December 5, 2023

Members, Board of Retirement
Employee Bargaining Units
Requesting News Media
Other Interested Parties

Subject: Meeting of the Kern County Employees' Retirement Association Investment Committee

Ladies and Gentlemen:

A meeting of the Kern County Employees' Retirement Association Investment Committee will be held on Monday, December 11, 2023 at 10:00 a.m. in the KCERA Boardroom, 11125 River Run Boulevard, Bakersfield, California, 93311.

How to Participate: Listen to or View the Board Meeting
To listen to the live audio of the Board meeting, please dial one of the following numbers (for best audio a landline is recommended) and enter ID# 889 7067 3418

- (669) 900-9128; U.S. Toll-free: (888) 788-0099 or (877) 853-5247

To access live audio and video of the Board meeting, please use the following:

- https://us02web.zoom.us/j/88970673418?pwd=dTFFMVRNZEZLemRrUWlzcm1nd1IzUT09
- Passcode: 154279

Items of business will be limited to the matters shown on the attached agenda. If you have any questions or require additional service, please contact KCERA at (661) 381-7700 or send an email to administration@kcera.org.

Sincerely,

Dominic D. Brown
Chief Executive Officer

Attachments

<u>AGENDA:</u>

All agenda item supporting documentation is available for public review on KCERA's website at www.kcera.org following the posting of the agenda. Any supporting documentation that relates to an agenda item for an open session of any regular meeting that is distributed after the agenda is posted and prior to the meeting will also be available for review at the same location.

AMERICANS WITH DISABILITIES ACT
(Government Code §54953.2)

Disabled individuals who need special assistance to listen to and/or participate in the meeting of the Board of Retirement may request assistance by calling (661) 381-7700 or sending an email to administration@kcera.org. Every effort will be made to reasonably accommodate individuals with disabilities by making meeting materials and access available in alternative formats. Requests for assistance should be made at least two (2) days in advance of a meeting whenever possible.

CALL TO ORDER

ROLL CALL (IN PERSON)

<u>AB 2449 REMOTE APPEARANCE(S)</u>

Items 1 and/or 2 withdrawn from agenda if no trustees will have a need to appear via teleconference:

The first two items on the agenda are reserved for trustees who have a need to appear via teleconference due to a "just cause" need or an "emergency circumstance." Trustees who have notified this Committee before agenda-posting will be called upon and will provide a general description of their need to attend via teleconference as allowed by law. Trustees who were not able to notify the Committee in advance of posting and have a need to attend via teleconference will state their notification or request when called upon to do so. All trustees appearing via teleconference will need to disclose any adult person(s) present in the room of their remote location and their relationship to such person(s). Trustees appearing remotely are reminded to keep their camera on throughout the meeting.

1. JUST CAUSE CIRCUMSTANCE(S):

   a) The following Trustee(s) have notified the Committee of a "Just Cause" to attend this meeting via teleconference. (See Government Code § 54953).

      - NONE

   b) Call for Trustee(s) who wish to notify the Committee of a "Just Cause" to attend this meeting via teleconference. (See Government Code § 54953).

2. EMERGENCY CIRCUMSTANCE(S):

a) The following Trustee(s) have requested the Committee approve their attendance of this meeting via teleconference due to an “Emergency Circumstance.” (See Government Code § 54953).

- NONE

b) Call for Trustee(s) requesting the Committee approve their attendance of this meeting via teleconference due to an “Emergency Circumstance.” (See Government Code § 54953).

TAKE ACTION ON REQUEST(S) FOR REMOTE APPEARANCE

3. Discussion and appropriate action on private market fund recommendation presented by Keirsten Lawton, Managing Director, Cambridge Associates[1], and Senior Investment Officer Geoff Nolan – RECOMMEND THE BOARD OF RETIREMENT APPROVE UP TO $25MM COMMITMENT TO BLUE OWL STRATEGIC EQUITY PARTNERS; AUTHORIZE CHIEF EXECUTIVE OFFICER TO SIGN, SUBJECT TO LEGAL ADVICE AND REVIEW

4. Discussion and appropriate action on private market fund recommendation presented by Keirsten Lawton, Managing Director, Cambridge Associates[2], and Senior Investment Officer Geoff Nolan – RECOMMEND THE BOARD OF RETIREMENT APPROVE UP TO $25MM COMMITMENT TO OAK HILL STRUCTURED PRODUCTS FUND III; AUTHORIZE CHIEF EXECUTIVE OFFICER TO SIGN, SUBJECT TO LEGAL ADVICE AND REVIEW

5. Discussion and appropriate action on real estate fund recommendation presented by Scott Whalen, CFA, and Claudia Schloss, CFA, Verus[3], and Senior Investment Officer Geoff Nolan – RECOMMEND THE BOARD OF RETIREMENT APPROVE UP TO $75MM COMMITMENT TO OAK STREET REAL ESTATE CAPITAL FUND VI; AUTHORIZE CHIEF EXECUTIVE OFFICER TO SIGN, SUBJECT TO LEGAL ADVICE AND REVIEW

6. Discussion and appropriate action on restatement of fiscal year 2022-2023 quarterly performance reports presented by Scott Whalen, CFA, and Claudia Schloss, CFA, Verus – RECOMMEND THE BOARD OF RETIREMENT RECEIVE AND FILE

1 Written materials and investment recommendations from the consultants, fund managers and KCERA investment staff relating to alternative investments are exempt from public disclosure pursuant to California Government Code § 7928.710, § 7922.000, and §54957.5.

2 Written materials and investment recommendations from the consultants, fund managers and KCERA investment staff relating to alternative investments are exempt from public disclosure pursuant to California Government Code § 7928.710, § 7922.000, and §54957.5.

3 Written materials and investment recommendations from the consultants, fund managers and KCERA investment staff relating to alternative investments are exempt from public disclosure pursuant to California Government Code § 7928.710, § 7922.000, and §54957.5.

PUBLIC COMMENTS

7. The public is provided the opportunity to comment on agenda items at the time those agenda items are discussed by the Committee. This portion of the meeting is reserved for persons to address the Committee on any matter not on this agenda but under the jurisdiction of the Committee. Committee members may respond briefly to statements made or questions posed. They may ask a question for clarification and, through the Chair, make a referral to staff for factual information or request staff to report back to the Committee at a later meeting. Speakers are limited to two minutes. Please state your name for the record prior to making a presentation.

REFERRALS TO STAFF, ANNOUNCEMENTS OR REPORTS

8. On their own initiative, Committee members may make a brief announcement, refer matters to staff, subject to KCERA's rules and procedures, or make a brief report on their own activities.

9. Adjournment

ALTERNATIVE INVESTMENTS RECORDS

EXEMPT FROM PUBLIC DISCLOSURE

(CA Gov. Code §7928.710)
(CA Gov. Code §7922.000)
(CA Gov. Code §54957.5)

DO NOT REPRODUCE

DO NOT DISTRIBUTE

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Memorandum

To: Investment Committee, Kern County Employees' Retirement Association
Cc: Daryn Miller, CFA, Chief Investment Officer
From: Scott J. Whalen, CFA, CAIA, Executive Managing Director|Senior Consultant
Date: December 11th, 2023
RE: Fiscal Year 2022 Performance Reporting Adjustment

Executive Summary
As part of our review and reconciliation of performance for the KCERA's 2022 Annual Consolidated Financial Report ("ACFR"), we identified an inadvertent change to the total fund performance calculation methodology. This change was fundamentally caused by a switch in Verus' third-party performance reporting platform following the acquisition of InvestorForce (our legacy platform) by Investment Metrics. This change led to an underreporting of KCERA's fiscal year 2022 net-of-fee returns by 51 basis points (0.51%). This memo describes the cause of the unintended methodology change, why the original methodology is more appropriate, and what the impact was throughout the fiscal year.

Background
There are two primary time-weighted return calculations used for institutional investor performance reporting (i.e., Modified-Dietz and Weighted-Average Return). In 2017, the Institutional Consultants Cooperative, an industry organization of which Verus was a founding member, made the collective decision to utilize the Weighted-Average return calculation methodology as the default methodology for all members clients. This led to a composite-level (i.e., total fund) calculation methodology that was easily explained and understood and one that provided comparable data for performance universe construction purposes.

In most cases, the Weighted-Average Approach was identical (or very similar) to the Modified-Dietz approach, the difference being during periods of large cash flows relative to total portfolio value and/or if a fund used portfolio-level leverage. One can imagine a negative cash balance would change the weights of the asset classes used to calculate the total fund return, the level of impact depending on the level of leverage used. In this case, the Modified-Dietz approach is the more accurate.

Explanation
As KCERA began to use portfolio-level leverage in support of its Capital Efficiency program, we changed from the default Weighted-Average calculation to the more appropriate Modified-Dietz calculation to accurately account for the negative cash. Over this same time period, our third-party performance reporting provider was acquired by another provider, and the new provider began transitioning all its new clients to its proprietary platform. KCERA transitioned to the new platform during the second quarter of 2022, and its first report on the new platform was issued in August of 2022.

As part of this transition, the calculation methodology was automatically and inadvertnetly switched back to the default Weighted-Average calculation methodology, and we didn't realize this change had taken place until we separately calculated the return for the 2022 ACFR, using Modified-Dietz. After we discovered the change and conducted a root cause investigation to understand what happened, we brought the error to the attention of KCERA's Investment Staff and Administrative Staff. After a thorough debrief, it was decided to have us recalculate and restate quarterly performance for all of fiscal year 2022.

Performance Impact

The aggregate net-of-fee performance impact on the total fund for the full fiscal year is 51 basis points or 0.51%. The table below shows the impact of the calculation methodology change on a month-by-month basis.

Month	Modified-Dietz	Weighted-Average
Jun-2023	2.2580	1.8979
May-2023	-1.2989	-1.0928
Apr-2023	0.9747	0.8124
Mar-2023	0.8452	0.7248
Feb-2023	-1.6124	-1.3571
Jan-2023	3.9219	3.3980
Dec-2022	-1.6442	-1.3489
Nov-2022	3.4175	2.9606
Oct-2022	2.7081	2.3253
Sep-2022	-5.1682	-4.1343
Aug-2022	-1.5507	-1.3187
Jul-2022	3.7930	3.1605
FYTD	**6.3819**	**5.8739**

Kern County Employees' Retirement Association

Investment Performance Review

Period Ending: September 30, 2022

Verus®

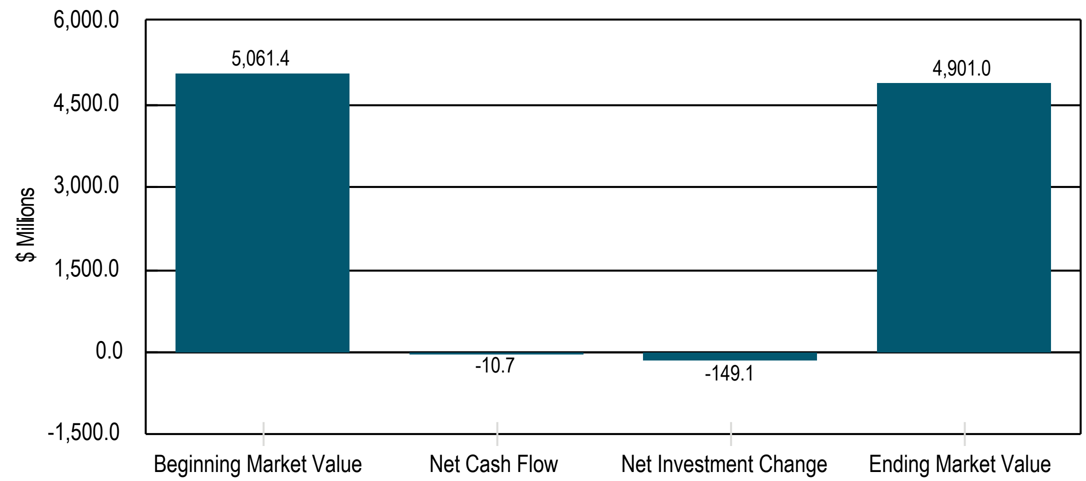
VERUSINVESTMENTS.COM

SEATTLE 206.622.3700
CHICAGO 312.815.5228
PITTSBURGH 412.784.6678
LOS ANGELES 310.297.1777
SAN FRANCISCO 415.362.3484

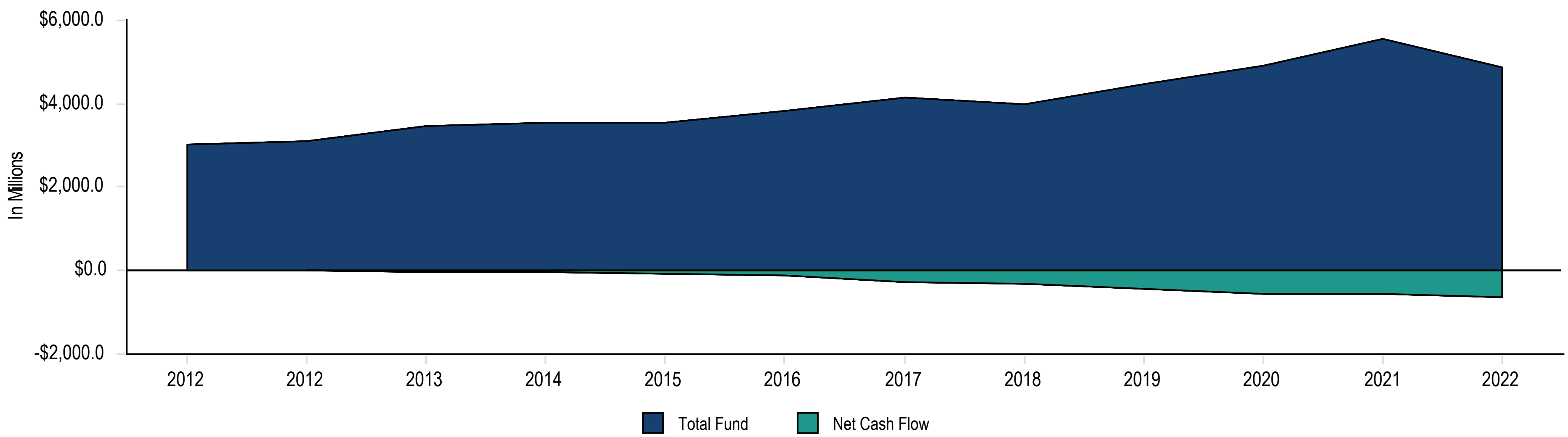
Portfolio Reconciliation

	Last Three Months
Beginning Market Value	$5,061,358,140
Net Cash Flows	-$10,688,094
Net Investment Change	-$149,121,038
Ending Market Value	$4,901,023,930

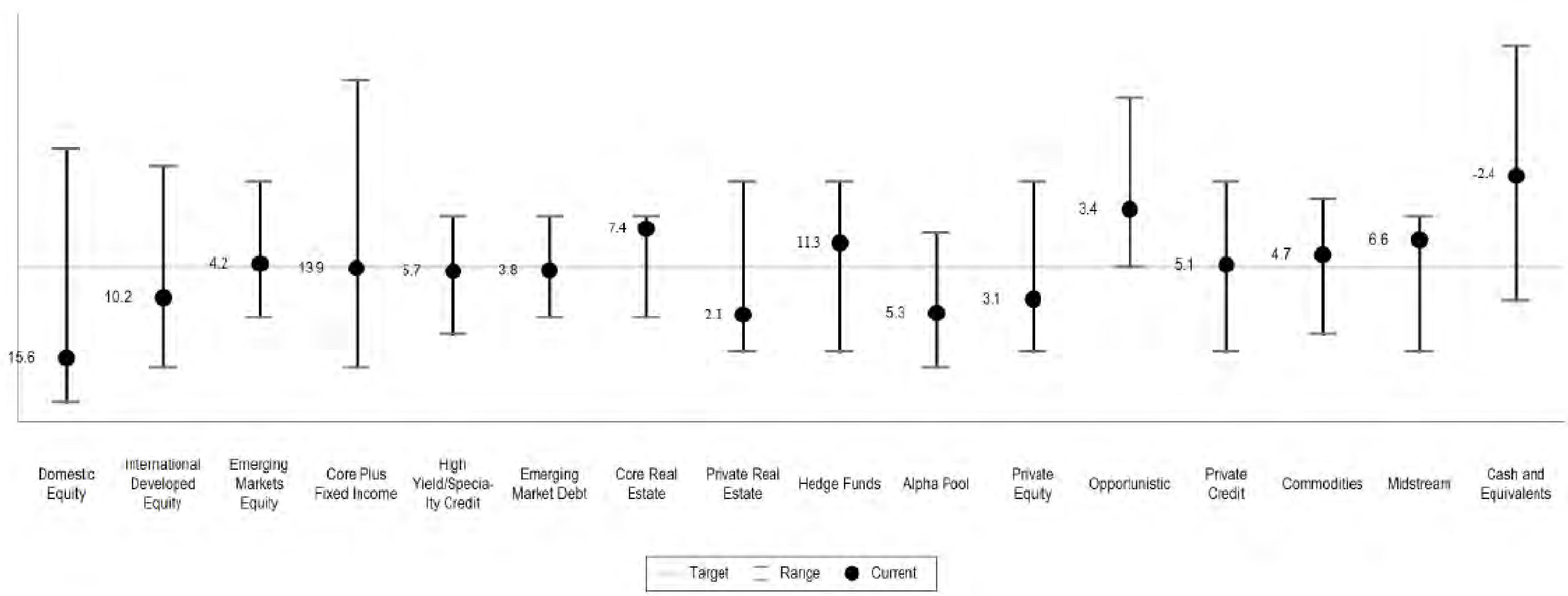
Change in Market Value Last Three Months

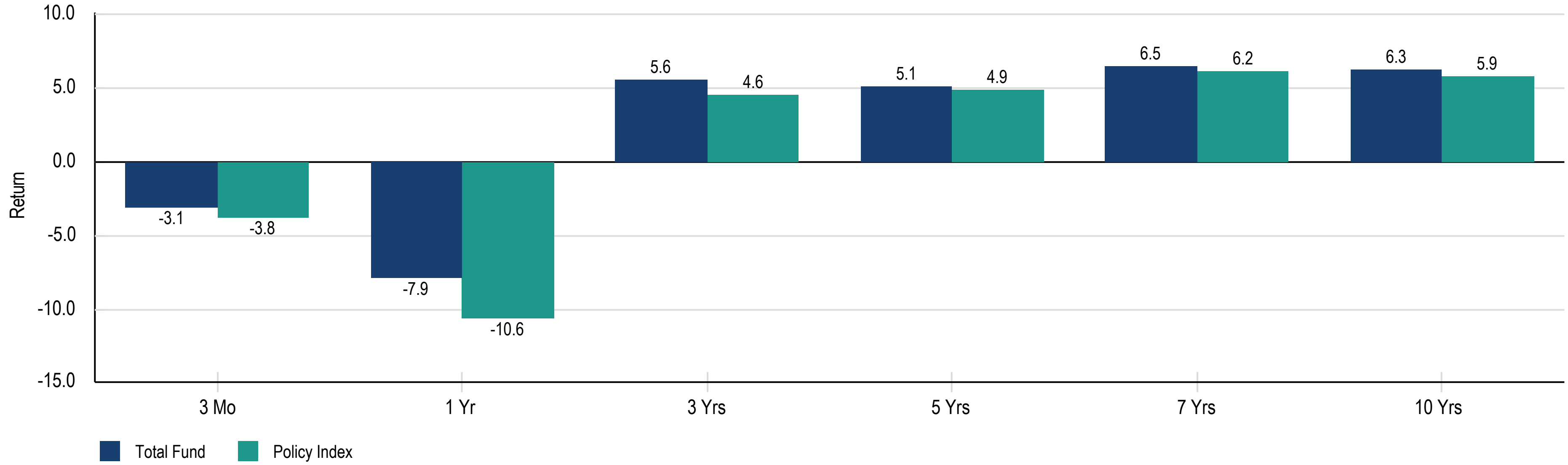


Market Value History



	Current Balance	Current Allocation	Policy	Difference	Policy Range	Within IPS Range?
Equity	$1,469,296,073	30.0%	37.0%	-$341,923,574	26.0% - 48.0%	Yes
Fixed Income	$1,149,208,297	23.4%	24.0%	-$26,347,293	14.0% - 34.0%	Yes
Core Real Estate	$360,386,343	7.4%	5.0%	$111,259,403	2.0% - 8.0%	Yes
Hedge Funds	$555,236,603	11.3%	10.0%	$69,278,445	5.0% - 15.0%	Yes
Alpha Pool	$257,700,699	5.3%	8.0%	-$133,509,010	2.0% - 10.0%	Yes
Private Equity	$150,085,053	3.1%	5.0%	-$93,029,623	0.0% - 10.0%	Yes
Private Credit	$248,609,851	5.1%	5.0%	$6,477,519	0.0% - 10.0%	Yes
Private Real Estate	$104,997,988	2.1%	5.0%	-$138,602,873	0.0% - 10.0%	Yes
Commodities	$231,611,569	4.7%	4.0%	$35,804,040	0.0% - 8.0%	Yes
Opportunistic	$168,102,976	3.4%	0.0%	$168,102,976	0.0% - 10.0%	Yes
Midstream Energy	$322,797,858	6.6%	5.0%	$78,038,446	0.0% - 8.0%	Yes
Cash and Equivalents	-$117,009,383	-2.4%	-8.0%	$264,451,544	-10.0% - 5.0%	Yes
Total	**$4,901,023,930**	**100.0%**	**100.0%**			

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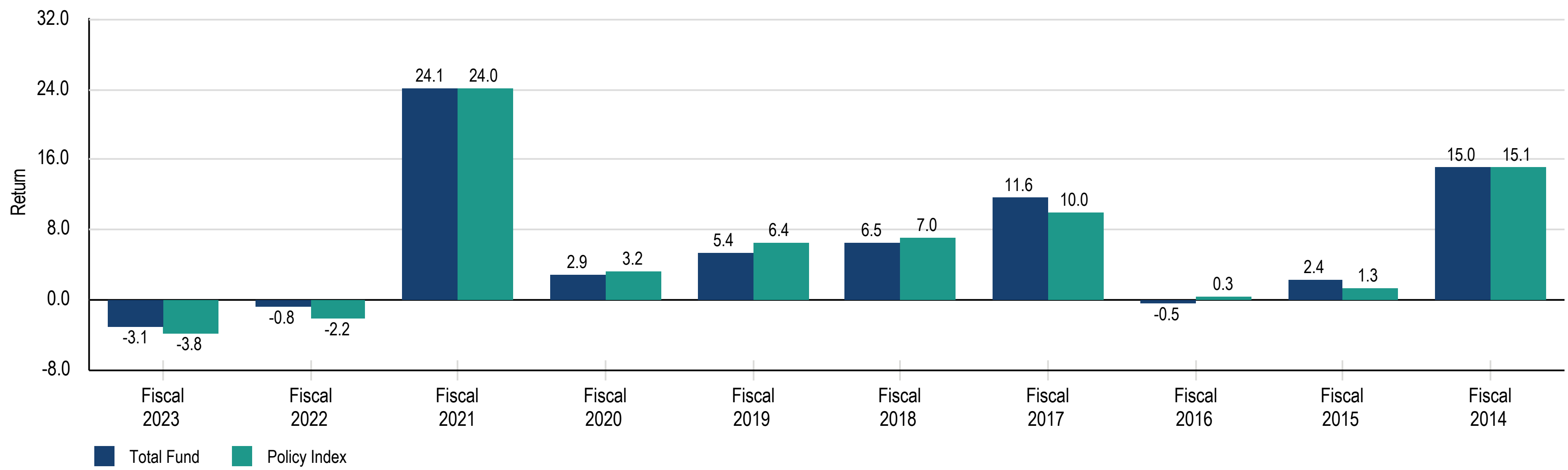
10 Yrs
Total Fund
Policy Index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-8.0
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-0.8
-2.2
-0.5
Fiscal 2023
Fiscal 2022
Fiscal 2021
Fiscal 2020
Fiscal 2019
Fiscal 2018
Fiscal 2017
Fiscal 2016
Fiscal 2015
Fiscal 2014
Total Fund
Policy Index

Executive Summary (Gross of Fees)

Period Ending: September 30, 2022

	Market Value	% of Portfolio	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	Fiscal 2022	Fiscal 2021	Fiscal 2020	Fiscal 2019	Fiscal 2018
Total Fund	4,901,023,930	100.0	-3.0	-3.0	-7.6	6.0	5.5	6.7	-4.2	24.4	3.2	5.7	6.8
Policy Index			*-3.8*	*-3.8*	*-10.6*	*4.6*	*4.9*	*5.9*	*-6.5*	*24.0*	*3.2*	*6.4*	*7.0*
InvMetrics Public DB > $1B Rank			*11*	*11*	*16*	*29*	*48*	*70*	*32*	*88*	*20*	*63*	*97*
Equity	1,469,296,073	30.0	-6.8	-6.8	-20.0	4.2	4.8	8.5	-14.9	41.2	0.7	5.3	12.4
MSCI AC World IMI (Net)			*-6.6*	*-6.6*	*-21.2*	*3.6*	*4.2*	*7.2*	*-16.5*	*40.9*	*1.2*	*4.6*	*11.1*
Domestic Equity	764,916,807	15.6	-4.9	-4.9	-16.7	8.0	9.0	-	-12.0	43.6	6.3	9.2	16.1
MSCI USA IMI			*-4.4*	*-4.4*	*-17.6*	*7.9*	*8.8*	*-*	*-13.7*	*44.4*	*6.7*	*9.0*	*14.9*
International Developed Equity	498,570,161	10.2	-8.3	-8.3	-23.9	0.0	0.2	-	-17.2	37.0	-5.5	-0.6	9.1
MSCI World ex U.S. IMI Index (Net)			*-9.2*	*-9.2*	*-25.0*	*-1.2*	*-0.5*	*-*	*-17.7*	*34.8*	*-5.1*	*0.2*	*7.7*
Emerging Markets Equity	205,808,369	4.2	-10.8	-10.8	-24.1	-2.7	-2.9	-	-21.4	40.6	-10.9	0.4	4.0
MSCI Emerging Markets IMI (Net)			*-10.8*	*-10.8*	*-27.5*	*-1.2*	*-1.4*	*-*	*-24.8*	*43.2*	*-4.0*	*0.5*	*7.9*
Fixed Income	1,149,208,298	23.4	-3.1	-3.1	-15.4	-2.2	0.2	1.5	-12.7	5.4	6.6	7.9	0.2
Fixed Income Custom Benchmark			*-3.9*	*-3.9*	*-15.1*	*-2.9*	*-0.2*	*1.4*	*-11.6*	*4.0*	*5.2*	*8.4*	*-0.1*
Core Plus Fixed Income	682,281,732	13.9	-4.4	-4.4	-15.3	-2.8	0.1	-	-11.2	1.0	9.5	8.0	0.0
Blmbg. U.S. Aggregate Index			*-4.8*	*-4.8*	*-14.6*	*-3.3*	*-0.3*	*-*	*-10.3*	*-0.3*	*8.7*	*7.9*	*-0.4*
High Yield/ Specialty Credit	281,200,553	5.7	0.2	0.2	-10.3	0.5	2.3	-	-9.5	13.6	0.0	7.5	3.3
ICE BofA U.S. High Yield Index			*-0.7*	*-0.7*	*-14.1*	*-0.7*	*1.4*	*-*	*-12.7*	*15.6*	*-1.1*	*7.6*	*2.5*
Emerging Market Debt	185,624,755	3.8	-4.1	-4.1	-21.5	-5.3	-3.4	-	-19.6	9.4	-1.2	8.5	-3.6
50 JPM EMBI Global Div / 50 JPM GBI EM Global Div			*-4.6*	*-4.6*	*-22.5*	*-7.1*	*-3.2*	*-*	*-20.2*	*7.1*	*-1.1*	*10.8*	*-1.9*
Commodities	231,611,569	4.7	-7.1	-7.1	8.8	13.4	7.8	-	20.1	43.5	-10.7	-6.2	13.7
Bloomberg Commodity Index Total Return			*-4.1*	*-4.1*	*11.8*	*13.5*	*7.0*	*-*	*24.3*	*45.6*	*-17.4*	*-6.8*	*7.3*
Hedge Funds	555,236,603	11.3	1.7	1.7	3.1	9.5	7.0	6.5	2.8	16.3	7.3	2.6	7.6
75% 3 Month T-Bill +4% / 25% MSCI ACWI IMI			*-0.5*	*-0.5*	*-1.9*	*4.8*	*5.4*	*5.6*	*-0.9*	*12.3*	*5.1*	*6.6*	*7.0*
Alpha Pool	257,700,699	5.3	0.8	0.8	1.6	-	-	-	1.5	14.5	-	-	-
3 Month T-Bill +4%			*1.5*	*1.5*	*4.6*	*-*	*-*	*-*	*4.2*	*4.1*	*-*	*-*	*-*
Midstream Energy	322,797,858	6.6	5.0	5.0	15.5	-	-	-	9.6	-	-	-	-
Alerian Midstream Energy Index			*-1.0*	*-1.0*	*11.7*	*-*	*-*	*-*	*11.4*	*-*	*-*	*-*	*-*
Core Real Estate	360,386,343	7.4	0.6	0.6	19.5	11.3	9.2	-	25.6	6.6	2.3	6.1	7.4
NCREIF ODCE			*0.5*	*0.5*	*22.1*	*12.4*	*10.2*	*10.9*	*29.5*	*8.0*	*2.2*	*6.4*	*8.4*
Private Real Estate	104,997,989	2.1	3.2	3.2	27.1	17.2	11.9	13.2	31.3	12.1	4.4	9.0	5.4
			3.2	*3.2*	*27.1*	*17.2*	*11.9*	*13.2*	*31.3*	*12.1*	*4.4*	*9.0*	*5.4*
Private Equity	150,085,053	3.1	-3.6	-3.6	8.1	14.1	12.0	11.7	23.0	41.7	-10.5	10.9	7.8
			-3.6	*-3.6*	*8.1*	*14.1*	*12.0*	*11.7*	*23.0*	*41.7*	*-10.5*	*10.9*	*7.8*
Private Credit	248,609,852	5.1	-1.2	-1.2	-3.1	3.0	5.4	-	1.2	4.8	5.5	9.7	9.3
			-1.2	*-1.2*	*-3.1*	*3.0*	*5.4*	*-*	*1.2*	*4.8*	*5.5*	*9.7*	*9.3*

Policy Index: 37% MSCI ACWI IMI (Net), 14% Bloomberg US Aggregate, 6% Ice BofA ML High Yield Master II Index, 2% JPM Emerging Markets Bond Index Global Diversified, 2% JPM Government Bond Index-Emerging Markets Global Diversified, 4% Bloomberg Commodity Index, 7.5% 3-Month T-bill +4%, 2.5% MSCI ACWI (Net), 8% 91 Day T-Bill + 4%, 5% NCREIF-ODCE Gross Monthly, 5% actual timeweighted Private Equity Returns, 5% actual time-weighted Private Credit Returns*, 5% actual time-weighted Private Real Estate Returns*, 5% Alerian Midstream, 0% Assumed Rate of Return +3%, -8% 3-Month T-bill and actual weights and returns of private asset classes to nearest 1%. All data prior to 2Q 2011 has been provided by the investments managers. FY: 6/30. The Equity and Fixed Income Beta Exposure return includes overlay cash and an implied hurdle rate also applied to the Alpha pool.*

	Market Value	% of Portfolio	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	Fiscal 2022	Fiscal 2021	Fiscal 2020	Fiscal 2019	Fiscal 2018
Opportunistic	168,102,976	3.4	-3.1	-3.1	-7.8	-	-	-	-5.4	59.9	-	-	-
Assumed Rate of Return +3%			*1.8*	*1.8*	*7.2*	-	-	-	*7.2*	*7.2*	-	-	-
Cash	-117,009,383	-2.4	0.2	0.2	0.0	0.2	1.1	1.3	-0.2	0.1	1.0	2.0	3.2
3 Month T-Bill			*0.5*	*0.5*	*0.6*	*0.6*	*1.1*	*0.7*	*0.2*	*0.1*	*1.6*	*2.3*	*1.4*

Policy Index: 37% MSCI ACWI IMI (Net), 14% Bloomberg US Aggregate, 6% Ice BofA ML High Yield Master II Index, 2% JPM Emerging Markets Bond Index Global Diversified, 2% JPM Government Bond Index-Emerging Markets Global Diversified, 4% Bloomberg Commodity Index, 7.5% 3-Month T-bill +4%, 2.5% MSCI ACWI (Net), 8% 91 Day T-Bill + 4%, 5% NCREIF-ODCE Gross Monthly, 5% actual timeweighted Private Equity Returns, 5% actual time-weighted Private Credit Returns*, 5% actual time-weighted Private Real Estate Returns*, 5% Alerian Midstream, 0% Assumed Rate of Return +3%, -8% 3-Month T-bill and actual weights and returns of private asset classes to nearest 1%. All data prior to 2Q 2011 has been provided by the investments managers. FY: 6/30. The Equity and Fixed Income Beta Exposure return includes overlay cash and an implied hurdle rate also applied to the Alpha pool.*

Performance and Attribution

	Market Value	% of Portfolio	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	Fiscal 2022	Fiscal 2021	Fiscal 2020	Fiscal 2019	Fiscal 2018	Inception	Inception Date
Total Fund	4,901,023,930	100.0	-3.1	-3.1	-7.9	5.6	5.1	6.3	-4.5	24.1	2.9	5.4	6.5	6.0	Jun-11
Policy Index			-3.8	-3.8	-10.6	4.6	4.9	5.9	-6.5	24.0	3.2	6.4	7.0	5.6	
Equity	1,469,296,073	30.0	-6.9	-6.9	-20.1	3.9	4.4	8.1	-15.1	40.7	0.3	4.8	11.8	7.3	Jun-11
MSCI AC World IMI (Net)			-6.6	-6.6	-21.2	3.6	4.2	7.2	-16.5	40.9	1.2	4.6	11.1	6.5	
Domestic Equity	764,916,807	15.6	-5.0	-5.0	-16.8	7.7	8.6	-	-12.2	43.2	6.0	8.8	15.5	9.5	Jul-14
MSCI USA IMI			-4.4	-4.4	-17.6	7.9	8.8	-	-13.7	44.4	6.7	9.0	14.9	9.2	
Equity Beta Exposure	124,611,900	2.5	-4.9	-4.9	-15.8	-	-	-	-11.0	-	-	-	-	5.5	Aug-20
S&P 500 Index			-4.9	-4.9	-15.5	-	-	-	-10.6	-	-	-	-	5.9	
Mellon DB SL Stock Index Fund	426,205,824	8.7	-4.9	-4.9	-15.5	8.1	-	-	-10.6	40.8	7.5	10.4	-	9.0	Oct-17
S&P 500 Index			-4.9	-4.9	-15.5	8.2	-	-	-10.6	40.8	7.5	10.4	-	8.9	
PIMCO StocksPLUS	92,550,537	1.9	-5.5	-5.5	-18.0	7.4	8.7	11.8	-12.8	41.7	7.7	10.6	14.1	9.8	Jul-03
S&P 500 Index			-4.9	-4.9	-15.5	8.2	9.2	11.7	-10.6	40.8	7.5	10.4	14.4	9.0	
AB US Small Cap Value Equity	78,127,226	1.6	-5.2	-5.2	-20.1	4.7	2.7	-	-16.1	77.5	-19.4	-6.9	13.2	5.6	Jul-15
Russell 2000 Value Index			-4.6	-4.6	-17.7	4.7	2.9	-	-16.3	73.3	-17.5	-6.2	13.1	5.6	
Geneva Capital Small Cap Growth	43,421,320	0.9	-4.6	-4.6	-24.2	4.6	7.0	-	-22.1	37.6	9.3	8.6	22.7	8.3	Jul-15
Russell 2000 Growth Index			0.2	0.2	-29.3	2.9	3.6	-	-33.4	51.4	3.5	-0.5	21.9	4.7	
International Developed Equity	498,570,161	10.2	-8.3	-8.3	-23.9	-0.2	0.0	-	-17.3	36.7	-5.7	-0.9	8.7	1.7	Jul-14
MSCI World ex U.S. IMI Index (Net)			-9.2	-9.2	-25.0	-1.2	-0.5	-	-17.7	34.8	-5.1	0.2	7.7	0.8	
Mellon DB SL World ex-US Index Fund	405,985,897	8.3	-9.0	-9.0	-23.1	-0.6	-	-	-16.1	35.6	-5.5	-	-	-0.3	Jul-18
MSCI World ex U.S. IMI Index (Net)			-9.2	-9.2	-25.0	-1.2	-	-	-17.7	34.8	-5.1	0.2	-	-1.3	
Cevian Capital II	31,433,651	0.6	1.3	1.3	-6.9	8.8	4.2	-	-8.2	46.8	-8.2	-5.0	2.9	5.3	Dec-14
MSCI Europe (Net)			-10.1	-10.1	-24.8	-1.7	-1.2	-	-17.6	35.1	-6.8	1.9	5.3	1.4	
American Century Non-US Small Cap	60,918,029	1.2	-7.8	-7.8	-34.9	-	-	-	-27.4	-	-	-	-	-13.4	Dec-20
MSCI World ex U.S. Small Cap Growth Index (Net)			-8.8	-8.8	-35.7	-	-	-	-28.6	-	-	-	-	-16.0	
Emerging Markets Equity	205,808,369	4.2	-11.0	-11.0	-24.7	-3.5	-3.8	-	-21.9	39.5	-11.8	-0.6	2.9	-0.9	Jul-14
MSCI Emerging Markets IMI (Net)			-10.8	-10.8	-27.5	-1.2	-1.4	-	-24.8	43.2	-4.0	0.5	7.9	0.4	
DFA Emerging Markets Value I	68,160,210	1.4	-9.8	-9.8	-18.7	0.8	-0.5	-	-12.9	47.6	-17.7	2.0	5.7	2.0	Mar-14
MSCI Emerging Markets Value (Net)			-11.0	-11.0	-23.6	-2.6	-2.1	-	-18.6	41.6	-15.7	5.0	4.3	0.1	
AB Emerging Markets Strategic Core Equity Collective Trust	64,396,359	1.3	-11.1	-11.1	-25.6	-4.7	-4.8	-	-25.2	33.6	-5.1	-2.6	1.2	-0.3	Dec-16
MSCI Emerging Markets (Net)			-11.6	-11.6	-28.1	-2.1	-1.8	-	-25.3	40.9	-3.4	1.2	8.2	2.7	
Mellon Emerging Markets Stock Index Fund	73,251,800	1.5	-11.7	-11.7	-28.5	-	-	-	-25.5	41.1	-	-	-	-3.3	Jun-20
MSCI Emerging Markets (Net)			-11.6	-11.6	-28.1	-	-	-	-25.3	40.9	-	-	-	0.0	
Fixed Income	1,149,208,298	23.4	-3.2	-3.2	-15.7	-2.5	0.0	1.3	-13.0	5.1	6.3	7.6	-0.1	2.8	Jun-10
Fixed Income Custom Benchmark			-3.9	-3.9	-15.1	-2.9	-0.2	1.4	-11.6	4.0	5.2	8.4	-0.1	2.6	
Core Plus Fixed Income	682,281,732	13.9	-4.4	-4.4	-15.4	-3.0	-0.1	-	-11.4	0.8	9.3	7.9	-0.2	1.1	Jul-14
Bloomberg U.S. Aggregate Index			-4.8	-4.8	-14.6	-3.3	-0.3	-	-10.3	-0.3	8.7	7.9	-0.4	0.8	
Fixed Income Beta Exposure	254,923,009	5.2	-4.4	-4.4	-	-	-	-	-	-	-	-	-	-2.2	Jun-22
Bloomberg U.S. Aggregate Index			-4.8	-4.8	-	-	-	-	-	-	-	-	-	-6.2	
Mellon DB SL Aggregate Bond Index Fund	154,776,570	3.2	-4.8	-4.8	-14.7	-3.3	-0.3	0.8	-10.4	-0.4	8.8	7.9	-0.4	1.7	Jan-11
Bloomberg U.S. Aggregate Index			-4.8	-4.8	-14.6	-3.3	-0.3	0.9	-10.3	-0.3	8.7	7.9	-0.4	1.8	

Policy Index: 37% MSCI ACWI IMI (Net), 14% Bloomberg US Aggregate, 6% Ice BofA ML High Yield Master II Index, 2% JPM Emerging Markets Bond Index Global Diversified, 2% JPM Government Bond Index-Emerging Markets Global Diversified, 4% Bloomberg Commodity Index, 7.5% 3-Month T-bill +4%, 2.5% MSCI ACWI (Net), 8% 91 Day T-Bill + 4%, 5% NCREIF-ODCE Gross Monthly, 5% actual timeweighted Private Equity Returns*, 5% actual time-weighted Private Credit Returns*, 5% actual time-weighted Private Real Estate Returns*, 5% Alerian Midstream, 0% Assumed Rate of Return +3%, -8% 3-Month T-bill and actual weights and returns of private asset classes to nearest 1%. All data prior to 2Q 2011 has been provided by the investments managers. FY: 6/30. The Equity and Fixed Income Beta Exposure return includes overlay cash and an implied hurdle rate also applied to the Alpha pool.

Total Fund
Performance (Net of Fees)

Kern County Employees' Retirement Association
Period Ending: September 30, 2022

	Market Value	% of Portfolio	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	Fiscal 2022	Fiscal 2021	Fiscal 2020	Fiscal 2019	Fiscal 2018	Inception	Inception Date
PIMCO Core Plus	157,443,885	3.2	-4.7	-4.7	-14.3	-2.5	0.0	1.0	-9.9	1.1	8.7	6.3	1.0	2.0	Feb-11
Bloomberg U.S. Aggregate Index			-4.8	-4.8	-14.6	-3.3	-0.3	0.9	-10.3	-0.3	8.7	7.9	-0.4	1.7	
Western Asset Core Plus	115,138,268	2.3	-4.6	-4.6	-18.7	-3.8	-0.4	1.5	-14.5	2.4	9.3	9.4	-0.4	3.5	Jun-04
Bloomberg U.S. Aggregate Index			-4.8	-4.8	-14.6	-3.3	-0.3	0.9	-10.3	-0.3	8.7	7.9	-0.4	3.1	
High Yield/ Specialty Credit	281,200,553	5.7	0.1	0.1	-10.8	0.0	1.8	-	-10.0	13.1	-0.5	7.0	2.8	1.9	Jul-14
ICE BofA U.S. High Yield Index			-0.7	-0.7	-14.1	-0.7	1.4	-	-12.7	15.6	-1.1	7.6	2.5	2.7	
Western Asset High Yield Fixed Income	183,575,160	3.7	-0.2	-0.2	-15.0	-1.2	1.2	3.6	-14.1	16.5	-2.2	8.3	2.2	5.4	Jun-05
Bloomberg US HY Ba/B 2% Cap TR			-0.7	-0.7	-13.8	-0.4	1.8	3.9	-12.4	13.4	2.1	8.8	1.8	5.7	
TCW Securitized Opportunities	97,625,393	2.0	0.7	0.7	-4.3	1.2	2.6	-	-4.0	6.4	2.2	5.2	4.3	3.2	Feb-16
Bloomberg U.S. High Yield - 2% Issuer Cap			-0.6	-0.6	-14.1	-0.5	1.6	-	-12.8	15.3	0.0	7.5	2.6	4.9	
Emerging Market Debt	185,624,755	3.8	-4.2	-4.2	-21.8	-5.6	-3.8	-	-19.9	9.1	-1.7	7.9	-4.2	-1.5	Jul-14
50 JPM EMBI Global Div / 50 JPM GBI EM Global Div			-4.6	-4.6	-22.5	-7.1	-3.2	-	-20.2	7.1	-1.1	10.8	-1.9	-1.1	
Stone Harbor Emerging Markets Debt Blend Portfolio	59,118,869	1.2	-4.0	-4.0	-22.8	-6.3	-3.8	-1.6	-20.9	9.5	-1.8	8.2	-3.1	-1.5	Aug-12
50 JPM GBI-EM Global Div/ 40 JPM EMBI Global Div/ 10 JPM Corporate EM Bond Idx			-4.4	-4.4	-21.7	-6.6	-2.9	-0.5	-19.5	7.2	-0.8	10.6	-1.7	-0.3	
PIMCO EMD	126,505,886	2.6	-4.4	-4.4	-21.2	-	-	-	-19.2	8.7	-	-	-	-7.8	Feb-20
50 JPM EMBI Global Div / 50 JPM GBI EM Global Div			-4.6	-4.6	-22.5	-	-	-	-20.2	7.1	-	-	-	-9.1	
Commodities	231,611,569	4.7	-7.3	-7.3	8.2	12.6	7.2	-	19.4	42.5	-11.3	-6.7	13.3	-0.5	Jul-13
Bloomberg Commodity Index Total Return			-4.1	-4.1	11.8	13.5	7.0	-	24.3	45.6	-17.4	-6.8	7.3	-0.4	
Gresham MTAP Commodity Builder Fund	78,689,436	1.6	-5.1	-5.1	13.3	14.2	7.5	-	24.7	46.8	-16.3	-9.0	12.4	-0.2	Oct-13
Bloomberg Commodity Index Total Return			-4.1	-4.1	11.8	13.5	7.0	-	24.3	45.6	-17.4	-6.8	7.3	-0.5	
Wellington Commodities	152,922,133	3.1	-8.2	-8.2	6.2	12.4	7.4	-	17.2	40.2	-7.5	-5.4	14.2	-0.1	Sep-13
S&P GSCI Commodity Equal Weighted			-7.2	-7.2	8.6	11.5	7.2	-	19.0	40.9	-12.4	-3.5	12.6	0.3	
Hedge Funds	555,236,603	11.3	1.5	1.5	3.0	9.3	6.9	5.9	2.8	16.1	7.0	2.5	7.6	5.8	Sep-10
75% 3 Month T-Bill +4% / 25% MSCI ACWI (net)			-0.5	-0.5	-1.9	4.8	5.4	5.6	-0.9	12.3	5.1	6.6	7.0	5.5	
Aristeia International Limited	68,735,073	1.4	2.2	2.2	3.5	11.0	9.5	-	1.8	21.6	8.7	9.2	2.6	5.4	May-14
Brevan Howard Fund	76,508,122	1.6	5.0	5.0	20.1	16.3	13.4	-	15.2	6.1	20.5	12.7	7.8	8.5	Sep-13
D.E. Shaw Composite Fund	61,196,084	1.2	3.6	3.6	27.8	20.9	17.0	-	29.0	19.0	15.6	11.5	11.3	14.6	Jul-13
HBK Fund II	56,515,419	1.2	1.5	1.5	1.8	5.5	4.9	-	2.3	11.0	1.5	5.5	3.0	4.2	Nov-13
Hudson Bay Cap Structure Arbitrage Enhanced Fund	78,368,295	1.6	3.5	3.5	9.2	12.9	-	-	7.7	14.2	16.2	-	-	12.7	Jun-19
Indus Pacific Opportunities Fund	37,249,096	0.8	0.9	0.9	-7.7	16.5	5.2	-	-8.2	38.0	15.8	-19.2	15.8	7.5	Jul-14
Pharo Macro Fund	61,133,696	1.2	-1.7	-1.7	-11.7	-	-	-	-11.1	3.5	-	-	-	-2.5	Dec-19
PIMCO Commodity Alpha Fund	63,623,535	1.3	-2.6	-2.6	2.7	8.6	7.1	-	8.6	14.2	4.8	5.2	10.4	9.1	Jun-16
Sculptor Domestic Partners II LP	43,747,759	0.9	-0.7	-0.7	-21.8	1.7	-	-	-19.9	16.8	6.5	-	-	3.6	Feb-19
Alpha Pool	257,700,699	5.3	0.8	0.8	1.6	-	-	-	1.5	14.5	-	-	-	7.3	Jul-20
3 Month T-Bill +4%			1.5	1.5	4.6	-	-	-	4.2	4.1	-	-	-	4.3	
Hudson Bay	60,533,289	1.2	2.8	2.8	7.5	-	-	-	6.7	-	-	-	-	10.1	Aug-20
Davidson Kempner Institutional Partners	53,269,455	1.1	-0.4	-0.4	-3.5	-	-	-	-3.4	-	-	-	-	2.4	Dec-20
HBK Fund II	54,349,773	1.1	0.8	0.8	0.3	-	-	-	1.3	-	-	-	-	3.9	Dec-20
Garda Fixed Income Relative Value Opportunity Fund	53,548,672	1.1	0.5	0.5	5.7	-	-	-	-	-	-	-	-	5.7	Sep-21
HBK Opportunities Platform – SPAC Series	35,999,510	0.7	-0.2	-0.2	-2.0	-	-	-	-2.5	-	-	-	-	2.9	Nov-20

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Verus

	Market Value	% of Portfolio	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	Fiscal 2022	Fiscal 2021	Fiscal 2020	Fiscal 2019	Fiscal 2018	Inception	Inception Date
Midstream Energy	322,797,858	6.6	4.8	4.8	15.0	-	-	-	9.3	-	-	-	-	31.2	Sep-20
Alerian Midstream Energy Index			-1.0	-1.0	11.7	-	-	-	11.4	-	-	-	-	27.9	
Harvest Midstream	185,889,047	3.8	6.7	6.7	23.4	-	-	-	15.3	-	-	-	-	40.0	Aug-20
Alerian Midstream Energy Index			-1.0	-1.0	11.7	-	-	-	11.4	-	-	-	-	26.8	
PIMCO Midstream	136,908,811	2.8	2.2	2.2	4.7	-	-	-	2.2	-	-	-	-	23.2	Sep-20
50/25/25 Alerian Midstream/ ICE BofA US Pipeline/ ICE BofA US HY Midstream			-1.3	-1.3	-1.8	-	-	-	-0.7	-	-	-	-	-	
Core Real Estate	360,386,343	7.4	0.5	0.5	18.7	10.5	8.6	-	24.8	5.6	1.4	5.9	7.4	9.0	Oct-14
NCREIF ODCE			0.5	0.5	22.1	12.4	10.2	-	29.5	8.0	2.2	6.4	8.4	10.5	
ASB Allegiance Real Estate Fund	199,291,186	4.1	2.2	2.2	19.7	10.7	8.9	-	23.0	5.4	1.5	6.8	7.1	9.1	Sep-13
NCREIF ODCE			0.5	0.5	22.1	12.4	10.2	-	29.5	8.0	2.2	6.4	8.4	10.7	
JPMCB Strategic Property Fund	161,095,157	3.3	-1.6	-1.6	18.1	10.4	8.4	-	27.9	5.9	1.3	5.0	7.6	8.9	Jul-14
NCREIF ODCE			0.5	0.5	22.1	12.4	10.2	-	29.5	8.0	2.2	6.4	8.4	10.6	
Private Real Estate	104,997,989	2.1	3.2	3.2	27.1	17.2	11.9	12.7	31.3	12.1	4.4	9.0	5.4	12.9	Mar-11
			3.2	3.2	27.1	17.2	11.9	13.2	31.3	12.1	4.4	9.0	5.4	12.9	
Private Equity	150,085,053	3.1	-3.6	-3.6	8.1	14.1	12.0	11.2	22.9	41.7	-10.5	10.9	7.8	11.1	Sep-10
			-3.6	-3.6	8.1	14.1	12.0	11.7	23.0	41.7	-10.5	10.9	7.8	11.3	
Private Credit	248,609,852	5.1	-1.2	-1.2	-3.1	3.0	5.4	-	1.2	4.8	5.5	9.7	9.3	-25.9	Dec-15
			-1.2	-1.2	-3.1	3.0	5.4	-	1.2	4.8	5.5	9.7	9.3	7.0	
Opportunistic	168,102,976	3.4	-3.2	-3.2	-7.8	-	-	-	-5.4	59.9	-	-	-	11.3	Jan-20
Assumed Rate of Return +3%			1.8	1.8	7.2	-	-	-	7.2	7.2	-	-	-	7.2	
River Birch International	8,154,365	0.2	6.4	6.4	-	-	-	-	-	-	-	-	-	16.8	Jun-22
Assumed Rate of Return +3%			1.8	1.8	-	-	-	-	-	-	-	-	-	1.8	
DB Investors Fund IV	22,582,102	0.5	-11.5	-11.5	-42.9	-	-	-	-34.4	95.1	-	-	-	4.5	Dec-19
Assumed Rate of Return +3%			1.8	1.8	7.2	-	-	-	7.2	7.2	-	-	-	7.2	
Sixth Street TAO Partners (D)	84,455,252	1.7	-4.7	-4.7	4.7	-	-	-	9.6	39.6	-	-	-	16.3	Mar-20
Assumed Rate of Return +3%			1.8	1.8	7.2	-	-	-	7.2	7.2	-	-	-	7.2	
Aristeia Select Opportunities II	52,911,257	1.1	1.6	1.6	9.9	-	-	-	-	-	-	-	-	5.1	Jul-21
Assumed Rate of Return +3%			1.8	1.8	7.2	-	-	-	7.2	-	-	-	-	7.2	
Cash	-117,009,383	-2.4	0.1	0.1	-0.1	0.2	1.1	1.3	-0.2	0.1	1.0	2.0	3.2	1.2	Apr-11
3 Month T-Bill			0.5	0.5	0.6	0.6	1.1	0.7	0.2	0.1	1.6	2.3	1.4	0.6	

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Vintage Year	Manager/Fund	Estimated Market Value as of 9/30/2022	Total Commitment	Capital Called	% Called	Remaining Commitment	Capital Returned	Market Value as of IRR date	Distrib./ Paid-In (DPI)[1]	Tot. Value/ Paid-In (TVPI)[2]	Net IRR Since Inception[3]	IRR Date
			IRR Analysis as of IRR date									
Private Equity												
2005	Abbott Capital PE V	$3,100,331	$65,000,000	$62,790,000	97%	$2,210,000	$78,095,564	$22,959,156	1.24x	1.29x	6.9%	12/31/21
2008	Abbott Capital PE VI	$22,959,156	$50,000,000	$49,750,000	100%	$250,000	$78,095,564	$22,959,156	1.57x	2.03x	13.2%	06/30/22
2006	Pantheon Global III	$567,222	$50,000,000	$47,300,000	95%	$2,700,000	$52,000,000	$553,872	1.10x	1.11x	1.9%	06/30/22
1998	Pantheon USA III	$49,712	$7,500,000	$7,335,000	98%	$165,000	$8,197,500	$47,064	1.12x	1.12x	1.9%	06/30/22
2002	Pantheon USA V	$414,136	$25,000,000	$24,350,000	97%	$650,000	$37,950,000	$411,492	1.56x	1.58x	9.0%	06/30/22
2004	Pantheon USA VI	$354,968	$35,000,000	$33,075,000	95%	$1,925,000	$50,623,827	$346,190	1.53x	1.54x	6.7%	06/30/22
2006	Pantheon USA VII	$8,101,079	$50,000,000	$46,600,000	93%	$3,400,000	$80,124,999	$7,894,161	1.72x	1.89x	10.1%	06/30/22
2020	Vista Foundation Fund IV	$13,958,460	$25,000,000	$14,189,855	57%	$10,810,145	$30,252	$13,821,190	0.00x	0.99x	-1.7%	06/30/22
2021	Crown Global Secondaries V Master S.C.Sp	$21,065,609	$50,000,000	$16,750,000	34%	$33,250,000	$1,550,000	$24,982,600	0.09x	1.35x	47.0%	06/30/22
2021	Brighton Park Capital Fund I	$34,670,679	$30,000,000	$32,509,766	108%	$0	$1,325,801	$37,910,214	0.04x	1.11x	22.6%	06/30/22
2021	Warren Equity Partners Fund III	$24,410,915	$32,500,000	$22,969,862	71%	$9,530,138	$508,290	N/A	0.02x	1.08x	N/A	N/A
2021	Peak Rock Capital Fund III	$9,273,982	$30,000,000	$9,683,186	32%	$20,316,814	$1,879,477	$10,755,627	0.19x	1.15x	22.8%	06/30/22
2021	Level Equity Growth Partners V	$2,872,189	$15,000,000	$3,315,369	22%	$11,684,631	$0	N/A	N/A	N/A	N/A	N/A
2021	Level Equity Opportunities Fund 2021	$1,371,903	$15,000,000	$1,650,936	11%	$13,349,064	$0	N/A	N/A	N/A	N/A	N/A
2022	Linden Capital Partners V LP	$5,145,635	$22,500,000	$5,145,635	23%	$17,354,365	$0	N/A	N/A	N/A	N/A	N/A
2022	Linden Co-Investment V LP	$1,769,077	$7,500,000	$1,769,077	24%	$5,730,923	$0	N/A	N/A	N/A	N/A	N/A
	Total Private Equity	$150,085,053	$510,000,000	$379,183,686	74%	$133,326,080	$390,381,275	$142,640,722	1.03x	1.43x		
	% of Portfolio (Market Value)	3.1%										

[1](DPI) is equal to (capital returned / capital called)
[2](TVPI) is equal to (market value + capital returned) / capital called
[3]Net IRR is calculated on the cash flows of all the limited partners of the fund and is net of all fees. Each IRR is provided by the Fund manager and is reflective of the Fund IRR, rather than KCERA's specific IRR.

			IRR Analysis as of IRR date									
Vintage Year	Manager/Fund	Estimated Market Value 9/30/2022	Total Commitment	Capital Called	% Called	Remaining Commitment	Capital Returned	Market Value as of IRR date	Distrib./ Paid-In (DPI)[1]	Tot. Value/ Paid-In (TVPI)[2]	Net IRR Since Inception[3]	IRR Date
Private Credit												
2015	DC Value Recovery Fund IV[4]	$33,313,661	$60,000,000	$73,340,099	122%	-$13,340,099	$24,003,132	$34,822,903	*0.33x*	*0.78x*	*N/A*	6/30/22
2017	Sixth Street TAO Partners (B)	$37,760,184	$50,000,000	$66,777,561	134%	-$16,777,561	$41,444,279	$38,346,022	*0.62x*	*1.19x*	*9.7%*	6/30/22
2017	Brookfield Real Estate Finance Fund V	$19,766,051	$50,000,000	$35,882,954	72%	$14,117,046	$25,823,610	$19,481,686	*0.72x*	*1.27x*	*6.8%*	6/30/22
2018	Magnetar Constellation Fund V	$31,448,946	$60,000,000	$65,536,888	109%	-$5,536,888	$39,505,702	$37,069,321	*0.60x*	*1.08x*	*5.9%*	6/30/22
2019	H.I.G Bayside Loan Opportunity Fund V	$40,257,660	$60,000,000	$33,496,503	56%	$26,503,497	$11,244,389	$44,209,221	*0.34x*	*1.54x*	*17.4%*	6/30/22
2020	Blue Torch Credit Opportunities Fund II	$16,754,007	$20,000,000	$16,613,092	83%	$3,386,908	$1,836,476	$16,765,419	*0.11x*	*1.12x*	*14.2%*	6/30/22
2020	Fortress Credit Opportunites Fund V Expansion	$12,998,162	$40,000,000	$11,647,375	29%	$28,352,625	$468,590	$15,507,751	*0.04x*	*1.16x*	*21.2%*	6/30/22
2021	Fortress Lending Fund II	$30,712,727	$40,000,000	$32,137,851	80%	$7,862,149	$3,268,302	$28,566,610	*0.10x*	*1.06x*	*10.0%*	6/30/22
2022	Blue Torch Credit Opportunities Fund III	$7,203,466	$40,000,000	$7,199,891	18%	$32,800,109	$0	N/A	N/A	N/A	N/A	N/A
2022	Fortress Lending Fund III	$15,394,988	$40,000,000	$16,000,000	40%	$24,000,000	$0	N/A	N/A	N/A	N/A	N/A
2022	OrbiMed Royalty & Credit Opportunities IV	$3,000,000	$30,000,000	$3,000,000	10%	$27,000,000	$0	N/A	N/A	N/A	N/A	N/A
	Total Private Credit	**$248,609,852**	$490,000,000	$361,632,213	74%	$128,367,787	$147,594,480	$234,768,933	*0.41x*	*1.10x*		
	% of Portfolio (Market Value)	***5.1%***										

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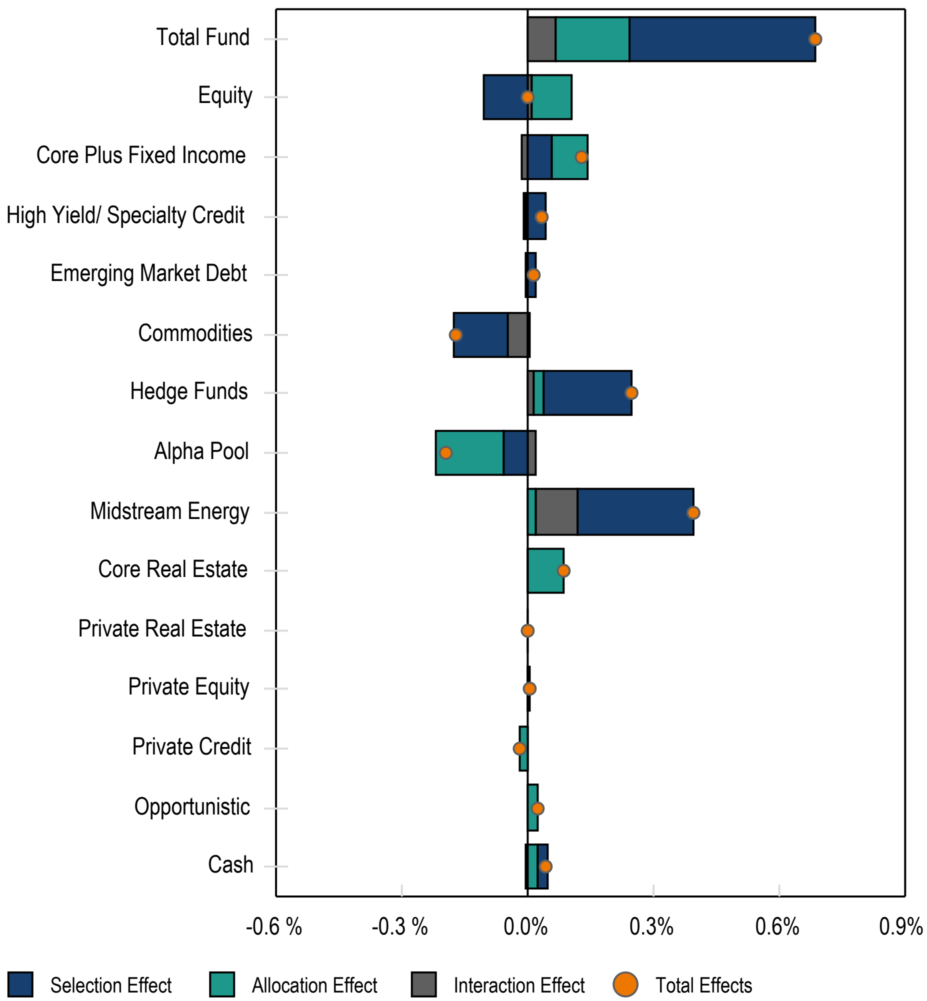
[3]Net IRR is calculated on the cash flows of all the limited partners of the fund and is net of all fees. Each IRR is provided by the Fund manager and is reflective of the Fund IRR, rather than KCERA's specific IRR.
[4]Name changed from Colony Distressed Credit fund to DC Value Recovery Fund IV

Vintage Year	Manager/Fund	Estimated Market Value 9/30/2022	Total Commitment	Capital Called	% Called	Remaining Commitment	Capital Returned	Market Value as of IRR date	Distrib./ Paid-In (DPI)[1]	Tot. Value/ Paid-In (TVPI)[2]	Net IRR Since Inception[3]	IRR Date
			IRR Analysis as of IRR date									
Private Real Estate												
2014	Invesco Real Estate Value-Add Fund IV	$4,031,249	$50,000,000	$43,637,717	87%	$6,362,283	$55,590,259	$945,682	*1.27x*	*1.37x*	*11.7%*	06/30/22
2017	Landmark Real Estate Partners VIII	$28,646,936	$60,000,000	$36,127,951	60%	$23,872,049	$22,058,205	$31,009,306	*0.61x*	*1.40x*	*20.4%*	06/30/22
2018	Long Wharf Real Estate Partners VI	$33,209,484	$50,000,000	$41,704,658	83%	$8,295,342	$16,451,932	$34,525,266	*0.39x*	*1.19x*	*28.2%*	06/30/22
2020	Covenant Apartment Fund X	$27,939,711	$30,000,000	$22,807,333	76%	$7,192,667	$5,646,691	$33,947,463	*0.25x*	*1.47x*	*30.7%*	06/30/22
2021	Singerman Real Estate Opportunity Fund IV	$3,850,122	$35,000,000	$3,815,000	11%	$31,185,000	$0	N/A	N/A	N/A	N/A	N/A
2022	LBA Logistics Value Fund IX, L.P.	$5,813,153	$40,000,000	$6,153,846	15%	$33,846,154	$0	N/A	N/A	N/A	N/A	N/A
2022	Covenant Apartment Fund XI	$1,507,333	$30,000,000	$3,300,000	11%	$38,076,924	$0	N/A	N/A	N/A	N/A	N/A
	Total Private Real Estate	**$104,997,989**	$295,000,000	$157,546,505	53%	$148,830,419	$99,747,088	$100,427,717	*0.63x*	*1.30x*		
	% of Portfolio (Market Value)	*2.1%*										

[1](DPI) is equal to (capital returned / capital called)
[2](TVPI) is equal to (market value + capital returned) / capital called
[3]Net IRR is calculated on the cash flows of all the limited partners of the fund and is net of all fees. Each IRR is provided by the Fund manager and is reflective of the Fund IRR, rather than KCERA's specific IRR.

Verus

Attribution Effects
Last Three Months



Performance Attribution

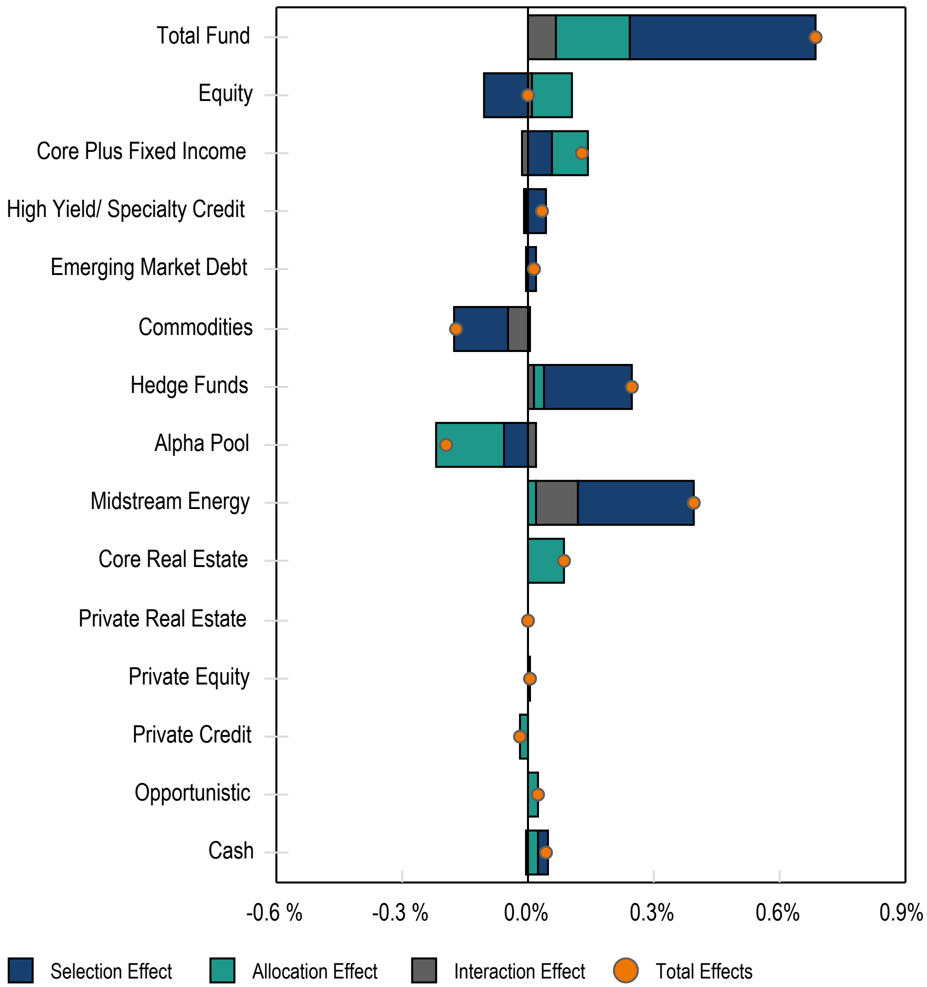
	Last Three Months
Wtd. Actual Return	-3.1
Wtd. Index Return	-3.8
Excess Return	0.7
Selection Effect	0.4
Allocation Effect	0.2
Interaction Effect	0.1

Attribution Summary
Last Three Months

	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Interaction Effects	Total Effects
Equity	-6.9	-6.6	-0.2	-0.1	0.1	0.0	0.0
Core Plus Fixed Income	-4.4	-4.8	0.3	0.1	0.1	0.0	0.1
High Yield/ Specialty Credit	0.1	-0.7	0.8	0.1	0.0	0.0	0.0
Emerging Market Debt	-4.2	-4.6	0.4	0.0	0.0	0.0	0.0
Commodities	-7.3	-4.1	-3.1	-0.1	0.0	0.0	-0.2
Hedge Funds	1.5	-0.5	2.0	0.2	0.0	0.0	0.2
Alpha Pool	0.8	1.5	-0.7	0.0	-0.2	0.0	-0.2
Midstream Energy	4.8	-1.0	5.8	0.3	0.0	0.1	0.4
Core Real Estate	0.5	0.5	0.0	0.0	0.1	0.0	0.1
Private Real Estate	3.2	3.2	0.0	0.0	0.0	0.0	0.0
Private Equity	-3.6	-3.6	0.0	0.0	0.0	0.0	0.0
Private Credit	-1.2	-1.2	0.0	0.0	0.0	0.0	0.0
Opportunistic	-3.2	1.8	-4.9	0.0	0.0	0.0	0.0
Cash	0.1	0.5	-0.3	0.0	0.0	0.0	0.0
Total Fund	-3.1	-3.8	0.7	0.4	0.2	0.1	0.7

Weighted returns shown in attribution analysis may differ from actual returns. Negative cash allocation unable to be shown in Attribution Summary table. Wtd. Index Returns calculated from benchmark returns and weightings of each component. Selection Effect includes Other Effect in the Performance Attribution table.

