

NORTH CAROLINA
DEPARTMENT OF STATE TREASURER



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

INVESTMENT MANAGEMENT DIVISION

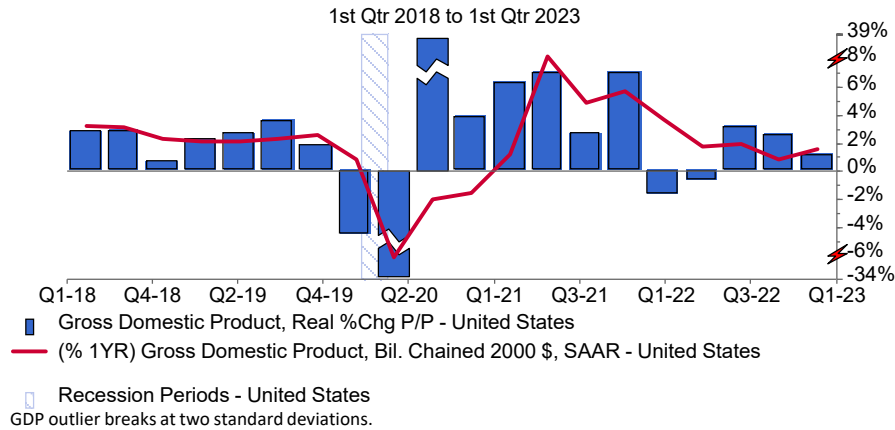
Performance Review

May 31, 2023

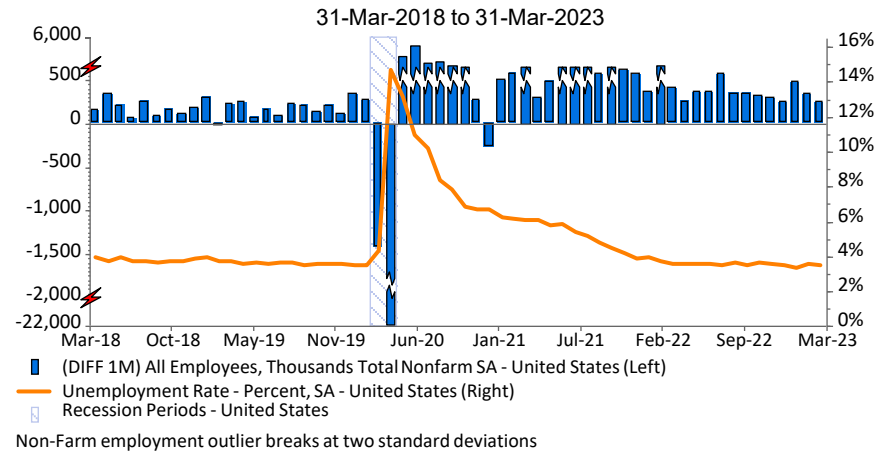


US Economic Environment

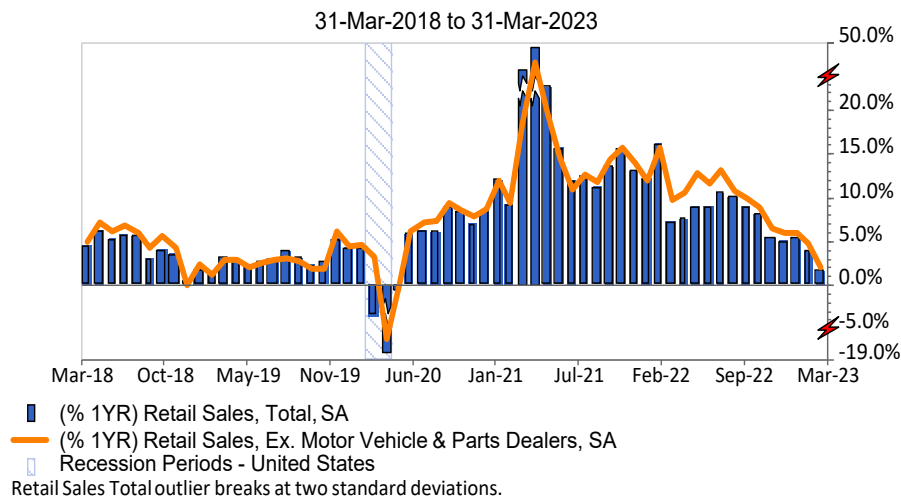
US Real GDP Growth



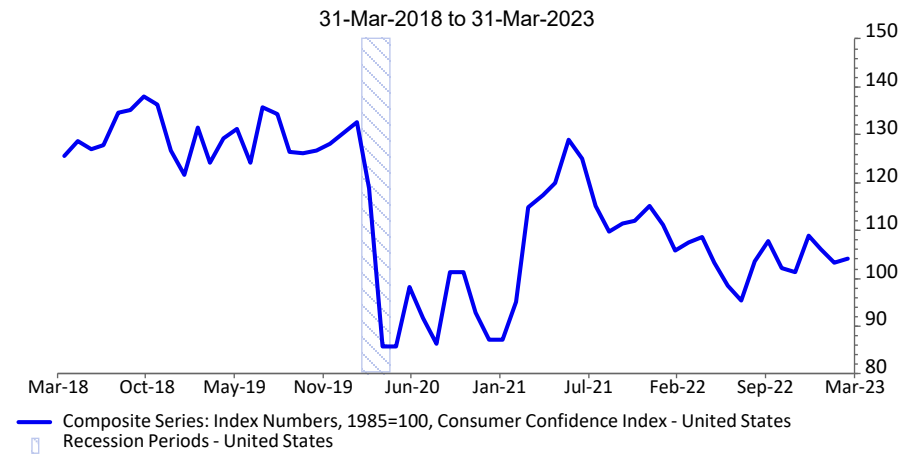
US Change in NonFarm Employment & Unemployment Rate



