



September 24, 2024

1:30 P.M.

BOARD ROOM

BOARD OF RETIREMENT

AGENDA

832 12th Street
Suite 600
Modesto, CA 95354

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 (669) 900-6833. The Meeting ID: 859 3221 9325. Member ID: 278857.

If you wish to make a public comment during the Public Comment section of the meeting, or if you wish to comment on a specific agenda item, please press *9 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 taaa@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 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.

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) Emergency Declaration

7) Consent Items:

(a) Approval of August 27, 2024 Meeting Minutes [View](#)

(b) Application for Service Retirement(s)
Government Code Section 31499.17, 31670, 31662.2 & 31810
See attached for details [View](#)

(c) Application of Death Benefit -
Government Code Section 31781, 31781.1 , 31781.3

i. Sandoval, Joshua (Active Reciprocal) – Non-Service Connected –
Stanislaus County - Effective 05-16-24

(d) Application for Disability -
Government Code Section 31724

i. Watson, Randall – Service-Connected Disability – Stanislaus County –
Effective 05-23-24

(e) Investment Matrix [View](#)

(f) Northern Trust Treasury Management Services [View](#)

(g) Conference Summary [View](#)

8) Investment:

(a) Investment Consultant – NEPC - August Flash Report [View](#)

(b) Liquidity Sub-Portfolio Annual Funding Plan [View](#)

(c) Capital Markets Update – NEPC [View](#)

9) Administrative:

(a) Pension Benefit Information (PBI) CertiDeath Monitoring Services [View](#)

10) Committee Reports and Recommendations:

(a) Due Diligence Committee - September 19, 2024 Due Diligence Meeting Update

11) Closed Session:

(a) Review of Independent Contractor Functioning as Employee
Government Code Section 54957 (b)(4)

(b) Personnel Matters (2 Matters)
Government Code Section 54957 (b)(1)

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

13) Adjournment



August 27, 2024
1:30 P.M.
BOARD ROOM

BOARD OF RETIREMENT

MINUTES

832 12th Street
Suite 600
Modesto, CA 95354

- 1) Call Meeting to Order
- 2) Pledge of Allegiance
- 3) Roll Call

Trustees Present

Donna Riley
Mandip Dhillon
Darin Gharat
Mike Lynch (*arrived at 1:53 p.m.*)
Jeff Grover
Joshua Clayton
Rhonda Bieseemeier
Terry Withrow (*arrived at 1:47 p.m.*)

Trustees Absent

Samuel Sharpe
Delilah Vasquez

Others Present

Tom Stadelmaier, Executive Director
Stan Conwell, Retirement Investment Officer
Carmen Gusman, Retirement Fiscal Manager
Fred Silva, General Legal Counsel
Alaine Taa, Executive Board Assistant
Donna Wood, Member and Employer Services Specialist
Ashley Patterson – Confidential Assistant II
Daniel Hennessy- NEPC, Investment Consultant
Graham Schmidt – Cheiron Consultant
Jonathan Chipko, Cheiron Consultant (Video Conference)

4) Announcements:

Introduction of Carmen Gusman – Retirement Fiscal Manager and
Ashley Patterson – Part Time Confidential Assistant II

5) Public Comment

6) Emergency Declaration

7) Consent Items:

(a) Approval of June 25, 2024 Meeting Minutes

(b) Application for Service Retirement(s)

Government Code Section 31499.17, 31670, 31662.2 & 31810

(c) Application for Disability - Government Code Section 31724

i. Villapudua, Amaris – Service-Connected Disability – Effective 01-26-24

(d) Denial of Disability Retirement – Government Code 31725

i. Rangel, Maria – Community Services Agency, Service and Non-Service
Connected – Application filed 10-15-2020

(e) Investment Matrix

(f) Private Market Program Report as of March 31, 2024

(g) Investment Fee Summary and Value Added Reports as of June 2024

(h) StancERA Strategic Goals Update

Motion was made by Trustee Clayton and seconded by Trustee Grover to approve all consent items as presented.

Motion passed unanimously.

8) Investment:

(a) Quarterly Investment Performance Report – NEPC

(b) Quarterly Private Real Assets Report

(c) Investment Consultant – NEPC - Flash Reports (June and July)

9) Administrative:

(a) Discussion and Action re Economics Assumptions – Experience Study – Cheiron

Motion was made by Trustee Biesemeier and seconded by Trustee Dhillon to accept the recommendation of the Economic Assumptions – Experience Study from Cheiron to include a 3% Cost of Living Adjustment (COLA) and change to 2.4% once the COLA bank is depleted.

Motion passed unanimously.

(b) Staff Updates –

- Tom provided an update on an IRS Proposed Penalty. An abatement request was prepared by tax counsel and sent to the IRS.
- An update was also provided regarding two public pension-related cases in State Court. LACERA received a ruling in their favor regarding setting of pay and job classifications and the County is appealing the matter to the California Supreme Court. In the VECERA Straddling case, briefs have been filed with the California Supreme Court from both sides. Staff will continue to monitor both cases as they will potentially have implications for StanCERA and other public pensions in California.

10) Committee Reports and Recommendations:

(a) Internal Governance Committee Meeting update – Audit Entrance Meeting

(b) Private Markets Consulting Services Committee – Kick Off Meeting

Motion was made by Trustee Grover and seconded by Trustee Clayton to enter into Closed Session.

Motion passed unanimously.

11) Closed Session:

(a) Personnel Matters (2 Matters)
Government Code Section 54957 (b)(1)

Motion was made by Trustee Dhillon and seconded by Trustee Riley to enter into Open Session.

Motion passed unanimously.

No read out from Closed Session to report.

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

13) Adjournment Time: 2:55 p.m.

Respectively submitted,

APPROVED AS TO FORM

By Thomas Stadelmaier

By Fred A. Silva

Thomas Stadelmaier, Executive Director

Fred A. Silva, General Legal Counsel

StanCERA APPLICATIONS FOR SERVICE RETIREMENT(S)

*GOVERNMENT CODE SECTIONS 31499.14, 31670,
31662.2, 31810 & 31700*

09/24/2024 Item 7.b

Beuttler, Rachel - Stanislaus County - Effective 09/12/2024

Cunningham, Marcia - Stanislaus County - Effective 09/21/2024

Garcia Jr., Benito - Stanislaus County - Effective 09/07/2024

Minjares, Mary - Stanislaus County - Effective 09/07/2024

Mitre, Laura - Stanislaus County - Effective 09/05/2024

Perino, Lynda - Stanislaus County - Effective 09/07/2024

Vanderhoeven, Teresa - Stanislaus County - Effective 09/30/2024

Watkins, Randall - Stanislaus County - Effective 06/13/2024

Winnie, Cynthia - Stanislaus County - Effective 09/04/2024

September 24, 2024

Retirement Board Agenda Item

TO: Retirement Board

FROM: Stan Conwell, Retirement Investment Officer

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

a) *Investment Program Activities:*

A major project in August was developing the annual funding plan for the liquidity sub-portfolio. The cash flow matched bond portfolio provides a portion of the cash needed to cover the benefit payments for retirees each month. Each year, the cashflow forecasts of the plan are updated and the liquidity sub portfolio is replenished. The process includes gathering data on benefits paid, plan expenses and expecting plan sponsor payroll and estimated contribution rates. The cashflow matched bond portfolio is an efficient way to manage the liquidity liabilities of the plan. Other activities included a due diligence committee meeting to review the due diligence questionnaire responses from the managers under review this year and to schedule follow up meetings to address any additional questions. The committee was also updated on the search for a liquid credit investment manager.

b) *Money Transfer Report:*

August 2024: Capital Calls & Rebalance

From			To		
Manager	Asset Class	Amount	Manager	Asset Class	Amount
NT STIF Fund	Cash	-\$896,759.59	KSL Capital Partners IV	Private Real Estate	\$896,759.59
NT STIF Fund	Cash	-\$598,259.22	Audax Fund VII	Private Equity	\$598,259.22

NT Infrastructure Proxy Fund	US Equities	-\$2,781,929.00	Carlyle RSEF II	Private Infrastructure	\$2,781,929.00
BlackRock High Yield Bond Index Fund	Fixed Income	-\$3,000,396.69	Ares Senior Direct Lending Fund III	Private Credit	\$3,000,396.69
BlackRock Russell 1000 Growth	US Equities	-\$30,000,000.00	Wellington Macro Strategies Fund	Liquid Absolute Return	\$30,000,000.00
BlackRock Russell 1000 Value	US Equities	-\$15,000,000.00	Wellington Macro Strategies Fund	Liquid Absolute Return	\$15,000,000.00
Dodge & Cox Stock Fund	US Equities	-\$15,000,000.00	Wellington Macro Strategies Fund	Liquid Absolute Return	\$15,000,000.00

c) *Manager Meetings:*

White Oak Pinnacle Fund

Recently staff met with a Managing Director at White Oak for a review of the White Oak Pinnacle fund. While most of the loans remaining in the fund have been repaid, the value of the loans left in the fund represent a significant portion of the original capital commitment. The fund is actively seeking exits for each of the remaining assets. The rate of distributions has been slow, but realizations are starting to pick out as of late. Many of the remaining loans have been impacted negatively by their link the commodity price risk underlying many of the loans. This creates additional uncertainty around exit valuations. The remaining loans are said to be planning an exit in 2025, but staff will continue to monitor the progress.

Ares Senior Direct Lending Fund III

Staff attended an educational webinar on liability management transactions which have occurred in the US leveraged finance markets. As a private credit fund, the Ares Senior Direct Lending fund has very little if any exposure to the type of loans with significant LMT risk, but it is important to gain awareness of the practice as it is becoming increasingly more common. The webinar reviewed several of the most common transactions used by lenders to restructure their capital structures and a few high profile case studies were provided as illustrations. One of the best ways to mitigate the risk of LMT is to bolster the covenants in the initial financing documents and the current market has reacted by adding more credit protections. The Ares fund recently called capital and is

executing its strategy of building a highly diversified portfolio of senior secured loans to high quality companies primarily in non-cyclical industries.

- VI. RISK: None
- VII. STRATEGIC PLAN: N/A
- VIII. ADMINISTRATIVE BUDGET IMPACT: None

September 24, 2024

Retirement Board Agenda Item

TO: Retirement Board

FROM: Tom Stadelmaier, Executive Director
Carmen Gusman, Retirement Fiscal Manager

- I. SUBJECT: A resolution of the Board of Stanislaus County Employees' Retirement Association to authorize designees on behalf of StanCERA to deposit StanCERA funds in the Northern Trust Company and to endorse for deposit or collection checks, drafts, notes, and like obligations.
- II. ITEM NUMBER: 7.e
- III. ITEM TYPE: Discussion and Action
- IV. STAFF RECOMMENDATION: Approve the Resolution of the Board of Stanislaus County Employees' Retirement Association, which authorizes designees on behalf of StanCERA to deposit StanCERA funds in the Northern Trust Company and approve the payment of funds.
- V. ANALYSIS: On March 28, 2023, the Board of Retirement for the Stanislaus County Employees' Retirement Association voted to accept the staff's recommendation to approve the Executive Director, Tom Stadelmaier, and the Fiscal Services Manager, Brittany Smith-Atkins, as designees to the account.

As of August 26, 2024, Carmen Gusman succeeded Brittany Smith-Atkins as Retirement Fiscal Manager for the Stanislaus County Employees' Retirement Association. This resolution is proposed to the Board on September 24, 2024, to transfer the authorization from Brittany Smith-Atkins to Carmen Gusman. Staff recommends appointing the new Fiscal Services Manager and the continuation of the Executive Director, Tom Stadelmaier, as designees to the account. This resolution shall be in effect until repealed by written notice.
- VI. RISK: None
- VII. STRATEGIC PLAN: N/A
- VIII. ADMINISTRATIVE BUDGET IMPACT: None



Conference Summary

1. **Attendee Name:** Tom Stadelmaier
2. **Event Name:** NEPC Investment Conference
3. **Event Date:** Sept 9-10, 2024
4. **Event Location:** Boston

5. **Describe what was good about the event:**

The agenda for the event was filled with relevant topics including co-investments, NEPC update, fund research and evaluation process, state of economy and fixed income, AI, US politics, geopolitics, public plan governance, private credit, private equity and other topics.

There was also an opportunity to interact with peers from other plans and consultants from NEPC including our investment consultant and many of the NEPC experts that have worked with StanCERA on asset allocation and fund selections.

6. **Would you recommend this event to other trustees/staff?**

Yes. NEPC ran a very well-organized event that was heavy of relevant information related to our investment processes and things that we need to consider. The opportunity to get current views and interact with trustees and colleagues from other plans was well worth it.

7. **Number of Education Credits:** N/A



Conference Summary

1. **Attendee Name:** Joshua Clayton
2. **Event Name:** 2024 NEPC Investment Conference
3. **Event Date:** September 9th – 10th.
4. **Event Location:** Westin, Copley Place, Boston, MA
5. **Describe what was good about the event:** This event is organized and made available through our consultants at NEPC. It offers a wide range of speakers and education that provide current insight on market conditions and let's us look under the hood at NEPC. I personally got a lot of insight from a speaker from Blackrock and a discussion on AI. Additionally, it is a good chance to meet in a social and educational setting with our peers and those who work behind the scenes at NEPC.
6. **Would you recommend this event to other trustees/staff:** Yes. This is my second time attending. I do not think I would recommend attending every year, but every few years is a great pace to keep up with the current state of NEPC and their market perspectives.
7. **Number of Education Credits:**



Conference Summary

1. **Attendee Name:** Samuel Sharpe
2. **Event Name:** NEPC's 28th Investment Conference
3. **Date:** September 09, 2024, and September 10, 2024
4. **Event Location:** Boston, MA
5. **Describe what was good about the event:** In the session, "*The NEPC Sauce*", we were provide insight into the NEPC process for selecting funds through the use of cases studies, across various investment opportunities. This session was touted as a first for the conference. An undercurrent to almost every session was the impact of Artificial Intelligence (AI) and the investment opportunities which will surely follow. Healthcare, more specifically, bio-medicine, through the use of AI, is expected to grow and have new scientific research breakthroughs. Though touched on, a more detailed discussion is needed on the impact AI will have on investing and the relationship between plans, investors, investments, and consulting firms. The full impact of AI in most industries remains unknown.
6. **Would you recommend this event to other trustees/staff:** Yes.
7. **Number of Education Credits:**