Attribution Effects
Fiscal YTD



Performance Attribution

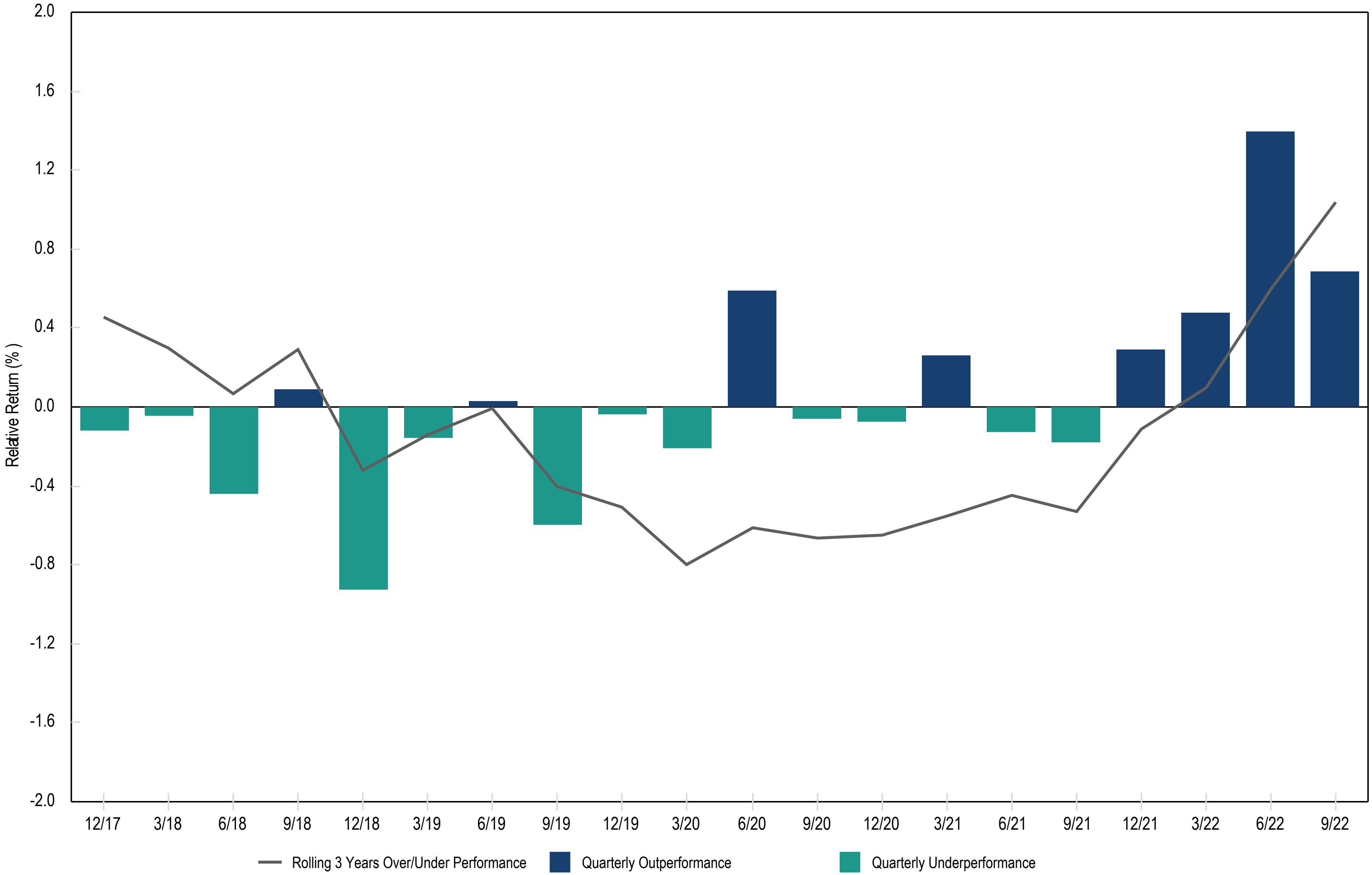
	Fiscal YTD
Wtd. Actual Return	-3.1
Wtd. Index Return	-3.8
Excess Return	0.7
Selection Effect	0.4
Allocation Effect	0.2
Interaction Effect	0.1

Attribution Summary
Fiscal YTD

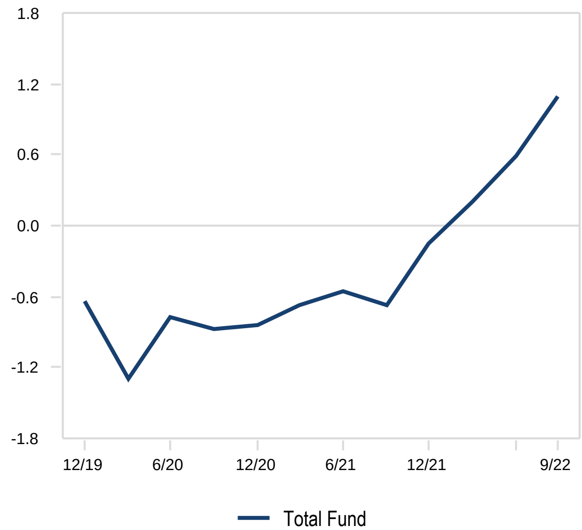
	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Interaction Effects	Total Effects
Equity	-6.9	-6.6	-0.2	-0.1	0.1	0.0	0.0
Core Plus Fixed Income	-4.4	-4.8	0.3	0.1	0.1	0.0	0.1
High Yield/ Specialty Credit	0.1	-0.7	0.8	0.1	0.0	0.0	0.0
Emerging Market Debt	-4.2	-4.6	0.4	0.0	0.0	0.0	0.0
Commodities	-7.3	-4.1	-3.1	-0.1	0.0	0.0	-0.2
Hedge Funds	1.5	-0.5	2.0	0.2	0.0	0.0	0.2
Alpha Pool	0.8	1.5	-0.7	0.0	-0.2	0.0	-0.2
Midstream Energy	4.8	-1.0	5.8	0.3	0.0	0.1	0.4
Core Real Estate	0.5	0.5	0.0	0.0	0.1	0.0	0.1
Private Real Estate	3.2	3.2	0.0	0.0	0.0	0.0	0.0
Private Equity	-3.6	-3.6	0.0	0.0	0.0	0.0	0.0
Private Credit	-1.2	-1.2	0.0	0.0	0.0	0.0	0.0
Opportunistic	-3.2	1.8	-4.9	0.0	0.0	0.0	0.0
Cash	0.1	0.5	-0.3	0.0	0.0	0.0	0.0
Total Fund	-3.1	-3.8	0.7	0.4	0.2	0.1	0.7

Weighted returns shown in attribution analysis may differ from actual returns. Negative cash allocation unable to be shown in Attribution Summary table. Wtd. Index Returns calculated from benchmark returns and weightings of each component. Selection Effect includes Other Effect in the Performance Attribution table.

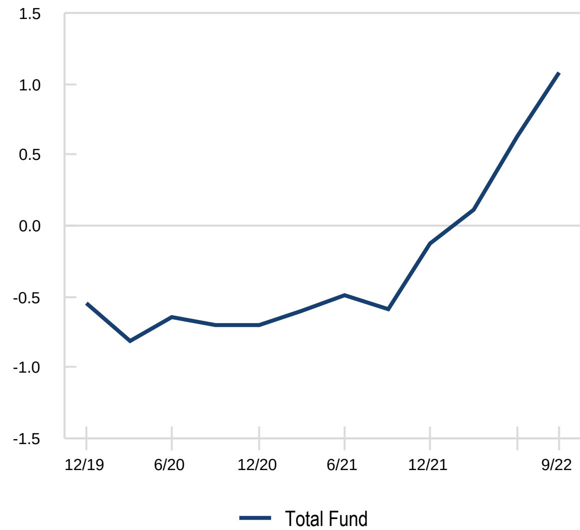
Rolling 3 Year Annualized Excess Performance



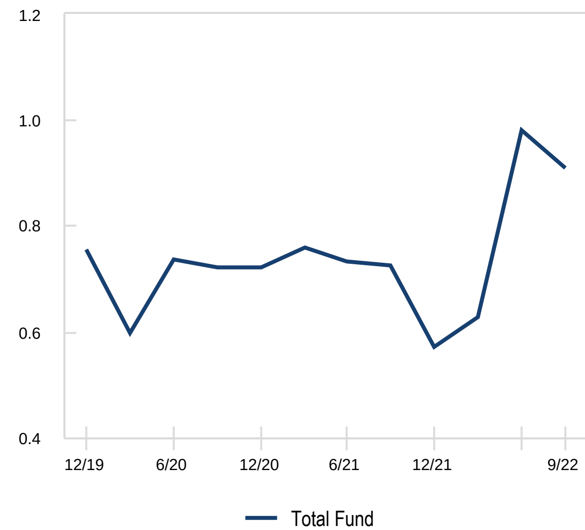
Rolling Information Ratio



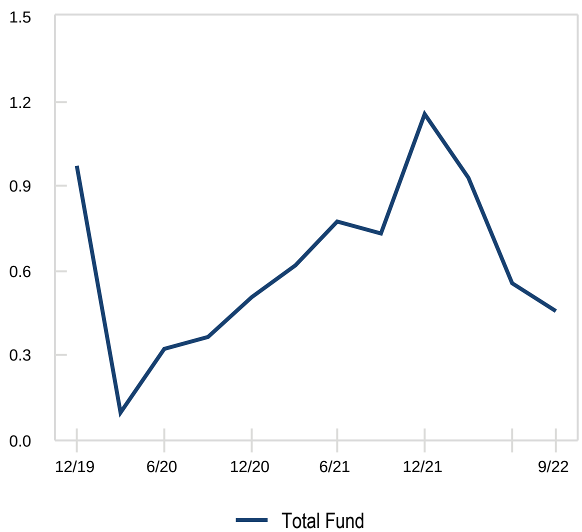
Rolling Annual Excess Benchmark Return



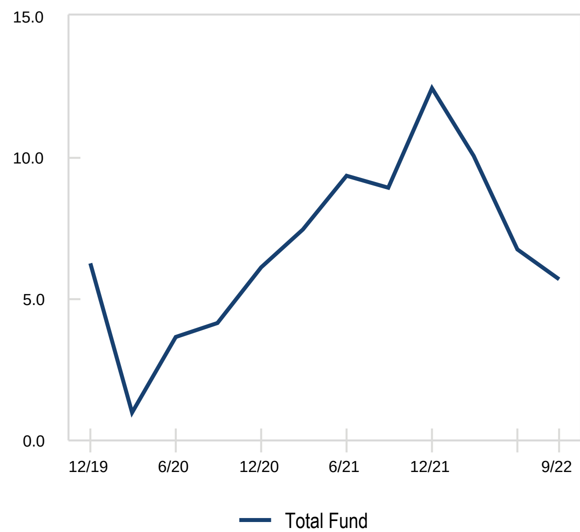
Rolling Tracking Error



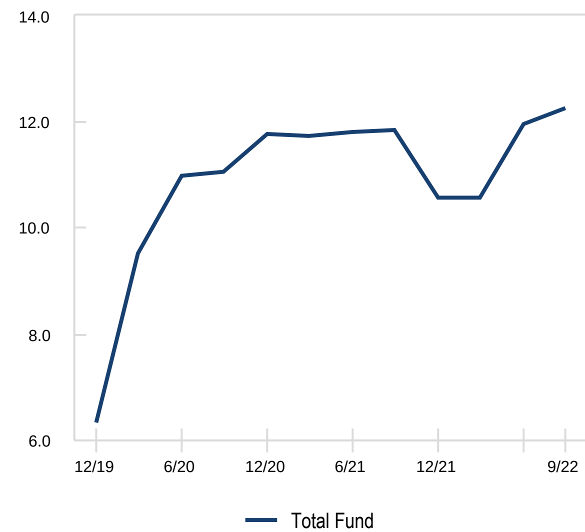
Rolling Sharpe Ratio

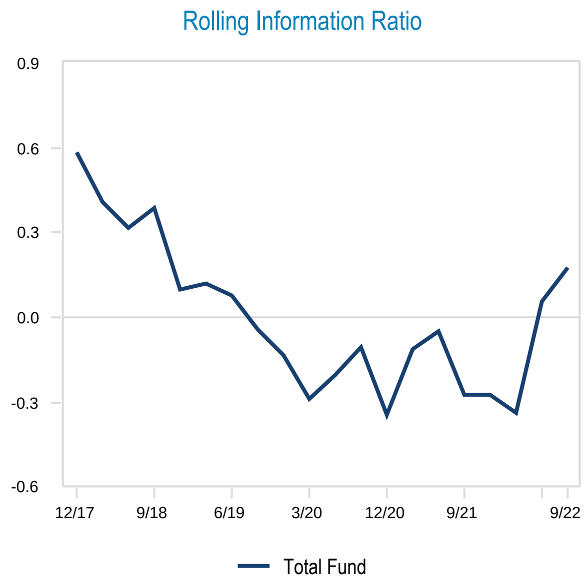


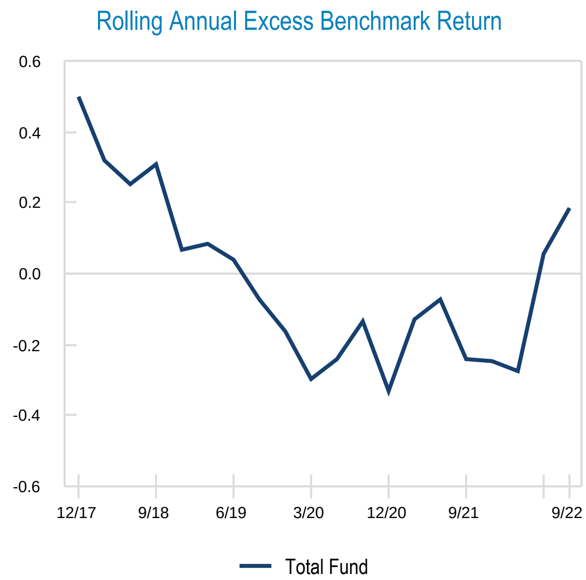
Rolling Annual Excess Risk Free Return

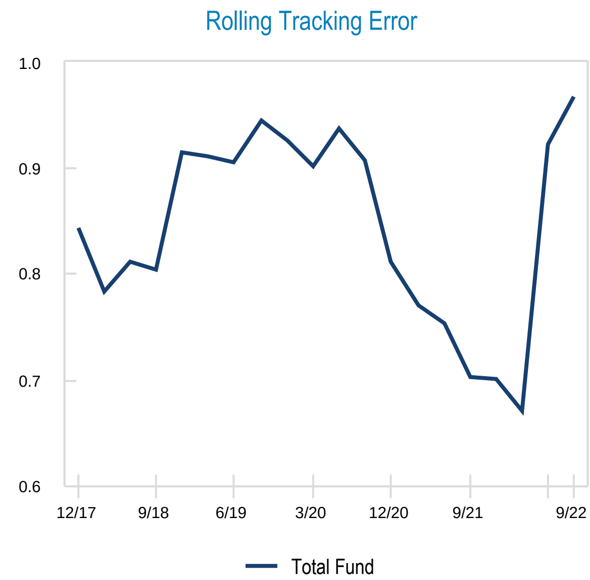


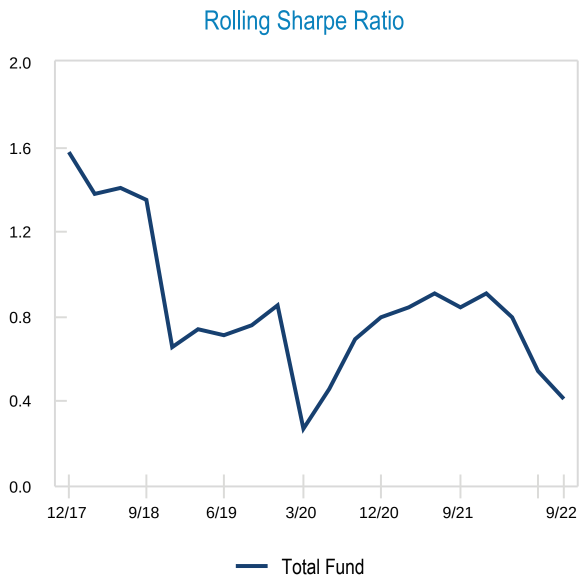
Rolling Annualized Standard Deviation



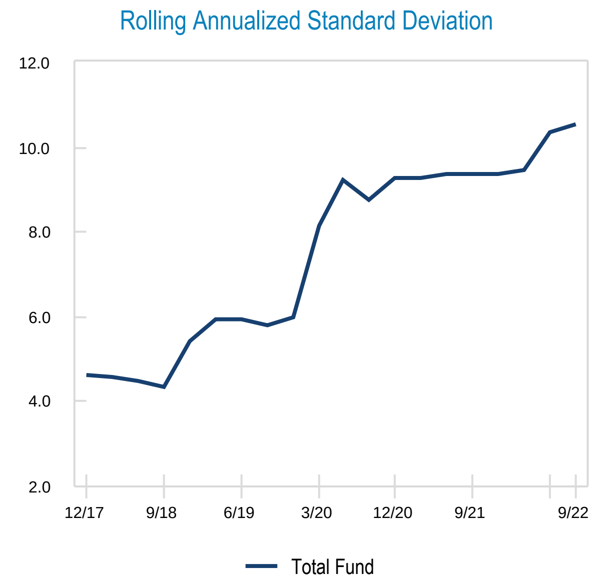

Rolling Information Ratio
0.9
0.6
0.3
0.0
-0.3
-0.6
12/17
9/18
6/19
3/20
12/20
9/21
9/22
Total Fund


Rolling Annual Excess Benchmark Return
0.6
0.4
0.2
0.0
-0.2
-0.4
-0.6
12/17
9/18
6/19
3/20
12/20
9/21
9/22
Total Fund


Rolling Tracking Error
1.0
0.9
0.8
0.7
0.6
12/17
9/18
6/19
3/20
12/20
9/21
9/22
Total Fund


Rolling Sharpe Ratio
2.0
1.6
1.2
0.8
0.4
0.0
12/17
9/18
6/19
3/20
12/20
9/21
9/22
Total Fund


Rolling Annual Excess Risk Free Return
10.0
8.0
6.0
4.0
2.0
0.0
12/17
9/18
6/19
3/20
12/20
9/21
9/22
Total Fund


Rolling Annualized Standard Deviation
12.0
10.0
8.0
6.0
4.0
2.0
12/17
9/18
6/19
3/20
12/20
9/21
9/22
Total Fund

Cash Flows

	Estimated Beginning Market Value	Contributions	Withdrawals	Fees	Net Transfers	Net Investment Change	Estimated Ending Market Value
Equity	1,760,498,263	2,078,160	-312,842,442		134,123,500	-114,561,408	1,469,296,073
Equity Beta Exposure	425,371,375	2,021,306	-299,593,167		-876,500	-2,311,114	124,611,900
Mellon DB SL Stock Index Fund	280,796,486				175,000,000	-29,590,662	426,205,824
PIMCO StocksPLUS	97,925,248					-5,374,711	92,550,537
AB US Small Cap Value Equity	82,210,920					-4,083,694	78,127,226
Geneva Capital Small Cap Growth	45,419,386					-1,998,066	43,421,320
Mellon DB SL World ex-US Index Fund	471,376,354				-25,000,000	-40,390,457	405,985,897
Cevian Capital II	31,023,988					409,663	31,433,651
American Century Non-US Small Cap	66,087,970					-5,169,941	60,918,029
DFA Emerging Markets Value I	75,568,224					-7,408,014	68,160,210
AB Emerging Markets Strategic Core Equity Collective Trust	87,939,424				-15,000,000	-8,543,065	64,396,359
Mellon Emerging Markets Stock Index Fund	82,952,809					-9,701,009	73,251,800
Transition Equity	733					3	736
Fidelity Non-US Small Cap Equity	246,745					-14,161	232,584
Russell 2000 Overlay	13,578,600	56,854	-13,249,275			-386,179	
Fixed Income	1,130,869,301	214,959,813	-3,124,403	-62,325	-151,006,600	-42,427,489	1,149,208,298
Fixed Income Beta Exposure	51,180,364	214,959,813	-1,335,792		-1,006,600	-8,874,776	254,923,009
Mellon DB SL Aggregate Bond Index Fund	162,487,098					-7,710,528	154,776,570
PIMCO Core Plus	190,694,370				-25,000,000	-8,250,485	157,443,885
Western Asset Core Plus	197,945,711				-75,000,000	-7,807,443	115,138,268
Western Asset High Yield Fixed Income	183,851,907					-276,747	183,575,160
TCW Securitized Opportunities	125,463,906		-1,788,611	-62,325	-25,000,000	-987,577	97,625,393
Stone Harbor Emerging Markets Debt Blend Portfolio	86,965,794				-25,000,000	-2,846,925	59,118,869
PIMCO EMD	132,174,077					-5,668,191	126,505,886
Transition Fixed Income	106,074					-4,816	101,258
Commodities	269,362,016			-34,203	-20,000,000	-17,716,243	231,611,569
Gresham MTAP Commodity Builder Fund	82,876,151			-34,203		-4,152,511	78,689,436
Wellington Commodities	186,485,865				-20,000,000	-13,563,732	152,922,133
Hedge Funds	545,852,599			-62,618		9,446,622	555,236,603
Aristeia International Limited	67,235,553					1,499,520	68,735,073
Brevan Howard Fund	72,840,227					3,667,895	76,508,122
D.E. Shaw Composite Fund	59,052,533					2,143,551	61,196,084
HBK Fund II	55,719,468			-62,618		858,569	56,515,419

	Estimated Beginning Market Value	Contributions	Withdrawals	Fees	Net Transfers	Net Investment Change	Estimated Ending Market Value
Hudson Bay Cap Structure Arbitrage Enhanced Fund	75,712,464					2,655,831	78,368,295
Indus Pacific Opportunities Fund	36,899,245					349,851	37,249,096
Pharo Macro Fund	61,182,322					-48,626	61,133,696
PIMCO Commodity Alpha Fund	65,294,254					-1,670,718	63,623,535
Sculptor Domestic Partners II LP	44,056,485					-308,725	43,747,759
Magnetar Structured Credit Fund	7,860,049					299,475	8,159,524
Alpha Pool	257,534,903				-1,864,180	2,029,976	257,700,699
Hudson Bay	58,481,870				434,699	1,616,720	60,533,289
Davidson Kempner Institutional Partners	53,077,049				388,412	-196,006	53,269,455
HBK Fund II	53,527,255				394,597	427,921	54,349,773
Garda Fixed Income Relative Value Opportunity Fund	52,911,979				387,990	248,704	53,548,672
HBK Opportunities Platform – SPAC Series	39,536,750				-3,469,878	-67,362	35,999,510
Midstream Energy	318,886,871	614,978			-12,606,719	15,902,728	322,797,858
Harvest Midstream	185,157,607	614,978			-12,606,719	12,723,181	185,889,047
PIMCO Midstream	133,729,264					3,179,547	136,908,811
Core Real Estate	358,380,234			-288,894		2,295,002	360,386,343
ASB Allegiance Real Estate Fund	194,923,658					4,367,528	199,291,186
JPMCB Strategic Property Fund	163,456,576			-288,894		-2,072,526	161,095,157
Private Real Estate	94,350,728				7,620,339	3,026,921	104,997,989
Invesco Real Estate Value-Add Fund IV	4,235,230					-203,981	4,031,249
Landmark Real Estate Partners VIII	30,330,286				-672,441	-1,010,909	28,646,936
Long Wharf Real Estate	27,660,734				4,370,664	1,178,086	33,209,484
Covenant Apartment Fund X	24,357,028				360,456	3,222,227	27,939,711
Singerman Real Estate Opportunity Fund IV	3,770,201				131,250	-51,329	3,850,122
LBA Logistics Value Fund IX, L.P.	3,997,249				1,923,077	-107,173	5,813,153
Covenant Apartment Fund XI, LP					1,507,333		1,507,333
Private Equity	139,122,536				11,240,890	-278,373	150,085,053
Abbott VI	21,952,850					1,006,306	22,959,156
Pantheon Secondary III	567,222						567,222
Pantheon III	49,712						49,712
Pantheon V	425,173					-11,037	414,136
Pantheon VI	361,594					-6,626	354,968

	Estimated Beginning Market Value	Contributions	Withdrawals	Fees	Net Transfers	Net Investment Change	Estimated Ending Market Value
Pantheon VII	8,333,247				-999,999	767,831	8,101,079
Vista Foundation Fund IV	14,049,020					-90,560	13,958,460
Crown Global Secondaries V Master S.C.Sp	19,198,409				2,000,000	-132,800	21,065,609
Brighton Park Capital Fund I	36,257,961				584,211	-2,171,493	34,670,679
Warren Equity Partners Fund III	21,033,189				2,809,034	568,692	24,410,915
Peak Rock Capital Fund III	8,979,016				12,358	282,608	9,273,982
Level Equity Growth Partners V	3,105,937					-233,748	2,872,189
Level Equity Opportunities Fund 2021	1,629,450					-257,547	1,371,903
Linden Co-Investment V LP	79,426				1,689,651		1,769,077
Abbott V	3,100,331						3,100,331
Private Credit	247,247,651				4,493,205	-3,131,004	248,609,852
DC Value Recovery Fund IV	34,822,903					-1,509,242	33,313,661
Sixth Street TAO Partners (B)	38,346,022				623,038	-1,208,876	37,760,184
Brookfield Real Estate Finance Fund V	19,481,686					284,365	19,766,051
Magnetar Constellation Fund V	35,302,607				-4,428,232	574,571	31,448,946
H.I.G. Bayside Loan Opportunity Fund V	44,209,221				-2,739,576	-1,211,985	40,257,660
Blue Torch Credit Opportunities Fund II	16,765,419				-256,363	244,951	16,754,007
Fortress Credit Opportunites Fund V Expansion	12,983,908					14,254	12,998,162
Fortress Lending Fund II	29,374,059				1,094,447	244,221	30,712,727
Blue Torch Credit Opportunities Fund III	2,000,000				5,199,891	3,575	7,203,466
Fortress Lending Fund III	13,961,826				2,000,000	-566,838	15,394,988
OrbiMed Royalty & Credit Opportunities IV					3,000,000		3,000,000
Opportunistic	165,964,751			-55,993	7,962,265	-5,768,047	168,102,976
DB Investors Fund IV	25,512,204					-2,930,102	22,582,102
Sixth Street TAO Partners (D)	80,379,385				7,962,265	-3,886,398	84,455,252
Aristeia Select Opportunities II	52,099,878			-55,993		867,371	52,911,257
River Birch International - Opportunistic Investment	7,973,283					181,082	8,154,365

	Estimated Beginning Market Value	Contributions	Withdrawals	Fees	Net Transfers	Net Investment Change	Estimated Ending Market Value
Cash	-226,711,713	711,549,103	-623,923,303	-21,045	20,037,300	2,060,276	-117,009,383
Short Term Investment Funds	60,450,901	35,798,854	-44,582,482	-21,045	20,037,300	578,434	72,261,961
Parametric Cash Overlay	62,317,076	165,764,944	-182,006,834				46,075,185
Goldman Sachs Cash Account	-4,585,549	188,415,618	-158,204,092				25,625,978
Futures Offset	-489,842,116	321,569,687	-212,119,895			857,415	-379,534,909
Collateral Cash	27,010,000		-27,010,000				
BlackRock Short Duration Fund	117,937,974					624,427	118,562,401

Portfolio Reconciliation

	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs
Beginning Market Value	5,061,358,140	5,061,358,140	5,426,278,401	4,335,652,653	4,073,797,446	3,033,121,908
Contributions	1,404,869,386	1,404,869,386	3,556,437,191	9,928,819,802	12,068,397,673	17,793,115,680
Withdrawals	-1,415,557,480	-1,415,557,480	-3,668,471,528	-10,149,748,702	-12,419,729,702	-18,421,437,989
Fees	-525,078	-525,078	-14,077,535	-43,106,547	-69,370,273	-126,188,358
Net Cash Flows	-10,688,094	-10,688,094	-112,034,337	-220,928,900	-351,332,029	-628,322,309
Net Investment Change	-149,646,116	-149,646,116	-413,220,134	786,300,177	1,178,558,514	2,496,224,331
Ending Market Value	4,901,023,930	4,901,023,930	4,901,023,930	4,901,023,930	4,901,023,930	4,901,023,930
Net Change $	-160,334,210	-160,334,210	-525,254,471	565,371,277	827,226,484	1,867,902,022

Contribution and withdrawals include transfers in and out of accounts. Ending market value is net of fees. Market value and flows do not include the Short Term Cash Account balance.

Risk Metrics

Correlation Matrix
3 Years Ending September 30, 2022

	A	B	C	D	E	F	G	H	I	J	K	L
A	1.00											
B	0.99	1.00										
C	0.96	0.99	1.00									
D	0.97	0.98	0.94	1.00								
E	0.89	0.87	0.81	0.86	1.00							
F	0.84	0.80	0.80	0.77	0.74	1.00						
G	0.62	0.61	0.62	0.55	0.51	0.92	1.00					
H	0.90	0.86	0.84	0.83	0.82	0.89	0.67	1.00				
I	0.87	0.83	0.78	0.82	0.84	0.89	0.65	0.89	1.00			
J	0.70	0.63	0.56	0.68	0.67	0.40	0.11	0.60	0.59	1.00		
K	0.77	0.75	0.70	0.73	0.81	0.64	0.39	0.80	0.77	0.57	1.00	
L	-0.20	-0.19	-0.17	-0.19	-0.24	-0.36	-0.36	-0.26	-0.29	0.00	-0.24	1.00

A = Total Fund
B = Equity
C = Domestic Equity
D = International Developed Equity
E = Emerging Markets Equity
F = Fixed Income
G = Core Plus Fixed Income
H = High Yield/ Specialty Credit
I = Emerging Market Debt
J = Commodities
K = Hedge Funds
L = Core Real Estate

Low Interaction
Moderate Interation
Moderate to High Interation
High Interaction

	Alpha	Beta	R-Squared	Return	Information Ratio	Excess Performance	Tracking Error	Sharpe Ratio	Excess Return	Standard Deviation	Sortino Ratio	Up Capture	Down Capture
Total Fund	1.3	0.9	1.0	5.6	0.8	1.1	1.2	0.5	5.4	10.1	0.8	98.7	90.1
Equity	0.3	1.0	1.0	3.9	0.2	0.3	1.0	0.3	5.1	19.4	0.4	99.6	98.7
Domestic Equity	0.0	1.0	1.0	7.7	-0.2	-0.1	1.1	0.4	9.0	20.4	0.6	98.6	98.8
International Developed Equity	1.1	1.0	1.0	-0.2	1.1	1.1	0.9	0.1	1.2	19.5	0.1	103.1	99.1
Emerging Markets Equity	-2.4	1.0	1.0	-3.5	-0.8	-2.3	3.0	-0.1	-2.3	18.5	-0.2	87.3	96.8
Fixed Income	0.6	1.1	1.0	-2.5	0.5	0.5	1.0	-0.4	-2.9	6.8	-0.5	111.6	103.2
Core Plus Fixed Income	0.6	1.1	1.0	-3.0	0.3	0.3	1.2	-0.6	-3.4	5.8	-0.7	120.1	108.6
High Yield/ Specialty Credit	0.5	0.8	1.0	0.0	0.2	0.7	2.6	0.0	-0.2	8.9	0.0	78.1	74.2
Emerging Market Debt	2.1	1.1	1.0	-5.6	1.1	1.5	1.6	-0.4	-5.5	12.7	-0.5	109.7	97.2
Commodities	0.4	0.9	0.9	12.6	-0.2	-0.8	5.7	0.7	13.0	17.8	1.1	91.8	90.3
Hedge Funds	5.4	0.8	0.5	9.3	1.2	4.5	3.7	1.6	8.5	5.1	2.7	106.0	21.1
Core Real Estate	3.6	0.5	0.9	10.5	-0.5	-1.9	3.9	2.1	9.5	4.5	12.5	83.6	74.9
Private Real Estate	0.0	1.0	1.0	17.2	-	0.0	0.0	1.8	15.8	8.7	5.4	100.0	100.0
Private Equity	0.0	1.0	1.0	14.1	-0.6	0.0	0.0	1.0	13.6	13.7	2.0	100.0	100.1
Private Credit	0.0	1.0	1.0	3.0	-0.6	0.0	0.0	0.5	2.4	4.7	0.9	99.9	100.0

Data not available for time periods less than 3 years (Alpha Pool, Midstream, & Opportunistic added in 2020)

Risk Return Statistics: Last Three Years

3 Years

	Equity	MSCI AC World IMI (Net)	Core Plus Fixed Income	Bloomberg U.S. Aggregate Index	High Yield/ Specialty Credit	ICE BofA U.S. High Yield Index	Emerging Market Debt	50 JPM EMBI Global Div/ 50 JPM GBI EM Global Div	Commodities	Bloomberg Commodity Index Total Return	Hedge Funds	75% 3 Month T-Bill +4% / 25% MSCI ACWI (net)	Core Real Estate	NCREIF ODCE-monthly
RETURN SUMMARY STATISTICS														
Up Market Periods	22	22	16	16	24	24	17	17	25	25	24	24	35	35
Down Market Periods	14	14	20	20	12	12	19	19	11	11	12	12	1	1
Maximum Return	12.43	12.66	2.64	2.44	4.80	6.02	6.74	5.62	8.01	8.78	3.99	3.34	5.39	7.97
Minimum Return	-14.74	-14.39	-4.27	-4.32	-10.52	-11.76	-13.80	-12.46	-12.65	-12.81	-5.24	-3.02	-1.17	-1.56
Return	3.89	3.64	-2.96	-3.26	0.02	-0.67	-5.61	-7.07	12.64	13.45	9.30	4.79	10.46	12.37
Excess Return	5.14	4.93	-3.43	-3.76	-0.16	-0.65	-5.52	-7.17	12.97	13.85	8.46	4.20	9.49	11.41
Excess Performance	0.25	0.00	0.29	0.00	0.69	0.00	1.45	0.00	-0.82	0.00	4.51	0.00	-1.92	0.00
RISK SUMMARY STATISTICS														
Beta	0.99	1.00	1.08	1.00	0.80	1.00	1.06	1.00	0.91	1.00	0.79	1.00	0.54	1.00
Upside Risk	13.62	13.72	3.25	2.77	5.12	6.54	6.73	6.11	13.81	13.84	4.81	4.00	5.32	8.36
Downside Risk	13.86	14.01	4.89	4.59	7.34	8.82	10.86	10.35	11.86	12.96	3.11	2.87	0.71	0.90
RISK/RETURN SUMMARY STATISTICS														
Standard Deviation	19.36	19.55	5.81	5.29	8.95	10.98	12.69	11.87	17.78	18.50	5.09	4.73	4.51	7.66
Alpha	0.27	0.00	0.58	0.00	0.48	0.00	2.09	0.00	0.35	0.00	5.42	0.00	3.61	0.00
Sharpe Ratio	0.26	0.25	-0.58	-0.70	-0.02	-0.06	-0.43	-0.60	0.72	0.74	1.62	0.87	2.09	1.48
Excess Risk	19.49	19.67	5.88	5.33	9.09	11.12	12.81	11.98	17.92	18.64	5.22	4.85	4.55	7.70
Tracking Error	1.04	0.00	1.23	0.00	2.60	0.00	1.55	0.00	5.66	0.00	3.63	0.00	3.90	0.00
Information Ratio	0.20	-	0.27	-	0.19	-	1.07	-	-0.15	-	1.17	-	-0.49	-
CORRELATION STATISTICS														
R-Squared	1.00	1.00	0.96	1.00	0.97	1.00	0.99	1.00	0.91	1.00	0.53	1.00	0.85	1.00
Actual Correlation	1.00	1.00	0.98	1.00	0.99	1.00	0.99	1.00	0.95	1.00	0.73	1.00	0.92	1.00

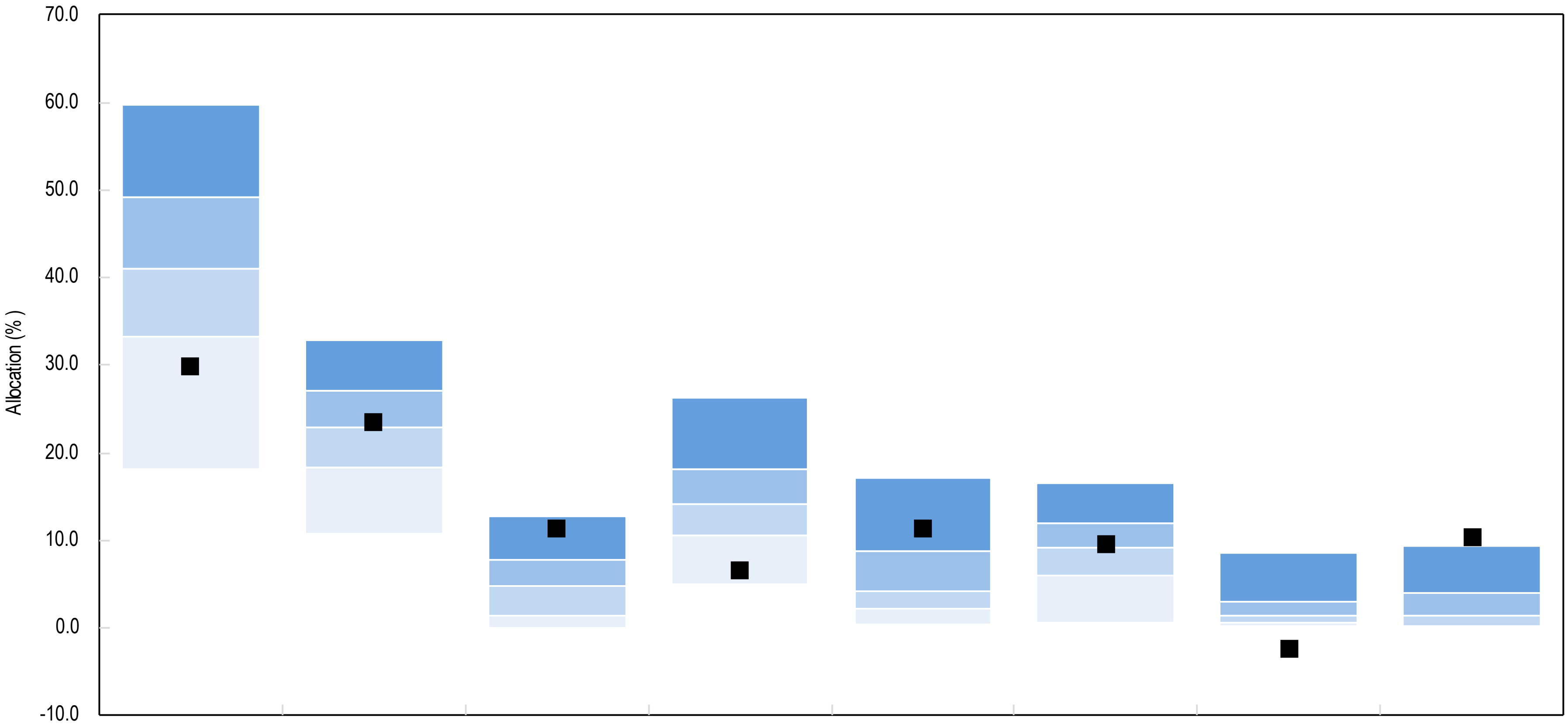
Risk Return Statistics: Last Two Years

	2 Yrs			
	Midstream Energy	Alerian Midstream Energy Index	Opportunistic	Assumed Rate of Return +3%
RETURN SUMMARY STATISTICS				
Up Market Periods	17	17	24	24
Down Market Periods	7	7	0	0
Maximum Return	16.45	18.94	19.65	0.58
Minimum Return	-11.84	-12.21	-4.04	0.58
Return	34.58	36.56	16.18	7.25
Excess Return	31.68	33.87	16.08	6.68
Excess Performance	-1.98	0.00	8.93	0.00
RISK SUMMARY STATISTICS				
Beta	0.85	1.00	-	-
Upside Risk	19.05	21.76	16.78	2.03
Downside Risk	10.79	12.61	5.38	0.00
RISK/RETURN SUMMARY STATISTICS				
Standard Deviation	19.85	23.13	16.97	0.00
Alpha	3.14	0.00	-	-
Sharpe Ratio	1.59	1.46	0.94	33.74
Excess Risk	19.91	23.20	17.03	0.20
Tracking Error	4.94	0.00	16.97	0.00
Information Ratio	-0.44	-	0.55	-
CORRELATION STATISTICS				
R-Squared	0.97	1.00	-	-
Actual Correlation	0.99	1.00	-	-

Data for unavailable for positions held for less than two years.

Peer Comparison

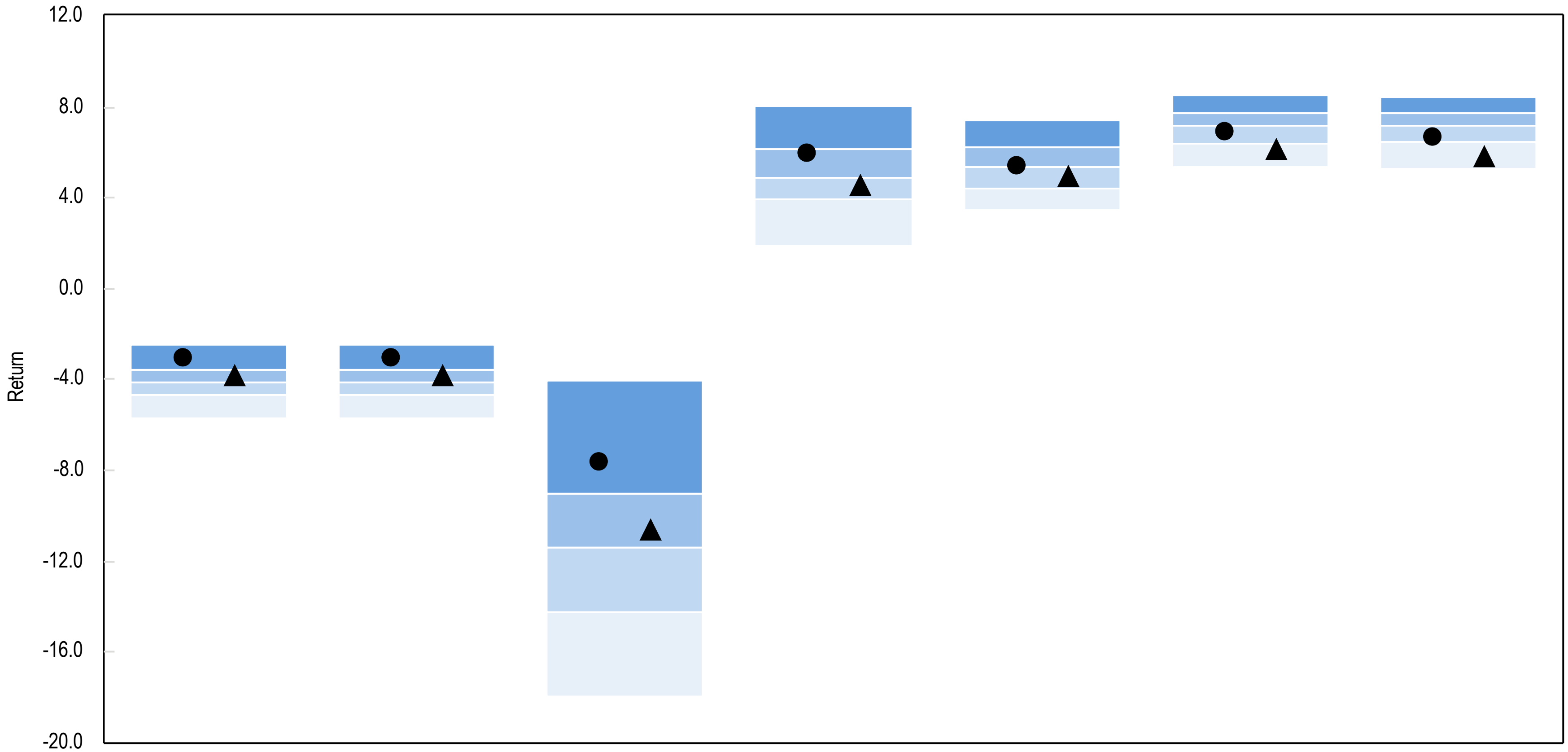
Total Plan Allocation vs. InvMetrics Public DB > $1B
As of September 30, 2022



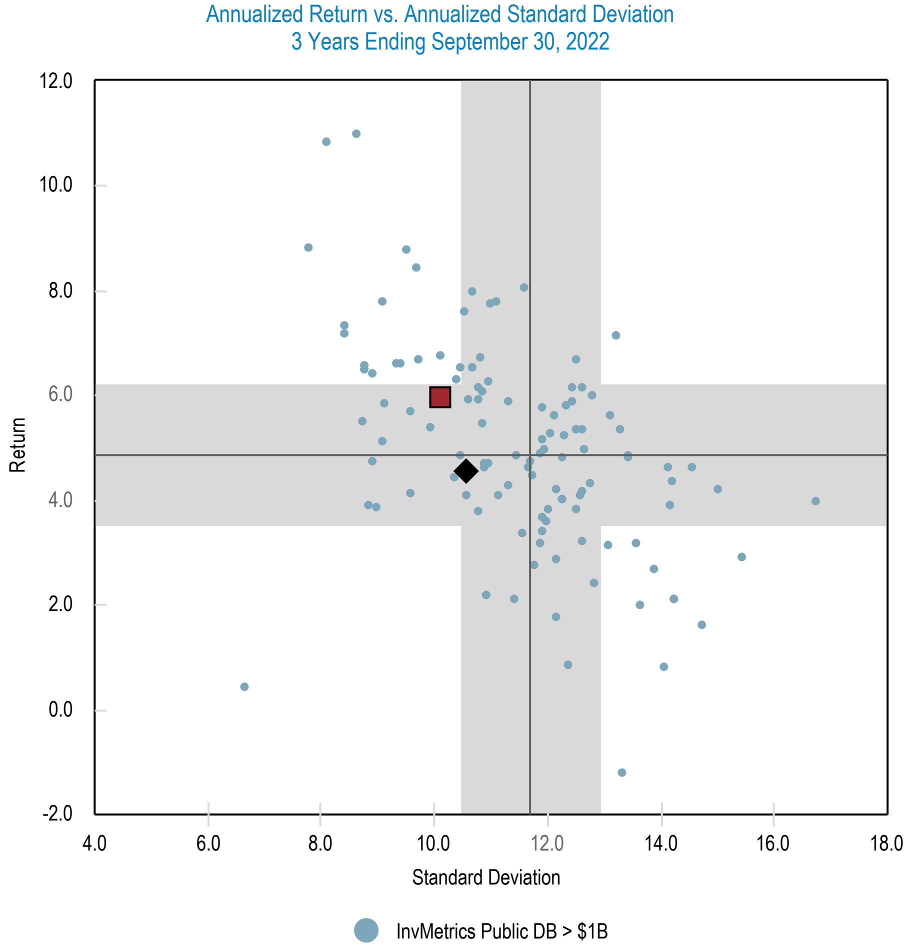
	Total Equity	Total Fixed Income	Hedge Funds	Private Equity	Real Assets/Commod	Real Estate - Private	Cash & Equivalents	Other
■ Total Fund	30.0 (85)	23.4 (48)	11.3 (12)	6.5 (92)	11.3 (19)	9.5 (47)	-2.4	10.3 (1)
5th Percentile	59.8	32.9	12.7	26.3	17.2	16.6	8.5	9.4
1st Quartile	49.3	27.0	7.7	18.1	8.7	11.9	3.1	4.0
Median	41.1	23.0	4.8	14.1	4.1	9.1	1.4	1.4
3rd Quartile	33.2	18.3	1.4	10.6	2.3	6.0	0.6	0.2
95th Percentile	18.0	10.7	0.0	5.1	0.3	0.7	0.2	0.1
Population	129	133	61	97	65	90	99	16

Parentheses contain percentile rankings. Other contains Alpha Pool, Opportunistic, and Private Credit. Real Estate contains Private and Core Real Estate. Real Assets contain Commodities and Midstream.

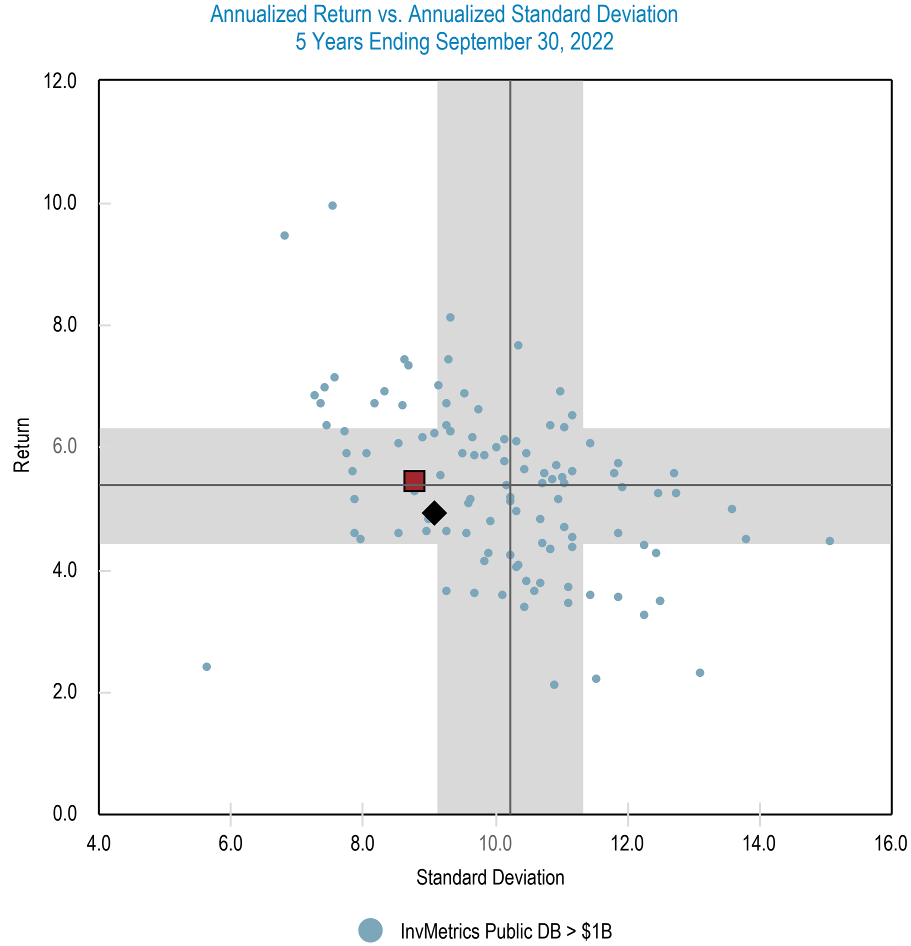
Total Fund vs. InvMetrics Public DB > $1B



	Quarter	Fiscal YTD	1 Year	3 Years	5 Years	7 Years	10 Years
● Total Fund	-3.0 (11)	-3.0 (11)	-7.6 (16)	6.0 (29)	5.5 (48)	6.9 (58)	6.7 (70)
▲ Policy Index	-3.8 (36)	-3.8 (36)	-10.6 (47)	4.6 (61)	4.9 (62)	6.2 (79)	5.9 (85)
5th Percentile	-2.4	-2.4	-4.1	8.0	7.4	8.5	8.5
1st Quartile	-3.5	-3.5	-9.0	6.2	6.2	7.7	7.7
Median	-4.1	-4.1	-11.4	4.9	5.4	7.1	7.2
3rd Quartile	-4.7	-4.7	-14.2	3.9	4.4	6.4	6.5
95th Percentile	-5.7	-5.7	-18.0	1.9	3.4	5.4	5.3
Population	130	130	119	114	111	108	103



	Return	Standard Deviation
Total Fund	5.98	10.09
Policy Index	4.56	10.58
Median	4.87	11.70
Population	114	114



	Return	Standard Deviation
Total Fund	5.46	8.76
Policy Index	4.94	9.07
Median	5.38	10.22
Population	111	111

Other

Fund Name	Allocation Group	Overall Status	Outperformed Universe 10th percentile (1yr)	Outperformed Universe 75th percentile (1yr)	Outperformed Index (1yr)	Outperformed Median Rank (3 yrs)	Outperformed Index (3yrs)	Outperformed Median Rank (5 yrs)	Outperformed Index (5yrs)	Concern	Index Fund Tracking Error over 0.25% (1yr)
Equity Beta Exposure	Equity	🟩	-	-	-	-	-	-	-	-	✔
Russell 2000 Overlay	Equity	🟩	-	-	-	-	-	-	-	-	⚑
Mellon DB SL Stock Index Fund	Equity	🟩	-	-	-	-	-	-	-	-	✔
PIMCO StocksPLUS	Equity	🟩	✔	⚑	⚑	✔	⚑	✔	⚑	-	-
AB US Small Cap Value Equity	Equity	🟩	✔	⚑	⚑	⚑	⚑	⚑	⚑	-	-
Geneva Capital Small Cap Growth	Equity	🟩	✔	✔	✔	⚑	✔	⚑	✔	-	-
Mellon DB SL World ex-US Index Fund	Equity	🟩	-	-	-	-	-	-	-	-	⚑
Fidelity Non-US Small Cap Equity	Equity	🟩	⚑	✔	✔	✔	✔	✔	✔	-	-
Cevian Capital II	Equity	🟩	-	-	-	-	-	-	-	-	⚑
American Century Non-US Small Cap	Equity	🟩	✔	✔	✔	-	-	-	-	-	-
DFA Emerging Markets Value I	Equity	🟩	⚑	✔	✔	✔	✔	✔	✔	-	-
AB Emerging Markets Strategic Core Equity Collective Trust	Equity	🟩	✔	✔	⚑	⚑	⚑	⚑	⚑	-	-
Mellon Emerging Markets Stock Index Fund	Equity	🟩	-	-	-	-	-	-	-	-	⚑
Mellon DB SL Aggregate Bond Index Fund	Fixed Income	🟩	-	-	-	-	-	-	-	-	✔
PIMCO Core Plus	Fixed Income	🟨	✔	✔	✔	✔	✔	⚑	✔	P	-
Western Asset Core Plus	Fixed Income	🟩	✔	⚑	⚑	⚑	⚑	⚑	⚑	-	-
Western Asset High Yield Fixed Income	Fixed Income	🟩	✔	✔	⚑	✔	⚑	✔	⚑	-	-
TCW Securitized Opportunities	Fixed Income	🟩	✔	✔	✔	✔	✔	✔	✔	-	-
Stone Harbor Emerging Markets Debt Blend Portfolio	Fixed Income	🟩	✔	✔	⚑	⚑	✔	⚑	⚑	P	-
PIMCO EMD	Fixed Income	🟩	✔	✔	✔	-	-	-	-	-	-
Gresham MTAP Commodity Builder Fund	Commodities	🟩	✔	✔	✔	⚑	✔	⚑	✔	-	-
Wellington Commodities	Commodities	🟩	✔	⚑	⚑	⚑	✔	⚑	✔	-	-

Legend For Overall Status

No Issues	🟩
Watch	🟨
Terminate	🟥

Legend for Standards

Pass	✔
Fail	⚑

Legend for Concern

Provisional	P
Restricted	R
No Issues	--

Fund Name	Allocation Group	Overall Status	Outperformed Universe 10th percentile (1yr)	Outperformed Universe 75th percentile (1yr)	Outperformed Index (1yr)	Outperformed Median Rank (3 yrs)	Outperformed Index (3yrs)	Outperformed Median Rank (5 yrs)	Outperformed Index (5yrs)	Concern	Index Fund Tracking Error over 0.25% (1yr)
Aristeia International Limited	Hedge Funds	■	-	-	⚑	-	✔	-	✔	-	-
Brevan Howard Fund	Hedge Funds	■	-	-	✔	-	✔	-	✔	-	-
D.E. Shaw Composite Fund	Hedge Funds	■	-	-	✔	-	✔	-	✔	-	-
HBK Fund II	Hedge Funds	■	-	-	⚑	-	⚑	-	⚑	-	-
Hudson Bay Cap Structure Arbitrage Enhanced Fund	Hedge Funds	■	-	-	✔	-	✔	-	✔	-	-
Indus Pacific Opportunities Fund	Hedge Funds	■	-	-	⚑	-	✔	-	⚑	-	-
Magnetar Structured Credit Fund	Hedge Funds	■	-	-	⚑	-	✔	-	✔	-	-
PIMCO Commodity Alpha Fund	Hedge Funds	■	✔	⚑	⚑	⚑	⚑	⚑	✔	-	-
River Birch International	Opportunistic	■	-	-	✔	-	⚑	-	⚑	-	-
Sculptor Domestic Partners II LP	Hedge Funds	■	-	-	⚑	-	✔	-	-	-	-
Harvest Midstream	Midstream	■	✔	✔	✔	-	-	-	-	-	-
PIMCO Midstream	Midstream	■	✔	✔	⚑	-	-	-	-	-	-
ASB Allegiance Real Estate Fund	Core Real Estate	■	-	-	⚑	-	⚑	-	⚑	-	-
JPMCB Strategic Property Fund	Core Real Estate	■	-	-	⚑	-	⚑	-	⚑	-	-
Invesco Real Estate Value-Add Fund IV	Private Real Estate	■	-	-	⚑	-	⚑	-	⚑	-	-
Landmark Real Estate Partners VIII	Private Real Estate	■	-	-	-	-	-	-	-	-	⚑
DB Investors Fund IV	Opportunistic	■	-	-	⚑	-	-	-	-	-	-
Sixth Street TAO Partners (D)	Opportunistic	■	-	-	⚑	-	-	-	-	-	-
Aristeia Select Opportunities II	Opportunistic	■	-	-	⚑	-	-	-	-	-	-

Legend For Overall Status

No Issues	■ (green)
Watch	■ (yellow)
Terminate	■ (red)

Legend for Standards

Pass	✔
Fail	⚑

Legend for Concern

Provisional	P
Restricted	R
No Issues	--

Verus

	2022 Q3	2022 Q2	2022 Q1	2021 Q4	2021 Q3	2021 Q2	2021 Q1	2020 Q4	2020 Q3	2020 Q2	2020 Q1	2019 Q4
Total Fund	-3.1	-7.5	-0.8	3.6	0.5	5.5	3.5	8.8	4.4	10.7	-11.3	4.6
Policy Index	-3.8	-8.9	-1.3	3.3	0.7	5.7	3.3	8.8	4.5	10.1	-11.1	4.6

	2019 Q3	2019 Q2	2019 Q1	2018 Q4	2018 Q3	2018 Q2	2018 Q1	2017 Q4	2017 Q3	2017 Q2	2017 Q1	2016 Q4
Total Fund	0.2	3.1	6.8	-6.4	2.3	0.3	-0.1	3.0	3.2	2.7	4.2	0.8
Policy Index	0.8	3.0	7.0	-5.5	2.2	0.7	-0.1	3.2	3.1	2.8	3.5	0.5

	2016 Q3	2016 Q2	2016 Q1	2015 Q4	2015 Q3	2015 Q2	2015 Q1	2014 Q4	2014 Q3	2014 Q2	2014 Q1	2013 Q4
Total Fund	3.5	1.9	1.1	2.2	-5.4	0.7	2.4	0.8	-1.5	3.6	2.1	4.1
Policy Index	2.9	2.2	1.8	1.4	-4.9	0.4	2.0	0.4	-1.4	3.4	2.4	4.0

Performance Return Calculations

Performance is calculated using a Time Weighted Rates of Return (TWRR) methodology. Monthly returns are linked geometrically and annualized for periods longer than one year.

Data Source

Verus is an independent third party consulting firm and calculates returns from best source book of record data. Returns calculated by Verus may deviate from those shown by the manager in part, but not limited to, differences in prices and market values reported by the custodian and manager, as well as significant cash flows into or out of an account. It is the responsibility of the manager and custodian to provide insight into the pricing methodologies and any difference in valuation.

Illiquid Alternatives

Due to the inability to receive final valuation prior to report production, closed end funds (including but are not limited to Real Estate, Hedge Funds, Private Equity, and Private Credit) performance is typically reported at a one-quarter lag. Valuation is reported at a one-quarter lag, adjusted for current quarter flow (cash flows are captured real time). Closed end fund performance is calculated using a time-weighted return methodology consistent with all portfolio and total fund performance calculations. For Private Markets, performance reports also include Verus-calculated multiples based on flows and valuations (e.g. DPI and TVPI) and manager-provided IRRs.

Manager Line Up

Investment Fund or Strategy	Fund Incepted	Data Source	Investment Fund or Strategy	Fund Incepted	Data Source
AB Emerging Markets Strategic Core	11/3/2016	Northern Trust	Linden Co-Investment V LP	6/30/2022	Linden
AB US Small Cap Value Equity	7/7/2015	Northern Trust	Long Wharf Real Estate	6/27/2019	Long Wharf
Abbott Capital PE VI	3/31/2008	Abbott Capital	Magnetar Constellation	11/14/2018	Magnetar
American Century Non-US Small Cap	12/15/2020	American Century	Magnetar Structured Credit	5/1/2014	Magnetar
Aristeia International Limited	5/1/2014	Northern Trust	Mellon Aggregate Bond Index Fund	1/14/2011	Mellon
ASB Real Estate	9/30/2013	ASB	Mellon EB DV Stock Index	10/18/2017	Mellon
Barclays Capital Aggregate Rebalancing Overlay	6/15/2022	Parametric	Mellon EB DV World ex-US Index	8/1/2018	Mellon
BlackRock Short Duration Fund	9/8/2021	BlackRock	Myriad Opportunities Offshore	5/19/2016	Northern Trust
Blue Torch Credit Opportunities	7/24/2020	Blue Torch	OrbiMed Royalty & Credit Opportunities	9/12/2022	OrbiMed
Brevan Howard	11/1/2013	Northern Trust	Pantheon Global III	6/30/2000	Pantheon
Brighton Private Equity	3/28/2021	Brighton	Pantheon USA III	3/31/2007	Pantheon
Brighton Park Capital Fund II, L.P	9/30/2022	Brighton	Pantheon USA V	6/30/2005	Pantheon
Brookfield Real Estate Finance Fund V	12/18/2017	Northern Trust	Pantheon USA VI	3/31/2005	Pantheon
Cevian Capital II	12/30/2014	Northern Trust	Pantheon USA VII	3/31/2005	Pantheon
DC Value Recovery fund IV	12/28/2015	Colony	Parametric Overlay/ Cap Efficiency Program	7/31/2020	Parametric
Covenant Apartment Fund X	10/29/2020	Covenant	Peak Rock Capital Fund III	7/13/2021	Peak Rock
DB Investors Fund IV	1/29/2020	DB	PIMCO Commodity Alpha	5/4/2016	PIMCO
D.E. Shaw	6/30/2013	Northern Trust	PIMCO Core Plus	1/21/2011	Northern Trust
DFA Emerging Markets Value I	3/7/2014	Northern Trust	PIMCO EMD	2/29/2020	Northern Trust
Fortress Credit Opportunities	12/17/2020	Fortress	PIMCO Midstream	10/9/2020	PIMCO
Fortress Lending Fund II	3/15/2021	Fortress	PIMCO StocksPLUS	7/14/2003	PIMCO
Garda Fixed Income Relative Value Opp	9/30/2021	Garda	Fidelity Non-US Small Cap Equity	6/10/2008	Northern Trust
Geneva Capital Small Cap Growth	7/22/2015	Geneva	River Birch	8/3/2015	Northern Trust
Gresham MTAP Commodity	9/3/2013	Gresham	Rubicon Technology Partners IV LP	11/30/2022	Rubicon
Harvest Midstream	9/28/2020	Harvest Midstream	Singerman Real Estate Opportunity Fund IV	10/27/2021	Singerman
HBK Fund II	11/1/2013	Northern Trust	Sculptor Enhanced Domestic Partners	3/26/2019	Sculptor
Henderson Smallcap Growth	7/22/2015	Northern Trust	Short Term Cash Account	12/31/2000	Northern Trust
H.I.G Bayside Loan Opportunities Fund V	7/24/2019	H.I.G. Capital	Short Term Investment Funds	6/30/2000	Northern Trust
Hudson Bay	6/7/2019	Northern Trust	Stone Harbor Emerging Markets Debt	8/8/2012	Stone Harbor
Indus Pacific Opportunities	6/30/2014	Northern Trust	TAO Contingent	4/16/2020	TPG Sixth Street
Invesco Real Estate III	6/30/2013	Invesco	TCW Securitized Opportunities	2/3/2016	TCW
Invesco Real Estate IV	12/18/2015	Invesco	Transition Equity	9/30/2010	Northern Trust
J.P. Morgan Strategic Property	7/2/2014	J.P. Morgan	Transition Fixed Income	9/30/2010	Northern Trust
KSL Capital Partners VI	4/26/2023	KSL Capital	TSSP Adjacent Opportunities Partners	11/17/2017	TPG Sixth Street
Landmark Real Estate Partners VIII	4/29/2018	Landmark	Vista Equity Partners	7/24/2020	Vista Equity
LBA Logistics Value Fund IX, L.P.	2/22/2022	LBA	Warren Equity III	4/1/2021	Warren
Level Equity Growth Partners V	11/1/2021	Level Equity	Warren Equity IV	1/1/2023	Warren
Level Equity Opportunities Fund 2021	11/1/2021	Level Equity	Wellington Alternative Investments	2/9/2023	Wellington
LGT Crown	2/1/2021	LGT	Western Asset Core Plus	5/31/2004	Northern Trust
Linden Capital Partners V LP	7/19/2022	Linden	Western Asset High Yield Fixed income	5/31/2005	Northern Trust

Policy & Custom Index Composition	
Policy Index: 4/1/2022-Present	37% MSCI ACWI IMI (Net), 14% Bloomberg US Aggregate, 6% Ice BofA ML High Yield Master II Index, 2% JPM Emerging Markets Bond Index Global Diversified, 2% JPM Government Bond Index-Emerging Markets Global Diversified, 4% Bloomberg Commodity Index, 7.5% 3-Month T-bill +4%, 2.5% MSCI ACWI (Net), 8% 91 Day T-Bill + 4%, 5% NCREIF-ODCE Gross Monthly, 5% actual time-weighted Private Equity Returns*, 5% actual time-weighted Private Credit Returns*, 5% actual time-weighted Private Real Estate Returns*, 5% Alerian Midstream, 0% Assumed Rate of Return +3%, -8% 3-Month T-bill.
Policy Index: 7/1/2021-4/1/2022	37% MSCI ACWI IMI, 14% Bloomberg US Aggregate, 6% Ice BofA ML High Yield Master II Index, 2% JPM Emerging Markets Bond Index Global Diversified, 2% JPM Government Bond Index-Emerging Markets, 4% Bloomberg Commodity Index, 7.5% 3-Month T-bill +400bps, 2.5% MSCI ACWI, 5% NCREIF-ODCE, 2% actual time-weighted Private Equity Returns*, 4% actual time-weighted Private Credit Returns*, 1% actual time-weighted Private Real Estate Returns*, 3% MSCI ACWI*, 1% Bloomberg US Aggregate*, 4% Bloomberg US Aggregate, 5% Alerian Midstream, 5% 3-Month T-bill +400bps, 91 Day T-Bills, -5% 3-Month T-bill.
Policy Index: 1/1/2021-6/30/2021	37% MSCI ACWI IMI, 14% Bloomberg US Aggregate, 6% Ice BofA ML High Yield Master II Index, 2% JPM Emerging Markets Bond Index Global Diversified, 2% JPM Government Bond Index-Emerging Markets, 4% Bloomberg Commodity Index, 7.5% 3-Month T-bill +400bps, 2.5% MSCI ACWI, 5% NCREIF-ODCE, 1% actual time-weighted Private Equity Returns*, 4% actual time-weighted Private Credit Returns*, 1% actual time-weighted Private Real Estate Returns*, 4% MSCI ACWI*, 1% Bloomberg US Aggregate*, 4% Bloomberg US Aggregate, 5% Alerian Midstream, 5% 3-Month T-bill +400bps, 91 Day T-Bills, -5% 3-Month T-bill.
Policy Index: 7/1/2020-12/31/2020	37% MSCI ACWI IMI, 14% Bloomberg US Aggregate, 6% Ice BofA ML High Yield Master II Index, 2% JPM Emerging Markets Bond Index Global Diversified, 2% JPM Government Bond Index-Emerging Markets, 4% Bloomberg Commodity Index, 7.5% 3-Month T-bill +400bps, 2.5% MSCI ACWI, 5% NCREIF-ODCE, 1% actual time-weighted Private Equity Returns*, 4% actual time-weighted Private Credit Returns*, 1% actual time-weighted Private Real Estate Returns*, 4% MSCI ACWI*, 5% Bloomberg US Aggregate, 1% Alerian Midstream, 4% Bloomberg US Aggregate
Policy Index: 4/1/2020-6/30/2020	37% MSCI ACWI IMI, 19% Bloomberg US Aggregate, 6% Ice BofA ML High Yield Master II Index, 2% JPM Emerging Markets Bond Index Global Diversified, 2% JPM Government Bond Index-Emerging Markets, 4% Bloomberg Commodity Index, 7.5% 3-Month T-bill +400bps, 2.5% MSCI ACWI, 5% NCREIF-ODCE, 1% actual time-weighted Private Equity Returns*, 4% actual time-weighted Private Credit Returns*, 1% actual time-weighted Private Real Estate Returns*, 3% MSCI ACWI*, 5% Bloomberg US Aggregate*.
Policy Index: 1/1/2020-3/31/2020	37% MSCI ACWI IMI, 19% Bloomberg US Aggregate, 6% Ice BofA ML High Yield Master II Index, 2% JPM Emerging Markets Bond Index Global Diversified, 2% JPM Government Bond Index-Emerging Markets, 4% Bloomberg Commodity Index, 7.5% 3-Month T-bill +400bps, 2.5% MSCI ACWI, 5% NCREIF-ODCE, 2% actual time-weighted Private Equity Returns*, 4% actual time-weighted Private Credit Returns*, 1% actual time-weighted Private Real Estate Returns*, 3% MSCI ACWI*, 5% Bloomberg US Aggregate*.
Policy Index: 10/1/2019-12/31/2019	37% MSCI ACWI IMI, 19% Bloomberg US Aggregate, 6% Ice BofA ML High Yield Master II Index, 2% JPM Emerging Markets Bond Index Global Diversified, 2% JPM Government Bond Index-Emerging Markets, 4% Bloomberg Commodity Index, 7.5% 3-Month T-bill +400bps, 2.5% MSCI ACWI, 5% NCREIF-ODCE, 2% actual time-weighted Private Equity Returns*, 3% actual time-weighted Private Credit Returns*, 1% actual time-weighted Private Real Estate Returns*, 3% MSCI ACWI*, 6% Bloomberg US Aggregate*.
Policy Index: 7/1/2019-9/30/2019	37% MSCI ACWI IMI, 19% Bloomberg US Aggregate, 6% Ice BofA ML High Yield Master II Index, 2% JPM Emerging Markets Bond Index Global Diversified, 2% JPM Government Bond Index-Emerging Markets, 4% Bloomberg Commodity Index, 7.5% 3-Month T-bill +400bps, 2.5% MSCI ACWI, 5% NCREIF-ODCE, 2% actual time-weighted Private Equity Returns*, 4% actual time-weighted Private Credit Returns*, 1% actual time-weighted Private Real Estate Returns*, 3% MSCI ACWI*, 5% Bloomberg US Aggregate*.
Policy Index: 4/1/2019-6/30/2019	37% MSCI ACWI IMI, 19% Bloomberg US Aggregate, 6% Ice BofA ML High Yield Master II Index, 2% JPM Emerging Markets Bond Index Global Diversified, 2% JPM Government Bond Index-Emerging Markets, 4% Bloomberg Commodity Index, 7.5% 3-Month T-bill +400bps, 2.5% MSCI ACWI, 5% NCREIF-ODCE, 2% actual time-weighted Private Equity Returns*, 3% actual time-weighted Private Credit Returns*, 1% actual time-weighted Private Real Estate Returns*, 3% MSCI ACWI*, 6% Bloomberg US Aggregate*.
Policy Index: 1/1/2019-3/31/2019	37% MSCI ACWI IMI, 19% Bloomberg US Aggregate, 6% Ice BofA ML High Yield Master II Index, 2% JPM Emerging Markets Bond Index Global Diversified, 2% JPM Government Bond Index-Emerging Markets, 4% Bloomberg Commodity Index, 7.5% 3-Month T-bill +400bps, 2.5% MSCI ACWI, 5% NCREIF-ODCE, 2% actual time-weighted Private Equity Returns*, 3% actual time-weighted Private Credit Returns*, 2% actual time-weighted Private Real Estate Returns*, 3% MSCI ACWI*, 5% Bloomberg US Aggregate*.
Policy Index: 10/1/2018-12/31/2018	37% MSCI ACWI IMI, 19% Bloomberg US Aggregate, 6% Ice BofA ML High Yield Master II Index, 2% JPM Emerging Markets Bond Index Global Diversified, 2% JPM Government Bond Index-Emerging Markets, 4% Bloomberg Commodity Index, 7.5% 3-Month T-bill +400bps, 2.5% MSCI ACWI, 5% NCREIF-ODCE, 2% actual time-weighted Private Equity Returns*, 2% actual time-weighted Private Credit Returns*, 2% actual time-weighted Private Real Estate Returns*, 3% MSCI ACWI*, 6% Bloomberg US Aggregate*.
Policy Index: 7/1/2018-9/30/2018	37% MSCI ACWI IMI, 19% Bloomberg US Aggregate, 6% Ice BofA ML High Yield Master II Index, 2% JPM Emerging Markets Bond Index Global Diversified, 2% JPM Government Bond Index-Emerging Markets, 4% Bloomberg Commodity Index, 7.5% 3-Month T-bill +400bps, 2.5% MSCI ACWI, 5% NCREIF-ODCE, 3% actual time-weighted Private Equity Returns*, 2% actual time-weighted Private Credit Returns*, 1% actual time-weighted Private Real Estate Returns*, 2% MSCI ACWI*, 7% Bloomberg US Aggregate*.
Policy Index: 1/1/2017- 6/30/2018	19% Russell 3000 Index, 18% MSCI ACWI ex US, 29% Bloomberg US Aggregate, 10% NCREIF-ODCE, 4% Bloomberg Commodity Index, 7.5% 91-day T-bills + 400bps, 2.5% MSCI ACWI, 5% Russell 3000 Index + 300 bps, 5% ICE BofA ML High Yield + 200 bps.
Policy Index: 4/1/2014-12/31/2016	23% Russell 3000 Index, 29% Bloomberg US Aggregate, 22% MSCI ACWI ex US,

Other Disclosures
*Private Asset actual weights, rounded to 1%, and actual time-weighted returns of Private Equity, Private Credit, Private Real Estate used in policy with the difference in weight versus target allocated to private market's public market "equivalent". Private Equity to Global Equity, Private Credit and Private Real Estate to Core Plus.
All data prior to 2Q 2011 has been provided by the investment managers.
Effective 1/1/2017, only traditional asset class (public equity, public fixed income, REITs) investment manager fees will be included in the gross of fee return calculation. Fiscal year end: 6/30.

Glossary

Allocation Effect: An attribution effect that describes the amount attributable to the managers' asset allocation decisions, relative to the benchmark.

Alpha: The excess return of a portfolio after adjusting for market risk. This excess return is attributable to the selection skill of the portfolio manager. Alpha is calculated as: Portfolio Return - [Risk-free Rate + Portfolio Beta x (Market Return - Risk-free Rate)].

Benchmark R-squared: Measures how well the Benchmark return series fits the manager's return series. The higher the Benchmark R-squared, the more appropriate the benchmark is for the manager.

Beta: A measure of systematic, or market risk; the part of risk in a portfolio or security that is attributable to general market movements. Beta is calculated by dividing the covariance of a security by the variance of the market.

Book-to-Market: The ratio of book value per share to market price per share. Growth managers typically have low book-to-market ratios while value managers typically have high book-to-market ratios.

Capture Ratio: A statistical measure of an investment manager's overall performance in up or down markets. The capture ratio is used to evaluate how well an investment manager performed relative to an index during periods when that index has risen (up market) or fallen (down market). The capture ratio is calculated by dividing the manager's returns by the returns of the index during the up/down market, and multiplying that factor by 100.

Correlation: A measure of the relative movement of returns of one security or asset class relative to another over time. A correlation of 1 means the returns of two securities move in lock step, a correlation of -1 means the returns of two securities move in the exact opposite direction over time. Correlation is used as a measure to help maximize the benefits of diversification when constructing an investment portfolio.

Excess Return: A measure of the difference in appreciation or depreciation in the price of an investment compared to its benchmark, over a given time period. This is usually expressed as a percentage and may be annualized over a number of years or represent a single period.

Information Ratio: A measure of a manager's ability to earn excess return without incurring additional risk. Information ratio is calculated as: excess return divided by tracking error.

Interaction Effect: An attribution effect that describes the portion of active management that is contributable to the cross interaction between the allocation and selection effect. This can also be explained as an effect that cannot be easily traced to a source.

Portfolio Turnover: The percentage of a portfolio that is sold and replaced (turned over) during a given time period. Low portfolio turnover is indicative of a buy and hold strategy while high portfolio turnover implies a more active form of management.

