

NORTH CAROLINA
DEPARTMENT OF STATE TREASURER



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

INVESTMENT MANAGEMENT DIVISION

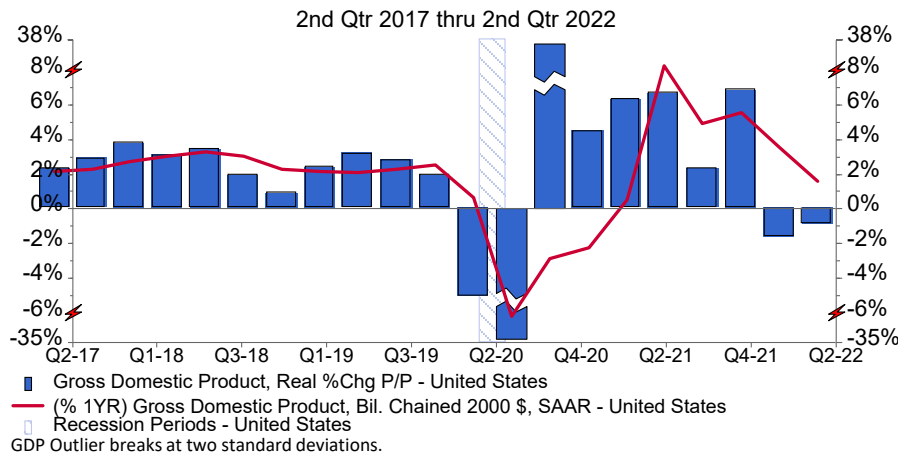
Performance Review

August 24, 2022



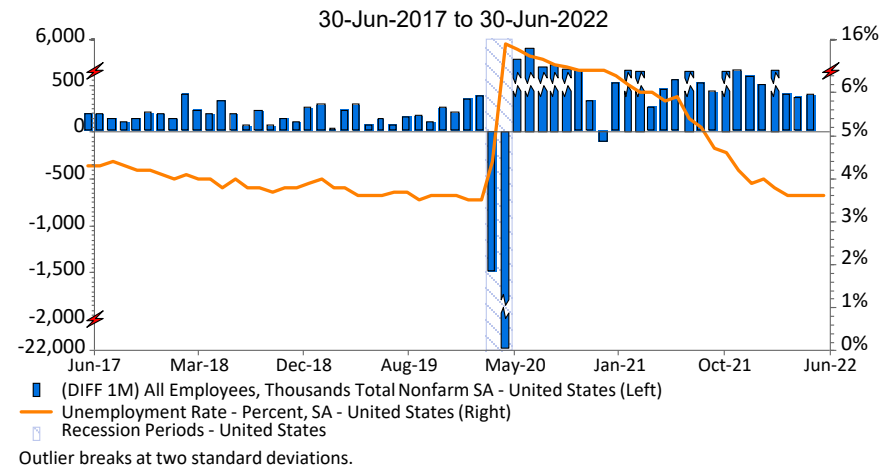
US Economic Environment

US Real GDP Growth



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US Change in NonFarm Employment & Unemployment Rate



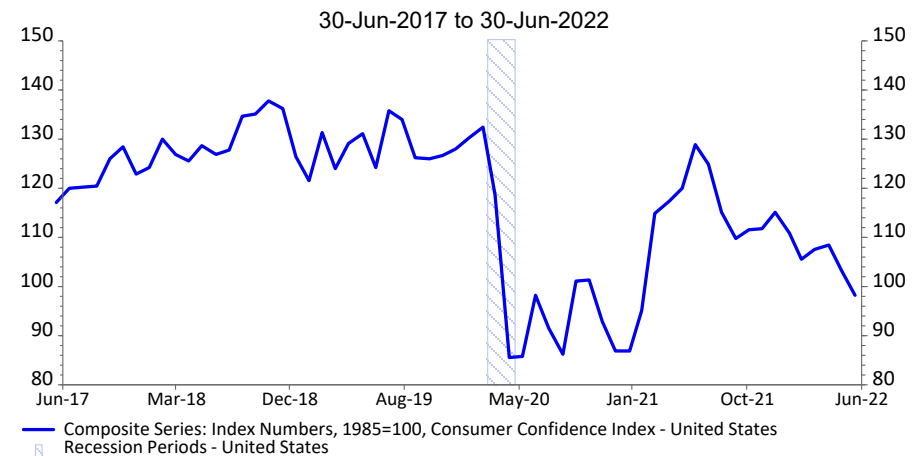
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US Retail Sales



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US Consumer Confidence

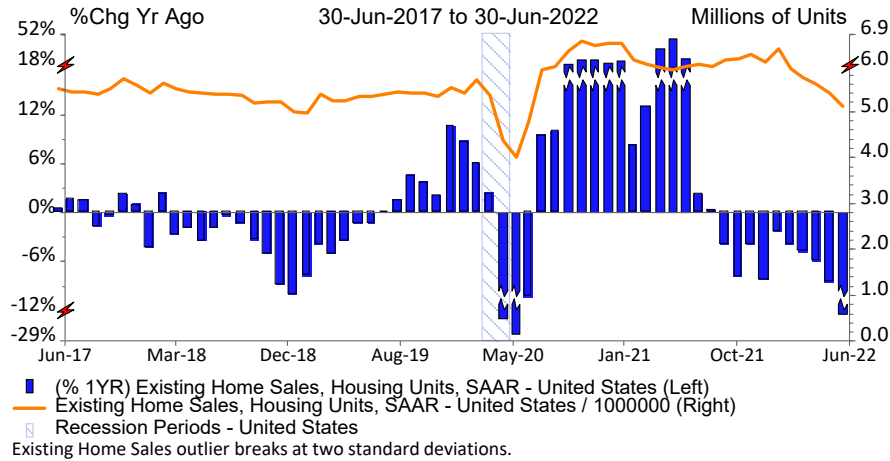


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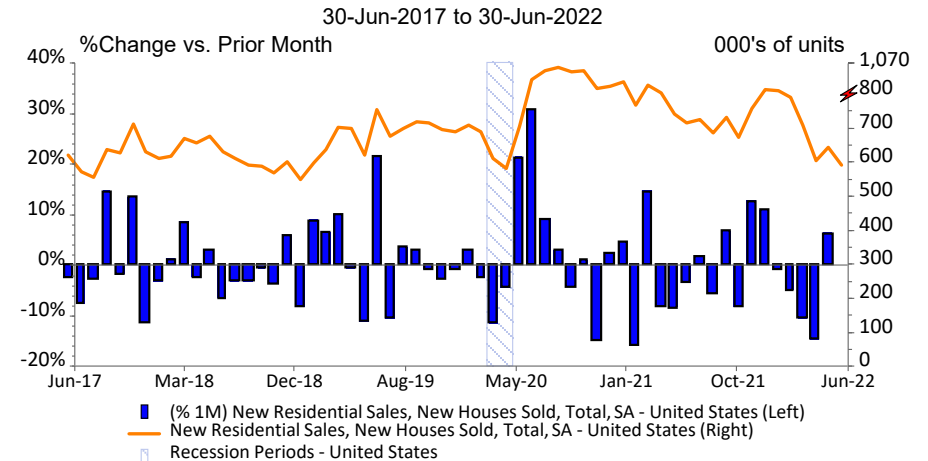


US Economic Environment

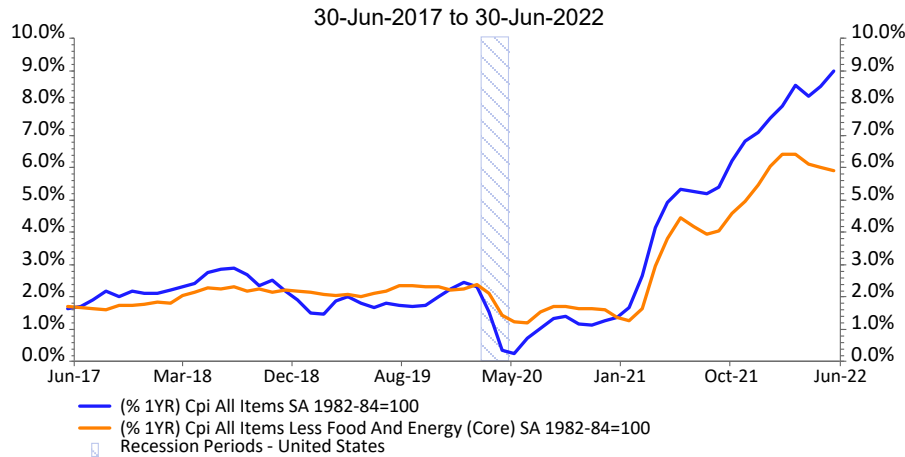
US Existing Home Sales



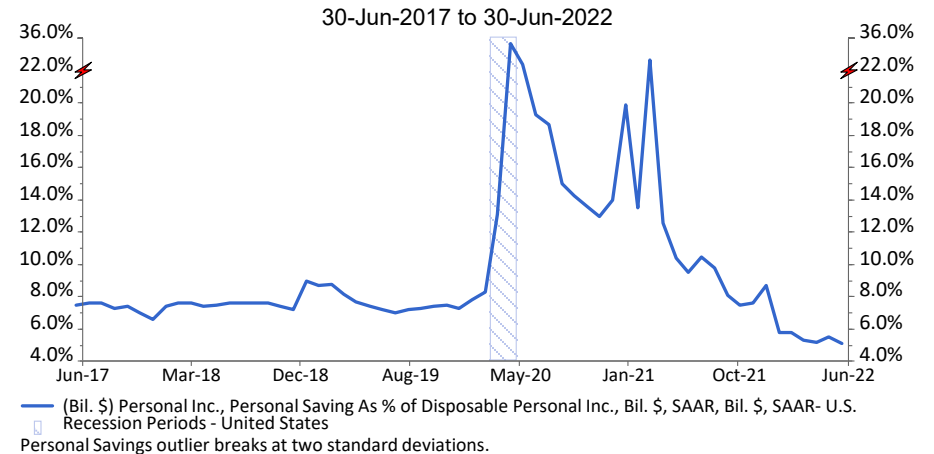
US New Home Sales



US Consumer Price Inflation



US Personal Savings Rate

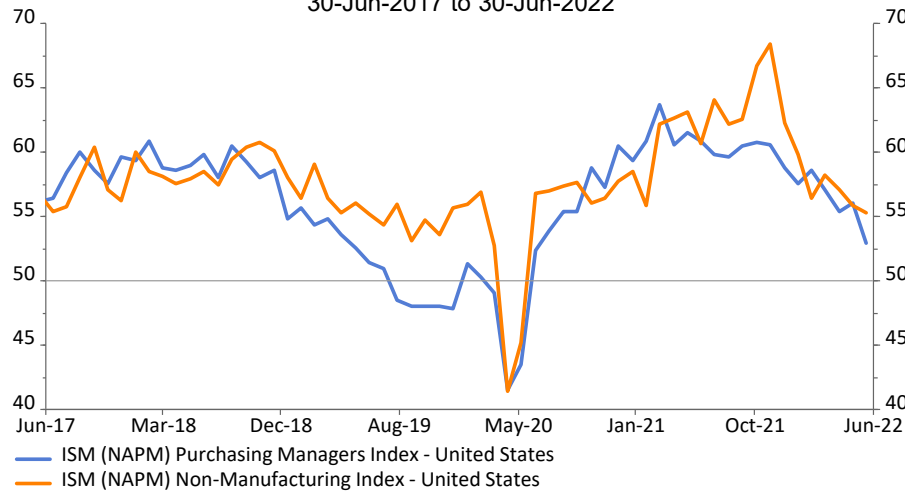




US and Global Economic Environment

ISM Report on Business

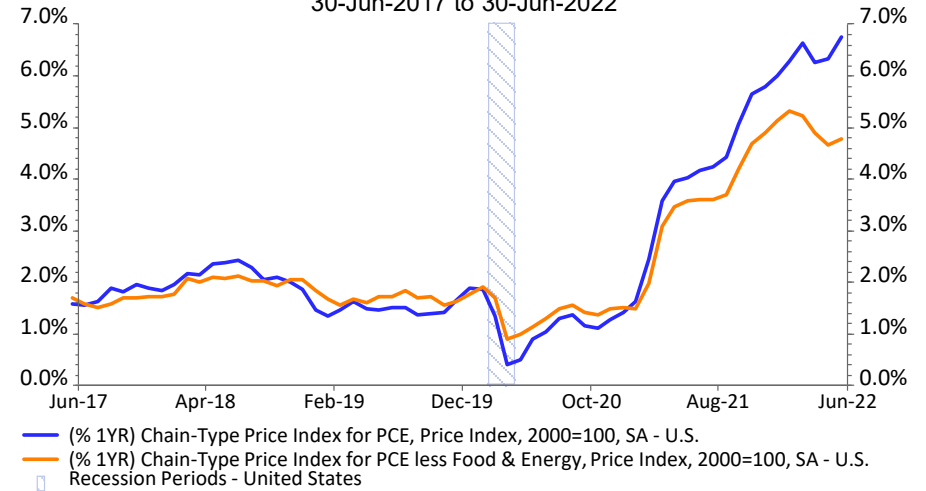
30-Jun-2017 to 30-Jun-2022



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US PCE Inflation

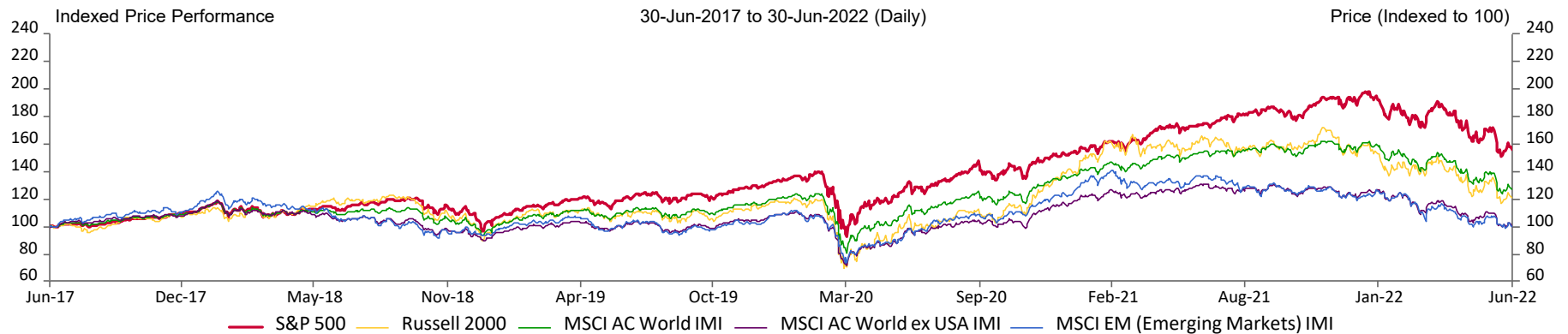
30-Jun-2017 to 30-Jun-2022



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S&P 500 vs. Peers

30-Jun-2017 to 30-Jun-2022 (Daily)

