

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

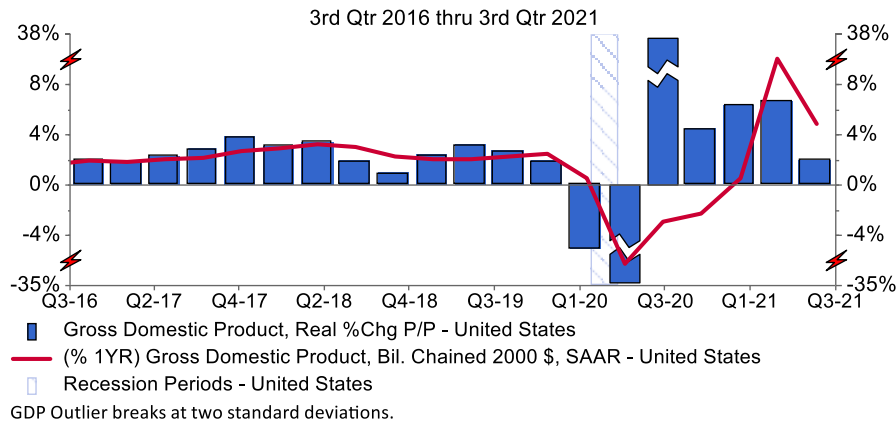
# Performance Review

November 17, 2021

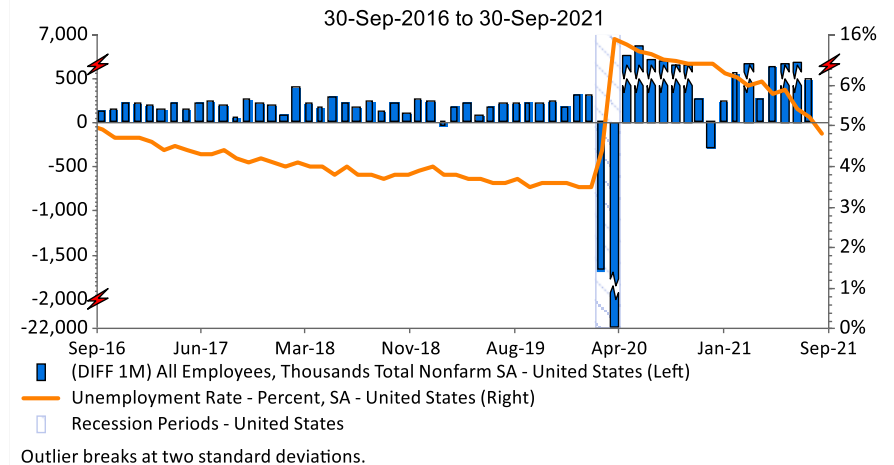


## US Economic Environment

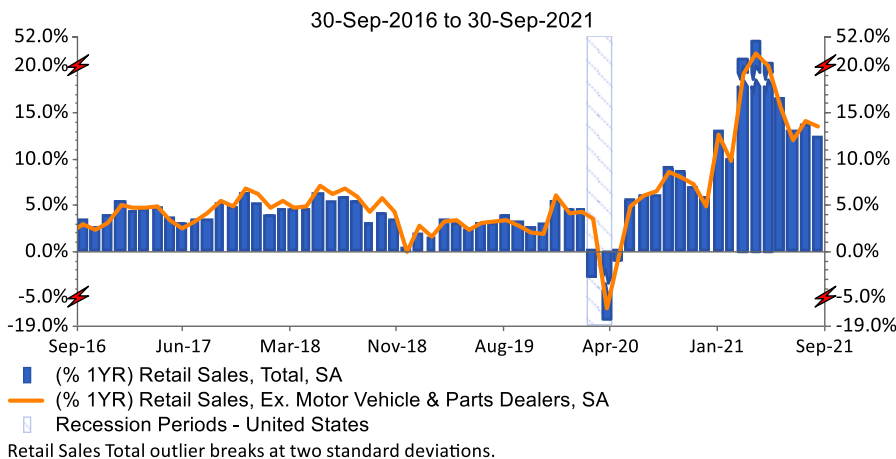
### US Real GDP Growth



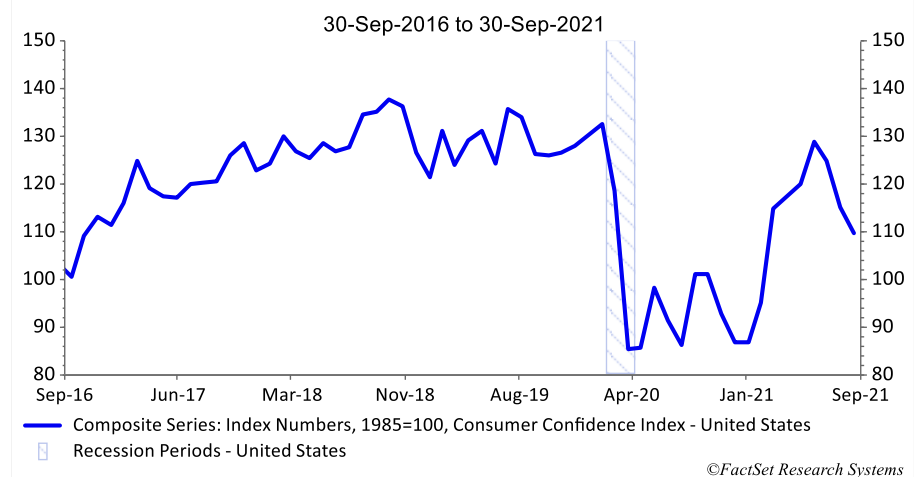
### US Change in NonFarm Employment & Unemployment Rate



### US Retail Sales



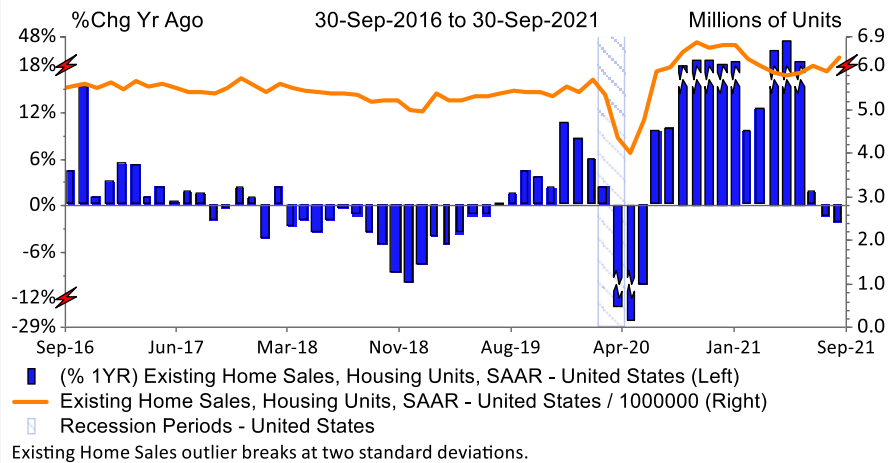
### US Consumer Confidence



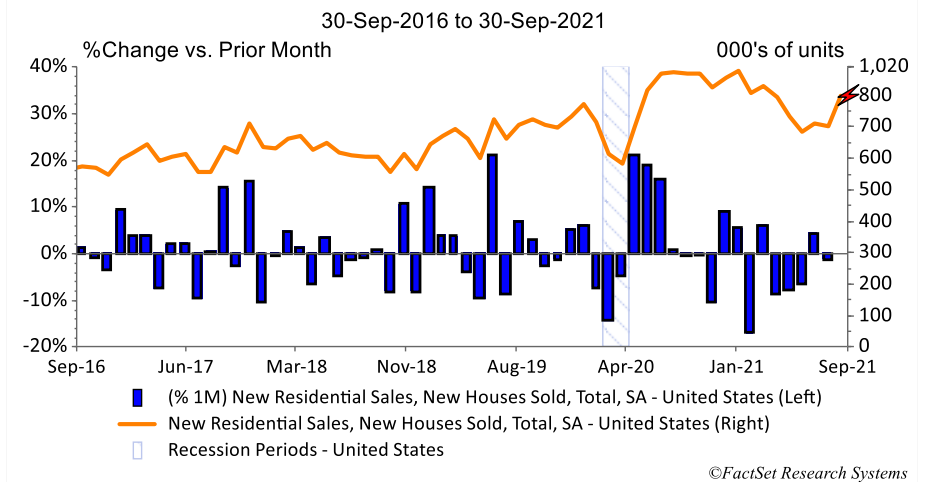


## US Economic Environment

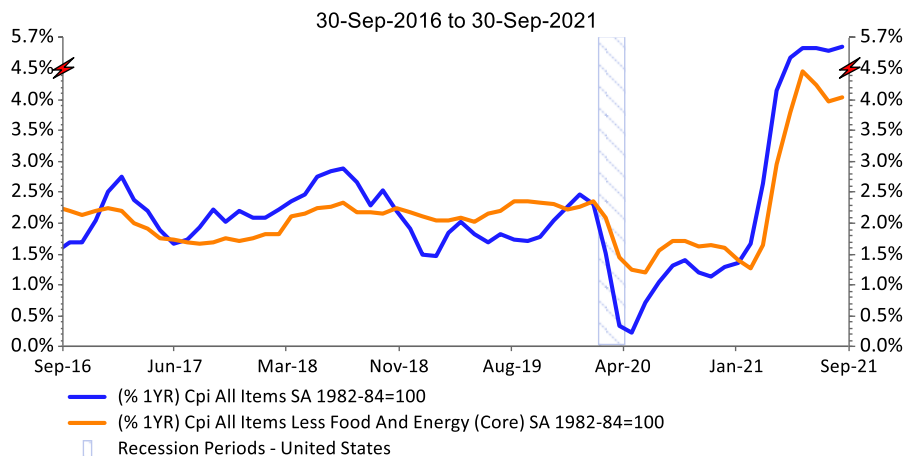
### US Existing Home Sales



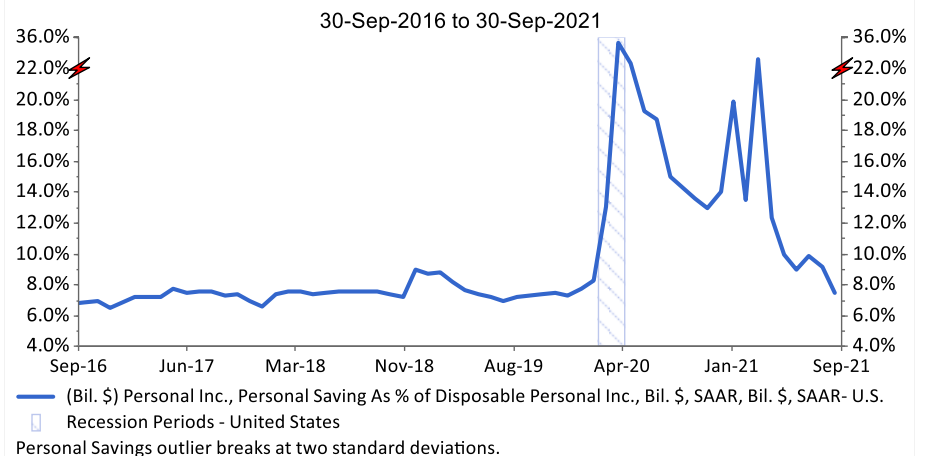
### US New Home Sales



### US Consumer Price Inflation



### US Personal Savings Rate

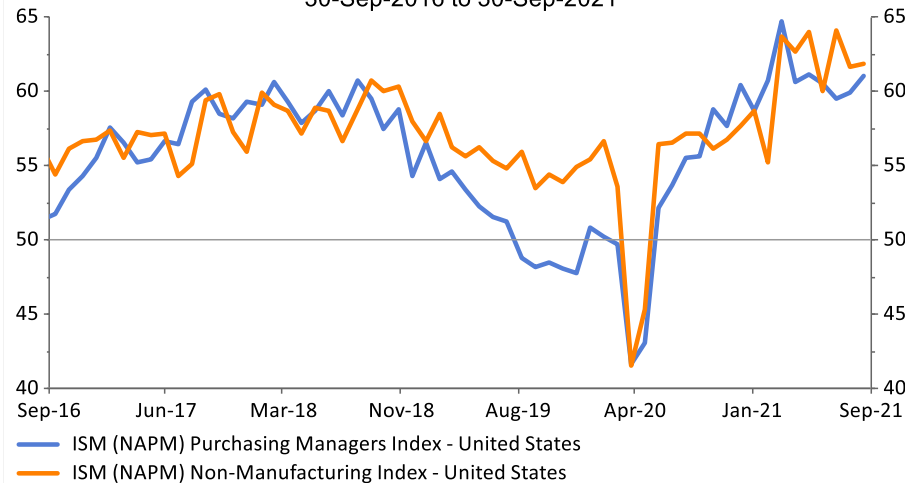




## US and Global Economic Environment

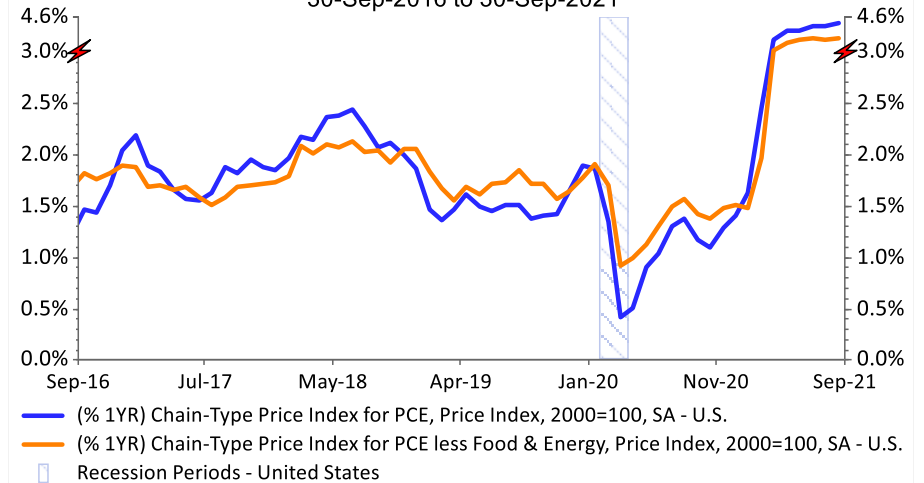
### ISM Report on Business

30-Sep-2016 to 30-Sep-2021



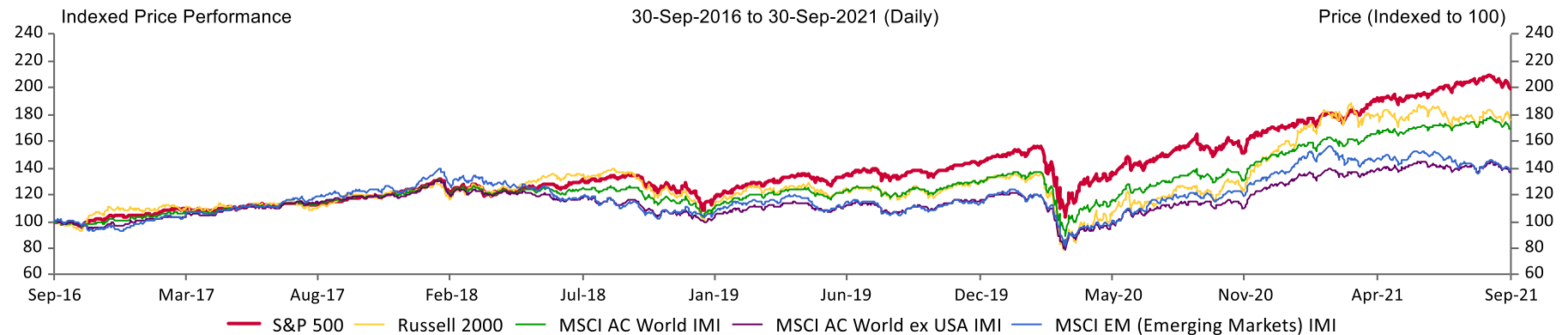
### US PCE Inflation

30-Sep-2016 to 30-Sep-2021



### S&P 500 vs. Peers

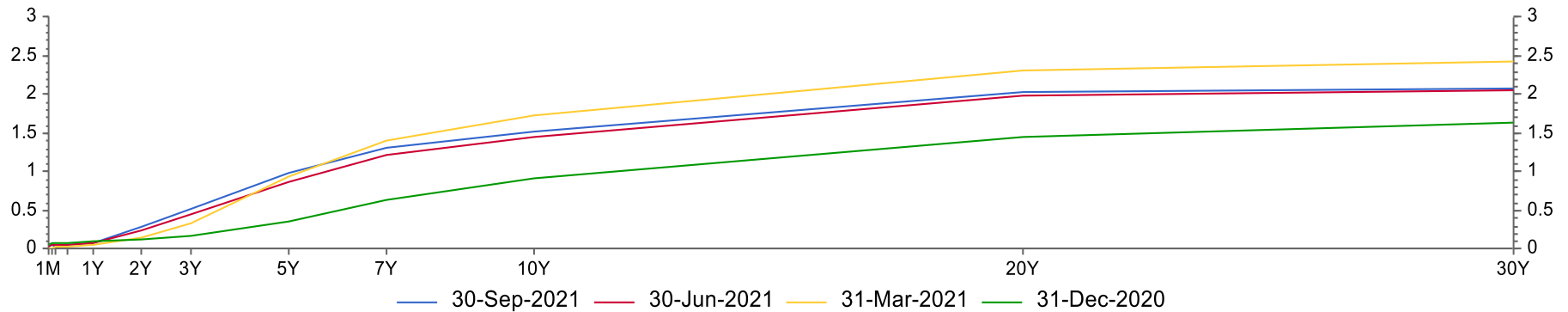
30-Sep-2016 to 30-Sep-2021 (Daily)





