION

**Reconciliation of Plan Membership Since Prior Valuation
Safety Members (Ceres and Other Districts)**

| | Actives | Transfers | Non Vested Terminations due Refunds | Vested Terminations | Ordinary Disabled | Duty Disabled | Retired | Beneficiaries | Total |
|---|-----------|-----------|---|------------------------|----------------------|------------------|-----------|---------------|------------|
| July 1, 2021 | 49 | 74 | 5 | 3 | 1 | 12 | 30 | 4 | 178 |
| New Entrants | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| Rehires | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Duty Disabilities | 0 | (2) | 0 | 0 | 0 | 2 | 0 | 0 | 0 |
| Ordinary Disabilities | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Retirements | 0 | (4) | 0 | (1) | 0 | 0 | 5 | 0 | 0 |
| Retirements from General with Safety Service | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Vested Terminations | (1) | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| Died, With Beneficiaries' Benefit Payable | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Died, Without Beneficiary, and Other Terminations | (2) | (1) | 2 | 0 | 0 | 0 | 0 | 0 | (1) |
| Transfers | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Beneficiary Deaths | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Domestic Relations Orders | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Withdrawals Paid | (1) | (2) | (1) | 0 | 0 | 0 | 0 | 0 | (4) |
| Member Reclassifications | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| July 1, 2022 | 50 | 65 | 6 | 3 | 1 | 14 | 35 | 4 | 178 |

**STANISLAUS COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JUNE 30, 2022**

**APPENDIX B – STATEMENT OF CURRENT ACTUARIAL
ASSUMPTIONS AND METHODS**

The assumptions and methods used in the actuarial valuation as of June 30, 2022 are:

Actuarial Methods

1. Actuarial Cost Method

Annual contributions to the Stanislaus County Employees' Retirement Association (the Plan) are computed under the Entry Age Normal Actuarial Cost Method, computed to the final decrement.

Under this cost method, the normal cost is calculated as the amount necessary to fund Members' benefits as a level percentage of total payroll over their projected working lives. At each valuation date, the Actuarial Liability is equal to the difference between the liability for the Members' total projected benefit and the present value of future normal cost contributions.

The excess of the Actuarial Liability over Plan assets is the Unfunded Actuarial Liability (UAL). The UAL for each cost-sharing group is amortized as a level percentage of payroll. The initial UAL as of June 30, 2021 is amortized over a closed 15-year period (14 years remaining as of June 30, 2022). Any subsequent unexpected changes in the UAL after June 30, 2021 from actuarial gains or losses or assumptions changes are amortized over fixed closed periods of 20 years as a level percentage of payroll, with new amortization layers established each year. Any subsequent changes in the UAL after June 30, 2021 due to plan amendments or other plan provision changes are amortized over a shorter period, based on the lesser of 15 years or the average future working lifetime for changes affecting active members, or the lesser of 10 years or the average remaining life expectancy for changes affecting inactive members.

The total Plan cost is the sum of the normal cost (computed on an Individual basis), the amortization of the Unfunded Actuarial Liability, and the expected administrative expenses.

2. Actuarial Value of Plan Assets

The Actuarial Value of Plan assets is a modified market-related value. The Market Value of Assets is adjusted to recognize, over a five-year period, differences between actual investment earnings and the assumed investment return. The Actuarial Value of Assets is limited to no less than 80% and no more than 120% of the market value.

The detailed calculations of the Actuarial Value of Plan assets are shown in Section III.

3. Changes in Actuarial Methods

None.

**STANISLAUS COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JUNE 30, 2022**

**APPENDIX B – STATEMENT OF CURRENT ACTUARIAL
ASSUMPTIONS AND METHODS**

Actuarial Assumptions

All actuarial assumptions are based on the Actuarial Experience Study Report for the period covering July 1, 2018 through June 30, 2021 report. The proposed assumptions were summarized and reviewed with the Board at the December 14, 2021 Board meeting, at which the Board provided direction to proceed with the valuation based on those assumptions. Final adoption of the assumptions was effective with the adoption of the June 30, 2021 Report.

1. Rate of Return

The annual rate of return on all Plan assets is assumed to be 6.75%, net of investment expenses.

2. Cost of Living

The cost of living as measured by the Consumer Price Index (CPI) will increase at the rate of 2.50% per year.

3. Administrative Expenses

An allowance of \$3,177,500 for Plan administrative expenses for the current year has been included in the annual cost calculated. The administrative expense amount has been assumed to increase in future years at the rate of the Cost-of-Living assumption (2.50%).

4. Interest Credited to Employee Accounts

The employee accounts are credited with 0.25% interest annually.

5. Increases in Pay

Base salary increase: 2.75%

Assumed pay increases for active Members consist of increases due to base salary adjustments (as noted above), plus service-based increases due to longevity and promotion, as shown on the next page.

The projected pay for the fiscal year ending June 30, 2023 for County members reflects expected pay increases of 3% in July 2022 and 5% in September 2022.

**STANISLAUS COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JUNE 30, 2022**

**APPENDIX B – STATEMENT OF CURRENT ACTUARIAL
ASSUMPTIONS AND METHODS**

| Longevity & Promotion Increases | | |
|---------------------------------|---------|--------|
| Service | General | Safety |
| 0 | 5.00% | 5.00% |
| 1 | 5.00% | 5.00% |
| 2 | 5.00% | 5.00% |
| 3 | 5.00% | 4.50% |
| 4 | 5.00% | 4.50% |
| 5 | 3.50% | 2.00% |
| 6 | 2.50% | 1.75% |
| 7 | 1.50% | 1.50% |
| 8 | 1.25% | 1.50% |
| 9 | 1.00% | 1.25% |
| 10 | 0.75% | 1.00% |
| 11+ | 0.50% | 1.00% |

6. PEPRA Compensation Limit

The assumption used for increasing the compensation limit that applies to PEPRA members is 2.50%

7. Post Retirement COLA

For those with the 3% COLA benefit (i.e., 100% of CPI up to 3% annually with banking), 2.40% annual increases are assumed. Increases are assumed to occur on April 1.

Higher COLA annual increases of 2.60% are assumed for members in pay status. This is not considered an assumption change, but rather is used as a proxy to estimate the value of the increases in COLA banks which have occurred since the adoption of the 2.40% assumption based on recent experience.

8. Social Security Wage Base

General Plan 3 members have their benefits offset by an assumed Social Security Benefit. For projecting the Social Security Benefit, the annual Social Security Wage Base increase is assumed to be 2.75% per year.

9. Internal Revenue Code Section 415 Limit

The Internal Revenue Code (IRC) Section 415 maximum benefit limitations have been applied to the benefits for members currently in pay status, as the limited benefits have been provided by StanCERA for valuation purposes. Future projected benefits for members in active and deferred statuses have not been reduced for potential Section 415 limits in the current valuation, though any actual limitations for these members will result in actuarial gains upon their actual retirement, which will reduce future contributions.

**STANISLAUS COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JUNE 30, 2022**

**APPENDIX B – STATEMENT OF CURRENT ACTUARIAL
ASSUMPTIONS AND METHODS**

10. Internal Revenue Code Section 401(a)(17)

The IRC Section 401(a)(17) maximum compensation limitation for active members is not reflected in the valuation for funding purposes; limitations are reflected after retirement.

11. Family Composition

Percentage married for all active members who retire, become disabled, or die during active service is shown in the following table.

| Percentage Married | |
|--------------------|------------|
| Gender | Percentage |
| Males | 80% |
| Females | 60% |

Spouses of male members are assumed to be two years younger than the member and spouses of female members are assumed to be two years older than the member.

12. Accumulated Vacation Time Load

Active members' service retirement and related benefits are loaded by 3.00% for Safety Members and 3.00% for General Members for cashouts of vacation time. 1/3 of this load applies for members with a 36-month final average service period. No other adjustment is made to the liabilities for anticipated future service purchases.

13. Rates of Separation

Rates of termination apply to all active Members who terminate their employment.

Separate rates of termination are assumed among Safety and General Members.

| Termination Rates | | |
|-------------------|-------------|------------|
| Years of Service | General All | Safety All |
| 0 | 18.0% | 16.0% |
| 1 | 14.0% | 8.0% |
| 2 | 9.0% | 7.0% |
| 3 | 8.0% | 6.0% |
| 4 | 7.0% | 6.0% |
| 5 | 7.0% | 6.0% |
| 10 | 5.0% | 5.0% |
| 15 | 3.0% | 2.0% |
| 20 | 3.0% | 0.0% |
| 25 | 3.0% | 0.0% |
| 30+ | 0.0% | 0.0% |

Termination rates do not apply once a member is eligible for retirement.

**STANISLAUS COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JUNE 30, 2022**

**APPENDIX B – STATEMENT OF CURRENT ACTUARIAL
ASSUMPTIONS AND METHODS**

14. Withdrawal

Rates of withdrawal apply to active Members who terminate their employment and withdraw their member contributions, forfeiting entitlement to future Plan benefits. Separate rates of withdrawal are assumed among Safety and General Members and are based on service. The rates do not overlap with the service retirement rates.

45% of all General Member terminations with less than 10 years of service are assumed to take a refund of contributions, as well as 15% of those with 10 or more years of service.

35% of all Safety Member terminations with less than 10 years of service are assumed to take a refund of contributions, and 10% of those with 10 or more years of service.

15. Vested Termination and Reciprocal Transfers

Rates of vested termination apply to active Members who terminate their employment after five years of service and leave their member contributions on deposit with the Plan. Alternatively, those who terminate their employment with less than five years of service can leave their member contributions with the Plan and transfer to a reciprocal employer, therefore retaining entitlement to future Plan benefits.

Vested terminated Tier 3 General Members are assumed to begin receiving benefits at age 65 while all other General Members are assumed to begin at age 58, unless they have reciprocity, in which case they are assumed to begin at age 61; terminated Safety Members are assumed to begin receiving benefits at age 51 for Tiers 4 and 5 and at age 54 for the Tiers 1, 2, 3, and 6.

60% of vested terminated General Members with less than 10 years of service are assumed to be reciprocal, as well as 40% of those with 10 or more years of service.

75% of vested terminated Safety Members with less than 10 years of service are assumed to be reciprocal, as well as 70% of those with 10 or more years of service.

Reciprocal members are assumed to receive annual pay increases of 3.25% for General and 3.75% for Safety from the date of transfer to the assumed retirement date.

16. Form of Benefit

Upon retirement, 90% of male married members and 95% of female married members are assumed to elect the normal payment form (joint & 50% survivor annuity for Tier 3 and joint & 60% survivor annuity for all other tiers). Non-married members are assumed to elect a single life annuity.

**STANISLAUS COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JUNE 30, 2022**

**APPENDIX B – STATEMENT OF CURRENT ACTUARIAL
ASSUMPTIONS AND METHODS**

17. Rates of Service-Connected Disability

Separate rates of duty disability are assumed among Safety and General Members; rates for both sexes for Safety Members are combined. Safety members are assumed to follow the 2021 CalPERS State Safety rates. Sample rates are shown below:

| Rates of Service-Connected Disability | | | |
|---------------------------------------|---------|---------|---------|
| | General | | Safety |
| Age | Male | Female | All |
| 20 | 0.0043% | 0.0002% | 0.0020% |
| 25 | 0.0102% | 0.0004% | 0.0760% |
| 30 | 0.0211% | 0.0008% | 0.1700% |
| 35 | 0.0284% | 0.0024% | 0.2640% |
| 40 | 0.0401% | 0.0056% | 0.3600% |
| 45 | 0.0613% | 0.0101% | 0.4570% |
| 50 | 0.0897% | 0.0162% | 0.5570% |
| 55 | 0.1227% | 0.0249% | 0.6580% |
| 60 | 0.1637% | 0.0349% | 0.7620% |
| 65 | 0.0000% | 0.0000% | 0.8690% |

18. Rates of Nonservice-Connected Disability

Separate rates of ordinary disability are assumed among Safety and General Members. Rates of ordinary disability for Safety Members are assumed to follow the 2021 CalPERS Public Agency Police Non-Industrial Disability table; rates of ordinary disability for General Members are assumed to follow the 2021 CalPERS Public Agency Miscellaneous Non-Industrial Disability table. The rates shown are applied after five Years of Service. Sample rates are on the next page.

**STANISLAUS COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JUNE 30, 2022**

**APPENDIX B – STATEMENT OF CURRENT ACTUARIAL
ASSUMPTIONS AND METHODS**

| Rates of Non Service-Connected Disability | | | Rates of Non Service-Connected Disability | |
|---|---------|---------|---|---------|
| General | | | Safety | |
| Age | Male | Female | Age | All |
| 20 | 0.0170% | 0.0100% | 20 | 0.0100% |
| 25 | 0.0170% | 0.0100% | 25 | 0.0100% |
| 30 | 0.0190% | 0.0240% | 30 | 0.0200% |
| 35 | 0.0390% | 0.0710% | 35 | 0.0300% |
| 40 | 0.1020% | 0.1350% | 40 | 0.0400% |
| 45 | 0.1510% | 0.1880% | 45 | 0.0500% |
| 50 | 0.1580% | 0.1990% | 50 | 0.0800% |
| 55 | 0.1580% | 0.1490% | 55 | 0.1300% |
| 60 | 0.1530% | 0.1050% | 60 | 0.2000% |
| 65 | 0.1280% | 0.0880% | 65+ | 0.2000% |
| 70 | 0.1020% | 0.0840% | | |
| 75+ | 0.1020% | 0.0880% | | |

19. Rates of Mortality for Non-Annuitants

Rates of ordinary death for active General members are specified by the 2021 CalPERS Preretirement Non-Industrial Mortality table, adjusted by 102.2% for males and 110.2% for females. Rates of ordinary death for active Safety members are specified by the 2021 CalPERS Preretirement Non-Industrial Mortality table, adjusted by 102.6% for males and 100.9% for females. Duty related mortality rates are only applicable for Safety Active Members and are based on the 2021 CalPERS Preretirement Industrial Death table, adjusted by 102.6% for males and 100.9% for females. These mortality base tables are all projected generationally from 2017 using 80% of SOA Scale MP-2020.