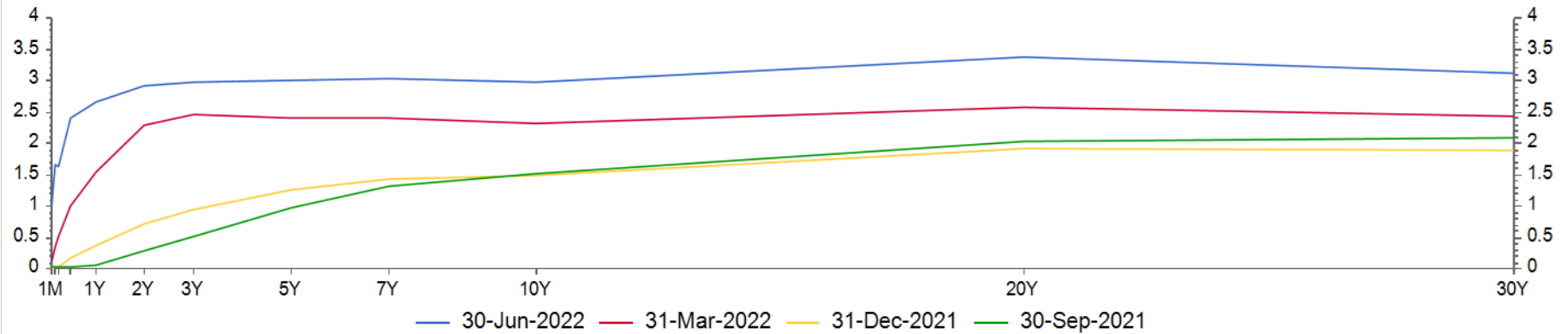


Source: FactSet Prices



Market Environment

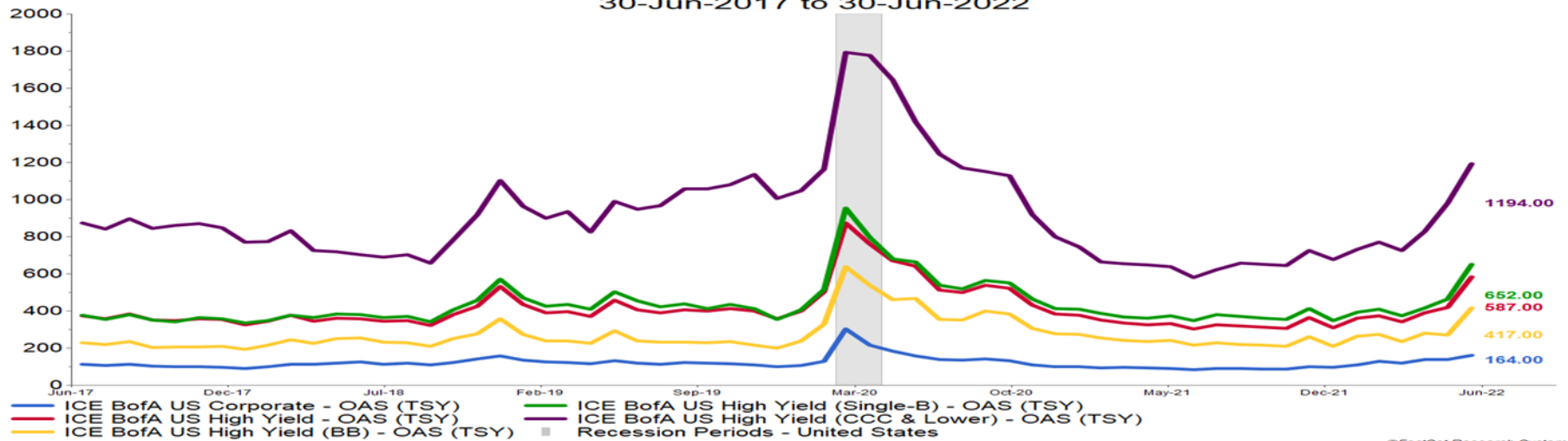
United States Treasury Yield Curve



Source: FactSet Interest Rate Database

Corporate Credit OAS (BofAML Indices)

30-Jun-2017 to 30-Jun-2022



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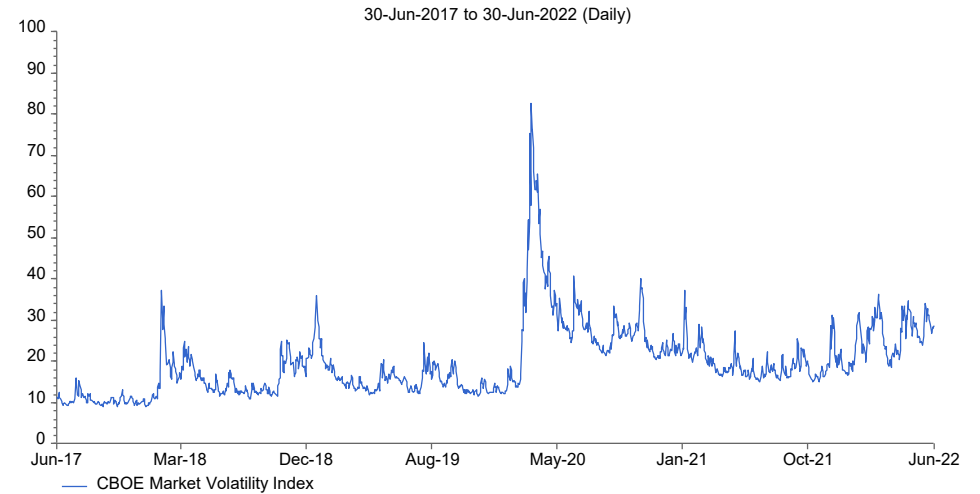
Market Environment

Closing Price Fed Nominal Broad Dollar Index



Source: FactSet Prices

Closing Price CBOE VIX Index



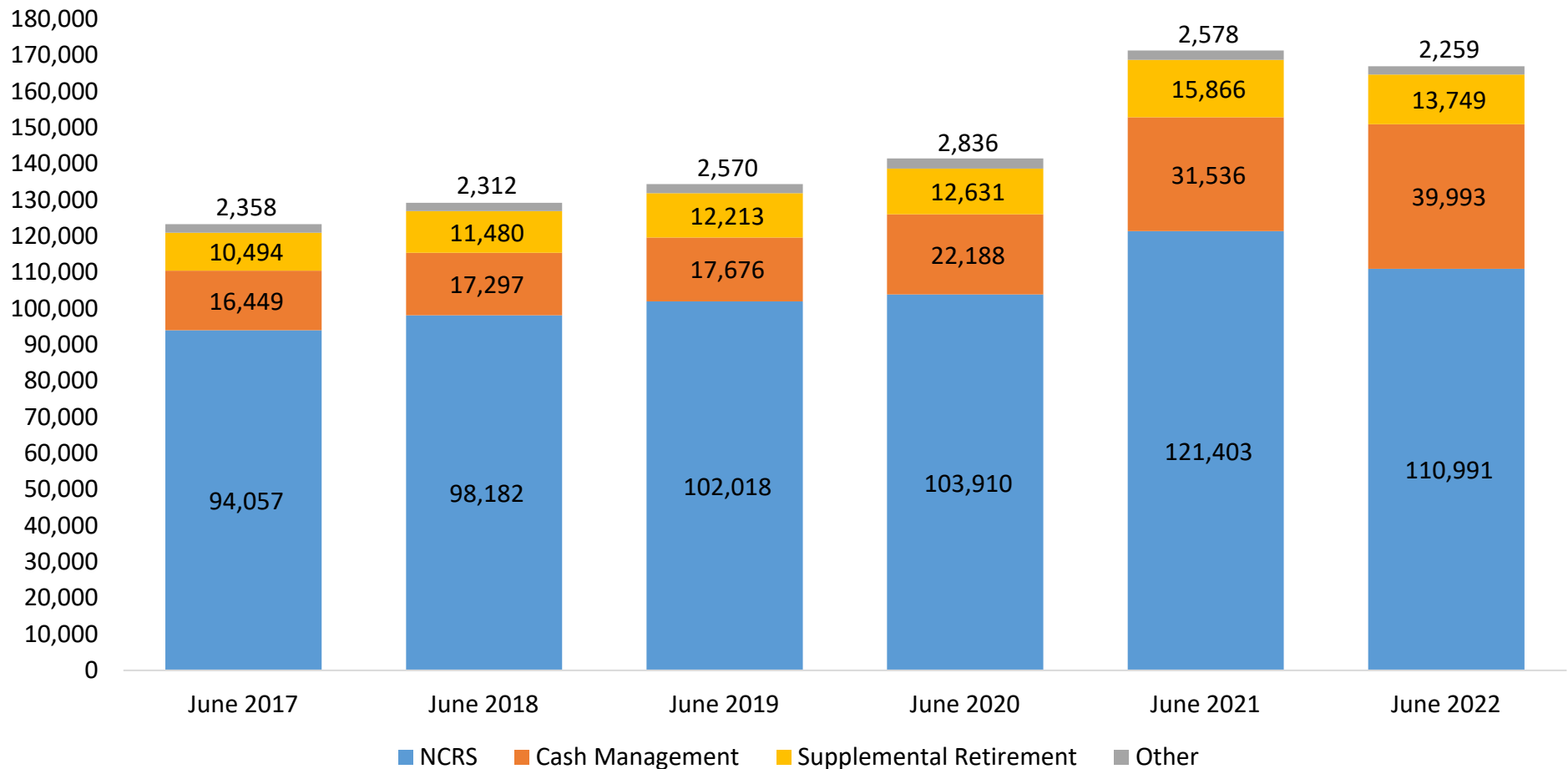
Source: FactSet Prices

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.	06/22	1.6	06/22	3.6	06/22	9.1	Asia/Pacific/Latam						
Europe							China	06/22	0.4			06/22	2.5
Germany	06/22	1.4	06/22	5.3	06/22	7.6	India	03/22	4.1			06/22	6.2
France	06/22	4.2	06/22	7.2	06/22	5.8	Japan	03/22	0.4	06/22	2.6	06/22	2.4
U.K.	03/22	8.7	05/22	3.8	06/22	9.4	Indonesia	03/22	5.0			06/22	4.4
Italy	06/22	4.6	06/22	8.1	06/22	8.0	Brazil	03/22	1.7			06/22	11.9
Spain	06/22	6.3	06/22	12.6	06/22	10.2	Australia	03/22	3.3	06/22	3.5	06/22	6.1



Assets Under Management (\$MM)

\$167.0 billion as of June 30, 2022



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, 2022

	Market Value (\$MM)	%	Target	Range		Relative %	Relative \$ (\$MM)
				Minimum	Maximum		
Growth	52,260	47.09%	58.0%	37.0%	71.0%	-10.91%	(12,114)
Public Equity	35,679	32.15%	42.0%	37.0%	47.0%	-9.85%	(10,937)
Private Equity	7,119	6.41%	6.0%	0.0%	8.8%	0.41%	459
Non Core Real Estate	2,523	2.27%	3.0%	0.0%	8.0%	-0.73%	(807)
Opportunistic Fixed Income	6,940	6.25%	7.0%	0.0%	7.5%	-0.75%	(830)
Rates & Liquidity	44,434	40.03%	29.0%	24.0%	42.0%	11.03%	12,247
IG Fixed Income & Cash	29,990	27.02%	28.0%	24.0%	32.0%	-0.98%	(1,088)
Pension Cash	14,445	13.01%	1.0%	0.0%	10.0%	12.01%	13,335
Inflation Sensitive & Diversifiers	12,115	10.92%	11.0%	4.0%	16.0%	-0.08%	(94)
Inflation Sensitive	5,492	4.95%	6.0%	2.0%	7.5%	-1.05%	(1,168)
Core Real Estate	6,623	5.97%	5.0%	2.0%	10.0%	0.97%	1,074
Multi-Strategy	2,181	1.96%	2.0%	0.0%	4.0%	-0.04%	(39)
Grand Total	110,991	100.00%					



NCRS Asset Allocation (Unaudited)

As of August 16, 2022

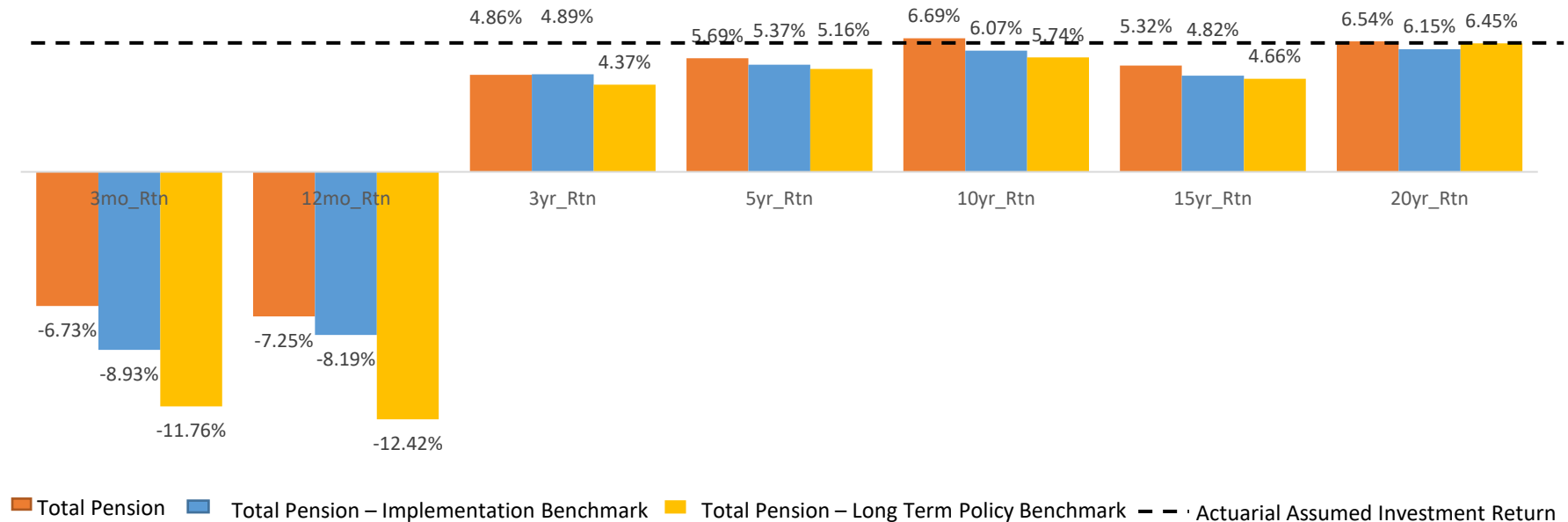
	Market Value (\$MM)	%	Target	Range		Relative %	Relative \$ (\$MM)
				Minimum	Maximum		
Growth	55,863	48.60%	55.0%	37.0%	68.0%	-6.40%	(7,360)
Public Equity	39,451	34.32%	38.0%	33.0%	43.0%	-3.68%	(4,230)
Private Equity	7,010	6.10%	7.0%	0.0%	8.8%	-0.90%	(1,037)
Non Core Real Estate	2,526	2.20%	3.0%	0.0%	8.0%	-0.80%	(923)
Opportunistic Fixed Income	6,876	5.98%	7.0%	0.0%	7.5%	-1.02%	(1,170)
Rates & Liquidity	44,696	38.88%	33.0%	23.0%	48.0%	5.88%	6,762
IG Fixed Income & Cash	30,587	26.61%	28.0%	23.0%	33.0%	-1.39%	(1,600)
Pension Cash	14,109	12.27%	5.0%	0.0%	15.0%	7.27%	8,361
Inflation Sensitive & Diversifiers	12,187	10.60%	11.0%	4.0%	16.0%	-0.40%	(457)
Inflation Sensitive	5,487	4.77%	6.0%	2.0%	7.5%	-1.23%	(1,410)
Core Real Estate	6,701	5.83%	5.0%	2.0%	10.0%	0.83%	953
Multi-Strategy	2,205	1.92%	1.0%	0.0%	4.0%	0.92%	1,056
Grand Total	114,952	100.00%					



NCRS Total Net Portfolio Return vs. Benchmarks

As of June 30, 2022

Annualized Returns



Notes:

