

THE WORLD AS WE SEE IT

Q4 2022



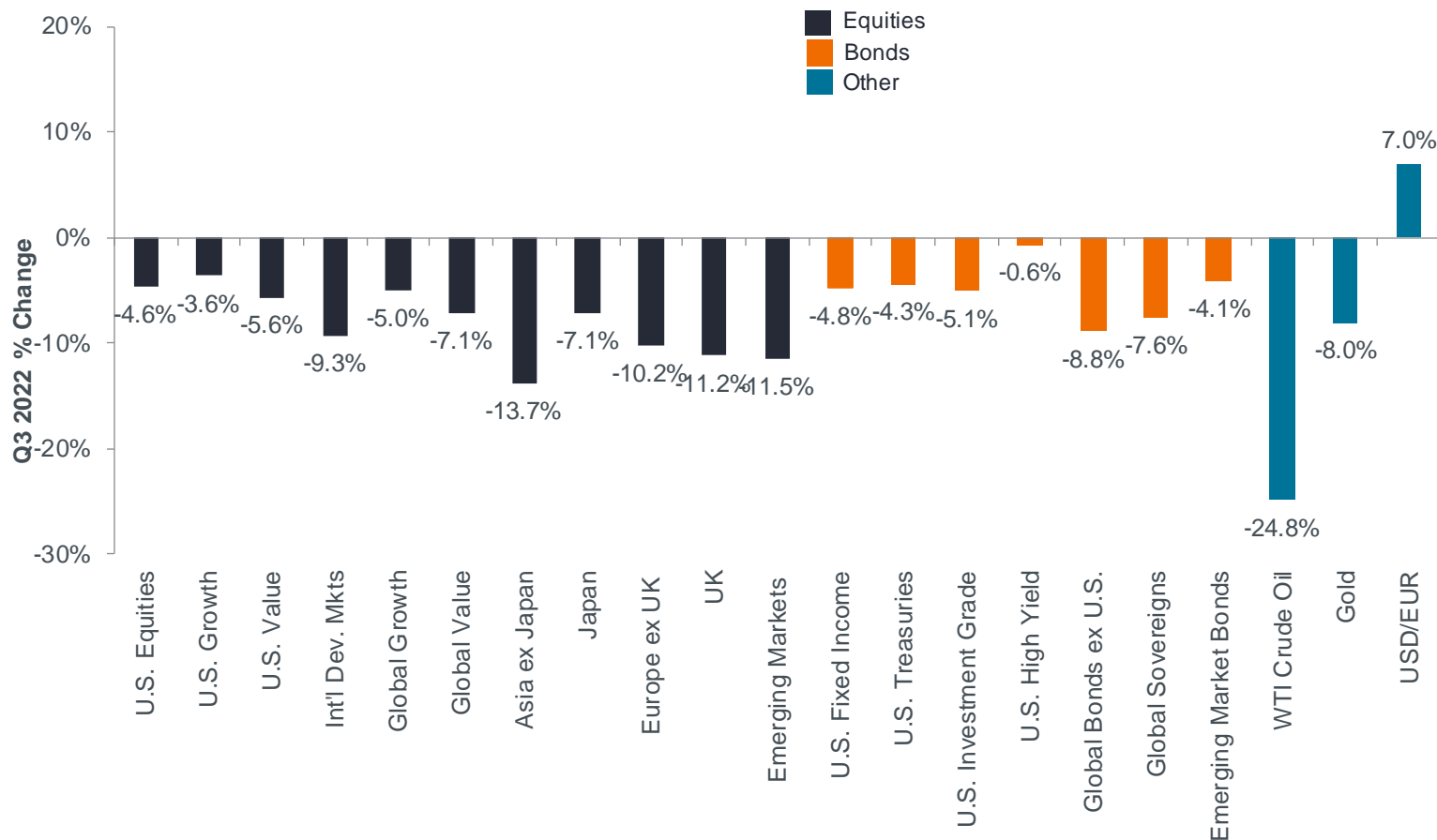
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GLOBAL MARKETS OVERVIEW

WORLD MARKETS IN 2022

Q3 2022 Total Returns



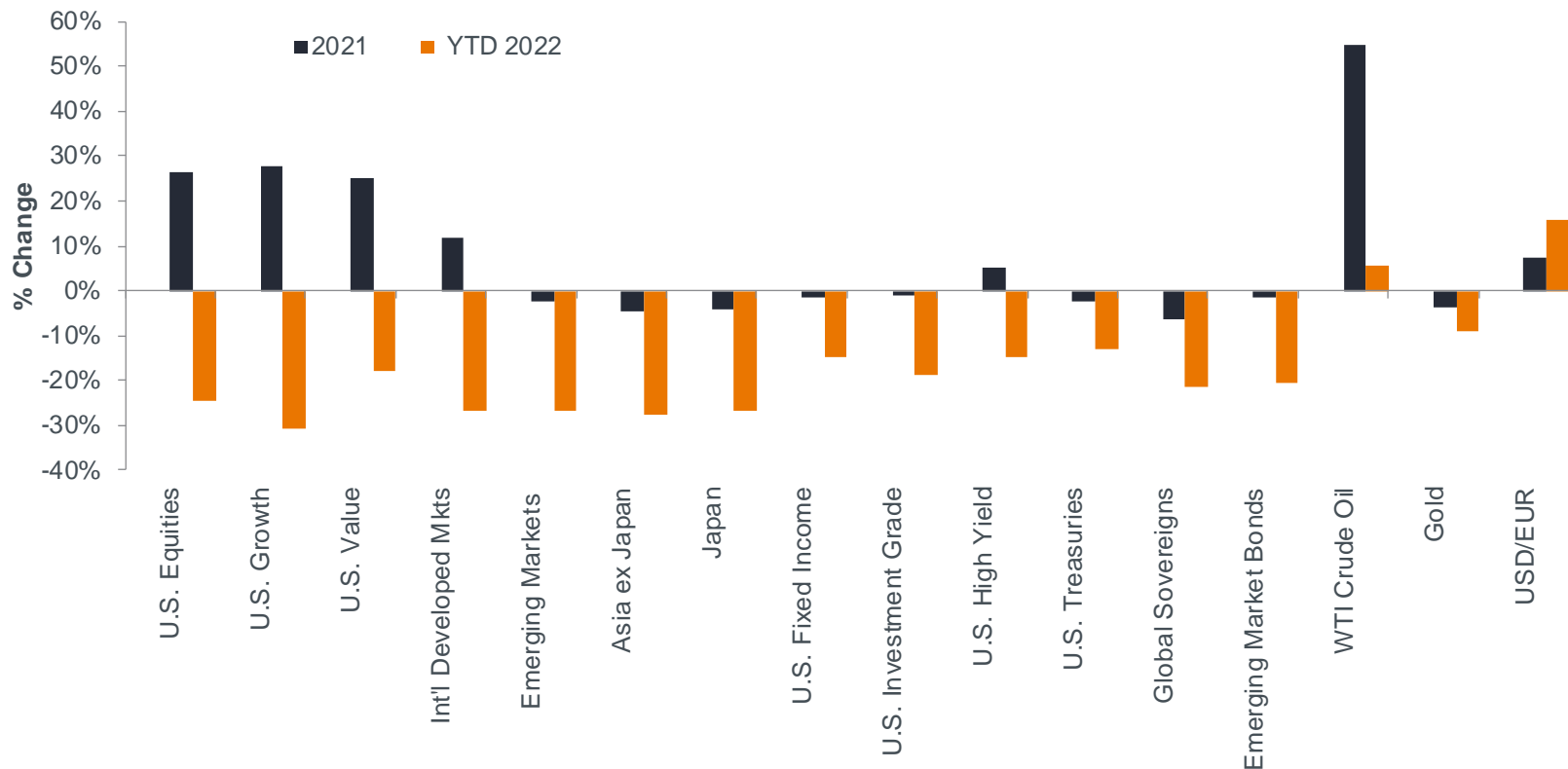
Source: Bloomberg, as of 30 September 2022, total return indices in USD.

Note: MSCI for international and regional equities, FTSE 100 for UK, Nikkei 225 for Japan, Russell 1000 Index for U.S., Bloomberg for fixed income, individual futures with generic roll for commodities, euro vs. U.S. dollar.

Past performance is not a guarantee of future performance.

WORLD MARKETS IN 2022

FY 2021 vs. YTD 2022



Source: Bloomberg, as of 30 September 2022, total return indices in USD.

Note: MSCI for international and regional equities, FTSE 100 for UK, Nikkei 225 for Japan, Russell 1000 Index for U.S., Bloomberg for fixed income, individual futures with generic roll for commodities, euro vs. U.S. dollar.

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KEY THEMES

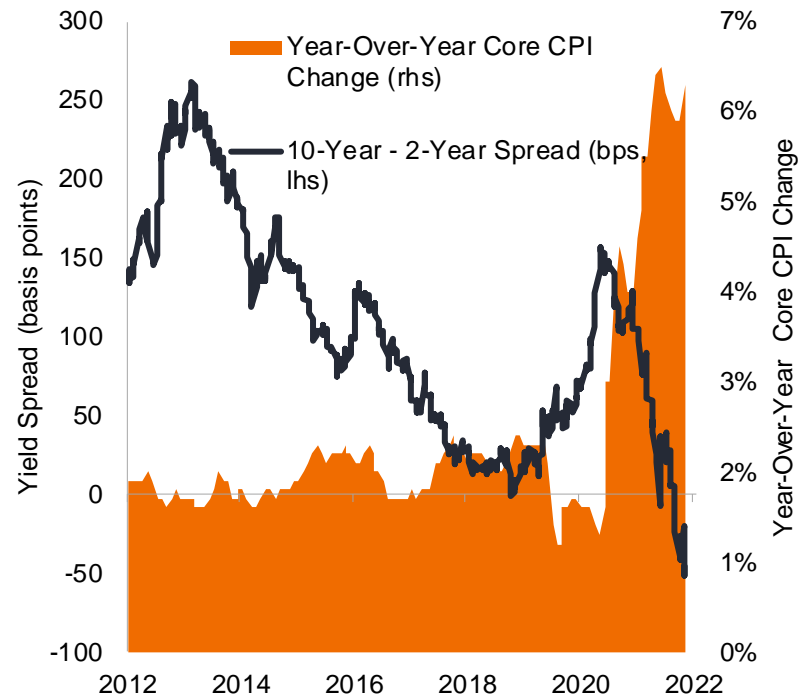
BOND YIELDS ON THE RISE

Bonds react to rising inflation and the scramble by global central banks to raise policy rates to levels sufficient to meet the task

Average Yield on Global Bonds



Core U.S. Inflation and 10Y-2Y Treasury Spread



Source: Bloomberg, as of 30 September 2022.

Note: Average yield based on Bloomberg Global Bond Index Yield-to-Worst

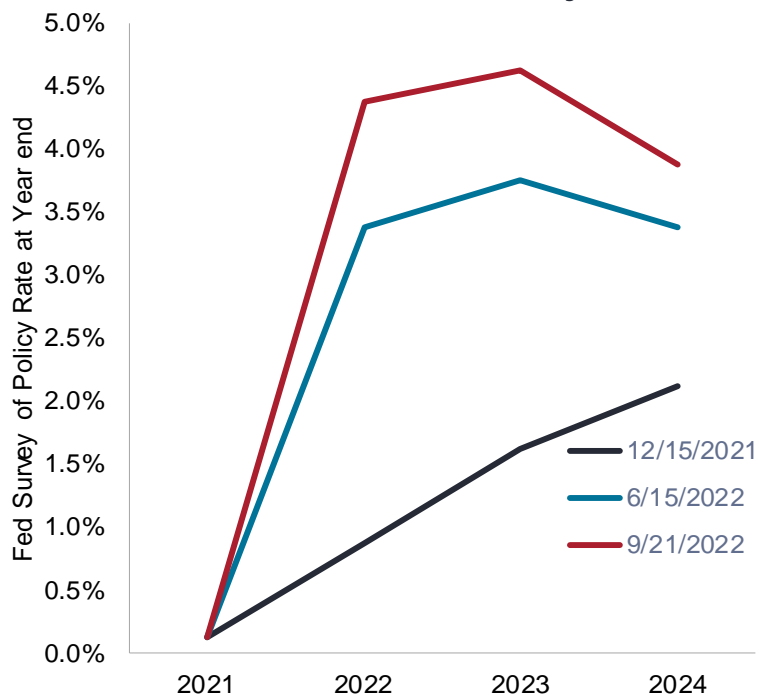
Yield to worst (YTW) is the lowest yield a bond can achieve provided the issuer does not default, such as if a bond has a call feature (i.e., the issuer can call the bond back at a date specified in advance).