## Market Environment

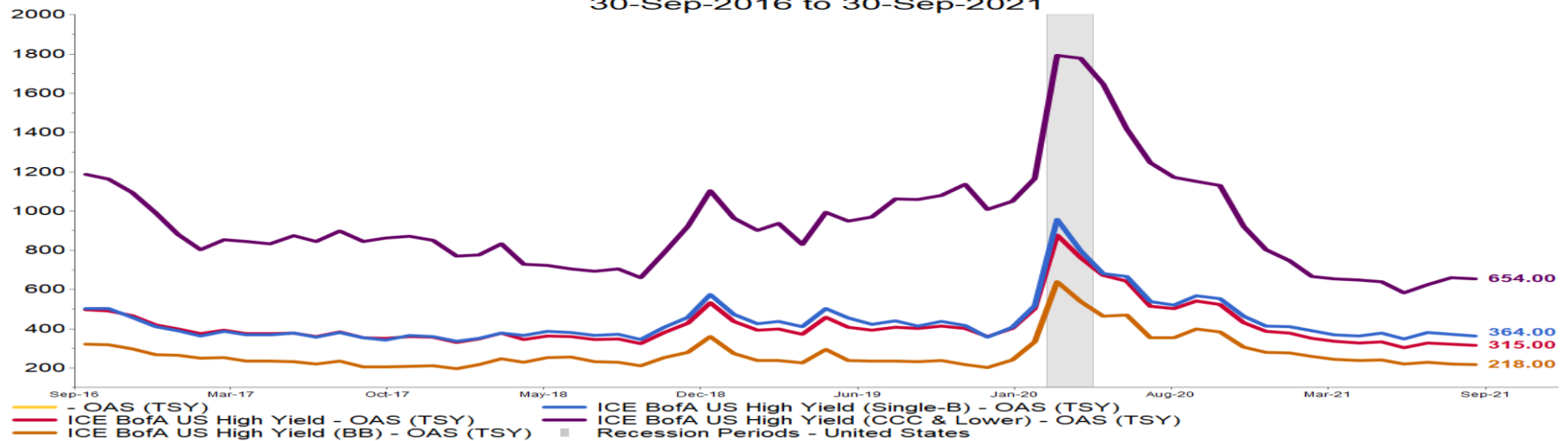
### United States Treasury Yield Curve



Source: FactSet Interest Rate Database

### Corporate Credit OAS (BofAML Indices)

30-Sep-2016 to 30-Sep-2021



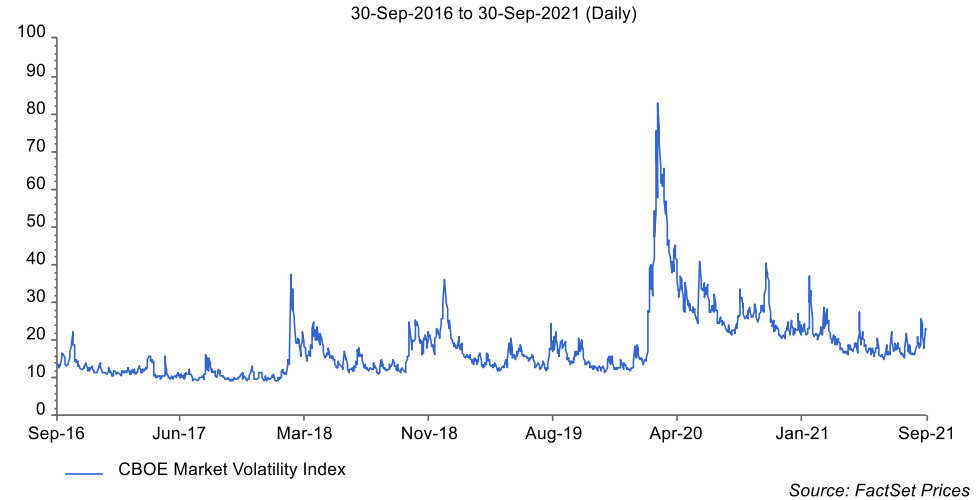


## Market Environment

**Closing Price Fed Nominal Broad Dollar Index**



**Closing Price CBOE VIX Index**

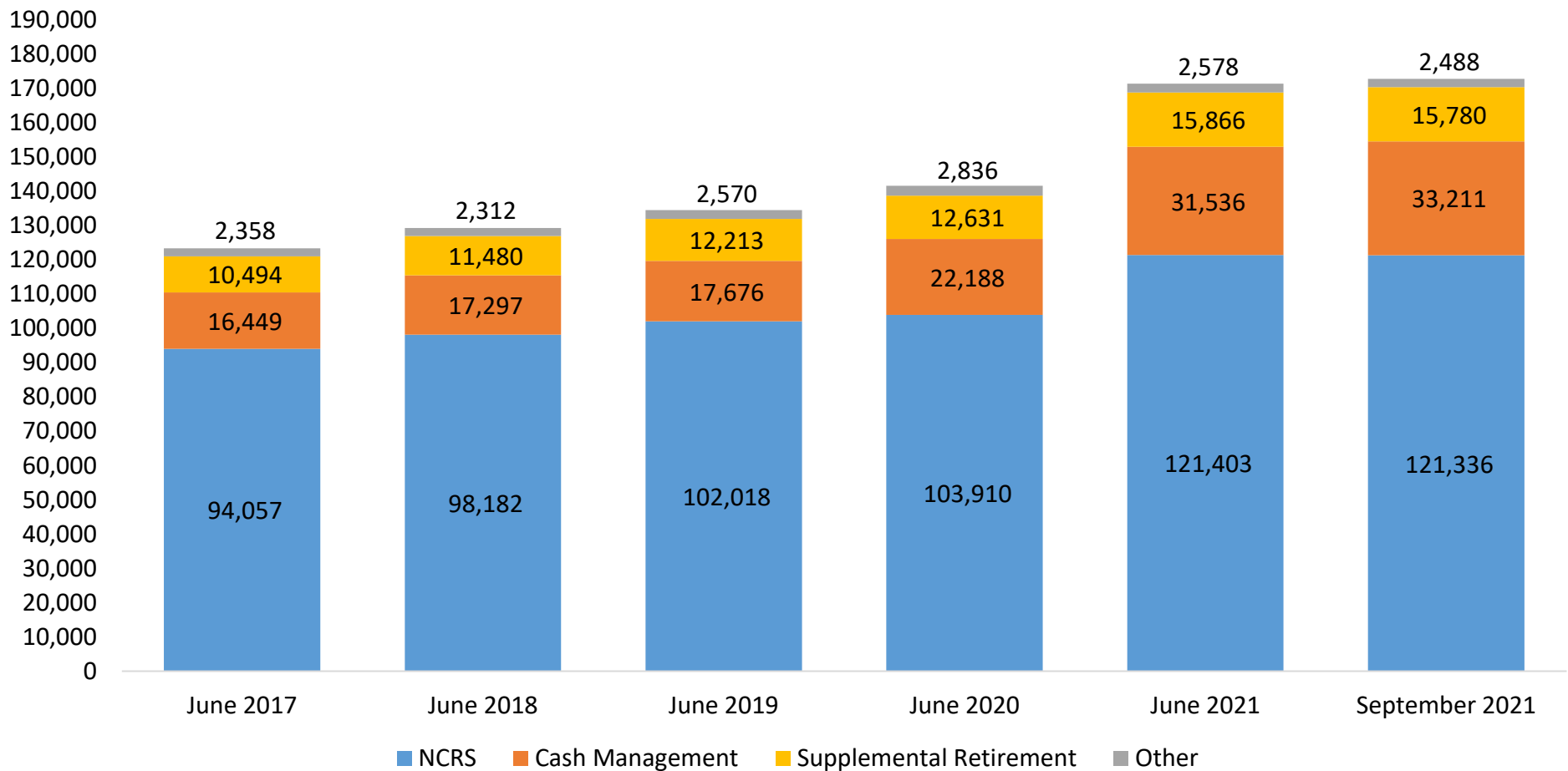


Countries	Real GDP YoY		Unemployment		CPI YoY		Countries	Real GDP YoY		Unemployment		CPI YoY	
	Date	Value	Date	Value	Date	Value		Date	Value	Date	Value	Date	Value
<b>U.S.</b>	09/21	4.9	09/21	4.8	09/21	5.4	<b>Asia/Pacific/Latam</b>						
<b>Europe</b>							China	09/21	4.9			09/21	0.7
Germany	09/21	2.5	09/21	5.5	09/21	4.1	India	06/21	20.1			09/21	4.4
France	09/21	3.3	08/21	8.0	09/21	2.2	Japan	06/21	7.6	09/21	2.8	09/21	0.2
U.K.	06/21	23.6	08/21	4.5	09/21	3.1	Indonesia	06/21	7.1			09/21	1.6
Italy	09/21	3.9	08/21	9.3	09/21	2.5	Brazil	06/21	12.4			09/21	10.3
Spain	09/21	2.7	08/21	14.0	09/21	4.0	Australia	06/21	9.6	09/21	4.6	09/21	3.0



# Assets Under Management (\$MM)

\$172.8 billion as of September 30, 2021



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 September 30, 2021

	Market Value (\$MM)	%	Target	Range		Relative %	Relative \$ (\$MM)
				Minimum	Maximum		
<b>Growth</b>	<b>60,560</b>	<b>49.91%</b>	<b>58.0%</b>	<b>37.0%</b>	<b>71.0%</b>	<b>-8.09%</b>	<b>(9,815)</b>
Public Equity	42,924	35.38%	42.0%	37.0%	47.0%	-6.62%	(8,037)
Private Equity	7,608	6.27%	6.0%	0.0%	8.8%	0.27%	328
Non Core Real Estate	3,037	2.50%	3.0%	0.0%	8.0%	-0.50%	(603)
Opportunistic Fixed Income	6,990	5.76%	7.0%	0.0%	7.5%	-1.24%	(1,503)
<b>Rates &amp; Liquidity</b>	<b>46,992</b>	<b>38.73%</b>	<b>29.0%</b>	<b>24.0%</b>	<b>42.0%</b>	<b>9.73%</b>	<b>11,805</b>
IG Fixed Income & Cash	33,302	27.45%	28.0%	24.0%	32.0%	-0.55%	(672)
Pension Cash	13,690	11.28%	1.0%	0.0%	10.0%	10.28%	12,477
<b>Inflation Sensitive &amp; Diversifiers</b>	<b>11,497</b>	<b>9.48%</b>	<b>11.0%</b>	<b>4.0%</b>	<b>16.0%</b>	<b>-1.52%</b>	<b>(1,850)</b>
Inflation Sensitive	5,615	4.63%	6.0%	2.0%	7.5%	-1.37%	(1,665)
Core Real Estate	5,882	4.85%	5.0%	2.0%	10.0%	-0.15%	(185)
<b>Multi-Strategy</b>	<b>2,287</b>	<b>1.88%</b>	<b>2.0%</b>	<b>0.0%</b>	<b>4.0%</b>	<b>-0.12%</b>	<b>(140)</b>
<b>Grand Total</b>	<b>121,336</b>	<b>100.00%</b>					





# NCRS Asset Allocation (Unaudited)

As of November 9, 2021

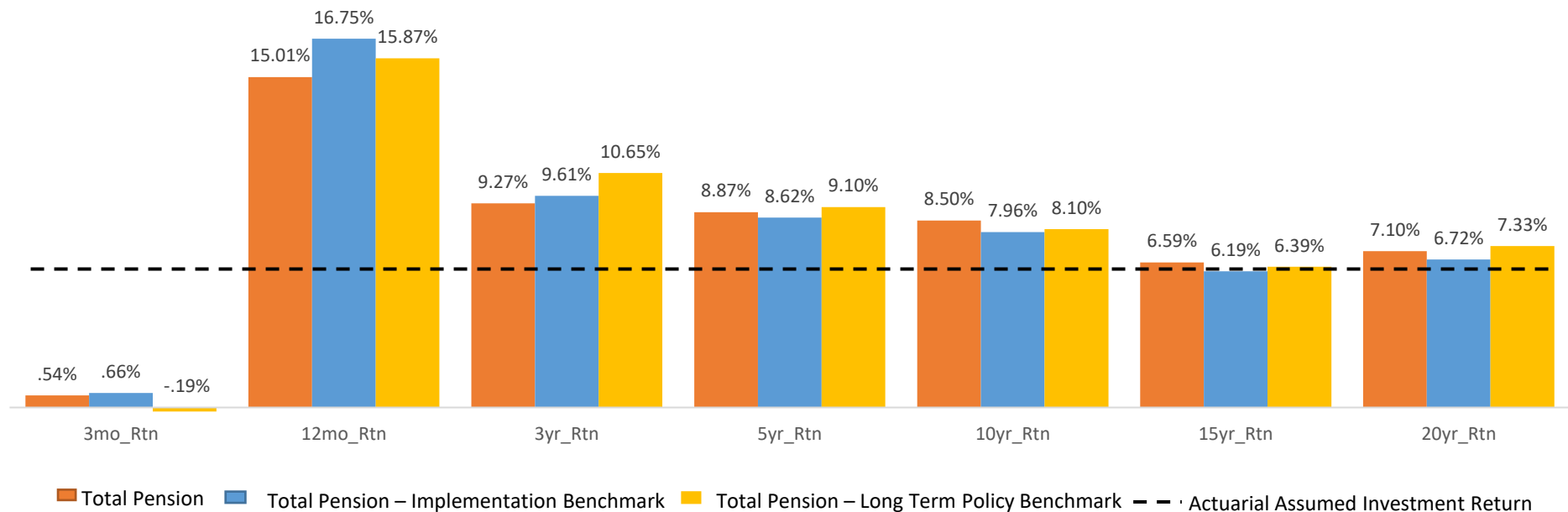
	Market Value (\$MM)	%	Target	Range		Relative %	Relative \$ (\$MM)
				Minimum	Maximum		
<b>Growth</b>	<b>62,718</b>	<b>50.55%</b>	<b>58.0%</b>	<b>37.0%</b>	<b>71.0%</b>	<b>-7.45%</b>	<b>(\$9,241)</b>
Public Equity	45,203	36.43%	42.0%	37.0%	47.0%	-5.57%	(\$6,905)
Private Equity	7,408	5.97%	6.0%	0.0%	8.8%	-0.03%	(\$37)
Non Core Real Estate	3,043	2.45%	3.0%	0.0%	8.0%	-0.55%	(\$679)
Opportunistic Fixed Income	7,064	5.69%	7.0%	0.0%	7.5%	-1.31%	(\$1,621)
<b>Rates &amp; Liquidity</b>	<b>47,515</b>	<b>38.30%</b>	<b>29.0%</b>	<b>24.0%</b>	<b>42.0%</b>	<b>9.30%</b>	<b>\$11,535</b>
IG Fixed Income & Cash	33,622	27.10%	28.0%	24.0%	32.0%	-0.90%	(\$1,117)
Pension Cash	13,893	11.20%	1.0%	0.0%	10.0%	10.20%	\$12,652
<b>Inflation Sensitive &amp; Diversifiers</b>	<b>11,512</b>	<b>9.28%</b>	<b>11.0%</b>	<b>4.0%</b>	<b>16.0%</b>	<b>-1.72%</b>	<b>(\$2,136)</b>
Inflation Sensitive	5,608	4.52%	6.0%	2.0%	7.5%	-1.48%	(\$1,836)
Core Real Estate	5,903	4.76%	5.0%	2.0%	10.0%	-0.24%	(\$300)
<b>Multi-Strategy</b>	<b>2,323</b>	<b>1.87%</b>	<b>2.0%</b>	<b>0.0%</b>	<b>4.0%</b>	<b>-0.13%</b>	<b>(\$158)</b>
<b>Grand Total</b>	<b>124,068</b>	<b>100.00%</b>					



