



# Comparative Performance Analysis Report

## City of New Haven City Employees Retirement Fund (CERF)

Presented by: Derek Ciampini  
July 2020

**RAYMOND JAMES**

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## Market Performance

As of July 31, 2020

Name	Q2-20	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs
<b>US Equity</b>						
Russell 3000	22.03	2.00	10.93	11.39	10.89	13.59
S&P 500	20.54	2.38	11.96	12.01	11.49	13.84
S&P 500 Equal Weighted TR	21.73	-6.45	0.57	6.54	7.95	12.38
Russell 1000	21.82	2.88	12.03	12.02	11.31	13.85
Russell 1000 Growth	27.84	18.26	29.84	20.91	16.84	17.29
Russell 1000 Value	14.29	-12.95	-6.01	2.70	5.36	10.12
Russell 2500	26.56	-7.51	-1.92	5.08	6.28	11.14
Russell MidCap	24.61	-3.79	2.04	7.30	7.83	12.21
Russell 2000	25.42	-10.57	-4.59	2.69	5.10	10.07
Russell 2000 Growth	30.58	0.27	6.00	8.77	7.49	12.58
Russell 2000 Value	18.91	-21.92	-15.91	-3.90	2.24	7.30
<b>International Equity</b>						
MSCI ACWI	19.22	-1.29	7.20	6.99	7.37	8.87
MSCI World ex USA	15.34	-9.13	-1.72	0.74	2.23	4.78
MSCI EAFE	14.88	-9.28	-1.67	0.63	2.10	5.02
MSCI Emerging Markets	18.08	-1.72	6.55	2.84	6.15	3.33
<b>Fixed Income</b>						
91 Day T-Bills	0.03	0.41	1.13	1.63	1.13	0.59
BBgBarc US Aggregate TR	2.90	7.72	10.12	5.69	4.47	3.87
BBgBarc US Govt/Credit TR	3.71	9.36	12.06	6.42	5.01	4.22
BBgBarc US Municipal TR	2.72	3.80	5.36	4.52	4.13	4.26
BBgBarc US High Yield TR	10.18	0.71	4.14	4.54	5.88	6.80
FTSE WGBI TR	2.04	7.86	8.91	4.58	4.34	2.36
FTSE WGBI ex US TR	2.98	6.21	6.77	3.65	4.29	1.83
<b>Real Estate</b>						
FTSE NAREIT All REIT	13.96	-11.81	-6.38	3.52	5.89	9.51
NCREIF Property Index	-0.99	-0.29	2.69	5.44	6.77	9.70
<b>Alternatives</b>						
HFRI Fund of Funds Composite Index	7.89	1.20	3.05	2.86	2.02	3.00
<b>Inflation</b>						
Consumer Price Index	-0.12	0.83	0.99	1.91	1.66	1.74

# New Haven CERF Investment Analysis

## New Haven CERF Performance

As of July 31, 2020

	Market Value (\$)	% of Portfolio	1 Mo (%)	3 Mo (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	Inception (%)	Inception Date
<b>New Haven CERF</b>	<b>176,344,253</b>	<b>100.00</b>	<b>3.47</b>	<b>9.49</b>	<b>4.45</b>	<b>9.98</b>	<b>7.95</b>	<b>5.27</b>	<b>Jan-08</b>
<i>CERF Asset Allocation Policy Index</i>			3.14	8.51	-1.20	3.74	5.17	6.19	Jan-08
<i>CERF Composite Benchmark</i>			3.42	8.65	1.08	5.37	5.39	4.01	Jan-08
<b>CERF Domestic Equity</b>	<b>70,249,360</b>	<b>39.84</b>	<b>5.61</b>	<b>12.97</b>	<b>-2.87</b>	<b>4.14</b>	<b>--</b>	<b>15.26</b>	<b>Jan-19</b>
<b>CERF Large Cap</b>	<b>65,136,769</b>	<b>36.94</b>	<b>5.67</b>	<b>12.46</b>	<b>-5.04</b>	<b>3.04</b>	<b>--</b>	<b>14.99</b>	<b>Jan-19</b>
<b>CERF LCG</b>	<b>32,123,949</b>	<b>18.22</b>	<b>6.73</b>	<b>17.65</b>	<b>14.45</b>	<b>22.62</b>	<b>--</b>	<b>30.89</b>	<b>Jan-19</b>
Clearbridge LCG - 194FF868	32,123,949	18.22	6.73	17.65	14.45	22.62	--	30.89	Jan-19
<i>Russell 1000 Growth</i>			7.69	19.93	18.26	29.84	--	35.25	Jan-19
<b>CERF LCV</b>	<b>33,012,820</b>	<b>18.72</b>	<b>4.66</b>	<b>8.06</b>	<b>-14.50</b>	<b>-6.67</b>	<b>--</b>	<b>7.19</b>	<b>Jan-19</b>
Cooke & Bieler LCV - 388MU150	18,730,962	10.62	5.34	9.21	-15.58	-6.92	--	9.13	Jan-19
<i>Russell 1000 Value</i>			3.95	6.80	-12.95	-6.01	--	6.30	Jan-19
GT Vanguard LCV - 417WT662	14,281,858	8.10	3.78	6.57	-13.04	-6.16	--	6.02	Jan-19
<i>Russell 1000 Value</i>			3.95	6.80	-12.95	-6.01	--	6.30	Jan-19
<b>CERF Small Cap</b>	<b>5,110,873</b>	<b>2.90</b>	<b>4.85</b>	<b>19.71</b>	<b>-4.60</b>	<b>-2.02</b>	<b>--</b>	<b>11.07</b>	<b>Jan-19</b>
Fuller & Thaler SCC - 2690N940	5,110,873	2.90	4.85	19.71	-4.60	-2.02	--	11.07	Jan-19
<i>Russell 2000</i>			2.77	13.32	-10.57	-4.59	--	7.58	Jan-19
<b>CERF International Equity</b>	<b>35,628,547</b>	<b>20.20</b>	<b>4.59</b>	<b>16.34</b>	<b>3.77</b>	<b>13.06</b>	<b>--</b>	<b>11.70</b>	<b>Jul-19</b>
WCM Intl Equity - 430PW777	20,606,212	11.69	5.95	21.91	9.83	20.90	15.96	12.86	Jun-15
<i>MSCI EAFE</i>			2.33	10.42	-9.28	-1.67	0.63	1.87	Jun-15
Equity Blend Index - 220X1116	11,321,931	6.42	4.02	13.17	-0.75	7.05	--	5.01	Jul-19
<i>MSCI EAFE</i>			2.33	10.42	-9.28	-1.67	--	-2.70	Jul-19
iShares Europe Index -257T7196	3,700,404	2.10	-0.77	-0.45	-11.19	-4.98	--	-4.58	Jul-19
<i>MSCI Europe</i>			3.84	12.99	-9.43	-1.29	--	-2.96	Jul-19

