



**PERSPECTIVES
THAT DRIVE
ENTERPRISE
SUCCESS**



PERIOD ENDING: DECEMBER 31, 2020

Investment Performance Review for

San Mateo County Employees' Retirement Association

Table of Contents



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Market Environment

TAB I

Alternatives

TAB VI

Total Fund

TAB II

Inflation Hedge

TAB VII

US Equity

TAB III

Appendix

TAB VIII

International Equity

TAB IV

Fixed Income

TAB V

4th quarter summary

THE ECONOMIC CLIMATE

- Real GDP grew at a -2.8% rate year-over-year in the third quarter (+33.4% quarterly annualized rate) as the U.S. economy recovered much of the economic activity lost in the second quarter.
- Joe Biden was elected President of the United States. The market seemed to interpret a Biden win as a mild positive for risk assets, on the expectation of larger economic stimulus. Democrats also took both seats in the Georgia run-off election, completing the party's "Blue Wave".
- Several new, more-infectious strains of COVID-19 emerged and spread around the world, though experts remain confident in the efficacy of the currently-approved arsenal of vaccines.

PORTFOLIO IMPACTS

- Emerging market equities (+19.7%) outperformed U.S. (+12.1%) and international developed equities (+16.0%) once again in Q4. Latin American equities showed significant outperformance (+34.8%), after years of lagging behind other emerging markets.
- The U.S. 10-year TIPS breakeven inflation rate headed notably higher over the quarter, from 1.6% in September to 2.0% in December. Although U.S. inflation is lower than pre-pandemic levels, market pricing for inflation is the highest since 2018.

THE INVESTMENT CLIMATE

- Congress passed an omnibus spending bill, including \$900 billion earmarked for COVID-19 relief. Key features of the package included a re-up of the Paycheck Protection Program, \$600 stimulus checks for most individuals, and \$300 per week in additional unemployment benefits over a 10-week period.
- According to FactSet, S&P 500 Q4 earnings are expected to be down -8.8%. This estimate improved from the -12.7% drop expected on September 30th. For full year 2020, analysts are expecting a -13.3% earnings decline.

ASSET ALLOCATION ISSUES

- U.S. equities delivered +12.1% during the quarter, ending the year at an all-time-high. The S&P 500 was one of the strongest equity markets in 2020, up +18.4% despite an earnings recession and considerable uncertainty.
- Weakness in the U.S. dollar remained a theme in Q4, and the Bloomberg Dollar Spot Index fell to a two and a half year low. Analysts attributed some of the weakness in the US dollar to lower relative real yields in the U.S.
- Within the U.S. market, a sizable rotation occurred in Q4 as certain sectors that had been beaten-down during the pandemic performed strongly. Rising energy prices boosted the Energy sector, while higher interest rates improved the outlook for Financials.

A more neutral risk positioning may be warranted in the current environment

There seems to be a high degree of uncertainty regarding the future market path

U.S. economics summary

- Real GDP grew at a -2.8% rate year-over-year in the third quarter (+33.4% quarterly annualized rate) as the U.S. economy recovered much of the economic activity lost in the second quarter.
- The Atlanta Fed’s forecast for fourth quarter growth was 7.4% quarter-over-quarter, as of January 15th, suggesting further economy expansion.
- Joe Biden was elected President of the United States in November. Jon Ossoff and Raphael Warnock both won in the Georgia Senate runoff elections in January, which ensured democratic control of both the White House and the Senate with V.P.-elect Kamala Harris as the swing vote. The wins completed the democratic “Blue Wave” many have associated with extensive fiscal support. Slim democratic majorities in both chambers of Congress, however, may constrain Biden’s policy scope.
- After impressive employment gains in Q3, the recovery appeared to be stalling in recent months. Unemployment fell from 7.8% in September to 6.7% in December.
- Consumer sentiment remained stubbornly low, despite broad recoveries in consumer spending, auto sales, and the housing market.
- Home sales activity continued to grow at an extremely fast pace in the fourth quarter, as record-low interest rates and the work-from-home environment fueled demand. Existing home sales were 25.8% higher than one-year prior.
- Several new, more-infectious strains of COVID-19 emerged and spread around the world, though experts remain confident in the efficacy of the currently-approved arsenal of vaccines. The global vaccination campaign began in December, and 44 million doses have been distributed so far.

	Most Recent	12 Months Prior
GDP (YoY)	(2.8%) 9/30/20	2.1% 9/30/19
Inflation (CPI YoY, Core)	1.6% 12/31/20	2.3% 12/31/19
Expected Inflation (5yr-5yr forward)	2.0% 12/31/20	1.8% 12/31/19
Fed Funds Target Range	0% – 0.25% 12/31/20	1.50% – 1.75% 12/31/19
10-Year Rate	0.9% 12/31/20	1.9% 12/31/19
U-3 Unemployment	6.7% 12/31/20	3.5% 12/31/19
U-6 Unemployment	11.7% 12/31/20	6.7% 12/31/19

International economics summary

- Economic growth in Q3, although negative on a year-over-year basis, painted an optimistic picture of the recovery. Consumers and businesses around the world have attempted to continue on, despite recent lockdowns, restrictions, and safety concerns. GDP growth figures have improved markedly from the depths of Q2. Most economies have recovered more than half of lost activity experienced during the prior quarter.
- European Union leaders agreed on a historic €1.8 trillion budget-and-recovery plan for 2021-2027, paving the way for a €750-billion pandemic relief package which will be financed by joint debt issuance.
- U.K. and E.U. officials reached an official trade deal at the 11th hour before the December 31st, 2020 conclusion of the transition period following Britain’s official cutting of ties with the E.U. last January. The

agreement marked the beginning of a new chapter in the history of British relations with Europe.

- Governments have taken different approaches to supporting workers, and while many approaches have had similar economic effects, they have often had drastically different impacts on official unemployment figures. We believe official unemployment figures are of limited value in this environment—more in-depth analysis is likely required.
- The pandemic placed downward pressure on inflation. Since then, inflation levels have generally remained muted in developed markets while recovering moderately in emerging economies. China appears to be an outlier, as inflation has recently dipped below zero. This move was fueled by falling pork prices, which had been moving higher in recent years and pushing up inflation.

Area	GDP (Real, YoY)	Inflation (CPI, YoY)	Unemployment
United States	(2.8%) 9/30/20	1.4% 12/31/20	6.7% 12/31/20
Eurozone	(4.3%) 9/30/20	(0.3%) 12/31/20	8.3% 11/30/20
Japan	(5.7%) 9/30/20	(1.3%) 12/31/20	2.8% 11/30/20
BRICS Nations	1.9% 9/30/20	1.5% 12/31/20	5.1% 12/31/20
Brazil	(3.9%) 9/30/20	4.5% 12/31/20	14.3% 10/31/20
Russia	(3.4%) 9/30/20	4.9% 12/31/20	6.1% 11/30/20
India	(7.5%) 9/30/20	4.6% 12/31/20	9.1% 12/31/20
China	2.3% 12/31/20	0.2% 12/31/20	4.2% 12/31/20

NOTE: India lacks reliable government unemployment data. Unemployment rate shown above is estimated from the Centre for Monitoring Indian Economy

Equity environment

- U.S. equities delivered +12.1% during the quarter, ending the year at an all-time-high. The S&P 500 was one of the strongest equity markets in 2020, up +18.4% despite an earnings recession and considerable economic uncertainty.
- Emerging market equities (MSCI EM +19.7%) once again outperformed U.S. (S&P 500 +12.1%) and international developed equities (MSCI EAFE +16.0%) in Q4. Latin American equities showed significant outperformance during the quarter (MSCI Latin America +34.8%), after years of lagging behind other emerging markets.
- According to FactSet, S&P 500 Q4 earnings are expected to be down -8.8%. This estimate improved materially from the -12.7% drop expected on September 30th. Analysts are expecting a -13.3% earnings decline for full-year 2020.
- The Cboe VIX Index remained rangebound in the fourth quarter, ending the year at 22.8. Priced volatility is moderately elevated relative to the longer-term average of 19.
- Weakness in the U.S. dollar relative to both emerging market and developed market currencies remained a theme during the fourth quarter, as the Bloomberg Dollar Spot Index fell to a two and a half year low. Analysts attributed some of the weakness in the greenback to lower relative real yields in the United States, as nominal Treasury yields picked up.
- Within the index, a sizable rotation occurred in Q4 as certain sectors that had been beaten-down during the pandemic performed strongly. Rising energy prices boosted the Energy sector, while higher interest rates on the longer end of the yield curve improved the outlook for Financials.

	QTD TOTAL RETURN		1 YEAR TOTAL RETURN	
	(unhedged)	(hedged)	(unhedged)	(hedged)
US Large Cap (S&P 500)	12.1%		18.4%	
US Small Cap (Russell 2000)	31.4%		20.0%	
US Large Value (Russell 1000 Value)	16.3%		2.8%	
US Large Growth (Russell 1000 Growth)	11.4%		38.5%	
International Large (MSCI EAFE)	16.0%	11.9%	7.8%	2.5%
Eurozone (Euro Stoxx 50)	16.2%	12.2%	5.5%	(1.2%)
U.K. (FTSE 100)	17.2%	11.4%	(8.9%)	(10.2%)
Japan (NIKKEI 225)	21.1%	18.8%	24.2%	19.4%
Emerging Markets (MSCI Emerging Markets)	19.7%	16.0%	18.3%	19.6%

Source: Russell Investments, MSCI, STOXX, FTSE, Nikkei, as of 12/31/20

Domestic equity

U.S. equities delivered +12.1% during the quarter, ending the year at an all-time-high. The S&P 500 was one of the strongest equity markets in 2020, up +18.4% despite an earnings recession and considerable economic uncertainty.

Within the index, a sizable rotation occurred in Q4 as certain sectors that had been beaten-down during the pandemic performed strongly. Rising energy prices boosted the Energy sector, while higher interest rates improved the outlook for Financials. It remains to be seen whether certain consumer habits displayed during the pandemic (online shopping and heightened social media usage, for example) begin reverting to previous levels as the world moves back to normalcy or if

instead, these new habits become more permanent in nature. The answer to this question has important implications for future intra-sector performance.

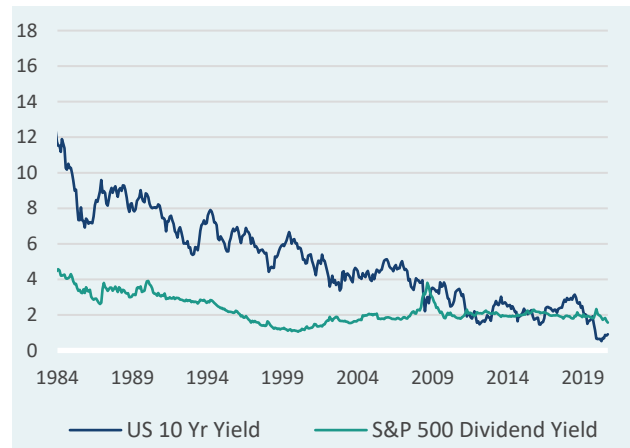
As equities move higher, it is difficult not to notice a disconnect between the US. market and the economy. We believe this rally is the result of a confluence of forces. Ultra-low interest rates, extremely accommodative monetary and fiscal policy, plus the implicit guarantee that further economic weakness will be met with more support and stimulus, seems to be creating a new type of “Goldilocks market” that harkens back to the post-Global Financial Crisis market expansion.

S&P 500 INDEX



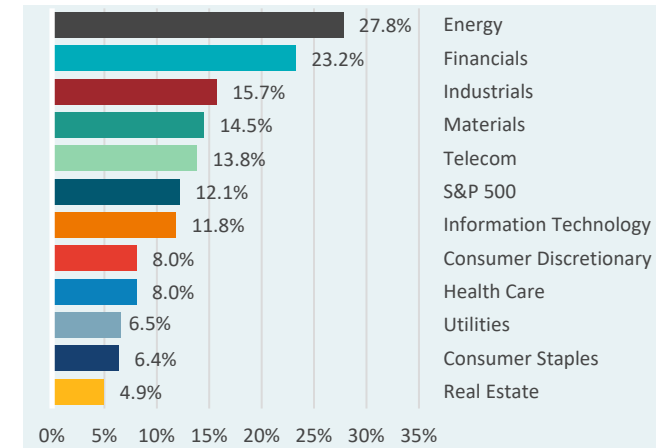
Source: Standard & Poor's, as of 12/31/20

DIVIDEND YIELD VS BOND YIELD



Source: Standard & Poor's, as of 12/31/20

Q4 SECTOR PERFORMANCE



Source: Standard & Poor's, as of 12/31/20

Domestic equity size & style

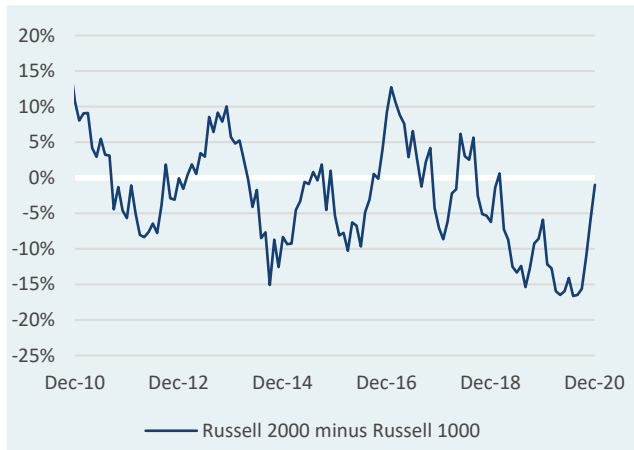
U.S. value stocks beat growth stocks during the fourth quarter (Russell 1000 Value +16.3%, Russell 1000 Growth +11.4%), reversing an extended run of value underperformance. The moderate bounce in value stock performance appeared to be partly driven by sector movements. Energy, Financials, and Materials sectors tend to contain an outsized number of value stocks. These sectors were among the top performers in Q4. Small cap stocks delivered sizable outperformance over large cap stocks (Russell 2000 +31.4%, Russell 1000 +13.7%).

A variety of risks seem to be boiling up around large U.S. technology companies. Given the significant market role that

these businesses play, along with their *growth* rather than *value* characteristics, this regulatory risk could have implications for 2021. First, it is easy to argue that firms such as Google, Amazon, and Facebook have exercised some degree of monopoly power (the FTC recently sued Facebook for alleged illegal monopolistic conduct, and numerous other investigations abound). Further anti-trust actions are likely to come. Second, in recent years there has been a degree of bipartisan consensus that social media companies are doing a poor job of moderating content (though each political party has very different ideas as to the appropriate solution). These risks, which rest perhaps solely on the shoulders of “growth stocks”, will be worth watching in 2021.

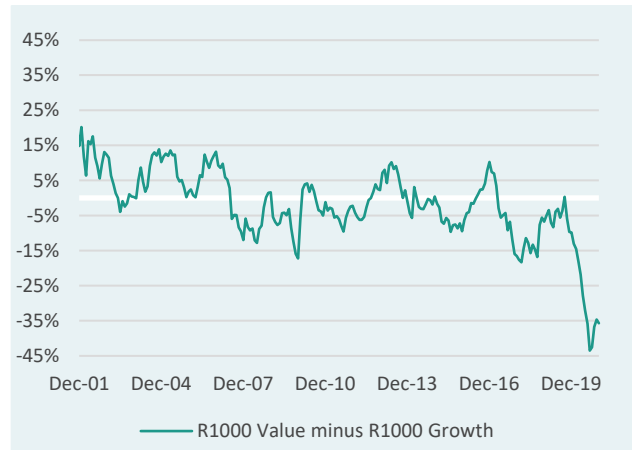
Sector performance has fueled dramatic negative performance of the value premium

SMALL CAP VS LARGE CAP (YOY)



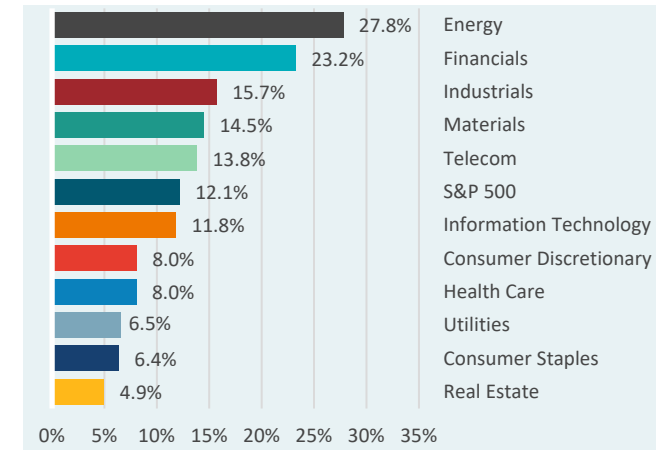
Source: FTSE, as of 12/31/20

VALUE VS GROWTH (YOY)



Source: FTSE, as of 12/31/20

Q4 SECTOR PERFORMANCE



Source: Standard & Poor's, as of 12/31/20

International developed equity

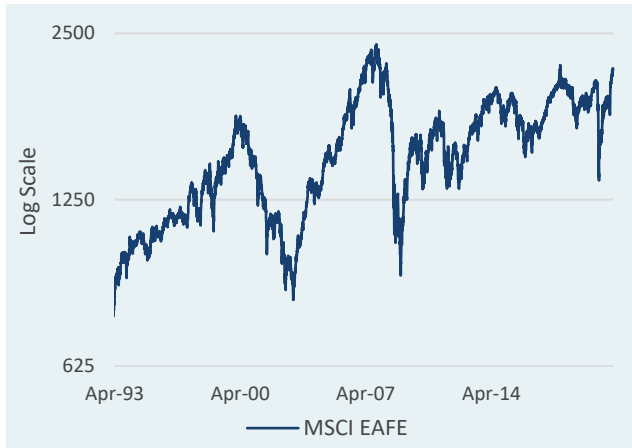
International equities delivered exceptional performance in the fourth quarter, as most global markets have now fully recovered from the March drawdown. The MSCI EAFE Index (+16.0%) outperformed the S&P 500 Index (+12.1%) while lagging the MSCI Emerging Markets Index (+19.7). Continuing U.S. dollar weakness was a notable theme, boosting international equity performance by 5% over the past year.

The recent depreciation of the U.S. dollar has acted as a tailwind to many unhedged international investments. The MSCI EAFE Index unhedged returned 16.0% in Q4, compared

to 11.9% if currency had been hedged. The three largest currency exposures embedded in the MSCI EAFE Index—the euro (32%), the yen (26%), and the pound sterling (13%)—appreciated +4.3%, +2.2%, and +5.7% relative to the U.S. dollar during the quarter, respectively.

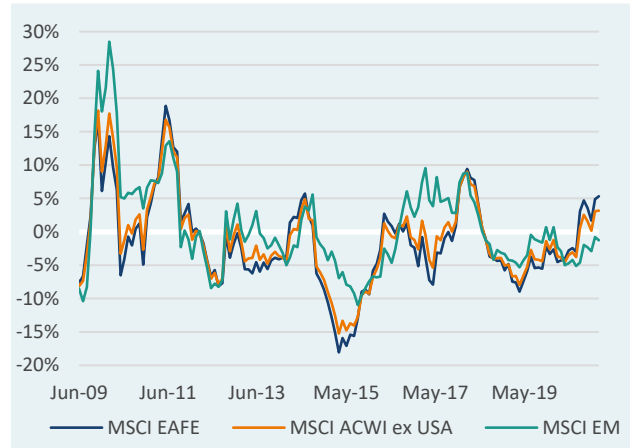
European equities (+17.2%) outperformed Hong Kong (+15.5%) and Japanese (+15.3%) equities in Q4, supported by strong performance in Austria (+47.3%) and Spain (+27.7%). In Oceania, Australia posted solid returns (+22.9%), which were bolstered by a firmer Australian dollar.

INTERNATIONAL DEVELOPED EQUITIES



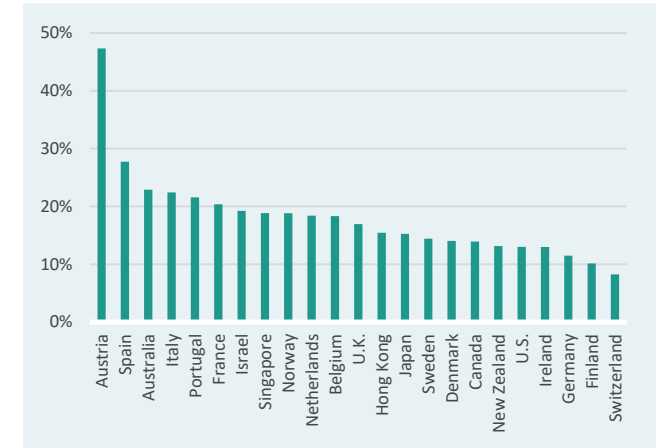
Source: MSCI, as of 12/31/20

EFFECT OF CURRENCY (1-YEAR ROLLING)



Source: MSCI, as of 12/31/20

Q4 2020 PERFORMANCE (ALL IN USD)



Source: MSCI, Bloomberg, as of 12/31/20

Emerging market equity

Emerging market equities (MSCI EM +19.7%) outperformed U.S. (S&P 500 +12.1%) and international developed equities (MSCI EAFE +16.0%) once again in Q4. Latin American equities showed significant outperformance during the quarter (MSCI Latin America +34.8%), after years of lagging behind other emerging markets.

The pandemic placed downward pressure on inflation earlier in 2020. Since then, the rate of price movement has recovered in many markets. China appears to be an outlier, as inflation recently dipped below zero. This move was fueled by falling pork prices, which had been moving higher

in recent years and causing above-average levels of inflation.

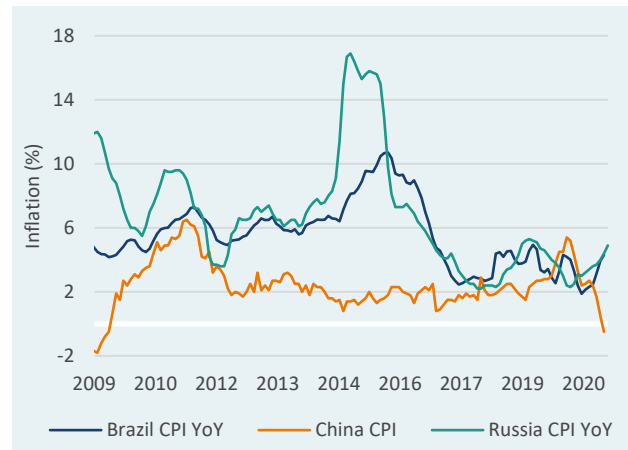
Emerging market currencies sold off significantly during the beginning of the year as investors bid up safe-haven currencies, including the U.S. dollar, amid unprecedented economic and market uncertainty. Since March, however, the embedded currency portfolio of the MSCI Emerging Markets Index began to recover significantly and ended the year nearly on par with where it had started. Continued appreciation of emerging market currencies could provide tailwinds for unhedged U.S. investors in the asset class.

EMERGING MARKET EQUITY



Source: MSCI, as of 12/31/20

INFLATION (YOY)



Source: Bloomberg, as of 12/31/20 or most recent data

MSCI EM INDEX EMBEDDED CURRENCY



Source: Bloomberg, as of 12/31/20

Interest rate environment

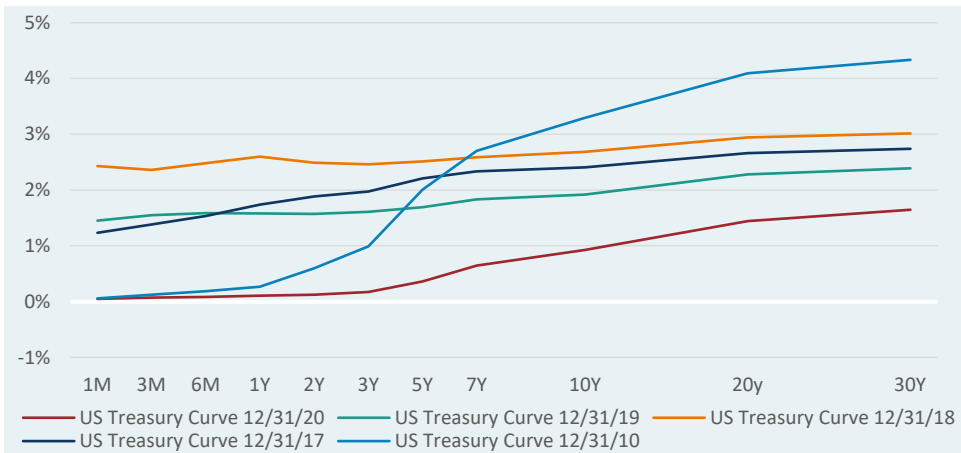
- Longer-dated U.S. Treasury yields moved upward in the fourth quarter, with the U.S. 10-year rising above 1.0% to begin 2021. Higher interest rates may place pressure on equity valuations if this trend continues. The yield of shorter-dated bonds and cash has not moved and is expected to stay near zero.
- Ten-year breakeven inflation rates rallied from 1.6% to 2.0% in Q4, likely propelled higher by expectations that Biden’s fiscal approach paired with vaccine rollouts will result in higher longer-term growth and inflation. The rise in priced inflation outpaced the rise in nominal Treasury yields, leading the 10-year U.S. real yield to decline from -0.95% to -1.07%, near record lows.
- Officials at the Federal Reserve remained committed to a \$120 billion monthly pace of bond purchases until there is “substantial progress” toward employment and inflation objectives. Fed Chair Powell left the door open to adjusting the pace of those purchases as necessary, and stated that the Fed would “let the world know...well in advance of active consideration of beginning a gradual taper of asset purchases.”
- The European Central Bank expanded the size of its Pandemic Emergency Purchase Program (PEPP) by €500 billion, bringing the new total to €1.85 trillion. The ECB also extended the horizon for purchases under PEPP to March 2022, and the timeline for reinvestment of maturing PEPP assets to the end of 2023.
- Joe Biden nominated Janet Yellen, Jerome Powell’s predecessor, as U.S. Treasury Secretary. Throughout the pandemic, central bankers have been calling for further coordination of fiscal and monetary action, and Yellen’s nomination could represent the next step down that path.

Area	Short Term (3M)	10-Year
United States	0.06%	0.91%
Germany	(0.83%)	(0.57%)
France	(0.77%)	(0.34%)
Spain	(0.83%)	0.04%
Italy	(0.65%)	0.54%
Greece	(0.38%)	0.62%
U.K.	(0.06%)	0.20%
Japan	(0.12%)	0.02%
Australia	0.02%	0.97%
China	2.28%	3.14%
Brazil	2.00%	6.91%
Russia	3.54%	6.01%

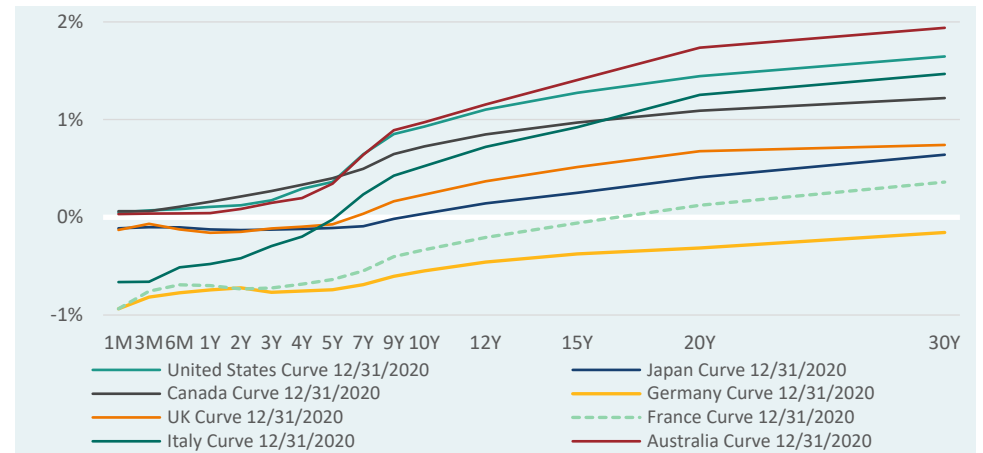
Source: Bloomberg, as of 12/31/20

Yield environment

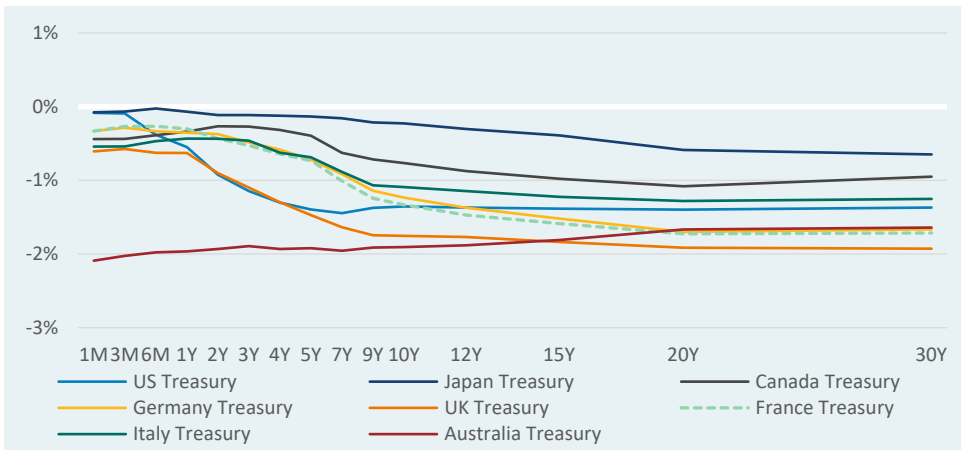
U.S. YIELD CURVE



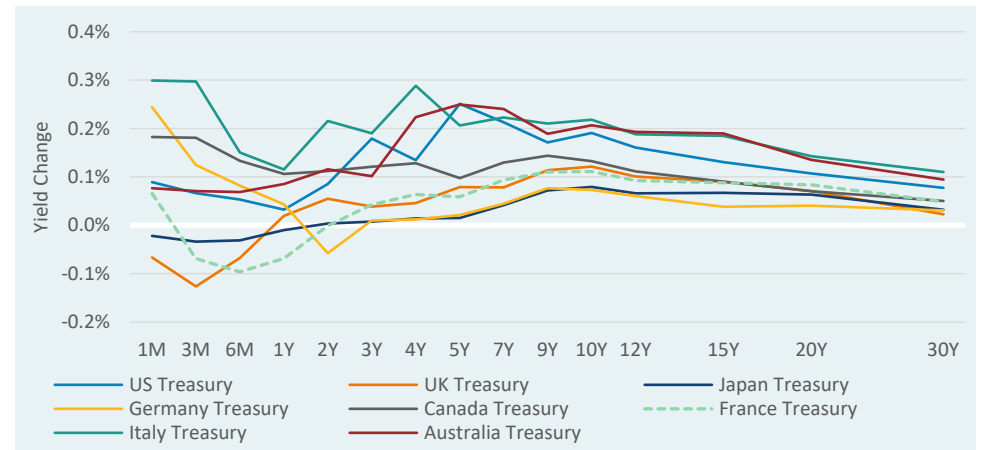
GLOBAL GOVERNMENT YIELD CURVES



YIELD CURVE CHANGES OVER LAST FIVE YEARS



IMPLIED CHANGES OVER NEXT YEAR



Source: Bloomberg, as of 12/31/20

Currency

Weakness in the U.S. dollar relative to both emerging market and developed market currencies remained a theme in the fourth quarter, as the Bloomberg Dollar Spot Index fell to a two and a half year low. Analysts attributed some of the weakness of the greenback to lower relative real yields in the United States, as nominal Treasury yields rose less than inflation expectations. Many in the industry have made calls for a continuation of dollar weakness into 2021. If that weakness were to materialize, it would supply significant tailwinds for unhedged U.S. investors in non-U.S. equities. We continue to believe that unhedged currency exposure results in uncompensated risk, which is a suboptimal approach for many investors.

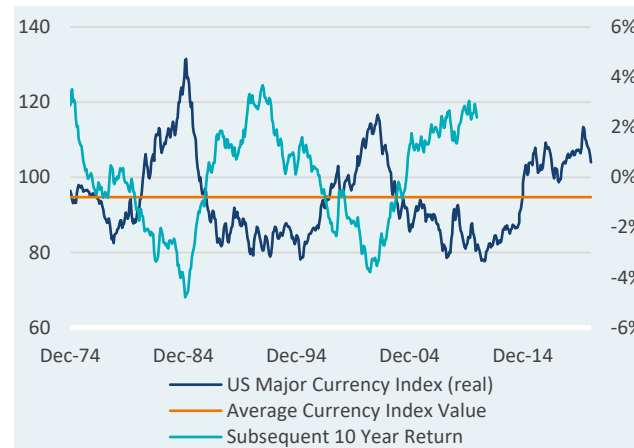
The onshore Chinese renminbi rallied significantly over the fourth quarter. The strength has been primarily credited to the apparently-blistering pace of China's recovery from pandemic-related disruptions, which has fueled capital inflows from offshore investors. Looking ahead, the election of Joe Biden has been viewed largely as constructive for the yuan, as the expectation remains that Biden's stance on China will be less confrontational than his predecessor's, reducing trade tensions. On the other hand, the rising value of the yuan may make China's exports less-affordable for Europeans still recovering from the pandemic. This dynamic has stoked speculation that the People's Bank of China might soon step in to cool the rally.

BLOOMBERG DOLLAR SPOT INDEX



Source: Bloomberg, as of 12/31/20

USD CURRENCY LEVEL & SUBSEQUENT RETURN



Source: Federal Reserve, as of 12/31/20

USD/CNY CROSS RATE



Source: Bloomberg, as of 12/31/20

- The Total Fund, net of manager fees, returned 9.5% in the fourth quarter of 2020 and ranked in the 66th percentile among other public plans greater than \$1 billion (median of 10.1%). It beat the policy index return of 8.0%. The Total Fund ex Overlay returned 9.5% for the quarter. The Total Fund one-year return of 9.2% lagged the policy index return of 9.3% and ranked in the 75th percentile of its peer universe. The three-year return of 6.7% (84th percentile) lagged the median large public plan (7.4%) and the policy index (7.3%).

- Fourth quarter results were enhanced by the following factors:
 1. Brigade rose 8.4% beating its index (4.9%). Bank Loans and High Yield positions contributed to outperformance gaining 3.1% and 4.2% respectively.
 2. The private equity composite gained 29.4% for the quarter providing a significant tailwind to relative total performance. The composite gained 70.2% in 2020 vs its index which rose 18%.
 3. DE Shaw Broad Market Core Alpha gained 17.6% beating the Russell 1000 (13.7%). This brought the 1-year return to 20.2% slightly underperforming the index but ranking in the top quartile of its peers.
 4. Western TRU gained 4% beating the BB US Agg which rose 0.7%. Western's high yield and investment grade corporate bond positions contributed to their relative performance.

- Fourth quarter results were hindered by the following factors:
 1. Acadian Managed Vol gained 9.4% and PanAgora gained 10.0% trailing the Russell 1000 (13.7%). The low vol managers did better than previous quarters but still lagged due to a strong market.
 2. Franklin Templeton Global Bond rose 0.8% trailing the BB Multiverse which gained 3.5%. Net negative positions in the Euro, Australian Dollar, and Mexican Peso hurt Q4 performance.

Total Fund
Performance Summary (Net of Fees)

Period Ending: December 31, 2020

	3 Mo (%)	Rank*	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	2 Yrs (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
Total Fund**	9.5	66	15.3	56	9.2	75	12.7	73	6.7	84	8.6	82	7.9	51
<i>Policy Index¹</i>	8.0	96	13.9	85	9.3	70	13.1	64	7.3	54	9.2	42	8.3	36
<i>InvMetrics Public DB > \$1B Net Median</i>	10.1		15.5		10.8		14.0		7.4		9.0		7.9	
Total Fund ex Overlay	9.5	66	15.3	56	9.1	76	12.6	78	6.6	85	8.5	84	7.8	56
<i>Policy Index¹</i>	8.0	96	13.9	85	9.3	70	13.1	64	7.3	54	9.2	42	8.3	36
<i>InvMetrics Public DB > \$1B Net Median</i>	10.1		15.5		10.8		14.0		7.4		9.0		7.9	
Public Equity	15.0	69	23.0	82	13.7	77	19.8	82	9.1	83	11.6	84	9.9	64
<i>Blended Public Equity Index¹</i>	14.9	72	23.5	75	15.7	62	21.1	61	9.8	68	12.5	49	10.3	51
<i>InvMetrics All DB Total Eq Net Median</i>	15.7		25.1		16.4		21.7		10.5		12.5		10.4	
US Equity	14.0	89	22.2	93	14.2	87	21.3	86	11.6	78	13.3	78	12.3	67
<i>Blended US Equity Index¹</i>	14.7	75	25.2	44	20.9	21	25.9	18	14.5	17	15.5	14	13.6	14
<i>Russell 3000</i>	14.7	75	25.2	44	20.9	21	25.9	18	14.5	17	15.4	15	13.8	10
<i>InvMetrics All DB US Eq Net Median</i>	15.5		25.1		18.3		24.1		13.0		14.3		12.8	
Large Cap Equity	12.9	44	21.4	56	15.0	47	22.0	48	12.6	44	14.4	40	13.1	41
<i>Russell 1000</i>	13.7	37	24.5	28	21.0	34	26.1	34	14.8	33	15.6	30	14.0	30
<i>eV US Large Cap Equity Net Median</i>	12.5		22.1		14.0		21.5		11.3		13.0		12.5	
<i>Acadian US MGD V</i>	9.4	83	14.0	94	2.8	97	13.5	94	--	--	--	--	--	--
<i>BlackRock Russell 1000</i>	13.7	21	24.4	15	21.0	19	26.1	17	14.8	15	--	--	--	--
<i>DE Shaw</i>	17.6	4	27.1	7	20.2	22	23.9	31	13.5	29	15.8	11	14.5	7
<i>PanAgora Defuseq</i>	10.0	78	15.0	92	4.9	92	16.5	84	--	--	--	--	--	--
<i>Russell 1000</i>	13.7	21	24.5	14	21.0	19	26.1	17	14.8	15	15.6	12	14.0	12
<i>eV US Large Cap Core Equity Net Median</i>	11.6		20.6		14.1		21.7		11.5		13.2		12.7	

* 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: December 31, 2020

	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	2 Yrs (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
Small Cap Equity	27.4	55	30.2	77	2.6	81	11.9	84	2.9	78	7.6	85	8.4	84
<i>Russell 2000</i>	31.4	24	37.9	31	20.0	40	22.7	40	10.2	41	13.3	42	11.2	45
<i>eV US Small Cap Equity Net Median</i>	27.8		34.4		14.2		19.2		7.9		11.9		10.7	
QMA US Small Cap	27.4	48	30.2	74	2.6	95	11.9	94	2.9	92	--	--	--	--
<i>Russell 2000</i>	31.4	15	37.9	23	20.0	30	22.7	35	10.2	33	13.3	35	11.2	45
<i>eV US Small Cap Core Equity Net Median</i>	27.4		33.3		14.8		19.5		8.6		12.0		11.0	
Domestic Equity Overlay	30.0	--	41.1	--	--	--	--	--	--	--	--	--	--	--
International Equity	16.2	77	24.0	81	13.0	47	18.0	44	6.3	32	9.5	43	5.7	50
<i>Blended International Equity Index¹</i>	15.1	87	21.4	95	9.5	79	15.5	79	4.4	75	8.9	63	5.3	67
<i>MSCI EAFE Gross</i>	16.1	79	21.8	93	8.3	87	15.2	81	4.8	68	8.0	83	6.0	40
<i>InvMetrics All DB ex-US Eq Net Median</i>	17.4		25.9		12.6		17.5		5.3		9.3		5.7	
Baillie Gifford	17.1	32	32.5	26	33.7	30	33.6	21	14.1	22	14.5	29	--	--
<i>MSCI ACWI ex US¹</i>	17.1	32	24.5	81	11.1	96	16.5	98	5.4	97	9.4	93	--	--
<i>MSCI ACWI ex US Growth</i>	14.0	70	25.6	73	22.6	65	25.2	66	10.4	63	12.4	65	--	--
<i>eV ACWI ex-US Growth Equity Net Median</i>	15.4		28.6		25.3		27.8		11.6		13.5		8.6	
Mondrian	19.3	50	23.6	57	0.0	62	9.1	54	1.6	38	6.2	56	4.4	30
<i>MSCI ACWI ex USA Value Gross</i>	20.5	41	23.4	57	-0.2	63	7.8	61	0.2	53	6.3	56	3.4	74
<i>MSCI ACWI ex USA Gross</i>	17.1	66	24.5	52	11.1	9	16.5	12	5.4	11	9.4	17	5.4	23
<i>eV ACWI ex-US Value Equity Net Median</i>	19.2		25.0		1.3		9.3		0.7		6.5		4.2	
BlackRock MSCI ACWI EX-US IMI¹	17.2	39	25.2	69	--	--	--	--	--	--	--	--	--	--
<i>MSCI ACWI ex USA IMI</i>	17.2	39	25.2	69	11.1	72	16.3	71	4.8	75	9.0	68	5.1	82
<i>eV ACWI ex-US All Cap Core Eq Net Median</i>	16.1		27.0		16.1		20.1		6.5		9.9		6.7	
Int'l Equity Currency Overlay	--	--	--	--	--	--	--	--	--	--	--	--	--	--
International Equity Overlay	4.0	--	17.3	--	--	--	--	--	--	--	--	--	--	--

* Funded June 2020.