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

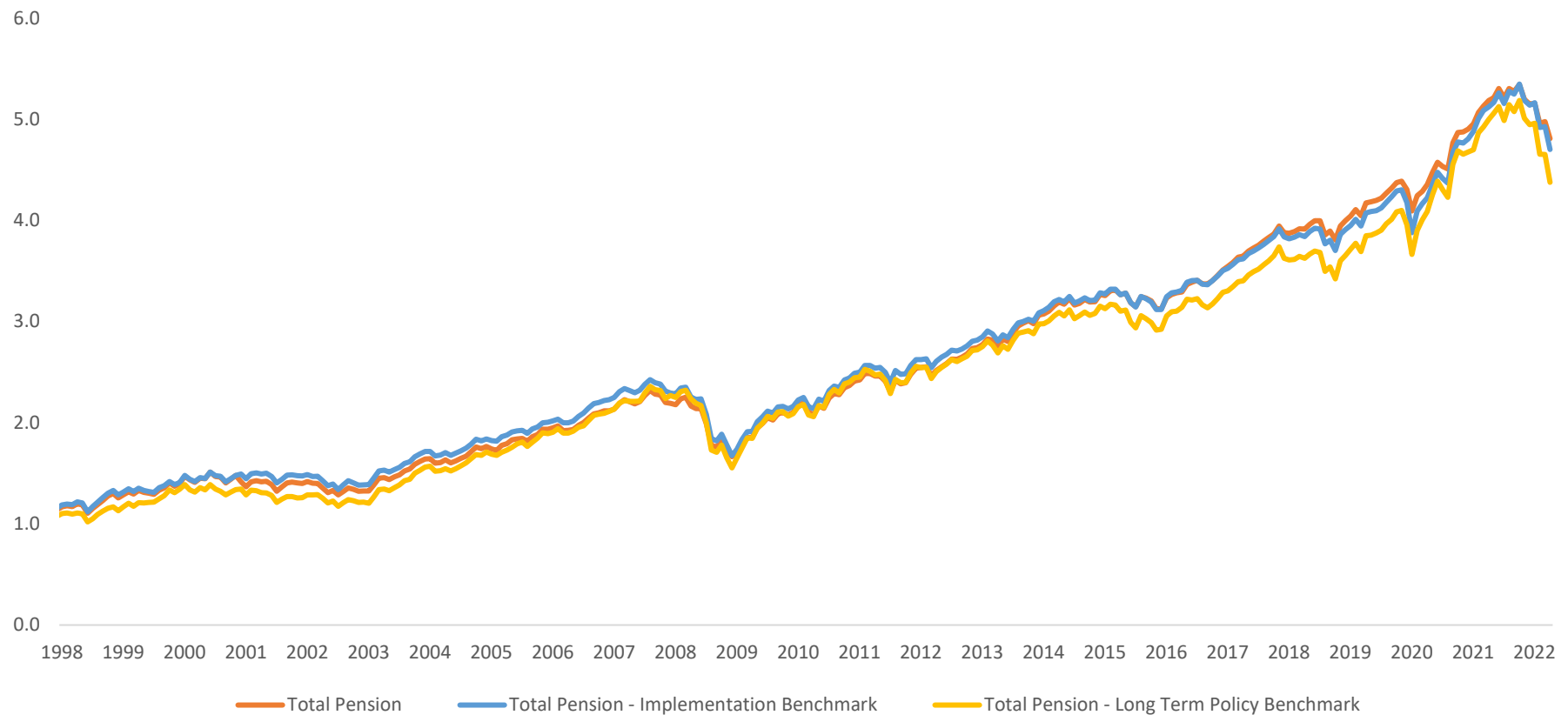
Returns for periods greater than one year are annualized.

Implementation Benchmark is a blend of the Asset Class Benchmarks at policy weights. It is currently weighted as follows: 58% Growth Benchmark; 29% Rates & Liquidity Benchmark; 11% Inflation Sensitive & Diversifiers Benchmark; and 2% Multi-Strategy Benchmark.

Long-Term Policy Benchmark is comprised of 57% MSCI ACWI IMI Net; 33% BOAML 5+ Years U.S. Treasury Index; 6% Bloomberg Commodity Index; and 4% BOAML 1-3 Years U.S. Inflation-Linked Treasury Index.



Growth of a Dollar Through June 30, 2022



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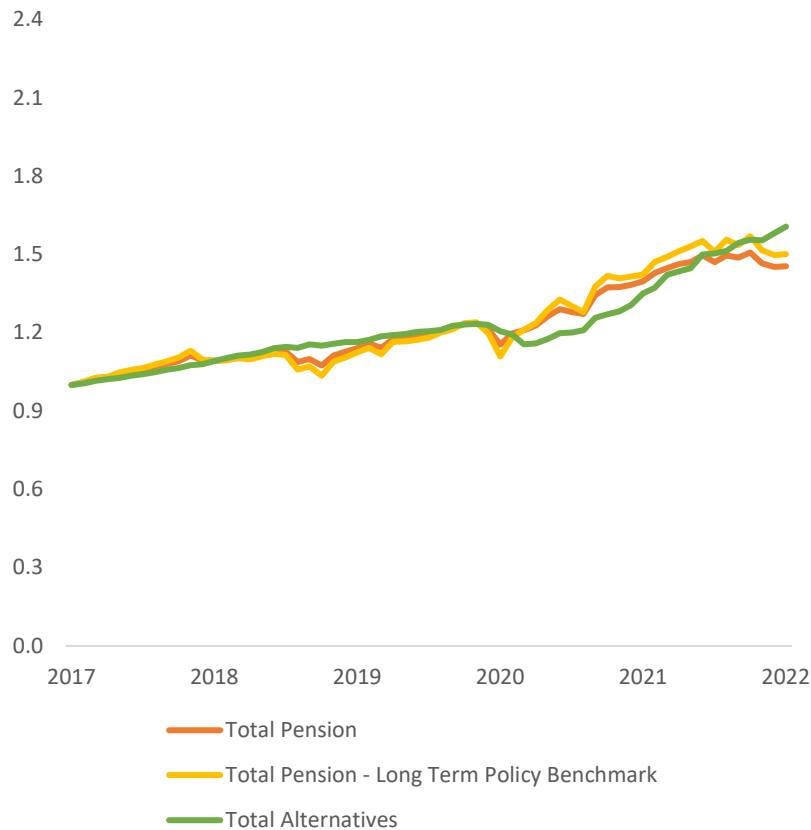
Notes:

Long-Term Policy Benchmark is comprised of 57% MSCI ACWI IMI Net; 33% BOAML 5+ Years U.S. Treasury Index; 6% Bloomberg Commodity Index; and 4% BOAML 1-3 Years U.S. Inflation-Linked Treasury Index.



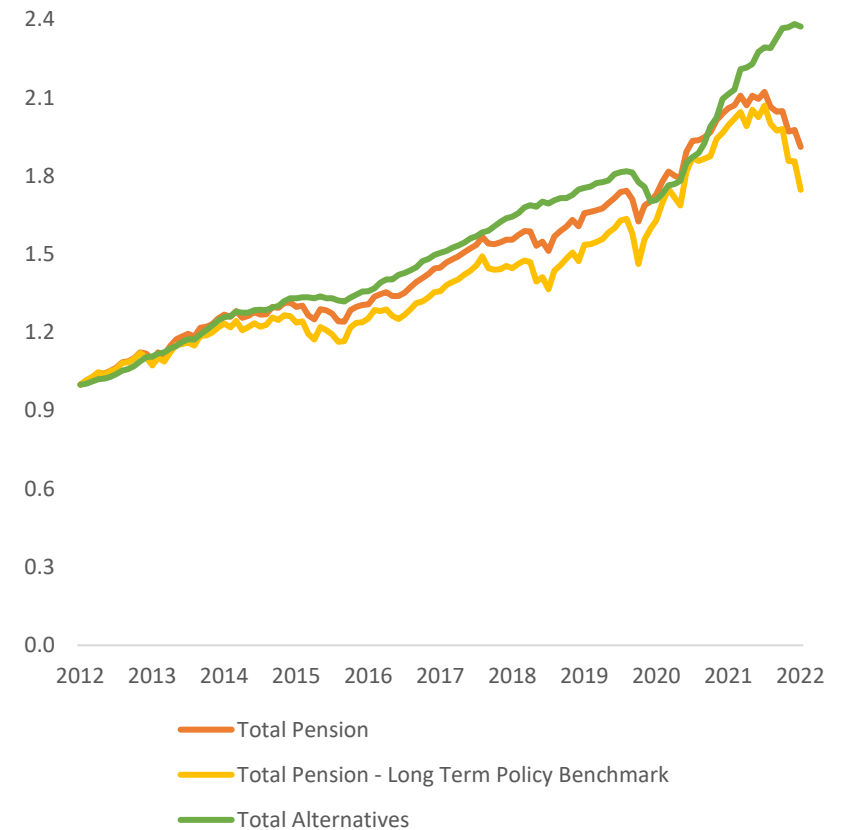
Growth of a Dollar

5 Years Ending June 30, 2022



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10 Years Ending June 30, 2022



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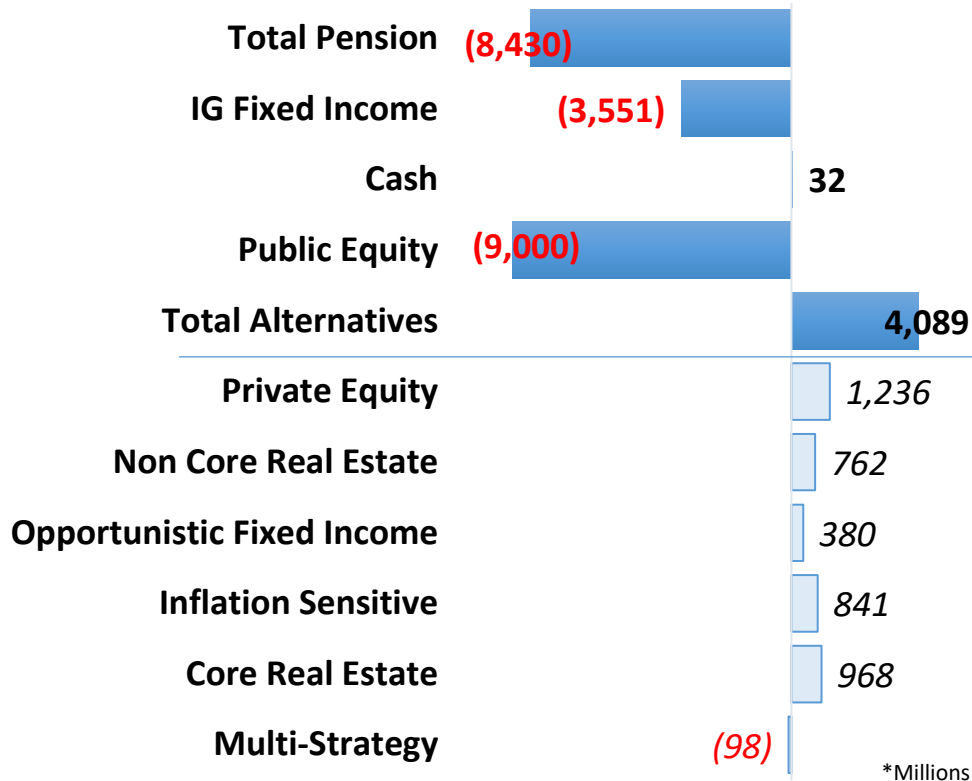
Note: NCRS Alternatives includes the following: Core Real Estate; Inflation Sensitive – Private Natural Resources; Inflation Sensitive – Real Assets and Other Diversifiers; Multi-Strategy Investments; Non-Core Real Estate; Opportunistic Fixed Income; Private Equity; Equity Hedge Strategies; and closed-end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



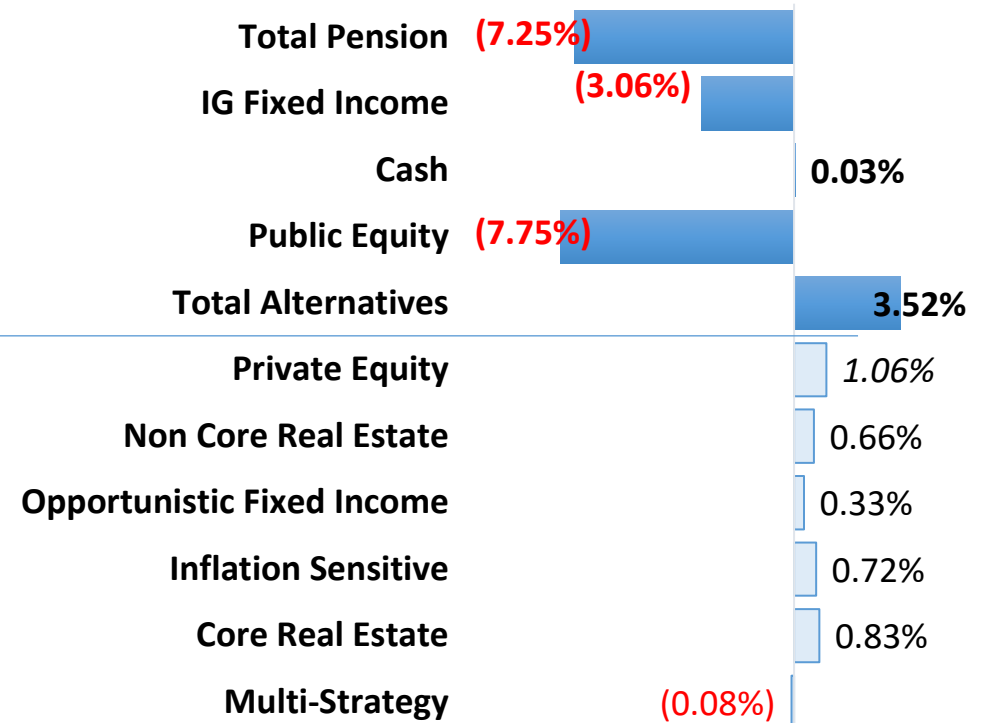
Estimated Contribution to Total Plan Return – 1 Year

As of June 30, 2022

Contribution to Total Plan \$ Earnings



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

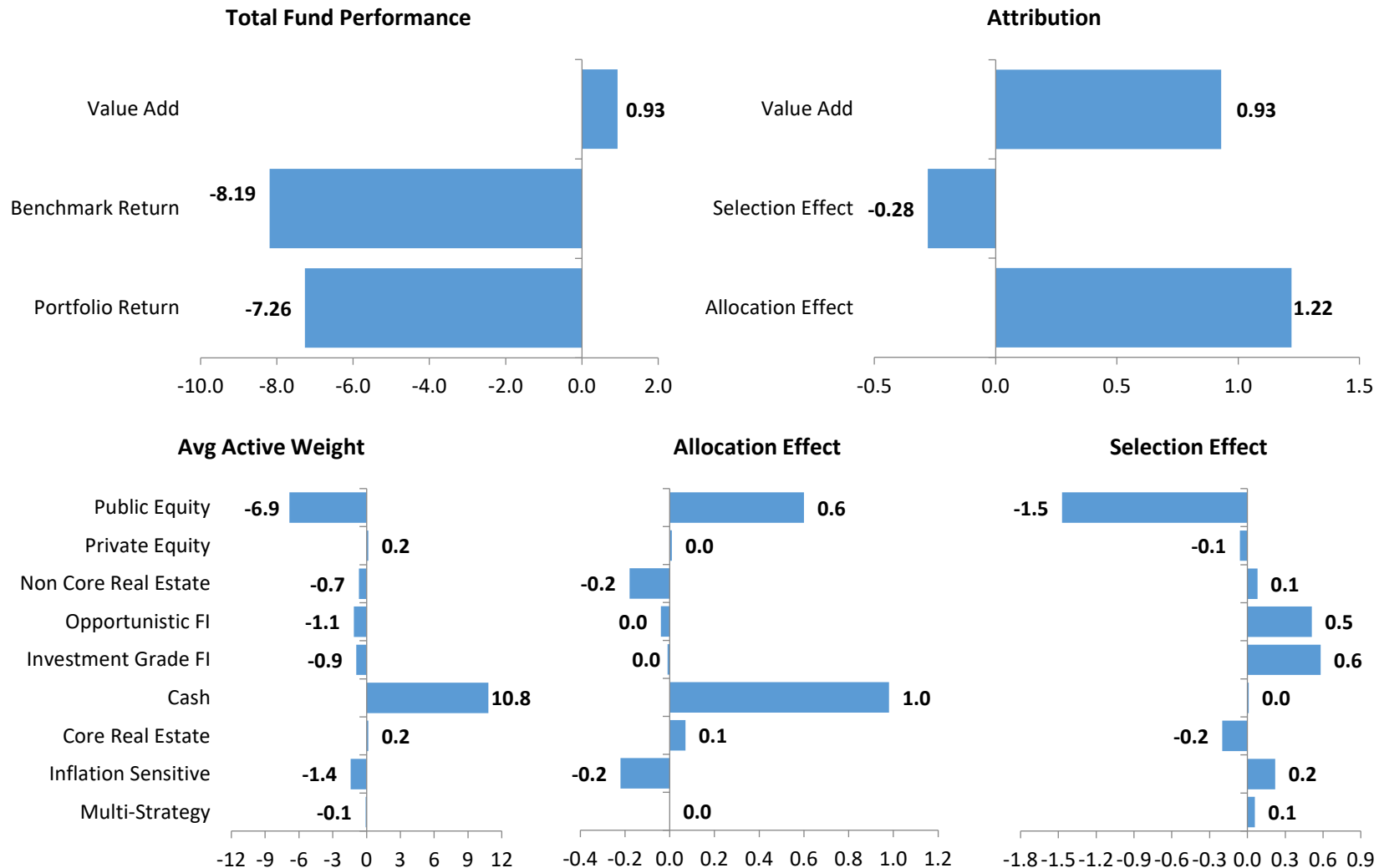
Contribution to Total Plan % Returns = Average Market Value % weight * % Total Return for each asset class

