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# California State University Foundation

Portfolio Review – March 31, 2021

Delivered On – May 21, 2021

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# Capital Markets Overview

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

## As of March 31, 2021

| | Quarter To Date | YTD | Trailing 12 Months | Trailing 3 Years | Trailing 5 Years | Trailing 10 Years |
|---|---|---|---|---|---|---|
| **Public Equity** | | | | | | |
| **Global Equities** | | | | | | |
| MSCI All Country World Index | 4.57 | 4.57 | 54.60 | 12.07 | 13.21 | 9.14 |
| **Domestic Equities** | | | | | | |
| Russell 3000 Index | 6.35 | 6.35 | 62.53 | 17.12 | 16.64 | 13.79 |
| S&P 500 Index | 6.17 | 6.17 | 56.35 | 16.78 | 16.29 | 13.91 |
| Russell 2000 Index | 12.70 | 12.70 | 94.84 | 14.76 | 16.35 | 11.68 |
| **International Equities** | | | | | | |
| MSCI ACWI ex-US Index | 3.49 | 3.49 | 49.41 | 6.56 | 9.76 | 4.93 |
| MSCI EAFE Index | 3.48 | 3.48 | 44.57 | 6.08 | 8.85 | 5.52 |
| MSCI Emerging Markets Index | 2.34 | 2.34 | 58.92 | 6.92 | 12.48 | 4.02 |
| **Fixed Income** | | | | | | |
| BC Long Treasury Index | -13.51 | -13.51 | -15.80 | 5.87 | 3.13 | 6.35 |
| BC US Aggregate Bond Index | -3.37 | -3.37 | 0.71 | 4.65 | 3.10 | 3.44 |
| BC Corporate High Yield Index | 0.86 | 0.86 | 23.65 | 6.82 | 8.04 | 6.47 |
| Citi World Government Bond Index | -5.68 | -5.68 | 1.82 | 2.09 | 2.15 | 1.66 |
| **Hedge Funds** | | | | | | |
| HFRI FOF Composite | 1.88 | 1.88 | 23.84 | 5.43 | 5.61 | 3.42 |
| HFRI Equity Hedge | 6.83 | 6.83 | 47.44 | 9.86 | 10.10 | 5.83 |
| HFRI Event Driven | 7.59 | 7.59 | 38.16 | 7.28 | 8.18 | 5.09 |
| HFRI Relative Value | 3.61 | 3.61 | 19.42 | 4.53 | 5.44 | 4.54 |
| HFRI Macro | 4.29 | 4.29 | 11.71 | 4.37 | 2.68 | 1.48 |
| **Real Assets/Real Return** | | | | | | |
| FTSE NAREIT All Equity REITS | 8.32 | 8.32 | 34.24 | 10.78 | 7.19 | 9.35 |
| Bloomberg Commodity TR | 6.92 | 6.92 | 35.04 | -0.20 | 2.31 | -6.28 |
| MSCI ACWI Commodity Producers | 13.83 | 13.83 | 63.09 | 0.82 | 6.69 | -2.03 |
| S&P Global Infrastructure | 3.00 | 3.00 | 37.04 | 5.69 | 6.75 | 6.27 |
| BC TIPS | -1.47 | -1.47 | 7.54 | 5.67 | 3.86 | 3.44 |

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

# Reopening the Economy Is Exciting but Brings Risks, Too. Early to Mid Cycle

As of April 14, 2021

- **Remain Bullish but Near Term Extended.** (1) New bull markets have begun with a recession and have typically run for years not months. (2) The health crisis has brought unprecedented monetary and fiscal stimulus that is likely to become structural in nature—a policy regime shift. (3) Economic data surprises and positive earnings revisions have supported higher equity prices. (4) Near-term risks include peaking rates of change on policy and fundamental data, cost pressures as we reopen economy and extended valuations, sentiment and leverage.
- **V-Shaped Recovery Is Here.** The Fed's unprecedented response in conjunction with Congress has driven a strong recovery from the depths of this recession. With Global GDP output already fully recovered, we forecast the US economy should be back to pre-COVID levels by 2Q21 and pre-COVID *trend* by 4Q21. US nominal GDP growth should approach 10% this year, a level last reached in 1984.
- **Peaking Rates of Change Matter in the Short Term.** We are now seeing a peak rate of change in fiscal policy, equity inflows, Fed balance sheet growth, sentiment, and financial leverage. From a fundamental standpoint, it's the same story with peak rates of change in Purchasing Manager Surveys, other economic data series and earnings revision breadth. Such peaks have often coincided with setbacks in equity markets and this time should be no different.
- **Early to Mid Cycle Means it's Time to Upgrade the Portfolio.** One of the surprises of this recovery is the speed at which it's happening—twice as fast as usual. That means we are already at the transition from early to mid cycle and with that comes a shift in equity market leadership. Higher-quality stocks should start to perform better. In short, it's time to upgrade one's portfolio. We recently downgraded small caps and the Consumer Discretionary sector while upgrading Staples to reflect this view. We continue to like Financials, Materials, Healthcare and Industrials on a 12-month basis.
- **Inflation is the Key to the Secular Bull Market for Stocks and Secular Bear Market for Bonds**. The shift in policy from monetary to fiscal dominance is a significant change that has big implications for our asset allocation recommendations. A US recession was always a necessary condition for this outcome and the health-crisis nature of this event further supports this regime shift. Finally, don't forget the other inflationary trends that were well established before this recession began—populism, nationalism, de-globalization, and a sign that the US dollar may either lose or have to share its reserve currency status.
- **We Still Recommend Being Overweight Equities and Credit, Underweight Interest Rate Risk—i.e., Duration.** Despite the risk for near-term pullback in equities and rally in bonds, we are still overweight the former and underweight the latter. We also recommend owning some commodities as another inflation hedge. Avoid profitless growth stocks and pure bond proxies. We think the biggest risk to equities and other long-duration risk assets will come from the interest rate channel over the next 12 months.. A non-linear move in back-end rates that we expected has led to an overdue correction/consolidation in these interest rate-sensitive areas. Be patient here and use pullbacks around higher rates/peaking rates of change as buying opportunities for US cyclical, GARP, and international stocks.

Source: Morgan Stanley & Co. Research. Earnings revisions breadth is defined as the number of positive analyst revisions minus the number of negative analyst revisions divided by the total number of revisions.

# Portfolio Review

# CSU Foundation
## IPS and Allocation Compliance

**Type of Fund:** Endowment

**Time Horizon:** Perpetuity

**Investment Horizon:** 10 Years

**Real Return Target:** CPI + 4%, net of all fund expenses

**Time Horizon Return:** To achieve a rate of return above inflation of 4%, net of all investment management costs

**Spending Policy:** 4% of 3-year moving average of market valuations

**Risk Benchmark:** 70% MSCI All Country World Index, 30% Barclays Aggregate Bond Index

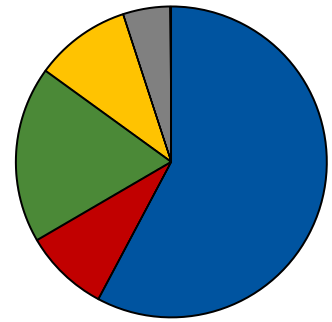
**Asset Allocation Summary:**

| | Current Allocation (%) | Long-term Target (%) | Differences (%) | Minimum Allocation (%) | Maximum Allocation (%) |
|---|---|---|---|---|---|
| **CSU Foundation Total Fund** | **100.00** | **100.00** | **0.00** | **-** | **-** |
| Public Equities | 57.78 | 55.00 | 2.78 | 40.00 | 70.00 |
| Private Equity | 8.82 | 10.00 | -1.18 | 0.00 | 20.00 |
| Fixed Income | 18.38 | 20.00 | -1.62 | 10.00 | 30.00 |
| Hedge Funds | 9.99 | 10.00 | -0.01 | 0.00 | 20.00 |
| Real Assets | 4.93 | 5.00 | -0.07 | 0.00 | 10.00 |

# CSU Foundation
# Balances and Asset Allocation
# March 31, 2021

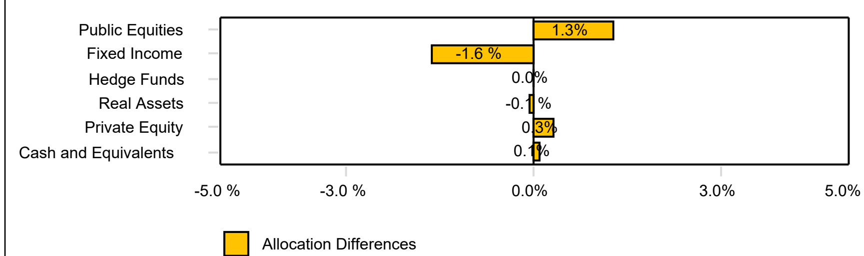
| | Total Fund ($) | Total Fund % |
|---|---|---|
| **Domestic Equities** | **7,901,887** | **20.26** |
| Aperio Custom ESG | 3,238,455 | 8.30 |
| Aristotle Large Cap Value | 3,318,484 | 8.51 |
| Great Lakes SMID Cap ESG | 1,344,948 | 3.45 |
| **International and EM Equities** | **7,767,867** | **19.91** |
| iShares MSCI EAFE Optimized | 4,349,981 | 11.15 |
| Domini Impact Intl Eqty Fds | 2,442,976 | 6.26 |
| GQG Partners Emerging Mkts Fd | 974,910 | 2.50 |
| **Global Equities** | **6,869,956** | **17.61** |
| Davis Global ADR | 3,493,298 | 8.95 |
| Jennison Global Opportunities | 3,376,658 | 8.66 |
| **Private Equity** | **3,442,607** | **8.82** |
| Private Advisors Small Company Buyout* | 708,114 | 1.82 |
| KKR Americas Fund XII | 1,223,537 | 3.14 |
| Hamilton Lane Private Markets Opp Fund* | 528,387 | 1.35 |
| CPG Vintage Access Fund, LLC* | 584,449 | 1.50 |
| CPG Vintage Access Fund II, LLC* | 331,373 | 0.85 |
| TrueBridge Select Fund I (Cayman), L.P.** | 35,000 | 0.09 |
| Northern Trust Private Equity* | 31,747 | 0.08 |
| **Total Equity** | **25,982,318** | **66.60** |
| **Fixed Income** | **7,170,455** | **18.38** |
| BlackRock Fundamental Core Taxable | 3,541,840 | 9.08 |
| CRA Qualified Investment Fund | 1,825,798 | 4.68 |
| TIAA-CREF Social Choice Bond Fund | 1,802,817 | 4.62 |
| **Hedge Funds** | **3,895,494** | **9.99** |
| Private Advisors Hedged Equity | 2,369,137 | 6.07 |
| Millennium International Ltd | 1,526,357 | 3.91 |
| **Real Assets** | **1,921,314** | **4.93** |
| Blackstone Real Estate Income Trust | 1,921,314 | 4.93 |
| **Cash and Equivalents** | **41,251** | **0.11** |
| Cash Holding Account | 41,251 | 0.11 |
| **CSU Foundation Total Fund** | **39,010,831** | **100.00** |

March 31, 2021 : $39,010,831



| | Market Value ($) | Allocation (%) |
|---|---|---|
| Public Equities | 22,539,710 | 57.78 |
| Private Equity | 3,442,607 | 8.82 |
| Fixed Income | 7,170,455 | 18.38 |
| Hedge Funds | 3,895,494 | 9.99 |
| Real Assets | 1,921,314 | 4.93 |
| Cash and Equivalents | 41,251 | 0.11 |

March 31, 2021




March 31, 2021

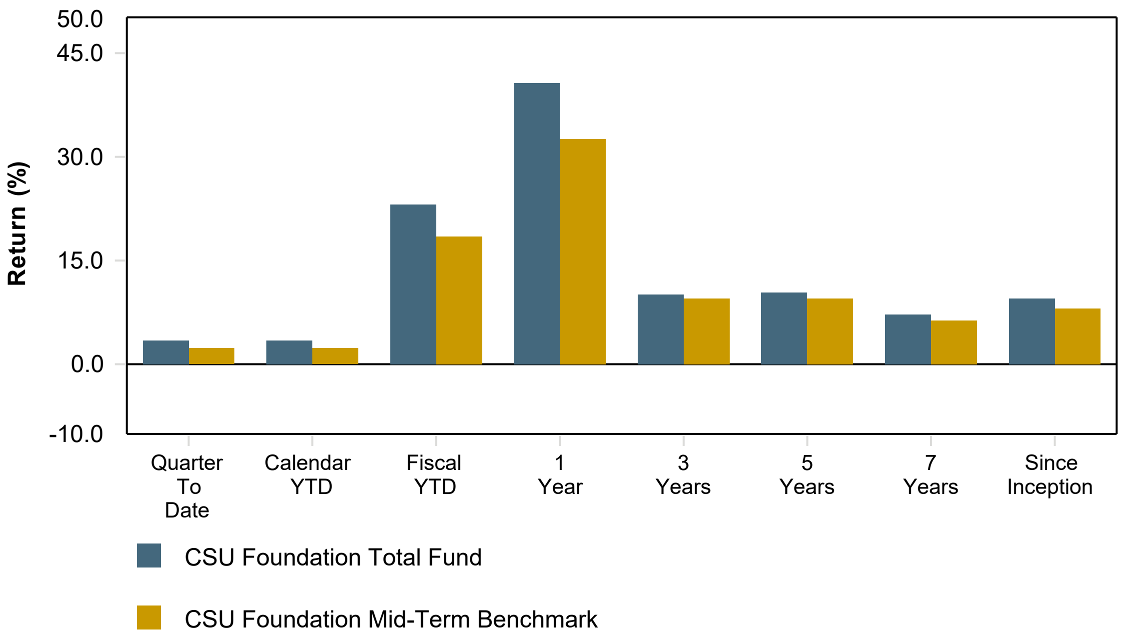
| | Market Value ($) | Allocation (%) | Mid-Term Target (%) |
|---|---|---|---|
| Public Equities | 22,539,710 | 57.78 | 56.50 |
| Fixed Income | 7,170,455 | 18.38 | 20.00 |
| Hedge Funds | 3,895,494 | 9.99 | 10.00 |
| Real Assets | 1,921,314 | 4.93 | 5.00 |
| Private Equity | 3,442,607 | 8.82 | 8.50 |
| Cash and Equivalents | 41,251 | 0.11 | 0.00 |
| Total Fund | 39,010,831 | 100.00 | 100.00 |

*Value as of 12/31/20, adjusted for capital calls & distributions through 03/31/21

