



Los Angeles County Employees Retirement Association

# Investments Division

## TOTAL FUND

## PERFORMANCE REPORT

For the quarter ended  
December 31, 2022



review

A large, semi-transparent, light blue word 'review' is overlaid across the bottom half of the page. The background is a photograph of a cityscape at dusk or night. The California State Capitol building is the central focus, illuminated with warm lights. The sky is a mix of purple, pink, and blue. Other buildings and trees are visible in the foreground and background.

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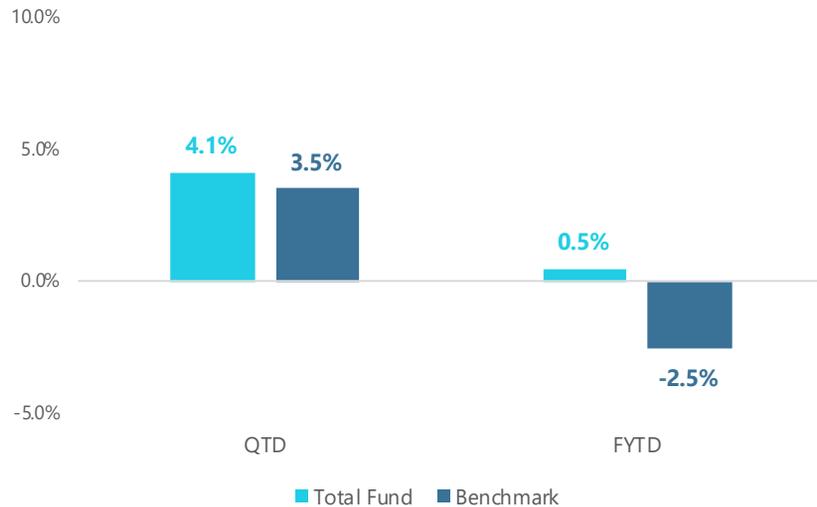
<b>01</b>	TOTAL FUND
<b>02</b>	GROWTH
<b>03</b>	CREDIT
<b>04</b>	REAL ASSETS & INFLATION HEDGES
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total fund

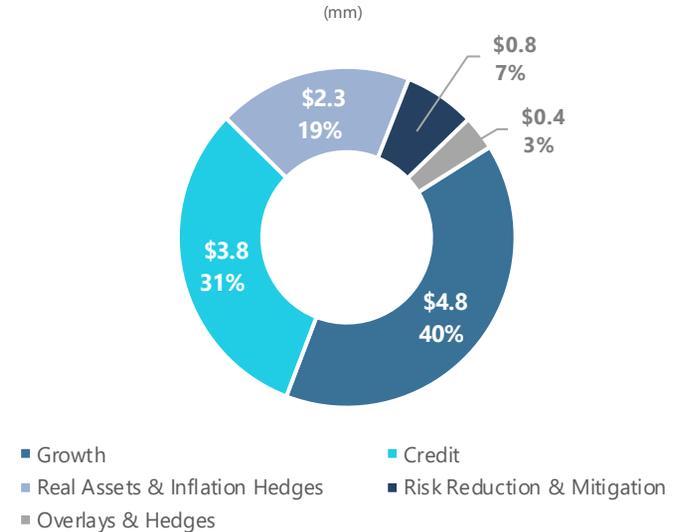
# Quarterly Snapshot

for the quarter ended December 31, 2022

## Performance (net)



## Public Markets Fees<sup>1</sup>



### Ending Market Value

70,079

↑ 4%  
from prior quarter

### Sharpe Ratio<sup>2</sup>

0.7

↓ -5%  
from prior quarter

### Batting Average<sup>3</sup>

56%

↑ 8%  
from prior quarter

### Standard Deviation<sup>2</sup>

9.6

↑ 3%  
from prior quarter

### Tracking Error<sup>2</sup>

2.6

↑ 8%  
from prior quarter

<sup>1</sup> Reflects estimated investment management fees. Additional details found in the appendix.

<sup>2</sup> 3 Year Annualized.

<sup>3</sup> Percentage of managers that outperformed the benchmark for the quarter.

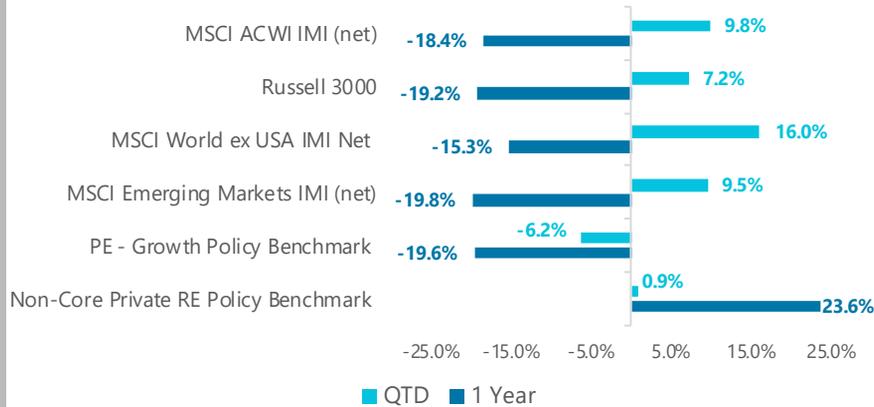
# Market Environment

for the quarter ended December 31, 2022

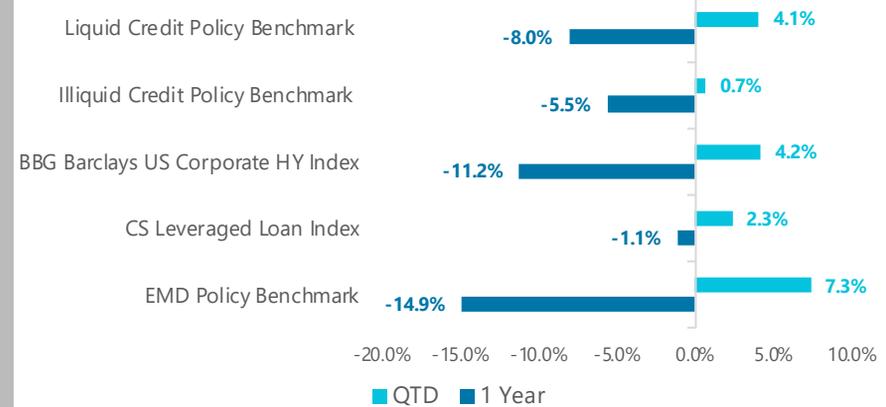


Los Angeles County Employees Retirement Association

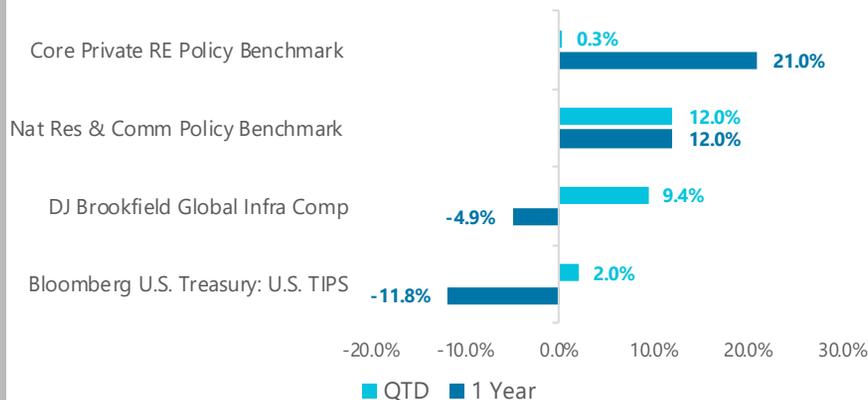
## Growth



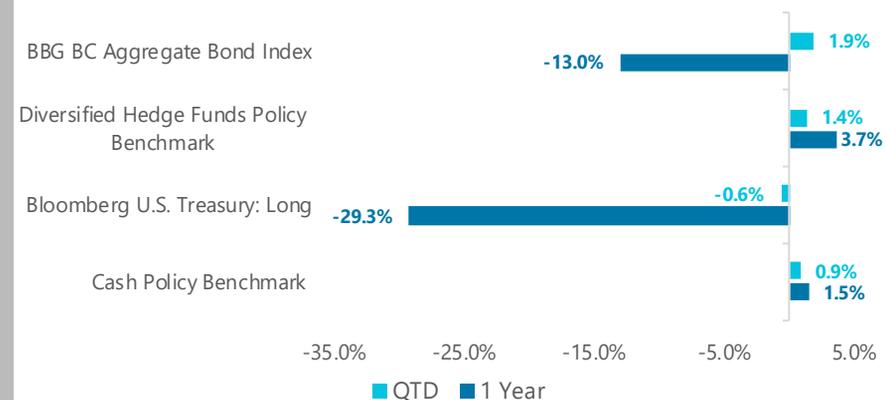
## Credit



## Real Assets & Inflation Hedges



## Risk Reduction & Mitigation



# Summary

for the quarter ended December 31, 2022



Los Angeles County Employees Retirement Association

## Performance (net)



	QTD	YTD	1 Year	3 Year	5 Year	10 Year	ITD
<b>Total Fund</b>	<b>4.1%</b>	<b>-5.6%</b>	<b>-5.6%</b>	<b>6.9%</b>	<b>6.7%</b>	<b>7.9%</b>	<b>8.5%</b>
Benchmark	3.5%	-10.9%	-10.9%	3.5%	5.1%	6.9%	--
Excess	0.6%	5.2%	5.2%	3.4%	1.6%	1.0%	--

	FY22	FY21	FY20	FY19	FY18
<b>Total Fund</b>	<b>0.1%</b>	<b>25.2%</b>	<b>1.8%</b>	<b>6.4%</b>	<b>9.0%</b>
Benchmark	-4.6%	23.1%	2.0%	8.6%	7.8%

## Cumulative Return



## Functional Category<sup>1</sup>

	QTD	FYTD	1 Year	3 Year
<b>Growth</b>	<b>6.0%</b>	<b>0.8%</b>	<b>-9.7%</b>	<b>10.0%</b>
Growth Policy Benchmark	4.0%	-4.8%	-17.0%	5.2%
Excess	2.1%	5.6%	7.3%	4.8%
<b>Credit</b>	<b>2.2%</b>	<b>1.6%</b>	<b>-5.5%</b>	<b>2.8%</b>
Credit Policy Benchmark	1.9%	1.0%	-7.4%	0.3%
Excess	0.3%	0.6%	1.9%	2.5%
<b>Real Assets &amp; Inflation Hedges</b>	<b>3.9%</b>	<b>1.7%</b>	<b>7.8%</b>	<b>8.1%</b>
RA & IH Policy Benchmark	5.4%	2.1%	6.4%	8.3%
Excess	-1.4%	-0.4%	1.4%	-0.2%
<b>Risk Reduction &amp; Mitigation</b>	<b>1.1%</b>	<b>-2.7%</b>	<b>-9.8%</b>	<b>-1.0%</b>
RR & M Policy Benchmark	1.1%	-2.9%	-11.0%	-1.9%
Excess	0.0%	0.3%	1.2%	0.9%
<b>Overlays &amp; Hedges</b>	<b>-10.6%</b>	<b>1.5%</b>	<b>178.0%</b>	<b>--</b>

<sup>1</sup> Cash Overlay composite returns reflect non-notionalized returns.

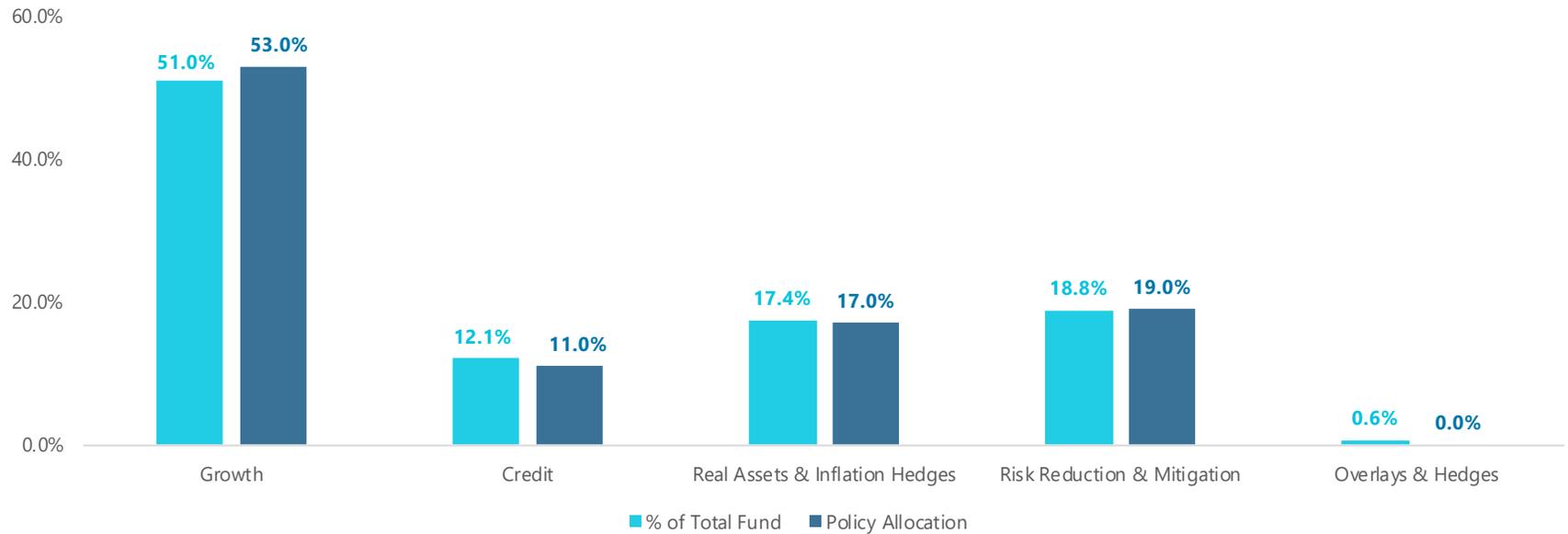
## Peer Ranking (gross)

	QTD	1 Year	3 Year	5 Year	10 Year					
<b>Total Fund</b>	<b>4.2%</b>	<b>52</b>	<b>-5.4%</b>	<b>13</b>	<b>7.3%</b>	<b>19</b>	<b>7.0%</b>	<b>24</b>	<b>8.2%</b>	<b>29</b>
60/40 Portfolio	6.7%	23	-16.0%	95	1.6%	86	3.3%	86	5.4%	89
S&P 500 Index	7.6%	10	-18.1%	100	7.7%	13	9.4%	4	12.6%	4
5th Percentile	9.4%		0.6%		9.6%		9.2%		9.8%	
25th Percentile	6.3%		-6.3%		7.0%		7.0%		8.6%	
50th Percentile	4.5%		-8.9%		6.1%		6.4%		7.8%	
75th Percentile	3.8%		-12.0%		4.4%		5.2%		7.1%	
95th Percentile	2.9%		-16.4%		-1.6%		1.1%		3.2%	

# Asset Allocation

for the quarter ended December 31, 2022

## Actual vs. Policy

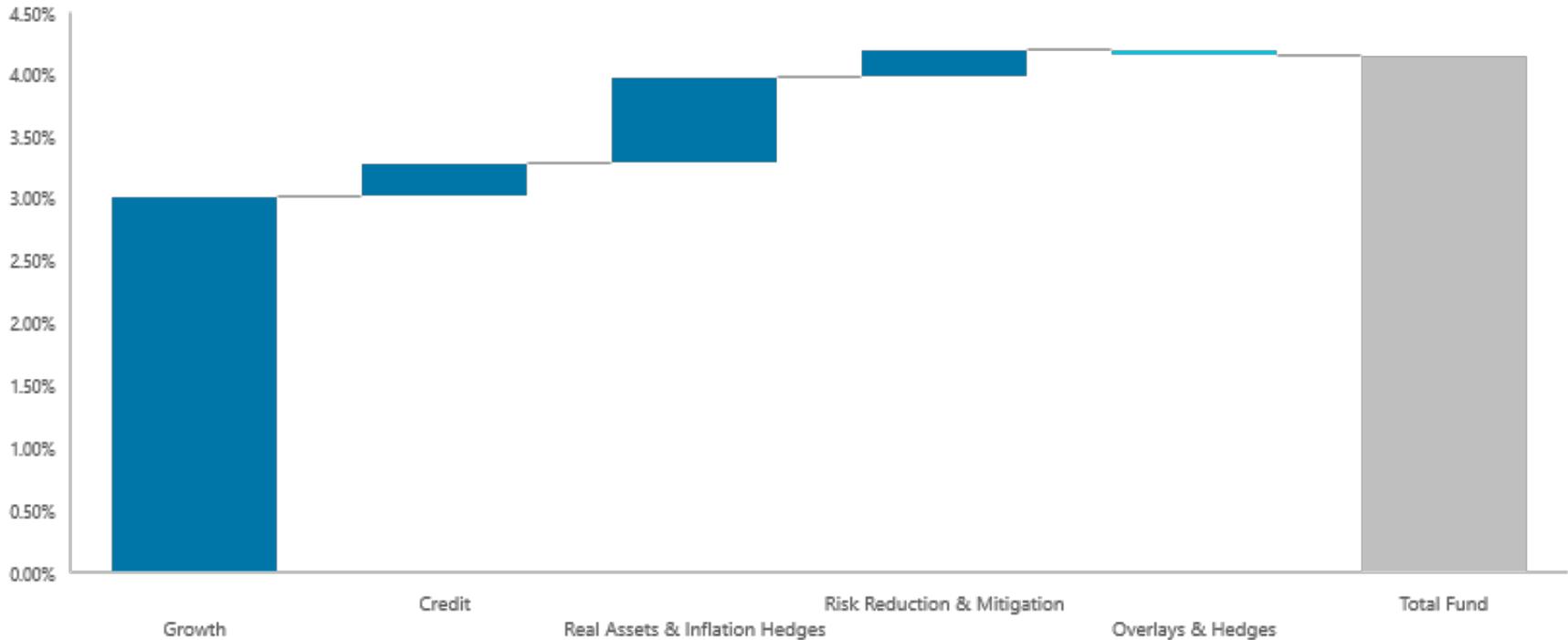


	Ending Market Value (mm)	% of Total Fund	Policy Allocation	Over/Under (%)	Over/Under (mm)
<b>Total Fund</b>	<b>70,079</b>	<b>100.0%</b>	<b>100.0%</b>		
Growth	35,773	51.0%	53.0%	-2.0%	-1,369
Credit	8,446	12.1%	11.0%	1.1%	737
Real Assets & Inflation Hedges	12,222	17.4%	17.0%	0.4%	309
Risk Reduction & Mitigation	13,202	18.8%	19.0%	-0.2%	-113
Overlays & Hedges	436	0.6%	0.0%	0.6%	436

# Contribution to Return

for the quarter ended December 31, 2022

## QTD Contribution to Return



Functional Category	Contributors	Detractors
Growth	3.02% BTC Passive Currency Hedge	2.12% BlackRock Long Treasury Bonds
Credit	0.26% SSGA MSCI ACWI IMI	1.93% Parametric GE Region
Real Assets & Inflation Hedges	0.70% JPMAM Strategic Beta US	0.41% Parametric RA & IH Overlay
Risk Reduction & Mitigation	0.21% DWS Infrastructure	0.33% Beach Point - Fund III
Overlays & Hedges	-0.05% Parametric Growth Overlay	0.25% Napier Park
<b>Total Fund</b>	<b>4.15%</b>	

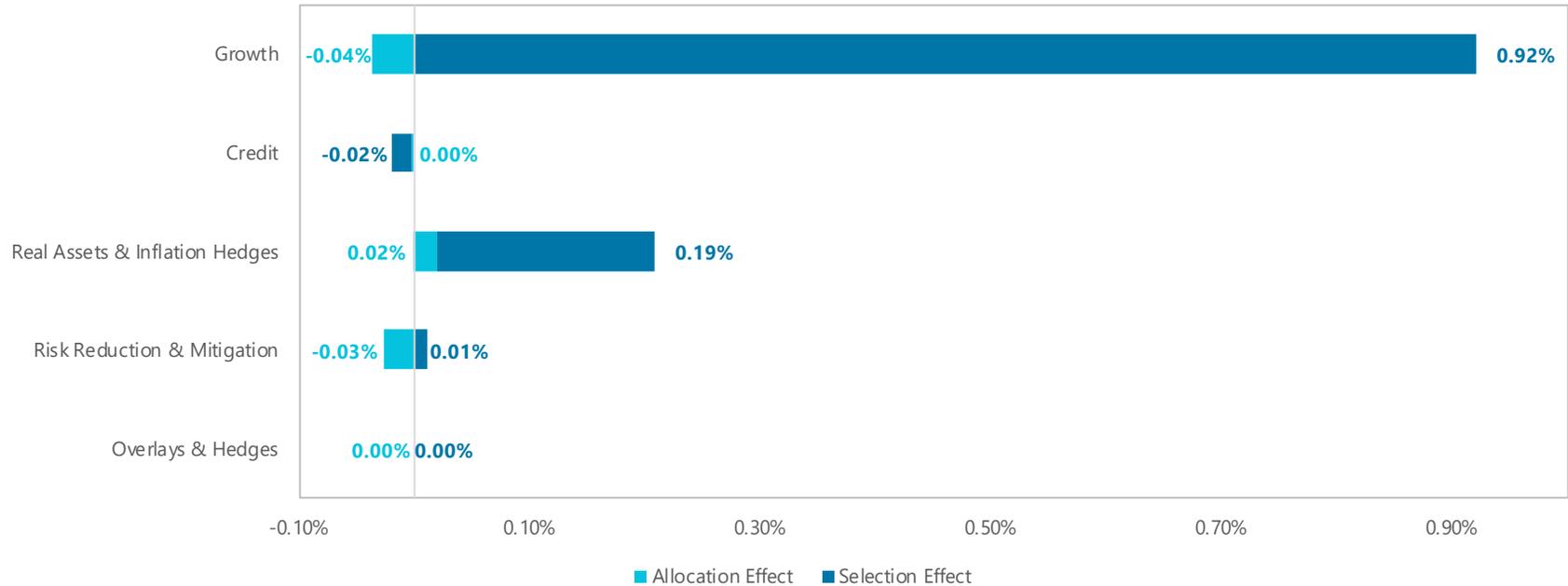
# Return Attribution

for the quarter ended December 31, 2022



Los Angeles County Employees Retirement Association

## QTD Performance Attribution<sup>1</sup>



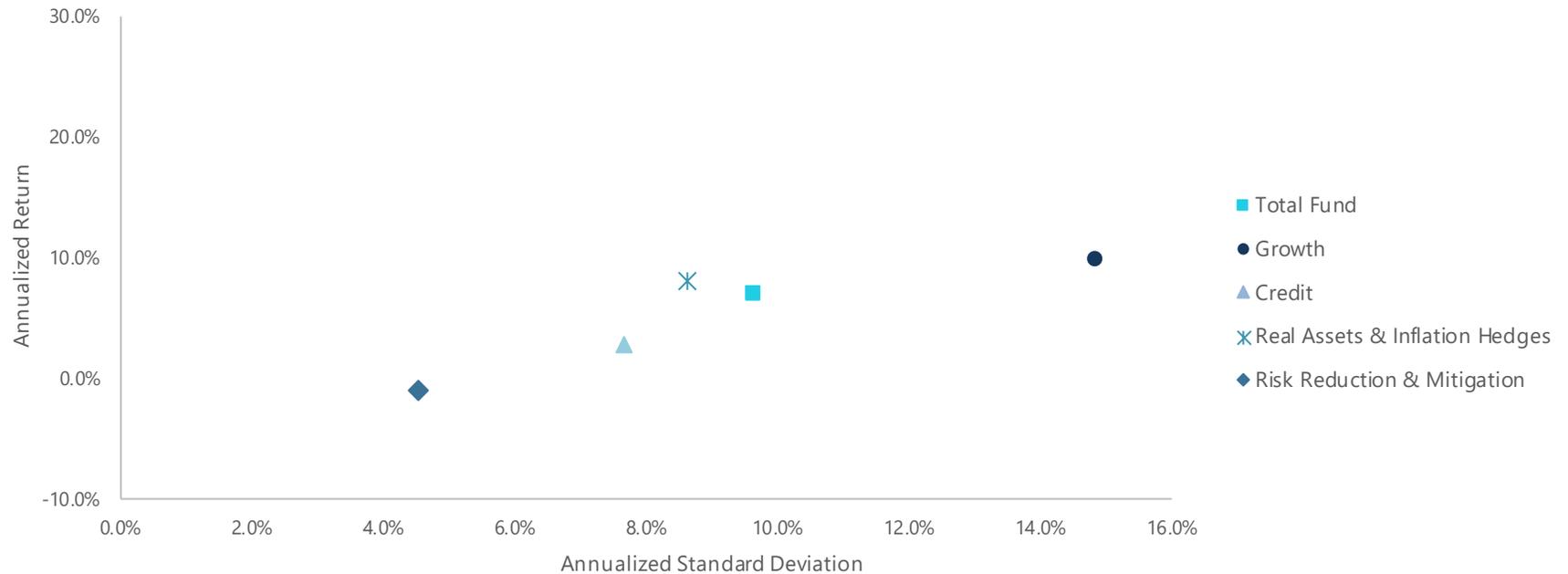
	Ending Market Value (mm)	% of Total Fund	Policy Allocation	Portfolio Return	Benchmark Return	Allocation Effect	Selection Effect	Total Value Add
<b>Total Fund</b>	<b>70,079</b>	<b>100.0%</b>	<b>100.0%</b>	<b>4.1%</b>	<b>3.5%</b>	<b>-0.08%</b>	<b>1.11%</b>	<b>0.64%</b>
Growth	35,773	51.0%	53.0%	6.0%	4.0%	-0.04%	0.92%	0.97%
Credit	8,446	12.1%	11.0%	2.2%	1.9%	0.00%	-0.02%	0.02%
Real Assets & Inflation Hedges	12,222	17.4%	17.0%	3.9%	5.4%	0.02%	0.19%	-0.24%
Risk Reduction & Mitigation	13,202	18.8%	19.0%	1.1%	1.1%	-0.03%	0.01%	-0.03%
Overlays & Hedges	436	0.6%	0.0%	-10.6%	--	--	--	--

<sup>1</sup> Total Value Add includes Interaction Effect.

# Risk vs. Return

for the quarter ended December 31, 2022

## 3 Year (Annualized)



	Annualized Return	Standard Deviation	Sharpe Ratio	Information Ratio	Beta	Tracking Error
<b>Total Fund</b>	<b>6.9%</b>	<b>9.6%</b>	<b>0.67</b>	<b>1.22</b>	<b>0.94</b>	<b>2.6%</b>
Growth	10.0%	14.8%	0.67	0.92	0.91	4.9%
Credit	2.8%	7.7%	0.33	0.73	0.95	3.6%
Real Assets & Inflation Hedges	8.1%	8.6%	0.88	(0.02)	0.90	2.6%
Risk Reduction & Mitigation	-1.0%	4.5%	(0.35)	1.06	0.93	0.9%
Overlays & Hedges	140.4%	62.4%				

# Performance Detail

for the quarter ended December 31, 2022



Los Angeles County Employees Retirement Association

## Annualized Net Returns<sup>1,2</sup>

	% of Total Fund	Ending Market Value (mm)	Prior Quarter Ending MV (mm)	QTD	YTD	1 Year	3 Year	5 Year	10 Year	ITD	Inception Date
<b>Total Fund</b>	<b>100.0%</b>	<b>70,079</b>	<b>67,616</b>	<b>4.1%</b>	<b>-5.6%</b>	<b>-5.6%</b>	<b>6.9%</b>	<b>6.7%</b>	<b>7.9%</b>	<b>8.5%</b>	<b>Dec-1988</b>
Total Fund Policy Benchmark				3.5%	-10.9%	-10.9%	3.5%	5.1%	6.9%	--	
<b>Growth</b>	<b>51.0%</b>	<b>35,773</b>	<b>33,535</b>	<b>6.0%</b>	<b>-9.7%</b>	<b>-9.7%</b>	<b>10.0%</b>	<b>--</b>	<b>--</b>	<b>11.3%</b>	<b>Apr-2019</b>
Growth Policy Benchmark				4.0%	-17.0%	-17.0%	5.2%	--	--	7.6%	
Global Equity	31.3%	21,969	19,936	10.0%	-17.5%	-17.5%	4.5%	--	--	7.0%	Apr-2019
Global Equity Policy Benchmark				9.8%	-18.4%	-18.4%	3.9%	--	--	6.4%	
Private Equity - Growth	18.2%	12,733	12,522	0.0%	5.7%	5.7%	22.8%	--	--	19.8%	Jan-2019
PE - Growth Policy Benchmark				-6.2%	-19.6%	-19.6%	5.7%	--	--	4.9%	
Non-Core Private Real Estate	1.5%	1,071	1,077	1.9%	20.5%	20.5%	15.3%	12.6%	11.9%	4.8%	Jan-1996
Non-Core Private RE Policy Benchmark				0.9%	23.6%	23.6%	14.3%	12.3%	13.1%	11.6%	
<b>Credit</b>	<b>12.1%</b>	<b>8,446</b>	<b>7,883</b>	<b>2.2%</b>	<b>-5.5%</b>	<b>-5.5%</b>	<b>2.8%</b>	<b>--</b>	<b>--</b>	<b>3.6%</b>	<b>Apr-2019</b>
Credit Policy Benchmark				1.9%	-7.4%	-7.4%	0.3%	--	--	2.0%	
Liquid Credit	6.7%	4,709	4,533	3.9%	-8.4%	-8.4%	--	--	--	-6.6%	Oct-2021
Liquid Credit Policy Benchmark				4.1%	-8.0%	-8.0%	--	--	--	-6.2%	
Illiquid Credit	5.3%	3,736	3,350	-0.1%	-0.8%	-0.8%	10.3%	--	--	9.3%	Apr-2019
Illiquid Credit Policy Benchmark				0.7%	-5.5%	-5.5%	1.5%	--	--	3.7%	
<b>Real Assets &amp; Inflation Hedges</b>	<b>17.4%</b>	<b>12,222</b>	<b>12,075</b>	<b>3.9%</b>	<b>7.8%</b>	<b>7.8%</b>	<b>8.1%</b>	<b>--</b>	<b>--</b>	<b>7.2%</b>	<b>Apr-2019</b>
RA & IH Policy Benchmark				5.4%	6.4%	6.4%	8.3%	--	--	8.0%	
Core Private Real Estate	6.2%	4,339	4,471	1.7%	23.7%	23.7%	11.3%	9.1%	9.1%	7.4%	Oct-1985
Core Private RE Policy Benchmark				0.3%	21.0%	21.0%	11.7%	9.7%	10.4%	7.2%	
Natural Resources & Commodities	3.2%	2,210	2,476	4.4%	12.3%	12.3%	11.8%	6.3%	-0.6%	-0.9%	Jul-2007
Nat Res & Comm Policy Benchmark				12.0%	12.0%	12.0%	12.9%	6.9%	-1.1%	-1.7%	
Infrastructure	5.4%	3,812	3,305	7.2%	-4.6%	-4.6%	4.9%	--	--	7.3%	Jun-2019
DJ Brookfield Global Infra Comp				9.4%	-4.9%	-4.9%	1.1%	--	--	3.5%	
TIPS	2.7%	1,861	1,823	2.1%	-11.9%	-11.9%	1.1%	--	--	2.2%	May-2019
Bloomberg U.S. Treasury: U.S. TIPS				2.0%	-11.8%	-11.8%	1.2%	--	--	2.3%	
<b>Risk Reduction &amp; Mitigation</b>	<b>18.8%</b>	<b>13,202</b>	<b>13,536</b>	<b>1.1%</b>	<b>-9.8%</b>	<b>-9.8%</b>	<b>-1.0%</b>	<b>--</b>	<b>--</b>	<b>0.6%</b>	<b>Apr-2019</b>
RR & M Policy Benchmark				1.1%	-11.0%	-11.0%	-1.9%	--	--	-0.2%	
Investment Grade Bonds	7.1%	5,003	5,292	1.8%	-13.1%	-13.1%	-2.6%	0.2%	1.5%	5.1%	Nov-1994
BBG BC Aggregate Bond Index				1.9%	-13.0%	-13.0%	-2.7%	0.0%	1.1%	4.6%	
Diversified Hedge Funds	6.3%	4,402	4,281	1.4%	5.8%	5.8%	7.3%	--	--	6.7%	Apr-2019
Diversified Hedge Funds Policy Benchmark				1.4%	3.7%	3.7%	3.2%	--	--	3.5%	
Long-Term Government Bonds	4.1%	2,857	2,874	-0.6%	-28.9%	-28.9%	--	--	--	-25.6%	Nov-2021
Bloomberg U.S. Treasury: Long				-0.6%	-29.3%	-29.3%	--	--	--	-26.8%	
Cash	1.3%	940	1,088	1.3%	3.2%	3.2%	1.7%	2.0%	1.3%	1.8%	Jun-2001
Cash Policy Benchmark				0.9%	1.5%	1.5%	0.7%	1.3%	0.8%	1.4%	
<b>Overlays &amp; Hedges</b>	<b>0.6%</b>	<b>436</b>	<b>587</b>	<b>-10.6%</b>	<b>178.0%</b>	<b>178.0%</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>140.4%</b>	<b>Oct-2021</b>
Cash Overlay	0.8%	591	424	39.4%	79.5%	79.5%	1.3%	--	--	-1.1%	Aug-2019
Total Overlay Policy BM				6.6%	-15.1%	-15.1%	2.4%	--	--	3.7%	
Currency Hedge	-0.2%	-155	163	-3.2%	4.7%	4.7%	--	--	--	4.2%	Oct-2021
50% FX Hedge Custom Benchmark				-3.2%	4.7%	4.7%	--	--	--	4.2%	

<sup>1</sup> Diversified Hedge Funds returns are net-of-all fees and expenses.

<sup>2</sup> Cash Overlay composite returns reflect non-notionalized returns.

growth

# Summary

for the quarter ended December 31, 2022

## Performance (net)



	QTD	YTD	1 Year	3 Year	5 Year	10 Year	ITD
<b>Growth</b>	<b>6.0%</b>	<b>-9.7%</b>	<b>-9.7%</b>	<b>10.0%</b>	--	--	<b>11.3%</b>
Benchmark	4.0%	-17.0%	-17.0%	5.2%	--	--	7.6%
Excess	2.1%	7.3%	7.3%	4.8%	--	--	3.7%

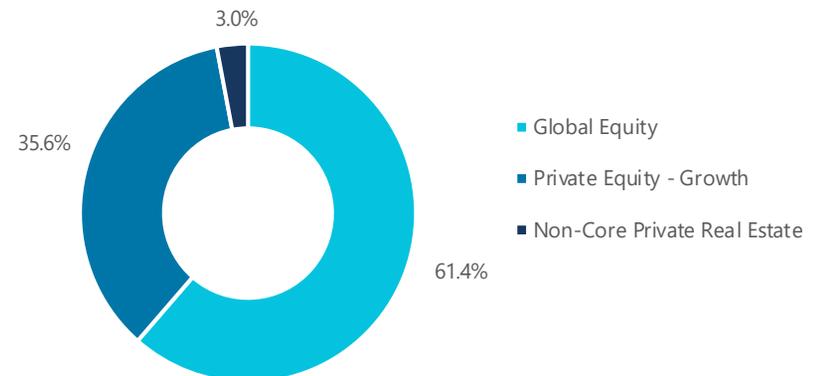
## Cumulative Return



## Functional Category

	QTD	FYTD	1 Year	3 Year
<b>Global Equity</b>	<b>10.0%</b>	<b>2.9%</b>	<b>-17.5%</b>	<b>4.5%</b>
Global Equity Policy Benchmark	9.8%	2.6%	-18.4%	3.9%
Excess	0.2%	0.3%	0.9%	0.6%
<b>Private Equity - Growth</b>	<b>0.0%</b>	<b>-3.2%</b>	<b>5.7%</b>	<b>22.8%</b>
PE - Growth Policy Benchmark	-6.2%	-20.6%	-19.6%	5.7%
Excess	6.2%	17.4%	25.2%	17.1%
<b>Non-Core Private Real Estate</b>	<b>1.9%</b>	<b>6.7%</b>	<b>20.5%</b>	<b>15.3%</b>
Non-Core Private RE Policy Benchmark	0.9%	6.0%	23.6%	14.3%
Excess	1.1%	0.7%	-3.1%	0.9%

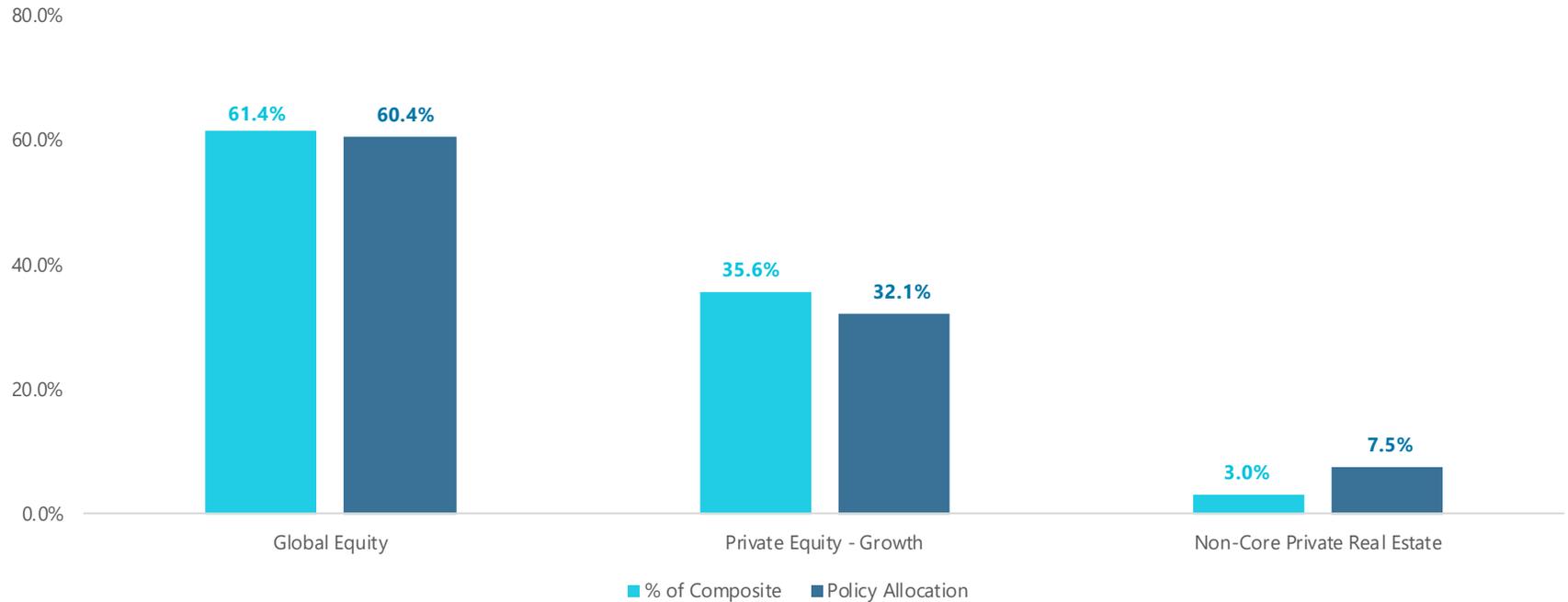
## Exposure



# Asset Allocation

for the quarter ended December 31, 2022

## Actual vs. Policy

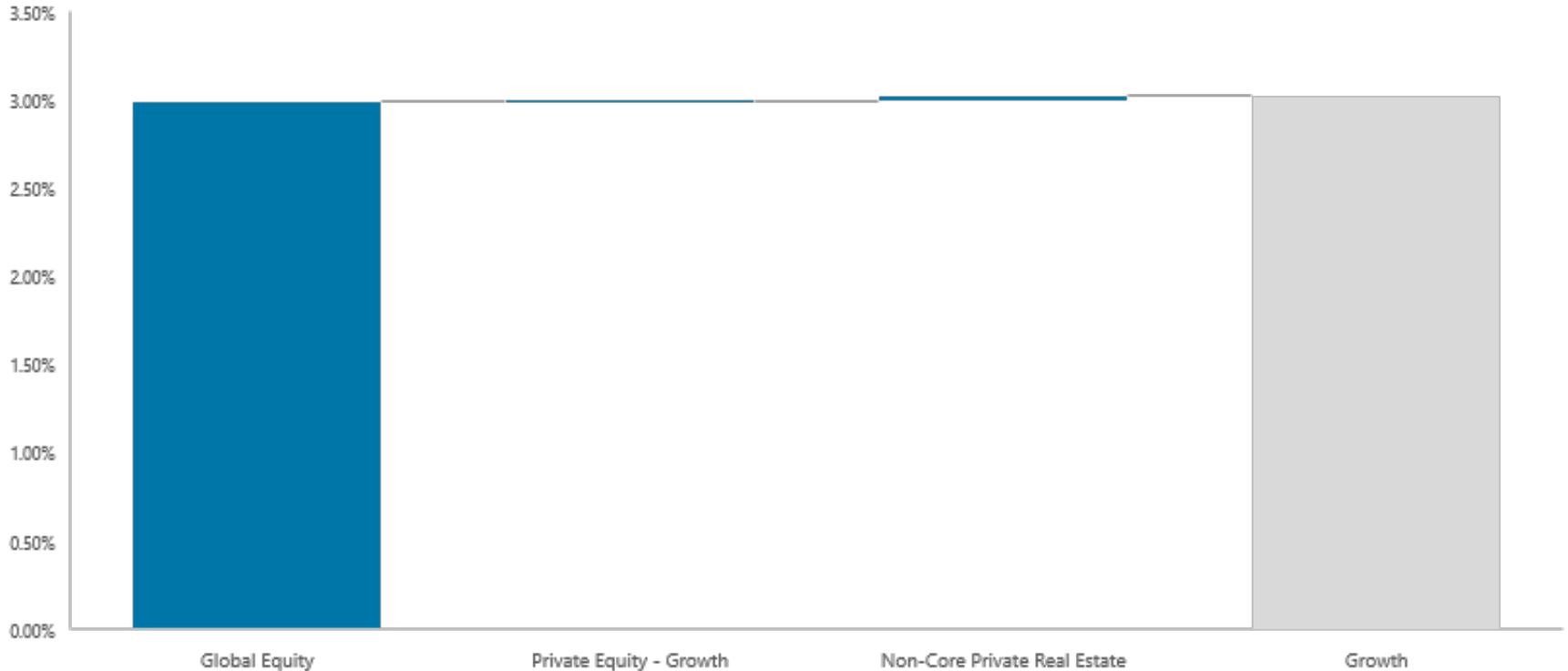


	Ending Market Value (mm)	% of Composite	Policy Allocation	Over / Under (%)	Over / Under (mm)
<b>Growth</b>	<b>35,773</b>	<b>100.0%</b>	<b>100.0%</b>		
Global Equity	21,969	61.4%	60.4%	1.0%	369
Private Equity - Growth	12,733	35.6%	32.1%	3.5%	1,256
Non-Core Private Real Estate	1,071	3.0%	7.5%	-4.5%	-1,626

# Contribution to Return

for the quarter ended December 31, 2022

## QTD Contribution to Return

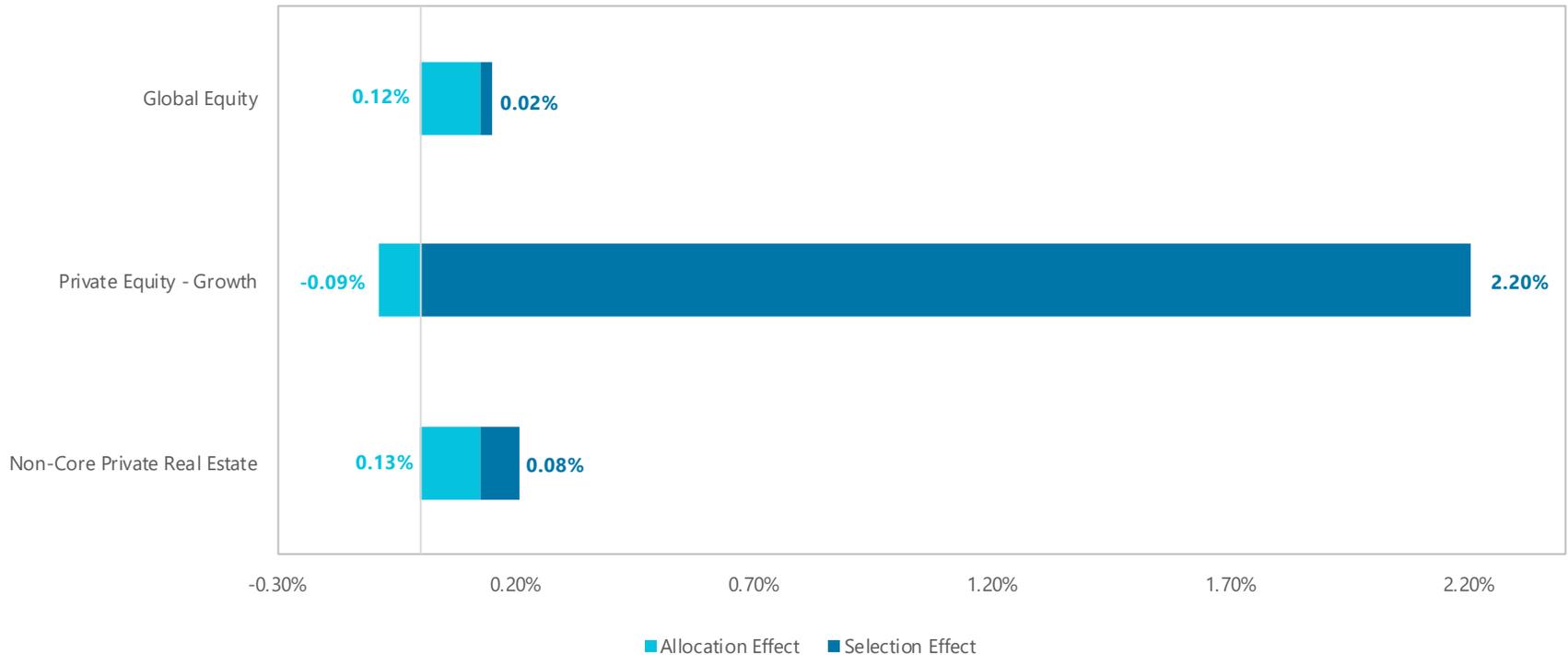


Functional Category	Contributors	Detractors
Global Equity	2.99% SSGA MSCI ACWI IMI	1.93% Parametric GE Region -0.02%
Private Equity - Growth	0.01% JPMAM Strategic Beta US	0.41% Parametric GE Market Cap -0.01%
Non-Core Private Real Estate	0.03% BTC Euro Tilts	0.12%
Growth	3.02% Acadian Developed Markets	0.11%
	JPMAM Strategic Beta Non-US	0.10%

# Return Attribution

for the quarter ended December 31, 2022

## QTD Performance Attribution<sup>1</sup>



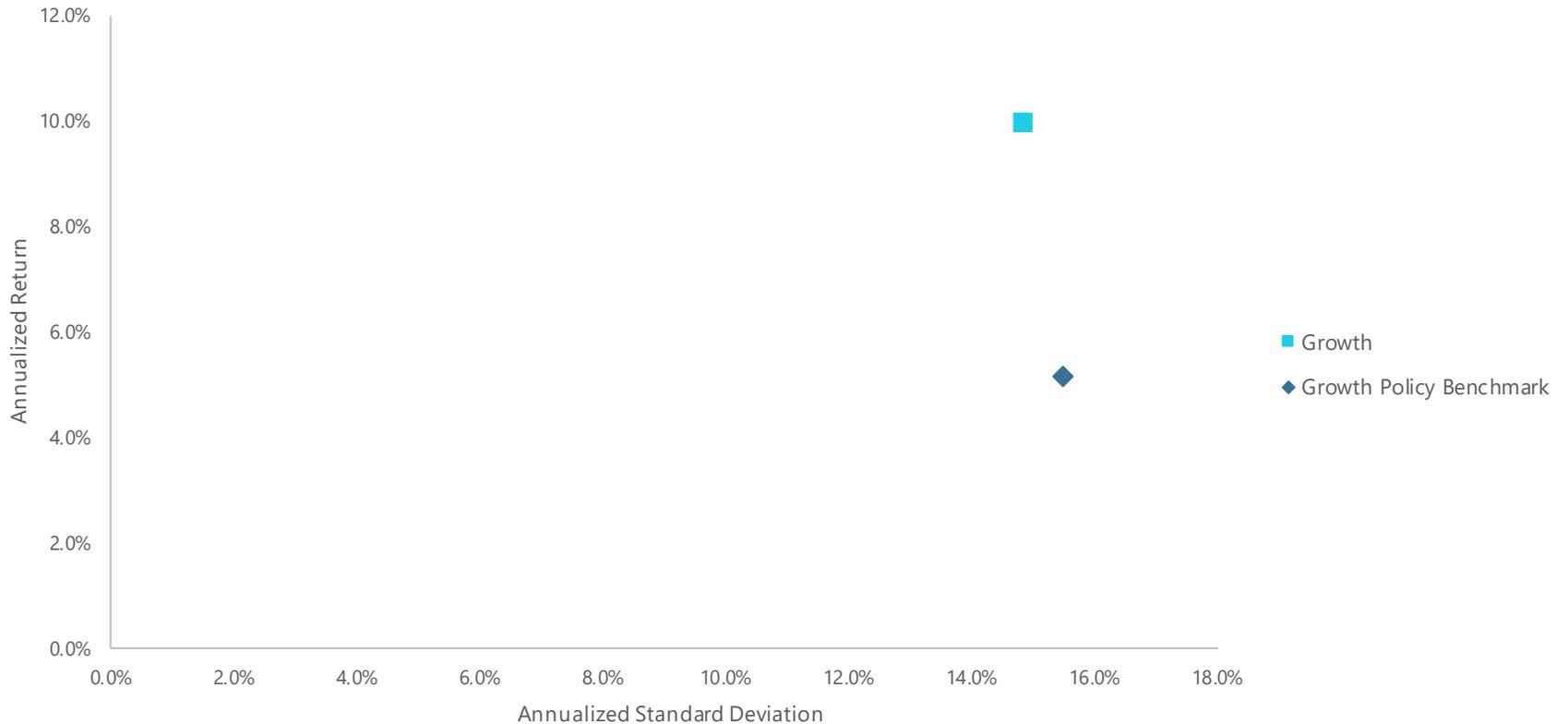
	Ending Market Value (mm)	% of Composite	Policy Allocation	Portfolio Return	Benchmark Return	Allocation Effect	Selection Effect	Total Value Add
<b>Growth</b>	<b>35,773</b>	<b>100.0%</b>	<b>100.0%</b>	<b>6.0%</b>	<b>4.0%</b>	<b>0.16%</b>	<b>2.31%</b>	<b>2.09%</b>
Global Equity	21,969	61.4%	60.4%	10.0%	9.8%	0.12%	0.02%	0.20%
Private Equity - Growth	12,733	35.6%	32.1%	0.0%	-6.2%	-0.09%	2.20%	1.73%
Non-Core Private Real Estate	1,071	3.0%	7.5%	1.9%	0.9%	0.13%	0.08%	0.16%

<sup>1</sup> Total Value Add includes Interaction Effect.

# Risk vs. Return

for the quarter ended December 31, 2022

## 3 Year (Annualized)



	Annualized Return	Standard Deviation	Sharpe Ratio	Information Ratio	Beta	Tracking Error
<b>Growth</b>	<b>10.0%</b>	<b>14.8%</b>				
Growth Policy Benchmark	5.2%	15.5%	0.67	0.92	0.91	4.9%

# Performance Detail

for the quarter ended December 31, 2022



Los Angeles County Employees Retirement Association

## Annualized Net Returns

	% of Composite	Ending Market Value (mm)	Prior Quarter Ending MV (mm)	QTD	YTD	1 Year	3 Year	5 Year	10 Year	ITD	Inception Date
<b>Growth</b>	<b>100.0%</b>	<b>35,773</b>	<b>33,535</b>	<b>6.0%</b>	<b>-9.7%</b>	<b>-9.7%</b>	<b>10.0%</b>	--	--	<b>11.3%</b>	<b>Apr-2019</b>
Growth Policy Benchmark				4.0%	-17.0%	-17.0%	5.2%	--	--	7.6%	
<b>Global Equity</b>	<b>61.4%</b>	<b>21,969</b>	<b>19,936</b>	<b>10.0%</b>	<b>-17.5%</b>	<b>-17.5%</b>	<b>4.5%</b>	--	--	<b>7.0%</b>	<b>Apr-2019</b>
Global Equity Policy Benchmark				9.8%	-18.4%	-18.4%	3.9%	--	--	6.4%	
<b>Passive</b>											
SSGA MSCI ACWI IMI	39.9%	14,270	12,667	10.1%	-17.9%	-17.9%	4.5%	--	--	4.5%	Jan-2020
<b>Factor Based</b>											
JPMAM Strategic Beta Non-US	1.5%	551	482	14.1%	-14.5%	-14.5%	--	--	--	4.5%	Aug-2020
JPMAM Strategic Beta US	11.2%	3,998	3,717	7.6%	-18.0%	-18.0%	--	--	--	11.1%	Jul-2020
<b>Active</b>											
Acadian Developed Markets	1.6%	560	488	14.7%	-15.0%	-15.0%	4.3%	3.0%	7.5%	4.3%	Apr-2006
BTC Euro Tilts	1.5%	528	444	18.8%	-12.7%	-12.7%	4.0%	2.8%	6.3%	3.3%	Jan-2007
Cevian Capital II - Activist	1.1%	398	364	9.5%	-3.6%	-3.6%	9.0%	5.6%	--	7.7%	Oct-2016
CGT International Equity	1.0%	364	310	17.5%	-23.4%	-23.4%	0.4%	3.3%	6.0%	5.2%	Nov-1994
Cornercap US Small Cap - EMP	0.2%	81	73	11.0%	-7.0%	-7.0%	9.1%	--	--	7.2%	Oct-2018
Frontier US SMID Growth	0.7%	256	231	11.1%	-17.9%	-17.9%	4.5%	4.9%	10.2%	9.7%	Jun-2002
Global Alpha	0.5%	166	144	15.1%	-19.2%	-19.2%	-0.8%	--	--	4.2%	Nov-2018
Jana JSI Fund V - Activist	0.0%	8	66	--	--	--	--	--	--	--	Oct-2016
Lazard Emerging Markets	1.0%	368	322	14.5%	-22.6%	-22.6%	-1.0%	0.3%	--	2.0%	Feb-2013
Parametric GE Market Cap	0.3%	100	112	-6.5%	-15.6%	-15.6%	--	--	--	0.9%	Oct-2021
Parametric GE Region	0.2%	89	117	-14.8%	-21.6%	-21.6%	--	--	--	-19.6%	Dec-2021
Systematic US Small Cap Value	0.5%	186	167	11.8%	-9.9%	-9.9%	7.0%	--	--	5.3%	Jul-2018
<b>Private Equity - Growth</b>	<b>35.6%</b>	<b>12,733</b>	<b>12,522</b>	<b>0.0%</b>	<b>5.7%</b>	<b>5.7%</b>	<b>22.8%</b>	--	--	<b>19.8%</b>	<b>Jan-2019</b>
PE - Growth Policy Benchmark				-6.2%	-19.6%	-19.6%	5.7%	--	--	4.9%	
<b>Non-Core Private Real Estate</b>	<b>3.0%</b>	<b>1,071</b>	<b>1,077</b>	<b>1.9%</b>	<b>20.5%</b>	<b>20.5%</b>	<b>15.3%</b>	<b>12.6%</b>	<b>11.9%</b>	<b>4.8%</b>	<b>Jan-1996</b>
Non-Core Private RE Policy Benchmark				0.9%	23.6%	23.6%	14.3%	12.3%	13.1%	11.6%	

# Growth Risk Summary

for the quarter ended December 31, 2022

## Risk Summary

	Value
<b>Total Risk</b>	<b>20.85</b>
Benchmark Risk	19.89
Active Risk	1.65
Portfolio Beta	1.05

## Risk Decomposition

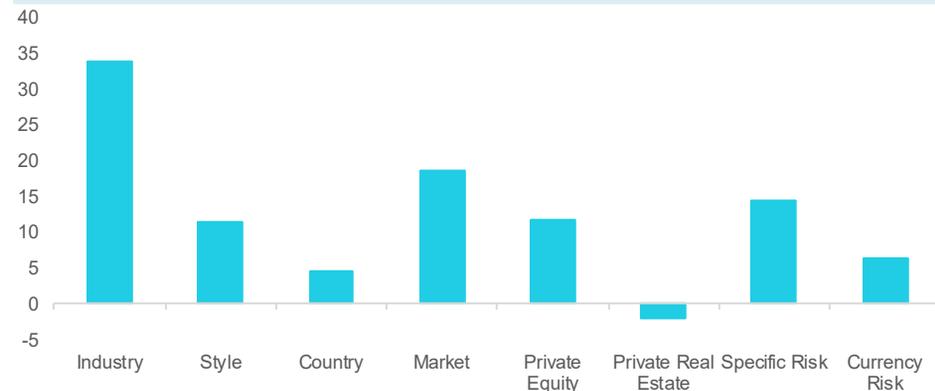
Risk Source	Portfolio		Active	
	Risk Contribution	%Risk	Risk Contribution	%Risk
<b>Total Risk</b>	<b>20.85</b>	<b>100.00</b>	<b>1.65</b>	<b>100.00</b>
Local Market Risk	19.79	94.94	1.54	93.50
Common Factor Risk	19.76	94.76	1.30	78.90
Specific Risk	0.04	0.17	0.24	14.61
Currency Risk	1.06	5.06	0.11	6.50

## Contribution to Risk



	Mkt Value (mm)	Weight%	Total Risk	Risk Contribution	%CR to TR
<b>Growth</b>	<b>35,193</b>	<b>100.00</b>	<b>20.85</b>	<b>20.85</b>	<b>100.00</b>
Global Equity	21,929	62.31	18.73	11.12	53.34
Private Equity	12,249	34.81	27.84	8.94	42.90
Non-Core Private Real Estate	1,015	2.88	43.72	0.78	3.76

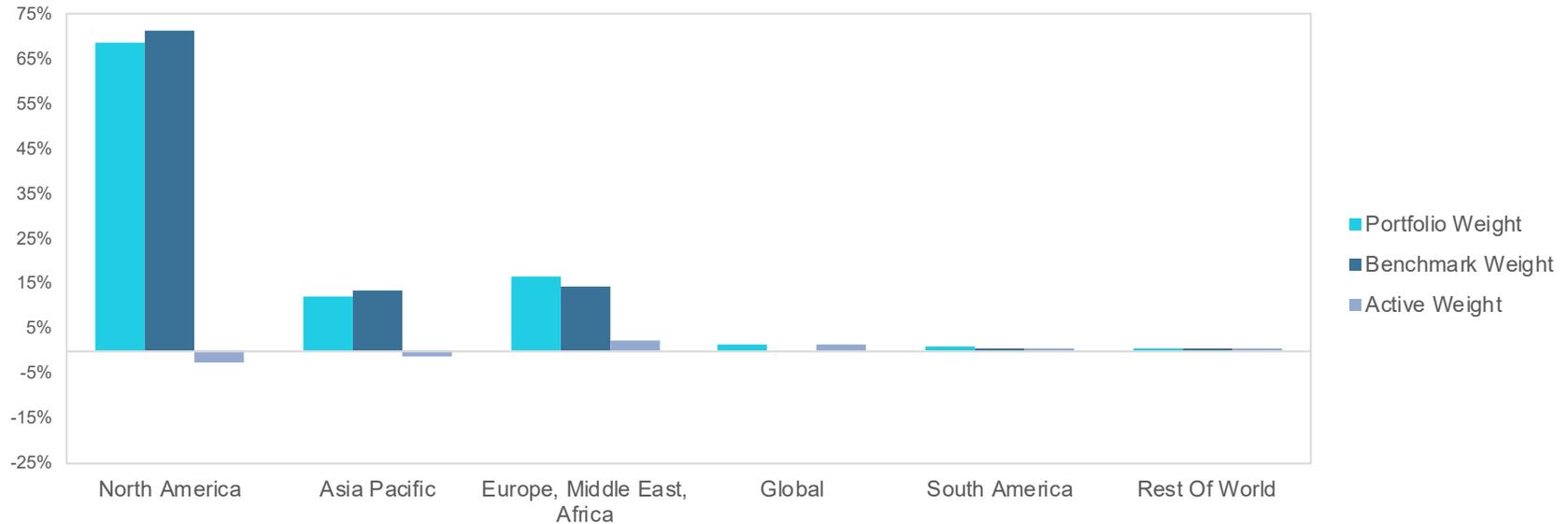
## Active Risk from Common Factors



# Growth Risk Summary

for the quarter ended December 31, 2022

## Portfolio Allocation By Region

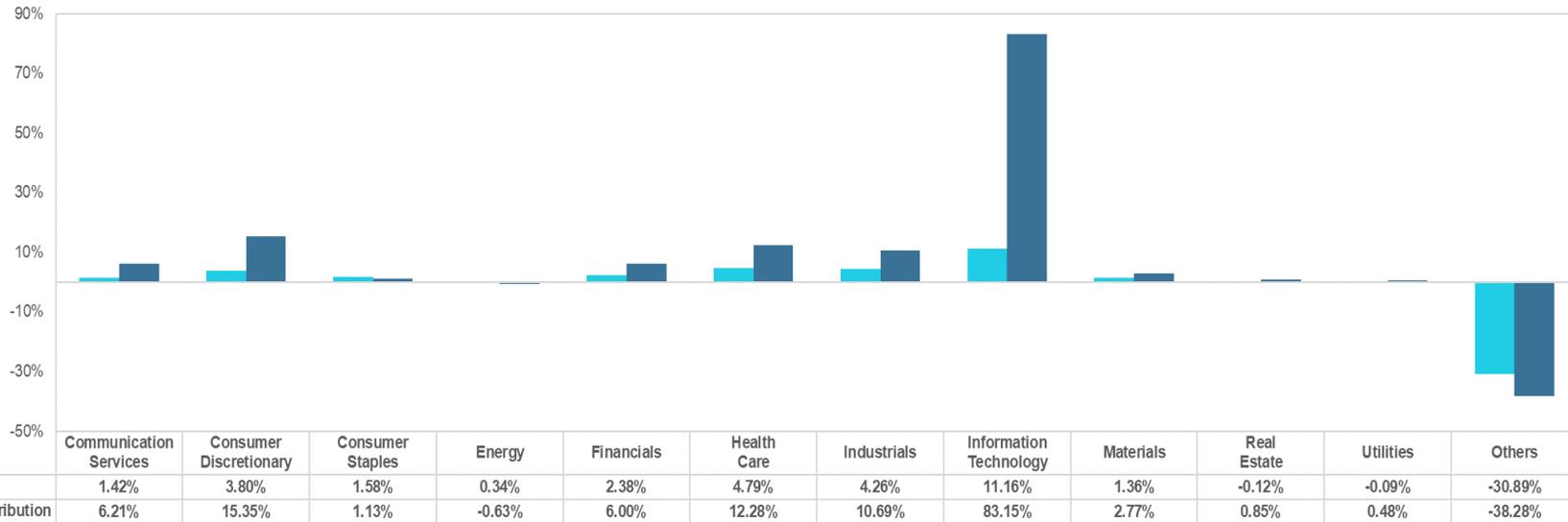


Region	Weight%			Total Risk	Active Risk CR	% of Active TR	MC to Total Tracking Error
	Portfolio	Benchmark	Active				
<b>Total Fund</b>	<b>100.00%</b>	<b>100.00%</b>	<b>0.00%</b>	<b>20.85</b>	<b>1.65</b>	<b>100.00</b>	<b>0.02</b>
North America	68.49%	71.24%	-2.75%	23.03	1.30	78.91	0.04
Asia Pacific	12.24%	13.56%	-1.31%	16.52	0.18	10.71	-0.04
Europe, Middle East, Africa	16.63%	14.41%	2.22%	21.95	0.17	10.23	0.02
Global	1.15%	0.00%	1.15%	20.97	-0.02	-1.27	-0.02
South America	1.13%	0.57%	0.56%	32.37	0.02	1.50	0.02
Rest Of World	0.36%	0.22%	0.14%	16.23	0.00	-0.09	-0.03

# Growth Risk Summary

for the quarter ended December 31, 2022

## Portfolio Allocation By GICS Sector



# Growth – Global Equity

## Acadian Developed Markets

for the quarter ended December 31, 2022

### Strategy

Seeks to capture mispriced opportunities through systematic stock, sector, and country valuation models that are customized to each market. The strategy may be suited to investors looking to gain exposure in non-U.S. developed markets and diversify portfolio through active quantitative investment approach.

Inception Date: April 2006

### Portfolio Characteristics

	Portfolio	Benchmark
Market Cap Wtd Average (mm)	44,970.5	74,022.6
No. Of Issues	655.0	0.0
Dividend Yield	4.9	3.3
Return on Equity	26.3	18.3
Price to Sales	2.9	3.0
Price to Book	3.7	4.4
PE Ratio	9.3	14.7

### Top Holdings (% of assets)

NOVO NORDISK A/S B	3.5%
ROCHE HOLDING AG GENUSSSCHEIN	2.9%
BHP GROUP LTD	2.2%
WOLTERS KLUWER	1.9%
JAPAN POST HOLDINGS CO LTD	1.6%
<b>Top 5 Holdings</b>	<b>12.1%</b>

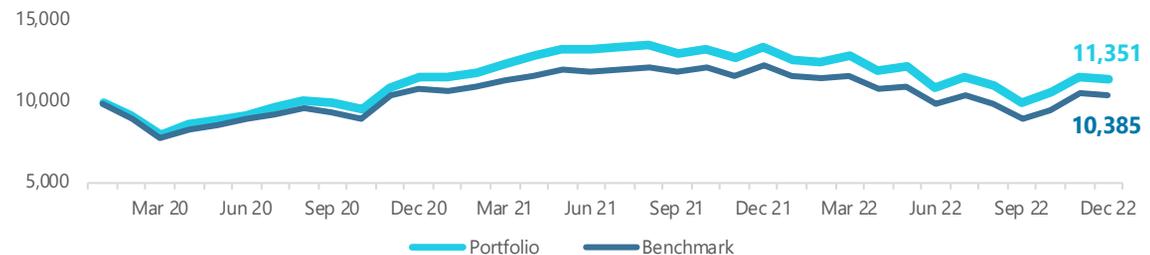
### Performance (net)<sup>1</sup>

	Ending Market Value (mm)	QTD	1 Year	3 Year	5 Year
<b>Acadian Developed Markets</b>	<b>560.2</b>	<b>14.7%</b>	<b>-15.0%</b>	<b>4.3%</b>	<b>3.0%</b>
MSCI EAFE + Canada Net Index		16.2%	-14.3%	1.3%	1.8%
Growth Policy Benchmark		4.0%	-17.0%	5.2%	--

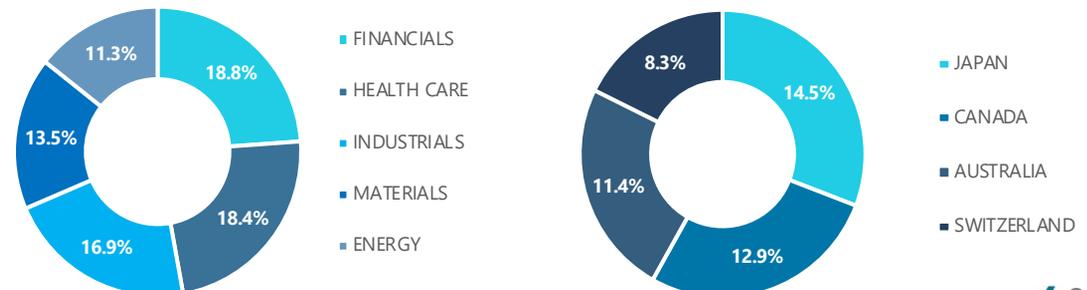
  

Universe data: Intl/Global Equity Funds - Core	QTD	Rank	1 Year	Rank	3 Year	Rank	5 Year	Rank
<b>Acadian Developed Markets</b>	<b>14.8%</b>	<b>17</b>	<b>-14.7%</b>	<b>36</b>	<b>4.7%</b>	<b>33</b>	<b>3.4%</b>	<b>50</b>
Median	12.4%		-16.1%		2.5%		3.3%	

### Growth of \$10,000



### Top Exposures (% of assets)<sup>2</sup>



<sup>1</sup> Universe data is gross-of-fees.

<sup>2</sup> Charts display top exposures and may not add up to 100%.

# Growth Risk Analysis – Global Equity

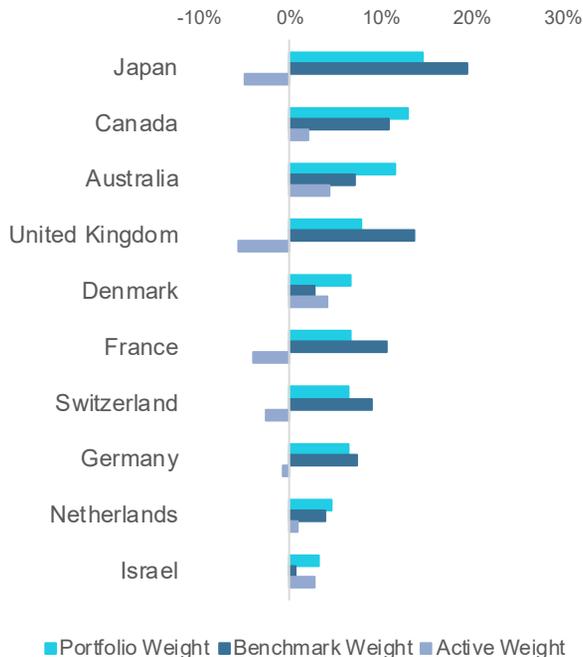
## Acadian Developed Markets

for the quarter ended December 31, 2022

### Portfolio Risk Summary

	Value
<b>Total Risk</b>	<b>19.14</b>
Benchmark Risk	18.33
Active Risk	4.73
Portfolio Beta	1.01

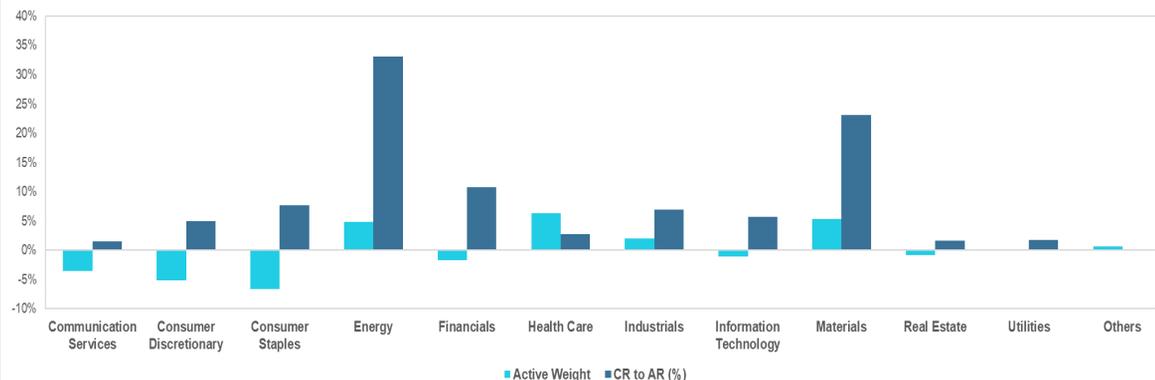
### Top Countries by Weight%



### Top 10 Assets by Contribution to Active Risk

Asset	Weight			Total Risk	%CR to Active TR	MC to Active TR
	Portfolio	Benchmark	Active			
SOUTH32 LIMITED	1.55%	0.08%	1.48%	41.73	5.02	0.169
EQUINOR ASA	1.51%	0.21%	1.29%	39.22	4.66	0.179
MEG ENERGY CORP	0.68%	0.00%	0.68%	60.93	4.42	0.314
BHP GROUP LTD	2.26%	0.98%	1.28%	35.47	4.04	0.157
CRESCENT POINT ENERGY CORP	0.50%	0.00%	0.50%	63.93	3.49	0.336
BIRCHCLIFF ENERGY LTD	0.61%	0.00%	0.61%	57.08	3.38	0.270
WHITEHAVEN COAL LTD	0.56%	0.00%	0.56%	54.84	3.08	0.267
ADARO ENERGY INDONESIA TBK PT	0.71%	0.00%	0.71%	45.43	2.95	0.205
TOURMALINE OIL CORP	0.73%	0.10%	0.63%	43.60	2.80	0.217
BLUESCOPE STEEL LTD	1.00%	0.03%	0.97%	39.56	2.46	0.129

### Portfolio Risk by GICS Sector



# Growth – Global Equity BTC Europe Alpha Tilts

for the quarter ended December 31, 2022



Los Angeles County Employees Retirement Association

## Strategy

Seeks to generate risk-controlled and consistent active returns by using a unique blend of bottom-up stock selection insights and broader top-down thematic insights. The strategy may be suited to investors looking to capture active return opportunities in European region.

Inception Date: January 2007

## Risk Statistics (since inception)

Standard Deviation	19.3%
Benchmark Standard Deviation	19.4%
Sharpe Ratio	0.22
Information Ratio	0.54
Beta	0.99
Tracking Error	1.9%

## Performance (net)<sup>1</sup>

	Ending Market Value (mm)	QTD	1 Year	3 Year	5 Year
<b>BTC Euro Tilts</b>	<b>527.8</b>	<b>18.8%</b>	<b>-12.7%</b>	<b>4.0%</b>	<b>2.8%</b>
MSCI EUROPE		19.3%	-15.1%	1.3%	1.9%
Growth Policy Benchmark		4.0%	-17.0%	5.2%	--

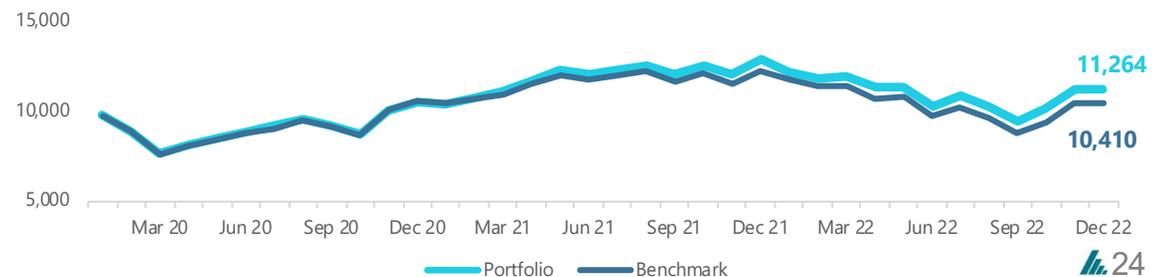
  

Universe data: Intl Equity Developed Mkt Funds	QTD	Rank	1 Year	Rank	3 Year	Rank	5 Year	Rank
<b>BTC Euro Tilts</b>	<b>19.0%</b>	<b>12</b>	<b>-12.3%</b>	<b>33</b>	<b>4.5%</b>	<b>11</b>	<b>3.2%</b>	<b>19</b>
Median	15.0%		-14.2%		1.1%		1.8%	

## Calendar Year Returns



## Growth of \$10,000



Note: Commingled fund account with no position-level transparency.  
<sup>1</sup> Universe data is gross-of-fees.

# Growth Risk Analysis – Global Equity BTC Europe Alpha Tilts

for the quarter ended December 31, 2022

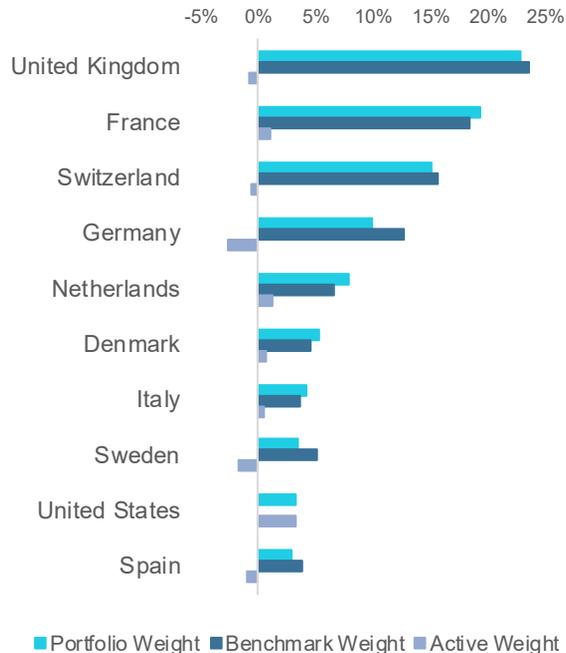


Los Angeles County Employees Retirement Association

## Portfolio Risk Summary

	Value
<b>Total Risk</b>	<b>19.83</b>
Benchmark Risk	20.51
Active Risk	1.32
Portfolio Beta	0.97

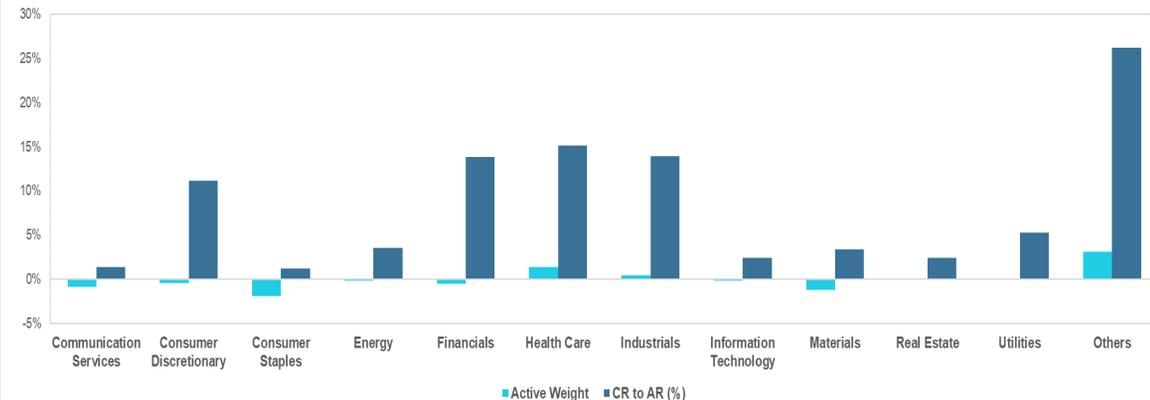
## Top Countries by Weight%



## Top 10 Assets by Contribution to Active Risk

Asset	Weight			Total Risk	%CR to Active TR	MC to Active TR
	Portfolio	Benchmark	Active			
NOVARTIS AG	2.95%	2.12%	0.83%	19.88	4.61	-0.036
PROSUS NV	0.00%	0.62%	-0.62%	45.87	4.53	-0.206
BRITISH AMERICAN TOBACCO PLC	1.85%	0.92%	0.94%	23.88	4.04	-0.052
ENGIE	1.38%	0.28%	1.10%	33.06	3.32	-0.069
BP PLC	2.40%	1.17%	1.23%	32.80	3.10	-0.076
BEIERSDORF AG	0.83%	0.13%	0.70%	22.74	2.77	-0.057
RIO TINTO PLC	0.08%	0.85%	-0.77%	35.72	2.50	-0.152
SANOFI SA	1.64%	1.19%	0.46%	24.11	2.36	-0.041
GSK PLC	1.22%	0.76%	0.46%	27.09	2.07	-0.050
ROCHE HOLDING AG	0.45%	0.11%	0.33%	24.36	1.93	-0.033

## Portfolio Risk by GICS Sector



# Growth – Global Equity Capital Group Developed Markets

for the quarter ended December 31, 2022

## Strategy

Seeks to generate long-term capital appreciation through fundamental research and proprietary models for earnings estimates and valuations. The strategy may be suited to investors looking to gain exposures in non-U.S. developed markets with emphasis on bottom-up, fundamental investment analysis.