## New Haven CERF Performance

As of July 31, 2020

	Market Value (\$)	% of Portfolio	1 Mo (%)	3 Mo (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	Inception (%)	Inception Date
<b>CERF Fixed Income</b>	21,225,471	12.04	2.99	8.84	8.67	10.93	--	10.81	Jan-19
<b>CERF FI Domestic</b>	11,827,176	6.71	1.84	5.88	8.79	11.82	--	12.28	Jan-19
Dolan McEniry Core Bond - 1945F180	11,827,176	6.71	1.84	5.88	5.05	8.83	--	11.29	Jan-19
<i>BBgBarc US Aggregate TR</i>			1.49	2.61	7.72	10.12	--	10.49	Jan-19
<b>CERF Fixed Income Intl</b>	9,398,295	5.33	4.49	12.74	0.87	3.11	--	3.42	Jan-19
Brandywine Intl Fixed Income - 216DU846	9,398,295	5.33	4.49	12.74	0.87	3.11	--	3.42	Jan-19
<i>FTSE WGBI ex US TR</i>			5.12	6.64	6.21	6.77	--	7.34	Jan-19
<b>CERF Alternatives</b>	44,584,775	25.28	0.03	4.22	9.56	--	--	--	Jan-19
<b>CERF Real Estate</b>	12,013,270	6.81	-0.13	-1.60	-0.39	0.04	--	-0.20	Jan-19
CERF Bridge Debt III Private Equity - 70004024	4,342,885	2.46	-0.37	-0.37	0.94	0.80	--	0.29	Jan-19
<i>HFRI Event-Driven (Total) Index</i>			2.65	8.59	-3.70	-2.08	--	2.21	Jan-19
CERF Townsend RE Alpha II HF - 70001234	4,396,086	2.49	0.00	0.00	1.88	3.26	--	1.77	Jan-19
<i>Dow Jones Global Real Estate TR USD</i>			3.07	6.11	-16.00	-11.47	--	1.03	Jan-19
CERF BCRE Basis Capital RE LP - 70004322	3,274,299	1.86	0.00	-5.81	-5.81	-5.81	--	-4.68	May-19
<i>Dow Jones Global Real Estate TR USD</i>			3.07	6.11	-16.00	-11.47	--	-8.38	May-19
<b>CERF Private Equity</b>	12,626,117	7.16	0.00	0.56	1.40	--	--	--	Jan-19
CERF NB Select PE HF - 70003515	8,011,664	4.54	0.00	0.20	0.94	5.21	--	6.51	Sep-17
<i>HFRI Event-Driven (Total) Index</i>			2.65	8.59	-3.70	-2.08	--	1.35	Sep-17
CERF Entrust Permal Private Eq - 70003516	2,191,953	1.24	0.00	0.89	1.33	1.68	--	3.91	Jan-19
<i>HFRI Event-Driven (Total) Index</i>			2.65	8.59	-3.70	-2.08	--	2.21	Jan-19
CERF Alkeon PE - 70004614	2,422,500	1.37	0.00	14.34	30.44	34.28	20.38	17.51	Jan-16
<i>HFRI Event-Driven (Total) Index</i>			2.65	8.59	-3.70	-2.08	1.30	4.16	Jan-16

## New Haven CERF Performance

As of July 31, 2020

	Market Value (\$)	% of Portfolio	1 Mo (%)	3 Mo (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	Inception (%)	Inception Date
<b>CERF Hedge Fund</b>	<b>19,945,388</b>	<b>11.31</b>	<b>0.14</b>	<b>10.09</b>	<b>21.08</b>	<b>23.11</b>	<b>--</b>	<b>--</b>	<b>Jan-19</b>
CERF Alkeon Growth HF - 70002104	13,765,691	7.81	0.20	14.57	30.70	34.55	20.46	17.56	Jan-16
<i>HFRI Fund of Funds Composite Index</i>			2.83	7.28	1.20	3.05	2.86	2.91	Jan-16
CERF Balyasny Atlas Enhanced HF - 70002103	6,179,696	3.50	0.00	0.00	0.00	-1.70	--	-1.07	Jan-19
<i>HFRI Fund of Funds Composite Index</i>			2.83	7.28	1.20	3.05	--	6.02	Jan-19
<b>CERF Cash</b>	<b>4,656,099</b>	<b>2.64</b>	<b>0.02</b>	<b>0.00</b>	<b>0.24</b>	<b>1.11</b>	<b>--</b>	<b>1.28</b>	<b>Jan-19</b>
CERF CASH RJ - 7245T719	1,560,726	0.89	-0.01	0.01	0.20	1.08	--	1.25	Jan-19
<i>FTSE T-Bill 3 Months TR</i>			0.01	0.06	0.53	1.37	--	1.76	Jan-19
CERF Cash Northern Trust - 2604038	3,095,373	1.76	0.06	0.05	--	--	--	0.40	Mar-20
<i>FTSE T-Bill 3 Months TR</i>			0.01	0.06	--	--	--	0.27	Mar-20

- CERF Asset Allocation Policy Index = 30% S&P 500 / 10% BBgBarc Global Aggregate TR / 25% HFRI Event-Driven (Total) Index / 20% MSCI EAFE / 15% FTSE T-Bill 3 Months TR

- CERF Composite Benchmark = 25% S&P 500 / 4% Russell 2500 / 10% MSCI EAFE / 2% MSCI Emerging Markets / 23% BBgBarc US Aggregate TR / 5% BBgBarc Global Aggregate ex US TR / 5% BBgBarc Emerging Markets TR / 8% HFRI Event-Driven (Total) Index / 7% HFRI Event-Driven (Total) Index / 8% HFRI Fund of Funds Composite Index / 3% Dow Jones Global Real Estate TR USD

-All Alternative Managers have not reported current numbers so most of these are a "best efforts" estimate.

