



## WHO BUYS THIS STUFF?

The apparent lack of value in US Treasury bonds has vexed American investors for years. At year-end 2021, for example, the ten-year Treasury yielded 1.52% even though the market was expecting inflation to be 2.56% for the next decade. An investor may quickly remark: why would anybody hold an investment for ten years if they think it's essentially going to be worth 10% less at the end? How could that make sense, especially in today's economy? After all, over 90% of the time since the 1950s, the ten-year Treasury has done better than what is incorporated into today's prices, quite often under worse circumstances. This time around, jobs are abundant, corporate earnings growth is robust, and the US economy is forecast to increase by 4% over inflation in 2022. Maybe the Treasury market is signaling something ominous? If not, who buys this stuff?

The Federal Reserve for starters. US Treasury debt rose by \$1.5 trillion in 2021, during which time the Fed took in roughly two-thirds of the increase. On top of that, foreign holdings of Treasuries increased by \$578 billion in 2021 through October alone. In combination, Fed plus foreign buying matched the entire US deficit for 2021 and their combined holdings now sum to 57% of Treasury debt held by the public. If supply of low-yielding Treasury debt increased so much in 2021, did smart money sell and drive prices down? Not so much in 2021 as they had already done a good bit of selling going into the year. For example, actively managed US open-end bond funds, whose assets sit at roughly \$4.7 trillion and have been perpetually underweight to Treasuries, actually increased their holdings a bit in 2021. Hedge funds appear to be doing the same thing.

Looking forward, a potential imbalance of supply and demand of US Treasuries transforms this commentary's question into "who's *going to* buy this stuff?" In terms of supply, the US federal budget deficit is estimated to be \$1.2 trillion for 2022 (equivalent to 5% of the Treasury market) and is expected to hover around those levels for years. In terms of demand, the Federal Reserve just started signaling that it may be selling its Treasuries in the quarters to come. Other central banks are also expected to pull back on their own stimuli if they have not done so already. 2021 in fact saw the most rate hikes by monetary authorities in a decade—with none of them coming from our own Federal Reserve! Can active investors fill the demand abyss left by the Fed? Perhaps, but the price will need to be right.

And what then would be the right price or return requirement for the ten-year Treasury, based squarely on its investment merit? Probably a bit higher considering that over the long-run the ten-year Treasury has beaten inflation by 2.5% annually on average. Getting yields up to these levels, or even simply to 0% after inflation will entail price drops for Treasuries, and the bond market as a whole, since all bond prices incorporate Treasury yields. As an estimate of where prices might go, the Bloomberg US Aggregate Bond Index has a duration of 6.7 years, meaning that if bond yields rise by one percentage point, the value of the bond market will decline by 6.7%. Markets are indeed starting to price in higher interest rates but are nowhere near providing an expected Treasury return above inflation.

The potential of rising interest rates may indeed be disconcerting from an investment standpoint, but then again, and as many investors have already observed, so should the status quo of low rates. Treasury investors may suffer price declines on the road to higher yields, which historically have tended to range from 5-15%. The far side of that transition, however, is likely a much more attractive return profile.