MONTHLY PERFORMANCE REPORT

STANISLAUS COUNTY EMPLOYEES'
RETIREMENT ASSOCIATION

AUGUST 31, 2024

Dan Hennessy, CFA, CAIA, Senior Consultant

Sam Austin, Partner

John Tolar, Consulting Analyst



CALENDAR YEAR INDEX PERFORMANCE

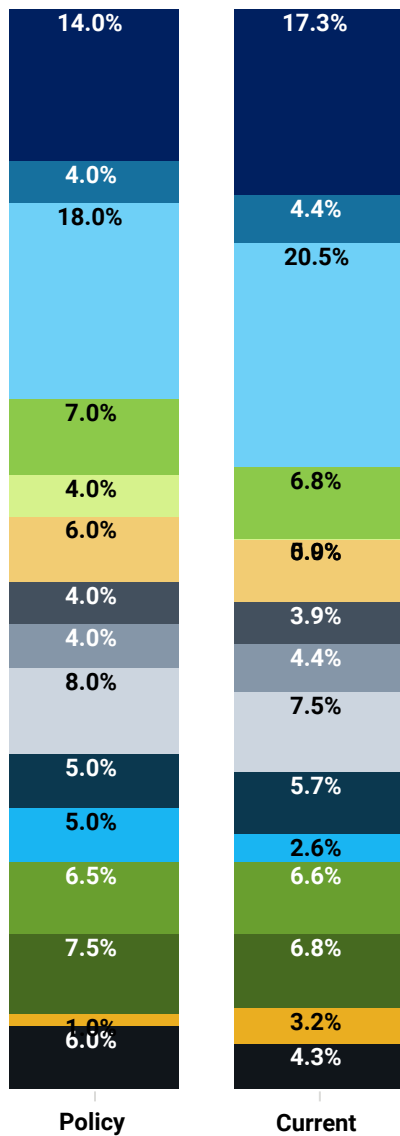
	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Aug	YTD
S&P 500	13.7%	1.4%	12.0%	21.8%	-4.4%	31.5%	18.4%	28.7%	-18.1%	26.3%	2.4%	19.5%
Russell 1000	13.2%	0.9%	12.1%	21.7%	-4.8%	31.4%	21.0%	26.5%	-19.1%	26.5%	2.4%	18.6%
Russell 2000	4.9%	-4.4%	21.3%	14.6%	-11.0%	25.5%	20.0%	14.8%	-20.4%	16.9%	-1.5%	10.4%
Russell 2500	7.1%	-2.9%	17.6%	16.8%	-10.0%	27.8%	20.0%	18.2%	-18.4%	17.4%	-0.3%	9.7%
MSCI EAFE	-4.9%	-0.8%	1.0%	25.0%	-13.8%	22.0%	7.8%	11.3%	-14.5%	18.2%	3.3%	12.0%
MSCI EM	-2.2%	-14.9%	11.2%	37.3%	-14.6%	18.4%	18.3%	-2.5%	-20.1%	9.8%	1.6%	9.5%
MSCI ACWI	4.2%	-2.4%	7.9%	24.0%	-9.4%	26.6%	16.3%	18.5%	-18.4%	22.2%	2.5%	16.0%
Private Equity	12.6%	9.9%	9.0%	21.0%	11.1%	17.6%	32.9%	39.4%	-9.1%	5.7%	-	1.1%
BBG TIPS	3.6%	-1.4%	4.7%	3.0%	-1.3%	8.4%	11.0%	6.0%	-11.8%	3.9%	0.8%	3.3%
BBG Municipal	9.1%	3.3%	0.2%	5.4%	1.3%	7.5%	5.2%	1.5%	-8.5%	6.4%	0.8%	1.3%
BBG Muni High Yield	13.8%	1.8%	3.0%	9.7%	4.8%	10.7%	4.9%	7.8%	-13.1%	9.2%	1.2%	6.5%
BBG US Corporate HY	2.5%	-4.5%	17.1%	7.5%	-2.1%	14.3%	7.1%	5.3%	-11.2%	13.4%	1.6%	6.3%
BBG US Agg Bond	6.0%	0.5%	2.6%	3.5%	0.0%	8.7%	7.5%	-1.5%	-13.0%	5.5%	1.4%	3.1%
BBG Global Agg	0.6%	-3.2%	2.1%	7.4%	-1.2%	6.8%	9.2%	-4.7%	-16.2%	5.7%	2.4%	1.9%
BBG Long Treasuries	25.1%	-1.2%	1.3%	8.5%	-1.8%	14.8%	17.7%	-4.6%	-29.3%	3.1%	2.0%	0.4%
BBG US Long Credit	16.4%	-4.6%	10.2%	12.2%	-6.8%	23.4%	13.3%	-1.2%	-25.3%	10.7%	2.1%	1.9%
BBG US STRIPS 20+ Yr	46.4%	-3.7%	1.4%	13.7%	-4.1%	20.9%	24.0%	-5.2%	-39.6%	1.1%	3.1%	-2.7%
JPM GBI-EM Global Div	-5.7%	-14.9%	9.9%	15.2%	-6.2%	13.5%	2.7%	-8.7%	-11.7%	12.7%	3.1%	1.5%
JPM EMBI Glob Div	7.4%	1.2%	10.2%	10.3%	-4.3%	15.0%	5.3%	-1.8%	-17.8%	11.1%	2.3%	6.7%
CS Hedge Fund	4.1%	-0.7%	1.2%	7.1%	-3.2%	9.3%	6.4%	8.2%	1.1%	5.8%	-	7.4%
BBG Commodity	-17.0%	-24.7%	11.8%	1.7%	-11.2%	7.7%	-3.1%	27.1%	16.1%	-7.9%	0.0%	0.9%
Alerian Midstream	16.4%	-37.3%	33.8%	-2.4%	-13.3%	24.0%	-23.4%	38.4%	21.5%	14.0%	5.0%	26.6%
FTSE NAREIT Equity REITs	30.1%	3.2%	8.5%	5.2%	-4.6%	26.0%	-8.0%	43.2%	-24.4%	13.7%	6.4%	12.9%

*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

Asset Allocation vs. Target



	Current (\$)	Current (%)	Policy (%)	Differences* (%)	Policy Range (%)	Within Range
Large Cap Equity	509,892,929	17.3	14.0	3.3	10.0 - 18.0	Yes
Small Cap Equity	131,266,991	4.4	4.0	0.4	0.0 - 7.0	Yes
International Equity	606,417,707	20.5	18.0	2.5	12.0 - 24.0	Yes
Intermediate	200,012,123	6.8	7.0	-0.2	4.0 - 10.0	Yes
Credit		0.0	4.0	-4.0	0.0 - 6.0	Yes
Treasury	174,749,093	5.9	6.0	-0.1	4.0 - 8.0	Yes
TIPS	114,485,221	3.9	4.0	-0.1	2.0 - 6.0	Yes
Risk Parity	129,564,598	4.4	4.0	0.4	0.0 - 8.0	Yes
Private Credit	221,439,223	7.5	8.0	-0.5	0.0 - 10.0	Yes
Private Equity	168,883,018	5.7	5.0	0.7	0.0 - 8.0	Yes
Absolute Return	76,878,647	2.6	5.0	-2.4	0.0 - 7.0	Yes
Real Estate - Core	196,069,882	6.6	6.5	0.1	0.0 - 10.0	Yes
Infrastructure	202,100,595	6.8	7.5	-0.7	0.0 - 12.0	Yes
Cash	94,430,367	3.2	1.0	2.2	0.0 - 4.0	Yes
Non-Core Real Estate	127,525,761	4.3	6.0	-1.7	0.0 - 10.0	Yes
Total	2,953,716,155	100.0	100.0	0.0		

*Difference between Policy and Current Allocation

TOTAL FUND PERFORMANCE DETAIL

	Allocation		Performance (%)									
	Market Value (\$)	% of Portfolio	1 Mo (%)	FYTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	7 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Total Fund	2,953,716,155	100.0	1.1	2.9	8.2	12.0	3.3	7.5	6.9	6.5	8.6	Jan-95
Policy Index			1.4	3.3	8.7	13.4	4.7	8.4	7.4	7.0	8.0	
Allocation Index			1.6	3.4	9.6	14.1	3.2					
Liquidity Sub-Portfolio	294,442,490	10.0	0.9	2.3	3.8	7.1	1.8	2.6	3.0	2.3	2.3	Aug-14
StanCERA Liquidity Blended BM			1.1	2.8	3.6	6.9	0.1	2.2	2.2	1.9	1.9	
Cash	94,430,367	3.2	0.5	1.0	3.9	5.9	4.2	3.4	2.8	2.3	2.3	Aug-14
FTSE 1 Month T-Bill			0.5	0.9	3.7	5.6	3.4	2.3	2.2	1.6	1.6	
Cashflow-Matched Bonds	200,012,123	6.8	1.0	2.4	3.7	7.3	1.1	2.2	2.7		2.8	Jul-17
Blmbg. Intermed. U.S. Government/Credit			1.2	3.1	3.6	7.1	-0.4	1.0	1.7		1.8	
Insight	200,012,123	6.8	1.0	2.4	3.7	7.3	1.1	2.2	2.7		2.8	Jul-17
Blmbg. Intermed. U.S. Government/Credit			1.2	3.1	3.6	7.1	-0.4	1.0	1.7		1.8	
Growth Sub-Portfolio	2,163,596,106	73.2	1.2	3.1	9.4	13.7	4.9	9.7	8.6	8.0	8.3	Jan-04
StanCERA Growth Blended BM			1.5	3.4	10.5	15.2	6.3	10.9	9.5			
US Equities	641,159,920	21.7	1.7	4.8	16.8	25.1	8.4	15.6	13.3	11.8	10.5	Jan-04
Russell 3000 Index			2.2	4.1	18.2	26.1	7.9	15.2	13.8	12.4	10.2	
US Large Equity	509,892,929	17.3	2.2	3.8	18.1	26.4	8.4	16.1	14.4	12.7	12.9	Jan-95
Russell 1000 Index			2.4	3.9	18.6	26.6	8.3	15.6	14.2	12.7	10.9	
BlackRock Russell 1000 Growth	238,091,195	8.1	2.1	0.4	21.1	30.7	8.8	19.1	17.9	16.0	16.9	Aug-10
Russell 1000 Growth Index			2.1	0.3	21.1	30.8	8.9	19.1	18.0	16.0	16.9	
BlackRock Russell 1000 Value	125,194,827	4.2	2.7	8.0	15.1	21.1	7.2	11.2	9.8	8.9	11.8	Aug-09
Russell 1000 Value Index			2.7	7.9	15.1	21.1	7.3	11.2	9.8	8.9	11.7	
Dodge & Cox-Equity	146,606,907	5.0	2.0	6.6	15.8	24.1	8.9	14.7	12.0	10.9	12.1	Jan-95
Russell 1000 Value Index			2.7	7.9	15.1	21.1	7.3	11.2	9.8	8.9	10.0	
US Small Equity	131,266,991	4.4	-0.6	9.2	11.2	19.6	8.3	13.5	9.6	8.5	12.3	Jan-09
Russell 2000 Index			-1.5	8.5	10.4	18.5	0.6	9.7	8.2	8.0	11.5	
Attucks Small Cap	131,266,991	4.4	-0.6	9.2	11.2	19.6	8.3	13.5	9.7	8.9	12.5	Jan-09
Russell 2000 Value Index			-1.9	10.1	9.1	19.2	3.1	10.4	7.6	7.5	10.4	
International Equity	606,417,707	20.5	2.1	5.2	11.9	19.7	4.5	9.5	6.2	5.4	6.7	Oct-04
MSCI AC World ex USA (Net)			2.8	5.2	11.2	18.2	2.1	7.6	5.3	4.4	6.0	
LSV Int'l Large Cap Value	326,721,062	11.1	1.9	5.1	11.6	20.3	7.3	10.2	6.1	5.2	6.6	Oct-04
MSCI AC World ex USA Value (Net)			2.5	6.2	11.2	19.4	5.8	8.0	4.7	3.4	5.5	
Fidelity Int'l Growth	279,696,645	9.5	2.3	5.4	12.3	18.9	1.6	8.5	6.2	5.3	4.7	May-06
MSCI AC World ex USA Growth (Net)			3.2	4.3	11.2	17.1	-1.5	6.8	5.7	5.2	4.5	

- Cash Composite includes the Transaction Account Value.

TOTAL FUND PERFORMANCE DETAIL

	Allocation		Performance (%)									
	Market Value (\$)	% of Portfolio	1 Mo (%)	FYTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	7 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Core Real Estate	196,069,882	6.6	0.0	0.0	0.9	0.8	2.9	4.4	4.8	4.9	2.9	Apr-08
<i>NCREIF Property Index</i>			0.0	0.0	-1.2	-5.5	2.3	3.4	4.4	6.1	5.2	
Prime Property Fund	92,548,886	3.1	0.0	0.0	-1.5	-3.9	4.5	4.5	5.4		6.1	Oct-15
<i>NCREIF ODCE</i>			0.0	0.0	-2.8	-9.3	1.9	3.2	4.4		5.2	
PGIM Real Estate US Debt Fund	103,520,996	3.5	0.0	0.0	3.2	5.9	5.7	5.5			5.4	Sep-18
<i>Blmbg. U.S. Investment Grade: CMBS Index</i>			1.2	3.3	5.1	9.3	-1.0	0.8			2.4	
Value-Add Real Estate	127,525,761	4.3	0.0	0.0	0.9	-2.5	3.1	6.7	7.8	8.7	8.6	Aug-14
<i>NCREIF Property Index +2%</i>			0.2	0.3	0.1	-3.6	4.4	5.5	6.5	8.2	8.1	
American Strategic Value Realty	76,668,891	2.6	0.0	0.0	-3.7	-9.4	1.2	3.4	5.0		7.2	Jan-15
<i>NCREIF Property Index</i>			0.0	0.0	-1.2	-5.5	2.3	3.4	4.4		5.7	
Greenfield Acquisition Partners VII	883,535	0.0	0.0	0.0	10.5	2.0	-0.3	2.4	5.6	7.4	7.3	Aug-14
<i>NCREIF-ODCE +1%</i>			0.1	0.2	-2.2	-8.3	2.9	4.2	5.4	7.5	7.4	
Grandview Property Partners I	19,839,616	0.7	0.0	0.0	6.0	19.4	9.9	17.9			17.9	Apr-18
<i>NCREIF-ODCE +1%</i>			0.1	0.2	-2.2	-8.3	2.9	4.2			4.8	
Grandview Property Partners II	17,681,910	0.6	0.0	0.0	2.0	4.0					0.5	Dec-21
<i>NCREIF-ODCE +1%</i>			0.1	0.2	-2.2	-8.3					0.7	
TA Realty Value Fund XIII	10,924,311	0.4	0.0	0.0	25.3						-4.6	Dec-23
<i>NCREIF-ODCE +1%</i>			0.1	0.2	-2.2						-6.8	
KSL Credit Opportunities IV	1,527,497	0.1	0.0	0.0							0.0	Apr-24
<i>NCREIF-ODCE +1%</i>			0.1	0.2							0.0	
Infrastructure	202,100,595	6.8	0.0	0.0	6.1	4.1	1.4	2.7	7.1		4.9	Jun-15
<i>CPI + 5% 1 Qtr Lag (Unadjusted)</i>			0.6	1.4	5.4	8.4	10.5	9.4	8.8		8.4	
MS Infrastructure Partners II	12,594,833	0.4	0.0	0.0	-3.8	-5.4	4.6	4.4	8.3		5.8	Jun-15
<i>CPI + 5% 1 Qtr Lag (Unadjusted)</i>			0.6	1.4	5.4	8.4	10.5	9.4	8.8		8.4	
Palistar Communications Infrastructure Fund II	16,637,690	0.6	0.0	0.0	3.3	4.8					7.3	Feb-22
<i>CPI + 5% 1 Qtr Lag (Unadjusted)</i>			0.6	1.4	5.4	8.4					10.3	
JP Morgan IIF Hedged LP	36,642,200	1.2	0.0	0.0	6.6	8.8					9.4	Apr-22
<i>CPI + 5% 1 Qtr Lag (Unadjusted)</i>			0.6	1.4	5.4	8.4					10.3	
Northern Trust Infrastructure Fund	75,261,949	2.5	0.0	0.0	11.8	5.2	-0.8				0.0	Jul-21
<i>67% STOXX Global Broad Infra/33% Blmbg. US TIPS 1 Qtr Lag</i>			0.0	0.0	10.5	4.5	-1.0				-0.1	
IFM Global Infrastructure Fund	56,248,479	1.9	0.0	0.0	1.7	2.6					5.8	Aug-22
<i>CPI + 5% 1 Qtr Lag (Unadjusted)</i>			0.6	1.4	5.4	8.4					9.3	
Carlyle Renewable and Sustainable Energy Fund II	4,715,445	0.2	0.0	0.0							0.0	Feb-24
<i>CPI + 5% 1 Qtr Lag (Unadjusted)</i>			0.6	1.4							5.0	

