

Due to the termination of the statewide COVID-19 State of Emergency by the Governor of California, effective March 1, 2023, all meetings of the Oakland Police & Fire Retirement System Board and its Committees will be conducted in person.

Meetings are held in wheelchair accessible facilities.

The Board may take action on items not on the agenda only if findings pursuant to the Sunshine Ordinance and Brown Act are made that the matter is urgent or an emergency.

For additional information, contact the Retirement Unit by calling (510) 238-7295. or send an email to mvisaya@oaklandca.gov



AGENDA

AUDIT COMMITTEE MEMBERS

John C. Speakman
Chairperson

R. Steven Wilkinson
Member

Martin J. Melia
Member

**In the event a quorum of the Board participates in the Committee meeting, the meeting is noticed as a Special Meeting of the Board; however, no final Board action can be taken. In the event that the Audit Committee does not reach quorum, this meeting is noticed as an informational meeting between staff and the Chair of the Audit Committee.*

MEETING of the AUDIT & OPERATIONS COMMITTEE of the OAKLAND POLICE AND FIRE RETIREMENT SYSTEM (“PFRS”)

WEDNESDAY, SEPTEMBER 27, 2023

10:00 AM

ONE FRANK H. OGAWA PLAZA, HEARING ROOM 1
OAKLAND, CA 94612

OBSERVE

- To observe the meeting by video conference, please click on this link: <https://us02web.zoom.us/j/82880493983> at the noticed meeting time.
- To listen to the meeting by phone, please call the numbers below at the noticed meeting time: Dial (for higher quality, dial a number based on your current location):
- iPhone one-tap: US: +16699006833, 82880493983# or +13462487799, 82880493983#
- US: +1 669 900 6833 or +1 346 248 7799 or +1 253 215 8782 or +1 301 715 8592 or +1 312 626 6799 or +1 929 205 6099
- International numbers available: <https://us02web.zoom.us/j/82880493983>
- Webinar ID: 828 8049 3983.
If asked for a participant ID or code, press #.

PUBLIC COMMENTS

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- Speaker Card: All persons wishing to address the Board must complete a speaker’s card, stating their name and the agenda item they wish to address, including “Open Forum”.
- eComment: To send your comment directly to staff BEFORE the meeting starts, please email to mvisaya@oaklandca.gov with “PFRS Board Meeting Public Comment” in the subject line for the corresponding meeting. Please note that eComment submission **closes two (2) hours before posted meeting time**.

If you have any questions, please email Maxine Visaya, Administrative Assistant II at mvisaya@oaklandca.gov

ORDER OF BUSINESS

1. **Subject:** OAKLAND POLICE AND FIRE RETIREMENT SYSTEM (“PFRS”) AUDIT & OPERATIONS COMMITTEE MEETING MINUTES
From: Staff of the PFRS Board

Recommendation: **APPROVE** the June 28, 2023 Audit & Operations Committee Meeting Minutes

2. **Subject:** OAKLAND POLICE AND FIRE RETIREMENT SYSTEM (“PFRS”) AUDIT & OPERATIONS COMMITTEE MEETING MINUTES
From: Staff of the PFRS Board

Recommendation: **APPROVE** the August 30, 2023 Audit & Operations Committee Meeting Minutes

3. **Subject:** ADMINISTRATIVE EXPENSES REPORT
From: Staff of the PFRS Board

Recommendation: **ACCEPT** informational report regarding PFRS administrative expenses as of July 31, 2023

4. **Subject:** MANNER OF PFRS BOARD & COMMITTEE MEETINGS
From: Staff of the PFRS Board

Recommendation: **ACCEPT** an informational report regarding the manner of PFRS Board & Committee Meetings and **RECOMMEND BOARD APPROVAL** of the Committee’s recommend course of action

5. REVIEW OF PENDING AUDIT COMMITTEE MEETING AGENDA ITEMS
6. OPEN FORUM
7. FUTURE SCHEDULING
8. ADJOURNMENT

A MEETING OF THE AUDIT & OPERATIONS COMMITTEE of the Oakland Police and Fire Retirement System (“PFRS”) was held Wednesday, June 28, 2023, at One Frank Ogawa Plaza, Hearing Room 1, Oakland, California.

Committee Members	▪ John C. Speakman	Chairperson
	▪ Martin J. Melia	Member
	▪ R. Steven Wilkinson	Member
Additional Attendees	▪ David Jones	PFRS Secretary & Plan Administrator (Excused)
	▪ Téir Jenkins	PFRS Investment & Operations Manager
	▪ Maxine Visaya	PFRS Staff Member
	▪ Selia Warren	PFRS Legal Counsel

The meeting was called to order at 10:11 a.m. Pacific

- 1. PFRS AUDIT & OPERATIONS COMMITTEE MEETING MINUTES** – Member Melia made a motion to approve the May 31, 2023, Audit & Operations Committee Meeting minutes, second by Member Wilkinson. Motion passed.

[SPEAKMAN – Y / MELIA – Y / WILKINSON – Y]
(AYES: 3 / NOES: 0 / ABSTAIN: 0 / ABSENT: 0 / EXCUSED: 0)

- 2. SCOPE OF SERVICES AND INITIATION OF THE FINANCIAL AUDIT OF THE PFRS FUND FOR FISCAL YEAR ENDING JUNE 30, 2023** – Craig Harder of Macias Gini & O’Connell, LLP presented the scope of services and timeline of the Financial Audit of the PFRS Fund for fiscal year ending June 30, 2023. PFRS Investment & Operations Manager Jenkins noted Craig Harder provided the Board with an updated memo today which the information remained unchanged except the addition of proposed timelines.

MOTION: Member Wilkinson made a motion to recommend Board approval of the scope of services and initiation of the Financial Audit of the PFRS Fund for fiscal year ending June 30, 2023, second by Member Melia. Motion passed.

[SPEAKMAN – Y / MELIA – Y / WILKINSON – Y]
(AYES: 3 / NOES: 0 / ABSTAIN: 0 / ABSENT: 0 / EXCUSED: 0)

- 3. ADMINISTRATIVE EXPENSES REPORT** – PFRS Investment & Operations Manager Jenkins presented an informational report regarding PFRS’ administrative expenditures as of April 30, 2023. PFRS has an approved annual budget of approximately \$3.6 million and have expensed approximately \$1.8 million to date for fiscal year 2022/2023. Membership consisted of 662 retired members and beneficiaries, which included 409 Police Members and 253 Fire Members.

MOTION: Chairperson Speakman made a motion to accept the administrative expenses report as of April 30, 2023, and forward to the Board, second by Member Melia. Motion passed.

[SPEAKMAN – Y / MELIA – Y / WILKINSON – Y]
(AYES: 3 / NOES: 0 / ABSTAIN: 0 / ABSENT: 0 / EXCUSED: 0)

4. **RESOLUTION NO. 8081** – Resolution approving request of Oakland Police and Fire Retirement System Board Member R. Steven Wilkinson to travel and attend the National Association of Securities Professionals (NASP) 34th Annual Financial Services Conference from July 24, 2023, through July 26, 2023, in Philadelphia, Pennsylvania and authorizing reimbursement of registration fees and travel-related expenses in an amount not to exceed three thousand dollars (\$3,000.00)

MOTION: Chairperson Speakman made a motion to recommend Board approval of Resolution 8081, second by Member Melia. Motion passed.

[SPEAKMAN – Y / MELIA – Y / WILKINSON – ABSTAIN]
(AYES: 2 / NOES: 0 / ABSTAIN: 1 / ABSENT: 0 / EXCUSED: 0)

5. **REVIEW OF PENDING AUDIT COMMITTEE MEETING AGENDA ITEMS** – PFRS Investment & Operations Manager Téir Jenkins reported on the two (2) items on the Audit and Operations Committee Agenda pending list. Item 1) Status Report of the Ad Hoc Committee regarding the Actuarial Funding Date of July 1, 2026: The Committee was scheduled to meet June 26, 2023; however, the meeting will be rescheduled to occur next week. Item 2) Monitor & Update PFRS Board of Upcoming City Council Agendas Regarding Discussion of the 2026 Actuarial Funding Date: T. Jenkins advised Cheiron presented the Actuary Report and & Meketa presented the PFRS Quarterly Performance Report to the City Finance & Management Committee on June 27, 2023 and noted nothing substantial came out of that meeting. Legal Counsel Warren advised there are no updates at this time.

6. **OPEN FORUM** – No Report.

7. **FUTURE SCHEDULING** – The next Audit & Operations Committee Meeting will be held in-person and is tentatively scheduled to occur July 26, 2023.

8. **ADJOURNMENT** – Chairperson Speakman made a motion to adjourn, second by Member Wilkinson. Motion passed.

[SPEAKMAN – Y / MELIA – Y / WILKINSON – Y]
(AYES: 3 / NOES: 0 / ABSTAIN: 0 / ABSENT: 0 / EXCUSED: 0)

The meeting adjourned at 10:20 a.m. Pacific

JOHN C. SPEAKMAN
COMMITTEE CHAIRPERSON

DATE

A MEETING OF THE AUDIT & OPERATIONS COMMITTEE of the Oakland Police and Fire Retirement System (“PFRS”) was held Wednesday, August 30, 2023, at One Frank Ogawa Plaza, Hearing Room 1, Oakland, California.

Committee Members	▪ John C. Speakman	Chairperson
	▪ Martin J. Melia	Member (Excused)
	▪ R. Steven Wilkinson	Member
Additional Attendees	▪ David Jones	PFRS Secretary & Plan Administrator (Excused)
	▪ Téir Jenkins	PFRS Investment & Operations Manager
	▪ Maxine Visaya	PFRS Staff Member
	▪ Selia Warren	PFRS Legal Counsel

The meeting was called to order at 10:02 a.m. Pacific

1. PFRS AUDIT & OPERATIONS COMMITTEE MEETING MINUTES

Chairperson Speakman tabled approval of the June 28, 2023, Audit & Operations Committee Meeting minutes due to lack of quorum of members present at the meeting. No action was taken on this item.

2. ADMINISTRATIVE EXPENSES REPORT – PFRS Investment & Operations Manager Jenkins presented an informational report regarding PFRS’ administrative expenditures for Fiscal Year ended June 30, 2023. PFRS has an approved annual budget of approximately \$3.6 million and expensed approximately \$2.7 million for fiscal year 2022/2023. Membership consisted of 654 retired members and beneficiaries, which included 404 Police Members and 250 Fire Members. PFRS Investment & Operations Manager Jenkins presented graphical information comparing the approved budget for fiscal year 2022/2023 vs. actual expenses as of June 30, 2023.

MOTION: Member Wilkinson made a motion to accept the administrative expenses report as of June 30, 2023, and forward to the Board, second by Chairperson Speakman. Motion passed.

[SPEAKMAN – Y / MELIA – EXCUSED / WILKINSON – Y]
(AYES: 2 / NOES: 0 / ABSTAIN: 0 / ABSENT: 0 / EXCUSED: 1)

3. ELECTION OF A 5-YEAR RETIRED POLICE REPRESENTATIVE BOARD POSITION

There was no discussion on the matter.

MOTION: Member Wilkinson made a motion to accept the informational report regarding the election of a 5-Year Retired Police Representative Board position, second by Chairperson Speakman. Motion passed.

[SPEAKMAN – Y / MELIA – EXCUSED / WILKINSON – Y]
(AYES: 2 / NOES: 0 / ABSTAIN: 0 / ABSENT: 0 / EXCUSED: 1)

4. PFRS MEMBER VERIFICATION 2023

PFRS Investment & Operations Manager Jenkins presented an informational report regarding the PFRS 2023 Member Verification project and advised forms were mailed yesterday with a request to return by the end of September to verify or update contact information of record and no sensitive information was requested.

MOTION: Member Wilkinson made a motion to accept the informational report, second by Chairperson Speakman. Motion passed.

[SPEAKMAN – Y / MELIA – EXCUSED / WILKINSON – Y]
(AYES: 2 / NOES: 0 / ABSTAIN: 0 / ABSENT: 0 / EXCUSED: 1)

5. REIMBURSEMENT OF PENSION PAYMENTS NOT RECEIVED BY PFRS MEMBER DUE TO FRAUD

PFRS Investment & Operations Manager Jenkins presented an informational report regarding the pension payments not received by a PFRS Member due to fraud and noted internal controls have been strengthened in response to this incident.

MOTION: Chairperson Speakman made a motion to recommend Board approval to reimburse the member for fraudulently diverted funds, second by Member Wilkinson. Motion passed.

[SPEAKMAN – Y / MELIA – EXCUSED / WILKINSON – Y]
(AYES: 2 / NOES: 0 / ABSTAIN: 0 / ABSENT: 0 / EXCUSED: 1)

6. REVIEW OF PENDING AUDIT COMMITTEE MEETING AGENDA ITEMS

PFRS Investment & Operations Manager Téir Jenkins reported on the two (2) items on the Audit and Operations Committee Agenda pending list. Item 1) Status Report of the Ad Hoc Committee regarding the Actuarial Funding Date of July 1, 2026: These meetings are on hold pending an opinion from outside counsel. Item 2) Monitor & Update PFRS Board of Upcoming City Council Agendas Regarding Discussion of the 2026 Actuarial Funding Date: No updates at this time. Legal Counsel Warren clarified the outside counsel opinion is to the City and confirmed the opinion has been received and it is being processed and a report is forthcoming.

7. OPEN FORUM – No Report.

8. FUTURE SCHEDULING

The next Audit & Operations Committee Meeting will be held in-person and is tentatively scheduled to occur September 27, 2023. PFRS Investment & Operations Manager Jenkins noted there will be a discussion at the Full Board meeting to discuss the November and December meeting dates.

9. **ADJOURNMENT** – Chairperson Speakman made a motion to adjourn, second by Member Wilkinson.
Motion passed.

[SPEAKMAN – Y / MELIA – EXCUSED / WILKINSON – Y]
(AYES: 2 / NOES: 0 / ABSTAIN: 0 / ABSENT: 0 / EXCUSED: 1)

The meeting adjourned at 10:19 a.m. Pacific

JOHN C. SPEAKMAN
COMMITTEE CHAIRPERSON

DATE

DRAFT

Table 1

OAKLAND POLICE AND FIRE RETIREMENT SYSTEM

Administrative Budget Spent to Date (Preliminary)

As of July 31, 2023

	Approved Budget		July 2023		FYTD		Remaining		Percent Remaining	
Internal Administrative Costs										
PFRS Staff Salaries	\$	1,459,000	\$	88,520	\$	88,520	\$	1,370,480		93.9%
Board Travel Expenditures		52,500		265		265		52,235		99.5%
Staff Training		20,000		-		-		20,000		100.0%
Staff Training - Tuition Reimbursement		7,500		-		-		7,500		100.0%
Board Hospitality		3,600		-		-		3,600		100.0%
Payroll Processing Fees		40,000		-		-		40,000		100.0%
Miscellaneous Expenditures		45,000		-		-		45,000		100.0%
Internal Service Fees (ISF)		88,000		-		-		88,000		100.0%
Contract Services Contingency		50,000		-		-		50,000		100.0%
Internal Administrative Costs Subtotal :	\$	1,765,600	\$	88,785	\$	88,785	\$	1,676,815		95.0%
Actuary and Accounting Services										
Audit	\$	52,800	\$	-	\$	-	\$	52,800		100.0%
Actuary		49,400		-		-		49,400		100.0%
Actuary and Accounting Subtotal:	\$	102,200	\$	-	\$	-	\$	102,200		100.0%
Legal Services										
City Attorney Salaries	\$	212,100	\$	-	\$	-	\$	212,100		100.0%
Legal Contingency		150,000		-		-		150,000		100.0%
Legal Services Subtotal:	\$	362,100	\$	-	\$	-	\$	362,100		100.0%
Investment Services										
Money Manager Fees	\$	1,353,000	\$	-	\$	-	\$	1,353,000		100.0%
Custodial Fee		124,500		-		-		124,500		100.0%
Investment Consultant		100,000		-		-		100,000		100.0%
Investment Subtotal:	\$	1,577,500	\$	-	\$	-	\$	1,577,500		100.0%
Total Operating Budget	\$	3,807,400	\$	88,785	\$	88,785	\$	3,718,615		97.67%

Table 2

OAKLAND POLICE AND FIRE RETIREMENT SYSTEM

Cash in Treasury (Fund 7100) - Preliminary

As of July 31, 2023

	July 2023	
Beginning Cash as of 7/1/2023	\$	9,496,542
Additions:		
City Pension Contribution - July	\$	3,396,917
Investment Draw	\$	2,000,000
Misc. Receipts		800
Total Additions:	\$	5,397,717
Deductions:		
Pension Payment (June Pension Paid on 7/3/2023)		(4,132,458)
Expenditures Paid		(525,546)
Total Deductions	\$	(4,658,005)
 Ending Cash Balance as of 7/31/2023*	 \$	 10,236,254

* On 8/1/2023, July pension payment of appx \$4,257,000 will be made leaving a cash balance of \$5,979,000.

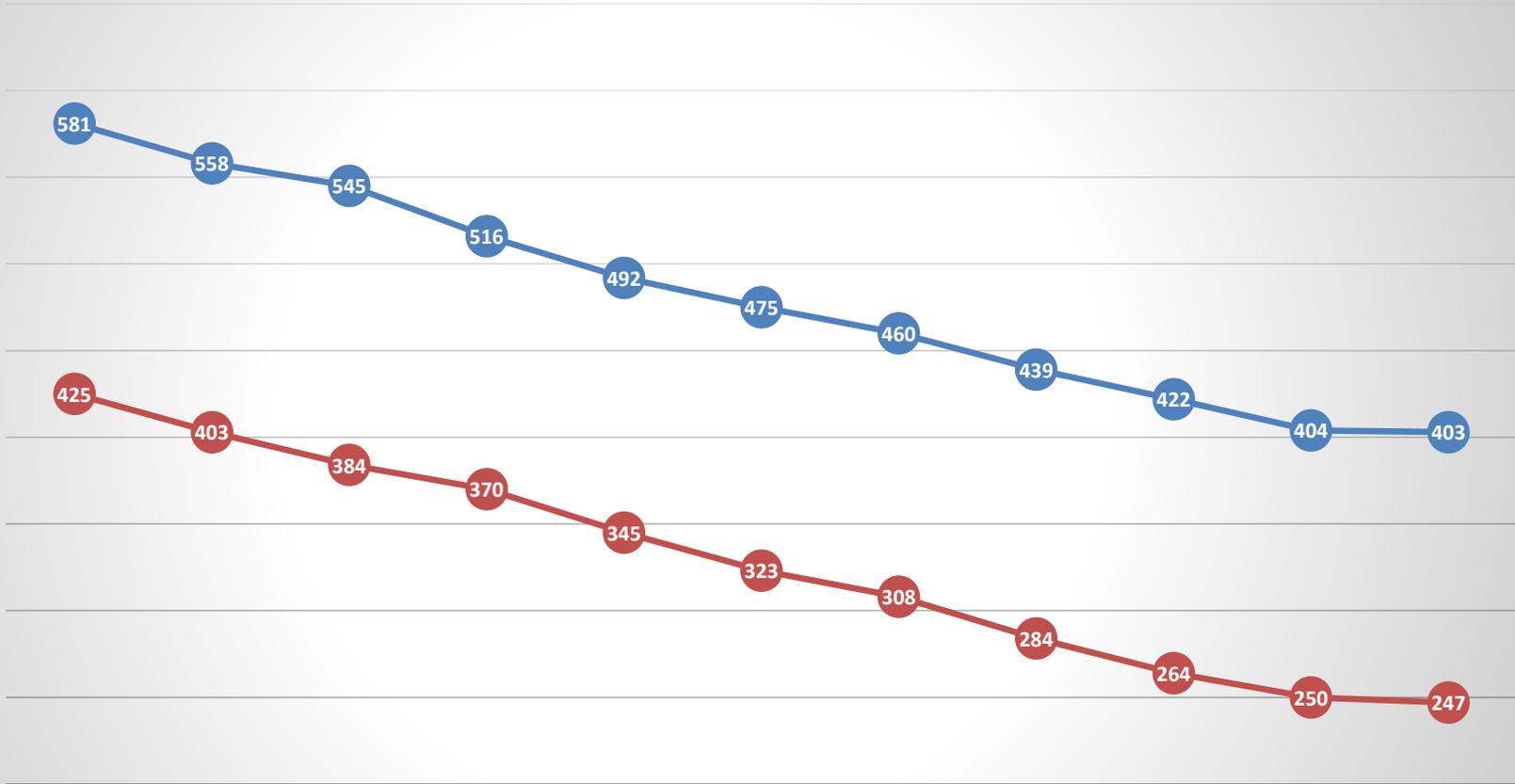
Table 3
CITY OF OAKLAND POLICE AND FIRE RETIREMENT SYSTEM

Census
As of July 31, 2023

COMPOSITION	POLICE	FIRE	TOTAL
Retired Member:			
Retiree	276	157	433
Beneficiary	127	90	217
<i>Total Retired Members</i>	403	247	650
<i>Total Membership:</i>	403	247	650

COMPOSITION	POLICE	FIRE	TOTAL
Retired Member:			
Service Retirement	269	118	387
Disability Retirement	125	118	243
Death Allowance	9	11	20
<i>Total Retired Members:</i>	403	247	650
<i>Total Membership as of July 31, 2023:</i>	403	247	650
<i>Total Membership as of June 30, 2023:</i>	404	250	654
<i>Annual Difference:</i>	-1	-3	-4

Oakland Police and Fire Retirement System Pension Plan Membership Count As of July 31, 2023 (FY 2014 - FY 2024)



	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024 FYTD
Police	581	558	545	516	492	475	460	439	422	404	403
Fire	425	403	384	370	345	323	308	284	264	250	247
Total	1006	961	929	886	837	798	768	723	686	654	650



AGENDA REPORT

TO: Oakland Police and Fire
Retirement System (PFRS)
Board of Administration

FROM: David F. Jones
Plan Administrator & Secretary

SUBJECT: Manner of PFRS Board &
Committee Meetings

DATE: September 27, 2023

BACKGROUND

At the May 31, 2023 PFRS Board Meeting staff requested Board direction regarding the option to initiate and conduct hybrid meetings to engage with presenters and facilitate public comment via virtual participation. The Board discussed the matter briefly and President Johnson directed staff to research logistics and any necessary steps in order to possibly implement such change and place the matter on the agenda for further discussion at the September 2023 meeting.

SUMMARY

Staff researched the matter and confirmed it is both logistically and legally possible to conduct hybrid meetings for the purpose of engaging with presenters and facilitate public comment via virtual participation. However, it would require an update to PFRS' current Rules & Regulations to implement such change.

It should be noted any such updates to the Rules & Regulations will not supersede the legal requirements of Board Members to attend meetings in-person or to exercise the option to attend via teleconference in accordance the Brown Act and AB2449.

Staff seeks further direction from the Board regarding how they would like to proceed.

Respectfully submitted,

David F. Jones
Plan Administrator & Secretary
Oakland Police & Fire Retirement Systems



AGENDA REPORT

TO: Oakland Police and Fire
Retirement System Audit &
Operations Committee

FROM: David F. Jones
Plan Administrator & Secretary

SUBJECT: Audit Committee Agenda
Pending List

DATE: September 27, 2023

	SUBJECT	TENTATIVE SCHEDULED MTG DATE	STATUS
1	Status Report of the Ad Hoc Committee regarding Actuarial Funding date of July 1, 2026	TBD	Meeting pending PFRS Legal Counsel
2	Monitor & Update PFRS Board of Upcoming City Council Agendas Regarding Discussion of the July 1, 2026 Actuarial Funding Date	Ongoing	Ongoing

Respectfully submitted,

David F. Jones
Plan Administrator & Secretary
Police & Fire Retirement Systems

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The Board may take action on items not on the agenda only if findings pursuant to the Sunshine Ordinance and Brown Act are made that the matter is urgent or an emergency.

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Retirement Unit
150 Frank H. Ogawa Plaza
Oakland, California 94612

AGENDA

INVESTMENT COMMITTEE MEMBERS

Jaime T. Godfrey
Chairperson

R. Steven Wilkinson
Member

Robert W. Nichelini
Member

**In the event a quorum of the Board participates in the Committee meeting, the meeting is noticed as a Special Meeting of the Board; however, no final Board action can be taken. In the event that the Investment Committee does not reach quorum, this meeting is noticed as an informational meeting between staff and the Chair of the Investment Committee.*

MEETING of the INVESTMENT AND FINANCIAL MATTERS COMMITTEE of the OAKLAND POLICE AND FIRE RETIREMENT SYSTEM (“PFRS”)

WEDNESDAY, SEPTEMBER 27, 2023

10:30 AM

ONE FRANK H. OGAWA PLAZA, HEARING ROOM 1
OAKLAND, CA 94612

OBSERVE

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- US: +1 669 900 6833 or +1 346 248 7799 or +1 253 215 8782 or +1 301 715 8592 or +1 312 626 6799 or +1 929 205 6099
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- Webinar ID: 828 8049 3983.
- If asked for a participant ID or code, press #.

PUBLIC COMMENTS

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If you have any questions, please email Maxine Visaya, Administrative Assistant II at mvisaya@oaklandca.gov

ORDER OF BUSINESS

- 1. Subject: POLICE AND FIRE RETIREMENT SYSTEM (“PFRS”) INVESTMENT AND FINANCIAL MATTERS COMMITTEE MEETING MINUTES**
From: Staff of the PFRS Board

Recommendation: **APPROVE** the July 26, 2023 Investment and Financial Matters Committee Meeting Minutes

- 2. Subject: POLICE AND FIRE RETIREMENT SYSTEM (“PFRS”) INVESTMENT AND FINANCIAL MATTERS COMMITTEE MEETING MINUTES**
From: Staff of the PFRS Board

Recommendation: **APPROVE** the August 30, 2023 Investment and Financial Matters Committee Meeting Minutes

- 3. Subject: INVESTMENT MANAGER PERFORMANCE UPDATE: VERSOR INVESTMENTS, LLC**
From: Versor Investments, LLC

Recommendation: **ACCEPT** informational report regarding a firm overview and managerial assessment; diversity and inclusion policy and practices; and investment strategy and portfolio performance of PFRS’ Systematic Trend Following Investment Strategy Manager Versor Investments, LLC

- 4. Subject: INVESTMENT MANAGER PERFORMANCE REVIEW: VERSOR MANAGEMENT**
From: Meketa Investment Group

Recommendation: **ACCEPT** Meketa Investment Group’s review and evaluation regarding a firm overview and managerial assessment; peer ranking; and investment portfolio performance of PFRS’ Systematic Trend Following Investment Strategy Manager Versor Investments, LLC

- 5. Subject: ECONOMIC AND INVESTMENT MARKET OVERVIEW AS OF AUGUST 31, 2023**
From: Meketa Investment Group

Recommendation: **ACCEPT** informational report regarding the Global Investment Markets as of August 31, 2023

OAKLAND POLICE AND FIRE RETIREMENT SYSTEM
INVESTMENT & FINANCIAL MATTERS COMMITTEE MEETING
SEPTEMBER 27, 2023

6. **Subject:** PRELIMINARY INVESTMENT FUND PERFORMANCE UPDATE
AS OF AUGUST 31, 2023
From: Meketa Investment Group
-
- Recommendation:** **ACCEPT** informational report regarding the Preliminary Investment Fund Performance Update as of August 31, 2023
7. **Subject:** \$13.2 MILLION DRAWDOWN FOR MEMBER RETIREMENT ALLOWANCES QUARTER ENDING DECEMBER 31, 2023 (FISCAL YEAR 2023/2024)
From: Meketa Investment Group
-
- Recommendation:** **ACCEPT** informational report and **RECOMMEND BOARD APPROVAL** the Meketa Investment Group recommendation for a \$13.2 million drawdown, which includes a \$10.2 Million contribution from the City of Oakland and a \$3.0 Million contribution from the PFRS Investment Fund, to be used to pay Member Retirement Allowances from October 1, 2023 through December 31, 2023
8. **Subject:** THERMAL COAL COMPANIES PROHIBITED FROM THE PFRS INVESTMENT PORTFOLIO – 2023 UPDATE
From: Meketa Investment Group
-
- Recommendation:** **ACCEPT** and **RECOMMEND BOARD APPROVAL** of Meketa Investment Group’s updated list of thermal coal companies prohibited from the PFRS Investment Portfolio
9. **Subject:** ASSET-LIABILITY STUDY OF THE PFRS FUND (2023)
From: Meketa Investment Group
Recommendation: **RECEIVE** and **DISCUSS** informational report regarding the 2023 Asset-Liability Study of the PFRS Fund. **RECOMMEND BOARD APPROVAL** of Meketa Investment Group’s recommended course of action moving forward
10. SCHEDULE OF PENDING INVESTMENT COMMITTEE MEETING AGENDA ITEMS
11. OPEN FORUM
12. FUTURE SCHEDULING
13. ADJOURNMENT

A MEETING OF THE INVESTMENT AND FINANCIAL MATTERS COMMITTEE of the Oakland Police and Fire Retirement System (“PFRS”) was held Wednesday, July 26, 2023, at One Frank H. Ogawa Plaza, Hearing Room 1, Oakland, CA.

Committee Members	<ul style="list-style-type: none"> ▪ Jaime T. Godfrey ▪ Robert W. Nichelini ▪ R. Steven Wilkinson 	<ul style="list-style-type: none"> Chairperson Member Member (Excused)
Additional Attendees	<ul style="list-style-type: none"> ▪ David F. Jones ▪ Téir Jenkins ▪ Maxine Visaya ▪ Selia Warren ▪ David Sancewich ▪ Rodolfo Martell ▪ Kirstin Scherer 	<ul style="list-style-type: none"> PFRS Secretary & Plan Administrator (Excused) PFRS Investment & Operations Manager PFRS Staff Member PFRS Legal Counsel Meketa Investment Group Kepos Capital, LP Kepos Capital, LP

The meeting was called to order at 10:30 a.m. Pacific

Due to technical difficulties audio recording of the meeting did not begin until 10:50 am

1. APPROVAL OF INVESTMENT & FINANCIAL MATTERS COMMITTEE MEETING MINUTES

Chairperson Godfrey made a motion to table the June 28, 2023 Investment & Financial Matters Committee Meeting Minutes due to lack of quorum of members present at the June 28, 2023 meeting, second by Member Nichelini. Motion Passed.

[GODFREY – Y / NICHELINI – Y / WILKINSON – EXCUSED]
 (AYES: 2 / NOES: 0 / ABSTAIN: 0 / ABSENT: 0 / EXCUSED: 1)

2. INVESTMENT MANAGER PERFORMANCE UPDATE: KEPOS CAPITAL, LP

Rodolfo Martell and Kirstin Scherer of Kepos Capital, LP (Kepos) presented an informational report regarding a firm overview and managerial assessment; diversity and inclusion policy and practices; and investment strategy and portfolio performance of PFRS’ Alternative Risk Premia Investment Strategy.

Chairperson Godfrey and Investment and Operations Manager Jenkins made inquiries to further the discussion regarding the following topics: the firm’s diversity and inclusion policy and practices and investment strategy.

MOTION: Member Nichelini made a motion to accept the informational report from Kepos and forward to the Board, second by Chairperson Godfrey. Motion passed.

[GODFREY – Y / NICHELINI – Y / WILKINSON – EXCUSED]
 (AYES: 2 / NOES: 0 / ABSTAIN: 0 / ABSENT: 0 / EXCUSED: 1)

3. INVESTMENT MANAGER PERFORMANCE REVIEW: KEPOS CAPITAL, LP

David Sancewich of Meketa Investment Group (“Meketa”) presented an overview memo regarding a firm overview and managerial assessment; peer ranking; and investment portfolio performance of Kepos, PFRS Alternative Risk Premia Investment Strategy Manager. D. Sancewich advised Meketa has no concerns with Kepos regarding organizational structure or portfolio performance. Meketa will follow-up with Kepos to ensure they understand the questions put forth regarding their diversity policy and will monitor the firm’s efforts.

MOTION: Member Nichelini made a motion to accept Meketa’s evaluation of Kepos and forward to the Board, second by Chairperson Godfrey. Motion passed.

[GODFREY – Y / NICHELINI – Y / WILKINSON – EXCUSED]
(AYES: 2 / NOES: 0 / ABSTAIN: 0 / ABSENT: 0 / EXCUSED: 1)

4. ECONOMIC AND INVESTMENT MARKET OVERVIEW AS OF JUNE 30, 2023

David Sancewich of Meketa presented an informational report regarding the Economic and Investment Market Overview as of June 30, 2023, and highlighted Index Returns, Domestic Equity Returns, Foreign Equity Returns, and Fixed Income Returns and current factors impacting outcomes.

MOTION: Member Nichelini made a motion to accept the informational report presented by Meketa regarding the Economic and Investment Market Overview as of June 30, 2023, and forward to the Board, second by Chairperson Godfrey. Motion passed.

[GODFREY – Y / NICHELINI – Y / WILKINSON – EXCUSED]
(AYES: 2 / NOES: 0 / ABSTAIN: 0 / ABSENT: 0 / EXCUSED: 1)

5. PRELIMINARY INVESTMENT PERFORMANCE UPDATE AS OF JUNE 30, 2023

David Sancewich of Meketa presented an informational report regarding the Preliminary Investment Performance Update as of June 30, 2023 and highlighted Allocation vs. Targets and Policy and the Asset Class Performance Summary and current factors impacting outcomes. D. Sancewich noted the strategic agenda has an upcoming proposal to conduct an Asset Liability Study intended to readjust policy targets based on liabilities moving forward.

MOTION: Chairperson Godfrey made a motion to accept the informational report presented by Meketa regarding the Preliminary Investment Performance Update as of June 30, 2023, and forward to the Board, second by Member Nichelini. Motion passed.

[GODFREY – Y / NICHELINI – Y / WILKINSON – EXCUSED]
(AYES: 2 / NOES: 0 / ABSTAIN: 0 / ABSENT: 0 / EXCUSED: 1)

6. SCHEDULE OF PENDING INVESTMENT COMMITTEE MEETING AGENDA ITEMS

David Sancewich of Meketa presented the 2023 Strategic Investment Agenda Plan for discussion and noted Meketa plans to bring forward a proposal perform an Asset Liability Study at the August meeting. No changes or additions were proposed.

7. OPEN FORUM – No Report

8. FUTURE SCHEDULING

The next Investment Committee Meeting will be held in-person and is tentatively scheduled to occur August 30, 2023.

9. ADJOURNMENT

Member Nichelini made a motion to adjourn, second by Chairperson Godfrey. Motion passed.

[GODFREY – Y / NICHELINI – Y / WILKINSON – EXCUSED]
(AYES: 2 / NOES: 0 / ABSTAIN: 0 / ABSENT: 0 / EXCUSED: 1)

The meeting adjourned at 11:09 a.m. Pacific

JAIM T. GODFREY
COMMITTEE CHAIRPERSON

DATE

A MEETING OF THE INVESTMENT AND FINANCIAL MATTERS COMMITTEE of the Oakland Police and Fire Retirement System (“PFRS”) was held Wednesday, August 30, 2023, at One Frank H. Ogawa Plaza, Hearing Room 1, Oakland, CA.

Committee Members	▪ Jaime T. Godfrey	Chairperson (Excused)
	▪ Robert W. Nichelini	Member
	▪ R. Steven Wilkinson	Member & Acting Chairperson
Additional Attendees	▪ David F. Jones	PFRS Secretary & Plan Administrator (Excused)
	▪ Téir Jenkins	PFRS Investment & Operations Manager
	▪ Maxine Visaya	PFRS Staff Member
	▪ Selia Warren	PFRS Legal Counsel
	▪ David Sancewich	Meketa Investment Group
	▪ Sunita Patel	Wellington Management
	▪ Allison Twiss	Wellington Management

The meeting was called to order at 10:34 a.m. Pacific

1. APPROVAL OF INVESTMENT & FINANCIAL MATTERS COMMITTEE MEETING MINUTES

Member Nichelini made a motion to approve the June 28, 2023 Investment & Financial Matters Committee Meeting Minutes, second by Acting Chairperson Wilkinson. Motion Passed.

[GODFREY – EXCUSED / NICHELINI – Y / WILKINSON – Y]
(AYES: 2 / NOES: 0 / ABSTAIN: 0 / ABSENT: 0 / EXCUSED: 1)

2. APPROVAL OF INVESTMENT & FINANCIAL MATTERS COMMITTEE MEETING MINUTES

Acting Chairperson Wilkinson tabled the July 26, 2023 Investment & Financial Matters Committee Meeting Minutes due to lack of quorum of members present at the meeting. No action was taken on this item.

3. INVESTMENT MANAGER PERFORMANCE UPDATE: WELLINGTON MANAGEMENT

Sunita Patel and Allison Twiss of Wellington Management (Wellington) presented an informational report regarding a firm overview and managerial assessment; diversity and inclusion policy and practices; and investment strategy and portfolio performance of PFRS’ Defensive Equity Investment Strategy.

Acting Chairperson Wilkinson made inquiries to further the discussion regarding the following topics: the firm’s investment strategy and diversity and inclusion policy and practices and requested the Shawna Ferguson, Director of Global Diversity and Inclusion, be in attendance for their next presentation to the Committee.

MOTION: Member Nichelini made a motion to accept the informational report from Wellington and forward to the Board, second by Acting Chairperson Wilkinson. Motion passed.

[GODFREY – EXCUSED / NICHELINI – Y / WILKINSON – Y]
(AYES: 2 / NOES: 0 / ABSTAIN: 0 / ABSENT: 0 / EXCUSED: 1)

4. INVESTMENT MANAGER PERFORMANCE REVIEW: WELLINGTON MANAGEMENT

David Sancewich of Meketa Investment Group (“Meketa”) presented an informational memo regarding a firm overview and managerial assessment; peer ranking; and investment portfolio performance of Wellington, PFRS Defensive Equity Investment Strategy Manager. D. Sancewich advised Meketa has no concerns with Wellington. Acting Chairperson Wilkinson requested the firm’s performance statistics from the year prior to becoming part of PFRS portfolio when the markets were down. Meketa will follow-up with staff to provide requested information.

MOTION: Member Nichelini made a motion to accept Meketa’s evaluation of Wellington and forward to the Board, second by Acting Chairperson Wilkinson. Motion passed.

[GODFREY – EXCUSED / NICHELINI – Y / WILKINSON – Y]
(AYES: 2 / NOES: 0 / ABSTAIN: 0 / ABSENT: 0 / EXCUSED: 1)

5. ECONOMIC AND INVESTMENT MARKET OVERVIEW AS OF JULY 31, 2023

David Sancewich of Meketa presented an informational report regarding the Economic and Investment Market Overview as of July 31, 2023, and highlighted Index Returns and current factors impacting outcomes.

MOTION: Member Nichelini made a motion to accept the informational report presented by Meketa regarding the Economic and Investment Market Overview as of July 31, 2023, and forward to the Board, second by Acting Chairperson Wilkinson. Motion passed.

[GODFREY – EXCUSED / NICHELINI – Y / WILKINSON – Y]
(AYES: 2 / NOES: 0 / ABSTAIN: 0 / ABSENT: 0 / EXCUSED: 1)

6. PRELIMINARY INVESTMENT PERFORMANCE UPDATE AS OF JULY 31, 2023

David Sancewich of Meketa presented an informational report regarding the Preliminary Investment Performance Update as of July 31, 2023 and highlighted the Asset Class Performance Summary and current factors impacting outcomes.

MOTION: Member Nichelini made a motion to accept the informational report presented by Meketa regarding the Preliminary Investment Performance Update as of July 31, 2023, and forward to the Board, second by Acting Chairperson Wilkinson. Motion passed.

[GODFREY – EXCUSED / NICHELINI – Y / WILKINSON – Y]
(AYES: 2 / NOES: 0 / ABSTAIN: 0 / ABSENT: 0 / EXCUSED: 1)

7. INVESTMENT FUND QUARTERLY PERFORMANCE UPDATE AS OF JUNE 30, 2023

David Sancewich of Meketa presented PFRS’ Investment Fund Quarterly Performance Update as of June 30, 2023, and highlighted the Total Portfolio Review, Domestic Equity Returns, Summary of Cash Flows, and the Total Plan Risk/Return Summary.

MOTION: Member Nichelini made a motion to accept the informational report presented by Meketa regarding the PFRS Investment Fund Quarterly Performance Update as of June 30, 2023, and forward to the Board, second by Acting Chairperson Wilkinson. Motion passed.

[GODFREY – EXCUSED / NICHELINI – Y / WILKINSON – Y]
(AYES: 2 / NOES: 0 / ABSTAIN: 0 / ABSENT: 0 / EXCUSED: 1)

8. PROPOSAL TO PERFORM AN ASSET-LIABILITY STUDY OF THE PFRS FUND AT AN ESTIMATED COST OF \$40,000

David Sancewich of Meketa presented an informational memo regarding the purpose and scope of an Asset-Liability Study of the PFRS Fund with a proposed fee of \$40,000 and recommended PFRS move forward with the study.

MOTION: Member Nichelini made a motion to accept Meketa’s proposal to perform an Asset-Liability Study of the PFRS Fund and forward to the Board for approval, second by Acting Chairperson Wilkinson. Motion passed.

[GODFREY – EXCUSED / NICHELINI – Y / WILKINSON – Y]
(AYES: 2 / NOES: 0 / ABSTAIN: 0 / ABSENT: 0 / EXCUSED: 1)

9. SCHEDULE OF PENDING INVESTMENT COMMITTEE MEETING AGENDA ITEMS

David Sancewich of Meketa presented the 2023 Strategic Investment Agenda Plan for discussion and noted possible changes depending on the Board’s course of action regarding scheduling of the November and December meetings and to expect continued discussion regarding the Asset Liability Study in the coming months. No changes or additions were proposed.

10. OPEN FORUM – No Report

11. FUTURE SCHEDULING

The next Investment Committee Meeting will be held in-person and is tentatively scheduled to occur September 27, 2023.

12. ADJOURNMENT

Member Nichelini made a motion to adjourn, second by Acting Chairperson Wilkinson. Motion passed.

[GODFREY – EXCUSED / NICHELINI – Y / WILKINSON – Y]
(AYES: 2 / NOES: 0 / ABSTAIN: 0 / ABSENT: 0 / EXCUSED: 1)

The meeting adjourned at 11:24 a.m. Pacific

R. STEVEN WILKINSON
ACTING COMMITTEE CHAIRPERSON

DATE

Versor Trend Following

Oakland Police and Fire Retirement Systems

September 2023

Certain information in this presentation primarily consists of compilations of publicly available data. Versor Investments LP or any of its affiliates (collectively, "Versor Investments") has obtained such data from what it believes to be reliable sources. However, Versor Investments has no ability, and has not attempted independently, to verify any such information. Versor Investments' analytics have been applied to such data to generate certain statistical conclusions and simulations. Such analytics necessarily involve applying Versor Investments' models to historical data on a backtested basis and are subject, accordingly, to the material inherent limitations of backtested data. See disclosures at the end of this presentation.



Deepak Gurnani
 Founder and Managing Partner

Deepak Gurnani is the Founder and Managing Partner of Versor Investments. Deepak is the former CIO of Investcorp’s Hedge Fund Group and was one of the founding members in 1996. He was also a member of the Management Committee there. Deepak retired from Investcorp in March 2013. Prior to Investcorp, Deepak Gurnani spent six years with Citicorp.

Deepak has conducted extensive research over the last 20+ years into various aspects of hedge fund investing – analyzing risk and return of hedge funds, quantifying alternative risk premia inherent in hedge fund returns, using tactical asset allocation to enhance hedge fund portfolio returns, integrating hedge funds into institutional asset allocation and using separate accounts for risk management. Deepak holds a BTech from the Indian Institute of Technology, Delhi, and an MBA from the Indian Institute of Management, Ahmedabad.



DeWayne Louis
 Founding Partner

DeWayne Louis joined Versor Investments as a Founding Partner and is based in New York. DeWayne has over 20 years of experience in quantitative investment strategies, investment banking, private equity and hedge funds. Prior to Versor Investments, DeWayne joined Investcorp’s Hedge Fund Group at the inception of the North America and Europe branches. He remained there for nearly a decade. Prior to Investcorp, DeWayne was an Associate Director in UBS’ Private Equity Secondary Group, focusing on buying and selling private equity interests in the secondary market. Earlier in his career, DeWayne was an Associate in the Investment Banking Division of Credit Suisse where he focused on mergers, acquisitions and project finance transactions.

DeWayne serves on the board of the New York City Economic Development Corporation (“NYCEDC”). NYCEDC is the City’s primary vehicle for promoting economic growth in each of the five boroughs. DeWayne also serves on the Board of the Brooklyn Public Library (“BPL”), one of the nation’s largest public library systems. BPL is a recognized leader in cultural offerings, literacy, out-of-school-time services, workforce development programs, and digital literacy. DeWayne holds a BS in Finance and International Business with a French minor from Georgetown University. There, he was a four-year varsity letterman on the football team.

Versor Investments intends to create diversified sources of absolute returns across multiple asset classes. Within a scientific, hypothesis-driven framework, Versor leverages modern statistical methods and vast datasets to drive every step of the investment process.

AUM: \$1.3 Billion ¹

Employees: 55 ²

1. As of June 30, 2023. AUM reflects regulatory AUM as per SEC definition for the purposes of Item 5.F on the Form ADV Part 1a.

2. Data is as of August 31, 2023.



Client Centered

100% employee ownership and substantial co-investment from partners



Innovative Culture

Challenge the status quo, embrace change, and explore new ideas

Collaborative team culture fosters innovation

Early adoption of machine learning, artificial intelligence, natural language processing and alternative data sets



Experienced Team

25+ researchers with advanced degrees from a wide array of academic disciplines

Portfolio managers average 25+ years of experience

30+ published whitepapers



Novel Technology

Proprietary research platform to test new alpha models

State of the art technology infrastructure for risk management, portfolio optimization, and trade execution

Pioneer (amongst hedge funds) in leveraging power of cloud computing



Strong D&I

80% of the Firm's ownership is held by ethnic and racial minority groups



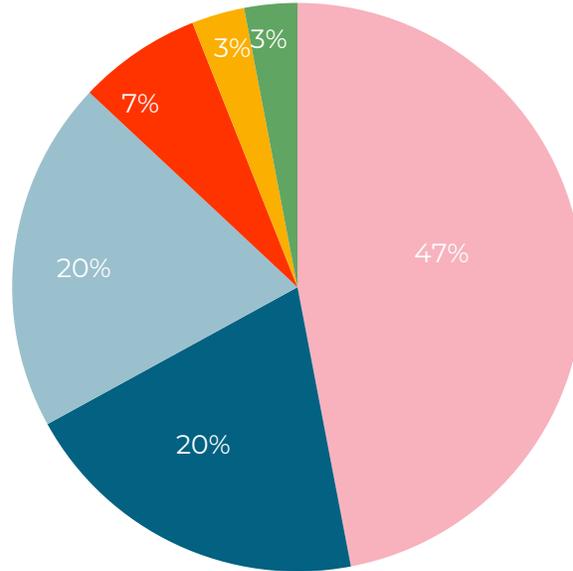
Versor Investments is 100% owned by the Partners
 Diversity and inclusion are core components of Versor’s DNA

1. Data as of August 31, 2023.

AUM DISTRIBUTION

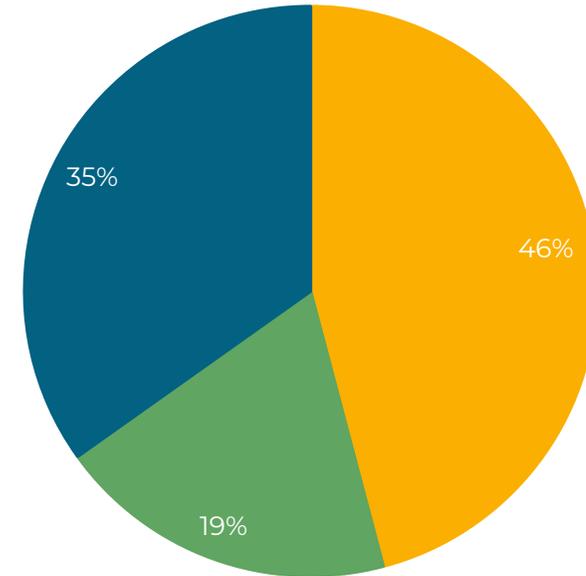
As of June 30, 2023, Versor manages \$1.3 billion¹ across a global group of institutional clients

AUM² by Investor Category



- Consultants
- Corporate Pension Plans
- Public Pension Plans
- Fund of Funds
- Proprietary Capital
- Registered Investment Advisors

AUM³ by Strategy %



- Merger Arbitrage
- Quant Equity
- Futures and FX

1. As of June 30, 2023, AUM reflects Regulatory AUM as per SEC definition for the purposes of Item 5.F on the Form ADV Part 1a.

2. Net Asset Value as of June 30, 2023.

3. Net Asset Value as of June 30, 2023.

The AUM is allocated to the respective strategy across Versor advised multi-strategy accounts and AUM of a separate fund.

Merger Arbitrage - AUM represents Assets Under Management for the Versor Merger Arbitrage strategy. AUM for the strategy is estimated by applying a notional capital allocation to the AUM of the multi-strategy accounts and represents the AUM of a separate fund allocated to the strategy.

Quant Equity - AUM represents Assets Under Management for the Versor Stock Selection strategy. AUM for the strategy is estimated by applying a notional capital allocation to the AUM of the multi-strategy accounts and represents the AUM of a separate fund allocated to the strategy.

Futures and FX - AUM represents Assets Under Management for Versor Trend Following and Versor Global Macro strategies.

Versor Trend Following - AUM represents Assets Under Management for the Versor Trend Following Strategy. AUM for the strategy is estimated by applying a notional capital allocation to the AUM of the multi-strategy accounts and represents the AUM of a separate fund allocated to the strategy.

Versor Global Macro - AUM represents combined Assets Under Management for the Versor Global Macro strategies including its sub-strategies. AUM for the strategies is estimated by applying a notional capital allocation to the AUM of the multi-strategy accounts and represents the AUM of a separate fund allocated to the strategies.