# NCRS Total Net Portfolio Return vs. Benchmarks

## As of September 30, 2021

### Annualized Returns



#### Notes:

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

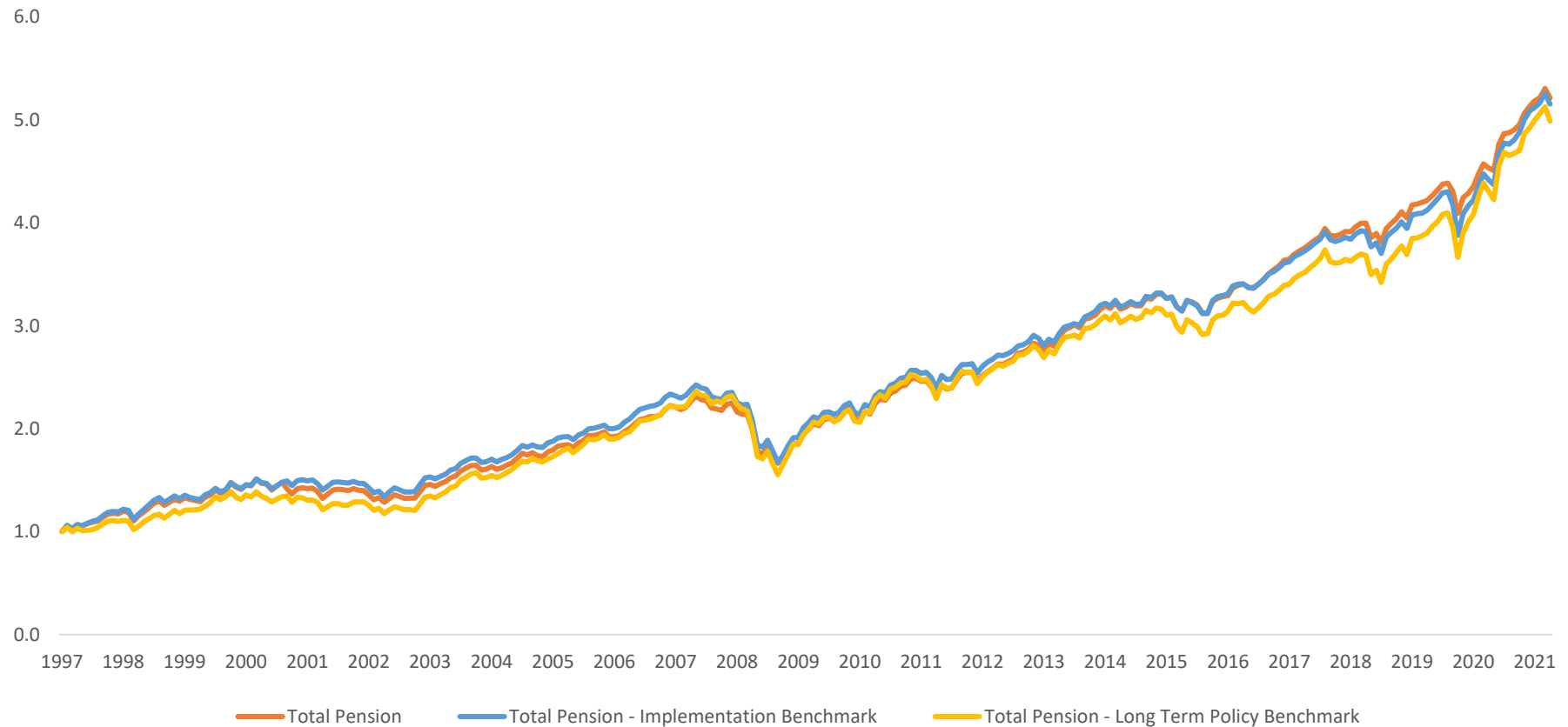
Returns for periods greater than one year are annualized.

*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 September 30, 2021



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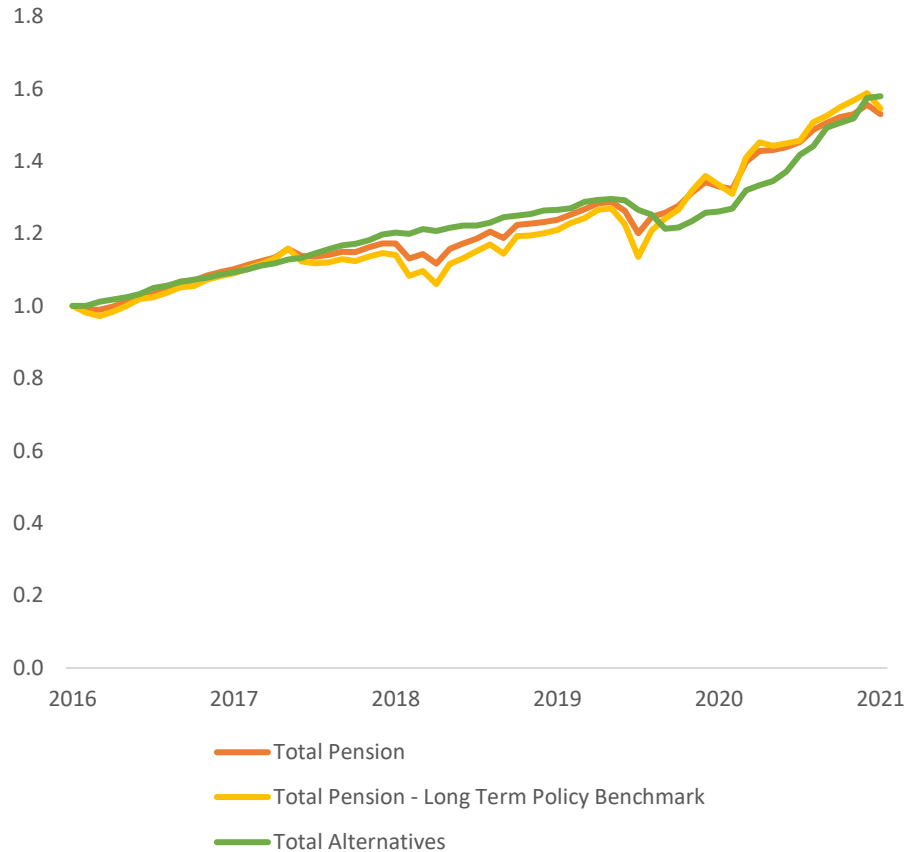
## Notes:

*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.



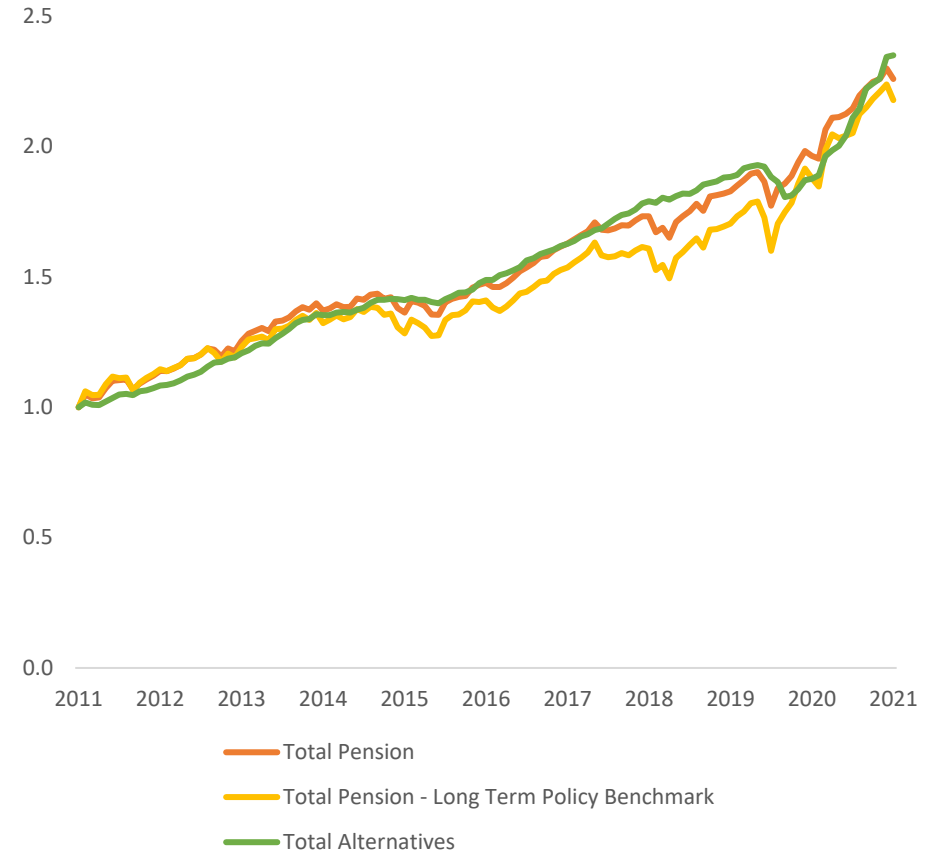
## Growth of a Dollar

### 5 Years Ending September 30, 2021



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### 10 Years Ending September 30, 2021



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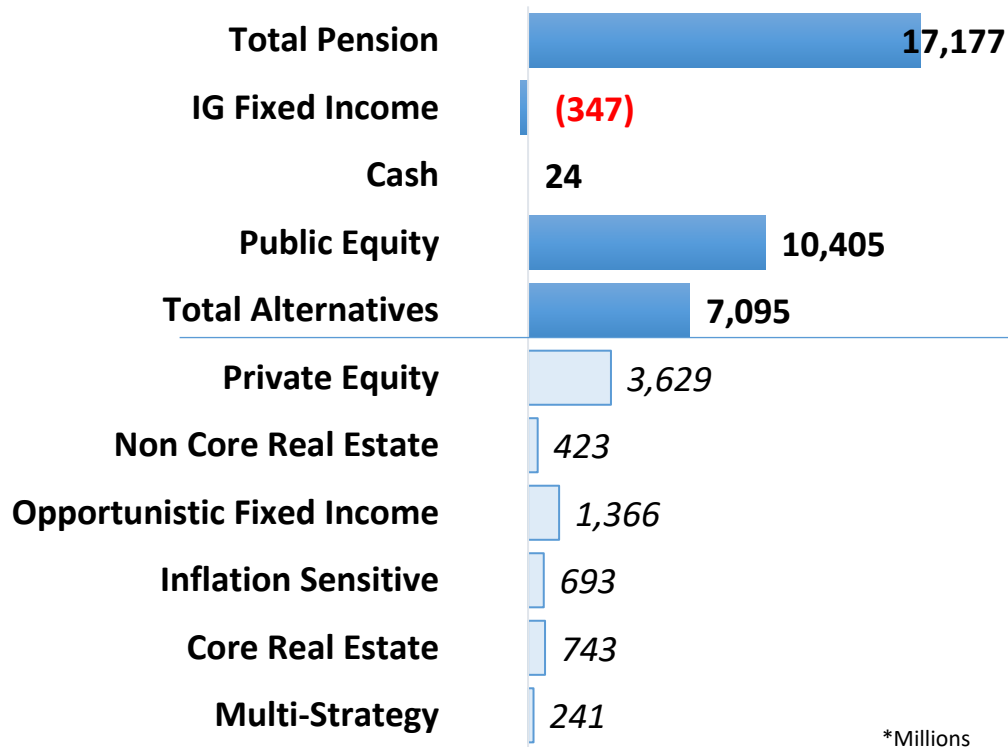
Note: NCRS Alternatives includes the following: Core Real Estate; Inflation Sensitive – Private Natural Resources; Inflation Sensitive – Real Assets and Other Diversifiers; Multi-Strategy Investments; Non-Core Real Estate; Opportunistic Fixed Income; Private Equity; Equity Hedge Strategies; and closed-end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



# Estimated Contribution to Total Plan Return – 1 Year

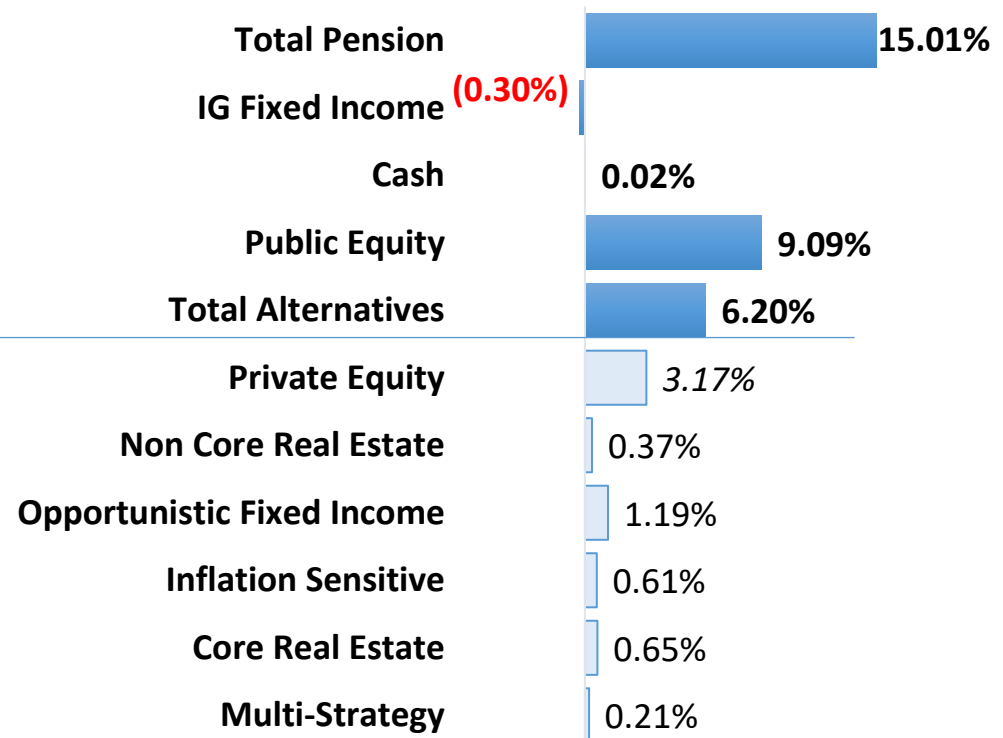
As of September 30, 2021

## 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

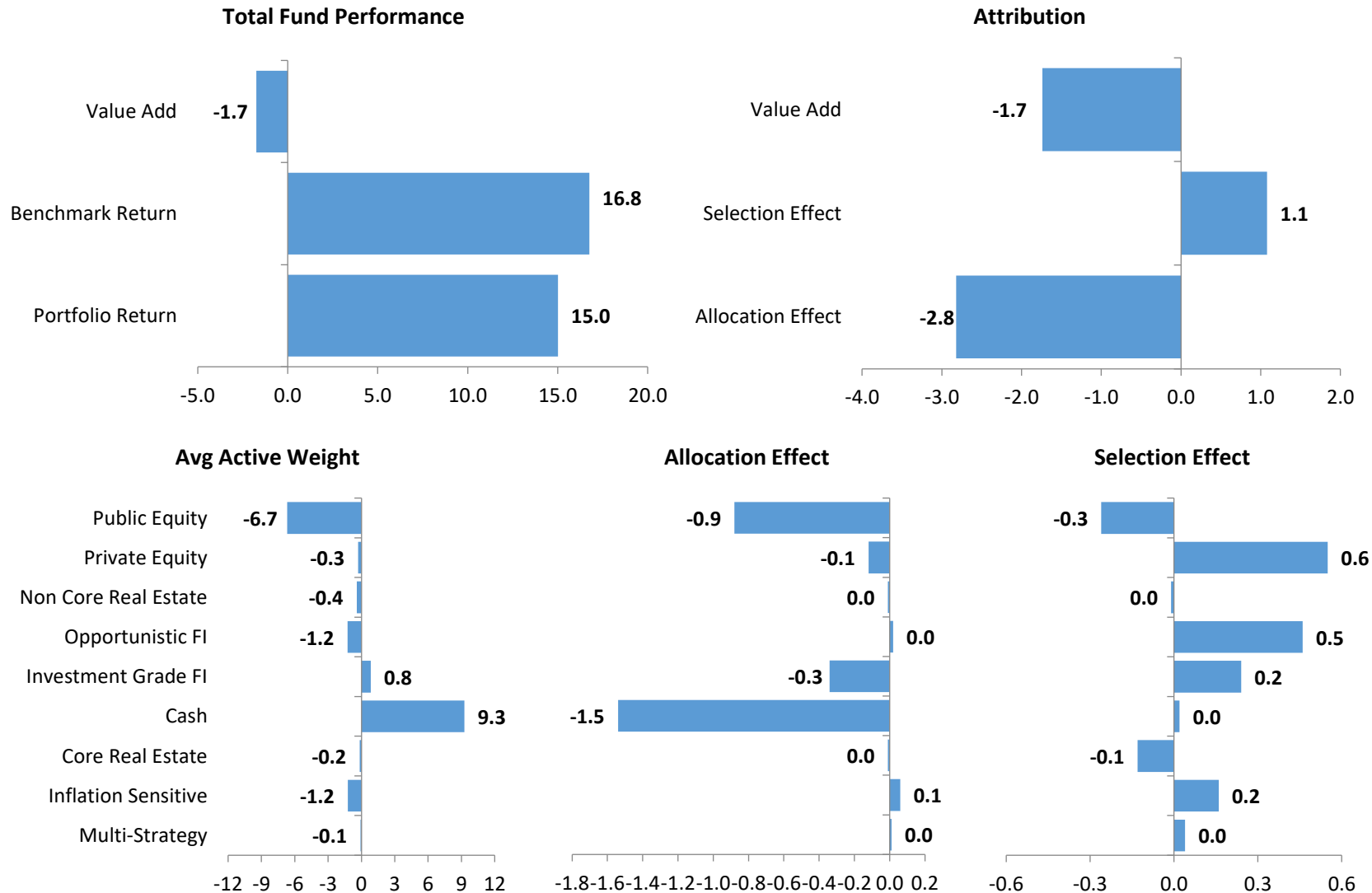
Contribution to Total Plan % Returns = Average Market Value % weight \* % Total Return for each asset class