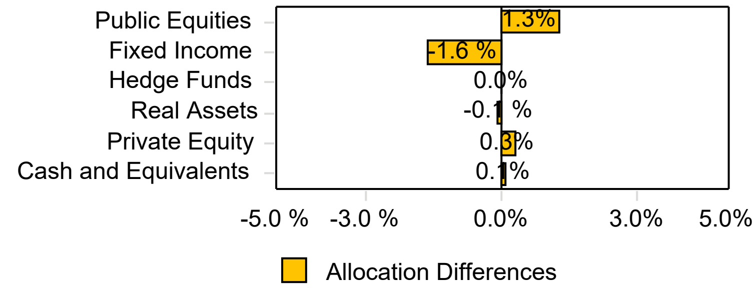
**Value reflects initial funding

# CSU Foundation
# Executive Summary
# As of March 31, 2021

## Total Fund Performance vs. Benchmark




## Asset Allocation vs. Target




| | Market Value ($) | Allocation (%) | Target (%) |
|---|---|---|---|
| Public Equities | 22,539,710 | 57.78 | 56.50 |
| Fixed Income | 7,170,455 | 18.38 | 20.00 |
| Hedge Funds | 3,895,494 | 9.99 | 10.00 |
| Real Assets | 1,921,314 | 4.93 | 5.00 |
| Private Equity | 3,442,607 | 8.82 | 8.50 |
| Cash and Equivalents | 41,251 | 0.11 | 0.00 |
| Total Fund | 39,010,831 | 100.00 | 100.00 |

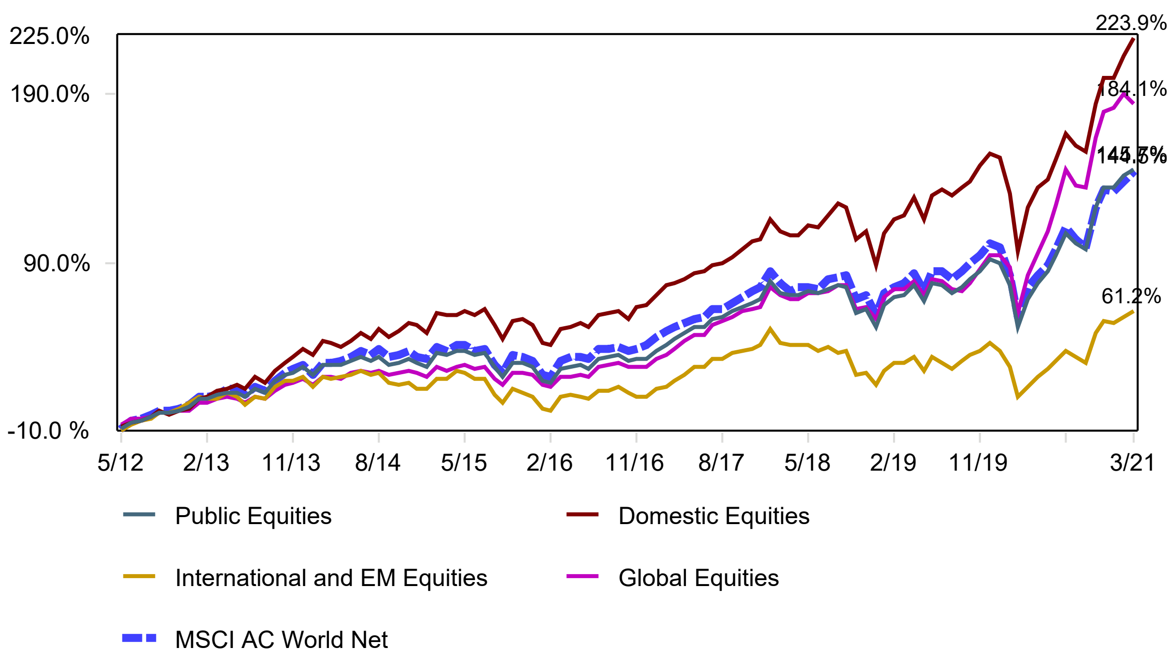
| | Allocation | | Performance(%) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Market Value ($) | % | Quarter To Date | YTD | Fiscal YTD | 1 Year | 3 Years | 5 Years | 7 Years | 10 Years | Since Inception | Inception Date |
| **CSU Foundation Total Fund** | **39,010,831** | **100.00** | **3.40** | **3.40** | **23.21** | **40.54** | **10.00** | **10.48** | **7.23** | **7.22** | **9.41** | **12/01/2008** |
| CSU Foundation Mid-Term Benchmark | | | 2.18 | 2.18 | 18.47 | 32.67 | 9.48 | 9.58 | 6.29 | 5.94 | 8.04 | |
| CPI + 4% | | | 1.97 | 1.97 | 5.76 | 6.49 | 5.88 | 6.10 | 5.65 | 5.70 | 5.76 | |
| **Public Equities** | **22,539,710** | **57.78** | **4.56** | **4.56** | **32.82** | **62.24** | **12.98** | **14.18** | **9.65** | **9.38** | **13.14** | **02/01/2009** |
| MSCI AC World Net | | | 4.57 | 4.57 | 29.68 | 54.60 | 12.07 | 13.21 | 9.40 | 9.14 | 12.41 | |
| **Fixed Income** | **7,170,455** | **18.38** | **-2.80** | **-2.80** | **-1.52** | **1.55** | **2.63** | **2.96** | **2.37** | **3.17** | **4.76** | **02/01/2009** |
| Barclays Aggregate | | | -3.37 | -3.37 | -2.12 | 0.71 | 4.65 | 3.10 | 3.31 | 3.44 | 3.96 | |
| **Hedge Funds** | **3,895,494** | **9.99** | **2.27** | **2.27** | **19.24** | **29.96** | **7.83** | **8.02** | **7.09** | **6.53** | **6.64** | **07/01/2010** |
| HFRI Fund of Funds Comp | | | 1.88 | 1.88 | 14.83 | 23.84 | 5.43 | 5.61 | 3.88 | 3.42 | 3.92 | |
| **Real Assets** | **1,921,314** | **4.93** | **4.37** | **4.37** | **15.99** | **21.17** | **-1.85** | **1.91** | **-2.50** | **-0.21** | **0.55** | **07/01/2010** |
| Real Assets Benchmark | | | 2.09 | 2.09 | 3.91 | 3.43 | 3.58 | 4.70 | 1.67 | 1.58 | N/A | |

See Disclosures for Benchmark Descriptions

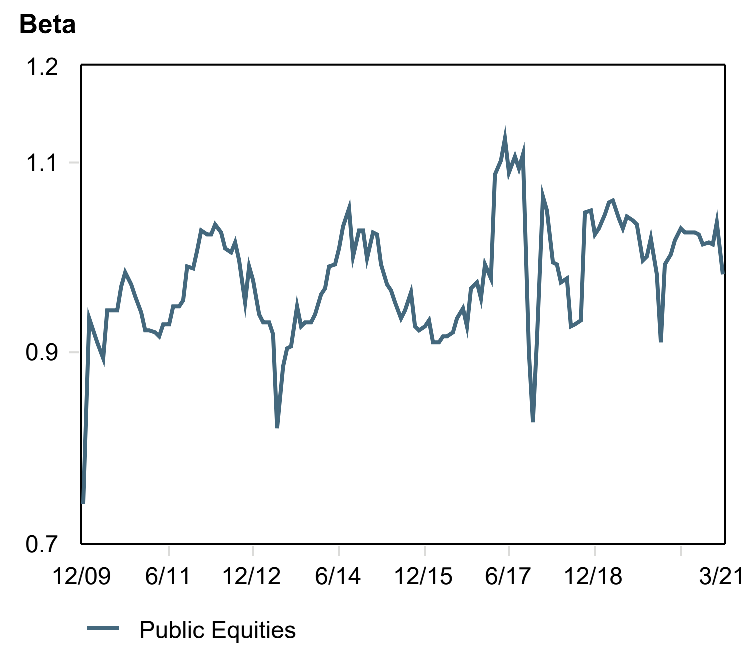
# CSU Foundation
# Executive Summary - Public Equities
# As of March 31, 2021

| | Allocation | | Performance(%) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Market Value ($) | % | Quarter To Date | YTD | Fiscal YTD | 1 Year | 3 Years | 5 Years | 7 Years | Since Inception | Inception Date |
| **Public Equities** | **22,539,710** | **100.00** | **4.56** | **4.56** | **32.82** | **62.24** | **12.98** | **14.18** | **9.65** | **13.14** | **02/01/2009** |
| MSCI AC World Net | | | 4.57 | 4.57 | 29.68 | 54.60 | 12.07 | 13.21 | 9.40 | 12.41 | |
| **Domestic Equities** | **7,901,887** | **35.06** | **8.13** | **8.13** | **34.91** | **64.67** | **16.28** | **16.64** | **12.50** | **15.80** | **02/01/2009** |
| Russell 3000 | | | 6.35 | 6.35 | 33.19 | 62.53 | 17.12 | 16.64 | 13.44 | 16.39 | |
| **International and EM Equities** | **7,767,867** | **34.46** | **3.78** | **3.78** | **27.61** | **47.04** | **4.65** | **8.13** | **4.29** | **9.92** | **02/01/2009** |
| MSCI AC World ex US Net | | | 3.49 | 3.49 | 28.67 | 49.41 | 6.56 | 9.76 | 5.26 | 9.09 | |
| **Global Equities** | **6,869,956** | **30.48** | **1.67** | **1.67** | **36.48** | **78.42** | **19.45** | **18.71** | **13.07** | **12.29** | **07/01/2010** |
| MSCI AC World Net | | | 4.57 | 4.57 | 29.68 | 54.60 | 12.07 | 13.21 | 9.40 | 11.14 | |

## Total Fund Performance vs. Benchmark



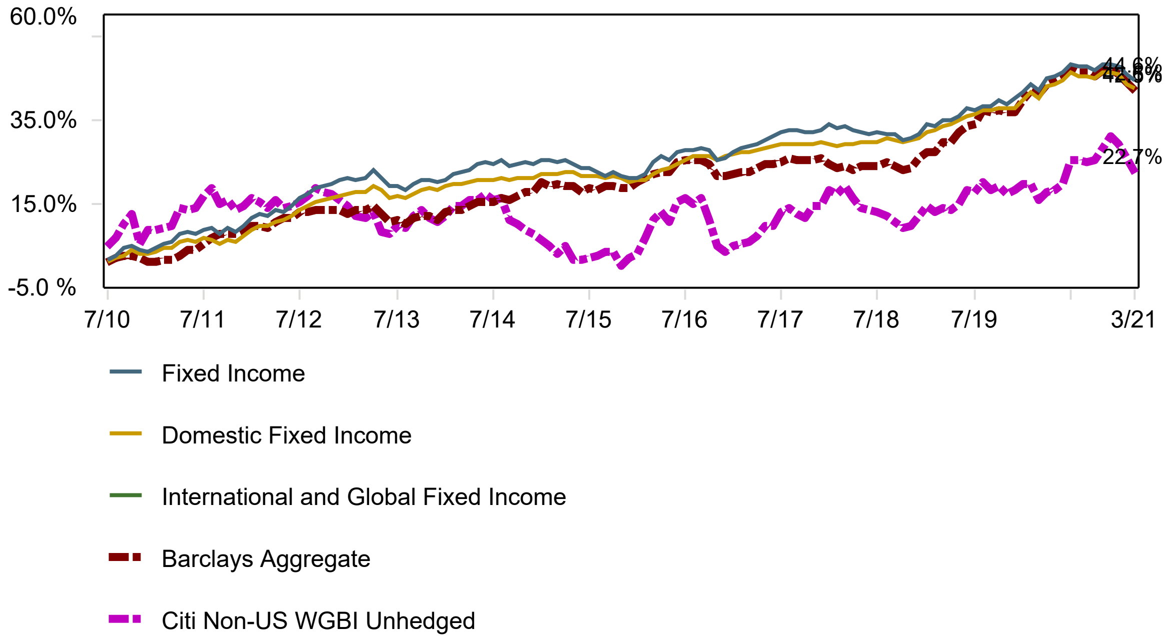

## Rolling 12 Month Beta vs. ACWI



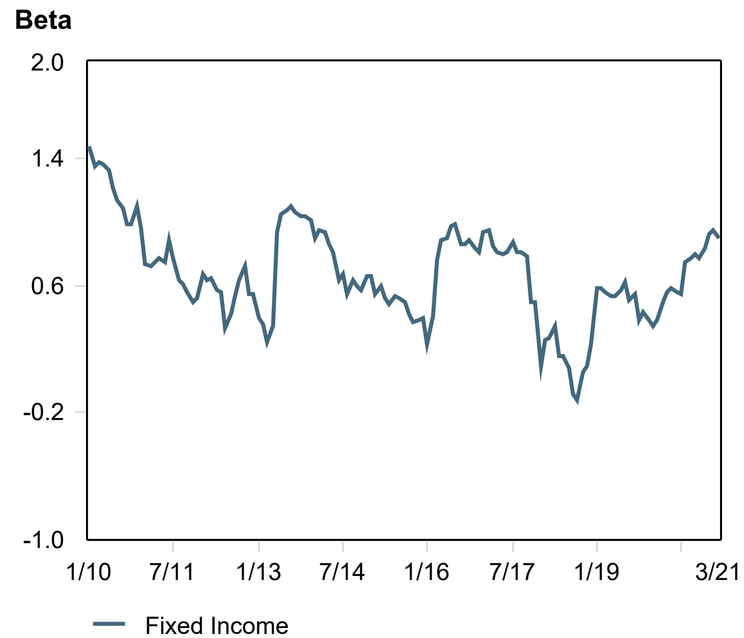
# CSU Foundation
## Executive Summary - Fixed Income
## As of March 31, 2021

| | Allocation | | Performance(%) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Market Value ($) | % | Quarter To Date | YTD | Fiscal YTD | 1 Year | 3 Years | 5 Years | 7 Years | Since Inception | Inception Date |
| **Fixed Income** | **7,170,455** | **100.00** | **-2.80** | **-2.80** | **-1.52** | **1.55** | **2.63** | **2.96** | **2.37** | **4.76** | **02/01/2009** |
| Barclays Aggregate | | | -3.37 | -3.37 | -2.12 | 0.71 | 4.65 | 3.10 | 3.31 | 3.96 | |
| **Domestic Fixed Income** | **7,170,455** | **100.00** | **-2.80** | **-2.80** | **-1.52** | **1.55** | **3.29** | **3.15** | **2.53** | **4.67** | **02/01/2009** |
| Barclays Aggregate | | | -3.37 | -3.37 | -2.12 | 0.71 | 4.65 | 3.10 | 3.31 | 3.96 | |