Price-to-Earnings Ratio (P/E): Also called the earnings multiplier, it is calculated by dividing the price of a company's stock into earnings per share. Growth managers typically hold stocks with high price-to-earnings ratios whereas value managers hold stocks with low price-to-earnings ratios.

R-Squared: Also called the coefficient of determination, it measures the amount of variation in one variable explained by variations in another, i.e., the goodness of fit to a benchmark. In the case of investments, the term is used to explain the amount of variation in a security or portfolio explained by movements in the market or the portfolio's benchmark.

Selection Effect: An attribution effect that describes the amount attributable to the managers' stock selection decisions, relative to the benchmark.

Sharpe Ratio: A measure of portfolio efficiency. The Sharpe Ratio indicates excess portfolio return for each unit of risk associated with achieving the excess return. The higher the Sharpe Ratio, the more efficient the portfolio. Sharpe ratio is calculated as: Portfolio Excess Return / Portfolio Standard Deviation.

Sortino Ratio: Measures the risk-adjusted return of an investment, portfolio, or strategy. It is a modification of the Sharpe Ratio, but penalizes only those returns falling below a specified benchmark. The Sortino Ratio uses downside deviation in the denominator rather than standard deviation, like the Sharpe Ratio.

Standard Deviation: A measure of volatility, or risk, inherent in a security or portfolio. The standard deviation of a series is a measure of the extent to which observations in the series differ from the arithmetic mean of the series. For example, if a security has an average annual rate of return of 10% and a standard deviation of 5%, then two-thirds of the time, one would expect to receive an annual rate of return between 5% and 15%.

Style Analysis: A return based analysis designed to identify combinations of passive investments to closely replicate the performance of funds

Style Map: A specialized form or scatter plot chart typically used to show where a Manager lies in relation to a set of style indices on a two-dimensional plane. This is simply a way of viewing the asset loadings in a different context. The coordinates are calculated by rescaling the asset loadings to range from -1 to 1 on each axis and are dependent on the Style Indices comprising the Map.

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The information presented may be deemed to contain forward-looking information. Examples of forward looking information include, but are not limited to, (a) projections of or statements regarding return on investment, future earnings, interest income, other income, growth prospects, capital structure and other financial terms, (b) statements of plans or objectives of management, (c) statements of future economic performance, and (d) statements of assumptions, such as economic conditions underlying other statements. Such forward-looking information can be identified by the use of forward looking terminology such as believes, expects, may, will, should, anticipates, or the negative of any of the foregoing or other variations thereon comparable terminology, or by discussion of strategy. No assurance can be given that the future results described by the forward-looking information will be achieved. Such statements are subject to risks, uncertainties, and other factors which could cause the actual results to differ materially from future results expressed or implied by such forward looking information. The findings, rankings, and opinions expressed herein are the intellectual property of Verus and are subject to change without notice. The information presented does not claim to be all-inclusive, nor does it contain all information that clients may desire for their purposes. The information presented should be read in conjunction with any other material provided by Verus, investment managers, and custodians.

Verus will make every reasonable effort to obtain and include accurate market values. However, if managers or custodians are unable to provide the reporting period's market values prior to the report issuance, Verus may use the last reported market value or make estimates based on the manager's stated or estimated returns and other information available at the time. These estimates may differ materially from the actual value. Hedge fund market values presented in this report are provided by the fund manager or custodian. Market values presented for private equity investments reflect the last reported NAV by the custodian or manager net of capital calls and distributions as of the end of the reporting period. These values are estimates and may differ materially from the investments actual value. Private equity managers report performance using an internal rate of return (IRR), which differs from the time-weighted rate of return (TWRR) calculation done by Verus. It is inappropriate to compare IRR and TWRR to each other. IRR figures reported in the illiquid alternative pages are provided by the respective managers, and Verus has not made any attempts to verify these returns. Until a partnership is liquidated (typically over 10-12 years), the IRR is only an interim estimated return. The actual IRR performance of any LP is not known until the final liquidation.

Verus receives universe data from InvMetrics, eVestment Alliance, and Morningstar. We believe this data to be robust and appropriate for peer comparison. Nevertheless, these universes may not be comprehensive of all peer investors/managers but rather of the investors/managers that comprise that database. The resulting universe composition is not static and will change over time. Returns are annualized when they cover more than one year. Investment managers may revise their data after report distribution. Verus will make the appropriate correction to the client account but may or may not disclose the change to the client based on the materiality of the change.

Kern County Employees' Retirement Association

Investment Performance Review
Period Ending: December 31, 2022

Verus

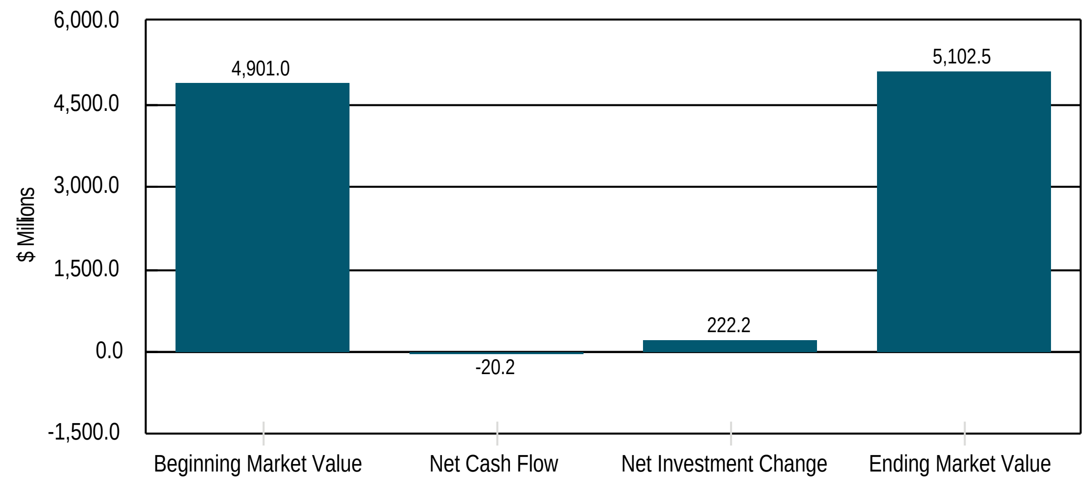
VERUSINVESTMENTS.COM

SEATTLE 206.622.3700
CHICAGO 312.815.5228
PITTSBURGH 412.784.6678
LOS ANGELES 310.297.1777
SAN FRANCISCO 415.362.3484

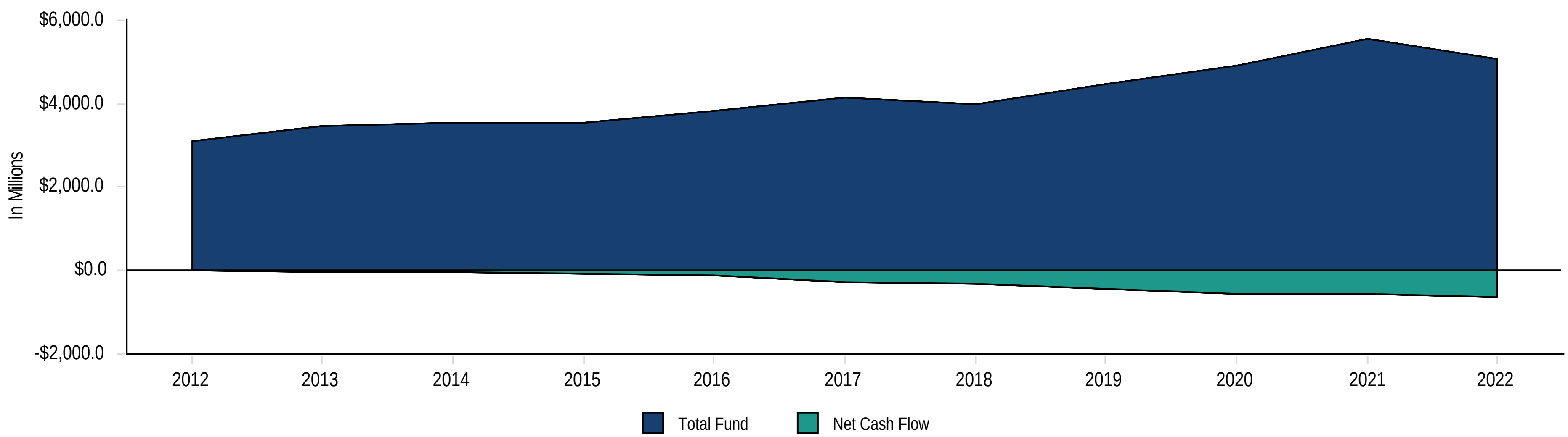
Portfolio Reconciliation

	Last Three Months
Beginning Market Value	$4,901,023,930
Net Cash Flows	-$20,176,030
Net Investment Change	$222,188,502
Ending Market Value	$5,102,522,000

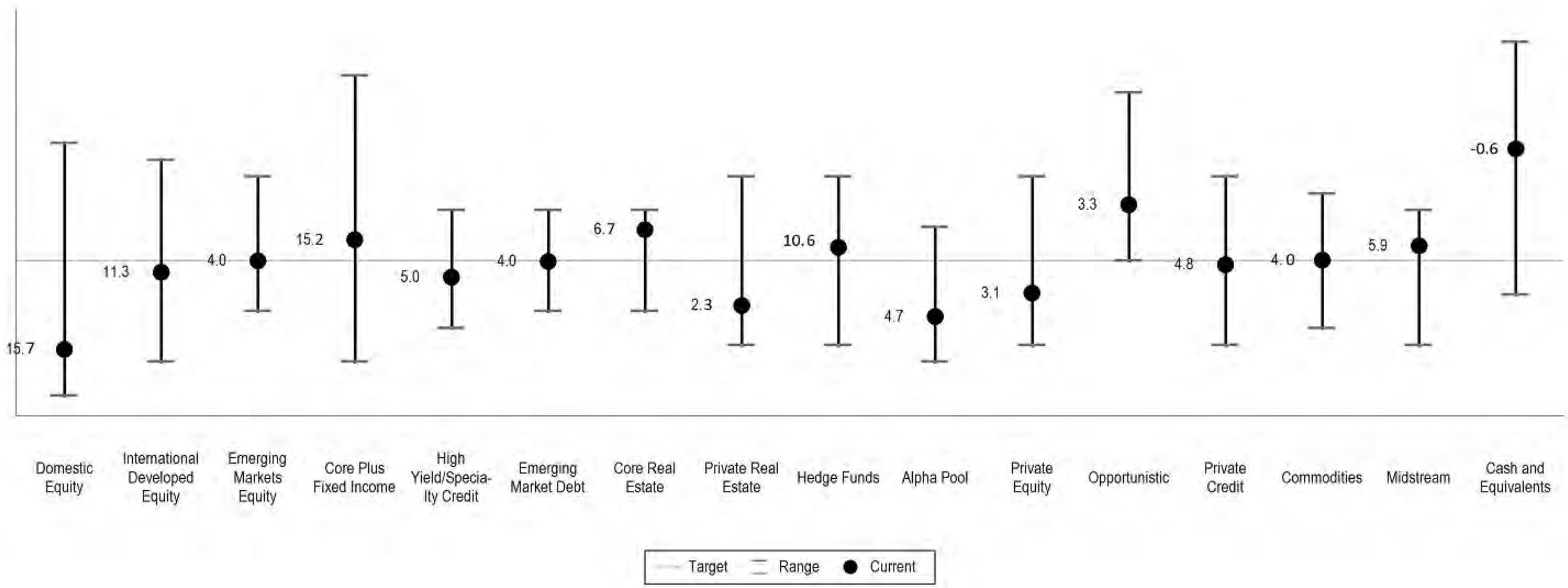
Change in Market Value
Last Three Months

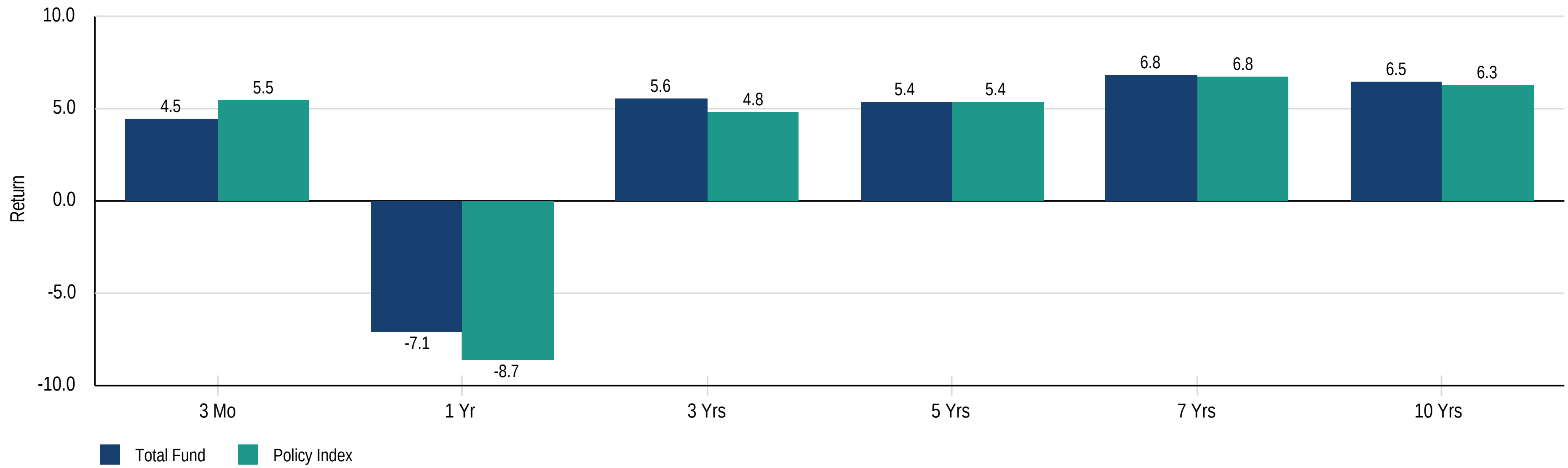


Market Value History



	Current Balance	Current Allocation	Policy	Difference	Policy Range	Within IPS Range?
Equity	$1,577,575,704	30.9%	37.0%	-$299,088,853	26.0% - 48.0%	Yes
Fixed Income	$1,232,206,332	24.1%	24.0%	$14,910,403	14.0% - 34.0%	Yes
Core Real Estate	$340,306,581	6.7%	5.0%	$94,624,380	2.0% - 8.0%	Yes
Hedge Funds	$543,309,200	10.6%	10.0%	$41,408,649	5.0% - 15.0%	Yes
Alpha Pool	$239,505,576	4.7%	8.0%	-$167,190,866	2.0% - 10.0%	Yes
Private Equity	$161,282,661	3.1%	5.0%	-$96,410,346	0.0% - 10.0%	Yes
Private Credit	$243,377,473	4.8%	5.0%	-$10,823,656	0.0% - 10.0%	Yes
Private Real Estate	$119,647,273	2.3%	5.0%	-$133,956,045	0.0% - 10.0%	Yes
Commodities	$205,801,777	4.0%	4.0%	$2,919,122	0.0% - 8.0%	Yes
Opportunistic	$168,840,683	3.3%	0.0%	$169,805,558	0.0% - 10.0%	Yes
Midstream	$299,392,352	5.9%	5.0%	$45,789,033	0.0% - 8.0%	Yes
Cash and Equivalents	-$28,723,612	-0.6%	-8.0%	$338,012,622	-10.0% - 5.0%	Yes
Total	**$5,102,522,000**	**100.0%**	**100.0%**			

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Return
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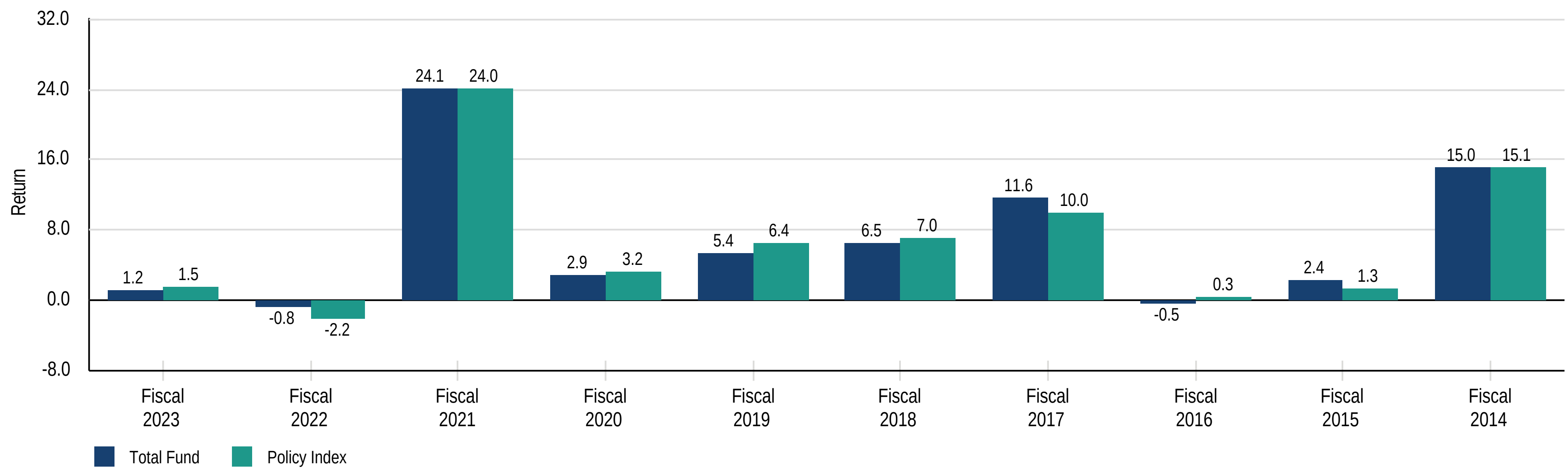
10 Yrs
Total Fund
Policy Index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Fiscal 2023
Fiscal 2022
Fiscal 2021
Fiscal 2020
Fiscal 2019
Fiscal 2018
Fiscal 2017
Fiscal 2016
Fiscal 2015
Fiscal 2014
Total Fund
Policy Index

	Market Value	% of Portfolio	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	Fiscal 2022	Fiscal 2021	Fiscal 2020	Fiscal 2019	Fiscal 2018
Total Fund	5,102,522,000	100.0	4.6	1.4	-6.8	5.9	5.8	6.9	-4.2	24.4	3.2	5.7	6.8
Policy Index			*5.5*	*1.5*	*-8.7*	*4.8*	*5.4*	*6.3*	*-6.5*	*24.0*	*3.2*	*6.4*	*7.0*
InvMetrics Public DB > $1B Rank			*73*	*30*	*17*	*31*	*51*	*72*	*32*	*88*	*20*	*63*	*97*
Equity	1,577,575,704	30.9	10.6	3.0	-17.2	4.7	5.7	9.3	-14.9	41.2	0.7	5.3	12.4
MSCI AC World IMI (Net)			*9.8*	*2.6*	*-18.4*	*3.9*	*5.0*	*7.9*	*-16.5*	*40.9*	*1.2*	*4.6*	*11.1*
Domestic Equity	798,916,006	15.7	7.7	2.4	-18.6	7.6	9.3	-	-12.0	43.6	6.3	9.2	16.1
MSCI USA IMI			*7.2*	*2.4*	*-19.2*	*7.3*	*8.9*	-	*-13.7*	*44.4*	*6.7*	*9.0*	*14.9*
International Developed Equity	574,955,091	11.3	15.3	5.8	-15.0	2.0	2.1	-	-17.2	37.0	-5.5	-0.6	9.1
MSCI World ex U.S. IMI Index (Net)			*16.0*	*5.3*	*-15.3*	*1.0*	*1.6*	-	*-17.7*	*34.8*	*-5.1*	*0.2*	*7.7*
Emerging Markets Equity	203,703,762	4.0	9.4	-2.4	-18.0	-2.6	-2.1	-	-21.4	40.6	-10.9	0.4	4.0
MSCI Emerging Markets IMI (Net)			*9.5*	*-2.3*	*-19.8*	*-1.8*	*-1.1*	-	*-24.8*	*43.2*	*-4.0*	*0.5*	*7.9*
Fixed Income	1,232,206,332	24.1	3.1	-0.2	-12.6	-1.6	0.7	1.7	-12.7	5.4	6.6	7.9	0.2
Fixed Income Custom Benchmark			*3.0*	*-1.0*	*-12.6*	*-2.4*	*0.4*	*1.6*	*-11.6*	*4.0*	*5.2*	*8.4*	*-0.1*
Core Plus Fixed Income	774,514,623	15.2	1.7	-2.8	-13.8	-2.4	0.3	-	-11.2	1.0	9.5	8.0	0.0
Blmbg. U.S. Aggregate Index			*1.9*	*-3.0*	*-13.0*	*-2.7*	*0.0*	-	*-10.3*	*-0.3*	*8.7*	*7.9*	*-0.4*
High Yield/ Specialty Credit	255,740,719	5.0	2.4	2.6	-8.9	0.7	2.6	-	-9.5	13.6	0.0	7.5	3.3
ICE BofA U.S. High Yield Index			*4.0*	*3.3*	*-11.2*	*-0.2*	*2.1*	-	*-12.7*	*15.6*	*-1.1*	*7.6*	*2.5*
Emerging Market Debt	201,843,943	4.0	9.2	4.7	-12.8	-3.8	-1.8	-	-19.6	9.4	-1.2	8.5	-3.6
50 JPM EMBI Global Div / 50 JPM GBI EM Global Div			*8.3*	*3.3*	*-14.8*	*-5.7*	*-1.9*	-	*-20.2*	*7.1*	*-1.1*	*10.8*	*-1.9*
Commodities	205,801,777	4.0	5.3	-2.2	12.5	13.4	7.4	-	20.1	43.5	-10.7	-6.2	13.7
Bloomberg Commodity Index Total Return			*2.2*	*-2.0*	*16.1*	*12.7*	*6.4*	-	*24.3*	*45.6*	*-17.4*	*-6.8*	*7.3*
Hedge Funds	543,309,200	10.6	2.4	4.1	4.8	9.2	7.1	6.5	2.8	16.3	7.3	2.6	7.6
75% 3 Month T-Bill +4% / 25% MSCI ACWI IMI			*3.9*	*3.4*	*-0.6*	*5.0*	*5.7*	*5.9*	*-0.9*	*12.3*	*5.1*	*6.6*	*7.0*
Alpha Pool	239,505,576	4.7	0.2	0.9	1.0	-	-	-	1.5	14.5	-	-	-
3 Month T-Bill +4%			*1.8*	*3.3*	*5.5*	-	-	-	*4.2*	*4.1*	-	-	-
Midstream Energy	299,392,352	5.9	7.7	13.1	22.8	-	-	-	9.6	-	-	-	-
Alerian Midstream Energy Index			*8.4*	*7.3*	*21.5*	-	-	-	*11.4*	-	-	-	-
Core Real Estate	340,306,582	6.7	-4.4	-3.8	8.0	8.9	7.8	-	25.6	6.6	2.3	6.1	7.4
NCREIF ODCE			*-5.0*	*-4.5*	*7.5*	*9.9*	*8.7*		*29.5*	*8.0*	*2.2*	*6.4*	*8.4*
Private Real Estate	119,647,273	2.3	2.0	5.2	17.2	17.4	12.2	13.2	31.3	12.1	4.4	9.0	5.4
			2.0	*5.2*	*17.2*	*17.4*	*12.2*	*13.2*	*31.3*	*12.1*	*4.4*	*9.0*	*5.4*
Private Equity	161,282,661	3.2	-0.8	-4.3	0.8	13.5	11.5	11.4	23.0	41.7	-10.5	10.9	7.8
			-0.8	*-4.3*	*0.8*	*13.5*	*11.5*	*11.4*	*23.0*	*41.7*	*-10.5*	*10.9*	*7.8*
Private Credit	243,377,473	4.8	0.4	-0.8	-1.0	2.6	4.8	-	1.2	4.8	5.5	9.7	9.3
			0.4	*-0.8*	*-1.0*	*2.6*	*4.8*	-	*1.2*	*4.8*	*5.5*	*9.7*	*9.3*

Policy Index: 37% MSCI ACWI IMI (Net), 14% Bloomberg US Aggregate, 6% Ice BofA ML High Yield Master II Index, 2% JPM Emerging Markets Bond Index Global Diversified, 2% JPM Government Bond Index-Emerging Markets Global Diversified, 4% Bloomberg Commodity Index, 7.5% 3-Month T-bill +4%, 2.5% MSCI ACWI (Net), 8% 91 Day T-Bill + 4%, 5% NCREIF-ODCE Gross Monthly, 5% actual timeweighted Private Equity Returns, 5% actual time-weighted Private Credit Returns*, 5% actual time-weighted Private Real Estate Returns*, 5% Alerian Midstream, 0% Assumed Rate of Return +3%, -8% 3-Month T-bill and actual weights and returns of private asset classes to nearest 1%. All data prior to 2Q 2011 has been provided by the investments managers. FY: 6/30. The Equity and Fixed Income Beta Exposure return includes overlay cash and an implied hurdle rate also applied to the Alpha pool.*

	Market Value	% of Portfolio	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	Fiscal 2022	Fiscal 2021	Fiscal 2020	Fiscal 2019	Fiscal 2018
Opportunistic	168,840,683	3.3	-1.4	-4.5	-14.8	9.5	-	-	-5.4	59.9	-	-	-
Assumed Rate of Return +3%			*1.8*	*3.6*	*7.2*	*7.2*	-	-	*7.2*	*7.2*	-	-	-
Cash	-28,723,613	-0.6	1.1	1.2	1.0	0.5	1.2	1.4	-0.2	0.1	1.0	2.0	3.2
3 Month T-Bill			*0.8*	*1.3*	*1.5*	*0.7*	*1.3*	*0.8*	*0.2*	*0.1*	*1.6*	*2.3*	*1.4*

Policy Index: 37% MSCI ACWI IMI (Net), 14% Bloomberg US Aggregate, 6% Ice BofA ML High Yield Master II Index, 2% JPM Emerging Markets Bond Index Global Diversified, 2% JPM Government Bond Index-Emerging Markets Global Diversified, 4% Bloomberg Commodity Index, 7.5% 3-Month T-bill +4%, 2.5% MSCI ACWI (Net), 8% 91 Day T-Bill + 4%, 5% NCREIF-ODCE Gross Monthly, 5% actual timeweighted Private Equity Returns, 5% actual time-weighted Private Credit Returns*, 5% actual time-weighted Private Real Estate Returns*, 5% Alerian Midstream, 0% Assumed Rate of Return +3%, -8% 3-Month T-bill and actual weights and returns of private asset classes to nearest 1%. All data prior to 2Q 2011 has been provided by the investments managers. FY: 6/30. The Equity and Fixed Income Beta Exposure return includes overlay cash and an implied hurdle rate also applied to the Alpha pool.*

Performance and Attribution

	Market Value	% of Portfolio	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	Fiscal 2022	Fiscal 2021	Fiscal 2020	Fiscal 2019	Fiscal 2018	Inception	Inception Date
Total Fund	5,102,522,000	100.0	4.5	1.2	-7.1	5.6	5.4	6.5	-4.5	24.1	2.9	5.4	6.5	6.2	Jun-11
Policy Index			*5.5*	*1.5*	*-8.7*	*4.8*	*5.4*	*6.3*	*-6.5*	*24.0*	*3.2*	*6.4*	*7.0*	*6.0*	
Equity	1,577,575,704	30.9	10.5	2.9	-17.4	4.4	5.4	8.9	-15.1	40.7	0.3	4.8	11.8	8.1	Jun-11
MSCI AC World IMI (Net)			*9.8*	*2.6*	*-18.4*	*3.9*	*5.0*	*7.9*	*-16.5*	*40.9*	*1.2*	*4.6*	*11.1*	*7.2*	
Domestic Equity	798,916,006	15.7	7.7	2.3	-18.7	7.3	9.0	-	-12.2	43.2	6.0	8.8	15.5	10.1	Jul-14
MSCI USA IMI			*7.2*	*2.4*	*-19.2*	*7.3*	*8.9*	-	*-13.7*	*44.4*	*6.7*	*9.0*	*14.9*	*9.8*	
Equity Beta Exposure	108,880,200	2.1	7.3	2.0	-18.6	-	-	-	-11.0	-	-	-	-	8.0	Aug-20
S&P 500 Index			*7.6*	*2.3*	*-18.1*	-	-	-	*-10.6*	-	-	-	-	*8.5*	
Mellon DB SL Stock Index Fund	458,436,087	9.0	7.6	2.3	-18.1	7.6	9.4	-	-10.6	40.8	7.5	10.4	-	10.1	Oct-17
S&P 500 Index			*7.6*	*2.3*	*-18.1*	*7.7*	*9.4*	-	*-10.6*	*40.8*	*7.5*	*10.4*	-	*10.0*	
PIMCO StocksPLUS	99,467,229	1.9	7.5	1.6	-20.4	6.8	8.9	12.6	-12.8	41.7	7.7	10.6	14.1	10.0	Jul-03
S&P 500 Index			*7.6*	*2.3*	*-18.1*	*7.7*	*9.4*	*12.6*	*-10.6*	*40.8*	*7.5*	*10.4*	*14.4*	*9.3*	
AB US Small Cap Value Equity	86,111,927	1.7	10.0	4.3	-16.6	5.5	3.8	-	-16.1	77.5	-19.4	-6.9	13.2	6.7	Jul-15
Russell 2000 Value Index			*8.4*	*3.4*	*-14.5*	*4.7*	*4.1*	-	*-16.3*	*73.3*	*-17.5*	*-6.2*	*13.1*	*6.5*	
Geneva Capital Small Cap Growth	46,020,563	0.9	5.8	0.9	-24.4	4.2	7.5	-	-22.1	37.6	9.3	8.6	22.7	8.9	Jul-15
Russell 2000 Growth Index			*4.1*	*4.4*	*-26.4*	*0.6*	*3.5*	-	*-33.4*	*51.4*	*3.5*	*-0.5*	*21.9*	*5.1*	
International Developed Equity	574,955,091	11.3	15.3	5.7	-15.0	1.8	1.9	-	-17.3	36.7	-5.7	-0.9	8.7	3.3	Jul-14
MSCI World ex U.S. IMI Index (Net)			*16.0*	*5.3*	*-15.3*	*1.0*	*1.6*	-	*-17.7*	*34.8*	*-5.1*	*0.2*	*7.7*	*2.5*	
Mellon DB SL World ex-US Index Fund	471,377,465	9.2	16.1	5.6	-13.6	2.1	-	-	-16.1	35.6	-5.5	-	-	3.1	Jul-18
MSCI World ex U.S. IMI Index (Net)			*16.0*	*5.3*	*-15.3*	*1.0*	-	-	*-17.7*	*34.8*	*-5.1*	-	-	*2.2*	
Cevian Capital II	34,435,773	0.7	9.6	11.0	-3.8	8.5	5.2	-	-8.2	46.8	-8.2	-5.0	2.9	6.4	Dec-14
MSCI Europe (Net)			*19.3*	*7.2*	*-15.1*	*1.3*	*1.9*	-	*-17.6*	*35.1*	*-6.8*	*1.9*	*5.3*	*3.6*	
American Century Non-US Small Cap	68,889,933	1.4	13.1	4.2	-27.6	-	-	-	-27.4	-	-	-	-	-6.4	Dec-20
MSCI World ex U.S. Small Cap Growth Index (Net)			*13.6*	*3.6*	*-27.0*	-	-	-	*-28.6*	-	-	-	-	*-8.6*	
Emerging Markets Equity	203,703,762	4.0	9.3	-2.7	-18.5	-3.3	-2.9	-	-21.9	39.5	-11.8	-0.6	2.9	0.1	Jul-14
MSCI Emerging Markets IMI (Net)			*9.5*	*-2.3*	*-19.8*	*-1.8*	*-1.1*	-	*-24.8*	*43.2*	*-4.0*	*0.5*	*7.9*	*1.4*	
DFA Emerging Markets Value I	75,158,678	1.5	10.3	-0.5	-10.7	1.0	-0.1	-	-12.9	47.6	-17.7	2.0	5.7	3.1	Mar-14
MSCI Emerging Markets Value (Net)			*9.8*	*-2.3*	*-15.8*	*-2.6*	*-1.6*	-	*-18.6*	*41.6*	*-15.7*	*5.0*	*4.3*	*1.2*	
AB Emerging Markets Strategic Core Equity Collective Trust	48,185,996	0.9	7.1	-4.8	-23.2	-4.9	-4.1	-	-25.2	33.6	-5.1	-2.6	1.2	0.8	Dec-16
MSCI Emerging Markets (Net)			*9.7*	*-3.0*	*-20.1*	*-2.7*	*-1.4*	-	*-25.3*	*40.9*	*-3.4*	*1.2*	*8.2*	*4.2*	
Mellon Emerging Markets Stock Index Fund	80,359,088	1.6	9.7	-3.1	-20.5	-	-	-	-25.5	41.1	-	-	-	0.6	Jun-20
MSCI Emerging Markets (Net)			*9.7*	*-3.0*	*-20.1*	-	-	-	*-25.3*	*40.9*	-	-	-	*3.6*	
Fixed Income	1,232,206,332	24.1	3.0	-0.3	-12.9	-1.9	0.4	1.4	-13.0	5.1	6.3	7.6	-0.1	3.0	Jun-10
Fixed Income Custom Benchmark			*3.0*	*-1.0*	*-12.6*	*-2.4*	*0.4*	*1.6*	*-11.6*	*4.0*	*5.2*	*8.4*	*-0.1*	*2.7*	
Core Plus Fixed Income	774,514,623	15.2	1.6	-2.8	-14.0	-2.6	0.1	-	-11.4	0.8	9.3	7.9	-0.2	1.2	Jul-14
Bloomberg U.S. Aggregate Index			*1.9*	*-3.0*	*-13.0*	*-2.7*	*0.0*	-	*-10.3*	*-0.3*	*8.7*	*7.9*	*-0.4*	*1.0*	
Fixed Income Beta Exposure	337,322,663	6.6	0.6	-3.8	-	-	-	-	-	-	-	-	-	-1.6	Jun-22
Bloomberg U.S. Aggregate Index			*1.9*	*-3.0*	-	-	-	-	-	-	-	-	-	*-4.5*	
Mellon DB SL Aggregate Bond Index Fund	157,713,715	3.1	1.9	-3.0	-13.1	-2.8	0.0	1.0	-10.4	-0.4	8.8	7.9	-0.4	1.8	Jan-11
Bloomberg U.S. Aggregate Index			*1.9*	*-3.0*	*-13.0*	*-2.7*	*0.0*	*1.1*	*-10.3*	*-0.3*	*8.7*	*7.9*	*-0.4*	*1.9*	

Policy Index: 37% MSCI ACWI IMI (Net), 14% Bloomberg US Aggregate, 6% Ice BofA ML High Yield Master II Index, 2% JPM Emerging Markets Bond Index Global Diversified, 2% JPM Government Bond Index-Emerging Markets Global Diversified, 4% Bloomberg Commodity Index, 7.5% 3-Month T-bill +4%, 2.5% MSCI ACWI (Net), 8% 91 Day T-Bill + 4%, 5% NCREIF-ODCE Gross Monthly, 5% actual timeweighted Private Equity Returns, 5% actual time-weighted Private Credit Returns*, 5% actual time-weighted Private Real Estate Returns*, 5% Alerian Midstream, 0% Assumed Rate of Return +3%, -8% 3-Month T-bill and actual weights and returns of private asset classes to nearest 1%. All data prior to 2Q 2011 has been provided by the investments managers. FY: 6/30. The Equity and Fixed Income Beta Exposure return includes overlay cash and an implied hurdle rate also applied to the Alpha pool.*

	Market Value	% of Portfolio	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	Fiscal 2022	Fiscal 2021	Fiscal 2020	Fiscal 2019	Fiscal 2018	Inception	Inception Date
PIMCO Core Plus	160,665,585	3.1	2.0	-2.9	-12.8	-2.0	0.3	1.1	-9.9	1.1	8.7	6.3	1.0	2.1	Feb-11
Bloomberg U.S. Aggregate Index			*1.9*	*-3.0*	*-13.0*	*-2.7*	*0.0*	*1.1*	*-10.3*	*-0.3*	*8.7*	*7.9*	*-0.4*	*1.9*	
Western Asset Core Plus	118,812,660	2.3	3.1	-1.7	-15.9	-3.2	0.1	1.7	-14.5	2.4	9.3	9.4	-0.4	3.7	Jun-04
Bloomberg U.S. Aggregate Index			*1.9*	*-3.0*	*-13.0*	*-2.7*	*0.0*	*1.1*	*-10.3*	*-0.3*	*8.7*	*7.9*	*-0.4*	*3.1*	
High Yield/ Specialty Credit	255,740,719	5.0	2.3	2.4	-9.3	0.2	2.1	-	-10.0	13.1	-0.5	7.0	2.8	2.1	Jul-14
ICE BofA U.S. High Yield Index			*4.0*	*3.3*	*-11.2*	*-0.2*	*2.1*	*-*	*-12.7*	*15.6*	*-1.1*	*7.6*	*2.5*	*3.1*	
Western Asset High Yield Fixed Income	161,987,205	3.2	3.9	3.7	-12.4	-0.9	1.8	3.6	-14.1	16.5	-2.2	8.3	2.2	5.6	Jun-05
Bloomberg US HY Ba/B 2% Cap TR			*4.6*	*3.8*	*-10.6*	*0.3*	*2.6*	*4.0*	*-12.4*	*13.4*	*2.1*	*8.8*	*1.8*	*5.8*	
TCW Securitized Opportunities	93,753,514	1.8	-0.2	0.5	-5.0	1.2	2.3	-	-4.0	6.4	2.2	5.2	4.3	3.1	Feb-16
Bloomberg U.S. High Yield - 2% Issuer Cap			*4.2*	*3.5*	*-11.2*	*0.0*	*2.3*	*-*	*-12.8*	*15.3*	*0.0*	*7.5*	*2.6*	*5.3*	
Emerging Market Debt	201,843,943	4.0	9.1	4.4	-13.2	-4.1	-2.2	-	-19.9	9.1	-1.7	7.9	-4.2	-0.5	Jul-14
50 JPM EMBI Global Div / 50 JPM GBI EM Global Div			*8.3*	*3.3*	*-14.8*	*-5.7*	*-1.9*	*-*	*-20.2*	*7.1*	*-1.1*	*10.8*	*-1.9*	*-0.2*	
Stone Harbor Emerging Markets Debt Blend Portfolio	63,666,940	1.2	9.1	4.7	-14.3	-4.9	-2.2	-1.0	-20.9	9.5	-1.8	8.2	-3.1	-0.6	Aug-12
50 JPM GBI-EM Global Div/ 40 JPM EMBI Global Div/ 10 JPM Corporate EM Bond Idx			*7.9*	*3.1*	*-14.2*	*-5.3*	*-1.6*	*-0.1*	*-19.5*	*7.2*	*-0.8*	*10.6*	*-1.7*	*0.5*	
PIMCO EMD	138,177,003	2.7	9.1	4.3	-12.4	-	-	-	-19.2	8.7	-	-	-	-4.4	Feb-20
50 JPM EMBI Global Div / 50 JPM GBI EM Global Div			*8.3*	*3.3*	*-14.8*	*-*	*-*	*-*	*-20.2*	*7.1*	*-*	*-*	*-*	*-5.9*	
Commodities	205,801,777	4.0	5.1	-2.5	11.8	12.7	6.8	-	19.4	42.5	-11.3	-6.7	13.3	0.1	Jul-13
Bloomberg Commodity Index Total Return			*2.2*	*-2.0*	*16.1*	*12.7*	*6.4*	*-*	*24.3*	*45.6*	*-17.4*	*-6.8*	*7.3*	*-0.2*	
Gresham MTAP Commodity Builder Fund	52,497,584	1.0	1.4	-3.7	16.7	12.8	6.4	-	24.7	46.8	-16.3	-9.0	12.4	-0.1	Oct-13
Bloomberg Commodity Index Total Return			*2.2*	*-2.0*	*16.1*	*12.7*	*6.4*	*-*	*24.3*	*45.6*	*-17.4*	*-6.8*	*7.3*	*-0.3*	
Wellington Commodities	153,304,193	3.0	6.8	-1.9	9.9	13.2	7.2	-	17.2	40.2	-7.5	-5.4	14.2	0.7	Sep-13
S&P GSCI Commodity Equal Weighted			*6.9*	*-0.7*	*12.0*	*12.1*	*7.3*	*-*	*19.0*	*40.9*	*-12.4*	*-3.5*	*12.6*	*1.0*	
Hedge Funds	543,309,200	10.6	2.2	3.7	4.4	9.0	7.0	5.9	2.8	16.1	7.0	2.5	7.6	5.9	Sep-10
75% 3 Month T-Bill +4% / 25% MSCI ACWI (net)			*3.9*	*3.3*	*-0.6*	*5.0*	*5.7*	*5.9*	*-0.9*	*12.3*	*5.1*	*6.6*	*7.0*	*5.8*	
Aristeia International Limited	68,181,409	1.3	-0.8	1.4	0.9	10.0	8.8	-	1.8	21.6	8.7	9.2	2.6	5.1	May-14
Brevan Howard Fund	76,763,840	1.5	0.3	5.4	19.8	16.1	13.9	-	15.2	6.1	20.5	12.7	7.8	8.3	Sep-13
D.E. Shaw Composite Fund	58,856,929	1.2	2.9	6.6	25.4	21.7	17.3	-	29.0	19.0	15.6	11.5	11.3	14.6	Jul-13
HBK Fund II	44,169,126	0.9	4.2	5.8	2.9	6.5	5.5	-	2.3	11.0	1.5	5.5	3.0	4.5	Nov-13
Hudson Bay Cap Structure Arbitrage Enhanced Fund	80,091,097	1.6	2.2	5.8	9.3	12.9	-	-	7.7	14.2	16.2	-	-	12.4	Jun-19
Indus Pacific Opportunities Fund	37,237,546	0.7	0.0	0.9	-0.6	13.1	4.0	-	-8.2	38.0	15.8	-19.2	15.8	7.3	Jul-14
Pharo Macro Fund	62,281,994	1.2	1.9	0.2	-7.5	-1.7	-	-	-11.1	3.5	-	-	-	-1.7	Dec-19
PIMCO Commodity Alpha Fund	63,025,840	1.2	7.2	4.4	2.1	9.4	8.1	-	8.6	14.2	4.8	5.2	10.4	9.9	Jun-16
Sculptor Domestic Partners II LP	44,404,229	0.9	1.5	0.8	-15.9	-0.7	-	-	-19.9	16.8	6.5	-	-	3.7	Feb-19
Magnetar Structured Credit Fund	8,297,190	0.2	1.7	2.2	0.6	12.1	9.4	-	1.1	38.1	-0.2	5.4	7.7	7.8	May-14
Alpha Pool	239,505,576	4.7	0.2	0.9	1.0	-	-	-	1.5	14.5	-	-	-	6.6	Jul-20
3 Month T-Bill +4%			*1.8*	*3.3*	*5.5*	*-*	*-*	*-*	*4.2*	*4.1*	*-*	*-*	*-*	*4.7*	
Hudson Bay	61,864,015	1.2	-0.8	1.9	4.7	-	-	-	6.7	-	-	-	-	8.6	Aug-20
Davidson Kempner Institutional Partners	54,247,004	1.1	-1.2	-1.5	-4.5	-	-	-	-3.4	-	-	-	-	1.6	Dec-20
HBK Fund II	42,476,585	0.8	1.1	1.9	-1.4	-	-	-	1.3	-	-	-	-	4.0	Dec-20
Garda Fixed Income Relative Value Opportunity Fund	56,160,036	1.1	1.8	2.3	8.5	-	-	-	-	-	-	-	-	6.0	Sep-21
HBK Opportunities Platform – SPAC Series	24,757,936	0.5	-0.4	-0.6	-2.2	-	-	-	-2.5	-	-	-	-	2.3	Nov-20

Policy Index: 37% MSCI ACWI IMI (Net), 14% Bloomberg US Aggregate, 6% Ice BofA ML High Yield Master II Index, 2% JPM Emerging Markets Bond Index Global Diversified, 2% JPM Government Bond Index-Emerging Markets Global Diversified, 4% Bloomberg Commodity Index, 7.5% 3-Month T-bill +4%, 2.5% MSCI ACWI (Net), 8% 91 Day T-Bill + 4%, 5% NCREIF-ODCE Gross Monthly, 5% actual timeweighted Private Equity Returns, 5% actual time-weighted Private Credit Returns*, 5% actual time-weighted Private Real Estate Returns*, 5% Alerian Midstream, 0% Assumed Rate of Return +3%, -8% 3-Month T-bill and actual weights and returns of private asset classes to nearest 1%. All data prior to 2Q 2011 has been provided by the investments managers. FY: 6/30. The Equity and Fixed Income Beta Exposure return includes overlay cash and an implied hurdle rate also applied to the Alpha pool.*

Total Fund
Kern County Employees' Retirement Association
Performance (Net of Fees)
Period Ending: December 31, 2022

	Market Value	% of Portfolio	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	Fiscal 2022	Fiscal 2021	Fiscal 2020	Fiscal 2019	Fiscal 2018	Inception	Inception Date
Midstream Energy	299,392,352	5.9	7.5	12.7	22.1	-	-	-	9.3	-	-	-	-	31.5	Sep-20
Alerian Midstream Energy Index			*8.4*	*7.3*	*21.5*	-	-	-	*11.4*	-	-	-	-	*28.9*	
Harvest Midstream	152,077,589	3.0	6.9	14.0	30.1	-	-	-	15.3	-	-	-	-	38.9	Aug-20
Alerian Midstream Energy Index			*8.4*	*7.3*	*21.5*	-	-	-	*11.4*	-	-	-	-	*27.9*	
PIMCO Midstream	147,314,763	2.9	8.2	10.6	12.0	-	-	-	2.2	-	-	-	-	24.6	Sep-20
50/25/25 Alerian Midstream/ ICE BofA US Pipeline/ ICE BofA US HY Midstream			*6.5*	*5.1*	*4.2*	-	-	-	*-0.7*	-	-	-	-	-	
Core Real Estate	340,306,582	6.7	-4.5	-4.0	7.4	8.1	7.2	-	24.8	5.6	1.4	5.9	7.4	8.1	Oct-14
NCREIF ODCE			*-5.0*	*-4.5*	*7.5*	*9.9*	*8.7*	-	*29.5*	*8.0*	*2.2*	*6.4*	*8.4*	*9.5*	
ASB Allegiance Real Estate Fund	189,419,041	3.7	-4.1	-2.0	10.5	8.6	7.5	-	23.0	5.4	1.5	6.8	7.1	8.4	Sep-13
NCREIF ODCE			*-5.0*	*-4.5*	*7.5*	*9.9*	*8.7*	-	*29.5*	*8.0*	*2.2*	*6.4*	*8.4*	*9.8*	
JPMCB Strategic Property Fund	150,887,540	3.0	-5.2	-6.7	3.8	7.7	6.9	-	27.9	5.9	1.3	5.0	7.6	7.9	Jul-14
NCREIF ODCE			*-5.0*	*-4.5*	*7.5*	*9.9*	*8.7*	-	*29.5*	*8.0*	*2.2*	*6.4*	*8.4*	*9.6*	
Private Real Estate	119,647,273	2.3	2.0	5.2	17.2	17.4	12.2	12.7	31.3	12.1	4.4	9.0	5.4	12.8	Mar-11
			2.0	*5.2*	*17.2*	*17.4*	*12.2*	*13.2*	*31.3*	*12.1*	*4.4*	*9.0*	*5.4*	*12.8*	
Private Equity	161,282,661	3.2	-0.8	-4.3	0.7	13.5	11.5	10.9	22.9	41.7	-10.5	10.9	7.8	10.8	Sep-10
			-0.8	*-4.3*	*0.8*	*13.5*	*11.5*	*11.4*	*23.0*	*41.7*	*-10.5*	*10.9*	*7.8*	*10.9*	
Private Credit	243,377,473	4.8	0.4	-0.8	-1.0	2.6	4.8	-	1.2	4.8	5.5	9.7	9.3	-25.1	Dec-15
			0.4	*-0.8*	*-1.0*	*2.6*	*4.8*	-	*1.2*	*4.8*	*5.5*	*9.7*	*9.3*	*6.8*	
Opportunistic	168,840,683	3.3	-1.4	-4.5	-14.9	9.5	-	-	-5.4	59.9	-	-	-	9.8	Jan-20
Assumed Rate of Return +3%			*1.8*	*3.6*	*7.2*	*7.2*	-	-	*7.2*	*7.2*	-	-	-	*7.2*	
River Birch International	7,537,076	0.1	1.8	8.4	-	-	-	-	-	-	-	-	-	18.9	Jun-22
Assumed Rate of Return +3%			*1.8*	*3.6*	-	-	-	-	-	-	-	-	-	*3.6*	
DB Investors Fund IV	21,705,376	0.4	-3.9	-14.9	-50.5	2.8	-	-	-34.4	95.1	-	-	-	2.8	Dec-19
Assumed Rate of Return +3%			*1.8*	*3.6*	*7.2*	*7.2*	-	-	*7.2*	*7.2*	-	-	-	*7.2*	
Sixth Street TAO Partners (D)	90,905,157	1.8	3.1	-1.8	3.6	-	-	-	9.6	39.6	-	-	-	16.0	Mar-20
Assumed Rate of Return +3%			*1.8*	*3.6*	*7.2*	-	-	-	*7.2*	*7.2*	-	-	-	*7.2*	
Aristeia Select Opportunities II	48,693,074	1.0	-8.0	-6.5	-5.5	-	-	-	-	-	-	-	-	-1.4	Jul-21
Assumed Rate of Return +3%			*1.8*	*3.6*	*7.2*	-	-	-	*7.2*	-	-	-	-	*7.2*	
Cash	-28,723,613	-0.6	1.1	1.2	1.0	0.5	1.2	1.4	-0.2	0.1	1.0	2.0	3.2	1.3	Apr-11
3 Month T-Bill			*0.8*	*1.3*	*1.5*	*0.7*	*1.3*	*0.8*	*0.2*	*0.1*	*1.6*	*2.3*	*1.4*	*0.7*	

Policy Index: 37% MSCI ACWI IMI (Net), 14% Bloomberg US Aggregate, 6% Ice BofA ML High Yield Master II Index, 2% JPM Emerging Markets Bond Index Global Diversified, 2% JPM Government Bond Index-Emerging Markets Global Diversified, 4% Bloomberg Commodity Index, 7.5% 3-Month T-bill +4%, 2.5% MSCI ACWI (Net), 8% 91 Day T-Bill + 4%, 5% NCREIF-ODCE Gross Monthly, 5% actual timeweighted Private Equity Returns, 5% actual time-weighted Private Credit Returns*, 5% actual time-weighted Private Real Estate Returns*, 5% Alerian Midstream, 0% Assumed Rate of Return +3%, -8% 3-Month T-bill and actual weights and returns of private asset classes to nearest 1%. All data prior to 2Q 2011 has been provided by the investments managers. FY: 6/30. The Equity and Fixed Income Beta Exposure return includes overlay cash and an implied hurdle rate also applied to the Alpha pool.*

			IRR Analysis as of IRR date									
Vintage Year	Manager/Fund	Estimated Market Value as of 9/30/2023	Total Commitment	Capital Called	% Called	Remaining Commitment	Capital Returned	Market Value as of IRR date	Distrib./ Paid-In (DPI)[1]	Tot. Value/ Paid-In (TVPI)[2]	Net IRR Since Inception[3]	IRR Date
Private Equity												
2008	Abbott Capital PE VI	$16,921,054	$50,000,000	$49,750,000	100%	$250,000	$79,095,564	$17,231,430	*1.59x*	*1.93x*	*12.8%*	03/31/23
2006	Pantheon Global III	$548,661	$50,000,000	$47,300,000	95%	$2,700,000	$52,000,000	$544,562	*1.10x*	*1.11x*	*1.9%*	03/31/23
1998	Pantheon USA III	$45,445	$7,500,000	$7,335,000	98%	$165,000	$8,197,500	$47,064	*1.12x*	*1.12x*	*1.9%*	12/31/22
2002	Pantheon USA V	$375,348	$25,000,000	$24,350,000	97%	$650,000	$37,950,000	$392,019	*1.56x*	*1.57x*	*9.0%*	03/31/23
2004	Pantheon USA VI	$330,050	$35,000,000	$33,075,000	95%	$1,925,000	$50,623,827	$357,185	*1.53x*	*1.54x*	*6.7%*	03/31/23
2006	Pantheon USA VII	$6,855,040	$50,000,000	$46,600,000	93%	$3,400,000	$80,624,998	$6,715,424	*1.73x*	*1.88x*	*10.1%*	03/31/23
2020	Vista Foundation Fund IV	$18,784,419	$25,000,000	$19,102,508	76%	$5,897,492	$30,252	$17,834,565	*0.00x*	*0.98x*	*-2.9%*	03/31/23
2021	Crown Global Secondaries V Master S.C.Sp	$32,029,559	$50,000,000	$23,700,000	47%	$26,300,000	$1,550,000	$28,138,412	*0.07x*	*1.42x*	*31.2%*	03/31/23
2021	Brighton Park Capital Fund I	$36,863,716	$30,000,000	$28,783,190	96%	$1,216,810	$1,325,801	$35,655,157	*0.05x*	*1.33x*	*14.9%*	03/31/23
2021	Warren Equity Partners Fund III	$30,248,893	$32,500,000	$24,279,276	75%	$8,220,724	$508,290	$29,397,592	*0.02x*	*1.27x*	*20.5%*	06/30/23
2021	Peak Rock Capital Fund III	$13,544,451	$30,000,000	$12,295,016	41%	$17,704,984	$2,566,358	$11,921,302	*0.21x*	*1.31x*	*25.3%*	06/30/23
2021	Level Equity Growth Partners V	$6,864,460	$15,000,000	$6,715,768	45%	$8,284,232	$0	$6,697,065	*0.00x*	*1.02x*	*2.6%*	06/30/23
2021	Level Equity Opportunities Fund 2021	$5,898,520	$15,000,000	$5,529,385	37%	$9,470,615	$0	$5,529,388	*0.00x*	*1.07x*	*12.9%*	06/30/23
2022	Linden Capital Partners V LP	$12,638,351	$22,500,000	$12,011,178	53%	$10,488,822	$0	$7,984,801	N/A	N/A	*10.3%*	06/30/23
2022	Rubicon Technology Partners IV LP	$3,124,027	$30,000,000	$3,895,697	13%	$26,104,303	$0	$3,214,080	N/A	N/A	*-69.4%*	12/31/22
2022	OrbiMed Private Investments IX, LP	$1,129,757	$10,000,000	$1,200,000	12%	$8,800,000	$0	$320,186	N/A	N/A	*32.0%*	06/30/23
2022	Brighton Park Capital Fund II	$3,299,342	$30,000,000	$4,174,920	14%	$25,825,080	$0	N/A	N/A	N/A	*N/A*	N/A
2022	Linden Co-Investment V LP	$4,159,884	$7,500,000	$7,499,177	100%	$823	$0	$1,846,267	N/A	N/A	*21.8%*	12/31/22
2022	Warren Equity Partners Fund IV	$11,784,379	$32,500,000	$7,612,883	23%	$24,887,117	$0	N/A	N/A	N/A	*N/A*	N/A
2023	WEP Co-Invest IV	$7,297,419	$10,000,000	$7,470,589	75%	$2,529,411	$173,170	N/A	N/A	N/A	*N/A*	N/A
2022	Accel-KKR Capital Partners VII	$0	$25,000,000	$0	0%	$25,000,000	$0	N/A	N/A	N/A	*N/A*	N/A
2023	LGT Crown Global Secondaries Fund VI	$0	$30,000,000	$0	0%	$30,000,000	$0	N/A	N/A	N/A	*N/A*	N/A
2023	Parthenon Investors VII	$0	$30,000,000	$0	0%	$30,000,000	$0	N/A	N/A	N/A	*N/A*	N/A
	Total Private Equity	**$212,742,776**	$642,500,000	$372,679,588	58%	$269,820,412	$314,645,761	$173,826,499	*0.84x*	*1.42x*		
	% of Portfolio (Market Value)	***4.0%***										

[1](DPI) is equal to (capital returned / capital called)

[2](TVPI) is equal to (market value + capital returned) / capital called

[3]Net IRR is calculated on the cash flows of all the limited partners of the fund and is net of all fees. Each IRR is provided by the Fund manager and is reflective of the Fund IRR, rather than KCERA's specific IRR.

			IRR Analysis as of IRR date									
Vintage Year	Manager/Fund	Estimated Market Value 9/30/2023	Total Commitment	Capital Called	% Called	Remaining Commitment	Capital Returned	Market Value as of IRR date	Distrib./ Paid-In (DPI)[1]	Tot. Value/ Paid-In (TVPI)[2]	Net IRR Since Inception[3]	IRR Date
Private Credit												
2015	DC Value Recovery Fund IV[4]	$18,893,391	$74,360,749	$73,340,099	99%	$1,020,650	$40,330,120	$20,781,309	*0.55x*	*0.81x*	*N/A*	3/31/23
2017	Sixth Street TAO Partners (B)	$41,877,567	$108,035,958	$84,519,175	78%	$23,516,783	$44,061,451	$39,800,921	*0.52x*	*1.02x*	*9.7%*	3/31/23
2017	Brookfield Real Estate Finance Fund V	$16,771,893	$50,000,000	$36,019,917	72%	$13,980,083	$27,359,025	$16,752,621	*0.76x*	*1.23x*	*6.8%*	6/30/23
2018	Magnetar Constellation Fund V	$26,896,537	$60,000,000	$56,445,318	94%	$3,554,682	$42,783,179	$28,113,131	*0.76x*	*1.23x*	*5.9%*	6/30/23
2019	H.I.G Bayside Loan Opportunity Fund V	$45,153,751	$60,000,000	$35,821,497	60%	$24,178,503	$13,437,805	$43,519,452	*0.38x*	*1.64x*	*17.4%*	6/30/23
2020	Blue Torch Credit Opportunities Fund II	$16,189,364	$20,000,000	$16,613,092	83%	$3,386,908	$4,252,640	$17,526,212	*0.26x*	*1.23x*	*14.2%*	3/31/23
2020	Fortress Credit Opportunites Fund V Expansion	$16,911,033	$40,000,000	$15,122,013	38%	$24,877,987	$468,590	$15,507,751	*0.03x*	*1.15x*	*21.2%*	6/30/23
2021	Fortress Lending Fund II	$28,165,127	$40,000,000	$33,337,851	83%	$6,662,149	$8,834,329	$28,566,610	*0.26x*	*1.11x*	*10.0%*	6/30/23
2022	Blue Torch Credit Opportunities Fund III	$5,094,132	$40,000,000	$7,199,891	18%	$32,800,109	$5,108,700	$7,625,106	*0.71x*	*1.42x*	*20.1%*	3/31/23
2022	Fortress Lending Fund III	$24,367,938	$40,000,000	$23,232,701	58%	$16,767,299	$2,948,334	$23,889,989	*0.13x*	*1.18x*	*11.8%*	6/30/23
2022	OrbiMed Royalty & Credit Opportunities IV	$5,262,466	$30,000,000	$5,983,980	20%	$24,016,020	$1,089,589	$4,560,873	*0.18x*	*1.06x*	*11.9%*	3/31/23
2023	Cerberus Business Finance V	$10,291,962	$30,000,000	$0	0%	$30,000,000	$0	$0	*N/A*	*N/A*	*N/A*	*N/A*
2023	Ares Senior Direct Lending III	$0	$30,000,000	$0	0%	$30,000,000	$0	$0	*N/A*	*N/A*	*N/A*	*N/A*
2023	Ares Pathfinder II	$0	$30,000,000	$0	0%	$30,000,000	$0	$0	*N/A*	*N/A*	*N/A*	*N/A*
2023	Silver Point – Specialty Credit Fund III	$0	$30,000,000	$0	0%	$30,000,000	$0	$0	*N/A*	*N/A*	*N/A*	*N/A*
	Total Private Credit	**$255,875,161**	$562,396,707	$387,635,533	69%	$174,761,174	$190,673,763	$246,643,975	*0.49x*	*1.15x*		
	% of Portfolio (Market Value)	***4.8%***										

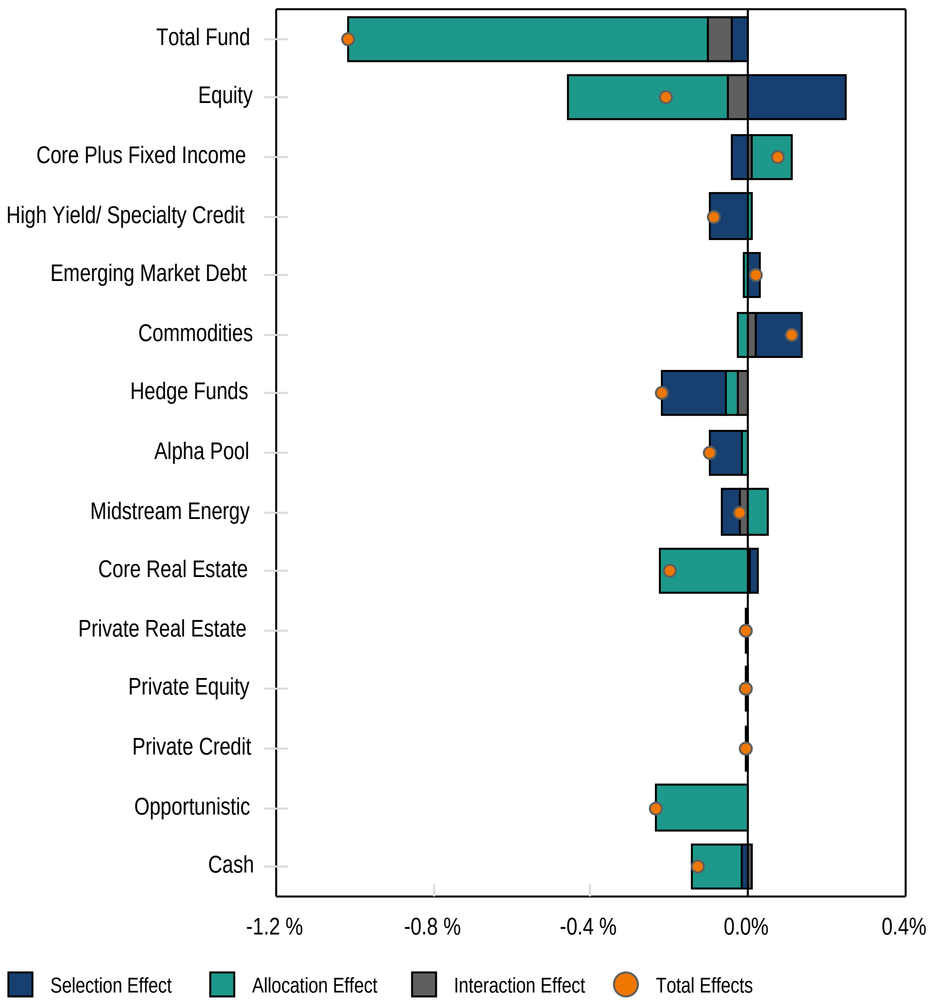
[1](DPI) is equal to (capital returned / capital called)
[2](TVPI) is equal to (market value + capital returned) / capital called
[3]Net IRR is calculated on the cash flows of all the limited partners of the fund and is net of all fees. Each IRR is provided by the Fund manager and is reflective of the Fund IRR, rather than KCERA's specific IRR.
[4]Name changed from Colony Distressed Credit fund to DC Value Recovery Fund IV

Vintage Year	Manager/Fund	Estimated Market Value 9/30/2023	Total Commitment	Capital Called	% Called	Remaining Commitment	Capital Returned	Market Value as of IRR date	Distrib./ Paid-In (DPI)[1]	Tot. Value/ Paid-In (TVPI)[2]	Net IRR Since Inception[3]	IRR Date
			IRR Analysis as of IRR date									
Private Real Estate												
2014	Invesco Real Estate Value-Add Fund IV	$930,593	$50,000,000	$43,637,717	87%	$6,362,283	$56,824,750	$945,682	*1.30x*	*1.32x*	*10.5%*	06/30/23
2017	Landmark Real Estate Partners VIII	$30,989,708	$60,000,000	$41,358,951	69%	$18,641,049	$25,196,880	$31,009,306	*0.61x*	*1.36x*	*18.5%*	03/31/23
2018	Long Wharf Real Estate Partners VI	$34,107,846	$50,000,000	$50,000,000	100%	$0	$24,281,467	$34,525,266	*0.49x*	*1.17x*	*19.5%*	06/30/23
2020	Covenant Apartment Fund X	$31,836,365	$30,000,000	$24,607,333	82%	$5,392,667	$6,567,324	$33,947,463	*0.27x*	*1.56x*	*23.2%*	06/30/23
2021	Singerman Real Estate Opportunity Fund IV	$12,316,089	$35,000,000	$10,946,250	31%	$24,053,750	$0	$8,944,617	*0.00x*	*1.13x*	*17.6%*	06/30/23
2022	LBA Logistics Value Fund IX, L.P.	$13,104,308	$40,000,000	$11,153,846	28%	$28,846,154	$0	$10,287,850	*0.00x*	*1.17x*	*-11.9%*	06/30/23
2022	Covenant Apartment Fund XI	$14,543,938	$30,000,000	$11,100,000	37%	$38,076,924	$3,112	N/A	N/A	N/A	N/A	N/A
2022	KSL Capital Partners VI	$1,944,774	$30,000,000	$2,752,026	9%	$27,247,974	$64,806	N/A	*N/A*	*N/A*	N/A	N/A
2022	Landmark Real Estate Partners IX	$0	$40,000,000	$0	0%	$40,000,000	$0	N/A	*N/A*	*N/A*	N/A	N/A
2023	Merit Hill V	$0	$30,000,000	$0	0%	$30,000,000	$0	N/A	*N/A*	*N/A*	N/A	N/A
	Total Private Real Estate	**$139,773,620**	$395,000,000	$195,556,123	50%	$218,620,801	$112,938,339	$119,660,184	*0.58x*	*1.29x*		
	% of Portfolio (Market Value)	***2.6%***										

[1](DPI) is equal to (capital returned / capital called)
[2](TVPI) is equal to (market value + capital returned) / capital called
[3]Net IRR is calculated on the cash flows of all the limited partners of the fund and is net of all fees. Each IRR is provided by the Fund manager and is reflective of the Fund IRR, rather than KCERA's specific IRR.

KSL Capital Partners VI funded in Q2

Attribution Effects
Last Three Months



Performance Attribution

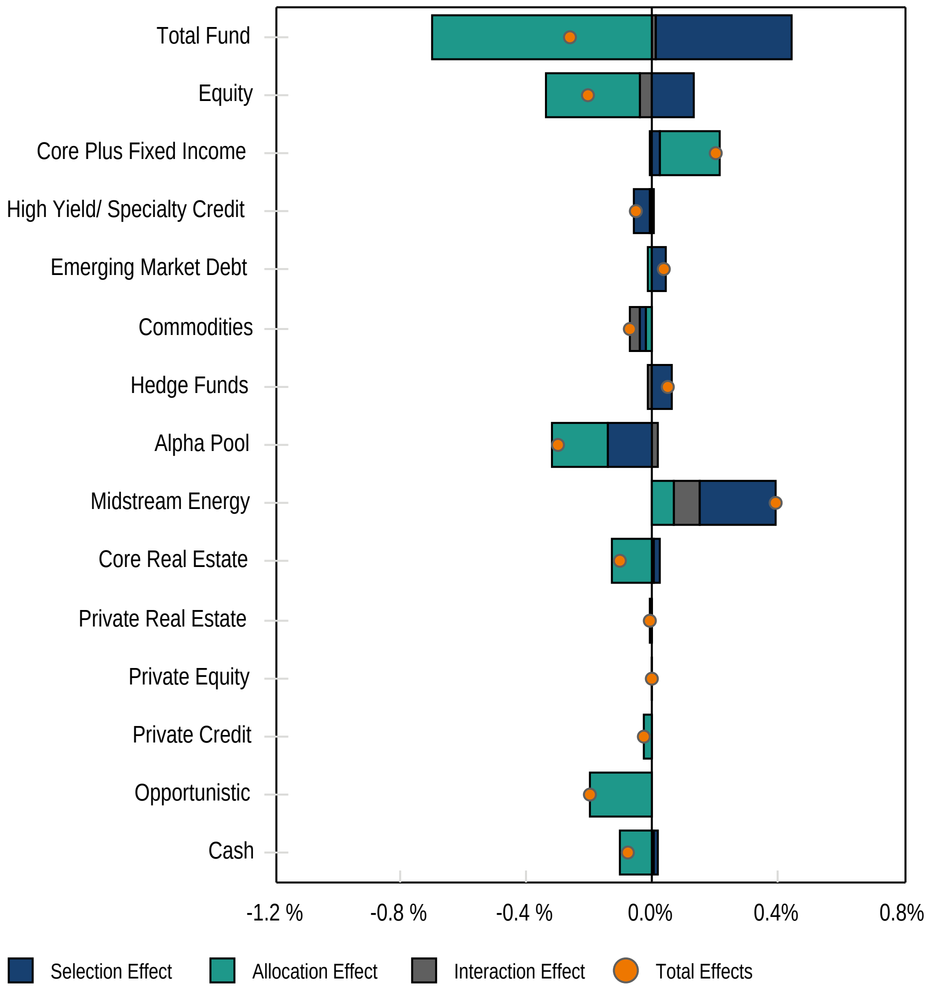
	Last Three Months
Wtd. Actual Return	4.5
Wtd. Index Return	5.5
Excess Return	-1.0
Selection Effect	0.0
Allocation Effect	-0.9
Interaction Effect	-0.1

Attribution Summary
Last Three Months

	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Interaction Effects	Total Effects
Equity	10.5	9.8	0.7	0.2	-0.4	-0.1	-0.2
Core Plus Fixed Income	1.6	1.9	-0.2	0.0	0.1	0.0	0.1
High Yield/ Specialty Credit	2.3	4.0	-1.6	-0.1	0.0	0.0	-0.1
Emerging Market Debt	9.1	8.3	0.8	0.0	0.0	0.0	0.0
Commodities	5.1	2.2	2.9	0.1	0.0	0.0	0.1
Hedge Funds	2.2	3.9	-1.7	-0.2	0.0	0.0	-0.2
Alpha Pool	0.2	1.8	-1.7	-0.1	0.0	0.0	-0.1
Midstream Energy	7.5	8.4	-0.9	0.0	0.0	0.0	0.0
Core Real Estate	-4.5	-5.0	0.4	0.0	-0.2	0.0	-0.2
Private Real Estate	2.0	2.0	0.0	0.0	0.0	0.0	0.0
Private Equity	-0.8	-0.8	0.0	0.0	0.0	0.0	0.0
Private Credit	0.4	0.4	0.0	0.0	0.0	0.0	0.0
Opportunistic	-1.4	1.8	-3.1	0.0	-0.2	0.0	-0.2
Cash	1.1	0.8	0.2	0.0	-0.1	0.0	-0.1
Total Fund	4.5	5.5	-1.0	0.0	-0.9	-0.1	-1.0

Weighted returns shown in attribution analysis may differ from actual returns. Negative cash allocation unable to be shown in Attribution Summary table. Wtd. Index Returns calculated from benchmark returns and weightings of each component. Selection Effect includes Other Effect in the Performance Attribution table.