The table on the following page provides a sample of the base mortality rates including adjustments but prior to any projections for mortality improvements.

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| Non-Annuitant Mortality Rates | | | | | | |
|-------------------------------|-------------------------------|---------------------------------|------------------------------|--------------------------------|--------------------------|----------------------------|
| Age | Ordinary Death - General Male | Ordinary Death - General Female | Ordinary Death - Safety Male | Ordinary Death - Safety Female | Duty Death - Safety Male | Duty Death - Safety Female |
| 20 | 0.0399% | 0.0154% | 0.0390% | 0.0141% | 0.0041% | 0.0020% |
| 25 | 0.0337% | 0.0143% | 0.0349% | 0.0182% | 0.0041% | 0.0020% |
| 30 | 0.0450% | 0.0209% | 0.0431% | 0.0252% | 0.0051% | 0.0030% |
| 35 | 0.0593% | 0.0320% | 0.0492% | 0.0343% | 0.0051% | 0.0040% |
| 40 | 0.0767% | 0.0430% | 0.0564% | 0.0424% | 0.0062% | 0.0050% |
| 45 | 0.0950% | 0.0595% | 0.0677% | 0.0535% | 0.0072% | 0.0061% |
| 50 | 0.1369% | 0.0893% | 0.0944% | 0.0737% | 0.0103% | 0.0081% |
| 55 | 0.2024% | 0.1355% | 0.1416% | 0.1070% | 0.0154% | 0.0121% |
| 60 | 0.2933% | 0.1973% | 0.2267% | 0.1524% | 0.0257% | 0.0172% |
| 65 | 0.4119% | 0.2755% | 0.3550% | 0.1957% | 0.0390% | 0.0222% |
| 70 | 0.6071% | 0.4452% | 0.6218% | 0.3612% | 0.0687% | 0.0404% |

20. Rates of Mortality for Nonservice-Connected Disabled Retirees

Rates of mortality for current nonservice-connected disabled Members are specified by the 2021 CalPERS Non-Industrially Disabled Annuitant Mortality table, no adjustment for males or females, with generational mortality improvements projected from 2017 using 80% of SOA Scale MP-2020.

The table provides a sample of the base mortality rates including adjustments but prior to any projections for mortality improvements.

| Nonservice-Connected Disabled Mortality Rates | | |
|--|---------|----------|
| Age | Male | Female |
| 45 | 1.120% | 1.019% |
| 50 | 1.727% | 1.439% |
| 55 | 2.217% | 1.734% |
| 60 | 2.681% | 1.962% |
| 65 | 3.332% | 2.276% |
| 70 | 4.056% | 2.910% |
| 75 | 5.465% | 4.160% |
| 80 | 8.044% | 6.112% |
| 85 | 11.695% | 9.385% |
| 90 | 16.770% | 14.3956% |

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21. Rates of Mortality for Service-Connected Disabled Retirees

Rates of mortality for current service-connected disabled Members are specified by the 2021 CalPERS Industrially Disabled Annuitant Mortality table, no adjustment for males and adjusted by 105% for females, with generational mortality improvements projected from 2017 using 80% of SOA Scale MP-2020.

The table provides a sample of the base mortality rates including adjustments but prior to any projections for mortality improvements.

| Service-Connected Disabled Mortality Rates | | |
|---|---------|----------|
| Age | Male | Female |
| 45 | 0.314% | 0.238% |
| 50 | 0.437% | 0.326% |
| 55 | 0.623% | 0.577% |
| 60 | 0.935% | 0.911% |
| 65 | 1.393% | 1.250% |
| 70 | 2.189% | 1.951% |
| 75 | 3.498% | 3.291% |
| 80 | 5.932% | 5.442% |
| 85 | 10.244% | 8.447% |
| 90 | 16.739% | 13.0557% |

22. Rates of Mortality for Emerging Disabled Retirees

Rates of mortality for future General disabled retirees, both nonservice- and service-connected, are specified by mortality tables consisting of blends of the mortality assumptions for current nonservice- and service-connected disabled retirees. The blend for future disabled General retirees is 50% and 50%, respectively. The proportions reflect the expected splits in future disabled retirees between nonservice- and service-connected disablements.

Future disabled Safety retirees are assumed to follow the same rates of mortality as the service-connected disabled retirees indicated in the prior bullet.

23. Rates of Mortality for Healthy Annuitants

Rates of mortality for retired Members and their beneficiaries are specified by the 2021 CalPERS Healthy Annuitant table, adjusted by 107.6% for males and 115.3% for females, with generational mortality improvements projected from 2017 using 80% of SOA Scale MP-2020.

The table on the next page provides a sample of the base mortality rates including adjustments but prior to any projections for mortality improvements.

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| Healthy Annuitant Mortality Rates | | |
|-----------------------------------|---------|----------|
| Age | Male | Female |
| 45 | 0.101% | 0.063% |
| 50 | 0.291% | 0.229% |
| 55 | 0.421% | 0.375% |
| 60 | 0.618% | 0.525% |
| 65 | 0.922% | 0.705% |
| 70 | 1.442% | 1.149% |
| 75 | 2.582% | 2.056% |
| 80 | 4.713% | 3.923% |
| 85 | 8.902% | 7.110% |
| 90 | 15.644% | 12.7820% |

24. Mortality Improvement

As mentioned above, the mortality assumptions employ a fully generational mortality improvement projection from base year 2017 using 80% of the Society of Actuaries Scale MP-2020.

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25. Rates of Retirement

Retirement for members in non-PEPRA Tiers (Tier 6) are assumed to occur among eligible members in accordance with the table below and on the following page:

| Rates of Retirement General (Non-PEPRA) | | | |
|--|------------------|---------|---------|
| Age | Years of Service | | |
| | 0-9 | 10-29 | 30+ |
| 40-44 | 0.00% | 0.00% | 0.00% |
| 45-49 | 0.00% | 0.00% | 10.00% |
| 50-54 | 0.00% | 4.00% | 10.00% |
| 55 | 0.00% | 7.00% | 10.00% |
| 56 | 0.00% | 7.00% | 15.00% |
| 57 | 0.00% | 7.00% | 15.00% |
| 58 | 0.00% | 7.00% | 15.00% |
| 59 | 0.00% | 12.50% | 15.00% |
| 60 | 0.00% | 12.50% | 22.50% |
| 61 | 0.00% | 12.50% | 30.00% |
| 62 | 0.00% | 20.00% | 30.00% |
| 63 | 0.00% | 20.00% | 30.00% |
| 64 | 0.00% | 20.00% | 30.00% |
| 65 | 0.00% | 40.00% | 30.00% |
| 66 | 0.00% | 40.00% | 30.00% |
| 67 | 0.00% | 40.00% | 30.00% |
| 68 | 0.00% | 25.00% | 30.00% |
| 69 | 0.00% | 25.00% | 30.00% |
| 70 | 25.00% | 25.00% | 30.00% |
| 71 | 25.00% | 25.00% | 30.00% |
| 72 | 25.00% | 25.00% | 30.00% |
| 73 | 25.00% | 25.00% | 30.00% |
| 74 | 25.00% | 25.00% | 30.00% |
| 75+ | 100.00% | 100.00% | 100.00% |

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| Rates of Retirement Safety (Non-PEPRA) | | | | |
|---|---------|---------|---------|---------|
| Years of Service | | | | |
| Age | 0-9 | 10-14 | 15-19 | 20+ |
| 40-48 | 0.00% | 0.00% | 0.00% | 5.00% |
| 49 | 0.00% | 0.00% | 0.00% | 20.00% |
| 50 | 0.00% | 5.00% | 25.00% | 40.00% |
| 51 | 0.00% | 5.00% | 5.00% | 25.00% |
| 52 | 0.00% | 5.00% | 5.00% | 25.00% |
| 53 | 0.00% | 5.00% | 5.00% | 25.00% |
| 54 | 0.00% | 5.00% | 5.00% | 25.00% |
| 55 | 0.00% | 5.00% | 5.00% | 40.00% |
| 56 | 0.00% | 5.00% | 5.00% | 40.00% |
| 57 | 0.00% | 5.00% | 5.00% | 40.00% |
| 58 | 0.00% | 5.00% | 5.00% | 40.00% |
| 59 | 0.00% | 5.00% | 5.00% | 40.00% |
| 60 | 0.00% | 25.00% | 25.00% | 100.00% |
| 61 | 0.00% | 25.00% | 25.00% | 100.00% |
| 62 | 0.00% | 25.00% | 25.00% | 100.00% |
| 63 | 0.00% | 25.00% | 25.00% | 100.00% |
| 64 | 0.00% | 25.00% | 25.00% | 100.00% |
| 65 | 0.00% | 100.00% | 100.00% | 100.00% |
| 66 | 0.00% | 100.00% | 100.00% | 100.00% |
| 67 | 0.00% | 100.00% | 100.00% | 100.00% |
| 68 | 0.00% | 100.00% | 100.00% | 100.00% |
| 69 | 0.00% | 100.00% | 100.00% | 100.00% |
| 70+ | 100.00% | 100.00% | 100.00% | 100.00% |

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Retirement for members in PEPRA, Tier 6, are assumed to occur among eligible members in accordance with the sample rates below, from the full tables 2021 CalPERS Public Agency Miscellaneous 2% @ 62 table for General and the 2021 CalPERS Public Agency Safety Police 2.7% @ 57 table for Safety:

| Rates of Retirement General (PEPRA) Years of Service | | | | |
|--|---------|---------|---------|---------|
| Age | 5 | 10 | 25 | 35 |
| 50-51 | 0.00% | 0.00% | 0.00% | 0.00% |
| 52 | 0.50% | 0.80% | 1.90% | 3.80% |
| 53 | 0.70% | 1.10% | 2.10% | 4.80% |
| 54 | 0.70% | 1.10% | 2.30% | 5.40% |
| 55 | 1.00% | 1.90% | 6.10% | 15.20% |
| 56 | 1.40% | 2.60% | 7.50% | 16.70% |
| 57 | 1.80% | 2.90% | 7.40% | 14.30% |
| 58 | 2.30% | 3.50% | 7.30% | 13.50% |
| 59 | 2.50% | 3.80% | 9.20% | 17.50% |
| 60 | 3.10% | 5.10% | 11.10% | 18.30% |
| 61 | 3.80% | 5.80% | 12.10% | 23.20% |
| 62 | 4.40% | 7.40% | 16.40% | 27.10% |
| 63 | 7.70% | 10.50% | 19.20% | 26.60% |
| 64 | 7.20% | 10.10% | 18.70% | 27.60% |
| 65 | 10.80% | 14.10% | 23.90% | 34.80% |
| 66 | 13.20% | 17.20% | 29.20% | 42.60% |
| 67 | 13.20% | 17.20% | 29.20% | 40.50% |
| 68 | 12.00% | 15.60% | 26.50% | 38.70% |
| 69 | 12.00% | 15.60% | 26.50% | 36.80% |
| 70 | 12.00% | 15.60% | 26.50% | 38.70% |
| 71 | 12.00% | 15.60% | 26.50% | 38.70% |
| 72 | 12.00% | 15.60% | 26.50% | 38.70% |
| 73 | 12.00% | 15.60% | 26.50% | 38.70% |
| 74 | 12.00% | 15.60% | 26.50% | 38.70% |
| 75+ | 100.00% | 100.00% | 100.00% | 100.00% |

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| Rates of Retirement Safety (PEPRA) Years of Service | | | | |
|---|---------|---------|---------|---------|
| Age | 5 | 10 | 25 | 35 |
| 50 | 5.00% | 5.00% | 5.00% | 11.00% |
| 51 | 4.00% | 4.00% | 5.75% | 13.92% |
| 52 | 3.80% | 3.80% | 5.80% | 13.21% |
| 53 | 3.80% | 3.80% | 7.74% | 28.98% |
| 54 | 3.80% | 3.80% | 9.31% | 33.25% |
| 55 | 6.84% | 6.84% | 13.40% | 38.76% |
| 56 | 6.27% | 6.27% | 12.28% | 34.49% |
| 57 | 6.00% | 6.00% | 11.75% | 32.00% |
| 58 | 8.00% | 8.00% | 13.75% | 35.00% |
| 59 | 8.00% | 8.00% | 14.00% | 40.00% |
| 60 | 15.00% | 15.00% | 15.00% | 35.00% |
| 61 | 14.40% | 14.40% | 14.40% | 26.40% |
| 62 | 15.00% | 15.00% | 15.00% | 33.00% |
| 63 | 15.00% | 15.00% | 15.00% | 40.00% |
| 64 | 15.00% | 15.00% | 15.00% | 52.50% |
| 65+ | 100.00% | 100.00% | 100.00% | 100.00% |

26. Changes in Actuarial Assumptions

There have been no changes in the assumptions since the prior valuation. We have included expected pay increases of 3% in July 2022 and 5% in September 2022 in calculating the projected pay for the fiscal year ending June 30, 2023 for County members, and we are now using an annual COLA increase assumption of 2.60% for members in pay status. However, these assumptions are only used to reflect the expected impact of events which have already occurred and thus do not represent a change in forward-looking assumptions.

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APPENDIX C – SUMMARY OF PLAN PROVISIONS

All actuarial calculations are based on our understanding of the statutes governing the StanCERA as contained in the County Employees Retirement Law (CERL) of 1937, with provisions adopted by the County Board of Supervisors, a district Board of Directors, or the StanCERA Board, effective through June 30, 2022. The benefit and contribution provisions of this law are summarized briefly below, along with corresponding references to the State Code. This summary does not attempt to cover all the detailed provisions of the law.

