



**PERSPECTIVES  
THAT DRIVE  
ENTERPRISE  
SUCCESS**



**PERIOD ENDING: SEPTEMBER 30, 2021**

Investment Performance Review for

**San Mateo County Employees' Retirement Association**

# Table of Contents



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Market Environment

TAB I

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Alternatives

TAB VI

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Total Fund

TAB II

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Inflation Hedge

TAB VII

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US Equity

TAB III

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Appendix

TAB VIII

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International Equity

TAB IV

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Fixed Income

TAB V

# 3<sup>rd</sup> quarter summary

## THE ECONOMIC CLIMATE

- Real GDP grew at a 12.2% rate year-over-year in Q2 (+6.7% quarterly annualized rate) as the U.S. fully recovered from the pandemic-induced recession of 2020.
- In the U.S. labor market, unemployment has fallen as many workers who desired jobs have been successful in gaining employment. The overall U.S. labor participation rate has not improved, as millions of workers remain neither employed nor seeking employment.
- Consumer sentiment deteriorated during the third quarter, on reports of pessimism around the COVID Delta variant, higher inflation, and unfavorable economic prospects. Small business optimism also fell, as businesses face difficulty in hiring and are concerned about tax increases and more burdensome government regulations.

## PORTFOLIO IMPACTS

- Credit markets traded in a relatively tight range throughout the quarter, delivering mild returns. Bank loans outperformed in Q3, returning 1.1% and outpacing high yield bonds (0.9%) and corporate investment grade (0.0%).
- U.S. core CPI, which excludes food & energy prices, rose 4.0% YoY in September. U.S. headline inflation came in at 5.4%. Price changes moderated during Q3, relative to the larger price moves that occurred in March through June.

## THE INVESTMENT CLIMATE

- The Biden Administration's \$3.5 trillion social spending package remains in the negotiation stage among Democrats, as the size of the package, the contents, and national concerns over inflation have given some members of the party reason to pause. The package is reportedly being scaled back, which creates the risk of rejection from progressives within the party who are pushing for more spending.
- It seems that investors have put the 2020 pandemic-induced recession and its associated risks behind them. However, it is not clear that market risks have completely subsided, as the Delta-variant continues to spread, high inflation could indeed persist, and most governments are set to pull back generous stimulus programs.

## ASSET ALLOCATION ISSUES

- Equity markets took a breather in Q3. U.S. equities delivered 0.6%, while international equities experienced slight losses of -0.4% and emerging market equities saw a larger selloff of -8.1%, on an unhedged currency basis.
- Factor performance was negative during the quarter, as large capitalization stocks outperformed small cap by a wide margin (Russell 1000 +0.2%, Russell 2000 -4.4%) and growth stocks beat value (Russell 1000 Growth +1.2%, Russell 1000 Value -0.8%).

The economic recovery may be slowing, though the environment remains positive for risk assets

We believe a neutral risk stance is warranted in the current environment

# U.S. economics summary

- Real GDP grew at a 12.2% rate year-over-year in Q2 (+6.7% quarterly annualized rate) as the U.S. fully recovered from the pandemic-induced recession of 2020. However, it appears that recent strong economic activity may be slowing down.
- U.S. core CPI, which excludes food & energy prices, rose 4.0% YoY in September. U.S. headline inflation came in at 5.4%. Price changes moderated during Q3, relative to the larger price moves that occurred in March through June, but remain elevated.
- Unemployment fell from 5.9% to 4.8% during the quarter, while the laborforce participation was unmoved at 61.6%. The unemployment rate has fallen as many workers who desired jobs have been successful in gaining employment, but the overall U.S. laborforce participation rate has not improved
- The Biden Administration’s \$3.5 trillion social spending package remains in the negotiation stage among Democrats, as the size of the package, the contents, and national concerns over inflation have given some members of the party reason to pause. The package is reportedly being scaled back, which creates the risk of rejection from progressives within the party who are pushing for more spending.
- U.S. home prices have rocketed higher, up 19.7% over the past year, according to the S&P/Case-Shiller U.S. National Home Price Index.
- Consumer sentiment was mixed over the quarter. The University of Michigan reported that the Delta variant and persistent inflation, as well as unfavorable prospects for the national economy, are weighing on sentiment. High prices of homes, vehicles, and durables are a concern.

	Most Recent	12 Months Prior
GDP (YoY)	12.2% <i>6/30/21</i>	(9.1%) <i>6/30/20</i>
Inflation (CPI YoY, Core)	4.0% <i>9/30/21</i>	1.7% <i>9/30/20</i>
Expected Inflation (5yr-5yr forward)	2.2% <i>9/30/21</i>	1.7% <i>9/30/20</i>
Fed Funds Target Range	0% – 0.25% <i>9/30/21</i>	0% – 0.25% <i>9/30/20</i>
10-Year Rate	1.49% <i>9/30/21</i>	0.68% <i>9/30/20</i>
U-3 Unemployment	4.8% <i>9/30/21</i>	7.8% <i>9/30/20</i>
U-6 Unemployment	8.5% <i>9/30/21</i>	12.8% <i>9/30/20</i>



# International economics summary

- The emergence of the delta variant of COVID-19 in Europe and the United States over the summer led to the reimplementing of social distancing controls and a subsequent moderation of economic activity in the services sector.
- European and Japanese vaccination rates improved vastly over the quarter, which helped to contain the spread of COVID-19.
- Inflation surprised to the upside around the globe, but particularly in the Eurozone, which has spurred some tough conversations amongst central bank policymakers.
- Global consumer confidence has trended lower over most of the last two quarters on concerns over labor market prospects, as well as the impact of rising prices on purchasing power stability.
- Natural gas prices surged more

than 60% in Q3, primarily as a result of low supply levels and substitution effects due to price surges in other energy sources including coal. On a more thematic basis, Europe’s clean energy initiatives also played a role, as renewable sources are not yet equipped to replace carbon-based power supplies, and adequate investment in nuclear plants has not been made. We are keeping a watchful eye on the potential impact of energy prices on inflation.

- Many factories in China were forced to shut down late in the quarter as a result of surging coal and electricity prices. Those shutdowns, alongside weaker than expected investment activity, tighter financing conditions, and stricter social distancing controls, all contributed to a larger-than expected moderation in Chinese GDP growth, which fell to 4.9% year-over-year in Q3.

Area	GDP (Real, YoY)	Inflation (CPI, YoY)	Unemployment
United States	12.2% 6/30/21	5.4% 9/30/21	4.8% 9/30/21
Eurozone	14.3% 6/30/21	3.4% 9/30/21	7.5% 8/31/21
Japan	7.6% 6/30/21	0.3% 9/30/21	2.8% 8/31/21
BRICS Nations	10.1% 6/30/21	2.4% 9/30/21	5.3% 6/30/21
Brazil	12.4% 6/30/21	10.3% 9/30/21	13.7% 7/31/21
Russia	10.5% 6/30/21	7.4% 9/30/21	4.4% 8/31/21
India	20.1% 6/30/21	5.3% 8/31/21	6.9% 9/30/21
China	4.9% 9/30/21	0.7% 9/30/21	5.1% 8/31/21

*NOTE: India lacks reliable government unemployment data. Unemployment rate shown above is estimated from the Centre for Monitoring Indian Economy. The Chinese unemployment rate represents the monthly surveyed urban unemployment rate in China.*

# Equity environment

- Equity markets took a pause in Q3, a notable change from the seemingly non-stop rally year-to-date. U.S. equities delivered 0.6%, while international equities experienced slight losses of -0.4% and emerging market equities saw a larger selloff of -8.1%, on an unhedged currency basis.
- Size and value factor performance was negative during the quarter, as large capitalization stocks outperformed small capitalization stocks by a wide margin (Russell 1000 +0.2%, Russell 2000 -4.4%) and growth stocks beat value (Russell 1000 Growth +1.2%, Russell 1000 Value -0.8%).
- As we observed last quarter, it does seem that investors have put the 2020 pandemic-induced recession and its associated risks behind them. However, it is not clear that market risks have completely subsided, as the Delta-variant continues to spread, high

inflation could indeed persist, and most governments are set to pull back generous stimulus programs.

- The U.S. is facing acute supply chain issues, and 71% of S&P 500 companies reported negative impacts to their business during quarterly earnings calls, as reported by FactSet.
- Weakness in Chinese equities (MSCI China -18.2%) was the major driver of emerging market equity underperformance, as a wave of new regulations were implemented by the Communist Party of China which cascaded across a number of sectors including Technology, Property Management, and Financials.
- Within MSCI's long-short U.S. factor portfolios, momentum (+1.3%) led the way while volatility (-1.7%) posted a negative total return.

	QTD TOTAL RETURN		1 YEAR TOTAL RETURN	
	(unhedged)	(hedged)	(unhedged)	(hedged)
US Large Cap (S&P 500)	0.6%		30.0%	
US Small Cap (Russell 2000)	(4.4%)		47.7%	
US Large Value (Russell 1000 Value)	(0.8%)		35.0%	
US Large Growth (Russell 1000 Growth)	1.2%		27.3%	
International Large (MSCI EAFE)	(0.4%)	1.5%	25.7%	28.2%
Eurozone (Euro Stoxx 50)	(2.4%)	0.1%	27.6%	30.6%
U.K. (FTSE 100)	(0.5%)	2.0%	30.7%	26.1%
Japan (NIKKEI 225)	2.5%	2.9%	21.9%	29.3%
Emerging Markets (MSCI Emerging Markets)	(8.1%)	(6.9%)	18.2%	15.9%

Source: Russell Investments, MSCI, STOXX, FTSE, Nikkei, as of 9/30/21

# Domestic equity

U.S. equities performed relatively well in Q3, delivering a slightly positive return of 0.6% (S&P 500). The index is expected to report Q3 earnings growth of 27.6% year-over-year, as indicated by FactSet. The U.S. is facing acute supply chain issues, and 71% of S&P 500 companies reported negative impacts to their business during quarterly earnings calls.

Mildly higher interest rates during the quarter likely supported Financials (+2.7%) while acting as a headwind to growth-oriented sectors such as Information Technology (+1.3%).

Performance over the near-term may be constrained by a degree of economic slowdown induced by the COVID-19 Delta variant, as well as moderating earnings growth expectations, although the analyst consensus price target for the S&P 500 over the next year is 5051, as of October 6<sup>th</sup>.

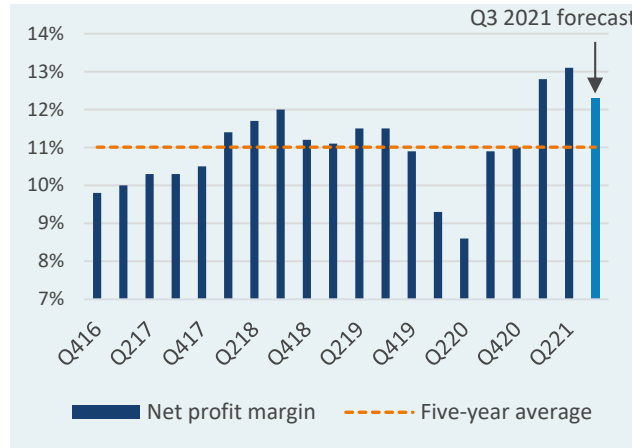
Recent price increases have raised questions around the defensibility of net profit margins, which are expected to moderate in Q3 but remain elevated well above recent averages. Some investors have begun to discuss positioning within sectors that have exhibited more pricing power.

**S&P 500 INDEX**



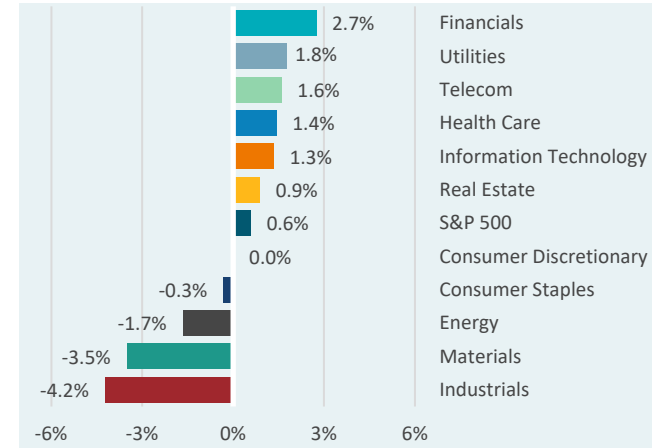
Source: Standard & Poor's, as of 9/30/21

**S&P 500 NET PROFIT MARGINS**



Source: FactSet, as of 10/18/21

**Q3 SECTOR PERFORMANCE**



Source: Standard & Poor's, as of 9/30/21

# Domestic equity size & style

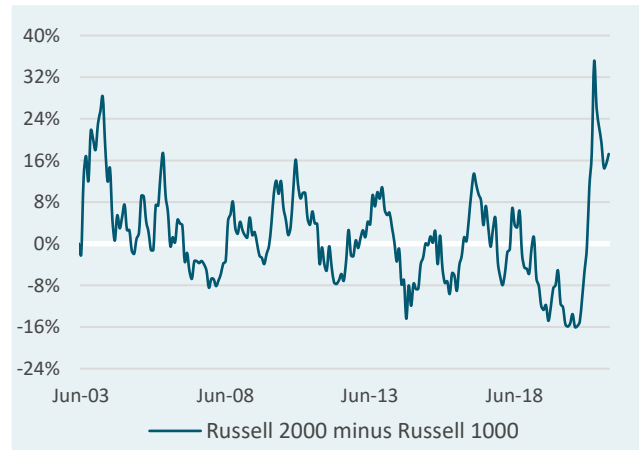
Large capitalization stocks outperformed small cap during the quarter by a wide margin (Russell 1000 +0.2%, Russell 2000 -4.4%) and growth stocks beat value (Russell 1000 Growth +1.2%, Russell 1000 Value -0.8%).

Following the notable turnaround in value stock performance during Q1, growth stocks took the lead in Q2, dampening excitement for a value comeback. Growth further outperformed in Q3. As we expressed earlier in the year, style performance is often impacted heavily by sector

randomness, which suggests that investors should be cautious in assuming that performance is *signal* rather than *noise*. Value stocks continue to be cheap relative to growth stocks, historically speaking. However, there does not appear to be a clear catalyst on the horizon that would imply a value timing opportunity. Factor performance tends to be noisy and difficult to predict, which suggests that style investing should in most cases involve a longer-term focus.

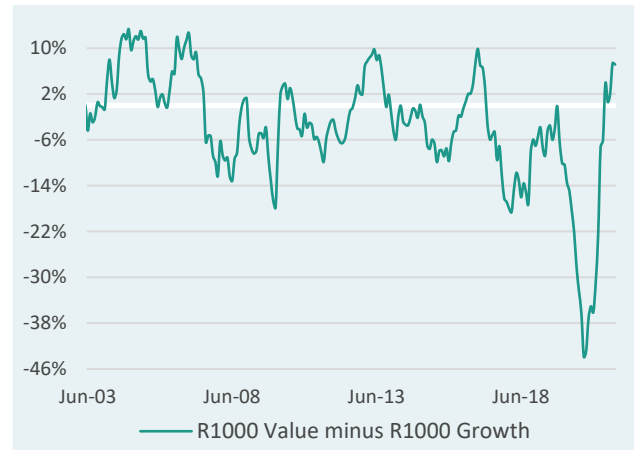
Large cap and growth stocks outperformed during Q3

SMALL CAP VS LARGE CAP (YOY)



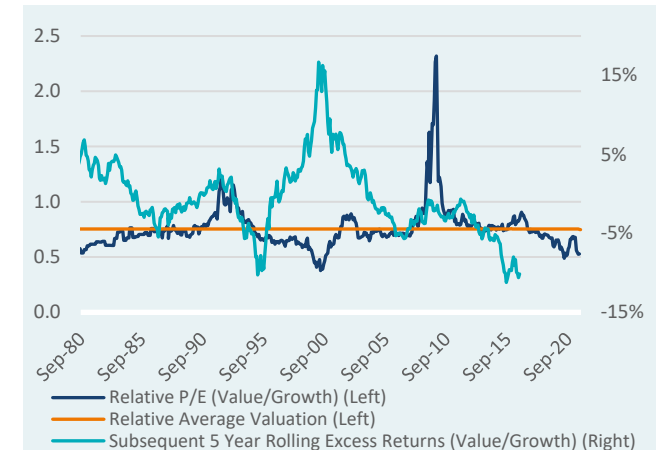
Source: FTSE, as of 9/30/21

VALUE VS GROWTH (YOY)



Source: FTSE, as of 9/30/21

VALUE VS. GROWTH RELATIVE VALUATIONS



Source: Standard & Poor's, as of 9/30/21

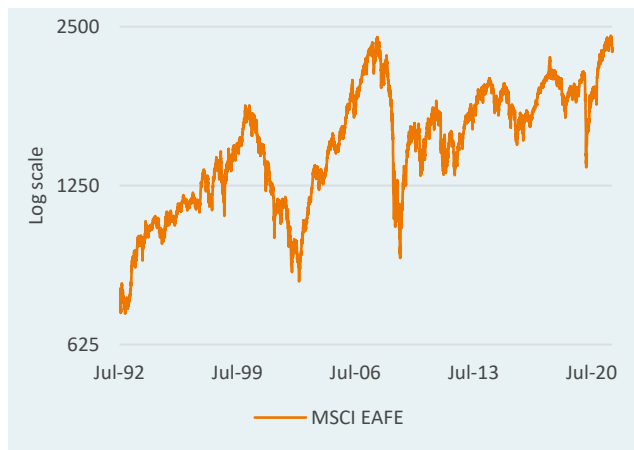
# International developed equity

International equities experienced slight losses of -0.4% (MSCI EAFE Index) during the quarter on an unhedged currency basis, lagging U.S. equities but outperforming emerging markets. Currency movement during the quarter resulted in a loss of -1.9% relative to those investors with a currency hedging program.

Japanese equities (MSCI Japan +4.6%) rallied on strong earnings, and on the news that Prime Minister Suga's successor, Fumio Kishida, would be less likely to pursue tax hikes on investment income. Japan's vaccination rate also improved considerably, and ended the quarter in line with major European countries, laying the groundwork for a broader reopening of the economy.

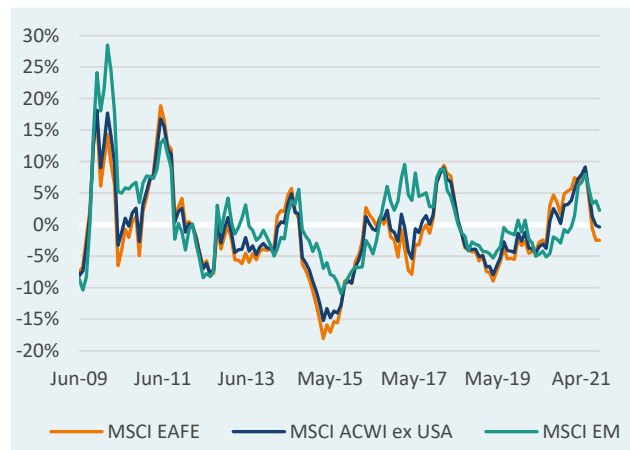
The strong performance of Japanese equities helped to offset for international developed equity investors the negative returns delivered by European equities (MSCI Europe -1.6%), which faced headwinds from a significant weakening in the pound sterling (-2.4%) and euro (-2.3%) relative to the U.S. dollar. According to futures market positioning data from the CFTC, more people are betting that the euro will depreciate in value than those betting that it will appreciate in value, for the first time since March 2020.

**INTERNATIONAL DEVELOPED EQUITIES**



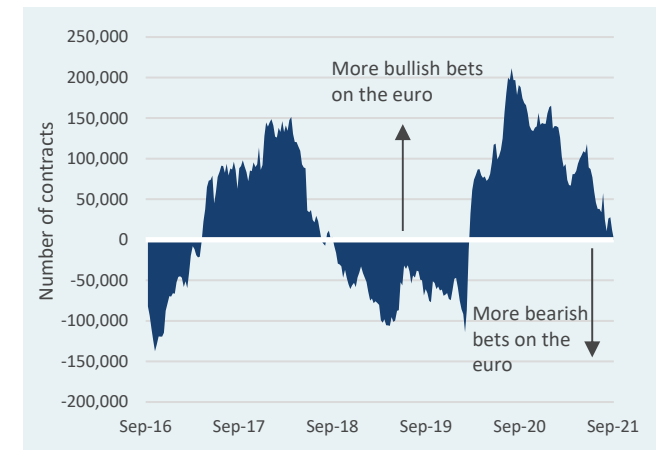
Source: MSCI, as of 9/30/21

**EFFECT OF CURRENCY (1-YEAR ROLLING)**



Source: MSCI, as of 9/30/21

**EURO NET FUTURES POSITIONING**



Source: CFTC, non-commercial positioning, as of 9/28/21



# Emerging market equity

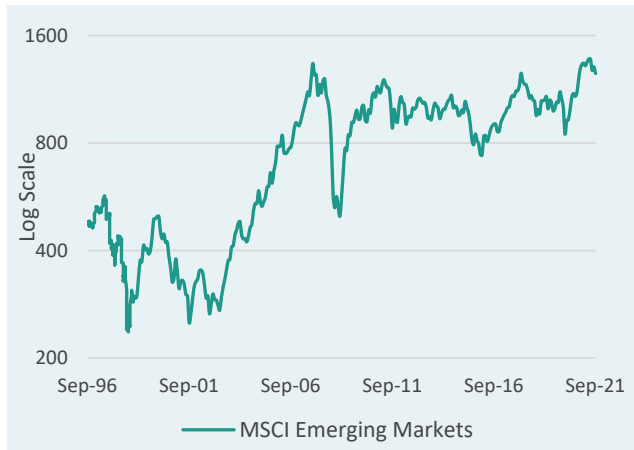
Emerging market equities saw large losses (MSCI EM -8.1%) on an unhedged currency basis, underperforming other markets during the third quarter. China has dragged down emerging markets performance considerably, producing losses of -18.2% in Q3 relative to ex-China emerging market performance of -2.0%, and producing losses of -7.2% over the past year relative to ex-China emerging market performance of 36.9% (MSCI China vs. MSCI Emerging Markets ex-China). China comprises 34% of the MSCI Emerging Markets Index.

Latin American emerging markets have taken the lead over Asian emerging markets over the past year, a notable change from strong Asian

leadership in recent years (MSCI EM Latin America +27.3%, MSCI EM Asia +13.9%)

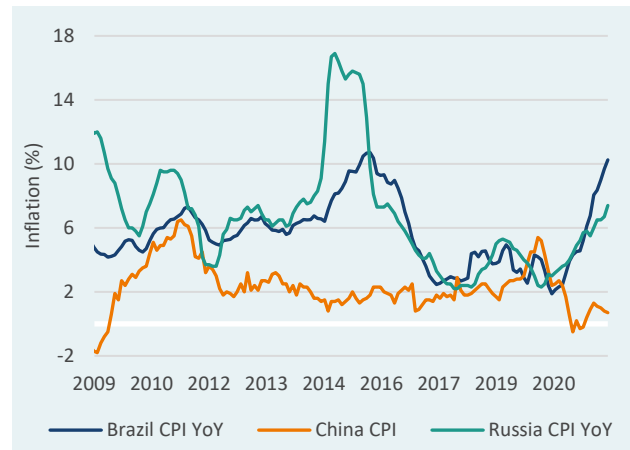
Inflation in Brazil has risen to 10.3%, and in Russia to 7.4%, which has generated responses from central banks. Brazil has hiked their central bank rate from 2.00% to 6.25% to battle rising prices, while Russia has hiked its rate from 4.25% to 6.75% year-to-date. While inflation rate in the U.S. is one of the highest in the developed world, emerging markets are also facing tough decisions regarding the balance between economic recovery and the risks of uncomfortably high inflation.

## EMERGING MARKET EQUITY



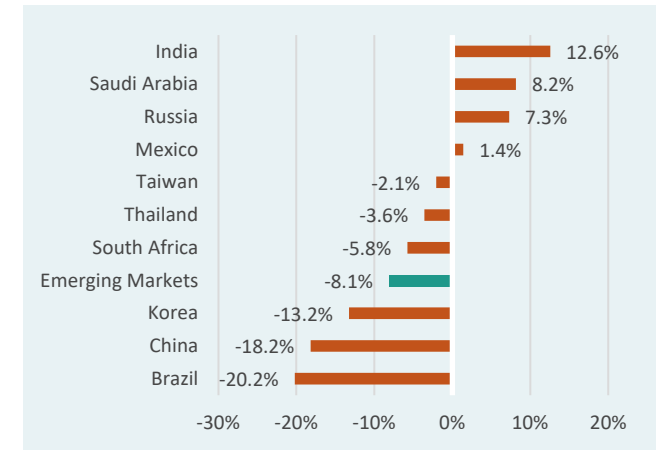
Source: MSCI, as of 9/30/21

## INFLATION (YOY)



Source: Bloomberg, as of 9/30/21 or most recent data

## Q3 PERFORMANCE – TOP 10 EM CONSTITUENTS



Source: Bloomberg, MSCI, as of 9/30/21, performance in USD terms

# Fixed income environment

— The 10-year U.S. Treasury yield increased slightly during the quarter, from 1.45% to 1.52%. Longer-term Treasury bond yields drifted lower in July and August before picking up considerably in September, as speculation mounted that the Federal Reserve would begin tapering the current asset purchase program (\$80 billion in monthly Treasury purchases and \$40 billion in monthly agency mortgage-backed-securities) in November or December of this year.

— Credit spreads traded in a relatively tight range during the quarter and remained at a very low level relative to the historical average. Historically low credit default rates have supported tight spread levels. Above-average credit quality has also been supportive, specifically in the high-yield universe. Although credit spreads are tight, spreads arguably remain healthy relative to current bond default levels.

— Reports that Evergrande, one of the

largest property developers in China, was on track to miss debt service payments led to a sell-off in Chinese high-yield debt as investors braced for potential contagion. Dollar-denominated high-yield Chinese bonds in aggregate fell by around 20% in value.

— Realized and expected inflation metrics reached high levels relative to history, sparking a number of different policy responses from central bankers. The base case at the Fed and at the ECB remains that inflation will be transitory, and that rates can remain at current levels at least until late next year. In contrast, officials at the Bank of England are now expected to begin hiking rates in November, and many central banks in the emerging markets have already begun tightening policy.

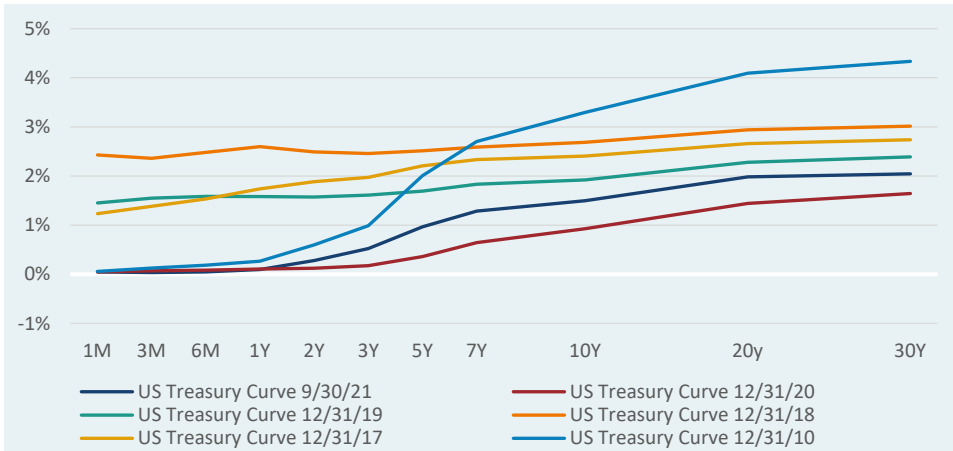
— The four-year discount margin, our preferred spread metric for bank loans, compressed slightly over the quarter from 4.32% to 4.28%.

	QTD Total Return	1 Year Total Return
Core Fixed Income (BBgBarc U.S. Aggregate)	0.1%	(0.9%)
Core Plus Fixed Income (BBgBarc U.S. Universal)	0.1%	0.2%
U.S. Treasuries (BBgBarc U.S. Treasury)	0.1%	(3.3%)
U.S. High Yield (BBgBarc U.S. Corporate HY)	0.9%	11.3%
Bank Loans (S&P/LSTA Leveraged Loan)	1.1%	8.4%
Emerging Market Debt Local (JPM GBI-EM Global Diversified)	(3.1%)	2.6%
Emerging Market Debt Hard (JPM EMBI Global Diversified)	(0.7%)	4.4%
Mortgage-Backed Securities (BBgBarc MBS)	0.1%	(0.4%)

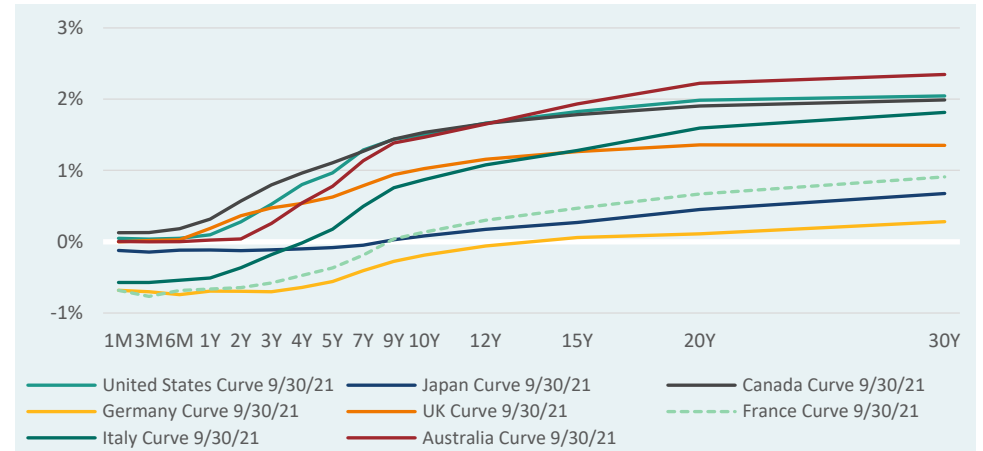
Source: Bloomberg, as of 9/30/21

# Yield environment

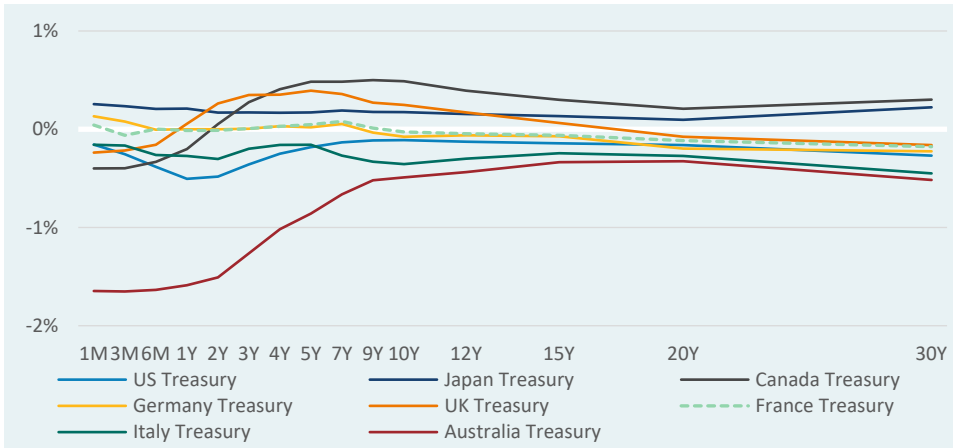
## U.S. YIELD CURVE



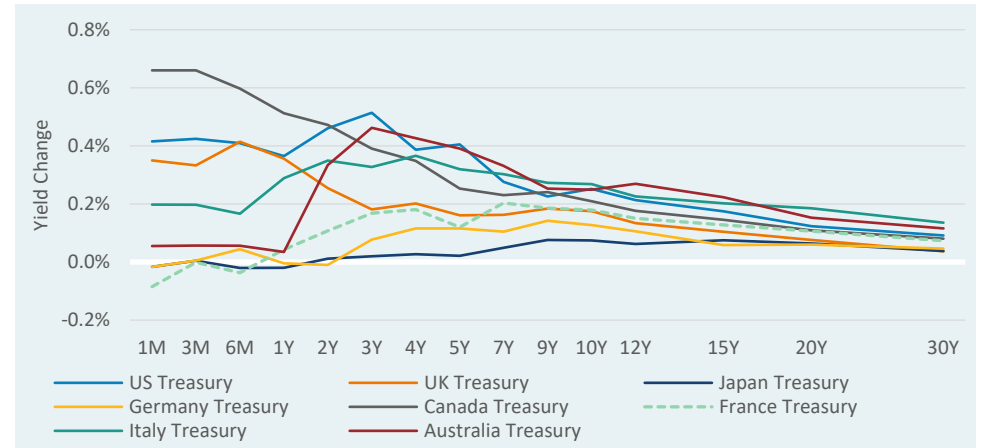
## GLOBAL GOVERNMENT YIELD CURVES



## YIELD CURVE CHANGES OVER LAST FIVE YEARS



## IMPLIED CHANGES OVER NEXT YEAR



Source: Bloomberg, as of 9/30/21

# Currency

The U.S. dollar appreciated 2% during the quarter, continuing its modest rise year-to-date. This move coincided with a slight increase in U.S. Treasury yields and European government bond yields, resulting in little change to interest rate differentials.

U.S. dollar sentiment reached its most optimistic level since late 2019, while sentiment surrounding the euro and pound turned from optimistic to pessimistic. Differences in monetary policy from country-to-country appear to be driving this shift in sentiment. While the U.S. Federal Reserve is expected to begin tapering asset purchases by year-end, the ECB is planning on simply shifting the complexion of its asset purchase program, and the

BOE is planning on adjusting short-term interest rates higher while retaining the majority of its asset purchase program which targets longer-duration bonds.

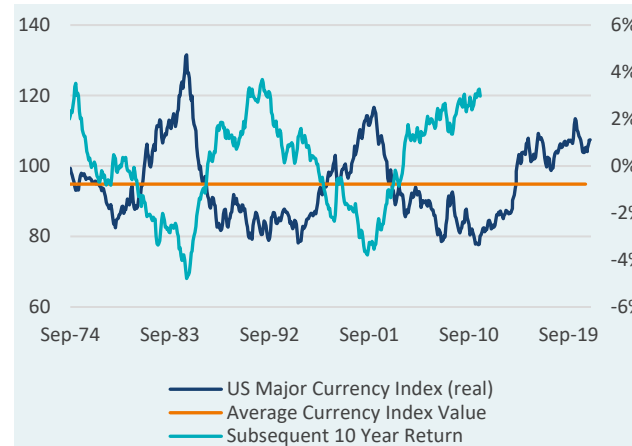
The MSCI Currency Factor Mix Index, Verus' preferred currency beta benchmark, outperformed the currency portfolio of the MSCI ACWI ex-US Index over the twelve months ending September 30<sup>th</sup>, while exhibiting 1.1% less volatility.

**BLOOMBERG DOLLAR SPOT INDEX**



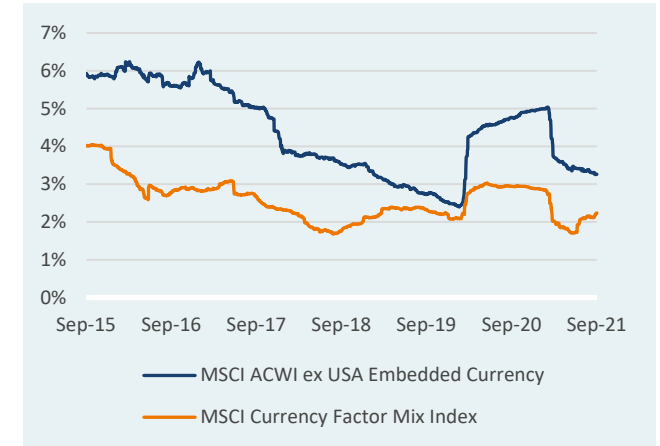
Source: Bloomberg, as of 9/30/21

**U.S. DOLLAR MAJOR CURRENCY INDEX**



Source: Federal Reserve, as of 9/30/21

**TRAILING ONE-YEAR ANNUALIZED VOLATILITY**



Source: Bloomberg, MSCI, as of 9/30/21

- The Total Fund, net of manager fees, returned 1.1% in the third quarter of 2021 and ranked in the 27<sup>th</sup> percentile among other public plans greater than \$1 billion (median of 0.2%). It matched the policy index return of 1.1%. The Total Fund ex Overlay returned 1.2% for the quarter. The Total Fund one-year return of 19.3% beat the policy index return of 18.5% and ranked in the 81<sup>st</sup> percentile of its peer universe. The three-year return of 9.1%.4 (80<sup>th</sup> percentile) lagged the median large public plan (10.1) and the policy index (9.8%).
  
- Third quarter results were enhanced by the following factors:
  1. QMA lost -0.6% beating the Russell 2000 which lost -4.4%. All factors – value, quality, and growth contributed to relative outperformance for the quarter.
  2. Brigade gained 1.7% outperforming the high yield benchmark which gained 0.9%. The main contributors to outperformance were bank loans positions which gained over 80 bps relative to the benchmark.
  
- Third quarter results were hindered by the following factors:
  1. Mondrian lost -3.8% trailing the MSCI ACWI ex US Value (-2.1%). An underweight position in the strong Dutch market hurt relative performance. Stock selection in China and Germany also contributed to relative underperformance.
  2. Franklin Templeton trailed the Bloomberg Multiverse (-1.8% vs -0.9%). In general, currencies hurt relative performance in the quarter, specifically the Brazilian Real, Argentinian Peso, and South Korean Won.



Total Fund  
Performance Summary (Net of Fees)

Period Ending: September 30, 2021

	3 Mo (%)	Rank	YTD (%)	Rank*	1 Yr (%)	Rank	2 Yrs (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
<b>Total Fund**</b>	<b>1.1</b>	<b>27</b>	<b>9.0</b>	<b>67</b>	<b>19.3</b>	<b>81</b>	<b>11.2</b>	<b>92</b>	<b>9.1</b>	<b>80</b>	<b>8.9</b>	<b>86</b>	<b>9.4</b>	<b>55</b>
<i>Policy Index<sup>1</sup></i>	1.1	25	9.9	45	18.5	94	12.1	85	9.8	58	9.7	59	9.9	35
<i>InvMetrics Public DB &gt; \$1B Net Median</i>	0.2		9.6		21.2		13.6		10.1		9.9		9.6	
<b>Total Fund ex Overlay</b>	<b>1.2</b>	<b>25</b>	<b>9.1</b>	<b>64</b>	<b>19.4</b>	<b>81</b>	<b>11.2</b>	<b>92</b>	<b>9.0</b>	<b>83</b>	<b>8.9</b>	<b>89</b>	<b>9.4</b>	<b>56</b>
<i>Policy Index<sup>1</sup></i>	1.1	25	9.9	45	18.5	94	12.1	85	9.8	58	9.7	59	9.9	35
<i>InvMetrics Public DB &gt; \$1B Net Median</i>	0.2		9.6		21.2		13.6		10.1		9.9		9.6	
<b>Public Equity</b>	<b>-1.5</b>	<b>82</b>	<b>10.4</b>	<b>82</b>	<b>26.9</b>	<b>85</b>	<b>16.5</b>	<b>92</b>	<b>11.2</b>	<b>88</b>	<b>12.4</b>	<b>87</b>	<b>12.6</b>	<b>66</b>
<i>Blended Public Equity Index<sup>1</sup></i>	-0.8	35	12.2	46	28.9	64	18.7	56	12.6	55	13.5	49	13.1	47
<i>InvMetrics All DB Total Eq Net Median</i>	-1.0		12.0		29.5		18.9		12.8		13.4		13.1	
<b>US Equity</b>	<b>-0.4</b>	<b>69</b>	<b>13.0</b>	<b>91</b>	<b>28.8</b>	<b>96</b>	<b>17.9</b>	<b>93</b>	<b>12.4</b>	<b>90</b>	<b>14.6</b>	<b>83</b>	<b>15.2</b>	<b>70</b>
<i>Blended US Equity Index<sup>1</sup></i>	-0.1	47	15.0	62	31.9	75	23.1	20	16.0	14	16.9	17	16.6	13
<i>Russell 3000</i>	-0.1	47	15.0	62	31.9	75	23.1	20	16.0	14	16.9	17	16.6	12
<i>InvMetrics All DB US Eq Net Median</i>	-0.1		15.3		33.1		21.6		14.8		15.9		15.7	
<b>Large Cap Equity</b>	<b>-0.4</b>	<b>59</b>	<b>12.4</b>	<b>78</b>	<b>26.9</b>	<b>68</b>	<b>17.8</b>	<b>59</b>	<b>13.2</b>	<b>57</b>	<b>15.5</b>	<b>46</b>	<b>15.8</b>	<b>41</b>
<i>Russell 1000</i>	0.2	41	15.2	50	31.0	41	23.3	35	16.4	35	17.1	32	16.8	29
<i>eV US Large Cap Equity Net Median</i>	-0.1		15.1		29.4		19.8		14.0		15.0		15.1	
<i>Acadian US MGD V</i>	-0.8	79	10.2	91	20.5	90	9.1	96	--	--	--	--	--	--
<i>BlackRock Russell 1000</i>	0.2	47	15.2	48	31.0	29	23.3	21	16.4	18	--	--	--	--
<i>DE Shaw</i>	-1.2	87	9.5	93	28.7	50	19.7	51	13.0	65	15.7	42	16.8	12
<i>PanAgora Defuseq</i>	-0.5	71	10.5	88	21.5	86	9.5	96	--	--	--	--	--	--
<i>Russell 1000</i>	0.2	47	15.2	48	31.0	29	23.3	21	16.4	18	17.1	14	16.8	12
<i>eV US Large Cap Core Equity Net Median</i>	0.1		14.9		28.7		19.8		14.0		15.2		15.3	

\* Total Fund and asset class aggregates are ranked in InvMetrics universes. Managers are ranked in eVest (eA) manager universes.

\*\* Includes Parametric Minneapolis manager funded in August 2013.