Diversity Representation Survey for Oakland Police and Fire

DATA AS OF 08/31/2023

Firm Name	Versor Investments LP		
Product Name	Versor Trend Following		
Total Number of Employees	55		
	Percentage (%) of Board of Directors / Managing Members	Percentage(%) of Firm (Entire Staff)	Percentage (%) of Firm (Investment Professionals)
Race and Ethnicity			
African American/Black	17%	2%	-
Asian/Hawaiian/Pacific Islander	50%	91%	50%
Latino/Hispanic	-	-	-
White	33%	7%	50%
American Indian/Alaska Native	-	-	-
Other	-	-	-
Gender			
Male	83%	82%	75%
Female	17%	18%	25%
Non-Identified/Other	-	-	-

1. Data as of August 31, 2023.

Trend Following invests in over 100 contracts of futures and futures-related instruments across four major asset classes: commodities, equity indices, bonds and currency markets globally. The portfolio takes long or short positions in any of these instruments in markets exhibiting price trends (up or down).

Universe

100+ contracts across commodities, equities, fixed income and currencies

Developed and emerging markets

Most liquid contracts globally

Alpha Forecast Models

Multiple alpha forecast models: MA cross-over, time-series momentum, other trend models, futures curve (e.g., carry)

Multiple forecast horizons from 1 month to 1 year

Differentiators

Proprietary alpha forecast models

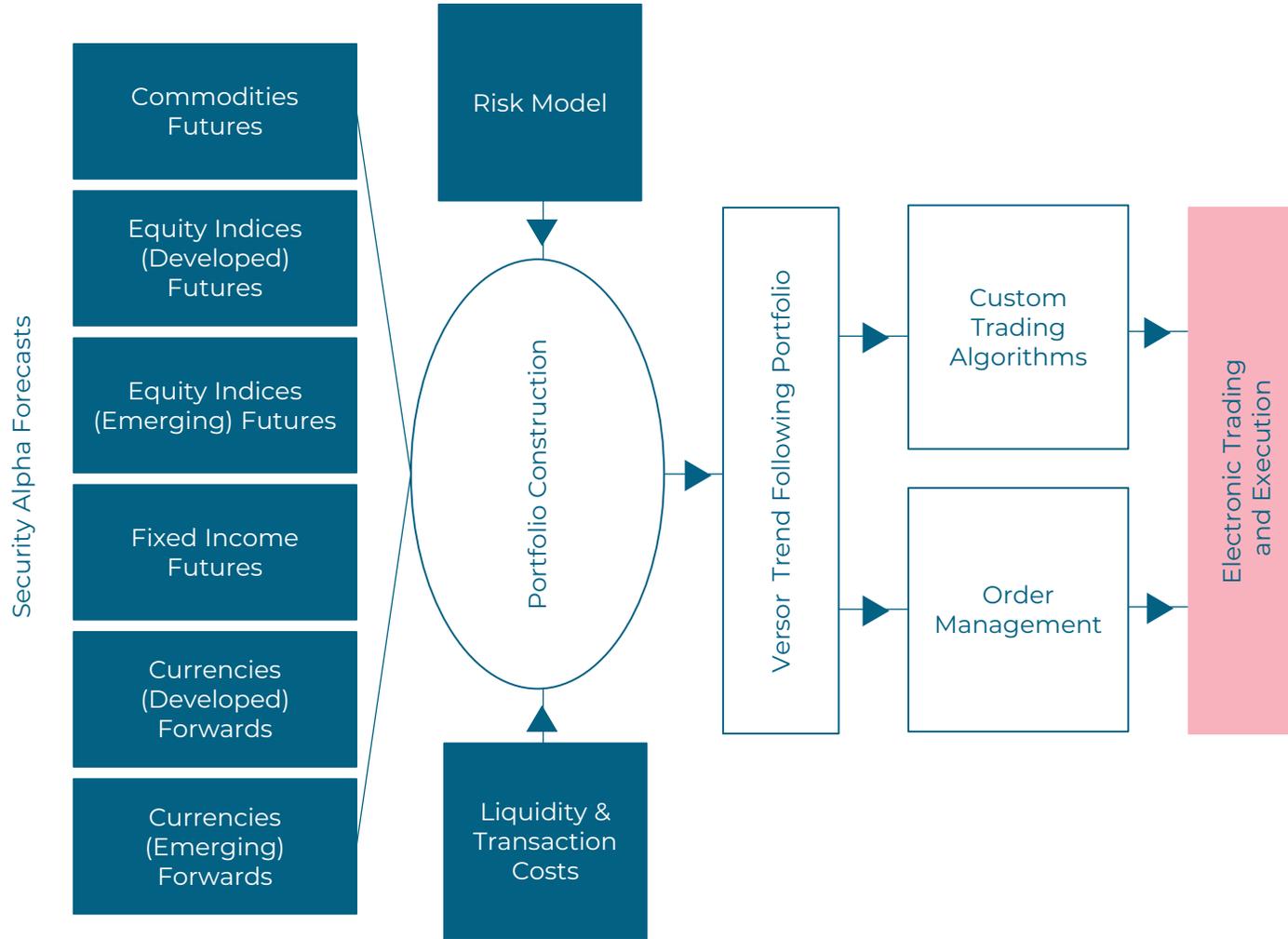
Dynamic allocations based on signal strength

Enhanced performance around trend reversals

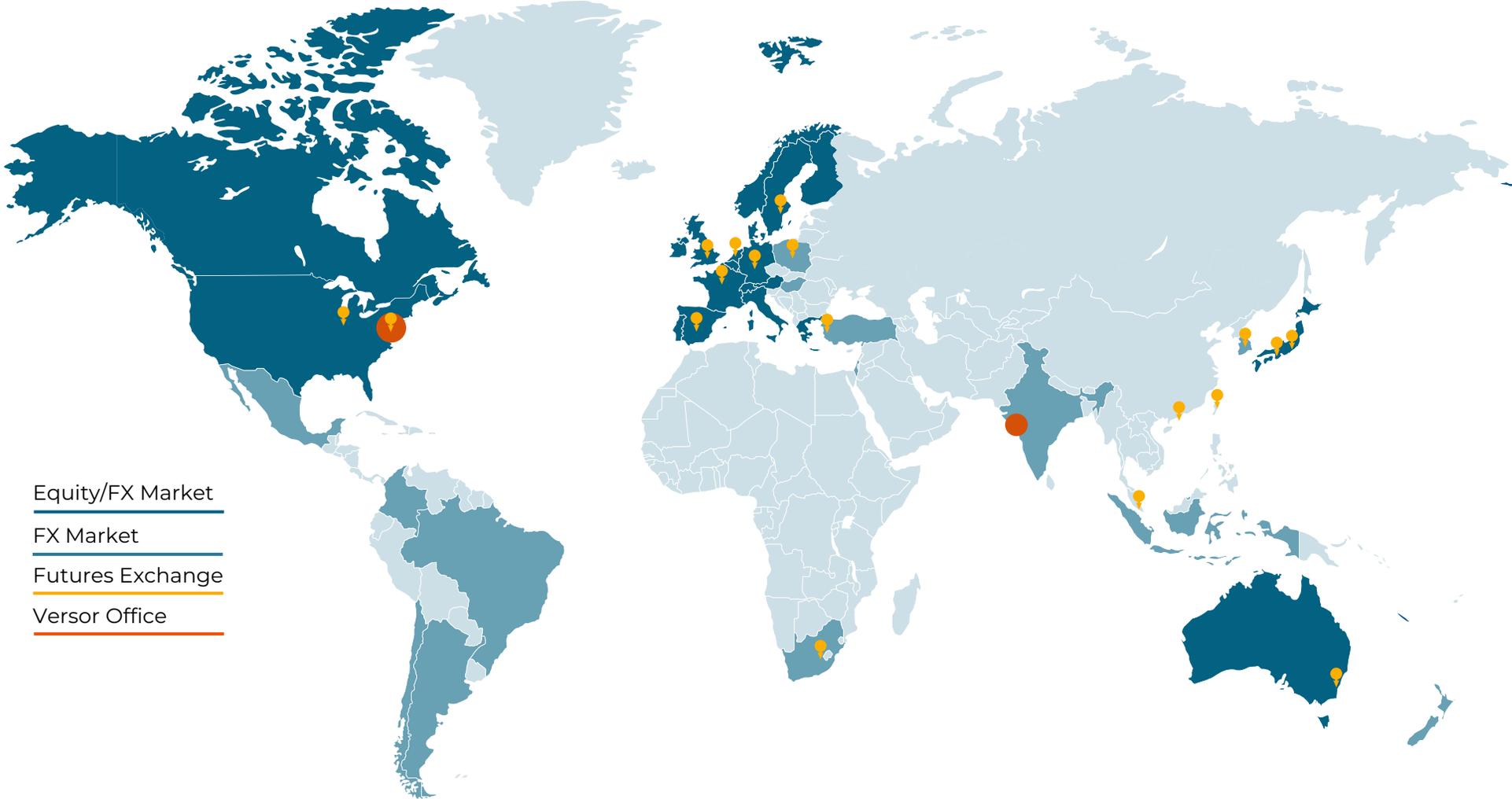
Diversification across forecasts and contracts

Efficient electronic trading

INVESTMENT PROCESS OVERVIEW



The above chart shows a high-level picture of portfolio construction process. For illustrative purposes only.

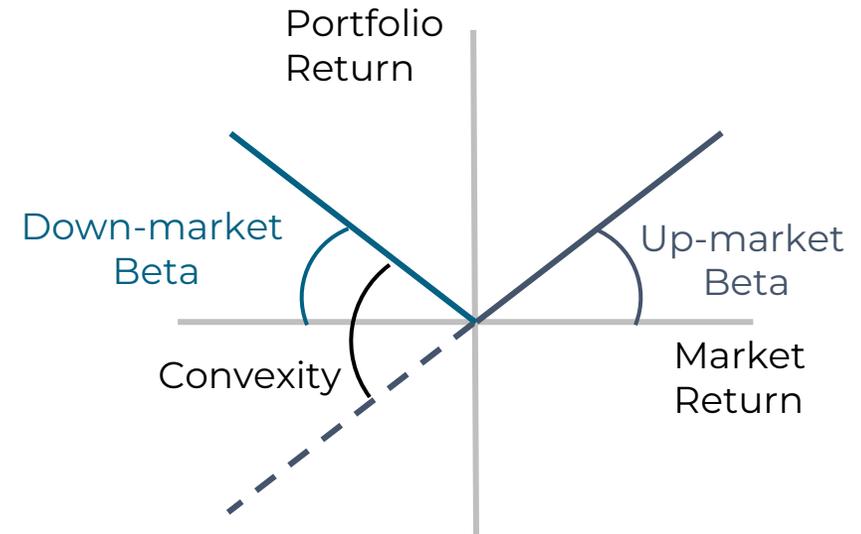


Geographic areas are not proportional to size of financial markets or Versor Investments exposures. There are multiple futures exchanges in some cities.

RETURN CONVEXITY

Concept

Make money in up markets and down markets
Requires a change from "long" to "short" exposures



Results

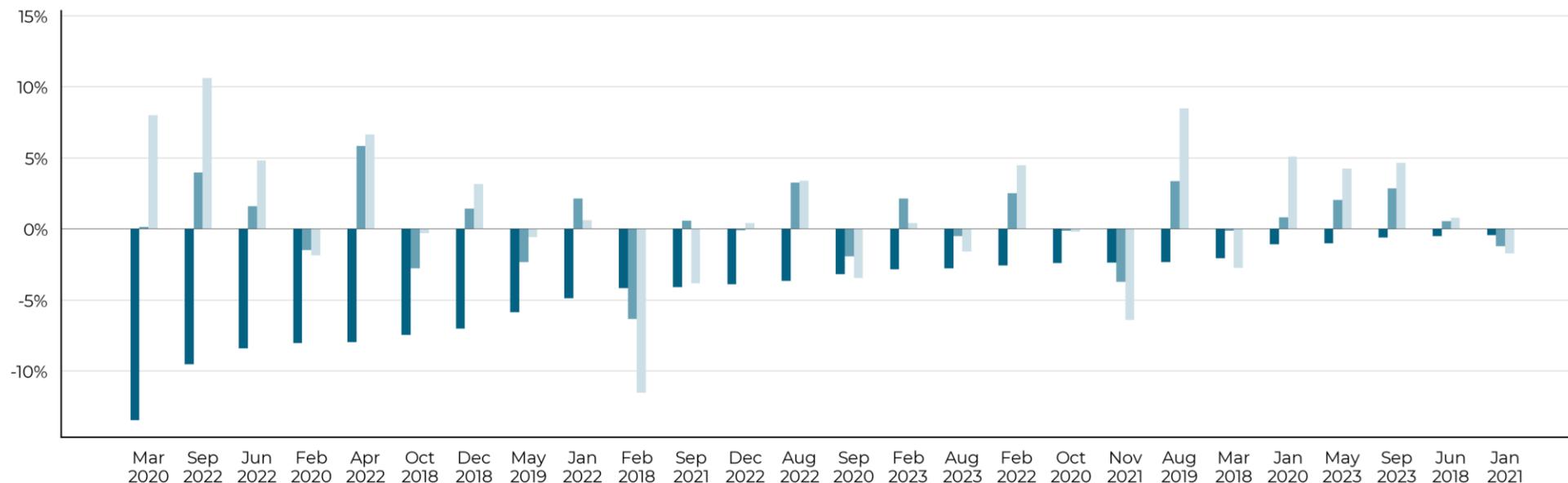
Managers in the SG Trend Index have lost convexity over time

Period	Down Market Beta	Up Market Beta	Convexity
Long-term	-0.15	0.09	0.24
2000-2008	-0.37	0.15	0.52
2009-2021	0.15	0.04	-0.11

Past performance is not indicative of future results. Performance results reflect the reinvestment of income. Commodity interest trading involves substantial risk of loss.

Data received from Societe Generale, MSCI, Bloomberg and internally prepared by Versor Investments. Beta estimates based on monthly returns from January 2000 to April 2021. All returns in excess of TBill rates.

VERSOR TREND FOLLOWING PERFORMANCE IN THE MONTHS OF EQUITY DRAWDOWNS



Equity Index:
Mean -4.33%

SG CTA Index:
Mean 0.48%

Versor Trend Following:
Mean 1.22%

Equity Index:
Correlation: -0.24 | Beta: -0.22

SG CTA Index:
Correlation: 0.85 | Beta: 1.41

Past performance is not indicative of future results. Performance results reflect the reinvestment of income. Commodity interest trading involves substantial risk of loss.

"Equity Index" refers to the returns of the MSCI ACWI. "SG CTA Index" refers to the returns of the SG CTA Index. "Trend Following strategy" refers to the live returns of the Versor Trend Following strategy. Correlation denotes the Pearson correlation between the Versor Trend Following with the MSCI ACWI. Beta denotes the beta of the Versor Trend Following w.r.t. the MSCI ACWI. Correlation and beta are estimated using monthly returns and include both positive and negative monthly returns to the MSCI ACWI.

The analysis covers the period May 04, 2017, to September 15, 2023, and includes 26 months with negative returns to MSCI ACWI.

Past performance is not indicative of future results. Performance results reflect the reinvestment of income. Commodity interest trading involves substantial risk of loss

Reported returns are unaudited preliminary estimates, subject to revision and net of management fees. Certain investors may have higher management fees depending on applicable share class. Please note that the returns could be materially different from those stated here in case the strategy was managed in a dedicated standalone fund. In fact, the actual returns could be much lower than those shown here. Please see important disclosures at the end of the presentation.

Live Performance

1. "Versor Trend Following Oakland PFRS Portfolio" represents the returns of Versor Trend Following Fund, launched on April 1, 2022. The return estimates presented here are based on Versor Investments' internal systems, have not been reconciled with the Administrator and do not reflect the official books and records of the account. In the event of any discrepancy between the information contained herein and the information contained in an investor's audited account statements, the latter shall govern. Returns are net of all expenses including 0.25% annual data fees and 0.90% annual management fees. Certain investors may have higher management fees depending on applicable share classes. Versor Investments also manages other accounts using the same investment strategy. Returns for the other accounts may differ from the returns shown here, depending on differences in risk levels and other investment restrictions, timing of cash flows, and fee structures. The data is for the period April 01, 2022, to September 15, 2023.

Benchmark Index

2. Returns shown here are of the SG CTA Index. The SG CTA Index calculates the net daily rate of return for a pool of CTAs selected from the largest managers open to new investment. It is equal-weighted and reconstituted annually. The comparison of the performance of the various strategies presented to these indices may be inappropriate

because the various strategies are not as diversified as the indices, may be more or less volatile than the indices, and may include securities which are substantially different than the securities in the indices. The data is for the period April 01, 2022, to September 15, 2023.

3. The standard deviation is computed using Newey-West estimator with 22 lags to daily returns. The Newey-West estimator is designed to handle autocorrelation in returns. The data is for the period April 01, 2022, to September 15, 2023.

4. The Sharpe ratio is a measure of the excess return per unit of risk, where risk is estimated using Newey-West estimator with 22 lags to daily returns. The data is for the period April 01, 2022, to September 15, 2023.

PERFORMANCE SUMMARY

Strategy	Start Date	Returns									Since Inception		
		Sep 2023	YTD	1 Year	2022	2021	2020	2019	3 Year	5 Year	Return	Std. Dev. ³	Sharpe Ratio ⁴
Versor Trend Following Oakland PFRS Portfolio ¹	01-April-2022	4.67%	0.22%	-2.22%	6.49%						4.44%	16.27%	0.04
SG CTA Index ²	01-April-2022	0.09%	1.23%	-0.49%	6.51%						5.15%	10.65%	0.12

Past performance is not indicative of future results. Performance results reflect the reinvestment of income. Commodity interest trading involves substantial risk of loss.

1. Versor Trend Following refers to the live returns of the Versor Trend Following strategy.

2. YTD refers to the returns for the period January 01, 2023, to September 15, 2023.

3. ITD refers to annualized returns for the period April 01, 2022, to September 15, 2023.

4. Net Reported returns are cumulative returns (not annualized) for the period, unaudited preliminary estimates and subject to revision. Refer to "Strategy Disclosures" in disclosures section, note 1 for performance disclosures of Versor Trend Following strategy.

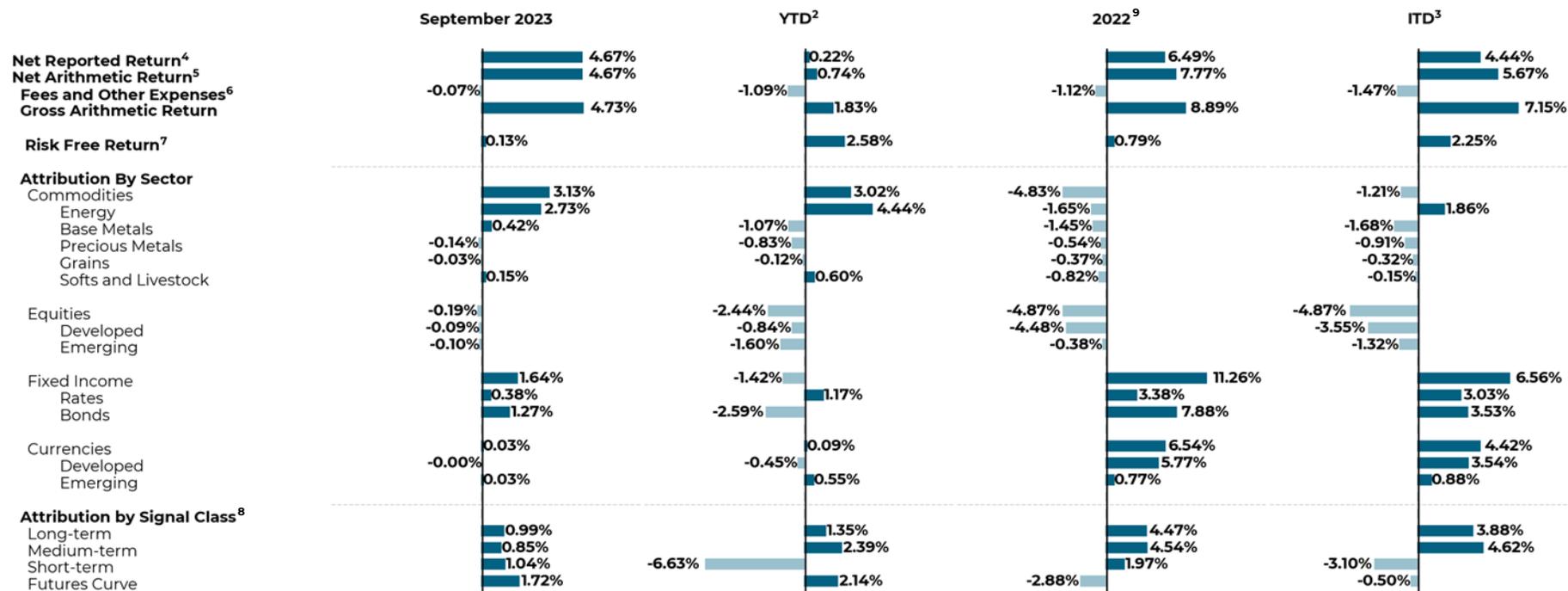
5. Net Arithmetic Return may slightly differ from Net Reported Returns due to compounding.

6. Monthly fees and other expenses, include 0.02% data fees, 0.075% management fees and administration, audit and other expenses.

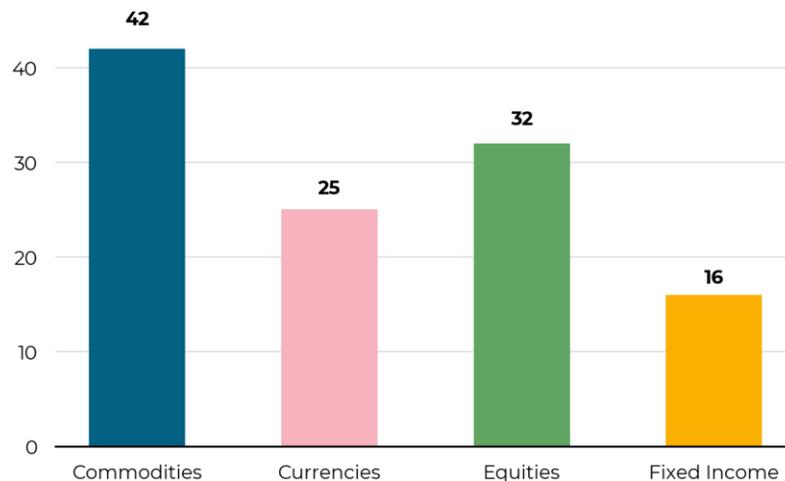
7. The live returns for the Versor Trend Following strategy has been adjusted by adding the US T-Bill return on the excess cash upon meeting margin requirement.

8. Long-term represents signals with time horizon of 4-6 months, Medium-term represents signals with time horizon of 2-4 months and Short-term represents signals with time horizon of 0-2 months.

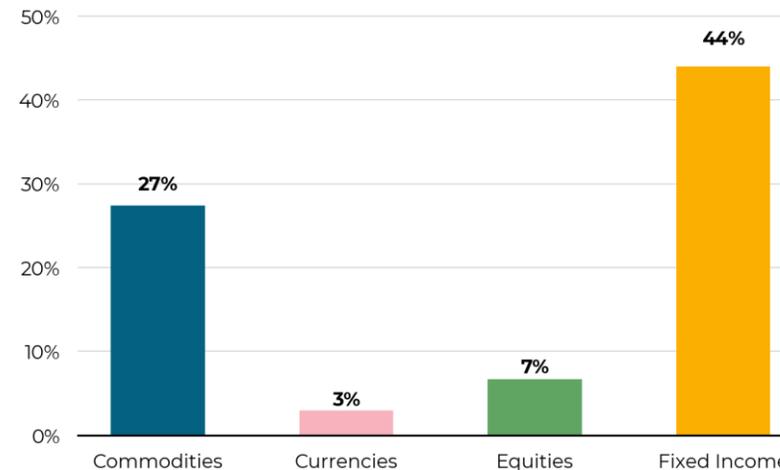
9. 2022 performance is for the period April 01, 2022, to December 31, 2022.



Positions (Total = 115)



Ex-Ante Risk Contribution (Total Risk = 12.15%)¹



Risk Exposures - Top Contributors (Ex - Ante Risk)¹

	Ex-Ante Risk	Long MV ²	Short MV ²
Commodities	27.41%	46.21%	-51.11%
Gasoline	5.19%		
Gas Oil	4.44%		
H Oil	3.51%		
Fixed Income	43.97%	10.17%	-130.93%
Euribor 3M	5.69%		
SOFR 3M	5.61%		
SONIA 3M	4.58%		

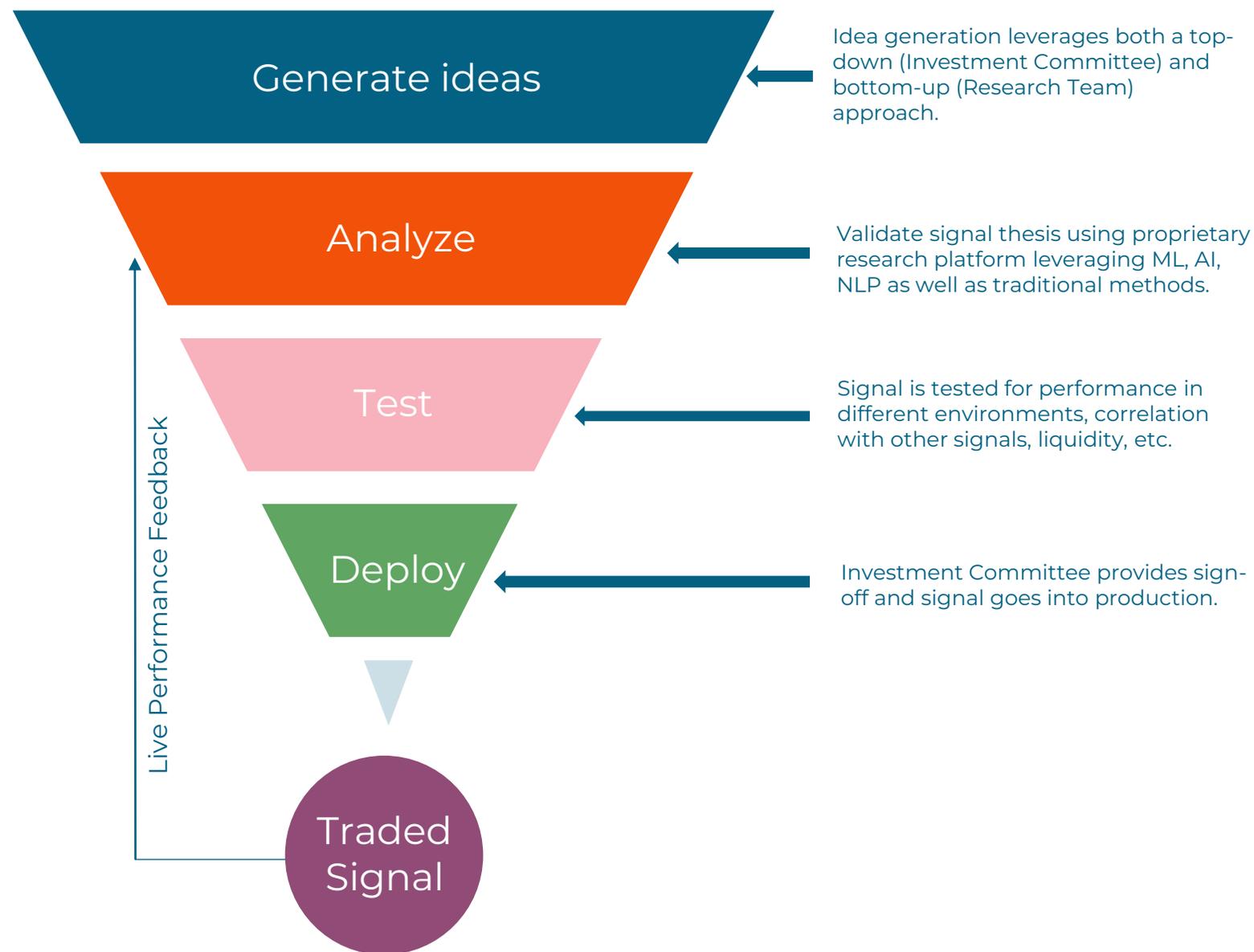
	Ex-Ante Risk	Long MV ²	Short MV ²
Equities	6.68%	44.22%	-7.51%
SPI 200	1.42%		
IBEX 35	1.20%		
S&P 500	0.73%		
Currencies	2.92%	30.17%	-35.82%
MXNUSD	0.50%		
COPUSD	0.25%		
BRLUSD	0.19%		

Past performance is not indicative of future results. Performance results reflect the reinvestment of income. Commodity interest trading involves substantial risk of loss.

1. Ex-Ante risk is based on Versor Investments' internal risk systems. Risk contribution is calculated at 16% annualized target volatility.

2. Long MV (Short MV) is computed as market value of futures contracts of Long (Short) positions as a percentage of the net asset value. Fixed income Long MV (Short MV) is expressed in US 10 years bond futures equivalent Long MV (Short MV).

- Versor follows a systematic research process
- Just 5-10% of signal ideas pass Versor’s rigorous process and enter the live portfolio
- Time from idea generation to deployment can be 3 weeks to 6 months
- New traded signals begin with small risk weights which may increase as the track records develop
- Traded signals are constantly monitored for alpha decay
 - This process can result in signal removal or modification



For illustrative purposes only. Actual implementation may differ.

- Scientific, data-intensive investment process
 - Differentiated investment process
 - Deep and experienced team of 50+ specialists
 - 250+ human work years spent on developing superior research and trading technology
- Versor Trend Following offers attractive diversification to portfolios dominated by equity risk
- Uncertain macro economic environment presents attractive investment opportunities
- Versor Trend Following has superior track record outperforming hedge fund peers

Past performance is not indicative of future results. Performance results reflect the reinvestment of income. Commodity interest trading involves substantial risk of loss

Disclosures

Past performance is not indicative of future results. Performance results reflect the reinvestment of income. Commodity interest trading involves substantial risk of loss.

Reported returns are unaudited preliminary estimates, subject to revision and net of management fees. Certain investors may have higher management fees depending on applicable share class. Please note that the returns could be materially different from those stated here in case the strategy was managed in a dedicated standalone fund. In fact, the actual returns could be much lower than those shown here. Please see important disclosures at the end of the presentation.

Live Performance

1. "Versor Trend Following Oakland PFRS Portfolio" represents the returns of Versor Trend Following Fund, launched on April 1, 2022. The return estimates presented here are based on Versor Investments' internal systems, have not been reconciled with the Administrator and do not reflect the official books and records of the account. In the event of any discrepancy between the information contained herein and the information contained in an investor's audited account statements, the latter shall govern.

Returns are net of all expenses including 0.25% annual data fees and 0.90% annual management fees. Certain investors may have higher management fees depending on applicable share classes. Versor Investments also manages other accounts using the same investment strategy. Returns for the other accounts may differ from the returns shown here, depending on differences in risk levels and other investment restrictions, timing of cash flows, and fee structures.

2. Versor Investments launched the Versor Trend Following Fund on April 1, 2022. Prior to April 1, 2022, Versor Investments did not manage capital in the Versor Trend Following Fund as a dedicated Fund for this strategy. Versor Trend Following Strategy was part of a sub strategy under ARP Alternative Risk Premia 2x Fund, which is a multi-strategy fund. Returns from May 4, 2017, to December 22, 2020, for the Versor Trend Following strategy are estimated by applying a notional capital allocation (and applicable expenses) to the P/L associated with the portion of the ARP Alternative Risk Premia 2x Fund Ltd allocated to the strategy. When the strategy is managed in a dedicated standalone fund there will be excess cash upon meeting margin requirement. Hence the returns for the strategy have been adjusted by adding the US T-Bill return on the

excess cash upon meeting margin requirement. From December 23, 2020, to March 31, 2022, the reported returns are for the dedicated Fund ["the Fund"] for the Versor Trend Following strategy. The return estimates presented here are based on Versor Investments' internal systems, have not been reconciled with the Administrator and do not reflect the official books and records of the account. In the event of any discrepancy between the information contained herein and the information contained in an investor's audited account statements, the latter shall govern.

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The index returns are provided for purposes of comparison and include dividends and/or interest income and, unlike the returns presented for the various strategies, do not reflect fees or expenses. Unlike the various strategies presented which are actively managed and periodically may maintain cash positions, an index is unmanaged and fully invested. The comparison of the performance of the various strategies presented to these indices may be inappropriate because the various strategies are not as diversified as the indices, may be more or less volatile than the indices, and may include securities which are substantially different than the securities in the indices. Although information and analysis contained herein has been obtained from sources the Adviser believes to be reliable, its accuracy and completeness cannot be guaranteed. Investors cannot invest directly in indices. The indices referenced herein have been selected because they are well known, easily recognized by investors, and reflect those indices that the adviser believes, in part based on industry practice, provide a suitable benchmark against which to evaluate the investment or broader market described herein. The exclusion of "failed" or closed hedge funds may mean that each hedge fund index overstates the performance of hedge funds generally.

The **HFRX Global Hedge Fund Index** includes managers and is designed to be representative of the overall composition of the hedge fund universe. It is comprised of all eligible hedge fund strategies; including but not limited to convertible arbitrage, distressed securities, equity hedge, equity market neutral, event driven, macro, merger arbitrage, and relative value arbitrage. The strategies are asset weighted based on the distribution of assets in the hedge fund industry.

The **HFRX EH: Equity Market Neutral Index** includes managers employing the Equity Market Neutral strategies. Equity Market Neutral managers typically employ sophisticated quantitative techniques of analyzing stock price and fundamental data to ascertain information about future price movement and relationships between securities, select securities for purchase and sale. These can include both Factor-based and Statistical Arbitrage/Trading strategies.

The **HFRI EH: Equity Hedge (Total) Index** includes Investment Managers who maintain positions both long and short in primarily equity and equity derivative securities. A wide variety of investment processes can be employed to arrive at an investment decision, including both quantitative and fundamental techniques; strategies can be broadly diversified or narrowly focused on specific sectors and can range broadly in terms of levels of net exposure, leverage employed, holding period, concentrations of market capitalizations and valuation ranges of typical portfolios. EH managers would typically maintain at least 50% exposure to, and may in some cases be entirely invested in, equities, both long and short.

The **SG Trend Index** includes managers employing the Systematic Diversified CTA strategy. Systematic Diversified CTA managers typically employ an investment process designed to identify opportunities in markets exhibiting trending or momentum characteristics across individual instruments or asset classes. Strategies utilize quantitative processes which focus on statistically robust or technical patterns in the return series of the asset, and typically focus on highly liquid instruments.

The **HFRX Macro: Systematic Diversified CTA Index** includes managers employing the Systematic Diversified CTA strategy. CTA managers typically employ an investment process designed to identify opportunities in markets exhibiting trending or momentum characteristics across individual instruments or asset classes. Strategies utilize quantitative processes which focus on statistically robust or technical patterns in the return series of the asset, and typically focus on highly liquid instruments.

The **Barclays CTA Index** (BARCCTA Index) provides a benchmark of representative performance of commodity trading advisors (CTAs). In order to qualify for inclusion in the index, a CTA must have four years of prior performance history. Refer to www.barclayhedge.com for more details on index construction methodology.

A combination of HFRX Macro: Systematic Diversified CTA Index and BARCCTA Index is used as the benchmark index for the Trend Following risk premia strategy returns. BARCCTA Index (monthly) returns are used for the period January 1990 to December 2008. HFRX

Macro: Systematic Diversified CTA Index (daily) returns are used from January 2009 onwards. Combination index used due to availability of daily return data from HFRX Macro: Systematic Diversified CTA index (from January 2009 onwards).

The **Barclays Global Aggregate Index** provides a broad-based measure of the global investment-grade fixed income markets. The three major components of this index are the U.S. Aggregate, the Pan-European Aggregate, and the Asian-Pacific Aggregate Indices. The index also includes Eurodollar and Euro-Yen corporate bonds, Canadian government, agency and corporate securities, and USD investment grade 144A securities.

The **Barclays Global Treasury Index** tracks fixed-rate, local currency government debt of investment grade countries, including both developed and emerging markets. The index represents the treasury sector of the Global Aggregate Index and contains issues from 37 countries denominated in 24 currencies.

The **Barclays Global High Yield Index** represents the US High Yield Index, Pan-European High Yield Index, High Yield CMBS Index, and non-investment grade portion of the Barclays Global Emerging Markets Index.

The **MSCI World Index** represents a free float-adjusted market capitalization weighted index that is designed to measure the equity market performance of developed markets. As of February 2013, it includes 24 developed market country indices: Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Hong Kong, Ireland, Israel, Italy, Japan, Netherlands, New Zealand, Norway, Portugal, Singapore, Spain, Sweden, Switzerland, the United Kingdom, and the United States.

The **MSCI ACWI** captures large and mid cap representation across

23 Developed Markets (DM) and 24 Emerging Markets (EM) countries. With 2,490 constituents, the index covers approximately 85% of the global investable equity opportunity set.

The **S&P GSCI™ Total Return index** measures a fully collateralized commodity futures investment that is rolled forward from the 5th to the 9th business day of each month. Currently the index includes 24 commodity nearby futures contracts. The Total Return is significantly different than the return from buying physical commodities.

The **S&P 500 index** covers the 500 largest companies that are in the United States. These companies can vary across various sectors. The S&P 500 is one of the most important indices in the world as it widely tracks how the United States stock market is performing.

The **SG CTA Index** calculates the net daily rate of return for a pool of CTAs selected from the largest managers open to new investment. It is equal-weighted and reconstituted annually.

The **SG Macro Trading Index** is a broad based performance measure for constituents that trade Global Macro strategies. The **SG Macro Trading Index (Quantitative)** is a sub-index of the SG Macro Trading Index covering quantitative Global Macro strategies. The **SG Macro Trading Index (Discretionary)** is a sub-index of the SG Macro Trading Index covering the discretionary strategies.

The **Eurekahedge Multi-Factor Risk Premia Index** is composed of multiple

strategies managed by large global banks, and is designed to provide a broad measure of the performance of a diversified portfolio of systematic drivers of risk and return across asset classes.

The **Bloomberg Barclays US Treasury: 20+ Year Total Return Index** measures US dollar-denominated, fixed-rate, nominal debt issued by the US Treasury. Treasury bills are excluded by the maturity constraint.

The **S&P U.S. Treasury Bill Index** is a broad, comprehensive, market-value weighted index that seeks to measure the performance of the U.S. Treasury Bill market. U.S. Treasury Bill 0-3 Month Index is designed to measure the performance of U.S. Treasury bills maturing in 0 to 3 months.

The **SG Multi Alternative Risk Premia Index** calculates the daily rate of return for a group of the largest ten multi-asset, multi-alternative risk premia programs managed by investment managers. These managers often trade equity indices, fixed income, currencies, commodities, and single name equities. Managers aims to systematically capture a diversity of discrete risk premia, including value, carry, momentum, and equity style premia. The index is equally weighted, and reconstituted and rebalanced on an annual basis.

The **Russell 1000 Value Index** measures the performance of those

Russell 1000 companies with lower price-to-book ratios and lower forecasted growth values. The index was developed with a base value of 200 as of August 31, 1992.

The **Russell 2000 Value Index** measures the performance of those Russell 2000 companies with lower price-to-book ratios and lower forecasted growth values.

The **Russell 1000 Growth Index** measures the performance of those Russell 1000 companies with higher price-to-book ratios and higher forecasted growth values. The index was developed with a base value of 200 as of August 31, 1992.

The **Russell 2000 Growth Index** measures the performance of those Russell 1000 companies with higher price-to-book ratios and higher forecasted growth values.

The HFR Bank Systematic Risk Premia Indices are a series of benchmarks designed to reflect the performance of the universe of managers that employ a portfolio allocation strategy based on targeting risk levels across the various components of an investment portfolio.

HFR Bank Systematic Risk Premia Commodity Index: A composite of all Bank Systematic Risk Premia Commodity styles.

HFR Bank Systematic Risk Premia Credit Index: A composite of all Bank Systematic Risk Premia Credit styles

HFR Bank Systematic Risk Premia Currency Index: A composite of all Bank Systematic Risk Premia Currency styles.

HFR Bank Systematic Risk Premia Equity Index: A composite of all Bank Systematic Risk Premia Equity styles.

HFR Bank Systematic Risk Premia Rates Index: A composite of all Bank Systematic Risk Premia Rates styles.

Refer to HFR, Societe Generale, Barclayshedge, MSCI, Barclays, Russell and S&P websites for more details on their respective indices construction methodology.

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MEMORANDUM

TO: Oakland Police and Fire Retirement System (OPFRS)
FROM: Meketa Investment Group (Meketa)
DATE: September 27, 2023
RE: Versor Investments—Manager Update

Manager: Versor Investments

Inception Date:	April 2022	OPFRS AUM (8/31/2023):	\$15.3 million
Strategy:	Trend Following	Strategy AUM (7/31/2023)¹:	\$21.0 million
Benchmark:	Société Générale Trend Index	Firm-wide AUM (12/31/2022):	\$1.8 billion

Summary & Recommendation

Versor has managed the systematic trend following sleeve within the Plan's Crisis Risk Offset component since April 2022. As of 8/31/2023, the portfolio is approximately \$15.3 million or about 3.7% of OPFRS's total plan. The strategy has performed within expectations and guidelines for the portfolio. No major organizational changes or personnel turnover in the portfolio management team have been observed since OPFRS's initial funding in 2022. **Therefore, Meketa does not have any major concerns with Versor Investments and its Trend Following Fund.**

Investment Performance Review Summary

As of 8/31/2023, Versor Trend Following strategy has outperformed the benchmark Société Générale (SG) Trend Index quarter-to-date, while trailing the benchmark year-to-date, over the 1-year trailing period, and since account inception in April 2022, on net of fees basis. Since account inception in April 2022, the strategy has generated an annualized net-of-fees investment return of 1.5%.

OPFRS Portfolio Returns (as of 8/31/2023)²

Portfolio	Balance (\$000)	QTD	YTD	1 Yr	3 Yr	5 Yr	Since Inception	Inception Date
Versor Trend Following (Net)	15,311	-1.6	-4.2	-5.4	--	--	1.5	4/2022
<i>SG Trend Index</i>	---	-2.5	-2.4	-3.0	--	--	4.0	---
Excess Return (Net)	---	0.9	-1.8	-2.4	--	--	-2.5	---

It should be noted that OPFRS has only invested in the strategy for less than 1.5 years; as a long-term investment within the Crisis Risk Offset (CRO) segment, it ought to be evaluated contextually considering its characteristics and the surrounding market conditions, which are presented using the Fund's historical product characteristics in the following section.

¹ Source: eVestment.

² Performance is annualized for periods longer than one year.

Investment Product Characteristics (As of 8/31/2023)³

The Crisis Risk Offset (CRO) component, which Versor Trend Following is a part of, is expected to exhibit lower correlations to the traditional equity and fixed income markets and developed to serve as a diversifier and mitigate both the equity risk and nominal interest rate risk of the total portfolio.

Long-Term Correlations to Board Market Indices

Versor Trend Following Fund has exhibited relatively low (within the range of -0.5 to +0.5) correlations to equity markets (as measured by MSCI All Country World Index) and commodities (as measured by Bloomberg Commodity Index) over 3- and 5-year trailing periods as well as since product inception in June 2017.⁴ Similarly, it shows relatively low correlation to the global fixed income markets (as measured by Bloomberg Global Aggregate Index) over the 5-year period and since inception though their 3-year correlations is slightly higher (-0.6).

	3 Yr	5 Yr	Since Inception
MSCI All Country World Index (Net)	-0.3	-0.4	-0.2
Bloomberg Global Aggregate Index (Unhedged)	-0.6	-0.4	-0.3
Bloomberg Commodity Index	0.0	-0.2	-0.1

Volatility

Versor Trend Following Fund has also exhibited lower volatility (measured as Standard Deviation) in comparison to the equity markets over the 1-, 3-, and 5-year trailing periods and since product inception, while having higher volatility than the global fixed income markets.

In comparison with Bloomberg Commodity Index, the Fund has lower volatility for the 3- and 5-year trailing periods and higher volatility over the 1-year and since inception periods.

	1 Yr	3 Yr	5 Yr	Since Inception
Versor Trend Following (Net)	16.3	15.0	14.6	14.9
MSCI All Country World Index (Net)	17.7	16.8	17.8	16.3
Bloomberg Global Aggregate Index (Unhedged)	9.4	7.6	6.8	6.2
Bloomberg Commodity Index	13.7	15.9	16.1	14.7

³ Source: eVestment.

⁴ Since inception values presented here are calculated since the beginning of the full month after its initial inception on 5/4/2017 (i.e., 6/1/2017). The calculations include Versor Trend Following strategy's history as a sub-strategy under ARP Alternative Risk Premia 2x Fund.

Product and Organization Review Summary

Versor Investments	Areas of Potential Impact				
	Level of Concern	Investment Process	Investment Team	Performance Track Record	Team/Firm Culture
Product					
Key people changes	None				
Changes to team structure/individuals' roles	None				
Product client gain/losses	None				
Changes to the investment process	None				
Personnel turnover	None				
Organization					
Ownership changes	None				
Key people changes	None				
Firm wide client gain/losses	None				
Recommended Action	None - X		Watch Status	Termination	

A review of Versor Investments and the Trend Following Fund revealed no concerning organizational issues or changes since April 2022.

Investment Summary⁵

Versor Trend Following derives absolute returns from long, medium, and short-term directional moves in various markets. The strategy invests in 100+ futures and forwards contracts across four major asset classes globally: commodities, equities, fixed income, and currency markets. The strategy takes long or short positions in these instruments where markets exhibit price trends.

The key investment theme is to generate absolute returns through trend following. This strategy aims to profit from persistent price trends in futures markets. The internally developed trend following models use different statistical signals such as moving average cross over and time series momentum to identify trends. In addition to different kinds of signals, the models also implement the signals across different time horizons ranging from short-term (typically about 1 month) to long-term (typically up to 1 year). The portfolio will take long or short position in any of these contracts based on their trends.

Risk management is integrated into the investment process. Versor uses proprietary risk models for quantifying risk. Risk adjustment of positions in individual contracts is done using short-term volatility measures and both long and short positions are levered up or down to maintain target volatility. Risk-adjusted positions in individual contracts are then combined to form four sector portfolios: commodities, equities, fixed income, and currencies. Risk adjustment is also done at the sector level to maintain target risk contribution to overall portfolio risk from each of the four sector portfolios.

DS/PN/JLC/mn

⁵ Source: eVestment.



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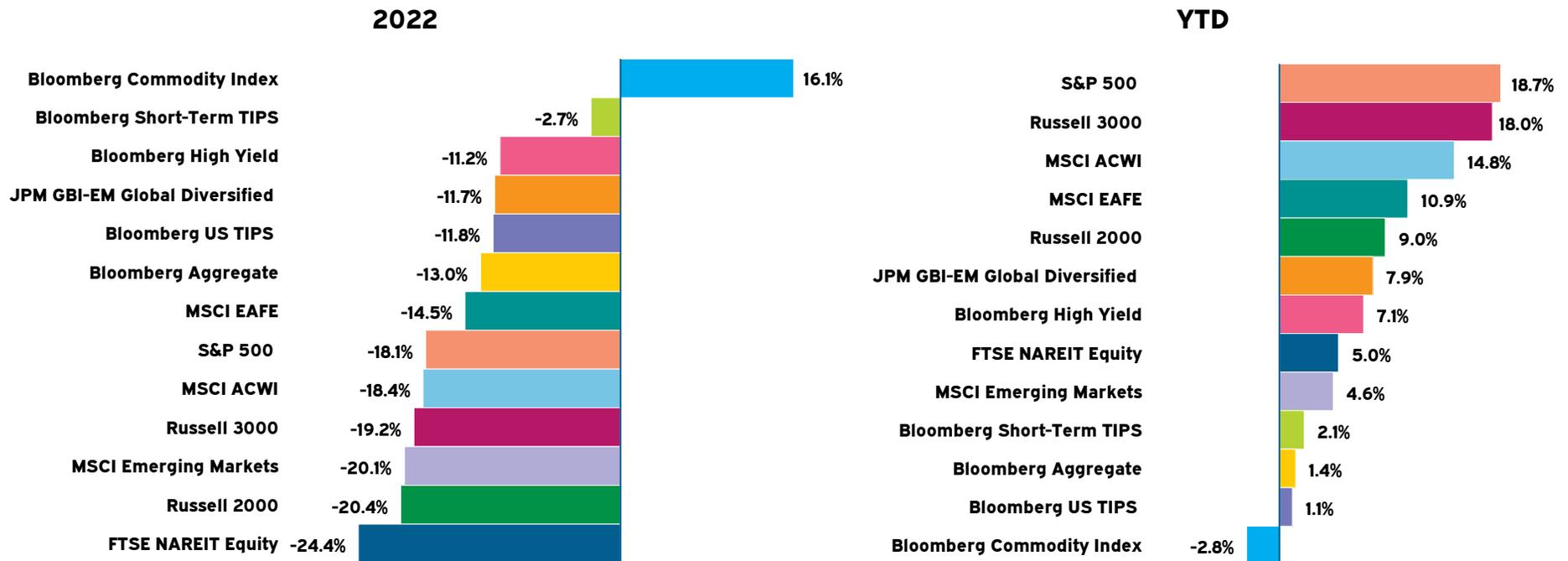
Economic and Market Update

August 2023 Report

Commentary

- Global assets turned negative in August as expectations shifted to the Fed keeping interest rates higher for longer and potentially increasing interest rates further later this year. Weakening economic data from Europe and China, as well as further instability in the Chinese real estate sector, weighed on results.
- The Federal Reserve increased interest rates in July by 0.25% to a range of 5.25% - 5.5%, and it is largely expected they will keep rates at that level at their September meeting. Given continued strong data and inflation levels above target markets are now expecting that the Fed could raise rates again later this year.
 - US equity markets (Russell 3000 index) fell in August (-1.9%), bringing the year-to-date gains to 18.7%. The technology sector remains the key driver of results this year, helped by artificial intelligence optimism.
 - Non-US developed equity markets declined more than the US in August (MSCI EAFE -3.8%) with the strength of the US dollar adding 2% to the monthly declines. This widened the gap between US and international developed equities for the year (18.0% versus 10.9%).
 - Emerging market equities fell the most in August (-6.2%), driven by results in China and the strong US dollar. They continue to significantly trail developed market equities year-to-date, returning 4.6%, again driven by China.
 - Interest rates generally rose in August, particularly for longer-dated maturities. The broad US bond market fell (-0.6%) but remains positive (+1.4%) year-to-date as higher income has offset capital losses from rising rates.
- This year, the paths of inflation and monetary policy, slowing global growth, and the war in Ukraine will all be key.