## New Haven CERF Allocation

As of July 31, 2020

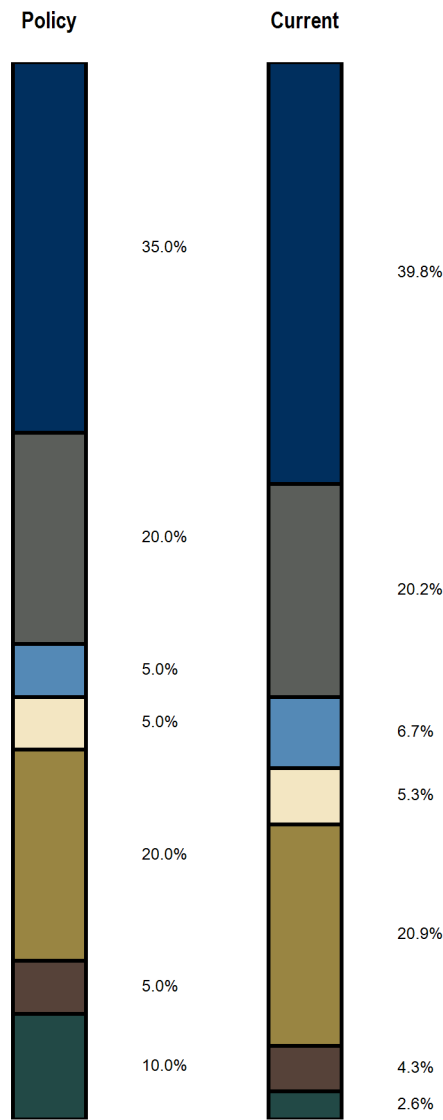
## Asset Allocation by Manager

	Total Market Value	% of Portfolio	US Equity	Non-US Equity	US Fixed Income	Non-US Fixed Income	Alternatives	Real Estate	Cash
<b>US Equity</b>									
Clearbridge LCG - 194FF868	\$32,123,949	18.2%	\$32,123,949						
Cooke & Bieler LCV - 388MU150	\$18,730,962	10.6%	\$18,730,962						
GT Vanguard LCV - 417WT662	\$14,281,858	8.1%	\$14,281,858						
Fuller & Thaler SCC - 2690N940	\$5,110,873	2.9%	\$5,110,873						
<b>Non-US Equity</b>									
WCM Intl Equity - 430PW777	\$20,606,212	11.7%		\$20,606,212					
Equity Blend Index - 220X1116	\$11,321,931	6.4%		\$11,321,931					
iShares Europe Index -257T7196	\$3,700,404	2.1%		\$3,700,404					
<b>US Fixed Income</b>									
Dolan McEniry Core Bond - 1945F180	\$11,827,176	6.7%			\$11,827,176				
<b>Non-US Fixed Income</b>									
Brandywine Intl Fixed Income - 216DU846	\$9,398,295	5.3%				\$9,398,295			
<b>Alternatives</b>									
CERF Bridge Debt III Private Equity - 70004024	\$4,342,885	2.5%					\$4,342,885		
CERF NB Select PE HF - 70003515	\$8,011,664	4.5%					\$8,011,664		
CERF Entrust Permal Private Eq - 70003516	\$2,191,953	1.2%					\$2,191,953		
CERF Alkeon PE - 70004614	\$2,422,500	1.4%					\$2,422,500		
CERF Alkeon Growth HF - 70002104	\$13,765,691	7.8%					\$13,765,691		
CERF Balyasny Atlas Enhanced HF - 70002103	\$6,179,696	3.5%					\$6,179,696		
<b>Real Estate</b>									
CERF Townsend RE Alpha II HF - 70001234	\$4,396,086	2.5%						\$4,396,086	
CERF BCRE Basis Capital RE LP - 70004322	\$3,274,299	1.9%						\$3,274,299	
<b>Cash</b>									
CERF CASH RJ - 7245T719	\$1,560,726	0.9%							\$1,560,726
CERF Cash Northern Trust - 2604038	\$3,095,373	1.8%							\$3,095,373
<b>Total</b>	<b>\$176,342,535</b>	<b>100.0%</b>	<b>\$70,247,642</b>	<b>\$35,628,547</b>	<b>\$11,827,176</b>	<b>\$9,398,295</b>	<b>\$36,914,390</b>	<b>\$7,670,385</b>	<b>\$4,656,099</b>



New Haven CERF Allocation

As of July 31, 2020

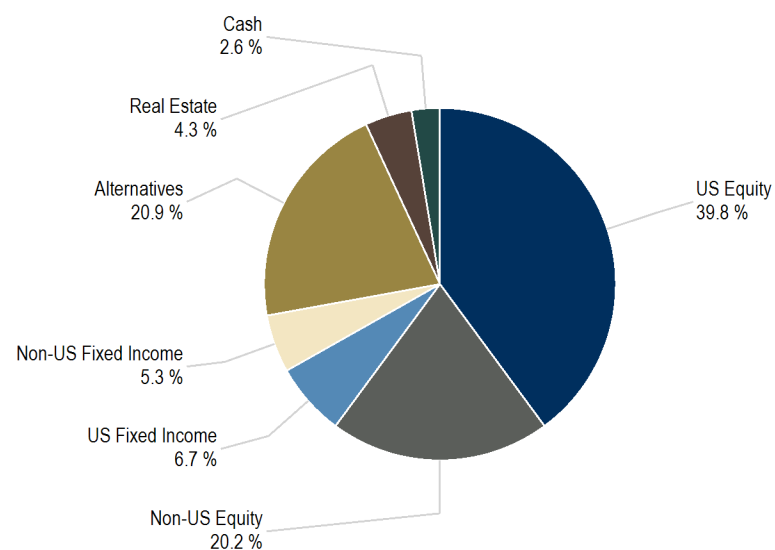


	Current Balance	Current Allocation	Target	Target Range	Difference*	Within IPS Range?
<b>US Equity</b>	\$70,247,642	39.8%	35.0%	20.0% - 45.0%	4.8%	Yes
Clearbridge LCG - 194FF868	\$32,123,949	18.2%				
Cooke & Bieler LCV - 388MU150	\$18,730,962	10.6%				
GT Vanguard LCV - 417WT662	\$14,281,858	8.1%				
Fuller & Thaler SCC - 2690N940	\$5,110,873	2.9%				
<b>Non-US Equity</b>	\$35,628,547	20.2%	20.0%	10.0% - 40.0%	0.2%	Yes
WCM Intl Equity - 430PW777	\$20,606,212	11.7%				
Equity Blend Index - 220X1116	\$11,321,931	6.4%				
iShares Europe Index -257T7196	\$3,700,404	2.1%				
<b>US Fixed Income</b>	\$11,827,176	6.7%	5.0%	0.0% - 10.0%	1.7%	Yes
Dolan McEniry Core Bond - 1945F180	\$11,827,176	6.7%				
<b>Non-US Fixed Income</b>	\$9,398,295	5.3%	5.0%	0.0% - 10.0%	0.3%	Yes
Brandywine Intl Fixed Income - 216DU846	\$9,398,295	5.3%				
<b>Alternatives</b>	\$36,914,390	20.9%	20.0%	10.0% - 30.0%	0.9%	Yes
CERF Bridge Debt III Private Equity - 70004024	\$4,342,885	2.5%				
CERF NB Select PE HF - 70003515	\$8,011,664	4.5%				
CERF Entrust Permal Private Eq - 70003516	\$2,191,953	1.2%				
CERF Alkeon PE - 70004614	\$2,422,500	1.4%				
CERF Alkeon Growth HF - 70002104	\$13,765,691	7.8%				
CERF Balyasny Atlas Enhanced HF - 70002103	\$6,179,696	3.5%				
<b>Real Estate</b>	\$7,670,385	4.3%	5.0%	0.0% - 10.0%	-0.7%	Yes
CERF Townsend RE Alpha II HF - 70001234	\$4,396,086	2.5%				
CERF BCRE Basis Capital RE LP - 70004322	\$3,274,299	1.9%				
<b>Cash</b>	\$4,656,099	2.6%	10.0%	0.0% - 15.0%	-7.4%	Yes
CERF CASH RJ - 7245T719	\$1,560,726	0.9%				
CERF Cash Northern Trust - 2604038	\$3,095,373	1.8%				