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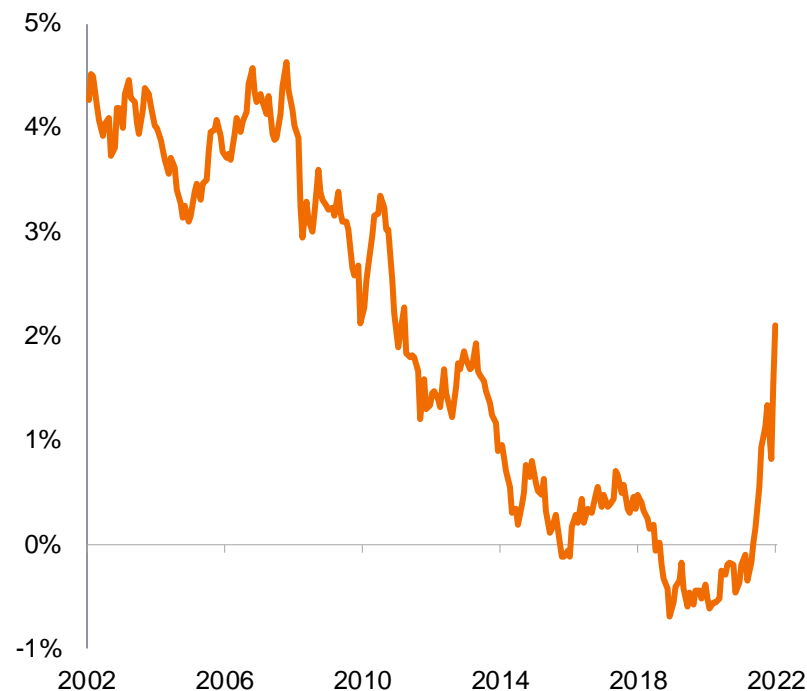
BOND YIELDS ON THE RISE

Two powerful signals about the degree to which inflation has been a game changer are the Fed's shift toward hawkishness and German Bund yields reaching an 11-year high

Federal Reserve "Dots" Rate Projections



10-Year German Bund Yields Finally Positive



Source: Bloomberg, as of 30 September 2022.

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BOND YIELDS ON THE RISE

Tighter monetary policy has put pressure on bond prices, but rising yields in certain jurisdictions are improving bonds' return profile relative to stocks

Relative Attractiveness: Stock vs. Bond Yields



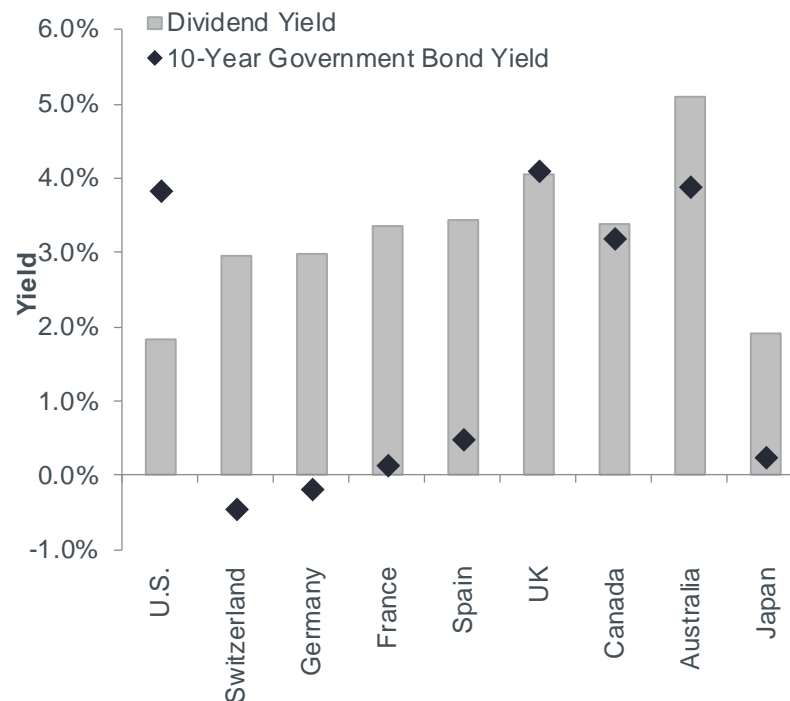
Source: Bloomberg, as of 30 September 2022.

Dividend yield based on U.S. Russell 1000 Index, Switzerland Swiss Market Index, Germany DAX Index, France CAC 40 Index, Spain IBEX 35 Index, UK FTSE 100 Index, Canada S&P/TSX Composite Index, Australia S&P/ASX 200 Index, Japan Nikkei 225 Index

Note: **Standard Deviation** measures historical volatility. Higher standard deviation implies greater volatility.

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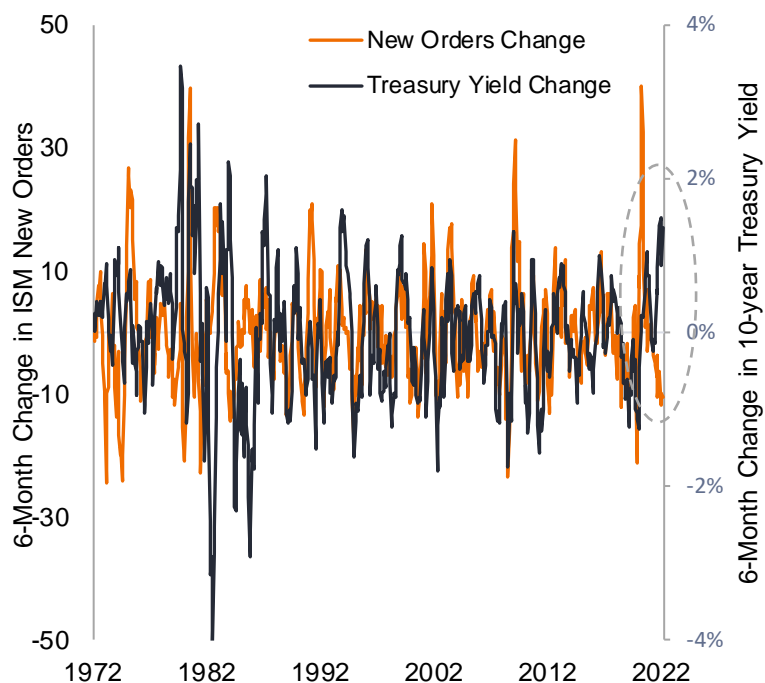
Equity Dividend Yields vs. 10-year Bond Yields



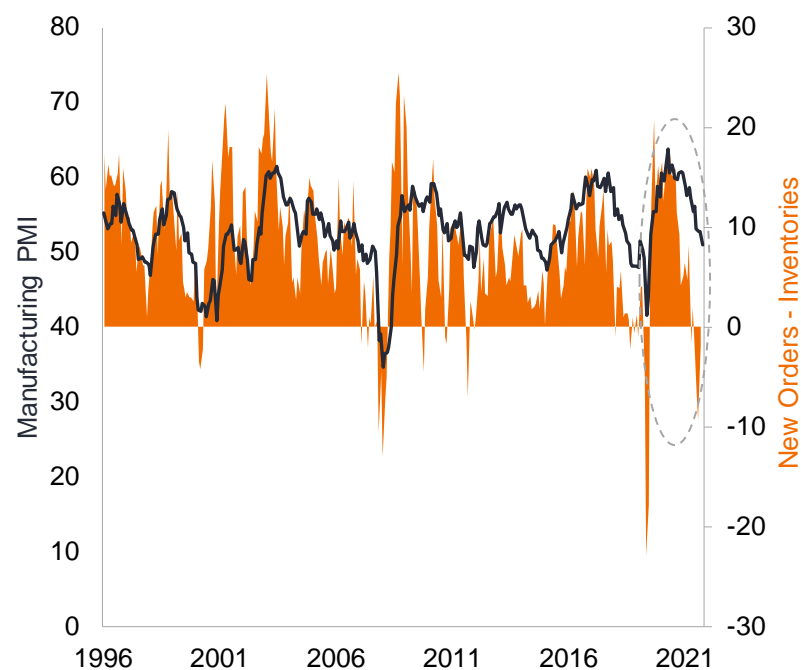
LEADING INDICATORS FLASHING CAUTION?

The relationship between the 6-month change in PMI new orders and that of 10-year Treasury yields has broken down, while the latter category falling below inventories also portends a slowing economy

Change in New Orders and Treasury Yields



PMI New Orders Less PMI Inventories



Source: Bloomberg, as of 30 September 2022.

10-Year Treasury Yield is the interest rate on U.S. Treasury bonds that will mature 10 years from the date of purchase.

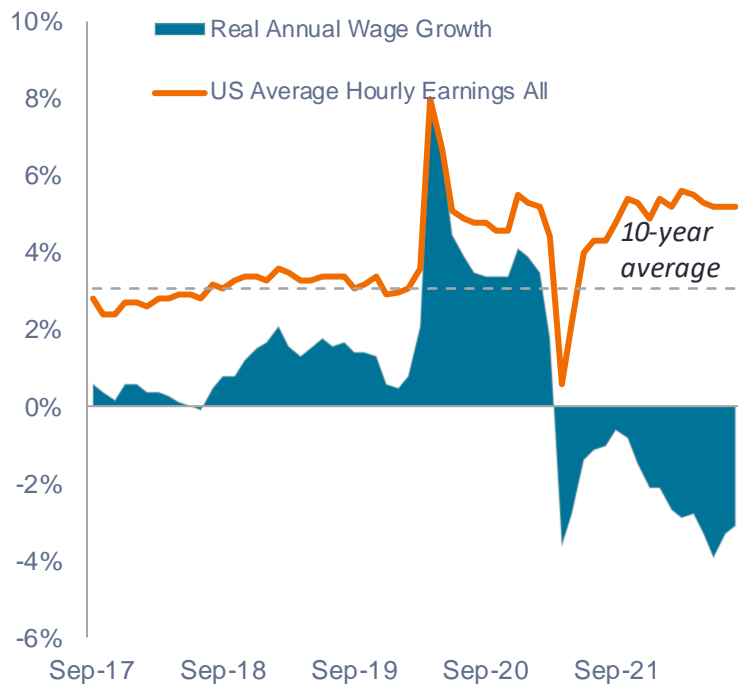
The **Purchasing Managers' Index (PMI)** is an early indicator of the economic health of the manufacturing sector within an economy. The index is based on five indicators: new orders, inventory levels, production, supplier deliveries and the employment environment

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FACTORS INFLUENCING INFLATION

U.S. workers likely to demand higher pay as inflation-adjusted earnings remain in negative territory and energy prices creep up again

U.S. Average Hourly Earnings Annual Change



West Texas Intermediate Crude Price Per Barrel



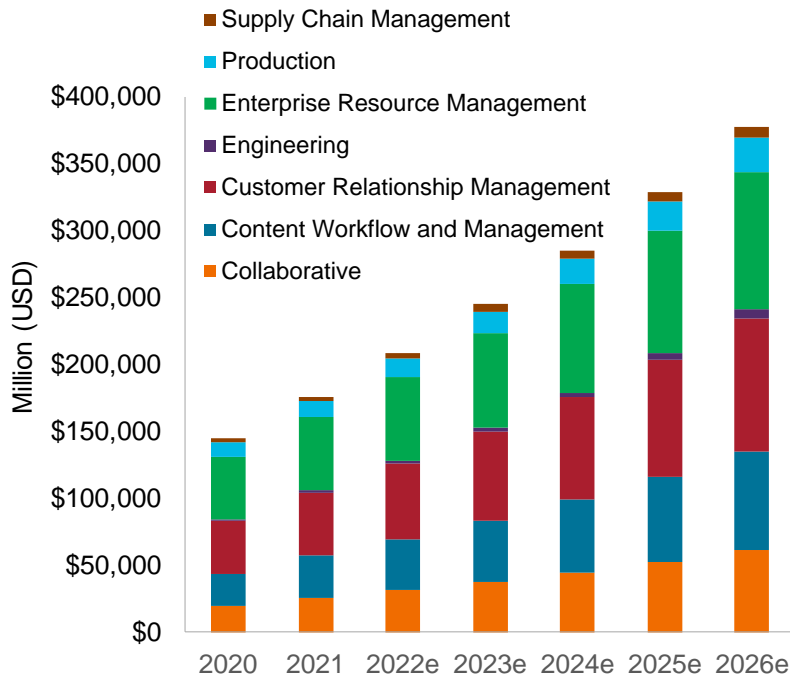
Source: Bloomberg, as of 30 September 2022.

