



# California State University Foundation

Portfolio Review – March 31, 2022

Delivered On – May 20, 2022

## Graystone Consulting - Santa Rosa, California

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# Capital Markets Overview

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**Capital Market Benchmarks**  
**Current Quarter, Y-T-D, Trailing 1,3,5 & 10 Year periods**

**As of March 31, 2022**

	Quarter To Date	YTD	Trailing 12 Months	Trailing 3 Years	Trailing 5 Years	Trailing 10 Years
<b>Public Equity</b>						
<b>Global Equities</b>						
MSCI All Country World Index	-5.36	-5.36	7.28	13.75	11.64	9.99
<b>Domestic Equities</b>						
Russell 3000 Index	-5.28	-5.28	11.92	18.24	15.40	14.28
S&P 500 Index	-4.60	-4.60	15.64	18.92	15.99	14.64
Russell 2000 Index	-7.53	-7.53	-5.79	11.75	9.74	11.04
<b>International Equities</b>						
MSCI ACWI ex-US Index	-5.44	-5.44	-1.48	7.51	6.76	5.55
MSCI EAFE Index	-5.91	-5.91	1.16	7.78	6.72	6.27
MSCI Emerging Markets Index	-6.92	-6.92	-11.08	5.31	6.35	3.73
<b>Fixed Income</b>						
BC Long Treasury Index	-10.58	-10.58	-1.42	3.26	3.90	3.97
BC US Aggregate Bond Index	-5.93	-5.93	-4.15	1.69	2.14	2.24
BC Corporate High Yield Index	-4.82	-4.82	-0.66	4.56	4.67	5.74
Citi World Government Bond Index	-6.46	-6.46	-7.74	-0.09	1.27	0.34
<b>Hedge Funds</b>						
HFRI FOF Composite	-2.64	-2.64	1.32	5.90	4.65	3.93
HFRI Equity Hedge	-4.34	-4.34	-0.01	10.01	7.72	6.28
HFRI Event Driven	-1.34	-1.34	3.21	7.74	6.01	5.62
HFRI Relative Value	0.68	0.68	4.45	5.03	4.26	4.81
HFRI Macro	6.69	6.69	10.33	8.04	4.82	2.78
<b>Real Assets/Real Return</b>						
FTSE NAREIT All Equity REITS	-5.26	-5.26	23.58	11.72	10.69	10.50
Bloomberg Commodity TR	25.55	25.55	49.25	16.12	9.00	-0.70
MSCI ACWI Commodity Producers	20.52	20.52	35.66	10.56	9.30	2.55
S&P Global Infrastructure Hedged	7.91	7.91	19.26	8.54	8.22	9.48
BC TIPS	-3.02	-3.02	4.29	6.22	4.43	2.69

Returns for periods greater than one year are annualized.  
Returns are expressed as percentages.

# Portfolio Review

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## CSU Foundation IPS and Allocation Compliance

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<b>Type of Fund:</b>	Endowment
<b>Time Horizon:</b>	Perpetuity
<b>Investment Horizon:</b>	10 Years
<b>Real Return Target:</b>	CPI + 4%, net of all fund expenses
<b>Time Horizon Return:</b>	To achieve a rate of return above inflation of 4%, net of all investment management costs
<b>Spending Policy:</b>	4% of 3-year moving average of market valuations
<b>Risk Benchmark:</b>	70% MSCI All Country World Index, 30% Barclays Aggregate Bond Index

### Asset Allocation Summary:

	Current Allocation (%)	Long-term Target (%)	Differences (%)	Minimum Allocation (%)	Maximum Allocation (%)
<b>CSU Foundation Total Fund</b>	<b>100.00</b>	<b>100.00</b>	<b>0.00</b>	-	-
Public Equities	51.56	55.00	-3.44	40.00	70.00
Private Equity	12.90	10.00	2.90	0.00	20.00
Fixed Income	19.15	20.00	-0.85	10.00	30.00
Hedge Funds	9.85	10.00	-0.15	0.00	20.00
Real Assets	6.50	5.00	1.50	0.00	10.00

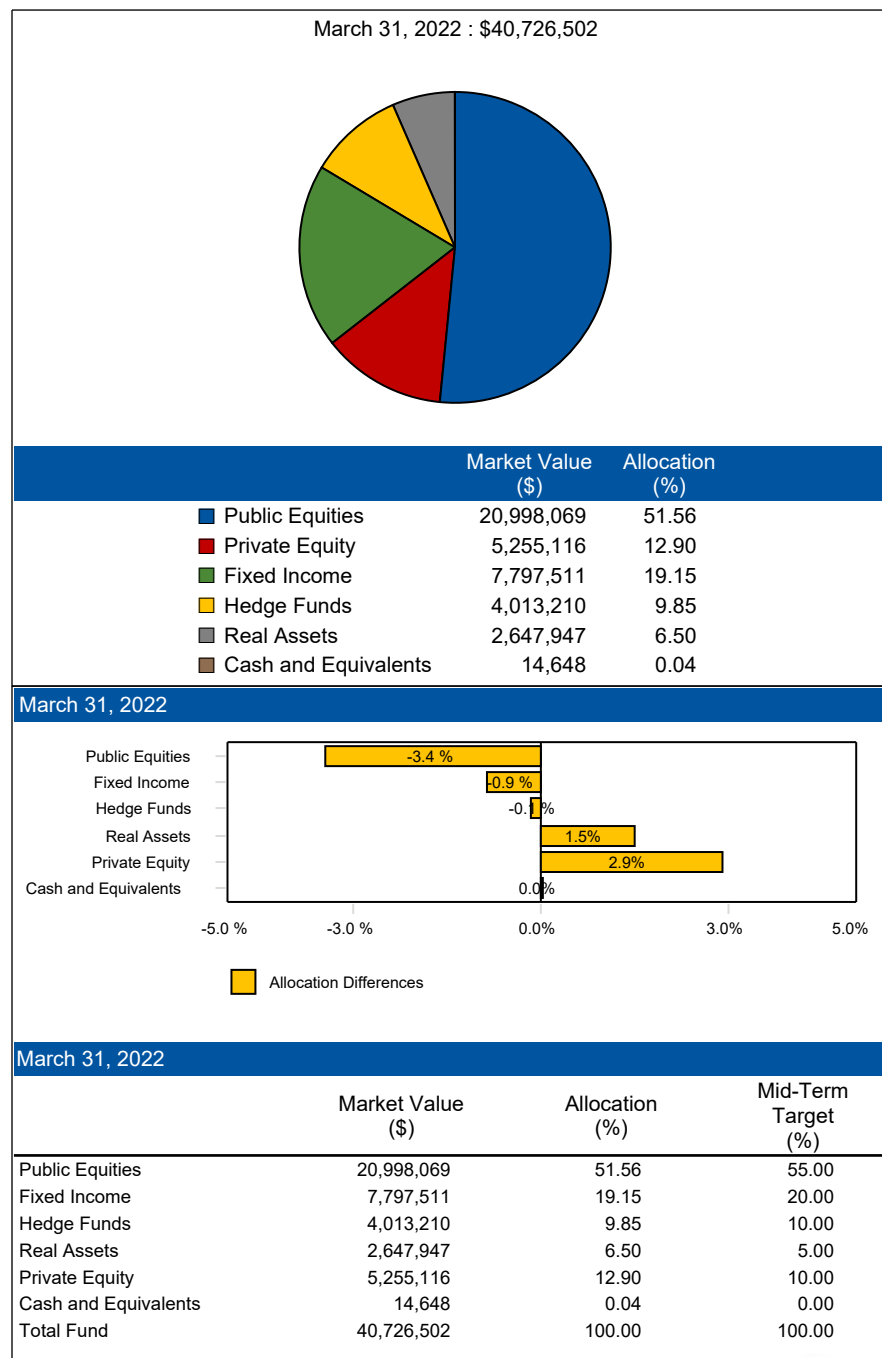
## CSU Foundation Balances and Asset Allocation March 31, 2022

	Total Fund	
	(\$)	%
<b>Domestic Equities</b>	<b>7,498,391</b>	<b>18.41</b>
Aperio Custom ESG	3,202,280	7.86
Aristotle Large Cap Value	3,015,747	7.40
Earnest Partners Small/Mid Core	1,280,365	3.14
<b>International and EM Equities</b>	<b>7,113,948</b>	<b>17.47</b>
iShares MSCI EAFE Optimized	4,075,499	10.01
Domini Impact Intl Eqty Fds	2,194,179	5.39
GQG Partners Emerging Mkts Fd	844,269	2.07
<b>Global Equities</b>	<b>6,385,730</b>	<b>15.68</b>
Davis Global ADR	3,191,084	7.84
Jennison Global Opportunities	3,194,646	7.84
<b>Private Equity</b>	<b>5,255,116</b>	<b>12.90</b>
Private Advisors Small Company Buyout VI**	748,353	1.84
KKR Americas Fund XII	1,514,427	3.72
Hamilton Lane Private Markets Opp Fund**	710,988	1.75
CPG Vintage Access Fund, LLC**	889,494	2.18
CPG Vintage Access Fund II, LLC**	679,457	1.67
TrueBridge Select Fund I (Cayman), L.P.*	324,818	0.80
Private Advisors Small Company PE IX, LP**	366,055	0.90
Northern Trust Private Equity**	21,523	0.05
<b>Total Equity</b>	<b>26,253,185</b>	<b>64.46</b>
<b>Fixed Income</b>	<b>7,797,511</b>	<b>19.15</b>
BlackRock Fundamental Core Taxable	3,905,713	9.59
CRA Qualified Investment Fund	1,941,611	4.77
TIAA-CREF Social Choice Bond Fund	1,950,187	4.79
<b>Hedge Funds</b>	<b>4,013,210</b>	<b>9.85</b>
Private Advisors Hedged Equity	2,301,352	5.65
Millennium International Ltd	866,858	2.13
Sculptor Overseas Fund II Ltd***	845,000	2.07
<b>Real Assets</b>	<b>2,647,947</b>	<b>6.50</b>
Blackstone Real Estate Income Trust	2,153,547	5.29
Bridge Workforce & Affordable Housing Fund II LP	301,169	0.74
Ares Climate Infrastructure Partners LP	193,231	0.47
<b>Cash and Equivalents</b>	<b>14,648</b>	<b>0.04</b>
Cash Holding Account	14,648	0.04
<b>CSU Foundation Total Fund</b>	<b>40,726,502</b>	<b>100.00</b>

\*Value as of 09/30/2021, adjusted for capital calls & distributions through 03/31/2022

\*\*Value as of 12/31/2021, adjusted for capital calls & distributions through 03/31/2022

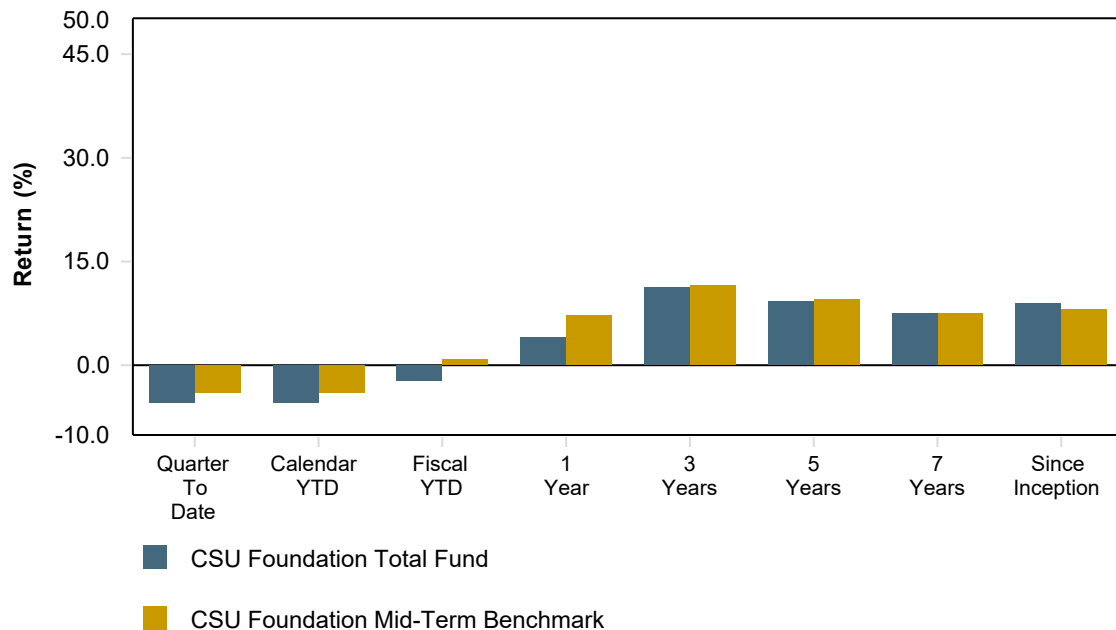
\*\*\*Value reflects initial subscription