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

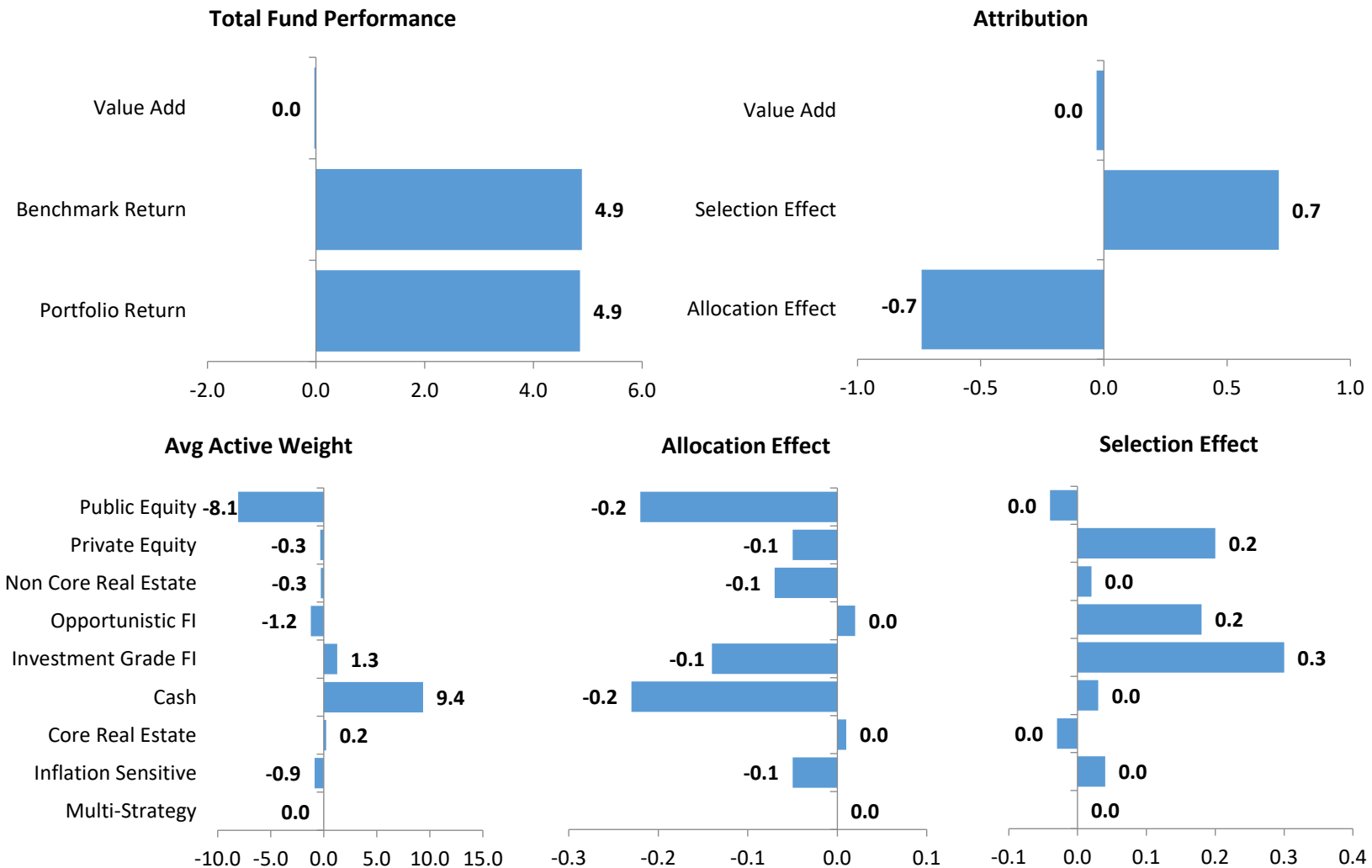
Total Fund vs. Implementation Benchmark: 1 Year Ending June 30, 2022





NCRS Net of Fees Return Attribution

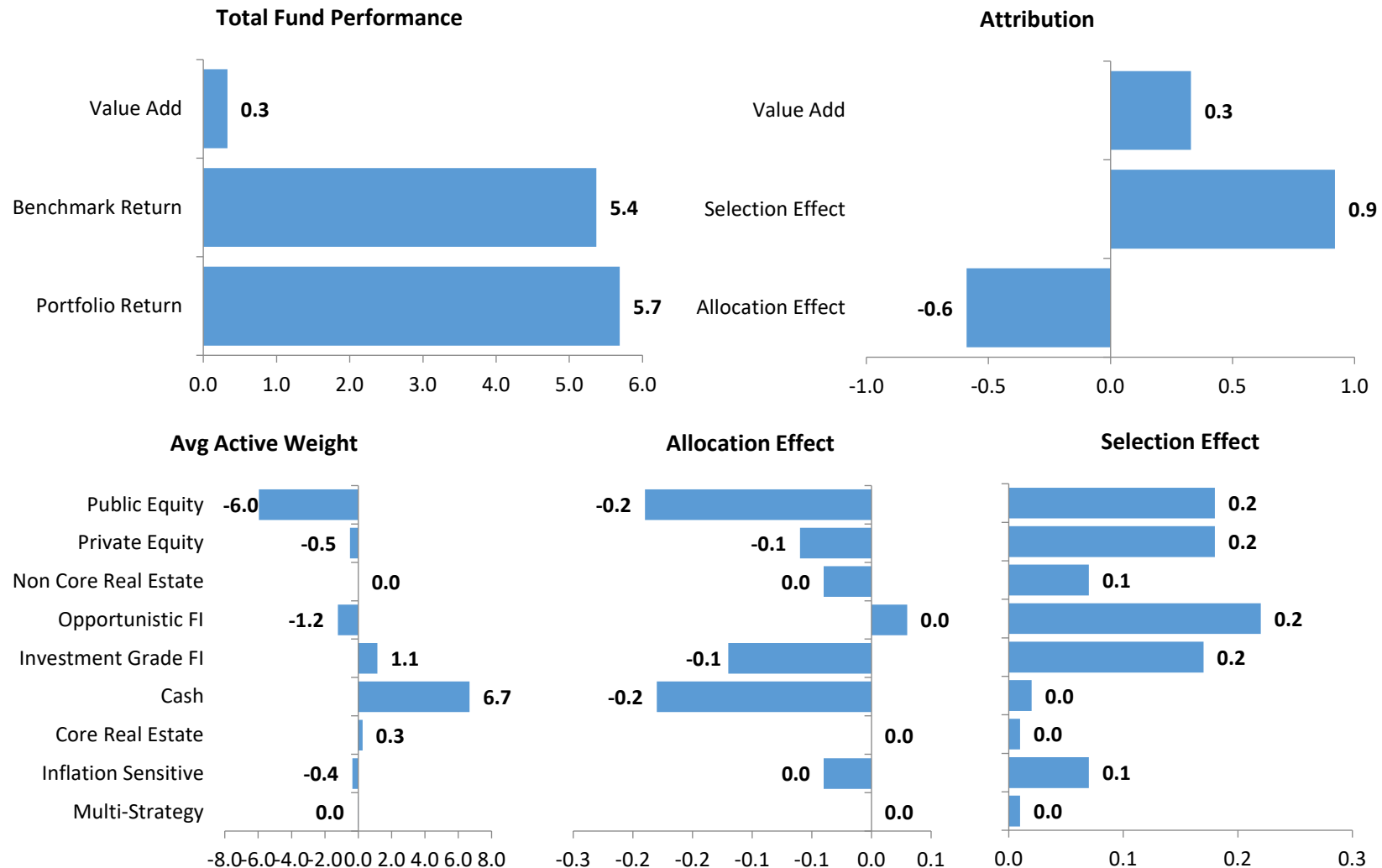
Total Fund vs. Implementation Benchmark: 3 Years Ending June 30, 2022





NCRS Net of Fees Return Attribution

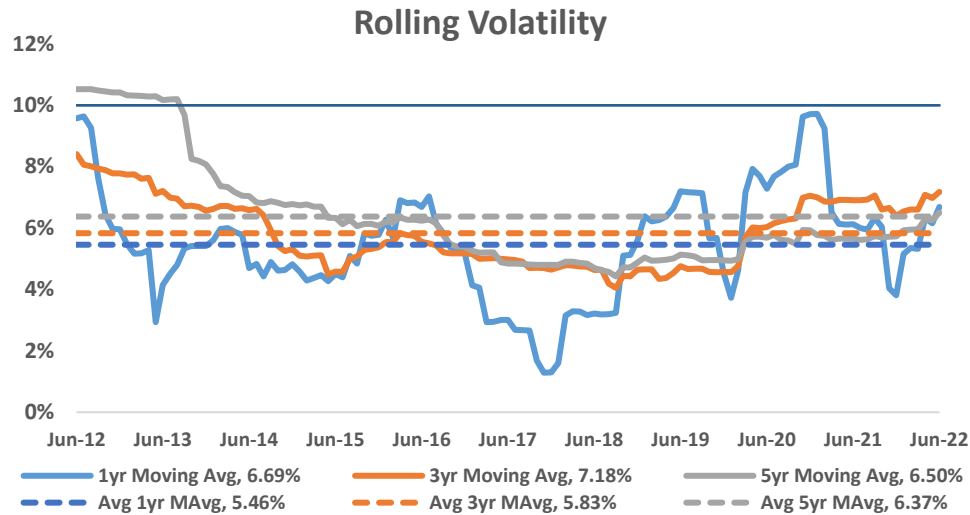
Total Fund vs. Implementation Benchmark: 5 Years Ending June 30, 2022