Inception Date: October 1987

## Portfolio Characteristics

	Portfolio	Benchmark
Market Cap Wtd Average (mm)	106,856.3	74,022.6
No. Of Issues	158.0	0.0
Dividend Yield	2.2	3.3
Return on Equity	21.2	18.3
Price to Sales	5.4	3.0
Price to Book	6.1	4.4
PE Ratio	23.0	14.7

## Top Holdings (% of assets)

ASML HOLDING NV	4.3%
NOVO NORDISK A/S B	4.0%
LVMH MOET HENNESSY LOUIS VUI	3.1%
EVOLUTION AB	2.7%
ASTRAZENECA PLC	2.6%
<b>Top 5 Holdings</b>	<b>16.7%</b>

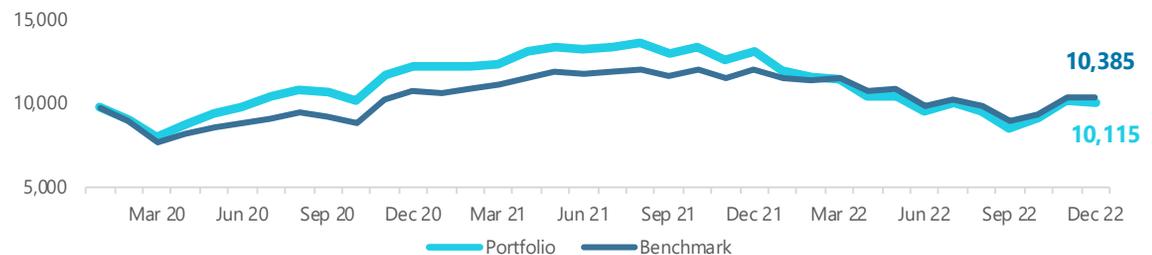
## Performance (net)<sup>1</sup>

	Ending Market Value (mm)	QTD	1 Year	3 Year	5 Year
<b>Capital Group Developed Markets</b>	<b>364.2</b>	<b>17.5%</b>	<b>-23.4%</b>	<b>0.4%</b>	<b>3.3%</b>
EAFE Custom Benchmark		16.2%	-14.3%	1.3%	1.8%
Growth Policy Benchmark		4.0%	-17.0%	5.2%	--

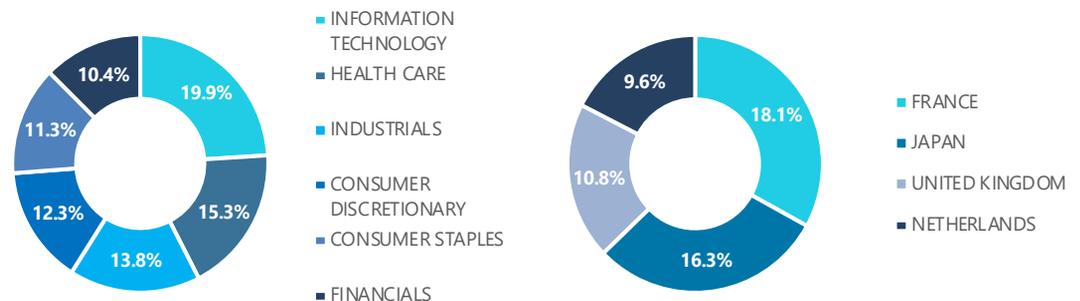
  

Universe data: Intl/Global Equity Funds - Core	QTD	Rank	1 Year	Rank	3 Year	Rank	5 Year	Rank
<b>Capital Group Developed Markets</b>	<b>17.6%</b>	<b>5</b>	<b>-23.1%</b>	<b>90</b>	<b>0.7%</b>	<b>66</b>	<b>3.7%</b>	<b>50</b>
Median	14.4%		-16.0%		2.5%		3.3%	

## Growth of \$10,000



## Top Exposures (% of assets)<sup>2</sup>



<sup>1</sup> Universe data is gross-of-fees.

<sup>2</sup> Charts display top exposures and may not add up to 100%.

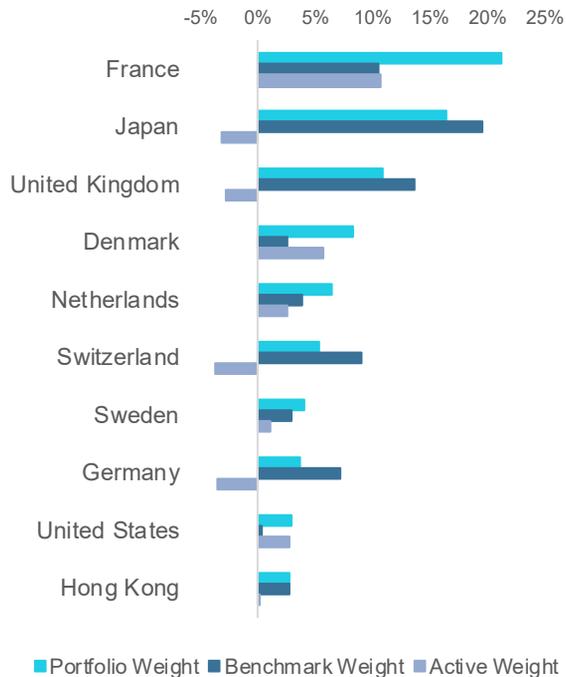
# Growth Risk Analysis – Global Equity Capital Group Developed Markets

for the quarter ended December 31, 2022

## Portfolio Risk Summary

	Value
<b>Total Risk</b>	<b>19.30</b>
Benchmark Risk	18.33
Active Risk	4.40
Portfolio Beta	1.03

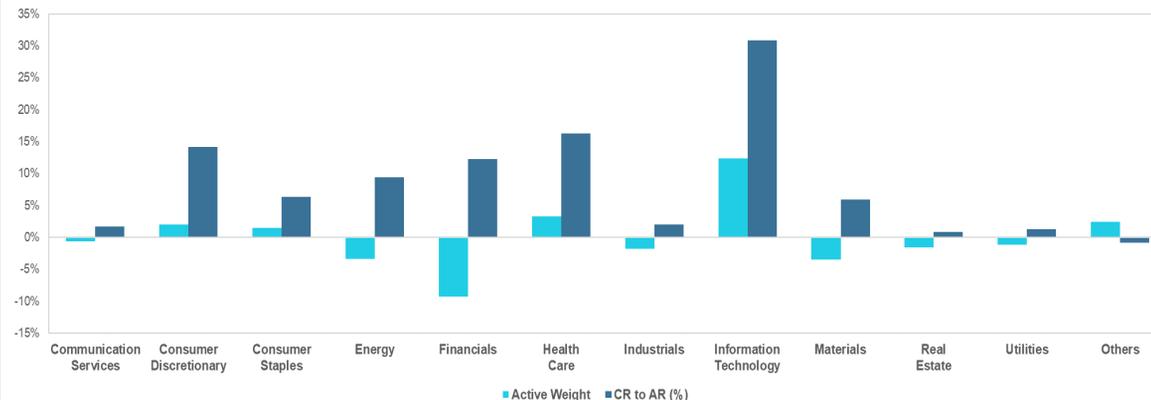
## Top Countries by Weight%



## Top 10 Assets by Contribution to Active Risk

Asset	Weight			Total Risk	%CR to Active TR	MC to Active TR
	Portfolio	Benchmark	Active			
ASML HOLDING	4.34%	0.00%	4.34%	42.30	16.16	0.183
EVOLUTION AB	2.67%	0.11%	2.56%	48.31	8.98	0.174
GENMAB A/S	2.23%	0.17%	2.06%	32.69	5.45	0.136
NOVO NORDISK A/S	3.92%	1.40%	2.52%	29.10	4.86	0.104
OCADO GROUP PLC	1.37%	0.03%	1.34%	58.71	4.78	0.176
SHELL PLC	0.00%	1.27%	-1.27%	31.46	3.19	-0.091
HAMAMATSU PHOTONICS KK	1.93%	0.04%	1.89%	27.16	3.12	0.092
KEYENCE CORP	1.83%	0.48%	1.36%	30.69	2.95	0.115
TOKYO ELECTRON LTD	1.16%	0.28%	0.89%	39.38	2.53	0.145
LVMH MOET HENNESSY LOUIS VUITTON	3.13%	1.26%	1.87%	27.59	2.44	0.077

## Portfolio Risk by GICS Sector



# Growth – Global Equity Cevian Capital II

for the quarter ended December 31, 2022



Los Angeles County Employees Retirement Association

## Strategy

Seeks to generate long-term returns by researching and investing in European companies that have profitable businesses and significant improvement potential. The strategy may be suited to investors looking to increase portfolio diversification through differentiated investment approach and take advantage of return opportunities in Europe.

Inception Date: October 2016

## Risk Statistics (since inception)

Standard Deviation	16.7%
Benchmark Standard Deviation	17.5%
Sharpe Ratio	0.46
Information Ratio	0.25
Beta	0.80
Tracking Error	9.9%

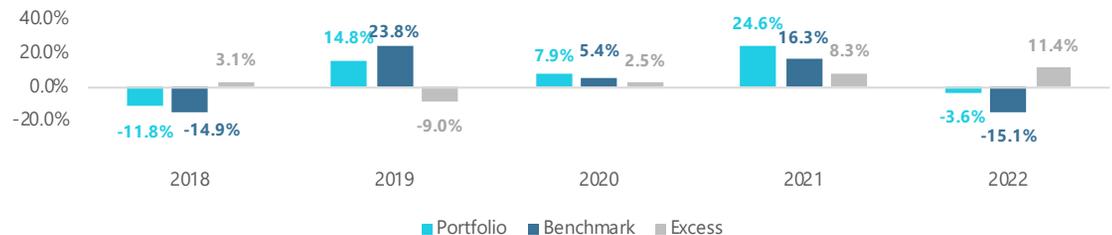
## Performance (net)<sup>1</sup>

	Ending Market Value (mm)	QTD	1 Year	3 Year	5 Year
<b>Cevian Capital II - Activist</b>	<b>398.3</b>	<b>9.5%</b>	<b>-3.6%</b>	<b>9.0%</b>	<b>5.6%</b>
MSCI EUROPE		19.3%	-15.1%	1.3%	1.9%
Growth Policy Benchmark		4.0%	-17.0%	5.2%	--

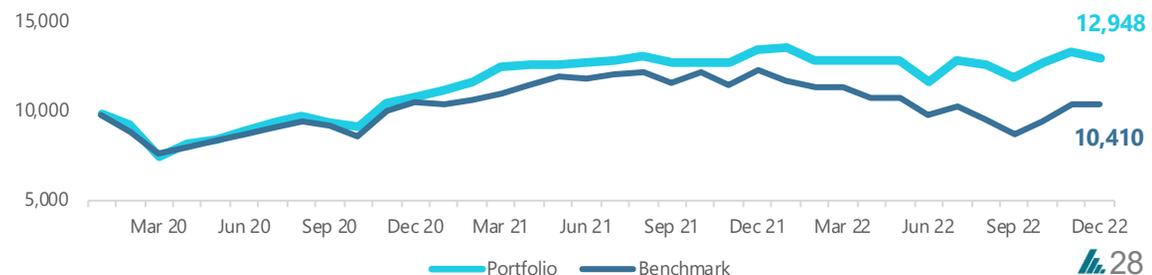
  

Universe data: Europe Equity	QTD	Rank	1 Year	Rank	3 Year	Rank	5 Year	Rank
<b>Cevian Capital II - Activist</b>	<b>9.8%</b>	<b>82</b>	<b>-2.6%</b>	<b>8</b>	<b>10.2%</b>	<b>1</b>	<b>6.8%</b>	<b>5</b>
Median	15.0%		-14.2%		1.1%		1.8%	

## Calendar Year Returns



## Growth of \$10,000



Note: Commingled fund account with no position-level transparency.  
<sup>1</sup> Universe data is gross-of-fees.

# Growth Risk Analysis – Global Equity

## Cevian Capital II

for the quarter ended December 31, 2022

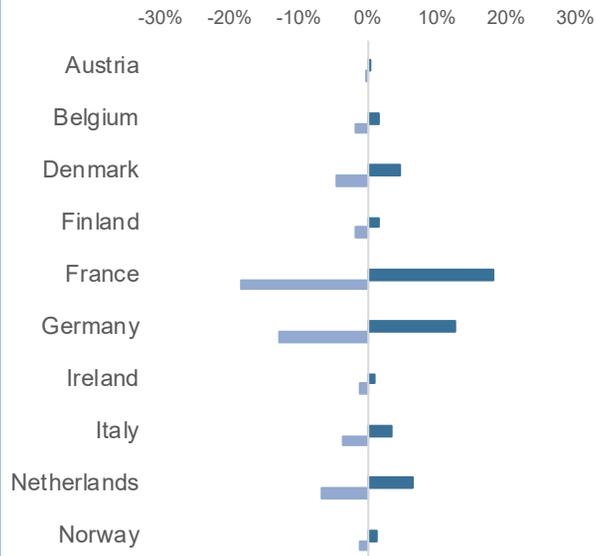


Los Angeles County Employees Retirement Association

### Portfolio Risk Summary

	Value
<b>Total Risk</b>	<b>21.18</b>
Benchmark Risk	20.51
Active Risk	10.17
Portfolio Beta	0.91

### Top Countries by Weight%



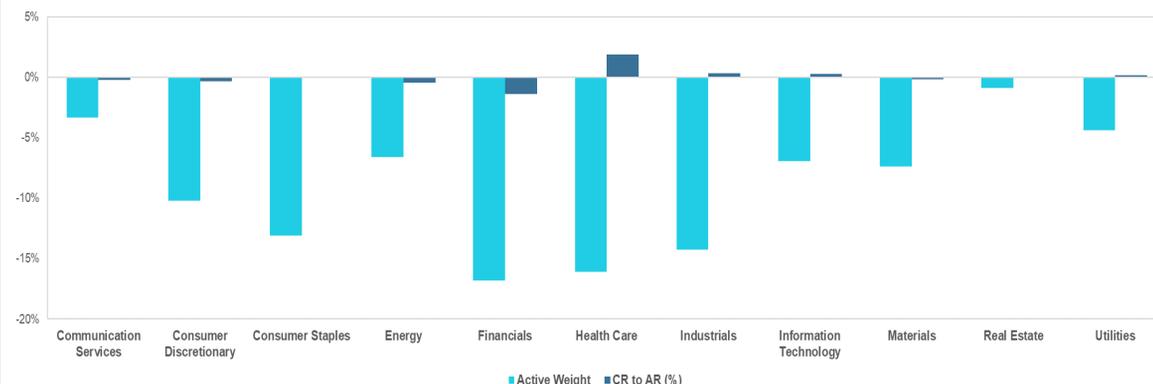
■ Portfolio Weight ■ Benchmark Weight ■ Active Weight

Note: Commingled fund account with no position-level transparency.

### Top 10 Assets by Contribution to Active Risk

Asset	Weight			Total Risk	%CR to Active TR	MC to Active TR
	Portfolio	Benchmark	Active			
ASTRAZENECA PLC	0.00%	2.27%	-2.27%	26.37	0.59	-0.063
NOVO NORDISK A/S	0.00%	2.42%	-2.42%	29.10	0.52	-0.059
ASML HOLDING NV	0.00%	2.37%	-2.37%	42.30	0.34	-0.052
ROCHE HOLDING AG	0.00%	2.40%	-2.40%	24.75	0.31	-0.050
NOVARTIS AG	0.00%	2.12%	-2.12%	19.88	0.13	-0.043
GSK PLC	0.00%	0.76%	-0.76%	27.09	0.13	-0.055
UNILEVER PLC	0.00%	1.39%	-1.39%	21.90	0.11	-0.045
DIAGEO PLC	0.00%	1.09%	-1.09%	23.26	0.10	-0.047
RELX PLC	0.00%	0.57%	-0.57%	25.43	0.08	-0.052
NATIONAL GRID PLC	0.00%	0.48%	-0.48%	25.49	0.08	-0.054

### Portfolio Risk by GICS Sector



■ Active Weight ■ CR to AR (%)

# Growth – Global Equity CornerCap US Small Cap

for the quarter ended December 31, 2022

## Strategy

Seeks to exploit small cap market inefficiencies by using proprietary fundamental factors. The strategy may be suited to investors looking to increase U.S. small cap exposure and diversify portfolio through an active quantitative investment approach.

Inception Date: October 2018

## Portfolio Characteristics

	Portfolio	Benchmark
Market Cap Wtd Average (mm)	2,472.8	2,375.4
No. Of Issues	348.0	0.0
Dividend Yield	1.9	1.4
Return on Equity	13.7	11.9
Price to Sales	2.7	13.0
Price to Book	2.2	4.8
PE Ratio	14.3	29.0

## Top Holdings (% of assets)

MERIT MEDICAL SYSTEMS INC	0.5%
MOOG INC CLASS A	0.5%
PROPETRO HOLDING CORP	0.5%
BOX INC CLASS A	0.5%
ENLINK MIDSTREAM LLC	0.5%
<b>Top 5 Holdings</b>	<b>2.5%</b>

## Performance (net)<sup>1</sup>

	Ending Market Value (mm)	QTD	1 Year	3 Year	5 Year
<b>Cornercap US Small Cap - EMP</b>	<b>80.6</b>	<b>11.0%</b>	<b>-7.0%</b>	<b>9.1%</b>	--
RUSSELL 2000		6.2%	-20.4%	3.1%	--
Growth Policy Benchmark		4.0%	-17.0%	5.2%	--

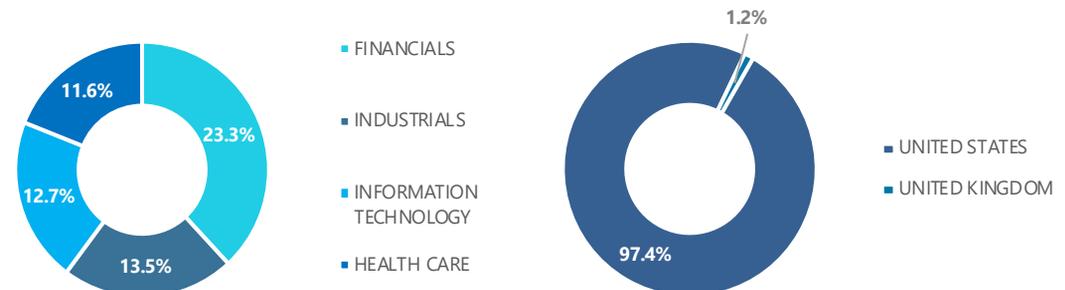
  

Universe data: US Equity Funds - Small Cap	QTD	Rank	1 Year	Rank	3 Year	Rank	5 Year	Rank
<b>Cornercap US Small Cap - EMP</b>	<b>11.1%</b>	<b>24</b>	<b>-6.5%</b>	<b>10</b>	<b>9.7%</b>	<b>16</b>	--	--
Median	9.9%		-13.9%		6.6%		--	

## Growth of \$10,000



## Top Exposures (% of assets)<sup>2</sup>



<sup>1</sup> Universe data is gross-of-fees.

<sup>2</sup> Charts display top exposures and may not add up to 100%.

# Growth Risk Analysis – Global Equity

## CornerCap US Small Cap

for the quarter ended December 31, 2022



Los Angeles County Employees Retirement Association

### Portfolio Risk Summary

	Value
<b>Total Risk</b>	<b>23.74</b>
Benchmark Risk	25.36
Active Risk	4.60
Portfolio Beta	0.92

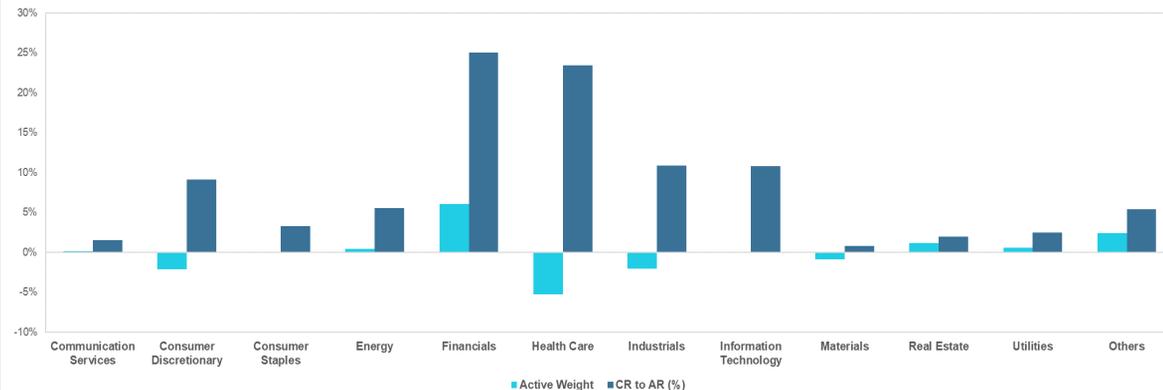
### Top Countries by Weight%



### Top 10 Assets by Contribution to Active Risk

Asset	Weight			Total Risk	%CR to Active TR	MC to Active TR
	Portfolio	Benchmark	Active			
PROPETRO HOLDING CORP	0.49%	0.04%	0.45%	67.66	1.68	0.062
APA CORP	0.44%	0.00%	0.44%	57.85	1.39	0.038
TALOS ENERGY INC	0.43%	0.05%	0.37%	70.82	1.29	0.050
MERCANTILE BANK CORP	0.43%	0.02%	0.41%	30.10	1.28	0.036
PREFERRED BK LOS ANGELES CA	0.45%	0.04%	0.41%	28.64	1.24	0.032
BERRY CORP	0.39%	0.03%	0.36%	58.04	1.18	0.042
OCEANFIRST FINANCIAL CORP	0.47%	0.05%	0.42%	27.88	1.18	0.022
CIVISTA BANCSHARES INC	0.42%	0.01%	0.41%	28.88	1.16	0.023
PDC ENERGY INC	0.38%	0.00%	0.38%	57.03	1.15	0.029
SHOCKWAVE MEDICAL INC	0.00%	0.32%	-0.32%	54.30	1.14	-0.273

### Portfolio Risk by GICS Sector



# Growth – Global Equity

## Frontier US SMID Growth

for the quarter ended December 31, 2022

### Strategy

Seeks to invest in high quality companies at attractive valuations and sustainable secular growth through fundamental analysis. The strategy may be suited to investors looking to increase U.S. mid and small cap exposures and generate returns through stock selection and low turnover.

Inception Date: June 2002

### Portfolio Characteristics

	Portfolio	Benchmark
Market Cap Wtd Average (mm)	7,098.2	5,946.2
No. Of Issues	142.0	0.0
Dividend Yield	0.7	1.6
Return on Equity	12.5	15.5
Price to Sales	3.0	7.7
Price to Book	0.7	4.2
PE Ratio	21.5	21.8

### Top Holdings (% of assets)

BUILDERS FIRSTSOURCE INC	2.3%
MRC GLOBAL INC	1.9%
ARRAY TECHNOLOGIES INC	1.8%
MACOM TECHNOLOGY SOLUTIONS H	1.8%
INSULET CORP	1.8%
<b>Top 5 Holdings</b>	<b>9.5%</b>

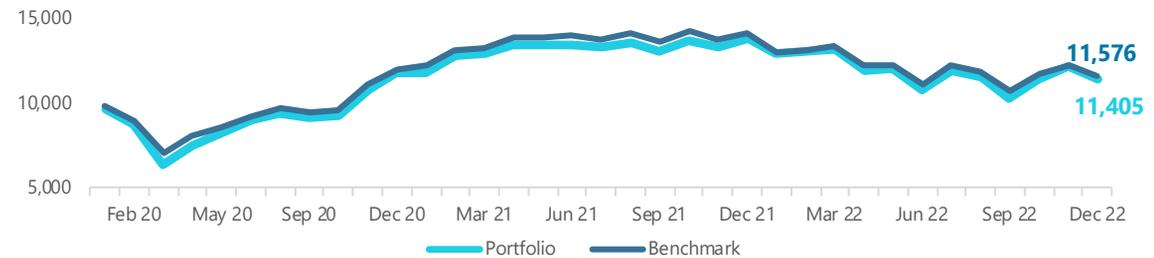
### Performance (net)<sup>1</sup>

	Ending Market Value (mm)	QTD	1 Year	3 Year	5 Year
<b>Frontier US SMID Growth</b>	<b>256.2</b>	<b>11.1%</b>	<b>-17.9%</b>	<b>4.5%</b>	<b>4.9%</b>
RUSSELL 2500		7.4%	-18.4%	5.0%	5.9%
Growth Policy Benchmark		4.0%	-17.0%	5.2%	--

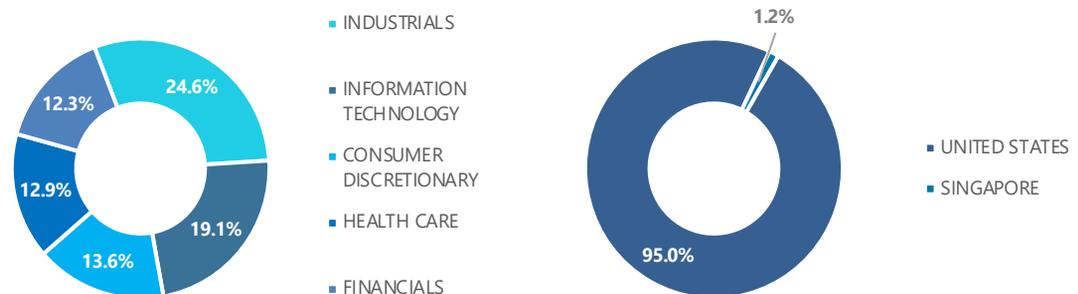
  

Universe data: US Equity Funds - Small Cap	QTD	Rank	1 Year	Rank	3 Year	Rank	5 Year	Rank
<b>Frontier US SMID Growth</b>	<b>11.3%</b>	<b>21</b>	<b>-17.3%</b>	<b>69</b>	<b>5.3%</b>	<b>74</b>	<b>5.7%</b>	<b>68</b>
Median	9.9%		-13.9%		6.6%		6.7%	

### Growth of \$10,000



### Top Exposures (% of assets)<sup>2</sup>



<sup>1</sup> Universe data is gross-of-fees.

<sup>2</sup> Charts display top exposures and may not add up to 100%.

# Growth Risk Analysis – Global Equity

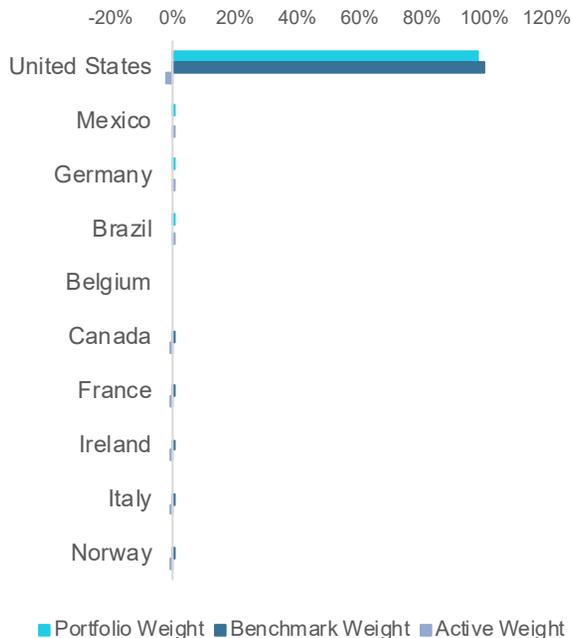
## Frontier US SMID Growth

for the quarter ended December 31, 2022

### Portfolio Risk Summary

	Value
<b>Total Risk</b>	<b>27.52</b>
Benchmark Risk	24.48
Active Risk	4.86
Portfolio Beta	1.11

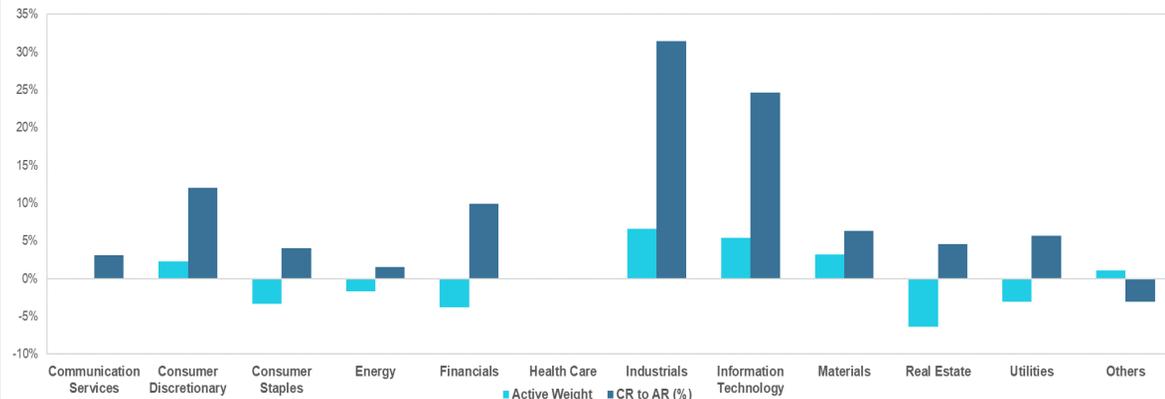
### Top Countries by Weight%



### Top 10 Assets by Contribution to Active Risk

Asset	Weight			Total Risk	%CR to Active TR	MC to Active TR
	Portfolio	Benchmark	Active			
ARRAY TECHNOLOGIES INC	1.81%	0.06%	1.75%	72.19	9.51	0.402
WOLFSPEED INC	1.36%	0.16%	1.20%	59.99	5.15	0.347
MRC GLOBAL INC	1.91%	0.02%	1.89%	54.25	4.51	0.255
CAESARS ENTERTAINMENT INC	1.29%	0.00%	1.29%	54.78	3.81	0.282
MACOM TECHNOLOGY SOLUTIONS	1.80%	0.06%	1.74%	38.90	3.63	0.240
DANA INC	1.33%	0.04%	1.29%	48.81	3.57	0.273
SITIME CORPORATION	0.76%	0.03%	0.72%	66.10	3.48	0.372
BUILDERS FIRSTSOURCE INC	2.26%	0.18%	2.08%	42.18	3.38	0.218
CONTROLADORA VUELA	1.00%	0.00%	1.00%	59.68	3.12	0.291
ALBEMARLE CORP	1.27%	0.00%	1.27%	46.36	2.77	0.245

### Portfolio Risk by GICS Sector



# Growth – Global Equity Global Alpha

for the quarter ended December 31, 2022

## Strategy

Seeks to identify mispriced companies with high rates of growth, strong balance sheets, and high insider ownership using a bottom-up, research-based approach coupled with investment themes. The strategy may be suited to investors looking to increase exposure to international small cap stocks.

Inception Date: November 2018

## Portfolio Characteristics

	Portfolio	Benchmark
Market Cap Wtd Average (mm)	2,409.7	2,507.6
No. Of Issues	61.0	0.0
Dividend Yield	3.0	3.9
Return on Equity	12.1	13.3
Price to Sales	17.0	6.4
Price to Book	2.3	2.9
PE Ratio	15.8	14.2

## Top Holdings (% of assets)

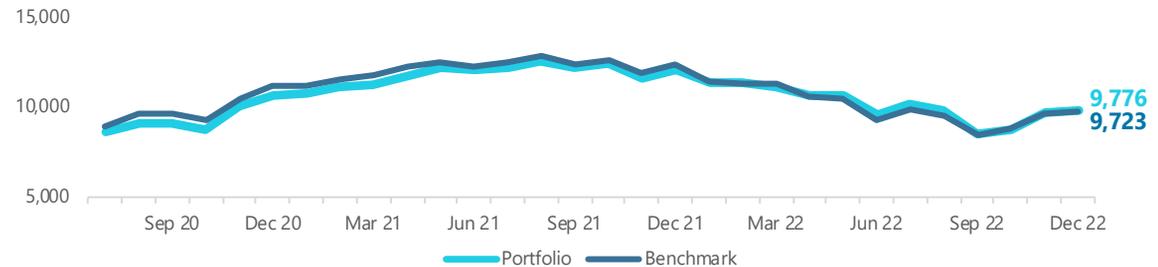
BIFFA PLC	4.2%
RAFFLES MEDICAL GROUP LTD	3.3%
SOPRA STERIA GROUP	3.2%
L OCCITANE INTERNATIONAL SA	3.1%
SEGA SAMMY HOLDINGS INC	3.1%
<b>Top 5 Holdings</b>	<b>16.9%</b>

## Performance (net)<sup>1</sup>

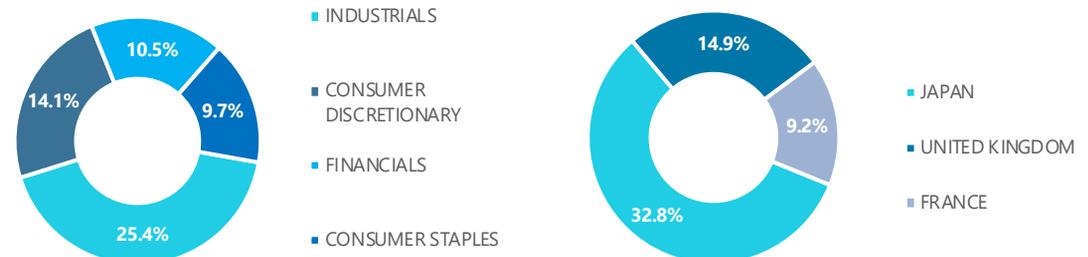
	Ending Market Value (mm)	QTD	1 Year	3 Year	5 Year
<b>Global Alpha</b>	<b>165.5</b>	<b>15.1%</b>	<b>-19.2%</b>	<b>-0.8%</b>	--
MSCI EAFE SMALL CAP NET		15.8%	-21.4%	-0.9%	--
Growth Policy Benchmark		4.0%	-17.0%	5.2%	--

Universe data: International Equity Funds Core	QTD	Rank	1 Year	Rank	3 Year	Rank	5 Year	Rank
<b>Global Alpha</b>	<b>15.3%</b>	<b>12</b>	<b>-18.6%</b>	<b>68</b>	<b>0.0%</b>	<b>78</b>	--	--
Median	12.4%		-16.0%		2.5%		--	

## Growth of \$10,000



## Top Exposures (% of assets)<sup>2</sup>



<sup>1</sup> Universe data is gross-of-fees.

<sup>2</sup> Charts display top exposures and may not add up to 100%.

# Growth Risk Analysis – Global Equity

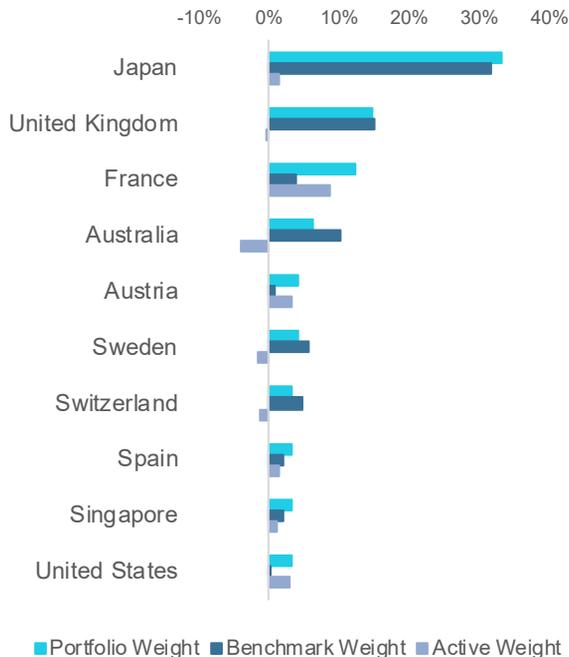
## Global Alpha

for the quarter ended December 31, 2022

### Portfolio Risk Summary

	Value
<b>Total Risk</b>	<b>19.80</b>
Benchmark Risk	20.41
Active Risk	4.15
Portfolio Beta	0.95

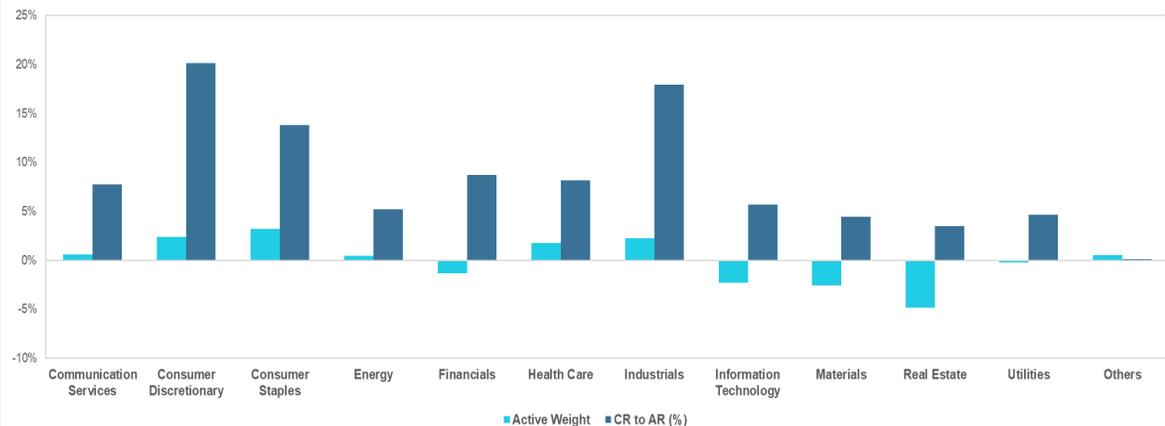
### Top Countries by Weight%



### Top 10 Assets by Contribution to Active Risk

Asset	Weight			Total Risk	%CR to Active TR	MC to Active TR
	Portfolio	Benchmark	Active			
L'OCCITANE INTERNATIONAL SA	3.10%	0.00%	3.10%	38.15	8.46	0.063
ASICS CORP	3.08%	0.15%	2.94%	42.30	8.31	0.067
BIFFA PLC	4.18%	0.06%	4.11%	38.26	6.87	0.019
SEGA SAMMY HOLDINGS INC	3.09%	0.10%	2.99%	32.53	6.53	0.040
INTERNET INITIATIVE JAPAN INC	2.59%	0.08%	2.51%	35.50	5.68	0.044
RAFFLES MEDICAL GROUP LTD	3.32%	0.04%	3.28%	29.42	4.96	0.012
ORMAT TECHNOLOGIES INC	2.95%	0.00%	2.95%	34.32	4.67	0.015
AIN HOLDINGS	1.71%	0.05%	1.67%	34.30	3.51	0.037
DMG MORI CO LTD	2.34%	0.06%	2.28%	31.50	2.74	-0.001
ROTHSCHILD & CO	2.95%	0.00%	2.95%	30.99	2.65	-0.013

### Portfolio Risk by GICS Sector



# Growth – Global Equity

## JPMorgan Strategic Beta Non-US

for the quarter ended December 31, 2022

### Strategy

Seeks to capture incremental alpha through investing in equity factors that are rule-based, transparent, and academically proven. This strategy may be suited to investors looking to gain equity factor exposures in non-U.S. markets at lower volatility and cost than active strategies.

Inception Date: August 2020

### Portfolio Characteristics

	Portfolio	Benchmark
Market Cap Wtd Average (mm)	70,086.8	67,342.0
No. Of Issues	1,813.0	0.0
Dividend Yield	3.6	3.1
Return on Equity	19.5	17.7
Price to Sales	3.1	3.9
Price to Book	3.8	4.1
PE Ratio	11.9	14.0

### Top Holdings (% of assets)

ISHARES MSCI INDIA ETF	3.9%
TAIWAN SEMICONDUCTOR MANUFAC	1.3%
NESTLE SA REG	1.2%
TENCENT HOLDINGS LTD	1.0%
NOVO NORDISK A/S B	0.9%
<b>Top 5 Holdings</b>	<b>8.4%</b>

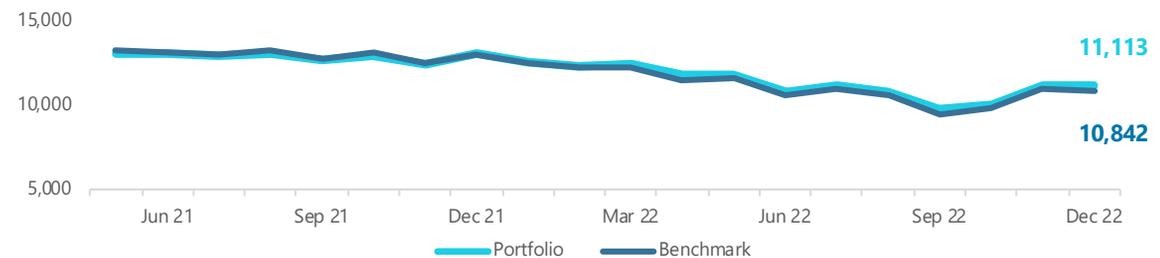
### Performance (net)<sup>1</sup>

	Ending Market Value (mm)	QTD	1 Year	3 Year	5 Year
<b>JPMAM Strategic Beta Non-US</b>	<b>550.5</b>	<b>14.1%</b>	<b>-14.5%</b>	--	--
MSCI ACWI ex USA IMI Net		14.1%	-16.6%	--	--
Growth Policy Benchmark		4.0%	-17.0%	5.2%	--

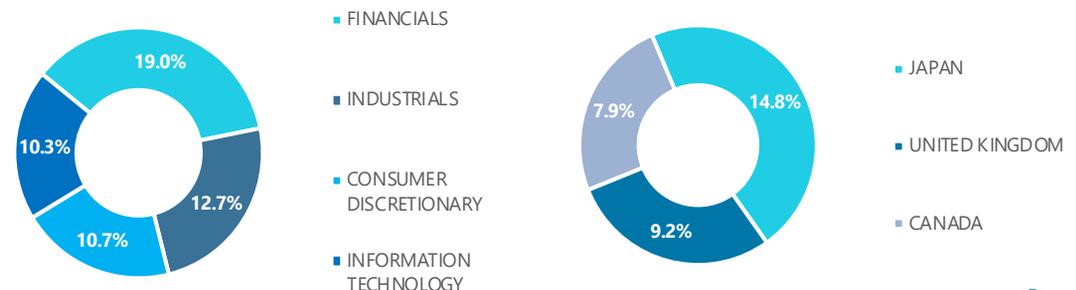
  

Universe data: International Equity	QTD	Rank	1 Year	Rank	3 Year	Rank	5 Year	Rank
<b>JPMAM Strategic Beta Non-US</b>	<b>14.1%</b>	<b>54</b>	<b>-14.5%</b>	<b>30</b>	--	--	--	--
Median	14.3%		-16.5%		--	--	--	--

### Growth of \$10,000



### Top Exposures (% of assets)<sup>2</sup>



<sup>1</sup> Universe data is gross-of-fees.

<sup>2</sup> Charts display top exposures and may not add up to 100%.

# Growth Risk Analysis – Global Equity

## JPMorgan Strategic Beta Non-US

for the quarter ended December 31, 2022



Los Angeles County Employees Retirement Association

### Portfolio Risk Summary

	Value
<b>Total Risk</b>	<b>17.95</b>
Benchmark Risk	18.06
Active Risk	0.81
Portfolio Beta	0.99

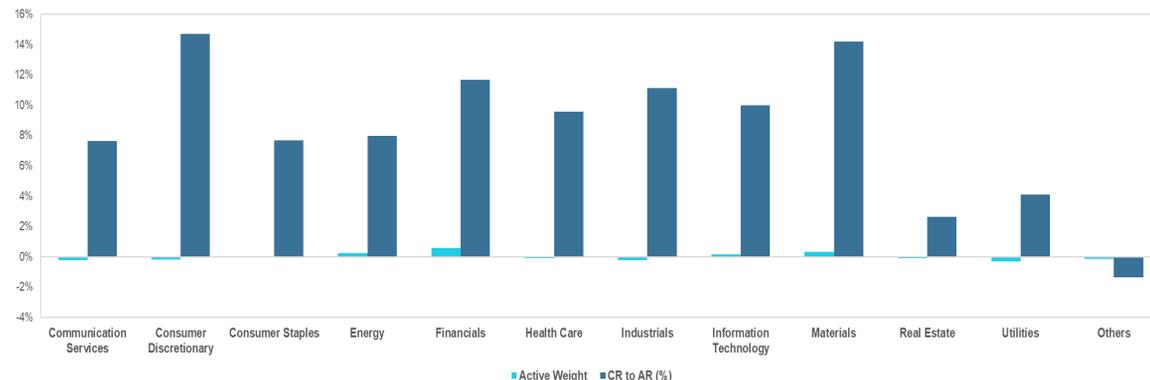
### Top Countries by Weight%



### Top 10 Assets by Contribution to Active Risk

Asset	Weight			Total Risk	%CR to Active TR	MC to Active TR
	Portfolio	Benchmark	Active			
ALIBABA GROUP HOLDING LTD	0.00%	0.63%	-0.63%	51.07	14.29	-0.211
ASML HOLDING	0.01%	0.84%	-0.84%	42.30	4.78	-0.073
VALE SA	0.28%	0.00%	0.28%	49.35	3.89	0.086
NETEASE INC	0.00%	0.11%	-0.11%	44.56	1.93	-0.168
LI AUTO INC	0.00%	0.04%	-0.04%	63.18	1.30	-0.275
KUAISHOU TECHNOLOGY	0.02%	0.06%	-0.04%	63.13	1.25	-0.289
PDD HOLDINGS INC	0.11%	0.16%	-0.05%	57.98	1.17	-0.221
BEIGENE LTD	0.00%	0.04%	-0.04%	53.55	1.12	-0.251
WUXI BIOLOGICS CAYMAN INC	0.07%	0.11%	-0.04%	56.00	1.04	-0.250
JD HEALTH INTERNATIONAL INC	0.00%	0.04%	-0.04%	55.46	0.96	-0.227

### Portfolio Risk by GICS Sector



# Growth – Global Equity

## JPMorgan Strategic Beta US

for the quarter ended December 31, 2022

### Strategy

Seeks to capture incremental alpha through investing in equity factors that are rule-based, transparent, and academically proven. This strategy may be suited to investors looking to gain equity factor exposures in the U.S. at lower volatility and cost than active strategies.

Inception Date: July 2020

### Portfolio Characteristics

	Portfolio	Benchmark
Market Cap Wtd Average (mm)	358,369.2	417,431.3
No. Of Issues	956.0	0.0
Dividend Yield	1.4	1.3
Return on Equity	29.5	29.9
Price to Sales	4.3	4.5
Price to Book	8.5	9.5
PE Ratio	18.2	20.5

### Top Holdings (% of assets)

APPLE INC	5.5%
MICROSOFT CORP	4.5%
AMAZON.COM INC	2.0%
ALPHABET INC CL A	1.4%
UNITEDHEALTH GROUP INC	1.3%
<b>Top 5 Holdings</b>	<b>14.7%</b>

### Performance (net)<sup>1</sup>

	Ending Market Value (mm)	QTD	1 Year	3 Year	5 Year
<b>JPMAM Strategic Beta US</b>	<b>3,997.8</b>	<b>7.6%</b>	<b>-18.0%</b>	--	--
MSCI USA IMI Gross		7.2%	-19.2%	--	--
Growth Policy Benchmark		4.0%	-17.0%	5.2%	--

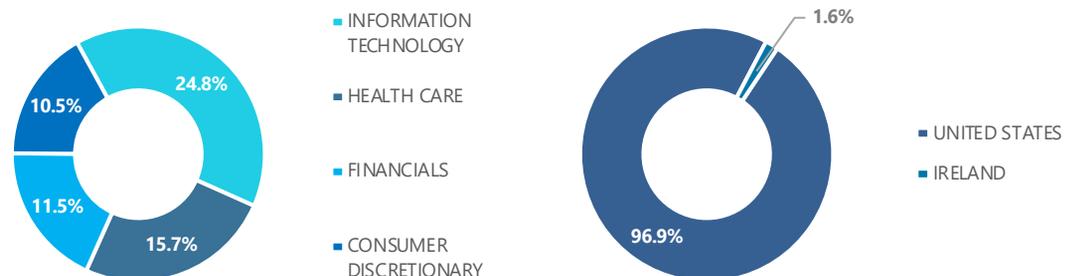
  

Universe data: U.S. Equities Total Large Cap	QTD	Rank	1 Year	Rank	3 Year	Rank	5 Year	Rank
<b>JPMAM Strategic Beta US</b>	<b>7.6%</b>	<b>51</b>	<b>-17.9%</b>	<b>46</b>	--	--	--	--
Median	7.6%		-18.1%		--	--	--	--

### Growth of \$10,000



### Top Exposures (% of assets)<sup>2</sup>



<sup>1</sup> Universe data is gross-of-fees.

<sup>2</sup> Charts display top exposures and may not add up to 100%.

# Growth Risk Analysis – Global Equity

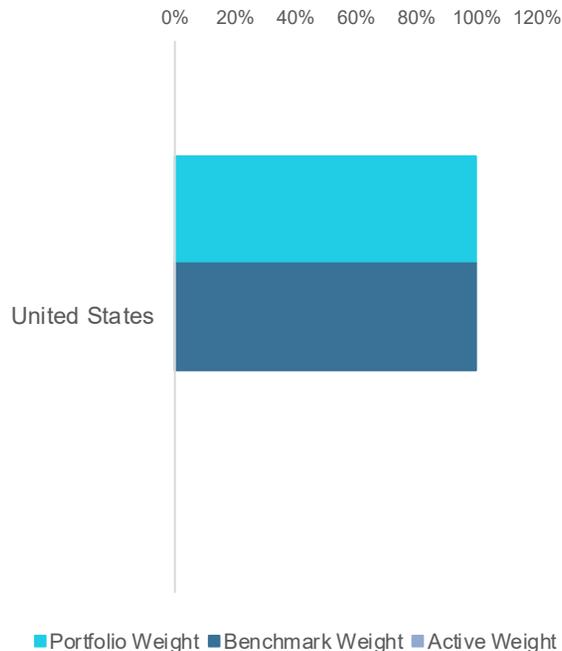
## JPMorgan Strategic Beta US

for the quarter ended December 31, 2022

### Portfolio Risk Summary

	Value
<b>Total Risk</b>	<b>20.40</b>
Benchmark Risk	20.61
Active Risk	0.63
Portfolio Beta	0.99

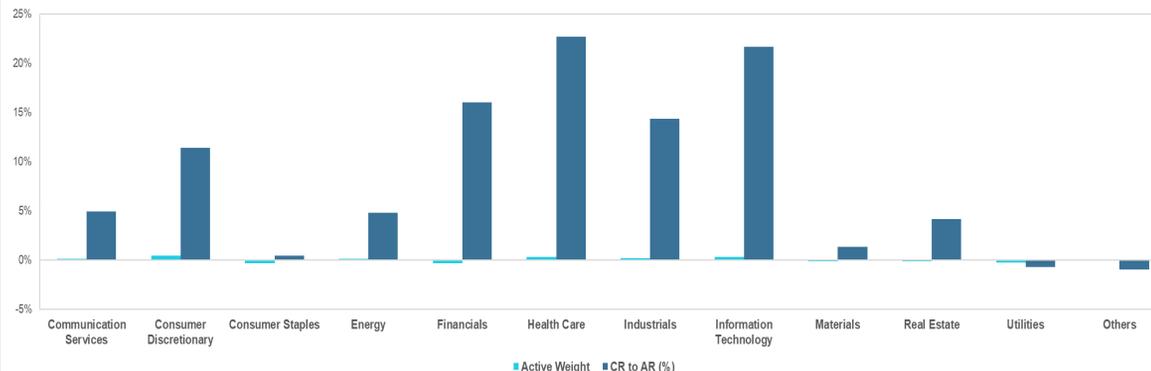
### Top Countries by Weight%



### Top 10 Assets by Contribution to Active Risk

Asset	Weight			Total Risk	%CR to Active TR	MC to Active TR
	Portfolio	Benchmark	Active			
JPMORGAN CHASE & CO	0.01%	1.04%	-1.03%	27.95	8.55	-0.122
MONGODB INC	0.00%	0.04%	-0.04%	67.54	1.61	-0.357
SNOWFLAKE INC	0.05%	0.08%	-0.04%	57.62	1.46	-0.306
CLOUDFLARE INC	0.00%	0.03%	-0.03%	67.96	1.16	-0.343
OKTA INC	0.00%	0.03%	-0.03%	61.20	1.14	-0.334
WARNER BROS DISCOVERY INC	0.02%	0.06%	-0.03%	55.81	1.06	-0.267
TWILIO INC	0.00%	0.02%	-0.02%	60.21	0.98	-0.346
DATADOG INC	0.02%	0.05%	-0.03%	54.27	0.94	-0.272
DOORDASH INC	0.00%	0.03%	-0.03%	57.11	0.92	-0.264
HUBSPOT INC	0.00%	0.03%	-0.03%	53.05	0.91	-0.256

### Portfolio Risk by GICS Sector



# Growth – Global Equity Lazard Emerging Markets

for the quarter ended December 31, 2022

## Strategy

Seeks to provide long-term capital appreciation by investing in companies trading at a discount to their estimated net asset value, sum of the parts valuation, and/or underlying investments/businesses. The strategy may be suited to investors looking to capture growth opportunities in emerging markets and increase portfolio diversification.

Inception Date: February 2013

## Portfolio Characteristics

	Portfolio	Benchmark
Market Cap Wtd Average (mm)	34,478.0	87,692.2
No. of Issues	49.0	0.0
Dividend Yield	2.6	3.3
Return on Equity	11.9	12.1
Price to Sales	1.5	1.1
Price to Book	1.6	1.6
PE Ratio	13.3	11.5

## Top Holdings (% of assets)

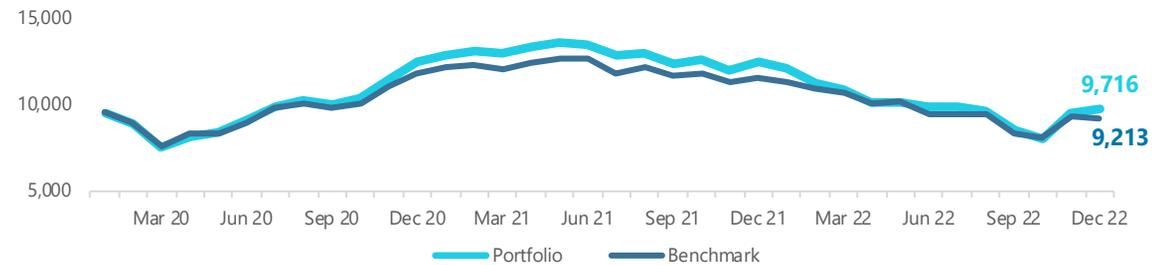
PROSUS NV	9.8%
JPMORGAN EMERGING MARKETS INVE	6.6%
CITIC SECURITIES CO LTD H	5.8%
FIDELITY CHINA SPECIAL SITUATI	5.8%
TEMPLETON EMERGING MARKETS INV	5.7%
<b>Top 5 Holdings</b>	<b>33.8%</b>

## Performance (net)<sup>1</sup>

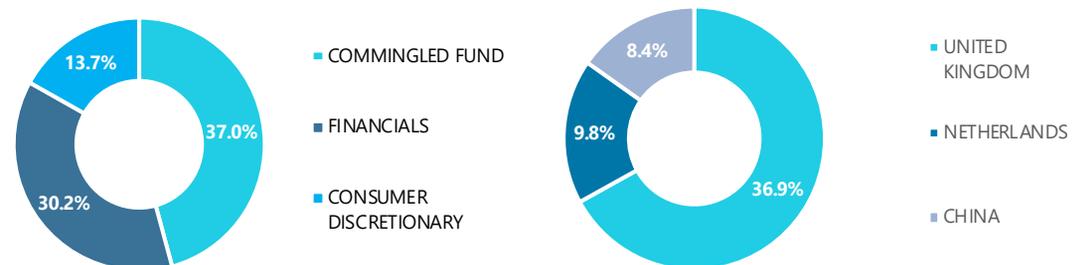
	Ending Market Value (mm)	QTD	1 Year	3 Year	5 Year
<b>Lazard Emerging Markets</b>	<b>368.0</b>	<b>14.5%</b>	<b>-22.6%</b>	<b>-1.0%</b>	<b>0.3%</b>
MSCI EMERGING MARKETS		9.7%	-20.1%	-2.7%	-1.4%
Growth Policy Benchmark		4.0%	-17.0%	5.2%	--

Universe data: Intl Equity Emerging Mkt Funds	QTD	Rank	1 Year	Rank	3 Year	Rank	5 Year	Rank
<b>Lazard Emerging Markets</b>	<b>14.6%</b>	<b>7</b>	<b>-22.1%</b>	<b>71</b>	<b>-0.3%</b>	<b>50</b>	<b>1.0%</b>	<b>28</b>
Median	10.4%		-20.1%		-0.7%		0.0%	

## Growth of \$10,000



## Top Exposures (% of assets)<sup>2</sup>



<sup>1</sup> Universe data is gross-of-fees.

<sup>2</sup> Charts display top exposures and may not add up to 100%.

# Growth Risk Analysis – Global Equity

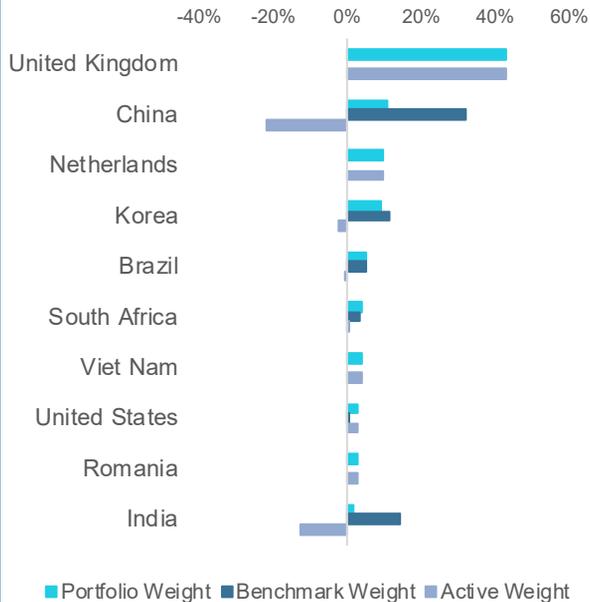
## Lazard Emerging Markets

for the quarter ended December 31, 2022

### Portfolio Risk Summary

	Value
<b>Total Risk</b>	<b>20.92</b>
Benchmark Risk	19.28
Active Risk	11.43
Portfolio Beta	0.91

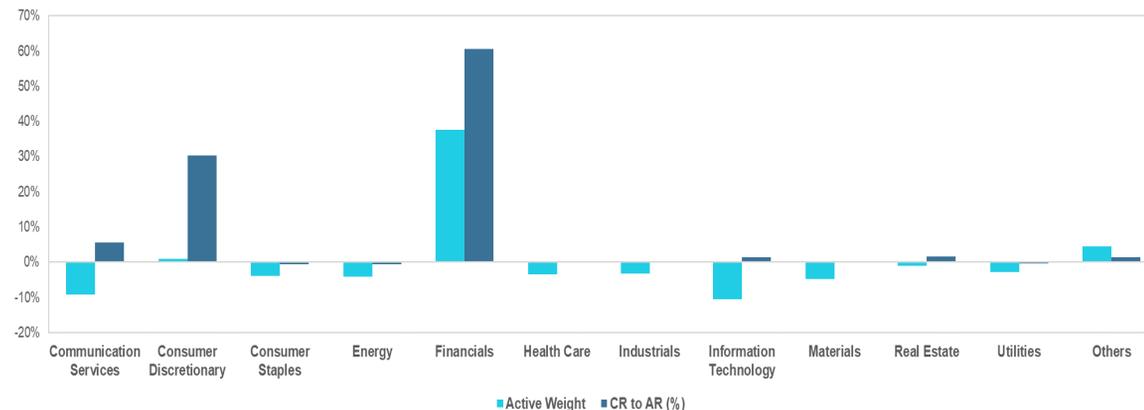
### Top Countries by Weight%



### Top 10 Assets by Contribution to Active Risk

Asset	Weight			Total Risk	%CR to Active TR	MC to Active TR
	Portfolio	Benchmark	Active			
PROSUS NV	9.83%	0.00%	9.83%	45.87	18.68	0.189
FIDELITY CHINA SPECIAL SITUATIONS PLC	5.83%	0.00%	5.83%	42.89	10.51	0.178
JPMORGAN EMERGING MK	6.67%	0.00%	6.67%	32.32	10.19	0.146
TEMPLETON EMERG MK INVSTMNT TRUST	5.69%	0.00%	5.69%	31.09	8.10	0.134
TENCENT HOLDINGS LTD	0.18%	4.24%	-4.06%	43.81	5.17	-0.174
SCHRODER ASIA PAC	2.77%	0.00%	2.77%	30.49	3.72	0.125
ASIA DRAGON TRUST PLC	2.65%	0.00%	2.65%	33.27	3.72	0.132
NASPERS	3.90%	0.57%	3.33%	48.53	3.67	0.098
FIDELITY EMERGING MARKETS LTD	2.17%	0.00%	2.17%	32.28	3.10	0.135
ALIBABA GROUP HOLDING LTD	0.16%	2.59%	-2.43%	51.07	3.04	-0.171

### Portfolio Risk by GICS Sector



Note: Weights represent country of domicile of closed-end fund and not country of underlying fund holdings.

# Growth – Global Equity

## SSGA MSCI ACWI IMI

for the quarter ended December 31, 2022

### Strategy

Seeks to provide global equity market exposure and passive index returns. This strategy may be suited to investors looking to gain passive, global equity exposures with low tracking error.

Inception Date: January 2020

### Portfolio Characteristics

	Portfolio	Benchmark
Market Cap Wtd Average (mm)	240,652.7	240,625.8
No. Of Issues	6,507.0	0.0
Dividend Yield	22.3	25.5
Return on Equity	23.8	23.7
Price to Sales	4.5	4.5
Price to Book	6.7	6.8
PE Ratio	17.3	17.5

### Top Holdings (% of assets)

APPLE INC	3.2%
MICROSOFT CORP	2.6%
AMAZON.COM INC	1.2%
ALPHABET INC CL C	0.8%
ALPHABET INC CL A	0.8%
<b>Top 5 Holdings</b>	<b>8.6%</b>

### Performance (net)<sup>1</sup>

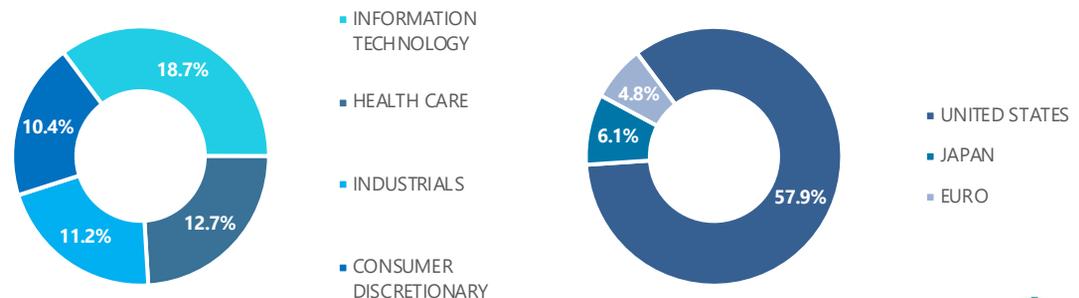
	Ending Market Value (mm)	QTD	1 Year	3 Year	5 Year
<b>SSGA MSCI ACWI IMI</b>	<b>14,270.2</b>	<b>10.1%</b>	<b>-17.9%</b>	<b>4.5%</b>	--
MSCI ACWI IMI Net		9.8%	-18.4%	3.9%	--
Growth Policy Benchmark		4.0%	-17.0%	5.2%	--

Universe data: Global Equity Funds	QTD	Rank	1 Year	Rank	3 Year	Rank	5 Year	Rank
<b>SSGA MSCI ACWI IMI</b>	<b>10.1%</b>	<b>51</b>	<b>-17.9%</b>	<b>73</b>	<b>4.5%</b>	<b>34</b>	--	--
Median	10.1%		-14.0%		3.5%		--	--

### Growth of \$10,000



### Top Exposures (% of assets)<sup>2</sup>



<sup>1</sup> Universe data is gross-of-fees.

<sup>2</sup> Charts display top exposures and may not add up to 100%.

# Growth Risk Analysis – Global Equity

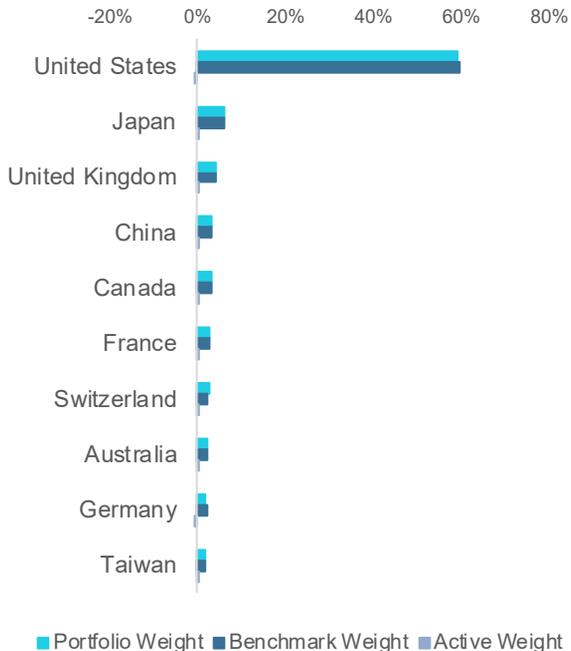
## SSGA MSCI ACWI IMI

for the quarter ended December 31, 2022

### Portfolio Risk Summary

	Value
<b>Total Risk</b>	<b>18.88</b>
Benchmark Risk	18.89
Active Risk	0.19
Portfolio Beta	1.00

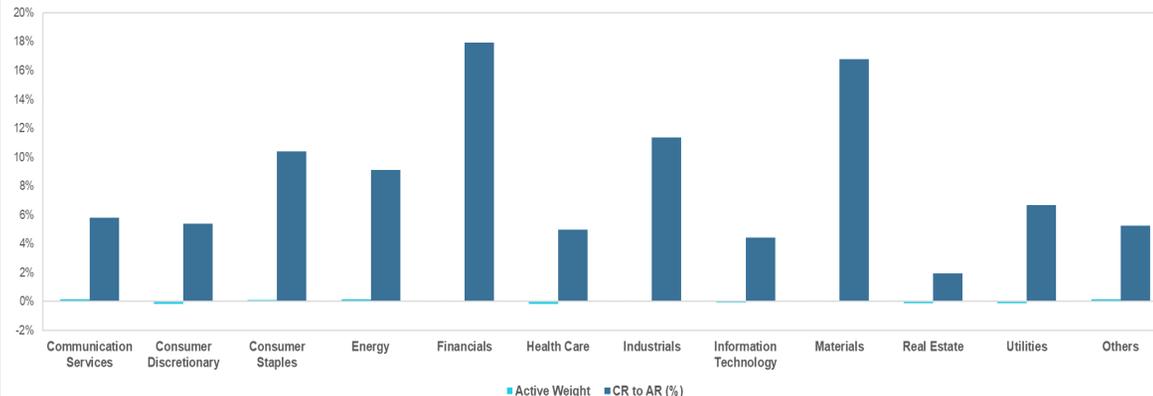
### Top Countries by Weight%



### Top 10 Assets by Contribution to Active Risk

Asset	Weight			Total Risk	%CR to Active TR	MC to Active TR
	Portfolio	Benchmark	Active			
NK LUKOIL PAO	0.05%	0.00%	0.05%	71.21	4.84	0.193
RELIANCE INDUSTRIES LTD	0.00%	0.15%	-0.14%	29.41	4.64	-0.068
HOUSING DEVELOPMENT FINANCE CORP	0.00%	0.09%	-0.08%	31.06	3.55	-0.086
ASML HOLDING	0.33%	0.00%	0.33%	42.30	2.49	0.006
AL RAJHI BANK	0.00%	0.06%	-0.06%	28.37	2.34	-0.080
ICICI BANK LTD	0.00%	0.09%	-0.09%	29.17	2.27	-0.058
BAJAJ FINANCE LTD	0.00%	0.03%	-0.03%	37.76	2.08	-0.124
AXIS BANK LTD	0.00%	0.04%	-0.04%	35.36	1.98	-0.102
SAUDI NATIONAL BANK SJSC	0.00%	0.05%	-0.05%	30.37	1.80	-0.082
ADANI ENTERPRISES LTD	0.00%	0.02%	-0.02%	43.63	1.72	-0.165

### Portfolio Risk by GICS Sector



# Growth – Global Equity Systematic US Small Cap Value

for the quarter ended December 31, 2022

## Strategy

Seeks to identify high quality small cap companies capable of generating high rates of return with attractive valuations. The strategy may be suited for investors looking to increase U.S. small cap exposure with defensive characteristics.

Inception Date: July 2018

## Portfolio Characteristics

	Portfolio	Benchmark
Market Cap Wtd Average (mm)	3,971.1	2,735.4
No. Of Issues	152.0	0.0
Dividend Yield	3.5	1.4
Return on Equity	17.7	11.9
Price to Sales	1.9	13.0
Price to Book	2.3	4.8
PE Ratio	13.2	29.0

## Top Holdings (% of assets)

FIRST CITIZENS BCSHS CL A	3.0%
MAGNOLIA OIL + GAS CORP A	2.1%
CROSS COUNTRY HEALTHCARE INC	1.8%
EMCOR GROUP INC	1.7%
NORTHWESTERN CORP	1.6%
<b>Top 5 Holdings</b>	<b>10.1%</b>

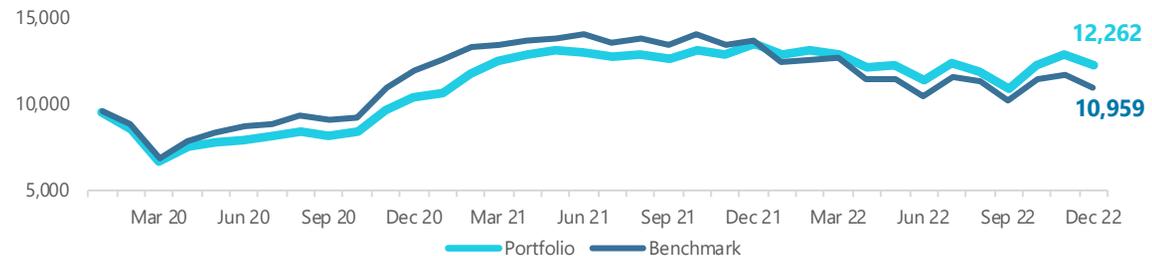
## Performance (net)<sup>1</sup>

	Ending Market Value (mm)	QTD	1 Year	3 Year	5 Year
<b>Systematic US Small Cap Value</b>	<b>186.4</b>	<b>11.8%</b>	<b>-9.9%</b>	<b>7.0%</b>	--
RUSSELL 2000		6.2%	-20.4%	3.1%	--
Growth Policy Benchmark		4.0%	-17.0%	5.2%	--

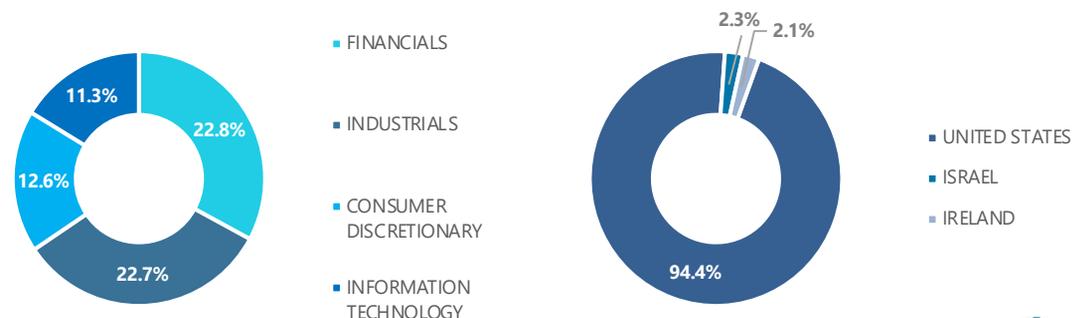
  

Universe data: US Equity Funds - Small Cap	QTD	Rank	1 Year	Rank	3 Year	Rank	5 Year	Rank
<b>Systematic US Small Cap Value</b>	<b>12.0%</b>	<b>18</b>	<b>-9.5%</b>	<b>20</b>	<b>7.6%</b>	<b>26</b>	--	--
Median	9.9%		-13.9%		6.6%		--	

## Growth of \$10,000



## Top Exposures (% of assets)<sup>2</sup>



<sup>1</sup> Universe data is gross-of-fees.

<sup>2</sup> Charts display top exposures and may not add up to 100%.