US Retail Sales



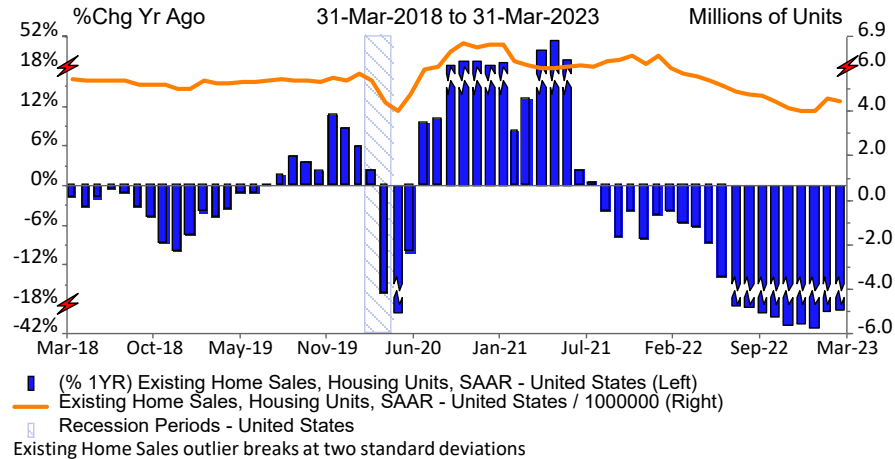
US Consumer Confidence



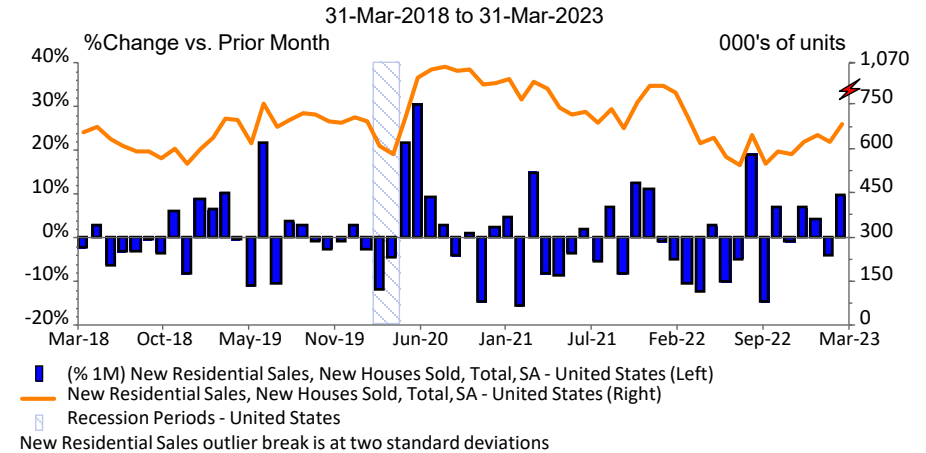


US Economic Environment

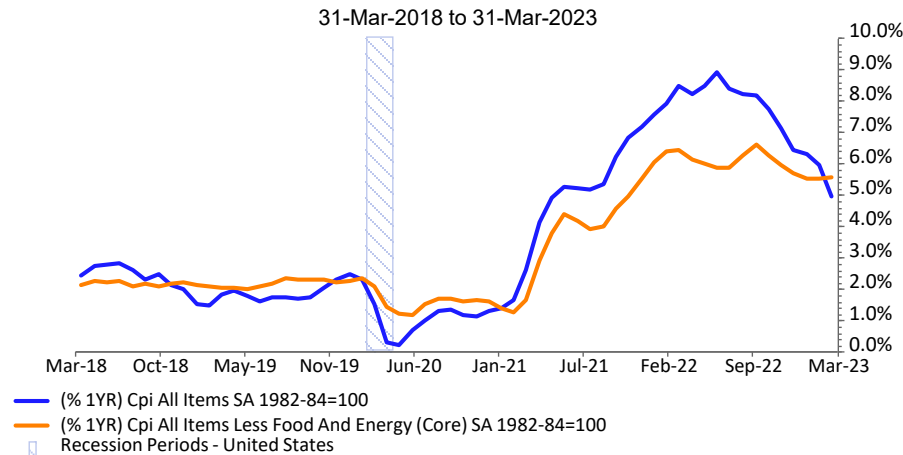
US Existing Home Sales



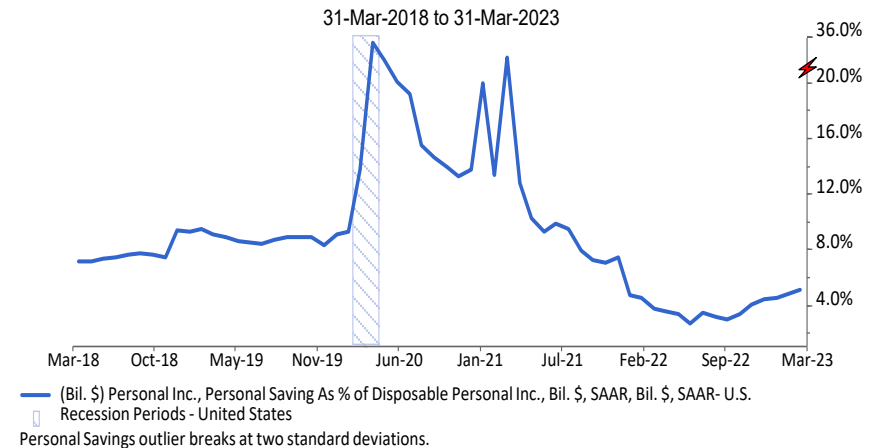
US New Home Sales



US Consumer Price Inflation



US Personal Savings Rate

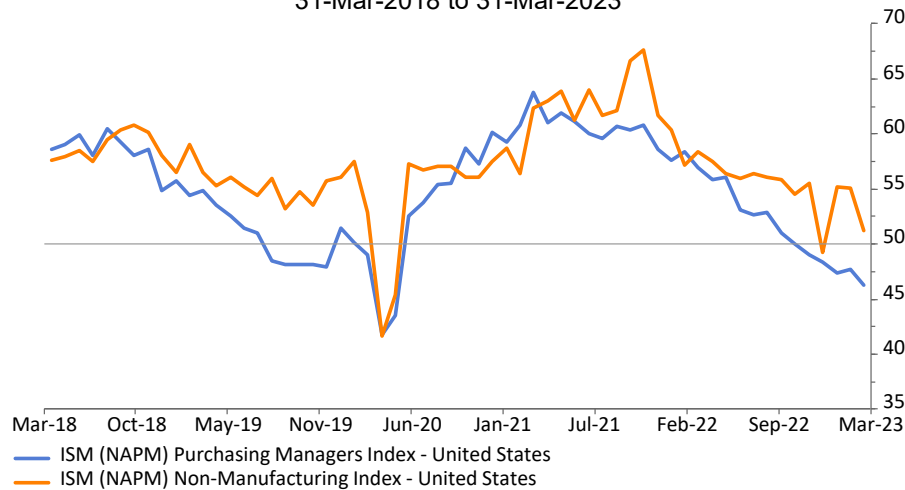




US and Global Economic Environment

ISM Report on Business

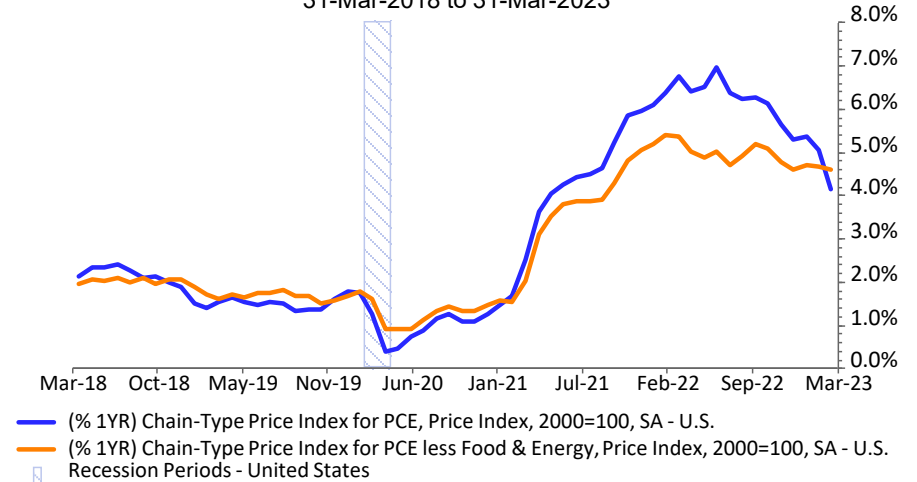
31-Mar-2018 to 31-Mar-2023



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US PCE Inflation

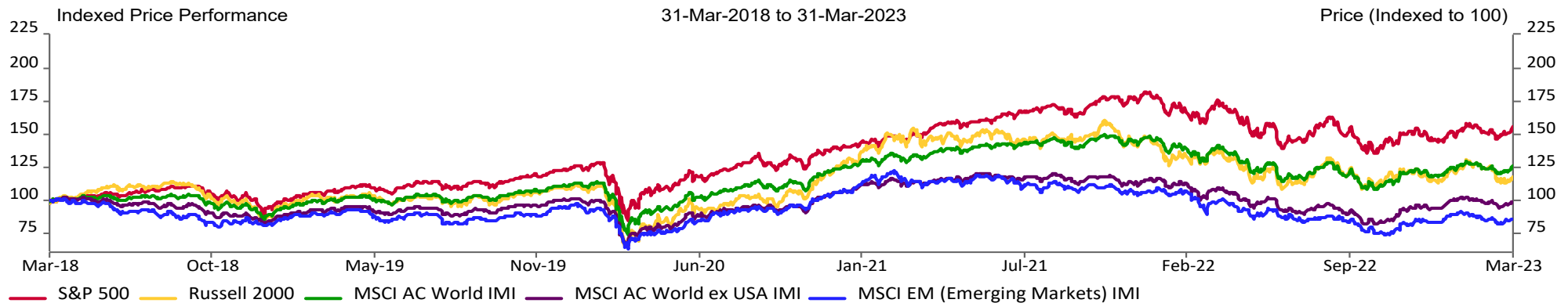
31-Mar-2018 to 31-Mar-2023



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S&P 500 vs. Peers

31-Mar-2018 to 31-Mar-2023

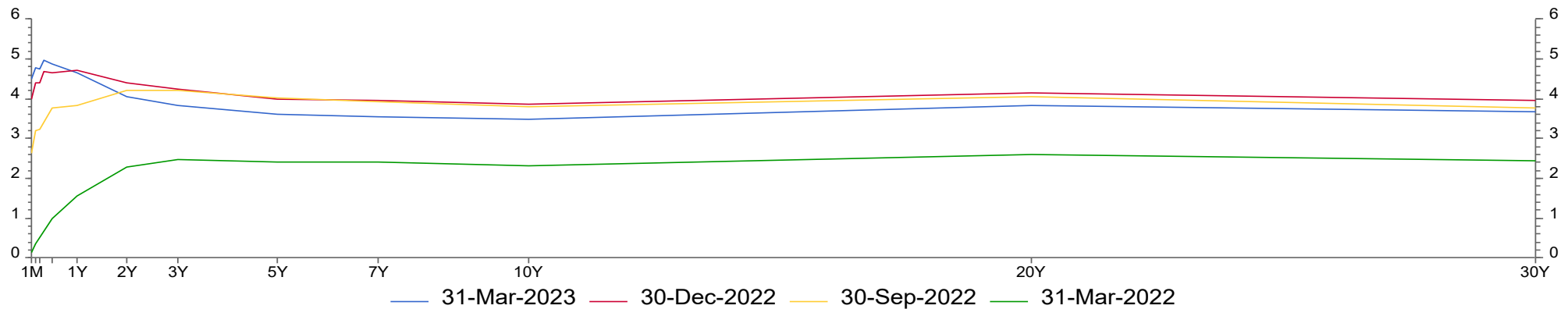


Source: FactSet Prices



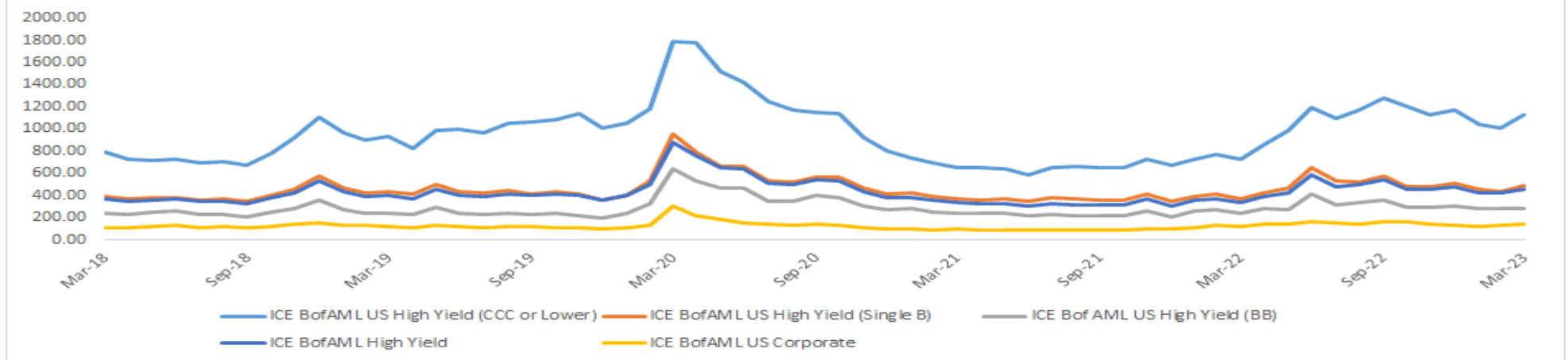
Market Environment

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

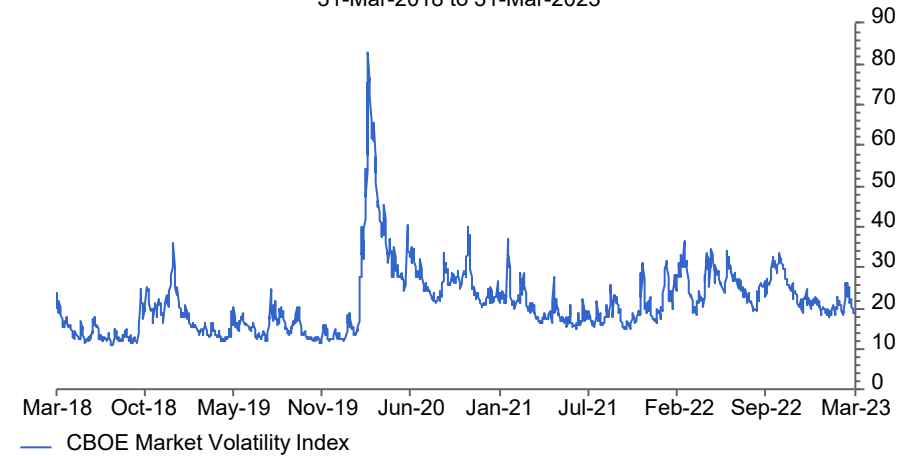
31-Mar-2018 to 31-Mar-2023

Price (Local Currency)



Closing Price CBOE VIX Index

31-Mar-2018 to 31-Mar-2023



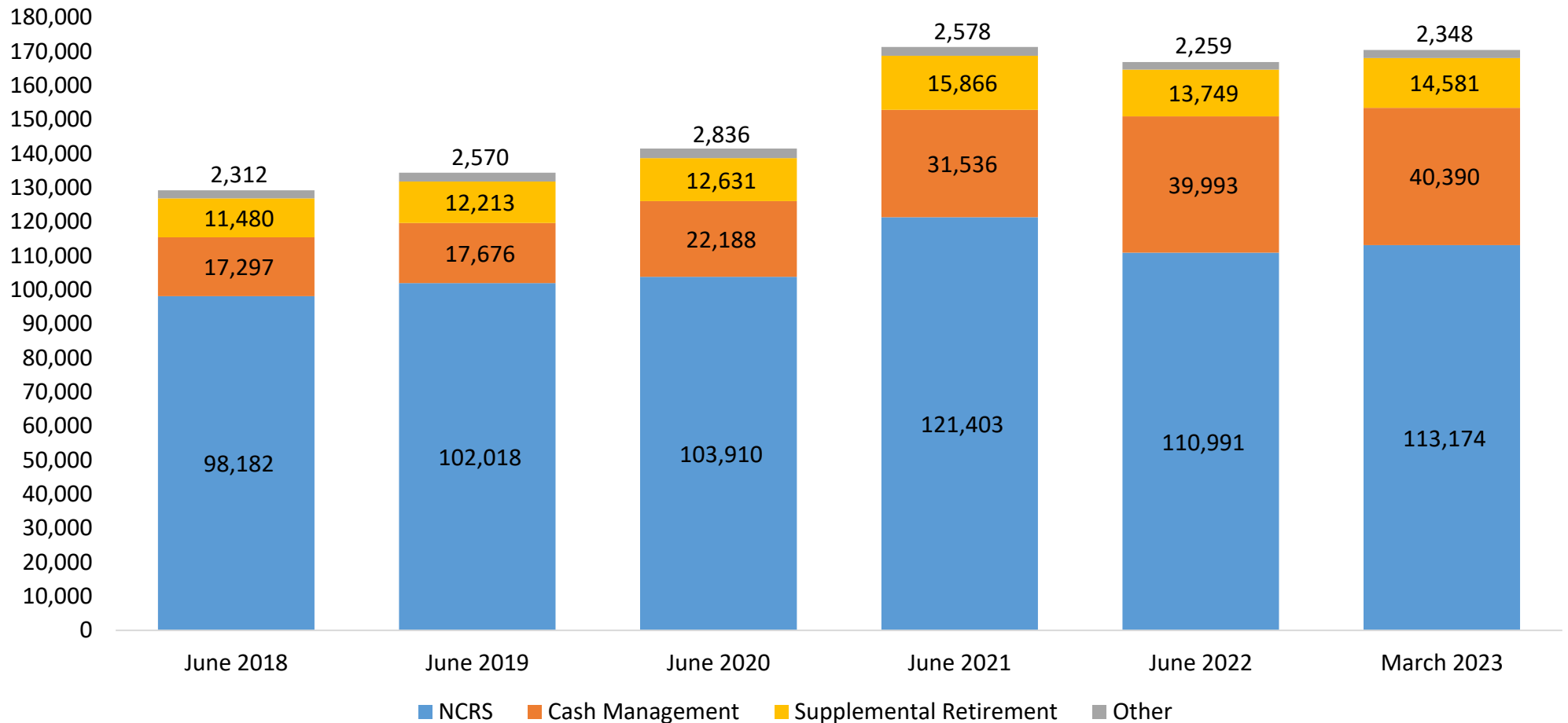
Countries	Real GDP YoY		Unemployment		CPI YoY		Countries	Real GDP YoY		Unemployment		CPI YoY	
	Date	Value	Date	Value	Date	Value		Date	Value	Date	Value	Date	Value
U.S.	03/23	1.6	03/23	3.5	03/23	5.0	Asia/Pacific/Latam						
Europe							China	03/23	4.5			03/23	0.7
Germany	03/23	-0.1	03/23	5.6	03/23	7.4	India	12/22	4.4			03/23	5.8
France	03/23	0.8	02/23	7.0	03/23	5.7	Japan	12/22	0.4	03/23	2.8	03/23	3.2
U.K.	12/22	0.6	02/23	3.8	03/23	10.1	Indonesia	12/22	5.0			03/23	5.0
Italy	03/23	1.8	02/23	8.0	03/23	7.6	Brazil	12/22	1.9			03/23	4.7
Spain	03/23	3.8	02/23	12.8	03/23	3.3	Australia	12/22	2.7	03/23	3.5	03/23	7.0

Source: Bloomberg



Assets Under Management (\$MM)

\$170.5 billion as of March 31, 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 March 31, 2023

	Market Value (\$MM)	%	Target	Range		Relative %	Relative \$ (\$MM)
				Minimum	Maximum		
Growth	55,220	48.79%	55.0%	37.0%	68.0%	-6.21%	(7,026)
Public Equity	39,758	35.13%	38.0%	33.0%	43.0%	-2.87%	(3,248)
Private Equity	6,048	5.34%	7.0%	0.0%	8.8%	-1.66%	(1,874)
Non Core Real Estate	2,334	2.06%	3.0%	0.0%	8.0%	-0.94%	(1,062)
Opportunistic Fixed Income	7,080	6.26%	7.0%	0.0%	7.5%	-0.74%	(842)
Rates & Liquidity	43,615	38.54%	33.0%	23.0%	48.0%	5.54%	6,268
IG Fixed Income & Cash	29,981	26.49%	28.0%	23.0%	33.0%	-1.51%	(1,708)
Pension Cash	13,634	12.05%	5.0%	0.0%	10.0%	7.05%	7,975
Inflation Sensitive & Diversifiers	12,046	10.64%	11.0%	4.0%	16.0%	-0.36%	(403)
Inflation Sensitive	5,449	4.81%	6.0%	2.0%	7.5%	-1.19%	(1,342)
Core Real Estate	6,598	5.83%	5.0%	2.0%	10.0%	0.83%	939
Multi-Strategy	2,293	2.03%	1.0%	0.0%	4.0%	1.03%	1,161
Grand Total	113,174	100.00%					



NCRS Asset Allocation (Preliminary)

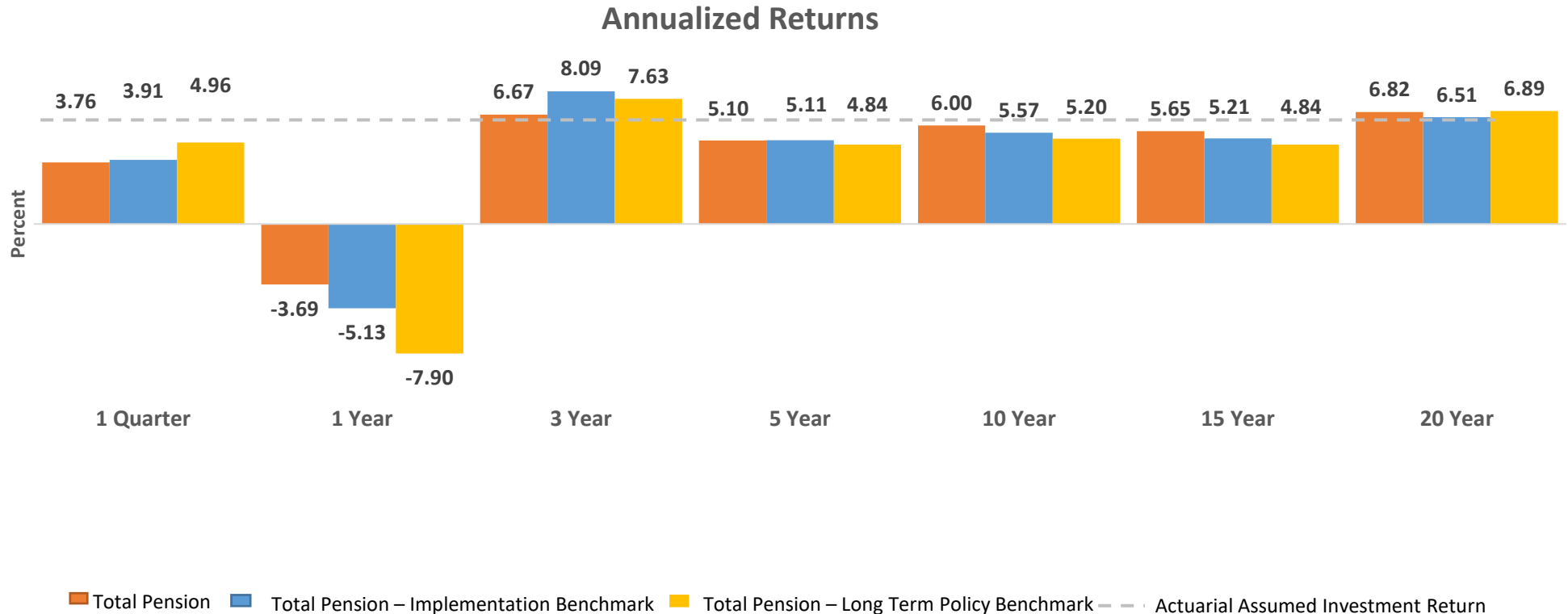
As of May 18, 2023

	Market Value (\$MM)	%	Target	Range		Relative %	Relative \$ (\$MM)
				Minimum	Maximum		
Growth	55,680	49.14%	55.0%	37.0%	68.0%	-5.86%	(6,638)
Public Equity	40,308	35.57%	38.0%	33.0%	43.0%	-2.43%	(2,748)
Private Equity	6,029	5.32%	7.0%	0.0%	8.8%	-1.68%	(1,902)
Non Core Real Estate	2,266	2.00%	3.0%	0.0%	8.0%	-1.00%	(1,133)
Opportunistic Fixed Income	7,077	6.25%	7.0%	0.0%	7.5%	-0.75%	(855)
Rates & Liquidity	43,457	38.35%	33.0%	23.0%	48.0%	5.35%	6,066
IG Fixed Income & Cash	30,576	26.98%	28.0%	23.0%	33.0%	-1.02%	(1,150)
Pension Cash	12,881	11.37%	5.0%	0.0%	15.0%	6.37%	7,216
Inflation Sensitive & Diversifiers	11,862	10.47%	11.0%	4.0%	16.0%	-0.53%	(602)
Inflation Sensitive	5,352	4.72%	6.0%	2.0%	7.5%	-1.28%	(1,446)
Core Real Estate	6,510	5.75%	5.0%	2.0%	10.0%	0.75%	845
Multi-Strategy	2,307	2.04%	1.0%	0.0%	4.0%	1.04%	1,174
Grand Total	113,306	100.00%					