Index Returns¹



→ After a particularly difficult 2022, most public market assets are up thus far in 2023, led by developed market equities.

→ Despite declines in August, risk sentiment has been supported overall this year by expectations that policy tightening could be ending soon, as inflation continues to fall, while growth has remained relatively resilient.

¹ Source: Bloomberg. Data is as of August 31, 2023.

Domestic Equity Returns¹

Domestic Equity	August (%)	QTD (%)	YTD (%)	1 YR (%)	3 YR (%)	5 YR (%)	10 YR (%)
S&P 500	-1.6	1.6	18.7	15.9	10.5	11.1	12.8
Russell 3000	-1.9	1.6	18.0	14.8	9.8	10.2	12.2
Russell 1000	-1.7	1.6	18.6	15.4	9.9	10.8	12.5
Russell 1000 Growth	-0.9	2.4	32.2	21.9	8.3	13.8	15.6
Russell 1000 Value	-2.7	0.7	5.9	8.6	11.6	7.1	9.1
Russell MidCap	-3.5	0.4	9.4	8.4	9.2	7.3	10.0
Russell MidCap Growth	-3.3	-0.4	15.5	13.0	3.8	7.9	11.0
Russell MidCap Value	-3.5	0.7	5.9	5.7	12.1	6.1	8.9
Russell 2000	-5.0	0.8	9.0	4.7	8.1	3.1	8.0
Russell 2000 Growth	-5.2	-0.8	12.7	6.8	2.7	2.5	8.2
Russell 2000 Value	-4.8	2.4	4.9	2.2	13.5	3.2	7.4

US Equities: Russell 3000 Index fell 1.9% in August but is up 18.7% YTD.

- Given strong economic data, investors questioned whether the Federal Reserve was done with its rate increases and expectations increased for rates to remain higher for longer. This overall weighed on the US equity markets.
- Large cap stocks outperformed small cap stocks by a wide margin in August. Stocks in the health care sector drove this dynamic, in part due to the relative underperformance of small cap biotechnology stocks. Technology stocks, particularly those of software companies, also contributed to the outperformance of large cap stocks.
- Energy was the only sector to post a gain during August. Oil prices rose partly due to investor expectations of an extension of Saudi Arabia’s oil production cuts, which were confirmed in September.

¹ Source: Bloomberg. Data is as of August 31, 2023.

Foreign Equity Returns¹

Foreign Equity	August (%)	QTD (%)	YTD (%)	1 YR (%)	3 YR (%)	5 YR (%)	10 YR (%)
MSCI ACWI ex. US	-4.5	-0.6	8.8	11.9	4.0	3.3	4.4
MSCI EAFE	-3.8	-0.7	10.9	17.9	6.1	4.1	4.9
MSCI EAFE (Local Currency)	-1.8	-0.2	11.9	14.1	10.8	6.2	7.3
MSCI EAFE Small Cap	-3.3	1.0	6.5	9.2	2.4	1.5	5.7
MSCI Emerging Markets	-6.2	-0.3	4.6	1.3	-1.4	1.0	3.0
MSCI Emerging Markets (Local Currency)	-4.7	0.4	5.9	2.3	0.6	2.8	5.6
MSCI China	-9.0	0.8	-4.7	-7.5	-14.3	-3.9	2.5

Foreign Equity: Developed international equities (MSCI EAFE) fell 3.8% in August bringing the YTD gain to 10.9%. Emerging market equities (MSCI EM) fell 6.2% in August, rising 4.6% YTD.

- International equities fell alongside US markets in August, with emerging markets experiencing the largest decline driven by losses in China. A major rally in the US dollar weighed further on results.
- Japanese equities rose moderately, namely in the domestic-oriented mid- and small-cap sectors, while large cap growth names declined given the rise in Japanese government bond yields. Eurozone and UK equities both fell, with all sectors except energy and real estate declining.
- As overall risk sentiment fell and weakness in China continued emerging market equities were weak across the board. China saw substantial declines in August, as signs of a slowdown continued and concerns surrounding the property sector grew. To support the economy the government announced additional stimulus in the form of reduced mortgage rates and lower down payment ratios. India declined but relatively outperformed other emerging markets, due in part to broad inflows from foreign investors.

¹ Source: Bloomberg. Data is as of August 31, 2023.

Fixed Income Returns¹

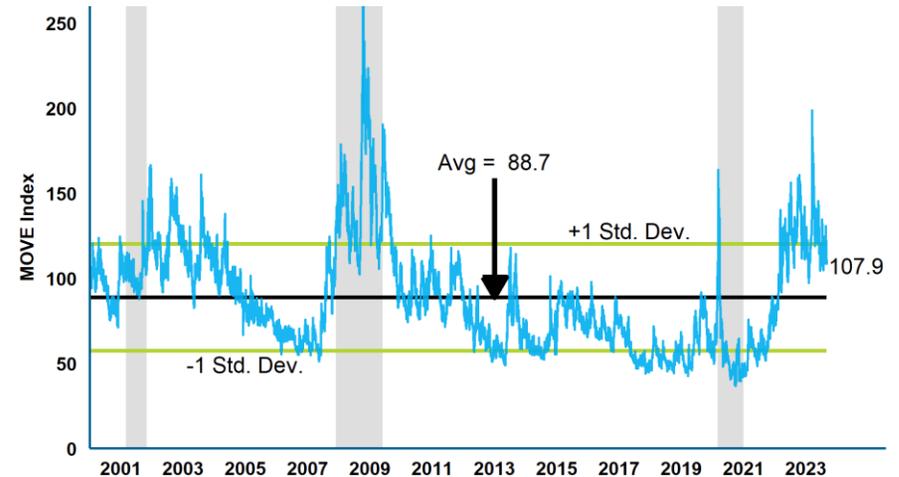
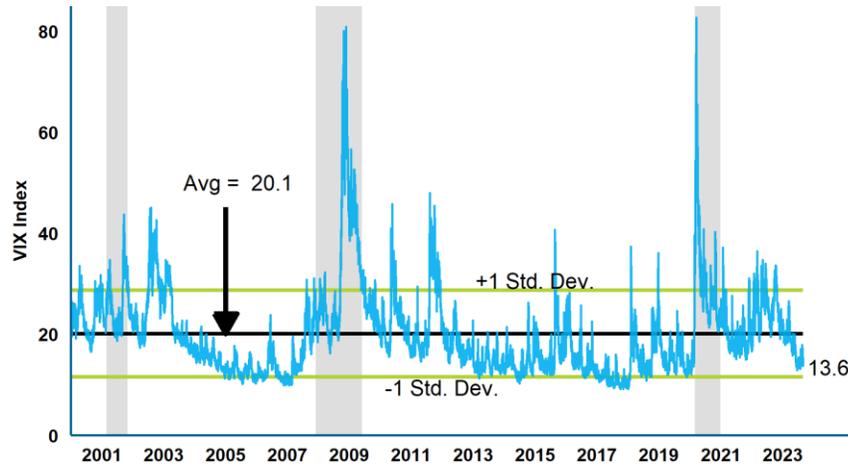
Fixed Income	August (%)	QTD (%)	YTD (%)	1 YR (%)	3 YR (%)	5 YR (%)	10 YR (%)	Current Yield (%)	Duration (Years)
Bloomberg Universal	-0.6	-0.5	1.8	-0.4	-4.0	0.7	1.8	5.3	6.2
Bloomberg Aggregate	-0.6	-0.7	1.4	-1.2	-4.4	0.5	1.5	5.0	6.4
Bloomberg US TIPS	-0.9	-0.8	1.1	-3.7	-1.5	2.3	2.1	4.6	6.8
Bloomberg Short-term TIPS	0.1	0.6	2.1	0.5	1.9	2.8	1.8	5.1	2.6
Bloomberg High Yield	0.3	1.7	7.1	7.2	1.8	3.3	4.5	8.4	4.0
JPM GBI-EM Global Diversified (USD)	-2.7	0.1	7.9	11.3	-2.2	1.2	-0.1	6.6	5.0

Fixed Income: The Bloomberg Universal index fell 0.6% in August remaining positive YTD (+1.8%), as inflation continues to decline, and yields remain high.

- The downgrade of US government debt from AAA to AA+ by Fitch combined with expectations for higher borrowing put upward pressure on longer-term rates and weighed on overall results. Expectations for interest rates to remain higher for longer than previously expected also contributed to the decline in bonds.
- The broad US bond market (Bloomberg Aggregate) fell 0.6% for the month. The more interest rate sensitive broader TIPS index fell slightly more (-0.9%), while the short-term TIPS index eked out a small gain (+0.1%).
- High yield bonds rose slightly (+0.3%) for the month, while emerging market bonds were the weakest performer, falling 2.7%. The two asset classes remain the top performers for the year by a wide margin.

¹ Source: Bloomberg. JPM GBI-EM data is from InvestorForce. Data is as of August 31, 2023. The yield and duration data from Bloomberg is defined as the index's yield to worst and modified duration respectively.

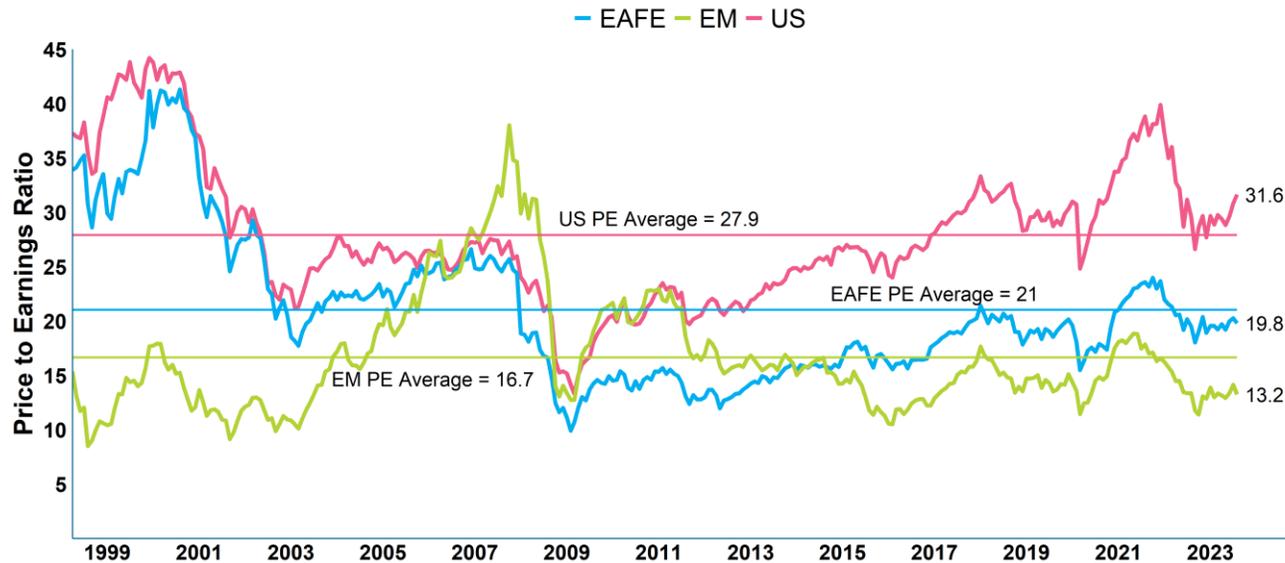
Equity and Fixed Income Volatility¹



- Volatility in equities (VIX) remains well below the historical average as investors continue to anticipate the end of the Fed’s policy tightening and have become more optimistic about the potential for a “soft landing” of the economy.
- In comparison, volatility in the bond market (MOVE) remains well above its long-run average (88.7) after last year’s historic losses and due to continued policy uncertainty.

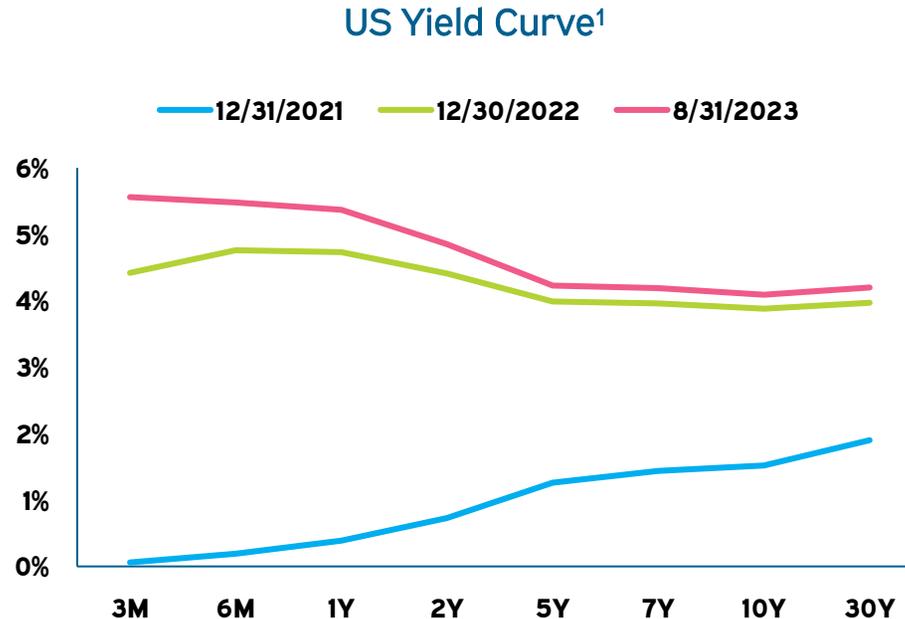
¹ Equity Volatility – Source: FRED. Fixed Income Volatility – Source: Bloomberg. Implied volatility as measured using VIX Index for equity markets and the MOVE Index to measure interest rate volatility for fixed income markets. Data is as of August 2023. The average line indicated is the average of the VIX and MOVE values between January 2000 and August 2023.

Equity Cyclically Adjusted P/E Ratios¹



- Given the strong technology-driven rally this year, the US equity price-to-earnings ratio increased above its long-run (21st century) average.
- International developed market valuations are below their own long-term average, with those for emerging markets the lowest and well under the long-term average.

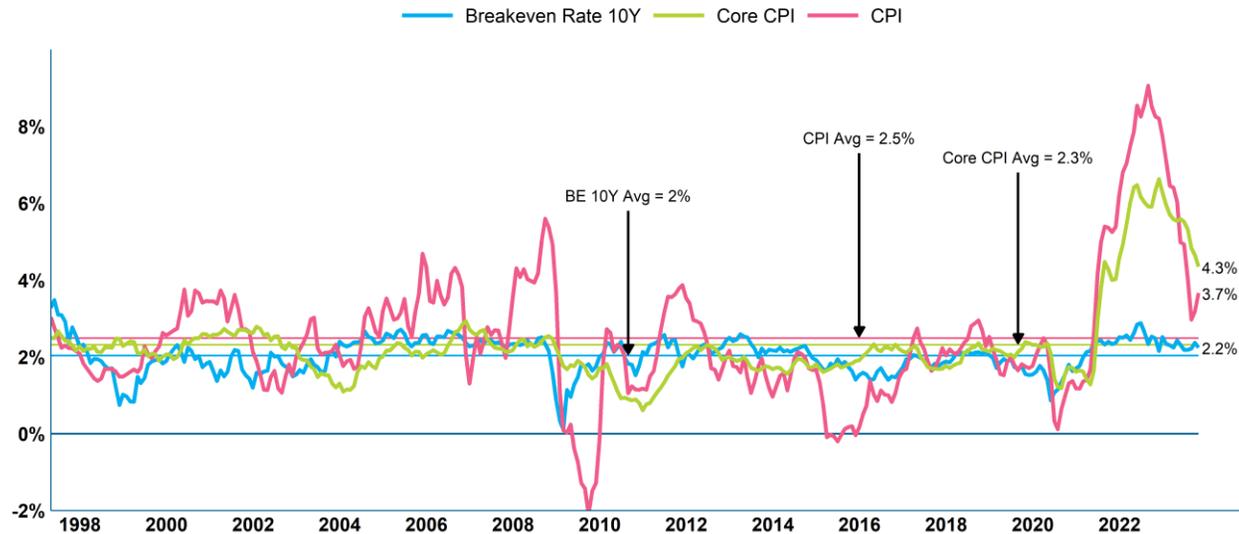
¹ US Equity Cyclically Adjusted P/E on S&P 500 Index. Source: Robert Shiller, Yale University, and Meketa Investment Group. Developed and Emerging Market Equity (MSCI EAFE and EM Index) Cyclically Adjusted P/E – Source: Bloomberg. Earnings figures represent the average of monthly “as reported” earnings over the previous ten years. Data is as of August 2023. The average line is the long-term average of the US, EM, and EAFE PE values from April 1998 to the recent month-end respectively.



- Overall rates have continued to increase this year, particularly at the policy sensitive front-end of the yield curve, but at much slower pace compared to last year.
- In August, very short-term interest rates (6-months or less) remained largely unchanged as monetary policy has likely reached the terminal rate for this cycle. A downgrade from Fitch Ratings of US debt, the Treasury's announcement of above expectations borrowing, and Chair Powell commenting that more work needs to be done on the inflation front all contributed to yields on longer dated maturities rising.
- The yield curve remains inverted with the spread between two-year and ten-year Treasuries finishing the month at -0.75%, but the curve steepened over the month given the dynamics mentioned above.

¹ Source: Bloomberg. Data is as of August 31, 2023.

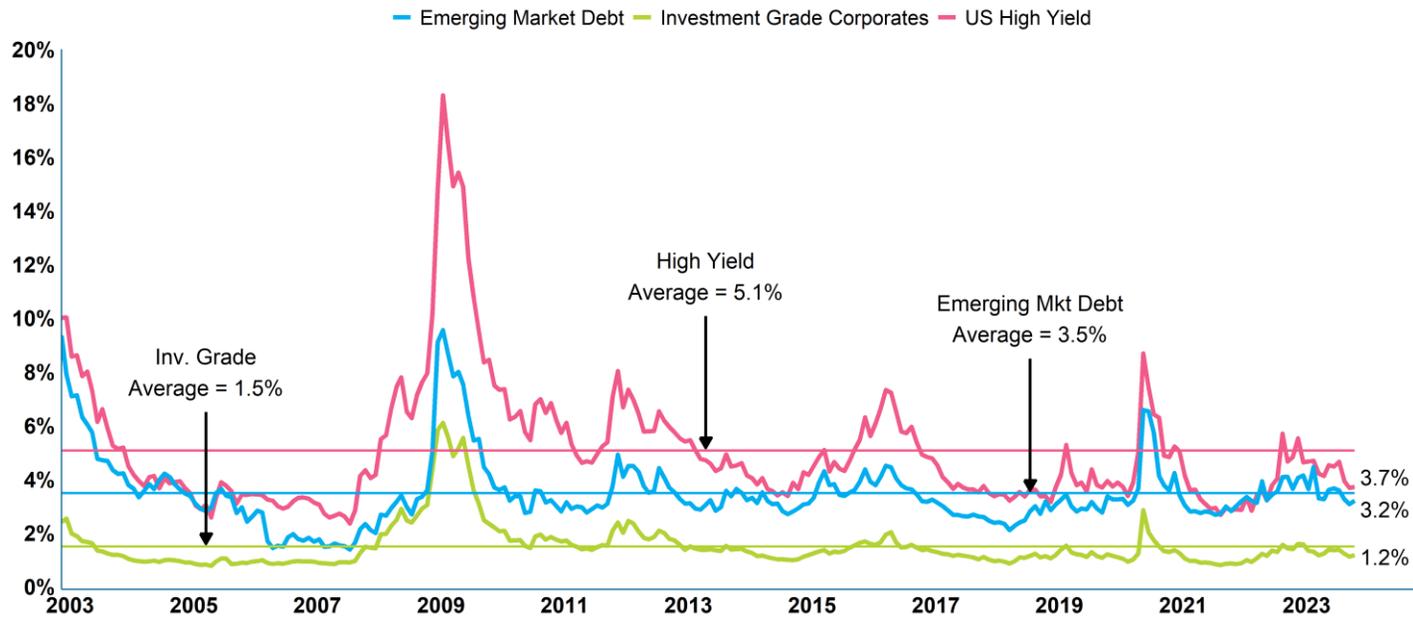
Ten-Year Breakeven Inflation and CPI¹



- Declines in inflation while other economic data remains strong has led to optimism over the Federal Reserve potentially achieving a rarely observed soft landing for the economy.
- Year-over-year headline inflation rose from 3.2% to 3.7%, coming in slightly above expectations largely driven by a double-digit increase in gasoline for the month. The trend of lower month-over-month price increases ended with the rate jumping from 0.2% to 0.6%.
- Core inflation – excluding food and energy – continued its decline (4.7% to 4.3%) year-over-year. It remains stubbornly high, though, driven by shelter costs (+7.3%), particularly owners’ equivalent rent, and transportation services (+10.3%).
- Inflation expectations (breakevens) remain well below current inflation as investors continue to expect inflation to track back toward the Fed’s 2% average target.

¹ Source: FRED. Data is as August 31, 2023. The CPI and 10 Year Breakeven average lines denote the average values from February 1997 to the present month-end, respectively. Breakeven values represent month-end values for comparative purposes.

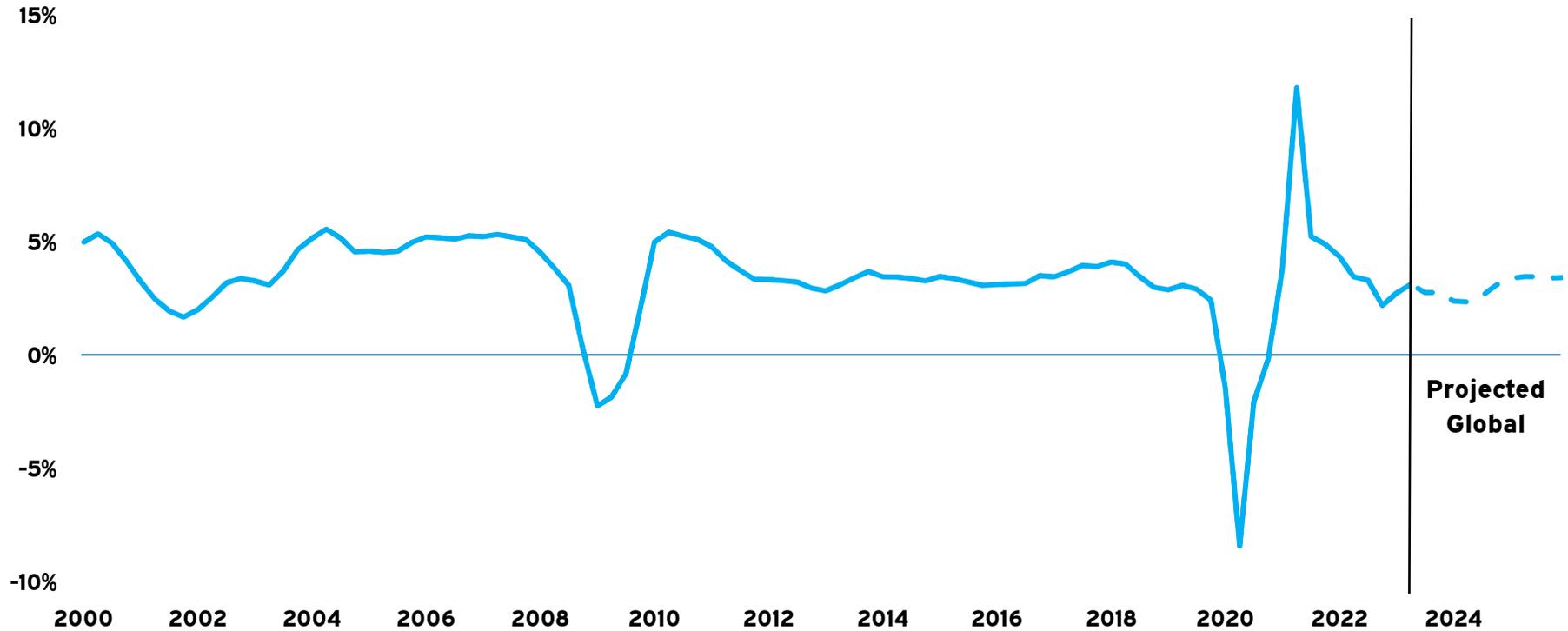
Credit Spreads vs. US Treasury Bonds¹



- Credit spreads (the added yield above a comparable maturity Treasury) largely remained unchanged in August. In the US high yield bonds slightly outpaced government bonds for the month.
- High yield spreads remain well below the long-term average given the overall risk appetite this year. Investment grade and emerging market spreads are also below their respective long-term averages, but by smaller margins.

¹ Sources: Bloomberg. Data is as of August 31, 2023. Average lines denote the average of the investment grade, high yield, and emerging market spread values from September 2002 to the recent month-end, respectively.

Global Real Gross Domestic Product (GDP) Growth¹

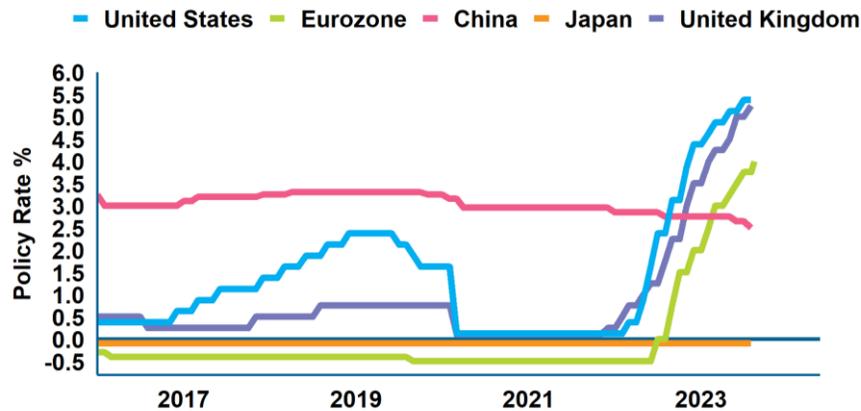


- Global economies are expected to slow this year compared to 2022. The risk of recession remains given policymakers' aggressive tightening, but optimism has started to grow over some central banks potentially navigating a soft landing.
- The delicate balancing act of central banks trying to reduce inflation without dramatically depressing growth will remain key.

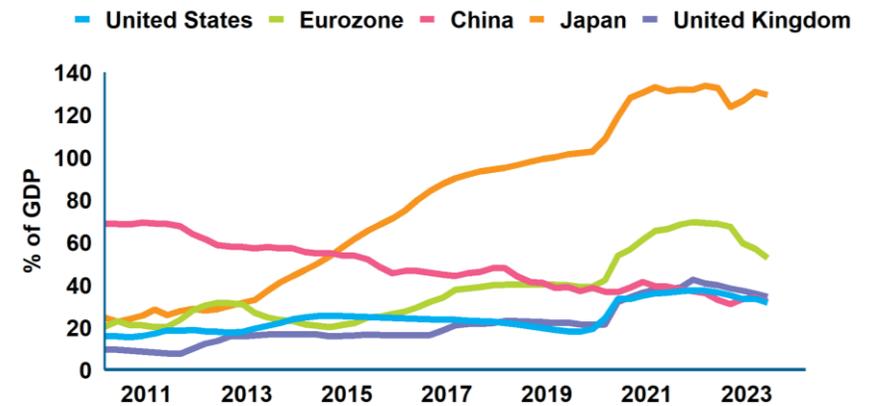
¹ Source: Oxford Economics (World GDP, US\$ prices & PPP exchange rate, real, % change YoY). Updated August 2023.

Central Bank Response¹

Policy Rates



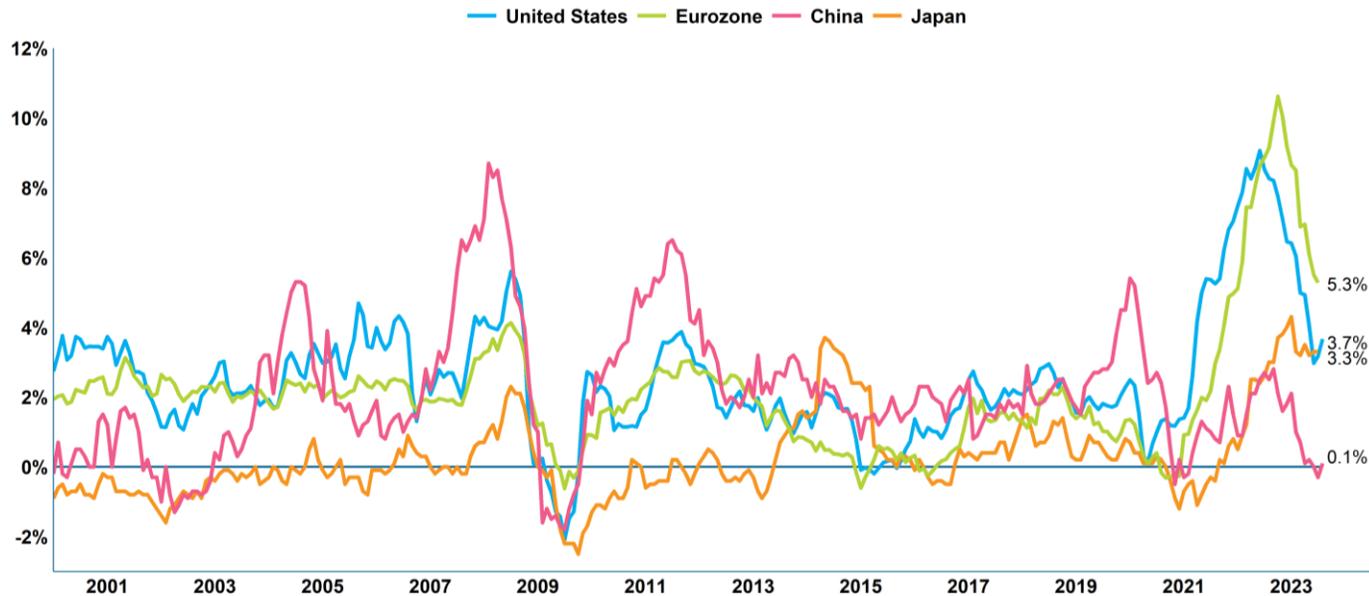
Balance Sheet as % of GDP



- Slowing inflation and growth have led to expectations for a reduction in the pace of aggressive policy tightening.
- In July the Fed raised rates another 25 basis points to a range of 5.25% to 5.50% with markets largely expecting a pause in September but potentially one more hike later this year.
- The European Central Bank also increased rates in July with an additional hike after August month-end, but they remain lower than in the US. In Japan expectations have increased that the BOJ will end its negative interest rate policy due to rising inflation.
- The central bank in China has continued to cut interest rates and inject liquidity into the banking system, as weaker than expected economic data appears to indicate a widespread slowdown.
- Looking ahead, risks remain for a policy error as central banks attempt to balance multiple goals, bringing down inflation, maintaining financial stability, and supporting growth.

¹ Source: Bloomberg. Policy rate data is as of September 15, 2023. China policy rate is defined as the medium-term lending facility 1 year interest rate. Balance sheet as % of GDP is based on quarterly data and is as of June 30, 2023.

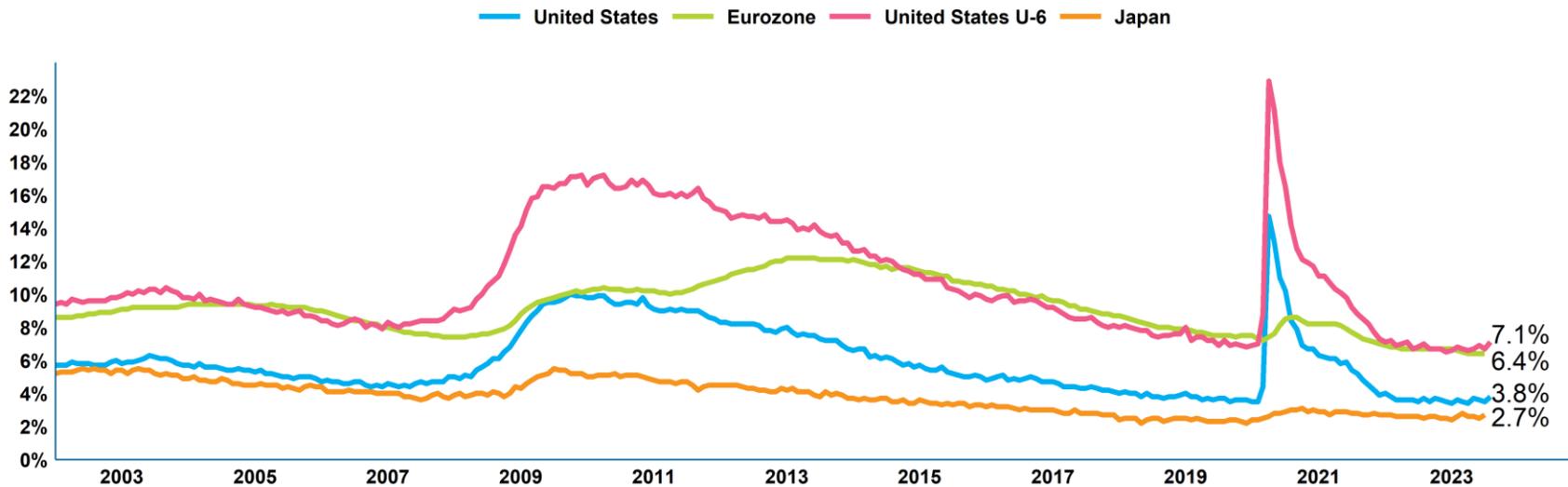
Inflation (CPI Trailing Twelve Months)¹



- The inflation picture remains mixed across the major economies.
- In the US, inflation increased from 3.2% to 3.7%, influenced by rising fuel costs, while eurozone inflation remained higher than the US at 5.3%, a level well off its peak, however. Despite 2023’s significant declines in the US and Europe, inflation levels remain elevated compared to central bank targets.
- Inflation in Japan has increased to levels not seen in almost a decade largely driven by food and home related items. In China, deflationary pressures eased in August but only to a slightly positive level (+0.1%).

¹ United States CPI and Eurozone CPI – Source: FRED. Japan CPI and China CPI - Source: Bloomberg. Data is as August 31, 2023. The most recent data for Japanese and Eurozone inflation is as of July 2023.

Unemployment¹



- Overall, the US labor market remains healthy with the unemployment rate relatively low, wage growth now positive in real terms, and initial claims for unemployment staying subdued. The pace of wage growth has slowed though, and despite remaining elevated, the number of job openings has declined.
- In August, unemployment ticked-up from 3.5% to 3.8% largely driven by an increase in the labor force participation rate. Broader measures of unemployment (U-6) also increased for the month (6.7% to 7.1%).
- The strong labor market and higher wages, although beneficial for workers, motivates the Fed's efforts to fight inflation, potentially leading to higher unemployment.
- Unemployment in Europe has also declined but remains higher than the US, while levels in Japan have been flat through the pandemic given less layoffs.

¹ Eurozone Unemployment - Source: Bloomberg. Japan, United States, United States U-6 Unemployment – Source: FRED. Data is as August 31, 2023, for the US. The most recent data for Eurozone and Japanese unemployment is as of July 2023.

US Dollar versus Broad Currencies¹



- The dollar finished 2022 much higher than it started, due to the increased pace of policy tightening, stronger relative growth, and safe-haven flows.
- Late last year and into early this year, the dollar declined, as weaker economic data and lower inflation led to investors anticipating the end of Fed tightening. Recently though, the dollar has reversed course and is appreciating against major currencies as relative growth remains strong and investors anticipate the Fed keeping interest rates higher for longer.
- For the rest of this year, the track of inflation across economies and the corresponding monetary policies will be key drivers of currency moves.

¹ Source: Bloomberg. Data as of August 31, 2023.

Summary

Key Trends:

- The impact of inflation still above policy targets will remain key, with bond market volatility likely to stay high.
- Global monetary policies could diverge going forward. The risk of policy errors remains elevated as central banks try to reduce persistent inflation while not tipping their economies into recession.
- Growth is expected to slow globally this year, with many economies forecasted to tip into recession. Optimism has been building though that some economies could experience a soft landing. Inflation, monetary policy, and the war will all be key.
- In the US, consumers could feel pressure as certain components of inflation remain high (e.g., shelter), borrowing costs are elevated, and the job market may weaken.
- The key for US equities going forward will be whether earnings can remain resilient if growth continues to slow. Also, the future path of the large technology companies that have driven market gains will be important.
- Equity valuations remain lower in emerging and developed markets, but risks remain, including potential for recent strength in the US dollar to persist, higher inflation weighing particularly on Europe, and China's sluggish economic reopening and on-going weakness in the real estate sector. Japan's recent hint at potentially tightening monetary policy along with changes in corporate governance in the country could influence relative results.

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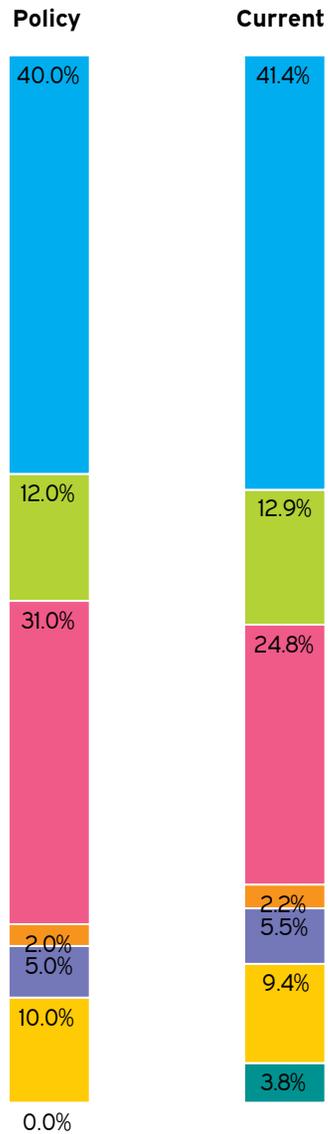
PERFORMANCE DATA CONTAINED HEREIN REPRESENT PAST PERFORMANCE. PAST PERFORMANCE IS NO GUARANTEE OF FUTURE RESULTS.

Oakland Police and Fire Retirement System

September 27, 2023

August Flash Report

As of August 31, 2023



Allocation vs. Targets and Policy						
	Current Balance (\$)	Current (%)	Policy (%)	Difference (%)	Policy Range (%)	Within IPS Range?
Domestic Equity	173,387,662	41.4	40.0	1.4	30.0 - 50.0	Yes
International Equity	53,975,691	12.9	12.0	0.9	8.0 - 14.0	Yes
Fixed Income	103,843,942	24.8	31.0	-6.2	25.0 - 40.0	No
Credit	9,339,528	2.2	2.0	0.2	1.0 - 3.0	Yes
Covered Calls	22,919,141	5.5	5.0	0.5	5.0 - 10.0	Yes
Crisis Risk Offset	39,424,969	9.4	10.0	-0.6	5.0 - 15.0	Yes
Cash	15,741,268	3.8	0.0	3.8	0.0 - 5.0	Yes
Total	418,632,202	100.0	100.0	0.0		

Asset Class Performance Summary | As of August 31, 2023

Asset Class Performance Summary											
	Market Value (\$)	% of Portfolio	1 Mo (%)	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	S.I. (%)	Inception Date
OPFRS Total Plan	418,632,202	100.0	-1.9	-0.3	7.5	6.2	3.9	4.5	6.9	6.5	Dec-88
<i>OPFRS Policy Benchmark</i>			<i>-1.6</i>	<i>0.3</i>	<i>9.4</i>	<i>8.3</i>	<i>4.0</i>	<i>4.7</i>	<i>7.0</i>	<i>7.8</i>	
Excess Return			-0.3	-0.6	-1.9	-2.1	-0.1	-0.2	-0.1	-1.3	
Domestic Equity	173,387,662	41.4	-2.2	0.8	12.2	10.5	9.0	8.5	11.4	8.8	Jun-97
<i>Russell 3000 (Blend)</i>			<i>-1.9</i>	<i>1.6</i>	<i>18.0</i>	<i>14.8</i>	<i>9.8</i>	<i>10.3</i>	<i>12.2</i>	<i>9.1</i>	
Excess Return			-0.3	-0.8	-5.8	-4.3	-0.8	-1.8	-0.8	-0.3	
International Equity	53,975,691	12.9	-5.3	-3.4	7.9	11.9	4.1	3.4	5.1	5.0	Jan-98
<i>MSCI ACWI ex US (Blend)</i>			<i>-4.5</i>	<i>-0.6</i>	<i>8.8</i>	<i>11.9</i>	<i>4.0</i>	<i>3.3</i>	<i>4.4</i>	<i>5.0</i>	
Excess Return			-0.8	-2.8	-0.9	0.0	0.1	0.1	0.7	0.0	
Fixed Income	103,843,942	24.8	-0.5	-0.6	2.1	-0.3	-3.6	0.8	1.9	4.4	Jan-94
<i>Bloomberg Universal (Blend)</i>			<i>-0.6</i>	<i>-0.5</i>	<i>1.8</i>	<i>-0.4</i>	<i>-4.0</i>	<i>0.7</i>	<i>1.8</i>	<i>4.5</i>	
Excess Return			0.1	-0.1	0.3	0.1	0.4	0.1	0.1	-0.1	
Credit	9,339,528	2.2	-0.1	1.5	8.6	6.4	5.7	3.4	--	4.7	Feb-15
<i>Blmbg. U.S. Corp: High Yield Index</i>			<i>0.3</i>	<i>1.7</i>	<i>7.1</i>	<i>7.2</i>	<i>1.8</i>	<i>3.3</i>	<i>4.5</i>	<i>4.3</i>	
Excess Return			-0.4	-0.2	1.5	-0.8	3.9	0.1	--	0.4	
Covered Calls	22,919,141	5.5	-0.3	1.6	15.7	14.4	11.0	8.9	--	9.0	Apr-14
<i>CBOE S&P 500 Buy Write Index</i>			<i>-1.6</i>	<i>-0.2</i>	<i>10.3</i>	<i>10.0</i>	<i>8.2</i>	<i>3.6</i>	<i>6.3</i>	<i>5.6</i>	
Excess Return			1.3	1.8	5.4	4.4	2.8	5.3	--	3.4	
Crisis Risk Offset	39,424,969	9.4	-1.5	-1.6	0.2	-3.2	-7.9	-8.4	--	-8.2	Aug-18
<i>Crisis Risk Offset Benchmark</i>			<i>-0.6</i>	<i>-1.9</i>	<i>0.8</i>	<i>3.2</i>	<i>3.8</i>	<i>-0.2</i>	<i>--</i>	<i>-0.3</i>	
Excess Return			-0.9	0.3	-0.6	-6.4	-11.7	-8.2	--	-7.9	

Performance shown is net of fees, except for Total Plan, Domestic Equity, and International Equity composites which have a mix of gross and net of fees performance. Please see the Addendum for more details. Since inception date and performance begin in the month following an investments initial funding. Fiscal year begins on July 1. Please see Benchmark History section for custom benchmark compositions.

Asset Class & Manager Performance | As of August 31, 2023

	Market Value (\$)	% of Portfolio	1 Mo (%)	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	S.I. (%)	Inception Date
OPFRS Total Plan	418,632,202	100.0	-1.9	-0.3	7.5	6.2	3.9	4.5	6.9	6.5	Dec-88
<i>OPFRS Policy Benchmark</i>			<i>-1.6</i>	<i>0.3</i>	<i>9.4</i>	<i>8.3</i>	<i>4.0</i>	<i>4.7</i>	<i>7.0</i>	<i>7.8</i>	
Excess Return			-0.3	-0.6	-1.9	-2.1	-0.1	-0.2	-0.1	-1.3	
Domestic Equity	173,387,662	41.4	-2.2	0.8	12.2	10.5	9.0	8.5	11.4	8.8	Jun-97
<i>Russell 3000 (Blend)</i>			<i>-1.9</i>	<i>1.6</i>	<i>18.0</i>	<i>14.8</i>	<i>9.8</i>	<i>10.3</i>	<i>12.2</i>	<i>9.1</i>	
Excess Return			-0.3	-0.8	-5.8	-4.3	-0.8	-1.8	-0.8	-0.3	
Northern Trust Russell 1000	82,696,891	19.8	-1.7	1.6	18.6	15.4	9.8	10.7	12.4	13.3	Jun-10
<i>Russell 1000 Index</i>			<i>-1.7</i>	<i>1.6</i>	<i>18.6</i>	<i>15.4</i>	<i>9.9</i>	<i>10.8</i>	<i>12.6</i>	<i>13.4</i>	
Excess Return			0.0	0.0	0.0	0.0	-0.1	-0.1	-0.2	-0.1	
EARNEST Partners	41,473,502	9.9	-2.5	0.3	8.8	5.6	9.9	9.4	11.9	9.2	Apr-06
<i>Russell Midcap Index</i>			<i>-3.5</i>	<i>0.4</i>	<i>9.4</i>	<i>8.4</i>	<i>9.2</i>	<i>7.3</i>	<i>10.0</i>	<i>8.5</i>	
Excess Return			1.0	-0.1	-0.6	-2.8	0.7	2.1	1.9	0.7	
Wellington Select Quality Equity	23,087,330	5.5	-1.8	-1.2	4.0	9.4	--	--	--	3.6	May-22
<i>Russell 1000 Index</i>			<i>-1.7</i>	<i>1.6</i>	<i>18.6</i>	<i>15.4</i>	<i>9.9</i>	<i>10.8</i>	<i>12.6</i>	<i>8.1</i>	
Excess Return			-0.1	-2.8	-14.6	-6.0	--	--	--	-4.5	
Brown Fundamental Small Cap Value	11,783,990	2.8	-1.8	4.5	7.9	11.0	--	--	--	3.9	Apr-21
<i>Russell 2000 Value Index</i>			<i>-4.8</i>	<i>2.4</i>	<i>4.9</i>	<i>2.2</i>	<i>13.5</i>	<i>3.2</i>	<i>7.4</i>	<i>-2.1</i>	
Excess Return			3.0	2.1	3.0	8.8	--	--	--	6.0	
Rice Hall James	14,345,949	3.4	-5.3	-2.3	7.1	3.0	2.7	0.7	--	5.9	Aug-17
<i>Russell 2000 Growth Index</i>			<i>-5.2</i>	<i>-0.8</i>	<i>12.7</i>	<i>6.8</i>	<i>2.7</i>	<i>2.5</i>	<i>8.2</i>	<i>6.6</i>	
Excess Return			-0.1	-1.5	-5.6	-3.8	0.0	-1.8	--	-0.7	

Performance shown is net of fees, except for Total Plan and Domestic Equity which have a mix of gross and net of fees performance. Please see the Addendum for more details. Since inception date and performance begin in the month following an investments initial funding. Fiscal year begins on July 1. Please see the Benchmark History for custom benchmark compositions.

Asset Class & Manager Performance | As of August 31, 2023

	Market Value (\$)	% of Portfolio	1 Mo (%)	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	S.I. (%)	Inception Date
International Equity	53,975,691	12.9	-5.3	-3.4	7.9	11.9	4.1	3.4	5.1	5.0	Jan-98
<i>MSCI ACWI ex US (Blend)</i>			-4.5	-0.6	8.8	11.9	4.0	3.3	4.4	5.0	
Excess Return			-0.8	-2.8	-0.9	0.0	0.1	0.1	0.7	0.0	
Vanguard Developed Markets ETF	15,320,074	3.7	-3.9	-0.9	9.4	15.2	5.8	--	--	6.2	Sep-19
<i>FTSE Developed All Cap ex-U.S. Index</i>			-3.9	-0.4	10.6	15.9	6.2	4.4	5.4	6.6	
Excess Return			0.0	-0.5	-1.2	-0.7	-0.4	--	--	-0.4	
SGA ACWI ex-U.S. Equity	38,655,618	9.2	-5.8	-4.4	7.4	10.7	3.3	--	--	1.7	Dec-19
<i>MSCI AC World ex USA (Net)</i>			-4.5	-0.6	8.8	11.9	4.0	3.3	4.4	3.5	
Excess Return			-1.3	-3.8	-1.4	-1.2	-0.7	--	--	-1.8	
Fixed Income	103,843,942	24.8	-0.5	-0.6	2.1	-0.3	-3.6	0.8	1.9	4.4	Jan-94
<i>Bloomberg Universal (Blend)</i>			-0.6	-0.5	1.8	-0.4	-4.0	0.7	1.8	4.5	
Excess Return			0.1	-0.1	0.3	0.1	0.4	0.1	0.1	-0.1	
Ramirez	70,461,623	16.8	-0.4	-0.6	2.0	-0.6	-3.6	0.8	--	1.1	Feb-17
<i>Blmbg. U.S. Aggregate Index</i>			-0.6	-0.7	1.4	-1.2	-4.4	0.5	1.5	0.7	
Excess Return			0.2	0.1	0.6	0.6	0.8	0.3	--	0.4	
Wellington Core Bond	6,687,686	1.6	-0.6	-0.6	2.4	-0.8	--	--	--	-4.6	Apr-21
<i>Blmbg. U.S. Aggregate Index</i>			-0.6	-0.7	1.4	-1.2	-4.4	0.5	1.5	-4.3	
Excess Return			0.0	0.1	1.0	0.4	--	--	--	-0.3	
Reams	26,694,632	6.4	-0.8	-0.6	2.5	0.5	-3.3	3.2	2.8	4.8	Feb-98
<i>Bloomberg Universal (Blend)</i>			-0.6	-0.5	1.8	-0.4	-4.0	0.7	1.8	4.1	
Excess Return			-0.2	-0.1	0.7	0.9	0.7	2.5	1.0	0.7	

Performance shown is net of fees, except for International Equity composite which has a mix of gross and net of fees performance. Please see the Addendum for more details. Since inception date and performance begin in the month following an investments initial funding. Fiscal year begins on July 1. Please see the Benchmark History for custom benchmark compositions.