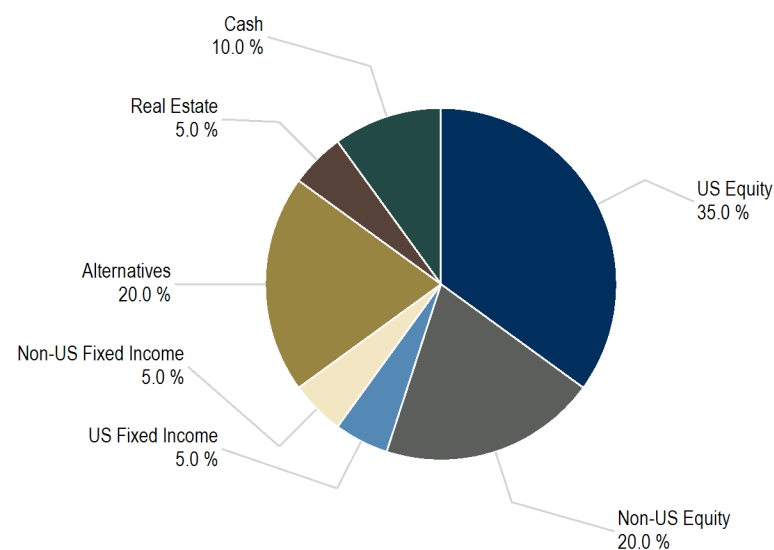
New Haven CERF Allocation

As of July 31, 2020

Current Allocation



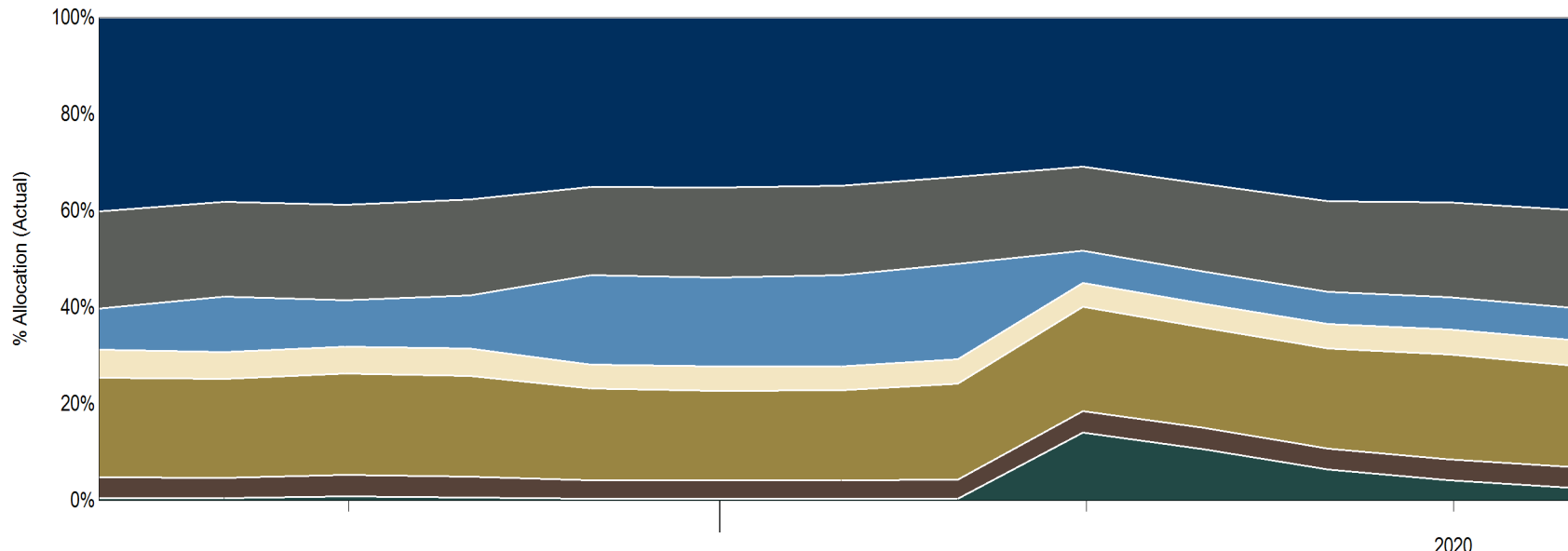
Target Allocation



Allocation vs. Targets and Policy

	Current Balance	Current Allocation	Target	Difference	Target Range	Within IPS Range?
US Equity	\$70,247,642	39.8%	35.0%	\$8,527,755	20.0% - 45.0%	Yes
Non-US Equity	\$35,628,547	20.2%	20.0%	\$360,040	10.0% - 40.0%	Yes
US Fixed Income	\$11,827,176	6.7%	5.0%	\$3,010,050	0.0% - 10.0%	Yes
Non-US Fixed Income	\$9,398,295	5.3%	5.0%	\$581,168	0.0% - 10.0%	Yes
Alternatives	\$36,914,390	20.9%	20.0%	\$1,645,883	10.0% - 30.0%	Yes
Real Estate	\$7,670,385	4.3%	5.0%	-\$1,146,742	0.0% - 10.0%	Yes
Cash	\$4,656,099	2.6%	10.0%	-\$12,978,154	0.0% - 15.0%	Yes
<b>Total</b>	<b>\$176,342,535</b>	<b>100.0%</b>	<b>100.0%</b>			