1. See Appendix for Benchmark History.

Total Fund
Performance Summary (Net of Fees)

Period Ending: December 31, 2020

	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	2 Yrs (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
Fixed Income	2.4	44	4.6	36	6.8	61	7.7	61	5.2	54	5.8	30	5.0	26
<i>Blended Fixed Income Index¹</i>	2.0	52	3.7	53	7.0	56	8.9	36	5.6	37	5.4	40	4.2	55
<i>InvMetrics All DB Total Fix Inc Net Median</i>	2.1		3.7		7.6		8.2		5.2		5.0		4.3	
Core Fixed	1.2	--	2.5	--	7.7	--	7.8	--	5.1	--	4.9	--	4.4	--
<i>BBgBarc US Aggregate TR</i>	0.7	--	1.3	--	7.5	--	8.1	--	5.3	--	4.4	--	3.8	--
<i>BlackRock Intermediate Govt</i>	-0.2	63	0.1	65	6.0	63	5.6	68	4.3	51	--	--	--	--
<i>BBgBarc US Govt Int TR</i>	-0.2	64	0.0	68	5.7	66	5.5	71	4.1	56	2.9	59	2.5	72
<i>BBgBarc US Aggregate TR</i>	0.7	1	1.3	4	7.5	30	8.1	1	5.3	6	4.4	1	3.8	2
<i>eV US Government Fixed Inc Net Median</i>	-0.1		0.3		6.5		6.5		4.3		3.6		3.1	
<i>DoubleLine[*]</i>	0.0	99	1.7	58	--	--	--	--	--	--	--	--	--	--
<i>BBgBarc US Aggregate TR</i>	0.7	62	1.3	66	7.5	6	8.1	1	5.3	6	4.4	22	3.8	52
<i>eV US Securitized Fixed Inc Net Median</i>	0.9		2.0		3.6		5.0		3.8		3.6		3.9	
<i>FIAM Bond</i>	1.4	21	2.8	19	9.9	11	9.8	8	6.3	8	5.5	8	4.6	16
<i>NISA Core Bond^{**}</i>	0.6	81	1.4	82	--	--	--	--	--	--	--	--	--	--
<i>BBgBarc US Aggregate TR</i>	0.7	81	1.3	86	7.5	75	8.1	74	5.3	70	4.4	75	3.8	74
<i>eV US Core Fixed Inc Net Median</i>	1.0		2.1		8.2		8.6		5.6		4.7		4.1	
<i>Western TRU</i>	4.0	2	6.5	2	6.1	97	7.7	87	4.0	98	5.2	15	--	--
<i>3-Month Libor Total Return USD</i>	0.1	99	0.1	99	0.6	99	1.5	99	1.8	99	1.5	99	0.9	99
<i>BBgBarc US Aggregate TR</i>	0.7	81	1.3	86	7.5	75	8.1	74	5.3	70	4.4	75	3.8	74
<i>eV US Core Fixed Inc Net Median</i>	1.0		2.1		8.2		8.6		5.6		4.7		4.1	
<i>Core Fixed Income Overlay</i>	-0.6	--	-0.9	--	--	--	--	--	--	--	--	--	--	--

* Funded March 2020.

** Funded May 2020.

1. See Appendix for Benchmark History.

Total Fund
Performance Summary (Net of Fees)

Period Ending: December 31, 2020

	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	2 Yrs (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
Opportunistic Credit	5.1	--	9.1	--	5.3	--	7.4	--	5.4	--	7.9	--	7.6	--
<i>BBgBarc BA Intermediate HY¹</i>	4.9	--	8.7	--	7.7	--	11.1	--	6.6	--	7.6	--	6.0	--
AG CSF Annex Dislocation Fund⁺	8.8	--	14.3	--	--	--	--	--	--	--	--	--	--	--
<i>BBgBarc BA Intermediate HY</i>	4.9	--	8.7	--	7.7	--	11.1	--	6.6	--	7.6	--	6.0	--
Angelo Gordon Opportunistic ⁺	12.1	--	19.4	--	-2.8	--	4.4	--	9.7	--	10.7	--	--	--
Angelo Gordon STAR ⁺	-1.2	--	1.2	--	0.8	--	8.1	--	12.5	--	12.4	--	--	--
<i>BBgBarc US Aggregate TR</i>	0.7	--	1.3	--	7.5	--	8.1	--	5.3	--	4.4	--	3.8	--
Angelo Gordon Credit Solutions ⁺	9.7	1	16.4	1	3.4	86	--	--	--	--	--	--	--	--
<i>BBgBarc BA Intermediate HY</i>	4.9	77	8.7	80	7.7	19	11.1	15	6.6	12	7.6	46	6.0	70
<i>eV US High Yield Fixed Inc Net Median</i>	5.8		10.5		5.8		9.8		5.4		7.5		6.3	
Beach Point Select	8.4	3	15.8	3	9.8	4	11.3	13	7.7	2	9.5	3	--	--
<i>BBgBarc BA Intermediate HY</i>	4.9	77	8.7	80	7.7	19	11.1	15	6.6	12	7.6	46	6.0	70
<i>eV US High Yield Fixed Inc Net Median</i>	5.8		10.5		5.8		9.8		5.4		7.5		6.3	
Brigade Capital	8.4	3	15.1	4	3.8	83	6.4	86	3.9	90	8.2	21	5.7	80
<i>BBgBarc BA Intermediate HY</i>	4.9	77	8.7	80	7.7	19	11.1	15	6.6	12	7.6	46	6.0	70
50% Barclays HY/ 50% Bank Loan	5.0	72	9.6	72	4.9	68	8.0	74	5.1	63	6.9	67	5.6	80
<i>eV US High Yield Fixed Inc Net Median</i>	5.8		10.5		5.8		9.8		5.4		7.5		6.3	
PIMCO Diversified	4.5	83	7.3	90	6.5	38	9.6	52	6.0	28	--	--	--	--
<i>Blended PIMCO Diversified Index</i>	4.5	83	7.2	90	6.6	37	10.1	40	5.8	36	6.9	66	6.1	66
<i>BBgBarc BA Intermediate HY</i>	4.9	77	8.7	80	7.7	19	11.1	15	6.6	12	7.6	46	6.0	70
<i>eV US High Yield Fixed Inc Net Median</i>	5.8		10.5		5.8		9.8		5.4		7.5		6.3	
Franklin Templeton	0.8	97	0.3	99	-5.5	99	-2.3	99	-1.5	99	1.4	99	2.4	90
<i>BBgBarc Multiverse TR</i>	3.5	71	6.3	71	9.0	41	8.1	71	4.8	66	5.0	69	3.0	77
<i>eV All Global Fixed Inc Net Median</i>	4.7		8.2		7.7		9.2		5.3		5.8		4.3	

⁺ Preliminary return as of 12/31/2020.

^{*} Funded April 2020.

1. See Appendix for Benchmark History.

Total Fund
Performance Summary (Net of Fees)

Period Ending: December 31, 2020

	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	2 Yrs (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
Private Credit	2.1	--	5.4	--	6.5	--	7.1	--	7.3	--	--	--	--	--
<i>Cliffwater Direct Lending Index*</i>	3.5	--	7.2	--	5.3	--	7.1	--	7.4	--	8.4	--	9.3	--
Blackrock DL Feeder IX-U* +	0.8	99	4.5	99	--	--	--	--	--	--	--	--	--	--
<i>Cliffwater Direct Lending Index</i>	3.5	93	7.2	90	5.3	63	7.1	80	7.4	4	8.4	17	9.3	1
<i>eV US High Yield Fixed Inc Net Median</i>	5.8		10.5		5.8		9.8		5.4		7.5		6.3	
PIMCO Private Income	4.0	90	9.4	75	7.7	19	--	--	--	--	--	--	--	--
<i>BBgBarc BA Intermediate HY</i>	4.9	77	8.7	80	7.7	19	11.1	15	6.6	12	7.6	46	6.0	70
<i>Cliffwater Direct Lending Index</i>	3.5	93	7.2	90	5.3	63	7.1	80	7.4	4	8.4	17	9.3	1
<i>eV US High Yield Fixed Inc Net Median</i>	5.8		10.5		5.8		9.8		5.4		7.5		6.3	
TCP Direct Lending VIII*	2.6	96	5.4	98	6.4	40	6.7	85	6.8	9	--	--	--	--
<i>White Oak Yield*</i>	0.0	99	1.6	99	3.3	86	5.5	95	6.6	13	--	--	--	--
<i>White Oak YSF V**</i>	--	--	--	--	--	--	--	--	--	--	--	--	--	--
<i>Cliffwater Direct Lending Index</i>	3.5	93	7.2	90	5.3	63	7.1	80	7.4	4	8.4	17	9.3	1
<i>eV US High Yield Fixed Inc Net Median</i>	5.8		10.5		5.8		9.8		5.4		7.5		6.3	
Alternatives	18.6	--	36.1	--	31.9	--	19.1	--	13.3	--	11.7	--	-9.2	--
<i>Blended Alternatives Index¹</i>	5.6	--	17.3	--	11.8	--	9.1	--	9.3	--	10.7	--	8.7	--
Private Equity*** **	29.4	1	62.5	1	70.2	1	41.0	1	32.7	2	25.0	2	-2.6	99
<i>Blended Private Equity Index¹</i>	10.2	20	33.9	3	18.0	22	11.8	33	12.2	41	15.2	17	15.2	14
<i>InvMetrics All DB Private Eq Net Median</i>	6.8		12.9		9.7		9.4		10.0		10.1		9.9	

* Preliminary return as of 12/31/2020.

* Funded March 2020.

** Funded December 2020.

*** Returns are one-quarter lag.

** Excludes EnCap Energy Capital Fund and Sheridan Production Partners.

1. See Appendix for Benchmark History.

Total Fund
Performance Summary (Net of Fees)

Period Ending: December 31, 2020

	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	2 Yrs (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
Hedge Fund/Absolute Return	3.1	86	5.3	85	-7.0	91	-4.8	96	-7.2	99	-3.3	98	--	--
<i>Libor 1 month +4%</i>	1.0	91	2.1	92	4.5	65	5.4	67	5.6	39	5.3	38	4.8	36
<i>InvMetrics All DB Hedge Funds Net Median</i>	7.2		12.3		5.4		7.7		4.9		4.3		4.0	
Aberdeen Standard GARS	3.6	70	7.8	61	7.7	47	8.4	42	3.5	52	2.4	72	--	--
Acadian MAAR Fund LLC**	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CFM Systematic Global Macro**	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Graham Quant Macro*	4.5	65	7.3	63	--	--	--	--	--	--	--	--	--	--
PIMCO MAARS Fund LP***	0.4	88	0.4	88	--	--	--	--	--	--	--	--	--	--
<i>Libor 1 month +4%</i>	1.0	86	2.1	81	4.5	59	5.4	59	5.6	40	5.3	50	4.8	50
<i>eV Alt All Multi-Strategy Median</i>	6.3		10.1		6.9		7.1		3.7		5.3		4.7	
Inflation Hedge	4.4	--	6.5	--	-6.9	--	0.3	--	-0.3	--	--	--	--	--
<i>Blended Inflation Hedge Index¹</i>	5.1	--	9.5	--	-0.6	--	4.2	--	2.6	--	--	--	--	--
Real Estate	1.7	24	1.9	49	0.3	70	3.4	53	5.1	30	6.4	19	9.7	11
<i>NCREIF ODCE</i>	1.3	48	1.8	52	1.2	33	3.2	55	4.9	36	6.2	24	9.9	8
<i>InvMetrics All DB Real Estate Pub Net Median</i>	1.3		1.9		0.7		3.5		4.6		5.4		8.9	
Harrison Street Core Property****	1.2	--	2.4	--	--	--	--	--	--	--	--	--	--	--
<i>NCREIF ODCE</i>	1.3	--	1.8	--	1.2	--	3.2	--	4.9	--	6.2	--	9.9	--
Invesco	1.6	--	1.2	--	-1.8	--	2.1	--	4.3	--	6.0	--	9.4	--
<i>NCREIF ODCE</i>	1.3	--	1.8	--	1.2	--	3.2	--	4.9	--	6.2	--	9.9	--
Invesco US Val IV	5.5	--	6.5	--	2.4	--	7.9	--	9.1	--	9.1	--	--	--
<i>NCREIF ODCE</i>	1.3	--	1.8	--	1.2	--	3.2	--	4.9	--	6.2	--	9.9	--
<i>NCREIF ODCE + 2%</i>	1.8	--	2.8	--	3.2	--	5.3	--	7.0	--	8.3	--	12.1	--

* Funded February 2020.

** Funded October 2020.

*** Funded April 2020.

**** Funded January 2020.

1. See Appendix for Benchmark History.

Total Fund
Performance Summary (Net of Fees)

Period Ending: December 31, 2020

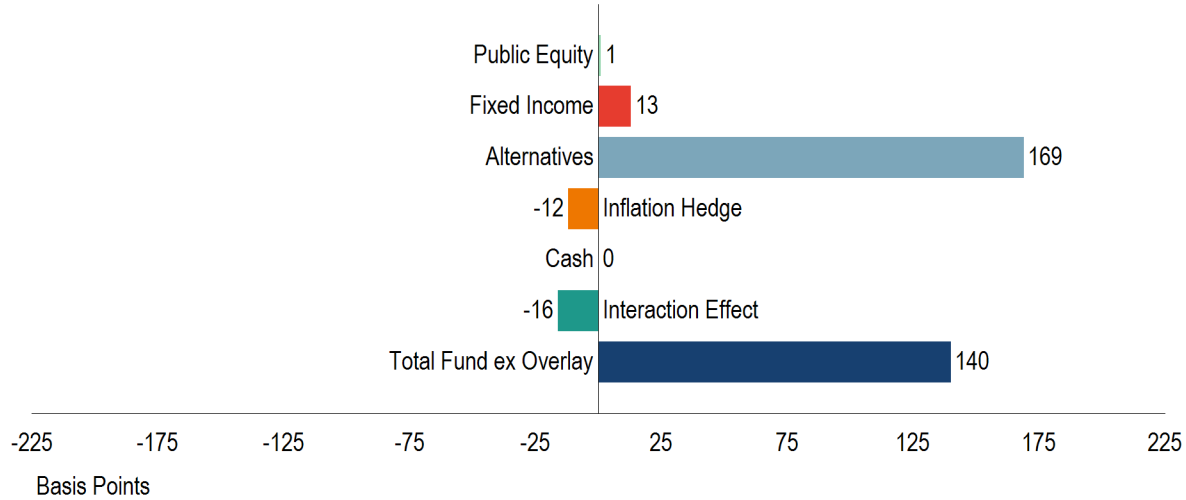
	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	2 Yrs (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
Invesco US Val V	5.3	--	4.7	--	1.2	--	--	--	--	--	--	--	--	--
<i>NCREIF ODCE</i>	1.3	--	1.8	--	1.2	--	3.2	--	4.9	--	6.2	--	9.9	--
<i>NCREIF ODCE + 2%</i>	1.8	--	2.8	--	3.2	--	5.3	--	7.0	--	8.3	--	12.1	--
PGIM RE US Debt Fund	1.2	--	2.5	--	4.5	--	5.3	--	5.5	--	--	--	--	--
<i>NCREIF ODCE</i>	1.3	--	1.8	--	1.2	--	3.2	--	4.9	--	6.2	--	9.9	--
Private Real Asset**	1.3	--	7.6	--	-0.5	--	-5.9	--	-2.5	--	5.4	--	--	--
<i>Blended Private Real Asset Index¹</i>	9.0	--	27.8	--	-4.8	--	-0.5	--	-1.4	--	2.8	--	--	--
<i>Blended Secondary CA Private RA Index¹</i>	2.6	--	6.3	--	-7.2	--	-4.3	--	0.3	--	3.9	--	--	--
Public Real Assets	11.5	--	16.0	--	-14.5	--	-0.9	--	-5.1	--	--	--	--	--
<i>Blended Public Real Asset Index¹</i>	11.6	--	16.0	--	-4.7	--	5.1	--	-0.3	--	4.0	--	--	--
SSgA Custom Real Asset	11.5	--	16.0	--	-4.8	--	5.1	--	-0.3	--	--	--	--	--
<i>SSgA Custom Real Asset Index¹</i>	11.6	--	16.0	--	-4.7	--	5.1	--	-0.3	--	--	--	--	--
Cash	0.1	--	0.3	--	0.7	--	0.9	--	1.0	--	0.9	--	0.8	--
<i>91 Day T-Bills</i>	0.0	--	0.0	--	0.5	--	1.3	--	1.5	--	1.1	--	0.6	--
General Account	0.1	--	0.3	--	1.1	--	2.1	--	3.0	--	2.4	--	1.5	--
Treasury & LAIF	0.6	--	0.8	--	1.5	--	2.3	--	3.1	--	2.3	--	1.5	--
<i>91 Day T-Bills</i>	0.0	--	0.0	--	0.5	--	1.3	--	1.5	--	1.1	--	0.6	--
Currency Hedge Cash Overlay	-0.1	--	-0.2	--	--	--	--	--	--	--	--	--	--	--

** Returns are one-quarter lag.

1. See Appendix for Benchmark History.

Total Fund ex Overlay
Performance Attribution

Period Ending: December 31, 2020

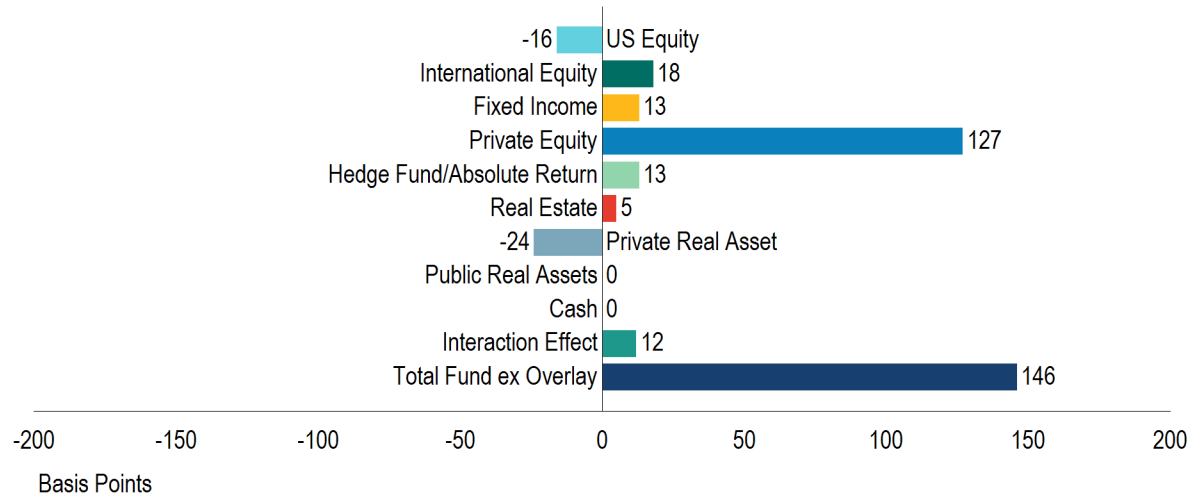


	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Interaction *	Total Effects
Public Equity	14.96%	14.88%	0.08%	0.01%	-0.02%	0.01%	0.00%
Fixed Income	2.42%	2.03%	0.39%	0.13%	0.05%	-0.01%	0.17%
Alternatives	18.65%	5.64%	13.01%	1.69%	-0.15%	-0.18%	1.35%
Inflation Hedge	4.41%	5.08%	-0.67%	-0.12%	0.09%	0.01%	-0.01%
Cash	0.14%	0.02%	0.12%	0.00%	-0.11%	0.00%	-0.10%
Total	9.38%	7.98%	1.40%	1.71%	-0.15%	-0.16%	1.40%

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

Total Fund ex Overlay
Performance Attribution

Period Ending: December 31, 2020

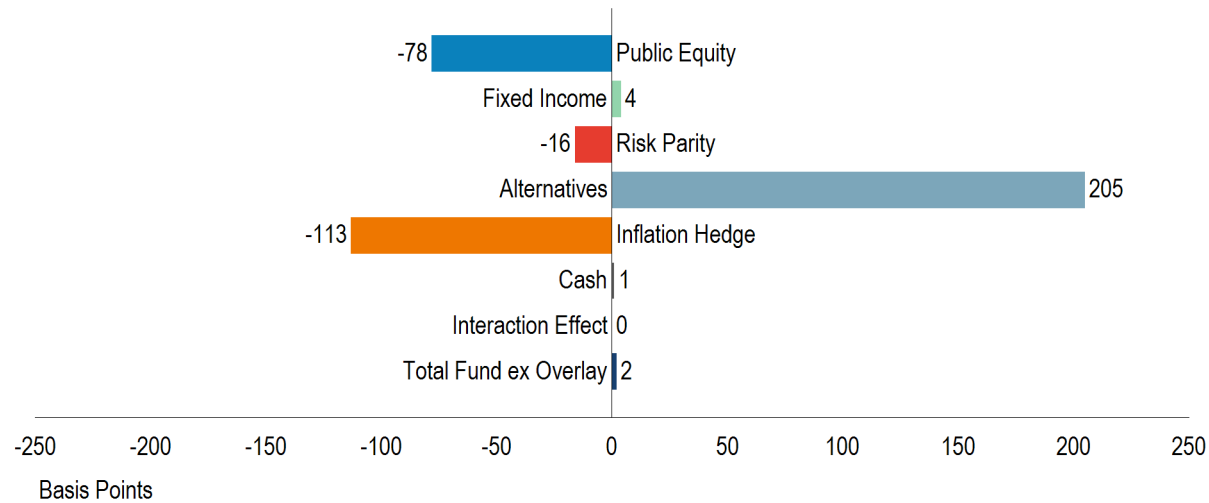


	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Interaction * Effects	Total Effects
US Equity	13.95%	14.68%	-0.73%	-0.16%	0.00%	0.01%	-0.16%
International Equity	16.17%	15.12%	1.05%	0.18%	-0.02%	0.00%	0.16%
Fixed Income	2.42%	2.03%	0.39%	0.13%	0.05%	-0.01%	0.17%
Private Equity	29.44%	10.20%	19.24%	1.27%	-0.04%	0.05%	1.28%
Hedge Fund/Absolute Return	3.10%	1.04%	2.05%	0.13%	0.00%	0.00%	0.13%
Real Estate	1.74%	1.29%	0.45%	0.05%	0.12%	-0.01%	0.16%
Private Real Asset	1.26%	8.97%	-7.71%	-0.24%	-0.01%	0.09%	-0.17%
Public Real Assets	11.50%	11.59%	-0.09%	0.00%	0.00%	0.00%	0.00%
Cash	0.14%	0.02%	0.12%	0.00%	-0.11%	0.00%	-0.11%
Total	9.44%	7.98%	1.46%	1.35%	-0.01%	0.12%	1.46%

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: December 31, 2020

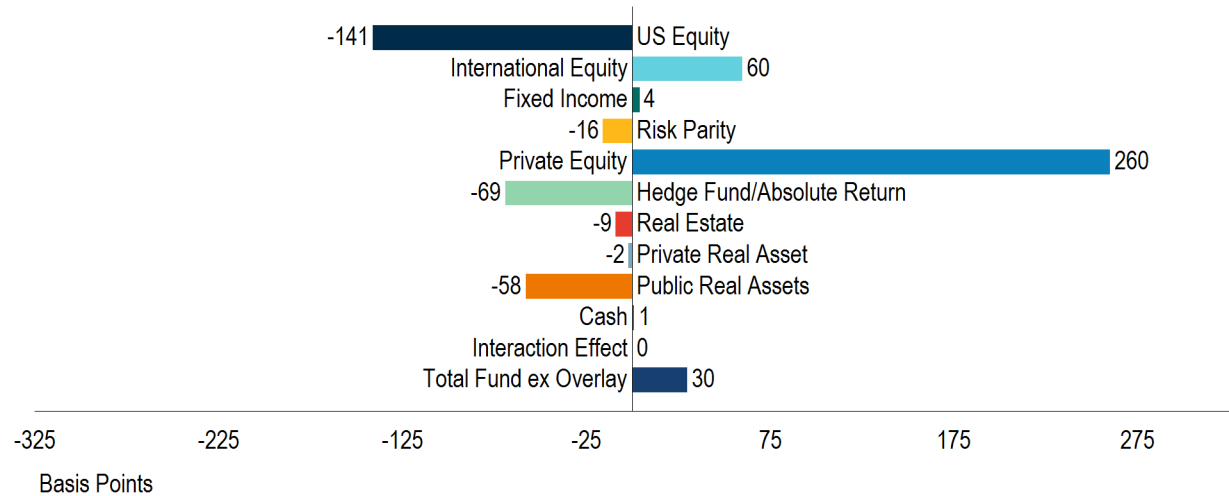


	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Interaction*	Total Effects
Public Equity	13.72%	15.68%	-1.96%	-0.78%	0.00%	0.00%	-0.78%
Fixed Income	6.84%	7.02%	-0.18%	0.04%	0.00%	0.00%	0.04%
Risk Parity	--	--	--	-0.16%	0.00%	0.00%	-0.16%
Alternatives	31.93%	11.81%	20.12%	2.05%	0.00%	0.00%	2.05%
Inflation Hedge	-6.90%	-0.60%	-6.30%	-1.13%	0.00%	0.00%	-1.13%
Cash	0.66%	0.45%	0.21%	0.01%	0.00%	0.00%	0.01%
Total	9.30%	9.28%	0.02%	0.02%	0.00%	0.00%	0.02%

Attribution does not include the impact of the Parametric Minneapolis strategy. Risk Parity closed June 2020.
* Interaction Effects include Residual Effects.

Total Fund ex Overlay
Performance Attribution (1 Year)

Period Ending: December 31, 2020



	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Interaction *	Total Effects
US Equity	14.17%	20.89%	-6.71%	-1.41%	0.00%	0.00%	-1.41%
International Equity	13.03%	9.54%	3.49%	0.60%	0.00%	0.00%	0.60%
Fixed Income	6.84%	7.02%	-0.18%	0.04%	0.00%	0.00%	0.04%
Risk Parity	--	--	--	-0.16%	0.00%	0.00%	-0.16%
Private Equity	70.15%	18.00%	52.15%	2.60%	0.00%	0.00%	2.60%
Hedge Fund/Absolute Return	-6.98%	4.48%	-11.46%	-0.69%	0.00%	0.00%	-0.69%
Real Estate	0.25%	1.17%	-0.92%	-0.09%	0.00%	0.00%	-0.09%
Private Real Asset	-0.52%	-4.84%	4.31%	-0.02%	0.00%	0.00%	-0.02%
Public Real Assets	-14.45%	-4.65%	-9.80%	-0.58%	0.00%	0.00%	-0.58%
Cash	0.66%	0.45%	0.21%	0.01%	0.00%	0.00%	0.01%
Total	9.31%	9.01%	0.30%	0.30%	0.00%	0.00%	0.30%

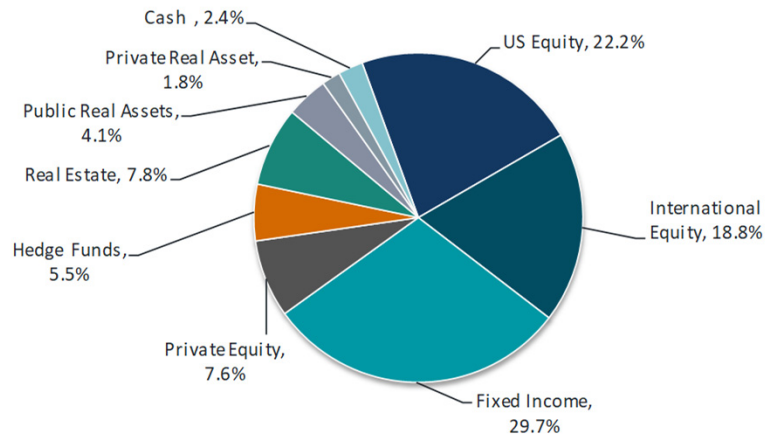
Attribution does not include the impact of the Parametric Minneapolis strategy. Risk Parity closed June 2020.
* Interaction Effects include Residual Effects.

Total Fund

Asset Allocation Analysis

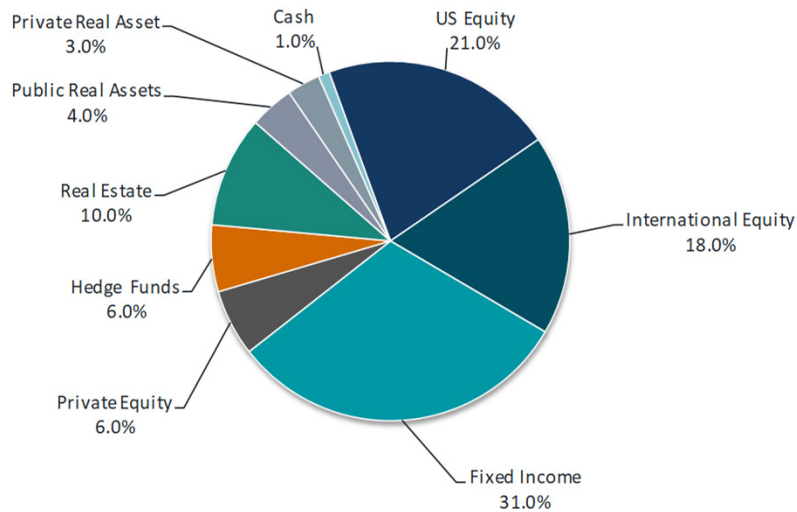
Period Ending: December 31, 2020

Current w/ Overlay



ASSET ALLOCATION	MARKET VALUE W/ OVERLAY	W/ OVERLAY	W/O OVERLAY
US Equity	1,228,754,344	22.2%	21.7%
International Equity	1,037,932,560	18.8%	18.5%
Fixed Income	1,642,274,631	29.7%	28.9%
Private Equity	422,412,520	7.6%	7.6%
Hedge Funds	306,957,470	5.5%	5.5%
Real Estate	431,340,649	7.8%	7.8%
Public Real Assets	227,469,523	4.1%	4.1%
Private Real Asset	101,239,090	1.8%	1.8%
Cash	134,783,923	2.4%	4.0%
TOTAL	5,533,164,711	100.0%	100.0%

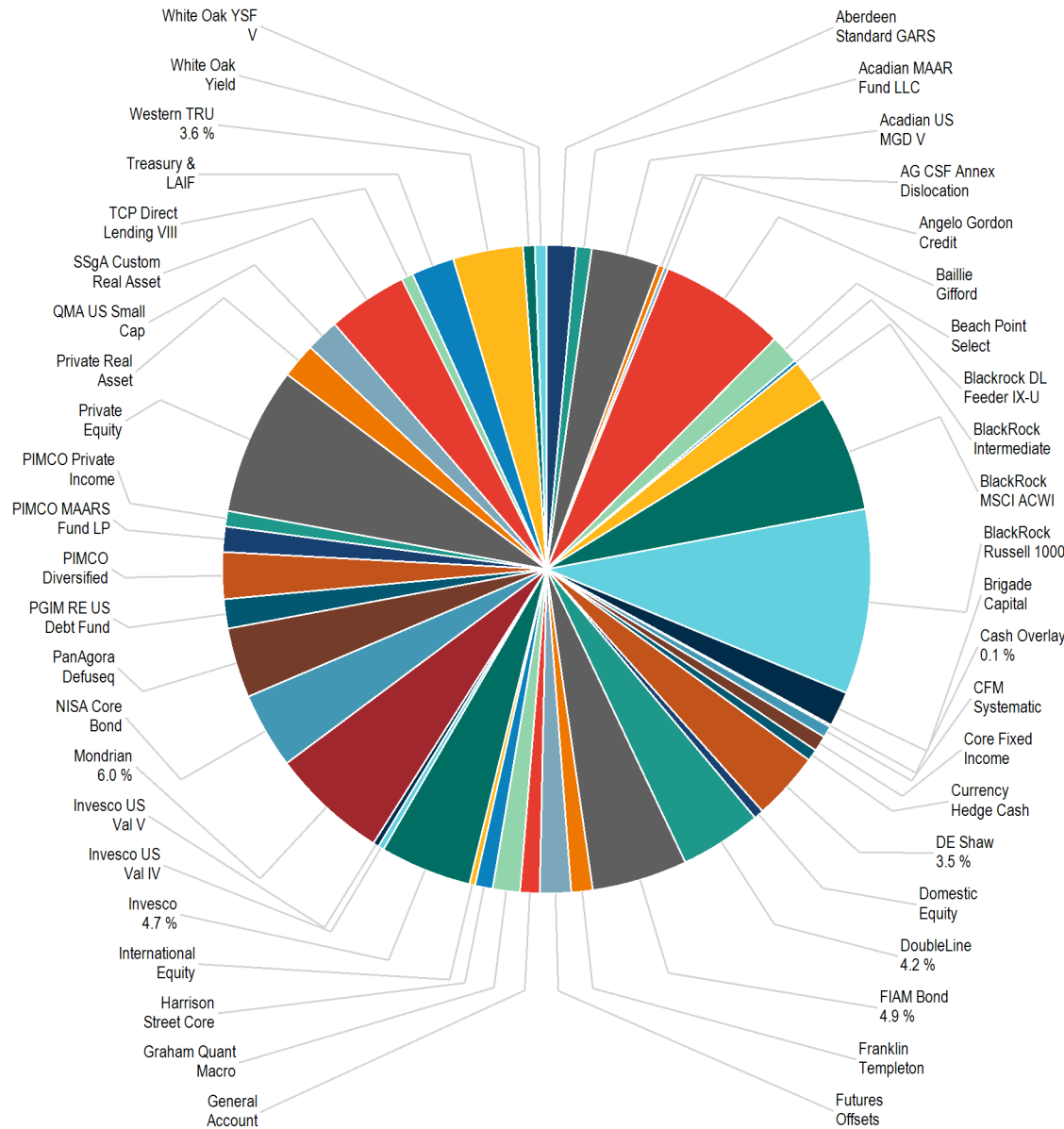
Target



ASSET ALLOCATION	W/ OVERLAY	TARGET	DIFF
US Equity	22.2%	21.0%	1.2%
International Equity	18.8%	18.0%	0.8%
Fixed Income	29.7%	31.0%	-1.3%
Private Equity	7.6%	6.0%	1.6%
Hedge Funds	5.5%	6.0%	-0.5%
Real Estate	7.8%	10.0%	-2.2%
Public Real Assets	4.1%	4.0%	0.1%
Private Real Asset	1.8%	3.0%	-1.2%
Cash	2.4%	1.0%	1.4%
TOTAL	100.0%	100.0%	0.0%

