



Global Equity Markets

1Q 2023 Update
As of January 1, 2023

www.arrowrootfamilyoffice.com

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U.S. Markets

Performance, Valuations, Earnings Growth

Market Performance Overview

| Asset Class | Dividend Yield | Trailing Returns (%) | | | | | | Annual Returns (%) | | |
|-------------------------|----------------|----------------------|---------|--------|--------|--------|---------|--------------------|-------|------|
| | | 3 Month | 6 Month | 1 Year | 3 Year | 5 Year | 10 Year | 2019 | 2020 | 2021 |
| U.S. Market Caps | | | | | | | | | | |
| Large Caps | 1.65% | 7.6 | 2.3 | -18.2 | 24.3 | 54.0 | 203.1 | 31.0 | 17.9 | 28.6 |
| Mid Caps | 1.37% | 10.7 | 7.9 | -13.3 | 22.1 | 35.4 | 161.1 | 25.7 | 13.1 | 24.5 |
| Small Caps | 1.48% | 6.2 | 4.0 | -20.5 | 9.3 | 21.4 | 129.5 | 25.3 | 19.6 | 14.5 |
| U.S. Styles | | | | | | | | | | |
| Large Growth | 0.91% | 2.1 | -1.5 | -29.3 | 24.7 | 65.4 | 250.3 | 35.7 | 38.0 | 27.4 |
| Large Value | 2.15% | 12.2 | 5.9 | -7.8 | 17.6 | 34.1 | 144.8 | 25.9 | 2.2 | 24.8 |
| Small Growth | 0.75% | 4.1 | 4.5 | -26.2 | 1.9 | 18.4 | 138.4 | 28.4 | 34.4 | 2.5 |
| Small Value | 2.12% | 8.3 | 3.2 | -14.7 | 13.7 | 19.9 | 112.9 | 21.9 | 4.1 | 27.9 |
| U.S. Sectors | | | | | | | | | | |
| Consumer Discretionary | 1.00% | -9.1 | -5.5 | -36.2 | 5.9 | 37.6 | 197.6 | 28.3 | 29.2 | 27.8 |
| Consumer Staples | 2.47% | 12.5 | 4.7 | -0.9 | 26.8 | 45.9 | 155.8 | 27.2 | 9.8 | 16.9 |
| Financials | 2.04% | 13.3 | 10.0 | -10.6 | 17.4 | 33.3 | 195.0 | 31.6 | -2.3 | 34.6 |
| Health Care | 1.47% | 12.6 | 6.8 | -2.2 | 38.8 | 75.3 | 276.4 | 20.3 | 13.0 | 25.8 |
| Industrials | 1.63% | 19.1 | 13.5 | -5.7 | 25.8 | 39.4 | 193.3 | 28.9 | 10.4 | 21.0 |
| Materials | 2.26% | 15.0 | 6.8 | -12.3 | 33.8 | 39.6 | 138.0 | 24.0 | 19.9 | 27.2 |
| Technology | 1.04% | 5.1 | -1.6 | -27.7 | 39.7 | 103.4 | 364.2 | 49.6 | 43.1 | 34.6 |
| Real Estate | 3.91% | 4.3 | -7.2 | -26.1 | -0.8 | 18.9 | 74.8 | 28.6 | -4.9 | 40.1 |
| Utilities | 2.92% | 8.5 | 2.1 | 1.4 | 18.4 | 52.2 | 152.5 | 25.7 | 0.1 | 17.4 |
| Energy | 3.68% | 22.6 | 24.7 | 63.4 | 58.5 | 40.1 | 54.8 | 11.7 | -33.3 | 52.6 |
| Communication Services | 0.88% | 0.1 | -12.1 | -38.8 | -9.4 | -3.4 | 46.6 | 28.0 | 28.9 | 13.8 |

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Disclosures: All performance data represents total returns for the stated period. Past performance is no guarantee of future results. Asset classes are based on the following ETFs: Large Caps (SPY), Mid Caps (MDY), Small Caps (IWM), Large Growth (IWF), Large Value (IWD), Small Growth (IWO), Small Value (IWN), Consumer Discretionary (XLY), Consumer Staples (XLP), Financials (XLF), Health Care (XLV), Industrials (XLI), Materials (XLB), Technology (XLK), Real Estate (VNQ), Utilities (XLU), Energy (XLE), Communication Services (VOX).