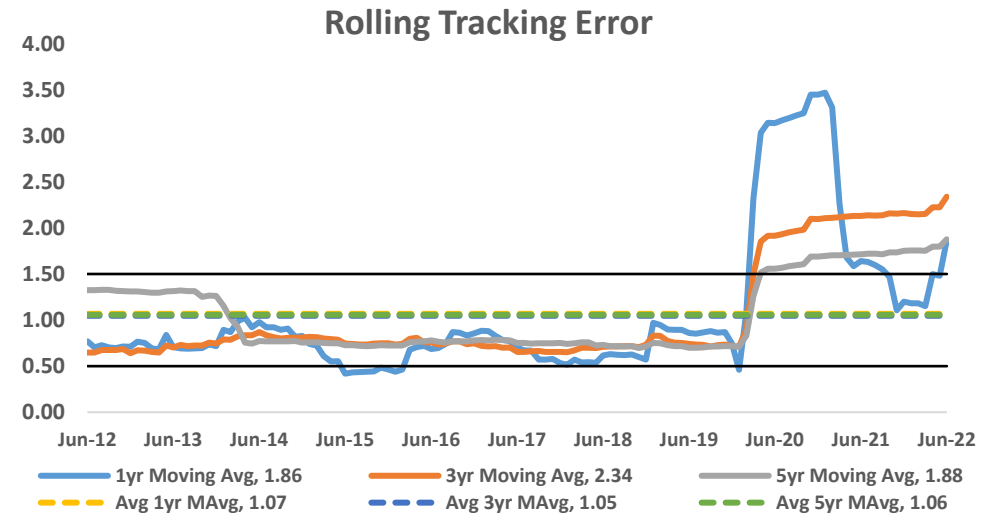


NCRS Net of Fees Risk Metrics

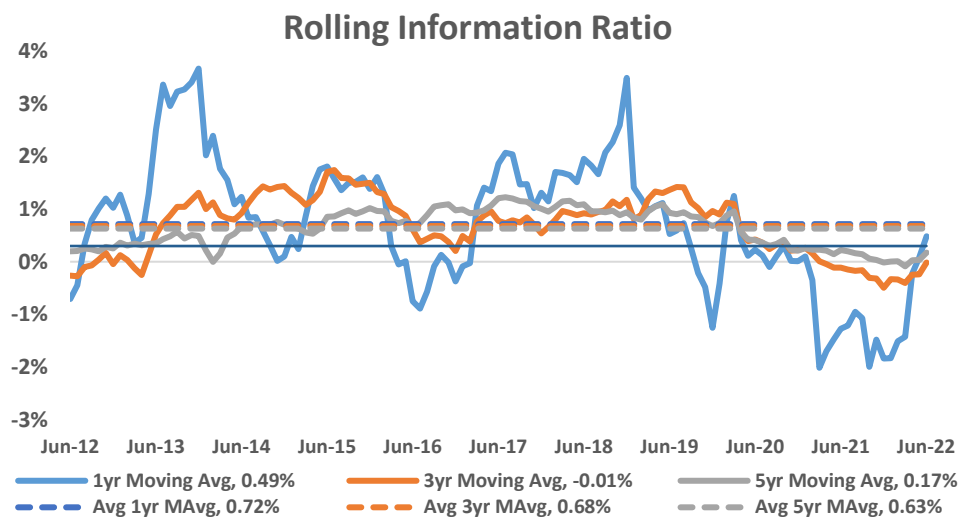
As of June 30, 2022



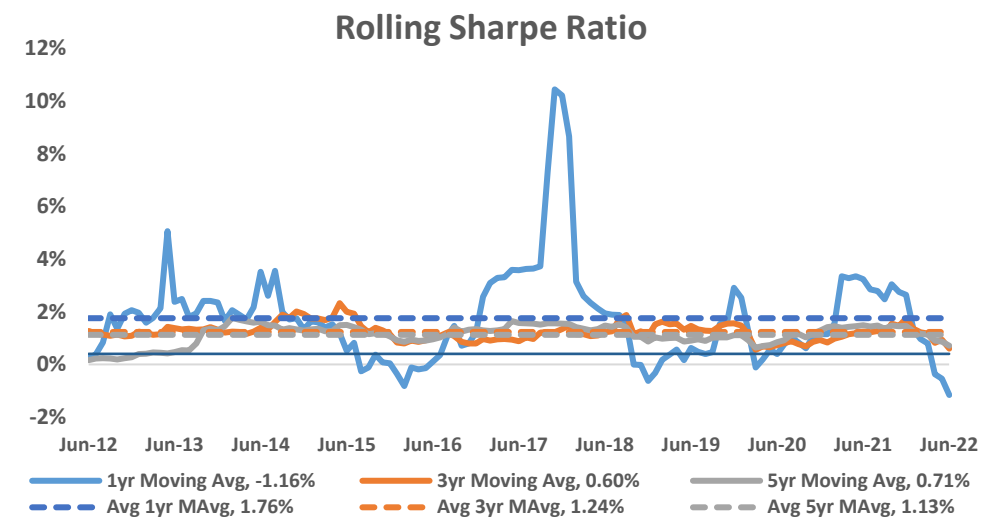
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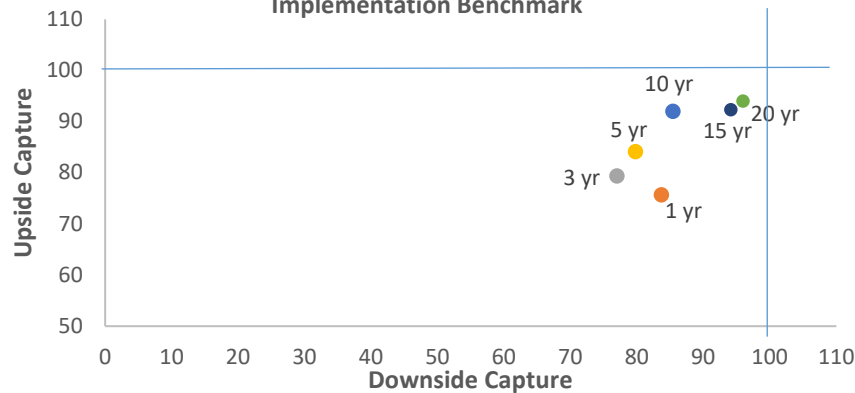
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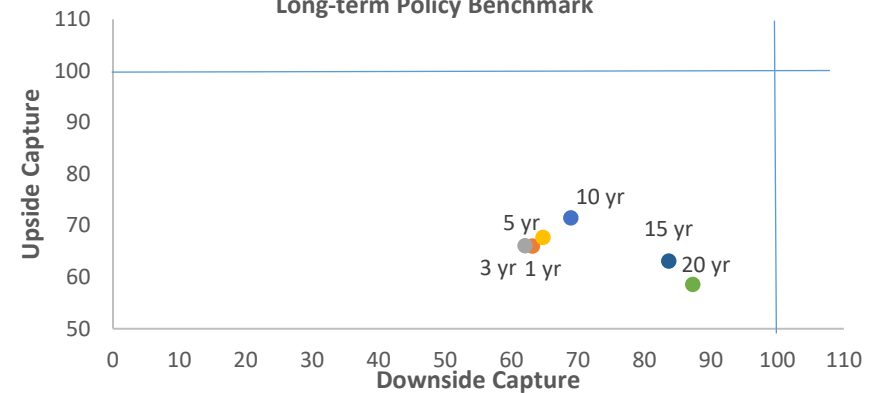
NCRS Net of Fees Risk Metrics

As of June 30, 2022

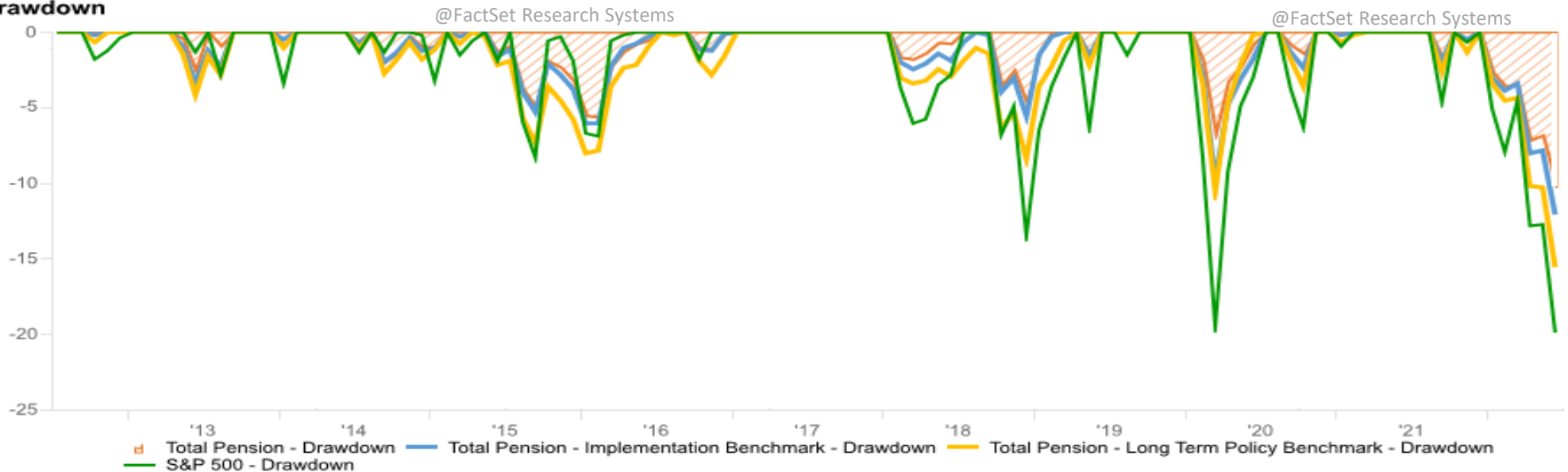
Up/Down Capture
Implementation Benchmark



Up/Down Capture
Long-term Policy Benchmark



Drawdown



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NCRS Gross of Fees Return and Risk

BNY Mellon Universe: US Public Funds > \$20B; Data as of June 30, 2022

Returns	1 Year	3 Years	5 Years	10 Years	15 Years	20 Years
25th Percentile	0.40	9.28	8.83	9.07	6.45	7.95
Median Percentile	-5.12	8.14	8.08	8.53	6.36	7.69
75th Percentile	-6.91	6.95	7.68	7.88	5.79	7.40
NCRS	-6.91	5.19	6.07	7.19	5.79	6.92
Percentile Rank (1 = highest performance)	75	88	88	82	82	87

Risk	1 Year	3 Years	5 Years	10 Years	15 Years	20 Years
25th Percentile	9.09	10.29	9.09	7.61	9.75	9.33
Median Percentile	7.23	8.85	8.03	6.78	9.17	8.61
75th Percentile	6.87	8.31	7.31	6.05	8.35	8.14
NCRS	6.39	7.07	6.43	5.66	7.61	7.26
Percentile Rank (1 = highest risk)	88	94	94	94	88	94

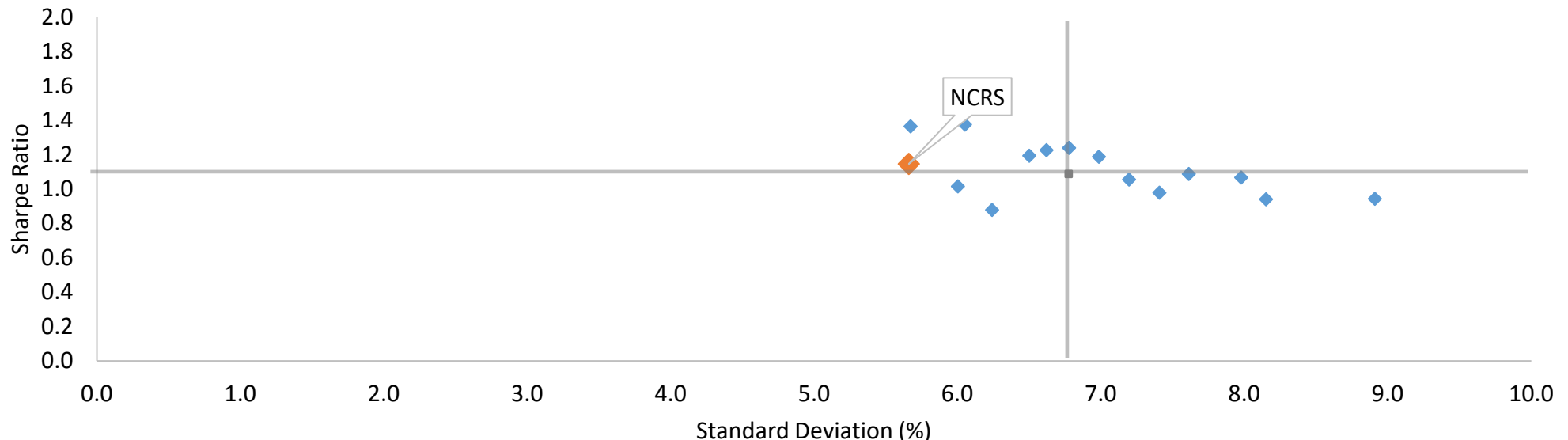


NCRS Gross of Fees Sharpe Ratio

BNY Mellon Universe: US Public Funds > \$20B; Data as of June 30, 2022

Sharpe	1 Year	3 Years	5 Years	10 Years	15 Years	20 Years
25th Percentile	0.07	1.00	0.98	1.23	0.68	0.81
Median Percentile	-0.52	0.77	0.82	1.09	0.64	0.77
75th Percentile	-0.87	0.65	0.70	0.98	0.56	0.69
NCRS	-1.11	0.66	0.78	1.15	0.68	0.79
Percentile Rank (1 = highest performance)	94	69	63	44	25	47

10 Year Plot: Sharpe Ratio vs. Volatility



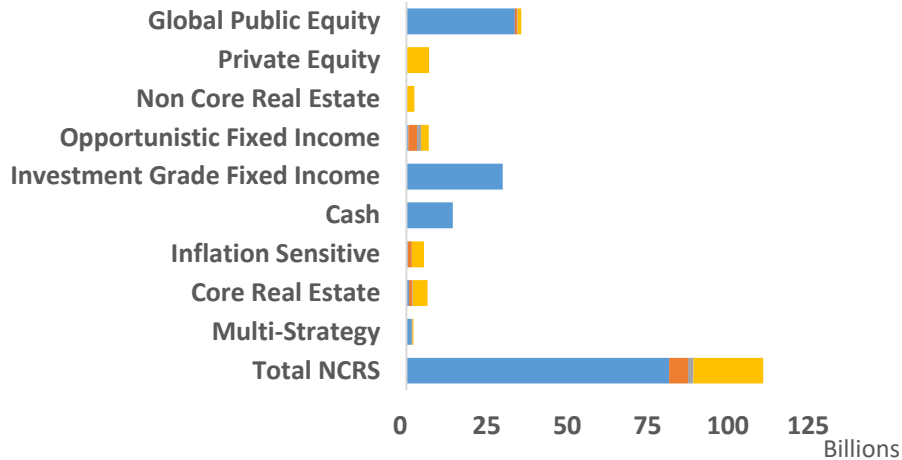
Note: Data shown is gross of fees with the exception of incentive payments, which have been deducted from NAV when applicable.



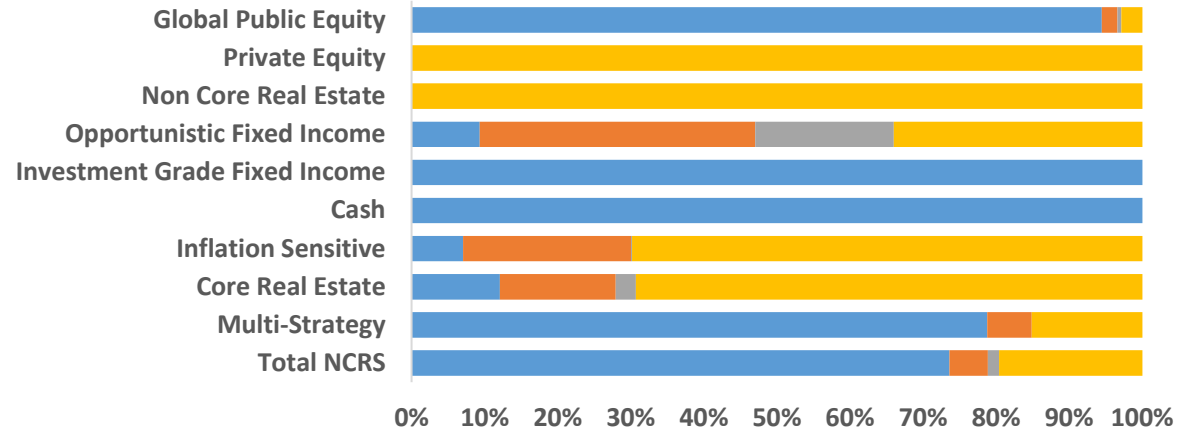
NCRS Liquidity Profile

As of June 30, 2022

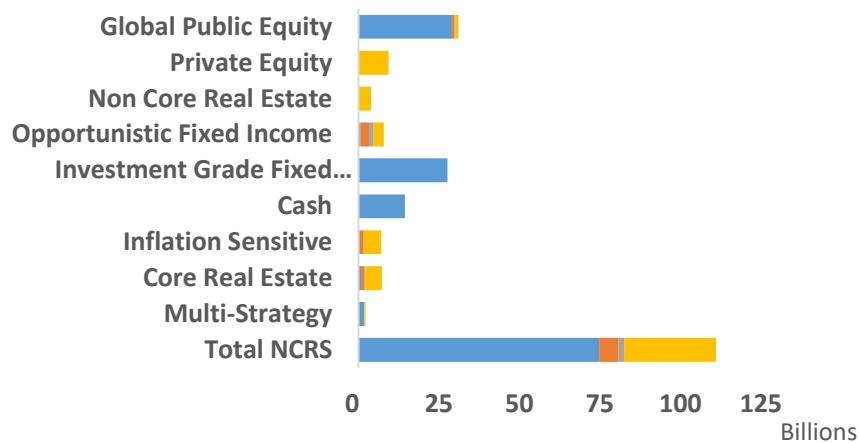
Liquidity Allocation (\$ Market Value)



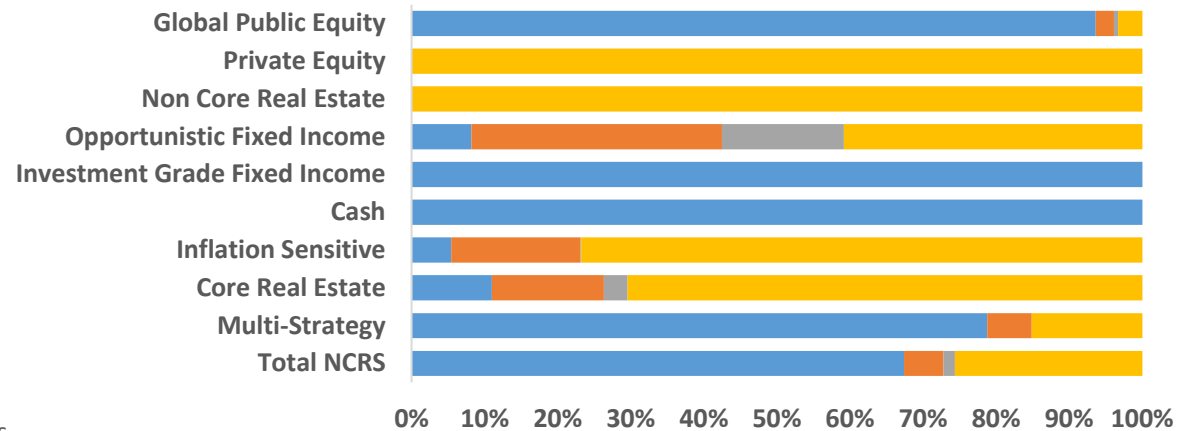
Liquidity Allocation (% Market Value)



Liquidity Allocation (\$ Market Value + Unfunded)