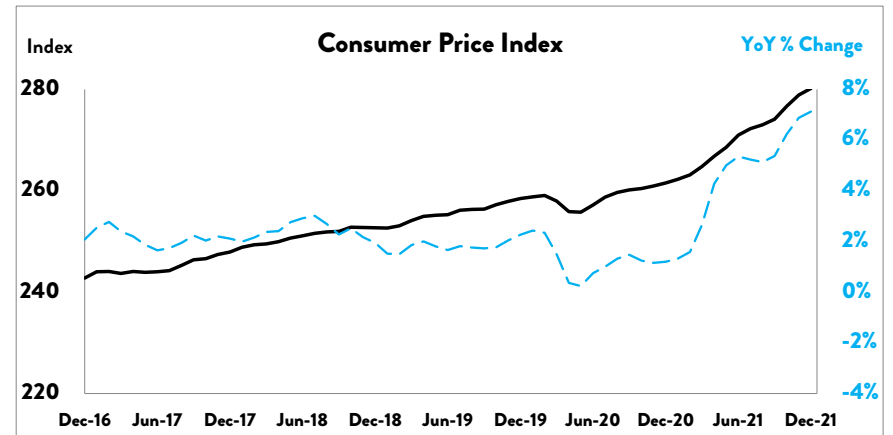
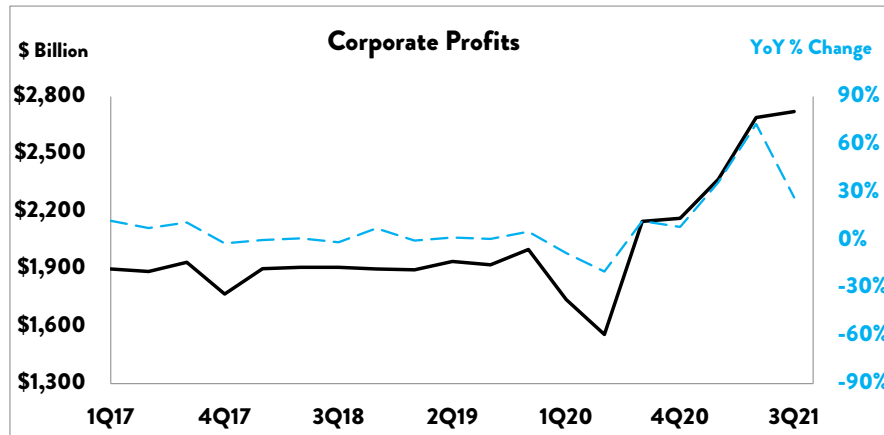
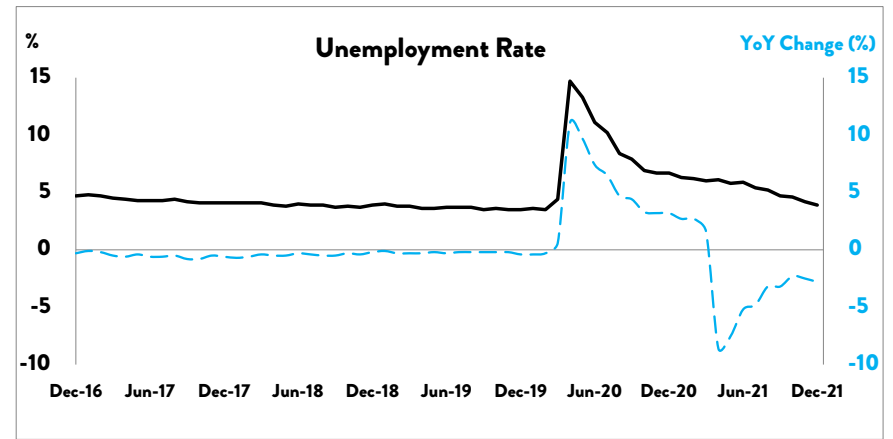
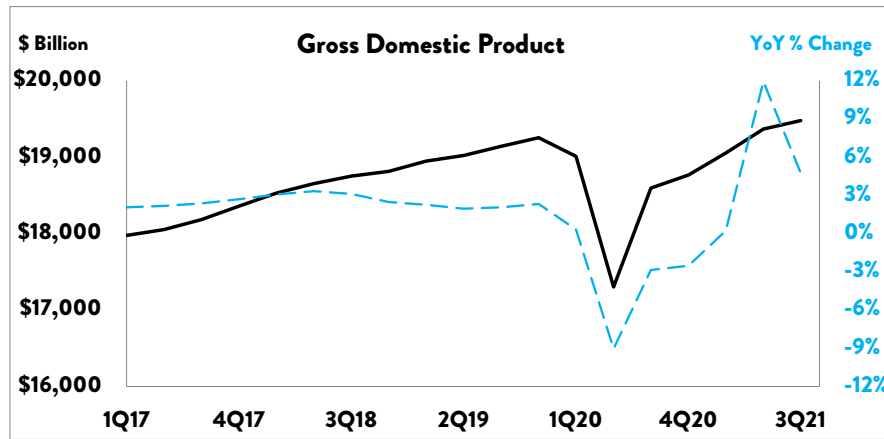
## GLOBAL ECONOMIC LANDSCAPE

- Minutes from the December 14-15 meeting of the Federal Open Market Committee (FOMC) indicated a shift towards managing inflation over further increasing employment. Meeting participants discussed reducing monetary stimulus by raising the federal funds rate “sooner or at a faster pace than...earlier anticipated,” followed by a reduction in the Federal Reserve’s balance sheet. While financial markets responded promptly by selling off both stocks and bonds, the effect of any Federal Reserve actions will likely take quarters to exert their effect on the economy.
- The Chinese economic slowdown was a major theme of 2021. After growing from 6.1% in 2010 to 10.6% through 2019, a troubled property market, COVID-19 outbreaks, and substantial regulatory tightening reduced year-over-year growth to 4.9% as of 3Q2021. To offset this, Chinese leaders declared in December (and for the first time in 2021) an intention to use monetary and fiscal policy to stabilize economic growth.
- 2021 saw a record number of job openings (11 million) in the US, nearly 1.5 per every unemployed person. Though often decried as the “Great Resignation” of workers opting out of the labor force, 2021 also saw a record number of small businesses being formed. Nearly 5 million businesses were started from January through November, a 55% increase over 2019. It will be interesting to see how the economic potential of this phenomenon unfolds (which may take several years) as many new products and ideas are brought to the market.
- Crude oil rebounded sharply in 2021, with West Texas Crude Oil prices rising from \$48.35 to \$75.33 per barrel. While these gains likely reflect economic acceleration and increased use of commodities as a hedge on inflation, they also incorporate declining supply. The oil and gas industry for example spent \$350 billion on field development in 2020 versus \$475 billion in 2019 and \$740 million in 2014. Active rigs and inventories are also at their lowest levels in several years, potentially serving as a tailwind for energy prices.