A. Definitions

Compensation: Compensation means the cash remuneration for services paid by the employer. It includes base pay and certain differential, incentive, and special pay allowances defined by the Board of Retirement. Overtime is excluded, with the exception of overtime paid under the Fair Labor Standards Act that is regular and recurring.

For Tier 6 (PEPRA) members, only pensionable compensation up to the PEPRA Compensation Limit will count for computing Plan benefits and employee contributions and employer contributions. For those participating in Social Security, the compensation cap is \$134,974 for calendar year 2022. For those not participating in Social Security, the compensation cap is \$161,969 for calendar year 2022. In addition, it is possible that some sources of compensation, such as any payments deemed to be terminal or special pays, may be excluded from the benefit and contribution computations for PEPRA members.

Credited Service: In general, Credited Service is earned for the period during which Member Contributions are paid. Since Tier 3 Members participate in a non-contributory Plan, their Credited Service is calculated based on their date of Membership only.

Temporary service for which the Member was not credited, or service for which the Member withdrew his or her Member Contributions, may be purchased by paying or repaying the Member Contributions with interest. The categories of services that credit may be purchased for are listed below:

- **Prior Part-time Service:** If a Member worked for an employer within the Association on a part-time or 'extra help' basis before his membership in the Retirement Association, the Member may buyback this service.
- **Intermittent Part-time Service**
- **Prior full time Service:** Member may buyback full time service that may have been cashed out upon termination.

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- **Leave of Absence (Including absence with State Disability or Worker's Compensation):** No unpaid leave of absence can be bought back except for absence due to medical reasons of up to one year.
- **Public Service:** Only Tier 1 and 4 Members may buy back this service.
- **Military Time:** Only Tier 1 and 4 Members may buy back this service.
- **Enhance Prior Tier Service:** Applies to certain active and deferred Members with Tier 1, 2, or 3 service.
- **Military "call up"**
- **AB 2766:** Only Safety Employees can buy back this service.

A percentage of credited sick leave may be credited according to the Member's applicable bargaining unit.

Final

Compensation: For Members belonging to Tier 2, Tier 3, and Tier 6, Final Compensation means the highest Compensation earned during any 36 consecutive months of the Member's employment. For all others, it is the highest Compensation earned during any twelve months of employment.

General Member: Any Member who is not a Safety Member is a General Member.

Safety Member: Any sworn Member engaged in law enforcement, probation, or fire suppression is a Safety Member.

B. Membership

Eligibility: All full-time, permanent employees of Stanislaus County, City of Ceres, Stanislaus County Superior Court, Salida Sanitary District, East Side Mosquito Abatement, Keyes Community Services, Hills Ferry Cemetery, and StanCOG hired on or after October 1, 1988 become Members on their date of appointment. All others hired before October 1, 1988 became Members on the first day of the calendar month following their date of appointment.

Detailed membership eligibility according to Tier and membership date is shown in Table 1 on page 80.

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APPENDIX C – SUMMARY OF PLAN PROVISIONS

C. Service Retirement

Eligibility: New members who meet the requirements to enter a legacy tier under PEPRA will enter Tier 2; all other new members will enter Tier 6.

Tier 3 General Members are eligible to retire at age 55 if they have earned 10 years of Credited Service. Tier 6 (PEPRA) General Members are eligible to retire at age 52 if they have earned five years of Credited Service. All other General Members are eligible to retire at age 50 if they have earned five years of Credited Service and have been an Association member for at least 10 years. Alternatively, General non-PEPRA Members are eligible to retire at any age after having earned 30 years of Credited Service, or upon reaching age 70 with no service requirement.

Safety Members are eligible to retire at age 50 if they have earned five years of Credited Service and have been an Association member for at least 10 years. Alternatively, Safety Members are eligible to retire at any age after having earned 20 years of Credited Service, or upon reaching age 70 with no service requirement. The 20-year Credited Service retirement eligibility is not applicable to Tier 6 (PEPRA) Safety Members, nor is the 10-year Association membership requirement.

Benefit Amount: The Service Retirement Benefit payable to the Member is equal to the Member's Final Compensation multiplied by credited service, the benefit factor from Table 1 and the age factor from Table 2 corresponding to the Member's code section. The appropriate code sections for each group are listed in Table 1. For Tier 3 members, the age factors are applied *after* the benefit amount as determined under Table 1 has been offset by the designated fraction of the member's projected age 65 Social Security benefit.

For Tier 3 Members with Credited Service up to 35 years, the percentage of Final Compensation may not exceed 70% and for those with more than 35 years, it may not exceed 80%. For all other non-PEPRA Members, the percentage of Final Compensation may not exceed 100%. For those members integrated with Social Security (other than Tiers 3 and 6), Retirement Benefits based on the first \$350 of monthly Final Average Compensation are reduced by one-third.

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APPENDIX C – SUMMARY OF PLAN PROVISIONS

Table 1: Member Group Descriptions

| Group | Open or Closed | FAP | Max Cola | Code Section | Description | Top Retirement Factor Age | Benefit Factor |
|------------------|----------------|-----|----------|--------------|------------------|---------------------------|--|
| General Tier I | Closed | 1 | 3 | 31676.12 | 2% at 57 | 62 | 2.00% |
| General Tier II | Open | 3 | 3 | 31676.1 | 2% at 62 | 65 | 1.67% |
| General Tier III | Closed | 3 | 0 | 31499.14 | Non-Contributory | 65 | First 35 Years: 2.0% of FAS less 1/35 th of Social Security benefit at age 65. Next 10 Years: 1% of FAS |
| General Tier IV | Closed | 1 | 3 | 31676.14 | 2% at 55 | 65 | 1.67% |
| General Tier V | Closed | 1 | 3 | 31676.14 | 2% at 55 | 65 | 1.67% |
| General Tier VI | Open | 3 | 3 | 7522.2 | PEPRA | 67 | 1.00% |
| Safety Tier II | Open | 3 | 3 | 31664 | 2% at 50 | 50 | 2.00% |
| Safety Tier IV | Closed | 1 | 3 | 31664.1 | 3% at 50 | 50 | 3.00% |
| Safety Tier V | Closed | 1 | 3 | 31664.1 | 3% at 50 | 50 | 3.00% |
| Safety Tier VI | Open | 3 | 3 | 7522.25 (2) | PEPRA | 57 | 1.00% |

Table 2: Age Factors

| Age | Safety 2% at Age 50 CERL §: 31664 | Safety 3% at Age 50 CERL §: 31664.1 | Safety PEPRA GC §: 7522.25 Opt2 | General 2% at Age 62 CERL §: 31676.1 | General 2% at Age 57 CERL §: 31676.12 | General 2% at Age 55 CERL §: 31676.14 | General 2% at Age 65 CERL §: 31499.14 | General PEPRA GC §: 7522.20 |
|-----|---|---|---------------------------------------|--|---|---|---|-----------------------------------|
| 41 | 0.6258 | 0.6258 | N/A | N/A | N/A | N/A | N/A | N/A |
| 42 | 0.6625 | 0.6625 | N/A | N/A | N/A | N/A | N/A | N/A |
| 43 | 0.7004 | 0.7004 | N/A | N/A | N/A | N/A | N/A | N/A |
| 44 | 0.7397 | 0.7397 | N/A | N/A | N/A | N/A | N/A | N/A |
| 45 | 0.7805 | 0.7805 | N/A | N/A | N/A | N/A | N/A | N/A |
| 46 | 0.8226 | 0.8226 | N/A | N/A | N/A | N/A | N/A | N/A |
| 47 | 0.8678 | 0.8678 | N/A | N/A | N/A | N/A | N/A | N/A |
| 48 | 0.9085 | 0.9085 | N/A | N/A | N/A | N/A | N/A | N/A |
| 49 | 0.9522 | 0.9522 | N/A | N/A | N/A | N/A | N/A | N/A |
| 50 | 1.0000 | 1.0000 | 2.0000 | 0.7091 | 0.6681 | 0.8850 | N/A | N/A |
| 51 | 1.0516 | 1.0000 | 2.1000 | 0.7457 | 0.7056 | 0.9399 | N/A | N/A |
| 52 | 1.1078 | 1.0000 | 2.2000 | 0.7816 | 0.7454 | 1.0000 | N/A | 1.0000 |
| 53 | 1.1692 | 1.0000 | 2.3000 | 0.8181 | 0.7882 | 1.0447 | N/A | 1.1000 |
| 54 | 1.2366 | 1.0000 | 2.4000 | 0.8556 | 0.8346 | 1.1048 | N/A | 1.2000 |
| 55 | 1.3099 | 1.0000 | 2.5000 | 0.8954 | 0.8850 | 1.1686 | 0.3900 | 1.3000 |
| 56 | 1.3099 | 1.0000 | 2.6000 | 0.9382 | 0.9399 | 1.2365 | 0.4300 | 1.4000 |
| 57 | 1.3099 | 1.0000 | 2.7000 | 0.9846 | 1.0000 | 1.3093 | 0.4700 | 1.5000 |
| 58 | 1.3099 | 1.0000 | 2.7000 | 1.0350 | 1.0447 | 1.3608 | 0.5100 | 1.6000 |
| 59 | 1.3099 | 1.0000 | 2.7000 | 1.0899 | 1.1048 | 1.4123 | 0.5600 | 1.7000 |
| 60 | 1.3099 | 1.0000 | 2.7000 | 1.1500 | 1.1686 | 1.4638 | 0.6100 | 1.8000 |
| 61 | 1.3099 | 1.0000 | 2.7000 | 1.1947 | 1.2365 | 1.5153 | 0.6700 | 1.9000 |
| 62 | 1.3099 | 1.0000 | 2.7000 | 1.2548 | 1.3093 | 1.5668 | 0.7400 | 2.0000 |
| 63 | 1.3099 | 1.0000 | 2.7000 | 1.3186 | 1.3093 | 1.5668 | 0.8200 | 2.1000 |
| 64 | 1.3099 | 1.0000 | 2.7000 | 1.3865 | 1.3093 | 1.5668 | 0.9000 | 2.2000 |
| 65 | 1.3099 | 1.0000 | 2.7000 | 1.4593 | 1.3093 | 1.5668 | 1.0000 | 2.3000 |
| 66 | 1.3099 | 1.0000 | 2.7000 | 1.4593 | 1.3093 | 1.5668 | 1.0000 | 2.4000 |
| 67 | 1.3099 | 1.0000 | 2.7000 | 1.4593 | 1.3093 | 1.5668 | 1.0000 | 2.5000 |

Form of Benefit: The Service Retirement Benefit will be paid monthly beginning at retirement and for the life of the Member. If the member selects the unmodified benefit form, in the event of the Member's death 60% of the benefit will continue for the life of the Member's spouse or to the age of majority of dependent minor children if there is no spouse. For Tier 3 Members, the benefit payable to beneficiary is limited to 50%. In the event there is no surviving spouse or minor children, any unpaid remainder of

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APPENDIX C – SUMMARY OF PLAN PROVISIONS

the Member's accumulated contributions will be paid to the Member's designated beneficiary.

Actuarially equivalent optional benefit forms are also available.

Annually on April 1, benefits for all retired members other than those in Tier 3 are adjusted to reflect changes in the CPI for the San Francisco Bay Area since the prior year. Benefits may be increased or decreased, but the cumulative changes shall never reduce the benefit below the original monthly allowance. Annual increases may not exceed the COLA figures shown in Table 1, but CPI increases above this figure are "banked" and used for future increases when the CPI increases by less than the figures shown.

In addition, ad hoc cost-of-living adjustments have been granted in the past and may be granted in the future.

A lump sum benefit of \$5,000 will be payable upon the death of a retired member. No death benefit is payable for Tier 3 retired members.

D. Service-Connected Disability

Eligibility: All non-Tier 3 Members are eligible for Service-Connected Disability Retirement benefits at any age if they are permanently disabled as a result of injuries or illness sustained in the line of duty. Tier 3 Members are not eligible to receive disability benefits.

Benefit Amount: The Service-Connected Disability Retirement Benefit payable to Members is equal to the greater of 50% of their Final Compensation or – if the Member is eligible at disability for a Service Retirement Benefit – the Service Retirement Benefit accrued on the date of disability.

Form of Benefit: The Service-Connected Disability Retirement Benefit will be paid monthly beginning at the effective date of disability retirement and for the life of the Member; in the event of the Member's death, 100% of the benefit will continue for the life of the Member's spouse or to the age of majority of dependent minor children if there is no spouse. In the event there is no surviving spouse or minor children, any unpaid remainder of the Member's accumulated contributions will be paid to the Member's designated beneficiary.

Actuarially equivalent optional benefit forms and COLA adjustments (as described for the Service Retirement benefit) are also available. A lump sum benefit of \$5,000 will be payable upon the death of the member.

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E. Nonservice-Connected Disability

Eligibility: Tier 3 Members are not eligible to receive disability benefits. All other Members are eligible for Nonservice-Connected Disability Retirement benefits if they are permanently disabled at any age after earning five years of Credited Service.

Benefit Amount: The Nonservice-Connected Disability Retirement Benefit payable to Tier 1 General Members is equal to the greatest of:

- 1.8% of Final Compensation at disability multiplied by years of Credited Service at disability;
- 1.8% of Final Compensation at disability multiplied by years of Credited Service projected to age 62, but not to exceed one-third of Final Compensation; or
- If the Member is eligible at disability for a Service Retirement Benefit, the Service Retirement Benefit accrued on the date of disability.