1. See Appendix for Benchmark History.

Total Fund  
Performance Summary (Net of Fees)

Period Ending: September 30, 2021

	3 Mo (%)	Rank	YTD (%)	Rank	1 Yr (%)	Rank	2 Yrs (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
<b>Small Cap Equity</b>	<b>-0.6</b>	<b>30</b>	<b>20.5</b>	<b>34</b>	<b>53.6</b>	<b>38</b>	<b>16.3</b>	<b>80</b>	<b>6.2</b>	<b>92</b>	<b>10.4</b>	<b>80</b>	<b>12.2</b>	<b>86</b>
<i>Russell 2000</i>	-4.4	89	12.4	71	47.7	58	21.8	50	10.5	54	13.4	53	14.6	52
<i>eV US Small Cap Equity Net Median</i>	-1.8		16.8		49.7		21.6		11.0		13.7		14.7	
<b>QMA US Small Cap</b>	<b>-0.6</b>	<b>37</b>	<b>20.5</b>	<b>27</b>	<b>53.6</b>	<b>28</b>	<b>16.3</b>	<b>84</b>	<b>6.2</b>	<b>96</b>	<b>10.4</b>	<b>92</b>	<b>--</b>	<b>--</b>
<i>Russell 2000</i>	-4.4	93	12.4	86	47.7	63	21.8	49	10.5	51	13.4	56	14.6	57
<i>eV US Small Cap Core Equity Net Median</i>	-1.3		17.0		49.4		21.6		10.7		13.8		14.8	
<b>Domestic Equity Overlay</b>	<b>-3.0</b>	<b>--</b>	<b>7.4</b>	<b>--</b>	<b>39.6</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>
<b>International Equity</b>	<b>-2.7</b>	<b>55</b>	<b>7.4</b>	<b>36</b>	<b>24.8</b>	<b>53</b>	<b>15.0</b>	<b>44</b>	<b>9.9</b>	<b>33</b>	<b>9.6</b>	<b>40</b>	<b>8.2</b>	<b>54</b>
<i>Blended International Equity Index<sup>1</sup></i>	-1.7	27	8.9	16	25.4	45	13.5	73	8.6	54	9.4	44	8.1	59
<i>MSCI EAFE Gross</i>	-0.4	10	8.8	17	26.3	36	12.9	81	8.1	71	9.3	45	8.6	39
<i>InvMetrics All DB ex-US Eq Net Median</i>	-2.6		6.4		24.9		14.6		8.8		9.2		8.3	
<b>Baillie Gifford</b>	<b>-4.0</b>	<b>91</b>	<b>2.6</b>	<b>84</b>	<b>20.2</b>	<b>72</b>	<b>24.3</b>	<b>41</b>	<b>15.8</b>	<b>37</b>	<b>13.3</b>	<b>56</b>	<b>--</b>	<b>--</b>
<i>MSCI ACWI ex US</i>	-2.9	79	6.3	60	24.4	46	13.5	96	8.5	95	9.4	98	--	--
<i>MSCI ACWI ex US Growth</i>	-3.6	87	2.9	83	17.3	83	17.6	81	12.3	70	11.6	79	--	--
<i>eV ACWI ex-US Growth Equity Net Median</i>	-0.4		7.9		23.1		22.5		13.9		13.6		11.5	
<b>Mondrian</b>	<b>-3.8</b>	<b>88</b>	<b>6.8</b>	<b>92</b>	<b>27.4</b>	<b>73</b>	<b>8.7</b>	<b>85</b>	<b>5.0</b>	<b>58</b>	<b>6.3</b>	<b>53</b>	<b>6.1</b>	<b>90</b>
<i>MSCI ACWI ex USA Value Gross</i>	-2.1	59	9.7	68	32.2	64	8.9	85	4.4	71	7.1	49	6.1	90
<i>MSCI ACWI ex USA Gross</i>	-2.9	82	6.3	95	24.4	89	13.5	41	8.5	22	9.4	26	8.0	40
<i>eV ACWI ex-US Value Equity Net Median</i>	-2.0		11.0		33.5		11.3		5.4		6.7		7.2	
<b>BlackRock MSCI ACWI EX-US IMI</b>	<b>-2.5</b>	<b>72</b>	<b>6.9</b>	<b>54</b>	<b>25.4</b>	<b>50</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>
<i>MSCI ACWI ex USA IMI</i>	-2.6	72	6.8	57	25.2	51	13.8	74	8.3	68	9.1	78	7.7	82
<i>eV ACWI ex-US All Cap Core Eq Net Median</i>	-1.8		7.5		25.3		16.8		10.5		11.0		9.4	
<b>Int'l Equity Currency Overlay</b>	<b>-2.0</b>	<b>--</b>	<b>1.5</b>	<b>--</b>	<b>5.6</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>
<b>International Equity Overlay</b>	<b>-2.0</b>	<b>--</b>	<b>1.5</b>	<b>--</b>	<b>5.6</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>

1. See Appendix for Benchmark History.

Total Fund  
Performance Summary (Net of Fees)

Period Ending: September 30, 2021

	3 Mo (%)	Rank	YTD (%)	Rank	1 Yr (%)	Rank	2 Yrs (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
<b>Fixed Income</b>	<b>0.2</b>	<b>34</b>	<b>1.4</b>	<b>16</b>	<b>3.9</b>	<b>23</b>	<b>4.8</b>	<b>29</b>	<b>5.6</b>	<b>43</b>	<b>4.7</b>	<b>21</b>	<b>4.8</b>	<b>22</b>
<i>Blended Fixed Income Index<sup>1</sup></i>	0.4	18	0.2	39	2.2	46	4.0	48	6.0	33	3.8	47	3.5	62
<i>InvMetrics All DB Total Fix Inc Net Median</i>	0.1		-0.2		1.9		3.9		5.4		3.7		3.8	
<b>Core Fixed</b>	<b>0.0</b>	<b>--</b>	<b>-0.9</b>	<b>--</b>	<b>0.3</b>	<b>--</b>	<b>3.8</b>	<b>--</b>	<b>5.3</b>	<b>--</b>	<b>3.4</b>	<b>--</b>	<b>3.7</b>	<b>--</b>
<i>Bloomberg US Aggregate TR</i>	0.1	--	-1.6	--	-0.9	--	3.0	--	5.4	--	2.9	--	3.0	--
DoubleLine	-0.4	96	-0.7	86	-0.7	93	--	--	--	--	--	--	--	--
<i>Bloomberg US Aggregate TR</i>	0.1	84	-1.6	98	-0.9	95	3.0	29	5.4	7	2.9	48	3.0	55
<i>eV US Securitized Fixed Inc Net Median</i>	0.2		0.4		1.3		2.2		4.0		2.9		3.5	
FIAM Bond	0.1	15	-0.9	28	0.5	24	4.7	4	6.5	8	3.8	7	3.9	17
NISA Core Bond	0.1	35	-1.5	61	-0.9	69	--	--	--	--	--	--	--	--
<i>Bloomberg US Aggregate TR</i>	0.1	38	-1.6	65	-0.9	70	3.0	80	5.4	76	2.9	78	3.0	82
<i>eV US Core Fixed Inc Net Median</i>	0.0		-1.3		-0.4		3.4		5.6		3.2		3.4	
Western TRU	-0.1	79	-0.5	15	3.5	2	4.3	10	5.1	89	4.2	3	--	--
<i>3-Month Libor Total Return USD</i>	0.0	48	0.1	6	0.2	32	0.6	99	1.3	99	1.4	99	0.9	99
<i>Bloomberg US Aggregate TR</i>	0.1	38	-1.6	65	-0.9	70	3.0	80	5.4	76	2.9	78	3.0	82
<i>eV US Core Fixed Inc Net Median</i>	0.0		-1.3		-0.4		3.4		5.6		3.2		3.4	
Core Fixed Income Overlay	1.8	--	-1.4	--	-2.0	--	--	--	--	--	--	--	--	--
<b>Opportunistic Credit</b>	<b>0.7</b>	<b>--</b>	<b>5.7</b>	<b>--</b>	<b>11.1</b>	<b>--</b>	<b>6.7</b>	<b>--</b>	<b>6.1</b>	<b>--</b>	<b>6.6</b>	<b>--</b>	<b>8.6</b>	<b>--</b>
<i>Bloomberg BA Intermediate HY</i>	0.9	--	3.4	--	8.5	--	6.8	--	7.5	--	6.0	--	5.6	--
AG CSF Annex Dislocation Fund <sup>+</sup>	0.3	--	8.2	--	16.7	--	--	--	--	--	--	--	--	--
Angelo Gordon Opportunistic <sup>+</sup>	2.6	--	12.7	--	26.2	--	5.7	--	7.1	--	12.4	--	--	--
Angelo Gordon Credit Solutions <sup>+</sup>	2.7	1	19.3	1	31.1	1	--	--	--	--	--	--	--	--
<i>Bloomberg BA Intermediate HY</i>	0.9	29	3.4	75	8.5	79	6.8	43	7.5	13	6.0	48	5.6	89
<i>eV US High Yield Fixed Inc Net Median</i>	0.8		4.2		10.4		6.4		6.4		6.0		6.8	

<sup>+</sup> Preliminary return as of 9/30/2021.

1. See Appendix for Benchmark History.

Total Fund  
Performance Summary (Net of Fees)

Period Ending: September 30, 2021

	3 Mo (%)	Rank	YTD (%)	Rank	1 Yr (%)	Rank	2 Yrs (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
Beach Point Select	1.3	7	11.1	3	20.5	3	12.3	1	9.8	1	9.3	2	--	--
<i>Bloomberg BA Intermediate HY</i>	0.9	29	3.4	75	8.5	79	6.8	43	7.5	13	6.0	48	5.6	89
<i>eV US High Yield Fixed Inc Net Median</i>	0.8		4.2		10.4		6.4		6.4		6.0		6.8	
Brigade Capital	1.7	3	12.5	1	21.9	2	9.8	6	6.4	52	6.8	18	6.7	63
<i>Bloomberg BA Intermediate HY</i>	0.9	29	3.4	75	8.5	79	6.8	43	7.5	13	6.0	48	5.6	89
<i>50% Barclays HY/ 50% Bank Loan</i>	1.0	19	4.6	41	9.9	62	5.9	67	5.5	75	5.6	69	6.2	80
<i>eV US High Yield Fixed Inc Net Median</i>	0.8		4.2		10.4		6.4		6.4		6.0		6.8	
PIMCO Diversified	0.1	96	0.3	99	4.8	97	4.2	93	6.0	67	--	--	--	--
<i>Blended PIMCO Diversified Index<sup>1</sup></i>	0.1	96	0.4	99	5.0	96	4.3	92	6.2	56	4.7	89	5.9	85
<i>Bloomberg BA Intermediate HY</i>	0.9	29	3.4	75	8.5	79	6.8	43	7.5	13	6.0	48	5.6	89
<i>eV US High Yield Fixed Inc Net Median</i>	0.8		4.2		10.4		6.4		6.4		6.0		6.8	
Franklin Templeton	-1.8	89	-3.4	73	-2.7	95	-3.8	99	-2.0	99	0.5	99	2.4	75
<i>Bloomberg Multiverse TR</i>	-0.9	73	-3.8	76	-0.4	83	2.7	76	4.3	74	2.2	84	2.1	79
<i>eV All Global Fixed Inc Net Median</i>	-0.1		-0.5		3.6		4.6		5.5		4.0		3.9	
<b>Private Credit</b>	<b>1.2</b>	<b>--</b>	<b>6.0</b>	<b>--</b>	<b>8.5</b>	<b>--</b>	<b>7.3</b>	<b>--</b>	<b>7.3</b>	<b>--</b>	<b>7.1</b>	<b>--</b>	<b>--</b>	<b>--</b>
<i>Cliffwater Direct Lending Index*</i>	4.0	--	11.6	--	15.7	--	9.5	--	9.0	--	9.1	--	9.9	--
Blackrock DL Feeder IX-U <sup>+</sup>	3.8	1	7.7	6	8.9	76	--	--	--	--	--	--	--	--
<i>Cliffwater Direct Lending Index</i>	4.0	1	11.6	2	15.7	7	9.5	7	9.0	3	9.1	2	9.9	1
<i>eV US High Yield Fixed Inc Net Median</i>	0.8		4.2		10.4		6.4		6.4		6.0		6.8	
PIMCO Private Income	2.2	1	11.6	2	16.0	6	10.5	3	--	--	--	--	--	--
<i>Bloomberg BA Intermediate HY</i>	0.9	29	3.4	75	8.5	79	6.8	43	7.5	13	6.0	48	5.6	89
<i>Cliffwater Direct Lending Index</i>	4.0	1	11.6	2	15.7	7	9.5	7	9.0	3	9.1	2	9.9	1
<i>eV US High Yield Fixed Inc Net Median</i>	0.8		4.2		10.4		6.4		6.4		6.0		6.8	

\* Preliminary return as of 9/30/2021.

1. See Appendix for Benchmark History.

Total Fund  
Performance Summary (Net of Fees)

Period Ending: September 30, 2021

	3 Mo (%)	Rank	YTD (%)	Rank	1 Yr (%)	Rank	2 Yrs (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
TCP Direct Lending VIII <sup>+</sup>	0.9	29	4.5	42	7.0	88	6.1	63	6.5	44	6.6	26	--	--
White Oak Yield White <sup>+</sup>	0.0	98	3.2	84	4.8	97	5.3	75	5.6	74	--	--	--	--
Oak YSF V <sup>+</sup>	0.0	98	1.3	99	--	--	--	--	--	--	--	--	--	--
<i>Cliffwater Direct Lending Index</i>	4.0	1	11.6	2	15.7	7	9.5	7	9.0	3	9.1	2	9.9	1
<i>eV US High Yield Fixed Inc Net Median</i>	0.8		4.2		10.4		6.4		6.4		6.0		6.8	
<b>Alternatives</b>	<b>6.9</b>	<b>--</b>	<b>16.1</b>	<b>--</b>	<b>37.7</b>	<b>--</b>	<b>22.1</b>	<b>--</b>	<b>18.4</b>	<b>--</b>	<b>13.9</b>	<b>--</b>	<b>10.2</b>	<b>--</b>
<i>Blended Alternatives Index<sup>1</sup></i>	4.2	--	16.3	--	22.9	--	15.1	--	13.2	--	12.6	--	11.0	--
<b>Private Equity<sup>** **</sup></b>	<b>13.4</b>	<b>8</b>	<b>30.1</b>	<b>54</b>	<b>68.4</b>	<b>8</b>	<b>46.1</b>	<b>2</b>	<b>39.4</b>	<b>2</b>	<b>29.4</b>	<b>3</b>	<b>21.0</b>	<b>4</b>
<i>Blended Private Equity Index</i>	8.0	54	33.5	43	47.2	47	27.0	42	21.8	36	19.7	33	19.5	5
<i>InvMetrics All DB Private Eq Net Median</i>	8.7		30.4		45.9		25.3		19.8		16.9		14.1	
<b>Hedge Fund/Absolute Return</b>	<b>0.2</b>	<b>75</b>	<b>2.7</b>	<b>86</b>	<b>5.9</b>	<b>93</b>	<b>-2.8</b>	<b>98</b>	<b>-3.5</b>	<b>96</b>	<b>-2.5</b>	<b>97</b>	<b>1.9</b>	<b>92</b>
<i>Absolute Return Custom Index<sup>1</sup></i>	1.0	44	3.0	85	4.0	95	4.5	87	5.1	64	5.2	61	4.7	68
<i>InvMetrics All DB Hedge Funds Net Median</i>	1.0		8.2		16.9		10.3		6.9		6.2		5.5	
Aberdeen Standard GARS	-2.5	81	-4.2	94	-0.7	92	2.2	80	3.3	70	2.3	77	--	--
Acadian MAAR Fund LLC	1.5	29	2.8	69	--	--	--	--	--	--	--	--	--	--
CFM Systematic Global Macro	1.1	35	13.3	23	--	--	--	--	--	--	--	--	--	--
Graham Quant Macro	-2.8	83	-0.1	83	4.4	83	--	--	--	--	--	--	--	--
PIMCO MAARS Fund LP	4.7	9	5.6	56	6.1	76	--	--	--	--	--	--	--	--
<i>Absolute Return Custom Index</i>	1.0	36	3.0	68	4.0	83	4.5	69	5.1	55	5.2	55	4.7	61
<i>eV Alt All Multi-Strategy Median</i>	0.1		6.4		14.4		7.9		5.8		5.7		6.3	

<sup>+</sup> Preliminary return as of 9/30/2021.

<sup>\*\*</sup> Returns are one-quarter lag.

<sup>\*\*</sup> Excludes EnCap Energy Capital Fund and Sheridan Production Partners.

1. See Appendix for Benchmark History.



Total Fund  
Performance Summary (Net of Fees)

Period Ending: September 30, 2021

	3 Mo (%)	Rank	YTD (%)	Rank	1 Yr (%)	Rank	2 Yrs (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
<b>Inflation Hedge</b>	<b>4.9</b>	<b>--</b>	<b>14.7</b>	<b>--</b>	<b>19.8</b>	<b>--</b>	<b>4.7</b>	<b>--</b>	<b>3.7</b>	<b>--</b>	<b>4.6</b>	<b>--</b>	<b>--</b>	<b>--</b>
<i>Blended Inflation Hedge Index<sup>1</sup></i>	4.8	--	16.9	--	21.5	--	8.6	--	7.1	--	6.7	--	--	--
<b>Real Estate</b>	<b>5.6</b>	<b>20</b>	<b>11.4</b>	<b>37</b>	<b>13.3</b>	<b>24</b>	<b>6.8</b>	<b>42</b>	<b>6.7</b>	<b>35</b>	<b>7.4</b>	<b>22</b>	<b>9.5</b>	<b>13</b>
<i>NCREIF ODCE</i>	6.6	7	13.1	21	14.6	21	7.8	16	7.1	25	7.5	16	9.9	10
<i>InvMetrics All DB Real Estate Pub Net Median</i>	4.4	--	10.9	--	12.3	--	6.5	--	6.3	--	6.5	--	8.8	--
Harrison Street Core Property	2.8	--	7.1	--	8.5	--	--	--	--	--	--	--	--	--
Invesco	7.5	--	14.2	--	16.0	--	7.1	--	6.7	--	7.4	--	9.5	--
<i>NCREIF ODCE</i>	6.6	--	13.1	--	14.6	--	7.8	--	7.1	--	7.5	--	9.9	--
Invesco US Val IV	2.0	--	6.4	--	12.3	--	6.1	--	8.8	--	9.3	--	--	--
Invesco US Val V	9.1	--	25.0	--	31.7	--	15.2	--	--	--	--	--	--	--
<i>NCREIF ODCE</i>	6.6	--	13.1	--	14.6	--	7.8	--	7.1	--	7.5	--	9.9	--
<i>NCREIF ODCE + 2%</i>	7.1	--	14.8	--	16.9	--	9.9	--	9.2	--	9.6	--	12.1	--
PGIM RE US Debt Fund	1.4	--	4.2	--	5.5	--	5.1	--	5.5	--	--	--	--	--
Stockbridge Value IV	1.7	--	--	--	--	--	--	--	--	--	--	--	--	--
<i>NCREIF ODCE</i>	6.6	--	13.1	--	14.6	--	7.8	--	7.1	--	7.5	--	9.9	--
<b>Private Real Asset<sup>**</sup></b>	<b>10.9</b>	<b>--</b>	<b>31.6</b>	<b>--</b>	<b>33.2</b>	<b>--</b>	<b>14.5</b>	<b>--</b>	<b>6.7</b>	<b>--</b>	<b>3.4</b>	<b>--</b>	<b>--</b>	<b>--</b>
<i>Blended Private Real Asset Index<sup>1</sup></i>	3.3	--	27.4	--	30.3	--	5.9	--	6.6	--	6.0	--	--	--
<i>Blended Secondary CA Private RA Index<sup>1</sup></i>	6.5	--	18.3	--	21.4	--	4.2	--	3.4	--	6.8	--	--	--
<b>Public Real Assets</b>	<b>2.1</b>	<b>--</b>	<b>13.8</b>	<b>--</b>	<b>26.9</b>	<b>--</b>	<b>0.8</b>	<b>--</b>	<b>-0.3</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>
<i>Blended Public Real Asset Index<sup>1</sup></i>	2.1	--	13.8	--	27.0	--	7.2	--	4.5	--	5.6	--	--	--
SSgA Custom Real Asset	2.1	--	13.8	--	26.9	--	7.1	--	4.5	--	--	--	--	--
<i>SSgA Custom Real Asset Index<sup>1</sup></i>	2.1	--	13.8	--	27.0	--	7.2	--	4.5	--	5.6	--	--	--

\*\* Returns are one-quarter lag.

1. See Appendix for Benchmark History.

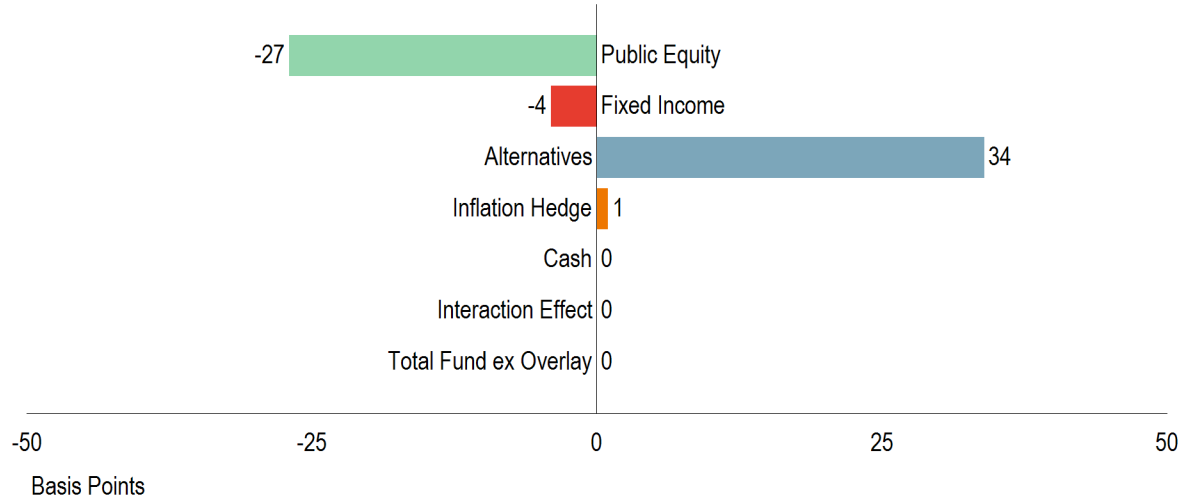
Total Fund  
Performance Summary (Net of Fees)

Period Ending: September 30, 2021

	3 Mo (%)	Rank	YTD (%)	Rank	1 Yr (%)	Rank	2 Yrs (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
Cash	0.1	--	0.3	--	0.4	--	0.6	--	0.9	--	0.9	--	0.8	--
91 Day T-Bills	0.0	--	0.0	--	0.0	--	0.4	--	1.0	--	1.1	--	0.6	--
General Account	0.1	--	0.3	--	0.4	--	1.0	--	2.3	--	2.3	--	1.5	--
Treasury & LAIF	0.2	--	0.8	--	1.3	--	1.5	--	2.0	--	2.2	--	1.5	--
91 Day T-Bills	0.0	--	0.0	--	0.0	--	0.4	--	1.0	--	1.1	--	0.6	--
Currency Hedge Cash Overlay	-0.1	--	-0.2	--	-0.3	--	--	--	--	--	--	--	--	--

Total Fund ex Overlay  
Performance Attribution

Period Ending: September 30, 2021

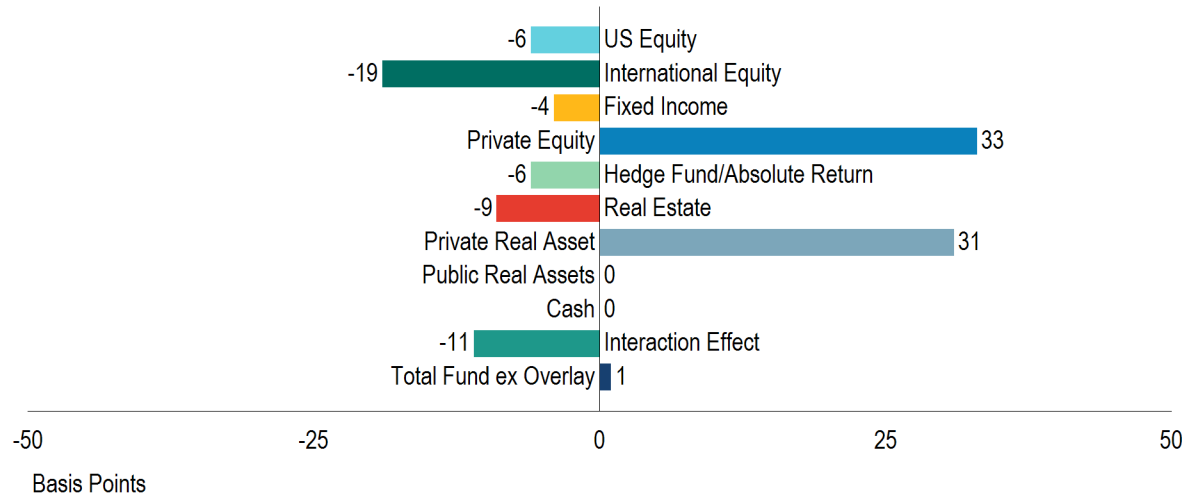


	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Interaction*	Total Effects
Public Equity	-1.47%	-0.83%	-0.64%	-0.27%	-0.02%	0.00%	-0.29%
Fixed Income	0.22%	0.35%	-0.14%	-0.04%	0.02%	0.00%	-0.02%
Alternatives	6.85%	4.22%	2.63%	0.34%	0.02%	0.01%	0.37%
Inflation Hedge	4.87%	4.81%	0.06%	0.01%	-0.05%	0.00%	-0.04%
Cash	0.08%	0.01%	0.06%	0.00%	-0.02%	0.00%	-0.02%
<b>Total</b>	<b>1.15%</b>	<b>1.14%</b>	<b>0.00%</b>	<b>0.04%</b>	<b>-0.04%</b>	<b>0.00%</b>	<b>0.00%</b>

Attribution does not include the impact of the Parametric Minneapolis strategy.  
\* Interaction Effects include Residual Effects.

Total Fund ex Overlay  
Performance Attribution

Period Ending: September 30, 2021

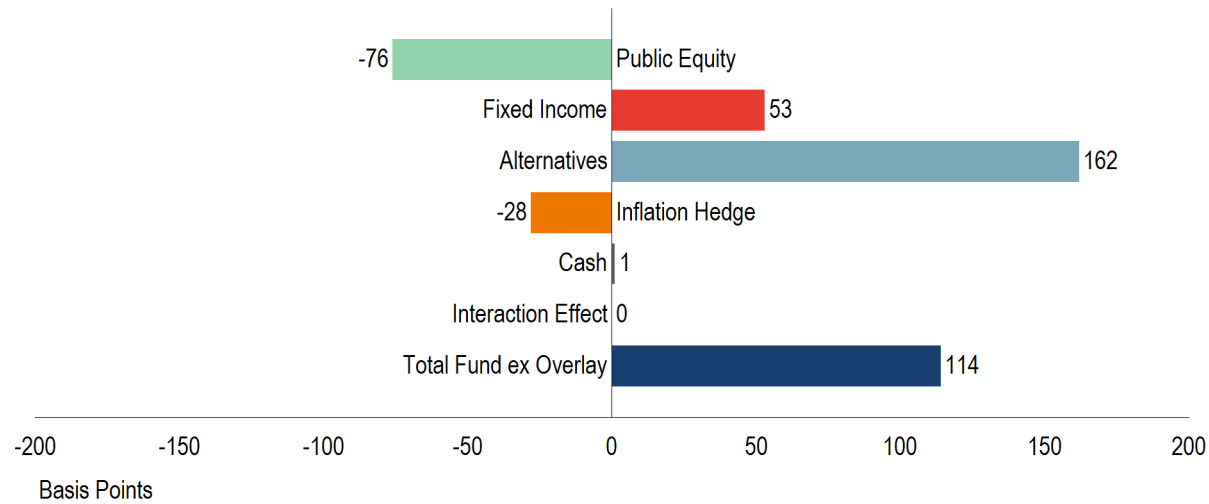


	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Interaction * Effects	Total Effects
US Equity	-0.38%	-0.10%	-0.28%	-0.06%	0.00%	0.00%	-0.06%
International Equity	-2.69%	-1.70%	-0.99%	-0.19%	-0.02%	-0.01%	-0.22%
Fixed Income	0.22%	0.35%	-0.14%	-0.04%	0.02%	0.00%	-0.02%
Private Equity	13.44%	7.99%	5.44%	0.33%	0.06%	0.03%	0.42%
Hedge Fund/Absolute Return	0.21%	1.03%	-0.82%	-0.06%	0.00%	0.00%	-0.05%
Real Estate	5.64%	6.59%	-0.95%	-0.09%	-0.10%	0.02%	-0.17%
Private Real Asset	10.95%	3.26%	7.69%	0.31%	-0.05%	-0.16%	0.10%
Public Real Assets	2.12%	2.11%	0.01%	0.00%	0.02%	0.00%	0.02%
Cash	0.08%	0.01%	0.06%	0.00%	-0.02%	0.00%	-0.02%
<b>Total</b>	<b>1.15%</b>	<b>1.14%</b>	<b>0.01%</b>	<b>0.20%</b>	<b>-0.08%</b>	<b>-0.11%</b>	<b>0.01%</b>

Attribution does not include the impact of the Parametric Minneapolis strategy.  
\* Interaction Effects include Residual Effects.

Total Fund ex Overlay  
Performance Attribution (1 Year)

Period Ending: September 30, 2021



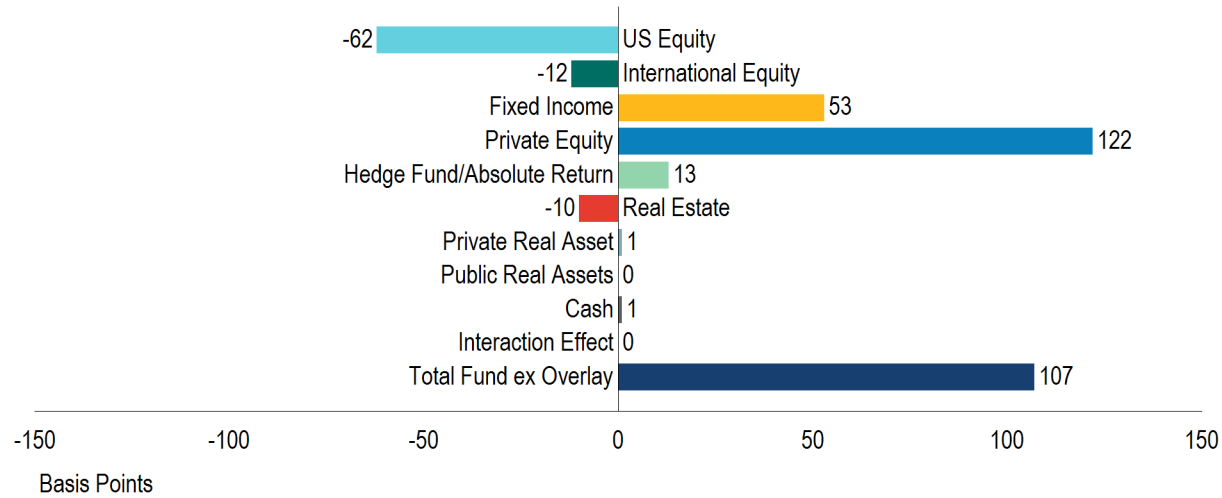
	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Interaction*	Total Effects
Public Equity	26.90%	28.86%	-1.96%	-0.76%	0.00%	0.00%	-0.76%
Fixed Income	3.87%	2.20%	1.66%	0.53%	0.00%	0.00%	0.53%
Alternatives	37.73%	22.85%	14.88%	1.62%	0.00%	0.00%	1.62%
Inflation Hedge	19.76%	21.48%	-1.72%	-0.28%	0.00%	0.00%	-0.28%
Cash	0.40%	0.04%	0.35%	0.01%	0.00%	0.00%	0.01%
<b>Total</b>	<b>19.16%</b>	<b>18.03%</b>	<b>1.14%</b>	<b>1.14%</b>	<b>0.00%</b>	<b>0.00%</b>	<b>1.14%</b>

Attribution does not include the impact of the Parametric Minneapolis strategy.  
\* Interaction Effects include Residual Effects.



Total Fund ex Overlay  
Performance Attribution (1 Year)

Period Ending: September 30, 2021



	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Interaction *	Total Effects
US Equity	28.80%	31.87%	-3.08%	-0.62%	0.00%	0.00%	-0.62%
International Equity	24.76%	25.35%	-0.59%	-0.12%	0.00%	0.00%	-0.12%
Fixed Income	3.87%	2.20%	1.66%	0.53%	0.00%	0.00%	0.53%
Private Equity	68.42%	47.16%	21.26%	1.22%	0.00%	0.00%	1.22%
Hedge Fund/Absolute Return	5.92%	4.05%	1.88%	0.13%	0.00%	0.00%	0.13%
Real Estate	13.35%	14.59%	-1.24%	-0.10%	0.00%	0.00%	-0.10%
Private Real Asset	33.21%	30.33%	2.88%	0.01%	0.00%	0.00%	0.01%
Public Real Assets	26.93%	26.98%	-0.05%	0.00%	0.00%	0.00%	0.00%
Cash	0.40%	0.04%	0.35%	0.01%	0.00%	0.00%	0.01%
<b>Total</b>	<b>19.21%</b>	<b>18.14%</b>	<b>1.07%</b>	<b>1.07%</b>	<b>0.00%</b>	<b>0.00%</b>	<b>1.07%</b>

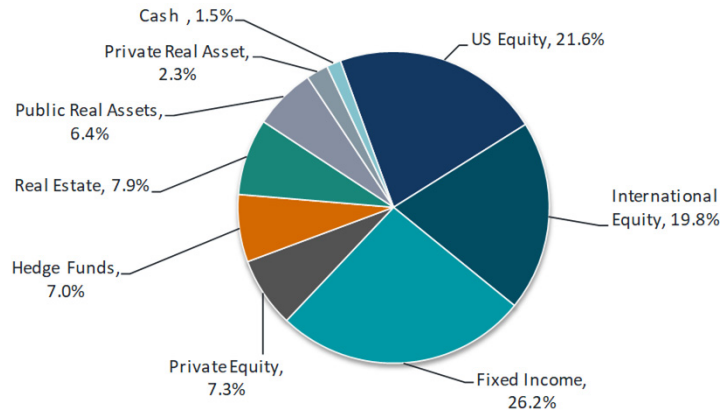
Attribution does not include the impact of the Parametric Minneapolis strategy.  
\* Interaction Effects include Residual Effects.

# Total Fund

## Asset Allocation Analysis

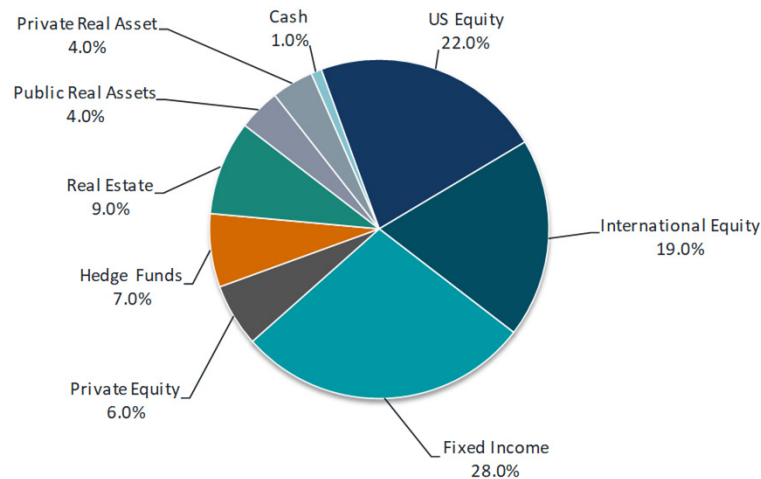
Period Ending: September 30, 2021

Current w/ Overlay



ASSET ALLOCATION	MARKET VALUE W/ OVERLAY	W/ OVERLAY	W/O OVERLAY
US Equity	1,307,944,422	21.6%	21.4%
International Equity	1,194,565,796	19.8%	18.3%
Fixed Income	1,583,549,508	26.2%	26.1%
Private Equity	439,621,262	7.3%	7.3%
Hedge Funds	422,321,291	7.0%	7.0%
Real Estate	479,404,680	7.9%	7.9%
Public Real Assets	388,823,221	6.4%	6.4%
Private Real Asset	137,148,122	2.3%	2.3%
Cash	89,991,351	1.5%	3.3%
<b>TOTAL</b>	<b>6,043,369,653</b>	<b>100.0%</b>	<b>100.0%</b>

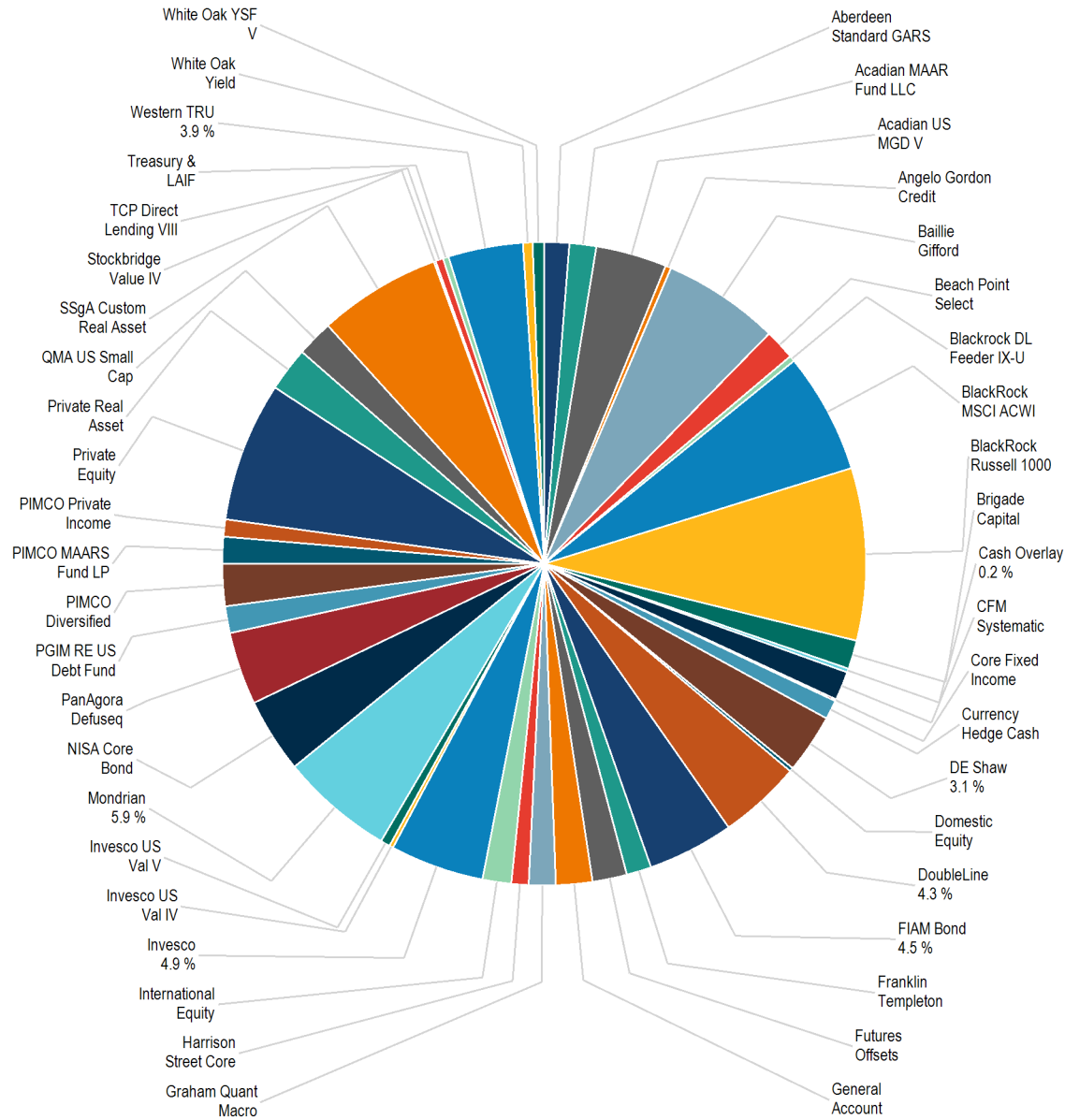
Target



ASSET ALLOCATION	W/ OVERLAY	TARGET	DIFF
US Equity	21.6%	22.0%	-0.4%
International Equity	19.8%	19.0%	0.8%
Fixed Income	26.2%	28.0%	-1.8%
Private Equity	7.3%	6.0%	1.3%
Hedge Funds	7.0%	7.0%	0.0%
Real Estate	7.9%	9.0%	-1.1%
Public Real Assets	6.4%	4.0%	2.4%
Private Real Asset	2.3%	4.0%	-1.7%
Cash	1.5%	1.0%	0.5%
<b>TOTAL</b>	<b>100.0%</b>	<b>100.0%</b>	<b>0.0%</b>

# Total Fund Manager Allocation Analysis

Period Ending: September 30, 2021



	Actual	Actual
Aberdeen Standard GARS	\$77,943,650	1%
Acadian MAAR Fund LLC	\$83,115,952	1%
Acadian US MGD V	\$222,130,848	4%
AG CSF Annex Dislocation Fund	\$2,404,306	0%
Angelo Gordon Credit Solutions	\$15,240,040	0%
Angelo Gordon Opportunistic	\$1,657,000	0%
Baillie Gifford	\$368,901,349	6%
Beach Point Select	\$93,847,605	2%
Blackrock DL Feeder IX-U	\$15,950,304	0%
BlackRock MSCI ACWI EX-US IMI	\$382,203,521	6%
BlackRock Russell 1000	\$541,830,510	9%
Brigade Capital	\$88,771,562	1%
Cash Overlay	\$11,141,479	0%
CFM Systematic Global Macro	\$89,245,503	1%
Core Fixed Income Overlay	\$7,758,281	0%
Currency Hedge Cash Overlay	\$59,158,289	1%
DE Shaw	\$186,490,597	3%
Domestic Equity Overlay	\$12,075,240	0%
DoubleLine	\$260,078,799	4%
FIAM Bond	\$269,558,041	4%
Franklin Templeton	\$76,297,758	1%
Futures Offsets (SMCE02001)	-\$109,299,421	-2%
General Account	\$112,475,236	2%
Graham Quant Macro	\$87,508,992	1%
Harrison Street Core Property	\$54,835,229	1%
International Equity Overlay	\$89,465,900	1%
Invesco	\$293,416,720	5%
Invesco US Val IV	\$9,144,249	0%
Invesco US Val V	\$27,611,121	0%
Mondrian	\$353,995,026	6%
NISA Core Bond	\$237,874,191	4%
PanAgora Defuseq	\$231,267,609	4%
PGIM RE US Debt Fund	\$85,737,151	1%
PIMCO Diversified	\$134,741,727	2%
PIMCO MAARS Fund LP	\$84,507,195	1%
PIMCO Private Income	\$55,418,092	1%
Private Equity	\$439,621,262	7%
Private Real Asset	\$137,148,122	2%
QMA US Small Cap	\$114,149,617	2%
SSgA Custom Real Asset	\$388,823,221	6%
Stockbridge Value IV	\$8,660,210	0%
TCP Direct Lending VIII	\$23,112,114	0%
Transition Account	\$249	0%
Treasury & LAIF	\$16,515,519	0%
Western TRU	\$234,803,330	4%
White Oak Yield	\$32,343,623	1%
White Oak YSF V	\$33,692,734	1%
<b>Total</b>	<b>\$6,043,369,653</b>	<b>100%</b>

**Statistics Summary**

**3 Years**

	Anlzd Return	Anlzd Return Rank	Anlzd Standard Deviation	Anlzd Standard Deviation Rank	Sharpe Ratio	Sharpe Ratio Rank	Information Ratio	Information Ratio Rank	Tracking Error	Tracking Error Rank
Total Fund	9.1%	80	9.5%	26	0.8	44	-0.3	73	2.3%	60
Policy Index	9.8%	58	9.3%	23	0.9	35	--	--	0.0%	1
InvMetrics Public DB > \$1B Net Median	10.1%	--	10.8%	--	0.8	--	0.0	--	1.8%	--

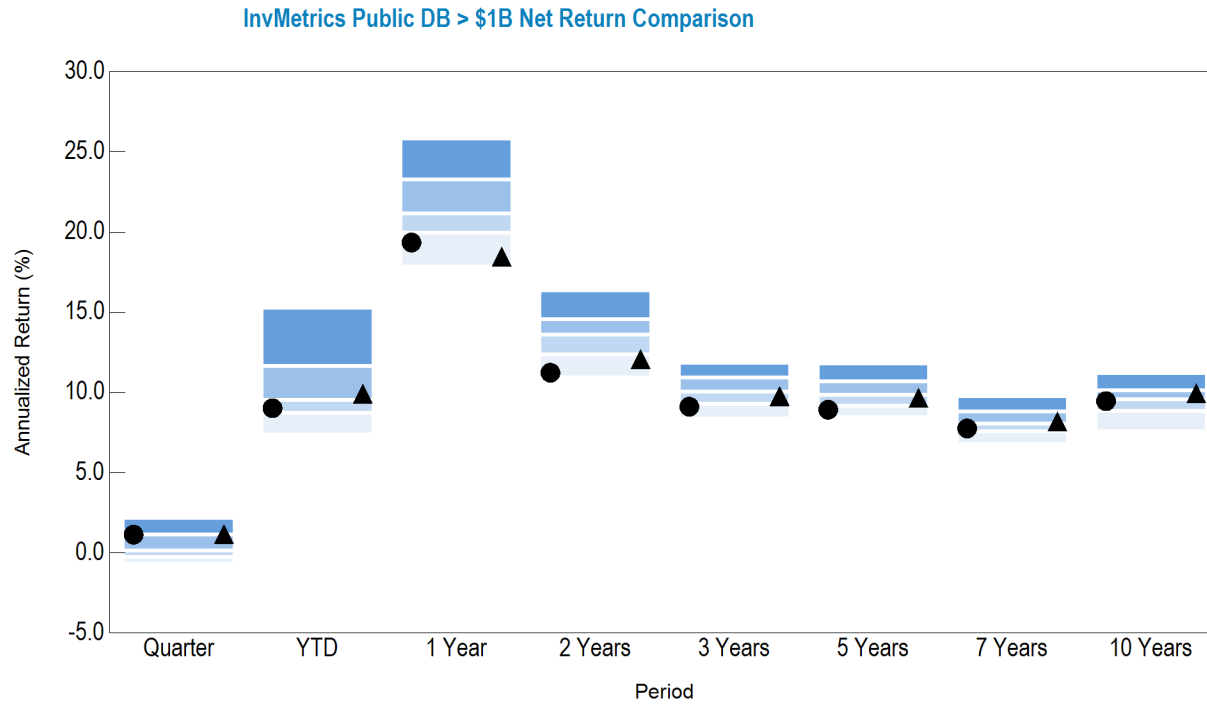
**Statistics Summary**

**5 Years**

	Anlzd Return	Anlzd Return Rank	Anlzd Standard Deviation	Anlzd Standard Deviation Rank	Sharpe Ratio	Sharpe Ratio Rank	Information Ratio	Information Ratio Rank	Tracking Error	Tracking Error Rank
Total Fund	8.9%	86	7.7%	25	1.0	44	-0.4	80	1.9%	60
Policy Index	9.7%	59	7.6%	23	1.1	35	--	--	0.0%	1
InvMetrics Public DB > \$1B Net Median	9.9%	--	8.8%	--	1.0	--	0.0	--	1.6%	--