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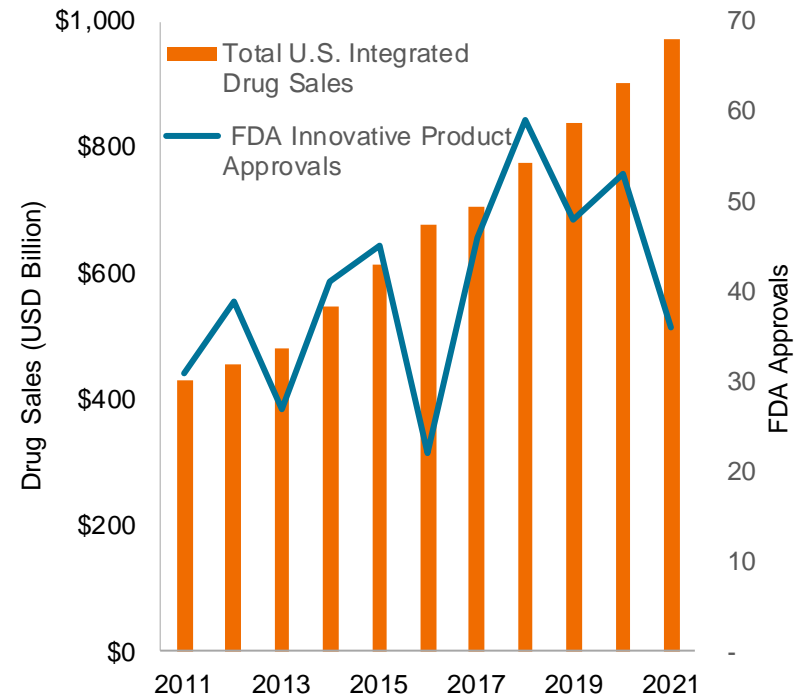
THE AGE OF INNOVATION

Growth in both cloud-based applications software spending and innovative drug revenues illustrate the force of novel technologies in the global economy

Projected SaaS Spend by Application



U.S. Integrated Drug Sales and Innovative Drug Approvals

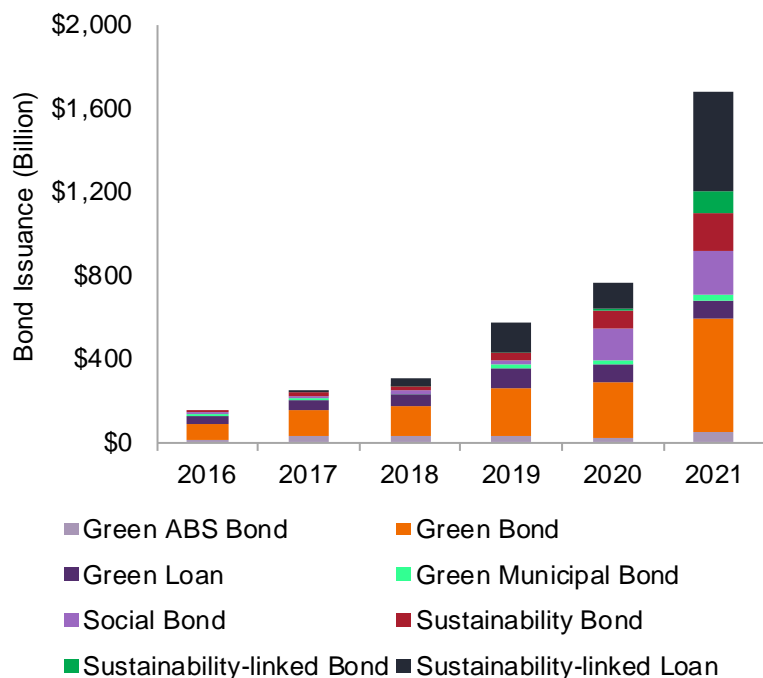


Source: Janus Henderson, Bloomberg Intelligence
 Figures beyond 2021 are estimates. There is no guarantee that past trends will continue or that forecasts will be realized.

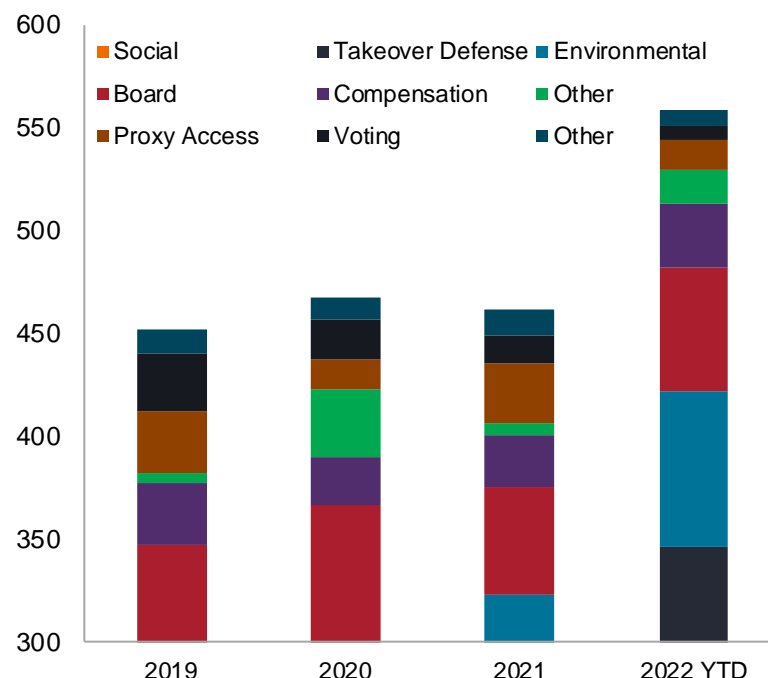
ESG – GAINING MOMENTUM

Investor demand for ESG-themed products is matched by increased engagement on key issues

2021 ESG Debt Issuance Exceeded \$1.6 Trillion



ESG Proxy Proposals in U.S.



Source: Bloomberg Intelligence, as of 30 September 2022

ECONOMY

GLOBAL GROWTH OUTLOOK

Global Gross Domestic Product (GDP) growth and consensus forecasts

GDP Growth (YoY%)	2015	2016	2017	2018	2019	2020	2021	2022e	2023e
World	3.4	3.3	3.7	3.6	2.9	(3.1)	6.1	2.9	2.5
U.S.	2.7	1.7	2.2	2.9	2.3	(2.8)	5.9	1.6	0.8
UK	2.4	2.2	2.5	1.7	1.6	(11.0)	8.5	3.5	(0.2)
Eurozone	2.0	1.9	2.6	1.8	1.6	(6.1)	5.2	2.9	0.2
Asia ex Japan	6.2	6.2	6.4	6.0	5.4	1.3	5.6	3.5	5.0
Japan	1.6	0.8	1.7	0.7	(0.4)	(4.7)	1.8	1.6	1.5
BRICS	5.1	5.3	5.9	5.8	5.2	1.5	5.8	2.5	4.5

Source: Bloomberg, as of 30 September 2022.

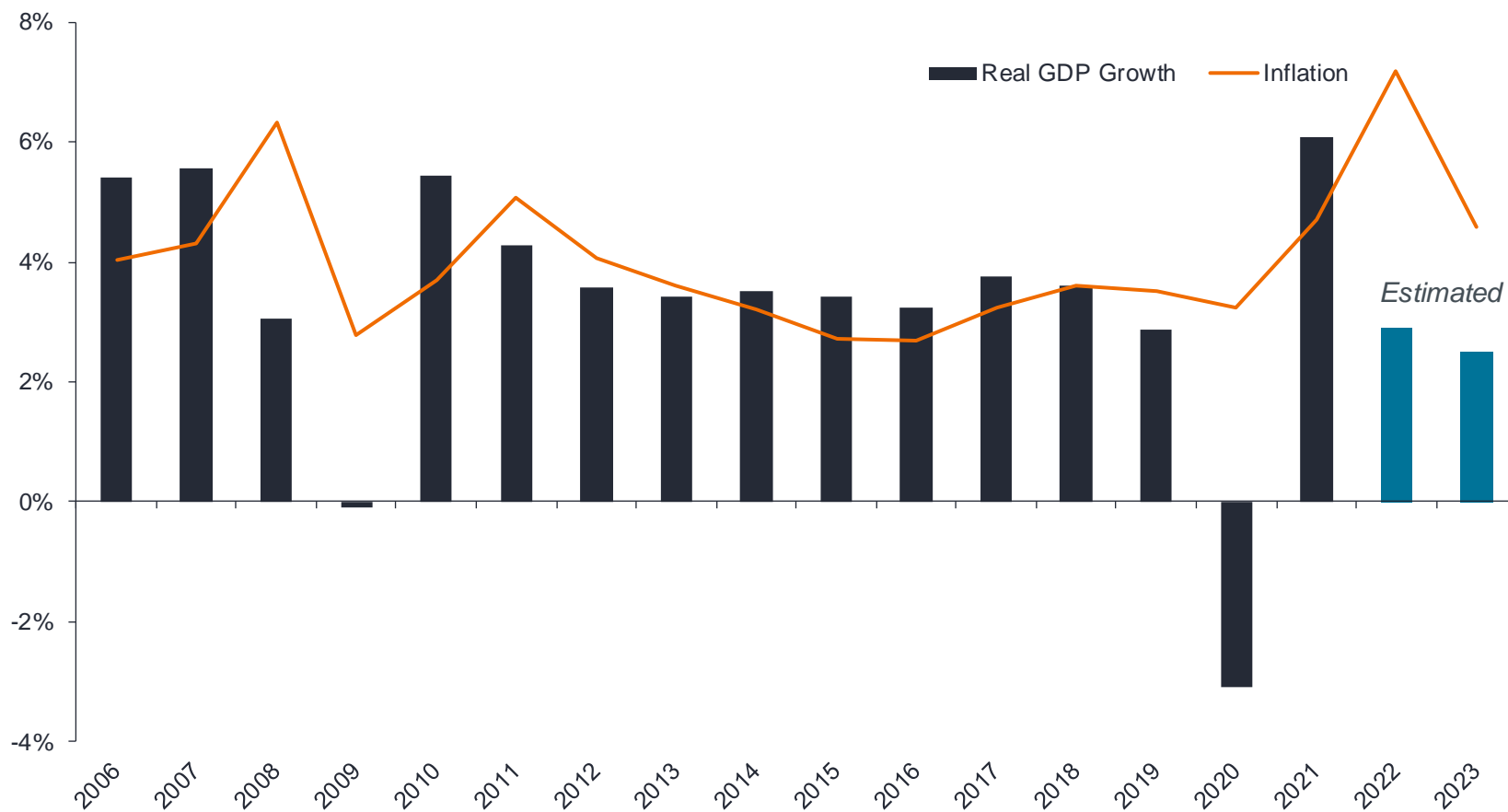
Note: BRICS = Brazil, Russia, India, China, and South Africa.

2021 and 2022 are estimates for all regions. 2020 an estimate for UK.

Past performance is not a guarantee of future performance.

GLOBAL GDP GROWTH AND INFLATION

Inflation has been driven by supply constraints and a post-pandemic surge in demand, with the latter expected to be somewhat alleviated as the cost of capital increases

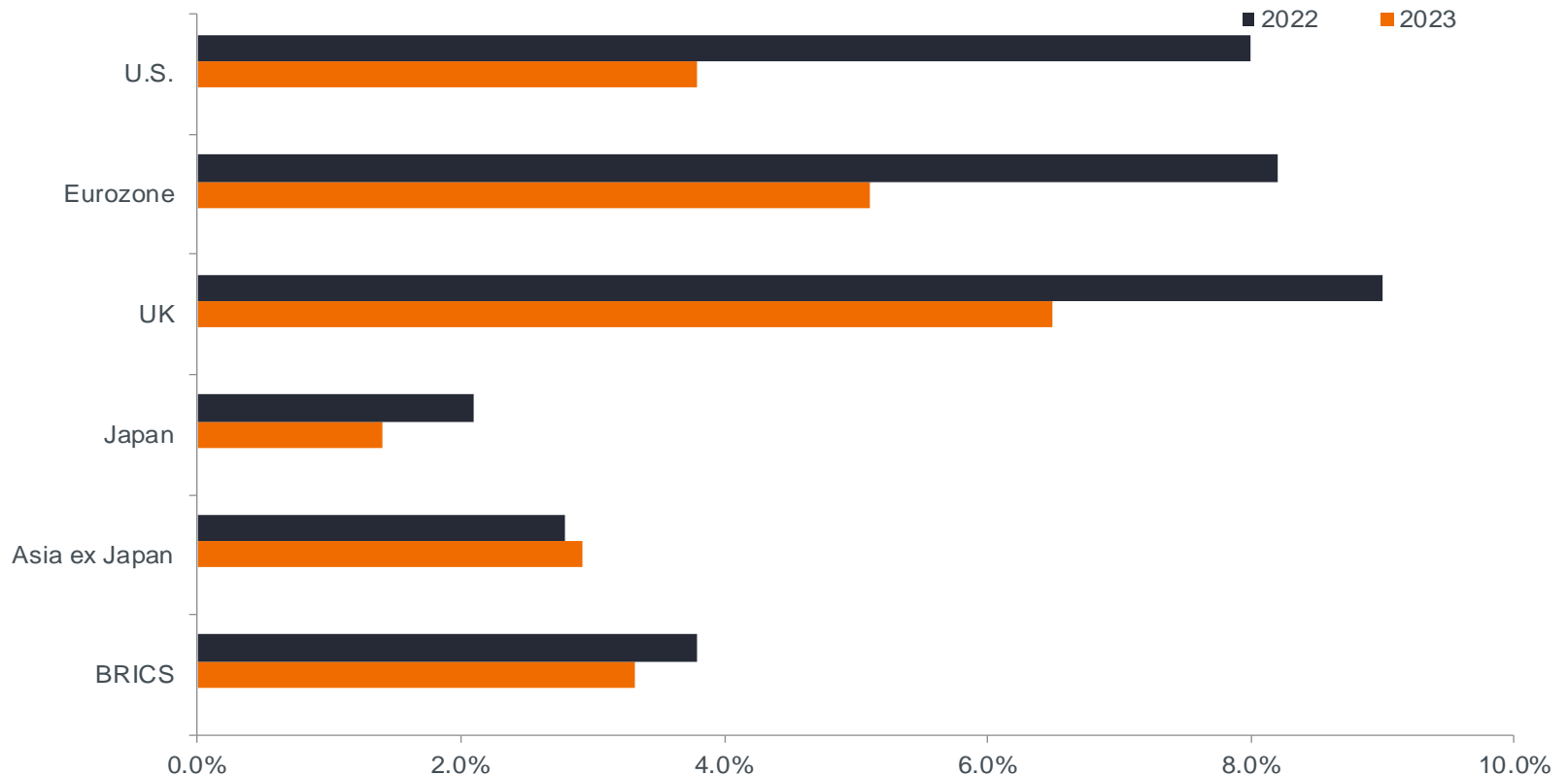


Source: Bloomberg, as of 30 September 2022.

Note: 2022 represents consensus forecasts

GLOBAL CONSUMER PRICE INFLATION FORECASTS

Many regions are expected to see inflation crest in 2022, before the lagging effects of rising interest rates have time to bite, perhaps by early 2023



Source: Bloomberg, as of 30 September 2022.