Attribution Effects
Fiscal YTD



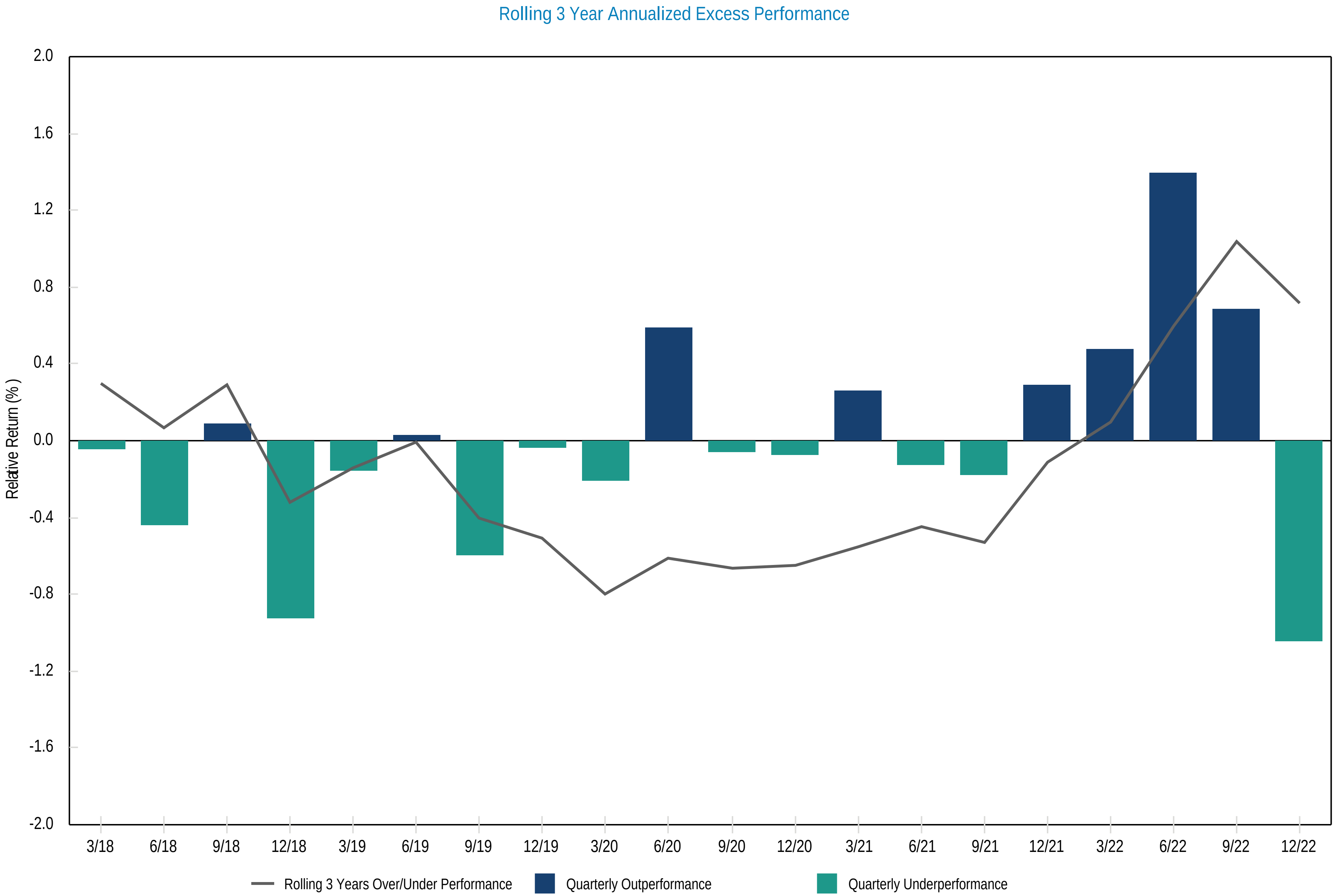
Performance Attribution

	Fiscal YTD
Wtd. Actual Return	1.2
Wtd. Index Return	1.5
Excess Return	-0.3
Selection Effect	0.4
Allocation Effect	-0.7
Interaction Effect	0.0

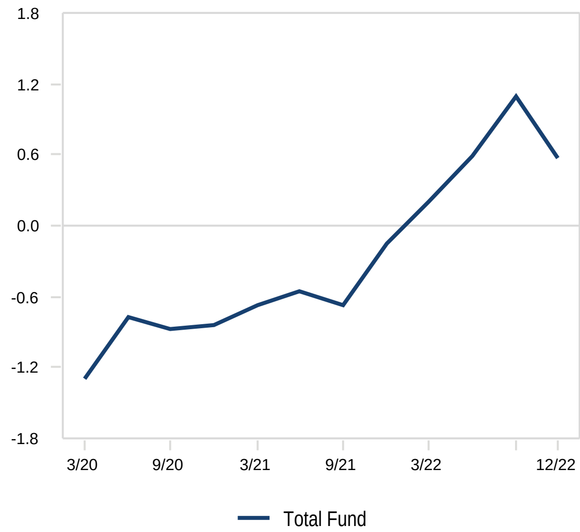
Attribution Summary
Fiscal YTD

	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Interaction Effects	Total Effects
Equity	2.9	2.6	0.3	0.2	-0.3	0.0	-0.2
Core Plus Fixed Income	-2.8	-3.0	0.1	0.0	0.2	0.0	0.2
High Yield/ Specialty Credit	2.4	3.3	-0.9	0.0	0.0	0.0	0.0
Emerging Market Debt	4.4	3.3	1.2	0.0	0.0	0.0	0.0
Commodities	-2.5	-2.0	-0.6	0.0	0.0	0.0	-0.1
Hedge Funds	3.7	3.3	0.4	0.1	0.0	0.0	0.0
Alpha Pool	0.9	3.3	-2.4	-0.1	-0.2	0.0	-0.3
Midstream Energy	12.7	7.3	5.4	0.3	0.1	0.1	0.4
Core Real Estate	-4.0	-4.5	0.4	0.0	-0.1	0.0	-0.1
Private Real Estate	5.2	5.2	0.0	0.0	0.0	0.0	0.0
Private Equity	-4.3	-4.3	0.0	0.0	0.0	0.0	0.0
Private Credit	-0.8	-0.8	0.0	0.0	0.0	0.0	0.0
Opportunistic	-4.5	3.6	-8.1	0.0	-0.2	0.0	-0.2
Cash	1.2	1.3	-0.1	0.0	-0.1	0.0	-0.1
Total Fund	1.2	1.5	-0.3	0.4	-0.7	0.0	-0.3

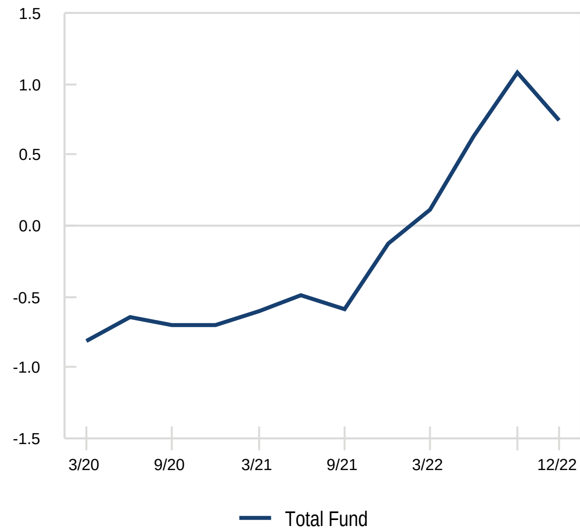
Weighted returns shown in attribution analysis may differ from actual returns. Negative cash allocation unable to be shown in Attribution Summary table. Wtd. Index Returns calculated from benchmark returns and weightings of each component. Selection Effect includes Other Effect in the Performance Attribution table.


Rolling 3 Year Annualized Excess Performance
Relative Return (%)
2.0
1.6
1.2
0.8
0.4
0.0
-0.4
-0.8
-1.2
-1.6
-2.0
3/18
6/18
9/18
12/18
3/19
6/19
9/19
12/19
3/20
6/20
9/20
12/20
3/21
6/21
9/21
12/21
3/22
6/22
9/22
12/22
Rolling 3 Years Over/Under Performance
Quarterly Outperformance
Quarterly Underperformance

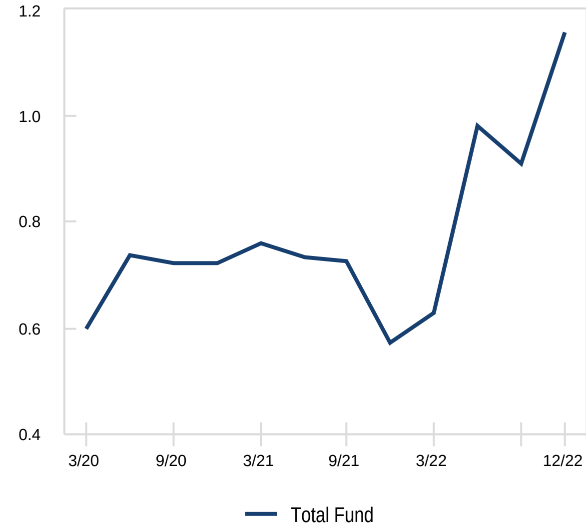
Rolling Information Ratio



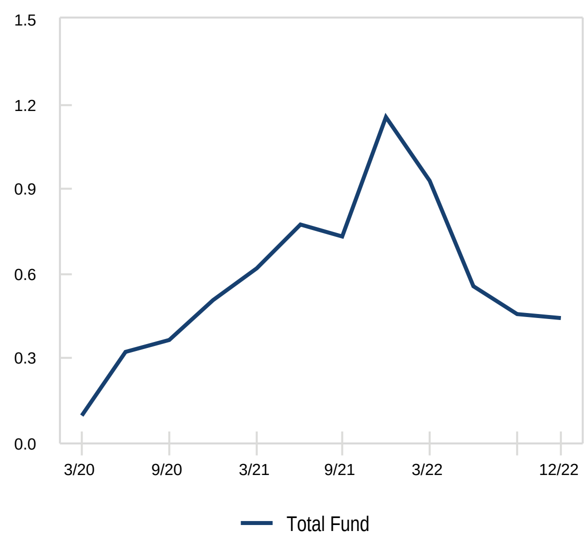
Rolling Annual Excess Benchmark Return



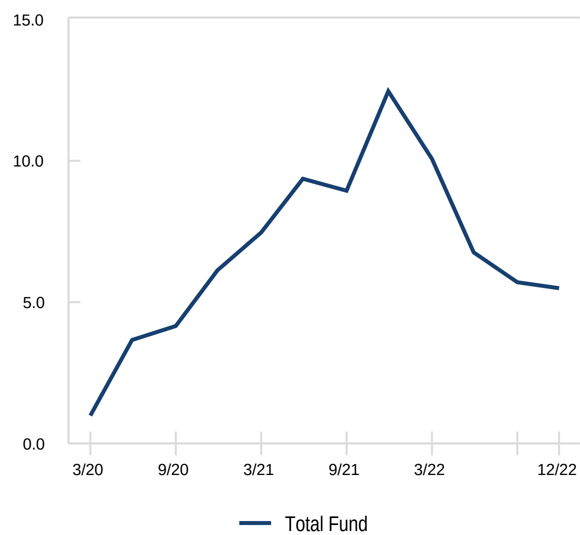
Rolling Tracking Error



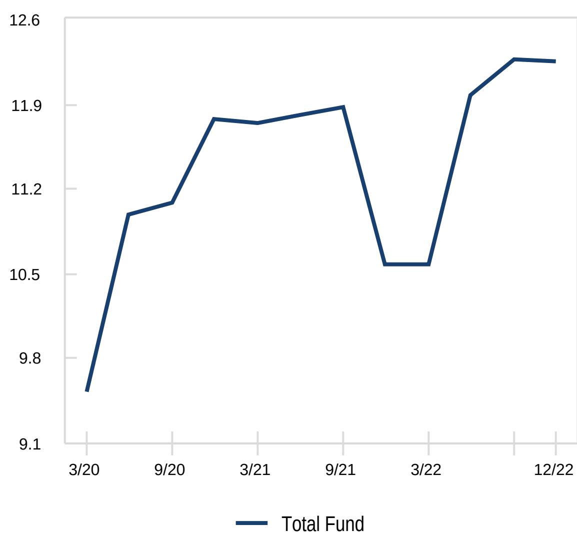
Rolling Sharpe Ratio

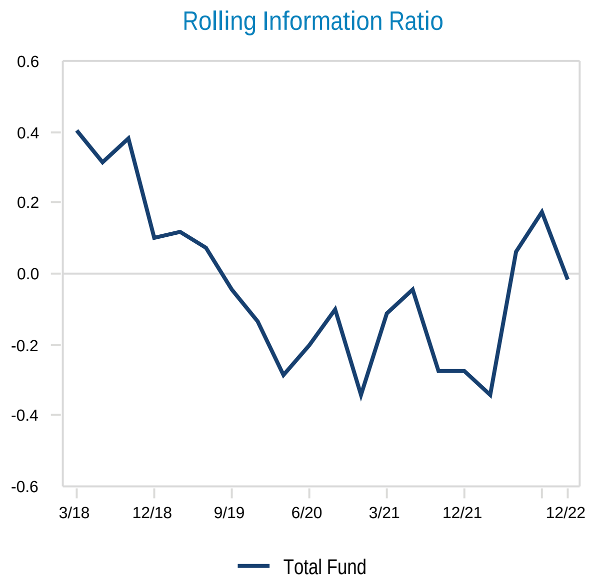


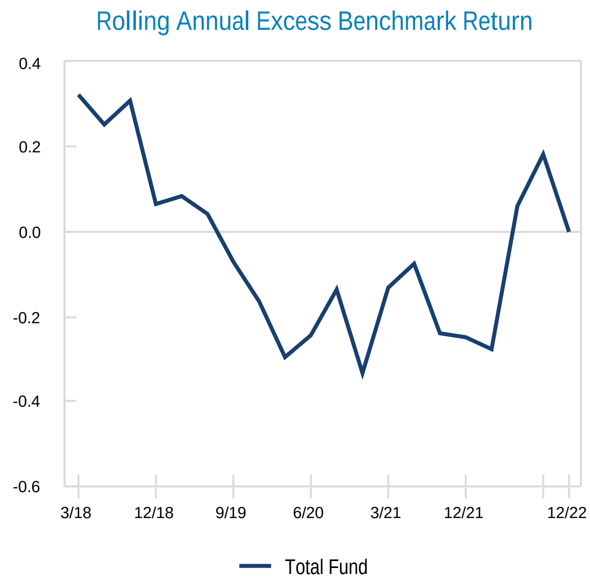
Rolling Annual Excess Risk Free Return

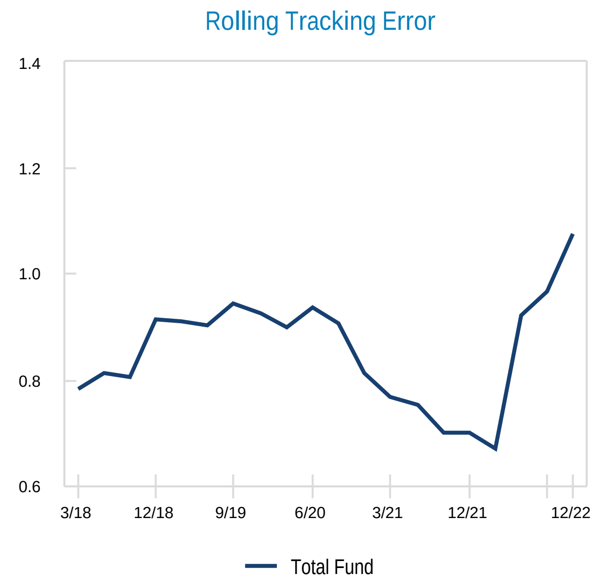


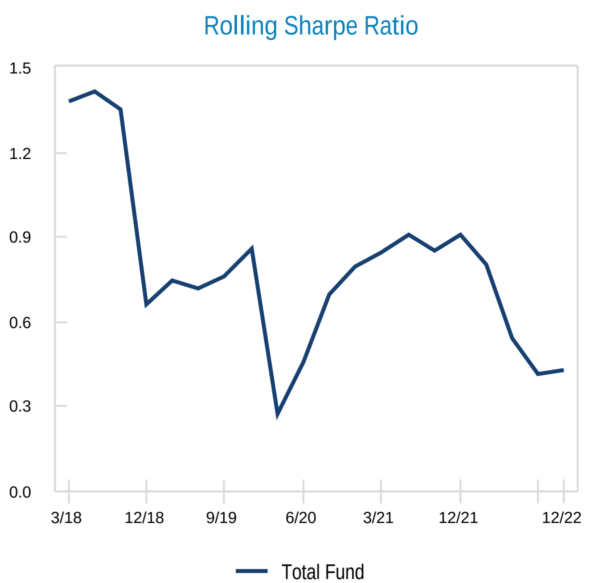
Rolling Annualized Standard Deviation



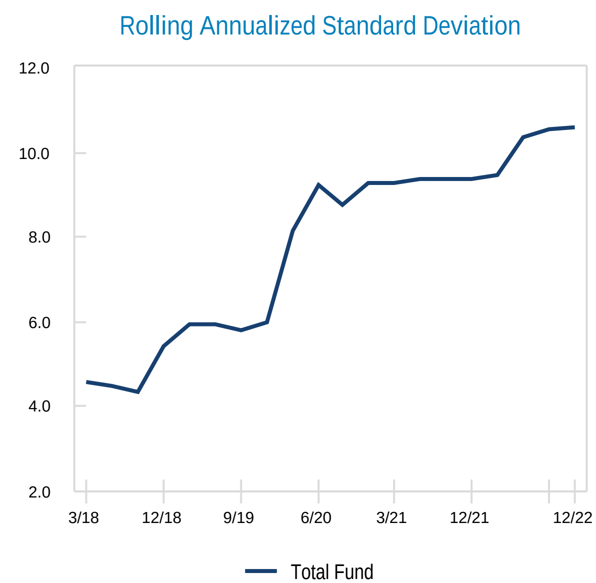

Rolling Information Ratio
0.6
0.4
0.2
0.0
-0.2
-0.4
-0.6
3/18
12/18
9/19
6/20
3/21
12/21
12/22
Total Fund


Rolling Annual Excess Benchmark Return
0.4
0.2
0.0
-0.2
-0.4
-0.6
3/18
12/18
9/19
6/20
3/21
12/21
12/22
Total Fund


Rolling Tracking Error
1.4
1.2
1.0
0.8
0.6
3/18
12/18
9/19
6/20
3/21
12/21
12/22
Total Fund


Rolling Sharpe Ratio
1.5
1.2
0.9
0.6
0.3
0.0
3/18
12/18
9/19
6/20
3/21
12/21
12/22
Total Fund


Rolling Annual Excess Risk Free Return
10.0
8.0
6.0
4.0
2.0
0.0
3/18
12/18
9/19
6/20
3/21
12/21
12/22
Total Fund


Rolling Annualized Standard Deviation
12.0
10.0
8.0
6.0
4.0
2.0
3/18
12/18
9/19
6/20
3/21
12/21
12/22
Total Fund

Cash Flows

	Estimated Beginning Market Value	Contributions	Withdrawals	Fees	Net Transfers	Net Investment Change	Estimated Ending Market Value
Equity	1,469,296,073		-25,383,666		-20,304,420	153,967,716	1,577,575,704
Equity Beta Exposure	124,611,900		-25,383,511		-304,400	9,956,211	108,880,200
Mellon DB SL Stock Index Fund	426,205,824					32,230,263	458,436,087
PIMCO StocksPLUS	92,550,537					6,916,692	99,467,229
AB US Small Cap Value Equity	78,127,226					7,984,701	86,111,927
Geneva Capital Small Cap Growth	43,421,320		-156			2,599,399	46,020,563
Mellon DB SL World ex-US Index Fund	405,985,897					65,391,568	471,377,465
Cevian Capital II	31,433,651					3,002,123	34,435,773
American Century Non-US Small Cap	60,918,029				-20	7,971,923	68,889,933
DFA Emerging Markets Value I	68,160,210					6,998,468	75,158,678
AB Emerging Markets Strategic Core Equity Collective Trust	64,396,359				-20,000,000	3,789,637	48,185,996
Mellon Emerging Markets Stock Index Fund	73,251,800					7,107,288	80,359,088
Transition Equity	736					109	845
Fidelity Non-US Small Cap Equity	232,584					19,336	251,920
Fixed Income	1,149,208,298	84,055,182	-1,196,373	-120,385	-33,301,748	33,561,358	1,232,206,332
Fixed Income Beta Exposure	254,923,009	84,055,182	-393,421		-1,525,100	262,992	337,322,663
Mellon DB SL Aggregate Bond Index Fund	154,776,570					2,937,145	157,713,715
PIMCO Core Plus	157,443,885					3,221,700	160,665,585
Western Asset Core Plus	115,138,268					3,674,392	118,812,660
Western Asset High Yield Fixed Income	183,575,160				-28,154,988	6,567,033	161,987,205
TCW Securitized Opportunities	97,625,393			-120,385	-3,621,660	-129,835	93,753,514
Stone Harbor Emerging Markets Debt Blend Portfolio	59,118,869		-802,952			5,351,023	63,666,940
PIMCO EMD	126,505,886					11,671,117	138,177,003
Transition Fixed Income	101,258					5,790	107,047
Commodities	231,611,569			-28,714	-37,000,000	11,218,921	205,801,777
Gresham MTAP Commodity Builder Fund	78,689,436			-28,714	-27,000,000	836,861	52,497,584
Wellington Commodities	152,922,133				-10,000,000	10,382,060	153,304,193
Hedge Funds	555,236,603				-23,847,662	11,920,259	543,309,200
Aristeia International Limited	68,735,073					-553,664	68,181,409
Brevan Howard Fund	76,508,122					255,718	76,763,840
D.E. Shaw Composite Fund	61,196,084				-4,120,886	1,781,731	58,856,929
HBK Fund II	56,515,419				-14,726,776	2,380,483	44,169,126
Hudson Bay Cap Structure Arbitrage Enhanced Fund	78,368,295					1,722,802	80,091,097

	Estimated Beginning Market Value	Contributions	Withdrawals	Fees	Net Transfers	Net Investment Change	Estimated Ending Market Value
Indus Pacific Opportunities Fund	37,249,096					-11,550	37,237,546
Magnetar Structured Credit Fund	8,159,524					137,666	8,297,190
Pharo Macro Fund	61,133,696					1,148,298	62,281,994
PIMCO Commodity Alpha Fund	63,623,535				-5,000,000	4,402,305	63,025,840
Sculptor Domestic Partners II LP	43,747,759					656,470	44,404,229
Alpha Pool	257,700,699	5,725,985			-24,324,244	403,136	239,505,576
Hudson Bay	60,533,289	1,369,871			437,556	-476,701	61,864,015
Davidson Kempner Institutional Partners	53,269,455	1,207,361			382,310	-612,122	54,247,004
HBK Fund II	54,349,773	1,260,019			-13,761,622	628,414	42,476,585
HBK Opportunities Platform – SPAC Series	35,999,510	646,228			-11,774,038	-113,764	24,757,936
Garda Fixed Income Relative Value Opportunity Fund	53,548,672	1,242,506			391,550	977,308	56,160,036
Midstream Energy	322,797,858				-48,890,841	25,485,335	299,392,352
Harvest Midstream	185,889,047				-47,789,638	13,978,180	152,077,589
PIMCO Midstream	136,908,811				-1,101,202	11,507,154	147,314,763
Core Real Estate	360,386,343			-338,981	-3,926,267	-15,814,512	340,306,582
ASB Allegiance Real Estate Fund	199,291,186				-1,951,028	-7,921,116	189,419,041
JPMCB Strategic Property Fund	161,095,157			-338,981	-1,975,239	-7,893,396	150,887,540
Private Real Estate	104,997,989				12,462,751	2,186,534	119,647,273
Invesco Real Estate Value-Add Fund IV	4,031,249					-1,371,795	2,659,454
Landmark Real Estate Partners VIII	28,646,936				2,020,382	1,056,828	31,724,146
Long Wharf Real Estate	33,209,484				1,268,583	338,544	34,816,611
Covenant Apartment Fund X	27,939,711				-380,540	2,345,935	29,905,106
Singerman Real Estate Opportunity Fund IV	3,850,122				4,331,250	33,455	8,214,827
LBA Logistics Value Fund IX, L.P.	5,813,153				1,923,077	-162,225	7,574,005
Covenant Apartment Fund XI, LP	1,507,333				3,300,000	-54,208	4,753,125
Private Equity	150,085,053	1,592,275			10,660,667	-1,055,334	161,282,661
Abbott VI	22,959,156				-1,245,490	-2,773,347	18,940,319
Pantheon Secondary III	567,222					-13,350	553,872
Pantheon III	49,712					-2,648	47,064
Pantheon V	414,136					-2,644	411,492
Pantheon VI	354,968					-8,778	346,190

	Estimated Beginning Market Value	Contributions	Withdrawals	Fees	Net Transfers	Net Investment Change	Estimated Ending Market Value
Pantheon VII	8,101,079					-206,918	7,894,161
Vista Foundation Fund IV	13,958,460					-137,270	13,821,190
Crown Global Secondaries V Master S.C.Sp	21,065,609				2,500,000	1,416,991	24,982,600
Brighton Park Capital Fund I	34,670,679				-158,002	-283,570	34,229,107
Warren Equity Partners Fund III	24,410,915					1,250,721	25,661,636
Peak Rock Capital Fund III	9,273,982				998,647	482,998	10,755,627
Level Equity Growth Partners V	2,872,189				1,443,646	-278,632	4,037,203
Level Equity Opportunities Fund 2021	1,371,903				2,022,817	-181,872	3,212,848
Linden Capital Partners V LP	5,145,635				477,975	-162,582	5,461,028
Linden Co-Investment V LP	1,769,077					77,190	1,846,267
Abbott V	3,100,331					-231,623	2,868,708
Private Credit	248,609,852				-6,167,405	935,026	243,377,473
DC Value Recovery Fund IV	33,313,661				-13,622,353	-868,894	18,822,414
Sixth Street TAO Partners (B)	37,760,184				325,471	588,808	38,674,463
Brookfield Real Estate Finance Fund V	19,766,051				-918,105	770,155	19,618,101
Magnetar Constellation Fund V	31,448,946				-1,900,729	977,526	30,525,743
H.I.G. Bayside Loan Opportunity Fund V	40,257,660					-185,517	40,072,143
Blue Torch Credit Opportunities Fund II	16,754,007				-262,540	597,813	17,089,280
Fortress Credit Opportunites Fund V Expansion	12,998,162				1,041,074	-19,414	14,019,822
Fortress Lending Fund II	30,712,727				-1,130,223	-983,400	28,599,104
Fortress Lending Fund III	15,394,988				8,800,000	-188,338	24,006,650
OrbiMed Royalty & Credit Opportunities IV	3,000,000				1,500,000	60,332	4,560,332
Blue Torch Credit Opportunities Fund III	7,203,466					185,955	7,389,421
Opportunistic	168,102,976				3,050,766	-2,313,059	168,840,683
DB Investors Fund IV	22,582,102					-876,726	21,705,376
Sixth Street TAO Partners (D)	84,455,252				3,814,422	2,635,483	90,905,157
Aristeia Select Opportunities II	52,911,257					-4,218,183	48,693,074
River Birch International	8,154,365				-763,656	146,367	7,537,076

	Estimated Beginning Market Value	Contributions	Withdrawals	Fees	Net Transfers	Net Investment Change	Estimated Ending Market Value
Cash	-117,009,383	140,606,102	-225,575,534	-26,323	171,588,402	1,693,123	-28,723,613
Short Term Investment Funds	72,261,961	684,002	-20,875,908	-26,323	141,588,402	1,355,295	194,987,429
Parametric Cash Overlay	46,075,185	62,148,890	-40,652,380				67,571,696
Goldman Sachs Cash Account	25,625,978	40,797,305	-62,038,791				4,384,492
Futures Offset	-379,534,909	36,975,905	-102,008,455			-1,635,404	-446,202,863
Collateral Cash							
BlackRock Short Duration Fund	118,562,401				30,000,000	1,973,232	150,535,633

Portfolio Reconciliation

	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs
Beginning Market Value	4,901,023,930	5,061,358,140	5,558,278,973	4,502,865,481	4,181,030,655	3,102,407,361
Contributions	521,842,704	1,926,712,090	3,438,566,790	10,258,584,522	12,322,983,985	18,243,788,644
Withdrawals	-542,018,734	-1,957,576,214	-3,508,001,409	-10,475,977,814	-12,673,850,000	-18,892,032,494
Fees	-514,402	-1,039,480	-10,754,518	-39,922,553	-66,658,458	-126,702,760
Net Cash Flows	-20,176,030	-30,864,123	-69,434,618	-217,393,292	-350,866,015	-648,243,851
Net Investment Change	221,674,100	72,027,984	-386,322,354	817,049,811	1,272,357,361	2,648,358,490
Ending Market Value	5,102,522,000	5,102,522,000	5,102,522,000	5,102,522,000	5,102,522,000	5,102,522,000
Net Change $	201,498,070	41,163,860	-455,756,972	599,656,519	921,491,346	2,000,114,639

Contribution and withdrawals include transfers in and out of accounts. Ending market value is net of fees. Market value and flows do not include the Short Term Cash Account balance.

Risk Metrics

Correlation Matrix
3 Years Ending December 31, 2022

	A	B	C	D	E	F	G	H	I	J	K	L
A	1.00											
B	0.99	1.00										
C	0.96	0.98	1.00									
D	0.96	0.98	0.93	1.00								
E	0.85	0.84	0.75	0.84	1.00							
F	0.82	0.79	0.75	0.77	0.77	1.00						
G	0.61	0.60	0.58	0.56	0.58	0.92	1.00					
H	0.90	0.85	0.82	0.82	0.79	0.87	0.66	1.00				
I	0.84	0.81	0.73	0.82	0.85	0.90	0.69	0.87	1.00			
J	0.71	0.63	0.56	0.67	0.62	0.38	0.11	0.60	0.56	1.00		
K	0.73	0.69	0.65	0.67	0.70	0.58	0.33	0.77	0.70	0.57	1.00	
L	-0.16	-0.17	-0.10	-0.21	-0.25	-0.36	-0.34	-0.25	-0.34	-0.01	-0.22	1.00

A = Total Fund
B = Equity
C = Domestic Equity
D = International Developed Equity
E = Emerging Markets Equity
F = Fixed Income
G = Core Plus Fixed Income
H = High Yield/ Specialty Credit
I = Emerging Market Debt
J = Commodities
K = Hedge Funds
L = Core Real Estate

Low Interaction
Moderate Interation
Moderate to High Interation
High Interaction

	Alpha	Beta	R-Squared	Return	Information Ratio	Excess Performance	Tracking Error	Sharpe Ratio	Excess Return	Standard Deviation	Sortino Ratio	Up Capture	Down Capture
Total Fund	1.0	0.9	1.0	5.6	0.4	0.7	1.5	0.5	5.3	10.3	0.7	95.9	89.3
Equity	0.5	1.0	1.0	4.4	0.4	0.5	1.0	0.3	5.6	20.1	0.4	100.2	98.4
Domestic Equity	0.1	1.0	1.0	7.3	0.0	0.1	1.2	0.4	8.7	21.3	0.6	99.2	98.9
International Developed Equity	0.8	1.0	1.0	1.8	0.7	0.8	1.1	0.2	3.2	20.4	0.2	102.2	99.7
Emerging Markets Equity	-1.6	1.0	1.0	-3.3	-0.5	-1.5	2.9	-0.1	-2.1	20.0	-0.1	91.1	97.2
Fixed Income	0.7	1.1	1.0	-1.9	0.5	0.5	1.0	-0.3	-2.4	7.1	-0.4	111.8	103.8
Core Plus Fixed Income	0.3	1.1	1.0	-2.6	0.1	0.1	1.2	-0.5	-3.2	6.2	-0.6	114.3	108.6
High Yield/ Specialty Credit	0.3	0.8	1.0	0.2	0.1	0.4	2.9	0.0	-0.1	9.0	0.0	75.9	73.5
Emerging Market Debt	2.1	1.1	1.0	-4.1	1.1	1.6	1.5	-0.3	-4.0	13.3	-0.4	109.6	97.3
Commodities	1.1	0.9	0.9	12.7	0.0	0.0	5.8	0.7	12.8	17.6	1.1	92.8	88.6
Hedge Funds	5.4	0.7	0.4	9.0	0.9	4.0	4.1	1.5	8.0	5.1	2.5	95.5	13.0
Core Real Estate	2.3	0.6	0.9	8.1	-0.5	-1.8	4.0	1.4	7.3	5.2	3.3	78.8	69.3
Private Real Estate	0.0	1.0	1.0	17.4	-	0.0	0.0	1.8	15.8	8.7	5.4	100.0	100.0
Private Equity	0.0	1.0	1.0	13.5	-0.6	0.0	0.0	0.9	12.9	13.7	1.8	100.0	100.1
Private Credit	0.0	1.0	1.0	2.6	-0.6	0.0	0.0	0.4	2.0	4.7	0.7	99.9	100.0

Data not available for time periods less than 3 years (Alpha Pool, Midstream, & Opportunistic added in 2020)

Risk Return Statistics: Last Three Years

3 Years

	Equity	MSCI AC World IMI (Net)	Core Plus Fixed Income	Bloomberg U.S. Aggregate Index	High Yield/ Specialty Credit	ICE BofA U.S. High Yield Index	Emerging Market Debt	50 JPM EMBI Global Div/ 50 JPM GBI EM Global Div	Commodities	Bloomberg Commodity Index Total Return	Hedge Funds	75% 3 Month T-Bill +4% / 25% MSCI ACWI (net)	Core Real Estate	NCREIF ODCE- monthly
RETURN SUMMARY STATISTICS														
Up Market Periods	21	21	16	16	23	23	17	17	25	25	23	23	34	34
Down Market Periods	15	15	20	20	13	13	19	19	11	11	13	13	2	2
Maximum Return	12.43	12.66	3.41	3.68	4.80	6.02	7.56	7.35	8.01	8.78	3.99	3.34	5.39	7.97
Minimum Return	-14.74	-14.39	-4.27	-4.32	-10.52	-11.76	-13.80	-12.46	-12.65	-12.81	-5.24	-3.02	-3.35	-4.97
Return	4.41	3.89	-2.60	-2.71	0.19	-0.23	-4.11	-5.66	12.66	12.65	8.97	4.99	8.13	9.93
Excess Return	5.65	5.18	-3.16	-3.30	-0.11	-0.32	-3.99	-5.73	12.84	12.98	8.04	4.28	7.25	9.13
Excess Performance	0.51	0.00	0.12	0.00	0.43	0.00	1.56	0.00	0.01	0.00	3.99	0.00	-1.80	0.00
RISK SUMMARY STATISTICS														
Beta	0.99	1.00	1.05	1.00	0.79	1.00	1.06	1.00	0.91	1.00	0.70	1.00	0.58	1.00
Upside Risk	14.52	14.54	3.79	3.48	5.19	6.72	7.81	7.20	13.64	13.62	4.77	4.24	5.27	8.32
Downside Risk	14.02	14.18	4.95	4.66	7.34	8.83	10.85	10.33	11.83	12.95	3.11	2.89	2.15	3.00
RISK/RETURN SUMMARY STATISTICS														
Standard Deviation	20.10	20.24	6.19	5.77	8.99	11.10	13.33	12.51	17.63	18.38	5.10	4.92	5.20	8.37
Alpha	0.52	0.00	0.28	0.00	0.29	0.00	2.06	0.00	1.09	0.00	5.40	0.00	2.32	0.00
Sharpe Ratio	0.28	0.25	-0.51	-0.57	-0.01	-0.03	-0.30	-0.46	0.72	0.70	1.53	0.85	1.36	1.07
Excess Risk	20.22	20.36	6.22	5.78	9.12	11.22	13.39	12.56	17.78	18.54	5.24	5.03	5.35	8.49
Tracking Error	1.05	0.00	1.23	0.00	2.86	0.00	1.54	0.00	5.77	0.00	4.06	0.00	4.05	0.00
Information Ratio	0.45	-	0.12	-	0.07	-	1.13	-	-0.02	-	0.93	-	-0.46	-
CORRELATION STATISTICS														
R-Squared	1.00	1.00	0.96	1.00	0.96	1.00	0.99	1.00	0.90	1.00	0.45	1.00	0.86	1.00
Actual Correlation	1.00	1.00	0.98	1.00	0.98	1.00	0.99	1.00	0.95	1.00	0.67	1.00	0.93	1.00

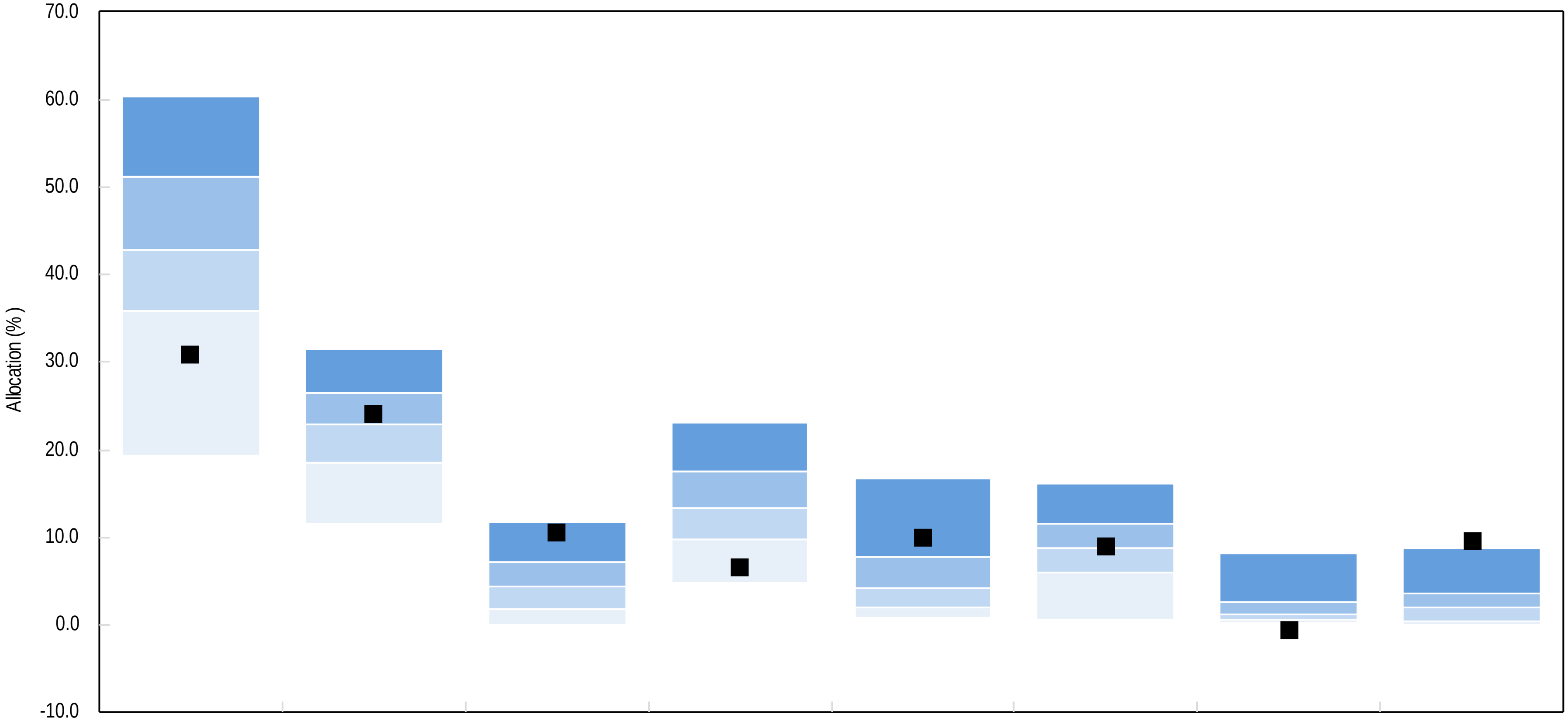
Risk Return Statistics: Last Two Years

	2 Yrs			
	Midstream Energy	Alerian Midstream Energy Index	Opportunistic	Assumed Rate of Return +3%
RETURN SUMMARY STATISTICS				
Up Market Periods	16	16	24	24
Down Market Periods	8	8	0	0
Maximum Return	11.14	11.05	19.65	0.58
Minimum Return	-11.84	-12.21	-4.04	0.58
Return	28.12	29.70	13.39	7.25
Excess Return	26.08	27.93	13.22	6.27
Excess Performance	-1.59	0.00	6.14	0.00
RISK SUMMARY STATISTICS				
Beta	0.85	1.00	-	-
Upside Risk	16.90	19.04	16.64	2.03
Downside Risk	11.39	13.31	5.44	0.00
RISK/RETURN SUMMARY STATISTICS				
Standard Deviation	18.85	21.70	17.04	0.00
Alpha	2.36	0.00	-	-
Sharpe Ratio	1.38	1.28	0.77	17.27
Excess Risk	18.95	21.80	17.13	0.36
Tracking Error	4.68	0.00	17.04	0.00
Information Ratio	-0.39	-	0.41	-
CORRELATION STATISTICS				
R-Squared	0.97	1.00	-	-
Actual Correlation	0.98	1.00	-	-

Data for unavailable for positions held for less than two years.

Peer Comparison

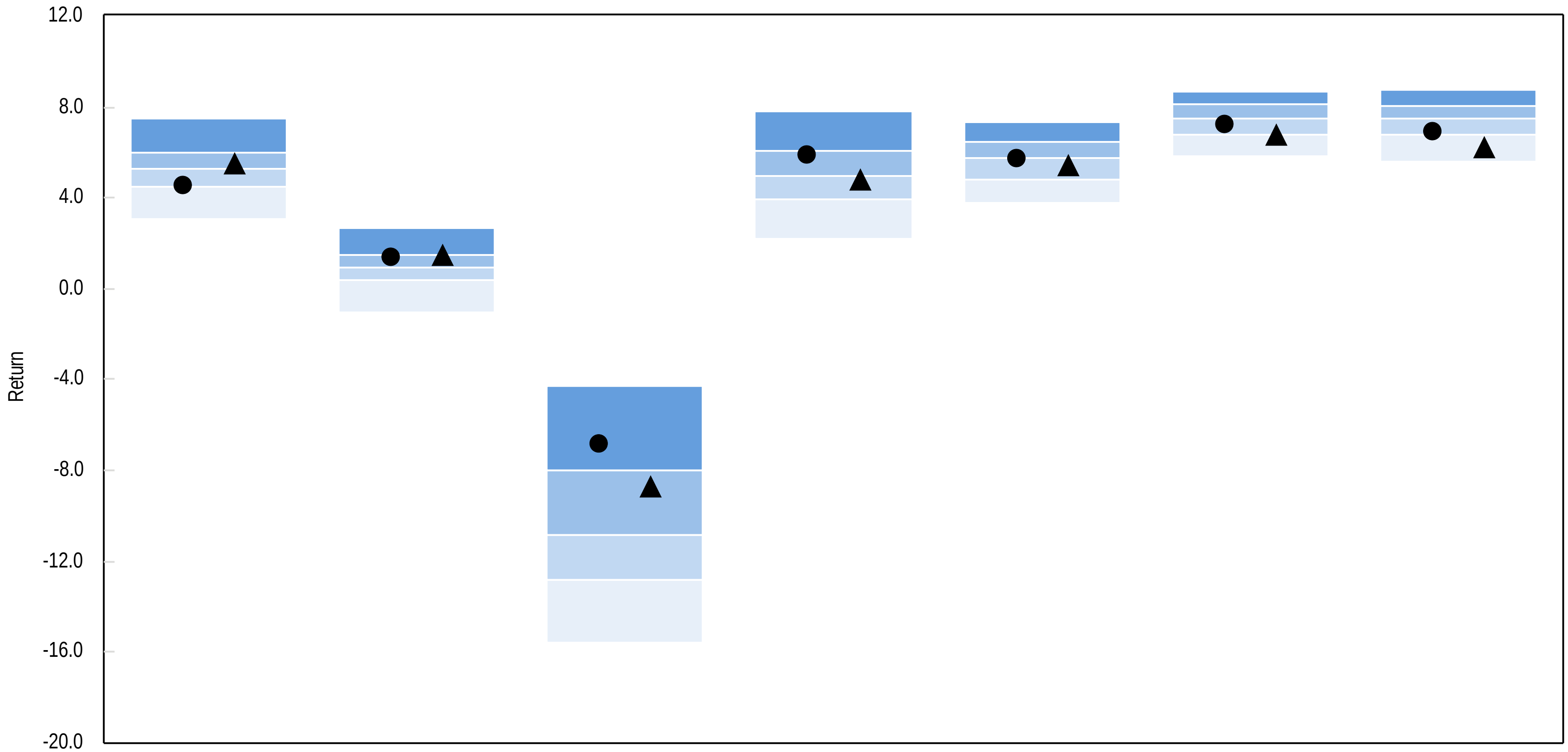
Total Plan Allocation vs. InvMetrics Public DB > $1B
As of December 31, 2022



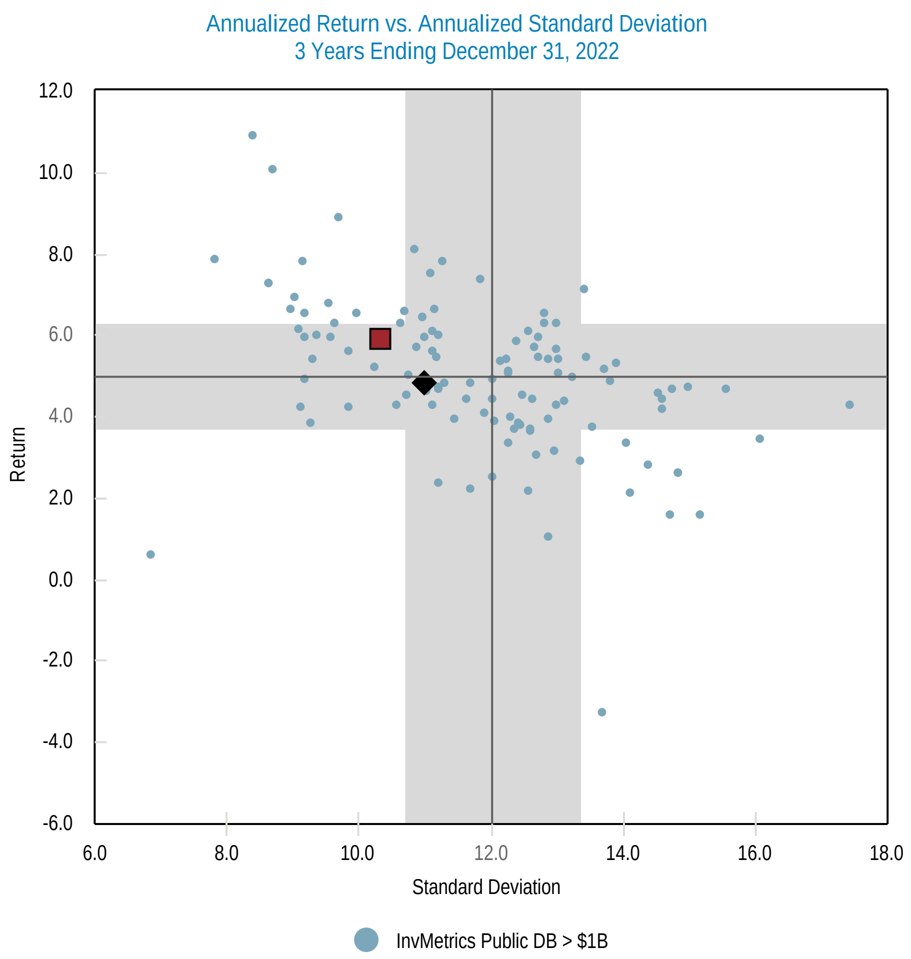
	Total Equity	Total Fixed Income	Hedge Funds	Private Equity	Real Assets/Commod	Real Estate - Private	Cash & Equivalents	Other
■ Total Fund	30.9 (86)	24.1 (40)	10.6 (10)	6.6 (92)	9.9 (21)	8.9 (48)	-0.6	9.5 (1)
5th Percentile	60.4	31.5	11.8	23.2	16.7	16.1	8.2	8.7
1st Quartile	51.2	26.6	7.1	17.4	7.8	11.6	2.6	3.6
Median	42.9	22.9	4.4	13.3	4.2	8.9	1.2	1.9
3rd Quartile	35.9	18.5	1.7	9.8	2.0	5.9	0.6	0.4
95th Percentile	19.3	11.5	0.1	4.7	0.7	0.5	0.1	0.1
Population	133	135	66	106	69	96	108	19

Parentheses contain percentile rankings. Other contains Alpha Pool, Opportunistic, and Private Credit. Real Estate contains Private and Core Real Estate. Real Assets contain Commodities and Midstream.

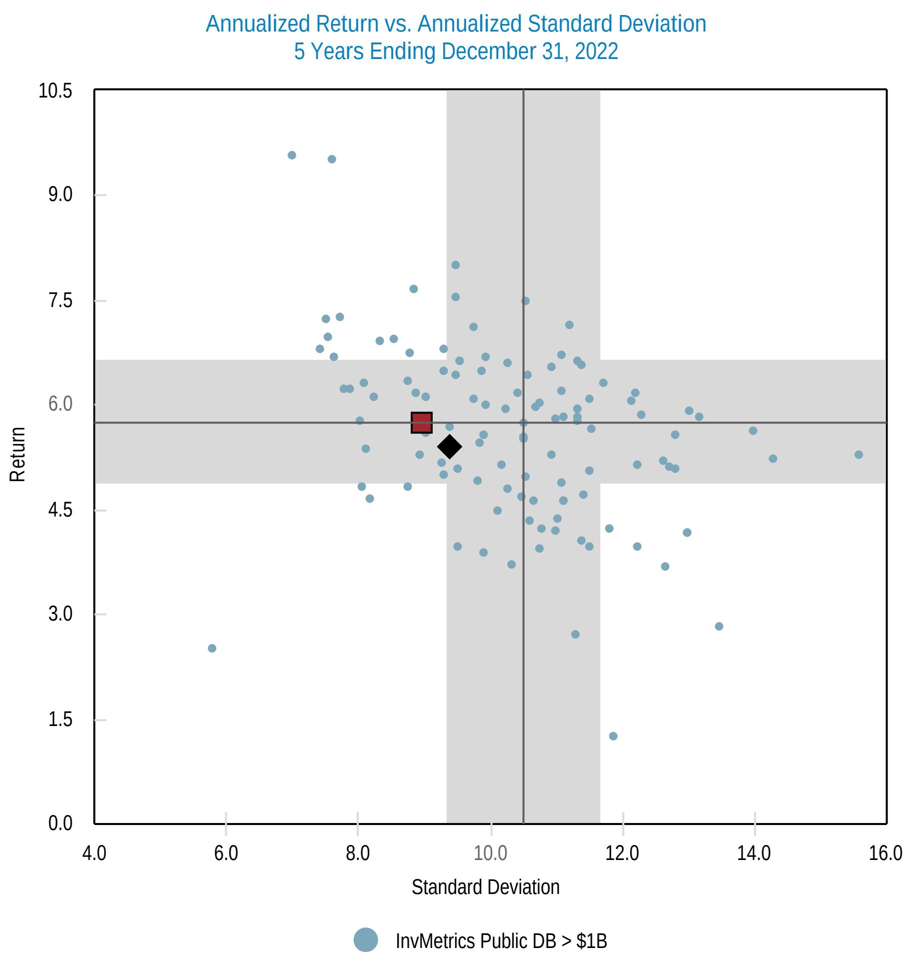
Total Fund vs. InvMetrics Public DB > $1B



	Quarter	Fiscal YTD	1 Year	3 Years	5 Years	7 Years	10 Years
● Total Fund	4.6 (73)	1.4 (30)	-6.8 (17)	5.9 (31)	5.8 (51)	7.2 (57)	6.9 (72)
▲ Policy Index	5.5 (44)	1.5 (23)	-8.7 (29)	4.8 (54)	5.4 (60)	6.8 (75)	6.3 (85)
5th Percentile	7.5	2.7	-4.3	7.8	7.4	8.7	8.8
1st Quartile	6.0	1.5	-8.0	6.1	6.4	8.1	8.0
Median	5.3	1.0	-10.8	5.0	5.8	7.5	7.5
3rd Quartile	4.5	0.4	-12.8	4.0	4.8	6.8	6.8
95th Percentile	3.0	-1.1	-15.6	2.2	3.8	5.8	5.6
Population	132	130	121	115	112	112	104



	Return	Standard Deviation
Total Fund	5.93	10.33
Policy Index	4.85	11.00
Median	4.98	12.03
Population	115	115



	Return	Standard Deviation
Total Fund	5.75	8.96
Policy Index	5.42	9.40
Median	5.76	10.50
Population	112	112

Other

Fund Name	Allocation Group	Overall Status	Outperformed Universe 10th percentile (1yr)	Outperformed Universe 75th percentile (1yr)	Outperformed Index (1yr)	Outperformed Median Rank (3 yrs)	Outperformed Index (3yrs)	Outperformed Median Rank (5 yrs)	Outperformed Index (5yrs)	Concern	Index Fund Tracking Error over 0.25% (1yr)
Equity Beta Exposure	Equity	🟩	-	-	-	-	-	-	-	-	✔
Russell 2000 Overlay	Equity	🟩	-	-	-	-	-	-	-	-	-
Mellon DB SL Stock Index Fund	Equity	🟩	-	-	-	-	-	-	-	-	✔
PIMCO StocksPLUS	Equity	🟩	✔	🚩	🚩	🚩	🚩	✔	🚩	-	-
AB US Small Cap Value Equity	Equity	🟩	✔	🚩	🚩	🚩	✔	🚩	🚩	-	-
Geneva Capital Small Cap Growth	Equity	🟩	✔	✔	✔	🚩	✔	🚩	✔	-	-
Mellon DB SL World ex-US Index Fund	Equity	🟩	-	-	-	-	-	-	-	-	🚩
Fidelity Non-US Small Cap Equity	Equity	🟩	🚩	✔	✔	✔	✔	✔	✔	-	-
Cevian Capital II	Equity	🟩	-	-	-	-	-	-	-	-	🚩
American Century Non-US Small Cap	Equity	🟩	✔	✔	🚩	-	-	-	-	-	-
DFA Emerging Markets Value I	Equity	🟩	🚩	✔	✔	✔	✔	✔	✔	-	-
AB Emerging Markets Strategic Core Equity Collective Trust	Equity	🟩	✔	✔	🚩	🚩	🚩	🚩	🚩	-	-
Mellon Emerging Markets Stock Index Fund	Equity	🟩	-	-	-	-	-	-	-	-	🚩
Mellon DB SL Aggregate Bond Index Fund	Fixed Income	🟩	-	-	-	-	-	-	-	-	✔
PIMCO Core Plus	Fixed Income	🟨	✔	✔	✔	✔	✔	🚩	✔	P	-
Western Asset Core Plus	Fixed Income	🟩	✔	🚩	🚩	🚩	🚩	🚩	✔	-	-
Western Asset High Yield Fixed Income	Fixed Income	🟩	✔	✔	🚩	✔	🚩	✔	🚩	-	-
TCW Securitized Opportunities	Fixed Income	🟩	✔	✔	✔	✔	✔	✔	🚩	-	-
Stone Harbor Emerging Markets Debt Blend Portfolio	Fixed Income	🟩	✔	✔	🚩	🚩	✔	🚩	🚩	P	-
PIMCO EMD	Fixed Income	🟩	✔	✔	✔	-	-	-	-	-	-
Gresham MTAP Commodity Builder Fund	Commodities	🟩	✔	✔	✔	🚩	✔	🚩	🚩	-	-
Wellington Commodities	Commodities	🟩	✔	🚩	🚩	🚩	✔	🚩	🚩	-	-

Legend For Overall Status
- No Issues 🟩
- Watch 🟨
- Terminate 🟥

Legend for Standards
- Pass ✔
- Fail 🚩

Legend for Concern
- Provisional P
- Restricted R
- No Issues --

Fund Name	Allocation Group	Overall Status	Outperformed Universe 10th percentile (1yr)	Outperformed Universe 75th percentile (1yr)	Outperformed Index (1yr)	Outperformed Median Rank (3 yrs)	Outperformed Index (3yrs)	Outperformed Median Rank (5 yrs)	Outperformed Index (5yrs)	Concern	Index Fund Tracking Error over 0.25% (1yr)
Aristeia International Limited	Hedge Funds	🟩	-	-	🚩	-	✔	-	✔	-	-
Brevan Howard Fund	Hedge Funds	🟩	-	-	✔	-	✔	-	✔	-	-
D.E. Shaw Composite Fund	Hedge Funds	🟩	-	-	✔	-	✔	-	✔	-	-
HBK Fund II	Hedge Funds	🟩	-	-	🚩	-	✔	-	🚩	-	-
Hudson Bay Cap Structure Arbitrage Enhanced Fund	Hedge Funds	🟩	-	-	✔	-	✔	-	✔	-	-
Indus Pacific Opportunities Fund	Hedge Funds	🟩	-	-	🚩	-	✔	-	🚩	-	-
Magnetar Structured Credit Fund	Hedge Funds	🟩	-	-	🚩	-	✔	-	✔	-	-
PIMCO Commodity Alpha Fund	Hedge Funds	🟩	✔	🚩	🚩	🚩	🚩	✔	✔	-	-
River Birch International	Opportunistic	🟩	-	-	✔	-	🚩	-	🚩	-	-
Sculptor Domestic Partners II LP	Hedge Funds	🟩	-	-	🚩	-	🚩	-	-	-	-
Harvest Midstream	Midstream	🟩	✔	✔	✔	-	-	-	-	-	-
PIMCO Midstream	Midstream	🟩	✔	✔	🚩	-	-	-	-	-	-
ASB Allegiance Real Estate Fund	Core Real Estate	🟩	-	-	✔	-	🚩	-	🚩	-	-
JPMCB Strategic Property Fund	Core Real Estate	🟩	-	-	🚩	-	🚩	-	🚩	-	-
Invesco Real Estate Value-Add Fund IV	Private Real Estate	🟩	-	-	🚩	-	🚩	-	🚩	-	-
Landmark Real Estate Partners VIII	Private Real Estate	🟩	-	-	-	-	-	-	-	-	🚩
DB Investors Fund IV	Opportunistic	🟩	-	-	🚩	-	🚩	-	-	-	-
Sixth Street TAO Partners (D)	Opportunistic	🟩	-	-	🚩	-	-	-	-	-	-
Aristeia Select Opportunities II	Opportunistic	🟩	-	-	🚩	-	-	-	-	-	-

Legend For Overall Status

No Issues	🟩
Watch	🟨
Terminate	🟥

Legend for Standards

Pass	✔
Fail	🚩

Legend for Concern

Provisional	P
Restricted	R
No Issues	--

	2022 Q4	2022 Q3	2022 Q2	2022 Q1	2021 Q4	2021 Q3	2021 Q2	2021 Q1	2020 Q4	2020 Q3	2020 Q2	2020 Q1
Total Fund	4.5	-3.1	-7.5	-0.8	3.6	0.5	5.5	3.5	8.8	4.4	10.7	-11.3
Policy Index	*5.5*	*-3.8*	*-8.9*	*-1.3*	*3.3*	*0.7*	*5.7*	*3.3*	*8.8*	*4.5*	*10.1*	*-11.1*

	2019 Q4	2019 Q3	2019 Q2	2019 Q1	2018 Q4	2018 Q3	2018 Q2	2018 Q1	2017 Q4	2017 Q3	2017 Q2	2017 Q1
Total Fund	4.6	0.2	3.1	6.8	-6.4	2.3	0.3	-0.1	3.0	3.2	2.7	4.2
Policy Index	*4.6*	*0.8*	*3.0*	*7.0*	*-5.5*	*2.2*	*0.7*	*-0.1*	*3.2*	*3.1*	*2.8*	*3.5*

	2016 Q4	2016 Q3	2016 Q2	2016 Q1	2015 Q4	2015 Q3	2015 Q2	2015 Q1	2014 Q4	2014 Q3	2014 Q2	2014 Q1
Total Fund	0.8	3.5	1.9	1.1	2.2	-5.4	0.7	2.4	0.8	-1.5	3.6	2.1
Policy Index	*0.5*	*2.9*	*2.2*	*1.8*	*1.4*	*-4.9*	*0.4*	*2.0*	*0.4*	*-1.4*	*3.4*	*2.4*

Performance Return Calculations

Performance is calculated using a Time Weighted Rates of Return (TWRR) methodology. Monthly returns are linked geometrically and annualized for periods longer than one year.

Data Source

Verus is an independent third party consulting firm and calculates returns from best source book of record data. Returns calculated by Verus may deviate from those shown by the manager in part, but not limited to, differences in prices and market values reported by the custodian and manager, as well as significant cash flows into or out of an account. It is the responsibility of the manager and custodian to provide insight into the pricing methodologies and any difference in valuation.

Illiquid Alternatives

Due to the inability to receive final valuation prior to report production, closed end funds (including but are not limited to Real Estate, Hedge Funds, Private Equity, and Private Credit) performance is typically reported at a one-quarter lag. Valuation is reported at a one-quarter lag, adjusted for current quarter flow (cash flows are captured real time). Closed end fund performance is calculated using a time-weighted return methodology consistent with all portfolio and total fund performance calculations. For Private Markets, performance reports also include Verus-calculated multiples based on flows and valuations (e.g. DPI and TVPI) and manager-provided IRRs.

Manager Line Up

Investment Fund or Strategy	Fund Incepted	Data Source
AB Emerging Markets Strategic Core	11/3/2016	Northern Trust
AB US Small Cap Value Equity	7/7/2015	Northern Trust
Abbott Capital PE VI	3/31/2008	Abbott Capital
American Century Non-US Small Cap	12/15/2020	American Century
Aristeia International Limited	5/1/2014	Northern Trust
ASB Real Estate	9/30/2013	ASB
Barclays Capital Aggregate Rebalancing Overlay	6/15/2022	Parametric
BlackRock Short Duration Fund	9/8/2021	BlackRock
Blue Torch Credit Opportunities	7/24/2020	Blue Torch
Brevan Howard	11/1/2013	Northern Trust
Brighton Private Equity	3/28/2021	Brighton
Brighton Park Capital Fund II, L.P	9/30/2022	Brighton
Brookfield Real Estate Finance Fund V	12/18/2017	Northern Trust
Cevian Capital II	12/30/2014	Northern Trust
DC Value Recovery fund IV	12/28/2015	Colony
Covenant Apartment Fund X	10/29/2020	Covenant
DB Investors Fund IV	1/29/2020	DB
D.E. Shaw	6/30/2013	Northern Trust
DFA Emerging Markets Value I	3/7/2014	Northern Trust
Fortress Credit Opportunities	12/17/2020	Fortress
Fortress Lending Fund II	3/15/2021	Fortress
Garda Fixed Income Relative Value Opp	9/30/2021	Garda
Geneva Capital Small Cap Growth	7/22/2015	Geneva
Gresham MTAP Commodity	9/3/2013	Gresham
Harvest Midstream	9/28/2020	Harvest Midstream
HBK Fund II	11/1/2013	Northern Trust
Henderson Smallcap Growth	7/22/2015	Northern Trust
H.I.G Bayside Loan Opportunities Fund V	7/24/2019	H.I.G. Capital
Hudson Bay	6/7/2019	Northern Trust
Indus Pacific Opportunities	6/30/2014	Northern Trust
Invesco Real Estate III	6/30/2013	Invesco
Invesco Real Estate IV	12/18/2015	Invesco
J.P. Morgan Strategic Property	7/2/2014	J.P. Morgan
KSL Capital Partners VI	4/26/2023	KSL Capital
Landmark Real Estate Partners VIII	4/29/2018	Landmark
LBA Logistics Value Fund IX, L.P.	2/22/2022	LBA
Level Equity Growth Partners V	11/1/2021	Level Equity
Level Equity Opportunities Fund 2021	11/1/2021	Level Equity
LGT Crown	2/1/2021	LGT
Linden Capital Partners V LP	7/19/2022	Linden
Linden Co-Investment V LP	6/30/2022	Linden
Long Wharf Real Estate	6/27/2019	Long Wharf
Magnetar Constellation	11/14/2018	Magnetar
Magnetar Structured Credit	5/1/2014	Magnetar
Mellon Aggregate Bond Index Fund	1/14/2011	Mellon
Mellon EB DV Stock Index	10/18/2017	Mellon
Mellon EB DV World ex-US Index	8/1/2018	Mellon
Myriad Opportunities Offshore	5/19/2016	Northern Trust
OrbiMed Royalty & Credit Opportunities	9/12/2022	OrbiMed
Pantheon Global III	6/30/2000	Pantheon
Pantheon USA III	3/31/2007	Pantheon
Pantheon USA V	6/30/2005	Pantheon
Pantheon USA VI	3/31/2005	Pantheon
Pantheon USA VII	3/31/2005	Pantheon
Parametric Overlay/ Cap Efficiency Program	7/31/2020	Parametric
Peak Rock Capital Fund III	7/13/2021	Peak Rock
PIMCO Commodity Alpha	5/4/2016	PIMCO
PIMCO Core Plus	1/21/2011	Northern Trust
PIMCO EMD	2/29/2020	Northern Trust
PIMCO Midstream	10/9/2020	PIMCO
PIMCO StocksPLUS	7/14/2003	PIMCO
Fidelity Non-US Small Cap Equity	6/10/2008	Northern Trust
River Birch	8/3/2015	Northern Trust
Rubicon Technology Partners IV LP	11/30/2022	Rubicon
Singerman Real Estate Opportunity Fund IV	10/27/2021	Singerman
Sculptor Enhanced Domestic Partners	3/26/2019	Sculptor
Short Term Cash Account	12/31/2000	Northern Trust
Short Term Investment Funds	6/30/2000	Northern Trust
Stone Harbor Emerging Markets Debt	8/8/2012	Stone Harbor
TAO Contingent	4/16/2020	TPG Sixth Street
TCW Securitized Opportunities	2/3/2016	TCW
Transition Equity	9/30/2010	Northern Trust
Transition Fixed Income	9/30/2010	Northern Trust
TSSP Adjacent Opportunities Partners	11/17/2017	TPG Sixth Street
Vista Equity Partners	7/24/2020	Vista Equity
Warren Equity III	4/1/2021	Warren
Warren Equity IV	1/1/2023	Warren
Wellington Alternative Investments	2/9/2023	Wellington
Western Asset Core Plus	5/31/2004	Northern Trust
Western Asset High Yield Fixed income	5/31/2005	Northern Trust

Policy & Custom Index Composition	
Policy Index: 4/1/2022-Present	37% MSCI ACWI IMI (Net), 14% Bloomberg US Aggregate, 6% Ice BofA ML High Yield Master II Index, 2% JPM Emerging Markets Bond Index Global Diversified, 2% JPM Government Bond Index-Emerging Markets Global Diversified, 4% Bloomberg Commodity Index, 7.5% 3-Month T-bill +4%, 2.5% MSCI ACWI (Net), 8% 91 Day T-Bill + 4%, 5% NCREIF-ODCE Gross Monthly, 5% actual time-weighted Private Equity Returns*, 5% actual time-weighted Private Credit Returns*, 5% actual time-weighted Private Real Estate Returns*, 5% Alerian Midstream, 0% Assumed Rate of Return +3%, -8% 3-Month T-bill.
Policy Index: 7/1/2021-4/1/2022	37% MSCI ACWI IMI, 14% Bloomberg US Aggregate, 6% Ice BofA ML High Yield Master II Index, 2% JPM Emerging Markets Bond Index Global Diversified, 2% JPM Government Bond Index-Emerging Markets, 4% Bloomberg Commodity Index, 7.5% 3-Month T-bill +400bps, 2.5% MSCI ACWI, 5% NCREIF-ODCE, 2% actual time-weighted Private Equity Returns*, 4% actual time-weighted Private Credit Returns*, 1% actual time-weighted Private Real Estate Returns*, 3% MSCI ACWI*, 1% Bloomberg US Aggregate*, 4% Bloomberg US Aggregate, 5% Alerian Midstream, 5% 3-Month T-bill +400bps, 91 Day T-Bills, -5% 3-Month T-bill.
Policy Index: 1/1/2021-6/30/2021	37% MSCI ACWI IMI, 14% Bloomberg US Aggregate, 6% Ice BofA ML High Yield Master II Index, 2% JPM Emerging Markets Bond Index Global Diversified, 2% JPM Government Bond Index-Emerging Markets, 4% Bloomberg Commodity Index, 7.5% 3-Month T-bill +400bps, 2.5% MSCI ACWI, 5% NCREIF-ODCE, 1% actual time-weighted Private Equity Returns*, 4% actual time-weighted Private Credit Returns*, 1% actual time-weighted Private Real Estate Returns*, 4% MSCI ACWI*, 1% Bloomberg US Aggregate*, 4% Bloomberg US Aggregate, 5% Alerian Midstream, 5% 3-Month T-bill +400bps, 91 Day T-Bills, -5% 3-Month T-bill.
Policy Index: 7/1/2020-12/31/2020	37% MSCI ACWI IMI, 14% Bloomberg US Aggregate, 6% Ice BofA ML High Yield Master II Index, 2% JPM Emerging Markets Bond Index Global Diversified, 2% JPM Government Bond Index-Emerging Markets, 4% Bloomberg Commodity Index, 7.5% 3-Month T-bill +400bps, 2.5% MSCI ACWI, 5% NCREIF-ODCE, 1% actual time-weighted Private Equity Returns*, 4% actual time-weighted Private Credit Returns*, 1% actual time-weighted Private Real Estate Returns*, 4% MSCI ACWI*, 5% Bloomberg US Aggregate, 1% Alerian Midstream, 4% Bloomberg US Aggregate
Policy Index: 4/1/2020-6/30/2020	37% MSCI ACWI IMI, 19% Bloomberg US Aggregate, 6% Ice BofA ML High Yield Master II Index, 2% JPM Emerging Markets Bond Index Global Diversified, 2% JPM Government Bond Index-Emerging Markets, 4% Bloomberg Commodity Index, 7.5% 3-Month T-bill +400bps, 2.5% MSCI ACWI, 5% NCREIF-ODCE, 1% actual time-weighted Private Equity Returns*, 4% actual time-weighted Private Credit Returns*, 1% actual time-weighted Private Real Estate Returns*, 3% MSCI ACWI*, 5% Bloomberg US Aggregate*.
Policy Index: 1/1/2020-3/31/2020	37% MSCI ACWI IMI, 19% Bloomberg US Aggregate, 6% Ice BofA ML High Yield Master II Index, 2% JPM Emerging Markets Bond Index Global Diversified, 2% JPM Government Bond Index-Emerging Markets, 4% Bloomberg Commodity Index, 7.5% 3-Month T-bill +400bps, 2.5% MSCI ACWI, 5% NCREIF-ODCE, 2% actual time-weighted Private Equity Returns*, 4% actual time-weighted Private Credit Returns*, 1% actual time-weighted Private Real Estate Returns*, 3% MSCI ACWI*, 5% Bloomberg US Aggregate*.
Policy Index: 10/1/2019-12/31/2019	37% MSCI ACWI IMI, 19% Bloomberg US Aggregate, 6% Ice BofA ML High Yield Master II Index, 2% JPM Emerging Markets Bond Index Global Diversified, 2% JPM Government Bond Index-Emerging Markets, 4% Bloomberg Commodity Index, 7.5% 3-Month T-bill +400bps, 2.5% MSCI ACWI, 5% NCREIF-ODCE, 2% actual time-weighted Private Equity Returns*, 3% actual time-weighted Private Credit Returns*, 1% actual time-weighted Private Real Estate Returns*, 3% MSCI ACWI*, 6% Bloomberg US Aggregate*.
Policy Index: 7/1/2019-9/30/2019	37% MSCI ACWI IMI, 19% Bloomberg US Aggregate, 6% Ice BofA ML High Yield Master II Index, 2% JPM Emerging Markets Bond Index Global Diversified, 2% JPM Government Bond Index-Emerging Markets, 4% Bloomberg Commodity Index, 7.5% 3-Month T-bill +400bps, 2.5% MSCI ACWI, 5% NCREIF-ODCE, 2% actual time-weighted Private Equity Returns*, 4% actual time-weighted Private Credit Returns*, 1% actual time-weighted Private Real Estate Returns*, 3% MSCI ACWI*, 5% Bloomberg US Aggregate*.
Policy Index: 4/1/2019-6/30/2019	37% MSCI ACWI IMI, 19% Bloomberg US Aggregate, 6% Ice BofA ML High Yield Master II Index, 2% JPM Emerging Markets Bond Index Global Diversified, 2% JPM Government Bond Index-Emerging Markets, 4% Bloomberg Commodity Index, 7.5% 3-Month T-bill +400bps, 2.5% MSCI ACWI, 5% NCREIF-ODCE, 2% actual time-weighted Private Equity Returns*, 3% actual time-weighted Private Credit Returns*, 1% actual time-weighted Private Real Estate Returns*, 3% MSCI ACWI*, 6% Bloomberg US Aggregate*.
Policy Index: 1/1/2019-3/31/2019	37% MSCI ACWI IMI, 19% Bloomberg US Aggregate, 6% Ice BofA ML High Yield Master II Index, 2% JPM Emerging Markets Bond Index Global Diversified, 2% JPM Government Bond Index-Emerging Markets, 4% Bloomberg Commodity Index, 7.5% 3-Month T-bill +400bps, 2.5% MSCI ACWI, 5% NCREIF-ODCE, 2% actual time-weighted Private Equity Returns*, 3% actual time-weighted Private Credit Returns*, 2% actual time-weighted Private Real Estate Returns*, 3% MSCI ACWI*, 5% Bloomberg US Aggregate*.
Policy Index: 10/1/2018-12/31/2018	37% MSCI ACWI IMI, 19% Bloomberg US Aggregate, 6% Ice BofA ML High Yield Master II Index, 2% JPM Emerging Markets Bond Index Global Diversified, 2% JPM Government Bond Index-Emerging Markets, 4% Bloomberg Commodity Index, 7.5% 3-Month T-bill +400bps, 2.5% MSCI ACWI, 5% NCREIF-ODCE, 2% actual time-weighted Private Equity Returns*, 2% actual time-weighted Private Credit Returns*, 2% actual time-weighted Private Real Estate Returns*, 3% MSCI ACWI*, 6% Bloomberg US Aggregate*.
Policy Index: 7/1/2018-9/30/2018	37% MSCI ACWI IMI, 19% Bloomberg US Aggregate, 6% Ice BofA ML High Yield Master II Index, 2% JPM Emerging Markets Bond Index Global Diversified, 2% JPM Government Bond Index-Emerging Markets, 4% Bloomberg Commodity Index, 7.5% 3-Month T-bill +400bps, 2.5% MSCI ACWI, 5% NCREIF-ODCE, 3% actual time-weighted Private Equity Returns*, 2% actual time-weighted Private Credit Returns*, 1% actual time-weighted Private Real Estate Returns*, 2% MSCI ACWI*, 7% Bloomberg US Aggregate*.
Policy Index: 1/1/2017- 6/30/2018	19% Russell 3000 Index, 18% MSCI ACWI ex US, 29% Bloomberg US Aggregate, 10% NCREIF-ODCE, 4% Bloomberg Commodity Index, 7.5% 91-day T-bills + 400bps, 2.5% MSCI ACWI, 5% Russell 3000 Index + 300 bps, 5% ICE BofA ML High Yield + 200 bps.
Policy Index: 4/1/2014-12/31/2016	23% Russell 3000 Index, 29% Bloomberg US Aggregate, 22% MSCI ACWI ex US,

Other Disclosures

*Private Asset actual weights, rounded to 1%, and actual time-weighted returns of Private Equity, Private Credit, Private Real Estate used in policy with the difference in weight versus target allocated to private market's public market "equivalent". Private Equity to Global Equity, Private Credit and Private Real Estate to Core Plus.

All data prior to 2Q 2011 has been provided by the investment managers.