Total Fund  
Peer Universe Comparison

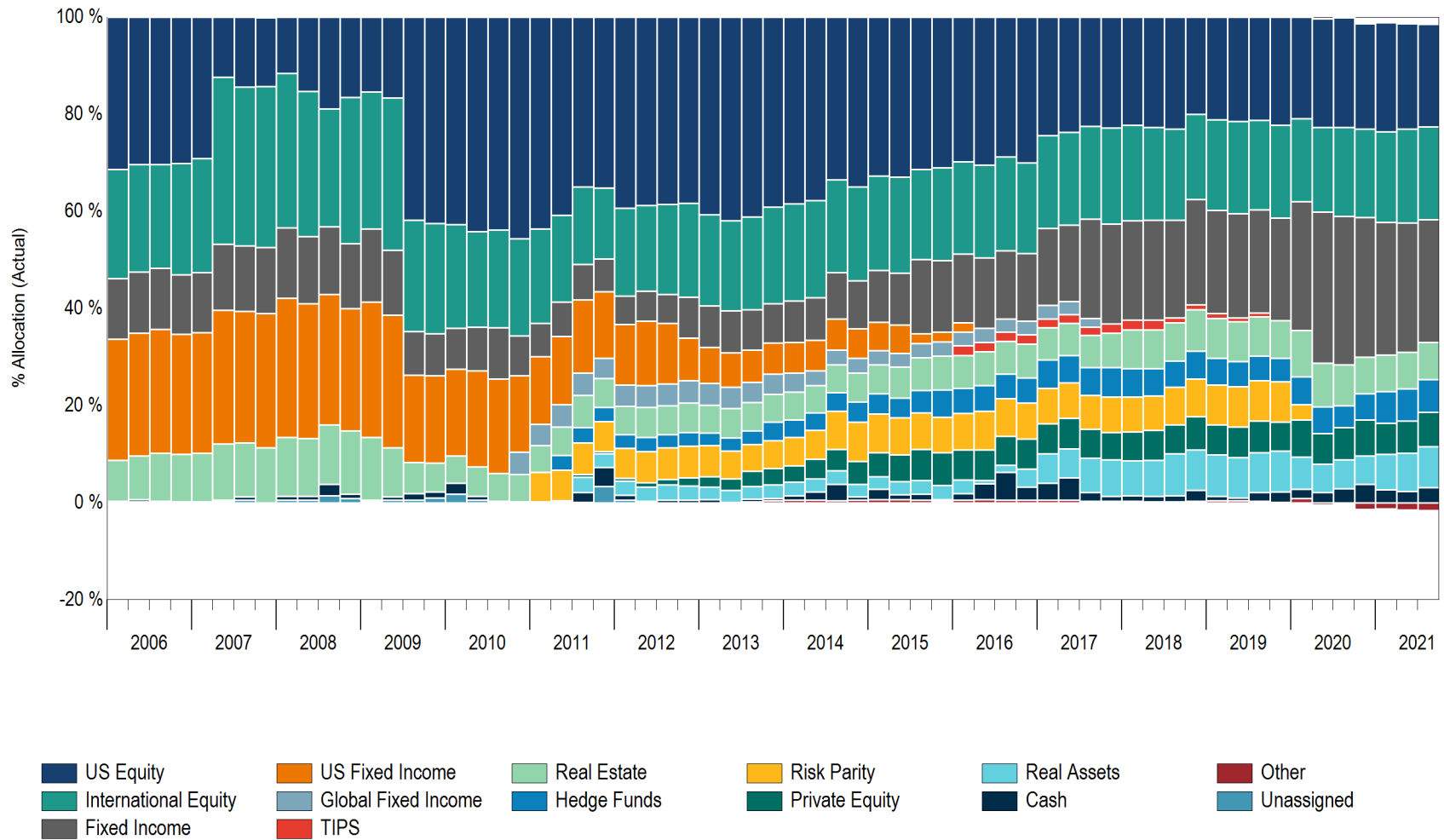
Period Ending: September 30, 2021

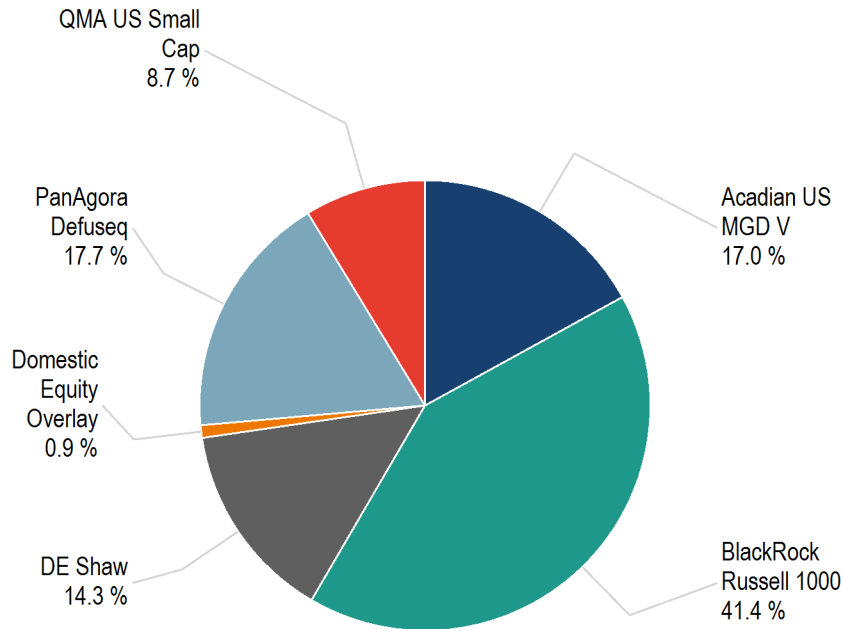


	Quarter	YTD	1 Year	2 Years	3 Years	5 Years	7 Years	10 Years
<b>Return (Rank)</b>								
5th Percentile	2.2	15.3	25.8	16.3	11.8	11.8	9.8	11.2
25th Percentile	1.1	11.7	23.3	14.6	10.9	10.7	8.8	10.2
Median	0.2	9.6	21.2	13.6	10.1	9.9	8.1	9.6
75th Percentile	-0.3	8.7	20.0	12.4	9.3	9.2	7.6	8.9
95th Percentile	-0.7	7.4	17.8	11.0	8.4	8.4	6.8	7.6
# of Portfolios	80	80	80	80	80	80	78	73
● Total Fund	1.1 (27)	9.0 (67)	19.3 (81)	11.2 (92)	9.1 (80)	8.9 (86)	7.7 (71)	9.4 (55)
▲ Policy Index	1.1 (25)	9.9 (45)	18.5 (94)	12.1 (85)	9.8 (58)	9.7 (59)	8.2 (49)	9.9 (35)

Total Fund  
Asset Allocation History

Period Ending: September 30, 2021





	Actual \$	Actual %	Manager Contribution to Excess Return %
Acadian US MGD V	\$222,130,848	17.0%	-0.2%
BlackRock Russell 1000	\$541,830,510	41.4%	0.0%
DE Shaw	\$186,490,597	14.3%	-0.2%
PanAgora Defuseq	\$231,267,609	17.7%	-0.1%
QMA US Small Cap	\$114,149,617	8.7%	0.3%
Domestic Equity Overlay	\$12,075,240	0.9%	0.0%
Actual vs. Policy Weight Difference			-0.1%
<b>Total</b>	<b>\$1,307,944,422</b>	<b>100.0%</b>	<b>-0.3%</b>

**Statistics Summary**

**3 Years**

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
US Equity	12.4%	19.1%	0.6	-2.1	1.7%
Blended US Equity Index	16.0%	19.7%	0.8	--	0.0%
Russell 3000	16.0%	19.7%	0.8	--	0.0%



**Statistics Summary**

**3 Years**

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
Large Cap Equity	13.2%	18.4%	0.7	-1.7	1.9%
Russell 1000	16.4%	19.4%	0.8	--	0.0%
BlackRock Russell 1000	16.4%	19.4%	0.8	0.8	0.0%
Russell 1000	16.4%	19.4%	0.8	--	0.0%
DE Shaw	13.0%	19.7%	0.6	-1.2	2.8%
Russell 1000	16.4%	19.4%	0.8	--	0.0%
Small Cap Equity	6.2%	27.0%	0.2	-0.8	5.4%
Russell 2000	10.5%	25.7%	0.4	--	0.0%
QMA US Small Cap	6.2%	27.0%	0.2	-0.8	5.4%
Russell 2000	10.5%	25.7%	0.4	--	0.0%

**Statistics Summary**

**5 Years**

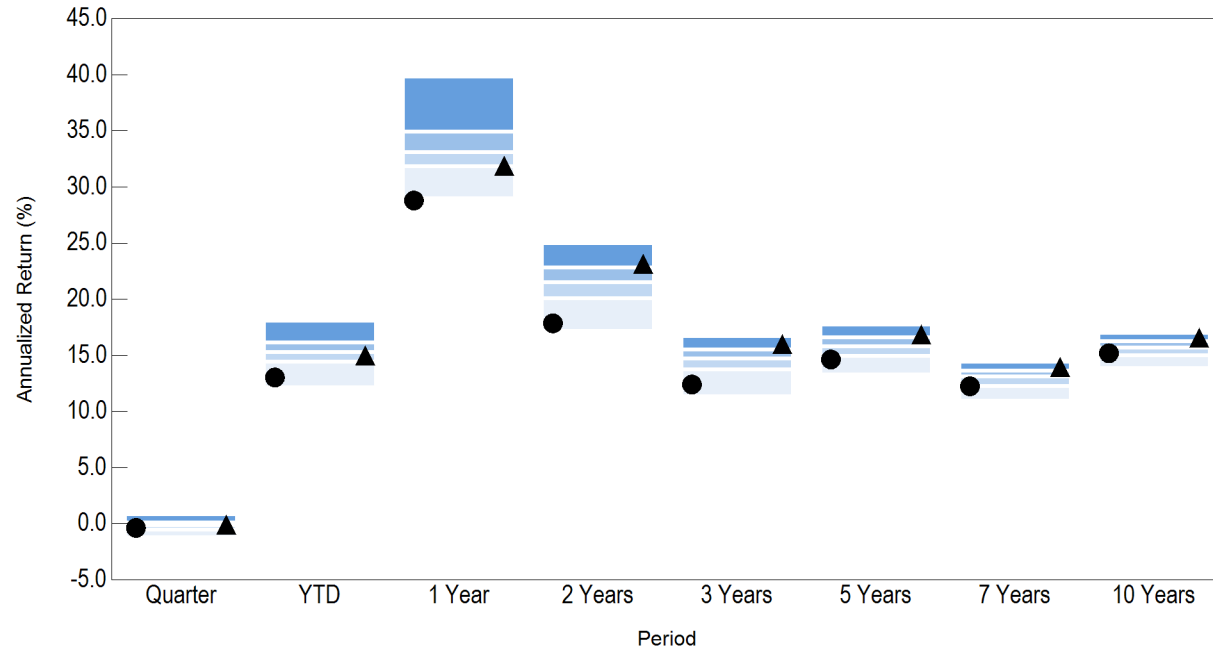
	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
US Equity	14.6%	15.3%	0.9	-1.5	1.5%
Blended US Equity Index	16.9%	15.8%	1.0	--	0.0%
Russell 3000	16.9%	15.8%	1.0	--	0.0%

**Statistics Summary**

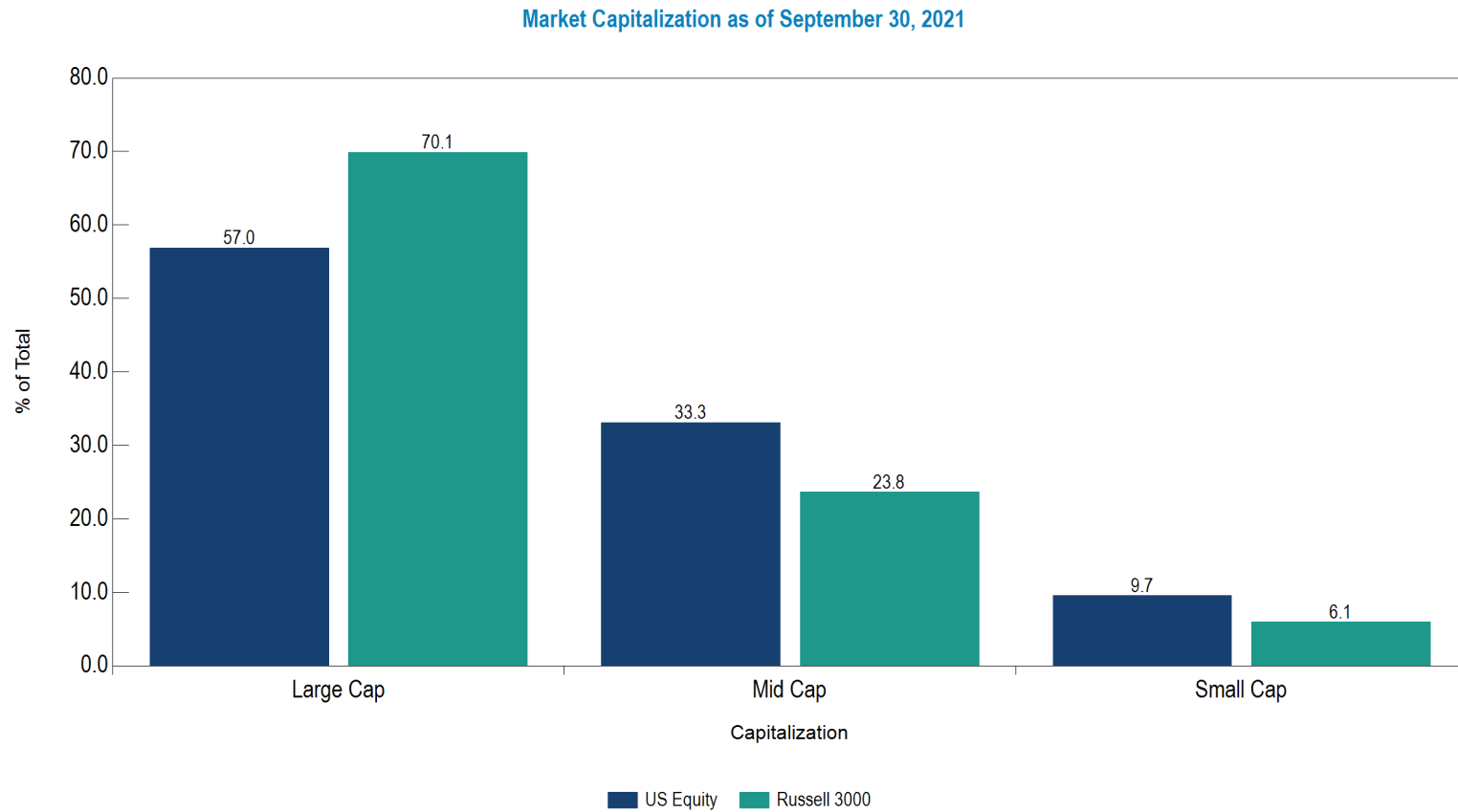
**5 Years**

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
Large Cap Equity	15.5%	14.9%	1.0	-0.9	1.7%
Russell 1000	17.1%	15.6%	1.0	--	0.0%
DE Shaw	15.7%	15.8%	0.9	-0.6	2.6%
Russell 1000	17.1%	15.6%	1.0	--	0.0%
Small Cap Equity	10.4%	22.1%	0.4	-0.7	4.4%
Russell 2000	13.4%	21.1%	0.6	--	0.0%
QMA US Small Cap	10.4%	22.1%	0.4	-0.7	4.4%
Russell 2000	13.4%	21.1%	0.6	--	0.0%

InvMetrics All DB US Eq Net Return Comparison



	Return (Rank)							
	Quarter	YTD	1 Year	2 Years	3 Years	5 Years	7 Years	10 Years
5th Percentile	0.8	18.1	39.8	25.0	16.7	17.7	14.4	17.0
25th Percentile	0.1	16.2	35.0	22.9	15.6	16.6	13.7	16.3
Median	-0.1	15.3	33.1	21.6	14.8	15.9	13.1	15.7
75th Percentile	-0.5	14.4	31.9	20.1	13.8	15.0	12.3	15.0
95th Percentile	-1.2	12.2	29.1	17.2	11.4	13.3	11.0	13.9
# of Portfolios	498	497	494	494	489	466	448	364
● US Equity	-0.4 (69)	13.0 (91)	28.8 (96)	17.9 (93)	12.4 (90)	14.6 (83)	12.2 (77)	15.2 (70)
▲ Blended US Equity Index	-0.1 (47)	15.0 (62)	31.9 (75)	23.1 (20)	16.0 (14)	16.9 (17)	14.0 (14)	16.6 (13)



See appendix for the market capitalization breakpoints.

Characteristics

	Portfolio	Russell 3000
Number of Holdings	3,020	3,049
Weighted Avg. Market Cap. (\$B)	353.6	466.6
Median Market Cap. (\$B)	4.6	2.6
Price To Earnings	21.4	24.0
Price To Book	4.0	4.3
Price To Sales	2.6	3.2
Return on Equity (%)	22.2	20.9
Yield (%)	1.5	1.3

Top Holdings

MICROSOFT CORP	4.1%
APPLE INC	3.6%
AMAZON.COM INC	2.0%
ALPHABET INC	2.0%
META PLATFORMS INC	1.3%
TESLA INC	1.0%
ALPHABET INC	1.0%
BERKSHIRE HATHAWAY INC	0.9%
VERIZON COMMUNICATIONS INC	0.9%
JOHNSON & JOHNSON	0.7%

Best Performers

	Return %
STATE AUTO FINANCIAL CORP (STFC)	198.2%
FULCRUM THERAPEUTICS INC (FULC)	169.2%
IVERIC BIO INC (ISEE)	157.4%
UPSTART HOLDINGS INC (UPST)	153.4%
KADMON HOLDINGS INC (KDMN)	125.1%
RAMACO RESOURCES INC (METC)	125.0%
SANDRIDGE ENERGY INC (SD)	107.2%
GREENSKY INC (GSKY)	101.4%
DYNAVAX TECHNOLOGIES CORP (DVAX)	95.0%
GRID DYNAMICS HOLDINGS INC (GDYN)	94.4%

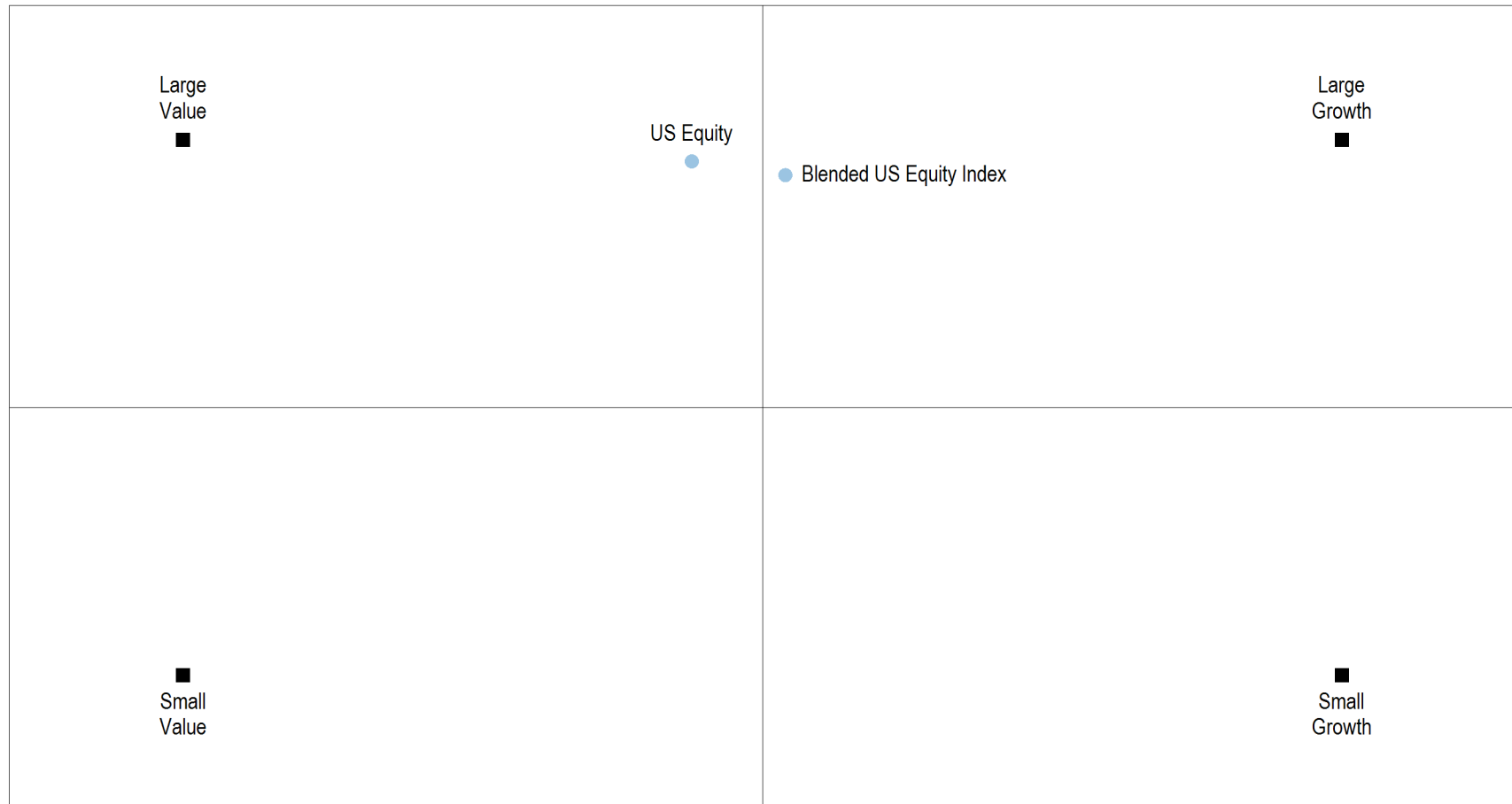
Worst Performers

	Return %
GTT COMMUNICATIONS INC (GTTNQ)	-91.8%
SESEN BIO INC (SESN)	-82.8%
ARDELYX INC (ARDX)	-82.6%
INTRUSION INC (INTZ)	-73.7%
SERES THERAPEUTICS INC (MCRB)	-70.8%
ONTRAK INC (OTRK)	-69.1%
INNOVAGE HOLDING CORP. COM UDS0.00	-69.0%
ASHFORD HOSPITALITY TRUST INC (AHT)	-67.7%
HUMANIGEN INC (HGEN)	-65.9%
WASHINGTON PRIME GROUP INC (WPGGQ)	-62.8%

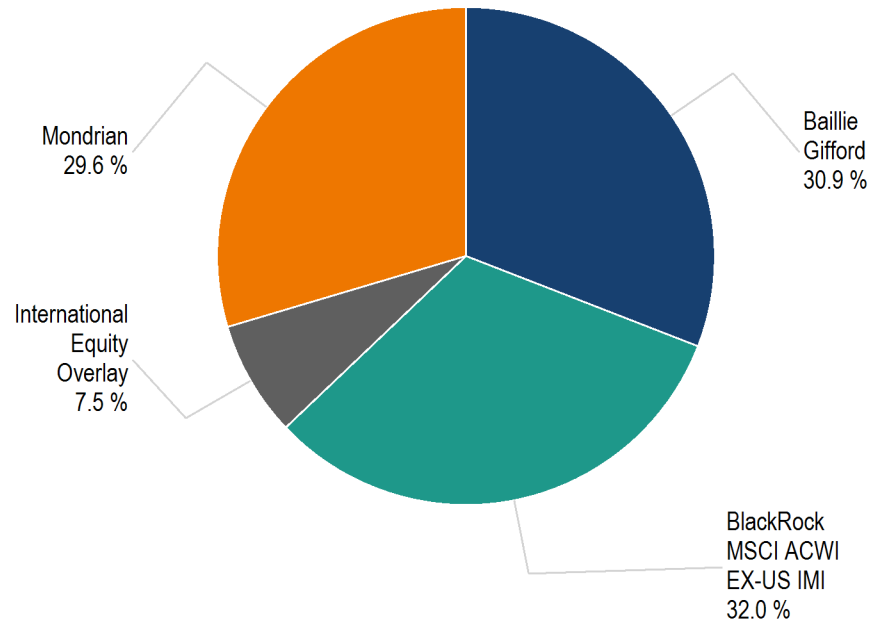
US Equity Performance Attribution vs. Russell 3000

	Attribution Effects				Returns		Sector Weights				
	Total Effects	Selection Effect	Allocation Effect	Interaction Effects	Portfolio	Benchmark	Portfolio	Benchmark			
Energy	0.1%	0.1%	0.0%	0.0%	0.3%	-2.0%	3.0%	2.5%			
Materials	-0.1%	0.0%	-0.1%	0.0%	-5.2%	-4.6%	4.6%	2.5%			
Industrials	0.1%	0.1%	0.0%	0.0%	-3.7%	-4.3%	9.3%	9.5%			
Consumer Discretionary	0.0%	0.0%	0.0%	0.0%	-0.9%	-0.9%	11.5%	12.1%			
Consumer Staples	-0.1%	0.0%	0.0%	0.0%	-1.4%	-0.8%	8.8%	5.3%			
Health Care	0.0%	0.0%	0.0%	0.0%	0.0%	0.3%	15.1%	13.6%			
Financials	-0.1%	0.0%	-0.1%	0.0%	2.4%	2.8%	8.7%	11.7%			
Information Technology	-0.2%	-0.1%	-0.1%	0.0%	0.5%	0.9%	21.3%	26.7%			
Communication Services	0.0%	0.0%	0.0%	0.0%	0.0%	-0.3%	10.3%	10.2%			
Utilities	0.0%	0.0%	0.0%	0.0%	0.8%	1.0%	3.8%	2.4%			
Real Estate	0.0%	0.0%	0.0%	0.0%	0.1%	0.7%	3.1%	3.4%			
Cash	0.0%	0.0%	0.0%	0.0%	0.0%	--	0.2%	0.0%			
Unclassified	0.0%	0.0%	0.0%	0.0%	0.1%	-0.1%	0.1%	0.0%			
<b>Portfolio</b>	<b>-0.4%</b>	<b>=</b>	<b>-0.1%</b>	<b>+</b>	<b>-0.2%</b>	<b>+</b>	<b>0.0%</b>	<b>-0.5%</b>	<b>-0.1%</b>	<b>100.0%</b>	<b>100.0%</b>

U.S. Effective Style Map







	Actual \$	Actual %	Manager Contribution to Excess Return %
Baillie Gifford	\$368,901,349	30.9%	-0.4%
Mondrian	\$353,995,026	29.6%	-0.5%
BlackRock MSCI ACWI EX-US IMI	\$382,203,521	32.0%	0.0%
International Equity Overlay	\$89,465,900	7.5%	0.0%
Actual vs. Policy Weight Difference			-0.1%
<b>Total</b>	<b>\$1,194,565,796</b>	<b>100.0%</b>	<b>-1.0%</b>

**Statistics Summary**

**3 Years**

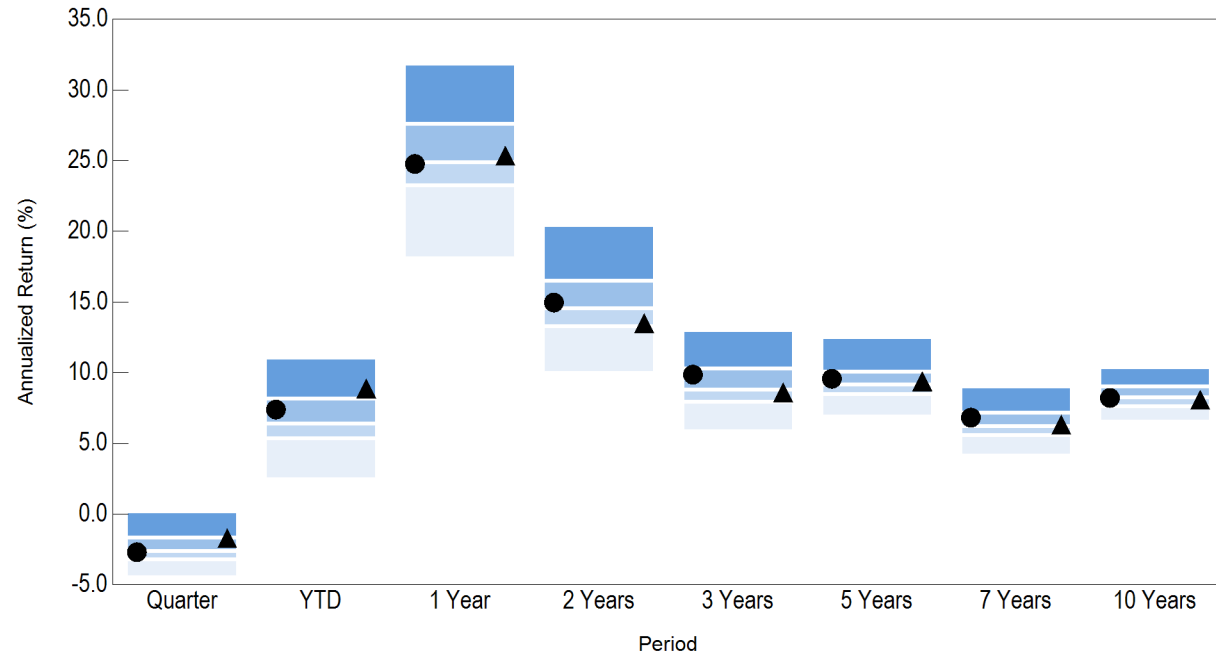
	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
International Equity	9.9%	16.7%	0.5	0.8	1.6%
Blended International Equity Index	8.6%	16.8%	0.5	--	0.0%
Baillie Gifford	15.8%	18.8%	0.8	1.2	6.2%
MSCI ACWI ex US	8.5%	17.7%	0.4	--	0.0%
Mondrian	5.0%	19.0%	0.2	0.2	2.7%
MSCI ACWI ex USA Value Gross	4.4%	20.0%	0.2	--	0.0%

**Statistics Summary**

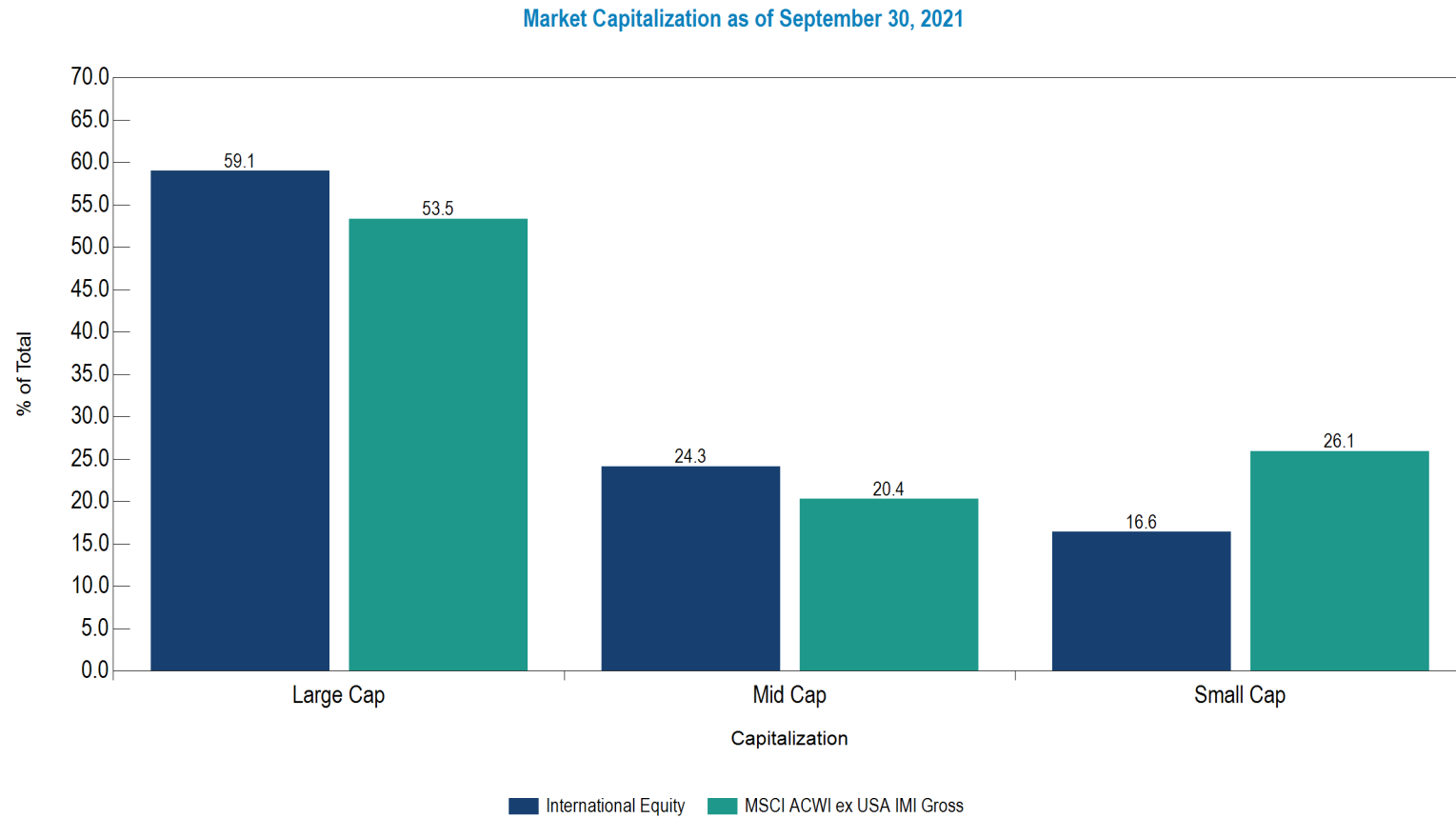
**5 Years**

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
International Equity	9.6%	14.0%	0.6	0.1	1.6%
Blended International Equity Index	9.4%	13.9%	0.6	--	0.0%
Baillie Gifford	13.3%	15.7%	0.8	0.7	5.7%
MSCI ACWI ex US	9.4%	14.6%	0.6	--	0.0%
Mondrian	6.3%	15.8%	0.3	-0.2	3.3%
MSCI ACWI ex USA Value Gross	7.1%	16.5%	0.4	--	0.0%

InvMetrics All DB ex-US Eq Net Return Comparison



	Return (Rank)							
	Quarter	YTD	1 Year	2 Years	3 Years	5 Years	7 Years	10 Years
5th Percentile	0.2	11.1	31.9	20.4	13.0	12.5	9.0	10.4
25th Percentile	-1.6	8.2	27.6	16.5	10.3	10.1	7.2	9.1
Median	-2.6	6.4	24.9	14.6	8.8	9.2	6.2	8.3
75th Percentile	-3.2	5.4	23.3	13.3	8.0	8.5	5.6	7.7
95th Percentile	-4.4	2.5	18.1	10.0	5.9	6.9	4.2	6.6
# of Portfolios	315	313	312	312	309	294	283	227
● International Equity	-2.7 (55)	7.4 (36)	24.8 (53)	15.0 (44)	9.9 (33)	9.6 (40)	6.8 (32)	8.2 (54)
▲ Blended International Equity Index	-1.7 (27)	8.9 (16)	25.4 (45)	13.5 (73)	8.6 (54)	9.4 (44)	6.3 (47)	8.1 (59)



See appendix for the market capitalization breakpoints.

Characteristics

	Portfolio	MSCI ACWI ex USA IMI Gross
Number of Holdings	6,769	6,736
Weighted Avg. Market Cap. (\$B)	82.7	81.1
Median Market Cap. (\$B)	2.0	1.9
Price To Earnings	17.2	15.9
Price To Book	2.8	2.7
Price To Sales	1.5	1.4
Return on Equity (%)	13.4	13.1
Yield (%)	2.4	2.6

Top Holdings

ASML HOLDING NV	1.5%
TAIWAN SEMICONDUCTOR MANUFACTURING CO LTD	1.4%
TAIWAN SEMICONDUCTOR MANUFACTURING CO LTD	1.2%
UNITED OVERSEAS BANK LTD	1.2%
HOUSING DEVELOPMENT FINANCE CORP LTD	1.1%
SANOFI	1.0%
SARTORIUS SHS.PREF.	0.9%
GLAXOSMITHKLINE PLC	0.9%
ALIBABA GROUP HOLDING LTD	0.9%
FUJIFILM HOLDINGS CORP	0.9%

Best Performers

	Return %
DONGYUE GROUP LIMITED	198.3%
BIONEER CORP	189.4%
GUANGHUI ENERGY CO LTD	161.2%
CGN NEW ENERGY HOLDINGS CO LTD	156.7%
CHINA POWER INTERNATIONAL DEVELOPMENT LTD	142.3%
ECOPRO HN CO LTD	141.1%
INSPUR INTERNATIONAL LTD	138.1%
WEMADE ENTERTAINMENT (KO:WEM)	136.6%
JSW ENERGY LTD	134.8%
THUNGELA RES LTD NPV	130.6%

Worst Performers

	Return %
E-HOUSE (CHINA) ENTERPRISE HOLDINGS LTD	-82.3%
TAL EDUCATION GROUP (TAL)	-80.8%
HYUNDAI DOOSAN INFRACORE CO LTD	-80.4%
LOJAS AMERICANAS SA	-79.3%
GAOTU TECHEDU INC (GOTU)	-79.2%
17 EDUCATION TECHNOLOGY GR ADR USD.0001	-75.3%
NEW ORIENTAL EDUCATION & TECHNOLOGY GROUP INC (EDU)	-75.0%
CHINA EVERGRANDE GROUP	-70.9%
HEXO CORP (HEXO.)	-68.4%
CHINA ONLINE EDUCATION GROUP (COE)	-66.7%

International Equity Performance Attribution vs. MSCI ACWI ex USA IMI Gross

	Attribution Effects				Returns		Sector Weights				
	Total Effects	Selection Effect	Allocation Effect	Interaction Effects	Portfolio	Benchmark	Portfolio	Benchmark			
Energy	0.1%	0.1%	-0.1%	0.0%	10.7%	7.2%	3.6%	4.3%			
Materials	0.2%	0.0%	0.1%	0.1%	-4.0%	-4.4%	5.1%	8.7%			
Industrials	0.0%	-0.1%	0.0%	0.0%	0.6%	0.9%	13.4%	13.1%			
Consumer Discretionary	-0.5%	-0.1%	-0.3%	-0.1%	-10.6%	-10.1%	17.8%	13.6%			
Consumer Staples	-0.2%	-0.2%	0.0%	0.0%	-5.7%	-3.1%	7.8%	8.1%			
Health Care	-0.2%	-0.2%	0.0%	0.0%	-3.6%	-2.0%	10.1%	9.1%			
Financials	-0.4%	-0.4%	-0.2%	0.2%	-0.8%	1.5%	13.2%	17.3%			
Information Technology	0.4%	0.3%	0.0%	0.1%	2.3%	-0.5%	14.8%	12.8%			
Communication Services	-0.2%	0.0%	-0.1%	0.0%	-8.6%	-8.5%	8.4%	6.3%			
Utilities	0.0%	0.0%	0.0%	0.0%	-2.0%	-1.2%	3.1%	3.0%			
Real Estate	0.1%	0.0%	0.0%	0.0%	-3.5%	-3.9%	1.5%	3.7%			
Cash	0.0%	0.0%	0.0%	0.0%	0.0%	--	1.2%	0.0%			
Unclassified	0.0%	0.0%	0.0%	0.0%	5.0%	--	0.0%	0.0%			
<b>Portfolio</b>	<b>-0.7%</b>	<b>=</b>	<b>-0.5%</b>	<b>+</b>	<b>-0.5%</b>	<b>+</b>	<b>0.3%</b>	<b>-3.0%</b>	<b>-2.3%</b>	<b>100.0%</b>	<b>100.0%</b>

Int'l Equity Performance Attribution vs. MSCI ACWI ex USA IMI Gross

	Returns and Weights				Attribution Effects				Total Effects
	Manager Return	Index Return	Manager Weight	Index Weight	Selection Effect	Allocation Effect	Currency Effect	Interaction Effect	
<b>Europe</b>									
Austria	3.7%	5.2%	0.1%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%
Belgium	-4.6%	-4.4%	0.2%	0.7%	0.0%	0.0%	0.0%	0.0%	0.0%
Czech Republic*	16.2%	16.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Denmark	-2.9%	2.0%	0.9%	1.5%	-0.1%	0.0%	0.0%	0.0%	-0.1%
Finland	-8.5%	-4.2%	0.7%	0.7%	0.0%	0.0%	0.0%	0.0%	0.0%
France	-4.4%	-1.5%	6.0%	6.4%	-0.2%	0.0%	0.0%	0.0%	-0.2%
Germany	-5.3%	-3.5%	4.5%	5.5%	-0.1%	0.0%	0.0%	0.0%	-0.1%
Greece*	-1.9%	-1.4%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
Hungary*	7.4%	7.5%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
Ireland	3.4%	0.8%	0.2%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%
Italy	-2.0%	-0.5%	1.9%	1.6%	0.0%	0.0%	0.0%	0.0%	0.0%
Luxembourg	-15.6%	-2.3%	0.6%	0.0%	0.0%	0.0%	0.0%	-0.1%	-0.1%
Netherlands	6.3%	3.5%	3.2%	2.5%	0.1%	0.0%	0.0%	0.0%	0.1%
Norway	2.5%	2.0%	0.2%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%
Poland*	4.6%	2.8%	0.1%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%
Portugal	8.9%	4.5%	0.4%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
Russia*	9.5%	9.8%	0.5%	0.9%	0.0%	0.0%	0.0%	0.0%	0.0%
Spain	-1.4%	-2.6%	2.2%	1.5%	0.0%	0.0%	0.0%	0.0%	0.0%
Sweden	2.4%	-1.4%	2.8%	2.7%	0.1%	0.0%	0.0%	0.0%	0.1%
Switzerland	-5.6%	-2.8%	3.2%	5.7%	-0.2%	0.0%	0.0%	0.1%	0.0%
United Kingdom	-1.9%	-0.1%	11.9%	9.3%	-0.2%	0.1%	0.0%	0.0%	-0.2%



Int'l Equity Performance Attribution vs. MSCI ACWI ex USA IMI Gross

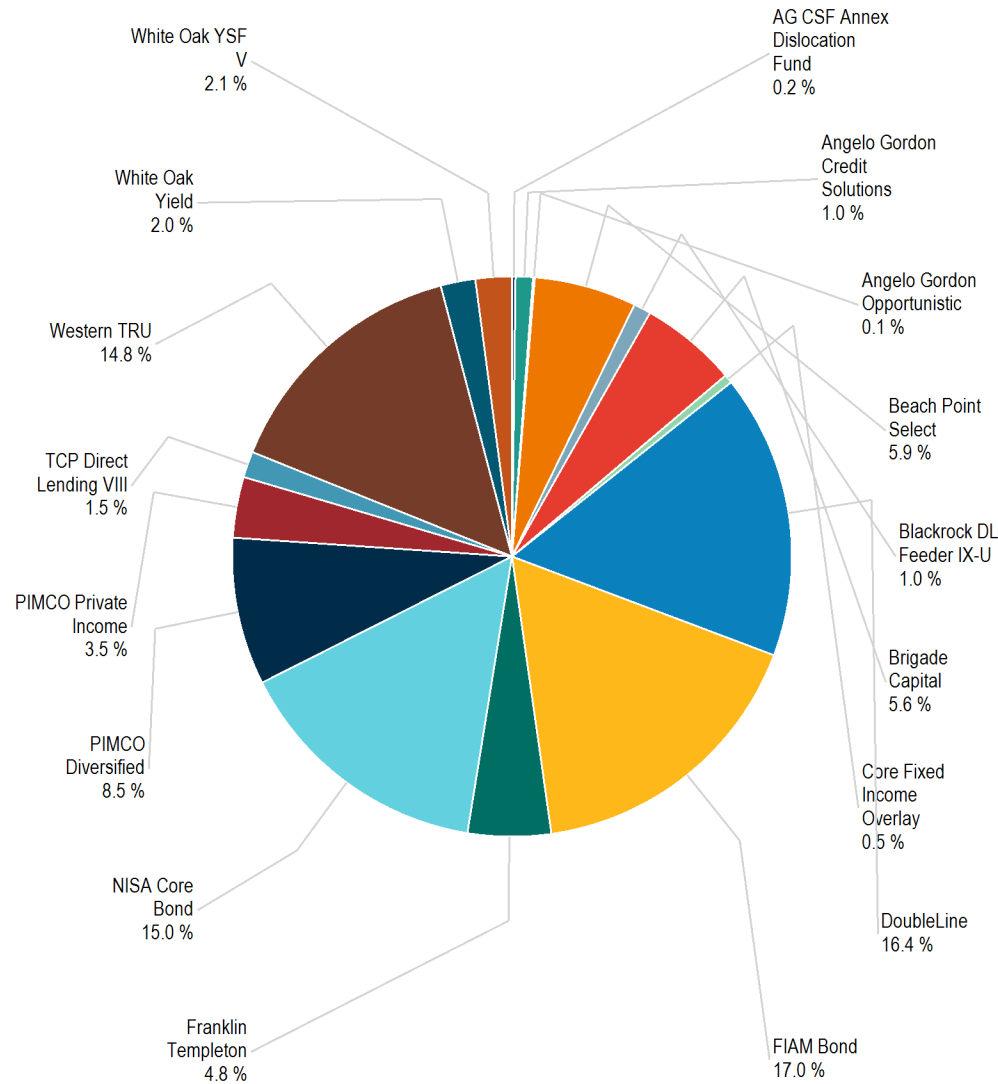
	Returns and Weights				Attribution Effects				Total Effects	
	Manager Return	Index Return	Manager Weight	Index Weight	Selection Effect	Allocation Effect	Currency Effect	Interaction Effect		
<b>AsiaPacific</b>										
Australia	-6.3%	-2.1%	2.6%	4.7%	-0.2%	0.0%	0.1%	0.1%	-0.1%	
China*	-17.9%	-17.9%	9.9%	10.4%	0.0%	0.1%	0.0%	0.0%	0.1%	
Hong Kong	-14.2%	-9.8%	4.4%	1.9%	-0.1%	-0.2%	0.0%	-0.1%	-0.4%	
India*	12.7%	12.9%	3.9%	3.3%	0.0%	0.1%	0.0%	0.0%	0.1%	
Indonesia*	5.5%	10.1%	0.3%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	
Japan	4.9%	4.6%	18.5%	15.0%	0.0%	0.2%	0.0%	0.0%	0.2%	
Korea*	-10.7%	-11.4%	3.0%	4.2%	0.0%	0.1%	0.0%	0.0%	0.1%	
Malaysia*	2.0%	1.5%	0.2%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	
New Zealand	-1.4%	2.8%	0.6%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	
Pakistan*	-12.3%	-12.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Philippines*	-2.5%	-2.6%	0.1%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	
Singapore	1.2%	-0.3%	1.5%	0.7%	0.0%	0.0%	0.0%	0.0%	0.0%	
Taiwan*	-2.6%	-1.7%	4.7%	4.5%	0.0%	0.0%	0.0%	0.0%	0.0%	
Thailand*	-3.0%	-3.1%	0.3%	0.6%	0.0%	0.0%	0.0%	0.0%	0.0%	
<b>Americas</b>										
Argentina*	7.8%	17.1%	0.5%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	
Brazil*	-15.2%	-19.5%	1.4%	1.6%	0.1%	0.0%	0.0%	0.0%	0.1%	
Canada	-3.8%	-1.9%	3.9%	7.0%	-0.2%	0.0%	0.1%	0.1%	0.0%	
Chile*	-9.2%	-9.3%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	
Colombia*	10.1%	10.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Mexico*	2.2%	1.2%	0.5%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	
Peru*	-25.3%	-11.1%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	
United States	-11.1%	0.3%	1.5%	0.0%	0.0%	0.0%	0.0%	-0.2%	-0.2%	