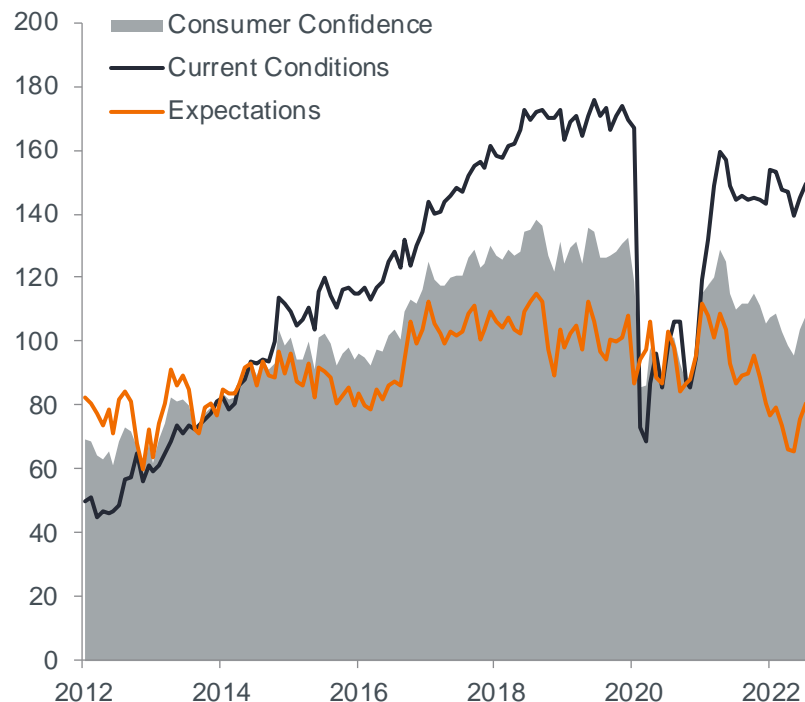
Note: BRICS = Brazil, Russia, India, China, and South Africa. 2022 numbers are estimates.

Numbers based on consensus forecasts. CPI, or Consumer Price Index, is an inflation gauge based on baskets of goods and services in countries and regions covered by the index.

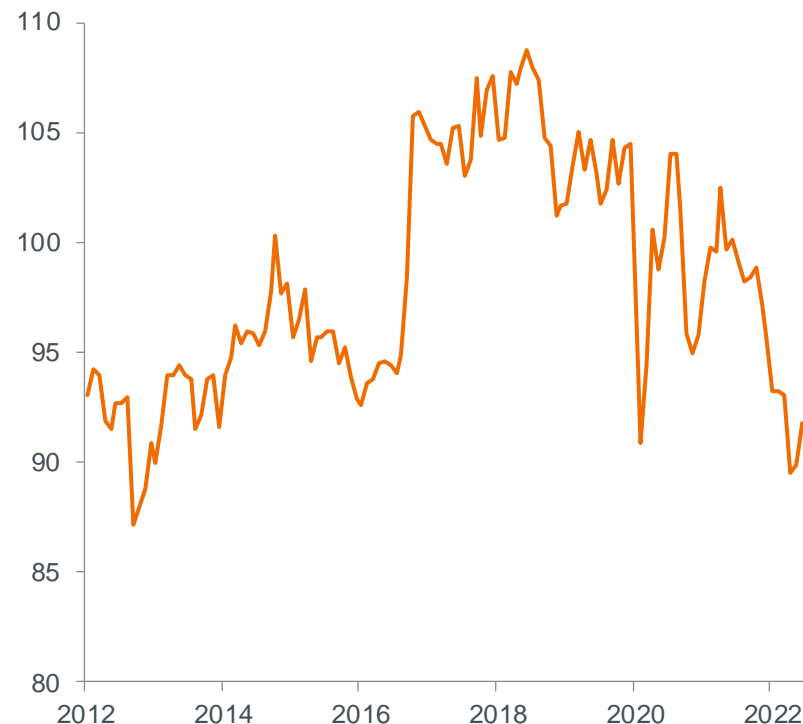
U.S. BUSINESS AND CONSUMER SENTIMENT

Elevated inflation and the ensuing pain of the higher borrowing costs brought on by rate hikes have resulted in a one-two punch for economic sentiment

U.S. Consumer Confidence (Index)



NFIB Small-Business Optimism (Index)



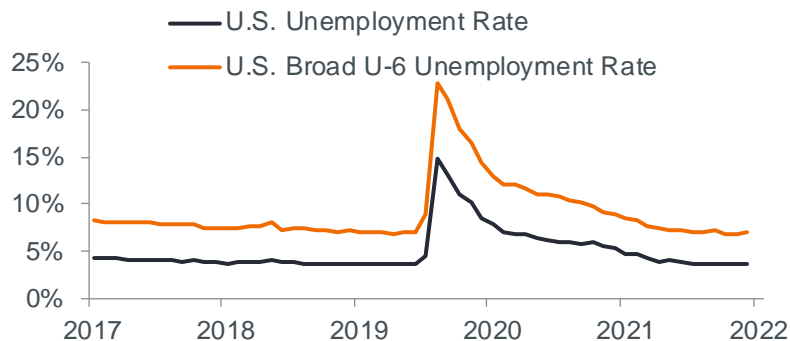
Source: Bloomberg, as of 30 September 2022.

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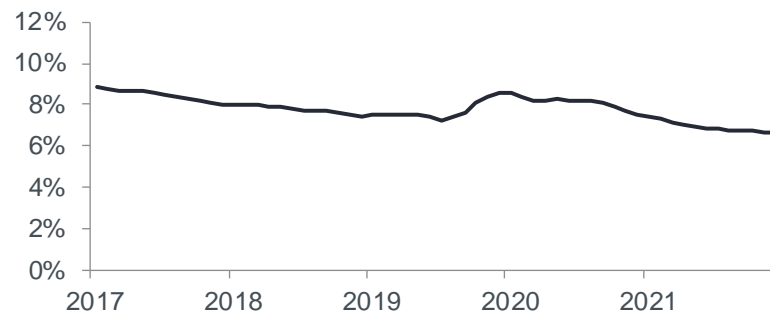
GLOBAL EMPLOYMENT

The labor market, especially in the U.S., is considered a key lever to control surging inflation, but this lagging indicator has yet to roll over

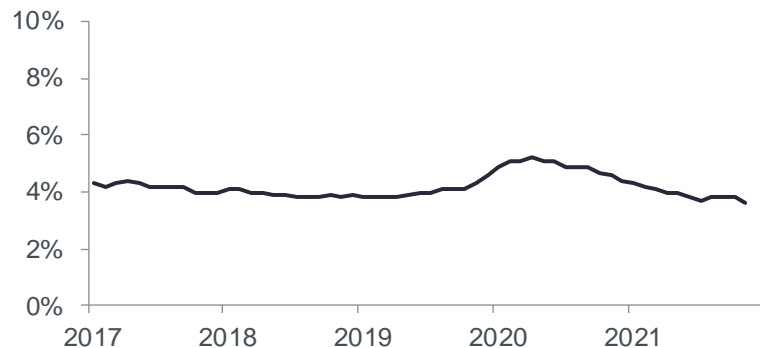
U.S. Unemployment Rate



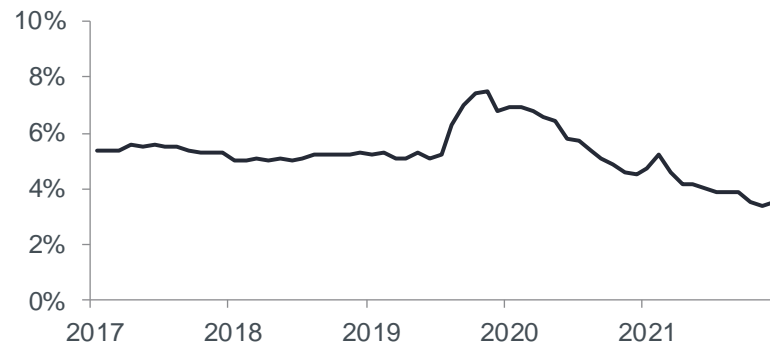
Eurozone Unemployment Rate



UK Unemployment Rate



Australia Unemployment Rate

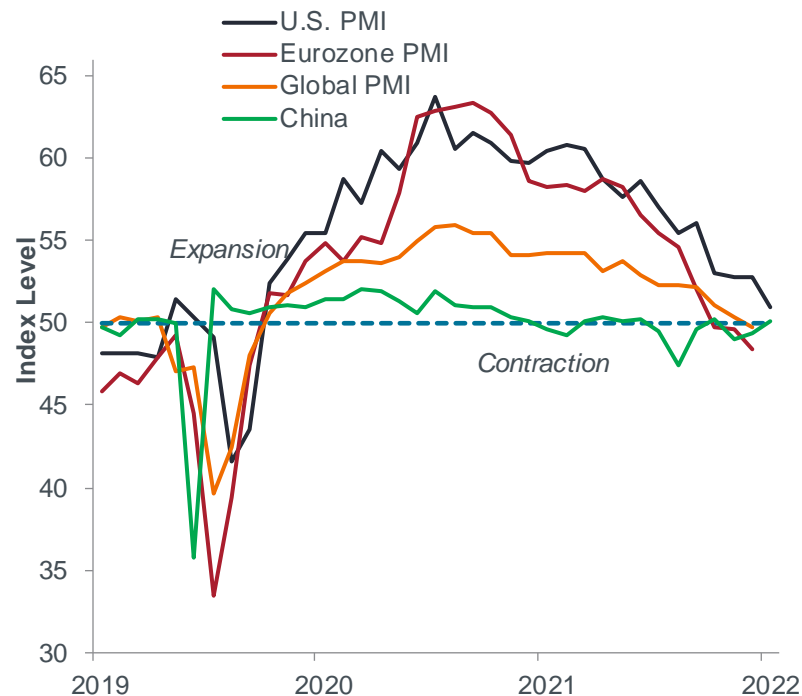
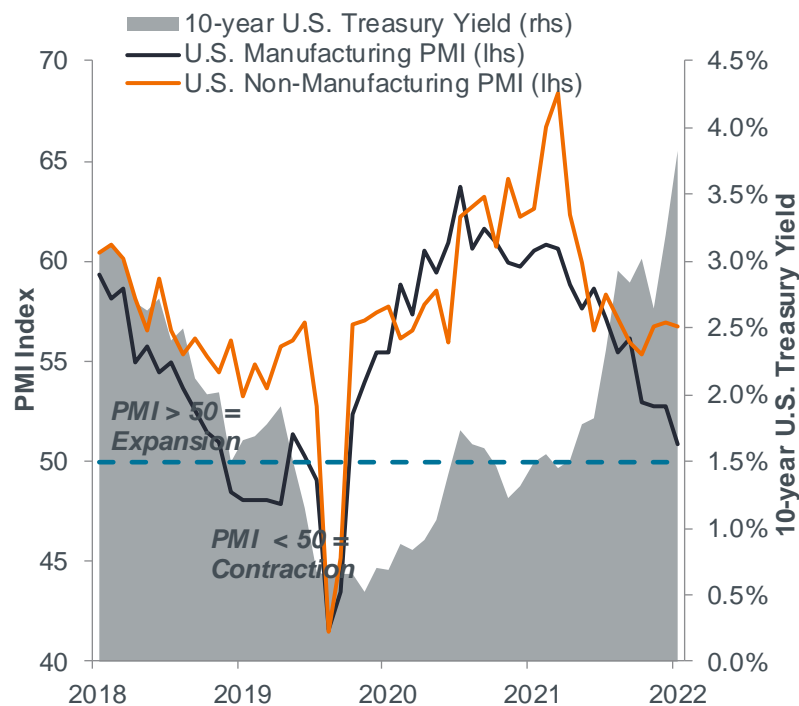


Source: Bloomberg, as of 30 September 2022.

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PURCHASING MANAGERS' INDICES

Forward-looking purchasing manager surveys have cooled in anticipation of tighter monetary policy eventually weighing on business activity



Source: Bloomberg, as of 30 September 2022.