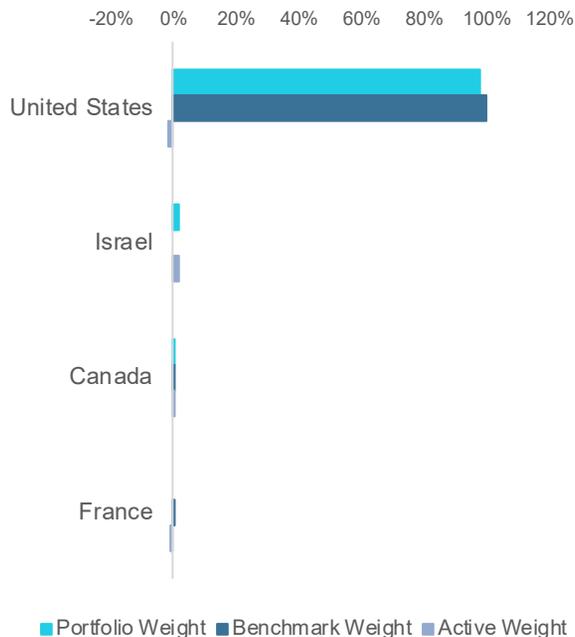
# Growth Risk Analysis – Global Equity Systematic US Small Cap Value

for the quarter ended December 31, 2022

## Portfolio Risk Summary

	Value
<b>Total Risk</b>	<b>22.49</b>
Benchmark Risk	25.36
Active Risk	5.89
Portfolio Beta	0.87

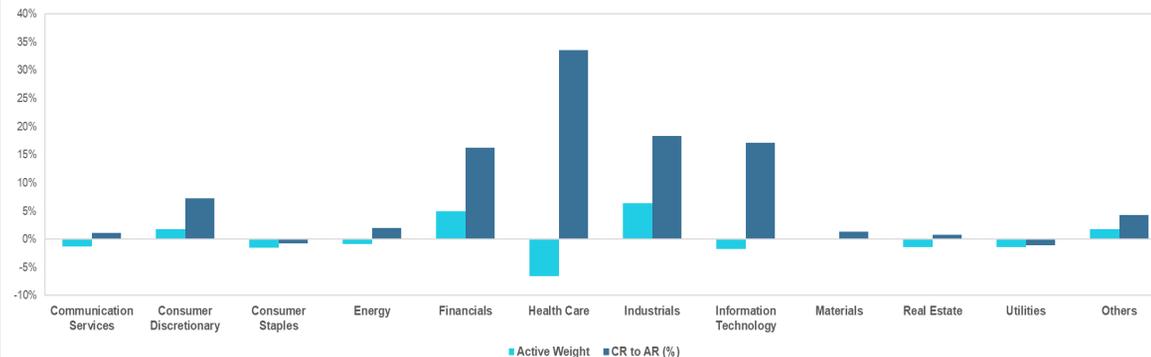
## Top Countries by Weight%



## Top 10 Assets by Contribution to Active Risk

Asset	Weight			Total Risk	%CR to Active TR	MC to Active TR
	Portfolio	Benchmark	Active			
FIRST CITIZENS BANCSHARES INC NRTH	2.97%	0.00%	2.97%	33.21	5.34	-0.040
NORTHWESTERN CORP	1.64%	0.15%	1.49%	23.94	2.94	-0.030
WASHINGTON FEDERAL INC	1.33%	0.10%	1.23%	30.41	2.48	-0.027
CROSS COUNTRY HEALTHCARE INC	1.76%	0.04%	1.72%	56.33	2.03	-0.077
WEBSTER FINANCIAL CORP	1.33%	0.00%	1.33%	33.76	1.98	-0.058
CURTISS-WRIGHT CORP	1.23%	0.00%	1.23%	26.37	1.98	-0.052
EMCOR GROUP INC	1.67%	0.31%	1.36%	25.76	1.89	-0.064
TRUSTCO BANK CORP N Y	0.98%	0.03%	0.95%	26.15	1.86	-0.030
EVEREST RE GROUP LTD	1.15%	0.00%	1.15%	28.44	1.85	-0.052
LAKELAND BANCORP INC	0.92%	0.05%	0.87%	27.44	1.79	-0.026

## Portfolio Risk by GICS Sector

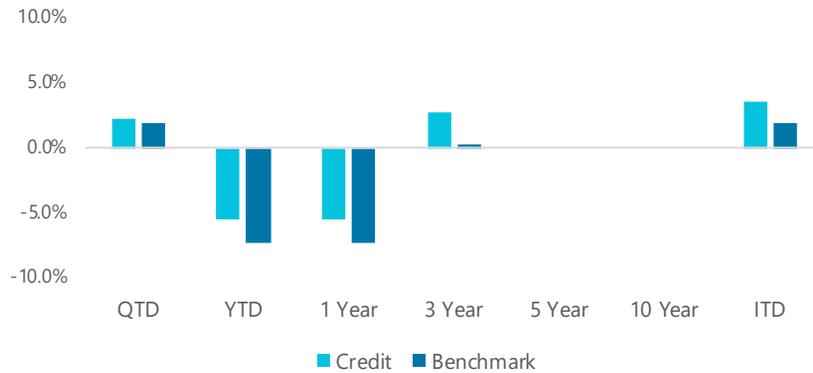


credit

# Summary

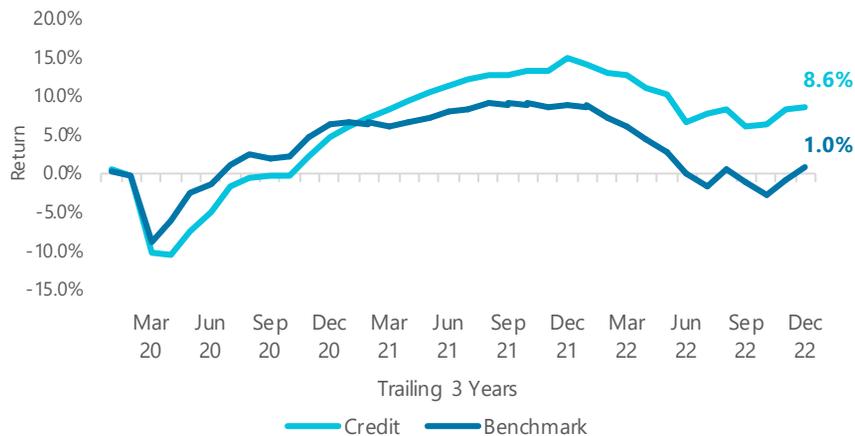
for the quarter ended December 31, 2022

## Performance (net)



	QTD	YTD	1 Year	3 Year	5 Year	10 Year	ITD
<b>Credit</b>	<b>2.2%</b>	<b>-5.5%</b>	<b>-5.5%</b>	<b>2.8%</b>	--	--	<b>3.6%</b>
Benchmark	1.9%	-7.4%	-7.4%	0.3%	--	--	2.0%
Excess	0.3%	1.9%	1.9%	2.5%	--	--	1.6%

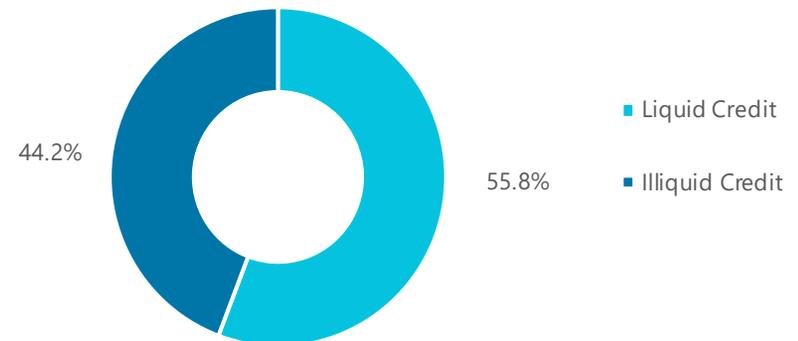
## Cumulative Return



## Functional Category

	QTD	FYTD	1 Year	3 Year
<b>Liquid Credit</b>	<b>3.9%</b>	<b>2.8%</b>	<b>-8.4%</b>	--
Liquid Credit Policy Benchmark	4.1%	3.4%	-8.0%	--
Excess	-0.2%	-0.7%	-0.5%	--
<b>Illiquid Credit</b>	<b>-0.1%</b>	<b>-0.1%</b>	<b>-0.8%</b>	<b>10.3%</b>
Illiquid Credit Policy Benchmark	0.7%	-0.6%	-5.5%	1.5%
Excess	-0.8%	0.5%	4.7%	8.8%

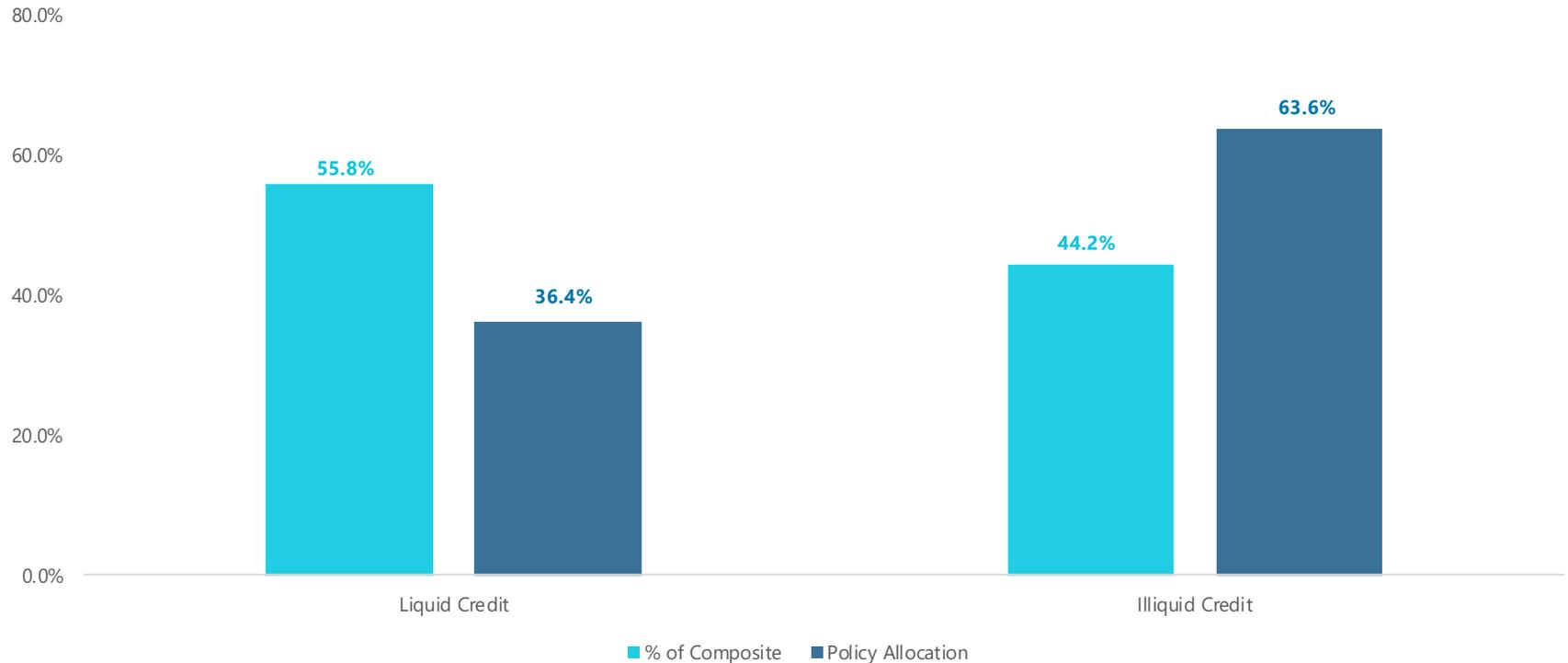
## Exposure



# Asset Allocation

for the quarter ended December 31, 2022

## Actual vs. Policy

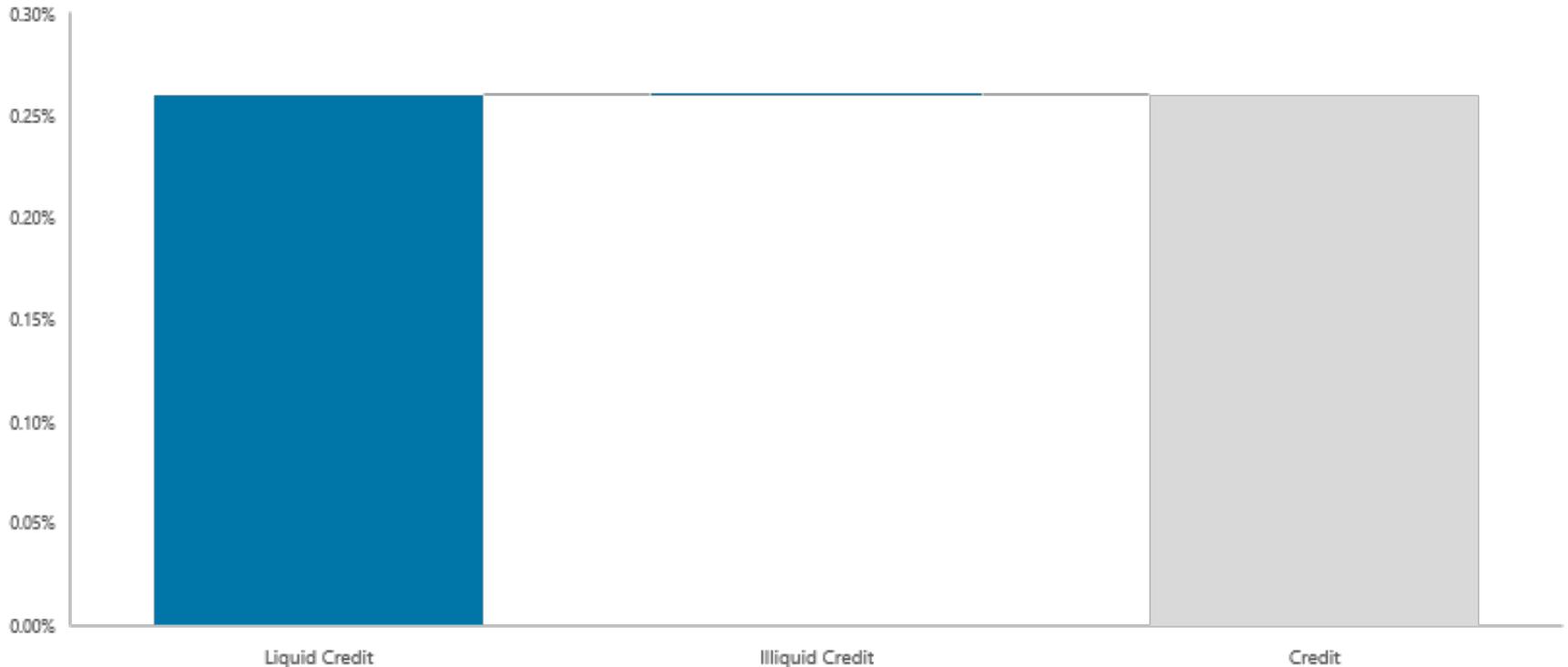


	Ending Market Value (mm)	% of Composite	Policy Allocation	Over / Under (%)	Over / Under (mm)
<b>Credit</b>	<b>8,446</b>	<b>100.0%</b>	<b>100.0%</b>		
Liquid Credit	4,709	55.8%	36.4%	19.4%	1,638
Illiquid Credit	3,736	44.2%	63.6%	-19.4%	-1,638

# Contribution to Return

for the quarter ended December 31, 2022

## QTD Contribution to Return

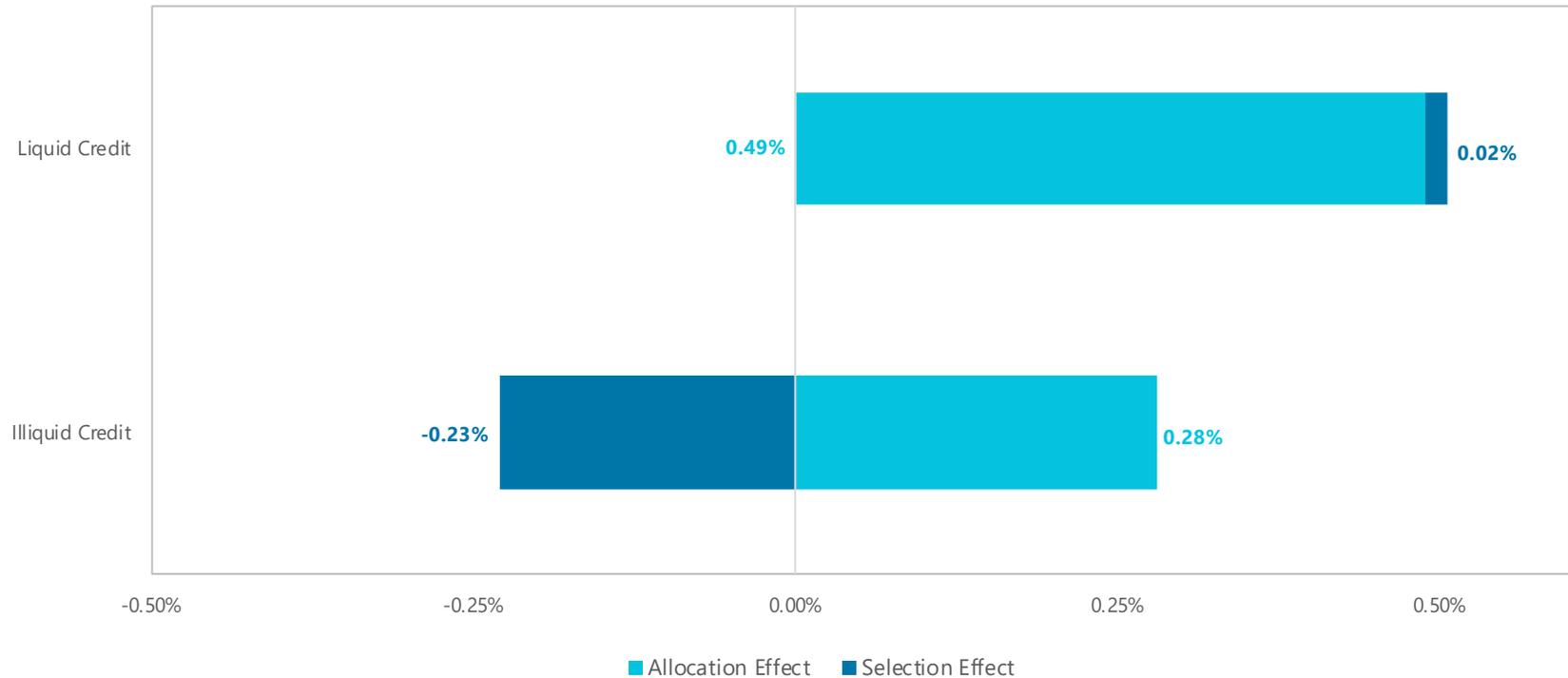


Functional Category	Contributors	Detractors
Liquid Credit	0.26%	Credit Suisse Bank Loans 0.06%
		Beach Point - Fund III -0.01%
Illiquid Credit	0.00%	abrdrn 0.05%
		Napier Park -0.01%
Credit	0.26%	Ashmore Investment Management 0.04%
		BlackRock HY ETF 0.04%
		Pinebridge Investments 0.03%

# Return Attribution

for the quarter ended December 31, 2022

## QTD Performance Attribution<sup>1</sup>



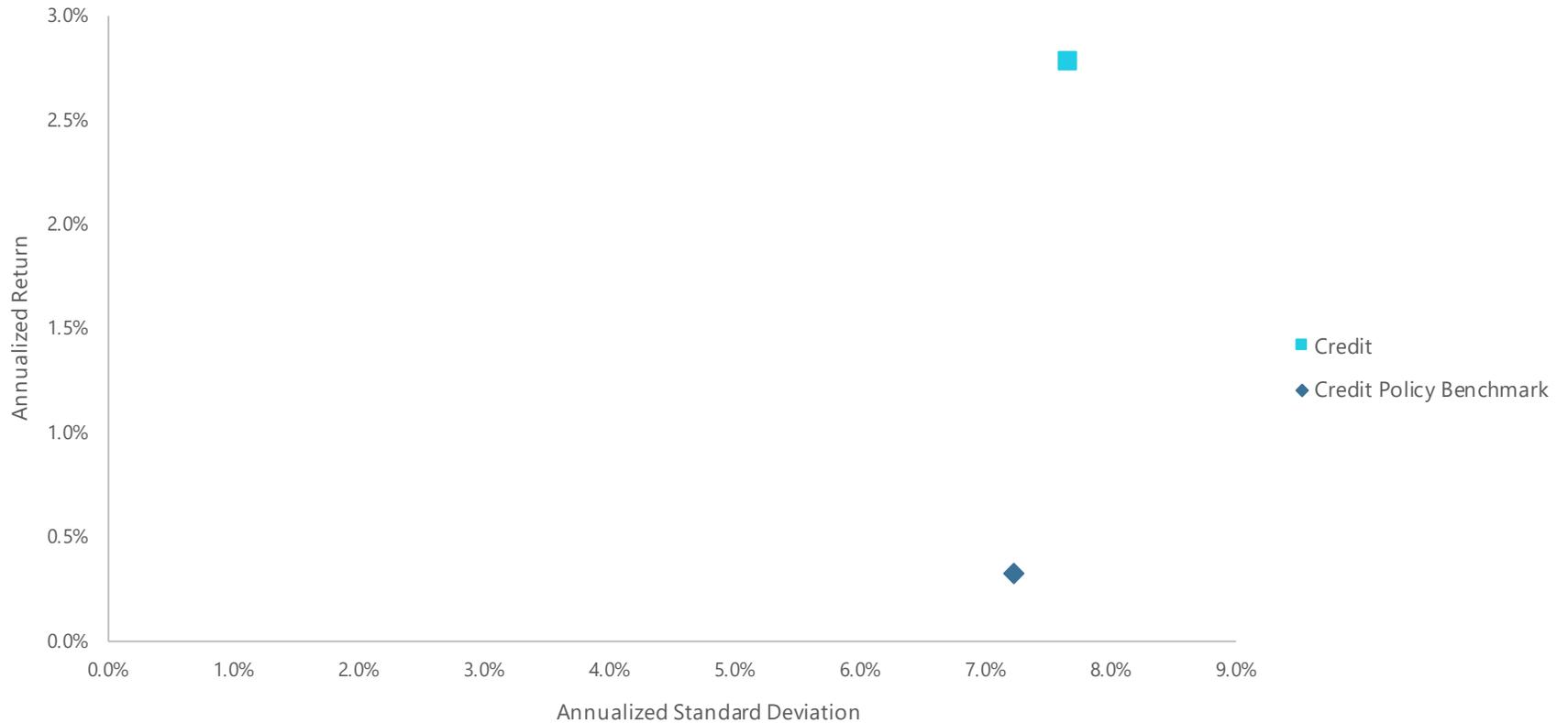
	Ending Market Value (mm)	% of Composite	Policy Allocation	Portfolio Return	Benchmark Return	Allocation Effect	Selection Effect	Total Value Add
<b>Credit</b>	<b>8,446</b>	<b>100.0%</b>	<b>100.0%</b>	<b>2.2%</b>	<b>1.9%</b>	<b>0.77%</b>	<b>-0.21%</b>	<b>0.28%</b>
Liquid Credit	4,709	55.8%	36.4%	3.9%	4.1%	0.49%	0.02%	0.37%
Illiquid Credit	3,736	44.2%	63.6%	-0.1%	0.7%	0.28%	-0.23%	-0.09%

<sup>1</sup> Total Value Add includes Interaction Effect.

# Risk vs. Return

for the quarter ended December 31, 2022

## 3 Year (Annualized)



	Annualized Return	Standard Deviation	Sharpe Ratio	Information Ratio	Beta	Tracking Error
<b>Credit</b>	<b>2.8%</b>	<b>7.7%</b>				
Credit Policy Benchmark	0.3%	7.2%	0.33	0.73	0.95	3.6%

# Performance Detail

for the quarter ended December 31, 2022



Los Angeles County Employees Retirement Association

## Annualized Net Returns

	% of Composite	Ending Market Value (mm)	Prior Quarter Ending MV (mm)	QTD	YTD	1 Year	3 Year	5 Year	10 Year	ITD	Inception Date
<b>Credit</b>	<b>100.0%</b>	<b>8,446</b>	<b>7,883</b>	<b>2.2%</b>	<b>-5.5%</b>	<b>-5.5%</b>	<b>2.8%</b>	--	--	<b>3.6%</b>	<b>Apr-2019</b>
Credit Policy Benchmark				1.9%	-7.4%	-7.4%	0.3%	--	--	2.0%	
<b>Liquid Credit</b>	<b>55.8%</b>	<b>4,709</b>	<b>4,533</b>	<b>3.9%</b>	<b>-8.4%</b>	<b>-8.4%</b>	--	--	--	<b>-6.6%</b>	<b>Oct-2021</b>
Liquid Credit Policy Benchmark				4.1%	-8.0%	-8.0%	--	--	--	-6.2%	
abrdn	4.4%	373	340	9.6%	-15.9%	-15.9%	-5.2%	-1.9%	--	-0.9%	Jul-2017
Ashmore Investment Management	4.0%	341	311	9.6%	-17.6%	-17.6%	-7.4%	-3.6%	--	-2.4%	Jun-2017
Bain Capital	4.9%	417	407	2.0%	-1.4%	-1.4%	3.2%	3.6%	--	3.5%	Jun-2014
Beach Point	3.3%	281	269	4.3%	-11.5%	-11.5%	-0.7%	2.1%	--	3.9%	Mar-2014
BlackRock HY ETF	6.9%	579	553	4.7%	-10.9%	-10.9%	--	--	--	-0.5%	Feb-2020
Brigade Cap Mgmt	7.4%	624	616	1.3%	-12.0%	-12.0%	1.0%	2.2%	3.7%	5.6%	Jul-2010
Credit Suisse Bank Loans	13.7%	1,154	1,115	3.5%	-0.4%	-0.4%	--	--	--	6.3%	Apr-2020
Crescent Capital	5.8%	491	489	0.5%	-5.6%	-5.6%	2.4%	3.3%	--	3.1%	May-2014
Pinebridge Investments	5.3%	450	432	4.2%	-11.4%	-11.4%	--	--	--	-8.1%	Sep-2021
<b>Illiquid Credit</b>	<b>44.2%</b>	<b>3,736</b>	<b>3,350</b>	<b>-0.1%</b>	<b>-0.8%</b>	<b>-0.8%</b>	<b>10.3%</b>	--	--	<b>9.3%</b>	<b>Apr-2019</b>
Illiquid Credit Policy Benchmark				0.7%	-5.5%	-5.5%	1.5%	--	--	3.7%	
Beach Point - Fund II	0.1%	13	16	--	--	--	--	--	--	5.1%	Jun-2014
Beach Point - Fund III	1.8%	154	162	-4.4%	-11.9%	-11.9%	11.0%	9.9%	--	10.0%	Jun-2017
BlackRock/Tennenbaum	7.7%	647	640	1.2%	5.5%	5.5%	7.0%	7.1%	--	7.1%	Nov-2014
Grosvenor OPCRD 2 HFOF	0.3%	23	29	--	--	--	--	--	--	--	Mar-2016
Lake Cottage	2.8%	237	0	--	--	--	--	--	--	--	Nov-2022
Lake Vineyard	4.3%	363	268	0.5%	--	--	--	--	--	-1.1%	Apr-2022
Magnetar	10.7%	904	826	-0.2%	-1.1%	-1.1%	--	--	--	18.1%	Aug-2020
Napier Park	9.5%	800	806	-0.7%	-5.5%	-5.5%	--	--	--	14.9%	Apr-2020
PIMCO Tac Opps	3.2%	273	275	-0.9%	-6.4%	-6.4%	5.5%	--	--	5.3%	Nov-2018
Private Equity - Credit	2.6%	215	216	4.2%	12.8%	12.8%	17.4%	--	--	13.7%	Jan-2019
Real Estate - Credit	1.0%	83	112	3.2%	11.1%	11.1%	10.0%	9.7%	8.8%	9.0%	Oct-2011
Stable Asset Management - IC	0.3%	23	0	--	--	--	--	--	--	0.0%	Nov-2022

# Liquid Credit Risk Summary

for the quarter ended December 31, 2022

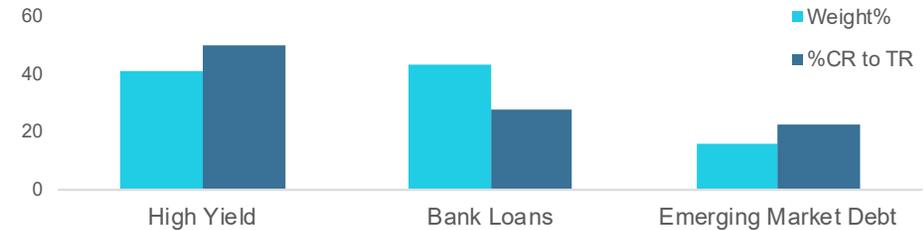
## Risk Summary

	Value
<b>Total Risk</b>	<b>6.13</b>
Benchmark Risk	5.61
Active Risk	0.72
Portfolio Beta	1.09
Cont. to Eff. Duration	2.77
Convexity	0.13
Yield to Worst (%)	8.69
OAS to Sw ap (bp)	454

## Risk Decomposition

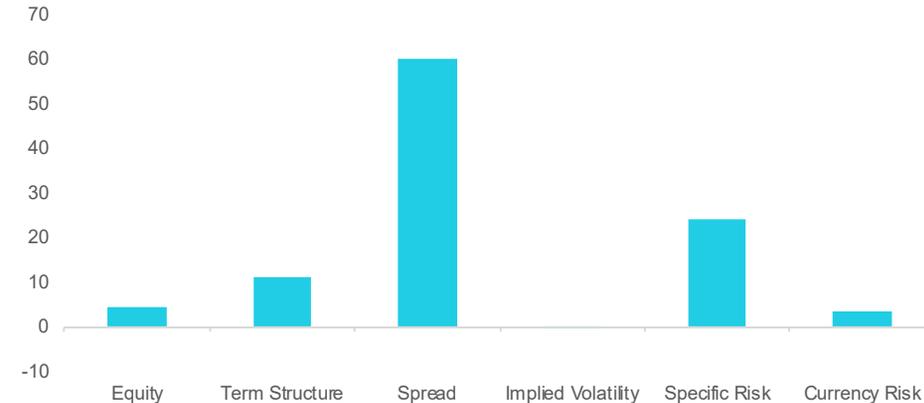
Risk Source	Portfolio		Active	
	Risk Contribution	%Risk	Risk Contribution	%Risk
<b>Total Risk</b>	<b>6.13</b>	<b>100.00</b>	<b>0.72</b>	<b>100.00</b>
Local Market Risk	5.87	95.78	0.70	96.39
Common Factor Risk	5.85	95.34	0.52	72.17
Specific Risk	0.03	0.43	0.18	24.22
Currency Risk	0.26	4.22	0.03	3.61

## Contribution to Risk



	Mkt Value (mm)	Weight%	Total Risk	Risk Contribution	%CR to TR
<b>Liquid Credit</b>	<b>4,577</b>	<b>100.00</b>	<b>6.13</b>	<b>6.13</b>	<b>100.00</b>
High Yield	1,888	41.25	7.67	3.06	49.97
Bank Loans	1,975	43.15	4.51	1.70	27.78
Emerging Market Debt	714	15.61	10.01	1.36	22.25

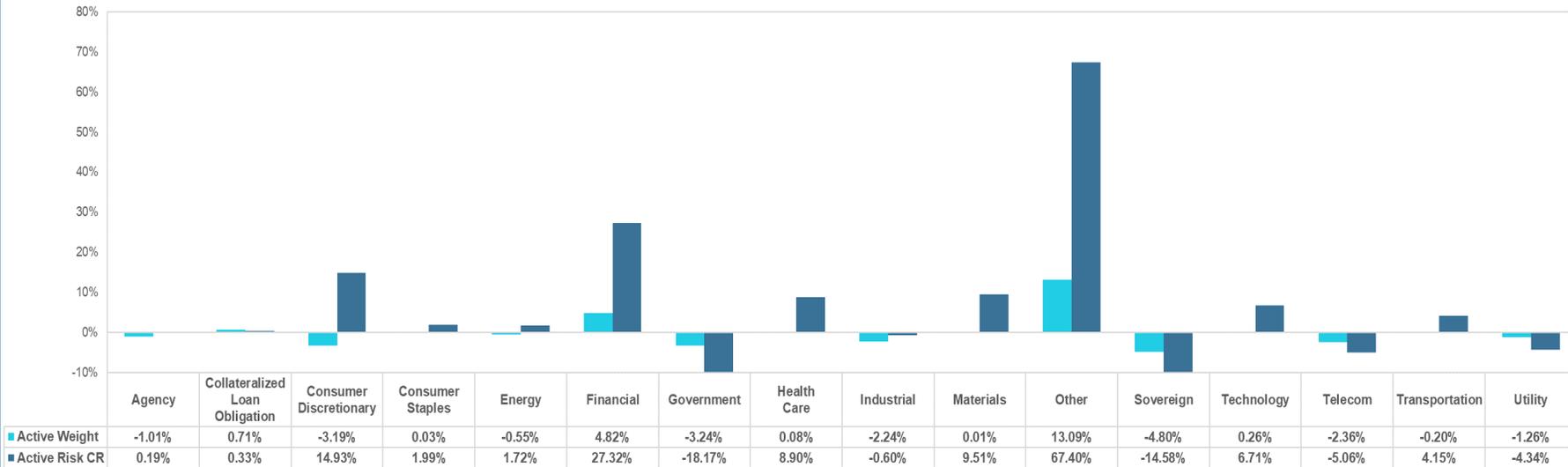
## Active Risk from Common Factors



# Liquid Credit Risk Summary

for the quarter ended December 31, 2022

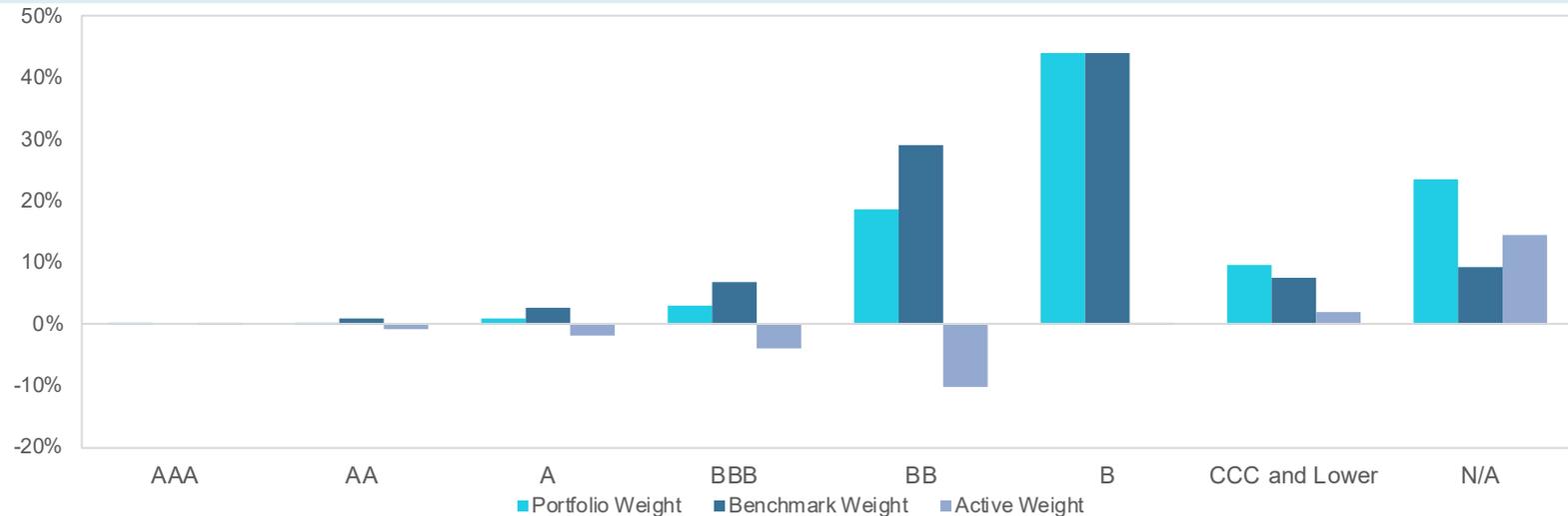
## Portfolio Allocation By Bond Sector



# Liquid Credit Risk Summary

for the quarter ended December 31, 2022

## Portfolio Allocation By Moody's Rating



Rating	Weight%			Total Risk	Active Risk CR	% of Active TR	CR to Effective Duration
	Portfolio	Benchmark	Active				
<b>Credit</b>	<b>100.00%</b>	<b>100.00%</b>	<b>0.00%</b>	<b>6.13</b>	<b>0.72</b>	<b>100.00%</b>	<b>2.77</b>
AAA	0.12%	0.00%	0.12%	16.08	0.00	-0.6%	0.02
AA	0.28%	0.97%	-0.69%	11.50	0.03	3.6%	0.03
A	0.76%	2.55%	-1.78%	11.82	0.05	7.1%	0.10
BBB	2.96%	6.99%	-4.03%	7.57	0.07	10.0%	0.19
BB	18.79%	29.00%	-10.21%	6.10	0.25	34.5%	0.74
B	44.16%	43.90%	0.26%	6.15	0.32	43.7%	0.74
CCC and Lower	9.49%	7.52%	1.97%	11.52	0.11	15.3%	0.21
N/A	23.45%	9.08%	14.36%	4.92	-0.10	-13.5%	0.73

# Credit – Liquid Credit abrdn

for the quarter ended December 31, 2022



Los Angeles County Employees Retirement Association

## Strategy

An emerging market debt strategy that invests in sovereigns, quasi-sovereigns, and corporate bonds denominated in US Dollar or local currencies.

Inception Date: July 2017

## Risk Statistics (since inception)

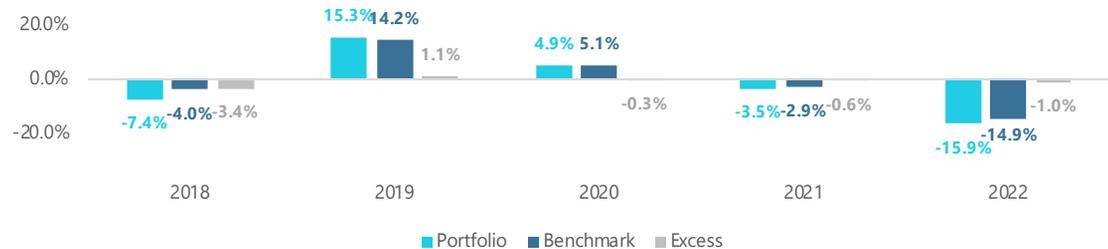
Standard Deviation	11.3%
Benchmark Standard Deviation	9.6%
Sharpe Ratio	-0.14
Information Ratio	-0.29
Beta	1.16
Tracking Error	2.7%

## Performance (net)<sup>1</sup>

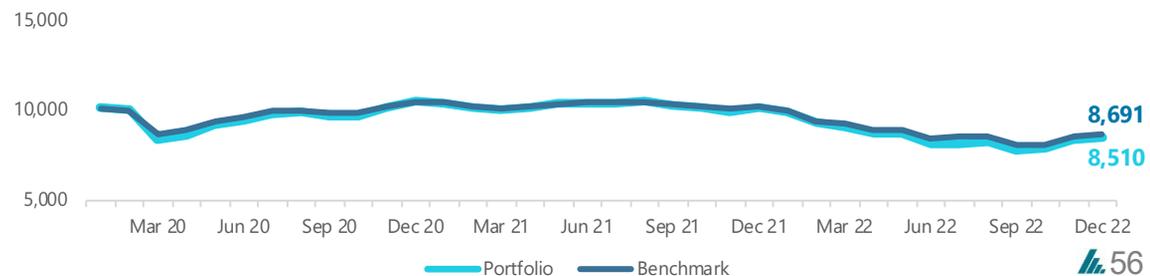
	Ending Market Value (mm)	QTD	1 Year	3 Year	5 Year
<b>abrdn</b>	<b>372.8</b>	<b>9.6%</b>	<b>-15.9%</b>	<b>-5.2%</b>	<b>-1.9%</b>
EMD Custom Benchmark		7.3%	-14.9%	-4.6%	-1.0%
Credit Policy Benchmark		1.9%	-7.4%	0.3%	--

Universe data: US Fixed Income Funds	QTD	Rank	1 Year	Rank	3 Year	Rank	5 Year	Rank
<b>abrdn</b>	<b>9.7%</b>	<b>3</b>	<b>-15.6%</b>	<b>87</b>	<b>-4.9%</b>	<b>91</b>	<b>-1.5%</b>	<b>95</b>
Median	1.7%		-8.1%		-0.7%		1.0%	

## Calendar Year Returns



## Growth of \$10,000



Note: Commingled fund account with no position-level transparency.  
<sup>1</sup> Universe data is gross-of-fees.

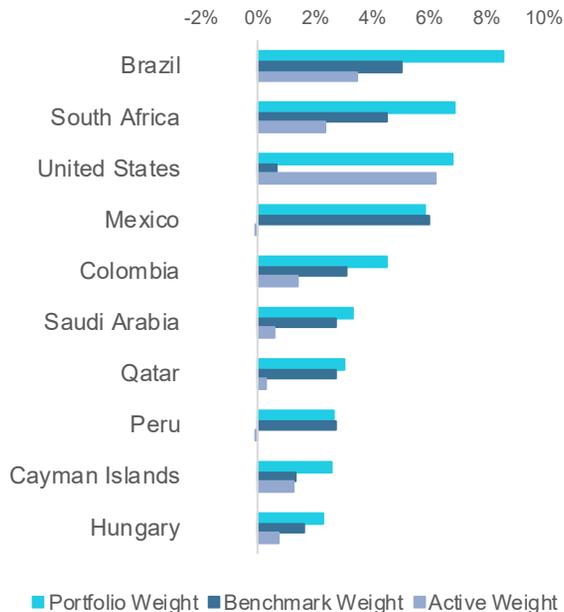
# Credit Risk Analysis – Liquid Credit abrdn

for the quarter ended December 31, 2022

## Portfolio Risk Summary

	Value
<b>Total Risk</b>	<b>10.36</b>
Benchmark Risk	7.73
Active Risk	3.58
Portfolio Beta	1.29
Cont. to Eff. Duration	5.73
Yield to Worst (%)	9.49
OAS to Sw ap (bp)	382

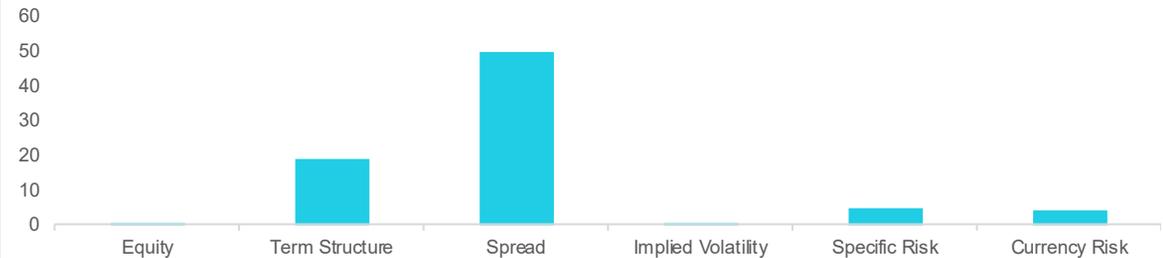
## Top Countries by Weight%



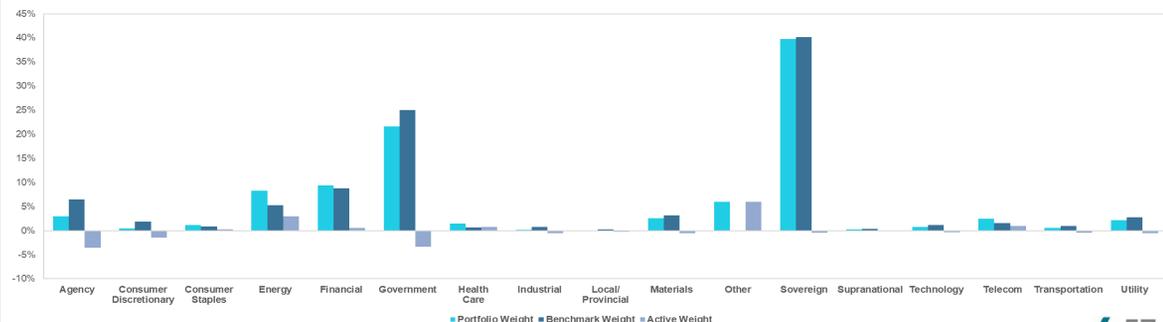
## Allocation by Moody's Rating



## Active Risk from Common Factors



## Portfolio Risk by Bond Sector



# Credit – Liquid Credit Ashmore

for the quarter ended December 31, 2022



Los Angeles County Employees Retirement Association

## Strategy

A value-driven emerging market debt strategy that applies a macro, top-down approach to build a well-diversified portfolio that adds value through asset rotation, security selection, and currency positioning utilizing a committee driven, systematic risk mitigating process.

Inception Date: June 2017

## Risk Statistics (since inception)

Standard Deviation	13.4%
Benchmark Standard Deviation	9.6%
Sharpe Ratio	-0.20
Information Ratio	-0.47
Beta	1.37
Tracking Error	4.5%

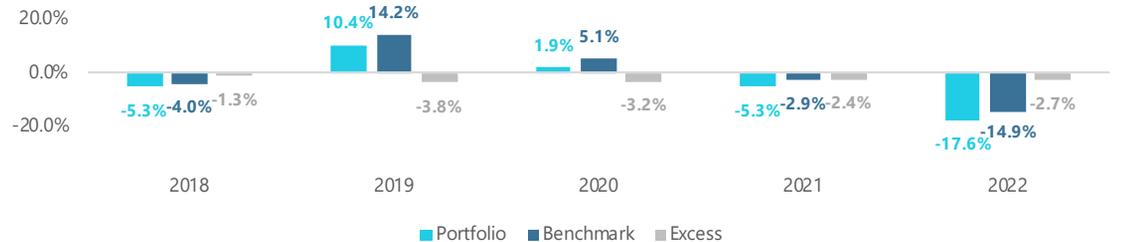
## Performance (net)<sup>1</sup>

	Ending Market Value (mm)	QTD	1 Year	3 Year	5 Year
<b>Ashmore Investment Management</b>	<b>341.2</b>	<b>9.6%</b>	<b>-17.6%</b>	<b>-7.4%</b>	<b>-3.6%</b>
EMD Custom Benchmark		7.3%	-14.9%	-4.6%	-1.0%
Credit Policy Benchmark		1.9%	-7.4%	0.3%	--

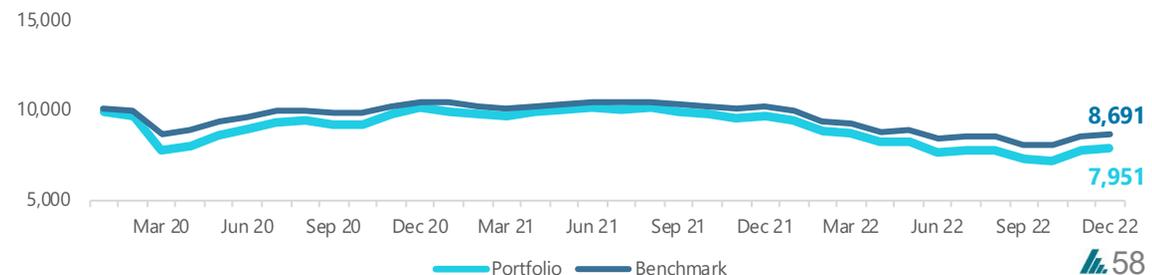
  

Universe data: US Fixed Income Funds	QTD	Rank	1 Year	Rank	3 Year	Rank	5 Year	Rank
<b>Ashmore Investment Management</b>	<b>9.8%</b>	<b>3</b>	<b>-17.6%</b>	<b>88</b>	<b>-6.9%</b>	<b>97</b>	<b>-3.1%</b>	<b>97</b>
Median	1.7%		-8.1%		-0.7%		1.0%	

## Calendar Year Returns



## Growth of \$10,000



Note: Commingled fund account with no position-level transparency.  
<sup>1</sup> Universe data is gross-of-fees.

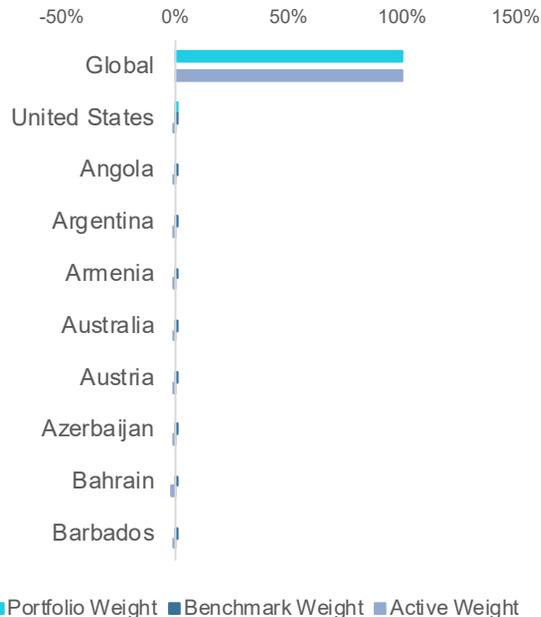
# Credit Risk Analysis – Liquid Credit Ashmore

for the quarter ended December 31, 2022

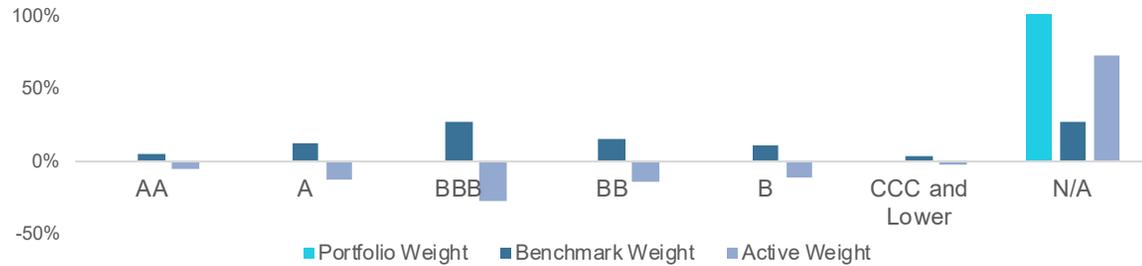
## Portfolio Risk Summary

	Value
<b>Total Risk</b>	<b>10.56</b>
Benchmark Risk	7.73
Active Risk	5.41
Portfolio Beta	1.19
Cont. to Eff. Duration	5.83
Yield to Worst (%)	0.00
OAS to Sw ap (bp)	-432

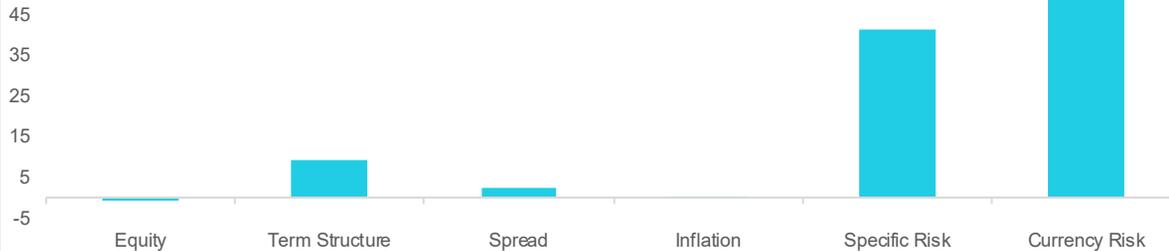
## Top Countries by Weight%



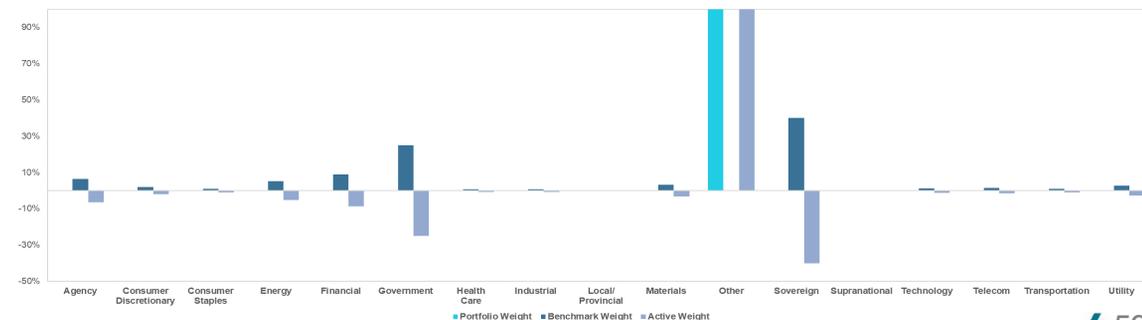
## Allocation by Moody's Rating



## Active Risk from Common Factors



## Portfolio Risk by Bond Sector



# Credit – Liquid Credit Bain Capital

for the quarter ended December 31, 2022

## Strategy

A long-only strategy designed to provide exposure to senior secured, floating-rate bank loans. The strategy takes a fundamental, active, and global approach to investing, capitalizing on opportunities in an inefficient asset class. The return objective is to outperform the Index through strong credit selection and active portfolio management.

Inception Date: June 2014

## Portfolio Characteristics

	Portfolio	Benchmark
No. of Issues	546.0	0.0
Effective Duration	0.2	4.0
Convexity	0.0	0.0
Coupon Rate	7.4	5.8
Yield to Maturity	8.1	8.7
Current Yield	7.8	6.7
Rating – Moody's	B-2	B-1
Rating – S & P	B-2	B+

## Top Holdings (% of assets)

AQGEN ISLAND HOLDINGS, INC.	0.9%
CPS GROUP HOLDINGS INC	0.9%
NAVICURE INC	0.7%
CHAMBER BIDCO LIMITED	0.6%
TEI HOLDINGS INC	0.5%
<b>Top 5 Holdings</b>	<b>3.7%</b>

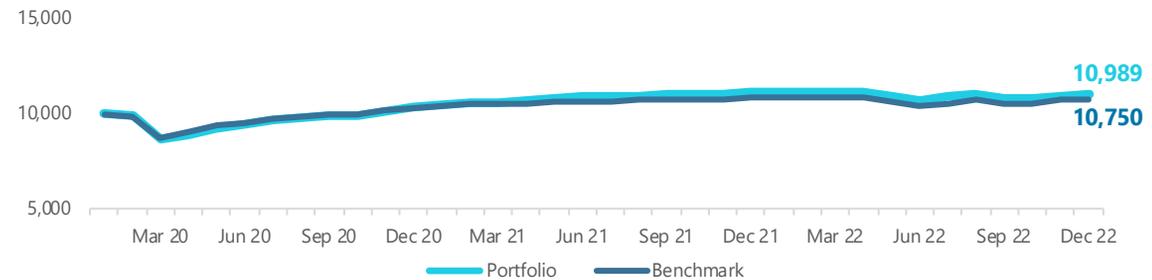
## Performance (net)<sup>1</sup>

	Ending Market Value (mm)	QTD	1 Year	3 Year	5 Year
<b>Bain Capital</b>	<b>416.7</b>	<b>2.0%</b>	<b>-1.4%</b>	<b>3.2%</b>	<b>3.6%</b>
Bank Loans Custom Benchmark		2.3%	-1.1%	2.4%	3.5%
Credit Policy Benchmark		1.9%	-7.4%	0.3%	--

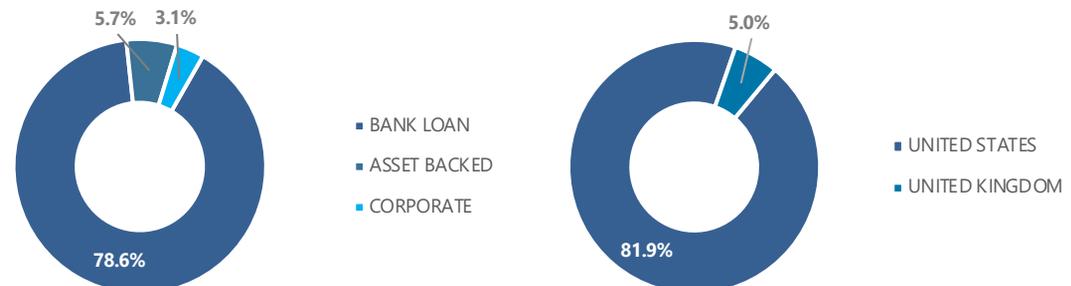
  

Universe data: U.S. Fixed Income Funds	QTD	Rank	1 Year	Rank	3 Year	Rank	5 Year	Rank
<b>Bain Capital</b>	<b>2.1%</b>	<b>36</b>	<b>-0.8%</b>	<b>32</b>	<b>3.8%</b>	<b>20</b>	<b>4.2%</b>	<b>14</b>
Median	1.7%		-8.1%		-0.7%		1.0%	

## Growth of \$10,000



## Top Exposures (% of assets)<sup>2</sup>



<sup>1</sup> Universe data is gross-of-fees.

<sup>2</sup> Charts display top exposures and may not add up to 100%.

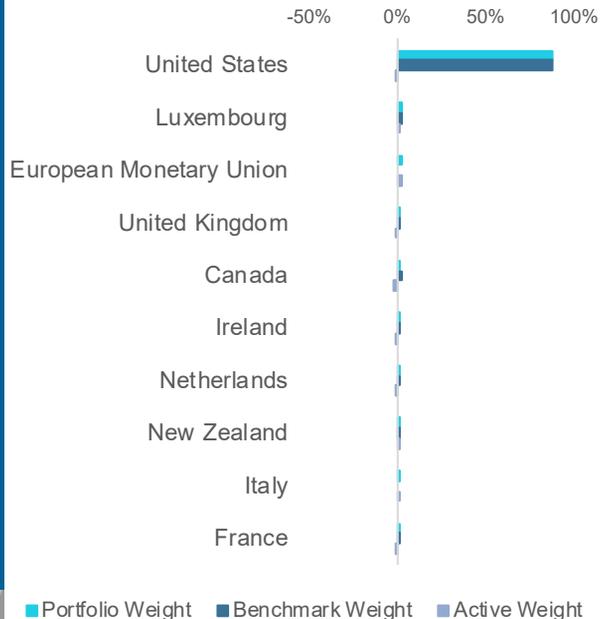
# Credit Risk Analysis – Liquid Credit Bain Capital

for the quarter ended December 31, 2022

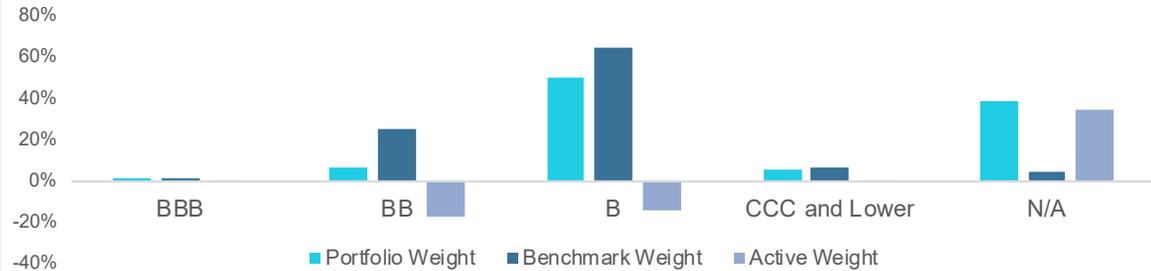
## Portfolio Risk Summary

	Value
<b>Total Risk</b>	<b>3.38</b>
Benchmark Risk	4.69
Active Risk	1.52
Portfolio Beta	0.71
Cont. to Eff. Duration	0.44
Yield to Worst (%)	7.34
OAS to Sw ap (bp)	474

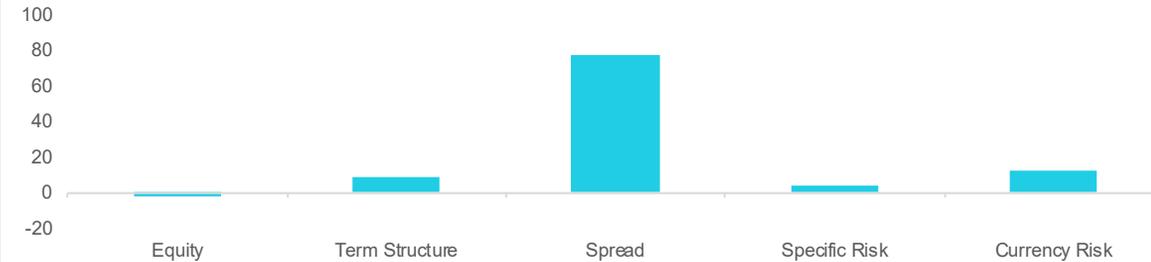
## Top Countries by Weight%



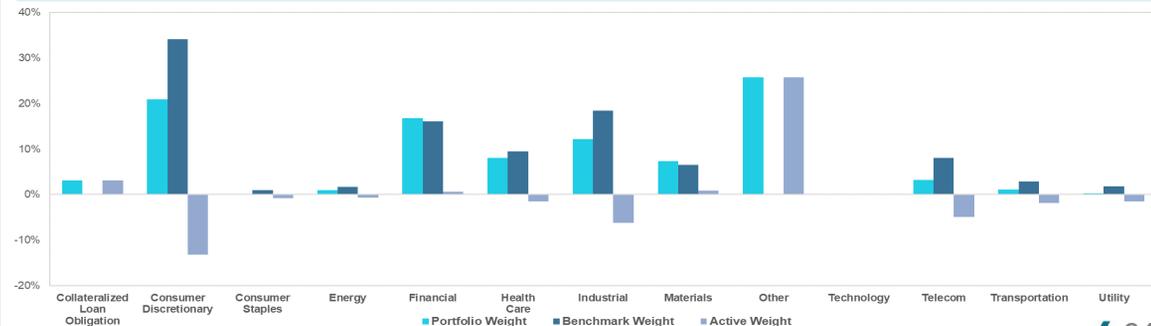
## Allocation by Moody's Rating



## Active Risk from Common Factors



## Portfolio Risk by Bond Sector



# Credit – Liquid Credit Beach Point

for the quarter ended December 31, 2022

## Strategy

A fundamental, value oriented high yield bond strategy that utilizes legal skills to identify market anomalies in bond covenants and indentures. The primary investment goal is to generate superior returns while controlling risk to minimize the possibility of capital impairment.

Inception Date: March 2014

## Portfolio Characteristics

	Portfolio	Benchmark
No. of Issues	266.0	0.0
Effective Duration	3.9	4.0
Convexity	0.1	0.0
Coupon Rate	5.8	5.8
Yield to Maturity	9.2	8.7
Current Yield	6.9	6.7
Rating – Moody's	B-2	B-1
Rating – S & P	B	B+

## Top Holdings (% of assets)

AMERICAN GREETINGS CORP	1.8%
DEALER TIRE LLC/DT ISSR	1.5%
COMPASS GROUP DIVERSIFIE	1.4%
ACRISURE LLC / FIN INC	1.3%
MPH ACQUISITION HOLDINGS	1.2%
<b>Top 5 Holdings</b>	<b>7.1%</b>

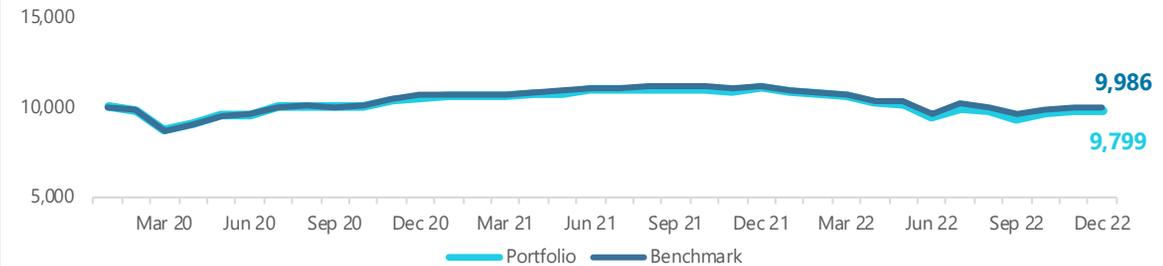
## Performance (net)<sup>1</sup>

	Ending Market Value (mm)	QTD	1 Year	3 Year	5 Year
<b>Beach Point</b>	<b>280.7</b>	<b>4.3%</b>	<b>-11.5%</b>	<b>-0.7%</b>	<b>2.1%</b>
Beachpoint Custom Benchmark		4.2%	-11.2%	0.0%	2.0%
Credit Policy Benchmark		1.9%	-7.4%	0.3%	--

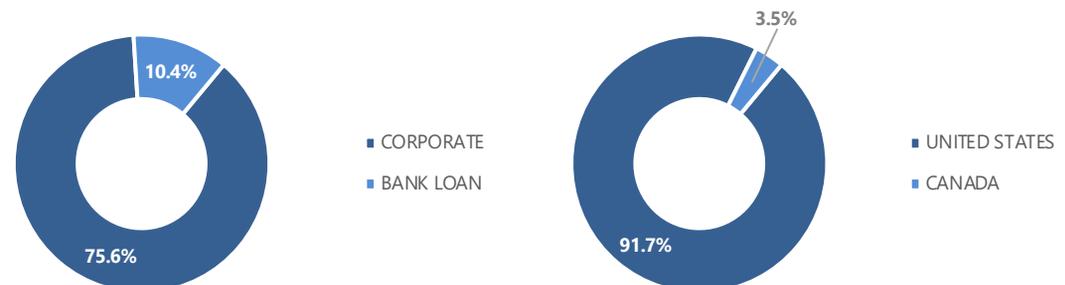
  

Universe data: US Fixed Income Funds	QTD	Rank	1 Year	Rank	3 Year	Rank	5 Year	Rank
<b>Beach Point</b>	<b>4.5%</b>	<b>12</b>	<b>-11.2%</b>	<b>62</b>	<b>-0.2%</b>	<b>47</b>	<b>2.6%</b>	<b>19</b>
Median	1.2%		-8.1%		-0.7%		1.0%	

## Growth of \$10,000



## Top Exposures (% of assets)<sup>2</sup>



<sup>1</sup> Universe data is gross-of-fees.

<sup>2</sup> Charts display top exposures and may not add up to 100%.

# Credit Risk Analysis – Liquid Credit Beach Point

for the quarter ended December 31, 2022

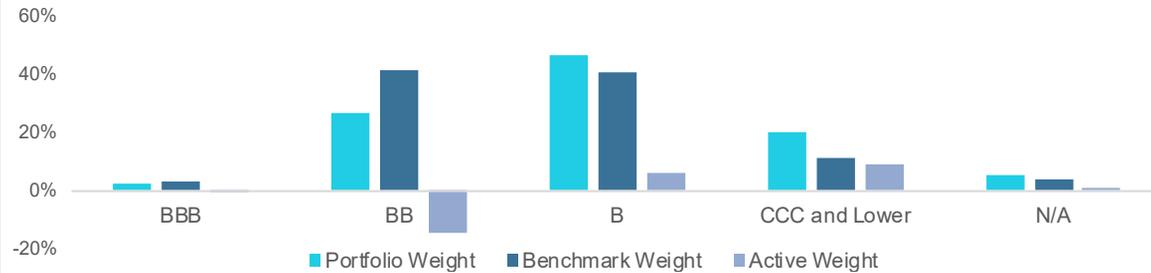
## Portfolio Risk Summary

	Value
<b>Total Risk</b>	<b>8.05</b>
Benchmark Risk	7.04
Active Risk	1.46
Portfolio Beta	1.13
Cont. to Eff. Duration	3.97
Yield to Worst (%)	8.70
OAS to Sw ap (bp)	456

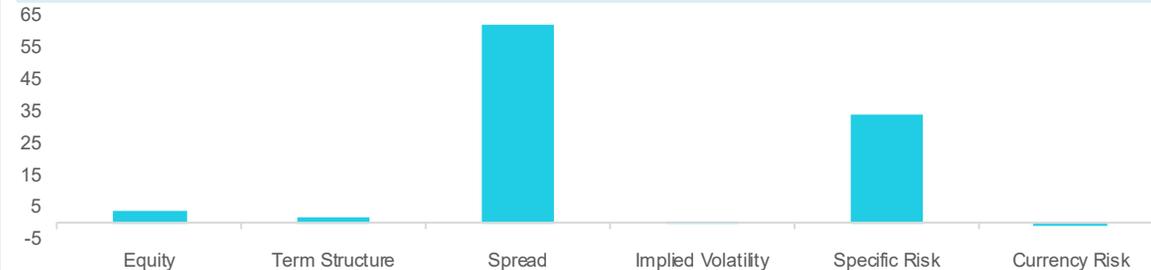
## Top Countries by Weight%



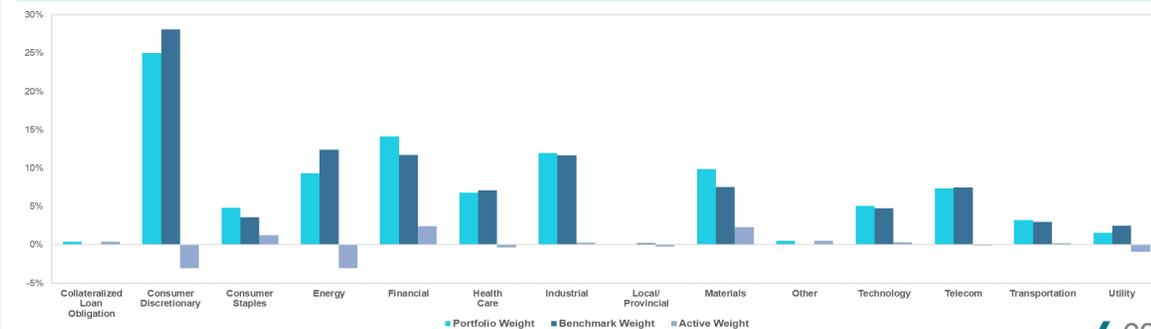
## Allocation by Moody's Rating



## Active Risk from Common Factors



## Portfolio Risk by Bond Sector



# Credit – Liquid Credit Brigade Capital

for the quarter ended December 31, 2022



Los Angeles County Employees Retirement Association

## Strategy

A strategy that focuses on identifying attractive companies within the high yield bond marketplace. The strategy invests in companies that have a lower likelihood of default or are better able to recover from economic downturns because of their substantial asset value relative to debt.

Inception Date: July 2010

## Portfolio Characteristics

	Portfolio	Benchmark
No. of Issues	337.0	0.0
Effective Duration	4.0	4.0
Convexity	0.3	0.0
Coupon Rate	6.6	5.8
Yield to Maturity	11.9	8.7
Current Yield	8.5	6.7
Rating – Moody's	B-1	B-1
Rating – S & P	B+	B+

## Top Holdings (% of assets)

EPIC Y GRADE SERVICES, LP	2.0%
CORNERSTONE CHEMICAL CO	2.0%
RAIN CII CARBON LLC/CII	1.2%
BAFFINLAND IRON CORP/LP	1.2%
LIFESCAN GLOBAL CORP	1.1%
<b>Top 5 Holdings</b>	<b>7.4%</b>

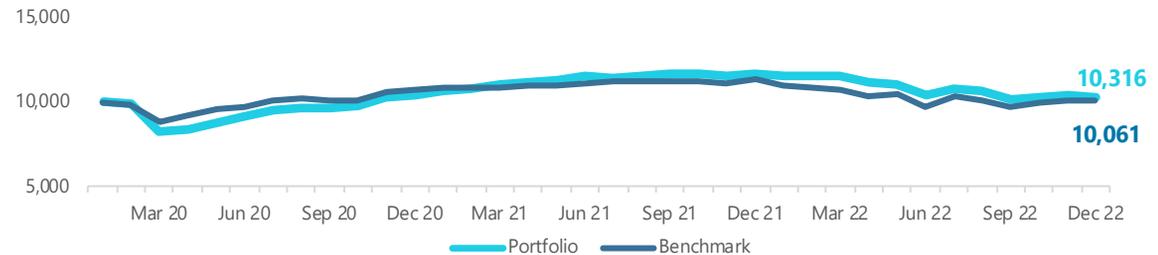
## Performance (net)<sup>1</sup>

	Ending Market Value (mm)	QTD	1 Year	3 Year	5 Year
<b>Brigade Cap Mgmt</b>	<b>624.1</b>	<b>1.3%</b>	<b>-12.0%</b>	<b>1.0%</b>	<b>2.2%</b>
Brigade Custom Benchmark		4.2%	-11.2%	0.2%	2.3%
Credit Policy Benchmark		1.9%	-7.4%	0.3%	--

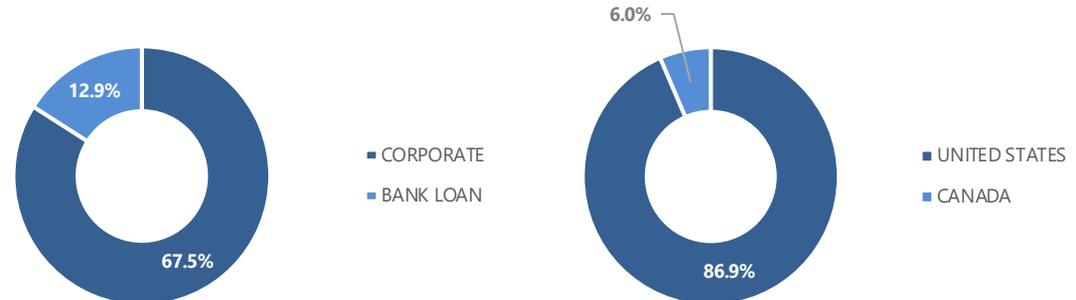
  

Universe data: US Fixed Income Funds	QTD	Rank	1 Year	Rank	3 Year	Rank	5 Year	Rank
<b>Brigade Cap Mgmt</b>	<b>1.4%</b>	<b>57</b>	<b>-11.7%</b>	<b>66</b>	<b>1.5%</b>	<b>26</b>	<b>2.8%</b>	<b>19</b>
Median	1.7%		-8.1%		-0.7%		1.0%	

## Growth of \$10,000



## Top Exposures (% of assets)<sup>2</sup>



<sup>1</sup> Universe data is gross-of-fees.

<sup>2</sup> Charts display top exposures and may not add up to 100%.

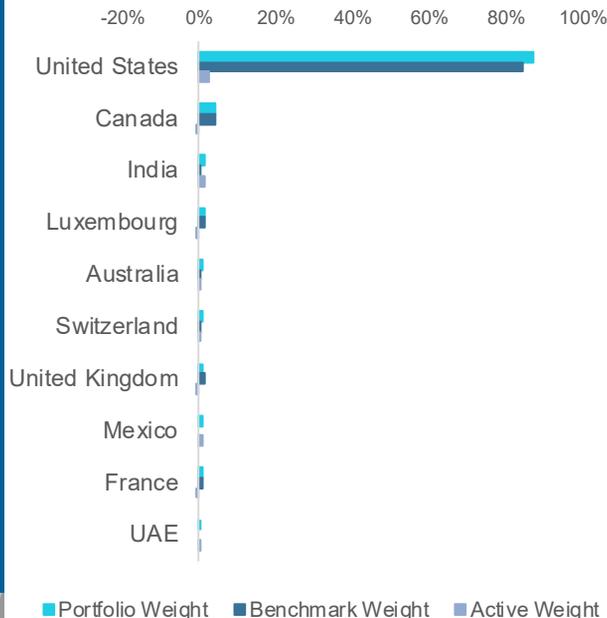
# Credit Risk Analysis – Liquid Credit Brigade Capital

for the quarter ended December 31, 2022

## Portfolio Risk Summary

	Value
<b>Total Risk</b>	<b>8.77</b>
Benchmark Risk	7.04
Active Risk	2.42
Portfolio Beta	1.22
Cont. to Eff. Duration	4.07
Yield to Worst (%)	9.65
OAS to Swap (bp)	554

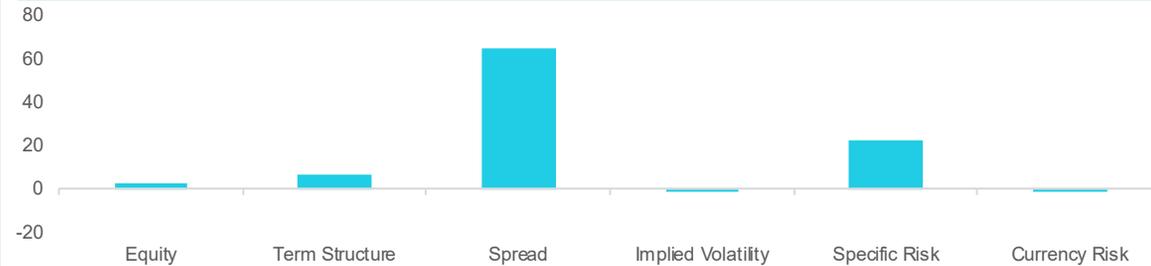
## Top Countries by Weight%



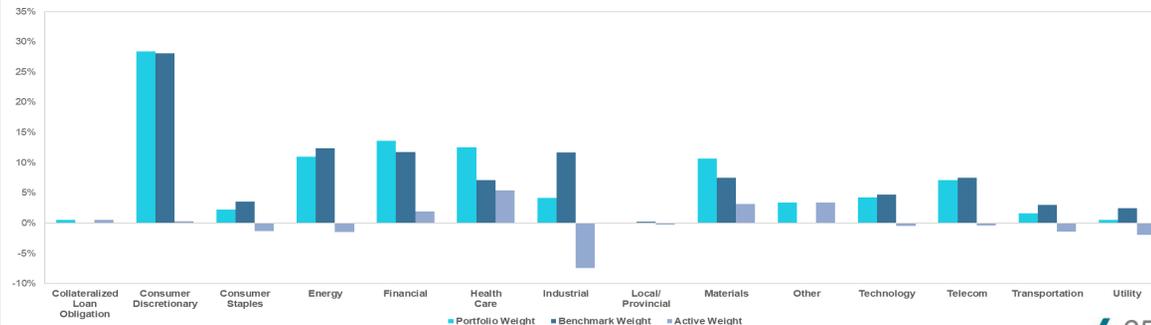
## Allocation by Moody's Rating



## Active Risk from Common Factors



## Portfolio Risk by Bond Sector



# Credit – Liquid Credit

## Credit Suisse

for the quarter ended December 31, 2022

### Strategy

A bank loan strategy that invests in senior floating rate loans whose primary performance objective is to generate alpha while mitigating loss, utilizing bottom-up, fundamental credit analysis emphasizing a relative value approach.

Inception Date: April 2020

### Portfolio Characteristics

	Portfolio	Benchmark
No. of Issues	506.0	0.0
Effective Duration	0.2	4.0
Convexity	0.0	0.0
Coupon Rate	7.9	5.8
Yield to Maturity	9.0	8.7
Current Yield	8.4	6.7
Rating – Moody's	B-2	B-1
Rating – S & P	B	B+

### Top Holdings (% of assets)

OPEN TEXT CORP	1.1%
ABG INTERMEDIATE HOLDGS 2 LLC	0.8%
HYLAND SOFTWARE INC	0.8%
FINASTRA USA, INC.	0.7%
NFP CORP	0.7%
<b>Top 5 Holdings</b>	<b>4.2%</b>

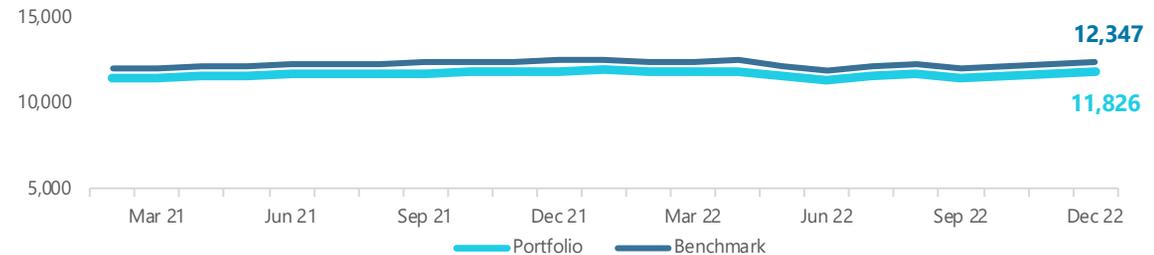
### Performance (net)<sup>1</sup>

	Ending Market Value (mm)	QTD	1 Year	3 Year	5 Year
<b>Credit Suisse Bank Loans</b>	<b>1,154.1</b>	<b>3.5%</b>	<b>-0.4%</b>	--	--
CS Leveraged Loan Index		2.3%	-1.1%	--	--
Credit Policy Benchmark		1.9%	-7.4%	0.3%	--

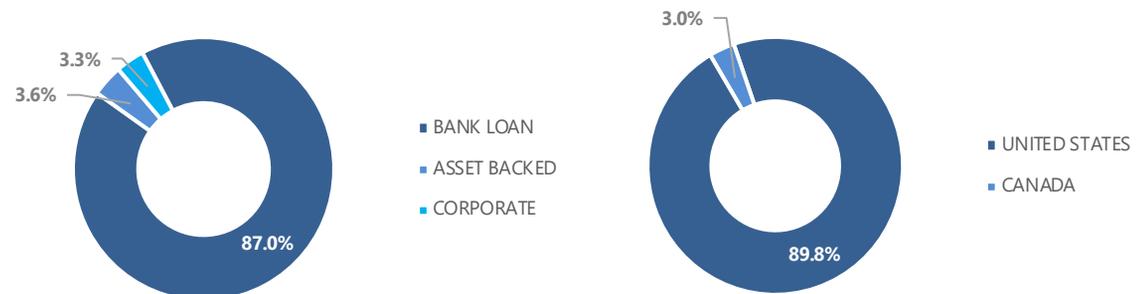
  

Universe data: US Fixed Income Funds	QTD	Rank	1 Year	Rank	3 Year	Rank	5 Year	Rank
<b>Credit Suisse Bank Loans</b>	<b>3.5%</b>	<b>18</b>	<b>-0.2%</b>	<b>31</b>	--	--	--	--
Median	1.7%		-8.1%		--	--	--	--

### Growth of \$10,000



### Top Exposures (% of assets)<sup>2</sup>



<sup>1</sup> Universe data is gross-of-fees.

<sup>2</sup> Charts display top exposures and may not add up to 100%.

# Credit Risk Analysis – Liquid Credit

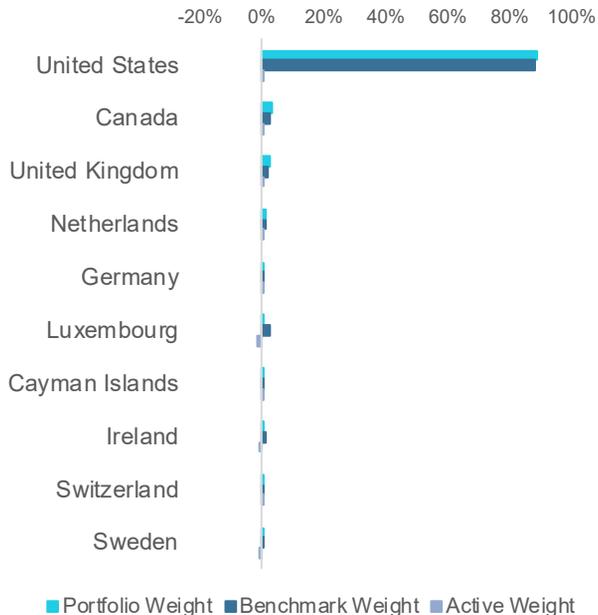
## Credit Suisse

for the quarter ended December 31, 2022

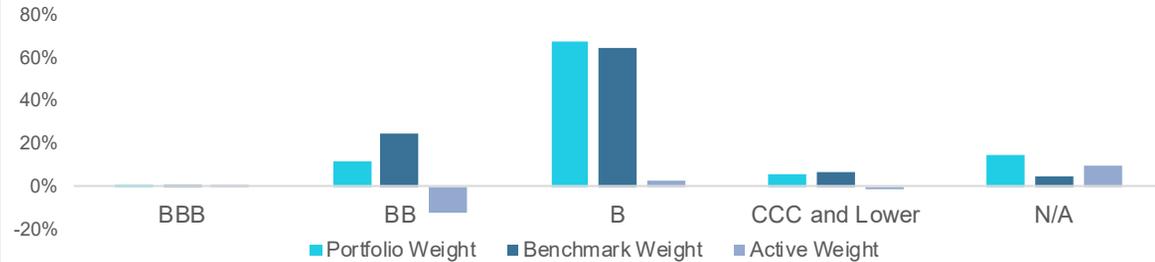
### Portfolio Risk Summary

	Value
<b>Total Risk</b>	<b>4.24</b>
Benchmark Risk	4.69
Active Risk	0.75
Portfolio Beta	0.90
Cont. to Eff. Duration	0.44
Yield to Worst (%)	5.83
OAS to Sw ap (bp)	474

### Top Countries by Weight%



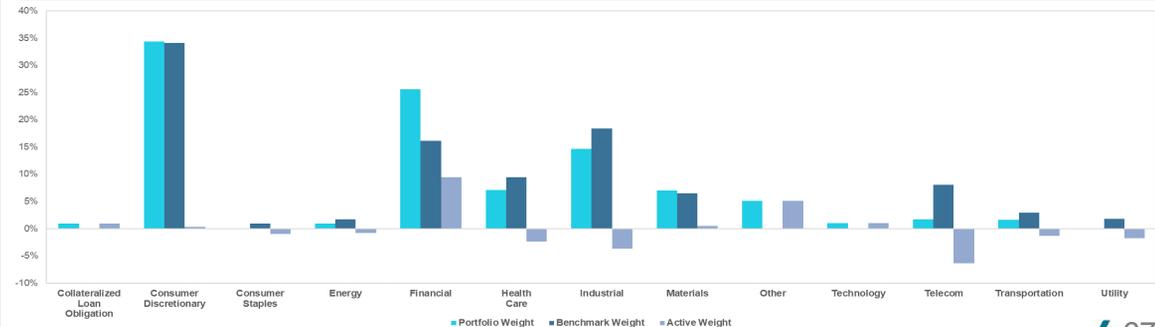
### Allocation by Moody's Rating



### Active Risk from Common Factors



### Portfolio Risk by Bond Sector



# Credit – Liquid Credit Crescent Capital

for the quarter ended December 31, 2022

## Strategy

A bank loan strategy that invests in privately negotiated, below investment grade, secured corporate debt. The primary target is U.S. based middle market companies whose EBITDA falls between \$31M to \$100M. The strategy's bottom-up credit research process emphasizes high current income and principal preservation.