Int'l Equity Performance Attribution vs. MSCI ACWI ex USA IMI Gross

	Returns and Weights				Attribution Effects				Total Effects
	Manager Return	Index Return	Manager Weight	Index Weight	Selection Effect	Allocation Effect	Currency Effect	Interaction Effect	
<b>Other</b>									
Egypt*	4.2%	4.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Israel	3.7%	3.2%	0.2%	0.6%	0.0%	0.0%	0.0%	0.0%	0.0%
Kuwait*	7.9%	7.9%	0.1%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%
Qatar*	6.8%	6.7%	0.1%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%
Saudi Arabia*	7.1%	7.2%	0.3%	0.9%	0.0%	0.0%	0.0%	0.0%	0.0%
South Africa*	-13.9%	-4.1%	0.9%	1.1%	-0.1%	0.0%	0.0%	0.0%	-0.1%
Turkey*	2.4%	2.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
United Arab Emirates*	6.0%	6.0%	0.1%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%
<b>Totals</b>									
Americas	-6.1%	-4.8%	7.8%	9.4%	-0.2%	0.0%	0.1%	0.0%	0.0%
Europe	-2.0%	-0.9%	39.3%	40.7%	-0.4%	0.0%	0.0%	0.0%	-0.5%
Asia/Pacific	-3.2%	-3.4%	49.9%	46.7%	0.0%	-0.1%	0.1%	0.0%	0.0%
Other	-5.0%	2.4%	1.7%	3.2%	-0.2%	-0.1%	0.0%	0.1%	-0.2%
Cash	0.0%	--	1.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
<b>Total</b>	<b>-3.0%</b>	<b>-2.3%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>-0.9%</b>	<b>-0.1%</b>	<b>0.2%</b>	<b>0.1%</b>	<b>-0.7%</b>
<b>Totals</b>									
Developed	-1.4%	-0.2%	72.0%	69.6%	-1.0%	0.1%	0.1%	0.0%	-0.9%
Emerging*	-7.2%	-7.1%	26.8%	30.4%	-0.1%	0.2%	0.1%	0.0%	0.2%
Cash	0.0%	--	1.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

# Fixed Income Manager Allocation Analysis

Period Ending: September 30, 2021



	Actual \$	Actual %	Manager Contribution to Excess Return %
AG CSF Annex Dislocation Fund	\$2,404,306	0.2%	0.0%
Angelo Gordon Credit Solutions	\$15,240,040	1.0%	0.0%
Angelo Gordon Opportunistic	\$1,657,000	0.1%	0.0%
Beach Point Select	\$93,847,605	5.9%	0.0%
Blackrock DL Feeder IX-U	\$15,950,304	1.0%	0.0%
Brigade Capital	\$88,771,562	5.6%	0.1%
DoubleLine	\$260,078,799	16.4%	-0.1%
FIAM Bond	\$269,558,041	17.0%	0.0%
Franklin Templeton	\$76,297,758	4.8%	0.0%
NISA Core Bond	\$237,874,191	15.0%	0.0%
PIMCO Diversified	\$134,741,727	8.5%	0.0%
PIMCO Private Income	\$55,418,092	3.5%	0.0%
TCP Direct Lending VIII	\$23,112,114	1.5%	-0.1%
Western TRU	\$234,803,330	14.8%	0.0%
White Oak Yield	\$32,343,623	2.0%	-0.1%
White Oak YSF V	\$33,692,734	2.1%	-0.1%
Core Fixed Income Overlay	\$7,758,281	0.5%	0.0%
Actual vs. Policy Weight Difference			0.1%
<b>Total</b>	<b>\$1,583,549,508</b>	<b>100.0%</b>	<b>-0.1%</b>

Statistics Summary

3 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
Fixed Income	5.6%	3.6%	1.3	-0.2	1.8%
Blended Fixed Income Index	6.0%	4.1%	1.2	--	0.0%
Core Fixed	5.3%	3.1%	1.4	0.0	1.4%
Bloomberg US Aggregate TR	5.4%	3.5%	1.2	--	0.0%
FIAM Bond	6.5%	4.0%	1.3	0.7	1.6%
Bloomberg US Aggregate TR	5.4%	3.5%	1.2	--	0.0%
Western TRU	5.1%	6.5%	0.6	0.6	6.6%
3-Month Libor Total Return USD	1.3%	0.3%	0.7	--	0.0%
Opportunistic Credit	6.1%	6.7%	0.8	-0.3	4.2%
Bloomberg BA Intermediate HY	7.5%	8.0%	0.8	--	0.0%
Angelo Gordon Opportunistic	7.1%	17.6%	0.3	0.1	17.8%
Bloomberg US Aggregate TR	5.4%	3.5%	1.2	--	0.0%
Beach Point Select	9.8%	8.9%	1.0	0.5	4.9%
Bloomberg BA Intermediate HY	7.5%	8.0%	0.8	--	0.0%
Brigade Capital	6.4%	12.2%	0.4	-0.2	7.1%
Bloomberg BA Intermediate HY	7.5%	8.0%	0.8	--	0.0%
PIMCO Diversified	6.0%	6.9%	0.7	-0.2	1.3%
Blended PIMCO Diversified Index	6.2%	7.8%	0.7	--	0.0%
Franklin Templeton	-2.0%	5.8%	-0.5	-0.9	6.7%
Bloomberg Multiverse TR	4.3%	4.7%	0.7	--	0.0%

**Statistics Summary**

**3 Years**

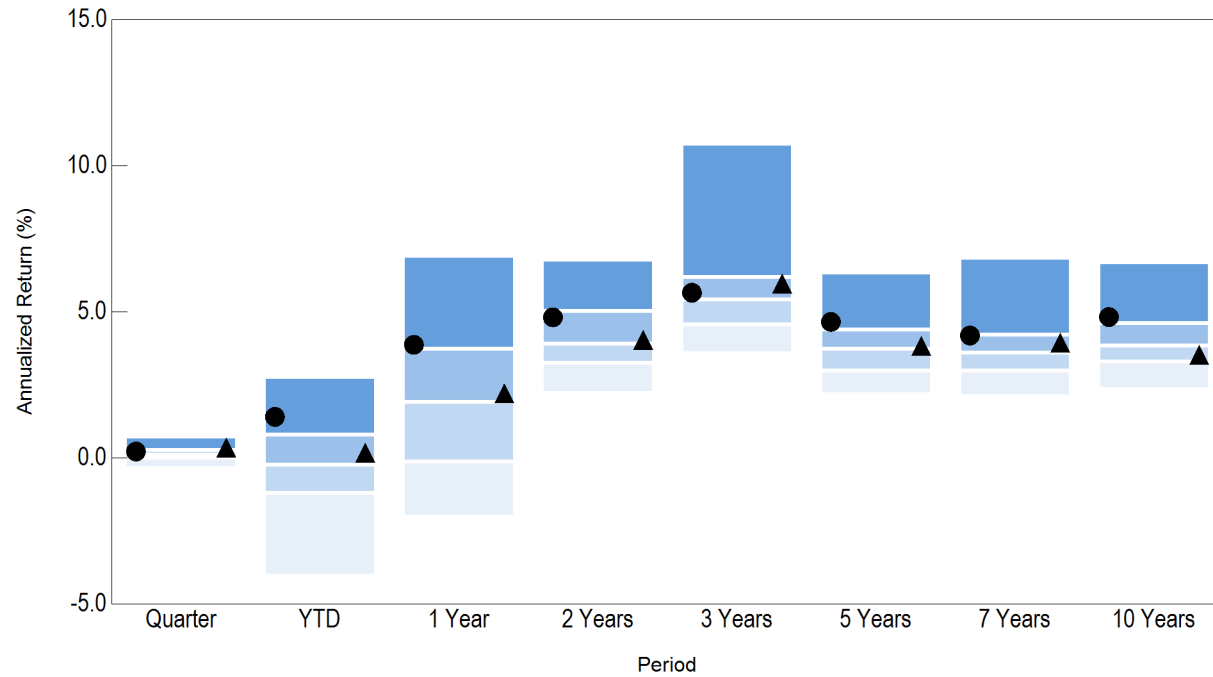
	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
Private Credit	7.3%	4.2%	1.5	-0.6	2.8%
Cliffwater Direct Lending Index	9.0%	5.9%	1.3	--	0.0%
TCP Direct Lending VIII	6.5%	3.0%	1.8	-0.5	5.1%
Cliffwater Direct Lending Index	9.0%	5.9%	1.3	--	0.0%
White Oak Yield	5.6%	3.0%	1.5	-0.8	4.0%
Cliffwater Direct Lending Index	9.0%	5.9%	1.3	--	0.0%

Statistics Summary

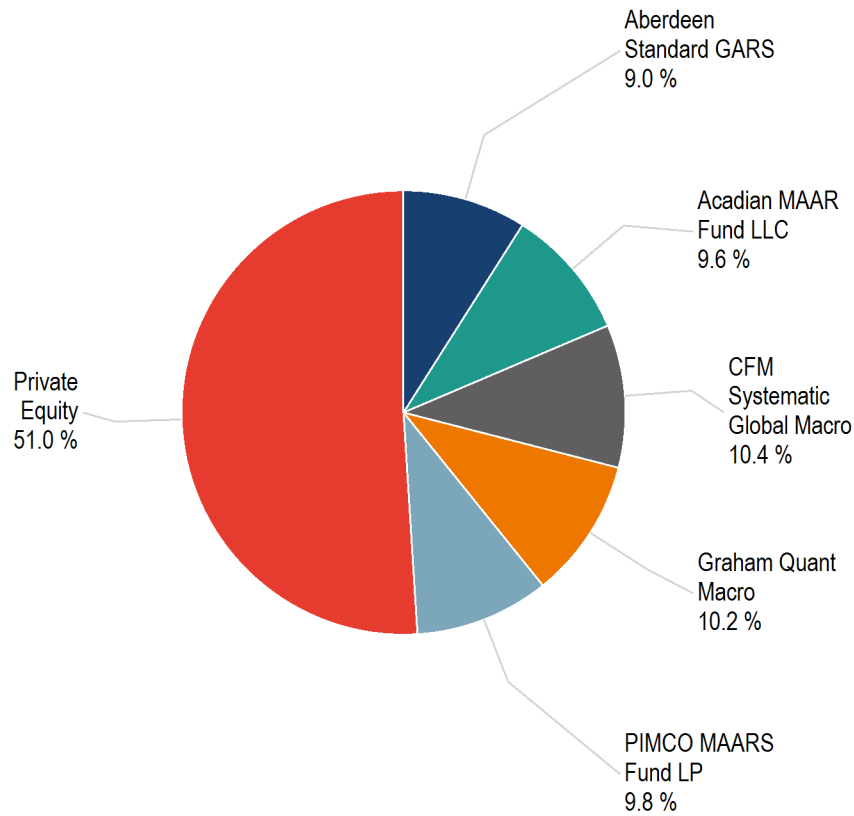
5 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
Fixed Income	4.7%	3.0%	1.2	0.5	1.8%
Blended Fixed Income Index	3.8%	3.6%	0.8	--	0.0%
Core Fixed	3.4%	2.8%	0.8	0.4	1.3%
Bloomberg US Aggregate TR	2.9%	3.3%	0.6	--	0.0%
FIAM Bond	3.8%	3.6%	0.8	0.7	1.2%
Bloomberg US Aggregate TR	2.9%	3.3%	0.6	--	0.0%
Western TRU	4.2%	5.4%	0.6	0.5	5.4%
3-Month Libor Total Return USD	1.4%	0.3%	1.1	--	0.0%
Opportunistic Credit	6.6%	5.4%	1.0	0.2	3.6%
Bloomberg BA Intermediate HY	6.0%	6.3%	0.8	--	0.0%
Angelo Gordon Opportunistic	12.4%	15.1%	0.7	0.6	15.3%
Bloomberg US Aggregate TR	2.9%	3.3%	0.6	--	0.0%
Beach Point Select	9.3%	7.0%	1.2	0.8	4.0%
Bloomberg BA Intermediate HY	6.0%	6.3%	0.8	--	0.0%
Brigade Capital	6.8%	9.6%	0.6	0.1	5.7%
Bloomberg BA Intermediate HY	6.0%	6.3%	0.8	--	0.0%
Franklin Templeton	0.5%	6.3%	-0.1	-0.2	7.7%
Bloomberg Multiverse TR	2.2%	4.7%	0.2	--	0.0%
Private Credit	7.1%	3.6%	1.7	-0.6	3.1%
Cliffwater Direct Lending Index	9.1%	5.1%	1.6	--	0.0%
TCP Direct Lending VIII	6.6%	2.7%	2.0	-0.5	4.8%
Cliffwater Direct Lending Index	9.1%	5.1%	1.6	--	0.0%

InvMetrics All DB Total Fix Inc Net Return Comparison



	Return (Rank)							
	Quarter	YTD	1 Year	2 Years	3 Years	5 Years	7 Years	10 Years
5th Percentile	0.7	2.7	6.9	6.8	10.7	6.3	6.8	6.7
25th Percentile	0.3	0.8	3.7	5.0	6.2	4.4	4.2	4.6
Median	0.1	-0.2	1.9	3.9	5.4	3.7	3.6	3.8
75th Percentile	0.0	-1.2	-0.1	3.3	4.6	3.0	3.0	3.3
95th Percentile	-0.3	-4.0	-2.0	2.2	3.6	2.2	2.1	2.4
# of Portfolios	278	278	277	277	275	260	249	209
● Fixed Income	0.2 (34)	1.4 (16)	3.9 (23)	4.8 (29)	5.6 (43)	4.7 (21)	4.2 (26)	4.8 (22)
▲ Blended Fixed Income Index	0.4 (18)	0.2 (39)	2.2 (46)	4.0 (48)	6.0 (33)	3.8 (47)	3.9 (31)	3.5 (62)



	Actual \$	Actual %	Manager Contribution to Excess Return %
Aberdeen Standard GARS	\$77,943,650	9.0%	-0.3%
Acadian MAAR Fund LLC	\$83,115,952	9.6%	0.0%
CFM Systematic Global Macro	\$89,245,503	10.4%	0.0%
Graham Quant Macro	\$87,508,992	10.2%	-0.4%
PIMCO MAARS Fund LP	\$84,507,195	9.8%	0.3%
Private Equity	\$439,621,262	51.0%	2.7%
Actual vs. Policy Weight Difference			0.3%
<b>Total</b>	<b>\$861,942,553</b>	<b>100.0%</b>	<b>2.6%</b>



**Statistics Summary**

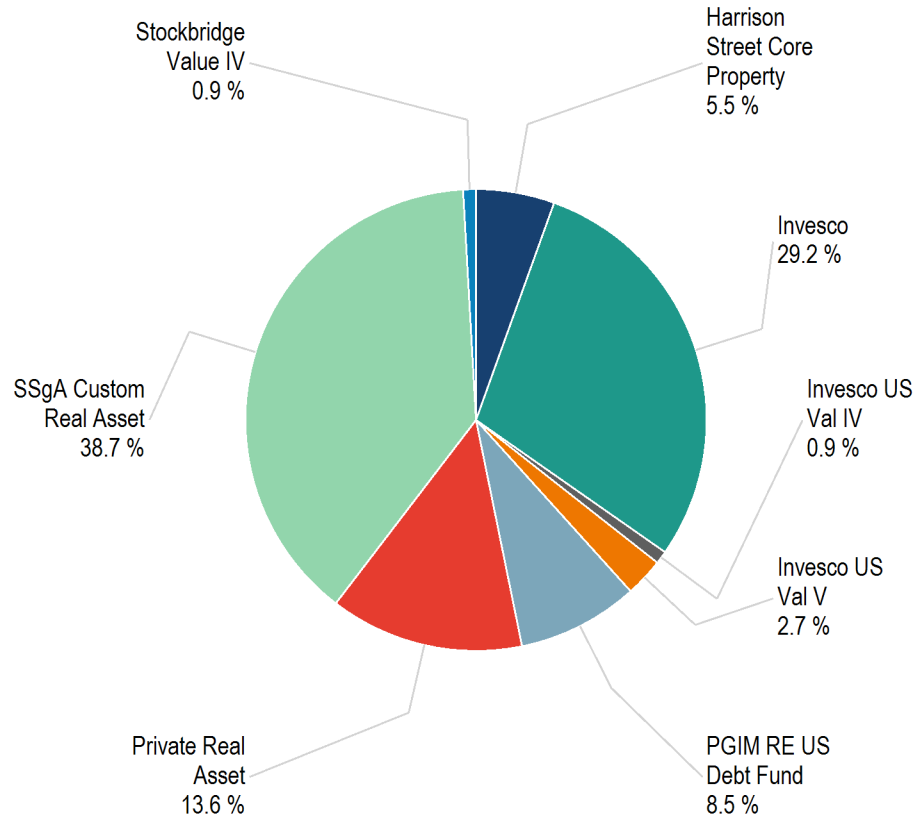
**3 Years**

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
Alternatives	18.4%	15.0%	1.2	0.3	14.8%
Blended Alternatives Index	13.2%	9.3%	1.3	--	0.0%
Private Equity	39.4%	25.6%	1.5	0.7	25.8%
Blended Private Equity Index	21.8%	18.8%	1.1	--	0.0%
Hedge Fund/Absolute Return	-3.5%	6.7%	-0.7	-1.3	6.8%
Absolute Return Custom Index	5.1%	0.3%	13.2	--	0.0%
Aberdeen Standard GARS	3.3%	5.0%	0.4	-0.4	5.0%
Absolute Return Custom Index	5.1%	0.3%	13.2	--	0.0%

**Statistics Summary**

**5 Years**

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
Alternatives	13.9%	12.1%	1.1	0.1	12.0%
Blended Alternatives Index	12.6%	7.7%	1.5	--	0.0%
Private Equity	29.4%	20.5%	1.4	0.5	21.1%
Blended Private Equity Index	19.7%	15.4%	1.2	--	0.0%
Hedge Fund/Absolute Return	-2.5%	5.9%	-0.6	-1.3	5.9%
Absolute Return Custom Index	5.2%	0.3%	15.5	--	0.0%
Aberdeen Standard GARS	2.3%	4.3%	0.3	-0.7	4.3%
Absolute Return Custom Index	5.2%	0.3%	15.5	--	0.0%



	Actual \$	Actual %	Manager Contribution to Excess Return %
Harrison Street Core Property	\$54,835,229	5.5%	-0.2%
Invesco	\$293,416,720	29.2%	0.3%
Invesco US Val IV	\$9,144,249	0.9%	-0.1%
Invesco US Val V	\$27,611,121	2.7%	0.1%
PGIM RE US Debt Fund	\$85,737,151	8.5%	-0.5%
Stockbridge Value IV	\$8,660,210	0.9%	0.0%
Private Real Asset	\$137,148,122	13.6%	1.0%
SSgA Custom Real Asset	\$388,823,221	38.7%	0.0%
Actual vs. Policy Weight Difference			-0.5%
<b>Total</b>	<b>\$1,005,376,023</b>	<b>100.0%</b>	<b>0.1%</b>

Statistics Summary

3 Years

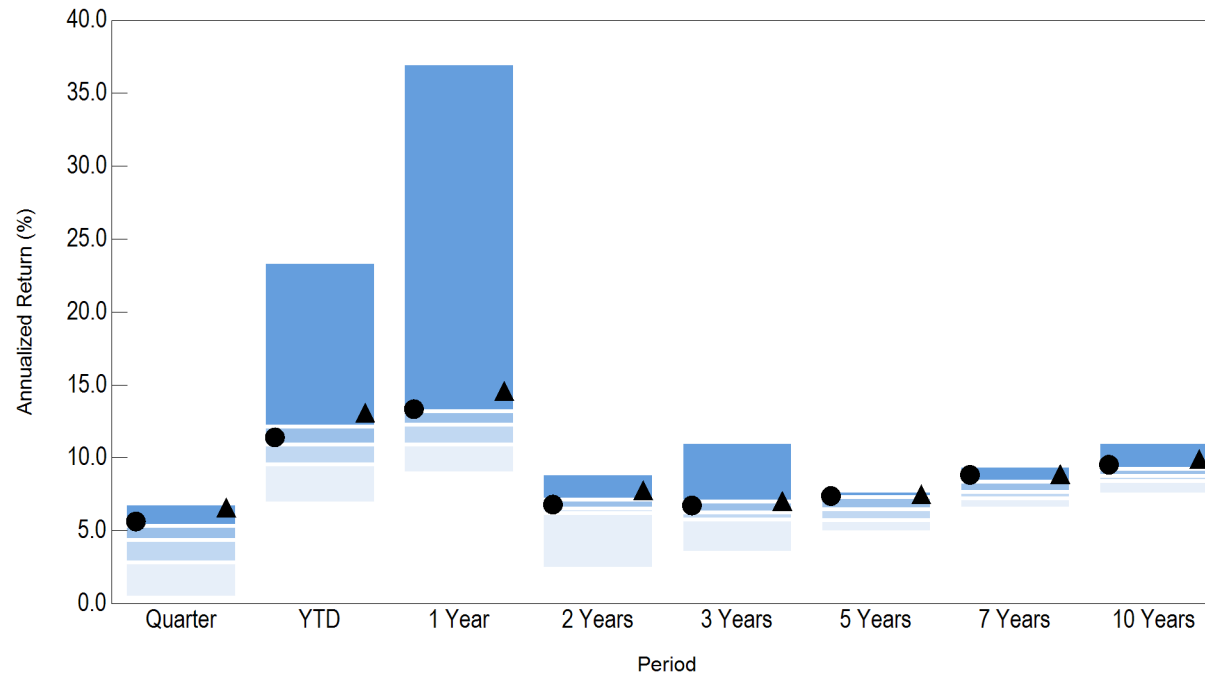
	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
Inflation Hedge	3.7%	7.3%	0.4	-1.0	3.5%
Blended Inflation Hedge Index	7.1%	6.7%	0.9	--	0.0%
Real Estate	6.7%	4.7%	1.2	-0.2	1.3%
NCREIF ODCE	7.1%	4.8%	1.3	--	0.0%
Invesco	6.7%	6.1%	0.9	-0.2	2.1%
NCREIF ODCE	7.1%	4.8%	1.3	--	0.0%
Invesco US Val IV	8.8%	6.5%	1.2	0.3	5.2%
NCREIF ODCE	7.1%	4.8%	1.3	--	0.0%
PGIM RE US Debt Fund	5.5%	2.0%	2.3	-0.3	4.4%
NCREIF ODCE	7.1%	4.8%	1.3	--	0.0%
Private Real Asset	6.7%	14.0%	0.4	0.0	21.9%
Blended Private Real Asset Index	6.6%	20.3%	0.3	--	0.0%
Public Real Assets	-0.3%	19.8%	-0.1	-1.1	4.4%
Blended Public Real Asset Index	4.5%	16.6%	0.2	--	0.0%
SSgA Custom Real Asset	4.5%	16.3%	0.2	0.0	0.8%
SSgA Custom Real Asset Index	4.5%	16.6%	0.2	--	0.0%

Statistics Summary

5 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error Rank
Inflation Hedge	4.6%	5.9%	0.6	-0.8	--
Blended Inflation Hedge Index	6.7%	5.5%	1.0	--	--
Real Estate	7.4%	4.2%	1.5	-0.1	18
NCREIF ODCE	7.5%	4.2%	1.5	--	1
Invesco	7.4%	5.2%	1.2	0.0	--
NCREIF ODCE	7.5%	4.2%	1.5	--	--
Invesco US Val IV	9.3%	5.8%	1.4	0.4	--
NCREIF ODCE	7.5%	4.2%	1.5	--	--
Private Real Asset	3.4%	11.5%	0.2	-0.1	--
Blended Private Real Asset Index	6.0%	16.4%	0.3	--	--

InvMetrics All DB Real Estate Pub Net Return Comparison



Return (Rank)

5th Percentile	6.9	23.4	37.0	8.9	11.1	7.7	9.4	11.1
25th Percentile	5.4	12.2	13.2	7.2	7.1	7.3	8.4	9.3
Median	4.4	10.9	12.3	6.5	6.3	6.5	7.7	8.8
75th Percentile	2.9	9.6	10.9	6.2	5.8	5.8	7.2	8.4
95th Percentile	0.5	6.9	9.0	2.4	3.5	4.9	6.6	7.5
# of Portfolios	77	77	77	77	76	72	71	61
● Real Estate	5.6 (20)	11.4 (37)	13.3 (24)	6.8 (42)	6.7 (35)	7.4 (22)	8.8 (12)	9.5 (13)
▲ NCREIF ODCE	6.6 (7)	13.1 (21)	14.6 (21)	7.8 (16)	7.1 (25)	7.5 (16)	8.9 (10)	9.9 (10)

## **Aberdeen Standard (ASI) Global Absolute Return Strategy (GARS)**

The Aberdeen Standard Global Absolute Return Strategy (GARS) was designed in 2005 to address the needs of Standard Life's own Defined Benefit pension plan, with an objective to generate absolute returns with significantly less volatility than equity investments. The GARS investment process is designed to capitalize on an array of research and investment techniques and draws together the team's three-year investment insights. The team then examines and reviews position proposals to approve a high conviction, short list of positions that should work well together. The GARS strategy is built using a broad range of return-seeking positions (i.e. multi-strategy) that incorporate multiple risk views when constructing the portfolio. The strategy will take some directional risk at times if the portfolio management team believes that it will earn positive returns over their three-year time horizon. Given the scale of the GARS portfolio, the team requires all investment positions to be both scalable and suitably liquid. In addition, the strategy's risk-based approach requires the team to be able to reliably model the risk behavior of each selected investment, so all assets used must be well-understood from a risk perspective before going into the portfolio.

## **Acadian Asset Management – Acadian U.S. Managed Volatility**

Acadian's goal is to build a portfolio focused on absolute return and risk with the aim of achieving an absolute return similar to or better than that of a domestic equity index but with lower volatility over the long term. Acadian targets absolute risk to be 25-35% less than a typical capitalization-weighted benchmark. That said, tracking error is not a major consideration and can appear relatively high due in part to Acadian's comfort with carrying large sector variations versus the benchmark. Acadian seeks to combine the values of all of the security-level factors to determine a peer-relative return forecast for each stock. Separately they make a top-down forecast for the stock's peer group, and then add that forecast to the stock's score. Acadian's managed volatility strategies utilize the same alpha forecasts as Acadian's active equity strategies but with risk being the initial consideration when constructing portfolios. Alpha forecasts play a modest role relative to the importance of risk estimates but are important to the goal of achieving a higher risk-adjusted return. Incorporation of alpha forecasts generally results in higher exposure to value, size and quality.

## **Acadian Asset Management – MAARS Fund**

Acadian Multi-Asset Absolute Return (MAARS) strategy was inceptioned in November 2017. MAARS targets a volatility of 6%-8% and a return of cash plus 5%. This is a multi-factor strategy that aims to exploit behavioral inefficiencies within and across global markets and is designed to be diversifying, dynamic and defensive. It is market neutral, implemented using long and short positions across five primary asset classes (equity, fixed income, currency, commodities, and volatility) and over 100 underlying assets with a focus on liquid instruments. Return forecasts incorporate asset-specific and macroeconomic insights and are utilized to harvest active returns from within and across asset classes through market selection and directional positioning. The strategy integrates risk and return across asset classes. Avoidance of downside events is highlighted in the approach with a greater weighting in their models allocated to down market beneficiaries, such as quality factors, and asymmetric positioning which reduces positions when risk rises. Differentiated attributes of this approach are its approach and weighting to commodities and its volatility sleeve which can incorporate long volatility.

## **Angelo, Gordon & Co. – AG Opportunistic Whole Loan Fund**

The Angelo Gordon Opportunistic Whole Loan (OWL) Fund was established to make investments primarily in a portfolio of non-performing loans (NPLs) and re-performing loans (RPLs). AG sees a lot of operational inefficiency in the market place. By acquiring these loans at a discounted price and replacing original servicers with better-focused special servicers, AG believes it can improve operational efficiency and generate attractive returns. In addition, OWL may also include investments in new residential mortgage loans and excess mortgage servicing rights. Opportunistic investments in commercial mortgage loans and other mortgage related investments may also be included in the Fund's portfolio. OWL is towards the end of its fund life and is continuing to sell down the fund's holdings and distribute proceeds to LPs.

## **Angelo, Gordon & Co. – Credit Solutions**

The Angelo Gordon (AG) Credit Solutions Fund (CSF) expects to hold concentrated positions of 5-8% of NAV (averaging 30 positions over the life of the Fund with recycling). The Fund is targeting a net 15% IRR with a 5-7% current yield. The Fund should be 70% concentrated in the U.S. with the balance in Europe. Finally, while the opportunities can be sourced from both the public markets and the private markets, AG is finding compelling sources of return at this time through structuring new privately placed secured term loans out of public investments made by the firm. CSF will address corporate credit-based opportunities created in three main areas: 1) trading-based price dislocations that reduce creation multiples (price through the debt that must be repaid before value accrues to other stakeholders) while generating high current income; 2) opportunities in issuers tied to industries directly impacted by COVID-19 where the market's perception of the impact differs from the actual impact; and 3) corporate debt issuers that will be materially impacted by the pandemic and will need to restructure, but whose creation value is materially lower than the issuer's intrinsic value.

## **Angelo, Gordon & Co. – CSF (Annex) Dislocation**

Angelo Gordon completed syndication of its AG Credit Solutions Fund ("CSF") in December of 2019. CSF was designed to capture opportunities in a late-cycle credit market and the initial stages of a market dislocation. Angelo Gordon designed and documented CSF to allow the placement of an annex fund in times of dislocation and credit deterioration. Given the price movements in the credit markets in March of 2020, driven by the lack of liquidity, financing needs of investment grade and non-investment grade borrowers, and anticipated impacts (restructurings, rescue financings, liquidations, etc.), Angelo Gordon came to market with the \$1.8 billion AG CSF Annex Dislocation Fund ("ADF"). ADF's investment aim is to target senior securities of world-class businesses with irreplaceable assets and strong cash flow profiles which, because of market stress, can be purchased at a material discount to what they believe is a company's long-term intrinsic value. ADF will address corporate credit-based opportunities created in three main areas: 1) trading-based price dislocations that reduce creation multiples (price through the debt that must be repaid before value accrues to other stakeholders) while generating high current income; 2) opportunities in issuers tied to industries directly impacted by COVID-19 where the market's perception of the impact differs from the actual impact; and 3) corporate debt issuers that will be materially impacted by the pandemic and will need to restructure, but whose creation value is materially lower than the issuer's intrinsic value.

## **Baillie Gifford – ACWI ex US Focus Equities**

ACWI ex US Focus is a fundamental growth strategy. Research is organized primarily by regional teams, with each member of the ACWI ex US Focus Portfolio Construction Group representing a regional team. Four global sector groups also contribute research. Baillie Gifford conducts approximately 2000 company meetings annually both in Edinburgh and onsite. Companies are evaluated on their growth opportunity relative to the average company, their ability to execute on that opportunity, and the degree to which probability of future success is already valued by the market. Baillie Gifford's basic philosophy is that share prices ultimately follow earnings. They believe that the stock market has a recurring tendency to under-appreciate the value of long-term compound growth. The process seeks to add value through use of proprietary fundamental research to identify companies exhibiting some combination of sustained above average growth, and attractive financial characteristics. The portfolio generally holds 60-90 stocks, with country and sector weights +/-10% relative to the index and stock weights +/- 5% relative to the index.



## **Beach Point Capital Management, L.P. - Beach Point Select Fund**

Beach Point Select Fund is a commingled fund vehicle within the firm's Opportunistic Credit strategy. This fund focuses on off-the-run, complex, and less-liquid securities. It is a best ideas portfolio of distressed debt, special situations, private/direct loans, catalyst-driven high yield bonds and bank loans, and credit-informed equities with a North American and European focus. The Select Fund differs from other funds and accounts in the Opportunistic Credit strategy by pursuing a more concentrated portfolio and emphasizing a higher percentage of less-liquid/private investments. Beach Point invests up and down the entire capital structure and it constructs portfolios with a bottom-up, research-driven approach that also takes into account top-down macro considerations. Its investment process includes idea generation, detailed credit analysis, relative value decision making and investment selection, portfolio construction and on-going monitoring. The ultimate goal of its investment process is to produce a well-diversified investment portfolio with limited downside risk and substantial upside potential.

## **BlackRock – MSCI ACWI ex US IMI Index**

The ACWI ex US IMI Index Fund seeks to replicate the return of the MSCI ACWI ex US IMI Index. This index represents the developed equity markets outside of North America, including small cap equity. BlackRock monitors their funds daily to ensure that additions and deletions to the indexes, mergers and acquisitions, restructurings and other capitalization changes are made to the fund in such a way as to minimize tracking error and transactions costs.

## **BlackRock – Russell 1000 Index**

The Russell 1000 Index Fund tracks large U.S. companies and achieve broad diversification with low costs by fully replicating the Russell 1000 Index. BlackRock monitors their funds daily to ensure that additions and deletions to the indexes, mergers and acquisitions, restructurings and other capitalization changes are made to the fund in such a way as to minimize tracking error and transactions costs.

## **BlackRock (formerly Tennenbaum Capital Partners) - Direct Lending Funds VIII and IX**

TCP Direct Lending Fund VIII is a private investment fund managed by Tennenbaum Capital Partners ("TCP"). The Fund is designed to continue TCP's successful strategy of investing in privately-originated, performing senior secured debt primarily in North America-based companies with target enterprise values between \$100 million and \$1.5 billion. The Fund will include positions in 1st lien, 2nd lien and unitranche debt, with a preference for floating-rate debt, which TCP believes provides better flexibility to adapt to market conditions. TCP's direct lending strategy has generated attractive investment opportunities across market cycles, as evidenced by the Firm's prior direct lending track record. Fund VIII targets an unlevered annual yield of approximately 9-12%, with its return primarily driven by current income. SamCERA committed \$35 million to DLF VIII in June 2016 in its unlevered fund sleeve and \$35 million to the DLF IX in June 2019.

## **Brigade – Opportunistic Credit**

Opportunistic Credit is a fundamental, bottom-up strategy focused on high yield corporate bonds and bank loans with tactical allocations to structured securities, convertibles, and other sectors of the bond markets as they become attractive on a relative value basis. While performing credits represent the majority, Brigade will invest up to 35% of the portfolio in distressed securities and restructuring situations if these types of opportunities are attractive on a risk-adjusted basis and the timing is right with respect to the credit cycle. The portfolio is comprised of mostly North American issuers, but they are not restricted geographically and expect to have a moderate allocation to Europe over time. Although the portfolio is generally long-only, Brigade has the ability to implement a limited amount of tactical macro hedges.

## **CFM - Systematic Global Macro**

Capital Fund Management (CFM) Systematic Global Macro (SCM) is a directional strategy that takes long and short positions in liquid future and forwards across 130+ markets and across equities, bonds, currencies, and commodities. It is a new strategy that draws on model signals from existing strategies at the firm – Discus (diversified CTA), CFM ISTrends (trend following) and CFM ISTrend Equity Capped (defensive trend following) - and SamCERA is a seed investor with an attractive fee. SGM’s objective is to provide absolute returns that are uncorrelated with traditional asset classes over a long time horizon with an annualized volatility target between 8% and 12%. SGM uses a diverse set of trading strategies that are based on factors (momentum, value, carry, macro and sentiment) across asset classes. These technical and fundamental factors operate at different time scales and can have varying degrees of influence on performance depending on market and economic conditions. An additional global macro defensive overlay is combined with these outputs in constructing the final portfolio. CFM uses a form of portfolio construction known as agnostic risk parity to ensure that the SGM portfolio is diversified on an out-of-sample basis. The goal of SGM is to generate consistent returns while limiting drawdowns.

## **DE Shaw – DE Shaw US Broad Market Core Alpha Extension Fund**

The D. E. Shaw group believes that there exist some market inefficiencies that may be identified through quantitative analysis, advanced technology, and the insight of practitioners. Identifying these inefficiencies involves a process of hypothesis formulation, testing, and validation. Importantly, to avoid data-mining, the hypothesis formulation precedes the analysis of the historical data. D.E. Shaw’s Structured Equity strategies rely largely on quantitative and computational investment techniques developed by the D. E. Shaw over the last two decades in the course of research conducted for purposes of managing the firm’s hedge funds. D.E. Shaw’s investment process involves a suite of quantitative models, each designed to capitalize on a distinct and uncorrelated set of market inefficiencies. Some of these models are technical in nature and involve price and volume inputs. Other models rely on fundamental data, such as figures gleaned from corporate balance sheets or income statements. Still others, again quantitative, anticipate or react to a particular corporate event or set of events. These models typically operate with forecast horizons of a few weeks to many months. The ability to trade on shorter-term signals distinguishes D.E. Shaw from many of its long only and 130/30 peers. Portfolio construction involves the use of a proprietary optimizer which runs dynamically throughout the trading day. The portfolio is broadly diversified with several hundred long and short positions. Over- and under-weighting of sectors and industries relative to the benchmark will be quite modest, with the intention that most of the alpha be generated by security selection. The US Broad Market Core Alpha Extension Fund is a 130/30 strategy which maintains a beta that is approximately neutral to the Russell 1000 Index.

## **DoubleLine – Securitized Income**

The DoubleLine Securitized Income strategy is an actively managed, liquid, long only, intermediate-term fixed income product. The primary objective of the strategy is to seek and maximize current income and total return by utilizing a combination of Agency MBS and structured credit. The DoubleLine Structured Products team aims to offer clients investment grade exposure to both interest rate duration and credit spread to provide a more attractive total return profile compared to the benchmark. Securitized Income seeks to maximize income and total return by investing across the structured products universe, focusing on agency mortgage-backed securities (MBS) and investment grade securitized credit. DoubleLine takes a barbelled approach to investing in the securitized market, and they will separate rates from credit and will adjust the allocations to both at the based on the economic cycle and opportunities. Duration positioning is achieved through Agency MBS, Agency CMBS, and treasuries while credit exposure is attained through all areas of structured credit.

## **Fidelity (FIAM) – Broad Market Duration Commingled Pool**

Pyramis' Broad Market Duration (BMD) investment strategy seeks to achieve absolute and risk-adjusted returns in excess of the BC U.S. Aggregate Index, focusing its investments in US Treasuries, agencies, investment grade corporate bonds, mortgage-backed and asset-backed securities. The BMD commingled pool can also hold small, opportunistic positions in out-of-benchmark securities, such as inflation-linked bonds. The investable universe includes all US dollar denominated, investment grade debt securities. The BMD investment approach emphasizes issuer and sector valuation and individual security selection. Through the integration of fundamental and quantitative research and trading, the BMD strategy is implemented in a team environment. Risk management technology is utilized to explicitly quantify benchmark exposures on a daily basis, and Pyramis uses the same analytical framework to assess both index and portfolio risk. Tracking error should range between 40 and 60 basis points per annum over the benchmark, and stringent portfolio construction risk control rules are strictly adhered to.

## **Franklin Templeton Investments – Global Fixed Income**

Franklin Templeton manages the global bond mandate in an unconstrained fashion using a top-down, fundamental framework. In the short term and on a country-by-country basis there are often inefficiencies in global bond and currency markets, however, over the longer term the market will generally price to fundamentals. Thus, FT focuses on fundamental research to identify long-term opportunities and uses short-term market inefficiencies to build positions in such investments. The investment and portfolio construction process begin with the determination of the Fund's or institutional client's investment objectives, resulting in a set of risk-return parameters and exposure limits within which the portfolio is managed. Next the firm's global economic outlook for the industrialized countries is developed, with a focus on interest rate and exchange rate forecasts. The portfolio's interest rate outlook is a function of global general equilibrium macroeconomic analysis as well as country-specific research. Macroeconomic conditions in the G-3 economies are analyzed first, primarily with respect to how current and projected growth and inflation dynamics are expected to influence monetary policy. This analysis is then extended out to the rest of the industrialized countries (G-13) as well as emerging markets, which results in broad targets for cash, duration, currencies and the developed/emerging market mix. Using the firm's interest rate and exchange rate outlook, probability-weighted horizon returns for bonds of various countries are then calculated. This analysis is used to establish specific country weights and duration targets based on risk-adjusted expected total return measured in the portfolio's base currency. Analysis of emerging markets includes sovereign credit analysis along with greater emphasis on capital flows, inter-market dynamics and trends in the level of risk aversion in the market.

## **Graham – Quant Macro Fund**

Graham Quant Macro ("GQM") is a directional, long and short strategy that utilizes fundamental and price-based indicators to establish return forecasts across global interest rates, foreign exchange, stock indices and commodities. The strategy incorporates a variety of submodels that generate macro fundamental forecasts, assess yield and earnings differentials, compare current valuations relative to historic fair value, and analyze directional price trends across markets. Quantitative risk management and portfolio construction techniques are used to diversify risk across the portfolio and enhance risk-adjusted returns. Historically, the average holding period has been approximately eight to ten weeks, although the sub-models will make daily adjustments to positions. The strategy is designed to have low correlation to traditional markets and other alternative strategies and has the potential to provide significant portfolio diversification benefits.

## **Harrison Street Core Property**

Based in Chicago, Harrison Street's exclusive focus since inception in 2005 has been investing in non-core property sectors of the real estate market. The Harrison Street Core Fund is an open-end fund that invests primarily in stabilized education, healthcare, and self-storage real estate assets in the United States using modest leverage with an emphasis on generating current income. The focus on these alternative property types is intended to concentrate on areas of the real estate market that are less GDP sensitive with demand drivers that are more demographic driven such as aging populations, education growth and healthcare delivery. Each of these areas tend to be less tied to the business cycle, have fragmented ownership and more operationally intensive. The fund acts as a diversifier within real estate portfolios with sector exposures that are not a typical focus of other core ODCE funds.

## **INVESCO Realty Advisors – INVESCO Core Equity, LLC**

SamCERA is a founding member of INVESCO's open-end Core Equity real estate fund and rolled its separate account properties into the fund. INVESCO Core Equity, LLC (the "Fund") is a perpetual life, open-end vehicle which invests in a diversified portfolio of institutional quality office, retail, industrial and multifamily residential real estate assets. The Fund buys core properties that are located within the United States, typically requiring an investment of \$10 million or more. The portfolio cannot be more than 30% leveraged.

## **INVESCO Realty Advisors – INVESCO US Val IV**

Invesco has provided SamCERA with Core Real Estate exposure since 2004 through the Invesco Core Equity Fund. The Invesco real estate team manages around \$62B in assets with investments and offices around the globe. Invesco Value Fund IV looks to acquire fundamentally sound but broken "core" assets that can be repositioned into institutional-quality, income producing properties. Investments are limited to direct equity interests in office, multi-family, retail and industrial properties across the US. The Fund is expected to be geographically concentrated in U.S. gateway cities and top 25 Metropolitan Statistical Areas (MSA's). Invesco Value Fund IV provides a complement to the more conservative Invesco Core Fund and offers the potential of enhanced returns to the SamCERA Real Estate portfolio.

## **INVESCO Realty Advisors – INVESCO US Val V**

Invesco has provided SamCERA with Core Real Estate exposure since 2004 through the Invesco Core Equity Fund and through the Invesco US Value IV Fund since December 2015. The Invesco real estate team manages around \$62B in assets with investments and offices around the globe. Invesco Value Fund V will be similar to the Value Add IV and look to acquire fundamentally sound but broken "core" assets that can be repositioned into institutional-quality, income producing properties. Investments will be limited to direct equity interests in office, multi-family, retail and industrial properties across the US. The Fund is expected to be geographically concentrated in U.S. gateway cities and top 25 Metropolitan Statistical Areas (MSA's).