NCRS Total Net Portfolio Return vs. Benchmarks

As of March 31, 2023



Notes:

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

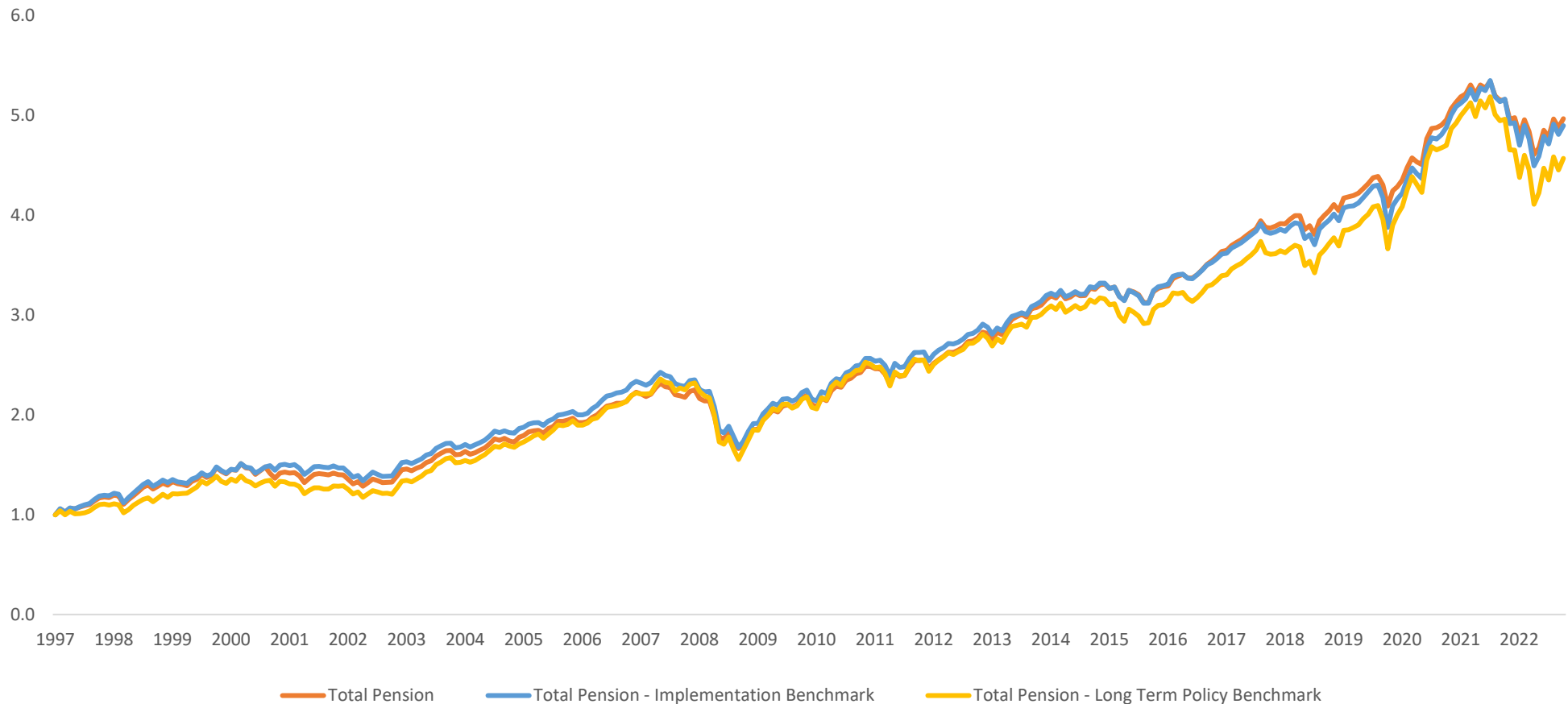
Returns for periods greater than one year are annualized.

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 March 31, 2023



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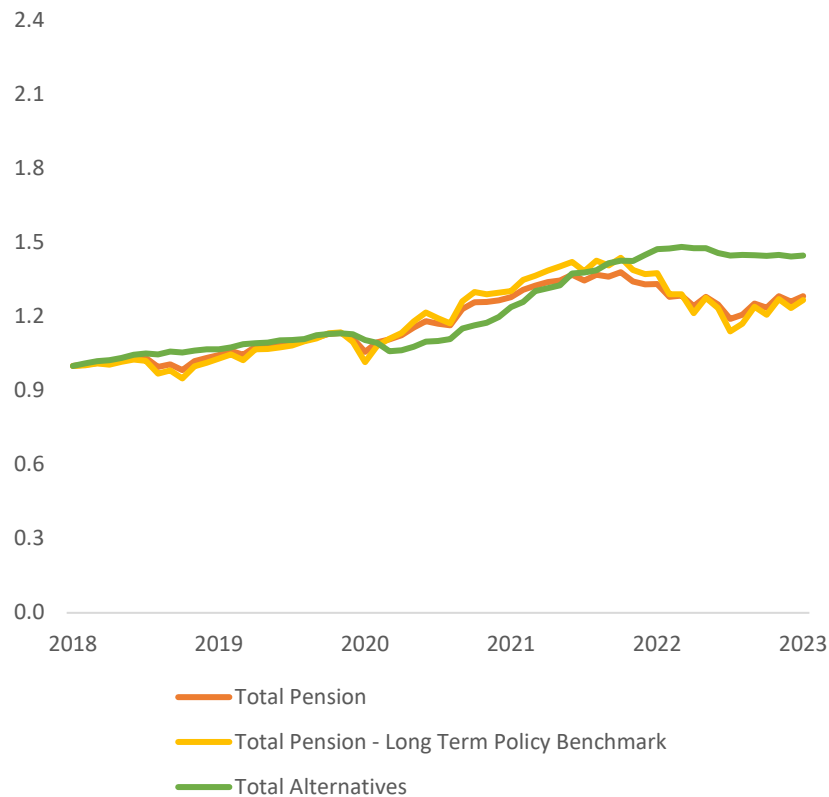
Notes:

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.



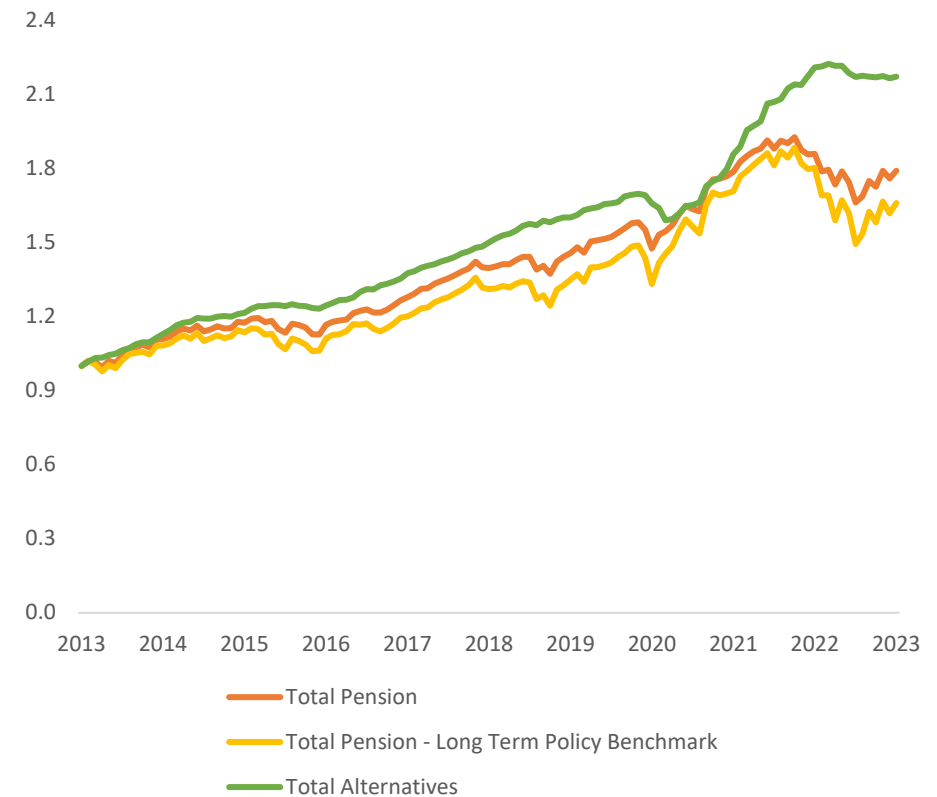
Growth of a Dollar

5 Years Ending March 31, 2023



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10 Years Ending March 31, 2023



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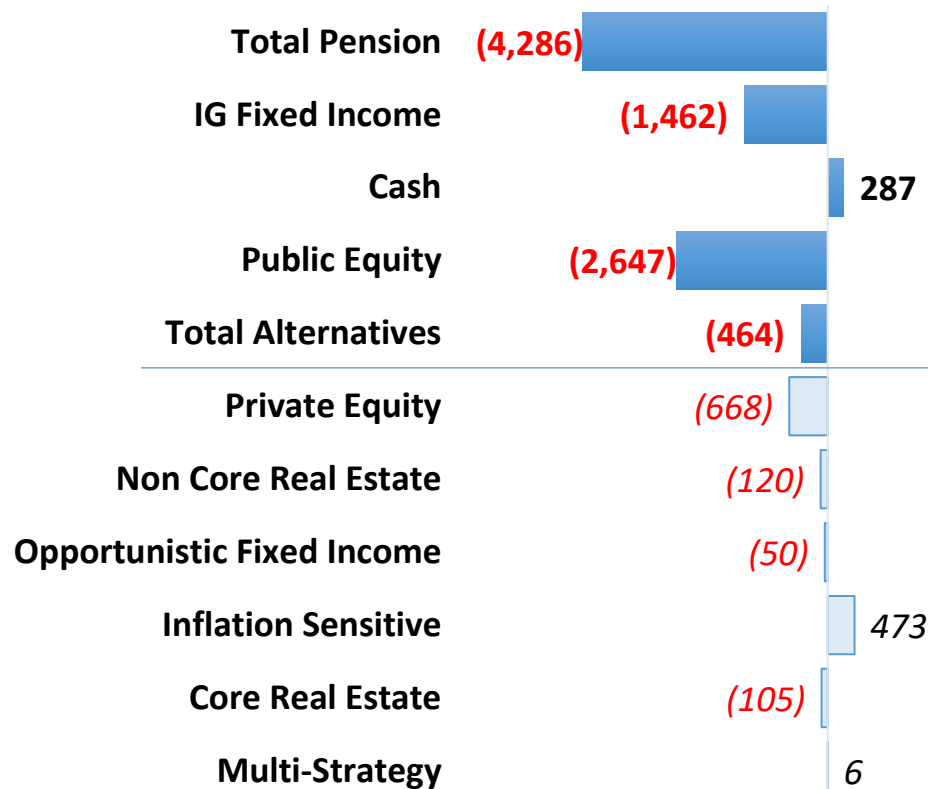
Note: NCRS Alternatives includes the following: Core Real Estate; Inflation Sensitive – Private Natural Resources; Inflation Sensitive – Real Assets and Other Diversifiers; Multi-Strategy Investments; Non-Core Real Estate; Opportunistic Fixed Income; Private Equity; Equity Hedge Strategies; and closed-end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



Estimated Contribution to Total Plan Return – 1 Year

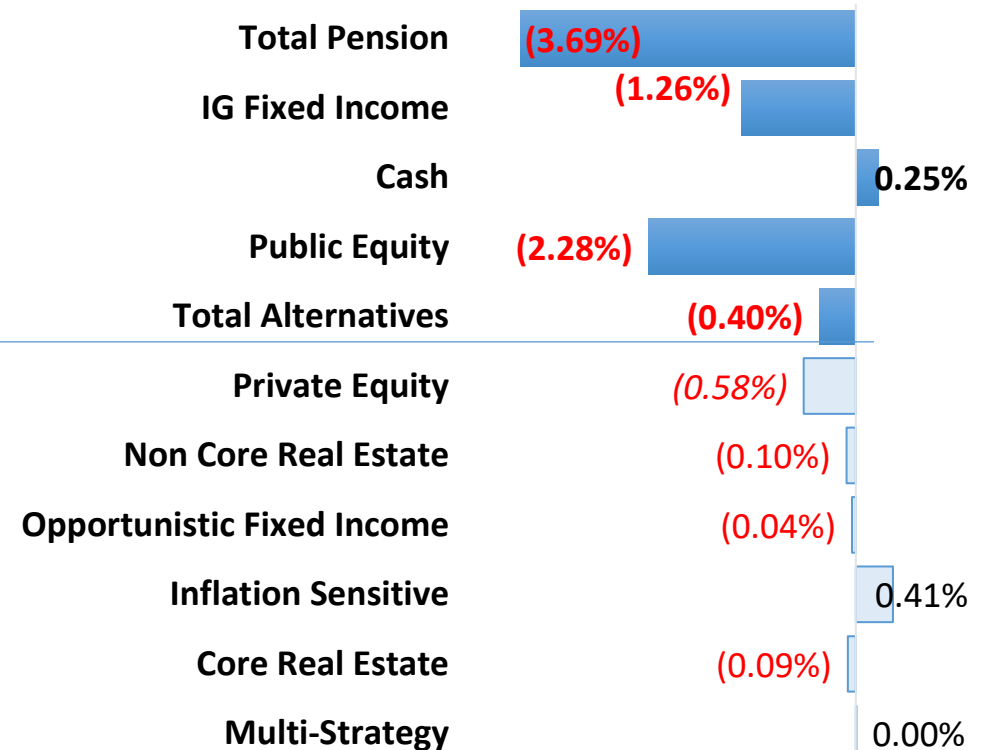
As of March 31, 2023

Contribution to Total Plan \$ Earnings



*Millions

Contribution to Total Plan % Returns



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

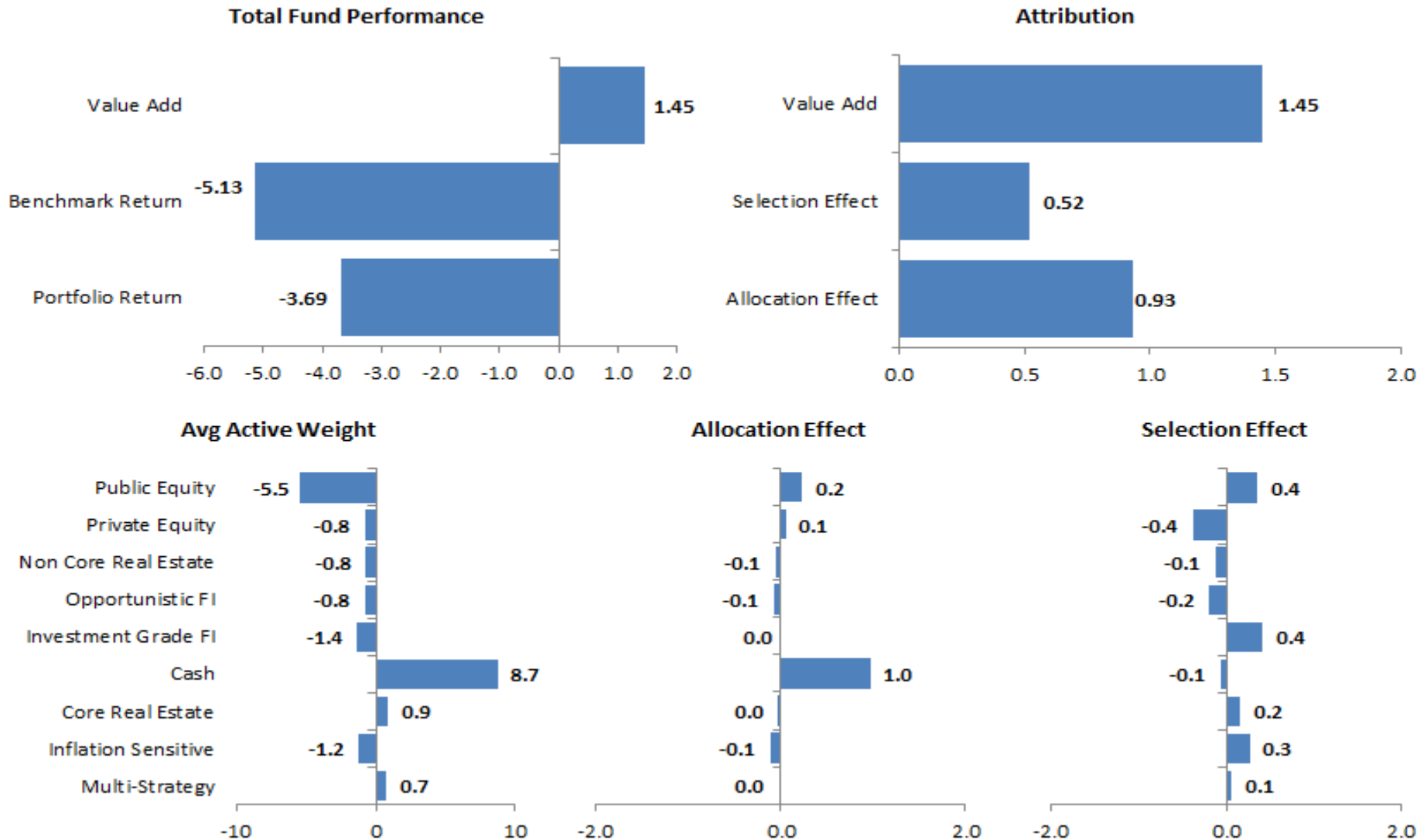
Contribution to Total Plan % Returns = Average Market Value % weight * % Total Return for each asset class