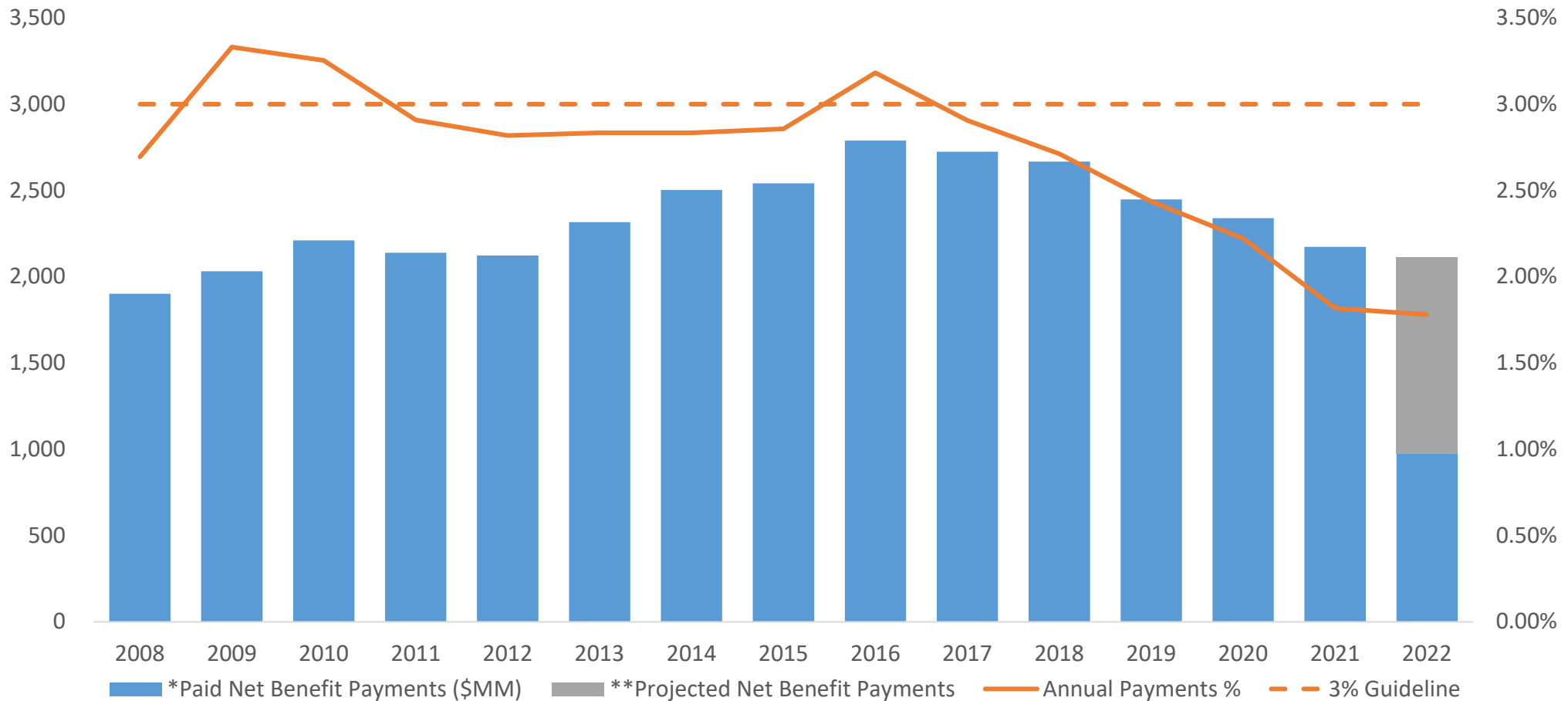
Liquidity Allocation (% Market Value + Unfunded)





NCRS Liquidity Profile

Net benefit payments by calendar year

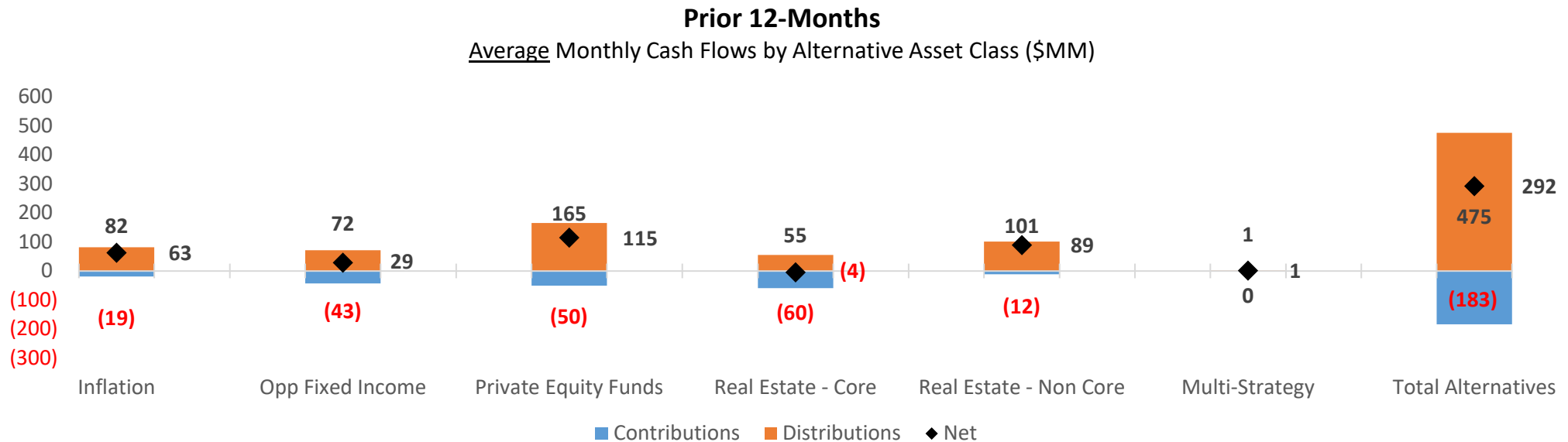
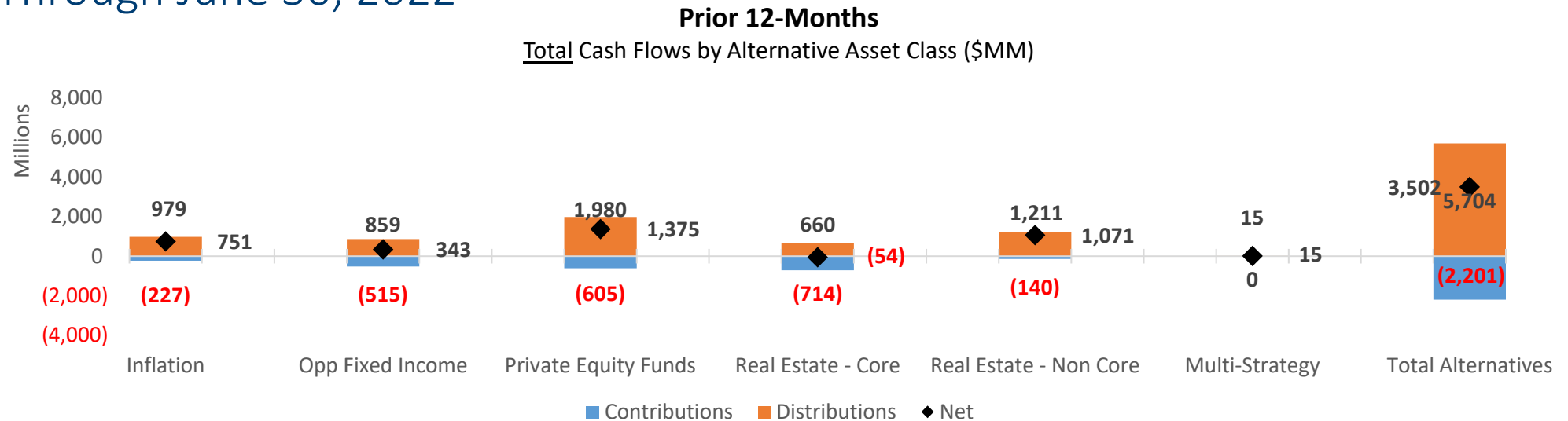


*Benefit payments exclude transfers from the Retiree Health Premium Fund as of January 1, 2022

**Net benefit payments through August 1, 2022



NCRS Alternatives Liquidity Profile Through June 30, 2022

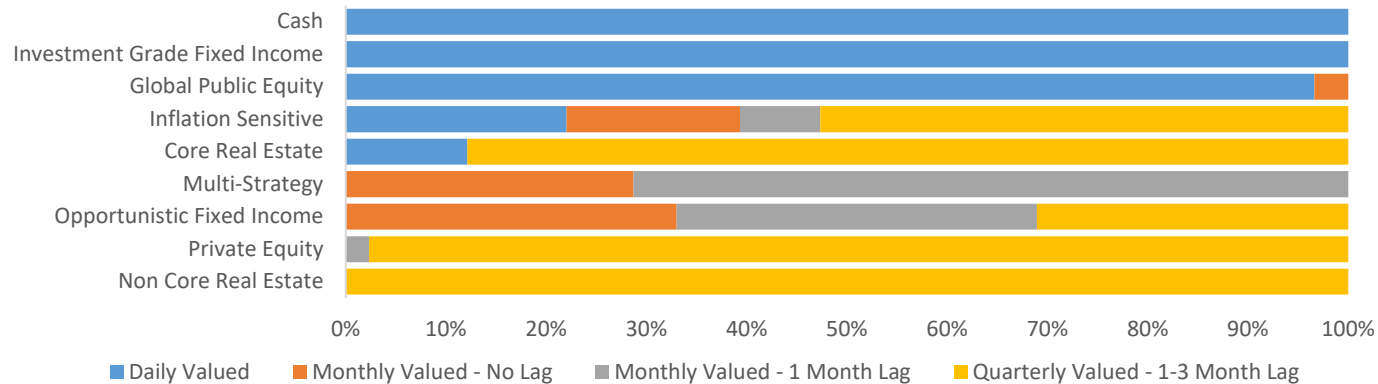




NCRS Valuation Lag Profile

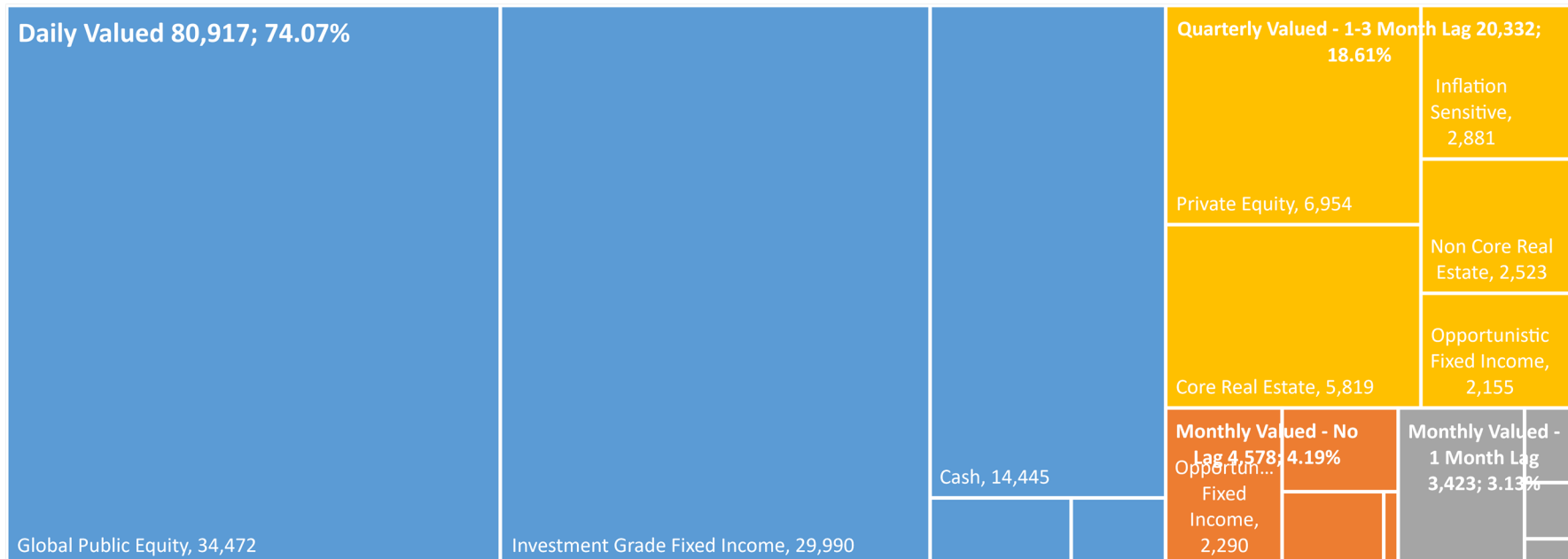
As of June 30, 2022

PORTFOLIO VALUATION LAG



VALUATION LAG BY PORTFOLIO

in Millions





NCRS Asset Class Net of Fees Performance

As of June 30, 2022

	Market Value (\$MM)	1 Year	3 Years	5 Years	10 Years	15 Years	20 Years
Growth	\$52,260	-11.65	8.22	8.57	9.77	5.75	7.50
Benchmark ¹		-10.24	7.46	7.35	8.51	4.86	6.87
Public Equity	\$35,679	-20.20	5.91	7.04	9.19	5.35	7.20
Benchmark ²		-16.53	5.91	6.52	8.52	4.70	6.62
Private Equity	\$7,119	15.16	23.17	19.50	14.35	10.63	9.40
Benchmark ³		16.34	18.94	15.77	12.70	10.31	11.87
Non-Core Real Estate	\$2,523	24.75	10.83	11.25	12.46	5.70	7.11
Benchmark ⁴		20.10	9.88	8.99	8.95	3.03	7.46
Opportunistic Fixed Income	\$6,940	4.88	6.76	6.22	6.64	6.61	-
Benchmark ⁵		-4.26	3.62	2.42	2.74	0.93	-
Rates & Liquidity	\$44,434	-6.89	0.29	1.72	2.22	4.49	4.75
Benchmark ⁶		-11.70	-1.22	0.90	1.79	4.04	4.37
IG Fixed Income	\$29,990	-9.99	-0.26	1.48	2.15	4.44	4.71
Benchmark ⁷		-12.10	-1.29	0.89	1.82	4.06	4.38
Cash	\$14,445	0.20	0.80	1.21	-	-	-
Benchmark ⁸		0.14	0.52	1.01	-	-	-
Inflation Sensitive & Diversifiers	\$12,115	13.68	7.05	6.70	5.44	2.74	4.71
Benchmark ⁹		13.06	6.76	5.91	5.01	1.82	4.37
Inflation Sensitive	\$5,492	13.59	5.63	5.49	2.95	0.86	3.77
Benchmark ¹⁰		8.28	4.57	4.09	1.57	1.98	4.21
Core Real Estate	\$6,623	13.91	8.61	8.08	8.88	5.66	6.90
Benchmark ¹¹		18.92	9.34	8.07	9.30	5.79	7.42
Multi-Strategy	\$2,181	-3.91	0.66	2.29	5.74	4.20	-
Benchmark ¹²		-7.10	0.44	1.90	5.12	3.59	-
Total Pension Plan	\$110,991	-7.25	4.86	5.69	6.69	5.32	6.54
Implementation Benchmark ¹³		-8.19	4.89	5.37	6.07	4.82	6.15
Long-Term Policy Benchmark ¹⁴		-12.42	4.37	5.16	5.74	4.66	6.45



NCRS Calendar Year Asset Class Return Diversification

As of June 30, 2022

2013	2014	2015	2016	2017	2018	2019	2020	2021	2022 YTD
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%	Non-Core Real Estate 10.74%
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%	Inflation Sensitive 8.29%
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 5.67%
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%	Private Equity 1.7%
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%	Pension Cash 0.16%
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%	Opportunistic Fixed Income (0.31%)
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%	Multi-Strategy (6.29%)
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 (9.96%)
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 (10.11%)
	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 (22.25%)