Quarterly Factor Performance

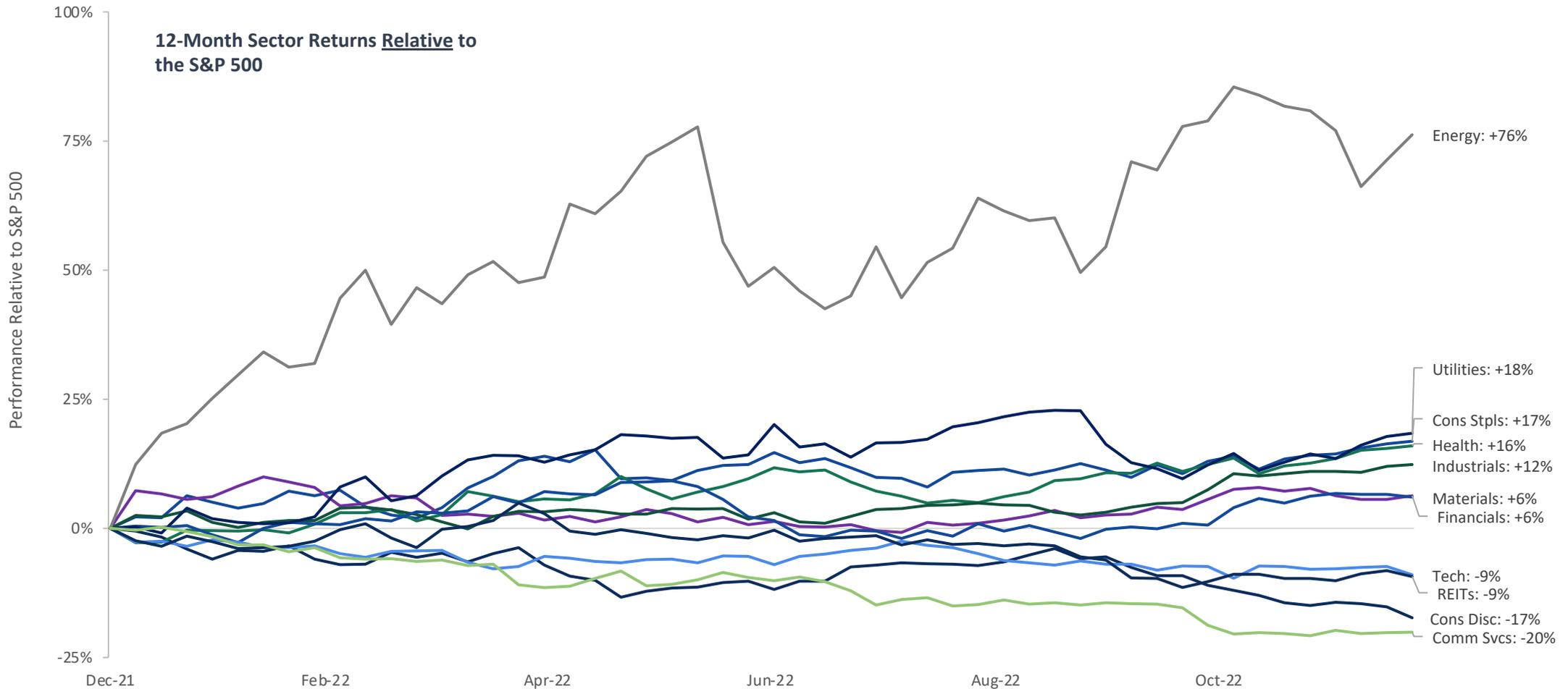
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| 1Q 2020 | 2Q 2020 | 3Q 2020 | 4Q 2020 | 1Q 2021 | 2Q 2021 | 3Q 2021 | 4Q 2021 | 1Q 2022 | 2Q 2022 | 3Q 2022 | 4Q 2022 | 1 Year |
|--------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| Growth -14.1% | High Beta 37.6% | Growth 13.2% | High Beta 37.3% | High Beta 22.7% | Growth 11.8% | Momentum 1.4% | Low Volatility 13.3% | High Div Yld 6.1% | Low Volatility -7.1% | High Beta -2.0% | Div Grower 13.2% | High Div Yld -1.2% |
| Momentum -14.8% | Growth 27.7% | Momentum 12.7% | Size – Small 31.3% | High Div Yld 18.8% | Quality 9.4% | Growth 1.1% | Growth 11.7% | Value -0.7% | High Div Yld -8.3% | Size – Small -2.1% | High Div Yld 13.0% | Low Volatility -4.9% |
| Low Volatility -19.0% | Size – Small 25.5% | Size – Large 9.0% | High Div Yld 22.4% | Size – Small 12.9% | High Beta 9.0% | Size – Large 0.6% | Div Grower 11.2% | Low Volatility -1.8% | Div Grower -10.4% | Momentum -3.1% | Value 12.2% | Value -7.8% |
| Quality -19.4% | Momentum 23.4% | Quality 8.6% | Value 16.2% | Value 11.3% | Size – Large 8.4% | Low Volatility 0.3% | Size – Large 11.1% | Div Grower -3.4% | Value -12.3% | Growth -3.5% | Momentum 11.9% | Div Grower -7.9% |
| Size – Large -19.5% | Size – Large 20.2% | Low Volatility 8.5% | Div Grower 13.3% | Div Grower 8.3% | Momentum 7.9% | Div Grower 0.3% | Quality 10.8% | High Beta -3.7% | Size – Large -16.1% | Size – Large -4.9% | Low Volatility 11.1% | Size – Large -18.2% |
| Div Grower -21.9% | Quality 18.8% | Div Grower 6.5% | Quality 12.4% | Size – Large 6.3% | Low Volatility 5.2% | Quality -0.5% | High Beta 8.3% | Size – Large -4.6% | Quality -16.7% | Value -5.6% | Quality 10.1% | Momentum -18.3% |
| Value -26.7% | Div Grower 16.1% | Value 5.5% | Size – Large 12.1% | Quality 5.3% | High Div Yld 5.2% | Value -0.8% | High Div Yld 7.8% | Momentum -7.2% | Size – Small -17.3% | Div Grower -5.9% | High Beta 8.8% | Size – Small -20.5% |
| Size – Small -30.7% | High Div Yld 14.7% | Size – Small 5.0% | Growth 11.4% | Low Volatility 3.8% | Value 5.1% | High Div Yld -1.5% | Value 7.8% | Quality -7.2% | Momentum -18.7% | Low Volatility -6.2% | Size – Large 7.6% | Quality -20.5% |
| High Beta -36.4% | Value 14.3% | High Beta 4.3% | Momentum 9.6% | Growth 0.9% | Div Grower 4.9% | High Beta -3.0% | Momentum 3.8% | Size – Small -7.5% | Growth -21.1% | Quality -6.5% | Size – Small 6.2% | High Beta -20.6% |
| High Div Yld -36.7% | Low Volatility 6.6% | High Div Yld -0.7% | Low Volatility 5.2% | Momentum -0.2% | Size – Small 4.0% | Size – Small -4.3% | Size – Small 2.0% | Growth -9.0% | High Beta -22.7% | High Div Yld -10.1% | Growth 2.1% | Growth -29.3% |

Disclosures: All performance data represents total returns for the stated period. Past performance is no guarantee of future results. Value: iShares Russell 1000 Value ETF (IWD), Growth: iShares Russell 1000 Growth ETF (IWF), Quality: iShares MSCI USA Quality Factor ETF (QUAL), Momentum: iShares MSCI USA Momentum Factor ETF (MTUM), Low Volatility: Invesco S&P 500 Low Volatility ETF (SPLV), Size - Large: State Street SPDR S&P 500 ETF (SPY), Size - Small: iShares Russell 2000 ETF (IWM), High Dividend Yield: State Street S&P 500 High Dividend ETF (SPYD), Dividend Grower: iShares Core Dividend Growth ETF (DGRO), High Beta: Invesco S&P 500 High Beta ETF (SPHB).