## GLOBAL FINANCIAL MARKETS

- 2021 marked a positive and notably uneven performance of the US Stock market. The growth investment style outperformed once again, though this time only within the large-cap space. Small-cap value stocks in contrast trounced their growth counterparts by the biggest margin (25.4%) since 2000. 4Q2021 followed a similar story of leadership by mega-cap growth technology companies whereas small-cap growth stocks were plagued by fallout in the biotechnology industry.
- Europe enjoyed a strong equity market performance in 2021, providing its highest outperformance of other international markets in twenty years. Unlike the Federal Reserve, the European Central Bank is expected to maintain its current monetary stimulus for much of the year. The combination of above-average growth, reasonable valuations, and a declining currency in an export-centric region may bolster European equities.
- The US investment-grade bond market experienced price declines in reaction to the release of the December FOMC meeting. Treasury Inflation-Protected Securities, which had been bid up in quarters on concerns of escalating inflation, dropped 2.2% in the first week of January. Most other bond categories saw price drops in the range of 1.0% to 1.5%. Treasury yields nudged up from 1.52% at the end of 2021 to 1.76% as of January 7, 2022.
- Spreads on US high yield bonds remained virtually unchanged in 4Q2021, starting the quarter at 3.15%, ending it at 3.10%, and remaining well below longer-term norms. Default rates on high yield debt also ended the quarter at 0.38% versus a longer-term average of 3.66%, reflective of a still buoyant economy. Spreads have risen slightly into 2022 but remain quite low.

# 4Q2021 Economic Data



Key: — Economic Series

- - - Year-Over-Year Change

Labor Market Statistics (Monthly)					
Category	Recent	5-Yr High	5-Yr Low	5-Yr Avg.	Date
Jobs Added/Lost Monthly	199,000	4,846,000	-20,679,000	58,933	Dec-21
Unemployment Rate	3.9%	14.7%	3.5%	5.1%	Dec-21
Median Unemployment Length (Weeks)	10.8	22.2	4.0	11.5	Dec-21
Average Hourly Earnings	\$31.31	\$31.31	\$25.99	\$28.25	Dec-21

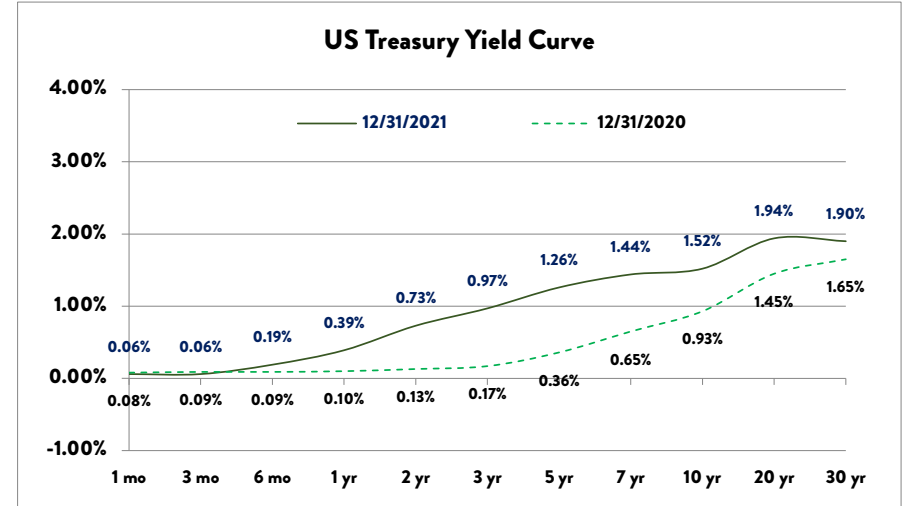
Source: Federal Reserve Bank of St. Louis and Bureau of Labor Statistics

Other Prices and Indexes (Monthly)					
Category	Recent	5-Yr High	5-Yr Low	% Off Peak	Date
Gas: Price per Gallon	\$3.24	\$3.35	\$1.80	-3.1%	Dec-21
Spot Oil	\$71.71	\$81.48	\$16.55	-12.0%	Dec-21
Case-Shiller Home Price Index	279.0	279.0	192.5	45.0%*	Oct-21
Medical Care CPI	530.9	530.9	472.1	12.5%*	Dec-21