TOTAL FUND PERFORMANCE DETAIL

	Allocation		Performance (%)									
	Market Value (\$)	% of Portfolio	1 Mo (%)	FYTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	7 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Private Equity	168,883,018	5.7	0.5	0.9	5.9	9.1	2.6	11.7			12.3	Dec-18
<i>Russell 3000 + 3% QTR Lagged</i>			5.0	0.6	25.9	31.4	11.1	18.4			15.3	
Private Equity	131,668,763	4.5	0.0	0.0	2.4	4.7	5.5				12.3	Apr-20
<i>Russell 3000 + 3% QTR Lagged</i>			5.0	0.6	25.9	31.4	11.1				16.2	
Private Equity Proxy	37,214,256	1.3	2.2	4.1	18.1	26.1	7.9	15.2	14.5	13.0	10.6	Dec-03
<i>Russell 3000 Index</i>			2.2	4.1	18.2	26.1	7.9	15.2	13.8	12.4	10.4	
Private Credit	221,439,223	7.5	0.6	1.4	0.8	3.6	2.3	0.0	1.1	1.7	2.3	Jun-13
<i>S&P/LSTA Leveraged Loan Index +2% Qtr Lag</i>			1.1	1.9	8.4	15.5	8.3	7.6	7.2	6.7	6.7	
Private Credit	136,690,302	4.6	0.0	0.0	-2.5	-1.4	4.4	1.2	2.0	2.3	2.9	Jun-13
<i>S&P/LSTA Leveraged Loan Index +2% Qtr Lag</i>			1.1	1.9	8.4	15.5	8.3	7.6	7.2	6.7	6.7	
Private Credit Proxy	84,748,921	2.9	1.6	3.5	6.4	12.5	2.3				2.5	Jul-21
<i>ICE BofA US High Yield Master II Constrained</i>			1.6	3.6	6.3	12.5	2.5				2.7	
Risk-Diversifying Sub-Portfolio	495,677,559	16.8	0.9	2.4	5.2	7.3	-2.0	0.9	1.6	2.1	4.0	Dec-03
<i>StanCERA Risk-Diversifying Blended BM</i>			1.9	4.0	7.2	12.2	1.0	2.8	2.9	2.5		
Risk Parity	129,564,598	4.4	1.0	3.2	6.4	8.6	-4.7	1.1			2.7	Dec-17
<i>60% MSCI ACWI (Net)/ 40% Bloomberg Global Agg</i>			2.5	4.6	10.2	16.6	1.8	6.8			5.9	
AQR Global Risk Premium - EL	65,312,301	2.2	0.8	3.2	7.0	10.1	-1.8	2.7			4.1	Apr-18
<i>60% MSCI ACWI (Net)/ 40% Bloomberg Global Agg</i>			2.5	4.6	10.2	16.6	1.8	6.8			6.0	
PanAgora Risk Parity Multi Asset	64,252,297	2.2	1.2	3.2	5.7	6.9	-7.9	-0.7			1.5	Dec-17
<i>60% MSCI ACWI (Net)/ 40% Bloomberg Global Agg</i>			2.5	4.6	10.2	16.6	1.8	6.8			5.9	
US Treasury Bonds	174,749,093	5.9	1.4	3.8	2.6	6.1	-3.3	-1.1	0.6	1.6	3.7	Dec-03
<i>Blmbg. U.S. Treasury: 7-10 Year</i>			1.4	4.3	2.7	6.1	-3.7	-1.2	0.6	1.3	3.5	
Northern Trust Intermediate Gov't Bond	115,854,100	3.9	1.1	2.9	3.1	6.2	-0.7	0.5	1.2		1.3	Aug-17
<i>Blmbg. U.S. Government: Intermediate</i>			1.1	2.9	3.2	6.3	-0.6	0.5	1.2		1.3	
Northern Trust Long Term Gov't Bond	58,894,993	2.0	2.0	5.7	0.4	4.8	-9.0	-4.7	-0.7		-0.2	Aug-17
<i>Blmbg. U.S. Government: Long Term Bond Index</i>			2.0	5.7	0.4	4.9	-9.8	-5.1	-1.1		-0.6	
Liquid Absolute Return	76,878,647	2.6	0.0	-0.7	9.6	6.5					9.9	Oct-21
<i>30 Day T-Bill + 4%</i>			0.8	1.6	6.4	9.8					7.7	
Graham Proprietary Matrix	76,878,647	2.6	0.0	-0.7	9.6	8.4					13.4	Nov-21
<i>HFRI Macro (Total) Index</i>			-1.1	-1.7	3.7	4.1					3.7	
US Short Duration TIPS	114,485,221	3.9	0.6	1.5							2.3	Jun-24
<i>Blmbg. U.S. TIPS 0-5 Year</i>			0.6	1.5							2.1	
Northern Trust US TIPS	114,485,221	3.9	0.6	1.5							2.3	Jun-24
<i>Blmbg. U.S. TIPS 0-5 Year</i>			0.6	1.5							2.1	

CASH FLOW SUMMARY BY MANAGER

	1 Month Ending August 31, 2024				
	Beginning Market Value	Contributions	Withdrawals	Ending Market Value	Net Investment Change
Abry Senior Equity VI, L.P.	\$11,193,407	-	-	\$11,193,407	-
American Strategic Value Realty	\$76,668,891	-	-	\$76,668,891	-
AQR Global Risk Premium - EL	\$64,804,126	-	-	\$65,312,301	\$508,175
Ares Sr Direct Lending Fund III	-	\$3,000,397	-	\$3,000,397	-
Audax Private Equity VII	\$6,615,646	\$598,259	-	\$7,213,905	-
Blackrock High Yield Fund	\$86,402,530	-	-\$3,000,397	\$84,748,921	\$1,346,788
BlackRock Russell 1000 Growth	\$262,638,702	-	-\$30,000,000	\$238,091,195	\$5,452,493
BlackRock Russell 1000 Value	\$136,535,146	-	-\$15,000,000	\$125,194,827	\$3,659,681
Blue Wolf Capital Fund V-A, L.P.	\$8,949,922	-	-	\$8,949,922	-
Callodine Loan Fund II LP	\$10,271,393	-	-\$392,453	\$9,878,940	-
Cash Account	\$26,553,383	\$72,008,790	-\$4,349,153	\$94,379,735	\$166,714
Carlyle Renewable and Sustainable Energy Fund II	\$1,933,516	\$2,781,929	-	\$4,715,445	-
Channing	\$35,719,545	-	-\$63,718	\$35,123,052	-\$532,775
Clayton, Dublier, & Rice	\$18,425,799	-	-\$252,381	\$18,173,418	-
Comvest Credit Partners VII	\$1,500,000	-	-	\$1,500,000	-
Crestline Opportunity Fund IV	\$9,257,252	-	-	\$9,257,252	-
Dodge & Cox-Equity	\$143,682,287	-	-	\$146,606,907	\$2,924,620
Eclipse Fund V	\$150,000	-	-	\$150,000	-
Fidelity Int'l Growth	\$273,520,831	\$4,143	-	\$279,696,645	\$6,171,671
Genstar Capital Partners X	\$14,734,920	-	-	\$14,734,920	-
Graham Proprietary Matrix	\$76,878,647	-	-	\$76,878,647	-
Grandview Property Partners I	\$19,839,616	-	-	\$19,839,616	-
Grandview Property Partners II	\$17,681,910	-	-	\$17,681,910	-
Great Hill EP VIII	\$4,729,691	-	-	\$4,729,691	-
Greenfield Acquisition Partners VII	\$883,535	-	-	\$883,535	-
Gridiron Capital Fund V	\$4,538,811	-	-	\$4,538,811	-
Gryphon Partners VI LP	\$18,702,948	-	-	\$18,702,948	-
IFM Global Infrastructure Fund	\$56,248,479	-	-	\$56,248,479	-
Insight	\$201,910,641	-	-\$3,859,233	\$200,012,123	\$1,960,715

CASH FLOW SUMMARY BY MANAGER

	Beginning Market Value	Contributions	Withdrawals	Ending Market Value	Net Investment Change
Insight Partners XI	\$22,174,847	-	-	\$22,174,847	-
JP Morgan IIF Hedged LP	\$36,642,200	-	-	\$36,642,200	-
KSL Credit Opportunities IV	\$630,738	\$896,760	-	\$1,527,497	-
LSV Int'l Large Cap Value	\$322,365,206	-	-\$1,919,856	\$326,721,062	\$6,275,712
Upwelling Capital	\$107,925	-	-	\$107,925	-
Monroe Private Credit IV	\$16,583,187	-	-\$543,611	\$16,039,576	-
MS Infrastructure Partners II	\$12,594,833	-	-	\$12,594,833	-
Northern Trust Infrastructure Fund	\$78,422,283	\$2,783,045	-\$5,943,379	\$75,261,949	-
Northern Trust Intermediate Gov't Bond	\$114,619,749	\$10,739	-	\$115,854,100	\$1,223,611
Northern Trust Long Term Gov't Bond	\$57,724,643	\$4,113	-	\$58,894,993	\$1,166,237
Northern Trust Russell 3000	\$36,424,356	\$2,038	-	\$37,214,256	\$787,862
Northern Trust US TIPS	\$113,819,363	-	-	\$114,485,221	\$665,859
Owl Rock First Lien Fund	\$7,061,671	-	-\$469,170	\$6,592,501	-
Pacific Ridge	\$20,868,211	-	-\$50,372	\$20,914,585	\$96,746
Palistar Communications Infrastructure Fund II	\$16,637,690	-	-	\$16,637,690	-
PanAgora Risk Parity Multi Asset	\$63,479,818	-	-	\$64,252,297	\$772,479
PGIM Real Estate US Debt Fund	\$103,520,996	-	-	\$103,520,996	-
Phocas'	\$31,913,985	-	-\$51,607	\$31,549,851	-\$312,526
Prime Property Fund	\$92,548,886	-	-	\$92,548,886	-
Raven Opportunity III	\$44,939,339	-	-	\$44,939,339	-
Seizert	\$43,641,514	-	-\$60,014	\$43,679,503	\$98,003
Sole Source Capital Partners II	\$15,249,834	-	-	\$15,249,834	-
Strategic Values Special Situations Fund V, L.P.	\$8,271,690	-	-\$2,500	\$8,269,190	-
TA Realty Value Fund XIII	\$10,924,311	-	-	\$10,924,311	-
Transition Account	\$50,518	-	-	\$50,632	\$114
Vista Foundation Fund IV	\$17,050,467	-	-	\$17,050,467	-
White Oak Pinnacle	\$25,911,776	-	-	\$25,911,775	-\$1
Total	\$2,905,151,610	\$82,090,212	-\$65,957,844	\$2,953,716,155	\$32,432,177

NOTES

- Attucks Small Cap is preliminary as of 8/31/24. The market value for Graham Proprietary Matrix is carried from July.
- All performance is shown net of investment management fees. Fiscal year end date is June 30th.
- 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.
 - **7/1/2021 - 6/30/2023:** 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.
 - **7/1/2023 - 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% 1 Qtr Lag (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.
 - **5/1/2024 - Present:** 14% Russell 1000, 4% Russell 2000, 5% Russell 3000 + 3%, 18% MSCI ACWI ex USA Gross, 6.5% NCREIF Property Index, 6% NCREIF Property Index + 2%, 7.5% CPI + 5% 1 Qtr Lag (Unadjusted), 8% S&P/LSTA Leveraged Loan Index +2%, 4% Public Credit Custom Benchmark (50% Bloomberg US Corp Investment Grade Index/25% Bloomberg US HY 2% Cap/25% Morningstar LTSA US Leveraged Loan Index), 6% Bloomberg US Treasury 7-10 Yr TR, 4% Bloomberg US TIPS 0-5 Yr, 4% 60% MSCI ACWI (Net)/ 40% Bloomberg Global Agg, 5% 30 Day T-Bill + 4%, 1% FTSE T-Bill 1 Month TR, 7% Bloomberg US Govt/Credit Int TR.
- As of 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.
- As of July 1, 2023, Infrastructure funds (MS Infrastructure Partners II, Northern Infrastructure Fund, Palistar Communications Infrastructure Fund II, JP Morgan IF Hedged LP, and IFM Global Infrastructure Fund) are valued one quarter lagged and adjusted for capital calls and distributions between quarter-end months. Northern Trust Infrastructure Fund's benchmark of 67% STOXX Global Broad Infra/33% Bloomberg US TIPS is valued one quarter lagged.

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



September 24, 2024

Retirement Board Agenda Item

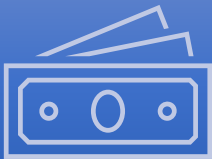


TO: Retirement Board

FROM: Stan Conwell, Retirement Investment Officer

- I. SUBJECT: Liquidity Sub-Portfolio Annual Funding Plan
- II. ITEM NUMBER: 8.b
- III. ITEM TYPE: Information Only
- IV. STAFF RECOMMENDATION: N/A
- V. ANALYSIS:

Background

StanCERA follows a functionally focused investment policy. This strategy divides the portfolio into three functional sub-portfolios: liquidity, growth, and diversifying. Each sub-portfolio addresses a separate investment objective. The liquidity sub-portfolio provides liquidity to meet current retiree benefit payments in a timely manner, the growth sub-portfolio seeks to provide long-term growth to meet future retiree payments and the diversifying sub-portfolio is intended to offset some of the risks in the growth sub-portfolio. While the three sub-portfolios are aligned with the investment objectives individually, collectively they provide appropriate risk and return characteristics to meet StanCERA's overall investment goals. This strategy can be described as the three P's of portfolio management.

	<p>Provide</p>	<p>Liquidity to meet retiree benefit payments Cash flow matched bonds, Cash</p>
	<p>Produce</p>	<p>Growth to meet future retiree benefit payments Equities, Credit, Real Estate, Infrastructure</p>
	<p>Protect</p>	<p>Offset risk in growth assets while remaining liquid Treasuries, Risk Parity, Liquid Absolute Return</p>

The liquidity sub-portfolio acts as a drawdown vehicle during the year and needs to be replenished annually. In accordance with the investment policy, an annual funding plan is produced by staff on how best to replenish the liquidity sub-portfolio. In conjunction with the annual funding plan, the policy also requires the investment consultant, NEPC, to deliver a capital markets review to the Board and if necessary, recommend changes to the asset allocation. StanCERA is currently in the process of implementing the asset allocation changes from the asset/liability study conducted in 2023. Given the recent changes, NEPC, is not recommending any adjustments to the asset allocation at this time.

Cash Shortfall Forecast

StanCERA's monthly cash needs can be calculated using the following formula: Retiree Benefit Payments + Administrative Expenses – Plan Sponsor Contributions = Cash Shortfall. Staff creates forecast estimates of each input using historical trends, data and assumptions from actuarial reports, budget estimates and known employment changes from plan sponsors to generate a cash shortfall forecast. The process is conducted annually using the latest available data. The chart below provides a comparison between the actual and forecasted shortfalls from FY 2024. Note that in November and May the county had three pay periods resulting in no shortfall. Overall, the forecast closely tracked the actual shortfalls and the plan did not need to sell assets to pay benefits.



Liquidity Sub-Portfolio Sizing

The liquidity sub-portfolio is composed of the cash flow matched bond portfolio as well as a 1% strategic target to cash. The cash flow matched bond portfolio, managed by Insight Investment, is measured in dollars rather than a percentage of the total fund. The size of the cash flow matched portfolio will vary based on the number of years of cash shortfalls that need to be funded and the current interest rates. The market value of the cash flow matched bond portfolio as of 8/30/2024 was \$200,008,864 and will cover the cash shortfalls through June 2029. To maintain six years of cash shortfalls, approximately \$46 Million will need be added to the cash-flow matched bond portfolio as part of the annual

funding plan. As a percentage of the total plan, the allocation to the liquidity sub-portfolio is estimated to change from 8.5% of the total fund to about 9.2% of the total fund. That percentage will trend down over time as the bond portfolio makes monthly distributions to meet the cash needs of the plan.