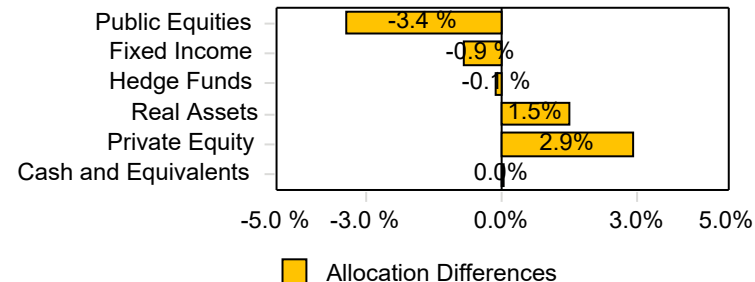


**CSU Foundation  
Executive Summary  
As of March 31, 2022**

**Total Fund Performance vs. Benchmark**



**Asset Allocation vs. Target**



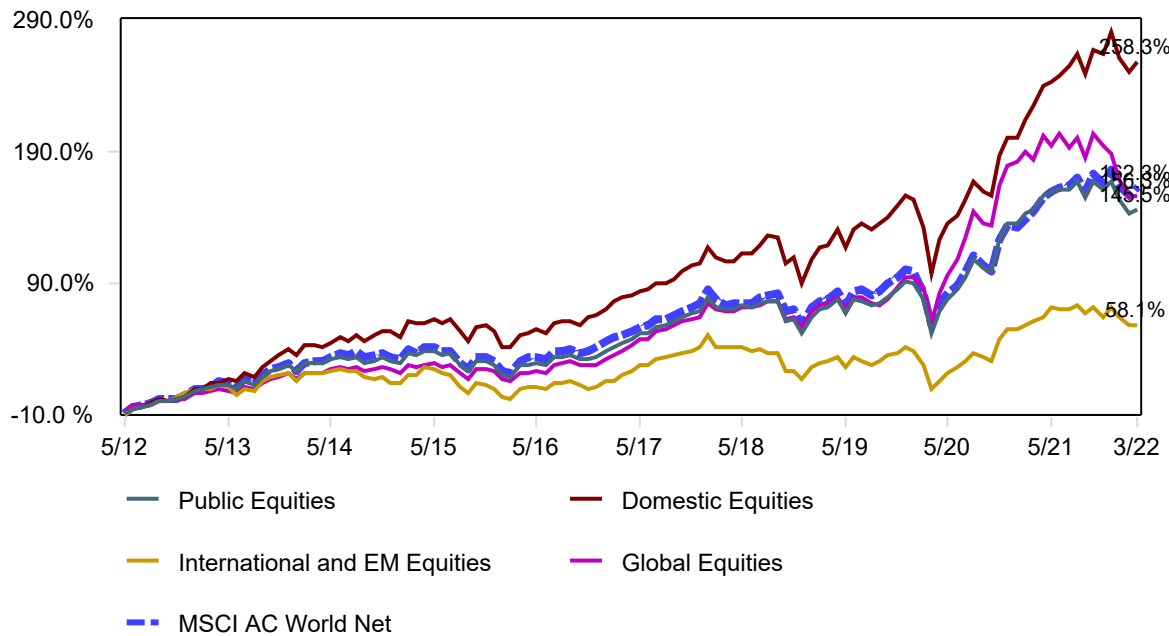
	Market Value (\$)	Allocation (%)	Target (%)
Public Equities	20,998,069	51.56	55.00
Fixed Income	7,797,511	19.15	20.00
Hedge Funds	4,013,210	9.85	10.00
Real Assets	2,647,947	6.50	5.00
Private Equity	5,255,116	12.90	10.00
Cash and Equivalents	14,648	0.04	0.00
<b>Total Fund</b>	<b>40,726,502</b>	<b>100.00</b>	<b>100.00</b>

	Allocation		Performance(%)									
	Market Value (\$)	%	Quarter To Date	YTD	Fiscal YTD	1 Year	3 Years	5 Years	7 Years	10 Years	Since Inception	Inception Date
<b>CSU Foundation Total Fund</b>	<b>40,726,502</b>	<b>100.00</b>	<b>-5.59</b>	<b>-5.59</b>	<b>-2.27</b>	<b>4.06</b>	<b>11.33</b>	<b>9.25</b>	<b>7.37</b>	<b>7.42</b>	<b>9.08</b>	<b>12/01/2008</b>
CSU Foundation Mid-Term Benchmark			-4.03	-4.03	0.91	7.31	11.49	9.43	7.37	6.94	8.13	
CPI (w/est) + 4%			3.70	3.70	9.22	12.86	8.23	7.43	6.93	6.35	6.29	
<b>Public Equities</b>	<b>20,998,069</b>	<b>51.56</b>	<b>-8.08</b>	<b>-8.08</b>	<b>-6.23</b>	<b>-0.22</b>	<b>12.75</b>	<b>11.19</b>	<b>8.90</b>	<b>9.30</b>	<b>12.08</b>	<b>02/01/2009</b>
MSCI AC World Net			-5.36	-5.36	-0.11	7.28	13.75	11.64	9.67	9.99	12.01	
<b>Fixed Income</b>	<b>7,797,511</b>	<b>19.15</b>	<b>-4.88</b>	<b>-4.88</b>	<b>-5.20</b>	<b>-3.65</b>	<b>1.05</b>	<b>1.58</b>	<b>1.57</b>	<b>2.17</b>	<b>4.10</b>	<b>02/01/2009</b>
Barclays Aggregate			-5.93	-5.93	-5.87	-4.15	1.69	2.14	1.87	2.24	3.32	
<b>Hedge Funds</b>	<b>4,013,210</b>	<b>9.85</b>	<b>-2.23</b>	<b>-2.23</b>	<b>-0.99</b>	<b>2.82</b>	<b>6.85</b>	<b>6.81</b>	<b>5.19</b>	<b>6.57</b>	<b>6.31</b>	<b>07/01/2010</b>
HFRI Fund of Funds Comp			-2.64	-2.64	-1.52	1.32	5.90	4.65	3.32	3.93	3.71	
<b>Real Assets</b>	<b>2,647,947</b>	<b>6.50</b>	<b>4.71</b>	<b>4.71</b>	<b>22.83</b>	<b>31.88</b>	<b>10.22</b>	<b>4.19</b>	<b>3.88</b>	<b>1.90</b>	<b>2.90</b>	<b>07/01/2010</b>
Real Assets Benchmark			7.36	7.36	23.60	28.46	10.18	8.42	6.15	4.14	N/A	

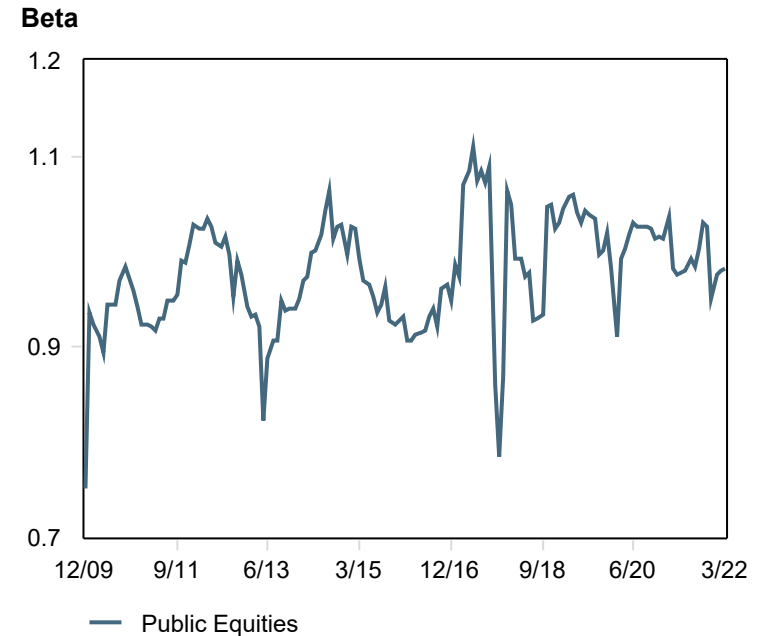
## CSU Foundation Executive Summary - Public Equities As of March 31, 2022

	Allocation		Performance(%)								
	Market Value (\$)	%	Quarter To Date	YTD	Fiscal YTD	1 Year	3 Years	5 Years	7 Years	Since Inception	Inception Date
<b>Public Equities</b>	<b>20,998,069</b>	<b>100.00</b>	<b>-8.08</b>	<b>-8.08</b>	<b>-6.23</b>	<b>-0.22</b>	<b>12.75</b>	<b>11.19</b>	<b>8.90</b>	<b>12.08</b>	<b>02/01/2009</b>
MSCI AC World Net			-5.36	-5.36	-0.11	7.28	13.75	11.64	9.67	12.01	
<b>Domestic Equities</b>	<b>7,498,391</b>	<b>35.71</b>	<b>-5.87</b>	<b>-5.87</b>	<b>3.12</b>	<b>10.21</b>	<b>17.80</b>	<b>14.94</b>	<b>12.23</b>	<b>15.40</b>	<b>02/01/2009</b>
Russell 3000			-5.28	-5.28	3.40	11.92	18.24	15.40	13.37	16.04	
<b>International and EM Equities</b>	<b>7,113,948</b>	<b>33.88</b>	<b>-7.58</b>	<b>-7.58</b>	<b>-6.81</b>	<b>-1.81</b>	<b>6.74</b>	<b>5.83</b>	<b>4.11</b>	<b>8.98</b>	<b>02/01/2009</b>
MSCI AC World ex US Net			-5.44	-5.44	-6.60	-1.48	7.51	6.76	5.19	8.25	
<b>Global Equities</b>	<b>6,385,730</b>	<b>30.41</b>	<b>-11.25</b>	<b>-11.25</b>	<b>-15.42</b>	<b>-9.35</b>	<b>14.11</b>	<b>13.32</b>	<b>10.92</b>	<b>10.26</b>	<b>07/01/2010</b>
MSCI AC World Net			-5.36	-5.36	-0.11	7.28	13.75	11.64	9.67	10.80	

### Total Fund Performance vs. Benchmark



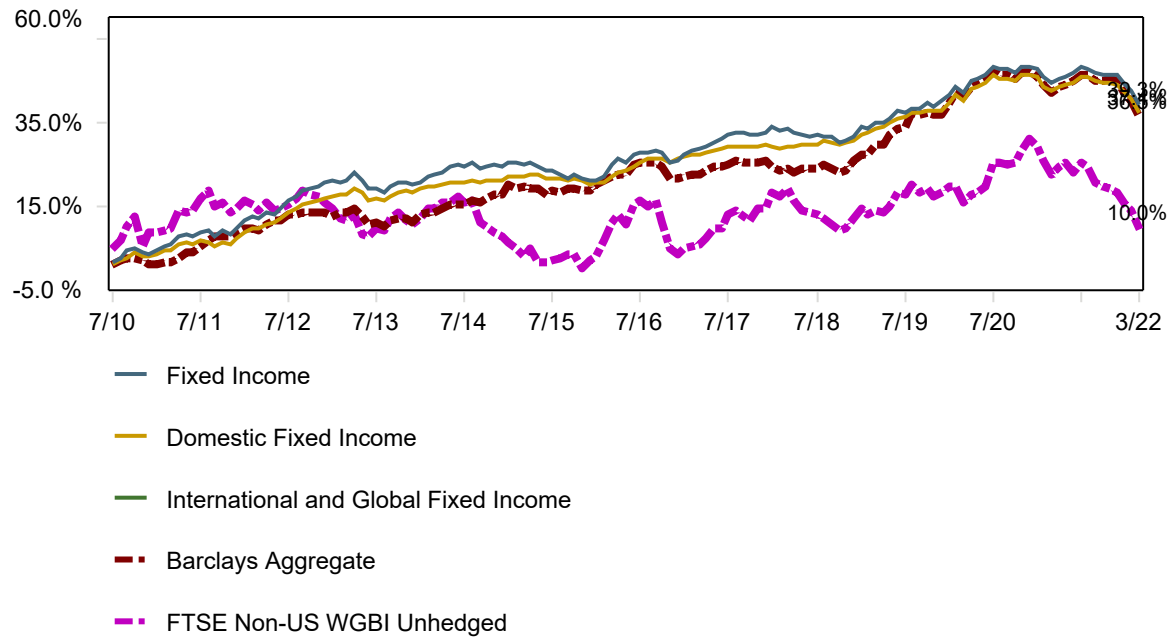
### Rolling 12 Month Beta vs. ACWI



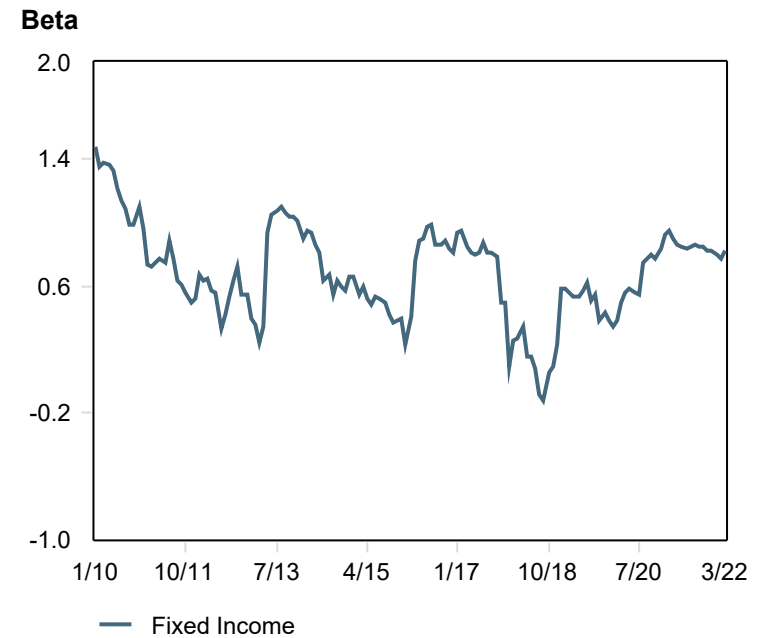
## CSU Foundation Executive Summary - Fixed Income As of March 31, 2022