The Nonservice-Connected Disability Retirement Benefit payable to Tiers 2, 4, 5, and 6 General Members is equal to the greatest of:

- 1.5% of Final Compensation at disability multiplied by years of Credited Service at disability;
- 1.5% of Final Compensation at disability multiplied by years of Credited Service projected to age 65, but not to exceed one-third of Final Compensation; or
- If the Member is eligible at disability for a Service Retirement Benefit, the Service Retirement Benefit accrued on the date of disability.

The Nonservice-Connected Disability Retirement Benefit payable to Safety Members is equal to the greatest of:

- 1.8% of Final Compensation at disability multiplied by years of Credited Service at disability;
- 1.8% of Final Compensation at disability multiplied by years of Credited Service projected to age 55, but not to exceed one-third of Final Compensation; or
- If the Member is eligible at disability for a Service Retirement Benefit, the Service Retirement Benefit accrued on the date of disability.

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Form of Benefit: The Nonservice-Connected Disability Retirement Benefit will be paid monthly beginning at the effective date of disability retirement, and for the life of the Member; in the event of the Member's death, 60% of the benefit will continue for the life of the Member's spouse or to the age of majority of dependent minor children if there is no spouse. In the event there is no surviving spouse or minor children, any unpaid remainder of the Member's accumulated contributions will be paid to the Member's designated beneficiary.

Actuarially equivalent optional benefit forms and COLA adjustments (as described for the Service Retirement benefit) are also available. A lump sum benefit of \$5,000 will be payable upon the death of the member.

F. Death Benefit

Eligibility: A Tier 3 Member's survivors are not eligible to receive death benefits. All other Members' survivors are eligible to receive different Death benefits dependent on the Member's cause of death and retirement eligibility.

Benefit Amount: In the event the Member's death resulted from injury or illness sustained in connection with the Member's duties, the Death Benefit payable to a surviving spouse, domestic partner, or eligible dependent children will be the greater of 50% of the Member's Final Compensation at the time of death or the Service Retirement Benefit.

In the event the Member's death did not result from injury or illness sustained in connection with the Member's duties and at the time of death, the Member was eligible for Service Retirement or Non-Service Connected Disability (i.e., the employee was employed at least five years), the Death Benefit payable to the spouse, partner or children will be 60% of the survivor benefit based on benefit due on Member's date of death.

In all other cases, the designated beneficiary (not necessarily a spouse/partner/child) will receive a refund of the Member's contributions with interest plus one month of Final Compensation for each year of service to a maximum of six years.

Form of Benefit: Annuity death benefits will be paid monthly beginning at the Member's death and for the life of the surviving spouse/partner or to the age of majority of dependent minor children if there is no spouse/partner. Lump sum benefits will be paid as described above.

COLA adjustments (as described for the annuity benefits) are also available.

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G. Withdrawal Benefits

- Eligibility: Tier 3 Members are not eligible to receive withdrawal benefits. All other Members are eligible for a Withdrawal Benefit upon termination of employment, if not eligible to receive or electing to waive a monthly benefit.
- Benefit Amount: The Withdrawal Benefit is a refund of the Member's accumulated Contributions with interest. Upon receipt of the Withdrawal Benefit, the Member forfeits all Credited Service.
- Form of Benefit: The Withdrawal Benefit is paid in a lump sum upon election by the Member.

H. Deferred Vested Benefit

- Eligibility: A Member is eligible for a Deferred Vested Benefit upon termination of employment after earning five years of Credited Service, including reciprocity service from another system. For Tier 3 Members, the vesting requirement is 10 years of Credited Service.
- The Member must leave his or her Member Contributions with interest on deposit with the Plan. This requirement does not apply to Tier 3 Members since they participate in a non-contributory Plan.
- Benefit Amount: The Deferred Vested Benefit is computed in the same manner as the Service Retirement Benefit, but it is based on Credited Service and Final Compensation on the date of termination.
- Form of Benefit: The Deferred Vested Benefit will be paid monthly beginning at retirement and for the life of the Member; in the event of the Member's death, 60% of the benefit will continue for the life of the Member's spouse or to the age of majority of dependent minor children if there is no spouse. For Tier 3 Members, the benefit payable to beneficiary is limited to 50%. In the event there is no surviving spouse or minor children, any unpaid remainder of the Member's accumulated contributions will be paid to the Member's designated beneficiary.
- Actuarially equivalent optional benefit forms and COLA adjustments (as described for the Service Retirement benefit) are also available. A lump sum benefit of \$5,000 will be payable upon the death of the member. No death benefit is payable for Tier 3 retired members.

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APPENDIX C – SUMMARY OF PLAN PROVISIONS

I. Reciprocal Benefit

Eligibility: A Member is eligible for a Reciprocal Benefit upon termination of employment after earning five years of Credited Service and entry, within a specified period of time, into another retirement system recognized as a reciprocal system by the Plan. For Tier 3 Members, the vesting requirement is 10 years of Credited Service.

The Member must leave his or her Member Contributions with interest on deposit with the Plan. This requirement does not apply to Tier 3 Members since they participate in a non-contributory Plan.

Benefit Amount: The Reciprocal Benefit is computed in the same manner as the Service Retirement Benefit, but it is based on Credited Service on the date of termination and Final Compensation on the date of retirement; Final Compensation is based on the highest of the Compensation earned under this Plan or the reciprocal plan.

Form of Benefit: The Reciprocal Benefit will be paid monthly beginning at retirement and for the life of the Member; in the event of the Member's death, 60% of the benefit will continue for the life of the Member's spouse or to the age of majority of dependent minor children if there is no spouse. For Tier 3 Members, the benefit payable to beneficiary is limited to 50%. In the event there is no surviving spouse or minor children, any unpaid remainder of the Member's accumulated contributions will be paid to the Member's designated beneficiary.

Actuarially equivalent optional benefit forms and COLA adjustments (as described for the Service Retirement benefit) are also available.

A lump sum benefit of \$5,000 will be payable upon the death of the member. No death benefit is payable for Tier 3 retired members.

J. Optional Benefit Forms

Prior to retirement, a member may elect to convert his retirement allowance into a benefit of equivalent Actuarial Value in accordance with one of the optional forms described below.

1. A reduced retirement allowance payable during his life with the provision that on his death the excess, if any, of his accumulated deductions at the time of retirement over the annuity payments made to him will be paid to his designated beneficiary or estate; or
2. A reduced retirement allowance payable during his life with the provision that after his death the reduced allowance will be continued for life to the beneficiary designated by him at the time of his retirement; or

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3. A reduced retirement allowance payable during his life with the provision that after his death an allowance of one-half of his reduced allowance will be continued for life to the beneficiary designated by him at the time of his retirement.

In addition, a member participating in Social Security may elect to receive an increased monthly allowance before age 62 (earliest possible receipt of Social Security benefits) and then take a reduced monthly allowance at age 62 and after. This option will not affect any monthly payments payable to a beneficiary. This option is not available to those receiving a disability benefit.

K. Member Contributions

Other than Tiers 3 and 6, all Members contribute a percentage of Compensation to the Plan through payroll deduction. The percentage contributed depends on the Member's nearest age upon joining the Plan. Members do not contribute after earning 30 years of Credited Service.

Tier 6 (PEPRA) Members must contribute half of the Normal Cost of the Plan. Contributions for these members will be based on the Normal Cost associated with their benefits, including COLA; General and Safety members will pay different rates. Members will continue to contribute after earnings 30 years of service.

City of Ceres members in Tiers 1 and 4 pay the Tier 2 and 5 rates ("Full" rates), rather than the rates for their respective Tiers ("Half" rates).

Interest is credited semiannually to each Member's accumulated contributions. The crediting rate is set by the Board; the current annual rate is 0.25%.

The employee contribution rates are shown in the Appendix E.

L. Changes in Plan Provisions

No change.

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APPENDIX D – GLOSSARY

1. Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs such as mortality, withdrawal, disability, retirement, changes in compensation, and rates of investment return.

2. Actuarial Cost Method

A procedure for determining the actuarial present value of pension plan benefits and expenses and for developing an allocation of such value to each year of service, usually in the form of a normal cost and an Actuarial Liability.

3. Actuarial Gain (Loss)

The difference between actual experience and that expected based upon a set of actuarial assumptions during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

4. Actuarial Liability

The portion of the actuarial present value of projected benefits that will not be paid by future normal costs. It represents the value of the past normal costs with interest to the valuation date.

5. Actuarial Present Value (Present Value)

The value as of a given date of a future amount or series of payments. The actuarial present value discounts the payments to the given date at the assumed investment return and includes the probability of the payment being made.

6. Actuarial Valuation

The determination, as of a specified date, of the normal cost, Actuarial Liability, Actuarial Value of Assets, and related actuarial present values for a pension plan.

7. Actuarial Value of Assets

The value of cash, investments, and other property belonging to a pension plan as used by the actuary for the purpose of an actuarial valuation. The purpose of an Actuarial Value of Assets is to smooth out fluctuations in market values.

APPENDIX D – GLOSSARY

8. Actuarially Equivalent

Of equal actuarial present value, determined as of a given date, with each value based on the same set of actuarial assumptions.

9. Amortization Payment

The portion of the pension plan contribution, which is designed to pay interest and principal on the Unfunded Actuarial Liability in order to pay for that liability in a given number of years.

10. Entry Age Normal Actuarial Cost Method

A method under which the actuarial present value of the projected benefits of each individual included in an actuarial valuation is allocated on a level basis over the earnings of the individual between entry age and assumed exit ages.

11. Funded Ratio

The ratio of the Actuarial Value of Assets to the Actuarial Liability.

12. Normal Cost

That portion of the actuarial present value of pension plan benefits and expenses that is allocated to a valuation year by the actuarial cost method.

13. Projected Benefits

Those pension plan benefit amounts which are expected to be paid in the future under a particular set of actuarial assumptions, taking into account such items as increases in future compensation and service credits.

14. Unfunded Actuarial Liability

The excess of the Actuarial Liability over the Actuarial Value of Assets. The Unfunded Actuarial Liability is not appropriate for assessing the sufficiency of plan assets to cover the estimated cost of settling StanCERA's benefit obligation in the event of a plan termination or other similar action. However, it is an appropriate measure for assessing the need for or the amount of future contributions.

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APPENDIX E – MEMBER CONTRIBUTION RATES

Employee Normal contribution rates vary by benefit formula as defined in the CERL and described in the table below, with the exception that City of Ceres members in Tiers 1 and 4 pay the Tier 2 and 5 rates (“Full” rates), rather than the rates for their respective Tiers (“Half” rates).

| Plan/Tier | Code Section | Member Contribution Provides Average Annuity |
|----------------|-----------------|---|
| General Tier 1 | 31621.5 | 1/200th of Final Average Salary (FAS) at age 60 |
| General Tier 2 | 31621 | 1/120th of Final Average Salary (FAS) at age 60 |
| General Tier 3 | NA | NA |
| General Tier 4 | 31621.3 | 1/240th of Final Average Salary (FAS) at age 55 |
| General Tier 5 | 31621.9 | 1/120th of Final Average Salary (FAS) at age 55 |
| Safety Tier 2 | 31639.25 | 1/100th of Final Average Salary (FAS) at age 50 |
| Safety Tier 4 | 31639.5 | 1/200th of Final Average Salary (FAS) at age 50 |
| Safety Tier 5 | 31639.25 | 1/100th of Final Average Salary (FAS) at age 50 |

Employee COLA contribution rates are determined based on 50% of the normal cost associated with the expected COLA benefits, including all forms of decrement and the value of any assumed joint and survivor benefits, determined for each individual entry age. Similar to the benefit formulas, for those members integrated with Social Security (other than Tiers 3 and 6), contributions based on the first \$350 of monthly compensation are reduced by one-third.

The rates were changed following the Experience Study covering the period June 30, 2018 through June 30, 2021. The current employee contribution rates are shown in the following tables and were determined based on the assumptions used in the current actuarial valuation. These assumptions include an interest rate of 6.75% per annum, an average salary increase of 2.75% per year (plus longevity and promotion increases), and the CalPERS mortality tables with adjustment as specified in the Appendix B and projected using 80% of Scale MP-2020 from 2017 to 2042 for General members and to 2043 for Safety members. The projection periods are based upon the duration of liabilities for the respective groups as of June 30, 2021. The rates are blended using a male/female weighting of 25% male / 75% female for General members, and 80% male / 20% female for Safety members.

Basic and COLA rates were determined based on an assumption that members would cease making contributions after 30 years of service. Basic and COLA rates include the value of the accumulated vacation time load, except that the load is not applied when calculating the Basic rates for members with less than three years of service.

Employee contribution rates for Tier 6 (PEPRA) members are determined based on half the Normal Cost (including COLA) for the PEPRA members, computed separately for General and Safety members, and for County and Ceres / Other District members. Due to the passage of SB13, contribution rates for PEPRA members are not rounded, and are recomputed each year.

The member contribution rates shown in this appendix apply only to pensionable compensation (up to the PEPRA Compensation Limits for PEPRA members).

