

NORTH CAROLINA  
DEPARTMENT OF STATE TREASURER



*Dale R. Folwell, CPA*  
STATE TREASURER OF NORTH CAROLINA  
DALE R. FOLWELL, CPA

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INVESTMENT MANAGEMENT DIVISION

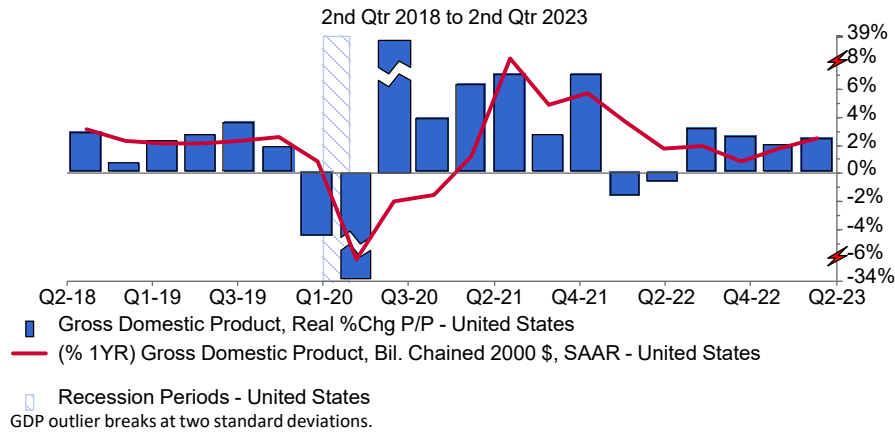
# Performance Review

August 23, 2023

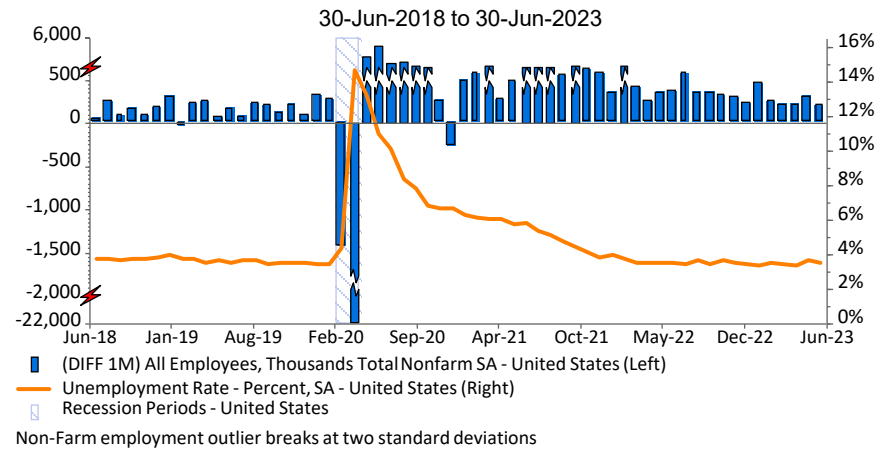


## US Economic Environment

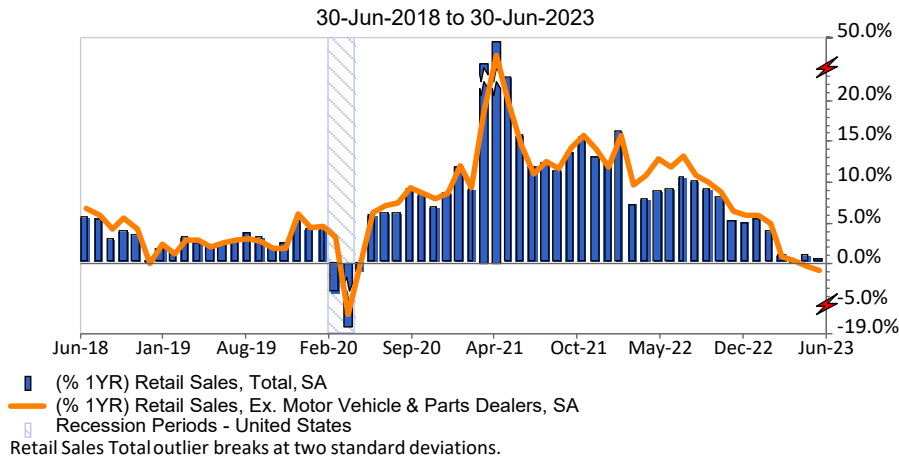
### US Real GDP Growth



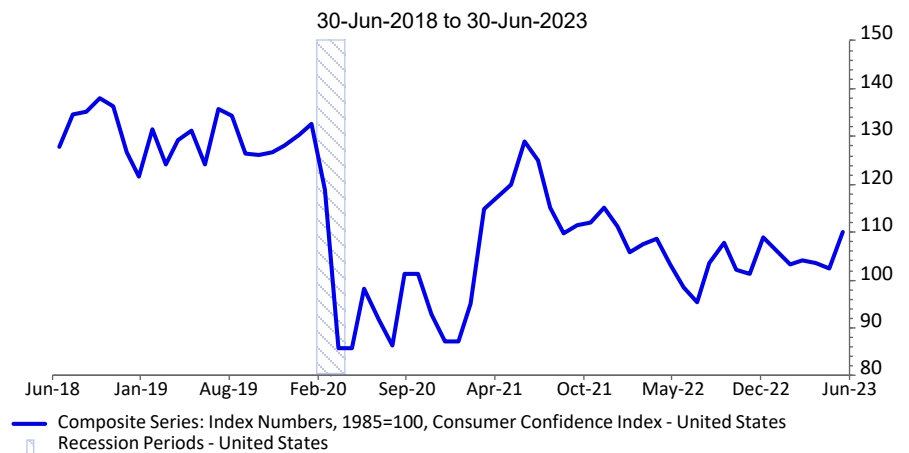
### US Change in NonFarm Employment & Unemployment Rate



### US Retail Sales



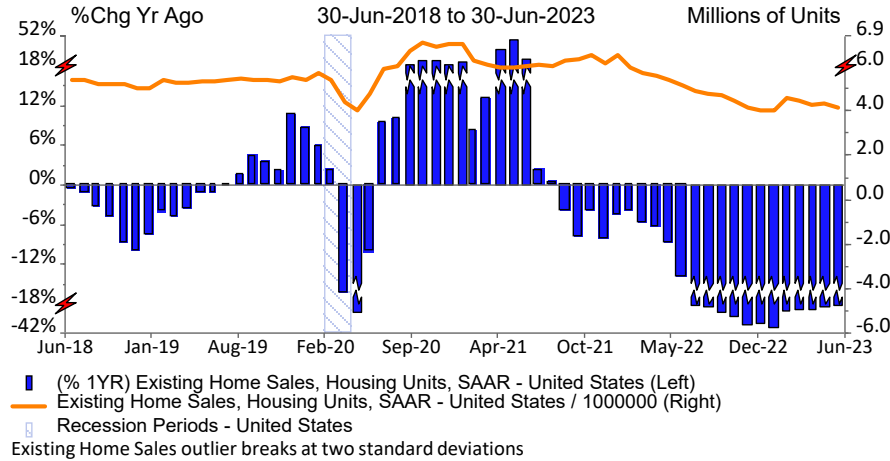
### US Consumer Confidence





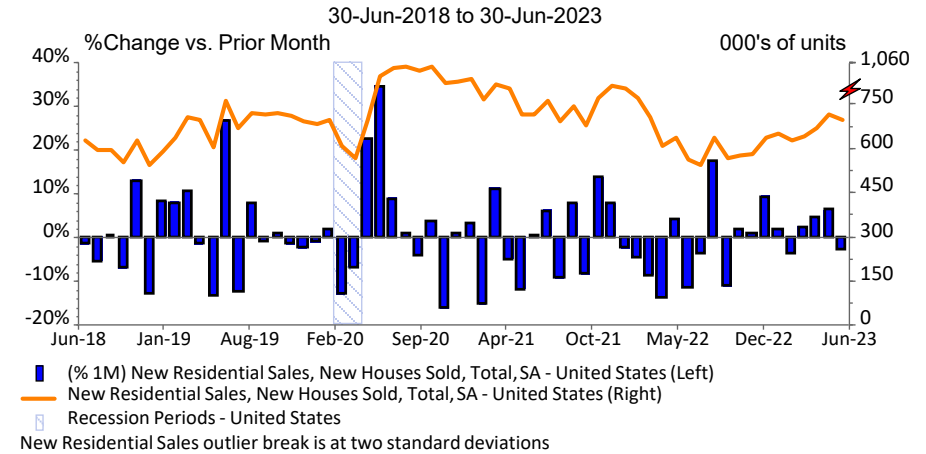
## US Economic Environment

### US Existing Home Sales



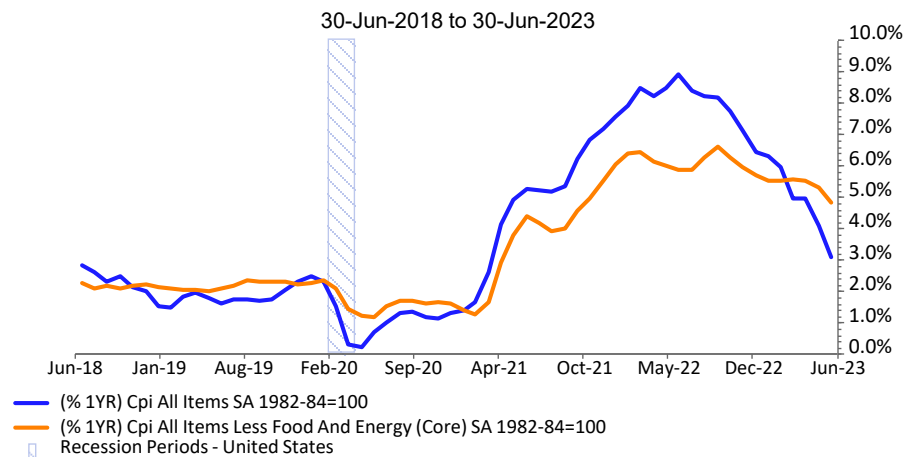
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### US New Home Sales



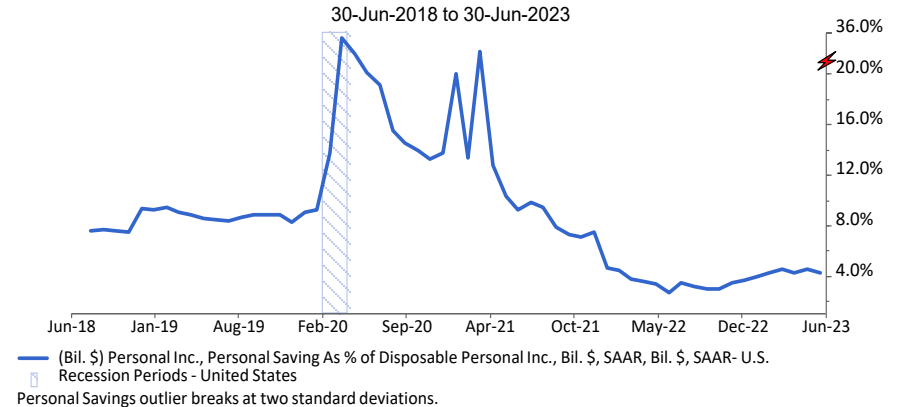
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### US Consumer Price Inflation



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### US Personal Savings Rate



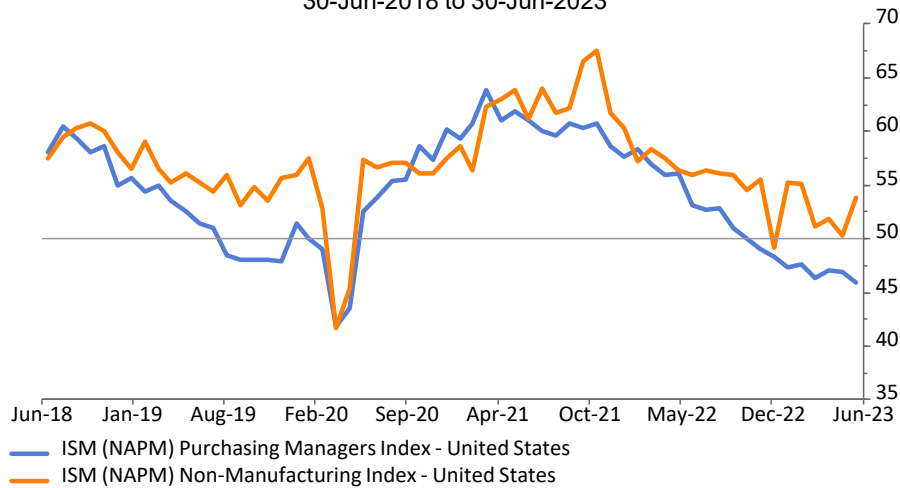
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## US and Global Economic Environment