	Allocation		Performance(%)								
	Market Value (\$)	%	Quarter To Date	YTD	Fiscal YTD	1 Year	3 Years	5 Years	7 Years	Since Inception	Inception Date
<b>Fixed Income</b>	<b>7,797,511</b>	<b>100.00</b>	<b>-4.88</b>	<b>-4.88</b>	<b>-5.20</b>	<b>-3.65</b>	<b>1.05</b>	<b>1.58</b>	<b>1.57</b>	<b>4.10</b>	<b>02/01/2009</b>
Barclays Aggregate			-5.93	-5.93	-5.87	-4.15	1.69	2.14	1.87	3.32	
<b>Domestic Fixed Income</b>	<b>7,797,511</b>	<b>100.00</b>	<b>-4.88</b>	<b>-4.88</b>	<b>-5.20</b>	<b>-3.65</b>	<b>0.90</b>	<b>1.50</b>	<b>1.67</b>	<b>4.01</b>	<b>02/01/2009</b>
Barclays Aggregate			-5.93	-5.93	-5.87	-4.15	1.69	2.14	1.87	3.32	

### Total Fund Performance vs. Benchmark



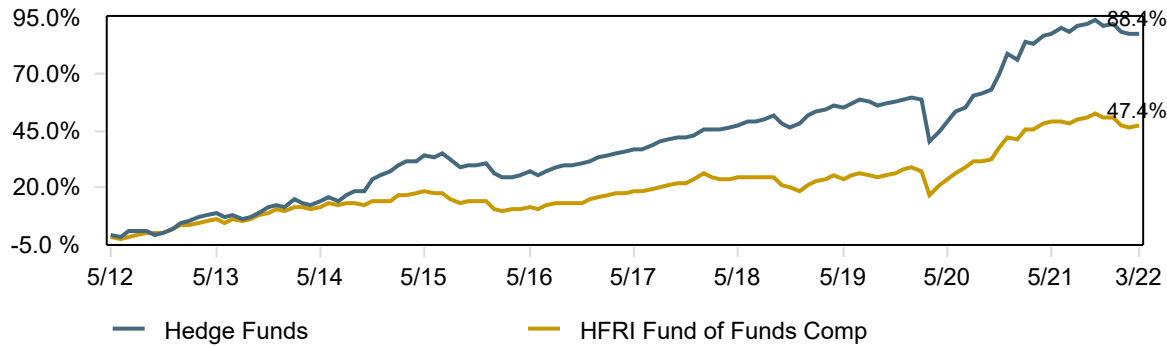
### Rolling 12 Month Beta vs. Citi WGBI



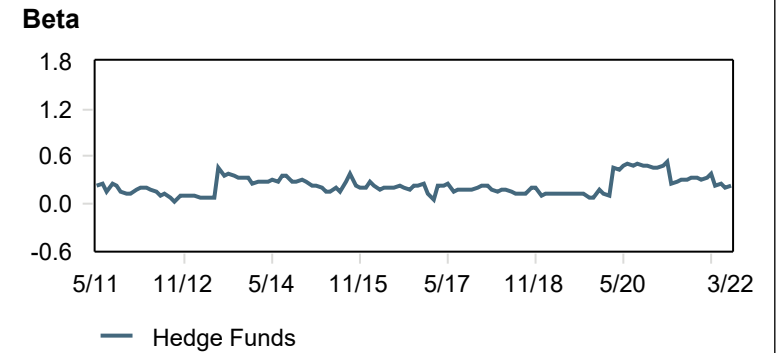
**CSU Foundation  
Executive Summary - Alternatives  
As of March 31, 2022**

	Allocation		Performance(%)								
	Market Value (\$)	%	Quarter To Date	YTD	Fiscal YTD	1 Year	3 Years	5 Years	7 Years	Since Inception	Inception Date
<b>Hedge Funds</b>	<b>4,013,210</b>		<b>-2.23</b>	<b>-2.23</b>	<b>-0.99</b>	<b>2.82</b>	<b>6.85</b>	<b>6.81</b>	<b>5.19</b>	<b>6.31</b>	<b>07/01/2010</b>
HFRI Fund of Funds Comp			-2.64	-2.64	-1.52	1.32	5.90	4.65	3.32	3.71	
<b>Real Assets</b>	<b>2,647,947</b>		<b>4.71</b>	<b>4.71</b>	<b>22.83</b>	<b>31.88</b>	<b>10.22</b>	<b>4.19</b>	<b>3.88</b>	<b>2.90</b>	<b>07/01/2010</b>
Real Assets Benchmark			7.36	7.36	23.60	28.46	10.18	8.42	6.15	N/A	

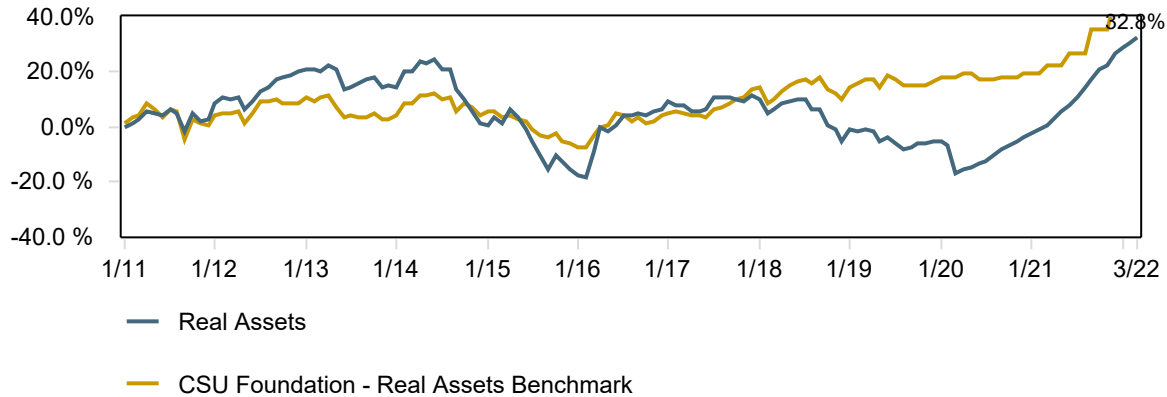
**Hedge Funds vs. HFRI Fund of Funds**



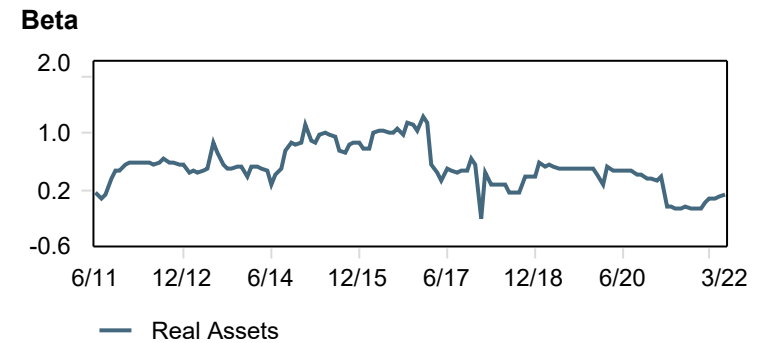
**Hedge Fund  
Rolling 12 Month Beta vs. MSCI AC World Net**



**Real Assets vs. Real Assets Blend**



**Real Assets  
Rolling 12 Month Beta vs. MSCI AC World Net**



**CSU Foundation**  
**Asset Allocation & Performance**  
**As of March 31, 2022**

	Allocation		Performance(%)									
	Market Value (\$)	%	Quarter To Date	YTD	Fiscal YTD	1 Year	3 Years	5 Years	7 Years	10 Years	Since Inception	Inception Date
<b>CSU Foundation Total Fund</b>	<b>40,726,502</b>	<b>100.00</b>	<b>-5.59</b>	<b>-5.59</b>	<b>-2.27</b>	<b>4.06</b>	<b>11.33</b>	<b>9.25</b>	<b>7.37</b>	<b>7.42</b>	<b>9.08</b>	<b>12/01/2008</b>
CSU Foundation Mid-Term Benchmark			-4.03	-4.03	0.91	7.31	11.49	9.43	7.37	6.94	8.13	
Difference			-1.56	-1.56	-3.18	-3.25	-0.16	-0.18	0.00	0.48	0.95	
<b>CPI (w/est) + 4%</b>			<b>3.70</b>	<b>3.70</b>	<b>9.22</b>	<b>12.86</b>	<b>8.23</b>	<b>7.43</b>	<b>6.93</b>	<b>6.35</b>	<b>6.29</b>	<b>12/01/2008</b>
<b>Public Equities</b>	<b>20,998,069</b>	<b>51.56</b>	<b>-8.08</b>	<b>-8.08</b>	<b>-6.23</b>	<b>-0.22</b>	<b>12.75</b>	<b>11.19</b>	<b>8.90</b>	<b>9.30</b>	<b>12.08</b>	<b>02/01/2009</b>
MSCI AC World Net			-5.36	-5.36	-0.11	7.28	13.75	11.64	9.67	9.99	12.01	
Difference			-2.72	-2.72	-6.12	-7.50	-1.00	-0.45	-0.77	-0.69	0.07	
<b>Domestic Equities</b>	<b>7,498,391</b>	<b>18.41</b>	<b>-5.87</b>	<b>-5.87</b>	<b>3.12</b>	<b>10.21</b>	<b>17.80</b>	<b>14.94</b>	<b>12.23</b>	<b>13.53</b>	<b>15.40</b>	<b>02/01/2009</b>
Russell 3000			-5.28	-5.28	3.40	11.92	18.24	15.40	13.37	14.28	16.04	
Difference			-0.59	-0.59	-0.28	-1.71	-0.44	-0.46	-1.14	-0.75	-0.64	
<b>Aperio Custom ESG</b>	<b>3,202,280</b>	<b>7.86</b>	<b>-5.14</b>	<b>-5.14</b>	<b>5.76</b>	<b>14.41</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>18.00</b>	<b>08/01/2019</b>
S&P 500 Total Return			-4.60	-4.60	6.54	15.64	N/A	N/A	N/A	N/A	18.97	
Difference			-0.54	-0.54	-0.78	-1.23	N/A	N/A	N/A	N/A	-0.97	
<b>Aristotle Large Cap Value</b>	<b>3,015,747</b>	<b>7.40</b>	<b>-7.57</b>	<b>-7.57</b>	<b>-0.68</b>	<b>5.64</b>	<b>16.91</b>	<b>12.93</b>	<b>12.55</b>	<b>N/A</b>	<b>13.78</b>	<b>07/01/2013</b>
Russell 1000 Value			-0.74	-0.74	6.14	11.67	13.02	10.29	9.73	N/A	10.86	
Difference			-6.83	-6.83	-6.82	-6.03	3.89	2.64	2.82	N/A	2.92	
<b>Earnest Partners Small/Mid Core</b>	<b>1,280,365</b>	<b>3.14</b>	<b>-3.49</b>	<b>-3.49</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>4.42</b>	<b>08/01/2021</b>
Russell Midcap			-5.68	-5.68	N/A	N/A	N/A	N/A	N/A	N/A	-1.30	
Difference			2.19	2.19	N/A	N/A	N/A	N/A	N/A	N/A	5.72	