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APPENDIX E – MEMBER CONTRIBUTION RATES

| Entry Age | General Tier 1 | | | | | | | |
|--------------|----------------------|---------------------|--------------------|-------------------|----------------------|---------------------|----------------------------|---------------------------|
| | Basic First \$350 | Basic Over \$350 | COL First \$350 | COL Over \$350 | Total First \$350 | Total Over \$350 | Prior Total First \$350 | Prior Total Over \$350 |
| 16 | 2.39% | 3.59% | 1.00% | 1.50% | 3.39% | 5.09% | 3.46% | 5.19% |
| 17 | 2.39% | 3.59% | 1.00% | 1.50% | 3.39% | 5.09% | 3.46% | 5.19% |
| 18 | 2.39% | 3.59% | 1.00% | 1.50% | 3.39% | 5.09% | 3.46% | 5.19% |
| 19 | 2.39% | 3.59% | 1.00% | 1.50% | 3.39% | 5.09% | 3.46% | 5.19% |
| 20 | 2.39% | 3.59% | 1.00% | 1.50% | 3.39% | 5.09% | 3.46% | 5.19% |
| 21 | 2.41% | 3.62% | 1.03% | 1.54% | 3.44% | 5.16% | 3.51% | 5.26% |
| 22 | 2.43% | 3.65% | 1.05% | 1.58% | 3.48% | 5.23% | 3.55% | 5.33% |
| 23 | 2.45% | 3.67% | 1.09% | 1.63% | 3.53% | 5.30% | 3.59% | 5.39% |
| 24 | 2.46% | 3.69% | 1.11% | 1.67% | 3.57% | 5.36% | 3.64% | 5.46% |
| 25 | 2.47% | 3.71% | 1.15% | 1.72% | 3.62% | 5.43% | 3.68% | 5.52% |
| 26 | 2.48% | 3.73% | 1.18% | 1.77% | 3.66% | 5.50% | 3.71% | 5.57% |
| 27 | 2.49% | 3.74% | 1.21% | 1.82% | 3.71% | 5.56% | 3.76% | 5.63% |
| 28 | 2.50% | 3.75% | 1.24% | 1.86% | 3.74% | 5.61% | 3.79% | 5.68% |
| 29 | 2.50% | 3.75% | 1.27% | 1.91% | 3.78% | 5.66% | 3.82% | 5.73% |
| 30 | 2.50% | 3.76% | 1.31% | 1.96% | 3.81% | 5.72% | 3.85% | 5.77% |
| 31 | 2.56% | 3.83% | 1.33% | 2.00% | 3.89% | 5.83% | 3.92% | 5.88% |
| 32 | 2.61% | 3.91% | 1.36% | 2.04% | 3.97% | 5.95% | 4.01% | 6.01% |
| 33 | 2.66% | 3.99% | 1.39% | 2.08% | 4.05% | 6.07% | 4.08% | 6.13% |
| 34 | 2.72% | 4.07% | 1.41% | 2.12% | 4.13% | 6.19% | 4.17% | 6.25% |
| 35 | 2.77% | 4.16% | 1.45% | 2.17% | 4.22% | 6.33% | 4.26% | 6.39% |
| 36 | 2.83% | 4.24% | 1.49% | 2.24% | 4.32% | 6.48% | 4.36% | 6.54% |
| 37 | 2.89% | 4.33% | 1.54% | 2.31% | 4.43% | 6.64% | 4.46% | 6.69% |
| 38 | 2.95% | 4.42% | 1.58% | 2.37% | 4.53% | 6.79% | 4.56% | 6.84% |
| 39 | 3.01% | 4.52% | 1.63% | 2.44% | 4.64% | 6.96% | 4.66% | 7.00% |
| 40 | 3.07% | 4.61% | 1.67% | 2.51% | 4.75% | 7.12% | 4.77% | 7.15% |
| 41 | 3.14% | 4.71% | 1.70% | 2.55% | 4.84% | 7.26% | 4.86% | 7.29% |
| 42 | 3.21% | 4.81% | 1.73% | 2.60% | 4.94% | 7.41% | 4.96% | 7.44% |
| 43 | 3.28% | 4.92% | 1.76% | 2.64% | 5.04% | 7.56% | 5.06% | 7.59% |
| 44 | 3.35% | 5.03% | 1.79% | 2.68% | 5.14% | 7.71% | 5.16% | 7.73% |
| 45 | 3.43% | 5.14% | 1.81% | 2.72% | 5.24% | 7.86% | 5.26% | 7.88% |
| 46 | 3.51% | 5.26% | 1.83% | 2.75% | 5.34% | 8.01% | 5.37% | 8.05% |
| 47 | 3.59% | 5.38% | 1.85% | 2.78% | 5.44% | 8.16% | 5.47% | 8.20% |
| 48 | 3.68% | 5.52% | 1.88% | 2.82% | 5.56% | 8.34% | 5.58% | 8.37% |
| 49 | 3.77% | 5.65% | 1.90% | 2.85% | 5.67% | 8.50% | 5.68% | 8.51% |
| 50 | 3.85% | 5.78% | 1.91% | 2.86% | 5.76% | 8.64% | 5.77% | 8.66% |
| 51 | 3.94% | 5.90% | 1.91% | 2.86% | 5.84% | 8.76% | 5.85% | 8.78% |
| 52 | 4.02% | 6.03% | 1.90% | 2.85% | 5.92% | 8.88% | 5.91% | 8.86% |
| 53 | 4.08% | 6.12% | 1.87% | 2.80% | 5.95% | 8.92% | 5.91% | 8.86% |
| 54 | 4.11% | 6.16% | 1.84% | 2.76% | 5.95% | 8.92% | 5.90% | 8.85% |
| 55 | 4.09% | 6.13% | 1.81% | 2.71% | 5.89% | 8.84% | 5.84% | 8.76% |
| 56 | 4.06% | 6.10% | 1.71% | 2.57% | 5.78% | 8.67% | 5.74% | 8.61% |
| 57 | 4.04% | 6.07% | 1.61% | 2.42% | 5.66% | 8.49% | 5.59% | 8.39% |
| 58 | 3.91% | 5.86% | 1.50% | 2.25% | 5.41% | 8.11% | 5.49% | 8.24% |
| 59+ | 3.88% | 5.83% | 1.44% | 2.16% | 5.32% | 7.99% | 5.45% | 8.17% |

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APPENDIX E – MEMBER CONTRIBUTION RATES

| Entry Age | General Tier 2 | | | | | | | |
|-----------|-------------------|------------------|-----------------|----------------|-------------------|------------------|-------------------------|------------------------|
| | Basic First \$350 | Basic Over \$350 | COL First \$350 | COL Over \$350 | Total First \$350 | Total Over \$350 | Prior Total First \$350 | Prior Total Over \$350 |
| 16 | 3.79% | 5.69% | 0.81% | 1.22% | 4.60% | 6.91% | 4.63% | 6.95% |
| 17 | 3.79% | 5.69% | 0.81% | 1.22% | 4.60% | 6.91% | 4.63% | 6.95% |
| 18 | 3.79% | 5.69% | 0.81% | 1.22% | 4.60% | 6.91% | 4.63% | 6.95% |
| 19 | 3.79% | 5.69% | 0.81% | 1.22% | 4.60% | 6.91% | 4.63% | 6.95% |
| 20 | 3.79% | 5.69% | 0.81% | 1.22% | 4.60% | 6.91% | 4.63% | 6.95% |
| 21 | 3.82% | 5.73% | 0.83% | 1.25% | 4.65% | 6.98% | 4.68% | 7.02% |
| 22 | 3.85% | 5.77% | 0.85% | 1.28% | 4.70% | 7.05% | 4.73% | 7.09% |
| 23 | 3.87% | 5.81% | 0.87% | 1.31% | 4.75% | 7.12% | 4.77% | 7.16% |
| 24 | 3.90% | 5.85% | 0.89% | 1.34% | 4.79% | 7.19% | 4.81% | 7.22% |
| 25 | 3.92% | 5.88% | 0.92% | 1.38% | 4.84% | 7.26% | 4.85% | 7.28% |
| 26 | 3.93% | 5.90% | 0.95% | 1.42% | 4.88% | 7.32% | 4.89% | 7.34% |
| 27 | 3.95% | 5.92% | 0.97% | 1.46% | 4.92% | 7.38% | 4.93% | 7.39% |
| 28 | 3.96% | 5.93% | 0.99% | 1.49% | 4.95% | 7.42% | 4.96% | 7.44% |
| 29 | 3.96% | 5.94% | 1.02% | 1.53% | 4.98% | 7.47% | 4.99% | 7.48% |
| 30 | 3.96% | 5.95% | 1.05% | 1.57% | 5.01% | 7.52% | 5.02% | 7.52% |
| 31 | 4.05% | 6.07% | 1.07% | 1.61% | 5.12% | 7.68% | 5.12% | 7.68% |
| 32 | 4.13% | 6.19% | 1.10% | 1.65% | 5.23% | 7.84% | 5.23% | 7.84% |
| 33 | 4.21% | 6.32% | 1.12% | 1.68% | 5.33% | 8.00% | 5.34% | 8.01% |
| 34 | 4.30% | 6.45% | 1.15% | 1.72% | 5.45% | 8.17% | 5.45% | 8.18% |
| 35 | 4.39% | 6.58% | 1.17% | 1.76% | 5.56% | 8.34% | 5.57% | 8.35% |
| 36 | 4.48% | 6.72% | 1.21% | 1.82% | 5.69% | 8.54% | 5.69% | 8.53% |
| 37 | 4.57% | 6.86% | 1.25% | 1.87% | 5.82% | 8.73% | 5.82% | 8.73% |
| 38 | 4.67% | 7.00% | 1.29% | 1.93% | 5.96% | 8.93% | 5.94% | 8.92% |
| 39 | 4.77% | 7.15% | 1.33% | 1.99% | 6.09% | 9.14% | 6.07% | 9.11% |
| 40 | 4.87% | 7.30% | 1.36% | 2.04% | 6.23% | 9.34% | 6.21% | 9.32% |
| 41 | 4.97% | 7.46% | 1.39% | 2.08% | 6.36% | 9.54% | 6.33% | 9.50% |
| 42 | 5.08% | 7.62% | 1.41% | 2.11% | 6.48% | 9.73% | 6.46% | 9.69% |
| 43 | 5.19% | 7.78% | 1.43% | 2.14% | 6.62% | 9.92% | 6.59% | 9.89% |
| 44 | 5.30% | 7.96% | 1.45% | 2.17% | 6.75% | 10.13% | 6.73% | 10.09% |
| 45 | 5.42% | 8.14% | 1.47% | 2.20% | 6.89% | 10.34% | 6.87% | 10.30% |
| 46 | 5.55% | 8.33% | 1.49% | 2.24% | 7.04% | 10.57% | 7.01% | 10.52% |
| 47 | 5.68% | 8.52% | 1.51% | 2.27% | 7.19% | 10.79% | 7.16% | 10.73% |
| 48 | 5.81% | 8.71% | 1.53% | 2.30% | 7.34% | 11.01% | 7.31% | 10.96% |
| 49 | 5.93% | 8.90% | 1.55% | 2.33% | 7.48% | 11.23% | 7.45% | 11.17% |
| 50 | 6.05% | 9.08% | 1.57% | 2.35% | 7.62% | 11.43% | 7.58% | 11.36% |
| 51 | 6.15% | 9.23% | 1.58% | 2.37% | 7.73% | 11.60% | 7.69% | 11.53% |
| 52 | 6.23% | 9.34% | 1.59% | 2.38% | 7.81% | 11.72% | 7.77% | 11.65% |
| 53 | 6.25% | 9.37% | 1.59% | 2.38% | 7.83% | 11.75% | 7.78% | 11.67% |
| 54 | 6.23% | 9.35% | 1.57% | 2.36% | 7.81% | 11.71% | 7.75% | 11.63% |
| 55 | 6.20% | 9.30% | 1.55% | 2.33% | 7.76% | 11.63% | 7.69% | 11.53% |
| 56 | 6.17% | 9.25% | 1.48% | 2.22% | 7.65% | 11.47% | 7.60% | 11.39% |
| 57 | 6.14% | 9.21% | 1.40% | 2.10% | 7.54% | 11.31% | 7.46% | 11.19% |
| 58 | 6.27% | 9.41% | 1.31% | 1.96% | 7.58% | 11.37% | 7.60% | 11.40% |
| 59+ | 6.47% | 9.71% | 1.25% | 1.88% | 7.73% | 11.59% | 7.78% | 11.67% |