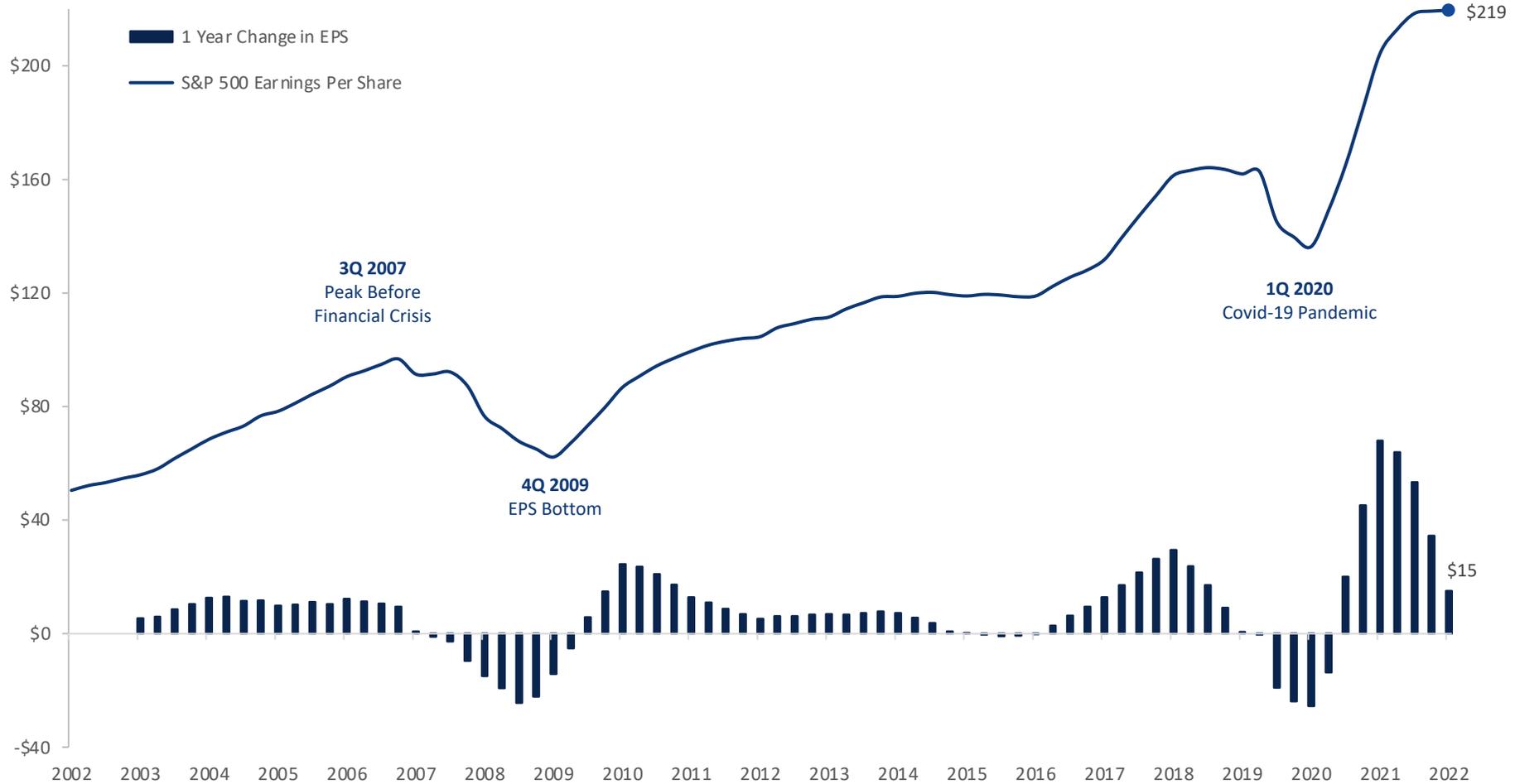
Sector Performance Relative to S&P 500 Index

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Disclosures: All performance data represents price returns for each sector relative to the S&P 500 as represented by the S&P 500 ETF (SPY). Past performance is no guarantee of future results. Sectors are represented by the following ETFs: SPDR Consumer Discretionary Sector ETF (XLY), SPDR Consumer Staples Sector ETF (XLP), SPDR Financial Sector ETF (XLF), SPDR Health Care Sector ETF (XLV), SPDR Industrial Sector ETF (XLI), SPDR Materials Sector ETF (XLB), SPDR Technology Sector ETF (XLK), Vanguard Real Estate ETF (VNQ), SPDR Utilities Sector ETF (XLU), SPDR Energy Sector ETF (XLE), Vanguard Communication Services ETF (VOX).

S&P 500 Earnings – Last 20 Years



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Disclosures: Earnings are based on the reported last twelve-month EPS of the S&P 500 represented by the State Street SPDR S&P 500 ETF (SPY).

Sector Earnings Growth vs Valuation

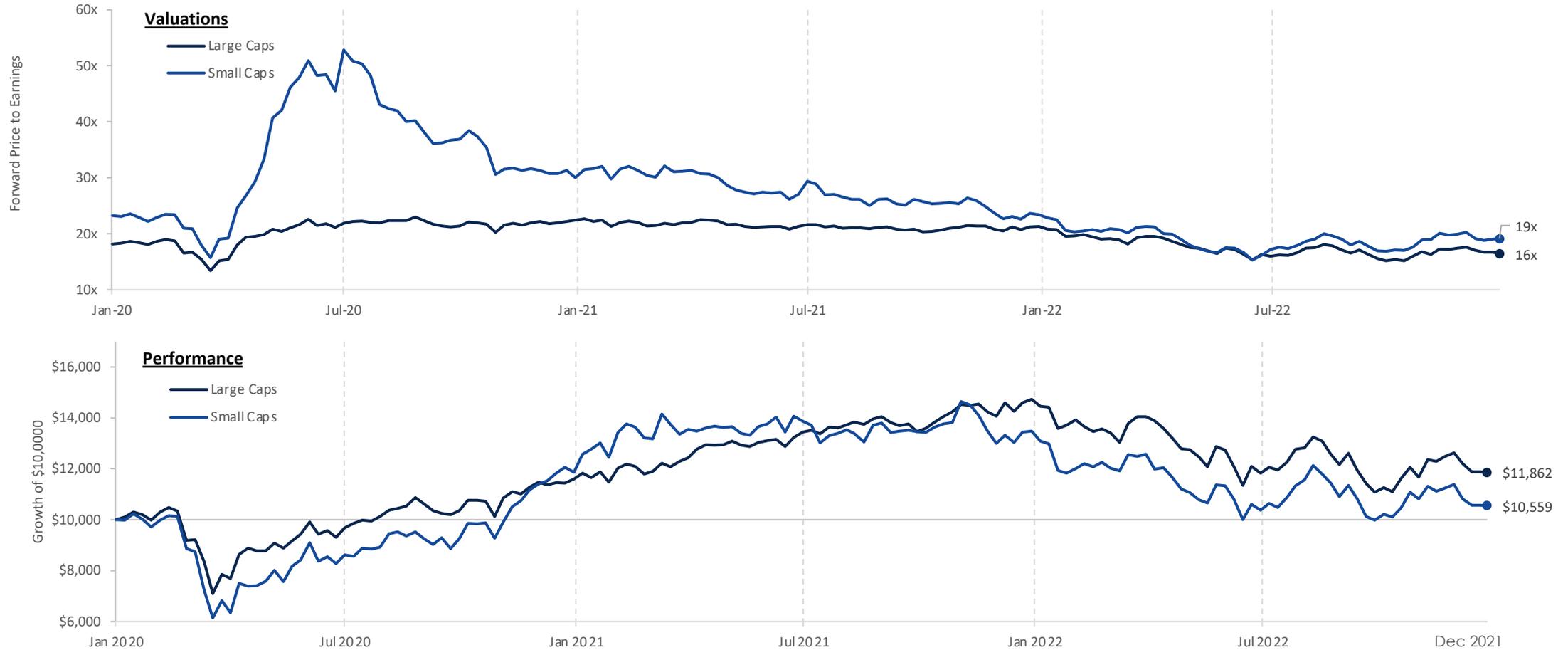
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Disclosures: EPS growth is based on the next 12-month consensus estimate. Valuations are based on the next 12-month price to earnings multiple. Sectors are represented by the following ETFs: SPDR Consumer Discretionary Sector ETF (XLY), SPDR Consumer Staples Sector ETF (XLP), SPDR Financial Sector ETF (XLF), SPDR Health Care Sector ETF (XLV), SPDR Industrial Sector ETF (XLI), SPDR Materials Sector ETF (XLB), SPDR Technology Sector ETF (XLK), Vanguard Real Estate ETF (VNQ), SPDR Utilities Sector ETF (XLU), SPDR Energy Sector ETF (XLE), Vanguard Communication Services ETF (VOX).