Total Fund Manager Allocation Analysis

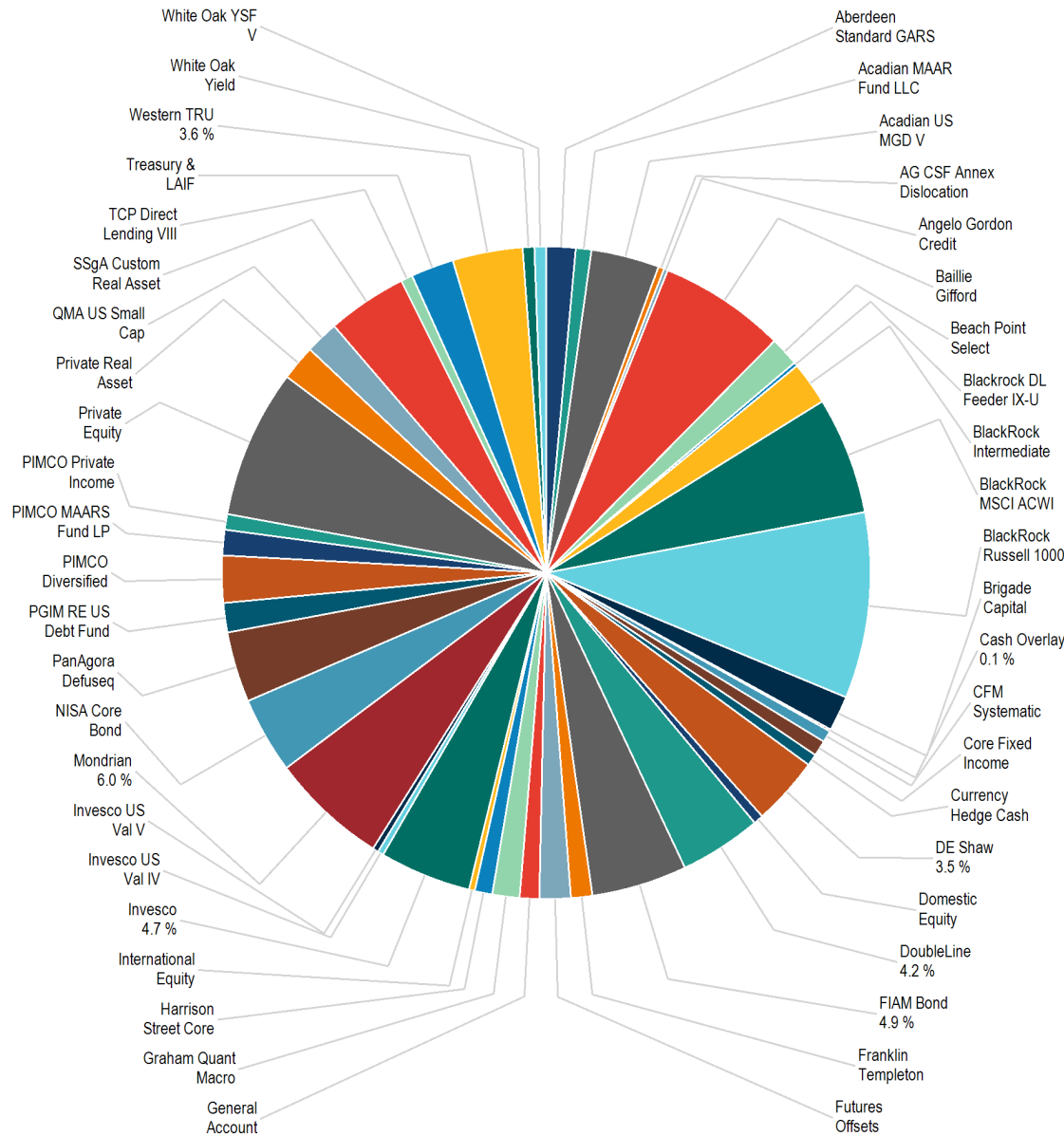
Period Ending: December 31, 2020



Name	Market Value	% of Portfolio
Acadian US MGD V	\$191,477,933	3%
BlackRock Russell 1000	\$524,329,890	9%
DE Shaw	\$192,813,443	3%
PanAgora Defuseq	\$199,107,070	4%
QMA US Small Cap	\$94,367,708	2%
Domestic Equity Overlay	\$26,658,300	0%
Baillie Gifford	\$358,270,630	6%
Mondrian	\$329,618,427	6%
BlackRock MSCI ACWI EX-US IMI	\$334,258,417	6%
Int'l Equity Currency Overlay	\$0	0%
International Equity Overlay	\$15,785,087	0%
BlackRock Intermediate Govt	\$120,278,426	2%
DoubleLine	\$231,202,223	4%
FIAM Bond	\$271,676,815	5%
NISA Core Bond	\$215,702,605	4%
Western TRU	\$199,438,034	4%
Core Fixed Income Overlay	\$43,985,867	1%
AG CSF Annex Dislocation Fund	\$17,541,450	0%
Angelo Gordon Opportunistic	\$2,598,807	0%
Angelo Gordon STAR	\$31,800	0%
Angelo Gordon Credit Solutions	\$13,124,580	0%
Beach Point Select	\$84,463,914	2%
Brigade Capital	\$97,013,974	2%
PIMCO Diversified	\$134,338,857	2%
Franklin Templeton	\$58,718,812	1%
Blackrock DL Feeder IX-U	\$9,275,073	0%
PIMCO Private Income	\$42,506,912	1%
TCP Direct Lending VIII	\$32,471,367	1%
White Oak Yield	\$34,191,325	1%
White Oak YSF V	\$33,713,789	1%

Total Fund Manager Allocation Analysis

Period Ending: December 31, 2020



Name	Market Value	% of Portfolio
Private Equity	\$422,412,520	8%
Aberdeen Standard GARS	\$81,329,035	1%
Acadian MAAR Fund LLC	\$45,822,221	1%
CFM Systematic Global Macro	\$31,559,539	1%
Graham Quant Macro	\$77,719,575	1%
PIMCO MAARS Fund LP	\$70,527,099	1%
Harrison Street Core Property	\$51,180,898	1%
Invesco	\$262,524,177	5%
Invesco US Val IV	\$14,947,299	0%
Invesco US Val V	\$17,562,148	0%
PGIM RE US Debt Fund	\$85,126,127	2%
Private Real Asset	\$101,239,090	2%
SSgA Custom Real Asset	\$227,469,523	4%
General Account	\$56,795,968	1%
Treasury & LAIF	\$122,782,248	2%
Transition Account	\$9	0%
Currency Hedge Cash Overlay	\$33,725,797	1%
Cash Overlay	\$7,909,155	0%
Futures Offsets (SMCE02001)	-\$86,429,254	-2%
Total	\$5,533,164,711	100%

Statistics Summary

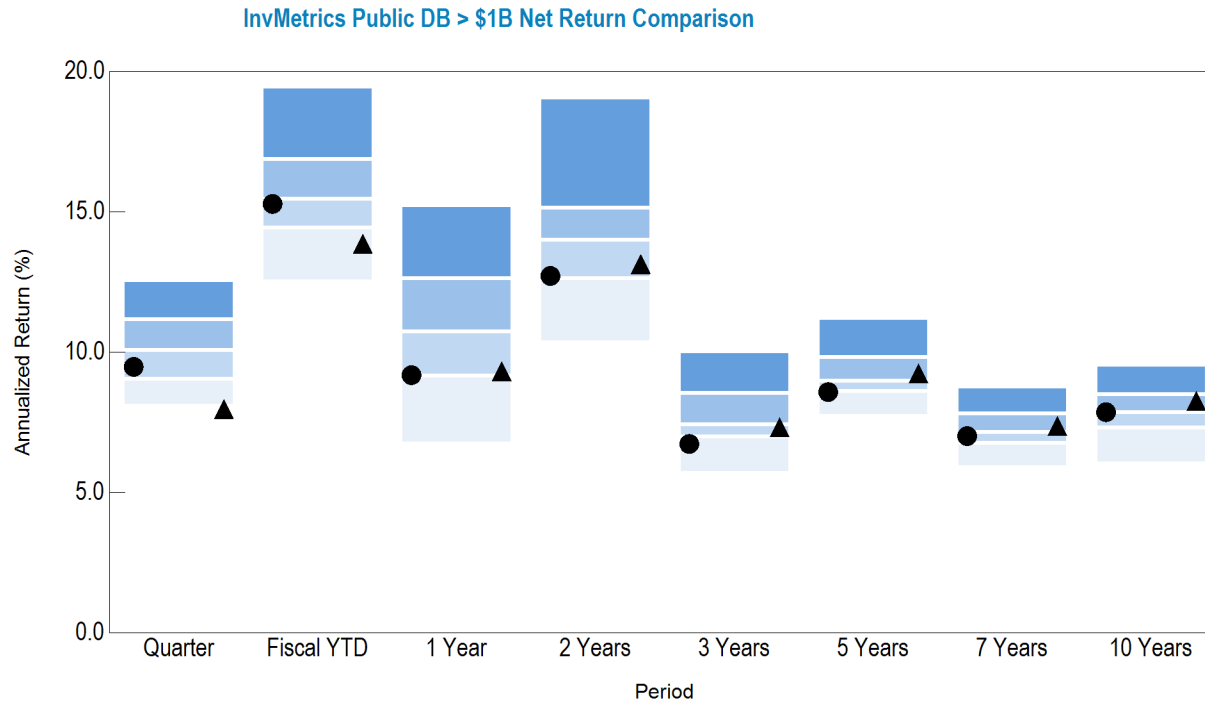
3 Years

	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	6.7%	84	9.6%	32	0.5	63	-0.3	46	2.0%	68
Policy Index	7.3%	54	9.5%	30	0.6	43	--	--	0.0%	1
InvMetrics Public DB > \$1B Net Median	7.4%	--	10.7%	--	0.6	--	-0.4	--	1.3%	--

Statistics Summary

5 Years

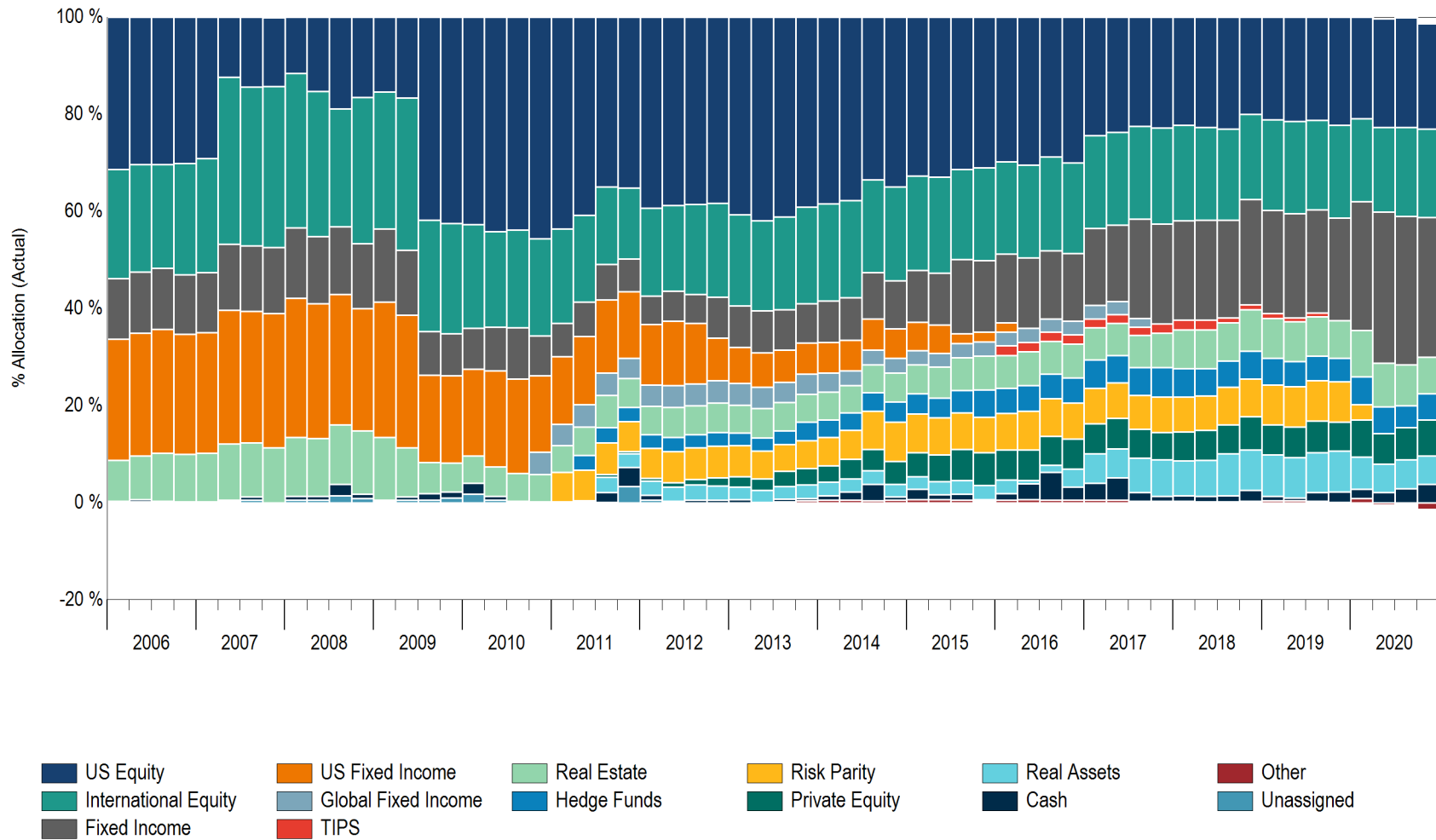
	Anlzd Return	Anlzd Return Rank	Anlzd Standard Deviation	Anlzd Standard Deviation Rank	Sharpe Ratio	Sharpe Ratio Rank	Information Ratio	Information Ratio Rank	Tracking Error	Tracking Error Rank
Total Fund	8.6%	82	8.0%	34	0.9	45	-0.4	58	1.7%	66
Policy Index	9.2%	42	8.0%	37	1.0	30	--	--	0.0%	1
InvMetrics Public DB > \$1B Net Median	9.0%	--	8.8%	--	0.9	--	-0.2	--	1.3%	--

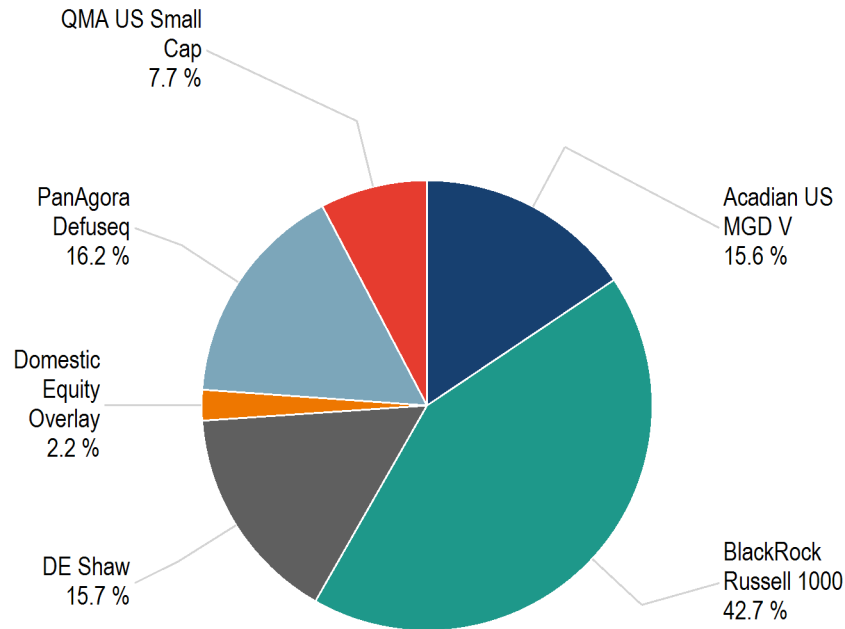


	Quarter	Fiscal YTD	1 Year	2 Years	3 Years	5 Years	7 Years	10 Years
Return (Rank)								
5th Percentile	12.6	19.5	15.2	19.1	10.0	11.2	8.8	9.6
25th Percentile	11.2	16.9	12.7	15.2	8.6	9.9	7.8	8.5
Median	10.1	15.5	10.8	14.0	7.4	9.0	7.2	7.9
75th Percentile	9.1	14.4	9.2	12.6	7.0	8.6	6.8	7.3
95th Percentile	8.1	12.5	6.8	10.4	5.7	7.7	5.9	6.0
# of Portfolios	80	80	80	80	80	80	78	73
● Total Fund	9.5 (66)	15.3 (56)	9.2 (75)	12.7 (73)	6.7 (84)	8.6 (82)	7.0 (61)	7.9 (51)
▲ Policy Index	8.0 (96)	13.9 (85)	9.3 (70)	13.1 (64)	7.3 (54)	9.2 (42)	7.4 (42)	8.3 (36)

Total Fund
Asset Allocation History

Period Ending: December 31, 2020





	Actual \$	Actual %	Manager Contribution to Excess Return %
Acadian US MGD V	\$191,477,933	15.6%	-0.7%
BlackRock Russell 1000	\$524,329,890	42.7%	0.0%
DE Shaw	\$192,813,443	15.7%	0.6%
PanAgora Defuseq	\$199,107,070	16.2%	-0.6%
QMA US Small Cap	\$94,367,708	7.7%	-0.3%
Domestic Equity Overlay	\$26,658,300	2.2%	0.0%
Actual vs. Policy Weight Difference			0.2%
Total	\$1,228,754,344	100.0%	-0.7%

Statistics Summary

3 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
US Equity	11.6%	19.0%	0.5	-2.0	1.5%
Blended US Equity Index	14.5%	19.7%	0.7	--	0.0%
Russell 3000	14.5%	19.7%	0.7	--	0.0%

Statistics Summary

3 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
Large Cap Equity	12.6%	18.4%	0.6	-1.4	1.7%
Russell 1000	14.8%	19.4%	0.7	--	0.0%
BlackRock Russell 1000	14.8%	19.4%	0.7	0.5	0.0%
Russell 1000	14.8%	19.4%	0.7	--	0.0%
DE Shaw	13.5%	19.5%	0.6	-0.5	2.8%
Russell 1000	14.8%	19.4%	0.7	--	0.0%
Small Cap Equity	2.9%	27.0%	0.1	-1.8	4.1%
Russell 2000	10.2%	25.6%	0.3	--	0.0%
QMA US Small Cap	2.9%	27.0%	0.1	-1.8	4.1%
Russell 2000	10.2%	25.6%	0.3	--	0.0%

Statistics Summary

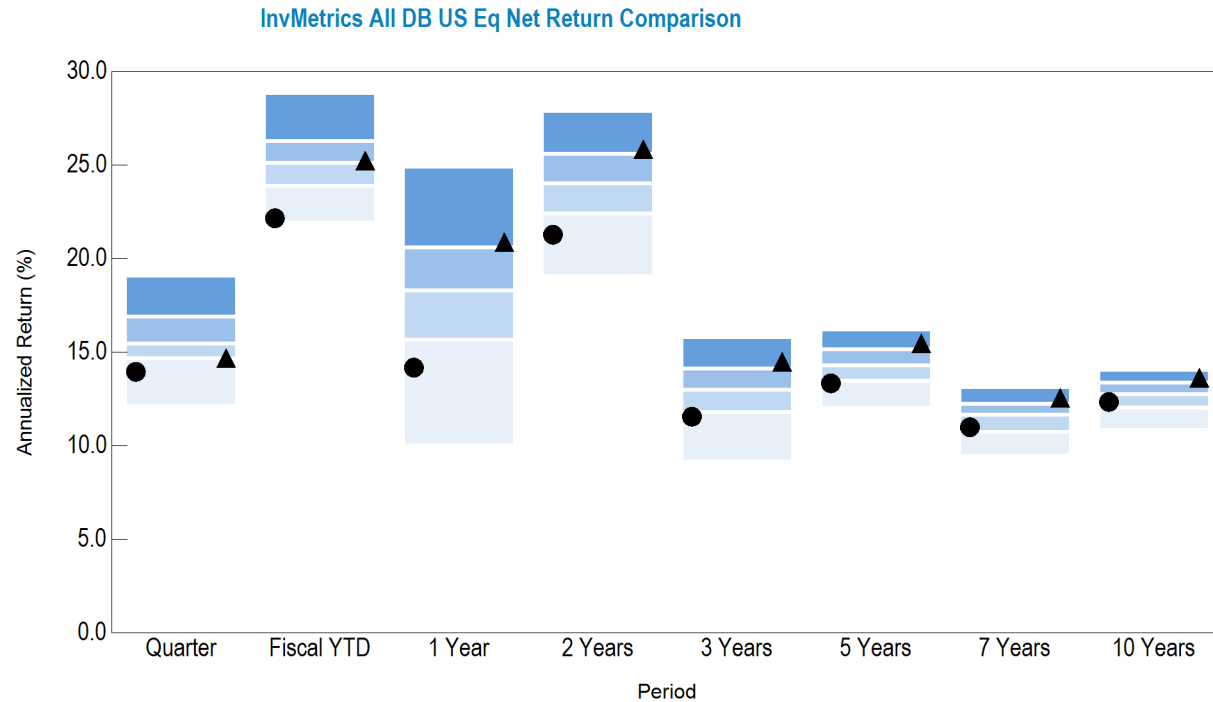
5 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
US Equity	13.3%	15.6%	0.8	-1.7	1.3%
Blended US Equity Index	15.5%	16.1%	0.9	--	0.0%
Russell 3000	15.4%	16.0%	0.9	-0.3	0.1%

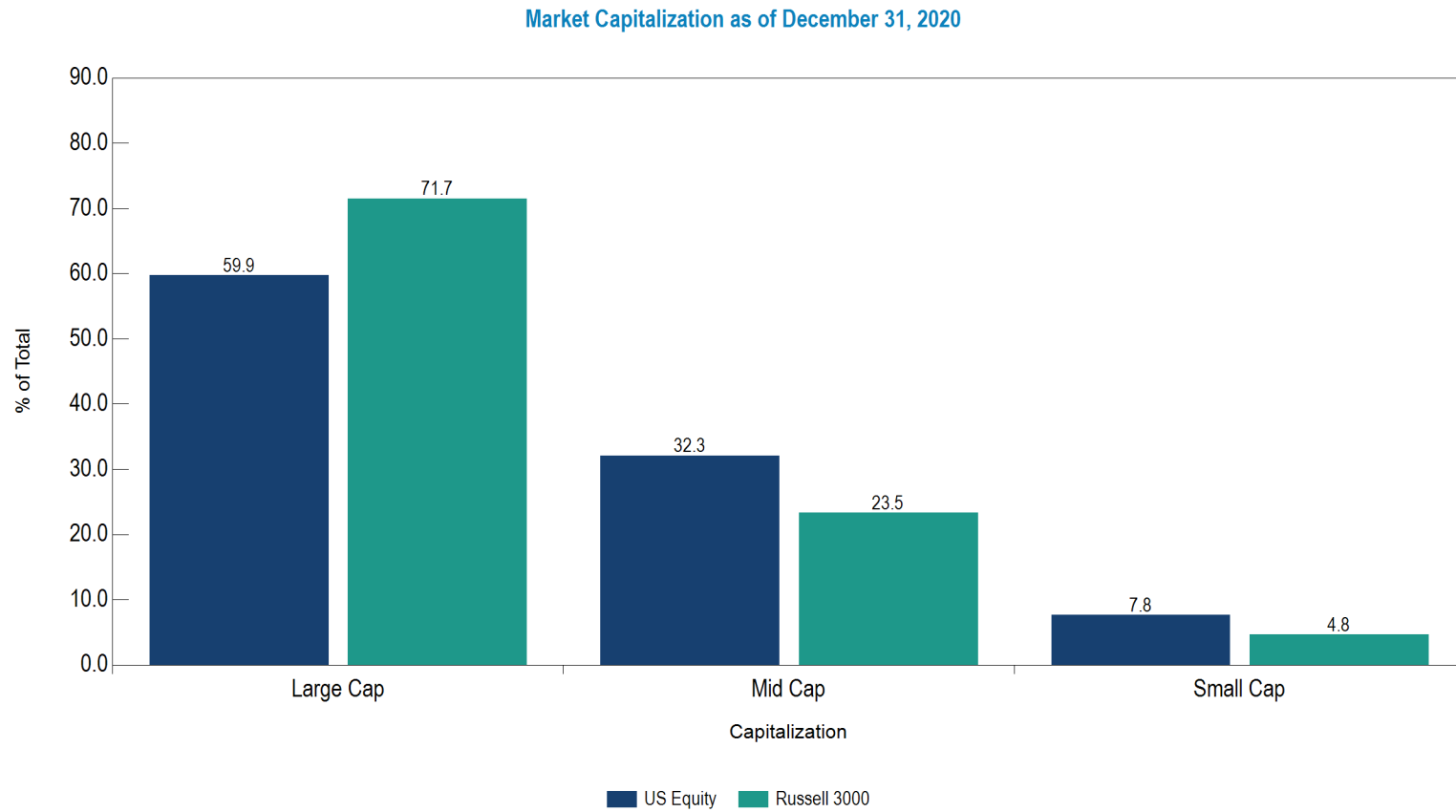
Statistics Summary

5 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
Large Cap Equity	14.4%	15.0%	0.9	-0.8	1.6%
Russell 1000	15.6%	15.7%	0.9	--	0.0%
DE Shaw	15.8%	15.9%	0.9	0.1	2.6%
Russell 1000	15.6%	15.7%	0.9	--	0.0%
Small Cap Equity	7.6%	22.4%	0.3	-1.5	3.7%
Russell 2000	13.3%	21.5%	0.6	--	0.0%



	Return (Rank)							
	Quarter	Fiscal YTD	1 Year	2 Years	3 Years	5 Years	7 Years	10 Years
5th Percentile	19.1	28.8	24.9	27.9	15.8	16.2	13.1	14.1
25th Percentile	16.9	26.3	20.6	25.6	14.1	15.2	12.3	13.4
Median	15.5	25.1	18.3	24.1	13.0	14.3	11.7	12.8
75th Percentile	14.7	23.9	15.7	22.4	11.8	13.5	10.8	12.1
95th Percentile	12.2	22.0	10.0	19.1	9.2	12.1	9.5	10.8
# of Portfolios	543	543	543	538	534	506	474	380
● US Equity	14.0 (89)	22.2 (93)	14.2 (87)	21.3 (86)	11.6 (78)	13.3 (78)	11.0 (70)	12.3 (67)
▲ Blended US Equity Index	14.7 (75)	25.2 (44)	20.9 (21)	25.9 (18)	14.5 (17)	15.5 (14)	12.6 (16)	13.6 (14)



See appendix for the market capitalization breakpoints.

Characteristics

	Portfolio	Russell 3000
Number of Holdings	2,965	3,058
Weighted Avg. Market Cap. (\$B)	288.5	407.2
Median Market Cap. (\$B)	3.9	2.0
Price To Earnings	26.6	29.1
Price To Book	4.1	4.4
Price To Sales	2.3	2.7
Return on Equity (%)	17.1	16.0
Yield (%)	1.6	1.4

Top Holdings

APPLE INC	3.7%
MICROSOFT CORP	3.3%
AMAZON.COM INC	2.2%
FACEBOOK INC	1.3%
ALPHABET INC	1.2%
PROCTER & GAMBLE CO (THE)	1.1%
JOHNSON & JOHNSON	1.1%
VERIZON COMMUNICATIONS INC	1.0%
WALT DISNEY CO (THE)	0.8%
CISCO SYSTEMS INC	0.8%

Best Performers

	Return %
FTS INTERNATIONAL INC (FTSI)	478.3%
FUELCELL ENERGY INC (FCEL)	422.0%
SILVERGATE CAPITAL CORP (SI)	416.0%
APTEVO THERAPEUTICS INC (APVO)	382.2%
MAGNITE INC (MGNI)	342.2%
ALTUS MIDSTREAM CO (ALTM)	327.2%
SM ENERGY CO (SM)	287.3%
SOLID BIOSCIENCES INC (SLDB)	273.4%
FIVE PRIME THERAPEUTICS INC (FPRX)	261.9%
ARVINAS INC (ARVN)	259.7%

Worst Performers

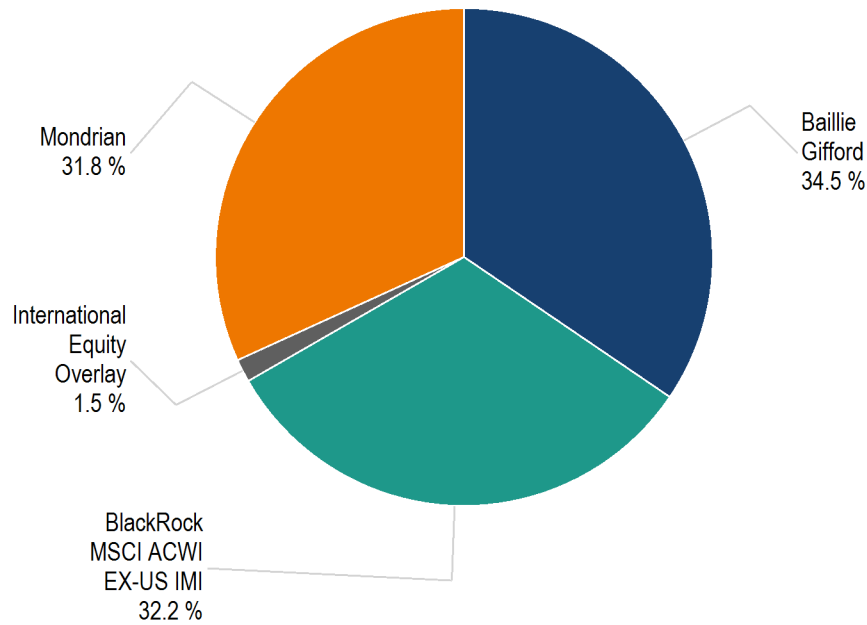
	Return %
GULFPORT ENERGY CORP (GPORQ)	-92.1%
FRANCESSAS HOLDINGS CORP (FRANQ)	-81.5%
APREA THERAPEUTICS INC (APRE)	-79.6%
MALLINCKRODT PLC (MNKKQ)	-79.3%
VIVUS INC (VVUSQ)	-69.1%
CATABASIS PHARMACEUTICALS INC (CATB)	-65.4%
BAUDAX BIO INC (BXRQ)	-63.5%
ASSEMBLY BIOSCIENCES INC (ASMB)	-63.2%
OVID THERAPEUTICS INC (OVID)	-59.8%
AMC ENTERTAINMENT HOLDINGS INC (AMC)	-55.0%

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	0.0%	0.0%	0.0%	0.0%	30.2%	29.4%	1.7%	1.7%			
Materials	-0.1%	-0.1%	0.0%	0.0%	13.3%	17.3%	3.6%	2.8%			
Industrials	-0.2%	-0.1%	0.0%	0.0%	16.7%	18.3%	8.6%	9.0%			
Consumer Discretionary	0.1%	0.1%	0.0%	0.0%	15.4%	14.3%	11.8%	12.4%			
Consumer Staples	-0.5%	-0.1%	-0.3%	-0.1%	4.7%	7.0%	10.0%	6.3%			
Health Care	0.1%	0.1%	-0.1%	0.0%	11.1%	10.2%	15.9%	14.5%			
Financials	0.0%	0.2%	-0.2%	0.0%	27.0%	24.6%	8.2%	9.9%			
Information Technology	0.5%	0.6%	0.0%	-0.1%	16.1%	13.8%	23.1%	27.3%			
Communication Services	0.1%	0.1%	0.0%	0.0%	16.1%	15.4%	9.6%	9.9%			
Utilities	-0.1%	-0.1%	-0.1%	0.0%	6.1%	8.0%	4.0%	2.9%			
Real Estate	0.0%	0.0%	0.0%	0.0%	10.2%	9.3%	3.2%	3.3%			
Cash	0.0%	0.0%	0.0%	0.0%	0.0%	--	0.3%	0.0%			
Unclassified	0.0%	0.0%	0.0%	0.0%	15.2%	--	0.0%	0.0%			
Portfolio	-0.1%	=	0.8%	+	-0.6%	+	-0.3%	14.5%	14.6%	100.0%	100.0%

U.S. Effective Style Map





	Actual \$	Actual %	Manager Contribution to Excess Return %
Baillie Gifford	\$358,270,630	34.5%	0.0%
Mondrian	\$329,618,427	31.8%	-0.4%
BlackRock MSCI ACWI EX-US IMI	\$334,258,417	32.2%	0.0%
International Equity Overlay	\$15,785,087	1.5%	0.0%
Actual vs. Policy Weight Difference			1.4%
Total	\$1,037,932,560	100.0%	1.0%

Statistics Summary

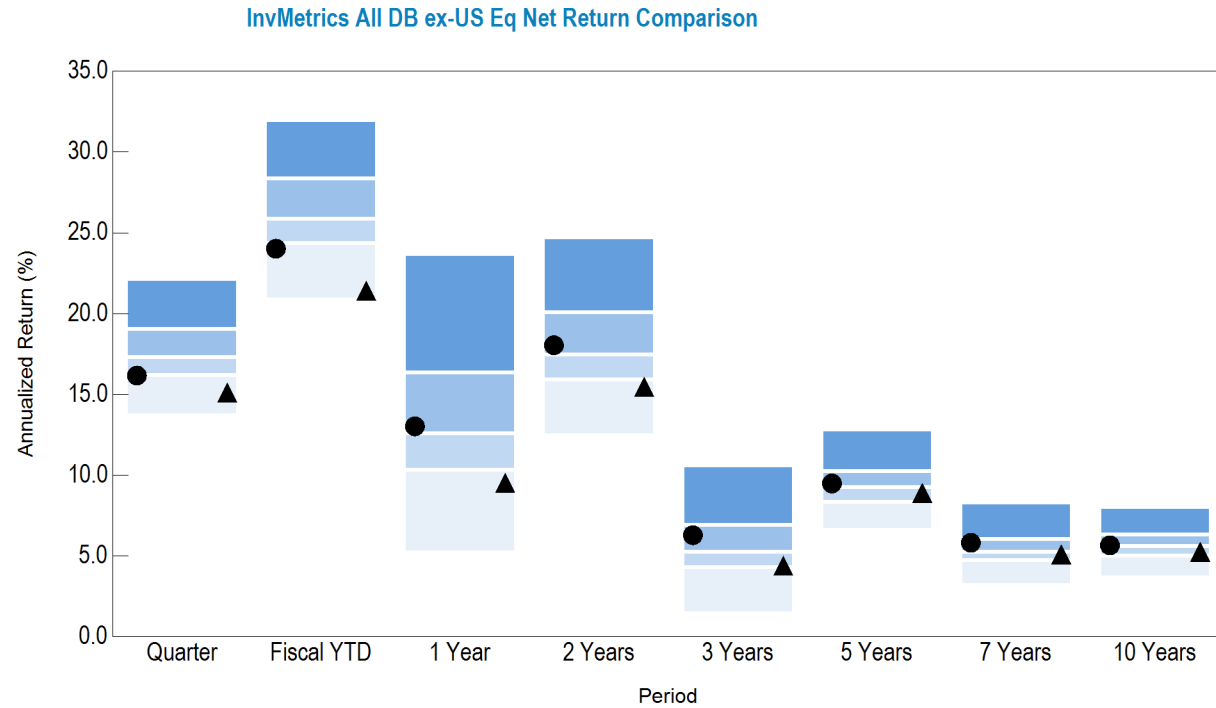
3 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
International Equity	6.3%	17.3%	0.3	1.3	1.4%
Blended International Equity Index	4.4%	17.3%	0.2	--	0.0%
Baillie Gifford	14.1%	19.0%	0.7	1.5	6.0%
MSCI ACWI ex US	5.4%	18.2%	0.2	--	0.0%
Mondrian	1.6%	19.5%	0.0	0.6	2.5%
MSCI ACWI ex USA Value Gross	0.2%	20.6%	-0.1	--	0.0%

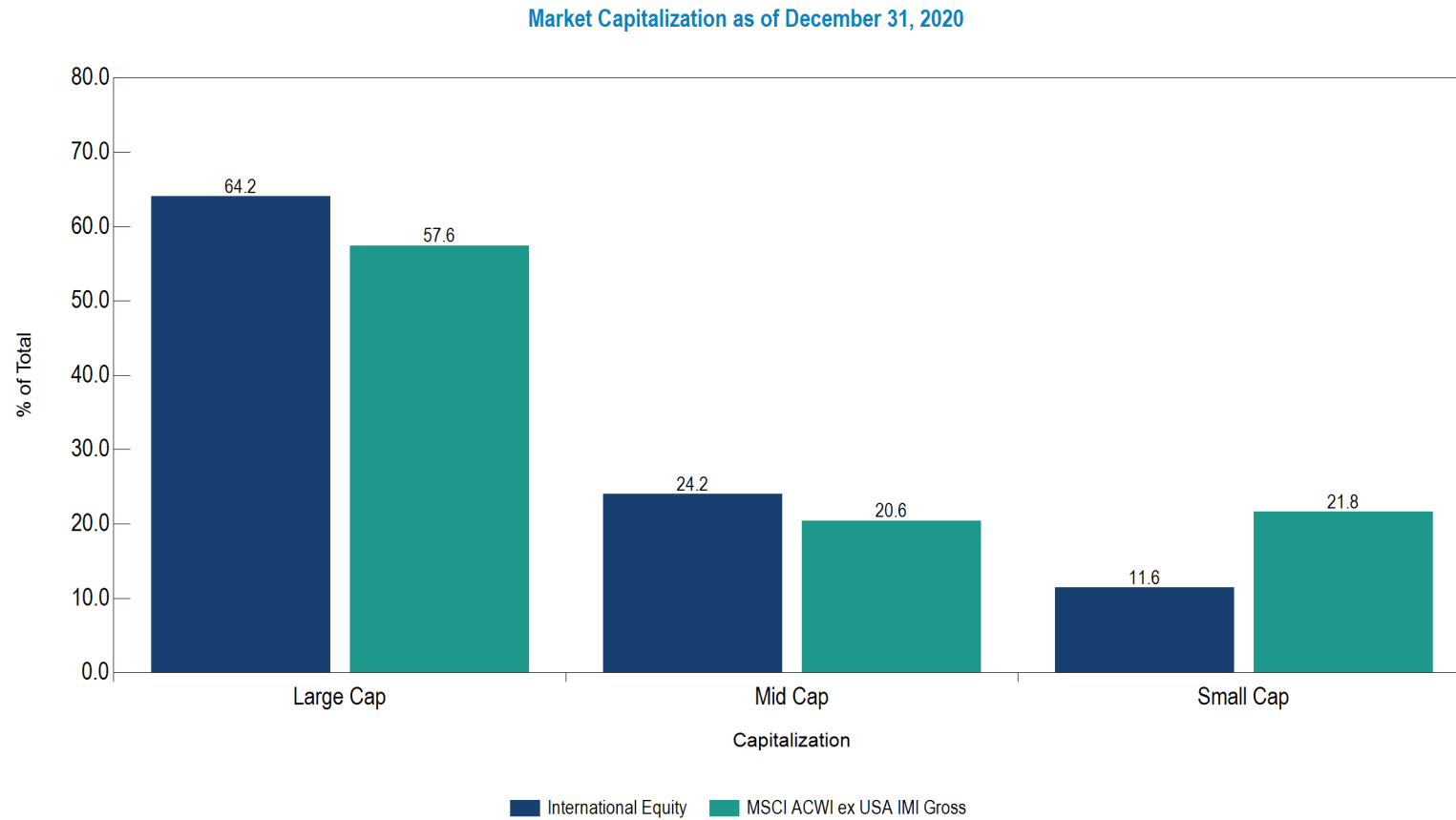
Statistics Summary

5 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
International Equity	9.5%	14.7%	0.6	0.4	1.7%
Blended International Equity Index	8.9%	14.8%	0.5	--	0.0%
Baillie Gifford	14.5%	16.3%	0.8	0.9	5.5%
MSCI ACWI ex US	9.4%	15.4%	0.5	--	0.0%
Mondrian	6.2%	16.1%	0.3	0.0	4.0%
MSCI ACWI ex USA Value Gross	6.3%	17.3%	0.3	--	0.0%



	Return (Rank)							
	Quarter	Fiscal YTD	1 Year	2 Years	3 Years	5 Years	7 Years	10 Years
5th Percentile	22.1	32.0	23.7	24.7	10.6	12.8	8.3	8.0
25th Percentile	19.1	28.4	16.4	20.1	7.0	10.3	6.1	6.4
Median	17.4	25.9	12.6	17.5	5.3	9.3	5.3	5.7
75th Percentile	16.2	24.4	10.4	15.9	4.4	8.4	4.8	5.1
95th Percentile	13.7	20.9	5.2	12.5	1.5	6.6	3.2	3.7
# of Portfolios	353	353	353	352	346	331	314	245
● International Equity	16.2 (77)	24.0 (81)	13.0 (47)	18.0 (44)	6.3 (32)	9.5 (43)	5.8 (30)	5.7 (50)
▲ Blended International Equity Index	15.1 (87)	21.4 (95)	9.5 (79)	15.5 (79)	4.4 (75)	8.9 (63)	5.1 (59)	5.3 (67)



See appendix for the market capitalization breakpoints.