See Disclosures for Benchmark Descriptions

\*Value reflects initial subscription

**CSU Foundation**  
**Asset Allocation & Performance**  
**As of March 31, 2022**

	Allocation		Performance(%)									
	Market Value (\$)	%	Quarter To Date	YTD	Fiscal YTD	1 Year	3 Years	5 Years	7 Years	10 Years	Since Inception	Inception Date
<b>International and EM Equities</b>	<b>7,113,948</b>	<b>17.47</b>	<b>-7.58</b>	<b>-7.58</b>	<b>-6.81</b>	<b>-1.81</b>	<b>6.74</b>	<b>5.83</b>	<b>4.11</b>	<b>4.73</b>	<b>8.98</b>	<b>02/01/2009</b>
MSCI AC World ex US Net			-5.44	-5.44	-6.60	-1.48	7.51	6.76	5.19	5.55	8.25	
Difference			-2.14	-2.14	-0.21	-0.33	-0.77	-0.93	-1.08	-0.82	0.73	
<b>iShares MSCI EAFE Optimized</b>	<b>4,075,499</b>	<b>10.01</b>	<b>-7.08</b>	<b>-7.08</b>	<b>-5.38</b>	<b>-0.16</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>8.53</b>	<b>08/01/2019</b>
MSCI EAFE ESG Focus NR USD			-6.40	-6.40	-3.99	1.14	N/A	N/A	N/A	N/A	8.55	
Difference			-0.68	-0.68	-1.39	-1.30	N/A	N/A	N/A	N/A	-0.02	
<b>Domini Impact Intl Eqty Fds</b>	<b>2,194,179</b>	<b>5.39</b>	<b>-8.43</b>	<b>-8.43</b>	<b>-6.74</b>	<b>-2.07</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>6.18</b>	<b>08/01/2019</b>
MSCI EAFE Net			-5.91	-5.91	-3.81	1.16	N/A	N/A	N/A	N/A	7.84	
Difference			-2.52	-2.52	-2.93	-3.23	N/A	N/A	N/A	N/A	-1.66	
<b>GQG Partners Emerging Mkts Fd</b>	<b>844,269</b>	<b>2.07</b>	<b>-7.64</b>	<b>-7.64</b>	<b>-13.19</b>	<b>-8.51</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>-8.51</b>	<b>04/01/2021</b>
MSCI EM Net			-6.98	-6.98	-15.62	-11.37	N/A	N/A	N/A	N/A	-11.37	
Difference			-0.66	-0.66	2.43	2.86	N/A	N/A	N/A	N/A	2.86	
<b>Global Equities</b>	<b>6,385,730</b>	<b>15.68</b>	<b>-11.25</b>	<b>-11.25</b>	<b>-15.42</b>	<b>-9.35</b>	<b>14.11</b>	<b>13.32</b>	<b>10.92</b>	<b>9.92</b>	<b>10.26</b>	<b>07/01/2010</b>
MSCI AC World Net			-5.36	-5.36	-0.11	7.28	13.75	11.64	9.67	9.99	10.80	
Difference			-5.89	-5.89	-15.31	-16.63	0.36	1.68	1.25	-0.07	-0.54	
<b>Davis Global ADR</b>	<b>3,191,084</b>	<b>7.84</b>	<b>-6.81</b>	<b>-6.81</b>	<b>-18.87</b>	<b>-16.51</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>7.84</b>	<b>08/01/2019</b>
MSCI AC World Net			-5.36	-5.36	-0.11	7.28	N/A	N/A	N/A	N/A	13.93	
Difference			-1.45	-1.45	-18.76	-23.79	N/A	N/A	N/A	N/A	-6.09	
<b>Jennison Global Opportunities</b>	<b>3,194,646</b>	<b>7.84</b>	<b>-15.87</b>	<b>-15.87</b>	<b>-12.67</b>	<b>-2.49</b>	<b>20.12</b>	<b>20.45</b>	<b>N/A</b>	<b>N/A</b>	<b>21.79</b>	<b>12/01/2016</b>
MSCI AC World Net			-5.36	-5.36	-0.11	7.28	13.75	11.64	N/A	N/A	12.72	
Difference			-10.51	-10.51	-12.56	-9.77	6.37	8.81	N/A	N/A	9.07	

See Disclosures for Benchmark Descriptions

\*Value reflects initial subscription

**CSU Foundation**  
**Asset Allocation & Performance**  
**As of March 31, 2022**

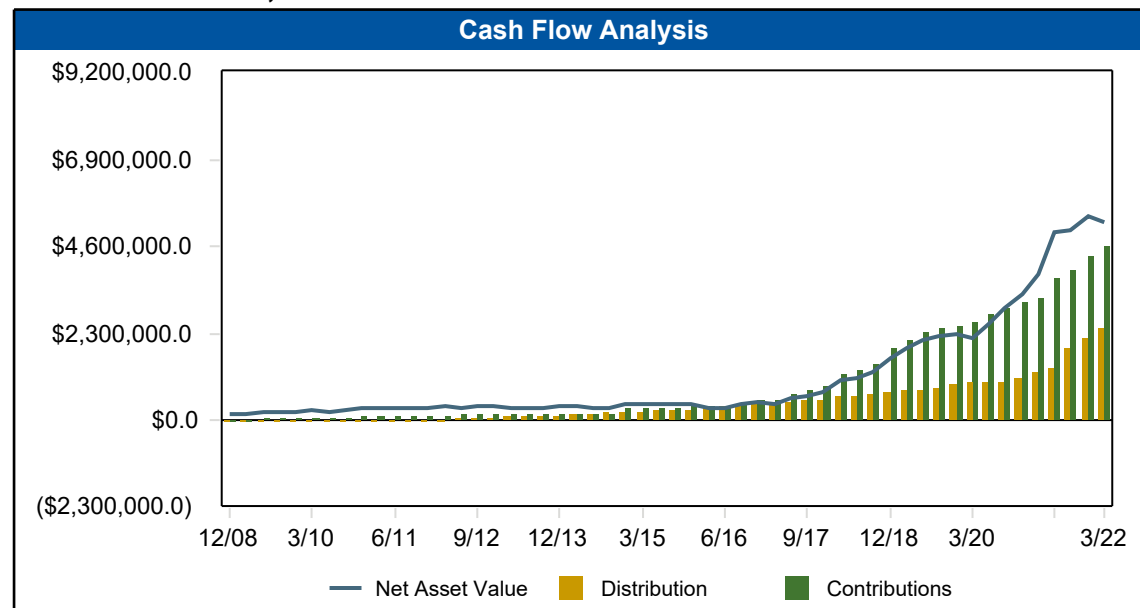
	Allocation		Performance(%)									
	Market Value (\$)	%	Quarter To Date	YTD	Fiscal YTD	1 Year	3 Years	5 Years	7 Years	10 Years	Since Inception	Inception Date
<b>Domestic Fixed Income</b>	<b>7,797,511</b>	<b>19.15</b>	<b>-4.88</b>	<b>-4.88</b>	<b>-5.20</b>	<b>-3.65</b>	<b>0.90</b>	<b>1.50</b>	<b>1.67</b>	<b>2.27</b>	<b>4.01</b>	<b>02/01/2009</b>
Barclays Aggregate			-5.93	-5.93	-5.87	-4.15	1.69	2.14	1.87	2.24	3.32	
Difference			1.05	1.05	0.67	0.50	-0.79	-0.64	-0.20	0.03	0.69	
<b>BlackRock Fundamental Core Taxable</b>	<b>3,905,713</b>	<b>9.59</b>	<b>-4.71</b>	<b>-4.71</b>	<b>-4.97</b>	<b>-3.14</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>-0.55</b>	<b>02/01/2020</b>
Barclays Aggregate			-5.93	-5.93	-5.87	-4.15	N/A	N/A	N/A	N/A	-1.08	
Difference			1.22	1.22	0.90	1.01	N/A	N/A	N/A	N/A	0.53	
<b>CRA Qualified Investment Fund</b>	<b>1,941,611</b>	<b>4.77</b>	<b>-4.17</b>	<b>-4.17</b>	<b>-4.89</b>	<b>-4.13</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>-1.07</b>	<b>02/01/2020</b>
Barclays Aggregate			-5.93	-5.93	-5.87	-4.15	N/A	N/A	N/A	N/A	-1.08	
Difference			1.76	1.76	0.98	0.02	N/A	N/A	N/A	N/A	0.01	
<b>TIAA-CREF Social Choice Bond Fund</b>	<b>1,950,187</b>	<b>4.79</b>	<b>-5.95</b>	<b>-5.95</b>	<b>-5.98</b>	<b>-4.08</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>-1.00</b>	<b>02/01/2020</b>
Barclays Aggregate			-5.93	-5.93	-5.87	-4.15	N/A	N/A	N/A	N/A	-1.08	
Difference			-0.02	-0.02	-0.11	0.07	N/A	N/A	N/A	N/A	0.08	
<b>Hedge Funds</b>	<b>4,013,210</b>	<b>9.85</b>	<b>-2.23</b>	<b>-2.23</b>	<b>-0.99</b>	<b>2.82</b>	<b>6.85</b>	<b>6.81</b>	<b>5.19</b>	<b>6.57</b>	<b>6.31</b>	<b>07/01/2010</b>
HFRI Fund of Funds Comp			-2.64	-2.64	-1.52	1.32	5.90	4.65	3.32	3.93	3.71	
Difference			0.41	0.41	0.53	1.50	0.95	2.16	1.87	2.64	2.60	
<b>Private Advisors Hedged Equity</b>	<b>2,301,352</b>	<b>5.65</b>	<b>-4.70</b>	<b>-4.70</b>	<b>-6.71</b>	<b>-2.86</b>	<b>5.05</b>	<b>7.82</b>	<b>5.56</b>	<b>6.36</b>	<b>6.41</b>	<b>08/01/2011</b>
HFRI FOF Diversified			-1.80	-1.80	-0.44	2.19	6.04	4.76	3.31	3.99	3.51	
Difference			-2.90	-2.90	-6.27	-5.05	-0.99	3.06	2.25	2.37	2.90	
<b>Millennium Intl Ltd</b>	<b>866,858</b>	<b>2.13</b>	<b>2.92</b>	<b>2.92</b>	<b>9.66</b>	<b>13.41</b>	<b>16.58</b>	<b>12.22</b>	<b>10.47</b>	<b>N/A</b>	<b>10.78</b>	<b>02/01/2015</b>
HFRI Fund of Funds Comp			-2.64	-2.64	-1.52	1.32	5.90	4.65	3.32	N/A	3.58	
Difference			5.56	5.56	11.18	12.09	10.68	7.57	7.15	N/A	7.20	
<b>Sculptor Overseas Fund II Ltd*</b>	<b>845,000</b>	<b>2.07</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>04/01/2022</b>
HFRI Event Driven Total			N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Difference			N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
<b>Real Assets</b>	<b>2,647,947</b>	<b>6.50</b>	<b>4.71</b>	<b>4.71</b>	<b>22.83</b>	<b>31.88</b>	<b>10.22</b>	<b>4.19</b>	<b>3.88</b>	<b>1.90</b>	<b>2.90</b>	<b>07/01/2010</b>
Real Assets Benchmark			7.36	7.36	23.60	28.46	10.18	8.42	6.15	4.14	N/A	
Difference			-2.65	-2.65	-0.77	3.42	0.04	-4.23	-2.27	-2.24	N/A	
<b>Blackstone Real Estate Income Trust</b>	<b>2,153,547</b>	<b>5.29</b>	<b>4.84</b>	<b>4.84</b>	<b>21.44</b>	<b>30.39</b>	<b>16.41</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>14.86</b>	<b>08/01/2018</b>
NCREIF NFI ODCE Value Weighted			7.36	7.36	23.60	28.46	11.29	N/A	N/A	N/A	10.72	
Difference			-2.52	-2.52	-2.16	1.93	5.12	N/A	N/A	N/A	4.14	

See Disclosures for Benchmark Descriptions

\*Value reflects initial subscription

**California State University System  
Private Equity  
As of March 31, 2022**

Cash Flow Summary	
Capital Committed:	\$6,069,000
Capital Invested:	\$4,789,891
Total Contributions:	\$4,860,574
Remaining Capital Commitment:	\$1,618,563
Total Distributions:	\$2,443,938
Market Value:	\$5,255,116
Inception Date:	11/01/2008
Inception IRR:	15.91
TVPI:	1.58



Private Equity Portfolio						
Partnerships	Capital Committed (\$)	Total Contribution (\$)	Total Distribution (\$)	Market Value (\$)	IRR (%)	TVPI Multiple
Northern Trust Private Equity	419,000	403,874	526,880	21,523	4.79	1.36
Private Advisors Small Company Buyout VI	1,000,000	1,070,105	1,155,341	748,353	19.49	1.78
KKR Americas Fund XII	1,000,000	971,754	319,536	1,514,427	31.22	1.89
Hamilton Lane Private Markets Opp Fund	750,000	618,729	238,515	710,988	17.09	1.54
CPG Vintage Access Fund, LLC	750,000	595,361	78,527	889,494	18.97	1.63
CPG Vintage Access Fund II, LLC	750,000	520,788	38,578	679,457	20.09	1.38
TrueBridge Select Fund I (Cayman), L.P.	700,000	315,000	-	324,818	5.00	1.03
Private Advisors Small Company PE IX, LP	700,000	364,964	86,561	366,055	38.74	1.24
Private Equity	6,069,000	4,860,574	2,443,938	5,255,116	15.91	1.58

TrueBridge Select Fund I value as of 09/30/2021, adjusted for capital calls & distributions through 03/31/2022