Effective 1/1/2017, only traditional asset class (public equity, public fixed income, REITs) investment manager fees will be included in the gross of fee return calculation. Fiscal year end: 6/30.

Glossary

Allocation Effect: An attribution effect that describes the amount attributable to the managers' asset allocation decisions, relative to the benchmark.

Alpha: The excess return of a portfolio after adjusting for market risk. This excess return is attributable to the selection skill of the portfolio manager. Alpha is calculated as: Portfolio Return - [Risk-free Rate + Portfolio Beta x (Market Return - Risk-free Rate)].

Benchmark R-squared: Measures how well the Benchmark return series fits the manager's return series. The higher the Benchmark R-squared, the more appropriate the benchmark is for the manager.

Beta: A measure of systematic, or market risk; the part of risk in a portfolio or security that is attributable to general market movements. Beta is calculated by dividing the covariance of a security by the variance of the market.

Book-to-Market: The ratio of book value per share to market price per share. Growth managers typically have low book-to-market ratios while value managers typically have high book-to-market ratios.

Capture Ratio: A statistical measure of an investment manager's overall performance in up or down markets. The capture ratio is used to evaluate how well an investment manager performed relative to an index during periods when that index has risen (up market) or fallen (down market). The capture ratio is calculated by dividing the manager's returns by the returns of the index during the up/down market, and multiplying that factor by 100.

Correlation: A measure of the relative movement of returns of one security or asset class relative to another over time. A correlation of 1 means the returns of two securities move in lock step, a correlation of -1 means the returns of two securities move in the exact opposite direction over time. Correlation is used as a measure to help maximize the benefits of diversification when constructing an investment portfolio.

Excess Return: A measure of the difference in appreciation or depreciation in the price of an investment compared to its benchmark, over a given time period. This is usually expressed as a percentage and may be annualized over a number of years or represent a single period.

Information Ratio: A measure of a manager's ability to earn excess return without incurring additional risk. Information ratio is calculated as: excess return divided by tracking error.

Interaction Effect: An attribution effect that describes the portion of active management that is contributable to the cross interaction between the allocation and selection effect. This can also be explained as an effect that cannot be easily traced to a source.

Portfolio Turnover: The percentage of a portfolio that is sold and replaced (turned over) during a given time period. Low portfolio turnover is indicative of a buy and hold strategy while high portfolio turnover implies a more active form of management.

Price-to-Earnings Ratio (P/E): Also called the earnings multiplier, it is calculated by dividing the price of a company's stock into earnings per share. Growth managers typically hold stocks with high price-to-earnings ratios whereas value managers hold stocks with low price-to-earnings ratios.

R-Squared: Also called the coefficient of determination, it measures the amount of variation in one variable explained by variations in another, i.e., the goodness of fit to a benchmark. In the case of investments, the term is used to explain the amount of variation in a security or portfolio explained by movements in the market or the portfolio's benchmark.

Selection Effect: An attribution effect that describes the amount attributable to the managers' stock selection decisions, relative to the benchmark.

Sharpe Ratio: A measure of portfolio efficiency. The Sharpe Ratio indicates excess portfolio return for each unit of risk associated with achieving the excess return. The higher the Sharpe Ratio, the more efficient the portfolio. Sharpe ratio is calculated as: Portfolio Excess Return / Portfolio Standard Deviation.

Sortino Ratio: Measures the risk-adjusted return of an investment, portfolio, or strategy. It is a modification of the Sharpe Ratio, but penalizes only those returns falling below a specified benchmark. The Sortino Ratio uses downside deviation in the denominator rather than standard deviation, like the Sharpe Ratio.

Standard Deviation: A measure of volatility, or risk, inherent in a security or portfolio. The standard deviation of a series is a measure of the extent to which observations in the series differ from the arithmetic mean of the series. For example, if a security has an average annual rate of return of 10% and a standard deviation of 5%, then two-thirds of the time, one would expect to receive an annual rate of return between 5% and 15%.

Style Analysis: A return based analysis designed to identify combinations of passive investments to closely replicate the performance of funds

Style Map: A specialized form or scatter plot chart typically used to show where a Manager lies in relation to a set of style indices on a two-dimensional plane. This is simply a way of viewing the asset loadings in a different context. The coordinates are calculated by rescaling the asset loadings to range from -1 to 1 on each axis and are dependent on the Style Indices comprising the Map.

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The information presented may be deemed to contain forward-looking information. Examples of forward looking information include, but are not limited to, (a) projections of or statements regarding return on investment, future earnings, interest income, other income, growth prospects, capital structure and other financial terms, (b) statements of plans or objectives of management, (c) statements of future economic performance, and (d) statements of assumptions, such as economic conditions underlying other statements. Such forward-looking information can be identified by the use of forward looking terminology such as believes, expects, may, will, should, anticipates, or the negative of any of the foregoing or other variations thereon comparable terminology, or by discussion of strategy. No assurance can be given that the future results described by the forward-looking information will be achieved. Such statements are subject to risks, uncertainties, and other factors which could cause the actual results to differ materially from future results expressed or implied by such forward looking information. The findings, rankings, and opinions expressed herein are the intellectual property of Verus and are subject to change without notice. The information presented does not claim to be all-inclusive, nor does it contain all information that clients may desire for their purposes. The information presented should be read in conjunction with any other material provided by Verus, investment managers, and custodians.

Verus will make every reasonable effort to obtain and include accurate market values. However, if managers or custodians are unable to provide the reporting period's market values prior to the report issuance, Verus may use the last reported market value or make estimates based on the manager's stated or estimated returns and other information available at the time. These estimates may differ materially from the actual value. Hedge fund market values presented in this report are provided by the fund manager or custodian. Market values presented for private equity investments reflect the last reported NAV by the custodian or manager net of capital calls and distributions as of the end of the reporting period. These values are estimates and may differ materially from the investments actual value. Private equity managers report performance using an internal rate of return (IRR), which differs from the time-weighted rate of return (TWRR) calculation done by Verus. It is inappropriate to compare IRR and TWRR to each other. IRR figures reported in the illiquid alternative pages are provided by the respective managers, and Verus has not made any attempts to verify these returns. Until a partnership is liquidated (typically over 10-12 years), the IRR is only an interim estimated return. The actual IRR performance of any LP is not known until the final liquidation.

Verus receives universe data from InvMetrics, eVestment Alliance, and Morningstar. We believe this data to be robust and appropriate for peer comparison. Nevertheless, these universes may not be comprehensive of all peer investors/managers but rather of the investors/managers that comprise that database. The resulting universe composition is not static and will change over time. Returns are annualized when they cover more than one year. Investment managers may revise their data after report distribution. Verus will make the appropriate correction to the client account but may or may not disclose the change to the client based on the materiality of the change.

Kern County Employees' Retirement Association

Investment Performance Review

Period Ending: March 31, 2023

Verus

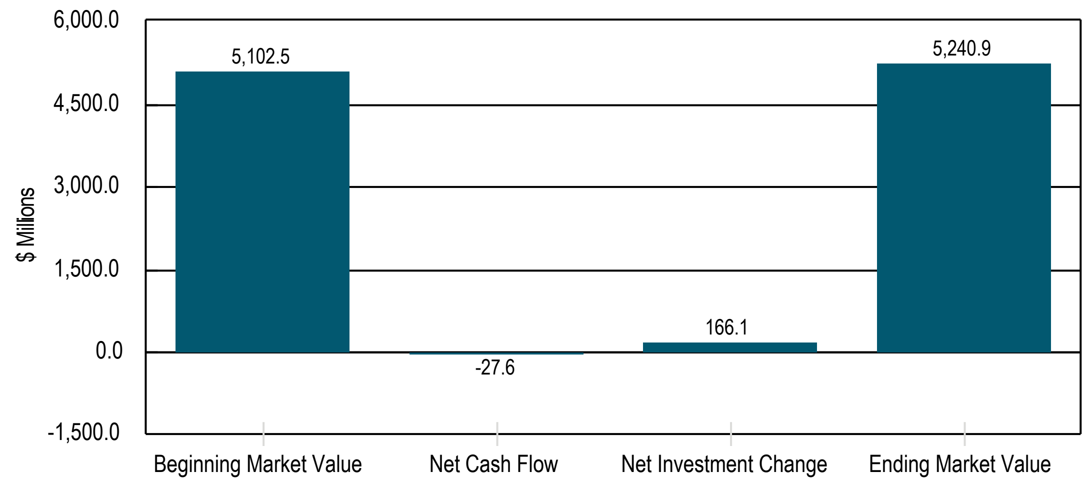
VERUSINVESTMENTS.COM

SEATTLE 206.622.3700
CHICAGO 312.815.5228
PITTSBURGH 412.784.6678
LOS ANGELES 310.297.1777
SAN FRANCISCO 415.362.3484

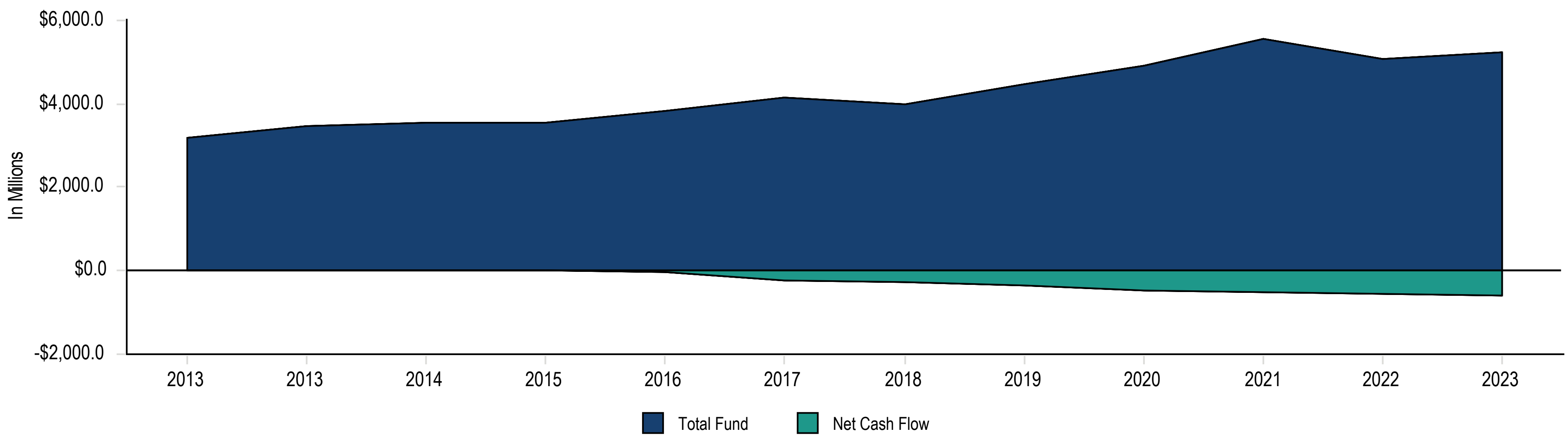
Portfolio Reconciliation

	Last Three Months
Beginning Market Value	$5,102,522,000
Net Cash Flows	-$27,584,265
Net Investment Change	$166,119,670
Ending Market Value	$5,240,888,799

Change in Market Value Last Three Months

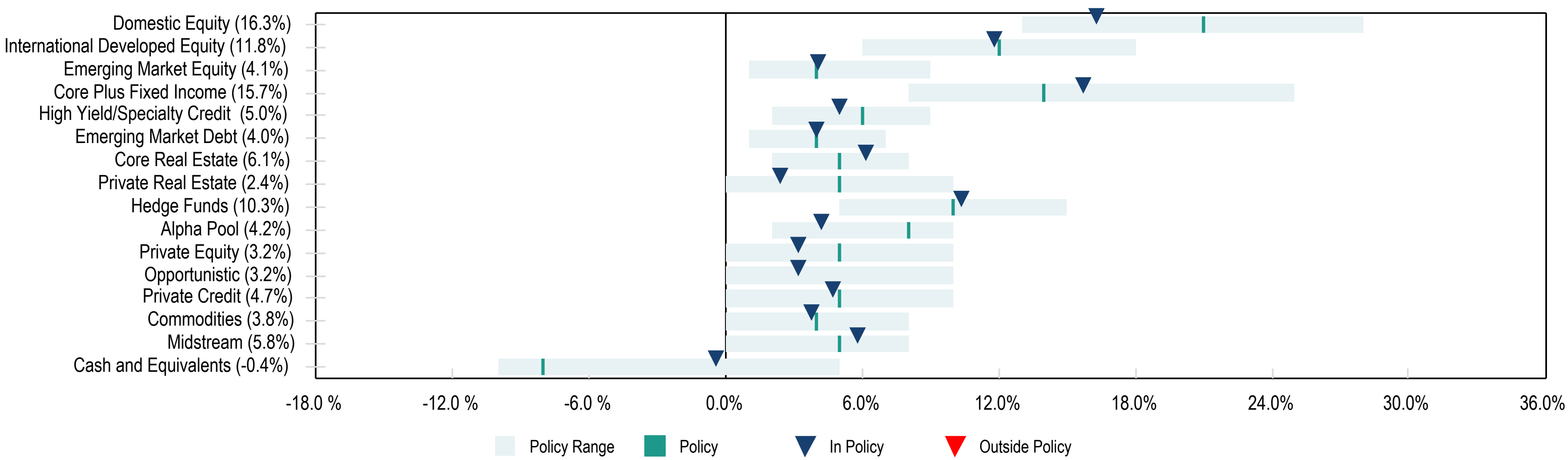


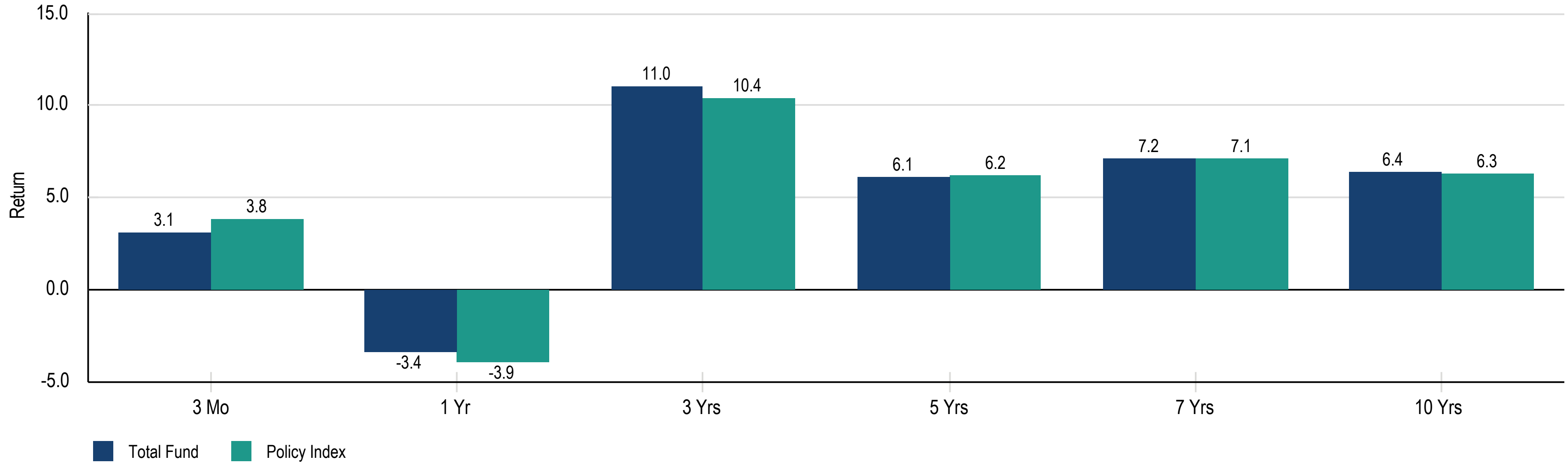
Market Value History



	Current Balance ($)	Current Allocation (%)	Policy Allocation (%)	Excess Allocation (%)	Policy Range (%)	Within IPS Range?
Equity	1,684,531,735	32.1	37.0	-4.9	26.0 - 48.0	Yes
Fixed Income	1,293,165,405	24.7	24.0	0.7	14.0 - 34.0	Yes
Core Real Estate	321,881,000	6.1	5.0	1.1	2.0 - 8.0	Yes
Hedge Funds	540,806,896	10.3	10.0	0.3	5.0 - 15.0	Yes
Alpha Pool	219,047,320	4.2	8.0	-3.8	2.0 - 10.0	Yes
Private Equity	165,827,721	3.2	5.0	-1.8	0.0 - 10.0	Yes
Private Credit	245,458,300	4.7	5.0	-0.3	0.0 - 10.0	Yes
Private Real Estate	123,608,804	2.4	5.0	-2.6	0.0 - 10.0	Yes
Commodities	197,553,350	3.8	4.0	-0.2	0.0 - 8.0	Yes
Opportunistic	167,025,043	3.2	0.0	3.2	0.0 - 10.0	Yes
Midstream	303,662,302	5.8	5.0	0.8	0.0 - 8.0	Yes
Cash and Equivalents	-21,679,077	-0.4	-8.0	7.6	-10.0 - 5.0	Yes
Total	5,240,888,799	100.0	100.0	0.0		

Executive Summary




15.0
10.0
5.0
0.0
-5.0
Return
3.1
3.8
-3.4
-3.9
11.0
10.4
6.1
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7.2
7.1
6.4
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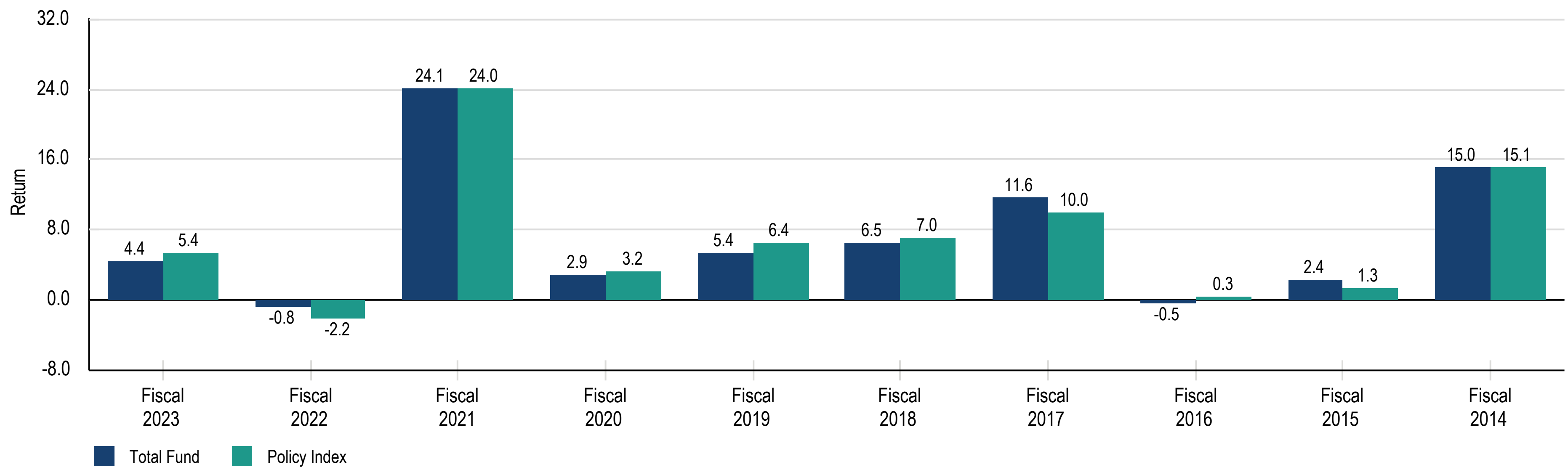
3 Mo
1 Yr
3 Yrs
5 Yrs
7 Yrs
10 Yrs
Total Fund
Policy Index


32.0
24.0
16.0
8.0
0.0
-8.0
Return
4.4
5.4
-0.8
-2.2
24.1
24.0
2.9
3.2
5.4
6.4
6.5
7.0
11.6
10.0
-0.5
0.3
2.4
1.3
15.0
15.1
Fiscal 2023
Fiscal 2022
Fiscal 2021
Fiscal 2020
Fiscal 2019
Fiscal 2018
Fiscal 2017
Fiscal 2016
Fiscal 2015
Fiscal 2014
Total Fund
Policy Index

	Market Value	% of Portfolio	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	Fiscal 2022	Fiscal 2021	Fiscal 2020	Fiscal 2019	Fiscal 2018
Total Fund	5,240,888,799	100.0	3.2	4.6	-3.1	11.4	6.4	6.8	-4.2	24.4	3.2	5.7	6.8
Policy Index			*3.8*	*5.4*	*-3.9*	*10.4*	*6.2*	*6.3*	*-6.5*	*24.0*	*3.2*	*6.4*	*7.0*
InvMetrics Public DB > $1B Rank			*80*	*60*	*26*	*45*	*43*	*61*	*32*	*88*	*20*	*63*	*97*
Equity	1,684,531,735	32.1	6.9	10.1	-6.3	16.6	7.2	9.2	-14.9	41.2	0.7	5.3	12.4
MSCI AC World IMI (Net)			*6.9*	*9.7*	*-7.7*	*15.6*	*6.6*	*7.9*	*-16.5*	*40.9*	*1.2*	*4.6*	*11.1*
Domestic Equity	852,361,067	16.3	6.8	9.3	-8.3	18.8	10.8	-	-12.0	43.6	6.3	9.2	16.1
MSCI USA IMI			*7.3*	*10.0*	*-8.5*	*18.8*	*10.6*	-	*-13.7*	*44.4*	*6.7*	*9.0*	*14.9*
International Developed Equity	619,134,174	11.8	7.8	14.0	-2.6	14.8	3.8	-	-17.2	37.0	-5.5	-0.6	9.1
MSCI World ex U.S. IMI Index (Net)			*7.6*	*13.3*	*-3.9*	*13.5*	*3.5*	-	*-17.7*	*34.8*	*-5.1*	*0.2*	*7.7*
Emerging Markets Equity	213,035,817	4.1	4.7	2.2	-9.2	9.6	-1.7	-	-21.4	40.6	-10.9	0.4	4.0
MSCI Emerging Markets IMI (Net)			*3.9*	*1.5*	*-10.7*	*9.2*	*-0.6*	-	*-24.8*	*43.2*	*-4.0*	*0.5*	*7.9*
Fixed Income	1,293,165,405	24.7	3.2	3.0	-4.3	0.4	1.5	2.0	-12.7	5.4	6.6	7.9	0.2
Fixed Income Custom Benchmark			*3.1*	*2.0*	*-4.5*	*-0.4*	*1.2*	*1.9*	*-11.6*	*4.0*	*5.2*	*8.4*	*-0.1*
Core Plus Fixed Income	823,458,691	15.7	3.0	0.2	-5.0	-2.0	1.1	-	-11.2	1.0	9.5	8.0	0.0
Blmbg. U.S. Aggregate Index			*3.0*	*-0.1*	*-4.8*	*-2.8*	*0.9*	-	*-10.3*	*-0.3*	*8.7*	*7.9*	*-0.4*
High Yield/ Specialty Credit	260,844,746	5.0	3.3	6.0	-2.7	5.6	3.5	-	-9.5	13.6	0.0	7.5	3.3
ICE BofA U.S. High Yield Index			*3.7*	*7.1*	*-3.6*	*5.8*	*3.1*	-	*-12.7*	*15.6*	*-1.1*	*7.6*	*2.5*
Emerging Market Debt	208,560,566	4.0	3.8	8.7	-2.6	2.6	-1.3	-	-19.6	9.4	-1.2	8.5	-3.6
50 JPM EMBI Global Div / 50 JPM GBI EM Global Div			*3.5*	*6.9*	*-3.8*	*0.5*	*-1.4*	-	*-20.2*	*7.1*	*-1.1*	*10.8*	*-1.9*
Commodities	197,553,350	3.8	-1.7	-3.8	-10.3	22.6	7.1	-	20.1	43.5	-10.7	-6.2	13.7
Bloomberg Commodity Index Total Return			*-5.4*	*-7.2*	*-12.5*	*20.8*	*5.4*	-	*24.3*	*45.6*	*-17.4*	*-6.8*	*7.3*
Hedge Funds	540,806,896	10.3	1.5	5.7	5.9	11.3	7.0	6.2	2.8	16.3	7.3	2.6	7.6
75% 3 Month T-Bill +4% / 25% MSCI ACWI IMI			*3.3*	*6.8*	*3.3*	*7.8*	*6.2*	*6.0*	*-0.9*	*12.3*	*5.1*	*6.6*	*7.0*
Alpha Pool	219,047,320	4.2	-0.4	0.5	-0.2	-	-	-	1.5	14.5	-	-	-
3 Month T-Bill +4%			*2.1*	*5.5*	*6.6*	-	-	-	*4.2*	*4.1*	-	-	-
Midstream Energy	303,662,302	5.8	2.9	16.4	6.1	-	-	-	9.6	-	-	-	-
Alerian Midstream Energy Index			*0.8*	*8.1*	*-1.2*	-	-	-	*11.4*	-	-	-	-
Core Real Estate	321,881,000	6.1	-4.4	-8.1	-3.8	6.7	6.4	-	25.6	6.6	2.3	6.1	7.4
NCREIF ODCE			*-3.2*	*-7.5*	*-3.1*	*8.4*	*7.5*		*29.5*	*8.0*	*2.2*	*6.4*	*8.4*
Private Real Estate	123,608,804	2.4	3.5	8.9	12.5	16.5	12.8	13.1	31.3	12.1	4.4	9.0	5.4
			3.5	*8.9*	*12.5*	*16.5*	*12.8*	*13.1*	*31.3*	*12.1*	*4.4*	*9.0*	*5.4*
Private Equity	165,827,721	3.2	0.9	-3.5	-2.8	14.3	11.2	11.2	23.0	41.7	-10.5	10.9	7.8
			0.9	*-3.5*	*-2.8*	*14.3*	*11.2*	*11.2*	*23.0*	*41.7*	*-10.5*	*10.9*	*7.8*
Private Credit	245,458,300	4.7	1.3	0.5	1.6	1.3	4.7	-	1.2	4.8	5.5	9.7	9.3
			1.3	*0.5*	*1.6*	*1.3*	*4.7*	-	*1.2*	*4.8*	*5.5*	*9.7*	*9.3*

Policy Index: 37% MSCI ACWI IMI (Net), 14% Bloomberg US Aggregate, 6% Ice BofA ML High Yield Master II Index, 2% JPM Emerging Markets Bond Index Global Diversified, 2% JPM Government Bond Index-Emerging Markets Global Diversified, 4% Bloomberg Commodity Index, 7.5% 3-Month T-bill +4%, 2.5% MSCI ACWI (Net), 8% 91 Day T-Bill + 4%, 5% NCREIF-ODCE Gross Monthly, 5% actual timeweighted Private Equity Returns, 5% actual time-weighted Private Credit Returns*, 5% actual time-weighted Private Real Estate Returns*, 5% Alerian Midstream, 0% Assumed Rate of Return +3%, -8% 3-Month T-bill and actual weights and returns of private asset classes to nearest 1%. All data prior to 2Q 2011 has been provided by the investments managers. FY: 6/30. The Equity and Fixed Income Beta Exposure return includes overlay cash and an implied hurdle rate also applied to the Alpha pool.*

Verus

	Market Value	% of Portfolio	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	Fiscal 2022	Fiscal 2021	Fiscal 2020	Fiscal 2019	Fiscal 2018
Opportunistic	167,025,043	3.2	4.2	-0.4	-10.3	18.4	-	-	-5.4	59.9	-	-	-
Assumed Rate of Return +3%			*1.8*	*5.4*	*7.2*	*7.2*	-	-	*7.2*	*7.2*	-	-	-
Cash	-21,679,077	-0.4	0.5	1.8	1.7	0.6	1.2	1.4	-0.2	0.1	1.0	2.0	3.2
3 Month T-Bill			*1.1*	*2.4*	*2.5*	*0.9*	*1.4*	*0.9*	*0.2*	*0.1*	*1.6*	*2.3*	*1.4*

Policy Index: 37% MSCI ACWI IMI (Net), 14% Bloomberg US Aggregate, 6% Ice BofA ML High Yield Master II Index, 2% JPM Emerging Markets Bond Index Global Diversified, 2% JPM Government Bond Index-Emerging Markets Global Diversified, 4% Bloomberg Commodity Index, 7.5% 3-Month T-bill +4%, 2.5% MSCI ACWI (Net), 8% 91 Day T-Bill + 4%, 5% NCREIF-ODCE Gross Monthly, 5% actual timeweighted Private Equity Returns, 5% actual time-weighted Private Credit Returns*, 5% actual time-weighted Private Real Estate Returns*, 5% Alerian Midstream, 0% Assumed Rate of Return +3%, -8% 3-Month T-bill and actual weights and returns of private asset classes to nearest 1%. All data prior to 2Q 2011 has been provided by the investments managers. FY: 6/30. The Equity and Fixed Income Beta Exposure return includes overlay cash and an implied hurdle rate also applied to the Alpha pool.*

Performance and Attribution

	Market Value	% of Portfolio	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	Fiscal 2022	Fiscal 2021	Fiscal 2020	Fiscal 2019	Fiscal 2018	Inception	Inception Date
Total Fund	5,240,888,799	100.0	3.1	4.4	-3.4	11.0	6.1	6.4	-4.5	24.1	2.9	5.4	6.5	6.4	Jun-11
Policy Index			3.8	5.4	-3.9	10.4	6.2	6.3	-6.5	24.0	3.2	6.4	7.0	6.2	
Equity	1,684,531,735	32.1	6.8	9.9	-6.5	16.3	6.8	8.8	-15.1	40.7	0.3	4.8	11.8	8.5	Jun-11
MSCI AC World IMI (Net)			6.9	9.7	-7.7	15.6	6.6	7.9	-16.5	40.9	1.2	4.6	11.1	7.7	
Domestic Equity	852,361,067	16.3	6.7	9.2	-8.4	18.6	10.5	-	-12.2	43.2	6.0	8.8	15.5	10.7	Jul-14
MSCI USA IMI			7.3	10.0	-8.5	18.8	10.6	-	-13.7	44.4	6.7	9.0	14.9	10.4	
Equity Beta Exposure	116,684,550	2.2	7.5	9.7	-8.3	-	-	-	-11.0	-	-	-	-	10.2	Aug-20
S&P 500 Index			7.5	10.0	-7.7	-	-	-	-10.6	-	-	-	-	10.7	
Mellon DB SL Stock Index Fund	492,812,772	9.4	7.5	10.0	-7.7	18.6	11.2	-	-10.6	40.8	7.5	10.4	-	11.1	Oct-17
S&P 500 Index			7.5	10.0	-7.7	18.6	11.2	-	-10.6	40.8	7.5	10.4	-	11.0	
PIMCO StocksPLUS	106,968,573	2.0	7.5	9.2	-9.5	18.4	10.7	12.1	-12.8	41.7	7.7	10.6	14.1	10.3	Jul-03
S&P 500 Index			7.5	10.0	-7.7	18.6	11.2	12.2	-10.6	40.8	7.5	10.4	14.4	9.6	
AB US Small Cap Value Equity	85,933,985	1.6	-0.4	3.9	-12.2	23.3	4.2	-	-16.1	77.5	-19.4	-6.9	13.2	6.4	Jul-15
Russell 2000 Value Index			-0.7	2.7	-13.0	21.0	4.5	-	-16.3	73.3	-17.5	-6.2	13.1	6.2	
Geneva Capital Small Cap Growth	49,961,187	1.0	8.4	9.4	-4.8	15.0	8.1	-	-22.1	37.6	9.3	8.6	22.7	9.7	Jul-15
Russell 2000 Growth Index			6.1	10.7	-10.6	13.4	4.3	-	-33.4	51.4	3.5	-0.5	21.9	5.7	
International Developed Equity	619,134,174	11.8	7.8	13.9	-2.7	14.6	3.6	-	-17.3	36.7	-5.7	-0.9	8.7	4.1	Jul-14
MSCI World ex U.S. IMI Index (Net)			7.6	13.3	-3.9	13.5	3.5	-	-17.7	34.8	-5.1	0.2	7.7	3.3	
Mellon DB SL World ex-US Index Fund	509,554,780	9.7	8.1	14.2	-2.4	14.8	-	-	-16.1	35.6	-5.5	-	-	4.6	Jul-18
MSCI World ex U.S. IMI Index (Net)			7.6	13.3	-3.9	13.5	-	-	-17.7	34.8	-5.1	-	-	3.7	
Cevian Capital II	37,835,395	0.7	9.9	22.0	11.3	25.4	8.5	-	-8.2	46.8	-8.2	-5.0	2.9	7.4	Dec-14
MSCI Europe (Net)			10.6	18.6	1.4	15.0	4.4	-	-17.6	35.1	-6.8	1.9	5.3	4.8	
American Century Non-US Small Cap	71,741,628	1.4	4.6	9.0	-10.2	-	-	-	-27.4	-	-	-	-	-3.9	Dec-20
MSCI World ex U.S. Small Cap Growth Index (Net)			5.4	9.2	-13.0	-	-	-	-28.6	-	-	-	-	-5.6	
Emerging Markets Equity	213,035,817	4.1	4.6	1.8	-9.8	8.8	-2.5	-	-21.9	39.5	-11.8	-0.6	2.9	0.6	Jul-14
MSCI Emerging Markets IMI (Net)			3.9	1.5	-10.7	9.2	-0.6	-	-24.8	43.2	-4.0	0.5	7.9	1.9	
DFA Emerging Markets Value I	77,971,643	1.5	3.7	3.2	-7.9	16.2	0.2	-	-12.9	47.6	-17.7	2.0	5.7	3.4	Mar-14
MSCI Emerging Markets Value (Net)			3.9	1.6	-9.4	10.0	-1.2	-	-18.6	41.6	-15.7	5.0	4.3	1.6	
AB Emerging Markets Strategic Core Equity Collective Trust	51,359,657	1.0	6.6	1.5	-10.3	5.1	-3.2	-	-25.2	33.6	-5.1	-2.6	1.2	1.8	Dec-16
MSCI Emerging Markets (Net)			4.0	0.8	-10.7	7.8	-0.9	-	-25.3	40.9	-3.4	1.2	8.2	4.6	
Mellon Emerging Markets Stock Index Fund	83,704,518	1.6	4.2	0.9	-11.0	-	-	-	-25.5	41.1	-	-	-	2.0	Jun-20
MSCI Emerging Markets (Net)			4.0	0.8	-10.7	-	-	-	-25.3	40.9	-	-	-	4.7	
Fixed Income	1,293,165,405	24.7	3.1	2.8	-4.6	0.1	1.3	1.7	-13.0	5.1	6.3	7.6	-0.1	3.2	Jun-10
Fixed Income Custom Benchmark			3.1	2.0	-4.5	-0.4	1.2	1.9	-11.6	4.0	5.2	8.4	-0.1	2.9	
Core Plus Fixed Income	823,458,691	15.7	3.0	0.1	-5.2	-2.1	1.0	-	-11.4	0.8	9.3	7.9	-0.2	1.5	Jul-14
Bloomberg U.S. Aggregate Index			3.0	-0.1	-4.8	-2.8	0.9	-	-10.3	-0.3	8.7	7.9	-0.4	1.3	
Fixed Income Beta Exposure	373,052,129	7.1	2.9	-1.0	-	-	-	-	-	-	-	-	-	1.3	Jun-22
Bloomberg U.S. Aggregate Index			3.0	-0.1	-	-	-	-	-	-	-	-	-	-1.7	
Mellon DB SL Aggregate Bond Index Fund	162,415,284	3.1	3.0	-0.1	-4.9	-2.8	0.9	1.3	-10.4	-0.4	8.8	7.9	-0.4	2.0	Jan-11
Bloomberg U.S. Aggregate Index			3.0	-0.1	-4.8	-2.8	0.9	1.4	-10.3	-0.3	8.7	7.9	-0.4	2.1	

Policy Index: 37% MSCI ACWI IMI (Net), 14% Bloomberg US Aggregate, 6% Ice BofA ML High Yield Master II Index, 2% JPM Emerging Markets Bond Index Global Diversified, 2% JPM Government Bond Index-Emerging Markets Global Diversified, 4% Bloomberg Commodity Index, 7.5% 3-Month T-bill +4%, 2.5% MSCI ACWI (Net), 8% 91 Day T-Bill + 4%, 5% NCREIF-ODCE Gross Monthly, 5% actual timeweighted Private Equity Returns*, 5% actual time-weighted Private Credit Returns*, 5% actual time-weighted Private Real Estate Returns*, 5% Alerian Midstream, 0% Assumed Rate of Return +3%, -8% 3-Month T-bill and actual weights and returns of private asset classes to nearest 1%. All data prior to 2Q 2011 has been provided by the investments managers. FY: 6/30. The Equity and Fixed Income Beta Exposure return includes overlay cash and an implied hurdle rate also applied to the Alpha pool.

	Market Value	% of Portfolio	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	Fiscal 2022	Fiscal 2021	Fiscal 2020	Fiscal 2019	Fiscal 2018	Inception	Inception Date
PIMCO Core Plus	165,702,164	3.2	3.1	0.1	-4.9	-1.8	1.1	1.4	-9.9	1.1	8.7	6.3	1.0	2.3	Feb-11
Bloomberg U.S. Aggregate Index			3.0	-0.1	-4.8	-2.8	0.9	1.4	-10.3	-0.3	8.7	7.9	-0.4	2.1	
Western Asset Core Plus	122,289,114	2.3	2.9	1.1	-5.6	-1.6	0.9	1.9	-14.5	2.4	9.3	9.4	-0.4	3.8	Jun-04
Bloomberg U.S. Aggregate Index			3.0	-0.1	-4.8	-2.8	0.9	1.4	-10.3	-0.3	8.7	7.9	-0.4	3.3	
High Yield/ Specialty Credit	260,844,746	5.0	3.2	5.7	-3.2	5.1	3.0	-	-10.0	13.1	-0.5	7.0	2.8	2.4	Jul-14
ICE BofA U.S. High Yield Index			3.7	7.1	-3.6	5.8	3.1	-	-12.7	15.6	-1.1	7.6	2.5	3.5	
Western Asset High Yield Fixed Income	164,707,494	3.1	3.5	7.3	-5.1	5.5	2.9	3.5	-14.1	16.5	-2.2	8.3	2.2	5.7	Jun-05
Bloomberg US HY Ba/B 2% Cap TR			3.4	7.4	-2.7	5.6	3.6	4.1	-12.4	13.4	2.1	8.8	1.8	6.0	
TCW Securitized Opportunities	96,137,252	1.8	2.5	3.0	-0.4	3.6	2.7	-	-4.0	6.4	2.2	5.2	4.3	3.3	Feb-16
Bloomberg U.S. High Yield - 2% Issuer Cap			3.6	7.2	-3.4	5.9	3.2	-	-12.8	15.3	0.0	7.5	2.6	5.7	
Emerging Market Debt	208,560,566	4.0	3.7	8.3	-3.1	2.2	-1.7	-	-19.9	9.1	-1.7	7.9	-4.2	0.0	Jul-14
50 JPM EMBI Global Div / 50 JPM GBI EM Global Div			3.5	6.9	-3.8	0.5	-1.4	-	-20.2	7.1	-1.1	10.8	-1.9	0.2	
Stone Harbor Emerging Markets Debt Blend Portfolio	64,653,539	1.2	2.9	7.7	-4.0	2.3	-2.1	-0.7	-20.9	9.5	-1.8	8.2	-3.1	-0.3	Aug-12
50 JPM GBI-EM Global Div/ 40 JPM EMBI Global Div/ 10 JPM Corporate EM Bond Idx			3.6	6.8	-3.3	0.7	-1.2	0.4	-19.5	7.2	-0.8	10.6	-1.7	0.8	
PIMCO EMD	143,907,027	2.7	4.0	8.5	-2.8	2.0	-	-	-19.2	8.7	-	-	-	-2.8	Feb-20
50 JPM EMBI Global Div / 50 JPM GBI EM Global Div			3.5	6.9	-3.8	0.5	-	-	-20.2	7.1	-	-	-	-4.4	
Commodities	197,553,350	3.8	-1.8	-4.3	-10.8	21.8	6.5	-	19.4	42.5	-11.3	-6.7	13.3	-0.1	Jul-13
Bloomberg Commodity Index Total Return			-5.4	-7.2	-12.5	20.8	5.4	-	24.3	45.6	-17.4	-6.8	7.3	-0.8	
Gresham MTAP Commodity Builder Fund	49,142,121	0.9	-6.4	-9.9	-12.2	21.5	5.0	-	24.7	46.8	-16.3	-9.0	12.4	-0.8	Oct-13
Bloomberg Commodity Index Total Return			-5.4	-7.2	-12.5	20.8	5.4	-	24.3	45.6	-17.4	-6.8	7.3	-0.8	
Wellington Commodities	148,411,229	2.8	-0.3	-2.2	-10.4	21.9	7.3	-	17.2	40.2	-7.5	-5.4	14.2	0.6	Sep-13
S&P GSCI Commodity Equal Weighted			-0.3	-1.0	-8.4	22.1	7.4	-	19.0	40.9	-12.4	-3.5	12.6	0.9	
Hedge Funds	540,806,896	10.3	1.4	5.2	5.6	11.0	6.8	5.6	2.8	16.1	7.0	2.5	7.6	5.9	Sep-10
75% 3 Month T-Bill +4% / 25% MSCI ACWI (net)			3.4	6.8	3.4	7.8	6.2	6.0	-0.9	12.3	5.1	6.6	7.0	5.9	
Aristeia International Limited	69,959,516	1.3	2.6	4.1	4.1	12.3	9.0	-	1.8	21.6	8.7	9.2	2.6	5.3	May-14
Brevan Howard Fund	55,851,429	1.1	-3.4	1.8	6.5	7.1	12.7	-	15.2	6.1	20.5	12.7	7.8	7.7	Sep-13
D.E. Shaw Composite Fund	59,530,214	1.1	1.1	7.9	14.1	21.4	16.9	-	29.0	19.0	15.6	11.5	11.3	14.3	Jul-13
HBK Fund II	44,737,059	0.9	1.3	7.2	5.2	10.2	5.1	-	2.3	11.0	1.5	5.5	3.0	4.5	Nov-13
Hudson Bay Cap Structure Arbitrage Enhanced Fund	80,735,699	1.5	0.8	6.6	8.4	12.3	-	-	7.7	14.2	16.2	-	-	11.8	Jun-19
Indus Pacific Opportunities Fund	47,650,356	0.9	1.4	2.3	0.8	15.9	4.5	-	-8.2	38.0	15.8	-19.2	15.8	7.3	Jul-14
Pharo Macro Fund	61,359,040	1.2	-1.5	-1.3	-4.1	-0.7	-	-	-11.1	3.5	-	-	-	-2.0	Dec-19
PIMCO Commodity Alpha Fund	67,115,042	1.3	6.5	11.2	16.5	17.8	9.0	-	8.6	14.2	4.8	5.2	10.4	10.5	Jun-16
Sculptor Domestic Partners II LP	46,540,997	0.9	4.8	5.6	-9.2	3.5	-	-	-19.9	16.8	6.5	-	-	4.7	Feb-19
Magnetar Structured Credit Fund	7,327,545	0.1	0.9	3.1	2.7	16.8	9.0	-	1.1	38.1	-0.2	5.4	7.7	7.7	May-14
Alpha Pool	219,047,320	4.2	-0.4	0.5	-0.2	-	-	-	1.5	14.5	-	-	-	5.8	Jul-20
3 Month T-Bill +4%			2.1	5.5	6.6	-	-	-	4.2	4.1	-	-	-	5.0	
Hudson Bay	62,361,920	1.2	-1.5	0.4	1.6	-	-	-	6.7	-	-	-	-	7.2	Aug-20
Davidson Kempner Institutional Partners	54,896,123	1.0	-1.1	-2.6	-5.5	-	-	-	-3.4	-	-	-	-	0.9	Dec-20
HBK Fund II	43,022,754	0.8	-1.0	0.9	-1.3	-	-	-	1.3	-	-	-	-	3.1	Dec-20
Garda Fixed Income Relative Value Opportunity Fund	58,583,027	1.1	2.0	4.3	6.3	-	-	-	-	-	-	-	-	6.3	Sep-21
HBK Opportunities Platform – SPAC Series	183,496	0.0	-0.8	-1.3	-2.5	-	-	-	-2.5	-	-	-	-	1.7	Nov-20

Policy Index: 37% MSCI ACWI IMI (Net), 14% Bloomberg US Aggregate, 6% Ice BofA ML High Yield Master II Index, 2% JPM Emerging Markets Bond Index Global Diversified, 2% JPM Government Bond Index-Emerging Markets Global Diversified, 4% Bloomberg Commodity Index, 7.5% 3-Month T-bill +4%, 2.5% MSCI ACWI (Net), 8% 91 Day T-Bill + 4%, 5% NCREIF-ODCE Gross Monthly, 5% actual timeweighted Private Equity Returns*, 5% actual time-weighted Private Credit Returns*, 5% actual time-weighted Private Real Estate Returns*, 5% Alerian Midstream, 0% Assumed Rate of Return +3%, -8% 3-Month T-bill and actual weights and returns of private asset classes to nearest 1%. All data prior to 2Q 2011 has been provided by the investments managers. FY: 6/30. The Equity and Fixed Income Beta Exposure return includes overlay cash and an implied hurdle rate also applied to the Alpha pool.

	Market Value	% of Portfolio	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	Fiscal 2022	Fiscal 2021	Fiscal 2020	Fiscal 2019	Fiscal 2018	Inception	Inception Date
Midstream Energy	303,662,302	5.8	2.8	15.8	5.3	-	-	-	9.3	-	-	-	-	29.4	Sep-20
Alerian Midstream Energy Index			0.8	8.1	-1.2	-	-	-	11.4	-	-	-	-	26.2	
Harvest Midstream	155,726,602	3.0	3.7	18.3	8.3	-	-	-	15.3	-	-	-	-	36.6	Aug-20
Alerian Midstream Energy Index			0.8	8.1	-1.2	-	-	-	11.4	-	-	-	-	25.3	
PIMCO Midstream	147,935,700	2.8	1.8	12.6	1.4	-	-	-	2.2	-	-	-	-	22.8	Sep-20
50/25/25 Alerian Midstream/ ICE BofA US Pipeline/ ICE BofA US HY Midstream			2.4	7.6	-1.5	-	-	-	-0.7	-	-	-	-	-	
Core Real Estate	321,881,000	6.1	-4.6	-8.4	-4.3	6.0	5.7	-	24.8	5.6	1.4	5.9	7.4	7.3	Oct-14
NCREIF ODCE			-3.2	-7.5	-3.1	8.4	7.5	-	29.5	8.0	2.2	6.4	8.4	8.8	
ASB Allegiance Real Estate Fund	177,580,755	3.4	-5.6	-7.5	-3.3	6.0	5.8	-	23.0	5.4	1.5	6.8	7.1	7.5	Sep-13
NCREIF ODCE			-3.2	-7.5	-3.1	8.4	7.5	-	29.5	8.0	2.2	6.4	8.4	9.1	
JPMCB Strategic Property Fund	144,300,244	2.8	-3.2	-9.8	-5.5	6.1	5.8	-	27.9	5.9	1.3	5.0	7.6	7.3	Jul-14
NCREIF ODCE			-3.2	-7.5	-3.1	8.4	7.5	-	29.5	8.0	2.2	6.4	8.4	8.9	
Private Real Estate	123,608,804	2.4	3.4	8.8	12.4	16.5	12.8	12.6	31.3	12.1	4.4	9.0	5.4	12.8	Mar-11
			3.5	8.9	12.5	16.5	12.8	13.1	31.3	12.1	4.4	9.0	5.4	12.9	
Private Equity	165,827,721	3.2	0.9	-3.5	-2.9	14.3	11.2	10.7	22.9	41.7	-10.5	10.9	7.8	10.6	Sep-10
			0.9	-3.5	-2.8	14.3	11.2	11.2	23.0	41.7	-10.5	10.9	7.8	10.8	
Private Credit	245,458,300	4.7	1.2	0.4	1.6	1.3	4.7	-	1.2	4.8	5.5	9.7	9.3	-24.2	Dec-15
			1.3	0.5	1.6	1.3	4.7	-	1.2	4.8	5.5	9.7	9.3	6.8	
Opportunistic	167,025,043	3.2	4.2	-0.5	-10.3	18.4	-	-	-5.4	59.9	-	-	-	10.4	Jan-20
Assumed Rate of Return +3%			1.8	5.4	7.2	7.2	-	-	7.2	7.2	-	-	-	7.2	
River Birch International	5,961,528	0.1	15.4	25.1	-	-	-	-	-	-	-	-	-	37.3	Jun-22
Assumed Rate of Return +3%			1.8	5.4	-	-	-	-	-	-	-	-	-	5.4	
DB Investors Fund IV	25,576,934	0.5	17.8	0.3	-35.9	15.8	-	-	-34.4	95.1	-	-	-	7.9	Dec-19
Assumed Rate of Return +3%			1.8	5.4	7.2	7.2	-	-	7.2	7.2	-	-	-	7.2	
Sixth Street TAO Partners (D)	85,955,709	1.6	1.3	-0.5	2.2	15.1	-	-	9.6	39.6	-	-	-	15.1	Mar-20
Assumed Rate of Return +3%			1.8	5.4	7.2	7.2	-	-	7.2	7.2	-	-	-	7.2	
Aristeia Select Opportunities II	49,530,872	0.9	1.7	-4.9	-4.4	-	-	-	-	-	-	-	-	-0.2	Jul-21
Assumed Rate of Return +3%			1.8	5.4	7.2	-	-	-	7.2	-	-	-	-	7.2	
Cash	-21,679,077	-0.4	0.5	1.7	1.6	0.6	1.1	1.4	-0.2	0.1	1.0	2.0	3.2	1.3	Apr-11
3 Month T-Bill			1.1	2.4	2.5	0.9	1.4	0.9	0.2	0.1	1.6	2.3	1.4	0.7	

Policy Index: 37% MSCI ACWI IMI (Net), 14% Bloomberg US Aggregate, 6% Ice BofA ML High Yield Master II Index, 2% JPM Emerging Markets Bond Index Global Diversified, 2% JPM Government Bond Index-Emerging Markets Global Diversified, 4% Bloomberg Commodity Index, 7.5% 3-Month T-bill +4%, 2.5% MSCI ACWI (Net), 8% 91 Day T-Bill + 4%, 5% NCREIF-ODCE Gross Monthly, 5% actual timeweighted Private Equity Returns*, 5% actual time-weighted Private Credit Returns*, 5% actual time-weighted Private Real Estate Returns*, 5% Alerian Midstream, 0% Assumed Rate of Return +3%, -8% 3-Month T-bill and actual weights and returns of private asset classes to nearest 1%. All data prior to 2Q 2011 has been provided by the investments managers. FY: 6/30. The Equity and Fixed Income Beta Exposure return includes overlay cash and an implied hurdle rate also applied to the Alpha pool.

			IRR Analysis as of IRR date									
Vintage Year	Manager/Fund	Estimated Market Value as of 3/31/2023	Total Commitment	Capital Called	% Called	Remaining Commitment	Capital Returned	Market Value as of IRR date	Distrib./ Paid-In (DPI)[1]	Tot. Value/ Paid-In (TVPI)[2]	Net IRR Since Inception[3]	IRR Date
Private Equity												
2008	Abbott Capital PE VI	$17,231,430	$50,000,000	$49,750,000	100%	$250,000	$78,095,564	$22,959,156	1.57x	1.92x	13.0%	09/30/22
2006	Pantheon Global III	$544,562	$50,000,000	$47,300,000	95%	$2,700,000	$52,000,000	$553,872	1.10x	1.11x	1.9%	12/31/22
1998	Pantheon USA III	$45,445	$7,500,000	$7,335,000	98%	$165,000	$8,197,500	$47,064	1.12x	1.12x	1.9%	12/31/22
2002	Pantheon USA V	$392,019	$25,000,000	$24,350,000	97%	$650,000	$37,950,000	$411,492	1.56x	1.57x	9.0%	12/31/22
2004	Pantheon USA VI	$357,185	$35,000,000	$33,075,000	95%	$1,925,000	$50,623,827	$346,190	1.53x	1.54x	6.7%	12/31/22
2006	Pantheon USA VII	$6,715,424	$50,000,000	$46,600,000	93%	$3,400,000	$80,124,999	$7,894,161	1.72x	1.86x	10.1%	12/31/22
2020	Vista Foundation Fund IV	$17,834,565	$25,000,000	$18,753,571	75%	$6,246,429	$30,252	$13,821,190	0.00x	0.95x	9.8%	12/31/22
2021	Crown Global Secondaries V Master S.C.Sp	$28,138,412	$50,000,000	$21,250,000	43%	$28,750,000	$1,550,000	$24,982,600	0.07x	1.40x	34.7%	12/31/22
2021	Brighton Park Capital Fund I	$35,655,157	$30,000,000	$33,619,644	112%	-$3,619,644	$1,325,801	$37,910,214	0.04x	1.10x	17.3%	09/30/22
2021	Warren Equity Partners Fund III	$27,303,165	$32,500,000	$22,969,862	71%	$9,530,138	$508,290	$24,410,915	0.02x	1.21x	23.8%	09/30/22
2021	Peak Rock Capital Fund III	$11,225,621	$30,000,000	$11,109,034	37%	$18,890,966	$1,879,477	$10,755,827	0.17x	1.18x	22.7%	12/31/22
2021	Level Equity Growth Partners V	$4,543,921	$15,000,000	$5,139,531	34%	$9,860,469	$0	N/A	N/A	N/A	N/A	N/A
2021	Level Equity Opportunities Fund 2021	$3,253,566	$15,000,000	$3,673,753	24%	$11,326,247	$0	N/A	N/A	N/A	N/A	N/A
2022	Linden Capital Partners V LP	$5,472,902	$22,500,000	$5,623,610	25%	$16,876,390	$0	$5,461,028	N/A	N/A	-8.7%	12/31/22
2022	Rubicon Technology Partners IV LP	$2,681,880	$30,000,000	$3,214,080	11%	$26,785,920	$0	$3,214,080	N/A	N/A	-69.4%	12/31/22
2022	OrbiMed Private Investments IX, LP	$366,875	$10,000,000	$500,000	5%	$9,500,000	$0	$366,875	N/A	N/A	27.6%	03/31/23
2022	Brighton Park Capital Fund II	$2,249,052	$30,000,000	$3,239,535	11%	$26,760,465	$0	N/A	N/A	N/A	N/A	N/A
2022	Linden Co-Investment V LP	$1,816,540	$7,500,000	$5,623,610	75%	$1,876,390	$0	$1,846,267	N/A	N/A	21.8%	12/31/22
2022	Warren Equity Partners Fund IV	$0	$32,500,000	$0	0%	$32,500,000	$0	N/A	N/A	N/A	N/A	N/A
2022	Accel-KKR Capital Partners VII	$0	$25,000,000	$0	0%	$25,000,000	$0	N/A	N/A	N/A	N/A	N/A
2023	LGT Crown Global Secondaries Fund VI	$0	$30,000,000	$0	0%	$30,000,000	$0	N/A	N/A	N/A	N/A	N/A
2023	Parthenon Investors VII	$0	$30,000,000	$0	0%	$30,000,000	$0	N/A	N/A	N/A	N/A	N/A
	Total Private Equity	**$165,827,721**	$632,500,000	$343,126,229	54%	$289,373,771	$312,285,711	$154,980,731	0.91x	1.39x		
	% of Portfolio (Market Value)	3.2%										

[1](DPI) is equal to (capital returned / capital called)
[2](TVPI) is equal to (market value + capital returned) / capital called
[3]Net IRR is calculated on the cash flows of all the limited partners of the fund and is net of all fees. Each IRR is provided by the Fund manager and is reflective of the Fund IRR, rather than KCERA's specific IRR.

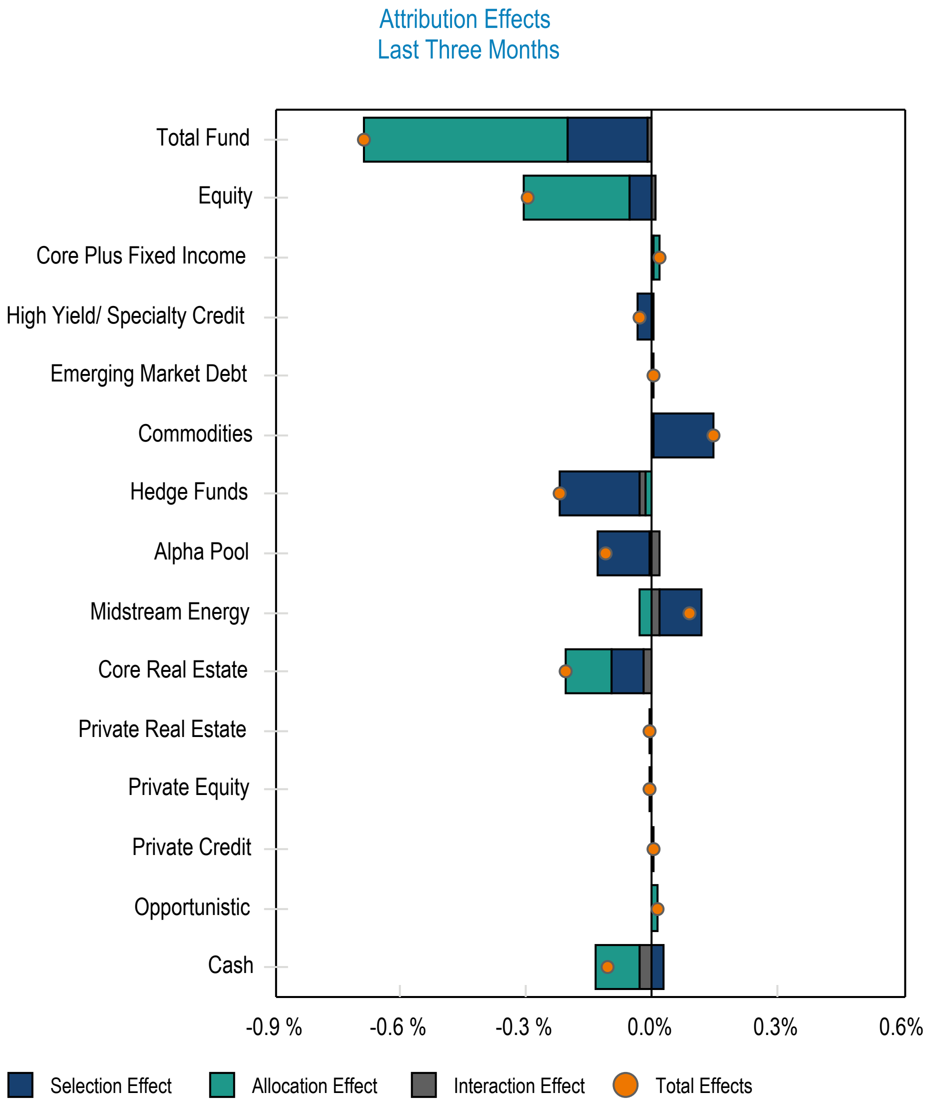
			IRR Analysis as of IRR date									
Vintage Year	Manager/Fund	Estimated Market Value 3/31/2023	Total Commitment	Capital Called	% Called	Remaining Commitment	Capital Returned	Market Value as of IRR date	Distrib./ Paid-In (DPI)[1]	Tot. Value/ Paid-In (TVPI)[2]	Net IRR Since Inception[3]	IRR Date
Private Credit												
2015	DC Value Recovery Fund IV[4]	$20,781,309	$60,000,000	$73,340,099	122%	-$5,500,870	$37,625,485	$18,822,414	0.51x	0.80x	9.0%	12/31/22
2017	Sixth Street TAO Partners (B)	$39,800,921	$50,000,000	$67,850,097	136%	-$17,850,097	$42,191,344	$38,674,463	0.62x	1.21x	9.5%	12/31/22
2017	Brookfield Real Estate Finance Fund V	$17,621,779	$50,000,000	$36,019,917	72%	$13,980,083	$26,878,678	$19,618,101	0.75x	1.24x	7.7%	12/31/22
2018	Magnetar Constellation Fund V	$28,836,480	$60,000,000	$64,905,493	108%	-$4,905,493	$41,583,529	$28,836,480	0.64x	1.08x	6.3%	3/31/23
2019	H.I.G Bayside Loan Opportunity Fund V	$42,185,573	$60,000,000	$35,821,497	60%	$24,178,503	$11,999,612	$42,185,573	0.33x	1.51x	17.9%	3/31/23
2020	Blue Torch Credit Opportunities Fund II	$17,526,212	$20,000,000	$16,613,092	83%	$3,386,908	$1,836,476	$17,089,280	0.11x	1.17x	14.2%	12/31/22
2020	Fortress Credit Opportunites Fund V Expansion	$13,938,158	$40,000,000	$12,688,449	32%	$27,311,551	$468,590	$14,019,822	0.04x	1.14x	23.4%	12/31/22
2021	Fortress Lending Fund II	$29,190,818	$40,000,000	$33,337,851	83%	$6,662,149	$5,527,900	$28,599,104	0.17x	1.04x	2.9%	12/31/22
2022	Blue Torch Credit Opportunities Fund III	$7,625,106	$40,000,000	$7,199,891	18%	$32,800,109	$0	N/A	0.00x	1.06x	N/A	N/A
2022	Fortress Lending Fund III	$23,391,071	$40,000,000	$23,232,701	58%	$16,767,299	$1,416,992	$24,006,650	N/A	N/A	-5.9%	12/31/22
2022	OrbiMed Royalty & Credit Opportunities IV	$4,560,873	$30,000,000	$4,500,000	15%	$25,500,000	$0	$4,560,873	0.00x	1.01x	11.9%	3/31/23
	Total Private Credit	**$245,458,300**	$490,000,000	$375,509,086	77%	$122,330,143	$169,528,608	$236,412,760	0.45x	1.11x		
	% of Portfolio (Market Value)	**4.7%**										

[1](DPI) is equal to (capital returned / capital called)
[2](TVPI) is equal to (market value + capital returned) / capital called
[3]Net IRR is calculated on the cash flows of all the limited partners of the fund and is net of all fees. Each IRR figure is provided by its respective manager.
[4]Name changed from Colony Distressed Credit fund to DC Value Recovery Fund IV

Vintage Year	Manager/Fund	Estimated Market Value 3/31/2023	Total Commitment	Capital Called	% Called	Remaining Commitment	Capital Returned	Market Value as of IRR date	Distrib./ Paid-In (DPI)[1]	Tot. Value/ Paid-In (TVPI)[2]	Net IRR Since Inception[3]	IRR Date
			IRR Analysis as of IRR date									
Private Real Estate												
2014	Invesco Real Estate Value-Add Fund IV	$1,394,290	$50,000,000	$43,637,717	87%	$6,362,283	$56,824,750	$2,659,454	*1.30x*	*1.33x*	*12.3%*	12/31/22
2017	Landmark Real Estate Partners VIII	$31,009,306	$60,000,000	$38,464,357	64%	$21,535,643	$22,374,230	$28,646,936	*0.58x*	*1.39x*	*21.8%*	09/30/22
2018	Long Wharf Real Estate Partners VI	$34,044,975	$50,000,000	$48,196,234	96%	$1,803,766	$22,497,522	$34,044,975	*0.47x*	*1.17x*	*22.0%*	03/31/23
2020	Covenant Apartment Fund X	$33,907,055	$30,000,000	$24,007,333	80%	$5,992,667	$6,027,231	$29,905,106	*0.25x*	*1.66x*	*29.9%*	12/31/22
2021	Singerman Real Estate Opportunity Fund IV	$6,958,995	$35,000,000	$8,146,250	23%	$26,853,750	$0	$8,851,934	*0.00x*	*0.85x*	*21.0%*	03/31/23
2022	LBA Logistics Value Fund IX, L.P.	$8,851,934	$40,000,000	$8,076,923	20%	$31,923,077	$0	N/A	N/A	N/A	N/A	N/A
2022	Covenant Apartment Fund XI	$7,442,250	$30,000,000	$3,300,000	105%	$38,076,924	$0	N/A	N/A	N/A	N/A	N/A
2022	KSL Capital Partners VI	$0	$30,000,000	$0	0%	$30,000,000	$0	N/A	*N/A*	*N/A*	N/A	N/A
	Total Private Real Estate	**$123,608,804**	$325,000,000	$173,828,814	53%	$162,548,110	$107,723,734	$104,108,405	*0.62x*	*1.33x*		
	% of Portfolio (Market Value)	***2.4%***										

[1](DPI) is equal to (capital returned / capital called)
[2](TVPI) is equal to (market value + capital returned) / capital called
[3]Net IRR is calculated on the cash flows of all the limited partners of the fund and is net of all fees. Each IRR figure is provided by its respective manager.

KSL Capital Partners VI funded in Q2



Performance Attribution

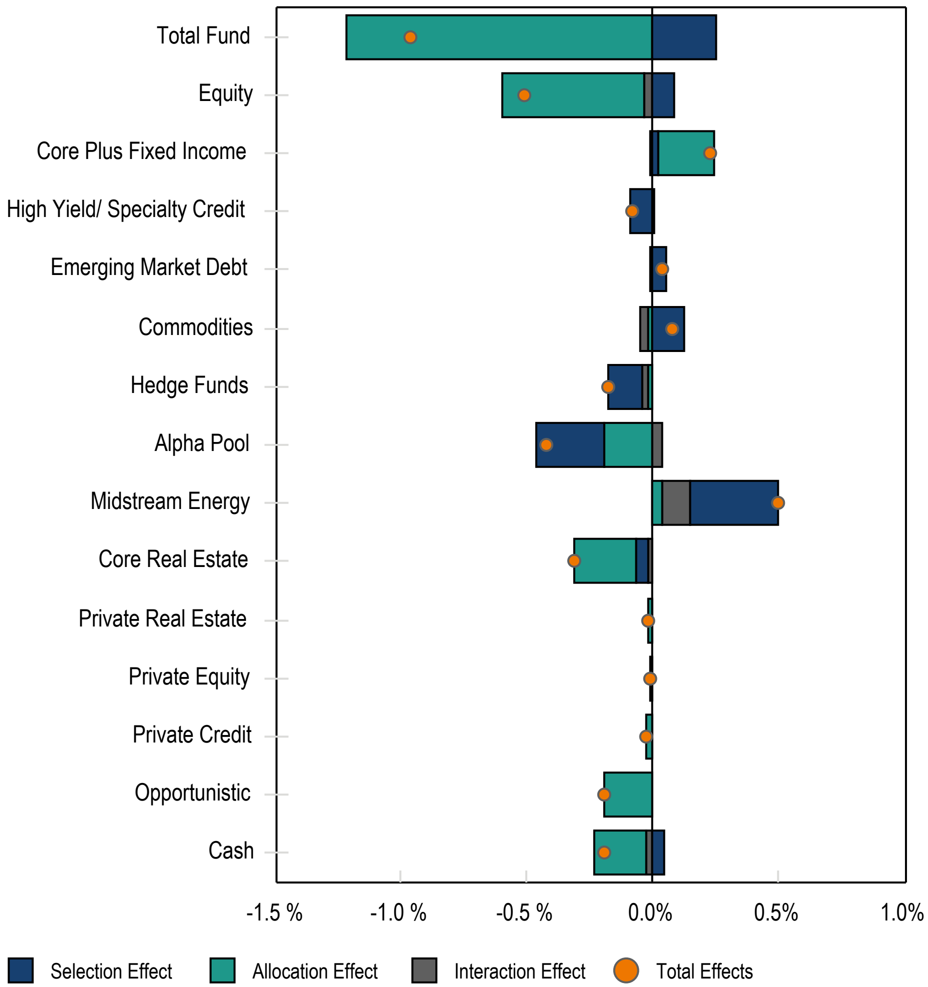
	Last Three Months
Wtd. Actual Return	3.1
Wtd. Index Return	3.8
Excess Return	-0.7
Selection Effect	-0.2
Allocation Effect	-0.5
Interaction Effect	0.0

Attribution Summary
Last Three Months

	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Interaction Effects	Total Effects
Equity	6.8	6.9	-0.1	0.0	-0.3	0.0	-0.3
Core Plus Fixed Income	3.0	3.0	0.0	0.0	0.0	0.0	0.0
High Yield/ Specialty Credit	3.2	3.7	-0.6	0.0	0.0	0.0	0.0
Emerging Market Debt	3.7	3.5	0.2	0.0	0.0	0.0	0.0
Commodities	-1.8	-5.4	3.5	0.1	0.0	0.0	0.1
Hedge Funds	1.4	3.4	-2.0	-0.2	0.0	0.0	-0.2
Alpha Pool	-0.4	2.1	-2.5	-0.1	0.0	0.0	-0.1
Midstream Energy	2.8	0.8	2.0	0.1	0.0	0.0	0.1
Core Real Estate	-4.6	-3.2	-1.4	-0.1	-0.1	0.0	-0.2
Private Real Estate	3.4	3.5	-0.1	0.0	0.0	0.0	0.0
Private Equity	0.9	0.9	0.0	0.0	0.0	0.0	0.0
Private Credit	1.2	1.3	0.0	0.0	0.0	0.0	0.0
Opportunistic	4.2	1.8	2.4	0.0	0.0	0.0	0.0
Cash	0.5	1.1	-0.6	0.0	-0.1	0.0	-0.1
Total Fund	3.1	3.8	-0.7	-0.2	-0.5	0.0	-0.7

Weighted returns shown in attribution analysis may differ from actual returns. Negative cash allocation unable to be shown in Attribution Summary table. Wtd. Index Returns calculated from benchmark returns and weightings of each component. Selection Effect includes Other Effect in the Performance Attribution table.