Characteristics

	Portfolio	MSCI ACWI ex USA IMI Gross
Number of Holdings	6,525	6,605
Weighted Avg. Market Cap. (\$B)	85.3	87.1
Median Market Cap. (\$B)	2.1	1.8
Price To Earnings	23.5	20.6
Price To Book	3.0	2.7
Price To Sales	1.3	1.2
Return on Equity (%)	9.2	9.7
Yield (%)	2.0	2.3

Top Holdings

TAIWAN SEMICONDUCTOR MANUFACTURING CO LTD	1.5%
SHOPIFY INC	1.4%
TAIWAN SEMICONDUCTOR MANUFACTURING CO LTD	1.3%
ALIBABA GROUP HOLDING LTD	1.3%
ASML HOLDING NV	1.1%
UNITED OVERSEAS BANK LTD	1.1%
ZALANDO SE	1.0%
SAMSUNG ELECTRONICS CO LTD	1.0%
CONTINENTAL	0.9%
HOUSING DEVELOPMENT FINANCE CORP LTD	0.9%

Best Performers

	Return %
MMX MINERACAO E METALICOS SA	933.2%
GCL-POLY ENERGY HOLDINGS LTD	278.3%
RENOVA INC	261.0%
PILBARA MINERALS LTD	232.0%
DELTA ELECTRONICS (THAILAND) PUBLIC CO LTD	226.7%
YANG MING MARINE TRANSPORT CORP	210.8%
PT WASKITA KARYA (PERSERO)	208.7%
AC ENERGY CORPORATION	193.2%
PT ANEKA TAMBANG (PERSERO) TBK	193.0%
HYUNDAI BIOSCIENCE CO LTD	182.7%

Worst Performers

	Return %
POSEIDON CONCEPTS CORP (POOSF)	-99.0%
HONG KONG FINANCE INVESTMENT HOLDING GROUP LTD	-83.2%
HEBEI CONSTRUCTION GROUP CORPORATION LIMITED	-71.5%
PACIFIC CENTURY PREMIUM DEVELOPMENTS LTD	-59.6%
RELIEFT THERAPEUTICS HOLDING AG	-52.6%
MESOBLAST (A:MSBX)	-52.3%
GNI GROUP (J:GNIL)	-50.6%
IMMUNOVIA AB	-50.2%
SAS AB, STOCKHOLM	-47.9%
S2 RESOURCES LTD	-44.0%

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	0.0%	0.1%	0.0%	-0.1%	24.6%	23.3%	3.4%	3.9%			
Materials	-0.1%	0.2%	-0.1%	-0.3%	21.9%	19.6%	4.9%	8.3%			
Industrials	-0.5%	-0.5%	0.0%	0.0%	13.4%	17.3%	14.1%	12.8%			
Consumer Discretionary	0.2%	0.1%	0.0%	0.2%	16.7%	16.0%	17.2%	13.7%			
Consumer Staples	0.2%	0.3%	0.0%	-0.1%	11.3%	8.7%	8.8%	9.0%			
Health Care	0.1%	0.1%	0.1%	-0.1%	6.5%	6.3%	9.6%	10.3%			
Financials	-0.1%	0.5%	-0.2%	-0.4%	26.9%	24.3%	12.8%	16.1%			
Information Technology	0.3%	0.1%	0.2%	0.0%	23.8%	23.8%	15.0%	11.9%			
Communication Services	0.5%	0.3%	0.0%	0.2%	18.8%	13.7%	9.1%	7.0%			
Utilities	0.1%	0.1%	0.0%	0.0%	20.1%	15.0%	2.7%	3.4%			
Real Estate	0.0%	0.1%	0.1%	-0.2%	16.7%	12.9%	1.4%	3.8%			
Cash	-0.1%	0.0%	-0.1%	0.0%	0.0%	--	1.0%	0.0%			
Unclassified	0.0%	--	--	--	--	--	0.0%	0.0%			
Portfolio	0.7%	=	1.5%	+	-0.1%	+	-0.7%	17.8%	17.1%	100.0%	100.0%

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	
Europe									
Austria	33.2%	38.9%	0.1%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%
Belgium	16.6%	16.6%	0.2%	0.7%	0.0%	0.0%	0.0%	0.0%	0.0%
Czech Republic*	33.7%	32.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Denmark	19.6%	14.3%	0.8%	1.6%	0.1%	0.0%	0.0%	0.0%	0.0%
Finland	-1.5%	11.8%	0.9%	0.8%	-0.1%	0.0%	0.0%	0.0%	-0.1%
France	13.5%	20.2%	6.0%	6.2%	-0.4%	0.0%	0.0%	0.0%	-0.4%
Germany	12.8%	10.5%	5.1%	5.8%	0.1%	0.0%	0.0%	0.0%	0.1%
Greece*	30.4%	33.1%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
Hungary*	37.5%	37.5%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
Ireland	-13.8%	15.7%	1.0%	0.4%	-0.1%	0.0%	0.0%	-0.2%	-0.3%
Italy	21.7%	21.1%	1.5%	1.5%	0.0%	0.0%	0.0%	0.0%	0.0%
Luxembourg	30.4%	17.1%	0.6%	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%
Netherlands	24.1%	21.2%	2.5%	2.3%	0.1%	0.0%	0.0%	0.0%	0.1%
Norway	24.2%	24.2%	0.2%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%
Poland*	20.1%	19.9%	0.1%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%
Portugal	7.5%	21.0%	0.4%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
Russia*	26.4%	25.9%	0.5%	0.7%	0.0%	0.0%	0.0%	0.0%	0.0%
Spain	33.8%	27.0%	1.7%	1.4%	0.1%	0.0%	0.0%	0.0%	0.2%
Sweden	14.1%	15.1%	3.6%	2.6%	0.0%	-0.1%	0.1%	0.0%	0.0%
Switzerland	12.5%	8.5%	4.0%	6.4%	0.2%	0.2%	-0.1%	-0.1%	0.3%
United Kingdom	17.1%	18.5%	11.6%	9.0%	-0.1%	0.0%	0.1%	0.0%	0.0%

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

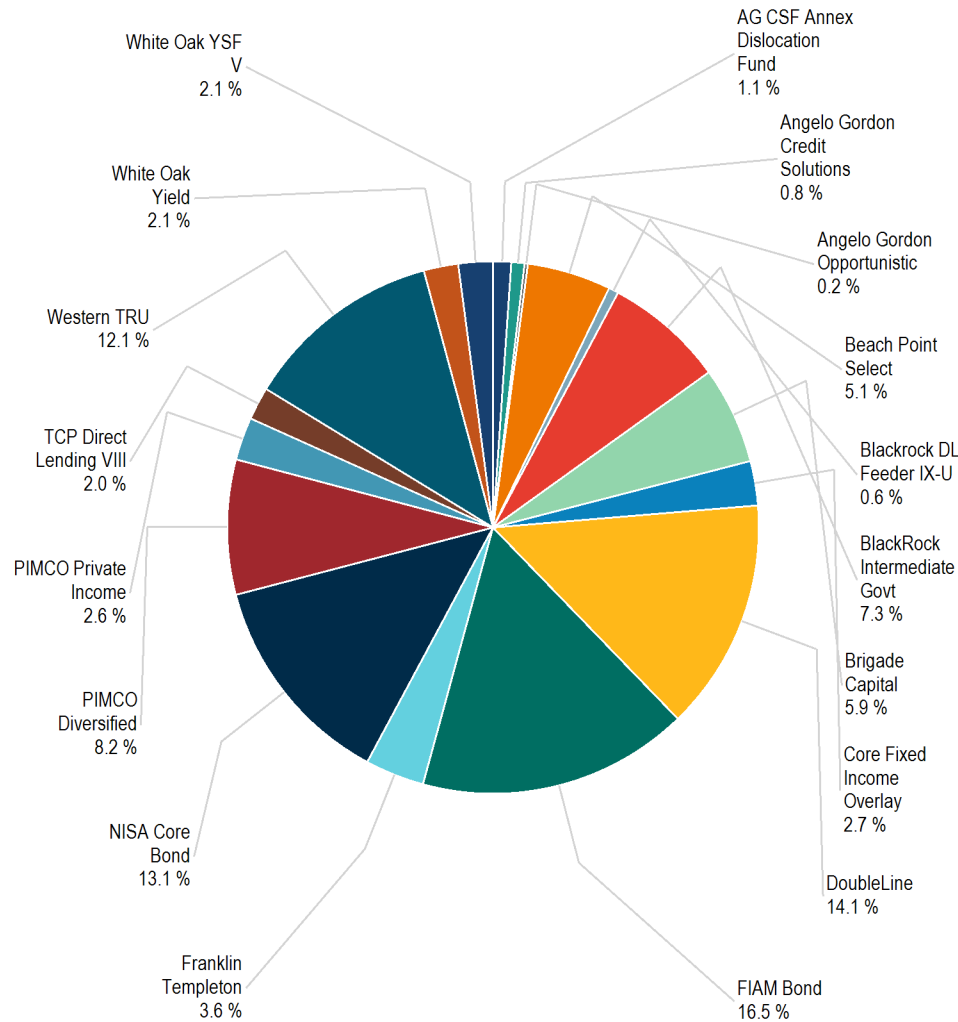
	Returns and Weights				Attribution Effects				Total Effects
	Manager Return	Index Return	Manager Weight	Index Weight	Selection Effect	Allocation Effect	Currency Effect	Interaction Effect	
AsiaPacific									
Australia	19.2%	22.8%	2.8%	4.5%	-0.1%	0.0%	-0.2%	0.1%	-0.3%
China*	16.1%	10.9%	10.1%	11.1%	0.6%	0.0%	0.0%	-0.1%	0.5%
Hong Kong	13.6%	15.1%	3.2%	2.1%	0.0%	0.0%	0.0%	0.0%	0.0%
India*	27.5%	21.3%	3.5%	2.5%	0.2%	0.1%	0.0%	0.1%	0.3%
Indonesia*	41.3%	36.5%	0.3%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%
Japan	14.9%	14.0%	19.8%	17.4%	0.1%	0.0%	0.1%	0.0%	0.2%
Korea*	35.0%	36.1%	2.7%	3.7%	0.0%	-0.1%	-0.1%	0.0%	-0.3%
Malaysia*	12.6%	11.7%	0.2%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%
New Zealand	50.5%	19.2%	0.6%	0.3%	0.1%	0.0%	0.0%	0.1%	0.2%
Pakistan*	9.6%	9.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Philippines*	23.5%	23.5%	0.1%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%
Singapore	20.3%	16.8%	1.5%	0.7%	0.0%	0.0%	0.0%	0.0%	0.1%
Taiwan*	28.2%	22.3%	4.2%	4.0%	0.3%	0.0%	0.0%	0.0%	0.3%
Thailand*	23.6%	22.5%	0.3%	0.6%	0.0%	0.0%	0.0%	0.0%	0.0%
Americas									
Argentina*	54.4%	25.4%	0.5%	0.1%	0.0%	0.1%	0.0%	0.1%	0.2%
Brazil*	29.5%	36.4%	1.2%	1.4%	-0.1%	0.0%	0.0%	0.0%	-0.1%
Canada	13.7%	14.6%	4.3%	6.5%	0.1%	0.1%	-0.2%	0.0%	-0.1%
Chile*	27.1%	27.2%	0.1%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%
Colombia*	47.6%	47.5%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
Mexico*	33.5%	31.6%	0.4%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%
Peru*	-0.2%	29.9%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
United States	18.3%	13.0%	0.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

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	
Other									
Egypt*	-2.8%	-2.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Israel	21.6%	22.0%	0.2%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%
Qatar*	2.3%	2.3%	0.1%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%
Romania**	0.0%	13.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Saudi Arabia*	6.7%	6.7%	0.3%	0.8%	0.0%	0.0%	0.0%	0.0%	0.0%
South Africa*	18.6%	22.5%	0.9%	1.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Turkey*	34.0%	34.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
United Arab Emirates*	10.9%	10.9%	0.1%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%
Totals									
Americas	20.8%	19.5%	7.2%	8.7%	0.3%	0.0%	-0.3%	-0.1%	0.0%
Europe	15.8%	16.4%	40.9%	40.5%	-0.2%	0.0%	0.1%	0.0%	-0.2%
Asia/Pacific	19.2%	17.3%	49.2%	48.0%	1.1%	0.0%	-0.2%	0.0%	1.0%
Other	15.9%	15.7%	1.6%	2.9%	-0.1%	0.0%	0.0%	0.0%	0.0%
Cash	0.0%	--	1.1%	0.0%	0.0%	-0.1%	0.0%	0.0%	-0.1%
Total	17.7%	17.1%	100.0%	100.0%	1.1%	-0.1%	-0.4%	0.0%	0.6%
Totals									
Developed	15.8%	15.9%	73.3%	71.5%	0.1%	0.0%	-0.2%	0.0%	0.0%
Emerging*	23.8%	19.9%	25.6%	28.5%	1.3%	-0.1%	-0.3%	-0.1%	0.8%
Frontier**	0.0%	--	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Cash	0.0%	--	1.1%	0.0%	0.0%	-0.1%	0.0%	0.0%	-0.1%

Fixed Income Manager Allocation Analysis

Period Ending: December 31, 2020



	Actual \$	Actual %	Manager Contribution to Excess Return %
AG CSF Annex Dislocation Fund	\$17,541,450	1.1%	0.0%
Angelo Gordon Credit Solutions	\$13,124,580	0.8%	0.0%
Angelo Gordon Opportunistic	\$2,598,807	0.2%	0.0%
Angelo Gordon STAR	\$31,800	0.0%	0.0%
Beach Point Select	\$84,463,914	5.1%	0.2%
Blackrock DL Feeder IX-U	\$9,275,073	0.6%	0.0%
BlackRock Intermediate Govt	\$120,278,426	7.3%	0.0%
Brigade Capital	\$97,013,974	5.9%	0.2%
DoubleLine	\$231,202,223	14.1%	-0.1%
FIAM Bond	\$271,676,815	16.5%	0.1%
Franklin Templeton	\$58,718,812	3.6%	-0.1%
NISA Core Bond	\$215,702,605	13.1%	0.0%
PIMCO Diversified	\$134,338,857	8.2%	0.0%
PIMCO Private Income	\$42,506,912	2.6%	0.0%
TCP Direct Lending VIII	\$32,471,367	2.0%	0.0%
Western TRU	\$199,438,034	12.1%	0.5%
White Oak Yield	\$34,191,325	2.1%	-0.1%
White Oak YSF V	\$33,713,789	2.1%	0.0%
Core Fixed Income Overlay	\$43,985,867	2.7%	0.0%
Actual vs. Policy Weight Difference			-0.3%
Total	\$1,642,274,631	100.0%	0.4%

Fixed Income
Risk vs. Return (3 Years)

Period Ending: December 31, 2020

Statistics Summary

3 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
Fixed Income	5.2%	3.5%	1.0	-0.2	1.9%
Blended Fixed Income Index	5.6%	4.1%	1.0	--	0.0%
Core Fixed	5.1%	2.9%	1.3	-0.2	1.5%
BBgBarc US Aggregate TR	5.3%	3.4%	1.1	--	0.0%
BlackRock Intermediate Govt	4.3%	2.5%	1.1	3.1	0.1%
BBgBarc US Govt Int TR	4.1%	2.5%	1.0	--	0.0%
FIAM Bond	6.3%	3.9%	1.3	0.6	1.6%
BBgBarc US Aggregate TR	5.3%	3.4%	1.1	--	0.0%
Western TRU	4.0%	6.8%	0.4	0.3	6.8%
3-Month Libor Total Return USD	1.8%	0.3%	1.1	--	0.0%
Opportunistic Credit	5.4%	6.8%	0.6	-0.3	4.4%
BBgBarc BA Intermediate HY	6.6%	8.0%	0.6	--	0.0%
Angelo Gordon Opportunistic	9.7%	18.4%	0.4	0.2	18.5%
BBgBarc US Aggregate TR	5.3%	3.4%	1.1	--	0.0%
Angelo Gordon STAR	12.5%	12.4%	0.9	0.6	12.3%
BBgBarc US Aggregate TR	5.3%	3.4%	1.1	--	0.0%
Beach Point Select	7.7%	8.8%	0.7	0.2	4.7%
BBgBarc BA Intermediate HY	6.6%	8.0%	0.6	--	0.0%
Brigade Capital	3.9%	12.1%	0.2	-0.4	6.8%
BBgBarc BA Intermediate HY	6.6%	8.0%	0.6	--	0.0%
PIMCO Diversified	6.0%	6.8%	0.7	0.1	1.4%
Blended PIMCO Diversified Index	5.8%	7.7%	0.6	--	0.0%

Statistics Summary

3 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
Franklin Templeton	-1.5%	6.9%	-0.4	-0.8	7.7%
BBgBarc Multiverse TR	4.8%	4.3%	0.8	--	0.0%
Private Credit	7.3%	4.1%	1.4	0.0	2.2%
Cliffwater Direct Lending Index	7.4%	5.3%	1.1	--	0.0%
TCP Direct Lending VIII	6.8%	3.1%	1.7	-0.1	4.2%
Cliffwater Direct Lending Index	7.4%	5.3%	1.1	--	0.0%
White Oak Yield	6.6%	3.5%	1.5	-0.2	3.5%
Cliffwater Direct Lending Index	7.4%	5.3%	1.1	--	0.0%

Fixed Income
Risk vs. Return (5 Years)

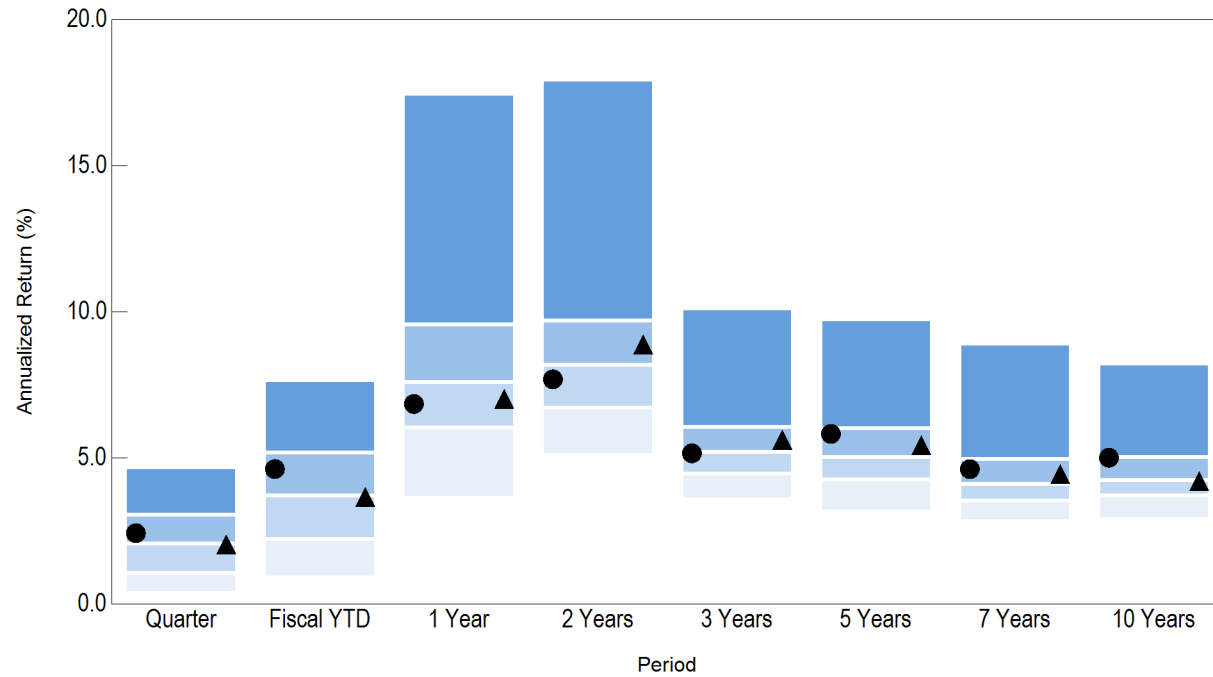
Period Ending: December 31, 2020

Statistics Summary

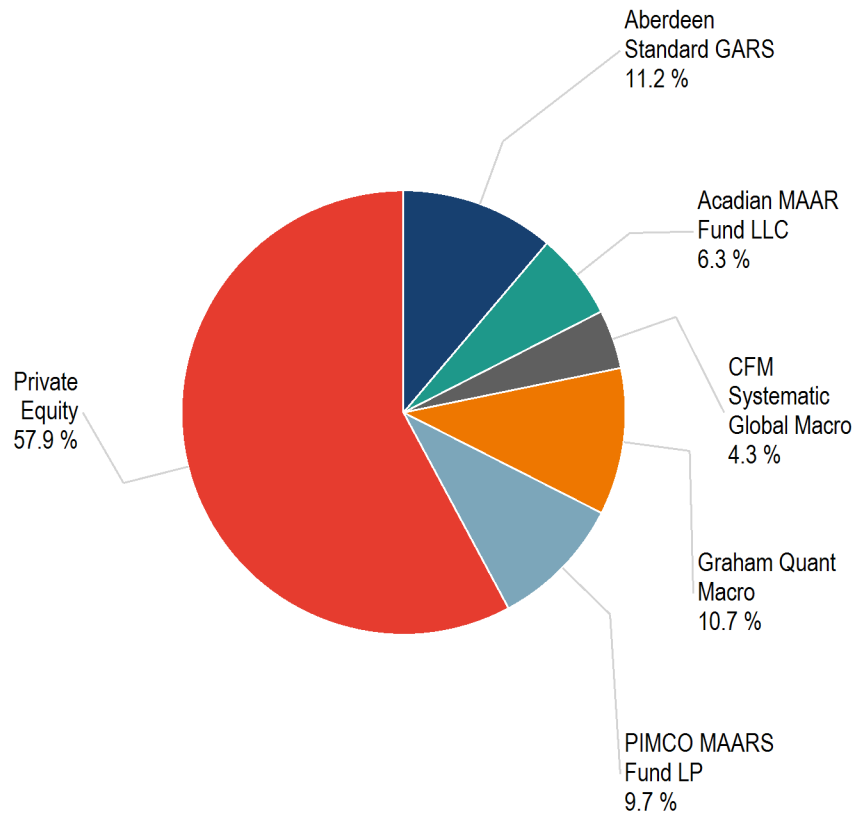
5 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
Fixed Income	5.8%	3.2%	1.5	0.2	2.0%
Blended Fixed Income Index	5.4%	3.6%	1.2	--	0.0%
Core Fixed	4.9%	2.8%	1.3	0.3	1.7%
BBgBarc US Aggregate TR	4.4%	3.2%	1.0	--	0.0%
FIAM Bond	5.5%	3.5%	1.3	0.8	1.3%
BBgBarc US Aggregate TR	4.4%	3.2%	1.0	--	0.0%
Western TRU	5.2%	5.8%	0.7	0.6	5.9%
3-Month Libor Total Return USD	1.5%	0.2%	1.4	--	0.0%
Opportunistic Credit	7.9%	5.7%	1.2	0.1	3.7%
BBgBarc BA Intermediate HY	7.6%	6.5%	1.0	--	0.0%
Angelo Gordon Opportunistic	10.7%	15.0%	0.6	0.4	15.2%
BBgBarc US Aggregate TR	4.4%	3.2%	1.0	--	0.0%
Angelo Gordon STAR	12.4%	10.4%	1.1	0.7	10.6%
BBgBarc US Aggregate TR	4.4%	3.2%	1.0	--	0.0%
Beach Point Select	9.5%	7.2%	1.2	0.5	3.9%
BBgBarc BA Intermediate HY	7.6%	6.5%	1.0	--	0.0%
Brigade Capital	8.2%	10.2%	0.7	0.1	5.9%
BBgBarc BA Intermediate HY	7.6%	6.5%	1.0	--	0.0%
Franklin Templeton	1.4%	6.5%	0.0	-0.4	8.0%
BBgBarc Multiverse TR	5.0%	4.7%	0.8	--	0.0%

InvMetrics All DB Total Fix Inc Net Return Comparison



	Return (Rank)							
	Quarter	Fiscal YTD	1 Year	2 Years	3 Years	5 Years	7 Years	10 Years
5th Percentile	4.7	7.7	17.4	17.9	10.1	9.7	8.9	8.2
25th Percentile	3.1	5.2	9.6	9.7	6.1	6.0	5.0	5.0
Median	2.1	3.7	7.6	8.2	5.2	5.0	4.1	4.3
75th Percentile	1.1	2.2	6.0	6.7	4.5	4.3	3.5	3.7
95th Percentile	0.4	0.9	3.6	5.1	3.6	3.2	2.8	2.9
# of Portfolios	299	299	299	298	296	278	258	219
● Fixed Income	2.4 (44)	4.6 (36)	6.8 (61)	7.7 (61)	5.2 (54)	5.8 (30)	4.6 (32)	5.0 (26)
▲ Blended Fixed Income Index	2.0 (52)	3.7 (53)	7.0 (56)	8.9 (36)	5.6 (37)	5.4 (40)	4.4 (39)	4.2 (55)



	Actual \$	Actual %	Manager Contribution to Excess Return %
Aberdeen Standard GARS	\$81,329,035	11.2%	0.4%
Acadian MAAR Fund LLC	\$45,822,221	6.3%	0.0%
CFM Systematic Global Macro	\$31,559,539	4.3%	0.0%
Graham Quant Macro	\$77,719,575	10.7%	0.5%
PIMCO MAARS Fund LP	\$70,527,099	9.7%	-0.1%
Private Equity	\$422,412,520	57.9%	11.6%
Actual vs. Policy Weight Difference			0.7%
Total	\$729,369,990	100.0%	13.0%

Statistics Summary

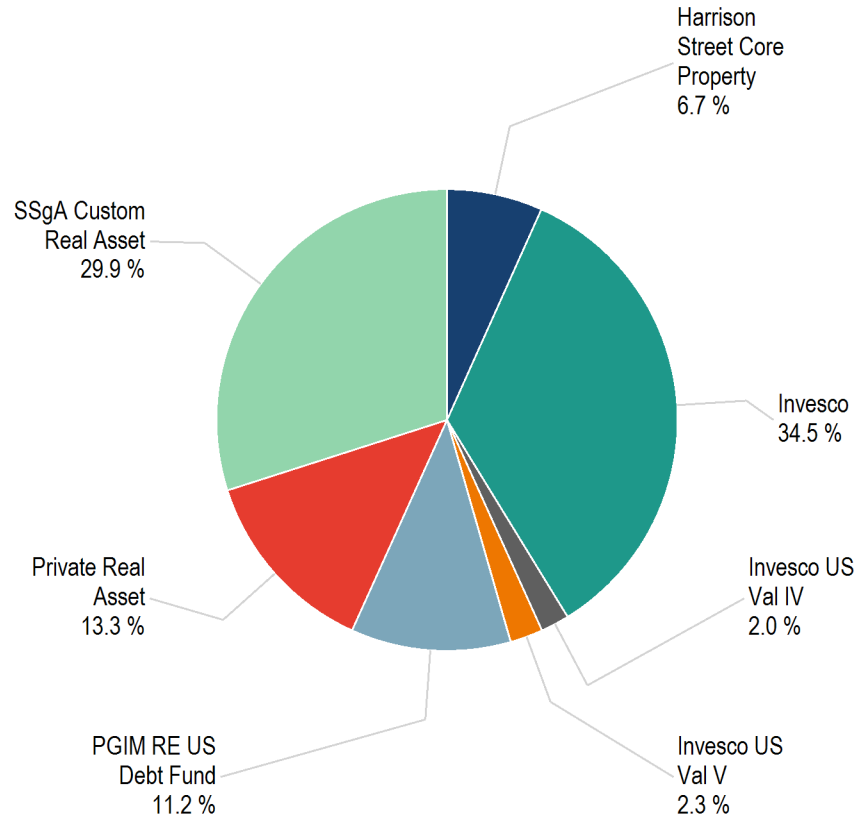
3 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
Alternatives	13.3%	14.7%	0.8	0.3	13.7%
Blended Alternatives Index	9.3%	9.2%	0.8	--	0.0%
Private Equity	32.7%	24.3%	1.3	0.9	22.9%
Blended Private Equity Index	12.2%	18.2%	0.6	--	0.0%
Hedge Fund/Absolute Return	-7.2%	7.0%	-1.2	-1.8	7.0%
Libor 1 month +4%	5.6%	0.3%	16.3	--	0.0%
Aberdeen Standard GARS	3.5%	5.1%	0.4	-0.4	5.1%
Libor 1 month +4%	5.6%	0.3%	16.3	--	0.0%

Statistics Summary

5 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
Alternatives	11.7%	11.8%	0.9	0.1	11.3%
Blended Alternatives Index	10.7%	7.6%	1.3	--	0.0%
Private Equity	25.0%	19.8%	1.2	0.5	19.4%
Blended Private Equity Index	15.2%	14.9%	0.9	--	0.0%
Hedge Fund/Absolute Return	-3.3%	5.9%	-0.7	-1.4	5.9%
Libor 1 month +4%	5.3%	0.2%	17.2	--	0.0%
Aberdeen Standard GARS	2.4%	4.4%	0.3	-0.7	4.4%
Libor 1 month +4%	5.3%	0.2%	17.2	--	0.0%



	Actual \$	Actual %	Manager Contribution to Excess Return %
Harrison Street Core Property	\$51,180,898	6.7%	0.0%
Invesco	\$262,524,177	34.5%	0.1%
Invesco US Val IV	\$14,947,299	2.0%	0.1%
Invesco US Val V	\$17,562,148	2.3%	0.1%
PGIM RE US Debt Fund	\$85,126,127	11.2%	0.0%
Private Real Asset	\$101,239,090	13.3%	-1.0%
SSgA Custom Real Asset	\$227,469,523	29.9%	0.0%
Actual vs. Policy Weight Difference			0.1%
Total	\$760,049,262	100.0%	-0.7%

Statistics Summary

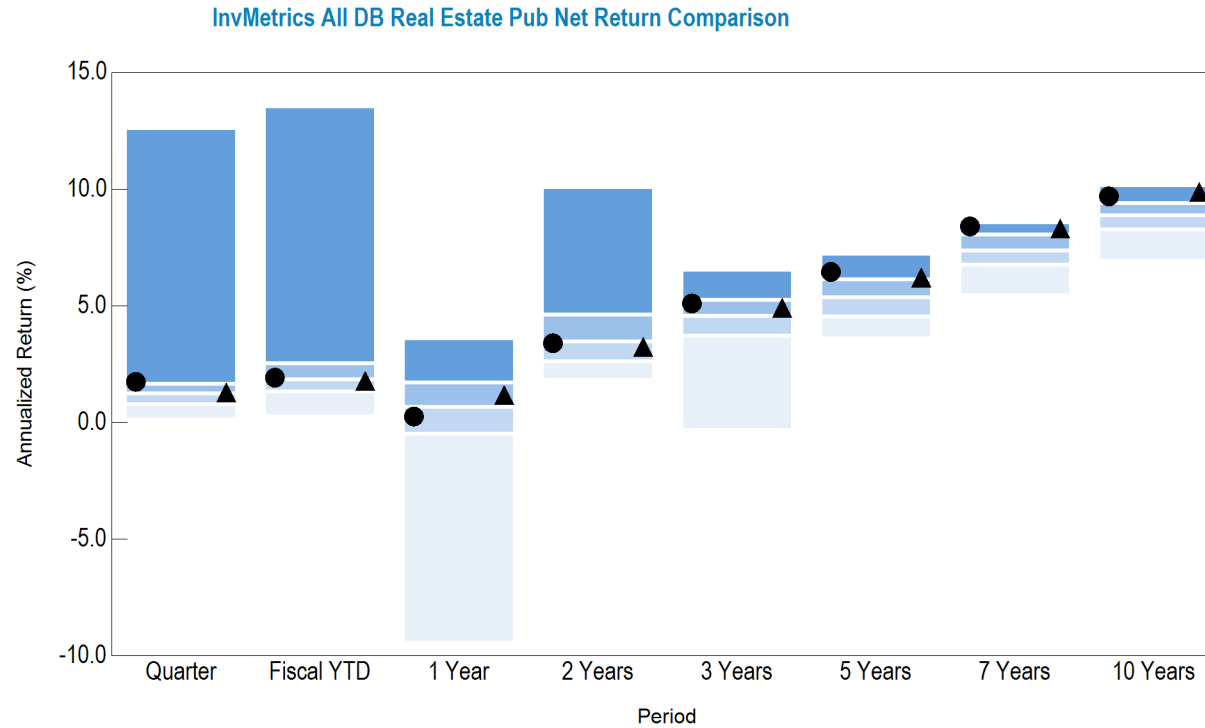
3 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
Inflation Hedge	-0.3%	7.0%	-0.2	-1.1	2.6%
Blended Inflation Hedge Index	2.6%	6.1%	0.2	--	0.0%
Real Estate	5.1%	3.5%	1.0	0.2	1.1%
NCREIF ODCE	4.9%	2.8%	1.2	--	0.0%
Invesco	4.3%	4.1%	0.7	-0.3	1.9%
NCREIF ODCE	4.9%	2.8%	1.2	--	0.0%
Invesco US Val IV	9.1%	6.3%	1.2	1.0	4.2%
NCREIF ODCE	4.9%	2.8%	1.2	--	0.0%
PGIM RE US Debt Fund	5.5%	2.3%	1.7	0.3	1.8%
NCREIF ODCE	4.9%	2.8%	1.2	--	0.0%
Private Real Asset	-2.5%	9.7%	-0.4	-0.1	18.3%
Blended Private Real Asset Index	-1.4%	19.3%	-0.1	--	0.0%
Public Real Assets	-5.1%	19.9%	-0.3	-1.1	4.4%
Blended Public Real Asset Index	-0.3%	16.8%	-0.1	--	0.0%
SSgA Custom Real Asset	-0.3%	16.5%	-0.1	0.0	0.8%
SSgA Custom Real Asset Index	-0.3%	16.8%	-0.1	--	0.0%

Statistics Summary

5 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error Rank
Real Estate	6.4%	3.6%	1.5	0.2	38
NCREIF ODCE	6.2%	3.0%	1.7	--	1
Invesco	6.0%	4.0%	1.2	-0.1	--
NCREIF ODCE	6.2%	3.0%	1.7	--	--
Invesco US Val IV	9.1%	5.8%	1.4	0.7	--
NCREIF ODCE	6.2%	3.0%	1.7	--	--
Private Real Asset	5.4%	22.0%	0.2	0.1	--
Blended Private Real Asset Index	2.8%	15.1%	0.1	--	--



	Quarter	Fiscal YTD	1 Year	2 Years	3 Years	5 Years	7 Years	10 Years
Return (Rank)								
5th Percentile	12.6	13.5	3.6	10.1	6.5	7.2	8.6	10.2
25th Percentile	1.7	2.6	1.7	4.6	5.3	6.2	8.1	9.4
Median	1.3	1.9	0.7	3.5	4.6	5.4	7.4	8.9
75th Percentile	0.8	1.3	-0.5	2.6	3.7	4.6	6.8	8.3
95th Percentile	0.1	0.3	-9.4	1.8	-0.3	3.6	5.5	6.9
# of Portfolios	84	84	84	82	82	78	73	58
● Real Estate	1.7 (24)	1.9 (49)	0.3 (70)	3.4 (53)	5.1 (30)	6.4 (19)	8.4 (11)	9.7 (11)
▲ NCREIF ODCE	1.3 (48)	1.8 (52)	1.2 (33)	3.2 (55)	4.9 (36)	6.2 (24)	8.3 (15)	9.9 (8)

Acadian Asset Management – Acadian U.S. Managed Volatility

Acadian attempts to take advantage of the mispricing of risk by building low-risk equity portfolios that hold predominantly low-risk stocks, and then also adding information on the correlation structure of equities to help further reduce risk through diversification.

Acadian Asset Management – MAAR Fund

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.

Angelo, Gordon & Co. – AG STAR Fund

The STAR Fund will focus on CMBS and non-Agency RMBS priced between 25-75% of par, which AG believes are even today mispriced due to their complex nature and a dearth of natural buyers capable of accurately valuing these assets. In addition, AG will target securities that are well-positioned to benefit from home and commercial property price stabilization and recovery, and/or borrower credit quality improvement. In this regard the STAR Fund will be more aggressive than the PPIP Fund since it will target securities that are more geared to a recovery of the commercial and residential real estate markets. The Fund will utilize a moderate amount of leverage (1x to 1.5x) and is targeting a base-case 15% net IRR with a downside return in the mid/high single digits and an upside projection of 25%+ returns.

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

As bank balance sheets have strengthened since the crisis, Angelo Gordon expects approximately \$40 billion of re-performing loans and non-performing loans will trade hands each year in the near term. By acquiring these loans at a discounted price and replacing original servicers with better-focused special servicers, Angelo Gordon believes it can improve operational efficiency and generate attractive returns. To take advantage of this opportunity, Angelo Gordon established this Opportunistic Whole Loan Fund to make investments primarily in a portfolio of non-performing loans and re-performing, but will 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. Angelo Gordon has been an active participant in the residential and consumer debt market since 2008. The Partnership's investment approach to residential mortgage loans and securities is guided by an analytically based investment process anchored by distressed asset valuation and cash flow modeling. Angelo Gordon's analysis of re-performing and non-performing loans begins with its loan due diligence process. This process will include a review of substantially all of the properties in the pool, as well as a review of the loan files backing the loan pool. In addition, a macro overlay is embedded in the investment process which incorporates general economic trends, along with specific views on interest rates, unemployment, collateral appreciation or depreciation, governmental intervention in creditors' rights and liquidation timelines.

Angelo, Gordon & Co. – Credit Solutions

This fund is Angelo, Gordon's re-entry into the special situations private fund market. The fund expects to hold concentrated positions in the US and within Europe in both public and private markets.

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 we 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 crisis 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 80-120 stocks, with country and sector weights +/-6% relative to the index and industry 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 – Intermediate Government Index

The Intermediate Government Index Fund seeks to track the results of an index composed of U.S. dollar-denominated government, government related, and investment grade U.S. corporate bonds with maturities between 1 and 10 years.

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 – 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 – Direct Lending Fund

Upon completion of the TCP acquisition, the former TCP team is raising a direct lending portfolio. The fund will invest in privately originated, performing senior secured debt primarily in North American based companies with an average EV of \$750 million.

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 (SGM) is a directional strategy that takes long and short positions in liquid futures and forwards across 130+ markets and across equities, bonds, currencies, and commodities.

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 19 years in the course of research conducted for purposes of managing the firm's hedge funds. In addition to its beta one strategies, D.E. Shaw manages substantial assets in its hedge fund strategies. 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 in its Securitized Income portfolios.

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 will 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). Invesco Value Fund IV will provide a nice compliment to the more conservative Invesco Core Fund and offer 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's investment strategy consists of strategic top-down and tactical bottom-up decisions. The Investment committee meets monthly and sets the strategic parameters including sector selection and yield curve positioning.

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

PanAgora's Defensive Equity strategy seeks to balance risk exposures within the portfolio across multiple dimensions to achieve true diversification. The Defensive Equity approach is used to construct equity portfolios designed to achieve tailored exposure to certain factors, including low volatility, multi-factor (value, quality, and momentum), and high dividend yield while maintaining less risk concentration throughout the portfolio.

Parametric Currency Overlay – Currency Hedge

An overlay hedge placed on half of the notional value of international equities. The portfolio uses Parametric for this overlay.