### Total Fund Performance vs. Benchmark



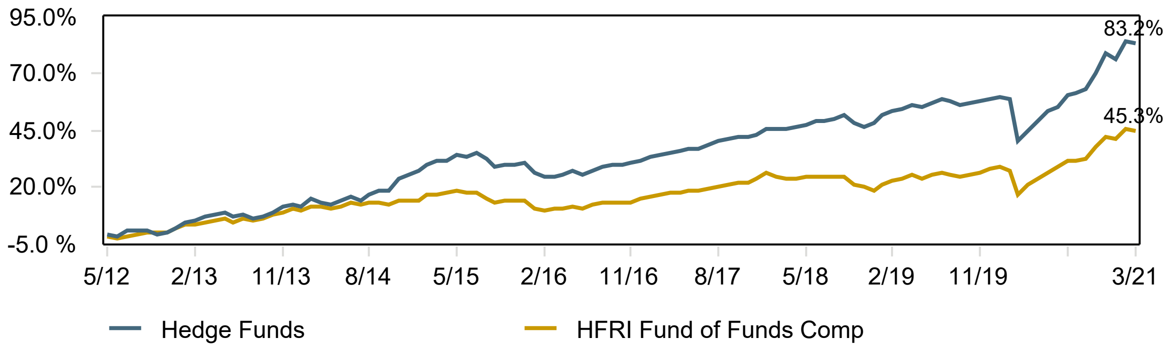

### Rolling 12 Month Beta vs. Citi WGBI



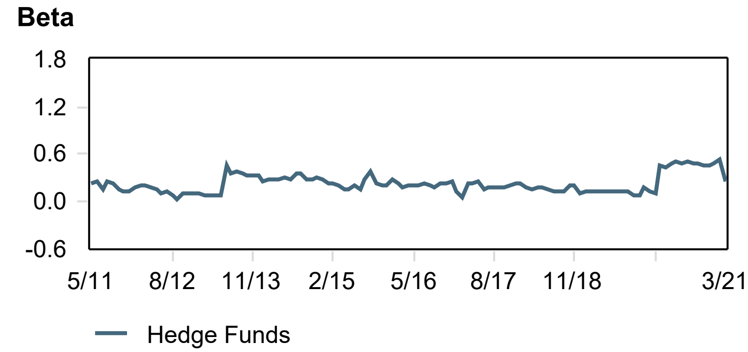
# CSU Foundation
# Executive Summary - Alternatives
# As of March 31, 2021

| | Allocation | | Performance(%) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Market Value ($) | % | Quarter To Date | YTD | Fiscal YTD | 1 Year | 3 Years | 5 Years | 7 Years | Since Inception | Inception Date |
| **Hedge Funds** | **3,895,494** | | **2.27** | **2.27** | **19.24** | **29.96** | **7.83** | **8.02** | **7.09** | **6.64** | **07/01/2010** |
| HFRI Fund of Funds Comp | | | 1.88 | 1.88 | 14.83 | 23.84 | 5.43 | 5.61 | 3.88 | 3.92 | |
| **Real Assets** | **1,921,314** | | **4.37** | **4.37** | **15.99** | **21.17** | **-1.85** | **1.91** | **-2.50** | **0.55** | **07/01/2010** |
| Real Assets Benchmark | | | 2.09 | 2.09 | 3.91 | 3.43 | 3.58 | 4.70 | 1.67 | N/A | |

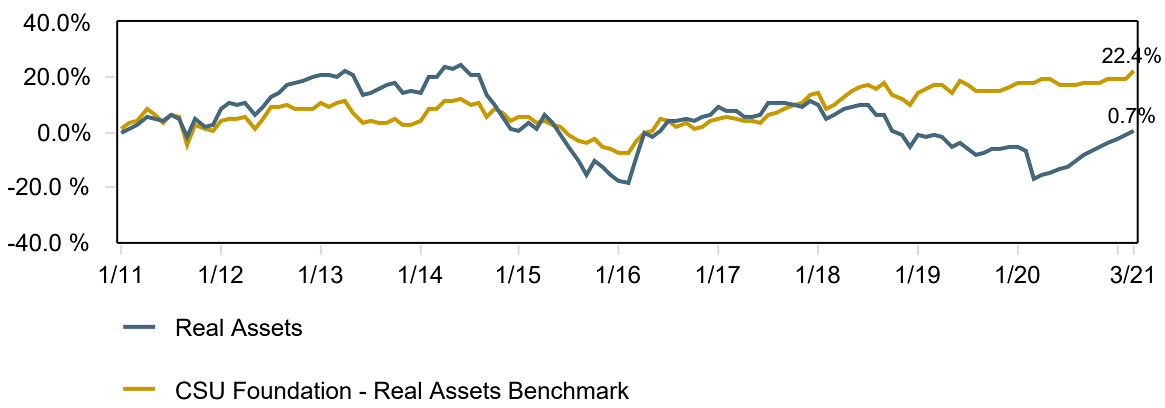
### Hedge Funds vs. HFRI Fund of Funds



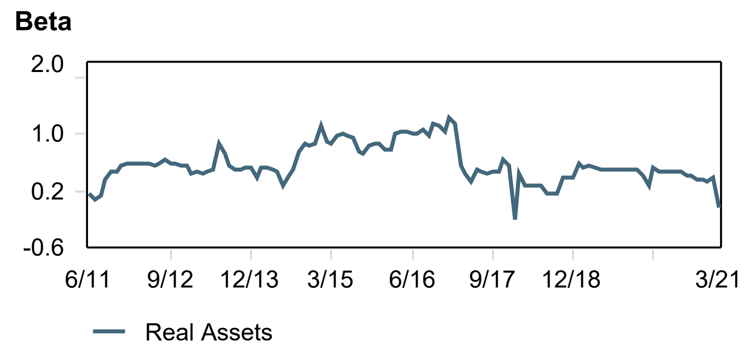

### Hedge Fund Rolling 12 Month Beta vs. MSCI AC World Net




### Real Assets vs. Real Assets Blend




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




See Disclosures for Benchmark Descriptions

## CSU Foundation
## Asset Allocation & Performance
## As of March 31, 2021

| | Allocation | | Performance(%) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Market Value ($) | % | Quarter To Date | YTD | Fiscal YTD | 1 Year | 3 Years | 5 Years | 7 Years | 10 Years | Since Inception | Inception Date |
| **CSU Foundation Total Fund** | **39,010,831** | **100.00** | **3.40** | **3.40** | **23.21** | **40.54** | **10.00** | **10.48** | **7.23** | **7.22** | **9.41** | **12/01/2008** |
| CSU Foundation Mid-Term Benchmark | | | 2.18 | 2.18 | 19.54 | 33.75 | 9.82 | 9.78 | 6.43 | 6.03 | 8.12 | |
| Difference | | | 1.22 | 1.22 | 3.67 | 6.79 | 0.18 | 0.70 | 0.80 | 1.19 | 1.29 | |
| **CPI + 4%** | | | **1.97** | **1.97** | **5.76** | **6.49** | **5.88** | **6.10** | **5.65** | **5.70** | **5.76** | **12/01/2008** |
| **Public Equities** | **22,539,710** | **57.78** | **4.56** | **4.56** | **32.82** | **62.24** | **12.98** | **14.18** | **9.65** | **9.38** | **13.14** | **02/01/2009** |
| MSCI AC World Net | | | 4.57 | 4.57 | 29.68 | 54.60 | 12.07 | 13.21 | 9.40 | 9.14 | 12.41 | |
| Difference | | | -0.01 | -0.01 | 3.14 | 7.64 | 0.91 | 0.97 | 0.25 | 0.24 | 0.73 | |
| **Domestic Equities** | **7,901,887** | **20.26** | **8.13** | **8.13** | **34.91** | **64.67** | **16.28** | **16.64** | **12.50** | **12.70** | **15.80** | **02/01/2009** |
| Russell 3000 | | | 6.35 | 6.35 | 33.19 | 62.53 | 17.12 | 16.64 | 13.44 | 13.79 | 16.39 | |
| Difference | | | 1.78 | 1.78 | 1.72 | 2.14 | -0.84 | 0.00 | -0.94 | -1.09 | -0.59 | |
| **Aperio Custom ESG** | **3,238,455** | **8.30** | **6.09** | **6.09** | **28.20** | **54.21** | **N/A** | **N/A** | **N/A** | **N/A** | **20.20** | **08/01/2019** |
| S&P 500 Total Return | | | 6.17 | 6.17 | 29.71 | 56.35 | N/A | N/A | N/A | N/A | 21.01 | |
| Difference | | | -0.08 | -0.08 | -1.51 | -2.14 | N/A | N/A | N/A | N/A | -0.81 | |
| **Aristotle Large Cap Value** | **3,318,484** | **8.51** | **9.84** | **9.84** | **37.58** | **67.82** | **15.76** | **16.62** | **13.32** | **N/A** | **14.87** | **07/01/2013** |
| Russell 1000 Value | | | 11.25 | 11.25 | 36.57 | 56.09 | 10.96 | 11.74 | 9.40 | N/A | 10.75 | |
| Difference | | | -1.41 | -1.41 | 1.01 | 11.73 | 4.80 | 4.88 | 3.92 | N/A | 4.12 | |
| **Great Lakes SMID Cap ESG** | **1,344,948** | **3.45** | **8.75** | **8.75** | **45.54** | **84.64** | **N/A** | **N/A** | **N/A** | **N/A** | **20.90** | **08/01/2019** |
| Russell 2500 | | | 10.93 | 10.93 | 49.65 | 89.40 | N/A | N/A | N/A | N/A | 22.94 | |
| Difference | | | -2.18 | -2.18 | -4.11 | -4.76 | N/A | N/A | N/A | N/A | -2.04 | |

See Disclosures for Benchmark Descriptions

## CSU Foundation
## Asset Allocation & Performance
## As of March 31, 2021

| | Allocation | | Performance(%) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Market Value ($) | % | Quarter To Date | YTD | Fiscal YTD | 1 Year | 3 Years | 5 Years | 7 Years | 10 Years | Since Inception | Inception Date |
| **International and EM Equities** | **7,767,867** | **19.91** | **3.78** | **3.78** | **27.61** | **47.04** | **4.65** | **8.13** | **4.29** | **4.67** | **9.92** | **02/01/2009** |
| MSCI AC World ex US Net | | | 3.49 | 3.49 | 28.67 | 49.41 | 6.56 | 9.76 | 5.26 | 4.93 | 9.09 | |
| Difference | | | 0.29 | 0.29 | -1.06 | -2.37 | -1.91 | -1.63 | -0.97 | -0.26 | 0.83 | |
| **iShares MSCI EAFE Optimized** | **4,349,981** | **11.15** | **3.89** | **3.89** | **26.05** | **44.94** | **N/A** | **N/A** | **N/A** | **N/A** | **14.10** | **08/01/2019** |
| MSCI EAFE ESG Focus NR USD | | | 3.38 | 3.38 | 26.48 | 45.23 | N/A | N/A | N/A | N/A | 13.25 | |
| Difference | | | 0.51 | 0.51 | -0.43 | -0.29 | N/A | N/A | N/A | N/A | 0.85 | |
| **Domini Impact Intl Eqty Fds** | **2,442,976** | **6.26** | **4.04** | **4.04** | **27.45** | **46.50** | **N/A** | **N/A** | **N/A** | **N/A** | **11.46** | **08/01/2019** |
| MSCI EAFE Net | | | 3.48 | 3.48 | 25.84 | 44.57 | N/A | N/A | N/A | N/A | 12.06 | |
| Difference | | | 0.56 | 0.56 | 1.61 | 1.93 | N/A | N/A | N/A | N/A | -0.60 | |
| **GQG Partners Emerging Mkts Fd** | **974,910** | **2.50** | **N/A** | **N/A** | **N/A** | **N/A** | **N/A** | **N/A** | **N/A** | **N/A** | **N/A** | **04/01/2021** |
| MSCI EM Net | | | 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 | |
| **Global Equities** | **6,869,956** | **17.61** | **1.67** | **1.67** | **36.48** | **78.42** | **19.45** | **18.71** | **13.07** | **11.09** | **12.29** | **07/01/2010** |
| MSCI AC World Net | | | 4.57 | 4.57 | 29.68 | 54.60 | 12.07 | 13.21 | 9.40 | 9.14 | 11.14 | |
| Difference | | | -2.90 | -2.90 | 6.80 | 23.82 | 7.38 | 5.50 | 3.67 | 1.95 | 1.15 | |
| **Davis Global ADR** | **3,493,298** | **8.95** | **9.59** | **9.59** | **41.38** | **74.05** | **N/A** | **N/A** | **N/A** | **N/A** | **25.73** | **08/01/2019** |
| MSCI AC World Net | | | 4.57 | 4.57 | 29.68 | 54.60 | N/A | N/A | N/A | N/A | 18.12 | |
| Difference | | | 5.02 | 5.02 | 11.70 | 19.45 | N/A | N/A | N/A | N/A | 7.61 | |
| **Jennison Global Opportunities** | **3,376,658** | **8.66** | **-6.01** | **-6.01** | **30.95** | **81.23** | **24.84** | **N/A** | **N/A** | **N/A** | **28.20** | **12/01/2016** |
| MSCI AC World Net | | | 4.57 | 4.57 | 29.68 | 54.60 | 12.07 | N/A | N/A | N/A | 14.02 | |
| Difference | | | -10.58 | -10.58 | 1.27 | 26.63 | 12.77 | N/A | N/A | N/A | 14.18 | |

See Disclosures for Benchmark Descriptions

# CSU Foundation
## Asset Allocation & Performance
## As of March 31, 2021

| | Allocation | | Performance(%) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Market Value ($) | % | Quarter To Date | YTD | Fiscal YTD | 1 Year | 3 Years | 5 Years | 7 Years | 10 Years | Since Inception | Inception Date |
| **Domestic Fixed Income** | **7,170,455** | **18.38** | **-2.80** | **-2.80** | **-1.52** | **1.55** | **3.29** | **3.15** | **2.53** | **3.15** | **4.67** | **02/01/2009** |
| Barclays Aggregate | | | -3.37 | -3.37 | -2.12 | 0.71 | 4.65 | 3.10 | 3.31 | 3.44 | 3.96 | |
| Difference | | | 0.57 | 0.57 | 0.60 | 0.84 | -1.36 | 0.05 | -0.78 | -0.29 | 0.71 | |
| **BlackRock Fundamental Core Taxable** | **3,541,840** | **9.08** | **-3.50** | **-3.50** | **-2.65** | **0.23** | **N/A** | **N/A** | **N/A** | **N/A** | **1.72** | **02/01/2020** |
| Barclays Aggregate | | | -3.37 | -3.37 | -2.12 | 0.71 | N/A | N/A | N/A | N/A | 1.65 | |
| Difference | | | -0.13 | -0.13 | -0.53 | -0.48 | N/A | N/A | N/A | N/A | 0.07 | |
| **CRA Qualified Investment Fund** | **1,825,798** | **4.68** | **-1.29** | **-1.29** | **-0.66** | **0.88** | **N/A** | **N/A** | **N/A** | **N/A** | **1.63** | **02/01/2020** |
| Barclays Aggregate | | | -3.37 | -3.37 | -2.12 | 0.71 | N/A | N/A | N/A | N/A | 1.65 | |
| Difference | | | 2.08 | 2.08 | 1.46 | 0.17 | N/A | N/A | N/A | N/A | -0.02 | |
| **TIAA-CREF Social Choice Bond Fund** | **1,802,817** | **4.62** | **-2.92** | **-2.92** | **-0.15** | **4.92** | **N/A** | **N/A** | **N/A** | **N/A** | **1.72** | **02/01/2020** |
| Barclays Aggregate | | | -3.37 | -3.37 | -2.12 | 0.71 | N/A | N/A | N/A | N/A | 1.65 | |
| Difference | | | 0.45 | 0.45 | 1.97 | 4.21 | N/A | N/A | N/A | N/A | 0.07 | |
| **Hedge Funds** | **3,895,494** | **9.99** | **2.27** | **2.27** | **19.24** | **29.96** | **7.83** | **8.02** | **7.09** | **6.53** | **6.64** | **07/01/2010** |
| HFRI Fund of Funds Comp | | | 1.87 | 1.87 | 14.82 | 23.83 | 5.43 | 5.61 | 3.88 | 3.42 | 3.92 | |
| Difference | | | 0.40 | 0.40 | 4.42 | 6.13 | 2.40 | 2.41 | 3.21 | 3.11 | 2.72 | |
| **Millennium Intl Ltd** | **1,526,357** | **3.91** | **2.96** | **2.96** | **17.76** | **29.05** | **12.62** | **11.58** | **N/A** | **N/A** | **10.36** | **02/01/2015** |
| HFRI Fund of Funds Comp | | | 1.87 | 1.87 | 14.82 | 23.83 | 5.43 | 5.61 | N/A | N/A | 3.92 | |
| Difference | | | 1.09 | 1.09 | 2.94 | 5.22 | 7.19 | 5.97 | N/A | N/A | 6.44 | |
| **Private Advisors Hedged Equity** | **2,369,137** | **6.07** | **1.49** | **1.49** | **22.38** | **36.32** | **11.32** | **10.18** | **6.96** | **N/A** | **7.42** | **08/01/2011** |
| HFRI FOF Diversified | | | 1.61 | 1.61 | 13.60 | 21.78 | 5.50 | 5.36 | 3.78 | N/A | 3.62 | |
| Difference | | | -0.12 | -0.12 | 8.78 | 14.54 | 5.82 | 4.82 | 3.18 | N/A | 3.80 | |
| **Real Assets** | **1,921,314** | **4.93** | **4.37** | **4.37** | **15.99** | **21.17** | **-1.85** | **1.91** | **-2.50** | **-0.21** | **0.55** | **07/01/2010** |
| Real Assets Benchmark | | | 2.09 | 2.09 | 3.91 | 3.43 | 3.58 | 4.70 | 1.67 | 1.58 | N/A | |
| Difference | | | 2.28 | 2.28 | 12.08 | 17.74 | -5.43 | -2.79 | -4.17 | -1.79 | N/A | |
| **Blackstone Real Estate Income Trust** | **1,921,314** | **4.93** | **4.37** | **4.37** | **15.99** | **19.88** | **N/A** | **N/A** | **N/A** | **N/A** | **9.53** | **08/01/2018** |
| NCREIF NFI ODCE Value Weighted | | | 2.09 | 2.09 | 3.91 | 2.29 | N/A | N/A | N/A | N/A | 4.70 | |
| Difference | | | 2.28 | 2.28 | 12.08 | 17.59 | N/A | N/A | N/A | N/A | 4.83 | |