Inception Date: May 2014

## Portfolio Characteristics

	Portfolio	Benchmark
No. of Issues	136.0	0.0
Effective Duration	0.3	4.0
Convexity	0.0	0.0
Coupon Rate	9.2	5.8
Yield to Maturity	11.3	8.7
Current Yield	10.1	6.7
Rating – Moody's	B-2	B-1
Rating – S & P	B-	B+

## Top Holdings (% of assets)

THE KNOT WORLDWIDE INC	2.0%
MAGNATE WORLDWIDE LLC	1.9%
EVERGREEN ACQCO 1 LP	1.8%
CTC HOLDINGS LP	1.7%
AIT WORLDWIDE LOGISTICS INC	1.6%
<b>Top 5 Holdings</b>	<b>9.0%</b>

## Performance (net)<sup>1</sup>

	Ending Market Value (mm)	QTD	1 Year	3 Year	5 Year
<b>Crescent Capital</b>	<b>490.9</b>	<b>0.5%</b>	<b>-5.6%</b>	<b>2.4%</b>	<b>3.3%</b>
Bank Loans Custom Benchmark		2.3%	-1.1%	2.4%	3.5%
Credit Policy Benchmark		1.9%	-7.4%	0.3%	--

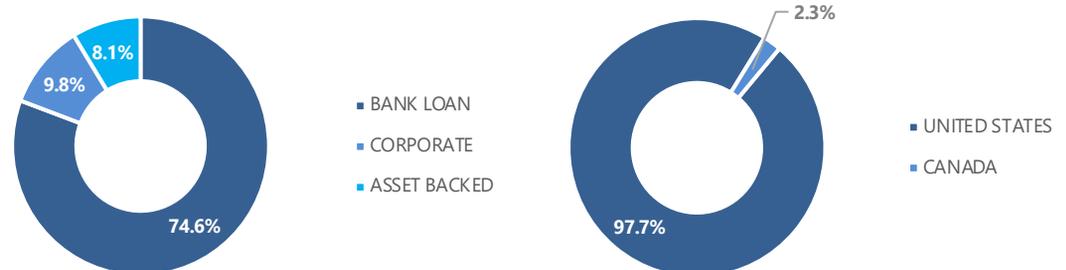
  

Universe data: U.S. Fixed Income Funds	QTD	Rank	1 Year	Rank	3 Year	Rank	5 Year	Rank
<b>Crescent Capital</b>	<b>0.6%</b>	<b>75</b>	<b>-5.2%</b>	<b>43</b>	<b>2.9%</b>	<b>21</b>	<b>3.8%</b>	<b>14</b>
Median	1.7%		-8.1%		-0.7%		1.0%	

## Growth of \$10,000



## Top Exposures (% of assets)<sup>2</sup>



<sup>1</sup> Universe data is gross-of-fees.

<sup>2</sup> Charts display top exposures and may not add up to 100%.

# Credit Risk Analysis – Liquid Credit Crescent Capital

for the quarter ended December 31, 2022

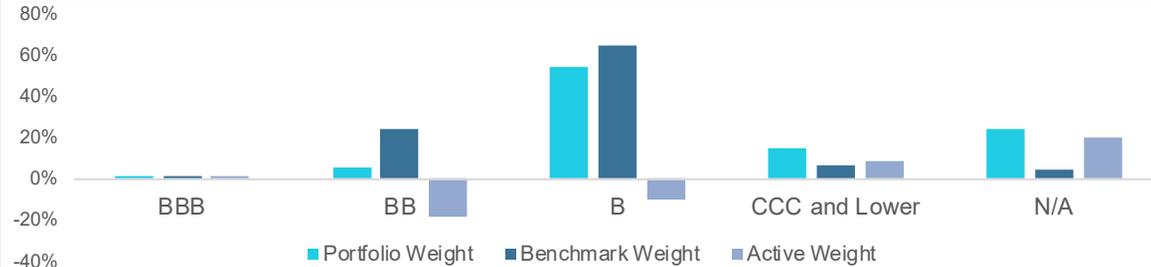
## Portfolio Risk Summary

	Value
<b>Total Risk</b>	<b>6.16</b>
Benchmark Risk	4.69
Active Risk	1.93
Portfolio Beta	1.28
Cont. to Eff. Duration	0.54
Yield to Worst (%)	7.29
OAS to Sw ap (bp)	600

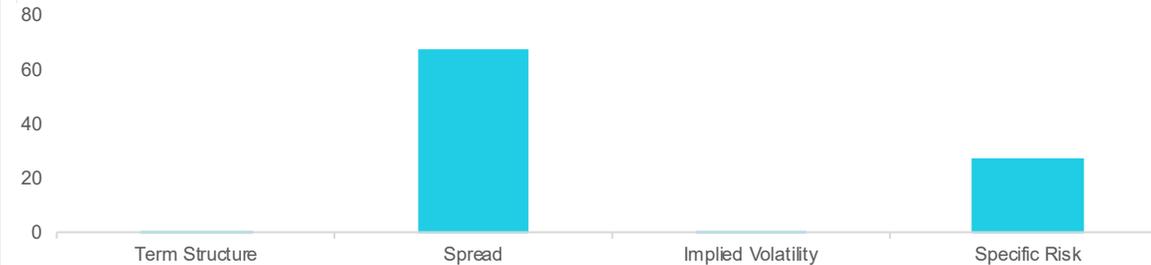
## Top Countries by Weight%



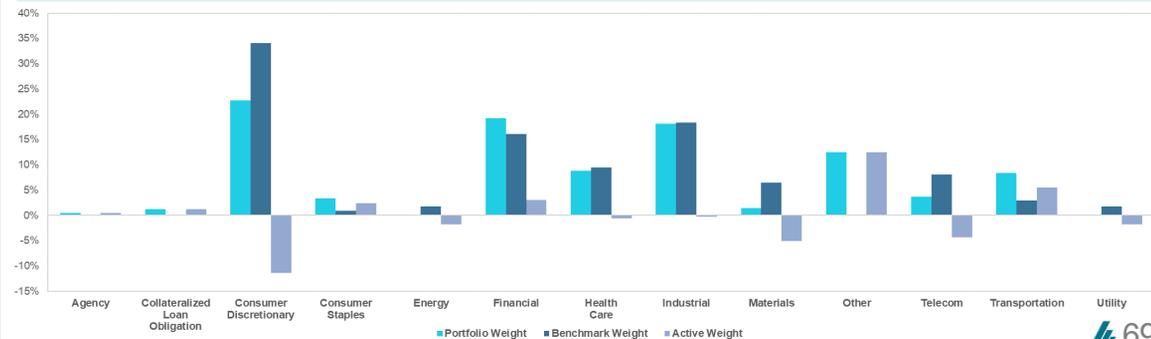
## Allocation by Moody's Rating



## Active Risk from Common Factors



## Portfolio Risk by Bond Sector



# Credit – Liquid Credit Pinebridge

for the quarter ended December 31, 2022

## Strategy

Active manager of a broadly diversified portfolio primarily of U.S. dollar denominated high yield securities.

Inception Date: August 2021

## Portfolio Characteristics

	Portfolio	Benchmark
No. of Issues	224.0	0.0
Effective Duration	4.1	4.0
Convexity	0.0	0.0
Coupon Rate	5.6	5.8
Yield to Maturity	8.6	8.7
Current Yield	6.5	6.7
Rating – Moody's	B-1	B-1
Rating – S & P	B+	B+

## Top Holdings (% of assets)

AMERICAN AIRLINES INC	1.2%
OCCIDENTAL PETROLEUM COR	1.0%
ALTICE FINANCING SA	0.9%
CCO HLDGS LLC/CAP CORP	0.9%
HOLLY NRG PRTNR/FIN CORP	0.7%
<b>Top 5 Holdings</b>	<b>4.7%</b>

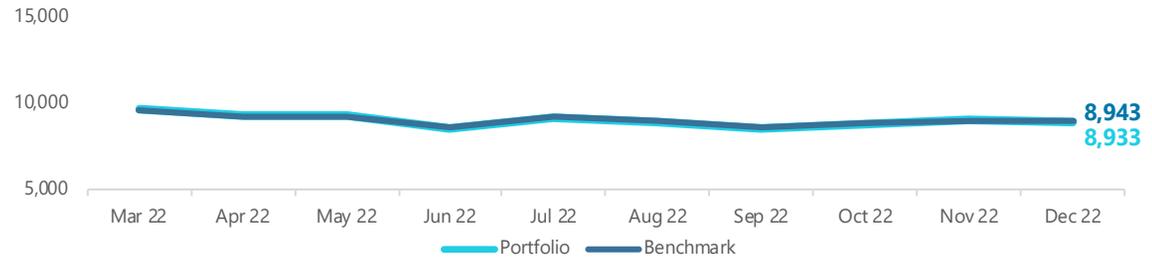
## Performance (net)<sup>1</sup>

	Ending Market Value (mm)	QTD	1 Year	3 Year	5 Year
<b>Pinebridge Investments</b>	<b>449.6</b>	<b>4.2%</b>	<b>-11.4%</b>	--	--
BBG BARC US Corp HY Idx		4.2%	-11.2%	--	--
Credit Policy Benchmark		1.9%	-7.4%	0.3%	--

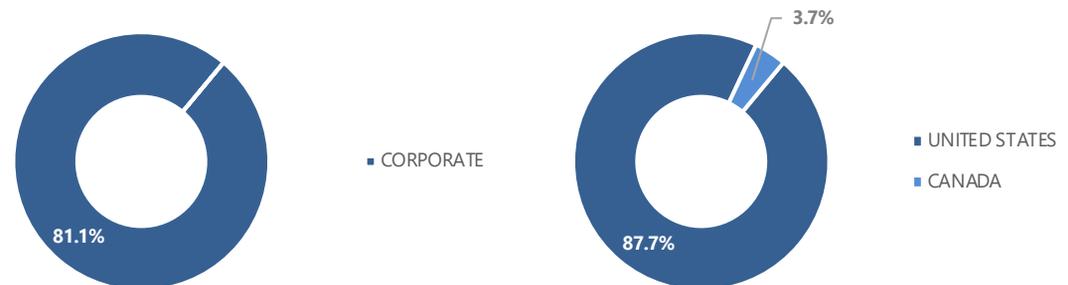
  

Universe data: US Fixed Income Pools	QTD	Rank	1 Year	Rank	3 Year	Rank	5 Year	Rank
<b>Pinebridge Investments</b>	<b>4.3%</b>	<b>13</b>	<b>-11.1%</b>	<b>62</b>	--	--	--	--
Median	1.7%		-8.1%		--	--	--	--

## Growth of \$10,000



## Top Exposures (% of assets)



<sup>1</sup> Universe data is gross-of-fees.

<sup>2</sup> Charts display top exposures and may not add up to 100%.

# Credit Risk Analysis – Liquid Credit Pinebridge

for the quarter ended December 31, 2022

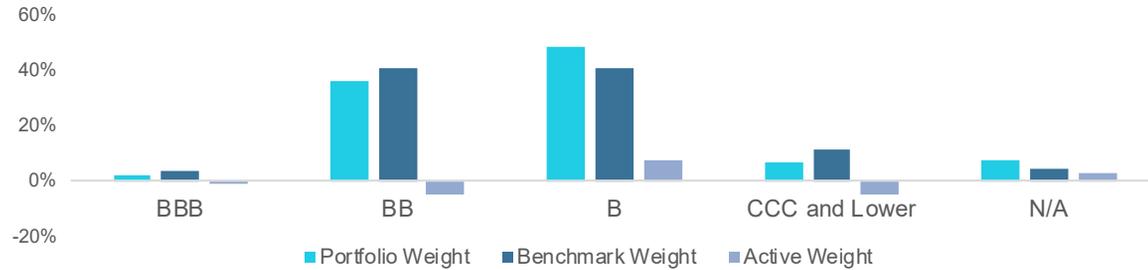
## Portfolio Risk Summary

	Value
<b>Total Risk</b>	<b>7.06</b>
Benchmark Risk	7.04
Active Risk	0.70
Portfolio Beta	1.00
Cont. to Eff. Duration	4.02
Yield to Worst (%)	8.31
OAS to Sw ap (bp)	398

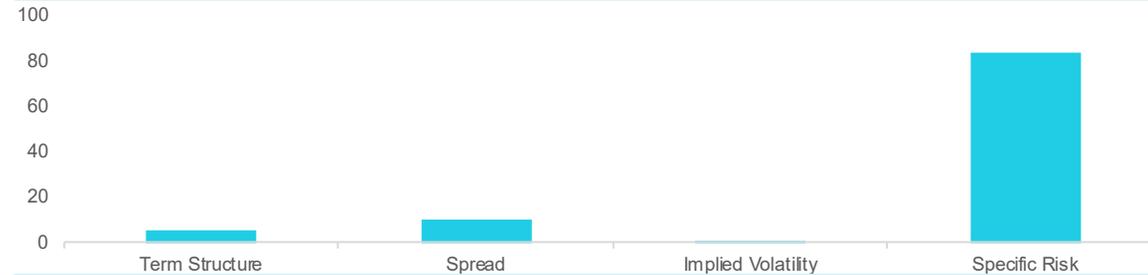
## Top Countries by Weight%



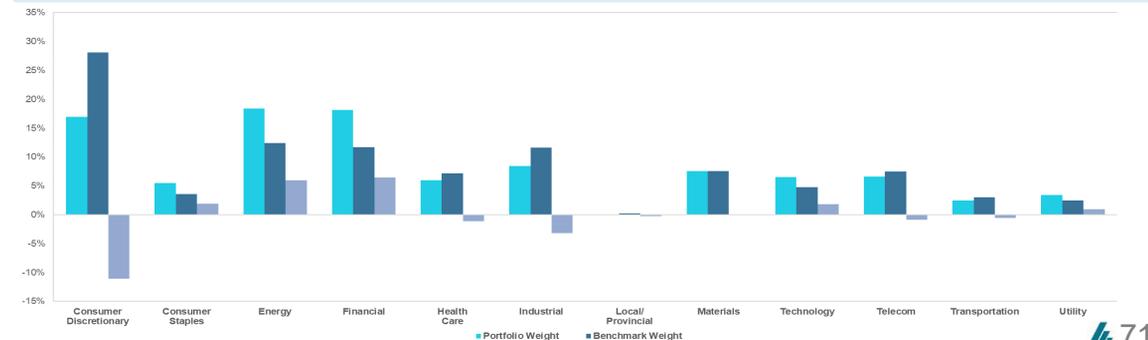
## Allocation by Moody's Rating



## Active Risk from Common Factors



## Portfolio Risk by Bond Sector



# real assets & inflation hedges

# Summary

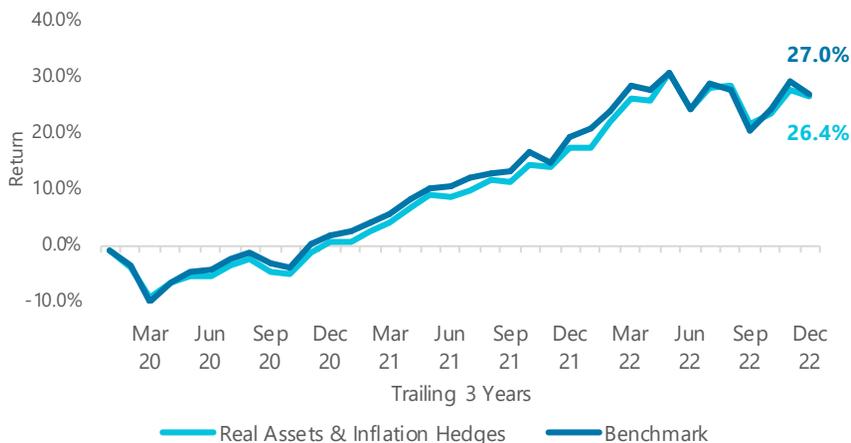
for the quarter ended December 31, 2022

## Performance (net)



	QTD	YTD	1 Year	3 Year	5 Year	10 Year	ITD
<b>Real Assets &amp; Inflation Hedges</b>	<b>3.9%</b>	<b>7.8%</b>	<b>7.8%</b>	<b>8.1%</b>	--	--	<b>7.2%</b>
Benchmark	5.4%	6.4%	6.4%	8.3%	--	--	8.0%
Excess	-1.4%	1.4%	1.4%	-0.2%	--	--	-0.8%

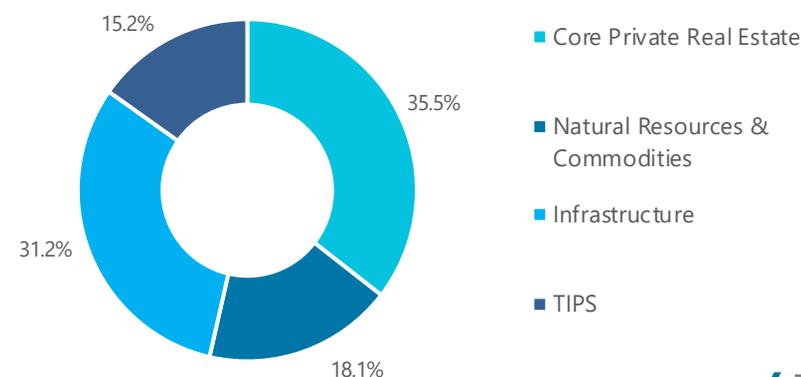
## Cumulative Return



## Functional Category

	QTD	FYTD	1 Year	3 Year
<b>Core Private Real Estate</b>	<b>1.7%</b>	<b>6.8%</b>	<b>23.7%</b>	<b>11.3%</b>
Core Private RE Policy Benchmark	0.3%	4.9%	21.0%	11.7%
Excess	1.4%	1.9%	2.8%	-0.4%
<b>Natural Resources &amp; Commodities</b>	<b>4.4%</b>	<b>0.8%</b>	<b>12.3%</b>	<b>11.8%</b>
Nat Res & Comm Policy Benchmark	12.0%	7.0%	12.0%	12.9%
Excess	-7.6%	-6.1%	0.2%	-1.1%
<b>Infrastructure</b>	<b>7.2%</b>	<b>-1.0%</b>	<b>-4.6%</b>	<b>4.9%</b>
DJ Brookfield Global Infra Comp	9.4%	-1.8%	-4.9%	1.1%
Excess	-2.2%	0.8%	0.3%	3.8%
<b>TIPS</b>	<b>2.1%</b>	<b>-3.6%</b>	<b>-11.9%</b>	<b>1.1%</b>
Bloomberg U.S. Treasury: U.S. TIPS	2.0%	-3.2%	-11.8%	1.2%
Excess	0.1%	-0.4%	0.0%	-0.1%

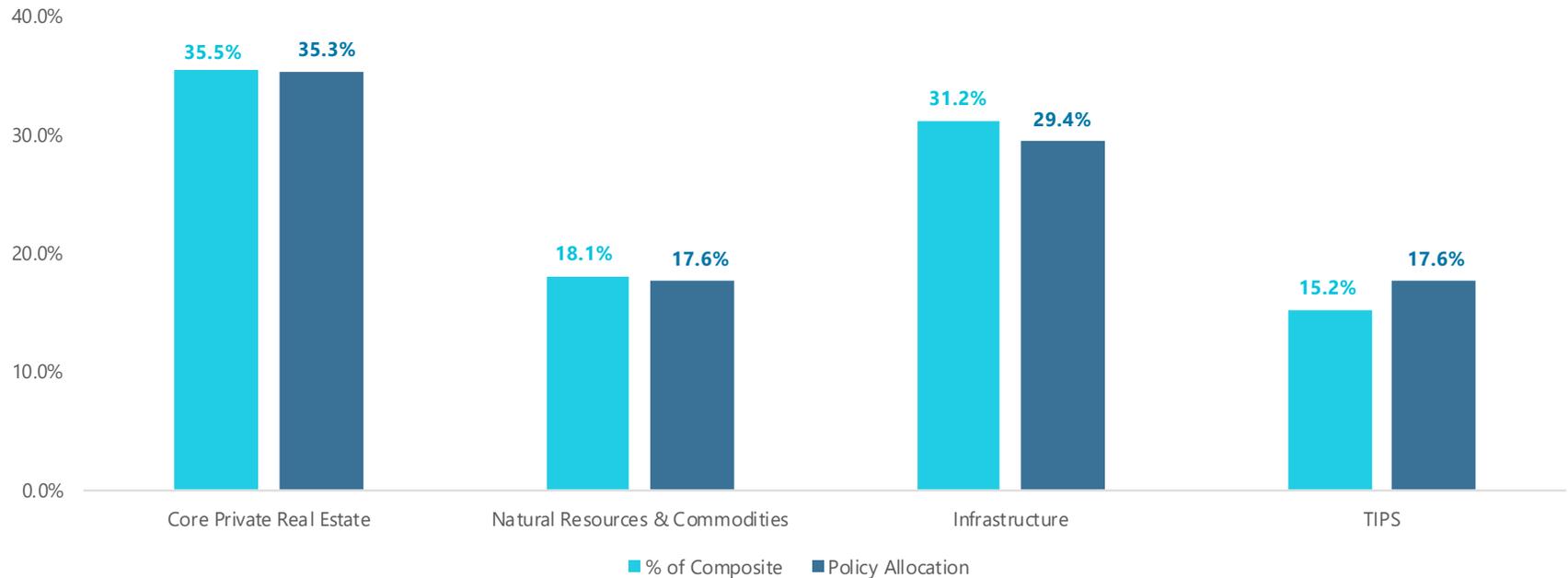
## Exposure



# Asset Allocation

for the quarter ended December 31, 2022

## Actual vs. Policy

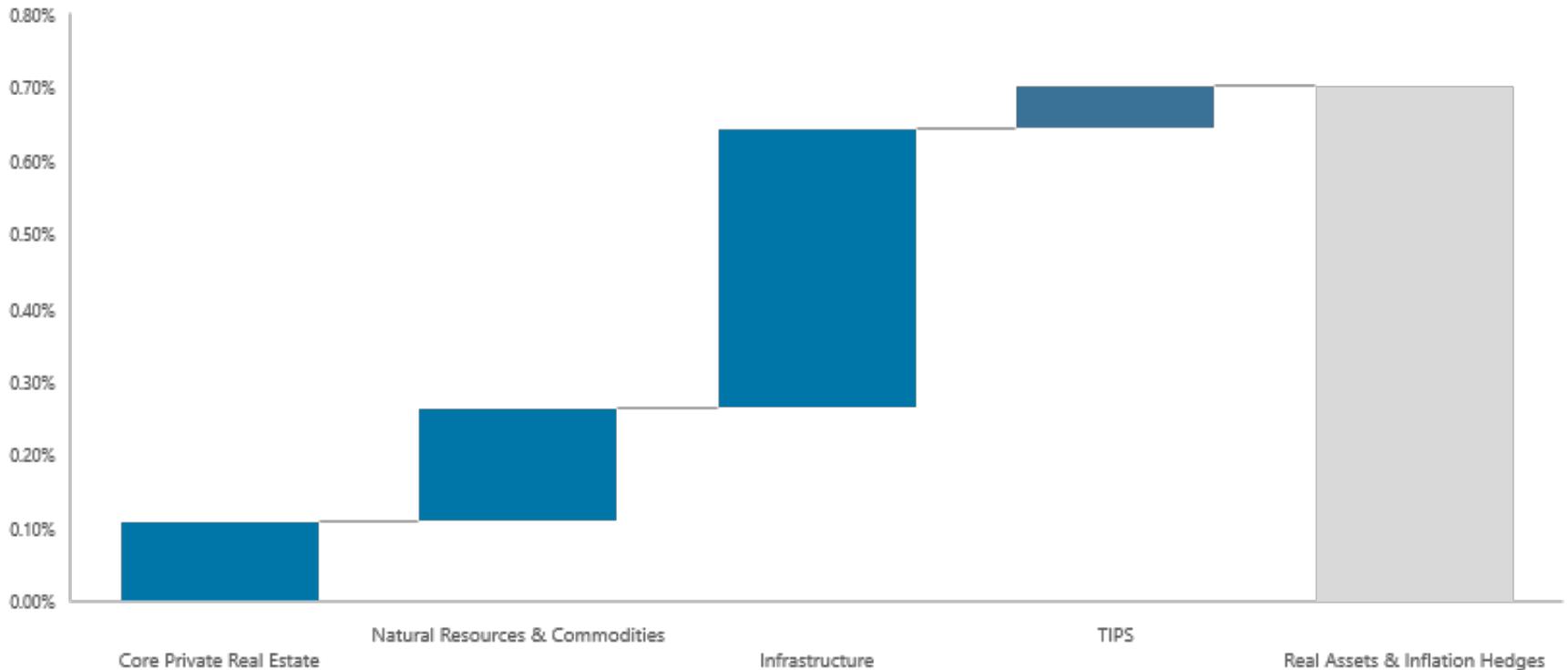


	Ending Market Value (mm)	% of Composite	Policy Allocation	Over / Under (%)	Over / Under (mm)
<b>Real Assets &amp; Inflation Hedges</b>	<b>12,222</b>	<b>100.0%</b>	<b>100.0%</b>		
Core Private Real Estate	4,339	35.5%	35.3%	0.2%	25
Natural Resources & Commodities	2,210	18.1%	17.6%	0.4%	54
Infrastructure	3,812	31.2%	29.4%	1.8%	217
TIPS	1,861	15.2%	17.6%	-2.4%	-296

# Contribution to Return

for the quarter ended December 31, 2022

## QTD Contribution to Return

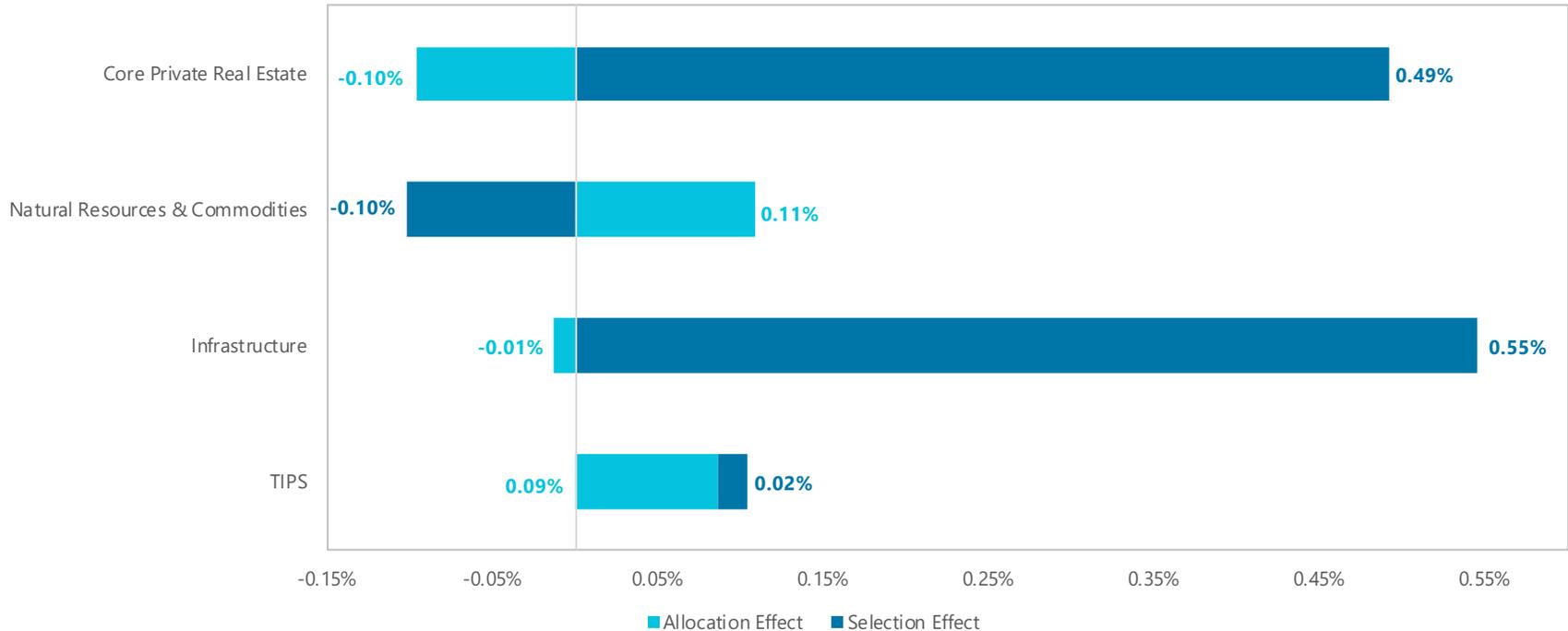


Functional Category	Contributors	Detractors
Core Private Real Estate	0.11% DWS Infrastructure	0.33%
Natural Resources & Commodities	0.15% DWS Natural Resources	0.13%
Infrastructure	0.38% Real Estate - Real Assets	0.11%
TIPS	0.06% BlackRock TIPS	0.06%
Real Assets & Inflation Hedges	0.70% DIF Infrastructure VI	0.02%

# Return Attribution

for the quarter ended December 31, 2022

## QTD Performance Attribution<sup>1</sup>



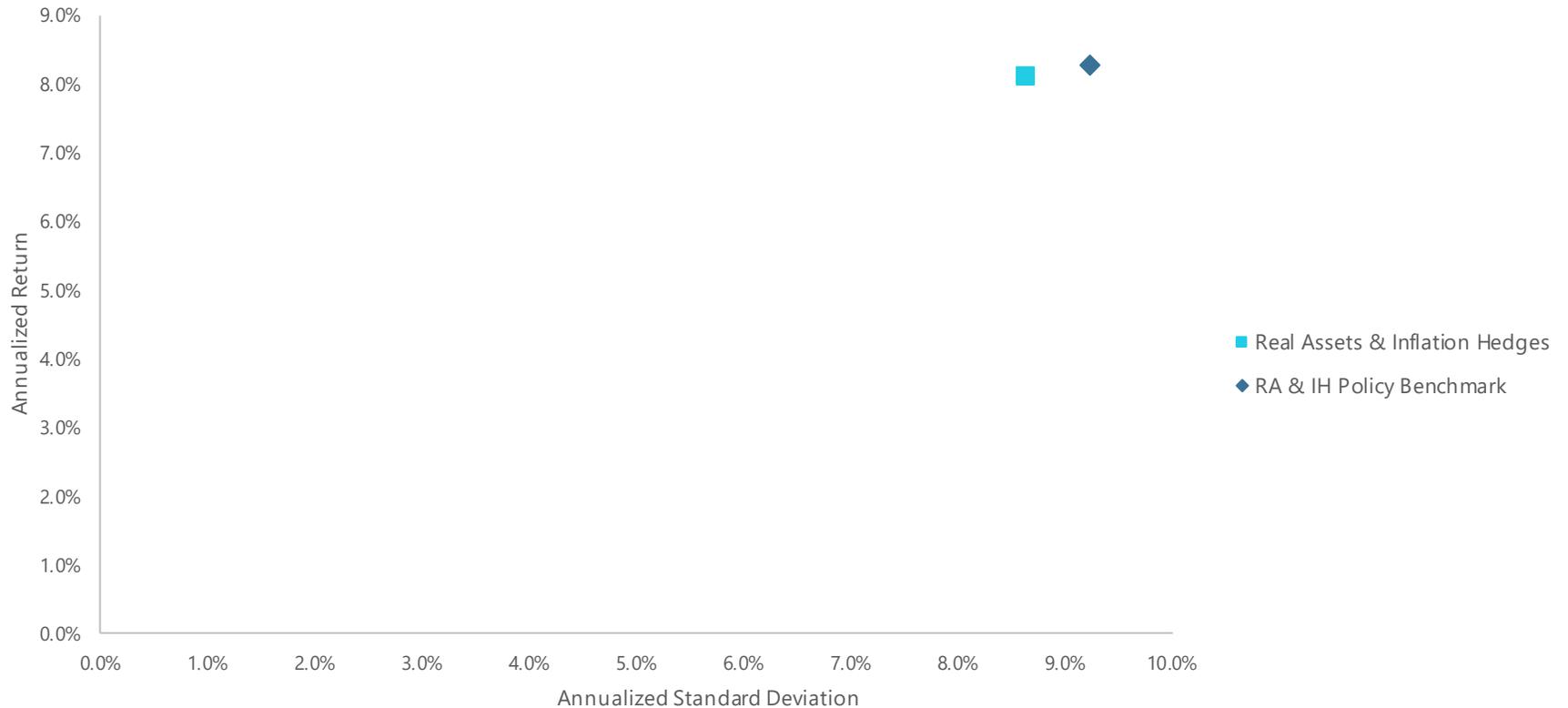
	Ending Market Value (mm)	% of Composite	Policy Allocation	Portfolio Return	Benchmark Return	Allocation Effect	Selection Effect	Total Value Add
<b>Real Assets &amp; Inflation Hedges</b>	<b>12,222</b>	<b>100.0%</b>	<b>100.0%</b>	<b>3.9%</b>	<b>5.4%</b>	<b>0.09%</b>	<b>0.95%</b>	<b>-1.44%</b>
Core Private Real Estate	4,339	35.5%	35.3%	1.7%	0.3%	-0.10%	0.49%	0.41%
Natural Resources & Commodities	2,210	18.1%	17.6%	4.4%	12.0%	0.11%	-0.10%	-1.33%
Infrastructure	3,812	31.2%	29.4%	7.2%	9.4%	-0.01%	0.55%	-0.62%
TIPS	1,861	15.2%	17.6%	2.1%	2.0%	0.09%	0.02%	0.10%

<sup>1</sup> Total Value Add includes Interaction Effect.

# Risk vs. Return

for the quarter ended December 31, 2022

## 3 Year (Annualized)



	Annualized Return	Standard Deviation	Sharpe Ratio	Information Ratio	Beta	Tracking Error
<b>Real Assets &amp; Inflation Hedges</b>	<b>8.1%</b>	<b>8.6%</b>				
RA & IH Policy Benchmark	8.3%	9.2%	0.88	(0.02)	0.90	2.6%

# Performance Detail

for the quarter ended December 31, 2022



Los Angeles County Employees Retirement Association

## Annualized Net Returns<sup>1</sup>

	% of Composite	Ending Market Value (mm)	Prior Quarter Ending MV (mm)	QTD	YTD	1 Year	3 Year	5 Year	10 Year	ITD	Inception Date
<b>Real Assets &amp; Inflation Hedges</b>	<b>100.0%</b>	<b>12,222</b>	<b>12,075</b>	<b>3.9%</b>	<b>7.8%</b>	<b>7.8%</b>	<b>8.1%</b>	--	--	<b>7.2%</b>	<b>Apr-2019</b>
RA & IH Policy Benchmark				5.4%	6.4%	6.4%	8.3%	--	--	8.0%	
<b>Core Private Real Estate</b>	<b>35.5%</b>	<b>4,339</b>	<b>4,471</b>	<b>1.7%</b>	<b>23.7%</b>	<b>23.7%</b>	<b>11.3%</b>	<b>9.1%</b>	<b>9.1%</b>	<b>7.4%</b>	<b>Oct-1985</b>
Core Private RE Policy Benchmark				0.3%	21.0%	21.0%	11.7%	9.7%	10.4%	7.2%	
<b>Natural Resources &amp; Commodities</b>	<b>18.1%</b>	<b>2,210</b>	<b>2,476</b>	<b>4.4%</b>	<b>12.3%</b>	<b>12.3%</b>	<b>11.8%</b>	<b>6.3%</b>	<b>-0.6%</b>	<b>-0.9%</b>	<b>Jul-2007</b>
Nat Res & Comm Policy Benchmark				12.0%	12.0%	12.0%	12.9%	6.9%	-1.1%	-1.7%	
Cibus Co-Invest V	0.1%	15	0	--	--	--	--	--	--	0.0%	Oct-2022
Cibus Enterprise II	0.0%	4	4	-4.9%	--	--	--	--	--	-11.5%	Jun-2022
Cibus Fund II	0.1%	16	17	-6.1%	--	--	--	--	--	-12.0%	Jun-2022
Credit Suisse Commodity	2.6%	312	434	1.4%	17.0%	17.0%	14.0%	7.0%	-0.7%	-2.0%	Mar-2011
DWS Natural Resources	5.5%	671	663	13.1%	9.1%	9.1%	12.0%	--	--	13.3%	Jun-2019
HiTecVision New Energy	0.5%	67	59	13.7%	--	--	--	--	--	8.4%	Sep-2022
Neuberger Berman/Gresham	3.0%	366	486	1.2%	17.0%	17.0%	12.0%	6.5%	-0.6%	-0.6%	Jul-2007
Orion Mine Finance Fund III	1.0%	122	116	2.3%	5.4%	5.4%	--	--	--	6.4%	Sep-2021
Orion Mining Royalty Fund I	0.2%	20	18	-7.6%	-11.4%	-11.4%	--	--	--	-1.2%	Sep-2021
PIMCO Commodity Plus	0.2%	22	121	--	--	--	--	--	--	--	Jul-2007
Private Equity - Real Assets	0.7%	82	82	1.8%	11.0%	11.0%	-5.6%	--	--	-8.7%	Jan-2019
TIAA-CREF Global Agriculture I	2.1%	256	205	-0.9%	12.5%	12.5%	--	--	--	12.5%	Dec-2021
TIAA-CREF Global Agriculture II	2.1%	257	271	0.2%	9.8%	9.8%	--	--	--	9.8%	Dec-2021
<b>Infrastructure</b>	<b>31.2%</b>	<b>3,812</b>	<b>3,305</b>	<b>7.2%</b>	<b>-4.6%</b>	<b>-4.6%</b>	<b>4.9%</b>	--	--	<b>7.3%</b>	<b>Jun-2019</b>
DJ Brookfield Global Infra Comp				9.4%	-4.9%	-4.9%	1.1%	--	--	3.5%	
Antin Mid Cap	0.3%	38	25	12.5%	-10.9%	-10.9%	--	--	--	-9.9%	Dec-2021
Axiom Infrastructure	2.1%	254	194	1.9%	2.4%	2.4%	--	--	--	2.2%	Dec-2021
Axiom Infrastructure Canada	0.5%	59	0	1.4%	-100.0%	-100.0%	--	--	--	-100.0%	Nov-2021
DIF CIF III	0.3%	40	5	2.2%	--	--	--	--	--	4.2%	Jun-2022
DIF Infrastructure VI	0.8%	103	88	14.4%	13.6%	13.6%	--	--	--	23.0%	Mar-2021
DWS Infrastructure	22.8%	2,782	2,606	8.5%	-6.3%	-6.3%	4.6%	--	--	7.0%	Jun-2019
Grain Communications Opportunity III	0.3%	33	32	1.3%	-9.8%	-9.8%	--	--	--	-100.0%	Feb-2021
Grain Spectrum Holdings III	0.4%	48	48	-0.1%	-0.6%	-0.6%	--	--	--	-1.0%	Nov-2020
KKR DCIF	2.7%	327	200	1.1%	--	--	--	--	--	1.9%	Apr-2022
Pan-European Infrastructure Fund III	0.5%	65	58	8.7%	7.1%	7.1%	--	--	--	3.0%	Nov-2020
Partners Grp Direct Infra 2020	0.5%	63	48	5.2%	--	--	--	--	--	5.0%	Jan-2022
<b>TIPS</b>											
Blackrock TIPS	<b>15.2%</b>	<b>1,861</b>	<b>1,823</b>	<b>2.1%</b>	<b>-11.9%</b>	<b>-11.9%</b>	<b>1.1%</b>	--	--	<b>2.2%</b>	<b>May-2019</b>
Bloomberg U.S. Treasury: U.S. TIPS				2.0%	-11.8%	-11.8%	1.2%	--	--	2.3%	

<sup>1</sup> Private natural resources and infrastructure funds reflect early-stage life cycle performance.

# Real Assets & Inflation Hedges

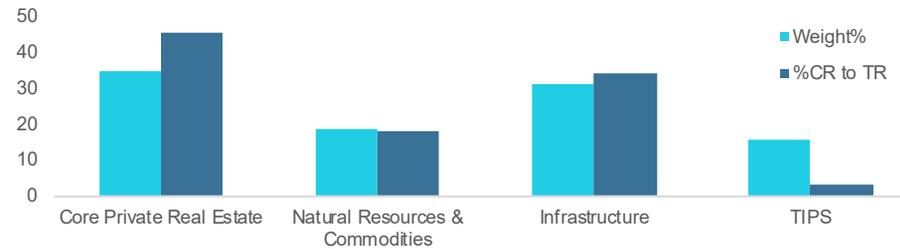
## Risk Summary

for the quarter ended December 31, 2022

### Risk Summary

	Value
<b>Total Risk</b>	<b>15.42</b>
Benchmark Risk	14.46
Active Risk	2.57
Portfolio Beta	1.05

### Contribution to Risk

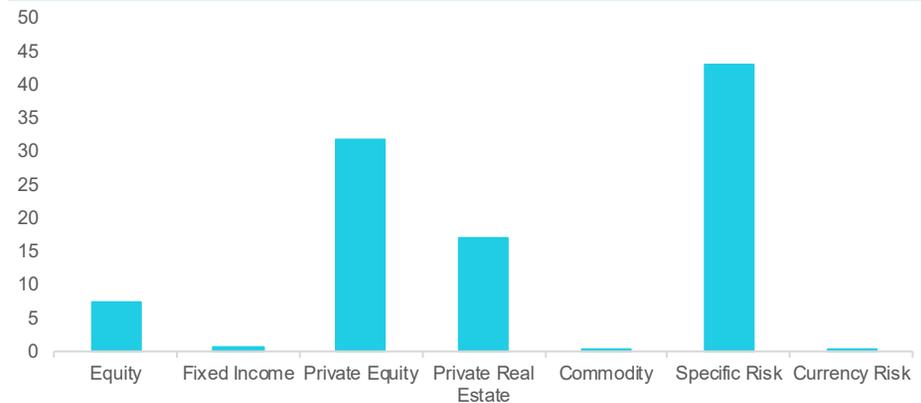


	Mkt Value (mm)	Weight%	Total Risk	Risk Contribution	%CR to TR
<b>Real Assets &amp; Inflation Hedges</b>	<b>12,005</b>	<b>100.00</b>	<b>15.42</b>	<b>15.42</b>	<b>100.00</b>
Core Private Real Estate	4,184	34.86	22.86	6.99	45.34
Natural Resources & Commodities	2,235	18.62	18.45	2.73	17.68
Infrastructure	3,723	31.01	18.55	5.23	33.93
TIPS	1,862	15.51	6.62	0.47	3.04

### Risk Decomposition

Risk Source	Portfolio		Active	
	Risk Contribution	%Risk	Risk Contribution	%Risk
<b>Total Risk</b>	<b>15.42</b>	<b>100.00</b>	<b>2.57</b>	<b>100.00</b>
Common Factor Risk	14.44	93.67	1.45	56.59
Specific Risk	0.09	0.56	1.10	42.97
Currency Risk	0.89	5.77	0.01	0.45

### Active Risk from Common Factors

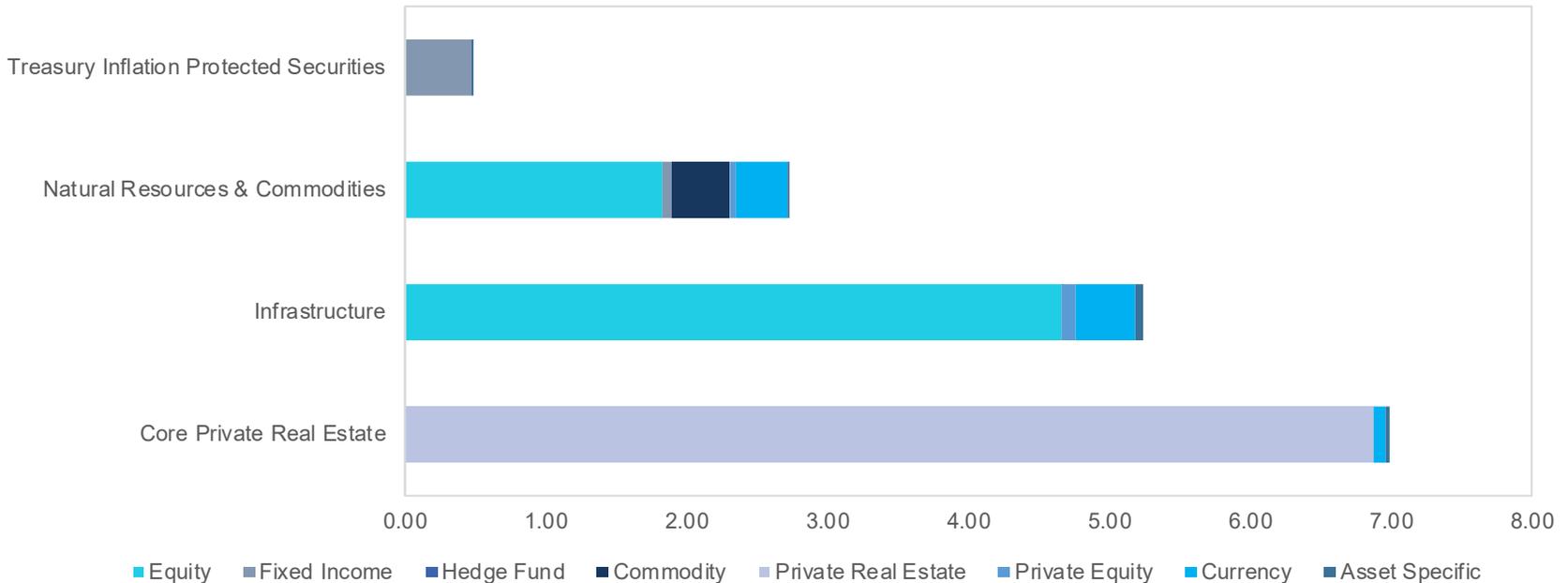


# Real Assets & Inflation Hedges

## Risk Summary

for the quarter ended December 31, 2022

### Risk Contribution Breakdown by Risk Type

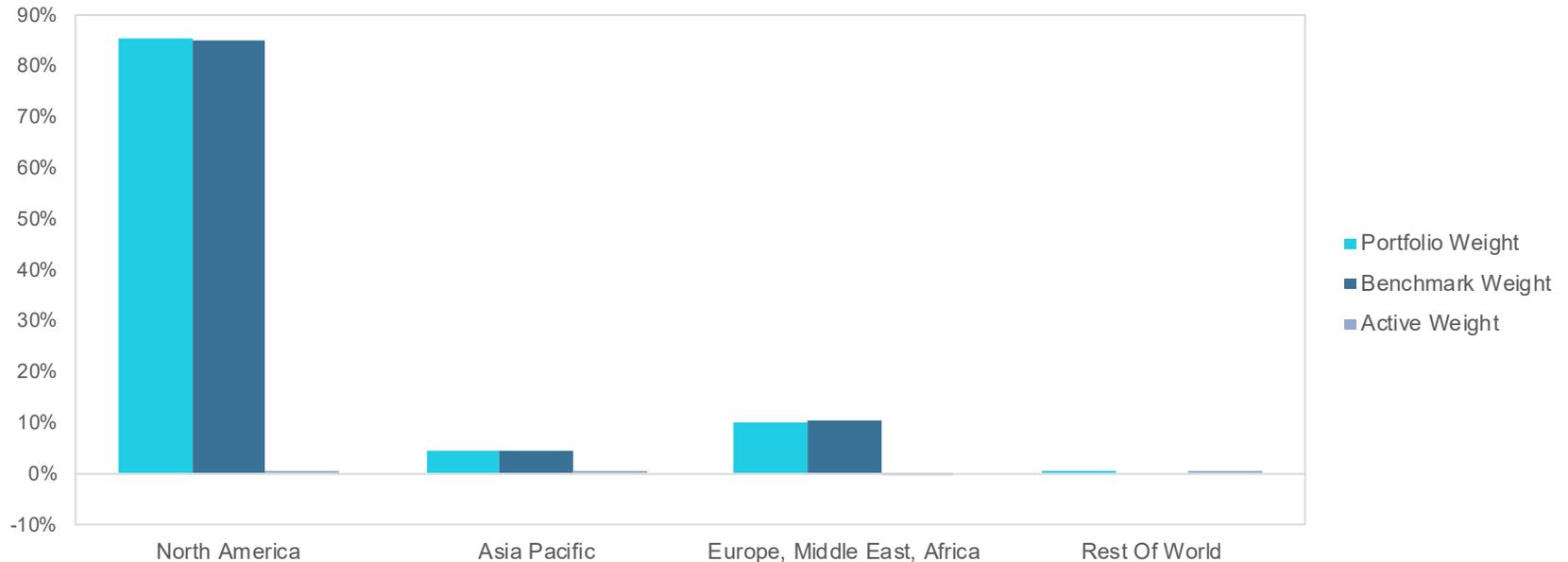


Functional Category	Port Risk Contribution	Equity	Fixed Income	Commodity	Private Real Estate	Private Equity	Currency	Asset Specific
<b>Total Fund</b>	<b>15.42</b>	<b>6.48</b>	<b>0.55</b>	<b>0.40</b>	<b>6.87</b>	<b>0.14</b>	<b>0.89</b>	<b>0.09</b>
Core Private Real Estate	6.99	0.00	0.00	0.00	6.87	0.00	0.08	0.04
Infrastructure	5.23	4.66	0.00	0.00	0.00	0.09	0.44	0.04
Natural Resources and Commodities	2.73	1.82	0.08	0.40	0.00	0.05	0.37	0.01
Treasury Inflation Protected Securities	0.47	0.00	0.47	0.00	0.00	0.00	0.00	0.00

# Real Assets & Inflation Hedges Risk Summary

for the quarter ended December 31, 2022

## Portfolio Allocation By Region



Region	Weight%			Total Risk	Active Risk CR	% of Active TR	MC to Total Tracking Error
	Portfolio	Benchmark	Active				
<b>Total Fund</b>	<b>100.00%</b>	<b>100.00%</b>	<b>0.00%</b>	<b>15.42</b>	<b>2.57</b>	<b>100.00</b>	<b>0.03</b>
North America	85.40%	85.17%	0.24%	15.12	2.19	85.32	0.03
Asia Pacific	4.48%	4.42%	0.05%	17.66	0.03	1.14	0.00
Europe, Middle East, Africa	9.98%	10.41%	-0.43%	23.74	0.33	12.94	0.03
Rest Of World	0.14%	0.00%	0.14%	37.13	0.02	0.60	0.11

# Real Assets & Inflation Hedges

## Natural Resources & Commodities

### Credit Suisse

for the quarter ended December 31, 2022

#### Strategy

Seeks to provide a hedge against inflation and exposure to commodities markets such as energy, agriculture and timber, and metals and mining.

Inception Date: March 2011

#### Risk Statistics (since inception)

Standard Deviation	15.9%
Benchmark Standard Deviation	16.2%
Sharpe Ratio	0.44
Information Ratio	0.70
Beta	0.98
Tracking Error	1.0%

#### Top Holdings (% of assets)

US TREASURY FRN	21.0%
GOLD 100 OZ FUTR FEB23	14.6%
US TREASURY FRN	13.2%
US TREASURY FRN	10.3%
FEDERAL FARM CREDIT BANK	8.9%
<b>Top 5 Holdings</b>	<b>67.9%</b>

#### Performance (net)<sup>1</sup>

	Ending Market Value (mm)	QTD	1 Year	3 Year	5 Year
<b>Credit Suisse Commodity</b>	<b>312.3</b>	<b>1.4%</b>	<b>17.0%</b>	<b>14.0%</b>	<b>7.0%</b>
Bloomberg Commodity Index Total Return		2.2%	16.1%	12.7%	6.4%
RA & IH Policy Benchmark		5.4%	6.4%	8.3%	--

Universe data: Commodity Funds	QTD	Rank	1 Year	Rank	3 Year	Rank	5 Year	Rank
<b>Credit Suisse Commodity</b>	<b>1.4%</b>	<b>47</b>	<b>17.3%</b>	<b>26</b>	<b>14.3%</b>	<b>47</b>	<b>7.3%</b>	<b>59</b>
Median	1.2%		2.1%		13.1%		8.3%	

#### Growth of \$10,000



#### Top Exposures (% of assets)<sup>2</sup>



<sup>1</sup> Universe data is gross-of-fees.

<sup>2</sup> Charts display top exposures and may not add up to 100%.

# Real Assets & Inflation Hedges Risk Analysis

## Natural Resources & Commodities

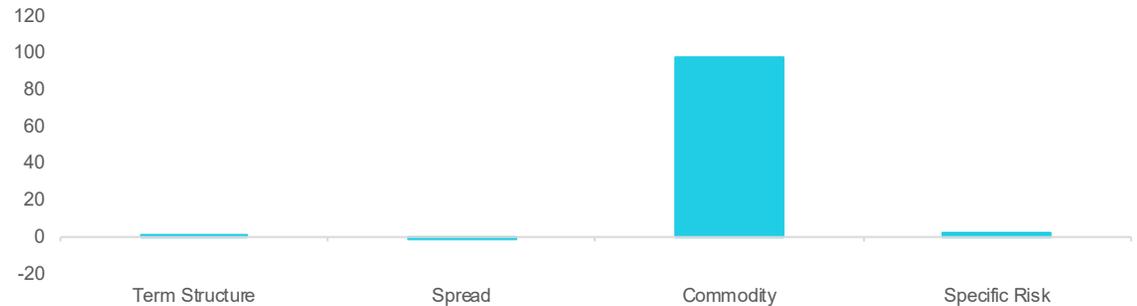
### Credit Suisse

for the quarter ended December 31, 2022

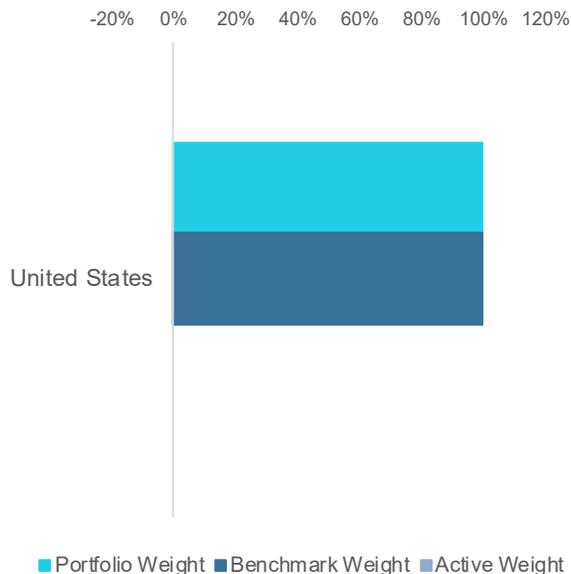
#### Portfolio Risk Summary

	Value
<b>Total Risk</b>	<b>15.56</b>
Benchmark Risk	19.65
Active Risk	7.19
Portfolio Beta	0.75

#### Active Risk from Common Factors



#### Top Countries by Weight%



#### Portfolio Risk by Sector



# Real Assets & Inflation Hedges

## Natural Resources & Commodities

### DWS

for the quarter ended December 31, 2022

#### Strategy

Seeks to provide capital appreciation and a hedge to inflation. A diversified approach within infrastructure to gain exposure to infrastructure related to telecommunication, transportation, utilities, waste and energy.

Inception Date: June 2019

#### Risk Statistics (since inception)

Standard Deviation	24.6%
Benchmark Standard Deviation	24.6%
Sharpe Ratio	0.60
Information Ratio	-0.53
Beta	0.99
Tracking Error	4.1%

#### Top Holdings (% of assets)

NUTRIEN LTD	9.0%
SHELL PLC	5.7%
CHEVRON CORP	5.6%
AGNICO EAGLE MINES LTD	4.9%
BUNGE LTD	4.3%
<b>Top 5 Holdings</b>	<b>29.6%</b>

#### Performance (net)<sup>1</sup>

	Ending Market Value (mm)	QTD	1 Year	3 Year	5 Year
<b>DWS Natural Resources</b>	<b>671.1</b>	<b>13.1%</b>	<b>9.1%</b>	<b>12.0%</b>	--
S&P Glb LargeMidCap Commod & Resources		14.0%	15.5%	14.5%	--
RA & IH Policy Benchmark		5.4%	6.4%	8.3%	--

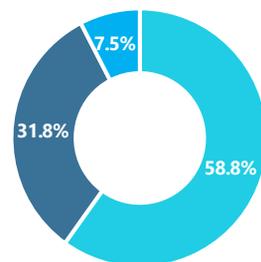
  

Universe data: Commodity Funds	QTD	Rank	1 Year	Rank	3 Year	Rank	5 Year	Rank
<b>DWS Natural Resources</b>	<b>13.2%</b>	<b>8</b>	<b>9.3%</b>	<b>44</b>	<b>12.2%</b>	<b>53</b>	--	--
Median	1.2%		2.1%		13.1%		--	

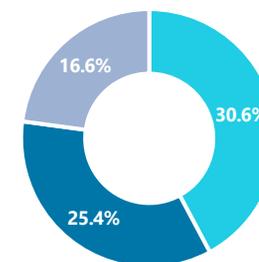
#### Growth of \$10,000



#### Top Exposures (% of assets)<sup>2</sup>



- MATERIALS
- ENERGY
- CONSUMER STAPLES



- UNITED STATES
- CANADA
- UNITED KINGDOM

<sup>1</sup> Universe data is gross-of-fees.

<sup>2</sup> Charts display top exposures and may not add up to 100%.

# Real Assets & Inflation Hedges Risk Analysis

## Natural Resources & Commodities

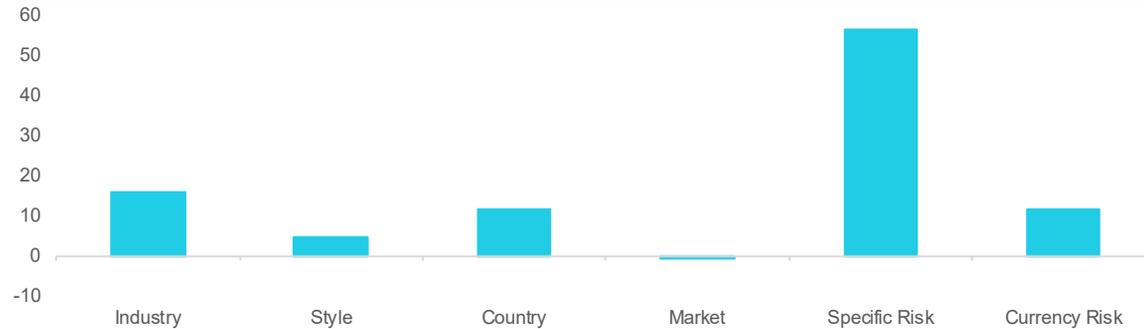
### DWS

for the quarter ended December 31, 2022

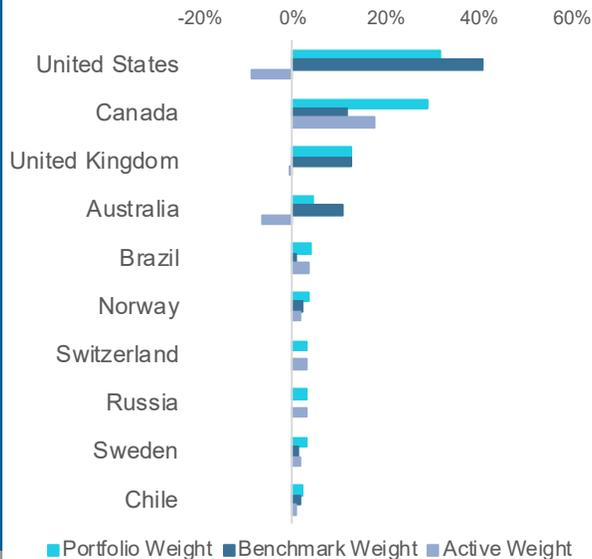
#### Portfolio Risk Summary

	Value
<b>Total Risk</b>	<b>24.91</b>
Benchmark Risk	24.08
Active Risk	5.17
Portfolio Beta	1.01

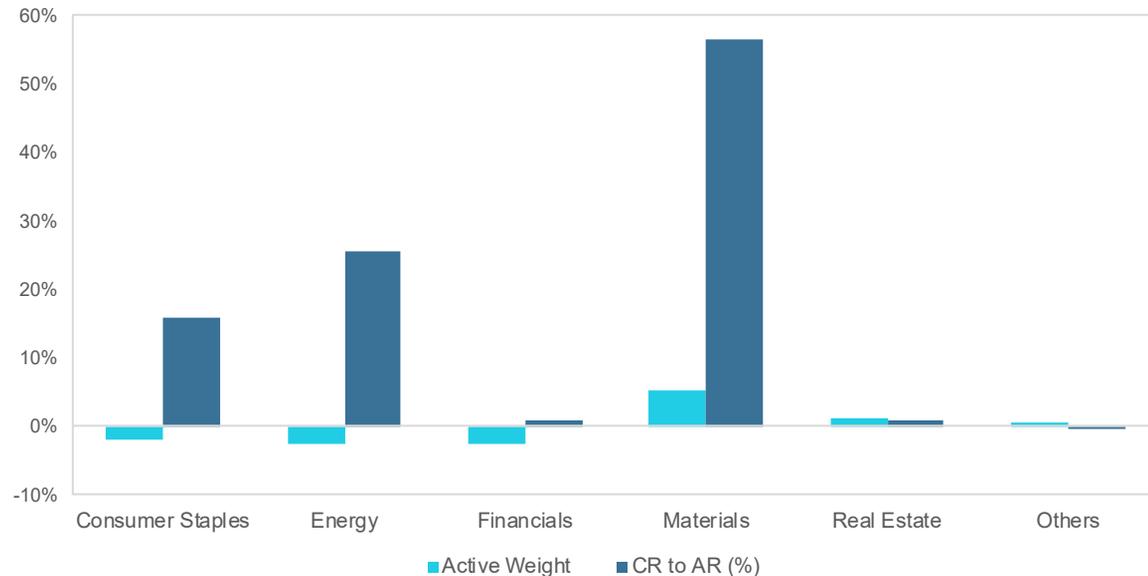
#### Active Risk from Common Factors



#### Top Countries by Weight%



#### Portfolio Risk by Sector



# Real Assets & Inflation Hedges

## Natural Resources & Commodities

### Neuberger Berman / Gresham

for the quarter ended December 31, 2022

#### Strategy

Seeks to provide a hedge against inflation and exposure to commodities markets such as energy, agriculture and timber, and metals and mining. The collateral portfolio provides income with conservative fixed income exposure.

Inception Date: July 2007

#### Risk Statistics (since inception)

Standard Deviation	18.4%
Benchmark Standard Deviation	17.0%
Sharpe Ratio	0.13
Information Ratio	0.49
Beta	1.05
Tracking Error	4.9%

#### Top Holdings (% of assets)

GOLD 100 OZ FUTR FEB23	11.1%
NATURAL GAS FUTR JAN23	8.2%
WTI CRUDE FUTURE JAN23	7.7%
SOYBEAN FUTURE JAN23	6.7%
BRENT CRUDE FUTR MAR23	5.5%
<b>Top 5 Holdings</b>	<b>39.3%</b>

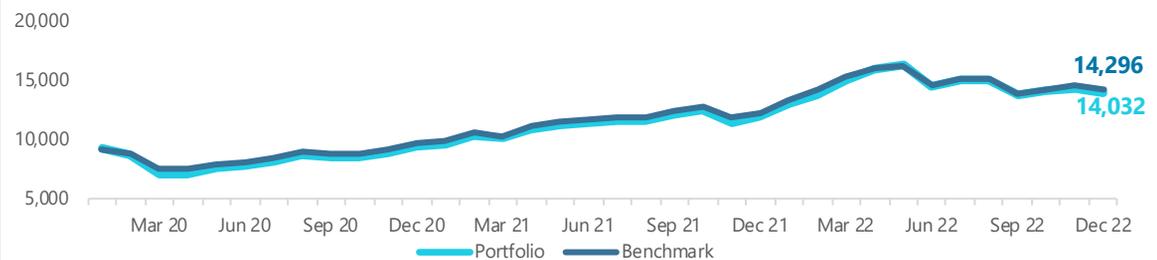
#### Performance (net)<sup>1</sup>

	Ending Market Value (mm)	QTD	1 Year	3 Year	5 Year
<b>Neuberger Berman/Gresham</b>	<b>366.2</b>	<b>1.2%</b>	<b>17.0%</b>	<b>12.0%</b>	<b>6.5%</b>
Bloomberg Commodity Index Total Return		2.2%	16.1%	12.7%	6.4%
RA & IH Policy Benchmark		5.4%	6.4%	8.3%	--

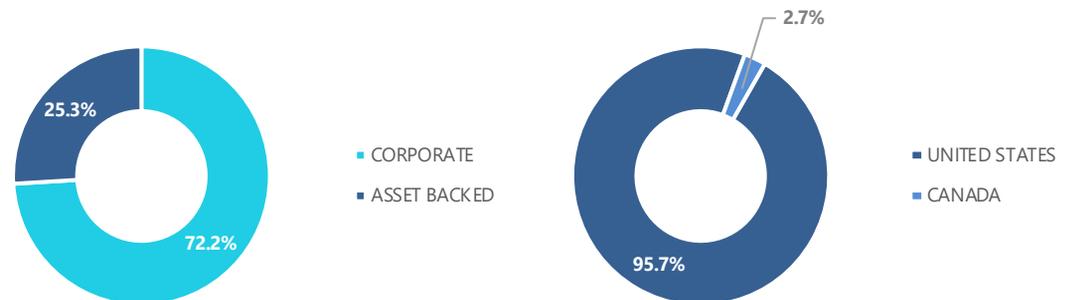
  

Universe data: Commodities Funds	QTD	Rank	1 Year	Rank	3 Year	Rank	5 Year	Rank
<b>Neuberger Berman/Gresham</b>	<b>1.3%</b>	<b>49</b>	<b>17.4%</b>	<b>25</b>	<b>12.4%</b>	<b>53</b>	<b>6.9%</b>	<b>62</b>
Median	1.2%		2.1%		13.1%		8.3%	

#### Growth of \$10,000



#### Top Exposures (% of assets)<sup>2</sup>



<sup>1</sup> Universe data is gross-of-fees.

<sup>2</sup> Charts display top exposures and may not add up to 100%.

# Real Assets & Inflation Hedges Risk Analysis

## Natural Resources & Commodities

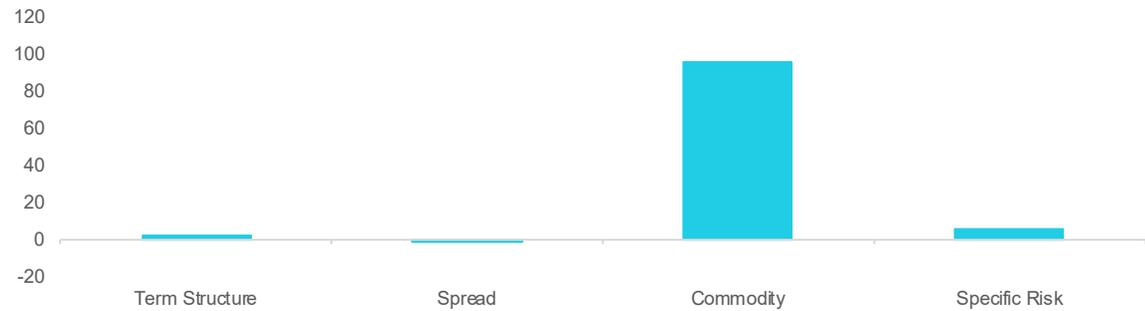
### Neuberger Berman / Gresham

for the quarter ended December 31, 2022

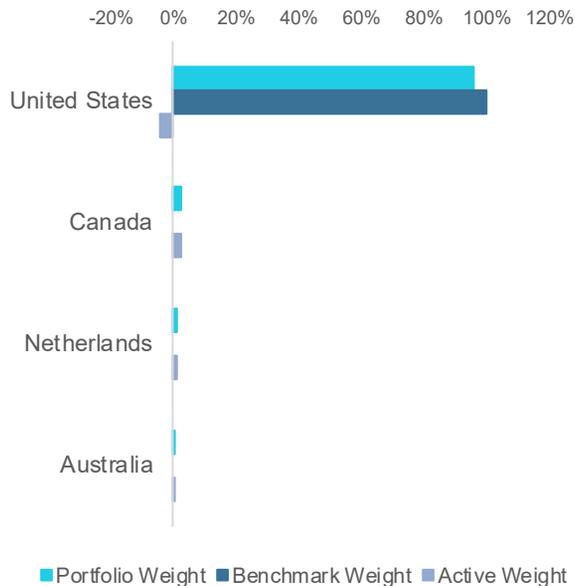
#### Portfolio Risk Summary

	Value
<b>Total Risk</b>	<b>14.94</b>
Benchmark Risk	18.46
Active Risk	4.66
Portfolio Beta	0.80

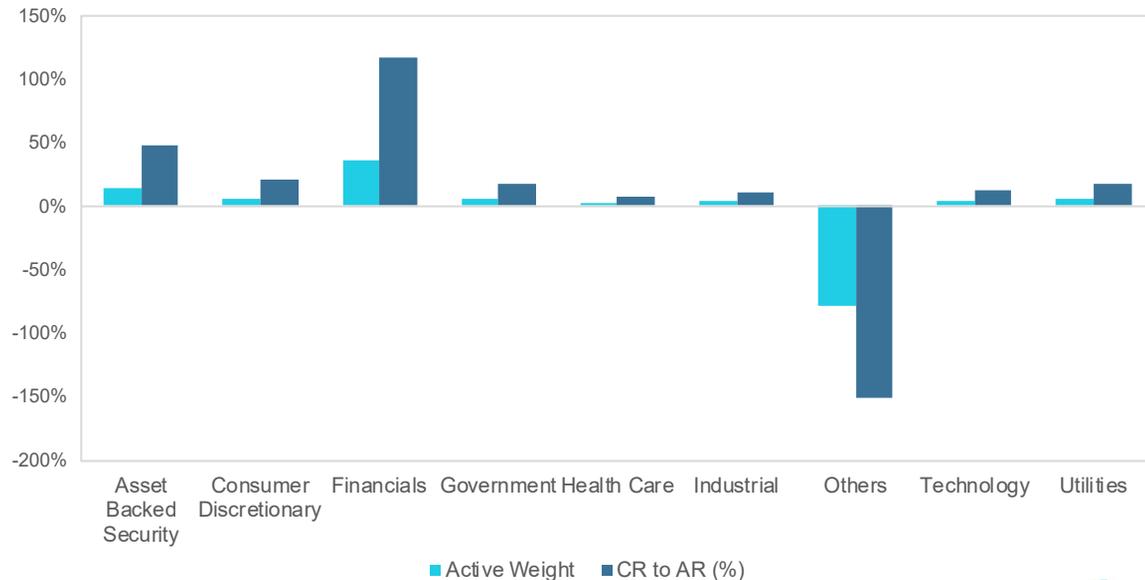
#### Active Risk from Common Factors



#### Top Countries by Weight%



#### Portfolio Risk by Sector



# Real Assets & Inflation Hedges

## Infrastructure

### DWS

for the quarter ended December 31, 2022

### Strategy

Seeks to provide capital appreciation and income with global infrastructure securities. The strategy takes a diversified approach within infrastructure to gain exposure to infrastructure related to telecommunication, transportation, utilities, waste and energy.

Inception Date: June 2019

### Portfolio Characteristics

	Portfolio	Benchmark
Market Cap Wtd Average (mm)	40,438.9	37,905.6
No. Of Issues	48.0	0.0
Dividend Yield	2.8	3.3
Return on Equity	16.7	16.3
Price to Sales	4.3	4.5
Price to Book	2.9	3.1
PE Ratio	23.8	22.2

### Top Holdings (% of assets)

AMERICAN TOWER CORP	6.7%
ENBRIDGE INC	5.9%
SEMPRA ENERGY	5.4%
WILLIAMS COS INC	5.2%
NATIONAL GRID PLC	4.8%
<b>Top 5 Holdings</b>	<b>27.9%</b>

### Performance (net)<sup>1</sup>

	Ending Market Value (mm)	QTD	1 Year	3 Year	5 Year
<b>DWS Infrastructure</b>	<b>2,781.6</b>	<b>8.5%</b>	<b>-6.3%</b>	<b>4.6%</b>	--
DJ Brookfield Global Infra Comp		9.4%	-4.9%	1.1%	--
RA & IH Policy Benchmark		5.4%	6.4%	8.3%	--

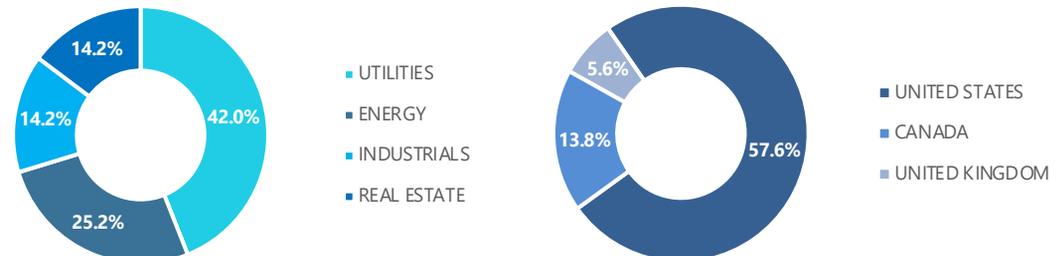
  

Universe data: Infrastructure	QTD	Rank	1 Year	Rank	3 Year	Rank	5 Year	Rank
<b>DWS Infrastructure</b>	<b>8.5%</b>	--	<b>-6.2%</b>	--	--	<b>4.85</b>	--	--
Median	9.4%		-4.9%		1.1%		--	

### Growth of \$10,000



### Top Exposures (% of assets)<sup>2</sup>



<sup>1</sup> Universe data for infrastructure is unavailable.

<sup>2</sup> Charts display top exposures and may not add up to 100%.

# Real Assets & Inflation Hedges Risk Analysis

## Infrastructure

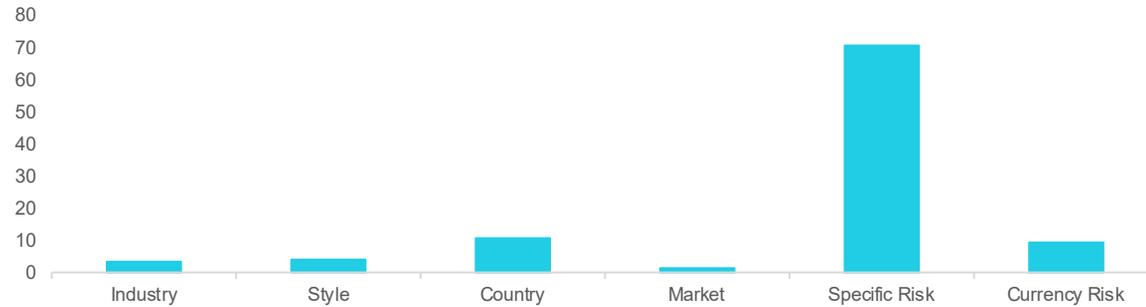
### DWS

for the quarter ended December 31, 2022

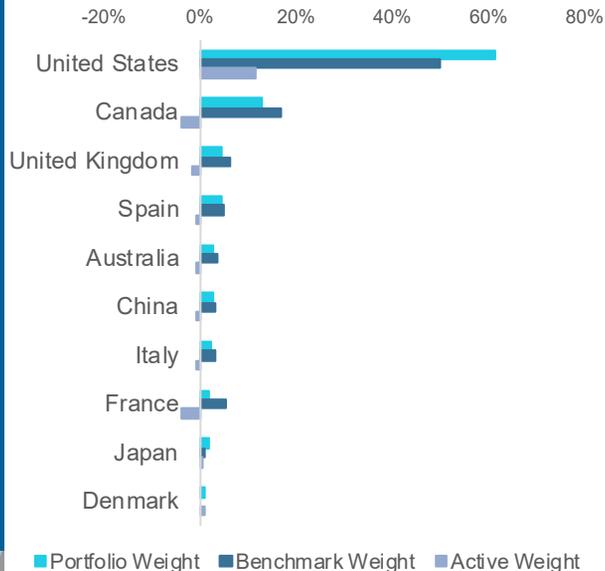
#### Portfolio Risk Summary

	Value
<b>Total Risk</b>	<b>18.29</b>
Benchmark Risk	18.65
Active Risk	1.94
Portfolio Beta	0.98

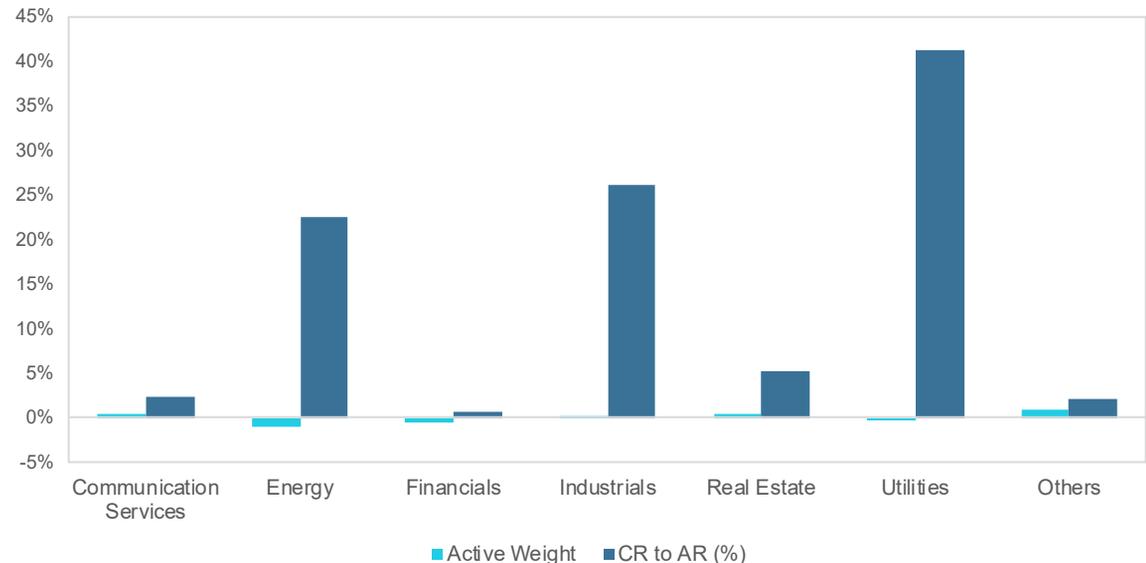
#### Active Risk from Common Factors



#### Top Countries by Weight%



#### Portfolio Risk by Sector



# Real Assets & Inflation Hedges

TIPS

BlackRock

for the quarter ended December 31, 2022

## Strategy

Seeks to provide income and a hedge against inflation with passive TIPS exposure.

Inception Date: May 2019

## Risk Statistics (since inception)

Standard Deviation	6.5%
Benchmark Standard Deviation	6.5%
Sharpe Ratio	0.21
Information Ratio	-0.08
Beta	0.99
Tracking Error	0.8%

## Top Holdings (% of assets)

TSY INFL IX N/B	4.6%
TSY INFL IX N/B	4.1%
TSY INFL IX N/B	4.0%
TSY INFL IX N/B	3.7%
TSY INFL IX N/B	3.7%
<b>Top 5 Holdings</b>	<b>20.1%</b>

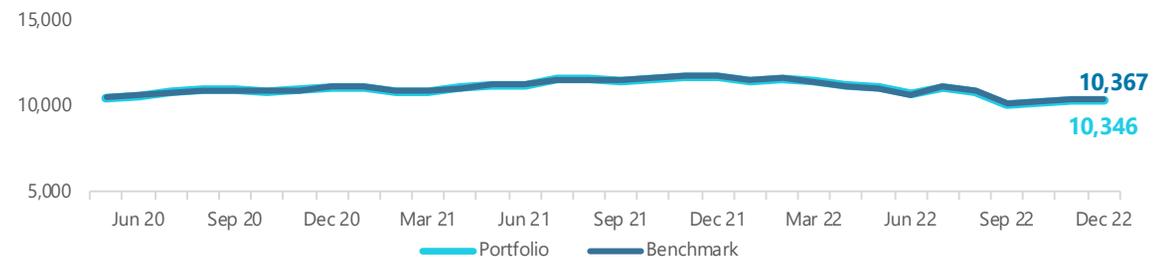
## Performance (net)<sup>1</sup>

	Ending Market Value (mm)	QTD	1 Year	3 Year	5 Year
<b>BlackRock TIPS</b>	<b>1,860.9</b>	<b>2.1%</b>	<b>-11.9%</b>	<b>1.1%</b>	--
Bloomberg U.S. Treasury: U.S. TIPS		2.0%	-11.8%	1.2%	--
Real Assets & Inflation Hedges Policy BM		5.4%	6.4%	8.3%	--

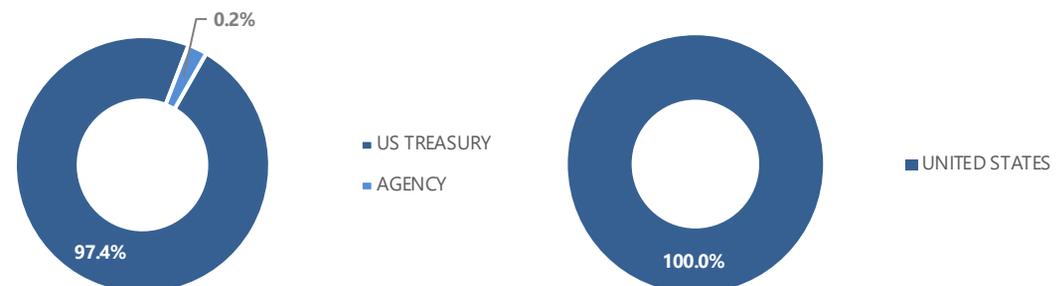
  

Universe data: Inflation Linked Bond Funds	QTD	Rank	1 Year	Rank	3 Year	Rank	5 Year	Rank
<b>BlackRock TIPS</b>	<b>2.1%</b>	--	<b>-11.9%</b>	--	<b>1.2%</b>	--	--	--
Median	--	--	--	--	--	--	--	--

## Growth of \$10,000



## Top Exposures (% of assets)<sup>2</sup>



<sup>1</sup> Universe data for TIPS is unavailable.