Large Cap vs Small Cap Stocks

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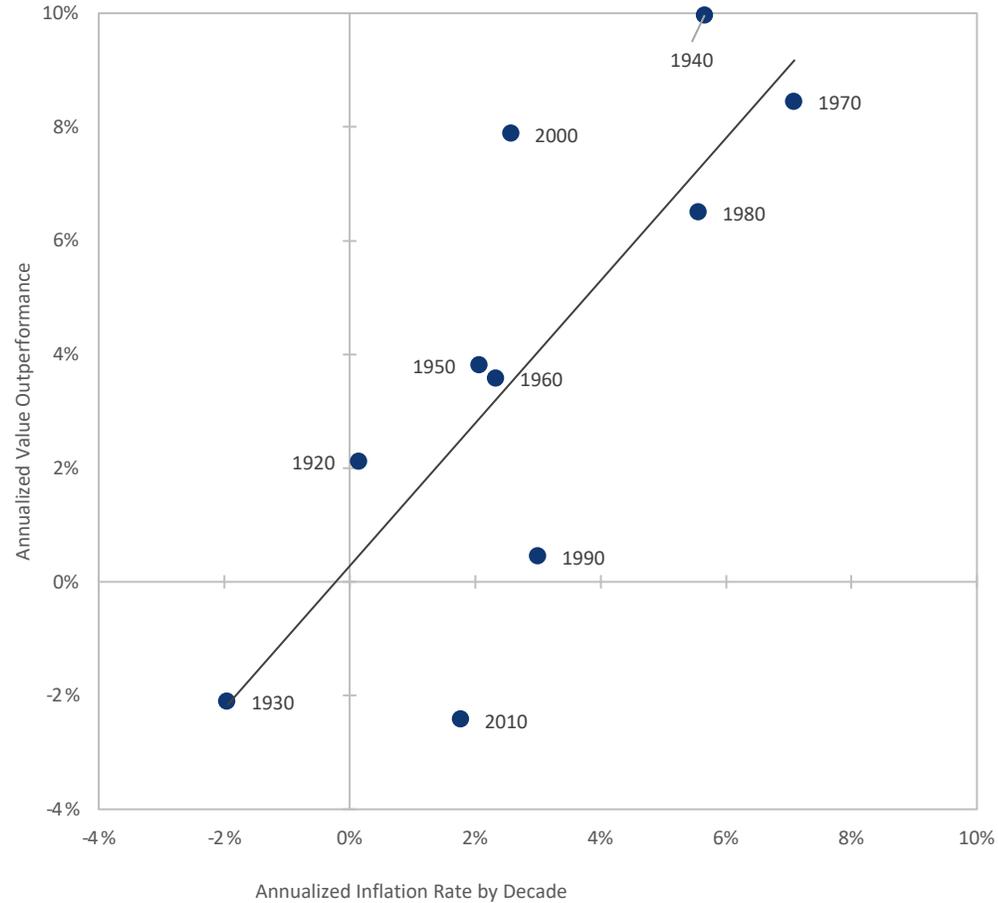


Disclosures: Past performance is no guarantee of future results. Performance is indexed to \$10,000 three years ago. Valuations are based on the next 12-month price to earnings multiple. Large Caps are represented by the State Street S&P 500 ETF (SPY). Small Caps are represented by the iShares Russell 2000 ETF (IWM).

Growth vs Value Factor

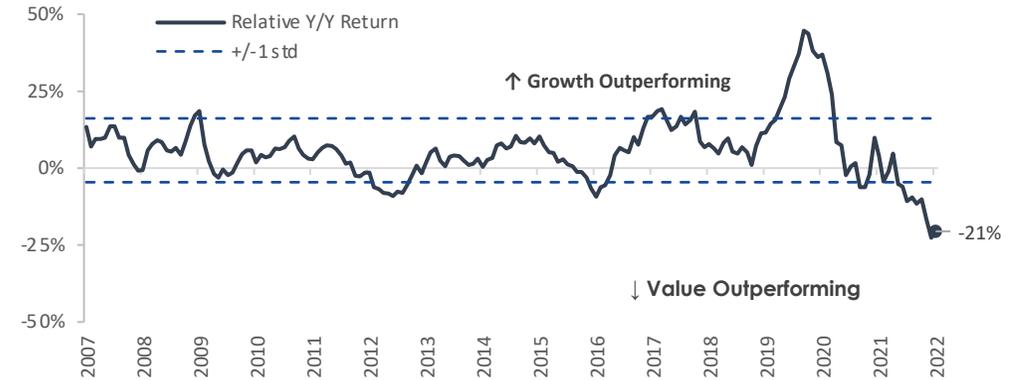
Value Stocks Tend to Outperform in Higher Inflation Environments

Annualized Inflation and Value Outperformance by Decade



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Relative Year over Year (Y/Y) Performance