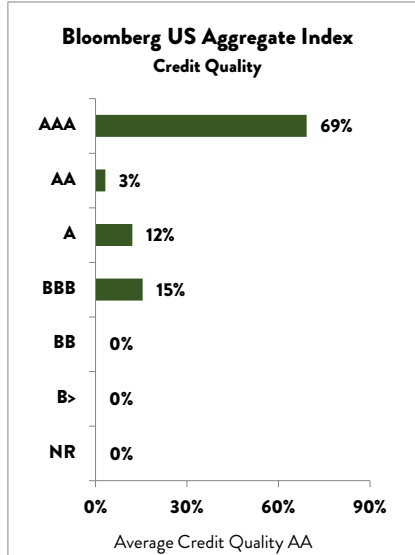
\*% Off Low

# 4Q2021 Bond Market Data

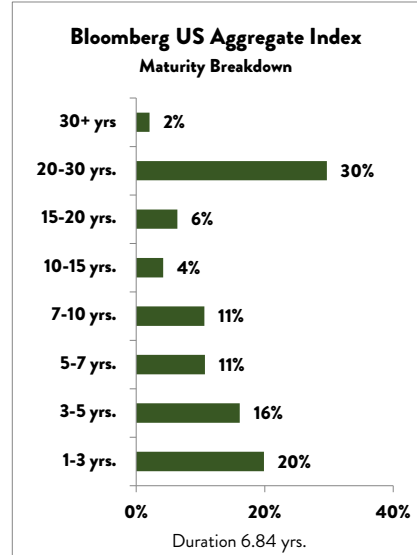
Index	QTR	YTD	1 yr.	3 yrs.	5 yrs.	10 yrs.
90-Day T-Bill	0.01%	0.05%	0.05%	0.84%	1.09%	0.60%
Bloomberg US Aggregate	0.01%	-1.54%	-1.54%	4.79%	3.57%	2.90%
Bloomberg Short US Treasury	-0.02%	0.04%	0.04%	1.14%	1.22%	0.71%
Bloomberg Int. US Treasury	-0.57%	-1.72%	-1.72%	3.04%	2.33%	1.68%
Bloomberg Long US Treasury	3.08%	-4.65%	-4.65%	8.82%	6.54%	4.51%
Bloomberg US TIPS	2.36%	5.96%	5.96%	8.44%	5.34%	3.09%
Bloomberg US Credit	0.22%	-1.08%	-1.08%	7.17%	5.05%	4.45%
Bloomberg US Mortgage-Backed	-0.37%	-1.04%	-1.04%	3.01%	2.50%	2.28%
Bloomberg US Asset-Backed	-0.57%	-0.34%	-0.34%	2.88%	2.39%	2.04%
Bloomberg US 20-Yr Municipal	1.20%	2.53%	2.53%	5.97%	5.27%	4.84%
Bloomberg US High Yield	0.71%	5.28%	5.28%	8.83%	6.30%	6.83%
Bloomberg Global	-0.67%	-4.71%	-4.71%	3.59%	3.36%	1.77%
Bloomberg International	-1.18%	-7.05%	-7.05%	2.46%	3.07%	0.82%
Bloomberg Emerging Market	-0.52%	-1.65%	-1.65%	5.82%	4.57%	5.12%