Rebalance Plan

StanCERA is currently implementing the asset allocation changes adopted by the board following the asset/liability study conducted in 2023. The rebalance plan to replenish the liquidity sub-portfolio should take into account any outstanding rebalance plans to move the plan toward the new asset allocation targets. As of September, only the liquid credit manager search is left to be completed and that addition to the portfolio is likely to be funded in the fourth quarter of 2024. Domestic large cap equities are currently the most overweight asset class in the portfolio and cash is also overweight. Given the overweight to equities and cash, these asset classes are a good source to pull capital from to replenish the cash flow matched bond portfolio within the liquidity sub-portfolio.

The proposed rebalance plan is detailed below:

From			To		
Manager	Asset Class	Amount	Manager	Asset Class	Amount
BlackRock Russell 1000 Growth	Public Equity	-\$10,000,000	Insight Investment	Short-term Bonds	\$46,000,000.00
BlackRock Russell 1000 Value	Public Equity	-\$13,000,000			
Dodge & Cox Equity	Public Equity	-\$13,000,000			
NT STIF	Cash	-\$10,000,000			

Summary

StanCERA's investment policy requires staff to provide an annual funding plan to the Board every year to replenish the liquidity sub-portfolio. The investment consultant will also provide a capital markets review to the Board and recommend asset allocation changes if needed. The cash flow matched bond portfolio within the liquidity sub-portfolio is measured in dollars rather than a target percentage of the total fund. Approximately, \$46 million will be added to the liquidity sub-portfolio from other areas of the portfolio that currently exceed the long-term target allocation. The two best asset classes to pull capital from are domestic large cap equity and cash.

- VI. RISK: None
- VII. STRATEGIC PLAN: N/A
- VIII. ADMINISTRATIVE BUDGET IMPACT: None

CAPITAL MARKETS UPDATE

STANISLAUS COUNTY EMPLOYEES'
RETIREMENT ASSOCIATION

SEPTEMBER 24, 2024

Daniel Hennessy, Senior Consultant
Sam Austin, Partner
John Tolar, Consulting Analyst



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ASSET CLASS RETURN EXPECTATIONS



PROPRIETARY & CONFIDENTIAL

ASSET CLASS ASSUMPTIONS

OVERVIEW

- **NEPC's capital market assumptions are available each quarter with this release reflecting June 30, 2024 market data**
- **Strong equity performance over the past 12 months has further stretched valuations, weighing on forward-looking returns**
- **Return-seeking credit return forecasts have fallen as tighter credit spreads offset higher interest rates**
- **Real interest rate expectations rose, reflecting the impact of a resilient economic backdrop**
- **We encourage a dedicated safe-haven fixed income allocation to serve as a critical liquidity source for the portfolio**
- **We recommend adding strategic policy targets to U.S. TIPS given elevated levels of real yields and attractive breakeven inflation levels**
- **Real asset exposure can enhance risk-adjusted returns as markets undergo a secular shift toward higher interest rates and inflation levels**



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 06/30/2024**
 - 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**



30-YEAR ASSET CLASS RETURN ASSUMPTIONS

	Asset Class	06/30/24 30-Year Return	06/30/23 30-Year Return	Delta
	Cash	3.5%	3.4%	+0.1%
	U.S. Inflation	2.6%	2.7%	-0.1%
Equity	U.S. Large-Cap Equity	6.3%	6.7%	-0.4%
	Non-U.S. Developed Equity	6.1%	6.5%	-0.4%
	Emerging Market Equity	9.0%	9.4%	-0.4%
	Global Equity*	7.0%	7.4%	-0.4%
	Private Equity*	10.0%	10.2%	-0.2%
Fixed Income	U.S. Treasury Bond	4.6%	4.1%	+0.5%
	U.S. Municipal Bond	4.0%	3.8%	+0.2%
	U.S. Aggregate Bond*	5.1%	4.7%	+0.4%
	U.S. TIPS	4.8%	4.4%	+0.4%
	U.S. High Yield Corporate Bond	7.3%	7.1%	+0.2%
	Private Debt*	9.0%	9.1%	-0.1%
Real Assets	Commodity Futures	3.8%	3.6%	+0.2%
	REIT	7.4%	7.4%	-
	Gold	4.9%	4.9%	-
	Real Estate - Core	6.5%	5.8%	+0.7%
	Private Real Assets - Infrastructure	7.0%	6.9%	+0.1%
Multi-Asset	60% S&P 500 & 40% U.S. Aggregate	6.1%	6.2%	-0.1%
	60% MSCI ACWI & 40% U.S. Agg.	6.6%	6.6%	-
	Hedge Fund*	6.5%	6.5%	-

*Calculated as a blend of other asset classes

10-YEAR ASSET CLASS RETURN ASSUMPTIONS

	Asset Class	06/30/24 10-Year Return	06/30/23 10-Year Return	Delta
	Cash	4.2%	4.0%	+0.2%
	U.S. Inflation	2.6%	2.7%	-0.1%
Equity	U.S. Large-Cap Equity	4.0%	4.6%	-0.6%
	Non-U.S. Developed Equity	4.5%	5.0%	-0.5%
	Emerging Market Equity	7.8%	9.2%	-1.4%
	Global Equity*	5.0%	5.7%	-0.7%
	Private Equity*	8.7%	9.1%	-0.4%
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	U.S. Aggregate Bond*	5.0%	4.7%	+0.3%
	U.S. TIPS	4.8%	4.6%	+0.2%
	U.S. High Yield Corporate Bond	6.3%	6.8%	-0.5%
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Real Assets	Commodity Futures	4.4%	4.8%	-0.4%
	REIT	6.3%	6.4%	-0.1%
	Gold	5.0%	5.3%	-0.3%
	Real Estate - Core	6.0%	5.3%	+0.7%
	Private Real Assets - Infrastructure	6.6%	6.3%	+0.3%
Multi-Asset	60% S&P 500 & 40% U.S. Aggregate	4.7%	4.9%	-0.2%
	60% MSCI ACWI & 40% U.S. Agg.	5.3%	5.6%	-0.3%
	Hedge Fund*	6.2%	6.3%	-0.1%

*Calculated as a blend of other asset classes



STANCERA ASSET ALLOCATION EXPECTATIONS

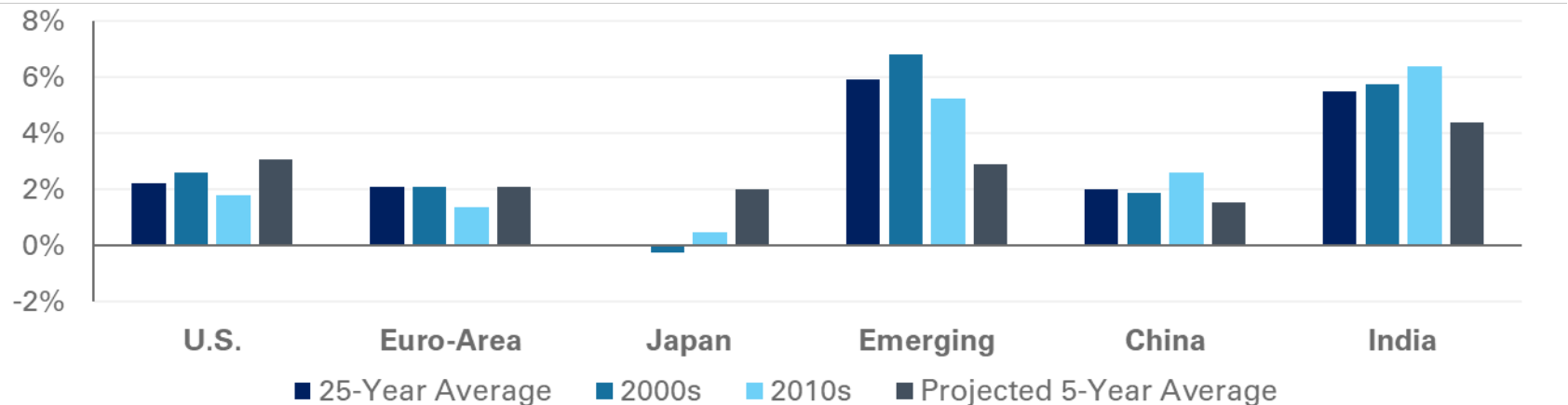
	Current Policy
Total Liquidity Sub-Portfolio	8.0%
Total Growth Sub-Portfolio	73.0%
Total Risk-Diversifying Sub-Portfolio	19.0%

	2023 Assumptions	2024 Assumptions
10-Year Expected Return	6.5%	6.4%
30-Year Expected Return	7.3%	7.4%
Standard Deviation (Volatility)	11.2%	11.8%

Probability of 10-Year Return Over 6.75%	47%	46%
Probability of 30-Year Return Over 6.75%	60%	62%
Probability of 1-Year Return Under 0%	28%	29%
Probability of 5-Year Return Under 0%	10%	11%

GLOBAL INFLATION

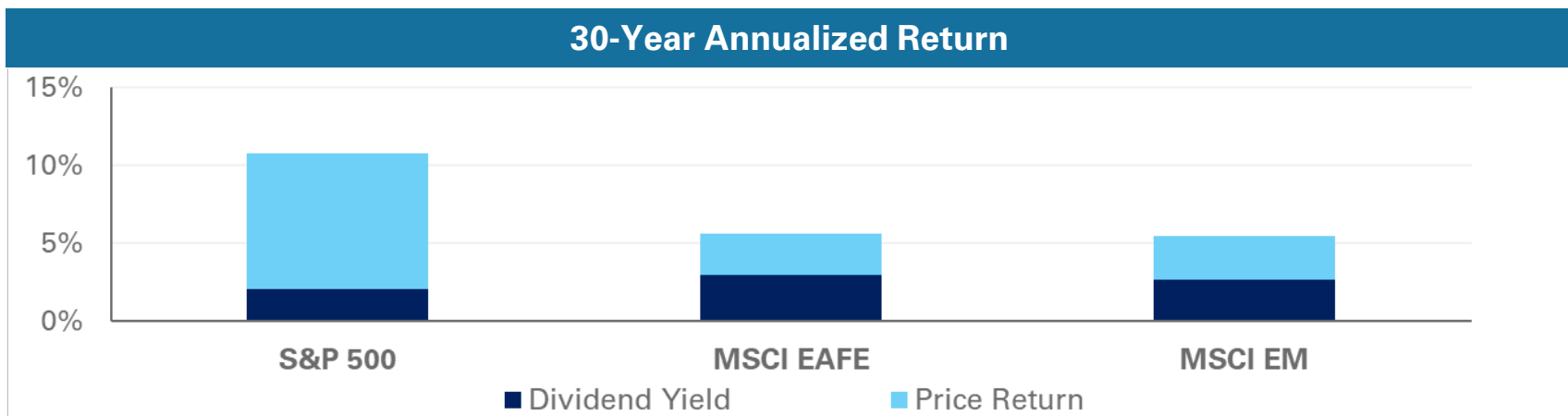
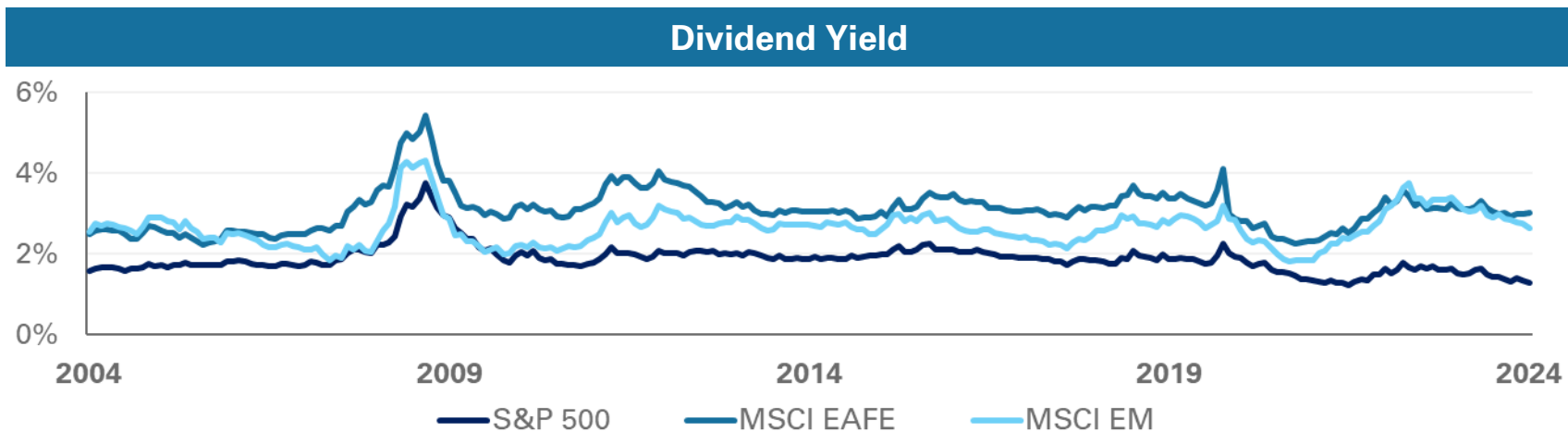
HISTORICAL INFLATION



- **Non-U.S. forecasts are guided by IMF forecasts, local consumer and producer price indices, and global interest rate curves**
- **Near-term inflation levels for developed markets are projected to be higher relative to history**
 - Long-term inflation assumptions reflect NEPC's path and central bank targets
 - The expected inflation differential between emerging and developed markets has narrowed significantly

PUBLIC EQUITY DIVIDEND YIELD

NON-U.S. EQUITY OFFERS STRUCTURALLY HIGHER DIVIDENDS



Sources: S&P, MSCI, FactSet

PUBLIC EQUITY

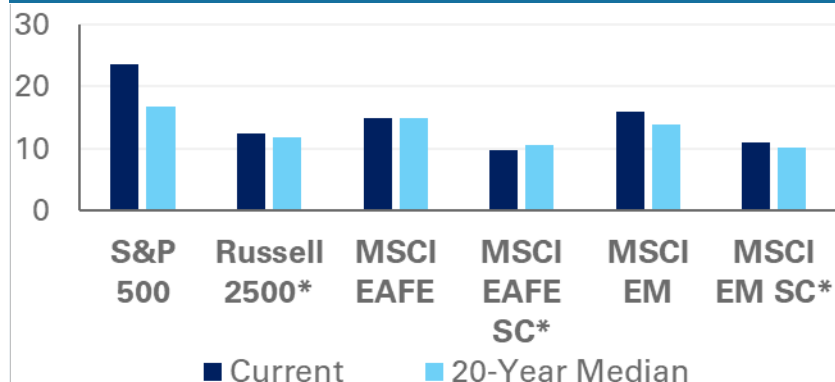
VALUATION

- **Valuations remain elevated relative to long-term averages**
 - U.S. large-cap valuations represent the largest drag on returns across the equity complex
- **EAFE valuation inputs are lower relative to the U.S. and reflect the economic growth profile**
- **Emerging markets offer an elevated total return opportunity relative to developed markets**