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

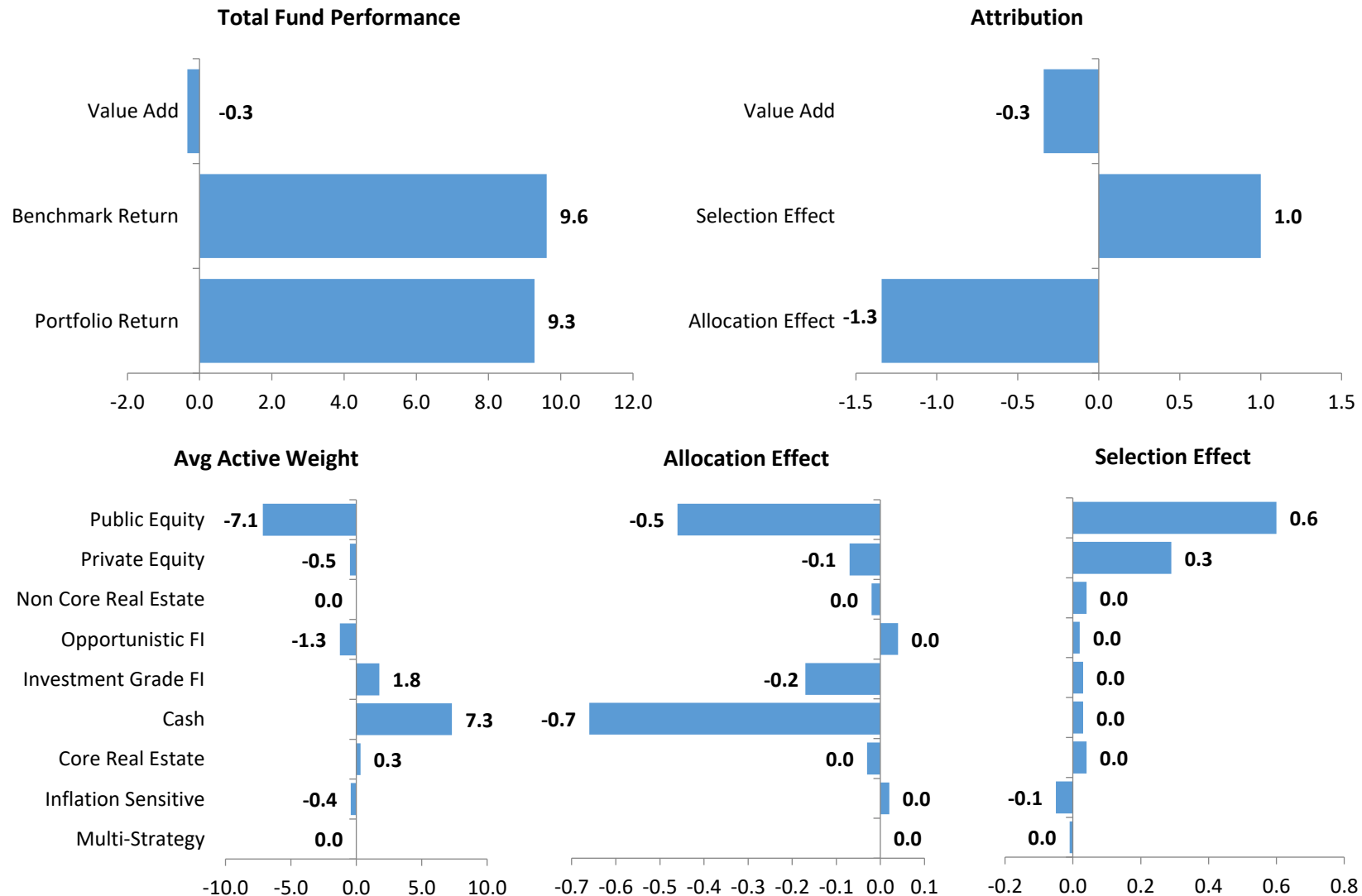
Total Fund vs. Implementation Benchmark: 1 Year Ending September 30, 2021





# NCRS Net of Fees Return Attribution

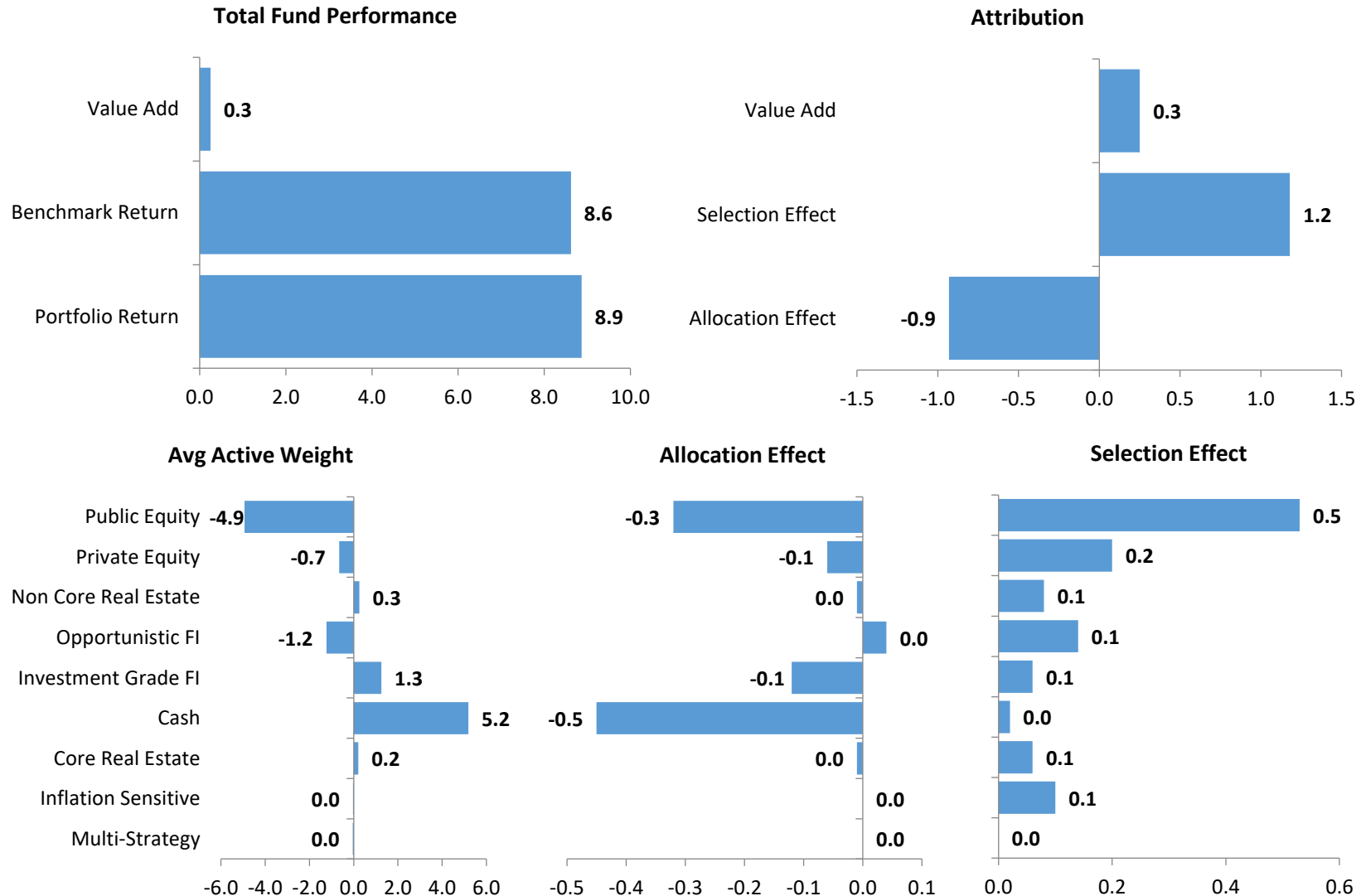
Total Fund vs. Implementation Benchmark: 3 Years Ending September 30, 2021