<sup>2</sup> Charts display top exposures and may not add up to 100%.

# Real Assets & Inflation Hedges Risk Analysis

TIPS

BlackRock

for the quarter ended December 31, 2022

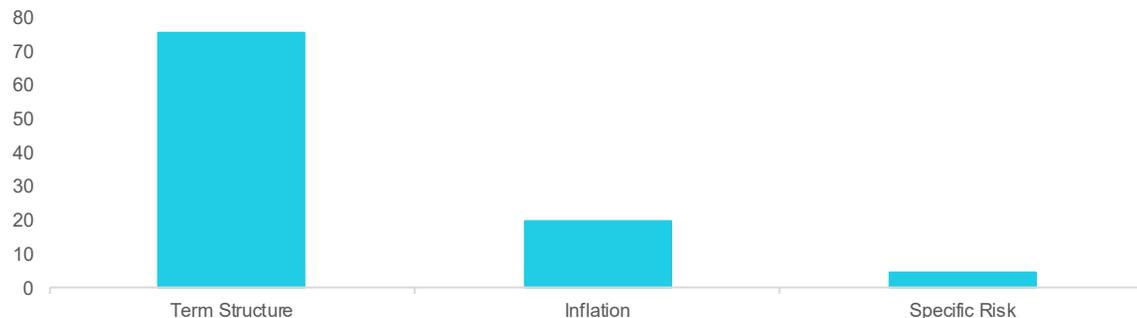


Los Angeles County Employees Retirement Association

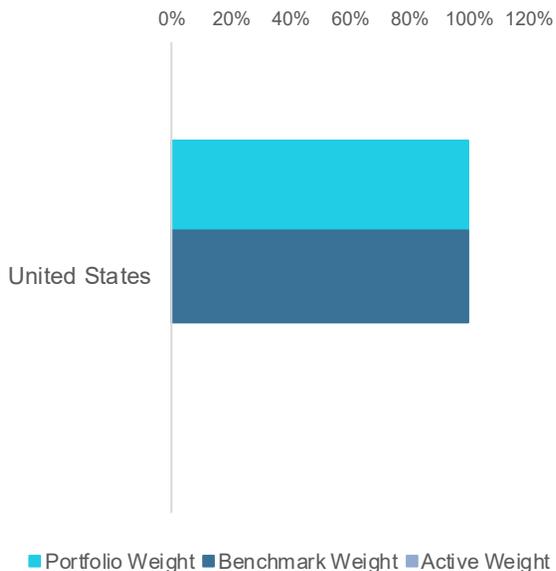
## Portfolio Risk Summary

	Value
<b>Total Risk</b>	<b>6.62</b>
Benchmark Risk	6.71
Active Risk	0.10
Portfolio Beta	0.99

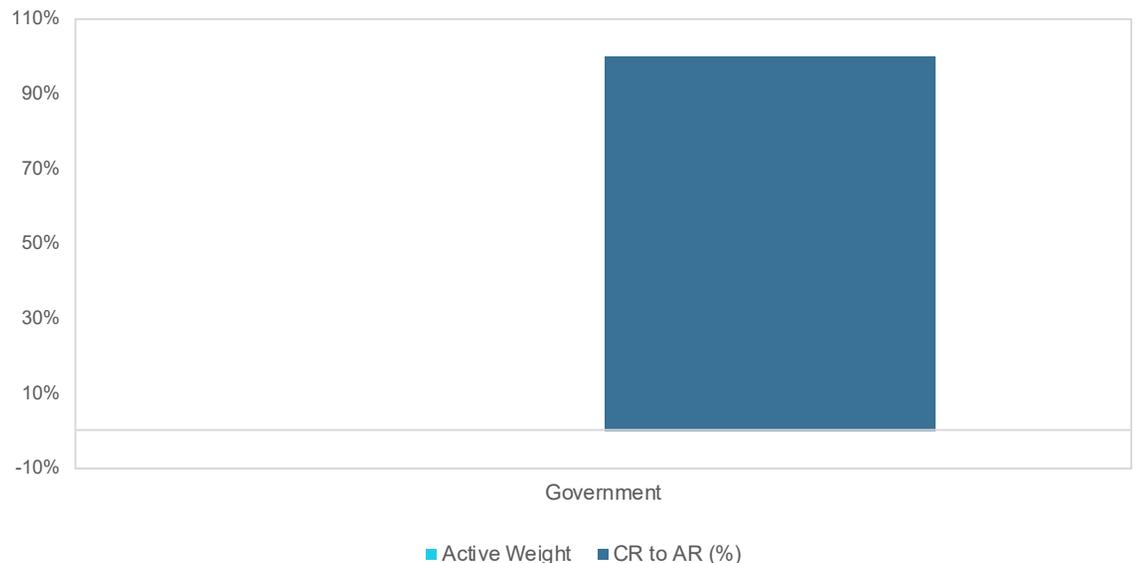
## Active Risk from Common Factors



## Top Countries by Weight%



## Portfolio Risk by Sector

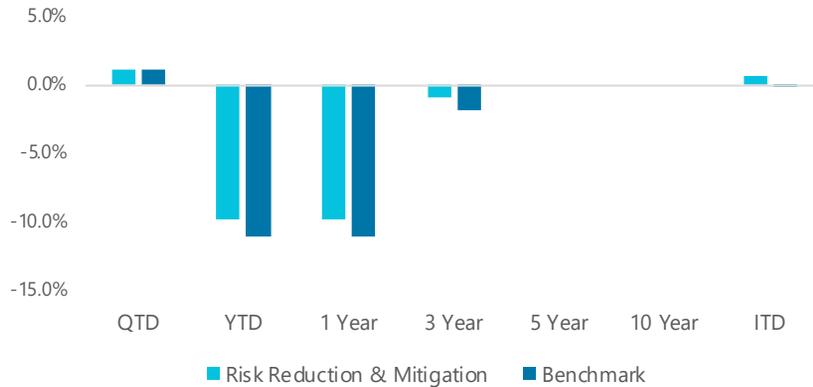


# risk reduction & mitigation

# Summary

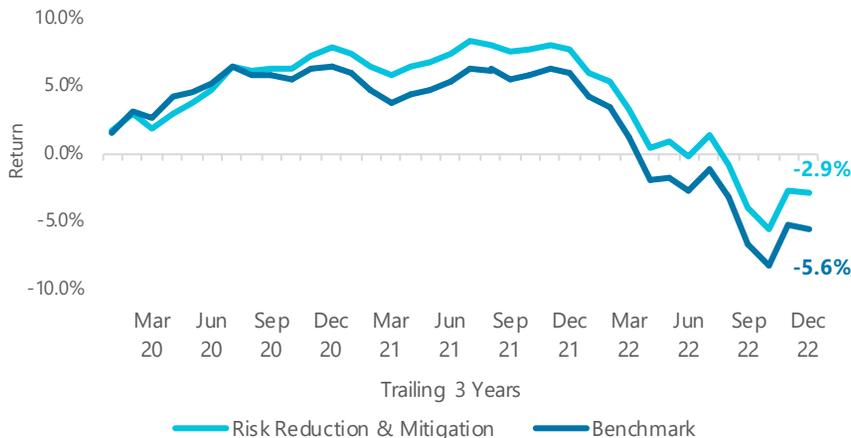
for the quarter ended December 31, 2022

## Performance (net)



	QTD	YTD	1 Year	3 Year	5 Year	10 Year	ITD
<b>Risk Reduction &amp; Mitigation</b>	<b>1.1%</b>	<b>-9.8%</b>	<b>-9.8%</b>	<b>-1.0%</b>	--	--	<b>0.6%</b>
Benchmark	1.1%	-11.0%	-11.0%	-1.9%	--	--	-0.2%
Excess	0.0%	1.2%	1.2%	0.9%	--	--	0.8%

## Cumulative Return

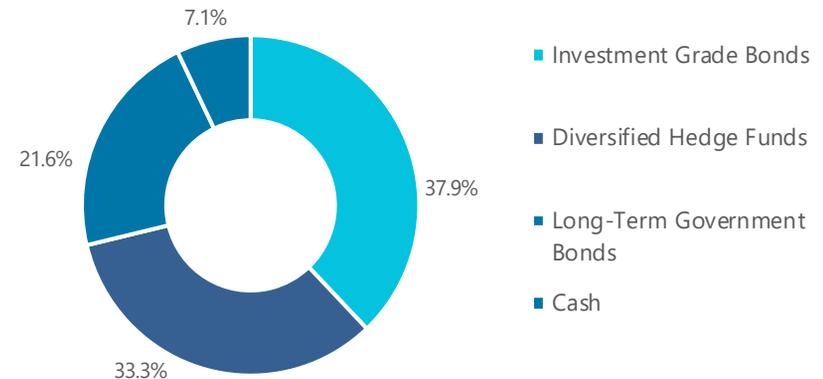


## Functional Category<sup>1</sup>

	QTD	FYTD	1 Year	3 Year
<b>Investment Grade Bonds</b>	<b>1.8%</b>	<b>-3.0%</b>	<b>-13.1%</b>	<b>-2.6%</b>
BBG BC Aggregate Bond Index	1.9%	-3.0%	-13.0%	-2.7%
Excess	0.0%	0.0%	-0.1%	0.1%
<b>Diversified Hedge Funds</b>	<b>1.4%</b>	<b>2.7%</b>	<b>5.8%</b>	<b>7.3%</b>
Diversified Hedge Funds Policy Benchmark	1.4%	2.3%	3.7%	3.2%
Excess	0.1%	0.4%	2.1%	4.1%
<b>Long-Term Government Bonds</b>	<b>-0.6%</b>	<b>-10.7%</b>	<b>-28.9%</b>	--
Bloomberg U.S. Treasury: Long	-0.6%	-10.2%	-29.3%	--
Excess	0.0%	-0.6%	0.3%	--
<b>Cash</b>	<b>1.3%</b>	<b>2.3%</b>	<b>3.2%</b>	<b>1.7%</b>
Cash Policy Benchmark	0.9%	1.3%	1.5%	0.7%
Excess	0.5%	0.9%	1.7%	1.0%

<sup>1</sup> Diversified Hedge Funds returns are net-of-all fees and expenses.

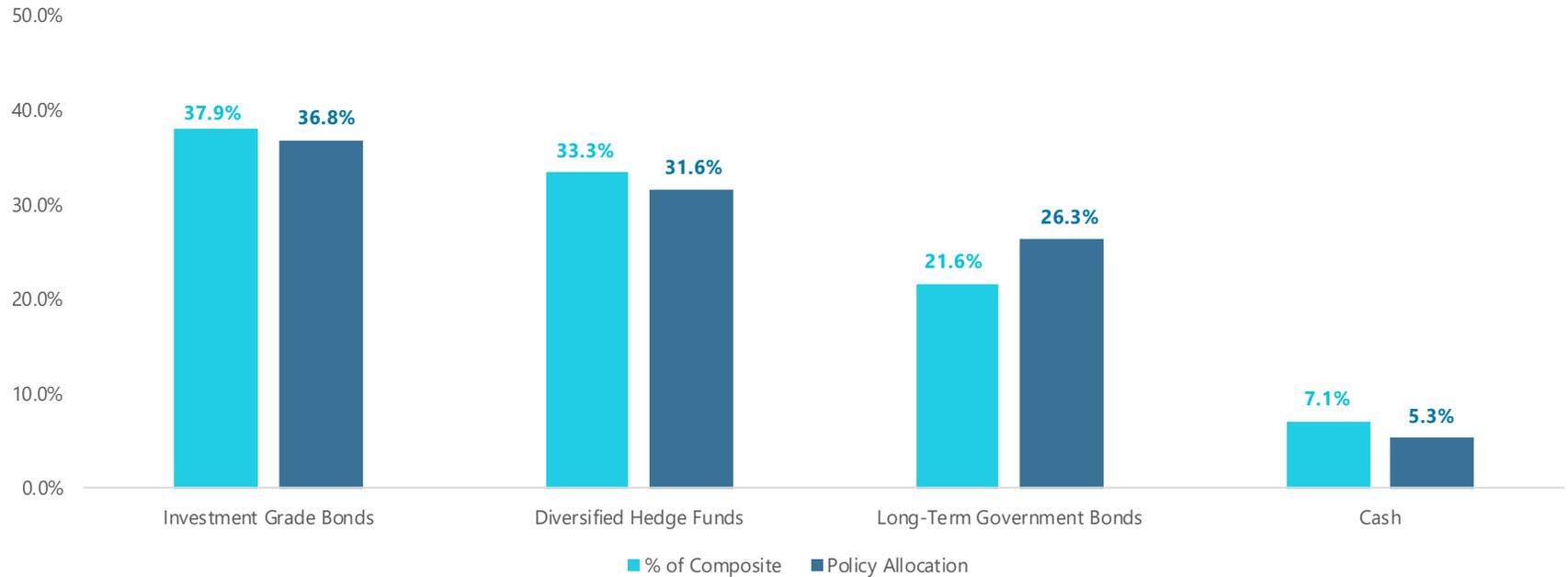
## Exposure



# Asset Allocation

for the quarter ended December 31, 2022

## Actual vs. Policy

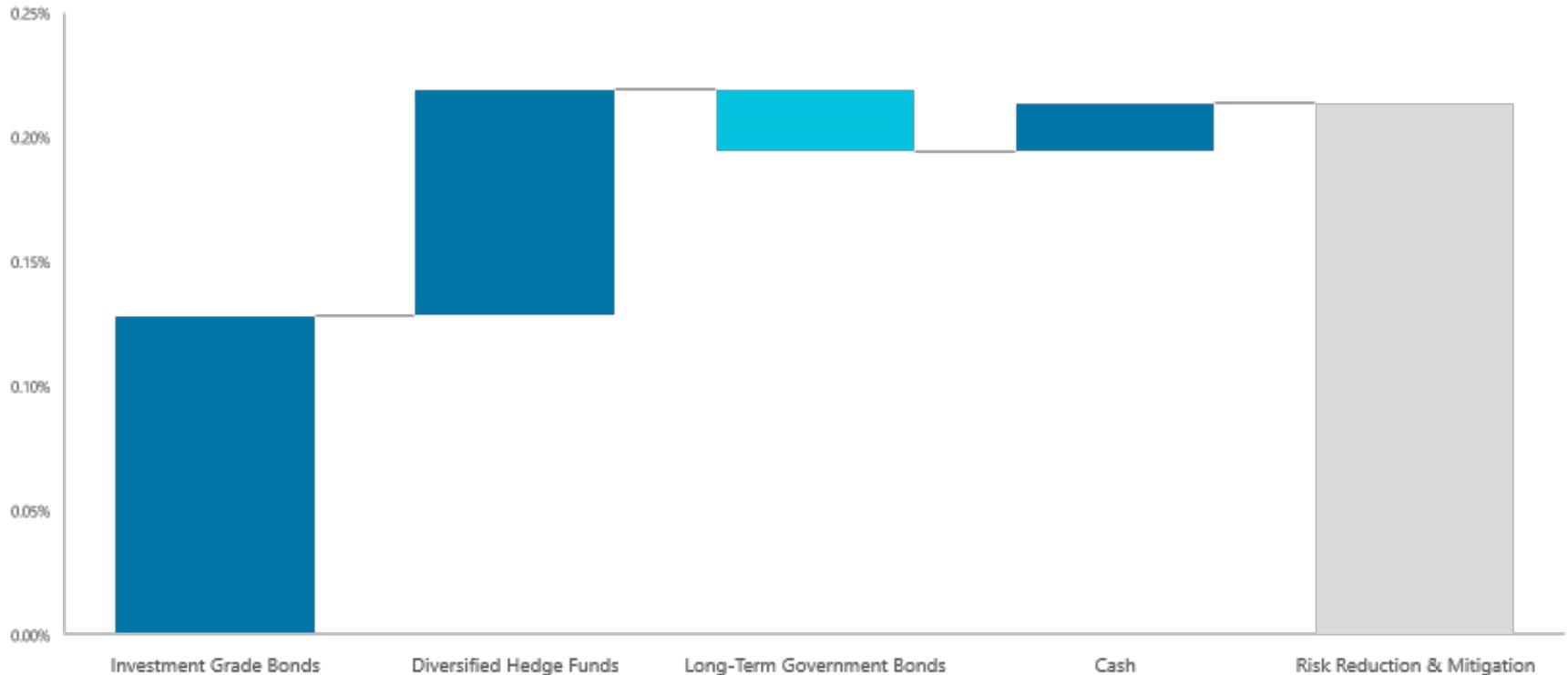


	Ending Market Value (mm)	% of Composite	Policy Allocation	Over / Under (%)	Over / Under (mm)
<b>Risk Reduction &amp; Mitigation</b>	<b>13,202</b>	<b>100.0%</b>	<b>100.0%</b>		
Investment Grade Bonds	5,003	37.9%	36.8%	1.1%	139
Diversified Hedge Funds	4,402	33.3%	31.6%	1.8%	233
Long-Term Government Bonds	2,857	21.6%	26.3%	-4.7%	-618
Cash	940	7.1%	5.3%	1.9%	246

# Contribution to Return

for the quarter ended December 31, 2022

## QTD Contribution to Return

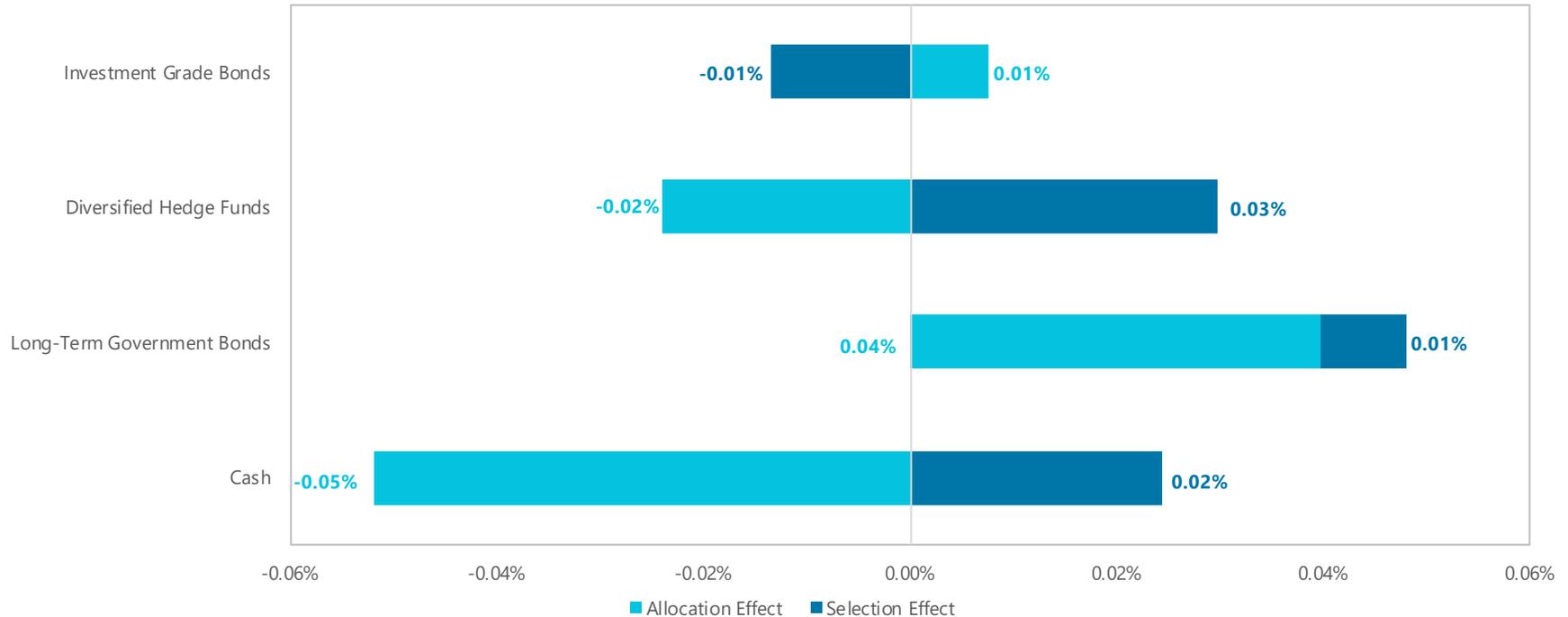


Functional Category	Contributors	Detractors
Investment Grade Bonds	0.13% BTC US Debt Index Fund	0.07% BlackRock Long Treasury Bonds
Diversified Hedge Funds	0.09% HBK Multi-strategy	0.03% AM Asia Strategies
Long-Term Government Bonds	-0.03% Allspring/Wells	0.03%
Cash	0.02% Capula GRV	0.02%
Risk Reduction & Mitigation	0.21% Pugh Capital Mgmt	0.02%

# Return Attribution

for the quarter ended December 31, 2022

## QTD Performance Attribution<sup>1</sup>



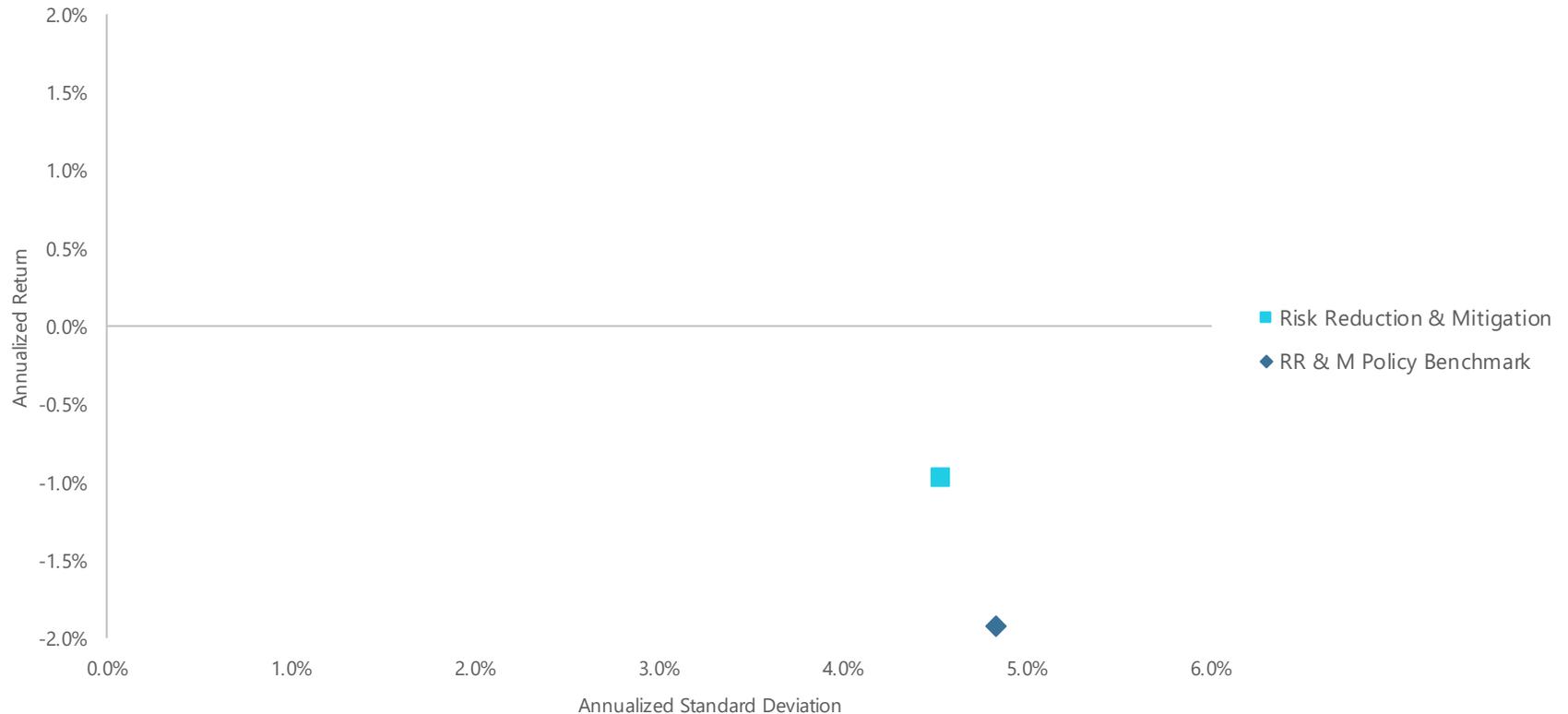
	Ending Market Value (mm)	% of Composite	Policy Allocation	Portfolio Return	Benchmark Return	Allocation Effect	Selection Effect	Total Value Add
<b>Risk Reduction &amp; Mitigation</b>	<b>13,202</b>	<b>100.0%</b>	<b>100.0%</b>	<b>1.1%</b>	<b>1.1%</b>	<b>-0.03%</b>	<b>0.05%</b>	<b>0.03%</b>
Investment Grade Bonds	5,003	37.9%	36.8%	1.8%	1.9%	0.01%	-0.01%	0.00%
Diversified Hedge Funds	4,402	33.3%	31.6%	1.4%	1.4%	-0.02%	0.03%	0.01%
Long-Term Government Bonds	2,857	21.6%	26.3%	-0.6%	-0.6%	0.04%	0.01%	0.04%
Cash	940	7.1%	5.3%	1.3%	0.9%	-0.05%	0.02%	-0.02%

<sup>1</sup> Total Value Add includes Interaction Effect.

# Risk vs. Return

for the quarter ended December 31, 2022

## 3 Year (Annualized)



	Annualized Return	Standard Deviation	Sharpe Ratio	Information Ratio	Beta	Tracking Error
<b>Risk Reduction &amp; Mitigation</b>	<b>-1.0%</b>	<b>4.5%</b>				
RR & M Policy Benchmark	-1.9%	4.8%	(0.35)	1.06	0.93	0.9%

# Performance Detail

for the quarter ended December 31, 2022



Los Angeles County Employees Retirement Association

## Annualized Net Returns<sup>1</sup>

	% of Composite	Ending Market Value (mm)	Prior Quarter Ending MV (mm)	QTD	YTD	1 Year	3 Year	5 Year	10 Year	ITD	Inception Date
<b>Risk Reduction &amp; Mitigation</b>	<b>100.0%</b>	<b>13,202</b>	<b>13,536</b>	<b>1.1%</b>	<b>-9.8%</b>	<b>-9.8%</b>	<b>-1.0%</b>	--	--	<b>0.6%</b>	<b>Apr-2019</b>
RR & M Policy Benchmark				1.1%	-11.0%	-11.0%	-1.9%	--	--	-0.2%	
<b>Investment Grade Bonds</b>	<b>37.9%</b>	<b>5,003</b>	<b>5,292</b>	<b>1.8%</b>	<b>-13.1%</b>	<b>-13.1%</b>	<b>-2.6%</b>	<b>0.2%</b>	<b>1.5%</b>	<b>5.1%</b>	<b>Nov-1994</b>
BBG BC Aggregate Bond Index				1.9%	-13.0%	-13.0%	-2.7%	0.0%	1.1%	4.6%	
Allspring/Wells	9.5%	1,252	1,605	2.1%	-13.0%	-13.0%	-2.1%	0.4%	1.4%	3.8%	Mar-2004
BTC US Debt Index Fund	22.0%	2,905	2,856	1.7%	-13.0%	-13.0%	-2.7%	0.0%	1.1%	3.8%	Nov-1999
MHLP	0.1%	11	11	1.2%	4.8%	4.8%	5.2%	6.7%	5.3%	5.4%	Apr-2005
Pugh Capital Mgmt	6.3%	835	819	1.9%	-13.2%	-13.2%	-2.6%	0.1%	1.1%	3.2%	Jul-2005
<b>Diversified Hedge Funds</b>	<b>33.3%</b>	<b>4,402</b>	<b>4,281</b>	<b>1.4%</b>	<b>5.8%</b>	<b>5.8%</b>	<b>7.3%</b>	--	--	<b>6.7%</b>	<b>Apr-2019</b>
Diversified Hedge Funds Policy Benchmark				1.4%	3.7%	3.7%	3.2%	--	--	3.5%	
AM Asia Strategies	1.6%	217	221	-2.0%	-3.9%	-3.9%	--	--	--	-2.6%	Jun-2021
Brevan Howard Master Fund	4.9%	650	648	0.4%	18.5%	18.5%	--	--	--	9.4%	Apr-2021
Capula GRV	4.9%	642	626	2.6%	12.0%	12.0%	6.7%	--	--	6.6%	Dec-2018
Caxton Global Investments	2.2%	297	292	1.5%	15.7%	15.7%	--	--	--	10.1%	Feb-2021
DK Institutional Partners	3.7%	486	487	-0.1%	-1.3%	-1.3%	5.2%	--	--	4.7%	May-2018
Grosvenor HFOF	0.2%	31	34	--	--	--	--	--	--	--	Nov-2011
HBK Multi-strategy	4.4%	578	555	4.1%	3.9%	3.9%	6.9%	--	--	5.5%	Jun-2018
Hudson Bay	4.9%	650	641	1.4%	3.0%	3.0%	--	--	--	10.7%	Jul-2020
Polar	3.5%	467	462	1.2%	1.0%	1.0%	--	--	--	10.4%	May-2020
Stable Asset Management	2.9%	384	315	1.8%	-0.4%	-0.4%	--	--	--	-0.2%	Aug-2021
<b>Long-Term Government Bonds</b>	<b>21.6%</b>	<b>2,857</b>	<b>2,874</b>	<b>-0.6%</b>	<b>-28.9%</b>	<b>-28.9%</b>	--	--	--	<b>-25.6%</b>	<b>Nov-2021</b>
Bloomberg U.S. Treasury: Long				-0.6%	-29.3%	-29.3%	--	--	--	-26.8%	Nov-2021
BlackRock Long Treasury Bonds	21.6%	2,857	2,874	-0.6%	-28.9%	-28.9%	--	--	--	-25.6%	Nov-2021
<b>Cash</b>	<b>7.1%</b>	<b>940</b>	<b>1,088</b>	<b>1.3%</b>	<b>3.2%</b>	<b>3.2%</b>	<b>1.7%</b>	<b>2.0%</b>	<b>1.3%</b>	<b>1.8%</b>	<b>Jun-2001</b>
Cash Policy Benchmark				0.9%	1.5%	1.5%	0.7%	1.3%	0.8%	1.4%	

<sup>1</sup> Diversified Hedge Funds returns are net-of-all fees and expenses.

# Risk Reduction & Mitigation

## Risk Summary

for the quarter ended December 31, 2022

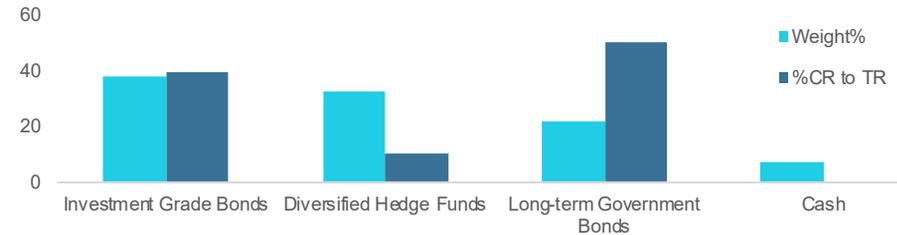
### Risk Summary

	Value
<b>Total Risk</b>	<b>6.20</b>
Benchmark Risk	6.17
Active Risk	1.21
Portfolio Beta	0.99
Cont. to Eff. Duration	6.46
Convexity	1.51
Yield to Worst (%)	4.29
OAS to Sw ap (bp)	55

### Risk Decomposition

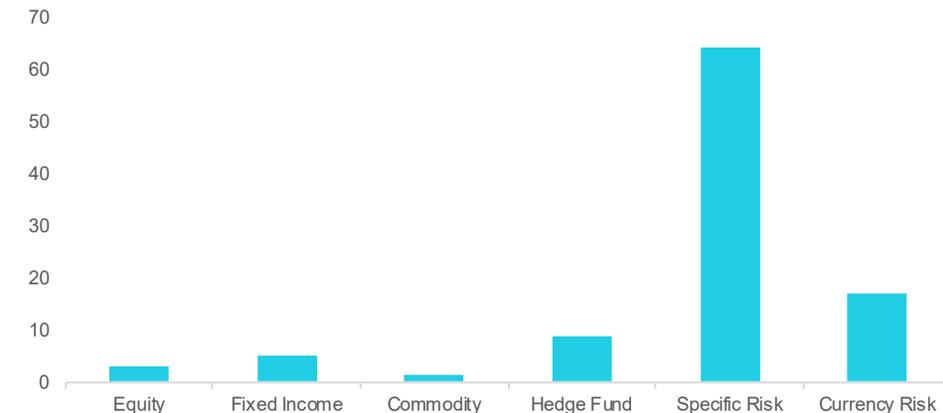
Risk Source	Portfolio		Active	
	Risk Contribution	%Risk	Risk Contribution	%Risk
<b>Total Risk</b>	<b>6.20</b>	<b>100.00</b>	<b>1.21</b>	<b>100.00</b>
Local Market Risk	6.05	97.55	1.00	82.83
Common Factor Risk	5.90	95.09	0.22	18.46
Specific Risk	0.15	2.46	0.78	64.37
Currency Risk	0.15	2.45	0.21	17.17

### Contribution to Risk



	Mkt Value (mm)	Weight%	Total Risk	Risk Contribution	%CR to TR
<b>Risk Reduction &amp; Mitigation</b>	<b>12,852</b>	<b>100.00</b>	<b>6.20</b>	<b>6.20</b>	<b>100.00</b>
Investment Grade Bonds	4,868	37.88	6.64	2.44	39.29
Diversified Hedge Funds	4,187	32.58	3.85	0.65	10.46
Long-term Government Bonds	2,856	22.22	14.58	3.12	50.24
Cash	941	7.32	0.00	0.00	0.00

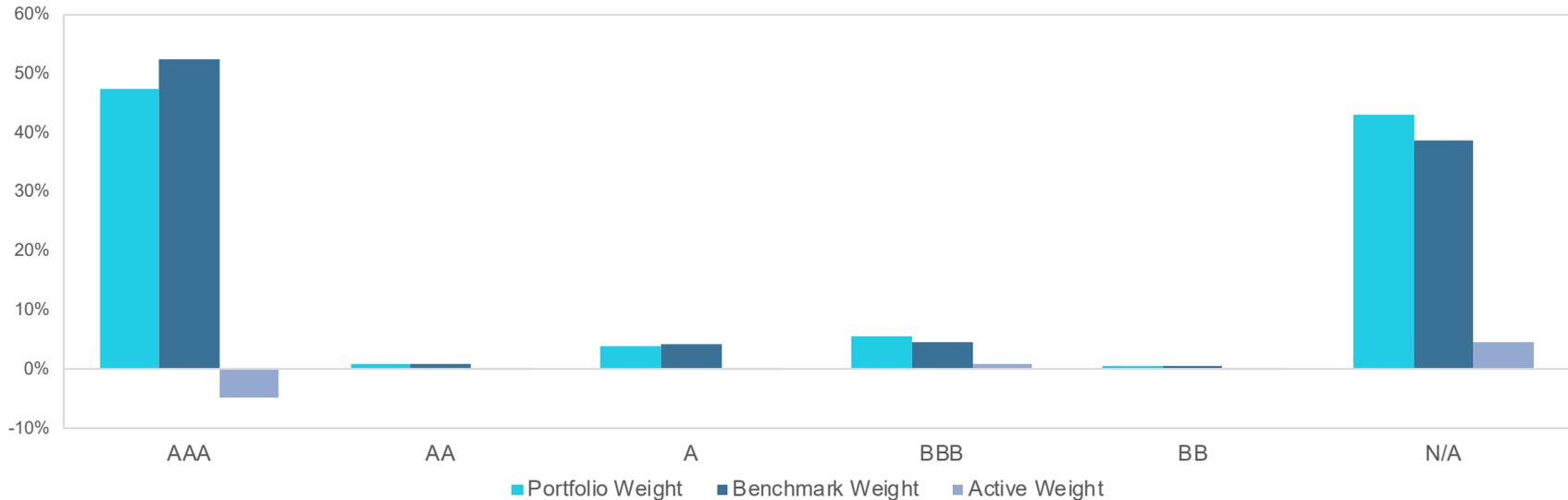
### Active Risk from Common Factors



# Risk Reduction & Mitigation Risk Summary

for the quarter ended December 31, 2022

## Portfolio Allocation By Moody's Rating



Rating	Weight%			Total Risk	Active Risk CR	% of Active TR	CR to Effective Duration
	Portfolio	Benchmark	Active				
<b>Risk Reduction &amp; Mitigation</b>	<b>100.00%</b>	<b>100.00%</b>	<b>0.00%</b>	<b>6.20</b>	<b>1.21</b>	<b>100%</b>	<b>6.46</b>
AAA	47.14%	52.15%	-5.01%	10.22	0.04	4.9%	5.07
AA	0.66%	0.79%	-0.13%	7.50	0.00	0.0%	0.05
A	3.94%	4.00%	-0.06%	6.49	0.00	0.1%	0.27
BBB	5.32%	4.45%	0.87%	7.03	0.01	0.4%	0.37
BB	0.12%	0.14%	-0.03%	8.12	0.00	0.0%	0.01
N/A	42.82%	38.46%	4.36%	3.16	1.17	94.6%	0.69

# Risk Reduction & Mitigation

## Investment Grade Bonds

### Allspring/Wells

for the quarter ended December 31, 2022

#### Strategy

A core fixed income strategy focusing on bottom-up quantitative and qualitative security selection and comprehensive risk management. Value is added primarily through security selection and sector rotation.

Inception Date: March 2004

#### Portfolio Characteristics

	Portfolio	Benchmark
No. of Issues	875.0	0.0
Effective Duration	6.2	6.2
Convexity	0.7	0.8
Coupon Rate	3.2	2.7
Yield to Maturity	4.7	4.6
Current Yield	3.5	3.0
Rating – Moody's	AA-2	AA-2
Rating – S & P	AA	AA

#### Top Holdings (% of assets)

US TREASURY N/B	3.7%
US TREASURY N/B	2.9%
US TREASURY N/B	1.5%
US TREASURY N/B	1.5%
US TREASURY N/B	1.4%
<b>Top 5 Holdings</b>	<b>11.0%</b>

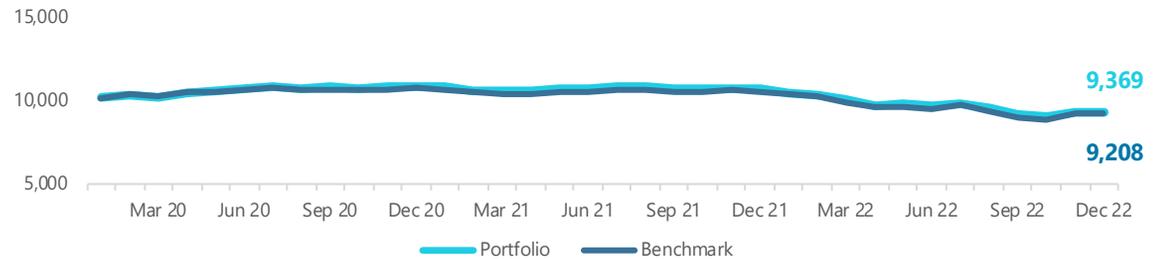
#### Performance (net)<sup>1</sup>

	Ending Market Value (mm)	QTD	1 Year	3 Year	5 Year
<b>Allspring/Wells</b>	<b>1,251.5</b>	<b>2.1%</b>	<b>-13.0%</b>	<b>-2.1%</b>	<b>0.4%</b>
BBG BARC Agg		1.9%	-13.0%	-2.7%	0.0%
RR & M Policy Benchmark		1.1%	-11.0%	-1.9%	--

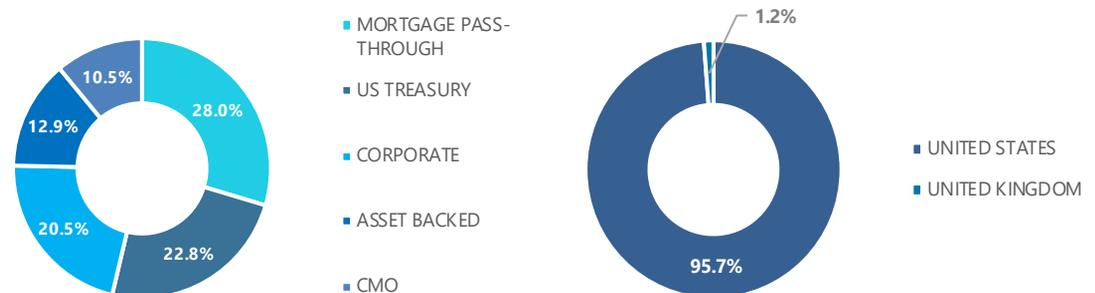
  

Universe data: US Fixed Income Pools	QTD	Rank	1 Year	Rank	3 Year	Rank	5 Year	Rank
<b>Allspring/Wells</b>	<b>2.1%</b>	<b>32</b>	<b>-12.9%</b>	<b>63</b>	<b>-2.1%</b>	<b>63</b>	<b>0.5%</b>	<b>62</b>
Median	1.7%		-10.8%		-1.3%		0.9%	

#### Growth of \$10,000



#### Top Exposures (% of assets)<sup>2</sup>



<sup>1</sup> Universe data is gross-of-fees.

<sup>2</sup> Charts display top exposures and may not add up to 100%.

# Risk Reduction & Mitigation Risk Analysis

## Investment Grade Bonds

### Allspring/Wells

for the quarter ended December 31, 2022

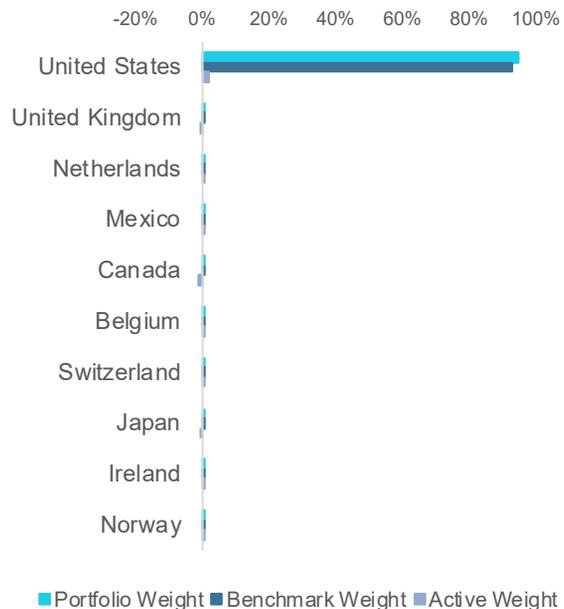


Los Angeles County Employees Retirement Association

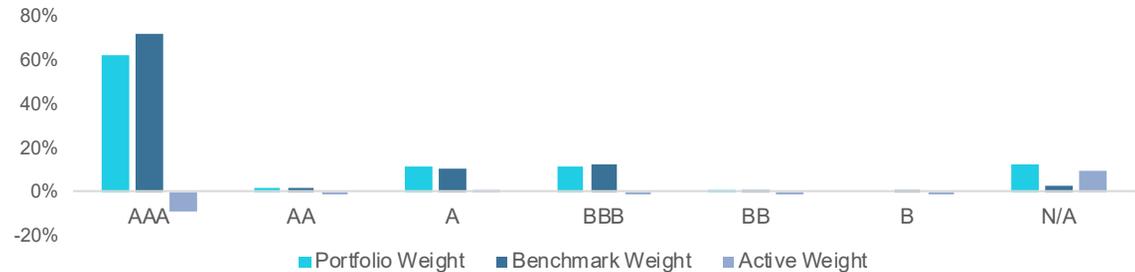
#### Portfolio Risk Summary

	Value
<b>Total Risk</b>	<b>6.89</b>
Benchmark Risk	6.54
Active Risk	0.64
Portfolio Beta	1.05
Cont. to Eff. Duration	6.97
Yield to Worst (%)	4.58
OAS to Swap (bp)	70

#### Top Countries by Weight%



#### Allocation by Moody's Rating



#### Active Risk from Common Factors



#### Portfolio Risk by Bond Sector



# Risk Reduction & Mitigation

## Investment Grade Bonds

### Pugh Capital

for the quarter ended December 31, 2022



Los Angeles County Employees Retirement Association

#### Strategy

A core fixed income strategy that invests in investment-grade securities, with an emphasis on higher credit quality and mortgage-backed securities. The strategy seeks to add value relative to the Index by minimizing downside risk across the portfolio while adding incremental return through issue selection.

Inception Date: July 2005

#### Portfolio Characteristics

	Portfolio	Benchmark
No. of Issues	274.0	0.0
Effective Duration	6.2	6.2
Convexity	0.6	0.8
Coupon Rate	3.2	2.7
Yield to Maturity	4.7	4.6
Current Yield	3.5	3.0
Rating – Moody's	AA-2	AA-2
Rating – S & P	AA-	AA-

#### Top Holdings (% of assets)

US TREASURY N/B	3.6%
US TREASURY N/B	3.2%
US TREASURY N/B	1.8%
US TREASURY N/B	1.7%
US TREASURY N/B	1.6%
<b>Top 5 Holdings</b>	<b>11.9%</b>

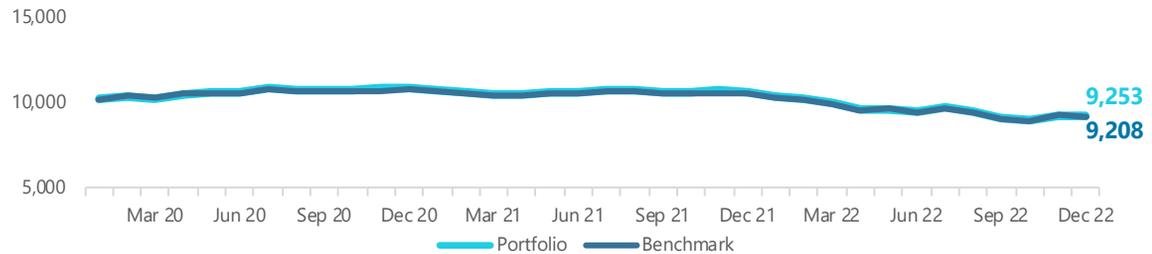
#### Performance (net)<sup>1</sup>

	Ending Market Value (mm)	QTD	1 Year	3 Year	5 Year
<b>Pugh Capital Mgmt</b>	<b>835.2</b>	<b>1.9%</b>	<b>-13.2%</b>	<b>-2.6%</b>	<b>0.1%</b>
BBG BARC Agg		1.9%	-13.0%	-2.7%	0.0%
RR & M Policy Benchmark		1.1%	-11.0%	-1.9%	--

Universe data: US Fixed Income Pools	QTD	Rank	1 Year	Rank	3 Year	Rank	5 Year	Rank
<b>Pugh Capital Mgmt</b>	<b>2.0%</b>	<b>34</b>	<b>-13.1%</b>	<b>64</b>	<b>-2.4%</b>	<b>70</b>	<b>0.2%</b>	<b>69</b>
Median	1.7%		-10.8%		-1.3%		0.9%	

#### Growth of \$10,000



#### Top Exposures (% of assets)<sup>2</sup>



<sup>1</sup> Universe data is gross-of-fees.

<sup>2</sup> Charts display top exposures and may not add up to 100%.

# Risk Reduction & Mitigation Risk Analysis

## Investment Grade Bonds

### Pugh Capital

for the quarter ended December 31, 2022



Los Angeles County Employees Retirement Association

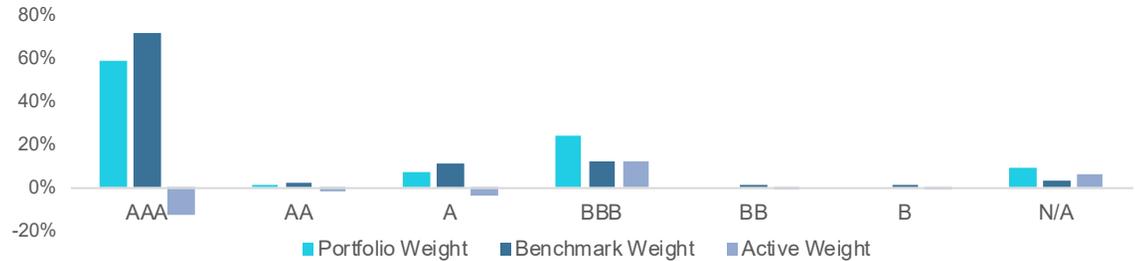
#### Portfolio Risk Summary

	Value
<b>Total Risk</b>	<b>6.76</b>
Benchmark Risk	6.54
Active Risk	0.41
Portfolio Beta	1.03
Cont. to Eff. Duration	6.53
Yield to Worst (%)	4.60
OAS to Sw ap (bp)	67

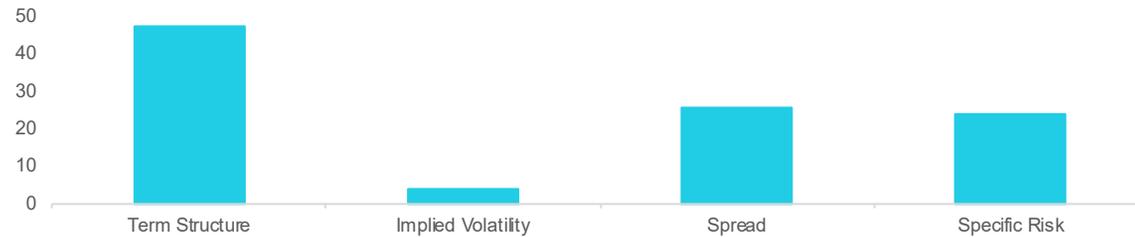
#### Top Countries by Weight%



#### Allocation by Moody's Rating



#### Active Risk from Common Factors



#### Portfolio Risk by Bond Sector



# Risk Reduction & Mitigation

## Long-term Government Bonds

### BlackRock

for the quarter ended December 31, 2022

#### Strategy

Seeks investment results that correspond generally to the price and yield performance of long duration U.S. government bonds.

Inception Date: Nov 2021

#### Portfolio Characteristics

Standard Deviation	15.0%
Benchmark Standard Deviation	15.0%
Sharpe Ratio	-1.93
Information Ratio	-0.19
Beta	1.00
Tracking Error	1.5%

#### Top Holdings (% of assets)

US TREASURY N/B	3.0%
US TREASURY N/B	2.8%
US TREASURY N/B	2.7%
US TREASURY N/B	2.6%
US TREASURY N/B	2.6%
<b>Top 5 Holdings</b>	<b>13.8%</b>

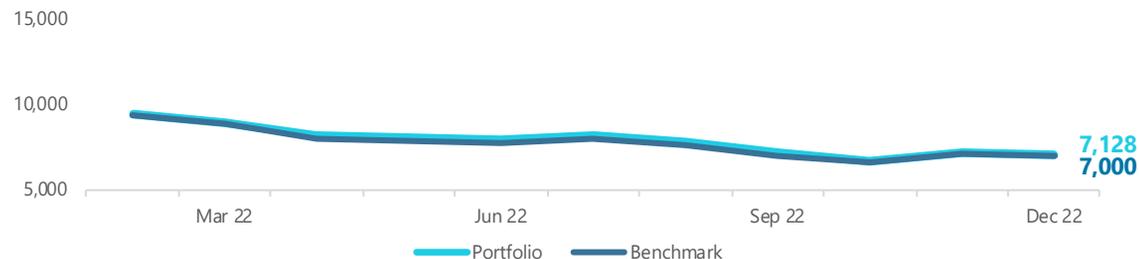
#### Performance (net)<sup>1</sup>

	Ending Market Value (mm)	QTD	1 Year	3 Year	5 Year
<b>BlackRock Long Treasury Bonds</b>	<b>2,856.8</b>	<b>-0.6%</b>	<b>-28.9%</b>	--	--
Bloomberg U.S. Treasury: Long RR & M Policy Benchmark		-0.6%	-29.3%	--	--
		1.1%	-11.0%	-1.9%	--

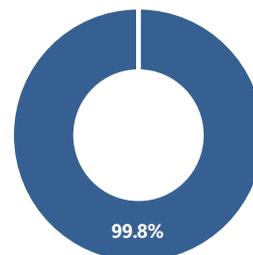
  

Universe data: US Fixed Income Pools	QTD	Rank	1 Year	Rank	3 Year	Rank	5 Year	Rank
<b>BlackRock Long Treasury Bonds</b>	<b>-0.6%</b>	<b>94</b>	<b>-28.9%</b>	<b>92</b>	--	--	--	--
Median	1.7%		-10.8%		--	--	--	--

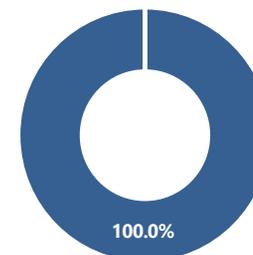
#### Growth of \$10,000



#### Top Exposures (% of assets)<sup>2</sup>



■ US TREASURY



■ UNITED STATES

<sup>1</sup> Universe data is gross-of-fees.

<sup>2</sup> Charts display top exposures and may not add up to 100%.

# Risk Reduction & Mitigation Risk Analysis

## Long-term Government Bonds

### BlackRock

for the quarter ended December 31, 2022

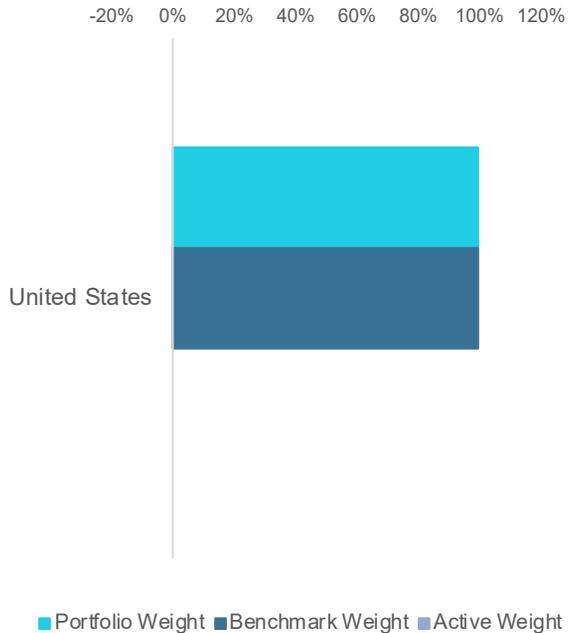


Los Angeles County Employees Retirement Association

#### Portfolio Risk Summary

	Value
<b>Total Risk</b>	<b>14.58</b>
Benchmark Risk	14.58
Active Risk	0.03
Portfolio Beta	1.00
Cont. to Eff. Duration	16.18
Yield to Worst (%)	4.07
OAS to Sw ap (bp)	45

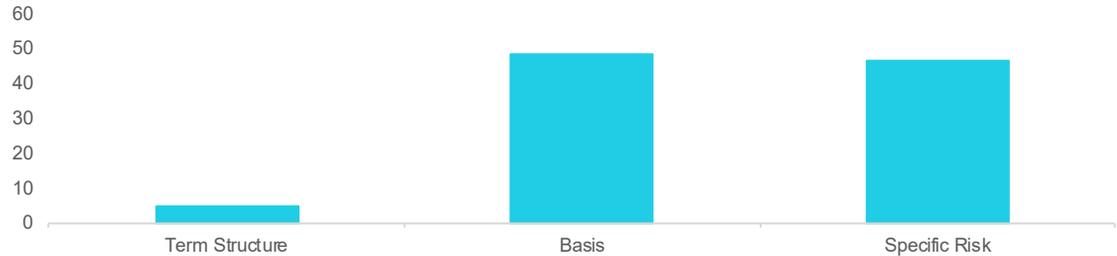
#### Top Countries by Weight%



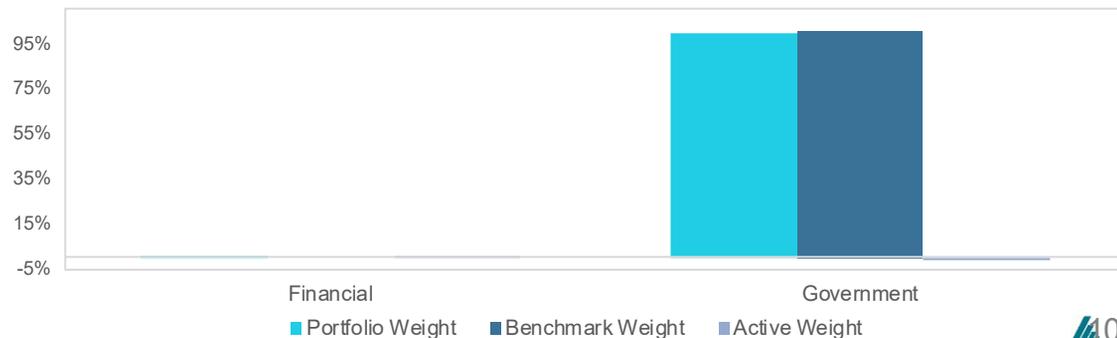
#### Allocation by Moody's Rating



#### Active Risk from Common Factors



#### Portfolio Risk by Bond Sector



# private markets

# Summary

## Private Equity

for the quarter ended December 31, 2022



Los Angeles County Employees Retirement Association

### Performance (net)



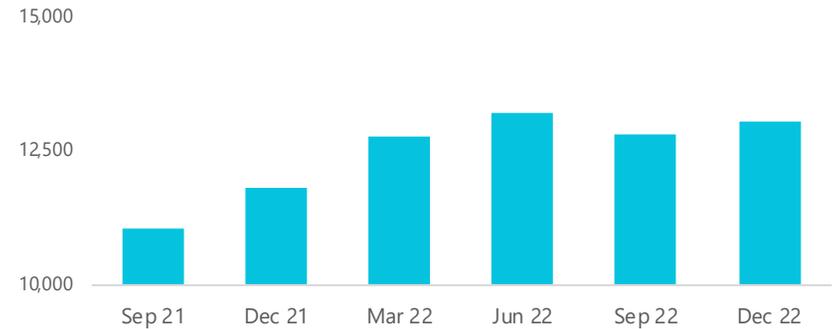
	QTD	YTD	1 Year	3 Year	5 Year	10 Year	ITD
<b>Private Equity</b>	<b>0.1%</b>	<b>5.8%</b>	<b>5.8%</b>	<b>22.3%</b>	<b>19.2%</b>	<b>17.0%</b>	<b>15.4%</b>
Benchmark	-6.1%	-19.3%	-19.3%	5.6%	10.7%	12.0%	--
Excess	6.2%	25.1%	25.1%	16.6%	8.5%	5.0%	--

### Cumulative Return

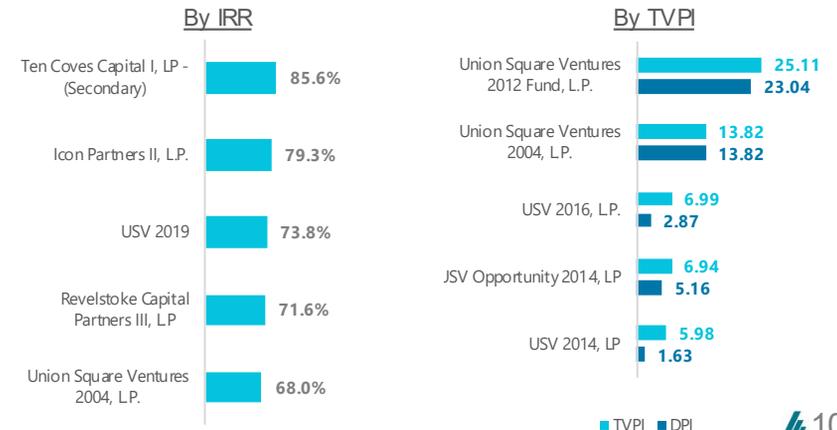


### Asset Growth (mm)

	QTD	1 Year	3 Year
Beginning Market Value	12,821	11,793	6,563
Net Cash Flow	193	559	709
Gain/Loss	16	678	5,759
<b>Ending Market Value</b>	<b>13,030</b>	<b>13,030</b>	<b>13,030</b>



### Top Performing Investments (since inception)



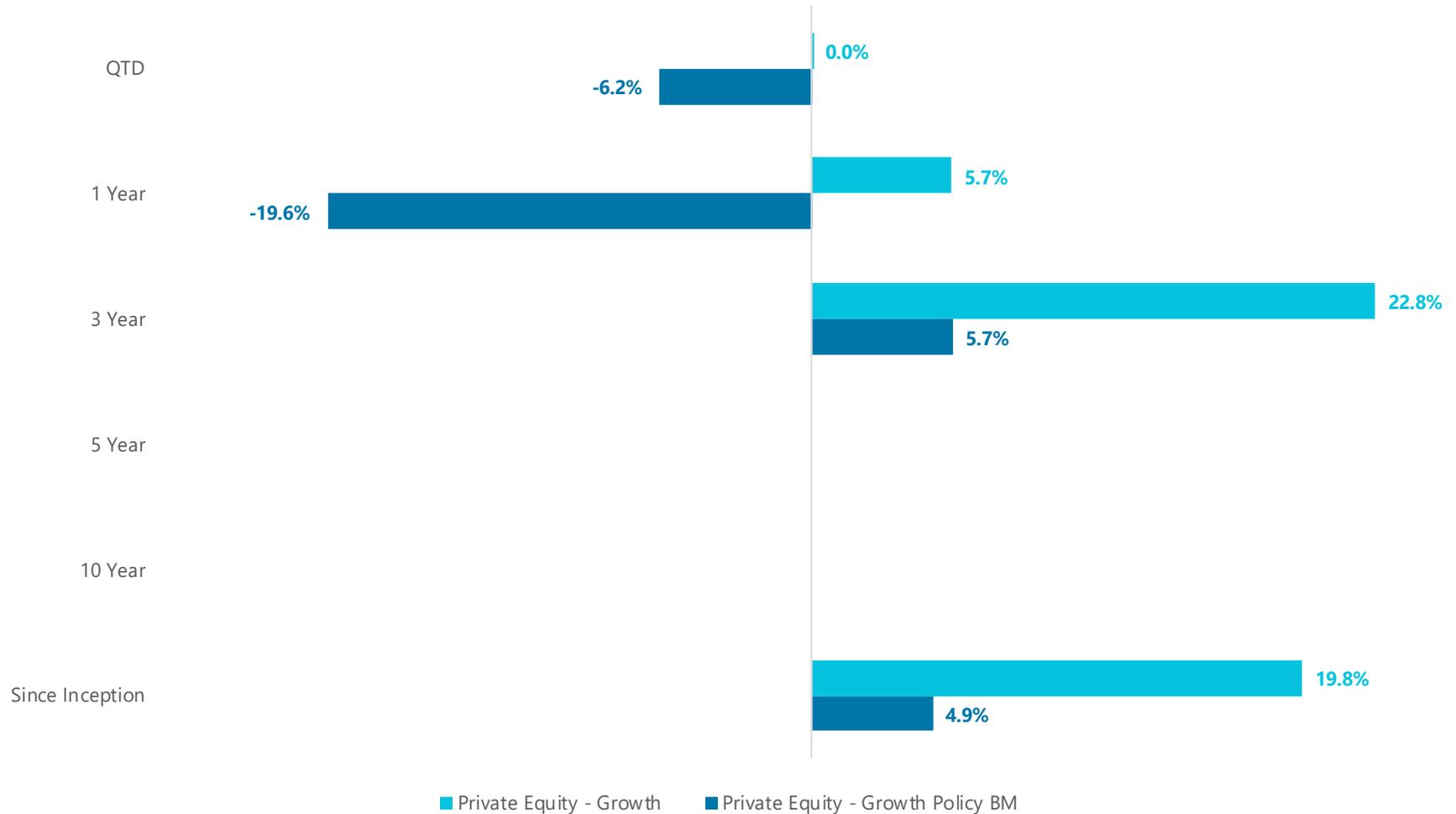
TVPI DPI

# Historical Returns

## Private Equity – Growth

for the quarter ended December 31, 2022

### Time-Weighted Returns (net)<sup>1</sup>

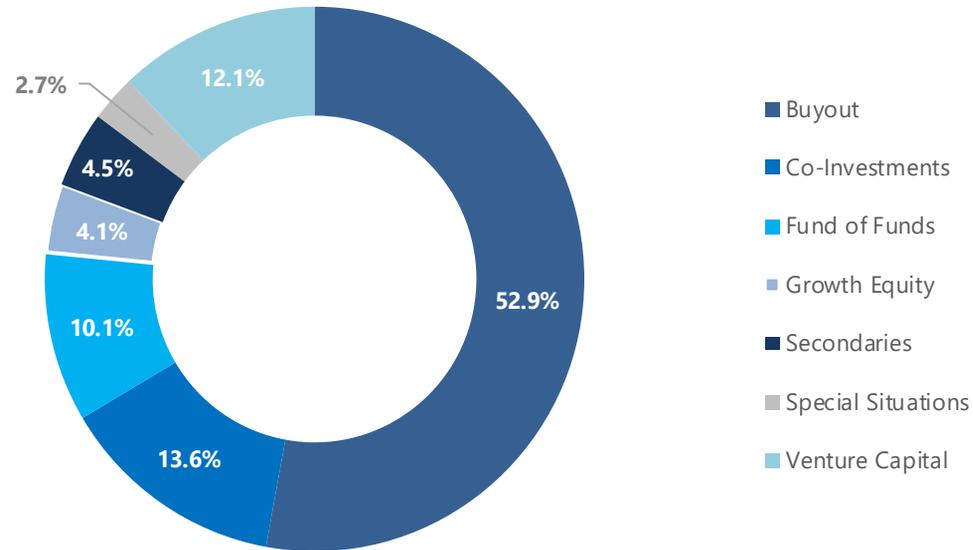


# Performance by Strategy

## Private Equity – Growth

for the quarter ended December 31, 2022

### By Strategy<sup>1,2</sup>



	Number of Investments	Commitments (mm)	Cumulative Contributions (mm)	Cumulative Distributions (mm)	Market Value (mm)	Total Value (mm)	Total Gain / Loss (mm)	Distributed to Paid-In	Total Value to Paid-In	Since Inception Net IRR	Since Inception PME
Buyout	203	14,428.5	12,850.1	14,250.3	7,161.5	21,411.8	8,561.7	1.11x	1.67x	14.0%	1.58
Co-Investments	10	1,356.4	2,113.2	1,011.9	1,840.7	2,852.6	739.4	0.48x	1.35x	18.1%	1.31
Fund of Funds	12	1,440.9	1,330.1	1,533.1	1,367.1	2,900.2	1,570.1	1.15x	2.18x	14.7%	1.62
Growth Equity	23	1,346.4	1,116.4	1,505.0	552.7	2,057.7	941.3	1.35x	1.84x	86.9%	1.70
Secondaries	21	959.0	771.0	366.7	613.7	980.3	209.3	0.48x	1.27x	17.4%	1.28
Special Situations	22	1,170.6	1,014.6	1,072.5	370.9	1,443.4	428.8	1.06x	1.42x	9.3%	1.16
Venture Capital	105	2,253.4	1,934.9	2,584.3	1,635.9	4,220.2	2,285.3	1.34x	2.18x	21.8%	2.04
<b>Total Private Equity - Growth</b>	<b>396</b>	<b>22,955.1</b>	<b>21,130.3</b>	<b>22,323.7</b>	<b>13,542.4</b>	<b>35,866.2</b>	<b>14,735.9</b>	<b>1.06x</b>	<b>1.70x</b>	<b>16.4%</b>	<b>1.69</b>

<sup>1</sup> Based on best available cash flow adjusted market values.

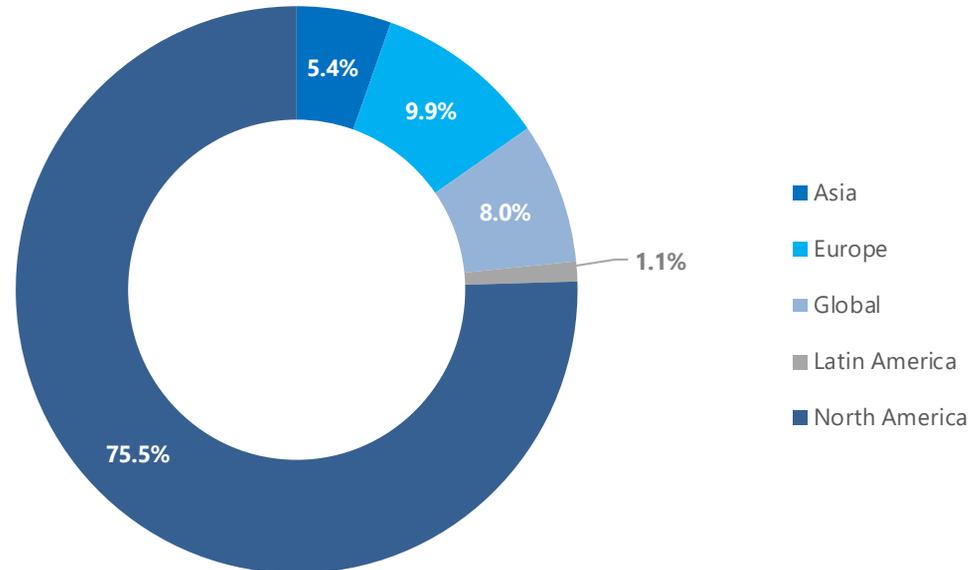
<sup>2</sup> Investment counts for Co-Investments and Fund of Funds do not include underlying funds.

# Performance by Geography

## Private Equity – Growth

for the quarter ended December 31, 2022

### By Geography<sup>1,2</sup>



	Number of Investments	Commitments (mm)	Cumulative Contributions (mm)	Cumulative Distributions (mm)	Market Value (mm)	Total Value (mm)	Total Gain / Loss (mm)	Distributed to Paid-In	Total Value to Paid-In	Since Inception Net IRR	Since Inception PME
Asia	14	826.0	693.7	441.5	737.7	1,179.2	485.4	0.64x	1.70x	14.7%	1.33
Europe	36	2,545.9	2,397.5	2,320.1	1,343.1	3,663.2	1,265.7	0.97x	1.53x	15.7%	1.35
Global	27	2,162.8	1,300.0	809.0	1,088.3	1,897.2	597.3	0.62x	1.46x	15.8%	1.34
Latin America	2	200.0	183.9	51.5	153.9	205.4	21.5	0.28x	1.12x	4.1%	0.95
North America	317	17,220.4	16,555.2	18,701.7	10,219.4	28,921.1	12,365.9	1.13x	1.75x	16.4%	1.73
<b>Total Private Equity - Growth</b>	<b>396</b>	<b>22,955.1</b>	<b>21,130.3</b>	<b>22,323.7</b>	<b>13,542.4</b>	<b>35,866.2</b>	<b>14,735.9</b>	<b>1.06x</b>	<b>1.70x</b>	<b>16.4%</b>	<b>1.69</b>

<sup>1</sup> Based on best available cash flow adjusted market values.

<sup>2</sup> Investment counts for Co-Investments and Fund of Funds do not include underlying funds.

# Performance by Vintage Year

## Private Equity – Growth

for the quarter ended December 31, 2022



Los Angeles County Employees Retirement Association

### By Vintage Year<sup>1,2,3</sup>

	Number of Investments	Commitments (mm)	Cumulative Contributions (mm)	Cumulative Distributions (mm)	Market Value (mm)	Total Value (mm)	Total Gain / Loss (mm)	Distributed to Paid-In	Total Value to Paid-In	Since Inception Net IRR	Since Inception PME	Quartile Ranking
1986	3	80.0	80.0	267.5	0.0	267.5	187.5	3.34x	3.34x	15.7%	--	1st
1987	1	25.0	25.0	40.3	0.0	40.3	15.3	1.61x	1.61x	7.3%	--	3rd
1988	2	200.0	216.6	466.9	0.0	466.9	250.3	2.16x	2.16x	15.5%	89.91	2nd
1989	0	--	--	--	--	--	--	--	--	--	--	N/A
1990	1	7.5	7.5	16.7	0.0	16.7	9.2	2.22x	2.22x	13.0%	9.13	3rd
1991	0	--	--	--	--	--	--	--	--	--	--	N/A
1992	10	116.0	111.0	242.5	0.0	242.5	131.6	2.19x	2.19x	29.1%	3.78	1st
1993	8	68.0	64.8	239.5	0.0	239.5	174.7	3.70x	3.70x	39.7%	3.22	1st
1994	5	56.9	58.8	237.6	0.0	237.6	178.8	4.04x	4.04x	54.1%	2.82	1st
1995	7	100.5	102.3	362.6	0.0	362.6	260.2	3.54x	3.54x	43.2%	2.58	1st
1996	12	222.9	225.2	608.8	0.0	608.8	383.6	2.70x	2.70x	37.5%	2.15	1st
1997	11	397.5	410.4	606.4	0.0	606.4	196.0	1.48x	1.48x	7.7%	1.20	3rd
1998	22	644.4	655.2	945.3	0.7	946.0	290.7	1.44x	1.44x	7.3%	1.19	2nd
1999	21	362.7	369.7	436.6	0.1	436.7	67.0	1.18x	1.18x	3.4%	0.96	2nd
2000	25	375.2	387.3	575.0	0.2	575.2	187.9	1.48x	1.49x	8.7%	1.07	2nd
2001	15	409.7	442.6	834.9	3.0	838.0	395.4	1.89x	1.89x	21.7%	1.38	1st
2002	8	220.4	230.3	537.4	0.0	537.4	307.1	2.33x	2.33x	19.0%	1.64	2nd
2003	8	309.1	339.2	701.6	0.3	701.9	362.7	2.07x	2.07x	21.3%	1.60	1st
2004	7	342.1	392.2	744.2	1.9	746.0	353.9	1.90x	1.90x	19.5%	1.58	1st
2005	15	503.2	506.2	1,039.9	2.6	1,042.5	536.3	2.05x	2.06x	13.4%	1.64	1st
2006	28	1,513.9	1,607.3	2,559.4	44.0	2,603.3	996.0	1.59x	1.62x	8.9%	1.25	2nd
2007	11	516.6	461.8	782.7	27.4	810.2	348.3	1.69x	1.75x	11.4%	1.19	2nd
2008	10	637.8	700.4	1,231.1	28.7	1,259.8	559.4	1.76x	1.80x	13.2%	1.21	2nd
2009	0	--	--	--	--	--	--	--	--	--	--	N/A
2010	2	450.0	472.2	689.1	293.4	982.5	510.3	1.46x	2.08x	16.0%	1.47	2nd
2011	7	391.0	414.2	802.9	154.0	956.9	542.7	1.94x	2.31x	18.5%	1.49	2nd
2012	7	435.0	581.6	1,062.2	118.8	1,181.0	599.4	1.83x	2.03x	21.9%	1.69	2nd
2013	10	895.0	973.2	1,153.1	578.4	1,731.5	758.3	1.18x	1.78x	14.9%	1.32	2nd
2014	11	1,247.5	1,382.1	1,465.4	1,207.6	2,673.0	1,290.9	1.06x	1.93x	17.5%	1.46	2nd
2015	10	1,087.0	1,235.2	1,291.4	1,530.8	2,822.2	1,587.1	1.05x	2.28x	23.9%	1.80	2nd
2016	12	1,127.2	1,284.5	1,072.3	1,183.7	2,255.9	971.4	0.83x	1.76x	17.7%	1.37	3rd
2017	8	594.0	575.5	365.6	706.8	1,072.4	496.9	0.64x	1.86x	21.6%	1.52	3rd
2018	9	1,265.5	1,146.7	350.4	1,399.2	1,749.6	603.0	0.31x	1.53x	20.9%	1.43	3rd
2019	30	2,686.5	3,105.7	443.8	3,639.6	4,083.4	977.7	0.14x	1.31x	20.1%	1.26	3rd
2020	10	1,020.0	700.2	99.9	750.5	850.5	150.3	0.14x	1.21x	16.2%	1.32	3rd
2021	30	2,845.7	1,333.6	50.9	1,348.0	1,398.9	65.3	0.04x	1.05x	5.6%	1.15	2nd
2022	20	1,801.1	532.0	0.0	522.8	522.8	(9.2)	0.00x	0.98x	-3.6%	1.02	2nd
<b>Total Private Equity - Growth</b>	<b>396</b>	<b>22,955.1</b>	<b>21,130.3</b>	<b>22,323.7</b>	<b>13,542.4</b>	<b>35,866.2</b>	<b>14,735.9</b>	<b>1.06x</b>	<b>1.70x</b>	<b>16.4%</b>	<b>1.69</b>	

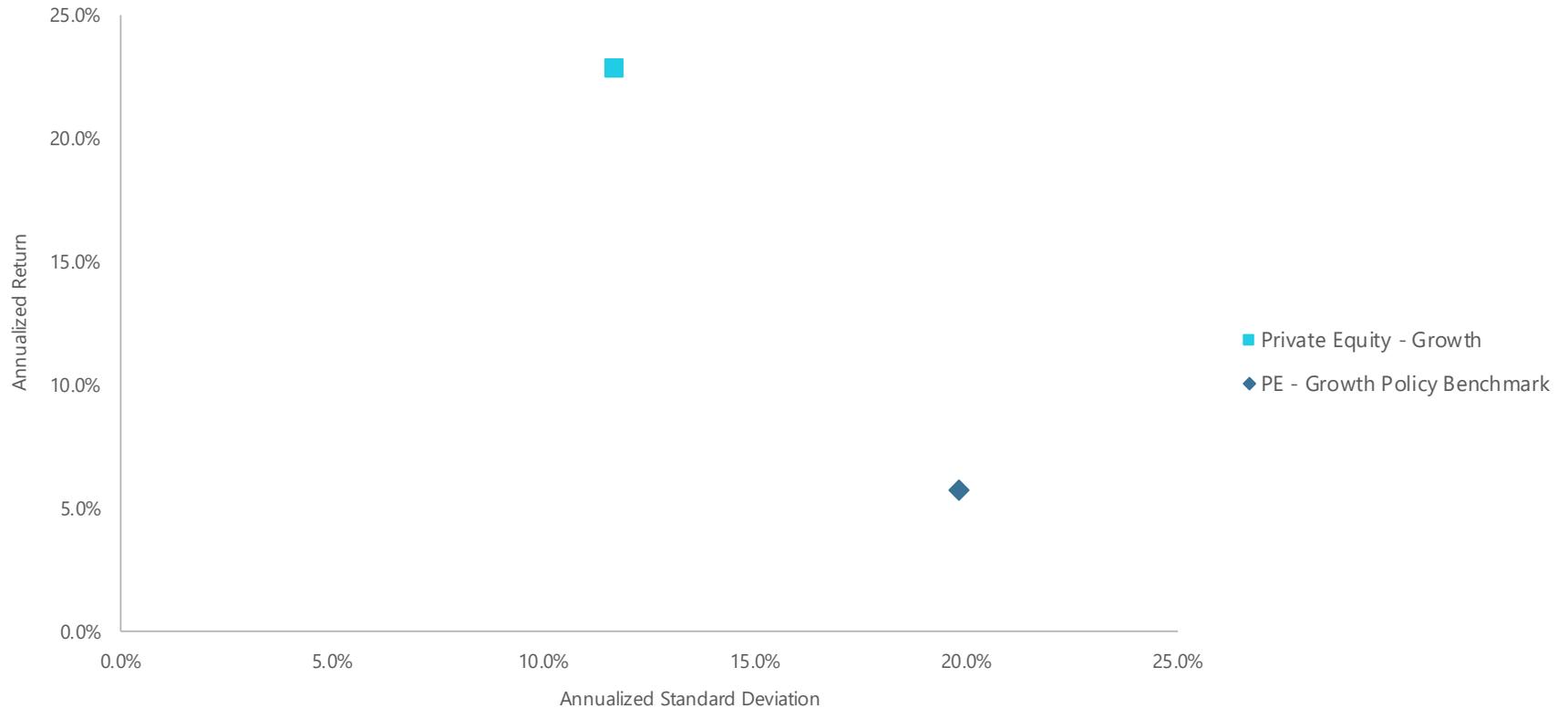
1. Based on best available cash flow adjusted market values.
2. Investment counts for Co-Investments and Fund of Funds do not include underlying funds.
3. Benchmark data used is latest available by Burgiss Private IQ. Quartile rankings are reported as not applicable (N/A) if commitment date is within 3 years of reporting date or if no commitments were made for the respective vintage year.