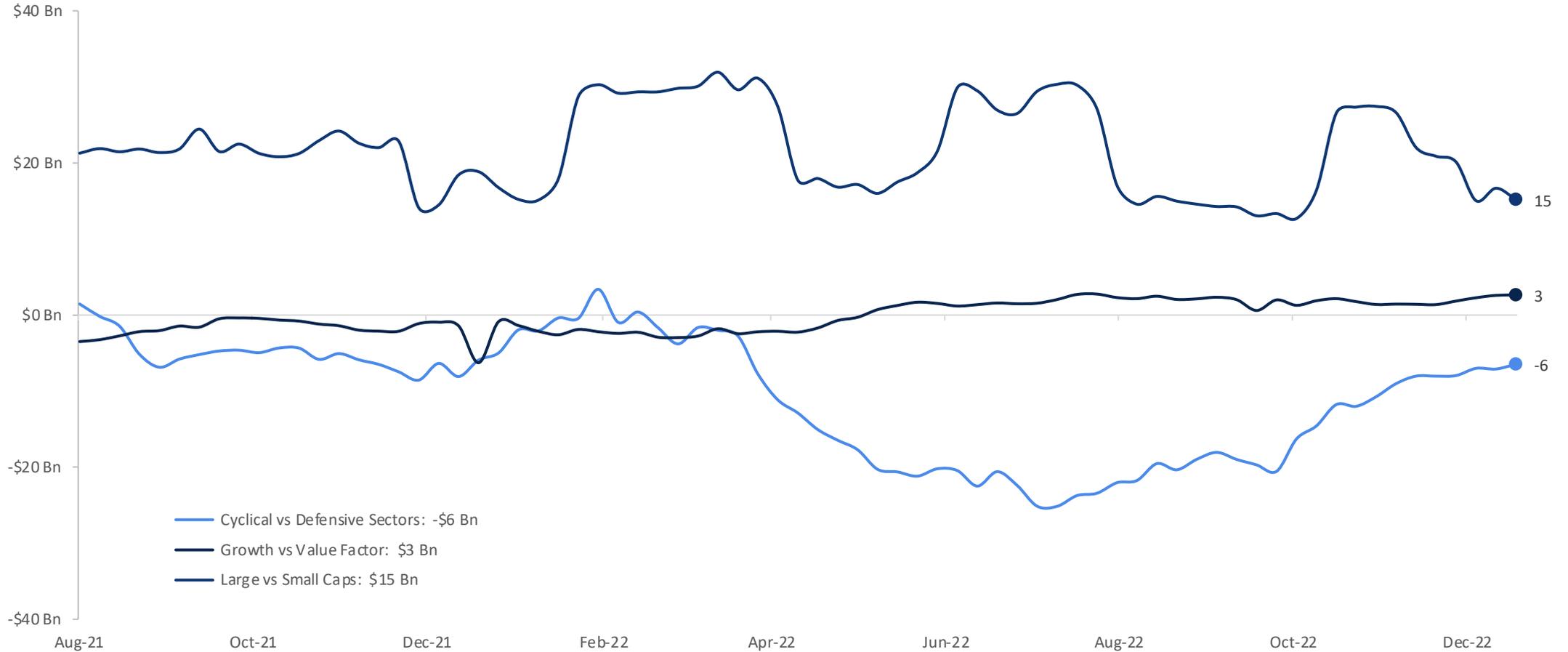
Relative Valuation Composites



Disclosures: Past performance is no guarantee of future results. Data is based on iShares Russell 1000 Value ETF (IWD) and Russell 1000 Growth ETF (IWF). Inflation data sourced from Federal Reserve.

Investor Positioning (6-month Relative ETF Flows)

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Disclosures: Past performance is no guarantee of future results. Positioning is calculated using rolling 6-month ETF flows. Analysis is based on the following ETFs: Large Caps (VOO - Vanguard S&P 500 ETF), Small Caps (VB - Vanguard Small-Cap ETF), Growth (IWF - iShares Russell 1000 Growth ETF), Value (IWD - iShares Russell 1000 Value ETF), Materials (XLB - Materials Select Sector SPDR Fund), Consumer Discretionary (XLY - Consumer Discretionary Select Sector SPDR Fund), Financials (XLF - Financial Select Sector SPDR Fund), Consumer Staples (XLP - Consumer Staples Select Sector SPDR Fund), Health Care (XLV - Health Care Select Sector SPDR Fund), Utilities (XLU - Utilities Select Sector SPDR Fund). Cyclical sectors include Materials, Consumer Discretionary, and Financials. Defensive sectors include Consumer Staples, Health Care, and Utilities.

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International Markets

Developed vs Emerging, U.S. Dollar, Global Revenue Growth

Global Equity Returns (Cumulative 5-Year Performance)

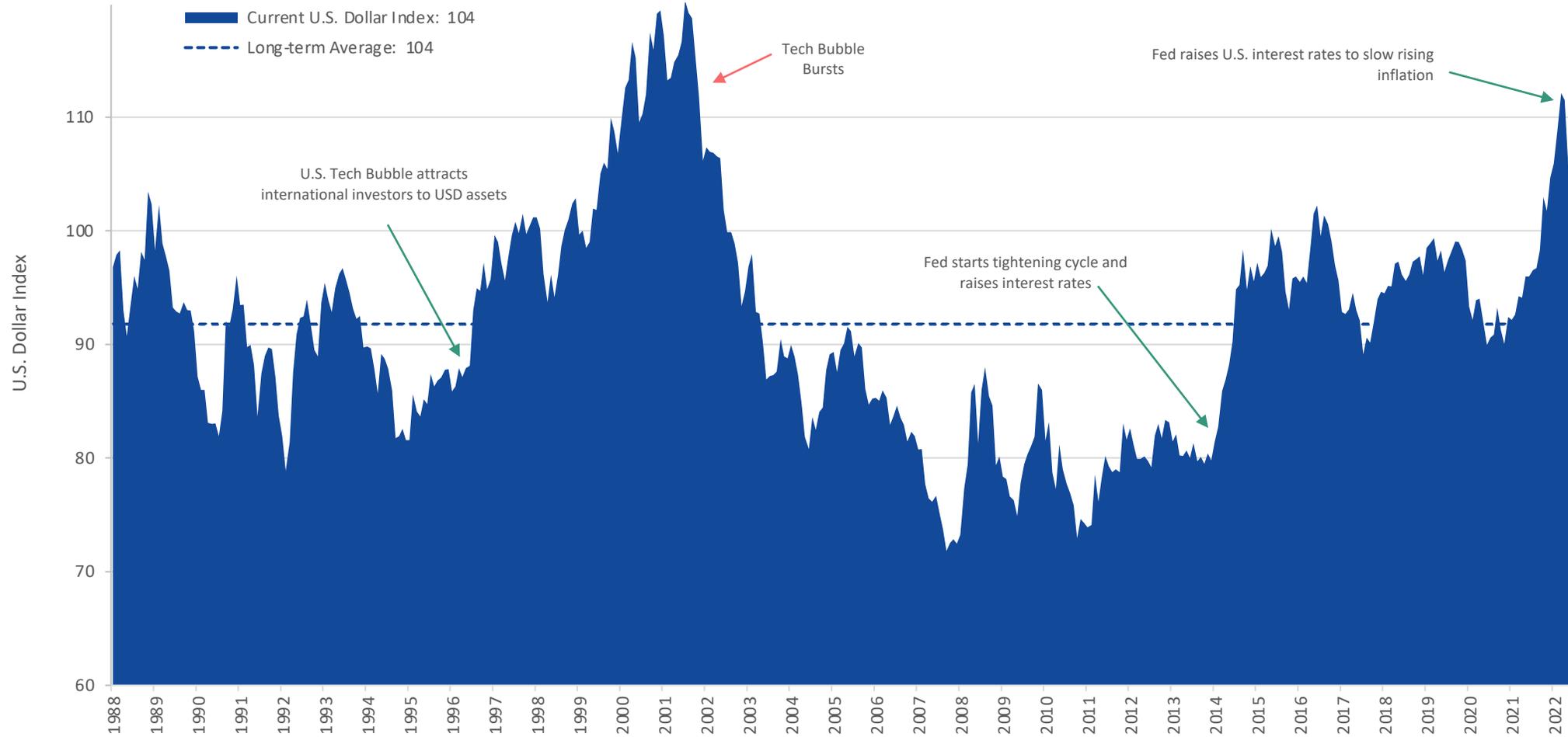
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Disclosures: Past performance is no guarantee of future results. All performance data represents price returns for the stated period. S&P 500: SPDR S&P 500 ETF Trust (SPY), Emerging Markets: iShares MSCI Emerging Markets ETF (EEM), Developed Markets: iShares MSCI EAFE ETF (EFA).