Asset Allocation History  
1 Year Ending July 31, 2020

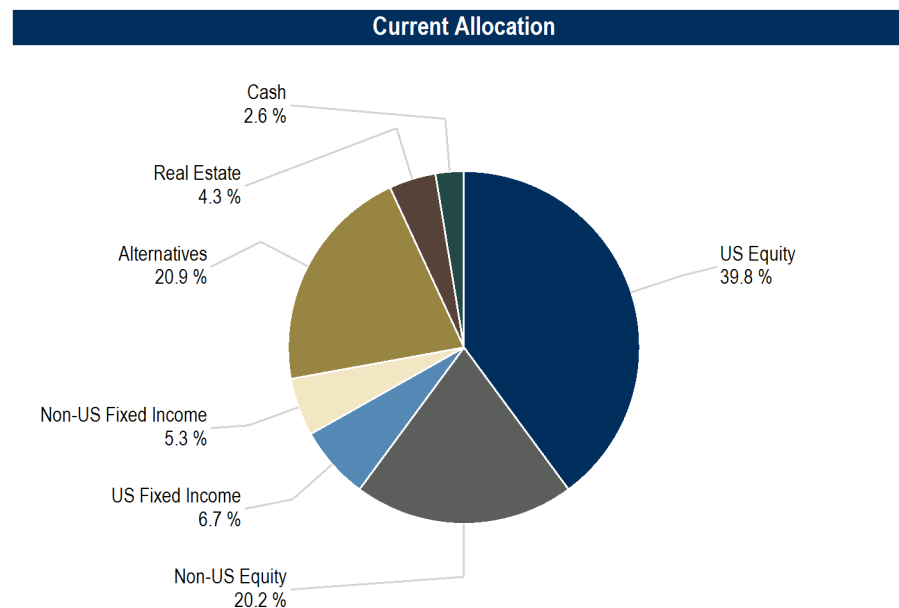
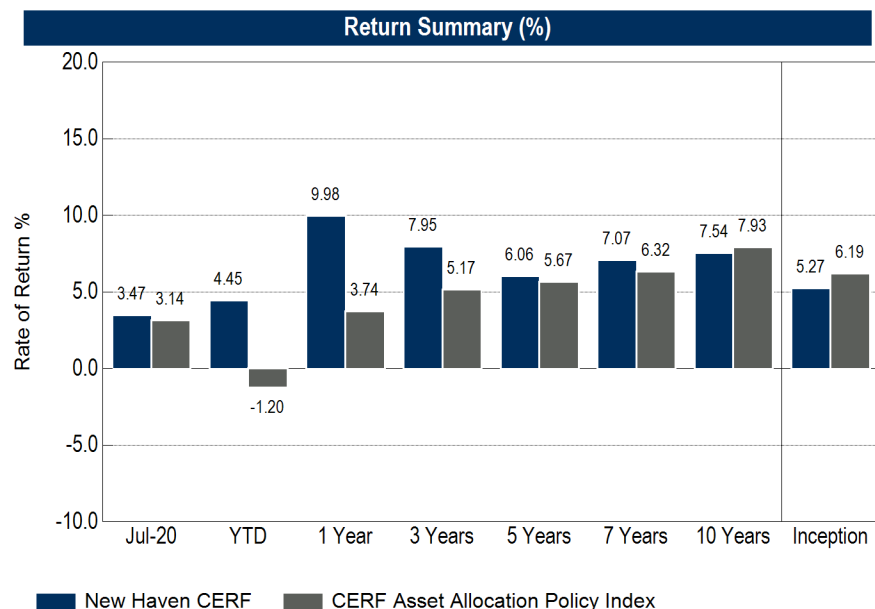


	2017	2018	2019	2020
US Equity	35.2	30.8	38.3	
Non-US Equity	18.6	17.5	19.6	
US Fixed Income	18.4	6.6	6.7	
Non-US Fixed Income	5.1	5.0	5.2	
Alternatives	18.5	21.6	21.7	
Real Estate	3.8	4.5	4.3	
Cash	0.4	14.1	4.2	

US Equity
  US Fixed Income
  Non-US Fixed Income
  Alternatives
  Real Estate
  Cash

New Haven CERF Performance

As of July 31, 2020



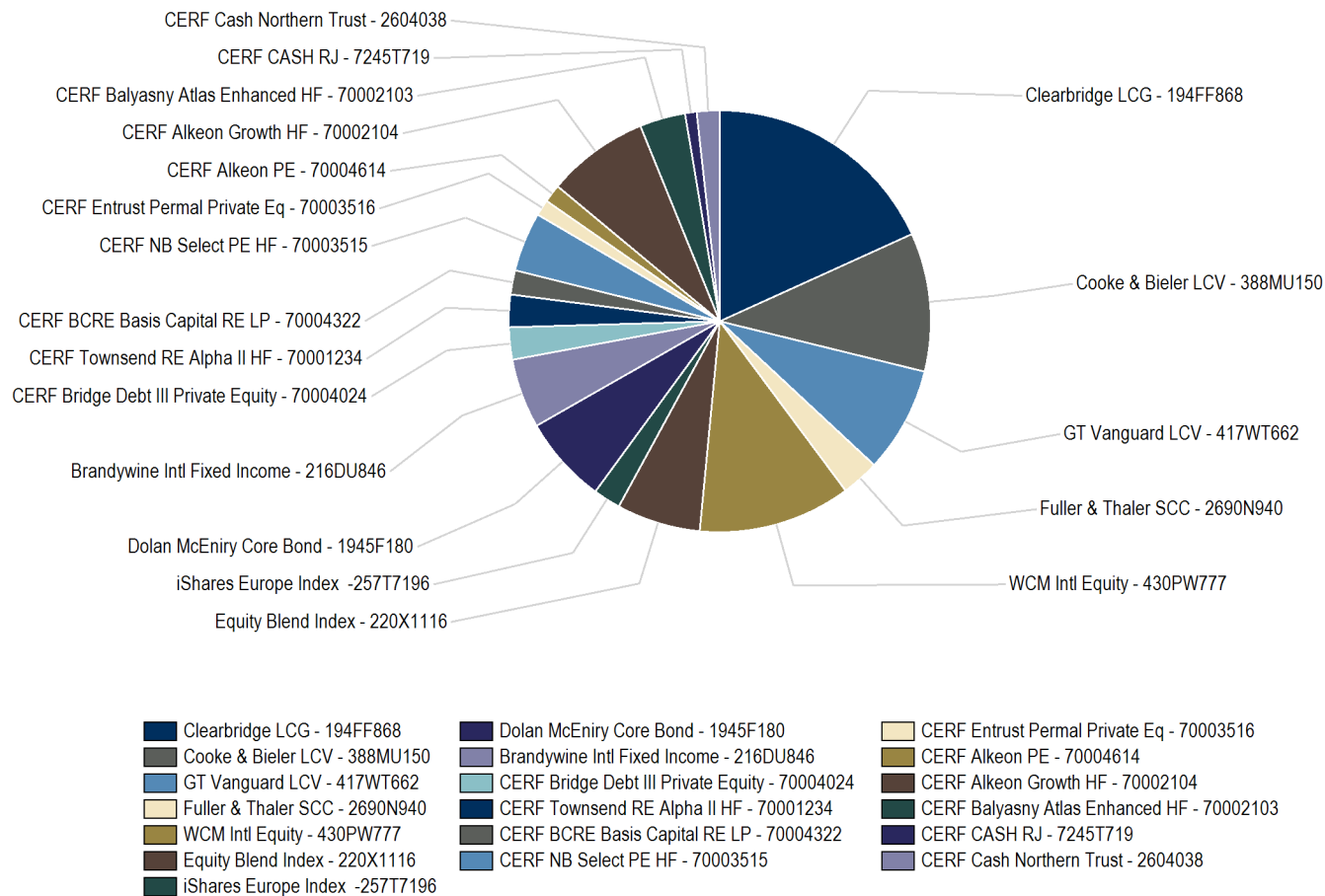
### Summary of Cash Flows

	Last Month	Year-To-Date
Beginning Market Value	\$172,588,752	\$192,304,313
Contributions	\$4,501,364	\$61,082,670
Withdrawals	-\$6,730,978	-\$72,581,347
Net Cash Flow	-\$2,229,614	-\$13,814,757
Net Investment Change	\$5,983,397	-\$2,147,020
Ending Market Value	\$176,342,535	\$176,342,535
Net Change	\$3,753,783	-\$15,961,778