PIMCO Diversified

PIMCO Diversified Income Fund offers a broad and flexible multi-credit approach in a liquid and cost-effective format. The Diversified Income Fund seeks to produce consistent above benchmark performance using diversified sources of alpha from a universe that includes global credit as well as "non-core" credit sectors (ex., securitized, emerging markets).

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).

PIMCO Private Income Fund

PIMCO Private Income Fund provides an attractive 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.

PGIM RE Debt

PGIM Real Estate US Debt Fund 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.

Pyramis Global Advisors – 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.

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.

Standard Life Aberdeen Global Absolute Return Strategy (GARS)

The Standard Life Aberdeen Global Absolute Return Strategy (GARS) was initially launched in 2005 to help address Standard Life's own pension plan's deficit problem. GARS' primary investment objective is to deliver a positive absolute return over the medium to long term with lower volatility than equities, irrespective of market conditions. It seeks returns through dynamic allocation to investment opportunities in traditional and advanced asset classes, and also separately exploits the team's security selection expertise. In the search for attractive investment positions, the team follows a rigorous research process. This includes a variety of research techniques, including broad global macro-economic, fundamental analysis, quantitative research and valuation modeling. 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 rigorously examines and review position proposals to approve a high conviction, short list of positions that work well together. Having a cash benchmark means that GARS has a potentially unrestricted investment universe and all portfolio holdings are at the Portfolio Manager's discretion. The GARS portfolio also routinely uses a variety of conventional derivatives for investment, liquidity, efficiency and hedging purposes. The GARS strategy has experienced significant growth in its asset under management since it becomes available to external investors in 2006.

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 Commodity Index, S&P Global Natural Resources Index, and S&P Global Infrastructure Index. The portfolio is used to fund upcoming private real asset mandates.

Tennenbaum Capital Partners - TCP Direct Lending Fund VIII

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.

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: December 31, 2020

Total Plan Policy Index	As of										
	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%
60/40 MSCI World/BBgBarc Global Aggregate (RP)	0.0%	4.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%
60/40 Russell 3000/BBgBarc 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%
91 Day T-Bills	1.0%	1.0%	1.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
BBgBarc Aggregate	21.0%	18.0%	14.0%	14.0%	14.0%	14.0%	14.0%	14.0%	14.0%	12.0%	10.0%
BBgBarc BA Intermediate HY	10.0%	8.0%	8.0%	7.0%	7.0%	7.0%	7.0%	7.0%	7.0%	6.0%	6.0%
BBgBarc BBB	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
BBgBarc Credit BAA	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
BBgBarc Multiverse	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	3.0%	3.0%
BBgBarc TIPS	0.0%	0.0%	1.0%	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%
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%
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%
Blended Public Real Asset	4.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%
Blended Private Real Asset	3.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	8.0%	7.0%	5.0%
Libor +4% (HF)	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	5.0%
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%
MSCI ACWI ex US IMI 100% Hedged (Net)	9.0%	9.0%	9.0%	7.6%	5.7%	3.8%	1.9%	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%	19.0%	19.0%
MSCI ACWI ex-US IMI (Net)	9.0%	9.0%	9.0%	11.4%	13.3%	15.2%	17.1%	19.0%	19.0%	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%
NCREIF ODCE	10.0%	9.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	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%
Russell 1000	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%
Russell 2000	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Russell 3000	21.0%	22.0%	22.0%	22.0%	22.0%	22.0%	22.0%	21.0%	21.0%	23.0%	28.0%
Russell 3000 +3% (PE)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	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%	7.0%	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%
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

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/BBgBarc 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/BBgBarc 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%
BBgBarc 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%
BBgBarc 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%
BBgBarc 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%
BBgBarc 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%
BBgBarc 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%
BBgBarc 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%
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%	6.0%	6.0%	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: December 31, 2020

Public Equity Benchmark	As of:																	
	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%	34.0%	31.3%	23.1%	0.0%	0.0%	0.0%
MSCI ACWI ex US IMI 100% Hedged (Net)	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%	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)	23.1%	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%	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%	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%
Russell 2000	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	53.9%	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%
	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:														
	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
BBgBarc Aggregate	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%
BBgBarc BA Intermediate HY	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%
BBgBarc BBB	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%
BBgBarc Credit BAA	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%
BBgBarc Multiverse	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%
BBgBarc TIPS	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%	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%

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

Policy Index and Benchmark History

Period Ending: December 31, 2020

Alternatives Benchmark	As of:						
	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/BBgBarc US Aggregate (RP)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	30.0%
Bloomberg Commodity	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%	11.8%	12.5%	0.0%
Libor +4% (HF)	50.0%	46.2%	46.2%	41.7%	29.4%	25.0%	15.0%
Russell 3000 +3% (PE)	0.0%	0.0%	53.8%	58.3%	41.2%	43.8%	40.0%
Russell 3000 +3% 1Q Lag (PE)	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%

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%
	100.0%	100.0%

Hedge Fund Benchmark	As of:
	10/1/10
Libor +4%	100.0%
	100.0%

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

Public Real Asset Benchmark	As of:		
	5/1/20	10/1/16	1/1/14
Bloomberg Roll Select Commodity	25.0%	33.3%	0.0%
S&P Global Large-MidCap Commodity and Resources	25.0%	33.3%	0.0%
S&P Global Infrastructure	25.0%	33.4%	0.0%
CPI + 5%	0.0%	0.0%	100.0%
BBgBarc TIPS	25.0%	0.0%	0.0%
	100.0%	100.0%	100.0%

Private Real Asset Benchmark	As of:		
	4/1/18	10/1/16	1/1/14
Bloomberg Roll Select Commodity	0.0%	34.0%	0.0%
S&P Global Large-MidCap Commodity and Resources	0.0%	33.0%	0.0%
50/50 S&P Global Infra & Lrg-MidCap Com & Resources +2% 1QL	100.0%	0.0%	0.0%
S&P Global Infrastructure	0.0%	33.0%	0.0%
CPI + 5%	0.0%	0.0%	100.0%
	100.0%	100.0%	100.0%

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%
	100.0%

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%
	100.0%	100.0%	100.0%

Policy Index and Benchmark History

Period Ending: December 31, 2020

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%
	100.0%	100.0%

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%
	100.0%	100.0%

Brigade Secondary Benchmark	As of:	
	8/1/10	
BBgBarc High Yield	50.0%	
Credit Suisse Leveraged Loans	50.0%	
	100.0%	

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

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%
BBgBarc TIPS	25.00%	0.00%
	100.0%	100.0%

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
----------------	-----------------

BlackRock-Intermediate Govt Bond Index Fund

On All Assets:	0.025% per annum
----------------	------------------

BlackRock-MSCI ACWI ex US IMI Index Fund

On All Assets:	0.045% per annum
----------------	------------------

DoubleLine

On All Assets:	0.30% 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
----------------	-----------------

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

NISA

First \$500 million:	0.15% per annum
Thereafter:	0.125% per annum

Manager Compliance (Net)

Period Ending: December 31, 2020

Name	Primary Benchmark	Rule 1	Rule 2	Rule 3
Acadian US MGD V	Russell 1000	--	--	--
DE Shaw	Russell 1000	✓	✓	✗
PanAgora Defuseq	Russell 1000	--	--	--
QMA US Small Cap	Russell 2000	--	--	--
Baillie Gifford	MSCI ACWI ex US	✓	✓	✓
Mondrian	MSCI ACWI ex USA Value Gross	✗	✗	✓
DoubleLine	BBgBarc US Aggregate TR	--	--	--
FIAM Bond	BBgBarc US Aggregate TR	✓	✓	✓
NISA Core Bond	BBgBarc US Aggregate TR	--	--	--
Western TRU	3-Month Libor Total Return USD	✓	✓	✗
AG CSF Annex Dislocation Fund	BBgBarc BA Intermediate HY	--	--	--
Angelo Gordon Opportunistic	BBgBarc US Aggregate TR	✓	--	✗
Angelo Gordon STAR	BBgBarc US Aggregate TR	✓	--	✓
Angelo Gordon Credit Solutions	BBgBarc BA Intermediate HY	--	--	--
Beach Point Select	BBgBarc BA Intermediate HY	✓	✓	✓
Brigade Capital	BBgBarc BA Intermediate HY	✓	✓	✗
PIMCO Diversified	Blended PIMCO Diversified Index	--	--	--
Franklin Templeton	BBgBarc Multiverse TR	--	--	--
Blackrock DL Feeder IX-U	Cliffwater Direct Lending Index	--	--	--
PIMCO Private Income	BBgBarc BA Intermediate HY	--	--	--
TCP Direct Lending VIII	Cliffwater Direct Lending Index	--	--	--
White Oak Yield	Cliffwater Direct Lending Index	--	--	--
White Oak YSF V	Cliffwater Direct Lending Index	--	--	--
Aberdeen Standard GARS	Libor 1 month +4%	✗	✗	✗
Acadian MAAR Fund LLC	Libor 1 month +4%	--	--	--
CFM Systematic Global Macro	Libor 1 month +4%	--	--	--
Graham Quant Macro	Libor 1 month +4%	--	--	--
PIMCO MAARS Fund LP	Libor 1 month +4%	--	--	--

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: December 31, 2020

Name	Primary Benchmark	Rule 1	Rule 2	Rule 3
Acadian US MGD V	Russell 1000	--	--	--
DE Shaw	Russell 1000	✓	✓	✓
PanAgora Defuseq	Russell 1000	--	--	--
QMA US Small Cap	Russell 2000	--	--	--
Baillie Gifford	MSCI ACWI ex US	✓	✓	✓
Mondrian	MSCI ACWI ex USA Value Gross	✓	✓	✓
DoubleLine	BBgBarc US Aggregate TR	--	--	--
FIAM Bond	BBgBarc US Aggregate TR	✓	✓	✓
NISA Core Bond	BBgBarc US Aggregate TR	--	--	--
Western TRU	3-Month Libor Total Return USD	✓	✓	✗
AG CSF Annex Dislocation Fund	BBgBarc BA Intermediate HY	--	--	--
Angelo Gordon Opportunistic	BBgBarc US Aggregate TR	✓	--	✗
Angelo Gordon STAR	BBgBarc US Aggregate TR	✓	--	✓
Angelo Gordon Credit Solutions	BBgBarc BA Intermediate HY	--	--	--
Beach Point Select	BBgBarc BA Intermediate HY	✓	✓	✓
Brigade Capital	BBgBarc BA Intermediate HY	✓	✓	✗
PIMCO Diversified	Blended PIMCO Diversified Index	--	--	--
Franklin Templeton	BBgBarc Multiverse TR	--	--	--
Blackrock DL Feeder IX-U	Cliffwater Direct Lending Index	--	--	--
PIMCO Private Income	BBgBarc BA Intermediate HY	--	--	--
TCP Direct Lending VIII	Cliffwater Direct Lending Index	--	--	--
White Oak Yield	Cliffwater Direct Lending Index	--	--	--
White Oak YSF V	Cliffwater Direct Lending Index	--	--	--
Aberdeen Standard GARS	Libor 1 month +4%	✗	✗	✗
Acadian MAAR Fund LLC	Libor 1 month +4%	--	--	--
CFM Systematic Global Macro	Libor 1 month +4%	--	--	--
Graham Quant Macro	Libor 1 month +4%	--	--	--
PIMCO MAARS Fund LP	Libor 1 month +4%	--	--	--

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



**PERSPECTIVES
THAT DRIVE
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SUCCESS**

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Investment Landscape

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Topics of interest

IS PAINLESS DIVERSIFICATION DEAD?

Interest rates have collapsed in developed economies in past years, and more recently at home in the United States, which has greatly dampened investors' performance outlook for diversified portfolios. These events have led many investors to question the traditional role of fixed income. In this Topic of Interest white paper, we outline some issues that investors must come to terms with, and we begin to unpick ways of thinking about diversification and preservation of capital in the new market environment.

INTEGRATING ESG INTO ACTIVE PORTFOLIOS

In this paper, we address how environmental, social, and governance (ESG) considerations are integrated into our manager research process. We address Verus' approach to ESG issues when advising clients and link that to what ESG due diligence looks like in researching investment managers. Next, we consider the spectrum of ESG integration as defined by the primary objective of the product. Finally, we address the challenges that ESG considerations pose for hedge fund managers and private equity general partners.

QUANTIFYING ESG IN PORTFOLIO CONSTRUCTION

Environmental, social, and governance (ESG) investing is a wide-ranging field that encompasses many different approaches. Investors are integrating ESG into the creation of their policies, investment beliefs, strategic asset allocations, manager selection decisions, and much more. ESG ratings and scores allow investors to understand and compare the ESG profile of companies and managers. ESG screens can serve as an effective tool for investors to identify exposures that may conflict with their institutional values.

AGREEING ON ESG

This paper sheds light on the difficulty institutional investors face as they embark on their journey toward implementing a thoughtful ESG policy that fits their specific organization and is designed to help them cut through the clutter by providing a detailed, practical "soup-to-nuts" methodology to determine the best policy for their organization.

Annual research

2021 CAPITAL MARKET ASSUMPTIONS

Learn about the 2020 market movements and how these shifts have affected our long-term outlook.

Sound thinking

FINDING COMFORT IN AN UNCOMFORTABLE WORLD

An outline of various topics that an investor might want to add to their agenda for the coming year.

Up and coming event

EMERGING & DIVERSE MANAGERS DILIGENCE DAYS

For the third consecutive year, Verus is inviting qualified managers to participate in one-on-one meetings with its senior staff during its 3rd Emerging and Diverse Manager Diligence Days.

- March 16-18
- March 22
- March 24
- March 26

Table of contents



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Economic environment 6

Fixed income rates & credit 21

Equity 26

Other assets 36

Appendix 38

4th quarter summary

THE ECONOMIC CLIMATE

- Real GDP grew at a -2.8% rate year-over-year in the third quarter (+33.4% quarterly annualized rate) as the U.S. economy recovered much of the economic activity lost in the second quarter. **p. 11**
- Joe Biden was elected President of the United States. The market seemed to interpret a Biden win as a mild positive for risk assets, on the expectation of larger economic stimulus. Democrats also took both seats in the Georgia run-off election, completing the party's "Blue Wave". **p. 7**
- Several new, more-infectious strains of COVID-19 emerged and spread around the world, though experts remain confident in the efficacy of the currently-approved arsenal of vaccines. **p. 7**

PORTFOLIO IMPACTS

- Emerging market equities (+19.7%) outperformed U.S. (+12.1%) and international developed equities (+16.0%) once again in Q4. Latin American equities showed significant outperformance (+34.8%), after years of lagging behind other emerging markets. **p. 32**
- The U.S. 10-year TIPS breakeven inflation rate headed notably higher over the quarter, from 1.6% in September to 2.0% in December. Although U.S. inflation is lower than pre-pandemic levels, market pricing for inflation is the highest since 2018. **p. 12**

THE INVESTMENT CLIMATE

- Congress passed an omnibus spending bill, including \$900 billion earmarked for COVID-19 relief. Key features of the package included a re-up of the Paycheck Protection Program, \$600 stimulus checks for most individuals, and \$300 per week in additional unemployment benefits over a 10-week period. **p. 11**
- According to FactSet, S&P 500 Q4 earnings are expected to be down -8.8%. This estimate improved from the -12.7% drop expected on September 30th. For full year 2020, analysts are expecting a -13.3% earnings decline. **p. 26**

ASSET ALLOCATION ISSUES

- U.S. equities delivered +12.1% during the quarter, ending the year at an all-time-high. The S&P 500 was one of the strongest equity markets in 2020, up +18.4% despite an earnings recession and considerable uncertainty. **p. 28**
- Weakness in the U.S. dollar remained a theme in Q4, and the Bloomberg Dollar Spot Index fell to a two and a half year low. Analysts attributed some of the weakness in the US dollar to lower relative real yields in the U.S. **p. 37**
- Within the U.S. market, a sizable rotation occurred in Q4 as certain sectors that had been beaten-down during the pandemic performed strongly. Rising energy prices boosted the Energy sector, while higher interest rates improved the outlook for Financials. **p. 28**

A more neutral risk positioning may be warranted in the current environment

There seems to be a high degree of uncertainty regarding the future market path

What drove the market in Q4?

“The Mass Distribution of Covid-19 Vaccines Is Under Way. ‘Everything Has to Come Together.’”

COVID-19 U.S. HOSPITALIZATION RATE

7/25	8/29	9/26	10/31	11/28	12/26
7.6%	4.4%	4.1%	8.7%	16.6%	10.4%

Article Source: Wall Street Journal, December 13th, 2020

“Congress agrees to \$900 billion Covid stimulus deal after months of failed negotiations”

U.S. TOTAL PUBLIC DEBT OUTSTANDING (TRILLIONS)

Jul	Aug	Sep	Oct	Nov	Dec
\$26.5	\$26.7	\$26.9	\$27.1	\$27.4	\$27.7

Article Source: CNBC, December 20th, 2020

“Powell says stock prices are not necessarily high considering the low level of interest rates”

TEN-YEAR U.S. REAL YIELD (NOMINAL YIELD MINUS BREAKEVEN INFLATION)

Jul	Aug	Sep	Oct	Nov	Dec
-1.03%	-1.10%	-0.95%	-0.83%	-0.95%	-1.07%

Article Source: CNBC, December 16th, 2020

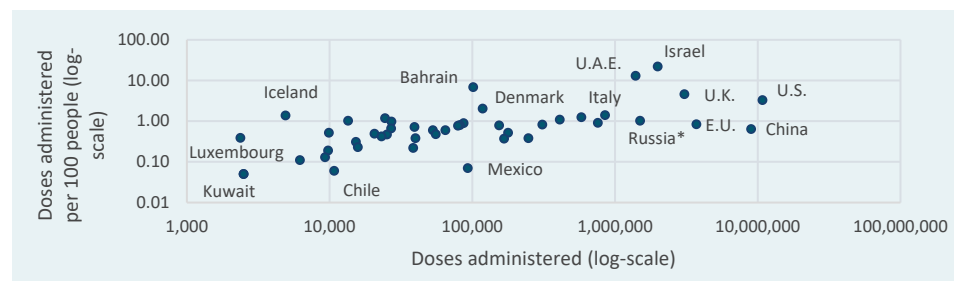
“Dollar’s Slump Propels Global Peers Toward Multi-Year Peaks”

BLOOMBERG DOLLAR SPOT INDEX

Jul	Aug	Sep	Oct	Nov	Dec
1179	1161	1177	1172	1145	1120

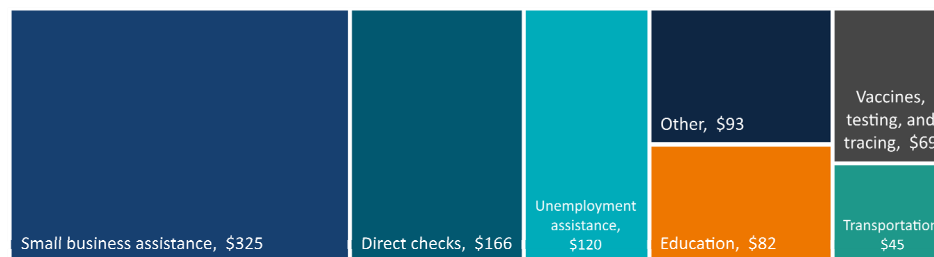
Article Source: Bloomberg, November 29th, 2020

GLOBAL VACCINATION CAMPAIGN



Source: Bloomberg, as of 1/13/21, or most recent release

MOST RECENT FISCAL STIMULUS PACKAGE ALLOCATIONS (BILLIONS)



Source: U.S. House of Representatives, as of 12/21/20

S&P 500 INDEX



Source: Standard & Poor's, Bloomberg, as of 12/31/20

Economic environment

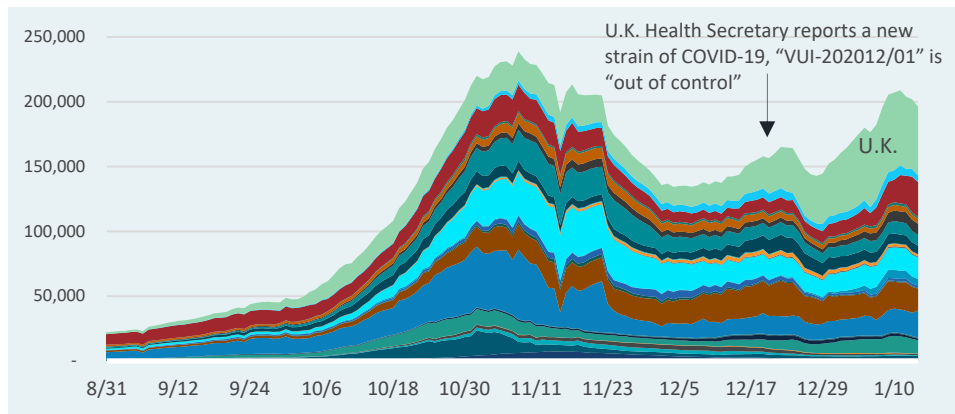
U.S. economics summary

- Real GDP grew at a -2.8% rate year-over-year in the third quarter (+33.4% quarterly annualized rate) as the U.S. economy recovered much of the economic activity lost in the second quarter.
- The Atlanta Fed’s forecast for fourth quarter growth was 7.4% quarter-over-quarter, as of January 15th, suggesting further economy expansion.
- Joe Biden was elected President of the United States in November. Jon Ossoff and Raphael Warnock both won in the Georgia Senate runoff elections in January, which ensured democratic control of both the White House and the Senate with V.P.-elect Kamala Harris as the swing vote. The wins completed the democratic “Blue Wave” many have associated with extensive fiscal support. Slim democratic majorities in both chambers of Congress, however, may constrain Biden’s policy scope.
- After impressive employment gains in Q3, the recovery appeared to be stalling in recent months. Unemployment fell from 7.8% in September to 6.7% in December.
- Consumer sentiment remained stubbornly low, despite broad recoveries in consumer spending, auto sales, and the housing market.
- Home sales activity continued to grow at an extremely fast pace in the fourth quarter, as record-low interest rates and the work-from-home environment fueled demand. Existing home sales were 25.8% higher than one-year prior.
- Several new, more-infectious strains of COVID-19 emerged and spread around the world, though experts remain confident in the efficacy of the currently-approved arsenal of vaccines. The global vaccination campaign began in December, and 44 million doses have been distributed so far.

	Most Recent	12 Months Prior
GDP (YoY)	(2.8%) 9/30/20	2.1% 9/30/19
Inflation (CPI YoY, Core)	1.6% 12/31/20	2.3% 12/31/19
Expected Inflation (5yr-5yr forward)	2.0% 12/31/20	1.8% 12/31/19
Fed Funds Target Range	0% – 0.25% 12/31/20	1.50% – 1.75% 12/31/19
10-Year Rate	0.9% 12/31/20	1.9% 12/31/19
U-3 Unemployment	6.7% 12/31/20	3.5% 12/31/19
U-6 Unemployment	11.7% 12/31/20	6.7% 12/31/19

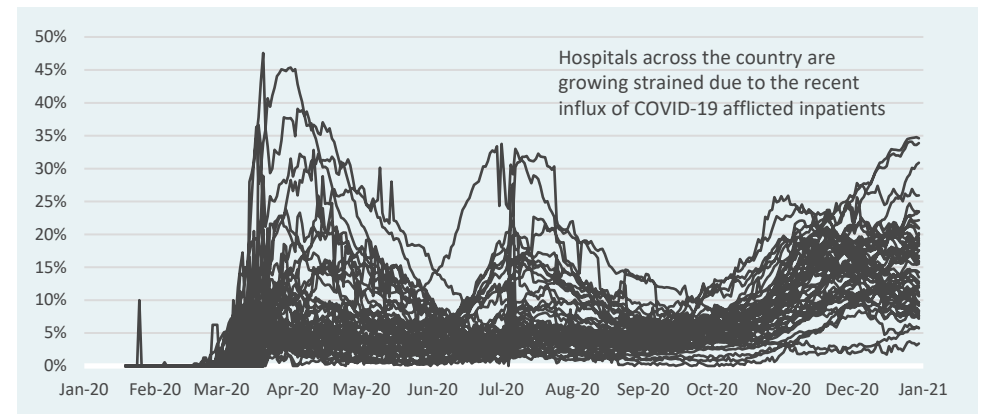
COVID-19 update

SEVEN-DAY AVERAGE DAILY CASE GROWTH – EUROPE AND THE U.K.



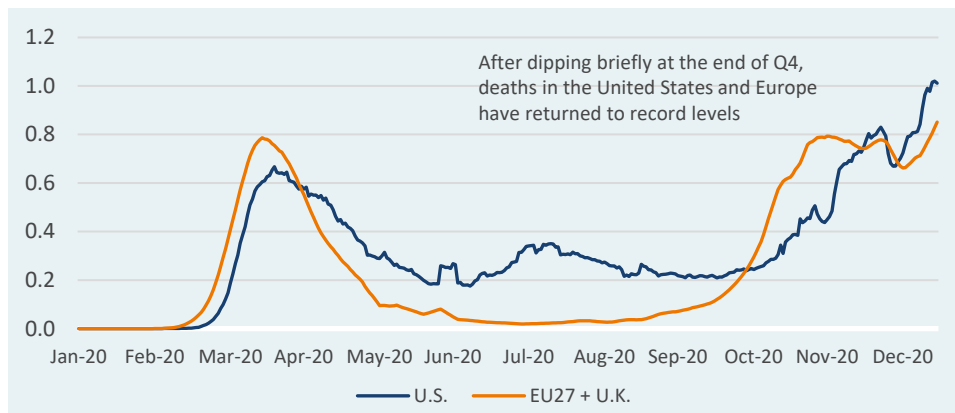
Source: Bloomberg, as of 1/14/21

COVID-19 INPATIENTS BY U.S. STATE (%)



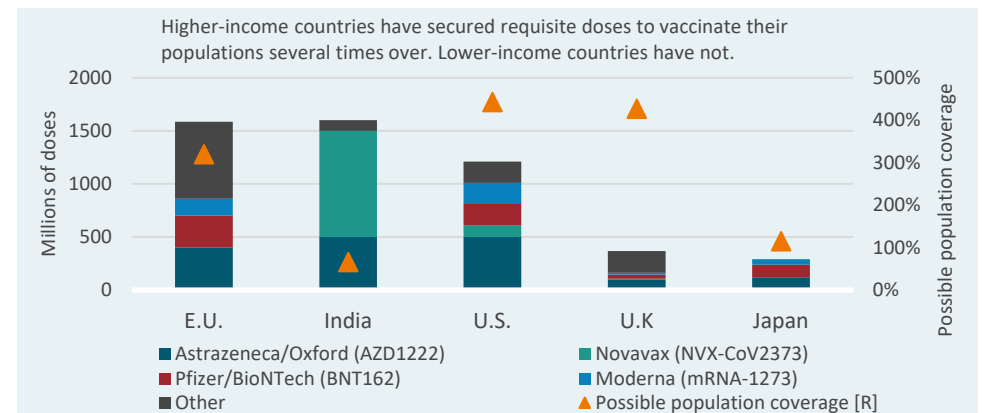
Source: Bloomberg, as of 1/9/21

SEVEN-DAY AVERAGE DAILY DEATHS PER 100,000 IN POPULATION



Source: Bloomberg, as of 1/14/21

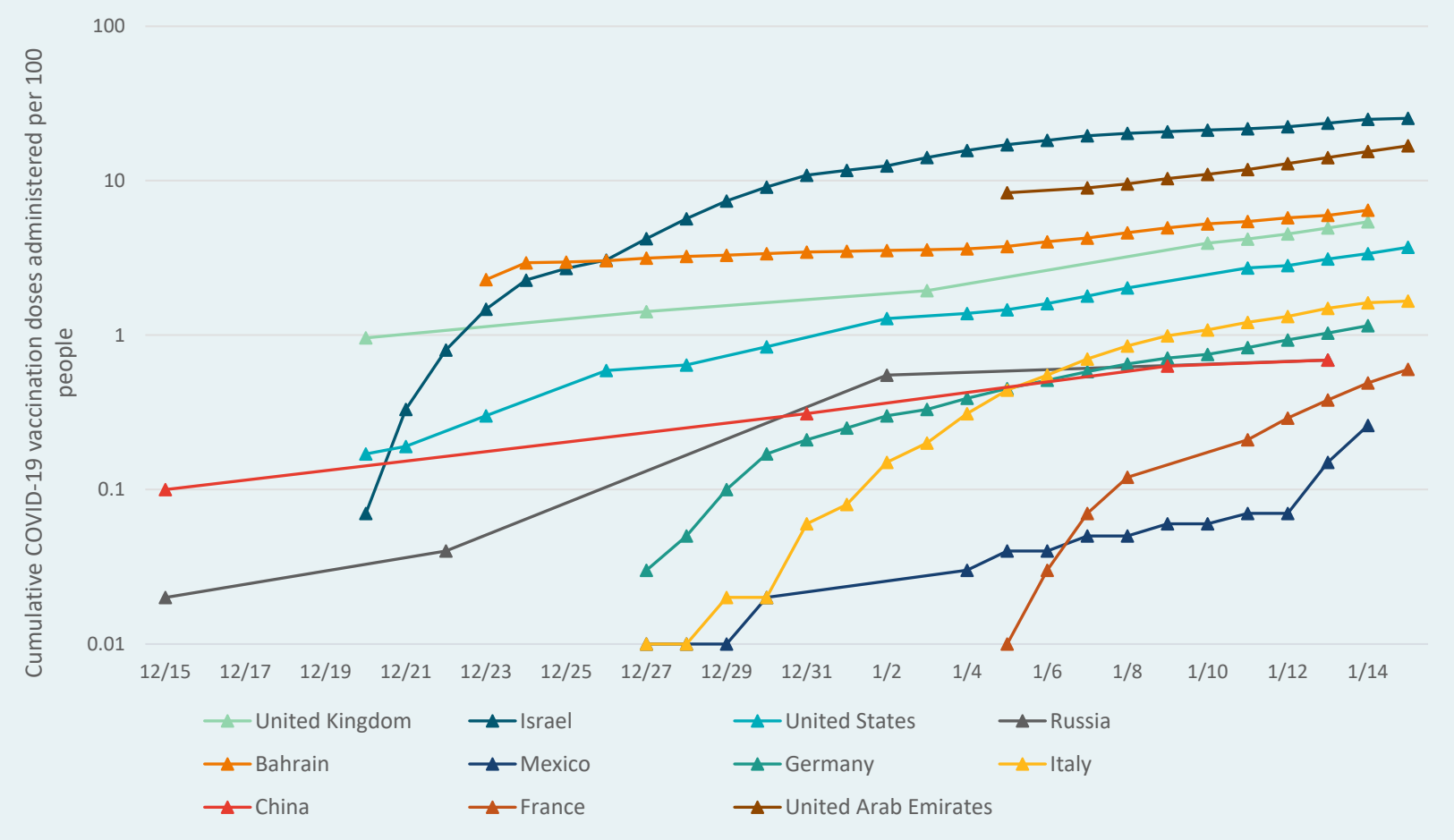
VACCINE COVERAGE BY COUNTRY



Source: Duke Global Health Innovation Center, as of 1/8/21; possible population coverage includes confirmed and potential doses committed to – it is possible not all vaccines will be approved.

Global vaccination campaign

CUMULATIVE COVID-19 VACCINE DOSES ADMINISTERED PER 100 PEOPLE

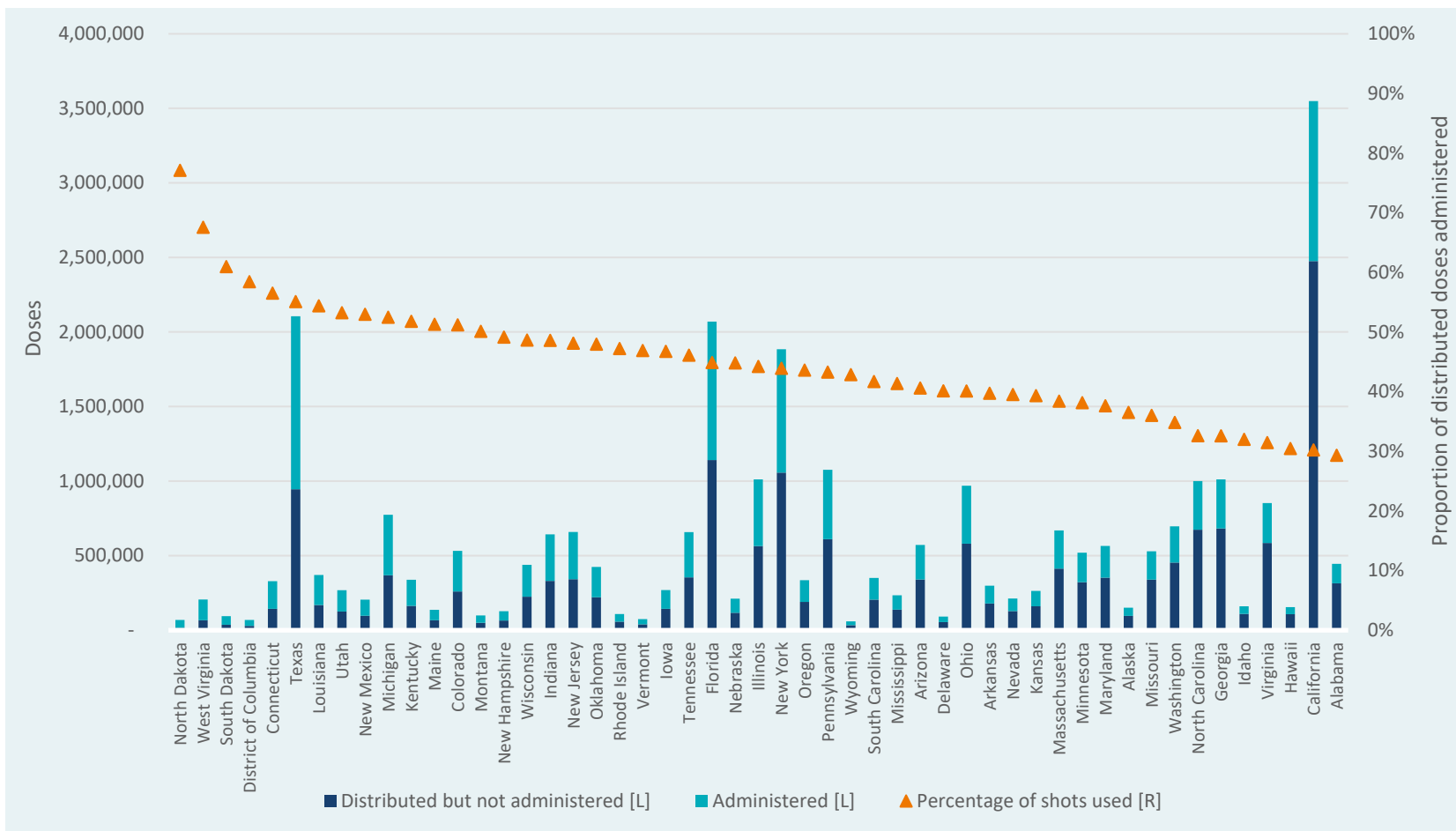


Israel has led the way so far, but it is a country with a size and population comparable to New Jersey

Source: Our World in Data, as of 1/15/21

Administration issues in the U.S.

THE GAP BETWEEN DISTRIBUTED AND ADMINISTERED VACCINE DOSES



As of January 15th, roughly 13 million doses had been administered nationwide, accounting for roughly 42% of all doses distributed

President Biden is aiming to achieve 100 million vaccine dose administrations in his first 100 days in office

Source: Bloomberg, as of 1/15/21

GDP growth

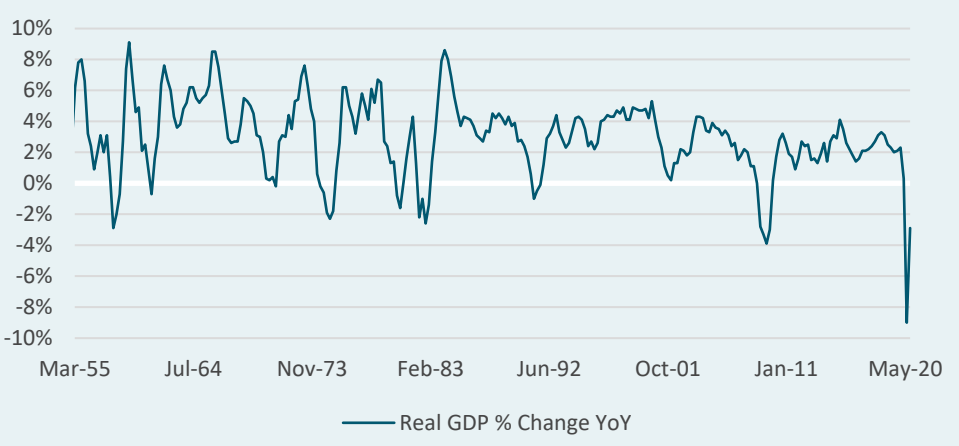
Real GDP grew at a -2.8% rate year-over-year in the third quarter (+33.4% quarterly annualized rate) as the U.S. economy recovered much of the economic activity lost during the depths of the pandemic. Personal consumption expenditures expanded at a quarterly annualized pace of -25.4%. Growth was broad-based, and included strong private investment, exports, and inventory builds.

Not only was this bounce-back a product of pent-up demand released by the economic reopening, it was also the result of a coordinated and historic stimulus effort by the U.S.

government. After the Federal Reserve took interest rates to zero and flooded the markets with liquidity, Congress passed an omnibus spending bill, including \$900 billion earmarked for COVID-19 relief. Key features of the package included a re-up of the Paycheck Protection Program, \$600 stimulus checks for most individuals, and \$300 per week in additional unemployment benefits over a 10-week period.

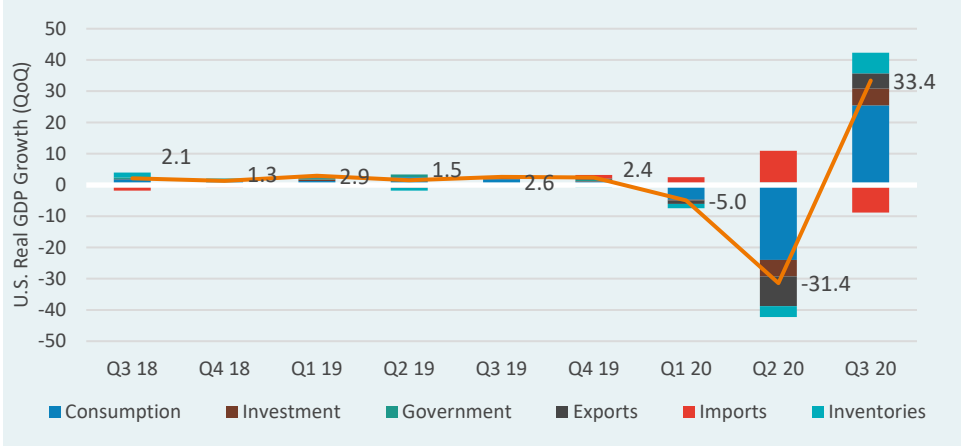
The Atlanta Fed's forecast for Q4 growth was 7.4% on a quarter-over-quarter annualized basis (-1.7% year-over-year) as of January 15th, suggesting further economic recovery.