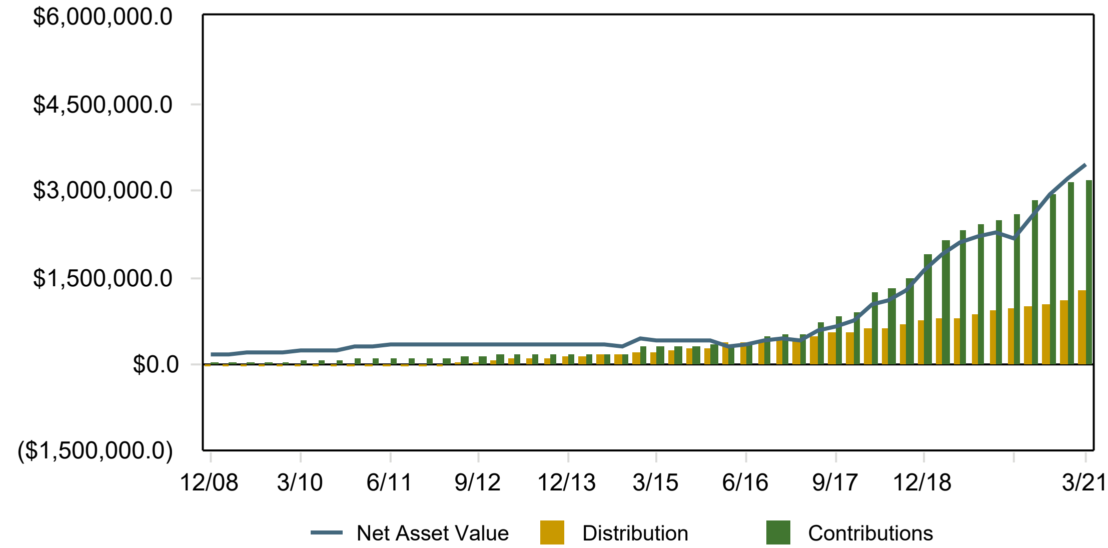
See Disclosures for Benchmark Descriptions

# California State University System
# Private Equity
# As of March 31, 2021

## Cash Flow Summary

| | |
|---|---|
| Capital Committed: | $5,369,000 |
| Capital Invested: | $3,388,494 |
| Total Contributions: | $3,426,031 |
| Remaining Capital Commitment: | $2,263,696 |
| Total Distributions: | $1,309,214 |
| Market Value: | $3,442,607 |
| Inception Date: | 11/01/2008 |
| Inception IRR: | 11.86 |
| TVPI: | 1.39 |

## Cash Flow Analysis




## Private Equity Portfolio

| Partnerships | Capital Committed ($) | Total Contribution ($) | Total Distribution ($) | Market Value ($) | IRR (%) | TVPI Multiple |
|---|---|---|---|---|---|---|
| Northern Trust Private Equity | 419,000 | 403,874 | 519,338 | 31,747 | 4.87 | 1.36 |
| Private Advisors Small Company Buyout | 1,000,000 | 984,640 | 609,878 | 708,114 | 11.45 | 1.34 |
| KKR Americas Fund XII | 1,000,000 | 662,724 | 79,876 | 1,223,537 | 38.08 | 1.97 |
| Hamilton Lane Private Markets Opp Fund | 750,000 | 523,644 | 85,583 | 528,387 | 7.69 | 1.17 |
| CPG Vintage Access Fund, LLC | 750,000 | 520,361 | 14,539 | 584,449 | 6.98 | 1.15 |
| CPG Vintage Access Fund II, LLC | 750,000 | 295,788 | - | 331,373 | 7.98 | 1.12 |
| TrueBridge Select Fund I (Cayman), L.P. | 700,000 | 35,000 | - | 35,000 | 0.00 | 1.00 |
| Private Equity | 5,369,000 | 3,426,031 | 1,309,214 | 3,442,607 | 11.86 | 1.39 |

Excluding KKR Americas Fund XII and TrueBridge Select Fund I (Cayman), L.P., value as of 12/31/20, adjusted for capital calls & distributions through 03/31/21
TrueBridge Select Fund I (Cayman), L.P. value reflects initial funding

## CSU Foundation

## Private Equity and Private Real Asset Performance Summary
## As of March 31, 2021

| Partnerships | Capital Commitment ($) | Drawn Down ($) | Market Value ($) | Distributed ($) | IRR (%) | TVPI Multiple | Commitment Date | % Funded | Remaining Commitment ($) |
|---|---|---|---|---|---|---|---|---|---|
| Private Advisors Small Company Buyout | 1,000,000 | 984,640 | 708,114 | 609,878 | 11.95 | 1.34 | 12/01/2014 | 75.27 | 247,339 |
| Northern Trust Private Equity | 419,000 | 403,874 | 31,747 | 519,338 | 4.87 | 1.36 | 06/01/2005 | 96.39 | 15,126 |
| KKR Americas Fund XII | 1,000,000 | 662,724 | 1,223,537 | 79,876 | 38.08 | 1.97 | 12/01/2015 | 61.85 | 381,509 |
| Hamilton Lane Private Markets Opp Fund | 750,000 | 523,644 | 528,387 | 85,583 | 7.72 | 1.17 | 12/01/2016 | 64.70 | 264,722 |
| CPG Vintage Access Fund, LLC | 750,000 | 520,361 | 584,449 | 14,539 | 6.98 | 1.15 | 01/01/2018 | 69.00 | 232,500 |
| CPG Vintage Access Fund II, LLC | 750,000 | 295,788 | 331,373 | - | 7.98 | 1.12 | 01/01/2019 | 39.00 | 457,500 |

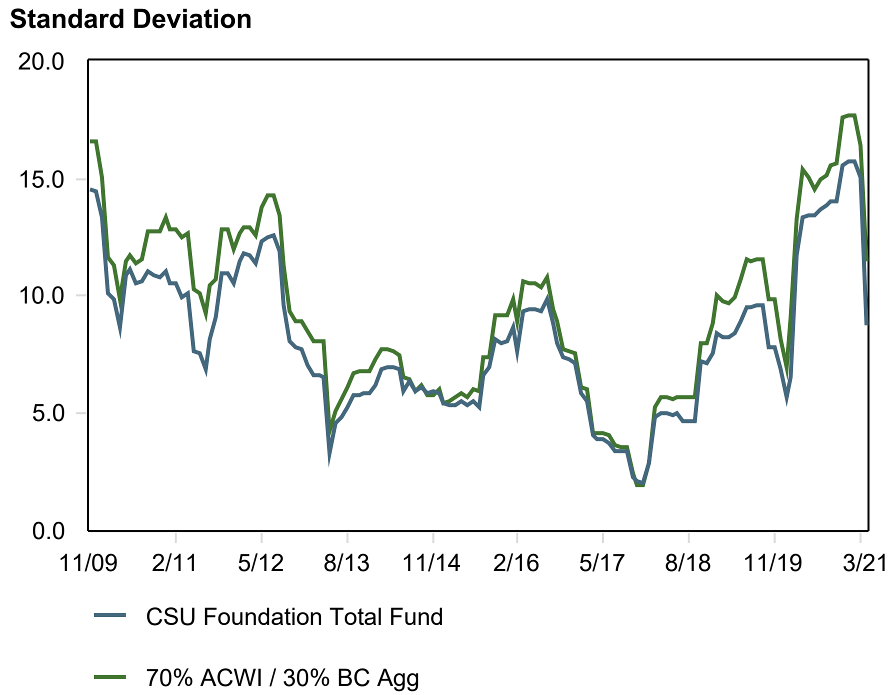
| | Quarter To Date | YTD | 1 Year | 3 Years | 5 Years | 7 Years | Since Inception | Inception Date |
|---|---|---|---|---|---|---|---|---|
| Private Advisors Small Company Buyout | 0.03 | 0.03 | 17.63 | 13.69 | 13.96 | N/A | 11.95 | 12/31/2014 |
| Northern Trust Private Equity | 0.00 | 0.00 | 37.66 | -8.55 | 1.40 | 2.89 | 4.87 | 06/01/2005 |
| KKR Americas Fund XII | 38.51 | 38.51 | 109.53 | 42.94 | N/A | N/A | 38.08 | 06/30/2017 |
| Hamilton Lane Private Markets Opp Fund | 0.00 | 0.00 | 5.51 | 7.52 | N/A | N/A | 7.72 | 04/30/2017 |
| CPG Vintage Access Fund, LLC | 0.00 | 0.00 | 25.56 | 7.67 | N/A | N/A | 6.98 | 03/08/2018 |
| CPG Vintage Access Fund II, LLC | 0.00 | 0.00 | 25.68 | N/A | N/A | N/A | 7.98 | 03/06/2019 |
| TrueBridge Select Fund I (Cayman), L.P. | N/A | N/A | N/A | N/A | N/A | N/A | 0.00 | 03/31/2021 |
| **CSUF Private Equity** | **11.16** | **11.16** | **39.05** | **17.57** | **15.80** | **13.54** | **10.71** | **06/01/2005** |

Returns are Dollar Weighted
Excluding KKR Americas Fund XII and TrueBridge Select Fund I (Cayman), L.P., value as of 12/31/20, adjusted for capital calls & distributions through 03/31/21
TrueBridge Select Fund I (Cayman), L.P. value reflects initial funding

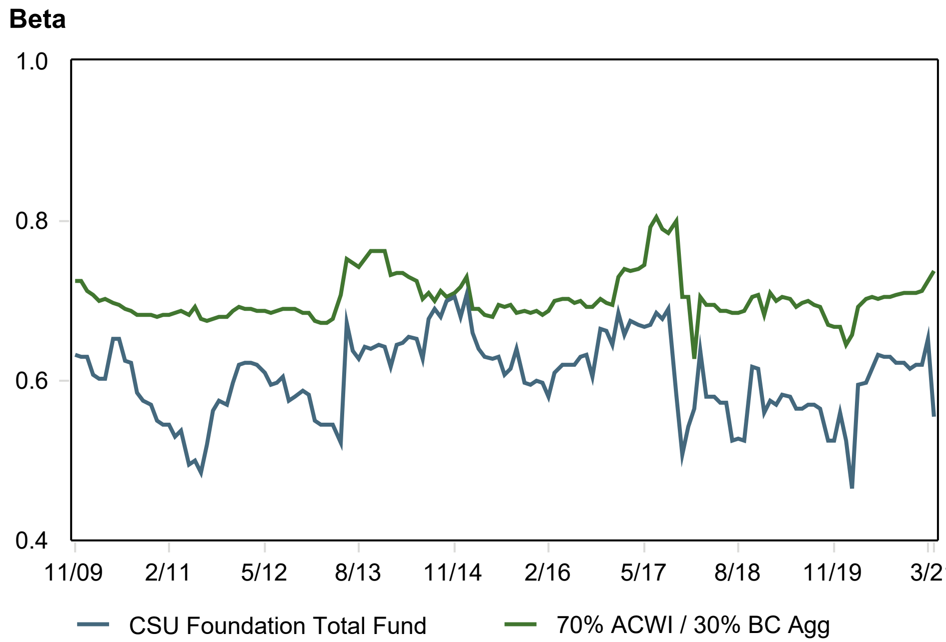
# CSU Foundation
# Risk Analytics
# As of March 31, 2021

| | 1 Year | 3 Years | 5 Years | 7 Years | 10 Years | Since Inception | Inception Date |
|---|---|---|---|---|---|---|---|
| Return | 40.54 | 10.00 | 10.48 | 7.23 | 7.22 | 9.41 | 12/01/2008 |
| Standard Deviation | 8.76 | 10.98 | 8.98 | 8.75 | 8.77 | 9.59 | |
| **vs. 70% S&P 500 / 30% BC Aggregate** | | | | | | | |
| Alpha | 13.29 | -0.71 | 0.58 | -1.36 | -1.94 | -0.96 | |
| Beta | 0.68 | 0.81 | 0.80 | 0.82 | 0.86 | 0.87 | |
| R-Squared | 0.89 | 0.88 | 0.85 | 0.86 | 0.86 | 0.88 | |
| **vs. 70% ACWI / 30% BC Agg** | | | | | | | |
| Alpha | 11.32 | 1.13 | 1.47 | 0.44 | 0.51 | 0.94 | |
| Beta | 0.75 | 0.86 | 0.86 | 0.87 | 0.87 | 0.87 | |
| R-Squared | 0.97 | 0.95 | 0.94 | 0.95 | 0.96 | 0.96 | |
| **vs. Mid-Term Benchmark** | | | | | | | |
| Alpha | 9.09 | 0.98 | 1.13 | 1.11 | 1.44 | - | |
| Beta | 0.93 | 1.02 | 1.01 | 1.01 | 1.00 | - | |
| R-Squared | 0.97 | 0.97 | 0.96 | 0.96 | 0.96 | - | |