S&P 500 Shiller PE Ratio



Trailing PE Relative Median

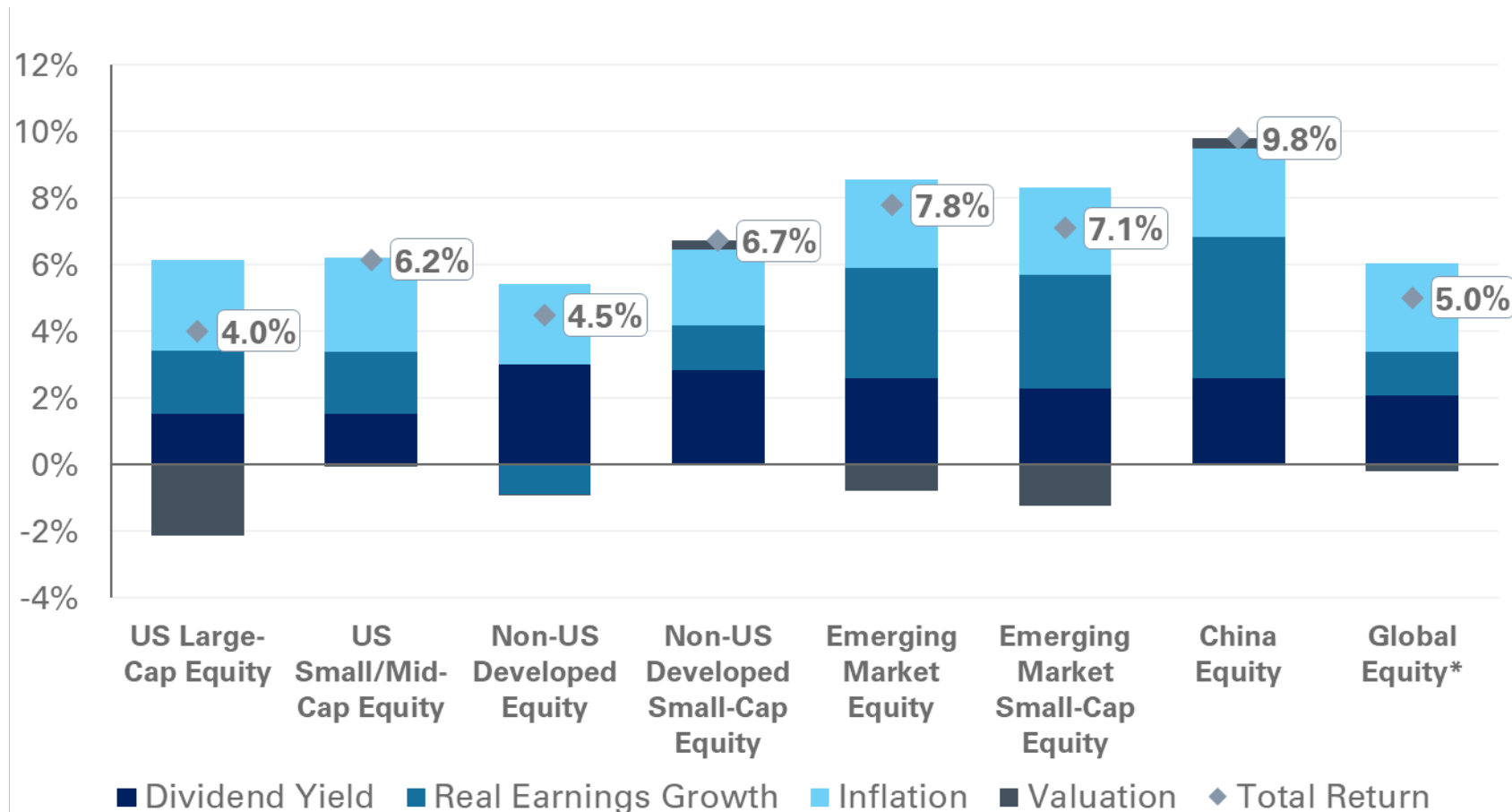


Note: *Small cap indices valuations based on EV/EBITDA multiples

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

PUBLIC EQUITY

BUILDING BLOCKS: 10-YEAR EXPECTED RETURN



Source: NEPC

*Calculated as a blend of other classes

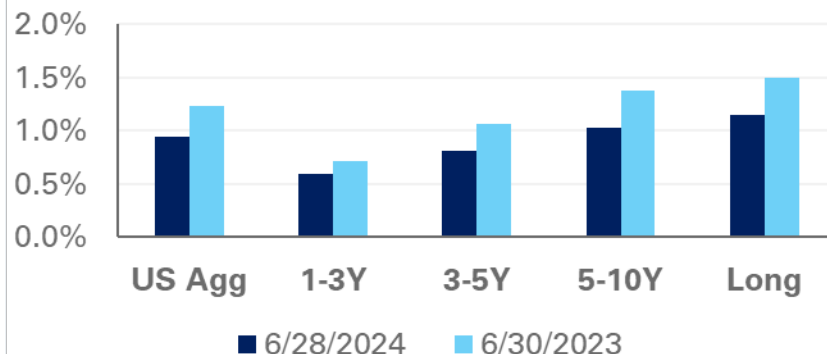


FIXED INCOME

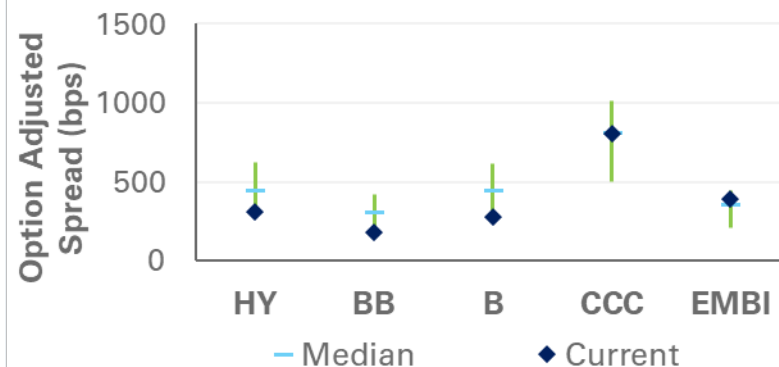
CREDIT SPREADS

- **Credit spreads have tightened and are broadly below median levels**
 - BB and B spreads have fallen near historical lows
- **Lower spread levels weigh on future return expectations given less overall carry return**
- **Credit spread assumptions reflect a path towards long term medians**
- **Default and recovery rate assumptions are informed by long-term history**

U.S. Corporate OAS by Maturity



Return-Seeking Credit Spreads



Sources: Bloomberg, JPM, FactSet, NEPC; Spread medians as of 12/31/2000 and range represents 5th to 75th percentile

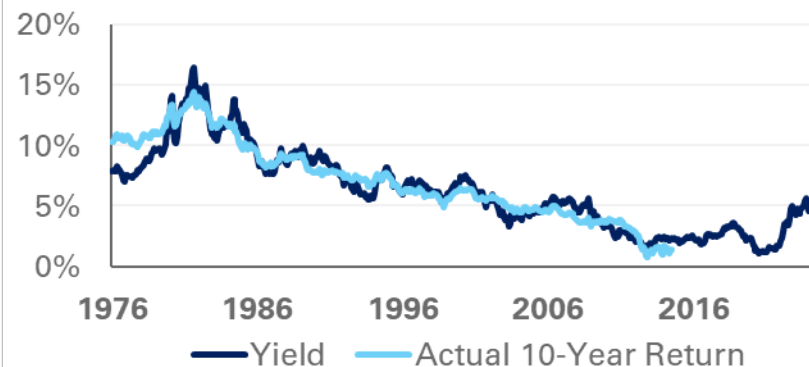


FIXED INCOME

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
- **A normalization of yield curve steepness is a headwind to long duration fixed income**