U.S. REAL GDP GROWTH (YOY)



Source: Bloomberg, as of 9/30/20

U.S. GDP GROWTH ATTRIBUTION



Source: BEA, annualized quarterly rate, as of 9/30/20

Inflation

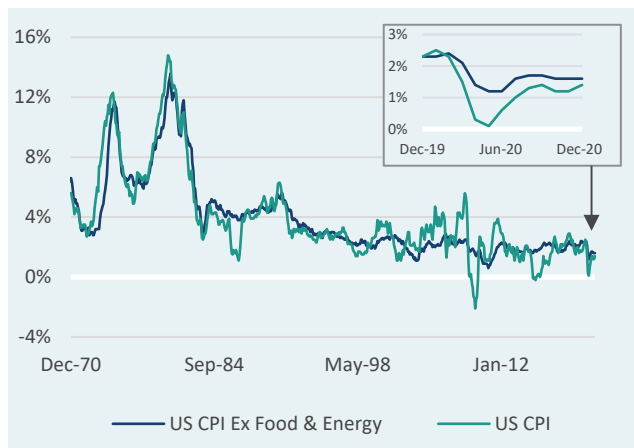
Headline inflation stayed relatively stable during Q4, at 1.4% year-over-year in December. Energy prices have acted as a drag on inflation, with gasoline (-15.2%) and fuel oil (-20.0%) showing the largest moves. Food (+3.9%), as well as used cars & trucks (+10.0%), had a lifting effect on inflation during the year. Inflation excluding volatile food and energy prices increased 1.6%.

The U.S. 10-year TIPS breakeven inflation rate headed notably higher over the quarter, from 1.6% in September to

2.0% in December. Although U.S. inflation is lower than pre-pandemic levels, market pricing for inflation is the highest since 2018.

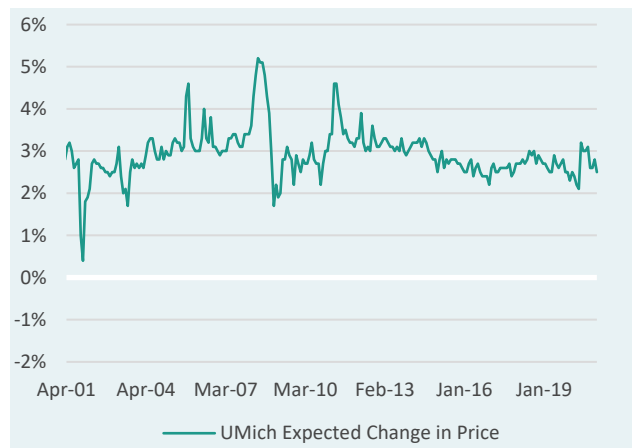
Consumer inflation expectations, as indicated by the University of Michigan survey, proved volatile throughout the year. After starting 2020 at an expected 2.3% rate of inflation, expectations fell to 2.1% in April before spiking to 3.2% in May. Expectations fell in the fourth quarter and settled at 2.5% in December.

U.S. CPI (YOY)



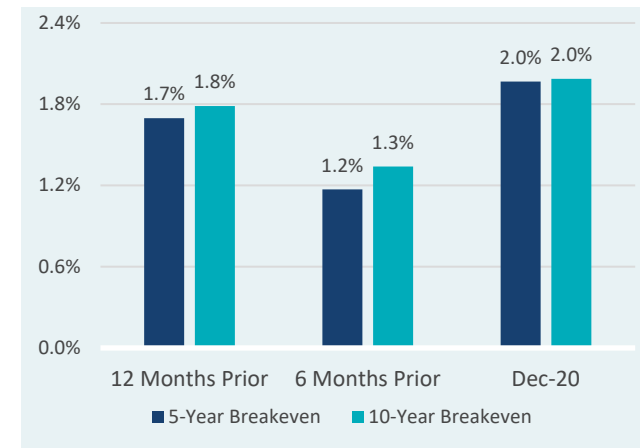
Source: Bloomberg, as of 12/31/20

CONSUMER INFLATION EXPECTATIONS



Source: University of Michigan, as of 12/31/20

BREAKEVEN INFLATION RATES



Source: Bloomberg, as of 12/31/20

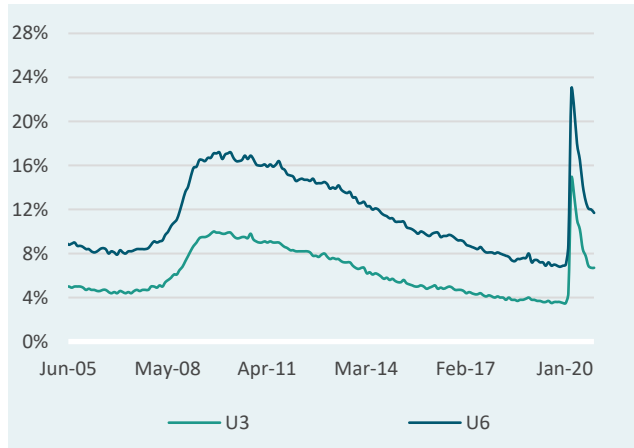
Labor market

After impressive employment gains in Q3, the recovery appeared to be stalling in recent months. Unemployment fell from 7.8% in September to 6.7% in December—a small improvement compared to previous months. Additionally, while the current unemployment rate does not seem exceptionally weak from a historical perspective, this metric masks the fact that the U.S. labor force participation rate also fell during COVID-19. In simpler terms, since the pandemic, roughly 3% of workers are now unemployed and seeking work, and an additional 2% of workers are now unemployed and *not* seeking work.

During an economic recession, it is important to understand the portion of newly unemployed workers who seek to quickly rejoin the workforce (cyclical unemployment), relative to the portion of workers who lose their jobs and end up more permanently out of work due to lack of opportunities or discouragement (structural unemployment). As shown in the chart below, a growing share of unemployed workers have remained out of work since the onset of the economic recession.

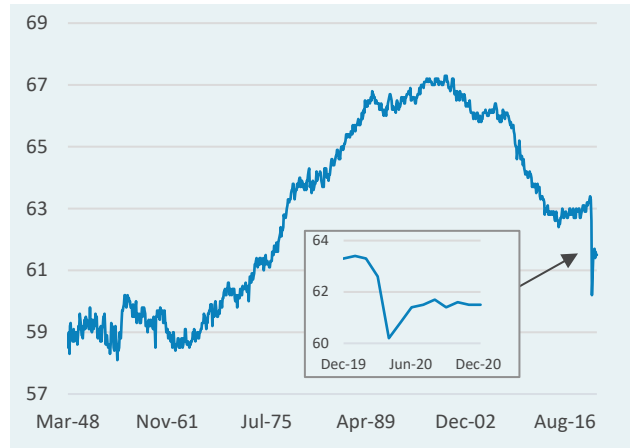
The U.S. employment recovery appears to be stalling

U.S. UNEMPLOYMENT



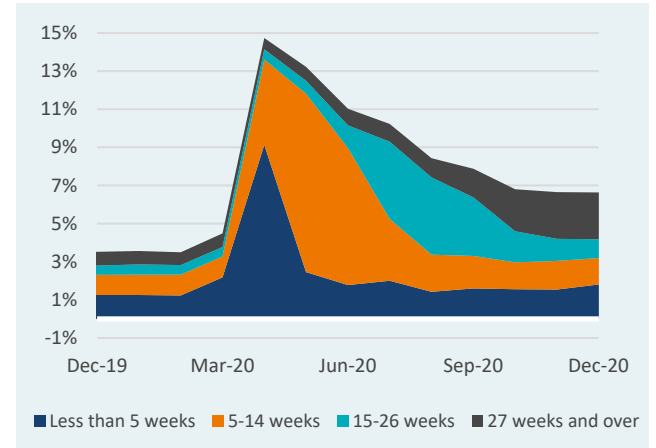
Source: FRED, as of 12/31/20

LABOR PARTICIPATION RATE



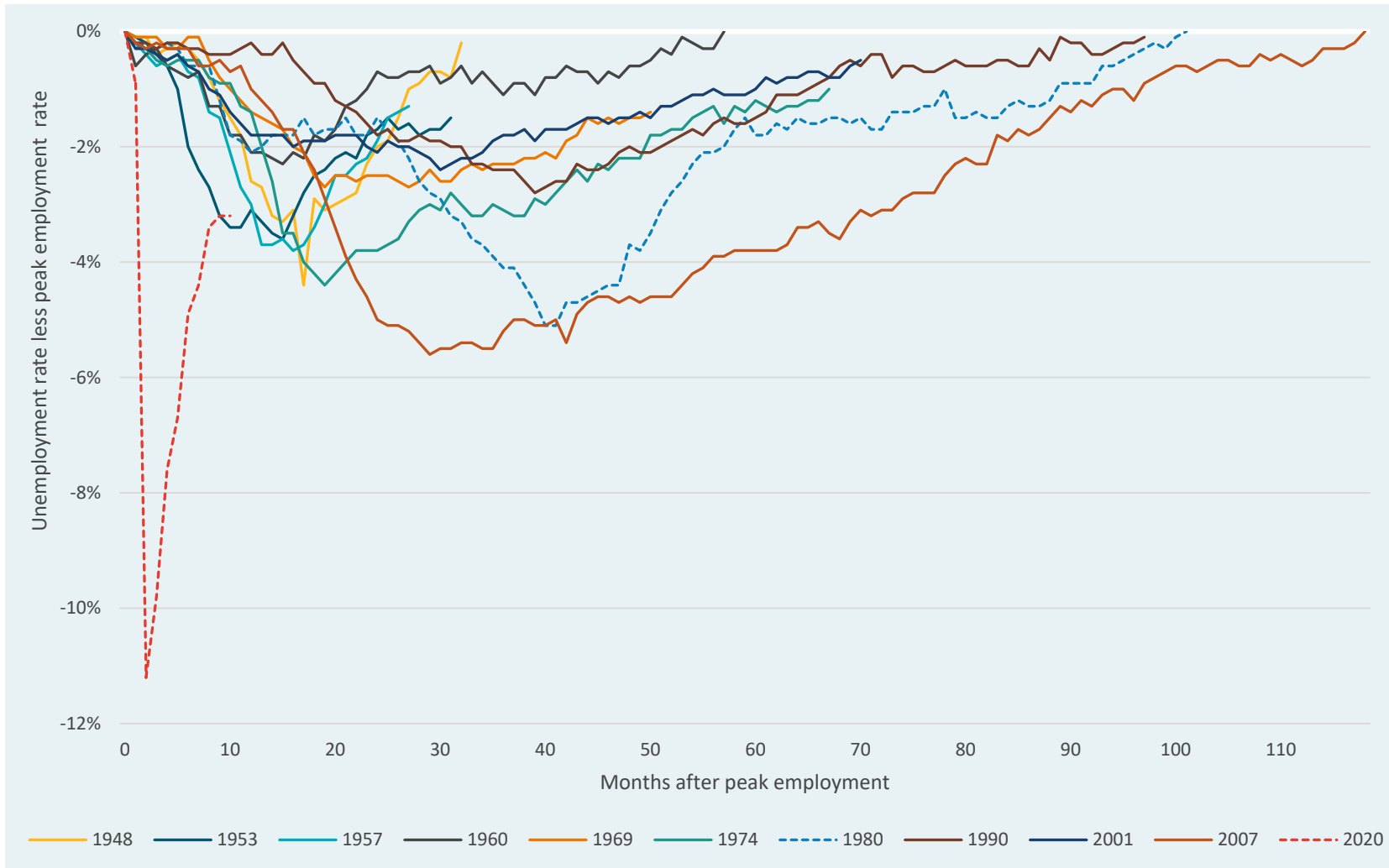
Source: FRED, as of 12/31/20

UNEMPLOYMENT DECOMPOSITION BY DURATION



Source: BLS, as of 12/31/20

U-3 unemployment rates relative to peaks

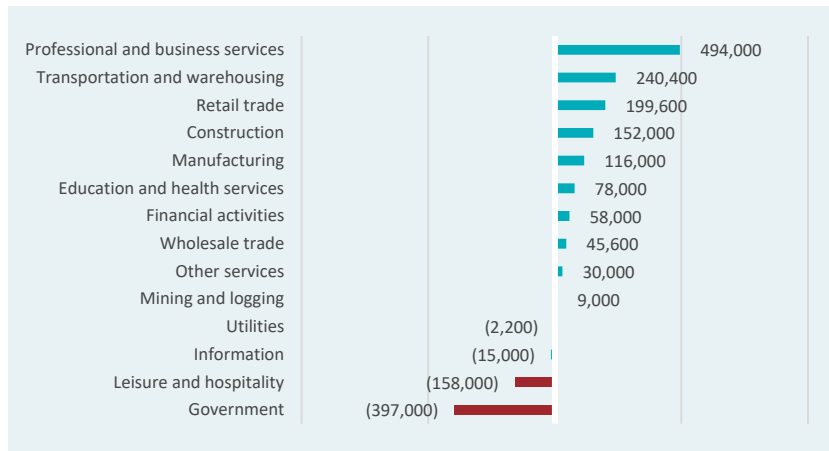


The Covid-19 recession features a historically-abrupt loss and subsequent rebound in broad unemployment

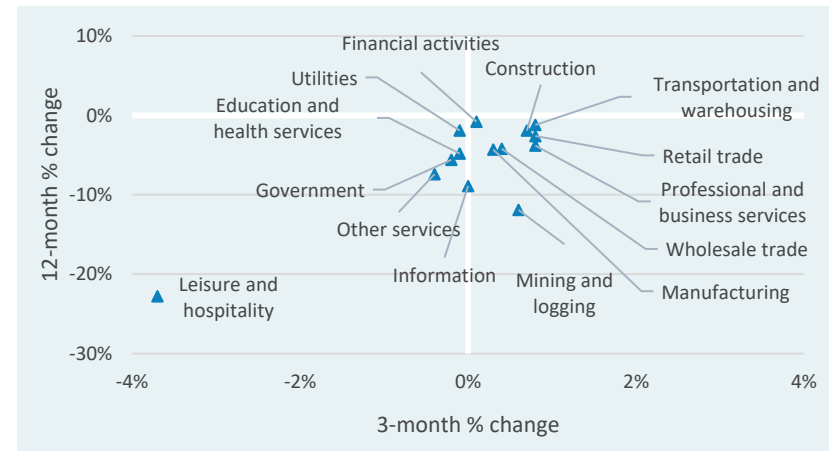
Source: Bloomberg, BLS, as of 12/31/20

Employment conditions

Q4 2020 NONFARM PAYROLLS CHANGES

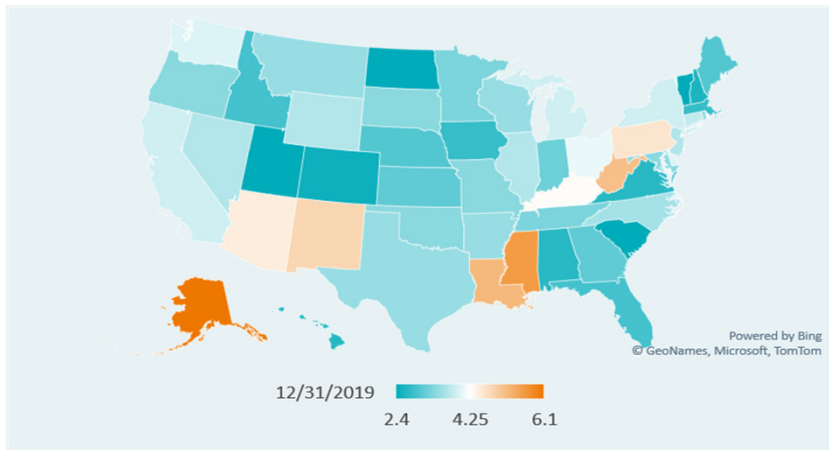


NONFARM PAYROLL GROWTH BY SECTOR

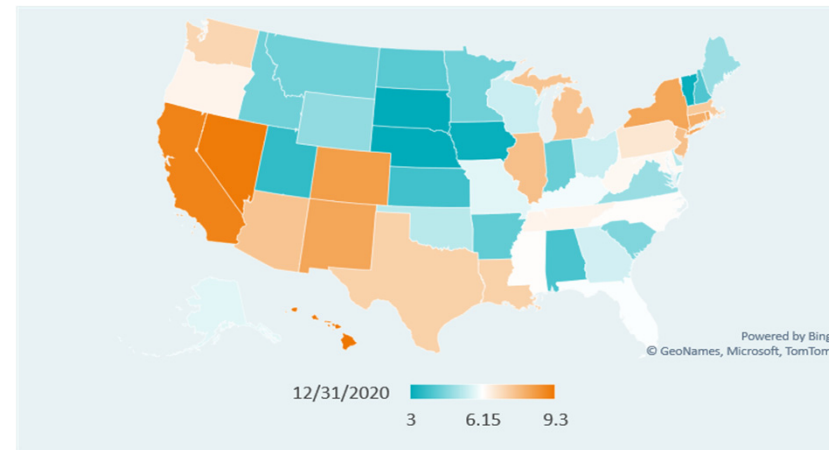


While employment in many sectors bounced back in Q4, jobs in the leisure and hospitality sector dipped as the impact of state lockdowns began to show up in the payrolls data

U-3 UNEMPLOYMENT (12/31/2019)



U-3 UNEMPLOYMENT (12/31/2020)



Despite the broad gains in the 4th quarter, nonfarm payrolls shrunk in every sector over the full calendar year

Source: BLS, as of 12/31/20 – or most recent release

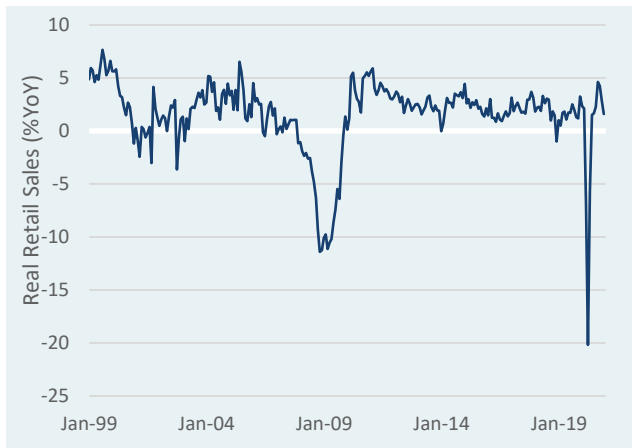
The consumer

U.S. retail sales have shown a surprising recovery after falling -20% year-over-year in April. Retail sales, after adjusting for inflation, increased 1.6% in December. Spending patterns have shown resiliency despite the economic slowdown. Automobile and home sale activity, for example, has recovered to previous levels.

However, recent spending patterns have been vastly affected by unprecedented government stimulus. Because this expansion was far from a “natural” recovery, it will be worth watching how consumption trends change as the various economic stimulus programs end. This effect may already be apparent as retail sales growth slowed from 4.6% in September to 1.6% in December.

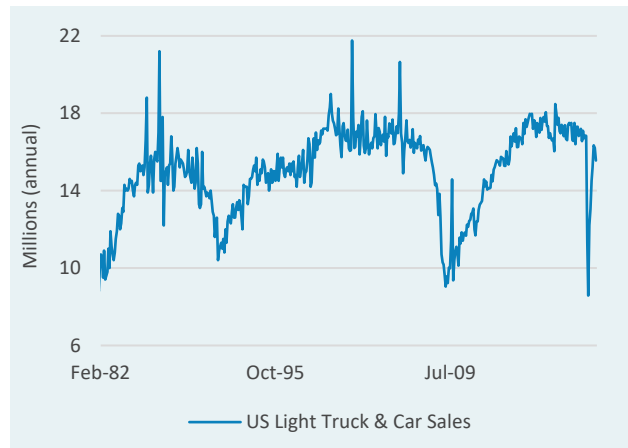
According to anonymized cellular phone data collected by Google for COVID-19 public health research, Americans began returning to their daily routines through late spring and summer, as activity began moving back to normalcy. However, these improvements plateaued across certain types of activities such as workplace travel, retail & recreation, and transit station usage, and this activity has slowed down once again. Continued weak activity, or even a further slowdown due to renewed government restrictions, could cast doubt on the U.S. economic recovery.

REAL RETAIL SALES GROWTH (YOY)



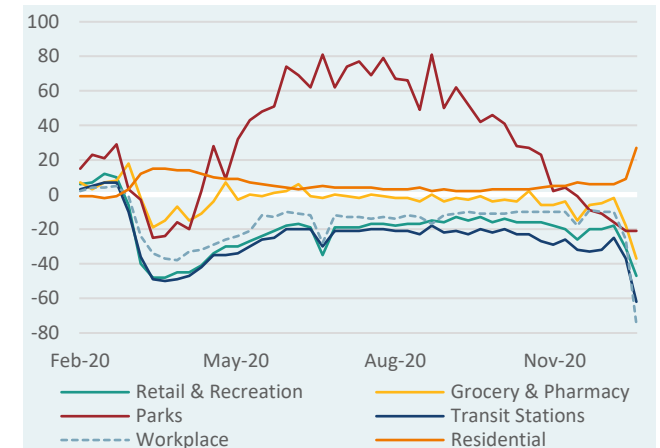
Source: FRED, as of 12/31/20

AUTO SALES



Source: Federal Reserve, as of 11/30/20

GOOGLE U.S. ACTIVITY TRACKER



Source: Google anonymized U.S. citizen mobility, as of 12/31/20

Sentiment

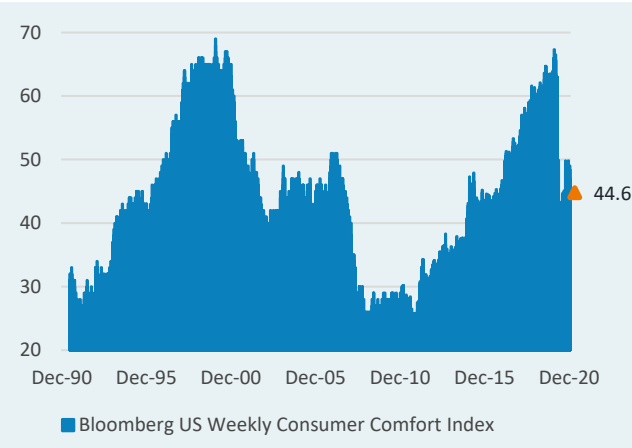
Consumer sentiment remained stubbornly low during the fourth quarter, despite broad recoveries in consumer spending, auto sales, and the housing market.

The Bloomberg Consumer Comfort Index attempts to gauge Americans’ views on the economy, their personal financial situation, and buying conditions. The index fell from 49.3 to 44.6 during the quarter. The University of Michigan Consumer Sentiment Survey attempts to gauge attitudes about the business climate, personal finances, and spending conditions. The index was flat at 80.7 in Q4—down from a

cycle high of 101.0 in February.

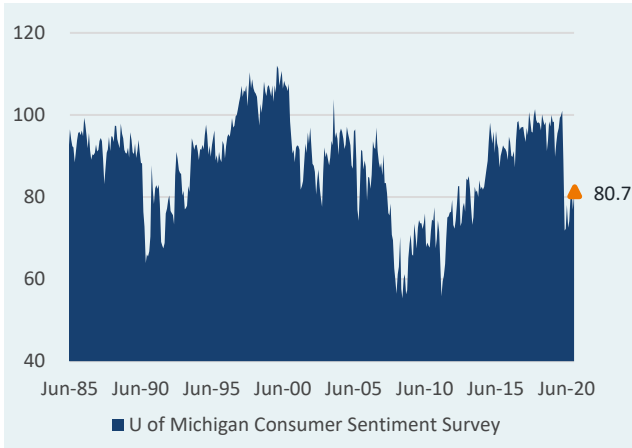
The NFIB Small Business Optimism Index exhibited a sharp decline to 95.9 in Q4, bringing the index back towards pandemic lows. The survey suggested that most business owners expect deteriorating conditions over the next six months. The survey also showed that concerns exist regarding government-mandated business closures due to COVID-19, and that the new U.S. administration may be less friendly toward the business community.

CONSUMER COMFORT



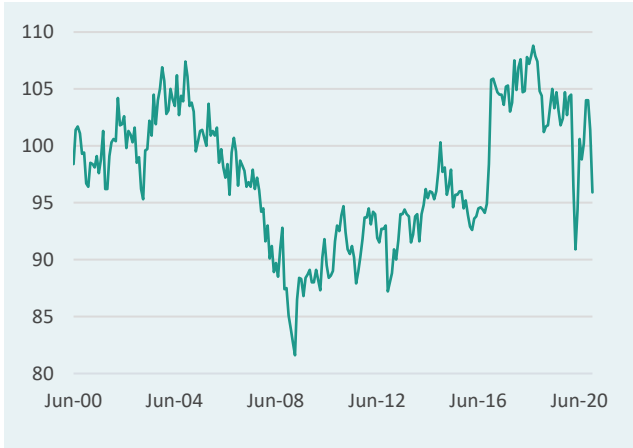
Source: Bloomberg, as of 12/31/20

CONSUMER SENTIMENT



Source: University of Michigan, as of 12/31/20

SMALL BUSINESS OPTIMISM



Source: NFIB, as of 12/31/20

Housing

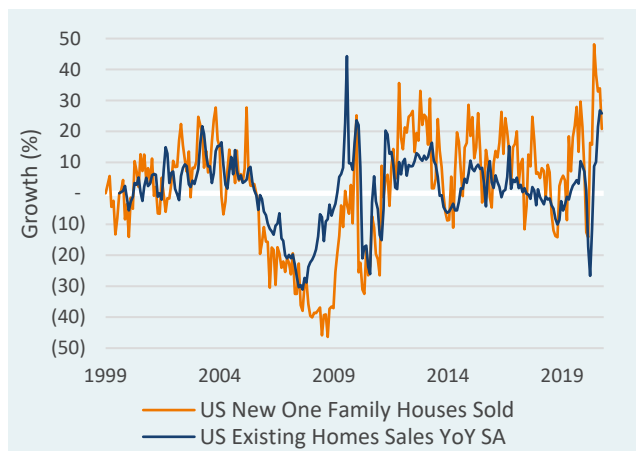
Home sales activity continued to grow at an extremely fast pace in the fourth quarter, as record-low interest rates and the work-from-home environment fueled demand. It remains to be seen the degree to which business work-from-home policies become permanent, post-pandemic. The direction of these trends may have a far-reaching impact on home sales as workers seek more space for home offices, and perhaps also feel greater freedom to move outside of major urban areas. Existing home sales were 25.8% higher than one-year prior, an overall rate of growth not experienced in over a decade.

Despite a gradual bounce-back of U.S. Treasury interest rates,

the 30-year U.S. Fixed Mortgage Rate has continued to move lower. The direction of mortgage rates from here will likely have a material impact on home prices.

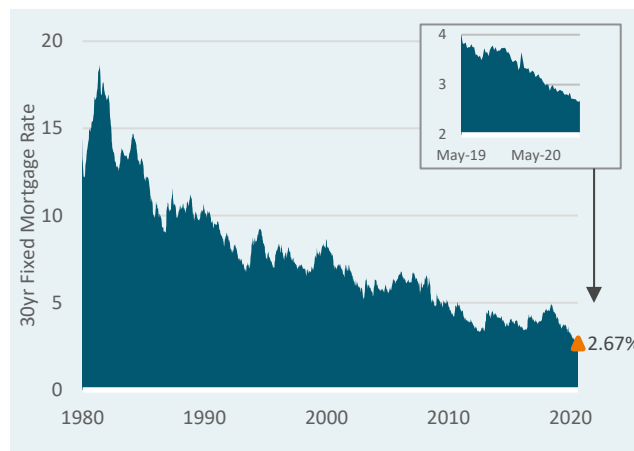
It is important to note that the overall cost of owning a home is a combination of home prices and borrowing rates (among many other variables, of course). While the price of a new home in the U.S. is, on average, higher than ever before, record-low interest rates have compensated for higher prices. As suggested by the Housing Affordability Index, the overall cost of owning a home today is below-average, historically speaking.

U.S. HOME SALES (YOY)



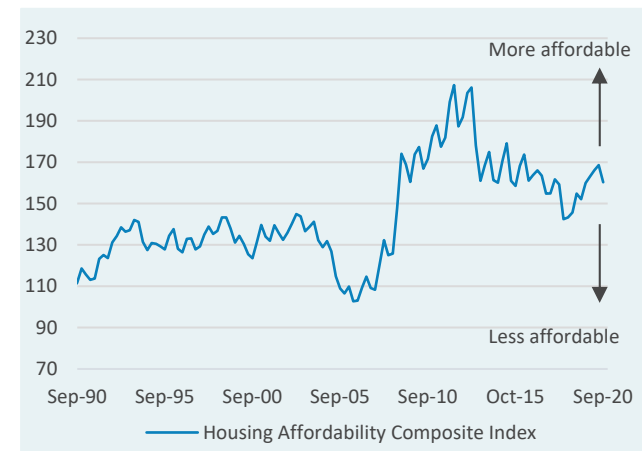
Source: FRED, as of 11/30/20

30-YEAR FIXED MORTGAGE RATE (AVERAGE)



Source: FRED, as of 12/31/20

HOUSING AFFORDABILITY INDEX



Source: National Association of Realtors, as of 9/30/20

International economics summary

- Economic growth in Q3, although negative on a year-over-year basis, painted an optimistic picture of the recovery. Consumers and businesses around the world have attempted to continue on, despite recent lockdowns, restrictions, and safety concerns. GDP growth figures have improved markedly from the depths of Q2. Most economies have recovered more than half of lost activity experienced during the prior quarter.
- European Union leaders agreed on a historic €1.8 trillion budget-and-recovery plan for 2021-2027, paving the way for a €750-billion pandemic relief package which will be financed by joint debt issuance.
- U.K. and E.U. officials reached an official trade deal at the 11th hour before the December 31st, 2020 conclusion of the transition period following Britain's official cutting of ties with the E.U. last January. The

agreement marked the beginning of a new chapter in the history of British relations with Europe.

- Governments have taken different approaches to supporting workers, and while many approaches have had similar economic effects, they have often had drastically different impacts on official unemployment figures. We believe official unemployment figures are of limited value in this environment—more in-depth analysis is likely required.
- The pandemic placed downward pressure on inflation. Since then, inflation levels have generally remained muted in developed markets while recovering moderately in emerging economies. China appears to be an outlier, as inflation has recently dipped below zero. This move was fueled by falling pork prices, which had been moving higher in recent years and pushing up inflation.

Area	GDP (Real, YoY)	Inflation (CPI, YoY)	Unemployment
United States	(2.8%) 9/30/20	1.4% 12/31/20	6.7% 12/31/20
Eurozone	(4.3%) 9/30/20	(0.3%) 12/31/20	8.3% 11/30/20
Japan	(5.7%) 9/30/20	(1.3%) 12/31/20	2.8% 11/30/20
BRICS Nations	1.9% 9/30/20	1.5% 12/31/20	5.1% 12/31/20
Brazil	(3.9%) 9/30/20	4.5% 12/31/20	14.3% 10/31/20
Russia	(3.4%) 9/30/20	4.9% 12/31/20	6.1% 11/30/20
India	(7.5%) 9/30/20	4.6% 12/31/20	9.1% 12/31/20
China	2.3% 12/31/20	0.2% 12/31/20	4.2% 12/31/20

NOTE: India lacks reliable government unemployment data. Unemployment rate shown above is estimated from the Centre for Monitoring Indian Economy

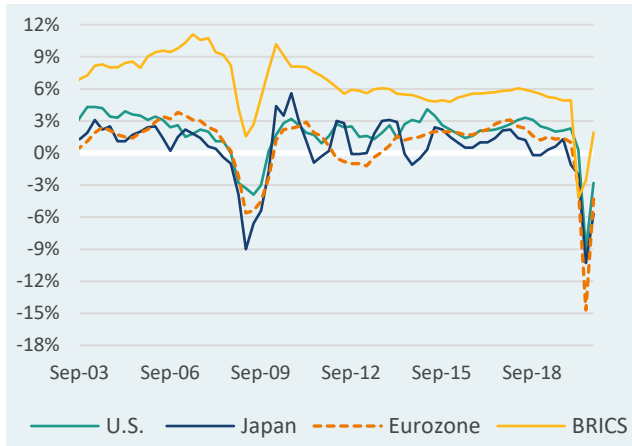
International economics

Economic growth in Q3, although negative on a year-over-year basis, painted an optimistic picture of the recovery. Consumers and businesses around the world have attempted to continue on, despite recent lockdowns, restrictions, and safety concerns. GDP growth figures have improved markedly from the depths of Q2. Most economies have recovered more than half of lost activity seen during the prior quarter. The direction of recovery was similar across the emerging markets, and these economies have maintained their growth “premium” over developed markets throughout the crisis.

Unemployment in the Eurozone has fallen slightly to 8.3%

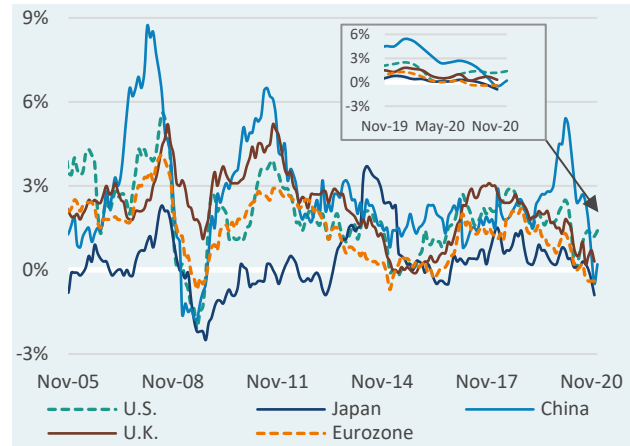
from a high of 8.7% in July. Governments around the world have taken different approaches to supporting workers. One approach, as taken by the U.S., was to provide greater financial support to workers who had lost their jobs. Another approach, such as that taken by the UK, was for government to effectively pay workers’ wages to keep them on payroll. These approaches, which may be very similar in overall economic effect, can appear drastically different in the official rate of unemployment statistics (shown below). In short, official unemployment figures may be of limited value in this environment—more in-depth analysis is required.

REAL GDP GROWTH (YOY)



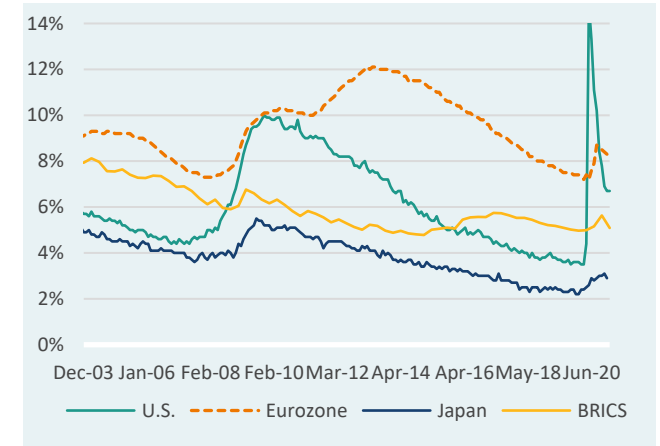
Source: Bloomberg, as of 9/30/20

INFLATION (CPI YOY)



Source: Bloomberg, as of 12/31/20 – or most recent release

UNEMPLOYMENT



Source: Bloomberg, as of 12/31/20 – or most recent release

Fixed income rates & credit

Interest rate environment

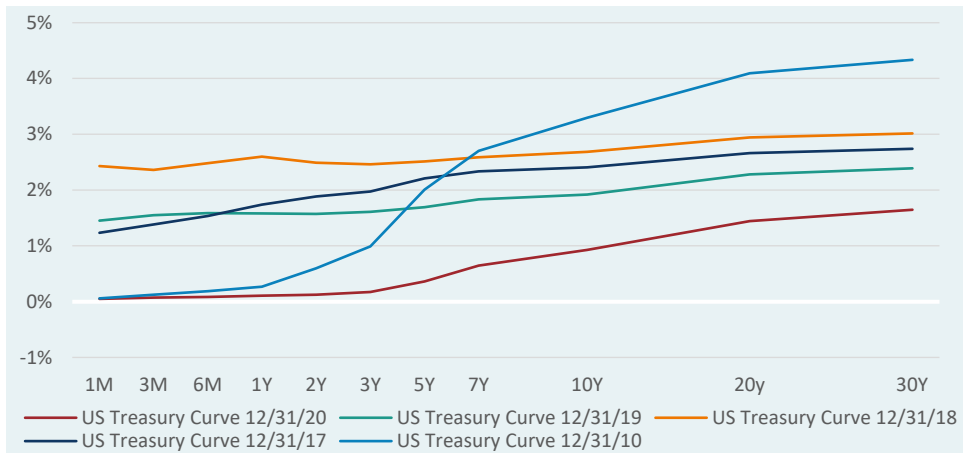
- Longer-dated U.S. Treasury yields moved upward in the fourth quarter, with the U.S. 10-year rising above 1.0% to begin 2021. Higher interest rates may place pressure on equity valuations if this trend continues. The yield of shorter-dated bonds and cash has not moved and is expected to stay near zero.
- Ten-year breakeven inflation rates rallied from 1.6% to 2.0% in Q4, likely propelled higher by expectations that Biden’s fiscal approach paired with vaccine rollouts will result in higher longer-term growth and inflation. The rise in priced inflation outpaced the rise in nominal Treasury yields, leading the 10-year U.S. real yield to decline from -0.95% to -1.07%, near record lows.
- Officials at the Federal Reserve remained committed to a \$120 billion monthly pace of bond purchases until there is “substantial progress” toward employment and inflation objectives. Fed Chair Powell left the door open to adjusting the pace of those purchases as necessary, and stated that the Fed would “let the world know...well in advance of active consideration of beginning a gradual taper of asset purchases.”
- The European Central Bank expanded the size of its Pandemic Emergency Purchase Program (PEPP) by €500 billion, bringing the new total to €1.85 trillion. The ECB also extended the horizon for purchases under PEPP to March 2022, and the timeline for reinvestment of maturing PEPP assets to the end of 2023.
- Joe Biden nominated Janet Yellen, Jerome Powell’s predecessor, as U.S. Treasury Secretary. Throughout the pandemic, central bankers have been calling for further coordination of fiscal and monetary action, and Yellen’s nomination could represent the next step down that path.