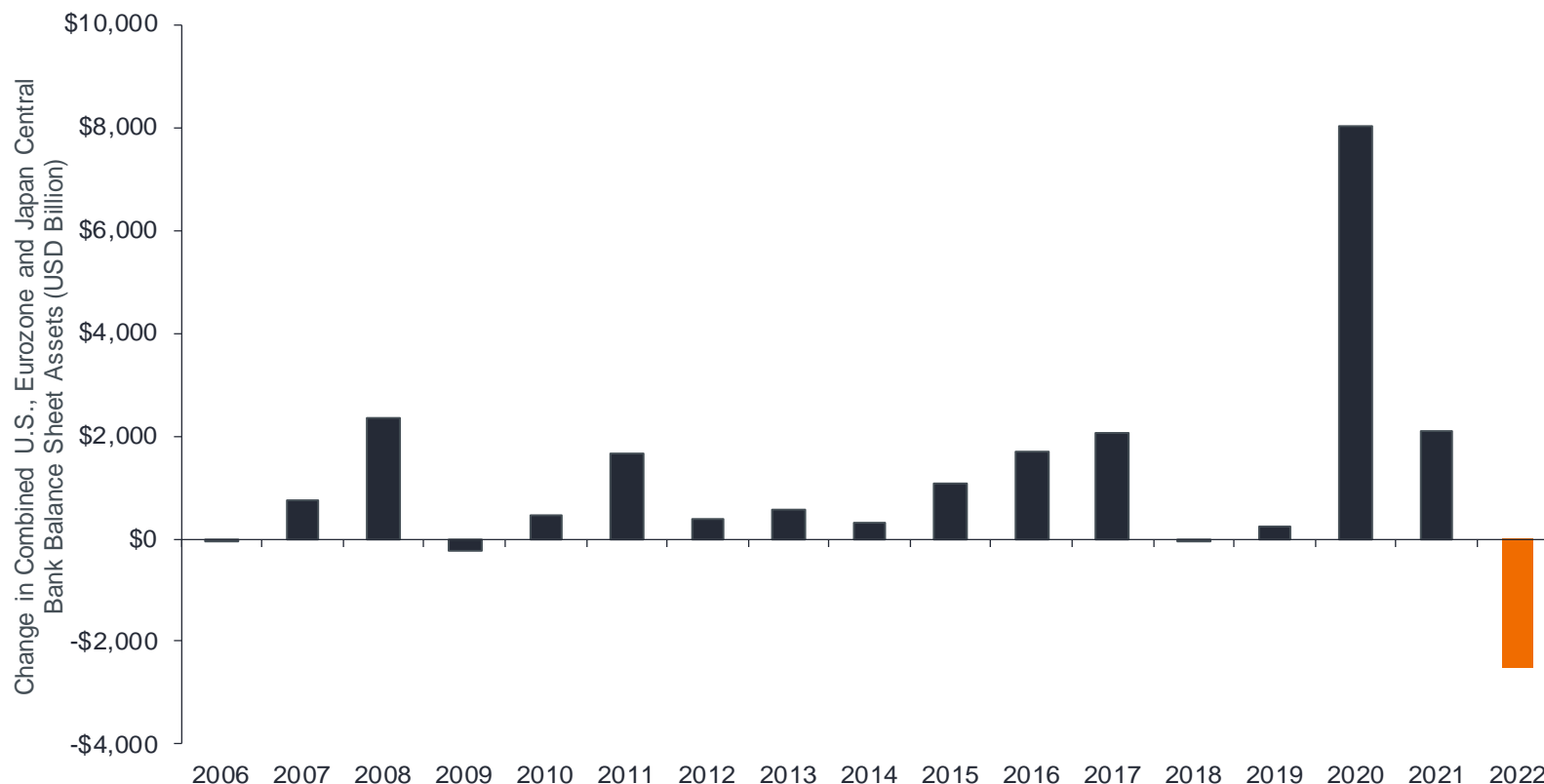
Note: The **Purchasing Managers' Index (PMI)** is an early indicator of the economic health of the manufacturing sector within an economy. The index is based on five indicators: new orders, inventory levels, production, supplier deliveries, and the employment environment.

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GLOBAL MONETARY POLICY

MONETARY POLICY MEETS REALITY

Already scheduled reductions in central bank total assets could not have come quickly enough as policy makers need all available tools to drain liquidity from the system



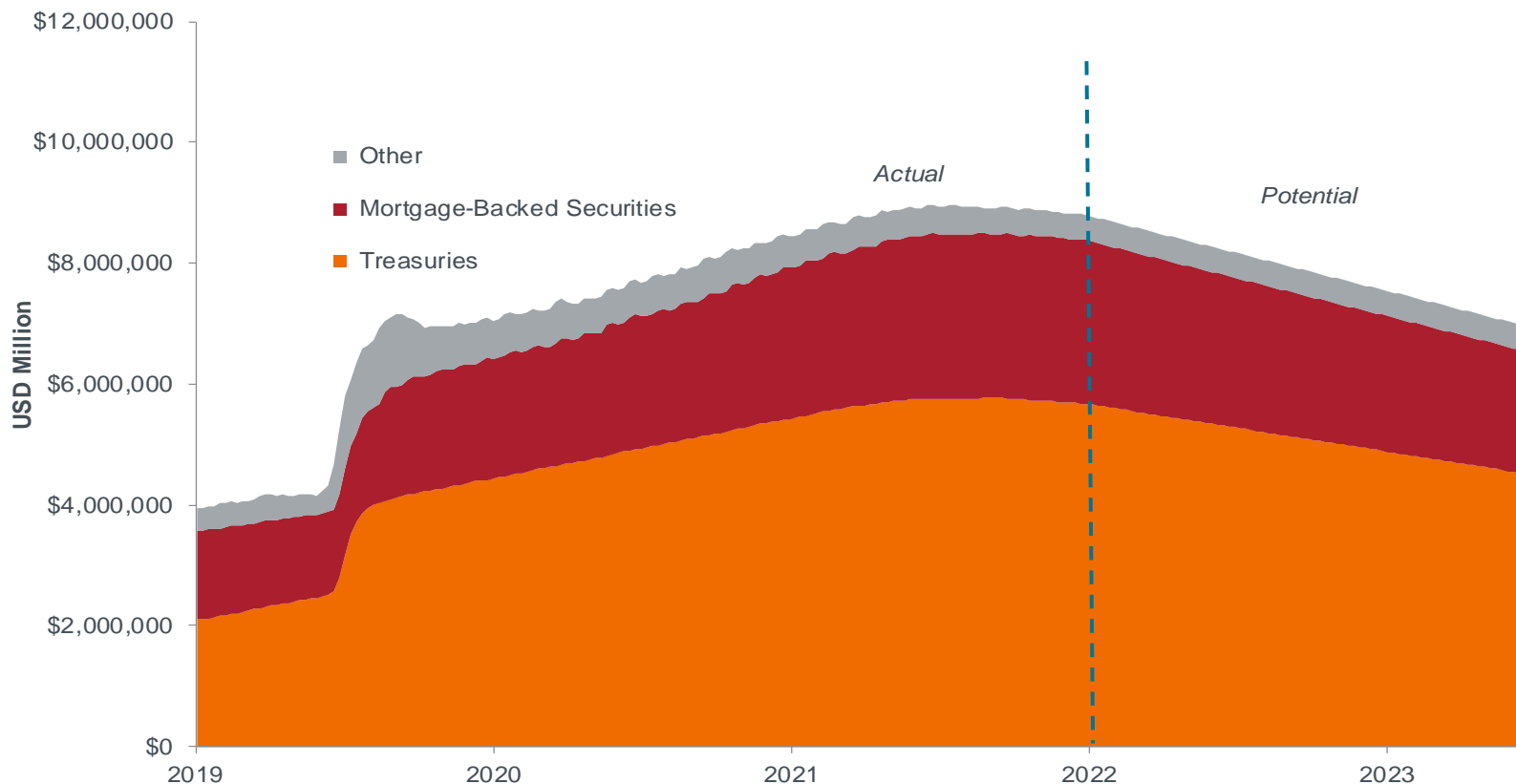
Source: Bloomberg, as of 30 September 2022.

Note: G3 central banks are the U.S. Federal Reserve, the Bank of Japan, and the European Central Bank.

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FED BALANCE SHEET ON THE DECLINE

As a complement to raising rates, the Fed is not reinvesting \$95 billion in maturing securities every month



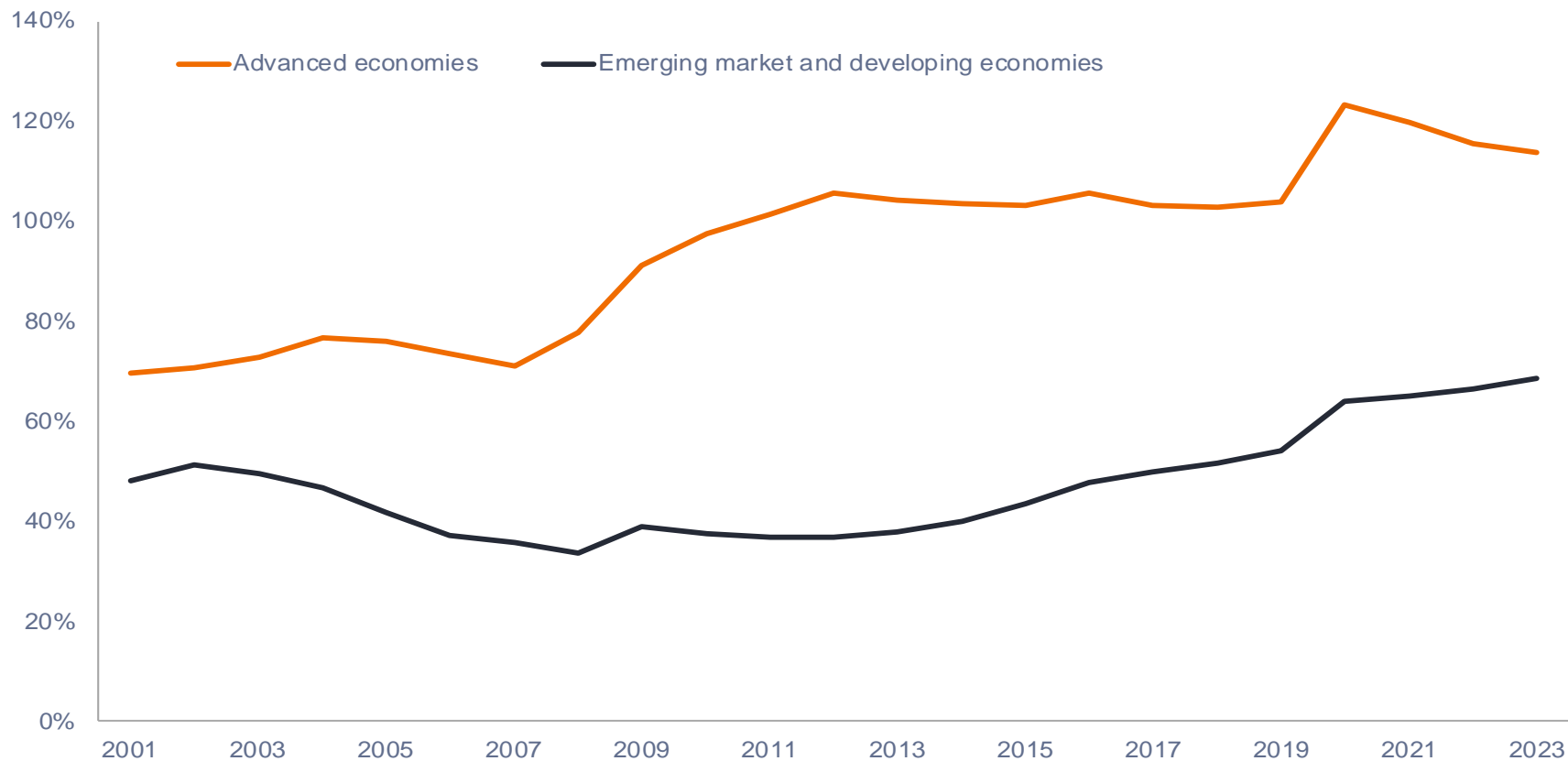
Source: Bloomberg, as of 30 September 2022.

Note: **Mortgage-backed security (MBS):** A security which is secured (or "backed") by a collection of mortgages. Investors receive periodic payments derived from the underlying mortgages, similar to coupons. Similar to an asset-backed security.

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FISCAL EXPANSION HAS PUSHED GOVERNMENT DEBT LEVELS HIGHER

General Government Debt % of GDP



Source: IMF, as of April 2022; 2022 and 2023 are estimates.

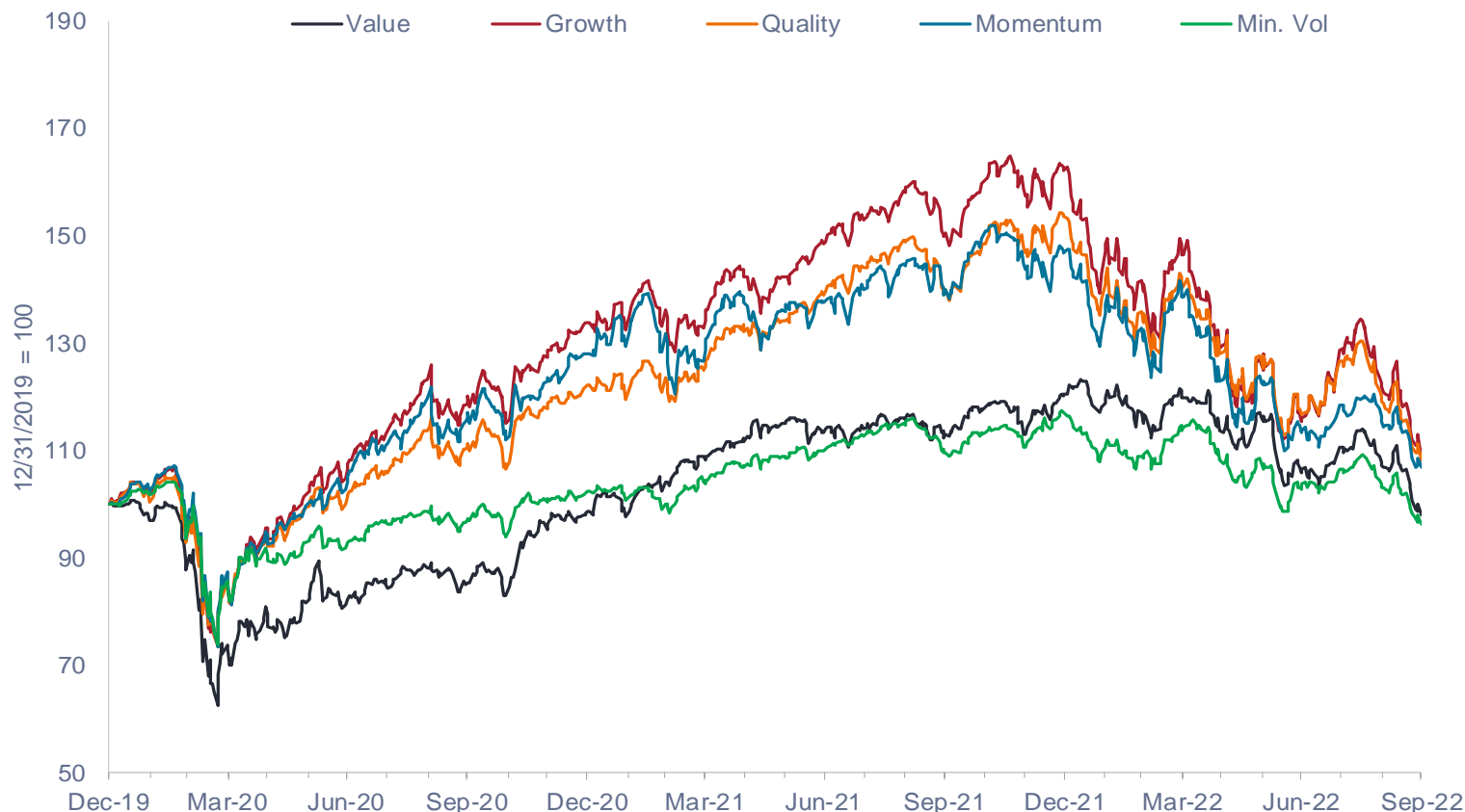
Based on gross government debt, which consists of all liabilities that require payments of interest and/or principal by the debtor

Note: **Past performance is not a guarantee of future performance.**

EQUITIES

GLOBAL EQUITY RETURNS – BY STYLE

After holding ground early in the year, value stocks have underperformed other factors since June as a slowing economy removes a needed catalyst for this category



Source: Bloomberg, as of 30 September 2022.