**STANISLAUS COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JUNE 30, 2022**

APPENDIX E – MEMBER CONTRIBUTION RATES

| Entry Age | General Tier 4 | | | | | | | |
|-----------|-------------------|------------------|-----------------|----------------|-------------------|------------------|-------------------------|------------------------|
| | Basic First \$350 | Basic Over \$350 | COL First \$350 | COL Over \$350 | Total First \$350 | Total Over \$350 | Prior Total First \$350 | Prior Total Over \$350 |
| 16 | 2.19% | 3.28% | 1.06% | 1.59% | 3.25% | 4.87% | 3.32% | 4.98% |
| 17 | 2.19% | 3.28% | 1.06% | 1.59% | 3.25% | 4.87% | 3.32% | 4.98% |
| 18 | 2.19% | 3.28% | 1.06% | 1.59% | 3.25% | 4.87% | 3.32% | 4.98% |
| 19 | 2.19% | 3.28% | 1.06% | 1.59% | 3.25% | 4.87% | 3.32% | 4.98% |
| 20 | 2.19% | 3.28% | 1.06% | 1.59% | 3.25% | 4.87% | 3.32% | 4.98% |
| 21 | 2.20% | 3.30% | 1.09% | 1.63% | 3.28% | 4.93% | 3.36% | 5.05% |
| 22 | 2.21% | 3.31% | 1.11% | 1.67% | 3.32% | 4.98% | 3.40% | 5.10% |
| 23 | 2.21% | 3.32% | 1.15% | 1.72% | 3.36% | 5.04% | 3.43% | 5.14% |
| 24 | 2.21% | 3.32% | 1.17% | 1.76% | 3.39% | 5.08% | 3.46% | 5.19% |
| 25 | 2.21% | 3.32% | 1.21% | 1.81% | 3.42% | 5.13% | 3.49% | 5.24% |
| 26 | 2.26% | 3.39% | 1.24% | 1.86% | 3.50% | 5.25% | 3.56% | 5.34% |
| 27 | 2.31% | 3.46% | 1.27% | 1.91% | 3.58% | 5.37% | 3.63% | 5.44% |
| 28 | 2.35% | 3.53% | 1.30% | 1.95% | 3.65% | 5.48% | 3.70% | 5.55% |
| 29 | 2.40% | 3.60% | 1.33% | 1.99% | 3.73% | 5.59% | 3.77% | 5.66% |
| 30 | 2.45% | 3.68% | 1.36% | 2.04% | 3.81% | 5.72% | 3.85% | 5.77% |
| 31 | 2.50% | 3.75% | 1.39% | 2.09% | 3.90% | 5.84% | 3.92% | 5.88% |
| 32 | 2.56% | 3.83% | 1.41% | 2.12% | 3.97% | 5.95% | 4.00% | 6.00% |
| 33 | 2.61% | 3.91% | 1.44% | 2.16% | 4.05% | 6.07% | 4.08% | 6.12% |
| 34 | 2.66% | 3.99% | 1.47% | 2.21% | 4.14% | 6.20% | 4.17% | 6.26% |
| 35 | 2.72% | 4.08% | 1.50% | 2.25% | 4.22% | 6.33% | 4.27% | 6.40% |
| 36 | 2.78% | 4.17% | 1.55% | 2.33% | 4.33% | 6.50% | 4.36% | 6.54% |
| 37 | 2.84% | 4.26% | 1.60% | 2.40% | 4.44% | 6.66% | 4.46% | 6.70% |
| 38 | 2.90% | 4.35% | 1.65% | 2.47% | 4.55% | 6.82% | 4.56% | 6.84% |
| 39 | 2.96% | 4.45% | 1.69% | 2.54% | 4.66% | 6.99% | 4.67% | 7.01% |
| 40 | 3.03% | 4.55% | 1.73% | 2.60% | 4.76% | 7.15% | 4.78% | 7.17% |
| 41 | 3.10% | 4.65% | 1.76% | 2.64% | 4.86% | 7.29% | 4.88% | 7.31% |
| 42 | 3.18% | 4.76% | 1.79% | 2.68% | 4.96% | 7.44% | 4.97% | 7.46% |
| 43 | 3.25% | 4.88% | 1.81% | 2.72% | 5.07% | 7.60% | 5.08% | 7.62% |
| 44 | 3.33% | 5.00% | 1.83% | 2.75% | 5.17% | 7.75% | 5.17% | 7.76% |
| 45 | 3.41% | 5.11% | 1.86% | 2.79% | 5.27% | 7.90% | 5.27% | 7.91% |
| 46 | 3.48% | 5.22% | 1.87% | 2.81% | 5.36% | 8.03% | 5.36% | 8.05% |
| 47 | 3.56% | 5.34% | 1.89% | 2.84% | 5.45% | 8.18% | 5.46% | 8.18% |
| 48 | 3.61% | 5.41% | 1.91% | 2.86% | 5.51% | 8.27% | 5.52% | 8.28% |
| 49 | 3.63% | 5.45% | 1.92% | 2.88% | 5.55% | 8.33% | 5.55% | 8.32% |
| 50 | 3.61% | 5.42% | 1.92% | 2.88% | 5.53% | 8.30% | 5.53% | 8.29% |
| 51 | 3.60% | 5.39% | 1.91% | 2.87% | 5.51% | 8.26% | 5.51% | 8.27% |
| 52 | 3.58% | 5.37% | 1.91% | 2.86% | 5.48% | 8.23% | 5.46% | 8.19% |
| 53 | 3.45% | 5.18% | 1.87% | 2.81% | 5.33% | 7.99% | 5.36% | 8.03% |
| 54+ | 3.44% | 5.15% | 1.84% | 2.76% | 5.28% | 7.91% | 5.30% | 7.96% |

**STANISLAUS COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JUNE 30, 2022**

APPENDIX E – MEMBER CONTRIBUTION RATES

| General Tier 5 | | | | | | | | |
|----------------|-------------|------------|-------------|------------|-------------|------------|-------------|-------------|
| Entry | Basic | Basic | COL | COL | Total | Total | Prior Total | Prior Total |
| Age | First \$350 | Over \$350 | First \$350 | Over \$350 | First \$350 | Over \$350 | First \$350 | Over \$350 |
| 16 | 4.38% | 6.57% | 1.06% | 1.59% | 5.44% | 8.16% | 5.41% | 8.11% |
| 17 | 4.38% | 6.57% | 1.06% | 1.59% | 5.44% | 8.16% | 5.41% | 8.11% |
| 18 | 4.38% | 6.57% | 1.06% | 1.59% | 5.44% | 8.16% | 5.41% | 8.11% |
| 19 | 4.38% | 6.57% | 1.06% | 1.59% | 5.44% | 8.16% | 5.41% | 8.11% |
| 20 | 4.38% | 6.57% | 1.06% | 1.59% | 5.44% | 8.16% | 5.41% | 8.11% |
| 21 | 4.40% | 6.59% | 1.09% | 1.63% | 5.48% | 8.22% | 5.46% | 8.19% |
| 22 | 4.41% | 6.62% | 1.11% | 1.67% | 5.52% | 8.29% | 5.50% | 8.25% |
| 23 | 4.42% | 6.63% | 1.15% | 1.72% | 5.57% | 8.35% | 5.54% | 8.31% |
| 24 | 4.43% | 6.64% | 1.17% | 1.76% | 5.60% | 8.40% | 5.57% | 8.35% |
| 25 | 4.43% | 6.64% | 1.21% | 1.81% | 5.64% | 8.45% | 5.60% | 8.41% |
| 26 | 4.52% | 6.78% | 1.24% | 1.86% | 5.76% | 8.64% | 5.72% | 8.58% |
| 27 | 4.61% | 6.92% | 1.27% | 1.91% | 5.89% | 8.83% | 5.83% | 8.74% |
| 28 | 4.71% | 7.06% | 1.30% | 1.95% | 6.01% | 9.01% | 5.94% | 8.92% |
| 29 | 4.81% | 7.21% | 1.33% | 1.99% | 6.13% | 9.20% | 6.06% | 9.09% |
| 30 | 4.90% | 7.36% | 1.36% | 2.04% | 6.26% | 9.40% | 6.18% | 9.28% |
| 31 | 5.01% | 7.51% | 1.39% | 2.09% | 6.40% | 9.60% | 6.31% | 9.46% |
| 32 | 5.11% | 7.67% | 1.41% | 2.12% | 6.52% | 9.79% | 6.44% | 9.66% |
| 33 | 5.22% | 7.83% | 1.44% | 2.16% | 6.66% | 9.99% | 6.57% | 9.85% |
| 34 | 5.33% | 7.99% | 1.47% | 2.21% | 6.80% | 10.20% | 6.71% | 10.07% |
| 35 | 5.44% | 8.16% | 1.50% | 2.25% | 6.94% | 10.41% | 6.86% | 10.29% |
| 36 | 5.55% | 8.33% | 1.55% | 2.33% | 7.11% | 10.66% | 7.01% | 10.51% |
| 37 | 5.67% | 8.51% | 1.60% | 2.40% | 7.27% | 10.91% | 7.17% | 10.75% |
| 38 | 5.80% | 8.70% | 1.65% | 2.47% | 7.44% | 11.17% | 7.33% | 10.99% |
| 39 | 5.93% | 8.89% | 1.69% | 2.54% | 7.62% | 11.43% | 7.50% | 11.24% |
| 40 | 6.06% | 9.09% | 1.73% | 2.60% | 7.79% | 11.69% | 7.67% | 11.50% |
| 41 | 6.20% | 9.30% | 1.76% | 2.64% | 7.96% | 11.94% | 7.83% | 11.75% |
| 42 | 6.35% | 9.53% | 1.79% | 2.68% | 8.14% | 12.21% | 8.00% | 12.00% |
| 43 | 6.51% | 9.76% | 1.81% | 2.72% | 8.32% | 12.48% | 8.18% | 12.27% |
| 44 | 6.66% | 10.00% | 1.83% | 2.75% | 8.50% | 12.75% | 8.35% | 12.52% |
| 45 | 6.82% | 10.22% | 1.86% | 2.79% | 8.68% | 13.01% | 8.52% | 12.78% |
| 46 | 6.96% | 10.45% | 1.87% | 2.81% | 8.84% | 13.26% | 8.68% | 13.02% |
| 47 | 7.11% | 10.67% | 1.89% | 2.84% | 9.01% | 13.51% | 8.84% | 13.27% |
| 48 | 7.22% | 10.82% | 1.91% | 2.86% | 9.12% | 13.68% | 8.95% | 13.43% |
| 49 | 7.27% | 10.90% | 1.92% | 2.88% | 9.19% | 13.78% | 9.01% | 13.51% |
| 50 | 7.23% | 10.84% | 1.92% | 2.88% | 9.15% | 13.72% | 8.97% | 13.46% |
| 51 | 7.19% | 10.79% | 1.91% | 2.87% | 9.10% | 13.66% | 8.94% | 13.40% |
| 52 | 7.15% | 10.73% | 1.91% | 2.86% | 9.06% | 13.59% | 8.87% | 13.30% |
| 53 | 6.91% | 10.36% | 1.87% | 2.81% | 8.78% | 13.17% | 8.71% | 13.07% |
| 54+ | 6.87% | 10.31% | 1.84% | 2.76% | 8.71% | 13.07% | 8.64% | 12.96% |

**STANISLAUS COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JUNE 30, 2022**

APPENDIX E – MEMBER CONTRIBUTION RATES

| Entry Age | Safety Tier 2 | | | | | | | |
|--------------|----------------------|---------------------|--------------------|-------------------|----------------------|---------------------|----------------------------|---------------------------|
| | Basic First \$350 | Basic Over \$350 | COL First \$350 | COL Over \$350 | Total First \$350 | Total Over \$350 | Prior Total First \$350 | Prior Total Over \$350 |
| 18 | 5.55% | 8.32% | 2.05% | 3.08% | 7.60% | 11.40% | 6.65% | 9.98% |
| 19 | 5.55% | 8.32% | 2.05% | 3.08% | 7.60% | 11.40% | 6.65% | 9.98% |
| 20 | 5.55% | 8.32% | 2.05% | 3.08% | 7.60% | 11.40% | 6.65% | 9.98% |
| 21 | 5.64% | 8.46% | 2.12% | 3.18% | 7.76% | 11.64% | 6.83% | 10.24% |
| 22 | 5.74% | 8.61% | 2.15% | 3.23% | 7.89% | 11.84% | 6.98% | 10.47% |
| 23 | 5.83% | 8.75% | 2.19% | 3.29% | 8.03% | 12.04% | 7.14% | 10.70% |
| 24 | 5.93% | 8.90% | 2.23% | 3.34% | 8.16% | 12.24% | 7.30% | 10.94% |
| 25 | 6.03% | 9.05% | 2.25% | 3.38% | 8.29% | 12.43% | 7.46% | 11.19% |
| 26 | 6.14% | 9.21% | 2.28% | 3.42% | 8.42% | 12.63% | 7.62% | 11.42% |
| 27 | 6.24% | 9.36% | 2.30% | 3.45% | 8.54% | 12.81% | 7.78% | 11.67% |
| 28 | 6.35% | 9.52% | 2.32% | 3.48% | 8.67% | 13.00% | 7.96% | 11.94% |
| 29 | 6.46% | 9.68% | 2.33% | 3.50% | 8.79% | 13.18% | 8.13% | 12.20% |
| 30 | 6.57% | 9.85% | 2.37% | 3.56% | 8.94% | 13.41% | 8.31% | 12.46% |
| 31 | 6.68% | 10.02% | 2.41% | 3.62% | 9.09% | 13.64% | 8.50% | 12.75% |
| 32 | 6.80% | 10.20% | 2.46% | 3.69% | 9.26% | 13.89% | 8.69% | 13.03% |
| 33 | 6.92% | 10.38% | 2.50% | 3.75% | 9.42% | 14.13% | 8.88% | 13.32% |
| 34 | 7.04% | 10.56% | 2.53% | 3.80% | 9.58% | 14.36% | 9.07% | 13.61% |
| 35 | 7.17% | 10.75% | 2.55% | 3.82% | 9.72% | 14.57% | 9.27% | 13.91% |
| 36 | 7.30% | 10.95% | 2.56% | 3.84% | 9.86% | 14.79% | 9.46% | 14.19% |
| 37 | 7.44% | 11.16% | 2.56% | 3.84% | 10.00% | 15.00% | 9.64% | 14.47% |
| 38 | 7.58% | 11.37% | 2.55% | 3.83% | 10.13% | 15.20% | 9.84% | 14.76% |
| 39 | 7.72% | 11.58% | 2.55% | 3.83% | 10.27% | 15.41% | 10.03% | 15.04% |
| 40 | 7.85% | 11.78% | 2.55% | 3.83% | 10.40% | 15.61% | 10.21% | 15.32% |
| 41 | 7.98% | 11.98% | 2.53% | 3.79% | 10.51% | 15.77% | 10.34% | 15.52% |
| 42 | 8.12% | 12.17% | 2.51% | 3.77% | 10.63% | 15.94% | 10.46% | 15.69% |
| 43 | 8.19% | 12.29% | 2.50% | 3.75% | 10.69% | 16.04% | 10.55% | 15.83% |
| 44 | 8.21% | 12.32% | 2.49% | 3.74% | 10.71% | 16.06% | 10.61% | 15.91% |
| 45 | 8.19% | 12.28% | 2.49% | 3.74% | 10.68% | 16.02% | 10.61% | 15.91% |
| 46 | 8.15% | 12.22% | 2.51% | 3.77% | 10.66% | 15.99% | 10.58% | 15.86% |
| 47 | 8.11% | 12.16% | 2.53% | 3.79% | 10.63% | 15.95% | 10.49% | 15.73% |
| 48 | 8.28% | 12.42% | 2.55% | 3.82% | 10.83% | 16.24% | 10.70% | 16.06% |
| 49+ | 8.55% | 12.83% | 2.56% | 3.84% | 11.11% | 16.67% | 10.97% | 16.45% |