History of the U.S. Dollar

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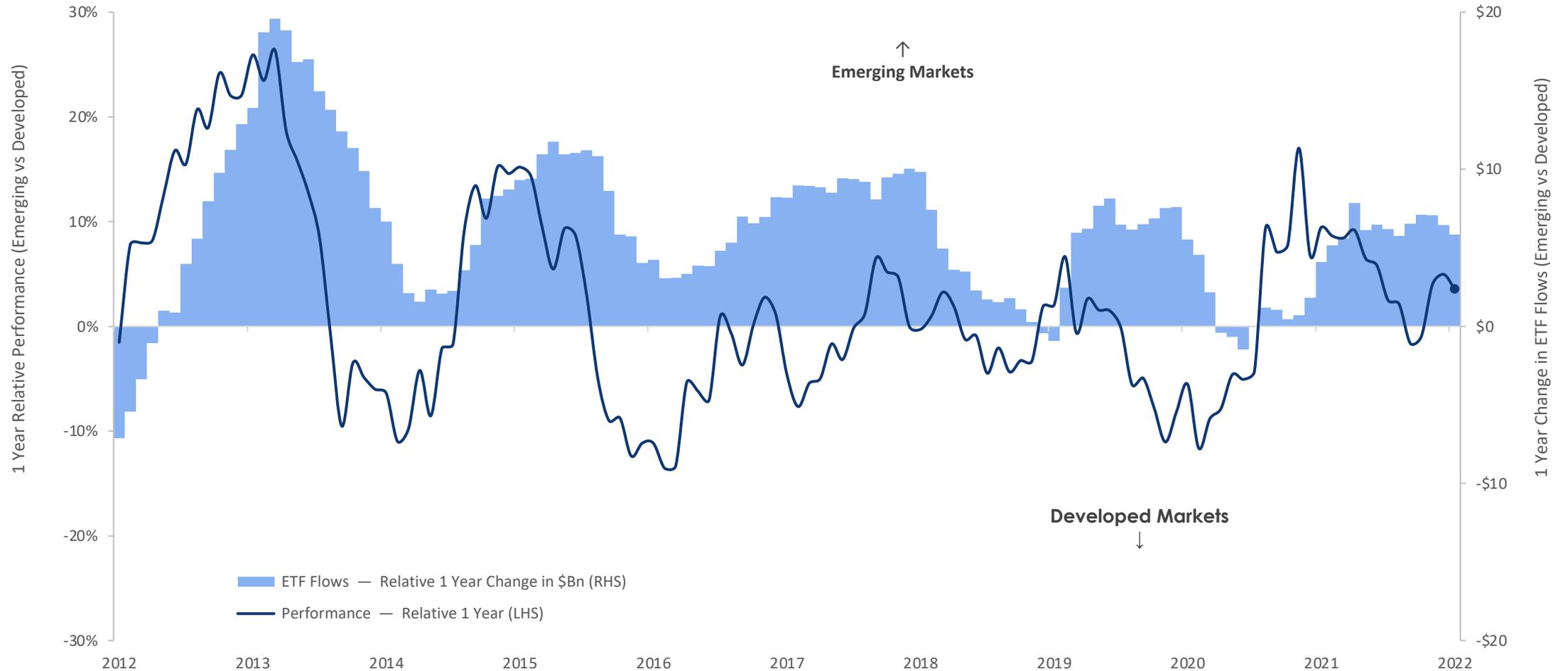
USD Strengthens =
Bad for Intl. Equities

USD Weakens =
Good for Intl. Equities

Disclosures: Monthly datapoints from the Federal Reserve. The U.S. Dollar Index is an index of the value of the United States dollar relative to a basket of foreign currencies, often referred to as a basket of U.S. trade partners' currencies, including the Euro, Japanese Yen, British Pound, Canadian Dollar, Swedish Krona, and Swiss Franc.