Northern Trust Private Equity, Private Advisors Small Co Buyout VI, Hamilton Lane PMOF, CPG Vintage Access & CPG Vintage Access Fund II & Private Advisors Small Co PE IX value as of 12/31/2021, adjusted for capital calls & distributions through 03/31/2022



**CSU Foundation**  
**Private Equity and Private Real Asset Performance Summary**  
**As of March 31, 2022**

Partnerships	Capital Commitment (\$)	Drawn Down (\$)	Market Value (\$)	Distributed (\$)	IRR (%)	TVPI Multiple	Commitment Date	% Funded	Remaining Commitment (\$)
Northern Trust Private Equity	419,000	403,874	21,523	526,880	4.79	1.36	06/01/2005	96.39	15,126
Private Advisors Small Company Buyout VI	1,000,000	1,070,105	748,353	1,155,341	19.99	1.78	12/01/2014	81.18	188,243
KKR Americas Fund XII	1,000,000	971,754	1,514,427	319,536	31.22	1.89	12/01/2015	91.33	86,711
Hamilton Lane Private Markets Opp Fund	750,000	618,729	710,988	238,515	17.14	1.54	12/01/2016	72.73	204,495
CPG Vintage Access Fund, LLC	750,000	595,361	889,494	78,527	18.97	1.63	01/01/2018	79.00	157,500
CPG Vintage Access Fund II, LLC	750,000	520,788	679,457	38,578	20.09	1.38	01/01/2019	69.00	232,500
TrueBridge Select Fund I (Cayman), L.P.	700,000	315,000	324,818	-	5.00	1.03	01/01/2021	45.00	385,000
Private Advisors Small Company PE IX, LP	700,000	364,964	366,055	86,561	38.74	1.24	01/01/2021	50.14	348,988
Bridge Workforce & Affordable Housing Fund II LP	500,000	279,107	301,169	7,072	11.28	1.12	08/01/2021	54.84	225,781
Ares Climate Infrastructure Partners LP	500,000	195,995	193,231	12,314	9.51	1.05	07/01/2021	39.20	304,005

	Quarter To Date	YTD	1 Year	3 Years	5 Years	7 Years	Since Inception	Inception Date
Northern Trust Private Equity	0.00	0.00	-11.57	-4.88	0.42	-1.49	4.79	06/01/2005
Private Advisors Small Company Buyout VI	0.03	0.03	45.75	29.44	24.35	21.20	19.99	12/31/2014
KKR Americas Fund XII	-11.35	-11.35	17.12	36.10	N/A	N/A	31.22	06/30/2017
Hamilton Lane Private Markets Opp Fund	-0.50	-0.50	30.11	18.79	N/A	N/A	17.14	04/30/2017
CPG Vintage Access Fund, LLC	0.00	0.00	33.35	22.98	N/A	N/A	18.97	03/08/2018
CPG Vintage Access Fund II, LLC	0.00	0.00	23.82	21.95	N/A	N/A	20.09	03/06/2019
TrueBridge Select Fund I (Cayman), L.P.	0.00	0.00	N/A	N/A	N/A	N/A	5.00	04/02/2021
Private Advisors Small Company PE IX, LP	0.00	0.00	N/A	N/A	N/A	N/A	38.74	05/28/2021
Bridge Workforce & Affordable Housing Fund II LP	2.90	2.90	N/A	N/A	N/A	N/A	11.28	11/17/2021
Ares Climate Infrastructure Partners LP	4.80	4.80	N/A	N/A	N/A	N/A	9.51	11/15/2021
CSUF Private Equity	-3.67	-3.67	27.91	26.85	22.75	20.00	14.50	06/01/2005

Returns are Dollar Weighted

TrueBridge Select Fund I value as of 09/30/2021, adjusted for capital calls & distributions through 03/31/2022

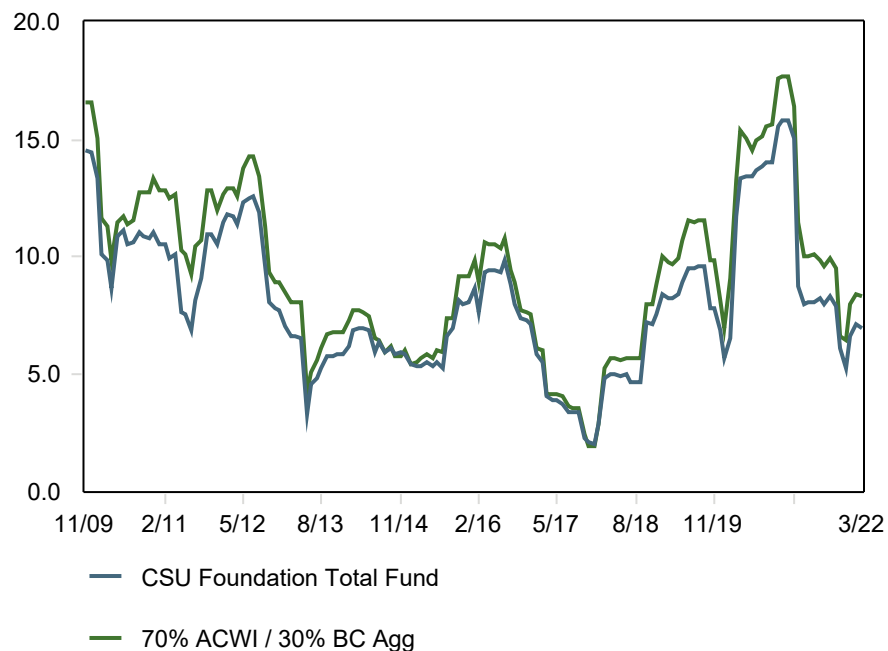
Northern Trust Private Equity, Private Advisors Small Co Buyout VI, Hamilton Lane PMOF, CPG Vintage Access & CPG Vintage Access Fund II &

Private Advisors Small Co PE IX value as of 12/31/2021, adjusted for capital calls & distributions through 03/31/2022

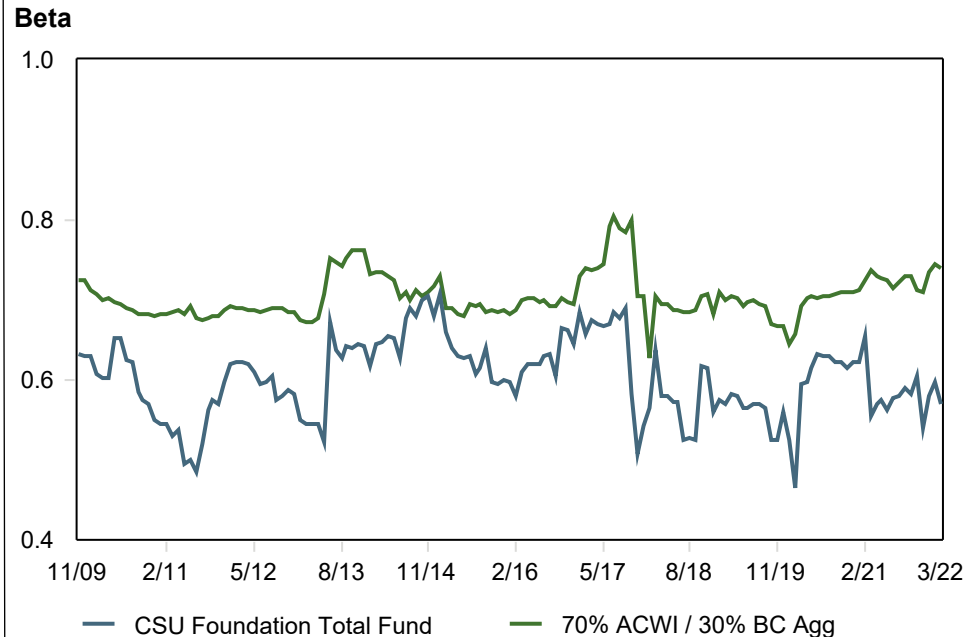
**CSU Foundation  
Risk Analytics  
As of March 31, 2022**

	1 Year	3 Years	5 Years	7 Years	10 Years	Since Inception	Inception Date
Return	4.06	11.33	9.25	7.37	7.42	9.08	12/01/2008
Standard Deviation	6.98	10.68	9.40	8.94	8.26	9.44	
<b>vs. 70% S&amp;P 500 / 30% BC Aggregate</b>							
Alpha	-2.00	0.30	-0.09	-0.93	-1.37	-0.97	
Beta	0.65	0.80	0.79	0.80	0.82	0.86	
R-Squared	0.81	0.87	0.86	0.85	0.84	0.87	
<b>vs. 70% ACWI / 30% BC Agg</b>							
Alpha	1.00	2.29	1.48	0.84	0.65	1.01	
Beta	0.78	0.86	0.85	0.86	0.86	0.86	
R-Squared	0.88	0.94	0.94	0.94	0.94	0.96	
<b>vs. Mid-Term Benchmark</b>							
Alpha	-1.41	1.22	0.81	0.66	0.99	-	
Beta	0.94	1.02	1.01	1.01	1.00	-	
R-Squared	0.88	0.95	0.95	0.95	0.95	-	

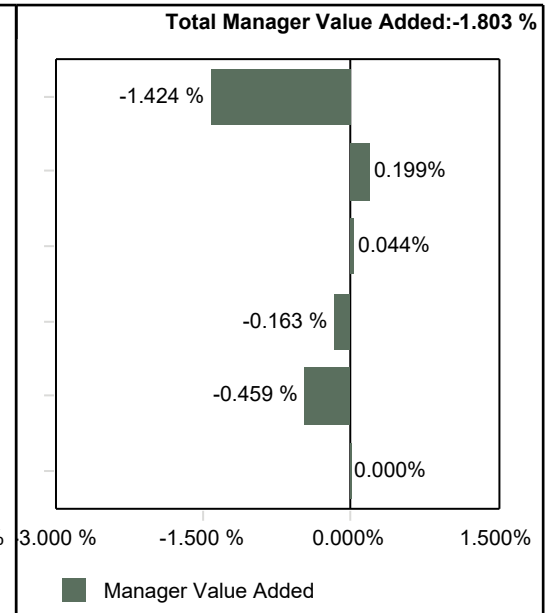
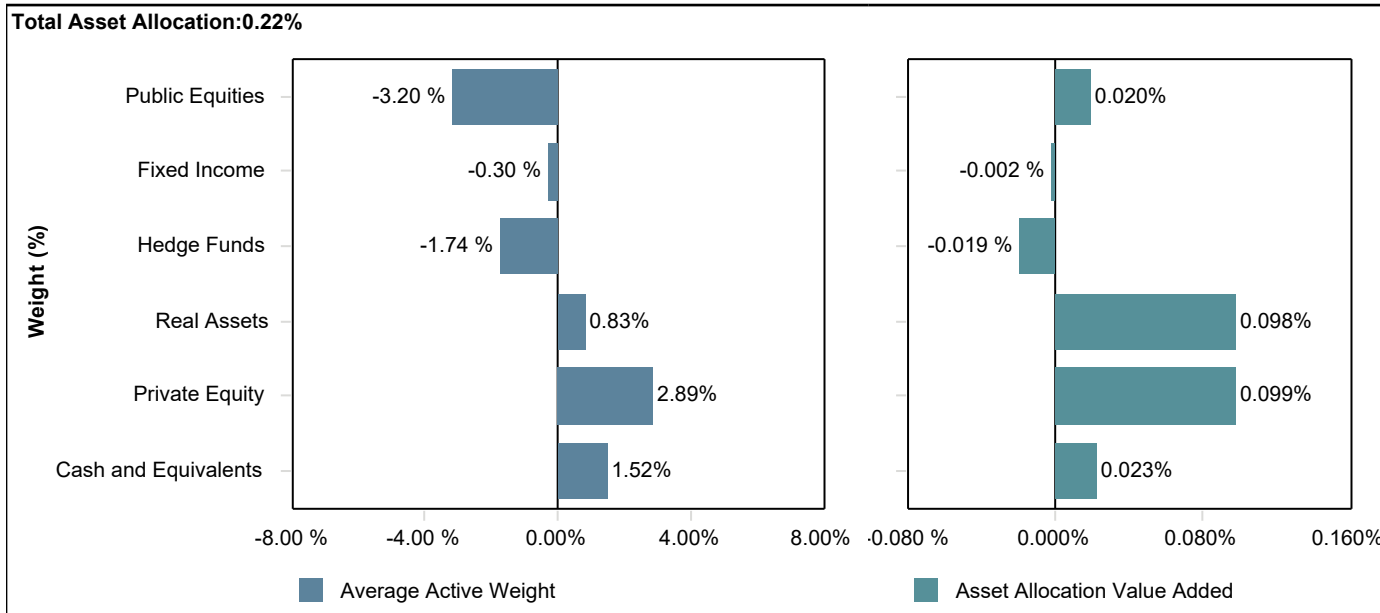
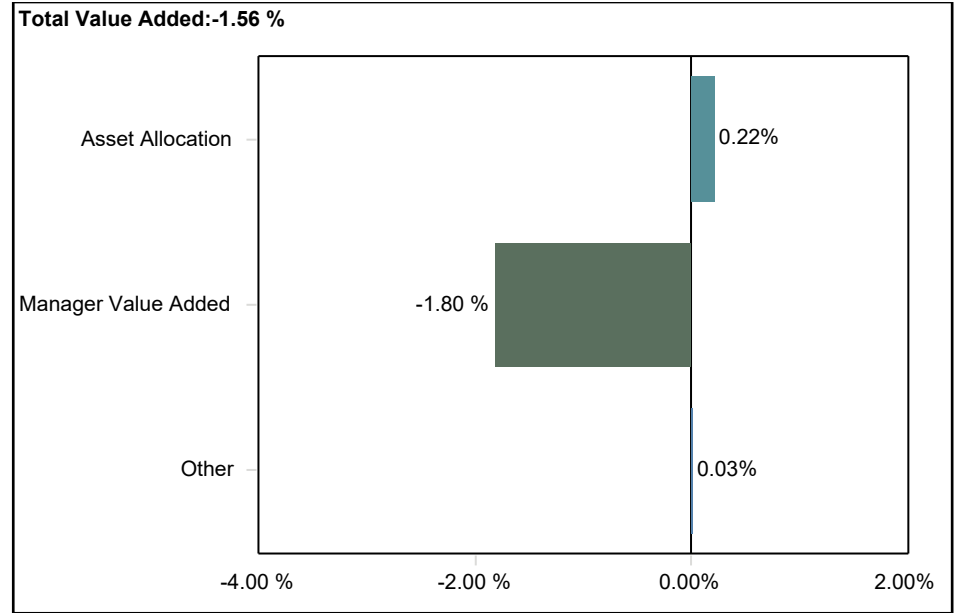
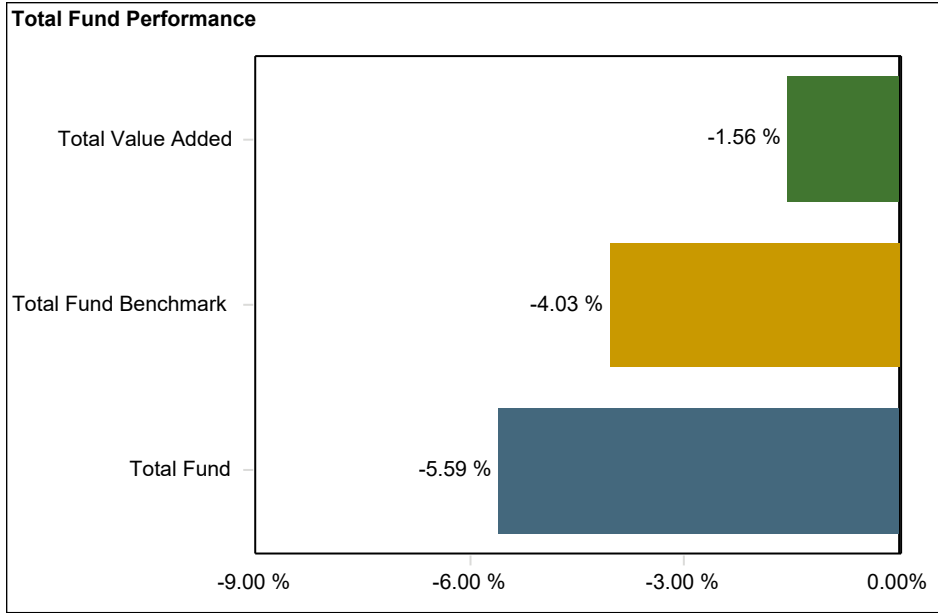
**Rolling 12 Month Standard Deviation**  
Standard Deviation