Asset Class & Manager Performance | As of August 31, 2023

	Market Value (\$)	% of Portfolio	1 Mo (%)	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	S.I. (%)	Inception Date
Credit	9,339,528	2.2	-0.1	1.5	8.6	6.4	5.7	3.4	--	4.7	Feb-15
<i>Blmbg. U.S. Corp: High Yield Index</i>			0.3	1.7	7.1	7.2	1.8	3.3	4.5	4.3	
Excess Return			-0.4	-0.2	1.5	-0.8	3.9	0.1	--	0.4	
Polen Capital	9,339,528	2.2	-0.1	1.5	8.6	6.4	5.7	3.4	--	4.7	Feb-15
<i>ICE BofA High Yield Master II</i>			0.3	1.7	7.2	7.0	1.9	3.2	4.4	4.2	
Excess Return			-0.4	-0.2	1.4	-0.6	3.8	0.2	--	0.5	
Covered Calls	22,919,141	5.5	-0.3	1.6	15.7	14.4	11.0	8.9	--	9.0	Apr-14
<i>CBOE S&P 500 Buy Write Index</i>			-1.6	-0.2	10.3	10.0	8.2	3.6	6.3	5.6	
Excess Return			1.3	1.8	5.4	4.4	2.8	5.3	--	3.4	
Parametric BXM	11,349,735	2.7	-0.3	1.2	12.8	11.9	9.3	6.4	--	7.1	Apr-14
<i>CBOE S&P 500 Buy Write Index</i>			-1.6	-0.2	10.3	10.0	8.2	3.6	6.3	5.6	
Excess Return			1.3	1.4	2.5	1.9	1.1	2.8	--	1.5	
Parametric DeltaShift	11,569,406	2.8	-0.3	2.0	18.8	17.0	12.4	11.0	--	11.0	Apr-14
<i>CBOE S&P 500 Buy Write Index</i>			-1.6	-0.2	10.3	10.0	8.2	3.6	6.3	5.6	
Excess Return			1.3	2.2	8.5	7.0	4.2	7.4	--	5.4	

Performance shown is net of fees. Since inception date and performance begin in the month following an investments initial funding. Fiscal year begins on July 1. Please see the Benchmark History for custom benchmark compositions.

Asset Class & Manager Performance | As of August 31, 2023

	Market Value (\$)	% of Portfolio	1 Mo (%)	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	S.I. (%)	Inception Date
Crisis Risk Offset	39,424,969	9.4	-1.5	-1.6	0.2	-3.2	-7.9	-8.4	--	-8.2	Aug-18
<i>Crisis Risk Offset Benchmark</i>			<i>-0.6</i>	<i>-1.9</i>	<i>0.8</i>	<i>3.2</i>	<i>3.8</i>	<i>-0.2</i>	--	<i>-0.3</i>	
Excess Return			<i>-0.9</i>	<i>0.3</i>	<i>-0.6</i>	<i>-6.4</i>	<i>-11.7</i>	<i>-8.2</i>	--	<i>-7.9</i>	
Kepos Alternative Risk Premia	10,752,656	2.6	0.1	2.6	9.3	11.0	--	--	--	4.7	Feb-22
<i>SG Multi Alternative Risk Premia Index</i>			<i>1.9</i>	<i>1.7</i>	<i>5.2</i>	<i>7.8</i>	<i>5.3</i>	<i>0.7</i>	--	<i>5.8</i>	
Excess Return			<i>-1.8</i>	<i>0.9</i>	<i>4.1</i>	<i>3.2</i>	--	--	--	<i>-1.1</i>	
Versor Trend Following	15,310,522	3.7	-1.5	-1.6	-4.2	-5.4	--	--	--	1.5	Apr-22
<i>SG Trend Index</i>			<i>-0.9</i>	<i>-2.5</i>	<i>-2.4</i>	<i>-3.0</i>	<i>12.7</i>	<i>8.2</i>	<i>5.8</i>	<i>4.0</i>	
Excess Return			<i>-0.6</i>	<i>0.9</i>	<i>-1.8</i>	<i>-2.4</i>	--	--	--	<i>-2.5</i>	
Vanguard Long-Term Treasury ETF	13,361,791	3.2	-2.8	-4.9	-1.3	-10.1	-13.5	--	--	-5.1	Jul-19
<i>Blmbg. U.S. Gov Long Index</i>			<i>-2.8</i>	<i>-4.9</i>	<i>-1.3</i>	<i>-9.6</i>	<i>-13.4</i>	<i>-1.9</i>	<i>1.6</i>	<i>-4.9</i>	
Excess Return			0.0	0.0	0.0	<i>-0.5</i>	<i>-0.1</i>	--	--	<i>-0.2</i>	
Cash	15,741,268	3.8	--	--	--	--	--	--	--	--	Mar-11

Performance shown is net of fees. Since inception date and performance begin in the month following an investments initial funding. Fiscal year begins on July 1. Please see the Benchmark History for custom benchmark compositions.

Cash Flow Summary

	Beginning Market Value	Net Cash Flow	Net Investment Change	Ending Market Value
Northern Trust Russell 1000	84,160,873	-	-1,463,982	82,696,891
EARNEST Partners	42,499,305	-	-1,025,803	41,473,502
Wellington Select Quality Equity	23,507,008	-	-419,678	23,087,330
Brown Fundamental Small Cap Value	12,001,225	-	-217,235	11,783,990
Rice Hall James	15,140,852	-	-794,903	14,345,949
Vanguard Developed Markets ETF	15,949,620	-	-629,546	15,320,074
SGA ACWI ex-U.S. Equity	41,017,144	-	-2,361,527	38,655,618
Ramirez	70,759,121	-	-297,498	70,461,623
Wellington Core Bond	6,727,417	-	-39,731	6,687,686
Reams	26,907,450	-	-212,818	26,694,632
Polen Capital	9,349,083	-	-9,555	9,339,528
Parametric BXM	11,379,679	-	-29,944	11,349,735
Parametric DeltaShift	11,602,863	-	-33,457	11,569,406
Kepos Alternative Risk Premia	10,737,026	-	15,630	10,752,656
Versor Trend Following	15,540,097	-	-229,575	15,310,522
Vanguard Long-Term Treasury ETF	13,779,972	-	-418,182	13,361,791
Cash - Money Market	5,438,372	57,896	-	5,496,268
Cash - Treasury	10,480,000	-235,000	-	10,245,000
Securities Lending Northern Trust	-	-12,108	12,108	-
OPFRS Total Plan	426,977,109	-189,212	-8,155,695	418,632,202

Benchmark History		
From Date	To Date	Benchmark
OPFRS Total Plan		
06/01/2022	Present	40.0% Russell 3000 Index, 12.0% MSCI AC World ex USA (Net), 31.0% Blmbg. U.S. Universal Index, 2.0% Blmbg. U.S. Corp: High Yield Index, 5.0% CBOE S&P 500 Buy Write Index, 10.0% Crisis Risk Offset Benchmark
01/01/2019	06/01/2022	40.0% Russell 3000 Index, 12.0% MSCI AC World ex USA index, 31.0% Blmbg. U.S. Universal Index, 5.0% CBOE S&P 500 Buy Write Index, 2.0% Blmbg. U.S. Treasury: Long, 10.0% Crisis Risk Offset Benchmark
05/01/2016	01/01/2019	48.0% Russell 3000 Index, 12.0% MSCI AC World ex USA index, 20.0% Blmbg. U.S. Universal Index, 20.0% CBOE BXM
10/01/2015	05/01/2016	43.0% Russell 3000 Index, 12.0% MSCI AC World ex USA index, 20.0% Blmbg. U.S. Universal Index, 15.0% CBOE BXM, 10.0% CPI - All Urban Consumers (unadjusted) +3%
01/01/2014	10/01/2015	48.0% Russell 3000 Index, 12.0% MSCI AC World ex USA index, 20.0% Blmbg. U.S. Universal Index, 10.0% CBOE BXM, 10.0% CPI - All Urban Consumers (unadjusted) +3%
03/01/2013	01/01/2014	40.0% Russell 3000 Index, 10.0% MSCI AC World ex USA index, 17.0% Blmbg. U.S. Universal Index, 33.0% ICE BofA 3 Month U.S. T-Bill
08/01/2012	03/01/2013	20.0% Russell 3000 Index, 7.0% MSCI AC World ex USA index, 18.0% Blmbg. U.S. Universal Index, 55.0% ICE BofA 3 Month U.S. T-Bill
10/01/2007	08/01/2012	53.0% Russell 3000 Index, 17.0% MSCI AC World ex USA index, 30.0% Blmbg. U.S. Universal Index
04/01/2006	10/01/2007	35.0% Russell 3000 Index, 15.0% MSCI AC World ex USA index, 50.0% Blmbg. U.S. Universal Index
01/01/2005	04/01/2006	35.0% Russell 3000 Index, 50.0% Blmbg. U.S. Aggregate Index, 15.0% MSCI AC World ex USA index
04/01/1998	01/01/2005	20.0% Russell 1000 Value Index, 10.0% Russell 1000 Index, 5.0% Russell Midcap Index, 50.0% Blmbg. U.S. Aggregate Index, 15.0% MSCI EAFE (Net)
09/01/1988	04/01/1998	40.0% S&P 500 Index, 55.0% Blmbg. U.S. Aggregate Index, 5.0% FTSE 3 Month T-Bill

Benchmark History

From Date	To Date	Benchmark
Domestic Equity		
01/01/2005	Present	100.0% Russell 3000 Index
04/01/1998	01/01/2005	57.1% Russell 1000 Value Index, 28.6% Russell 1000 Index, 14.3% Russell Midcap Index
09/01/1988	04/01/1998	100.0% S&P 500 Index
International Equity		
01/01/2005	Present	100.0% MSCI AC World ex USA (Net)
01/01/1998	01/01/2005	100.0% MSCI EAFE Index
Fixed Income		
04/01/2006	Present	100.0% Blmbg. U.S. Universal Index
01/01/1976	04/01/2006	100.0% Blmbg. U.S. Aggregate Index
Covered Calls		
03/01/2014	Present	CBOE S&P 500 Buy Write Index
Crisis Risk Offset		
01/01/2023	Present	33.3% SG Trend Index, 33.3% SG Multi Alternative Risk Premia Index, 33.3% Blmbg. U.S. Government: Long Term Bond Index
08/01/2018	01/01/2023	100.0% SG Multi Alternative Risk Premia Index
Cash		
03/01/2011	Present	FTSE 3 Month T-Bill

Additional Information

Performance Return Types: Performance shown is net of fees, except for OPFRS Total Plan, Domestic Equity, and International Equity Composites, which have a mix of gross and net of fees performance. Performance shown for OPFRS Total Plan and International Equity composite is gross of fees prior to January 2016. Performance shown for Domestic Equity composite is gross of fees prior to January 2017.

Inception Date: Since inception date and performance begin in the month following an investments initial funding.

Fiscal Year: Fiscal year begins on July 1.

Fair Value Pricing Methodology: Though Vanguard Developed Markets ETF is a passive strategy, short-term performance may appear to diverge from the index it tracks more than would be expected. This is due to Fair Value Pricing (FVP) adjustments that address the pricing discrepancies that may arise from time-zone differences among global securities markets. The resulting temporary divergence is expected to correct itself when the foreign markets reopen.

WE HAVE PREPARED THIS REPORT (THIS "REPORT") FOR THE SOLE BENEFIT OF THE INTENDED RECIPIENT (THE "RECIPIENT").

SIGNIFICANT EVENTS MAY OCCUR (OR HAVE OCCURRED) AFTER THE DATE OF THIS REPORT AND THAT IT IS NOT OUR FUNCTION OR RESPONSIBILITY TO UPDATE THIS REPORT. ANY OPINIONS OR RECOMMENDATIONS PRESENTED HEREIN REPRESENT OUR GOOD FAITH VIEWS AS OF THE DATE OF THIS REPORT AND ARE SUBJECT TO CHANGE AT ANY TIME. ALL INVESTMENTS INVOLVE RISK. THERE CAN BE NO GUARANTEE THAT THE STRATEGIES, TACTICS, AND METHODS DISCUSSED HERE WILL BE SUCCESSFUL.

INFORMATION USED TO PREPARE THIS REPORT WAS OBTAINED FROM INVESTMENT MANAGERS, CUSTODIANS, AND OTHER EXTERNAL SOURCES. WHILE WE HAVE EXERCISED REASONABLE CARE IN PREPARING THIS REPORT, WE CANNOT GUARANTEE THE ACCURACY OF ALL SOURCE INFORMATION CONTAINED HEREIN.

CERTAIN INFORMATION CONTAINED IN THIS REPORT MAY CONSTITUTE "FORWARD - LOOKING STATEMENTS," WHICH CAN BE IDENTIFIED BY THE USE OF TERMINOLOGY SUCH AS "MAY," "WILL," "SHOULD," "EXPECT," "AIM," "ANTICIPATE," "TARGET," "PROJECT," "ESTIMATE," "INTEND," "CONTINUE" OR "BELIEVE," OR THE NEGATIVES THEREOF OR OTHER VARIATIONS THEREON OR COMPARABLE TERMINOLOGY. ANY FORWARD-LOOKING STATEMENTS, FORECASTS, PROJECTIONS, VALUATIONS, OR RESULTS IN THIS PRESENTATION ARE BASED UPON CURRENT ASSUMPTIONS. CHANGES TO ANY ASSUMPTIONS MAY HAVE A MATERIAL IMPACT ON FORWARD - LOOKING STATEMENTS, FORECASTS, PROJECTIONS, VALUATIONS, OR RESULTS. ACTUAL RESULTS MAY THEREFORE BE MATERIALLY DIFFERENT FROM ANY FORECASTS, PROJECTIONS, VALUATIONS, OR RESULTS IN THIS PRESENTATION.

PERFORMANCE DATA CONTAINED HEREIN REPRESENT PAST PERFORMANCE. PAST PERFORMANCE IS NO GUARANTEE OF FUTURE RESULTS.

Oakland Police and Fire Retirement System

September 27, 2023

Recommendation for
Oct to Dec 2023 Cash Flows

Asset Class / Manager Liquidity

Asset Class	Fund	Liquidity Tier
Domestic Equity	Northern Trust Russell 1000	1
Domestic Equity	EARNEST Partners	3
Domestic Equity	Wellington Select Quality Equity	3
Domestic Equity	Rice Hall James	3
Domestic Equity	Brown Small Cap Value	3
International Equity	SGA MSCI ACWI ex-US	3
International Equity	Vanguard Developed ETF	1
Domestic Fixed Income	Ramirez	2
Domestic Fixed Income	Reams	2
Domestic Fixed Income	Wellington Core Bond	3
Credit	Polen Capital High Yield	2
Covered Calls	Parametric	2
Crisis Risk Offset	Vanguard Long Duration ETF	1
Crisis Risk Offset	Versor Trend Following	3
Crisis Risk Offset	Kepos Alternative Risk Premia	3
Cash	Cash	1

Description of Liquidity Tiers

Tier	Description	Market Value (\$M)	In Months ¹
1	Public, Scheduled Withdrawal Allowances	127.1	21.2
2	Public, Accommodating of Withdrawals	129.4	21.6
3	Public, Must Plan Withdrawals	162.1	27.0
4	Closely Held	0.0	-
Total		418.6	

¹ Illustrates Liquidity in Months assuming a net outflow of \$6 million per month; that is, the illustrated figure demonstrates the number of months it would take to withdraw \$6 million per month from each liquidity tier.

Oakland PFRS Asset Allocation as of August 31, 2023

	Market Value		Target	Variance		Actual Cash Flows for Jul – Sep Benefits ¹		Suggested Cash Flows for Oct – Dec Benefits ¹	
	(\$M)	(%)	(%)	(\$M)	(%)	Inflow (\$M)	Outflow (\$M)	Inflow (\$M)	Outflow (\$M)
Northern Trust Russell 1000	82.7	19.8%	20.0%	(1.0)	(0.2%)	--	--	--	--
EARNEST Partners	41.5	9.9%	8.0%	8.0	1.9%	--	--	--	(3.0)
Wellington Select Quality Equity	23.1	5.5%	6.0%	(2.0)	(0.5%)	--	--	--	--
Rice Hall James	14.3	3.4%	3.0%	1.8	0.4%	--	--	--	--
Brown Small Cap Value	11.8	2.8%	3.0%	(0.8)	(0.2%)	--	--	--	--
Total Domestic Equity	173.4	41.4%	40.0%	5.9	1.4%	--	--	--	(3.0)
SGA MSCI ACWI ex-US	38.7	9.2%	8.4%	3.5	0.8%	--	(3.0)	--	--
Vanguard Developed ETF (BlackRock) ²	15.3	3.7%	3.6%	0.2	0.1%	--	--	--	--
Total International Equity	54.0	12.9%	12.0%	3.7	0.9%	--	(3.0)	--	--
Total Public Equity³	227.4	54.3%	52.0%	9.7	2.3%	--	(3.0)	--	(3.0)
Parametric	22.9	5.5%	5.0%	2.0	0.5%	--	--	--	--
Total Covered Calls	22.9	5.5%	5.0%	2.0	0.5%	--	--	--	--
Long Duration ETF (BlackRock) ²	13.4	3.2%	3.3%	(0.6)	(0.1%)	--	--	--	--
Versor Trend Following	15.3	3.7%	3.3%	1.5	0.4%	--	--	--	--
Kepos Alternative Risk Premia	10.8	2.6%	3.3%	(3.1)	(0.7%)	--	--	--	--
Total Crisis Risk Offset	39.4	9.4%	10.0%	(2.4)	(0.6%)	--	--	--	--
Ramirez	70.5	16.8%	17.0%	(0.7)	(0.2%)	--	--	--	--
Reams	26.7	6.4%	12.0%	(23.5)	(5.6%)	--	--	--	--
Wellington Core Bond	6.7	1.6%	2.0%	(1.7)	(0.4%)	--	--	--	--
Polen Capital High Yield	9.3	2.2%	2.0%	1.0	0.2%	--	--	--	--
Total Public Fixed Income	113.2	27.0%	33.0%	(25.0)	(6.0%)	--	--	--	--
Cash	15.7	3.8%	0.0%	15.7	3.8%	10.2	(10.2)	10.2	(10.2)
Total Stable³	128.9	30.8%	33.0%	(9.2)	(2.2%)	10.2	(10.2)	10.2	(10.2)
Total Portfolio	418.6	100%	100%	--	--	10.2	(13.2)	10.2	(13.2)

¹ Benefit payments estimated at \$13.2 million quarterly for FYE2024 per OPFRS. The report reflects estimated quarterly contributions from the City of \$10.2 million for FYE2024, estimated based on prior fiscal year's actuarial valuations; the annual required contribution for FYE2024 is \$40.8 million. Benefits are payable on first of each month.

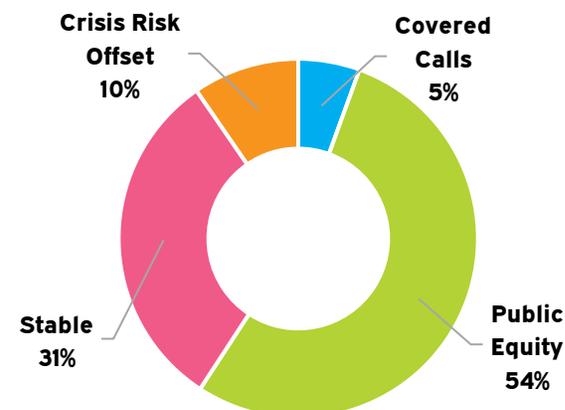
² Manager names in parentheses indicates selected, yet unfunded managers for replacement.

³ Public Equity is the sum of Domestic Equity and International Equity; Stable is the sum of Public Fixed Income and Cash.

Market Value by Portfolio Segment Before Cash Flows

Portfolio Segment	Market Value (\$M)
Domestic Equity	173.4
International Equity	54.0
Public Equity ¹	227.4
Covered Calls	22.9
Crisis Risk Offset	39.4
Public Fixed Income	113.2
Stable ¹	128.9
Total Portfolio	418.6

Projected Equity to Fixed Income Allocation After Cash Flows



Suggested Cash Withdrawals

Portfolio Segment	Market Value (\$M)
Cash in Treasury	10.2
EARNEST Partners	3.0
Total Withdrawal	13.2

→ Market value difference in Public Equity from 52% allocation: \$6.8 million in excess.

¹ Public Equity is the sum of Domestic Equity and International Equity; Stable is the sum of Public Fixed Income and Cash (not shown on this page).

Projected OPFRS Asset Allocation as of December 31, 2023¹

	Estimated Market Value		Target (%)	Projected Variance from Target	
	(\$M)	(%)		(\$M)	(%)
Northern Trust Russell 1000	82.7	20.0%	20.0%	0.2	0.0%
EARNEST Partners	38.5	9.3%	6.0%	13.7	3.3%
Wellington Select Quality Equity	23.1	5.6%	8.0%	(9.9)	(2.4%)
Rice Hall James	14.3	3.5%	3.0%	2.0	0.5%
Brown Small Cap Value	11.8	2.9%	3.0%	(0.6)	(0.1%)
Total Domestic Equity	170.4	41.3%	40.0%	5.3	1.3%
SGA MSCI ACWI ex-US	35.7	8.6%	3.6%	20.8	5.0%
Vanguard Developed Markets ETF	15.3	3.7%	8.4%	(19.3)	(4.7%)
Total International Equity	51.0	12.4%	12.0%	1.5	0.4%
Total Public Equity	221.4	53.6%	52.0%	6.8	1.6%
Parametric	22.9	5.6%	5.0%	2.3	0.6%
Total Covered Calls	22.9	5.6%	5.0%	2.3	0.6%
Vanguard Long Duration ETF	13.4	3.2%	3.3%	(0.4)	(0.1%)
Versor Trend Following	15.3	3.7%	3.3%	1.6	0.4%
Kepos Alternative Risk Premia	10.8	2.6%	3.3%	(3.0)	(0.7%)
Total Crisis Risk Offset	39.4	9.6%	10.0%	(1.8)	(0.4%)
Ramirez	70.5	17.1%	12.0%	20.9	5.1%
Reams	26.7	6.5%	2.0%	18.4	4.5%
Wellington Core Bond	6.7	1.6%	19.0%	(71.7)	(17.4%)
Polen Capital High Yield	9.3	2.3%	2.0%	1.1	0.3%
Total Public Fixed Income	113.2	27.4%	33.0%	(23.0)	(5.6%)
Cash	15.7	3.8%	0.0%	15.7	3.8%
Total Stable	128.9	31.2%	33.0%	(7.2)	(1.8%)
Total Portfolio	412.6	100%	100%		

¹Benefit payments estimated at \$13.2M on a quarterly basis per OPFRS. Report reflects quarterly City contributions of \$10.2M. The City's current quarterly contribution amount is based on FYE2024 actuarial annual required contribution of \$40.8M.

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MEMORANDUM

TO: Oakland Police and Fire Retirement System (OPFRS)
FROM: Meketa Investment Group (Meketa)
DATE: September 27, 2023
RE: Fossil Fuels—Thermal Coal Divestment List Update

Background

On May 25, 2016, the OPFRS Board approved a recommendation to divest the portfolio from thermal coal producing companies. In July 2016, PCA provided an initial list of 26 thermal coal companies (defined as a company whose primary use of coal is in the generation of heat to produce electricity) that receive more than 50% of their revenue from coal production. OPFRS formally implemented the divestment policy on August 1, 2016.

As part of the ongoing thermal coal divestiture policy, Meketa is providing OPFRS staff with an updated list of thermal coal companies that should not be held in any separate account mandates within the OPFRS portfolio. The table on the following page represents an updated list of 59 thermal coal companies that meet the 50% revenue from coal production criteria as of June 30, 2023.

Restricted Thermal Coal Companies as of 6/30/2023

Issuer	ISIN	Ticker	Country of Incorporation
Agritrade Resources	BMG0130N1130	1131	Bermuda
Alliance Holdings	US01861G1004	AHGP	USA
Alliance Resource Partners	US01877R1086	ARLP	USA
Anhui Hengyuan Coal Industry & Electricity Power	CNE000001KT3	600971	China
Banpu Public Company	TH0148A10Z06	BANPU	Thailand
Beijing Haohua Energy Resource	CNE100000N12	601101	China
Bisichi	GB0001012045	BISI	United Kingdom
China Coal Xinji Energy	CNE1000008D7	601918	China
China Qinfu Group	KYG2159E1070	866	Cayman Islands
China Shenhua Energy	CNE1000002R0	1088	China
Cloud Peak Energy	US18911Q1022	CLDPQ	USA
Coal Energy	LU0646112838	CLE	Luxembourg
Coal India	INE522F01014	533278	India
CONSOL Energy	US20854L1089	CEIX	USA
Exxaro Resources	ZAE000084992	EXX	South Africa
Foresight Energy	US34552U1043	FELPQ	USA
Geo Energy Resources	SG2F24986083	RE4	Singapore
Gujarat Mineral Development Corporation	INE131A01031	532181	India
Hallador Energy	US40609P1057	HNRG	USA
Inner Mongolia Yitai Coal	CNE000000SK7	900948	China
Jinneng Holding Shanxi Coal Industry	CNE000001MZ6	601001	China
Kinetic Development Group	KYG525931039	1277	Cayman Islands
Kuzbasskaya Toplivnaya Kompaniya	RU000A0JPYD7	KBTK	Russia
Lubelski Wegiel Bogdanka	PLLWBGD00016	LWB	Poland
New Hope Corporation	AU000000NHC7	NHC	Australia
Park Elektrik Uretim Madencilik Sanayi ve Ticaret	TRAPRKTE91B5	PRKMEE	Turkey
Peabody Energy Australia	AU000000MCC0	MCC	Australia
Peabody Energy Corporation	US7045511000	BTU	USA
PT Adaro Energy Indonesia	ID1000111305	ADRO	Indonesia
PT Alfa Energi Investama	ID1000139009	FIRE	Indonesia
PT Bayan Resources	ID1000111701	BYAN	Indonesia

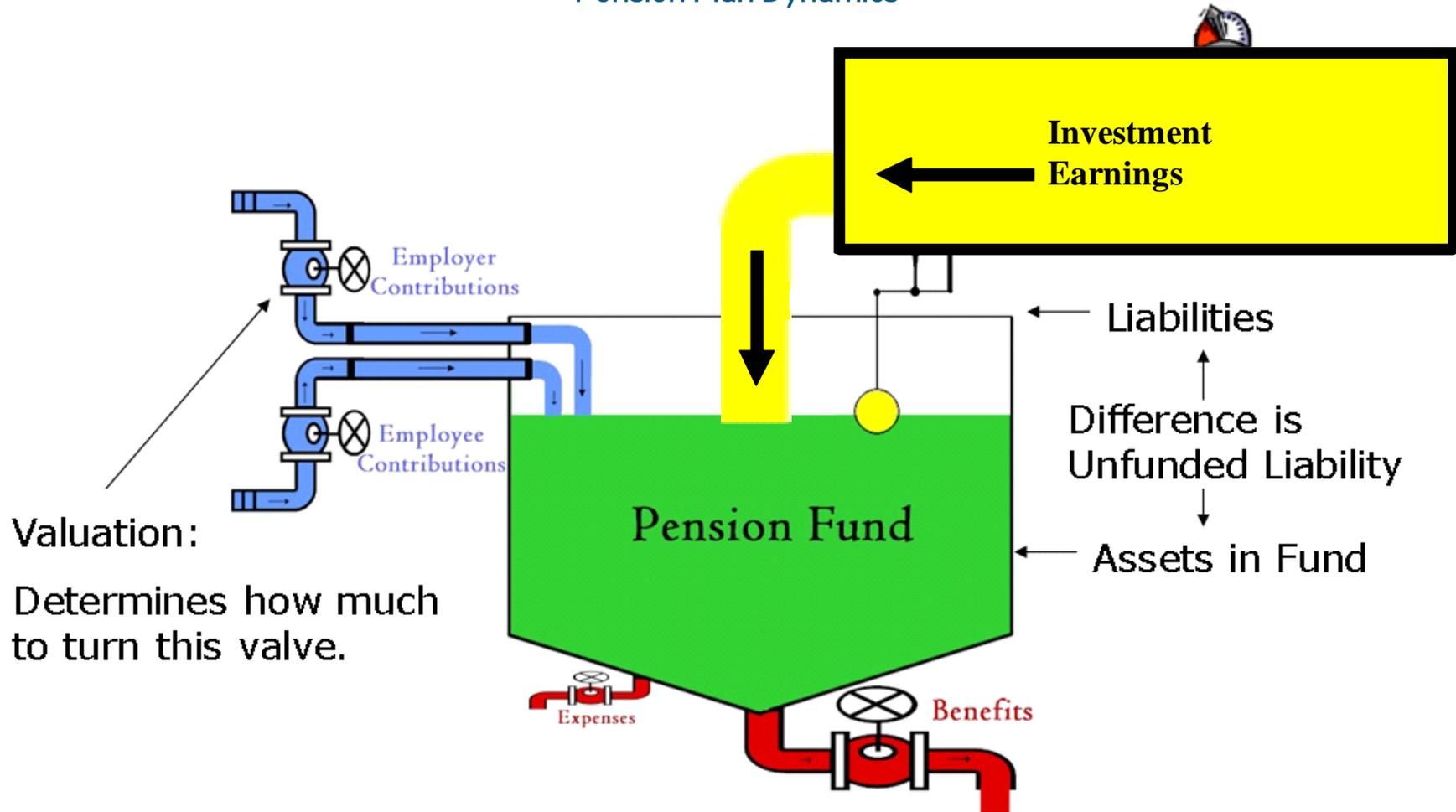
Issuer	ISIN	Ticker	Country of Incorporation
PT Berau Coal Energy	ID1000116502	BRAU	Indonesia
PT Bukit Asam	ID1000094006	PTBA	Indonesia
PT Bumi Resources	ID1000068703	BUMI	Indonesia
PT Dian Swastatika Sentosa	ID1000113400	DSSA	Indonesia
PT Golden Eagle Energy	ID1000100704	SMMT	Indonesia
PT Golden Energy Mines	ID1000121106	GEMS	Indonesia
PT Harum Energy	ID1000116601	HRUM	Indonesia
PT Indika Energy	ID1000110901	INDY	Indonesia
PT Indo Tambangraya Megah	ID1000108509	ITMG	Indonesia
PT Trada Alam Minera	ID1000111909	TRAM	Indonesia
Rhino Resource Partners	US76218Y2028	RHNO	USA
Sadovaya Group	LU0564351582	SGR	Luxembourg
Sakari Resources	SGIU11932563	AJ1	Singapore
Salungano Group	ZAE000306890	SLG	South Africa
Semirara Mining & Power	PHY7628G1124	SCC	Philippines
Shaanxi Coal Industry	CNE100001T64	601225	China
Shan Xi Hua Yang Group New Energy	CNE000001FP1	600348	China
Shanghai Datun Energy Resources	CNE000001915	600508	China
Shanxi Lu'An Environmental Energy Development	CNE000001INT7	601699	China
TerraCom	AU000000TER9	TER	Australia
The Lanna Resources	TH0409010Z03	LANNA	Thailand
Thungela Resources	ZAE000296554	TGA	South Africa
Washington H. Soul Pattinson and Company	AU000000SOL3	SOL	Australia
Westmoreland Coal Company	US9608781061	WLBAQ	USA
Westmoreland Resource Partners	US96108P1030	WMLPQ	USA
Whitehaven Coal	AU000000WHC8	WHC	Australia
Yancoal Australia	AU000000YAL0	YAL	Australia
Zhengzhou Coal Industry & Electric Power	CNE000000TS8	600121	China

Oakland Police & Fire Retirement System

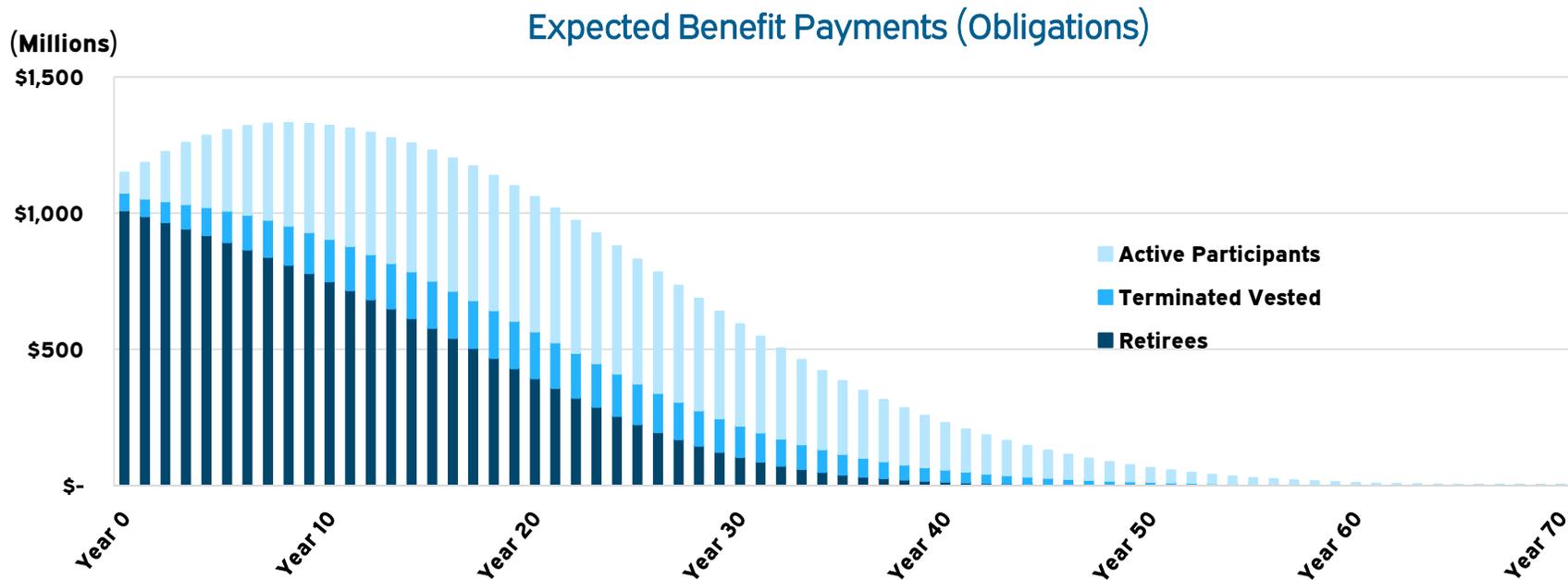
September 27, 2023

Educational Session: Actuarial
Concepts

Pension Plan Dynamics



Valuation:
Determines how much to turn this valve.



- Benefit payments are determined by the provisions of the plan, generally based on how long participants work and salary earned.
- Expected benefit payments are determined by the plan's actuary using many assumptions, such as future mortality and salary increases.
- The liability is calculated by discounting the expected benefit payments using the assumed long-term actuarial rate.

Funded Status

→ The funded status is an assessment of whether the assets are large enough to satisfy the obligations earned to-date, assuming all actuarial assumptions are met.

$$\frac{\text{Assets}}{\text{Liabilities}} = \text{Funded Status (Ratio)}$$

- If the funded status is less than 100%, the actuary will recommend the plan sponsor contribute assets to the plan to:
- close the funding gap; and
 - fund the benefits expected to be earned by participants in the upcoming year
- If the funded status is more than 100%, the actuary could recommend a smaller contribution or no contribution at all.

Funded Status (continued)

→ The actuarial value of assets (AVA) and actuarial accrued liability (AAL) change from one year to the next in a formulaic fashion.

- Note: actuarial losses/gains are important considerations that are generally related to experience vs. assumptions.

Example: Change in AVA and AAL	
AVA at Beginning of Year	AAL at Beginning of Year
+ Contributions	+ Service cost (benefits accrued during year)
+ Actual return (accounting for any smoothing)	+ Interest cost
- Benefits paid	+/- Actuarial losses/gains during the year
- Expenses	- Benefits paid
= AVA at End of Year	= AAL at End of year

Moody's Measure

- For underfunded plans, one metric to monitor is Moody's "Tread Water" Measure.
- This metric is the bare minimum for a system to maintain solvency.

**Moody's "Tread Water" Measure:
Service Costs + Interest Costs on UAAL \approx Minimum Contribution Threshold**

**(i.e., contributions cover accrual of new benefits + interest costs,
meaning UAAL is not increasing)**

$$\frac{\text{Actual Contributions}}{\text{Service Costs + Interest Costs on UAAL}} > 1.0$$

- If the ratio of a plan's employer contributions to its Tread Water Measure > 1.0 , then the plan exhibits a sustainable ability to continue financing its long-term obligations, otherwise, it is not even "treading water."

Key Terms

→ PBO (projected benefit obligation)

- Actuarial present value (at an assumed discount rate) of all future pension benefits earned to date.
- Includes:
 - Remaining benefits for currently retired employees;
 - Retirement benefits earned to date for active employees;
 - Impact of future salary increases and service on the benefits for active employees.

→ AAL (actuarial accrued liability)

- For most public plans, this is the same as the PBO.

→ AVA (actuarial value of assets)

- The asset value for valuation purposes. Can be based on market value + any “smoothing” methods.

→ UAAL (unfunded actuarial accrued liability)

- $AAL - AVA = UAAL$

→ Funded Status (Ratio)

- $AVA/AAL = \text{Funded Status (Ratio)}$

→ Discount Rate

- The interest rate used to compute the present value of benefits and current service costs. The actuarial recommendation is for this rate to stay at or below the portfolio’s expected long-term rate of return.

→ Expected Return

- The expected return of the investment portfolio. This may or may not equal the discount rate.

Key Terms (continued)

→ Normal Cost or Current Service Cost

- Present value of benefits expected to be earned during the upcoming period.

→ Interest Cost

- Increase in the liability due to the passage of time.

→ ADC or ARC (actuarial determined contribution or actuarial required contribution)

- The amount needed to fund benefits over time.
- Typically, this is the amount necessary to fund the normal cost and amortize the unfunded liability per the amortization schedule (if applicable).

→ Valuation Report

- Utilizing current assumptions, an annual report that describes the financial position of a plan.

→ Experience Study

- A study performed every few years to ensure the assumptions are in-line with the plan's demographic and economic experience.

→ Actuarial gains/losses

- Changes in the AAL due to alterations in assumptions/methods (e.g., discount rate) or experience (e.g., salary growth).

Important Assumptions

Discount Rate (current = 6.0%)

- The rate at which expected benefit payments are discounted.
- A decrease in the rate of return assumption increases the present value of liabilities.

Inflation (current = 2.75% U.S.(2.85% Bay Area))

- General increase in prices and fall in the purchasing power.
- Future retirement benefit increases are influenced by inflation, leading to a larger liability.

COLA(recent change = 3.25%)

- Estimate of year-to-year cost of living increases.
- COLA estimates are important from two perspectives: higher salaries lead to larger expected city contributions and larger participant benefits.

Asset-Liability Process

The purpose of an asset-liability study...

- Complete a comprehensive analysis of the unique characteristics of the cash flows (i.e., net benefit payments, expenses, contributions, etc.);
- Identify material risks to the amounts of the cash flows, and;
- Align an asset allocation to match the plan sponsor's risk tolerance.

Asset-Liability Process

- Funded ratios and valuation reports are point-in-time viewpoints of a system.
 - Any forward-looking projections assume all assumptions are perfectly met.
- Asset-Liability models seek to incorporate more probabilistic elements into the analysis, in particular, how volatility in the investment portfolio impacts the system.
 - Process examines potential ranges/probabilities for various actuarial metrics, such as the funded ratio, over long periods of time (e.g., 30 years).
 - Additionally, certain elements of the system (e.g., contribution rate) can vary over time depending on how the investment portfolio performs.

Project Goal:

To review and possibly modify OPFRS Strategic Allocation Policy, reflecting the decision maker's unique definition, tolerance for, and beliefs about investment risk.

Asset-Liability Modelling Process



Asset-Liability Process: Stakeholder Viewpoints

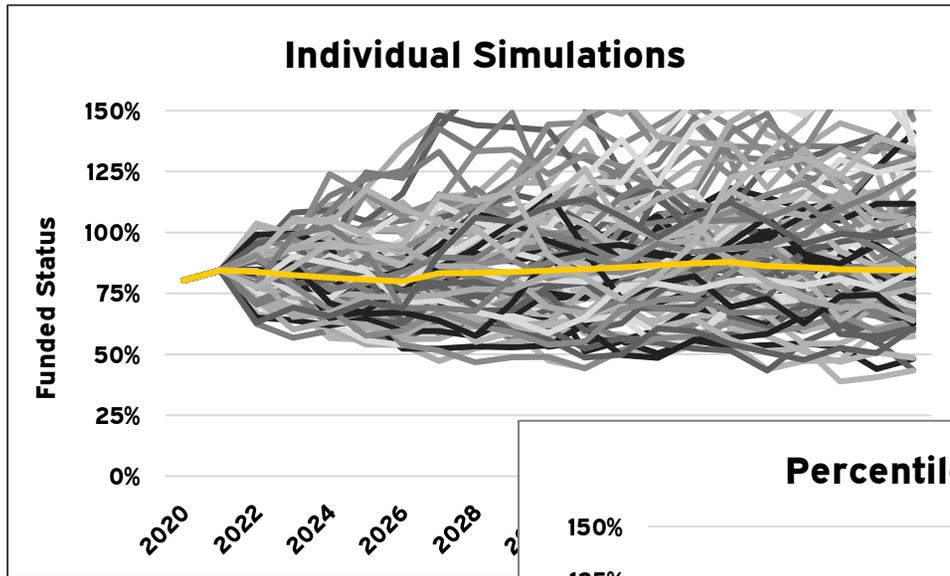
Stakeholders Perspectives on Risks/Implementations are Paramount

→ Example Survey Questions

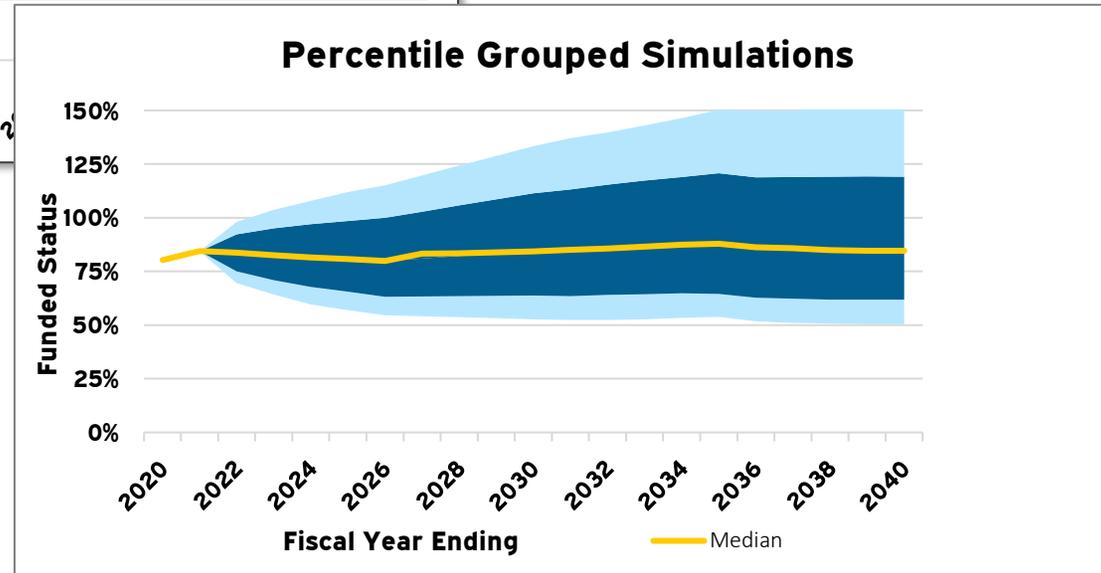
- Objective - Rank the following priorities:
 - Maintain progress along the “funding path”.
 - Minimizing total portfolio declines of -10% or more in a fiscal year.
 - Achieving 100% funded in X years.
 - Minimizing contribution uncertainty.
- Subjective - Agree or Disagree?
 - During a market crisis, the plan sponsor will be able to increase its contribution rate.
 - Alternative asset classes can help stabilize the total portfolio.
 - The cash-flow position is a key consideration when constructing an investment portfolio.
 - Producing a return pattern that is different than peers is a risk (given the same long-term return).
 - Different strategies and/or asset classes are interchangeable if they perform similar portfolio functions.

→ Answers to such questions help frame the optimization parameters and guide the ultimate decision-making process.

Example: Public Pension Asset-Liability Output

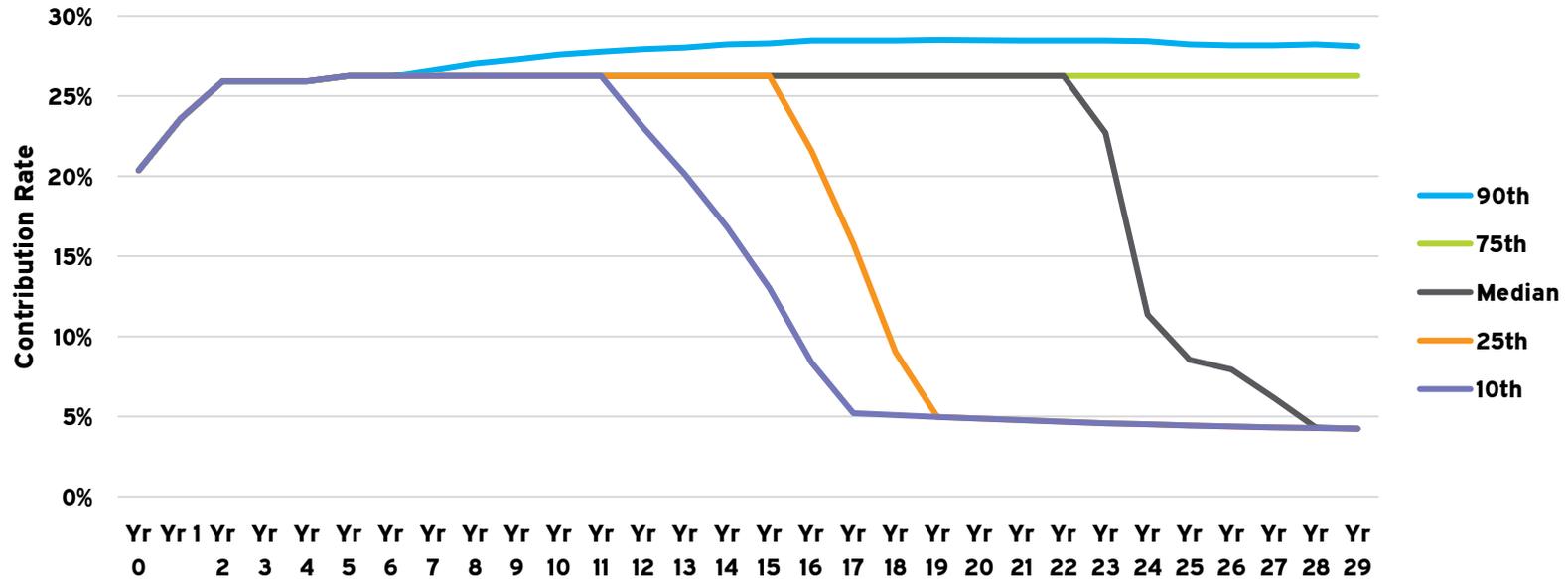


- The chart to the left displays a simulation of funded status outcomes based on the current investment policy, funded status, projected pension benefit payments and funding policy.
- The chart below summarizes those results into corridors of percentiles.
- Example: There is a 50% probability the funded status in 2040 is expected to be greater than 85%.



Analysis based on limited data from TCERA's website.

Example: Employer Contribution Rate for Fiscal Year



→ The contribution policy is a primary area of focus during an asset-liability study.

→ In addition to ranges for funded ratio, decision makers can also examine the probabilistic projections for contributions levels on a year-by-year basis and in aggregate.

Conclusion

- A defined benefit plan can ultimately be treated as a balance sheet:
 - Left side = assets
 - Right side = liabilities (benefits)
- Actuarial methods determine how the left and right side of this balance sheet are determined and calculated.
 - These methods are complex, but they can be treated in a more simplified manner to improve decision-making.
- Asset-Liability Studies seek to examine this balance sheet over a long-term period in a probabilistic manner that examines a wide range of scenarios and metrics.

Next Steps

→ The presentation in October will focus on two areas:

- Preliminary Capital Market Assumptions for the optimization process.
- Further examination of actuarial data, with an emphasis on 2026.

Meeting Date	Activity
October 2023	Strategic Analysis of current portfolio <ul style="list-style-type: none"> • Proposal of initial expected returns and volatilities for modeling purposes.
	Initial Examination of Key OPFRS Risks <ul style="list-style-type: none"> • Analysis of key system metrics, measures, and sensitivities.
December 2023	Risk Definitions <ul style="list-style-type: none"> • Dialogue with trustees and staff on what risk definitions are important for OPFRS moving forward.
January/Feb 2023	Final Model/Portfolio Selection and Implementation

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MEMORANDUM

TO: Oakland Police and Fire Retirement System (OPFRS)
FROM: Meketa Investment Group (Meketa)
DATE: September 27, 2023
RE: 2023 Ongoing Strategic Investment Agenda

On an ongoing (monthly) basis, Meketa develops a list of projects that we expect to work closely with OPFRS to complete over throughout the calendar year (see table below). In an attempt to coordinate the scheduling of these tasks, this memo details a Preliminary Investment Project Agenda by calendaring and prioritizing the expected tasks and deliverables that would be required to fulfill the Agenda. Meketa welcomes any suggestions and/or modifications to the proposed timeline.

2023 Preliminary Investment Project Agenda

Expected Completion Date	Task
October 2023	Flash Performance Report (2023 Sep) Information/Discussion: Asset-Liability Study Manager Update: Parametric Contract Renewal: Parametric
November/ December 2023	Flash Performance Report (2023 Oct) Quarterly Performance Report (3Q 2023) Cash Flow Report (1Q 2024) Information/Discussion: Asset-Liability Study Manager Update: Ramirez Contract Renewal: Ramirez

This agenda includes only major strategic items. Meketa also expects to work with the Staff and Board to complete more routine tasks and projects, as expected.