### ISM Report on Business

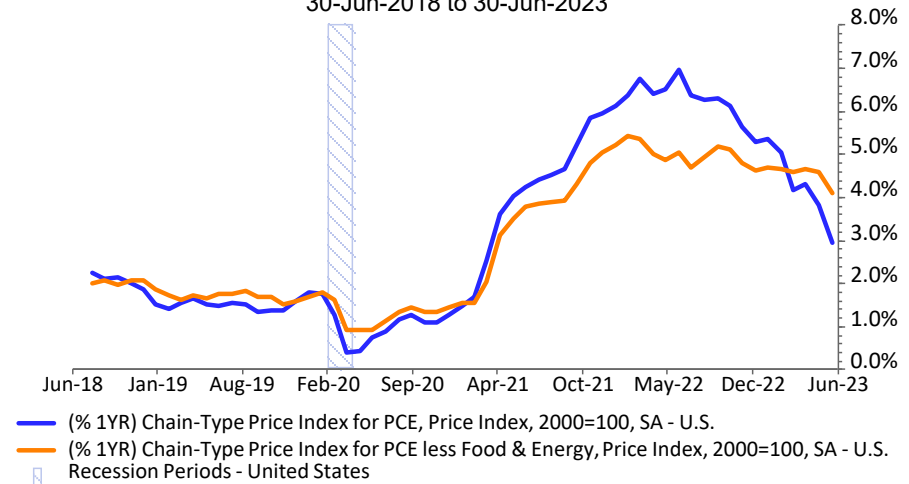
30-Jun-2018 to 30-Jun-2023



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### US PCE Inflation

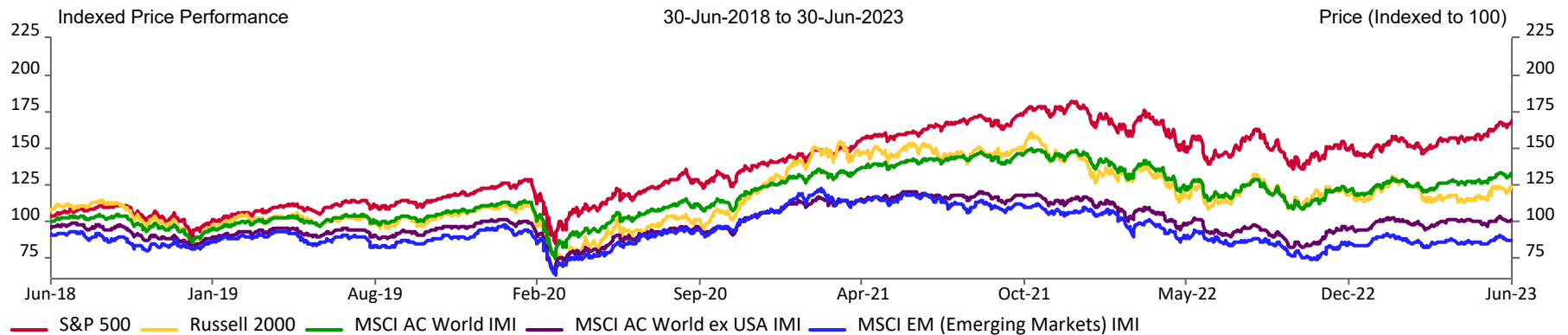
30-Jun-2018 to 30-Jun-2023



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### S&P 500 vs. Peers

30-Jun-2018 to 30-Jun-2023

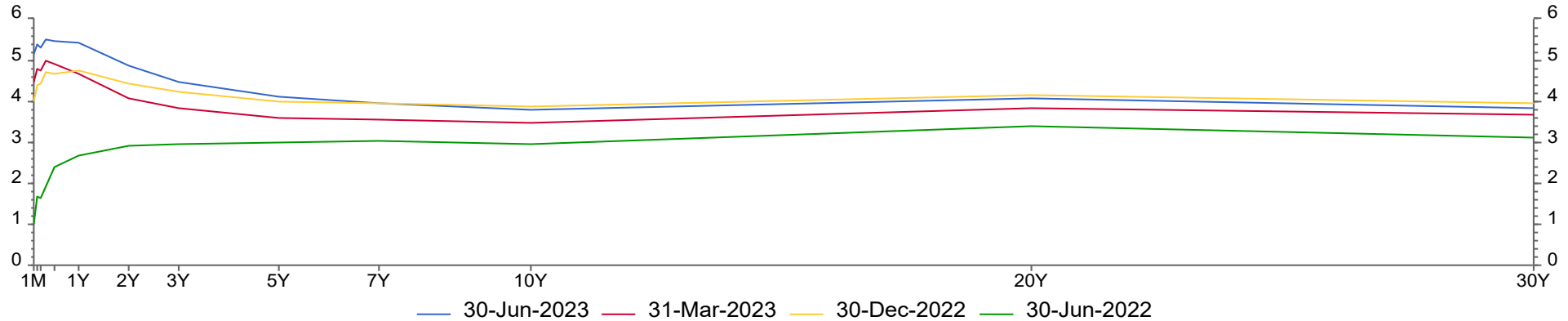


Source: FactSet Prices



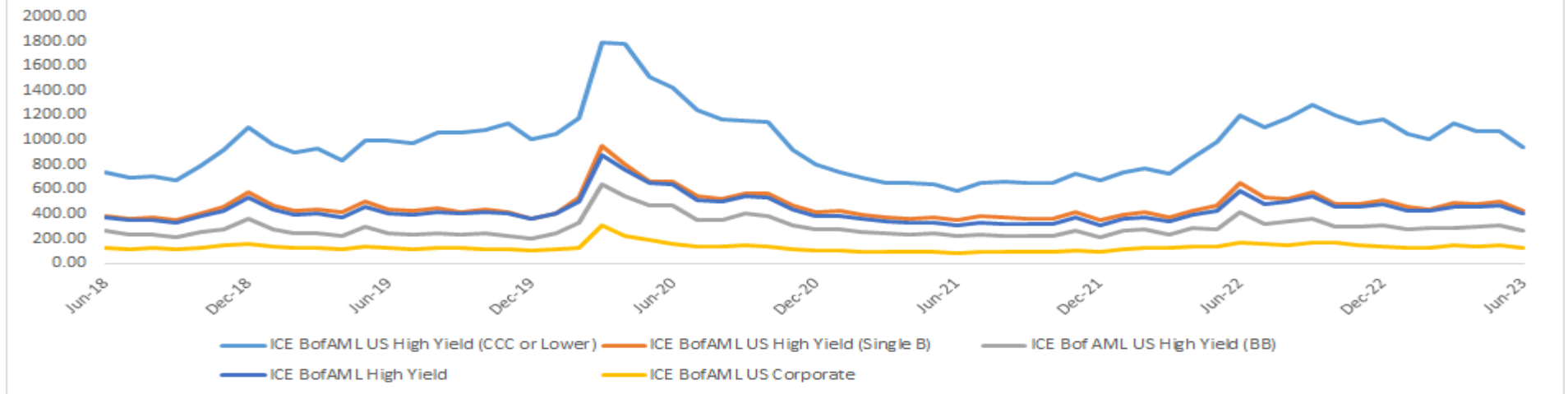
## Market Environment

### United States Treasury Yield Curve



Source: FactSet Interest Rate Database

### Corporate Credit OAS (ICE BAML Indices)



Source: Bloomberg



## Market Environment

### Closing Price Fed Nominal Broad Dollar Index

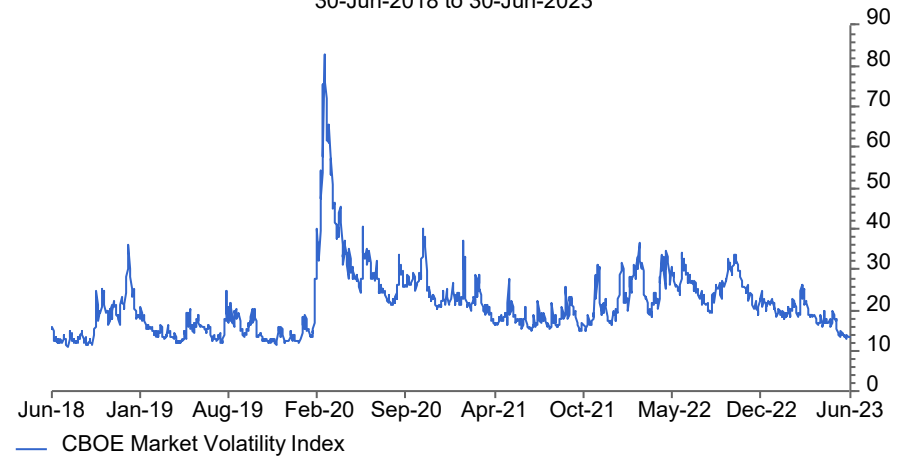
30-Jun-2018 to 30-Jun-2023

Price (Local Currency)



### Closing Price CBOE VIX Index

30-Jun-2018 to 30-Jun-2023



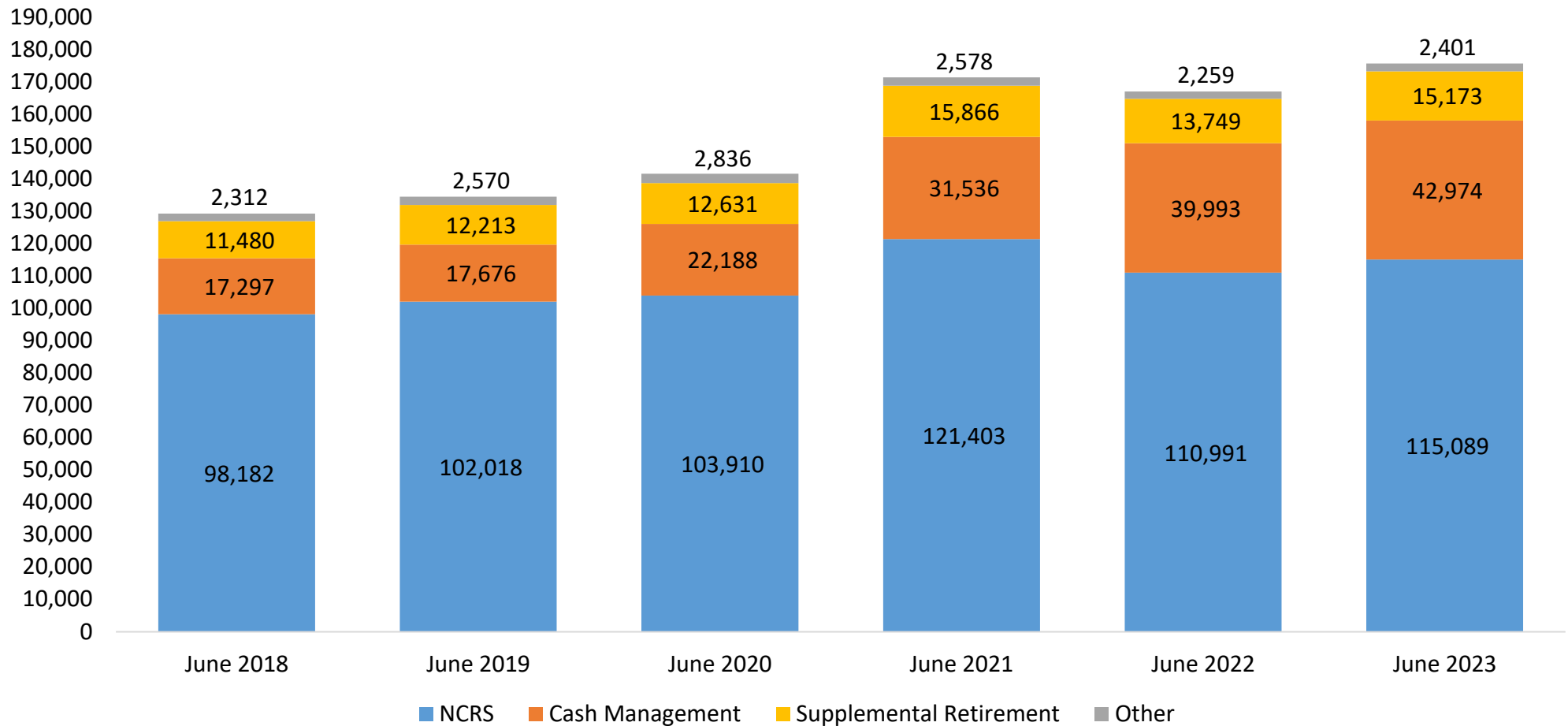
Countries	Real GDP YoY		Unemployment		CPI YoY		Countries	Real GDP YoY		Unemployment		CPI YoY	
	Date	Value	Date	Value	Date	Value		Date	Value	Date	Value	Date	Value
<b>U.S.</b>	06/23	2.6	06/23	3.6	06/23	3.0	<b>Asia/Pacific/Latam</b>						
<b>Europe</b>							China	06/23	6.3			06/23	0.0
Germany	06/23	-0.2	06/23	5.7	06/23	6.4	India	03/23	6.1			06/23	5.6
France	06/23	0.9	06/23	7.1	06/23	4.5	Japan	03/23	1.9	06/23	2.5	06/23	3.3
U.K.	03/23	0.2	05/23	4.0	06/23	7.9	Indonesia	06/23	5.2			06/23	3.5
Italy	06/23	0.6	06/23	7.4	06/23	6.4	Brazil	03/23	4.0			06/23	3.2
Spain	06/23	1.8	06/23	11.7	06/23	1.9	Australia	03/23	2.3	06/23	3.5	06/23	6.0

Source: Bloomberg



# Assets Under Management (\$MM)

\$175.6 billion as of June 30, 2023



Note: The Cash Management Program does not include Assets with Fiscal Agent, which are reflected in the Bond Proceeds Fund. These funds, which may have been reported in the Cash Management Program previously, have now been removed for all years shown in this report to more accurately reflect the Cash Management Program balance.



# NCRS Asset Allocation

As of June 30, 2023

	Market Value (\$MM)	%	Target	Range		Relative %	Relative \$ (\$MM)
				Minimum	Maximum		
<b>Growth</b>	<b>57,502</b>	<b>49.96%</b>	<b>55.0%</b>	<b>37.0%</b>	<b>68.0%</b>	<b>-5.04%</b>	<b>(5,797)</b>
Public Equity	41,901	36.41%	38.0%	33.0%	43.0%	-1.59%	(1,833)
Private Equity	6,227	5.41%	7.0%	0.0%	8.8%	-1.59%	(1,829)
Non Core Real Estate	2,263	1.97%	3.0%	0.0%	8.0%	-1.03%	(1,189)
Opportunistic Fixed Income	7,110	6.18%	7.0%	0.0%	7.5%	-0.82%	(946)
<b>Rates &amp; Liquidity</b>	<b>43,405</b>	<b>37.71%</b>	<b>33.0%</b>	<b>23.0%</b>	<b>48.0%</b>	<b>4.71%</b>	<b>5,426</b>
IG Fixed Income & Cash	30,992	26.93%	28.0%	23.0%	33.0%	-1.07%	(1,233)
Pension Cash	12,414	10.79%	5.0%	0.0%	10.0%	5.79%	6,659
<b>Inflation Sensitive &amp; Diversifiers</b>	<b>11,829</b>	<b>10.28%</b>	<b>11.0%</b>	<b>4.0%</b>	<b>16.0%</b>	<b>-0.72%</b>	<b>(831)</b>
Inflation Sensitive	5,424	4.71%	6.0%	2.0%	7.5%	-1.29%	(1,481)
Core Real Estate	6,404	5.56%	5.0%	2.0%	10.0%	0.56%	650
<b>Multi-Strategy</b>	<b>2,353</b>	<b>2.04%</b>	<b>1.0%</b>	<b>0.0%</b>	<b>4.0%</b>	<b>1.04%</b>	<b>1,203</b>
<b>Grand Total</b>	<b>115,089</b>	<b>100.00%</b>					





# NCRS Asset Allocation (Preliminary)

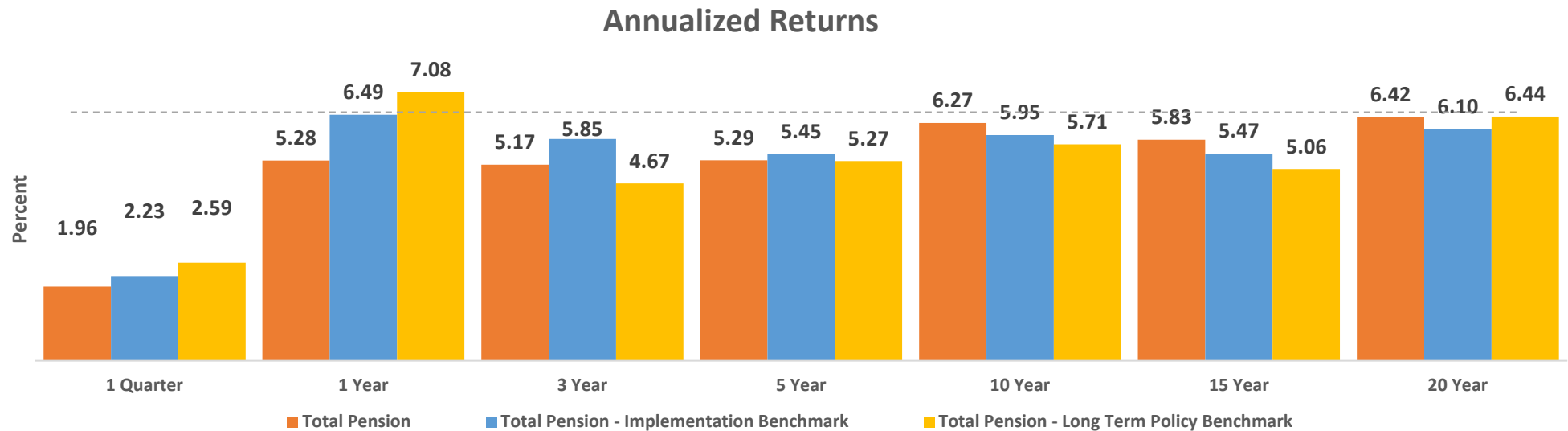
As of August 11, 2023

	Market Value (\$MM)	%	Target	Range		Relative %	Relative \$ (\$MM)
				Minimum	Maximum		
<b>Growth</b>	<b>57,757</b>	<b>50.40%</b>	<b>55.0%</b>	<b>37.0%</b>	<b>68.0%</b>	<b>-4.60%</b>	<b>(5,276)</b>
Public Equity	42,118	36.75%	38.0%	33.0%	43.0%	-1.25%	(1,433)
Private Equity	6,233	5.44%	7.0%	0.0%	8.8%	-1.56%	(1,789)
Non Core Real Estate	2,265	1.98%	3.0%	0.0%	8.0%	-1.02%	(1,173)
Opportunistic Fixed Income	7,141	6.23%	7.0%	0.0%	7.5%	-0.77%	(882)
<b>Rates &amp; Liquidity</b>	<b>42,656</b>	<b>37.22%</b>	<b>33.0%</b>	<b>23.0%</b>	<b>48.0%</b>	<b>4.22%</b>	<b>4,836</b>
IG Fixed Income & Cash	31,074	27.11%	28.0%	23.0%	33.0%	-0.89%	(1,016)
Pension Cash	11,582	10.11%	5.0%	0.0%	15.0%	5.11%	5,852
<b>Inflation Sensitive &amp; Diversifiers</b>	<b>11,810</b>	<b>10.30%</b>	<b>11.0%</b>	<b>4.0%</b>	<b>16.0%</b>	<b>-0.70%</b>	<b>(797)</b>
Inflation Sensitive	5,473	4.78%	6.0%	2.0%	7.5%	-1.22%	(1,403)
Core Real Estate	6,337	5.53%	5.0%	2.0%	10.0%	0.53%	607
<b>Multi-Strategy</b>	<b>2,382</b>	<b>2.08%</b>	<b>1.0%</b>	<b>0.0%</b>	<b>4.0%</b>	<b>1.08%</b>	<b>1,236</b>
<b>Grand Total</b>	<b>114,605</b>	<b>100.00%</b>					



# NCRS Total Net Portfolio Return vs. Benchmarks

## As of June 30, 2023



### Notes:

Actuarial Assumed Investment Return was lowered from 7.0% to 6.5% as of December 31, 2020

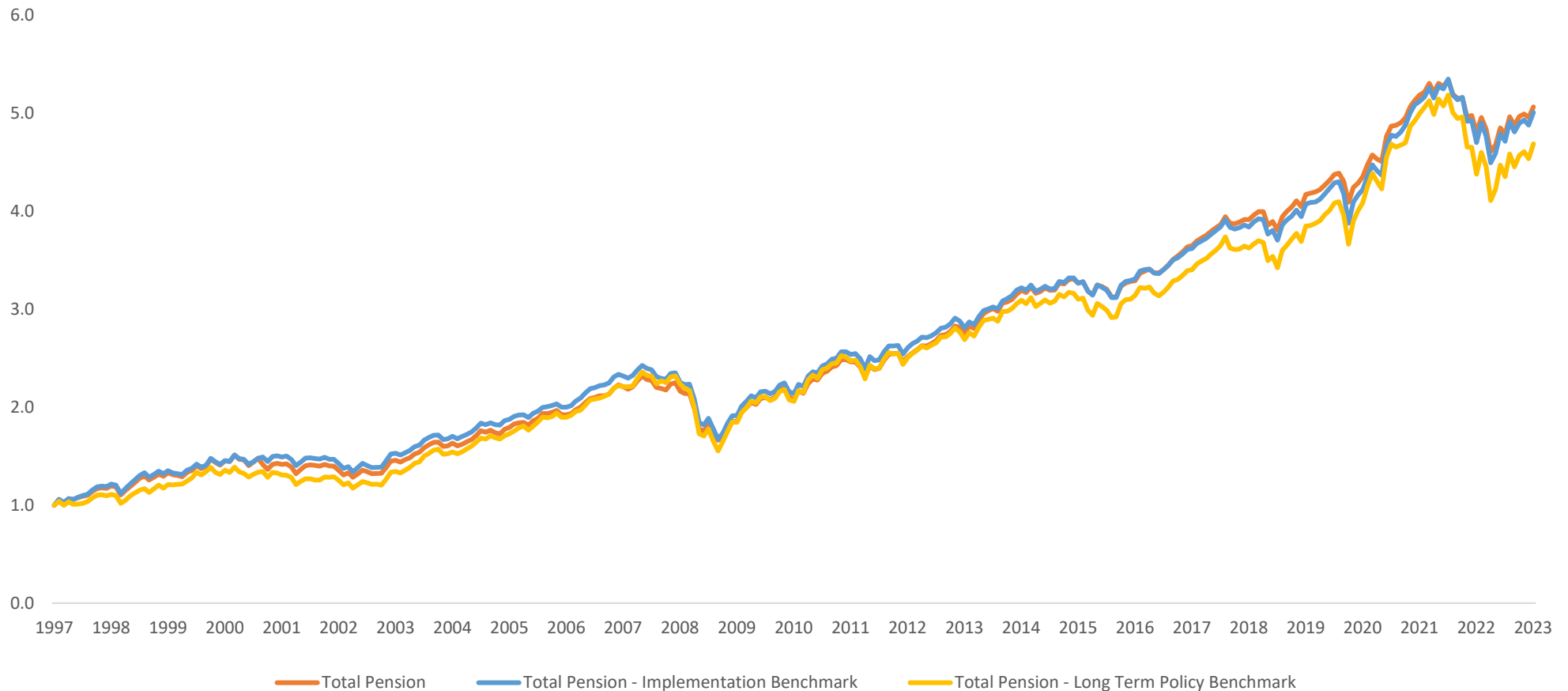
Returns for periods greater than one year are annualized.