Attribution Effects
Fiscal YTD



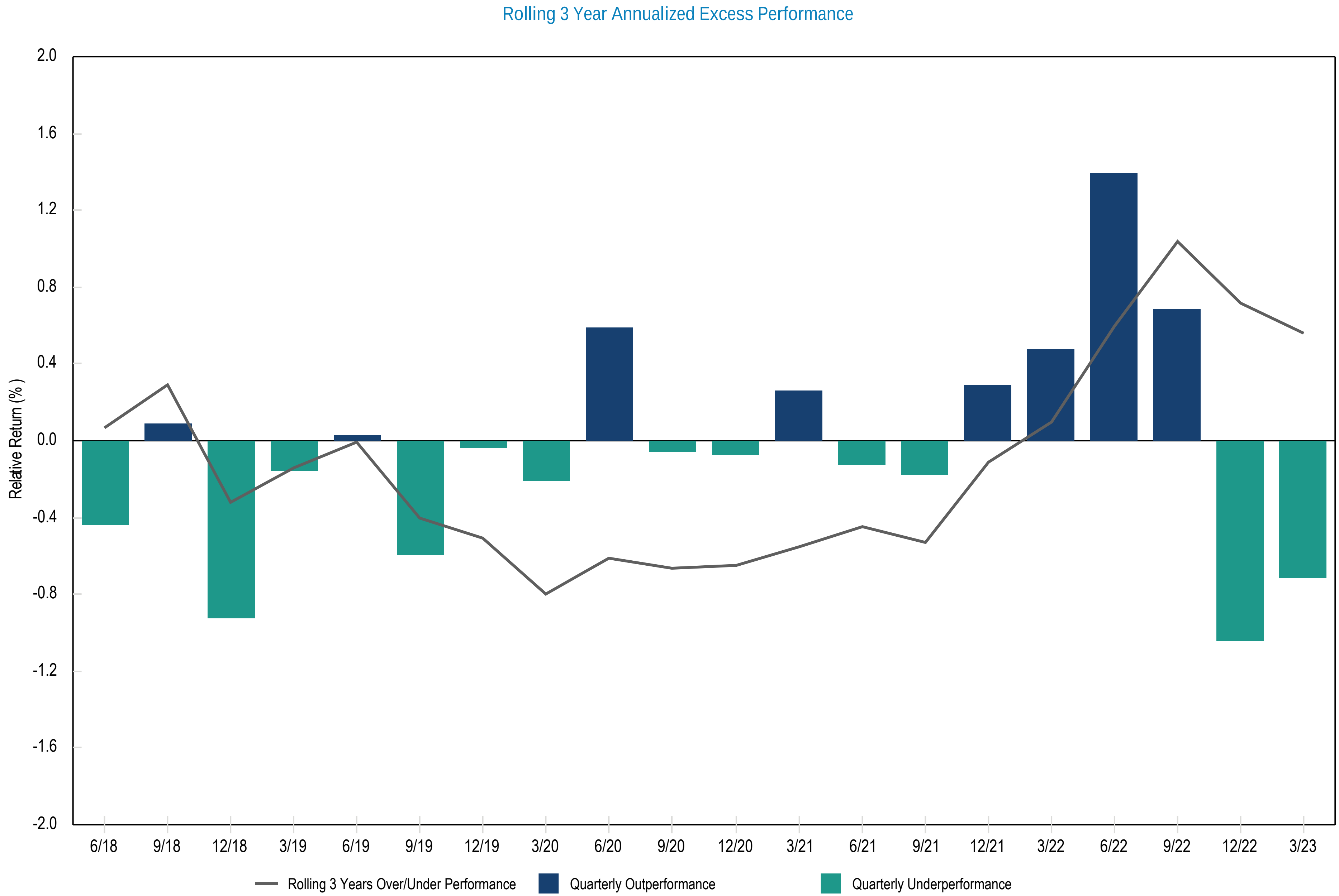
Performance Attribution

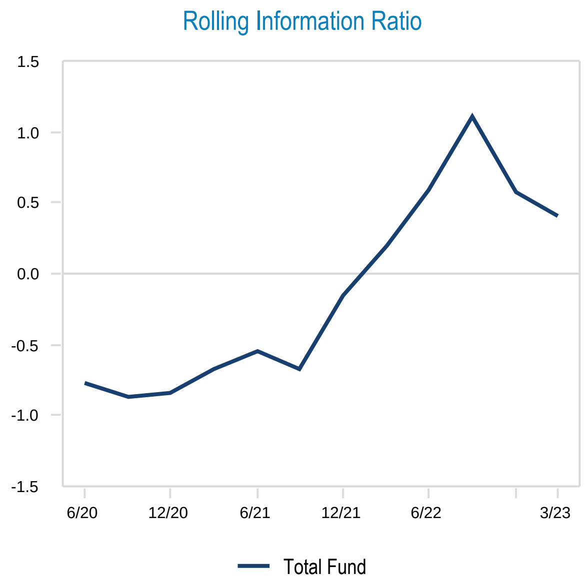
	Fiscal YTD
Wtd. Actual Return	4.4
Wtd. Index Return	5.4
Excess Return	-1.0
Selection Effect	0.3
Allocation Effect	-1.2
Interaction Effect	0.0

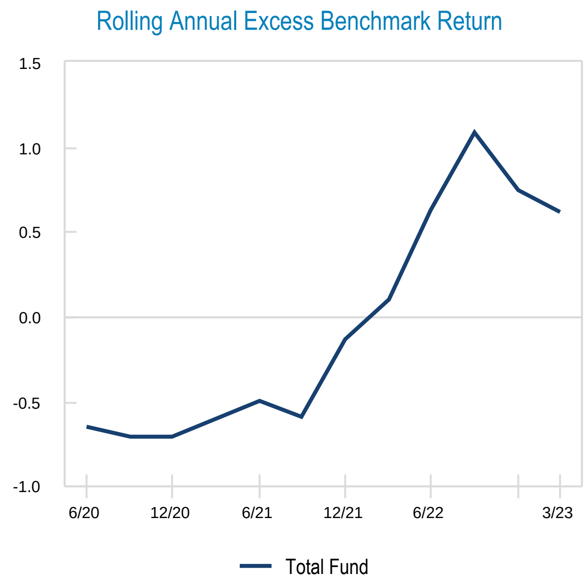
Attribution Summary
Fiscal YTD

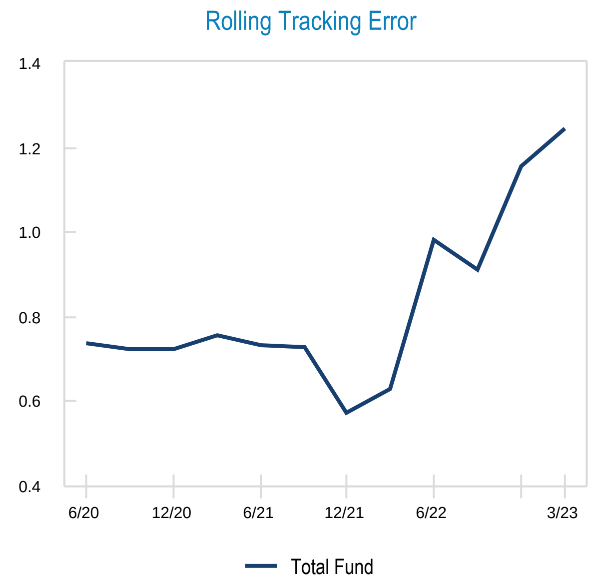
	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Interaction Effects	Total Effects
Equity	9.9	9.7	0.2	0.1	-0.6	0.0	-0.5
Core Plus Fixed Income	0.1	-0.1	0.1	0.0	0.2	0.0	0.2
High Yield/ Specialty Credit	5.7	7.1	-1.4	-0.1	0.0	0.0	-0.1
Emerging Market Debt	8.3	6.9	1.4	0.1	0.0	0.0	0.0
Commodities	-4.3	-7.2	2.9	0.1	0.0	0.0	0.1
Hedge Funds	5.2	6.8	-1.7	-0.1	0.0	0.0	-0.2
Alpha Pool	0.5	5.5	-4.9	-0.3	-0.2	0.0	-0.4
Midstream Energy	15.8	8.1	7.7	0.4	0.0	0.1	0.5
Core Real Estate	-8.4	-7.5	-0.9	0.0	-0.2	0.0	-0.3
Private Real Estate	8.8	8.9	-0.1	0.0	0.0	0.0	0.0
Private Equity	-3.5	-3.5	0.0	0.0	0.0	0.0	0.0
Private Credit	0.4	0.5	0.0	0.0	0.0	0.0	0.0
Opportunistic	-0.5	5.4	-5.9	0.0	-0.2	0.0	-0.2
Cash	1.7	2.4	-0.7	0.0	-0.2	0.0	-0.2
Total Fund	4.4	5.4	-1.0	0.3	-1.2	0.0	-1.0

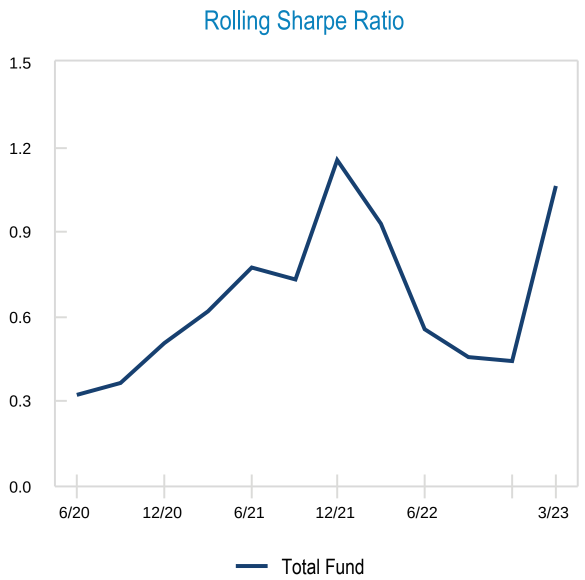
Weighted returns shown in attribution analysis may differ from actual returns. Negative cash allocation unable to be shown in Attribution Summary table. Wtd. Index Returns calculated from benchmark returns and weightings of each component. Selection Effect includes Other Effect in the Performance Attribution table.


Rolling 3 Year Annualized Excess Performance
Relative Return (%)
2.0
1.6
1.2
0.8
0.4
0.0
-0.4
-0.8
-1.2
-1.6
-2.0
6/18
9/18
12/18
3/19
6/19
9/19
12/19
3/20
6/20
9/20
12/20
3/21
6/21
9/21
12/21
3/22
6/22
9/22
12/22
3/23
Rolling 3 Years Over/Under Performance
Quarterly Outperformance
Quarterly Underperformance

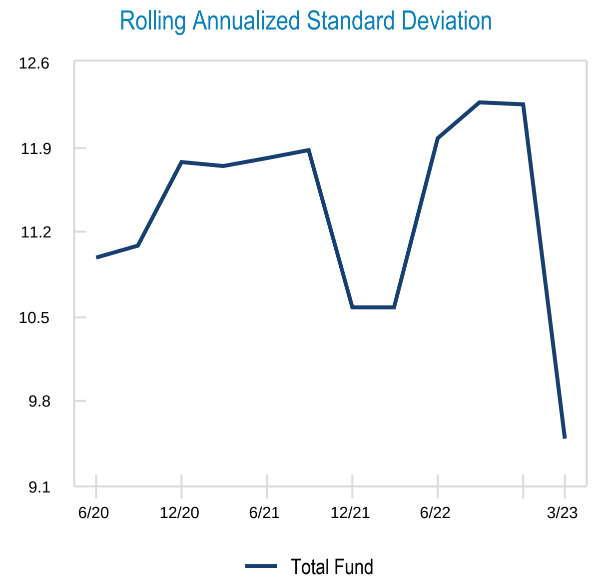

Rolling Information Ratio
1.5
1.0
0.5
0.0
-0.5
-1.0
-1.5
6/20
12/20
6/21
12/21
6/22
3/23
Total Fund

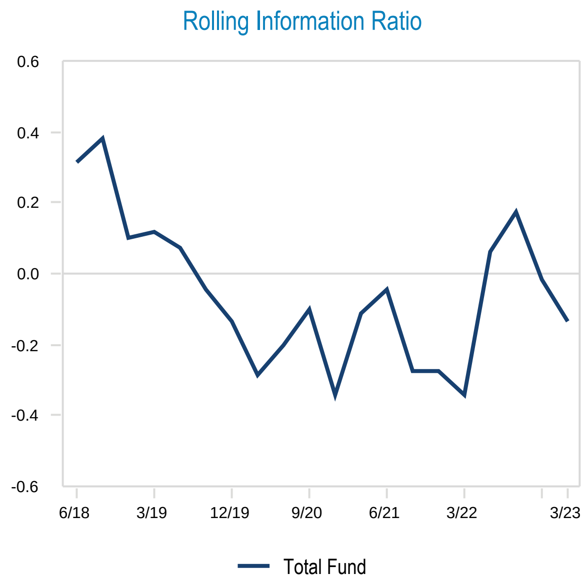

Rolling Annual Excess Benchmark Return
1.5
1.0
0.5
0.0
-0.5
-1.0
6/20
12/20
6/21
12/21
6/22
3/23
Total Fund

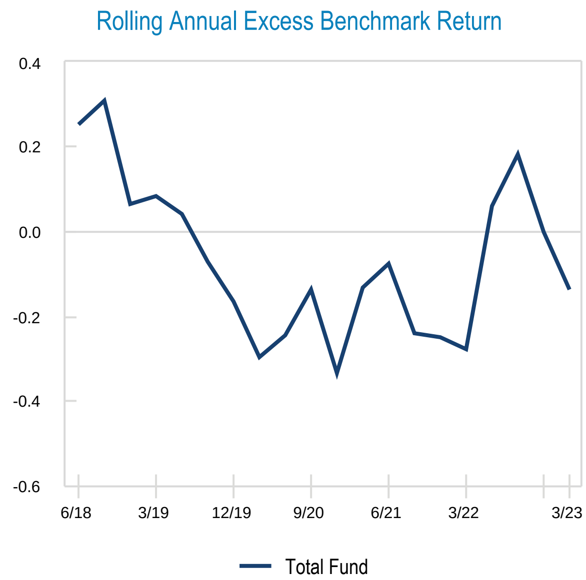

Rolling Tracking Error
1.4
1.2
1.0
0.8
0.6
0.4
6/20
12/20
6/21
12/21
6/22
3/23
Total Fund

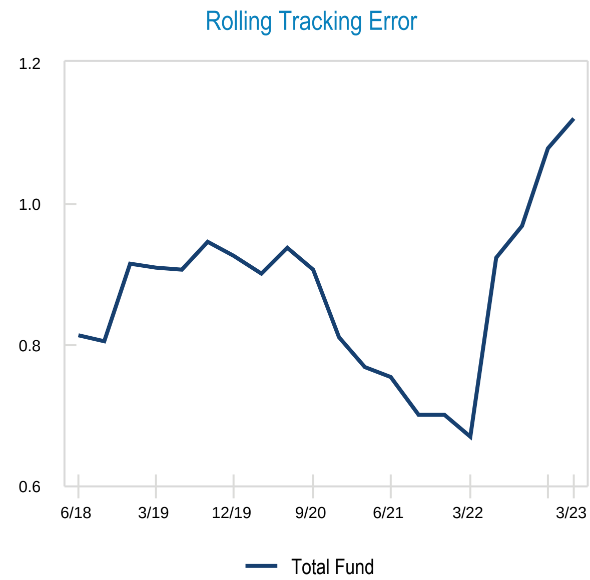

Rolling Sharpe Ratio
1.5
1.2
0.9
0.6
0.3
0.0
6/20
12/20
6/21
12/21
6/22
3/23
Total Fund

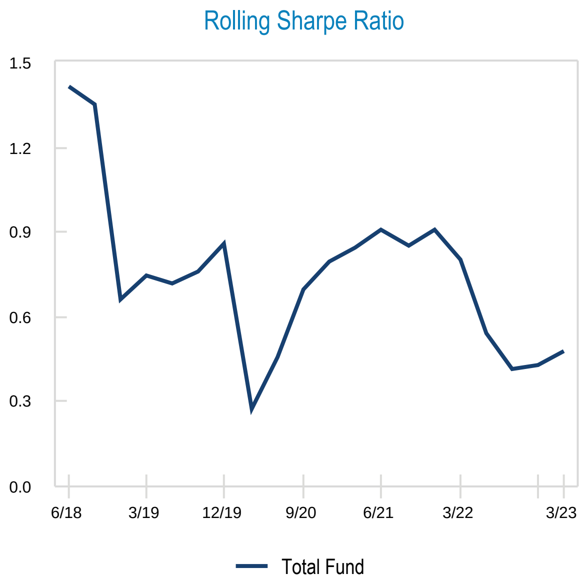

Rolling Annual Excess Risk Free Return
14.0
12.0
10.0
8.0
6.0
4.0
2.0
6/20
12/20
6/21
12/21
6/22
3/23
Total Fund


Rolling Annualized Standard Deviation
12.6
11.9
11.2
10.5
9.8
9.1
6/20
12/20
6/21
12/21
6/22
3/23
Total Fund

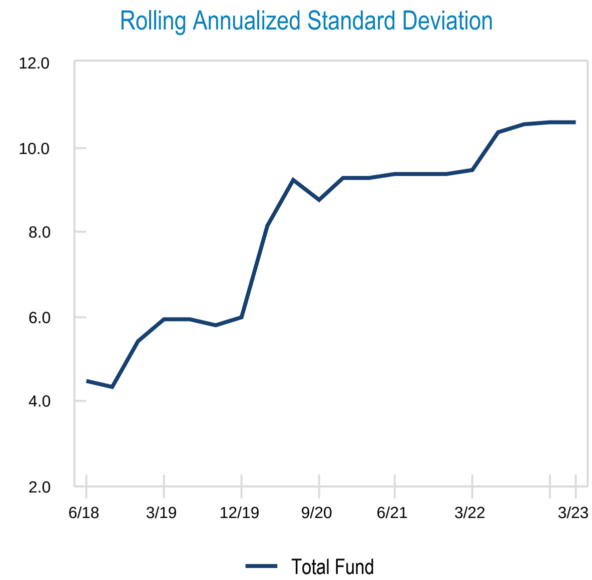

Rolling Information Ratio
0.6
0.4
0.2
0.0
-0.2
-0.4
-0.6
6/18
3/19
12/19
9/20
6/21
3/22
3/23
Total Fund


Rolling Annual Excess Benchmark Return
0.4
0.2
0.0
-0.2
-0.4
-0.6
6/18
3/19
12/19
9/20
6/21
3/22
3/23
Total Fund


Rolling Tracking Error
1.2
1.0
0.8
0.6
6/18
3/19
12/19
9/20
6/21
3/22
3/23
Total Fund


Rolling Sharpe Ratio
1.5
1.2
0.9
0.6
0.3
0.0
6/18
3/19
12/19
9/20
6/21
3/22
3/23
Total Fund


Rolling Annual Excess Risk Free Return
10.0
8.0
6.0
4.0
2.0
0.0
6/18
3/19
12/19
9/20
6/21
3/22
3/23
Total Fund


Rolling Annualized Standard Deviation
12.0
10.0
8.0
6.0
4.0
2.0
6/18
3/19
12/19
9/20
6/21
3/22
3/23
Total Fund

Cash Flows

Total Fund
Net Cash Flow: Last 1 Quarter

Kern County Employees' Retirement Association
Period Ending: March 31, 2023

	Estimated Beginning Market Value	Contributions	Withdrawals	Fees	Net Transfers	Net Investment Change	Estimated Ending Market Value
Equity	1,577,575,704	1,004,648	-995,580		-1,106,789	108,053,752	1,684,531,735
Equity Beta Exposure	108,880,200	1,004,648	-491,032		-1,063,800	8,354,534	116,684,550
Mellon DB SL Stock Index Fund	458,436,087					34,376,685	492,812,772
PIMCO StocksPLUS	99,467,229					7,501,344	106,968,573
AB US Small Cap Value Equity	86,111,927		-74			-177,868	85,933,985
Geneva Capital Small Cap Growth	46,020,563					3,940,624	49,961,187
Mellon DB SL World ex-US Index Fund	471,377,465					38,177,316	509,554,780
Cevian Capital II	34,435,773					3,399,622	37,835,395
American Century Non-US Small Cap	68,889,933		-295,160			3,146,856	71,741,628
DFA Emerging Markets Value I	75,158,678					2,812,965	77,971,643
AB Emerging Markets Strategic Core Equity Collective Trust	48,185,996					3,173,660	51,359,657
Mellon Emerging Markets Stock Index Fund	80,359,088					3,345,430	83,704,518
Transition Equity	845		-247			78	676
Fidelity Non-US Small Cap Equity	251,920		-209,067		-42,989	2,506	2,371
Fixed Income	1,232,206,332	30,829,590	-520,702		-8,696,949	39,347,134	1,293,165,405
Fixed Income Beta Exposure	337,322,663	29,800,000	-520,702		-3,949,900	10,400,068	373,052,129
Mellon DB SL Aggregate Bond Index Fund	157,713,715					4,701,569	162,415,284
PIMCO Core Plus	160,665,585					5,036,579	165,702,164
Western Asset Core Plus	118,812,660					3,476,454	122,289,114
Western Asset High Yield Fixed Income	161,987,205				-3,069,882	5,790,171	164,707,494
TCW Securitized Opportunities	93,753,514					2,383,739	96,137,252
Stone Harbor Emerging Markets Debt Blend Portfolio	63,666,940	825,292			-1,654,683	1,815,991	64,653,539
PIMCO EMD	138,177,003					5,730,024	143,907,027
Transition Fixed Income	107,047	204,299			-22,484	12,539	301,401
Commodities	205,801,777			-91,422	-4,655,786	-3,501,219	197,553,350
Gresham MTAP Commodity Builder Fund	52,497,584			-21,422		-3,334,041	49,142,121
Wellington Commodities	153,304,193			-70,000	-4,655,786	-167,178	148,411,229
Hedge Funds	543,309,200				-10,039,496	7,537,193	540,806,896
Aristeia International Limited	68,181,409					1,778,107	69,959,516
Brevan Howard Fund	76,763,840				-19,002,348	-1,910,064	55,851,429
D.E. Shaw Composite Fund	58,856,929					673,285	59,530,214
HBK Fund II	44,169,126					567,933	44,737,059
Hudson Bay Cap Structure Arbitrage Enhanced Fund	80,091,097					644,602	80,735,699

	Estimated Beginning Market Value	Contributions	Withdrawals	Fees	Net Transfers	Net Investment Change	Estimated Ending Market Value
Indus Pacific Opportunities Fund	37,237,546				10,000,000	412,810	47,650,356
Pharo Macro Fund	62,281,994					-922,954	61,359,040
PIMCO Commodity Alpha Fund	63,025,840					4,089,202	67,115,042
Sculptor Domestic Partners II LP	44,404,229					2,136,768	46,540,997
Magnetar Structured Credit Fund	8,297,190				-1,037,149	67,504	7,327,545
Alpha Pool	239,505,576				-19,640,563	-817,693	219,047,320
Hudson Bay	61,864,015				1,411,534	-913,629	62,361,920
Davidson Kempner Institutional Partners	54,247,004				1,249,538	-600,419	54,896,123
HBK Fund II	42,476,585				971,185	-425,016	43,022,754
Garda Fixed Income Relative Value Opportunity Fund	56,160,036				1,321,109	1,101,882	58,583,027
HBK Opportunities Platform – SPAC Series	24,757,936				-24,593,929	19,489	183,496
Midstream Energy	299,392,352				-4,511,703	8,781,653	303,662,302
Harvest Midstream	152,077,589				-2,322,632	5,971,645	155,726,602
PIMCO Midstream	147,314,763				-2,189,071	2,810,008	147,935,700
Core Real Estate	340,306,582	38,414	-332,061		-3,298,243	-14,833,693	321,881,000
ASB Allegiance Real Estate Fund	189,419,041				-1,455,254	-10,383,032	177,580,755
JPMCB Strategic Property Fund	150,887,540	38,414	-332,061		-1,842,989	-4,450,661	144,300,244
Private Real Estate	119,647,273				19,913	3,941,618	123,608,804
Invesco Real Estate Value-Add Fund IV	2,659,454				-1,234,491	-30,673	1,394,290
Landmark Real Estate Partners VIII	31,724,146				-466,609	-248,231	31,009,306
Long Wharf Real Estate	34,816,611				-822,597	50,961	34,044,975
Covenant Apartment Fund X	29,905,106				12,360	3,989,589	33,907,055
Singerman Real Estate Opportunity Fund IV	8,214,827				131,250	505,857	8,851,934
LBA Logistics Value Fund IX, L.P.	7,574,005					-131,755	7,442,250
Covenant Apartment Fund XI, LP	4,753,125				2,400,000	-194,130	6,958,995
Private Equity	161,282,661	520			2,127,887	2,416,653	165,827,721
Abbott VI	18,940,319				-1,000,000	-708,889	17,231,430
Pantheon Secondary III	553,872					-9,310	544,562
Pantheon III	47,064					-1,619	45,445
Pantheon V	411,492					-19,473	392,019

Total Fund
Net Cash Flow: Last 1 Quarter

Kern County Employees' Retirement Association
Period Ending: March 31, 2023

	Estimated Beginning Market Value	Contributions	Withdrawals	Fees	Net Transfers	Net Investment Change	Estimated Ending Market Value
Pantheon VI	346,190					10,995	357,185
Pantheon VII	7,894,161				-700,000	-478,737	6,715,424
Vista Foundation Fund IV	13,821,190				4,563,716	-550,341	17,834,565
Crown Global Secondaries V Master S.C.Sp	24,982,600				1,550,000	1,605,812	28,138,412
Brighton Park Capital Fund I	34,229,107				202,883	1,223,167	35,655,157
Warren Equity Partners Fund III	25,661,636					1,641,529	27,303,165
Peak Rock Capital Fund III	10,755,627					469,994	11,225,621
Level Equity Growth Partners V	4,037,203				380,516	126,202	4,543,921
Level Equity Opportunities Fund 2021	3,212,848					40,718	3,253,566
Linden Capital Partners V LP	5,461,028					11,874	5,472,902
Rubicon Technology Partners IV L.P.	3,214,080					-532,200	2,681,880
OrbiMed Private Investments IX, LP	500,000					-133,125	366,875
Brighton Park Capital Fund II, L.P	2,499,270					-250,218	2,249,052
Linden Co-Investment V LP	1,846,267					-29,727	1,816,540
Abbott V	2,868,708	520			-2,869,228		
Private Credit	243,377,473				-976,841	3,057,668	245,458,300
DC Value Recovery Fund IV	18,822,414					1,958,895	20,781,309
Sixth Street TAO Partners (B)	38,674,463				738,742	387,716	39,800,921
Brookfield Real Estate Finance Fund V	19,618,101				-1,925,871	-70,451	17,621,779
Magnetar Constellation Fund V	30,525,743				-177,098	-1,512,165	28,836,480
H.I.G. Bayside Loan Opportunity Fund V	40,072,143				1,569,770	543,660	42,185,573
Blue Torch Credit Opportunities Fund II	17,089,280				-268,717	705,649	17,526,212
Fortress Credit Opportunites Fund V Expansion	14,019,822					-81,664	13,938,158
Fortress Lending Fund II	28,599,104				70,625	521,089	29,190,818
Blue Torch Credit Opportunities Fund III	7,389,421					235,685	7,625,106
Fortress Lending Fund III	24,006,650				-984,292	368,713	23,391,071
OrbiMed Royalty & Credit Opportunities IV	4,560,332					541	4,560,873
Opportunistic	168,840,683			-34,806	-8,873,186	7,092,352	167,025,043
DB Investors Fund IV	21,705,376					3,871,558	25,576,934
Sixth Street TAO Partners (D)	90,905,157				-6,136,758	1,187,310	85,955,709
Aristeia Select Opportunities II	48,693,074			-34,806		872,604	49,530,872
River Birch International - Opportunistic Investment	7,537,076				-2,736,428	1,160,880	5,961,528

	Estimated Beginning Market Value	Contributions	Withdrawals	Fees	Net Transfers	Net Investment Change	Estimated Ending Market Value
Cash	-28,723,613	178,245,642	-230,708,688	-42,379	54,505,709	5,044,253	-21,679,077
Short Term Investment Funds	194,987,429	18,010,154	-24,182,254	-42,379	29,505,709	2,432,653	220,711,312
Parametric Cash Overlay	67,571,696	87,390,808	-72,705,891				82,256,613
Goldman Sachs Cash Account	4,384,492	47,076,842	-65,015,906				-13,554,572
Futures Offset	-446,202,863	12,461,837	-56,333,637			337,984	-489,736,679
Collateral Cash		13,306,000	-12,471,000				835,000
BlackRock Short Duration Fund	150,535,633				25,000,000	2,273,616	177,809,249

Portfolio Reconciliation

	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs
Beginning Market Value	5,102,522,000	5,061,358,140	5,489,310,251	3,953,802,126	4,178,770,638	3,174,973,937
Contributions	659,354,796	2,586,066,886	3,390,375,002	10,085,869,374	12,751,576,025	18,722,926,308
Withdrawals	-686,939,061	-2,644,515,274	-3,462,383,890	-10,283,305,572	-13,129,385,545	-19,336,010,080
Fees	-168,607	-1,208,087	-4,522,912	-36,697,355	-63,446,303	-126,871,367
Net Cash Flows	-27,584,265	-58,448,388	-72,008,888	-197,436,198	-377,809,519	-613,083,772
Net Investment Change	165,951,064	237,979,047	-176,412,564	1,484,522,871	1,439,927,680	2,678,998,634
Ending Market Value	5,240,888,799	5,240,888,799	5,240,888,799	5,240,888,799	5,240,888,799	5,240,888,799
Net Change $	138,366,799	179,530,659	-248,421,452	1,287,086,674	1,062,118,161	2,065,914,862

Contribution and withdrawals include transfers in and out of accounts. Ending market value is net of fees. Market value and flows do not include the Short Term Cash Account balance.

Risk Metrics

Correlation Matrix
3 Years Ending March 31, 2023

	A	B	C	D	E	F	G	H	I	J	K	L
A	1.00											
B	0.98	1.00										
C	0.96	0.98	1.00									
D	0.96	0.97	0.91	1.00								
E	0.81	0.81	0.70	0.80	1.00							
F	0.83	0.82	0.77	0.81	0.82	1.00						
G	0.71	0.72	0.67	0.69	0.73	0.96	1.00					
H	0.89	0.86	0.84	0.83	0.73	0.90	0.79	1.00				
I	0.80	0.78	0.70	0.81	0.83	0.91	0.80	0.80	1.00			
J	0.61	0.50	0.45	0.55	0.45	0.34	0.18	0.46	0.43	1.00		
K	0.60	0.59	0.56	0.56	0.52	0.40	0.26	0.56	0.46	0.39	1.00	
L	-0.15	-0.17	-0.10	-0.23	-0.27	-0.38	-0.37	-0.26	-0.38	0.04	-0.12	1.00

A = Total Fund
B = Equity
C = Domestic Equity
D = International Developed Equity
E = Emerging Markets Equity
F = Fixed Income
G = Core Plus Fixed Income
H = High Yield/ Specialty Credit
I = Emerging Market Debt
J = Commodities
K = Hedge Funds
L = Core Real Estate

Low Interaction
Moderate Interation
Moderate to High Interation
High Interaction

	Alpha	Beta	R-Squared	Return	Information Ratio	Excess Performance	Tracking Error	Sharpe Ratio	Excess Return	Standard Deviation	Sortino Ratio	Up Capture	Down Capture
Total Fund	1.6	0.9	1.0	11.0	0.3	0.6	1.5	1.1	10.0	8.9	1.9	94.3	83.7
Equity	0.8	1.0	1.0	16.3	0.5	0.7	1.0	0.9	15.9	17.7	1.5	99.9	96.8
Domestic Equity	0.0	1.0	1.0	18.6	-0.2	-0.2	1.2	0.9	18.1	19.1	1.6	98.8	98.6
International Developed Equity	1.2	1.0	1.0	14.6	1.0	1.2	1.0	0.8	14.4	17.8	1.4	101.8	97.8
Emerging Markets Equity	0.2	0.9	1.0	8.8	-0.2	-0.3	2.7	0.5	9.1	17.1	0.9	92.0	90.4
Fixed Income	0.6	1.0	1.0	0.1	0.6	0.6	1.0	-0.1	-0.5	6.9	-0.1	108.7	102.0
Core Plus Fixed Income	0.8	1.0	1.0	-2.1	0.7	0.6	0.9	-0.4	-2.8	6.5	-0.5	113.9	103.1
High Yield/ Specialty Credit	0.7	0.7	0.9	5.1	-0.3	-0.7	2.7	0.6	4.3	6.8	1.0	75.5	68.3
Emerging Market Debt	1.8	1.0	1.0	2.2	1.5	1.8	1.2	0.2	2.0	11.2	0.3	108.1	95.9
Commodities	3.2	0.9	0.9	21.8	0.1	1.0	6.0	1.3	20.1	14.9	2.4	92.8	77.1
Hedge Funds	7.1	0.5	0.3	11.0	0.8	3.3	3.9	2.5	9.7	3.8	10.5	86.0	-32.5
Core Real Estate	0.8	0.6	0.8	6.0	-0.6	-2.4	4.0	0.8	5.1	5.8	1.6	74.6	85.4
Private Real Estate	0.0	1.0	1.0	16.5	-1.0	0.0	0.0	1.8	14.8	8.4	5.0	99.8	100.0
Private Equity	0.0	1.0	1.0	14.3	-0.6	0.0	0.0	1.0	13.5	13.7	1.9	100.0	100.1
Private Credit	0.0	1.0	1.0	1.3	-1.0	0.0	0.0	0.1	0.5	3.9	0.2	99.8	100.1

Data not available for time periods less than 3 years (Alpha Pool, Midstream, & Opportunistic added in 2020)

Risk Return Statistics: Last Three Years

3 Years

	Equity	MSCI AC World IMI (Net)	Core Plus Fixed Income	Bloomberg U.S. Aggregate Index	High Yield/ Specialty Credit	ICE BofA U.S. High Yield Index	Emerging Market Debt	50 JPM EMBI Global Div/ 50 JPM GBI EM Global Div	Commodities	Bloomberg Commodity Index Total Return	Hedge Funds	75% 3 Month T-Bill +4% / 25% MSCI ACWI (net)	Core Real Estate	NCREIF ODCE-monthly
RETURN SUMMARY STATISTICS														
Up Market Periods	23	23	16	16	24	24	18	18	25	25	24	24	33	33
Down Market Periods	13	13	20	20	12	12	18	18	11	11	12	12	3	3
Maximum Return	12.43	12.66	3.41	3.68	4.80	6.02	7.56	7.35	8.01	8.78	3.99	3.34	5.39	7.97
Minimum Return	-9.42	-9.65	-4.27	-4.32	-5.04	-6.81	-5.99	-5.81	-8.90	-10.77	-0.75	-1.96	-3.77	-4.97
Return	16.33	15.64	-2.12	-2.77	5.10	5.84	2.24	0.46	21.80	20.82	11.02	7.84	5.95	8.40
Excess Return	15.88	15.33	-2.82	-3.50	4.33	5.20	1.95	0.14	20.11	19.42	9.68	6.78	5.08	7.58
Excess Performance	0.69	0.00	0.65	0.00	-0.74	0.00	1.78	0.00	0.98	0.00	3.18	0.00	-2.45	0.00
RISK SUMMARY STATISTICS														
Beta	0.98	1.00	1.04	1.00	0.75	1.00	1.04	1.00	0.88	1.00	0.49	1.00	0.62	1.00
Upside Risk	15.18	15.22	4.18	3.89	5.63	7.12	8.29	7.66	13.70	13.62	4.84	4.50	5.23	8.30
Downside Risk	10.22	10.57	5.04	4.88	4.14	5.63	7.51	7.47	8.42	9.69	0.81	2.09	3.08	3.52
RISK/RETURN SUMMARY STATISTICS														
Standard Deviation	17.65	17.93	6.52	6.20	6.82	8.90	11.15	10.69	14.89	15.66	3.84	4.44	5.82	8.68
Alpha	0.83	0.00	0.80	0.00	0.67	0.00	1.78	0.00	3.18	0.00	7.05	0.00	0.76	0.00
Sharpe Ratio	0.90	0.85	-0.43	-0.57	0.63	0.58	0.18	0.01	1.34	1.23	2.45	1.52	0.84	0.86
Excess Risk	17.68	17.96	6.49	6.15	6.85	8.93	11.10	10.63	15.02	15.82	3.95	4.46	6.07	8.86
Tracking Error	1.02	0.00	0.94	0.00	2.74	0.00	1.23	0.00	5.96	0.00	3.90	0.00	4.05	0.00
Information Ratio	0.54	-	0.73	-	-0.32	-	1.47	-	0.12	-	0.74	-	-0.62	-
CORRELATION STATISTICS														
R-Squared	1.00	1.00	0.98	1.00	0.95	1.00	0.99	1.00	0.86	1.00	0.32	1.00	0.84	1.00
Actual Correlation	1.00	1.00	0.99	1.00	0.97	1.00	0.99	1.00	0.93	1.00	0.56	1.00	0.92	1.00

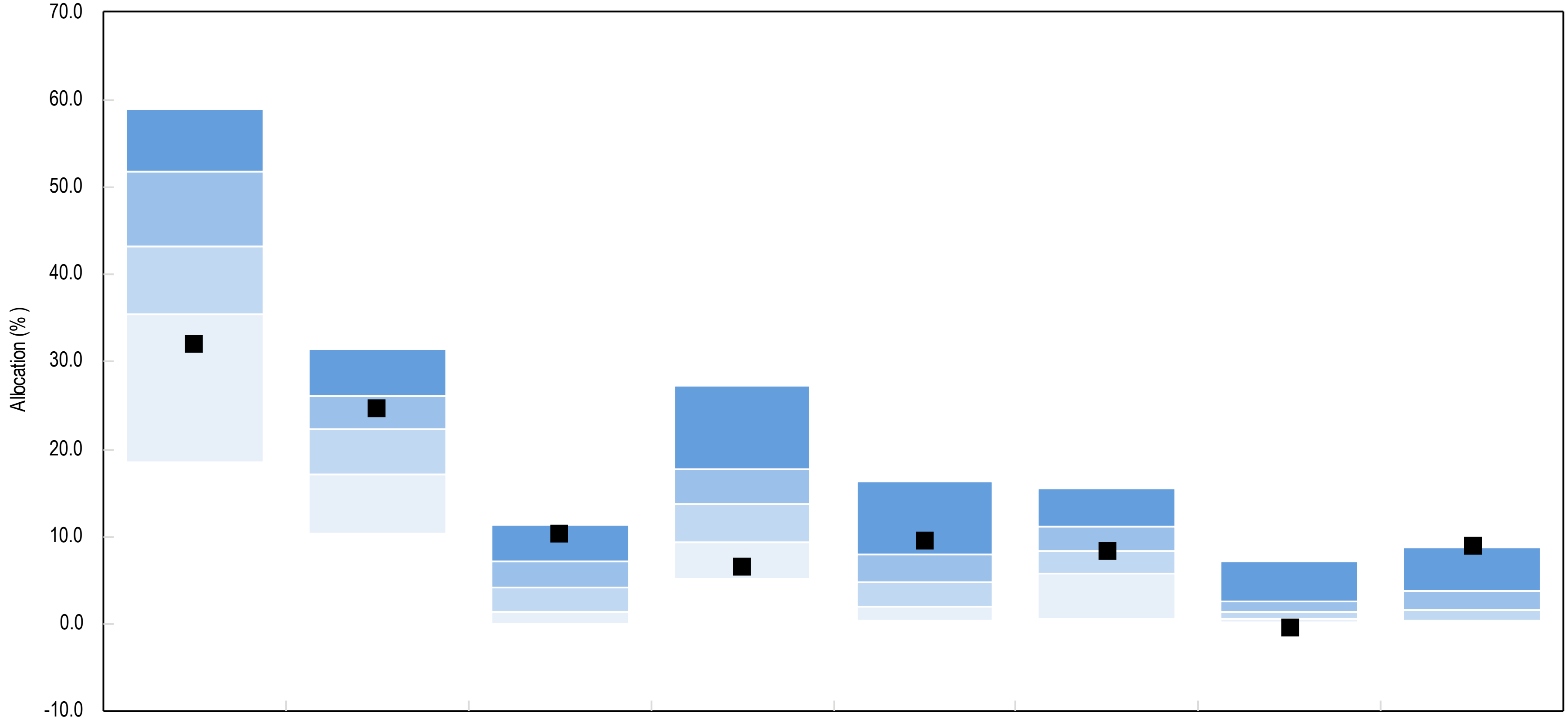
Risk Return Statistics: Last Two Years

	2 Yrs			
	Midstream Energy	Alerian Midstream Energy Index	Opportunistic	Assumed Rate of Return +3%
RETURN SUMMARY STATISTICS				
Up Market Periods	14	14	24	24
Down Market Periods	10	10	0	0
Maximum Return	11.14	11.05	7.60	0.58
Minimum Return	-11.84	-12.21	-4.04	0.58
Return	21.03	18.42	2.18	7.25
Excess Return	19.76	18.09	1.33	5.75
Excess Performance	2.61	0.00	-5.07	0.00
RISK SUMMARY STATISTICS				
Beta	0.87	1.00	-	-
Upside Risk	16.17	17.57	7.78	2.03
Downside Risk	11.48	13.57	5.45	0.00
RISK/RETURN SUMMARY STATISTICS				
Standard Deviation	18.88	21.49	9.46	0.00
Alpha	4.36	0.00	-	-
Sharpe Ratio	1.04	0.84	0.14	11.77
Excess Risk	18.98	21.60	9.53	0.49
Tracking Error	4.36	0.00	9.46	0.00
Information Ratio	0.38	-	-0.47	-
CORRELATION STATISTICS				
R-Squared	0.97	1.00	-	-
Actual Correlation	0.98	1.00	-	-

Data for unavailable for positions held for less than two years.

Peer Comparison

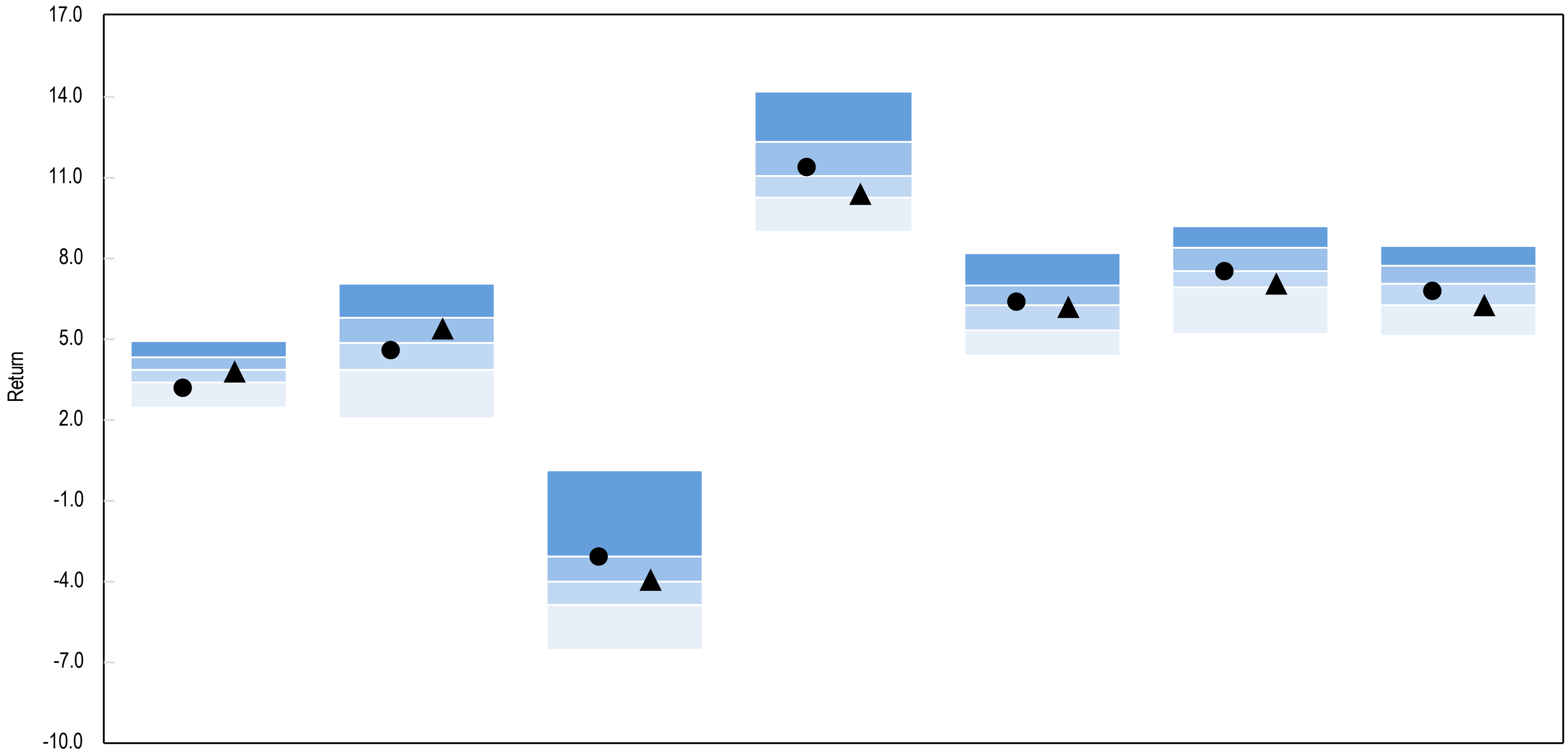
Total Plan Allocation vs. InvMetrics Public DB > $1B
As of March 31, 2023



	Total Equity	Total Fixed Income	Hedge Funds	Private Equity	Real Assets/Commod	Real Estate - Private	Cash & Equivalents	Other
■ Total Fund	32.1 (83)	24.7 (36)	10.3 (11)	6.5 (92)	9.6 (21)	8.4 (51)	-0.4	8.9 (1)
5th Percentile	59.1	31.4	11.4	27.4	16.3	15.5	7.1	8.7
1st Quartile	51.9	26.1	7.1	17.8	8.1	11.2	2.5	3.7
Median	43.3	22.3	4.2	13.8	4.7	8.4	1.3	1.6
3rd Quartile	35.4	17.1	1.3	9.3	2.0	5.7	0.5	0.3
95th Percentile	18.6	10.4	0.1	5.1	0.4	0.6	0.1	0.2
Population	120	121	61	98	65	87	99	18

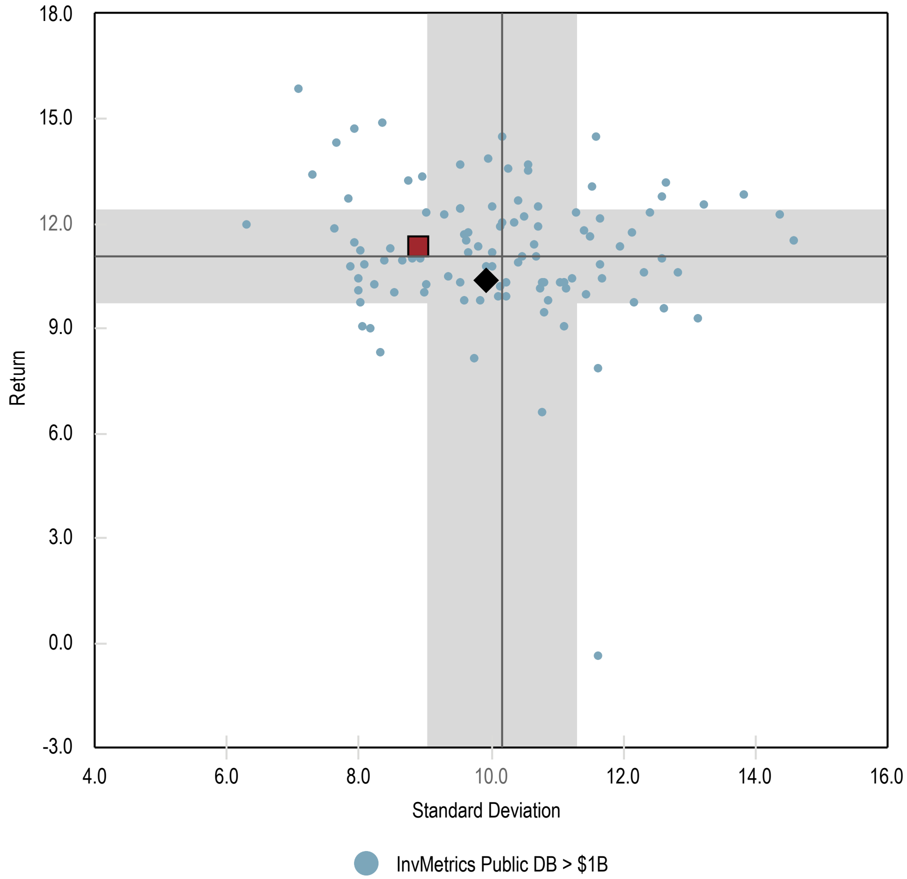
Parentheses contain percentile rankings. Other contains Alpha Pool, Opportunistic, and Private Credit. Real Estate contains Private and Core Real Estate. Real Assets contain Commodities and Midstream.

Total Fund vs. InvMetrics Public DB > $1B



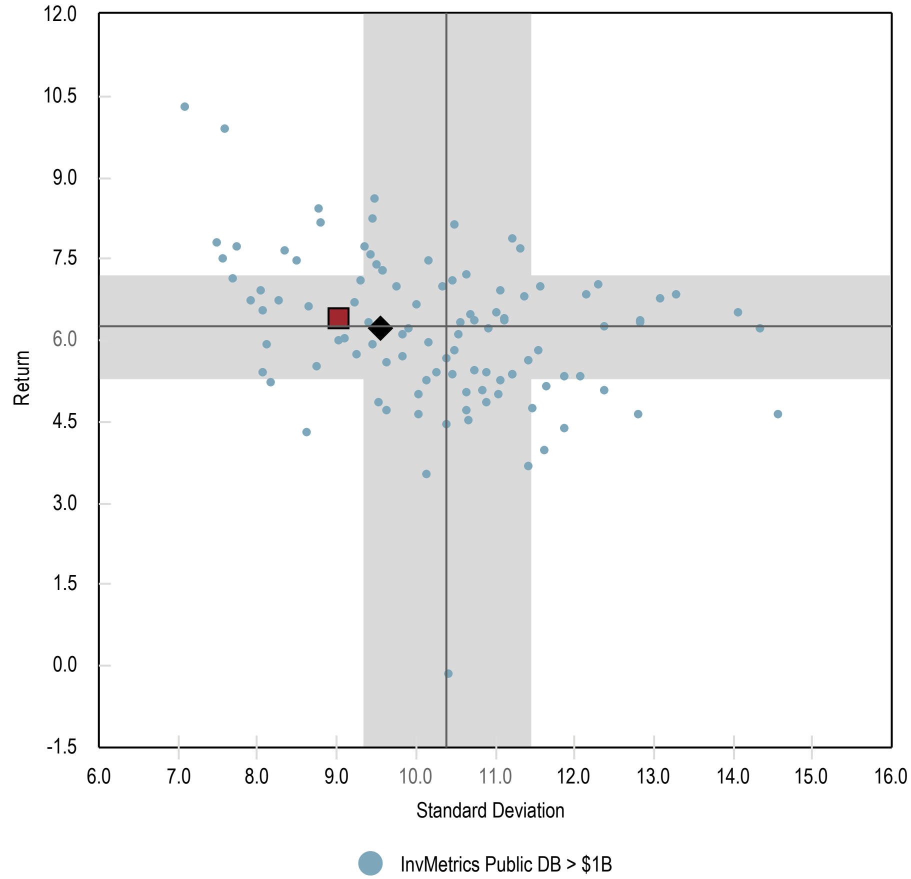
	Quarter	Fiscal YTD	1 Year	3 Years	5 Years	7 Years	10 Years
● Total Fund	3.2 (80)	4.6 (60)	-3.1 (26)	11.4 (45)	6.4 (43)	7.5 (49)	6.8 (61)
▲ Policy Index	3.8 (54)	5.4 (31)	-3.9 (48)	10.4 (68)	6.2 (52)	7.1 (67)	6.3 (74)
5th Percentile	4.9	7.1	0.1	14.2	8.2	9.2	8.5
1st Quartile	4.3	5.8	-3.1	12.3	7.0	8.4	7.7
Median	3.8	4.9	-4.0	11.1	6.2	7.5	7.0
3rd Quartile	3.4	3.9	-4.9	10.3	5.3	6.9	6.2
95th Percentile	2.4	2.1	-6.5	9.0	4.4	5.2	5.1
Population	126	120	112	107	104	103	95

Annualized Return vs. Annualized Standard Deviation
3 Years Ending March 31, 2023



	Return	Standard Deviation
Total Fund	11.38	8.90
Policy Index	10.41	9.93
Median	11.07	10.16
Population	107	107

Annualized Return vs. Annualized Standard Deviation
5 Years Ending March 31, 2023



	Return	Standard Deviation
Total Fund	6.42	9.02
Policy Index	6.23	9.55
Median	6.25	10.39
Population	104	104

Other

Fund Name	Allocation Group	Overall Status	Outperformed Universe 10th percentile (1yr)	Outperformed Universe 75th percentile (1yr)	Outperformed Index (1yr)	Outperformed Median Rank (3 yrs)	Outperformed Index (3yrs)	Outperformed Median Rank (5 yrs)	Outperformed Index (5yrs)	Concern	Index Fund Tracking Error over 0.25% (1yr)
Equity Beta Exposure	Equity	🟩	-	-	-	-	-	-	-	-	✔
Russell 2000 Overlay	Equity	🟩	-	-	-	-	-	-	-	-	-
Mellon DB SL Stock Index Fund	Equity	🟩	-	-	-	-	-	-	-	-	✔
PIMCO StocksPLUS	Equity	🟩	✔	⚑	⚑	✔	⚑	✔	⚑	-	-
AB US Small Cap Value Equity	Equity	🟩	✔	⚑	✔	✔	✔	⚑	⚑	-	-
Geneva Capital Small Cap Growth	Equity	🟩	✔	✔	✔	⚑	✔	⚑	✔	-	-
Mellon DB SL World ex-US Index Fund	Equity	🟩	-	-	-	-	-	-	-	-	⚑
Fidelity Non-US Small Cap Equity	Equity	🟩	⚑	✔	✔	✔	✔	✔	✔	-	-
Cevian Capital II	Equity	🟩	-	-	-	-	-	-	-	-	⚑
American Century Non-US Small Cap	Equity	🟩	✔	✔	✔	-	-	-	-	-	-
DFA Emerging Markets Value I	Equity	🟩	✔	✔	✔	✔	✔	✔	✔	-	-
AB Emerging Markets Strategic Core Equity Collective Trust	Equity	🟩	✔	✔	✔	⚑	⚑	⚑	⚑	-	-
Mellon Emerging Markets Stock Index Fund	Equity	🟩	-	-	-	-	-	-	-	-	⚑
Mellon DB SL Aggregate Bond Index Fund	Fixed Income	🟩	-	-	-	-	-	-	-	-	✔
PIMCO Core Plus	Fixed Income	🟨	✔	✔	⚑	⚑	✔	⚑	✔	P	-
Western Asset Core Plus	Fixed Income	🟩	✔	⚑	⚑	⚑	✔	⚑	⚑	-	-
Western Asset High Yield Fixed Income	Fixed Income	🟩	✔	⚑	⚑	✔	⚑	✔	⚑	-	-
TCW Securitized Opportunities	Fixed Income	🟩	✔	✔	✔	✔	⚑	✔	⚑	-	-
Stone Harbor Emerging Markets Debt Blend Portfolio	Fixed Income	🟩	✔	✔	⚑	✔	✔	⚑	⚑	P	-
PIMCO EMD	Fixed Income	🟩	✔	✔	✔	⚑	✔	-	-	-	-
Gresham MTAP Commodity Builder Fund	Commodities	🟩	✔	✔	✔	⚑	✔	⚑	⚑	-	-
Wellington Commodities	Commodities	🟩	✔	✔	⚑	⚑	⚑	✔	⚑	-	-

Legend For Overall Status

No Issues	🟩
Watch	🟨
Terminate	🟥

Legend for Standards

Pass	✔
Fail	⚑

Legend for Concern

Provisional	P
Restricted	R
No Issues	--

Fund Name	Allocation Group	Overall Status	Outperformed Universe 10th percentile (1yr)	Outperformed Universe 75th percentile (1yr)	Outperformed Index (1yr)	Outperformed Median Rank (3 yrs)	Outperformed Index (3yrs)	Outperformed Median Rank (5 yrs)	Outperformed Index (5yrs)	Concern	Index Fund Tracking Error over 0.25% (1yr)
Aristeia International Limited	Hedge Funds	■	-	-	⚐	-	✔	-	✔	-	-
Brevan Howard Fund	Hedge Funds	■	-	-	⚐	-	✔	-	✔	-	-
D.E. Shaw Composite Fund	Hedge Funds	■	-	-	✔	-	✔	-	✔	-	-
HBK Fund II	Hedge Funds	■	-	-	⚐	-	✔	-	⚐	-	-
Hudson Bay Cap Structure Arbitrage Enhanced Fund	Hedge Funds	■	-	-	✔	-	✔	-	✔	-	-
Indus Pacific Opportunities Fund	Hedge Funds	■	-	-	⚐	-	✔	-	⚐	-	-
Magnetar Structured Credit Fund	Hedge Funds	■	-	-	⚐	-	✔	-	✔	-	-
PIMCO Commodity Alpha Fund	Hedge Funds	■	⚐	✔	✔	⚐	⚐	✔	✔	-	-
River Birch International	Opportunistic	■	-	-	✔	-	⚐	-	⚐	-	-
Sculptor Domestic Partners II LP	Hedge Funds	■	-	-	⚐	-	✔	-	-	-	-
Harvest Midstream	Midstream	■	✔	✔	✔	-	-	-	-	-	-
PIMCO Midstream	Midstream	■	✔	✔	✔	-	-	-	-	-	-
ASB Allegiance Real Estate Fund	Core Real Estate	■	-	-	⚐	-	⚐	-	⚐	-	-
JPMCB Strategic Property Fund	Core Real Estate	■	-	-	⚐	-	⚐	-	⚐	-	-
Invesco Real Estate Value-Add Fund IV	Private Real Estate	■	-	-	⚐	-	⚐	-	⚐	-	-
Landmark Real Estate Partners VIII	Private Real Estate	■	-	-	-	-	-	-	-	-	⚐
DB Investors Fund IV	Opportunistic	■	-	-	⚐	-	✔	-	-	-	-
Sixth Street TAO Partners (D)	Opportunistic	■	-	-	⚐	-	✔	-	-	-	-
Aristeia Select Opportunities II	Opportunistic	■	-	-	⚐	-	-	-	-	-	-

Legend For Overall Status

- No Issues ■ (green)
- Watch ■ (yellow)
- Terminate ■ (red)

Legend for Standards

- Pass ✔
- Fail ⚐

Legend for Concern

- Provisional P
- Restricted R
- No Issues --

	2023 Q1	2022 Q4	2022 Q3	2022 Q2	2022 Q1	2021 Q4	2021 Q3	2021 Q2	2021 Q1	2020 Q4	2020 Q3	2020 Q2
Total Fund	3.1	4.5	-3.1	-7.5	-0.8	3.6	0.5	5.5	3.5	8.8	4.4	10.7
Policy Index	3.8	5.5	-3.8	-8.9	-1.3	3.3	0.7	5.7	3.3	8.8	4.5	10.1

	2020 Q1	2019 Q4	2019 Q3	2019 Q2	2019 Q1	2018 Q4	2018 Q3	2018 Q2	2018 Q1	2017 Q4	2017 Q3	2017 Q2
Total Fund	-11.3	4.6	0.2	3.1	6.8	-6.4	2.3	0.3	-0.1	3.0	3.2	2.7
Policy Index	-11.1	4.6	0.8	3.0	7.0	-5.5	2.2	0.7	-0.1	3.2	3.1	2.8

	2017 Q1	2016 Q4	2016 Q3	2016 Q2	2016 Q1	2015 Q4	2015 Q3	2015 Q2	2015 Q1	2014 Q4	2014 Q3	2014 Q2
Total Fund	4.2	0.8	3.5	1.9	1.1	2.2	-5.4	0.7	2.4	0.8	-1.5	3.6
Policy Index	3.5	0.5	2.9	2.2	1.8	1.4	-4.9	0.4	2.0	0.4	-1.4	3.4

Performance Return Calculations

Performance is calculated using a Time Weighted Rates of Return (TWRR) methodology. Monthly returns are linked geometrically and annualized for periods longer than one year.

Data Source

Verus is an independent third party consulting firm and calculates returns from best source book of record data. Returns calculated by Verus may deviate from those shown by the manager in part, but not limited to, differences in prices and market values reported by the custodian and manager, as well as significant cash flows into or out of an account. It is the responsibility of the manager and custodian to provide insight into the pricing methodologies and any difference in valuation.

Illiquid Alternatives

Due to the inability to receive final valuation prior to report production, closed end funds (including but are not limited to Real Estate, Hedge Funds, Private Equity, and Private Credit) performance is typically reported at a one-quarter lag. Valuation is reported at a one-quarter lag, adjusted for current quarter flow (cash flows are captured real time). Closed end fund performance is calculated using a time-weighted return methodology consistent with all portfolio and total fund performance calculations. For Private Markets, performance reports also include Verus-calculated multiples based on flows and valuations (e.g. DPI and TVPI) and manager-provided IRRs.

Manager Line Up

Investment Fund or Strategy	Fund Incepted	Data Source	Investment Fund or Strategy	Fund Incepted	Data Source
AB Emerging Markets Strategic Core	11/3/2016	Northern Trust	Linden Co-Investment V LP	6/30/2022	Linden
AB US Small Cap Value Equity	7/7/2015	Northern Trust	Long Wharf Real Estate	6/27/2019	Long Wharf
Abbott Capital PE VI	3/31/2008	Abbott Capital	Magnetar Constellation	11/14/2018	Magnetar
American Century Non-US Small Cap	12/15/2020	American Century	Magnetar Structured Credit	5/1/2014	Magnetar
Aristeia International Limited	5/1/2014	Northern Trust	Mellon Aggregate Bond Index Fund	1/14/2011	Mellon
ASB Real Estate	9/30/2013	ASB	Mellon EB DV Stock Index	10/18/2017	Mellon
Barclays Capital Aggregate Rebalancing Overlay	6/15/2022	Parametric	Mellon EB DV World ex-US Index	8/1/2018	Mellon
BlackRock Short Duration Fund	9/8/2021	BlackRock	Myriad Opportunities Offshore	5/19/2016	Northern Trust
Blue Torch Credit Opportunities	7/24/2020	Blue Torch	OrbiMed Royalty & Credit Opportunities	9/12/2022	OrbiMed
Brevan Howard	11/1/2013	Northern Trust	Pantheon Global III	6/30/2000	Pantheon
Brighton Private Equity	3/28/2021	Brighton	Pantheon USA III	3/31/2007	Pantheon
Brighton Park Capital Fund II, L.P	9/30/2022	Brighton	Pantheon USA V	6/30/2005	Pantheon
Brookfield Real Estate Finance Fund V	12/18/2017	Northern Trust	Pantheon USA VI	3/31/2005	Pantheon
Cevian Capital II	12/30/2014	Northern Trust	Pantheon USA VII	3/31/2005	Pantheon
DC Value Recovery fund IV	12/28/2015	Colony	Parametric Overlay/ Cap Efficiency Program	7/31/2020	Parametric
Covenant Apartment Fund X	10/29/2020	Covenant	Peak Rock Capital Fund III	7/13/2021	Peak Rock
DB Investors Fund IV	1/29/2020	DB	PIMCO Commodity Alpha	5/4/2016	PIMCO
D.E. Shaw	6/30/2013	Northern Trust	PIMCO Core Plus	1/21/2011	Northern Trust
DFA Emerging Markets Value I	3/7/2014	Northern Trust	PIMCO EMD	2/29/2020	Northern Trust
Fortress Credit Opportunities	12/17/2020	Fortress	PIMCO Midstream	10/9/2020	PIMCO
Fortress Lending Fund II	3/15/2021	Fortress	PIMCO StocksPLUS	7/14/2003	PIMCO
Garda Fixed Income Relative Value Opp	9/30/2021	Garda	Fidelity Non-US Small Cap Equity	6/10/2008	Northern Trust
Geneva Capital Small Cap Growth	7/22/2015	Geneva	River Birch	8/3/2015	Northern Trust
Gresham MTAP Commodity	9/3/2013	Gresham	Rubicon Technology Partners IV LP	11/30/2022	Rubicon
Harvest Midstream	9/28/2020	Harvest Midstream	Singerman Real Estate Opportunity Fund IV	10/27/2021	Singerman
HBK Fund II	11/1/2013	Northern Trust	Sculptor Enhanced Domestic Partners	3/26/2019	Sculptor
Henderson Smallcap Growth	7/22/2015	Northern Trust	Short Term Cash Account	12/31/2000	Northern Trust
H.I.G Bayside Loan Opportunities Fund V	7/24/2019	H.I.G. Capital	Short Term Investment Funds	6/30/2000	Northern Trust
Hudson Bay	6/7/2019	Northern Trust	Stone Harbor Emerging Markets Debt	8/8/2012	Stone Harbor
Indus Pacific Opportunities	6/30/2014	Northern Trust	TAO Contingent	4/16/2020	TPG Sixth Street
Invesco Real Estate III	6/30/2013	Invesco	TCW Securitized Opportunities	2/3/2016	TCW
Invesco Real Estate IV	12/18/2015	Invesco	Transition Equity	9/30/2010	Northern Trust
J.P. Morgan Strategic Property	7/2/2014	J.P. Morgan	Transition Fixed Income	9/30/2010	Northern Trust
KSL Capital Partners VI	4/26/2023	KSL Capital	TSSP Adjacent Opportunities Partners	11/17/2017	TPG Sixth Street
Landmark Real Estate Partners VIII	4/29/2018	Landmark	Vista Equity Partners	7/24/2020	Vista Equity
LBA Logistics Value Fund IX, L.P.	2/22/2022	LBA	Warren Equity III	4/1/2021	Warren
Level Equity Growth Partners V	11/1/2021	Level Equity	Warren Equity IV	1/1/2023	Warren
Level Equity Opportunities Fund 2021	11/1/2021	Level Equity	Wellington Alternative Investments	2/9/2023	Wellington
LGT Crown	2/1/2021	LGT	Western Asset Core Plus	5/31/2004	Northern Trust
Linden Capital Partners V LP	7/19/2022	Linden	Western Asset High Yield Fixed income	5/31/2005	Northern Trust

Policy & Custom Index Composition	
Policy Index: 4/1/2022-Present	37% MSCI ACWI IMI (Net), 14% Bloomberg US Aggregate, 6% Ice BofA ML High Yield Master II Index, 2% JPM Emerging Markets Bond Index Global Diversified, 2% JPM Government Bond Index-Emerging Markets Global Diversified, 4% Bloomberg Commodity Index, 7.5% 3-Month T-bill +4%, 2.5% MSCI ACWI (Net), 8% 91 Day T-Bill + 4%, 5% NCREIF-ODCE Gross Monthly, 5% actual time-weighted Private Equity Returns*, 5% actual time-weighted Private Credit Returns*, 5% actual time-weighted Private Real Estate Returns*, 5% Alerian Midstream, 0% Assumed Rate of Return +3%, -8% 3-Month T-bill.
Policy Index: 7/1/2021-4/1/2022	37% MSCI ACWI IMI, 14% Bloomberg US Aggregate, 6% Ice BofA ML High Yield Master II Index, 2% JPM Emerging Markets Bond Index Global Diversified, 2% JPM Government Bond Index-Emerging Markets, 4% Bloomberg Commodity Index, 7.5% 3-Month T-bill +400bps, 2.5% MSCI ACWI, 5% NCREIF-ODCE, 2% actual time-weighted Private Equity Returns*, 4% actual time-weighted Private Credit Returns*, 1% actual time-weighted Private Real Estate Returns*, 3% MSCI ACWI*, 1% Bloomberg US Aggregate*, 4% Bloomberg US Aggregate, 5% Alerian Midstream, 5% 3-Month T-bill +400bps, 91 Day T-Bills, -5% 3-Month T-bill.
Policy Index: 1/1/2021-6/30/2021	37% MSCI ACWI IMI, 14% Bloomberg US Aggregate, 6% Ice BofA ML High Yield Master II Index, 2% JPM Emerging Markets Bond Index Global Diversified, 2% JPM Government Bond Index-Emerging Markets, 4% Bloomberg Commodity Index, 7.5% 3-Month T-bill +400bps, 2.5% MSCI ACWI, 5% NCREIF-ODCE, 1% actual time-weighted Private Equity Returns*, 4% actual time-weighted Private Credit Returns*, 1% actual time-weighted Private Real Estate Returns*, 4% MSCI ACWI*, 1% Bloomberg US Aggregate*, 4% Bloomberg US Aggregate, 5% Alerian Midstream, 5% 3-Month T-bill +400bps, 91 Day T-Bills, -5% 3-Month T-bill.
Policy Index: 7/1/2020-12/31/2020	37% MSCI ACWI IMI, 14% Bloomberg US Aggregate, 6% Ice BofA ML High Yield Master II Index, 2% JPM Emerging Markets Bond Index Global Diversified, 2% JPM Government Bond Index-Emerging Markets, 4% Bloomberg Commodity Index, 7.5% 3-Month T-bill +400bps, 2.5% MSCI ACWI, 5% NCREIF-ODCE, 1% actual time-weighted Private Equity Returns*, 4% actual time-weighted Private Credit Returns*, 1% actual time-weighted Private Real Estate Returns*, 4% MSCI ACWI*, 5% Bloomberg US Aggregate, 1% Alerian Midstream, 4% Bloomberg US Aggregate
Policy Index: 4/1/2020-6/30/2020	37% MSCI ACWI IMI, 19% Bloomberg US Aggregate, 6% Ice BofA ML High Yield Master II Index, 2% JPM Emerging Markets Bond Index Global Diversified, 2% JPM Government Bond Index-Emerging Markets, 4% Bloomberg Commodity Index, 7.5% 3-Month T-bill +400bps, 2.5% MSCI ACWI, 5% NCREIF-ODCE, 1% actual time-weighted Private Equity Returns*, 4% actual time-weighted Private Credit Returns*, 1% actual time-weighted Private Real Estate Returns*, 3% MSCI ACWI*, 5% Bloomberg US Aggregate*.
Policy Index: 1/1/2020-3/31/2020	37% MSCI ACWI IMI, 19% Bloomberg US Aggregate, 6% Ice BofA ML High Yield Master II Index, 2% JPM Emerging Markets Bond Index Global Diversified, 2% JPM Government Bond Index-Emerging Markets, 4% Bloomberg Commodity Index, 7.5% 3-Month T-bill +400bps, 2.5% MSCI ACWI, 5% NCREIF-ODCE, 2% actual time-weighted Private Equity Returns*, 4% actual time-weighted Private Credit Returns*, 1% actual time-weighted Private Real Estate Returns*, 3% MSCI ACWI*, 5% Bloomberg US Aggregate*.
Policy Index: 10/1/2019-12/31/2019	37% MSCI ACWI IMI, 19% Bloomberg US Aggregate, 6% Ice BofA ML High Yield Master II Index, 2% JPM Emerging Markets Bond Index Global Diversified, 2% JPM Government Bond Index-Emerging Markets, 4% Bloomberg Commodity Index, 7.5% 3-Month T-bill +400bps, 2.5% MSCI ACWI, 5% NCREIF-ODCE, 2% actual time-weighted Private Equity Returns*, 3% actual time-weighted Private Credit Returns*, 1% actual time-weighted Private Real Estate Returns*, 3% MSCI ACWI*, 6% Bloomberg US Aggregate*.
Policy Index: 7/1/2019-9/30/2019	37% MSCI ACWI IMI, 19% Bloomberg US Aggregate, 6% Ice BofA ML High Yield Master II Index, 2% JPM Emerging Markets Bond Index Global Diversified, 2% JPM Government Bond Index-Emerging Markets, 4% Bloomberg Commodity Index, 7.5% 3-Month T-bill +400bps, 2.5% MSCI ACWI, 5% NCREIF-ODCE, 2% actual time-weighted Private Equity Returns*, 4% actual time-weighted Private Credit Returns*, 1% actual time-weighted Private Real Estate Returns*, 3% MSCI ACWI*, 5% Bloomberg US Aggregate*.
Policy Index: 4/1/2019-6/30/2019	37% MSCI ACWI IMI, 19% Bloomberg US Aggregate, 6% Ice BofA ML High Yield Master II Index, 2% JPM Emerging Markets Bond Index Global Diversified, 2% JPM Government Bond Index-Emerging Markets, 4% Bloomberg Commodity Index, 7.5% 3-Month T-bill +400bps, 2.5% MSCI ACWI, 5% NCREIF-ODCE, 2% actual time-weighted Private Equity Returns*, 3% actual time-weighted Private Credit Returns*, 1% actual time-weighted Private Real Estate Returns*, 3% MSCI ACWI*, 6% Bloomberg US Aggregate*.
Policy Index: 1/1/2019-3/31/2019	37% MSCI ACWI IMI, 19% Bloomberg US Aggregate, 6% Ice BofA ML High Yield Master II Index, 2% JPM Emerging Markets Bond Index Global Diversified, 2% JPM Government Bond Index-Emerging Markets, 4% Bloomberg Commodity Index, 7.5% 3-Month T-bill +400bps, 2.5% MSCI ACWI, 5% NCREIF-ODCE, 2% actual time-weighted Private Equity Returns*, 3% actual time-weighted Private Credit Returns*, 2% actual time-weighted Private Real Estate Returns*, 3% MSCI ACWI*, 5% Bloomberg US Aggregate*.
Policy Index: 10/1/2018-12/31/2018	37% MSCI ACWI IMI, 19% Bloomberg US Aggregate, 6% Ice BofA ML High Yield Master II Index, 2% JPM Emerging Markets Bond Index Global Diversified, 2% JPM Government Bond Index-Emerging Markets, 4% Bloomberg Commodity Index, 7.5% 3-Month T-bill +400bps, 2.5% MSCI ACWI, 5% NCREIF-ODCE, 2% actual time-weighted Private Equity Returns*, 2% actual time-weighted Private Credit Returns*, 2% actual time-weighted Private Real Estate Returns*, 3% MSCI ACWI*, 6% Bloomberg US Aggregate*.
Policy Index: 7/1/2018-9/30/2018	37% MSCI ACWI IMI, 19% Bloomberg US Aggregate, 6% Ice BofA ML High Yield Master II Index, 2% JPM Emerging Markets Bond Index Global Diversified, 2% JPM Government Bond Index-Emerging Markets, 4% Bloomberg Commodity Index, 7.5% 3-Month T-bill +400bps, 2.5% MSCI ACWI, 5% NCREIF-ODCE, 3% actual time-weighted Private Equity Returns*, 2% actual time-weighted Private Credit Returns*, 1% actual time-weighted Private Real Estate Returns*, 2% MSCI ACWI*, 7% Bloomberg US Aggregate*.
Policy Index: 1/1/2017- 6/30/2018	19% Russell 3000 Index, 18% MSCI ACWI ex US, 29% Bloomberg US Aggregate, 10% NCREIF-ODCE, 4% Bloomberg Commodity Index, 7.5% 91-day T-bills + 400bps, 2.5% MSCI ACWI, 5% Russell 3000 Index + 300 bps, 5% ICE BofA ML High Yield + 200 bps.
Policy Index: 4/1/2014-12/31/2016	23% Russell 3000 Index, 29% Bloomberg US Aggregate, 22% MSCI ACWI ex US,

Other Disclosures

*Private Asset actual weights, rounded to 1%, and actual time-weighted returns of Private Equity, Private Credit, Private Real Estate used in policy with the difference in weight versus target allocated to private market's public market "equivalent". Private Equity to Global Equity, Private Credit and Private Real Estate to Core Plus.

All data prior to 2Q 2011 has been provided by the investment managers.

Effective 1/1/2017, only traditional asset class (public equity, public fixed income, REITs) investment manager fees will be included in the gross of fee return calculation. Fiscal year end: 6/30.

Glossary

Allocation Effect: An attribution effect that describes the amount attributable to the managers' asset allocation decisions, relative to the benchmark.

Alpha: The excess return of a portfolio after adjusting for market risk. This excess return is attributable to the selection skill of the portfolio manager. Alpha is calculated as: Portfolio Return - [Risk-free Rate + Portfolio Beta x (Market Return - Risk-free Rate)].

Benchmark R-squared: Measures how well the Benchmark return series fits the manager's return series. The higher the Benchmark R-squared, the more appropriate the benchmark is for the manager.

Beta: A measure of systematic, or market risk; the part of risk in a portfolio or security that is attributable to general market movements. Beta is calculated by dividing the covariance of a security by the variance of the market.

Book-to-Market: The ratio of book value per share to market price per share. Growth managers typically have low book-to-market ratios while value managers typically have high book-to-market ratios.

Capture Ratio: A statistical measure of an investment manager's overall performance in up or down markets. The capture ratio is used to evaluate how well an investment manager performed relative to an index during periods when that index has risen (up market) or fallen (down market). The capture ratio is calculated by dividing the manager's returns by the returns of the index during the up/down market, and multiplying that factor by 100.

Correlation: A measure of the relative movement of returns of one security or asset class relative to another over time. A correlation of 1 means the returns of two securities move in lock step, a correlation of -1 means the returns of two securities move in the exact opposite direction over time. Correlation is used as a measure to help maximize the benefits of diversification when constructing an investment portfolio.

Excess Return: A measure of the difference in appreciation or depreciation in the price of an investment compared to its benchmark, over a given time period. This is usually expressed as a percentage and may be annualized over a number of years or represent a single period.

Information Ratio: A measure of a manager's ability to earn excess return without incurring additional risk. Information ratio is calculated as: excess return divided by tracking error.