Barclays U.S. Aggregate Bond

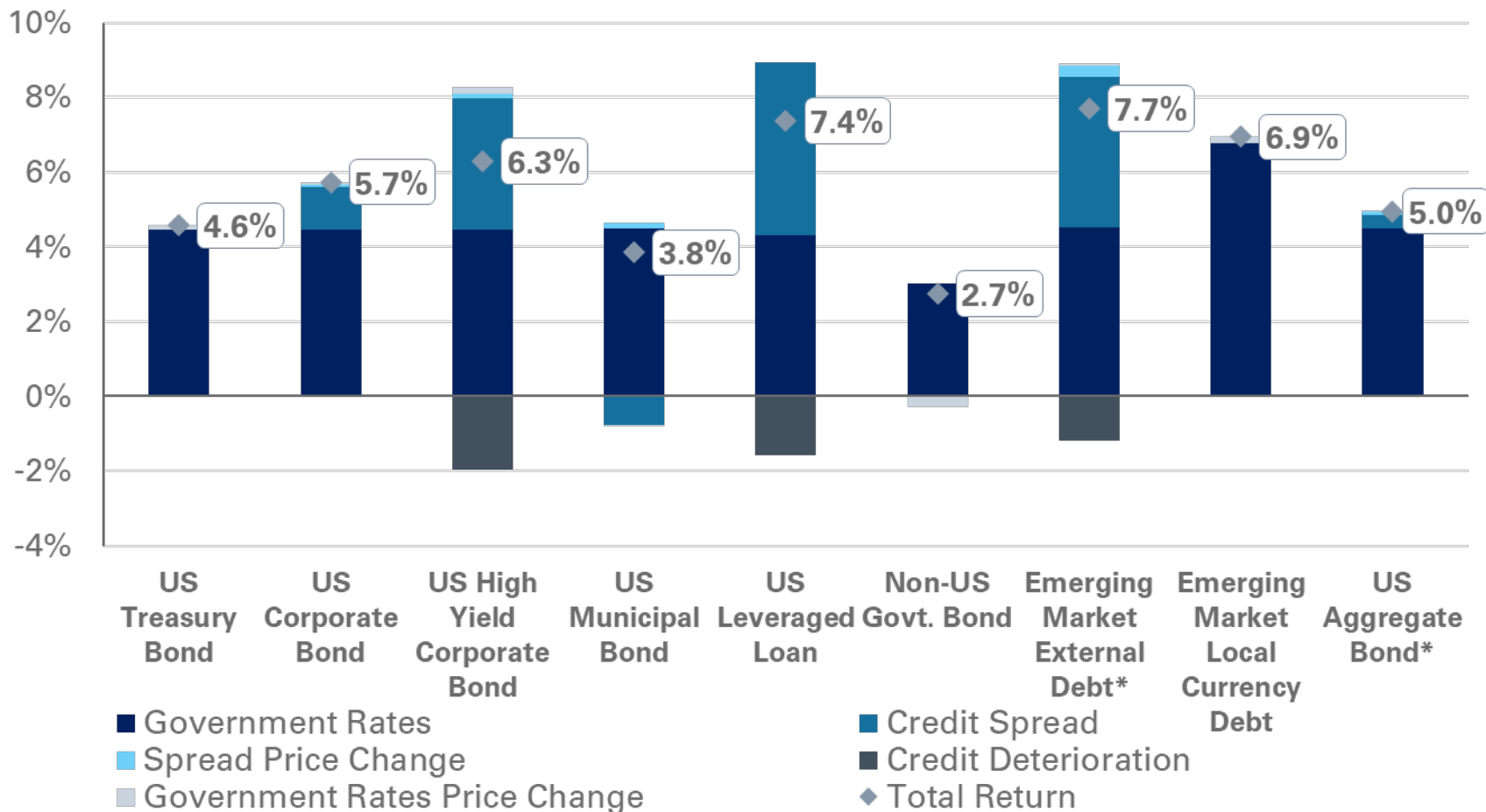


Annual Change in Treasury Yields



FIXED INCOME

BUILDING BLOCKS: 10-YEAR EXPECTED RETURN



Source: NEPC

*Calculated as a blend of other classes

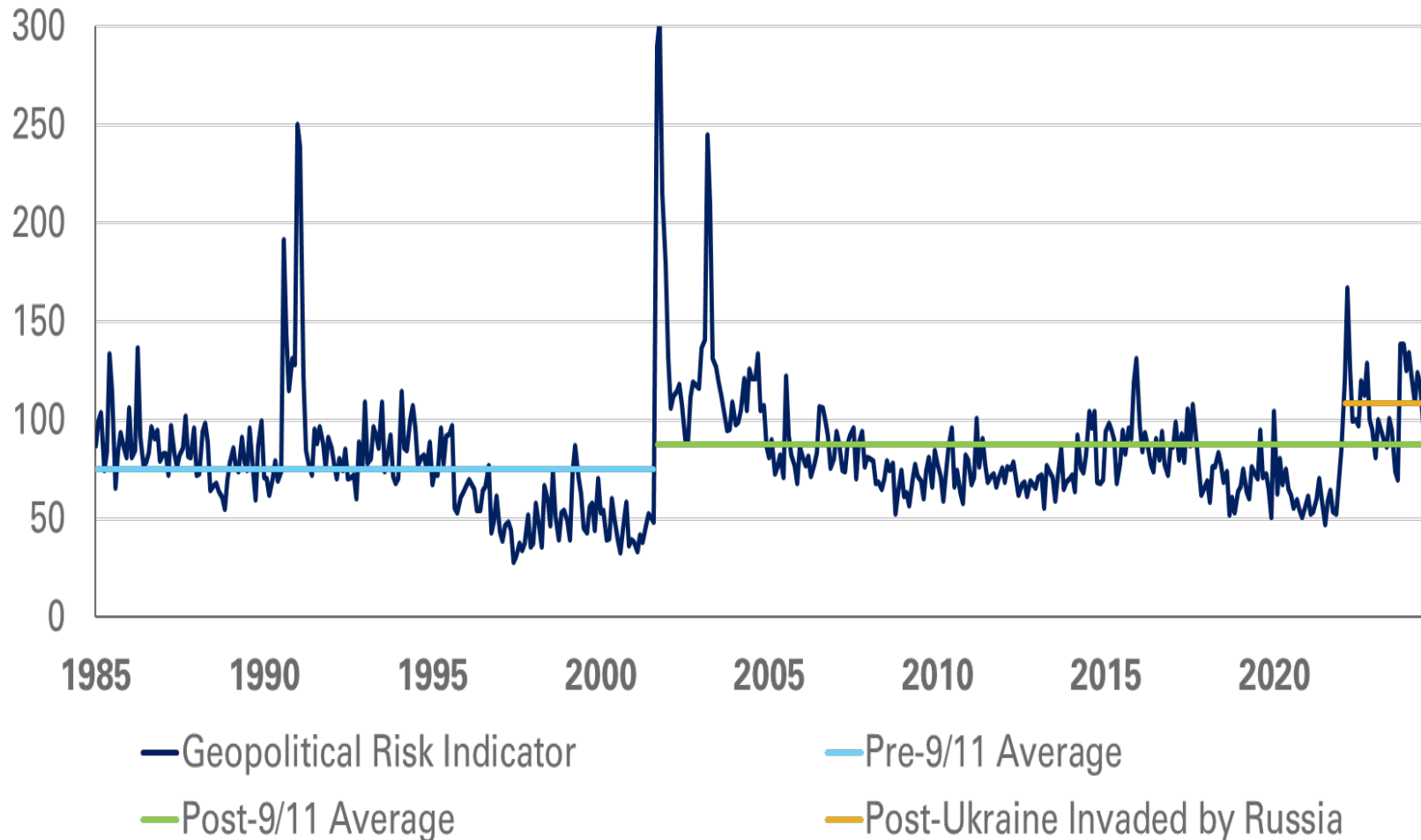


INVESTOR'S GUIDE TO GEOPOLITICAL RISK



PROPRIETARY & CONFIDENTIAL

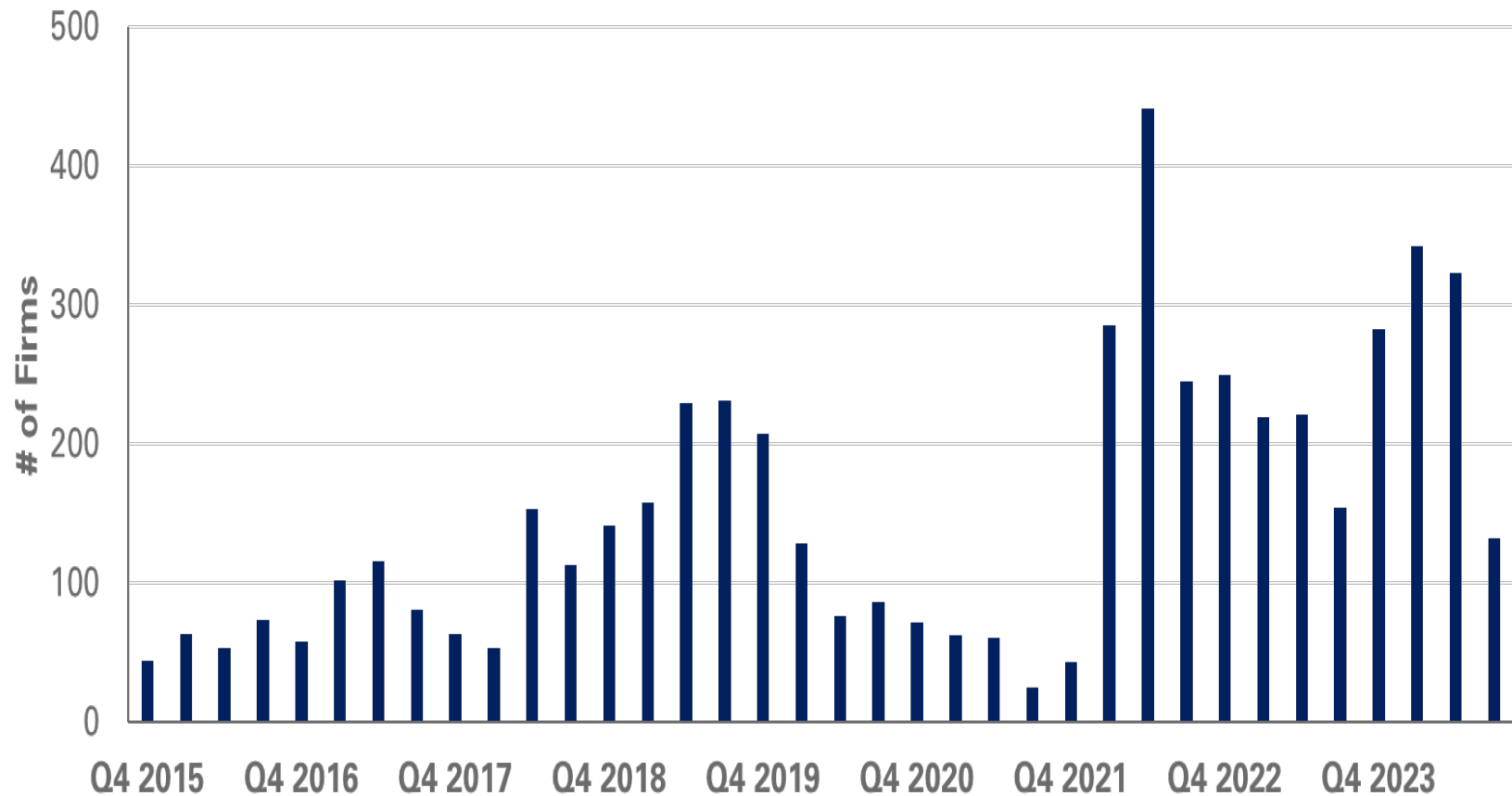
THE RELATIVELY STABLE BACKDROP HAS SHIFTED



Source: "Measuring Geopolitical Risk" by Dario Caldara and Matteo Iacoviello. Data downloaded from <https://www.matteoiacoviello.com/gpr.htm> on August 07, 2024"

GEOPOLITICS ARE TOP OF MIND FOR BUSINESSES

MENTIONS OF GEOPOLITICS ON S&P 500 EARNINGS CALLS



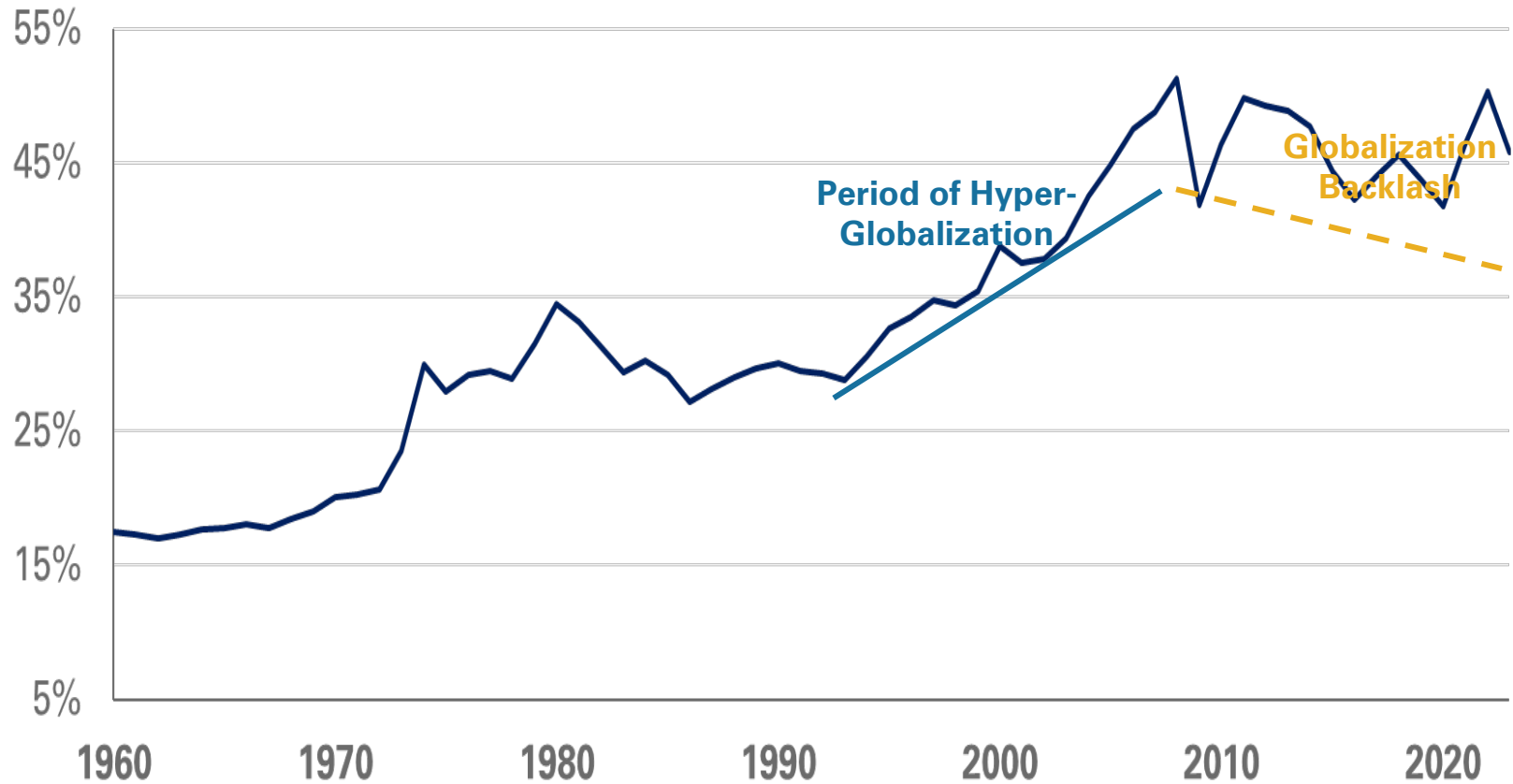
Note: Q3 2024 as of August 12, 2024; results are based on post-earnings calls. Transcripts of S&P 500 firms, includes mentions of "geopolitics", "Red Sea", "trade war", and synonyms.

Sources: S&P, Bloomberg, NEPC



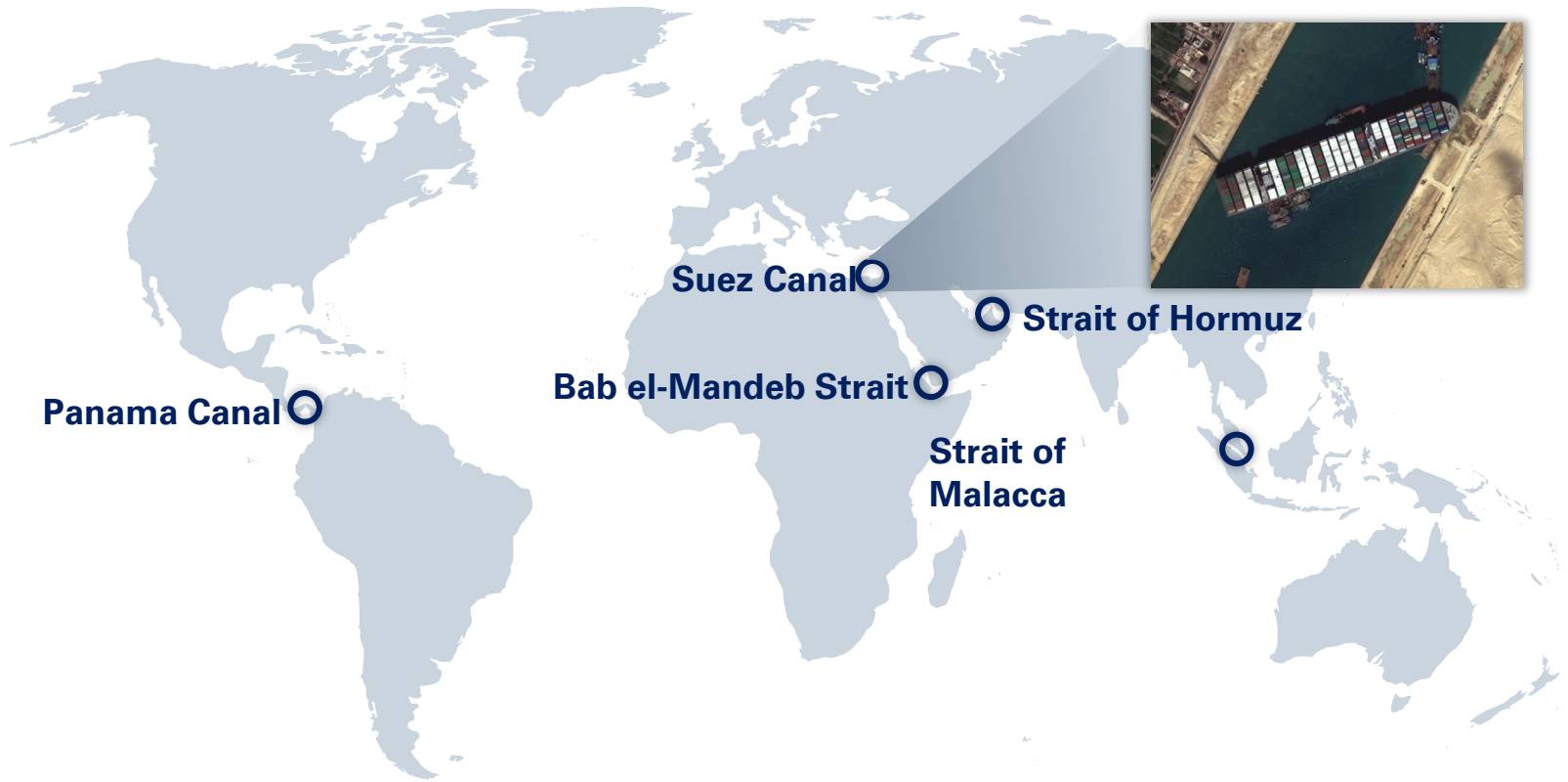
GLOBALIZATION BACKLASH HAS SOME MOMENTUM

GLOBAL MERCHANDISE TRADE AS A % OF GDP



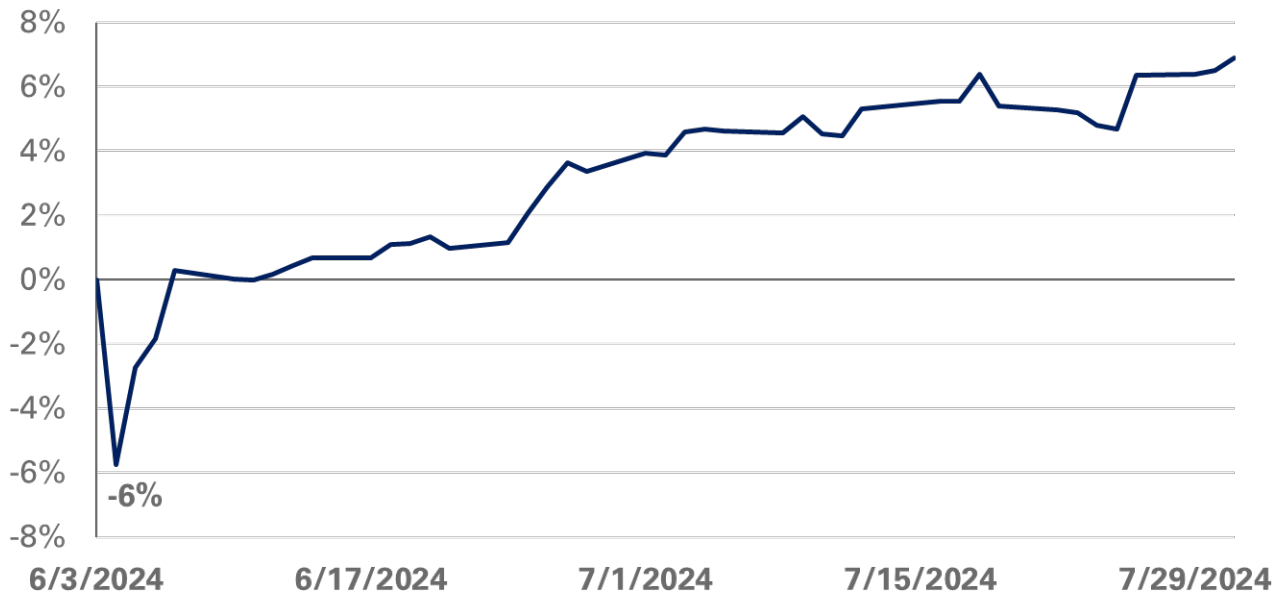
Sources: World Bank WDI - World Development Indicators, FactSet

TRADE DISRUPTIONS CAN STOKE PRICE PRESSURES



GEOPOLITICS OFTEN HAVE A BRIEF MARKET IMPACT

INDIAN EQUITY PERFORMANCE FOLLOWING THE 2024 ELECTION



**\$386B market cap
erased in a single day**

**Equity volatility rose
to a 2-year high**

**Indian Rupee ended
down 0.5% for the day**

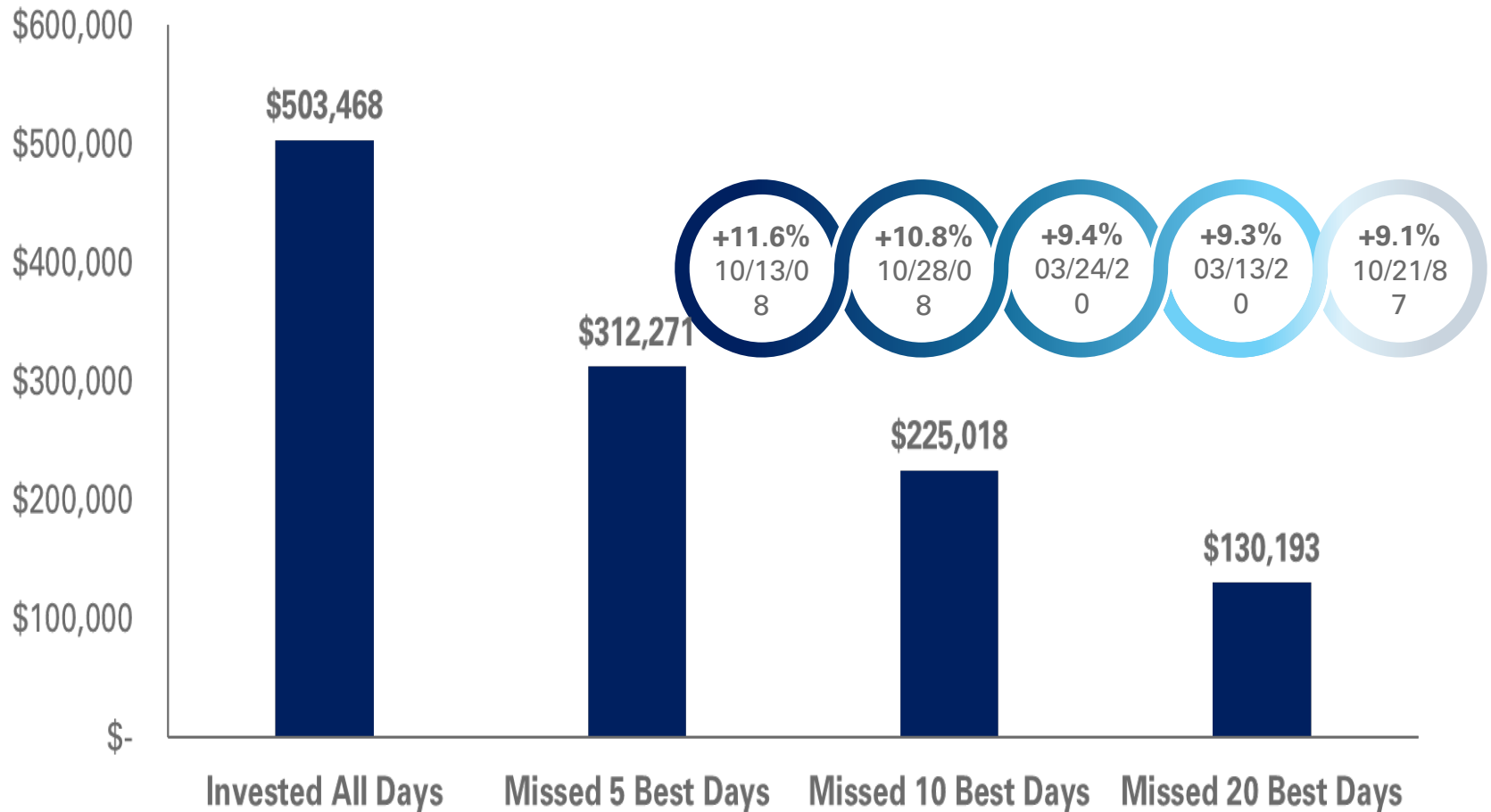
**10-Year India bond
yield increased 10 bps**