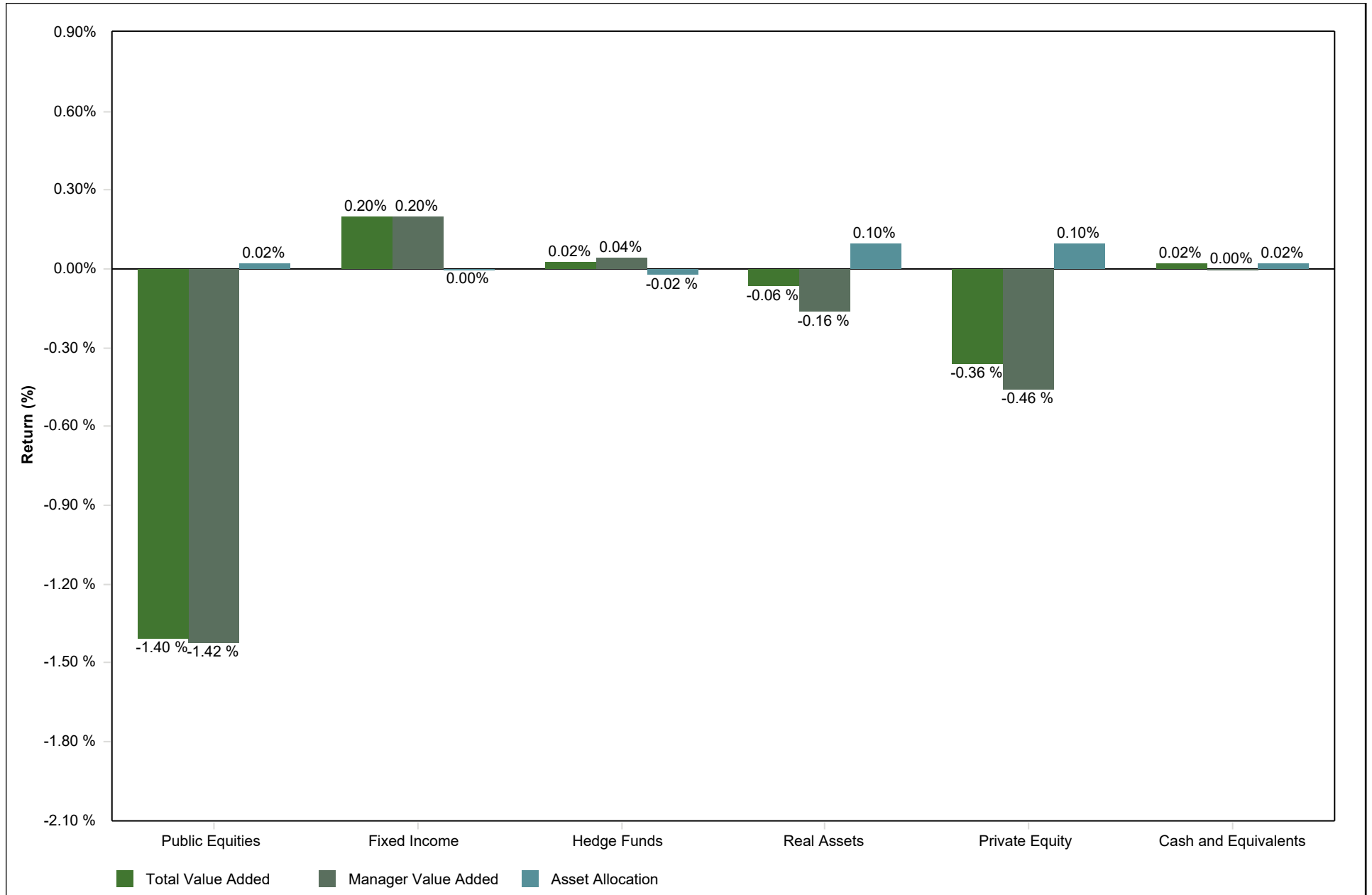
**Rolling 12 Month Beta vs. Global Equities**



# CSU Foundation Attribution Report 1 Quarter Ending March 31, 2022



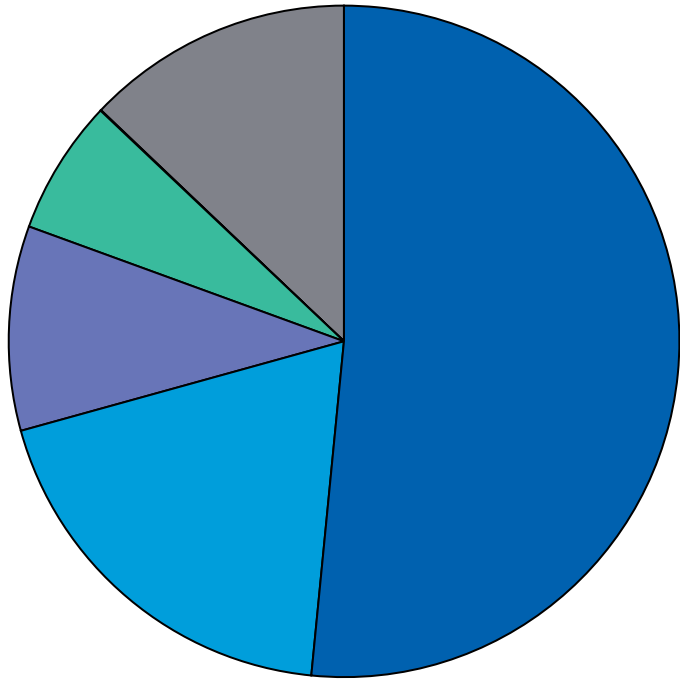
# CSU Foundation Attribution Report 1 Quarter Ending March 31, 2022



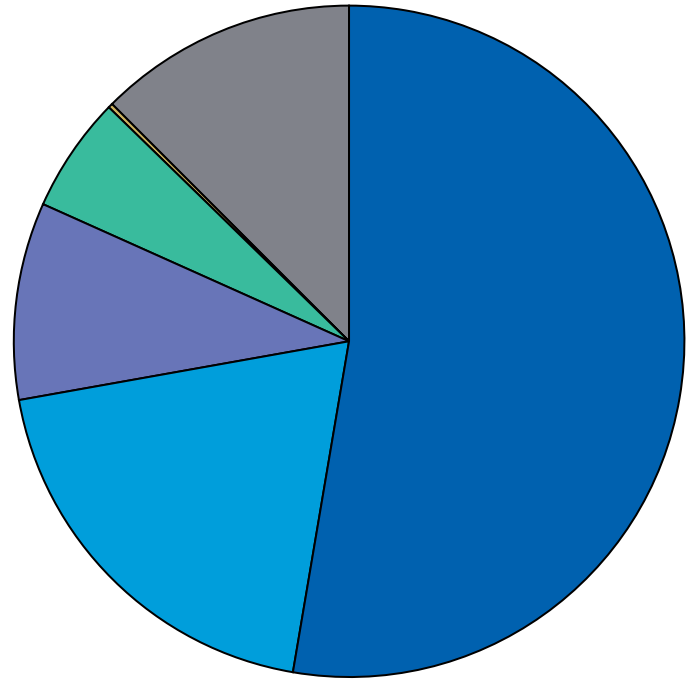
California State University System

As of March 31, 2022

March 31, 2022 : \$40,726,502



December 31, 2021 : \$43,130,985



**Market Value**  
**(\$)**      **Allocation**  
**(%)**

- Equity
- Fixed Income
- Hedge Fund
- Real Return
- Cash
- Global Private Equity

Equity	20,998,069	51.56
Fixed Income	7,797,511	19.15
Hedge Fund	4,013,210	9.85
Real Return	2,647,947	6.50
Cash	14,648	0.04
Global Private Equity	5,255,116	12.90

**Market Value**  
**(\$)**      **Allocation**  
**(%)**

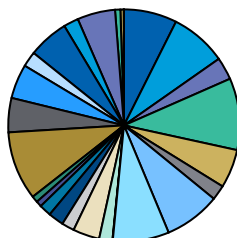
- Equity
- Fixed Income
- Hedge Fund
- Real Return
- Cash
- Global Private Equity

Equity	22,721,348	52.68
Fixed Income	8,419,132	19.52
Hedge Fund	4,096,720	9.50
Real Return	2,408,322	5.58
Cash	94,744	0.22
Global Private Equity	5,390,720	12.50