# Risk vs. Return

## Private Equity – Growth

for the quarter ended December 31, 2022

### 3 Year (Annualized)



	Annualized Return	Standard Deviation	Sharpe Ratio	Information Ratio	Beta	Tracking Error
<b>Private Equity - Growth</b>	<b>22.8%</b>	<b>11.7%</b>				
PE - Growth Policy Benchmark	5.7%	19.8%	1.76	0.74	0.23	18.8%

# Annual Cash Flow Activity

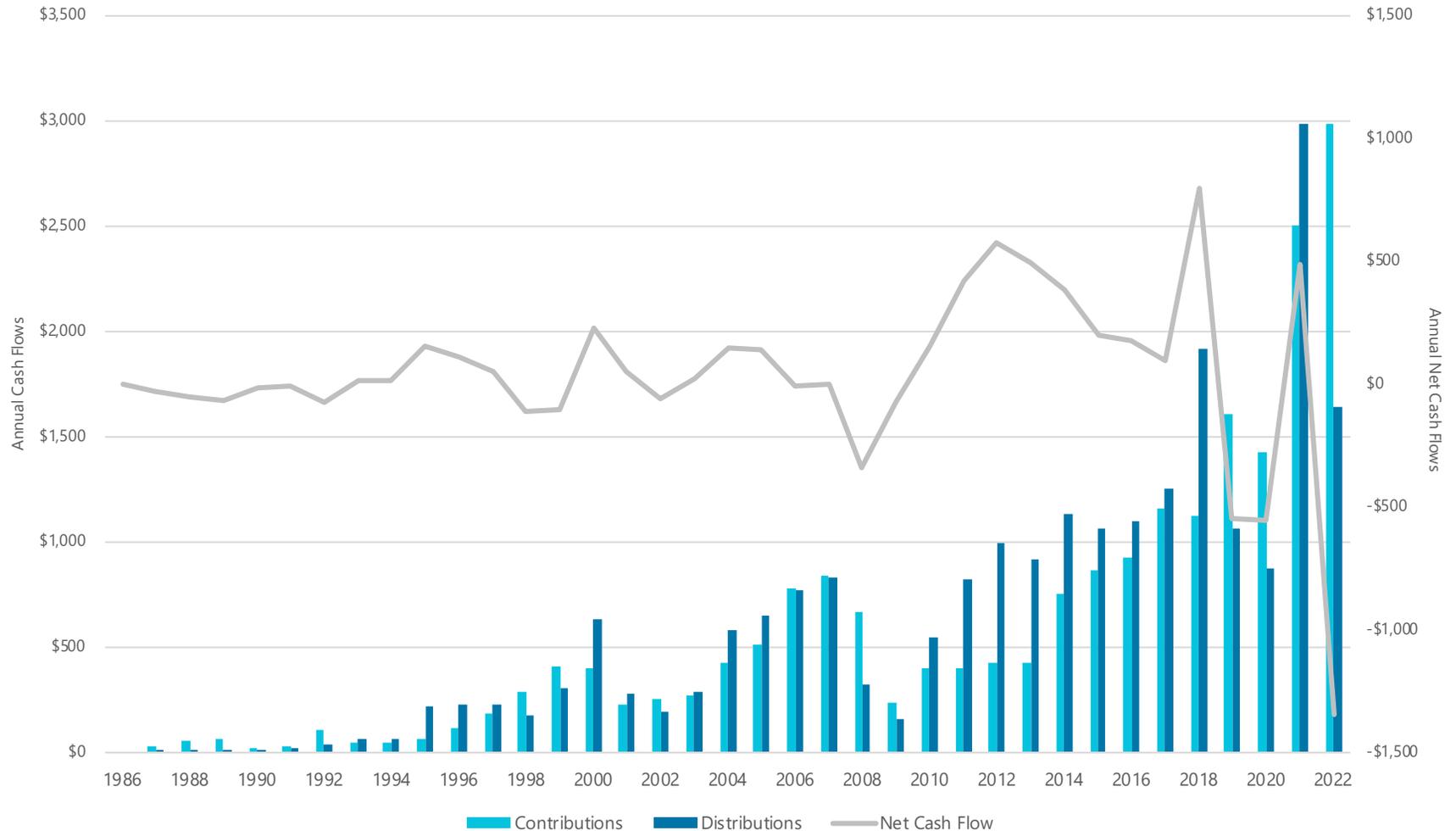
## Private Equity

for the quarter ended December 31, 2022



Los Angeles County Employees Retirement Association

### By Year (mm)



# Summary

## Real Estate

for the quarter ended December 31, 2022



Los Angeles County Employees Retirement Association

### Performance (net)



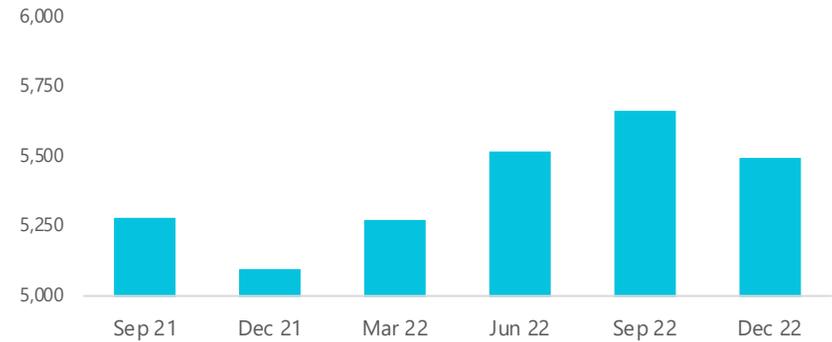
	QTD	YTD	1 Year	3 Year	5 Year	10 Year	ITD
<b>Real Estate</b>	<b>1.7%</b>	<b>22.8%</b>	<b>22.8%</b>	<b>11.7%</b>	<b>9.5%</b>	<b>9.5%</b>	<b>8.2%</b>
Benchmark	0.4%	20.9%	20.9%	11.9%	9.8%	10.3%	--
Excess	1.3%	2.0%	2.0%	-0.2%	-0.2%	-0.8%	--

### Cumulative Return

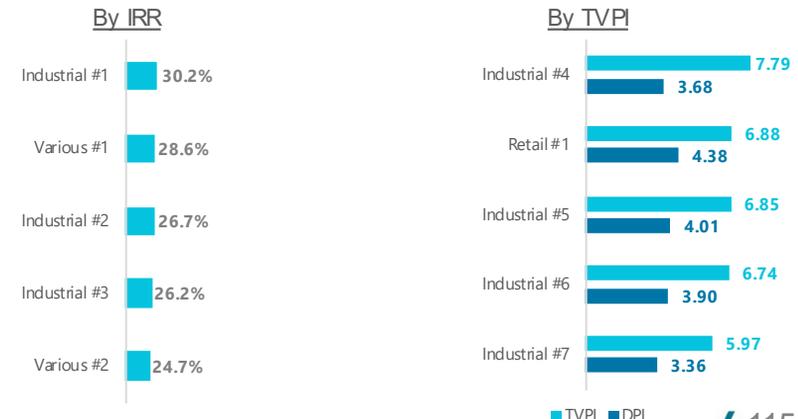


### Asset Growth (mm)

	QTD	1 Year	3 Year
Beginning Market Value	5,660	5,098	6,126
Net Cash Flow	-264	-716	-2,419
Gain/Loss	98	1,111	1,787
<b>Ending Market Value</b>	<b>5,493</b>	<b>5,493</b>	<b>5,493</b>



### Top Performing Investments (since inception)<sup>1</sup>



<sup>1</sup> Property names removed due to confidentiality reasons.

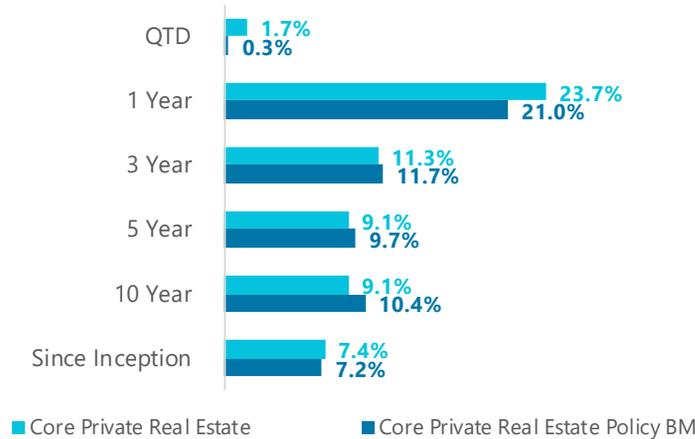
# Historical Returns

## Real Estate

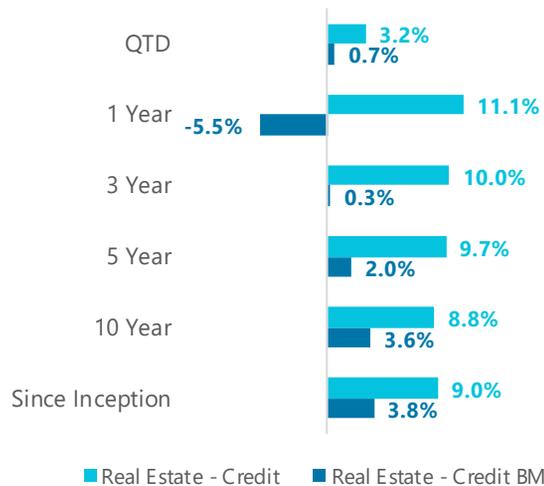
for the quarter ended December 31, 2022

### Time-Weighted Returns (net)

#### Core



#### Debt



#### Non-Core

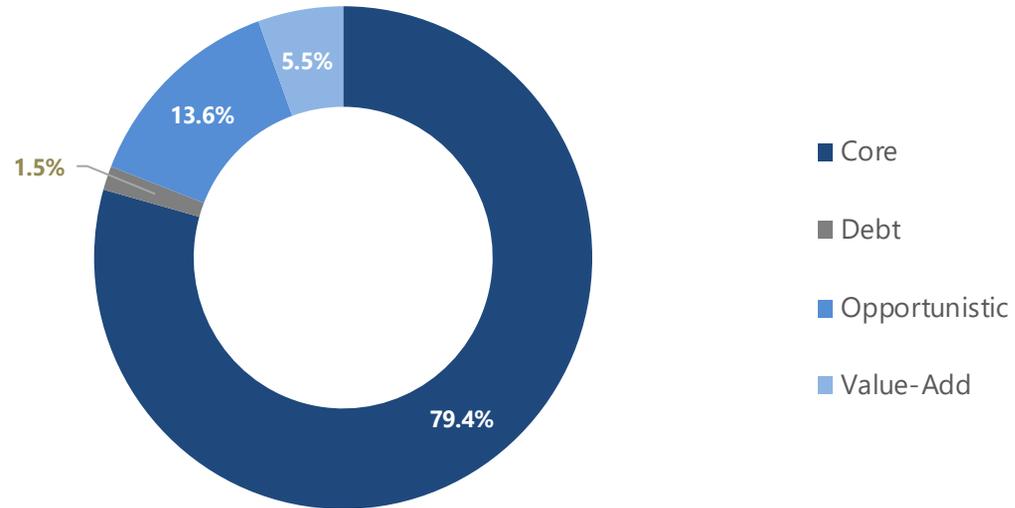


# Performance by Strategy

## Real Estate

for the quarter ended December 31, 2022

### By Strategy<sup>1,2</sup>



	Number of Investments	Commitments (mm)	Cumulative Contributions (mm)	Cumulative Distributions (mm)	Market Value (mm)	Total Value (mm)	Total Gain / (Loss) (mm)	Distributed to Paid-In	Total Value to Paid-In	Since Inception Net IRR	Since Inception PME
Core	79	431.7	7,409.9	6,794.4	4,352.3	11,146.7	3,736.8	0.92x	1.50x	8.9%	1.19
Debt	7	0.0	157.0	109.7	84.5	194.2	37.2	0.70x	1.24x	8.3%	1.17
Opportunistic	16	1,096.8	1,118.1	773.6	744.0	1,517.6	399.4	0.69x	1.36x	6.9%	1.02
Value-Add	12	468.2	602.5	221.3	303.3	524.6	(77.9)	0.37x	0.87x	-3.2%	0.63
<b>Total Real Estate</b>	<b>114</b>	<b>1,996.7</b>	<b>9,287.5</b>	<b>7,898.9</b>	<b>5,484.1</b>	<b>13,383.0</b>	<b>4,095.5</b>	<b>0.85x</b>	<b>1.44x</b>	<b>8.3%</b>	<b>1.14</b>

<sup>1</sup> Based on best available cash flow adjusted market values and includes only active investments and sold assets with balance sheet residuals.

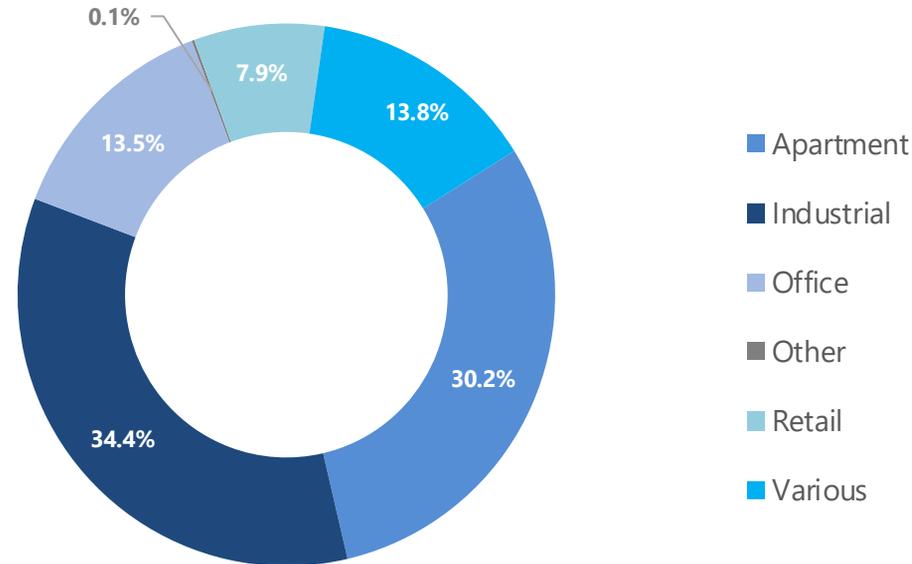
<sup>2</sup> Commitment amounts reflect only commingled fund investments.

# Performance by Property Type

## Real Estate

for the quarter ended December 31, 2022

### By Property Type<sup>1,2,3</sup>



	Number of Investments	Commitments (mm)	Cumulative Contributions (mm)	Cumulative Distributions (mm)	Market Value (mm)	Total Value (mm)	Total Gain / (Loss) (mm)	Distributed to Paid-In	Total Value to Paid-In	Since Inception Net IRR	Since Inception PME
Apartment	36	384.0	3,082.3	2,558.7	1,657.9	4,216.6	1,134.2	0.83x	1.37x	8.5%	1.17
Industrial	21	231.7	1,692.9	1,547.9	1,887.1	3,434.9	1,742.1	0.91x	2.03x	13.5%	1.75
Office	19	0.0	2,006.0	1,884.9	741.9	2,626.9	620.9	0.94x	1.31x	6.3%	1.09
Other	4	100.0	170.6	199.0	7.8	206.8	36.2	1.17x	1.21x	4.2%	0.76
Retail	15	0.0	1,277.3	1,269.1	431.2	1,700.3	423.0	0.99x	1.33x	6.5%	0.84
Various	19	1,281.0	1,058.5	439.4	758.2	1,197.5	139.1	0.42x	1.13x	2.6%	0.83
<b>Total Real Estate</b>	<b>114</b>	<b>1,996.7</b>	<b>9,287.5</b>	<b>7,898.9</b>	<b>5,484.1</b>	<b>13,383.0</b>	<b>4,095.5</b>	<b>0.85x</b>	<b>1.44x</b>	<b>8.3%</b>	<b>1.14</b>

<sup>1</sup> Based on best available cash flow adjusted market values and includes only active investments and sold assets with balance sheet residuals.

<sup>2</sup> Commitment amounts reflect only commingled fund investments.

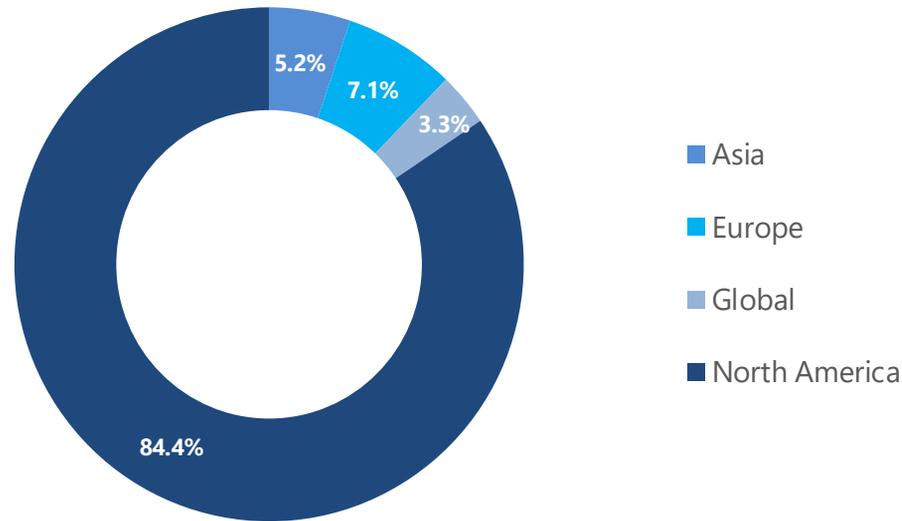
<sup>3</sup> Various refers to commingled fund investments with more than one property type; Other refers to hotel and fund level market values for the debt program.

# Performance by Geography

## Real Estate

for the quarter ended December 31, 2022

### By Geography (non-US)<sup>1,2</sup>



	Number of Investments	Commitments (mm)	Cumulative Contributions (mm)	Cumulative Distributions (mm)	Market Value (mm)	Total Value (mm)	Total Gain / (Loss) (mm)	Distributed to Paid-In	Total Value to Paid-In	Since Inception Net IRR	Since Inception PME
Asia	4	300.0	304.4	112.5	283.0	395.5	91.1	0.37x	1.30x	6.0%	1.09
Europe	10	469.0	614.5	364.3	387.6	752.0	137.5	0.59x	1.22x	4.8%	0.91
Global	5	468.8	267.1	212.2	183.2	395.4	128.3	0.79x	1.48x	12.2%	1.13
North America	95	759.0	8,101.5	7,209.8	4,630.3	11,840.2	3,738.7	0.89x	1.46x	8.4%	1.15
<b>Total Real Estate</b>	<b>114</b>	<b>1,996.7</b>	<b>9,287.5</b>	<b>7,898.9</b>	<b>5,484.1</b>	<b>13,383.0</b>	<b>4,095.5</b>	<b>0.85x</b>	<b>1.44x</b>	<b>8.3%</b>	<b>1.14</b>

<sup>1</sup> Based on best available cash flow adjusted market values and includes only active investments and sold assets with balance sheet residuals.

<sup>2</sup> Commitment amounts reflect only commingled fund investments.

# Performance by Geography

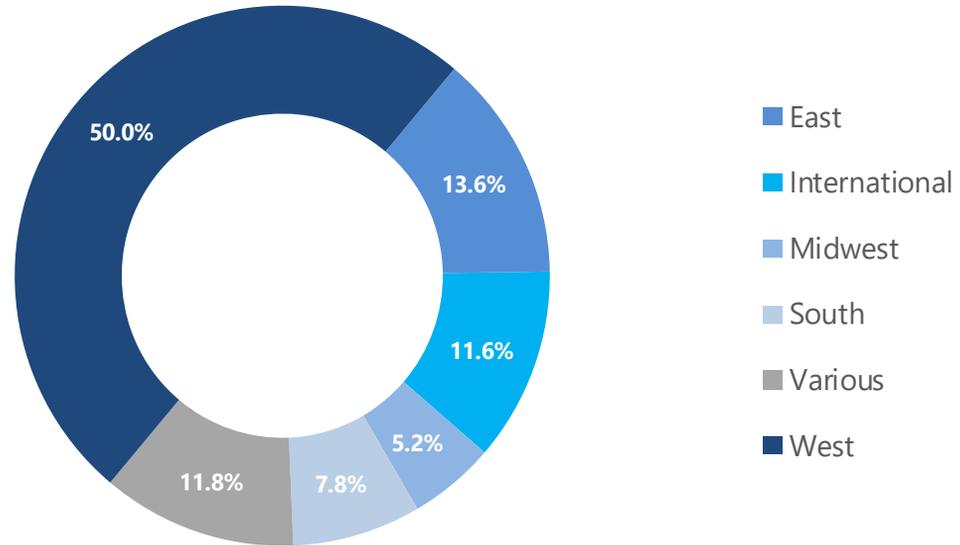
## Real Estate

for the quarter ended December 31, 2022



Los Angeles County Employees Retirement Association

### By Geography (US NCREIF)<sup>1,2</sup>



	Number of Investments	Commitments (mm)	Cumulative Contributions (mm)	Cumulative Distributions (mm)	Market Value (mm)	Total Value (mm)	Total Gain / (Loss) (mm)	Distributed to Paid-In	Total Value to Paid-In	Since Inception Net IRR	Since Inception PME
East	26	0.0	2,472.7	2,284.4	748.0	3,032.4	559.6	0.92x	1.23x	5.9%	0.90
International	13	715.6	878.6	476.9	636.4	1,113.3	234.7	0.54x	1.27x	5.4%	0.97
Midwest	10	0.0	592.0	491.7	286.1	777.8	185.8	0.83x	1.31x	5.7%	0.88
South	11	0.0	1,190.5	1,252.2	426.4	1,678.6	488.1	1.05x	1.41x	8.7%	1.03
Various	11	897.1	686.8	347.0	645.5	992.5	305.7	0.51x	1.45x	7.2%	1.04
West	43	384.0	3,466.9	3,046.8	2,741.7	5,788.6	2,321.6	0.88x	1.67x	9.8%	1.47
<b>Total Real Estate</b>	<b>114</b>	<b>1,996.7</b>	<b>9,287.5</b>	<b>7,898.9</b>	<b>5,484.1</b>	<b>13,383.0</b>	<b>4,095.5</b>	<b>0.85x</b>	<b>1.44x</b>	<b>8.3%</b>	<b>1.14</b>

<sup>1</sup> Based on best available cash flow adjusted market values and includes only active investments and sold assets with balance sheet residuals.

<sup>2</sup> Commitment amounts reflect only commingled fund investments.

# Performance by Vintage Year

## Real Estate

for the quarter ended December 31, 2022



Los Angeles County Employees Retirement Association

### By Vintage Year<sup>1,2,3</sup>

	Number of Investments	Commitments (mm)	Cumulative Contributions (mm)	Cumulative Distributions (mm)	Market Value (mm)	Total Value (mm)	Total Gain / (Loss) (mm)	Distributed to Paid-In	Total Value to Paid-In	Since Inception Net IRR	Since Inception PME	Quartile Ranking
1990	1	0.0	249.9	302.5	124.7	427.2	177.3	1.21x	1.71x	6.4%	4.64	N/A
1991	3	0.0	32.9	124.2	91.3	215.5	182.6	3.78x	6.56x	12.3%	13.81	N/A
1992	0	0.0	--	--	--	--	--	--	--	--	--	N/A
1993	0	0.0	--	--	--	--	--	--	--	--	--	N/A
1994	1	0.0	15.4	67.4	38.4	105.9	90.5	4.38x	6.88x	12.9%	1.47	N/A
1995	1	0.0	67.0	111.4	102.4	213.8	146.7	1.66x	3.19x	11.7%	1.24	N/A
1996	1	0.0	24.0	38.8	32.6	71.4	47.4	1.62x	2.97x	7.7%	0.82	N/A
1997	1	0.0	18.4	67.6	75.4	143.0	124.7	3.68x	7.79x	15.9%	2.16	N/A
1998	1	0.0	48.9	66.3	49.1	115.4	66.6	1.36x	2.36x	6.4%	0.71	N/A
1999	0	0.0	--	--	--	--	--	--	--	--	--	N/A
2000	0	0.0	--	--	--	--	--	--	--	--	--	N/A
2001	1	0.0	143.5	77.3	93.4	170.6	27.2	0.54x	1.19x	4.6%	0.74	N/A
2002	0	0.0	--	--	--	--	--	--	--	--	--	N/A
2003	1	0.0	142.8	131.4	69.1	200.6	57.8	0.92x	1.40x	4.4%	0.71	N/A
2004	0	0.0	--	--	--	--	--	--	--	--	--	N/A
2005	0	0.0	--	--	--	--	--	--	--	--	--	N/A
2006	0	0.0	--	--	--	--	--	--	--	--	--	N/A
2007	3	36.6	454.6	401.9	1.2	403.1	(51.5)	0.88x	0.89x	-5.4%	0.54	4th
2008	1	150.0	150.0	96.0	0.2	96.2	(53.8)	0.64x	0.64x	-5.7%	0.34	4th
2009	1	18.5	22.3	28.5	0.4	28.8	6.5	1.27x	1.29x	8.2%	0.84	3rd
2010	1	100.0	97.1	152.0	6.3	158.3	61.2	1.57x	1.63x	9.7%	0.92	3rd
2011	4	17.1	217.7	116.0	26.0	142.0	(75.7)	0.53x	0.65x	-39.0%	0.30	4th
2012	3	134.0	438.8	187.2	174.3	361.5	(77.3)	0.43x	0.82x	-4.7%	0.65	4th
2013	7	100.0	471.3	581.8	118.2	700.0	228.7	1.23x	1.49x	9.0%	1.03	3rd
2014	15	260.1	990.8	810.8	699.3	1,510.1	519.3	0.82x	1.52x	9.0%	1.20	3rd
2015	9	0.0	953.6	750.0	782.8	1,532.8	579.3	0.79x	1.61x	13.5%	1.51	2nd
2016	7	150.0	484.6	218.5	571.8	790.3	305.7	0.45x	1.63x	13.8%	1.47	2nd
2017	12	178.4	1,341.0	917.7	903.5	1,821.2	480.1	0.68x	1.36x	11.1%	1.24	3rd
2018	10	150.0	377.7	190.7	275.4	466.1	88.4	0.50x	1.23x	8.3%	1.15	4th
2019	25	412.1	2,399.0	2,376.8	1,166.9	3,543.7	1,144.7	0.99x	1.48x	9.2%	1.06	3rd
2020	2	0.0	71.8	81.2	0.8	82.0	10.2	1.13x	1.14x	5.6%	1.14	3rd
2021	2	180.0	67.7	2.9	73.6	76.5	8.8	0.04x	1.13x	13.3%	1.30	3rd
2022	1	110.0	7.0	0.0	7.0	7.0	0.0	0.00x	1.00x	0.0%	1.00	2nd
<b>Total Real Estate</b>	<b>114</b>	<b>1,996.7</b>	<b>9,287.5</b>	<b>7,898.9</b>	<b>5,484.1</b>	<b>13,383.0</b>	<b>4,095.5</b>	<b>0.85x</b>	<b>1.44x</b>	<b>8.3%</b>	<b>1.14</b>	

1. Based on best available cash flow adjusted market values.
2. Commitment amounts reflect only commingled fund investments.
3. Benchmark data used is latest available by Burgiss Private IQ. Quartile rankings exclude IMAs and Core Funds.

# Leverage Exposure

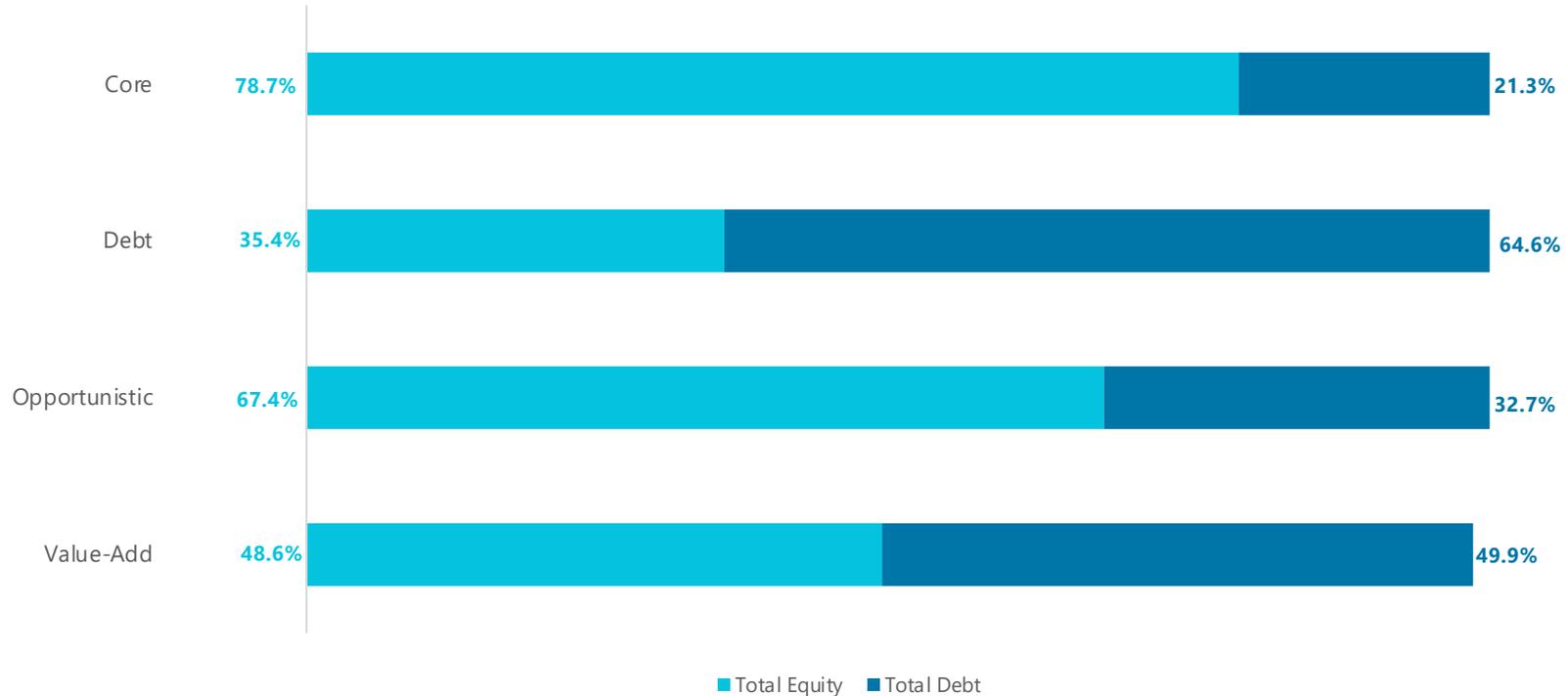
## Real Estate

for the quarter ended December 31, 2022



Los Angeles County Employees Retirement Association

### Leverage Exposure<sup>1,2</sup>



	Number of Investments	Commitments (mm)	Cumulative Contributions (mm)	Cumulative Distributions (mm)	Market Value (mm)	Total Value (mm)	Total Gain / (Loss) (mm)	Distributed to Paid-In	Total Value to Paid-In	Since Inception Net IRR	Since Inception PME	Total Debt-Fund Level (mm)	Total Equity-Fund Level (mm)	Total Debt-Fund Level (%)	Total Equity-Fund Level (%)
Core	79	431.7	7,409.9	6,794.4	4,352.3	11,146.7	3,736.8	0.92x	1.50x	8.9%	1.19	7,556.4	27,927.2	21.3%	78.7%
Debt	7	0.0	157.0	109.7	84.5	194.2	37.2	0.70x	1.24x	8.3%	1.17	165.8	90.7	64.6%	35.4%
Opportunistic	16	1,096.8	1,118.1	773.6	744.0	1,517.6	399.4	0.69x	1.36x	6.9%	1.02	5,748.1	11,852.1	32.7%	67.4%
Value-Add	12	468.2	602.5	221.3	303.3	524.6	(77.9)	0.37x	0.87x	-3.2%	0.63	74,261.5	72,286.2	49.9%	48.6%
<b>Total Real Estate</b>	<b>114</b>	<b>1,996.7</b>	<b>9,287.5</b>	<b>7,898.9</b>	<b>5,484.1</b>	<b>13,383.0</b>	<b>4,095.5</b>	<b>0.85x</b>	<b>1.44x</b>	<b>8.3%</b>	<b>1.14</b>	<b>87,731.7</b>	<b>112,156.3</b>	<b>43.4%</b>	<b>55.5%</b>

<sup>1</sup> Based on best available cash flow adjusted market values and includes only active investments and sold assets with balance sheet residuals.

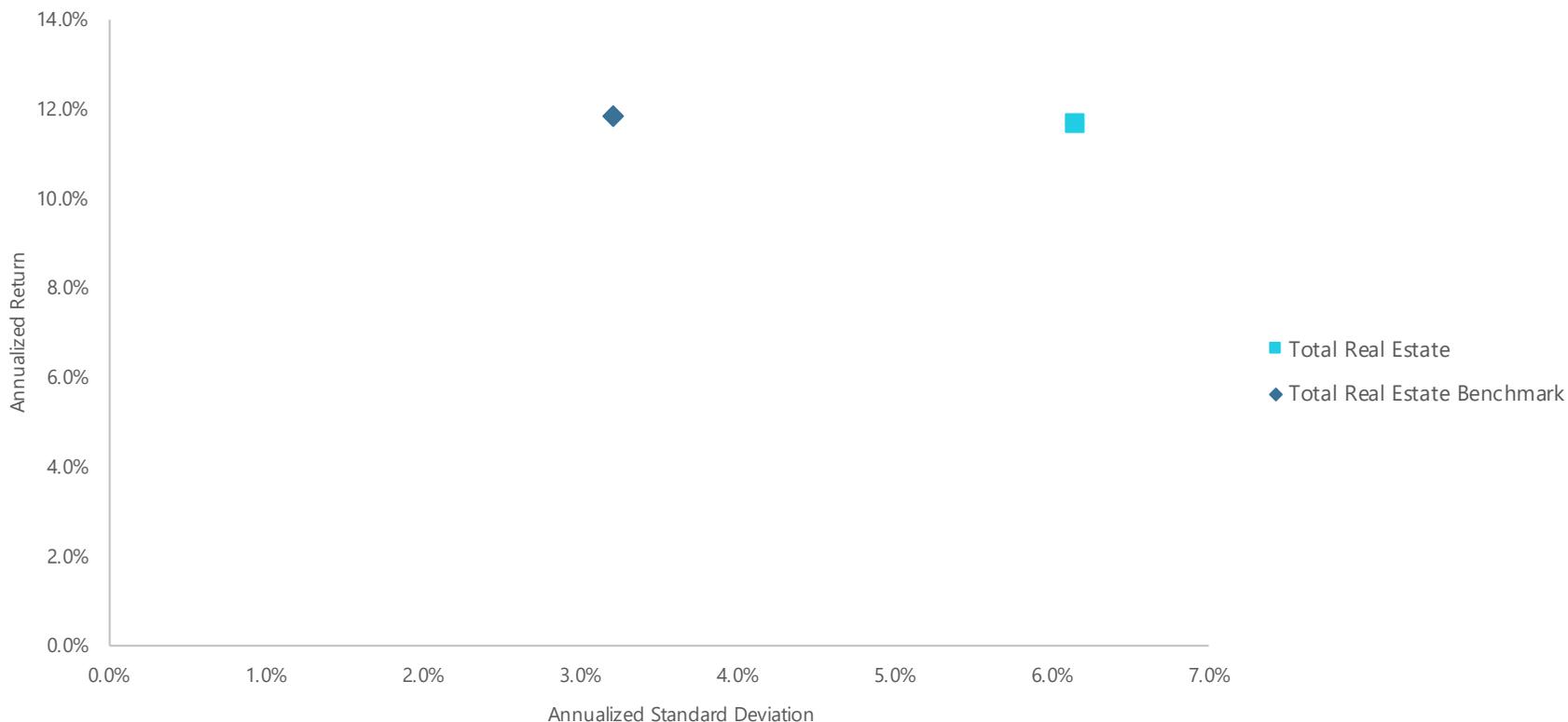
<sup>2</sup> Commitment amounts reflect only commingled fund investments.

# Risk vs. Return

## Real Estate

for the quarter ended December 31, 2022

### 3 Year (Annualized)



	Annualized Return	Standard Deviation	Sharpe Ratio	Information Ratio	Beta	Tracking Error
<b>Total Real Estate</b>	<b>11.7%</b>	<b>6.1%</b>				
Total Real Estate Benchmark	11.9%	3.2%	1.72	(0.04)	0.95	18.3%

# Annual Cash Flow Activity

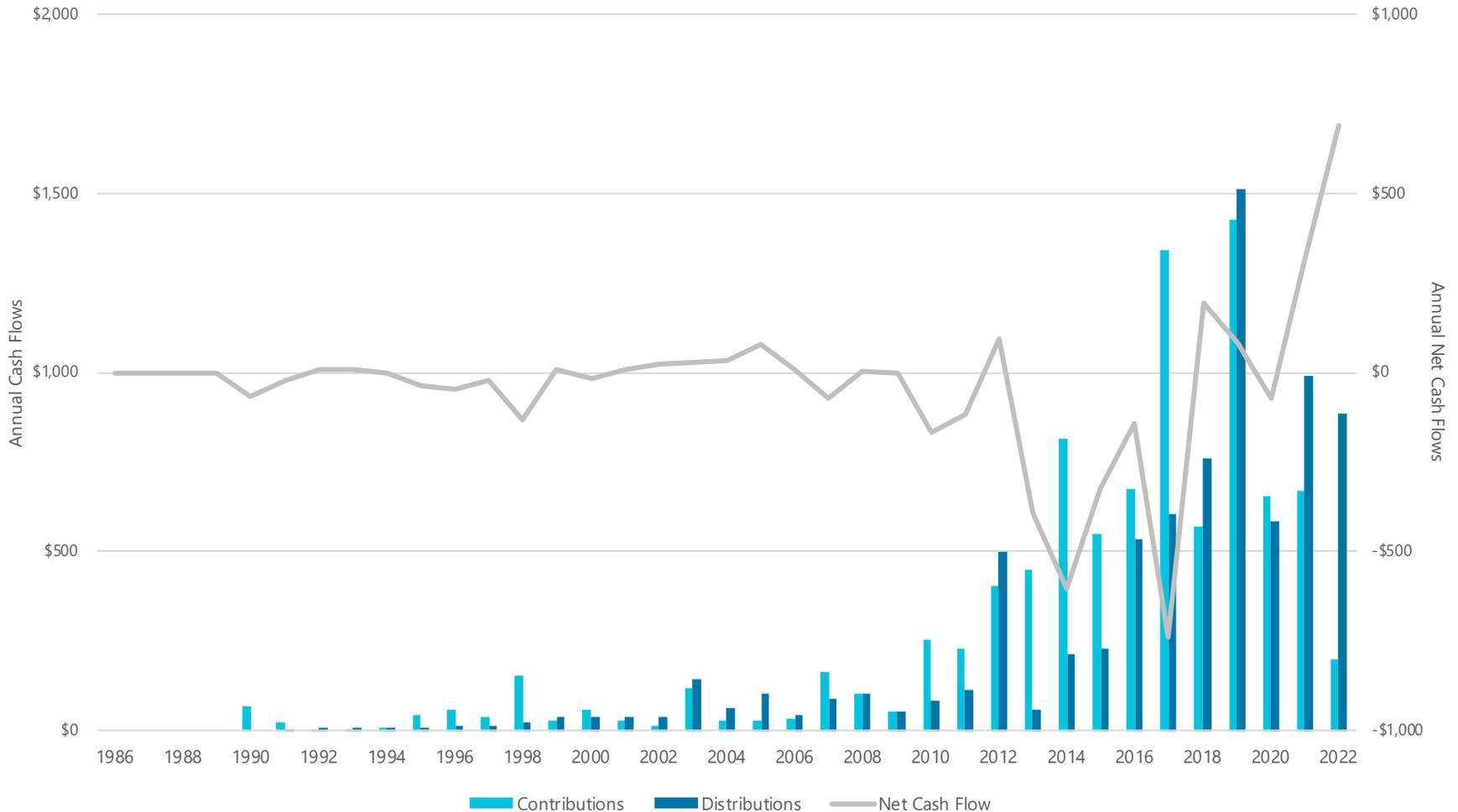
## Real Estate

for the quarter ended December 31, 2022



Los Angeles County Employees Retirement Association

### By Year (mm)



# Summary

Private Real Assets ex. Real Estate  
for the quarter ended December 31, 2022

## Performance (net)<sup>1</sup>



	QTD	YTD	1 Year	3 Year	5 Year	10 Year	ITD
<b>Private Natural Resources &amp; Commodities</b>	<b>1.0%</b>	<b>10.0%</b>	<b>10.0%</b>	<b>-6.7%</b>	<b>--</b>	<b>--</b>	<b>-7.8%</b>
Benchmark	-1.3%	9.7%	9.7%	14.2%	--	--	13.4%
Excess	2.3%	0.3%	0.3%	-20.9%	--	--	-21.2%

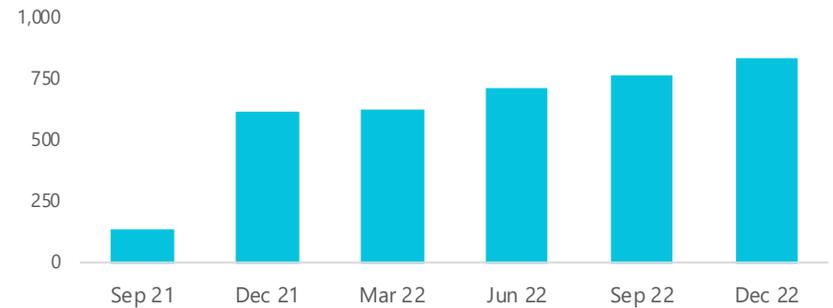
## Cumulative Return<sup>1</sup>



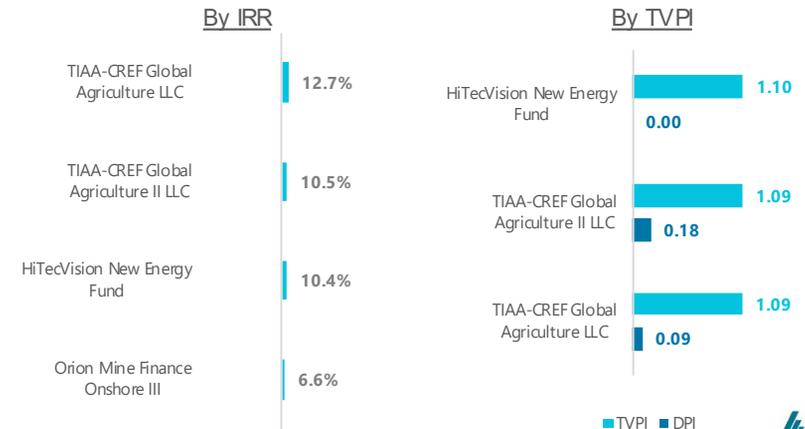
<sup>1</sup> Private natural resources & commodities funds reflect early-stage life cycle performance.

## Asset Growth (mm)

	QTD	1 Year	3 Year
Beginning Market Value	772	621	103
Net Cash Flow	59	153	693
Gain/Loss	8	64.5	42.4
<b>Ending Market Value</b>	<b>839</b>	<b>839</b>	<b>839</b>



## Top Performing Investments (since inception)<sup>1</sup>



# Summary

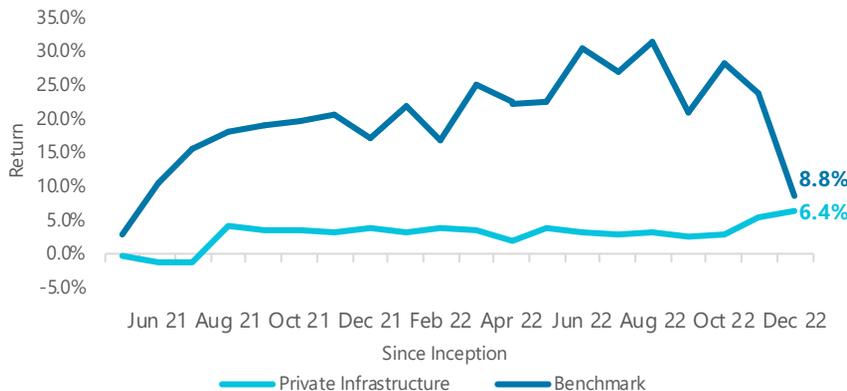
Private Real Assets ex. Real Estate  
for the quarter ended December 31, 2022

## Performance (net)<sup>1</sup>



	QTD	YTD	1 Year	3 Year	5 Year	10 Year	ITD
<b>Private Infrastructure</b>	<b>3.6%</b>	<b>2.3%</b>	<b>2.3%</b>	--	--	--	<b>2.9%</b>
Benchmark	-10.2%	-7.2%	-7.2%	--	--	--	4.0%
Excess	13.8%	9.6%	9.6%	--	--	--	-1.0%

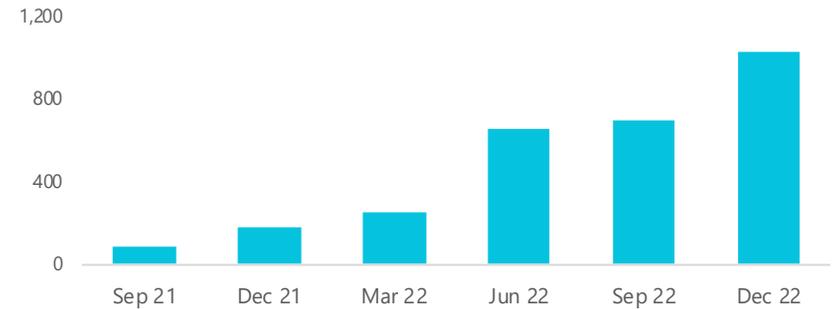
## Cumulative Return<sup>1</sup>



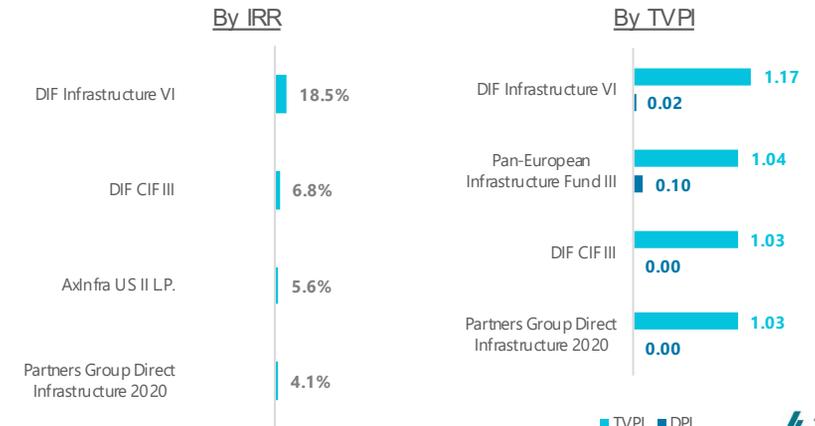
<sup>1</sup> Private infrastructure funds reflect early-stage life cycle performance.

## Asset Growth (mm)

	QTD	1 Year	3 Year
Beginning Market Value	699	180	--
Net Cash Flow	297	823	--
Gain/Loss	34	28	--
<b>Ending Market Value</b>	<b>1,030</b>	<b>1,030</b>	--



## Top Performing Investments (since inception)<sup>1</sup>

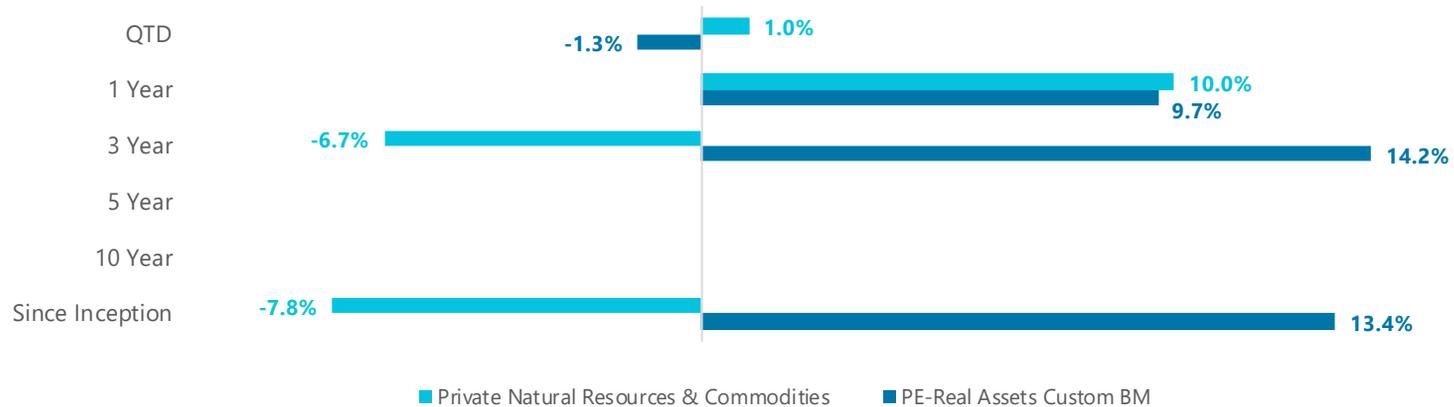


# Historical Returns

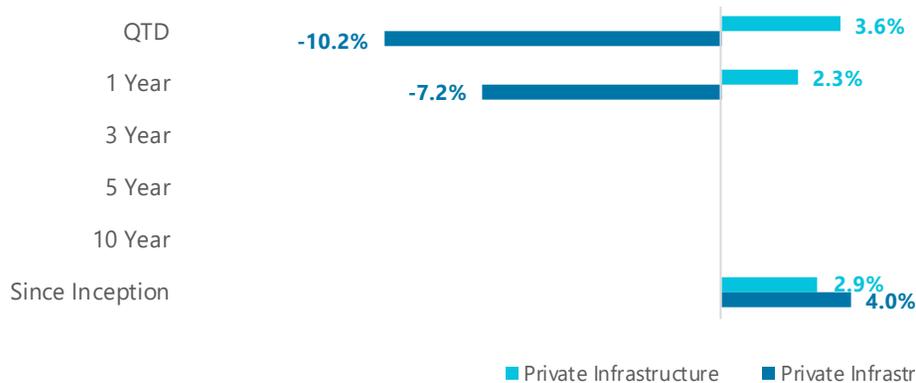
Private Real Assets ex. Real Estate  
for the quarter ended December 31, 2022

## Time-Weighted Returns (net)<sup>1</sup>

### Private Natural Resources & Commodities



### Private Infrastructure



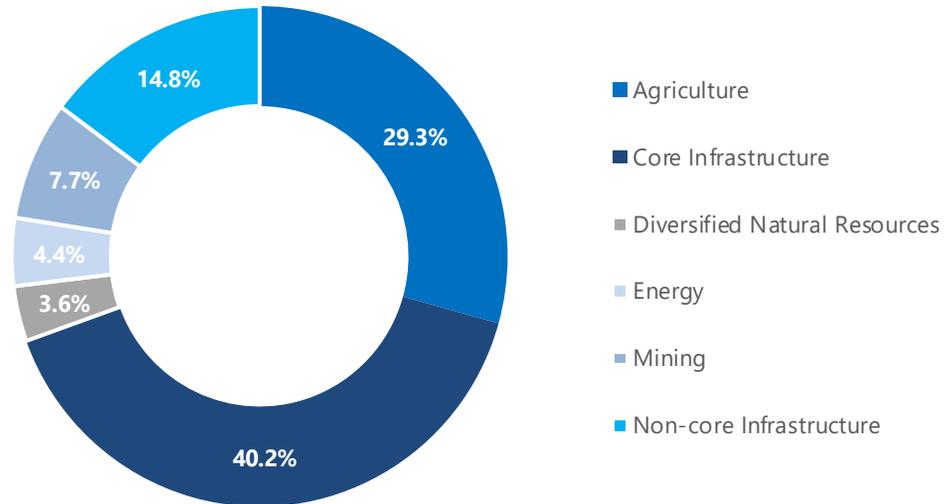
<sup>1</sup> Private natural resources and infrastructure funds reflect early-stage life cycle performance.

# Performance by Strategy

## Private Real Assets ex. Real Estate

for the quarter ended December 31, 2022

### By Strategy<sup>1</sup>



	Number of Investments	Commitments (mm)	Cumulative Contributions (mm)	Cumulative Distributions (mm)	Market Value (mm)	Total Value (mm)	Total Gain / Loss (mm)	Distributed to Paid-In	Total Value to Paid-In	Since Inception Net IRR	Since Inception PME
Agriculture	5	650.0	574.5	73.6	547.7	621.3	46.9	0.13x	1.08x	10.4%	1.00
Core Infrastructure	4	1,057.7	728.1	12.6	750.9	763.5	35.4	0.02x	1.05x	8.9%	1.02
Diversified Natural Resources	1	133.4	60.7	0.0	66.8	66.8	6.1	0.00x	1.10x	10.4%	1.01
Energy	2	200.0	205.0	116.9	82.0	198.9	(6.1)	0.57x	0.97x	-1.0%	0.75
Mining	2	250.0	141.9	5.9	144.2	150.0	8.2	0.04x	1.06x	6.1%	0.95
Non-core Infrastructure	6	701.0	283.9	7.0	276.6	283.6	(0.4)	0.02x	1.00x	-0.1%	0.90
<b>Total Private Real Assets ex. Real Estate</b>	<b>20</b>	<b>2,992.1</b>	<b>1,994.1</b>	<b>216.0</b>	<b>1,868.1</b>	<b>2,084.1</b>	<b>90.0</b>	<b>0.11x</b>	<b>1.05x</b>	<b>4.5%</b>	<b>0.95</b>

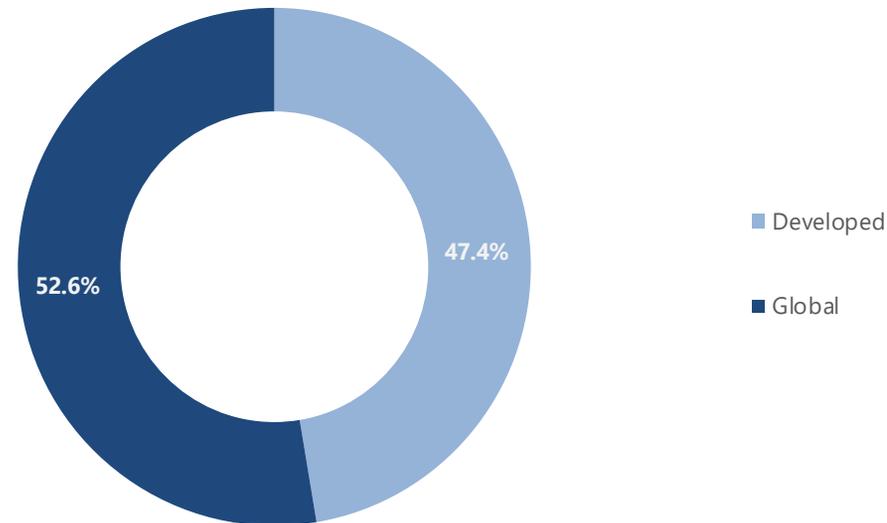
<sup>1</sup> Based on best available cash flow adjusted market values.

# Performance by Geography

## Private Real Assets ex. Real Estate

for the quarter ended December 31, 2022

### By Geography<sup>1</sup>



	Number of Investments	Commitments (mm)	Cumulative Contributions (mm)	Cumulative Distributions (mm)	Market Value (mm)	Total Value (mm)	Total Gain / Loss (mm)	Distributed to Paid-In	Total Value to Paid-In	Since Inception Net IRR	Since Inception PME
Developed	11	1,386.7	1,031.5	180.9	884.9	1,065.8	34.3	0.18x	1.03x	2.6%	0.91
Global	9	1,605.4	962.6	35.1	983.2	1,018.3	55.7	0.04x	1.06x	8.3%	1.00
<b>Total Private Real Assets ex. Real Estate</b>	<b>20</b>	<b>2,992.1</b>	<b>1,994.1</b>	<b>216.0</b>	<b>1,868.1</b>	<b>2,084.1</b>	<b>90.0</b>	<b>0.11x</b>	<b>1.05x</b>	<b>4.5%</b>	<b>0.95</b>

<sup>1</sup> Based on best available cash flow adjusted market values.

# Performance by Vintage Year

## Private Real Assets ex. Real Estate

for the quarter ended December 31, 2022



Los Angeles County Employees Retirement Association

### By Vintage Year<sup>1</sup>

	Number of Investments	Commitments (mm)	Cumulative Contributions (mm)	Cumulative Distributions (mm)	Market Value (mm)	Total Value (mm)	Total Gain / Loss (mm)	Distributed to Paid-In	Total Value to Paid-In	Since Inception Net IRR	Since Inception PME
2004	1	50.0	50.0	91.4	0.0	91.4	41.4	1.83x	1.83x	31.1%	1.40
2011	1	250.0	--	--	--	--	--	--	--	--	--
2014	2	450.0	435.0	75.1	338.9	414.0	(21.0)	0.17x	0.95x	-1.7%	0.75
2020	3	326.8	207.8	8.7	216.1	224.8	17.0	0.04x	1.08x	6.9%	0.94
2021	6	821.8	531.3	13.4	528.8	542.3	10.9	0.03x	1.02x	3.2%	0.97
2022	7	1,093.5	513.0	3.4	528.4	531.7	18.7	0.01x	1.04x	7.1%	1.00
<b>Total Private Real Assets ex. Real Estate</b>	<b>20</b>	<b>2,992.1</b>	<b>1,994.1</b>	<b>216.0</b>	<b>1,868.1</b>	<b>2,084.1</b>	<b>90.0</b>	<b>0.11x</b>	<b>1.05x</b>	<b>4.5%</b>	<b>0.95</b>

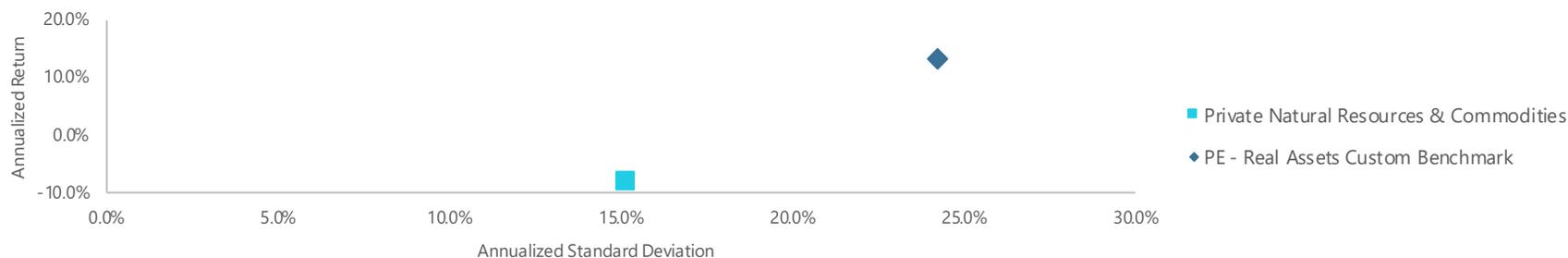
<sup>1</sup> Based on best available cash flow adjusted market values.

# Risk vs. Return

Private Real Assets ex. Real Estate  
for the quarter ended December 31, 2022

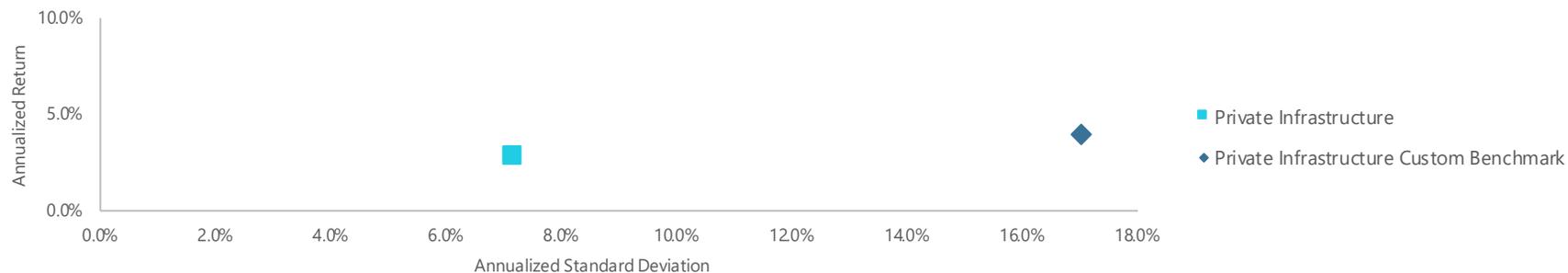
## Since Inception (Annualized)

### Private Natural Resources & Commodities



	Annualized Return	Standard Deviation	Sharpe Ratio	Information Ratio	Beta	Tracking Error
<b>Private Natural Resources &amp; Commodities</b>	<b>-7.8%</b>	<b>15.1%</b>				
PE - Real Assets Custom Benchmark	13.4%	24.2%	(0.52)	(0.85)	0.00	25.1%

### Private Infrastructure



	Annualized Return	Standard Deviation	Sharpe Ratio	Information Ratio	Beta	Tracking Error
<b>Private Infrastructure</b>	<b>2.9%</b>	<b>7.2%</b>				
Private Infrastructure Custom Benchmark	4.0%	17.0%	0.34	(0.05)	0.00	19.4%

# Annual Cash Flow Activity

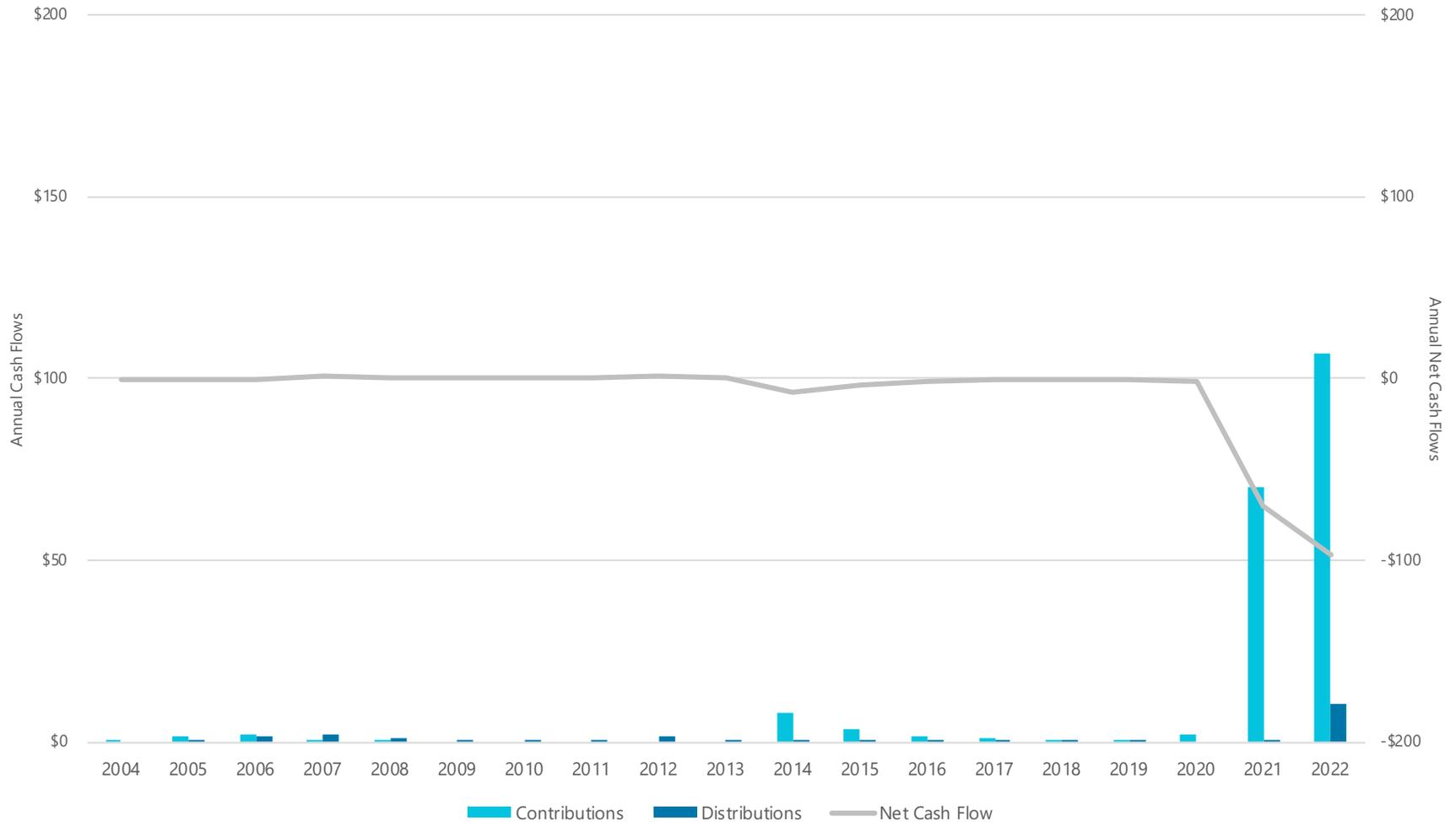
Private Real Assets ex. Real Estate

for the quarter ended December 31, 2022



Los Angeles County Employees Retirement Association

## By Year (mm)



# Summary

## Diversified Hedge Funds

for the quarter ended December 31, 2022



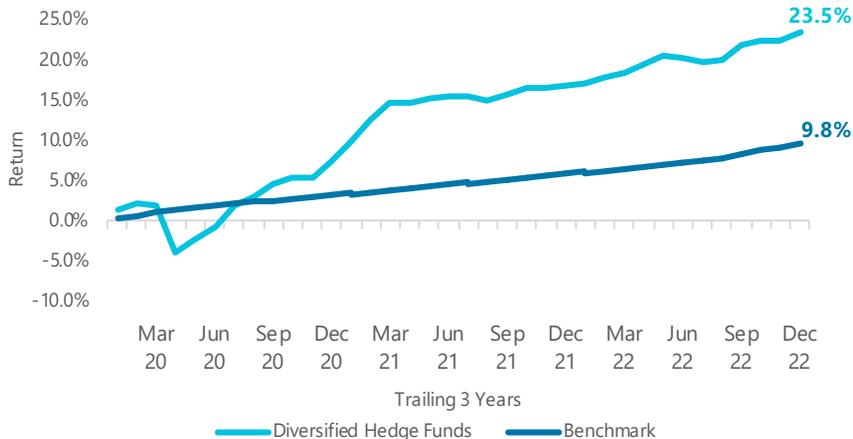
Los Angeles County Employees Retirement Association

### Performance (net all)



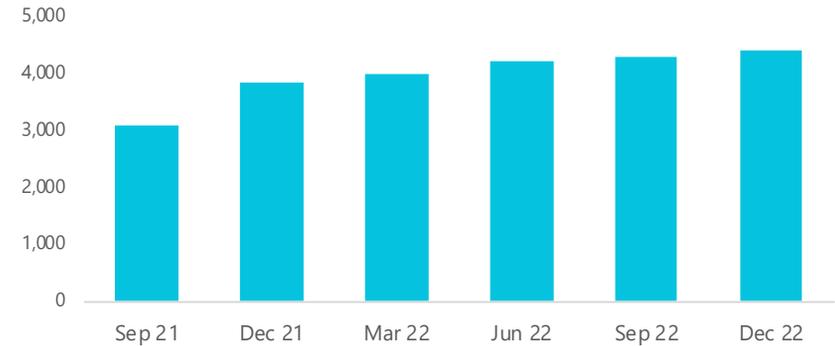
	QTD	YTD	1 Year	3 Year	5 Year	10 Year	ITD
<b>Diversified Hedge Funds</b>	<b>1.4%</b>	<b>5.8%</b>	<b>5.8%</b>	<b>7.3%</b>	--	--	<b>6.7%</b>
Benchmark	1.4%	3.7%	3.7%	3.2%	--	--	3.5%
Excess	0.1%	2.1%	2.1%	4.1%	--	--	3.2%

### Cumulative Return

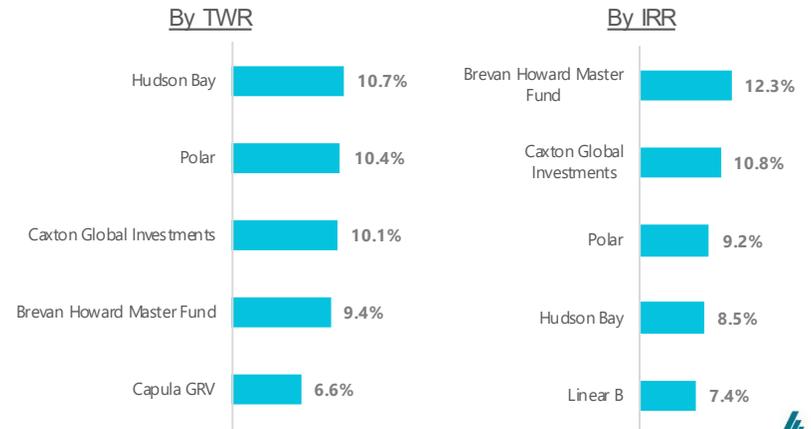


### Asset Growth (mm)

	QTD	1 Year	3 Year
Beginning Market Value	4,281	3,835	1,618
Net Cash Flow	59	334	2,220
Gain/Loss	62	234	565
<b>Ending Market Value</b>	<b>4,402</b>	<b>4,402</b>	<b>4,402</b>



### Top Performing Investments (since inception)

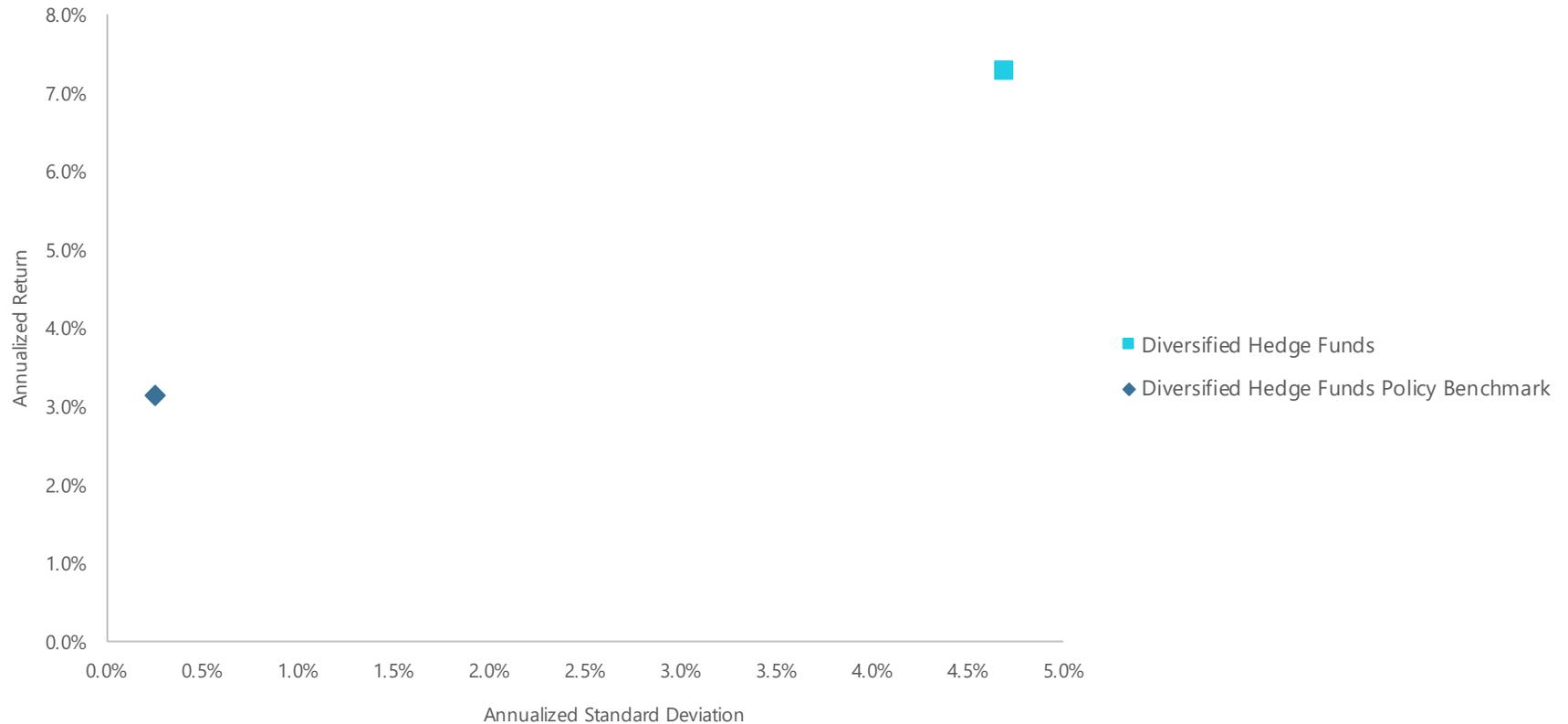


# Risk vs. Return

## Diversified Hedge Funds

for the quarter ended December 31, 2022

### 3 Year (Annualized)



	Annualized Return	Standard Deviation	Sharpe Ratio	Information Ratio	Beta	Tracking Error
<b>Diversified Hedge Funds</b>	<b>7.3%</b>	<b>4.7%</b>				
Diversified Hedge Funds Policy Benchmark	3.2%	0.3%	1.37	0.85	(6.84)	4.8%

# Performance Detail

## Diversified Hedge Funds

for the quarter ended December 31, 2022



Los Angeles County Employees Retirement Association

### Annualized Net All Returns

	% of Composite	Ending Market Value (mm)	Prior Quarter Ending MV (mm)	QTD	YTD	1 Year	3 Year	5 Year	10 Year	ITD	Inception Date
<b>Diversified Hedge Funds</b>	<b>100.0%</b>	<b>4,402</b>	<b>4,281</b>	<b>1.4%</b>	<b>5.8%</b>	<b>5.8%</b>	<b>7.3%</b>	--	--	<b>6.7%</b>	<b>Apr-2019</b>
Diversified Hedge Funds Policy Benchmark				1.4%	3.7%	3.7%	3.2%	--	--	3.5%	
<b>LACERA HF Direct</b>	<b>90.6%</b>	<b>3,987</b>	<b>3,932</b>	<b>1.4%</b>	<b>6.4%</b>	<b>6.4%</b>	<b>7.4%</b>	--	--	<b>5.1%</b>	<b>May-2018</b>
Custom Hedge Fund Benchmark				1.4%	3.7%	3.7%	3.2%	--	--	4.2%	May-2018
AM Asia Strategies	4.9%	217	221	-2.0%	-3.9%	-3.9%	--	--	--	-2.6%	Jun-2021
Brevan Howard Master Fund	14.8%	650	648	0.4%	18.5%	18.5%	--	--	--	9.4%	Apr-2021
Capula GRV	14.6%	642	626	2.6%	12.0%	12.0%	6.7%	--	--	6.6%	Dec-2018
Caxton Global Investments	6.7%	297	292	1.5%	15.7%	15.7%	--	--	--	10.1%	Feb-2021
DK Institutional Partners	11.0%	486	487	-0.1%	-1.3%	-1.3%	5.2%	--	--	4.7%	May-2018
HBK Multi-strategy	13.1%	578	555	4.1%	3.9%	3.9%	6.9%	--	--	5.5%	Jun-2018
Hudson Bay	14.8%	650	641	1.4%	3.0%	3.0%	--	--	--	10.7%	Jul-2020
Polar	10.6%	467	462	1.2%	1.0%	1.0%	--	--	--	10.4%	May-2020
<b>HF Emerging Managers Program</b>	<b>8.7%</b>	<b>384</b>	<b>315</b>	<b>1.8%</b>	<b>-0.4%</b>	<b>-0.4%</b>	--	--	--	<b>-0.2%</b>	<b>Aug-2021</b>
Custom Hedge Fund Benchmark				1.4%	3.7%	3.7%	--	--	--	3.4%	
Stable Asset Management	8.7%	384	315	1.8%	-0.4%	-0.4%	--	--	--	-0.2%	Aug-2021
Stable Fund Investments	8.7%	384	315	1.9%	-0.2%	-0.2%	--	--	--	-0.2%	Aug-2021
Amundsen	1.4%	63	60	4.5%	-6.1%	-6.1%	--	--	--	-2.2%	Sep-2021
Clear Sky	2.1%	92	72	0.3%	--	--	--	--	--	2.6%	Apr-2022
Linear B	1.6%	70	70	0.9%	8.2%	8.2%	--	--	--	6.1%	Aug-2021
Quarry	1.9%	82	40	-0.7%	--	--	--	--	--	-0.7%	Sep-2022
Sparta	1.1%	48	47	0.4%	-4.4%	-4.4%	--	--	--	-3.7%	Sep-2021
Trutino	0.7%	29	26	12.0%	5.6%	5.6%	--	--	--	-1.4%	Aug-2021