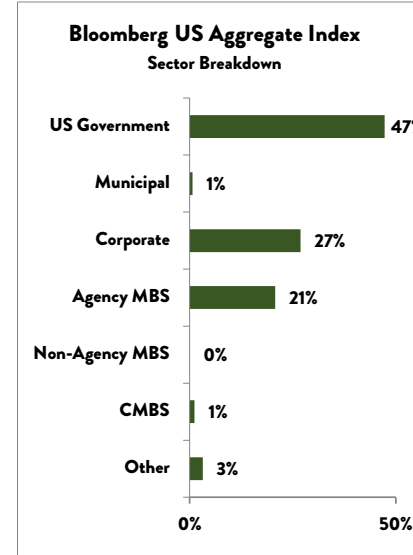
Source: Department of US Treasury



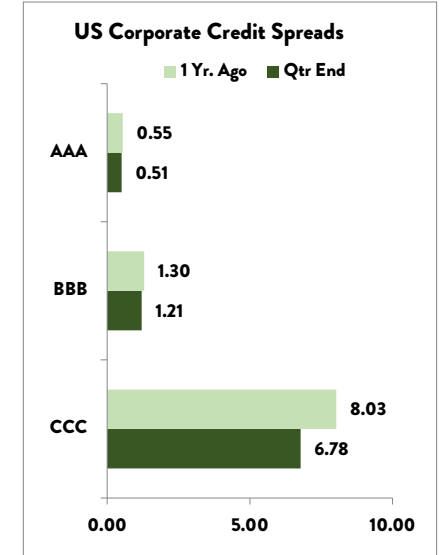
Source: Morningstar



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Source: Morningstar



Source: Federal Reserve / Bank of America

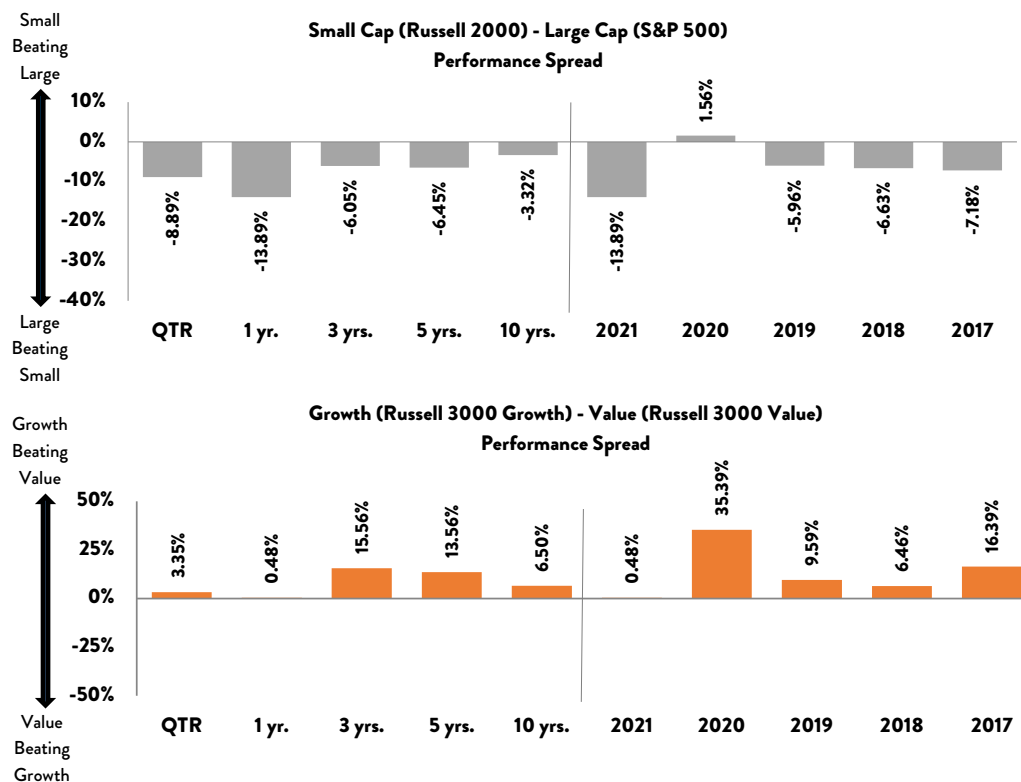
# 4Q2021 US Equity Market Data

## Sectors Weights/Returns (ranked by quarter performance)

	Wgt.	Sector	QTR	YTD	1 yr.
S&P 500 Index	3%	Real Estate	17.54%	46.19%	46.19%
	29%	Information Technology	16.69%	34.53%	34.53%
	3%	Materials	15.20%	27.28%	27.28%
	6%	Consumer Staples	13.31%	18.63%	18.63%
	2%	Utilities	12.93%	17.67%	17.67%
	13%	Consumer Discretionary	12.84%	24.43%	24.43%
	13%	Health Care	11.17%	26.13%	26.13%
	8%	Industrials	8.64%	21.12%	21.12%
	3%	Energy	7.97%	54.64%	54.64%
	11%	Financials	4.57%	35.04%	35.04%
10%	Communication Services	-0.01%	21.57%	21.57%	
S&P Midcap 400 Index	10%	Real Estate	14.17%	35.68%	35.68%
	7%	Materials	13.64%	32.23%	32.23%
	19%	Industrials	11.62%	28.45%	28.45%
	3%	Utilities	11.12%	19.75%	19.75%
	14%	Information Technology	8.24%	13.64%	13.64%
	3%	Consumer Staples	7.42%	10.08%	10.08%
	14%	Financials	7.03%	33.14%	33.14%
	15%	Consumer Discretionary	4.18%	27.69%	27.69%
	2%	Energy	2.83%	66.68%	66.68%
	10%	Health Care	1.33%	11.35%	11.35%
2%	Communication Services	-2.74%	-3.10%	-3.10%	
S&P Smallcap 600 Index	2%	Utilities	18.14%	26.02%	26.02%
	14%	Information Technology	10.92%	26.85%	26.85%
	5%	Consumer Staples	10.56%	28.79%	28.79%
	17%	Industrials	9.60%	25.90%	25.90%
	8%	Real Estate	8.76%	30.49%	30.49%
	5%	Materials	6.18%	18.41%	18.41%
	19%	Financials	5.41%	27.44%	27.44%
	12%	Consumer Discretionary	3.73%	37.80%	37.80%
	12%	Health Care	-1.73%	5.87%	5.87%
	2%	Communication Services	-3.54%	27.27%	27.27%
5%	Energy	-7.72%	60.34%	60.34%	