# NCRS Net of Fees Return Attribution

Total Fund vs. Implementation Benchmark: 5 Years Ending September 30, 2021

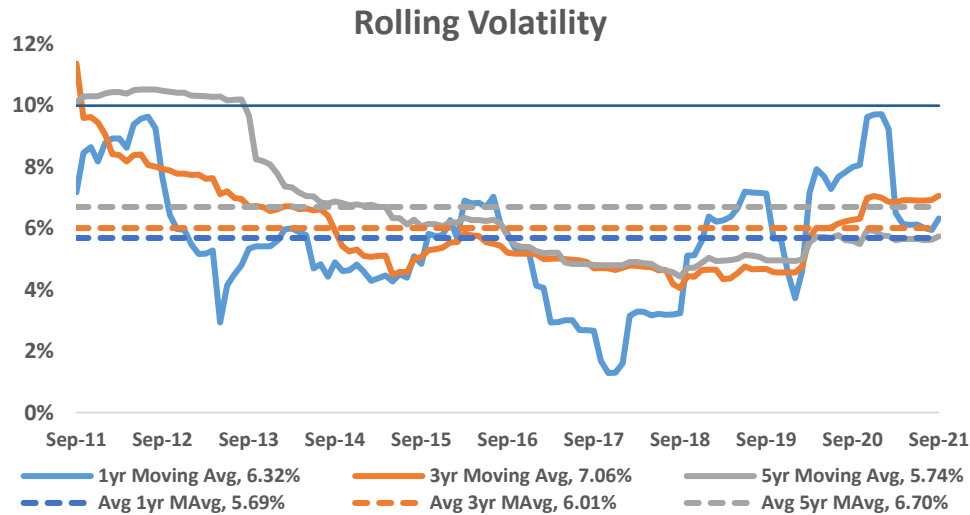




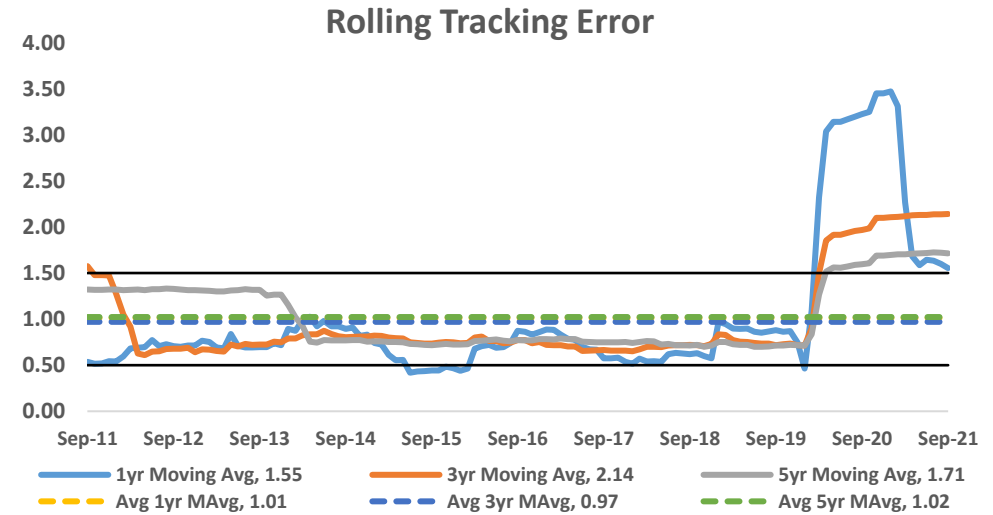


# NCRS Net of Fees Risk Metrics

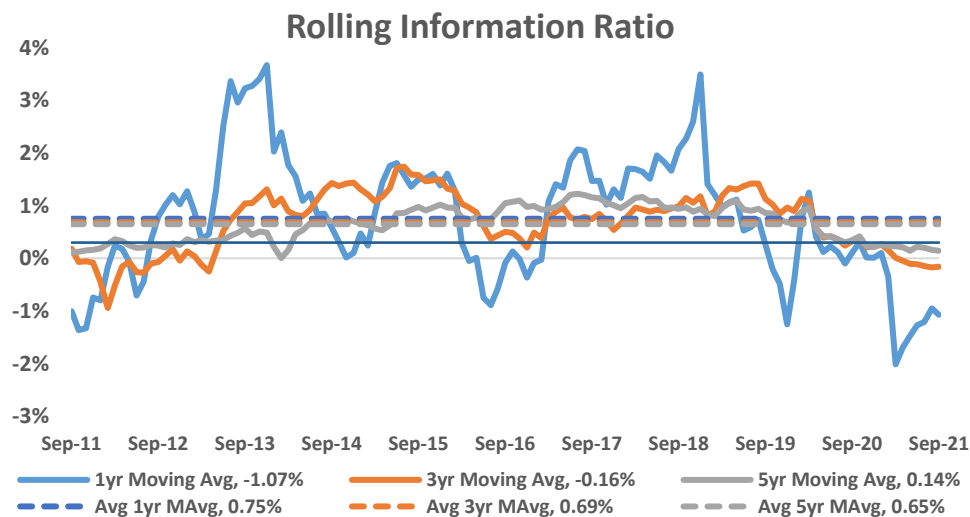
## As of September 30, 2021



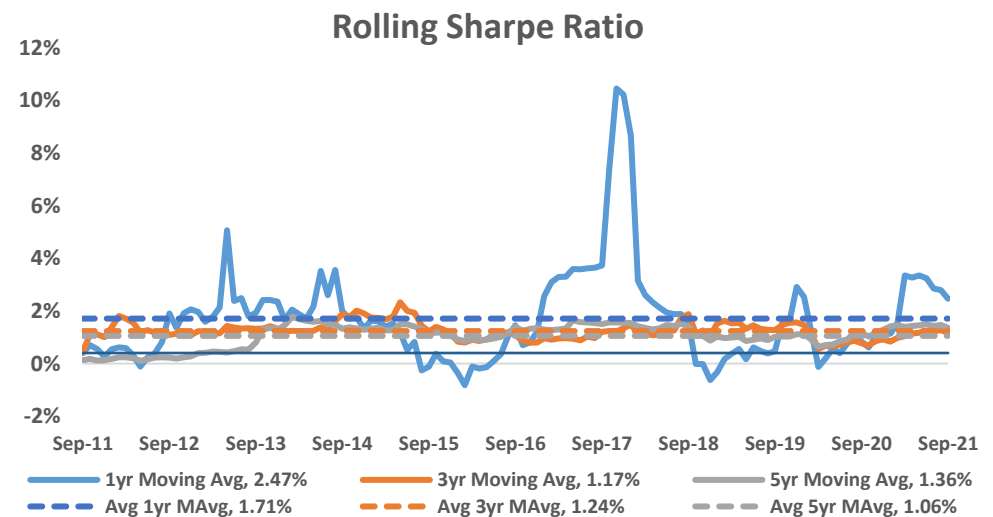
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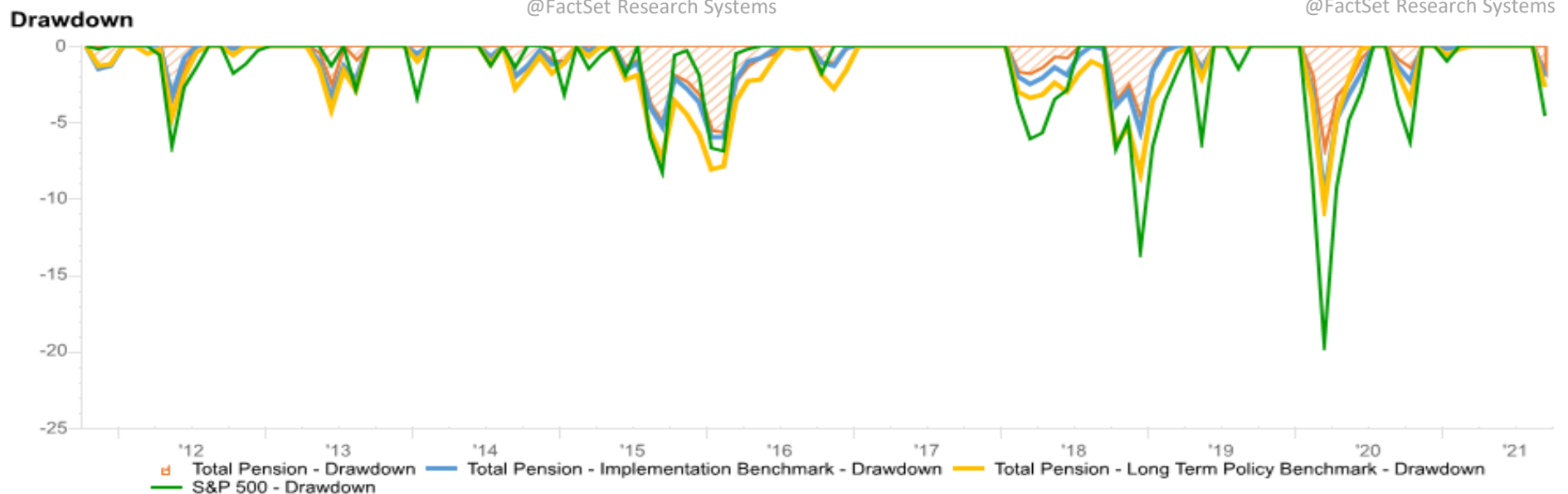
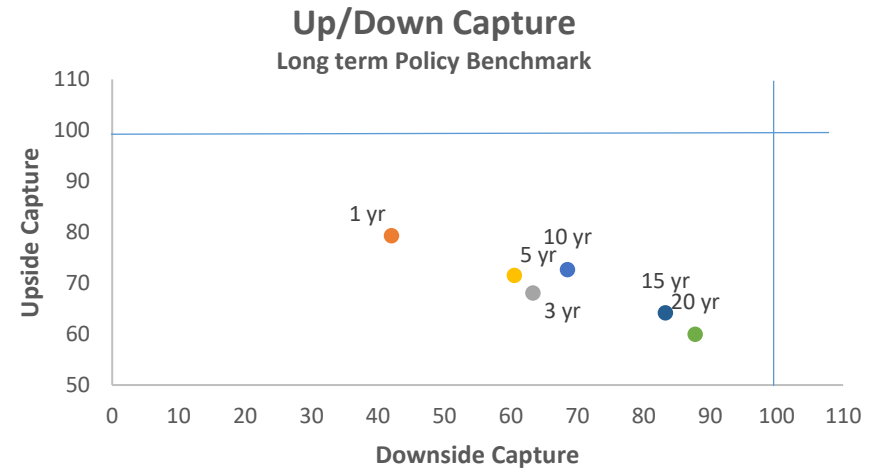
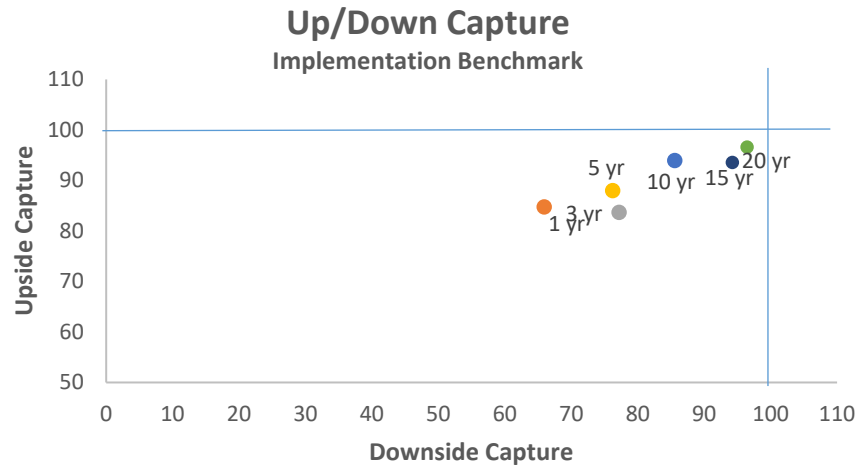


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# NCRS Net of Fees Risk Metrics

## As of September 30, 2021



# NCRS Gross of Fees Return and Risk

BNY Mellon Universe: US Public Funds > \$20B; Data as of September 30, 2021

Returns	1 Year	3 Years	5 Years	10 Years	15 Years	20 Years
25th Percentile	25.74	12.16	11.65	10.72	7.70	8.27
<b>Median Percentile</b>	<b>23.35</b>	<b>11.72</b>	<b>11.10</b>	<b>10.07</b>	<b>7.37</b>	<b>8.11</b>
75th Percentile	20.40	10.88	10.20	9.35	7.10	7.57
NCRS	<b>15.33</b>	<b>9.64</b>	<b>9.31</b>	<b>9.01</b>	<b>7.06</b>	<b>7.47</b>
Percentile Rank (1 = highest performance)	89	95	89	83	77	82

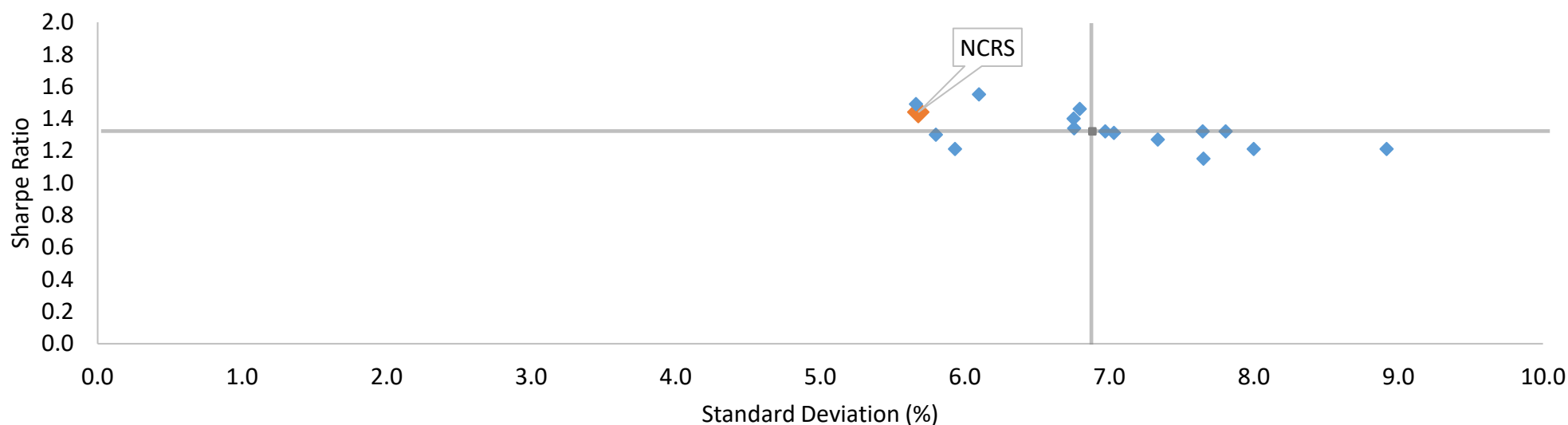
Risk	1 Year	3 Years	5 Years	10 Years	15 Years	20 Years
25th Percentile	7.73	10.40	8.38	7.65	9.45	9.26
<b>Median Percentile</b>	<b>6.83</b>	<b>9.39</b>	<b>7.60</b>	<b>6.88</b>	<b>9.05</b>	<b>8.58</b>
75th Percentile	6.27	8.00	6.55	5.97	8.17	8.05
NCRS	<b>6.06</b>	<b>6.95</b>	<b>5.69</b>	<b>5.68</b>	<b>7.45</b>	<b>7.20</b>
Percentile Rank (1 = highest risk)	95	95	95	89	89	94

# NCRS Gross of Fees Sharpe Ratio

BNY Mellon Universe: US Public Funds > \$20B; Data as of September 30, 2021

Sharpe	1 Year	3 Years	5 Years	10 Years	15 Years	20 Years
25th Percentile	3.45	1.22	1.40	1.43	0.79	0.85
<b>Median Percentile</b>	<b>2.76</b>	<b>1.09</b>	<b>1.25</b>	<b>1.32</b>	<b>0.75</b>	<b>0.81</b>
75th Percentile	2.41	1.05	1.14	1.23	0.69	0.73
<b>NCRS</b>	<b>2.38</b>	<b>1.19</b>	<b>1.40</b>	<b>1.44</b>	<b>0.82</b>	<b>0.86</b>
Percentile Rank (1 = highest performance)	77	36	24	24	12	19

10 Year Plot: Sharpe Ratio vs. Volatility



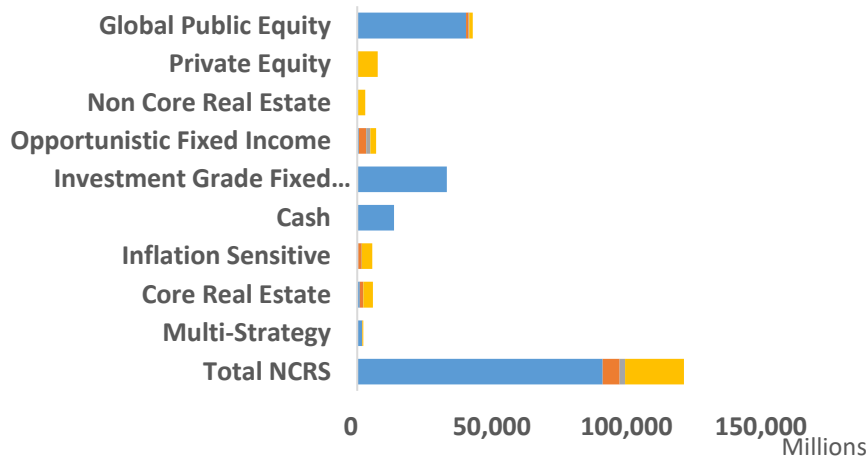
Note: Data shown is gross of fees with the exception of incentive payments, which have been deducted from NAV when applicable.



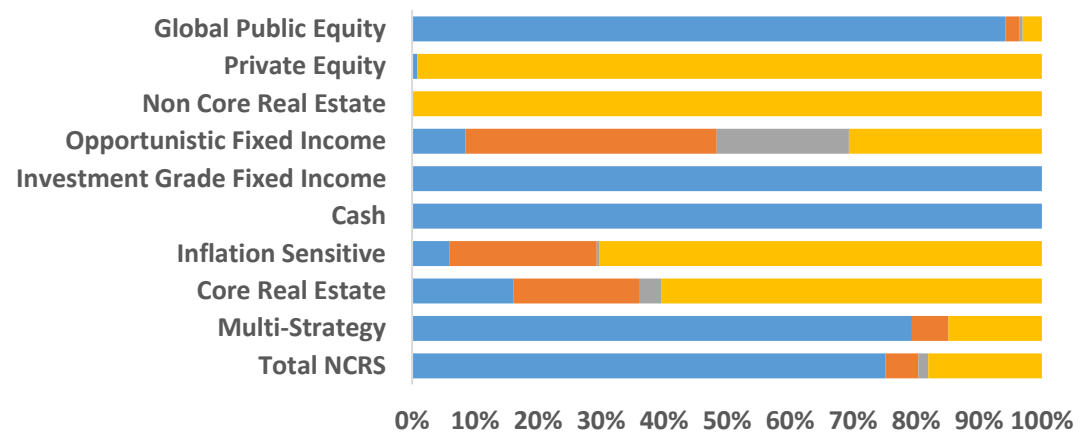
# NCRS Liquidity Profile

## As of September 30, 2021

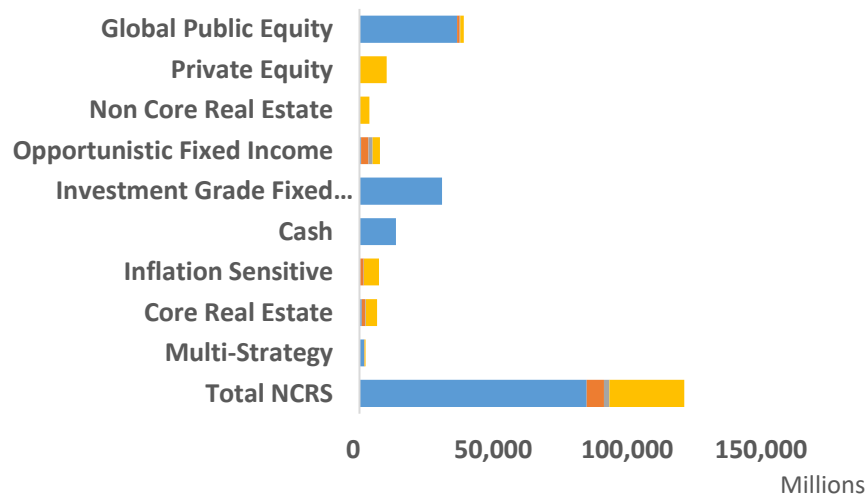
### Liquidity Allocation (\$ Market Value)



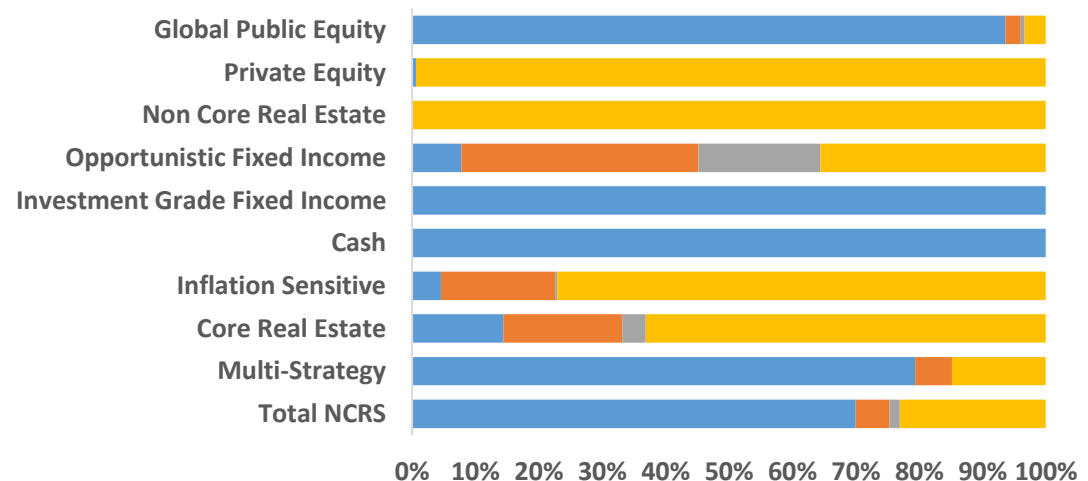
### Liquidity Allocation (% Market Value)