Area	Short Term (3M)	10-Year
United States	0.06%	0.91%
Germany	(0.83%)	(0.57%)
France	(0.77%)	(0.34%)
Spain	(0.83%)	0.04%
Italy	(0.65%)	0.54%
Greece	(0.38%)	0.62%
U.K.	(0.06%)	0.20%
Japan	(0.12%)	0.02%
Australia	0.02%	0.97%
China	2.28%	3.14%
Brazil	2.00%	6.91%
Russia	3.54%	6.01%

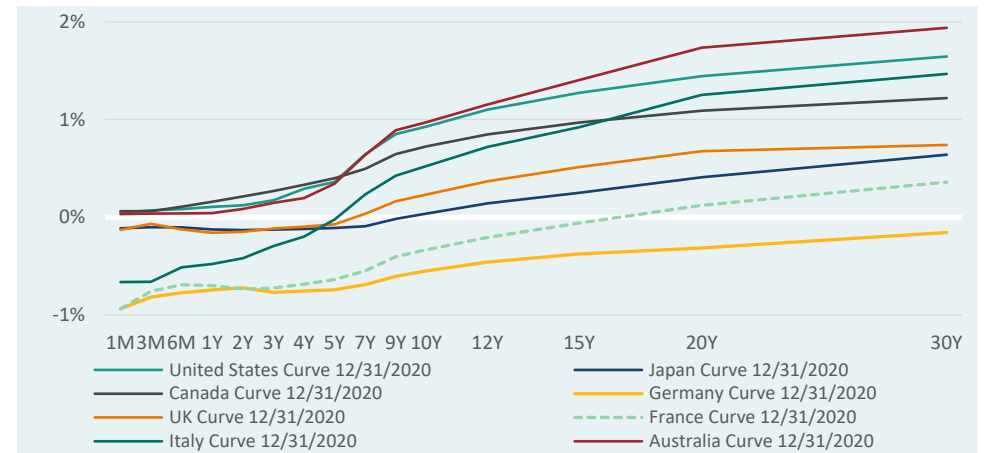
Source: Bloomberg, as of 12/31/20

Yield environment

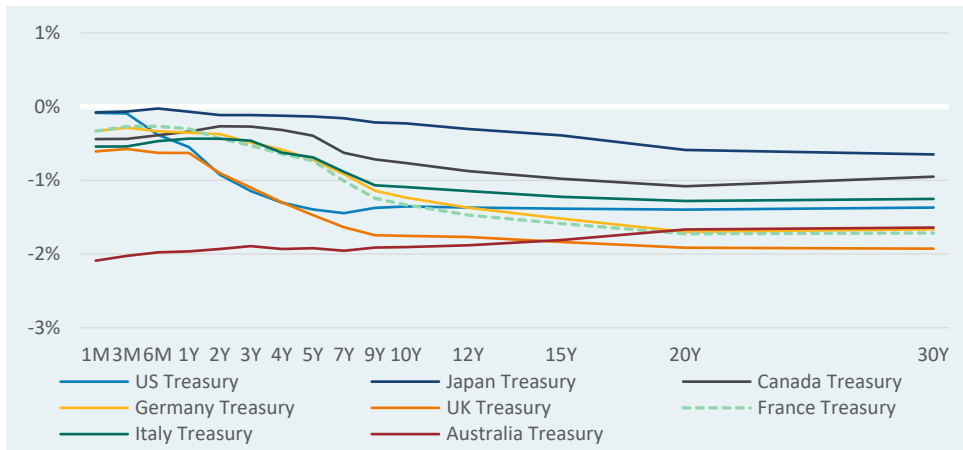
U.S. YIELD CURVE



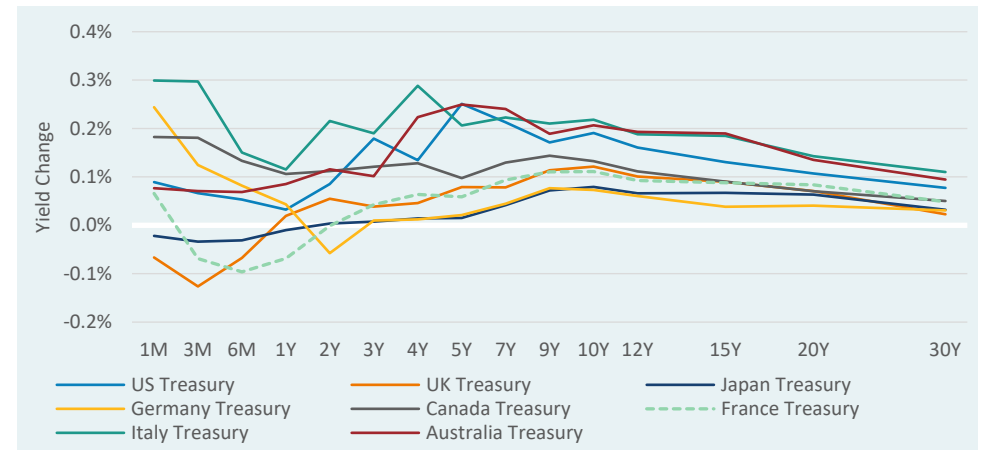
GLOBAL GOVERNMENT YIELD CURVES



YIELD CURVE CHANGES OVER LAST FIVE YEARS



IMPLIED CHANGES OVER NEXT YEAR



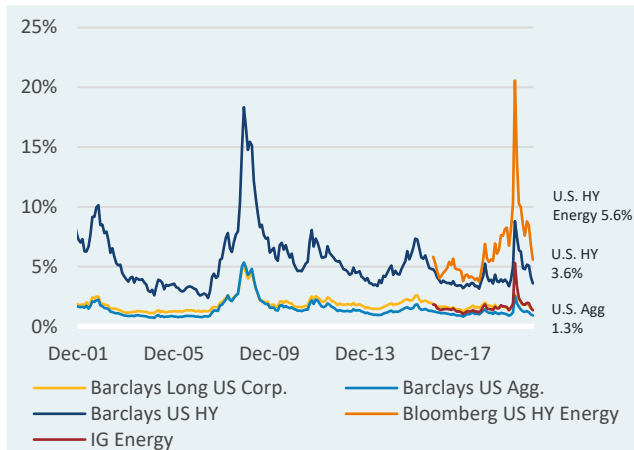
Source: Bloomberg, as of 12/31/20

Credit environment

After four quarters of exceptional volatility, credit market spreads ended 2020 roughly in line with where they started. Both investment grade and below investment grade assets experienced positive performance, driven in part by increased investor demand for yield but mainly by the unprecedented Fed action in March which led rates to all-time lows. For the calendar year, investment grade credit returned 9.4%, outperforming high yield (+7.1%), and banks loans (+2.8%). The effects of COVID market disruptions created wide dispersion among sectors as metals/mining, freight, and food/drug retail outperformed while energy and domestic telecom underperformed.

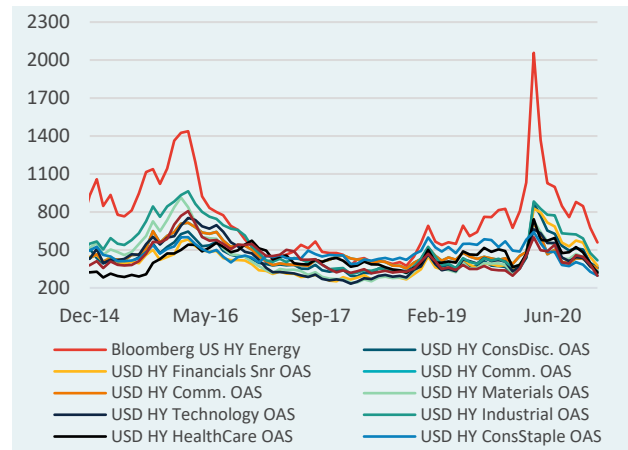
In the fourth quarter, high yield bonds returned 6.5%, outperforming bank loans (+3.6%) and investment grade credit (+2.8%). Positive vaccine news and conclusion of the presidential election led to strong risk-on sentiment during the quarter, driving longer duration and lower quality bonds to outperform within U.S. credit. In addition, credit spreads continued to tighten, with high yield spreads tightening 157 bps to 360 bps and investment grade spreads falling 40 bps to finish the year at 92 bps.

SPREADS



Source: Barclays, Bloomberg, as of 12/31/20

HIGH YIELD SECTOR SPREADS (BPS)



Source: Bloomberg, as of 12/31/20

Market	Credit Spread (OAS)	
	12/31/20	12/31/19
Long U.S. Corp	1.4%	1.4%
U.S. Inv Grade Corp	1.0%	0.9%
U.S. High Yield	3.6%	3.7%
U.S. Bank Loans*	4.6%	4.4%

Source: Barclays, Credit Suisse, Bloomberg, as of 12/31/20

*Discount margin (4-year life)

Default & issuance

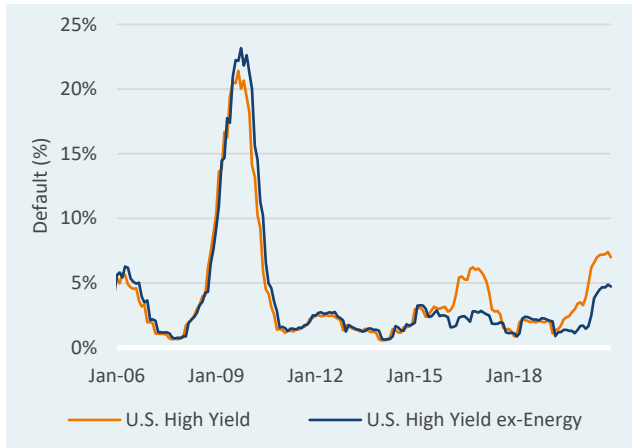
A total of 88 companies defaulted in 2020, representing \$130 billion. This activity was led by the energy, telecom, and retail sectors. The \$130 billion in defaults in 2020 ranked second only to the \$185 billion experienced in 2009.

The par weighted U.S. high yield default rate increased 0.4% during the quarter to 6.2%—well above the long-term average of 3.0-3.5%. If the energy sector is excluded (which showed an annual default rate of 20.5%), the high yield default rate came in at a more modest 4.5%. During the fourth quarter, the leveraged loan default rate came in at 4.0%—moderately above the long-term average of 3.0%.

High yield bond issuance fell from the record levels posted in Q2 and Q3 but remained elevated in Q4. Total issuance for 2020 was the highest on record at \$511 billion, outpacing 2013's historical peak of \$378 billion.

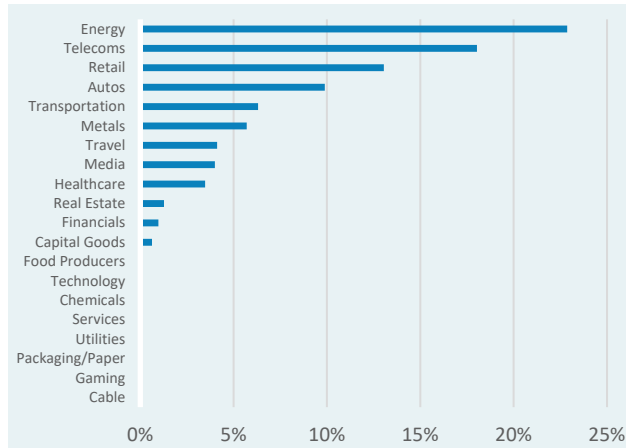
Investment grade issuance for 2020 totaled \$1.8 trillion, which was 40% higher than the prior record achieved in 2017. The fourth quarter was the slowest of the year with \$215 billion in new issues—a level that was in line with the four-year average

HY DEFAULT RATE (ROLLING 1-YEAR)



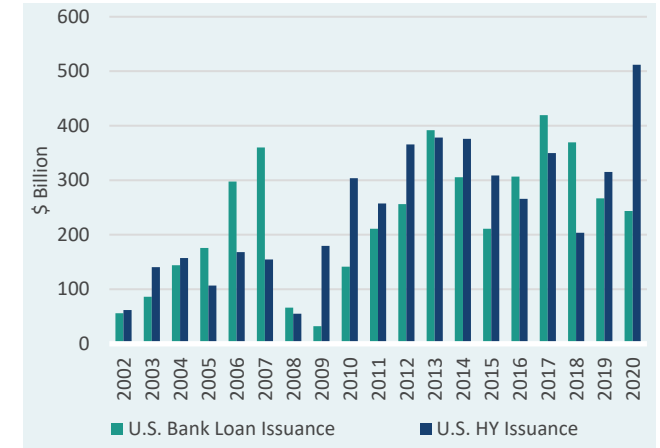
Source: BofA Merrill Lynch, as of 12/31/20

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



Source: BofA Merrill Lynch, as of 12/31/20 – par weighted

U.S. ISSUANCE (\$ BILLIONS)



Source: BofA Merrill Lynch, as of 12/31/20

Equity

Equity environment

- U.S. equities delivered +12.1% during the quarter, ending the year at an all-time-high. The S&P 500 was one of the strongest equity markets in 2020, up +18.4% despite an earnings recession and considerable economic uncertainty.
- Emerging market equities (MSCI EM +19.7%) once again outperformed U.S. (S&P 500 +12.1%) and international developed equities (MSCI EAFE +16.0%) in Q4. Latin American equities showed significant outperformance during the quarter (MSCI Latin America +34.8%), after years of lagging behind other emerging markets.
- According to FactSet, S&P 500 Q4 earnings are expected to be down -8.8%. This estimate improved materially from the -12.7% drop expected on September 30th. Analysts are expecting a -13.3% earnings decline for full-year 2020.
- The Cboe VIX Index remained rangebound in the fourth quarter, ending the year at 22.8. Priced volatility is moderately elevated relative to the longer-term average of 19.
- Weakness in the U.S. dollar relative to both emerging market and developed market currencies remained a theme during the fourth quarter, as the Bloomberg Dollar Spot Index fell to a two and a half year low. Analysts attributed some of the weakness in the greenback to lower relative real yields in the United States, as nominal Treasury yields picked up.
- Within the index, a sizable rotation occurred in Q4 as certain sectors that had been beaten-down during the pandemic performed strongly. Rising energy prices boosted the Energy sector, while higher interest rates on the longer end of the yield curve improved the outlook for Financials.

	QTD TOTAL RETURN		1 YEAR TOTAL RETURN	
	(unhedged)	(hedged)	(unhedged)	(hedged)
US Large Cap (S&P 500)	12.1%		18.4%	
US Small Cap (Russell 2000)	31.4%		20.0%	
US Large Value (Russell 1000 Value)	16.3%		2.8%	
US Large Growth (Russell 1000 Growth)	11.4%		38.5%	
International Large (MSCI EAFE)	16.0%	11.9%	7.8%	2.5%
Eurozone (Euro Stoxx 50)	16.2%	12.2%	5.5%	(1.2%)
U.K. (FTSE 100)	17.2%	11.4%	(8.9%)	(10.2%)
Japan (NIKKEI 225)	21.1%	18.8%	24.2%	19.4%
Emerging Markets (MSCI Emerging Markets)	19.7%	16.0%	18.3%	19.6%

Source: Russell Investments, MSCI, STOXX, FTSE, Nikkei, as of 12/31/20

Domestic equity

U.S. equities delivered +12.1% during the quarter, ending the year at an all-time-high. The S&P 500 was one of the strongest equity markets in 2020, up +18.4% despite an earnings recession and considerable economic uncertainty.

Within the index, a sizable rotation occurred in Q4 as certain sectors that had been beaten-down during the pandemic performed strongly. Rising energy prices boosted the Energy sector, while higher interest rates improved the outlook for Financials. It remains to be seen whether certain consumer habits displayed during the pandemic (online shopping and heightened social media usage, for example) begin reverting to previous levels as the world moves back to normalcy or if

instead, these new habits become more permanent in nature. The answer to this question has important implications for future intra-sector performance.

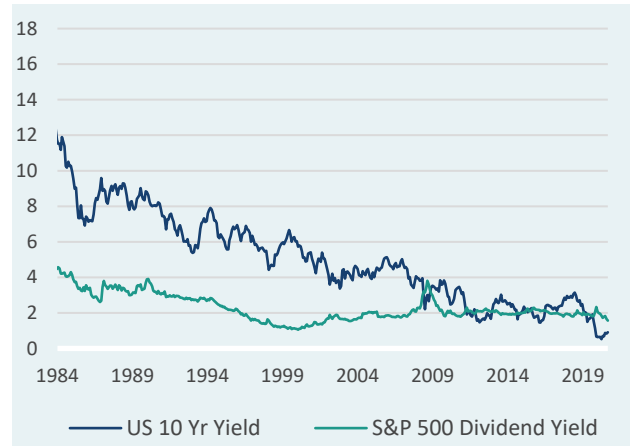
As equities move higher, it is difficult not to notice a disconnect between the US. market and the economy. We believe this rally is the result of a confluence of forces. Ultra-low interest rates, extremely accommodative monetary and fiscal policy, plus the implicit guarantee that further economic weakness will be met with more support and stimulus, seems to be creating a new type of “Goldilocks market” that harkens back to the post-Global Financial Crisis market expansion.

S&P 500 INDEX



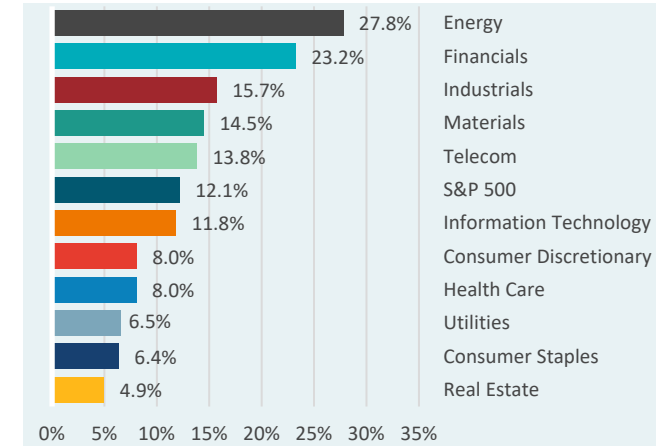
Source: Standard & Poor's, as of 12/31/20

DIVIDEND YIELD VS BOND YIELD



Source: Standard & Poor's, as of 12/31/20

Q4 SECTOR PERFORMANCE



Source: Standard & Poor's, as of 12/31/20

Domestic equity size & style

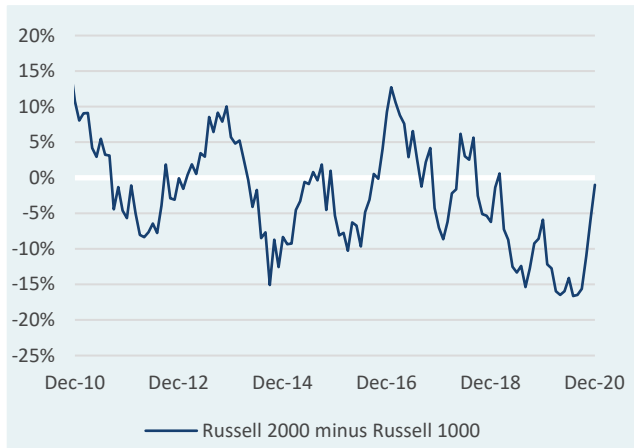
U.S. value stocks beat growth stocks during the fourth quarter (Russell 1000 Value +16.3%, Russell 1000 Growth +11.4%), reversing an extended run of value underperformance. The moderate bounce in value stock performance appeared to be partly driven by sector movements. Energy, Financials, and Materials sectors tend to contain an outsized number of value stocks. These sectors were among the top performers in Q4. Small cap stocks delivered sizable outperformance over large cap stocks (Russell 2000 +31.4%, Russell 1000 +13.7%).

A variety of risks seem to be boiling up around large U.S. technology companies. Given the significant market role that

these businesses play, along with their *growth* rather than *value* characteristics, this regulatory risk could have implications for 2021. First, it is easy to argue that firms such as Google, Amazon, and Facebook have exercised some degree of monopoly power (the FTC recently sued Facebook for alleged illegal monopolistic conduct, and numerous other investigations abound). Further anti-trust actions are likely to come. Second, in recent years there has been a degree of bipartisan consensus that social media companies are doing a poor job of moderating content (though each political party has very different ideas as to the appropriate solution). These risks, which rest perhaps solely on the shoulders of “growth stocks”, will be worth watching in 2021.

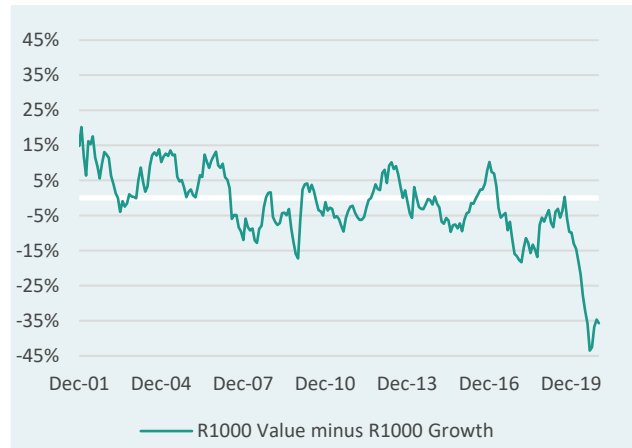
Sector performance has fueled dramatic negative performance of the value premium

SMALL CAP VS LARGE CAP (YOY)



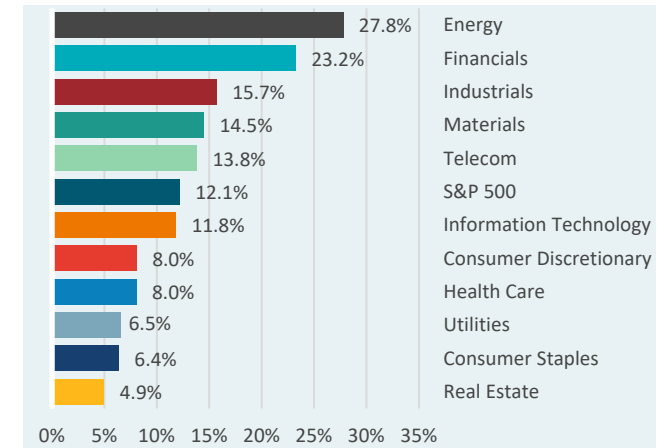
Source: FTSE, as of 12/31/20

VALUE VS GROWTH (YOY)



Source: FTSE, as of 12/31/20

Q4 SECTOR PERFORMANCE



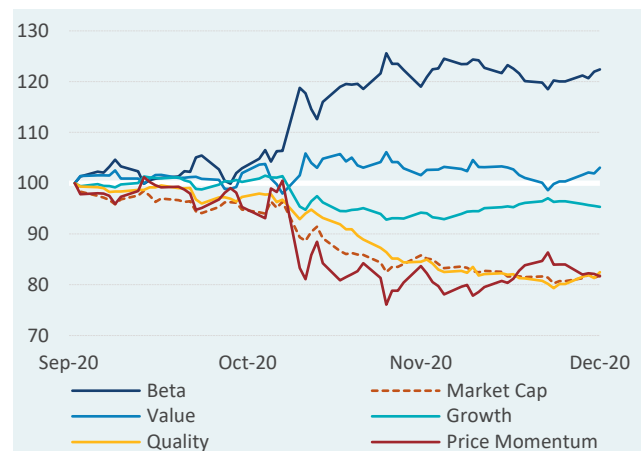
Source: Standard & Poor's, as of 12/31/20

Factor portfolios in 2020

After a quiet October, factor results significantly diverged in November as investors strongly reacted to positive COVID-19 vaccine news. Anticipating a path toward post-pandemic normalcy, investors rotated into stocks with higher betas and higher volatility (long/short, sector-neutral, S&P 500 Index quintiles). Small-cap stocks also performed well while the value factor modestly gained ground, mostly due to strong results from stocks with attractive price-to-book ratios. Investors funded this rotation by selling large-cap and high-quality positions. Poor price momentum results were further evidence of the strength of the move.

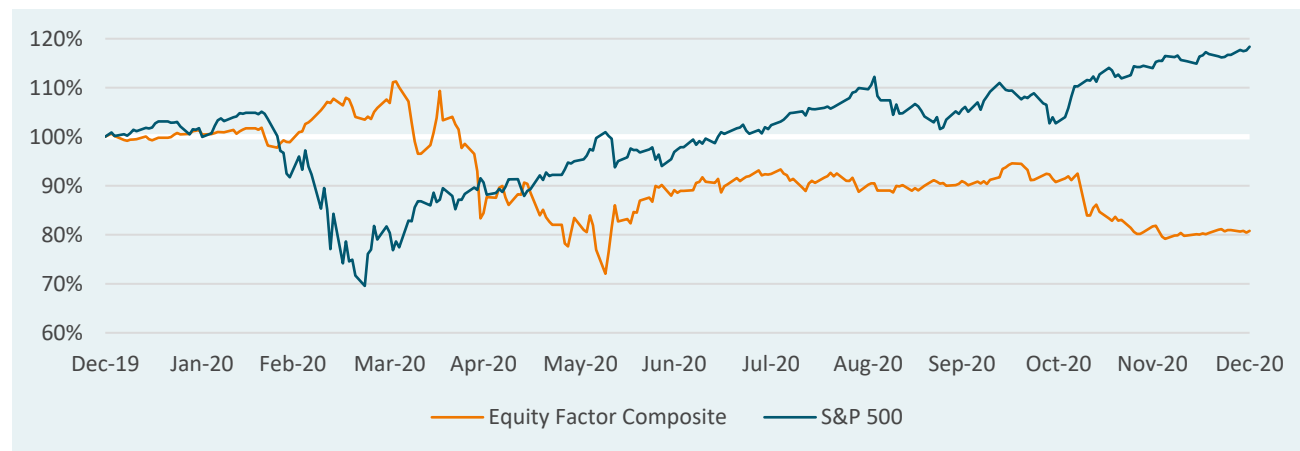
Equity factors had a very difficult year in 2020 and subsequently trailed the equity market by a very wide margin. Quality factors provided some protection during the periods of market turmoil. However other market neutral risk premia strategies did not enjoy consistent recoveries, particularly as market preferences quickly reversed back and forth during the pandemic.

Q4 2020 PERFORMANCE



Source: J.P. Morgan, as of 12/31/20

CUMULATIVE RETURN (INDEXED 12/31/19=100%)



Source: J.P. Morgan, as of 12/31/20; Equity Factor Composite represents the performance of a 10-factor model designed as a simple proxy for quant performance. The factors are combined so that the long and short portfolios contain the most- and least-attractive quant stocks.

International developed equity

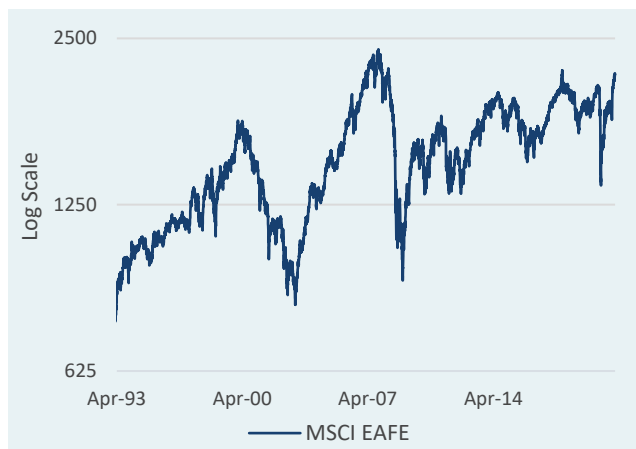
International equities delivered exceptional performance in the fourth quarter, as most global markets have now fully recovered from the March drawdown. The MSCI EAFE Index (+16.0%) outperformed the S&P 500 Index (+12.1%) while lagging the MSCI Emerging Markets Index (+19.7). Continuing U.S. dollar weakness was a notable theme, boosting international equity performance by 5% over the past year.

The recent depreciation of the U.S. dollar has acted as a tailwind to many unhedged international investments. The MSCI EAFE Index unhedged returned 16.0% in Q4, compared

to 11.9% if currency had been hedged. The three largest currency exposures embedded in the MSCI EAFE Index—the euro (32%), the yen (26%), and the pound sterling (13%)—appreciated +4.3%, +2.2%, and +5.7% relative to the U.S. dollar during the quarter, respectively.

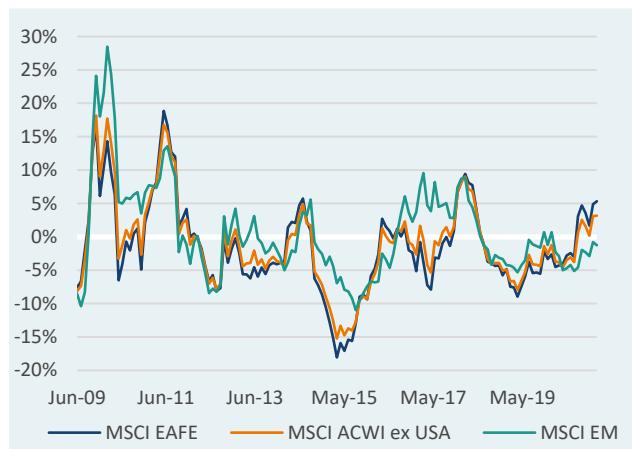
European equities (+17.2%) outperformed Hong Kong (+15.5%) and Japanese (+15.3%) equities in Q4, supported by strong performance in Austria (+47.3%) and Spain (+27.7%). In Oceania, Australia posted solid returns (+22.9%), which were bolstered by a firmer Australian dollar.

INTERNATIONAL DEVELOPED EQUITIES



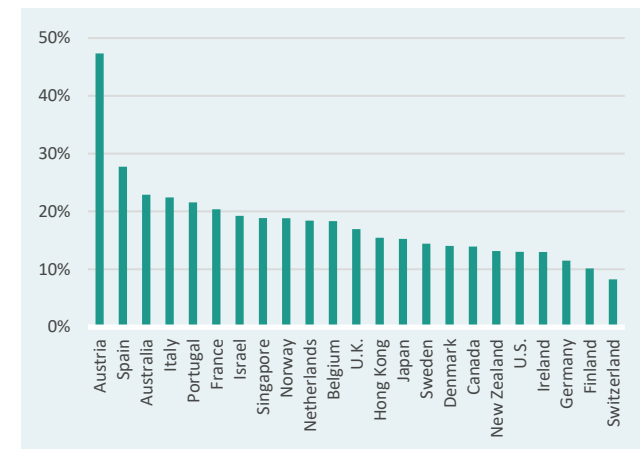
Source: MSCI, as of 12/31/20

EFFECT OF CURRENCY (1-YEAR ROLLING)



Source: MSCI, as of 12/31/20

Q4 2020 PERFORMANCE (ALL IN USD)



Source: MSCI, Bloomberg, as of 12/31/20

Emerging market equity

Emerging market equities (MSCI EM +19.7%) outperformed U.S. (S&P 500 +12.1%) and international developed equities (MSCI EAFE +16.0%) once again in Q4. Latin American equities showed significant outperformance during the quarter (MSCI Latin America +34.8%), after years of lagging behind other emerging markets.

The pandemic placed downward pressure on inflation earlier in 2020. Since then, the rate of price movement has recovered in many markets. China appears to be an outlier, as inflation recently dipped below zero. This move was fueled by falling pork prices, which had been moving higher

in recent years and causing above-average levels of inflation.

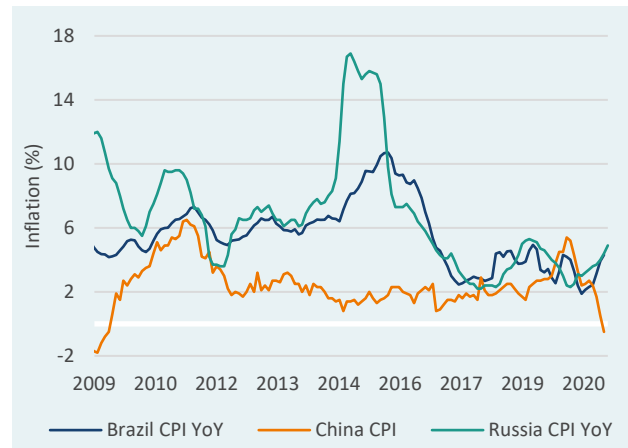
Emerging market currencies sold off significantly during the beginning of the year as investors bid up safe-haven currencies, including the U.S. dollar, amid unprecedented economic and market uncertainty. Since March, however, the embedded currency portfolio of the MSCI Emerging Markets Index began to recover significantly and ended the year nearly on par with where it had started. Continued appreciation of emerging market currencies could provide tailwinds for unhedged U.S. investors in the asset class.

EMERGING MARKET EQUITY



Source: MSCI, as of 12/31/20

INFLATION (YOY)



Source: Bloomberg, as of 12/31/20 or most recent data

MSCI EM INDEX EMBEDDED CURRENCY



Source: Bloomberg, as of 12/31/20

Equity valuations

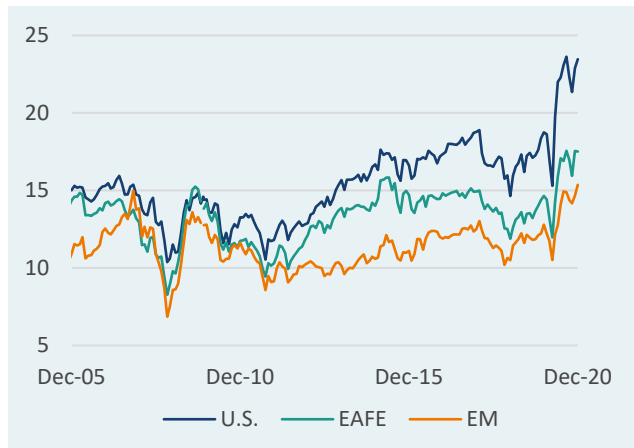
Particularly during the last two months of the year, valuations shot higher alongside equity prices as markets digested news that several COVID-19 vaccine candidates proved more effective than anticipated. Today, price-to-earnings multiples appear stretched relative to long-term averages.

Markets have shown a remarkable ability to look past the pandemic-related disruptions and focus on the light at the end of the tunnel. Some in the industry have viewed the exceptional performance of U.S. equities in 2020 as the “check” that fundamentals will need to “cash” next year, and that if sales and earnings do not recover at the strong pace

they are expected (+8.2%/+22.6%), there could be room for a correction.

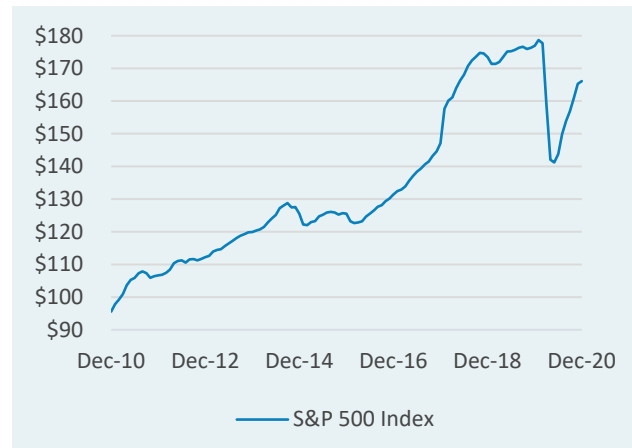
On a trailing-earnings basis, international developed equities appear most expensive as the second series of lockdowns which swept over the continent toward the end of the year have severely impacted earnings. The question in Europe, however, is largely the same one we are grappling with in the U.S.: are earnings temporarily depressed and ripe for a quick rebound next year, or are the earnings streams impaired and equity prices less justified?

FORWARD P/E RATIOS



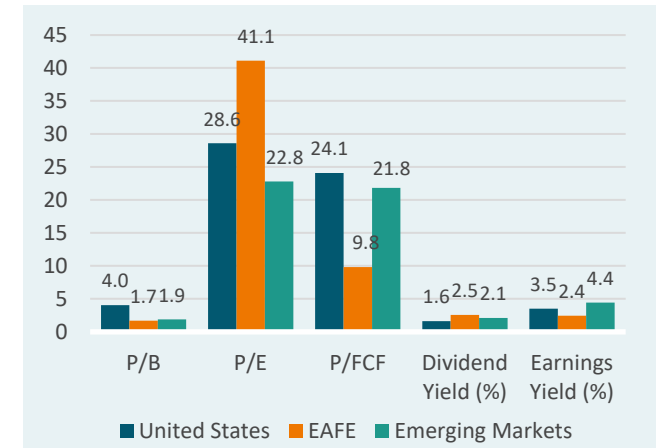
Source: MSCI, 12m forward P/E, as of 12/31/20

BLENDED 12-MONTH EARNINGS EXPECTATIONS



Source: Bloomberg, as of 12/31/20

VALUATION METRICS (3-MONTH AVERAGE)



Source: Bloomberg, MSCI as of 12/31/20 - trailing P/E

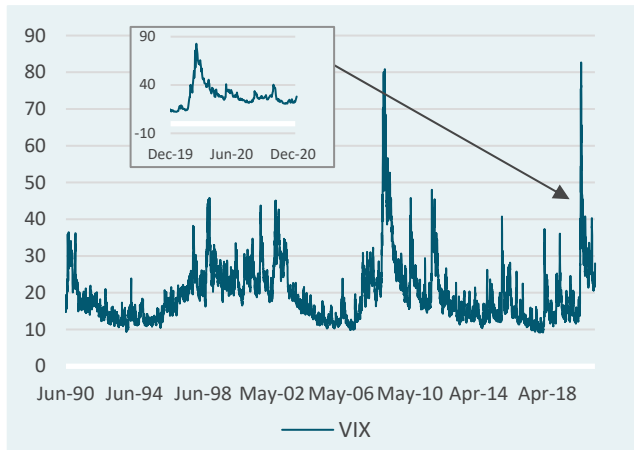
Equity volatility

The Cboe VIX Index remained rangebound in the fourth quarter, ending the year at 22.8. Priced volatility is moderately elevated relative to the longer-term average of 19.

The U.S. equity market exhibited surprisingly high volatility in 2020 relative to other global markets. The domestic market has typically been a lowest risk market. In recent years, this relationship has flipped, with U.S. stocks showing higher volatility than developed market stocks, and nearly on par with emerging market equities.

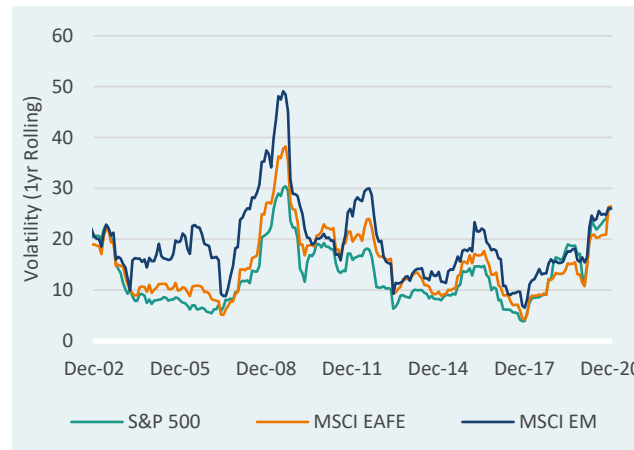
Since implied and realized volatility spiked in the first quarter, options-implied volatility has receded significantly, back toward more normal levels. As equity markets climbed to new highs in the final few months of the year, the U.S. implied volatility curve began to steepen. During the fourth quarter, the implied volatility of deeply out-of-the-money puts was little changed, while the implied volatility of deeply out-of-the-money call options declined to more-average levels. The steepening of the implied volatility curve likely demonstrates the market's marginal preference for downside protection over upside participation at current price levels.