*Implementation Benchmark* is a blend of the Asset Class Benchmarks at policy weights. It is currently weighted as follows: 55% Growth Benchmark; 33% Rates & Liquidity Benchmark; 11% Inflation Sensitive & Diversifiers Benchmark; and 1% Multi-Strategy Benchmark.

*Long-Term Policy Benchmark* is comprised of 56% MSCI ACWI IMI Net, 28% BOAML 5+ Years U.S. Treasury Index, 6.5% Bloomberg Commodity Index, 5% BOAML 3 Month Treasury Bill Index, and 4.5% BOAML 1-3 Years U.S. Inflation-Linked Treasury Index.



# Growth of a Dollar Through June 30, 2023



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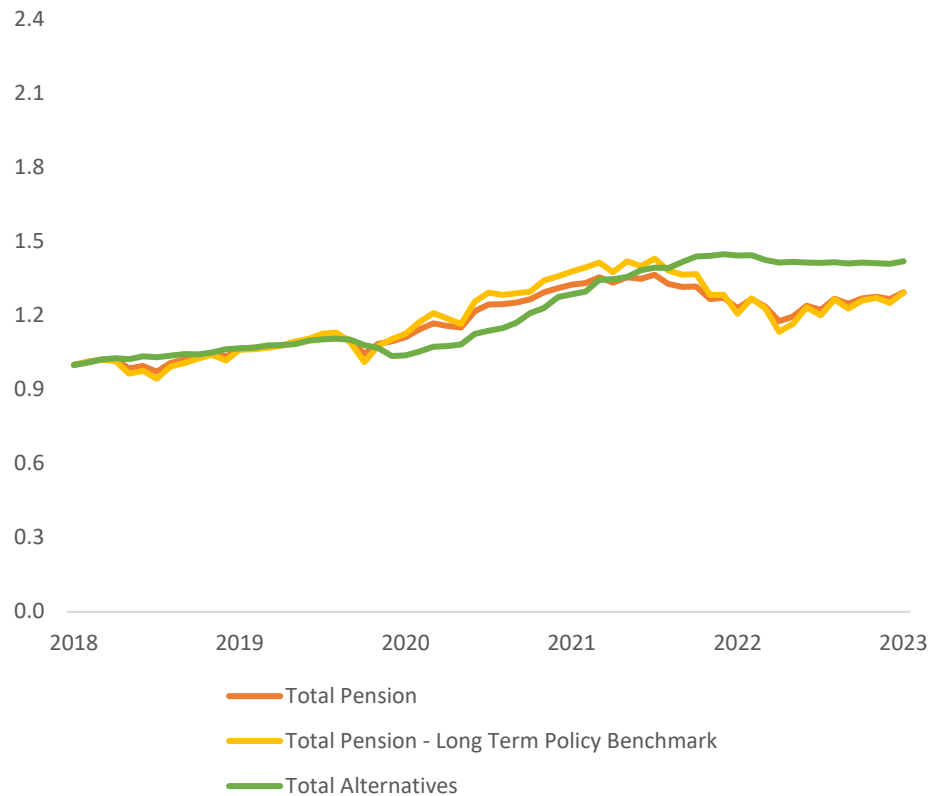
## Notes:

*Long-Term Policy Benchmark* is comprised of 56% MSCI ACWI IMI Net, 28% BOAML 5+ Years U.S. Treasury Index, 6.5% Bloomberg Commodity Index, 5% BOAML 3 Month Treasury Bill Index, and 4.5% BOAML 1-3 Years U.S. Inflation-Linked Treasury Index.



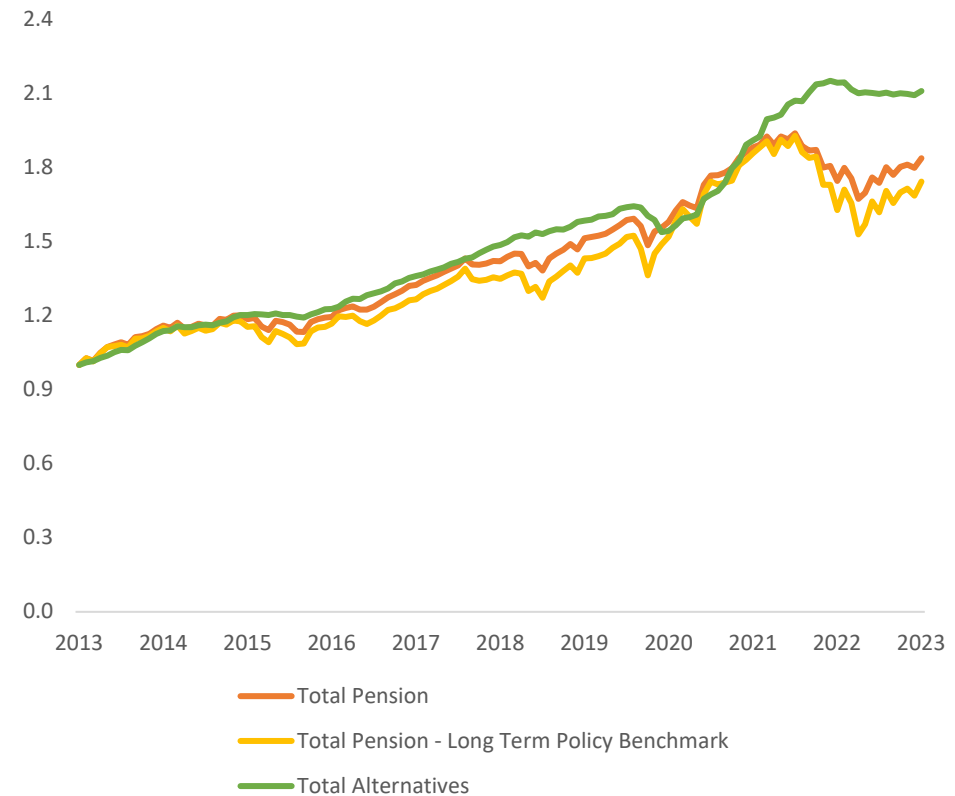
## Growth of a Dollar

5 Years Ending June 30, 2023



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10 Years Ending June 30, 2023



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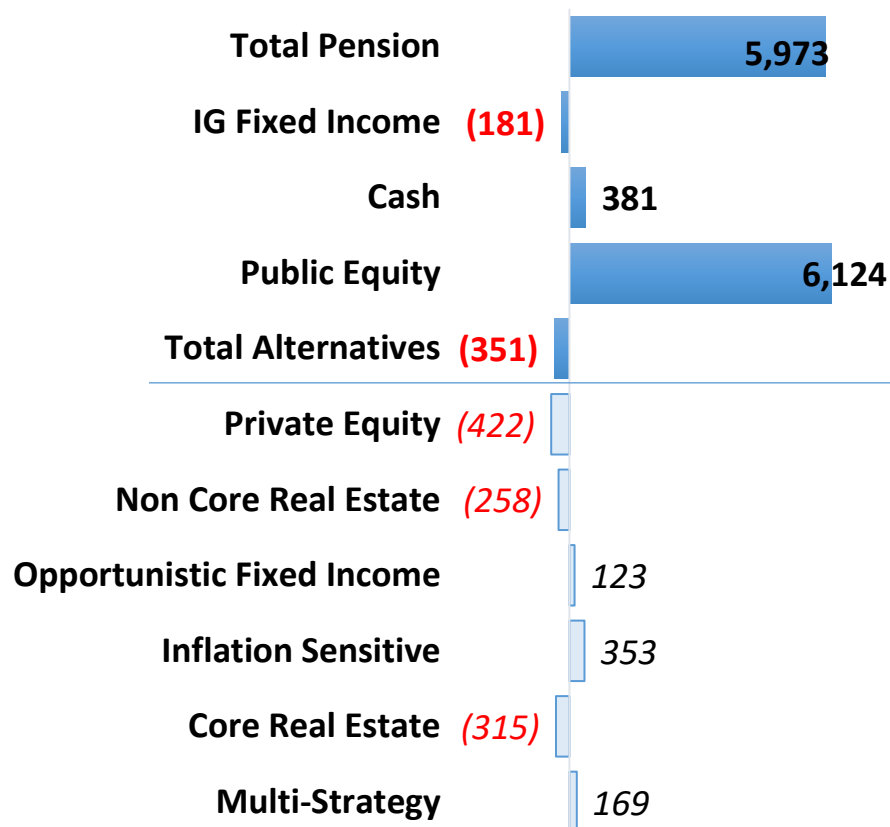
Note: NCRS Alternatives includes the following: Core Real Estate; Inflation Sensitive – Private Natural Resources; Inflation Sensitive – Real Assets and Other Diversifiers; Multi-Strategy Investments; Non-Core Real Estate; Opportunistic Fixed Income; Private Equity; Equity Hedge Strategies; and closed-end Public Natural Resource funds.



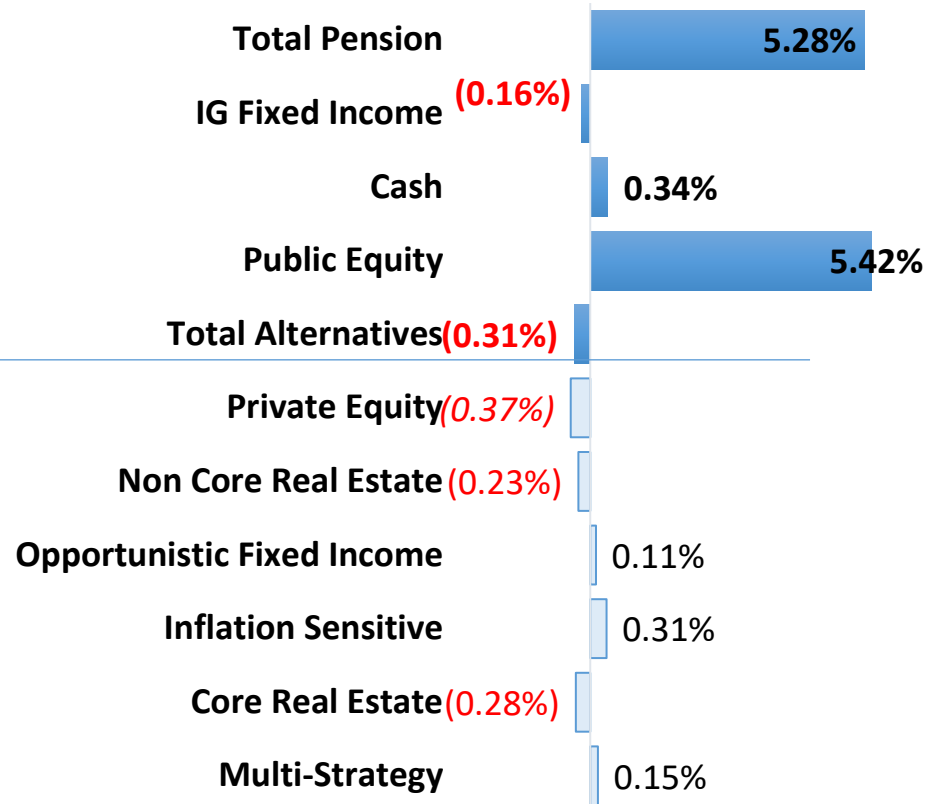
# Estimated Contribution to Total Plan Return – 1 Year

## As of June 30, 2023

### Contribution to Total Plan \$ Earnings



### Contribution to Total Plan % Returns



\*Millions

#### Notes:

1.) Estimated Contributions are based on average market value and the total return for the period.

Contribution to Total Plan \$ Earnings = Average \$ Market Value \* % Total Return for each asset class

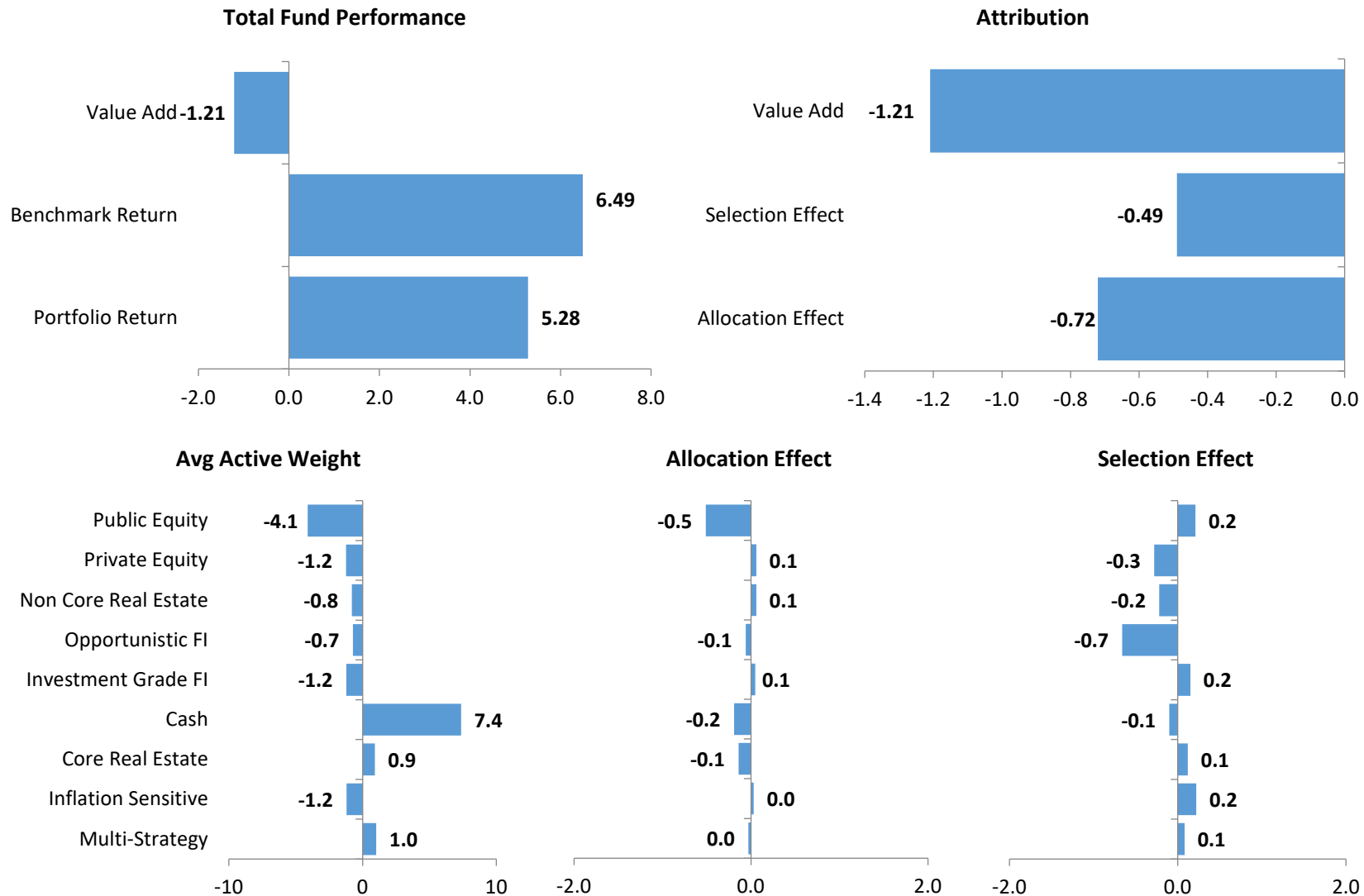
Contribution to Total Plan % Returns = Average Market Value % weight \* % Total Return for each asset class

2.) Alternatives for this analysis include the following: Private Equity, Non-Core Real Estate, Opportunistic Fixed Income, Inflation Sensitive, Core Real Estate, and Multi-Strategy investments.