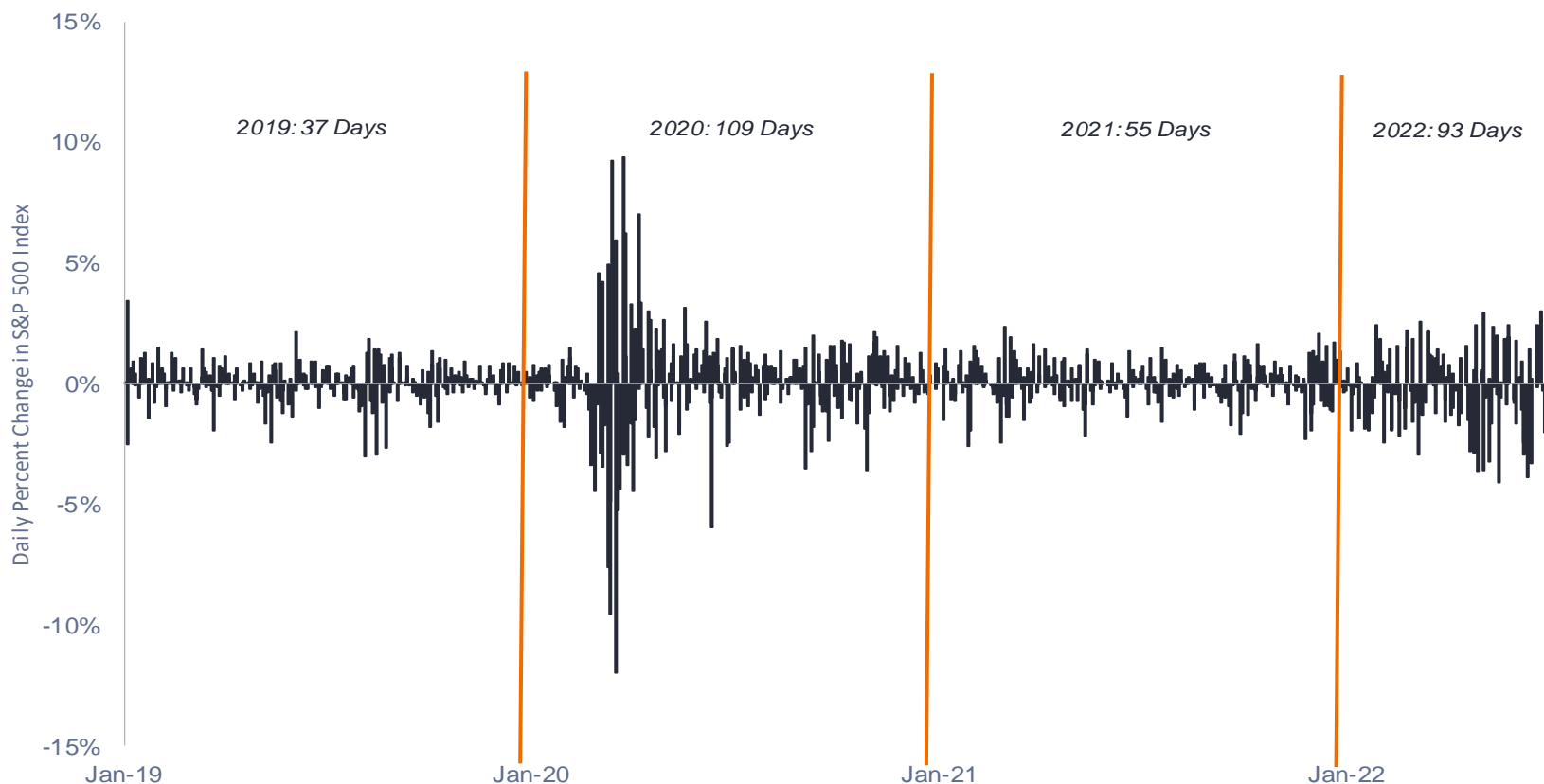
Note: Total return indices in USD.

Style categories based on corresponding components of MSCI World Index.

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EQUITY MARKET VOLATILITY

Equity market price swings grew more frequent as the market assessed the challenges posed by monetary tightening, a potentially slowing economy, and geopolitical upheaval



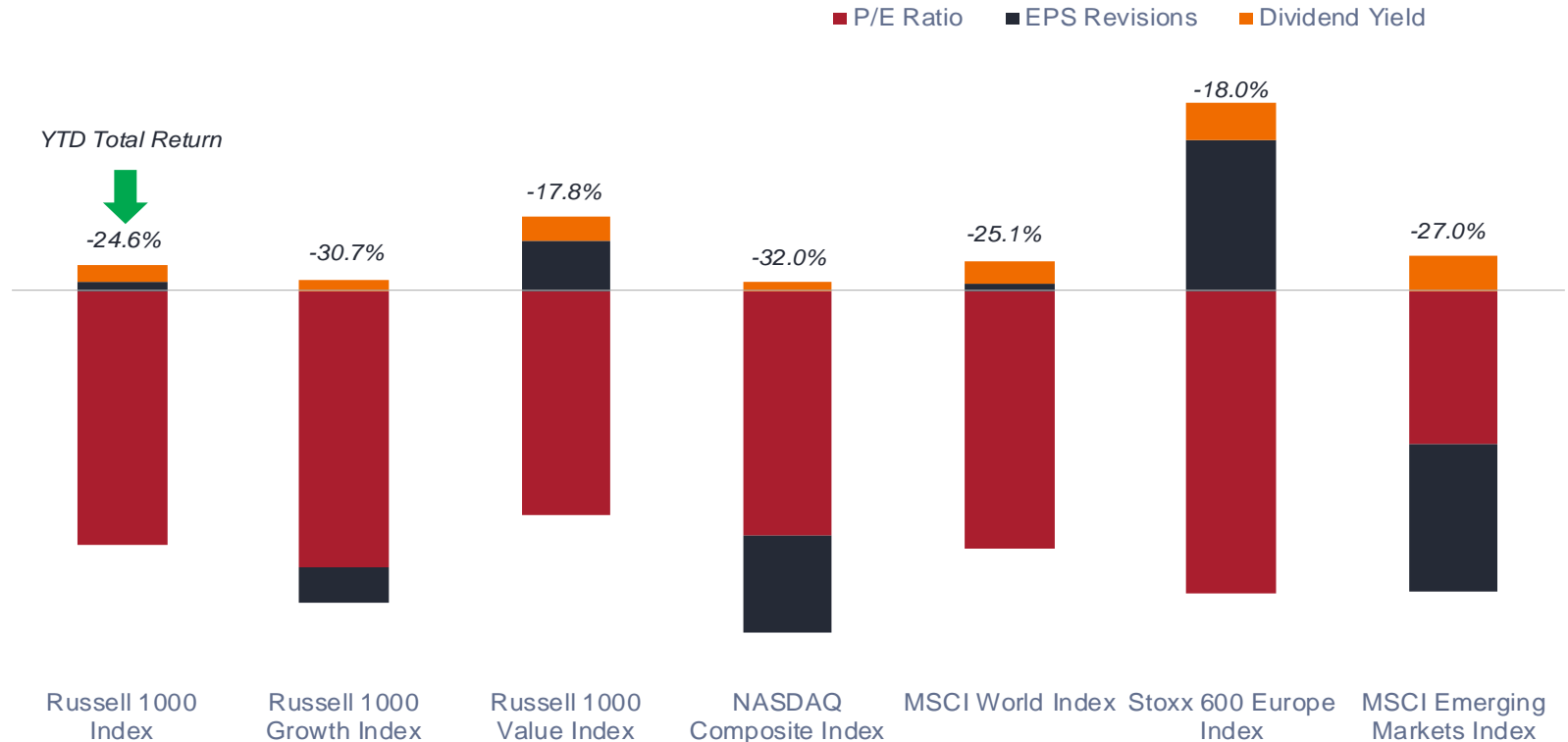
Source: Bloomberg, as of 30 September 2022.

Note: Based on one-day price movement of S&P 500 Index.

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EQUITIES' 2022 TOTAL RETURN DECOMPOSITION

Compressed valuations are weighing on equities, a dynamic amplified by recent dominance of growth stocks with high price/earnings ratios



Source: Bloomberg, as of 30 September 2022.

Note: Contribution categories provide approximation of total returns for given period; not drawn to scale.

Russell Indices for U.S. growth and value, MSCI for international and emerging markets, NASDAQ for higher growth U.S. and Stoxx for pan-Europe.

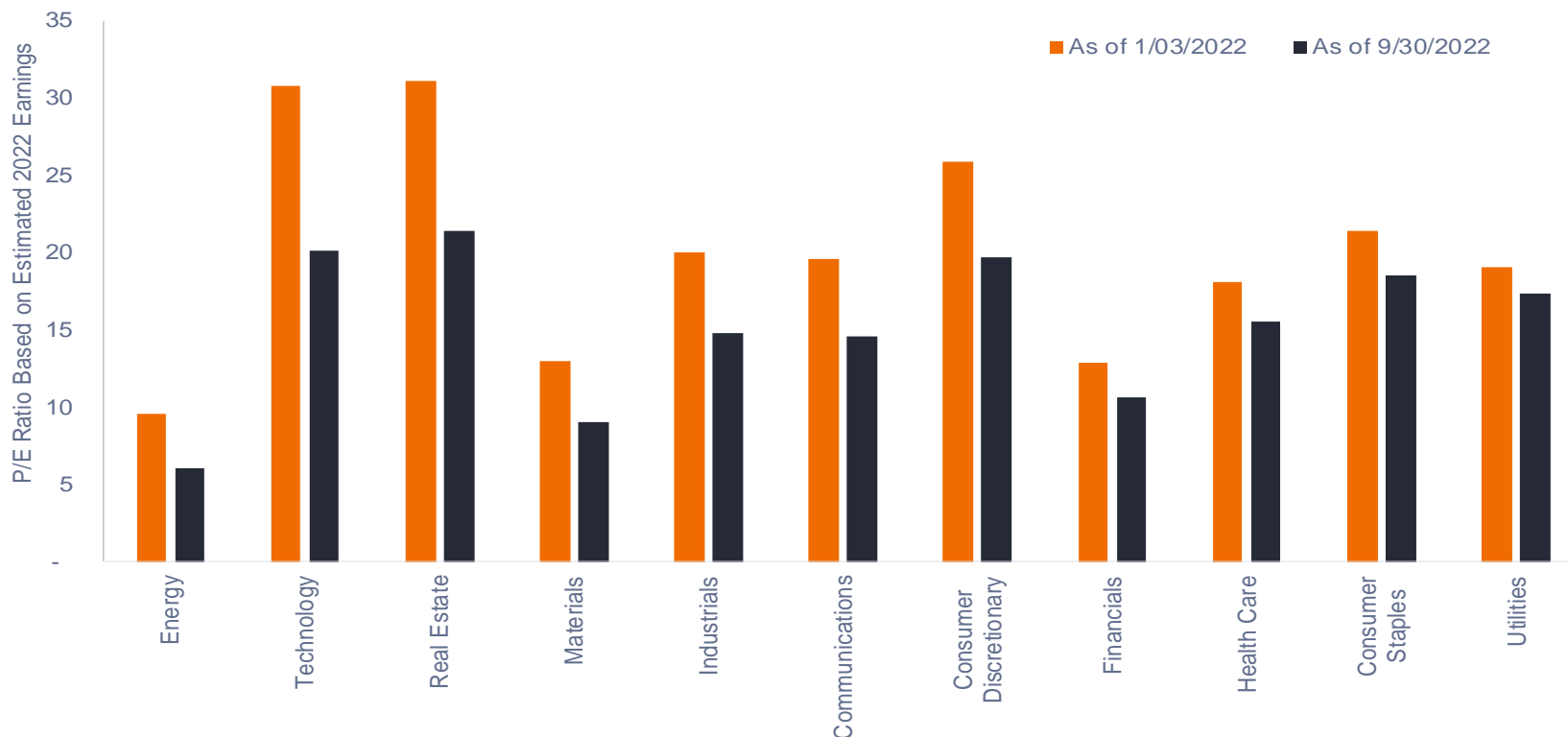
Price-to-Earnings (P/E) Ratio measures share price compared to earnings per share for a stock or stocks in a portfolio.