DS/PN/JLC/mn

Due to the termination of the statewide COVID-19 State of Emergency by the Governor of California, effective March 1, 2023, all meetings of the Oakland Police & Fire Retirement System Board and its Committees will be conducted in person.

Meetings are held in wheelchair accessible facilities.

The Board may take action on items not on the agenda only if findings pursuant to the Sunshine Ordinance and Brown Act are made that the matter is urgent or an emergency.

For additional information, contact the Retirement Unit by calling (510) 238-7295. or send an email to mvisaya@oaklandca.gov



Retirement Unit
150 Frank H. Ogawa Plaza
Oakland, California 94612

AGENDA

RETIREMENT BOARD MEMBERS

Walter L. Johnson, Sr.
President

Jaime T. Godfrey
Vice President

Martin J. Melia
Member

Robert W. Nichelini
Member

John C. Speakman
Member

R. Steven Wilkinson
Member

Erin Roseman
Member

CLOSED SESSION of the BOARD OF ADMINISTRATION of the OAKLAND POLICE AND FIRE RETIREMENT SYSTEM (“PFRS”)

WEDNESDAY, SEPTEMBER 27, 2023

DURING REGULAR MEETING SCHEDULED TO START AT 11:30 AM

ONE FRANK H. OGAWA PLAZA, CAUCUS ROOM, 3RD FLOOR, ROOM 336

OAKLAND, CA 94612

OBSERVE

- To observe the meeting by video conference, please click on this link: <https://us02web.zoom.us/j/82880493983> at the noticed meeting time.
- To listen to the meeting by phone, please call the numbers below at the noticed meeting time: Dial (for higher quality, dial a number based on your current location):
- iPhone one-tap: US: +16699006833, 82880493983# or +13462487799, 82880493983#
- US: +1 669 900 6833 or +1 346 248 7799 or +1 253 215 8782 or +1 301 715 8592 or +1 312 626 6799 or +1 929 205 6099
- International numbers available: <https://us02web.zoom.us/j/82880493983>
- Webinar ID: 828 8049 3983.
- If asked for a participant ID or code, press #.

PUBLIC COMMENTS

There are two ways to submit public comments.

- **Speaker Card:** All persons wishing to address the Board must complete a speaker’s card, stating their name and the agenda item they wish to address, including “Open Forum”.
- **eComment:** To send your comment directly to staff BEFORE the meeting starts, please email to mvisaya@oaklandca.gov with “PFRS Board Meeting Public Comment” in the subject line for the corresponding meeting. Please note that eComment submission **closes two (2) hours before posted meeting time.**

If you have any questions, please email Maxine Visaya, Administrative Assistant II, at mvisaya@oaklandca.gov

ORDER OF BUSINESS

**THE PFRS BOARD WILL MEET IN CLOSED SESSION
DURING ITS SCHEDULED BOARD MEETING**

Please see the meeting agenda for open session items. The board will convene in open session prior to the closed session. Speakers may address the items of business on the closed session agenda prior to closed session. The Board will reconvene in open session following the closed session to report any final decisions that the board makes in closed session.

Pursuant to California Government code Sections 54956.9(a) and 54956.9(d)(2):

- 1. REQUEST FOR AMENDMENTS TO JANUARY 29, 2020 SETTLEMENT AGREEMENTS OF RETIRED OAKLAND POLICE OFFICERS ASSOCIATION (ROPOA), PFRS AND CITY OF OAKLAND FOR ADDITIONAL HOLIDAY PAY AND EXTENSION OF TERMS – *POTENTIAL LITIGATION***

Retired Oakland Police Officers Association *Potential Plaintiff/Claimant*

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Erin Roseman
Member

REGULAR MEETING of the BOARD OF ADMINISTRATION of the OAKLAND POLICE AND FIRE RETIREMENT SYSTEM (“PFRS”)

WEDNESDAY, SEPTEMBER 27, 2023

11:30 AM

**ONE FRANK H. OGAWA PLAZA, HEARING ROOM 1
OAKLAND, CA 94612**

OBSERVE

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There are two ways to submit public comments.

- **Speaker Card:** All persons wishing to address the Board must complete a speaker’s card, stating their name and the agenda item they wish to address, including “Open Forum”.
- **eComment:** To send your comment directly to staff BEFORE the meeting starts, please email to mvisaya@oaklandca.gov with “PFRS Board Meeting Public Comment” in the subject line for the corresponding meeting. Please note that eComment submission **closes two (2) hours before posted meeting time.**

If you have any questions, please email Maxine Visaya, Administrative Assistant II at mvisaya@oaklandca.gov

ORDER OF BUSINESS

A. CLOSED SESSION

B. REPORT OF PFRS BOARD ACTION FROM CLOSED SESSION (IF ANY)

C. Subject: POLICE AND FIRE RETIREMENT SYSTEM (“PFRS”) BOARD OF ADMINISTRATION MEETING MINUTES

From: Staff of the PFRS Board

Recommendation: **APPROVE** the July 26, 2023 PFRS Board of Administration Meeting Minutes

D. Subject: POLICE AND FIRE RETIREMENT SYSTEM (“PFRS”) BOARD OF ADMINISTRATION MEETING MINUTES

From: Staff of the PFRS Board

Recommendation: **APPROVE** the August 30, 2023 PFRS Board of Administration Meeting Minutes

E. AUDIT & OPERATIONS COMMITTEE AGENDA – SEPTEMBER 27, 2023

E1. Subject: ADMINISTRATIVE EXPENSES REPORT

From: Staff of the PFRS Board

Recommendation: **ACCEPT** informational report regarding PFRS administrative expenses as of July 31, 2023

E2. Subject: MANNER OF PFRS BOARD & COMMITTEE MEETINGS

From: Staff of the PFRS Board

Recommendation: **ACCEPT** an informational report regarding the manner of PFRS Board & Committee Meetings and **APPROVE** of the Committee’s recommend course of action

F. INVESTMENT & FINANCIAL MATTERS COMMITTEE AGENDA – SEPTEMBER 27, 2023

F1. Subject: INVESTMENT MANAGER PERFORMANCE UPDATE: VERSOR INVESTMENTS, LLC

From: Versor Investments, LLC

Recommendation: **ACCEPT** informational report regarding a firm overview and managerial assessment; diversity and inclusion policy and practices; and investment strategy and portfolio performance of PFRS’ Systematic Trend Following Investment Strategy Manager Versor Investments, LLC

OAKLAND POLICE AND FIRE RETIREMENT SYSTEM
REGULAR BOARD MEETING
SEPTEMBER 27, 2023

- F2. **Subject:** INVESTMENT MANAGER PERFORMANCE REVIEW:
VERSOR INVESTMENTS, LLC
From: Meketa Investment Group
-
- Recommendation:** **ACCEPT** Meketa Investment Group’s review and evaluation regarding a firm overview and managerial assessment; peer ranking; and investment portfolio performance of PFRS’ Systematic Trend Following Investment Strategy Manager Versor Investments, LLC
- F3. **Subject:** ECONOMIC AND INVESTMENT MARKET OVERVIEW
AS OF AUGUST 31, 2023
From: Meketa Investment Group
-
- Recommendation:** **ACCEPT** informational report regarding the Global Investment Markets as of August 31, 2023
- F4. **Subject:** PRELIMINARY INVESTMENT FUND PERFORMANCE UPDATE
AS OF AUGUST 31, 2023
From: Meketa Investment Group
-
- Recommendation:** **ACCEPT** informational report regarding the Preliminary Investment Fund Performance Update as of August 31, 2023
- F5. **Subject:** \$13.2 MILLION DRAWDOWN FOR MEMBER RETIREMENT
ALLOWANCES QUARTER ENDING DECEMBER 31, 2023
(FISCAL YEAR 2023/2024)
From: Meketa Investment Group
-
- Recommendation:** **ACCEPT** informational report and **APPROVE** the Meketa Investment Group recommendation for a \$13.2 million drawdown, which includes a \$10.2 Million contribution from the City of Oakland and a \$3.0 Million contribution from the PFRS Investment Fund, to be used to pay Member Retirement Allowances from October 1, 2023 through December 31, 2023
- F6. **Subject:** THERMAL COAL COMPANIES PROHIBITED FROM THE PFRS
INVESTMENT PORTFOLIO – 2023 UPDATE
From: Meketa Investment Group
-
- Recommendation:** **ACCEPT** and **APPROVE** Meketa Investment Group’s updated list of thermal coal companies prohibited from the PFRS Investment Portfolio

OAKLAND POLICE AND FIRE RETIREMENT SYSTEM
REGULAR BOARD MEETING
SEPTEMBER 27, 2023

F7. **Subject:** ASSET-LIABILITY STUDY OF THE PFRS FUND (2023)
From: Meketa Investment Group

Recommendation: RECEIVE informational report and APPROVE Meketa Investment Group's recommended course of action moving forward

G. **Subject:** MEMBER RESOLUTIONS NO. 8084
From: Staff of the PFRS Board

Recommendation: APPROVE Member Resolution Nos. 8084

RESOLUTION NO. 8084

Resolution fixing the monthly allowance of the surviving spouse of the following retired member of the Oakland Police and Fire Retirement System in the amount indicated:

<u>Deceased Member</u>	<u>Surviving Spouse</u>	<u>Monthly Allowance</u>
Philip D. Hickman	Maryanne Hickman	\$ 4,243.35

H. **Subject:** ELECTION OF PFRS BOARD PRESIDENT & VICE PRESIDENT
From: Staff of the PFRS Board

Recommendation: CONDUCT PFRS Board Elections for Board President and Vice President pursuant to PFRS Rules and Regulations Section 7.1

I. PENDING ITEMS: NONE

J. NEW BUSINESS

K. OPEN FORUM

L. FUTURE SCHEDULING

M. ADJOURNMENT

A MEETING OF THE OAKLAND POLICE AND FIRE RETIREMENT SYSTEM (“PFRS”) BOARD OF ADMINISTRATION was held on Wednesday, July 26, 2023, at One Frank H. Ogawa Plaza, Hearing Room 1, Oakland, CA.

- Board Members:
- Walter L. Johnson President
 - Jaime T. Godfrey Vice President
 - Martin J. Melia Member
 - Robert W. Nichelini Member
 - Erin Roseman Member (Excused)
 - John C. Speakman Member (Excused)
 - R. Steven Wilkinson Member (Excused)
- Additional Attendees:
- David F. Jones PFRS Secretary & Plan Administrator (Excused)
 - Téir Jenkins PFRS Investment & Operations Manager
 - Maxine Visaya PFRS Staff Member
 - Selia Warren PFRS Legal Counsel
 - David Sancewich Meketa Investment Group

The meeting was called to order at 11:32 a.m. Pacific

A. APPROVAL OF THE PFRS BOARD OF ADMINISTRATION MEETING MINUTES

Member Nichelini made a motion to approve the June 28, 2023, Board of Administration Meeting Minutes, second by Member Melia. Motion passed.

[JOHNSON: Y / GODFREY: Y / MELIA: Y / NICHELINI: Y / ROSEMAN: EXCUSED / SPEAKMAN: EXCUSED / WILKINSON: EXCUSED]
(AYES: 4 / NOES: 0 / ABSENT: 0 / ABSTAIN: 0 / EXCUSED: 3)

B. AUDIT AND OPERATIONS COMMITTEE AGENDA – JULY 26, 2023

B1. ADMINISTRATIVE EXPENSES REPORT

Investment & Operations Manager Jenkins presented an informational report on PFRS’ administrative expenditures as of May 31, 2023. PFRS has an approved annual budget of approximately \$3.6 million and have expensed approximately \$2.2 million to date for fiscal year 2022/2023. Membership consisted of 656 retired members and beneficiaries, which included 406 Police Members and 250 Fire Members.

MOTION: Member Nichelini made a motion to accept the informational report regarding the Administrative Expenses Report, second by Member Melia. Motion passed.

[JOHNSON: Y / GODFREY: Y / MELIA: Y / NICHELINI: Y / ROSEMAN: EXCUSED / SPEAKMAN: EXCUSED / WILKINSON: EXCUSED]
(AYES: 4 / NOES: 0 / ABSENT: 0 / ABSTAIN: 0 / EXCUSED: 3)

B2. REAPPOINTMENT OF WALTER L. JOHNSON, SR. TO THE PFRS BOARD AS COMMUNITY REPRESENTATIVE

President Johnson presented an informational report regarding the reappointment of Walter L. Johnson, Sr. to continue to serve the PFRS Board as Community Representative for a 5-year term commencing May 2, 2023 and ending May 1, 2028

MOTION: Member Nichelini made a motion to accept the informational report regarding the reappointment of Walter L. Johnson, Sr., second by Member Melia. Motion passed.

[JOHNSON: Y / GODFREY: Y / MELIA: Y / NICHELINI: Y / ROSEMAN: EXCUSED / SPEAKMAN: EXCUSED / WILKINSON: EXCUSED]
(AYES: 4 / NOES: 0 / ABSENT: 0 / ABSTAIN: 0 / EXCUSED: 3)

B3. REAPPOINTMENT OF JAMIE T. GODFREY. TO THE PFRS BOARD AS BANKING REPRESENTATIVE

President Johnson presented an informational report regarding the reappointment of Jamie T. Godfrey to continue to serve the PFRS Board as Banking Representative for a 5-year term commencing June 23, 2023 and ending June 22, 2028.

MOTION: Member Melia made a motion to accept the informational report regarding the Administrative Expenses Report, second by Member Nichelini. Motion passed.

[JOHNSON: Y / GODFREY: Y / MELIA: Y / NICHELINI: Y / ROSEMAN: EXCUSED / SPEAKMAN: EXCUSED / WILKINSON: EXCUSED]
(AYES: 4 / NOES: 0 / ABSENT: 0 / ABSTAIN: 0 / EXCUSED: 3)

C. INVESTMENT & FINANCIAL MATTERS COMMITTEE AGENDA – JULY 26, 2023

c1. INVESTMENT MANAGER PERFORMANCE UPDATE: KEPOS CAPITAL, LP

Vice President Godfrey presented a brief overview of the presentation provided by Kepos Capital, LP (Kepos) regarding a firm overview and managerial assessment; diversity and inclusion policy and practices; and investment strategy and portfolio performance of PFRS' Alternative Risk Premia Investment Strategy and noted they have performed well and Meketa will follow-up with the firm regarding diversity & inclusion.

MOTION: Vice President Godfrey made a motion to accept the informational report provided by Kepos, second by Member Melia. Motion passed.

[JOHNSON: Y / GODFREY: Y / MELIA: Y / NICHELINI: Y / ROSEMAN: EXCUSED / SPEAKMAN: EXCUSED / WILKINSON: EXCUSED]
(AYES: 4 / NOES: 0 / ABSENT: 0 / ABSTAIN: 0 / EXCUSED: 3)

c2. INVESTMENT MANAGER PERFORMANCE REVIEW: BROWN ADVISORY, LLC

David Sancewich of Meketa Investment Group (“Meketa”) presented an overview memo regarding a firm overview and managerial assessment; peer ranking; and investment portfolio performance of Kepos, PFRS’ Alternative Risk Premia Investment Strategy Manager. D. Sancewich advised Kepos has performed well and Meketa will follow-up with Kepos regarding their diversity policy and practices.

MOTION: Vice President Godfrey made a motion to accept Meketa’s evaluation of Kepos, second by Member Melia. Motion Passed.

[JOHNSON: Y / GODFREY: Y / MELIA: Y / NICHELINI: Y / ROSEMAN: EXCUSED / SPEAKMAN: EXCUSED / WILKINSON: EXCUSED]
(AYES: 4 / NOES: 0 / ABSENT: 0 / ABSTAIN: 0 / EXCUSED: 3)

c3. ECONOMIC AND INVESTMENT MARKET OVERVIEW AS OF JUNE 30, 2023

David Sancewich of Meketa presented an informational report regarding the Economic and Investment Market Overview as of June 30, 2023, and highlighted Index Returns and current factors impacting outcomes.

MOTION: Vice President Godfrey made a motion to accept the informational report provided by Meketa regarding the Economic and Investment Market Overview as of June 30, 2023, second by Member Melia. Motion passed.

[JOHNSON: Y / GODFREY: Y / MELIA: Y / NICHELINI: Y / ROSEMAN: EXCUSED / SPEAKMAN: EXCUSED / WILKINSON: EXCUSED]
(AYES: 4 / NOES: 0 / ABSENT: 0 / ABSTAIN: 0 / EXCUSED: 3)

c4. PRELIMINARY INVESTMENT FUND PERFORMANCE UPDATE AS OF JUNE 30, 2023

David Sancewich of Meketa presented the Preliminary Investment Fund Performance Update as of June 30, 2023 and highlighted the Asset Class Performance Summary.

MOTION: Vice President Godfrey made a motion to accept the informational report provided by Meketa regarding the Preliminary Investment Fund Performance Update as of June 30, 2023, second by Member Melia. Motion Passed.

[JOHNSON: Y / GODFREY: Y / MELIA: Y / NICHELINI: Y / ROSEMAN: EXCUSED / SPEAKMAN: EXCUSED / WILKINSON: EXCUSED]
(AYES: 4 / NOES: 0 / ABSENT: 0 / ABSTAIN: 0 / EXCUSED: 3)

D. PENDING ITEMS

President Johnson noted an update regarding ROPOA’s concerns surrounding the holiday pay settlement agreement will be provided at the next scheduled meeting.

E. NEW BUSINESS – None

F. OPEN FORUM – No Report

G. FUTURE SCHEDULING

The next Regular Board Meeting will be held in-person and is tentatively scheduled to occur August 30, 2023.

H. ADJOURNMENT

Vice President Godfrey made a motion to adjourn, second by Member Nichelini. Motion passed.

[JOHNSON: Y / GODFREY: Y / MELIA: Y / NICHELINI: Y / ROSEMAN: EXCUSED / SPEAKMAN: EXCUSED / WILKINSON: EXCUSED]
(AYES: 4 / NOES: 0 / ABSENT: 0 / ABSTAIN: 0 / EXCUSED: 3)

The meeting adjourned at 11:51 p.m.

TÉIR JENKINS
INVESTMENT & OPERATIONS MANAGER

DATE

DRAFT

A MEETING OF THE OAKLAND POLICE AND FIRE RETIREMENT SYSTEM (“PFRS”) BOARD OF ADMINISTRATION was held on Wednesday, August 30, 2023, at One Frank H. Ogawa Plaza, Hearing Room 1, Oakland, CA.

- Board Members:
- Walter L. Johnson President (Excused)
 - Jaime T. Godfrey Vice President (Excused)
 - Martin J. Melia Member
 - Robert W. Nichelini Member
 - Erin Roseman Member
 - John C. Speakman Member
 - R. Steven Wilkinson Member
- Additional Attendees:
- David F. Jones PFRS Secretary & Plan Administrator (Excused)
 - Téir Jenkins PFRS Investment & Operations Manager
 - Maxine Visaya PFRS Staff Member
 - Selia Warren PFRS Legal Counsel
 - David Sancewich Meketa Investment Group

The meeting was called to order at 11:30 a.m. Pacific

PUBLIC COMMENT PRIOR TO CLOSED SESSION

Kevin Traylor, President of the ROPOA pointed out they appreciate the positive and collegial relationship over the past few years and the membership believes extending the party settlement agreements is a good way to resolve potential issues and would also like to get the number of holidays for Captains and Deputy Chiefs fixed based on the new number of holidays in the current MOU. Sarah Grossman, Legal Counsel to ROPOA, echoed Mr. Traylor’s comments appreciating the good working relationship over the past few years and advised she is available to answer any questions while you are working in closed session.

A. CLOSED SESSION

The Board convened into Closed Session at 11:33 a.m. Pacific. The Regular Meeting was called to order and resumed at 12:16 p.m. Pacific.

B. REPORT OF PFRS BOARD ACTION FROM CLOSED SESSION

PFRS outside legal counsel Angela Cabral of Sloan Sakai Yeung & Wong LLP reported no action was taken during Closed Session, however the matter will be further considered at a later date.

C. APPROVAL OF THE PFRS BOARD OF ADMINISTRATION MEETING MINUTES

President Johnson tabled the approval of the July 26, 2023, Board of Administration Meeting Minutes due to lack of quorum of members present at the meeting. No action was taken on this item.

D. AUDIT AND OPERATIONS COMMITTEE AGENDA – AUGUST 30, 2023

D1. ADMINISTRATIVE EXPENSES REPORT

Investment & Operations Manager Jenkins presented an informational report on PFRS' administrative expenditures as of June 30, 2023. PFRS has an approved annual budget of approximately \$3.6 million and have expensed approximately \$2.7 million for fiscal year 2022/2023. Membership consisted of 654 retired members and beneficiaries, which included 404 Police Members and 250 Fire Members.

MOTION: Member Speakman made a motion to accept the informational report regarding the Administrative Expenses Report, second by Member Wilkinson. Motion passed.

[JOHNSON: Y / GODFREY: EXCUSED / MELIA: EXCUSED / NICHELINI: Y / ROSEMAN: Y / SPEAKMAN: Y / WILKINSON: Y]
(AYES: 5 / NOES: 0 / ABSENT: 0 / ABSTAIN: 0 / EXCUSED: 2)

D2. ELECTION OF A 5-YEAR RETIRED POLICE REPRESENTATIVE BOARD POSITION

Member Speakman noted Member Nichelini's nomination to continue to serve in his current seat was uncontested and made a motion to accept the nomination.

MOTION: Member Speakman made a motion to accept Nichelini's nomination, second by Member Roseman. Motion passed.

[JOHNSON: Y / GODFREY: EXCUSED / MELIA: EXCUSED / NICHELINI: ABSTAIN / ROSEMAN: Y / SPEAKMAN: Y / WILKINSON: Y]
(AYES: 5 / NOES: 0 / ABSENT: 0 / ABSTAIN: 1 / EXCUSED: 2)

D3. PFRS MEMBER VERIFICATION 2023

PFRS Investment & Operations Manager Jenkins presented an informational report regarding the PFRS 2023 Member Verification project and advised forms were mailed yesterday with a request to return by the end of September to verify or update contact information of record and no sensitive information was requested.

MOTION: Member Wilkinson made a motion to accept the informational report regarding the PFRS 2023 Member Verification project, second by Member Nichelini. Motion passed.

[JOHNSON: Y / GODFREY: EXCUSED / MELIA: EXCUSED / NICHELINI: Y / ROSEMAN: Y / SPEAKMAN: Y / WILKINSON: Y]
(AYES: 5 / NOES: 0 / ABSENT: 0 / ABSTAIN: 0 / EXCUSED: 2)

D4. REIMBURSEMENT OF PENSION PAYMENTS NOT RECEIVED BY PFRS MEMBER DUE TO FRAUD

PFRS Investment & Operations Manager Jenkins presented an informational report regarding the pension payments not received by a PFRS Member due to fraud and noted internal controls have been strengthened in response to this incident.

MOTION: Member Nichelini made a motion to approve reimbursement to the affected PFRS member for the fraudulently diverted funds, second by Member Speakman. Motion passed.

[JOHNSON: Y / GODFREY: EXCUSED / MELIA: EXCUSED / NICHELINI: Y / ROSEMAN: Y / SPEAKMAN: Y / WILKINSON: Y]
(AYES: 5 / NOES: 0 / ABSENT: 0 / ABSTAIN: 0 / EXCUSED: 2)

E. INVESTMENT & FINANCIAL MATTERS COMMITTEE AGENDA – AUGUST 30, 2023

E1. INVESTMENT MANAGER PERFORMANCE UPDATE: WELLINGTON MANAGEMENT

David Sancewich of Meketa Investment Group (Meketa) presented a brief overview of the presentation provided by Wellington Management (Wellington) regarding a firm overview and managerial assessment; diversity and inclusion policy and practices; and investment strategy and portfolio performance of PFRS' Defensive Equity Investment Strategy.

MOTION: Member Nichelini made a motion to accept the informational report provided by Wellington Management, second by Member Melia. Motion passed.

[JOHNSON: Y / GODFREY: EXCUSED / MELIA: EXCUSED / NICHELINI: Y / ROSEMAN: Y / SPEAKMAN: Y / WILKINSON: Y]
(AYES: 5 / NOES: 0 / ABSENT: 0 / ABSTAIN: 0 / EXCUSED: 2)

E2. INVESTMENT MANAGER PERFORMANCE REVIEW: WELLINGTON MANAGEMENT

David Sancewich of Meketa Investment Group ("Meketa") presented an overview memo regarding a firm overview and managerial assessment; peer ranking; and investment portfolio performance of Wellington, PFRS' Defensive Equity Investment Strategy Manager. D. Sancewich advised Meketa has no concerns and will follow-up with staff regarding Member Wilkinson's request for performance statistics prior to the firm becoming part of the PFRS portfolio to see how they performed when the markets were down.

MOTION: Member Nichelini made a motion to accept Meketa's evaluation of Wellington, second by Member Speakman. Motion Passed.

[JOHNSON: Y / GODFREY: EXCUSED / MELIA: EXCUSED / NICHELINI: Y / ROSEMAN: Y / SPEAKMAN: Y / WILKINSON: Y]
(AYES: 5 / NOES: 0 / ABSENT: 0 / ABSTAIN: 0 / EXCUSED: 2)

E3. ECONOMIC AND INVESTMENT MARKET OVERVIEW AS OF JULY 31, 2023

David Sancewich of Meketa presented an informational report regarding the Economic and Investment Market Overview as of July 31, 2023, and highlighted Index Returns and current factors impacting outcomes.

MOTION: Member Wilkinson made a motion to accept the informational report provided by Meketa regarding the Economic and Investment Market Overview as of July 31, 2023, second by Member Speakman. Motion passed.

[JOHNSON: Y / GODFREY: EXCUSED / MELIA: EXCUSED / NICHELINI: Y / ROSEMAN: Y / SPEAKMAN: Y / WILKINSON: Y]
(AYES: 5 / NOES: 0 / ABSENT: 0 / ABSTAIN: 0 / EXCUSED: 2)

E4. PRELIMINARY INVESTMENT FUND PERFORMANCE UPDATE AS OF JULY 31, 2023

David Sancewich of Meketa presented the Preliminary Investment Fund Performance Update as of July 31, 2023 and highlighted the Asset Class Performance Summary.

MOTION: Member Nichelini made a motion to accept the informational report provided by Meketa regarding the Preliminary Investment Fund Performance Update as of July 31, 2023, second by Member Wilkinson. Motion Passed.

[JOHNSON: Y / GODFREY: EXCUSED / MELIA: EXCUSED / NICHELINI: Y / ROSEMAN: Y / SPEAKMAN: Y / WILKINSON: Y]
(AYES: 5 / NOES: 0 / ABSENT: 0 / ABSTAIN: 0 / EXCUSED: 2)

E5. INVESTMENT FUND QUARTERLY PERFORMANCE UPDATE AS OF JUNE 30, 2023

David Sancewich of Meketa presented PFRS' Investment Fund Quarterly Performance Update as of June 30, 2023 and highlighted the Total Portfolio Review and Summary of Cash Flows. D. Sancewich reminded the Board this update will be presented to City Council at the end of September and there was a discussion regarding points to highlight for the Council's consideration.

MOTION: Member Nichelini made a motion to accept the informational report provided by Meketa regarding the PFRS Investment Fund Quarterly Performance Update as of June 30, 2023, second by Member Speakman Motion Passed.

[JOHNSON: Y / GODFREY: EXCUSED / MELIA: EXCUSED / NICHELINI: Y / ROSEMAN: Y / SPEAKMAN: Y / WILKINSON: Y]
(AYES: 5 / NOES: 0 / ABSENT: 0 / ABSTAIN: 0 / EXCUSED: 2)

E6. PROPOSAL TO PERFORM AN ASSET-LIABILITY STUDY OF THE PFRS FUND AT AN ESTIMATED COST OF \$40,000

David Sancewich of Meketa presented an informational memo regarding the purpose and scope of an Asset-Liability Study of the PFRS Fund with a proposed flat fee of \$40,000 and recommended PFRS move forward with the study. D. Sancewich noted attendance in the coming three to five months will be crucial to obtain a deeper education on the matter, to offer input regarding which asset classes to include in the portfolio, understand what the liability will look like over the next five to ten years and try to build a portfolio to meet those needs. Additionally, this information is critical to the work you are doing regarding the 2026 Actuarial Funding Date to direct to City Council.

MOTION: Member Speakman made a motion to accept Meketa's proposal to perform an Asset-Liability Study of the PFRS Fund, second by Nichelini. Motion Passed.

[JOHNSON: Y / GODFREY: EXCUSED / MELIA: EXCUSED / NICHELINI: Y / ROSEMAN: Y / SPEAKMAN: Y / WILKINSON: Y]
(AYES: 5 / NOES: 0 / ABSENT: 0 / ABSTAIN: 0 / EXCUSED: 2)

F. MEMBER RESOLUTIONS NOS. 8082 – 8083

F1. RESOLUTION NO 8082

Resolution fixing the monthly allowance of surviving spouse of the following retired member of the Oakland Police and Fire Retirement System in the amount indicated:

<u>Deceased Member</u>	<u>Surviving Spouse</u>	<u>Monthly Allowance</u>
John K. Baker	Nancy Baker	\$11,742.67
Richard L. Bowser	Connie L. Bowser	\$4,433.21
Richard F. Cecil	Carol Cecil	\$4,651.01

MOTION: Member Nichelini made a motion to approve Resolution No. 8082, second by Member Speakman. Motion Passed.

[JOHNSON: Y / GODFREY: EXCUSED / MELIA: EXCUSED / NICHELINI: Y / ROSEMAN: Y / SPEAKMAN: Y / WILKINSON: Y]
(AYES: 5 / NOES: 0 / ABSENT: 0 / ABSTAIN: 0 / EXCUSED: 2)

F2. RESOLUTION NO 8083

Resolution approving death benefit payments and directing warrants thereunder in the total sum of \$1,000.00 payable to the beneficiary of the following deceased member of the Oakland Police and Fire Retirement System:

- Richard E. Castle
- Dale W. Criswell

MOTION: Member Nichelini made a motion to approve Resolution No. 8083, second by Member Speakman. Motion Passed.

[JOHNSON: Y / GODFREY: EXCUSED / MELIA: EXCUSED / NICHELINI: Y / ROSEMAN: Y / SPEAKMAN: Y / WILKINSON: Y]
(AYES: 5 / NOES: 0 / ABSENT: 0 / ABSTAIN: 0 / EXCUSED: 2)

G. PENDING ITEMS – None

H. NEW BUSINESS – None

I. OPEN FORUM – No Speaker Cards have been submitted

J. FUTURE SCHEDULING

The next Regular Board Meeting will be held in-person and is tentatively scheduled to occur September 27, 2023. The Board also discussed scheduling of the November & December meeting dates and agreed to continue with the practice of combining the two meetings and tentatively scheduled a special meeting to occur December 6, 2023.

K. ADJOURNMENT

Member Speakman made a motion to adjourn this meeting in memory of retired Fire Chief John K. Baker who passed away three weeks ago, second by Member Nichelini. Motion passed.

[JOHNSON: Y / GODFREY: EXCUSED / MELIA: EXCUSED / NICHELINI: Y / ROSEMAN: Y / SPEAKMAN: Y / WILKINSON: Y]
(AYES: 5 / NOES: 0 / ABSENT: 0 / ABSTAIN: 0 / EXCUSED: 2)

The meeting adjourned at 11:47 a.m.

TÉIR JENKINS
INVESTMENT & OPERATIONS MANAGER

DATE

Table 1

OAKLAND POLICE AND FIRE RETIREMENT SYSTEM

Administrative Budget Spent to Date (Preliminary)

As of July 31, 2023

	Approved Budget		July 2023		FYTD		Remaining		Percent Remaining	
Internal Administrative Costs										
PFRS Staff Salaries	\$	1,459,000	\$	88,520	\$	88,520	\$	1,370,480		93.9%
Board Travel Expenditures		52,500		265		265		52,235		99.5%
Staff Training		20,000		-		-		20,000		100.0%
Staff Training - Tuition Reimbursement		7,500		-		-		7,500		100.0%
Board Hospitality		3,600		-		-		3,600		100.0%
Payroll Processing Fees		40,000		-		-		40,000		100.0%
Miscellaneous Expenditures		45,000		-		-		45,000		100.0%
Internal Service Fees (ISF)		88,000		-		-		88,000		100.0%
Contract Services Contingency		50,000		-		-		50,000		100.0%
Internal Administrative Costs Subtotal :	\$	1,765,600	\$	88,785	\$	88,785	\$	1,676,815		95.0%
Actuary and Accounting Services										
Audit	\$	52,800	\$	-	\$	-	\$	52,800		100.0%
Actuary		49,400		-		-		49,400		100.0%
Actuary and Accounting Subtotal:	\$	102,200	\$	-	\$	-	\$	102,200		100.0%
Legal Services										
City Attorney Salaries	\$	212,100	\$	-	\$	-	\$	212,100		100.0%
Legal Contingency		150,000		-		-		150,000		100.0%
Legal Services Subtotal:	\$	362,100	\$	-	\$	-	\$	362,100		100.0%
Investment Services										
Money Manager Fees	\$	1,353,000	\$	-	\$	-	\$	1,353,000		100.0%
Custodial Fee		124,500		-		-		124,500		100.0%
Investment Consultant		100,000		-		-		100,000		100.0%
Investment Subtotal:	\$	1,577,500	\$	-	\$	-	\$	1,577,500		100.0%
Total Operating Budget	\$	3,807,400	\$	88,785	\$	88,785	\$	3,718,615		97.67%

Table 2

OAKLAND POLICE AND FIRE RETIREMENT SYSTEM

Cash in Treasury (Fund 7100) - Preliminary

As of July 31, 2023

	July 2023	
Beginning Cash as of 7/1/2023	\$	9,496,542
Additions:		
City Pension Contribution - July	\$	3,396,917
Investment Draw	\$	2,000,000
Misc. Receipts		800
Total Additions:	\$	5,397,717
Deductions:		
Pension Payment (June Pension Paid on 7/3/2023)		(4,132,458)
Expenditures Paid		(525,546)
Total Deductions	\$	(4,658,005)
 Ending Cash Balance as of 7/31/2023*	 \$	 10,236,254

* On 8/1/2023, July pension payment of appx \$4,257,000 will be made leaving a cash balance of \$5,979,000.

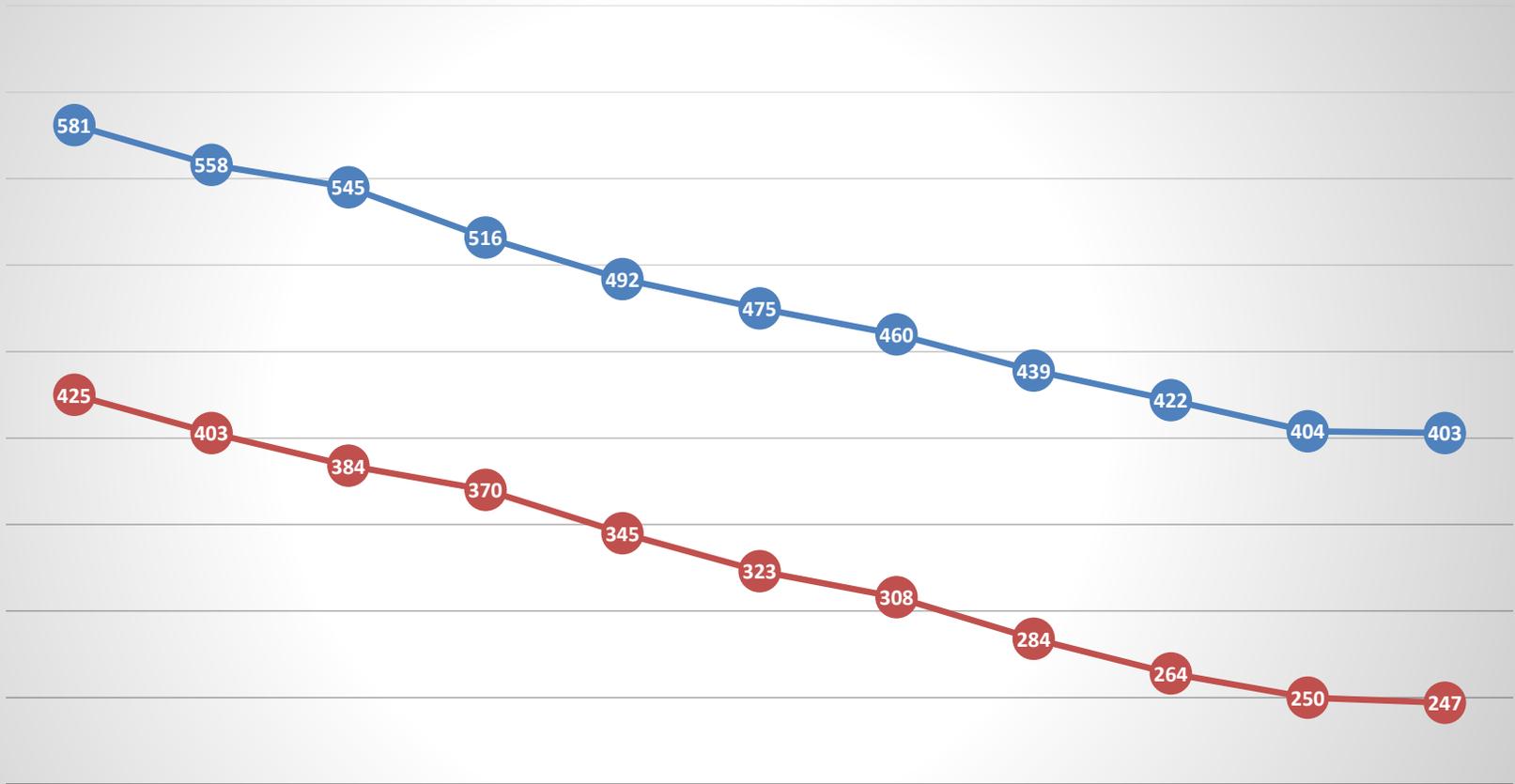
Table 3
CITY OF OAKLAND POLICE AND FIRE RETIREMENT SYSTEM

Census
As of July 31, 2023

COMPOSITION	POLICE	FIRE	TOTAL
Retired Member:			
Retiree	276	157	433
Beneficiary	127	90	217
Total Retired Members	403	247	650
Total Membership:	403	247	650

COMPOSITION	POLICE	FIRE	TOTAL
Retired Member:			
Service Retirement	269	118	387
Disability Retirement	125	118	243
Death Allowance	9	11	20
Total Retired Members:	403	247	650
Total Membership as of July 31, 2023:	403	247	650
Total Membership as of June 30, 2023:	404	250	654
Annual Difference:	-1	-3	-4

Oakland Police and Fire Retirement System Pension Plan Membership Count As of July 31, 2023 (FY 2014 - FY 2024)



	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024 FYTD
Police	581	558	545	516	492	475	460	439	422	404	403
Fire	425	403	384	370	345	323	308	284	264	250	247
Total	1006	961	929	886	837	798	768	723	686	654	650



AGENDA REPORT

TO: Oakland Police and Fire
Retirement System (PFRS)
Board of Administration

FROM: David F. Jones
Plan Administrator & Secretary

SUBJECT: Manner of PFRS Board &
Committee Meetings

DATE: September 27, 2023

BACKGROUND

At the May 31, 2023 PFRS Board Meeting staff requested Board direction regarding the option to initiate and conduct hybrid meetings to engage with presenters and facilitate public comment via virtual participation. The Board discussed the matter briefly and President Johnson directed staff to research logistics and any necessary steps in order to possibly implement such change and place the matter on the agenda for further discussion at the September 2023 meeting.

SUMMARY

Staff researched the matter and confirmed it is both logistically and legally possible to conduct hybrid meetings for the purpose of engaging with presenters and facilitate public comment via virtual participation. However, it would require an update to PFRS' current Rules & Regulations to implement such change.

It should be noted any such updates to the Rules & Regulations will not supersede the legal requirements of Board Members to attend meetings in-person or to exercise the option to attend via teleconference in accordance the Brown Act and AB2449.

Staff seeks further direction from the Board regarding how they would like to proceed.

Respectfully submitted,

David F. Jones
Plan Administrator & Secretary
Oakland Police & Fire Retirement Systems

Versor Trend Following

Oakland Police and Fire Retirement Systems

September 2023

Certain information in this presentation primarily consists of compilations of publicly available data. Versor Investments LP or any of its affiliates (collectively, "Versor Investments") has obtained such data from what it believes to be reliable sources. However, Versor Investments has no ability, and has not attempted independently, to verify any such information. Versor Investments' analytics have been applied to such data to generate certain statistical conclusions and simulations. Such analytics necessarily involve applying Versor Investments' models to historical data on a backtested basis and are subject, accordingly, to the material inherent limitations of backtested data. See disclosures at the end of this presentation.



Deepak Gurnani
Founder and Managing Partner

Deepak Gurnani is the Founder and Managing Partner of Versor Investments. Deepak is the former CIO of Investcorp's Hedge Fund Group and was one of the founding members in 1996. He was also a member of the Management Committee there. Deepak retired from Investcorp in March 2013. Prior to Investcorp, Deepak Gurnani spent six years with Citicorp.

Deepak has conducted extensive research over the last 20+ years into various aspects of hedge fund investing – analyzing risk and return of hedge funds, quantifying alternative risk premia inherent in hedge fund returns, using tactical asset allocation to enhance hedge fund portfolio returns, integrating hedge funds into institutional asset allocation and using separate accounts for risk management. Deepak holds a BTech from the Indian Institute of Technology, Delhi, and an MBA from the Indian Institute of Management, Ahmedabad.



DeWayne Louis
Founding Partner

DeWayne Louis joined Versor Investments as a Founding Partner and is based in New York. DeWayne has over 20 years of experience in quantitative investment strategies, investment banking, private equity and hedge funds. Prior to Versor Investments, DeWayne joined Investcorp's Hedge Fund Group at the inception of the North America and Europe branches. He remained there for nearly a decade. Prior to Investcorp, DeWayne was an Associate Director in UBS' Private Equity Secondary Group, focusing on buying and selling private equity interests in the secondary market. Earlier in his career, DeWayne was an Associate in the Investment Banking Division of Credit Suisse where he focused on mergers, acquisitions and project finance transactions.

DeWayne serves on the board of the New York City Economic Development Corporation ("NYCEDC"). NYCEDC is the City's primary vehicle for promoting economic growth in each of the five boroughs. DeWayne also serves on the Board of the Brooklyn Public Library ("BPL"), one of the nation's largest public library systems. BPL is a recognized leader in cultural offerings, literacy, out-of-school-time services, workforce development programs, and digital literacy. DeWayne holds a BS in Finance and International Business with a French minor from Georgetown University. There, he was a four-year varsity letterman on the football team.

Versor Investments intends to create diversified sources of absolute returns across multiple asset classes. Within a scientific, hypothesis-driven framework, Versor leverages modern statistical methods and vast datasets to drive every step of the investment process.

AUM: \$1.3 Billion ¹

Employees: 55 ²

1. As of June 30, 2023. AUM reflects regulatory AUM as per SEC definition for the purposes of Item 5.F on the Form ADV Part 1a.

2. Data is as of August 31, 2023.



Client Centered

100% employee ownership and substantial co-investment from partners



Innovative Culture

Challenge the status quo, embrace change, and explore new ideas

Collaborative team culture fosters innovation

Early adoption of machine learning, artificial intelligence, natural language processing and alternative data sets



Experienced Team

25+ researchers with advanced degrees from a wide array of academic disciplines

Portfolio managers average 25+ years of experience

30+ published whitepapers



Novel Technology

Proprietary research platform to test new alpha models

State of the art technology infrastructure for risk management, portfolio optimization, and trade execution

Pioneer (amongst hedge funds) in leveraging power of cloud computing



Strong D&I

80% of the Firm's ownership is held by ethnic and racial minority groups



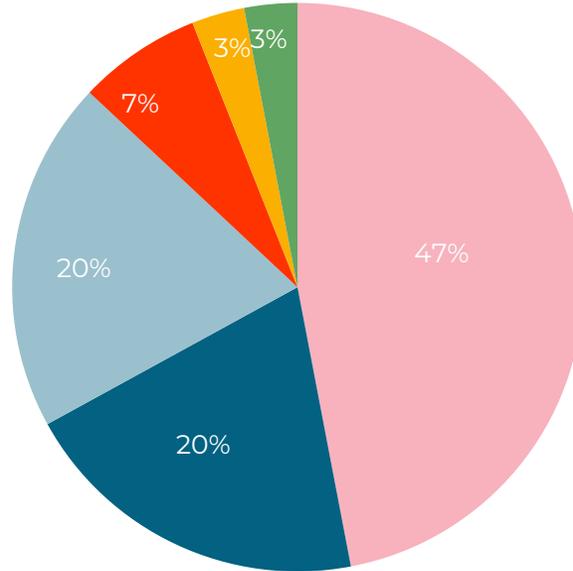
Versor Investments is 100% owned by the Partners
 Diversity and inclusion are core components of Versor’s DNA

1. Data as of August 31, 2023.

AUM DISTRIBUTION

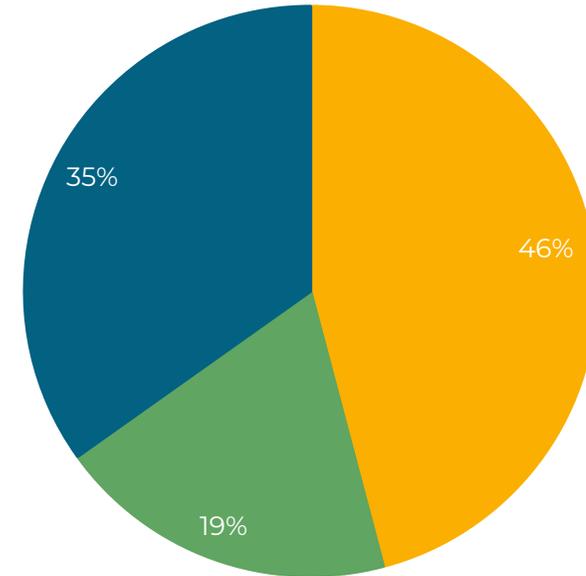
As of June 30, 2023, Versor manages \$1.3 billion¹ across a global group of institutional clients

AUM² by Investor Category



- Consultants
- Corporate Pension Plans
- Public Pension Plans
- Fund of Funds
- Proprietary Capital
- Registered Investment Advisors

AUM³ by Strategy %



- Merger Arbitrage
- Quant Equity
- Futures and FX

1. As of June 30, 2023, AUM reflects Regulatory AUM as per SEC definition for the purposes of Item 5.F on the Form ADV Part 1a.

2. Net Asset Value as of June 30, 2023.

3. Net Asset Value as of June 30, 2023.

The AUM is allocated to the respective strategy across Versor advised multi-strategy accounts and AUM of a separate fund.

Merger Arbitrage - AUM represents Assets Under Management for the Versor Merger Arbitrage strategy. AUM for the strategy is estimated by applying a notional capital allocation to the AUM of the multi-strategy accounts and represents the AUM of a separate fund allocated to the strategy.

Quant Equity - AUM represents Assets Under Management for the Versor Stock Selection strategy. AUM for the strategy is estimated by applying a notional capital allocation to the AUM of the multi-strategy accounts and represents the AUM of a separate fund allocated to the strategy.

Futures and FX - AUM represents Assets Under Management for Versor Trend Following and Versor Global Macro strategies.

Versor Trend Following - AUM represents Assets Under Management for the Versor Trend Following Strategy. AUM for the strategy is estimated by applying a notional capital allocation to the AUM of the multi-strategy accounts and represents the AUM of a separate fund allocated to the strategy.

Versor Global Macro - AUM represents combined Assets Under Management for the Versor Global Macro strategies including its sub-strategies. AUM for the strategies is estimated by applying a notional capital allocation to the AUM of the multi-strategy accounts and represents the AUM of a separate fund allocated to the strategies.

Diversity Representation Survey for Oakland Police and Fire

DATA AS OF 08/31/2023

Firm Name	Versor Investments LP		
Product Name	Versor Trend Following		
Total Number of Employees	55		
	Percentage (%) of Board of Directors / Managing Members	Percentage(%) of Firm (Entire Staff)	Percentage (%) of Firm (Investment Professionals)
Race and Ethnicity			
African American/Black	17%	2%	-
Asian/Hawaiian/Pacific Islander	50%	91%	50%
Latino/Hispanic	-	-	-
White	33%	7%	50%
American Indian/Alaska Native	-	-	-
Other	-	-	-
Gender			
Male	83%	82%	75%
Female	17%	18%	25%
Non-Identified/Other	-	-	-

1. Data as of August 31, 2023.

Trend Following invests in over 100 contracts of futures and futures-related instruments across four major asset classes: commodities, equity indices, bonds and currency markets globally. The portfolio takes long or short positions in any of these instruments in markets exhibiting price trends (up or down).