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 March 31, 2023

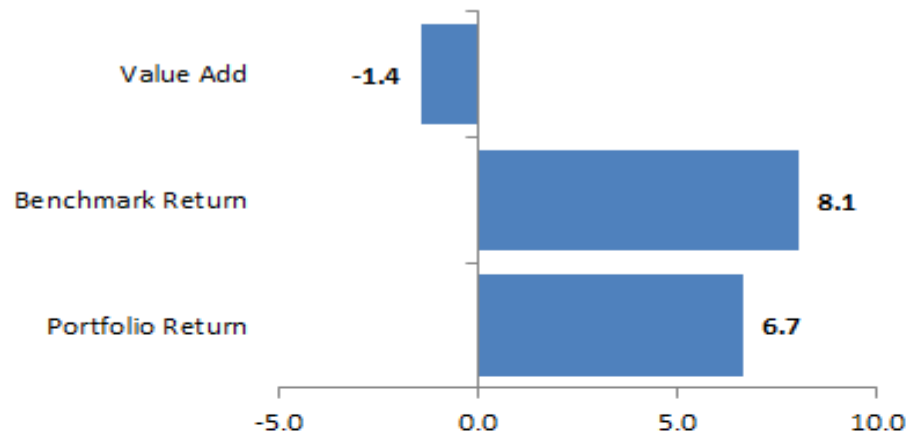




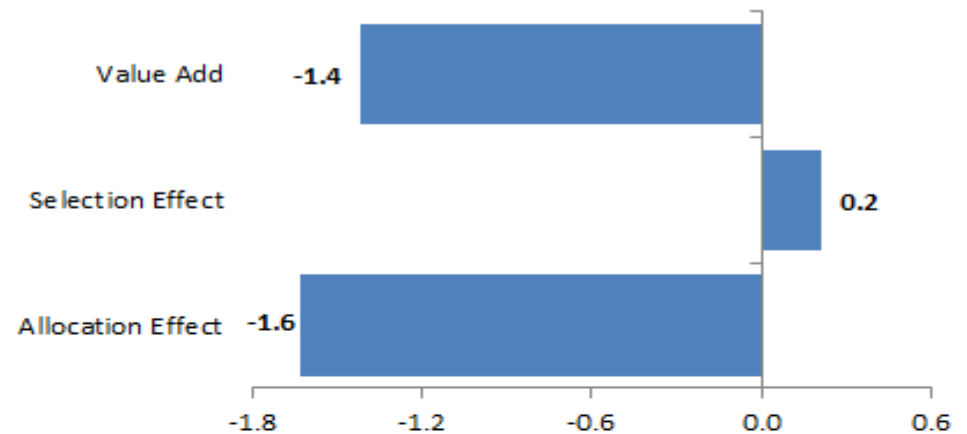
NCRS Net of Fees Return Attribution

Total Fund vs. Implementation Benchmark: 3 Years Ending March 31, 2023

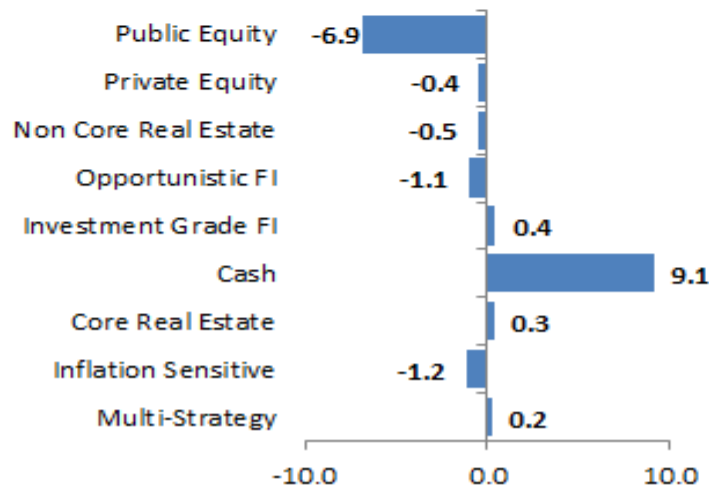
Total Fund Performance



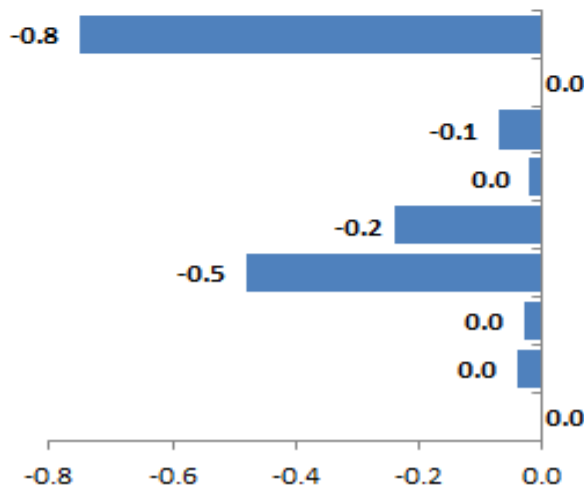
Attribution



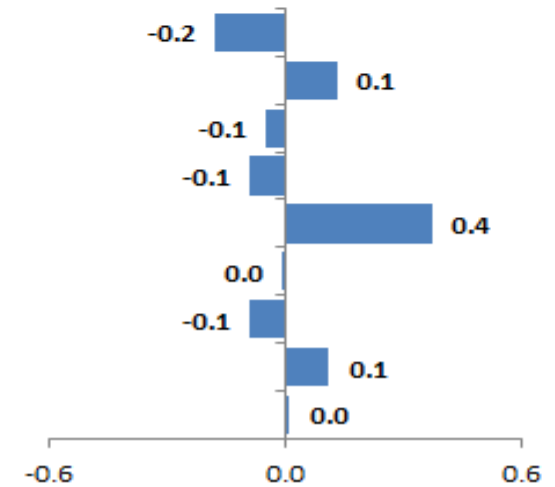
Avg Active Weight



Allocation Effect



Selection Effect

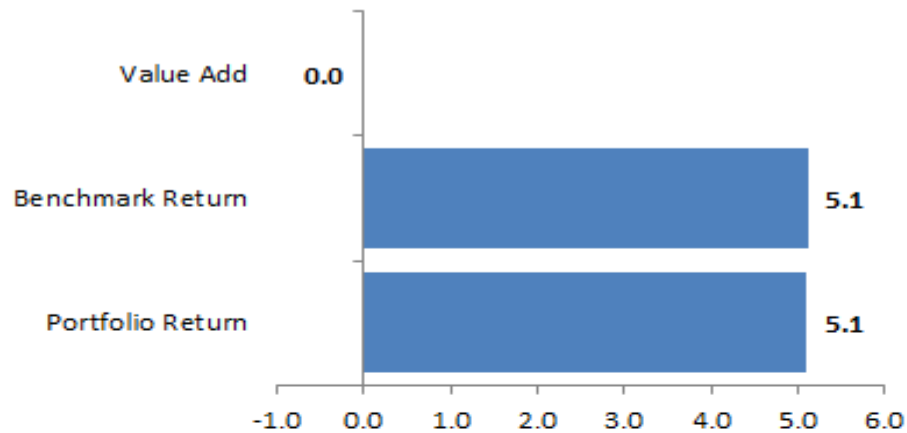




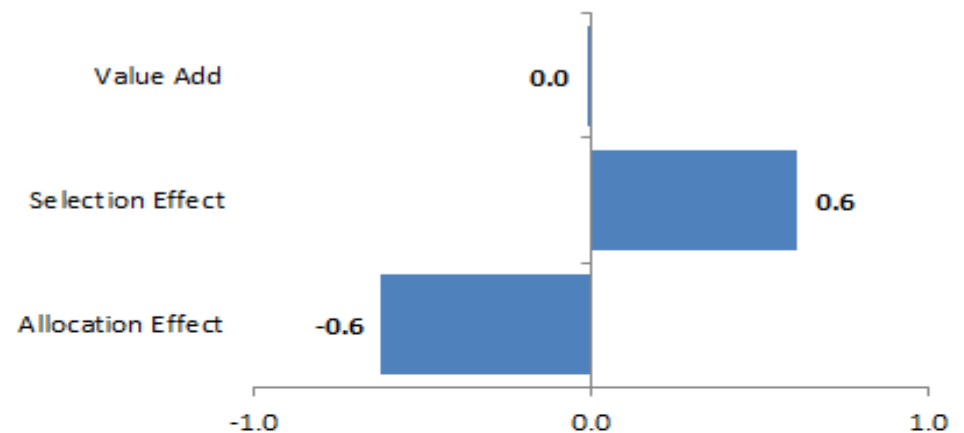
NCRS Net of Fees Return Attribution

Total Fund vs. Implementation Benchmark: 5 Years Ending March 31, 2023

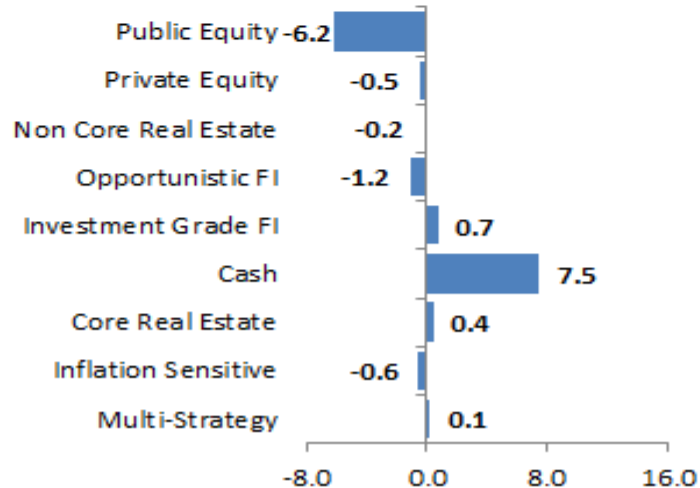
Total Fund Performance



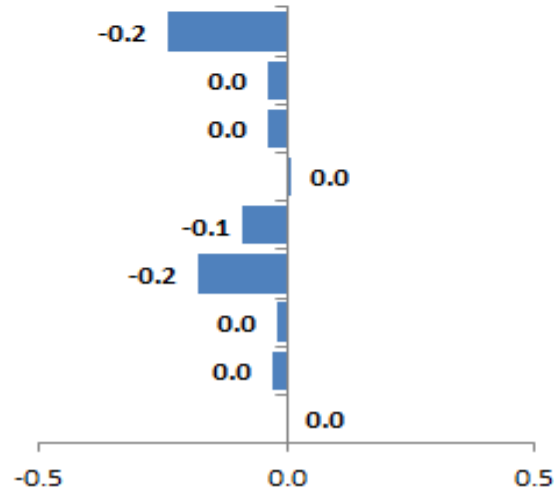
Attribution



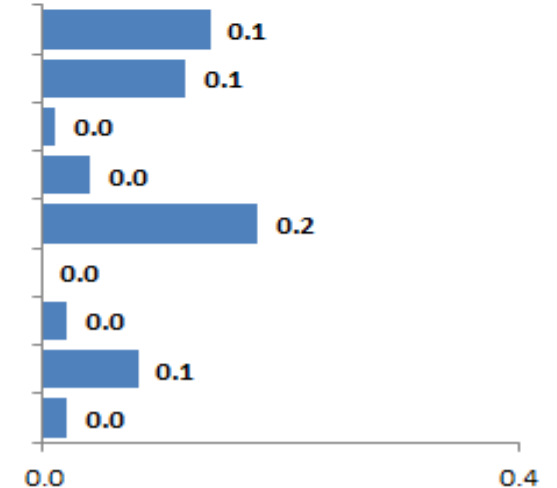
Avg Active Weight



Allocation Effect



Selection Effect

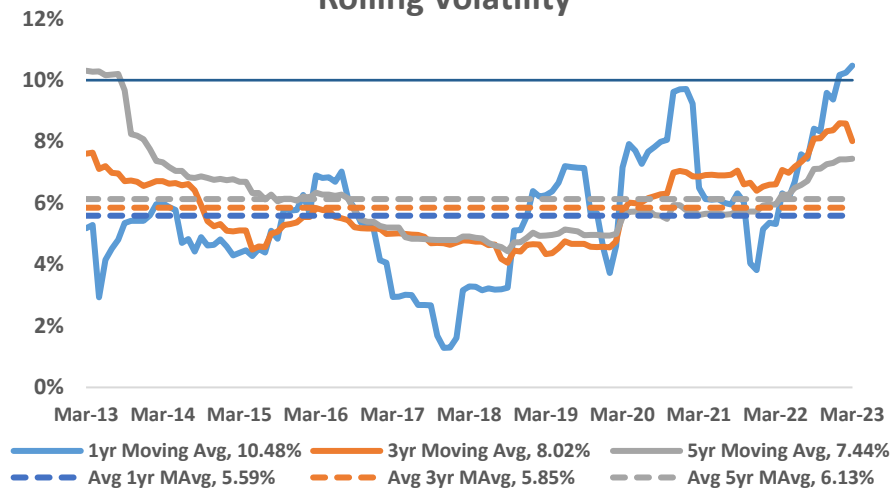




NCRS Net of Fees Risk Metrics

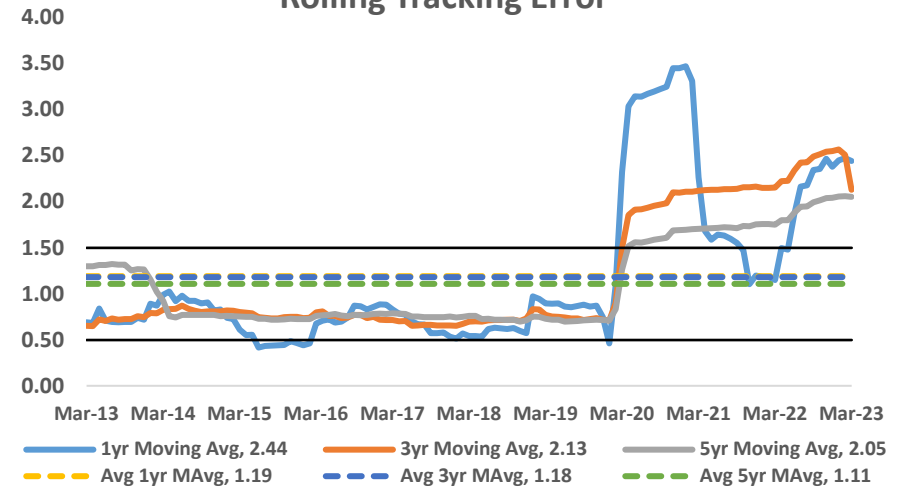
As of March 31, 2023

Rolling Volatility



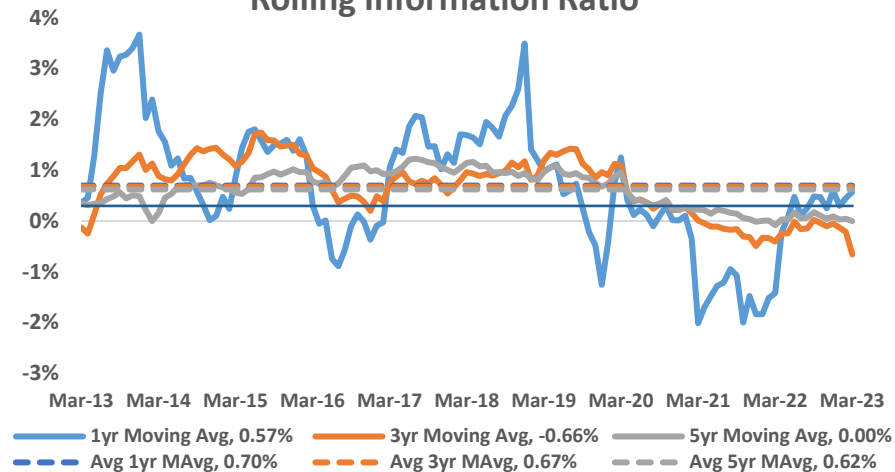
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Rolling Tracking Error