**STANISLAUS COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JUNE 30, 2022**

APPENDIX E – MEMBER CONTRIBUTION RATES

| Entry Age | Safety Tier 5 | | | | | | | |
|--------------|----------------------|---------------------|--------------------|-------------------|----------------------|---------------------|----------------------------|---------------------------|
| | Basic First \$350 | Basic Over \$350 | COL First \$350 | COL Over \$350 | Total First \$350 | Total Over \$350 | Prior Total First \$350 | Prior Total Over \$350 |
| 18 | 5.87% | 8.80% | 2.97% | 4.46% | 8.84% | 13.26% | 7.54% | 11.31% |
| 19 | 5.87% | 8.80% | 2.97% | 4.46% | 8.84% | 13.26% | 7.54% | 11.31% |
| 20 | 5.87% | 8.80% | 2.97% | 4.46% | 8.84% | 13.26% | 7.54% | 11.31% |
| 21 | 5.97% | 8.95% | 3.07% | 4.60% | 9.04% | 13.55% | 7.74% | 11.61% |
| 22 | 6.07% | 9.10% | 3.11% | 4.67% | 9.18% | 13.77% | 7.91% | 11.87% |
| 23 | 6.17% | 9.26% | 3.16% | 4.74% | 9.33% | 14.00% | 8.08% | 12.12% |
| 24 | 6.28% | 9.42% | 3.20% | 4.80% | 9.48% | 14.22% | 8.25% | 12.38% |
| 25 | 6.38% | 9.58% | 3.23% | 4.84% | 9.61% | 14.42% | 8.43% | 12.64% |
| 26 | 6.49% | 9.74% | 3.25% | 4.88% | 9.75% | 14.62% | 8.60% | 12.91% |
| 27 | 6.60% | 9.90% | 3.27% | 4.91% | 9.88% | 14.81% | 8.78% | 13.17% |
| 28 | 6.71% | 10.07% | 3.29% | 4.93% | 10.00% | 15.00% | 8.97% | 13.45% |
| 29 | 6.83% | 10.24% | 3.29% | 4.93% | 10.12% | 15.17% | 9.14% | 13.71% |
| 30 | 6.95% | 10.42% | 3.29% | 4.93% | 10.23% | 15.35% | 9.29% | 13.94% |
| 31 | 7.07% | 10.60% | 3.29% | 4.94% | 10.36% | 15.54% | 9.44% | 14.15% |
| 32 | 7.19% | 10.79% | 3.31% | 4.96% | 10.50% | 15.75% | 9.62% | 14.44% |
| 33 | 7.32% | 10.98% | 3.31% | 4.97% | 10.63% | 15.95% | 9.82% | 14.73% |
| 34 | 7.45% | 11.17% | 3.33% | 4.99% | 10.78% | 16.16% | 10.02% | 15.02% |
| 35 | 7.58% | 11.38% | 3.34% | 5.01% | 10.92% | 16.39% | 10.22% | 15.34% |
| 36 | 7.73% | 11.59% | 3.25% | 4.87% | 10.97% | 16.46% | 10.42% | 15.63% |
| 37 | 7.87% | 11.81% | 3.24% | 4.86% | 11.11% | 16.67% | 10.63% | 15.95% |
| 38 | 8.03% | 12.04% | 3.23% | 4.84% | 11.25% | 16.88% | 10.86% | 16.29% |
| 39 | 8.19% | 12.29% | 3.21% | 4.81% | 11.40% | 17.10% | 11.08% | 16.62% |
| 40 | 8.35% | 12.52% | 3.19% | 4.78% | 11.53% | 17.30% | 11.30% | 16.95% |
| 41 | 8.49% | 12.74% | 3.14% | 4.71% | 11.63% | 17.45% | 11.41% | 17.11% |
| 42 | 8.65% | 12.98% | 3.10% | 4.65% | 11.75% | 17.63% | 11.51% | 17.27% |
| 43 | 8.81% | 13.22% | 3.07% | 4.61% | 11.89% | 17.83% | 11.62% | 17.43% |
| 44 | 8.98% | 13.47% | 3.05% | 4.57% | 12.03% | 18.04% | 11.74% | 17.61% |
| 45 | 8.96% | 13.44% | 3.03% | 4.54% | 11.99% | 17.98% | 11.80% | 17.71% |
| 46 | 8.95% | 13.42% | 3.03% | 4.55% | 11.98% | 17.97% | 11.83% | 17.75% |
| 47 | 8.90% | 13.35% | 3.04% | 4.56% | 11.94% | 17.91% | 11.81% | 17.72% |
| 48 | 8.60% | 12.90% | 3.05% | 4.57% | 11.64% | 17.47% | 11.60% | 17.40% |
| 49+ | 8.55% | 12.83% | 3.05% | 4.58% | 11.60% | 17.41% | 11.48% | 17.21% |

**STANISLAUS COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JUNE 30, 2022**

APPENDIX E – MEMBER CONTRIBUTION RATES

| | PEPRA Rates | | | |
|--------------|--|------------------------------|-----------------------------|------------------------------|
| | General | | Safety | |
| | County and Former County | Ceres and Other Districts | County and Former County | Ceres and Other Districts |
| Current | 8.45% | 9.14% | 13.15% | 14.77% |
| Prior | 8.44% | 9.10% | 13.18% | 14.72% |
| Assumptions: | | | | |
| Interest: | 6.75% | | | |
| Salary: | 2021 Valuation Scale (Service based, includes wage inflation at 2.75%) | | | |
| Mortality: | Because the PEPRA contributions rates are based on 50% of the actual Normal Cost, the mortality rates are the same as those used in the Actuarial Valuation (CalPERS mortality tables with adjustments based on StanCERA experience projected generationally from 2017 using 80% of Scale MP-2020) | | | |



Classic Values, Innovative Advice

February 17, 2023

Mr. Tom Stadelmaier
Executive Director
Stanislaus County Employees' Retirement Association
832 12th Street, Suite 600
Modesto, CA 95354

Re: Development of FYE 2024 Contribution Rate for the Stanislaus Regional Transit Authority

Dear Tom:

This letter provides the development of the FYE 2024 employer contribution rate for the Stanislaus Regional Transit Authority ("StanRTA").

The Stanislaus Regional Transit Authority entered the Stanislaus County Employees' Retirement Association (StanCERA) on July 1, 2021. The calculation method for their employer contribution rate was discussed and approved at the April 27, 2021 Board of Retirement meeting. The new employer is included in the General – Ceres and Other Districts cost-sharing group.

The employer contribution rates are comprised of three pieces: Employer Normal Cost Rate, Unfunded Actuarial Liability Amortization Rate (UAL Amortization Rate), and Administrative Expense Rate (Admin Expense Rate).

The Employer Normal Cost Rate and the Administrative Expense Rate for the StanRTA will be the same rates calculated for the General – Ceres and Other Districts cost-sharing group in Table V-7 of the Actuarial Valuation Report as of June 30, 2022 (2022 AVR).

However, the UAL Amortization Rate will be different for the StanRTA. The UAL Amortization Rate represents the contributions needed to bring assets in line with the target level (i.e., the Actuarial Liability) and makes up a significant portion of the total employer rate. StanRTA joined StanCERA as of July 1, 2021 with no liability and, therefore, no role in creating the existing UAL. As such, a "full" UAL contribution would be inequitable. Additionally, with no initial past service, in the near future StanRTA will have only a relatively small impact on future changes in UAL due to deviations from expectations.

The new employer UAL contribution method approved at the April 27, 2021 meeting is as follows:

- The employer does not make contributions for any UAL layer established prior to or concurrent with the date of entry to StanCERA,
- The employer will make phased-in contributions for any UAL layers established after the date of entry to StanCERA,
- The phase-in will occur over 15 years.

StanRTA did not make UAL contributions in FYE 2023 because the FYE 2023 rate did not reflect any UAL amounts established after July 1, 2021.

StanRTA's phased-in UAL rate for FYE 2024 will be 1/15 of the UAL rate for the layer established as of June 30, 2022.

The General – Ceres and Other Districts amortization payment amount for the 2022 UAL layer is \$102,023 from Table V-4 of the 2022 AVR. The General – Ceres and Other Districts projected payroll is \$10,091,237 from Table V-2 of the 2022 AVR. This results in a “full” post-2021 UAL amortization rate of 1.02%. This “full” rate is multiplied by 1/15 to arrive at the phased-in UAL amortization rate of 0.07%.

The table below shows the FYE 2024 contribution rate for StanRTA. Rates are shown for Tier 5 and Tier 6 only, which cover all StanRTA members.

| Development of the StanRTA Contribution Rate as of June 30, 2022 for FYE 2024 | | |
|---|---------------|--------------|
| | Tier 5 | PEPRA |
| <u>StanRTA is a General Member of Ceres and Other Districts</u> | | |
| A. Total Normal Cost Rate | 23.32% | 18.29% |
| B. Member Contribution Rate | <u>9.27%</u> | <u>9.14%</u> |
| C. Employer Normal Cost Rate (A-B) | 14.05% | 9.15% |
| D. UAL Amortization Rate | 0.07% | 0.07% |
| E. Administrative Expense Rate | <u>0.88%</u> | <u>0.73%</u> |
| F. Net June 30, 2022 Contribution Rate (C+D+E) | 15.00% | 9.95% |

In preparing this letter, we relied on information (some oral and some written) supplied by the StanCERA staff. This information includes, but is not limited to, Plan provisions, employee data, and financial information. We performed an informal examination of the obvious characteristics of the data for reasonableness and consistency in accordance with Actuarial Standard of Practice No. 23, Data Quality. The data, plan provisions, and actuarial assumptions and methods used (unless modified within this letter) are described in our June 30, 2022 actuarial valuation report.

Future results may differ significantly from the current results presented in this letter due to such factors as the following: plan experience different from that anticipated by the assumptions; changes in assumptions; and, changes in plan provisions or applicable law.

Cheiron utilizes ProVal actuarial valuation software leased from Winklevoss Technologies (WinTech) to calculate liabilities and project benefit payments. We have relied on WinTech as the developer of ProVal. We have a basic understanding of ProVal and have used ProVal in accordance with its original intended purpose. We have not identified any material inconsistencies in assumptions or output of ProVal that would affect this valuation.

Mr. Tom Stadelmaier

February 17, 2023

Page 3

This letter 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 letter. This letter does not address any contractual or legal issues. We are not attorneys and our firm does not provide any legal services or advice.

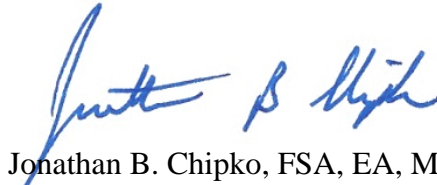
Finally, this letter was prepared for StanCERA for the purpose described herein. Other users of this letter are not intended users as defined in the Actuarial Standards of Practice, and Cheiron assumes no duty or liability to any other user.

Please contact us if you have any questions regarding these calculations.

Sincerely,
Cheiron



Graham A. Schmidt, ASA, EA, FCA, MAAA
Consulting Actuary



Jonathan B. Chipko, FSA, EA, MAAA
Consulting Actuary

February 28, 2023

Retirement Board Agenda Item

TO: Retirement Board

FROM: Lisa Frazer, Member & Employer Services Manager

- I. SUBJECT: Methodology for Calculating Social Security Offset Amounts for Tier 3 Benefits
- II. ITEM NUMBER: 10.b
- III. ITEM TYPE: Discussion and Action
- IV. STAFF RECOMMENDATION: Accept Cheiron's Recommendation for Calculating Social Security Offset for Tier 3 (Attachment 1)
- V. ANALYSIS:

StanCERA currently has 68 Tier 3 (non-contributory tier) members pending retirement calculations (8 active/60 deferred). Due to the small number of Tier 3 members remaining who have yet to commence receiving their retirement benefits, and because there are publicly available tools for calculating Social Security benefit amounts, it may not be necessary or economically efficient for the Board to establish and adjust a full table of estimated primary insurance amounts (PIA). It is recommended that various methods for determining the PIA be used in a member's retirement calculation, based on individual facts and circumstances.

Section 31499.14 of the County Employees Retirement Law of 1937 (the CERL) defines the benefit formula for Tier 3 members, including the reduction to the benefit related to the member's estimated or actual PIA. The CERL defines the term "Primary Insurance Amount" to mean the monthly retirement benefit payable under the federal system at the age of 65 (Section 31499.11(f)) and defines the term "federal system" to mean the Old Age and Survivors Insurance provisions of the Social Security Act (Section 31499.11(c)).

To determine the appropriate methodology for determining PIA, it is necessary to establish whether the member is retiring under an early or normal retirement allowance. A member who has reached age 65, meeting all vesting requirements, will retire under the normal retirement allowance, whereas a member who has reached age 55, meeting all vesting requirements, will retire under the early retirement allowance.

For both early and normal retirements, Section 31499.14(h) provides that "For purposes of this article, the primary insurance amount shall be estimated based on the employee's age and salary as of the date of retirement or the date of termination of a vested member, whichever is applicable...", and then provides instructions for how the member's earnings are to be projected in determining the member's estimated PIA. Section 31499.14(h) states that "The Board, upon advice of the actuary, shall establish and adjust, as required, the table of estimated primary insurance amounts, which shall be utilized in computing the retirement benefit."