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



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

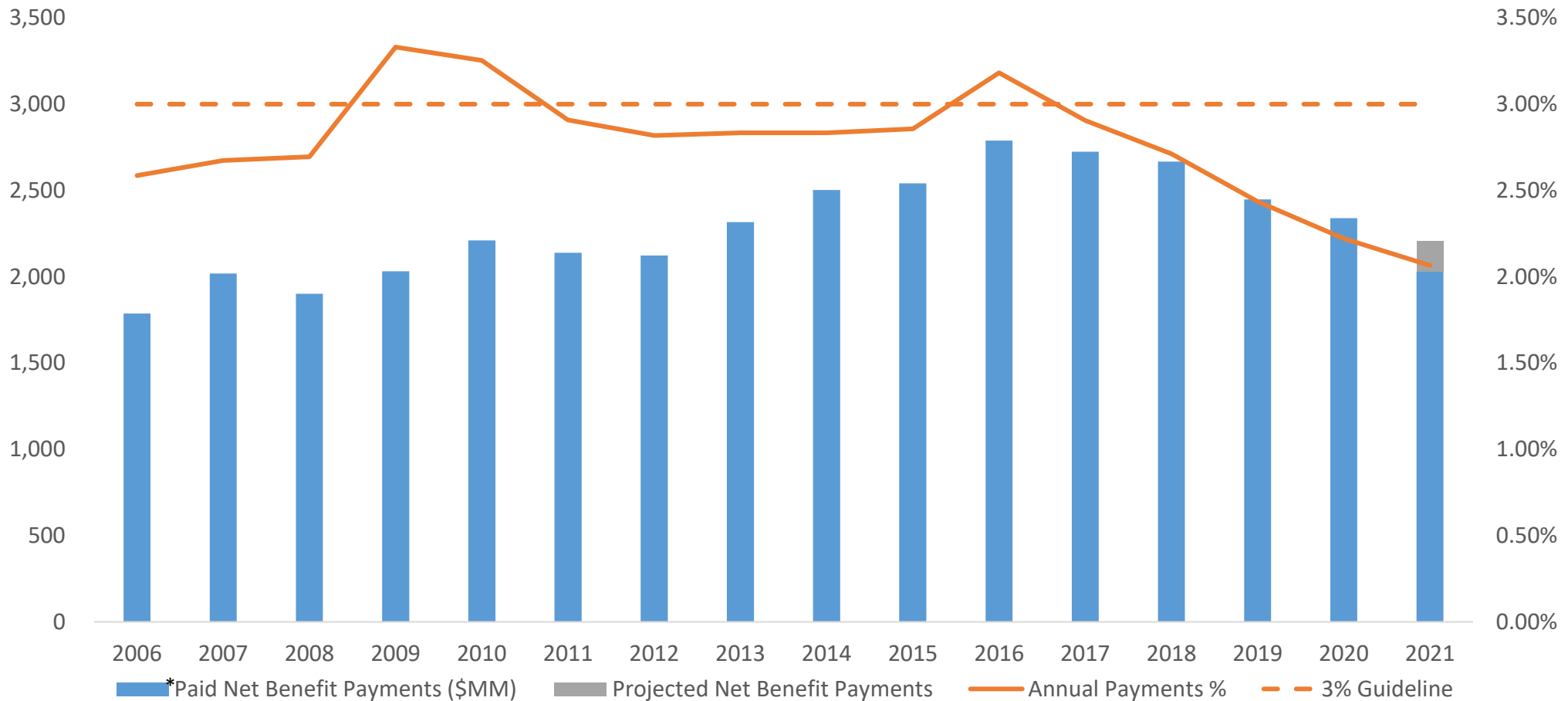


Note: ■ Level 1 Liquidity = T+3; ■ Level 2 = T+3 to 12 Months; ■ Level 3 = 12 to 24 Months; ■ Level 4 = Greater than 24 Months



# NCRS Liquidity Profile

## Net benefit payments by calendar year



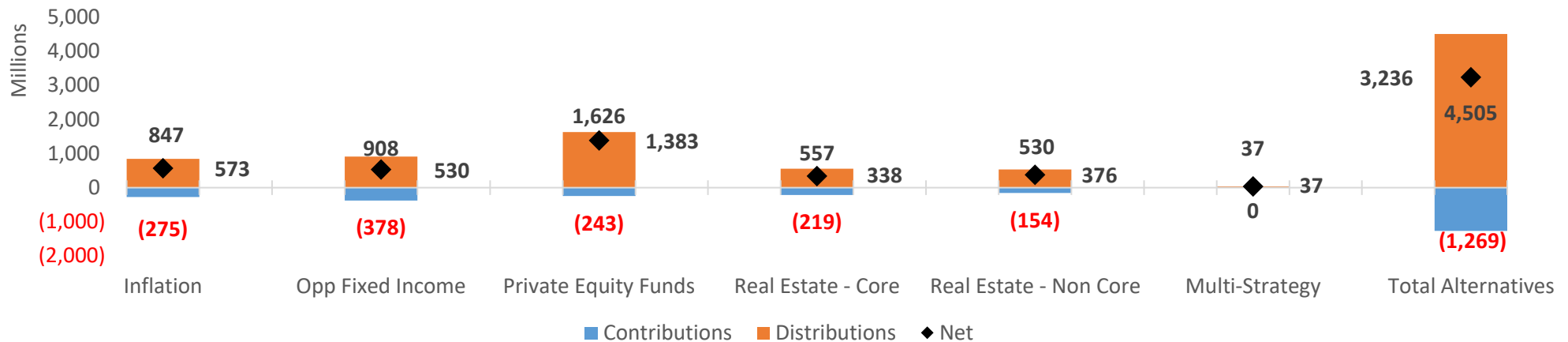
\*Net benefit payments through October 31, 2021



## NCRS Alternatives Liquidity Profile Through September 30, 2021

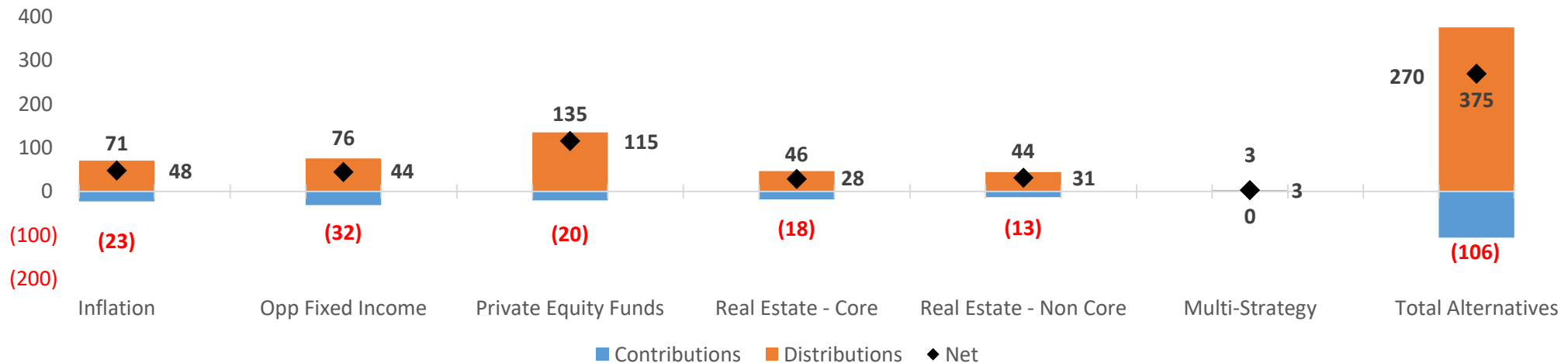
### Prior 12-Months

#### Total Cash Flows by Alternative Asset Class (\$MM)



### Prior 12-Months

#### Average Monthly Cash Flows by Alternative Asset Class (\$MM)

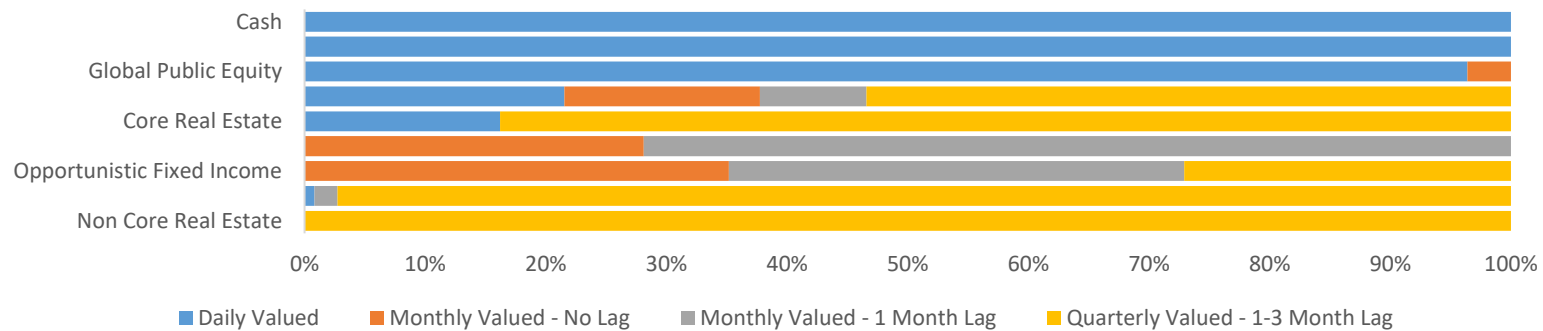




# NCRS Valuation Lag Profile

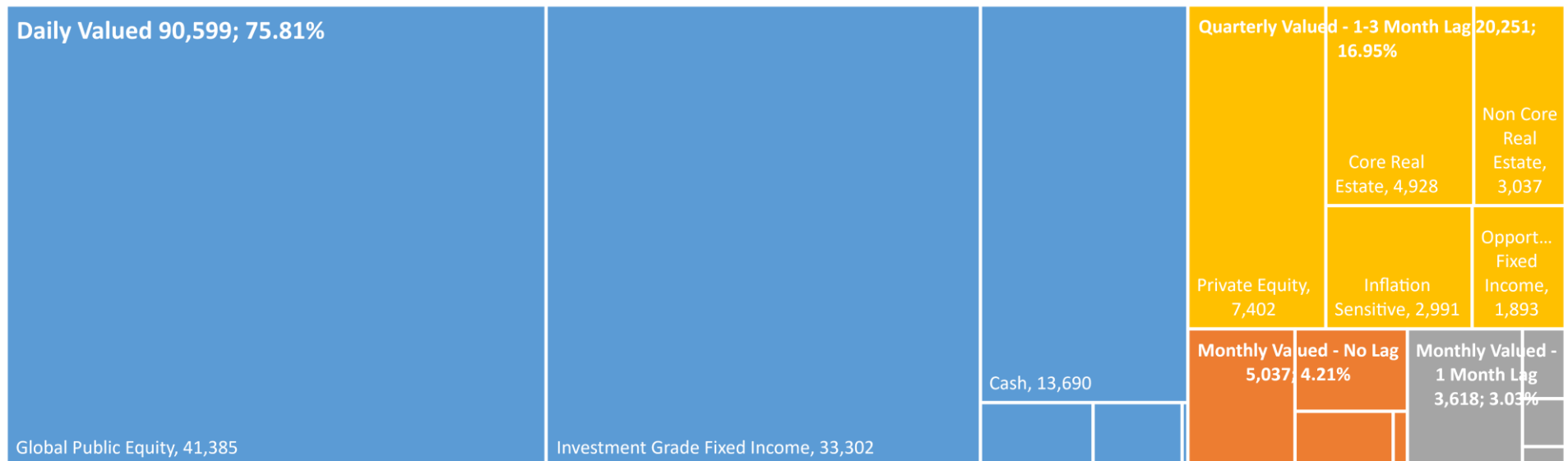
As of September 30, 2021

## PORTFOLIO VALUATION LAG



## VALUATION LAG BY PORTFOLIO

in Millions







# NCRS Asset Class Net of Fees Performance

## As of September 30, 2021

	Market Value (\$MM)	1 Year	3 Years	5 Years	10 Years	15 Years	20 Years
<b>Growth</b>	<b>\$60,560</b>	<b>29.68</b>	<b>13.89</b>	<b>13.78</b>	<b>12.45</b>	<b>7.70</b>	<b>8.27</b>
Benchmark <sup>1</sup>		27.94	12.16	12.02	10.92	6.78	7.41
<b>Public Equity</b>	<b>\$42,924</b>	<b>27.80</b>	<b>14.16</b>	<b>14.29</b>	<b>12.99</b>	<b>7.87</b>	<b>8.40</b>
Benchmark <sup>2</sup>		28.73	12.31	12.74	11.77	6.97	7.46
<b>Private Equity</b>	<b>\$7,608</b>	<b>57.26</b>	<b>23.90</b>	<b>19.89</b>	<b>14.27</b>	<b>11.32</b>	<b>8.99</b>
Benchmark <sup>3</sup>		45.23	18.17	15.90	12.24	11.14	10.94
<b>Non-Core Real Estate</b>	<b>\$3,037</b>	<b>14.87</b>	<b>7.24</b>	<b>9.28</b>	<b>11.16</b>	<b>5.49</b>	<b>6.26</b>
Benchmark <sup>4</sup>		15.10	6.30	7.12	7.98	3.93	6.84
<b>Opportunistic Fixed Income</b>	<b>\$6,990</b>	<b>22.00</b>	<b>6.49</b>	<b>7.30</b>	<b>6.91</b>	<b>6.58</b>	-
Benchmark <sup>5</sup>		13.95	5.92	4.81	3.79	1.91	-
<b>Rates &amp; Liquidity</b>	<b>\$46,992</b>	<b>-0.73</b>	<b>5.39</b>	<b>2.98</b>	<b>3.53</b>	<b>5.09</b>	<b>5.32</b>
Benchmark <sup>6</sup>		-1.72	5.97	3.18	3.61	5.00	5.23
<b>IG Fixed Income</b>	<b>\$33,302</b>	<b>-1.10</b>	<b>6.25</b>	<b>3.44</b>	<b>3.81</b>	<b>5.27</b>	<b>5.46</b>
Benchmark <sup>7</sup>		-1.78	6.15	3.25	3.68	5.05	5.26
<b>Cash</b>	<b>\$13,690</b>	<b>0.22</b>	<b>1.34</b>	<b>1.33</b>	-	-	-
Benchmark <sup>8</sup>		0.02	1.05	1.08	-	-	-
<b>Inflation Sensitive &amp; Diversifiers</b>	<b>\$11,497</b>	<b>13.55</b>	<b>4.97</b>	<b>6.09</b>	<b>4.74</b>	<b>2.66</b>	<b>4.18</b>
Benchmark <sup>9</sup>		12.91	4.99	4.79	4.55	1.88	3.98
<b>Inflation Sensitive</b>	<b>\$5,615</b>	<b>13.24</b>	<b>3.03</b>	<b>5.02</b>	<b>1.87</b>	<b>1.12</b>	<b>3.27</b>
Benchmark <sup>10</sup>		9.96	3.65	3.49	0.97	2.34	3.67
<b>Core Real Estate</b>	<b>\$5,882</b>	<b>13.86</b>	<b>7.09</b>	<b>7.28</b>	<b>8.85</b>	<b>5.52</b>	<b>6.35</b>
Benchmark <sup>11</sup>		16.46	6.54	6.32	9.15	5.58	6.80
<b>Multi-Strategy</b>	<b>\$2,287</b>	<b>11.69</b>	<b>2.16</b>	<b>4.93</b>	<b>7.90</b>	<b>5.18</b>	-
Benchmark <sup>12</sup>		9.73	2.62	4.89	7.08	5.53	-
<b>Total Pension Plan</b>	<b>\$121,336</b>	<b>15.01</b>	<b>9.27</b>	<b>8.87</b>	<b>8.50</b>	<b>6.59</b>	<b>7.10</b>
Implementation Benchmark <sup>13</sup>		16.75	9.61	8.62	7.96	6.19	6.72
Long-Term Policy Benchmark <sup>14</sup>		15.87	10.65	9.10	8.10	6.39	7.33



# NCRS Calendar Year Asset Class Return Diversification

## As of September 30, 2021

2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Public Equity 17.59%	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 42.89%
Multi-Strategy 14.70%	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 14.52%
Opportunistic Fixed Income 13.95%	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%	Inflation Sensitive 10.28%
Core Real Estate 13.67%	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%	Core Real Estate 9.83%
Total Pension 11.84%	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%	Public Equity 9.73%
Non-Core Real Estate 7.78%	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%	Non-Core Real Estate 9.73%
IG Fixed Income & Cash 7.29%	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 7.08%
Private Equity 5.74%	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 5.15%
Inflation Sensitive 1.06%	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 0.12%
		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 -2.02%