## Rolling 12 Month Standard Deviation

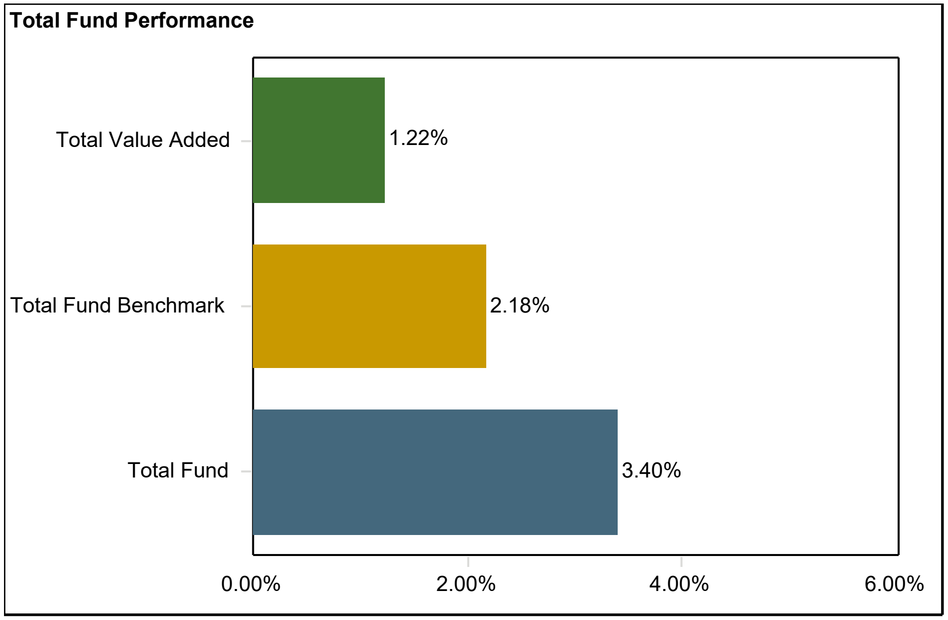


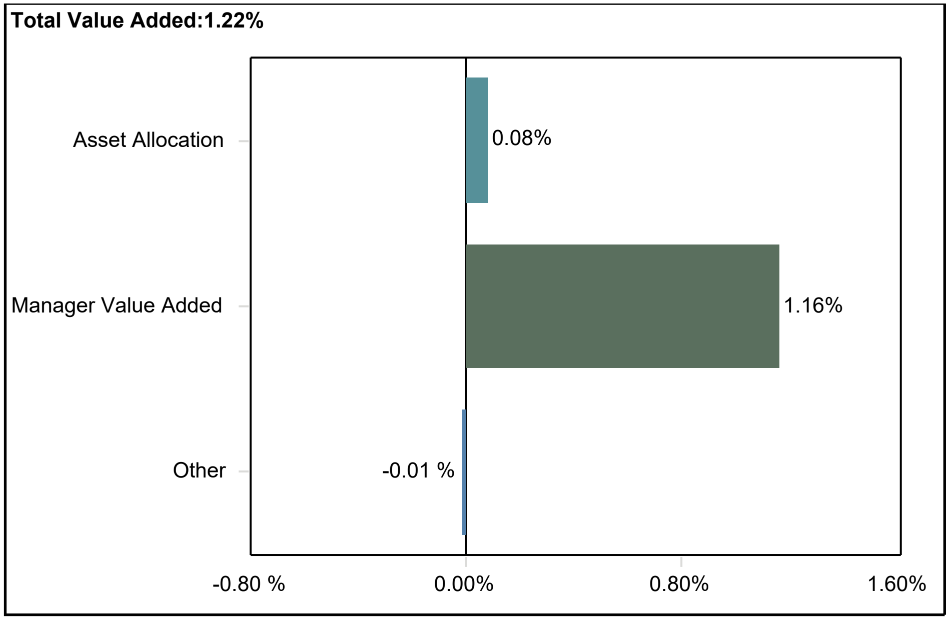

## Rolling 12 Month Beta vs. Global Equities

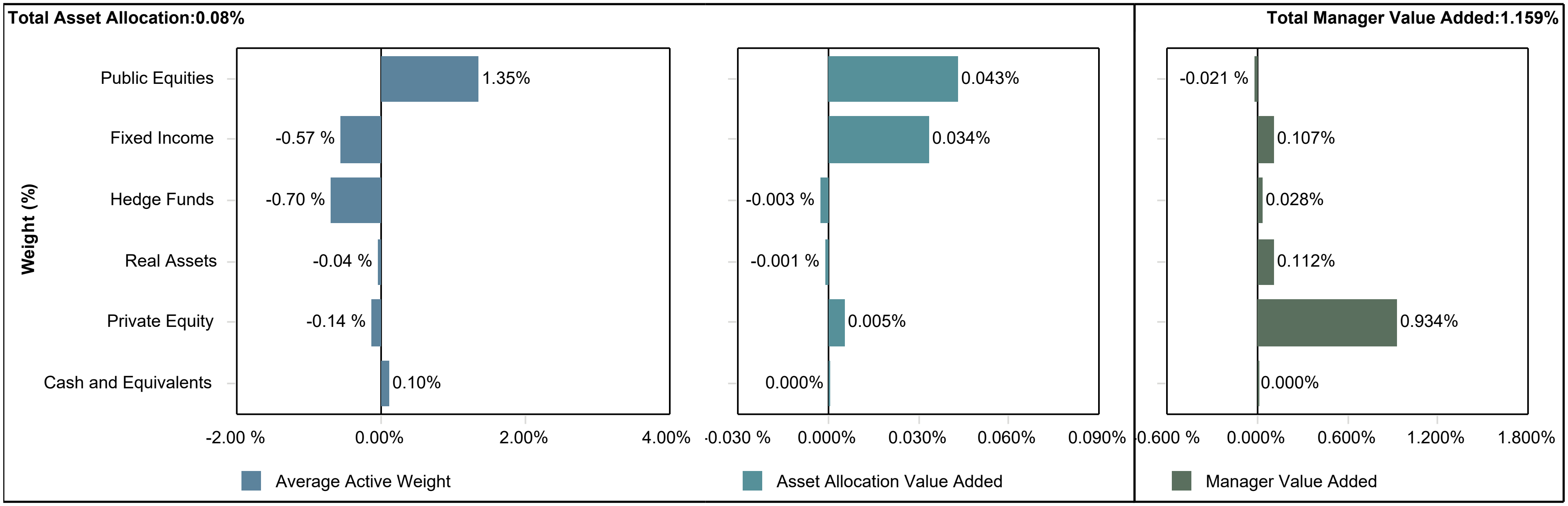



See Disclosures for Benchmark Descriptions

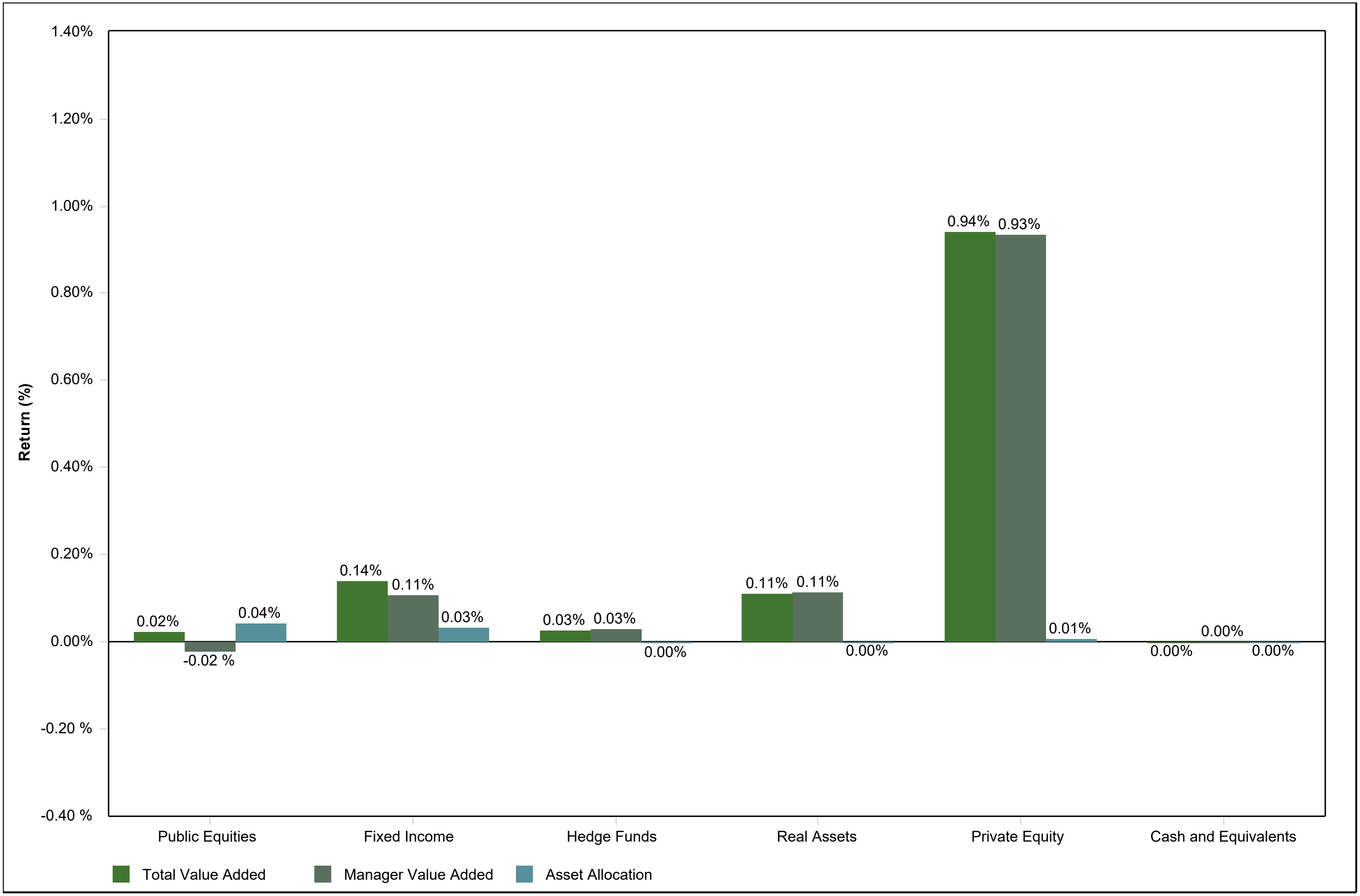
# CSU Foundation
# Attribution Report
# 1 Quarter Ending March 31, 2021



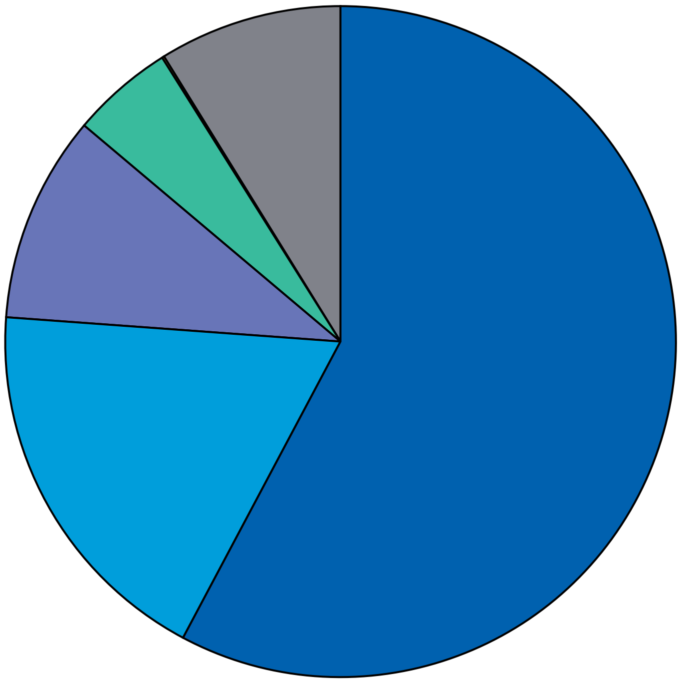
# CSU Foundation
## Attribution Report
## 1 Quarter Ending March 31, 2021



## California State University System

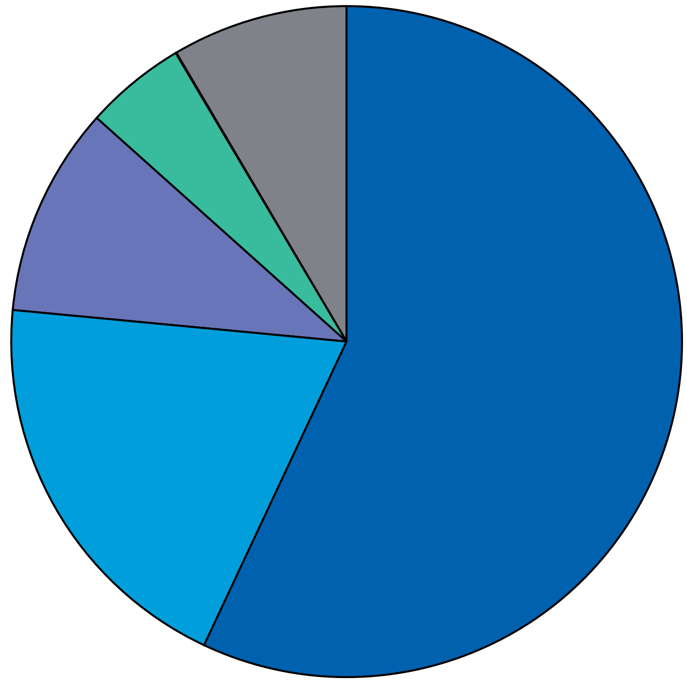
## As of March 31, 2021

**March 31, 2021 : $39,010,831**



| | Market Value ($) | Allocation (%) |
|---|---|---|
| Equity | 22,539,710 | 57.78 |
| Fixed Income | 7,170,455 | 18.38 |
| Hedge Fund | 3,895,494 | 9.99 |
| Real Return | 1,921,314 | 4.93 |
| Cash | 41,251 | 0.11 |
| Global Private Equity | 3,442,607 | 8.82 |

**December 31, 2020 : $37,826,524**

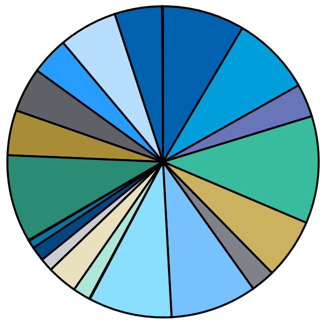


| | Market Value ($) | Allocation (%) |
|---|---|---|
| Equity | 21,557,301 | 56.99 |
| Fixed Income | 7,380,097 | 19.51 |
| Hedge Fund | 3,827,258 | 10.12 |
| Real Return | 1,840,915 | 4.87 |
| Cash | 12,928 | 0.03 |
| Global Private Equity | 3,208,025 | 8.48 |