## Index Performance Data

Index	QTR	YTD	1 yr.	Annualized		
				3 yrs.	5 yrs.	10 yrs.
S&P 500	11.03%	28.71%	28.71%	26.07%	18.47%	16.55%
Russell 1000 Value	7.77%	25.16%	25.16%	17.64%	11.16%	12.97%
Russell 1000 Growth	11.64%	27.60%	27.60%	34.08%	25.32%	19.79%
Russell Mid Cap	6.44%	22.58%	22.58%	23.29%	15.10%	14.91%
Russell Mid Cap Value	8.54%	28.34%	28.34%	19.62%	11.22%	13.44%
Russell Mid Cap Growth	2.85%	12.73%	12.73%	27.46%	19.83%	16.63%
Russell 2000	2.14%	14.82%	14.82%	20.02%	12.02%	13.23%
Russell 2000 Value	4.36%	28.27%	28.27%	17.99%	9.07%	12.03%
Russell 2000 Growth	0.01%	2.83%	2.83%	21.17%	14.53%	14.14%
Russell 3000	9.28%	25.66%	25.66%	25.79%	17.97%	16.30%
DJ US Select REIT	17.22%	45.91%	45.91%	16.84%	9.65%	10.70%



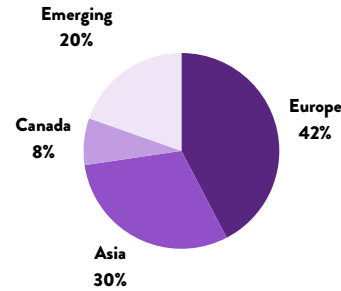
# 4Q2021 International Market Data

## Index Performance Data (net)

Index (US\$)	QTR	YTD	1 yr.	3 yrs.	5 yrs.	10 yrs.
<b>MSCI ACWI ex-US</b>	<b>1.82%</b>	<b>7.82%</b>	<b>7.82%</b>	<b>13.18%</b>	<b>9.61%</b>	<b>7.28%</b>
<b>MSCI EAFE</b>	<b>2.69%</b>	<b>11.26%</b>	<b>11.26%</b>	<b>13.54%</b>	<b>9.55%</b>	<b>8.03%</b>
<b>Europe</b>	<b>5.66%</b>	<b>16.30%</b>	<b>16.30%</b>	<b>14.90%</b>	<b>10.14%</b>	<b>8.18%</b>
United Kingdom	5.62%	18.50%	18.50%	8.70%	6.16%	5.06%
Germany	0.82%	5.34%	5.34%	12.37%	7.12%	8.16%
France	7.11%	19.51%	19.51%	16.07%	11.92%	9.77%
<b>Pacific</b>	<b>-2.72%</b>	<b>2.63%</b>	<b>2.63%</b>	<b>11.06%</b>	<b>8.48%</b>	<b>7.81%</b>
Japan	-3.96%	1.71%	1.71%	11.68%	8.51%	8.34%
Hong Kong	-3.55%	-3.91%	-3.91%	3.91%	7.09%	7.93%
Australia	2.10%	9.41%	9.41%	13.50%	9.07%	6.64%
<b>Canada</b>	<b>7.18%</b>	<b>25.98%</b>	<b>25.98%</b>	<b>19.15%</b>	<b>10.21%</b>	<b>6.03%</b>
<b>MSCI EM</b>	<b>-1.31%</b>	<b>-2.54%</b>	<b>-2.54%</b>	<b>10.94%</b>	<b>9.87%</b>	<b>5.49%</b>
<b>MSCI EM Latin America</b>	<b>-2.69%</b>	<b>-8.09%</b>	<b>-8.09%</b>	<b>-2.37%</b>	<b>1.47%</b>	<b>-2.17%</b>
<b>MSCI EM Asia</b>	<b>-0.98%</b>	<b>-5.08%</b>	<b>-5.08%</b>	<b>13.26%</b>	<b>11.90%</b>	<b>8.06%</b>
<b>MSCI EM Eur/Mid East</b>	<b>-3.03%</b>	<b>23.93%</b>	<b>23.93%</b>	<b>10.97%</b>	<b>7.80%</b>	<b>2.46%</b>
<b>MSCI ACWI Value ex-US</b>	<b>1.24%</b>	<b>10.46%</b>	<b>10.46%</b>	<b>8.24%</b>	<b>6.00%</b>	<b>5.29%</b>
<b>MSCI ACWI Growth ex-US</b>	<b>2.37%</b>	<b>5.09%</b>	<b>5.09%</b>	<b>17.82%</b>	<b>13.06%</b>	<b>9.13%</b>
<b>MSCI ACWI Sm Cap ex-US</b>	<b>0.62%</b>	<b>12.93%</b>	<b>12.93%</b>	<b>16.46%</b>	<b>11.21%</b>	<b>9.46%</b>