# NCRS Net of Fees Return Attribution

Total Fund vs. Implementation Benchmark: 1 Year Ending June 30, 2023

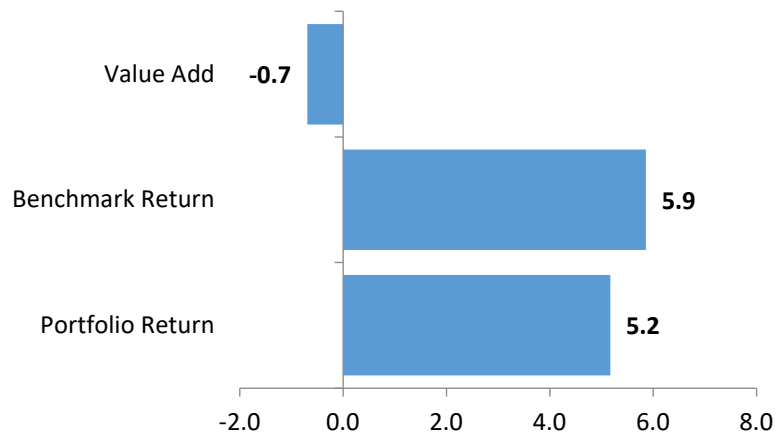




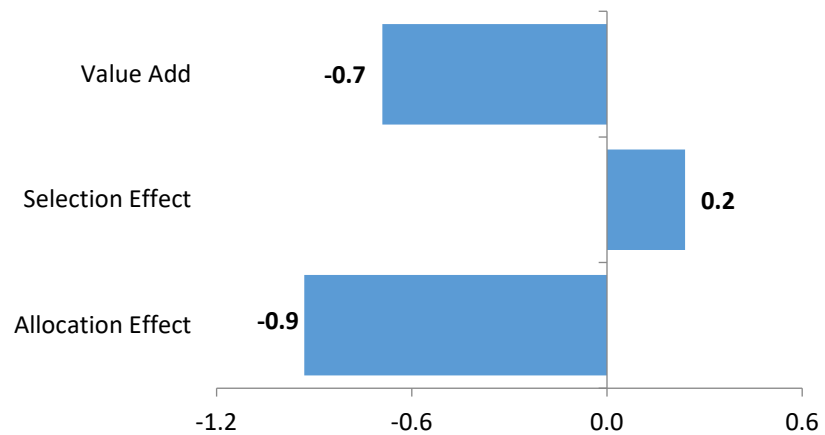
# NCRS Net of Fees Return Attribution

Total Fund vs. Implementation Benchmark: 3 Years Ending June 30, 2023

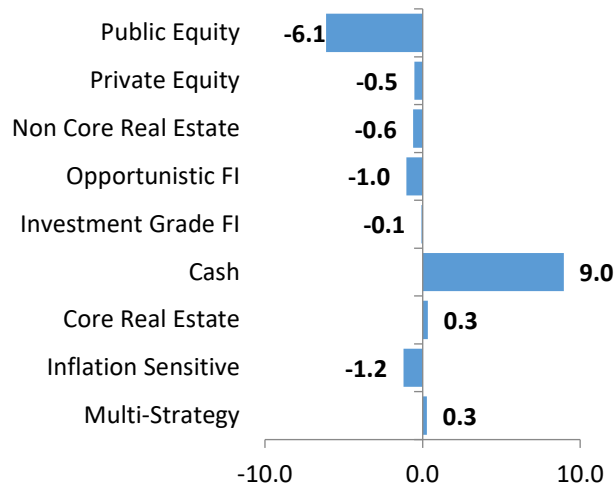
Total Fund Performance



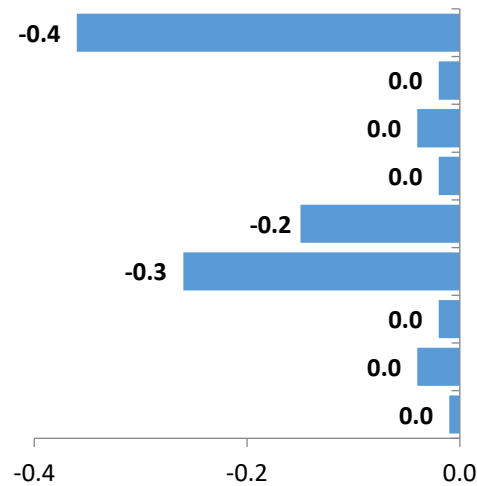
Attribution



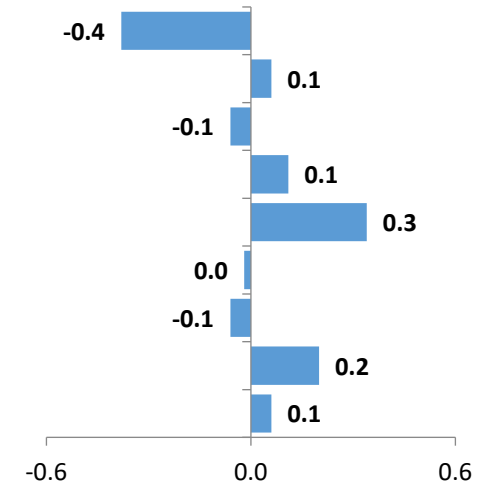
Avg Active Weight



Allocation Effect



Selection Effect

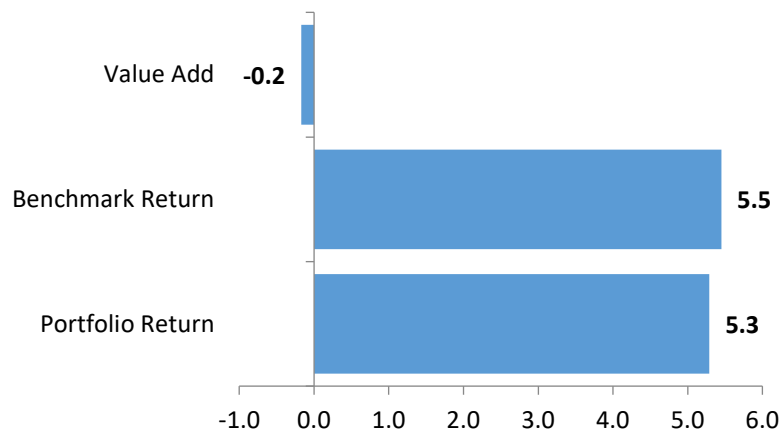




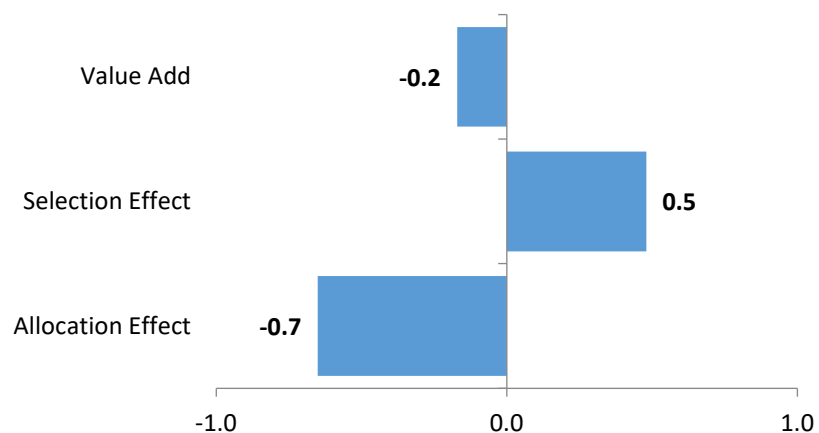
# NCRS Net of Fees Return Attribution

Total Fund vs. Implementation Benchmark: 5 Years Ending June 30, 2023

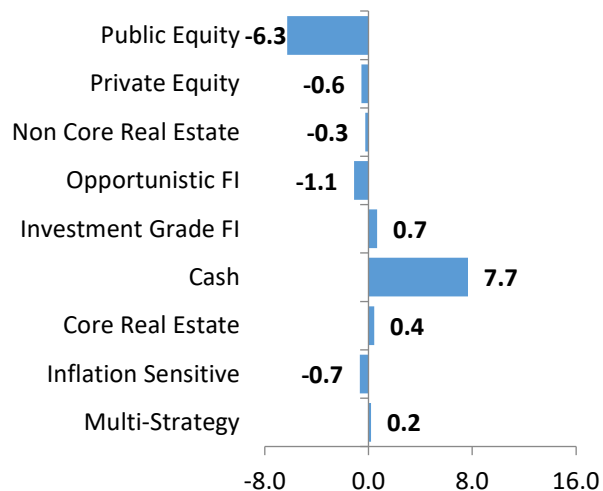
Total Fund Performance



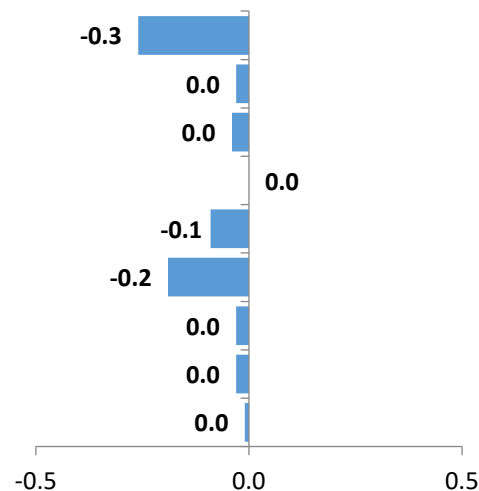
Attribution



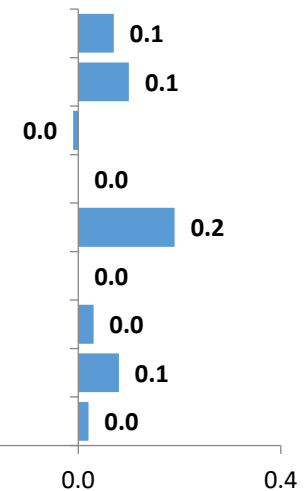
Avg Active Weight



Allocation Effect



Selection Effect

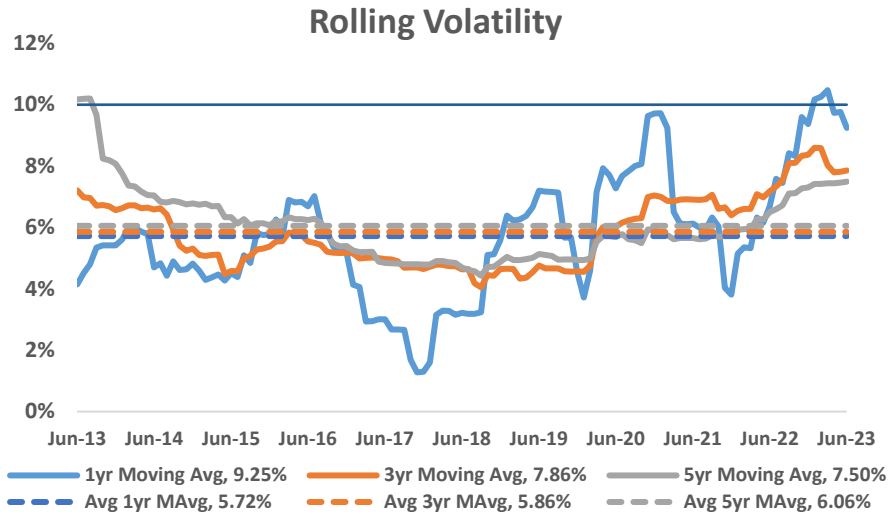




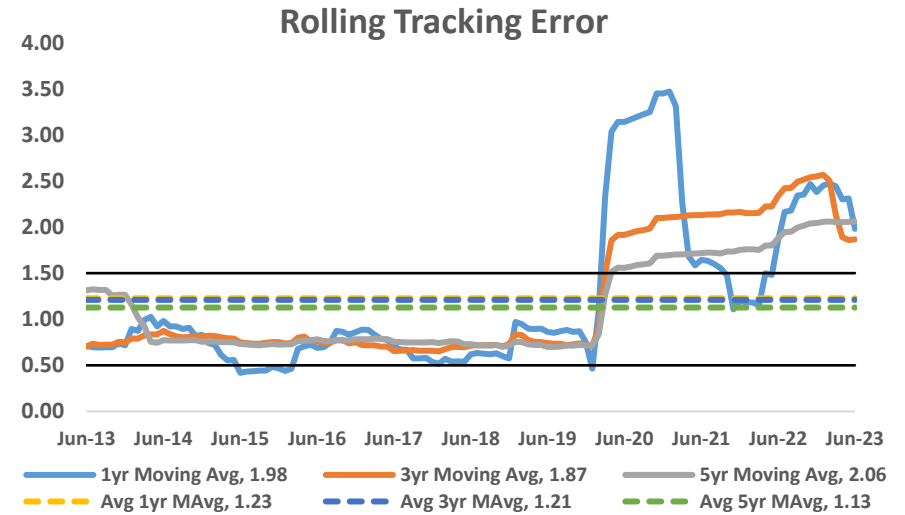


# NCRS Net of Fees Risk Metrics

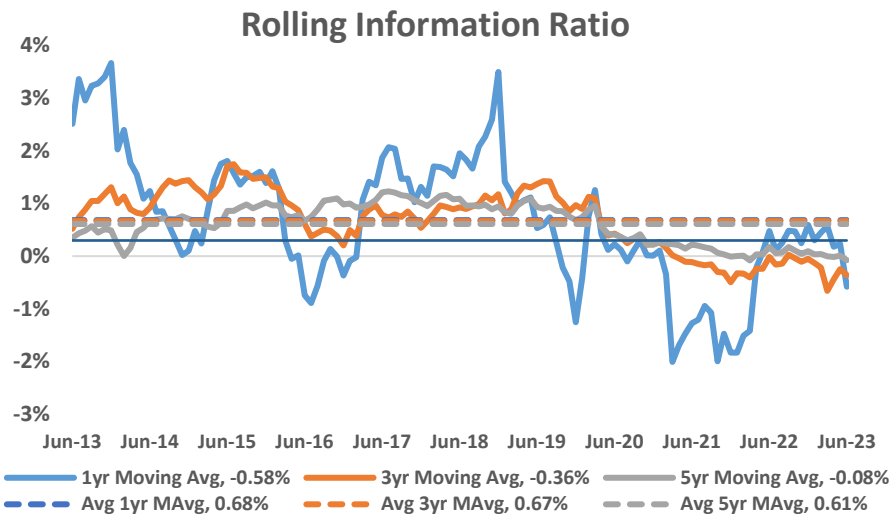
## As of June 30, 2023



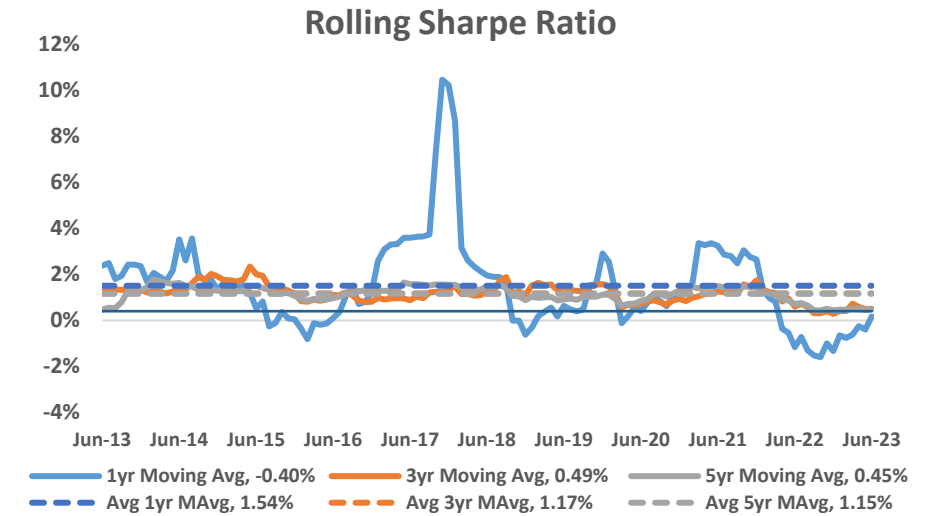
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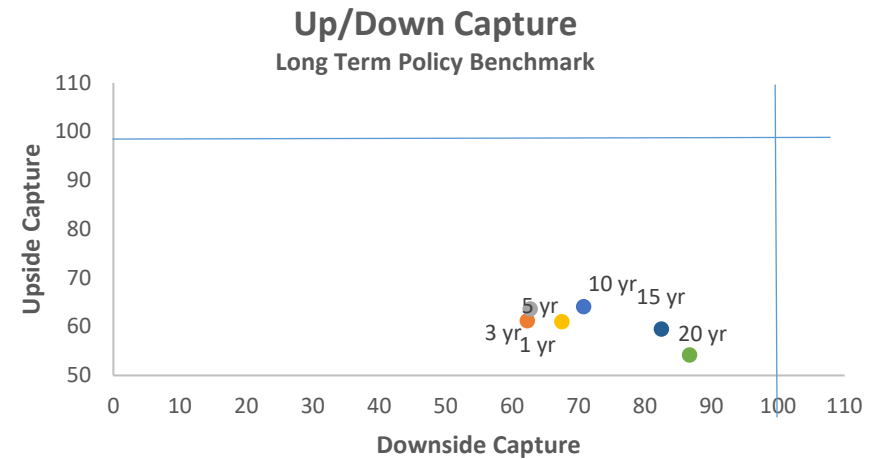
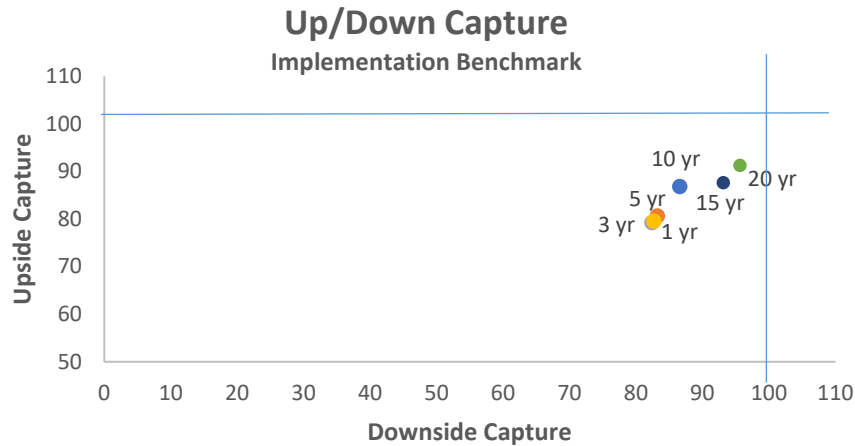