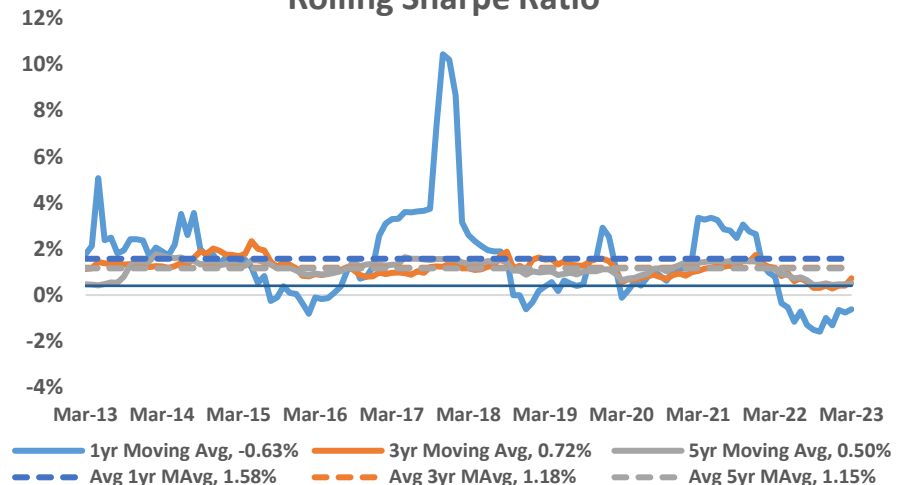
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Rolling Information Ratio



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Rolling Sharpe Ratio

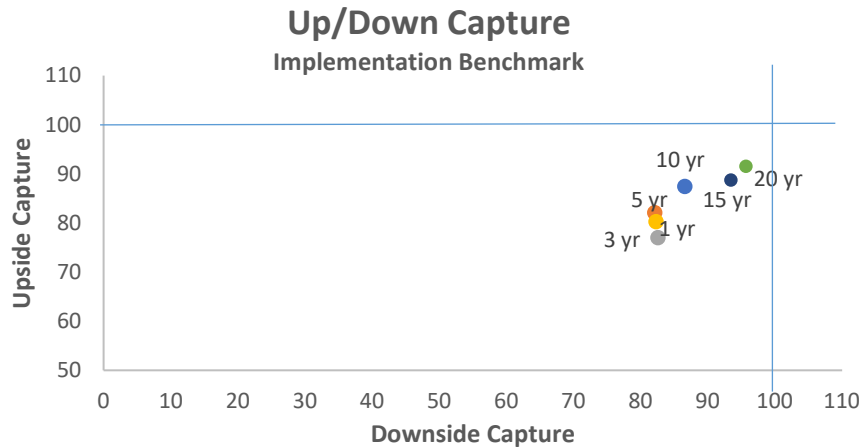


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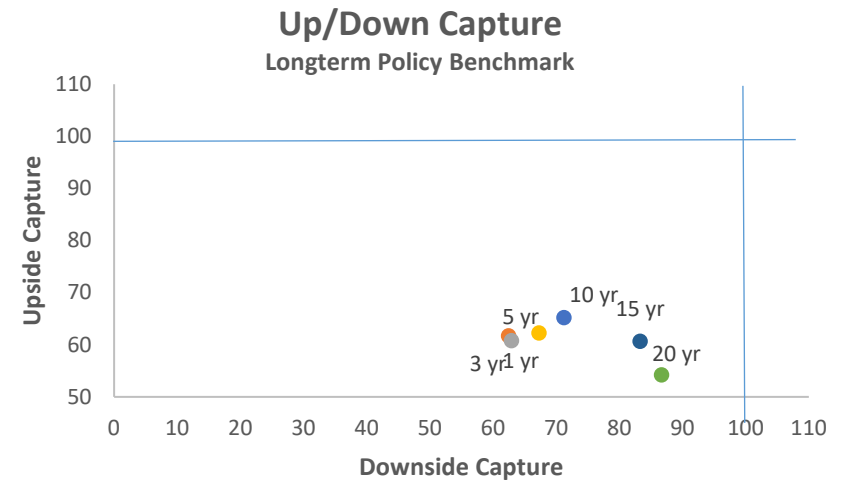


NCRS Net of Fees Risk Metrics

As of March 31, 2023

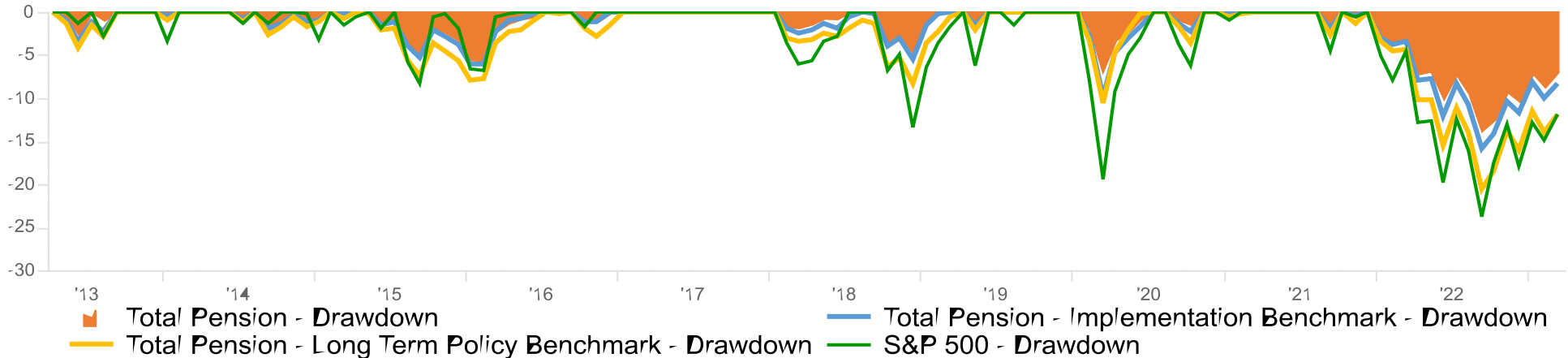


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Drawdown



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NCRS Gross of Fees Return and Risk

BNY Mellon Universe: US Public Funds > \$20B; Data as of March 31, 2023

Returns	1 Year	3 Years	5 Years	10 Years	15 Years	20 Years
25th Percentile	-2.57	12.70	7.79	8.17	6.94	8.56
Median Percentile	-4.14	11.79	7.40	7.86	6.72	8.16
75th Percentile	-5.50	10.18	6.48	7.11	6.12	8.02
NCRS	-3.36	6.99	5.47	6.49	6.12	7.22
Percentile Rank (1 = highest performance)	44	88	88	82	75	87

Risk	1 Year	3 Years	5 Years	10 Years	15 Years	20 Years
25th Percentile	13.23	10.47	10.14	8.18	9.93	9.25
Median Percentile	11.34	8.96	8.82	7.21	9.18	8.61
75th Percentile	9.00	7.83	7.96	6.81	8.32	8.06
NCRS	9.99	7.89	7.36	6.23	7.80	7.34
Percentile Rank (1 = highest risk)	63	69	94	88	88	94

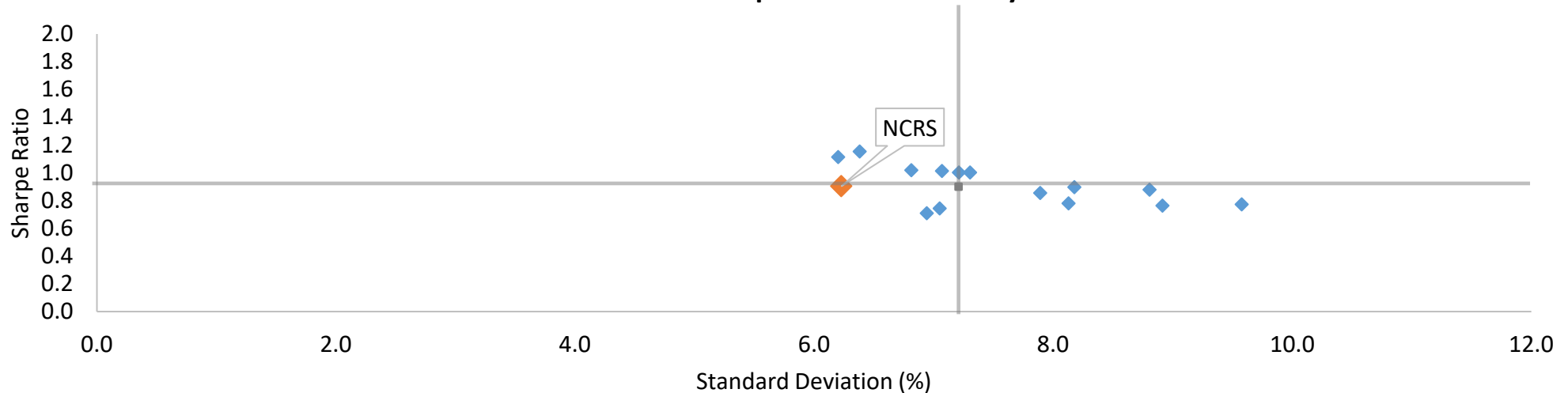


NCRS Gross of Fees Sharpe Ratio

BNY Mellon Universe: US Public Funds > \$20B; Data as of March 31, 2023

Sharpe	1 Year	3 Years	5 Years	10 Years	15 Years	20 Years
25th Percentile	-0.43	1.38	0.81	1.01	0.71	0.86
Median Percentile	-0.54	1.04	0.64	0.90	0.70	0.80
75th Percentile	-0.57	0.90	0.57	0.77	0.60	0.74
NCRS	-0.54	0.79	0.57	0.90	0.71	0.81
Percentile Rank (1 = highest performance)	63	88	69	44	25	40

10 Year Plot: Sharpe Ratio vs. Volatility



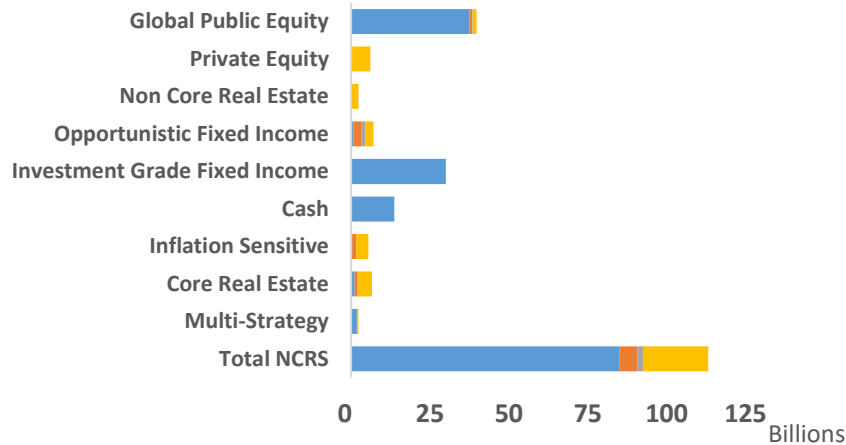
Note: Data shown is gross of fees with the exception of incentive payments, which have been deducted from NAV when applicable.