## Regional Exposure

MSCI ACWI ex-USA

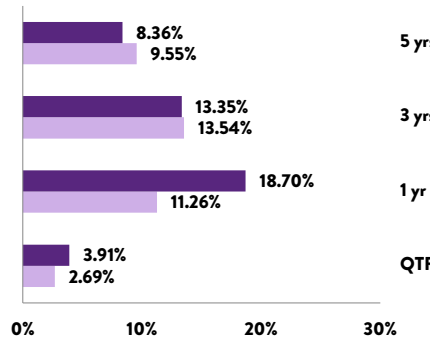


## Top 10 Countries (MSCI AC World ex-USA)

Japan	15%
UK	9%
China	9%
France	8%
Canada	8%
Switzerland	7%
Germany	6%
Taiwan	5%
Australia	4%
India	4%

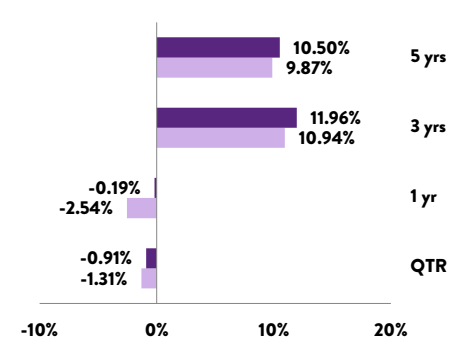
## MSCI EAFE Index Return

Local US\$

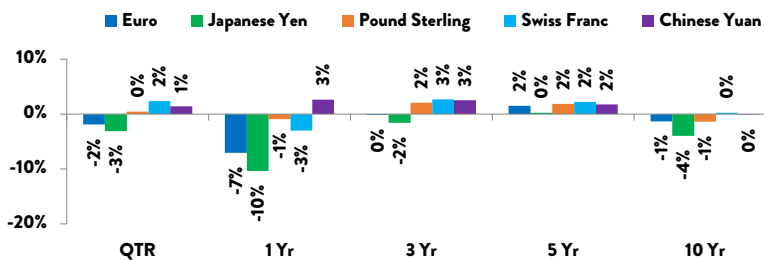


## MSCI Emerging Index Return

Local US\$

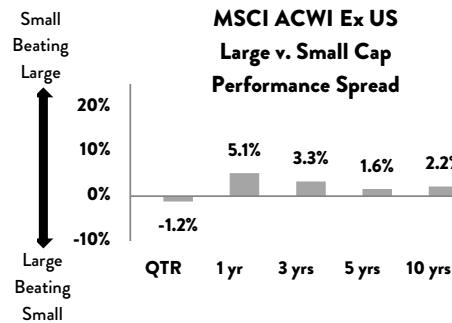


## Foreign Currency v. US\$ Returns

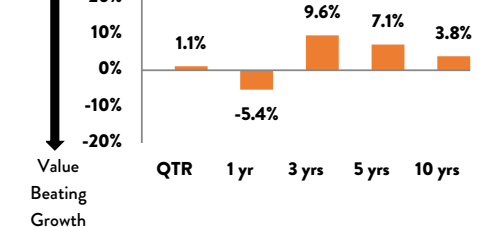


Exchange Rates	QTR	3Q21	2Q21	1Q21	4Q20	3Q20
<b>Japanese Yen</b>	115.17	111.50	111.05	110.67	103.19	105.58
<b>Euro</b>	0.88	0.86	0.84	0.85	0.82	0.85
<b>British Pound</b>	0.74	0.74	0.72	0.72	0.73	0.77
<b>Swiss Franc</b>	0.91	0.93	0.93	0.94	0.88	0.92
<b>Chinese Yuan</b>	6.37	6.44	6.46	6.55	6.53	6.79