# California State University System

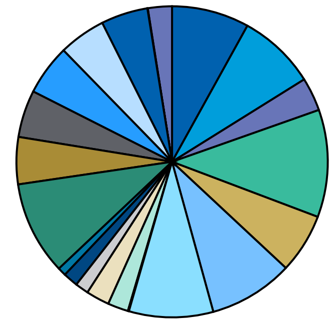
## As of March 31, 2021

**March 31, 2021 : $39,010,831**



| | Market Value ($) | Allocation (%) |
|---|---|---|
| Aristotle Value Equity | 3,318,484 | 8.51 |
| Aperio Custom ESG | 3,238,455 | 8.30 |
| Great Lakes SMID Cap ESG | 1,344,948 | 3.45 |
| iShares MSCI EAFE Optimized | 4,349,981 | 11.15 |
| Domini Impact Intl Eqty Fds | 2,442,976 | 6.26 |
| GQG Partners Emerging Mkts Fd | 974,910 | 2.50 |
| Davis Global ADR | 3,493,298 | 8.95 |
| Jennison Glbl Opportunities | 3,376,658 | 8.66 |
| Northern Trust Private Equity | 31,747 | 0.08 |
| Private Advisors Small Company Buyout | 708,114 | 1.82 |
| KKR Americas Fund XII | 1,223,537 | 3.14 |
| Hamilton Lane Private Markets Opp Fund | 528,387 | 1.35 |
| CPG Vintage Access Fund, LLC | 584,449 | 1.50 |
| CPG Vintage Access Fund II, LLC | 331,373 | 0.85 |
| TrueBridge Select Fund I (Cayman), L.P. | 35,000 | 0.09 |
| BlackRock Fundamental Core Taxable | 3,541,840 | 9.08 |
| CRA Qualified Investment Fund | 1,825,798 | 4.68 |
| TIAA-CREF Social Choice Bond Fund | 1,802,817 | 4.62 |
| Millennium Intl Ltd | 1,526,357 | 3.91 |
| Private Advisors Hedged Equity | 2,369,137 | 6.07 |
| Blackstone Real Estate Income Trust | 1,921,314 | 4.93 |
| Cash Holding Account | 41,251 | 0.11 |
| iShares MSCI EM Optimized | - | 0.00 |

**December 31, 2020 : $37,826,524**



| | Market Value ($) | Allocation (%) |
|---|---|---|
| Aristotle Value Equity | 3,039,448 | 8.04 |
| Aperio Custom ESG | 3,052,547 | 8.07 |
| Great Lakes SMID Cap ESG | 1,318,015 | 3.48 |
| iShares MSCI EAFE Optimized | 4,222,004 | 11.16 |
| Domini Impact Intl Eqty Fds | 2,348,158 | 6.21 |
| GQG Partners Emerging Mkts Fd | - | 0.00 |
| Davis Global ADR | 3,321,251 | 8.78 |
| Jennison Glbl Opportunities | 3,306,734 | 8.74 |
| Northern Trust Private Equity | 36,708 | 0.10 |
| Private Advisors Small Company Buyout | 811,953 | 2.15 |
| KKR Americas Fund XII | 915,155 | 2.42 |
| Hamilton Lane Private Markets Opp Fund | 528,387 | 1.40 |
| CPG Vintage Access Fund, LLC | 584,449 | 1.55 |
| CPG Vintage Access Fund II, LLC | 331,373 | 0.88 |
| TrueBridge Select Fund I (Cayman), L.P. | - | 0.00 |
| BlackRock Fundamental Core Taxable | 3,672,559 | 9.71 |
| CRA Qualified Investment Fund | 1,850,088 | 4.89 |
| TIAA-CREF Social Choice Bond Fund | 1,857,450 | 4.91 |
| Millennium Intl Ltd | 1,985,096 | 5.25 |
| Private Advisors Hedged Equity | 1,842,162 | 4.87 |
| Blackstone Real Estate Income Trust | 1,840,915 | 4.87 |
| Cash Holding Account | 12,928 | 0.03 |
| iShares MSCI EM Optimized | 949,143 | 2.51 |

# Disclosures

# CSU Foundation Benchmark Descriptions

### 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 - Present: 56.5% MSCI AC World Net, 20% BC Aggregate, 10% HFRI Fund of Funds Composite, 8.5% 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 | 6.09 | 6.09 | 54.21 | -- | -- | -- | 20.20 | 08/01/2019 |
| BlackRock Fundamental Core Taxable | -3.56 | -3.56 | -0.05 | -- | -- | -- | 1.48 | 02/01/2020 |
| CRA Qualified Investment Fund | -1.31 | -1.31 | 0.78 | -- | -- | -- | 1.55 | 02/01/2020 |
| Cash Holding Account | 7.70 | 7.70 | 111.37 | 144.70 | 120.67 | -- | -- | 11/01/2008 |
| Davis Global ADR | 9.48 | 9.48 | 73.30 | -- | -- | -- | 25.25 | 08/01/2019 |
| Domini Impact Intl Eqty Fds | 4.01 | 4.01 | 46.35 | -- | -- | -- | 11.36 | 08/01/2019 |
| GQG Partners Emerging Mkts Fd | -- | -- | -- | -- | -- | -- | -1.83 | 03/01/2021 |
| Great Lakes SMID Cap ESG | 8.63 | 8.63 | 83.81 | -- | -- | -- | 20.41 | 08/01/2019 |
| Millennium Intl Ltd | 2.96 | 2.96 | 29.05 | 12.62 | 11.58 | -- | 10.36 | 02/01/2015 |
| Private Advisors Hedged Equity | 1.49 | 1.49 | 36.32 | 11.32 | 10.18 | -- | 7.42 | 08/01/2011 |
| TIAA-CREF Social Choice Bond Fund | -2.94 | -2.94 | 4.82 | -- | -- | -- | 1.63 | 02/01/2020 |
| iShares MSCI EAFE Optimized | 3.87 | 3.87 | 44.79 | -- | -- | -- | 14.00 | 08/01/2019 |
| iShares MSCI EM Optimized | -- | -- | -- | -- | -- | -- | -- | 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 |
|---|---|---|---|---|---|---|---|---|
| Blackstone Real Estate Income Trust | 4.37 | 4.37 | 19.71 | -- | -- | -- | 8.12 | 07/25/2018 |
| CPG Vintage Access Fund II, LLC | 0.00 | 0.00 | 25.68 | -- | -- | -- | 7.98 | 03/06/2019 |
| CPG Vintage Access Fund, LLC | 0.00 | 0.00 | 25.56 | 7.67 | -- | -- | 6.98 | 03/06/2018 |
| Hamilton Lane Private Markets Opp Fund | 0.00 | 0.00 | 5.51 | 7.52 | -- | -- | 7.69 | 04/03/2017 |
| KKR Americas Fund XII | 38.51 | 38.51 | 109.53 | 42.94 | -- | -- | 38.08 | 12/15/2015 |
| Northern Trust Private Equity | 0.00 | 0.00 | 37.66 | -8.55 | 1.40 | 7.37 | 4.87 | 06/01/2005 |
| Private Advisors Small Company Buyout | 0.03 | 0.03 | 17.63 | 13.69 | 13.96 | -- | 11.45 | 12/30/2014 |
| TrueBridge Select Fund I (Cayman), L.P. | -- | -- | -- | -- | -- | -- | 0.00 | 03/30/2021 |

*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 Commingled 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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***The performance data shown reflects past performance, which does not guarantee future results. Investment return and principal will fluctuate so that an investor's shares when redeemed may be worth more or less than original cost. Please note, current performance may be higher or lower than the performance data shown. For up to date month-end performance information, please contact your Financial Advisor or visit the funds' company website.***

***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 companies. The securities of small capitalization companies may not trade as readily as, and be subject to higher volatility than those of larger, more established companies. **Bond funds** and bond holdings have the same interest rate, inflation and credit risks that are associated with the underlying bonds owned by the funds. The return of principal in bond funds, and in funds with significant bond holdings, is not guaranteed. **International securities'** prices may carry additional risks, including foreign economic, political, monetary and/or legal factors, changing currency exchange rates, foreign taxes and differences in financial and accounting standards. International investing may not be for everyone. These risks may be magnified in emerging markets. **Alternative investments**, including private equity funds, real estate funds, hedge funds, managed futures funds, and funds of hedge funds, private equity, and managed futures funds, are speculative and entail significant risks that can include losses due to leveraging or\other speculative investment practices, lack of liquidity, volatility of returns, restrictions on transferring interests in a fund, potential lack of diversification, absence and/or delay of information regarding valuations and pricing, complex tax structures and delays in tax reporting, less regulation and higher fees than mutual funds and risks associated with the operations, personnel and processes of the advisor. **Master Limited Partnerships** (MLPs) are limited partnerships or limited liability companies that are taxed as partnerships and whose interests (limited partnership units or limited liability company units) are traded on securities exchanges like shares of common stock. Currently, most MLPs operate in the energy, natural resources or real estate sectors. Investments in MLP interests are subject to the risks generally applicable to companies in the energy and natural resources sectors, including commodity pricing risk, supply and demand risk, depletion risk and exploration risk; and MLP interests in the real estate sector are subject to special risks, including interest rate and property value fluctuations, as well as risks related to general and economic conditions. Because of their narrow focus, MLPs maintain exposure to price volatility of commodities and/or underlying assets and tend to be more volatile than investments that diversify across many sectors and companies. MLPs are also subject to additional risks including: investors having limited control and rights to vote on matters affecting the MLP, limited access to capital, cash flow risk, lack of liquidity, dilution risk, conflict of interests, and limited call rights related to acquisitions.

**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 clients 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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Alternatives may be either traditional alternative investment vehicles or non-traditional alternative strategy vehicles. Traditional alternative investment vehicles may include, but are not limited to, Hedge Funds, Fund of Funds (both registered and unregistered), Exchange Funds, Private Equity Funds, Private Credit Funds, Real Estate Funds, and Managed Futures Funds. Non-traditional alternative strategy vehicles may include, but are not limited to, Open or Closed End Mutual Funds, Exchange-Traded and Closed-End Funds, Unit Investment Trusts, exchange listed Real Estate Investment Trusts (REITs), and Master Limited Partnerships (MLPs). These non-traditional alternative strategy vehicles also seek alternative-like exposure but have significant differences from traditional alternative investment vehicles. Non-traditional alternative strategy vehicles may behave like, have characteristics of, or employ various investment strategies and techniques for both hedging and more speculative purposes such as short-selling, leverage, derivatives, and options, which can increase volatility and the risk of investment loss. Characteristics such as correlation to traditional markets, investment strategy, and market sector exposure can play a role in the classification of a traditional security being classified as alternative.

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 and resulting higher risk due to concentration of trading authority when a single advisor is utilized;• Absence of information regarding valuations and pricing;• Complex tax structures and delays in tax reporting;• Less regulation and higher fees than mutual funds; and• Risks associated with the operations, personnel, and processes of the manager. As a diversified global financial services firm, Morgan Stanley Wealth Management engages in a broad spectrum of activities including financial advisory services, investment management activities, sponsoring and managing private investment funds, engaging in broker-dealer transactions and principal securities, commodities and foreign exchange transactions, research publication, and other activities. In the ordinary course of its business, Morgan Stanley Wealth Management therefore engages in activities where Morgan Stanley Wealth Management's interests may conflict with the interests of its clients, including the private investment funds it manages. Morgan Stanley Wealth Management can give no assurance that conflicts of interest will be resolved in favor of its clients or any such fund.

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.



**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.

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**Global Investment Manager Analysis (GIMA) Focus List, Approved List and Tactical Opportunities List; Watch Policy.** GIMA uses two methods to evaluate investment products in applicable advisory programs: **Focus** (and investment products meeting this standard are described as being on the Focus List) and **Approved** (and investment products meeting this standard are described as being on the Approved List). In general, Focus entails a more thorough evaluation of an investment product than Approved. Sometimes an investment product may be evaluated using the Focus List process but then placed on the Approved List instead of the Focus List. Investment products may move from the Focus List to the Approved List, or vice versa. GIMA may also determine that an investment product no longer meets the criteria under either process and will no longer be recommended in investment advisory programs (in which case the investment product is given a "Not Approved" status). GIMA has a '**Watch**" policy and may describe a Focus List or Approved List investment product as being on "Watch" if GIMA identifies specific areas that (a) merit further evaluation by GIMA and (b) may, but are not certain to, result in the investment product becoming "Not Approved." The Watch period depends on the length of time needed for GIMA to conduct its evaluation and for the investment manager or fund to address any concerns. Certain investment products on either the Focus List or Approved List may also be recommended for the **Tactical Opportunities List** based in part on tactical opportunities existing at a given time. The investment products on the Tactical Opportunities List change over time. For more information on the Focus List, Approved List, Tactical Opportunities List and Watch processes, please see the applicable Form ADV Disclosure Document for Morgan Stanley Wealth Management. Your Financial Advisor or Private Wealth Advisor can also provide upon request a copy of a publication entitled "Manager Selection Process."

The **Global Investment Committee** is a group of seasoned investment professionals who meet regularly to discuss the global economy and markets. The committee determines the investment outlook that guides our advice to clients. They continually monitor developing economic and market conditions, review tactical outlooks and recommend model portfolio weightings, as well as produce a suite of strategy, analysis, commentary, portfolio positioning suggestions and other reports and broadcasts.

The GIC Asset Allocation Models are not available to be directly implemented as part of an investment advisory service and should not be regarded as a recommendation of any Morgan Stanley investment advisory service. The GIC Asset Allocation Models do not represent actual trading or any type of account or any type of investment strategies and none of the fees or other expenses (e.g. commissions, mark-ups, mark-downs, advisory fees, fund expenses) associated with actual trading or accounts are reflected in the GIC Asset Allocation Models which , when compounded over a period of years, would decrease returns.

**Adverse Active AlphaSM 2.0** is a patented screening and scoring process designed to help identify high-quality equity and fixed income managers with characteristics that may lead to future outperformance relative to index and peers. While highly ranked managers performed well as a group in our Adverse Active Alpha model back tests, not all of the managers will outperform. Please note that this data may be derived from back-testing, which has the benefit of hindsight. In addition, highly ranked managers can have differing risk profiles that might not be appropriate for all investors.

Our view is that Adverse Active Alpha is a good starting point and should be used in conjunction with other information. Morgan Stanley Wealth Management's qualitative and quantitative investment manager due diligence process are equally important factors for investors when considering managers for use through an investment advisory program. Factors including, but not limited to, manager turnover and changes to investment process can partially or fully negate a positive Adverse Active Alpha ranking. Additionally, highly ranked managers can have differing risk profiles that might not be appropriate for all investors.

The proprietary **Value Score** methodology considers an active investment strategies' value proposition relative to its costs. From a historical quantitative study of several quantitative markers, Value Score measures perceived forward-looking benefit and computes (1) "fair value" expense ratios for most traditional investment managers across 40 categories and (2) managers' perceived "excess value" by comparing the fair value expense ratios to actual expense ratios. Managers are then ranked within each category by their excess value to assign a Value Score. Our analysis suggests that greater levels of excess value have historically corresponded to attractive subsequent performance.

For more information on the ranking models, please see Adverse Active AlphaSM 2.0: Scoring Active Managers According to Potential Alpha and Value Score: Scoring Fee Efficiency by Comparing Managers' "Fair Value" and Actual Expense Ratios. The whitepapers are available from your Financial Advisor or Private Wealth Advisor. ADVERSE ACTIVE ALPHA is a registered service mark of Morgan Stanley and/or its affiliates. U.S. Pat. No. 8,756,098 applies to the Adverse Active Alpha system and/or methodology.