New, Incremental, & Unfunded Investment Commitments

Since May 25th IAC Meeting

As of June 30, 2022

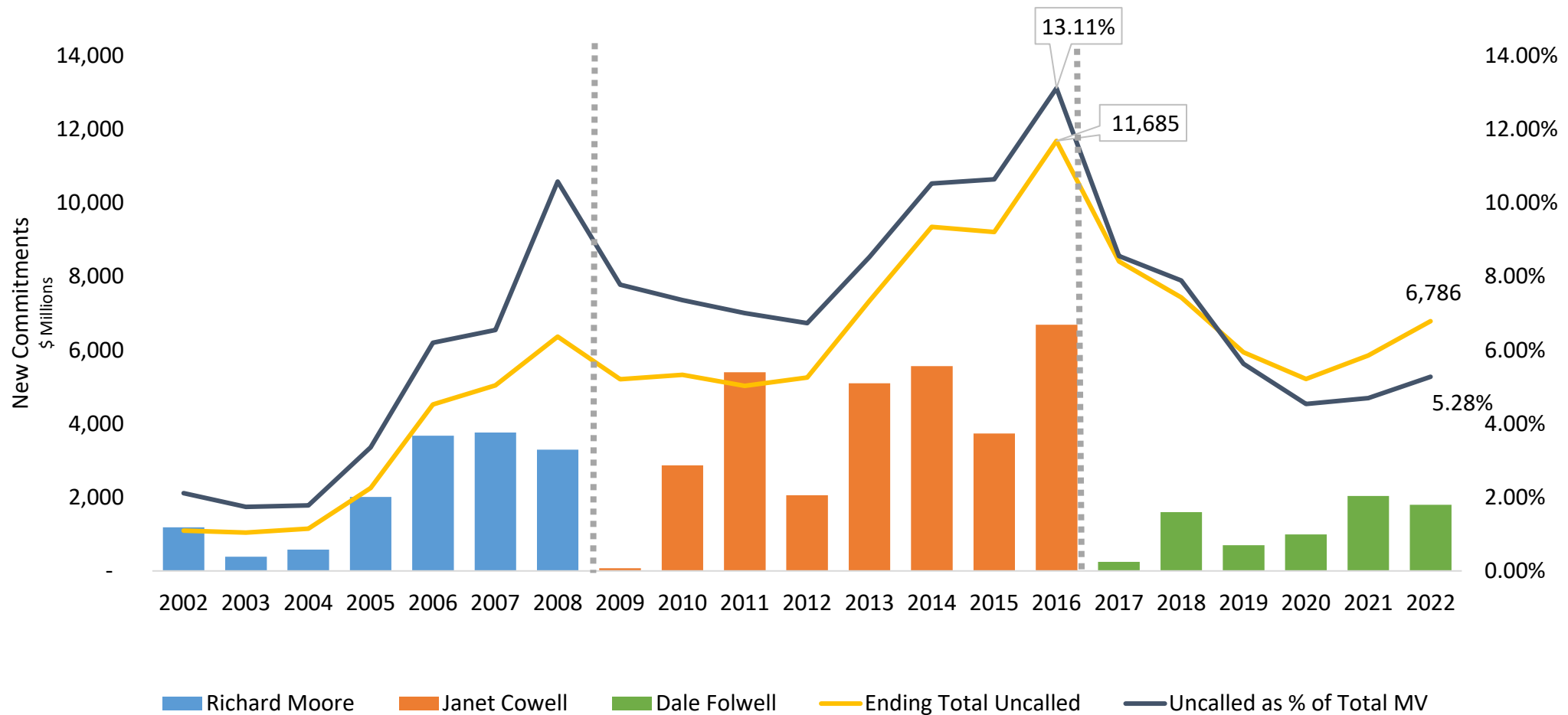
<u>Fund Name</u>	<u>Firm Name</u>	<u>New or Incremental Commitment (\$MM)</u>	<u>Closing Date</u>
Public Equity			
Internal US Core	Internal	200	6/14
Internal Russell 1000	Internal	15,104	7/1
Private Equity			
Hg Genesis 10	HG Capital	102	7/1
Non-Core Real Estate			
Blackstone RE Partners X	Blackstone	500	6/30
Opportunistic Fixed Income			
None			
Inflation Sensitive			
None			
Core Real Estate			
Blackrock World REIT	Blackrock	54	8/1
Multi-Strategy			
None			

<u>Asset Class</u>	<u>Unfunded Commitments (\$MM)</u>
Public Equity	0
Private Equity	2,262
Non-Core Real Estate	1,285
Opportunistic Fixed Income	949
Inflation Sensitive	1,638
Core Real Estate	651
Multi Strategy	0
Total	6,786



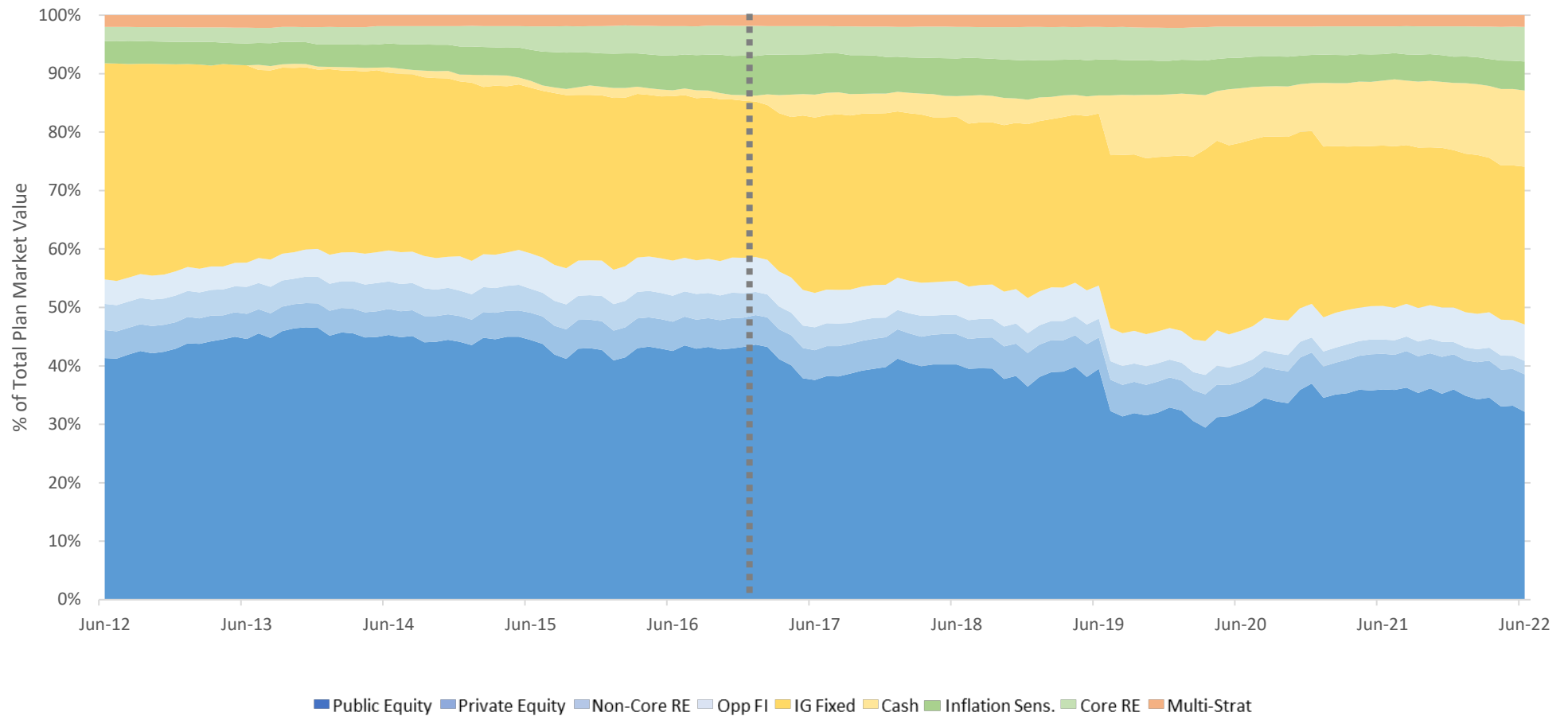
New and Total Unfunded Private Asset Class Commitments

By Calendar Year of Closing through June 30th





Asset Allocation History as of June 30, 2022





Exited Investments

Since May 25th IAC Meeting

<u>Fund Name</u>	<u>Redemption Amount (\$MM)</u>	<u>Redemption Effective</u>
Public Equity		
Internal Russell Midcap	3,316	6/30
Internal Russell 200	11,203	6/30
Private Equity		
None		
Non-Core Real Estate		
None		
Opportunistic Fixed Income		
None		
Inflation Sensitive		
None		
Core Real Estate		
Blackrock Emerging REIT	54	8/1
Multi Strategy		
None		



Top 20 Investment Managers

As of June 30, 2022

	Manager	Market Value (\$)	Uncalled (\$)	% MV	% MV Cum.
1	Internal Fixed Income	44,434,358,423	-	40.0%	40.0%
2	Internal Equity	15,847,066,019	-	14.3%	54.3%
3	BlackRock, Inc.	8,162,443,966	-	7.4%	61.7%
4	Rockwood Capital	2,900,369,023	145,962,439	2.6%	64.3%
5	Blackstone Group	2,893,584,505	1,244,902,422	2.6%	66.9%
6	Baillie Gifford	2,835,966,210	-	2.6%	69.4%
7	Wellington Management	2,731,661,290	-	2.5%	71.9%
8	Mondrian Investment Partners Limited	2,557,684,818	-	2.3%	74.2%
9	Walter Scott & Partners	2,107,524,221	-	1.9%	76.1%
10	Gladius Capital Management LP	1,850,700,795	-	1.7%	77.8%
11	Landmark Partners, Inc.	1,836,404,887	2,149,135,526	1.7%	79.4%
12	Angelo, Gordon & Co.	1,798,836,041	31,153,793	1.6%	81.0%
13	ValueAct Capital	1,205,001,990	-	1.1%	82.1%
14	LBA Realty	1,064,471,983	240,594,059	1.0%	83.1%
15	HPS Investment Partners, LLC	1,061,631,420	127,344,514	1.0%	84.1%
16	Rockpoint Group, LLC	832,058,779	85,870,046	0.7%	84.8%
17	DoubleLine Capital LP	817,678,535	-	0.7%	85.5%
18	Campbell Group LLC, The	717,070,305	-	0.6%	86.2%
19	Earnest Partners	712,937,927	-	0.6%	86.8%
20	Monarch Alternative Capital	692,200,000	-	0.6%	87.4%
	82 Remaining Managers*	13,931,007,833	2,760,758,280	12.6%	100.0%
Total		110,990,658,970	6,785,721,079	100.0%	100.0%

*Manager count consists of all manager accounts with a market value greater than \$5.1 million and new, not yet funded, accounts.



Appendix



NCRS Public Equity Net of Fees Performance

As of June 30, 2022

	Market Value (\$MM)	3 Month	1 Year	3 Years	5 Years	10 Years
Public Equity	\$35,679	(15.79)	(20.20)	5.91	7.04	9.19
Benchmark ²		(15.83)	(16.53)	5.91	6.52	8.52
Domestic Portfolio	\$18,861	(16.87)	(15.06)	9.65	10.86	12.69
Russell 3000		(16.70)	(13.87)	9.77	10.60	12.57
Non-US Portfolio	\$16,249	(14.46)	(25.36)	1.98	3.43	5.94
Custom Benchmark		(14.28)	(19.86)	1.55	2.50	5.01
Equity Hedge	\$2	(1.82)	5.33	11.19	7.64	6.59
MSCI ACWI (Beta Adjusted)		(6.50)	(6.68)	2.77	2.97	2.94

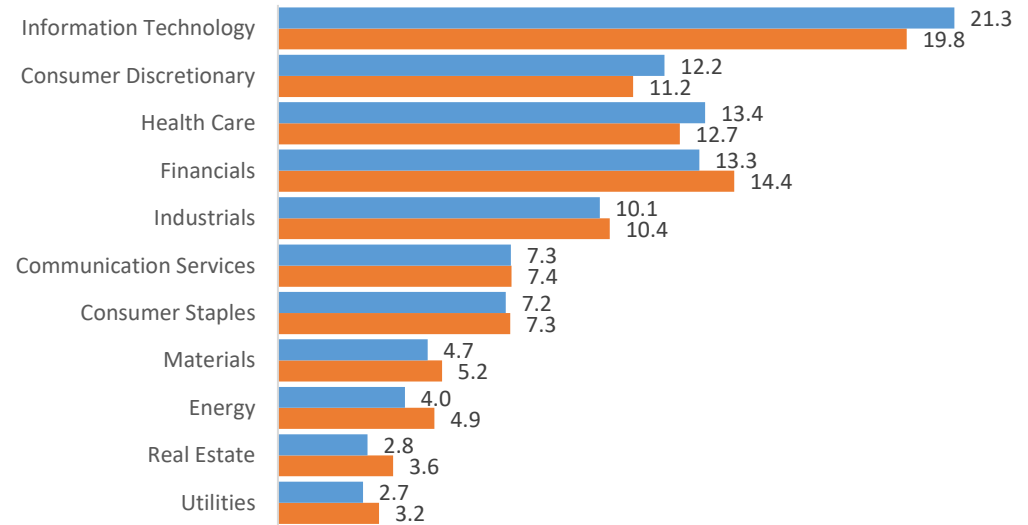


NCRS Public Equity Portfolio Characteristics

As of June 30, 2022

Portfolio Characteristics		
	Portfolio	MSCI ACWI IMI
Price/Earnings	16.0	14.4
Dividend Yield	2.0	2.2
Price/Book	2.5	2.3
Market Capitalization	278,007	274,648
Return On Equity	21.2	21.1

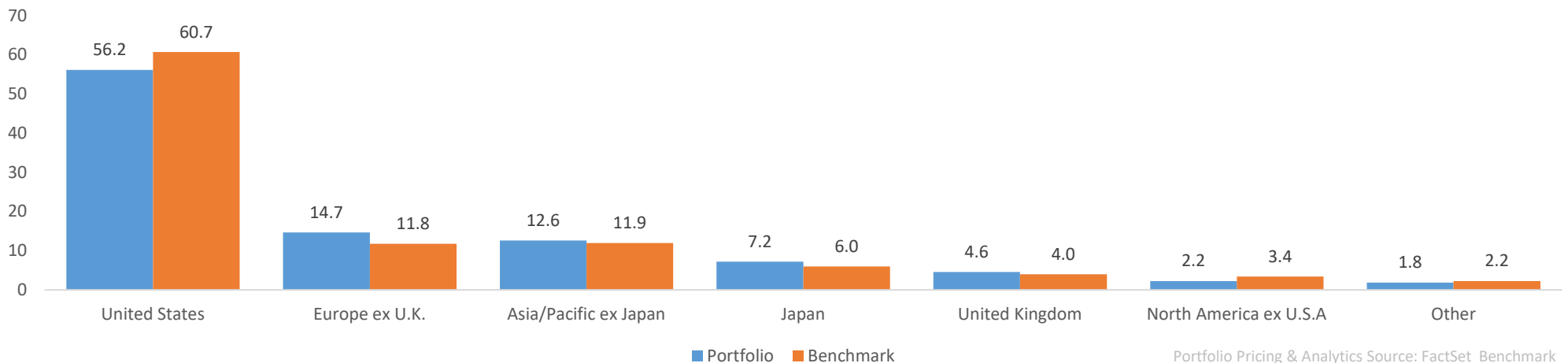
@FactSet Research Systems



■ Portfolio ■ Benchmark

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

Total Equity Regional Allocation



■ Portfolio ■ Benchmark

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



NCRS Private Equity Portfolio

As of June 30, 2022

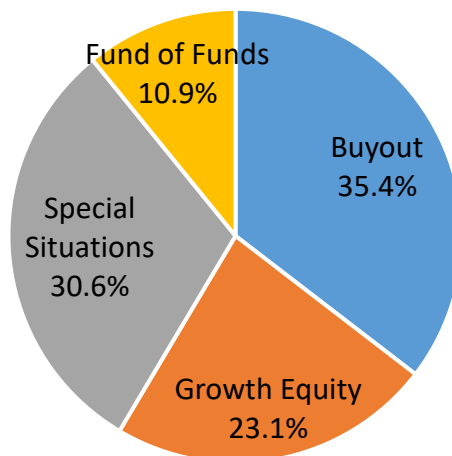
Net of Fees Performance (%)

	(\$MM)	3 Month	1 Year	3 Years	5 Years	10 Years
Private Equity	\$7,119	(1.88)	15.16	23.17	19.50	14.35
Benchmark ³		(0.27)	16.34	18.94	15.77	12.70
Buyout	\$2,521	1.56	29.22	24.75	19.81	13.83
Growth	\$1,645	(10.69)	(10.47)	20.62	20.28	16.31
Special Situations	\$2,177	1.38	29.08	22.30	16.92	10.89
Fund of Funds	\$773	(0.86)	13.73	24.39	20.50	16.05

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	Total
NCRS	12.02	6.83	5.11	3.46	9.61	11.00	8.91	20.23	9.55	15.62	13.61	16.48	22.42	26.05	23.91	28.35	N/A	N/A	6.66	0.00	10.82
# of Funds	28	3	11	21	15	17	3	1	6	6	9	4	9	6	7	3	N/A	N/A	4	1	154

Strategy Allocation (Based on Valuation)



*Private Equity returns include a stock distribution account, in the amount of roughly \$3.1 million, which does not fall under any specific sub-section.