Interaction Effect: An attribution effect that describes the portion of active management that is contributable to the cross interaction between the allocation and selection effect. This can also be explained as an effect that cannot be easily traced to a source.

Portfolio Turnover: The percentage of a portfolio that is sold and replaced (turned over) during a given time period. Low portfolio turnover is indicative of a buy and hold strategy while high portfolio turnover implies a more active form of management.

Price-to-Earnings Ratio (P/E): Also called the earnings multiplier, it is calculated by dividing the price of a company's stock into earnings per share. Growth managers typically hold stocks with high price-to-earnings ratios whereas value managers hold stocks with low price-to-earnings ratios.

R-Squared: Also called the coefficient of determination, it measures the amount of variation in one variable explained by variations in another, i.e., the goodness of fit to a benchmark. In the case of investments, the term is used to explain the amount of variation in a security or portfolio explained by movements in the market or the portfolio's benchmark.

Selection Effect: An attribution effect that describes the amount attributable to the managers' stock selection decisions, relative to the benchmark.

Sharpe Ratio: A measure of portfolio efficiency. The Sharpe Ratio indicates excess portfolio return for each unit of risk associated with achieving the excess return. The higher the Sharpe Ratio, the more efficient the portfolio. Sharpe ratio is calculated as: Portfolio Excess Return / Portfolio Standard Deviation.

Sortino Ratio: Measures the risk-adjusted return of an investment, portfolio, or strategy. It is a modification of the Sharpe Ratio, but penalizes only those returns falling below a specified benchmark. The Sortino Ratio uses downside deviation in the denominator rather than standard deviation, like the Sharpe Ratio.

Standard Deviation: A measure of volatility, or risk, inherent in a security or portfolio. The standard deviation of a series is a measure of the extent to which observations in the series differ from the arithmetic mean of the series. For example, if a security has an average annual rate of return of 10% and a standard deviation of 5%, then two-thirds of the time, one would expect to receive an annual rate of return between 5% and 15%.

Style Analysis: A return based analysis designed to identify combinations of passive investments to closely replicate the performance of funds

Style Map: A specialized form or scatter plot chart typically used to show where a Manager lies in relation to a set of style indices on a two-dimensional plane. This is simply a way of viewing the asset loadings in a different context. The coordinates are calculated by rescaling the asset loadings to range from -1 to 1 on each axis and are dependent on the Style Indices comprising the Map.

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Verus receives universe data from InvMetrics, eVestment Alliance, and Morningstar. We believe this data to be robust and appropriate for peer comparison. Nevertheless, these universes may not be comprehensive of all peer investors/managers but rather of the investors/managers that comprise that database. The resulting universe composition is not static and will change over time. Returns are annualized when they cover more than one year. Investment managers may revise their data after report distribution. Verus will make the appropriate correction to the client account but may or may not disclose the change to the client based on the materiality of the change.

Kern County Employees' Retirement Association

Investment Performance Review
Period Ending: June 30, 2023

Verus®

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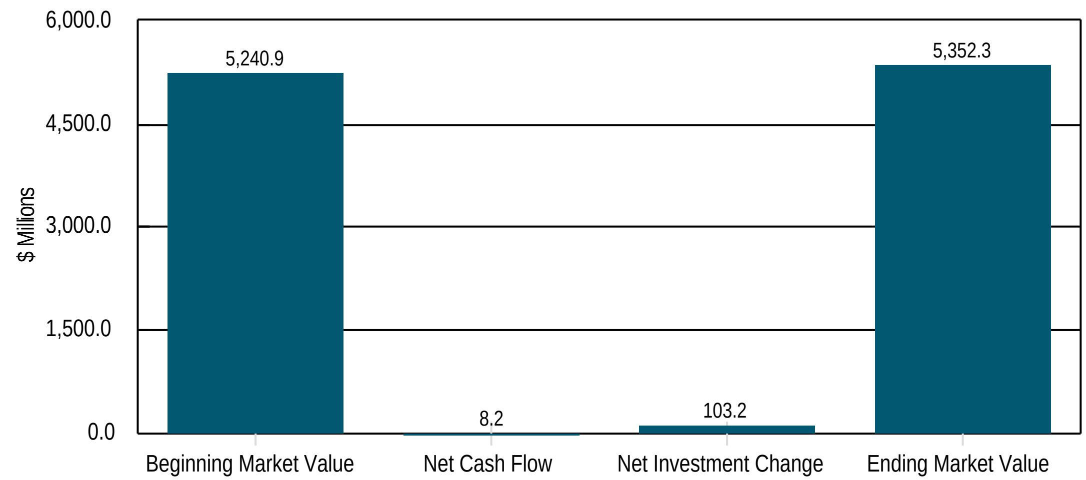
CHICAGO 312.815.5228
PITTSBURGH 412.784.6678
LOS ANGELES 310.297.1777
SAN FRANCISCO 415.362.3484

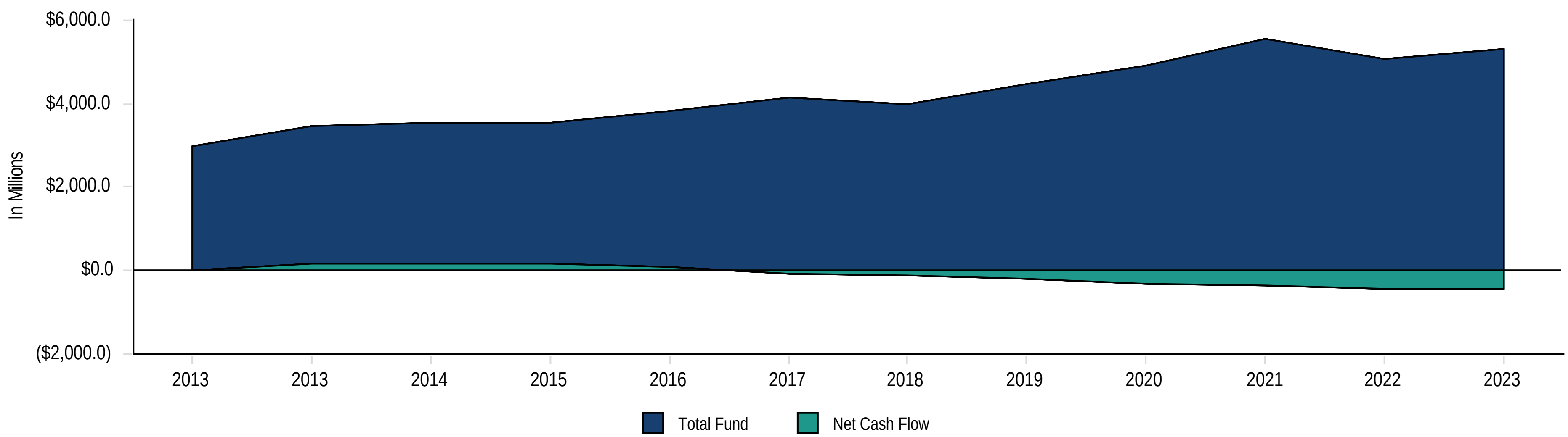
Portfolio Reconciliation

	Last Three Months
Beginning Market Value	$5,240,888,799
Net Cash Flows	$8,186,646
Net Investment Change	$103,191,295
Ending Market Value	$5,352,263,309

Change in Market Value Last Three Months

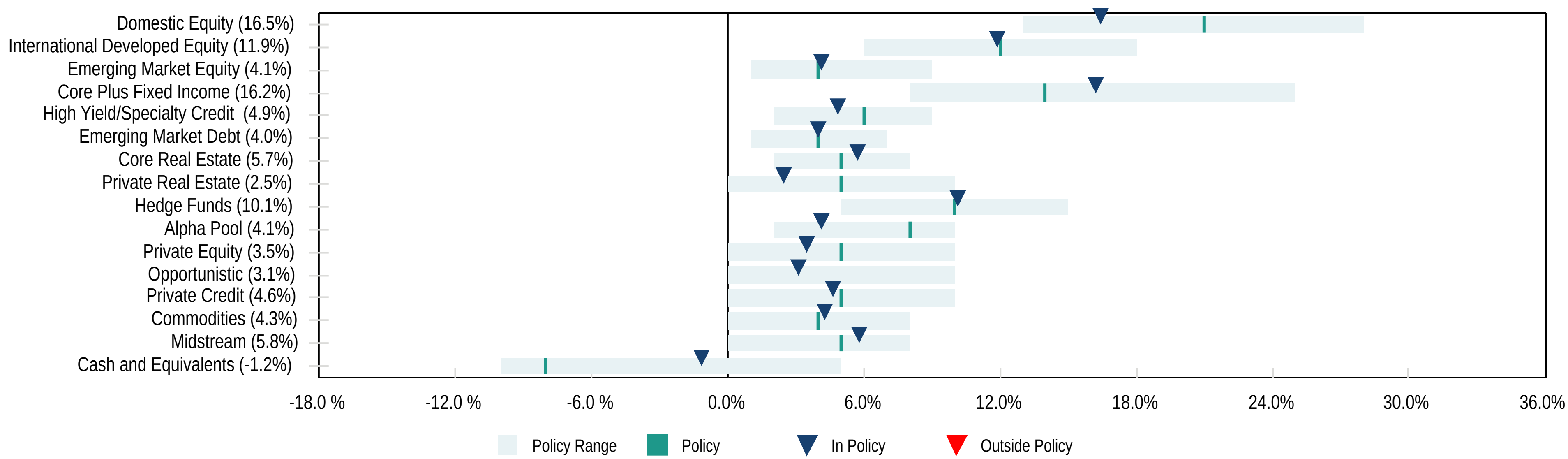


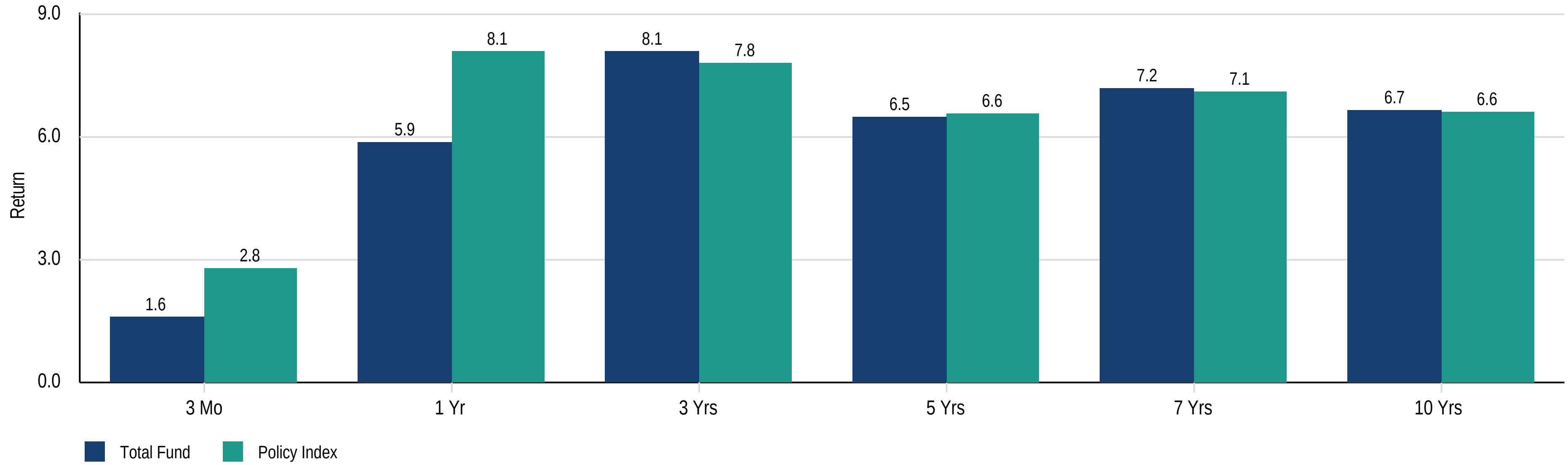
Market Value History



	Current Balance ($)	Current Allocation (%)	Policy Allocation (%)	Excess Allocation (%)	Policy Range (%)	Within IPS Range?
Equity	1,735,774,667	32.4	37.0	-4.6	26.0 - 48.0	Yes
Fixed Income	1,340,709,034	25.0	24.0	1.0	14.0 - 34.0	Yes
Core Real Estate	305,434,791	5.7	5.0	0.7	2.0 - 8.0	Yes
Hedge Funds	541,710,718	10.1	10.0	0.1	5.0 - 15.0	Yes
Alpha Pool	221,475,636	4.1	8.0	-3.9	2.0 - 10.0	Yes
Private Equity	187,538,440	3.5	5.0	-1.5	0.0 - 10.0	Yes
Private Credit	246,629,415	4.6	5.0	-0.4	0.0 - 10.0	Yes
Private Real Estate	132,005,447	2.5	5.0	-2.5	0.0 - 10.0	Yes
Commodities	228,214,624	4.3	4.0	0.3	0.0 - 8.0	Yes
Opportunistic	167,584,245	3.1	0.0	3.1	0.0 - 10.0	Yes
Midstream	308,467,836	5.8	5.0	0.8	0.0 - 8.0	Yes
Cash and Equivalents	-63,281,544	-1.2	-8.0	6.8	-10.0 - 5.0	Yes
Total	5,352,263,309	100.0	100.0	0.0		

Executive Summary

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6.0
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Return
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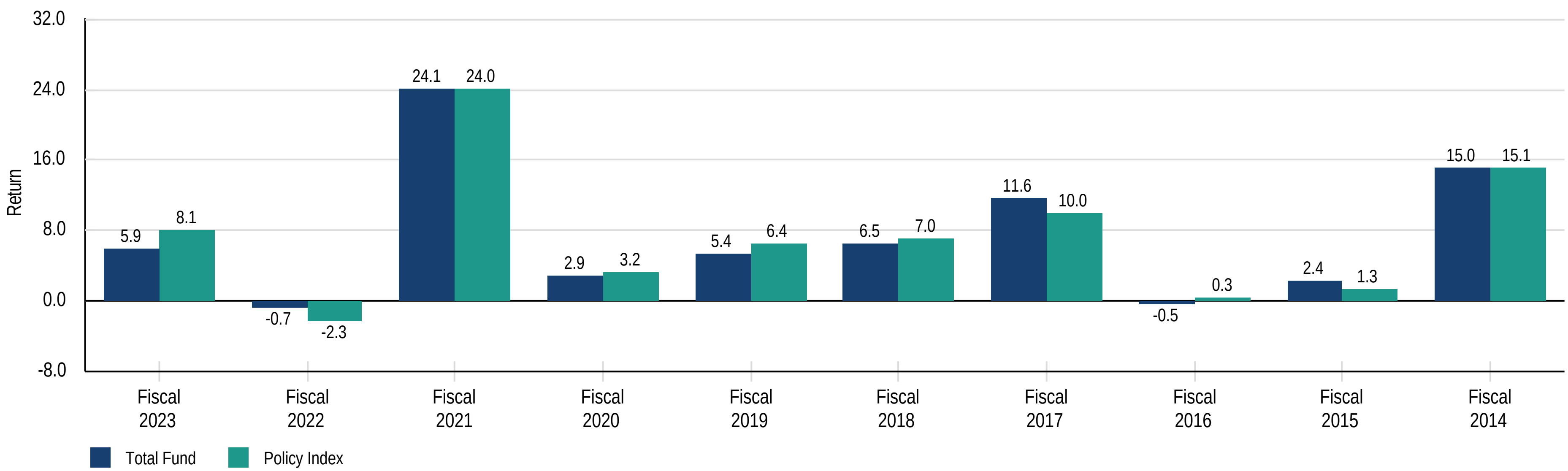
10 Yrs
Total Fund
Policy Index


32.0
24.0
16.0
8.0
0.0
-8.0
Return
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8.1
-0.7
-2.3
24.1
24.0
2.9
3.2
5.4
6.4
6.5
7.0
11.6
10.0
-0.5
0.3
2.4
1.3
15.0
15.1
Fiscal 2023
Fiscal 2022
Fiscal 2021
Fiscal 2020
Fiscal 2019
Fiscal 2018
Fiscal 2017
Fiscal 2016
Fiscal 2015
Fiscal 2014
Total Fund
Policy Index

	Market Value	% of Portfolio	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	Fiscal 2022	Fiscal 2021	Fiscal 2020	Fiscal 2019	Fiscal 2018
Total Fund	5,352,263,309	100.0	1.6	6.1	6.1	8.4	6.8	7.1	-3.5	24.4	3.2	5.7	6.8
Policy Index			*2.8*	*8.1*	*8.1*	*7.8*	*6.6*	*6.6*	*-6.6*	*24.0*	*3.2*	*6.4*	*7.0*
InvMetrics Public DB > $1B Rank			*92*	*82*	*82*	*57*	*46*	*67*	*25*	*89*	*20*	*62*	*97*
Equity	1,735,774,667	32.4	5.3	15.9	15.9	11.7	8.1	9.7	-14.9	41.2	0.7	5.3	12.4
MSCI AC World IMI (Net)			*5.9*	*16.1*	*16.1*	*11.0*	*7.6*	*8.6*	*-16.5*	*40.9*	*1.2*	*4.6*	*11.1*
Domestic Equity	880,499,588	16.5	7.8	17.8	17.8	14.2	11.6	-	-12.0	43.6	6.3	9.2	16.1
MSCI USA IMI			*8.4*	*19.2*	*19.2*	*14.1*	*11.5*	-	*-13.7*	*44.4*	*6.7*	*9.0*	*14.9*
International Developed Equity	636,266,854	11.9	2.8	17.2	17.2	9.9	4.5	-	-17.2	37.0	-5.5	-0.6	9.1
MSCI World ex U.S. IMI Index (Net)			*2.7*	*16.3*	*16.3*	*8.9*	*4.2*	-	*-17.7*	*34.8*	*-5.1*	*0.2*	*7.7*
Emerging Markets Equity	219,007,388	4.1	2.9	5.3	5.3	5.2	0.8	-	-21.4	40.6	-10.9	0.4	4.0
MSCI Emerging Markets IMI (Net)			*1.6*	*3.2*	*3.2*	*3.6*	*1.4*	-	*-24.8*	*43.2*	*-4.0*	*0.5*	*7.9*
Fixed Income	1,340,709,034	25.0	0.1	3.1	3.1	-1.7	1.8	2.3	-12.7	5.4	6.6	7.9	0.2
Fixed Income Custom Benchmark			*-0.1*	*1.9*	*1.9*	*-2.1*	*1.3*	*2.1*	*-11.6*	*4.0*	*5.2*	*8.4*	*-0.1*
Core Plus Fixed Income	866,318,648	16.2	-1.1	-0.9	-0.9	-3.9	1.0	-	-11.2	1.0	9.5	8.0	0.0
Blmbg. U.S. Aggregate Index			*-0.8*	*-0.9*	*-0.9*	*-4.0*	*0.8*	-	*-10.3*	*-0.3*	*8.7*	*7.9*	*-0.4*
High Yield/ Specialty Credit	260,789,377	4.9	1.8	7.9	7.9	3.5	3.6	-	-9.5	13.6	0.0	7.5	3.3
ICE BofA U.S. High Yield Index			*1.6*	*8.9*	*8.9*	*3.2*	*3.2*	-	*-12.7*	*15.6*	*-1.1*	*7.6*	*2.5*
Emerging Market Debt	213,298,532	4.0	2.8	11.7	11.7	-0.6	1.0	-	-19.6	9.4	-1.2	8.5	-3.6
50 JPM EMBI Global Div / 50 JPM GBI EM Global Div			*2.3*	*9.4*	*9.4*	*-2.2*	*0.5*	-	*-20.2*	*7.1*	*-1.1*	*10.8*	*-1.9*
Commodities	228,214,624	4.3	-2.6	-6.3	-6.3	17.3	6.2	0.2	20.1	43.5	-10.7	-6.2	13.7
Bloomberg Commodity Index Total Return			*-2.6*	*-9.6*	*-9.6*	*17.8*	*4.7*	*-1.0*	*24.3*	*45.6*	*-17.4*	*-6.8*	*7.3*
Hedge Funds	541,710,718	10.1	1.7	7.5	7.5	8.7	7.2	6.2	2.8	16.3	7.3	2.6	7.6
75% 3 Month T-Bill +4% / 25% MSCI ACWI IMI			*2.6*	*7.2*	*7.2*	*5.8*	*5.8*	*5.9*	*-1.7*	*12.3*	*5.1*	*6.6*	*7.0*
Alpha Pool	221,475,636	4.1	-1.4	-0.9	-0.9	4.8	-	-	1.5	14.5	-	-	-
3 Month T-Bill +4%			*1.9*	*6.7*	*6.7*	*4.3*	-	-	*3.2*	*3.1*	-	-	-
Midstream Energy	308,467,836	5.8	3.2	20.1	20.1	-	-	-	9.6	-	-	-	-
Alerian Midstream Energy Index			*3.7*	*12.2*	*12.2*	-	-	-	*11.4*	-	-	-	-
Core Real Estate	305,434,791	5.7	-4.1	-11.9	-11.9	5.7	5.1	-	25.6	6.6	2.3	6.1	7.4
NCREIF ODCE			*-2.7*	*-10.0*	*-10.0*	*8.0*	*6.5*	-	*29.5*	*8.0*	*2.2*	*6.4*	*8.4*
Private Real Estate	132,005,447	2.5	-0.9	8.0	8.0	16.7	12.6	12.8	31.3	12.1	4.4	9.0	5.4
			-0.9	*8.0*	*8.0*	*16.7*	*12.6*	*12.8*	*31.3*	*12.1*	*4.4*	*9.0*	*5.4*
Private Equity	187,538,440	3.5	3.1	-0.5	-0.5	20.1	11.5	11.2	23.0	41.7	-10.5	10.9	7.8
			3.1	*-0.5*	*-0.5*	*20.1*	*11.5*	*11.2*	*23.0*	*41.7*	*-10.5*	*10.9*	*7.8*
Private Credit	246,629,415	4.6	2.3	2.8	2.8	2.9	4.8	-	1.2	4.8	5.5	9.7	9.3
			2.3	*2.8*	*2.8*	*2.9*	*4.8*	-	*1.2*	*4.8*	*5.5*	*9.7*	*9.3*

Policy Index: 37% MSCI ACWI IMI (Net), 14% Bloomberg US Aggregate, 6% Ice BofA ML High Yield Master II Index, 2% JPM Emerging Markets Bond Index Global Diversified, 2% JPM Government Bond Index-Emerging Markets Global Diversified, 4% Bloomberg Commodity Index, 7.5% 3-Month T-bill +4%, 2.5% MSCI ACWI (Net), 8% 91 Day T-Bill + 4%, 5% NCREIF-ODCE Gross Monthly, 5% actual timeweighted Private Equity Returns, 5% actual time-weighted Private Credit Returns*, 5% actual time-weighted Private Real Estate Returns*, 5% Alerian Midstream, 0% Assumed Rate of Return +3%, -8% 3-Month T-bill and actual weights and returns of private asset classes to nearest 1%. All data prior to 2Q 2011 has been provided by the investments managers. FY: 6/30. The Equity and Fixed Income Beta Exposure return includes overlay cash and an implied hurdle rate also applied to the Alpha pool.*

	Market Value	% of Portfolio	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	Fiscal 2022	Fiscal 2021	Fiscal 2020	Fiscal 2019	Fiscal 2018
Opportunistic	167,584,245	3.1	1.1	0.6	0.6	15.0	-	-	-5.4	59.9	-	-	-
Assumed Rate of Return +3%			*1.8*	*7.2*	*7.2*	*7.2*	-	-	*7.2*	*7.2*	-	-	-
Cash	-63,281,544	-1.2	0.5	2.3	2.3	0.7	1.0	1.5	-0.2	0.1	1.0	2.0	3.2
3 Month T-Bill			*1.2*	*3.6*	*3.6*	*1.3*	*1.6*	*1.0*	*0.2*	*0.1*	*1.6*	*2.3*	*1.4*

Policy Index: 37% MSCI ACWI IMI (Net), 14% Bloomberg US Aggregate, 6% Ice BofA ML High Yield Master II Index, 2% JPM Emerging Markets Bond Index Global Diversified, 2% JPM Government Bond Index-Emerging Markets Global Diversified, 4% Bloomberg Commodity Index, 7.5% 3-Month T-bill +4%, 2.5% MSCI ACWI (Net), 8% 91 Day T-Bill + 4%, 5% NCREIF-ODCE Gross Monthly, 5% actual timeweighted Private Equity Returns, 5% actual time-weighted Private Credit Returns*, 5% actual time-weighted Private Real Estate Returns*, 5% Alerian Midstream, 0% Assumed Rate of Return +3%, -8% 3-Month T-bill and actual weights and returns of private asset classes to nearest 1%. All data prior to 2Q 2011 has been provided by the investments managers. FY: 6/30. The Equity and Fixed Income Beta Exposure return includes overlay cash and an implied hurdle rate also applied to the Alpha pool.*

Performance and Attribution

	Market Value	% of Portfolio	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	Fiscal 2022	Fiscal 2021	Fiscal 2020	Fiscal 2019	Fiscal 2018	Inception	Inception Date
Total Fund	5,352,263,309	100.0	1.6	5.9	5.9	8.1	6.5	6.7	-3.8	24.1	2.9	5.4	6.5	6.4	Jun-11
Policy Index			*2.8*	*8.1*	*8.1*	*7.8*	*6.6*	*6.6*	*-6.6*	*24.0*	*3.2*	*6.4*	*7.0*	*6.3*	
Equity	1,735,774,667	32.4	5.2	15.7	15.7	11.4	7.8	9.3	-15.1	40.7	0.3	4.8	11.8	8.8	Jun-11
MSCI AC World IMI (Net)			*5.9*	*16.1*	*16.1*	*11.0*	*7.6*	*8.6*	*-16.5*	*40.9*	*1.2*	*4.6*	*11.1*	*8.0*	
Domestic Equity	880,499,588	16.5	7.7	17.6	17.6	13.9	11.3	-	-12.2	43.2	6.0	8.8	15.5	11.3	Jul-14
MSCI USA IMI			*8.4*	*19.2*	*19.2*	*14.1*	*11.5*	-	*-13.7*	*44.4*	*6.7*	*9.0*	*14.9*	*11.1*	
Equity Beta Exposure	88,867,350	1.7	8.7	19.2	19.2	-	-	-	-11.0	-	-	-	-	12.5	Aug-20
S&P 500 Index			*8.7*	*19.6*	*19.6*	-	-	-	*-10.6*	-	-	-	-	*12.9*	
Mellon DB SL Stock Index Fund	535,890,546	10.0	8.7	19.6	19.6	14.6	12.3	-	-10.6	40.8	7.5	10.4	-	12.2	Oct-17
S&P 500 Index			*8.7*	*19.6*	*19.6*	*14.6*	*12.3*	-	*-10.6*	*40.8*	*7.5*	*10.4*	-	*12.1*	
PIMCO StocksPLUS	116,372,909	2.2	8.8	18.8	18.8	13.7	11.8	12.9	-12.8	41.7	7.7	10.6	14.1	10.6	Jul-03
S&P 500 Index			*8.7*	*19.6*	*19.6*	*14.6*	*12.3*	*12.9*	*-10.6*	*40.8*	*7.5*	*10.4*	*14.4*	*9.9*	
AB US Small Cap Value Equity	86,479,259	1.6	0.4	4.3	4.3	15.8	3.1	-	-16.1	77.5	-19.4	-6.9	13.2	6.3	Jul-15
Russell 2000 Value Index			*3.2*	*6.0*	*6.0*	*15.4*	*3.5*	-	*-16.3*	*73.3*	*-17.5*	*-6.2*	*13.1*	*6.4*	
Geneva Capital Small Cap Growth	52,889,523	1.0	5.7	15.6	15.6	7.4	8.0	-	-22.1	37.6	9.3	8.6	22.7	10.1	Jul-15
Russell 2000 Growth Index			*7.1*	*18.5*	*18.5*	*6.1*	*4.2*	-	*-33.4*	*51.4*	*3.5*	*-0.5*	*21.9*	*6.4*	
International Developed Equity	636,266,854	11.9	2.8	17.1	17.1	9.8	4.3	-	-17.3	36.7	-5.7	-0.9	8.7	4.3	Jul-14
MSCI World ex U.S. IMI Index (Net)			*2.7*	*16.3*	*16.3*	*8.9*	*4.2*	-	*-17.7*	*34.8*	*-5.1*	*0.2*	*7.7*	*3.5*	
Mellon DB SL World ex-US Index Fund	526,402,690	9.8	3.3	17.9	17.9	10.3	-	-	-16.1	35.6	-5.5	-	-	5.1	Jul-18
MSCI World ex U.S. IMI Index (Net)			*2.7*	*16.3*	*16.3*	*8.9*	*4.2*	-	*-17.7*	*34.8*	*-5.1*	*0.2*	-	*4.0*	
Cevian Capital II	38,875,436	0.7	2.7	25.3	25.3	19.1	8.1	-	-8.2	46.8	-8.2	-5.0	2.9	7.5	Dec-14
MSCI Europe (Net)			*2.7*	*21.8*	*21.8*	*10.7*	*5.2*	-	*-17.6*	*35.1*	*-6.8*	*1.9*	*5.3*	*5.0*	
American Century Non-US Small Cap	70,988,728	1.3	-1.0	7.9	7.9	-	-	-	-27.4	-	-	-	-	-3.9	Dec-20
MSCI World ex U.S. Small Cap Growth Index (Net)			*0.3*	*9.5*	*9.5*	-	-	-	*-28.6*	-	-	-	-	*-4.9*	
Emerging Markets Equity	219,007,388	4.1	2.8	4.6	4.6	4.4	0.0	-	-21.9	39.5	-11.8	-0.6	2.9	0.9	Jul-14
MSCI Emerging Markets IMI (Net)			*1.6*	*3.2*	*3.2*	*3.6*	*1.4*	-	*-24.8*	*43.2*	*-4.0*	*0.5*	*7.9*	*2.0*	
DFA Emerging Markets Value I	81,560,166	1.5	4.6	7.9	7.9	11.5	3.1	-	-12.9	47.6	-17.7	2.0	5.7	3.9	Mar-14
MSCI Emerging Markets Value (Net)			*2.5*	*4.1*	*4.1*	*6.3*	*1.2*	-	*-18.6*	*41.6*	*-15.7*	*5.0*	*4.3*	*1.8*	
AB Emerging Markets Strategic Core Equity Collective Trust	53,147,634	1.0	3.5	5.0	5.0	1.6	-0.6	-	-25.2	33.6	-5.1	-2.6	1.2	2.3	Dec-16
MSCI Emerging Markets (Net)			*0.9*	*1.7*	*1.7*	*2.3*	*0.9*	-	*-25.3*	*40.9*	*-3.4*	*1.2*	*8.2*	*4.6*	
Mellon Emerging Markets Stock Index Fund	84,299,588	1.6	0.7	1.6	1.6	2.2	-	-	-25.5	41.1	-	-	-	2.0	Jun-20
MSCI Emerging Markets (Net)			*0.9*	*1.7*	*1.7*	*2.3*	-	-	*-25.3*	*40.9*	-	-	-	*4.6*	
Fixed Income	1,340,709,034	25.0	0.0	2.9	2.9	-2.0	1.5	2.1	-13.0	5.1	6.3	7.6	-0.1	3.1	Jun-10
Fixed Income Custom Benchmark			*-0.1*	*1.9*	*1.9*	*-2.1*	*1.3*	*2.1*	*-11.6*	*4.0*	*5.2*	*8.4*	*-0.1*	*2.9*	
Core Plus Fixed Income	866,318,648	16.2	-1.1	-1.0	-1.0	-4.0	0.8	-	-11.4	0.8	9.3	7.9	-0.2	1.4	Jul-14
Bloomberg U.S. Aggregate Index			*-0.8*	*-0.9*	*-0.9*	*-4.0*	*0.8*	-	*-10.3*	*-0.3*	*8.7*	*7.9*	*-0.4*	*1.2*	
Fixed Income Beta Exposure	418,880,253	7.8	-1.5	-2.5	-2.5	-	-	-	-	-	-	-	-	-0.2	Jun-22
Bloomberg U.S. Aggregate Index			*-0.8*	*-0.9*	*-0.9*	-	-	-	-	-	-	-	-	*-2.3*	
Mellon DB SL Aggregate Bond Index Fund	161,044,998	3.0	-0.9	-0.9	-0.9	-4.0	0.7	1.5	-10.4	-0.4	8.8	7.9	-0.4	1.9	Jan-11
Bloomberg U.S. Aggregate Index			*-0.8*	*-0.9*	*-0.9*	*-4.0*	*0.8*	*1.5*	*-10.3*	*-0.3*	*8.7*	*7.9*	*-0.4*	*2.0*	

Policy Index: 37% MSCI ACWI IMI (Net), 14% Bloomberg US Aggregate, 6% Ice BofA ML High Yield Master II Index, 2% JPM Emerging Markets Bond Index Global Diversified, 2% JPM Government Bond Index-Emerging Markets Global Diversified, 4% Bloomberg Commodity Index, 7.5% 3-Month T-bill +4%, 2.5% MSCI ACWI (Net), 8% 91 Day T-Bill + 4%, 5% NCREIF-ODCE Gross Monthly, 5% actual timeweighted Private Equity Returns, 5% actual time-weighted Private Credit Returns*, 5% actual time-weighted Private Real Estate Returns*, 5% Alerian Midstream, 0% Assumed Rate of Return +3%, -8% 3-Month T-bill and actual weights and returns of private asset classes to nearest 1%. All data prior to 2Q 2011 has been provided by the investments managers. FY: 6/30. The Equity and Fixed Income Beta Exposure return includes overlay cash and an implied hurdle rate also applied to the Alpha pool.*

Verus

	Market Value	% of Portfolio	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	Fiscal 2022	Fiscal 2021	Fiscal 2020	Fiscal 2019	Fiscal 2018	Inception	Inception Date
PIMCO Core Plus	164,488,299	3.1	-0.8	-0.7	-0.7	-3.3	0.9	1.7	-9.9	1.1	8.7	6.3	1.0	2.2	Feb-11
Bloomberg U.S. Aggregate Index			*-0.8*	*-0.9*	*-0.9*	*-4.0*	*0.8*	*1.5*	*-10.3*	*-0.3*	*8.7*	*7.9*	*-0.4*	*2.0*	
Western Asset Core Plus	121,905,098	2.3	-0.4	0.8	0.8	-4.1	1.1	2.2	-14.5	2.4	9.3	9.4	-0.4	3.7	Jun-04
Bloomberg U.S. Aggregate Index			*-0.8*	*-0.9*	*-0.9*	*-4.0*	*0.8*	*1.5*	*-10.3*	*-0.3*	*8.7*	*7.9*	*-0.4*	*3.2*	
High Yield/ Specialty Credit	260,789,377	4.9	1.7	7.5	7.5	3.0	3.1	-	-10.0	13.1	-0.5	7.0	2.8	2.5	Jul-14
ICE BofA U.S. High Yield Index			*1.6*	*8.9*	*8.9*	*3.2*	*3.2*	-	*-12.7*	*15.6*	*-1.1*	*7.6*	*2.5*	*3.5*	
Western Asset High Yield Fixed Income	165,365,884	3.1	2.0	9.5	9.5	3.1	3.0	3.9	-14.1	16.5	-2.2	8.3	2.2	5.8	Jun-05
Bloomberg US HY Ba/B 2% Cap TR			*1.4*	*8.9*	*8.9*	*2.6*	*3.7*	*4.5*	*-12.4*	*13.4*	*2.1*	*8.8*	*1.8*	*6.0*	
TCW Securitized Opportunities	95,423,493	1.8	1.3	4.4	4.4	2.2	2.8	-	-4.0	6.4	2.2	5.2	4.3	3.4	Feb-16
Bloomberg U.S. High Yield - 2% Issuer Cap			*1.8*	*9.1*	*9.1*	*3.1*	*3.3*	-	*-12.8*	*15.3*	*0.0*	*7.5*	*2.6*	*5.7*	
Emerging Market Debt	213,298,532	4.0	2.7	11.2	11.2	-1.0	0.6	-	-19.9	9.1	-1.7	7.9	-4.2	0.3	Jul-14
50 JPM EMBI Global Div / 50 JPM GBI EM Global Div			*2.3*	*9.4*	*9.4*	*-2.2*	*0.5*	-	*-20.2*	*7.1*	*-1.1*	*10.8*	*-1.9*	*0.5*	
Stone Harbor Emerging Markets Debt Blend Portfolio	65,594,366	1.2	2.9	10.8	10.8	-1.4	0.4	0.4	-20.9	9.5	-1.8	8.2	-3.1	-0.1	Aug-12
50 JPM GBI-EM Global Div/ 40 JPM EMBI Global Div/ 10 JPM Corporate EM Bond Idx			*2.3*	*9.2*	*9.2*	*-2.0*	*0.7*	*1.3*	*-19.5*	*7.2*	*-0.8*	*10.6*	*-1.7*	*1.0*	
PIMCO EMD	147,704,166	2.8	2.6	11.3	11.3	-0.8	-	-	-19.2	8.7	-	-	-	-1.9	Feb-20
50 JPM EMBI Global Div / 50 JPM GBI EM Global Div			*2.3*	*9.4*	*9.4*	*-2.2*	-	-	*-20.2*	*7.1*	-	-	-	*-3.4*	
Commodities	228,214,624	4.3	-2.8	-7.0	-7.0	16.5	5.5	-0.4	19.4	42.5	-11.3	-6.7	13.3	-0.4	Jul-13
Bloomberg Commodity Index Total Return			*-2.6*	*-9.6*	*-9.6*	*17.8*	*4.7*	*-1.0*	*24.3*	*45.6*	*-17.4*	*-6.8*	*7.3*	*-1.0*	
Gresham MTAP Commodity Builder Fund	48,242,779	0.9	-1.8	-11.5	-11.5	17.5	4.3	-	24.7	46.8	-16.3	-9.0	12.4	-0.9	Oct-13
Bloomberg Commodity Index Total Return			*-2.6*	*-9.6*	*-9.6*	*17.8*	*4.7*	-	*24.3*	*45.6*	*-17.4*	*-6.8*	*7.3*	*-1.1*	
Wellington Commodities	179,971,845	3.4	-3.0	-5.2	-5.2	15.9	6.4	-	17.2	40.2	-7.5	-5.4	14.2	0.3	Sep-13
S&P GSCI Commodity Equal Weighted			*-4.6*	*-5.5*	*-5.5*	*16.6*	*6.0*	-	*19.0*	*40.9*	*-12.4*	*-3.5*	*12.6*	*0.4*	
Hedge Funds	541,710,718	10.1	1.5	6.8	6.8	8.4	6.9	5.6	2.8	16.1	7.0	2.5	7.6	5.9	Sep-10
75% 3 Month T-Bill +4% / 25% MSCI ACWI (net)			*2.5*	*7.2*	*7.2*	*5.8*	*5.8*	*5.9*	*-1.7*	*12.3*	*5.1*	*6.6*	*7.0*	*5.8*	
Aristeia International Limited	70,900,266	1.3	1.3	5.5	5.5	9.3	9.2	-	1.8	21.6	8.7	9.2	2.6	5.3	May-14
Brevan Howard Fund	54,344,819	1.0	-2.7	-1.0	-1.0	6.6	10.4	-	15.2	6.1	20.5	12.7	7.8	7.2	Sep-13
D.E. Shaw Composite Fund	61,264,742	1.1	2.9	11.0	11.0	19.4	17.0	14.3	29.0	19.0	15.6	11.5	11.3	14.3	Jul-13
HBK Fund II	45,043,642	0.8	0.6	7.8	7.8	7.0	5.5	-	2.3	11.0	1.5	5.5	3.0	4.5	Nov-13
Hudson Bay Cap Structure Arbitrage Enhanced Fund	81,574,491	1.5	1.0	7.7	7.7	9.9	-	-	7.7	14.2	16.2	-	-	11.3	Jun-19
Indus Pacific Opportunities Fund	46,377,701	0.9	-2.7	-0.4	-0.4	8.0	3.4	-	-8.2	38.0	15.8	-19.2	15.8	6.7	Jul-14
Pharo Macro Fund	62,959,707	1.2	2.6	1.2	1.2	-2.3	-	-	-11.1	3.5	-	-	-	-1.1	Dec-19
PIMCO Commodity Alpha Fund	71,393,658	1.3	6.4	18.3	18.3	13.6	10.1	-	8.6	14.2	4.8	5.2	10.4	11.1	Jun-16
Sculptor Domestic Partners II LP	47,851,693	0.9	3.0	8.8	8.8	0.6	-	-	-19.9	16.8	6.5	-	-	5.1	Feb-19
Alpha Pool	221,475,636	4.1	-1.4	-0.9	-0.9	4.8	-	-	1.5	14.5	-	-	-	4.8	Jul-20
3 Month T-Bill +4%			*1.9*	*6.7*	*6.7*	*4.3*	-	-	*3.2*	*3.1*	-	-	-	*4.3*	
Hudson Bay	63,009,820	1.2	-1.5	-1.1	-1.1	-	-	-	6.7	-	-	-	-	6.0	Aug-20
Davidson Kempner Institutional Partners	55,433,498	1.0	-1.6	-4.1	-4.1	-	-	-	-3.4	-	-	-	-	0.2	Dec-20
HBK Fund II	43,317,590	0.8	-1.9	-1.0	-1.0	-	-	-	1.3	-	-	-	-	2.1	Dec-20
Garda Fixed Income Relative Value Opportunity Fund	59,714,728	1.1	-0.7	3.6	3.6	-	-	-	-	-	-	-	-	5.0	Sep-21

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Total Fund

Performance (Net of Fees)

Kern County Employees' Retirement Association

Period Ending: June 30, 2023

	Market Value	% of Portfolio	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	Fiscal 2022	Fiscal 2021	Fiscal 2020	Fiscal 2019	Fiscal 2018	Inception	Inception Date
Midstream Energy	308,467,836	5.8	3.0	19.3	19.3	-	-	-	9.3	-	-	-	-	27.8	Sep-20
Alerian Midstream Energy Index			*3.7*	*12.2*	*12.2*	-	-	-	*11.4*	-	-	-	-	*25.2*	
Harvest Midstream	156,842,353	2.9	2.2	20.9	20.9	-	-	-	15.3	-	-	-	-	33.9	Aug-20
Alerian Midstream Energy Index			*3.7*	*12.2*	*12.2*	-	-	-	*11.4*	-	-	-	-	*24.4*	
PIMCO Midstream	151,625,483	2.8	3.9	16.9	16.9	-	-	-	2.2	-	-	-	-	22.2	Sep-20
50/25/25 Alerian Midstream/ ICE BofA US Pipeline/ ICE BofA US HY Midstream			*2.3*	*10.1*	*10.1*	-	-	-	*-0.7*	-	-	-	-	-	
Core Real Estate	305,434,791	5.7	-4.2	-12.3	-12.3	4.9	4.4	-	24.8	5.6	1.4	5.9	7.4	6.6	Oct-14
NCREIF ODCE			*-2.7*	*-10.0*	*-10.0*	*8.0*	*6.5*	-	*29.5*	*8.0*	*2.2*	*6.4*	*8.4*	*8.2*	
ASB Allegiance Real Estate Fund	165,428,514	3.1	-6.2	-13.1	-13.1	4.1	4.1	-	23.0	5.4	1.5	6.8	7.1	6.6	Sep-13
NCREIF ODCE			*-2.7*	*-10.0*	*-10.0*	*8.0*	*6.5*	-	*29.5*	*8.0*	*2.2*	*6.4*	*8.4*	*8.6*	
JPMCB Strategic Property Fund	140,006,277	2.6	-1.8	-11.3	-11.3	6.3	5.0	-	27.9	5.9	1.3	5.0	7.6	6.8	Jul-14
NCREIF ODCE			*-2.7*	*-10.0*	*-10.0*	*8.0*	*6.5*	-	*29.5*	*8.0*	*2.2*	*6.4*	*8.4*	*8.3*	
Private Real Estate	132,005,447	2.5	-0.9	7.9	7.9	16.7	12.6	12.3	31.3	12.1	4.4	9.0	5.4	12.5	Mar-11
			-0.9	*8.0*	*8.0*	*16.7*	*12.6*	*12.8*	*31.3*	*12.1*	*4.4*	*9.0*	*5.4*	*12.5*	
Private Equity	187,538,440	3.5	3.1	-0.5	-0.5	20.1	11.5	10.8	22.9	41.7	-10.5	10.9	7.8	10.7	Sep-10
			3.1	*-0.5*	*-0.5*	*20.1*	*11.5*	*11.2*	*23.0*	*41.7*	*-10.5*	*10.9*	*7.8*	*10.8*	
Private Credit	246,629,415	4.6	2.8	3.2	3.2	3.0	4.8	-	1.2	4.8	5.5	9.7	9.3	-23.3	Dec-15
			2.3	*2.8*	*2.8*	*2.9*	*4.8*	-	*1.2*	*4.8*	*5.5*	*9.7*	*9.3*	*6.9*	
Opportunistic	167,584,245	3.1	1.1	0.6	0.6	15.0	-	-	-5.4	59.9	-	-	-	9.9	Jan-20
Assumed Rate of Return +3%			*1.8*	*7.2*	*7.2*	*7.2*	-	-	*7.2*	*7.2*	-	-	-	*7.3*	
River Birch International	5,106,669	0.1	16.1	46.1	46.1	-	-	-	-	-	-	-	-	60.2	Jun-22
Assumed Rate of Return +3%			*1.8*	*7.2*	*7.2*	-	-	-	-	-	-	-	-	*7.2*	
DB Investors Fund IV	23,394,069	0.4	-8.5	-8.3	-8.3	5.5	-	-	-34.4	95.1	-	-	-	4.6	Dec-19
Assumed Rate of Return +3%			*1.8*	*7.2*	*7.2*	*7.2*	-	-	*7.2*	*7.2*	-	-	-	*7.2*	
Sixth Street TAO Partners (D)	90,733,476	1.7	4.9	4.4	4.4	16.9	-	-	9.6	39.6	-	-	-	15.5	Mar-20
Assumed Rate of Return +3%			*1.8*	*7.2*	*7.2*	*7.2*	-	-	*7.2*	*7.2*	-	-	-	*7.2*	
Aristeia Select Opportunities II	48,350,031	0.9	-2.4	-7.2	-7.2	-	-	-	-	-	-	-	-	-1.4	Jul-21
Assumed Rate of Return +3%			*1.8*	*7.2*	*7.2*	-	-	-	*7.2*	-	-	-	-	*7.2*	
Cash	-63,281,544	-1.2	0.5	2.2	2.2	0.7	1.0	1.5	-0.2	0.1	1.0	2.0	3.2	1.3	Apr-11
3 Month T-Bill			*1.2*	*3.6*	*3.6*	*1.3*	*1.6*	*1.0*	*0.2*	*0.1*	*1.6*	*2.3*	*1.4*	*0.8*	

Policy Index: 37% MSCI ACWI IMI (Net), 14% Bloomberg US Aggregate, 6% Ice BofA ML High Yield Master II Index, 2% JPM Emerging Markets Bond Index Global Diversified, 2% JPM Government Bond Index-Emerging Markets Global Diversified, 4% Bloomberg Commodity Index, 7.5% 3-Month T-bill +4%, 2.5% MSCI ACWI (Net), 8% 91 Day T-Bill + 4%, 5% NCREIF-ODCE Gross Monthly, 5% actual timeweighted Private Equity Returns, 5% actual time-weighted Private Credit Returns*, 5% actual time-weighted Private Real Estate Returns*, 5% Alerian Midstream, 0% Assumed Rate of Return +3%, -8% 3-Month T-bill and actual weights and returns of private asset classes to nearest 1%. All data prior to 2Q 2011 has been provided by the investments managers. FY: 6/30. The Equity and Fixed Income Beta Exposure return includes overlay cash and an implied hurdle rate also applied to the Alpha pool.*

Verus

			IRR Analysis as of IRR date									
Vintage Year	Manager/Fund	Estimated Market Value as of 6/30/2022	Total Commitment	Capital Called	% Called	Remaining Commitment	Capital Returned	Market Value as of IRR date	Distrib./ Paid-In (DPI)[1]	Tot. Value/ Paid-In (TVPI)[2]	Net IRR Since Inception[3]	IRR Date
Private Equity												
2008	Abbott Capital PE VI	$17,490,181	$50,000,000	$49,750,000	100%	$250,000	$78,095,564	$17,231,430	1.57x	1.92x	12.8%	03/31/23
2006	Pantheon Global III	$553,189	$50,000,000	$47,300,000	95%	$2,700,000	$52,000,000	$544,562	1.10x	1.11x	1.9%	03/31/23
1998	Pantheon USA III	$45,445	$7,500,000	$7,335,000	98%	$165,000	$8,197,500	$47,064	1.12x	1.12x	1.9%	12/31/22
2002	Pantheon USA V	$383,462	$25,000,000	$24,350,000	97%	$650,000	$37,950,000	$392,019	1.56x	1.57x	9.0%	03/31/23
2004	Pantheon USA VI	$335,737	$35,000,000	$33,075,000	95%	$1,925,000	$50,623,827	$357,185	1.53x	1.54x	6.7%	03/31/23
2006	Pantheon USA VII	$6,907,588	$50,000,000	$46,600,000	93%	$3,400,000	$80,424,999	$6,715,424	1.73x	1.87x	10.1%	03/31/23
2020	Vista Foundation Fund IV	$18,058,075	$25,000,000	$18,753,571	75%	$6,246,429	$30,252	$17,834,565	0.00x	0.96x	-2.9%	03/31/23
2021	Crown Global Secondaries V Master S.C.Sp	$28,568,244	$50,000,000	$21,250,000	43%	$28,750,000	$1,550,000	$28,138,412	0.07x	1.42x	31.2%	03/31/23
2021	Brighton Park Capital Fund I	$36,029,946	$30,000,000	$28,421,941	95%	$1,578,059	$1,325,801	$35,655,157	0.05x	1.31x	14.9%	03/31/23
2021	Warren Equity Partners Fund III	$29,397,592	$32,500,000	$24,279,276	75%	$8,220,724	$508,290	$29,397,592	0.02x	1.23x	20.5%	06/30/23
2021	Peak Rock Capital Fund III	$11,921,302	$30,000,000	$11,319,783	38%	$18,680,217	$2,021,857	$11,921,302	0.18x	1.23x	25.3%	06/30/23
2021	Level Equity Growth Partners V	$6,697,065	$15,000,000	$6,715,768	45%	$8,284,232	$0	$6,697,065	0.00x	1.00x	2.6%	06/30/23
2021	Level Equity Opportunities Fund 2021	$5,529,388	$15,000,000	$5,529,385	37%	$9,470,615	$0	$5,529,388	0.00x	1.00x	12.9%	06/30/23
2022	Linden Capital Partners V LP	$7,984,801	$22,500,000	$7,885,783	35%	$14,614,217	$0	$7,984,801	N/A	N/A	10.3%	06/30/23
2022	Rubicon Technology Partners IV LP	$3,277,938	$30,000,000	$3,895,697	13%	$26,104,303	$0	$3,214,080	N/A	N/A	-69.4%	12/31/22
2022	OrbiMed Private Investments IX, LP	$320,186	$10,000,000	$500,000	5%	$9,500,000	$0	$320,186	N/A	N/A	32.0%	06/30/23
2022	Brighton Park Capital Fund II	$3,071,866	$30,000,000	$4,174,920	14%	$25,825,080	$0	N/A	N/A	N/A	N/A	N/A
2022	Linden Co-Investment V LP	$3,910,712	$7,500,000	$7,499,177	100%	$823	$0	$1,846,267	N/A	N/A	21.8%	12/31/22
2022	Warren Equity Partners Fund IV	$7,055,723	$32,500,000	$2,820,069	9%	$29,679,931	$0	N/A	N/A	N/A	N/A	N/A
2022	Accel-KKR Capital Partners VII	$0	$25,000,000	$0	0%	$25,000,000	$0	N/A	N/A	N/A	N/A	N/A
2023	LGT Crown Global Secondaries Fund VI	$0	$30,000,000	$0	0%	$30,000,000	$0	N/A	N/A	N/A	N/A	N/A
2023	Parthenon Investors VII	$0	$30,000,000	$0	0%	$30,000,000	$0	N/A	N/A	N/A	N/A	N/A
2023	WEP Co-Invest IV	$0	$10,000,000	$0	0%	$10,000,000	$0	N/A	N/A	N/A	N/A	N/A
	Total Private Equity	**$187,538,440**	$642,500,000	$351,455,371	55%	$281,044,629	$312,727,891	$173,826,499	0.89x	1.42x		
	% of Portfolio (Market Value)	**3.5%**										

[1](DPI) is equal to (capital returned / capital called)
[2](TVPI) is equal to (market value + capital returned) / capital called
[3]Net IRR is calculated on the cash flows of all the limited partners of the fund and is net of all fees. Each IRR is provided by the Fund manager and is reflective of the Fund IRR, rather than KCERA's specific IRR.

Linden Co-Investment V LP and Brighton Park Capital Fund II, L.P added in Q1

			IRR Analysis as of IRR date									
Vintage Year	Manager/Fund	Estimated Market Value 6/30/2023	Total Commitment	Capital Called	% Called	Remaining Commitment	Capital Returned	Market Value as of IRR date	Distrib./ Paid-In (DPI)[1]	Tot. Value/ Paid-In (TVPI)[2]	Net IRR Since Inception[3]	IRR Date
Private Credit												
2015	DC Value Recovery Fund IV[4]	$18,526,925	$74,360,749	$73,340,099	99%	$1,020,650	$40,330,120	$20,781,309	0.55x	0.80x	N/A	3/31/23
2017	Sixth Street TAO Partners (B)	$41,404,117	$108,035,958	$84,519,175	78%	$23,516,783	$43,279,572	$39,800,921	0.51x	1.00x	9.7%	3/31/23
2017	Brookfield Real Estate Finance Fund V	$16,752,621	$50,000,000	$36,019,917	72%	$13,980,083	$27,359,025	$16,752,621	0.76x	1.22x	6.8%	6/30/23
2018	Magnetar Constellation Fund V	$28,113,131	$60,000,000	$56,445,318	94%	$3,554,682	$41,583,529	$28,113,131	0.74x	1.23x	5.9%	6/30/23
2019	H.I.G Bayside Loan Opportunity Fund V	$43,519,452	$60,000,000	$35,821,497	60%	$24,178,503	$12,786,586	$43,519,452	0.36x	1.57x	17.4%	6/30/23
2020	Blue Torch Credit Opportunities Fund II	$16,313,371	$20,000,000	$16,613,092	83%	$3,386,908	$3,652,640	$17,526,212	0.22x	1.20x	14.2%	3/31/23
2020	Fortress Credit Opportunites Fund V Expansion	$15,507,751	$40,000,000	$13,968,710	35%	$26,031,290	$468,590	$15,507,751	0.03x	1.14x	21.2%	6/30/23
2021	Fortress Lending Fund II	$28,566,610	$40,000,000	$33,337,851	83%	$6,662,149	$7,124,926	$28,566,610	0.21x	1.07x	10.0%	6/30/23
2022	Blue Torch Credit Opportunities Fund III	$7,764,429	$40,000,000	$7,199,891	18%	$32,800,109	$83,928	$7,625,106	0.01x	1.09x	20.1%	3/31/23
2022	Fortress Lending Fund III	$23,889,989	$40,000,000	$23,232,701	58%	$16,767,299	$2,175,812	$23,889,989	0.09x	1.12x	11.8%	6/30/23
2022	OrbiMed Royalty & Credit Opportunities IV	$6,271,019	$30,000,000	$5,983,980	20%	$24,016,020	$0	$4,560,873	0.00x	1.05x	11.9%	3/31/23
2023	Ares Senior Direct Lending III	$0	$30,000,000	$0	0%	$30,000,000	$0	$0	N/A	N/A	N/A	N/A
2023	Cerberus Business Finance V	$0	$30,000,000	$0	0%	$30,000,000	$0	$0	N/A	N/A	N/A	N/A
2023	Ares Pathfinder II	$0	$30,000,000	$0	0%	$30,000,000	$0	$0	N/A	N/A	N/A	N/A
2023	Silver Point – Specialty Credit Fund III	$0	$30,000,000	$0	0%	$30,000,000	$0	$0	N/A	N/A	N/A	N/A
	Total Private Credit	**$246,629,415**	$562,396,707	$386,482,230	69%	$175,914,477	$178,844,730	$246,643,975	0.46x	1.10x		
	% of Portfolio (Market Value)	**4.6%**										

[1](DPI) is equal to (capital returned / capital called)
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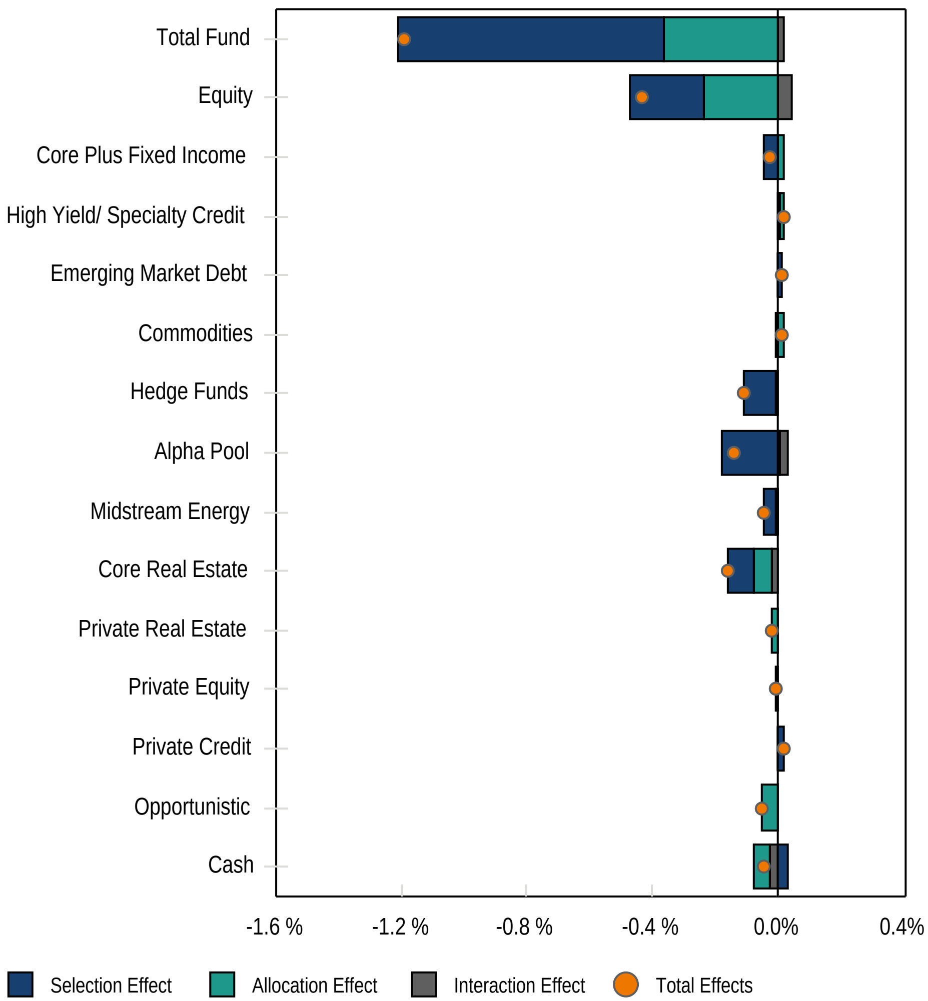
[3]Net IRR is calculated on the cash flows of all the limited partners of the fund and is net of all fees. Each IRR is provided by the Fund manager and is reflective of the Fund IRR, rather than KCERA's specific IRR.
[4]Name changed from Colony Distressed Credit fund to DC Value Recovery Fund IV

Vintage Year	Manager/Fund	Estimated Market Value 6/30/2023	IRR Analysis as of IRR date									
			Total Commitment	Capital Called	% Called	Remaining Commitment	Capital Returned	Market Value as of IRR date	Distrib./ Paid-In (DPI)[1]	Tot. Value/ Paid-In (TVPI)[2]	Net IRR Since Inception[3]	IRR Date
Private Real Estate												
2014	Invesco Real Estate Value-Add Fund IV	$945,682	$50,000,000	$43,637,717	87%	$6,362,283	$56,824,750	$945,682	*1.30x*	*1.32x*	*10.5%*	06/30/23
2017	Landmark Real Estate Partners VIII	$31,583,306	$60,000,000	$40,705,385	68%	$19,294,615	$23,327,214	$31,009,306	*0.57x*	*1.35x*	*18.5%*	03/31/23
2018	Long Wharf Real Estate Partners VI	$34,525,266	$50,000,000	$49,405,352	99%	$594,648	$22,893,954	$34,525,266	*0.46x*	*1.16x*	*19.5%*	06/30/23
2020	Covenant Apartment Fund X	$33,947,463	$30,000,000	$24,007,333	80%	$5,992,667	$6,380,981	$33,947,463	*0.27x*	*1.68x*	*23.2%*	06/30/23
2021	Singerman Real Estate Opportunity Fund IV	$8,944,617	$35,000,000	$8,146,250	23%	$26,853,750	$0	$8,944,617	*0.00x*	*1.10x*	*17.6%*	06/30/23
2022	LBA Logistics Value Fund IX, L.P.	$10,287,850	$40,000,000	$11,153,846	28%	$28,846,154	$0	$10,287,850	*0.00x*	*0.92x*	*-11.9%*	06/30/23
2022	Covenant Apartment Fund XI	$9,819,829	$30,000,000	$6,300,000	21%	$38,076,924	$3,112	N/A	N/A	N/A	N/A	N/A
2022	KSL Capital Partners VI	$1,951,434	$30,000,000	$2,016,241	7%	$27,983,759	$64,806	N/A	*N/A*	*N/A*	N/A	N/A
2022	Landmark Real Estate Partners IX	$0	$40,000,000	$0	0%	$40,000,000	$0	N/A	*N/A*	*N/A*	N/A	N/A
2023	Merit Hill V	$0	$30,000,000	$0	0%	$30,000,000	$0	N/A	*N/A*	*N/A*	N/A	N/A
	Total Private Real Estate	**$132,005,447**	$395,000,000	$185,372,124	47%	$224,004,800	$109,494,818	$119,660,184	*0.59x*	*1.30x*		
	% of Portfolio (Market Value)	*2.5%*										

[1](DPI) is equal to (capital returned / capital called)
[2](TVPI) is equal to (market value + capital returned) / capital called
[3]Net IRR is calculated on the cash flows of all the limited partners of the fund and is net of all fees. Each IRR is provided by the Fund manager and is reflective of the Fund IRR, rather than KCERA's specific IRR.

KSL Capital Partners VI funded in Q2

Attribution Effects
Last Three Months



Performance Attribution

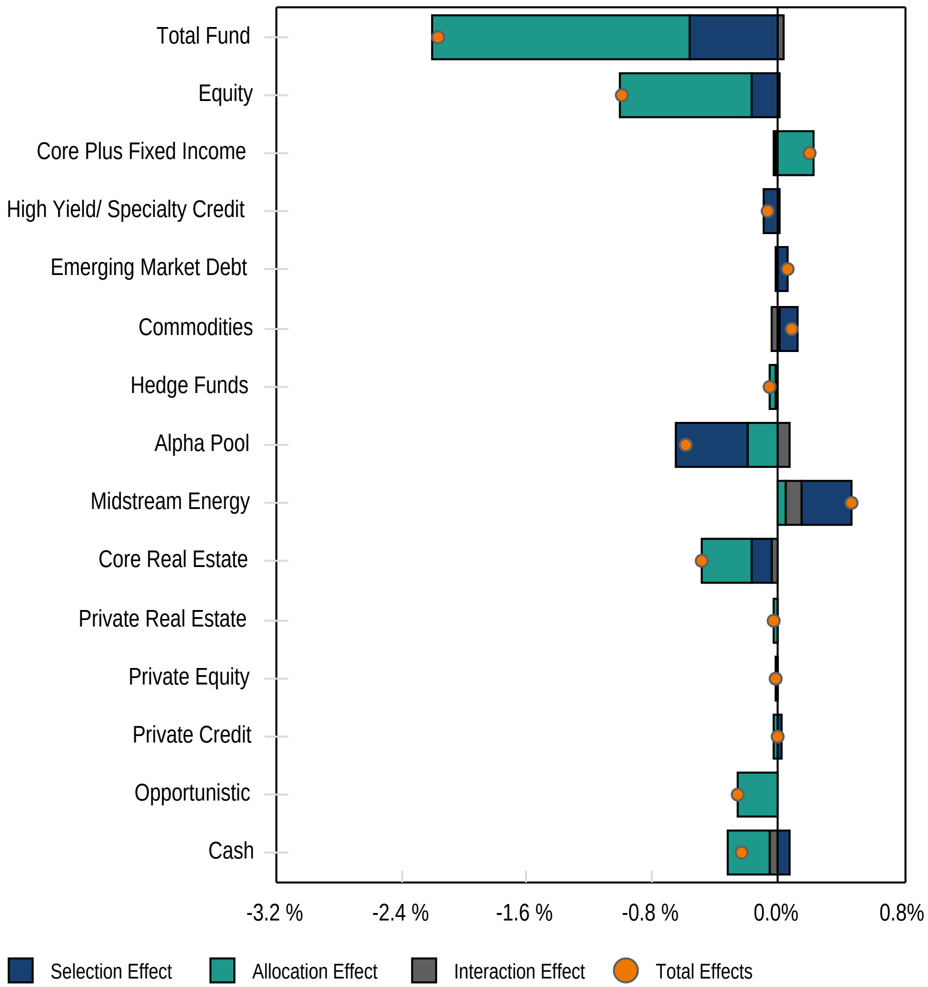
	Last Three Months
Wtd. Actual Return	1.6
Wtd. Index Return	2.8
Excess Return	-1.2
Selection Effect	-0.8
Allocation Effect	-0.4
Interaction Effect	0.0

Attribution Summary
Last Three Months

	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Interaction Effects	Total Effects
Equity	5.2	5.9	-0.6	-0.3	-0.2	0.0	-0.4
Core Plus Fixed Income	-1.1	-0.8	-0.2	-0.1	0.0	0.0	0.0
High Yield/ Specialty Credit	1.7	1.6	0.1	0.0	0.0	0.0	0.0
Emerging Market Debt	2.7	2.3	0.3	0.0	0.0	0.0	0.0
Commodities	-2.8	-2.6	-0.2	0.0	0.0	0.0	0.0
Hedge Funds	1.5	2.5	-1.0	-0.1	0.0	0.0	-0.1
Alpha Pool	-1.4	2.1	-3.5	-0.2	0.0	0.0	-0.1
Midstream Energy	3.0	3.7	-0.7	-0.1	0.0	0.0	0.0
Core Real Estate	-4.2	-2.7	-1.6	-0.1	-0.1	0.0	-0.2
Private Real Estate	-0.9	-0.9	0.0	0.0	0.0	0.0	0.0
Private Equity	3.1	3.1	0.0	0.0	0.0	0.0	0.0
Private Credit	2.8	2.3	0.4	0.0	0.0	0.0	0.0
Opportunistic	1.1	1.8	-0.7	0.0	-0.1	0.0	-0.1
Cash	0.5	1.2	-0.7	0.0	-0.1	0.0	0.0
Total Fund	1.6	2.8	-1.2	-0.8	-0.4	0.0	-1.2

Weighted returns shown in attribution analysis may differ from actual returns. Negative cash allocation unable to be shown in Attribution Summary table. Wtd. Index Returns calculated from benchmark returns and weightings of each component. Selection Effect includes Other Effect in the Performance Attribution table.

Attribution Effects
Fiscal YTD



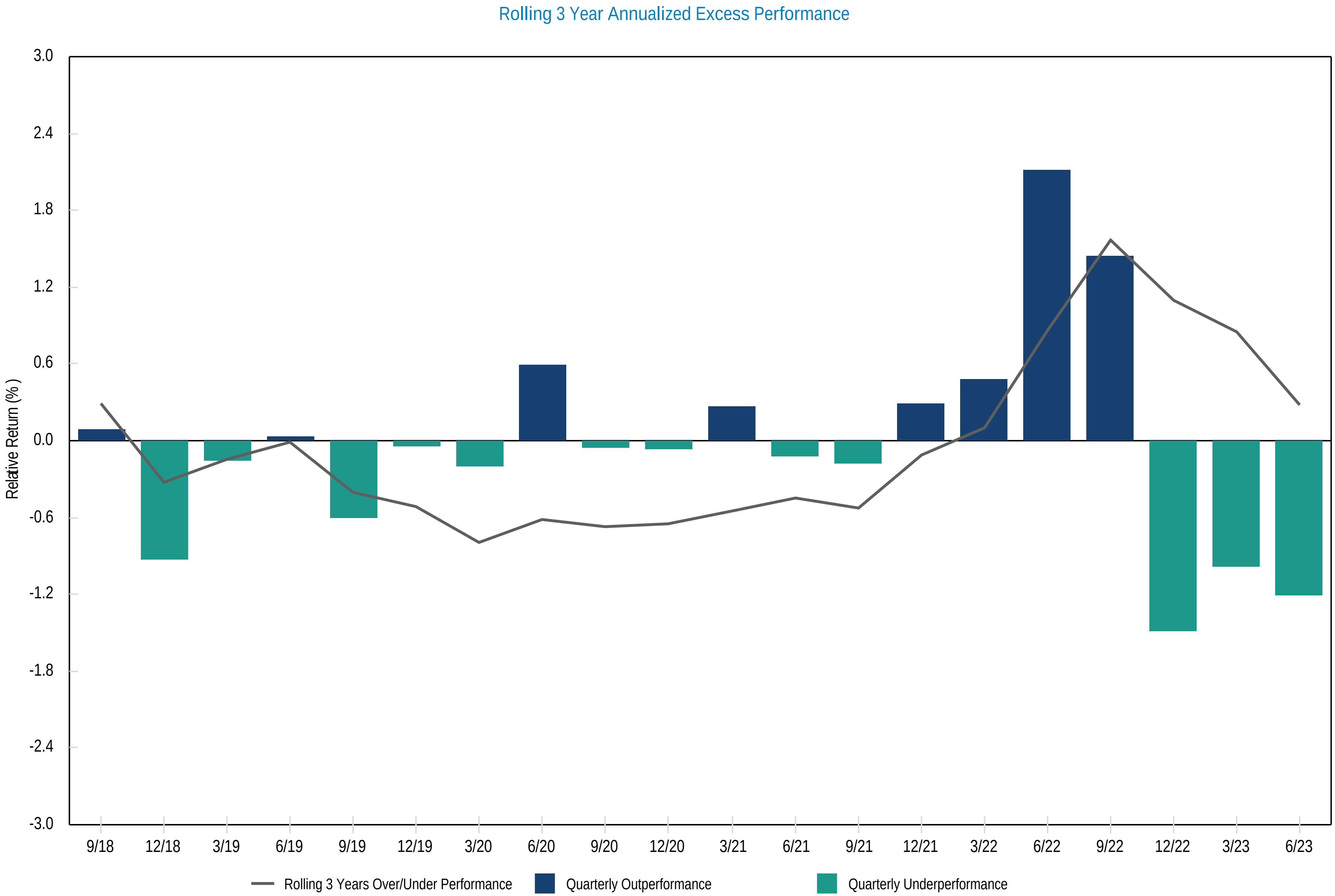
Performance Attribution

	Fiscal YTD
Wtd. Actual Return	5.9
Wtd. Index Return	8.1
Excess Return	-2.2
Selection Effect	-0.6
Allocation Effect	-1.6
Interaction Effect	0.0

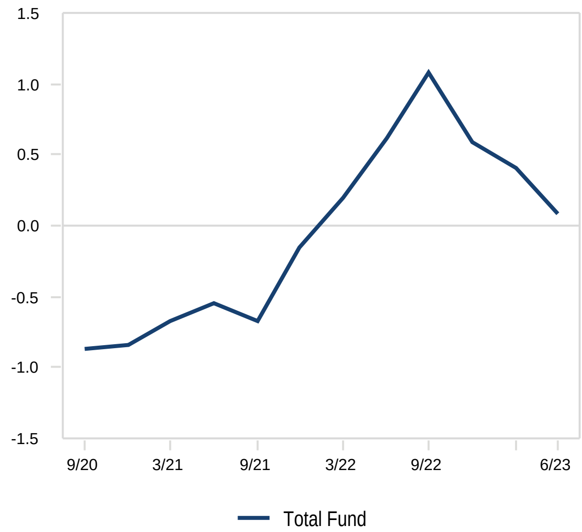
Attribution Summary
Fiscal YTD

	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Interaction Effects	Total Effects
Equity	15.7	16.1	-0.4	-0.3	-0.8	0.0	-1.0
Core Plus Fixed Income	-1.0	-0.9	-0.1	-0.1	0.2	0.0	0.2
High Yield/ Specialty Credit	7.5	8.9	-1.4	-0.1	0.0	0.0	-0.1
Emerging Market Debt	11.2	9.4	1.8	0.1	0.0	0.0	0.1
Commodities	-7.0	-9.6	2.6	0.1	0.0	0.0	0.1
Hedge Funds	6.8	7.2	-0.4	0.0	0.0	0.0	-0.1
Alpha Pool	-0.9	7.7	-8.5	-0.5	-0.2	0.1	-0.6
Midstream Energy	19.3	12.2	7.1	0.3	0.0	0.1	0.5
Core Real Estate	-12.3	-10.0	-2.3	-0.2	-0.3	0.0	-0.5
Private Real Estate	7.9	8.0	-0.1	0.0	0.0	0.0	0.0
Private Equity	-0.5	-0.5	0.0	0.0	0.0	0.0	0.0
Private Credit	3.2	2.8	0.4	0.0	0.0	0.0	0.0
Opportunistic	0.6	7.2	-6.7	0.0	-0.2	0.0	-0.2
Cash	2.2	3.6	-1.3	0.1	-0.3	-0.1	-0.2
Total Fund	5.9	8.1	-2.2	-0.6	-1.6	0.0	-2.2

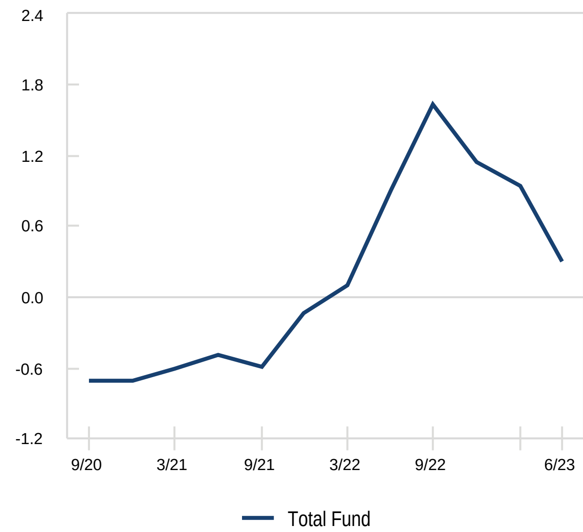
Weighted returns shown in attribution analysis may differ from actual returns. Negative cash allocation unable to be shown in Attribution Summary table. Wtd. Index Returns calculated from benchmark returns and weightings of each component. Selection Effect includes Other Effect in the Performance Attribution table.