## **Mondrian Investment Partners – International Equity**

Mondrian is a value-oriented, defensive manager whose investment philosophy is based on the principle that investments must be evaluated for their fundamental long-term value. The firm's philosophy involves three stated investment objectives: 1) provide a rate of return meaningfully greater than the client's domestic rate of inflation, 2) structure client portfolios that preserve capital during protracted international market declines, and 3) provide portfolio performance that is less volatile than benchmark indices and other international managers. Mondrian applies typical value screening criteria to a universe of 1,500 stocks, from which 500 are selected for more detailed work. Through fundamental research, and the deliberations of the Investment Committee, the universe is further reduced to a list of 150 stocks. The investment team conducts detailed fundamental analysis on the remaining stocks, a process which includes applying the firm's dividend discount model consistently across all markets and industries. Mondrian also uses a purchasing power parity model to give an accurate currency comparison of the value of the stocks under consideration. The firm will only consider buying stocks in countries with good investor protection practices and relatively simple repatriation procedures. A computer-based optimization program is employed in the portfolio construction process. Mondrian's portfolio holds 80-125 issues.

## **NISA – Core Bond**

NISA applies a risk-controlled approach to all of its fixed income portfolios. This approach does not permit large bets or positions that generate significant tracking error versus the benchmark. Instead, NISA invests in a large number of small, diversified, active positions which seek tight tracking error to the chosen benchmark. Benchmark weight is a significant consideration when constructing and managing portfolios. The investment strategy is comprised of strategic (top-down) and tactical (bottom-up) decisions. Strategic decisions include sector selection and yield curve positioning while tactical decisions include industry and security selection and trading activity. Review of both strategic and tactical decisions is continual. The amount of portfolio risk budget devoted to one aspect versus the other will change as market conditions warrant. In general, strategic decisions change relatively infrequently, while tactical decisions, especially security selection, will change fairly often as market conditions provide opportunities. Over a typical market cycle, the bottom-up is expected to contribute to 70% of value-added while top-down is roughly 30%.

## **PanAgora Asset Management – Defensive U.S. Equity Low Volatility**

PanAgora's Defensive Equity strategy seeks to harness the 'low-volatility premium' through a systematic, factor-based investment approach focused on achieving market-like returns with less risk. This is accomplished by leveraging PanAgora's proprietary Risk Parity portfolio construction methodology, which seeks to efficiently capture the equity premium associated with low volatility, while taking minimal unintended risks. Since the firm's inception, PanAgora has been using quantitative techniques to integrate fundamental insights with large amounts of dynamic market data. They score individual securities on a factor basis and also on a diversification basis, in the context of a broadly diversified portfolio. The portfolio construction process optimizes the portfolio around the intended factor exposure (volatility) while maintaining equal risk contribution across sectors (ex., overweight utilities and consumer staples, underweight financials and technology). Shorter term volatility and longer term correlation analysis is combined in the approach. The result for the US Defensive Equity strategy is a portfolio expected to have lower volatility (beta around 0.65-0.75), and similar returns relative to the capitalization-weighted benchmark over a full market cycle. PanAgora expects the strategy to participate in approximately 75% of up markets and 55% in down markets.

## **Parametric Overlay – Cash Overlay and Currency Hedge**

Parametric's cash overlay program is an efficient way for SamCERA to maintain its target asset allocation in a systematic fashion through cash securitization at the fund and manager level, transition/reallocation support and asset class rebalancing back to target within defined bands. The cash overlay program is invested synthetically using liquid futures with cash balances reviewed daily. A combination of large and small cap futures implementation is the proxy for private equity. SamCERA's investment guidelines initially allowed only for cash overlay. Rebalancing was added to the SamCERA program in January 2014. Cash overlay and rebalancing is expected to add 10-20 bps to the portfolio over time. An additional currency overlay hedge placed on half of the notional value of developed international equities. The addition of currency hedging started in September 2018 and was fully implemented on 10/1/2019. The purpose of the currency is first and foremost to lower portfolio risk and secondarily to add incremental performance.

## **PIMCO Diversified**

PIMCO's Diversified Income (DI) Fund is a multi-sector strategy that invests across a broad spectrum of global credit market sectors, including investment grade and high yield corporate debt, as well as emerging markets. The allocation among these will vary based on PIMCO's assessment of global trends and relative valuations. This active and dynamic approach allows for increased responsiveness in asset allocation to changing economic and market conditions while remaining anchored by PIMCO's investment process and longer-term orientation. The ability to invest globally helps to improve diversification and may allow investors to benefit from differences in business cycles across regions and credit quality trends across credit sectors. PIMCO's DI investment strategy seeks to provide high yield-like returns with lower volatility against a blended index (1/3 Bloomberg Barclays Global Agg Credit ex-EM; 1/3 BofA Merrill Lynch BB-B rated Developed Markets High Yield; 1/3 JPMorgan EMBI Global). The fund allows for a duration band of 3-8 years. The team focuses its investments into these groups: credit strategies (investment grade, high yield, emerging markets and non-core credits including MBS, municipals and other govt-related sectors); duration strategies (U.S. and non-U.S. duration) and currencies (tactical non-USD exposure).

## **PIMCO – MAARS**

PIMCO MAARS is an alternative risk premia strategy that looks for risks associated with: (1) Supply and Demand Constraints, (2) Behavioral Biases, and (3) Asymmetric Risks (event risk). As reflected in the design of the MAARS strategies, PIMCO believes that alternative risk premia strategies are best implemented using a systematic approach that minimizes the discretionary inputs in day-to-day portfolio management. MAARS places a greater emphasis and weighting on global interest rates, currencies and commodities and a lesser emphasis on equities than many of its Alt Beta peers. Relative to Alt Beta peers, the strategy's rates and currency (FX) models are particularly robust, reflective of PIMCO's core competency and long history managing these asset classes using derivative instruments.

## **PIMCO Private Income Fund**

PIMCO Private Income Fund (PIF) uses an opportunistic and flexible approach to global private credit. PIF provides a total return oriented global credit exposure utilizing both top-down sector relative value and bottom up security selection. The strategy invests across private residential, commercial, corporate and specialty finance markets. PIMCO's Private Income Fund (PIF) is targeting 8-12% net returns with income providing most of the fund's returns. The Private Income Investment Committee (IC) identifies market themes and direction for their relative value framework, and sector specialists provide recommendations to the PM team within that construct. PIF has the ability to invest throughout the capitalization structure. The fund can use a moderate amount of leverage to enhance portfolio returns (1.5 times with a hard cap of 2 times).

## **PGIM RE Debt**

PGIM Real Estate US Debt Fund (PREDS) focuses on a loan origination strategy with a mix of 20% senior long duration loans on stable assets, 60% senior short/medium duration loans on stable and transitional assets, and 20% mezzanine mid/long duration debt. SamCERA was a founding investor in the PREDS strategy which invests in US commercial real estate debt in an open-ended vehicle with a return target of 7-8% (gross) coming from stable current income. The fund makes investments in first lien mortgages and mezzanine debt. First lien mortgages can be floating rate or fixed rate, but only floating rate loans will use leverage. Subordinate investments (mezzanine debt and preferred equity) will be limited by design. The fund can source and invest in secondary loans through a variety of Prudential real estate professionals, but the primary focus will be on direct origination through the real estate finance team.

## **Quantitative Management Associates – QMA Small-Cap Core**

Quantitative Management Associates (QMA) utilizes a bottom-up quantitative framework in order provide a diversified exposure to core U.S. small-cap stocks, while attempting to produce consistent outperformance versus the benchmark with moderate tracking error levels. QMA uses an adaptive, systematic investment process to exploit opportunities created by mispriced securities to consistently add value over long time periods. Bottom-up stock selection drives exposure to key sources of alpha (valuation, growth, and quality). The QMA stock selection model adapts to changes in company growth rates and market environments by putting more emphasis on valuation for slowly growing companies, and more emphasis on future growth projections for companies with higher projected growth rates.

## **State Street Global Advisors (SSgA) Custom Real Asset**

SSgA Custom Real Asset portfolio uses a portfolio of liquid real assets to proxy private real assets. The portfolio is comprised of equal weightings of the Bloomberg Roll Select Commodity Index, S&P Global Mid-Large Cap Natural Resources Index, S&P Global Infrastructure Index, and Bloomberg Barclays TIPS Index. SSgA provides beta exposure through these underlying liquid components which can be customized to changing client needs (ex., TIPS was added in May 2020 with the other three parts of the portfolio reduced pro-rata). The portfolio is used to fund upcoming private real asset mandates.

## **Stockbridge Value IV**

Stockbridge Value IV will implement a value-added strategy that will seek to own assets that are undervalued, underutilized, and/or not operating to their full potential. The manager will add value with their internal asset management team through active strategies including additional capital investment, leasing, recapitalization, renovation and/or development. The fund will target three to five year holding periods for investments, with disposition taking place after the completion of the value-add strategy. The fund will target 15 to 25 mid-sized investments, diversified by geography and property type. The strategy will target 21 markets in the United States in which the firm has boots on the ground coverage with dedicated acquisitions professionals and asset managers responsible for knowing each market extensively with a vast network of relationships.

### **Western Asset Management – Total Return Unconstrained (TRU)**

Western Asset's Total Return Unconstrained strategy (TRU) seeks to provide bond-like risk and return over the long term but does not have a benchmark. This allows for asset allocation based on value rather than using the construction of a benchmark as baseline positioning. The investment approach is active with very broad latitude on duration (-3 to +8 years) and on asset allocation across all of the eligible sectors in a core plus mandate. The portfolio must have at least 50% of its holdings in investment-grade securities. The flexibility offered by this strategy allows for defensive positioning in rising rate environments and opportunistic deployment of capital when value opportunities arise. It also allows the portfolio managers to emphasize (or deemphasize) either credit or rates when one or the other appears to offer greater (or lesser) value. um non-US exposure.

### **White Oak - White Oak Yield Spectrum Fund**

The White Oak Yield Spectrum Fund's objective is to earn substantial current income by originating, extending, and/or investing in a diversified portfolio of primarily senior secured corporate credit and debt instruments consisting of term loans, asset-based loans and equipment leases and loans issued by small to middle-market companies located primarily in the United States and Canada. It focuses on providing self-originated deals for predominantly non-sponsored, privately-held borrowers.

### **White Oak - White Oak Yield Spectrum Fund V**

The White Oak Yield Spectrum Fund's objective is to earn substantial current income by originating, extending, and/or investing in a diversified portfolio of primarily senior secured corporate credit and debt instruments consisting of term loans, asset-based loans and equipment leases and loans issued by small to middle-market companies located primarily in the United States and Canada. It focuses on providing self-originated deals for predominantly non-sponsored, privately-held borrowers.



# Policy Index and Benchmark History

Period Ending: September 30, 2021

Total Plan Policy Index	As of													
	2/1/21	1/1/21	7/1/20	4/1/20	10/1/19	7/1/19	4/1/19	1/1/19	10/1/18	4/1/18	10/1/17	2/1/17	1/1/17	
10 Year Treasury +2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
60/40 MSCI World/Bloomberg Global Aggregate (RP)	0.0%	0.0%	0.0%	4.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%
60/40 Russell 3000/Bloomberg US Aggregate (RP)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
91 Day T-Bills	1.0%	1.0%	1.0%	1.0%	1.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Bloomberg Aggregate	18.0%	21.0%	21.0%	18.0%	14.0%	14.0%	14.0%	14.0%	14.0%	14.0%	14.0%	12.0%	10.0%	10.0%
Bloomberg BA Intermediate HY	10.0%	10.0%	10.0%	8.0%	8.0%	7.0%	7.0%	7.0%	7.0%	7.0%	7.0%	6.0%	6.0%	6.0%
Bloomberg BBB	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Bloomberg Credit BAA	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Bloomberg Multiverse	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	3.0%	3.0%	3.0%
Bloomberg TIPS	0.0%	0.0%	0.0%	0.0%	1.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
Bloomberg Commodity	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Citigroup non-US WGBI	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
CPI + 5% (RA)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Blended Public Real Asset	4.0%	4.0%	4.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	0.0%	0.0%	0.0%	0.0%
Blended Private Real Asset	4.0%	3.0%	3.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	8.0%	7.0%	5.0%	5.0%
Libor +4% (HF)	0.0%	0.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	5.0%
SOFR +4% (HF)	7.0%	6.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
MSCI ACWI ex-US	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
MSCI ACWI ex US IMI 100% Hedged (Net)	9.5%	9.0%	9.0%	9.0%	9.0%	7.6%	5.7%	3.8%	1.9%	0.0%	0.0%	0.0%	0.0%	0.0%
MSCI ACWI ex-US IMI	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	19.0%	19.0%	19.0%
MSCI ACWI ex-US IMI (Net)	9.5%	9.0%	9.0%	9.0%	9.0%	11.4%	13.3%	15.2%	17.1%	19.0%	19.0%	0.0%	0.0%	0.0%
MSCI EAFE	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
NCREIF ODCE	9.0%	10.0%	10.0%	9.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	7.0%	7.0%	7.0%
NCREIF Property	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Russell 1000	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Russell 1000 Value	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Russell 2000	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Russell 3000	22.0%	21.0%	21.0%	22.0%	22.0%	22.0%	22.0%	22.0%	22.0%	21.0%	21.0%	23.0%	28.0%	28.0%
Russell 3000 +3% (PE)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	7.0%	7.0%	7.0%	7.0%
Russell 3000 +3% 1Q Lag (PE)	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	7.0%	0.0%	0.0%	0.0%	0.0%
S&P 500	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

# Policy Index and Benchmark History

Period Ending: September 30, 2021

Total Plan Policy Index	As of:													
	10/1/16	9/1/16	1/1/16	7/1/14	1/1/14	2/1/13	1/1/11	10/1/10	1/1/09	5/1/07	6/1/00	3/1/99	9/1/98	7/1/96
10 Year Treasury +2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	8.0%	10.0%	10.0%
60/40 MSCI World/Bloomberg Global Aggregate (RP)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
60/40 Russell 3000/Bloomberg US Aggregate (RP)	8.0%	8.0%	8.0%	8.0%	8.0%	6.0%	6.0%	6.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
91 Day T-Bills	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Bloomberg Aggregate	10.0%	10.0%	10.0%	10.0%	9.3%	11.0%	11.0%	12.9%	27.0%	27.0%	29.0%	25.0%	21.0%	21.0%
Bloomberg BA Intermediate HY	6.0%	5.0%	5.0%	5.0%	5.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Bloomberg BBB	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Bloomberg Credit BAA	0.0%	0.0%	0.0%	0.0%	0.0%	3.5%	3.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Bloomberg Multiverse	3.0%	3.0%	3.0%	3.0%	3.8%	4.4%	4.4%	4.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Bloomberg TIPS	2.0%	2.0%	2.0%	2.0%	2.0%	3.1%	3.3%	3.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Bloomberg Commodity	0.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Citigroup non-US WGBI	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	5.0%	9.0%	9.0%
CPI + 5% (RA)	0.0%	2.0%	2.0%	2.0%	2.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Blended Public Real Asset	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Blended Private Real Asset	5.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Libor +4% (HF)	5.0%	5.0%	5.0%	4.0%	4.0%	3.0%	3.0%	3.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
SOFR +4% (HF)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
MSCI ACWI ex-US	0.0%	0.0%	0.0%	0.0%	0.0%	18.0%	18.0%	18.0%	21.0%	21.0%	15.0%	0.0%	0.0%	0.0%
MSCI ACWI ex US IMI 100% Hedged (Net)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
MSCI ACWI ex-US IMI	19.0%	20.0%	20.0%	20.0%	20.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
MSCI ACWI ex-US IMI (Net)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
MSCI EAFE	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	20.0%	20.0%	20.0%
NCREIF ODCE	7.0%	7.0%	7.0%	6.0%	6.0%	5.0%	5.0%	5.0%	6.0%	0.0%	0.0%	0.0%	0.0%	0.0%
NCREIF Property	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	6.0%	6.0%	0.0%	0.0%	0.0%
Russell 1000	0.0%	0.0%	24.0%	24.0%	24.0%	28.0%	28.0%	28.0%	37.0%	37.0%	40.0%	22.0%	20.0%	20.0%
Russell 1000 Value	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	5.0%	5.0%	0.0%
Russell 2000	0.0%	0.0%	4.0%	6.0%	6.0%	7.0%	7.0%	7.0%	9.0%	9.0%	10.0%	15.0%	15.0%	15.0%
Russell 3000	28.0%	28.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Russell 3000 +3% (PE)	7.0%	7.0%	7.0%	7.0%	7.0%	8.0%	8.0%	8.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Russell 3000 +3% 1Q Lag (PE)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
S&P 500	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	5.0%
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

# Policy Index and Benchmark History

Period Ending: September 30, 2021

Public Equity Benchmark	As of:																		
	2/1/21	7/1/20	10/1/19	7/1/19	4/1/19	1/1/19	10/1/18	10/1/17	2/1/17	10/1/16	9/1/16	1/1/16	1/1/14	10/1/10	5/1/07	6/1/00	3/1/99	9/1/98	1/1/96
MSCI ACWI ex-US	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	34.0%	31.3%	23.1%	0.0%	0.0%	0.0%
MSCI ACWI ex US IMI 100% Hedged (Net)	23.2%	23.1%	22.5%	18.5%	13.9%	9.3%	4.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
MSCI ACWI ex-US IMI	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	47.5%	45.2%	40.4%	41.7%	41.7%	40.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
MSCI ACWI ex US IMI (Net)	23.2%	23.1%	22.5%	27.8%	32.4%	37.0%	41.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
MSCI EAFE	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	32.3%	33.3%	33.3%
Russell 1000	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	50.0%	48.0%	52.8%	55.2%	61.5%	35.5%	33.3%	33.3%
Russell 1000 Value	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	8.0%	8.4%	0.0%	0.0%
Russell 2000	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	8.3%	12.0%	13.2%	13.5%	15.4%	24.2%	25.0%	25.0%
Russell 3000	53.7%	53.9%	55.0%	53.7%	53.7%	53.7%	53.7%	52.5%	54.8%	59.6%	58.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
S&P 500	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	8.4%
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

US Equity Benchmark	As of:						
	9/1/16	1/1/16	6/1/00	3/1/99	9/1/98	7/1/96	1/1/95
Russell 1000	0.0%	85.7%	80.0%	52.0%	50.0%	50.0%	69.0%
Russell 1000 Value	0.0%	0.0%	0.0%	12.0%	12.5%	0.0%	0.0%
Russell 2000	0.0%	14.3%	20.0%	36.0%	37.5%	37.5%	14.0%
Russell 3000	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
S & P 500	0.0%	0.0%	0.0%	0.0%	0.0%	12.5%	17.0%
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

International Equity Benchmark	As of:								
	10/1/19	7/1/19	4/1/19	1/1/19	10/1/18	10/1/17	1/1/14	6/1/00	1/1/96
MSCI ACWI ex US	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%
MSCI ACWI ex US IMI 100% Hedged (Net)	50.0%	40.0%	30.0%	20.0%	10.0%	0.0%	0.0%	100.0%	0.0%
MSCI ACWI ex US IMI	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%
MSCI ACWI ex US IMI (Net)	50.0%	60.0%	70.0%	80.0%	90.0%	100.0%	0.0%	0.0%	0.0%
MSCI EAFE	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Fixed Income Benchmark	As of:															
	2/1/21	7/1/20	4/1/20	10/1/19	10/1/17	2/1/17	10/1/16	4/1/16	7/1/14	1/1/14	2/1/13	1/1/11	10/1/10	6/1/00	3/1/99	7/1/96
Bloomberg Aggregate	64.3%	67.7%	69.2%	63.6%	66.7%	57.1%	52.6%	55.5%	50.0%	46.3%	50.0%	50.0%	58.6%	100.0%	83.3%	70.0%
Bloomberg BA Intermediate HY	35.7%	32.3%	30.8%	36.4%	33.3%	28.6%	31.6%	27.8%	25.0%	25.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Bloomberg BBB	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	7.3%	0.0%	0.0%	0.0%
Bloomberg Credit BAA	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	16.0%	15.0%	0.0%	0.0%	0.0%	0.0%
Bloomberg Multiverse	0.0%	0.0%	0.0%	0.0%	0.0%	14.3%	15.8%	16.7%	15.0%	18.8%	20.0%	20.0%	20.5%	0.0%	0.0%	0.0%
Bloomberg TIPS	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	10.0%	10.0%	14.0%	15.0%	13.6%	0.0%	0.0%	0.0%
Citigroup non-US WGBI	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	16.7%	30.0%
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Opportunistic Credit Benchmark	As of:	
	1/1/14	12/1/09
Bloomberg BA Intermediate HY	100.0%	0.0%
Bloomberg Credit BAA	0.0%	100.0%
	100.0%	100.0%

Alternatives Benchmark	As of:								
	2/1/21	1/1/21	10/1/18	4/1/18	2/1/17	4/1/16	1/1/16	1/1/14	1/1/11
60/40 Russell 3000/Bloomberg US Aggregate (RP)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	30.0%
Bloomberg Commodity	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	17.7%	18.8%	15.0%
CPI + 5% (RA)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	11.8%	12.5%	0.0%
Libor +4% (HF)	0.0%	0.0%	50.0%	46.2%	46.2%	41.7%	29.4%	25.0%	15.0%
SOFR +4% (HF)	53.8%	50.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Russell 3000 +3% (PE)	0.0%	0.0%	0.0%	0.0%	53.8%	58.3%	41.2%	43.8%	40.0%
Russell 3000 +3% 1Q Lag (PE)	46.2%	50.0%	50.0%	53.8%	0.0%	0.0%	0.0%	0.0%	0.0%
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

# Policy Index and Benchmark History

Period Ending: September 30, 2021

## Private Equity Benchmark

As of:	4/1/18	10/1/10
Russell 3000 +3% 1Q Lag	100.0%	0.0%
Russell 3000 +3%	0.0%	100.0%
	<b>100.0%</b>	<b>100.0%</b>

## Hedge Fund Benchmark

As of:	1/1/21	10/1/10
Libor +4%	0.00%	100.00%
SOFR +4%	100.0%	0.0%
	<b>100.0%</b>	<b>100.0%</b>

## Inflation Hedge

As of:	2/1/21	7/1/20	4/1/20	10/1/19	4/1/18	2/1/17	10/1/16	4/1/16
Bloomberg TIPS	0.00%	0.00%	0.00%	5.88%	11.1%	12.5%	14.3%	14.3%
Bloomberg Commodity	0.00%	0.00%	0.00%	0.00%	0.0%	0.0%	0.0%	21.4%
CPI + 5% (RA)	0.00%	0.00%	0.00%	0.00%	0.0%	0.0%	0.0%	14.3%
Blended Public Real Asset	23.53%	23.53%	35.29%	35.29%	33.3%	0.0%	0.0%	0.0%
Blended Private Real Asset	23.53%	17.65%	11.77%	11.77%	11.1%	43.8%	35.7%	0.0%
NCREIF ODCE	52.94%	58.82%	52.94%	47.06%	44.4%	43.8%	50.0%	50.0%
	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>

## Public Real Asset Benchmark

As of:	5/1/20	10/1/16	1/1/14
Bloomberg Roll Select Commodity	25.0%	34.0%	0.0%
S&P Global Large-MidCap Commodity and Resources	25.0%	33.0%	0.0%
S&P Global Infrastructure	25.0%	33.0%	0.0%
CPI + 5%	0.0%	0.0%	100.0%
Bloomberg TIPS	25.0%	0.0%	0.0%
	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>

## Private Real Asset Benchmark

As of:	1/1/21	4/1/18	10/1/16	1/1/14
Bloomberg Roll Select Commodity	0.00%	0.00%	34.00%	0.0%
S&P Global Large-MidCap Commodity and Resources	0.00%	0.00%	33.00%	0.0%
S&P Global Infrastructure	0.00%	0.00%	33.00%	0.0%
50/50 S&P Global Infra & Lrg-MidCap Com & Resources +2% 1QL	0.00%	100.00%	0.00%	0.0%
75/25 S&P Global Infra & Lrg-MidCap Com & Resources +2% 1QL	100.00%	0.00%	0.00%	0.0%
CPI + 5%	0.00%	0.00%	0.00%	100.0%
	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>

## Private RA Secondary Benchmark

As of:	9/1/14
Cambridge Associates Private Natural Resources 1 Qtr Lag	50.0%
Cambridge Associates Private Infrastructure 1 Qtr Lag	50.0%
	<b>100.0%</b>

## Real Estate Benchmark

As of:	1/1/09	6/1/00	7/1/96
10 Year Treasury +2%	0.0%	0.0%	100.0%
NCREIF ODCE	100.0%	0.0%	0.0%
NCREIF Property	0.0%	100.0%	0.0%
	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>

# Policy Index and Benchmark History

Period Ending: September 30, 2021

Baillie Gifford Benchmark	As of:	
	1/1/14	5/1/12
MSCI ACWI ex-US	100.0%	0.0%
MSCI EAFE	0.0%	100.0%
	<b>100.0%</b>	<b>100.0%</b>

Baillie Gifford Secondary Benchmark	As of:	
	1/1/14	5/1/12
MSCI ACWI ex-US Growth	100.0%	0.0%
MSCI EAFE Growth	0.0%	100.0%
	<b>100.0%</b>	<b>100.0%</b>

Brigade Secondary Benchmark	As of:	
	8/1/10	
Bloomberg High Yield	50.0%	
Credit Suisse Leveraged Loans	50.0%	
	<b>100.0%</b>	

PIMCO Diversified	As of:	
	9/1/17	
JPMorgan EMBI Global	33.333%	
BofAMLBB-BRATEDVlpdMktsHYHdgUSD	33.333%	
Global Agg Credit Ex EM USD hedged	33.334%	
	<b>100.0%</b>	

SSgA Custom Real Asset	As of:	
	5/1/20	11/1/16
Bloomberg Roll Select Commodity	25.00%	33.33%
S&P Global Large-MidCap Commodity and Resources	25.00%	33.33%
S&P Global Infrastructure	25.00%	33.34%
Bloomberg TIPS	25.00%	0.00%
	<b>100.0%</b>	<b>100.0%</b>

# Fee Schedule

Period Ending: September 30, 2021

## **Acadian Asset Management**

First \$50 million:	0.27% per annum
Next \$50 million:	0.225% per annum
Thereafter:	0.18% per annum

## **Baillie Gifford**

First \$25 million:	0.60% per annum
Next \$75 million:	0.50% per annum
Next \$300 million:	0.40% per annum
Thereafter:	0.30% per annum

## **BlackRock-Russell 1000 Index Fund**

On All Assets:	0.01% per annum
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## **BlackRock-MSCI ACWI ex US IMI Index Fund**

On All Assets:	0.045% per annum
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## **DoubleLine**

On All Assets:	0.30% per annum
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## **NISA**

First \$500 million:	0.15% per annum
Next \$1 billion:	0.125% per annum
Next \$1 billion:	0.105% per annum
Next \$1.5 billion:	0.085% per annum
Thereafter:	0.065% per annum

## **Franklin Templeton Investment**

First \$50 million:	0.40% per annum
Next \$50 million:	0.30% per annum
Thereafter:	0.25% per annum

## **FIAM Bond**

First \$50 million:	0.25% per annum
Next \$50 million:	0.20% per annum
Next \$100 million:	0.125% per annum
Thereafter:	0.10% per annum

## **PanAgora Asset Management**

First \$50 million:	0.25% per annum
Next \$50 million:	0.15% per annum
Thereafter:	0.10% per annum

## **Parametric Overlay**

First \$50 million:	0.12% per annum
Next \$100 million:	0.10% per annum
Thereafter:	0.05% per annum
Plus monthly reporting fee of \$1500	

## **Parametric Currency Overlay**

First \$250 million:	0.05% per annum
Thereafter:	0.03% per annum

## **PIMCO Diversified**

On All Assets:	0.75% per annum
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## **QMA**

First \$100 million:	0.55% per annum
Next \$100 million:	0.53% per annum
Thereafter:	0.49% per annum

## **Western Asset Management**

On All Assets:	0.25% per annum
Performance Fee:	20.00%

## **Mondrian Investment Partners**

### Assets Below \$190 million

First \$20 million:	1.00% per annum
Thereafter:	0.33% per annum

### Assets Above \$190 million

First \$50 million:	1.00% per annum
Next \$150 million:	0.19% per annum
Thereafter:	0.33% per annum

# Manager Compliance (Net)

Period Ending: September 30, 2021

Name	Primary Benchmark	Rule 1	Rule 2	Rule 3
Acadian US MGD V	Russell 1000	--	--	--
DE Shaw	Russell 1000	R	✓	R
PanAgora Defuseq	Russell 1000	--	--	--
QMA US Small Cap	Russell 2000	R	R	R
Baillie Gifford	MSCI ACWI ex US	✓	R	✓
Mondrian	MSCI ACWI ex USA Value Gross	R	R	R
DoubleLine	Bloomberg US Aggregate TR	--	--	--
FIAM Bond	Bloomberg US Aggregate TR	✓	✓	✓
NISA Core Bond	Bloomberg US Aggregate TR	--	--	--
Western TRU	3-Month Libor Total Return USD	✓	✓	R
AG CSF Annex Dislocation Fund	Bloomberg BA Intermediate HY	--	--	--
Angelo Gordon Opportunistic	Bloomberg US Aggregate TR	✓	--	✓
Angelo Gordon Credit Solutions	Bloomberg BA Intermediate HY	--	--	--
Beach Point Select	Bloomberg BA Intermediate HY	✓	✓	✓
Brigade Capital	Bloomberg BA Intermediate HY	✓	✓	R
PIMCO Diversified	Blended PIMCO Diversified Index	--	--	--
Franklin Templeton	Bloomberg Multiverse TR	--	--	--
Blackrock DL Feeder IX-U	Cliffwater Direct Lending Index	--	--	--
PIMCO Private Income	Bloomberg BA Intermediate HY	--	--	--
TCP Direct Lending VIII	Cliffwater Direct Lending Index	R	✓	✓
White Oak Yield	Cliffwater Direct Lending Index	--	--	--
White Oak YSF V	Cliffwater Direct Lending Index	--	--	--
Aberdeen Standard GARS	Absolute Return Custom Index	R	R	R
Acadian MAAR Fund LLC	Absolute Return Custom Index	--	--	--
CFM Systematic Global Macro	Absolute Return Custom Index	--	--	--
Graham Quant Macro	Absolute Return Custom Index	--	--	--
PIMCO MAARS Fund LP	Absolute Return Custom Index	--	--	--

Rule 1 - Manager has underperformed the benchmark index for the five year period.

Rule 2 - Manager has underperformed the 50th percentile in the appropriate style universe for the five year period.

Rule 3 - Excess 5 Year Sharpe Ratio vs. Benchmark is positive



# Manager Compliance (Gross)

Period Ending: September 30, 2021

Name	Primary Benchmark	Rule 1	Rule 2	Rule 3
Acadian US MGD V	Russell 1000	--	--	--
DE Shaw	Russell 1000	R	✓	R
PanAgora Defuseq	Russell 1000	--	--	--
QMA US Small Cap	Russell 2000	R	R	R
Baillie Gifford	MSCI ACWI ex US	✓	✓	✓
Mondrian	MSCI ACWI ex USA Value Gross	R	✓	R
DoubleLine	Bloomberg US Aggregate TR	--	--	--
FIAM Bond	Bloomberg US Aggregate TR	✓	✓	✓
NISA Core Bond	Bloomberg US Aggregate TR	--	--	--
Western TRU	3-Month Libor Total Return USD	✓	✓	R
AG CSF Annex Dislocation Fund	Bloomberg BA Intermediate HY	--	--	--
Angelo Gordon Opportunistic	Bloomberg US Aggregate TR	✓	--	✓
Angelo Gordon Credit Solutions	Bloomberg BA Intermediate HY	--	--	--
Beach Point Select	Bloomberg BA Intermediate HY	✓	✓	✓
Brigade Capital	Bloomberg BA Intermediate HY	✓	✓	R
PIMCO Diversified	Blended PIMCO Diversified Index	--	--	--
Franklin Templeton	Bloomberg Multiverse TR	--	--	--
Blackrock DL Feeder IX-U	Cliffwater Direct Lending Index	--	--	--
PIMCO Private Income	Bloomberg BA Intermediate HY	--	--	--
TCP Direct Lending VIII	Cliffwater Direct Lending Index	R	✓	✓
White Oak Yield	Cliffwater Direct Lending Index	--	--	--
White Oak YSF V	Cliffwater Direct Lending Index	--	--	--
Aberdeen Standard GARS	Absolute Return Custom Index	R	R	R
Acadian MAAR Fund LLC	Absolute Return Custom Index	--	--	--
CFM Systematic Global Macro	Absolute Return Custom Index	--	--	--
Graham Quant Macro	Absolute Return Custom Index	--	--	--
PIMCO MAARS Fund LP	Absolute Return Custom Index	--	--	--

Rule 1 - Manager has underperformed the benchmark index for the five year period.

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Rule 3 - Excess 5 Year Sharpe Ratio vs. Benchmark is positive





**PERSPECTIVES  
THAT DRIVE  
ENTERPRISE  
SUCCESS**

4<sup>TH</sup> QUARTER 2021  
Investment Landscape



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## Topics of interest

### THINKING ABOUT INFLATION IN RISK TERMS

Inflation has been subdued in the United States for the last three decades. In this piece, we analyze historic inflationary environments to understand the protection offered by different types of assets. Using a variety of risk tools, we consider the impact inflation has on an investor's overall portfolio and their obligations. No single asset class can reliably protect against inflationary environments but through constructing diversified portfolios and understanding risk exposures, we believe an investor can best position themselves for an uncertain future.

### THINKING DIFFERENTLY

Today's market environment appears to be an exceedingly challenging one to navigate, and investors are grappling with the question of how best to structure portfolios that not only meet their return targets but provide impactful diversification and risk management. In this Topic of Interest paper, we will assess a wide variety of less-conventional investment strategies in both mature and nascent marketplaces, and which may only appeal to a specific set of investors.

### ESTABLISHMENT OF RISK MITIGATION BUCKETS

An evolving market environment has arguably diminished the role of traditional fixed income as a diversifier in portfolios and led to a higher opportunity cost of holding bonds due to lower yields. This may suggest improved relative attractiveness of other equity risk mitigation approaches. In this research piece we discuss other approaches to risk mitigation and outline their merits, while tying these ideas to the Functionally-Focused Portfolios (FFP) approach to portfolio construction.

## Annual research

### 2021 PRIVATE EQUITY OUTLOOK

In the Verus 2021 Private Equity Outlook, we focus attention on investor appetite for ESG and the growing response from private equity. The outlook also addresses the resilience of private equity in the face of COVID; SPACs rise as a streamlined path to the public markets, however not without risk; Private credit markets continue to gain investor interest; Buyout purchase multiples expand as public market valuations continue to climb; and Venture capital valuations soar alongside increased economic confidence

# Table of contents



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Economic environment 6

---

Fixed income rates & credit 21

---

Equity 26

---

Other assets 36

---

Appendix 38

# 3<sup>rd</sup> quarter summary

## THE ECONOMIC CLIMATE

- Real GDP grew at a 12.2% rate year-over-year in Q2 (+6.7% quarterly annualized rate) as the U.S. fully recovered from the pandemic-induced recession of 2020. **p. 10**
- In the U.S. labor market, unemployment has fallen as many workers who desired jobs have been successful in gaining employment. The overall U.S. labor participation rate has not improved, as millions of workers remain neither employed nor seeking employment. **p. 15**
- Consumer sentiment deteriorated during the third quarter, on reports of pessimism around the COVID Delta variant, higher inflation, and unfavorable economic prospects. Small business optimism also fell, as businesses face difficulty in hiring and are concerned about tax increases and more burdensome government regulations. **p. 17**

## PORTFOLIO IMPACTS

- Credit markets traded in a relatively tight range throughout the quarter, delivering mild returns. Bank loans outperformed in Q3, returning 1.1% and outpacing high yield bonds (0.9%) and corporate investment grade (0.0%). **p. 24**
- U.S. core CPI, which excludes food & energy prices, rose 4.0% YoY in September. U.S. headline inflation came in at 5.4%. Price changes moderated during Q3, relative to the larger price moves that occurred in March through June. **p. 12**

## THE INVESTMENT CLIMATE

- The Biden Administration's \$3.5 trillion social spending package remains in the negotiation stage among Democrats, as the size of the package, the contents, and national concerns over inflation have given some members of the party reason to pause. The package is reportedly being scaled back, which creates the risk of rejection from progressives within the party who are pushing for more spending. **p. 10**
- It seems that investors have put the 2020 pandemic-induced recession and its associated risks behind them. However, it is not clear that market risks have completely subsided, as the Delta-variant continues to spread, high inflation could indeed persist, and most governments are set to pull back generous stimulus programs. **p. 34**

## ASSET ALLOCATION ISSUES

- Equity markets took a breather in Q3. U.S. equities delivered 0.6%, while international equities experienced slight losses of -0.4% and emerging market equities saw a larger selloff of -8.1%, on an unhedged currency basis. **p. 27**
- Factor performance was negative during the quarter, as large capitalization stocks outperformed small cap by a wide margin (Russell 1000 +0.2%, Russell 2000 -4.4%) and growth stocks beat value (Russell 1000 Growth +1.2%, Russell 1000 Value -0.8%). **p. 30**

The economic recovery may be slowing, though the environment remains positive for risk assets

We believe a neutral risk stance is warranted in the current environment

# What drove the market in Q3?

“Covid cases are rising again in all 50 states across U.S. as delta variant tightens its grip”

## DELTA VARIANT SHARE OF COVID CASE GROWTH IN THE UNITED STATES

Apr	May	Jun	Jul	Aug	Sep
0.6%	3.1%	31.9%	96.0%	97.9%	99.9%

Article Source: CNBC, as of July 23<sup>rd</sup>, 2021

“The World Economy’s Supply Chain Problem Keeps Getting Worse”

## SHIPS AT ANCHOR OUTSIDE THE PORT OF LOS ANGELES (MONTHLY AVERAGE)

Apr	May	Jun	Jul	Aug	Sep
11	10	7	12	22	27

Article Source: Bloomberg, August 25<sup>th</sup>, 2021

“Beijing’s Crackdown Ruins July for Investors Everywhere”

## NASDAQ GOLDEN DRAGON CHINA INDEX TOTAL RETURN

Apr	May	Jun	Jul	Aug	Sep
-0.1%	-5.6%	+1.8%	-22.0%	-1.6%	-9.8%

Article Source: Bloomberg, July 27<sup>th</sup>, 2021

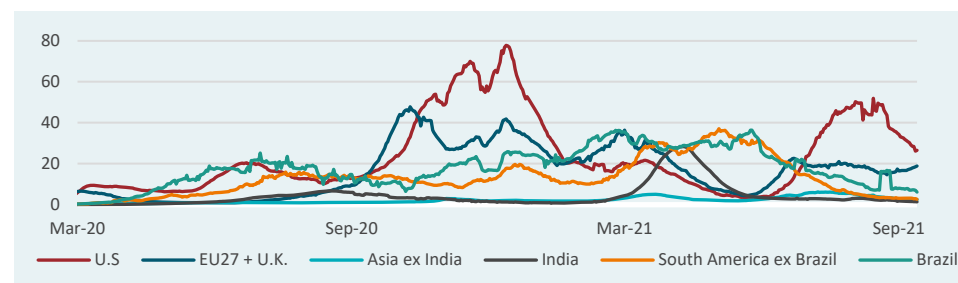
“Commodities surge again; spot price index hits decade high”

## BLOOMBERG COMMODITY SPOT INDEX

Apr	May	Jun	Jul	Aug	Sep
464.0	476.9	480.2	487.4	486.3	510.3

Article Source: BNN Bloomberg, September 13<sup>th</sup>, 2021

## AVERAGE DAILY CASE GROWTH PER 100,000 (TRAILING TWO WEEKS)



Source: Bloomberg, as of 9/30/21

## SUPPLIER DELIVERY INDICES



Source: Institute for Supply Management, as of 9/30/21

## NASDAQ GOLDEN DRAGON CHINA INDEX



Source: NASDAQ, Bloomberg, as of 9/30/21

# Economic environment

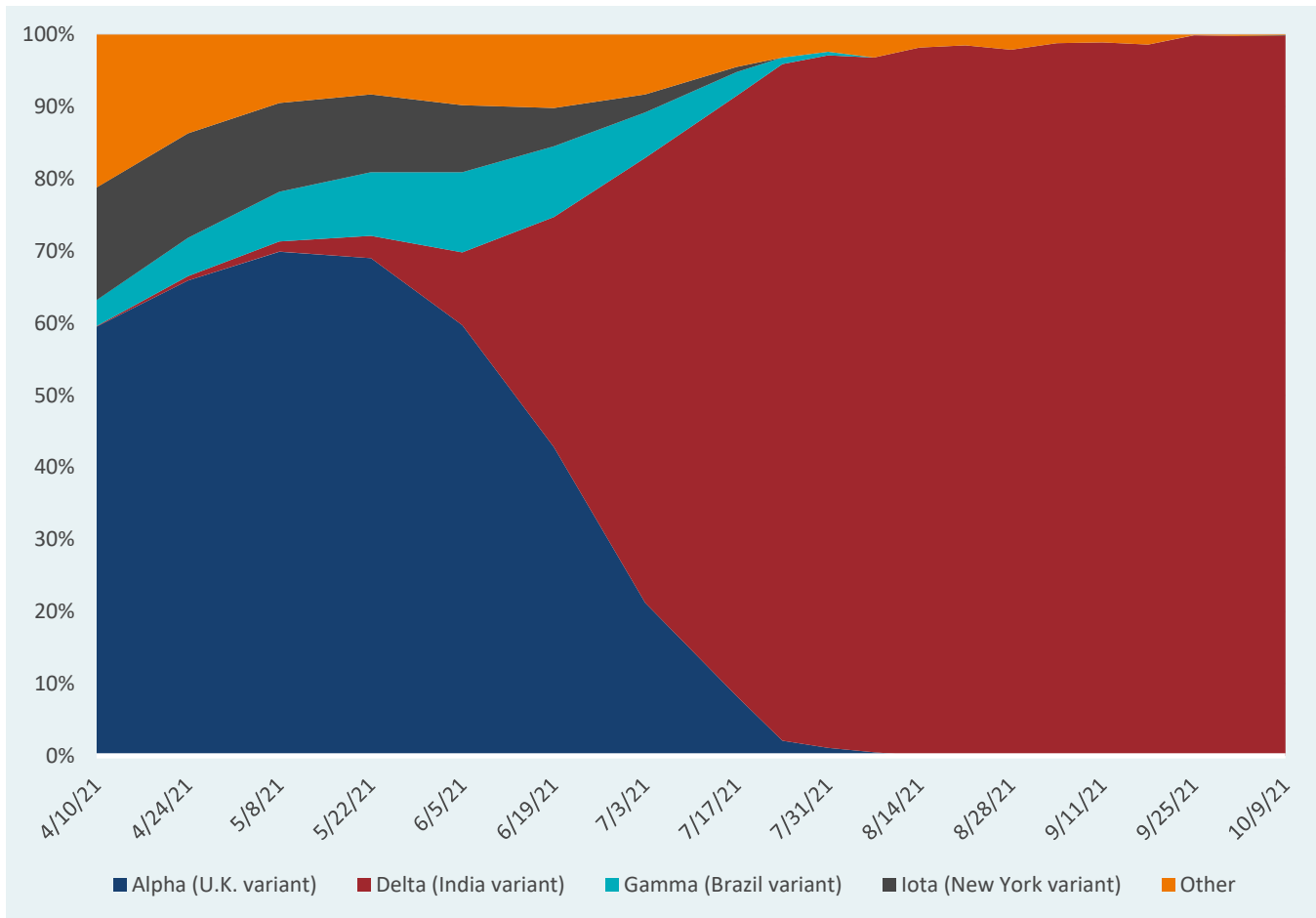
# U.S. economics summary

- Real GDP grew at a 12.2% rate year-over-year in Q2 (+6.7% quarterly annualized rate) as the U.S. fully recovered from the pandemic-induced recession of 2020. However, it appears that recent strong economic activity may be slowing down.
- U.S. core CPI, which excludes food & energy prices, rose 4.0% YoY in September. U.S. headline inflation came in at 5.4%. Price changes moderated during Q3, relative to the larger price moves that occurred in March through June, but remain elevated.
- Unemployment fell from 5.9% to 4.8% during the quarter, while the laborforce participation was unmoved at 61.6%. The unemployment rate has fallen as many workers who desired jobs have been successful in gaining employment, but the overall U.S. laborforce participation rate has not improved
- The Biden Administration’s \$3.5 trillion social spending package remains in the negotiation stage among Democrats, as the size of the package, the contents, and national concerns over inflation have given some members of the party reason to pause. The package is reportedly being scaled back, which creates the risk of rejection from progressives within the party who are pushing for more spending.
- U.S. home prices have rocketed higher, up 19.7% over the past year, according to the S&P/Case-Shiller U.S. National Home Price Index.
- Consumer sentiment was mixed over the quarter. The University of Michigan reported that the Delta variant and persistent inflation, as well as unfavorable prospects for the national economy, are weighing on sentiment. High prices of homes, vehicles, and durables are a concern.