Note: Reflects the BSE SENSEX performance in local currency terms.
Sources: S&P, FactSet, NEPC



STAY INVESTED AMID MARKET VOLATILITY

VALUE OF \$10,000 INVESTED IN THE S&P 500

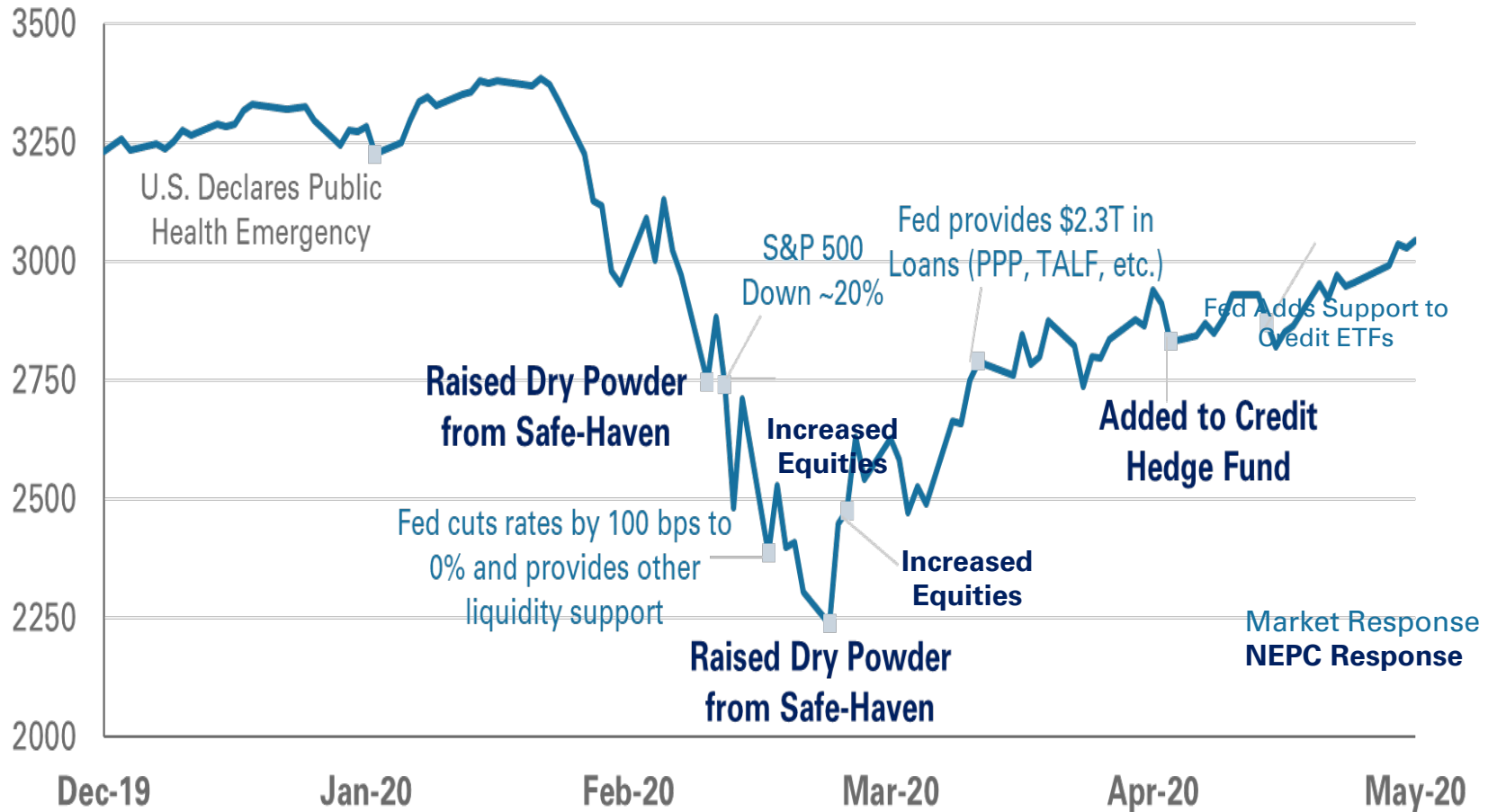


Note: Data reflects S&P 500 index price returns from January 1, 1980 to August 13, 2024
Sources: S&P, FactSet, NEPC



PORTFOLIO LIQUIDITY REMAINS PARAMOUNT

2020 COVID CRISIS EXAMPLE: S&P 500 AND SAFE-HAVEN EXPOSURE



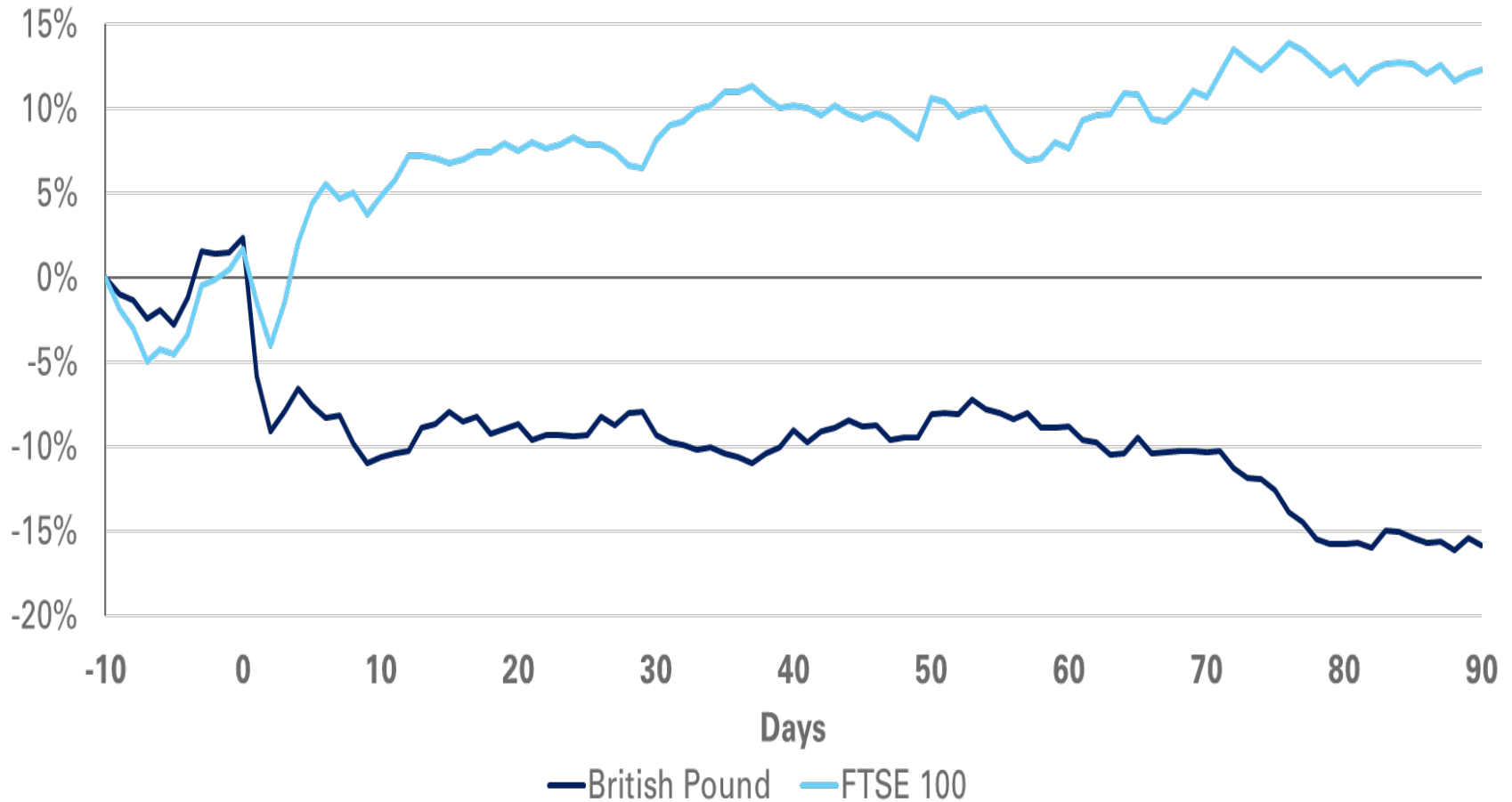
Note: Exhibit reflects a sample client, but the moves represent NEPC's actions across OCIO clients in general, subject to liquidity restrictions. Not all opportunities are suitable for all clients.

Sources: S&P, FactSet, NEPC



CONSIDER CURRENCY DYNAMICS

U.K. EQUITY & CURRENCY RETURNS AROUND THE BREXIT REFERENDUM



Note: Reflects local currency returns. June 23, 2016 noted as day 0 for Brexit referendum date.
Sources: FTSE, FactSet, NEPC



AN INVESTOR'S GUIDE TO GEOPOLITICAL RISK

-  **Maintain a long-term investment perspective:** resist the urge to tactically adjust portfolios in response to geopolitics or “what if...” scenarios
-  **Stay invested amid market volatility:** find opportunities amid volatility surrounding geopolitical events and election outcomes
-  **Portfolio liquidity remains paramount:** we encourage investors to hold a stand-alone “safe-haven” mandate to influence portfolio outcomes in times of market stress
-  **Embrace portfolio diversification:** elevated geopolitical uncertainty introduces the potential for market surprises, making diversification a valuable tool



APPENDIX



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: 100% U.S. Small/Mid Cap

Early-Stage Venture: 100% U.S. Small/Mid Cap

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

10-YEAR RETURN FORECASTS

EQUITY

Geometric Expected Return			
Asset Class	06/30/2024	06/30/2023	Delta
U.S. Large-Cap Equity	4.0%	4.6%	-0.6%
U.S. Small/Mid-Cap Equity	6.2%	6.5%	-0.3%
Non-U.S. Developed Equity	4.5%	5.0%	-0.5%
Non-U.S. Developed Equity (USD Hedge)	4.7%	5.1%	-0.4%
Non-U.S. Developed Small-Cap Equity	6.7%	7.3%	-0.6%
Emerging Market Equity	7.8%	9.2%	-1.4%
Emerging Market Small-Cap Equity	7.1%	8.6%	-1.5%
Hedge Fund - Equity	5.5%	5.7%	-0.2%
Private Equity - Buyout	7.2%	7.5%	-0.3%
Private Equity - Growth	8.5%	8.8%	-0.3%
Private Equity - Early Stage Venture	9.7%	10.0%	-0.3%
Private Equity - Secondary	6.7%	7.0%	-0.3%
Non-U.S. Private Equity	9.7%	10.7%	-1.0%
China Equity	9.8%	9.9%	-0.1%
Global Equity*	5.0%	5.7%	-0.7%
Private Equity*	8.7%	9.1%	-0.4%



*Calculated as a blend of other asset classes

10-YEAR RETURN FORECASTS

FIXED INCOME

Geometric Expected Return			
Asset Class	06/30/2024	06/30/2023	Delta
Cash	4.2%	4.0%	+0.2%
US TIPS	4.8%	4.6%	+0.2%
US Treasury Bond	4.6%	4.2%	+0.4%
US Corporate Bond	5.7%	5.7%	-
US Corporate Bond - AAA	4.9%	4.7%	+0.2%
US Corporate Bond - AA	5.1%	4.9%	+0.2%
US Corporate Bond - A	5.5%	5.5%	-
US Corporate Bond - BBB	6.0%	6.1%	-0.1%
US Mortgage-Backed Securities	4.8%	4.5%	+0.3%
US Securitized Bond	5.4%	5.3%	+0.1%
US Collateralized Loan Obligation	5.7%	5.8%	-0.1%
US Municipal Bond	3.8%	4.1%	-0.3%
US Municipal Bond (1-10 Year)	3.4%	3.2%	+0.2%
US Taxable Municipal Bond	5.5%	5.3%	+0.2%

10-YEAR RETURN FORECASTS

FIXED INCOME

Geometric Expected Return			
Asset Class	06/30/2024	06/30/2023	Delta
Non-US Government Bond	2.7%	2.6%	+0.1%
Non-US Government Bond (USD Hedge)	3.0%	2.8%	+0.2%
Non-US Inflation-Linked Bond (USD Hedge)	3.7%	3.8%	-0.1%
US Short-Term TIPS (1-3 Year)	4.8%	4.6%	+0.2%
US Short-Term Treasury Bond (1-3 Year)	4.7%	4.3%	+0.4%
US Short-Term Corporate Bond (1-3 Year)	5.6%	5.4%	+0.2%
US Intermediate-Term TIPS (3-10 Year)	4.8%	4.6%	+0.2%
US Intermediate-Term Treasury Bond (3-10 Year)	4.6%	4.3%	+0.3%
US Intermediate-Term Corporate Bond (3-10 Year)	6.0%	6.0%	-
US Long-Term TIPS (10-30 Year)	4.9%	4.5%	+0.4%
US Long-Term Treasury Bond (10-30 Year)	4.3%	3.9%	+0.4%
US Long-Term Corporate Bond (10-30 Year)	5.4%	5.6%	-0.2%
20+ Year US Treasury STRIPS	4.2%	3.8%	+0.4%
10 Year US Treasury Bond	4.7%	4.0%	+0.7%
10 Year Non-US Government Bond (USD Hedge)	2.6%	2.1%	+0.5%
US Aggregate Bond*	5.0%	4.7%	+0.3%