Early Retirement Benefits:

If the retirement calculation or estimate is being prepared for a member who is expected to retire under an early retirement and who has current year earnings with StanCERA or a reciprocal retirement system, the estimated PIA amount at age 65 will be determined using the Social Security Quick Calculator, using the member's projected annual earnings for the current calendar year assuming a full year of employment, a future retirement date equal to the day the member attains age 65, and a relative growth factor. If a member retiring under an early retirement allowance does not have current earnings with StanCERA or a reciprocal retirement system, it is recommended that the actuary be asked to calculate the individual's estimated PIA based on the member's most recent compensation with StanCERA or reciprocal retirement system.

Normal Retirement Benefits:

If the retirement calculation or estimate is being prepared for a member who expected to retire under a normal retirement benefit (after attaining age 65), the member must provide evidence of their actual PIA. Members can obtain a benefit estimate at any time from the Social Security Administration, and it is recommended that the estimated PIA be based on the benefit estimate provided through the Social Security Administration.

VI. RISK: None

VII. STRATEGIC PLAN: N/A

VIII. ADMINISTRATIVE BUDGET IMPACT: None

Via Electronic Mail

January 30, 2023

Ms. Lisa Frazer
Member and Employer Services Manager
Stanislaus County Employees' Retirement Association
832 12th Street, Suite 600
Modesto, California 95354

Re: Methodology for Calculating Social Security Offset Amounts for Tier 3 Benefits

Dear Lisa:

As requested, we have drafted this memo to provide our recommendations for how the Social Security estimated primary insurance amount should be calculated under various circumstances for use in the benefit calculations of StanCERA's Tier 3 members.

Section 31499.14 of the County Employees Retirement Law of 1937 (the CERL) defines the benefit formula for Tier 3 members, including the reduction to the benefit related to the member's estimated or actual Primary Insurance Amount. The CERL defines the term "Primary Insurance Amount" (PIA) to mean the monthly retirement benefit payable under the federal system at the age of 65 (Section 31499.11(f)) and defines the term "federal system" to mean the Old Age and Survivors Insurance provisions of the Social Security Act (Section 31499.11(c)).

The first step in determining the appropriate methodology for determining the PIA is to establish whether the member is retiring under an **early** or **normal** retirement allowance. Section 31499.14(d) specifies that a vested member or former member who has attained the age of 65 may retire under a normal retirement allowance, while Section 31499.14(e) defines early retirement eligibility as age 55 for vested members or former members. In both cases, the vesting requirement is 10 years of service (Section 31499.14(b)) and it is our understanding that this requirement may be met based on combined service with a reciprocal retirement system if the member retires concurrently from all reciprocal systems (Section 31629.5).

Calculation of Estimated PIA

For both early and normal retirements, Section 31499.14(h) provides that "For purposes of this article, the primary insurance amount shall be estimated based on the employee's age and salary as of the date of retirement or the date of termination of a vested member, whichever is applicable...", and then goes on to provide instructions for how the member's earnings are to be projected (forward and backwards) in determining the member's estimated PIA.

Section 31499.14(h) states that "The Board, upon the advice of the actuary, shall establish and adjust, as required, the table of estimated primary insurance amounts, which shall be utilized in computing the retirement benefit." However, we note that because there are only a small number

of Tier 3 members remaining who have yet to commence receiving their retirement benefits, and because there are other publicly available tools for calculating Social Security benefit amounts, it may not be necessary or economically efficient for the Board to establish and adjust a full table of estimated primary insurance amounts. Instead, we are recommending various methods for determining the PIA to be used in a member's retirement calculation, based on individual facts and circumstances.

To that end, we have provided our recommended methodology for early retirement and normal retirement benefits.

Calculation and Methodology for Early Retirement Benefits

For members retiring under an early retirement benefit (i.e., after attaining age 55 but before attaining age 65), the provisions of Section 31499.14(k) do not apply. Therefore, the remaining subsections of 31499.14(h) provide the necessary guidance:

- (1) An employee's prior career earnings shall be assumed to have been subject to the federal system and to have increased on a year-to-year basis at a rate equivalent to the rate of increase in the average per worker total wages reported by the Social Security Administration, and*
- (2) For those members who have not attained the normal retirement age under the federal system as of the date of retirement (A) future earnings in employment covered by the federal system shall be assumed to continue at the rate of pay received by the employee from the employer as of the date of retirement or the date of termination of a vested member, whichever is applicable, and (B) future wage bases, as defined by the federal system, shall be assumed to continue at the wage base in effect in the year of retirement or the year of termination of a vested member, whichever is applicable, and (C) cost-of-living increases in the year of retirement and delayed retirement credit provided under the federal system shall not be included in the calculation of the estimated primary insurance amount.*

We note that the Social Security Administration website also includes a "[Quick Calculator](#)", which allows the user to enter earnings from the current year and a projected retirement date, to produce an estimated benefit amount. Our understanding is that the methodology used by this calculator to determine earnings in prior and future years is consistent with the requirements of subsections 31499.14(h)(1) and (2): prior earnings are based on an assumption that the member's earnings have grown at the same rate as the national average, future earnings are assumed to remain constant at their current level until the member retires, and both prior and future earnings are assumed to be covered under the federal system¹.

Therefore, if the retirement calculation or estimate is being prepared for a member who is expected to retire under an early retirement *and* who has current year earnings with StanCERA or a reciprocal retirement system, we recommend that the estimated PIA amount at age 65 be

¹ Because of the assumption that prior and future earnings are assumed to be covered under the Federal system, all members retiring under an early retirement benefit will have a non-zero estimated PIA amount, regardless of whether they end up earning the necessary credits to receive a Social Security retirement benefit.

determined using the Social Security Quick Calculator (<https://www.ssa.gov/OACT/quickcalc/>), using the member's projected annual earnings for the current calendar year assuming a full year of employment², a future retirement date equal to the day the member attains age 65, and a relative growth factor for past earnings of 0%.

We note that the benefit estimate should be calculated in "today's dollars", rather than under the option to calculate the amount in "inflated (future) dollars", in order to comply with the requirement under 31499.14(h)(2) that future changes in earnings, the wage bases, and cost-of-living increases should not be included in the calculation of the estimated PIA amount. Additionally, the option to enter historical earnings should be left blank. The relative growth factor is set by default to 2%. It can only be changed to 0% on a sub-menu labeled "See the earnings we used" after the initial estimate is performed. The resulting output from the calculator should specify that the estimated monthly benefit begins at age 65 (not age 65 and 1 month or 64 and 11 months) and that the earnings for the current and future years is equal to the projected annual earnings.

If a member retiring under an early retirement allowance does *not* have current earnings with StanCERA or a reciprocal retirement system, such as in the case of a member who terminated employment with StanCERA in the past and is not currently working for a reciprocal retirement system, we recommend that the Actuary be asked to calculate the individual's estimated PIA based on the member's most recent compensation with StanCERA or a reciprocal retirement system. We note that the historical compensation information for an individual without current earnings cannot directly be entered into the Social Security Quick Calculator, as there are adjustments that need to be made to generate the appropriate set of historical earnings as required under 31499.14(h)(1). As noted above, because of the small number of remaining Tier 3 members, we believe it would be economically beneficial to the Plan for the Actuary to perform these calculations on an as-needed basis rather than to spend the resources necessary to develop and maintain a calculation tool to perform these calculations internally.

Calculation and Methodology for Normal Retirement Benefits

While Section 31499.149(f) requires the Plan to use the estimated PIA initially, Section 31499.14(k) requires that members who retire under a **normal** retirement benefit (i.e., after attaining age 65) provide evidence of their *actual* primary insurance amount "as soon as possible but within six months following retirement." Once provided, the Plan uses the *actual* PIA because Section 31499.14(k) states that "the actual primary insurance amount shall be the amount payable under the federal system on the member's date of retirement without regard to delayed retirement credit or any deductions on account of work."

Since it is our understanding that members can currently obtain a benefit estimate at any time from the Social Security Administration based on their actual earnings history and using a retirement date they specify, we recommend that the estimated primary insurance amount for Tier 3 members retiring after attaining age 65 be based on a benefit estimate provided through the Social Security

² One potential method for determining the projected earnings for the current calendar year is by taking the member's earnings-to-date for the current calendar year and adding the projected earnings at their current rate of pay for the remainder of the year. Other methods as developed by StanCERA may also be appropriate.

Administration website (<https://www.ssa.gov/prepare/plan-retirement>), using the member's individual work history and the expected date of retirement from StanCERA. If the member is retiring after their Social Security Full Retirement Age, the member's benefit at Full Retirement Age should be used, as this amount excludes any adjustments related to delayed retirement credit, as required by Section 31499.14(k). We note that in rare circumstances a member may not be eligible for a Social Security retirement benefit, because they have not earned enough credits under the federal system. In this case, we understand that the member's actual PIA would be \$0, and there would be no offset to the member's retirement allowance as calculated according to Section 31499.14(f).

The recommendations developed in this letter are based upon the laws and regulations currently reflected in the CERL and governing the calculation of Social Security benefits, and the resources currently available on the Social Security Administration website. Any changes in these laws, regulations, or resources may result in a change in our recommendations.

This letter 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 letter. This letter does not address any contractual or legal issues. We are not attorneys, and our firm does not provide any legal services or advice.

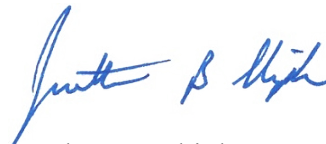
Finally, this letter was prepared for StanCERA for the purpose described herein. Other users of this letter are not intended users as defined in the Actuarial Standards of Practice, and Cheiron assumes no duty or liability to any other user.

We are available to answer any questions you may have.

Sincerely,
Cheiron



Graham A. Schmidt, ASA, EA, FCA, MAAA
Consulting Actuary



Jonathan B. Chipko, FSA, EA, MAAA
Consulting Actuary

February 28, 2023

Retirement Board Agenda Item

TO: Retirement Board

FROM: Brittany Smith-Atkins, Financial Services Manager

I. SUBJECT: Cheiron EFI – Actuarial Services Contract

II. ITEM NUMBER: 10.e

III. ITEM TYPE: Discussion and Action

IV. STAFF RECOMMENDATION:

Accept Staff's recommendation to extend current contract for Cheiron Inc. (d/b/a Cherion EFI) for actuarial services through fiscal year ending June 30, 2026.

V. ANALYSIS:

In 2008, StanCERA selected Cheiron EFI as its actuary to provide actuarial services for fiscal years ending 2008-2013. Since the initial agreement, StanCERA has extended its contract through the most recent fiscal year ending June 30, 2022.

Staff comes to the Board today, to propose a three-year extension with Cheiron EFI for actuarial services. This extension would provide continuity in actuary services and support as StanCERA continues implementing its newer pension administration software as well as the transition to StanCERA's tiered amortization schedule for new and current plan sponsors. Cheiron EFI would provide comparable support and reporting similar to the prior periods. In addition, StanCERA is scheduled to engage in an actuarial audit per the recommendation from the California Actuarial Advisory Panel (CAAP) as well as the Government Finance Officers Association (GFOA) which will require support from Cheiron during the engagement. Attachment 1 illustrates Cheiron EFI's three-year proposal outlining the proposed cost structure.

In Staff's assessment of the prior services rendered they have acknowledged the professionalism and ease of coordination during the valuation and after. Additionally, there are non-monetary gains for continuing services such as efficiencies with familiarity amongst staff and StanCERA processes.

After much discussion and review, Staff recommends StanCERA to extend its actuarial services contract with Cheiron EFI for fiscal years ended June 30, 2024, 2025, and 2026.

VI. RISK: None

VII. STRATEGIC PLAN: N/A

VIII. ADMINISTRATIVE BUDGET IMPACT:

Dependent on the election of a three- or one-year extension the actuarial cost schedules are as follows:

Three-Year Extension:

| | |
|------------------------|---------------------------------------|
| Fiscal Year 2023/2024: | \$100,750 |
| Fiscal Year 2024/2025: | \$152,800 (Includes Experience Study) |
| Fiscal Year 2025/2026: | \$105,850 |

One-Year Extension:

| | |
|------------------------|-----------|
| Fiscal Year 2023/2024: | \$100,750 |
|------------------------|-----------|

These proposed costs are comparable with the most recent contract which provided services at \$96,000, for fiscal year 2021/2022.

EXHIBIT B

COMPENSATION

The Actuary shall be compensated as follows for services for the 36-month period beginning April 1, 2023 through March 31, 2026.

| Retainer Projects | FY 2023-2024 | FY 2024-2025 | FY 2025-2026 |
|--------------------------------------|---------------------|---------------------|---------------------|
| Actuarial Valuation Report | \$58,000 | \$59,500 | \$61,000 |
| Interactive Online Valuation | 14,250 | 14,500 | 14,750 |
| GASB 67/68 Report | 18,000 | 18,500 | 19,000 |
| Consulting Services ^[1] | 10,500 | 10,800 | 11,100 |
| Actuarial Experience Study 2021-2024 | N/A | 49,500 | N/A |
| Total Cost for All Services | \$100,750 | \$152,800 | \$105,850 |

¹ If the hourly charges for consulting services provided during the quarter exceed 125% of the quarterly rate (calculated as 25% of the annual rate), the amount of hourly charges in excess of 125% of the quarterly fee will be billed in addition to the quarterly fee.

Time and Material for actuarial consulting services not covered in the above tasks.

| Category/Consultant | FY 2022-2023 Hourly Rates* |
|------------------------------|-----------------------------------|
| Principal Consulting Actuary | \$410 – \$525 |
| Consulting Actuary | \$300 – \$491 |
| Associate Actuary | \$210 – \$321 |
| Senior Actuarial Analyst | \$192 – \$247 |
| Actuarial Analyst | \$165 – \$210 |
| Administrative Assistant | \$120 – \$158 |

*Hourly rates are expected to increase annually, based on the change in the CPI-U.