	Most Recent	12 Months Prior
GDP (YoY)	12.2% <i>6/30/21</i>	(9.1%) <i>6/30/20</i>
Inflation (CPI YoY, Core)	4.0% <i>9/30/21</i>	1.7% <i>9/30/20</i>
Expected Inflation (5yr-5yr forward)	2.2% <i>9/30/21</i>	1.7% <i>9/30/20</i>
Fed Funds Target Range	0% – 0.25% <i>9/30/21</i>	0% – 0.25% <i>9/30/20</i>
10-Year Rate	1.49% <i>9/30/21</i>	0.68% <i>9/30/20</i>
U-3 Unemployment	4.8% <i>9/30/21</i>	7.8% <i>9/30/20</i>
U-6 Unemployment	8.5% <i>9/30/21</i>	12.8% <i>9/30/20</i>

# Delta-plus variant?

SHARE OF NEW COVID-19 CASES ATTRIBUTED TO EACH MAJOR VARIANT



The delta variant of COVID-19 which surged through India in the second quarter took hold in the U.S., and by the end of the quarter, accounted for almost all new cases

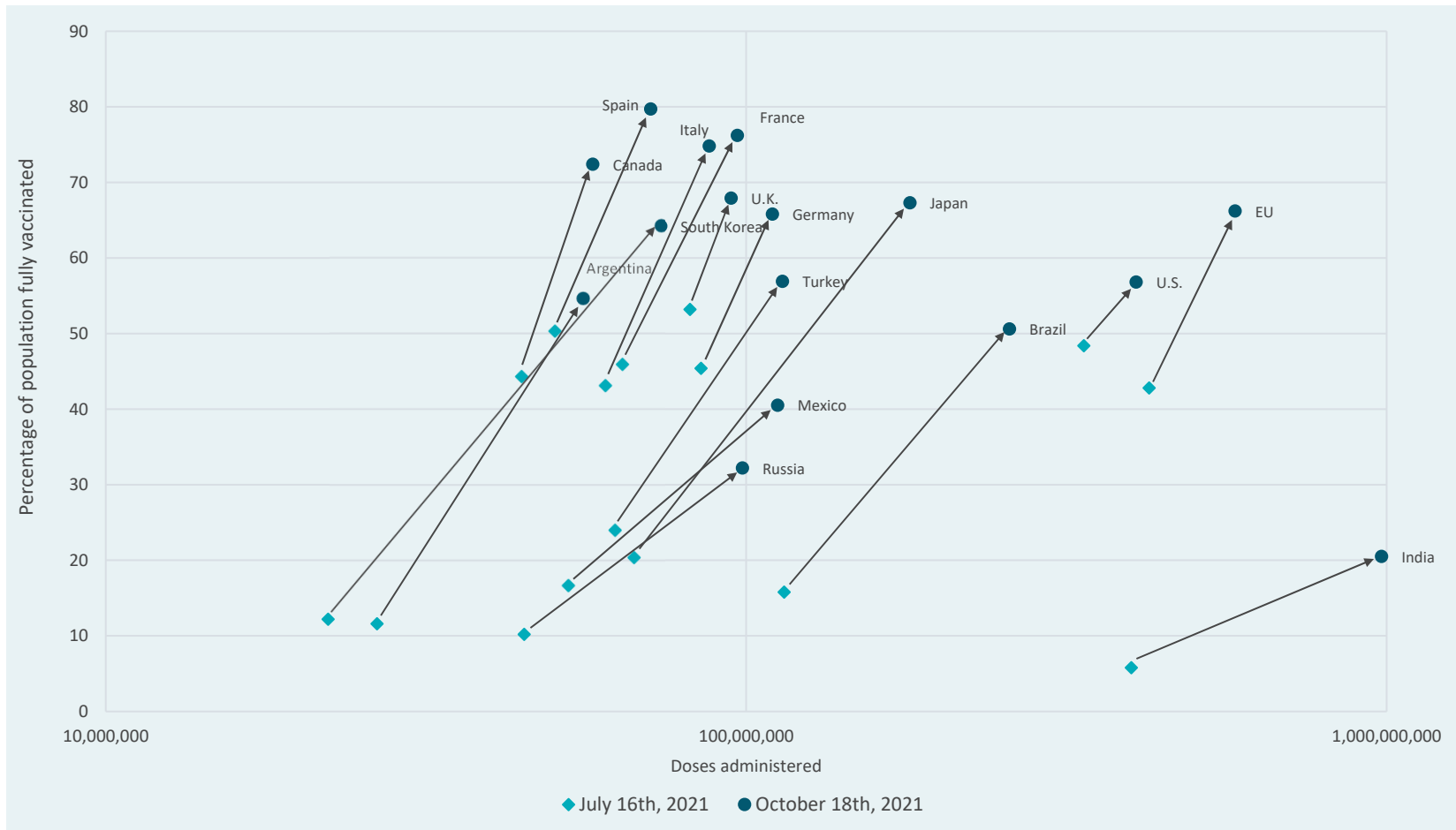
Most recently, FDA Commissioner Scott Gottlieb called for “urgent research” into whether a new strain – known as delta plus – could be more transmissible or have partial immune evasion

Source: Bloomberg, BBC, U.K. government, as of 10/9/21



# Global vaccination campaign

DOSES ADMINISTERED RELATIVE TO PERCENTAGE OF POPULATION FULLY VACCINATED



Over the last quarter, vaccination rates have improved considerably in Asia, Europe, and to a lesser extent, the emerging markets

Source: Bloomberg, as of 10/18/21

# GDP growth

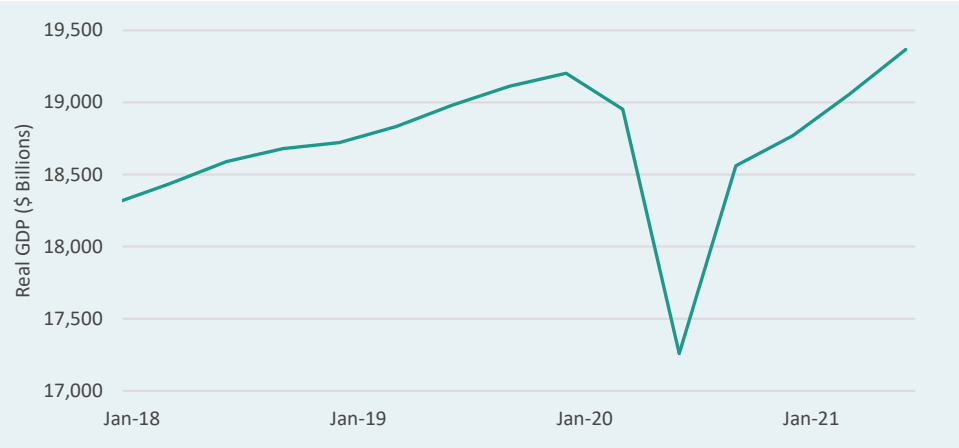
Real GDP grew at a 12.2% rate year-over-year in Q2 (+6.7% quarterly annualized rate) as the U.S. fully recovered from the pandemic-induced recession of 2020. However, it appears that recent strong economic activity may be slowing down. The Atlanta Fed GDPNow estimate, as of October 15<sup>th</sup>, suggests that GDP growth will slow to 1.2% in the fourth quarter (seasonally-adjusted quarterly annualized rate).

In contrast to the wild swings of 2020, quarterly GDP growth has steadied. Consumption has contributed to the lion's share of GDP, while supply chain issues have detracted from growth as some businesses have been unable to purchase inventory.

The Biden Administration's \$3.5 trillion social spending package remains in the negotiation stage among Democrats, as the size of the package, the contents, and national concerns over inflation have given some members of the party reason to pause. The package is reportedly being scaled back, which creates the risk of rejection from progressives within the party who are pushing for more spending. House Speaker Nancy Pelosi reportedly expressed the party's intent to include each of the original social programs (expanded government healthcare, child tax credit, tuition-free community college, etc.) but to scale back the planned length of guaranteed funding in order to reduce overall costs.

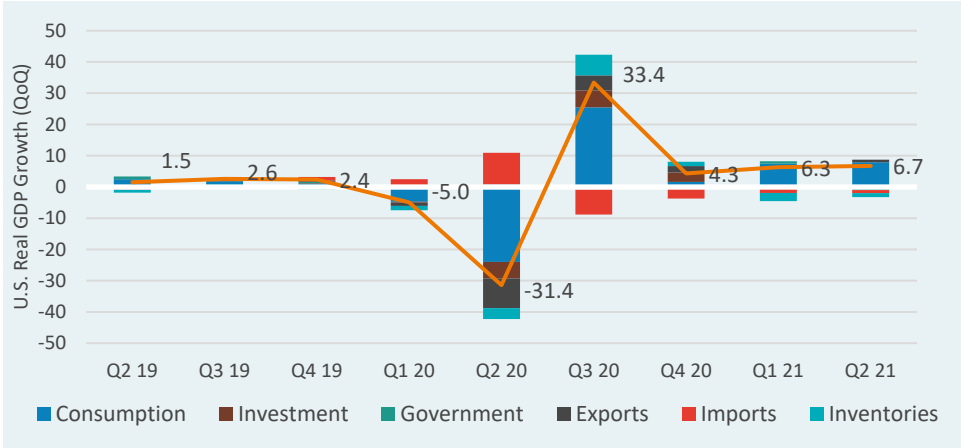
During Q2 2021 the U.S. economy fully recovered from the COVID-19 recession

U.S. REAL GROSS DOMESTIC PRODUCT



Source: FRED, as of 6/30/21

U.S. REAL GDP COMPONENTS (QOQ)



Source: FRED, as of 6/30/21

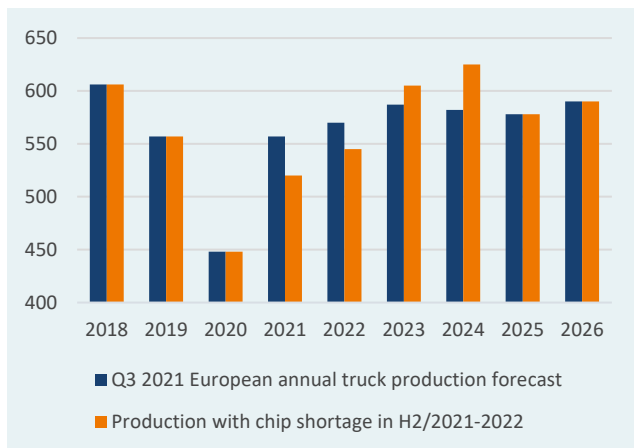
# Supply chain disruptions

Throughout the course of the pandemic, idiosyncratic supply chain snags have caused largely temporary price distortions affecting all sorts of markets, from labor, to lumber, to meat-packing and semiconductors, and many others. In some cases, these distortions have had a large impact on overall inflation levels. For example, limited semiconductor chip supplies led major suppliers to ration chips for higher-margin tech clients at the expense of lower-margin automaker clients. This prioritization resulted in a lower level of new vehicle production, and a massive surge in prices for used cars.

In September, key ports in Southern California hit several new cargo ship backlog records, forcing these ships to remain at anchor outside the ports

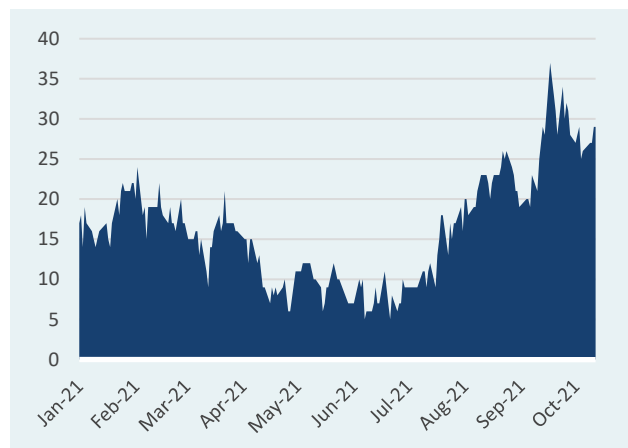
for several weeks in some cases. Part of the problem has been the massive size of these ships, which require many workers to unload, a lot of trucks to ship their cargo, and many warehouses to store that cargo. If there are not enough truckers to move the new cargo coming in, or there is not enough warehouse capacity to offload new cargo, new ships have longer unload times and the problem compounds. It is important to remember that global supply chains are very complex, and issues in certain segments tend to cascade through the others. According to the NFIB's Small Business Optimism Survey, only 10% of small business owners have been insulated from the impacts of these disruptions. We will be watching corporate guidance to gauge the impact of these disruptions on profit margins.

**IMPACT OF SEMICONDUCTOR SHORTAGE ON EUROPEAN TRUCK PRODUCTION (THOUSANDS)**



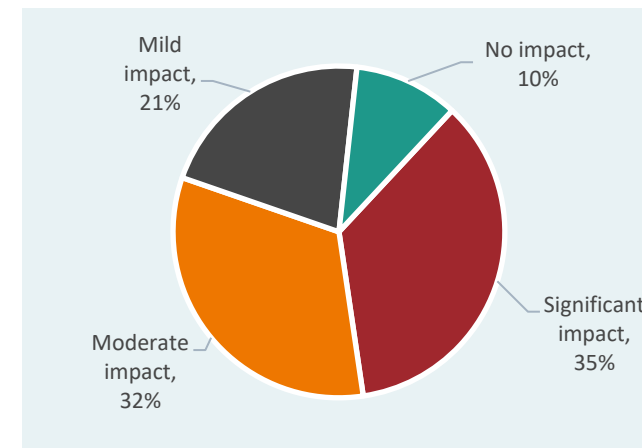
Source: IHS Markit, as of 9/28/21

**VESSELS AT ANCHOR – PORT OF LOS ANGELES**



Source: The Port of Los Angeles, as of 10/15/21

**MAGNITUDE OF THE IMPACT OF SUPPLY CHAIN DISRUPTIONS ON SMALL BUSINESSES IN THE US**



Source: NFIB, as of 9/30/21

# Inflation

U.S. core CPI, which excludes food & energy prices, rose 4.0% YoY in September. U.S. headline inflation came in at 5.4%. Price changes moderated somewhat during Q3, relative to the larger price moves that occurred from March through June.

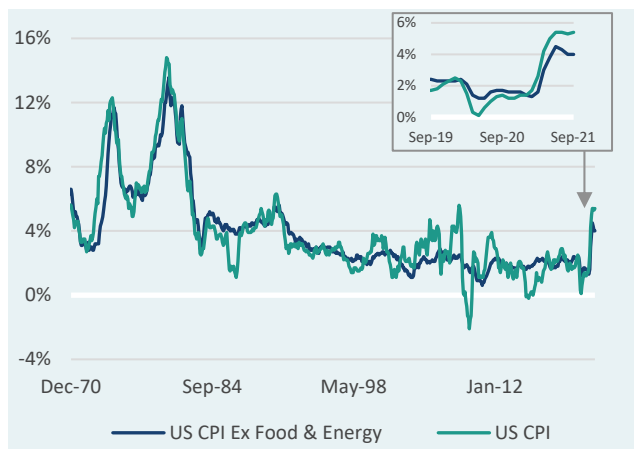
Energy and used automobile prices have had outsized impacts on inflation over the past year, increasing 24.8% and 24.4%, respectively. These two components have driven most of the rise in inflation experienced since 2019. If energy and used auto prices moderate, this will push inflation back down towards “normal” level, all else equal. However, continued supply chain issues appear to be contributing to a material rise in certain goods prices such as food, up +0.9% in September. Rent prices

(+0.5% over the month) are also a concern as costs begin to catch up with real estate values. As food comprises 13.9% of the overall inflation basket, and shelter comprises 32.6%, price moves across these categories could impact the direction of future inflation.

While we retain our long-term view that inflation is likely to return to lower levels, as most of the recent increases can be attributed to base effects or short-term one-time issues, the significant disruptions in the global supply chain are clearly an important component of the developing story. If this disruption continues there will likely be ongoing effects on the economy as a whole, and on inflation outcomes. We continue to research this issue and it’s likely effects.

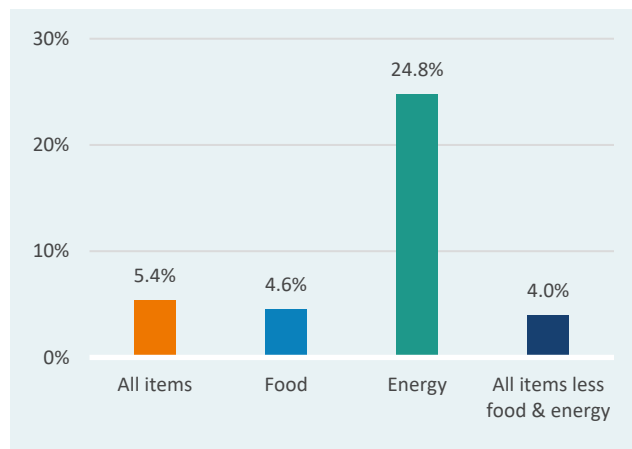
Recent moves suggest a moderation of prices, though we are watching closely for potential structural inflation

U.S. CPI (YOY)



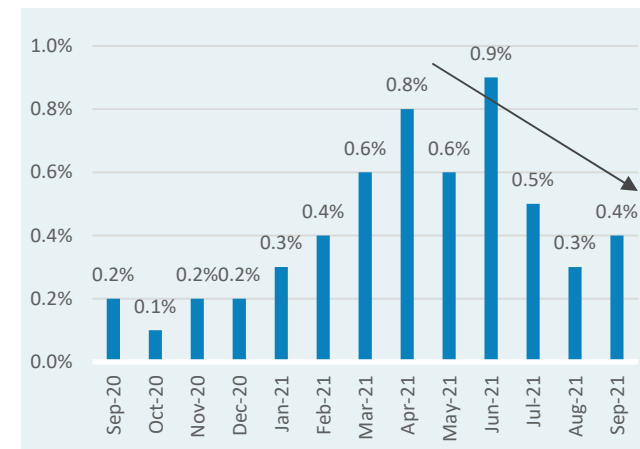
Source: BLS, as of 9/30/21

U.S. CPI (YOY)



Source: BLS, as of 9/30/21

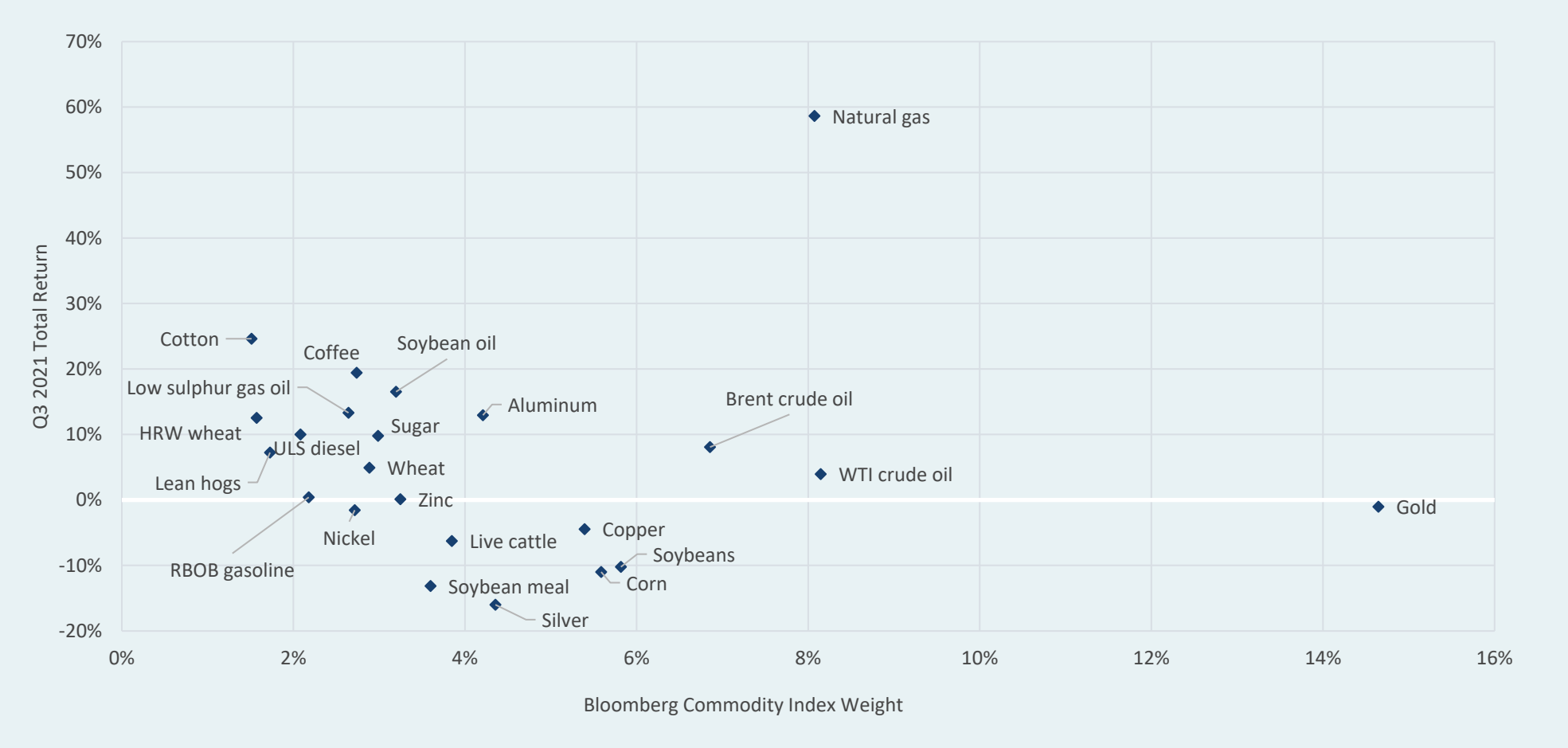
MONTHLY PRICE MOVEMENT



Source: BLS, as of 9/30/21

# Commodity surge

BLOOMBERG COMMODITY INDEX – Q3 2021 RETURNS BY INDEX WEIGHT



Source: Bloomberg, as of 9/30/21

# Labor market

U.S. unemployment fell from 5.9% to 4.8% during the quarter, while the labor participation rate was unmoved at 61.6%.

Two major themes can be observed in the U.S. labor market: 1) the unemployment rate has fallen as many workers who desired jobs have been successful in gaining employment, but 2) the overall U.S. laborforce participation rate has not improved, as millions of workers remain out of the laborforce and are not seeking employment. We continue to believe that the second effect has been fueled by approximately two million abnormally early retirements since 2020, which implies that the available U.S. workforce is now permanently smaller. As

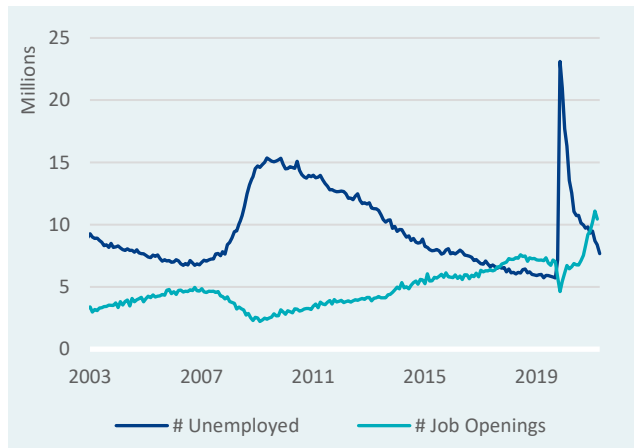
demonstrated below and on the next slide, the proportion of retired Americans per age group has increased markedly since 2019. It is difficult to know the main drivers behind the trend towards early retirement, but greater wealth (strong returns from markets and real estate), the need to take care of family, and an unwillingness to return to full-time work after extended periods of time off, may all be playing a part.

The number of U.S. job openings has far surpassed the supply of workers. As of August, 10.4 million job openings were posted across the country, while only 8.3 million Americans were seeking employment.

A portion of the U.S. labor force remains neither employed nor seeking work

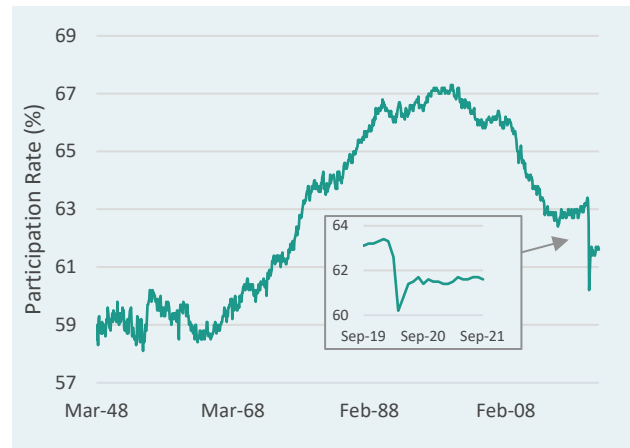
Much of this loss appears to be due to early retirements

## UNEMPLOYMENT VS. JOB OPENINGS



Source: FRED, as of 9/30/21

## LABOR PARTICIPATION RATE



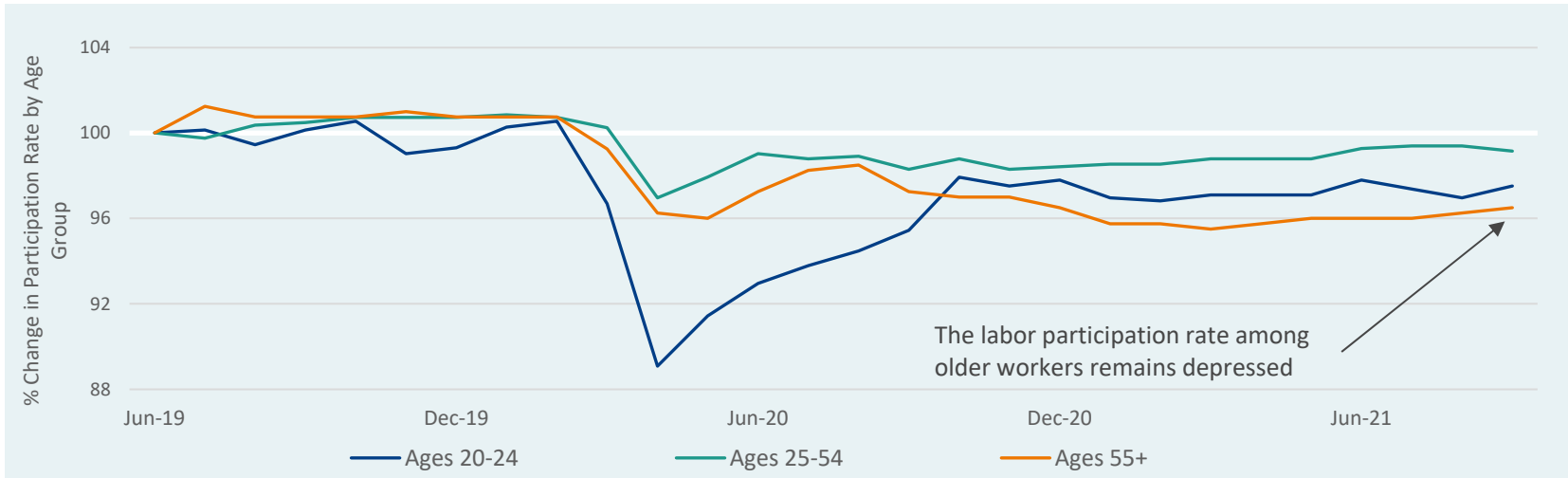
Source: FRED, as of 9/30/21

## % OF AMERICANS RETIRED

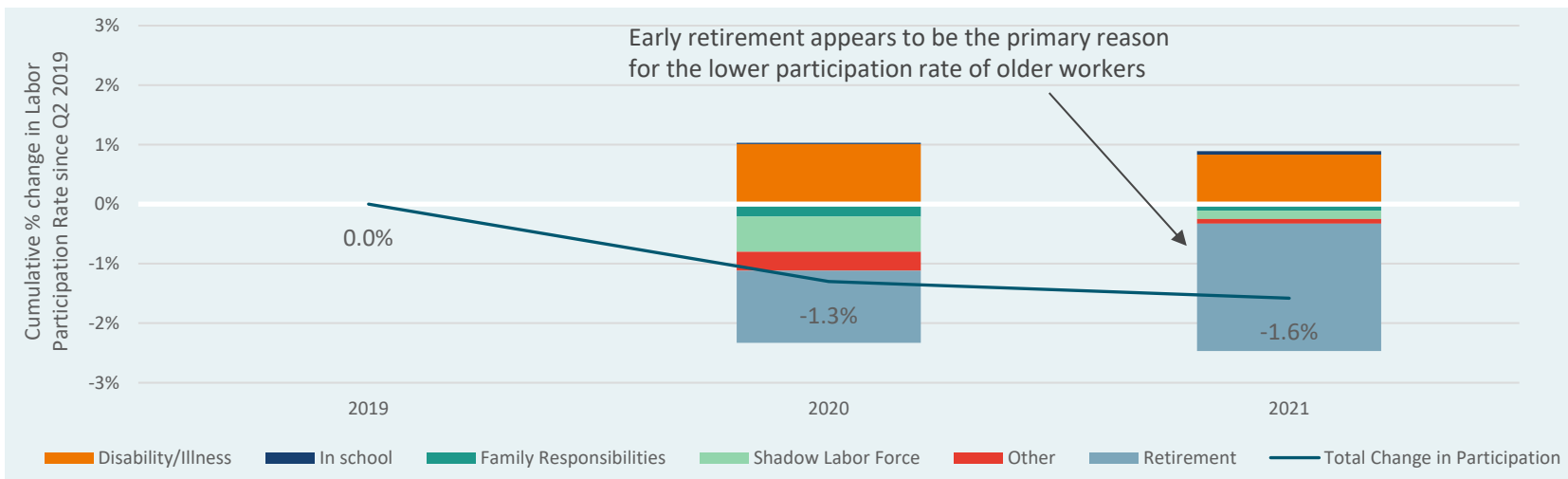
Age cohort	Women		Men	
	2019	2021	2019	2021
55+	52%	54%	44%	45%
55-59	11%	11%	7%	7%
60-64	28%	29%	21%	21%
65-69	59%	62%	52%	53%
70-74	78%	80%	71%	73%
75+	87%	88%	83%	85%

Source: St. Louis Federal Reserve

# Labor participation rate



The U.S. labor participation rate remains considerably depressed, due to millions of workers being out of work *and also not seeking work*



Economic data suggests that this effect may be largely due to millions of unusually early retirements since 2019

Source: Federal Reserve Bank of St. Louis, Verus, as of Q2 2021

# The consumer

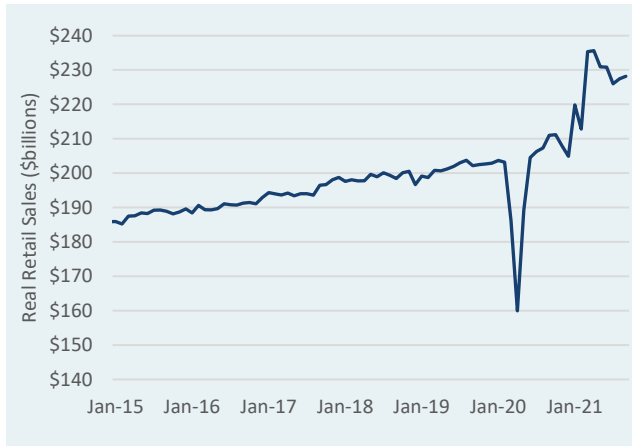
U.S. retail sales remain strong but have now slowed for two consecutive quarters, lower by -1.1% in Q3. The *reopening* spending surge appears to be slowing down, as retail sales, auto sales, and home sales have all declined in recent months. Fears around the COVID-19 Delta variant are also likely weighing on consumer spending activity. We examine quarterly rate of change here, because year-over-year rate of change (the traditional measure) is skewed due to the events of 2020.

Retail sales were expected to fall in September, but exceeded those expectations despite global supply chain issues and the rolling off of some enhanced government benefits. U.S. auto sales continued to fall sharply,

likely fueled by the dual effects of low supply and also the fact that many potential buyers, flush with stimulus cash, had already made a recent purchase.

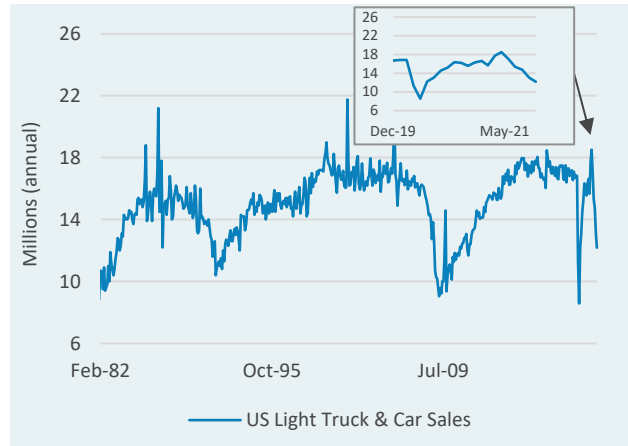
According to anonymized cellular phone data collected by Google for COVID-19 public health research, most economic activity seems to be back to normal for the most part. Public transportation and workplace travel remains the exception, though a recent uptick in workplace mobility might imply that some businesses are bringing staff back to the office.

**REAL RETAIL SALES**



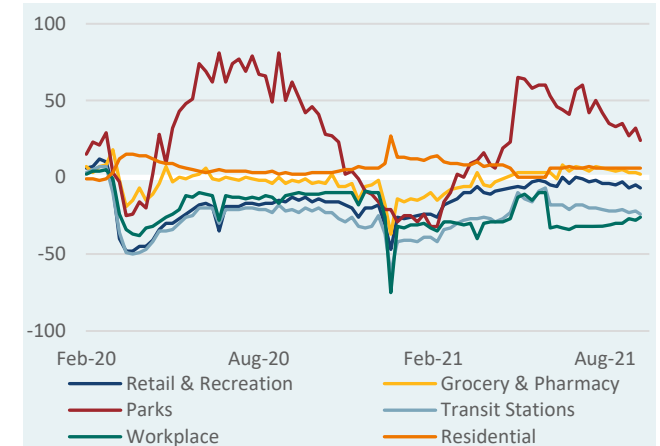
Source: FRED, as of 9/30/21

**AUTO SALES**



Source: Federal Reserve, as of 9/30/21

**GOOGLE U.S. ACTIVITY TRACKER**



Source: Google anonymized U.S. citizen mobility, as of 9/30/21



# Sentiment

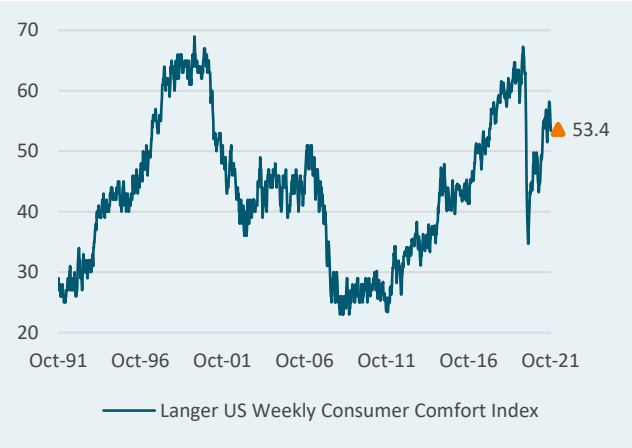
Consumer sentiment deteriorated during the third quarter, on reports of pessimism around COVID-19, inflation, and the economy. Small business optimism also fell as businesses face difficulty in hiring and are concerned about tax increases and more burdensome government regulations.

The University of Michigan Consumer Sentiment Survey attempts to gauge attitudes about the business climate, personal finances, and spending conditions. The survey reading fell from 85.5 to 72.8 on reports that the Delta variant and persistent inflation, as well as unfavorable prospects for the national economy, are weighing on sentiment. High prices of homes, vehicles, and durables are a concern, and only 18% of households anticipate that wage gains will be greater than inflation. The

Bloomberg Consumer Comfort Index attempts to gauge Americans' views on the economy, their personal financial situation, and buying conditions. The index fell from 55.1 to 53.4.

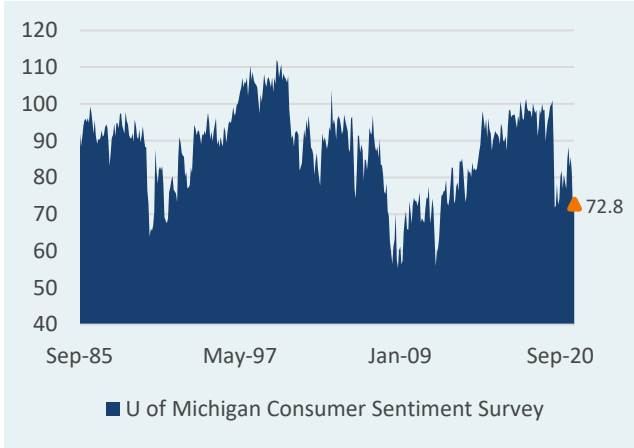
The NFIB Small Business Optimism index fell from 102.5 to 99.1 during the quarter. As reported, "Small business owners are doing their best to meet the needs of customers, but are unable to hire workers or receive the needed supplies and inventories," said NFIB Chief Economist Bill Dunkelberg. "The outlook for economic policy is not encouraging to owners, as lawmakers shift to talks about tax increases and additional regulations."

**CONSUMER COMFORT**



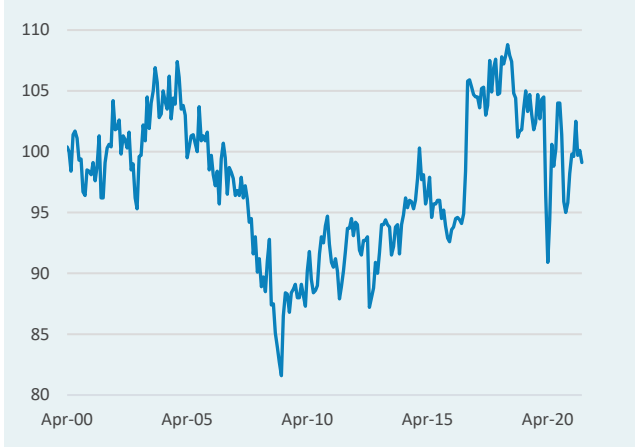
Source: Bloomberg, as of 9/30/21

**CONSUMER SENTIMENT**



Source: University of Michigan, as of 9/30/21

**SMALL BUSINESS OPTIMISM**



Source: NFIB, as of 9/30/21

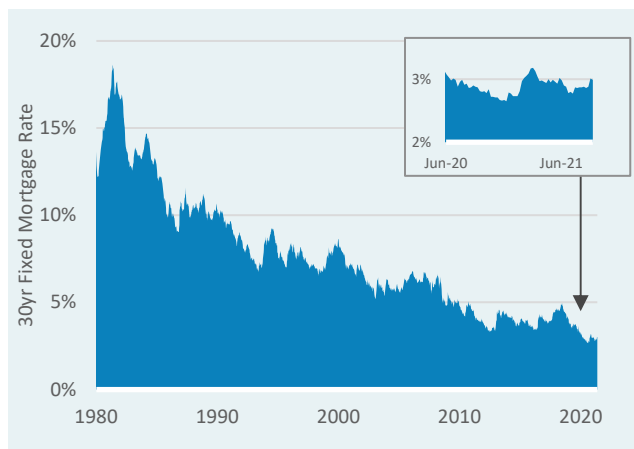
# Housing

U.S. home prices have rocketed higher, up 19.7% over the past year, according to the S&P/Case-Shiller U.S. National Home Price Index. This surprising boom appears to have been the product of a perfect storm for home demand, impacted by ultra-low interest rates, Americans' need for more space in the work-from-home environment, and likely pent-up demand from younger families who have been slower to purchase homes than past generations.

Mortgage interest rates have remained steady at around 3.0%, as attractive borrowing conditions support potential buyers who face elevated home prices.

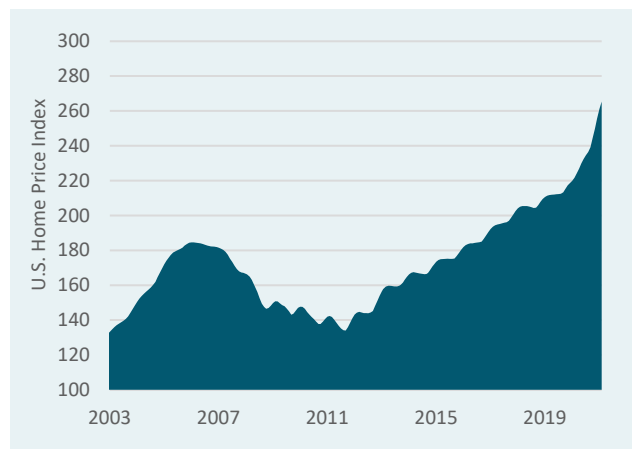
The cost of renting has seen a considerable rise throughout the pandemic, with rents up 9.2% year-over-year in September, according to Zillow. The rise in rent prices has differed quite a bit across the country, and it may be reasonable to assume that states with more outgoing net migration (ex: New York, California) may be experiencing less upward rent pressure than states with more incoming net migration (ex: Arizona, Florida), as demonstrated by recent rental price trends. Dramatic increases in rent prices, without a commensurate improvement in wages, creates obvious issues for many Americans.

**30YR FIXED MORTGAGE RATE (AVERAGE)**



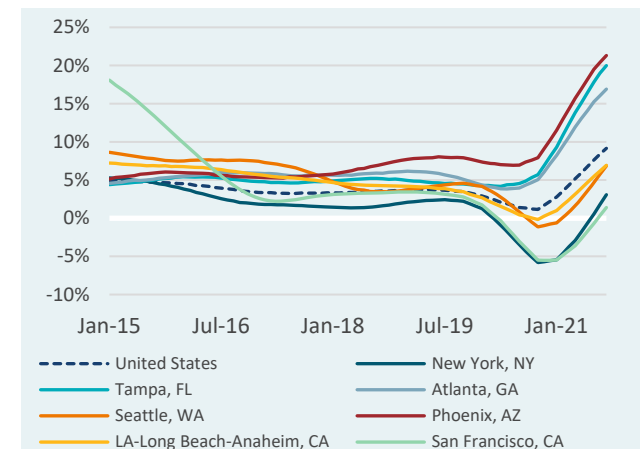
Source: U.S. Census Bureau, as of 9/30/21

**U.S. HOME PRICES**



Source: S&P/Case-Shiller U.S. National Home Price Index, as of 7/31/21

**ZILLOW OBSERVED RENT INDEXES – ZORI\* (YOY)**



\*Measures changes in asking rents across 100 markets over time.

Source: Zillow ZORI, as of 9/30/21

# International economics summary

- The emergence of the delta variant of COVID-19 in Europe and the United States over the summer led to the reimplementing of social distancing controls and a subsequent moderation of economic activity in the services sector.
- European and Japanese vaccination rates improved vastly over the quarter, which helped to contain the spread of COVID-19.
- Inflation surprised to the upside around the globe, but particularly in the Eurozone, which has spurred some tough conversations amongst central bank policymakers.
- Global consumer confidence has trended lower over most of the last two quarters on concerns over labor market prospects, as well as the impact of rising prices on purchasing power stability.
- Natural gas prices surged more

than 60% in Q3, primarily as a result of low supply levels and substitution effects due to price surges in other energy sources including coal. On a more thematic basis, Europe's clean energy initiatives also played a role, as renewable sources are not yet equipped to replace carbon-based power supplies, and adequate investment in nuclear plants has not been made. We are keeping a watchful eye on the potential impact of energy prices on inflation.

- Many factories in China were forced to shut down late in the quarter as a result of surging coal and electricity prices. Those shutdowns, alongside weaker than expected investment activity, tighter financing conditions, and stricter social distancing controls, all contributed to a larger-than-expected moderation in Chinese GDP growth, which fell to 4.9% year-over-year in Q3.

Area	GDP (Real, YoY)	Inflation (CPI, YoY)	Unemployment
United States	12.2% 6/30/21	5.4% 9/30/21	4.8% 9/30/21
Eurozone	14.3% 6/30/21	3.4% 9/30/21	7.5% 8/31/21
Japan	7.6% 6/30/21	0.3% 9/30/21	2.8% 8/31/21
BRICS Nations	10.1% 6/30/21	2.4% 9/30/21	5.3% 6/30/21
Brazil	12.4% 6/30/21	10.3% 9/30/21	13.7% 7/31/21
Russia	10.5% 6/30/21	7.4% 9/30/21	4.4% 8/31/21
India	20.1% 6/30/21	5.3% 8/31/21	6.9% 9/30/21
China	4.9% 9/30/21	0.7% 9/30/21	5.1% 8/31/21

*NOTE: India lacks reliable government unemployment data. Unemployment rate shown above is estimated from the Centre for Monitoring Indian Economy. The Chinese unemployment rate represents the monthly surveyed urban unemployment rate in China.*

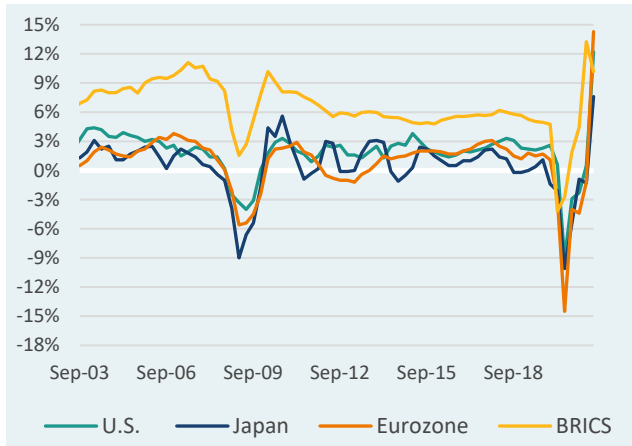
# International economics

The IMF expects the global economy will grow by 5.9% in 2021, and 4.9% in 2022. More recently, concerns over the impact of supply chain disruptions have crimped near-term growth expectations for advanced economies, but the expectation remains that those economies will regain their pre-pandemic trend path in 2022 and exceed it by 0.9% by 2024. However, sizable disparities in vaccine access and policy support have resulted in a larger expected setback to living standard improvements in the developing world, where growth is expected to remain 5.5% beneath the pre-pandemic trend by 2024.