*Calculated as a blend of other asset classes



10-YEAR RETURN FORECASTS

FIXED INCOME

Geometric Expected Return			
Asset Class	06/30/2024	06/30/2023	Delta
US High Yield Corporate Bond	6.3%	6.8%	-0.5%
US Corporate Bond - BB	6.9%	7.5%	-0.6%
US Corporate Bond - B	6.4%	6.9%	-0.5%
US Corporate Bond - CCC/Below	0.8%	2.0%	-1.2%
US Short-Term High Yield Corporate Bond (1-3 Year)	5.8%	5.9%	-0.1%
US Leveraged Loan	7.4%	7.6%	-0.2%
Emerging Market Investment Grade External Debt	5.4%	-	-
Emerging Market High Yield External Debt	9.7%	-	-
Emerging Market Local Currency Debt	6.9%	6.5%	+0.4%
US High Yield Securitized Bond	9.3%	8.9%	+0.4%
US High Yield Collateralized Loan Obligation	8.0%	8.5%	-0.5%
US High Yield Municipal Bond	4.2%	5.8%	-1.6%
Hedge Fund - Credit	6.7%	6.9%	-0.2%
Private Debt - Credit Opportunities	7.7%	8.0%	-0.3%
Private Debt - Distressed	8.5%	8.8%	-0.3%
Private Debt - Direct Lending	8.3%	8.6%	-0.3%
Private Debt*	8.3%	8.6%	-0.3%

*Calculated as a blend of other asset classes



10-YEAR RETURN FORECASTS

REAL ASSETS

Geometric Expected Return			
Asset Class	06/30/2024	06/30/2023	Delta
Commodity Futures	4.4%	4.8%	-0.4%
Midstream Energy	5.0%	6.0%	-1.0%
REIT	6.3%	6.4%	-0.1%
Global Infrastructure Equity	6.2%	5.9%	+0.3%
Global Natural Resources Equity	6.4%	6.8%	-0.4%
Gold	5.0%	5.3%	-0.3%
Real Estate - Core	6.0%	5.3%	+0.7%
Real Estate – Value-Add	7.2%	6.7%	+0.5%
Real Estate - Opportunistic	8.3%	8.2%	+0.1%
Private Debt - Real Estate	6.6%	6.3%	+0.3%
Private Real Assets - Natural Resources	8.1%	8.5%	-0.4%
Private Real Assets - Infrastructure	6.6%	6.3%	+0.3%

30-YEAR RETURN FORECASTS

EQUITY

Geometric Expected Return			
Asset Class	06/30/2024	06/30/2023	Delta
U.S. Large-Cap Equity	6.3%	6.7%	-0.4%
U.S. Small/Mid-Cap Equity	7.5%	7.5%	-
Non-U.S. Developed Equity	6.1%	6.5%	-0.4%
Non-U.S. Developed Equity (USD Hedge)	6.4%	6.7%	-0.3%
Non-U.S. Developed Small-Cap Equity	7.9%	7.8%	+0.1%
Emerging Market Equity	9.0%	9.4%	-0.4%
Emerging Market Small-Cap Equity	8.5%	9.3%	-0.8%
Hedge Fund - Equity	6.0%	6.1%	-0.1%
Private Equity - Buyout	8.7%	8.8%	-0.1%
Private Equity - Growth	9.7%	9.8%	-0.1%
Private Equity - Early Stage Venture	10.5%	10.6%	-0.1%
Private Equity - Secondary	8.2%	8.3%	-0.1%
Non-U.S. Private Equity	10.6%	10.9%	-0.3%
China Equity	9.5%	9.5%	-
Global Equity*	7.0%	7.4%	-0.4%
Private Equity*	10.0%	10.2%	-0.2%



*Calculated as a blend of other asset classes

30-YEAR RETURN FORECASTS

FIXED INCOME

Geometric Expected Return			
Asset Class	06/30/2024	06/30/2023	Delta
Cash	3.5%	3.4%	+0.1%
US TIPS	4.8%	4.4%	+0.4%
US Treasury Bond	4.6%	4.1%	+0.5%
US Corporate Bond	6.1%	5.8%	+0.3%
US Corporate Bond - AAA	5.4%	5.0%	+0.4%
US Corporate Bond - AA	5.4%	4.9%	+0.5%
US Corporate Bond - A	5.8%	5.4%	+0.4%
US Corporate Bond - BBB	6.4%	6.0%	+0.4%
US Mortgage-Backed Securities	4.8%	4.3%	+0.5%
US Securitized Bond	5.5%	5.1%	+0.4%
US Collateralized Loan Obligation	5.1%	5.1%	-
US Municipal Bond	4.0%	3.8%	+0.2%
US Municipal Bond (1-10 Year)	3.7%	3.4%	+0.3%
US Taxable Municipal Bond	6.2%	5.8%	+0.4%

30-YEAR RETURN FORECASTS

FIXED INCOME

Geometric Expected Return			
Asset Class	06/30/2024	06/30/2023	Delta
Non-US Government Bond	3.2%	3.1%	+0.1%
Non-US Government Bond (USD Hedge)	3.4%	3.3%	+0.1%
Non-US Inflation-Linked Bond (USD Hedge)	3.7%	3.7%	-
US Short-Term TIPS (1-3 Year)	4.5%	3.9%	+0.6%
US Short-Term Treasury Bond (1-3 Year)	4.4%	3.8%	+0.6%
US Short-Term Corporate Bond (1-3 Year)	5.4%	4.9%	+0.5%
US Intermediate-Term TIPS (3-10 Year)	4.8%	4.4%	+0.4%
US Intermediate-Term Treasury Bond (3-10 Year)	4.6%	4.2%	+0.4%
US Intermediate-Term Corporate Bond (3-10 Year)	6.3%	5.9%	+0.4%
US Long-Term TIPS (10-30 Year)	5.1%	4.6%	+0.5%
US Long-Term Treasury Bond (10-30 Year)	4.7%	4.2%	+0.5%
US Long-Term Corporate Bond (10-30 Year)	6.3%	6.0%	+0.3%
20+ Year US Treasury STRIPS	4.7%	4.2%	+0.5%
10 Year US Treasury Bond	5.1%	4.0%	+1.1%
10 Year Non-US Government Bond (USD Hedge)	3.3%	3.0%	+0.3%
US Aggregate Bond*	5.1%	4.7%	+0.4%

*Calculated as a blend of other asset classes



30-YEAR RETURN FORECASTS

FIXED INCOME

Geometric Expected Return			
Asset Class	06/30/2024	06/30/2023	Delta
US High Yield Corporate Bond	7.3%	7.1%	+0.2%
US Corporate Bond - BB	7.6%	7.7%	-0.1%
US Corporate Bond - B	7.1%	7.0%	+0.1%
US Corporate Bond - CCC/Below	1.5%	1.8%	-0.3%
US Short-Term High Yield Corporate Bond (1-3 Year)	5.9%	5.4%	+0.5%
US Leveraged Loan	6.7%	6.8%	-0.1%
Emerging Market Investment Grade External Debt	6.1%	-	-
Emerging Market High Yield External Debt	8.7%	-	-
Emerging Market Local Currency Debt	5.9%	5.7%	+0.2%
US High Yield Securitized Bond	8.6%	8.1%	+0.5%
US High Yield Collateralized Loan Obligation	7.4%	7.7%	-0.3%
US High Yield Municipal Bond	4.9%	5.7%	-0.8%
Hedge Fund - Credit	7.1%	7.0%	+0.1%
Private Debt - Credit Opportunities	8.4%	8.4%	-
Private Debt - Distressed	9.4%	9.3%	+0.1%
Private Debt - Direct Lending	8.9%	9.0%	-0.1%
Private Debt*	9.0%	9.1%	-0.1%

*Calculated as a blend of other asset classes



30-YEAR RETURN FORECASTS

REAL ASSETS

Geometric Expected Return			
Asset Class	06/30/2024	06/30/2023	Delta
Commodity Futures	3.8%	3.6%	+0.2%
Midstream Energy	6.4%	6.8%	-0.4%
REIT	7.4%	7.4%	-
Global Infrastructure Equity	6.8%	6.7%	+0.1%
Global Natural Resources Equity	7.2%	7.2%	-
Gold	4.9%	4.9%	-
Real Estate - Core	6.5%	5.8%	+0.7%
Real Estate – Value-Add	7.8%	7.5%	+0.3%
Real Estate - Opportunistic	8.7%	9.0%	-0.3%
Private Debt - Real Estate	6.8%	6.3%	+0.5%
Private Real Assets - Natural Resources	8.9%	8.8%	+0.1%
Private Real Assets - Infrastructure	7.0%	6.9%	+0.1%

VOLATILITY FORECASTS

EQUITY

Volatility			
Asset Class	12/31/2023	12/31/2022	Delta
U.S. Large-Cap Equity	17.2%	16.9%	+0.3%
U.S. Small/Mid-Cap Equity	21.0%	20.8%	+0.2%
Non-U.S. Developed Equity	19.7%	19.6%	+0.1%
Non-U.S. Developed Equity (USD Hedge)	17.7%	17.6%	+0.1%
Non-U.S. Developed Small-Cap Equity	24.2%	24.2%	-
Emerging Market Equity	28.1%	28.6%	-0.5%
Emerging Market Small-Cap Equity	31.4%	31.9%	-0.5%
Hedge Fund - Equity	11.0%	11.1%	-0.1%
Private Equity - Buyout	20.0%	20.0%	-
Private Equity - Growth	31.5%	31.4%	+0.1%
Private Equity - Early Stage Venture	46.5%	45.0%	+1.5%
Private Equity - Secondary	20.4%	21.0%	-0.6%
Non-U.S. Private Equity	32.0%	32.0%	-
China Equity	30.6%	30.7%	-0.1%
Global Equity*	18.2%	18.1%	+0.1%
Private Equity*	25.9%	25.7%	+0.2%



*Calculated as a blend of other asset classes

VOLATILITY FORECASTS

FIXED INCOME

Volatility			
Asset Class	12/31/2023	12/31/2022	Delta
Cash	0.6%	0.6%	-
US TIPS	6.0%	6.1%	-0.1%
US Treasury Bond	5.4%	5.4%	-
US Corporate Bond	7.7%	7.6%	+0.1%
US Corporate Bond - AAA	6.8%	6.5%	+0.3%
US Corporate Bond - AA	6.6%	6.4%	+0.2%
US Corporate Bond - A	7.6%	7.5%	+0.1%
US Corporate Bond - BBB	8.4%	8.4%	-
US Mortgage-Backed Securities	6.5%	6.5%	-
US Securitized Bond	8.0%	8.2%	-0.2%
US Collateralized Loan Obligation	7.7%	7.6%	+0.1%
US Municipal Bond	6.0%	6.0%	-
US Municipal Bond (1-10 Year)	4.5%	4.5%	-
US Taxable Municipal Bond	7.5%	7.5%	-

VOLATILITY FORECASTS

FIXED INCOME

Volatility			
Asset Class	12/31/2023	12/31/2022	Delta
Non-US Government Bond	9.5%	9.5%	-
Non-US Government Bond (USD Hedge)	4.1%	4.1%	-
Non-US Inflation-Linked Bond (USD Hedge)	6.7%	6.6%	+0.1%
US Short-Term TIPS (1-3 Year)	3.3%	3.4%	-0.1%
US Short-Term Treasury Bond (1-3 Year)	2.3%	2.3%	-
US Short-Term Corporate Bond (1-3 Year)	2.8%	2.8%	-
US Intermediate-Term TIPS (3-10 Year)	6.0%	6.0%	-
US Intermediate-Term Treasury Bond (3-10 Year)	5.9%	5.9%	-
US Intermediate-Term Corporate Bond (3-10 Year)	7.1%	7.1%	-
US Long-Term TIPS (10-30 Year)	12.4%	12.4%	-
US Long-Term Treasury Bond (10-30 Year)	11.8%	11.8%	-
US Long-Term Corporate Bond (10-30 Year)	11.9%	12.1%	-0.2%
20+ Year US Treasury STRIPS	20.7%	20.7%	-
10 Year US Treasury Bond	7.5%	7.5%	-
10 Year Non-US Government Bond (USD Hedge)	5.0%	5.1%	-0.1%
US Aggregate Bond*	5.8%	5.8%	-



*Calculated as a blend of other asset classes

VOLATILITY FORECASTS

FIXED INCOME

Volatility			
Asset Class	12/31/2023	12/31/2022	Delta
US High Yield Corporate Bond	11.2%	11.1%	+0.1%
US Corporate Bond - BB	9.7%	9.7%	-
US Corporate Bond - B	11.6%	11.7%	-0.1%
US Corporate Bond - CCC/Below	20.3%	20.3%	-
US Short-Term High Yield Corporate Bond (1-3 Year)	8.2%	8.5%	-0.3%
US Leveraged Loan	9.1%	9.1%	-
Emerging Market Investment Grade External Debt	8.7%	-	-
Emerging Market High Yield External Debt	17.5%	-	-
Emerging Market Local Currency Debt	12.7%	13.0%	-0.3%
US High Yield Securitized Bond	11.2%	11.1%	+0.1%
US High Yield Collateralized Loan Obligation	10.4%	10.4%	-
US High Yield Municipal Bond	12.0%	12.0%	-
Hedge Fund - Credit	9.9%	10.0%	-0.1%
Private Debt - Credit Opportunities	14.5%	14.8%	-0.3%
Private Debt - Distressed	14.4%	14.6%	-0.2%
Private Debt - Direct Lending	11.0%	11.0%	-
Private Debt*	11.8%	11.8%	-

*Calculated as a blend of other asset classes



VOLATILITY FORECASTS

REAL ASSETS

Volatility			
Asset Class	12/31/2023	12/31/2022	Delta
Commodity Futures	18.5%	18.5%	-
Midstream Energy	28.2%	28.8%	-0.6%
REIT	21.8%	21.7%	+0.1%
Global Infrastructure Equity	19.4%	20.6%	-1.2%
Global Natural Resources Equity	23.3%	23.5%	-0.2%
Gold	16.4%	16.3%	+0.1%
Real Estate - Core	15.0%	15.0%	-
Real Estate – Value-Add	23.4%	20.4%	+3.0%
Real Estate - Opportunistic	25.8%	23.3%	+2.5%
Private Debt - Real Estate	11.9%	11.9%	-
Private Real Assets - Natural Resources	32.3%	32.5%	-0.2%
Private Real Assets - Infrastructure	12.4%	12.4%	-

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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.

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September 24, 2024

Retirement Board Agenda Item

TO: Retirement Board
FROM: Tom Stadelmaier, Executive Director

- I. SUBJECT: Pension Benefit Information (PBI) CertiDeath Monitoring Services
- II. ITEM NUMBER: 9.a
- III. ITEM TYPE: Discussion and Action
- IV. STAFF RECOMMENDATION: Accept staff recommendation to renew service contract with PBI to provide CertiDeath continuous monitoring service and ad-hoc address location services. Staff recommends a longer-term agreement now that the service is up-and-running and has been proven to add value. Authorize staff to negotiate extension with PBI and execute a final agreement.

ANALYSIS: In September 2023 the Board approved adding CertiDeath continuous monitoring service from PBI to monitor retiree deaths. The process was implemented in late 2023 and StanCERA has been using it since that time. PBI also offers address location services on an ad-hoc basis and some other related services.

On a weekly basis (more often if needed), PBI produces reporting that identifies deaths from the StanCERA retiree population. Most weeks there are deaths reported by PBI not already identified or reported to StanCERA. The PBI service allows StanCERA to cutoff retiree payments in a more timely manner leading to savings of funds that would normally go into recovery and a more efficient process overall for staff. PBI also provides a system that has generally worked well and provides a good interface for staff. Staff has reviewed the process and findings in detail with PBI client-support staff and has also compared pricing and services offered with other CERL systems to ensure that StanCERA is receiving a good value.

- V. RISK: Utilization of PBI CertiDeath reduces the risks associated with overpayment to deceased pensioners and also reduces the risk of false positive identifications.
- VI. ADMINISTRATIVE BUDGET IMPACT: Staff has already budgeted for this service for the current fiscal year. The final contract is expected to be close to the budgeted amounts with a potential cost savings based on the final negotiated fees.