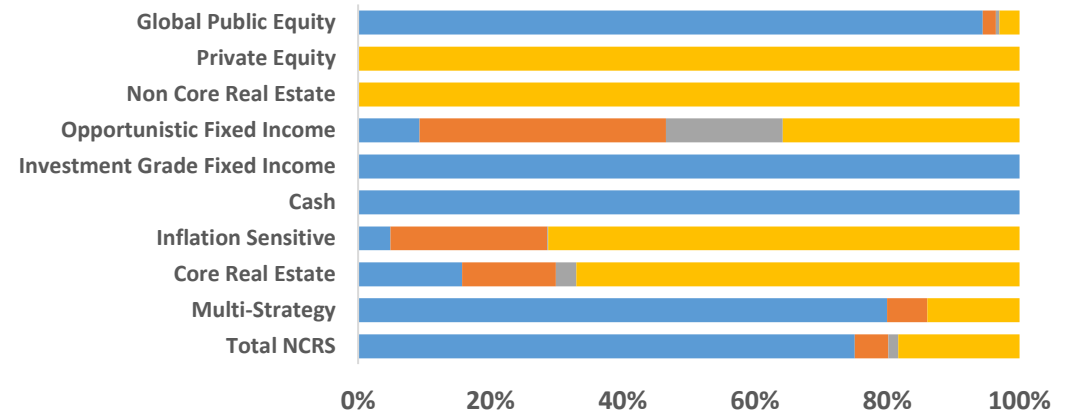
NCRS Liquidity Profile

As of March 31, 2023

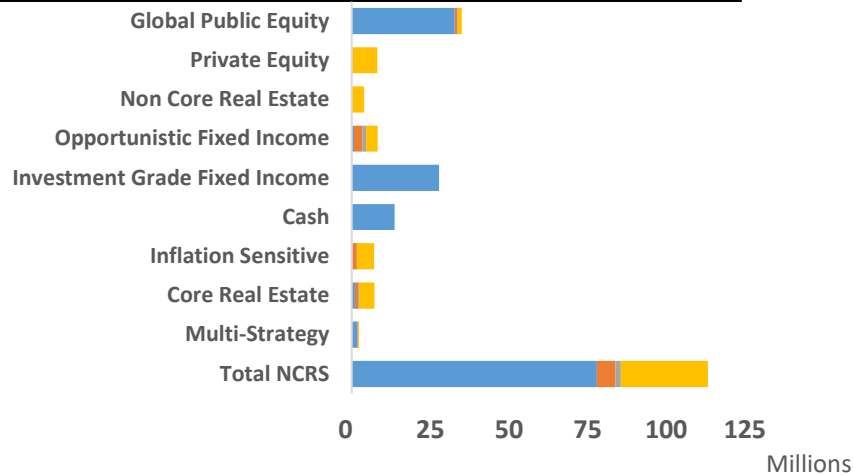
Liquidity Allocation (\$ Market Value)



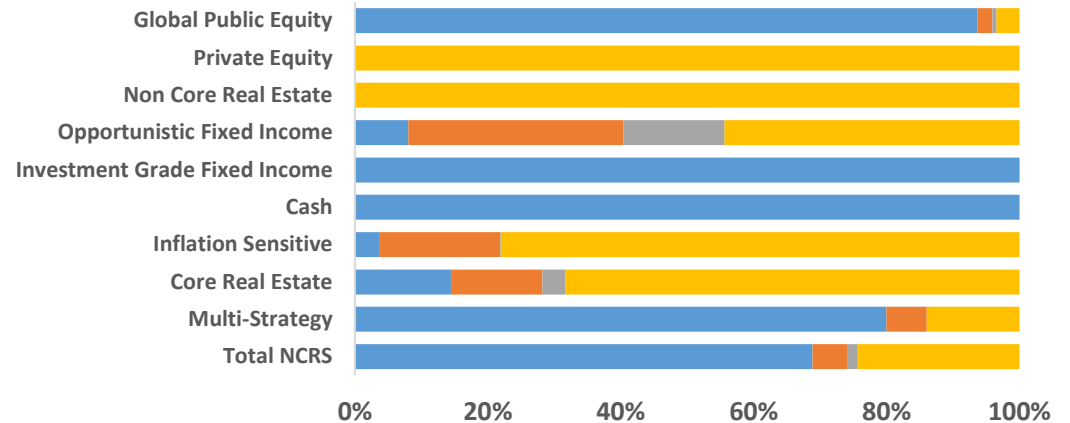
Liquidity Allocation (% Market Value)



Liquidity Allocation (\$ Market Value + Unfunded)



Liquidity Allocation (% Market Value + Unfunded)

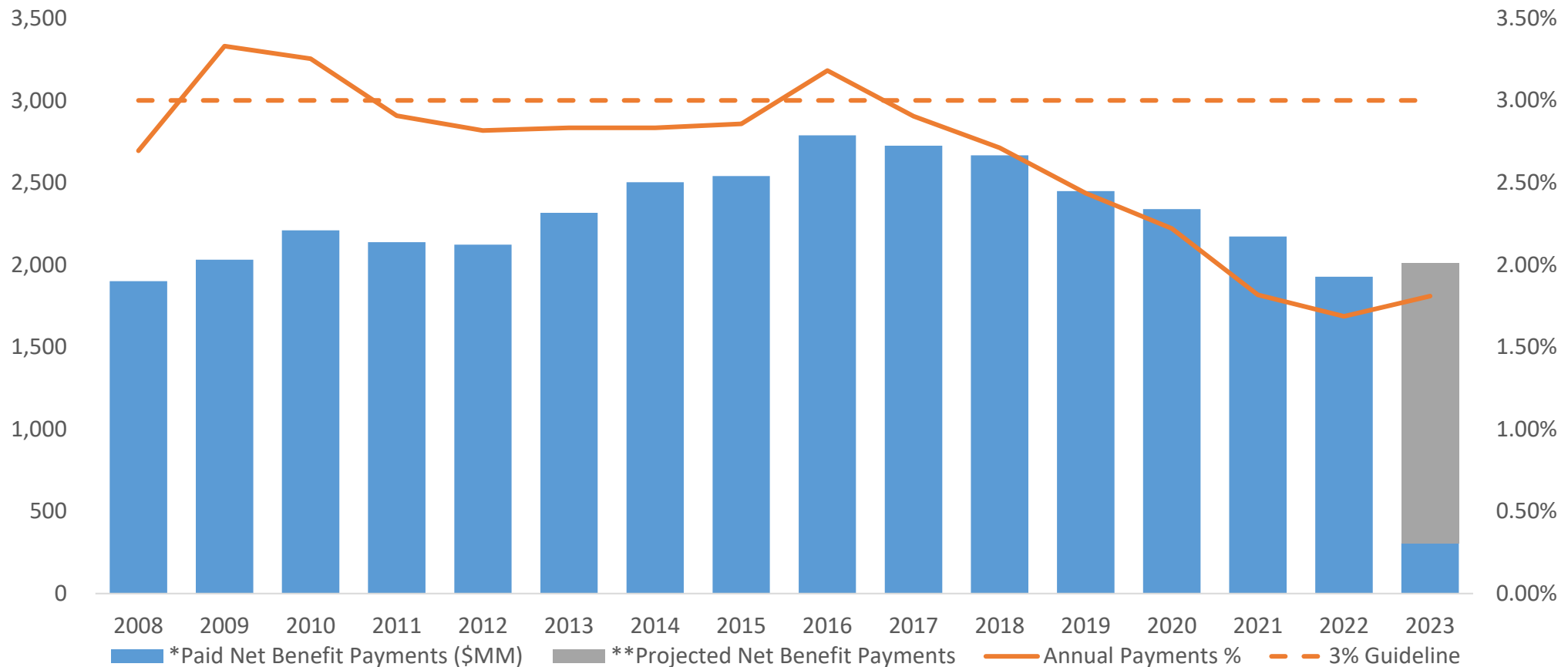


Note: ■ Level 1 Liquidity = T+3; ■ Level 2 = T+3 to 12 Months; ■ Level 3 = 12 to 24 Months; ■ Level 4 = Greater than 24 Months



NCRS Liquidity Profile

Net benefit payments by calendar year

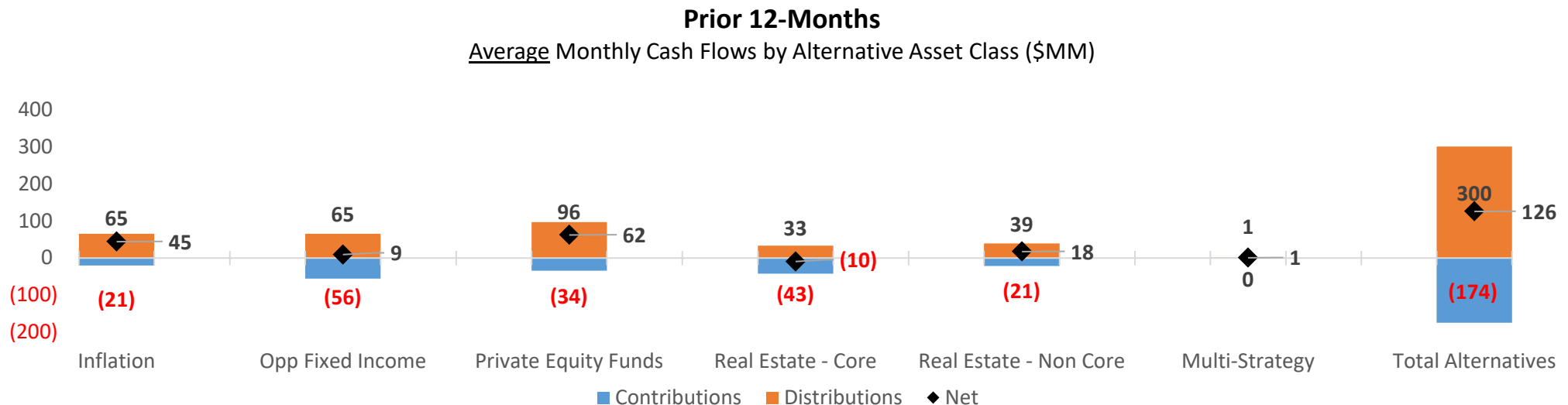
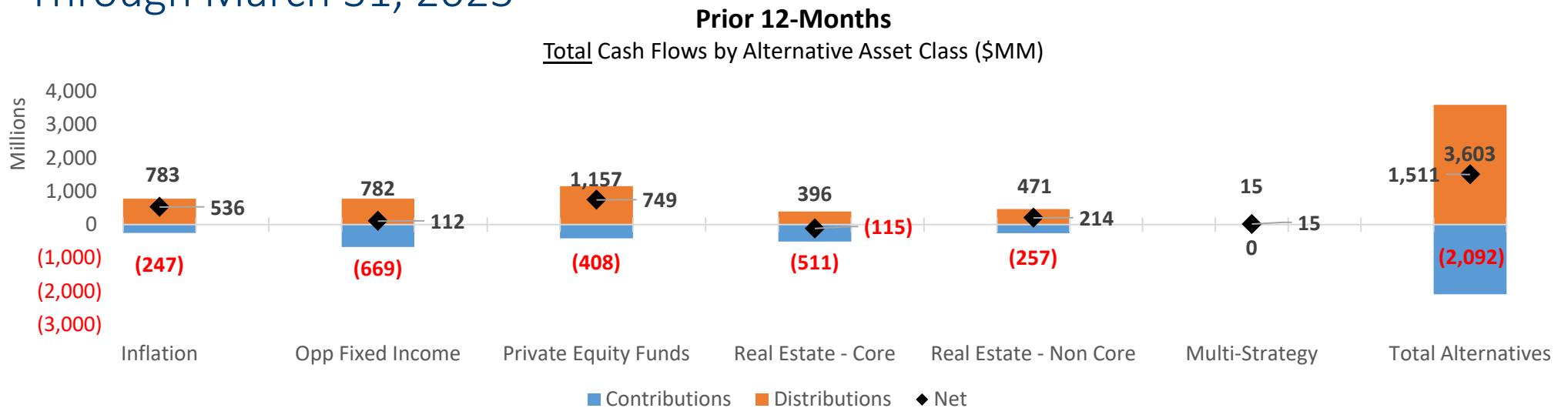


*Benefit payments exclude transfers from the Retiree Health Premium Fund as of January 1, 2022

**Projected Net Benefit Payments for remainder of calendar year



NCRS Alternatives Liquidity Profile Through March 31, 2023

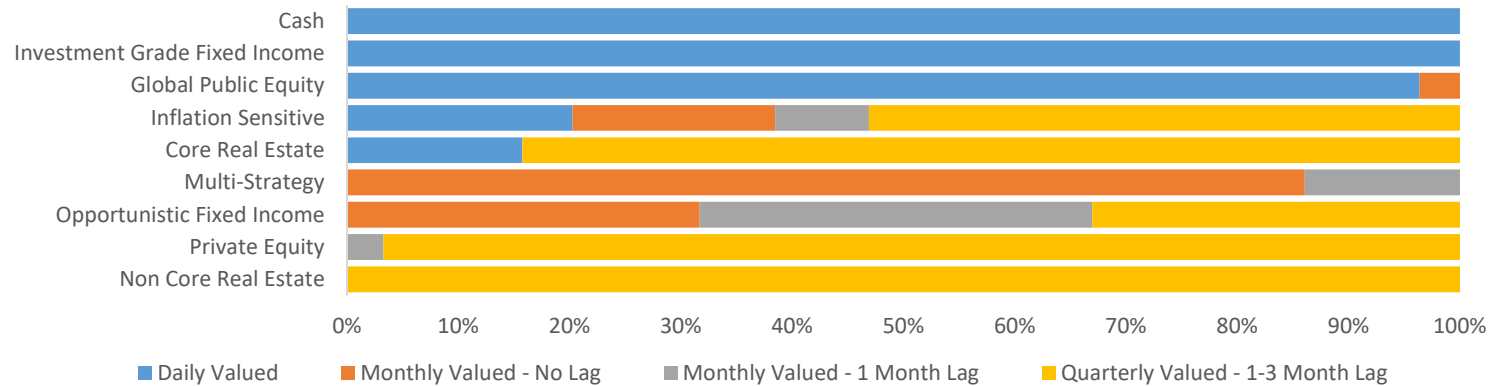




NCRS Valuation Lag Profile

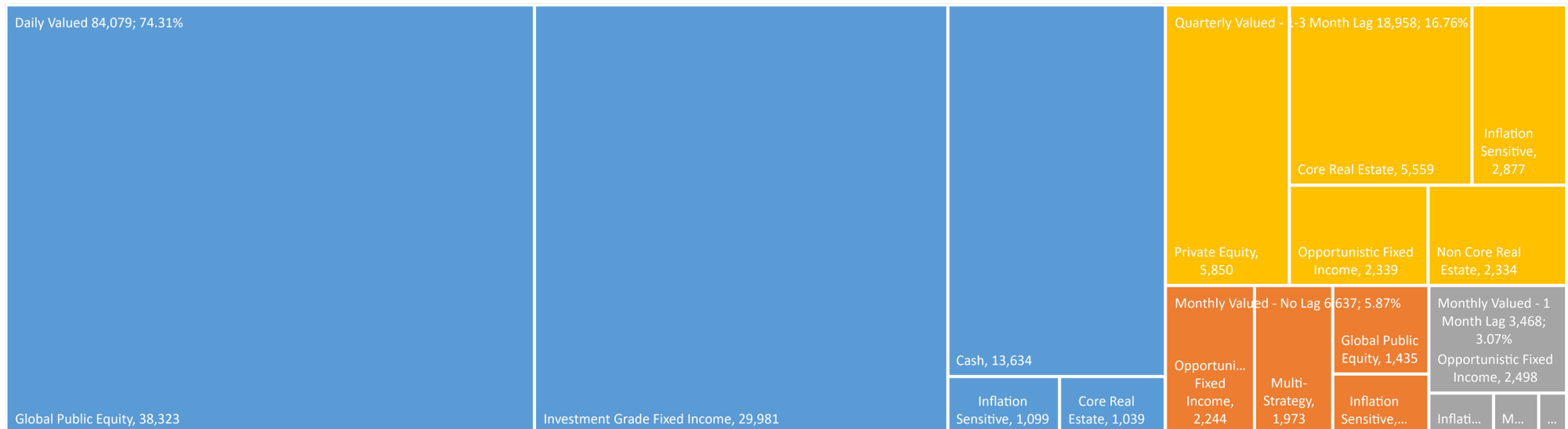
As of March 31, 2023

PORTFOLIO VALUATION LAG



VALUATION LAG BY PORTFOLIO

in Millions





NCRS Asset Class Net of Fees Performance

As of March 31, 2023

	Market Value (\$MM)	1 Year	3 Years	5 Years	10 Years	15 Years	20 Years
Growth	\$55,220	-6.15	13.63	7.65	8.82	6.77	8.63
Benchmark ¹		-5.33	14.56	7.20	7.86	6.04	8.06
Public Equity	\$39,758	-6.71	14.99	6.94	8.46	6.84	8.57
Benchmark ²		-7.68	15.51	6.50	7.77	6.11	7.94
Private Equity	\$6,048	-10.12	16.51	14.99	13.04	9.19	9.70
Benchmark ³		-4.08	13.89	12.46	11.50	9.00	12.10
Non-Core Real Estate	\$2,334	-4.93	4.44	6.82	10.81	4.04	7.15
Benchmark ⁴		0.67	6.55	6.74	7.94	2.48	7.27
Opportunistic Fixed Income	\$7,080	-0.72	8.89	5.32	5.49	6.39	-
Benchmark ⁵		2.42	10.19	4.51	3.37	1.89	-
Rates & Liquidity	\$43,615	-2.64	-1.23	1.85	1.99	3.91	4.21
Benchmark ⁶		-5.74	-3.33	0.95	1.60	3.44	3.84
IG Fixed Income	\$29,981	-4.88	-2.40	1.49	1.85	3.81	4.14
Benchmark ⁷		-6.43	-3.62	0.84	1.58	3.42	3.83
Cash	\$13,634	2.08	0.95	1.41	-	-	-
Benchmark ⁸		2.68	0.95	1.35	-	-	-
Inflation Sensitive & Diversifiers	\$12,046	2.95	7.27	5.82	5.03	2.55	4.52
Benchmark ⁹		-0.53	7.09	4.99	4.36	1.39	4.12
Inflation Sensitive	\$5,449	8.86	8.31	5.59	3.16	0.96	3.64
Benchmark ¹⁰		2.78	5.84	4.01	1.53	1.16	4.28
Core Real Estate	\$6,598	-1.63	6.58	6.30	7.80	5.24	6.53
Benchmark ¹¹		-4.41	8.51	6.08	7.83	5.07	6.95
Multi-Strategy	\$2,293	0.26	5.24	2.30	4.86	4.64	5.14
Benchmark ¹²		-2.53	4.82	1.50	3.97	3.78	6.02
Total Pension Plan	\$113,174	-3.69	6.67	5.10	6.00	5.65	6.82
Implementation Benchmark ¹³		-5.13	8.09	5.11	5.57	5.21	6.51
Long-Term Policy Benchmark ¹⁴		-7.90	7.63	4.84	5.20	4.84	6.89