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# NCRS Net of Fees Risk Metrics

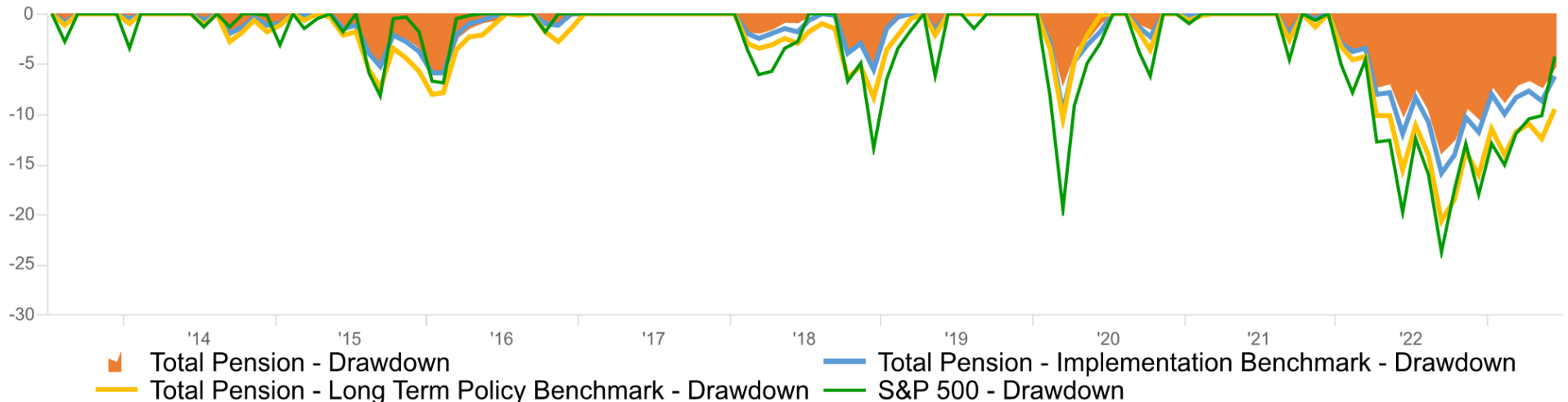
As of June 30, 2023



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## Drawdown



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# NCRS Gross of Fees Return and Risk

BNY Mellon Universe: US Public Funds > \$20B; Data as of June 30, 2023

Returns	1 Year	3 Years	5 Years	10 Years	15 Years	20 Years
25th Percentile	7.64	10.56	8.05	8.44	7.22	8.09
<b>Median Percentile</b>	<b>6.87</b>	<b>9.67</b>	<b>7.70</b>	<b>8.13</b>	<b>7.03</b>	<b>7.85</b>
75th Percentile	5.51	7.83	6.46	7.39	6.30	7.59
NCRS	<b>5.58</b>	<b>5.49</b>	<b>5.64</b>	<b>6.75</b>	<b>6.30</b>	<b>6.82</b>
Percentile Rank (1 = highest performance)	69	88	88	82	75	87

Risk	1 Year	3 Years	5 Years	10 Years	15 Years	20 Years
25th Percentile	12.03	10.22	10.22	8.16	9.82	9.16
<b>Median Percentile</b>	<b>10.14</b>	<b>8.76</b>	<b>8.87</b>	<b>7.21</b>	<b>9.04</b>	<b>8.52</b>
75th Percentile	8.51	7.62	7.99	6.77	8.19	7.98
NCRS	<b>8.85</b>	<b>7.74</b>	<b>7.42</b>	<b>6.19</b>	<b>7.71</b>	<b>7.24</b>
Percentile Rank (1 = highest risk)	63	69	94	88	88	94

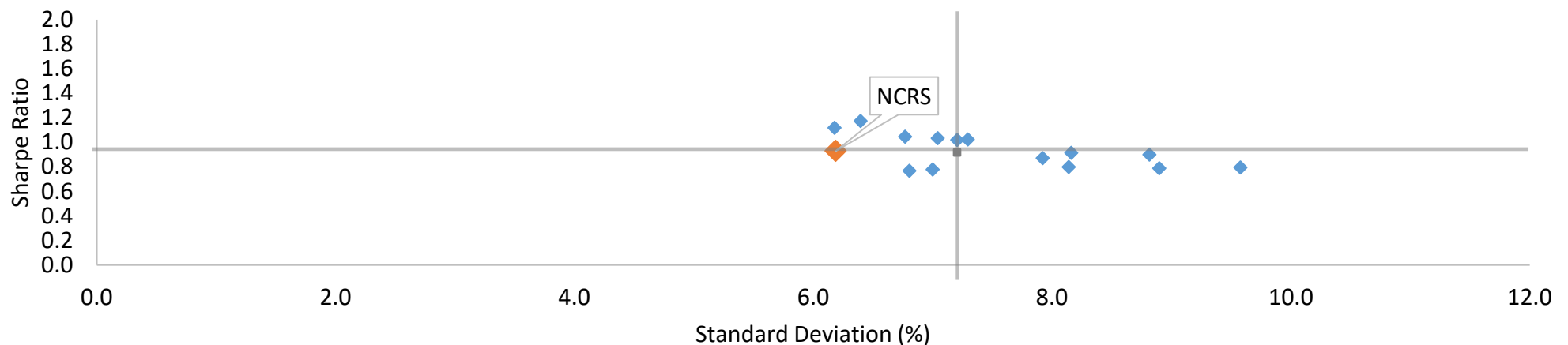


# NCRS Gross of Fees Sharpe Ratio

BNY Mellon Universe: US Public Funds > \$20B; Data as of June 30, 2023

Sharpe	1 Year	3 Years	5 Years	10 Years	15 Years	20 Years
25th Percentile	0.45	1.12	0.80	1.04	0.74	0.82
Median Percentile	<b>0.37</b>	<b>0.87</b>	<b>0.65</b>	<b>0.92</b>	<b>0.72</b>	<b>0.76</b>
75th Percentile	0.25	0.67	0.55	0.79	0.63	0.70
NCRS	<b>0.26</b>	<b>0.57</b>	<b>0.57</b>	<b>0.93</b>	<b>0.74</b>	<b>0.76</b>
Percentile Rank (1 = highest performance)	69	88	69	44	32	40

10 Year Plot: Sharpe Ratio vs. Volatility



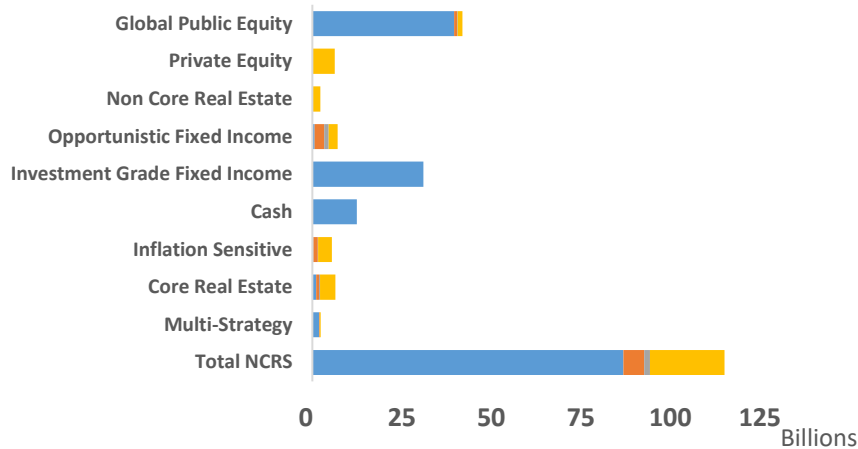
Note: Data shown is gross of fees with the exception of incentive payments, which have been deducted from NAV when applicable.



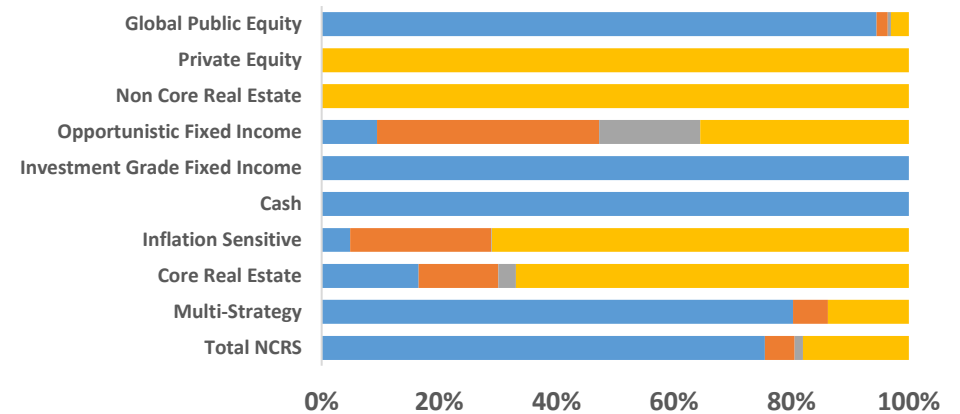
# NCRS Liquidity Profile

## As of June 30, 2023

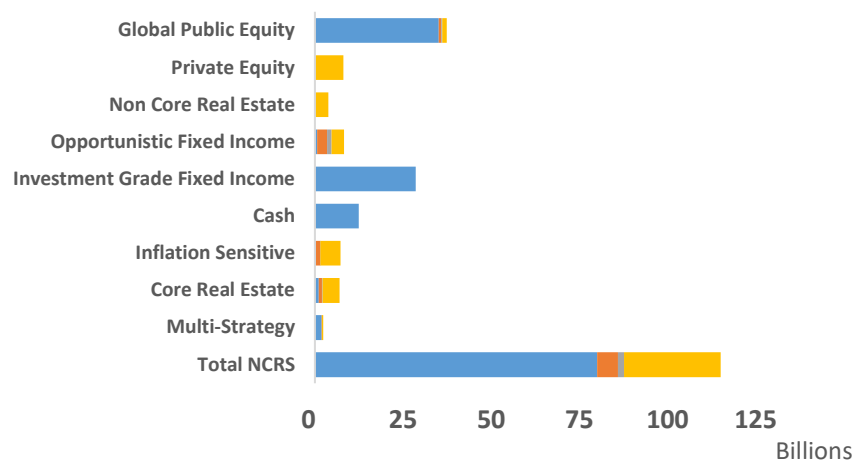
### Liquidity Allocation (\$ Market Value)



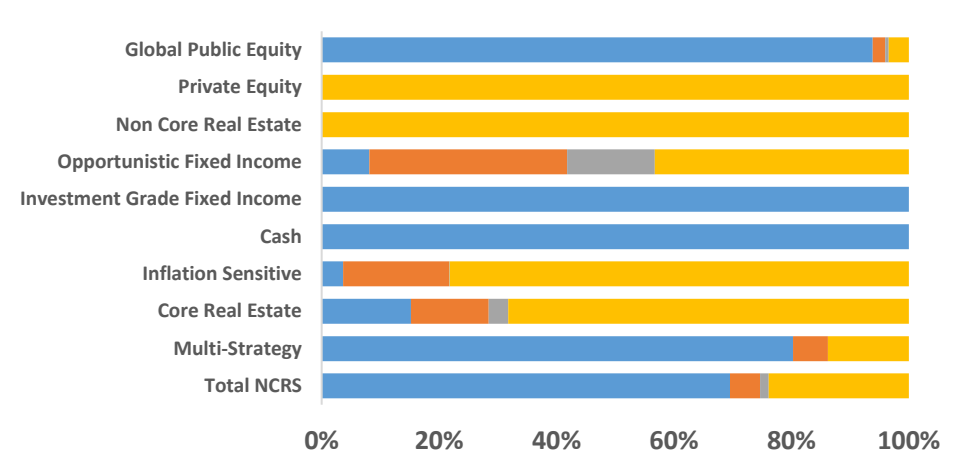
### Liquidity Allocation (% Market Value)



### Liquidity Allocation (\$ Market Value + Unfunded)



### Liquidity Allocation (% Market Value + Unfunded)

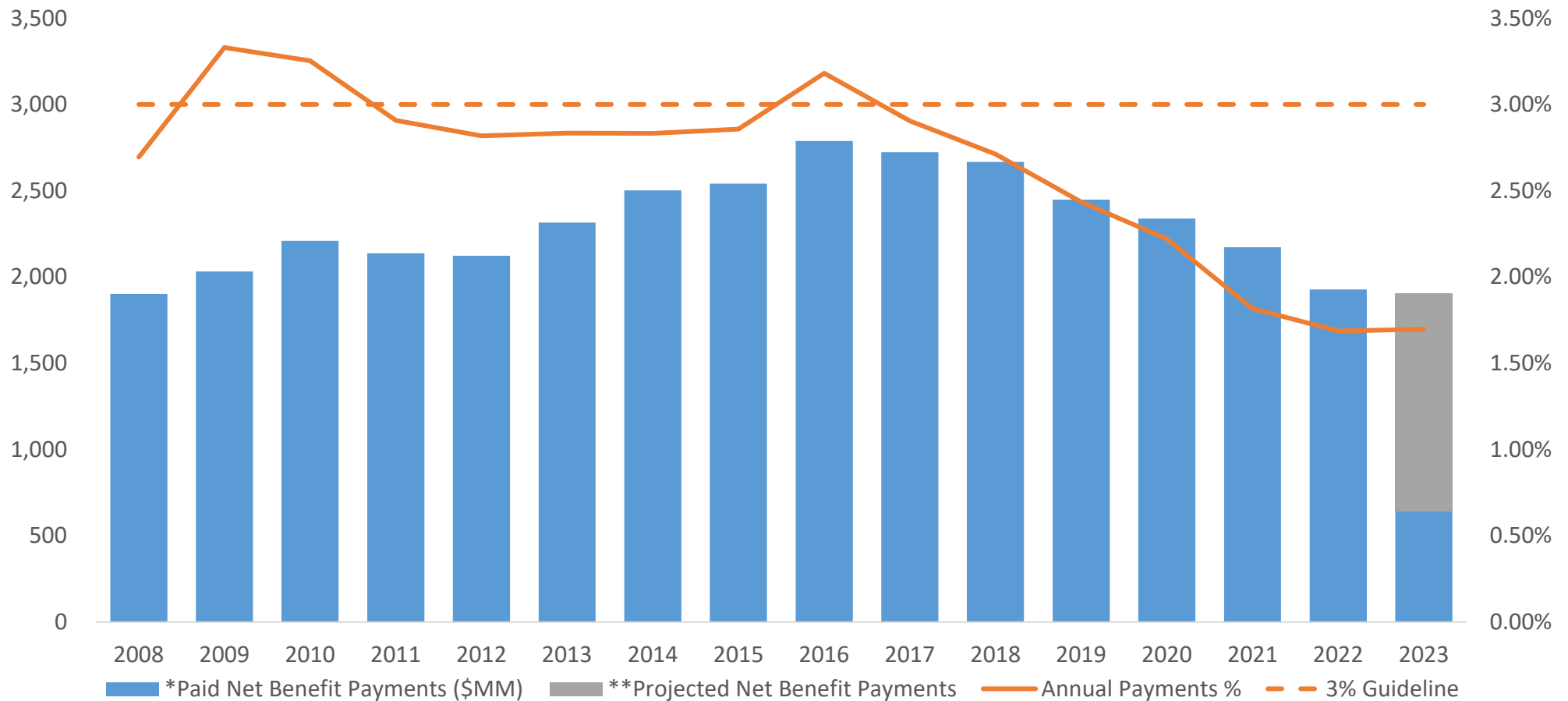


Note: ■ Level 1 Liquidity = T+3; ■ Level 2 = T+3 to 12 Months; ■ Level 3 = 12 to 24 Months; ■ Level 4 = Greater than 24 Months