Earnings per share (EPS): The portion of a company's profit attributable to each share in the company. It is one of the most popular ways for investors to assess a company's profitability.

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FORWARD P/E RATIOS BY SECTOR – GLOBAL STOCKS

While higher rates have compressed valuations of technology and Internet stocks, falling energy and materials P/E ratios are driven by improved earnings prospects

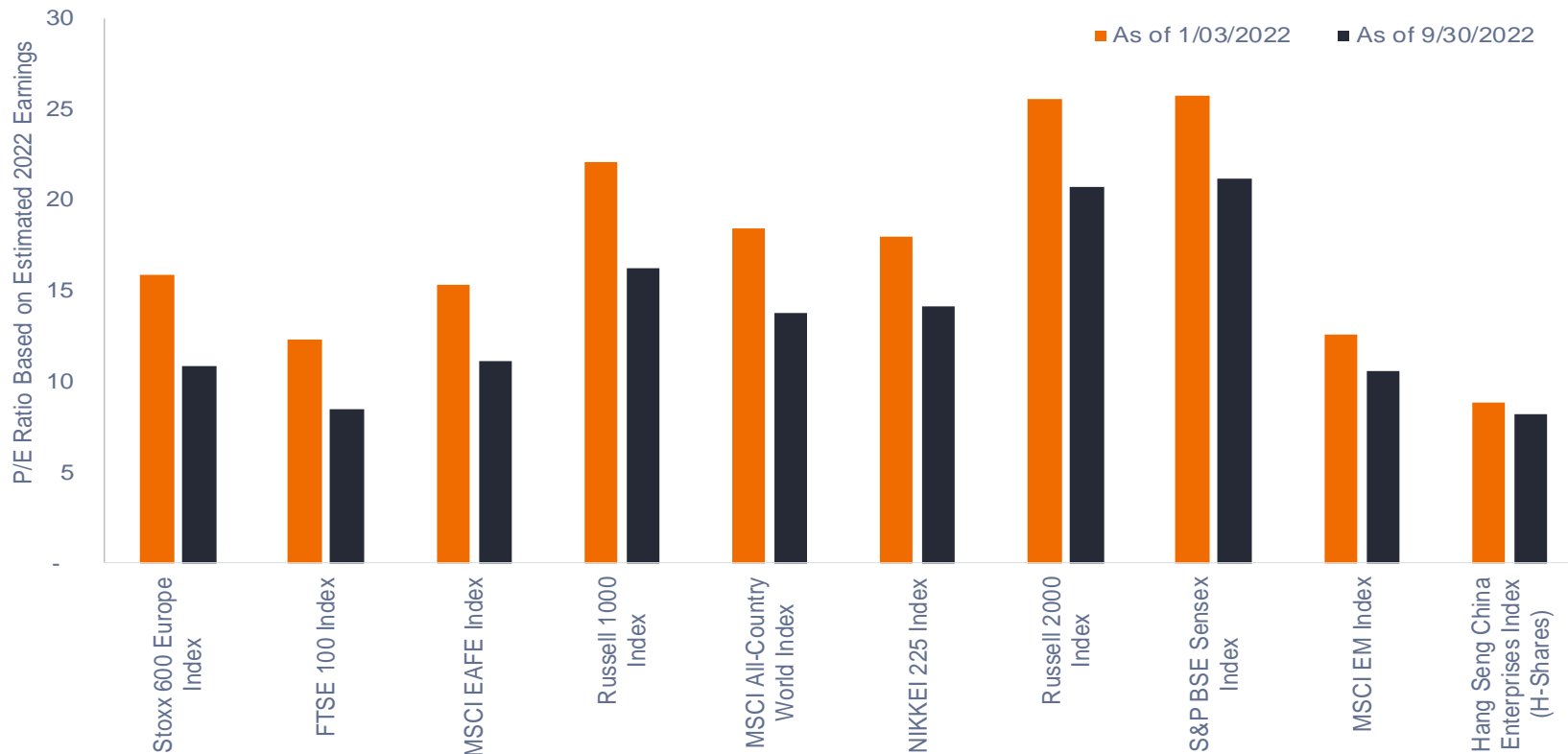


Source: Bloomberg, as of 30 September 2022.
Note: Based on GICS sectors of MSCI World Index.
Energy sector not drawn to scale.

Price-to-Earnings (P/E) Ratio measures share price compared to earnings per share for a stock or stocks in a portfolio.
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FORWARD P/E RATIOS OF MAJOR INDICES

The push for higher rates across jurisdictions has left few regions unscathed as an integrated global economy faces a higher cost of capital and likely less business activity



Source: Bloomberg, as of 30 September 2022.

Note: Russell Indices for U.S. large and small cap, MSCI for international and emerging markets, NASDAQ for higher growth U.S. and Stoxx for pan-Europe, FTSE for UK, NIKKEI for Japan, BSE Sensex for India and Hang Seng China for Hong Kong listed China shares.

Price-to-Earnings (P/E) Ratio measures share price compared to earnings per share for a stock or stocks in a portfolio.

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GLOBAL EARNINGS REVISIONS

Over the past three months, analysts have lowered their full-year earnings forecast as they take a potential hit to top-line growth into account

	Current Quarter Earnings 3-Month Revision	Full-Year Earnings 3-Month Revision	Blended 12-Month Forward Sales Growth Estimate	Blended 12-Month Forward EPS Growth Estimate
MSCI World Index	-4.6%	-0.9%	6.7%	18.0%
Communication Services	-13.3%	-6.6%	5.8%	31.9%
Consumer Discretionary	-6.1%	-2.8%	15.5%	40.5%
Consumer Staples	-4.8%	0.2%	3.0%	5.1%
Energy	10.2%	12.5%	5.6%	14.8%
Financials	-3.5%	0.0%	5.8%	8.0%
Health Care	-3.0%	-0.5%	3.3%	6.1%
Industrials	-2.1%	0.6%	4.2%	31.6%
Information Technology	-6.1%	-3.0%	9.7%	15.2%
Materials	-8.3%	-4.5%	0.3%	-4.5%
Real Estate	-0.8%	3.8%	6.0%	9.7%
Utilities	-0.5%	3.1%	2.3%	36.9%

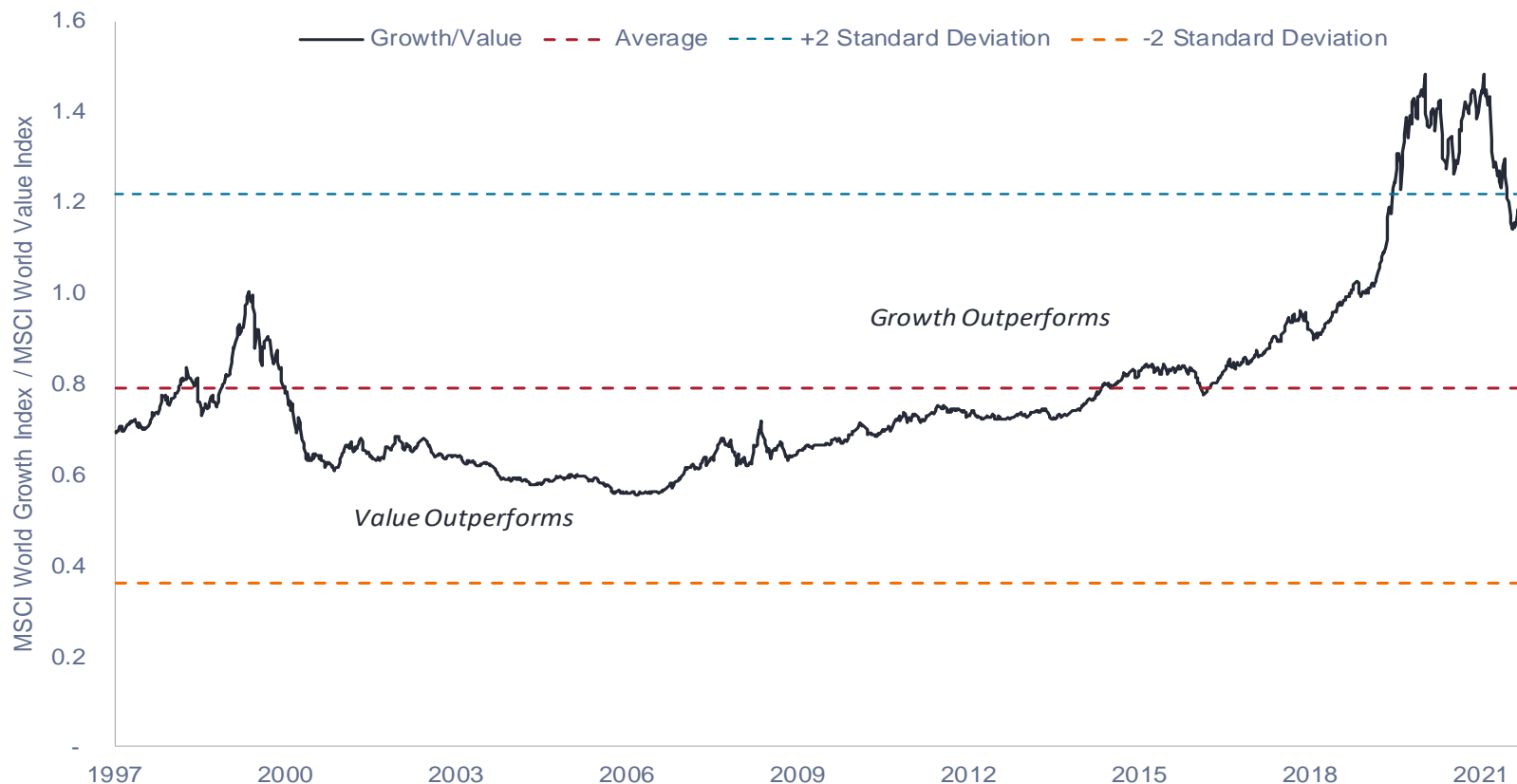
Source: Bloomberg, as of 30 September 2022.

Note: **Earnings per share (EPS):** The portion of a company's profit attributable to each share in the company. It is one of the most popular ways for investors to assess a company's profitability.

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GROWTH VS. VALUE

While entire market has been pressured, value has again found itself in crosshairs as the economy slows and investors begin to seek growth where they can find it



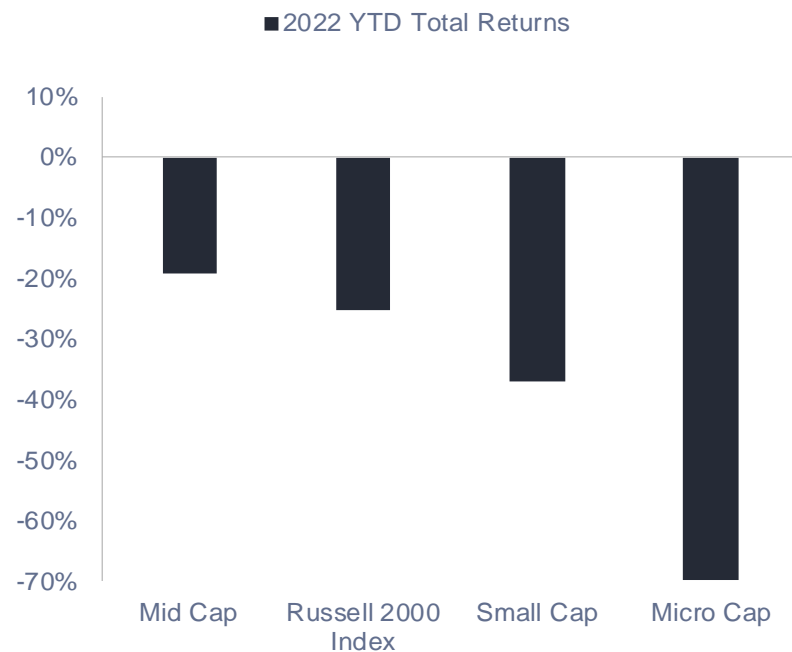
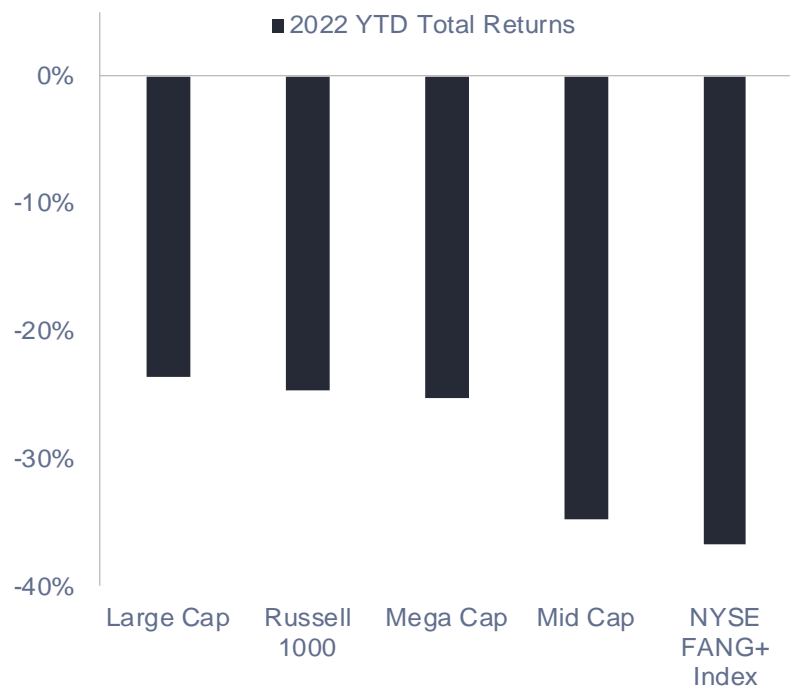
Source: Bloomberg, as of 30 September 2022.