## MSCI ACWI Ex US Large v. Small Cap Performance Spread



## MSCI ACWI Ex US Value v. Growth Performance Spread



## Historical Market Returns

Ranked by Performance

2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	4Q21
Emerging Markets 32.14%	Emerging Markets 39.42%	US Bonds 5.24%	Emerging Markets 78.51%	Small Cap 26.85%	Core Real Estate 14.96%	Emerging Markets 18.22%	Small Cap 38.82%	Large Cap 13.68%	Core Real Estate 13.95%	Small Cap 21.30%	Emerging Markets 37.28%	Core Real Estate 7.36%	Large Cap 31.49%	Small Cap 19.96%	Large Cap 28.71%	Large Cap 11.03%
Intl 26.65%	Intl 16.65%	Global Bonds 4.79%	High Yield 58.21%	Mid Cap 25.48%	TIPS 13.56%	Mid Cap 17.28%	Mid Cap 34.76%	Mid Cap 13.21%	Large Cap 1.38%	High Yield 17.12%	Intl 27.19%	Cash 1.69%	Mid Cap 30.54%	Large Cap 18.40%	Commod. 27.11%	Core Real Estate 7.69%
Small Cap 18.37%	Commod. 16.23%	Cash 1.39%	Intl 41.45%	Emerging Markets 18.88%	US Bonds 7.84%	Intl 16.83%	Large Cap 32.39%	Core Real Estate 11.44%	US Bonds 0.55%	Mid Cap 13.79%	Large Cap 21.83%	US Bonds 0.01%	Small Cap 25.52%	Emerging Markets 18.31%	Mid Cap 22.58%	Mid Cap 6.44%
Large Cap 15.79%	Core Real Estate 14.84%	TIPS -2.35%	Mid Cap 40.48%	Commod. 16.83%	Global Bonds 5.64%	Small Cap 16.35%	Intl 15.29%	US Bonds 5.97%	Cash 0.03%	Large Cap 11.95%	Mid Cap 18.52%	Global Bonds -1.20%	Intl 21.51%	Mid Cap 17.10%	Core Real Estate 21.06%	Global Balanced 4.42%
Core Real Estate 15.27%	TIPS 11.64%	Core Real Estate -10.70%	Small Cap 27.17%	Core Real Estate 15.26%	High Yield 4.98%	Large Cap 16.00%	Global Balanced 14.46%	Small Cap 4.89%	TIPS -1.43%	Commod. 11.76	Global Balanced 15.87%	TIPS -1.26%	Global Balanced 18.86%	Global Balanced 13.93%	Small Cap 14.82%	TIPS 2.36%
Mid Cap 15.26%	Global Bonds 9.48%	Global Balanced -24.51%	Large Cap 26.46%	High Yield 15.12%	Large Cap 2.11%	High Yield 15.81%	Core Real Estate 12.95%	TIPS 3.64%	Global Balanced -1.45%	Emerging Markets 11.18%	Small Cap 14.65%	High Yield -2.08%	Emerging Markets 18.42%	TIPS 10.99%	Global Balanced 10.94%	Small Cap 2.14%
Global Balanced 14.53%	Global Balanced 9.07%	High Yield -26.16%	Global Balanced 20.49%	Large Cap 15.06%	Cash 0.06%	Global Balanced 11.06%	High Yield 7.44%	Global Balanced 3.17%	Mid Cap -2.43%	Core Real Estate 7.76%	High Yield 7.50%	Large Cap -4.38%	High Yield 14.32%	Intl 10.65%	Intl 7.82%	Intl 1.82%
High Yield 11.85%	US Bonds 6.97%	Small Cap -33.79%	Commod. 18.91%	Intl 11.15%	Global Balanced -0.97%	Core Real Estate 9.76%	Cash 0.07%	High Yield 2.45%	Global Bonds -3.15%	Global Balanced 5.38%	Global Bonds 7.39%	Global Balanced -5.30%	US Bonds 8.72%	Global Bonds 9.20%	TIPS 5.96%	High Yield 0.71%
Global Bonds 6.64%	Mid Cap 5.60%	Commod. -35.65%	TIPS 11.41%	Global Balanced 9.40%	Mid Cap -1.55%	TIPS 6.98%	US Bonds -2.02%	Global Bonds 0.59%	Small Cap -4.41%	TIPS 4.68%	Core Real Estate 6.66%	Mid Cap -9.06%	TIPS 8.43%	US Bonds 7.51%	High Yield 5.28%	Cash 0.01%
Cash 4.85%	Large Cap 5.49%	Large Cap -37.00%	Global Bonds 6.93%	US Bonds 6.54%	Small Cap -4.18%	Global Bonds 4.32%	Global Bonds -2.60%	Cash 0.04%	High Yield -4.46%	Intl 4.50%	US Bonds 3.54%	Small Cap -11.01%	Commod. 7.69%	High Yield 7.11%	Cash 0.05%	US Bonds 0.01%
US Bonds 4.33%	Cash 4.44%	Mid Cap -41.46%	US Bonds 5.93%	TIPS 6.31%	Commod. -13.32%	US Bonds 4.21%	Emerging Markets -2.60%	Emerging Markets -2.18%	Intl -5.66%	US Bonds 2.65%	TIPS 3.01%	Commod. -11.25%	Global Bonds 6.84%	Cash 0.37%	US Bonds -1.54%	Global Bonds -0.67%
Commod. 2.07%	High Yield 1.87%	Intl -45.53%	Cash 0.16%	Global Bonds 5.54%	Intl -13.71%	Cash 0.08%	TIPS -8.61%	Intl -3.86%	Emerging Markets -14.90%	Global Bonds 2.09%	Commod. 1.70%	Intl -14.20%	Core Real Estate 4.41%	Core Real Estate 0.35%	Emerging Markets -2.54%	Emerging Markets -1.31%
TIPS 0.41%	Small Cap -1.57%	Emerging Markets -53.33%	Core Real Estate -30.40%	Cash 0.15%	Emerging Markets -18.42%	Commod. -1.06%	Commod. -9.52%	Commod. -17.00%	Commod. -24.60%	Cash 0.25%	Cash 0.71%	Emerging Markets -14.58%	Cash 2.30%	Commod. -3.12%	Global Bonds -4.71%	Commod. -1.56%

Global Balanced is composed of 60% MSCI World Stock Index, 35% BBgBarc Global Aggregate Bond Index, and 5% US 90-Day T-Bills.