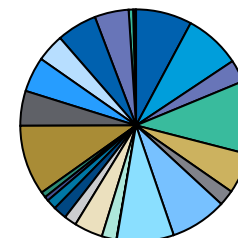
# California State University System

**As of March 31, 2022**

**March 31, 2022 : \$40,726,502**



**December 31, 2021 : \$43,130,985**



	Market Value (\$)	Allocation (%)		Market Value (\$)	Allocation (%)
■ Aristotle Value Equity	3,015,747	7.40	■ Aristotle Value Equity	3,366,346	7.80
■ Aperio Custom ESG	3,202,280	7.86	■ Aperio Custom ESG	3,386,608	7.85
■ Earnest Prnts Small/Mid Core	1,280,365	3.14	■ Earnest Prnts Small/Mid Core	1,341,360	3.11
■ iShares MSCI EAFE Optimized	4,075,499	10.01	■ iShares MSCI EAFE Optimized	4,411,006	10.23
■ Domini Impact Intl Eqty Fds	2,194,179	5.39	■ Domini Impact Intl Eqty Fds	2,438,522	5.65
■ GQG Partners Emerging Mkts Fd	844,269	2.07	■ GQG Partners Emerging Mkts Fd	947,849	2.20
■ Davis Global ADR	3,191,084	7.84	■ Davis Global ADR	3,398,879	7.88
■ Jennison Glbl Opportunities	3,194,646	7.84	■ Jennison Glbl Opportunities	3,430,777	7.95
■ Northern Trust Private Equity	21,523	0.05	■ Northern Trust Private Equity	21,523	0.05
■ Private Advisors Small Company Buyout VI	748,353	1.84	■ Private Advisors Small Company Buyout VI	882,861	2.05
■ KKR Americas Fund XII	1,514,427	3.72	■ KKR Americas Fund XII	1,719,639	3.99
■ Hamilton Lane Private Markets Opp Fund	710,988	1.75	■ Hamilton Lane Private Markets Opp Fund	745,011	1.73
■ CPG Vintage Access Fund, LLC	889,494	2.18	■ CPG Vintage Access Fund, LLC	814,494	1.89
■ CPG Vintage Access Fund II, LLC	679,457	1.67	■ CPG Vintage Access Fund II, LLC	611,957	1.42
■ TrueBridge Select Fund I (Cayman), L.P.	324,818	0.80	■ TrueBridge Select Fund I (Cayman), L.P.	254,818	0.59
■ Private Advisors Small Company PE IX, LP	366,055	0.90	■ Private Advisors Small Company PE IX, LP	340,416	0.79
■ BlackRock Fundamental Core Taxable	3,905,713	9.59	■ BlackRock Fundamental Core Taxable	4,214,085	9.77
■ CRA Qualified Investment Fund	1,941,611	4.77	■ CRA Qualified Investment Fund	2,102,113	4.87
■ TIAA-CREF Social Choice Bond Fund	1,950,187	4.79	■ TIAA-CREF Social Choice Bond Fund	2,102,934	4.88
■ Millennium Intl Ltd	866,858	2.13	■ Millennium Intl Ltd	1,681,817	3.90
■ Private Advisors Hedged Equity	2,301,352	5.65	■ Private Advisors Hedged Equity	2,414,903	5.60
■ Sculptor Overseas Fund II Ltd	845,000	2.07	■ Sculptor Overseas Fund II Ltd	-	0.00
■ Blackstone Real Estate Income Trust	2,153,547	5.29	■ Blackstone Real Estate Income Trust	2,054,076	4.76
■ Bridge Workforce & Affordable Housing Fund II LP	301,169	0.74	■ Bridge Workforce & Affordable Housing Fund II LP	270,787	0.63
■ Ares Climate Infrastructure Partners LP	193,231	0.47	■ Ares Climate Infrastructure Partners LP	83,459	0.19
■ Cash Holding Account	14,648	0.04	■ Cash Holding Account	94,744	0.22

# Disclosures

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# CSU Foundation Benchmark Descriptions

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## Mid-Term Benchmark

\*12/2008 - 05/2010: 70% S&P 500 Total Return, 30% Barclays Aggregate

\*06/2010 - 11/2013: 52% MSCI AC World Net, 23% BC Aggregate, 15% HFRI Fund of Funds Composite, 10% Bloomberg Commodity

\*12/2013 - 09/2016: 52% MSCI AC World Net, 20% BC Aggregate, 18% HFRI Fund of Funds Composite, 10% Bloomberg Commodity

\*10/2016 - 05/2018: 50% MSCI AC World Net, 20% BC Aggregate, 18% HFRI Fund of Funds Composite, 10% Real Assets Benchmark, 2% Cambridge Private Equity

\*06/2018 - 11/2018: 48% MSCI AC World Net, 20% BC Aggregate, 18% HFRI Fund of Funds Composite, 10% Real Assets Benchmark, 4% Cambridge Private Equity

\*12/2018 - 04/2020: 46% MSCI AC World Net, 20% BC Aggregate, 18% HFRI Fund of Funds Composite, 10% Real Assets Benchmark, 6% Cambridge Private Equity

\*05/2020 - 07/2020: 53% MSCI AC World Net, 20% BC Aggregate, 14% HFRI Fund of Funds Composite, 8% Cambridge Private Equity, 5% Real Assets Benchmark

\*08/2020 - 05/2021: 56.5% MSCI AC World Net, 20% BC Aggregate, 10% HFRI Fund of Funds Composite, 8.5% Cambridge Private Equity, 5% Real Assets Benchmark

\*06/2021 - Present: 55% MSCI AC World Net, 20% BC Aggregate, 10% HFRI Fund of Funds Composite, 10% Cambridge Private Equity, 5% Real Assets Benchmark

## Real Assets Benchmark

\*01/2011 - 09/2016: 40% Bloomberg Commodity, 30% BC TIPS, 30% FTSE NAREIT US REITS

\*10/2016 - 07/2018: 40% MSCI ACWI Commodity Producers, 30% BC TIPS, 30% FTSE NAREIT US REITS

\*08/2018 - 08/2019: 40% MSCI ACWI Commodity Producers, 30% BC TIPS, 30% NCREIF NFI ODCE

\*09/2019 - 04/2020: 60% NCREIF NFI ODCE, 40% BC TIPS

\*05/2020 - Present: 100% NCREIF NFI ODCE

## Northern Trust Blend

\*06/2005 - 05/2010: 100% Venture Economics All Private Equity

\*06/2010 - 03/2012: Cambridge Associates US PE Index

\*04/2012 - Present: 100% Absolute Return of 0%



## Performance Appendix

Performance Data below is net of fees. Please see the Morgan Stanley Smith Barney LLC Form ADV Part 2 Brochure for advisory accounts and/or any applicable brokerage account trade confirmation statements for a full disclosure of the applicable charges, fees and expenses. Your Financial Advisor will provide those documents to you upon request.

Account Name	QTD	YTD	1 Year	3 Years	5 Years	10 Years	Since Inception	Inception Date
Aperio Custom ESG	-5.14	-5.14	14.41	--	--	--	18.00	08/01/2019
BlackRock Fundamental Core Taxable	-4.77	-4.77	-3.38	--	--	--	-0.79	02/01/2020
CRA Qualified Investment Fund	-4.20	-4.20	-4.23	--	--	--	-1.16	02/01/2020
Cash Holding Account	0.34	0.34	12.05	77.44	98.13	--	--	11/01/2008
Davis Global ADR	-6.91	-6.91	-16.87	--	--	--	7.40	08/01/2019
Domini Impact Intl Eqty Fds	-8.45	-8.45	-2.16	--	--	--	6.08	08/01/2019
Earnest Prnts Small/Mid Core	-3.59	-3.59	--	--	--	--	4.15	08/01/2021
GQG Partners Emerging Mkts Fd	-7.66	-7.66	-8.60	--	--	--	-8.60	04/01/2021
Millennium Intl Ltd	2.92	2.92	13.41	16.58	12.22	--	10.78	02/01/2015
Private Advisors Hedged Equity	-4.70	-4.70	-2.86	5.05	7.82	6.36	6.41	08/01/2011
Sculptor Overseas Fund II Ltd	--	--	--	--	--	--	--	04/01/2022
TIAA-CREF Social Choice Bond Fund	-5.97	-5.97	-4.18	--	--	--	-1.09	02/01/2020
iShares MSCI EAFE Optimized	-7.10	-7.10	-0.26	--	--	--	8.43	08/01/2019

All performance above are Time Weighted(TWR) performance

## IRR Appendix

Account Name	QTD	YTD	1 Year	3 Years	5 Years	10 Years	Since Inception	Inception Date
Ares Climate Infrastructure Partners LP	4.80	4.80	--	--	--	--	9.51	11/15/2021
Blackstone Real Estate Income Trust	4.84	4.84	30.78	15.62	--	--	14.68	07/25/2018
Bridge Workforce & Affordable Housing Fund II LP	2.90	2.90	--	--	--	--	11.28	11/17/2021
CPG Vintage Access Fund II, LLC	0.00	0.00	23.82	21.95	--	--	20.09	03/06/2019
CPG Vintage Access Fund, LLC	0.00	0.00	33.35	22.98	--	--	18.97	03/06/2018
Hamilton Lane Private Markets Opp Fund	-0.50	-0.50	30.11	18.79	17.09	--	17.09	04/03/2017
KKR Americas Fund XII	-11.35	-11.35	17.12	36.10	--	--	31.22	12/15/2015
Northern Trust Private Equity	0.00	0.00	-11.57	-4.88	0.42	6.46	4.79	06/01/2005
Private Advisors Small Company Buyout VI	0.03	0.03	45.75	29.44	24.35	--	19.49	12/30/2014
Private Advisors Small Company PE IX, LP	0.00	0.00	--	--	--	--	38.74	05/28/2021
TrueBridge Select Fund I (Cayman), L.P.	0.00	0.00	5.00	--	--	--	5.00	04/02/2021

All performance above are Dollar Weighted(IRR) performance

## Glossary of Terms

**Active Contribution Return:** The gain or loss percentage of an investment relative to the performance of the investment benchmark.

**Active Exposure:** The percentage difference in weight of the portfolio compared to its policy benchmark.

**Active Return:** Arithmetic difference between the manager's return and the benchmark's return over a specified time period.

**Actual Correlation:** A measure of the correlation (linear dependence) between two variables X and Y, with a value between +1 and -1 inclusive. This is also referred to as coefficient of correlation.

**Alpha:** A measure of a portfolio's time weighted return in excess of the market's return, both adjusted for risk. A positive alpha indicates that the portfolio outperformed the market on a risk-adjusted basis, and a negative alpha indicates the portfolio did worse than the market.

**Best Quarter:** The highest quarterly return for a certain time period.

**Beta:** A measure of the sensitivity of a portfolio's time weighted return (net of fees) against that of the market. A beta greater than 1.00 indicates volatility greater than the market.

**Consistency:** The percentage of quarters that a product achieved a rate of return higher than that of its benchmark. The higher the consistency figure, the more value a manager has contributed to the product's performance.

**Core:** Refers to an investment strategy mandate that is blend of growth and value styles without a pronounced tilt toward either style.

**Cumulative Selection Return (*Cumulative Return*):** Cumulative investment performance over a specified period of time.

**Distribution Rate:** The most recent distribution paid, annualized, and then divided by the current market price. Distribution rate may consist of investment income, short-term capital gains, long-term capital gains, and/or return of capital.

**Down Market Capture:** The ratio of average portfolio returns over the benchmark during periods of negative benchmark return. Lower values indicate better product performance.

**Downside Risk:** A measure similar to standard deviation, but focuses only on the negative movements of the return series. It is calculated by taking the standard deviation of the negative quarterly set of returns. The higher the value, the more risk the product has.

**Downside Semi Deviation:** A statistical calculation that measures the volatility of returns below a minimum acceptable return. This return measure isolates the negative portion of volatility: the larger the number, the greater the volatility.

**Drawdown:** A drawdown is the peak-to-trough decline during a specific period of an investment, fund or commodity.

**Excess over Benchmark:** The percentage gain or loss of an investment relative to the investment's benchmark.

**Excess Return:** Arithmetic difference between the manager's return and the risk-free return over a specified time period.

**Growth:** A diversified investment strategy which includes investment selections that have capital appreciation as the primary goal, with little or no dividend payouts. These strategies can include reinvestment in expansion, acquisitions, and/or research and development opportunities.

**Growth of Dollar:** The aggregate amount an investment has gained or lost over a certain time period, also referred to as Cumulative Return, stated in terms of the amount to which an initial dollar investment would have grown over the given time period.

**Investment Decision Process (IDP):** A model for structuring the investment process and implementing the correct attribution methodologies. The IDP includes every decision made concerning the division of the assets under management over the various asset categories. To analyze each decision's contribution to the total return, a modeling approach must measure the marginal value of every individual decision. In this respect, the hierarchy of the decisions becomes very important. We therefore use the IDP model, which serves as a proper foundation for registering the decisions and relating them to each other.

**Information Ratio:** Measured by dividing the active rate of return by the tracking error. The higher the Information Ratio, the more value-added contribution by the manager.

**Jensen's Alpha:** The Jensen's alpha measure is a risk-adjusted performance measure that represents the average return on a portfolio or investment above or below that predicted by the capital asset pricing model (CAPM) given the portfolio's or investment's beta and the average market return. This metric is also commonly referred to as alpha.

**Kurtosis:** A statistical measure that is used to describe the distribution, or skewness, of observed data around the mean, sometimes referred to as the volatility of volatility.

**Maximum Drawdown:** The drawdown is defined as the percent retrenchment from a fund's peak to the fund's trough value. It is in effect from the time the fund's retrenchment begins until a new fund high is reached. The maximum drawdown encompasses both the period from the fund's peak to the fund's valley (length), and the time from the fund's valley to a new fund high (recovery). It measures the largest percentage drawdown that has occurred in any fund's data record.