Rolling 3 Year Annualized Excess Performance
Relative Return (%)
3.0
2.4
1.8
1.2
0.6
0.0
-0.6
-1.2
-1.8
-2.4
-3.0
9/18
12/18
3/19
6/19
9/19
12/19
3/20
6/20
9/20
12/20
3/21
6/21
9/21
12/21
3/22
6/22
9/22
12/22
3/23
6/23
Rolling 3 Years Over/Under Performance
Quarterly Outperformance
Quarterly Underperformance

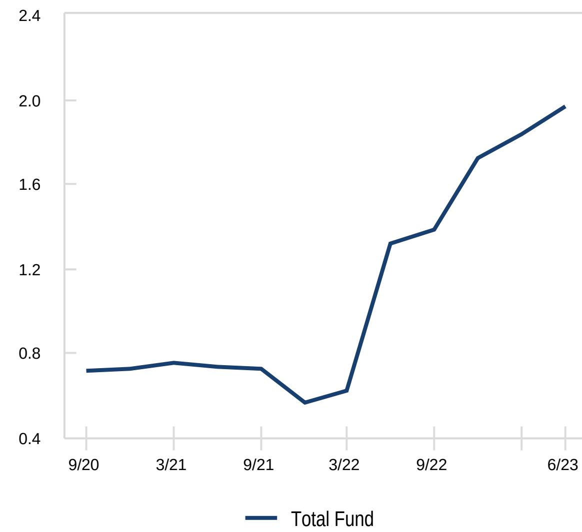
Rolling Information Ratio



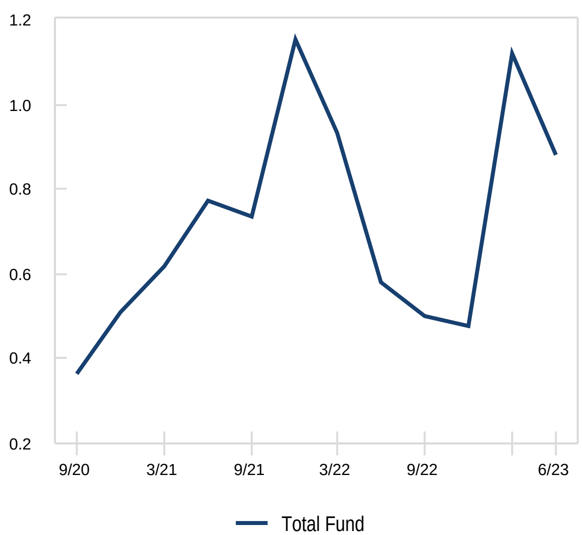
Rolling Annual Excess Benchmark Return



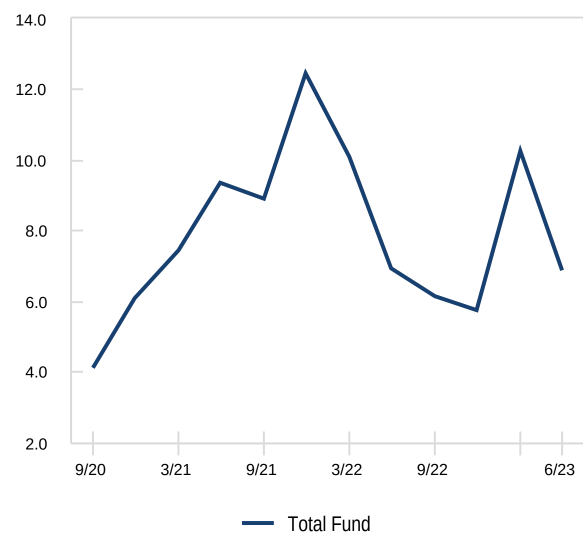
Rolling Tracking Error



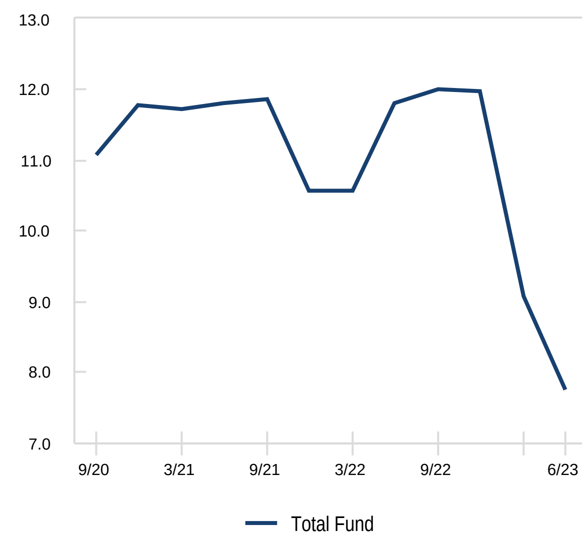
Rolling Sharpe Ratio

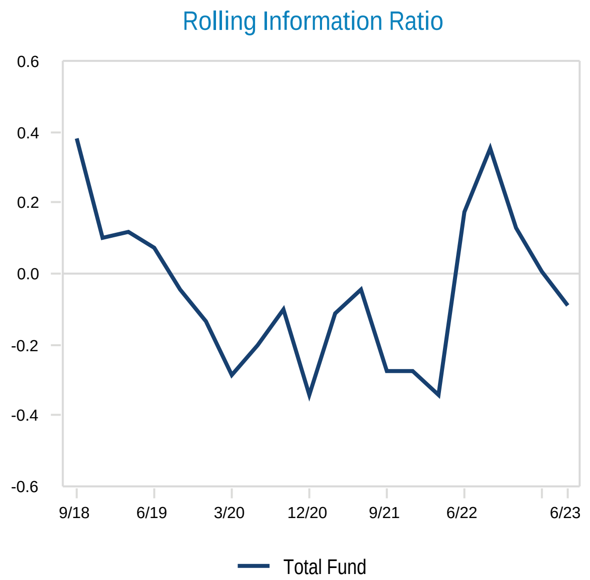


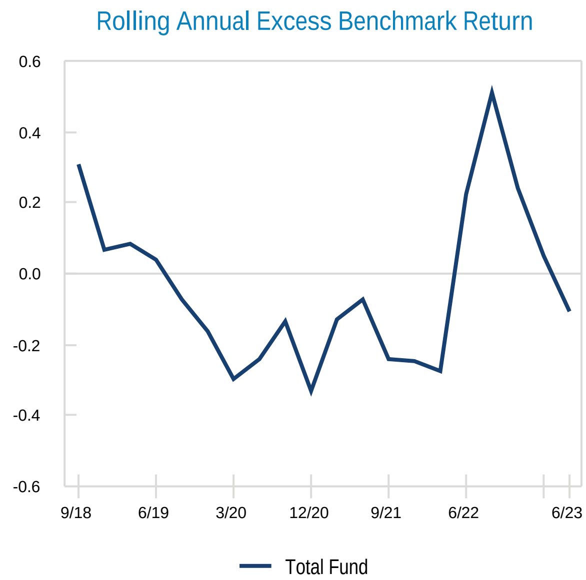
Rolling Annual Excess Risk Free Return

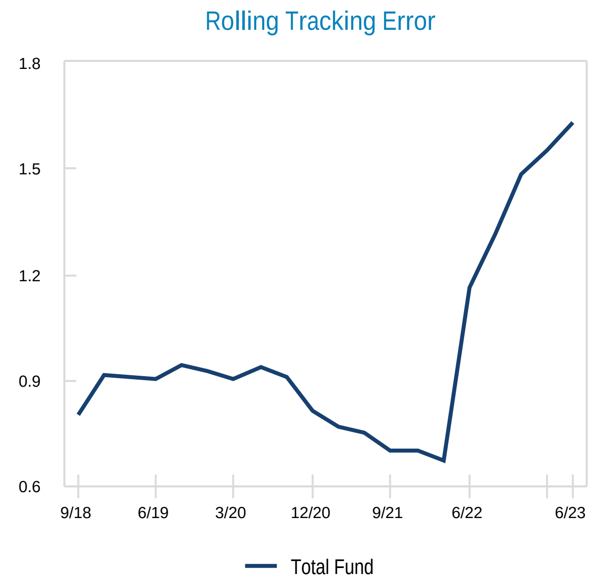


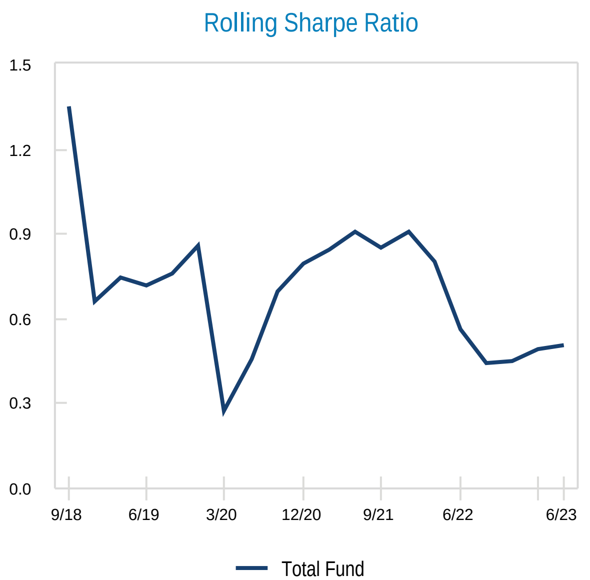
Rolling Annualized Standard Deviation



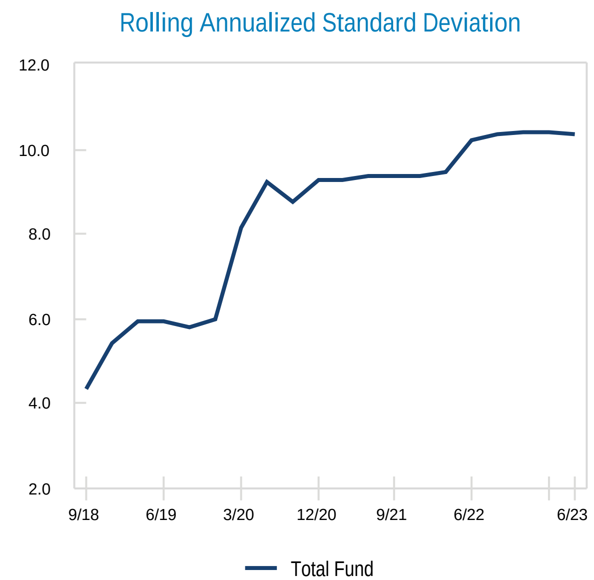

Rolling Information Ratio
0.6
0.4
0.2
0.0
-0.2
-0.4
-0.6
9/18
6/19
3/20
12/20
9/21
6/22
6/23
Total Fund


Rolling Annual Excess Benchmark Return
0.6
0.4
0.2
0.0
-0.2
-0.4
-0.6
9/18
6/19
3/20
12/20
9/21
6/22
6/23
Total Fund


Rolling Tracking Error
1.8
1.5
1.2
0.9
0.6
9/18
6/19
3/20
12/20
9/21
6/22
6/23
Total Fund


Rolling Sharpe Ratio
1.5
1.2
0.9
0.6
0.3
0.0
9/18
6/19
3/20
12/20
9/21
6/22
6/23
Total Fund


Rolling Annual Excess Risk Free Return
10.0
8.0
6.0
4.0
2.0
0.0
9/18
6/19
3/20
12/20
9/21
6/22
6/23
Total Fund


Rolling Annualized Standard Deviation
12.0
10.0
8.0
6.0
4.0
2.0
9/18
6/19
3/20
12/20
9/21
6/22
6/23
Total Fund

Cash Flows

Net Cash Flow: Last 1 Quarter

Period Ending: June 30, 2023

	Estimated Beginning Market Value	Contributions	Withdrawals	Fees	Net Transfers	Net Investment Change	Estimated Ending Market Value
Equity	1,684,531,735	874,180	-35,519,936		-1,357,464	87,246,151	1,735,774,667
Equity Beta Exposure	116,684,550	874,180	-35,519,436		-1,355,100	8,183,156	88,867,350
Mellon DB SL Stock Index Fund	492,812,772					43,077,775	535,890,546
PIMCO StocksPLUS	106,968,573					9,404,337	116,372,909
AB US Small Cap Value Equity	85,933,985		-129			545,403	86,479,259
Geneva Capital Small Cap Growth	49,961,187		-354			2,928,690	52,889,523
Mellon DB SL World ex-US Index Fund	509,554,780					16,847,909	526,402,690
Fidelity Non-US Small Cap Equity	2,371		-18		-2,364	10	
Cevian Capital II	37,835,395					1,040,041	38,875,436
American Century Non-US Small Cap	71,741,628					-752,900	70,988,728
DFA Emerging Markets Value I	77,971,643					3,588,524	81,560,166
AB Emerging Markets Strategic Core Equity Collective Trust	51,359,657					1,787,978	53,147,634
Mellon Emerging Markets Stock Index Fund	83,704,518					595,070	84,299,588
Transition Equity	676					160	837
Fixed Income	1,293,165,405	57,933,501	-1,611,356	126,904	-9,879,495	974,075	1,340,709,034
Fixed Income Beta Exposure	373,052,129	57,890,137	-1,611,356		-4,278,500	-6,172,158	418,880,253
Mellon DB SL Aggregate Bond Index Fund	162,415,284					-1,370,286	161,044,998
PIMCO Core Plus	165,702,164					-1,213,865	164,488,299
Western Asset Core Plus	122,289,114					-384,016	121,905,098
Western Asset High Yield Fixed Income	164,707,494				-2,652,752	3,311,142	165,365,884
TCW Securitized Opportunities	96,137,252			126,904	-1,963,554	1,122,891	95,423,493
Stone Harbor Emerging Markets Debt Blend Portfolio	64,653,539	43,364			-984,666	1,882,129	65,594,366
PIMCO EMD	143,907,027					3,797,139	147,704,166
Transition Fixed Income	301,401				-22	1,098	302,477
Commodities	197,553,350				35,000,000	-4,338,726	228,214,624
Gresham MTAP Commodity Builder Fund	49,142,121					-899,342	48,242,779
Wellington Commodities	148,411,229				35,000,000	-3,439,384	179,971,845
Hedge Funds	540,806,896	10,159		-96,708	-7,404,359	8,394,729	541,710,718
Aristeia International Limited	69,959,516					940,750	70,900,266
Brevan Howard Fund	55,851,429	10,159				-1,516,769	54,344,819
D.E. Shaw Composite Fund	59,530,214					1,734,528	61,264,742
HBK Fund II	44,737,059					306,583	45,043,642
Hudson Bay Cap Structure Arbitrage Enhanced Fund	80,735,699					838,792	81,574,491

	Estimated Beginning Market Value	Contributions	Withdrawals	Fees	Net Transfers	Net Investment Change	Estimated Ending Market Value
Indus Pacific Opportunities Fund	47,650,356					-1,272,655	46,377,701
Magnetar Structured Credit Fund	7,327,545				-7,404,359	76,814	
Pharo Macro Fund	61,359,040					1,600,667	62,959,707
PIMCO Commodity Alpha Fund	67,115,042			-96,708		4,375,324	71,393,658
Sculptor Domestic Partners II LP	46,540,997					1,310,695	47,851,693
Alpha Pool	219,047,320				5,450,104	-3,021,787	221,475,636
Hudson Bay	62,361,920				1,603,345	-955,445	63,009,820
Davidson Kempner Institutional Partners	54,896,123				1,406,304	-868,929	55,433,498
HBK Fund II	43,022,754				1,105,718	-810,882	43,317,590
HBK Opportunities Platform – SPAC Series	183,496				-183,496		
Garda Fixed Income Relative Value Opportunity Fund	58,583,027				1,518,232	-386,531	59,714,728
Midstream Energy	303,662,302				-4,724,373	9,529,907	308,467,836
Harvest Midstream	155,726,602				-2,563,685	3,679,436	156,842,353
PIMCO Midstream	147,935,700				-2,160,688	5,850,471	151,625,483
Core Real Estate	321,881,000		-312,521		-2,936,380	-13,197,308	305,434,791
ASB Allegiance Real Estate Fund	177,580,755				-1,187,888	-10,964,353	165,428,514
JPMCB Strategic Property Fund	144,300,244		-312,521		-1,748,492	-2,232,955	140,006,277
Private Real Estate	123,608,804				9,507,043	-1,110,400	132,005,447
Invesco Real Estate Value-Add Fund IV	1,394,290					-448,608	945,682
Landmark Real Estate Partners VIII	31,009,306				1,288,044	-714,044	31,583,306
Long Wharf Real Estate	34,044,975				416,254	64,037	34,525,266
Covenant Apartment Fund X	33,907,055				-353,750	394,158	33,947,463
Singerman Real Estate Opportunity Fund IV	8,851,934				131,250	-38,567	8,944,617
LBA Logistics Value Fund IX, L.P.	7,442,250				3,076,923	-231,323	10,287,850
Covenant Apartment Fund XI, LP	6,958,995				2,996,888	-136,054	9,819,829
KSL Capital Partners VI					1,951,434		1,951,434
Private Equity	165,827,721	4,235,654			12,305,881	5,169,184	187,538,440
Abbott VI	17,231,430					258,751	17,490,181
Pantheon Secondary III	544,562					8,627	553,189
Pantheon III	45,445						45,445
Pantheon V	392,019					-8,557	383,462

	Estimated Beginning Market Value	Contributions	Withdrawals	Fees	Net Transfers	Net Investment Change	Estimated Ending Market Value
Pantheon VI	357,185					-21,448	335,737
Pantheon VII	6,715,424				-300,000	492,164	6,907,588
Vista Foundation Fund IV	17,834,565					223,510	18,058,075
Crown Global Secondaries V Master S.C.Sp	28,138,412				-1,100,000	1,529,832	28,568,244
Brighton Park Capital Fund I	35,655,157				321,217	53,572	36,029,946
Warren Equity Partners Fund III	27,303,165				1,309,413	785,014	29,397,592
Peak Rock Capital Fund III	11,225,621				68,569	627,112	11,921,302
Level Equity Growth Partners V	4,543,921				1,576,237	576,907	6,697,065
Level Equity Opportunities Fund 2021	3,253,566				1,855,632	420,190	5,529,388
Linden Capital Partners V LP	5,472,902				2,262,173	249,726	7,984,801
Rubicon Technology Partners IV L.P.	2,681,880				681,618	-85,560	3,277,938
OrbiMed Private Investments IX, LP	366,875					-46,689	320,186
Brighton Park Capital Fund II, L.P	2,249,052				935,385	-112,571	3,071,866
Linden Co-Investment V LP	1,816,540				1,875,568	218,604	3,910,712
Warren Equity Partners Fund IV		4,235,654			2,820,069		7,055,723
Private Credit	245,458,300				-4,495,048	5,666,163	246,629,415
DC Value Recovery Fund IV	20,781,309				-2,704,635	450,251	18,526,925
Sixth Street TAO Partners (B)	39,800,921				968,605	634,591	41,404,117
Brookfield Real Estate Finance Fund V	17,621,779				-480,347	-388,811	16,752,621
Magnetar Constellation Fund V	28,836,480					-723,349	28,113,131
H.I.G. Bayside Loan Opportunity Fund V	42,185,573				-786,974	2,120,853	43,519,452
Blue Torch Credit Opportunities Fund II	17,526,212				-1,816,164	603,323	16,313,371
Fortress Credit Opportunites Fund V Expansion	13,938,158				1,280,261	289,332	15,507,751
Fortress Lending Fund II	29,190,818				-1,597,026	972,818	28,566,610
Fortress Lending Fund III	23,391,071				-758,820	1,257,738	23,889,989
OrbiMed Royalty & Credit Opportunities IV	4,560,873				1,483,980	226,166	6,271,019
Blue Torch Credit Opportunities Fund III	7,625,106				-83,928	223,251	7,764,429
Opportunistic	167,025,043				-1,280,313	1,839,516	167,584,245
DB Investors Fund IV	25,576,934					-2,182,865	23,394,069
Sixth Street TAO Partners (D)	85,955,709				532,212	4,245,555	90,733,476
Aristeia Select Opportunities II	49,530,872					-1,180,841	48,350,031
River Birch International	5,961,528					-5,961,528	

	Estimated Beginning Market Value	Contributions	Withdrawals	Fees	Net Transfers	Net Investment Change	Estimated Ending Market Value
Cash	-21,679,077	199,593,102	-217,016,138	-33,627	-30,185,596	6,039,792	-63,281,544
Short Term Investment Funds	220,711,312	74,605,452	-85,305,638	-33,627	-30,185,596	2,526,112	182,318,015
Parametric Cash Overlay	82,256,613	34,743,563	-37,632,511				79,367,664
Goldman Sachs Cash Account	-13,554,572	49,411,195	-33,424,069				2,432,554
Futures Offset	-489,736,679	40,832,893	-59,818,920			975,104	-507,747,603
Collateral Cash	835,000		-835,000				
BlackRock Short Duration Fund	177,809,249					2,538,577	180,347,826

Portfolio Reconciliation

	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs
Beginning Market Value	5,240,888,799	5,061,358,140	5,061,358,140	4,409,659,712	4,178,221,441	3,006,340,464
Contributions	368,758,185	2,959,971,119	2,959,971,119	9,979,430,928	13,039,142,389	19,012,108,878
Withdrawals	-360,571,539	-3,005,659,444	-3,005,659,444	-10,195,960,221	-13,390,239,667	-19,460,437,617
Fees	-3,431	-3,538,093	-3,538,093	-35,598,840	-62,450,330	-129,201,373
Net Cash Flows	8,186,646	-45,688,324	-45,688,324	-216,529,293	-351,097,278	-448,328,739
Net Investment Change	103,187,864	336,593,493	336,593,493	1,159,132,890	1,525,139,147	2,794,251,584
Ending Market Value	5,352,263,309	5,352,263,309	5,352,263,309	5,352,263,309	5,352,263,309	5,352,263,309
Net Change $	111,374,510	290,905,169	290,905,169	942,603,597	1,174,041,869	2,345,922,845

Contribution and withdrawals include transfers in and out of accounts. Ending market value is net of fees. Market value and flows do not include the Short Term Cash Account balance.

Risk Metrics

Correlation Matrix
3 Years Ending June 30, 2023

	A	B	C	D	E	F	G	H	I	J	K	L
A	1.00											
B	0.98	1.00										
C	0.95	0.98	1.00									
D	0.95	0.97	0.90	1.00								
E	0.80	0.80	0.68	0.80	1.00							
F	0.79	0.80	0.74	0.79	0.81	1.00						
G	0.65	0.68	0.62	0.66	0.70	0.96	1.00					
H	0.86	0.85	0.82	0.82	0.73	0.89	0.77	1.00				
I	0.79	0.80	0.71	0.82	0.87	0.91	0.78	0.78	1.00			
J	0.66	0.56	0.50	0.59	0.52	0.33	0.18	0.47	0.41	1.00		
K	0.58	0.52	0.49	0.53	0.45	0.27	0.10	0.47	0.37	0.48	1.00	
L	-0.12	-0.19	-0.14	-0.22	-0.27	-0.34	-0.31	-0.25	-0.39	0.06	-0.05	1.00

A = Total Fund
B = Equity
C = Domestic Equity
D = International Developed Equity
E = Emerging Markets Equity
F = Fixed Income
G = Core Plus Fixed Income
H = High Yield/ Specialty Credit
I = Emerging Market Debt
J = Commodities
K = Hedge Funds
L = Core Real Estate

Low Interaction
Moderate Interation
Moderate to High Interation
High Interaction

	Alpha	Beta	R-Squared	Return	Information Ratio	Excess Performance	Tracking Error	Sharpe Ratio	Excess Return	Standard Deviation	Sortino Ratio	Up Capture	Down Capture
Total Fund	1.7	0.8	1.0	8.1	0.1	0.3	2.4	0.9	6.9	7.8	1.5	86.8	75.5
Equity	0.6	1.0	1.0	11.4	0.3	0.4	1.1	0.7	11.0	16.8	1.0	99.9	98.0
Domestic Equity	0.0	1.0	1.0	13.9	-0.1	-0.2	1.2	0.7	13.5	18.1	1.2	98.7	98.6
International Developed Equity	1.0	1.0	1.0	9.8	0.8	0.9	1.0	0.6	9.6	17.6	0.9	101.2	97.7
Emerging Markets Equity	1.0	0.9	1.0	4.4	0.3	0.8	2.5	0.3	4.4	16.4	0.4	94.2	89.4
Fixed Income	0.2	1.0	1.0	-2.0	0.2	0.1	0.8	-0.5	-3.1	6.5	-0.6	103.7	101.4
Core Plus Fixed Income	0.0	1.0	1.0	-4.0	-0.1	-0.1	0.7	-0.8	-5.2	6.2	-1.0	104.9	103.5
High Yield/ Specialty Credit	0.6	0.7	0.9	3.0	-0.1	-0.2	2.7	0.3	1.9	6.4	0.4	73.7	66.9
Emerging Market Debt	1.4	1.0	1.0	-1.0	1.2	1.3	1.1	-0.2	-1.7	10.4	-0.2	106.1	96.2
Commodities	0.9	0.9	0.9	16.5	-0.2	-1.3	5.5	1.0	15.3	15.0	1.7	87.5	81.5
Hedge Funds	5.8	0.4	0.2	8.4	0.3	1.4	3.9	2.1	6.9	3.1	7.1	68.6	-32.5
Core Real Estate	-0.2	0.6	0.8	4.9	-0.8	-3.0	4.1	0.6	3.8	6.2	1.0	73.6	99.2
Private Real Estate	0.0	1.0	1.0	16.7	-1.0	0.0	0.0	1.7	14.6	8.4	5.0	99.8	100.0
Private Equity	0.0	1.0	1.0	20.1	-0.6	0.0	0.0	1.5	17.8	11.5	7.3	100.0	100.3
Private Credit	0.1	1.0	1.0	3.0	0.7	0.1	0.2	0.5	1.8	3.4	1.0	99.9	94.1

Data not available for time periods less than 3 years (Alpha Pool, Midstream, & Opportunistic added in 2020)

Risk Return Statistics: Last Three Years

3 Years

	Equity	MSCI AC World IMI (Net)	Core Plus Fixed Income	Bloomberg U.S. Aggregate Index	High Yield/ Specialty Credit	ICE BofA U.S. High Yield Index	Emerging Market Debt	50 JPM EMBI Global Div/ 50 JPM GBI EM Global Div	Commodities	Bloomberg Commodity Index Total Return	Hedge Funds	75% 3 Month T-Bill +4% / 25% MSCI ACWI (net)	Core Real Estate	NCREIF ODCE- monthly
RETURN SUMMARY STATISTICS														
Up Market Periods	22	22	14	14	23	23	17	17	24	24	23	23	33	33
Down Market Periods	14	14	22	22	13	13	19	19	12	12	13	13	3	3
Maximum Return	12.43	12.66	3.41	3.68	4.80	6.02	7.56	7.35	7.67	8.78	3.26	3.34	5.39	7.97
Minimum Return	-9.42	-9.65	-4.27	-4.32	-5.04	-6.81	-5.99	-5.81	-8.90	-10.77	-0.75	-2.23	-3.77	-4.97
Return	11.40	10.97	-4.03	-3.97	3.03	3.21	-0.96	-2.24	16.54	17.82	8.42	5.77	4.95	7.99
Excess Return	10.99	10.65	-5.17	-5.12	1.93	2.25	-1.69	-3.01	15.26	16.56	6.89	4.45	3.76	6.82
Excess Performance	0.43	0.00	-0.06	0.00	-0.18	0.00	1.28	0.00	-1.28	0.00	2.65	0.00	-3.05	0.00
RISK SUMMARY STATISTICS														
Beta	0.98	1.00	1.02	1.00	0.74	1.00	1.02	1.00	0.87	1.00	0.37	1.00	0.64	1.00
Upside Risk	13.78	13.88	3.80	3.74	4.93	6.30	7.16	6.80	12.93	13.53	3.85	4.03	5.23	8.30
Downside Risk	10.28	10.59	5.08	4.93	4.15	5.66	7.54	7.49	9.00	10.20	0.81	2.38	3.66	3.74
RISK/RETURN SUMMARY STATISTICS														
Standard Deviation	16.82	17.12	6.24	6.09	6.38	8.41	10.40	10.11	15.02	16.14	3.15	4.38	6.22	8.80
Alpha	0.57	0.00	0.03	0.00	0.60	0.00	1.38	0.00	0.94	0.00	6.20	0.00	-0.18	0.00
Sharpe Ratio	0.65	0.62	-0.83	-0.85	0.30	0.27	-0.16	-0.30	1.01	1.01	2.11	1.02	0.57	0.75
Excess Risk	16.82	17.11	6.20	6.04	6.38	8.40	10.28	9.98	15.17	16.33	3.26	4.38	6.57	9.05
Tracking Error	1.08	0.00	0.67	0.00	2.66	0.00	1.09	0.00	5.50	0.00	3.84	0.00	4.05	0.00
Information Ratio	0.31	-	-0.08	-	-0.12	-	1.22	-	-0.24	-	0.64	-	-0.76	-
CORRELATION STATISTICS														
R-Squared	1.00	1.00	0.99	1.00	0.95	1.00	0.99	1.00	0.88	1.00	0.27	1.00	0.83	1.00
Actual Correlation	1.00	1.00	0.99	1.00	0.97	1.00	0.99	1.00	0.94	1.00	0.52	1.00	0.91	1.00

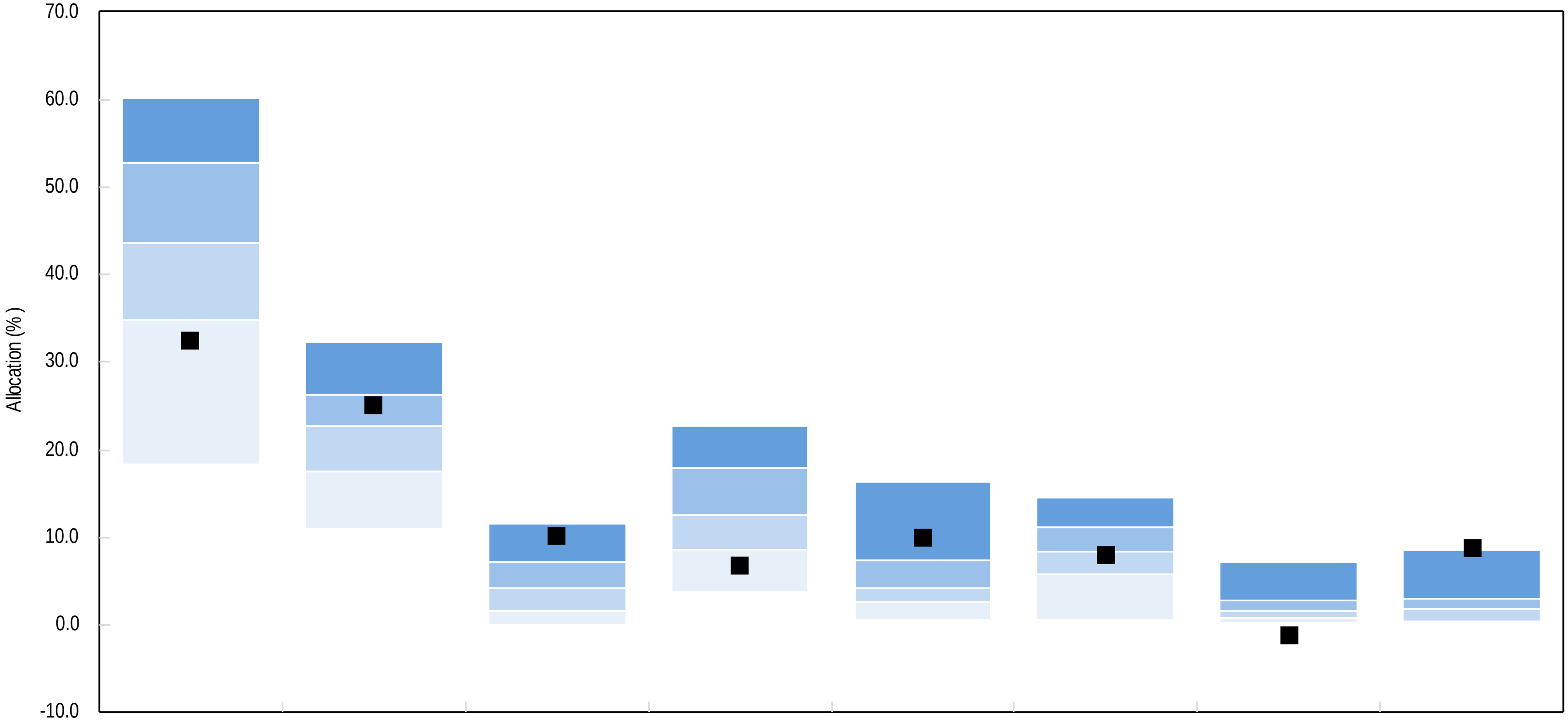
Risk Return Statistics: Last Two Years

2 Yrs	Midstream Energy	Alerian Midstream Energy Index	Opportunistic	Assumed Rate of Return +3%
RETURN SUMMARY STATISTICS				
Up Market Periods	13	13	24	24
Down Market Periods	11	11	0	0
Maximum Return	11.14	11.05	5.19	0.58
Minimum Return	-11.84	-12.21	-4.04	0.58
Return	14.20	11.79	-2.48	7.25
Excess Return	13.28	11.74	-4.06	5.17
Excess Performance	2.41	0.00	-9.73	0.00
RISK SUMMARY STATISTICS				
Beta	0.85	1.00	-	-
Upside Risk	15.41	17.12	1.60	2.03
Downside Risk	11.73	14.09	5.54	0.00
RISK/RETURN SUMMARY STATISTICS				
Standard Deviation	18.87	21.82	7.80	0.00
Alpha	3.64	0.00	-	-
Sharpe Ratio	0.70	0.54	-0.52	9.16
Excess Risk	18.94	21.90	7.80	0.56
Tracking Error	4.76	0.00	7.80	0.00
Information Ratio	0.32	-	-1.18	-
CORRELATION STATISTICS				
R-Squared	0.97	1.00	-	-
Actual Correlation	0.98	1.00	-	-

Data for unavailable for positions held for less than two years.

Peer Comparison

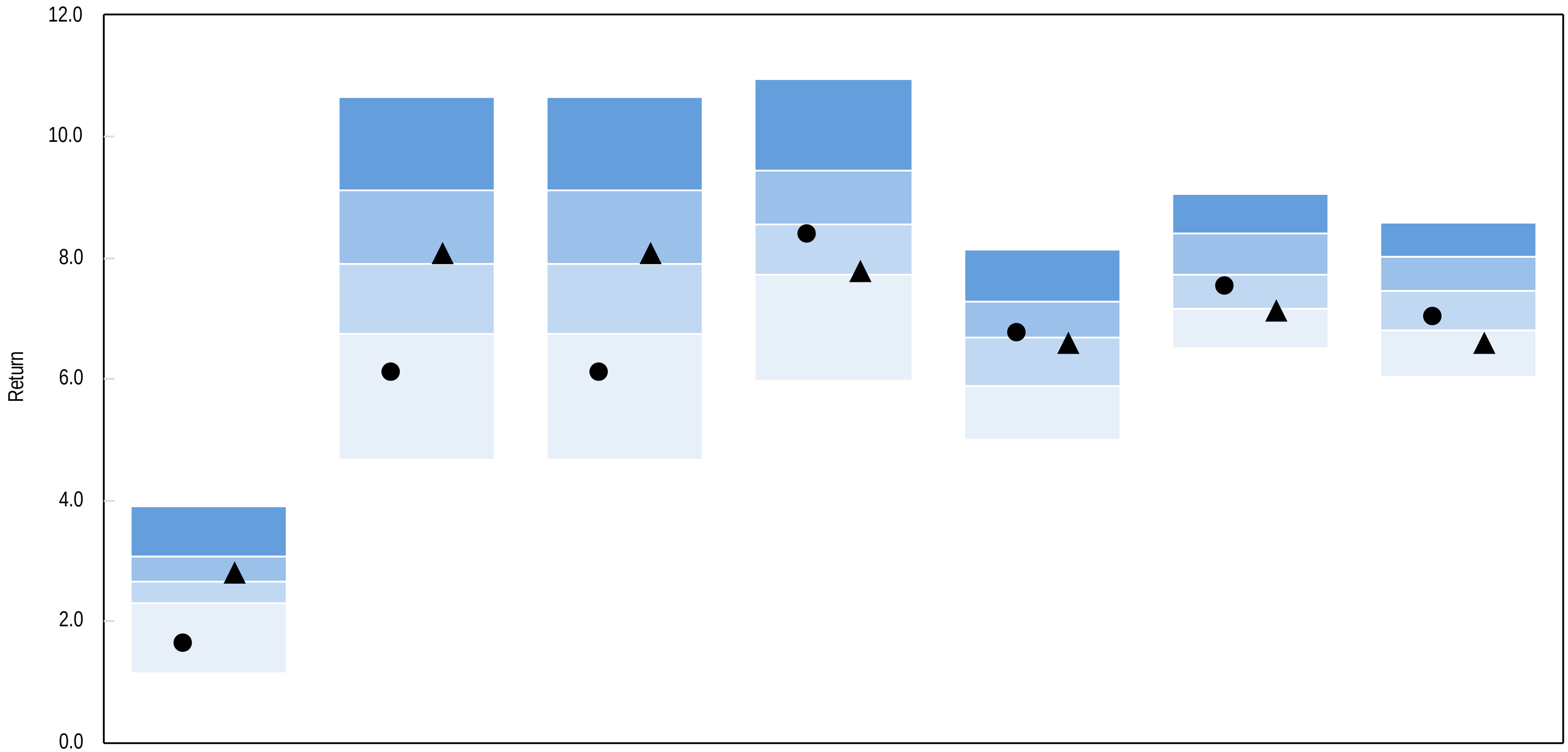
Total Plan Allocation vs. InvMetrics Public DB > $1B
As of June 30, 2023



	Total Equity	Total Fixed Income	Hedge Funds	Private Equity	Real Assets/Commod	Real Estate - Private	Cash & Equivalents	Other
■ Total Fund	32.4 (83)	25.0 (32)	10.1 (12)	6.9 (90)	10.0 (15)	8.0 (61)	-1.2	8.7 (1)
5th Percentile	60.2	32.2	11.5	22.7	16.4	14.6	7.2	8.5
1st Quartile	52.9	26.3	7.1	17.9	7.4	11.1	2.7	2.9
Median	43.7	22.7	4.2	12.5	4.2	8.4	1.5	1.8
3rd Quartile	35.0	17.6	1.6	8.7	2.5	5.7	0.7	0.3
95th Percentile	18.3	11.0	0.0	3.7	0.5	0.5	0.2	0.2
Population	86	88	44	65	51	59	70	13

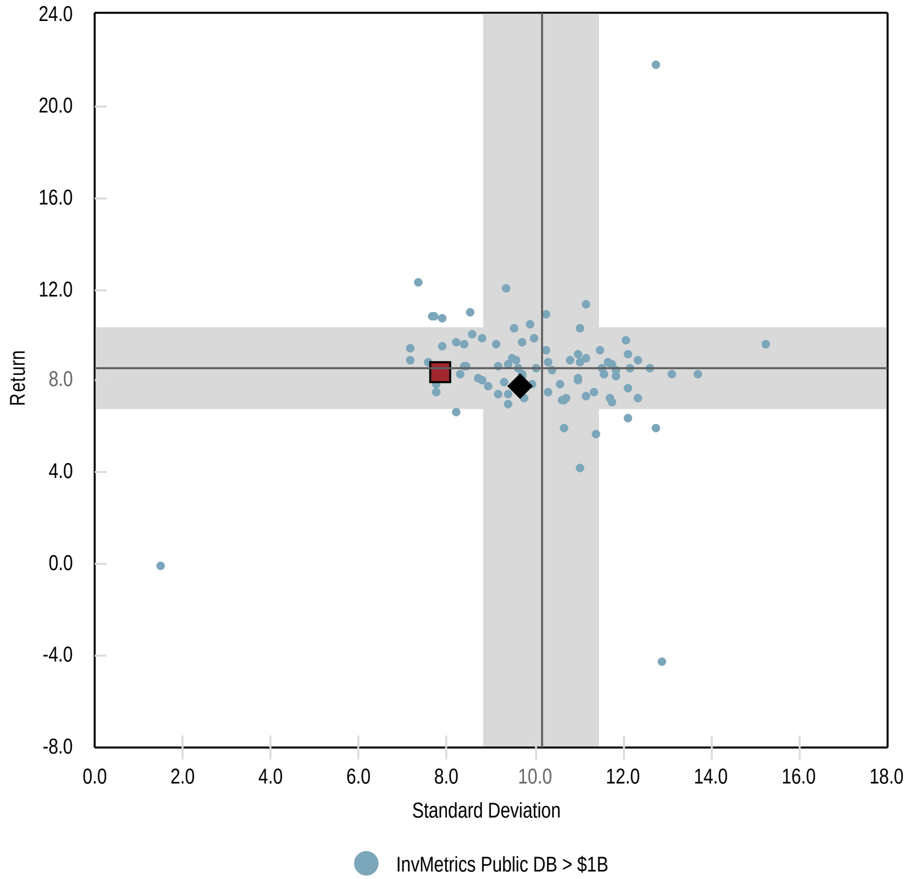
Parentheses contain percentile rankings. Other contains Alpha Pool, Opportunistic, and Private Credit. Real Estate contains Private and Core Real Estate. Real Assets contain Commodities and Midstream.

Total Fund vs. InvMetrics Public DB > $1B



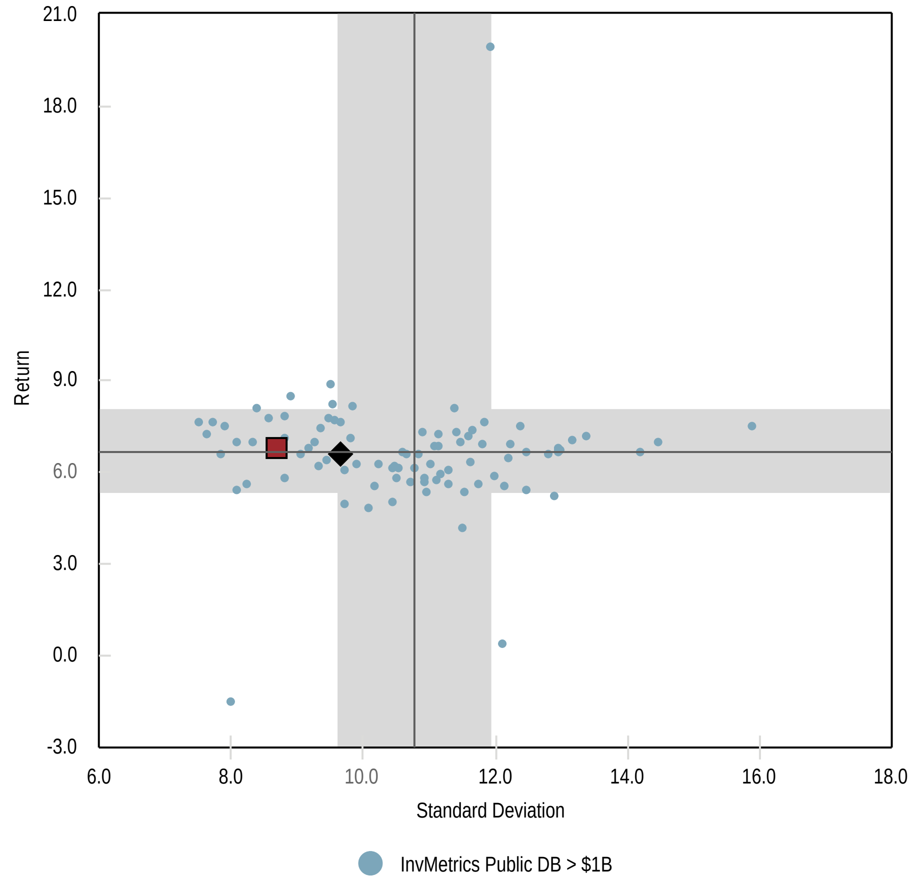
	Quarter	Fiscal YTD	1 Year	3 Years	5 Years	7 Years	10 Years
● Total Fund	1.6 (92)	6.1 (82)	6.1 (82)	8.4 (57)	6.8 (46)	7.5 (58)	7.1 (67)
▲ Policy Index	2.8 (39)	8.1 (47)	8.1 (47)	7.8 (74)	6.6 (58)	7.1 (78)	6.6 (86)
5th Percentile	3.9	10.7	10.7	11.0	8.2	9.1	8.6
1st Quartile	3.1	9.1	9.1	9.4	7.3	8.4	8.0
Median	2.7	7.9	7.9	8.6	6.7	7.7	7.5
3rd Quartile	2.3	6.8	6.8	7.7	5.9	7.2	6.8
95th Percentile	1.2	4.7	4.7	6.0	5.0	6.5	6.0
Population	104	100	100	90	89	88	84

Annualized Return vs. Annualized Standard Deviation
3 Years Ending June 30, 2023



	Return	Standard Deviation
Total Fund	8.41	7.84
Policy Index	7.81	9.67
Median	8.56	10.14
Population	90	90

Annualized Return vs. Annualized Standard Deviation
5 Years Ending June 30, 2023



	Return	Standard Deviation
Total Fund	6.80	8.70
Policy Index	6.59	9.64
Median	6.70	10.78
Population	89	89

Other

Fund Name	Allocation Group	Overall Status	Outperformed Universe 10th percentile (1yr)	Outperformed Universe 75th percentile (1yr)	Outperformed Index (1yr)	Outperformed Median Rank (3 yrs)	Outperformed Index (3yrs)	Outperformed Median Rank (5 yrs)	Outperformed Index (5yrs)	Concern	Index Fund Tracking Error over 0.25% (1yr)
Equity Beta Exposure	Equity	🟩	-	-	-	-	-	-	-	-	✔
Russell 2000 Overlay	Equity	🟩	-	-	-	-	-	-	-	-	-
Mellon DB SL Stock Index Fund	Equity	🟩	-	-	-	-	-	-	-	-	✔
PIMCO StocksPLUS	Equity	🟩	✔	✔	⚑	✔	⚑	✔	⚑	-	-
AB US Small Cap Value Equity	Equity	🟩	✔	⚑	⚑	⚑	✔	⚑	⚑	-	-
Geneva Capital Small Cap Growth	Equity	🟩	✔	✔	⚑	✔	✔	✔	✔	-	-
Mellon DB SL World ex-US Index Fund	Equity	🟩	-	-	-	-	-	-	-	-	⚑
Fidelity Non-US Small Cap Equity	Equity	🟩	⚑	✔	✔	✔	✔	✔	✔	-	-
Cevian Capital II	Equity	🟩	-	-	-	-	-	-	-	-	⚑
American Century Non-US Small Cap	Equity	🟩	✔	⚑	⚑	-	-	-	-	-	-
DFA Emerging Markets Value I	Equity	🟩	✔	✔	✔	✔	✔	✔	✔	-	-
AB Emerging Markets Strategic Core Equity Collective Trust	Equity	🟩	✔	✔	-	⚑	-	⚑	-	-	-
Mellon Emerging Markets Stock Index Fund	Equity	🟩	-	-	-	-	-	-	-	-	-
Mellon DB SL Aggregate Bond Index Fund	Fixed Income	🟩	-	-	-	-	-	-	-	-	✔
PIMCO Core Plus	Fixed Income	🟨	✔	⚑	✔	⚑	✔	⚑	✔	P	-
Western Asset Core Plus	Fixed Income	🟩	✔	✔	✔	⚑	⚑	⚑	✔	-	-
Western Asset High Yield Fixed Income	Fixed Income	🟩	✔	✔	✔	✔	✔	✔	⚑	-	-
TCW Securitized Opportunities	Fixed Income	🟩	✔	✔	⚑	✔	⚑	✔	⚑	-	-
Stone Harbor Emerging Markets Debt Blend Portfolio	Fixed Income	🟩	✔	✔	✔	⚑	✔	⚑	⚑	P	-
PIMCO EMD	Fixed Income	🟩	✔	✔	✔	✔	✔	-	-	-	-
Gresham MTAP Commodity Builder Fund	Commodities	🟩	✔	✔	⚑	⚑	⚑	⚑	⚑	-	-
Wellington Commodities	Commodities	🟩	✔	✔	✔	⚑	⚑	✔	✔	-	-

Legend For Overall Status

No Issues	🟩
Watch	🟨
Terminate	🟥

Legend for Standards

Pass	✔
Fail	⚑

Legend for Concern

Provisional	P
Restricted	R
No Issues	--

Fund Name	Allocation Group	Overall Status	Outperformed Universe 10th percentile (1yr)	Outperformed Universe 75th percentile (1yr)	Outperformed Index (1yr)	Outperformed Median Rank (3 yrs)	Outperformed Index (3yrs)	Outperformed Median Rank (5 yrs)	Outperformed Index (5yrs)	Concern	Index Fund Tracking Error over 0.25% (1yr)
Aristeia International Limited	Hedge Funds	■	-	-	🚩	-	✔	-	✔	-	-
Brevan Howard Fund	Hedge Funds	■	-	-	🚩	-	✔	-	✔	-	-
D.E. Shaw Composite Fund	Hedge Funds	■	-	-	✔	-	✔	-	✔	-	-
HBK Fund II	Hedge Funds	■	-	-	🚩	-	✔	-	🚩	-	-
Hudson Bay Cap Structure Arbitrage Enhanced Fund	Hedge Funds	■	-	-	🚩	-	✔	-	✔	-	-
Indus Pacific Opportunities Fund	Hedge Funds	■	-	-	🚩	-	✔	-	🚩	-	-
Magnetar Structured Credit Fund	Hedge Funds	■	-	-	🚩	-	✔	-	✔	-	-
PIMCO Commodity Alpha Fund	Hedge Funds	■	🚩	✔	✔	🚩	🚩	✔	✔	-	-
River Birch International	Opportunistic	■	-	-	-	-	-	-	-	-	-
Sculptor Domestic Partners II LP	Hedge Funds	■	-	-	✔	-	🚩	-	-	-	-
Harvest Midstream	Midstream	■	✔	✔	✔	-	-	-	-	-	-
PIMCO Midstream	Midstream	■	✔	✔	✔	-	-	-	-	-	-
ASB Allegiance Real Estate Fund	Core Real Estate	■	-	-	🚩	-	🚩	-	🚩	-	-
JPMCB Strategic Property Fund	Core Real Estate	■	-	-	🚩	-	🚩	-	🚩	-	-
Invesco Real Estate Value-Add Fund IV	Private Real Estate	■	-	-	🚩	-	🚩	-	🚩	-	-
Landmark Real Estate Partners VIII	Private Real Estate	■	-	-	-	-	-	-	-	-	🚩
DB Investors Fund IV	Opportunistic	■	-	-	🚩	-	🚩	-	-	-	-
Sixth Street TAO Partners (D)	Private Credit	■	-	-	🚩	-	✔	-	-	-	-
Aristeia Select Opportunities II	Opportunistic	■	-	-	🚩	-	-	-	-	-	-

Legend For Overall Status

No Issues ■ (green)
Watch ■ (yellow)
Terminate ■ (red)

Legend for Standards

Pass ✔
Fail 🚩

Legend for Concern

Provisional P
Restricted R
No Issues --

	2023 Q2	2023 Q1	2022 Q4	2022 Q3	2022 Q2	2022 Q1	2021 Q4	2021 Q3	2021 Q2	2021 Q1	2020 Q4	2020 Q3
Total Fund	1.6	2.7	3.9	-2.4	-6.8	-0.8	3.6	0.5	5.5	3.5	8.8	4.4
Policy Index	*2.8*	*3.7*	*5.4*	*-3.9*	*-8.9*	*-1.3*	*3.3*	*0.7*	*5.7*	*3.3*	*8.8*	*4.5*

	2020 Q2	2020 Q1	2019 Q4	2019 Q3	2019 Q2	2019 Q1	2018 Q4	2018 Q3	2018 Q2	2018 Q1	2017 Q4	2017 Q3
Total Fund	10.7	-11.3	4.6	0.2	3.1	6.8	-6.4	2.3	0.3	-0.1	3.0	3.2
Policy Index	*10.1*	*-11.1*	*4.6*	*0.8*	*3.0*	*7.0*	*-5.5*	*2.2*	*0.7*	*-0.1*	*3.2*	*3.1*

	2017 Q2	2017 Q1	2016 Q4	2016 Q3	2016 Q2	2016 Q1	2015 Q4	2015 Q3	2015 Q2	2015 Q1	2014 Q4	2014 Q3
Total Fund	2.7	4.2	0.8	3.5	1.9	1.1	2.2	-5.4	0.7	2.4	0.8	-1.5
Policy Index	*2.8*	*3.5*	*0.5*	*2.9*	*2.2*	*1.8*	*1.4*	*-4.9*	*0.4*	*2.0*	*0.4*	*-1.4*

Performance Return Calculations

Performance is calculated using a Time Weighted Rates of Return (TWRR) methodology. Monthly returns are linked geometrically and annualized for periods longer than one year.

Data Source

Verus is an independent third party consulting firm and calculates returns from best source book of record data. Returns calculated by Verus may deviate from those shown by the manager in part, but not limited to, differences in prices and market values reported by the custodian and manager, as well as significant cash flows into or out of an account. It is the responsibility of the manager and custodian to provide insight into the pricing methodologies and any difference in valuation.

Illiquid Alternatives

Due to the inability to receive final valuation prior to report production, closed end funds (including but are not limited to Real Estate, Hedge Funds, Private Equity, and Private Credit) performance is typically reported at a one-quarter lag. Valuation is reported at a one-quarter lag, adjusted for current quarter flow (cash flows are captured real time). Closed end fund performance is calculated using a time-weighted return methodology consistent with all portfolio and total fund performance calculations. For Private Markets, performance reports also include Verus-calculated multiples based on flows and valuations (e.g. DPI and TVPI) and manager-provided IRRs.

Manager Line Up

Investment Fund or Strategy	Fund Incepted	Data Source
AB Emerging Markets Strategic Core	11/3/2016	Northern Trust
AB US Small Cap Value Equity	7/7/2015	Northern Trust
Abbott Capital PE VI	3/31/2008	Abbott Capital
American Century Non-US Small Cap	12/15/2020	American Century
Aristeia International Limited	5/1/2014	Northern Trust
ASB Real Estate	9/30/2013	ASB
Barclays Capital Aggregate Rebalancing Overlay	6/15/2022	Parametric
BlackRock Short Duration Fund	9/8/2021	BlackRock
Blue Torch Credit Opportunities	7/24/2020	Blue Torch
Brevan Howard	11/1/2013	Northern Trust
Brighton Private Equity	3/28/2021	Brighton
Brighton Park Capital Fund II, L.P	9/30/2022	Brighton
Brookfield Real Estate Finance Fund V	12/18/2017	Northern Trust
Cevian Capital II	12/30/2014	Northern Trust
DC Value Recovery fund IV	12/28/2015	Colony
Covenant Apartment Fund X	10/29/2020	Covenant
DB Investors Fund IV	1/29/2020	DB
D.E. Shaw	6/30/2013	Northern Trust
DFA Emerging Markets Value I	3/7/2014	Northern Trust
Fortress Credit Opportunities	12/17/2020	Fortress
Fortress Lending Fund II	3/15/2021	Fortress
Garda Fixed Income Relative Value Opp	9/30/2021	Garda
Geneva Capital Small Cap Growth	7/22/2015	Geneva
Gresham MTAP Commodity	9/3/2013	Gresham
Harvest Midstream	9/28/2020	Harvest Midstream
HBK Fund II	11/1/2013	Northern Trust
Henderson Smallcap Growth	7/22/2015	Northern Trust
H.I.G Bayside Loan Opportunities Fund V	7/24/2019	H.I.G. Capital
Hudson Bay	6/7/2019	Northern Trust
Indus Pacific Opportunities	6/30/2014	Northern Trust
Invesco Real Estate III	6/30/2013	Invesco
Invesco Real Estate IV	12/18/2015	Invesco
J.P. Morgan Strategic Property	7/2/2014	J.P. Morgan
KSL Capital Partners VI	4/26/2023	KSL Capital
Landmark Real Estate Partners VIII	4/29/2018	Landmark
LBA Logistics Value Fund IX, L.P.	2/22/2022	LBA
Level Equity Growth Partners V	11/1/2021	Level Equity
Level Equity Opportunities Fund 2021	11/1/2021	Level Equity
LGT Crown	2/1/2021	LGT
Linden Capital Partners V LP	7/19/2022	Linden
Linden Co-Investment V LP	6/30/2022	Linden
Long Wharf Real Estate	6/27/2019	Long Wharf
Magnetar Constellation	11/14/2018	Magnetar
Magnetar Structured Credit	5/1/2014	Magnetar
Mellon Aggregate Bond Index Fund	1/14/2011	Mellon
Mellon EB DV Stock Index	10/18/2017	Mellon
Mellon EB DV World ex-US Index	8/1/2018	Mellon
Myriad Opportunities Offshore	5/19/2016	Northern Trust
OrbiMed Royalty & Credit Opportunities	9/12/2022	OrbiMed
Pantheon Global III	6/30/2000	Pantheon
Pantheon USA III	3/31/2007	Pantheon
Pantheon USA V	6/30/2005	Pantheon
Pantheon USA VI	3/31/2005	Pantheon
Pantheon USA VII	3/31/2005	Pantheon
Parametric Overlay/ Cap Efficiency Program	7/31/2020	Parametric
Peak Rock Capital Fund III	7/13/2021	Peak Rock
PIMCO Commodity Alpha	5/4/2016	PIMCO
PIMCO Core Plus	1/21/2011	Northern Trust
PIMCO EMD	2/29/2020	Northern Trust
PIMCO Midstream	10/9/2020	PIMCO
PIMCO StocksPLUS	7/14/2003	PIMCO
Fidelity Non-US Small Cap Equity	6/10/2008	Northern Trust
River Birch	8/3/2015	Northern Trust
Rubicon Technology Partners IV LP	11/30/2022	Rubicon
Singerman Real Estate Opportunity Fund IV	10/27/2021	Singerman
Sculptor Enhanced Domestic Partners	3/26/2019	Sculptor
Short Term Cash Account	12/31/2000	Northern Trust
Short Term Investment Funds	6/30/2000	Northern Trust
Stone Harbor Emerging Markets Debt	8/8/2012	Stone Harbor
TAO Contingent	4/16/2020	TPG Sixth Street
TCW Securitized Opportunities	2/3/2016	TCW
Transition Equity	9/30/2010	Northern Trust
Transition Fixed Income	9/30/2010	Northern Trust
TSSP Adjacent Opportunities Partners	11/17/2017	TPG Sixth Street
Vista Equity Partners	7/24/2020	Vista Equity
Warren Equity III	4/1/2021	Warren
Warren Equity IV	1/1/2023	Warren
Wellington Alternative Investments	2/9/2023	Wellington
Western Asset Core Plus	5/31/2004	Northern Trust
Western Asset High Yield Fixed income	5/31/2005	Northern Trust

Policy & Custom Index Composition	
Policy Index: 4/1/2022-Present	37% MSCI ACWI IMI (Net), 14% Bloomberg US Aggregate, 6% Ice BofA ML High Yield Master II Index, 2% JPM Emerging Markets Bond Index Global Diversified, 2% JPM Government Bond Index-Emerging Markets Global Diversified, 4% Bloomberg Commodity Index, 7.5% 3-Month T-bill +4%, 2.5% MSCI ACWI (Net), 8% 91 Day T-Bill + 4%, 5% NCREIF-ODCE Gross Monthly, 5% actual time-weighted Private Equity Returns*, 5% actual time-weighted Private Credit Returns*, 5% actual time-weighted Private Real Estate Returns*, 5% Alerian Midstream, 0% Assumed Rate of Return +3%, -8% 3-Month T-bill.
Policy Index: 7/1/2021-4/1/2022	37% MSCI ACWI IMI, 14% Bloomberg US Aggregate, 6% Ice BofA ML High Yield Master II Index, 2% JPM Emerging Markets Bond Index Global Diversified, 2% JPM Government Bond Index-Emerging Markets, 4% Bloomberg Commodity Index, 7.5% 3-Month T-bill +400bps, 2.5% MSCI ACWI, 5% NCREIF-ODCE, 2% actual time-weighted Private Equity Returns*, 4% actual time-weighted Private Credit Returns*, 1% actual time-weighted Private Real Estate Returns*, 3% MSCI ACWI*, 1% Bloomberg US Aggregate*, 4% Bloomberg US Aggregate, 5% Alerian Midstream, 5% 3-Month T-bill +400bps, 91 Day T-Bills, -5% 3-Month T-bill.
Policy Index: 1/1/2021-6/30/2021	37% MSCI ACWI IMI, 14% Bloomberg US Aggregate, 6% Ice BofA ML High Yield Master II Index, 2% JPM Emerging Markets Bond Index Global Diversified, 2% JPM Government Bond Index-Emerging Markets, 4% Bloomberg Commodity Index, 7.5% 3-Month T-bill +400bps, 2.5% MSCI ACWI, 5% NCREIF-ODCE, 1% actual time-weighted Private Equity Returns*, 4% actual time-weighted Private Credit Returns*, 1% actual time-weighted Private Real Estate Returns*, 4% MSCI ACWI*, 1% Bloomberg US Aggregate*, 4% Bloomberg US Aggregate, 5% Alerian Midstream, 5% 3-Month T-bill +400bps, 91 Day T-Bills, -5% 3-Month T-bill.
Policy Index: 7/1/2020-12/31/2020	37% MSCI ACWI IMI, 14% Bloomberg US Aggregate, 6% Ice BofA ML High Yield Master II Index, 2% JPM Emerging Markets Bond Index Global Diversified, 2% JPM Government Bond Index-Emerging Markets, 4% Bloomberg Commodity Index, 7.5% 3-Month T-bill +400bps, 2.5% MSCI ACWI, 5% NCREIF-ODCE, 1% actual time-weighted Private Equity Returns*, 4% actual time-weighted Private Credit Returns*, 1% actual time-weighted Private Real Estate Returns*, 4% MSCI ACWI*, 5% Bloomberg US Aggregate, 1% Alerian Midstream, 4% Bloomberg US Aggregate
Policy Index: 4/1/2020-6/30/2020	37% MSCI ACWI IMI, 19% Bloomberg US Aggregate, 6% Ice BofA ML High Yield Master II Index, 2% JPM Emerging Markets Bond Index Global Diversified, 2% JPM Government Bond Index-Emerging Markets, 4% Bloomberg Commodity Index, 7.5% 3-Month T-bill +400bps, 2.5% MSCI ACWI, 5% NCREIF-ODCE, 1% actual time-weighted Private Equity Returns*, 4% actual time-weighted Private Credit Returns*, 1% actual time-weighted Private Real Estate Returns*, 3% MSCI ACWI*, 5% Bloomberg US Aggregate*.
Policy Index: 1/1/2020-3/31/2020	37% MSCI ACWI IMI, 19% Bloomberg US Aggregate, 6% Ice BofA ML High Yield Master II Index, 2% JPM Emerging Markets Bond Index Global Diversified, 2% JPM Government Bond Index-Emerging Markets, 4% Bloomberg Commodity Index, 7.5% 3-Month T-bill +400bps, 2.5% MSCI ACWI, 5% NCREIF-ODCE, 2% actual time-weighted Private Equity Returns*, 4% actual time-weighted Private Credit Returns*, 1% actual time-weighted Private Real Estate Returns*, 3% MSCI ACWI*, 5% Bloomberg US Aggregate*.
Policy Index: 10/1/2019-12/31/2019	37% MSCI ACWI IMI, 19% Bloomberg US Aggregate, 6% Ice BofA ML High Yield Master II Index, 2% JPM Emerging Markets Bond Index Global Diversified, 2% JPM Government Bond Index-Emerging Markets, 4% Bloomberg Commodity Index, 7.5% 3-Month T-bill +400bps, 2.5% MSCI ACWI, 5% NCREIF-ODCE, 2% actual time-weighted Private Equity Returns*, 3% actual time-weighted Private Credit Returns*, 1% actual time-weighted Private Real Estate Returns*, 3% MSCI ACWI*, 6% Bloomberg US Aggregate*.
Policy Index: 7/1/2019-9/30/2019	37% MSCI ACWI IMI, 19% Bloomberg US Aggregate, 6% Ice BofA ML High Yield Master II Index, 2% JPM Emerging Markets Bond Index Global Diversified, 2% JPM Government Bond Index-Emerging Markets, 4% Bloomberg Commodity Index, 7.5% 3-Month T-bill +400bps, 2.5% MSCI ACWI, 5% NCREIF-ODCE, 2% actual time-weighted Private Equity Returns*, 4% actual time-weighted Private Credit Returns*, 1% actual time-weighted Private Real Estate Returns*, 3% MSCI ACWI*, 5% Bloomberg US Aggregate*.
Policy Index: 4/1/2019-6/30/2019	37% MSCI ACWI IMI, 19% Bloomberg US Aggregate, 6% Ice BofA ML High Yield Master II Index, 2% JPM Emerging Markets Bond Index Global Diversified, 2% JPM Government Bond Index-Emerging Markets, 4% Bloomberg Commodity Index, 7.5% 3-Month T-bill +400bps, 2.5% MSCI ACWI, 5% NCREIF-ODCE, 2% actual time-weighted Private Equity Returns*, 3% actual time-weighted Private Credit Returns*, 1% actual time-weighted Private Real Estate Returns*, 3% MSCI ACWI*, 6% Bloomberg US Aggregate*.
Policy Index: 1/1/2019-3/31/2019	37% MSCI ACWI IMI, 19% Bloomberg US Aggregate, 6% Ice BofA ML High Yield Master II Index, 2% JPM Emerging Markets Bond Index Global Diversified, 2% JPM Government Bond Index-Emerging Markets, 4% Bloomberg Commodity Index, 7.5% 3-Month T-bill +400bps, 2.5% MSCI ACWI, 5% NCREIF-ODCE, 2% actual time-weighted Private Equity Returns*, 3% actual time-weighted Private Credit Returns*, 2% actual time-weighted Private Real Estate Returns*, 3% MSCI ACWI*, 5% Bloomberg US Aggregate*.
Policy Index: 10/1/2018-12/31/2018	37% MSCI ACWI IMI, 19% Bloomberg US Aggregate, 6% Ice BofA ML High Yield Master II Index, 2% JPM Emerging Markets Bond Index Global Diversified, 2% JPM Government Bond Index-Emerging Markets, 4% Bloomberg Commodity Index, 7.5% 3-Month T-bill +400bps, 2.5% MSCI ACWI, 5% NCREIF-ODCE, 2% actual time-weighted Private Equity Returns*, 2% actual time-weighted Private Credit Returns*, 2% actual time-weighted Private Real Estate Returns*, 3% MSCI ACWI*, 6% Bloomberg US Aggregate*.
Policy Index: 7/1/2018-9/30/2018	37% MSCI ACWI IMI, 19% Bloomberg US Aggregate, 6% Ice BofA ML High Yield Master II Index, 2% JPM Emerging Markets Bond Index Global Diversified, 2% JPM Government Bond Index-Emerging Markets, 4% Bloomberg Commodity Index, 7.5% 3-Month T-bill +400bps, 2.5% MSCI ACWI, 5% NCREIF-ODCE, 3% actual time-weighted Private Equity Returns*, 2% actual time-weighted Private Credit Returns*, 1% actual time-weighted Private Real Estate Returns*, 2% MSCI ACWI*, 7% Bloomberg US Aggregate*.
Policy Index: 1/1/2017- 6/30/2018	19% Russell 3000 Index, 18% MSCI ACWI ex US, 29% Bloomberg US Aggregate, 10% NCREIF-ODCE, 4% Bloomberg Commodity Index, 7.5% 91-day T-bills + 400bps, 2.5% MSCI ACWI, 5% Russell 3000 Index + 300 bps, 5% ICE BofA ML High Yield + 200 bps.
Policy Index: 4/1/2014-12/31/2016	23% Russell 3000 Index, 29% Bloomberg US Aggregate, 22% MSCI ACWI ex US,

Other Disclosures

*Private Asset actual weights, rounded to 1%, and actual time-weighted returns of Private Equity, Private Credit, Private Real Estate used in policy with the difference in weight versus target allocated to private market's public market "equivalent". Private Equity to Global Equity, Private Credit and Private Real Estate to Core Plus.

All data prior to 2Q 2011 has been provided by the investment managers.

Effective 1/1/2017, only traditional asset class (public equity, public fixed income, REITs) investment manager fees will be included in the gross of fee return calculation. Fiscal year end: 6/30.

Glossary

Allocation Effect: An attribution effect that describes the amount attributable to the managers' asset allocation decisions, relative to the benchmark.

Alpha: The excess return of a portfolio after adjusting for market risk. This excess return is attributable to the selection skill of the portfolio manager. Alpha is calculated as: Portfolio Return - [Risk-free Rate + Portfolio Beta x (Market Return - Risk-free Rate)].

Benchmark R-squared: Measures how well the Benchmark return series fits the manager's return series. The higher the Benchmark R-squared, the more appropriate the benchmark is for the manager.

Beta: A measure of systematic, or market risk; the part of risk in a portfolio or security that is attributable to general market movements. Beta is calculated by dividing the covariance of a security by the variance of the market.

Book-to-Market: The ratio of book value per share to market price per share. Growth managers typically have low book-to-market ratios while value managers typically have high book-to-market ratios.

Capture Ratio: A statistical measure of an investment manager's overall performance in up or down markets. The capture ratio is used to evaluate how well an investment manager performed relative to an index during periods when that index has risen (up market) or fallen (down market). The capture ratio is calculated by dividing the manager's returns by the returns of the index during the up/down market, and multiplying that factor by 100.

Correlation: A measure of the relative movement of returns of one security or asset class relative to another over time. A correlation of 1 means the returns of two securities move in lock step, a correlation of -1 means the returns of two securities move in the exact opposite direction over time. Correlation is used as a measure to help maximize the benefits of diversification when constructing an investment portfolio.

Excess Return: A measure of the difference in appreciation or depreciation in the price of an investment compared to its benchmark, over a given time period. This is usually expressed as a percentage and may be annualized over a number of years or represent a single period.

Information Ratio: A measure of a manager's ability to earn excess return without incurring additional risk. Information ratio is calculated as: excess return divided by tracking error.

Interaction Effect: An attribution effect that describes the portion of active management that is contributable to the cross interaction between the allocation and selection effect. This can also be explained as an effect that cannot be easily traced to a source.

Portfolio Turnover: The percentage of a portfolio that is sold and replaced (turned over) during a given time period. Low portfolio turnover is indicative of a buy and hold strategy while high portfolio turnover implies a more active form of management.

Price-to-Earnings Ratio (P/E): Also called the earnings multiplier, it is calculated by dividing the price of a company's stock into earnings per share. Growth managers typically hold stocks with high price-to-earnings ratios whereas value managers hold stocks with low price-to-earnings ratios.

R-Squared: Also called the coefficient of determination, it measures the amount of variation in one variable explained by variations in another, i.e., the goodness of fit to a benchmark. In the case of investments, the term is used to explain the amount of variation in a security or portfolio explained by movements in the market or the portfolio's benchmark.

Selection Effect: An attribution effect that describes the amount attributable to the managers' stock selection decisions, relative to the benchmark.

Sharpe Ratio: A measure of portfolio efficiency. The Sharpe Ratio indicates excess portfolio return for each unit of risk associated with achieving the excess return. The higher the Sharpe Ratio, the more efficient the portfolio. Sharpe ratio is calculated as: Portfolio Excess Return / Portfolio Standard Deviation.

Sortino Ratio: Measures the risk-adjusted return of an investment, portfolio, or strategy. It is a modification of the Sharpe Ratio, but penalizes only those returns falling below a specified benchmark. The Sortino Ratio uses downside deviation in the denominator rather than standard deviation, like the Sharpe Ratio.

Standard Deviation: A measure of volatility, or risk, inherent in a security or portfolio. The standard deviation of a series is a measure of the extent to which observations in the series differ from the arithmetic mean of the series. For example, if a security has an average annual rate of return of 10% and a standard deviation of 5%, then two-thirds of the time, one would expect to receive an annual rate of return between 5% and 15%.

Style Analysis: A return based analysis designed to identify combinations of passive investments to closely replicate the performance of funds

Style Map: A specialized form or scatter plot chart typically used to show where a Manager lies in relation to a set of style indices on a two-dimensional plane. This is simply a way of viewing the asset loadings in a different context. The coordinates are calculated by rescaling the asset loadings to range from -1 to 1 on each axis and are dependent on the Style Indices comprising the Map.

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