Inflation remained high in most global economies, and the United States has seen one of the largest increases among other major developed economies. Inflation trends and the reaction of central banks to these trends will have important implications for markets.

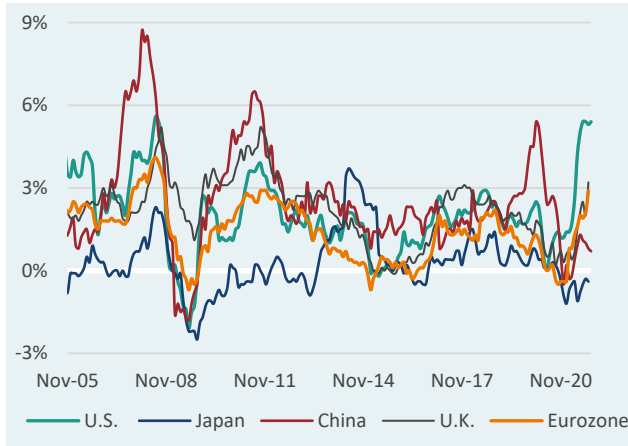
Unemployment around the world has improved as economies recover, government restrictions are loosened, and life moves back towards normalcy.

**REAL GDP GROWTH (YOY)**



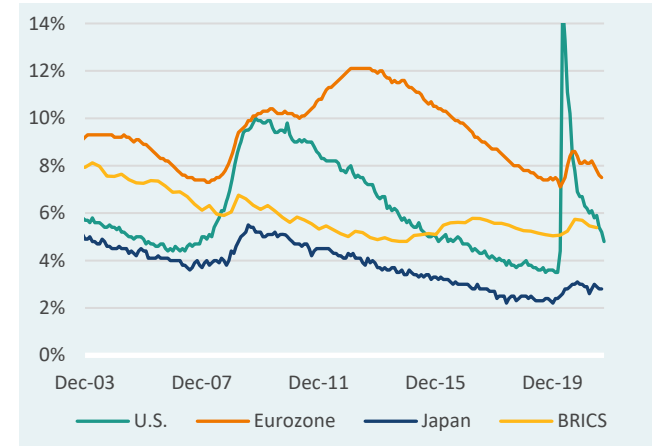
Source: Bloomberg, as of 6/30/21

**INFLATION (CPI YOY)**



Source: Bloomberg, as of 9/30/21 – or most recent release

**UNEMPLOYMENT**



Source: Bloomberg, as of 9/30/21 – or most recent release

# Fixed income rates & credit

# Fixed income environment

— The 10-year U.S. Treasury yield increased slightly during the quarter, from 1.45% to 1.52%. Longer-term Treasury bond yields drifted lower in July and August before picking up considerably in September, as speculation mounted that the Federal Reserve would begin tapering the current asset purchase program (\$80 billion in monthly Treasury purchases and \$40 billion in monthly agency mortgage-backed-securities) in November or December of this year.

— Credit spreads traded in a relatively tight range during the quarter and remained at a very low level relative to the historical average. Historically low credit default rates have supported tight spread levels. Above-average credit quality has also been supportive, specifically in the high-yield universe. Although credit spreads are tight, spreads arguably remain healthy relative to current bond default levels.

— Reports that Evergrande, one of the

largest property developers in China, was on track to miss debt service payments led to a sell-off in Chinese high-yield debt as investors braced for potential contagion. Dollar-denominated high-yield Chinese bonds in aggregate fell by around 20% in value.

— Realized and expected inflation metrics reached high levels relative to history, sparking a number of different policy responses from central bankers. The base case at the Fed and at the ECB remains that inflation will be transitory, and that rates can remain at current levels at least until late next year. In contrast, officials at the Bank of England are now expected to begin hiking rates in November, and many central banks in the emerging markets have already begun tightening policy.

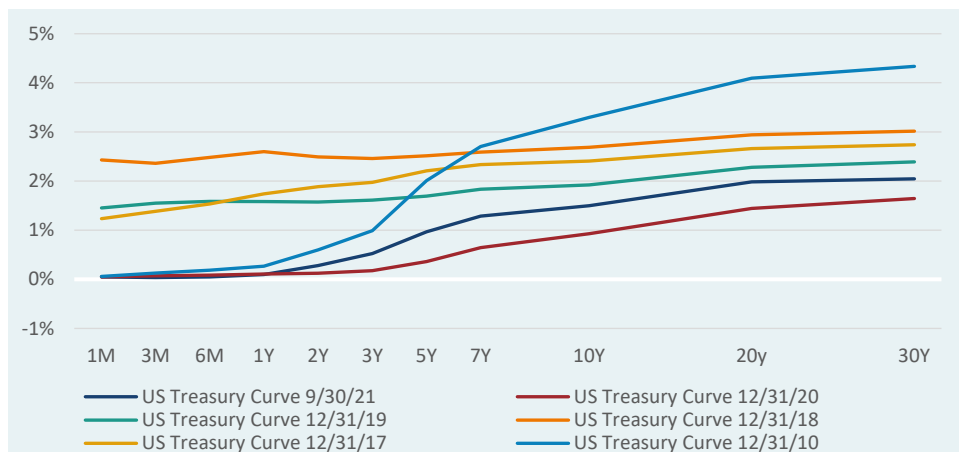
— The four-year discount margin, our preferred spread metric for bank loans, compressed slightly over the quarter from 4.32% to 4.28%.

	QTD Total Return	1 Year Total Return
Core Fixed Income (BBgBarc U.S. Aggregate)	0.1%	(0.9%)
Core Plus Fixed Income (BBgBarc U.S. Universal)	0.1%	0.2%
U.S. Treasuries (BBgBarc U.S. Treasury)	0.1%	(3.3%)
U.S. High Yield (BBgBarc U.S. Corporate HY)	0.9%	11.3%
Bank Loans (S&P/LSTA Leveraged Loan)	1.1%	8.4%
Emerging Market Debt Local (JPM GBI-EM Global Diversified)	(3.1%)	2.6%
Emerging Market Debt Hard (JPM EMBI Global Diversified)	(0.7%)	4.4%
Mortgage-Backed Securities (BBgBarc MBS)	0.1%	(0.4%)

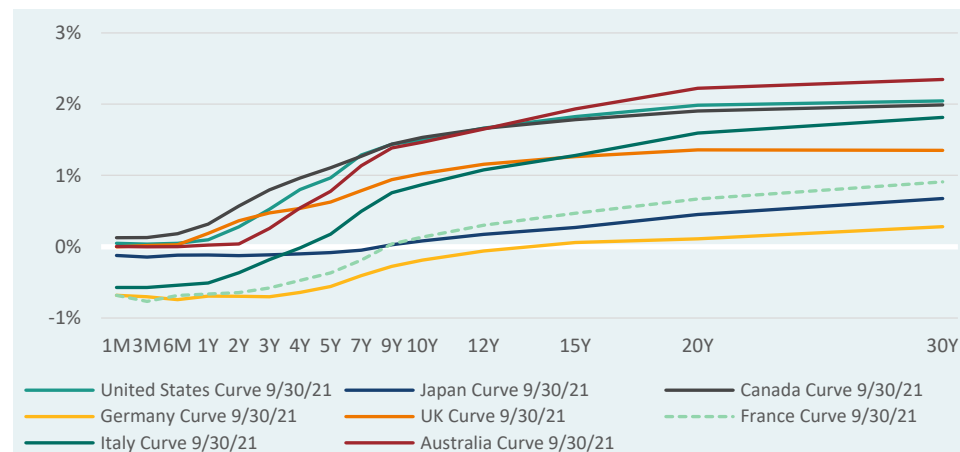
Source: Bloomberg, as of 9/30/21

# Yield environment

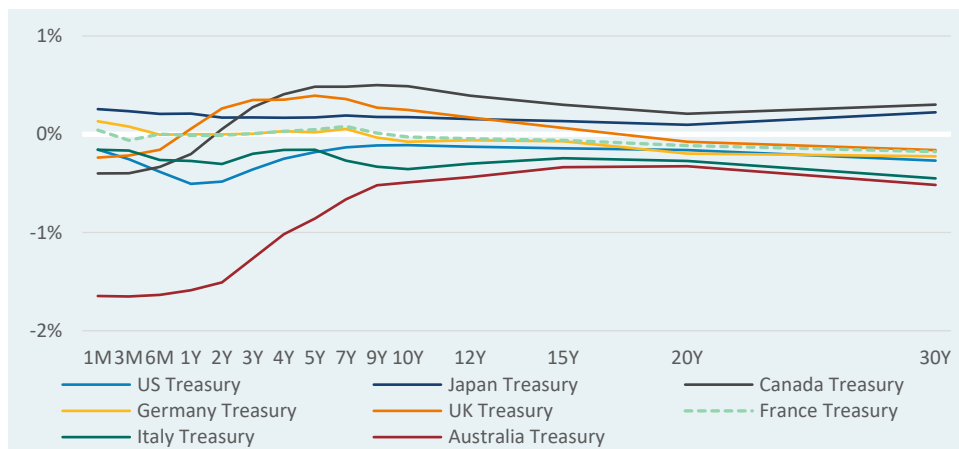
## U.S. YIELD CURVE



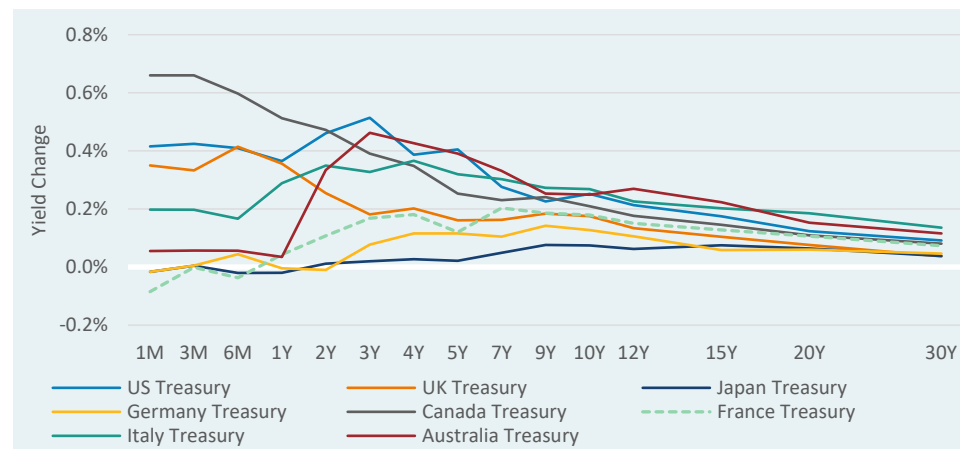
## GLOBAL GOVERNMENT YIELD CURVES



## YIELD CURVE CHANGES OVER LAST FIVE YEARS



## IMPLIED CHANGES OVER NEXT YEAR



Source: Bloomberg, as of 9/30/21

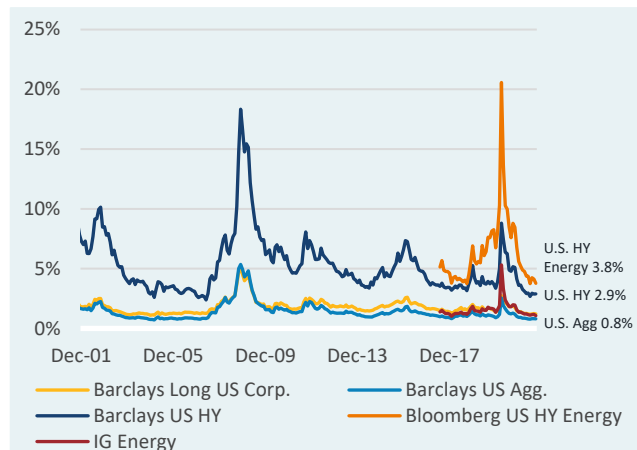
# Credit environment

Credit markets traded in a relatively tight range throughout the quarter, delivering mild returns. Bank loans outperformed, returning 1.1% and outpacing high yield bonds (0.9%) and corporate investment grade (0.0%). Credit spreads widened as strong demand did not fully offset lingering concerns around inflation, persistent supply chain delays, default the by Chinese property developer Evergrande, and risk of a government shutdown. High yield spreads widened 21 basis points to 289 basis points while investment grade spreads widened 4 basis points to end the quarter at 84 basis points.

Demand for high quality credit has been strong this year with an estimated \$80 billion flowing into corporate investment grade funds. At the same

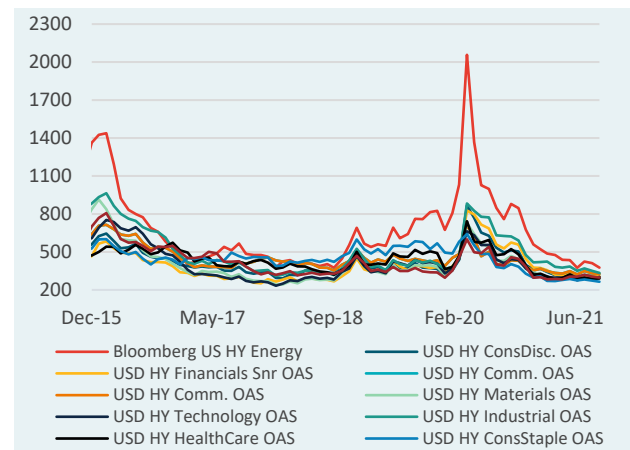
time, the sector has seen improvement in credit fundamentals as businesses repay some of last year's precautionary borrowing, reducing total debt levels. Strong demand and declining leverage, in conjunction with a potentially higher rate environment, are all supportive factors for credit (for example: global investors have stepped in to buy high yield bonds as rates rise, despite tight credit spreads, because the U.S. is a higher interest rate market). Investment grade spreads have only been this tight roughly 5% of the time since 2000. Tight valuations, which product low spread carry and longer relative duration, likely present challenges to credit performance going forward.

## SPREADS



Source: Barclays, Bloomberg, as of 9/30/21

## HIGH YIELD SECTOR SPREADS (BPS)



Source: Bloomberg, as of 9/30/21

Market	Credit Spread (OAS)	
	9/30/21	9/30/20
Long U.S. Corp	1.2%	1.9%
U.S. Inv Grade Corp	0.8%	1.4%
U.S. High Yield	2.9%	5.2%
U.S. Bank Loans*	4.3%	5.3%

Source: Barclays, Credit Suisse, Bloomberg, as of 9/30/21

\*Discount margin (4-year life)



# Default & issuance

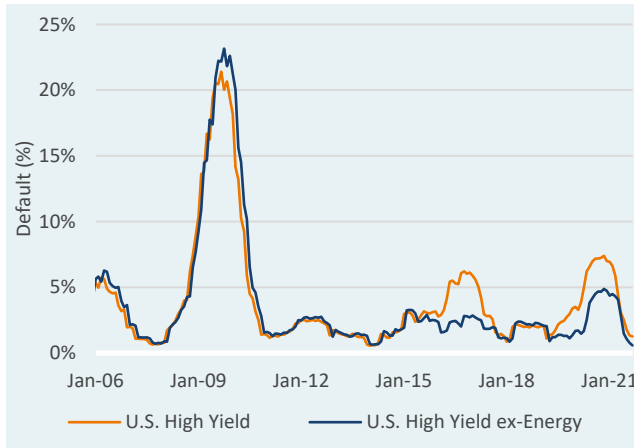
Default activity continued at a moderate pace in the third quarter with three defaults totaling \$1.3 billion across high yield bonds and bank loans. Over the first three quarters of the year, a total of nine companies defaulted on \$6.1 billion. As default activity continues to be light, the par-weighted U.S. high yield default rate declined in half to end the quarter at 1.3% year-over-year. Similarly, the loan par-weighted default rate ended the quarter at 0.9%, falling 3.4% year-to-date.

High yield bond issuance remains strong with Q3 gross issuance of \$129.4 billion, bringing the year-to date total to \$469.8 billion. Leveraged loan issuance continued at a historic pace with \$133.7 billion of new loan issued over the quarter. The \$418.3 billion of loans issued year-to-date has already

surpassed all previous *annual periods* with the exception of 2017 (\$419.2 billion).

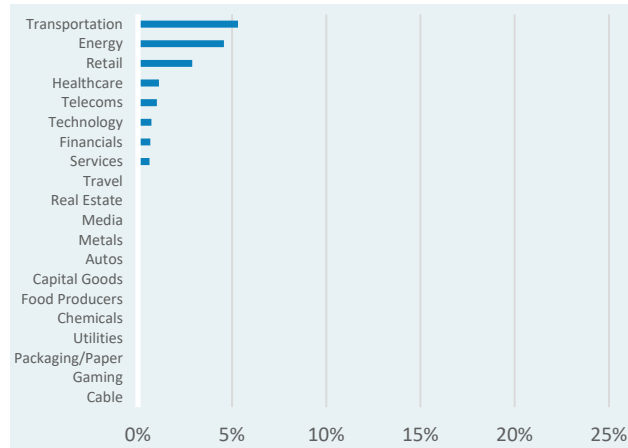
Investment grade issuance for the quarter totaled \$321 billion, below first (\$423 billion) and second quarter (\$350 billion) issuance but in-line with the 4-year average of \$323 billion. Of note, year-to-date Financial sector issuance has seen an uptick, accounting for 42% of issuance versus its four-year average share of roughly one-third of total investment grade issuance.

**HY DEFAULT RATE (ROLLING 1-YEAR)**



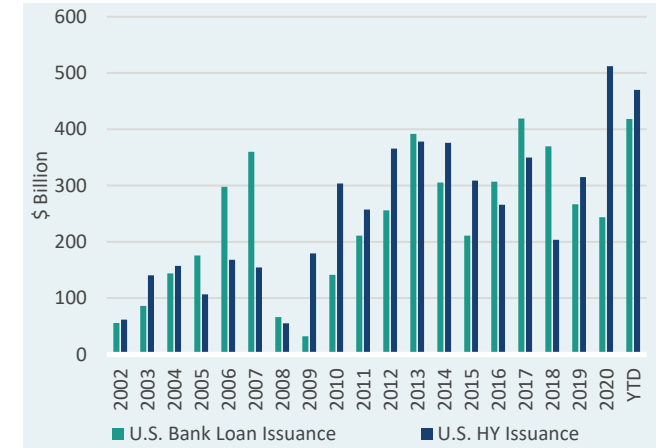
Source: BofA Merrill Lynch, as of 9/30/21

**U.S. HY SECTOR DEFAULTS (LAST 12 MONTHS)**



Source: BofA Merrill Lynch, as of 9/30/21 – par weighted

**U.S. ISSUANCE (\$ BILLIONS)**



Source: BofA Merrill Lynch, as of 9/30/21

# Equity

# Equity environment

- Equity markets took a pause in Q3, a notable change from the seemingly non-stop rally year-to-date. U.S. equities delivered 0.6%, while international equities experienced slight losses of -0.4% and emerging market equities saw a larger selloff of -8.1%, on an unhedged currency basis.
- Size and value factor performance was negative during the quarter, as large capitalization stocks outperformed small capitalization stocks by a wide margin (Russell 1000 +0.2%, Russell 2000 -4.4%) and growth stocks beat value (Russell 1000 Growth +1.2%, Russell 1000 Value -0.8%).
- As we observed last quarter, it does seem that investors have put the 2020 pandemic-induced recession and its associated risks behind them. However, it is not clear that market risks have completely subsided, as the Delta-variant continues to spread, high

inflation could indeed persist, and most governments are set to pull back generous stimulus programs.

- The U.S. is facing acute supply chain issues, and 71% of S&P 500 companies reported negative impacts to their business during quarterly earnings calls, as reported by FactSet.
- Weakness in Chinese equities (MSCI China -18.2%) was the major driver of emerging market equity underperformance, as a wave of new regulations were implemented by the Communist Party of China which cascaded across a number of sectors including Technology, Property Management, and Financials.
- Within MSCI's long-short U.S. factor portfolios, momentum (+1.3%) led the way while volatility (-1.7%) posted a negative total return.

	QTD TOTAL RETURN		1 YEAR TOTAL RETURN	
	(unhedged)	(hedged)	(unhedged)	(hedged)
US Large Cap (S&P 500)	0.6%		30.0%	
US Small Cap (Russell 2000)	(4.4%)		47.7%	
US Large Value (Russell 1000 Value)	(0.8%)		35.0%	
US Large Growth (Russell 1000 Growth)	1.2%		27.3%	
International Large (MSCI EAFE)	(0.4%)	1.5%	25.7%	28.2%
Eurozone (Euro Stoxx 50)	(2.4%)	0.1%	27.6%	30.6%
U.K. (FTSE 100)	(0.5%)	2.0%	30.7%	26.1%
Japan (NIKKEI 225)	2.5%	2.9%	21.9%	29.3%
Emerging Markets (MSCI Emerging Markets)	(8.1%)	(6.9%)	18.2%	15.9%

Source: Russell Investments, MSCI, STOXX, FTSE, Nikkei, as of 9/30/21

# Domestic equity

U.S. equities performed relatively well in Q3, delivering a slightly positive return of 0.6% (S&P 500). The index is expected to report Q3 earnings growth of 27.6% year-over-year, as indicated by FactSet. The U.S. is facing acute supply chain issues, and 71% of S&P 500 companies reported negative impacts to their business during quarterly earnings calls.

Mildly higher interest rates during the quarter likely supported Financials (+2.7%) while acting as a headwind to growth-oriented sectors such as Information Technology (+1.3%).

Performance over the near-term may be constrained by a degree of economic slowdown induced by the COVID-19 Delta variant, as well as moderating earnings growth expectations, although the analyst consensus price target for the S&P 500 over the next year is 5051, as of October 6<sup>th</sup>.

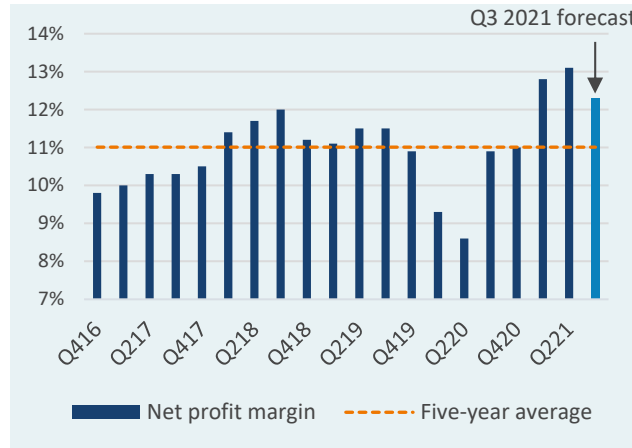
Recent price increases have raised questions around the defensibility of net profit margins, which are expected to moderate in Q3 but remain elevated well above recent averages. Some investors have begun to discuss positioning within sectors that have exhibited more pricing power.

**S&P 500 INDEX**



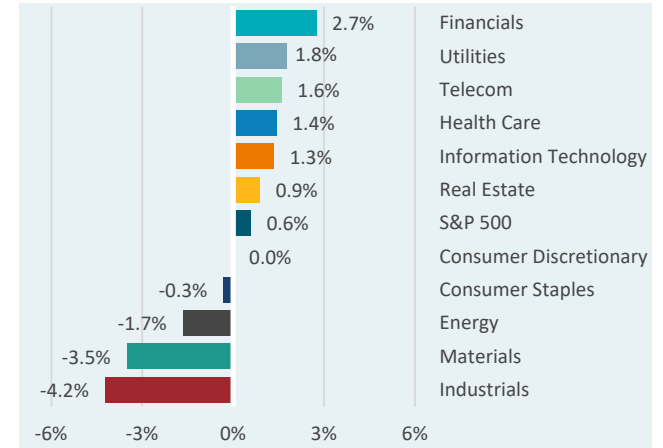
Source: Standard & Poor's, as of 9/30/21

**S&P 500 NET PROFIT MARGINS**



Source: FactSet, as of 10/18/21

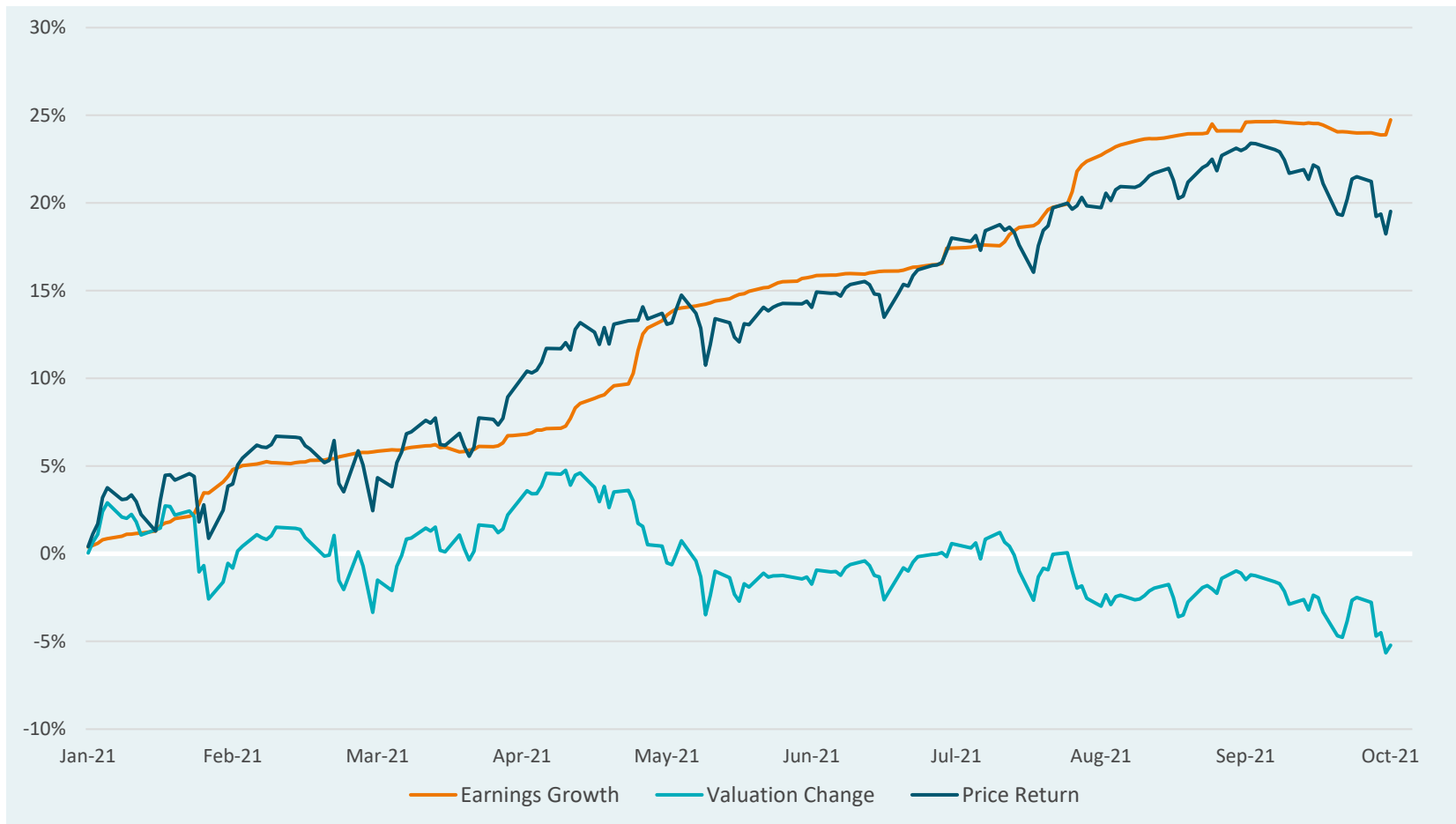
**Q3 SECTOR PERFORMANCE**



Source: Standard & Poor's, as of 9/30/21

# U.S. equity *Price/Earnings*

A very expensive “P” but record-growth of “E”



Corporate earnings growth has been the main driver of U.S. equity returns in 2021

Strong earnings growth expectations have led to slightly cheaper equities, as demonstrated by the *P/E multiple*

Source: Standard & Poor's, Bloomberg, Factset - Forward P/E, as of 9/30/21

# Domestic equity size & style

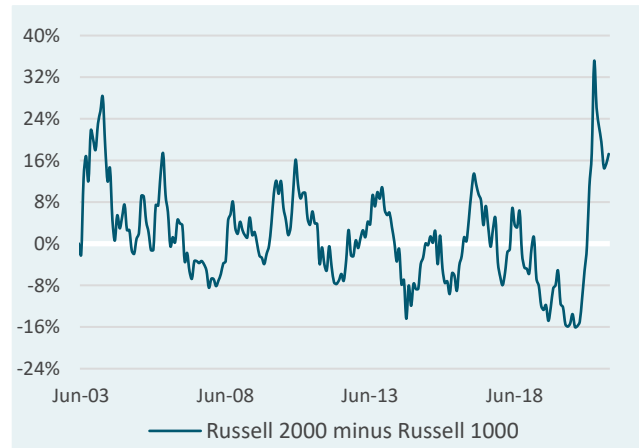
Large capitalization stocks outperformed small cap during the quarter by a wide margin (Russell 1000 +0.2%, Russell 2000 -4.4%) and growth stocks beat value (Russell 1000 Growth +1.2%, Russell 1000 Value -0.8%).

Following the notable turnaround in value stock performance during Q1, growth stocks took the lead in Q2, dampening excitement for a value comeback. Growth further outperformed in Q3. As we expressed earlier in the year, style performance is often impacted heavily by sector

randomness, which suggests that investors should be cautious in assuming that performance is *signal* rather than *noise*. Value stocks continue to be cheap relative to growth stocks, historically speaking. However, there does not appear to be a clear catalyst on the horizon that would imply a value timing opportunity. Factor performance tends to be noisy and difficult to predict, which suggests that style investing should in most cases involve a longer-term focus.

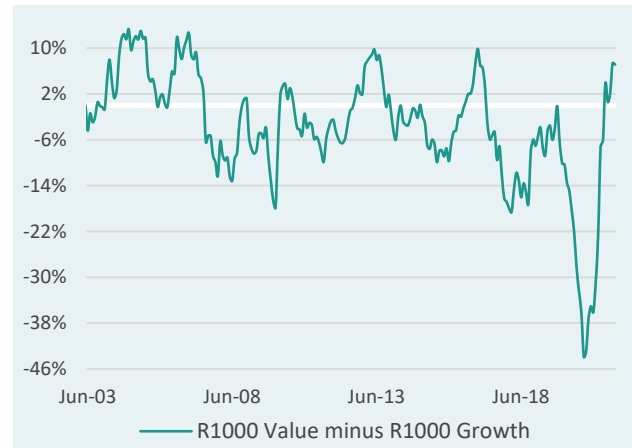
Large cap and growth stocks outperformed during Q3

SMALL CAP VS LARGE CAP (YOY)



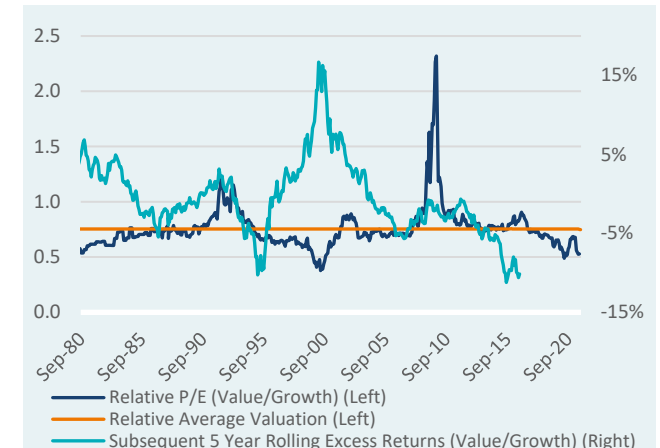
Source: FTSE, as of 9/30/21

VALUE VS GROWTH (YOY)



Source: FTSE, as of 9/30/21

VALUE VS. GROWTH RELATIVE VALUATIONS



Source: Standard & Poor's, as of 9/30/21

# International developed equity

International equities experienced slight losses of -0.4% (MSCI EAFE Index) during the quarter on an unhedged currency basis, lagging U.S. equities but outperforming emerging markets. Currency movement during the quarter resulted in a loss of -1.9% relative to those investors with a currency hedging program.

Japanese equities (MSCI Japan +4.6%) rallied on strong earnings, and on the news that Prime Minister Suga's successor, Fumio Kishida, would be less likely to pursue tax hikes on investment income. Japan's vaccination rate also improved considerably, and ended the quarter in line with major European countries, laying the groundwork for a broader reopening of the economy.

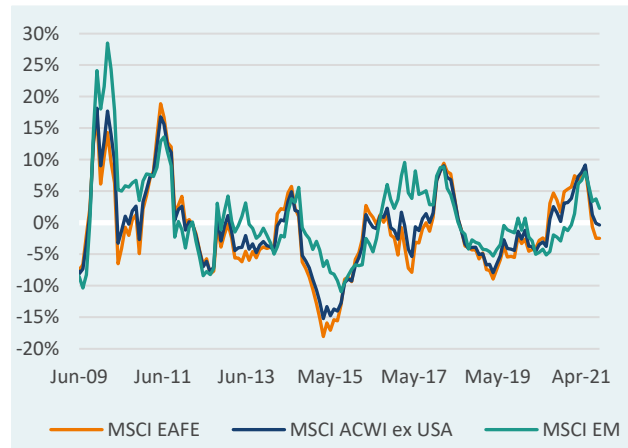
The strong performance of Japanese equities helped to offset for international developed equity investors the negative returns delivered by European equities (MSCI Europe -1.6%), which faced headwinds from a significant weakening in the pound sterling (-2.4%) and euro (-2.3%) relative to the U.S. dollar. According to futures market positioning data from the CFTC, more people are betting that the euro will depreciate in value than those betting that it will appreciate in value, for the first time since March 2020.

## INTERNATIONAL DEVELOPED EQUITIES



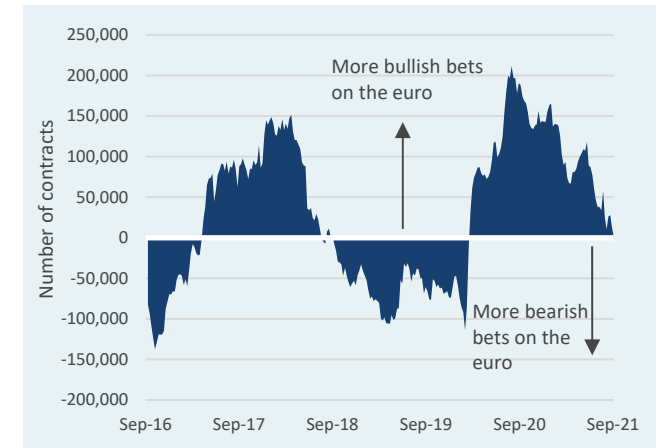
Source: MSCI, as of 9/30/21

## EFFECT OF CURRENCY (1-YEAR ROLLING)



Source: MSCI, as of 9/30/21

## EURO NET FUTURES POSITIONING



Source: CFTC, non-commercial positioning, as of 9/28/21

# Emerging market equity

Emerging market equities saw large losses (MSCI EM -8.1%) on an unhedged currency basis, underperforming other markets during the third quarter. China has dragged down emerging markets performance considerably, producing losses of -18.2% in Q3 relative to ex-China emerging market performance of -2.0%, and producing losses of -7.2% over the past year relative to ex-China emerging market performance of 36.9% (MSCI China vs. MSCI Emerging Markets ex-China). China comprises 34% of the MSCI Emerging Markets Index.

Latin American emerging markets have taken the lead over Asian emerging markets over the past year, a notable change from strong Asian

leadership in recent years (MSCI EM Latin America +27.3%, MSCI EM Asia +13.9%)

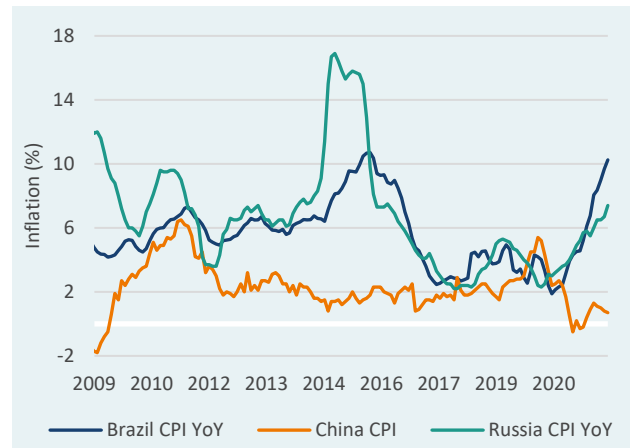
Inflation in Brazil has risen to 10.3%, and in Russia to 7.4%, which has generated responses from central banks. Brazil has hiked their central bank rate from 2.00% to 6.25% to battle rising prices, while Russia has hiked its rate from 4.25% to 6.75% year-to-date. While inflation rate in the U.S. is one of the highest in the developed world, emerging markets are also facing tough decisions regarding the balance between economic recovery and the risks of uncomfortably high inflation.

## EMERGING MARKET EQUITY



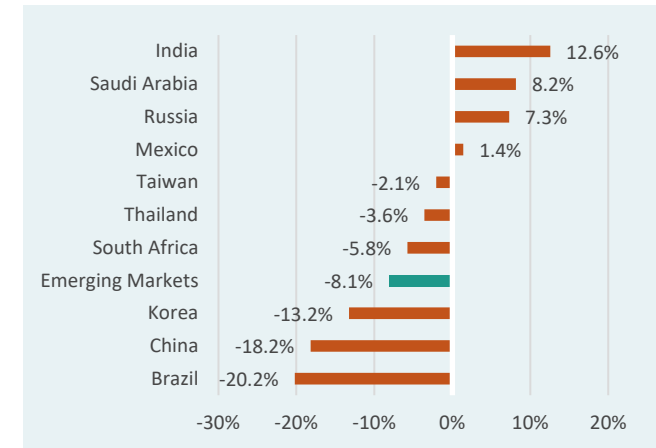
Source: MSCI, as of 9/30/21

## INFLATION (YOY)



Source: Bloomberg, as of 9/30/21 or most recent data

## Q3 PERFORMANCE – TOP 10 EM CONSTITUENTS



Source: Bloomberg, MSCI, as of 9/30/21, performance in USD terms

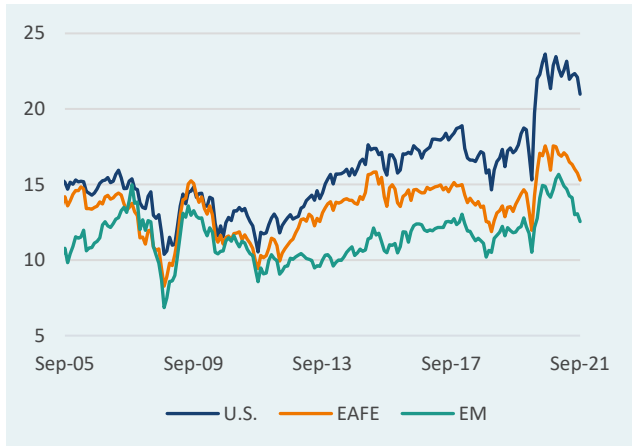


# Equity valuations

Forward price/earnings equity multiples have been falling around the world, as earnings expectations rise faster than equity prices, though valuations remain very high. U.S. stock valuations are, and have been, incredibly elevated. A larger share of technology stocks in U.S. indices partly explains these historically high prices, as technology stocks tend to demand a higher P/E than most other industry sectors. Investors appear to agree that high prices of domestic stocks will likely translate to below-average future performance over the long-term, as reflected in industry capital market assumptions.

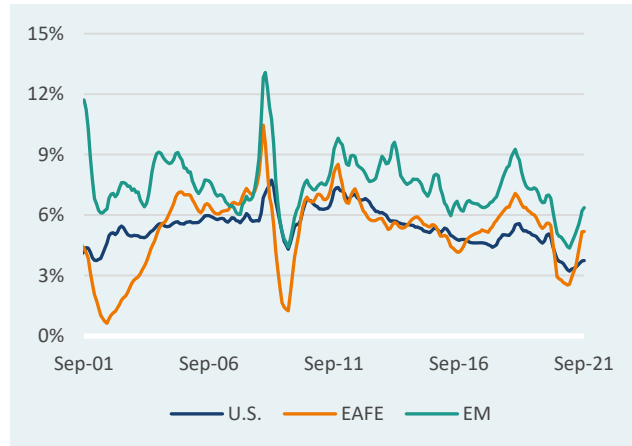
Global equity earnings yields improved considerably, as trailing 12-month earnings have rebounded from low levels. Price growth has moderated in the U.S. and has moved into negative territory across international developed and emerging market equities. The question moving ahead will be whether valuations (which remain rich) are sustainable absent further above-average earnings growth. Rising prices of major input costs, including labor and energy, have dampened the outlook for margins, which may lead companies to raise prices where possible. This pricing power varies by sector and by region.

## FORWARD P/E RATIOS



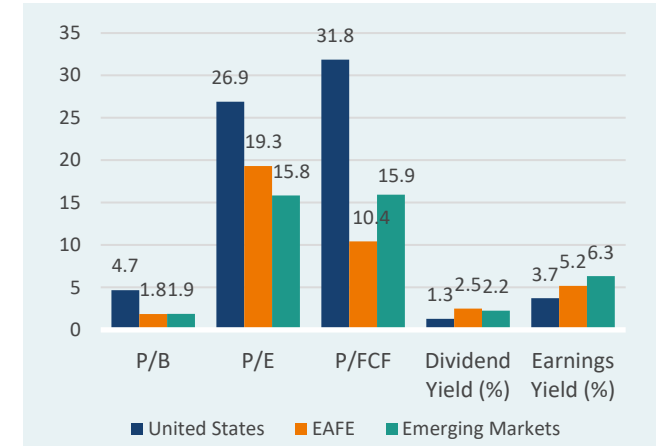
Source: MSCI, 12m forward P/E, as of 9/30/21

## CURRENT EARNINGS YIELD (3-MONTH AVERAGE)



Source: Bloomberg, MSCI, as of 9/30/21

## VALUATION METRICS (3-MONTH AVERAGE)



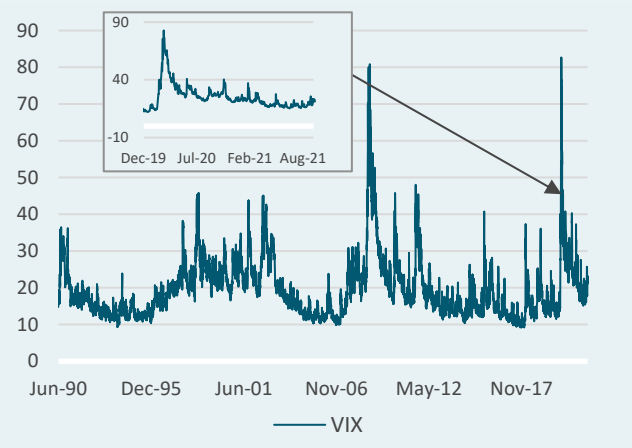
Source: Bloomberg, MSCI as of 9/30/21 - trailing P/E

# Equity volatility

The Cboe VIX Index remained below the longer-term average of 19 through July and August, then increased throughout September, ending the quarter at an elevated 23.1. This compares to only 13.9% realized volatility over the past year. As is typical, international developed equity realized volatility has been slightly greater than that of the U.S. market. The realized volatility of emerging market equities, on the other hand, has been on par with the U.S. for a few years—a rare occurrence, historically speaking.

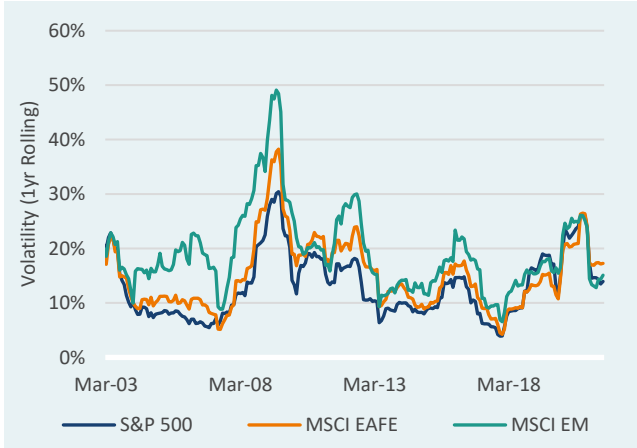
As we observed last quarter, it does seem that investors have put the 2020 pandemic-induced recession and its associated risks behind them. However, it is not clear that market risks have completely subsided, as the Delta-variant continues to spread, high inflation could indeed persist, and most governments are set to pull back generous stimulus programs. While U.S. equities have marched higher with very few road bumps over the year-to-date, the S&P 500 Index closed the quarter 5.1% below its previous record high level, snapping a streak of 231 consecutive trading days where it had not fallen more than 5% beneath the record high.