# emerging manager program

# Emerging Manager Program

for the quarter ended December 31, 2022



Los Angeles County Employees Retirement Association

## Annualized Net Returns

	Ending Market Value (mm)	QTD	1 Year	3 Year	5 Year	ITD TWR	ITD MWR	Inception Date
<b>Growth</b>								
<b>Global Equity</b>								
Corner Cap	80.6	11.0%	-7.0%	9.1%	--	7.1%	7.2%	Sep-2018
Global Equity Policy Benchmark		9.8%	-18.4%	3.9%	--	6.4%	6.4%	
<b>Private Equity</b>								
J.P. Morgan Emerging Managers Program	85.3	0.2%	1.6%	31.5%	24.3%	26.6%	22.8%	Jan-2010
J.P. Morgan Emerging Managers Program II	89.8	0.7%	-4.8%	22.7%	17.5%	29.5%	37.3%	Apr-2014
J.P. Morgan Emerging Managers Program III	111.2	1.6%	4.8%	36.4%	31.5%	32.3%	35.6%	Jan-2017
J.P. Morgan Emerging Managers Program IV	203.2	1.0%	8.5%	14.5%	--	19.2%	17.4%	Nov-2018
Total Private Equity Custom Benchmark		-6.1%	-19.3%	5.6%	10.7%	13.2%	13.2%	
<b>Non-Core Private Real Estate</b>								
Cityview Bay Area Fund II	81.7	1.9%	7.2%	4.6%	5.8%	--	11.3%	Oct-2012
Cityview Western Fund I, L.P	214.6	0.8%	29.7%	17.6%	15.0%	-51.3%	16.2%	Jun-2016
CVBAF II Union City Co-Invest	23.8	0.0%	3.1%	6.4%	3.1%	5.7%	5.9%	Nov-2015
Non-Core Private RE Policy Benchmark		0.9%	23.6%	14.3%	12.3%	11.6%	11.6%	
<b>Credit</b>								
<b>Illiquid Credit</b>								
Stable Asset Management - IC	22.6	--	--	--	--	0.0%	0.0%	Nov-2022
Illiquid Credit Policy Benchmark		--	--	--	--	0.2%	0.2%	
<b>Real Assets &amp; Inflation Hedges</b>								
<b>Core Private Real Estate</b>								
Cityview Core I.M.A	208.2	0.1%	4.8%	1.9%	5.7%	5.2%	5.3%	Jun-2014
Core Private RE Policy Benchmark		0.3%	21.0%	11.7%	9.7%	7.2%	7.2%	
<b>Risk Reduction &amp; Mitigation</b>								
<b>Hedge Funds</b>								
Stable Asset Management	384.2	1.8%	-0.4%	--	--	-0.2%	0.4%	Aug-2021
Custom Hedge Fund Benchmark		1.4%	-0.4%	--	--	3.4%	3.4%	

# risk reports

# Summary

for the quarter ended December 31, 2022

## Risk Summary

	Value
<b>Total Risk</b>	<b>13.83</b>
Benchmark Risk	13.26
Active Risk	1.10
Portfolio Beta	1.04
Effective Duration	1.65

## Contribution to Risk

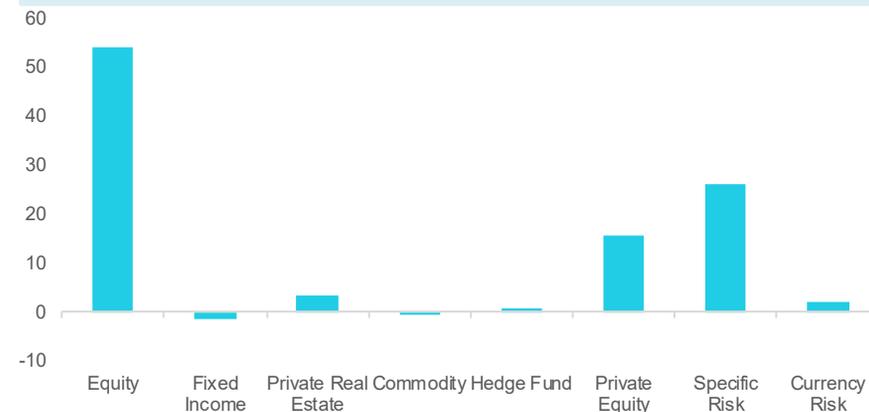


	Mkt Value (mm)	Weight%	Total Risk	Risk Contribution	%CR to TR
<b>Total Fund</b>	<b>68,776</b>	<b>100.0%</b>	<b>13.83</b>	<b>13.83</b>	<b>100.00</b>
Growth	35,193	51.2%	20.85	10.55	76.27
Credit	8,257	12.0%	4.58	0.42	3.02
Real Assets & Inflation Hedges	12,005	17.5%	15.42	2.45	17.70
Risk Reduction & Mitigation	12,852	18.7%	6.20	0.22	1.62
Overlays & Hedges	469	0.7%	56.58	0.19	1.39

## Risk Decomposition

Risk Source	Portfolio			Active		
	Risk Contribution	%Risk	Correlation	Risk Contribution	%Risk	Correlation
<b>Total Risk</b>	<b>13.83</b>	<b>100.00</b>	<b>1.00</b>	<b>1.10</b>	<b>100.00</b>	<b>1.00</b>
Local Market Risk	13.16	95.15	1.00	1.08	97.99	0.99
Common Factor Risk	13.14	94.99	1.00	0.79	71.99	0.85
Equity	10.23	73.98	0.95	0.60	54.16	0.72
Fixed Income	0.64	4.60	0.41	-0.02	-1.39	-0.11
Private Real Estate	1.40	10.13	0.69	0.04	3.46	0.24
Commodity	0.06	0.43	0.36	0.00	-0.33	-0.08
Hedge Fund	0.00	0.01	0.01	0.01	0.86	0.09
Private Equity	0.80	5.77	0.24	0.17	15.47	0.39
Specific Risk	0.02	0.16	0.04	0.29	26.00	0.51
Currency Risk	0.67	4.85	0.58	0.02	2.01	0.13

## Active Risk from Risk Factors



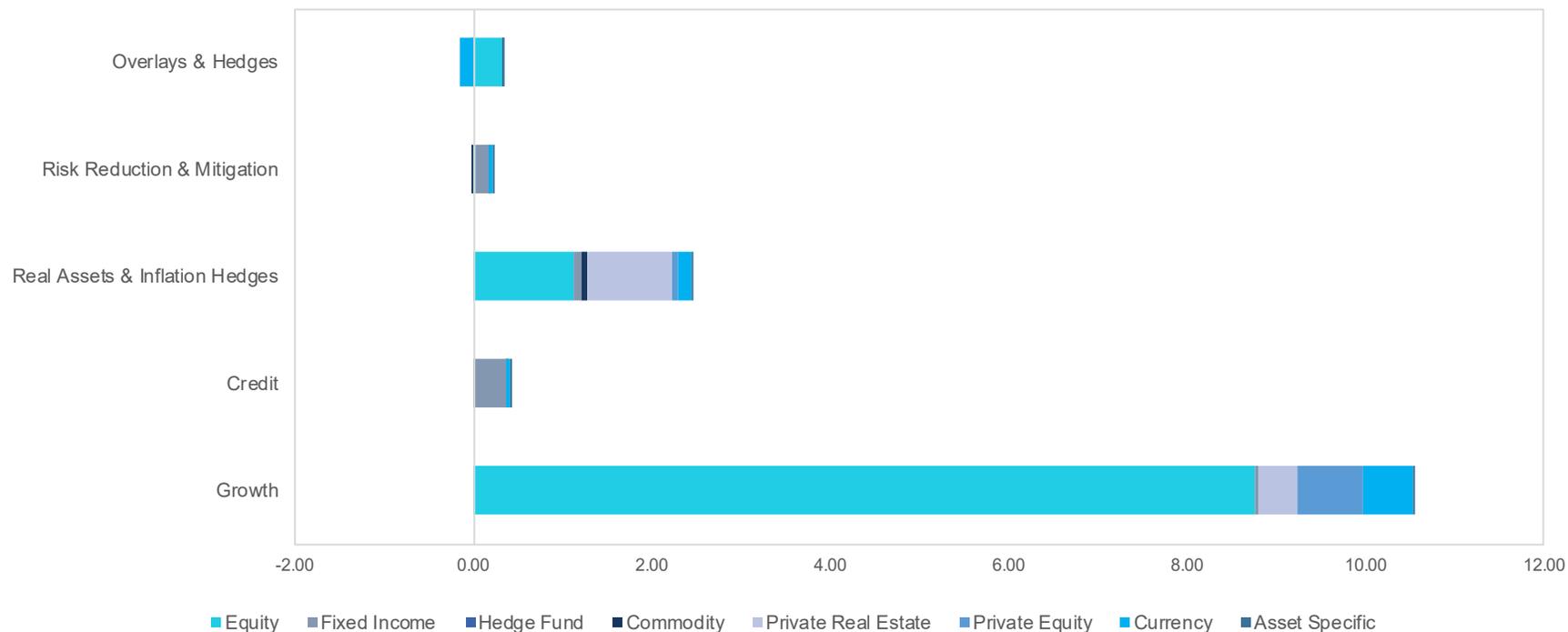
# Risk Contribution Breakdown

for the quarter ended December 31, 2022



Los Angeles County Employees Retirement Association

## By Risk Type



Functional Category	Mkt Value	Weight%	Total Risk	%CR to Total Risk	Port Risk Contribution	Equity	Fixed Income	Commodity	Private Real Estate	Private Equity	Currency	Asset Specific
<b>Total Fund</b>	<b>68,774</b>	<b>100.0%</b>	<b>13.83</b>	<b>100.00</b>	<b>13.83</b>	<b>10.23</b>	<b>0.65</b>	<b>0.06</b>	<b>1.40</b>	<b>0.80</b>	<b>0.67</b>	<b>0.02</b>
Growth	35,193	51.2%	20.85	76.27	10.55	8.76	0.04	0.00	0.43	0.74	0.56	0.02
Credit	8,257	12.0%	4.58	3.02	0.42	0.00	0.36	0.00	0.01	0.00	0.04	0.00
Real Assets & Inflation Hedges	12,005	17.5%	15.42	17.70	2.45	1.12	0.09	0.06	0.96	0.06	0.16	0.00
Risk Reduction & Mitigation	12,852	18.7%	6.20	1.62	0.22	0.02	0.16	0.00	0.00	0.00	0.04	0.00
Overlays & Hedges	469	0.7%	56.75	1.39	0.19	0.33	0.00	0.00	0.00	0.00	-0.14	0.00

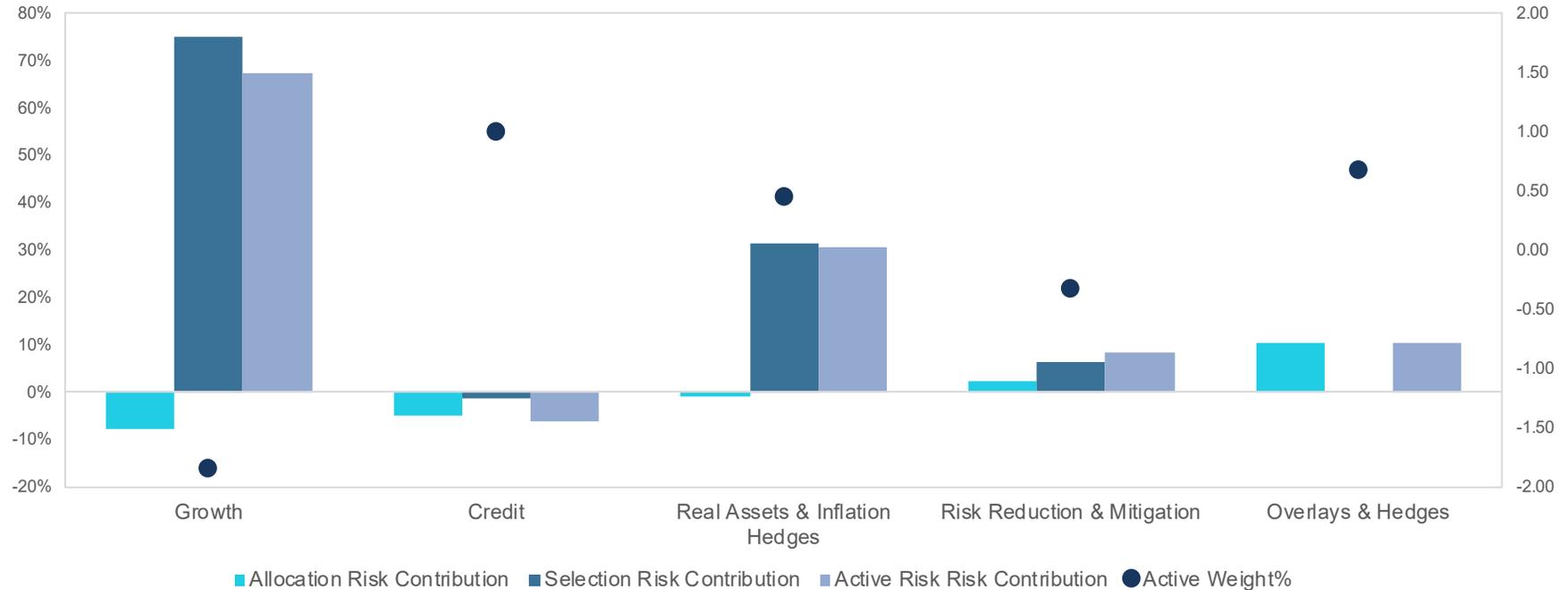
# Allocation Selection

for the quarter ended December 31, 2022



Los Angeles County Employees Retirement Association

## Active Total Risk

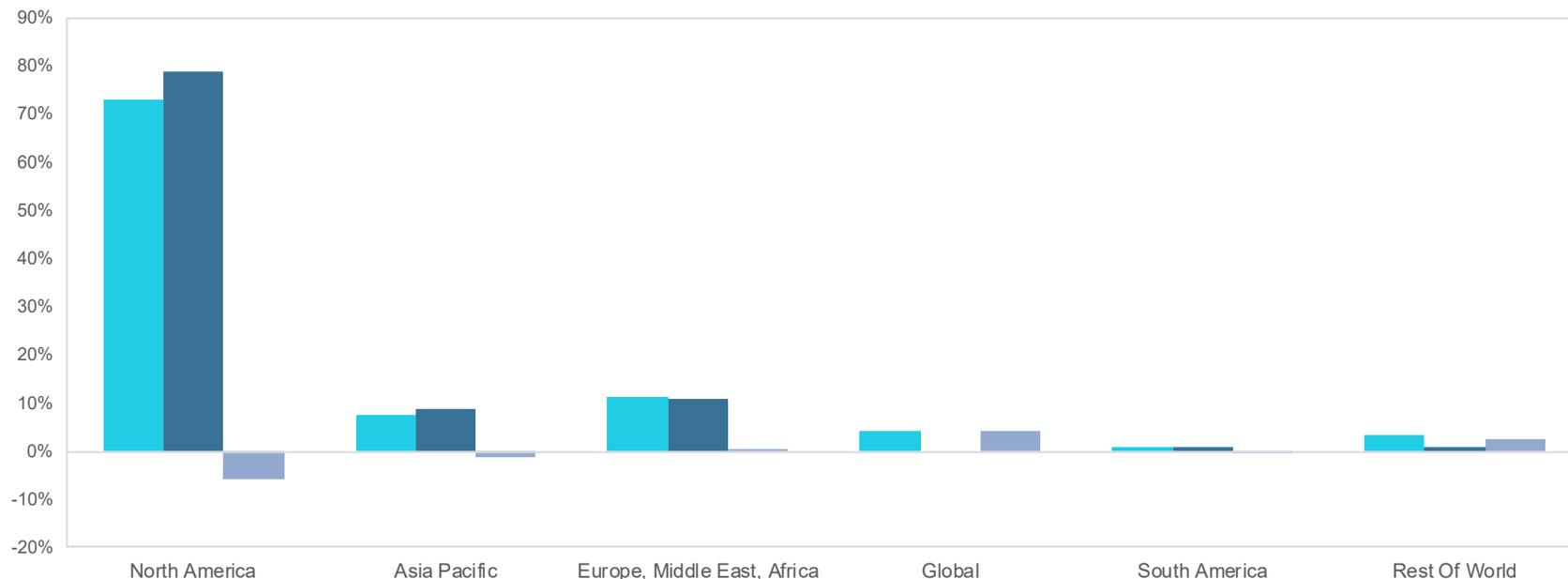


Functional Category	Active Weight%	Allocation			Selection			Active Risk Contribution
		Volatility	Correlation	Risk Contribution	Volatility	Correlation	Risk Contribution	
<b>Active Total Risk</b>				<b>-0.01</b>			<b>1.11</b>	<b>1.10</b>
Growth	-1.83	7.12	0.60	-0.08	1.65	0.89	0.75	0.67
Credit	1.01	9.63	-0.51	-0.05	1.82	-0.06	-0.01	-0.06
Real Assets & Inflation Hedges	0.46	6.34	-0.39	-0.01	2.57	0.70	0.32	0.30
Risk Reduction & Mitigation	-0.31	13.79	-0.49	0.02	1.21	0.27	0.06	0.08
Overlays & Hedges	0.68	51.44	0.30	0.10	0.00	0.00	0.00	0.10

# Portfolio Allocation

for the quarter ended December 31, 2022

## By Region



■ Portfolio Weight ■ Benchmark Weight ■ Active Weight

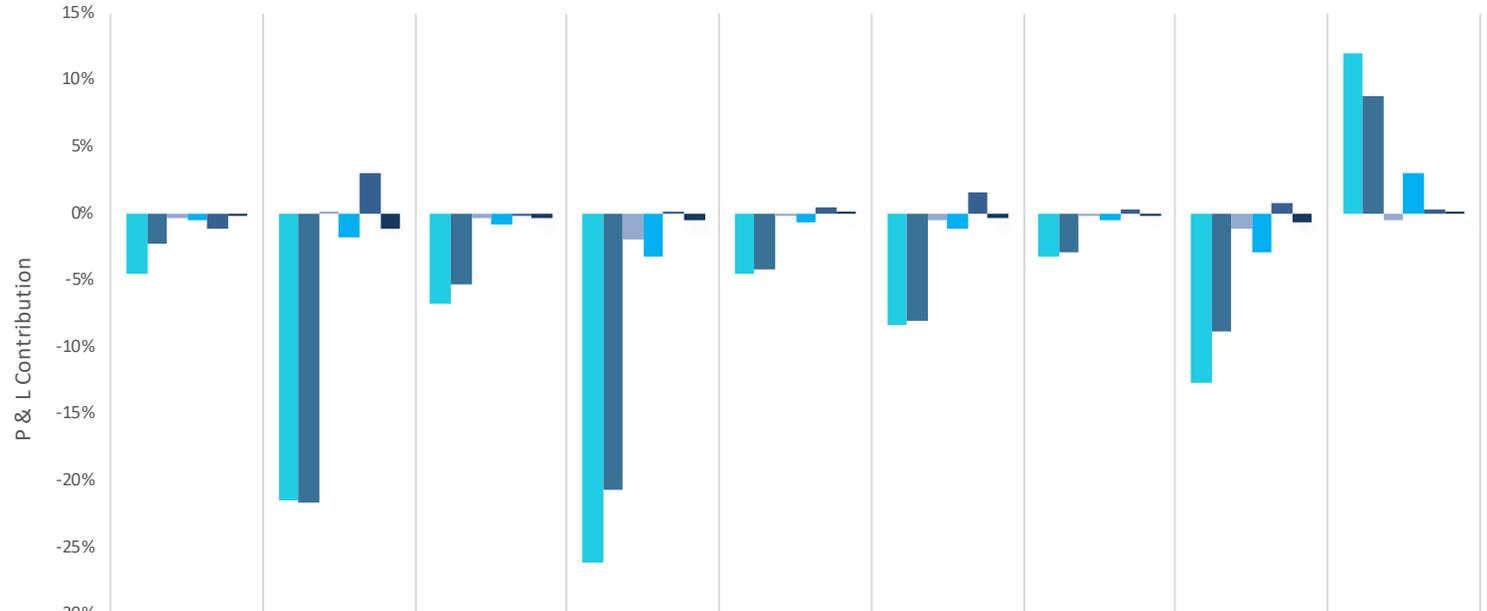
Region	Weight%			Total Risk	Active Risk Contribution	% of Active TR	MC to Total Tracking Error
	Portfolio	Benchmark	Active				
<b>Total Fund</b>	<b>100.00%</b>	<b>100.00%</b>	<b>0.00%</b>	<b>13.83</b>	<b>1.10</b>	<b>100.00</b>	<b>0.01</b>
North America	72.94%	78.75%	-5.81%	14.26	1.05	95.75	0.02
Asia Pacific	7.64%	8.74%	-1.11%	16.22	0.09	7.74	-0.02
Europe, Middle East, Africa	11.43%	10.88%	0.55%	21.29	0.20	18.39	0.03
Global	4.05%	0.00%	4.05%	7.02	-0.17	-15.15	-0.04
South America	0.81%	0.85%	-0.04%	26.69	0.04	4.01	0.00
Rest Of World	3.14%	0.78%	2.36%	6.32	-0.12	-10.73	-0.05

# Stress Tests

for the quarter ended December 31, 2022

## Scenarios by Asset Category

■ Total Fund ■ Growth ■ Credit ■ Real Assets & Inflation Hedges ■ Risk Reduction & Mitigation ■ Overlays & Hedges



	1994 US Rate Hike	2000-2003 Tech Crash & Recession	2001 Sept 11th	2008-2009 Global Financial Crisis	2010 Peripheral European Bond Crisis	2011 US Debt Ceiling Act	2016 Brexit	2020 COVID March Selloff	2020 COVID Volatility Spike
■ Total Fund	-4.49%	-21.56%	-6.82%	-26.12%	-4.47%	-8.30%	-3.19%	-12.76%	11.93%
■ Growth	-2.25%	-21.67%	-5.32%	-20.73%	-4.25%	-7.96%	-2.89%	-8.84%	8.88%
■ Credit	-0.33%	0.03%	-0.30%	-1.89%	-0.13%	-0.47%	-0.10%	-1.15%	-0.42%
■ Real Assets & Inflation Hedges	-0.57%	-1.84%	-0.75%	-3.28%	-0.65%	-1.12%	-0.45%	-2.91%	2.95%
■ Risk Reduction & Mitigation	-1.17%	3.03%	-0.16%	0.22%	0.47%	1.53%	0.29%	0.74%	0.31%
■ Overlays & Hedges	-0.19%	-1.11%	-0.29%	-0.44%	0.09%	-0.29%	-0.04%	-0.59%	0.22%

# Stress Tests

for the quarter ended December 31, 2022

## Scenario Descriptions

Historical Scenario	Description
<b>1994 US Rate Hike</b>	In combating inflation, the U.S. Federal Reserve raised its interest rate from 3.25% in February to 5.5% in November 1994.
<b>2000-2003 Tech Crash &amp; Recession</b>	Period of crisis and slow down for technological firms due to a rapid jump in stock prices when a speculative technology bubble began to burst.
<b>2001 Sept 11</b>	The U.S. stock market was closed for a week upon a series of coordinated suicide attacks upon the United States on September 11, 2001.
<b>2008-2009 Global Financial Crisis</b>	Major financial crisis starting September 2008 with the failure of several large U.S.-based financial firms. Extended into 2009, when stock markets reached their lowest.
<b>2010 Peripheral European Bond Crisis</b>	During the Europe sovereign debt crisis, liquidity access for peripheral European countries was deeply affected by their widening budget deficits, higher borrowing costs, and failing banking systems.
<b>2011 US Debt Ceiling Act</b>	Caused by political deadlock about appropriate level of government spending and its consequence on the national debt and deficit. Both debt and equity markets experienced significant volatility.
<b>2016 Brexit</b>	The referendum by British voters to exit the European Union on 23 June 2016 roiled global markets, including currencies, causing the British pound to fall to its lowest level in decades.
<b>2020 COVID March Selloff</b>	Peak and Valley of the MSCI ACWI index when Covid became a Global Pandemic.
<b>2020 COVID Volatility Spike</b>	Period it took for the Cboe Volatility Index (VIX) to revert to pre-pandemic levels.

# manager scorecards



Los Angeles County Employees Retirement Association  
**PUBLIC MARKETS MANAGER SCORECARD**  
 4th Quarter 2022

				Performance	Organization & Operations	ESG	Partnership	Fees & Terms	
				1 to 5 (with 5 the best)	S+, S, or S- (with S+ the best)	1 to 5 (with 5 the best)	A, B, or C (with A the best)	1 to 5 (with 5 the best)	
				SCORE	SCORE	SCORE	SCORE	SCORE	
Manager	Market Value (in \$ millions)	% of Total Fund	Risk-Adjusted Return	ER					
<b>GROWTH</b>	<b>GLOBAL EQUITY</b>								
	Acadian Developed Markets	560.2	0.8%	5	●	S-	3	B	3
	BTC Euro Tilts	527.8	0.8%	5	●	S+	4	B	3
	Capital Group Developed Markets	364.2	0.5%	3	●	S	2	B	3
	Cevian Capital II - Activist	398.3	0.6%	4	●	S	4	B	1
	Cornercap US SC - EMP	80.6	0.1%	5	●	S-	1	A	3
	Frontier US SMID Growth	256.2	0.4%	2	●	S	2	B	1
	Global Alpha	165.5	0.2%	2	●	S+	3	A	3
	JPMAM Strategic Beta Non-U.S.	550.5	0.8%	* 3	●	S	2	B	3
	JPMAM Strategic Beta U.S.	3,997.8	5.7%	* 3	●	S	2	B	3
	Lazard Emerging Markets	368.0	0.5%	2	●	S-	3	B	1
	SSGA MSCI ACWI IMI	14,270.2	20.4%	3	●	S	—	B	5
Systematic US Small Cap Value	186.4	0.3%	4	●	S-	2	A	3	
<b>CREDIT</b>	<b>HIGH YIELD</b>								
	Beach Point	280.7	0.4%	5	●	S	3	B	3
	Brigade Cap Mgmt	624.1	0.9%	4	●	S	2	B	3
	Pinebridge Investments	449.6	0.6%	* 3	●	S	4	B	3
	<b>BANK LOANS</b>								
	Bain Capital Credit	416.7	0.6%	5	●	S	2	B	1
	Credit Suisse Bank Loans	1,154.1	1.6%	* 3	●	S-	3	B	5
	Crescent Capital	490.9	0.7%	3	●	S	2	B	3
	<b>EMERGING MARKET DEBT</b>								
	Aberdeen Asset Management	372.8	0.5%	1	●	S	3	B	3
Ashmore Investment Management	341.2	0.5%	1	●	S	3	B	3	
<b>REAL ASSETS &amp; INFLATION HEDGES</b>	<b>NATURAL RESOURCES &amp; COMMODITIES</b>								
	Credit Suisse Commodity	312.3	0.4%	3	●	S-	1	A	3
	DWS Natural Resources	671.1	1.0%	2	●	S	2	A	5
	Neuberger Berman/Gresham	366.2	0.5%	3	●	S	1	A	1
	<b>INFRASTRUCTURE</b>								
	DWS Infrastructure	2,781.6	4.0%	5	●	S	2	A	5
	<b>TIPS</b>								
Blackrock TIPS	1,860.9	2.7%	3	●	S+	—	B	5	

		Performance	Organization & Operations	ESG	Partnership	Fees & Terms
		1 to 5 <i>(with 5 the best)</i>	S+, S, or S- <i>(with S+ the best)</i>	1 to 5 <i>(with 5 the best)</i>	A, B, or C <i>(with A the best)</i>	1 to 5 <i>(with 5 the best)</i>
		SCORE	SCORE	SCORE	SCORE	SCORE
Manager	Market Value (in \$ millions)	% of Total Fund	Risk-Adjusted Return	ER		

RISK REDUCTION & MITIGATION	INVESTMENT GRADE BONDS								
	Allspring/Wells	1,251.5	1.8%	5	●	S	3	B	5
	BTC US Debt Index Fund	2,905.3	4.1%	4	●	S+	—	B	5
	Pugh Capital Mgmt	835.2	1.2%	3	●	S	1	A	3
OVERLAYS & HEDGES	LONG-TERM GOVERNMENT BONDS								
	BlackRock	2,856.8	4.1%	* 3	●	S+	—	B	5
	CASH								
SSGA Cash	632.2	0.9%	* 3	●	S+	—	A	5	
OVERLAYS & HEDGES	OVERLAYS								
	Parametric Cash Overlay	591.0	0.8%	—		S	—	A	5
	HEDGES								
BTC Passive Currency Hedge	-155.3	-0.2%	—		S+	—	B	5	

●	Exceeds 3-Year Net Excess Return
●	Meets 3-Year Net Excess Return
●	Below 3-Year Net Excess Return

For Organization and Partnership	
■	Downgrade from the prior quarter
■	Upgrade from the prior quarter

**Footnotes**

- Pillar methodologies in refinement and may evolve over time

**Category Descriptions**

**Performance**

- Quarterly score based on Sharpe and Information Ratios, which provide insight into a manager’s risk-adjusted performance and performance relative to its benchmark, respectively
- ‘\*’ denotes a manager with an inception date of less than 3 years, resulting in a neutral score of 3
- Circle icons reflect trailing 3-year net excess returns against the manager’s benchmark above or below a specified range

**Organization & Operations**

- Includes factors such as organization, professional staff, diversity & inclusion, investment philosophy & process, risk management, legal & compliance framework
- ‘S’ stands for Satisfactory

**ESG**

- Evaluates the extent to which material ESG factors are identified, assessed, and incorporated into risk/return analysis and portfolio construction
- ‘—’ denotes passive index funds and cash where ESG scores are not relevant and/or reflect strategies that do not incorporate active decisions, including ESG considerations, in portfolio construction
- ‘+’ denotes mandates where ESG scores are currently under review

**Partnership**

- Blended score based on:
  - Value added services – e.g., providing education, distributing research, and performing analytics on portfolio
  - Client service – e.g., responsiveness, timeliness, competency, and approach
  - Size of LACERA’s investment relative to the firm’s assets under management

**Fees & Terms**

- Compared to a benchmark of median fees by asset category and/or investment structure



Los Angeles County Employees Retirement Association  
**PRIVATE MARKETS MANAGER SCORECARD**  
 4th Quarter 2022

			Performance	Organization & Operations	ESG	Partnership	Fees & Terms
			1 to 5 (with 5 the best)	S+, S, or S- (with S+ the best)	1 to 5 (with 5 the best)	A, B, or C (with A the best)	1 to 5 (with 5 the best)
			SCORE	SCORE	SCORE	SCORE	SCORE
Manager	Market Value (in \$ millions)	% of Total Fund					
<b>GLOBAL/LARGE BUYOUT</b>							
Advent International Group	130.1	0.2%	5	S+	3	C	4
Blackstone Management	222.4	0.3%	1	S-	4	B	5
CVC Capital Partners	479.5	0.7%	5	S	4	A	4
Green Equity Investors	402.0	0.6%	3	S+	3	A	4
Hellman & Friedman	429.8	0.6%	2	S+	3	B	4
MBK	193.8	0.3%	1	S	4	A	2
Silver Lake Partners	494.9	0.7%	4	S+	3	A	5
Thoma Bravo LLC	160.8	0.2%	*	S+	3	B	3
Vista Equity Partners	823.9	1.2%	3	S-	3	A	2
<b>MID-MARKET BUYOUT</b>							
Accel-KKR Capital Partners	203.3	0.3%	3	S+	4	A	3
BlackFin Capital Partners	30.7	0.0%	1	S	3	B	3
Carlyle Group	224.1	0.3%	3	S+	4	B	4
Clearlake Capital	497.7	0.7%	5	S+	4	A	4
GHO Capital	95.9	0.1%	*	S	3	A	3
Gilde Partners	126.7	0.2%	5	S	2	A	5
Harvest Partners	120.7	0.2%	5	S	1	C	3
Marlin Equity	25.6	0.0%	1	S-	2	C	3
Novacap	14.2	0.0%	*	S-	3	B	3
Onex Partners	304.9	0.4%	2	S	4	A	5
PAI	138.4	0.2%	5	S	2	B	4
Revelstoke	164.8	0.2%	2	S	4	A	2
Riverside Capital	101.3	0.1%	1	S	3	B	3
Siris Capital Group	161.5	0.2%	3	S	3	B	4
Sterling Partners	135.0	0.2%	5	S	3	A	4
STG Partners	46.0	0.1%	*	S	3	A	3
Triton	111.1	0.2%	4	S-	3	C	5
TSG	-0.1	0.0%	*	S+	3	C	2
Veritas Capital	31.3	0.0%	*	S+	3	B	3
Vinci Partners	72.0	0.1%	2	S	4	B	5
Webster Equity Partners	52.1	0.1%	*	S	3	B	3
Wynnchurch Capital	46.8	0.1%	*	S+	3	C	3
<b>SMALL BUYOUT</b>							
AE Industrial Partners	117.9	0.2%	5	S+	3	A	3
Atlantic Street Capital	41.5	0.1%	5	S	3	A	3
Clarion	24.6	0.0%	4	S+	2	B	4
Excellere Partners	116.3	0.2%	2	S-	3	A	3
Incline Equity Partners	40.3	0.1%	5	S	2	C	4
Insignia Capital Partners	234.4	0.3%	3	S	1	B	5
Juggernaut Capital Partners	274.6	0.4%	4	S	3	A	4
Lightyear Capital	209.3	0.3%	3	S	2	A	5
Livingbridge	53.2	0.1%	1	S+	4	A	3
Montefiore Investment	13.6	0.0%	*	S+	4	B	4
One Rock Capital Partners	217.4	0.3%	2	S	3	A	4
Palladium Equity Partners	84.2	0.1%	1	S-	4	C	2

PRIVATE EQUITY



Los Angeles County Employees Retirement Association

**PRIVATE MARKETS MANAGER SCORECARD**

4th Quarter 2022

			Performance	Organization & Operations	ESG	Partnership	Fees & Terms
			1 to 5 (with 5 the best)	S+, S, or S- (with S+ the best)	1 to 5 (with 5 the best)	A, B, or C (with A the best)	1 to 5 (with 5 the best)
			SCORE	SCORE	SCORE	SCORE	SCORE
Manager	Market Value (in \$ millions)	% of Total Fund					
<b>GROWTH EQUITY</b>							
Australis Partners	81.4	0.1%	1	S-	4	B	5
Great Hill Partners	-5.8	0.0%	*	S	4	A	4
JMI Equity	4.4	0.0%	3	S	3	C	2
RedBird Capital Partners	152.5	0.2%	2	S	4	A	3
Summit Partners	81.8	0.1%	4	S	4	A	4
TA Associates	133.3	0.2%	5	S	4	B	4
Technology Crossover Ventures	4.3	0.0%	5	S	2	B	3
<b>VENTURE CAPITAL</b>							
BlueRun Ventures	108.6	0.2%	2	S	2	A	2
Canaan Partners	173.0	0.2%	4	S	3	A	4
GGV Capital	500.5	0.7%	2	S	3	A	3
Institutional Venture Partners	183.4	0.3%	5	S	1	C	4
Joy Capital	83.8	0.1%	1	S-	2	B	4
Lilly Asia Ventures	139.7	0.2%	3	S	4	B	2
Primary Ventures	0.0	0.0%	*	S	2	C	4
Sinovation Ventures	94.1	0.1%	1	S-	2	C	2
Storm Ventures LLC	237.3	0.3%	4	S	3	A	4
Union Square	134.5	0.2%	5	S-	1	B	5
<b>SPECIAL SITUATIONS</b>							
Alchemy Partners	36.0	0.1%	1	S	3	B	4
Black Diamond	145.4	0.2%	1	S	3	B	4
Centerbridge	176.4	0.3%	5	S	4	A	2
<b>FUND OF FUNDS</b>							
Gateway	899.9	1.3%	5	S	3	B	4
MS GTB Capital Partners	286.4	0.4%	1	S	4	A	2
J.P. Morgan	487.9	0.7%	3	S+	+	B	4

PRIVATE EQUITY  
(continued)



Los Angeles County Employees Retirement Association

**PRIVATE MARKETS MANAGER SCORECARD**

4th Quarter 2022

			Performance	Organization & Operations	ESG	Partnership	Fees & Terms
			1 to 5 (with 5 the best)	S+, S, or S- (with S+ the best)	1 to 5 (with 5 the best)	A, B, or C (with A the best)	1 to 5 (with 5 the best)
			SCORE	SCORE	SCORE	SCORE	SCORE
Manager	Market Value (in \$ millions)	% of Total Fund					
<b>COMMINGLED FUNDS</b>							
AERMONT Real Estate Fund IV	26.0	0.0%	2	S	4	B	3
AEW Value Investors Asia III	30.0	0.0%	2	S	4	B	4
AG Asia Realty Fund IV	78.0	0.1%	*	S-	3	B	3
AG Europe Realty Fund II	47.0	0.1%	2	S-	3	B	3
Bain Capital Real Estate Fund I	76.0	0.1%	5	S	3	B	3
Bain Capital Real Estate Fund II	39.0	0.1%	*	S	3	B	3
CapMan Nordic Real Estate Fund II	43.0	0.1%	3	S	4	A	3
CapMan Nordic Real Estate Fund III	24.0	0.0%	*	S	4	A	3
CityView Bay Area Fund II	82.0	0.1%	1	S	3	B	3
CityView Western Fund I, L.P.	215.0	0.3%	4	S	3	B	3
Core Property Index Fund	130.0	0.2%	4	S	2	A	5
Europa Fund IV	9.0	0.0%	1	S	3	A	2
Heitman Asia-Pacific Property Investors	35.0	0.0%	3	S	3	B	4
Invesco Real Estate Asia Fund	144.0	0.2%	4	S	4	B	5
Prologis European Logistics Fund (PELF)	197.0	0.3%	5	S	4	A	1
RREEF Core Plus Industrial Fund (CPIF)	307.0	0.4%	5	S-	3	B	5
Starwood Capital Hospitality Fund	6.0	0.0%	1	S	3	C	3
TPG Real Estate Partners III	45.0	0.1%	*	S	3	C	3
<b>SEPARATE ACCOUNTS</b>							
Cityview Core I.M.A.	208.0	0.3%	1	S	3	B	2
Clarion I.M.A.	534.0	0.8%	5	S	3	A	4
Clarion Takeover Core IMA	360.0	0.5%	*	S	3	A	4
Clarion Takeover Value IMA	16.0	0.0%	*	S	3	A	3
Heitman I.M.A.	431.0	0.6%	4	S	3	B	4
RREEF Core/High Return I.M.A. III	860.0	1.2%	1	S-	3	C	5
RREEF Takeover I.M.A.	727.0	1.0%	2	S-	3	C	4
Stockbridge I.M.A.	650.0	0.9%	4	S	3	B	4
Stockbridge High I.M.A. Vintage 2014	111.0	0.2%	*	S	3	B	5
Stockbridge Value I.M.A. Vintage 2014	25.0	0.0%	*	S	3	B	3

REAL ESTATE



Los Angeles County Employees Retirement Association

**PRIVATE MARKETS MANAGER SCORECARD**

4th Quarter 2022

			Performance	Organization & Operations	ESG	Partnership	Fees & Terms	
			1 to 5 (with 5 the best)	S+, S, or S- (with S+ the best)	1 to 5 (with 5 the best)	A, B, or C (with A the best)	1 to 5 (with 5 the best)	
			SCORE	SCORE	SCORE	SCORE	SCORE	
Manager	Market Value (in \$ millions)	% of Total Fund						
<b>PRIVATE REAL ASSETS</b> (ex. Real Estate)	<b>NATURAL RESOURCES &amp; COMMODITIES</b>							
	Cibus Enterprise II	4.2	0.0%	*	S	3	B	3
	Cibus Fund II	15.7	0.0%	*	S	3	B	3
	EMG	82.0	0.1%	3	S	3	B	1
	HiTecVision	66.8	0.1%	*	S	3	A	3
	Orion Mine Finance Onshore III	122.3	0.2%	*	S	4	B	4
	Orion Mineral Royalty Fund I	21.9	0.0%	*	S	4	B	4
	TIAA-CREF Global Agriculture	255.9	0.4%	5	S+	4	A	5
	TIAA-CREF Global Agriculture II	256.9	0.4%	5	S+	4	A	5
	<b>INFRASTRUCTURE</b>							
	Antin Mid Cap	38.0	0.1%	*	S	3	B	2
	Axium Infrastructure Canada II	59.0	0.1%	*	S	4	A	3
	Axium Infrastructure US II	254.4	0.4%	*	S	4	A	3
	DIF CIF III	29.3	0.0%	*	S	3	A	4
	DIF Infrastructure VI	103.0	0.1%	5	S	3	A	2
	Grain Communications Opportunity Fund III	33.2	0.0%	*	S-	3	C	2
	Grain Spectrum Holdings III	47.8	0.1%	2	S-	3	C	2
	KKR Diversified Core Infrastructure Fund	334.4	0.5%	*	S	3	A	4
	Pan-European Infrastructure Fund III	65.4	0.1%	3	S-	3	B	3
	Partners Group Direct Infrastructure 2020	62.9	0.1%	*	S	3	A	3

			Performance	Organization & Operations	ESG	Partnership	Fees & Terms
			1 to 5 (with 5 the best)	S+, S, or S- (with S+ the best)	1 to 5 (with 5 the best)	A, B, or C (with A the best)	1 to 5 (with 5 the best)
			SCORE	SCORE	SCORE	SCORE	SCORE
Manager	Market Value (in \$ millions)	% of Total Fund					
<b>HEDGE FUNDS</b>							
AM Asia	217.1	0.3%	4	S	2	A	5
Brevan Howard	650.1	0.9%	5	S+	2	A	2
Capula GRV	642.2	0.9%	5	S	1	A	3
Caxton	296.6	0.4%	5	S	3	B	3
DK Institutional Partners	486.2	0.7%	3	S	1	B	3
HBK Multistrategy	578.1	0.8%	4	S	1	B	3
Hudson Bay	650.1	0.9%	5	S	1	B	3
Polar	467.0	0.7%	4	S	2	B	4
Stable	384.2	0.5%	*	S	2	A	5
<b>ILLIQUID CREDIT</b>							
Barings	59.0	0.1%	4	S	3	B	4
Beach Point	167.0	0.2%	3	S	1	B	3
BlackRock/Tennenbaum	647.4	0.9%	1	S-	2	C	4
Glendon	124.7	0.2%	5	S	1	B	2
Magnetar	904.5	1.3%	*	S	2	A	3
Napier Park	800.4	1.1%	*	S	2	A	3
Oaktree	90.4	0.1%	5	S	2	B	2
PIMCO Tac Opps	272.8	0.4%	1	S-	1	C	3
Quadrant	24.2	0.0%	2	S	1	B	4
Silver Rock	363.0	0.5%	*	S	2	A	4
Stable - IC	22.6	0.0%	*	S	2	A	4
Varde	237.1	0.3%	*	S	2	B	4

HEDGE FUNDS &  
ILLIQUID CREDIT

<b>For Organization and Partnership</b>	
	Downgrade from the prior quarter
	Upgrade from the prior quarter

**Footnotes**

- Pillar methodologies in refinement and may evolve over time

**Category Descriptions**

**Performance**

- Quarterly score based on risk-adjusted performance metrics over time
- \* denotes a manager with an inception date of less than 3 years

**Organization & Operations**

- Includes factors such as organization, professional staff, investment philosophy & process, risk management, legal & compliance framework, diversity & inclusion
- 'S' stands for Satisfactory

**ESG**

- Evaluates the extent to which material ESG factors are identified, assessed, and incorporated into risk/return analysis and portfolio construction
- '+' denotes mandates where ESG scores are currently under review

**Partnership**

- Assesses the quality of investment manager relationships both quantitatively and qualitatively

**Fees & Terms**

- Compares various fees and terms within each asset category, strategy and/or investment structure

# appendix

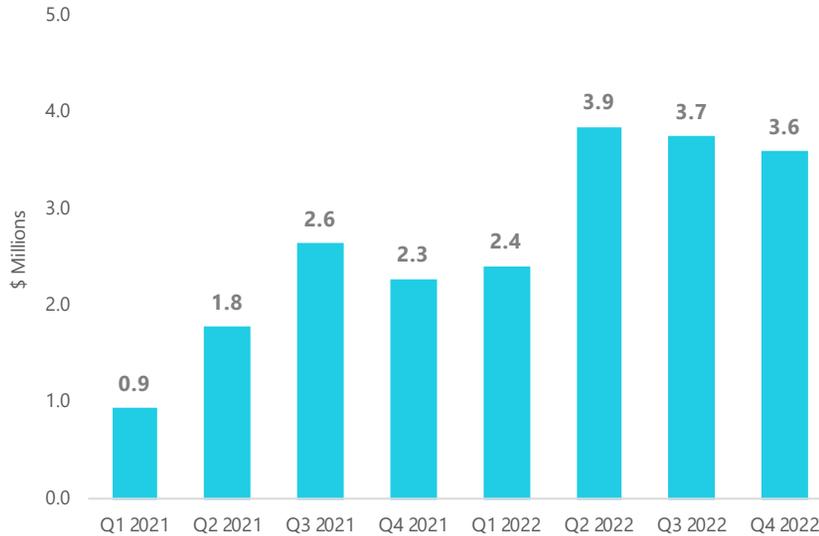
# Summary

Securities Lending Income  
for the quarter ended December 31, 2022

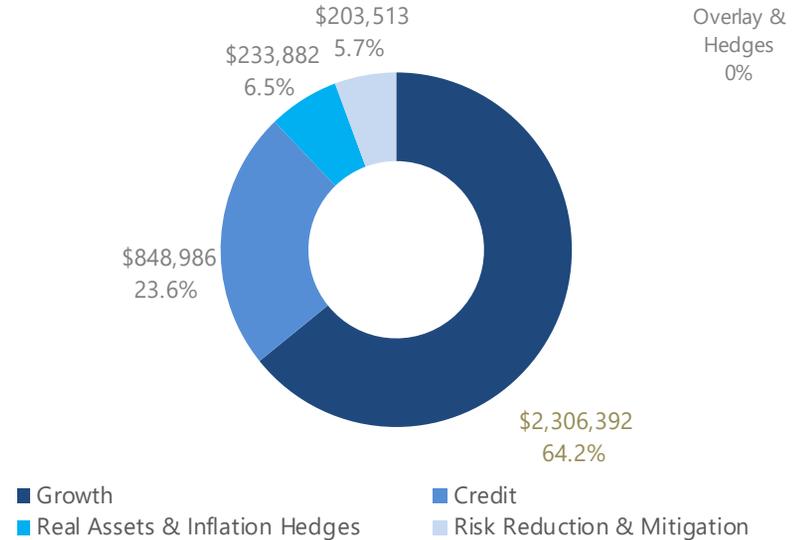


Los Angeles County Employees Retirement Association

## Earnings by Quarter



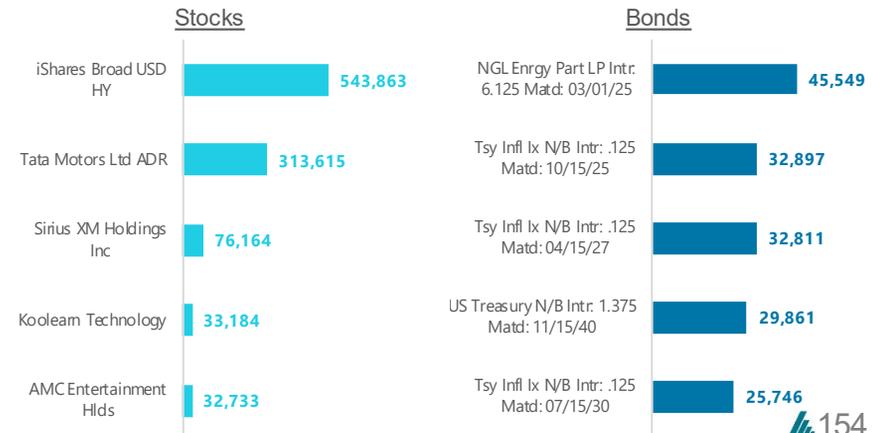
## Earnings by Functional Category



## Top Earning Funds

Fund	% of Total Fund Earnings	Total Earnings	Cash Earnings	Non-Cash Earnings
MSCI ACWI IMI	49.2%	1,841,290	1,108,691	732,599
Blackrock HY ETF	14.5%	543,862	180,857	363,005
JPMAM Strategic Beta U.S.	6.3%	237,362	150,424	86,938
Blackrock TIPS	5.3%	197,423	132,243	65,180
Brigade Cap Mgmt	4.9%	182,197	176,341	5,856

## Top Earning Securities



# Public Markets Manager Fees

for the quarter ended December 31, 2022



Los Angeles County Employees Retirement Association

## Growth

	Average Market Value (\$ mm)	Fees <sup>1</sup>	Annualized Effective Rate (bps)
<b>Active</b>			
Acadian Asset Management	\$547.1	\$516,189	37.7
BTC Europe Alpha Tilts	\$512.6	\$452,213	35.3
Capital Guardian	\$323.8	\$280,788	34.7
Cevian Capital	\$399.1	\$1,079,603	108.2
CornerCap	\$82.5	\$108,696	52.7
Frontier Capital Management	\$261.9	\$491,025	75.0
Global Alpha	\$159.1	\$286,092	71.9
Lazard Asset Management	\$344.3	\$553,984	64.4
Parametric GE Market Cap	\$873.4	\$57,154	2.6
Parametric GE Region	\$539.9	\$35,333	2.6
Systematic	\$190.2	\$261,477	55.0
<b>Subtotal:</b>	<b>\$4,233.8</b>	<b>\$4,122,555</b>	<b>38.9</b>
<b>Factor-Based</b>			
JPMAM Strategic Beta Non-US	\$534.8	\$45,888	3.4
JPMAM Strategic Beta US	\$4,090.5	\$351,009	3.4
<b>Subtotal:</b>	<b>\$4,625.3</b>	<b>\$396,897</b>	<b>3.4</b>
<b>Passive</b>			
SSGA MSCI ACWI IMI	\$14,291.4	\$275,943	0.8
<b>Subtotal:</b>	<b>\$14,291.4</b>	<b>\$275,943</b>	<b>0.8</b>

<sup>1</sup> Reflects estimated investment management fees.

# Public Markets Manager Fees

for the quarter ended December 31, 2022



Los Angeles County Employees Retirement Association

## Credit

	Average Market Value (\$ mm)	Fees <sup>1</sup>	Annualized Effective Rate (bps)
<b>Liquid Credit</b>			
Aberdeen Standard Investments	\$357.5	\$345,960	38.7
Ashmore Investment Management	\$341.2	\$424,857	49.8
Bain Capital	\$416.7	\$570,879	54.8
Beach Point Capital	\$279.9	\$314,921	45.0
Brigade Capital Management	\$626.8	\$642,204	41.0
Credit Suisse Bank Loan	\$1,145.0	\$565,249	19.7
Crescent Capital Group	\$490.6	\$571,867	46.6
Pinebridge	\$448.6	\$370,069	33.0
<b>Subtotal:</b>	<b>\$4,106.4</b>	<b>\$3,806,007</b>	<b>37.1</b>

<sup>1</sup> Reflects estimated investment management fees.

# Public Markets Manager Fees

for the quarter ended December 31, 2022



Los Angeles County Employees Retirement Association

## Real Assets & Inflation Hedges

	Average Market Value (\$ mm)	Fees <sup>1</sup>	Annualized Effective Rate (bps)
<b>Natural Resources &amp; Commodities</b>			
Credit Suisse	\$314.3	\$211,062	26.9
DWS Natural Resources	\$708.9	\$329,082	18.6
Neuberger Berman/Gresham	\$391.7	\$362,701	37.0
<b>Subtotal:</b>	<b>\$1,414.9</b>	<b>\$902,846</b>	<b>25.5</b>
<b>Infrastructure</b>			
DWS Infrastructure	\$2,813.3	\$1,305,915	18.6
<b>Subtotal:</b>	<b>\$2,813.3</b>	<b>\$1,305,915</b>	<b>18.6</b>
<b>Treasury Inflation-Protected Securities</b>			
BlackRock TIPS	\$1,857.7	\$46,825	1.0
<b>Subtotal:</b>	<b>\$1,857.7</b>	<b>\$46,825</b>	<b>1.0</b>

<sup>1</sup> Reflects estimated investment management fees.

# Public Markets Manager Fees

for the quarter ended December 31, 2022



Los Angeles County Employees Retirement Association

## Risk Reduction & Mitigation

	Average Market Value (\$ mm)	Fees <sup>1</sup>	Annualized Effective Rate (bps)
<b>Investment Grade Bonds</b>			
Allspring/Wells	\$1,318.7	\$342,336	10.4
Pugh Capital Management	\$826.3	\$279,018	13.5
<b>Subtotal:<sup>2</sup></b>	<b>\$5,028.3</b>	<b>\$683,127</b>	<b>5.4</b>
<b>Long-Term Government Bonds</b>			
BlackRock	\$2,815.3	\$70,865	1.0
<b>Subtotal:</b>	<b>\$2,815.3</b>	<b>\$70,865</b>	<b>1.0</b>
<b>Cash</b>			
SSGA Cash	\$678.4	\$67,843	4.0
<b>Subtotal:</b>	<b>\$678.4</b>	<b>\$67,843</b>	<b>4.0</b>

<sup>1</sup> Reflects estimated investment management fees.

<sup>2</sup> Includes BTC US Debt Index account.

# Public Markets Manager Fees

for the quarter ended December 31, 2022



Los Angeles County Employees Retirement Association

## Overlays & Hedges

	Average Market Value (\$ mm)	Fees <sup>1</sup>	Annualized Effective Rate (bps)
<b>Overlays</b>			
Parametric Cash Overlay	\$2,553.4	\$167,096	2.6
<b>Subtotal:</b>	<b>\$2,553.4</b>	<b>\$167,096</b>	<b>2.6</b>
<b>Hedges</b>			
BlackRock Developed Markets Currency Hedge	\$6,090.9	\$230,287	1.5
<b>Subtotal:</b>	<b>\$6,090.9</b>	<b>\$230,287</b>	<b>1.5</b>

<sup>1</sup> Reflects estimated investment management fees.

# Benchmark Definitions

## Current Composition

	Weight	Component
<b>Total Fund</b>		
Total Fund Policy Benchmark		
	53%	Growth Policy Benchmark
	11%	Credit Policy Benchmark
	17%	RA & IH Policy Benchmark
	19%	RR & M Policy Benchmark
<b>Growth</b>		
Growth Policy Benchmark		
	60%	Global Equity Policy Benchmark
	32%	Private Equity – Growth Policy BM
	8%	Non-Core Private RE Policy Benchmark
Global Equity Policy Benchmark		
	100%	MSCI ACWI IMI Net
Private Equity – Growth Policy BM		
	100%	MSCI ACWI IMI Net + 200 bps (3-month lagged)
Non-Core Private RE Policy Benchmark		
	100%	NFI ODCE + 225 bps (3-month lagged)
<hr/>		
EAFE Custom Index	100%	MSCI EAFE + Canada Net Index

# Benchmark Definitions

## Current Composition

	Weight	Component
<b>Credit</b>		
Credit Policy Benchmark		
	36%	Liquid Credit Policy Benchmark
	64%	Illiquid Credit Policy Benchmark
Liquid Credit Policy Benchmark		
	40%	Bloomberg U.S. Corporate High Yield
	40%	CS Leveraged Loan Index
	10%	JPMorgan EMBI Global Diversified Index
	5%	JPM GBI-EM Global Diversified Index
	5%	JPM CEMBI Broad Diversified
Illiquid Credit Policy Benchmark		
	100%	Liquid Credit Policy BM + 150 bps (1-month lagged)
Bank Loans Custom Benchmark	100%	CS Leveraged Loan Index
Beachpoint Custom Benchmark	100%	Bloomberg U.S. Corporate High Yield
Brigade Custom Index	100%	Bloomberg U.S. Corporate High Yield
EMD Custom Benchmark		
	50%	JPMorgan EMBI Global Diversified Index
	25%	JPM CEMBI Broad Diversified
	25%	JPM GBI-EM Global Diversified Index

# Benchmark Definitions

## Current Composition

	Weight	Component
<b>Real Assets &amp; Inflation Hedges</b>		
RA & IH Policy Benchmark		
	35%	Core Private RE Policy Benchmark
	18%	Nat Res & Comm Policy Benchmark
	29%	DJ Brookfield Global Infra Comp
	18%	Bloomberg U.S. Treasury: U.S. TIPS
Core Private RE Policy Benchmark		
	100%	NFI ODCE (3-month lagged)
Nat Res & Comm Policy Benchmark		
	33%	Bloomberg Commodity Index Total Return
	66%	S&P Global Natural Resources Index
<hr/>		
Private Equity – Real Assets Custom BM	100%	S&P Glb LargeMidCap Commod & Resources (3-month lagged)
Private Infrastructure Custom BM	100%	DJ Brookfield Global Infra Comp (3-month lagged)
<b>Risk Reduction &amp; Mitigation</b>		
RR & M Policy Benchmark		
	37%	Bloomberg U.S. Aggregate
	32%	Diversified Hedge Funds Policy Benchmark
	26%	Bloomberg U.S. Treasury: Long
	5%	FTSE 3-Month US Treasury Bill
Diversified Hedge Funds Policy Benchmark		
	100%	FTSE 3-Month US Treasury Bill + 250 bps (1-month lagged)
Cash Policy Benchmark		
	100%	FTSE 3-Month US Treasury Bill
<hr/>		
Custom Hedge Fund BM	100%	Diversified Hedge Funds Policy Benchmark

## A

### ANNUAL RETURN

The total return of a security over a specified period, expressed as an annual rate of interest.

### ACTIVE RISK

The expected standard deviation of the differential return between the portfolio and the benchmark. Active total risk arises from active management, and it is the result of active weights (deviations from the benchmark at the asset level) and therefore active exposures; for passively managed portfolios, it is referred to as “total tracking error.”

### ACTIVE RISK CONTRIBUTION

Percent contribution to active total risk (or tracking error). The percent of active total risk that an individual asset or risk source contributes. For example, a % CR to Active Total Risk of 10% indicates that 10% of the portfolio’s active total risk is arising from the active position in that particular asset.

## B

### BASIS POINTS (BPS)

One one-hundredth of one percent. One hundred basis points equal one percent.

### BETA

A measure of the volatility of a stock relative to the overall market. A beta of less than one indicates lower risk than the market; a beta of more than one indicates higher risk than the market.

## D

### DURATION

A measure of the price sensitivity of a bond portfolio to changes in interest rates.

### DISTRIBUTED TO PAID-IN (DPI)

A measure of distributions received relative to contributed capital.

## F

### **FUTURES CONTRACT**

Agreement to buy or sell a specific amount of a commodity or financial instrument at a particular price and a stipulated future date.

## H

### **HIGH YIELD BOND**

A bond with a low investment quality and credit worthiness, usually with a rating of BB or less.

## I

### **INFORMATION RATIO**

The excess return (alpha) per unit of active risk (tracking error).

### **INTERNAL RATE OF RETURN (IRR)**

A total rate of return that gives full weight to the size and timing of cash flows over the period measured and fully reflects unrealized gains and losses in addition to realized gains and losses, interest and dividend income.

## K

### **KAPLAN & SCHOAR PUBLIC MARKET EQUIVALENT (KS-PME)**

A ratio that benchmarks the performance of a fund against an appropriate public market index while accounting for the timing of a fund's cash flows.

## M

### **MC TO TOTAL TRACKING ERROR**

This value represents the change in the active risk of an asset's portfolio or group that would result from a one percent increase in the asset's effective position plus an equal short position in the benchmark.

## S

### **SHARPE RATIO**

Measures the performance of an investment compared to a risk-free asset, after adjusting for its risk. It is the difference between the returns of the investment and the risk-free return, divided by the standard deviation of the investment.

### **STANDARD DEVIATION**

Statistical measure of the degree to which an individual value in a probability distribution tends to vary from the mean of the distribution. The greater the degree of dispersion, the greater the risk.

## T

### TIME-WEIGHTED RATE OF RETURN (TWR)

A measure of the compound rate of growth in a portfolio. Often used to compare the returns of investment managers because it eliminates the distorting effects on growth rates created by inflows and outflows of money.

### TOTAL RISK

The total (gross) risk to an asset (or portfolio), which is the standard deviation of the asset's total return distribution, expressed in percent. Total risk is forecasted using MSCI Barra's multiple factor models. The total risk for an asset depends on the asset's exposures to the risk factors, the factor variance/covariance matrix, and the forecast selection risk of the asset.

### TOTAL RISK CONTRIBUTION

The percent of total risk that an individual asset or risk source contributes. For example, a % CR to Total Risk of 10% indicates that 10% of the portfolio's total risk is arising from the portfolio's position in that particular asset.

### TOTAL VALUE TO PAID-IN (TVPI)

A measure of total value created relative to capital invested.

### TRACKING ERROR

The volatility of a manager's excess return. It is measured by subtracting the benchmark return from the manager's return and calculating the standard deviation.

## Y

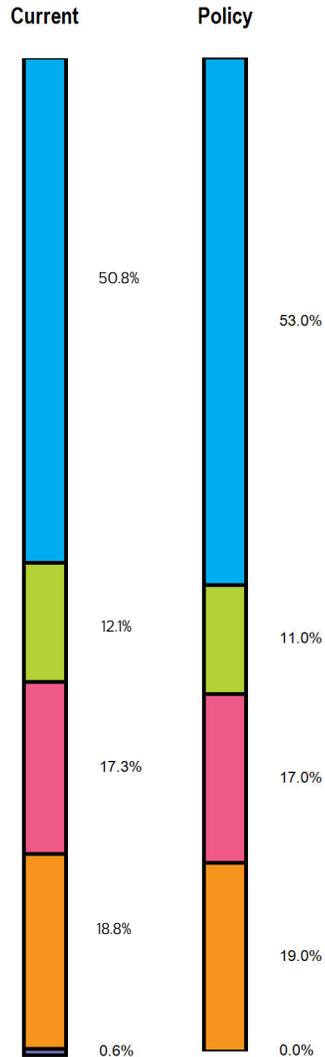
### YIELD TO MATURITY

The return a bond earns on the price at which it was purchased if it were held to maturity. It assumes that coupon payments can be reinvested at the yield to maturity.

**Los Angeles County Employees  
Retirement Association**

**December 31, 2022**

**Fund Evaluation Report**



Allocation vs. Targets and Policy							
	Current Balance	Current Allocation	Policy	Difference	Policy Range	Within IPS Range?	
<b>Growth</b>	<b>\$35,773,280,500</b>	<b>50.8%</b>	<b>53.0%</b>	<b>-2.2%</b>	<b>45.0% - 61.0%</b>	<b>Yes</b>	
Global Equity	\$21,969,396,862	31.2%	32.0%	-0.8%	25.0% - 39.0%	Yes	
Private Equity	\$12,732,565,040	18.1%	17.0%	1.1%	12.0% - 20.0%	Yes	
Non-Core Private Real Estate	\$1,071,318,598	1.5%	4.0%	-2.5%	2.0% - 6.0%	No	
<b>Credit</b>	<b>\$8,445,783,572</b>	<b>12.1%</b>	<b>11.0%</b>	<b>1.1%</b>	<b>8.0% - 14.0%</b>	<b>Yes</b>	
Liquid Credit <sup>1</sup>	\$4,709,316,668	6.7%	4.0%	2.7%	1.0% - 7.0%	Yes	
Illiquid Credit <sup>2</sup>	\$3,736,447,308	5.3%	7.0%	-1.7%	4.0% - 10.0%	Yes	
<b>Real Assets and Inflation Hedges</b>	<b>\$12,222,181,033</b>	<b>17.3%</b>	<b>17.0%</b>	<b>0.3%</b>	<b>14.0% - 20.0%</b>	<b>Yes</b>	
Core Real Estate	\$4,338,870,749	6.2%	6.0%	0.2%	3.0% - 9.0%	Yes	
Natural Resources & Commodities	\$2,210,384,505	3.1%	3.0%	0.1%	1.0% - 5.0%	Yes	
Infrastructure	\$3,811,989,221	5.4%	5.0%	0.4%	2.0% - 6.0%	Yes	
TIPS	\$1,860,936,558	2.6%	3.0%	-0.4%	0.0% - 6.0%	Yes	
<b>Risk Reduction and Mitigation</b>	<b>\$13,202,107,101</b>	<b>18.8%</b>	<b>19.0%</b>	<b>-0.2%</b>	<b>13.0% - 25.0%</b>	<b>Yes</b>	
Investment Grade Bonds	\$5,002,871,602	7.1%	7.0%	0.1%	1.0% - 13.0%	Yes	
Diversified Hedge Funds	\$4,402,389,500	6.2%	6.0%	0.2%	2.0% - 8.0%	Yes	
Long-Term Government Bonds	\$2,856,797,172	4.1%	5.0%	-0.9%	0.0% - 10.0%	Yes	
Cash	\$940,087,768	1.3%	1.0%	0.3%	0.0% - 3.0%	Yes	
<b>Overlays and Hedges</b>	<b>\$435,685,997</b>	<b>0.6%</b>	<b>0.0%</b>	<b>0.6%</b>	<b>0.0% - 1.0%</b>	<b>Yes</b>	
Cash Overlay	\$591,018,438	0.8%					
Currency Hedge	-\$155,332,442	-0.2%					
<b>Total<sup>3</sup></b>	<b>\$70,079,038,203</b>	<b>100.0%</b>	<b>100.0%</b>				

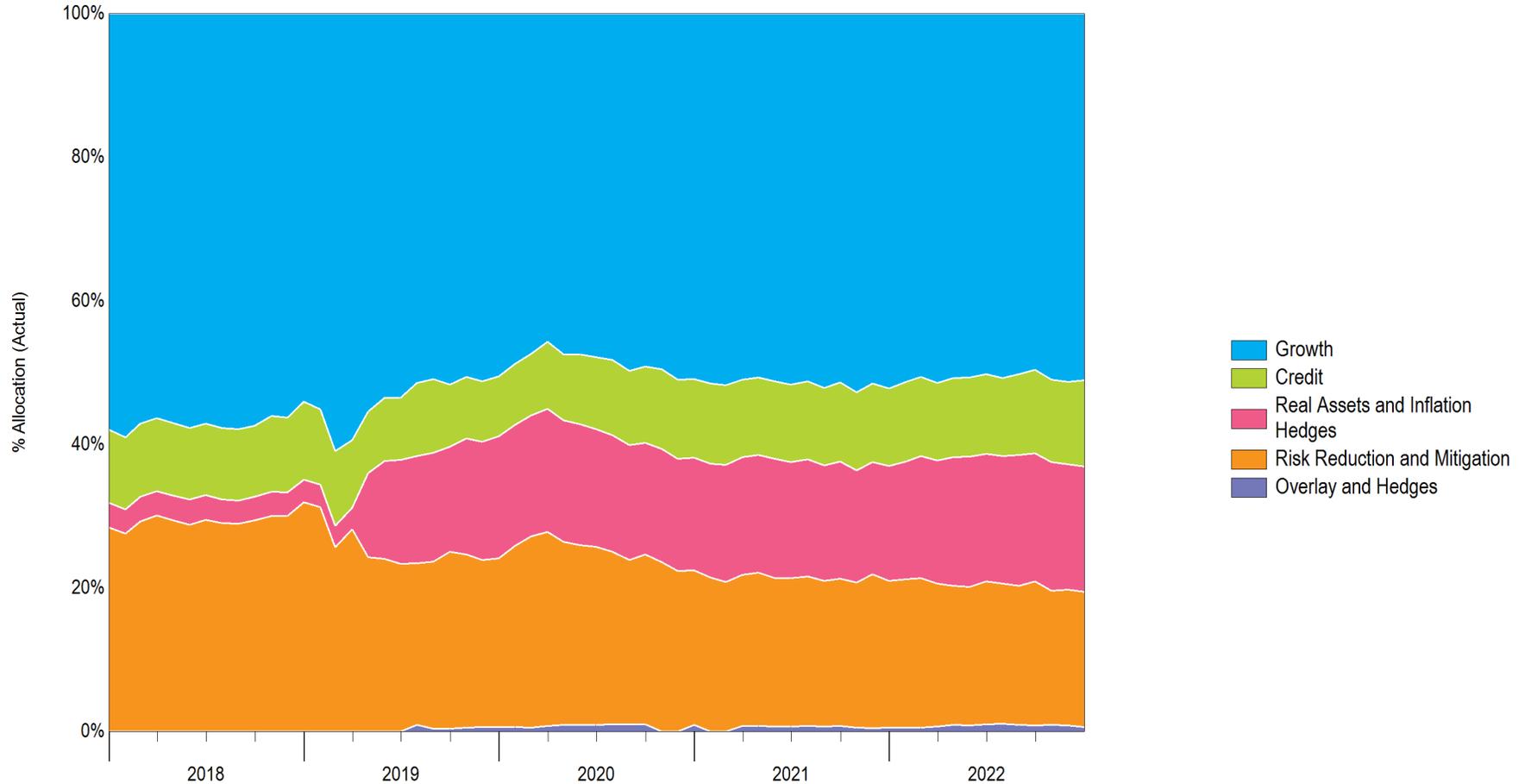
<sup>1</sup> Liquid Credit contains high yield, bank loans, and EM debt.

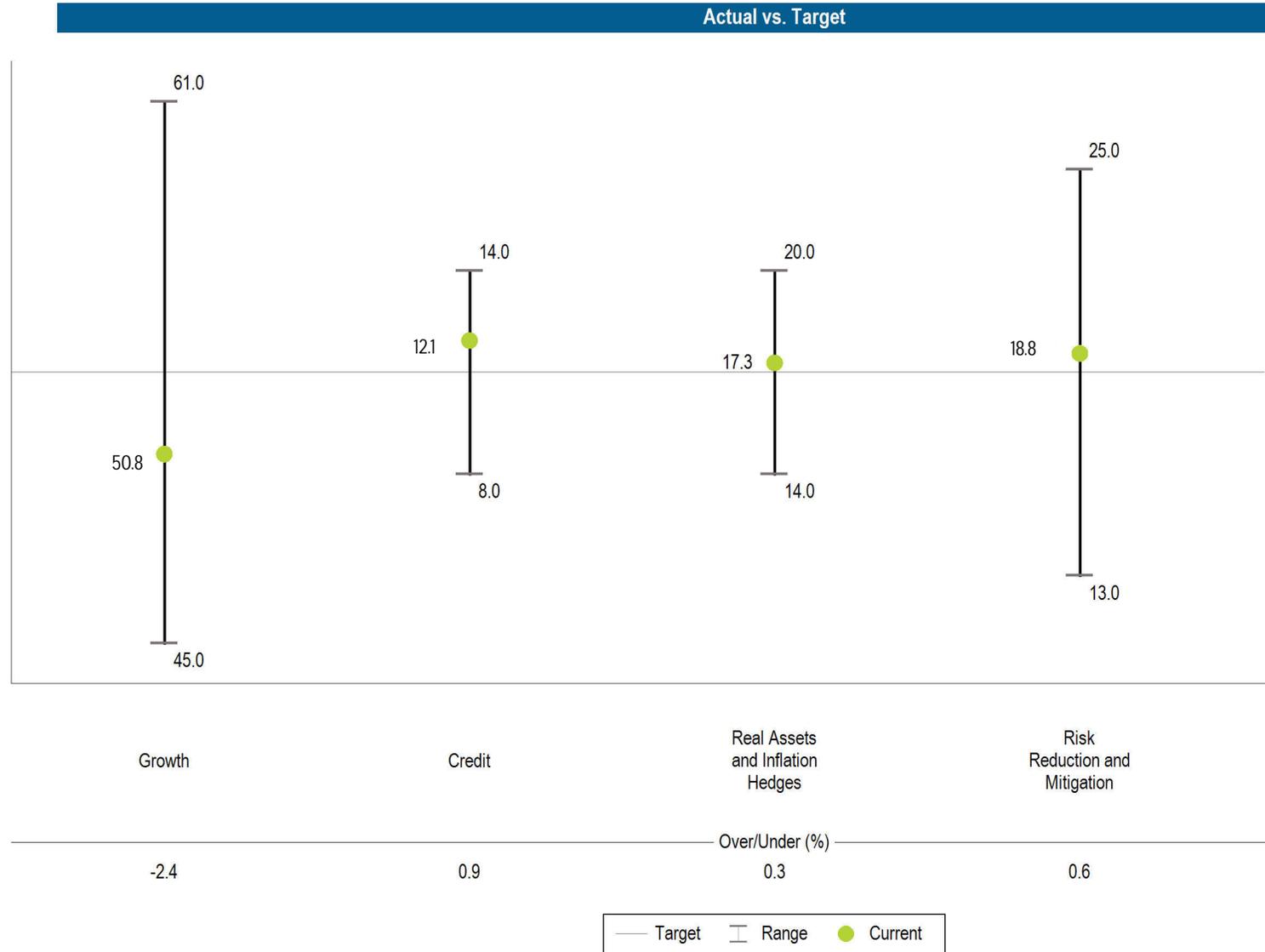
<sup>2</sup> Illiquid Credit contains credit hedge funds, real estate debt, private debt strategies and private equity-related debt.

<sup>3</sup> Totals may not add up due to rounding.

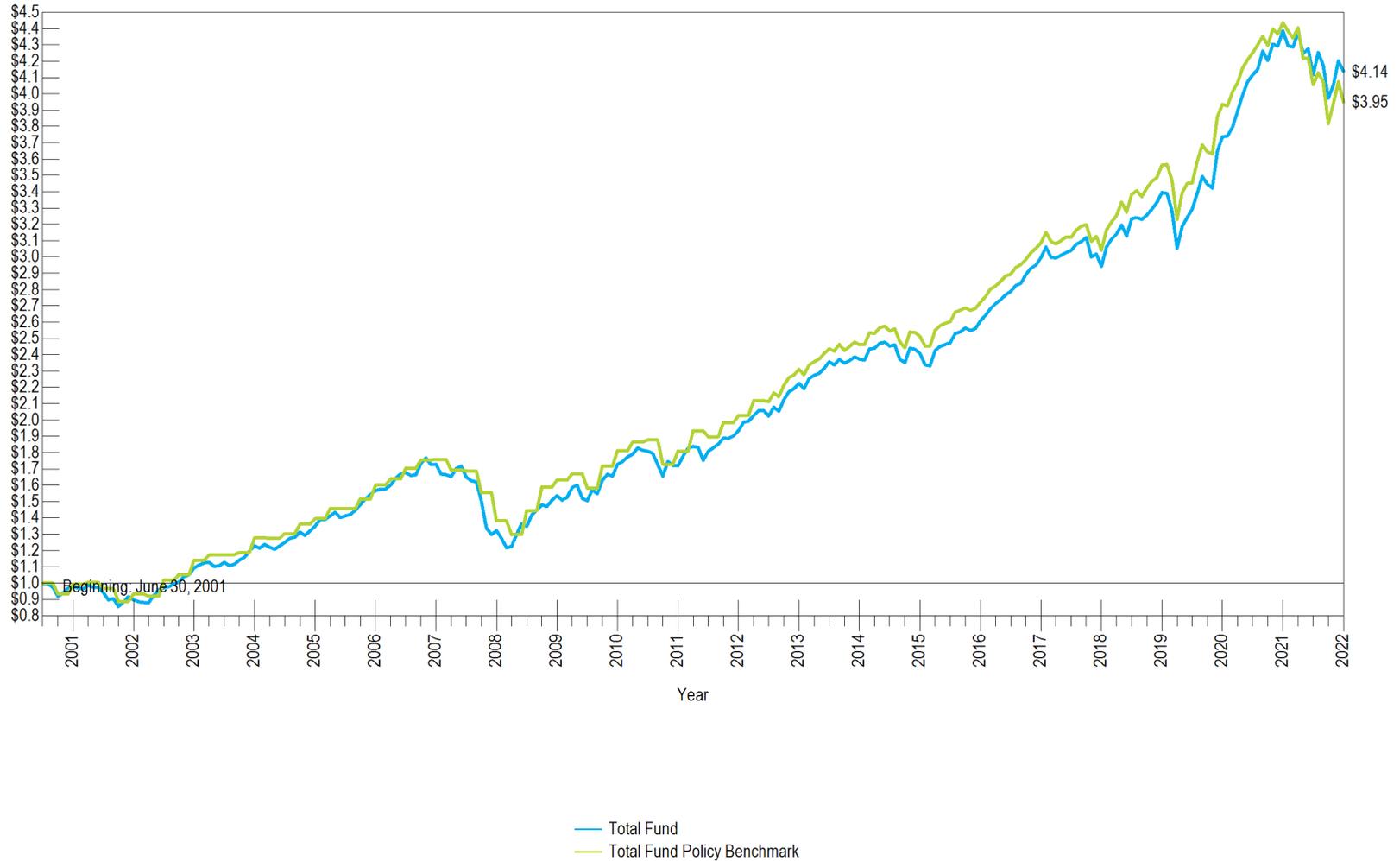
\* The Functional Framework became effective April 1, 2019.

Asset Allocation History  
5 Years Ending December 31, 2022





#### Growth of a Dollar



Asset Class Performance Summary (Net)									
	Market Value (\$)	% of Portfolio	1 Mo (%)	QTD (%)	Fiscal YTD <sup>1</sup> (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
<b>Total Fund (Net)</b>	<b>70,079,038,203</b>	<b>100.0</b>	<b>-1.5</b>	<b>4.1</b>	<b>0.5</b>	<b>-5.6</b>	<b>6.8</b>	<b>6.7</b>	<b>7.9</b>
<i>Total Fund Policy Benchmark</i>			<u>-3.0</u>	<u>3.5</u>	<u>-2.5</u>	<u>-10.9</u>	<u>3.5</u>	<u>5.1</u>	<u>6.9</u>
Excess Return			1.5	0.6	3.0	5.3	3.3	1.6	1.0
<b>Growth (Net)</b>	<b>35,773,280,500</b>	<b>51.0</b>	<b>-2.2</b>	<b>6.0</b>	<b>0.8</b>	<b>-9.7</b>	<b>10.0</b>	<b>--</b>	<b>--</b>
<i>Growth Custom Blended Benchmark</i>			<u>-5.3</u>	<u>4.0</u>	<u>-4.8</u>	<u>-17.0</u>	<u>5.2</u>	<u>--</u>	<u>--</u>
Excess Return			3.1	2.0	5.6	7.3	4.8		
<b>Credit (Net)</b>	<b>8,445,783,572</b>	<b>12.1</b>	<b>0.2</b>	<b>2.2</b>	<b>1.6</b>	<b>-5.5</b>	<b>2.8</b>	<b>--</b>	<b>--</b>
<i>Credit Custom Blended Benchmark</i>			<u>1.8</u>	<u>1.9</u>	<u>1.0</u>	<u>-7.4</u>	<u>0.3</u>	<u>--</u>	<u>--</u>
Excess Return			-1.6	0.3	0.6	1.9	2.5		
<b>Real Assets and Inflation Hedges (Net)</b>	<b>12,222,181,033</b>	<b>17.4</b>	<b>-1.0</b>	<b>3.9</b>	<b>1.7</b>	<b>7.8</b>	<b>8.1</b>	<b>--</b>	<b>--</b>
<i>Real Assets &amp; Inflation Hedges Custom BM</i>			<u>-1.6</u>	<u>5.4</u>	<u>2.1</u>	<u>6.4</u>	<u>8.3</u>	<u>--</u>	<u>--</u>
Excess Return			0.6	-1.5	-0.4	1.4	-0.2		
<b>Risk Reduction and Mitigation (Net)</b>	<b>13,202,107,101</b>	<b>18.8</b>	<b>-0.1</b>	<b>1.1</b>	<b>-2.7</b>	<b>-9.8</b>	<b>-1.0</b>	<b>--</b>	<b>--</b>
<i>Risk Reduction and Mitigation Custom Blended Benchmark</i>			<u>-0.4</u>	<u>1.1</u>	<u>-2.9</u>	<u>-11.0</u>	<u>-1.9</u>	<u>--</u>	<u>--</u>
Excess Return			0.3	0.0	0.2	1.2	0.9		
<b>Overlay and Hedges (Net)</b>	<b>435,685,997</b>	<b>0.6</b>	<b>-26.4</b>	<b>-10.6</b>	<b>1.5</b>	<b>178.1</b>	<b>--</b>	<b>--</b>	<b>--</b>

<sup>1</sup> Fiscal Year begins July 1.

\* See Glossary for all custom index definitions.