**Modern Portfolio Theory (MPT):** An investment analysis theory on how risk-averse investors can construct portfolios to optimize or maximize expected return based on a given level of market risk, emphasizing that risk is an inherent part of higher reward.

**Mutual Fund (MF):** An investment program funded by shareholders that trade in diversified holdings and is professionally managed.

**Peer Group:** A combination of funds that share the same investment style combined as a group for comparison purposes.

**Peer/ Plan Sponsor Universe:** A combination of asset pools of total plan investments by specific sponsor and plan types for comparison purposes.

**Performance Ineligible Assets:** Performance returns are not calculated for certain assets because accurate valuations and transaction data for these assets are not processed or maintained by us. Common examples of

these include life insurance, some annuities and some assets held externally.

**Performance Statistics:** A generic term for various measures of investment performance measurement terms.

**Portfolio Characteristics:** A generic term for various measures of investment portfolio characteristics.

**Preferred Return:** A term used in the private equity (PE) world, and also referred to as a “Hurdle Rate.” It refers to the threshold return that the limited partners of a private equity fund must receive, prior to the PE firm receiving its carried interest or "carry."

**Ratio of Cumulative Wealth:** A defined ratio of the Cumulative Return of the portfolio divided by the Cumulative Return of the benchmark for a certain time period.

**Regression Based Analysis:** A statistical process for estimating the relationships among variables. It includes many techniques for modeling and analyzing several variables, when the focus is on the relationship between a dependent variable and one or more independent variables

**Residual Correlation:** Within returns-based style analysis, residual correlation refers to the portion of a strategy’s return pattern that cannot be explained by its correlation to the asset-class benchmarks to which it is being compared.

**Return:** A rate of investment performance for the specified period.

**Rolling Percentile Ranking:** A measure of an investment portfolio’s ranking versus a peer group for a specific rolling time period (i.e. Last 3 Years, Last 5 years, etc.).

**R-Squared:** The percentage of a portfolio's performance explained by the behavior of the appropriate benchmark. High R-Squared means a higher correlation of the portfolio's performance to the appropriate benchmark.

**SA/CF (Separate Account/Comingled Fund):** Represents an acronym for Separate Account and Comingled Fund investment vehicles.

**Sector Benchmark:** A market index that serves as a proxy for a sector within an asset class.

**Sharpe Ratio:** Represents the excess rate of return over the risk free return divided by the standard deviation of the excess return. The result is the absolute rate of return per unit of risk. The higher the value, the better the product’s historical risk-adjusted performance results in.

**Standard Deviation:** A statistical measure of the range of a portfolio's performance; the variability of a return around its average return over a specified time period.

**Total Fund Benchmark:** The policy benchmark for a complete asset pool that could consist of multiple investment mandates.

**Total Fund Composite:** The aggregate of multiple portfolios within an asset pool or household.

**Tracking Error:** A measure of standard deviation for a portfolio's investment performance, relative to the performance of an appropriate market benchmark.

**Treynor Ratio:** A ratio that divides the excess return (above the risk free rate) by the portfolio’s beta to arrive at a unified measure of risk adjusted return. It is generally used to rank portfolios, funds and benchmarks. A higher ratio is indicative of higher returns per unit of market risk. This measurement can help determine if the portfolio is reaching its goal of increasing returns while managing market risk.

**Up Market Capture:** The ratio of average portfolio returns over the benchmark during periods of positive benchmark return. Higher values indicate better product performance.

**Upside Semi Deviation:** A statistical calculation that measures the volatility of returns above an acceptable return. This return measure isolates the positive portion of volatility: the larger the number, the greater the volatility.

**Value:** A diversified investment strategy that includes investment selections which tend to trade at a lower price relative to its dividends, earnings, and sales. Common attributes are stocks that include high dividend, low price-to-book ratio, and/or low price-to-earnings ratio.

**Worst Quarter:** The lowest rolling quarterly return for a certain time period.

## Information Disclosures

*Performance results are annualized for time periods greater than one year and include all cash and cash equivalents, realized and unrealized capital gains and losses, and dividends, interest and income. The investment results depicted herein represent historical performance. As a result of recent market activity, current performance may vary from the figures shown. Past performance is not a guarantee of future results.*

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*Investors should carefully consider the fund’s investment objectives, risks, charges and expenses before investing. The prospectus and, if available the summary prospectus, contains this and other information that should be read carefully before investing. Investors should review the information in the prospectus carefully. To obtain a prospectus, please contact your Financial Advisor or visit the funds’ company website.*

Past performance is no guarantee of future results.

Investing involves market risk, including possible loss of principal. **Growth investing** does not guarantee a profit or eliminate risk. The stocks of these companies can have relatively high valuations. Because of these high valuations, an investment in a growth stock can be more risky than an investment in a company with more modest growth expectations. **Value investing** involves the risk that the market may not recognize that securities are undervalued and they may not appreciate as anticipated. **Small and mid-capitalization companies** may lack the financial resources, product diversification and competitive strengths of larger

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**Mortgage backed securities** also involve prepayment risk, in that faster or slower prepayments than expected on underlying mortgage loans can dramatically alter the yield-to-maturity of a mortgage-backed security and prepayment risk includes the possibility that a fund may invest the proceeds at generally lower interest rates.

**Tax managed funds** may not meet their objective of being tax-efficient.

**Real estate** investments are subject to special risks, including interest rate and property value fluctuations, as well as risks related to general and economic conditions. **High yield** fixed income securities, also known as "junk bonds", are considered speculative, involve greater risk of default and tend to be more volatile than investment grade fixed income securities.

Credit quality is a measure of a bond issuer's creditworthiness, or ability to repay interest and principal to bondholders in a timely manner. The credit ratings shown are based on security rating as provided by Standard & Poor's, Moody's and/or Fitch, as applicable. Credit ratings are issued by the rating agencies for the underlying securities in the fund and not the fund itself, and the credit quality of the securities in the fund does not represent the stability or safety of the fund. Credit ratings shown range from AAA, being the highest, to D, being the lowest based on S&P and Fitch's classification (the equivalent of Aaa and C, respectively, by Moody's). Ratings of BBB or higher by S&P and Fitch (Baa or higher by Moody's) are considered to be investment grade-quality securities. If two or more of the agencies have assigned different ratings to a security, the highest rating is applied. Securities that are not rated by all three agencies are listed as "NR".

"**Alpha tilt strategies** comprise a core holding of stocks that mimic a benchmark type index such as the

S&P 500 to which additional securities are added to help tilt the fund toward potentially outperforming the market in an effort to enhance overall investment returns. Tilt strategies are subject to significant timing risk and could potentially expose investors to extended periods of underperformance."

**Custom Account Index:** The Custom Account Index is an investment benchmark based on your historical target allocations and/or manager selection that you may use to evaluate the performance of your account. The Custom Account index does take into consideration certain changes that may have occurred in your portfolio since the inception of your account, i.e., asset class and/or manager changes. However, in some circumstances, it may not be an appropriate benchmark for use with your specific account composition. For detailed report of the historical composition of this blend please contact your Financial Advisor.

### Peer Groups

Peer Groups are a collection of similar investment strategies that essentially group investment products that share the same investment approach. Peer Groups are used for comparison purposes to compare and illustrate a client's investment portfolio versus its peer across various quantitative metrics like performance and risk. Peer Group comparison is conceptually another form of benchmark comparison whereby the actual investment can be ranked versus its peer across various quantitative metrics.

All Peer Group data are provided by Investment Metrics, LLC.

The URL below provides all the definitions and methodology about the various Peer Groups

<https://www.invmetrics.com/style-peer-groups>

### Peer Group Ranking Methodology

A percentile rank denotes the value of a product in which a certain percent of observations fall within a peer group. The range of percentile rankings is between 1 and 100, where 1 represents a high statistical value and 100 represents a low statistical value.

The 30th percentile, for example, is the value in which 30% of the highest observations may be found, the 65th percentile is the value in which 65% of the highest observations may be found, and so on.

Percentile rankings are calculated based on a normalized distribution ranging from 1 to 100 for all products in each peer group, where a ranking of 1 denotes a high statistical value and a ranking of 100 denotes a low statistical value. It is important to note that the same ranking methodology applies to all statistics, implying that a ranking of 1 will always mean highest value across all statistics.

For example, consider a risk/return assessment using standard deviation as a measure of risk. A percentile ranking equal to 1 for return denotes highest return, whereas a percentile ranking of 1 for standard deviation denotes highest risk among peers.

In addition, values may be used to demonstrate quartile rankings. For example, the third quartile is also known as the 75th percentile, and the median is the 50th percentile.

### Alternatives

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Traditional alternative investment vehicles are illiquid and usually are not valued daily. The estimated valuation provided will be as of the most recent date available and will be included in summaries of your assets. Such valuation may not be the most recent provided by the fund in which you are invested. No representation is made that the valuation is a market value or that the interest could be liquidated at this value. We are not required to take any action with respect to your investment unless valid instructions are received from you in a timely manner. Some positions reflected herein may not represent interests in the fund, but rather redemption proceeds withheld by the issuer pending final valuations which are not subject to the investment performance of the fund and may or may not accrue interest for the length of the withholding. Morgan Stanley does not engage in an independent valuation of your alternative investment assets. Morgan Stanley provides periodic information to you including the market value of an alternative investment vehicle based on information received from the management entity of the alternative investment vehicle or another service provider.

Traditional alternative investment vehicles often are speculative and include a high degree of risk. Investors should carefully review and consider potential risks before investing. Certain of these risks may include but are not limited to: • Loss of all or a substantial portion of the investment due to leveraging, short-selling, or other speculative practices; • Lack of liquidity in that there may be no secondary market for a fund; • Volatility of returns; • Restrictions on transferring interests in a fund; • Potential lack of diversification

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Indices are unmanaged and investors cannot directly invest in them. Composite index results are shown for illustrative purposes and do not represent the performance of a specific investment. Past performance is no guarantee of future results. Actual results may vary. Diversification does not assure a profit or protect against loss in a declining market. Any performance or related information presented has not been adjusted to reflect the impact of the additional fees paid to a placement agent by an investor (for Morgan Stanley placement clients, a one-time upfront Placement Fee of up to 3%, and for Morgan Stanley investment advisory clients, an annual advisory fee of up to 2.5%), which would result in a substantial reduction in the returns if such fees were incorporated.

For most investment advisory clients, the program account will be charged an asset-based wrap fee every quarter ("the Fee"). In general, the Fee covers investment advisory services and reporting. In addition to the Fee, clients will pay the fees and expenses of any funds in which their account is invested. Fund fees and expenses are charged directly to the pool of assets the fund invests in and impact the valuations. Clients must understand that these fees and expenses are an additional cost and will not be included in the Fee amount in the account statements.

As fees are deducted quarterly, the compounding effect will be to increase the impact of the fees by an amount directly related to the gross account performance. For example, for an account with an initial value of \$100,000 and a 2.5% annual fee, if the gross performance is 5% per year over a three year period, the compounding effect of the fees will result in a net annual compound rate of return of approximately 2.40% per year over a three year period, and the total value of the client's portfolio at the end of the three year period would be approximately \$115,762.50 without the fees and \$107,372.63 with the fees. Please see the applicable Morgan Stanley Smith Barney LLC Form ADV Part 2A for more information including a description of the fee schedule. It is available at [www.morganstanley.com/ADV](http://www.morganstanley.com/ADV) <<http://www.morganstanley.com/ADV>> or from your Financial Advisor/Private Wealth Advisor.

Alternative investments involve complex tax structures, tax inefficient investing, and delays in distributing important tax information. Individual funds have specific risks related to their investment programs that will vary from fund to fund. Clients should consult their own tax and legal advisors as Morgan Stanley does not provide tax or legal advice. Interests in alternative investment products are offered pursuant to the terms of the applicable offering memorandum, are distributed by Morgan Stanley Smith Barney LLC and certain of its affiliates, and (1) are not FDIC-insured, (2) are not deposits or other obligations of Morgan Stanley or any of its affiliates, (3) are not guaranteed by Morgan Stanley and its affiliates, and (4) involve investment risks, including possible loss of principal. Morgan Stanley Smith Barney LLC is a registered broker-dealer, not a bank.

SIPC insurance does not apply to precious metals, other commodities, or traditional alternative investments.

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### Money Market Funds

You could lose money in Money Market Funds. Although MMFs classified as government funds (i.e.,

MMFs that invest 99.5% of total assets in cash and/or securities backed by the U.S government) and retail funds (i.e., MMFs open to natural person investors only) seek to preserve value at \$1.00 per share, they cannot guarantee they will do so. The price of other MMFs will fluctuate and when you sell shares they may be worth more or less than originally paid. MMFs may impose a fee upon sale or temporarily suspend sales if liquidity falls below required minimums. During suspensions, shares would not be available for purchases, withdrawals, check writing or ATM debits. A MMF investment is not insured or guaranteed by the Federal Deposit Insurance Corporation or other government agency.