# New, Incremental, & Unfunded Investment Commitments

Since August 25<sup>th</sup> IAC Meeting

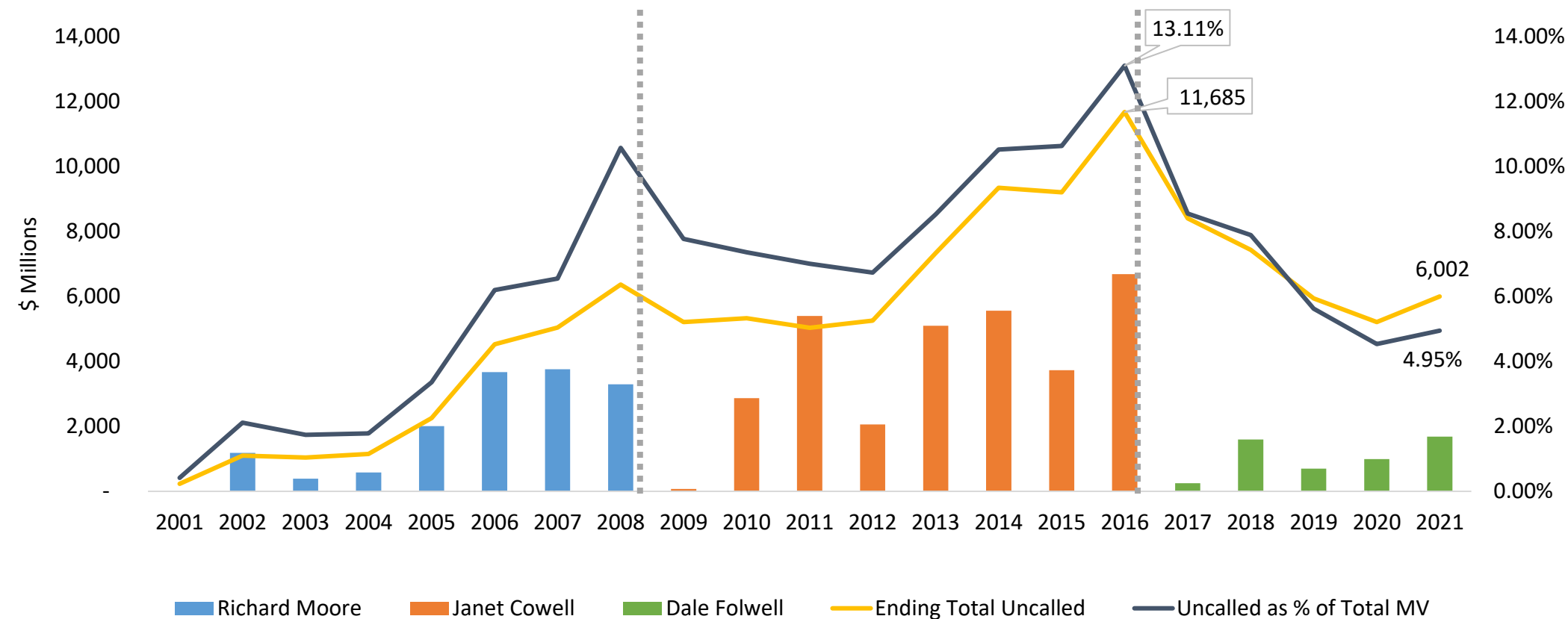
As of September 30, 2021

<u>Fund Name</u>	<u>Firm Name</u>	<u>New or Incremental Commitment (\$MM)</u>	<u>Closing Date</u>
<b>Public Equity</b>			
None			
<b>Private Equity</b>			
BC Partners XI LP	BC Partners	150	10/15
NCL Inv III – PE Series	Landmark Partners	250	8/26
NCL Inv III – PE Overflow	Landmark Partners	200	8/26
NCL Inv III – PE Opp Ser A	Landmark Partners	500	8/26
<b>Non-Core Real Estate</b>			
None			
<b>Opportunistic Fixed Income</b>			
BCP Special Opps II	BC Partners	200	10/29
<b>Inflation Sensitive</b>			
NCL Inv III – RE Series	Landmark Partners	150	8/26
NCL Inv III – RE Overflow	Landmark Partners	90	8/26
NCL Inv III – Outside Opp B	Landmark Partners	210	8/26
<b>Core Real Estate</b>			
None			
<b>Multi-Strategy</b>			
None			

<u>Asset Class</u>	<u>Unfunded Commitments (\$MM)</u>
Public Equity	0
Private Equity	2,591
Non-Core Real Estate	664
Opportunistic Fixed Income	671
Inflation Sensitive	1,685
Core Real Estate	391
Multi Strategy	0
<b>Total</b>	<b>6,002</b>

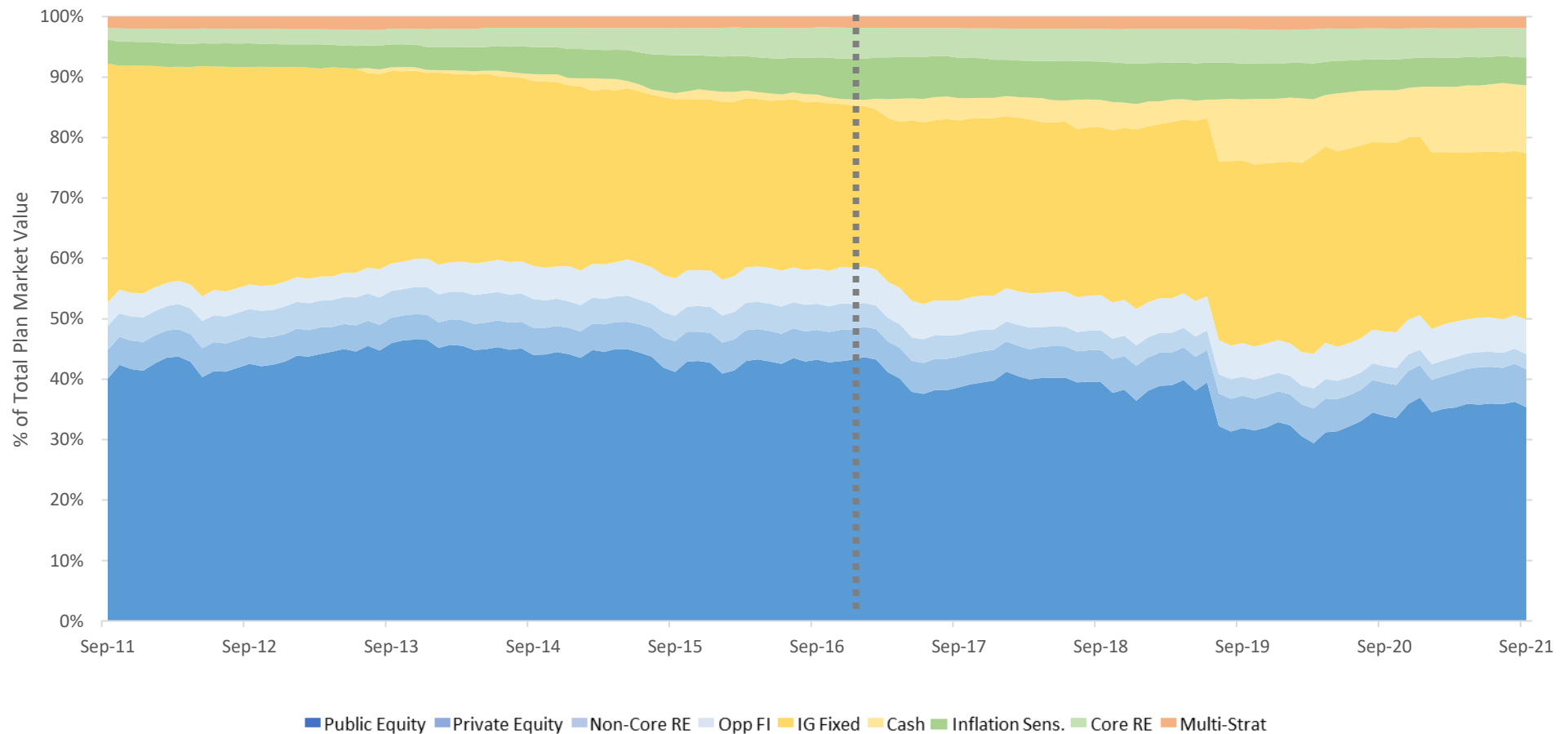


# New and Total Unfunded Private Asset Class Commitments By Calendar Year of Closing





# Asset Allocation History as of September 30, 2021





# Exited Investments

Since August 25<sup>th</sup> IAC Meeting

<u>Fund Name</u>	<u>Redemption Amount (\$MM)</u>	<u>Redemption Effective</u>
<b>Public Equity</b>		
ECM Feeder Fund 2 LP	227	10/22
ECM Bespoke Fund LP	44	9/21
<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 September 30, 2021

	Manager	Market Value (\$)	Uncalled (\$)	% MV	% MV Cum.
1	Internal Fixed Income	46,992,324,033	-	38.7%	38.7%
2	Internal Equity	17,276,972,164	-	14.2%	53.0%
3	BlackRock, Inc.	9,705,127,357	-	8.0%	61.0%
4	Baillie Gifford	4,743,521,244	-	3.9%	64.9%
5	Wellington Management	3,469,338,274	-	2.9%	67.7%
6	Mondrian Investment Partners Limited	2,932,386,236	-	2.4%	70.2%
7	Blackstone Group	2,768,815,622	1,025,668,785	2.3%	72.4%
8	Walter Scott & Partners	2,751,731,087	-	2.3%	74.7%
9	Rockwood Capital	2,739,165,307	153,298,391	2.3%	77.0%
10	Gladius Capital Management LP	1,947,907,889	-	1.6%	78.6%
11	Angelo, Gordon & Co.	1,797,995,712	49,036,361	1.5%	80.0%
12	ValueAct Capital	1,304,851,114	-	1.1%	81.1%
13	Landmark Partners, Inc.	1,278,214,870	2,519,763,921	1.1%	82.2%
14	HPS Investment Partners, LLC	1,050,133,412	149,216,606	0.9%	83.0%
15	LBA Realty	877,706,967	9,900,990	0.7%	83.8%
16	DoubleLine Capital LP	875,316,533	-	0.7%	84.5%
17	Rockpoint Group, LLC	811,354,280	87,258,550	0.7%	85.2%
18	Franklin Templeton Investments	808,991,076	-	0.7%	85.8%
19	Earnest Partners	801,613,641	-	0.7%	86.5%
20	Brigade Capital Management	723,662,929	(0)	0.6%	87.1%
	88 Remaining Managers*	15,679,045,665	2,007,627,446	12.9%	100.0%
<b>Total</b>		<b>121,336,175,410</b>	<b>6,001,771,050</b>	<b>100.0%</b>	<b>100.0%</b>

\*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 September 30, 2021

	Market Value (\$MM)	3 Month	1 Year	3 Years	5 Years	10 Years
<b>Public Equity</b>	<b>\$42,924</b>	<b>(1.65)</b>	<b>27.80</b>	<b>14.16</b>	<b>14.29</b>	<b>12.99</b>
Benchmark <sup>2</sup>		(1.11)	28.73	12.31	12.74	11.77
<b>Domestic Portfolio</b>	<b>\$21,683</b>	<b>0.06</b>	<b>31.14</b>	<b>16.78</b>	<b>17.47</b>	<b>16.85</b>
Russell 3000		(0.10)	31.88	16.00	16.85	16.60
<b>Non-US Portfolio</b>	<b>\$21,005</b>	<b>(3.51)</b>	<b>23.88</b>	<b>11.35</b>	<b>11.60</b>	<b>9.38</b>
Custom Benchmark		(2.56)	25.16	8.34	9.13	7.74
<b>Equity Hedge</b>	<b>\$235</b>	<b>11.67</b>	<b>53.46</b>	<b>11.76</b>	<b>10.05</b>	<b>-</b>
MSCI ACWI (Beta Adjusted)		(0.42)	11.00	5.23	5.33	-



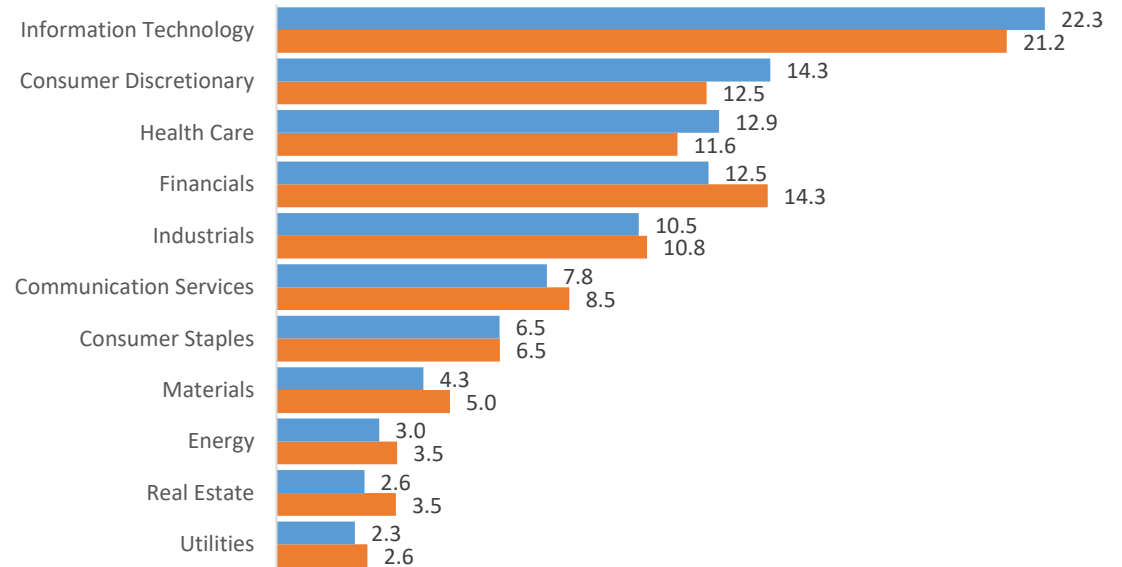
# NCRS Public Equity Portfolio Characteristics

## As of September 30, 2021

### Portfolio Characteristics

	Portfolio	MSCI ACWI IMI
Price/Earnings	19.5	18.7
Dividend Yield	1.5	1.7
Price/Book	12.8	15.4
Market Capitalization	278,874	309,961
Return On Equity	15.0	16.1

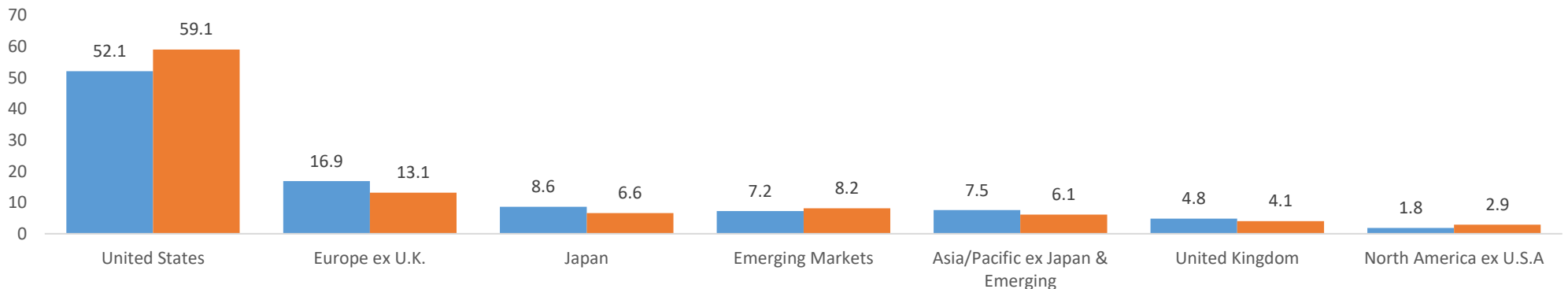
@FactSet Research Systems



■ 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 September 30, 2021

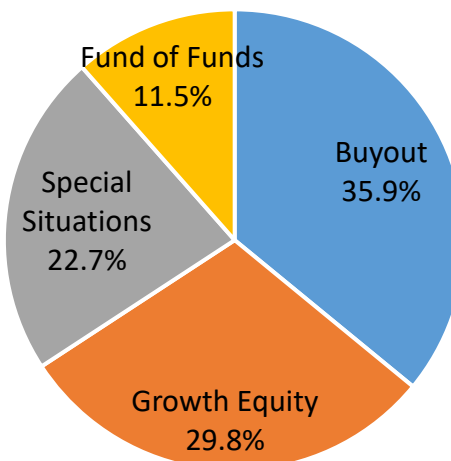
### Net of Fees Performance (%)

	Market Value	3 Month	1 Year	3 Years	5 Years	10 Years
<b>Private Equity</b>	<b>\$7,608</b>	<b>9.30</b>	<b>57.26</b>	<b>23.90</b>	<b>19.89</b>	<b>14.27</b>
Benchmark <sup>3</sup>		8.44	45.23	18.17	15.90	12.24
<b>Buyout</b>	<b>\$2,712</b>	<b>12.68</b>	<b>53.46</b>	<b>21.66</b>	<b>18.35</b>	<b>12.94</b>
<b>Growth</b>	<b>\$2,252</b>	<b>7.22</b>	<b>66.29</b>	<b>33.06</b>	<b>26.72</b>	<b>18.89</b>
<b>Special Situations</b>	<b>\$1,713</b>	<b>8.04</b>	<b>48.48</b>	<b>16.82</b>	<b>14.19</b>	<b>9.23</b>
<b>Fund of Funds</b>	<b>\$869</b>	<b>8.89</b>	<b>70.28</b>	<b>25.16</b>	<b>20.76</b>	<b>15.99</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>Total</u>
NCRS	12.03	6.86	5.11	3.53	9.96	11.28	9.29	20.04	9.78	16.51	14.65	19.89	23.91	31.35	20.66	25.29	N/A	N/A	0.00	10.92
# of Funds	28	3	11	21	15	17	3	1	6	6	9	4	9	6	7	3	N/A	N/A	3	152

### Strategy Allocation (Based on Valuation)



\*Private Equity returns include a stock distribution account, in the amount of roughly \$61.8 million, which does not fall under any specific sub-section. 35