Additionally, highly ranked managers can have differing risk profiles that might not be appropriate for all investors. For more information on AAA, please see the Adverse Active Alpha Ranking Model and Selecting Managers with Adverse Active Alpha whitepapers. The whitepaper are available from your Financial Advisor or Private Wealth Advisor. ADVERSE ACTIVE ALPHA is a registered service mark of Morgan Stanley and/or its affiliates. U.S. Pat. No. 8,756,098 applies to the Adverse Active Alpha system and/or methodology.

**The Global Investment Manager Analysis (GIMA) Services Only Apply to Certain Investment Advisory Programs** GIMA evaluates certain investment products for the purposes of some – but not all

– of Morgan Stanley Smith Barney LLC's investment advisory programs (as described in more detail in the applicable Form ADV Disclosure Document for Morgan Stanley Wealth Management). If you do not invest through one of these investment advisory programs, Morgan Stanley Wealth Management is not obligated to provide you notice of any GIMA Status changes even though it may give notice to clients in other programs.

**Strategy May Be Available as a Separately Managed Account or Mutual Fund** Strategies are sometimes available in Morgan Stanley Wealth Management investment advisory programs both in the form of a separately managed account ("SMA") and a mutual fund. These may have different expenses and investment minimums. Your Financial Advisor or Private Wealth Advisor can provide more information on whether any particular strategy is available in more than one form in a particular investment advisory program. Generally, investment advisory accounts are subject to an annual asset-based fee which is payable monthly in advance (some account types may be billed differently). (The "Fee"). In general, the Fee covers Morgan Stanley investment advisory services, custody of securities with Morgan Stanley, trade execution with or through Morgan Stanley or its affiliates, as well as compensation to any Morgan Stanley Financial Advisor.

In addition, each account that is invested in a program that is eligible to purchase certain investment products, such as mutual funds, will also pay a Platform Fee (which is subject to a Platform Fee offset) as described in the applicable ADV brochure. Accounts invested in the Select UMA program will also pay a separate Morgan Stanley Overlay Manager Fee and any applicable Sub-Manager fees. If your account is invested in mutual funds or exchange traded funds (collectively "funds"), you will pay the fees and expenses of any funds in which your account is invested. Fees and expenses are charged directly to the pool of assets the fund invests in and are reflected in each fund's share price. These fees and expenses are an additional cost to you and would not be included in the Fee amount in your account statements. Overlay Managers or Executing Sub-Managers ("managers") in some of Morgan Stanley's Separately Managed Account ("SMA") programs may affect transactions through broker-dealers other than Morgan Stanley or our affiliates. If your manager trades with another firm, you may be assessed costs by the other firm in addition to Morgan Stanley's fees. Those costs will be included in the net price of the security, not separately reported on trade confirmations or account statements. Certain managers have historically directed most, if not all, of their trades to outside firms. Information provided by managers concerning trade execution away from Morgan Stanley is summarized at: www.morganstanley.com/wealth/investmentsolutions/pdfs/adv/sotresponse.pdf. For more information, please refer to the ADV Brochure for your program(s), available at www.morganstanley.com/ADV or contact your Financial Advisor/Private Wealth Advisor. For example, on an advisory account with a 2.5% annual fee, if the gross annual performance is 6.00%, the compounding effect of the fees will result in a net performance of approximately 3.38% after one year, 10.50% after three years, and 18.10% after five years. **Conflicts of Interest:** GIMA's goal is to provide professional, objective evaluations in support of the Morgan Stanley Wealth Management investment advisory programs. We have policies and procedures to help us meet this goal. However, our business is subject to various conflicts of interest. For example, ideas and suggestions for which investment products should be evaluated by GIMA come from a variety of sources, including our Morgan Stanley Wealth Management Financial Advisors and their direct or indirect managers, and other business persons within Morgan Stanley Wealth Management or its affiliates. Such persons may have an ongoing business relationship with certain investment managers or mutual fund companies whereby they, Morgan Stanley Wealth Management or its affiliates receive compensation from, or otherwise related to, those investment managers or mutual funds. For example, a Financial Advisor may suggest that GIMA evaluates an investment manager or fund in which a portion of his or her clients' assets are already invested. While such a recommendation is permissible, GIMA is responsible for the opinions expressed by GIMA. See the conflicts of interest section in the applicable Form ADV Disclosure Document for Morgan Stanley Wealth Management for a discussion of other types of conflicts that may be relevant to GIMA's evaluation of managers and funds. In addition, Morgan Stanley Wealth Management, MS & Co., managers and their affiliates provide a variety of services (including research, brokerage, asset management, trading, lending and investment banking services) for each other and for various clients, including issuers of securities that may be recommended for purchase or sale by clients or are otherwise held in client accounts , and managers in various advisory programs. Morgan Stanley Wealth Management, managers, MS & Co., and their affiliates receive compensation and fees in connection with these services. Morgan Stanley Wealth Management believes that the nature and range of clients to which such services are rendered is such that it would be inadvisable to exclude categorically all of these companies from an account.

Morgan Stanley charges each fund family we offer a mutual fund support fee, also called a "revenue-sharing payment," on client account holdings in fund families according to a tiered rate that increases along with the management fee of the fund so that lower management fee funds pay lower rates than those with higher management fees.

Consider Your Own Investment Needs: The model portfolios and strategies discussed in the material are formulated based on general client characteristics including risk tolerance. This material is not intended to be an analysis of whether particular investments or strategies are appropriate for you or a recommendation, or an offer to participate in any investment. Therefore, clients should not use this material as the sole basis for investment decisions. They should consider all relevant information, including their existing portfolio, investment objectives, risk tolerance, liquidity needs and investment time horizon. Such a determination may lead to asset allocation results that are materially different from the asset allocation shown in this profile. Talk to your Financial Advisor about what would be an appropriate asset allocation for you, whether CGCM is an appropriate program for you.

**No obligation to notify** – Morgan Stanley Wealth Management has no obligation to notify you when the model portfolios, strategies, or any other information, in this material changes.

**Please consider the investment objectives, risks, fees, and charges and expenses of mutual funds, ETFs, closed end funds, unit investment trusts, and variable insurance products carefully before investing. The prospectus contains this and other information about each fund. To obtain a prospectus, contact your Financial Advisor or Private Wealth Advisor or visit the Morgan Stanley website at www.morganstanley.com. Please read it carefully before investing.**

**An investment in a money market fund is not insured or guaranteed by the Federal Deposit Insurance Corporation or any other government agency. Although the Fund seeks to preserve the value of your investment at $1.00 per share, it is possible to lose money by investing in the fund.**

The type of mutual funds and ETFs discussed in this presentation utilizes nontraditional or complex investment strategies and/or derivatives. Examples of these types of funds include those that utilize one or more of the below noted investment strategies or categories or which seek exposure to the following markets: (1) commodities (e.g., agricultural, energy and metals), currency, precious metals;

(2) managed futures; (3) leveraged, inverse or inverse leveraged; (4) bear market, hedging, long-short equity, market neutral; (5) real estate; (6) volatility (seeking exposure to the CBOE VIX Index). Investors should keep in mind that while mutual funds and ETFs may, at times, utilize nontraditional investment options and strategies, they should not be equated with unregistered privately offered alternative investments. Because of regulatory limitations, mutual funds and ETFs that seek alternative-like investment exposure must utilize a more limited investment universe. As a result, investment returns and portfolio characteristics of alternative mutual funds and ETFs may vary from traditional hedge funds pursuing similar investment objectives. Moreover, traditional hedge funds have limited liquidity with long "lock-up" periods allowing them to pursue investment strategies without having to factor in the need to meet client redemptions and ETFs trade on an exchange. On the other hand, mutual funds typically must meet daily client redemptions. This differing liquidity profile can have a material impact on the investment returns generated by a mutual fund or ETF pursuing an alternative investing strategy compared with a traditional hedge fund pursuing the same strategy.

Nontraditional investment options and strategies are often employed by a portfolio manager to further a fund's investment objective and to help offset market risks. However, these features may be complex, making it more difficult to understand the fund's essential characteristics and risks, and how it will perform in different market environments and over various periods of time. They may also expose the fund to increased volatility and unanticipated risks particularly when used in complex combinations and/or accompanied by the use of borrowing or "leverage."

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**KEY ASSET CLASS CONSIDERATIONS AND OTHER RISKS**

Investing in the markets entails the risk of market volatility. The value of all types of investments, including stocks, mutual funds, exchange-traded funds ("ETFs"), closed-end funds, and unit investment trusts, may increase or decrease over varying time periods. To the extent the investments depicted herein represent **international securities**, you should be aware that there may be additional risks associated with international investing, including foreign economic, political, monetary and/or legal factors, changing currency exchange rates, foreign taxes, and differences in financial and accounting standards. These risks may be magnified in **emerging markets and frontier markets**. **Small- and mid-capitalization companies** may lack the financial resources, product diversification and competitive strengths of larger companies. In addition, the securities of small- and mid-capitalization companies may not trade as readily as, and be subject to higher volatility than, those of larger, more established companies. The value of **fixed income securities** will fluctuate and, upon a sale, may be worth more or less than their original cost or maturity value. Bonds are subject to interest rate risk, call risk, reinvestment risk, liquidity risk, and credit risk of the issuer. **High yield bonds** are subject to additional risks such as increased risk of default and greater volatility because of the lower credit quality of the issues. In the case of **municipal bonds**, income is generally exempt from federal income taxes. Some income may be subject to state and local taxes and to the federal alternative minimum tax. Capital gains, if any, are subject to tax. **Treasury Inflation Protection Securities' (TIPS)** coupon payments and underlying principal are automatically increased to compensate for inflation by tracking the consumer price index (CPI). While the real rate of return is guaranteed, TIPS tend to offer a low return. Because the return of TIPS is linked to inflation, TIPS may significantly underperform versus conventional U.S. Treasuries in times of low inflation. There is no guarantee that investors will receive par if TIPS are sold prior to maturity. The returns on a portfolio consisting primarily of **environmental, social, and governance-aware investments ("ESG")** may be lower or higher than a portfolio that is more diversified or where decisions are based solely on investment considerations. Because ESG criteria exclude some investments, investors may not be able to take advantage of the same opportunities or market trends as investors that do not use such criteria. The companies identified and investment examples are for illustrative purposes only and should not be deemed a recommendation to purchase, hold or sell any securities or investment products. They are intended to demonstrate the approaches taken by managers who focus on ESG criteria in their investment strategy. There can be no guarantee that a client's account will be managed as described herein. **Options** and margin trading involve substantial risk and are not appropriate for all investors. Besides the general investment risk of holding securities that may decline in value and the possible loss of principal invested, **closed-end funds** may have additional risks related to declining market prices relative to net asset values (NAVs), active manager

underperformance and potential leverage. Closed-end funds, unlike open-end funds, are not continuously offered. There is a one-time public offering and once issued, shares of closed-end funds are sold in the open market through a stock exchange. Shares of closed-end funds frequently trade at a discount from their NAV which may increase investors' risk of loss. The risk of loss due to this discount may be greater for investors expecting to sell their shares in a relatively short period after completion of the public offering. This characteristic is a risk separate and distinct from the risk that a closed-end fund's net asset value may decrease as a result of investment activities. NAV is total assets less total liabilities divided by the number of shares outstanding. At the time an investor purchases or sells shares of a closed-end fund, shares may have a market price that is above or below NAV. Portfolios that invest a large percentage of assets in only one industry **sector** (or in only a few sectors) are more vulnerable to price fluctuation than those that diversify among a broad range of sectors.

**Alternative investments** often are speculative and include a high degree of risk. Investors could lose all or a substantial amount of their investment. Alternative investments are appropriate only for eligible, long-term investors who are willing to forgo liquidity and put capital at risk for an indefinite period of time. They may be highly illiquid and can engage in leverage and other speculative practices that may increase the volatility and risk of loss. Alternative Investments typically have higher fees than traditional investments. 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 and resulting higher risk due to concentration of trading authority when a single advisor is utilized; Absence of information regarding valuations and pricing; Complex tax structures and delays in tax reporting; Less regulation and higher fees than mutual funds; Risks associated with the operations, personnel, and processes of the manager; and Risks associated with cybersecurity. As a diversified global financial services firm, Morgan Stanley Wealth Management engages in a broad spectrum of activities including financial advisory services, investment management activities, sponsoring and managing private investment funds, engaging in broker-dealer transactions and principal securities, commodities and foreign exchange transactions, research publication, and other activities. In the ordinary course of its business, Morgan Stanley Wealth Management therefore engages in activities where Morgan Stanley Wealth Management's interests may conflict with the interests of its clients, including the private investment funds it manages. Morgan Stanley Wealth Management can give no assurance that conflicts of interest will be resolved in favor of its clients or any such fund. All expressions of opinion are subject to change without notice and are not intended to be a forecast of future events or results. Further, opinions expressed herein may differ from the opinions expressed by Morgan Stanley Wealth Management and/or other businesses/affiliates of Morgan Stanley Wealth Management. This is not a "research report" as defined by FINRA Rule 2241 or a "debt research report" as defined by FINRA Rule 2242 and was not prepared by the Research Departments of Morgan Stanley Smith Barney LLC or Morgan Stanley & Co. LLC or its affiliates. Certain information contained herein may constitute forward-looking statements. Due to various risks and uncertainties, actual events, results or the performance of a fund may differ materially from those reflected or contemplated in such

forward-looking statements. Clients should carefully consider the investment objectives, risks, charges, and expenses of a fund before investing. While the HFRI indices are frequently used, they have limitations (some of which are typical of other widely used indices). These limitations include survivorship bias (the returns of the indices may not be representative of all the hedge funds in the universe because of the tendency of lower performing funds to leave the index); heterogeneity (not all hedge funds are alike or comparable to one another, and the index may not accurately reflect the performance of a described style); and limited data (many hedge funds do not report to indices, and the index may omit funds, the inclusion of which might significantly affect the performance shown. The HFRI indices are based on information self-reported by hedge fund managers that decide on their own, at any time, whether or not they want to provide, or continue to provide, information to HFR Asset Management, L.L.C. Results for funds that go out of business are included in the index until the date that they cease operations. Therefore, these indices may not be complete or accurate representations of the hedge fund universe, and may be biased in several ways. Composite index results are shown for illustrative purposes and do not represent the performance of a specific investment. Individual funds have specific tax 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 Wealth Management 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 Wealth Management and certain of its affiliates, and (1) are not FDIC-insured, (2) are not deposits or other obligations of Morgan Stanley Wealth Management or any of its affiliates, (3) are not guaranteed by Morgan Stanley Wealth Management and its affiliates, and (4) involve investment risks, including possible loss of principal. Morgan Stanley Wealth Management is a registered broker-dealer, not a bank. This material is not to be reproduced or distributed to any other persons (other than professional advisors of the investors or prospective investors, as applicable, receiving this material) and is intended solely for the use of the persons to whom it has been delivered. This material is not for distribution to the general public. Past performance is no guarantee of future results. Actual results may vary. SIPC insurance does not apply to precious metals, other commodities, or traditional alternative investments. In Consulting Group's advisory programs, alternative investments are limited to US-registered mutual funds, separate account strategies and exchange-traded funds (ETFs) that seek to pursue alternative investment strategies or returns utilizing publicly traded securities. Investment products in this category may employ various investment strategies and techniques for both hedging and more speculative purposes such as short -selling, leverage, derivatives and options, which can increase volatility and the risk of investment loss. Alternative investments are not appropriate for all investors. As a diversified global financial services firm, Morgan Stanley Wealth Management engages in a broad spectrum of activities including financial advisory services, investment management activities, sponsoring and managing private investment funds, engaging in broker-dealer transactions and principal securities, commodities and foreign exchange transactions, research publication, and other activities. In the ordinary course of its business, Morgan Stanley Wealth Management therefore engages in activities where Morgan Stanley Wealth Management's interests may conflict with the interests of its clients, including the private investment funds it manages. Morgan Stanley Wealth Management can give no assurance that conflicts of interest will be resolved in favor of its clients or any such fund. 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 Wealth Management does not provide tax or legal advice.