# NCRS Liquidity Profile

## Net benefit payments by calendar year

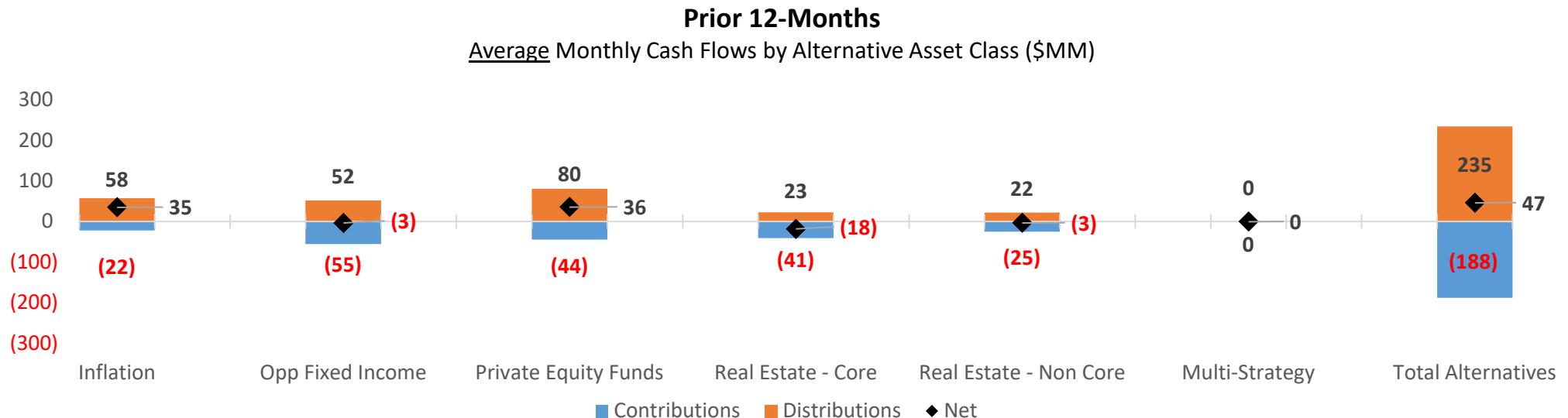
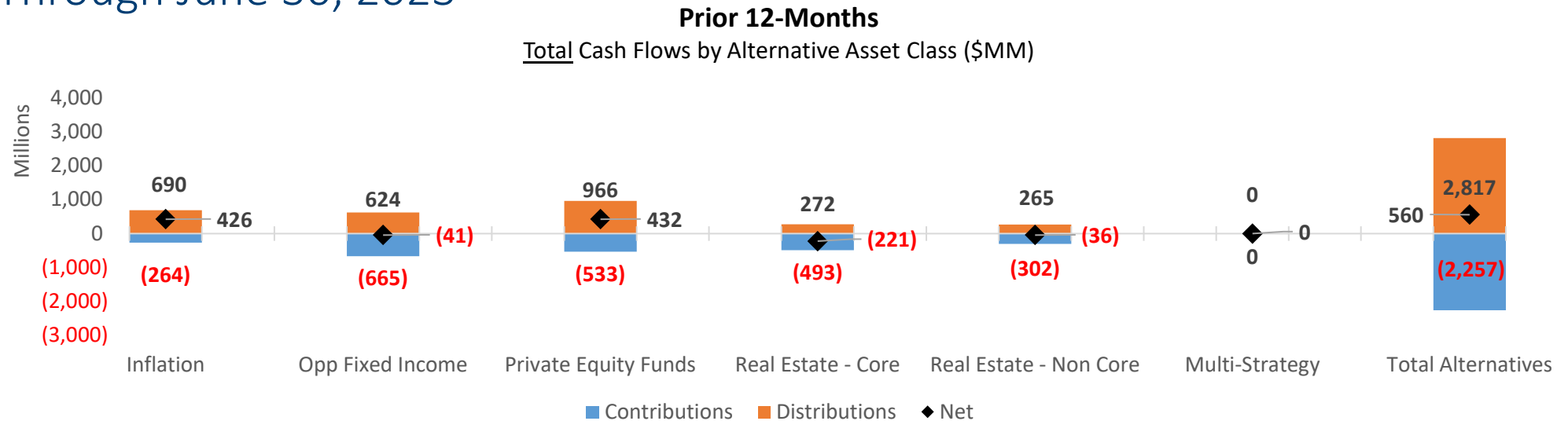


\*Benefit payments exclude transfers from the Retiree Health Premium Fund as of January 1, 2022

\*\*Projected Net Benefit Payments for remainder of calendar year



# NCRS Alternatives Liquidity Profile Through June 30, 2023



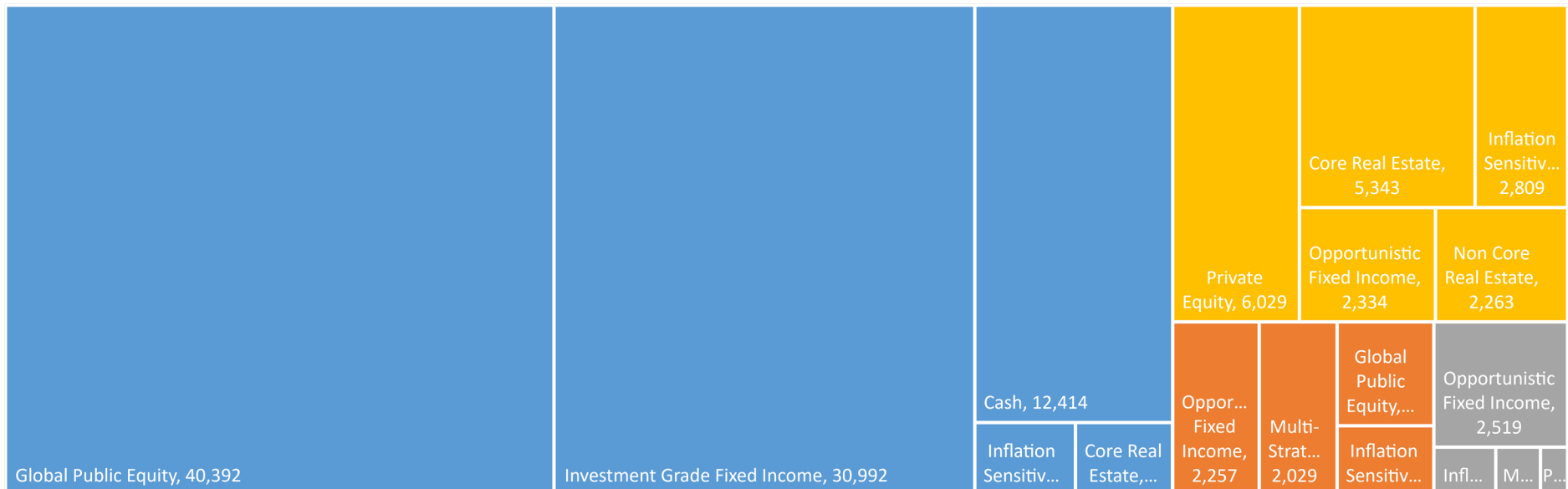


STATE TREASURER OF NORTH CAROLINA  
DALE R. FOLWELL, CPA  
*Dale R. Folwell, CPA*

As of June 30, 2023

Asset Class	Daily Valued	Monthly Valued - No Lag	Monthly Valued - 1 Month Lag	Quarterly Valued - 1-3 Month Lag
Total	75%	6%	3%	16%
Cash	100%	0%	0%	0%
Investment Grade Fixed Income	100%	0%	0%	0%
Global Public Equity	96%	4%	0%	0%
Inflation Sensitive	21%	19%	8%	52%
Core Real Estate	17%	0%	0%	83%
Multi-Strategy	0%	86%	14%	0%
Opportunistic Fixed Income	0%	32%	35%	33%
Private Equity	0%	0%	4%	96%
Non Core Real Estate	0%	0%	0%	100%

**in Millions**







# NCRS Asset Class Net of Fees Performance

## As of June 30, 2023

	Market Value (\$MM)	1 Year	3 Years	5 Years	10 Years	15 Years	20 Years
<b>Growth</b>	<b>\$57,502</b>	<b>10.31</b>	<b>10.77</b>	<b>8.17</b>	<b>9.14</b>	<b>7.07</b>	<b>8.01</b>
Benchmark <sup>1</sup>		12.43	11.27	7.91	8.29	6.45	7.48
<b>Public Equity</b>	<b>\$41,901</b>	<b>16.77</b>	<b>9.75</b>	<b>7.84</b>	<b>9.00</b>	<b>7.23</b>	<b>8.01</b>
Benchmark <sup>2</sup>		16.14	10.89	7.58	8.44	6.65	7.42
<b>Private Equity</b>	<b>\$6,227</b>	<b>-6.72</b>	<b>19.42</b>	<b>14.34</b>	<b>12.92</b>	<b>9.21</b>	<b>9.75</b>
Benchmark <sup>3</sup>		-2.57	18.21	12.25	11.31	9.22	12.18
<b>Non-Core Real Estate</b>	<b>\$2,263</b>	<b>-11.43</b>	<b>5.71</b>	<b>5.42</b>	<b>10.02</b>	<b>3.90</b>	<b>6.94</b>
Benchmark <sup>4</sup>		-2.37	8.61	6.22	7.62	2.53	7.17
<b>Opportunistic Fixed Income</b>	<b>\$7,110</b>	<b>1.86</b>	<b>10.02</b>	<b>5.23</b>	<b>5.13</b>	<b>6.09</b>	<b>-</b>
Benchmark <sup>5</sup>		12.57	7.98	5.08	3.62	2.05	-
<b>Rates &amp; Liquidity</b>	<b>\$43,405</b>	<b>0.52</b>	<b>-2.24</b>	<b>1.87</b>	<b>2.35</b>	<b>4.00</b>	<b>4.01</b>
Benchmark <sup>6</sup>		-0.33	-4.49	0.92	1.96	3.52	3.63
<b>IG Fixed Income</b>	<b>\$30,992</b>	<b>-0.63</b>	<b>-3.79</b>	<b>1.43</b>	<b>2.16</b>	<b>3.87</b>	<b>3.92</b>
Benchmark <sup>7</sup>		-1.13	-4.90	0.76	1.90	3.48	3.60
<b>Cash</b>	<b>\$12,414</b>	<b>3.01</b>	<b>1.19</b>	<b>1.54</b>	<b>1.18</b>	<b>-</b>	<b>-</b>
Benchmark <sup>8</sup>		3.77	1.30	1.50	0.95	-	-
<b>Inflation Sensitive &amp; Diversifiers</b>	<b>\$11,829</b>	<b>0.08</b>	<b>8.27</b>	<b>5.32</b>	<b>4.98</b>	<b>2.45</b>	<b>4.41</b>
Benchmark <sup>9</sup>		-1.88	7.07	4.42	4.47	1.35	3.97
<b>Inflation Sensitive</b>	<b>\$5,424</b>	<b>6.86</b>	<b>10.96</b>	<b>5.62</b>	<b>3.74</b>	<b>0.76</b>	<b>3.80</b>
Benchmark <sup>10</sup>		2.47	6.76	3.82	2.01	0.86	4.24
<b>Core Real Estate</b>	<b>\$6,404</b>	<b>-5.14</b>	<b>6.11</b>	<b>5.38</b>	<b>6.94</b>	<b>5.20</b>	<b>6.31</b>
Benchmark <sup>11</sup>		-6.94	7.35	5.05	7.43	4.94	6.72
<b>Multi-Strategy</b>	<b>\$2,353</b>	<b>7.90</b>	<b>5.71</b>	<b>2.61</b>	<b>4.98</b>	<b>4.80</b>	<b>5.13</b>
Benchmark <sup>12</sup>		4.28	2.80	1.62	3.99	3.63	5.94
<b>Total Pension Plan</b>	<b>\$115,089</b>	<b>5.28</b>	<b>5.17</b>	<b>5.29</b>	<b>6.27</b>	<b>5.83</b>	<b>6.42</b>
Implementation Benchmark <sup>13</sup>		6.49	5.85	5.45	5.95	5.47	6.10
Long-Term Policy Benchmark <sup>14</sup>		7.08	4.67	5.27	5.71	5.06	6.44

See slide 43 for benchmark descriptions



# NCRS Calendar Year Asset Class Return Diversification

## As of June 30, 2023

2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Public Equity 26.27%	Non-Core Real Estate 19.45%	Non-Core Real Estate 14.84%	Non-Core Real Estate 11.73%	Public Equity 24.44%	Private Equity 18.32%	Public Equity 27.91%	Public Equity 22.23%	Private Equity 48.03%	Inflation Sensitive 9.43%	Public Equity 14.19%
Multi-Strategy 22.61%	Private Equity 14.02%	Private Equity 9.20%	Public Equity 7.33%	Multi-Strategy 13.58%	Non-Core Real Estate 13.32%	Total Pension 14.88%	Private Equity 18.86%	Opportunistic Fixed Income 17.46%	Non-Core Real Estate 6.6%	Multi-Strategy 5.86%
Opportunistic Fixed Income 16.56%	Core Real Estate 10.41%	Core Real Estate 8.28%	Inflation Sensitive 7.19%	Total Pension 13.53%	Inflation Sensitive 6.88%	Multi-Strategy 14.82%	Total Pension 11.30%	Non-Core Real Estate 16.75%	Core Real Estate 5.76%	Total Pension 5.79%
Non-Core Real Estate 12.88%	IG Fixed Income & Cash 8.51%	Multi-Strategy 0.85%	Opportunistic Fixed Income 7.09%	Non-Core Real Estate 12.40%	Opportunistic Fixed Income 5.69%	Core Real Estate 10.71%	IG Fixed Income & Cash 9.34%	Public Equity 14.51%	Pension Cash 1.22%	Inflation Sensitive 5.75%
Total Pension 12.28%	Total Pension 6.19%	Pension Cash 0.58%	Core Real Estate 6.68%	Private Equity 11.95%	Core Real Estate 5.67%	IG Fixed Income & Cash 10.33%	Opportunistic Fixed Income 2.85%	Core Real Estate 14.51%	Opportunistic Fixed Income (1.91%)	Opportunistic Fixed Income 3.53%
Private Equity 11.72%	Public Equity 3.68%	Total Pension 0.29%	Total Pension 6.26%	Core Real Estate 10.12%	Pension Cash 1.88%	Non-Core Real Estate 9.93%	Pension Cash 1.06%	Inflation Sensitive 11.97%	Multi-Strategy (4.48%)	IG Fixed Income & Cash 2.37%
Core Real Estate 11.28%	Opportunistic Fixed Income 3.40%	IG Fixed Income & Cash 0.28%	Private Equity 6.05%	Inflation Sensitive 7.53%	IG Fixed Income & Cash (0.57%)	Private Equity 8.15%	Non-Core Real Estate 0.45%	Total Pension 9.71%	Private Equity (5.81%)	Pension Cash 1.93%
Inflation Sensitive (1.32%)	Multi-Strategy 2.69%	Public Equity (1.26%)	Multi-Strategy 6.00%	Opportunistic Fixed Income 7.05%	Total Pension (1.47%)	Opportunistic Fixed Income 3.61%	Core Real Estate (0.13%)	Multi-Strategy 7.74%	Total Pension (10.39%)	Private Equity 0.71%
IG Fixed Income & Cash (3.49%)	Pension Cash 0.45%	Opportunistic Fixed Income (2.61%)	IG Fixed Income & Cash 3.24%	IG Fixed Income & Cash 4.42%	Multi-Strategy (4.79%)	Pension Cash 2.20%	Inflation Sensitive (3.50%)	Pension Cash 0.15%	IG Fixed Income & Cash (12.74%)	Core Real Estate (5.22%)
	Inflation Sensitive (0.65%)	Inflation Sensitive (9.05%)	Pension Cash 0.98%	Pension Cash 1.12%	Public Equity (9.32%)	Inflation Sensitive 2.09%	Multi-Strategy (4.13%)	IG Fixed Income & Cash (1.84%)	Public Equity (20.5%)	Non-Core Real Estate (8.%)



# New, Incremental, & Unfunded Investment Commitments

Since May 31<sup>st</sup> IAC Meeting

As of June 30, 2023

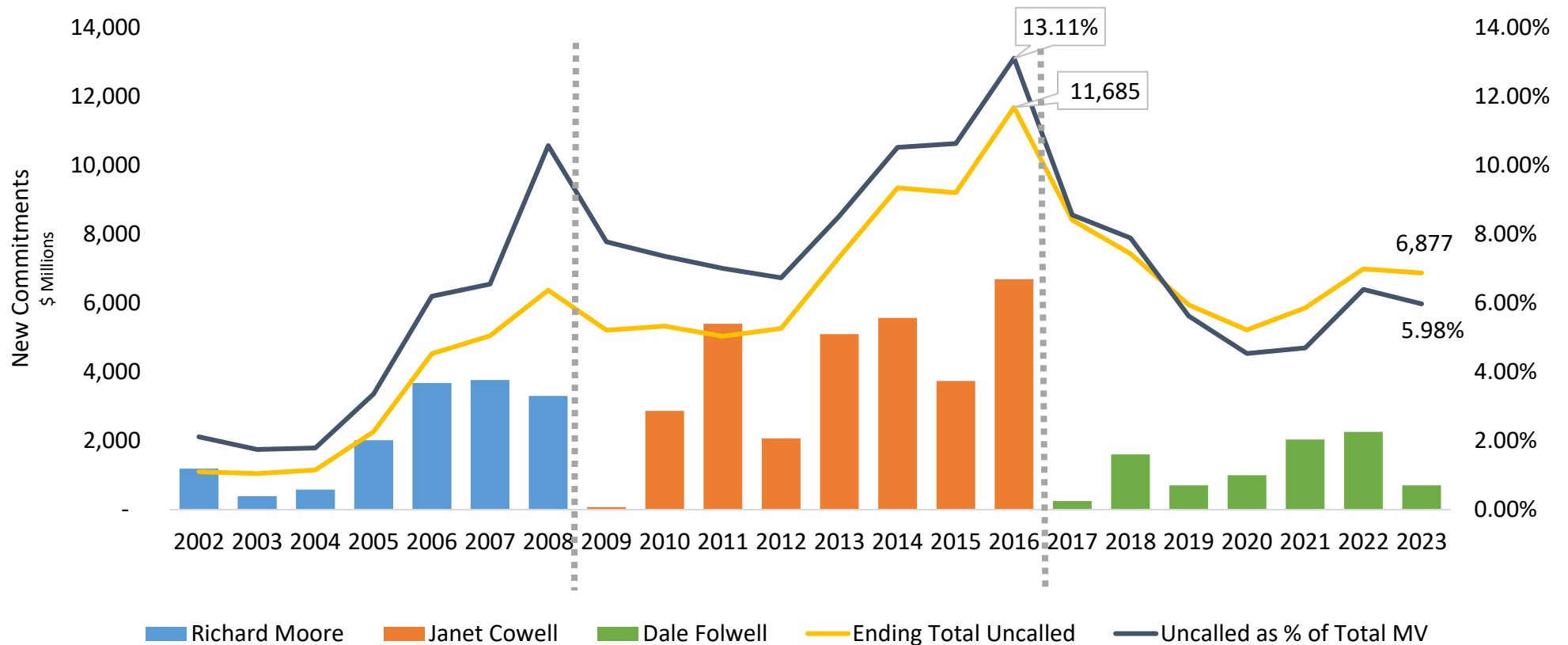
<u>Fund Name</u>	<u>Firm Name</u>	<u>New or Incremental Commitment (\$MM)</u>	<u>Closing Date</u>
<b>Public Equity</b>			
<b>Private Equity</b>			
Hg Titan 2 A, LP	HgCapital	150	7/23
Harvest Partners IX, LP	Harvest Partners	150	7/23
<b>Non-Core Real Estate</b>			
<b>Opportunistic Fixed Income</b>			
<b>Inflation Sensitive</b>			
MTP Emerald Series III, L.P.	Magnetar Financial	200	6/23
<b>Core Real Estate</b>			
<b>Multi-Strategy</b>			