NCRS Non-Core Real Estate Portfolio

As of June 30, 2022

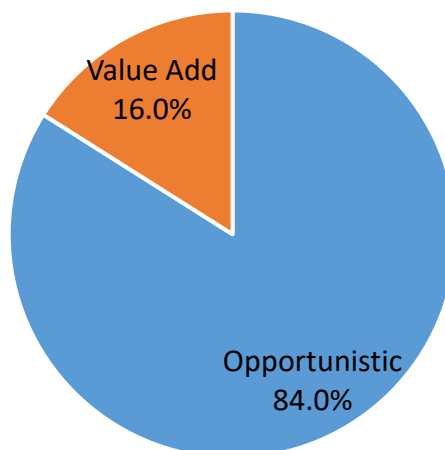
Net of Fees Performance (%)

	(\$MM)	3 Month	1 Year	3 Years	5 Years	10 Years
Non-Core Real Estate	\$2,523	4.70	24.75	10.83	11.25	12.46
Benchmark ⁴		2.92	20.10	9.88	8.99	8.95
Opportunistic	\$2,119	5.04	27.40	11.43	12.01	12.47
Value Add	\$404	2.78	15.42	8.44	8.85	11.87

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>Total</u>
NCRS	8.91	15.69	-1.47	3.14	2.21	15.39	N/A	15.92	17.52	16.10	12.71	5.47	9.42	13.45	N/A	14.62	41.00	N/A	N/A	0.00	6.92
# 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	2	110

Strategy Allocation (Based on Valuation)





NCRS Opportunistic Fixed Income Portfolio

As of June 30, 2022

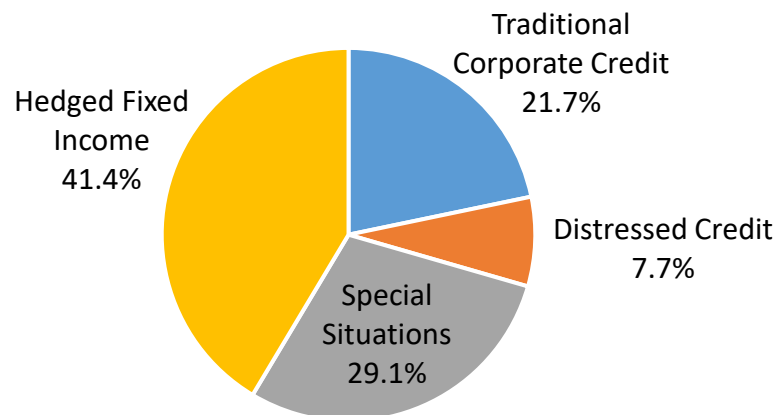
Net of Fees Performance (%)

	(\$MM)	3 Month	1 Year	3 Years	5 Years	10 Years
Opportunistic Fixed Income	\$6,940	(1.32)	4.88	6.76	6.22	6.64
Benchmark ⁵		(6.44)	(4.26)	3.62	2.42	2.74
Traditional Corporate Credit	\$1,508	(3.47)	2.42	6.22	5.77	6.59
Distressed Credit	\$537	(0.26)	12.06	12.26	10.26	10.56
Special Situations	\$2,021	0.90	10.03	6.98	7.67	12.05
Hedged Fixed Income	\$2,874	(1.83)	1.93	6.59	5.24	4.96

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>Total</u>
NCRS	2.87	N/A	16.92	7.21	22.42	5.32	4.99	3.62	5.04	3.81	8.49	7.77	14.51	N/A	9.46	20.39	9.45	0.00	6.31
# of Funds	1	N/A	1	3	1	4	9	2	7	3	1	8	2	N/A	1	2	1	1	47

Strategy Allocation (Based on Valuation)





NCRS Rates & Liquidity Portfolio

As of June 30, 2022

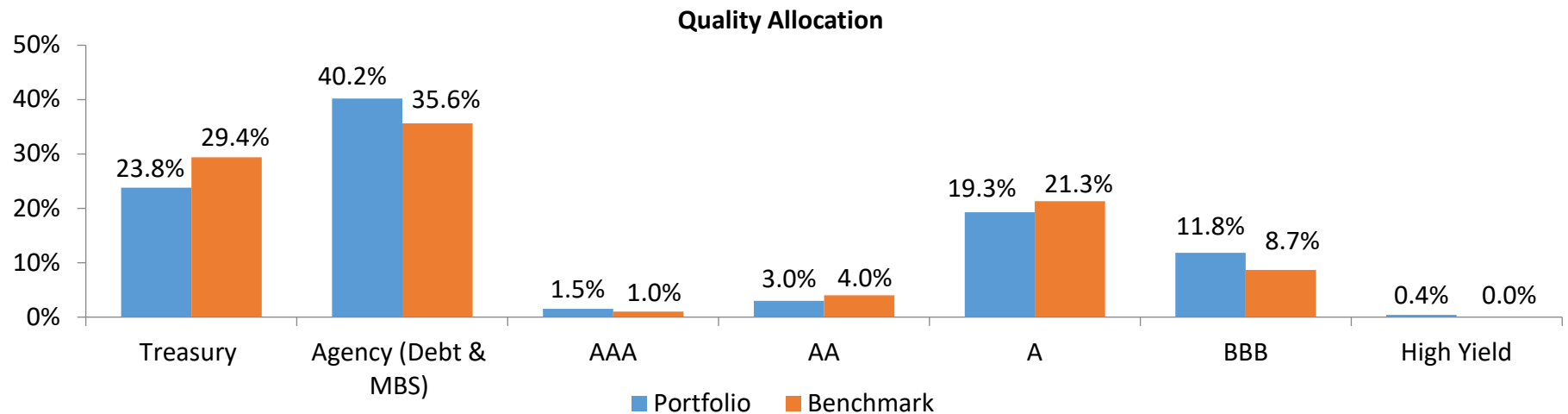
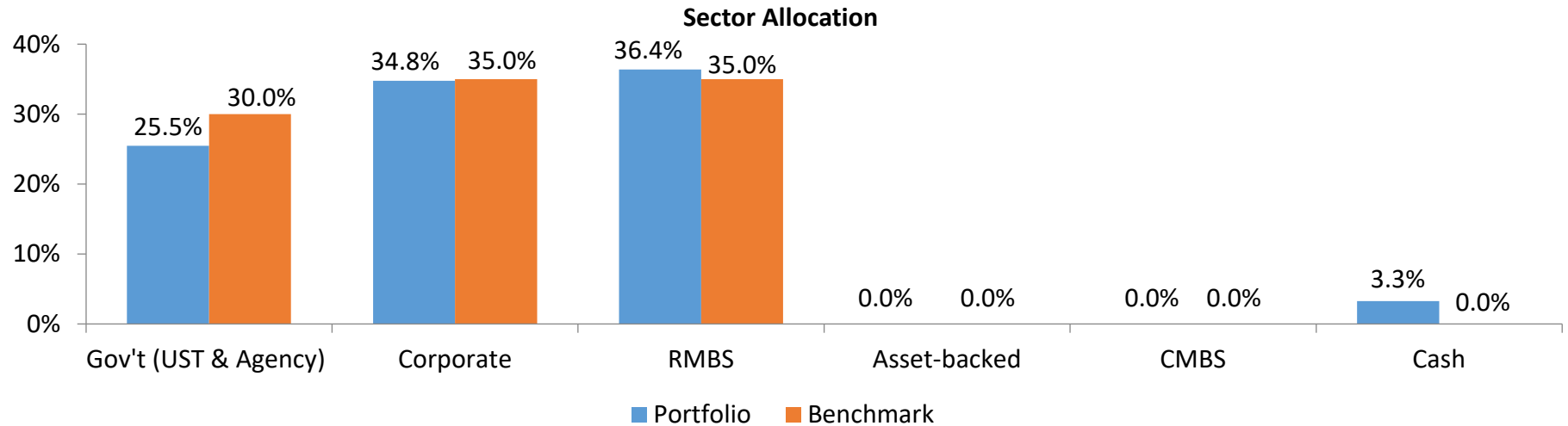
Net of Fees Performance (%)						
	(\$MM)	3 Month	1 Year	3 Years	5 Years	10 Years
Rates & Liquidity	\$44,434	(3.26)	(6.89)	0.29	1.72	2.22
Benchmark ⁶		(5.86)	(11.70)	(1.22)	0.90	1.79
IG Fixed Income	\$29,990	(4.85)	(9.99)	(0.26)	1.48	2.15
Core Fixed Income	\$26,387	(5.49)	(11.22)	(0.49)	1.46	2.18
IG Fixed Income Cash	\$3,603	0.10	0.20	0.85	1.16	-
Pension Cash	\$14,445	0.12	0.20	0.80	1.21	-

Core Fixed Income Portfolio Characteristics			
	<u>Avg. Coupon</u>	<u>Yield to Worst</u>	<u>Effective Duration</u>
Government (Treasury & Agency)	3.7%	3.1%	8.4
Corporate	4.1%	4.7%	8.9
Mortgage	2.9%	3.7%	5.4
Total	3.6%	3.9%	7.4



NCRS Core Fixed Income Portfolio Characteristics

As of June 30, 2022



NCRS Inflation Sensitive Portfolio

As of June 30, 2022

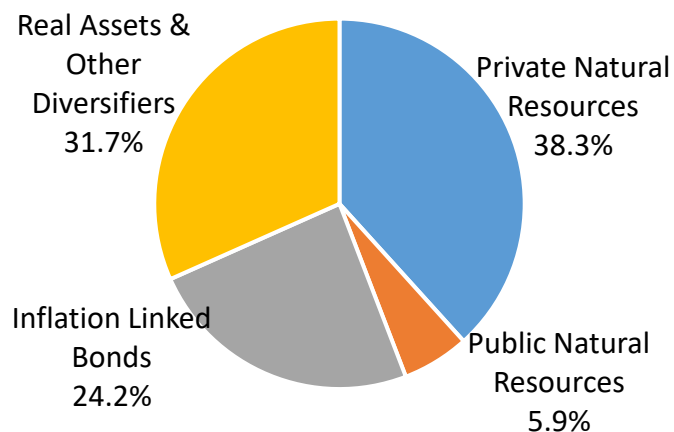
Net of Fees Performance (%)

	(\$MM)	3 Month	1 Year	3 Years	5 Years	10 Years
Inflation Sensitive	\$5,492	3.72	13.59	5.63	5.49	2.95
Benchmark ¹⁰		0.05	8.28	4.57	4.09	1.57
Private Natural Resources	\$2,103	8.44	20.03	5.32	3.76	3.39
Public Natural Resources	\$322	(2.69)	26.89	15.75	8.12	(0.37)
Inflation Linked Bonds	\$1,327	(2.91)	(2.96)	1.75	2.53	-
Real Assets & Other Diversifiers	\$1,739	4.61	18.14	8.10	9.18	6.77

IRR by Vintage Year

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Total
NCRS	0.83	-7.73	-5.67	N/A	-5.49	-5.85	6.15	7.20	8.01	8.60	2.78	2.84	25.66	27.69	N/A	41.69	N/A	2.23
# of Funds	3	2	2	N/A	3	9	7	11	12	4	4	1	3	2	N/A	5	N/A	68

Strategy Allocation (Based on Valuation)





NCRS Core Real Estate Portfolio

As of June 30, 2022

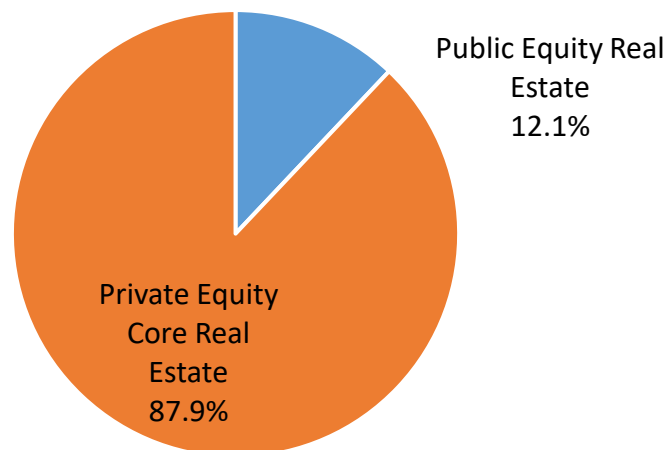
Net of Fees Performance (%)

	(\$MM)	3 Month	1 Year	3 Years	5 Years	10 Years
Core Real Estate	\$6,623	0.86	13.91	8.61	8.08	8.88
Benchmark ¹¹		0.01	18.92	9.34	8.07	9.30
Public Equity Real Estate	\$798	(18.70)	(16.02)	0.51	3.67	6.55
Private Equity Core Real Estate	\$5,825	4.30	19.83	9.95	8.79	9.34

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>Total</u>
NCRS	7.51	9.74	-8.33	4.34	1.39	9.44	N/A	23.62	N/A	N/A	4.87	7.33	7.61	7.76	N/A	15.77	N/A	N/A	24.18	N/A	7.35
# 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	37

Strategy Allocation (Based on Valuation)



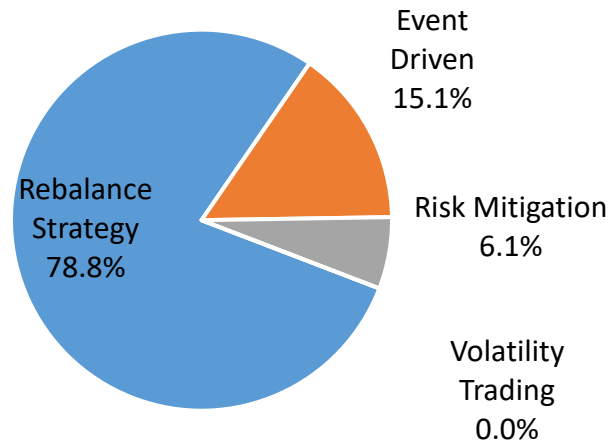


NCRS Multi-Strategy Portfolio

As of June 30, 2022

Net of Fees Performance (%)						
	(\$MM)	3 Month	1 Year	3 Years	5 Years	10 Years
Multi-Strategy	\$2,181	(4.63)	(3.91)	0.66	2.29	5.74
Benchmark ¹²		(5.33)	(7.10)	0.44	1.90	5.12
Rebalance Strategy	\$1,718	(5.73)	(5.58)	1.52	3.54	7.00
Event Driven	\$330	(1.13)	3.24	7.90	4.96	-
Risk Mitigation	\$133	1.56	1.34	(0.70)	(2.19)	-
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: 50% Buyout, 20% 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% NCREIF ODCE Net 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: 58% Growth Benchmark, 29% Rates & Liquidity Benchmark, 11% Inflation Sensitive & Diversifiers Benchmark, and 2% Multi-Strategy Benchmark.
14. The Long-Term Policy Benchmark is comprised of 57% MSCI ACWI IMI Net, 33% BOAML 5+ Years U.S. Treasury Index, 6% Bloomberg Commodity Index, and 4% 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

INVESTMENT MANAGEMENT DIVISION