Universe

100+ contracts across commodities, equities, fixed income and currencies

Developed and emerging markets

Most liquid contracts globally

Alpha Forecast Models

Multiple alpha forecast models: MA cross-over, time-series momentum, other trend models, futures curve (e.g., carry)

Multiple forecast horizons from 1 month to 1 year

Differentiators

Proprietary alpha forecast models

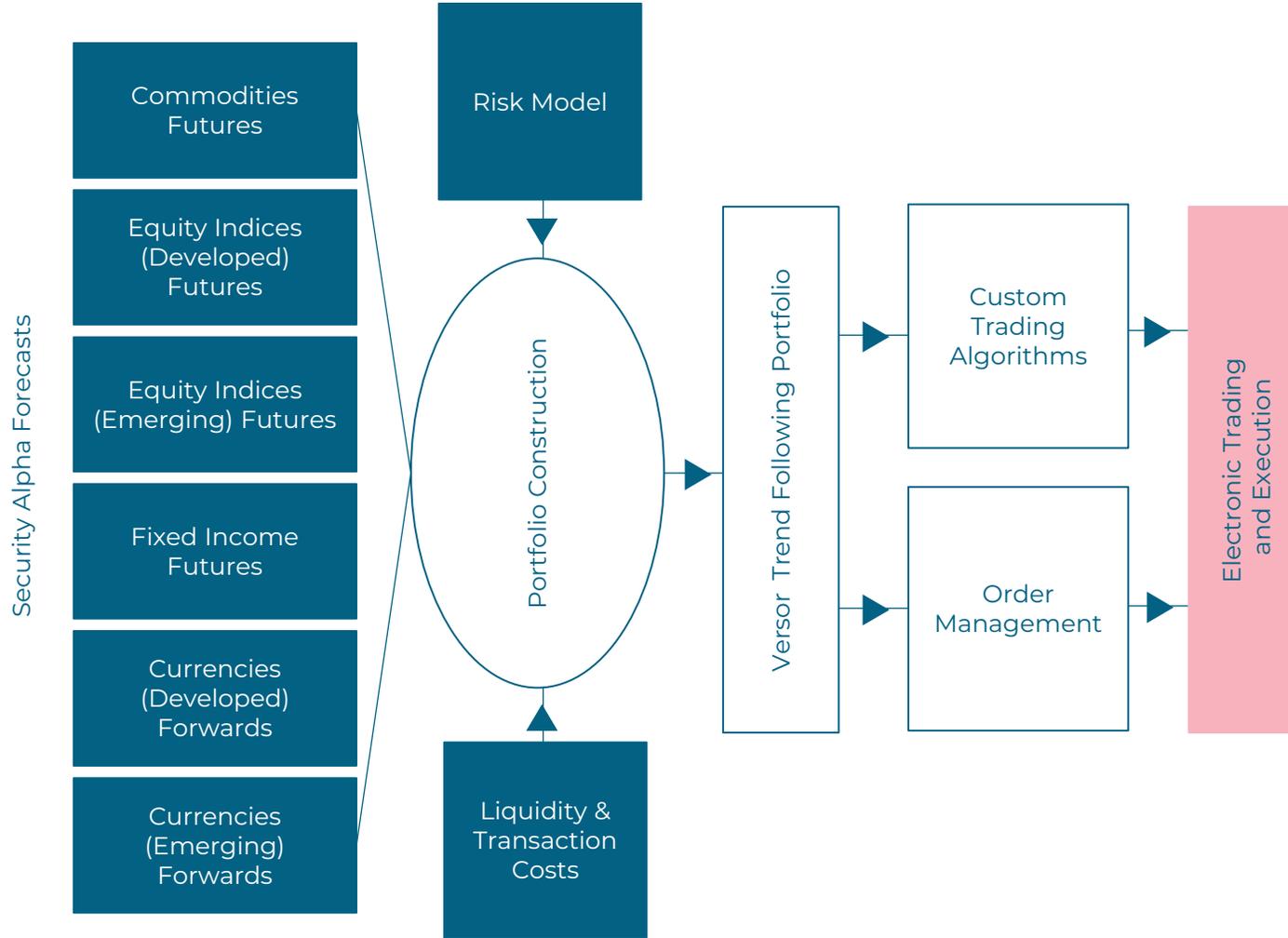
Dynamic allocations based on signal strength

Enhanced performance around trend reversals

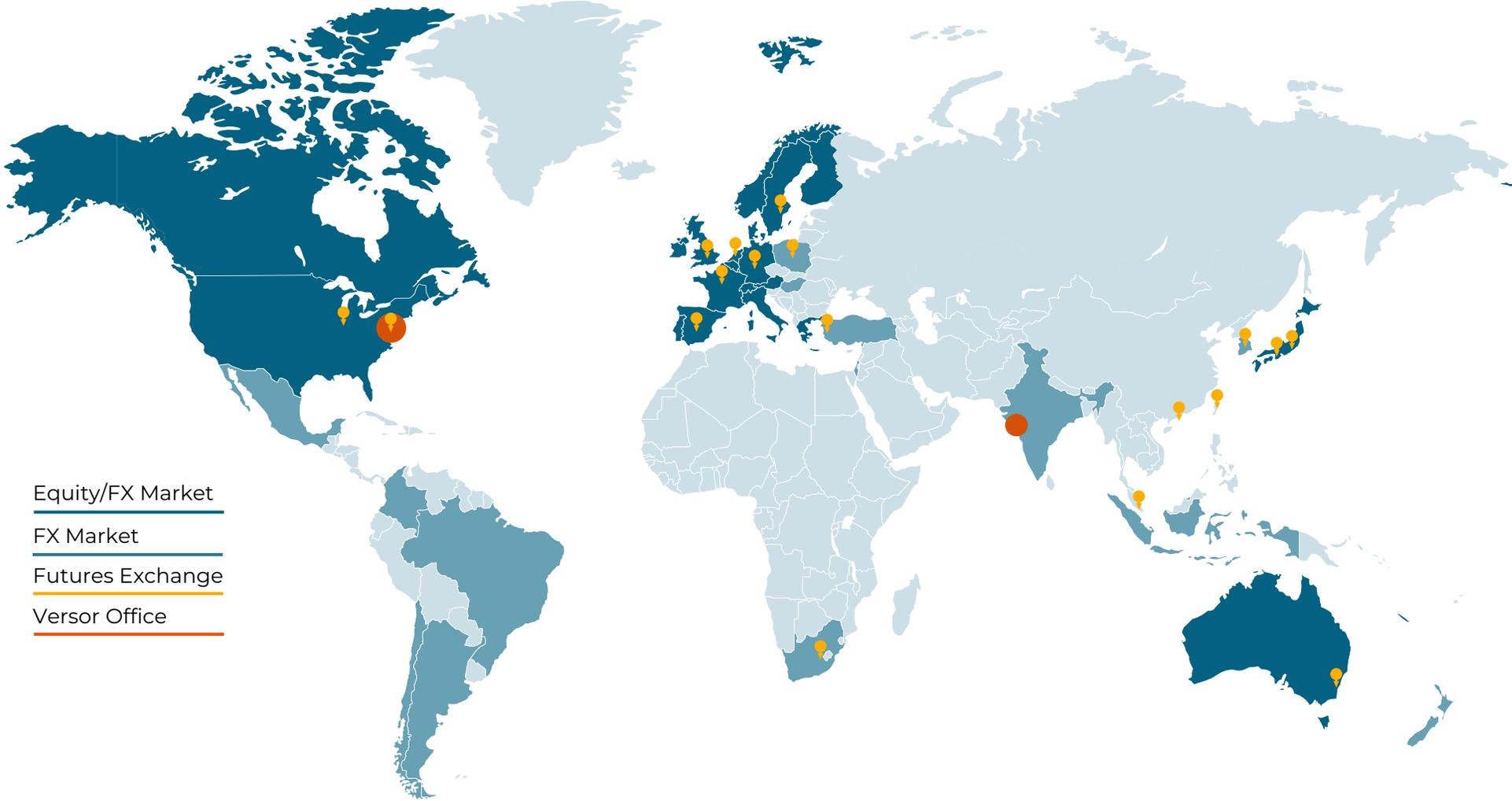
Diversification across forecasts and contracts

Efficient electronic trading

INVESTMENT PROCESS OVERVIEW



The above chart shows a high-level picture of portfolio construction process. For illustrative purposes only.

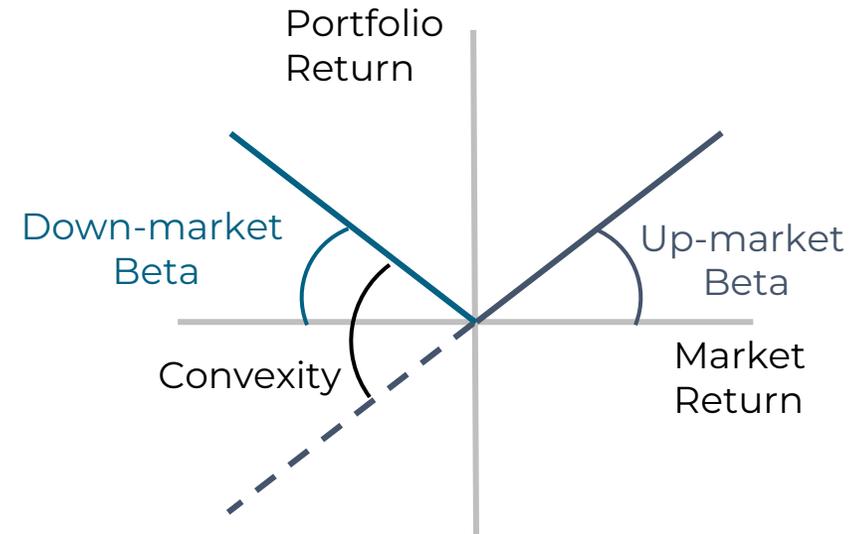


Geographic areas are not proportional to size of financial markets or Versor Investments exposures. There are multiple futures exchanges in some cities.

RETURN CONVEXITY

Concept

Make money in up markets and down markets
Requires a change from "long" to "short" exposures



Results

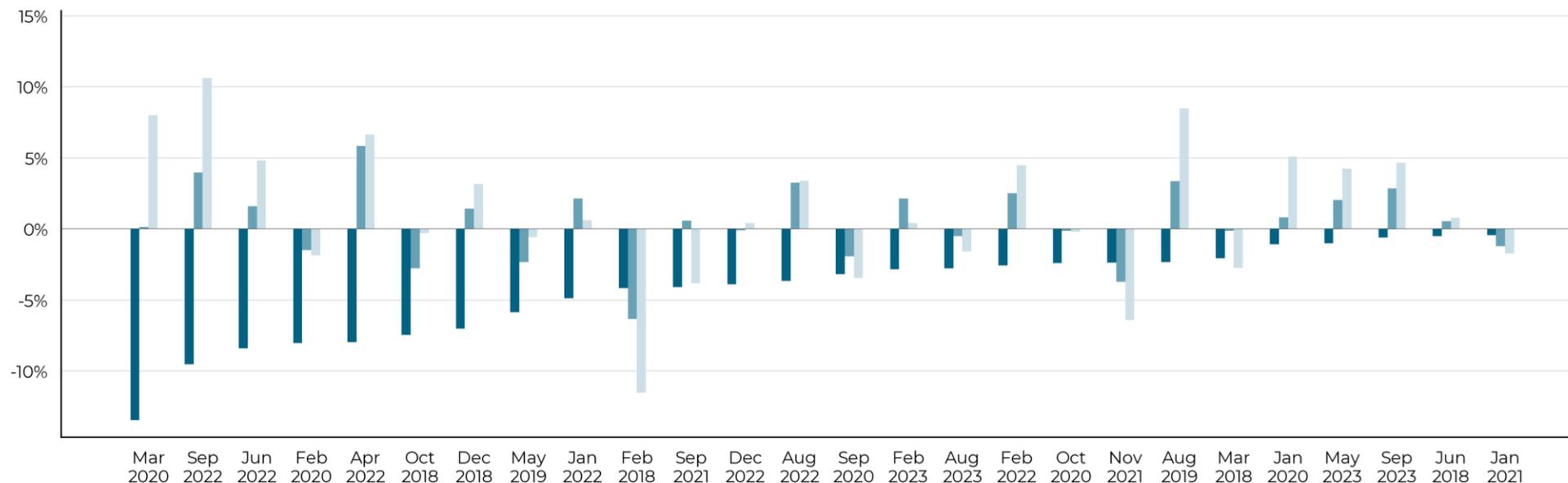
Managers in the SG Trend Index have lost convexity over time

Period	Down Market Beta	Up Market Beta	Convexity
Long-term	-0.15	0.09	0.24
2000-2008	-0.37	0.15	0.52
2009-2021	0.15	0.04	-0.11

Past performance is not indicative of future results. Performance results reflect the reinvestment of income. Commodity interest trading involves substantial risk of loss.

Data received from Societe Generale, MSCI, Bloomberg and internally prepared by Versor Investments. Beta estimates based on monthly returns from January 2000 to April 2021. All returns in excess of TBill rates.

VERSOR TREND FOLLOWING PERFORMANCE IN THE MONTHS OF EQUITY DRAWDOWNS



Equity Index:
Mean -4.33%

SG CTA Index:
Mean 0.48%

Versor Trend Following:
Mean 1.22%

Equity Index:
Correlation: -0.24 | Beta: -0.22

SG CTA Index:
Correlation: 0.85 | Beta: 1.41

Past performance is not indicative of future results. Performance results reflect the reinvestment of income. Commodity interest trading involves substantial risk of loss.

"Equity Index" refers to the returns of the MSCI ACWI. "SG CTA Index" refers to the returns of the SG CTA Index. "Trend Following strategy" refers to the live returns of the Versor Trend Following strategy. Correlation denotes the Pearson correlation between the Versor Trend Following with the MSCI ACWI. Beta denotes the beta of the Versor Trend Following w.r.t. the MSCI ACWI. Correlation and beta are estimated using monthly returns and include both positive and negative monthly returns to the MSCI ACWI.

The analysis covers the period May 04, 2017, to September 15, 2023, and includes 26 months with negative returns to MSCI ACWI.

Past performance is not indicative of future results. Performance results reflect the reinvestment of income. Commodity interest trading involves substantial risk of loss

Reported returns are unaudited preliminary estimates, subject to revision and net of management fees. Certain investors may have higher management fees depending on applicable share class. Please note that the returns could be materially different from those stated here in case the strategy was managed in a dedicated standalone fund. In fact, the actual returns could be much lower than those shown here. Please see important disclosures at the end of the presentation.

Live Performance

1. "Versor Trend Following Oakland PFRS Portfolio" represents the returns of Versor Trend Following Fund, launched on April 1, 2022. The return estimates presented here are based on Versor Investments' internal systems, have not been reconciled with the Administrator and do not reflect the official books and records of the account. In the event of any discrepancy between the information contained herein and the information contained in an investor's audited account statements, the latter shall govern. Returns are net of all expenses including 0.25% annual data fees and 0.90% annual management fees. Certain investors may have higher management fees depending on applicable share classes. Versor Investments also manages other accounts using the same investment strategy. Returns for the other accounts may differ from the returns shown here, depending on differences in risk levels and other investment restrictions, timing of cash flows, and fee structures. The data is for the period April 01, 2022, to September 15, 2023.

Benchmark Index

2. Returns shown here are of the SG CTA Index. The SG CTA Index calculates the net daily rate of return for a pool of CTAs selected from the largest managers open to new investment. It is equal-weighted and reconstituted annually. The comparison of the performance of the various strategies presented to these indices may be inappropriate

because the various strategies are not as diversified as the indices, may be more or less volatile than the indices, and may include securities which are substantially different than the securities in the indices. The data is for the period April 01, 2022, to September 15, 2023.

3. The standard deviation is computed using Newey-West estimator with 22 lags to daily returns. The Newey-West estimator is designed to handle autocorrelation in returns. The data is for the period April 01, 2022, to September 15, 2023.

4. The Sharpe ratio is a measure of the excess return per unit of risk, where risk is estimated using Newey-West estimator with 22 lags to daily returns. The data is for the period April 01, 2022, to September 15, 2023.

PERFORMANCE SUMMARY

Strategy	Start Date	Returns									Since Inception		
		Sep 2023	YTD	1 Year	2022	2021	2020	2019	3 Year	5 Year	Return	Std. Dev. ³	Sharpe Ratio ⁴
Versor Trend Following Oakland PFRS Portfolio ¹	01-April-2022	4.67%	0.22%	-2.22%	6.49%						4.44%	16.27%	0.04
SG CTA Index ²	01-April-2022	0.09%	1.23%	-0.49%	6.51%						5.15%	10.65%	0.12

Past performance is not indicative of future results. Performance results reflect the reinvestment of income. Commodity interest trading involves substantial risk of loss.

1. Versor Trend Following refers to the live returns of the Versor Trend Following strategy.

2. YTD refers to the returns for the period January 01, 2023, to September 15, 2023.

3. ITD refers to annualized returns for the period April 01, 2022, to September 15, 2023.

4. Net Reported returns are cumulative returns (not annualized) for the period, unaudited preliminary estimates and subject to revision. Refer to "Strategy Disclosures" in disclosures section, note 1 for performance disclosures of Versor Trend Following strategy.

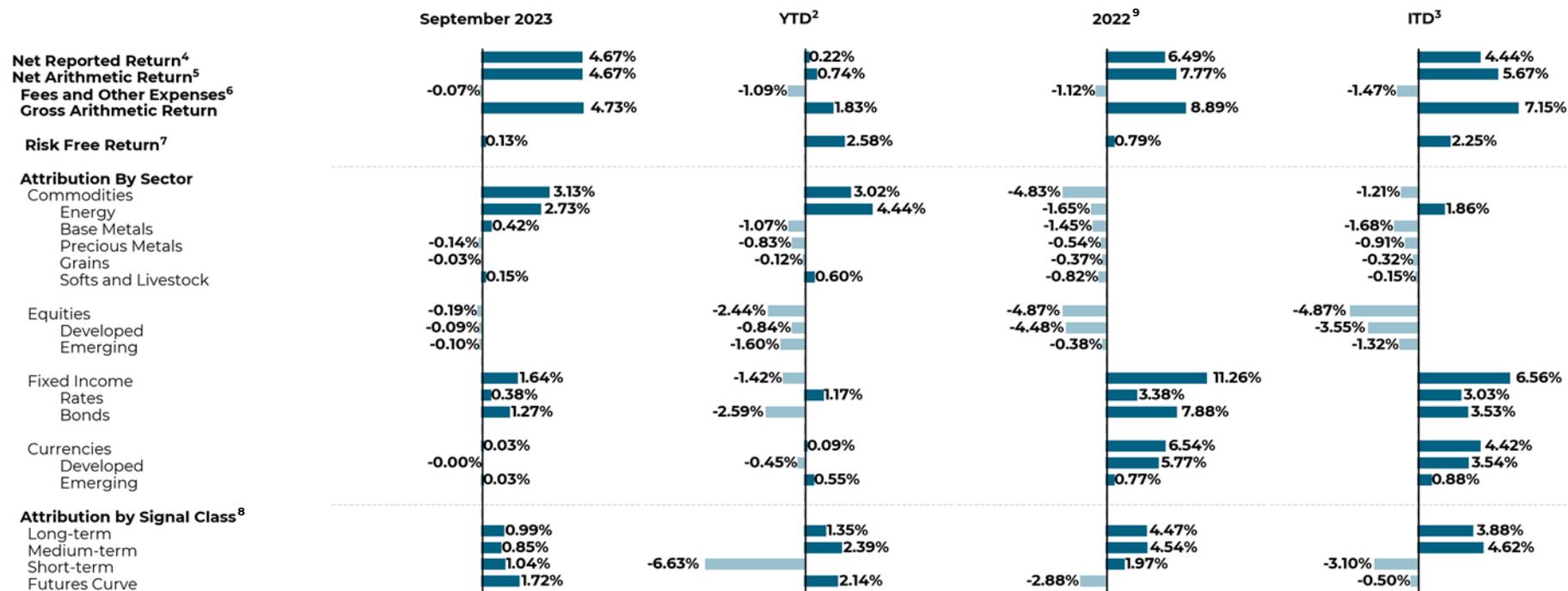
5. Net Arithmetic Return may slightly differ from Net Reported Returns due to compounding.

6. Monthly fees and other expenses, include 0.02% data fees, 0.075% management fees and administration, audit and other expenses.

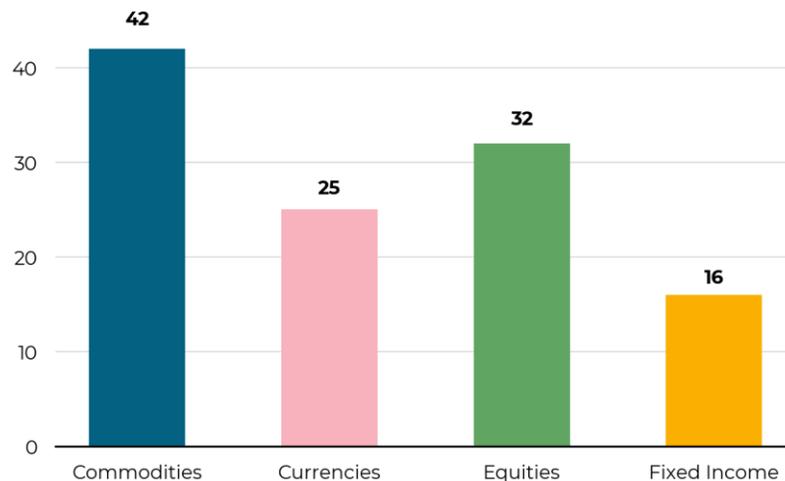
7. The live returns for the Versor Trend Following strategy has been adjusted by adding the US T-Bill return on the excess cash upon meeting margin requirement.

8. Long-term represents signals with time horizon of 4-6 months, Medium-term represents signals with time horizon of 2-4 months and Short-term represents signals with time horizon of 0-2 months.

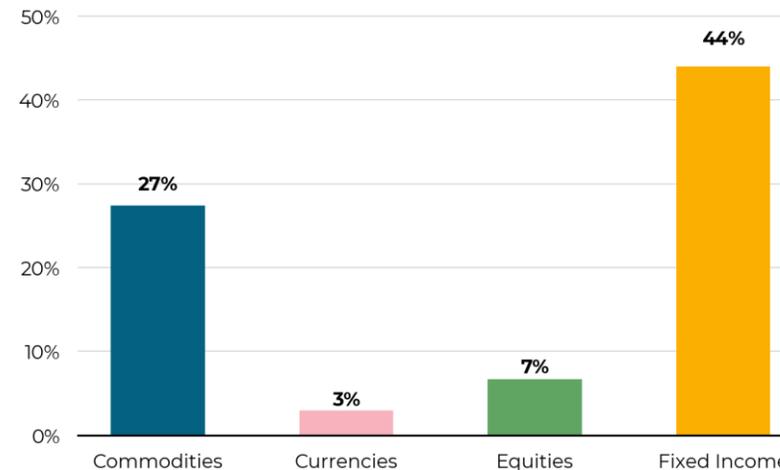
9. 2022 performance is for the period April 01, 2022, to December 31, 2022.



Positions (Total = 115)



Ex-Ante Risk Contribution (Total Risk = 12.15%)¹



Risk Exposures - Top Contributors (Ex - Ante Risk)¹

	Ex-Ante Risk	Long MV ²	Short MV ²
Commodities	27.41%	46.21%	-51.11%
Gasoline	5.19%		
Gas Oil	4.44%		
H Oil	3.51%		
Fixed Income	43.97%	10.17%	-130.93%
Euribor 3M	5.69%		
SOFR 3M	5.61%		
SONIA 3M	4.58%		

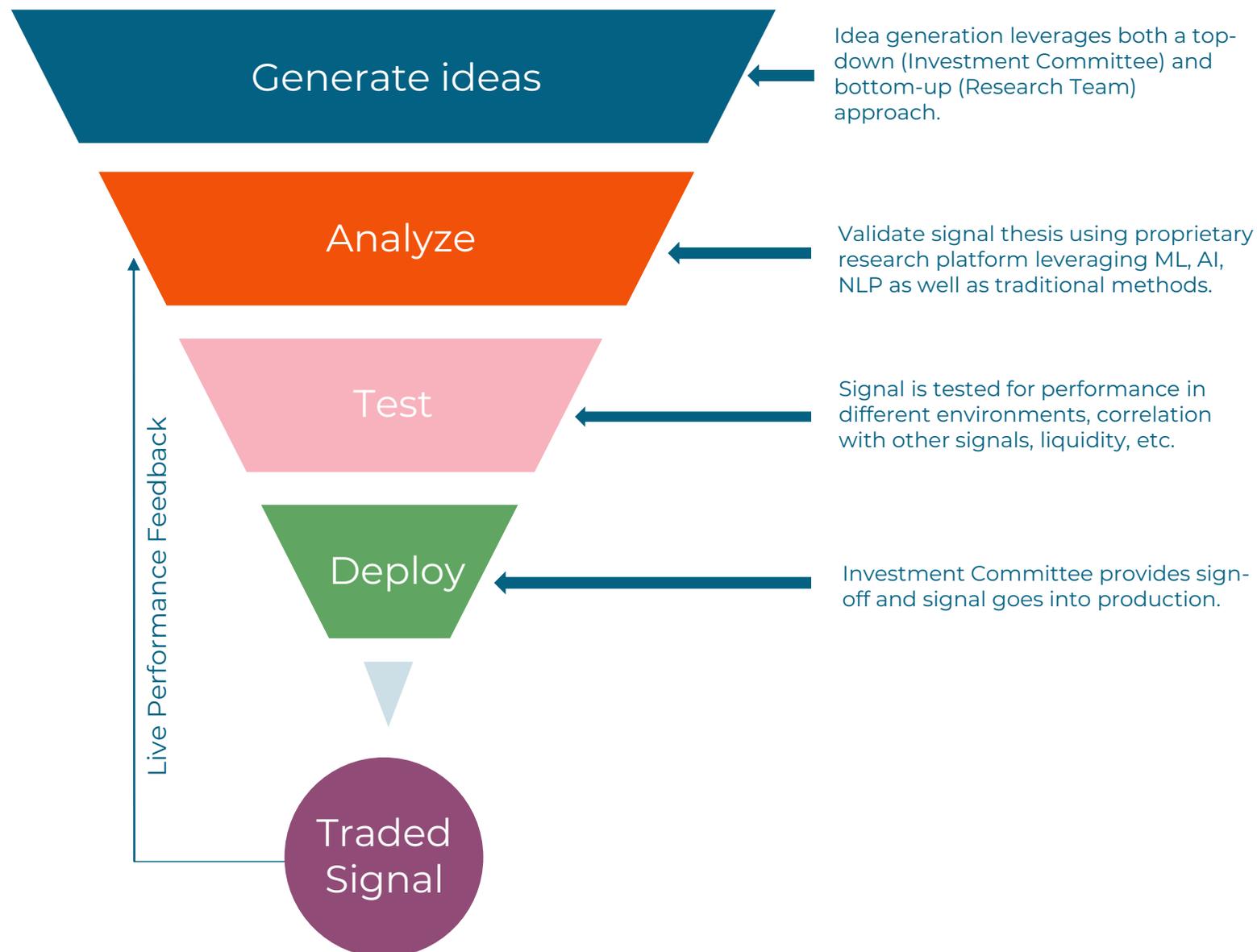
	Ex-Ante Risk	Long MV ²	Short MV ²
Equities	6.68%	44.22%	-7.51%
SPI 200	1.42%		
IBEX 35	1.20%		
S&P 500	0.73%		
Currencies	2.92%	30.17%	-35.82%
MXNUSD	0.50%		
COPUSD	0.25%		
BRLUSD	0.19%		

Past performance is not indicative of future results. Performance results reflect the reinvestment of income. Commodity interest trading involves substantial risk of loss.

1. Ex-Ante risk is based on Versor Investments' internal risk systems. Risk contribution is calculated at 16% annualized target volatility.

2. Long MV (Short MV) is computed as market value of futures contracts of Long (Short) positions as a percentage of the net asset value. Fixed income Long MV (Short MV) is expressed in US 10 years bond futures equivalent Long MV (Short MV).

- Versor follows a systematic research process
- Just 5-10% of signal ideas pass Versor's rigorous process and enter the live portfolio
- Time from idea generation to deployment can be 3 weeks to 6 months
- New traded signals begin with small risk weights which may increase as the track records develop
- Traded signals are constantly monitored for alpha decay
 - This process can result in signal removal or modification



For illustrative purposes only. Actual implementation may differ.

- Scientific, data-intensive investment process
 - Differentiated investment process
 - Deep and experienced team of 50+ specialists
 - 250+ human work years spent on developing superior research and trading technology
- Versor Trend Following offers attractive diversification to portfolios dominated by equity risk
- Uncertain macro economic environment presents attractive investment opportunities
- Versor Trend Following has superior track record outperforming hedge fund peers

Past performance is not indicative of future results. Performance results reflect the reinvestment of income. Commodity interest trading involves substantial risk of loss

Disclosures

Past performance is not indicative of future results. Performance results reflect the reinvestment of income. Commodity interest trading involves substantial risk of loss.

Reported returns are unaudited preliminary estimates, subject to revision and net of management fees. Certain investors may have higher management fees depending on applicable share class. Please note that the returns could be materially different from those stated here in case the strategy was managed in a dedicated standalone fund. In fact, the actual returns could be much lower than those shown here. Please see important disclosures at the end of the presentation.

Live Performance

1. "Versor Trend Following Oakland PFRS Portfolio" represents the returns of Versor Trend Following Fund, launched on April 1, 2022. The return estimates presented here are based on Versor Investments' internal systems, have not been reconciled with the Administrator and do not reflect the official books and records of the account. In the event of any discrepancy between the information contained herein and the information contained in an investor's audited account statements, the latter shall govern.

Returns are net of all expenses including 0.25% annual data fees and 0.90% annual management fees. Certain investors may have higher management fees depending on applicable share classes. Versor Investments also manages other accounts using the same investment strategy. Returns for the other accounts may differ from the returns shown here, depending on differences in risk levels and other investment restrictions, timing of cash flows, and fee structures.

2. Versor Investments launched the Versor Trend Following Fund on April 1, 2022. Prior to April 1, 2022, Versor Investments did not manage capital in the Versor Trend Following Fund as a dedicated Fund for this strategy. Versor Trend Following Strategy was part of a sub strategy under ARP Alternative Risk Premia 2x Fund, which is a multi-strategy fund. Returns from May 4, 2017, to December 22, 2020, for the Versor Trend Following strategy are estimated by applying a notional capital allocation (and applicable expenses) to the P/L associated with the portion of the ARP Alternative Risk Premia 2x Fund Ltd allocated to the strategy. When the strategy is managed in a dedicated standalone fund there will be excess cash upon meeting margin requirement. Hence the returns for the strategy have been adjusted by adding the US T-Bill return on the

excess cash upon meeting margin requirement. From December 23, 2020, to March 31, 2022, the reported returns are for the dedicated Fund ["the Fund"] for the Versor Trend Following strategy. The return estimates presented here are based on Versor Investments' internal systems, have not been reconciled with the Administrator and do not reflect the official books and records of the account. In the event of any discrepancy between the information contained herein and the information contained in an investor's audited account statements, the latter shall govern.

Returns are net of all expenses including 0.25% annual data fees and 0.90% annual management fees. Certain investors may have higher management fees depending on applicable share classes. Versor Investments also manages other accounts using the same investment strategy. Returns for the other accounts may differ from the returns shown here, depending on differences in risk levels and other investment restrictions, timing of cash flows, and fee structures.

The index returns are provided for purposes of comparison and include dividends and/or interest income and, unlike the returns presented for the various strategies, do not reflect fees or expenses. Unlike the various strategies presented which are actively managed and periodically may maintain cash positions, an index is unmanaged and fully invested. The comparison of the performance of the various strategies presented to these indices may be inappropriate because the various strategies are not as diversified as the indices, may be more or less volatile than the indices, and may include securities which are substantially different than the securities in the indices. Although information and analysis contained herein has been obtained from sources the Adviser believes to be reliable, its accuracy and completeness cannot be guaranteed. Investors cannot invest directly in indices. The indices referenced herein have been selected because they are well known, easily recognized by investors, and reflect those indices that the adviser believes, in part based on industry practice, provide a suitable benchmark against which to evaluate the investment or broader market described herein. The exclusion of "failed" or closed hedge funds may mean that each hedge fund index overstates the performance of hedge funds generally.

The **HFRX Global Hedge Fund Index** includes managers and is designed to be representative of the overall composition of the hedge fund universe. It is comprised of all eligible hedge fund strategies; including but not limited to convertible arbitrage, distressed securities, equity hedge, equity market neutral, event driven, macro, merger arbitrage, and relative value arbitrage. The strategies are asset weighted based on the distribution of assets in the hedge fund industry.

The **HFRX EH: Equity Market Neutral Index** includes managers employing the Equity Market Neutral strategies. Equity Market Neutral managers typically employ sophisticated quantitative techniques of analyzing stock price and fundamental data to ascertain information about future price movement and relationships between securities, select securities for purchase and sale. These can include both Factor-based and Statistical Arbitrage/Trading strategies.

The **HFRI EH: Equity Hedge (Total) Index** includes Investment Managers who maintain positions both long and short in primarily equity and equity derivative securities. A wide variety of investment processes can be employed to arrive at an investment decision, including both quantitative and fundamental techniques; strategies can be broadly diversified or narrowly focused on specific sectors and can range broadly in terms of levels of net exposure, leverage employed, holding period, concentrations of market capitalizations and valuation ranges of typical portfolios. EH managers would typically maintain at least 50% exposure to, and may in some cases be entirely invested in, equities, both long and short.

The **SG Trend Index** includes managers employing the Systematic Diversified CTA strategy. Systematic Diversified CTA managers typically employ an investment process designed to identify opportunities in markets exhibiting trending or momentum characteristics across individual instruments or asset classes. Strategies utilize quantitative processes which focus on statistically robust or technical patterns in the return series of the asset, and typically focus on highly liquid instruments.

The **HFRX Macro: Systematic Diversified CTA Index** includes managers employing the Systematic Diversified CTA strategy. CTA managers typically employ an investment process designed to identify opportunities in markets exhibiting trending or momentum characteristics across individual instruments or asset classes. Strategies utilize quantitative processes which focus on statistically robust or technical patterns in the return series of the asset, and typically focus on highly liquid instruments.

The **Barclays CTA Index** (BARCCTA Index) provides a benchmark of representative performance of commodity trading advisors (CTAs). In order to qualify for inclusion in the index, a CTA must have four years of prior performance history. Refer to www.barclayhedge.com for more details on index construction methodology.

A combination of HFRX Macro: Systematic Diversified CTA Index and BARCCTA Index is used as the benchmark index for the Trend Following risk premia strategy returns. BARCCTA Index (monthly) returns are used for the period January 1990 to December 2008. HFRX

Macro: Systematic Diversified CTA Index (daily) returns are used from January 2009 onwards. Combination index used due to availability of daily return data from HFRX Macro: Systematic Diversified CTA index (from January 2009 onwards).

The **Barclays Global Aggregate Index** provides a broad-based measure of the global investment-grade fixed income markets. The three major components of this index are the U.S. Aggregate, the Pan-European Aggregate, and the Asian-Pacific Aggregate Indices. The index also includes Eurodollar and Euro-Yen corporate bonds, Canadian government, agency and corporate securities, and USD investment grade 144A securities.

The **Barclays Global Treasury Index** tracks fixed-rate, local currency government debt of investment grade countries, including both developed and emerging markets. The index represents the treasury sector of the Global Aggregate Index and contains issues from 37 countries denominated in 24 currencies.

The **Barclays Global High Yield Index** represents the US High Yield Index, Pan-European High Yield Index, High Yield CMBS Index, and non-investment grade portion of the Barclays Global Emerging Markets Index.

The **MSCI World Index** represents a free float-adjusted market capitalization weighted index that is designed to measure the equity market performance of developed markets. As of February 2013, it includes 24 developed market country indices: Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Hong Kong, Ireland, Israel, Italy, Japan, Netherlands, New Zealand, Norway, Portugal, Singapore, Spain, Sweden, Switzerland, the United Kingdom, and the United States.

The **MSCI ACWI** captures large and mid cap representation across

23 Developed Markets (DM) and 24 Emerging Markets (EM) countries. With 2,490 constituents, the index covers approximately 85% of the global investable equity opportunity set.

The **S&P GSCI™ Total Return index** measures a fully collateralized commodity futures investment that is rolled forward from the 5th to the 9th business day of each month. Currently the index includes 24 commodity nearby futures contracts. The Total Return is significantly different than the return from buying physical commodities.

The **S&P 500 index** covers the 500 largest companies that are in the United States. These companies can vary across various sectors. The S&P 500 is one of the most important indices in the world as it widely tracks how the United States stock market is performing.

The **SG CTA Index** calculates the net daily rate of return for a pool of CTAs selected from the largest managers open to new investment. It is equal-weighted and reconstituted annually.

The **SG Macro Trading Index** is a broad based performance measure for constituents that trade Global Macro strategies. The **SG Macro Trading Index (Quantitative)** is a sub-index of the SG Macro Trading Index covering quantitative Global Macro strategies. The **SG Macro Trading Index (Discretionary)** is a sub-index of the SG Macro Trading Index covering the discretionary strategies.

The **Eurekahedge Multi-Factor Risk Premia Index** is composed of multiple

strategies managed by large global banks, and is designed to provide a broad measure of the performance of a diversified portfolio of systematic drivers of risk and return across asset classes.

The **Bloomberg Barclays US Treasury: 20+ Year Total Return Index** measures US dollar-denominated, fixed-rate, nominal debt issued by the US Treasury. Treasury bills are excluded by the maturity constraint.

The **S&P U.S. Treasury Bill Index** is a broad, comprehensive, market-value weighted index that seeks to measure the performance of the U.S. Treasury Bill market. U.S. Treasury Bill 0-3 Month Index is designed to measure the performance of U.S. Treasury bills maturing in 0 to 3 months.

The **SG Multi Alternative Risk Premia Index** calculates the daily rate of return for a group of the largest ten multi-asset, multi-alternative risk premia programs managed by investment managers. These managers often trade equity indices, fixed income, currencies, commodities, and single name equities. Managers aims to systematically capture a diversity of discrete risk premia, including value, carry, momentum, and equity style premia. The index is equally weighted, and reconstituted and rebalanced on an annual basis.

The **Russell 1000 Value Index** measures the performance of those

Russell 1000 companies with lower price-to-book ratios and lower forecasted growth values. The index was developed with a base value of 200 as of August 31, 1992.

The **Russell 2000 Value Index** measures the performance of those Russell 2000 companies with lower price-to-book ratios and lower forecasted growth values.

The **Russell 1000 Growth Index** measures the performance of those Russell 1000 companies with higher price-to-book ratios and higher forecasted growth values. The index was developed with a base value of 200 as of August 31, 1992.

The **Russell 2000 Growth Index** measures the performance of those Russell 1000 companies with higher price-to-book ratios and higher forecasted growth values.

The HFR Bank Systematic Risk Premia Indices are a series of benchmarks designed to reflect the performance of the universe of managers that employ a portfolio allocation strategy based on targeting risk levels across the various components of an investment portfolio.

HFR Bank Systematic Risk Premia Commodity Index: A composite of all Bank Systematic Risk Premia Commodity styles.

HFR Bank Systematic Risk Premia Credit Index: A composite of all Bank Systematic Risk Premia Credit styles

HFR Bank Systematic Risk Premia Currency Index: A composite of all Bank Systematic Risk Premia Currency styles.

HFR Bank Systematic Risk Premia Equity Index: A composite of all Bank Systematic Risk Premia Equity styles.

HFR Bank Systematic Risk Premia Rates Index: A composite of all Bank Systematic Risk Premia Rates styles.

Refer to HFR, Societe Generale, Barclayshedge, MSCI, Barclays, Russell and S&P websites for more details on their respective indices construction methodology.

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MEMORANDUM

TO: Oakland Police and Fire Retirement System (OPFRS)
FROM: Meketa Investment Group (Meketa)
DATE: September 27, 2023
RE: Versor Investments—Manager Update

Manager: Versor Investments

Inception Date:	April 2022	OPFRS AUM (8/31/2023):	\$15.3 million
Strategy:	Trend Following	Strategy AUM (7/31/2023)¹:	\$21.0 million
Benchmark:	Société Générale Trend Index	Firm-wide AUM (12/31/2022):	\$1.8 billion

Summary & Recommendation

Versor has managed the systematic trend following sleeve within the Plan's Crisis Risk Offset component since April 2022. As of 8/31/2023, the portfolio is approximately \$15.3 million or about 3.7% of OPFRS's total plan. The strategy has performed within expectations and guidelines for the portfolio. No major organizational changes or personnel turnover in the portfolio management team have been observed since OPFRS's initial funding in 2022. **Therefore, Meketa does not have any major concerns with Versor Investments and its Trend Following Fund.**

Investment Performance Review Summary

As of 8/31/2023, Versor Trend Following strategy has outperformed the benchmark Société Générale (SG) Trend Index quarter-to-date, while trailing the benchmark year-to-date, over the 1-year trailing period, and since account inception in April 2022, on net of fees basis. Since account inception in April 2022, the strategy has generated an annualized net-of-fees investment return of 1.5%.

OPFRS Portfolio Returns (as of 8/31/2023)²

Portfolio	Balance (\$000)	QTD	YTD	1 Yr	3 Yr	5 Yr	Since Inception	Inception Date
Versor Trend Following (Net)	15,311	-1.6	-4.2	-5.4	--	--	1.5	4/2022
<i>SG Trend Index</i>	---	-2.5	-2.4	-3.0	--	--	4.0	---
Excess Return (Net)	---	0.9	-1.8	-2.4	--	--	-2.5	---

It should be noted that OPFRS has only invested in the strategy for less than 1.5 years; as a long-term investment within the Crisis Risk Offset (CRO) segment, it ought to be evaluated contextually considering its characteristics and the surrounding market conditions, which are presented using the Fund's historical product characteristics in the following section.

¹ Source: eVestment.

² Performance is annualized for periods longer than one year.

Investment Product Characteristics (As of 8/31/2023)³

The Crisis Risk Offset (CRO) component, which Versor Trend Following is a part of, is expected to exhibit lower correlations to the traditional equity and fixed income markets and developed to serve as a diversifier and mitigate both the equity risk and nominal interest rate risk of the total portfolio.

Long-Term Correlations to Board Market Indices

Versor Trend Following Fund has exhibited relatively low (within the range of -0.5 to +0.5) correlations to equity markets (as measured by MSCI All Country World Index) and commodities (as measured by Bloomberg Commodity Index) over 3- and 5-year trailing periods as well as since product inception in June 2017.⁴ Similarly, it shows relatively low correlation to the global fixed income markets (as measured by Bloomberg Global Aggregate Index) over the 5-year period and since inception though their 3-year correlations is slightly higher (-0.6).

	3 Yr	5 Yr	Since Inception
MSCI All Country World Index (Net)	-0.3	-0.4	-0.2
Bloomberg Global Aggregate Index (Unhedged)	-0.6	-0.4	-0.3
Bloomberg Commodity Index	0.0	-0.2	-0.1

Volatility

Versor Trend Following Fund has also exhibited lower volatility (measured as Standard Deviation) in comparison to the equity markets over the 1-, 3-, and 5-year trailing periods and since product inception, while having higher volatility than the global fixed income markets.

In comparison with Bloomberg Commodity Index, the Fund has lower volatility for the 3- and 5-year trailing periods and higher volatility over the 1-year and since inception periods.

	1 Yr	3 Yr	5 Yr	Since Inception
Versor Trend Following (Net)	16.3	15.0	14.6	14.9
MSCI All Country World Index (Net)	17.7	16.8	17.8	16.3
Bloomberg Global Aggregate Index (Unhedged)	9.4	7.6	6.8	6.2
Bloomberg Commodity Index	13.7	15.9	16.1	14.7

³ Source: eVestment.

⁴ Since inception values presented here are calculated since the beginning of the full month after its initial inception on 5/4/2017 (i.e., 6/1/2017). The calculations include Versor Trend Following strategy's history as a sub-strategy under ARP Alternative Risk Premia 2x Fund.

Product and Organization Review Summary

Versor Investments	Areas of Potential Impact				
	Level of Concern	Investment Process	Investment Team	Performance Track Record	Team/Firm Culture
Product					
Key people changes	None				
Changes to team structure/individuals' roles	None				
Product client gain/losses	None				
Changes to the investment process	None				
Personnel turnover	None				
Organization					
Ownership changes	None				
Key people changes	None				
Firm wide client gain/losses	None				
Recommended Action	None - X		Watch Status		Termination

A review of Versor Investments and the Trend Following Fund revealed no concerning organizational issues or changes since April 2022.

Investment Summary⁵

Versor Trend Following derives absolute returns from long, medium, and short-term directional moves in various markets. The strategy invests in 100+ futures and forwards contracts across four major asset classes globally: commodities, equities, fixed income, and currency markets. The strategy takes long or short positions in these instruments where markets exhibit price trends.

The key investment theme is to generate absolute returns through trend following. This strategy aims to profit from persistent price trends in futures markets. The internally developed trend following models use different statistical signals such as moving average cross over and time series momentum to identify trends. In addition to different kinds of signals, the models also implement the signals across different time horizons ranging from short-term (typically about 1 month) to long-term (typically up to 1 year). The portfolio will take long or short position in any of these contracts based on their trends.

Risk management is integrated into the investment process. Versor uses proprietary risk models for quantifying risk. Risk adjustment of positions in individual contracts is done using short-term volatility measures and both long and short positions are levered up or down to maintain target volatility. Risk-adjusted positions in individual contracts are then combined to form four sector portfolios: commodities, equities, fixed income, and currencies. Risk adjustment is also done at the sector level to maintain target risk contribution to overall portfolio risk from each of the four sector portfolios.

DS/PN/JLC/mn

⁵ Source: eVestment.



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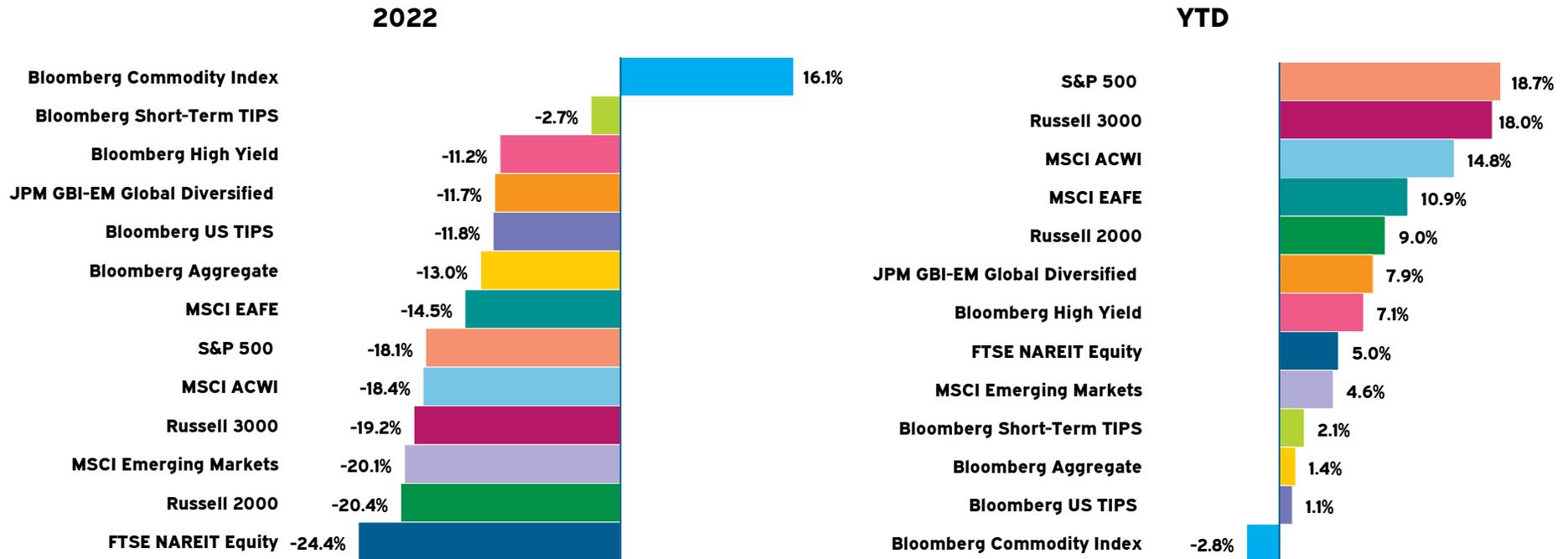
Economic and Market Update

August 2023 Report

Commentary

- Global assets turned negative in August as expectations shifted to the Fed keeping interest rates higher for longer and potentially increasing interest rates further later this year. Weakening economic data from Europe and China, as well as further instability in the Chinese real estate sector, weighed on results.
- The Federal Reserve increased interest rates in July by 0.25% to a range of 5.25% - 5.5%, and it is largely expected they will keep rates at that level at their September meeting. Given continued strong data and inflation levels above target markets are now expecting that the Fed could raise rates again later this year.
 - US equity markets (Russell 3000 index) fell in August (-1.9%), bringing the year-to-date gains to 18.7%. The technology sector remains the key driver of results this year, helped by artificial intelligence optimism.
 - Non-US developed equity markets declined more than the US in August (MSCI EAFE -3.8%) with the strength of the US dollar adding 2% to the monthly declines. This widened the gap between US and international developed equities for the year (18.0% versus 10.9%).
 - Emerging market equities fell the most in August (-6.2%), driven by results in China and the strong US dollar. They continue to significantly trail developed market equities year-to-date, returning 4.6%, again driven by China.
 - Interest rates generally rose in August, particularly for longer-dated maturities. The broad US bond market fell (-0.6%) but remains positive (+1.4%) year-to-date as higher income has offset capital losses from rising rates.
- This year, the paths of inflation and monetary policy, slowing global growth, and the war in Ukraine will all be key.

Index Returns¹



→ After a particularly difficult 2022, most public market assets are up thus far in 2023, led by developed market equities.

→ Despite declines in August, risk sentiment has been supported overall this year by expectations that policy tightening could be ending soon, as inflation continues to fall, while growth has remained relatively resilient.

¹ Source: Bloomberg. Data is as of August 31, 2023.

Domestic Equity Returns¹

Domestic Equity	August (%)	QTD (%)	YTD (%)	1 YR (%)	3 YR (%)	5 YR (%)	10 YR (%)
S&P 500	-1.6	1.6	18.7	15.9	10.5	11.1	12.8
Russell 3000	-1.9	1.6	18.0	14.8	9.8	10.2	12.2
Russell 1000	-1.7	1.6	18.6	15.4	9.9	10.8	12.5
Russell 1000 Growth	-0.9	2.4	32.2	21.9	8.3	13.8	15.6
Russell 1000 Value	-2.7	0.7	5.9	8.6	11.6	7.1	9.1
Russell MidCap	-3.5	0.4	9.4	8.4	9.2	7.3	10.0
Russell MidCap Growth	-3.3	-0.4	15.5	13.0	3.8	7.9	11.0
Russell MidCap Value	-3.5	0.7	5.9	5.7	12.1	6.1	8.9
Russell 2000	-5.0	0.8	9.0	4.7	8.1	3.1	8.0
Russell 2000 Growth	-5.2	-0.8	12.7	6.8	2.7	2.5	8.2
Russell 2000 Value	-4.8	2.4	4.9	2.2	13.5	3.2	7.4

US Equities: Russell 3000 Index fell 1.9% in August but is up 18.7% YTD.