See slide 43 for benchmark descriptions



NCRS Calendar Year Asset Class Return Diversification

As of March 31, 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 8.35%
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%	Inflation Sensitive 3.87%
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 3.76%
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%	Multi-Strategy 3.14%
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%)	IG Fixed Income & Cash 2.99%
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%)	Opportunistic Fixed Income 2.26%
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 0.88%
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 (1.09%)
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 (2.55%)
	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 (5.68%)



New, Incremental, & Unfunded Investment Commitments

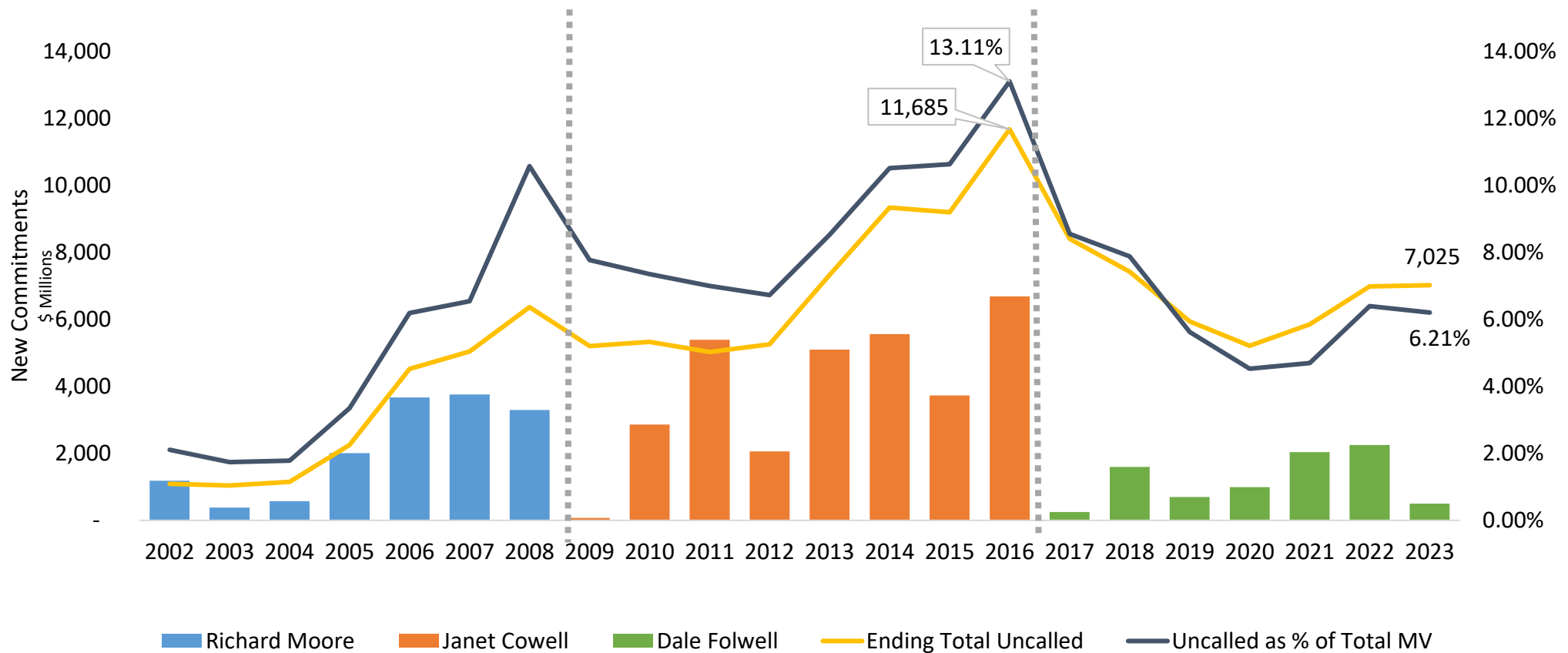
Since February 22nd IAC Meeting As of March 31, 2023

<u>Fund Name</u>	<u>Firm Name</u>	<u>New or Incremental Commitment (\$MM)</u>	<u>Closing Date</u>
Public Equity			
Private Equity			
Non-Core Real Estate			
Opportunistic Fixed Income			
Inflation Sensitive			
MTP Emerald Series II, L.P.	Magnetar Financial	200	3/7/23
Core Real Estate			
None			
Multi-Strategy			
None			

<u>Asset Class</u>	<u>Unfunded Commitments (\$MM)</u>
Public Equity	0
Private Equity	2,067
Non-Core Real Estate	1,566
Opportunistic Fixed Income	1,133
Inflation Sensitive	1,678
Core Real Estate	582
Multi Strategy	0
Total	7,025

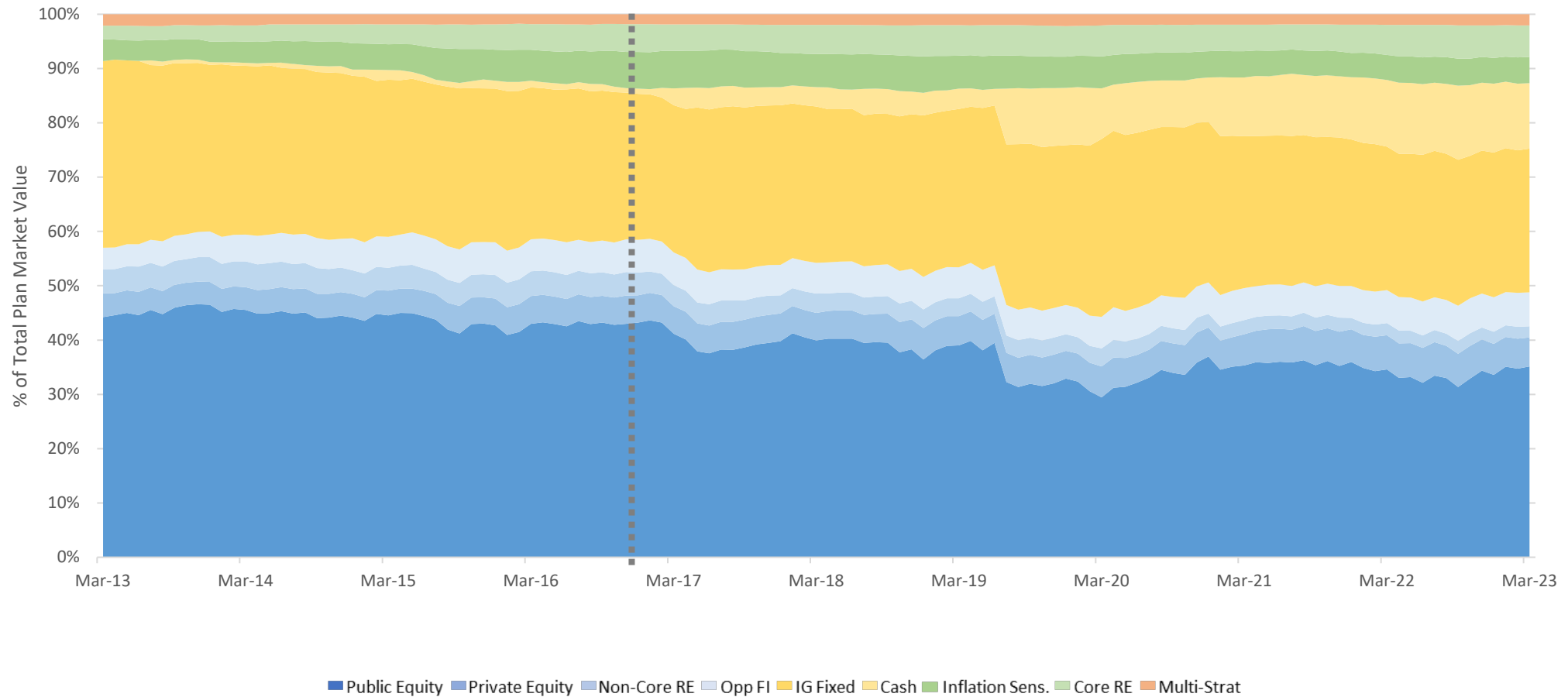


New and Total Unfunded Private Asset Class Commitments By Calendar Year of Closing through March 31, 2023





Asset Allocation History as of March 31, 2023





Exited Investments

Since February 22nd IAC Meeting

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



Top 20 Investment Managers

As of March 31, 2023

	Manager	Market Value (\$)	Uncalled (\$)	% MV	% MV Cum.
1	Internal Fixed Income	43,615,069,987	-	38.5%	38.5%
2	Internal Equity	17,628,013,819	-	15.6%	54.1%
3	BlackRock, Inc.	8,992,310,790	-	7.9%	62.1%
4	Baillie Gifford	3,239,876,983	-	2.9%	64.9%
5	Wellington Management	3,063,039,121	-	2.7%	67.6%
6	Mondrian Investment Partners Limited	2,778,522,326	-	2.5%	70.1%
7	Rockwood Capital	2,724,074,456	136,531,166	2.4%	72.5%
8	Blackstone Group	2,613,870,358	1,165,988,933	2.3%	74.8%
9	Walter Scott & Partners	2,439,923,397	-	2.2%	77.0%
10	Gladius Capital Management LP	1,973,038,996	-	1.7%	78.7%
11	Ares Management	1,774,642,384	1,866,678,744	1.6%	80.3%
12	Angelo, Gordon & Co.	1,597,462,095	30,704,254	1.4%	81.7%
13	ValueAct Capital	1,433,015,401	-	1.3%	82.9%
14	LBA Realty	1,211,389,437	196,039,604	1.1%	84.0%
15	HPS Investment Partners, LLC	1,116,883,090	55,822,149	1.0%	85.0%
16	DoubleLine Capital LP	833,221,110	-	0.7%	85.7%
17	Earnest Partners	803,750,823	-	0.7%	86.4%
18	Campbell Group LLC, The	801,089,599	-	0.7%	87.2%
19	Rockpoint Group, LLC	723,681,983	83,864,970	0.6%	87.8%
20	Monarch Alternative Capital	693,500,000	-	0.6%	88.4%
	80 Remaining Managers*	13,117,753,006	3,489,788,681	11.6%	100.0%
	Total	113,174,129,162	7,025,418,501	100.0%	100.0%

*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 March 31, 2023

	Market Value (\$MM)	3 Month	1 Year	3 Years	5 Years	10 Years
Public Equity	\$39,758	8.35	(6.71)	14.99	6.94	8.46
Benchmark ²		6.95	(7.68)	15.51	6.50	7.77
Domestic Portfolio	\$21,712	8.03	(8.06)	18.09	10.74	11.89
Russell 3000		7.18	(8.58)	18.48	10.45	11.73
Non-US Portfolio	\$18,043	8.73	(5.01)	11.83	3.13	5.27
Custom Benchmark		6.56	(5.84)	12.20	2.35	4.28

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

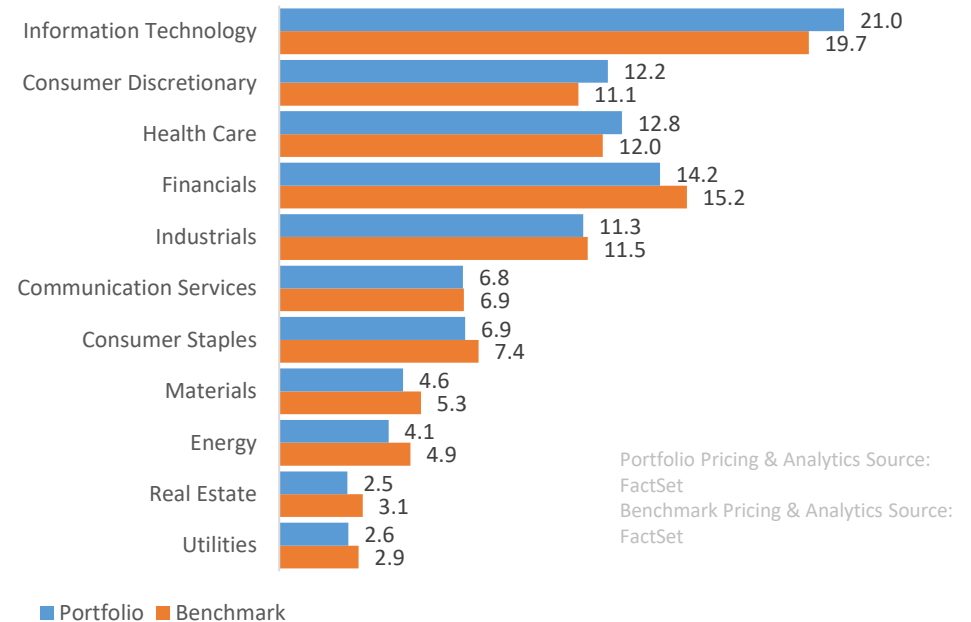


NCRS Public Equity Portfolio Characteristics

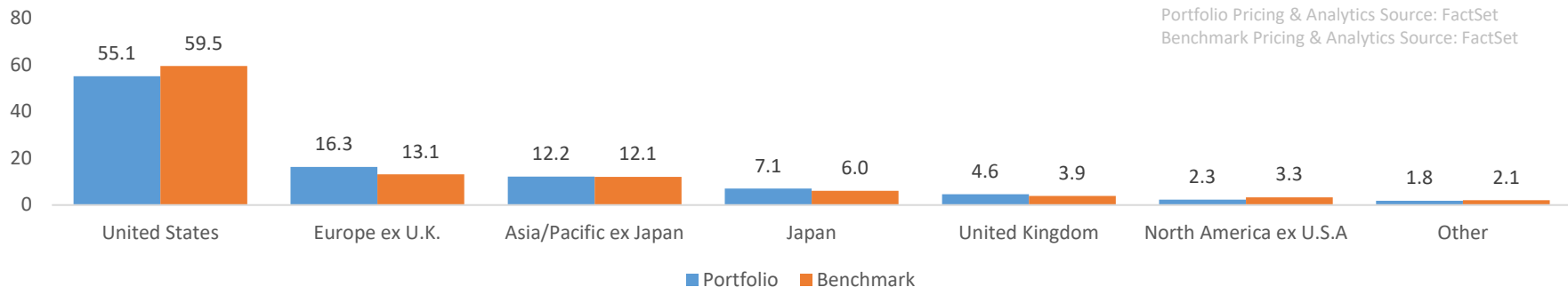
As of March 31, 2023

Portfolio Characteristics		
	Portfolio	MSCI ACWI IMI
Price/Earnings	18.1	16.3
Dividend Yield	1.9	2.2
Price/Book	2.6	2.4
Market	306,438	309,312
Return On Equity	19.7	20.0

@FactSet Research Systems



Total Equity Regional Allocation





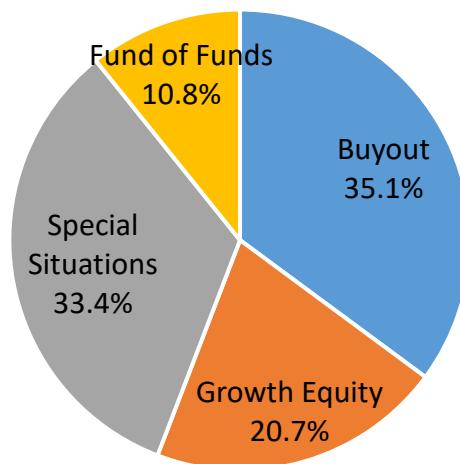
NCRS Private Equity Portfolio

As of March 31, 2023

		Net of Fees Performance (%)				
	Market Value	3 Month	1 Year	3 Years	5 Years	10 Years
Private Equity	\$6,048	(1.09)	(10.12)	16.51	14.99	13.04
Benchmark ³		0.94	(4.08)	13.89	12.46	11.50
Buyout	\$2,123	0.01	(0.68)	19.05	16.38	13.39
Growth	\$1,251	(3.54)	(25.93)	10.50	13.84	13.86
Special Situations	\$2,019	(1.21)	(6.76)	17.97	13.49	9.67
Fund of Funds	\$651	0.59	(10.19)	18.53	15.46	14.36

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	12.02	6.82	5.11	3.42	9.41	10.33	8.98	19.87	9.04	13.75	12.56	14.52	19.60	22.75	20.65	17.49	N/A	-1.39	-4.13	0.00	N/A	10.12
# 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 \$3 million, which does not fall under any specific sub-section.