Developed vs Emerging Markets

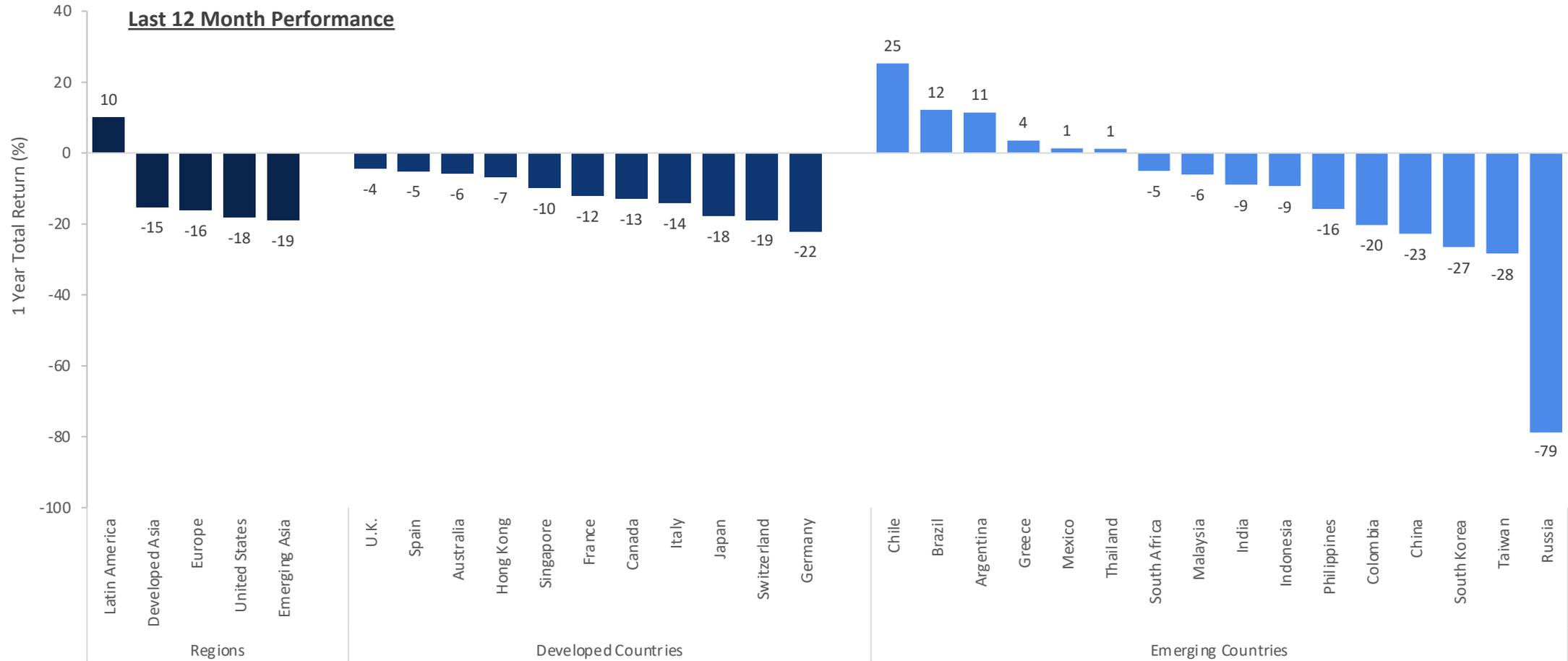
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Disclosures: Past performance is no guarantee of future results. Relative performance is calculated using rolling 1-year price returns. Flows are based on rolling 12-month ETF flows. Emerging Markets are represented by the iShares MSCI Emerging Markets ETF (EEM). Developed Markets are represented by the iShares MSCI EAFE ETF (EFA). RHS = right hand side. LHS = left hand side.