Trailing Performance									
	Market Value (\$)	% of Portfolio	1 Mo (%)	QTD (%)	Fiscal YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
<b>Total Fund (Net)</b>	<b>70,079,038,203</b>	<b>100.0</b>	<b>-1.5</b>	<b>4.1</b>	<b>0.5</b>	<b>-5.6</b>	<b>6.8</b>	<b>6.7</b>	<b>7.9</b>
<b>Total Fund (Gross)</b>			<b>-1.5</b>	<b>4.2</b>	<b>0.6</b>	<b>-5.4</b>	<b>7.3</b>	<b>7.0</b>	<b>8.2</b>
<i>Total Fund Policy Benchmark</i>			<u>-3.0</u>	<u>3.5</u>	<u>-2.5</u>	<u>-10.9</u>	<u>3.5</u>	<u>5.1</u>	<u>6.9</u>
Excess Return (vs. Net)			1.5	0.6	3.0	5.3	3.3	1.6	1.0
<b>Growth (Net)<sup>1</sup></b>	<b>35,773,280,500</b>	<b>51.0</b>	<b>-2.2</b>	<b>6.0</b>	<b>0.8</b>	<b>-9.7</b>	<b>10.0</b>	<b>--</b>	<b>--</b>
<b>Growth (Gross)</b>			<b>-2.2</b>	<b>6.1</b>	<b>1.0</b>	<b>-9.4</b>	<b>10.5</b>	<b>--</b>	<b>--</b>
<i>Growth Custom Blended Benchmark</i>			<u>-5.3</u>	<u>4.0</u>	<u>-4.8</u>	<u>-17.0</u>	<u>5.2</u>	<b>--</b>	<b>--</b>
Excess Return (vs. Net)			3.1	2.0	5.6	7.3	4.8		
<b>Global Equity (Net)</b>	<b>21,969,396,862</b>	<b>31.3</b>	<b>-3.8</b>	<b>10.0</b>	<b>2.9</b>	<b>-17.5</b>	<b>4.5</b>	<b>5.6</b>	<b>8.8</b>
<b>Global Equity (Gross)</b>			<b>-3.8</b>	<b>10.0</b>	<b>2.9</b>	<b>-17.4</b>	<b>4.7</b>	<b>5.7</b>	<b>8.9</b>
<i>Global Equity Custom BM</i>			<u>-3.8</u>	<u>9.8</u>	<u>2.6</u>	<u>-18.4</u>	<u>3.8</u>	<b>--</b>	<b>--</b>
Excess Return (vs. Net)			0.0	0.2	0.3	0.9	0.7		
Acadian Developed Markets (Net)	560,154,657	0.8	-0.4	14.7	5.4	-15.0	4.3	3.0	7.5
Acadian Developed Markets (Gross)			-0.3	14.8	5.6	-14.7	4.7	3.4	7.9
<i>EAFE Custom Benchmark</i>			<u>-0.5</u>	<u>16.2</u>	<u>5.5</u>	<u>-14.3</u>	<u>1.3</u>	<u>1.8</u>	<u>4.6</u>
Excess Return (vs. Net)			0.1	-1.5	-0.1	-0.7	3.0	1.2	2.9
BTC Euro Tilts (Net)	527,751,991	0.8	0.1	18.8	9.3	-12.7	4.1	2.8	6.3
BTC Euro Tilts (Gross)			0.1	19.0	9.5	-12.3	4.5	3.2	6.8
<i>MSCI EUROPE</i>			<u>0.0</u>	<u>19.3</u>	<u>7.2</u>	<u>-15.1</u>	<u>1.4</u>	<u>1.9</u>	<u>4.6</u>
Excess Return (vs. Net)			0.1	-0.5	2.1	2.4	2.7	0.9	1.7

<sup>1</sup> Includes accounts that are lagged by 3-months and latest available adjusted for cash flows.

	Market Value (\$)	% of Portfolio	1 Mo (%)	QTD (%)	Fiscal YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
Capital Guardian (Net)	364,176,433	0.5	-1.4	17.5	6.2	-23.4	0.4	3.3	6.0
Capital Guardian (Gross)			-1.3	17.6	6.3	-23.1	0.7	3.7	6.4
<i>EAFE Custom Benchmark</i>			<u>-0.5</u>	<u>16.2</u>	<u>5.5</u>	<u>-14.3</u>	<u>1.3</u>	<u>1.8</u>	<u>4.6</u>
Excess Return (vs. Net)			-0.9	1.3	0.7	-9.1	-0.9	1.5	1.4
Cevian Capital (Net)	398,346,642	0.6	-2.2	9.5	11.0	-3.6	9.0	5.6	--
Cevian Capital (Gross)			-2.1	9.8	11.6	-2.6	10.1	6.8	--
<i>MSCI EUROPE</i>			<u>0.0</u>	<u>19.3</u>	<u>7.2</u>	<u>-15.1</u>	<u>1.4</u>	<u>1.9</u>	--
Excess Return (vs. Net)			-2.2	-9.8	3.8	11.5	7.6	3.7	
CornerCap (Net)	80,616,765	0.1	-4.7	11.0	5.2	-7.0	9.1	--	--
CornerCap (Gross)			-4.7	11.1	5.5	-6.5	9.7	--	--
<i>Russell 2000</i>			<u>-6.5</u>	<u>6.2</u>	<u>3.9</u>	<u>-20.4</u>	<u>3.1</u>	--	--
Excess Return (vs. Net)			1.8	4.8	1.3	13.4	6.0		
Frontier Capital Management (Net)	256,220,515	0.4	-6.4	11.1	6.0	-17.9	4.5	5.0	10.2
Frontier Capital Management (Gross)			-6.4	11.3	6.4	-17.3	5.2	5.7	11.1
<i>Russell 2500</i>			<u>-5.9</u>	<u>7.4</u>	<u>4.4</u>	<u>-18.4</u>	<u>5.0</u>	<u>5.9</u>	<u>10.0</u>
Excess Return (vs. Net)			-0.5	3.7	1.6	0.5	-0.5	-0.9	0.2

	Market Value (\$)	% of Portfolio	1 Mo (%)	QTD (%)	Fiscal YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
Global Alpha IE EMP (Net)	165,539,625	0.2	1.1	15.1	2.1	-19.2	-0.7	--	--
Global Alpha IE EMP (Gross)			1.1	15.3	2.5	-18.6	0.0	--	--
<i>MSCI EAFE Small Cap</i>			<u>1.1</u>	<u>15.8</u>	<u>4.4</u>	<u>-21.4</u>	<u>-0.9</u>	--	--
Excess Return (vs. Net)			0.0	-0.7	-2.3	2.2	0.2		
JPMAM Strategic BETA NON-U.S. (Net)	550,529,749	0.8	-0.9	14.1	3.4	-14.5	--	--	--
JPMAM Strategic BETA NON-U.S. (Gross)			-0.9	14.1	3.4	-14.5	--	--	--
<i>MSCI ACWI ex USA IMI</i>			<u>-0.6</u>	<u>14.1</u>	<u>3.1</u>	<u>-16.6</u>	--	--	--
Excess Return (vs. Net)			-0.3	0.0	0.3	2.1			
JPMAM Strategic BETA U.S. (Net)	3,997,750,770	5.7	-5.9	7.6	2.5	-17.9	--	--	--
JPMAM Strategic BETA U.S. (Gross)			-5.9	7.6	2.5	-17.9	--	--	--
<i>MSCI USA IMI Gross</i>			<u>-5.9</u>	<u>7.2</u>	<u>2.4</u>	<u>-19.2</u>	--	--	--
Excess Return (vs. Net)			0.0	0.4	0.1	1.3			
Lazard Emerging Markets (Net)	368,015,753	0.5	2.1	14.5	-1.7	-22.6	-1.0	0.3	--
Lazard Emerging Markets (Gross)			2.2	14.6	-1.4	-22.1	-0.3	1.0	--
<i>MSCI Emerging Markets</i>			<u>-1.4</u>	<u>9.7</u>	<u>-3.0</u>	<u>-20.1</u>	<u>-2.7</u>	<u>-1.4</u>	--
Excess Return (vs. Net)			3.5	4.8	1.3	-2.5	1.7	1.7	

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	Market Value (\$)	% of Portfolio	1 Mo (%)	QTD (%)	Fiscal YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
Parametric GE Market Cap (Net)	100,392,418	0.1	1.1	-6.5	-15.6	-15.6	--	--	--
Parametric GE Market Cap (Gross)			1.2	-6.5	-15.5	-15.4	--	--	--
Parametric GE Region (Net)	88,773,455	0.1	-1.3	-14.8	13.2	-21.6	--	--	--
Parametric GE Region (Gross)			-1.3	-14.8	13.3	-21.4	--	--	--
SSGA MSCI ACWI IMI (Net)	14,270,201,674	20.4	-3.8	10.1	2.6	-17.9	4.5	--	--
SSGA MSCI ACWI IMI (Gross)			-3.8	10.1	2.7	-17.9	4.5	--	--
<i>MSCI ACWI IMI Net (DAILY)</i>			<u>-3.8</u>	<u>9.8</u>	<u>2.6</u>	<u>-18.4</u>	<u>3.9</u>	--	--
Excess Return (vs. Net)			0.0	0.3	0.0	0.5	0.6		
Systematic Financial Management (Net)	186,369,294	0.3	-5.4	11.8	7.4	-9.9	7.0	--	--
Systematic Financial Management (Gross)			-5.4	12.0	7.7	-9.5	7.6	--	--
<i>Russell 2000</i>			<u>-6.5</u>	<u>6.2</u>	<u>3.9</u>	<u>-20.4</u>	<u>3.1</u>	--	--
Excess Return (vs. Net)			1.1	5.6	3.5	10.5	3.9		

	Market Value (\$)	% of Portfolio	1 Mo (%)	QTD (%)	Fiscal YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
<b>Private Equity - Growth (Net)</b>	<b>12,732,565,040</b>	<b>18.2</b>	<b>0.3</b>	<b>0.0</b>	<b>-3.2</b>	<b>5.6</b>	<b>22.8</b>	<b>--</b>	<b>--</b>
<b>Private Equity - Growth (Gross)</b>			<b>0.4</b>	<b>0.2</b>	<b>-2.8</b>	<b>6.5</b>	<b>24.1</b>	<b>--</b>	<b>--</b>
<i>Private Equity - Growth Custom BM</i>			<u>-9.5</u>	<u>-6.2</u>	<u>-20.6</u>	<u>-19.6</u>	<u>5.7</u>	<b>--</b>	<b>--</b>
Excess Return (vs. Net)			9.8	6.2	17.4	25.2	17.1		
<b>Non-Core Private Real Estate (Net)</b>	<b>1,071,318,598</b>	<b>1.5</b>	<b>0.4</b>	<b>1.9</b>	<b>6.7</b>	<b>20.5</b>	<b>15.3</b>	<b>12.6</b>	<b>11.9</b>
<b>Non-Core Private Real Estate (Gross)</b>			<b>0.5</b>	<b>2.1</b>	<b>7.0</b>	<b>21.0</b>	<b>16.4</b>	<b>14.2</b>	<b>14.1</b>
<i>Non-Core Private RE Policy BM</i>			<u>0.3</u>	<u>0.9</u>	<u>6.0</u>	<u>23.6</u>	<u>14.4</u>	<u>12.3</u>	<u>13.1</u>
Excess Return (vs. Net)			0.1	1.0	0.7	-3.1	0.9	0.3	-1.2
<b>Credit (Net)<sup>1</sup></b>	<b>8,445,783,572</b>	<b>12.1</b>	<b>0.2</b>	<b>2.2</b>	<b>1.6</b>	<b>-5.5</b>	<b>2.8</b>	<b>--</b>	<b>--</b>
<b>Credit (Gross)</b>			<b>0.3</b>	<b>2.2</b>	<b>1.6</b>	<b>-5.3</b>	<b>3.2</b>	<b>--</b>	<b>--</b>
<i>Credit Custom Blended Benchmark</i>			<u>1.8</u>	<u>1.9</u>	<u>1.0</u>	<u>-7.4</u>	<u>0.3</u>	<b>--</b>	<b>--</b>
Excess Return (vs. Net)			-1.6	0.3	0.6	1.9	2.5		
<b>Liquid Credit (Net)</b>	<b>4,709,316,668</b>	<b>6.7</b>	<b>-0.2</b>	<b>3.9</b>	<b>2.8</b>	<b>-8.4</b>	<b>--</b>	<b>--</b>	<b>--</b>
<b>Liquid Credit (Gross)</b>			<b>-0.1</b>	<b>4.0</b>	<b>2.9</b>	<b>-8.1</b>	<b>--</b>	<b>--</b>	<b>--</b>
<i>Liquid Credit Custom BM</i>			<u>0.1</u>	<u>4.1</u>	<u>3.4</u>	<u>-8.0</u>	<b>--</b>	<b>--</b>	<b>--</b>
Excess Return (vs. Net)			-0.3	-0.2	-0.6	-0.4			

<sup>1</sup> Includes accounts that are lagged by 1-month, 3-months, and latest available adjusted for cash flows.

	Market Value (\$)	% of Portfolio	1 Mo (%)	QTD (%)	Fiscal YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
<b>High Yield (Net)</b>	<b>1,933,617,689</b>	<b>2.8</b>	<b>-1.1</b>	<b>3.4</b>	<b>1.9</b>	<b>-11.5</b>	<b>-0.1</b>	<b>--</b>	<b>--</b>
<b>High Yield (Gross)</b>			<b>-1.1</b>	<b>3.5</b>	<b>2.0</b>	<b>-11.2</b>	<b>0.2</b>	<b>--</b>	<b>--</b>
<i>BBgBarc US High Yield TR</i>			<u>-0.6</u>	<u>4.2</u>	<u>3.5</u>	<u>-11.2</u>	<u>0.0</u>	<b>--</b>	<b>--</b>
Excess Return (vs. Net)			-0.5	-0.8	-1.6	-0.3	-0.1		
Beach Point (Net)	280,704,015	0.4	-0.5	4.3	2.9	-11.5	-0.7	2.1	--
Beach Point (Gross)			-0.5	4.5	3.2	-11.1	-0.2	2.6	--
<i>Beach Point Custom BM</i>			<u>-0.6</u>	<u>4.2</u>	<u>3.5</u>	<u>-11.2</u>	<u>0.0</u>	<u>2.0</u>	<b>--</b>
Excess Return (vs. Net)			0.1	0.1	-0.6	-0.3	-0.7	0.1	
BlackRock HY ETF (Net)	578,918,108	0.8	-1.5	4.7	3.3	-10.9	--	--	--
BlackRock HY ETF (Gross)			-1.5	4.7	3.3	-10.9	--	--	--
<i>BBgBarc US High Yield TR</i>			<u>-0.6</u>	<u>4.2</u>	<u>3.5</u>	<u>-11.2</u>	<b>--</b>	<b>--</b>	<b>--</b>
Excess Return (vs. Net)			-0.9	0.5	-0.2	0.3			
Brigade Capital Management (Net)	624,145,743	0.9	-1.3	1.3	-1.2	-12.0	1.1	2.2	3.8
Brigade Capital Management (Gross)			-1.2	1.4	-1.0	-11.7	1.5	2.8	4.5
<i>Brigade Custom Index</i>			<u>-0.6</u>	<u>4.2</u>	<u>3.5</u>	<u>-11.2</u>	<u>0.2</u>	<u>2.3</u>	<u>3.6</u>
Excess Return (vs. Net)			-0.7	-2.9	-4.7	-0.8	0.9	-0.1	0.2
Pinebridge Investments (Net)	449,588,899	0.6	-0.6	4.2	4.1	-11.4	--	--	--
Pinebridge Investments (Gross)			-0.6	4.3	4.2	-11.1	--	--	--
<i>BBgBarc US High Yield TR</i>			<u>-0.6</u>	<u>4.2</u>	<u>3.5</u>	<u>-11.2</u>	<b>--</b>	<b>--</b>	<b>--</b>
Excess Return (vs. Net)			0.0	0.0	0.6	-0.2			

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	Market Value (\$)	% of Portfolio	1 Mo (%)	QTD (%)	Fiscal YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
<b>Bank Loans (Net)</b>	<b>2,061,646,948</b>	<b>2.9</b>	<b>0.2</b>	<b>2.4</b>	<b>3.1</b>	<b>-1.9</b>	<b>4.4</b>	--	--
<b>Bank Loans (Gross)</b>			<b>0.2</b>	<b>2.5</b>	<b>3.3</b>	<b>-1.6</b>	<b>4.8</b>	--	--
<i>CS Leveraged Loan Index</i>			<u>0.4</u>	<u>2.3</u>	<u>3.5</u>	<u>-1.1</u>	<u>2.3</u>	--	--
Excess Return (vs. Net)			-0.2	0.1	-0.4	-0.8	2.1		
Bain Capital (Net)	416,718,964	0.6	0.1	2.0	2.2	-1.4	3.2	3.6	--
Bain Capital (Gross)			0.2	2.1	2.5	-0.8	3.8	4.2	--
<i>Bank Loans Custom Index</i>			<u>0.4</u>	<u>2.3</u>	<u>3.5</u>	<u>-1.1</u>	<u>2.4</u>	<u>3.5</u>	--
Excess Return (vs. Net)			-0.3	-0.3	-1.3	-0.3	0.8	0.1	
Credit Suisse Bank Loans (Net)	1,154,073,205	1.6	0.4	3.5	4.7	-0.4	--	--	--
Credit Suisse Bank Loans (Gross)			0.4	3.5	4.8	-0.2	--	--	--
<i>CS Leveraged Loan Index</i>			<u>0.4</u>	<u>2.3</u>	<u>3.5</u>	<u>-1.1</u>	--	--	--
Excess Return (vs. Net)			0.0	1.2	1.2	0.7			
Crescent Capital Group (Net)	490,854,779	0.7	-0.2	0.5	0.4	-5.6	2.5	3.3	--
Crescent Capital Group (Gross)			-0.2	0.6	0.7	-5.2	2.9	3.8	--
<i>Bank Loans Custom Index</i>			<u>0.4</u>	<u>2.3</u>	<u>3.5</u>	<u>-1.1</u>	<u>2.4</u>	<u>3.5</u>	--
Excess Return (vs. Net)			-0.6	-1.8	-3.1	-4.5	0.1	-0.2	

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	Market Value (\$)	% of Portfolio	1 Mo (%)	QTD (%)	Fiscal YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
<b>EM Debt (Net)</b>	<b>714,052,031</b>	<b>1.0</b>	<b>1.2</b>	<b>9.6</b>	<b>4.1</b>	<b>-16.7</b>	<b>-6.3</b>	<b>-2.7</b>	<b>--</b>
<b>EM Debt (Gross)</b>			<b>1.3</b>	<b>9.7</b>	<b>4.4</b>	<b>-16.4</b>	<b>-5.8</b>	<b>-2.3</b>	<b>--</b>
<i>EMD Custom</i>			<u>1.1</u>	<u>7.3</u>	<u>2.9</u>	<u>-14.9</u>	<u>-4.6</u>	<u>-1.0</u>	<b>--</b>
Excess Return (vs. Net)			0.1	2.3	1.2	-1.8	-1.7	-1.7	
Aberdeen Asset Management (Net)	372,812,975	0.5	0.9	9.6	4.8	-15.9	-5.2	-1.9	--
Aberdeen Asset Management (Gross)			1.0	9.7	5.0	-15.6	-4.9	-1.5	--
<i>EMD Custom</i>			<u>1.1</u>	<u>7.3</u>	<u>2.9</u>	<u>-14.9</u>	<u>-4.6</u>	<u>-1.0</u>	<b>--</b>
Excess Return (vs. Net)			-0.2	2.3	1.9	-1.0	-0.6	-0.9	
Ashmore Investment Management (Net)	341,239,055	0.5	1.6	9.6	3.4	-17.6	-7.4	-3.6	--
Ashmore Investment Management (Gross)			1.6	9.8	3.6	-17.2	-6.8	-3.1	--
<i>EMD Custom</i>			<u>1.1</u>	<u>7.3</u>	<u>2.9</u>	<u>-14.9</u>	<u>-4.6</u>	<u>-1.0</u>	<b>--</b>
Excess Return (vs. Net)			0.5	2.3	0.5	-2.7	-2.8	-2.6	

	Market Value (\$)	% of Portfolio	1 Mo (%)	QTD (%)	Fiscal YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
<b>Illiquid Credit (Net)</b>	<b>3,736,447,308</b>	<b>5.3</b>	<b>0.8</b>	<b>-0.1</b>	<b>-0.1</b>	<b>-0.8</b>	<b>10.3</b>	<b>--</b>	<b>--</b>
<b>Illiquid Credit (Gross)</b>			<b>0.8</b>	<b>-0.1</b>	<b>-0.3</b>	<b>-0.7</b>	<b>10.9</b>	<b>--</b>	<b>--</b>
<i>Illiquid Credit Custom BM</i>			<u>2.8</u>	<u>0.7</u>	<u>-0.6</u>	<u>-5.5</u>	<u>1.5</u>	<b>--</b>	<b>--</b>
Excess Return (vs. Net)			-2.0	-0.8	0.5	4.7	8.8		
Beach Point - Fund III (Net)	154,484,725	0.2	0.5	-4.4	-7.3	-11.9	11.0	9.9	--
Beach Point - Fund III (Gross)			0.5	-5.8	-9.8	-10.3	15.0	14.0	--
<i>Opportunistic Custom Index 1 Month Lag</i>			<u>1.6</u>	<u>0.2</u>	<u>-0.8</u>	<u>-4.8</u>	<u>1.9</u>	<u>2.9</u>	<b>--</b>
Excess Return (vs. Net)			-1.1	-4.6	-6.5	-7.1	9.1	7.0	
Grosvenor OPCRD 2 HFOF (Net)	22,876,487	0.0							
Grosvenor OPCRD 2 HFOF (Gross)									
<i>Grosvenor Custom Benchmark</i>			<u>2.8</u>	<u>0.7</u>	<u>-0.6</u>	<u>-5.5</u>	<u>1.5</u>	<u>4.5</u>	<b>--</b>
Excess Return (vs. Net)									
Lake Cottage (Net)	237,110,000	0.3	0.0	--	--	--	--	--	--
Lake Cottage (Gross)			0.0	--	--	--	--	--	--
<i>Illiquid Credit Custom BM</i>			<u>2.8</u>	--	--	--	--	--	--
Excess Return (vs. Net)			-2.8						
Lake Vineyard (Net)	363,040,553	0.5	0.1	0.5	-1.8	--	--	--	--
Lake Vineyard (Gross)			0.1	0.5	-1.8	--	--	--	--
<i>Illiquid Credit Custom BM</i>			<u>2.8</u>	<u>0.7</u>	<u>-0.6</u>	--	--	--	--
Excess Return (vs. Net)			-2.7	-0.2	-1.2				

	Market Value (\$)	% of Portfolio	1 Mo (%)	QTD (%)	Fiscal YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
Magnetar Credit Fund (Net)	904,460,903	1.3	0.2	-0.2	0.0	-1.1	--	--	--
Magnetar Credit Fund (Gross)			0.2	-0.2	0.0	-1.1	--	--	--
<i>Illiquid Credit Custom BM</i>			<u>2.8</u>	<u>0.7</u>	<u>-0.6</u>	<u>-5.5</u>	--	--	--
Excess Return (vs. Net)			-2.6	-0.9	0.6	4.4			
Napier Park (Net)	800,426,250	1.1	1.8	-0.7	-0.5	-5.5	--	--	--
Napier Park (Gross)			1.8	-0.7	-0.5	-5.5	--	--	--
<i>Illiquid Credit Custom BM</i>			<u>2.8</u>	<u>0.7</u>	<u>-0.6</u>	<u>-5.5</u>	--	--	--
Excess Return (vs. Net)			-1.0	-1.4	0.1	0.0			
PIMCO Tac Opps (Net)	272,834,325	0.4	2.3	-0.9	-3.3	-6.4	5.5	--	--
PIMCO Tac Opps (Gross)			2.3	-0.9	-3.3	-6.4	5.5	--	--
<i>PIMCO Tac Opps Custom BM</i>			<u>2.8</u>	<u>0.7</u>	<u>-0.6</u>	<u>-5.5</u>	<u>-0.4</u>	--	--
Excess Return (vs. Net)			-0.5	-1.6	-2.7	-0.9	5.9		
Private Equity - Credit (Net)	215,444,042	0.3	0.0	4.2	2.3	12.8	17.4	--	--
Private Equity - Credit (Gross)			0.0	4.2	2.3	12.8	17.4	--	--
<i>PE-Credit Custom Benchmark</i>			<u>-4.1</u>	<u>-4.2</u>	<u>-8.1</u>	<u>-12.4</u>	<u>-0.8</u>	--	--
Excess Return (vs. Net)			4.1	8.4	10.4	25.2	18.2		
Real Estate - Credit (Net)	83,190,284	0.1	0.0	3.2	4.1	11.1	10.0	9.7	8.8
Real Estate - Credit (Gross)			0.0	3.2	4.3	11.7	10.8	10.6	9.8
<i>RE Credit BM</i>			<u>2.8</u>	<u>0.7</u>	<u>-0.6</u>	<u>-5.5</u>	<u>0.3</u>	<u>2.0</u>	<u>3.6</u>
Excess Return (vs. Net)			-2.8	2.5	4.7	16.6	9.7	7.7	5.2

	Market Value (\$)	% of Portfolio	1 Mo (%)	QTD (%)	Fiscal YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
Tennenbaum Capital (Net)	647,415,283	0.9	0.9	1.2	2.8	5.4	7.0	7.1	--
Tennenbaum Capital (Gross)			1.0	1.4	3.2	6.2	7.7	7.9	--
<i>CSFB Leveraged Loan Index 1 Month Lagged</i>			<u>1.1</u>	<u>-0.2</u>	<u>1.1</u>	<u>-0.8</u>	<u>2.8</u>	<u>3.3</u>	--
Excess Return (vs. Net)			-0.2	1.4	1.7	6.2	4.2	3.8	
<b>IC EM Program (Net)</b>	<b>22,630,995</b>	<b>0.0</b>	<b>0.0</b>	--	--	--	--	--	--
<b>IC EM Program (Gross)</b>			<b>0.0</b>	--	--	--	--	--	--
<i>Illiquid Credit Custom BM</i>			<u>2.8</u>	--	--	--	--	--	--
Excess Return (vs. Net)			-2.8						
<b>Stable Asset Management - IC (Net)</b>	<b>22,630,995</b>	<b>0.0</b>	<b>0.0</b>	--	--	--	--	--	--
<b>Stable Asset Management - IC (Gross)</b>			<b>0.0</b>	--	--	--	--	--	--
<i>Illiquid Credit Custom BM</i>			<u>2.8</u>	--	--	--	--	--	--
Excess Return (vs. Net)			-2.8						
<b>Stable Fund Investments - IC (Net)</b>	<b>22,630,995</b>	<b>0.0</b>	<b>0.0</b>	--	--	--	--	--	--
<b>Stable Fund Investments - IC (Gross)</b>			<b>0.0</b>	--	--	--	--	--	--
<i>Illiquid Credit Custom BM</i>			<u>2.8</u>	--	--	--	--	--	--
Excess Return (vs. Net)			-2.8						
HarbourView (Net)	22,630,995	0.0	0.0	--	--	--	--	--	--
HarbourView (Gross)			0.0	--	--	--	--	--	--
<i>Illiquid Credit Custom BM</i>			<u>2.8</u>	--	--	--	--	--	--
Excess Return (vs. Net)			-2.8						

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	Market Value (\$)	% of Portfolio	1 Mo (%)	QTD (%)	Fiscal YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
<b>Real Assets and Inflation Hedges (Net)<sup>1</sup></b>	<b>12,222,181,033</b>	<b>17.4</b>	<b>-1.0</b>	<b>3.9</b>	<b>1.7</b>	<b>7.8</b>	<b>8.1</b>	<b>--</b>	<b>--</b>
<b>Real Assets and Inflation Hedges (Gross)</b>			<b>-1.0</b>	<b>4.1</b>	<b>1.9</b>	<b>8.2</b>	<b>8.5</b>	<b>--</b>	<b>--</b>
<i>Real Assets &amp; Inflation Hedges Custom BM</i>			<u>-1.6</u>	<u>5.4</u>	<u>2.1</u>	<u>6.4</u>	<u>8.3</u>	<b>--</b>	<b>--</b>
Excess Return (vs. Net)			0.6	-1.5	-0.4	1.4	-0.2		
<b>Core Private Real Estate (Net)</b>	<b>4,338,870,749</b>	<b>6.2</b>	<b>0.2</b>	<b>1.7</b>	<b>6.8</b>	<b>23.7</b>	<b>11.3</b>	<b>9.1</b>	<b>9.1</b>
<b>Core Private Real Estate (Gross)</b>			<b>0.2</b>	<b>2.0</b>	<b>7.2</b>	<b>24.6</b>	<b>12.0</b>	<b>9.8</b>	<b>9.8</b>
<i>Core Private Real Estate Custom BM</i>			<u>0.1</u>	<u>0.3</u>	<u>4.9</u>	<u>21.0</u>	<u>11.7</u>	<u>9.7</u>	<u>10.4</u>
Excess Return (vs. Net)			0.1	1.4	1.9	2.7	-0.4	-0.6	-1.3
<b>Natural Resources and Commodities (Net)</b>	<b>2,210,384,505</b>	<b>3.2</b>	<b>-2.1</b>	<b>4.4</b>	<b>0.8</b>	<b>12.3</b>	<b>11.8</b>	<b>6.3</b>	<b>-0.6</b>
<b>Natural Resources and Commodities (Gross)</b>			<b>-2.1</b>	<b>4.5</b>	<b>0.9</b>	<b>12.6</b>	<b>12.2</b>	<b>6.6</b>	<b>-0.3</b>
<i>Natural Resources &amp; Commodities Custom BM</i>			<u>-2.9</u>	<u>12.0</u>	<u>7.0</u>	<u>12.0</u>	<u>12.9</u>	<u>6.9</u>	<u>-1.1</u>
Excess Return (vs. Net)			0.8	-7.6	-6.2	0.3	-1.1	-0.6	0.5
<b>Public Natural Resources and Commodities (Net)</b>	<b>1,371,394,816</b>	<b>2.0</b>	<b>-3.3</b>	<b>6.1</b>	<b>2.1</b>	<b>12.6</b>	<b>--</b>	<b>--</b>	<b>--</b>
<b>Public Natural Resources and Commodities (Gross)</b>			<b>-3.3</b>	<b>6.1</b>	<b>2.2</b>	<b>12.9</b>	<b>--</b>	<b>--</b>	<b>--</b>
<i>Natural Resources &amp; Commodities Custom BM</i>			<u>-2.9</u>	<u>12.0</u>	<u>7.0</u>	<u>12.0</u>	<b>--</b>	<b>--</b>	<b>--</b>
Excess Return (vs. Net)			-0.4	-5.9	-4.9	0.6			
Credit Suisse Commodity (Net)	312,306,204	0.4	-2.3	1.4	-2.0	17.0	14.0	7.0	-0.7
Credit Suisse Commodity (Gross)			-2.3	1.5	-1.9	17.3	14.3	7.3	-0.5
<i>Bloomberg Commodity Index TR USD</i>			<u>-2.4</u>	<u>2.2</u>	<u>-2.0</u>	<u>16.1</u>	<u>12.7</u>	<u>6.4</u>	<u>-1.3</u>
Excess Return (vs. Net)			0.1	-0.8	0.0	0.9	1.3	0.6	0.6

<sup>1</sup> Includes accounts that are lagged by 3-months and latest available adjusted for cash flows.  
Private natural resources and infrastructure funds reflect early-stage life cycle performance.

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	Market Value (\$)	% of Portfolio	1 Mo (%)	QTD (%)	Fiscal YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
DWS Natural Resources (Net)	671,051,260	1.0	-4.1	13.1	9.4	9.1	12.0	--	--
DWS Natural Resources (Gross)			-4.1	13.2	9.5	9.3	12.2	--	--
<i>S&amp;P Global Large/MidCap Commodities &amp; Resources</i>			<u>-3.7</u>	<u>14.0</u>	<u>12.4</u>	<u>15.5</u>	<u>14.4</u>	--	--
Excess Return (vs. Net)			-0.4	-0.9	-3.0	-6.4	-2.4		
Neuberger Berman/ Gresham (Net)	366,223,800	0.5	-2.8	1.2	-3.5	17.0	12.0	6.5	-0.6
Neuberger Berman/ Gresham (Gross)			-2.7	1.3	-3.3	17.4	12.4	6.9	-0.2
<i>Bloomberg Commodity Index TR USD</i>			<u>-2.4</u>	<u>2.2</u>	<u>-2.0</u>	<u>16.1</u>	<u>12.7</u>	<u>6.4</u>	<u>-1.3</u>
Excess Return (vs. Net)			-0.4	-1.0	-1.5	0.9	-0.7	0.1	0.7
PIMCO Commodities (Net)	21,813,552	0.0							
PIMCO Commodities (Gross)									
<i>Bloomberg Commodity Index TR USD</i>			<u>-2.4</u>	<u>2.2</u>	<u>-2.0</u>	<u>16.1</u>	<u>12.7</u>	<u>6.4</u>	<u>-1.3</u>
Excess Return (vs. Net)									
<b>Private Natural Resources and Commodities (Net)</b>	<b>838,989,689</b>	<b>1.2</b>	<b>0.1</b>	<b>1.0</b>	<b>-2.1</b>	<b>10.0</b>	<b>-6.7</b>	<b>--</b>	<b>--</b>
<b>Private Natural Resources and Commodities (Gross)</b>			<b>0.2</b>	<b>1.0</b>	<b>-2.0</b>	<b>10.7</b>	<b>-5.1</b>	<b>--</b>	<b>--</b>
<i>PE - Real Assets Custom BM</i>			<u>-7.6</u>	<u>-1.3</u>	<u>-16.2</u>	<u>9.7</u>	<u>14.2</u>	--	--
Excess Return (vs. Net)			7.7	2.3	14.1	0.3	-20.9		
Cibus Enterprise II (Net)	4,182,868	0.0	-4.9	-4.9	-11.5	--	--	--	--
Cibus Enterprise II (Gross)			-4.9	-4.9	-11.5	--	--	--	--
<i>PE - Real Assets Custom BM</i>			<u>-7.6</u>	<u>-1.3</u>	<u>-16.2</u>	--	--	--	--
Excess Return (vs. Net)			2.7	-3.6	4.7				

Private natural resources and infrastructure funds reflect early-stage life cycle performance.

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	Market Value (\$)	% of Portfolio	1 Mo (%)	QTD (%)	Fiscal YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
Cibus Co-Invest V (Net)	15,052,454	0.0	0.0	--	--	--	--	--	--
Cibus Co-Invest V (Gross)			0.0	--	--	--	--	--	--
<i>PE - Real Assets Custom BM</i>			<u>-7.6</u>	--	--	--	--	--	--
Excess Return (vs. Net)			7.6						
Cibus Fund II (Net)	15,656,862	0.0	-6.1	-6.1	-12.0	--	--	--	--
Cibus Fund II (Gross)			-6.1	-6.1	-12.0	--	--	--	--
<i>PE - Real Assets Custom BM</i>			<u>-7.6</u>	<u>-1.3</u>	<u>-16.2</u>	--	--	--	--
Excess Return (vs. Net)			1.5	-4.8	4.2				
HiTecVision New Energy (Net)	66,808,958	0.1	3.7	13.7	--	--	--	--	--
HiTecVision New Energy (Gross)			3.7	13.7	--	--	--	--	--
<i>PE - Real Assets Custom BM</i>			<u>-7.6</u>	<u>-1.3</u>	--	--	--	--	--
Excess Return (vs. Net)			11.3	15.0					
Orion Mine Finance Fund III (Net)	122,255,021	0.2	0.0	2.3	-1.2	5.4	--	--	--
Orion Mine Finance Fund III (Gross)			0.0	2.3	-1.2	5.4	--	--	--
<i>PE - Real Assets Custom BM</i>			<u>-7.6</u>	<u>-1.3</u>	<u>-16.2</u>	<u>9.7</u>	--	--	--
Excess Return (vs. Net)			7.6	3.6	15.0	-4.3			
Orion Mining Royalty Fund I (Net)	20,229,818	0.0	0.0	-7.6	-12.4	-11.4	--	--	--
Orion Mining Royalty Fund I (Gross)			0.0	-7.6	-12.4	-11.4	--	--	--
<i>PE - Real Assets Custom BM</i>			<u>-7.6</u>	<u>-1.3</u>	<u>-16.2</u>	<u>9.7</u>	--	--	--
Excess Return (vs. Net)			7.6	-6.3	3.8	-21.1			

Private natural resources and infrastructure funds reflect early-stage life cycle performance.

	Market Value (\$)	% of Portfolio	1 Mo (%)	QTD (%)	Fiscal YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
PE - Real Assets & Inflation Hedges (Net)	81,982,636	0.1	0.0	1.8	-0.2	11.0	-5.6	--	--
PE - Real Assets & Inflation Hedges (Gross)			0.4	2.2	0.6	16.6	-4.1	--	--
<i>PE - Real Assets Custom BM</i>			<u>-7.6</u>	<u>-1.3</u>	<u>-16.2</u>	<u>9.7</u>	<u>14.2</u>	--	--
Excess Return (vs. Net)			7.6	3.1	16.0	1.3	-19.8		
TIAA-CREF Global Agriculture (Net)	255,887,540	0.4	0.0	-0.9	-3.7	12.5	--	--	--
TIAA-CREF Global Agriculture (Gross)			0.0	-0.9	-3.7	12.5	--	--	--
<i>PE - Real Assets Custom BM</i>			<u>-7.6</u>	<u>-1.3</u>	<u>-16.2</u>	<u>9.7</u>	--	--	--
Excess Return (vs. Net)			7.6	0.4	12.5	2.8			
TIAA-CREF Global Agriculture II (Net)	256,933,531	0.4	0.0	0.2	-2.2	9.8	--	--	--
TIAA-CREF Global Agriculture II (Gross)			0.0	0.2	-2.2	9.8	--	--	--
<i>PE - Real Assets Custom BM</i>			<u>-7.6</u>	<u>-1.3</u>	<u>-16.2</u>	<u>9.7</u>	--	--	--
Excess Return (vs. Net)			7.6	1.5	14.0	0.1			
<b>Infrastructure (Net)</b>	<b>3,811,989,221</b>	<b>5.4</b>	<b>-2.0</b>	<b>7.2</b>	<b>-1.0</b>	<b>-4.6</b>	<b>4.9</b>	--	--
<b>Infrastructure (Gross)</b>			<b>-2.0</b>	<b>7.2</b>	<b>-0.9</b>	<b>-4.5</b>	<b>5.1</b>	--	--
<i>DJ Brookfield Global Infrastructure Comp TR</i>			<u>-3.2</u>	<u>9.7</u>	<u>-1.5</u>	<u>-4.2</u>	<u>1.2</u>	--	--
Excess Return (vs. Net)			1.2	-2.5	0.5	-0.4	3.7		
<b>Public Infrastructure (Net)</b>	<b>2,781,556,615</b>	<b>4.0</b>	<b>-2.9</b>	<b>8.5</b>	<b>-1.7</b>	<b>-6.3</b>	<b>4.6</b>	--	--
<b>Public Infrastructure (Gross)</b>			<b>-2.9</b>	<b>8.5</b>	<b>-1.6</b>	<b>-6.2</b>	<b>4.9</b>	--	--
<i>DJ Brookfield Global Infrastructure Comp TR</i>			<u>-3.2</u>	<u>9.7</u>	<u>-1.5</u>	<u>-4.2</u>	<u>1.2</u>	--	--
Excess Return (vs. Net)			0.3	-1.2	-0.2	-2.1	3.4		

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	Market Value (\$)	% of Portfolio	1 Mo (%)	QTD (%)	Fiscal YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
DWS Infrastructure (Net)	2,781,556,615	4.0	-2.9	8.5	-1.7	-6.3	4.6	--	--
DWS Infrastructure (Gross)			-2.9	8.5	-1.6	-6.2	4.8	--	--
<i>DJ Brookfield Global Infrastructure Comp TR</i>			<u>-3.2</u>	<u>9.7</u>	<u>-1.5</u>	<u>-4.2</u>	<u>1.2</u>	--	--
Excess Return (vs. Net)			0.3	-1.2	-0.2	-2.1	3.4		
<b>Private Infrastructure (Net)</b>	<b>1,030,432,606</b>	<b>1.5</b>	<b>0.8</b>	<b>3.6</b>	<b>2.9</b>	<b>2.3</b>	--	--	--
<b>Private Infrastructure (Gross)</b>			<b>0.9</b>	<b>3.7</b>	<b>3.0</b>	<b>2.3</b>	--	--	--
<i>Private Infrastructure Policy BM</i>			<u>-12.3</u>	<u>-10.2</u>	<u>-16.7</u>	<u>-7.2</u>	--	--	--
Excess Return (vs. Net)			13.1	13.8	19.6	9.5			
Antin Mid Cap (Net)	37,989,309	0.1	3.7	12.5	5.1	-10.9	--	--	--
Antin Mid Cap (Gross)			3.7	12.5	5.1	-10.9	--	--	--
<i>DJ Brookfield Global Infrastructure Comp TR</i>			<u>-3.2</u>	<u>9.7</u>	<u>-1.5</u>	<u>-4.2</u>	--	--	--
Excess Return (vs. Net)			6.9	2.8	6.6	-6.7			
Axium Infrastructure (Net)	254,444,519	0.4	0.0	1.9	3.3	2.4	--	--	--
Axium Infrastructure (Gross)			0.2	2.1	3.7	3.1	--	--	--
<i>Private Infrastructure Policy BM</i>			<u>-12.3</u>	<u>-10.2</u>	<u>-16.7</u>	<u>-7.2</u>	--	--	--
Excess Return (vs. Net)			12.3	12.1	20.0	9.6			
Axium Infrastructure Canada (Net)	58,992,312	0.1	0.1	1.4	1.4	--	--	--	--
Axium Infrastructure Canada (Gross)			0.1	1.6	1.6	--	--	--	--
<i>Private Infrastructure Policy BM</i>			<u>-12.3</u>	<u>-10.2</u>	<u>-16.7</u>	--	--	--	--
Excess Return (vs. Net)			12.4	11.6	18.1				

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	Market Value (\$)	% of Portfolio	1 Mo (%)	QTD (%)	Fiscal YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
DIF CIF III (Net)	39,680,912	0.1	0.5	2.2	5.2	--	--	--	--
DIF CIF III (Gross)			0.5	2.2	5.2	--	--	--	--
<i>Private Infrastructure Policy BM</i>			<u>-12.3</u>	<u>-10.2</u>	<u>-16.7</u>	--	--	--	--
Excess Return (vs. Net)			12.8	12.4	21.9				
DIF Infrastructure VI (Net)	102,985,702	0.1	3.6	14.4	11.6	13.6	--	--	--
DIF Infrastructure VI (Gross)			3.6	14.2	11.4	12.9	--	--	--
<i>Private Infrastructure Policy BM</i>			<u>-12.3</u>	<u>-10.2</u>	<u>-16.7</u>	<u>-7.2</u>	--	--	--
Excess Return (vs. Net)			15.9	24.6	28.3	20.8			
Grain Communications Opportunity III (Net)	33,248,608	0.0	0.0	1.3	-2.4	-9.8	--	--	--
Grain Communications Opportunity III (Gross)			0.0	1.3	-2.4	-9.8	--	--	--
<i>Private Infrastructure Policy BM</i>			<u>-12.3</u>	<u>-10.2</u>	<u>-16.7</u>	<u>-7.2</u>	--	--	--
Excess Return (vs. Net)			12.3	11.5	14.3	-2.6			
Grain Spectrum Holdings III (Net)	47,763,311	0.1	0.0	-0.1	-0.3	-0.6	--	--	--
Grain Spectrum Holdings III (Gross)			0.0	-0.1	-0.3	-0.6	--	--	--
<i>Private Infrastructure Policy BM</i>			<u>-12.3</u>	<u>-10.2</u>	<u>-16.7</u>	<u>-7.2</u>	--	--	--
Excess Return (vs. Net)			12.3	10.1	16.4	6.6			
KKR DCIF (Net)	327,031,574	0.5	0.0	1.1	1.9	--	--	--	--
KKR DCIF (Gross)			0.0	1.1	1.9	--	--	--	--
<i>Private Infrastructure Policy BM</i>			<u>-12.3</u>	<u>-10.2</u>	<u>-16.7</u>	--	--	--	--
Excess Return (vs. Net)			12.3	11.3	18.6				

	Market Value (\$)	% of Portfolio	1 Mo (%)	QTD (%)	Fiscal YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
Pan European Infrastructure Fund III (Net)	65,352,632	0.1	3.7	8.7	4.9	7.1	--	--	--
Pan European Infrastructure Fund III (Gross)			4.1	9.1	5.3	7.5	--	--	--
<i>Private Infrastructure Policy BM</i>			<u>-12.3</u>	<u>-10.2</u>	<u>-16.7</u>	<u>-7.2</u>	--	--	--
Excess Return (vs. Net)			16.0	18.9	21.6	14.3			
Partners Grp Direct Infra 2020 (Net)	62,943,726	0.1	0.0	5.2	2.7	--	--	--	--
Partners Grp Direct Infra 2020 (Gross)			-0.1	5.1	2.5	--	--	--	--
<i>Private Infrastructure Policy BM</i>			<u>-12.3</u>	<u>-10.2</u>	<u>-16.7</u>	--	--	--	--
Excess Return (vs. Net)			12.3	15.4	19.4				
<b>TIPS (Net)</b>	<b>1,860,936,558</b>	<b>2.7</b>	<b>-0.4</b>	<b>2.1</b>	<b>-3.6</b>	<b>-11.9</b>	<b>1.1</b>	--	--
<b>TIPS (Gross)</b>			<b>-0.4</b>	<b>2.1</b>	<b>-3.6</b>	<b>-11.9</b>	<b>1.2</b>	--	--
<i>BBgBarc US TIPS TR</i>			<u>-1.0</u>	<u>2.0</u>	<u>-3.2</u>	<u>-11.8</u>	<u>1.2</u>	--	--
Excess Return (vs. Net)			0.6	0.1	-0.4	-0.1	-0.1		
Blackrock TIPS (Net)	1,860,936,558	2.7	-0.4	2.1	-3.6	-11.9	1.1	--	--
Blackrock TIPS (Gross)			-0.4	2.1	-3.6	-11.9	1.1	--	--
<i>BBgBarc US TIPS TR</i>			<u>-1.0</u>	<u>2.0</u>	<u>-3.2</u>	<u>-11.8</u>	<u>1.2</u>	--	--
Excess Return (vs. Net)			0.6	0.1	-0.4	-0.1	-0.1		

<sup>1</sup> Includes accounts that are lagged by 1-month.

## Los Angeles County Employees Retirement Association | December 31, 2022

	Market Value (\$)	% of Portfolio	1 Mo (%)	QTD (%)	Fiscal YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
<b>Risk Reduction and Mitigation (Net)</b>	<b>13,202,107,101</b>	<b>18.8</b>	-0.1	1.1	-2.7	-9.8	-1.0	--	--
<b>Risk Reduction and Mitigation (Gross)</b>			-0.1	1.1	-2.7	-9.8	-0.9	--	--
<i>Risk Reduction and Mitigation Custom Blended Benchmark</i>			<u>-0.4</u>	<u>1.1</u>	<u>-2.9</u>	<u>-11.0</u>	<u>-1.9</u>	--	--
Excess Return (vs. Net)			0.3	0.0	0.2	1.2	0.9		
<b>Investment Grade Bonds (Net)</b>	<b>5,002,871,602</b>	<b>7.1</b>	-0.4	1.8	-3.0	-13.1	-2.6	0.2	1.5
<b>Investment Grade Bonds (Gross)</b>			-0.4	1.9	-3.0	-13.0	-2.5	0.2	1.6
<i>BBgBarc US Aggregate TR</i>			<u>-0.5</u>	<u>1.9</u>	<u>-3.0</u>	<u>-13.0</u>	<u>-2.7</u>	<u>0.0</u>	<u>1.1</u>
Excess Return (vs. Net)			0.1	-0.1	0.0	-0.1	0.1	0.2	0.4
Allspring/Wells (Net)	1,251,510,761	1.8	0.0	2.1	-2.8	-13.0	-2.2	0.4	1.4
Allspring/Wells (Gross)			0.0	2.1	-2.8	-12.9	-2.1	0.5	1.5
<i>BBgBarc US Aggregate TR</i>			<u>-0.5</u>	<u>1.9</u>	<u>-3.0</u>	<u>-13.0</u>	<u>-2.7</u>	<u>0.0</u>	<u>1.1</u>
Excess Return (vs. Net)			0.5	0.2	0.2	0.0	0.5	0.4	0.3
BTC US Debt Index (Net)	2,905,302,767	4.1	-0.6	1.7	-3.1	-13.0	-2.7	0.1	1.1
BTC US Debt Index (Gross)			-0.6	1.7	-3.1	-13.0	-2.7	0.1	1.2
<i>BBgBarc US Aggregate TR</i>			<u>-0.5</u>	<u>1.9</u>	<u>-3.0</u>	<u>-13.0</u>	<u>-2.7</u>	<u>0.0</u>	<u>1.1</u>
Excess Return (vs. Net)			-0.1	-0.2	-0.1	0.0	0.0	0.1	0.0
Member Home Loan Program (MHLP) (Net)	10,899,917	0.0	0.4	1.2	2.4	4.8	5.2	6.7	5.3
Member Home Loan Program (MHLP) (Gross)			0.4	1.2	2.6	5.1	5.5	7.0	5.5

	Market Value (\$)	% of Portfolio	1 Mo (%)	QTD (%)	Fiscal YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
Pugh Capital Management (Net)	835,158,160	1.2	-0.1	1.9	-3.0	-13.2	-2.6	0.1	1.1
Pugh Capital Management (Gross)			-0.1	2.0	-2.9	-13.1	-2.4	0.2	1.3
<i>BBgBarc US Aggregate TR</i>			<u>-0.5</u>	<u>1.9</u>	<u>-3.0</u>	<u>-13.0</u>	<u>-2.7</u>	<u>0.0</u>	<u>1.1</u>
Excess Return (vs. Net)			0.4	0.0	0.0	-0.2	0.1	0.1	0.0
<b>Long-Term Government Bonds (Net)</b>	<b>2,856,797,172</b>	<b>4.1</b>	<b>-1.1</b>	<b>-0.6</b>	<b>-10.7</b>	<b>-28.9</b>	--	--	--
<b>Long-Term Government Bonds (Gross)</b>			<b>-1.1</b>	<b>-0.6</b>	<b>-10.7</b>	<b>-28.9</b>	--	--	--
<i>Bloomberg U.S. Treasury: Long</i>			<u>-1.7</u>	<u>-0.6</u>	<u>-10.2</u>	<u>-29.2</u>	--	--	--
Excess Return (vs. Net)			0.6	0.0	-0.5	0.3			
Blackrock Long Treasury Bonds (Net)	2,856,797,172	4.1	-1.1	-0.6	-10.7	-28.9	--	--	--
Blackrock Long Treasury Bonds (Gross)			-1.1	-0.6	-10.7	-28.9	--	--	--
<i>Bloomberg U.S. Treasury: Long</i>			<u>-1.7</u>	<u>-0.6</u>	<u>-10.2</u>	<u>-29.2</u>	--	--	--
Excess Return (vs. Net)			0.6	0.0	-0.5	0.3			
<b>Diversified Hedge Fund Portfolio (Net)</b>	<b>4,402,364,377</b>	<b>6.3</b>	<b>0.8</b>	<b>1.4</b>	<b>2.7</b>	<b>5.8</b>	<b>7.3</b>	--	--
<b>Diversified Hedge Fund Portfolio (Gross)</b>			<b>0.8</b>	<b>1.4</b>	<b>2.7</b>	<b>5.8</b>	<b>7.3</b>	--	--
<i>Diversified Hedge Funds Custom BM</i>			<u>0.5</u>	<u>1.4</u>	<u>2.3</u>	<u>3.7</u>	<u>3.2</u>	--	--
Excess Return (vs. Net)			0.3	0.0	0.4	2.1	4.1		
<b>LACERA HF Direct (Net)</b>	<b>3,987,451,195</b>	<b>5.7</b>	<b>0.8</b>	<b>1.4</b>	<b>3.1</b>	<b>6.4</b>	<b>7.4</b>	--	--
<b>LACERA HF Direct (Gross)</b>			<b>0.8</b>	<b>1.4</b>	<b>3.1</b>	<b>6.4</b>	<b>7.4</b>	--	--
<i>Hedge Fund Custom BM</i>			<u>0.5</u>	<u>1.4</u>	<u>2.3</u>	<u>3.7</u>	<u>3.2</u>	--	--
Excess Return (vs. Net)			0.3	0.0	0.8	2.7	4.2		

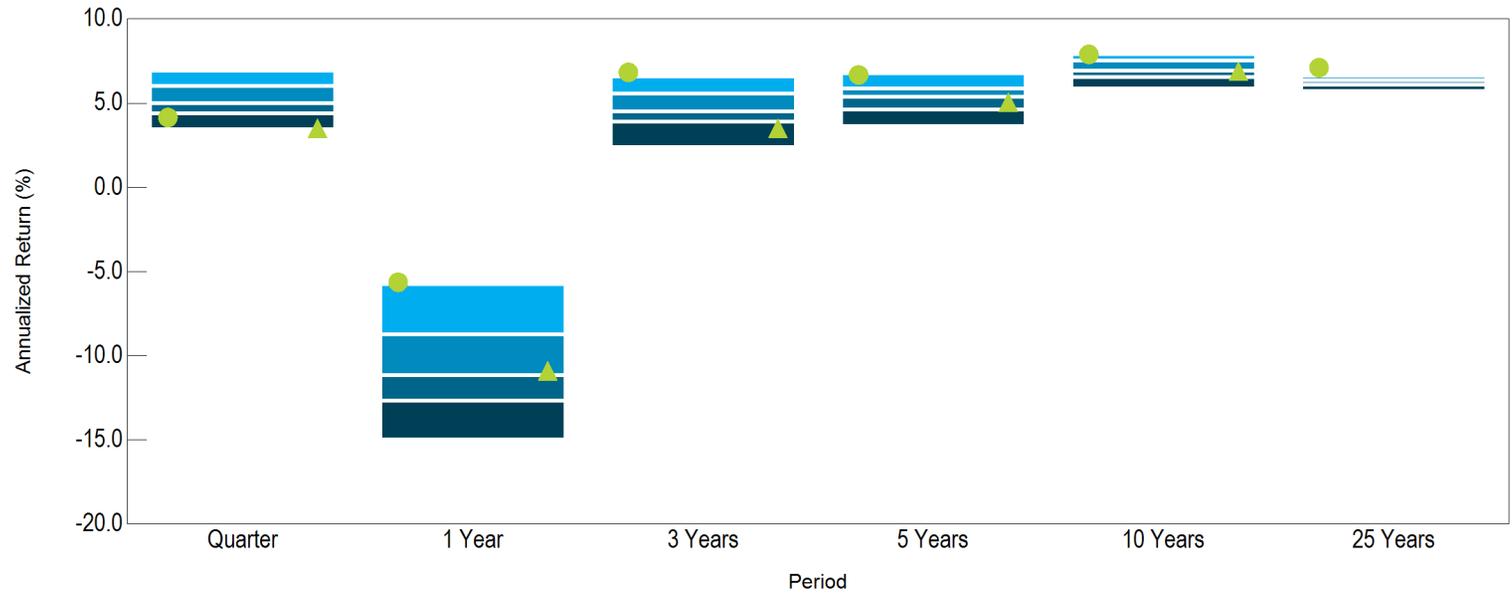
	Market Value (\$)	% of Portfolio	1 Mo (%)	QTD (%)	Fiscal YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
AM Asia Strategies Fund (Net)	217,076,850	0.3	5.9	-2.0	-1.3	-3.9	--	--	--
AM Asia Strategies Fund (Gross)			5.9	-2.0	-1.3	-3.9	--	--	--
<i>Hedge Fund Custom BM</i>			<u>0.5</u>	<u>1.4</u>	<u>2.3</u>	<u>3.7</u>	--	--	--
Excess Return (vs. Net)			5.4	-3.4	-3.6	-7.6			
Brevan Howard Master Fund (Net)	650,101,100	0.9	-1.1	0.4	4.0	18.5	--	--	--
Brevan Howard Master Fund (Gross)			-1.1	0.4	4.0	18.5	--	--	--
<i>Hedge Fund Custom BM</i>			<u>0.5</u>	<u>1.4</u>	<u>2.3</u>	<u>3.7</u>	--	--	--
Excess Return (vs. Net)			-1.6	-1.0	1.7	14.8			
Capula GRV (Net)	642,237,220	0.9	0.7	2.6	5.7	12.0	6.7	--	--
Capula GRV (Gross)			0.7	2.6	5.7	12.0	6.7	--	--
<i>Hedge Fund Custom BM</i>			<u>0.5</u>	<u>1.4</u>	<u>2.3</u>	<u>3.7</u>	<u>3.2</u>	--	--
Excess Return (vs. Net)			0.2	1.2	3.4	8.3	3.5		
Caxton Global Investments (Net)	296,606,250	0.4	-0.4	1.5	2.5	15.7	--	--	--
Caxton Global Investments (Gross)			-0.4	1.5	2.5	15.7	--	--	--
<i>Hedge Fund Custom BM</i>			<u>0.5</u>	<u>1.4</u>	<u>2.3</u>	<u>3.7</u>	--	--	--
Excess Return (vs. Net)			-0.9	0.1	0.2	12.0			
DK Institutional Partners (Net)	486,247,950	0.7	0.8	-0.1	0.0	-1.3	5.2	--	--
DK Institutional Partners (Gross)			0.8	-0.1	0.0	-1.3	5.2	--	--
<i>Hedge Fund Custom BM</i>			<u>0.5</u>	<u>1.4</u>	<u>2.3</u>	<u>3.7</u>	<u>3.2</u>	--	--
Excess Return (vs. Net)			0.3	-1.5	-2.3	-5.0	2.0		

	Market Value (\$)	% of Portfolio	1 Mo (%)	QTD (%)	Fiscal YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
HBK Multistrategy (Net)	578,073,000	0.8	2.7	4.1	5.3	3.9	6.9	--	--
HBK Multistrategy (Gross)			2.7	4.1	5.3	3.9	6.9	--	--
<i>Hedge Fund Custom BM</i>			<u>0.5</u>	<u>1.4</u>	<u>2.3</u>	<u>3.7</u>	<u>3.2</u>	--	--
Excess Return (vs. Net)			2.2	2.7	3.0	0.2	3.7		
Hudson Bay Fund (Net)	650,093,950	0.9	0.5	1.4	2.9	3.0	--	--	--
Hudson Bay Fund (Gross)			0.5	1.4	2.9	3.0	--	--	--
<i>Hedge Fund Custom BM</i>			<u>0.5</u>	<u>1.4</u>	<u>2.3</u>	<u>3.7</u>	--	--	--
Excess Return (vs. Net)			0.0	0.0	0.6	-0.7			
Polar (Net)	467,014,875	0.7	0.7	1.2	1.7	1.0	--	--	--
Polar (Gross)			0.7	1.2	1.7	1.0	--	--	--
<i>Hedge Fund Custom BM</i>			<u>0.5</u>	<u>1.4</u>	<u>2.3</u>	<u>3.7</u>	--	--	--
Excess Return (vs. Net)			0.2	-0.2	-0.6	-2.7			

	Market Value (\$)	% of Portfolio	1 Mo (%)	QTD (%)	Fiscal YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
<b>Hedge Fund Emerging Managers Program (Net)</b>	<b>384,235,834</b>	<b>0.5</b>	<b>0.3</b>	<b>1.8</b>	<b>-0.5</b>	<b>-0.4</b>	--	--	--
<b>Hedge Fund Emerging Managers Program (Gross)</b>			<b>0.3</b>	<b>1.9</b>	<b>-0.3</b>	<b>-0.1</b>	--	--	--
<i>Hedge Fund Custom BM</i>			<u>0.5</u>	<u>1.4</u>	<u>2.3</u>	<u>3.7</u>	--	--	--
Excess Return (vs. Net)			-0.2	0.4	-2.8	-4.1			
<b>Stable Asset Management (Net)</b>	<b>384,235,834</b>	<b>0.5</b>	<b>0.3</b>	<b>1.8</b>	<b>-0.5</b>	<b>-0.4</b>	--	--	--
<b>Stable Asset Management (Gross)</b>			<b>0.3</b>	<b>1.9</b>	<b>-0.3</b>	<b>-0.1</b>	--	--	--
<i>Hedge Fund Custom BM</i>			<u>0.5</u>	<u>1.4</u>	<u>2.3</u>	<u>3.7</u>	--	--	--
Excess Return (vs. Net)			-0.2	0.4	-2.8	-4.1			
<b>Stable Fund Investments (Net)</b>	<b>384,260,959</b>	<b>0.5</b>	<b>0.3</b>	<b>1.9</b>	<b>-0.4</b>	<b>-0.2</b>	--	--	--
<b>Stable Fund Investments (Gross)</b>			<b>0.3</b>	<b>1.9</b>	<b>-0.4</b>	<b>-0.2</b>	--	--	--
<i>Hedge Fund Custom BM</i>			<u>0.5</u>	<u>1.4</u>	<u>2.3</u>	<u>3.7</u>	--	--	--
Excess Return (vs. Net)			-0.2	0.5	-2.7	-3.9			
<b>Cash (Net)</b>	<b>940,087,768</b>	<b>1.3</b>	<b>0.5</b>	<b>1.3</b>	<b>2.3</b>	<b>3.2</b>	<b>1.7</b>	<b>1.9</b>	<b>1.3</b>
<b>Cash (Gross)</b>			<b>0.5</b>	<b>1.3</b>	<b>2.3</b>	<b>3.2</b>	<b>1.7</b>	<b>2.0</b>	<b>1.3</b>
<i>Cash Custom BM</i>			<u>0.3</u>	<u>0.9</u>	<u>1.3</u>	<u>1.5</u>	<u>0.7</u>	<u>1.3</u>	<u>0.8</u>
Excess Return (vs. Net)			0.2	0.4	1.0	1.7	1.0	0.6	0.5
SSGA Cash (Net)			0.0	0.5	1.1	1.3	--	--	--
SSGA Cash (Gross)			0.0	0.6	1.2	1.4	--	--	--
<i>Cash Custom BM</i>			<u>0.3</u>	<u>0.9</u>	<u>1.3</u>	<u>1.5</u>	--	--	--
Excess Return (vs. Net)			-0.3	-0.4	-0.2	-0.2			

	Market Value (\$)	% of Portfolio	1 Mo (%)	QTD (%)	Fiscal YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
<b>Overlay and Hedges (Net)</b>	<b>435,685,997</b>	<b>0.6</b>	<b>-26.4</b>	<b>-10.6</b>	<b>1.5</b>	<b>178.1</b>	--	--	--
<b>Overlay and Hedges (Gross)</b>			<b>-26.4</b>	<b>-10.6</b>	<b>1.6</b>	<b>178.9</b>	--	--	--
<b>Cash Overlay (Net)</b>	<b>591,018,438</b>	<b>0.8</b>	<b>-10.6</b>	<b>39.4</b>	<b>12.5</b>	<b>79.5</b>	--	--	--
<b>Cash Overlay (Gross)</b>			<b>-10.6</b>	<b>39.4</b>	<b>12.6</b>	<b>79.7</b>	--	--	--
Cash Overlay (Net)	591,018,438	0.8	-10.6	39.4	12.5	79.5	--	--	--
Cash Overlay (Gross)			-10.6	39.4	12.6	79.7	--	--	--
<i>Total Overlay Policy BM</i>			<u>-2.8</u>	<u>6.6</u>	<u>0.5</u>	<u>-14.6</u>	--	--	--
Excess Return (vs. Net)			-7.8	32.8	12.0	94.1			
<b>Currency Hedge (Net)</b>	<b>-155,332,442</b>	<b>-0.2</b>	<b>1.3</b>	<b>-0.7</b>	<b>2.6</b>	<b>7.4</b>	--	--	--
<b>Currency Hedge (Gross)</b>			<b>1.3</b>	<b>-0.7</b>	<b>2.6</b>	<b>7.4</b>	--	--	--
Currency Hedge (Net)	-155,332,442	-0.2	-1.3	-3.2	0.0	4.7	--	--	--
Currency Hedge (Gross)			-1.3	-3.2	0.0	4.7	--	--	--

#### InvMetrics Public DB > \$1B Net Return Comparison Ending December 31, 2022



	Quarter		1 Year		3 Years		5 Years		10 Years		25 Years	
<b>Return (Rank)</b>	6.9	(82)	-5.8	(4)	6.6	(5)	6.8	(7)	7.9	(6)	6.8	(1)
5th Percentile	6.9	(82)	-5.8	(4)	6.6	(5)	6.8	(7)	7.9	(6)	6.8	(1)
25th Percentile	6.0	(95)	-8.7	(50)	5.6	(85)	5.9	(59)	7.5	(54)	6.7	(--)
Median	5.0		-11.1		4.5		5.4		6.9		6.4	
75th Percentile	4.4		-12.7		3.9		4.6		6.6		6.1	
95th Percentile	3.5		-15.0		2.4		3.7		5.9		5.7	
# of Portfolios	59		59		57		57		54		31	
● Total Fund	4.1	(82)	-5.6	(4)	6.8	(5)	6.7	(7)	7.9	(6)	7.1	(1)
▲ Total Fund Policy Benchmark	3.5	(95)	-10.9	(50)	3.5	(85)	5.1	(59)	6.9	(54)	--	(--)

### Benchmark History

As of December 31, 2022

Total Fund		
10/1/2021	Present	51% Growth Custom Blended Benchmark / 11% Credit Custom Blended Benchmark / 17% Real Assets & Inflation Hedges Custom BM / 21% Risk Reduction and Mitigation Custom Blended Benchmark
10/1/2019	9/30/2021	35% Global Equity Custom BM / 10% PE-Credit Custom Benchmark / 2% Non-Core Private RE Policy BM / 3% Bloomberg U.S. High Yield / 4% Credit Suisse Leveraged Loans / 2% EMD Custom / 3% Illiquid Credit Custom BM / 7% Core Private Real Estate Custom BM / 4% Natural Resources & Commodities Custom BM / 3% DJ Brookfield Global Infrastructure Comp TR / 3% Bloomberg U.S. TIPS Index / 19% Bloomberg US Aggregate TR / 4% Diversified Hedge Funds Custom BM / 1% Citigroup 3-Month U.S. Treasury Bill Index
1/1/2019	9/30/2019	41% Global Equity Custom BM / 10% PE-Credit Custom Benchmark / 1% Non-Core Private RE Policy BM / 4% Bloomberg U.S. High Yield / 3% Credit Suisse Leveraged Loans / 1% EMD Custom / 2% Illiquid Credit Custom BM / 8% Core Private Real Estate Custom BM / 3% Natural Resources & Commodities Custom BM / 2% DJ Brookfield Global Infrastructure Comp TR / 2% Bloomberg U.S. TIPS Index / 19% Bloomberg US Aggregate TR / 3% Diversified Hedge Funds Custom BM / 1% Citigroup 3-Month U.S. Treasury Bill Index
10/1/2018	12/31/2018	22.7% Russell 3000 / 18.7% Custom MSCI ACWI IMI Net 50% Hedge / 27.8% Bloomberg US Universal TR / 10% Private Equity Target / 11% Real Estate Target / 5.0% Hedge Fund Custom Index / 2.8% Bloomberg Commodity Index TR USD / 2% FTSE T-Bill 6 Months TR
7/1/2018	9/30/2018	23.1% Russell 3000 / 20.3% Custom MSCI ACWI IMI Net 50% Hedge / 26.6% Bloomberg US Universal TR / 10% Private Equity Target / 11% Real Estate Target / 4.2% Hedge Fund Custom Index / 2.8% Bloomberg Commodity Index TR USD / 2% FTSE T-Bill 6 Months TR
1/1/2018	6/30/2018	22.4% Russell 3000 / 21.0% Custom MSCI ACWI IMI Net 50% Hedge / 26.6% Bloomberg US Universal TR / 10% Private Equity Target / 11% Real Estate Target / 4.2% Hedge Fund Custom Index / 2.8% Bloomberg Commodity Index TR USD / 2% FTSE T-Bill 6 Months TR
10/1/2017	12/31/2017	23.5% Russell 3000 / 21.9% Custom MSCI ACWI IMI Net 50% Hedge / 25.4% Bloomberg US Universal TR / 10% Private Equity Target / 11% Real Estate Target / 3.4% Hedge Fund Custom Index / 2.8% Bloomberg Commodity Index TR USD / 2% FTSE T-Bill 6 Months TR
7/1/2017	9/30/2017	23.7% Russell 3000 / 21.7% Custom MSCI ACWI IMI Net 50% Hedge / 25.4% Bloomberg US Universal TR / 10% Private Equity Target / 11% Real Estate Target / 3.4% Hedge Fund Custom Index / 2.8% Bloomberg Commodity Index TR USD / 2% FTSE T-Bill 6 Months TR
4/1/2017	6/30/2017	24.1% Russell 3000 / 21.3% Custom MSCI ACWI IMI Net 50% Hedge / 25.4% Bloomberg US Universal TR / 10% Private Equity Target / 11% Real Estate Target / 3.4% Hedge Fund Custom Index / 2.8% Bloomberg Commodity Index TR USD / 2% FTSE T-Bill 6 Months TR
1/1/2017	3/31/2017	24.4% Russell 3000 / 21.0% Custom MSCI ACWI IMI Net 50% Hedge / 25.4% Bloomberg US Universal TR / 10% Private Equity Target / 11% Real Estate Target / 3.4% Hedge Fund Custom Index / 2.8% Bloomberg Commodity Index TR USD / 2% FTSE T-Bill 6 Months TR
10/1/2016	12/31/2016	23.8% Russell 3000 / 21.6% Custom MSCI ACWI IMI Net 50% Hedge / 25.4% Bloomberg US Universal TR / 10% Private Equity Target / 11% Real Estate Target / 3.4% Hedge Fund Custom Index / 2.8% Bloomberg Commodity Index TR USD / 2% FTSE T-Bill 6 Months TR
7/1/2016	9/30/2016	24.5% Russell 3000 / 21.4% Custom MSCI ACWI IMI Net 50% Hedge / 25.1% Bloomberg US Universal TR / 10% Private Equity Target / 11% Real Estate Target / 3.2% Hedge Fund Custom Index / 2.8% Bloomberg Commodity Index TR USD / 2% FTSE T-Bill 6 Months TR
10/1/2015	6/30/2016	3% Bloomberg Commodity Index TR USD / 25.5% Russell 3000 / 10% Real Estate Target / 2% FTSE T-Bill 6 Months TR / 22.5% Bloomberg US Universal TR / 11% Private Equity Target / 23% Custom MSCI ACWI IMI Net 50% Hedge / 3% 3-month U.S. T-Bill Index + 5% (1M-lag)

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4/1/2015	9/30/2015	3% Bloomberg Commodity Index TR USD / 25% Russell 3000 / 10% Real Estate Target / 2% FTSE T-Bill 6 Months TR / 22.5% Bloomberg US Universal TR / 11% Private Equity Target / 23.5% Custom MSCI ACWI IMI Net 50% Hedge / 3% 3-month U.S. T-Bill Index + 5% (1M-lag)
1/1/2015	3/31/2015	3% Bloomberg Commodity Index TR USD / 25.5% Russell 3000 / 10% Real Estate Target / 2% FTSE T-Bill 6 Months TR / 22.5% Bloomberg US Universal TR / 11% Private Equity Target / 23% Custom MSCI ACWI IMI Net 50% Hedge / 3% 3-month U.S. T-Bill Index + 5% (1M-lag)
10/1/2014	12/31/2014	3% Bloomberg Commodity Index TR USD / 25% Russell 3000 / 10% Real Estate Target / 2% FTSE T-Bill 6 Months TR / 23% Bloomberg US Universal TR / 11% Private Equity Target / 24% Custom MSCI ACWI IMI Net 50% Hedge / 2% 3-month U.S. T-Bill Index + 5% (1M-lag)
1/1/2014	9/30/2014	3% Bloomberg Commodity Index TR USD / 24% Russell 3000 / 10% Real Estate Target / 2% FTSE T-Bill 6 Months TR / 23% Bloomberg US Universal TR / 11% Private Equity Target / 25% Custom MSCI ACWI IMI Net 50% Hedge / 2% 3-month U.S. T-Bill Index + 5% (1M-lag)
10/1/2013	12/31/2013	3% Bloomberg Commodity Index TR USD / 24% Russell 3000 / 10% Real Estate Target / 2% FTSE T-Bill 6 Months TR / 24% Bloomberg US Universal TR / 10% Private Equity Target / 26% Custom MSCI ACWI IMI Net 50% Hedge / 1% 3-month U.S. T-Bill Index + 5% (1M-lag)
4/1/2013	9/30/2013	3% Bloomberg Commodity Index TR USD / 24% Russell 3000 / 10% NCREIF Property Index - 25 bps / 2% FTSE T-Bill 6 Months TR / 24% Bloomberg US Universal TR / 10% Private Equity Target / 26% Custom MSCI ACWI IMI Net 50% Hedge / 1% 3-month U.S. T-Bill Index + 5% (1M-lag)
1/1/2013	3/31/2013	3% Bloomberg Commodity Index TR USD / 23% Russell 3000 / 10% NCREIF Property Index - 25 bps / 2% FTSE T-Bill 6 Months TR / 24% Bloomberg US Universal TR / 10% Private Equity Target / 27% Custom MSCI ACWI IMI Net 50% Hedge / 1% 3-month U.S. T-Bill Index + 5% (1M-lag)
10/1/2012	12/31/2012	3% Bloomberg Commodity Index TR USD / 24% Russell 3000 / 10% NCREIF Property Index - 25 bps / 2% FTSE T-Bill 6 Months TR / 24% Bloomberg US Universal TR / 10% Private Equity Target / 26% Custom MSCI ACWI IMI Net 50% Hedge / 1% 3-month U.S. T-Bill Index + 5% (1M-lag)
1/1/2012	9/30/2012	3% Bloomberg Commodity Index TR USD / 24% Russell 3000 / 10% NCREIF Property Index - 25 bps / 2% FTSE T-Bill 6 Months TR / 26% Bloomberg US Universal TR / 7% Private Equity Target / 27% Custom MSCI ACWI IMI Net 50% Hedge / 1% 3-month U.S. T-Bill Index + 5% (1M-lag)
10/1/2011	12/31/2011	3% Bloomberg Commodity Index TR USD / 23% Russell 3000 / 10% NCREIF Property Index - 25 bps / 2% FTSE T-Bill 6 Months TR / 26% Bloomberg US Universal TR / 7% Private Equity Target / 28% Custom MSCI ACWI IMI Net 50% Hedge / 1% 3-month U.S. T-Bill Index + 5% (1M-lag)
4/1/2011	9/30/2011	3% Bloomberg Commodity Index TR USD / 23% Russell 3000 / 10% NCREIF Property Index - 25 bps / 2% FTSE T-Bill 6 Months TR / 26% Bloomberg US Universal TR / 7% Private Equity Target / 29% Custom MSCI ACWI IMI Net 50% Hedge
1/1/2011	3/31/2011	3% Bloomberg Commodity Index TR USD / 22% Russell 3000 / 10% NCREIF Property Index - 25 bps / 2% FTSE T-Bill 6 Months TR / 26% Bloomberg US Universal TR / 7% Private Equity Target / 30% Custom MSCI ACWI IMI Net 50% Hedge
10/1/2010	12/31/2010	3% Bloomberg Commodity Index TR USD / 23% Russell 3000 / 10% NCREIF Property Index - 25 bps / 2% FTSE T-Bill 6 Months TR / 26% Bloomberg US Universal TR / 7% Private Equity Target / 29% Custom MSCI ACWI IMI Net 50% Hedge
7/1/2010	9/30/2010	3% Bloomberg Commodity Index TR USD / 26% Russell 3000 / 10% NCREIF Property Index - 25 bps / 2% FTSE T-Bill 6 Months TR / 26% Bloomberg US Universal TR / 7% Private Equity Target / 26% Custom MSCI ACWI IMI Net 50% Hedge
4/1/2010	6/30/2010	3% Bloomberg Commodity Index TR USD / 26% Russell 3000 / 10% NCREIF Property Index - 25 bps / 2% FTSE T-Bill 6 Months TR / 26% Bloomberg US Universal TR / 7% Private Equity Target / 26% MSCI ACWI ex USA IMI
1/1/2010	3/31/2010	3% Bloomberg Commodity Index TR USD / 29% Russell 3000 / 10% NCREIF Property Index - 25 bps / 2% FTSE T-Bill 6 Months TR / 26% Bloomberg US Universal TR / 7% Private Equity Target / 23% MSCI ACWI ex USA IMI
4/1/2009	12/31/2009	2% Bloomberg Commodity Index TR USD / 30% Russell 3000 / 10% NCREIF Property Index - 25 bps / 2% FTSE T-Bill 6 Months TR / 28% Bloomberg US Universal TR / 7% Private Equity Target / 21% MSCI ACWI ex USA IMI
10/1/2008	3/31/2009	2% Bloomberg Commodity Index TR USD / 30% Russell 3000 / 10% NCREIF Property Index - 25 bps / 2% FTSE T-Bill 6 Months TR / 1.96% Bloomberg US High Yield BA/B TR / 26.04% Bloomberg US Aggregate TR / 7% Private Equity Target / 21% MSCI ACWI ex USA IMI
3/1/2001	9/30/2008	100% LACERA TF Blended Benchmark

**Bank Loans Custom Index:** Credit Suisse Leveraged Loan Index.

**Beach Point Custom BM:** BBg Barc US Corporate High Yield Index

**Brigade Custom Index:** BBg Barc US Corporate High Yield Index.

**Cash Custom BM:** FTSE 3-month Treasury Bill.

**Core & Value-Added Real Estate Custom BM:** NFI ODCE + 50 bps (3-month lag).

**Custom Liquid Credit BM:** 40% BBg Barc US Corporate High Yield Index / 40% Credit Suisse Leveraged Loans / 10% JP Morgan EMBI GD / 5% JP Morgan GBI – EM GD / 5% JP Morgan CEMBI BD.

**Diversified Hedge Funds Custom BM:** FTSE 3-Month U.S. Treasury Bill Index + 250 bps (1-month lag).

EAFE Custom Index: MSCI EAFE + Canada (Net).

**EMD Custom:** 50% JP Morgan EMBI + 25% JP Morgan GBI-EM GD + 25% JP Morgan CEMBI BD.

**Global Equity Custom BM:** MSCI ACWI IMI Index

**Grosvenor Custom BM:** 100% Illiquid Credit Custom BM.

**Growth Custom Blended BM:** ~74.5% Global Equity Custom BM/ 21.3% Private Equity- Growth Custom BM/ 4.3% Opportunistic Real Estate Custom BM.

**Hedge Fund Custom Index:** 100% Diversified Hedge Funds Custom BM.

**Illiquid Credit Custom BM:** Custom Liquid Credit BM + 150 bps (1-month lag).

**MSCI EM IMI Custom Index:** MSCI EM IMI (Net)

**Natural Resources & Commodities Custom BM:** 50% Bloomberg Commodity Index / 50% S&P Global Large MidCap Commodity and Resources Index.

**Opportunistic Real Estate Custom BM:** NFI ODCE + 300 bps (3-month lag).

**PE – Credit Custom Benchmark:** BBgBarc US Agg Index + 250bps (3-month lag).

**Private Equity - Growth Custom BM:** MSCI ACWI IMI Index + 200 bps (3-month lag).

**PE – Real Assets Custom BM:** S&P Global Large MidCap Commodity and Resources (3-month lag).

**Real Assets and Inflation Hedges Custom Blended BM:** ~41.2% Core & Value-Added Real Estate Custom BM/ 23.5% Natural Resources & Commodities Custom BM / 17.6% DJ Brookfield Global Infrastructure / 17.6% BBg Barc US TSY TIPS.

**Risk Reduction and Mitigation Custom Blended BM:** ~79.2% BBg Barc Agg / 16.7% Diversified Hedge Funds Custom BM / 4.2% FTSE 3-month Treasury Bill.

**Securitized Custom Index:** Barclays Securitized Bond Index + 400 bps.

**Opportunistic Custom Index 1-Month Lag:** 50% Barclays U.S. High Yield Index / 50% Credit Suisse Leveraged Loan Index (1-month lag).

**50% FX Hedge Index:** 50% MSCI World ex US IMI FX Hedged index 50% Zero Return.

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