A majority of Alternative Investment managers reviewed and selected by GIMA pay or cause to be paid an ongoing fee for distribution from their management fees to Morgan Stanley Wealth Management in connection with Morgan Stanley Wealth Management clients that purchase an interest in an Alternative Investment and in some instances pay these fees on the investments held by investments held by brokerage clients. Morgan Stanley Wealth Management has a conflict of interest in offering alternative investments because Morgan Stanley Wealth Management or our affiliates, in most instances, earn more money in your account from your investments in alternative investments than from other investment options.

It should be noted that the majority of hedge fund indexes are comprised of hedge fund manager returns. This is in contrast to traditional indexes, which are comprised of individual securities in the various market segments they represent and offer complete transparency as to membership and construction methodology. As such, some believe that hedge fund index returns have certain biases that are not present in traditional indexes. Some of these biases inflate index performance, while others may skew performance negatively. However, many studies indicate that overall hedge fund index performance has been biased to the upside. Some studies suggest performance has been inflated by up to 260 basis points or more annually depending on the types of biases included and the time period studied. Although there are numerous potential biases that could affect hedge fund returns, we identify some of the more common ones throughout this paper.

Self-selection bias results when certain manager returns are not included in the index returns and may result in performance being skewed up or down. Because hedge funds are private placements, hedge fund managers are able to decide which fund returns they want to report and are able to opt out of reporting to the various databases. Certain hedge fund managers may choose only to report returns for funds with strong returns and opt out of reporting returns for weak performers. Other hedge funds that close may decide to stop reporting in order to retain secrecy, which may cause a downward bias in returns.

Survivorship bias results when certain constituents are removed from an index. This often results from the closure of funds due to poor performance, "blow ups," or other such events. As such, this bias typically results in performance being skewed higher. As noted, hedge fund index performance biases can result in positive or negative skew. However, it would appear that the skew is more often positive. While it is difficult to quantify the effects precisely, investors should be aware that idiosyncratic factors may be giving hedge fund index returns an artificial "lift" or upwards bias.

**Hedge Funds of Funds** and many funds of funds are private investment vehicles restricted to certain qualified private and institutional investors. They are often speculative and include a high degree of risk. Investors can lose all or a substantial amount of their investment. They may be highly illiquid, can engage in leverage and other speculative practices that may increase volatility and the risk of loss, and may be subject to large investment minimums and initial lockups. They involve complex tax structures, tax-inefficient investing and delays in distributing important tax information. Categorically, hedge funds and funds of funds have higher fees and expenses than traditional investments, and such fees and expenses can lower the returns achieved by investors. Funds of funds have an additional layer of fees over and above hedge fund fees that will offset returns. An investment in an **exchange-traded fund** involves risks similar to those of investing in a broadly based portfolio of equity securities traded on an exchange in the relevant securities market, such as market fluctuations caused by such factors as economic and political developments, changes in interest rates and perceived trends in stock and bond prices. An investment in a **target date portfolio** is subject to the risks attendant to the underlying funds in which it invests, in these portfolios the funds are the Consulting Group Capital Market funds. A target date portfolio is geared to investors who will retire and/or require income at an approximate year. The portfolio is managed to meet the investor's goals by the pre-established year or "target date." A target date portfolio will transition its invested assets from a more aggressive portfolio to a more conservative portfolio as the target date draws closer. An investment in the target date portfolio is not guaranteed at any time, including, before or after the target date is reached. **Managed futures** investments are speculative, involve a high degree of risk, use significant leverage, are generally illiquid, have substantial charges, subject investors to conflicts of interest, and are appropriate only for the risk capital portion of an investor's portfolio. Managed futures investments do not replace equities or bonds but rather may act as a complement in a well diversified portfolio. Managed Futures are complex and not appropriate for all investors. **Rebalancing** does not protect against a loss in declining financial markets. There may be a potential tax implication with a rebalancing strategy.

**Asset allocation and diversification** do not assure a profit or protect against loss in declining financial markets. Past performance is no guarantee of future results. Actual results may vary.

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Indices are unmanaged and investors cannot directly invest in them. They are not subject to expenses or fees and are often comprised of securities and other investment instruments the liquidity of which is not restricted. A particular investment product may consist of securities significantly different than those in any index referred to herein. Composite index results are shown for illustrative purposes only, generally do not represent the performance of a specific investment, may not, for a variety of reasons, be an appropriate comparison or benchmark for a particular investment and may not necessarily reflect the actual investment strategy or objective of a particular investment. Consequently, comparing an investment to a particular index may be of limited use.

This material is not a financial plan and does not create an investment advisory relationship between you and your Morgan Stanley Financial Advisor. We are not your fiduciary either under the Employee Retirement Income Security Act of 1974 (ERISA) or the Internal Revenue Code of 1986, and any information in this report is not intended to form the primary basis for any investment decision by you, or an investment advice or recommendation for either ERISA or Internal Revenue Code purposes. Morgan Stanley Private Wealth Management will only prepare a financial plan at your specific request using Private Wealth Management approved financial planning signature.

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**For index, indicator and survey definitions referenced in this report please visit the following: https://www.morganstanley.com/wealth-investmentsolutions/wmir-definitions**

**GLOBAL INVESTMENT COMMITTEE (GIC) ASSET ALLOCATION MODELS:** The Asset Allocation Models are created by Morgan Stanley Wealth Management's GIC.

**HYPOTHETICAL MODEL PERFORMANCE (GROSS):** Hypothetical model performance results do not reflect the investment or performance of an actual portfolio following a GIC Strategy, but simply reflect actual historical performance of selected indices on a real-time basis over the specified period of time representing the GIC's strategic and tactical allocations as of the date of this report. The past performance shown here is simulated performance based on benchmark indices, not investment results from an actual portfolio or actual trading. There can be large differences between hypothetical and actual performance results achieved by a particular asset allocation or trading strategy. Hypothetical performance results do not represent actual trading and are generally designed with the benefit of hindsight. Actual performance results of accounts vary due to, for example, market factors (such as liquidity) and client-specific factors (such as investment vehicle selection, timing of contributions and withdrawals, restrictions and rebalancing schedules). Clients would not necessarily have obtained the performance results shown here if they had invested in accordance with any GIC Asset Allocation Model for the periods indicated. Despite the limitations of hypothetical performance, these hypothetical performance results allow clients and Financial Advisors to obtain a sense of the risk/return trade-off of different asset allocation constructs. The hypothetical performance results in this report are calculated using the returns of benchmark indices for the asset classes, and not the returns of securities, fund or other investment products. Models may contain allocations to Hedge Funds, Private Equity and Private Real Estate. The benchmark indices for these asset classes are not issued on a daily basis. When calculating model performance on a day for which no benchmark index data is issued, we have assumed straight line growth between the index levels issued before and after that date.

**FEES REDUCE THE PERFORMANCE OF ACTUAL ACCOUNTS:** None of the fees or other expenses (e.g. commissions, mark-ups, mark-downs, fees) associated with actual trading or accounts are reflected in the GIC Asset Allocation Models. The GIC Asset Allocation Models and any model performance included in this presentation are intended as educational materials. Were a client to use these models in connection with investing, any investment decisions made would be subject to transaction and other costs which, when compounded over a period of years, would decrease returns. Information regarding Morgan Stanley's standard advisory fees is available in the Form ADV Part 2, which is available at www.morganstanley.com/adv. The following hypothetical illustrates the compound effect fees have on investment returns: For example, if a portfolio's annual rate of return is 15% for 5 years and the account pays 50 basis points in fees per annum, the gross cumulative five-year return would be 101.1% and the five-year return net of fees would be 96.8%. Fees and/or expenses would apply to clients who invest in investments in an account based on these asset allocations, and would reduce clients' returns. The impact of fees and/or expenses can be material.

**Variable annuities** are long-term investments designed for retirement purposes and may be subject to market fluctuations, investment risk, and possible loss of principal. All guarantees, including optional benefits, are based on the financial strength and claims-paying ability of the issuing insurance company and do not apply to the underlying investment options. Optional riders may not be able to be purchased in combination and are available at an additional cost. Some optional riders must be elected at time of purchase. Optional riders may be subject to specific limitations, restrictions, holding periods, costs, and expenses as specified by the insurance company in the annuity contract. If you are investing in a **variable annuity** through a tax-advantaged retirement plan such as an IRA, you will get no additional tax advantage from the variable annuity. Under these circumstances, you should only consider buying a variable annuity because of its other features, such as lifetime income payments and death benefits protection. Taxable distributions (and certain deemed distributions) are subject to ordinary income tax and, if taken prior to age 59½, may be subject to a 10% federal income tax penalty. Early withdrawals will reduce the death benefit and cash surrender value.

**Equity securities** may fluctuate in response to news on companies, industries, market conditions and general economic environment. **Ultrashort-term fixed income** asset class is comprised of fixed income securities with high quality, very short maturities. They are therefore subject to the risks associated with debt securities such as credit and interest rate risk.

**Master Limited Partnerships (MLPs)** are limited partnerships or limited liability companies that are taxed as partnerships and whose interests (limited partnership units or limited liability company units) are traded on securities exchanges like shares of common stock. Currently, most MLPs operate in the energy, natural resources or real estate sectors. Investments in MLP interests are subject to the risks generally applicable to companies in the energy and natural resources sectors, including commodity pricing risk, supply and demand risk, depletion risk and exploration risk. Individual MLPs are publicly traded partnerships that have unique risks related to their structure. These include, but are not limited to, their reliance on the capital markets to fund growth, adverse ruling on the current tax treatment of distributions (typically mostly tax deferred), and commodity volume risk. The potential tax benefits from investing in MLPs depend on their being treated as partnerships for federal income tax purposes and, if the MLP is deemed to be a corporation, then its income would be subject to federal taxation at the entity level, reducing the amount of cash available for distribution to the fund which could result in a reduction of the fund's value. MLPs carry interest rate risk and may underperform in a rising interest rate environment. MLP funds accrue deferred income taxes for future tax liabilities associated with the portion of MLP distributions considered to be a tax-deferred return of capital and for any net operating gains as well as capital appreciation of its investments; this deferred tax liability is reflected in the daily NAV, and, as a result, the MLP fund's after-tax performance could differ significantly from the underlying assets even if the pre-tax performance is closely tracked.

**Investing in commodities** entails significant risks. Commodity prices may be affected by a variety of factors at any time, including but not limited to, (i) changes in supply and demand relationships, (ii) governmental programs and policies, (iii) national and international political and economic events, war and terrorist events, (iv) changes in interest and exchange rates, (v) trading activities in commodities and related contracts, (vi) pestilence, technological change and weather, and (vii) the price volatility of a commodity. In addition, the commodities markets are subject to temporary distortions or other disruptions due to various factors, including lack of liquidity, participation of speculators and government intervention. **Physical precious metals** are non-regulated products. Precious metals are speculative investments, which may experience short-term and long term price volatility. The value of precious metals investments may fluctuate and may appreciate or decline, depending on market conditions. Unlike bonds and stocks, precious metals do not make interest or dividend payments. Therefore, precious metals may not be appropriate for investors who require current income. Precious metals are commodities that should be safely stored, which may impose additional costs on the investor.

**REITs** investing risks are similar to those associated with direct investments in real estate: property value fluctuations, lack of liquidity, limited diversification and sensitivity to economic factors such as interest rate changes and market recessions. Risks of **private real estate** include: illiquidity; a long-term investment horizon with a limited or nonexistent secondary market; lack of transparency; volatility (risk of loss); and leverage. Principal is returned on a monthly basis over the life of a **mortgage-backed security.** Principal prepayment can significantly affect the monthly income stream and the maturity of any type of MBS, including standard MBS, CMOs and Lottery Bonds. **Asset-backed securities** generally decrease in value as a result of interest rate increases, but may benefit less than other fixed-income securities from declining interest rates, principally because of prepayments.
**Yields** are subject to change with economic conditions. Yield is only one factor that should be considered when making an investment decision. **Credit ratings** are subject to change. **Duration**, the most commonly used measure of bond risk, quantifies the effect of changes in interest rates on the price of a bond or bond portfolio. The longer the duration, the more sensitive the bond or portfolio would be to changes in interest rates. The majority of $25 and $1000 par **preferred securities** are "callable" meaning that the issuer may retire the securities at specific prices and dates prior to maturity. Interest/dividend payments on certain preferred issues may be deferred by the issuer for periods of up to 5 to 10 years, depending on the particular issue. The investor would still have income tax liability even though payments would not have been received. Price quoted is per $25 or $1,000 share, unless otherwise specified. Current yield is calculated by multiplying the coupon by par value divided by the market price. The initial interest rate on a **floating-rate security** may be lower than that of a fixed-rate security of the same maturity because investors expect to receive additional income due to future increases in the floating security's underlying reference rate. The reference rate could be an index or an interest rate. However, there can be no assurance that the reference rate will increase. Some floating-rate securities may be subject to call risk. The market value of **convertible bonds** and the underlying common stock(s) will fluctuate and after purchase may be worth more or less than original cost. If sold prior to maturity, investors may receive more or less than their original purchase price or maturity value, depending on market conditions. Callable bonds may be redeemed by the issuer prior to maturity. Additional call features may exist that could affect yield. Some $25 or $1000 **par preferred securities** are QDI (Qualified Dividend Income) eligible. Information on QDI eligibility is obtained from third party sources. The dividend income on QDI eligible preferreds qualifies for a reduced tax rate. Many traditional 'dividend paying' perpetual preferred securities (traditional preferreds with no maturity date) are QDI eligible. In order to qualify for the preferential tax treatment all qualifying preferred securities must be held by investors for a minimum period – 91 days during a 180 day window period, beginning 90 days before the ex-dividend date.
Companies paying **dividends** can reduce or cut payouts at any time.

**Nondiversification:** For a portfolio that holds a concentrated or limited number of securities, a decline in the value of these investments would cause the portfolio's overall value to decline to a greater degree than a less concentrated portfolio. The **indices selected by Morgan Stanley Wealth Management** to measure performance are representative of broad asset classes. Morgan Stanley Wealth Management retains the right to change representative indices at any time. Because of their narrow focus, **sector investments** tend to be more volatile than investments that diversify across many sectors and companies.

**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** does not guarantee a profit or eliminate risk. Not all companies whose stocks are considered to be value stocks are able to turn their business around or successfully employ corrective strategies which would result in stock prices that do not rise as initially expected.

Any type of **continuous or periodic investment plan** does not assure a profit and does not protect against loss in declining markets. Since such a plan involves continuous investment in securities regardless of fluctuating price levels of such securities, the investor should consider his financial ability to continue his purchases through periods of low price levels.

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