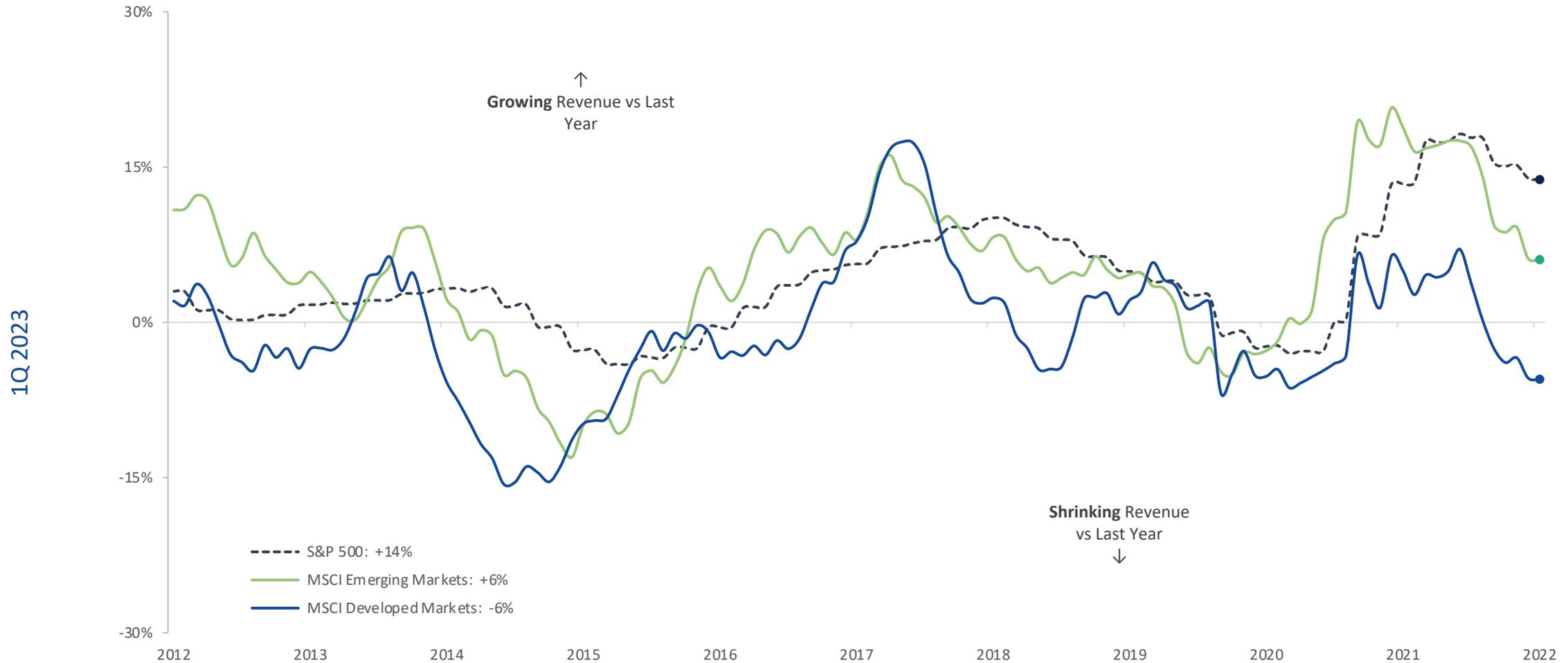
Regional Equity Performance

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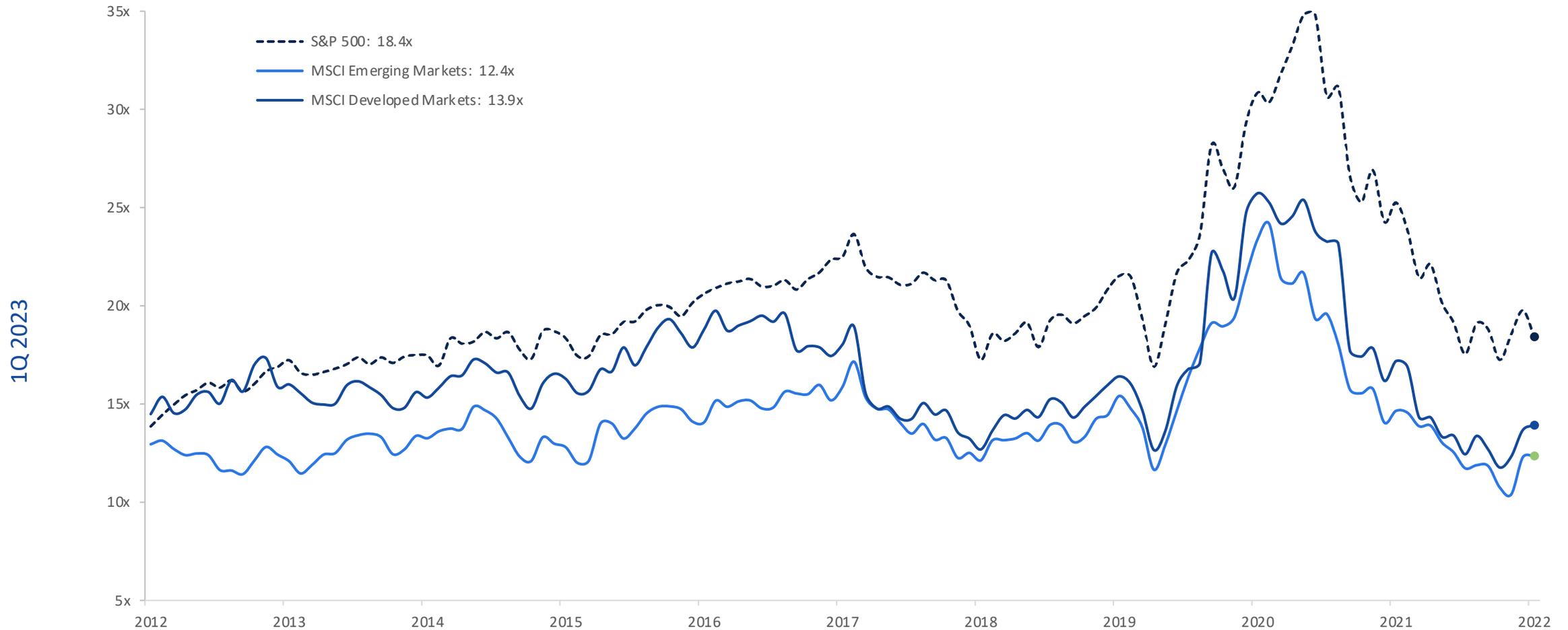
Disclosures: Past performance is no guarantee of future results. All performance data represents total returns for the last 12 months. Regional performance is represented by the following ETFs: United States (SPY), Europe (VGK), Latin America (ILF), Developed Asia (VPL), Emerging Asia (GMF), Canada (EWC), Japan (EWJ), U.K. (EWU), Switzerland (EWL), France (EWQ), Germany (EWG), Australia (EWA), Hong Kong (EWH), Spain (EWP), Italy (EWI), Singapore (EWS), China (MCHI), Taiwan (EWT), South Korea (EWY), India (INDA), Brazil (EWZ), South Africa (EZA), Russia (RSX), Thailand (THD), Mexico (EWW), Malaysia (EWM), Indonesia (IDX), Philippines (EPHE), Chile (ECH), Turkey (TUR), Colombia (GXG), Greece (GREK), Argentina (ARGT).

Global Revenue Growth



Disclosures: Revenue growth is based on last 12-month reported sales in local currency divided by the prior 12 months sales in local currency. Regions are represented by the following ETFs: S&P 500 (SPY - State Street SPDR S&P 500 ETF), MSCI Emerging Markets (EEM - iShares MSCI Emerging Markets ETF) and MSCI Developed Markets (EFA - iShares MSCI EAFE ETF).

Global Market Valuations



Disclosures: Valuations are based on last 12-month price to earnings multiple. Regions are represented by the following ETFs: S&P 500 (SPY - State Street SPDR S&P 500 ETF), MSCI Emerging Markets (EEM - iShares MSCI Emerging Markets ETF) and MSCI Developed Markets (EFA - iShares MSCI EAFE ETF).

Definitions

| | |
|-----------------------------|---|
| Annualized Return | The rate at which an investment grows each year over the period to arrive at the final valuation. |
| Bear Market | A decline of at least 20% from the market's high point to its low. |
| Beta | A measure of how an individual asset moves when the overall stock market increases or decreases. |
| Correlation | A measure of the extent to which two variables are related. |
| Dividend Yield | The dividend yield or dividend-price ratio of a share is the dividend per share, divided by the price per share. It is also a company's total annual dividend payments divided by its market capitalization, assuming the number of shares is constant. |
| Developed Markets | A country that is most developed in terms of its economy and capital markets. The country must be high income, but this also includes openness to foreign ownership, ease of capital movement, and efficiency of market institutions. |
| Emerging Markets | A country that has some characteristics of a developed market but does not fully meet its standards. This includes markets that may become developed markets in the future or were in the past. |
| Growth Factor Stocks | Growth stocks are companies expected to grow sales and earnings at a faster rate than the market average. |
| Large Cap Stocks | Shares of publicly traded corporations with a market capitalization of \$10 billion or more. |
| LTM | An acronym for "Last Twelve Months" or the past one year. |
| NTM | An acronym for "Next Twelve Months" or the next one year. |
| Price Return | The rate of return on an investment portfolio, where the return measure takes into account only the capital appreciation of the portfolio, not including income generated in the form of interest or dividends. |
| Total Return | Return on a portfolio of investments including capital appreciation and income received on the portfolio. |
| Small Cap Stocks | Small-cap stocks are shares of companies with a market capitalization of less than \$2 billion. |
| Standard Deviation | In statistics, the standard deviation is a measure of the amount of variation or dispersion of a set of values. A low standard deviation indicates the values tend to be close to the historical average of the data set, while a high standard deviation indicates the current value is outside of the historical average range. |
| Value Factor Stocks | Stocks that are inexpensive relative to the broad market based on measures of fundamental value (e.g., price to earnings or price to book). |

Disclosures and Legal Notice

- **Investing involves risk, including the possible loss of principal.** Stock markets can be volatile. Investments in securities of small and medium capitalization companies may involve greater risk of loss and more abrupt fluctuations in market price than investments in larger companies. Investments in fixed-income instruments are subject to the possibility that interest rates could rise, causing their values to decline. High yield and unrated debt securities are at a greater risk of default than investment grade bonds and may be less liquid, which may increase volatility. Investors in asset-backed securities, including mortgage-backed securities and collateralized loan obligations (“CLOs”), generally receive payments that are part interest and part return of principal. These payments may vary based on the rate loans are repaid. Some asset-backed securities may have structures that make their reaction to interest rates and other factors difficult to predict, making their prices volatile and they are subject to liquidity and valuation risk. CLOs bear similar risks to investing in loans directly, such as credit, interest rate, counterparty, prepayment, liquidity, and valuation risks. Loans are often below investment grade, may be unrated, and typically offer a fixed or floating interest rate.
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