**U.S. IMPLIED VOLATILITY (VIX)**



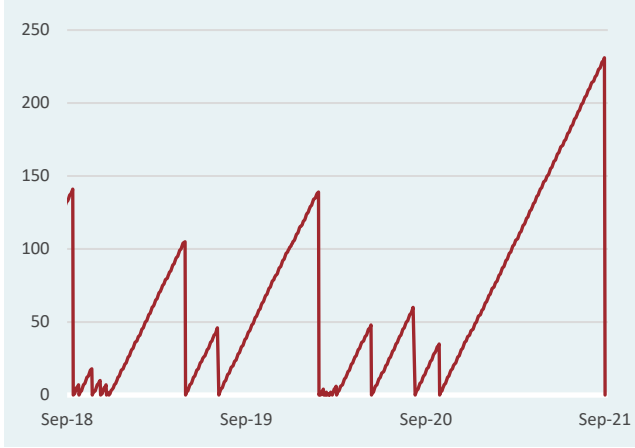
Source: Cboe, as of 9/30/21

**REALIZED VOLATILITY**



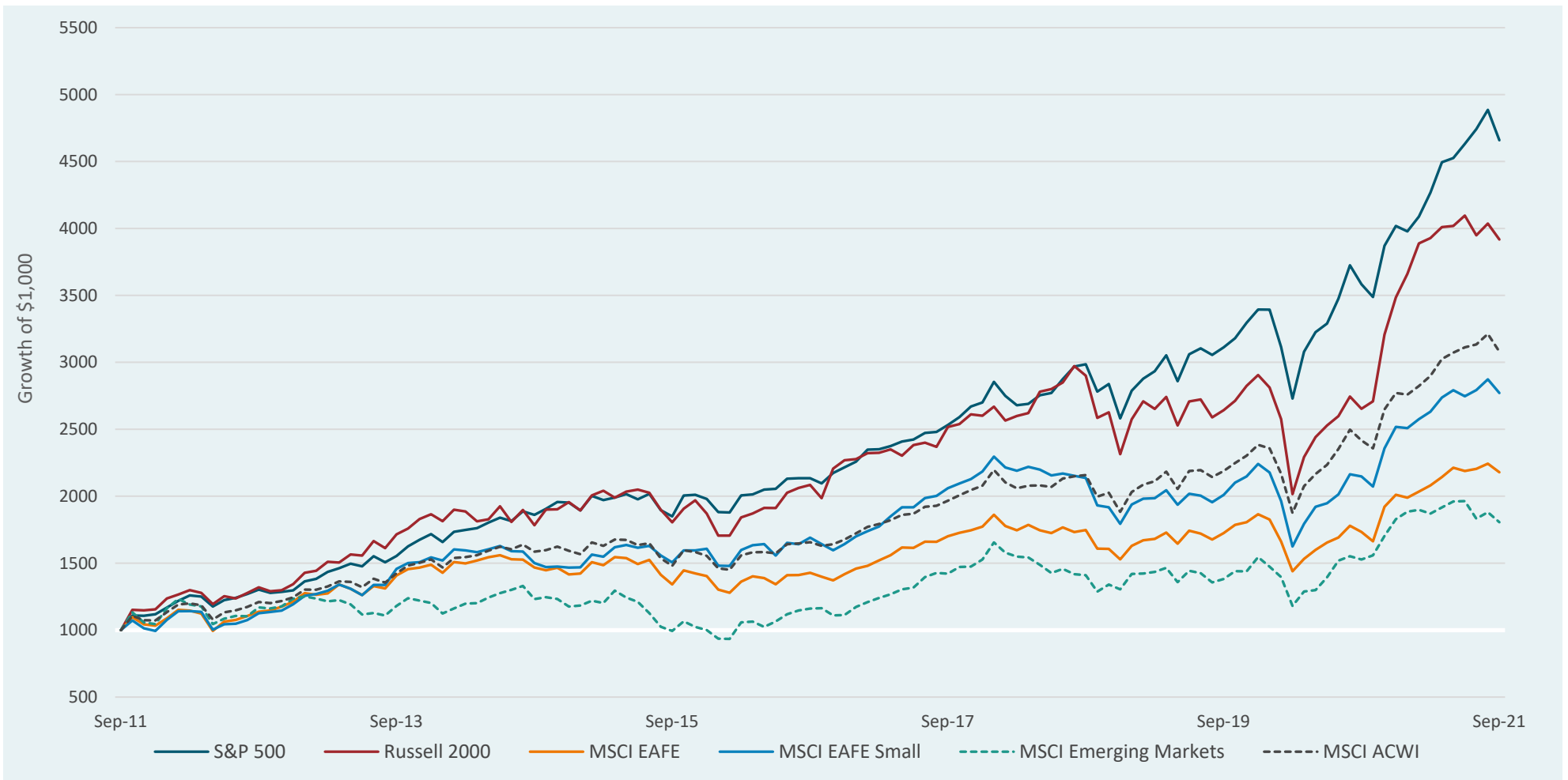
Source: Standard & Poor's, MSCI, as of 9/30/21

**DAYS SINCE LAST 5% DRAWDOWN – S&P 500**



Source: Standard & Poor's, Verus, as of 9/30/21

# Long-term equity performance



Source: Morningstar, as of 9/30/21

# Other assets

# Currency

The U.S. dollar appreciated 2% during the quarter, continuing its modest rise year-to-date. This move coincided with a slight increase in U.S. Treasury yields and European government bond yields, resulting in little change to interest rate differentials.

U.S. dollar sentiment reached its most optimistic level since late 2019, while sentiment surrounding the euro and pound turned from optimistic to pessimistic. Differences in monetary policy from country-to-country appear to be driving this shift in sentiment. While the U.S. Federal Reserve is expected to begin tapering asset purchases by year-end, the ECB is planning on simply shifting the complexion of its asset purchase program, and the

BOE is planning on adjusting short-term interest rates higher while retaining the majority of its asset purchase program which targets longer-duration bonds.

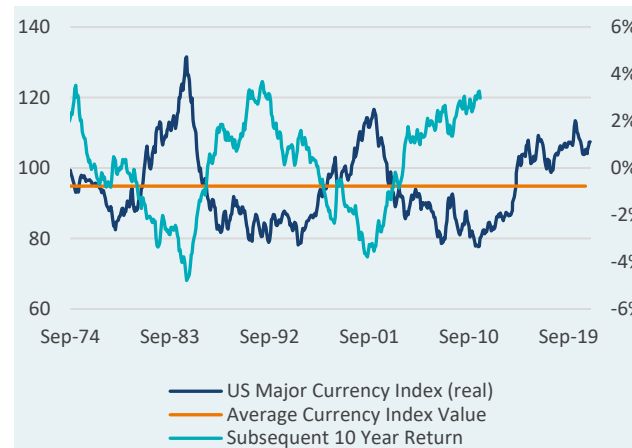
The MSCI Currency Factor Mix Index, Verus' preferred currency beta benchmark, outperformed the currency portfolio of the MSCI ACWI ex-US Index over the twelve months ending September 30<sup>th</sup>, while exhibiting 1.1% less volatility.

**BLOOMBERG DOLLAR SPOT INDEX**



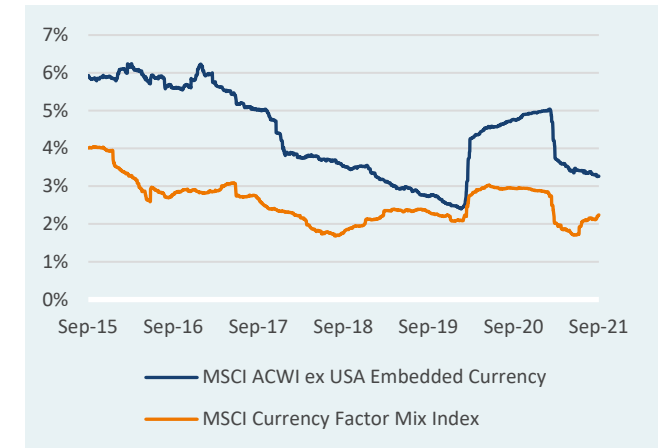
Source: Bloomberg, as of 9/30/21

**U.S. DOLLAR MAJOR CURRENCY INDEX**



Source: Federal Reserve, as of 9/30/21

**TRAILING ONE-YEAR ANNUALIZED VOLATILITY**



Source: Bloomberg, MSCI, as of 9/30/21

# Appendix

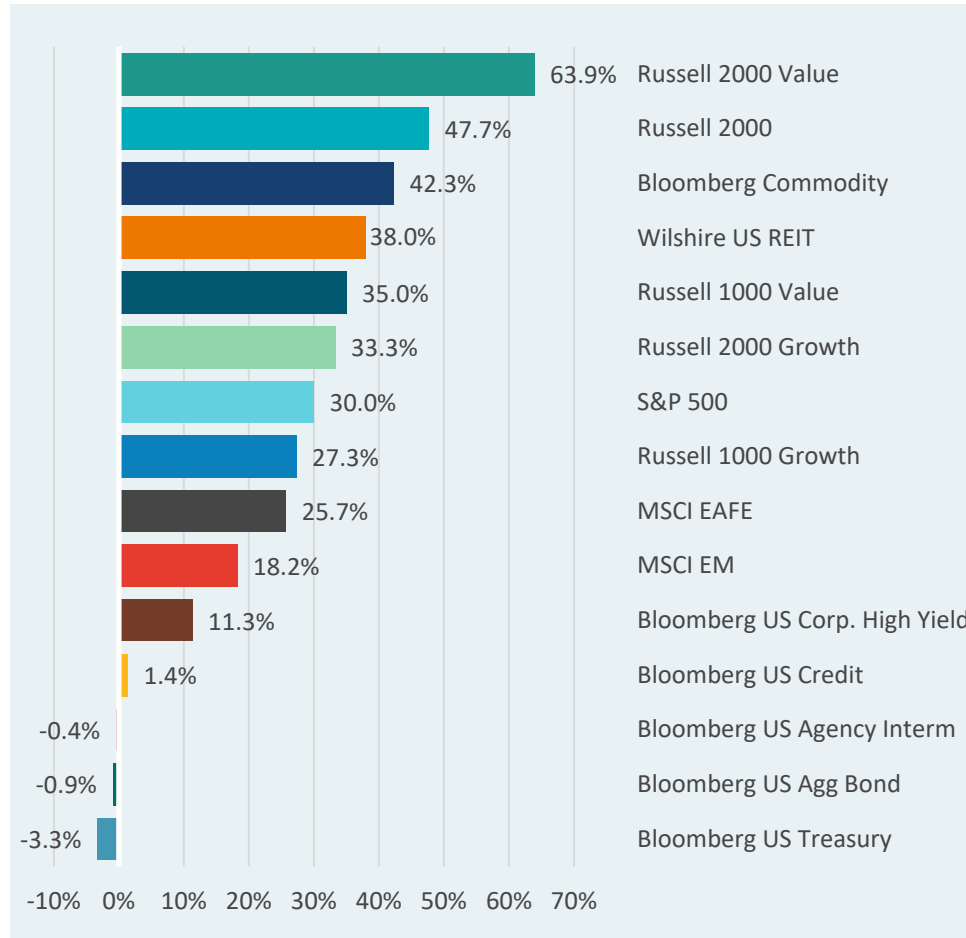
# Periodic table of returns



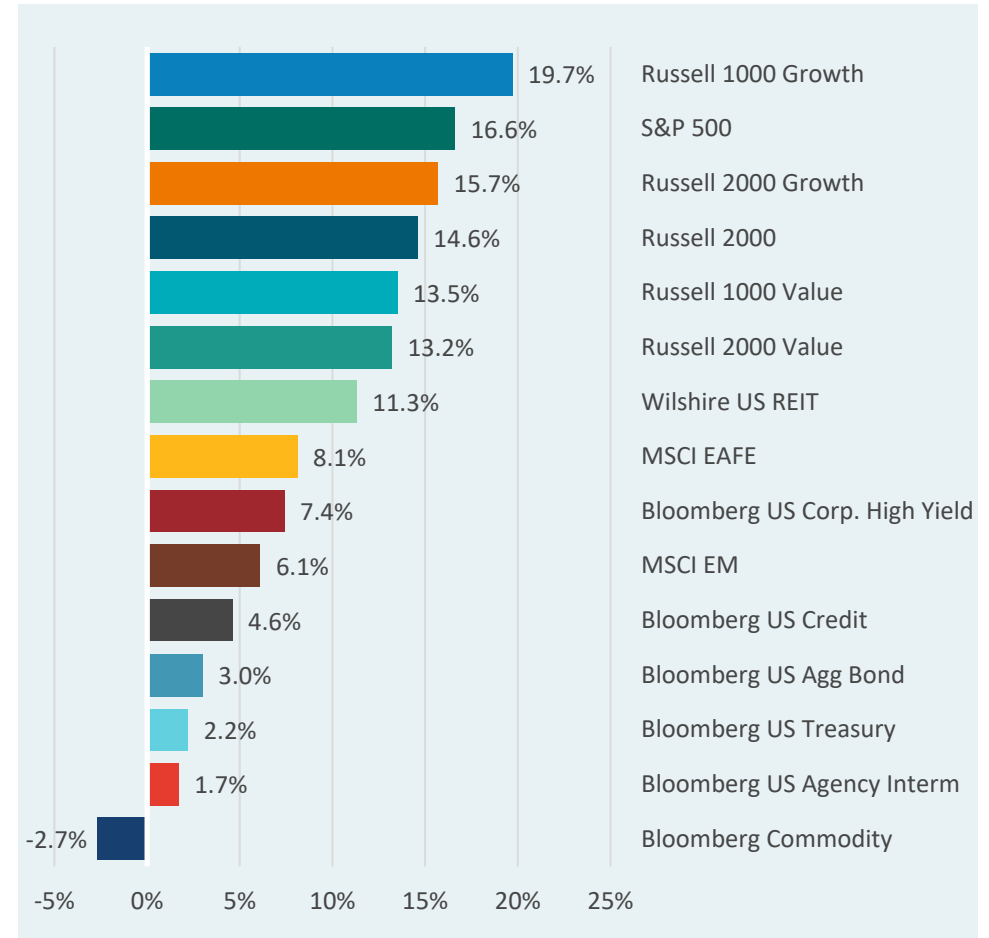
Source Data: Morningstar, Inc., Hedge Fund Research, Inc. (HFR), National Council of Real Estate Investment Fiduciaries (NCREIF). Indices used: Russell 1000, Russell 1000 Value, Russell 1000 Growth, Russell 2000, Russell 2000 Value, Russell 2000 Growth, MSCI EAFE, MSCI EM, Bloomberg US Aggregate, T-Bill 90 Day, Bloomberg Commodity, NCREIF Property, HFRI FOF, MSCI ACWI, Bloomberg Global Bond. NCREIF Property Index performance data as of 6/30/21.

# Major asset class returns

ONE YEAR ENDING SEPTEMBER



TEN YEARS ENDING SEPTEMBER



\*Only publicly traded asset performance is shown here. Performance of private assets is typically released with a 3- to 6-month delay.

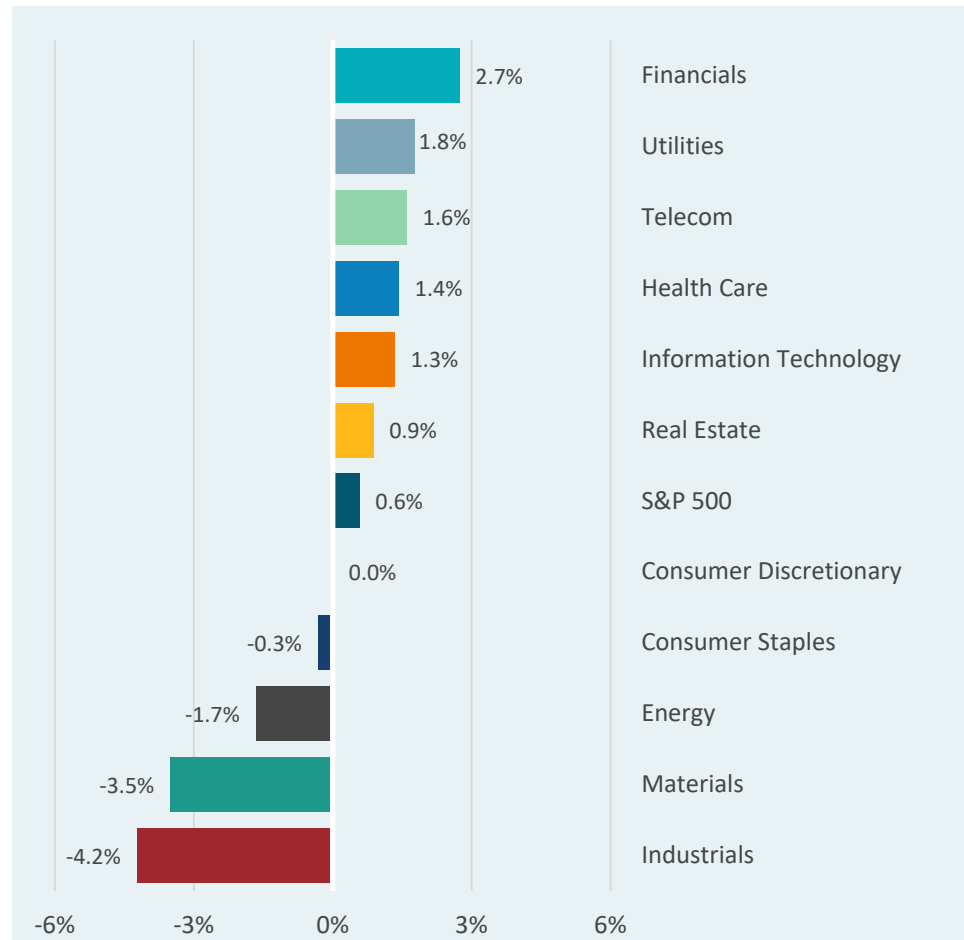
Source: Morningstar, as of 9/30/21

Source: Morningstar, as of 9/30/21



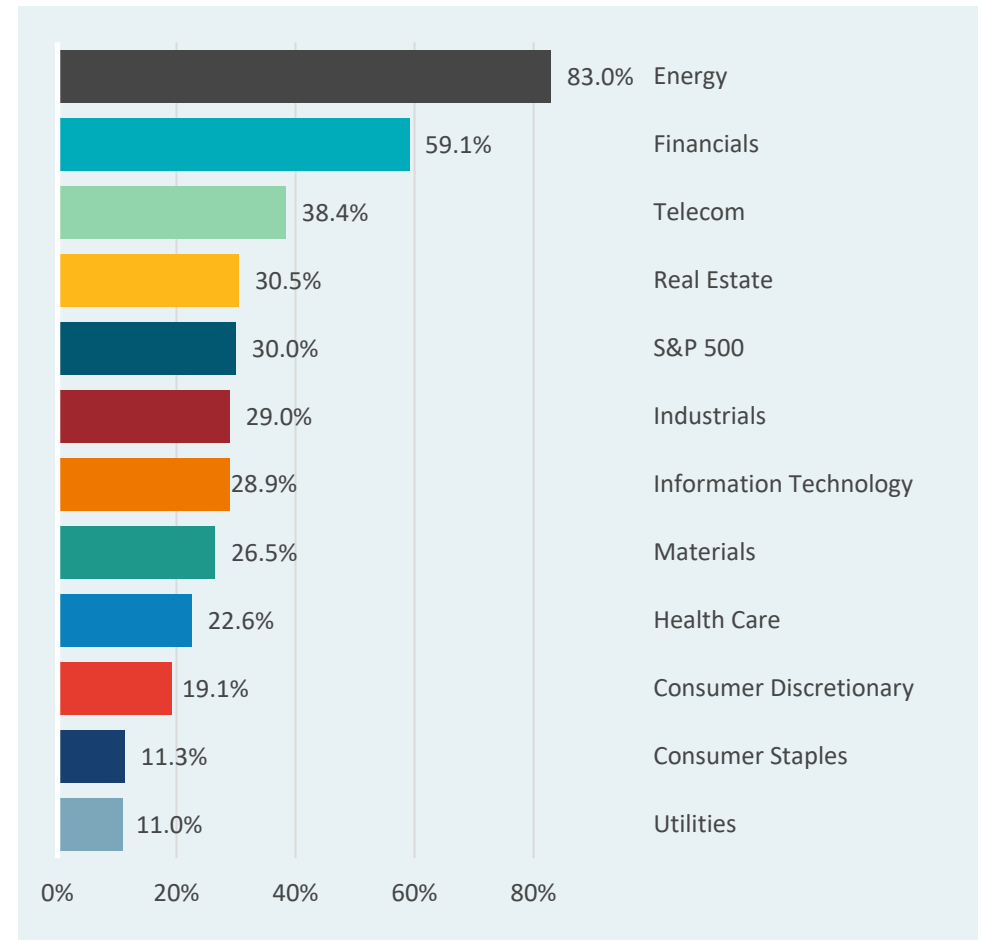
# S&P 500 sector returns

Q3 2021



Source: Morningstar, as of 9/30/21

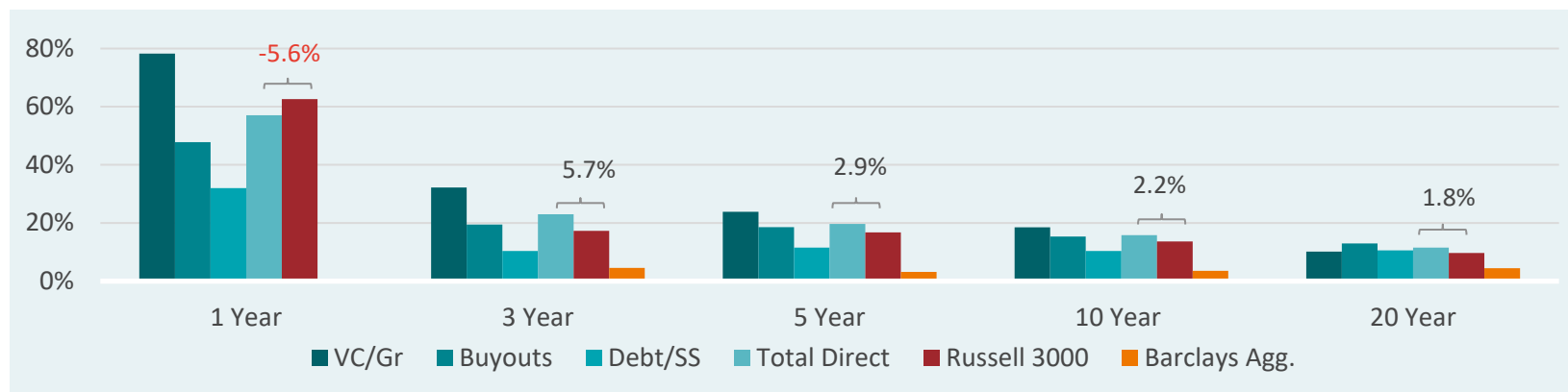
ONE YEAR ENDING SEPTEMBER



Source: Morningstar, as of 9/30/21

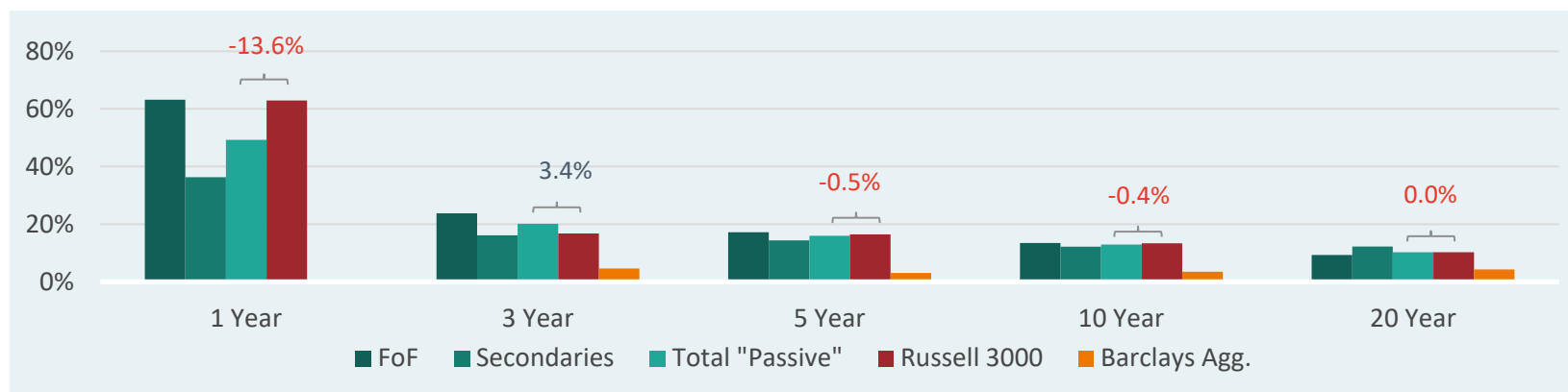
# Private equity vs. traditional assets performance

## DIRECT PRIVATE EQUITY FUND INVESTMENTS



Direct P.E Fund Investments outperformed comparable public equities across all time periods, aside from the 1-year basis.

## “PASSIVE” STRATEGIES

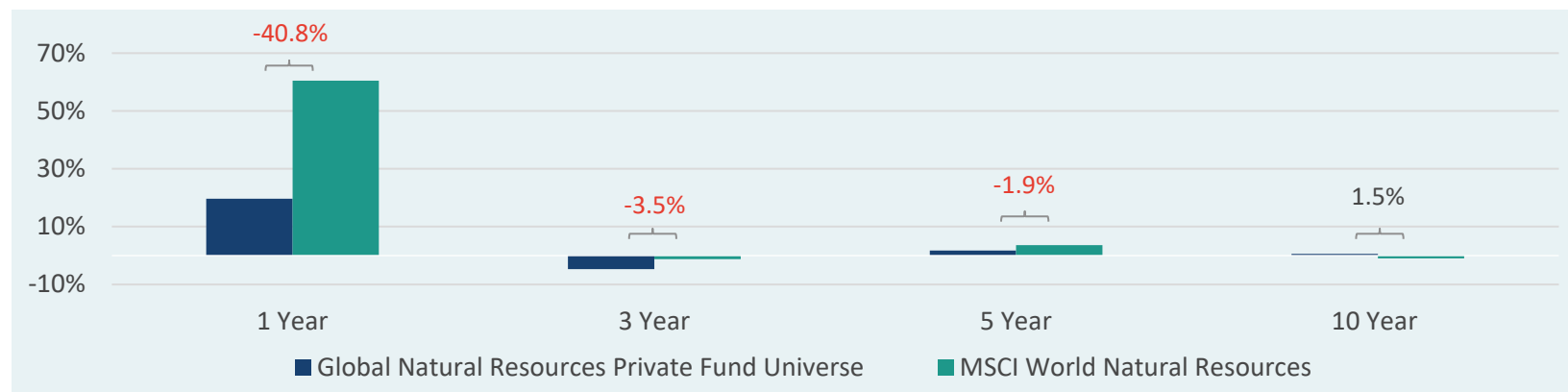


“Passive” strategies underperformed comparable public equities across all time periods, aside from the 3-year basis.

Sources: Refinitiv Cambridge Universe's PME Module: U.S. Private Equity Funds sub asset classes as of March 31, 2021. Public Market Equivalent returns resulted from "Total Passive" and Total Direct's identical cash flows invested into and distributed from respective traditional asset comparable.

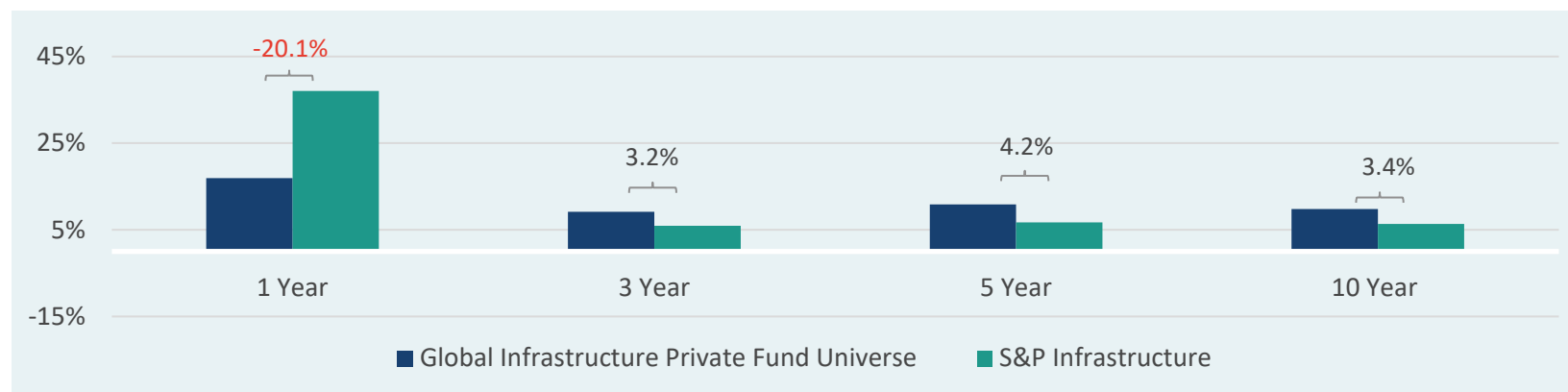
# Private vs. liquid real assets performance

## GLOBAL NATURAL RESOURCES FUNDS



N.R. funds has lagged against the MSCI World Natural Resources benchmark across all time periods, aside from the 10-year.

## GLOBAL INFRASTRUCTURE FUNDS

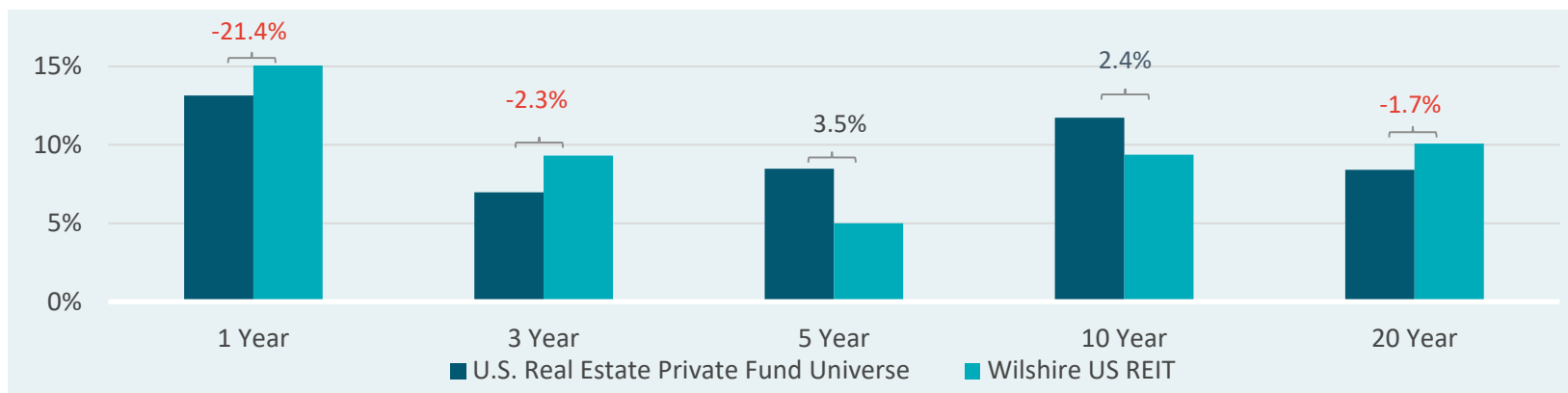


Infra. funds outperformed the S&P Infra. across all periods, aside from the 1-year.

Sources: Refinitiv CJA PME: Global Natural Resources (vintage 1999 and later, inception of MSCI World Natural Resources benchmark) and Global Infrastructure (vintage 2002 and later, inception of S&P Infrastructure benchmark) universes as of March 31, 2021. Public Market Equivalent returns resulted from identical cash flows invested into and distributed from respective liquid real assets universes.

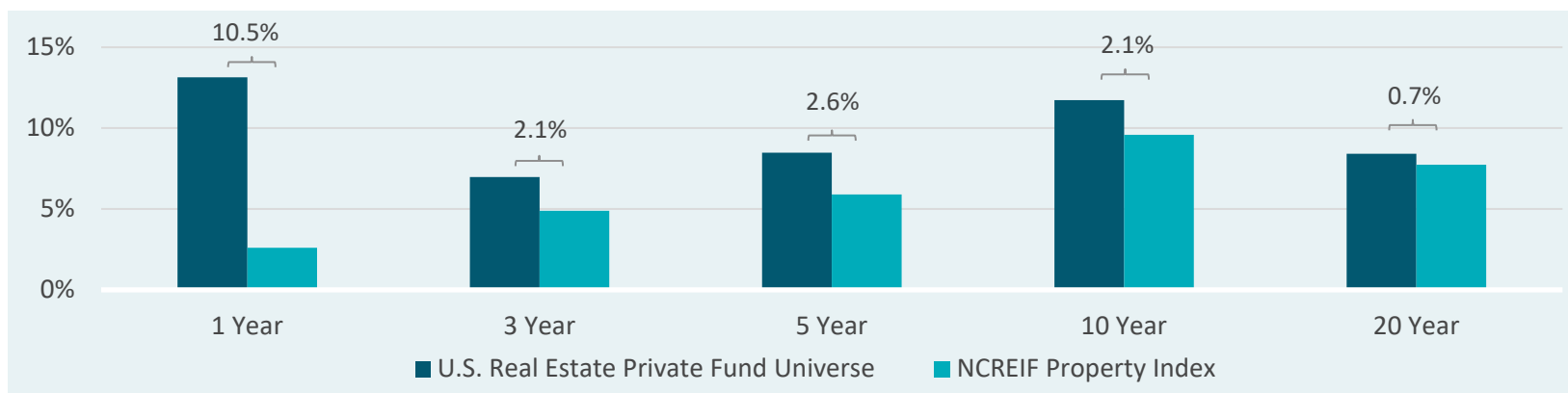
# Private vs. liquid and core real estate performance

## U.S. PRIVATE REAL ESTATE FUNDS VS. LIQUID UNIVERSE



U.S. Private R.E. funds lagged against the Wilshire U.S. REIT Index across all time periods, aside on the 5 and 10 year-basis.

## U.S. PRIVATE REAL ESTATE FUNDS VS. CORE FUNDS



U.S. Private R.E. Funds outperformed the NCREIF Property Index across all time periods.

Sources: Refinitiv CJA PME: Global and U.S. Real Estate universes as of March 31, 2021. Public Market Equivalent returns resulted from identical cash flows invested into and distributed from respective liquid real estate universes.

# Detailed index returns

## DOMESTIC EQUITY

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
<b>Core Index</b>							
S&P 500	(4.7)	0.6	15.9	30.0	16.0	16.9	16.6
S&P 500 Equal Weighted	(3.8)	(0.2)	18.9	40.9	14.3	14.6	16.0
DJ Industrial Average	(4.2)	(1.5)	12.1	24.2	11.0	15.7	14.7
Russell Top 200	(4.8)	0.6	15.2	28.6	17.3	18.2	17.2
Russell 1000	(4.6)	0.2	15.2	31.0	16.4	17.1	16.8
Russell 2000	(2.9)	(4.4)	12.4	47.7	10.5	13.5	14.6
Russell 3000	(4.5)	(0.1)	15.0	31.9	16.0	16.9	16.6
Russell Mid Cap	(4.1)	(0.9)	15.2	38.1	14.2	14.4	15.5
<b>Style Index</b>							
Russell 1000 Growth	(5.6)	1.2	14.3	27.3	22.0	22.8	19.7
Russell 1000 Value	(3.5)	(0.8)	16.1	35.0	10.1	10.9	13.5
Russell 2000 Growth	(3.8)	(5.7)	2.8	33.3	11.7	15.3	15.7
Russell 2000 Value	(2.0)	(3.0)	22.9	63.9	8.6	11.0	13.2

## INTERNATIONAL EQUITY

<b>Broad Index</b>							
MSCI ACWI	(4.1)	(1.1)	11.1	27.4	12.6	13.2	11.9
MSCI ACWI ex US	(3.2)	(3.0)	5.9	23.9	8.0	8.9	7.5
MSCI EAFE	(2.9)	(0.4)	8.3	25.7	7.6	8.8	8.1
MSCI EM	(4.0)	(8.1)	(1.2)	18.2	8.6	9.2	6.1
MSCI EAFE Small Cap	(3.6)	0.9	10.0	29.0	9.0	10.4	10.7
<b>Style Index</b>							
MSCI EAFE Growth	(3.9)	0.1	6.9	20.9	11.9	11.4	10.1
MSCI EAFE Value	(1.8)	(1.0)	9.6	30.7	3.0	6.0	6.0
<b>Regional Index</b>							
MSCI UK	(2.0)	(0.3)	12.2	31.2	2.4	4.8	5.4
MSCI Japan	2.8	4.6	5.9	22.1	7.5	9.4	8.4
MSCI Euro	(5.0)	(2.0)	10.5	29.5	7.9	9.3	8.3
MSCI EM Asia	(4.1)	(9.6)	(4.1)	13.9	10.0	10.7	8.5
MSCI EM Latin American	(10.3)	(13.3)	(5.6)	27.3	(1.4)	1.8	(1.1)

## FIXED INCOME

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
<b>Broad Index</b>							
Bloomberg US TIPS	(0.7)	1.8	3.5	5.2	7.4	4.3	3.1
Bloomberg US Treasury Bills	0.0	0.0	0.0	0.1	1.2	1.2	0.7
Bloomberg US Agg Bond	(0.9)	0.1	(1.6)	(0.9)	5.4	2.9	3.0
Bloomberg US Universal	(0.9)	0.1	(1.1)	0.2	5.6	3.3	3.5
<b>Duration</b>							
Bloomberg US Treasury 1-3 Yr	(0.1)	0.1	(0.0)	0.0	2.7	1.6	1.2
Bloomberg US Treasury Long	(2.9)	0.5	(7.5)	(10.3)	9.2	3.3	4.4
Bloomberg US Treasury	(1.1)	0.1	(2.5)	(3.3)	4.9	2.2	2.2
<b>Issuer</b>							
Bloomberg US MBS	(0.4)	0.1	(0.7)	(0.4)	3.9	2.2	2.4
Bloomberg US Corp. High Yield	(0.0)	0.9	4.5	11.3	6.9	6.5	7.4
Bloomberg US Agency Interm	(0.4)	0.1	(0.5)	(0.4)	3.2	1.9	1.7
Bloomberg US Credit	(1.1)	(0.0)	(1.3)	1.4	7.1	4.4	4.6

## OTHER

<b>Index</b>							
Bloomberg Commodity	5.0	6.6	29.1	42.3	6.9	4.5	(2.7)
Wilshire US REIT	(5.1)	1.6	24.8	38.0	10.4	7.0	11.3
CS Leveraged Loans	0.5	0.9	4.0	8.5	4.1	4.7	5.0
Alerian MLP	3.0	(5.7)	39.4	84.6	(5.2)	(3.5)	1.2
<b>Regional Index</b>							
JPM EMBI Global Div	(2.1)	(0.7)	(1.4)	4.4	5.7	3.9	5.8
JPM GBI-EM Global Div	(3.4)	(3.1)	(6.4)	2.6	3.7	2.1	1.1
<b>Hedge Funds</b>							
HFRI Composite	0.1	(0.0)	10.1	22.1	8.5	7.3	5.9
HFRI FOF Composite	0.8	1.4	6.4	15.0	6.7	5.9	4.5
<b>Currency (Spot)</b>							
Euro	(1.8)	(2.3)	(5.3)	(1.2)	(0.1)	0.6	(1.5)
Pound Sterling	(2.0)	(2.4)	(1.4)	4.3	1.1	0.7	(1.4)
Yen	(1.5)	(0.5)	(7.5)	(5.4)	0.6	(1.9)	(3.6)

Source: Morningstar, HFRI, as of 9/30/21

# Definitions

**Bloomberg US Weekly Consumer Comfort Index** - tracks the public's economic attitudes each week, providing a high-frequency read on consumer sentiment. The index, based on cell and landline telephone interviews with a random, representative national sample of U.S. adults, tracks Americans' ratings of the national economy, their personal finances and the buying climate on a weekly basis, with views of the economy's direction measured separately each month. ([www.lanqerresearch.com](http://www.lanqerresearch.com))

**University of Michigan Consumer Sentiment Index** - A survey of consumer attitudes concerning both the present situation as well as expectations regarding economic conditions conducted by the University of Michigan. For the preliminary release approximately three hundred consumers are surveyed while five hundred are interviewed for the final figure. The level of consumer sentiment is related to the strength of consumer spending. ([www.Bloomberg.com](http://www.Bloomberg.com))

**NFIB Small Business Outlook** - Small Business Economic Trends (SBET) is a monthly assessment of the U.S. small-business economy and its near-term prospects. Its data are collected through mail surveys to random samples of the National Federal of Independent Business (NFIB) membership. The survey contains three broad question types: recent performance, near-term forecasts, and demographics. The topics addressed include: outlook, sales, earnings, employment, employee compensation, investment, inventories, credit conditions, and single most important problem. (<http://www.nfib-sbet.org/about/>)

**NAHB Housing Market Index** - the housing market index is a weighted average of separate diffusion indices for three key single-family indices: market conditions for the sale of new homes at the present time, market conditions for the sale of new homes in the next six months, and the traffic of prospective buyers of new homes. The first two series are rated on a scale of Good, Fair, and Poor and the last is rated on a scale of High/Very High, Average, and Low/Very Low. A diffusion index is calculated for each series by applying the formula  $(\text{Good-Poor} + 100)/2$  to the present and future sales series and  $(\text{High/Very High-Low/Very Low} + 100)/2$  to the traffic series. Each resulting index is then seasonally adjusted and weighted to produce the HMI. Based on this calculation, the HMI can range between 0 and 100.

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# Glossary

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**Allocation Effect:** An attribution effect that describes the amount attributable to the managers' asset allocation decisions, relative to the benchmark.

**Alpha:** The excess return of a portfolio after adjusting for market risk. This excess return is attributable to the selection skill of the portfolio manager. Alpha is calculated as:  $\text{Portfolio Return} - [\text{Risk-free Rate} + \text{Portfolio Beta} \times (\text{Market Return} - \text{Risk-free Rate})]$ .

**Benchmark R-squared:** Measures how well the Benchmark return series fits the manager's return series. The higher the Benchmark R-squared, the more appropriate the benchmark is for the manager.

**Beta:** A measure of systematic, or market risk; the part of risk in a portfolio or security that is attributable to general market movements. Beta is calculated by dividing the covariance of a security by the variance of the market.

**Book-to-Market:** The ratio of book value per share to market price per share. Growth managers typically have low book-to-market ratios while value managers typically have high book-to-market ratios.

**Capture Ratio:** A statistical measure of an investment manager's overall performance in up or down markets. The capture ratio is used to evaluate how well an investment manager performed relative to an index during periods when that index has risen (up market) or fallen (down market). The capture ratio is calculated by dividing the manager's returns by the returns of the index during the up/down market, and multiplying that factor by 100.

**Correlation:** A measure of the relative movement of returns of one security or asset class relative to another over time. A correlation of 1 means the returns of two securities move in lock step, a correlation of -1 means the returns of two securities move in the exact opposite direction over time. Correlation is used as a measure to help maximize the benefits of diversification when constructing an investment portfolio.

**Excess Return:** A measure of the difference in appreciation or depreciation in the price of an investment compared to its benchmark, over a given time period. This is usually expressed as a percentage and may be annualized over a number of years or represent a single period.

**Information Ratio:** A measure of a manager's ability to earn excess return without incurring additional risk. Information ratio is calculated as: excess return divided by tracking error.

**Interaction Effect:** An attribution effect that describes the portion of active management that is contributable to the cross interaction between the allocation and selection effect. This can also be explained as an effect that cannot be easily traced to a source.

**Portfolio Turnover:** The percentage of a portfolio that is sold and replaced (turned over) during a given time period. Low portfolio turnover is indicative of a buy and hold strategy while high portfolio turnover implies a more active form of management.

**Price-to-Earnings Ratio (P/E):** Also called the earnings multiplier, it is calculated by dividing the price of a company's stock into earnings per share. Growth managers typically hold stocks with high price-to-earnings ratios whereas value managers hold stocks with low price-to-earnings ratios.

**R-Squared:** Also called the coefficient of determination, it measures the amount of variation in one variable explained by variations in another, i.e., the goodness of fit to a benchmark. In the case of investments, the term is used to explain the amount of variation in a security or portfolio explained by movements in the market or the portfolio's benchmark.

**Selection Effect:** An attribution effect that describes the amount attributable to the managers' stock selection decisions, relative to the benchmark.

**Sharpe Ratio:** A measure of portfolio efficiency. The Sharpe Ratio indicates excess portfolio return for each unit of risk associated with achieving the excess return. The higher the Sharpe Ratio, the more efficient the portfolio. Sharpe ratio is calculated as:  $\text{Portfolio Excess Return} / \text{Portfolio Standard Deviation}$ .

**Sortino Ratio:** Measures the risk-adjusted return of an investment, portfolio, or strategy. It is a modification of the Sharpe Ratio, but penalizes only those returns falling below a specified benchmark. The Sortino Ratio uses downside deviation in the denominator rather than standard deviation, like the Sharpe Ratio.

**Standard Deviation:** A measure of volatility, or risk, inherent in a security or portfolio. The standard deviation of a series is a measure of the extent to which observations in the series differ from the arithmetic mean of the series. For example, if a security has an average annual rate of return of 10% and a standard deviation of 5%, then two-thirds of the time, one would expect to receive an annual rate of return between 5% and 15%.

**Style Analysis:** A return based analysis designed to identify combinations of passive investments to closely replicate the performance of funds

**Style Map:** A specialized form or scatter plot chart typically used to show where a Manager lies in relation to a set of style indices on a two-dimensional plane. This is simply a way of viewing the asset loadings in a different context. The coordinates are calculated by rescaling the asset loadings to range from -1 to 1 on each axis and are dependent on the Style Indices comprising the Map.

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