New Haven CERF Performance

As of July 31, 2020

**Current Allocation**  
As of July 31, 2020



## **IMPORTANT DISCLOSURES**

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Investing in small and mid-cap stocks are riskier investments which include price volatility, less liquidity and the threat of competition. International investing involves additional risks such as currency fluctuations, differing financial accounting standards and possible political and economic instability. These risks are greater in emerging markets. Alternative investment strategies involve greater risks and are only appropriate for the most sophisticated, knowledgeable and wealthiest of investors. Managed futures involve specific risks that maybe greater than those associated with traditional investments and may be offered only to clients who meet specific suitability requirements, including minimum net worth tests. You should consider the special risks with alternative investments including limited liquidity, tax considerations, incentive fee structures, potentially speculative investment strategies, and different regulatory and reporting requirements. Commodities are generally considered speculative because of the significant potential for investment loss. REITs are financial vehicles that pool investors' capital to purchase or finance real estate. REITs involve risks such as refinancing, economic conditions in the real estate industry, changes in property values and dependency on real estate management.

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*Investors should consider the investment objectives, risks, charges and expenses of an investment company carefully before investing. The prospectus contains this and other information and should be read carefully before investing. The prospectus is available from your investment professional.*

## Index Descriptions

**It is not possible to invest directly in an index.**

**31 Day T-Bills** – The average discount rate at which the US government is issuing short term-debt.

**BBgBarc Municipal Bond: 1-10 Year Blend** - A component of the BBgBarc Capital Municipal Bond Index with municipal bonds in the 1-10 year blend (1-12) maturity range.

**BBgBarc 1-5 Government/Credit** - BBgBarc 1-5 Year Government/Credit Index: Includes all medium and larger issues of U.S. government, investment-grade corporate, and investment-grade international dollar-denominated bonds that have maturities of between 1 and 5 years and are publicly issued.

**BBgBarc 1-5 Year Government** - An inclusion of securities within the BBgBarc Government Index that have a maturity range from 1 up to (but not including) 5 years.

**BBgBarc 1-5 Year Treasury** - The 1-5 year component of the BBgBarc Capital U.S. Treasury Index with securities in the maturity range from 1 year up to (but not including) 5 years.

**BBgBarc Credit 1-3 Year** - BBgBarc 1-5 Year Credit Index: Includes all medium and larger issues of U.S. government, investment-grade corporate, and investment-grade international dollar denominated bonds that have maturities of between 1 and 3 years and are publicly issued.

**BBgBarc U.S. Government/Credit (BCGC)** - The Government/Credit component of the U.S. Aggregate. The government portion includes treasuries (public obligations of the U.S. Treasury that have remaining maturities of more than one year) and agencies (publicly issued debt of the U.S. Government agencies, quasi-federal corporations, and corporate or foreign debt guaranteed by the U.S. Government). The credit portion includes publicly issued U.S. corporate and foreign debentures and secured notes that meet specified maturity, liquidity, and quality requirements. Must be a publicly issued, dollar-denominated and non-convertible, U.S. Government or Investment Grade Credit security. Must be rated investment-grade (Baa3/BBB- or higher) by at least two of the following rating agencies: Moody's, S&P, Fitch; regardless of call features, have at least one year to final maturity, and have an outstanding par value amount of at least \$250 million.

**BBgBarc Intermediate U.S. Government/Credit (BCIGC)** - The intermediate component of the BBgBarc Capital Government/Credit Index with securities in the maturity range from 1 up to (but not including) 10 years.

**BBgBarc Global Aggregate** - The index is designed to be a broad based measure of the global investment-grade, fixed rate, fixed income corporate markets. The major components of this index are the US Aggregate, Pan-European Aggregate, and the Asian-Pacific Aggregate Indices. The index also includes Eurodollar and Euro-Yen corporate bonds, Canadian government, agency and corporate securities.

**BBgBarc Global Aggregate Intermediate** - The intermediate component of the BBgBarc Global Aggregate index with securities in the maturity range from 1 up to (but not including) 10 years.

**BBgBarc U.S. Government: Intermediate** - The intermediate component of the BBgBarc Capital U.S. Government Index with securities in the maturity range from 1 up to (but not including) 10 years.

**BBgBarc U.S. Government: Long** - The long component of the BBgBarc Capital U.S. Government Index with securities in the maturity range from 10 years or more.

**BBgBarc LT Muni** - A component of the BBgBarc Capital Municipal Bond Index with municipal bonds with a maturity range greater than 20 years.

**BBgBarc Municipal Bond Index** - A rules-based, market-value weighted index that is engineered for the long-term tax-exempt bond market. Bonds must be rated investment-grade (Baa3/BBB- or higher) by at least two of the following rating agencies: Moody's, S&P, Fitch. The bonds must be fixed rate, have a dated-date after December 31, 1990, have an outstanding par value of at least \$7million, and be issued as part of a transaction of at least \$75 million. The four main sectors of the index are: general obligation bonds, revenue bonds, insured bonds (including all insured bonds with a Aaa/AAA rating), and prefunded bonds. Remarketed issues, taxable municipal bonds, floating rate bonds, and derivatives, are excluded from the benchmark.

**BBgBarc U.S. Treasury** - A component of the U.S. Government Index. Must be publicly issued, dollar-denominated and non-convertible, fixed rate (although it may carry a coupon that steps up or changes according to a predetermined schedule) U.S. Treasury security. Must be rated investment-grade (Baa3/BBB- or higher) by at least two of the following rating agencies: Moody's, S&P, Fitch; regardless of call features, have at least one year to final maturity, and have an outstanding par value amount of at least \$250 million.

**BBgBarc U.S. Treasury: Intermediate (BCIT)** - The intermediate component of the BBgBarc Capital U.S. Treasury Index with securities in the maturity range from 1 year (but not including) 10 years.

**BBgBarc U.S. Treasury: Long** - The long component of the BBgBarc Capital U.S. Treasury Index with securities in the maturity range from 10 years or more.