<u>Asset Class</u>	<u>Unfunded Commitments (\$MM)</u>
Public Equity	0
Private Equity	1,852
Non-Core Real Estate	1,508
Opportunistic Fixed Income	1,148
Inflation Sensitive	1,803
Core Real Estate	565
Multi Strategy	0
Total	6,876



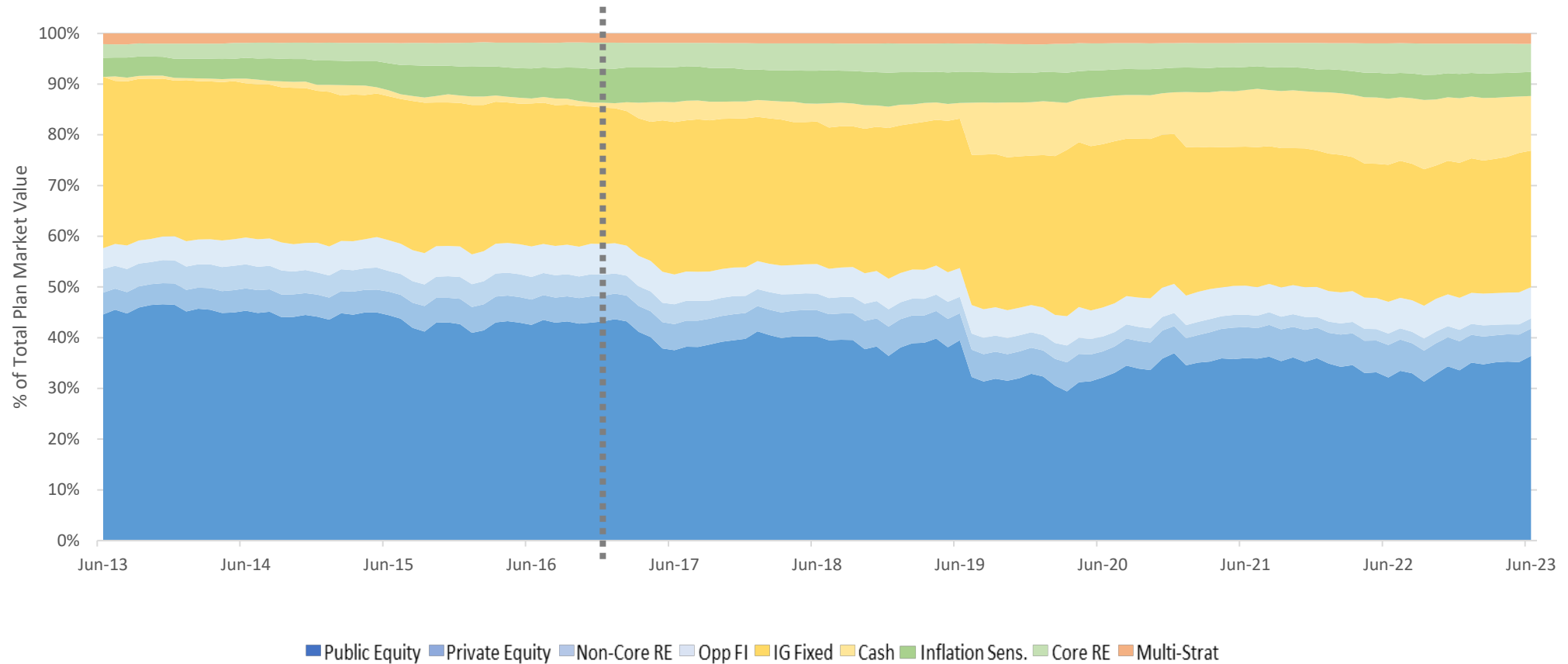
# New and Total Unfunded Private Asset Class Commitments

## By Calendar Year of Closing through June 30, 2023





# Asset Allocation History as of June 30, 2023





## Exited Investments

Since May 31<sup>st</sup> IAC Meeting

<u>Fund Name</u>	<u>Redemption Amount (\$MM)</u>	<u>Redemption Effective</u>
<b>Public Equity</b>		
None		
<b>Private Equity</b>		
None		
<b>Non-Core Real Estate</b>		
None		
<b>Opportunistic Fixed Income</b>		
None		
<b>Inflation Sensitive</b>		
None		
<b>Core Real Estate</b>		
None		
<b>Multi Strategy</b>		
None		



## Top 20 Investment Managers

As of June 30, 2023

	Manager	Market Value (\$)	Uncalled (\$)	% MV	% MV Cum.
1	Internal Fixed Income	43,405,234,663	-	37.7%	37.7%
2	Internal Equity	19,089,351,330	-	16.6%	54.3%
3	BlackRock, Inc.	9,173,870,172	(0)	8.0%	62.3%
4	Wellington Management	3,281,378,477	-	2.9%	65.1%
5	Baillie Gifford	3,234,424,396	-	2.8%	67.9%
6	Mondrian Investment Partners Limited	2,862,030,252	-	2.5%	70.4%
7	Rockwood Capital	2,590,525,777	133,963,776	2.3%	72.7%
8	Walter Scott & Partners	2,541,148,151	-	2.2%	74.9%
9	Blackstone Group	2,498,545,930	1,142,988,457	2.2%	77.1%
10	Ares Management	2,041,956,165	1,661,585,271	1.8%	78.8%
11	Gladius Capital Management LP	2,028,746,121	-	1.8%	80.6%
12	Angelo, Gordon & Co.	1,591,712,975	28,278,793	1.4%	82.0%
13	ValueAct Capital	1,506,996,830	-	1.3%	83.3%
14	LBA Realty	1,231,422,311	181,188,119	1.1%	84.3%
15	HPS Investment Partners, LLC	1,154,895,449	130,287,626	1.0%	85.4%
16	DoubleLine Capital LP	842,886,369	-	0.7%	86.1%
17	Earnest Partners	825,572,875	-	0.7%	86.8%
18	Campbell Group LLC, The	796,757,949	-	0.7%	87.5%
19	Monarch Alternative Capital	707,200,000	-	0.6%	88.1%
20	Marathon Asset Management	686,778,050	2,793,465	0.6%	88.7%
	78 Remaining Managers*	12,997,823,432	3,595,765,209	11.3%	100.0%
<b>Total</b>		<b>115,089,257,674</b>	<b>6,876,850,715</b>	<b>100.0%</b>	<b>100.0%</b>

\*Manager count consists of all manager accounts with a market value greater than \$5.0 million and new, not yet funded, accounts.



## Appendix





# NCRS Public Equity Net of Fees Performance

As of June 30, 2023

	Market Value (\$MM)	3 Month	1 Year	3 Years	5 Years	10 Years
<b>Public Equity</b>	<b>\$41,901</b>	<b>5.39</b>	<b>16.77</b>	<b>9.75</b>	<b>7.84</b>	<b>9.00</b>
Benchmark <sup>2</sup>		5.89	16.14	10.89	7.58	8.44
<b>Domestic Portfolio</b>	<b>\$23,466</b>	<b>8.08</b>	<b>19.54</b>	<b>13.26</b>	<b>11.58</b>	<b>12.45</b>
Russell 3000		8.39	18.95	13.89	11.39	12.34
<b>Non-US Portfolio</b>	<b>\$18,432</b>	<b>2.16</b>	<b>13.45</b>	<b>5.94</b>	<b>3.91</b>	<b>5.80</b>
Custom Benchmark		2.38	12.47	7.33	3.38	4.88

**Russell 3000:** Data is sourced from BNY Mellon

**Non-US Custom Benchmark:** As of October 2010, the Non U.S. Benchmark is the MSCI ACWI ex US IMI Net Index. Prior to October 2010, the Non-U.S. Benchmark was a blend of MSCI EAFE and MSCI Emerging Markets at policy weights. This data is also sourced from BNY Mellon

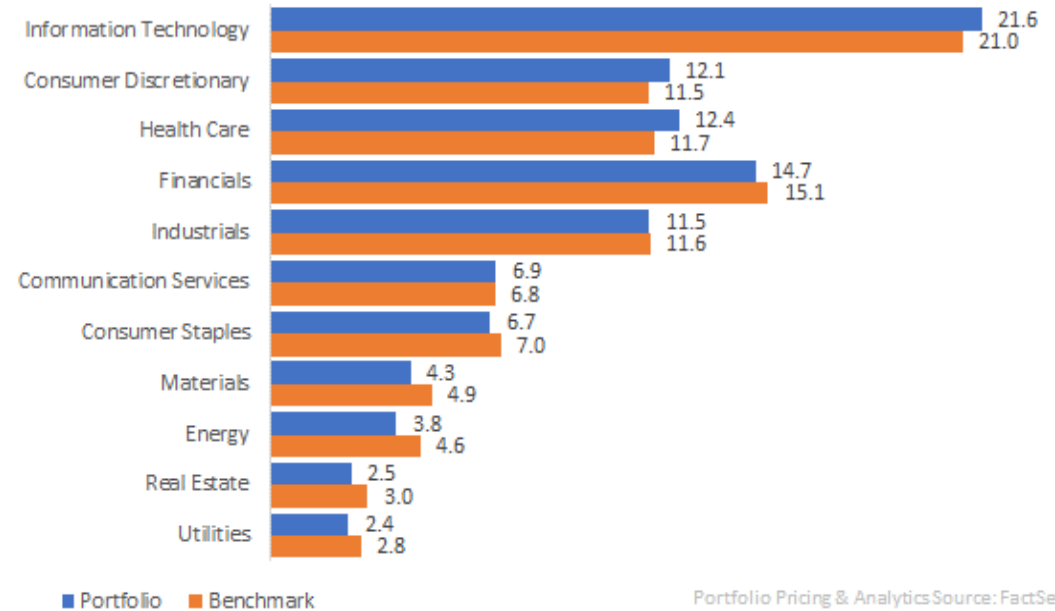


# NCRS Public Equity Portfolio Characteristics

As of June 30, 2023

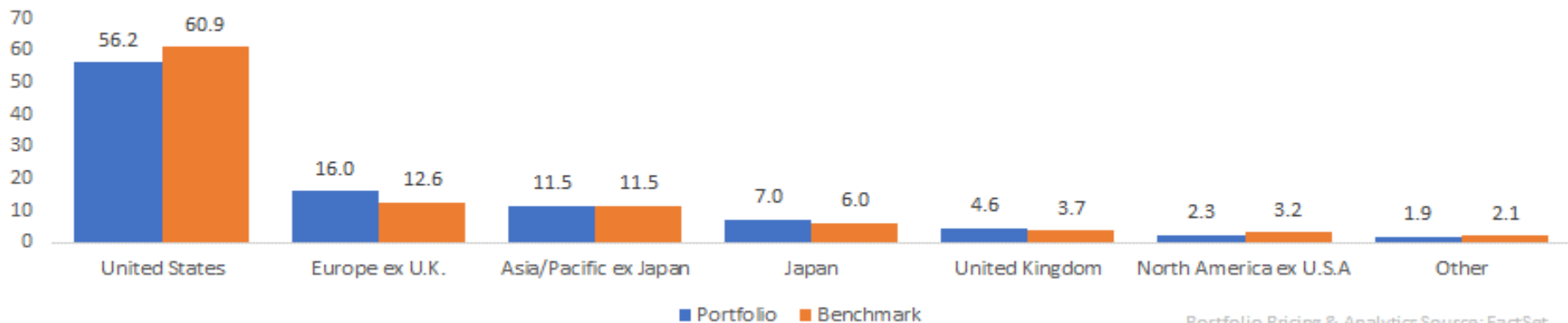
Portfolio Characteristics		
	Portfolio	MSCI ACWI IMI
Price/Earnings	19.0	17.0
Dividend Yield	1.9	2.2
Price/Book	2.8	2.5
Market	384,804	389,807
Return On Equity	19.6	19.8

@FactSet Research Systems



Portfolio Pricing & Analytics Source: FactSet  
Benchmark Pricing & Analytics Source: FactSet

## Total Equity Regional Allocation



Portfolio Pricing & Analytics Source: FactSet  
Benchmark Pricing & Analytics Source: FactSet



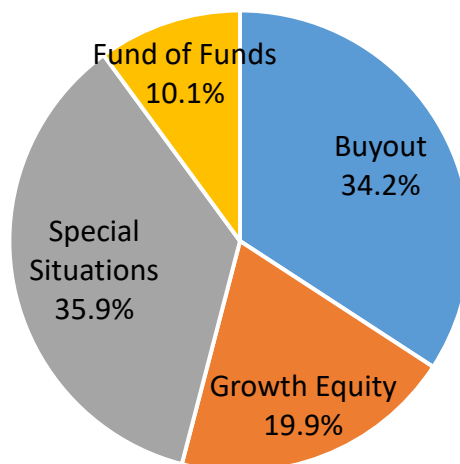
# NCRS Private Equity Portfolio

As of June 30, 2023

	Market Value	3 Month	1 Year	3 Years	5 Years	10 Years
<b>Private Equity</b>	<b>\$6,227</b>	<b>1.82</b>	<b>(6.72)</b>	<b>19.42</b>	<b>14.34</b>	<b>12.92</b>
Benchmark <sup>3</sup>		1.30	(2.57)	18.21	12.25	11.31
<b>Buyout</b>	<b>\$2,128</b>	<b>1.43</b>	<b>(0.80)</b>	<b>23.65</b>	<b>16.20</b>	<b>13.36</b>
<b>Growth</b>	<b>\$1,237</b>	<b>1.48</b>	<b>(15.84)</b>	<b>11.63</b>	<b>12.05</b>	<b>13.80</b>
<b>Special Situations</b>	<b>\$2,233</b>	<b>3.53</b>	<b>(4.78)</b>	<b>21.10</b>	<b>13.29</b>	<b>9.43</b>
<b>Fund of Funds</b>	<b>\$627</b>	<b>(1.82)</b>	<b>(11.07)</b>	<b>18.67</b>	<b>13.96</b>	<b>13.74</b>

IRR by Vintage Year																						
	Pre-2004	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Total
NCRS	12.03	6.82	5.11	3.42	9.40	10.16	9.05	19.77	8.66	13.72	12.59	14.59	19.20	22.22	19.95	17.60	N/A	3.63	2.93	73.12	N/A	10.10
# of Funds	28	3	11	21	15	17	3	1	6	6	9	4	9	6	7	3	N/A	1	3	2	N/A	155

Strategy Allocation (Based on Valuation)



\*Private Equity returns include a stock distribution account, in the amount of roughly \$2 million, which does not fall under any specific sub-section.



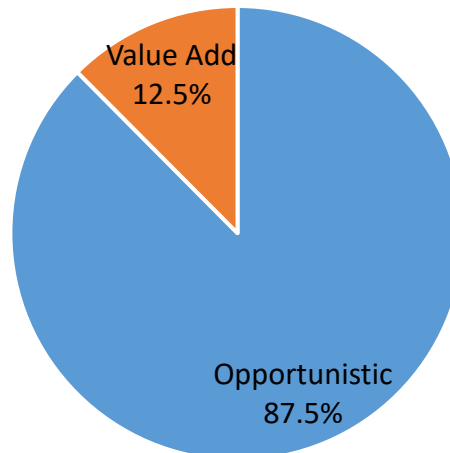
# NCRS Non-Core Real Estate Portfolio

As of June 30, 2023

Net of Fees Performance (%)						
	Market Value	3 Month	1 Year	3 Years	5 Years	10 Years
<b>Non-Core Real Estate</b>	<b>\$2,263</b>	<b>(2.45)</b>	<b>(11.43)</b>	<b>5.71</b>	<b>5.42</b>	<b>10.02</b>
Benchmark <sup>4</sup>		(0.19)	(2.37)	8.61	6.22	7.62
<b>Opportunistic</b>	<b>\$1,981</b>	<b>(2.16)</b>	<b>(10.94)</b>	<b>6.53</b>	<b>5.91</b>	<b>10.14</b>
<b>Value Add</b>	<b>\$282</b>	<b>(4.80)</b>	<b>(14.64)</b>	<b>2.01</b>	<b>3.26</b>	<b>8.99</b>

IRR by Vintage Year																						
	<u>Pre-2004</u>	<u>2004</u>	<u>2005</u>	<u>2006</u>	<u>2007</u>	<u>2008</u>	<u>2009</u>	<u>2010</u>	<u>2011</u>	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>	<u>2018</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>	<u>Total</u>
NCRS	8.91	15.69	-1.47	2.94	2.03	15.33	N/A	15.89	17.29	14.61	11.73	3.12	8.22	9.83	N/A	13.90	24.09	N/A	N/A	-9.89	N/A	6.49
# of Funds	16	3	15	13	8	6	N/A	6	7	5	7	7	6	7	N/A	1	1	N/A	N/A	4	N/A	112

Strategy Allocation (Based on Valuation)





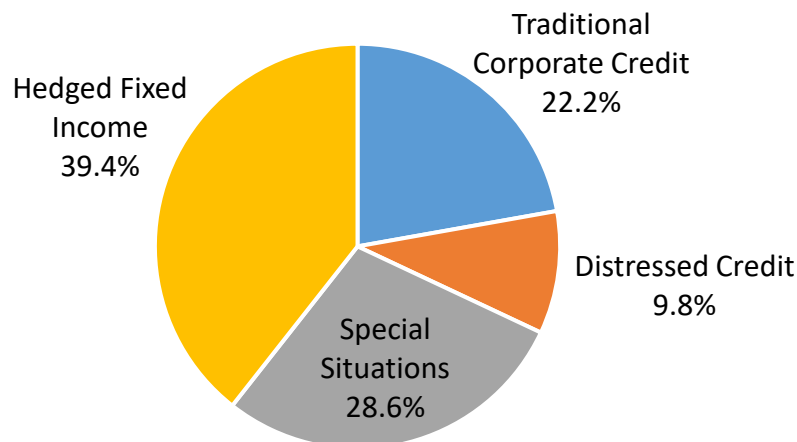
# NCRS Opportunistic Fixed Income Portfolio