- Given strong economic data, investors questioned whether the Federal Reserve was done with its rate increases and expectations increased for rates to remain higher for longer. This overall weighed on the US equity markets.
- Large cap stocks outperformed small cap stocks by a wide margin in August. Stocks in the health care sector drove this dynamic, in part due to the relative underperformance of small cap biotechnology stocks. Technology stocks, particularly those of software companies, also contributed to the outperformance of large cap stocks.
- Energy was the only sector to post a gain during August. Oil prices rose partly due to investor expectations of an extension of Saudi Arabia’s oil production cuts, which were confirmed in September.

¹ Source: Bloomberg. Data is as of August 31, 2023.

Foreign Equity Returns¹

Foreign Equity	August (%)	QTD (%)	YTD (%)	1 YR (%)	3 YR (%)	5 YR (%)	10 YR (%)
MSCI ACWI ex. US	-4.5	-0.6	8.8	11.9	4.0	3.3	4.4
MSCI EAFE	-3.8	-0.7	10.9	17.9	6.1	4.1	4.9
MSCI EAFE (Local Currency)	-1.8	-0.2	11.9	14.1	10.8	6.2	7.3
MSCI EAFE Small Cap	-3.3	1.0	6.5	9.2	2.4	1.5	5.7
MSCI Emerging Markets	-6.2	-0.3	4.6	1.3	-1.4	1.0	3.0
MSCI Emerging Markets (Local Currency)	-4.7	0.4	5.9	2.3	0.6	2.8	5.6
MSCI China	-9.0	0.8	-4.7	-7.5	-14.3	-3.9	2.5

Foreign Equity: Developed international equities (MSCI EAFE) fell 3.8% in August bringing the YTD gain to 10.9%. Emerging market equities (MSCI EM) fell 6.2% in August, rising 4.6% YTD.

- International equities fell alongside US markets in August, with emerging markets experiencing the largest decline driven by losses in China. A major rally in the US dollar weighed further on results.
- Japanese equities rose moderately, namely in the domestic-oriented mid- and small-cap sectors, while large cap growth names declined given the rise in Japanese government bond yields. Eurozone and UK equities both fell, with all sectors except energy and real estate declining.
- As overall risk sentiment fell and weakness in China continued emerging market equities were weak across the board. China saw substantial declines in August, as signs of a slowdown continued and concerns surrounding the property sector grew. To support the economy the government announced additional stimulus in the form of reduced mortgage rates and lower down payment ratios. India declined but relatively outperformed other emerging markets, due in part to broad inflows from foreign investors.

¹ Source: Bloomberg. Data is as of August 31, 2023.

Fixed Income Returns¹

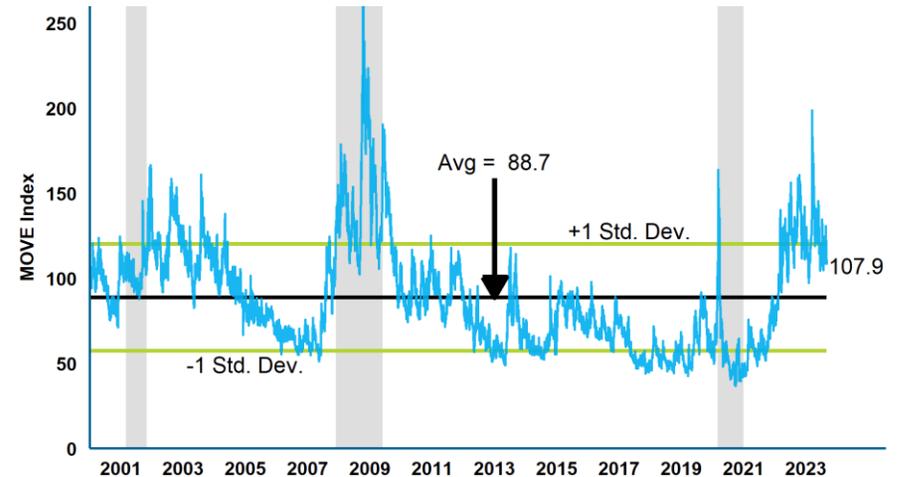
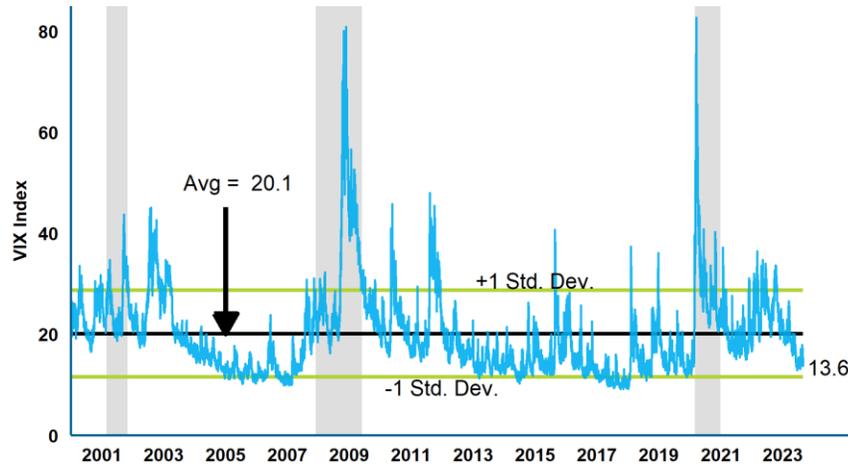
Fixed Income	August (%)	QTD (%)	YTD (%)	1 YR (%)	3 YR (%)	5 YR (%)	10 YR (%)	Current Yield (%)	Duration (Years)
Bloomberg Universal	-0.6	-0.5	1.8	-0.4	-4.0	0.7	1.8	5.3	6.2
Bloomberg Aggregate	-0.6	-0.7	1.4	-1.2	-4.4	0.5	1.5	5.0	6.4
Bloomberg US TIPS	-0.9	-0.8	1.1	-3.7	-1.5	2.3	2.1	4.6	6.8
Bloomberg Short-term TIPS	0.1	0.6	2.1	0.5	1.9	2.8	1.8	5.1	2.6
Bloomberg High Yield	0.3	1.7	7.1	7.2	1.8	3.3	4.5	8.4	4.0
JPM GBI-EM Global Diversified (USD)	-2.7	0.1	7.9	11.3	-2.2	1.2	-0.1	6.6	5.0

Fixed Income: The Bloomberg Universal index fell 0.6% in August remaining positive YTD (+1.8%), as inflation continues to decline, and yields remain high.

- The downgrade of US government debt from AAA to AA+ by Fitch combined with expectations for higher borrowing put upward pressure on longer-term rates and weighed on overall results. Expectations for interest rates to remain higher for longer than previously expected also contributed to the decline in bonds.
- The broad US bond market (Bloomberg Aggregate) fell 0.6% for the month. The more interest rate sensitive broader TIPS index fell slightly more (-0.9%), while the short-term TIPS index eked out a small gain (+0.1%).
- High yield bonds rose slightly (+0.3%) for the month, while emerging market bonds were the weakest performer, falling 2.7%. The two asset classes remain the top performers for the year by a wide margin.

¹ Source: Bloomberg. JPM GBI-EM data is from InvestorForce. Data is as of August 31, 2023. The yield and duration data from Bloomberg is defined as the index's yield to worst and modified duration respectively.

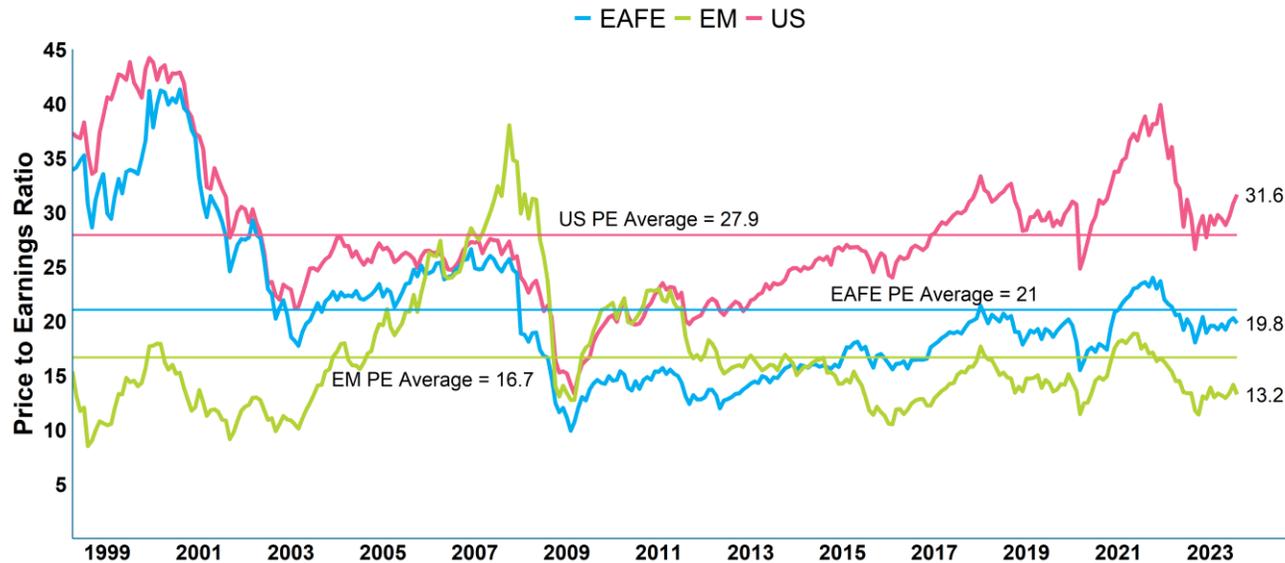
Equity and Fixed Income Volatility¹



- Volatility in equities (VIX) remains well below the historical average as investors continue to anticipate the end of the Fed’s policy tightening and have become more optimistic about the potential for a “soft landing” of the economy.
- In comparison, volatility in the bond market (MOVE) remains well above its long-run average (88.7) after last year’s historic losses and due to continued policy uncertainty.

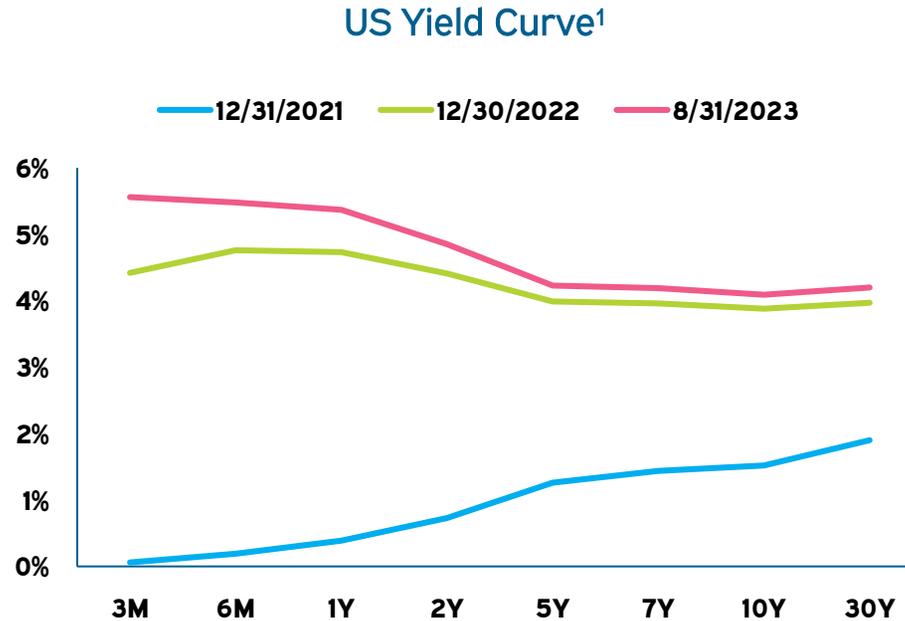
¹ Equity Volatility – Source: FRED. Fixed Income Volatility – Source: Bloomberg. Implied volatility as measured using VIX Index for equity markets and the MOVE Index to measure interest rate volatility for fixed income markets. Data is as of August 2023. The average line indicated is the average of the VIX and MOVE values between January 2000 and August 2023.

Equity Cyclically Adjusted P/E Ratios¹



- Given the strong technology-driven rally this year, the US equity price-to-earnings ratio increased above its long-run (21st century) average.
- International developed market valuations are below their own long-term average, with those for emerging markets the lowest and well under the long-term average.

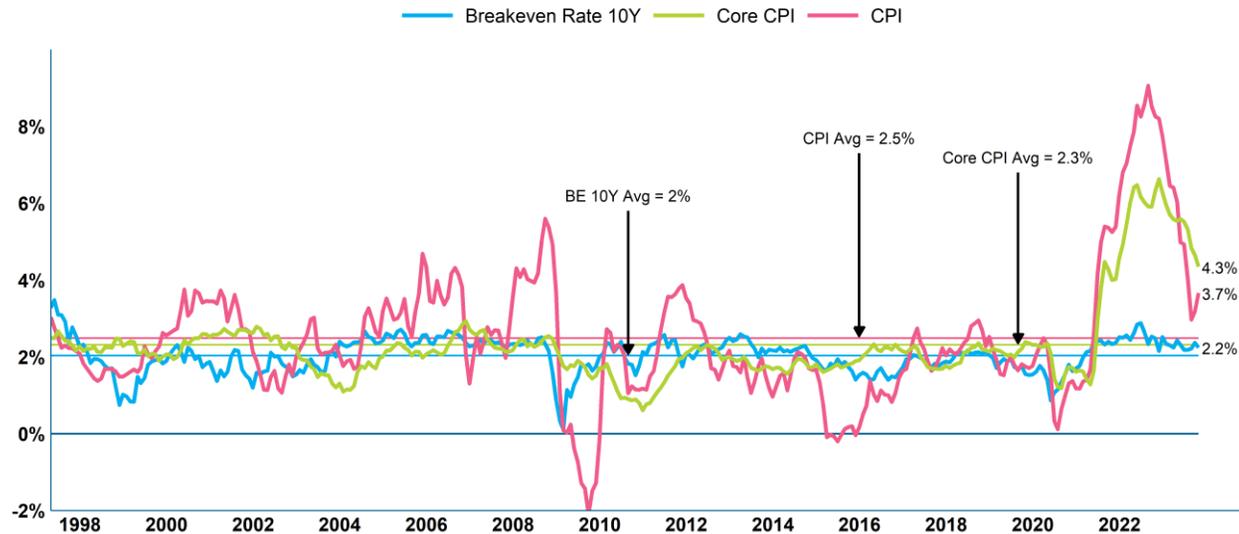
¹ US Equity Cyclically Adjusted P/E on S&P 500 Index. Source: Robert Shiller, Yale University, and Meketa Investment Group. Developed and Emerging Market Equity (MSCI EAFE and EM Index) Cyclically Adjusted P/E – Source: Bloomberg. Earnings figures represent the average of monthly “as reported” earnings over the previous ten years. Data is as of August 2023. The average line is the long-term average of the US, EM, and EAFE PE values from April 1998 to the recent month-end respectively.



- Overall rates have continued to increase this year, particularly at the policy sensitive front-end of the yield curve, but at much slower pace compared to last year.
- In August, very short-term interest rates (6-months or less) remained largely unchanged as monetary policy has likely reached the terminal rate for this cycle. A downgrade from Fitch Ratings of US debt, the Treasury's announcement of above expectations borrowing, and Chair Powell commenting that more work needs to be done on the inflation front all contributed to yields on longer dated maturities rising.
- The yield curve remains inverted with the spread between two-year and ten-year Treasuries finishing the month at -0.75%, but the curve steepened over the month given the dynamics mentioned above.

¹ Source: Bloomberg. Data is as of August 31, 2023.

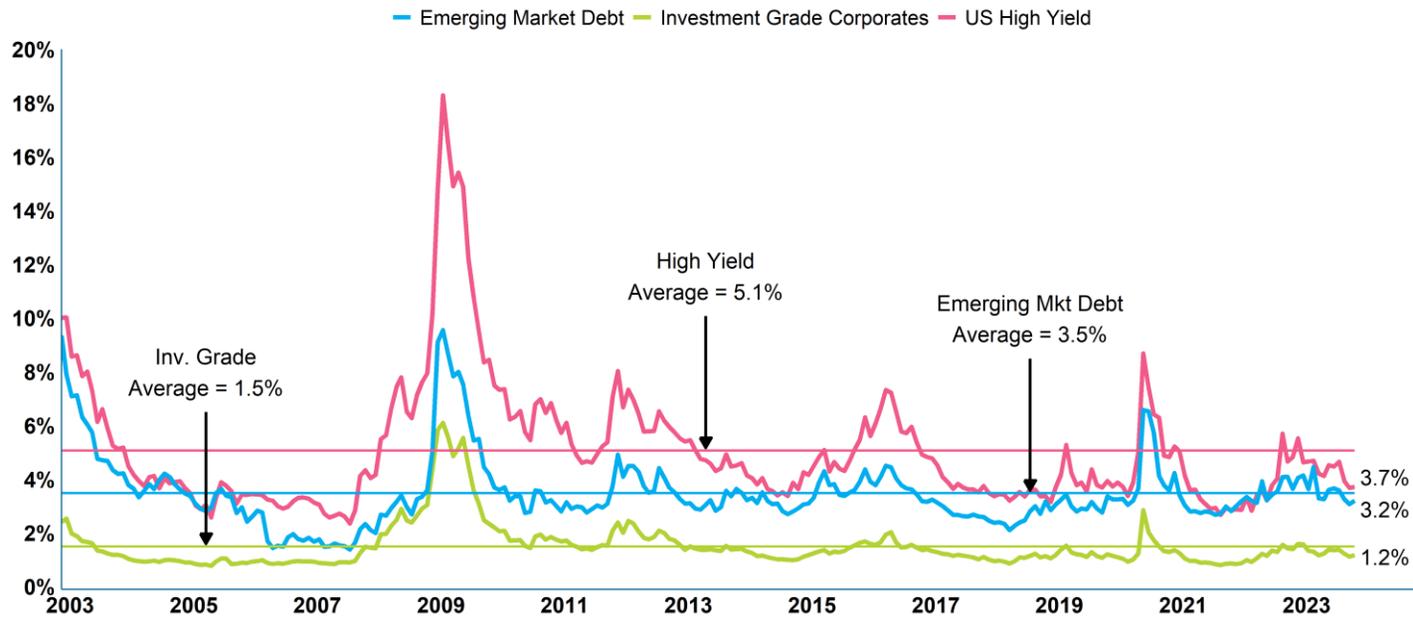
Ten-Year Breakeven Inflation and CPI¹



- Declines in inflation while other economic data remains strong has led to optimism over the Federal Reserve potentially achieving a rarely observed soft landing for the economy.
- Year-over-year headline inflation rose from 3.2% to 3.7%, coming in slightly above expectations largely driven by a double-digit increase in gasoline for the month. The trend of lower month-over-month price increases ended with the rate jumping from 0.2% to 0.6%.
- Core inflation – excluding food and energy – continued its decline (4.7% to 4.3%) year-over-year. It remains stubbornly high, though, driven by shelter costs (+7.3%), particularly owners’ equivalent rent, and transportation services (+10.3%).
- Inflation expectations (breakevens) remain well below current inflation as investors continue to expect inflation to track back toward the Fed’s 2% average target.

¹ Source: FRED. Data is as August 31, 2023. The CPI and 10 Year Breakeven average lines denote the average values from February 1997 to the present month-end, respectively. Breakeven values represent month-end values for comparative purposes.

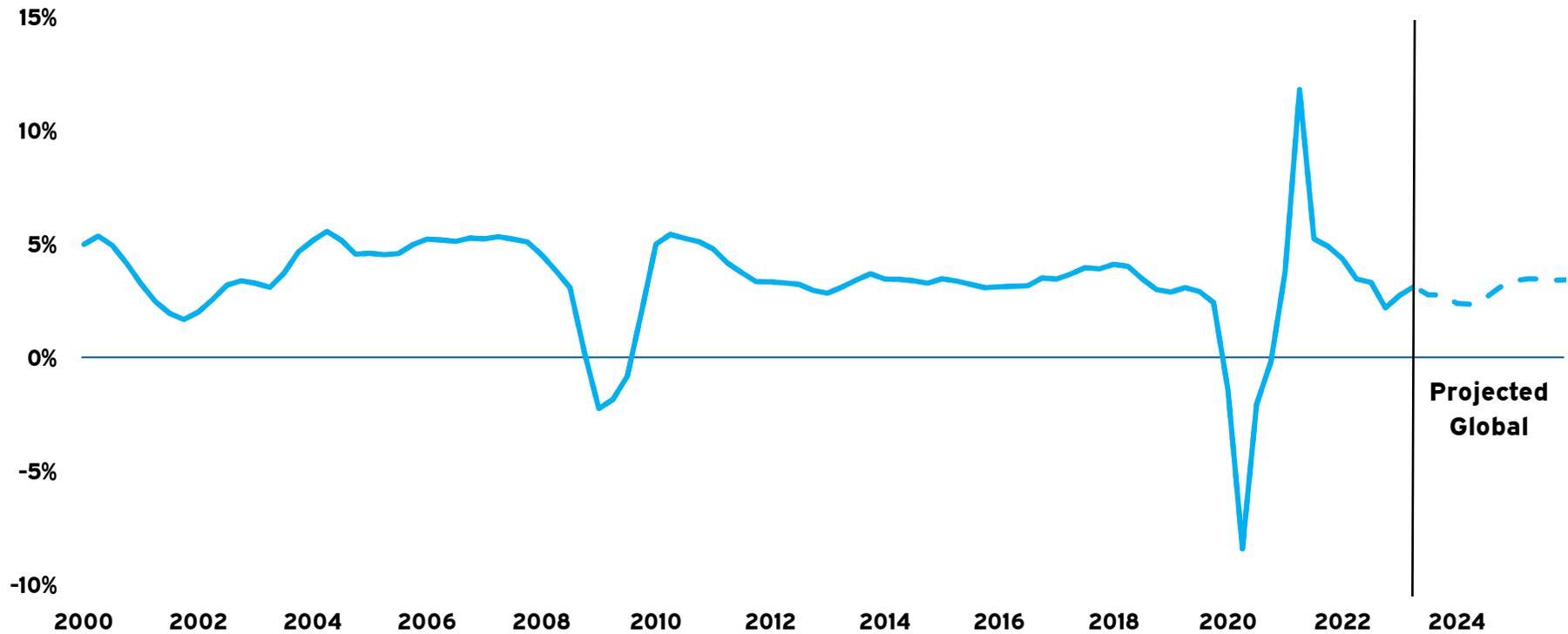
Credit Spreads vs. US Treasury Bonds¹



- Credit spreads (the added yield above a comparable maturity Treasury) largely remained unchanged in August. In the US high yield bonds slightly outpaced government bonds for the month.
- High yield spreads remain well below the long-term average given the overall risk appetite this year. Investment grade and emerging market spreads are also below their respective long-term averages, but by smaller margins.

¹ Sources: Bloomberg. Data is as of August 31, 2023. Average lines denote the average of the investment grade, high yield, and emerging market spread values from September 2002 to the recent month-end, respectively.

Global Real Gross Domestic Product (GDP) Growth¹

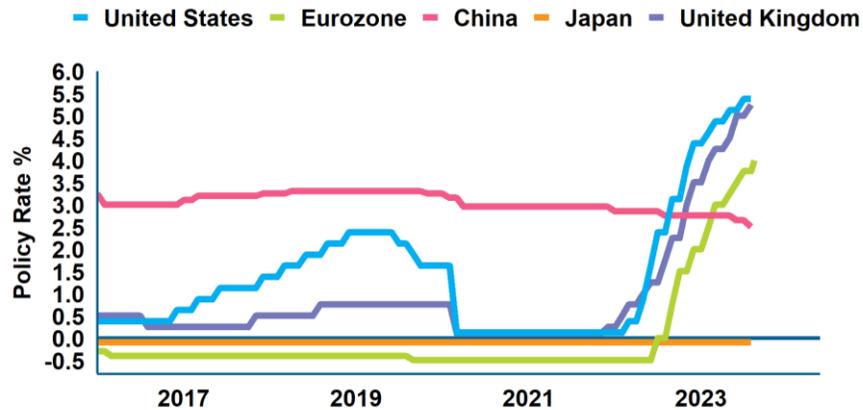


- Global economies are expected to slow this year compared to 2022. The risk of recession remains given policymakers' aggressive tightening, but optimism has started to grow over some central banks potentially navigating a soft landing.
- The delicate balancing act of central banks trying to reduce inflation without dramatically depressing growth will remain key.

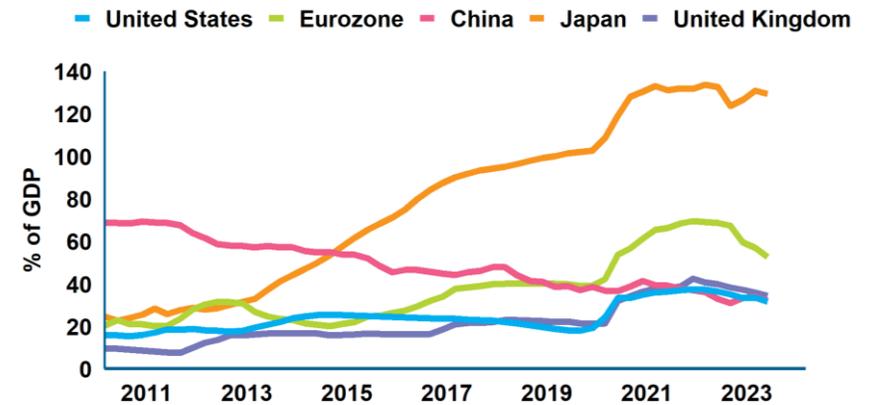
¹ Source: Oxford Economics (World GDP, US\$ prices & PPP exchange rate, real, % change YoY). Updated August 2023.

Central Bank Response¹

Policy Rates



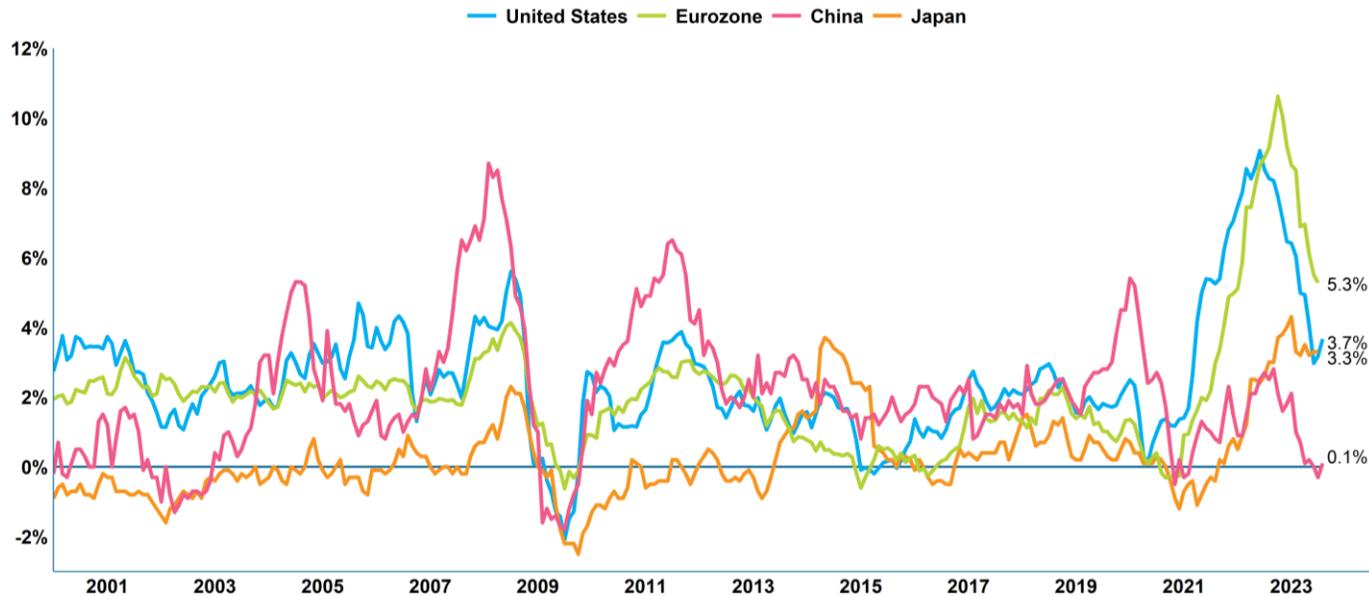
Balance Sheet as % of GDP



- Slowing inflation and growth have led to expectations for a reduction in the pace of aggressive policy tightening.
- In July the Fed raised rates another 25 basis points to a range of 5.25% to 5.50% with markets largely expecting a pause in September but potentially one more hike later this year.
- The European Central Bank also increased rates in July with an additional hike after August month-end, but they remain lower than in the US. In Japan expectations have increased that the BOJ will end its negative interest rate policy due to rising inflation.
- The central bank in China has continued to cut interest rates and inject liquidity into the banking system, as weaker than expected economic data appears to indicate a widespread slowdown.
- Looking ahead, risks remain for a policy error as central banks attempt to balance multiple goals, bringing down inflation, maintaining financial stability, and supporting growth.

¹ Source: Bloomberg. Policy rate data is as of September 15, 2023. China policy rate is defined as the medium-term lending facility 1 year interest rate. Balance sheet as % of GDP is based on quarterly data and is as of June 30, 2023.

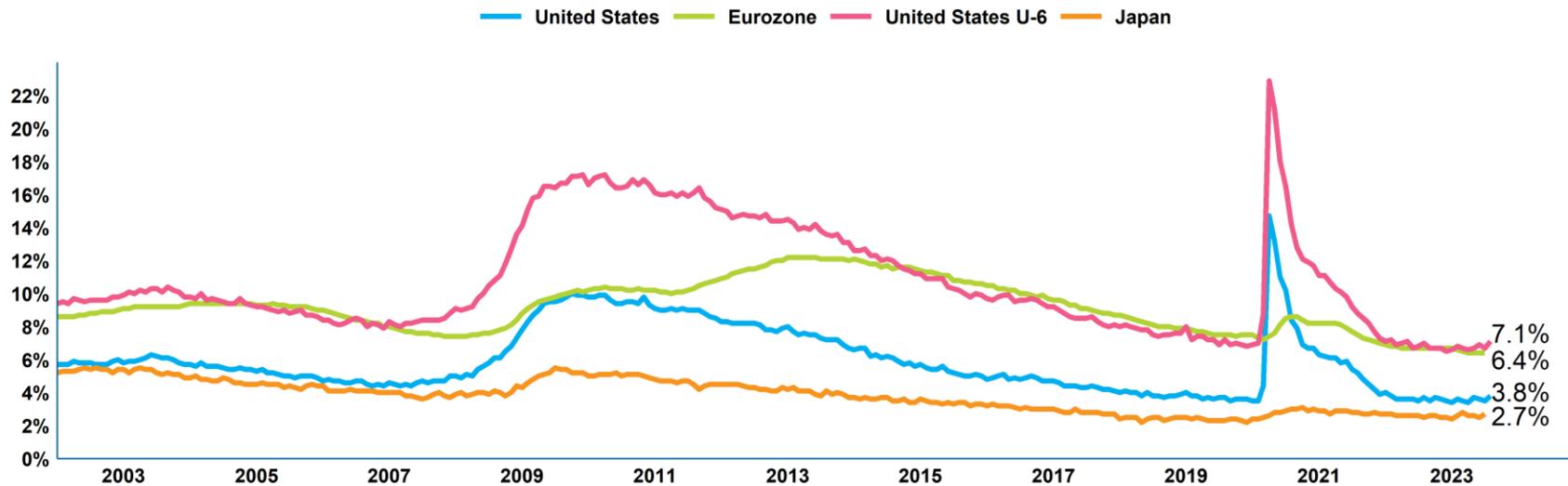
Inflation (CPI Trailing Twelve Months)¹



- The inflation picture remains mixed across the major economies.
- In the US, inflation increased from 3.2% to 3.7%, influenced by rising fuel costs, while eurozone inflation remained higher than the US at 5.3%, a level well off its peak, however. Despite 2023’s significant declines in the US and Europe, inflation levels remain elevated compared to central bank targets.
- Inflation in Japan has increased to levels not seen in almost a decade largely driven by food and home related items. In China, deflationary pressures eased in August but only to a slightly positive level (+0.1%).

¹ United States CPI and Eurozone CPI – Source: FRED. Japan CPI and China CPI - Source: Bloomberg. Data is as August 31, 2023. The most recent data for Japanese and Eurozone inflation is as of July 2023.

Unemployment¹



- Overall, the US labor market remains healthy with the unemployment rate relatively low, wage growth now positive in real terms, and initial claims for unemployment staying subdued. The pace of wage growth has slowed though, and despite remaining elevated, the number of job openings has declined.
- In August, unemployment ticked-up from 3.5% to 3.8% largely driven by an increase in the labor force participation rate. Broader measures of unemployment (U-6) also increased for the month (6.7% to 7.1%).
- The strong labor market and higher wages, although beneficial for workers, motivates the Fed's efforts to fight inflation, potentially leading to higher unemployment.
- Unemployment in Europe has also declined but remains higher than the US, while levels in Japan have been flat through the pandemic given less layoffs.

¹ Eurozone Unemployment - Source: Bloomberg. Japan, United States, United States U-6 Unemployment – Source: FRED. Data is as August 31, 2023, for the US. The most recent data for Eurozone and Japanese unemployment is as of July 2023.

US Dollar versus Broad Currencies¹



- The dollar finished 2022 much higher than it started, due to the increased pace of policy tightening, stronger relative growth, and safe-haven flows.
- Late last year and into early this year, the dollar declined, as weaker economic data and lower inflation led to investors anticipating the end of Fed tightening. Recently though, the dollar has reversed course and is appreciating against major currencies as relative growth remains strong and investors anticipate the Fed keeping interest rates higher for longer.
- For the rest of this year, the track of inflation across economies and the corresponding monetary policies will be key drivers of currency moves.

¹ Source: Bloomberg. Data as of August 31, 2023.

Summary

Key Trends:

- The impact of inflation still above policy targets will remain key, with bond market volatility likely to stay high.
- Global monetary policies could diverge going forward. The risk of policy errors remains elevated as central banks try to reduce persistent inflation while not tipping their economies into recession.
- Growth is expected to slow globally this year, with many economies forecasted to tip into recession. Optimism has been building though that some economies could experience a soft landing. Inflation, monetary policy, and the war will all be key.
- In the US, consumers could feel pressure as certain components of inflation remain high (e.g., shelter), borrowing costs are elevated, and the job market may weaken.
- The key for US equities going forward will be whether earnings can remain resilient if growth continues to slow. Also, the future path of the large technology companies that have driven market gains will be important.
- Equity valuations remain lower in emerging and developed markets, but risks remain, including potential for recent strength in the US dollar to persist, higher inflation weighing particularly on Europe, and China's sluggish economic reopening and on-going weakness in the real estate sector. Japan's recent hint at potentially tightening monetary policy along with changes in corporate governance in the country could influence relative results.

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SIGNIFICANT EVENTS MAY OCCUR (OR HAVE OCCURRED) AFTER THE DATE OF THIS REPORT AND THAT IT IS NOT OUR FUNCTION OR RESPONSIBILITY TO UPDATE THIS REPORT. ANY OPINIONS OR RECOMMENDATIONS PRESENTED HEREIN REPRESENT OUR GOOD FAITH VIEWS AS OF THE DATE OF THIS REPORT AND ARE SUBJECT TO CHANGE AT ANY TIME. ALL INVESTMENTS INVOLVE RISK. THERE CAN BE NO GUARANTEE THAT THE STRATEGIES, TACTICS, AND METHODS DISCUSSED HERE WILL BE SUCCESSFUL.

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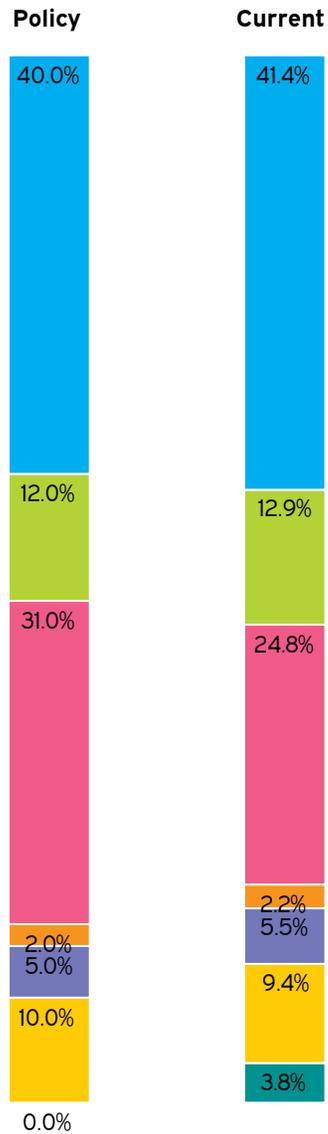
PERFORMANCE DATA CONTAINED HEREIN REPRESENT PAST PERFORMANCE. PAST PERFORMANCE IS NO GUARANTEE OF FUTURE RESULTS.

Oakland Police and Fire Retirement System

September 27, 2023

August Flash Report

As of August 31, 2023



Allocation vs. Targets and Policy						
	Current Balance (\$)	Current (%)	Policy (%)	Difference (%)	Policy Range (%)	Within IPS Range?
Domestic Equity	173,387,662	41.4	40.0	1.4	30.0 - 50.0	Yes
International Equity	53,975,691	12.9	12.0	0.9	8.0 - 14.0	Yes
Fixed Income	103,843,942	24.8	31.0	-6.2	25.0 - 40.0	No
Credit	9,339,528	2.2	2.0	0.2	1.0 - 3.0	Yes
Covered Calls	22,919,141	5.5	5.0	0.5	5.0 - 10.0	Yes
Crisis Risk Offset	39,424,969	9.4	10.0	-0.6	5.0 - 15.0	Yes
Cash	15,741,268	3.8	0.0	3.8	0.0 - 5.0	Yes
Total	418,632,202	100.0	100.0	0.0		

Asset Class Performance Summary | As of August 31, 2023

Asset Class Performance Summary											
	Market Value (\$)	% of Portfolio	1 Mo (%)	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	S.I. (%)	Inception Date
OPFRS Total Plan	418,632,202	100.0	-1.9	-0.3	7.5	6.2	3.9	4.5	6.9	6.5	Dec-88
<i>OPFRS Policy Benchmark</i>			<i>-1.6</i>	<i>0.3</i>	<i>9.4</i>	<i>8.3</i>	<i>4.0</i>	<i>4.7</i>	<i>7.0</i>	<i>7.8</i>	
Excess Return			-0.3	-0.6	-1.9	-2.1	-0.1	-0.2	-0.1	-1.3	
Domestic Equity	173,387,662	41.4	-2.2	0.8	12.2	10.5	9.0	8.5	11.4	8.8	Jun-97
<i>Russell 3000 (Blend)</i>			<i>-1.9</i>	<i>1.6</i>	<i>18.0</i>	<i>14.8</i>	<i>9.8</i>	<i>10.3</i>	<i>12.2</i>	<i>9.1</i>	
Excess Return			-0.3	-0.8	-5.8	-4.3	-0.8	-1.8	-0.8	-0.3	
International Equity	53,975,691	12.9	-5.3	-3.4	7.9	11.9	4.1	3.4	5.1	5.0	Jan-98
<i>MSCI ACWI ex US (Blend)</i>			<i>-4.5</i>	<i>-0.6</i>	<i>8.8</i>	<i>11.9</i>	<i>4.0</i>	<i>3.3</i>	<i>4.4</i>	<i>5.0</i>	
Excess Return			-0.8	-2.8	-0.9	0.0	0.1	0.1	0.7	0.0	
Fixed Income	103,843,942	24.8	-0.5	-0.6	2.1	-0.3	-3.6	0.8	1.9	4.4	Jan-94
<i>Bloomberg Universal (Blend)</i>			<i>-0.6</i>	<i>-0.5</i>	<i>1.8</i>	<i>-0.4</i>	<i>-4.0</i>	<i>0.7</i>	<i>1.8</i>	<i>4.5</i>	
Excess Return			0.1	-0.1	0.3	0.1	0.4	0.1	0.1	-0.1	
Credit	9,339,528	2.2	-0.1	1.5	8.6	6.4	5.7	3.4	--	4.7	Feb-15
<i>Blmbg. U.S. Corp: High Yield Index</i>			<i>0.3</i>	<i>1.7</i>	<i>7.1</i>	<i>7.2</i>	<i>1.8</i>	<i>3.3</i>	<i>4.5</i>	<i>4.3</i>	
Excess Return			-0.4	-0.2	1.5	-0.8	3.9	0.1	--	0.4	
Covered Calls	22,919,141	5.5	-0.3	1.6	15.7	14.4	11.0	8.9	--	9.0	Apr-14
<i>CBOE S&P 500 Buy Write Index</i>			<i>-1.6</i>	<i>-0.2</i>	<i>10.3</i>	<i>10.0</i>	<i>8.2</i>	<i>3.6</i>	<i>6.3</i>	<i>5.6</i>	
Excess Return			1.3	1.8	5.4	4.4	2.8	5.3	--	3.4	
Crisis Risk Offset	39,424,969	9.4	-1.5	-1.6	0.2	-3.2	-7.9	-8.4	--	-8.2	Aug-18
<i>Crisis Risk Offset Benchmark</i>			<i>-0.6</i>	<i>-1.9</i>	<i>0.8</i>	<i>3.2</i>	<i>3.8</i>	<i>-0.2</i>	<i>--</i>	<i>-0.3</i>	
Excess Return			-0.9	0.3	-0.6	-6.4	-11.7	-8.2	--	-7.9	

Performance shown is net of fees, except for Total Plan, Domestic Equity, and International Equity composites which have a mix of gross and net of fees performance. Please see the Addendum for more details. Since inception date and performance begin in the month following an investments initial funding. Fiscal year begins on July 1. Please see Benchmark History section for custom benchmark compositions.

Asset Class & Manager Performance | As of August 31, 2023

	Market Value (\$)	% of Portfolio	1 Mo (%)	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	S.I. (%)	Inception Date
OPFRS Total Plan	418,632,202	100.0	-1.9	-0.3	7.5	6.2	3.9	4.5	6.9	6.5	Dec-88
<i>OPFRS Policy Benchmark</i>			<i>-1.6</i>	<i>0.3</i>	<i>9.4</i>	<i>8.3</i>	<i>4.0</i>	<i>4.7</i>	<i>7.0</i>	<i>7.8</i>	
Excess Return			-0.3	-0.6	-1.9	-2.1	-0.1	-0.2	-0.1	-1.3	
Domestic Equity	173,387,662	41.4	-2.2	0.8	12.2	10.5	9.0	8.5	11.4	8.8	Jun-97
<i>Russell 3000 (Blend)</i>			<i>-1.9</i>	<i>1.6</i>	<i>18.0</i>	<i>14.8</i>	<i>9.8</i>	<i>10.3</i>	<i>12.2</i>	<i>9.1</i>	
Excess Return			-0.3	-0.8	-5.8	-4.3	-0.8	-1.8	-0.8	-0.3	
Northern Trust Russell 1000	82,696,891	19.8	-1.7	1.6	18.6	15.4	9.8	10.7	12.4	13.3	Jun-10
<i>Russell 1000 Index</i>			<i>-1.7</i>	<i>1.6</i>	<i>18.6</i>	<i>15.4</i>	<i>9.9</i>	<i>10.8</i>	<i>12.6</i>	<i>13.4</i>	
Excess Return			0.0	0.0	0.0	0.0	-0.1	-0.1	-0.2	-0.1	
EARNEST Partners	41,473,502	9.9	-2.5	0.3	8.8	5.6	9.9	9.4	11.9	9.2	Apr-06
<i>Russell Midcap Index</i>			<i>-3.5</i>	<i>0.4</i>	<i>9.4</i>	<i>8.4</i>	<i>9.2</i>	<i>7.3</i>	<i>10.0</i>	<i>8.5</i>	
Excess Return			1.0	-0.1	-0.6	-2.8	0.7	2.1	1.9	0.7	
Wellington Select Quality Equity	23,087,330	5.5	-1.8	-1.2	4.0	9.4	--	--	--	3.6	May-22
<i>Russell 1000 Index</i>			<i>-1.7</i>	<i>1.6</i>	<i>18.6</i>	<i>15.4</i>	<i>9.9</i>	<i>10.8</i>	<i>12.6</i>	<i>8.1</i>	
Excess Return			-0.1	-2.8	-14.6	-6.0	--	--	--	-4.5	
Brown Fundamental Small Cap Value	11,783,990	2.8	-1.8	4.5	7.9	11.0	--	--	--	3.9	Apr-21
<i>Russell 2000 Value Index</i>			<i>-4.8</i>	<i>2.4</i>	<i>4.9</i>	<i>2.2</i>	<i>13.5</i>	<i>3.2</i>	<i>7.4</i>	<i>-2.1</i>	
Excess Return			3.0	2.1	3.0	8.8	--	--	--	6.0	
Rice Hall James	14,345,949	3.4	-5.3	-2.3	7.1	3.0	2.7	0.7	--	5.9	Aug-17
<i>Russell 2000 Growth Index</i>			<i>-5.2</i>	<i>-0.8</i>	<i>12.7</i>	<i>6.8</i>	<i>2.7</i>	<i>2.5</i>	<i>8.2</i>	<i>6.6</i>	
Excess Return			-0.1	-1.5	-5.6	-3.8	0.0	-1.8	--	-0.7	

Performance shown is net of fees, except for Total Plan and Domestic Equity which have a mix of gross and net of fees performance. Please see the Addendum for more details. Since inception date and performance begin in the month following an investments initial funding. Fiscal year begins on July 1. Please see the Benchmark History for custom benchmark compositions.

Asset Class & Manager Performance | As of August 31, 2023

	Market Value (\$)	% of Portfolio	1 Mo (%)	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	S.I. (%)	Inception Date
International Equity	53,975,691	12.9	-5.3	-3.4	7.9	11.9	4.1	3.4	5.1	5.0	Jan-98
<i>MSCI ACWI ex US (Blend)</i>			-4.5	-0.6	8.8	11.9	4.0	3.3	4.4	5.0	
Excess Return			-0.8	-2.8	-0.9	0.0	0.1	0.1	0.7	0.0	
Vanguard Developed Markets ETF	15,320,074	3.7	-3.9	-0.9	9.4	15.2	5.8	--	--	6.2	Sep-19
<i>FTSE Developed All Cap ex-U.S. Index</i>			-3.9	-0.4	10.6	15.9	6.2	4.4	5.4	6.6	
Excess Return			0.0	-0.5	-1.2	-0.7	-0.4	--	--	-0.4	
SGA ACWI ex-U.S. Equity	38,655,618	9.2	-5.8	-4.4	7.4	10.7	3.3	--	--	1.7	Dec-19
<i>MSCI AC World ex USA (Net)</i>			-4.5	-0.6	8.8	11.9	4.0	3.3	4.4	3.5	
Excess Return			-1.3	-3.8	-1.4	-1.2	-0.7	--	--	-1.8	
Fixed Income	103,843,942	24.8	-0.5	-0.6	2.1	-0.3	-3.6	0.8	1.9	4.4	Jan-94
<i>Bloomberg Universal (Blend)</i>			-0.6	-0.5	1.8	-0.4	-4.0	0.7	1.8	4.5	
Excess Return			0.1	-0.1	0.3	0.1	0.4	0.1	0.1	-0.1	
Ramirez	70,461,623	16.8	-0.4	-0.6	2.0	-0.6	-3.6	0.8	--	1.1	Feb-17
<i>Blmbg. U.S. Aggregate Index</i>			-0.6	-0.7	1.4	-1.2	-4.4	0.5	1.5	0.7	
Excess Return			0.2	0.1	0.6	0.6	0.8	0.3	--	0.4	
Wellington Core Bond	6,687,686	1.6	-0.6	-0.6	2.4	-0.8	--	--	--	-4.6	Apr-21
<i>Blmbg. U.S. Aggregate Index</i>			-0.6	-0.7	1.4	-1.2	-4.4	0.5	1.5	-4.3	
Excess Return			0.0	0.1	1.0	0.4	--	--	--	-0.3	
Reams	26,694,632	6.4	-0.8	-0.6	2.5	0.5	-3.3	3.2	2.8	4.8	Feb-98
<i>Bloomberg Universal (Blend)</i>			-0.6	-0.5	1.8	-0.4	-4.0	0.7	1.8	4.1	
Excess Return			-0.2	-0.1	0.7	0.9	0.7	2.5	1.0	0.7	

Performance shown is net of fees, except for International Equity composite which has a mix of gross and net of fees performance. Please see the Addendum for more details. Since inception date and performance begin in the month following an investments initial funding. Fiscal year begins on July 1. Please see the Benchmark History for custom benchmark compositions.