**BBgBarc U.S. Treasury: U.S. TIPS** - Comprised of Inflation-Protection securities issued by the U.S. Treasury. Must be a fixed rate, publicly issued U.S. Treasury Inflation Note that is dollar-denominated and non-convertible. Must be rated investment-grade (Baa3/BBB- or higher) by at least two of the following rating agencies: Moody's, S&P, Fitch; have at least one year to final maturity, and have an outstanding par value amount of at least \$250 million.

**BBgBarc High Yield Composite BB** - A component of the BBgBarc U.S. Corporate High Yield Bond Index with bonds in the BB or better.

**FTSE 1-3 Year U.S. Treasury** - Component of the FTSE U.S. Treasury that measures total returns for U.S. Treasuries with a maturity between 1-3 years.

**FTSE 3 Month U.S. Treasury Bill** - This index measures monthly return equivalents of yield averages that are not marked to market. The Three-Month Treasury Bill Indices consist of the last three three-month Treasury bill issues.

**FTSE World Government Bond** - FTSE World Government Bond Index (WGBI), includes the most significant and liquid government bond markets globally that carry at least an investment grade rating.

**FTSE World Government Bond ex US** – Similar to the FTSE World Government Bond Index (WGBI), includes the most significant and liquid government bond markets globally that carry at least an investment grade rating but excludes bonds from the United States.

**Consumer Price Index** - All Urban Consumers (CPI-U) - As an economic indicator, and as the most widely used measure of inflation, the Consumer Price Index (CPI) is an indicator of the effectiveness of government policy, and as a guide in making economic decisions for business executives, labor leaders, and other private citizens. Published on a monthly basis by the U.S. Bureau of Labor Statistics (BLS), the CPI is a measure of the average change in prices over time of goods and services purchased by households. CPI for All Urban Consumers (CPI-U) encompasses approximately 87 percent of the total U.S. population which includes, in addition to wage earner and clerical worker households, groups such as professional, managerial, and technical workers, the self-employed, short-term workers, the unemployed, and retirees and others not in the labor force.

**Dow Jones UBS Commodity** - Provides a diversified representation of commodity markets as an asset class. The index is comprised of exchange-traded futures on physical commodities; representing 19 commodities which are weighted for economic significance and market liquidity. To promote diversification, weighting restrictions are placed on individual commodities and commodity groups.

**FTSE NAREIT U.S. Real Estate** - All REITs - The index is designed to represent a comprehensive performance of publicly traded REITs which covers the commercial real estate space across the US economy, offering exposure to all investment and property sectors. It is not free float adjusted, and constituents are not required to meet minimum size and liquidity criteria.

**HFRI Equity Hedge Fund Index** - The index is designed to represent strategies which maintain positions both long and short in primarily equity and equity derivative securities. A wide variety of investment processes can be employed to arrive at an investment decision, including both quantitative and fundamental techniques; strategies can be broadly diversified or narrowly focused on specific sectors and can range broadly in terms of levels of net exposure, leverage employed, holding period, concentrations of market capitalizations and valuation ranges of typical portfolios. Equity Hedge managers would typically maintain at least 50% exposure to, and may in some cases be entirely invested in, equities - both long and short.

**HFRI (Hedge Fund Research, Inc.) Fund of Funds Composite Index (1)** - The index only contains fund of funds, which invest with multiple managers through funds or managed accounts. It is an equalweighted index, which includes over 650 domestic and offshore funds that have at least \$50 Million under management or have been actively trading for at least 12 months. All funds report assets in US Dollar, and Net of All Fees returns which are on a monthly basis.

**MSCI ACWI** - A free float-adjusted market capitalization index that is designed to measure the equity market performance of both developed and emerging markets. This "All Country World Index" reflects performance across the Americas, Europe & the Middle East, Africa, Asia, and the Pacific.

**MSCI EAFE** - A free float-adjusted market capitalization index that is designed to measure the equity market performance of developed markets, excluding the U.S. and Canada. As of December 31, 2010 the MSCI EAFE Index consists of 22 developed market country indices: Australia, Austria, Belgium, Denmark, Finland, France, Germany, Greece, Hong Kong, Ireland, Israel, Italy, Japan, the Netherlands, New Zealand, Norway, Portugal, Singapore, Spain, Sweden, Switzerland, and the United Kingdom.

**MSCI EAFE Value -Net Dividend** - A free float-adjusted market capitalization index that is designed to measure the equity market performance of developed markets, excluding the U.S. and Canada. Value attribute for index construction is defined using: book value to price ratio, 12-months forward earnings to price ratio, and dividend yield. Net total return indices reinvest dividends after the deduction of withholding taxes, using (for international indices) a tax rate applicable to non-resident institutional investors who do not benefit from double taxation treaties.

**MSCI EAFE Growth -Net Dividend** - A free float-adjusted market capitalization index that is designed to measure the equity market performance of developed markets, excluding the U.S. and Canada. Growth attribute for index construction is defined using: long-term forward earnings per share (EPS) growth rate, short-term forward EPS growth rate, current internal growth rate, long-term historical EPS growth trend, long-term historical sales per share growth trend. Net total return indices reinvest dividends after the deduction of withholding taxes, using (for international indices) a tax rate applicable to non-resident institutional investors who do not benefit from double taxation treaties.

**MSCI Emerging Markets** - A free float-adjusted market capitalization index that is designed to measure equity market performance of emerging markets. As of December 31, 2010, the MSCI Emerging Markets Index consists of the following 21 emerging market country indices: Brazil, Chile, China, Colombia, Czech Republic, Egypt, Hungary, India, Indonesia, Korea, Malaysia, Mexico, Morocco, Peru, Philippines, Poland, Russia, South Africa, Taiwan, Thailand, and Turkey.

**MSCI World** - A free float-adjusted market capitalization weighted index that is designed to measure the equity market performance of developed markets. As of December 31, 2010, the MSCI World Index consists of the following 24 developed market country indices: Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Hong Kong, Ireland, Israel, Italy, Japan, Netherlands, New Zealand, Norway, Portugal, Singapore, Spain, Sweden, Switzerland, the United Kingdom, and the United States.

**NCREIF** - The index is a quarterly time series composite total rate of return measure of investment performance of a very large pool of individual commercial real estate properties acquired in the private market for investment purposes only. Information on this index is available at [ncreif.com](http://ncreif.com).

**Russell 1000** - Based on a combination of their market cap and current index membership, this index is comprised of approximately 1,000 of the largest securities from the Russell 3000. Representing approximately 92% of the Russell 3000, the index is created to provide a full and unbiased indicator of the large cap segment.

**Russell 1000 Growth** - Measures the performance of those Russell 1000 companies with higher price-to-book ratios and higher forecasted growth values.

**Russell 1000 Value** - Measures the performance of those Russell 1000 companies with lower price-to-book ratios and lower expected growth values.