# NCRS Non-Core Real Estate Portfolio

## As of September 30, 2021

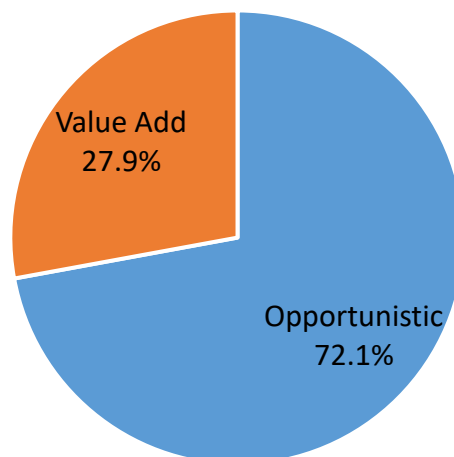
### Net of Fees Performance (%)

	Market Value	3 Month	1 Year	3 Years	5 Years	10 Years
<b>Non-Core Real Estate</b>	<b>\$3,037</b>	<b>5.88</b>	<b>14.87</b>	<b>7.24</b>	<b>9.28</b>	<b>11.16</b>
Benchmark <sup>4</sup>		5.23	15.10	6.30	7.12	7.98
<b>Opportunistic</b>	<b>\$2,190</b>	<b>6.20</b>	<b>13.76</b>	<b>7.50</b>	<b>9.55</b>	<b>10.62</b>
<b>Value Add</b>	<b>\$847</b>	<b>5.16</b>	<b>17.52</b>	<b>6.72</b>	<b>8.59</b>	<b>11.94</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>Total</u>
NCRS	8.91	15.69	-1.49	2.98	2.11	15.48	N/A	15.95	17.36	16.37	12.84	4.84	7.85	11.80	N/A	12.31	22.68	N/A	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	108

### Strategy Allocation (Based on Valuation)





# NCRS Opportunistic Fixed Income Portfolio

As of September 30, 2021

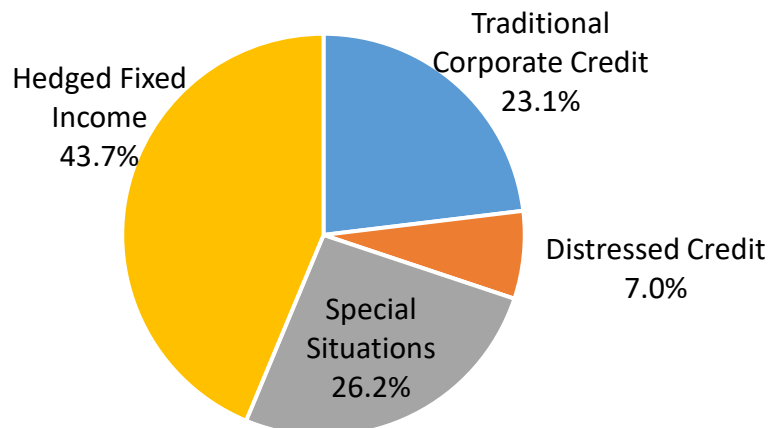
Net of Fees Performance (%)

	Market Value	3 Month	1 Year	3 Years	5 Years	10 Years
<b>Opportunistic Fixed Income</b>	<b>\$6,990</b>	<b>2.57</b>	<b>22.00</b>	<b>6.49</b>	<b>7.30</b>	<b>6.91</b>
Benchmark <sup>5</sup>		1.04	13.95	5.92	4.81	3.79
<b>Traditional Corporate Credit</b>	<b>\$1,613</b>	<b>0.36</b>	<b>11.95</b>	<b>5.72</b>	<b>7.13</b>	<b>7.14</b>
<b>Distressed Credit</b>	<b>\$493</b>	<b>7.89</b>	<b>36.17</b>	<b>11.67</b>	<b>11.67</b>	<b>10.73</b>
<b>Special Situations</b>	<b>\$1,829</b>	<b>3.92</b>	<b>23.03</b>	<b>6.89</b>	<b>8.44</b>	<b>12.50</b>
<b>Hedged Fixed Income</b>	<b>\$3,056</b>	<b>2.20</b>	<b>25.22</b>	<b>6.42</b>	<b>6.52</b>	<b>5.32</b>

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>Total</u>
NCRS	2.87	N/A	16.91	7.30	22.42	5.64	5.09	4.18	4.97	3.86	8.62	8.21	19.54	N/A	11.24	30.96	N/A	6.54
# of Funds	1	N/A	1	3	1	4	9	2	7	3	1	8	2	N/A	1	2	N/A	45

Strategy Allocation (Based on Valuation)





# NCRS Rates & Liquidity Portfolio

As of September 30, 2021

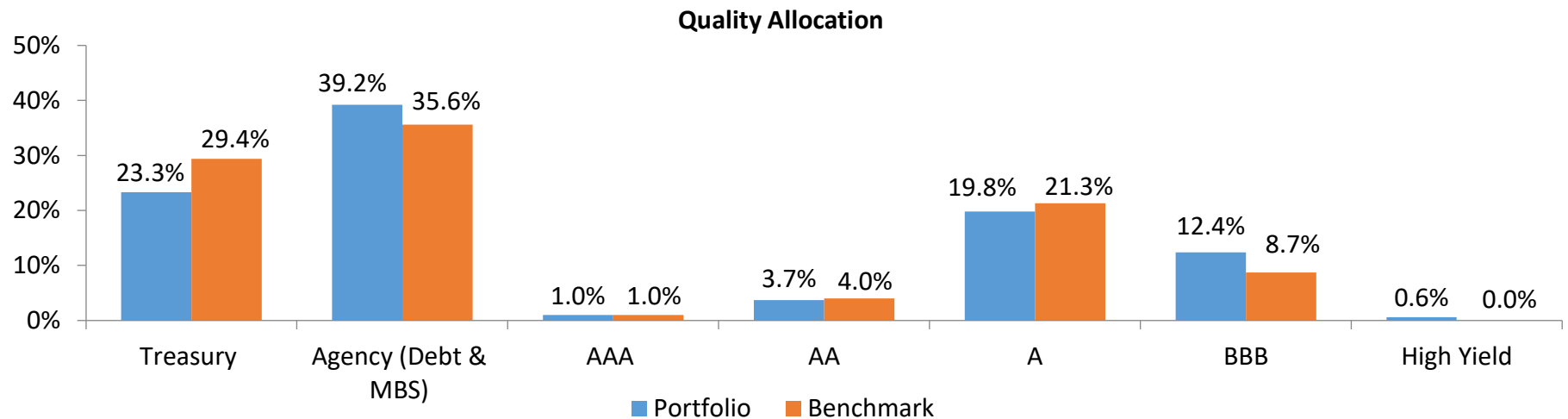
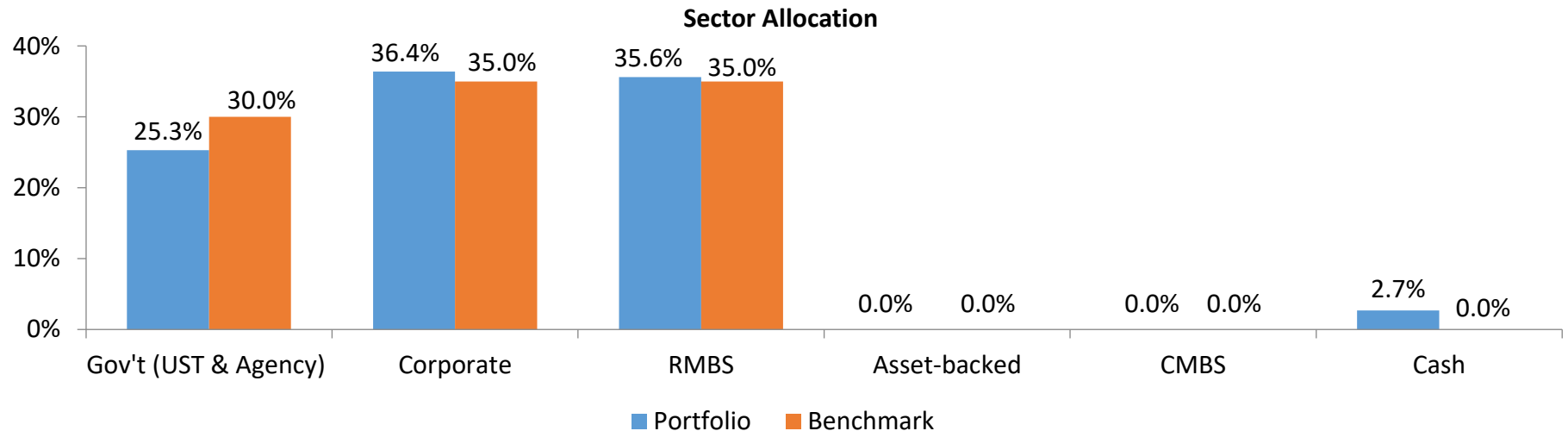
Net of Fees Performance (%)						
	Market Value	3 Month	1 Year	3 Years	5 Years	10 Years
<b>Rates &amp; Liquidity</b>	<b>\$46,992</b>	<b>(0.03)</b>	<b>(0.73)</b>	<b>5.39</b>	<b>2.98</b>	<b>3.53</b>
Benchmark <sup>6</sup>		(0.07)	(1.72)	5.97	3.18	3.61
<b>IG Fixed Income</b>	<b>\$33,302</b>	<b>(0.05)</b>	<b>(1.10)</b>	<b>6.25</b>	<b>3.44</b>	<b>3.81</b>
<b>Core Fixed Income</b>	<b>\$29,706</b>	<b>(0.06)</b>	<b>(1.23)</b>	<b>6.78</b>	<b>3.67</b>	<b>3.97</b>
<b>IG Fixed Income Cash</b>	<b>\$3,596</b>	<b>0.02</b>	<b>0.26</b>	<b>1.29</b>	<b>1.28</b>	<b>-</b>
<b>Pension Cash</b>	<b>\$13,690</b>	<b>0.02</b>	<b>0.22</b>	<b>1.34</b>	<b>1.33</b>	<b>-</b>

Core Fixed Income Portfolio Characteristics			
	<u>Avg. Coupon</u>	<u>Yield to Worst</u>	<u>Effective Duration</u>
Government (Treasury & Agency)	3.8%	1.5%	9.6
Corporate	4.2%	2.4%	10.1
Mortgage	3.0%	1.5%	3.6
<b>Total</b>	<b>3.6%</b>	<b>1.8%</b>	<b>7.4</b>



# NCRS Core Fixed Income Portfolio Characteristics

## As of September 30, 2021





# NCRS Inflation Sensitive Portfolio

As of September 30, 2021

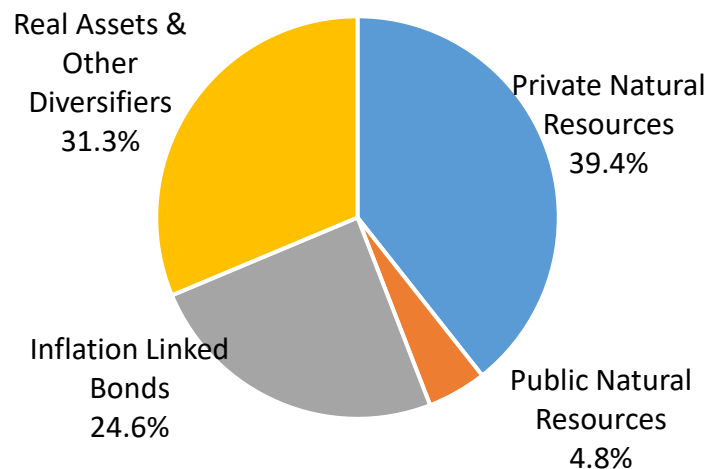
## Net of Fees Performance (%)

	Market Value	3 Month	1 Year	3 Years	5 Years	10 Years
<b>Inflation Sensitive</b>	<b>\$5,615</b>	<b>3.31</b>	<b>13.24</b>	<b>3.03</b>	<b>5.02</b>	<b>1.87</b>
Benchmark <sup>10</sup>		2.93	9.96	3.65	3.49	0.97
<b>Private Natural Resources</b>	<b>\$2,210</b>	<b>3.39</b>	<b>12.05</b>	<b>(1.03)</b>	<b>2.90</b>	<b>1.86</b>
<b>Public Natural Resources</b>	<b>\$267</b>	<b>5.24</b>	<b>42.42</b>	<b>5.56</b>	<b>3.65</b>	<b>(2.45)</b>
<b>Inflation Linked Bonds</b>	<b>\$63</b>	<b>1.20</b>	<b>5.32</b>	<b>3.94</b>	<b>2.70</b>	<b>-</b>
<b>Real Assets &amp; Other Diversifiers</b>	<b>\$1,758</b>	<b>4.95</b>	<b>16.47</b>	<b>7.09</b>	<b>8.31</b>	<b>-</b>

## IRR by Vintage Year

	<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>Total</u>
NCRS	0.56	-7.73	-5.79	N/A	-7.06	-6.11	5.81	6.66	7.32	6.89	4.24	-8.12	18.28	31.26	N/A	0.00	1.56
# of Funds	3	2	2	N/A	3	9	7	11	12	4	4	1	3	2	N/A	3	66

## Strategy Allocation (Based on Valuation)







# NCRS Core Real Estate Portfolio

As of September 30, 2021

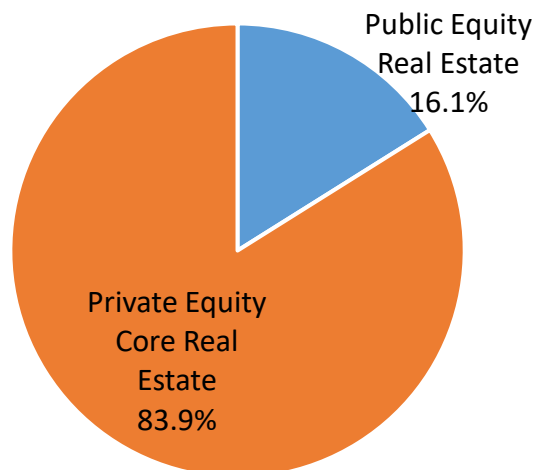
## Net of Fees Performance (%)

	Market Value	3 Month	1 Year	3 Years	5 Years	10 Years
<b>Core Real Estate</b>	<b>\$5,882</b>	<b>3.39</b>	<b>13.86</b>	<b>7.09</b>	<b>7.28</b>	<b>8.85</b>
Benchmark <sup>11</sup>		4.85	16.46	6.54	6.32	9.15
<b>Public Equity Real Estate</b>	<b>\$946</b>	<b>(0.46)</b>	<b>30.60</b>	<b>9.77</b>	<b>7.60</b>	<b>10.76</b>
<b>Private Equity Core Real Estate</b>	<b>\$4,935</b>	<b>4.17</b>	<b>11.29</b>	<b>6.64</b>	<b>7.22</b>	<b>8.48</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>Total</u>
NCRS	7.51	9.74	-8.33	4.43	1.39	9.16	N/A	23.62	N/A	N/A	3.45	6.12	7.21	9.34	N/A	16.76	N/A	N/A	0.00	7.12
# 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	1	35

## Strategy Allocation (Based on Valuation)



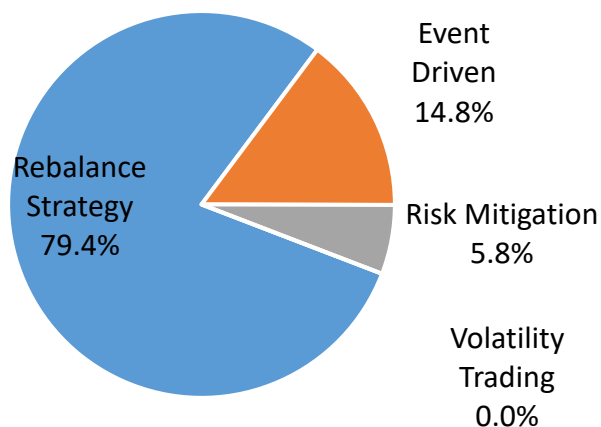


# NCRS Multi-Strategy Portfolio

As of September 30, 2021

	Market Value	Net of Fees Performance (%)				
		3 Month	1 Year	3 Years	5 Years	10 Years
<b>Multi-Strategy</b>	<b>\$2,287</b>	<b>0.08</b>	<b>11.69</b>	<b>2.16</b>	<b>4.93</b>	<b>7.90</b>
Benchmark <sup>12</sup>		(0.72)	9.73	2.62	4.89	7.08
<b>Rebalance Strategy</b>	<b>\$1,815</b>	<b>(0.22)</b>	<b>9.94</b>	<b>3.77</b>	<b>6.63</b>	<b>9.88</b>
<b>Event Driven</b>	<b>\$339</b>	<b>1.33</b>	<b>32.36</b>	<b>5.77</b>	<b>6.82</b>	<b>-</b>
<b>Risk Mitigation</b>	<b>\$132</b>	<b>1.08</b>	<b>(5.80)</b>	<b>(0.91)</b>	<b>-</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: 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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NORTH CAROLINA  
DEPARTMENT OF STATE TREASURER



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## INVESTMENT MANAGEMENT DIVISION