U.S. IMPLIED VOLATILITY (VIX)



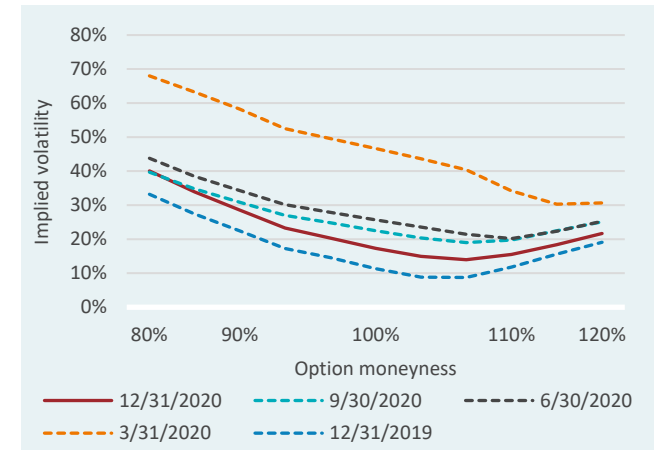
Source: Cboe, as of 12/31/20

REALIZED VOLATILITY



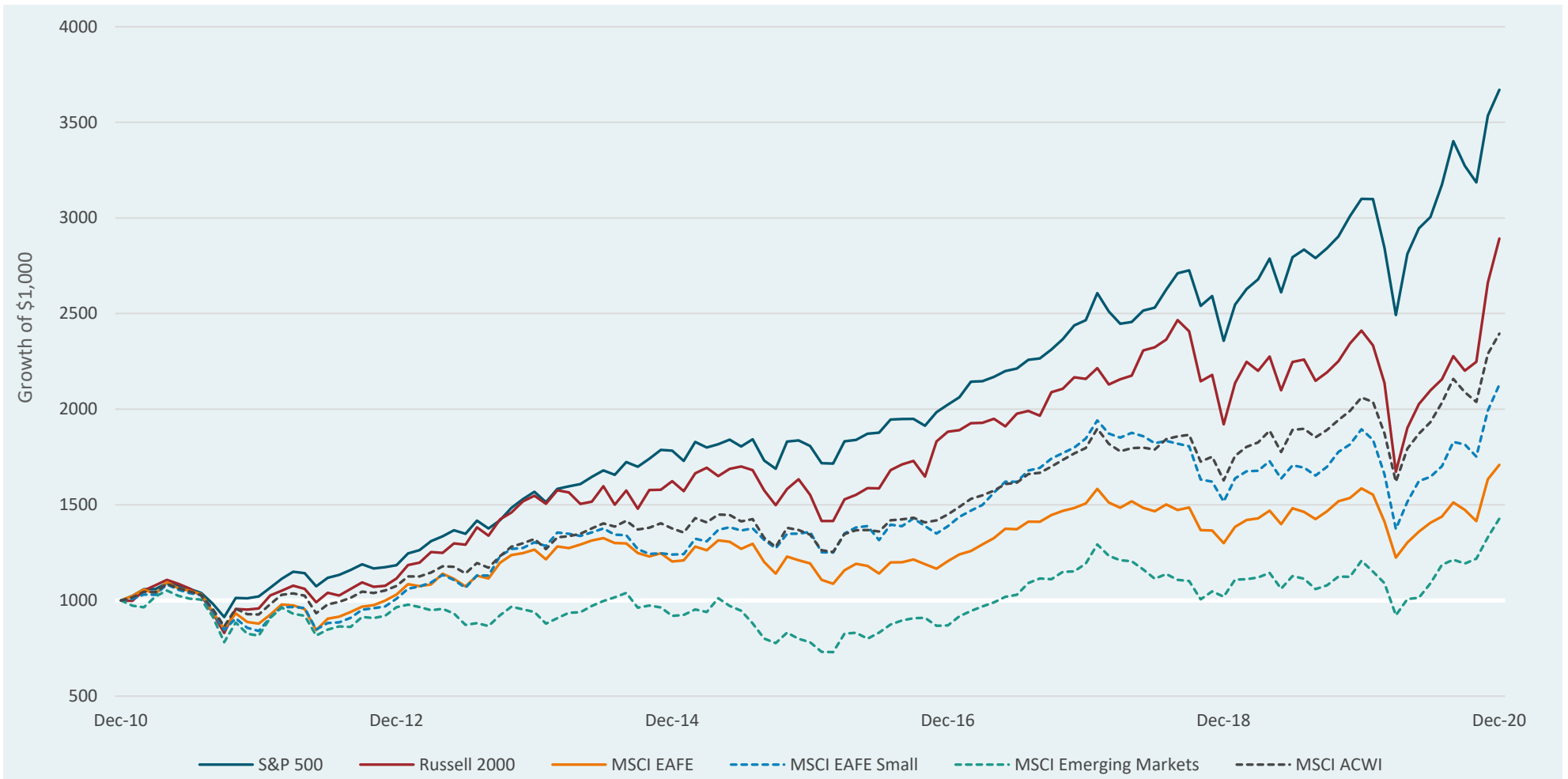
Source: Standard & Poor's, MSCI, as of 12/31/20

1-MONTH U.S. IMPLIED VOLATILITY CURVE



Source: Bloomberg, as of 12/31/20

Long-term equity performance



Source: Morningstar, as of 12/31/20

Other assets

Currency

Weakness in the U.S. dollar relative to both emerging market and developed market currencies remained a theme in the fourth quarter, as the Bloomberg Dollar Spot Index fell to a two and a half year low. Analysts attributed some of the weakness of the greenback to lower relative real yields in the United States, as nominal Treasury yields rose less than inflation expectations. Many in the industry have made calls for a continuation of dollar weakness into 2021. If that weakness were to materialize, it would supply significant tailwinds for unhedged U.S. investors in non-U.S. equities. We continue to believe that unhedged currency exposure results in uncompensated risk, which is a suboptimal approach for many investors.

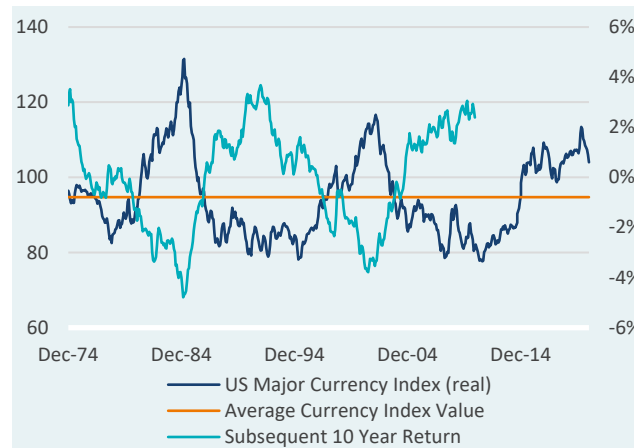
The onshore Chinese renminbi rallied significantly over the fourth quarter. The strength has been primarily credited to the apparently-blistering pace of China's recovery from pandemic-related disruptions, which has fueled capital inflows from offshore investors. Looking ahead, the election of Joe Biden has been viewed largely as constructive for the yuan, as the expectation remains that Biden's stance on China will be less confrontational than his predecessor's, reducing trade tensions. On the other hand, the rising value of the yuan may make China's exports less-affordable for Europeans still recovering from the pandemic. This dynamic has stoked speculation that the People's Bank of China might soon step in to cool the rally.

BLOOMBERG DOLLAR SPOT INDEX



Source: Bloomberg, as of 12/31/20

USD CURRENCY LEVEL & SUBSEQUENT RETURN



Source: Federal Reserve, as of 12/31/20

USD/CNY CROSS RATE



Source: Bloomberg, as of 12/31/20

Appendix

Periodic table of returns

BEST

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	5-Year	10-Year
Large Cap Growth	38.7	66.4	31.8	14.0	25.9	56.3	26.0	34.5	32.6	39.8	5.2	79.0	29.1	14.3	18.6	43.3	13.5	13.3	31.7	37.3	6.7	36.4	38.5	21.0	17.2
Small Cap Growth	27.0	43.1	22.8	8.4	10.3	48.5	22.2	21.4	26.9	16.2	1.4	37.2	26.9	7.8	18.1	38.8	13.2	5.7	21.3	30.2	1.9	31.4	34.6	16.4	14.0
Large Cap Equity	20.3	33.2	12.2	7.3	6.7	47.3	20.7	20.1	23.5	15.8	-6.5	34.5	24.5	2.6	17.9	34.5	13.0	0.9	17.3	25.0	0.0	28.5	21.0	15.6	13.5
Small Cap Equity	19.3	27.3	11.6	3.3	1.6	46.0	18.3	14.0	22.2	11.8	-21.4	32.5	19.2	1.5	17.5	33.5	11.8	0.6	12.1	22.2	-1.5	26.5	20.0	13.3	11.2
Emerging Markets Equity	16.2	26.5	7.0	2.8	1.0	39.2	16.5	7.5	18.4	11.6	-25.9	28.4	16.8	0.4	16.4	33.1	6.0	0.0	11.8	21.7	-3.5	25.5	18.3	12.8	10.5
60/40 Global Portfolio	8.7	21.3	4.1	-2.4	-6.0	29.9	14.3	6.3	15.5	10.3	-33.8	23.3	16.1	-2.1	15.3	23.3	4.9	-0.8	11.2	14.6	-6.0	22.4	14.0	9.7	8.9
Hedge Funds of Funds	15.6	24.3	6.0	2.5	-5.9	30.0	14.5	7.1	16.6	10.9	-28.9	27.2	16.7	0.1	16.3	32.5	5.6	-0.4	11.3	17.1	-4.8	22.0	10.3	9.7	8.7
International Equity	4.9	20.9	-3.0	-5.6	-11.4	29.7	12.9	5.3	15.1	7.0	-35.6	20.6	15.5	-2.9	14.6	12.1	4.2	-1.4	8.0	13.7	-8.3	18.6	7.8	9.5	6.8
US Bonds	1.2	13.2	-7.3	-9.1	-15.5	25.2	11.4	4.7	13.3	7.0	-36.8	19.7	13.1	-4.2	11.5	11.0	3.4	-2.5	7.1	7.8	-9.3	18.4	7.5	7.4	5.5
Small Cap Value	-2.5	11.4	-7.8	-9.2	-15.7	23.9	9.1	4.6	10.4	5.8	-37.6	18.9	10.2	-5.5	10.5	9.0	2.8	-3.8	5.7	7.7	-11.0	8.7	4.6	5.7	3.8
Large Cap Value	-5.1	7.3	-14.0	-12.4	-20.5	11.6	6.9	4.6	9.1	4.4	-38.4	11.5	8.2	-5.7	4.8	0.1	0.0	-4.4	2.6	7.0	-11.2	7.8	2.8	4.4	3.6
Real Estate	-6.5	4.8	-22.4	-19.5	-21.7	9.0	6.3	4.2	4.8	-0.2	-38.5	5.9	6.5	-11.7	4.2	-2.0	-1.8	-7.5	1.0	3.5	-12.9	7.7	0.5	4.4	3.3
Cash	-25.3	-0.8	-22.4	-20.4	-27.9	4.1	4.3	3.2	4.3	-1.6	-43.1	0.2	5.7	-13.3	0.1	-2.3	-4.5	-14.9	0.5	1.7	-13.8	6.4	0.5	1.1	0.6
Commodities	-27.0	-1.5	-30.6	-21.2	-30.3	1.0	1.4	2.4	2.1	-9.8	-53.2	-16.9	0.1	-18.2	-1.1	-9.5	-17.0	-24.7	0.3	0.9	-14.6	2.1	-3.1	1.0	-6.5

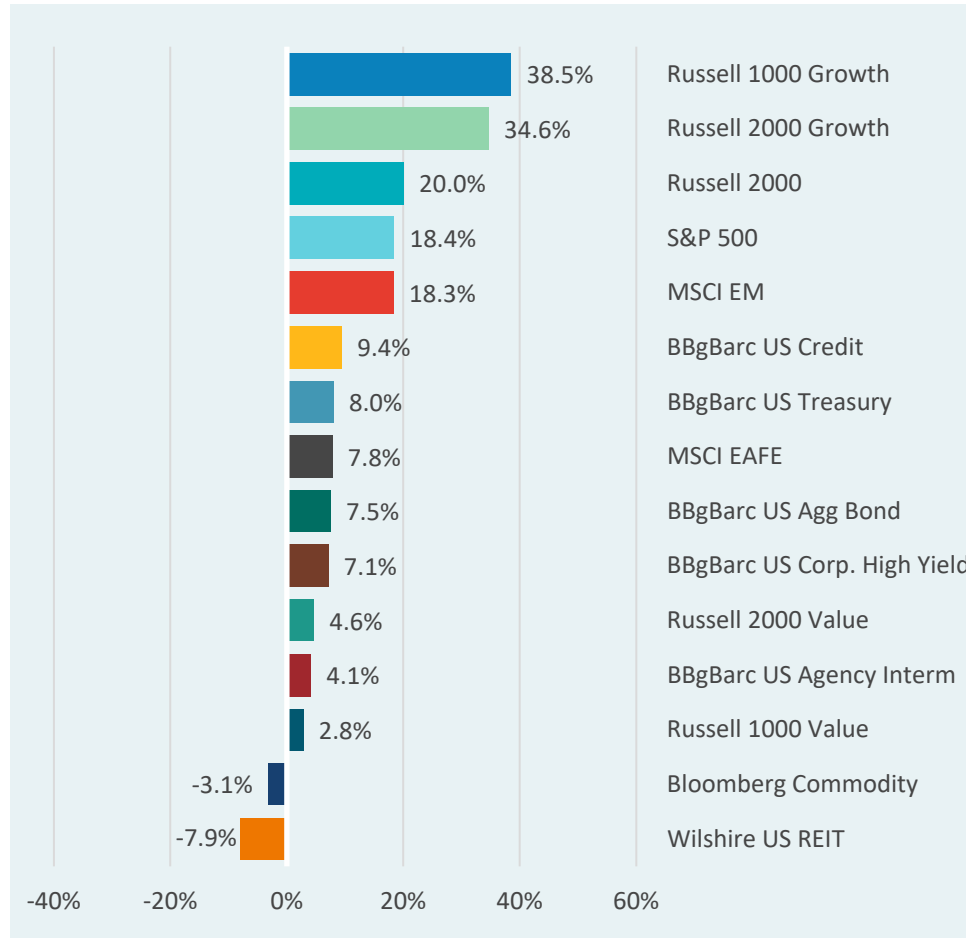
WORST



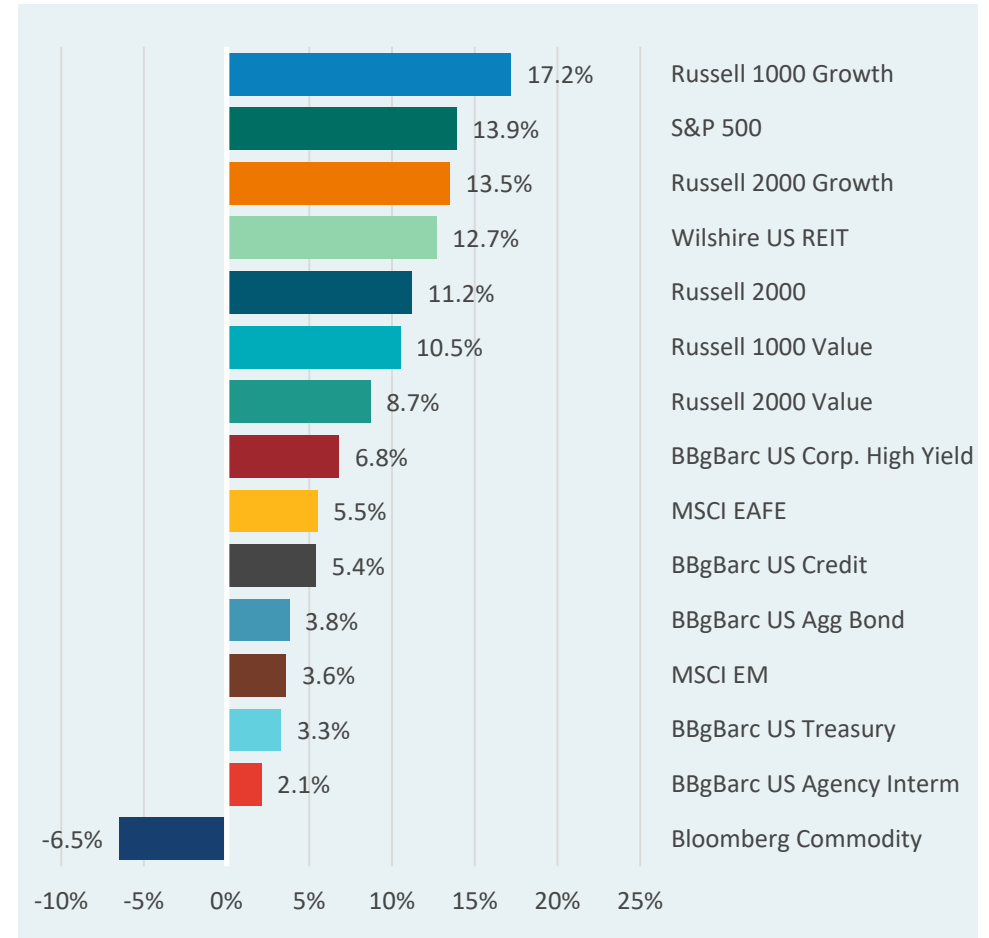
Source Data: Morningstar, Inc., Hedge Fund Research, Inc. (HFR), National Council of Real Estate Investment Fiduciaries (NCREIF). Indices used: Russell 1000, Russell 1000 Value, Russell 1000 Growth, Russell 2000, Russell 2000 Value, Russell 2000 Growth, MSCI EAFE, MSCI EM, BBgBarc US Aggregate, T-Bill 90 Day, Bloomberg Commodity, NCREIF Property, HFRI FOF, MSCI ACWI, BBgBarc Global Bond. NCREIF Property Index performance data as of 9/30/20.

Major asset class returns

ONE YEAR ENDING DECEMBER



TEN YEARS ENDING DECEMBER



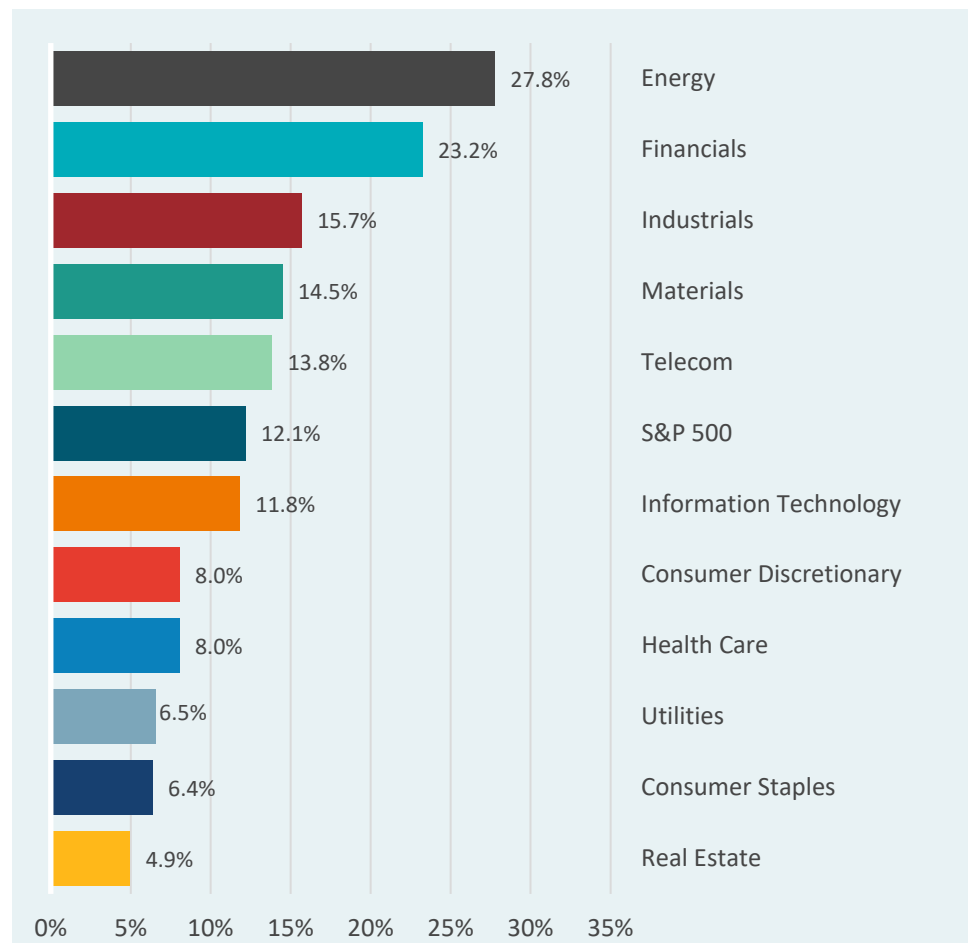
*Only publicly traded asset performance is shown here. Performance of private assets is typically released with a 3- to 6-month delay.

Source: Morningstar, as of 12/31/20

Source: Morningstar, as of 12/31/20

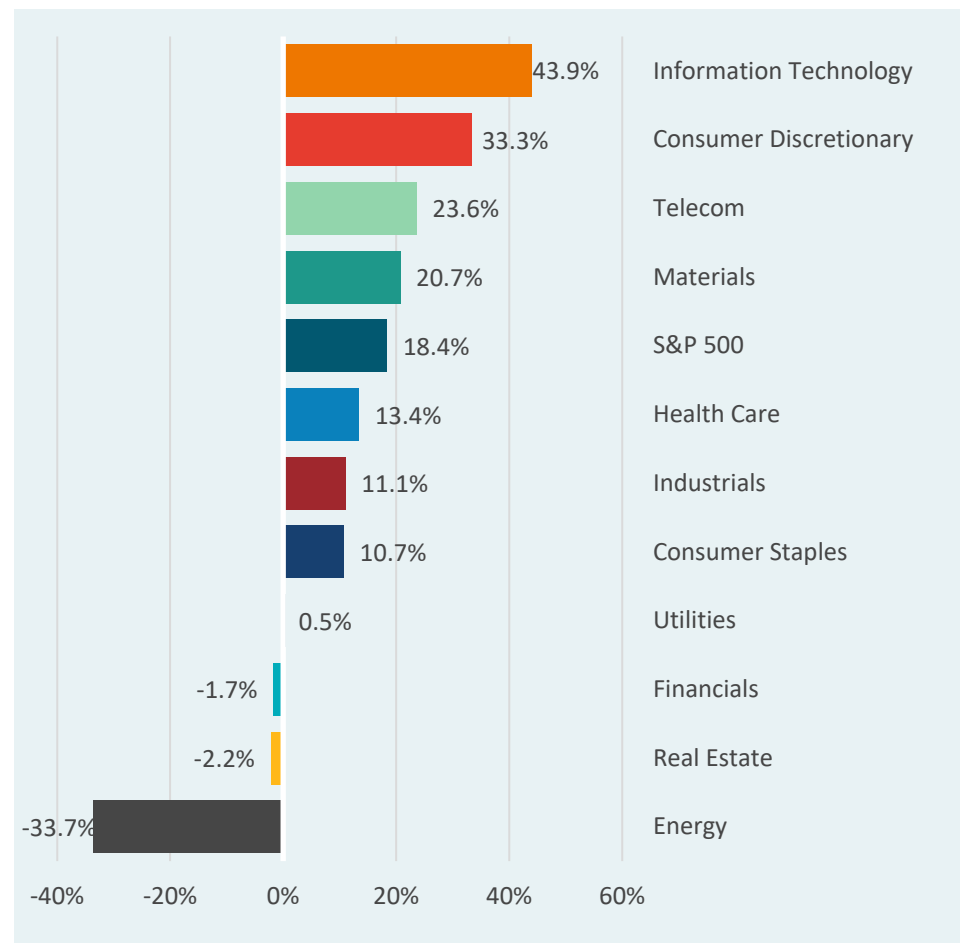
S&P 500 sector returns

Q4 2020



Source: Morningstar, as of 12/31/20

ONE YEAR ENDING DECEMBER

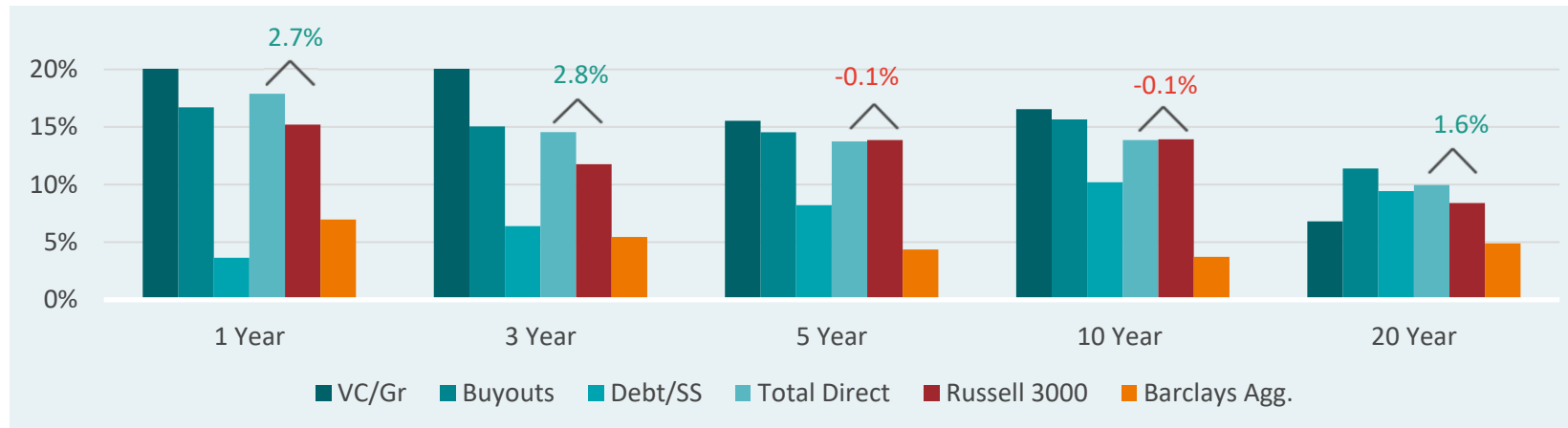


Source: Morningstar, as of 12/31/20

Private equity vs. public performance

As of 9/30/2020

DIRECT PRIVATE EQUITY FUND INVESTMENTS



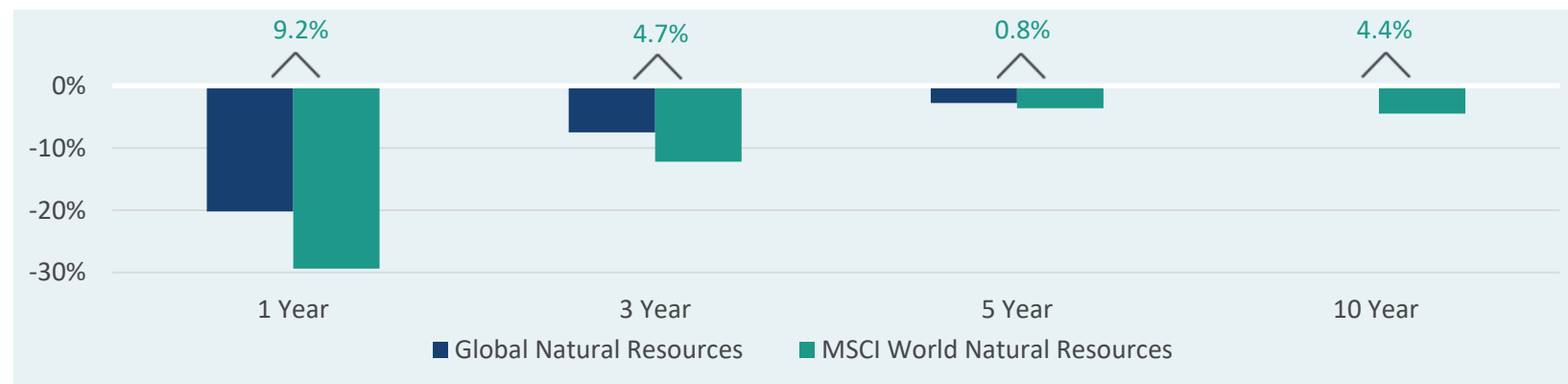
Direct private equity fund investments outperformed comparable public equities across most time periods

Sources: Thomson Reuters Cambridge Universe's PME Module: U.S. Private Equity Funds sub asset classes as of September 30, 2020. Public Market Equivalent returns resulted from "Total Direct's" identical cash flows invested into and distributed from respective traditional asset comparable.

Private equity vs. liquid real assets performance

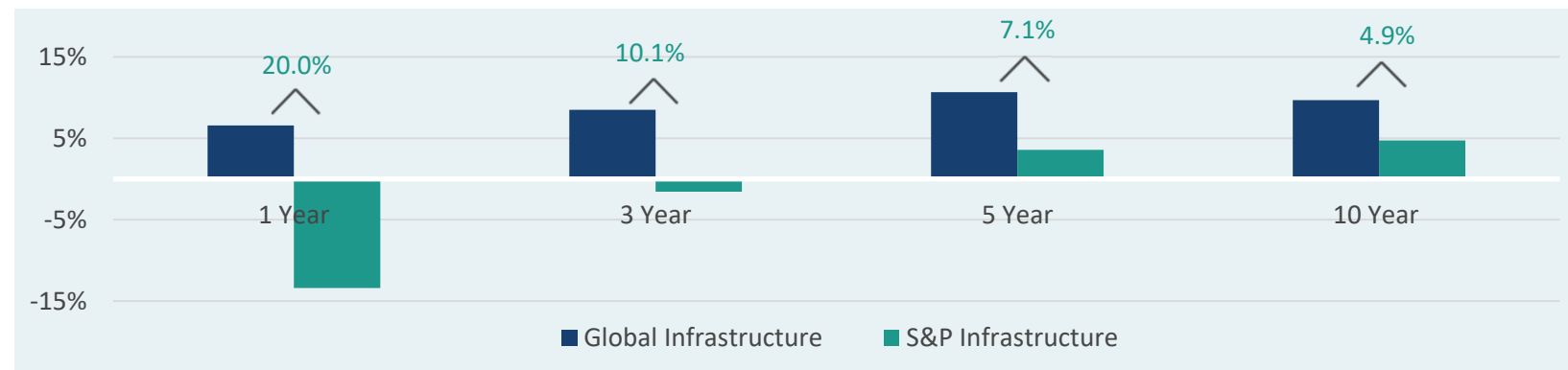
As of 9/30/2020

GLOBAL NATURAL RESOURCES FUNDS



Natural resource funds outperformed the MSCI World Natural Resources benchmark across all time periods

GLOBAL INFRASTRUCTURE FUNDS



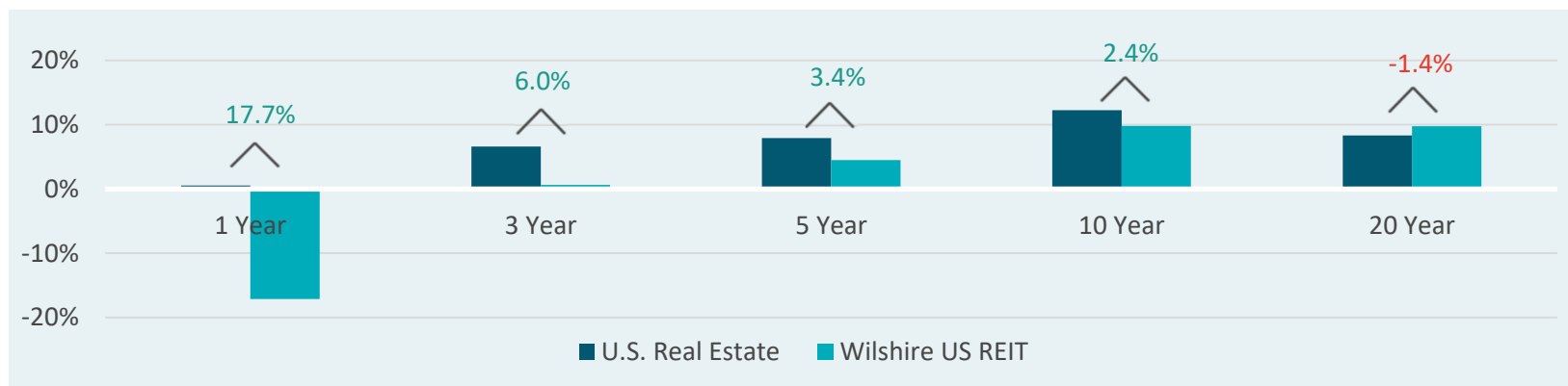
Infrastructure funds outperformed the S&P Infra. Index across all periods

Sources: Thomson Reuters C|A 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 September 30, 2020. Public Market Equivalent returns resulted from identical cash flows invested into and distributed from respective liquid real assets universes.

Private vs. liquid & core real estate performance

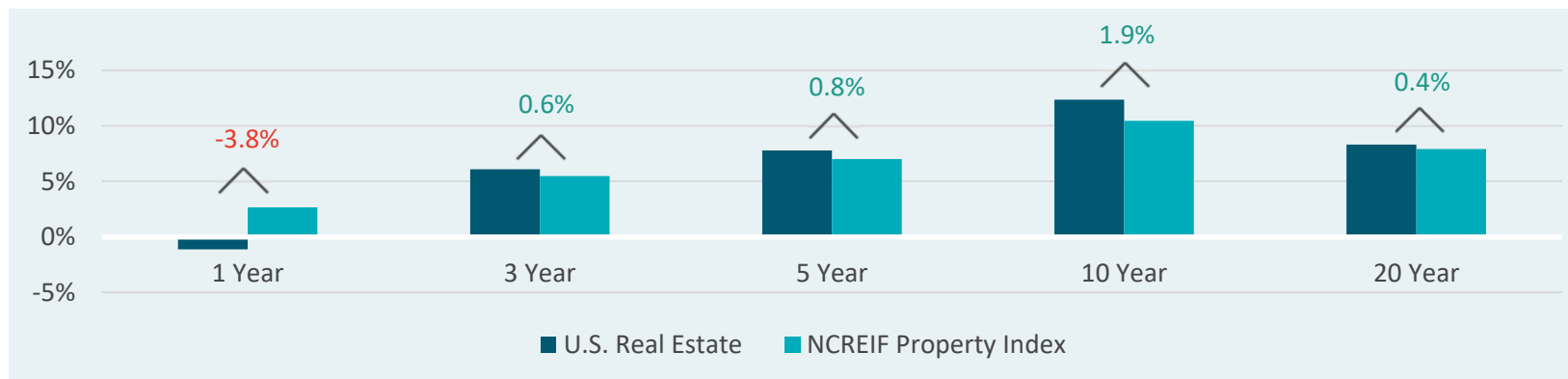
As of 9/30/2020

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



U.S. private real estate funds outperformed the Wilshire U.S. REIT Index across most time periods

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



U.S. private real estate funds outperformed the NCREIF Property Index over all time periods, aside from the past year

Sources: Thomson Reuters CJA PME: U.S. Real Estate universes as of September 30, 2020. 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
Core Index							
S&P 500	3.8	12.1	18.4	18.4	14.2	15.2	13.9
S&P 500 Equal Weighted	4.3	18.5	12.8	12.8	10.4	13.0	12.7
DJ Industrial Average	3.4	10.7	9.7	9.7	9.9	14.7	13.0
Russell Top 200	4.1	11.6	22.4	22.4	16.0	16.4	14.6
Russell 1000	4.2	13.7	21.0	21.0	14.8	15.6	14.0
Russell 2000	8.7	31.4	20.0	20.0	10.2	13.3	11.2
Russell 3000	4.5	14.7	20.9	20.9	14.5	15.4	13.8
Russell Mid Cap	4.7	19.9	17.1	17.1	11.6	13.4	12.4
Style Index							
Russell 1000 Growth	4.6	11.4	38.5	38.5	23.0	21.0	17.2
Russell 1000 Value	3.8	16.3	2.8	2.8	6.1	9.7	10.5
Russell 2000 Growth	9.3	29.6	34.6	34.6	16.2	16.4	13.5
Russell 2000 Value	7.9	33.4	4.6	4.6	3.7	9.7	8.7

INTERNATIONAL EQUITY

Broad Index							
MSCI ACWI	4.6	14.7	16.3	16.3	10.1	12.3	9.1
MSCI ACWI ex US	5.4	17.0	10.7	10.7	4.9	8.9	4.9
MSCI EAFE	4.6	16.0	7.8	7.8	4.3	7.4	5.5
MSCI EM	7.4	19.7	18.3	18.3	6.2	12.8	3.6
MSCI EAFE Small Cap	6.8	17.3	12.3	12.3	4.9	9.4	7.8
Style Index							
MSCI EAFE Growth	4.9	13.1	18.3	18.3	9.7	10.5	7.5
MSCI EAFE Value	4.4	19.2	(2.6)	(2.6)	(1.2)	4.2	3.4
Regional Index							
MSCI UK	5.5	16.9	(10.5)	(10.5)	(2.4)	2.6	3.0
MSCI Japan	4.1	15.3	14.5	14.5	6.1	8.7	6.5
MSCI Euro	4.0	17.2	6.6	6.6	3.1	7.0	5.0
MSCI EM Asia	7.1	18.9	28.4	28.4	9.0	14.4	6.6
MSCI EM Latin American	11.9	34.8	(13.8)	(13.8)	(1.8)	8.9	(3.4)

FIXED INCOME

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
Broad Index							
BBgBarc US TIPS	1.1	1.6	11.0	11.0	5.9	5.1	3.8
BBgBarc US Treasury Bills	0.0	0.0	0.7	0.7	1.6	1.2	0.7
BBgBarc US Agg Bond	0.1	0.7	7.5	7.5	5.3	4.4	3.8
Duration							
BBgBarc US Treasury 1-3 Yr	0.1	0.0	3.2	3.2	2.8	1.9	1.3
BBgBarc US Treasury Long	(1.2)	(3.0)	17.7	17.7	9.9	7.8	7.8
BBgBarc US Treasury	(0.2)	(0.8)	8.0	8.0	5.2	3.8	3.3
Issuer							
BBgBarc US MBS	0.2	0.2	3.9	3.9	3.7	3.1	3.0
BBgBarc US Corp. High Yield	1.9	6.5	7.1	7.1	6.2	8.6	6.8
BBgBarc US Agency Interm	0.1	0.1	4.1	4.1	3.4	2.5	2.1
BBgBarc US Credit	0.5	2.8	9.4	9.4	6.8	6.4	5.4

OTHER

Index							
Bloomberg Commodity	5.0	10.2	(3.1)	(3.1)	(2.5)	1.0	(6.5)
Wilshire US REIT	2.8	10.6	(7.9)	(7.9)	3.3	4.3	8.3
CS Leveraged Loans	1.3	3.6	2.8	2.8	4.0	5.2	4.5
Alerian MLP	2.5	32.4	(31.6)	(31.6)	(13.7)	(7.0)	(2.1)
Regional Index							
JPM EMBI Global Div	1.9	5.8	5.3	5.3	5.0	7.1	6.2
JPM GBI-EM Global Div	3.5	9.6	2.7	2.7	3.0	6.7	1.5
Hedge Funds							
HFRI Composite	4.5	10.7	11.6	11.6	5.5	6.1	4.2
HFRI FOF Composite	3.1	7.5	10.3	10.3	4.7	4.4	3.3
Currency (Spot)							
Euro	2.3	4.3	9.0	9.0	0.6	2.4	(0.9)
Pound Sterling	2.4	5.7	3.2	3.2	0.3	(1.5)	(1.3)
Yen	1.0	2.2	5.3	5.3	2.9	3.1	(2.4)

Source: Morningstar, HFRI, as of 12/31/20

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)

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)

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

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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