Asset Class & Manager Performance | As of August 31, 2023

	Market Value (\$)	% of Portfolio	1 Mo (%)	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	S.I. (%)	Inception Date
Credit	9,339,528	2.2	-0.1	1.5	8.6	6.4	5.7	3.4	--	4.7	Feb-15
<i>Blmbg. U.S. Corp: High Yield Index</i>			0.3	1.7	7.1	7.2	1.8	3.3	4.5	4.3	
Excess Return			-0.4	-0.2	1.5	-0.8	3.9	0.1	--	0.4	
Polen Capital	9,339,528	2.2	-0.1	1.5	8.6	6.4	5.7	3.4	--	4.7	Feb-15
<i>ICE BofA High Yield Master II</i>			0.3	1.7	7.2	7.0	1.9	3.2	4.4	4.2	
Excess Return			-0.4	-0.2	1.4	-0.6	3.8	0.2	--	0.5	
Covered Calls	22,919,141	5.5	-0.3	1.6	15.7	14.4	11.0	8.9	--	9.0	Apr-14
<i>CBOE S&P 500 Buy Write Index</i>			-1.6	-0.2	10.3	10.0	8.2	3.6	6.3	5.6	
Excess Return			1.3	1.8	5.4	4.4	2.8	5.3	--	3.4	
Parametric BXM	11,349,735	2.7	-0.3	1.2	12.8	11.9	9.3	6.4	--	7.1	Apr-14
<i>CBOE S&P 500 Buy Write Index</i>			-1.6	-0.2	10.3	10.0	8.2	3.6	6.3	5.6	
Excess Return			1.3	1.4	2.5	1.9	1.1	2.8	--	1.5	
Parametric DeltaShift	11,569,406	2.8	-0.3	2.0	18.8	17.0	12.4	11.0	--	11.0	Apr-14
<i>CBOE S&P 500 Buy Write Index</i>			-1.6	-0.2	10.3	10.0	8.2	3.6	6.3	5.6	
Excess Return			1.3	2.2	8.5	7.0	4.2	7.4	--	5.4	

Performance shown is net of fees. Since inception date and performance begin in the month following an investments initial funding. Fiscal year begins on July 1. Please see the Benchmark History for custom benchmark compositions.

Asset Class & Manager Performance | As of August 31, 2023

	Market Value (\$)	% of Portfolio	1 Mo (%)	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	S.I. (%)	Inception Date
Crisis Risk Offset	39,424,969	9.4	-1.5	-1.6	0.2	-3.2	-7.9	-8.4	--	-8.2	Aug-18
<i>Crisis Risk Offset Benchmark</i>			<i>-0.6</i>	<i>-1.9</i>	<i>0.8</i>	<i>3.2</i>	<i>3.8</i>	<i>-0.2</i>	--	<i>-0.3</i>	
Excess Return			<i>-0.9</i>	<i>0.3</i>	<i>-0.6</i>	<i>-6.4</i>	<i>-11.7</i>	<i>-8.2</i>	--	<i>-7.9</i>	
Kepos Alternative Risk Premia	10,752,656	2.6	0.1	2.6	9.3	11.0	--	--	--	4.7	Feb-22
<i>SG Multi Alternative Risk Premia Index</i>			<i>1.9</i>	<i>1.7</i>	<i>5.2</i>	<i>7.8</i>	<i>5.3</i>	<i>0.7</i>	--	<i>5.8</i>	
Excess Return			<i>-1.8</i>	<i>0.9</i>	<i>4.1</i>	<i>3.2</i>	--	--	--	<i>-1.1</i>	
Versor Trend Following	15,310,522	3.7	-1.5	-1.6	-4.2	-5.4	--	--	--	1.5	Apr-22
<i>SG Trend Index</i>			<i>-0.9</i>	<i>-2.5</i>	<i>-2.4</i>	<i>-3.0</i>	<i>12.7</i>	<i>8.2</i>	<i>5.8</i>	<i>4.0</i>	
Excess Return			<i>-0.6</i>	<i>0.9</i>	<i>-1.8</i>	<i>-2.4</i>	--	--	--	<i>-2.5</i>	
Vanguard Long-Term Treasury ETF	13,361,791	3.2	-2.8	-4.9	-1.3	-10.1	-13.5	--	--	-5.1	Jul-19
<i>Blmbg. U.S. Gov Long Index</i>			<i>-2.8</i>	<i>-4.9</i>	<i>-1.3</i>	<i>-9.6</i>	<i>-13.4</i>	<i>-1.9</i>	<i>1.6</i>	<i>-4.9</i>	
Excess Return			0.0	0.0	0.0	<i>-0.5</i>	<i>-0.1</i>	--	--	<i>-0.2</i>	
Cash	15,741,268	3.8	--	--	--	--	--	--	--	--	Mar-11

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Cash Flow Summary

	Beginning Market Value	Net Cash Flow	Net Investment Change	Ending Market Value
Northern Trust Russell 1000	84,160,873	-	-1,463,982	82,696,891
EARNEST Partners	42,499,305	-	-1,025,803	41,473,502
Wellington Select Quality Equity	23,507,008	-	-419,678	23,087,330
Brown Fundamental Small Cap Value	12,001,225	-	-217,235	11,783,990
Rice Hall James	15,140,852	-	-794,903	14,345,949
Vanguard Developed Markets ETF	15,949,620	-	-629,546	15,320,074
SGA ACWI ex-U.S. Equity	41,017,144	-	-2,361,527	38,655,618
Ramirez	70,759,121	-	-297,498	70,461,623
Wellington Core Bond	6,727,417	-	-39,731	6,687,686
Reams	26,907,450	-	-212,818	26,694,632
Polen Capital	9,349,083	-	-9,555	9,339,528
Parametric BXM	11,379,679	-	-29,944	11,349,735
Parametric DeltaShift	11,602,863	-	-33,457	11,569,406
Kepos Alternative Risk Premia	10,737,026	-	15,630	10,752,656
Versor Trend Following	15,540,097	-	-229,575	15,310,522
Vanguard Long-Term Treasury ETF	13,779,972	-	-418,182	13,361,791
Cash - Money Market	5,438,372	57,896	-	5,496,268
Cash - Treasury	10,480,000	-235,000	-	10,245,000
Securities Lending Northern Trust	-	-12,108	12,108	-
OPFRS Total Plan	426,977,109	-189,212	-8,155,695	418,632,202

Benchmark History		
From Date	To Date	Benchmark
OPFRS Total Plan		
06/01/2022	Present	40.0% Russell 3000 Index, 12.0% MSCI AC World ex USA (Net), 31.0% Blmbg. U.S. Universal Index, 2.0% Blmbg. U.S. Corp: High Yield Index, 5.0% CBOE S&P 500 Buy Write Index, 10.0% Crisis Risk Offset Benchmark
01/01/2019	06/01/2022	40.0% Russell 3000 Index, 12.0% MSCI AC World ex USA index, 31.0% Blmbg. U.S. Universal Index, 5.0% CBOE S&P 500 Buy Write Index, 2.0% Blmbg. U.S. Treasury: Long, 10.0% Crisis Risk Offset Benchmark
05/01/2016	01/01/2019	48.0% Russell 3000 Index, 12.0% MSCI AC World ex USA index, 20.0% Blmbg. U.S. Universal Index, 20.0% CBOE BXM
10/01/2015	05/01/2016	43.0% Russell 3000 Index, 12.0% MSCI AC World ex USA index, 20.0% Blmbg. U.S. Universal Index, 15.0% CBOE BXM, 10.0% CPI - All Urban Consumers (unadjusted) +3%
01/01/2014	10/01/2015	48.0% Russell 3000 Index, 12.0% MSCI AC World ex USA index, 20.0% Blmbg. U.S. Universal Index, 10.0% CBOE BXM, 10.0% CPI - All Urban Consumers (unadjusted) +3%
03/01/2013	01/01/2014	40.0% Russell 3000 Index, 10.0% MSCI AC World ex USA index, 17.0% Blmbg. U.S. Universal Index, 33.0% ICE BofA 3 Month U.S. T-Bill
08/01/2012	03/01/2013	20.0% Russell 3000 Index, 7.0% MSCI AC World ex USA index, 18.0% Blmbg. U.S. Universal Index, 55.0% ICE BofA 3 Month U.S. T-Bill
10/01/2007	08/01/2012	53.0% Russell 3000 Index, 17.0% MSCI AC World ex USA index, 30.0% Blmbg. U.S. Universal Index
04/01/2006	10/01/2007	35.0% Russell 3000 Index, 15.0% MSCI AC World ex USA index, 50.0% Blmbg. U.S. Universal Index
01/01/2005	04/01/2006	35.0% Russell 3000 Index, 50.0% Blmbg. U.S. Aggregate Index, 15.0% MSCI AC World ex USA index
04/01/1998	01/01/2005	20.0% Russell 1000 Value Index, 10.0% Russell 1000 Index, 5.0% Russell Midcap Index, 50.0% Blmbg. U.S. Aggregate Index, 15.0% MSCI EAFE (Net)
09/01/1988	04/01/1998	40.0% S&P 500 Index, 55.0% Blmbg. U.S. Aggregate Index, 5.0% FTSE 3 Month T-Bill

Benchmark History

From Date	To Date	Benchmark
Domestic Equity		
01/01/2005	Present	100.0% Russell 3000 Index
04/01/1998	01/01/2005	57.1% Russell 1000 Value Index, 28.6% Russell 1000 Index, 14.3% Russell Midcap Index
09/01/1988	04/01/1998	100.0% S&P 500 Index
International Equity		
01/01/2005	Present	100.0% MSCI AC World ex USA (Net)
01/01/1998	01/01/2005	100.0% MSCI EAFE Index
Fixed Income		
04/01/2006	Present	100.0% Blmbg. U.S. Universal Index
01/01/1976	04/01/2006	100.0% Blmbg. U.S. Aggregate Index
Covered Calls		
03/01/2014	Present	CBOE S&P 500 Buy Write Index
Crisis Risk Offset		
01/01/2023	Present	33.3% SG Trend Index, 33.3% SG Multi Alternative Risk Premia Index, 33.3% Blmbg. U.S. Government: Long Term Bond Index
08/01/2018	01/01/2023	100.0% SG Multi Alternative Risk Premia Index
Cash		
03/01/2011	Present	FTSE 3 Month T-Bill

Additional Information

Performance Return Types: Performance shown is net of fees, except for OPFRS Total Plan, Domestic Equity, and International Equity Composites, which have a mix of gross and net of fees performance. Performance shown for OPFRS Total Plan and International Equity composite is gross of fees prior to January 2016. Performance shown for Domestic Equity composite is gross of fees prior to January 2017.

Inception Date: Since inception date and performance begin in the month following an investments initial funding.

Fiscal Year: Fiscal year begins on July 1.

Fair Value Pricing Methodology: Though Vanguard Developed Markets ETF is a passive strategy, short-term performance may appear to diverge from the index it tracks more than would be expected. This is due to Fair Value Pricing (FVP) adjustments that address the pricing discrepancies that may arise from time-zone differences among global securities markets. The resulting temporary divergence is expected to correct itself when the foreign markets reopen.

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PERFORMANCE DATA CONTAINED HEREIN REPRESENT PAST PERFORMANCE. PAST PERFORMANCE IS NO GUARANTEE OF FUTURE RESULTS.

Oakland Police and Fire Retirement System

September 27, 2023

Recommendation for
Oct to Dec 2023 Cash Flows

Asset Class / Manager Liquidity

Asset Class	Fund	Liquidity Tier
Domestic Equity	Northern Trust Russell 1000	1
Domestic Equity	EARNEST Partners	3
Domestic Equity	Wellington Select Quality Equity	3
Domestic Equity	Rice Hall James	3
Domestic Equity	Brown Small Cap Value	3
International Equity	SGA MSCI ACWI ex-US	3
International Equity	Vanguard Developed ETF	1
Domestic Fixed Income	Ramirez	2
Domestic Fixed Income	Reams	2
Domestic Fixed Income	Wellington Core Bond	3
Credit	Polen Capital High Yield	2
Covered Calls	Parametric	2
Crisis Risk Offset	Vanguard Long Duration ETF	1
Crisis Risk Offset	Versor Trend Following	3
Crisis Risk Offset	Kepos Alternative Risk Premia	3
Cash	Cash	1

Description of Liquidity Tiers

Tier	Description	Market Value (\$M)	In Months ¹
1	Public, Scheduled Withdrawal Allowances	127.1	21.2
2	Public, Accommodating of Withdrawals	129.4	21.6
3	Public, Must Plan Withdrawals	162.1	27.0
4	Closely Held	0.0	-
Total		418.6	

¹ Illustrates Liquidity in Months assuming a net outflow of \$6 million per month; that is, the illustrated figure demonstrates the number of months it would take to withdraw \$6 million per month from each liquidity tier.

Oakland PFRS Asset Allocation as of August 31, 2023

	Market Value		Target	Variance		Actual Cash Flows for Jul – Sep Benefits ¹		Suggested Cash Flows for Oct – Dec Benefits ¹	
	(\$M)	(%)	(%)	(\$M)	(%)	Inflow (\$M)	Outflow (\$M)	Inflow (\$M)	Outflow (\$M)
Northern Trust Russell 1000	82.7	19.8%	20.0%	(1.0)	(0.2%)	--	--	--	--
EARNEST Partners	41.5	9.9%	8.0%	8.0	1.9%	--	--	--	(3.0)
Wellington Select Quality Equity	23.1	5.5%	6.0%	(2.0)	(0.5%)	--	--	--	--
Rice Hall James	14.3	3.4%	3.0%	1.8	0.4%	--	--	--	--
Brown Small Cap Value	11.8	2.8%	3.0%	(0.8)	(0.2%)	--	--	--	--
Total Domestic Equity	173.4	41.4%	40.0%	5.9	1.4%	--	--	--	(3.0)
SGA MSCI ACWI ex-US	38.7	9.2%	8.4%	3.5	0.8%	--	(3.0)	--	--
Vanguard Developed ETF (BlackRock) ²	15.3	3.7%	3.6%	0.2	0.1%	--	--	--	--
Total International Equity	54.0	12.9%	12.0%	3.7	0.9%	--	(3.0)	--	--
Total Public Equity³	227.4	54.3%	52.0%	9.7	2.3%	--	(3.0)	--	(3.0)
Parametric	22.9	5.5%	5.0%	2.0	0.5%	--	--	--	--
Total Covered Calls	22.9	5.5%	5.0%	2.0	0.5%	--	--	--	--
Long Duration ETF (BlackRock) ²	13.4	3.2%	3.3%	(0.6)	(0.1%)	--	--	--	--
Versor Trend Following	15.3	3.7%	3.3%	1.5	0.4%	--	--	--	--
Kepos Alternative Risk Premia	10.8	2.6%	3.3%	(3.1)	(0.7%)	--	--	--	--
Total Crisis Risk Offset	39.4	9.4%	10.0%	(2.4)	(0.6%)	--	--	--	--
Ramirez	70.5	16.8%	17.0%	(0.7)	(0.2%)	--	--	--	--
Reams	26.7	6.4%	12.0%	(23.5)	(5.6%)	--	--	--	--
Wellington Core Bond	6.7	1.6%	2.0%	(1.7)	(0.4%)	--	--	--	--
Polen Capital High Yield	9.3	2.2%	2.0%	1.0	0.2%	--	--	--	--
Total Public Fixed Income	113.2	27.0%	33.0%	(25.0)	(6.0%)	--	--	--	--
Cash	15.7	3.8%	0.0%	15.7	3.8%	10.2	(10.2)	10.2	(10.2)
Total Stable³	128.9	30.8%	33.0%	(9.2)	(2.2%)	10.2	(10.2)	10.2	(10.2)
Total Portfolio	418.6	100%	100%	--	--	10.2	(13.2)	10.2	(13.2)

¹ Benefit payments estimated at \$13.2 million quarterly for FYE2024 per OPFRS. The report reflects estimated quarterly contributions from the City of \$10.2 million for FYE2024, estimated based on prior fiscal year's actuarial valuations; the annual required contribution for FYE2024 is \$40.8 million. Benefits are payable on first of each month.

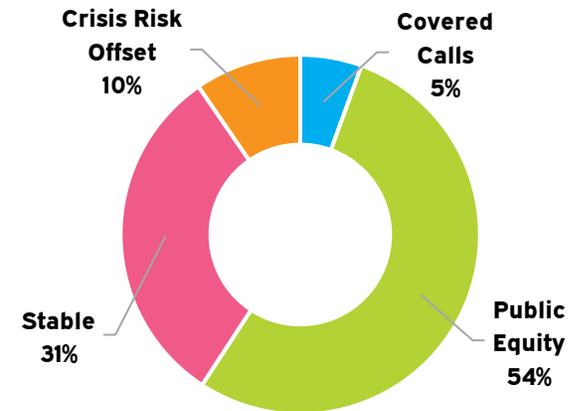
² Manager names in parentheses indicates selected, yet unfunded managers for replacement.

³ Public Equity is the sum of Domestic Equity and International Equity; Stable is the sum of Public Fixed Income and Cash.

Market Value by Portfolio Segment Before Cash Flows

Portfolio Segment	Market Value (\$M)
Domestic Equity	173.4
International Equity	54.0
Public Equity ¹	227.4
Covered Calls	22.9
Crisis Risk Offset	39.4
Public Fixed Income	113.2
Stable ¹	128.9
Total Portfolio	418.6

Projected Equity to Fixed Income Allocation After Cash Flows



Suggested Cash Withdrawals

Portfolio Segment	Market Value (\$M)
Cash in Treasury	10.2
EARNEST Partners	3.0
Total Withdrawal	13.2

→ Market value difference in Public Equity from 52% allocation: \$6.8 million in excess.

¹ Public Equity is the sum of Domestic Equity and International Equity; Stable is the sum of Public Fixed Income and Cash (not shown on this page).

Projected OPFRS Asset Allocation as of December 31, 2023¹

	Estimated Market Value		Target (%)	Projected Variance from Target	
	(\$M)	(%)		(\$M)	(%)
Northern Trust Russell 1000	82.7	20.0%	20.0%	0.2	0.0%
EARNEST Partners	38.5	9.3%	6.0%	13.7	3.3%
Wellington Select Quality Equity	23.1	5.6%	8.0%	(9.9)	(2.4%)
Rice Hall James	14.3	3.5%	3.0%	2.0	0.5%
Brown Small Cap Value	11.8	2.9%	3.0%	(0.6)	(0.1%)
Total Domestic Equity	170.4	41.3%	40.0%	5.3	1.3%
SGA MSCI ACWI ex-US	35.7	8.6%	3.6%	20.8	5.0%
Vanguard Developed Markets ETF	15.3	3.7%	8.4%	(19.3)	(4.7%)
Total International Equity	51.0	12.4%	12.0%	1.5	0.4%
Total Public Equity	221.4	53.6%	52.0%	6.8	1.6%
Parametric	22.9	5.6%	5.0%	2.3	0.6%
Total Covered Calls	22.9	5.6%	5.0%	2.3	0.6%
Vanguard Long Duration ETF	13.4	3.2%	3.3%	(0.4)	(0.1%)
Versor Trend Following	15.3	3.7%	3.3%	1.6	0.4%
Kepos Alternative Risk Premia	10.8	2.6%	3.3%	(3.0)	(0.7%)
Total Crisis Risk Offset	39.4	9.6%	10.0%	(1.8)	(0.4%)
Ramirez	70.5	17.1%	12.0%	20.9	5.1%
Reams	26.7	6.5%	2.0%	18.4	4.5%
Wellington Core Bond	6.7	1.6%	19.0%	(71.7)	(17.4%)
Polen Capital High Yield	9.3	2.3%	2.0%	1.1	0.3%
Total Public Fixed Income	113.2	27.4%	33.0%	(23.0)	(5.6%)
Cash	15.7	3.8%	0.0%	15.7	3.8%
Total Stable	128.9	31.2%	33.0%	(7.2)	(1.8%)
Total Portfolio	412.6	100%	100%		

¹Benefit payments estimated at \$13.2M on a quarterly basis per OPFRS. Report reflects quarterly City contributions of \$10.2M. The City's current quarterly contribution amount is based on FYE2024 actuarial annual required contribution of \$40.8M.

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MEMORANDUM

TO: Oakland Police and Fire Retirement System (OPFRS)
FROM: Meketa Investment Group (Meketa)
DATE: September 27, 2023
RE: Fossil Fuels—Thermal Coal Divestment List Update

Background

On May 25, 2016, the OPFRS Board approved a recommendation to divest the portfolio from thermal coal producing companies. In July 2016, PCA provided an initial list of 26 thermal coal companies (defined as a company whose primary use of coal is in the generation of heat to produce electricity) that receive more than 50% of their revenue from coal production. OPFRS formally implemented the divestment policy on August 1, 2016.

As part of the ongoing thermal coal divestiture policy, Meketa is providing OPFRS staff with an updated list of thermal coal companies that should not be held in any separate account mandates within the OPFRS portfolio. The table on the following page represents an updated list of 59 thermal coal companies that meet the 50% revenue from coal production criteria as of June 30, 2023.

Restricted Thermal Coal Companies as of 6/30/2023

Issuer	ISIN	Ticker	Country of Incorporation
Agritrade Resources	BMG0130N1130	1131	Bermuda
Alliance Holdings	US01861G1004	AHGP	USA
Alliance Resource Partners	US01877R1086	ARLP	USA
Anhui Hengyuan Coal Industry & Electricity Power	CNE000001KT3	600971	China
Banpu Public Company	TH0148A10Z06	BANPU	Thailand
Beijing Haohua Energy Resource	CNE100000N12	601101	China
Bisichi	GB0001012045	BISI	United Kingdom
China Coal Xinji Energy	CNE1000008D7	601918	China
China Qinfu Group	KYG2159E1070	866	Cayman Islands
China Shenhua Energy	CNE1000002R0	1088	China
Cloud Peak Energy	US18911Q1022	CLDPQ	USA
Coal Energy	LU0646112838	CLE	Luxembourg
Coal India	INE522F01014	533278	India
CONSOL Energy	US20854L1089	CEIX	USA
Exxaro Resources	ZAE000084992	EXX	South Africa
Foresight Energy	US34552U1043	FELPQ	USA
Geo Energy Resources	SG2F24986083	RE4	Singapore
Gujarat Mineral Development Corporation	INE131A01031	532181	India
Hallador Energy	US40609P1057	HNRG	USA
Inner Mongolia Yitai Coal	CNE000000SK7	900948	China
Jinneng Holding Shanxi Coal Industry	CNE000001MZ6	601001	China
Kinetic Development Group	KYG525931039	1277	Cayman Islands
Kuzbasskaya Toplivnaya Kompaniya	RU000A0JPYD7	KBTK	Russia
Lubelski Wegiel Bogdanka	PLLWBGD00016	LWB	Poland
New Hope Corporation	AU000000NHC7	NHC	Australia
Park Elektrik Uretim Madencilik Sanayi ve Ticaret	TRAPRKTE91B5	PRKMEE	Turkey
Peabody Energy Australia	AU000000MCC0	MCC	Australia
Peabody Energy Corporation	US7045511000	BTU	USA
PT Adaro Energy Indonesia	ID1000111305	ADRO	Indonesia
PT Alfa Energi Investama	ID1000139009	FIRE	Indonesia
PT Bayan Resources	ID1000111701	BYAN	Indonesia

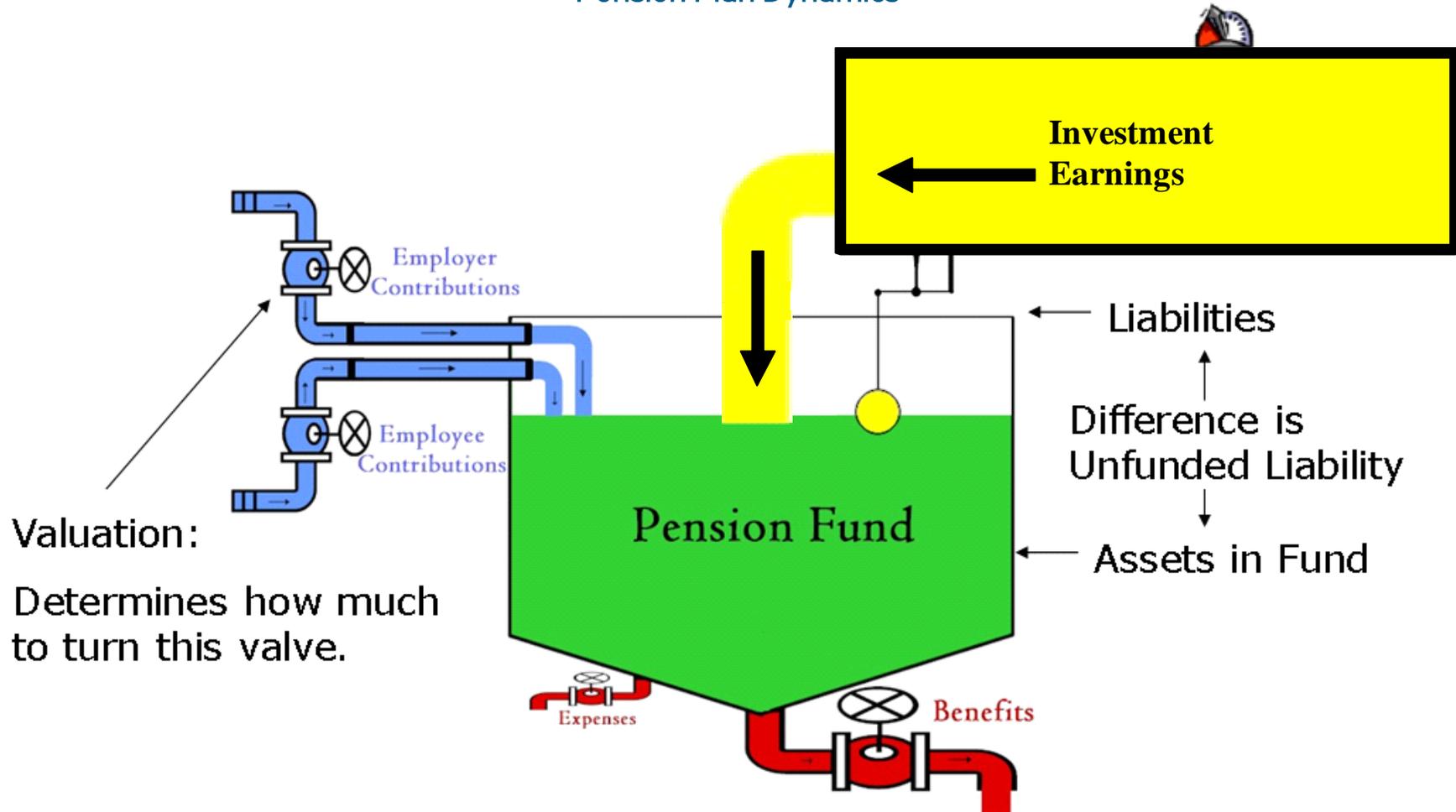
Issuer	ISIN	Ticker	Country of Incorporation
PT Berau Coal Energy	ID1000116502	BRAU	Indonesia
PT Bukit Asam	ID1000094006	PTBA	Indonesia
PT Bumi Resources	ID1000068703	BUMI	Indonesia
PT Dian Swastatika Sentosa	ID1000113400	DSSA	Indonesia
PT Golden Eagle Energy	ID1000100704	SMMT	Indonesia
PT Golden Energy Mines	ID1000121106	GEMS	Indonesia
PT Harum Energy	ID1000116601	HRUM	Indonesia
PT Indika Energy	ID1000110901	INDY	Indonesia
PT Indo Tambangraya Megah	ID1000108509	ITMG	Indonesia
PT Trada Alam Minera	ID1000111909	TRAM	Indonesia
Rhino Resource Partners	US76218Y2028	RHNO	USA
Sadovaya Group	LU0564351582	SGR	Luxembourg
Sakari Resources	SGIU11932563	AJ1	Singapore
Salungano Group	ZAE000306890	SLG	South Africa
Semirara Mining & Power	PHY7628G1124	SCC	Philippines
Shaanxi Coal Industry	CNE100001T64	601225	China
Shan Xi Hua Yang Group New Energy	CNE000001FP1	600348	China
Shanghai Datun Energy Resources	CNE000001915	600508	China
Shanxi Lu'An Environmental Energy Development	CNE000001INT7	601699	China
TerraCom	AU000000TER9	TER	Australia
The Lanna Resources	TH0409010Z03	LANNA	Thailand
Thungela Resources	ZAE000296554	TGA	South Africa
Washington H. Soul Pattinson and Company	AU000000SOL3	SOL	Australia
Westmoreland Coal Company	US9608781061	WLBAQ	USA
Westmoreland Resource Partners	US96108P1030	WMLPQ	USA
Whitehaven Coal	AU000000WHC8	WHC	Australia
Yancoal Australia	AU000000YAL0	YAL	Australia
Zhengzhou Coal Industry & Electric Power	CNE000000TS8	600121	China

Oakland Police & Fire Retirement System

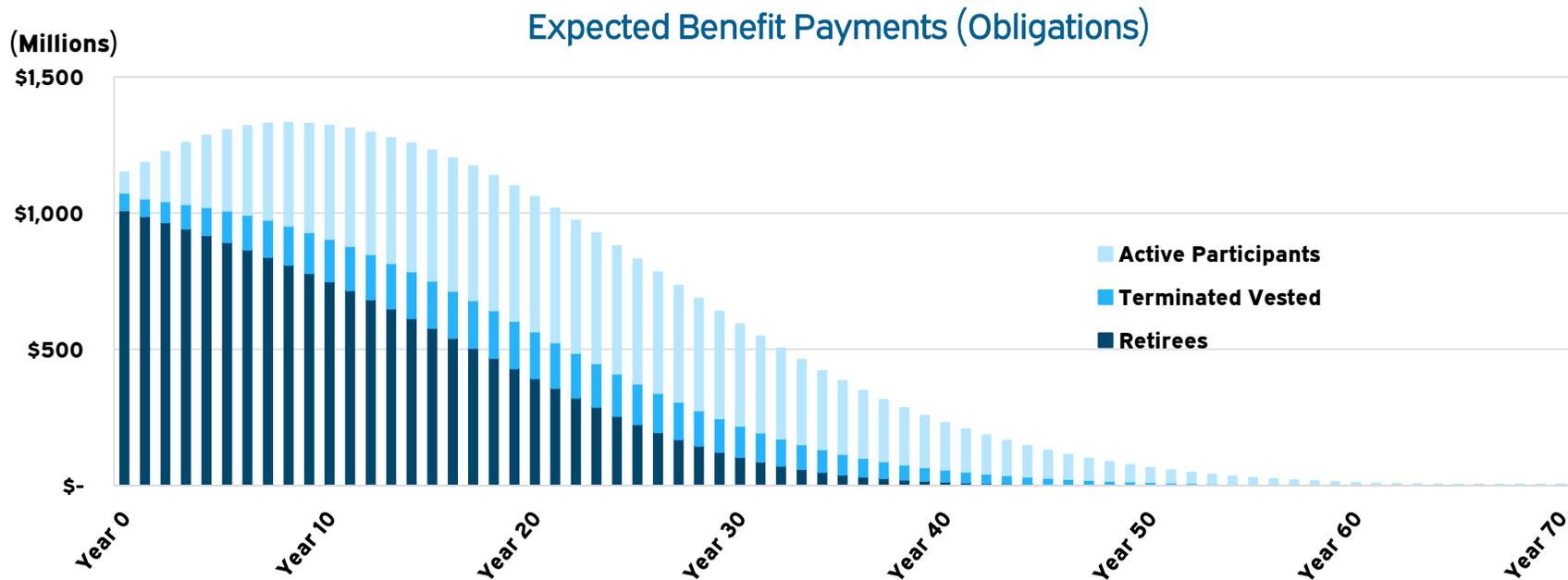
September 27, 2023

Educational Session: Actuarial
Concepts

Pension Plan Dynamics



Source: Cheiron.



- Benefit payments are determined by the provisions of the plan, generally based on how long participants work and salary earned.
- Expected benefit payments are determined by the plan's actuary using many assumptions, such as future mortality and salary increases.
- The liability is calculated by discounting the expected benefit payments using the assumed long-term actuarial rate.

Funded Status

→ The funded status is an assessment of whether the assets are large enough to satisfy the obligations earned to-date, assuming all actuarial assumptions are met.

$$\frac{\text{Assets}}{\text{Liabilities}} = \text{Funded Status (Ratio)}$$

- If the funded status is less than 100%, the actuary will recommend the plan sponsor contribute assets to the plan to:
- close the funding gap; and
 - fund the benefits expected to be earned by participants in the upcoming year
- If the funded status is more than 100%, the actuary could recommend a smaller contribution or no contribution at all.

Funded Status (continued)

→ The actuarial value of assets (AVA) and actuarial accrued liability (AAL) change from one year to the next in a formulaic fashion.

- Note: actuarial losses/gains are important considerations that are generally related to experience vs. assumptions.

Example: Change in AVA and AAL	
AVA at Beginning of Year	AAL at Beginning of Year
+ Contributions	+ Service cost (benefits accrued during year)
+ Actual return (accounting for any smoothing)	+ Interest cost
- Benefits paid	+/- Actuarial losses/gains during the year
- Expenses	- Benefits paid
= AVA at End of Year	= AAL at End of year

Moody's Measure

- For underfunded plans, one metric to monitor is Moody's "Tread Water" Measure.
- This metric is the bare minimum for a system to maintain solvency.

**Moody's "Tread Water" Measure:
Service Costs + Interest Costs on UAAL \approx Minimum Contribution Threshold**

**(i.e., contributions cover accrual of new benefits + interest costs,
meaning UAAL is not increasing)**

$$\frac{\text{Actual Contributions}}{\text{Service Costs + Interest Costs on UAAL}} > 1.0$$

- If the ratio of a plan's employer contributions to its Tread Water Measure > 1.0 , then the plan exhibits a sustainable ability to continue financing its long-term obligations, otherwise, it is not even "treading water."

Key Terms

→ PBO (projected benefit obligation)

- Actuarial present value (at an assumed discount rate) of all future pension benefits earned to date.
- Includes:
 - Remaining benefits for currently retired employees;
 - Retirement benefits earned to date for active employees;
 - Impact of future salary increases and service on the benefits for active employees.

→ AAL (actuarial accrued liability)

- For most public plans, this is the same as the PBO.

→ AVA (actuarial value of assets)

- The asset value for valuation purposes. Can be based on market value + any “smoothing” methods.

→ UAAL (unfunded actuarial accrued liability)

- $AAL - AVA = UAAL$

→ Funded Status (Ratio)

- $AVA/AAL = \text{Funded Status (Ratio)}$

→ Discount Rate

- The interest rate used to compute the present value of benefits and current service costs. The actuarial recommendation is for this rate to stay at or below the portfolio’s expected long-term rate of return.

→ Expected Return

- The expected return of the investment portfolio. This may or may not equal the discount rate.

Key Terms (continued)

→ Normal Cost or Current Service Cost

- Present value of benefits expected to be earned during the upcoming period.

→ Interest Cost

- Increase in the liability due to the passage of time.

→ ADC or ARC (actuarial determined contribution or actuarial required contribution)

- The amount needed to fund benefits over time.
- Typically, this is the amount necessary to fund the normal cost and amortize the unfunded liability per the amortization schedule (if applicable).

→ Valuation Report

- Utilizing current assumptions, an annual report that describes the financial position of a plan.

→ Experience Study

- A study performed every few years to ensure the assumptions are in-line with the plan's demographic and economic experience.

→ Actuarial gains/losses

- Changes in the AAL due to alterations in assumptions/methods (e.g., discount rate) or experience (e.g., salary growth).

Important Assumptions

Discount Rate (current = 6.0%)

- The rate at which expected benefit payments are discounted.
- A decrease in the rate of return assumption increases the present value of liabilities.

Inflation (current = 2.75% U.S.(2.85% Bay Area))

- General increase in prices and fall in the purchasing power.
- Future retirement benefit increases are influenced by inflation, leading to a larger liability.

COLA(recent change = 3.25%)

- Estimate of year-to-year cost of living increases.
- COLA estimates are important from two perspectives: higher salaries lead to larger expected city contributions and larger participant benefits.

Asset-Liability Process

The purpose of an asset-liability study...

- Complete a comprehensive analysis of the unique characteristics of the cash flows (i.e., net benefit payments, expenses, contributions, etc.);
- Identify material risks to the amounts of the cash flows, and;
- Align an asset allocation to match the plan sponsor's risk tolerance.

Asset-Liability Process

- Funded ratios and valuation reports are point-in-time viewpoints of a system.
 - Any forward-looking projections assume all assumptions are perfectly met.
- Asset-Liability models seek to incorporate more probabilistic elements into the analysis, in particular, how volatility in the investment portfolio impacts the system.
 - Process examines potential ranges/probabilities for various actuarial metrics, such as the funded ratio, over long periods of time (e.g., 30 years).
 - Additionally, certain elements of the system (e.g., contribution rate) can vary over time depending on how the investment portfolio performs.

Project Goal:

To review and possibly modify OPFRS Strategic Allocation Policy, reflecting the decision maker's unique definition, tolerance for, and beliefs about investment risk.

Asset-Liability Modelling Process



Asset-Liability Process: Stakeholder Viewpoints

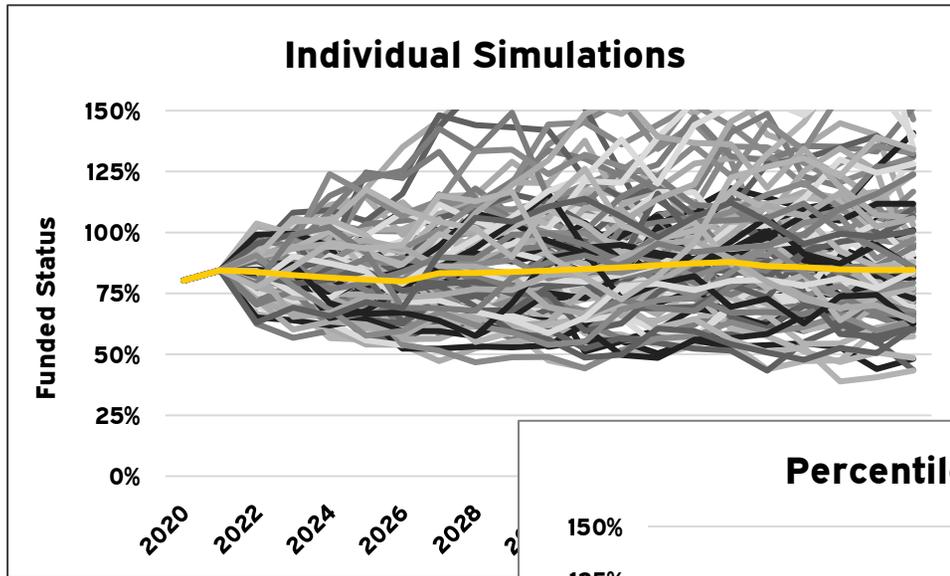
Stakeholders Perspectives on Risks/Implementations are Paramount

→ Example Survey Questions

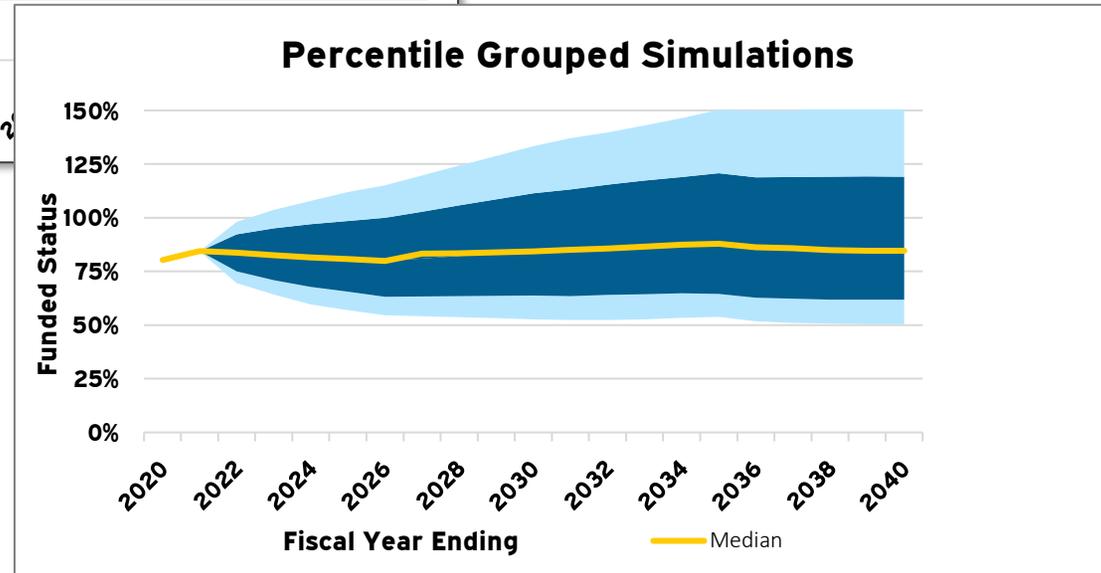
- Objective - Rank the following priorities:
 - Maintain progress along the “funding path”.
 - Minimizing total portfolio declines of -10% or more in a fiscal year.
 - Achieving 100% funded in X years.
 - Minimizing contribution uncertainty.
- Subjective - Agree or Disagree?
 - During a market crisis, the plan sponsor will be able to increase its contribution rate.
 - Alternative asset classes can help stabilize the total portfolio.
 - The cash-flow position is a key consideration when constructing an investment portfolio.
 - Producing a return pattern that is different than peers is a risk (given the same long-term return).
 - Different strategies and/or asset classes are interchangeable if they perform similar portfolio functions.

→ Answers to such questions help frame the optimization parameters and guide the ultimate decision-making process.

Example: Public Pension Asset-Liability Output

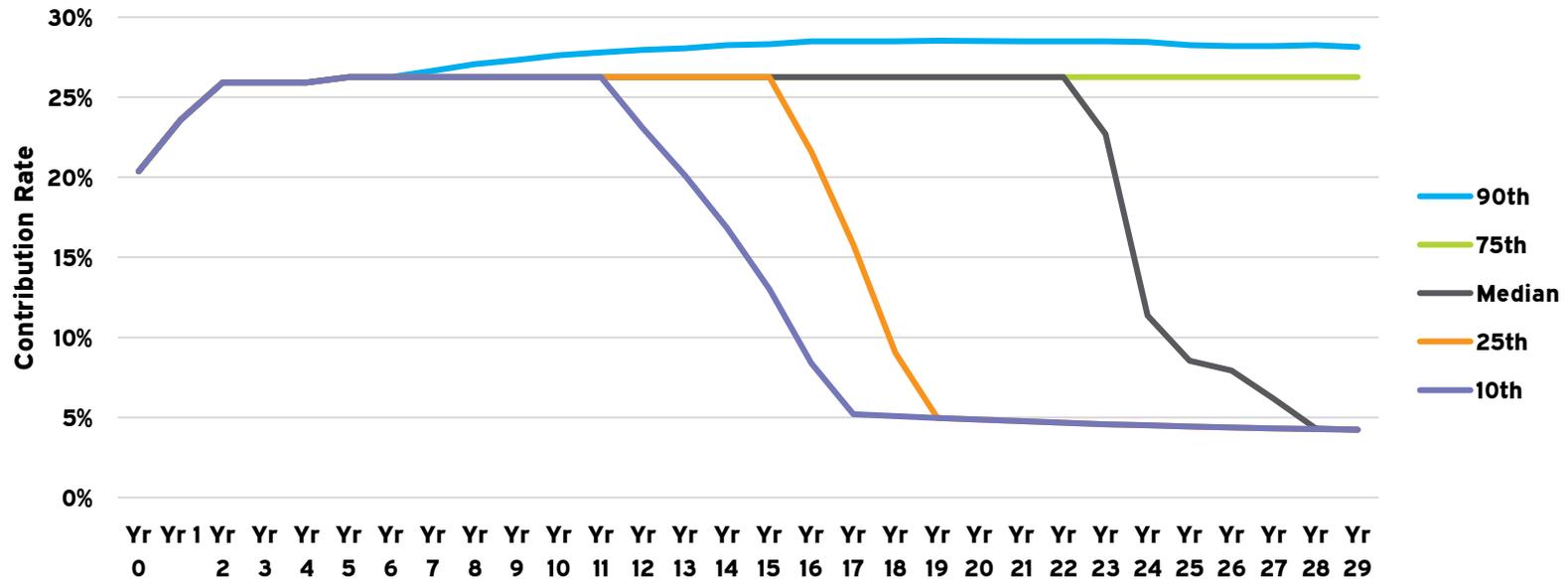


- The chart to the left displays a simulation of funded status outcomes based on the current investment policy, funded status, projected pension benefit payments and funding policy.
- The chart below summarizes those results into corridors of percentiles.
- Example: There is a 50% probability the funded status in 2040 is expected to be greater than 85%.



Analysis based on limited data from TCERA's website.

Example: Employer Contribution Rate for Fiscal Year



→ The contribution policy is a primary area of focus during an asset-liability study.

→ In addition to ranges for funded ratio, decision makers can also examine the probabilistic projections for contributions levels on a year-by-year basis and in aggregate.

Conclusion

- A defined benefit plan can ultimately be treated as a balance sheet:
 - Left side = assets
 - Right side = liabilities (benefits)
- Actuarial methods determine how the left and right side of this balance sheet are determined and calculated.
 - These methods are complex, but they can be treated in a more simplified manner to improve decision-making.
- Asset-Liability Studies seek to examine this balance sheet over a long-term period in a probabilistic manner that examines a wide range of scenarios and metrics.

Next Steps

→ The presentation in October will focus on two areas:

- Preliminary Capital Market Assumptions for the optimization process.
- Further examination of actuarial data, with an emphasis on 2026.

Meeting Date	Activity
October 2023	Strategic Analysis of current portfolio <ul style="list-style-type: none"> • Proposal of initial expected returns and volatilities for modeling purposes.
	Initial Examination of Key OPFRS Risks <ul style="list-style-type: none"> • Analysis of key system metrics, measures, and sensitivities.
December 2023	Risk Definitions <ul style="list-style-type: none"> • Dialogue with trustees and staff on what risk definitions are important for OPFRS moving forward.
January/Feb 2023	Final Model/Portfolio Selection and Implementation

WE HAVE PREPARED THIS REPORT (THIS "REPORT") FOR THE SOLE BENEFIT OF THE INTENDED RECIPIENT (THE "RECIPIENT").

SIGNIFICANT EVENTS MAY OCCUR (OR HAVE OCCURRED) AFTER THE DATE OF THIS REPORT AND THAT IT IS NOT OUR FUNCTION OR RESPONSIBILITY TO UPDATE THIS REPORT. ANY OPINIONS OR RECOMMENDATIONS PRESENTED HEREIN REPRESENT OUR GOOD FAITH VIEWS AS OF THE DATE OF THIS REPORT AND ARE SUBJECT TO CHANGE AT ANY TIME. ALL INVESTMENTS INVOLVE RISK. THERE CAN BE NO GUARANTEE THAT THE STRATEGIES, TACTICS, AND METHODS DISCUSSED HERE WILL BE SUCCESSFUL.

INFORMATION USED TO PREPARE THIS REPORT WAS OBTAINED FROM INVESTMENT MANAGERS, CUSTODIANS, AND OTHER EXTERNAL SOURCES. WHILE WE HAVE EXERCISED REASONABLE CARE IN PREPARING THIS REPORT, WE CANNOT GUARANTEE THE ACCURACY OF ALL SOURCE INFORMATION CONTAINED HEREIN.

CERTAIN INFORMATION CONTAINED IN THIS REPORT MAY CONSTITUTE "FORWARD - LOOKING STATEMENTS," WHICH CAN BE IDENTIFIED BY THE USE OF TERMINOLOGY SUCH AS "MAY," "WILL," "SHOULD," "EXPECT," "AIM," "ANTICIPATE," "TARGET," "PROJECT," "ESTIMATE," "INTEND," "CONTINUE" OR "BELIEVE," OR THE NEGATIVES THEREOF OR OTHER VARIATIONS THEREON OR COMPARABLE TERMINOLOGY. ANY FORWARD - LOOKING STATEMENTS, FORECASTS, PROJECTIONS, VALUATIONS, OR RESULTS IN THIS PRESENTATION ARE BASED UPON CURRENT ASSUMPTIONS. CHANGES TO ANY ASSUMPTIONS MAY HAVE A MATERIAL IMPACT ON FORWARD LOOKING STATEMENTS, FORECASTS, PROJECTIONS, VALUATIONS, OR RESULTS. ACTUAL RESULTS MAY THEREFORE BE MATERIALLY DIFFERENT FROM ANY FORECASTS, PROJECTIONS, VALUATIONS, OR RESULTS IN THIS PRESENTATION.

PERFORMANCE DATA CONTAINED HEREIN REPRESENT PAST PERFORMANCE. PAST PERFORMANCE IS NO GUARANTEE OF FUTURE RESULTS.

OAKLAND POLICE AND FIRE RETIREMENT BOARD

CITY OF OAKLAND, CALIFORNIA

RESOLUTION No. 8084



ON MOTION OF MEMBER _____ SECONDED BY MEMBER _____

RESOLUTION FIXING THE MONTHLY ALLOWANCE OF MARYANNE HICKMAN, SURVIVING SPOUSE OF PHILLIP D. DICKMAN; RETIRED MEMBER OF THE CITY OF OAKLAND POLICE AND FIRE RETIREMENT SYSTEM

WHEREAS, the retired member of the Police and Fire Retirement System, whose name appears in Column (1) below, died on the date shown in Column (2) below; and

WHEREAS, the surviving spouse, whose name appears in Column (3) below, do not claim that their spouse's death was by reason of an injury received in, or illness caused by, or arising out of the performance of duty; and

WHEREAS, there is now presented to this Board, the monthly allowance shown in Column (7) below and as calculated by the Actuary in accordance with Article XXVI of the Charter of the City of Oakland; now, therefore, be it

RESOLVED: That the Police and Fire Retirement Board does hereby fix the amount shown in Column (7) as the monthly allowance that said surviving spouse shall receive beginning on the date shown in Column (4):

Table with 7 columns: (1) Name of Deceased Member, (2) Date of Death, (3) Name of Surviving Spouse, (4) Effective Date of Allowance, (5) Form of Retirement, (6) % of Compensation Attached to Avg. Rank Held, (7) Monthly Allowance. Row 1: Philip D. Hickman, 09/07/23, Maryanne Hickman, 09/08/2023, SVC, 27.63%, \$4,243.35

IN BOARD MEETING, CITY HALL, OAKLAND, CA SEPTEMBER 27, 2023

PASSED BY THE FOLLOWING VOTE:

AYES: GODFREY, MELIA, NICHELINI, ROSEMAN, SPEAKMAN, WILKINSON, & PRESIDENT JOHNSON

NOES:

ABSTAIN:

EXCUSED:

ATTEST: _____ PRESIDENT

ATTEST: _____ SECRETARY