**Russell 2000** - Based on a combination of their market cap and current index membership, this index is comprised of approximately 2,000 of the smaller securities from the Russell 3000. Representing approximately 8% of the Russell 3000, the index is created to provide a full and unbiased indicator of the small cap segment.

**Russell 2000 Growth** - Measures the performance of those Russell 2000 companies with higher price-to-book ratios and higher forecasted growth values.



**Russell 2000 Value** - Measures the performance of those Russell 2000 companies with lower price-to-book ratios and lower expected growth values.

**Russell 2500** - Based on a combination of their market cap and current index membership, this index is comprised of approximately 2,500 of the smallest securities from the Russell 3000. Measures the performance of the small to mid-cap (smid) segment of the U.S. equity universe.

**Russell 2500 Growth** - Measures the performance of those Russell 2500 companies with higher price-to-book ratios and higher forecasted growth values.

**Russell 2500 Value** - Measures the performance of those Russell 2500 companies with lower price-to-book ratios and lower expected growth values.

**Russell 3000** - Representing approximately 98% of the investable U.S. equity market, the Russell 3000 index measures the performance of the largest 3,000 U.S. companies.

**Russell 3000 Growth** - Measures the performance of the broad growth segment of the U.S. equity universe which includes Russell 3000 companies with higher price-to-book ratios and higher forecasted growth values.

**Russell 3000 Value** - Measures the performance of the broad growth segment of the U.S. equity universe which includes Russell 3000 companies with lower price-to-book ratios and lower forecasted growth values.

**Russell Midcap** - A subset of the Russell 1000 index, the Russell Midcap index measures the performance of the mid-cap segment of the U.S. equity universe. Based on a combination of their market cap and current index membership, includes approximately 800 of the smallest securities which represents approximately 27% of the total market capitalization of the Russell 1000 companies. The index is created to provide a full and unbiased indicator of the mid-cap segment.

**Russell Midcap Growth** - Measures the performance of those Russell Mid-cap companies with higher price-to-book ratios and higher forecasted growth values.

**Russell Midcap Value** - Measures the performance of those Russell Mid-cap companies with lower price-to-book ratios and lower expected growth values.

**Standard & Poor's 400 MidCap** - Comprised of 400 domestic stocks that are chosen based upon market capitalization, liquidity and industry representation. The medium size US firms range with a market capitalization between \$2 billion to \$10 billion, and are between the S&P 500 Index and the S&P Smallcap 600 Index. It is a market-weighted index, which represents approximately 7% of the aggregate market value of US companies.

**Standard & Poor's 500** - Representing approximately 75% of the investable US equity market, the S&P 500 measures changes in stock market conditions based on the average performance of 500 widely held common stocks. It is a market-weighted index calculated on a total return basis with dividend reinvested.

**Stark 300 Trader** - The Stark 300 index tracks the performance of the top-300 futures and forex traders. The index is calculated monthly using an equity-weighted formula to determine performance.

## Index Abbreviations

**Bloomberg Barclays** – Abbreviated as BBgBarc and then a descriptor. For example BBgBarc US Aggregate TR is the Bloomberg Barclays United States Aggregate Total Return.

## Statistics and General Definitions

**Alpha** – Measures how well a portfolio performed versus its benchmark after factoring in the amount of risk (as measured by beta) taken. Technically, alpha is the difference between the excess return of a portfolio and the excess return of the benchmark multiplied by beta. Excess return is simply the actual return minus the return of the risk-free asset, U.S. Treasury Bill. A positive alpha indicates the portfolio has performed better than the benchmark on a risk-adjusted basis.

**Allocation Effect** – Attributable to the asset allocation of the portfolio.

**Annual Standard Deviation** – A measure of variability in returns. The annual standard deviation measures the dispersion of annual returns around the average annualized return.

**Annualized Return** – A statistical technique whereby returns covering periods greater than one year are converted to cover a one year period.

**Attribution** – Analytical technique used to evaluate the performance of the portfolio relative to a benchmark. Attribution shows where value was added or subtracted as a result of the investment manager's decisions. The four main attribution effects are: Selection or Manager Effect, Allocation Effect, Currency Effect, and Interaction Effect.

**Beta** – A coefficient measuring a portfolio's relative volatility with respect to its market. Technically, beta is the covariance of a portfolio's return with the benchmark portfolio's return divided by the variance of the benchmark portfolio's return. Thus, a portfolio with a beta greater than 1.00, indicates the portfolio experienced greater volatility than the benchmark, whereas a portfolio with a beta less than 1.00, indicates the portfolio experienced less volatility than the benchmark.

**Commitments** – Also called Committed Capital. The amount an investor has agreed to contribute towards the funding of a venture capital fund. May be paid at one time or over a longer period.

**Consumer Price Index** – Measures the change in consumer prices, as determined by a monthly survey of the U.S. Bureau of Labor Statistics. CPI components include housing costs, food, transportation and electricity.

**Correlation** – Measures the strength of association between two variables. The value ranges between -1 and +1. The strongest linear relationship is indicated by a correlation of -1 or +1. The weakest linear relationship is indicated by a correlation of 0. Positive correlation means if one variable gets bigger, the other variable tends to get bigger. Negative correlation means that if one variable gets bigger, the other variable tends to get smaller.

**Currency Effect** – The effect that changes in currency exchange rates over time affect excess performance

**Downside Capture Ratio** – Measures investment manager's performance in down markets relative to a particular benchmark. A down-market is defined as those periods (months or quarters) in which market return is less than 0%.

**Duration** – A measure of the price sensitivity of a bond or bond portfolio to a change in interest rates.

**Information Ratio** – Describes the risk / reward trade-off of alpha and tracking error. Because the formula for calculating information ratio is Alpha divided by Tracking Error, the larger the information ratio, the more attractive the portfolio is from an overall risk return profile.

**Interaction Effect** – The portion that is not accounted for by the Selection/Manager Effect or Allocation effects.

**R<sup>2</sup>** – Also called the coefficient of determination. On the detail page, R<sup>2</sup> measures how much of the variation in the investment manager's returns can be explained by movements in the market (benchmark).

**Sharpe Ratio** – A risk-adjusted measure calculated using standard deviation and excess return to determine reward per unit of risk. The higher the Sharpe ratio, the better the manager's historical risk-adjusted performance.

**Selection or Manager Effect** – attributable to the investment manager's stock selection decisions

**Tracking Error** – A measure that describes the volatility of the expected excess return (alpha) achieved through active management. Since excess return can only be achieved through a portfolio that actively differs from the benchmark, the level of tracking error is indicative of how different the portfolio will perform relative to any given benchmark.

**Upside Capture Ratio** – Measures investment manager's performance in up markets relative to a particular benchmark. An up-market is defined as those periods (months or quarters) in which market return is greater than 0%.

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