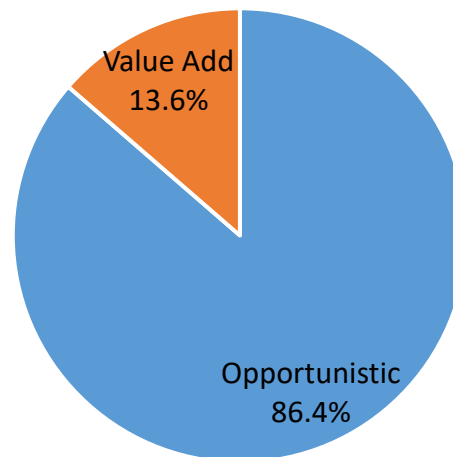
NCRS Non-Core Real Estate Portfolio

As of March 31, 2023

Net of Fees Performance (%)						
	Market Value	3 Month	1 Year	3 Years	5 Years	10 Years
Non-Core Real Estate	\$2,334	(5.68)	(4.93)	4.44	6.82	10.81
Benchmark ⁴		(0.66)	0.67	6.55	6.74	7.94
Opportunistic	\$2,015	(5.44)	(4.38)	5.01	7.33	11.00
Value Add	\$318	(6.93)	(7.84)	1.93	4.92	9.82

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	2.95	2.13	15.33	N/A	15.90	17.34	14.80	12.06	3.54	8.56	10.20	N/A	14.20	26.98	N/A	N/A	-5.89	N/A	6.58
# 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 March 31, 2023

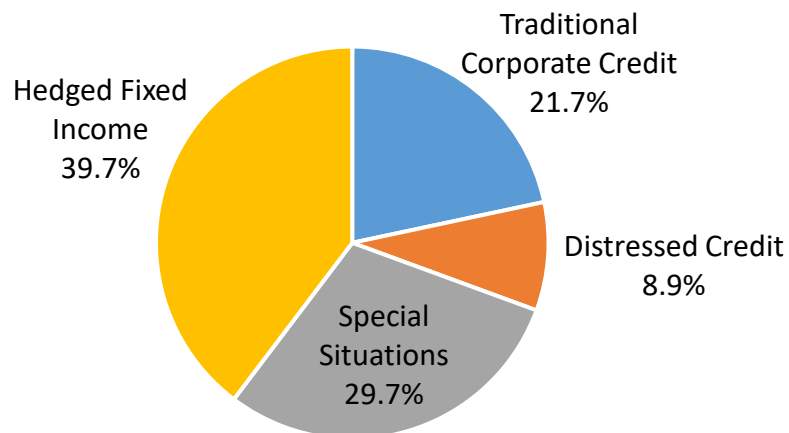
Net of Fees Performance (%)

	Market Value	3 Month	1 Year	3 Years	5 Years	10 Years
Opportunistic Fixed Income	\$7,080	2.26	(0.72)	8.89	5.32	5.49
Benchmark ⁵		2.22	2.42	10.19	4.51	3.37
Traditional Corporate Credit	\$1,534	3.78	(3.54)	4.90	4.58	5.25
Distressed Credit	\$633	1.96	(2.01)	14.35	8.16	8.69
Special Situations	\$2,104	1.08	3.04	10.83	6.82	10.29
Hedged Fixed Income	\$2,810	2.38	(1.52)	8.98	4.61	4.08

IRR by Vintage Year

	<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	2.87	N/A	16.91	7.21	22.42	5.04	4.90	3.72	4.96	3.52	8.39	7.00	11.77	N/A	8.02	15.20	9.99	0.78	0.00	5.98
# 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 March 31, 2023

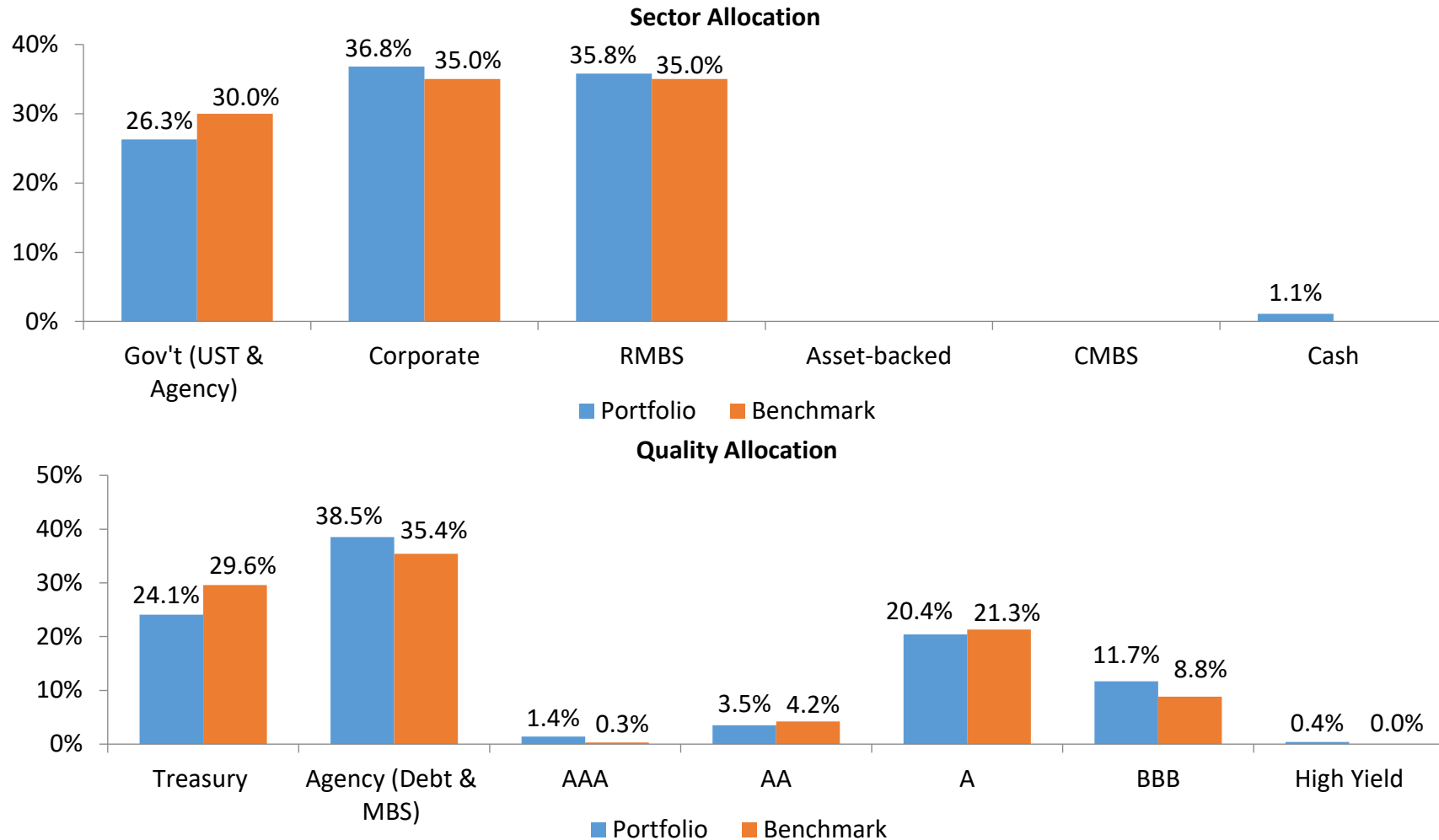
Net of Fees Performance (%)						
	Market Value	3 Month	1 Year	3 Years	5 Years	10 Years
Rates & Liquidity	\$43,615	2.31	(2.64)	(1.23)	1.85	1.99
Benchmark ⁶		3.23	(5.74)	(3.33)	0.95	1.60
IG Fixed Income	\$29,981	2.99	(4.88)	(2.40)	1.49	1.85
Core Fixed Income	\$26,133	3.26	(5.83)	(2.92)	1.42	1.86
IG Fixed Income Cash	\$1,967	0.71	1.58	0.83	1.26	-
IG Short Credit	\$1,880	1.43	-	-	-	-
Pension Cash	\$13,634	0.88	2.08	0.95	1.41	-

Core Fixed Income Portfolio Characteristics			
	<u>Avg. Coupon</u>	<u>Yield to Worst</u>	<u>Effective Duration</u>
Government (Treasury & Agency)	3.6%	3.7%	9.6
Corporate	4.2%	5.1%	8.9
Mortgage	3.2%	4.4%	5.8
Total	3.7%	4.5%	7.8



NCRS Core Fixed Income Portfolio Characteristics

As of March 31, 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 March 31, 2023

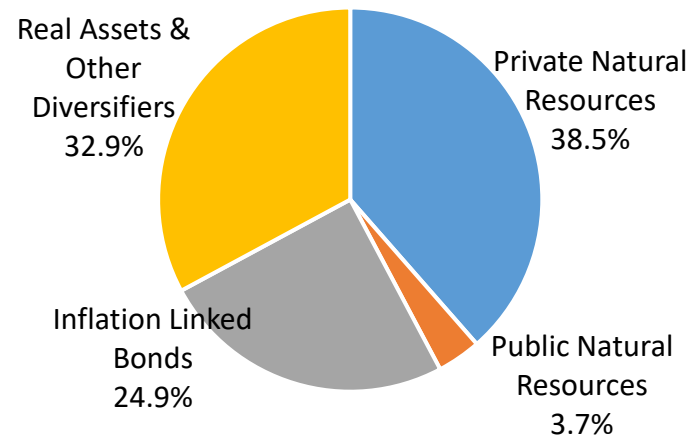
Net of Fees Performance (%)

	Market Value	3 Month	1 Year	3 Years	5 Years	10 Years
Inflation Sensitive	\$5,449	3.87	8.86	8.31	5.59	3.16
Benchmark¹⁰		2.88	2.78	5.84	4.01	1.53
Private Natural Resources	\$2,100	8.69	16.75	9.07	4.64	3.60
Public Natural Resources	\$201	(6.04)	(12.96)	21.60	5.03	(1.66)
Inflation Linked Bonds	\$1,356	2.01	(0.77)	5.73	2.63	-
Real Assets & Other Diversifiers	\$1,791	1.15	10.85	8.79	9.14	8.76

IRR by Vintage Year

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Total
NCRS	1.50	-7.73	-5.67	N/A	-5.72	-5.75	5.80	7.11	7.62	8.60	2.81	8.10	24.50	26.97	N/A	52.79	N/A	-7.70	2.46
# of Funds	3	2	2	N/A	3	9	7	11	12	4	3	1	3	2	N/A	5	N/A	1	68

Strategy Allocation (Based on Valuation)





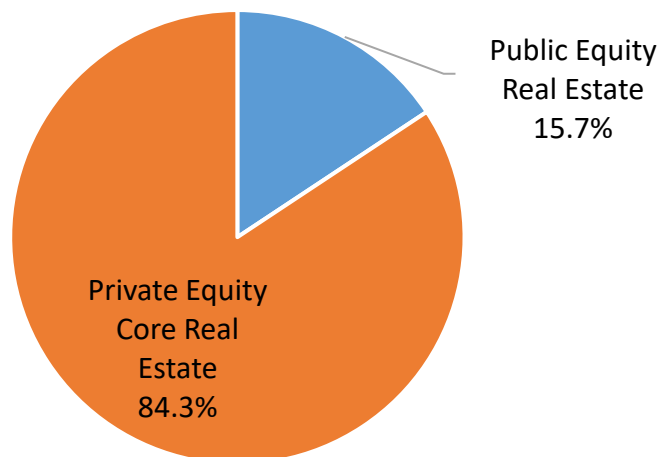
NCRS Core Real Estate Portfolio

As of March 31, 2023

Net of Fees Performance (%)						
	Market Value	3 Month	1 Year	3 Years	5 Years	10 Years
Core Real Estate	\$6,598	(2.55)	(1.63)	6.58	6.30	7.80
Benchmark ¹¹		(3.93)	(4.41)	8.51	6.08	7.83
Public Equity Real Estate	\$1,036	1.32	(24.20)	5.45	1.46	4.17
Private Equity Core Real Estate	\$5,562	(2.99)	2.44	6.85	7.10	8.53

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	7.51	9.74	-8.33	4.22	1.39	8.17	N/A	23.62	N/A	N/A	4.97	6.02	6.21	6.84	N/A	15.77	N/A	N/A	14.46	N/A	N/A	6.96
# 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)



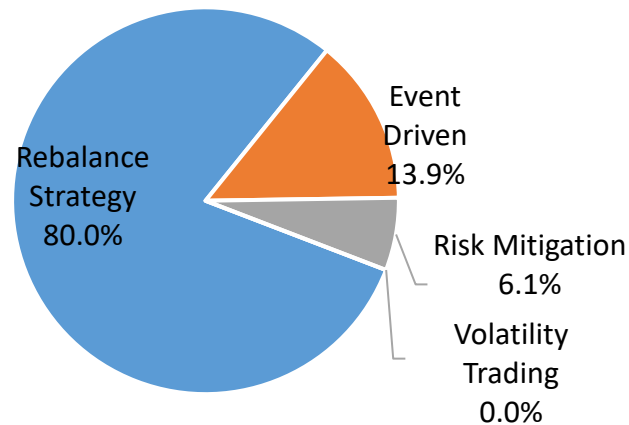


NCRS Multi-Strategy Portfolio

As of March 31, 2023

	Market Value	Net of Fees Performance (%)				
		3 Month	1 Year	3 Years	5 Years	10 Years
Multi-Strategy	\$2,293	3.14	0.26	5.24	2.30	4.86
Benchmark ¹²		2.07	(2.53)	4.82	1.50	3.97
Rebalance Strategy	\$1,834	3.66	0.62	8.48	3.60	6.07
Event Driven	\$320	2.04	(4.26)	5.73	3.92	-
Risk Mitigation	\$139	(0.97)	6.58	(4.07)	(0.60)	-
Volatility Trading	-	-	-	-	-	-

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

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