As of June 30, 2023

Net of Fees Performance (%)						
	Market Value	3 Month	1 Year	3 Years	5 Years	10 Years
<b>Opportunistic Fixed Income</b>	<b>\$7,110</b>	<b>1.24</b>	<b>1.86</b>	<b>10.02</b>	<b>5.23</b>	<b>5.13</b>
Benchmark <sup>5</sup>		2.84	12.57	7.98	5.08	3.62
<b>Traditional Corporate Credit</b>	<b>\$1,579</b>	<b>1.30</b>	<b>1.23</b>	<b>7.73</b>	<b>4.54</b>	<b>5.06</b>
<b>Distressed Credit</b>	<b>\$696</b>	<b>1.72</b>	<b>(0.06)</b>	<b>15.99</b>	<b>8.37</b>	<b>8.36</b>
<b>Special Situations</b>	<b>\$2,035</b>	<b>1.91</b>	<b>4.08</b>	<b>11.33</b>	<b>6.74</b>	<b>8.42</b>
<b>Hedged Fixed Income</b>	<b>\$2,801</b>	<b>0.62</b>	<b>0.94</b>	<b>9.61</b>	<b>4.42</b>	<b>3.76</b>

IRR by Vintage Year																				
	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Total
NCRS	2.87	N/A	16.91	7.22	22.42	4.98	4.86	3.51	5.04	3.53	8.34	7.15	10.79	N/A	7.74	14.75	9.35	1.62	-0.06	5.96
# of Funds	1	N/A	1	3	1	4	9	2	7	3	1	8	2	N/A	1	2	1	2	1	49

Strategy Allocation (Based on Valuation)





# NCRS Rates & Liquidity Portfolio

As of June 30, 2023

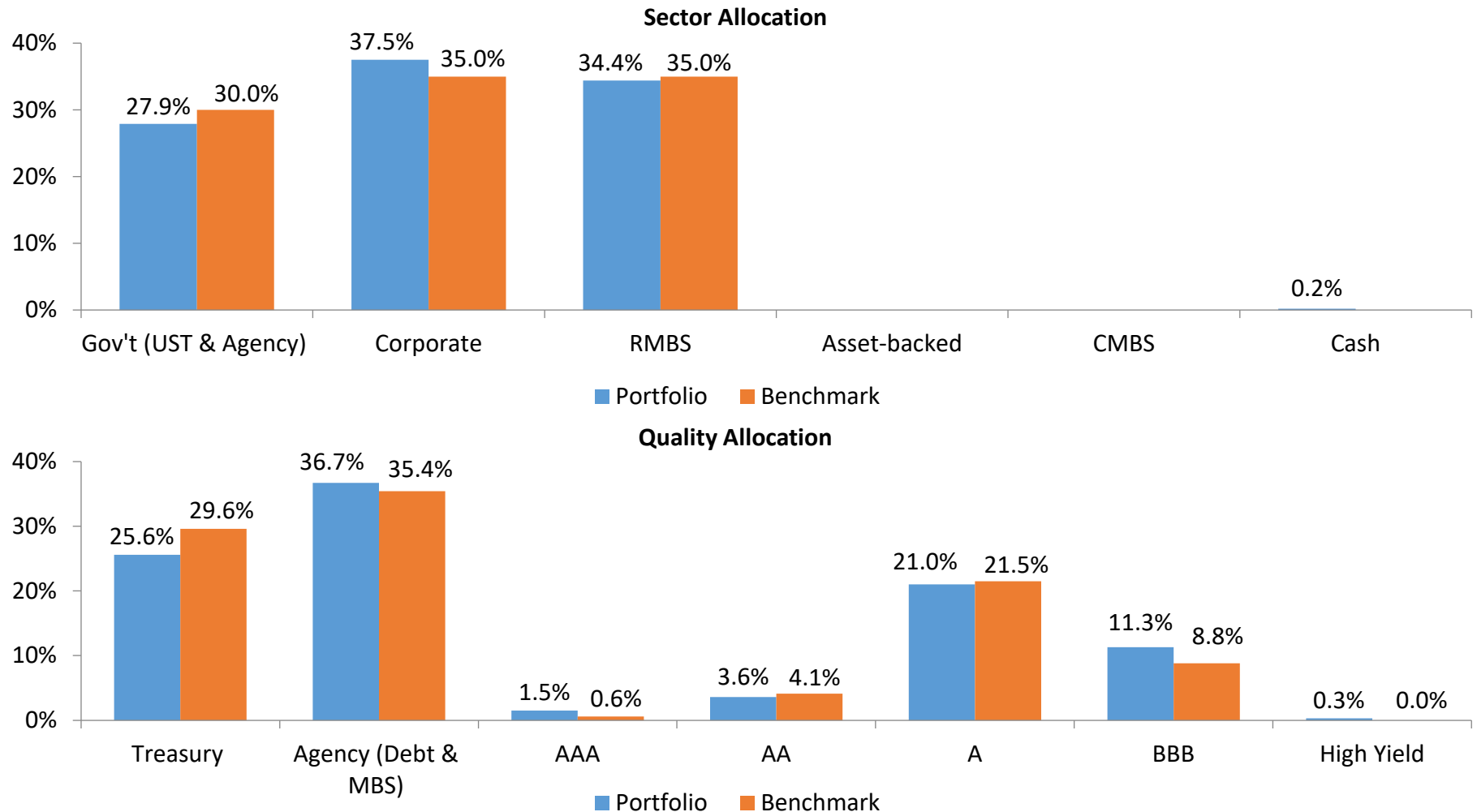
Net of Fees Performance (%)						
	Market Value	3 Month	1 Year	3 Years	5 Years	10 Years
<b>Rates &amp; Liquidity</b>	<b>\$43,405</b>	<b>(0.13)</b>	<b>0.52</b>	<b>(2.24)</b>	<b>1.87</b>	<b>2.35</b>
Benchmark <sup>6</sup>		(0.46)	(0.33)	(4.49)	0.92	1.96
<b>IG Fixed Income</b>	<b>\$30,992</b>	<b>(0.60)</b>	<b>(0.63)</b>	<b>(3.79)</b>	<b>1.43</b>	<b>2.16</b>
Core Fixed Income	\$27,121	(0.77)	(1.13)	(4.42)	1.35	2.18
IG Fixed Income Cash	\$2,026	0.89	2.37	1.00	1.36	-
IG Short Credit	\$1,845	0.28	-	-	-	-
Pension Cash	\$12,414	1.04	3.01	1.19	1.54	1.18

Core Fixed Income Portfolio Characteristics			
	Avg. Coupon	Yield to Worst	Effective Duration
Government (Treasury & Agency)	3.6%	4.0%	10.7
Corporate	4.3%	5.3%	8.9
Mortgage	3.2%	4.7%	5.4
Total	3.7%	4.7%	8.3



# NCRS Core Fixed Income Portfolio Characteristics

## As of June 30, 2023



*Benchmark: The Core Fixed Income Benchmark is a custom BOAML Core Investment Grade Index comprised of the following weightings: 30% BOAML 5+ Years Governments, 35% BOAML 5+ Years Investment Grade Corporates, and 35% BOAML Mortgage Master*

# NCRS Inflation Sensitive Portfolio

As of June 30, 2023

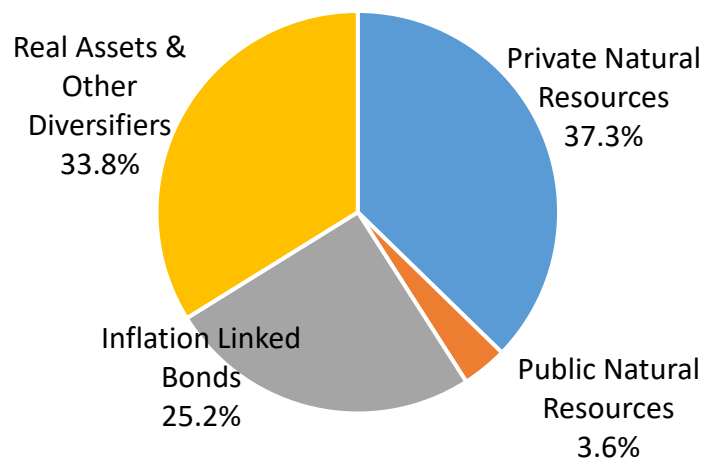
## Net of Fees Performance (%)

	Market Value	3 Month	1 Year	3 Years	5 Years	10 Years
<b>Inflation Sensitive</b>	<b>\$5,424</b>	<b>1.81</b>	<b>6.86</b>	<b>10.96</b>	<b>5.62</b>	<b>3.74</b>
Benchmark <sup>10</sup>		(0.26)	2.47	6.76	3.82	2.01
<b>Private Natural Resources</b>	<b>\$2,023</b>	<b>1.72</b>	<b>9.51</b>	<b>14.49</b>	<b>4.69</b>	<b>3.63</b>
<b>Public Natural Resources</b>	<b>\$198</b>	<b>(1.70)</b>	<b>(12.07)</b>	<b>18.11</b>	<b>4.44</b>	<b>(0.97)</b>
<b>Inflation Linked Bonds</b>	<b>\$1,369</b>	<b>0.93</b>	<b>3.15</b>	<b>3.28</b>	<b>2.73</b>	<b>-</b>
<b>Real Assets &amp; Other Diversifiers</b>	<b>\$1,835</b>	<b>2.99</b>	<b>9.14</b>	<b>12.01</b>	<b>9.26</b>	<b>8.90</b>

## IRR by Vintage Year

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Total
NCRS	1.51	-7.73	-5.67	N/A	-5.73	-5.76	5.86	7.15	7.71	8.54	2.86	7.34	24.33	32.72	N/A	45.26	N/A	-3.00	2.54
# of Funds	3	2	2	N/A	3	9	7	11	12	4	3	1	3	2	N/A	5	N/A	2	69

## Strategy Allocation (Based on Valuation)







# NCRS Core Real Estate Portfolio

As of June 30, 2023

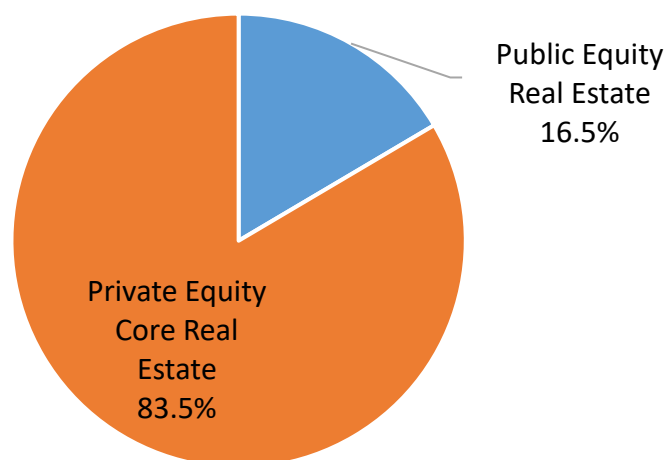
## Net of Fees Performance (%)

	Market Value	3 Month	1 Year	3 Years	5 Years	10 Years
Core Real Estate	\$6,404	(2.74)	(5.14)	6.11	5.38	6.94
Benchmark <sup>11</sup>		(2.63)	(6.94)	7.35	5.05	7.43
Public Equity Real Estate	\$1,057	2.08	(4.82)	2.34	1.17	4.52
Private Equity Core Real Estate	\$5,347	(3.63)	(5.35)	6.65	6.03	7.31

## IRR by Vintage Year

	Pre-2004	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Total
NCRS	7.51	9.74	-8.33	4.25	1.39	7.56	N/A	23.62	N/A	N/A	4.97	5.22	5.69	6.57	N/A	15.77	N/A	N/A	10.88	N/A	N/A	6.72
# of Funds	5	1	1	2	3	1	N/A	1	N/A	N/A	2	6	2	9	N/A	1	N/A	N/A	3	N/A	N/A	37

## Strategy Allocation (Based on Valuation)



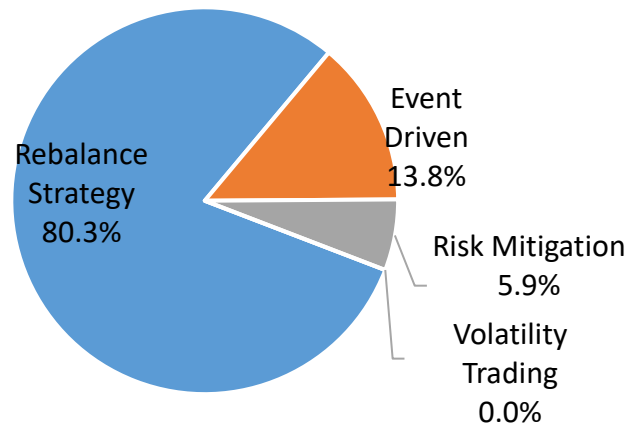


# NCRS Multi-Strategy Portfolio

As of June 30, 2023

	Market Value	Net of Fees Performance (%)				
		3 Month	1 Year	3 Years	5 Years	10 Years
<b>Multi-Strategy</b>	<b>\$2,353</b>	<b>2.64</b>	<b>7.90</b>	<b>5.71</b>	<b>2.61</b>	<b>4.98</b>
Benchmark <sup>12</sup>		1.29	4.28	2.80	1.62	3.99
<b>Rebalance Strategy</b>	<b>\$1,889</b>	<b>3.01</b>	<b>9.96</b>	<b>5.57</b>	<b>3.85</b>	<b>6.24</b>
<b>Event Driven</b>	<b>\$325</b>	<b>1.53</b>	<b>(1.68)</b>	<b>10.05</b>	<b>3.91</b>	<b>-</b>
<b>Risk Mitigation</b>	<b>\$140</b>	<b>0.31</b>	<b>5.26</b>	<b>(1.76)</b>	<b>(0.22)</b>	<b>-</b>
<b>Volatility Trading</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>

Strategy Allocation (Based on Valuation)



## Notes:

All data presented are based on currently available information at time of publication and may be revised subsequently.

1. The Growth Benchmark is a blend of the Public Equity Benchmark, Private Equity Benchmark, Non-Core Real Estate Benchmark, & Opportunistic FI Benchmark at policy weights.
2. The Public Equity Benchmark is a dynamically weighted combination of the MSCI ACWI IMI Net (Long-Only) and a beta adjusted MSCI ACWI IMI Net (Hedged Equity).
3. The Private Equity Benchmark is comprised of the following Burgiss Group Private iQ indices: Effective 7/1/2022 at 45% Buyout, 25% Venture Capital, and 30% Distressed.
4. The Non-Core Real Estate Benchmark is comprised of the following Burgiss Group Private iQ indices: 80% U.S. Non-Core Real Estate (Opportunistic and Value-Added) and 20% Non-U.S. Non-Core Real Estate (Opportunistic and Value-Added).
5. The Opportunistic Fixed Income Benchmark is comprised of 50% HFRX Distressed Securities Index, 20% HFRX Relative Value Index, 15% Credit Suisse Leveraged Loan Index, and 15% BOAML High Yield Index.
6. The Rates & Liquidity Benchmark is a blend of the IG Fixed Income & Cash Benchmark and the Pension Cash Benchmark at policy weights.
7. The IG Fixed Income & Cash Benchmark is comprised 10% iMoneyNet First Tier Institutional Money Market Funds Net Index and 90% custom BOAML Core Investment Grade Index. The custom BOAML core index comprised of the following weightings: 30% BOAML 5+ Years Governments, 35% BOAML 5+ Years Investment Grade Corporates, and 35% BOAML Mortgage Master.
8. The Pension Cash Benchmark is the iMoneyNet First Tier Institutional Money Market Funds Net Index.
9. The Inflation Sensitive & Diversifiers Benchmark is a blend of the Inflation Sensitive Benchmark and the Core Real Estate Benchmark at policy weights.
10. The Inflation Sensitive Benchmark is the dynamically weighted combination of the Bank of America Merrill Lynch 1-3 Years U.S. Inflation-Linked Treasury Index (TIPS), the Bloomberg Commodities Index (Commodities), and a combination of the benchmarks of investments classified within Private Natural Resources or Other Real Assets and Diversifiers.
11. The Core Real Estate Benchmark is comprised of 80% Custom NCREIF ODCE Net Index and 20% FTSE EPRA NAREIT Global Index.
12. The Multi-Strategy Benchmark is comprised of a dynamically weighted combination of the HFRX ED: Multi-Strategy Index, net of fees, and the market value weighted benchmarks for any other total fund strategies within the Portfolio.
13. The Implementation Benchmark is a blend of the Asset Class Benchmarks at policy weights. It is currently weighted as follows: 55% Growth Benchmark, 33% Rates & Liquidity Benchmark, 11% Inflation Sensitive & Diversifiers Benchmark, and 1% Multi-Strategy Benchmark.
14. The Long-Term Policy Benchmark is comprised of 56% MSCI ACWI IMI Net, 28% BOAML 5+ Years U.S. Treasury Index, 6.5% Bloomberg Commodity Index, 5% BOAML 3 Month Treasury Bill Index, and 4.5% BOAML 1-3 Years U.S. Inflation-Linked Treasury Index.

\*Source: BofA Merrill Lynch, used with permission. See disclaimer on next page.



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## INVESTMENT MANAGEMENT DIVISION