Note: **Past performance is not a guarantee of future performance.**

RETURNS BY MARKET CAP

Returns on Russell 1000 Index by Market Cap, and FANG+ Index

Returns on Russell 2000 Index by Market Cap



Source: Bloomberg, as of 30 September 2022.

Note: NYSE FANG+ is an equal-dollar weighted index comprised of select highly traded mega-cap technology and consumer discretionary stocks.

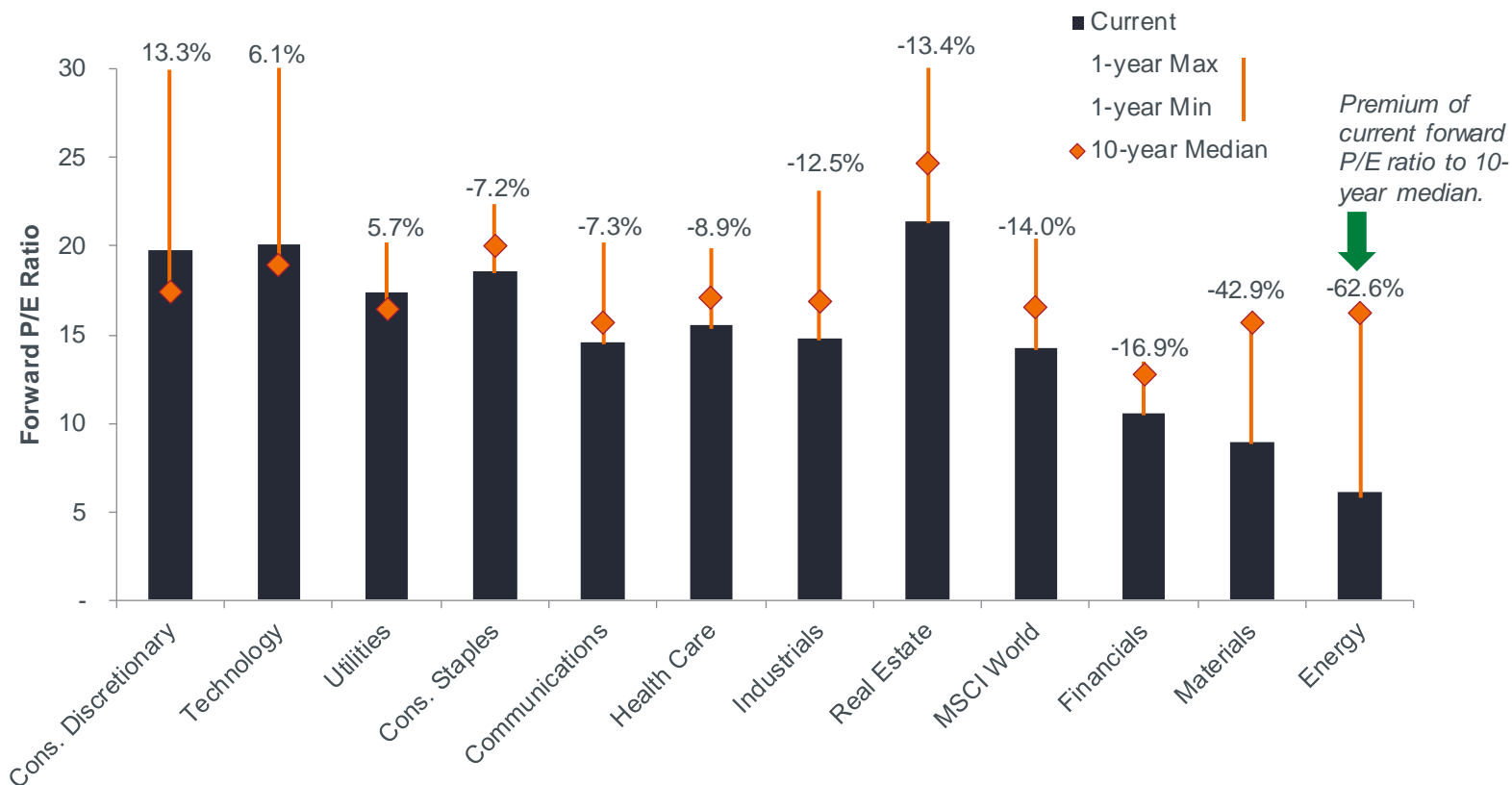
Russell 1000® Index reflects the performance of U.S. large-cap equities.

Russell 2000® Index reflects the performance of U.S. small-cap equities.

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GLOBAL P/E RATIOS – BY SECTOR

The sustained equities downdraft has left valuations in most sectors beneath their long-term averages, with technology and some Internet names barely bucking the trend



Source: Bloomberg, as of 30 September 2022.

Note: **Price-to-Earnings (P/E) Ratio** measures share price compared to earnings per share for a stock or stocks in a portfolio. **Past performance is not a guarantee of future performance.**

U.S. AND INTERNATIONAL STOCK PERFORMANCE

Higher rates have hit equities across developed markets equally hard

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	Decade Average	
EAFE	-10.51	31.21	37.60	-14.17	-22.15	37.10	3.74	19.42	34.30	6.18	10.09	
S&P	3.89	14.22	18.96	-14.67	-26.31	37.14	23.81	-7.19	6.52	18.45	5.85	
Difference	-14.41	16.98	18.64	0.50	4.16	-0.04	-20.07	26.61	27.78	-12.27	4.24	
	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	Decade Average	
EAFE	24.43	-1.03	-0.86	24.61	7.86	56.72	69.94	24.93	28.59	10.80	22.77	
S&P	32.45	-4.88	21.50	22.46	6.22	31.64	18.62	5.18	16.61	31.69	17.51	
Difference	-8.02	3.85	-22.36	2.15	1.64	25.08	51.32	19.75	11.98	-20.89	5.26	
	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	Decade Average	
EAFE	-23.20	12.50	-11.85	32.94	8.06	11.55	6.36	2.06	20.33	27.30	7.33	
S&P	-3.10	30.47	7.62	10.08	1.32	37.58	22.96	33.36	28.58	21.04	18.21	
Difference	-20.09	-17.97	-19.47	22.87	6.74	-26.03	-16.60	-31.31	-8.25	6.26	-10.88	
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	Decade Average	
EAFE	-13.96	-21.21	-15.66	39.17	20.70	14.02	26.86	11.63	-43.06	32.46	1.58	
S&P	-9.10	-11.89	-22.10	28.68	10.88	4.91	15.79	5.49	-37.00	26.46	-0.95	
Difference	-4.85	-9.32	6.44	10.48	9.82	9.10	11.06	6.14	-6.06	6.00	2.53	
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Decade Average	
EAFE	8.21	-11.73	17.90	23.29	-4.48	-0.39	1.51	25.62	-13.36	22.66	6.92	
S&P	15.06	2.11	16.00	32.39	13.69	1.38	11.96	21.83	-4.38	31.49	14.15	
Difference	-6.85	-13.85	1.89	-9.09	-18.17	-1.78	-10.45	3.78	-8.97	-8.83	-7.23	
	2020	2021	2022 YTD									2020-Present Average
EAFE	8.39	11.87	-26.71									(4.76)
S&P	18.39	28.68	-23.88									5.55
Difference	-10.00	-16.81	-2.83									-10.31

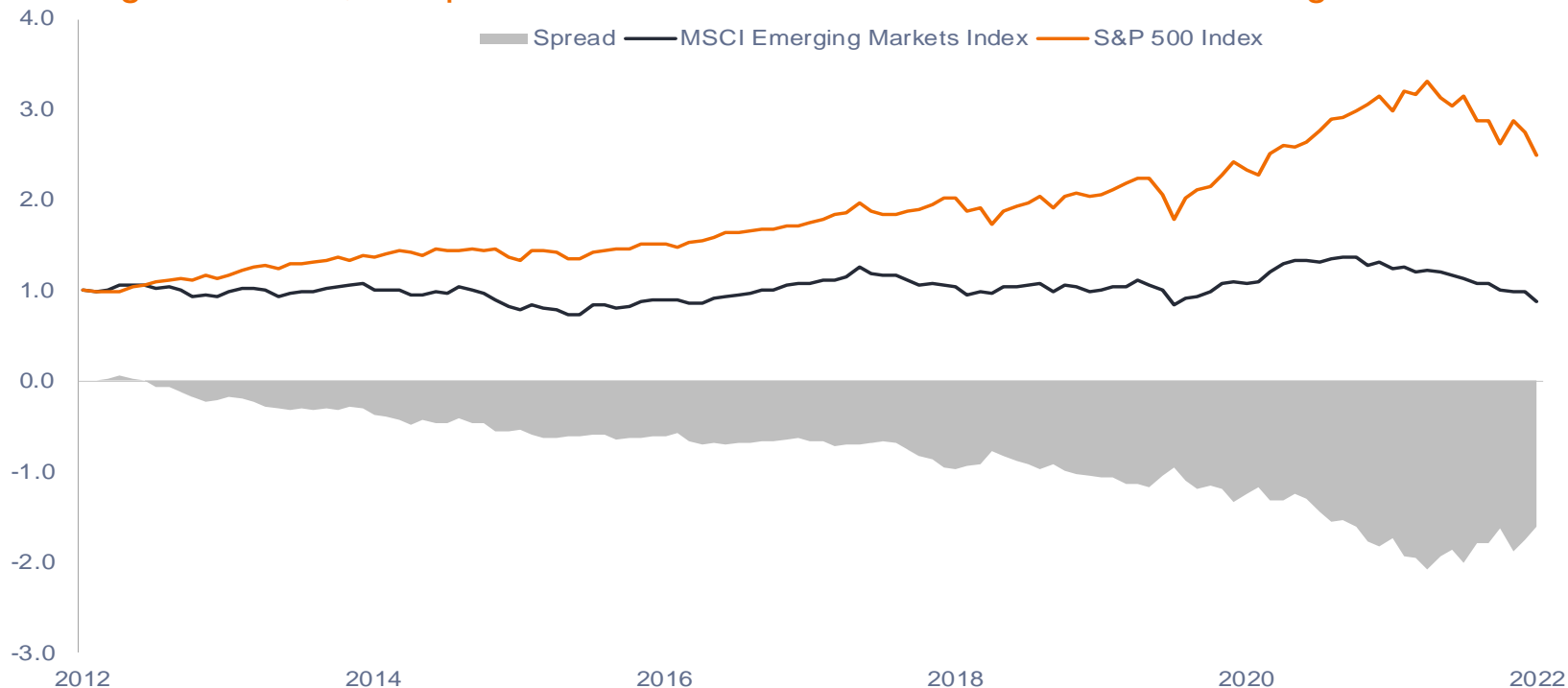
Source: Bloomberg, as of 30 September 2022

Note: U.S. stocks represented by S&P 500 Index, International stocks by MSCI EAFE Index.

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EMERGING MARKET EQUITY PERFORMANCE

EMs face unique challenges in this inflationary environment as they are exposed to a broad economic slowdown, added inflationary pressure for commodities importers due to a strong U.S. dollar, and potential stress on dollar-denominated debt obligations



Source: Bloomberg, as of 30 September 2022.

Note: Rebased to 1.0 on 30 September 2012.

MSCI Emerging Markets IndexSM reflects the equity market performance of emerging markets.

Credit Spread is the difference in yield between securities with similar maturity but different credit quality. Widening spreads generally indicate deteriorating creditworthiness of corporate borrowers and narrowing indicate improving.

Past performance is not a guarantee of future performance.

FIXED INCOME

RATES CONTINUE MARCH HIGHER

Bond yields surged as the Fed doubled down on hawkishness and a poorly received initiative by the UK government caused investors to consider the degree to which higher rates will weigh on debt-laden countries

Maturity	2 Year	5 Year	10 Year	30 Year
U.S.	4.28%	4.09%	3.83%	3.78%
Germany	1.76%	1.96%	2.11%	2.09%
UK	4.23%	4.39%	4.09%	3.83%
France	1.81%	2.35%	2.72%	2.98%
Italy	2.88%	3.90%	4.52%	4.34%
Spain	2.13%	2.63%	3.29%	3.71%
Japan	-0.05%	0.07%	0.24%	1.39%
Switzerland	0.75%	0.93%	1.23%	1.43%
Belgium	1.82%	2.33%	2.77%	3.08%
Canada	3.79%	3.33%	3.17%	3.10%
Netherlands	1.75%	2.12%	2.43%	2.43%
Australia	3.31%	3.66%	3.89%	4.08%

Source: Bloomberg, as of 30 September 2022.

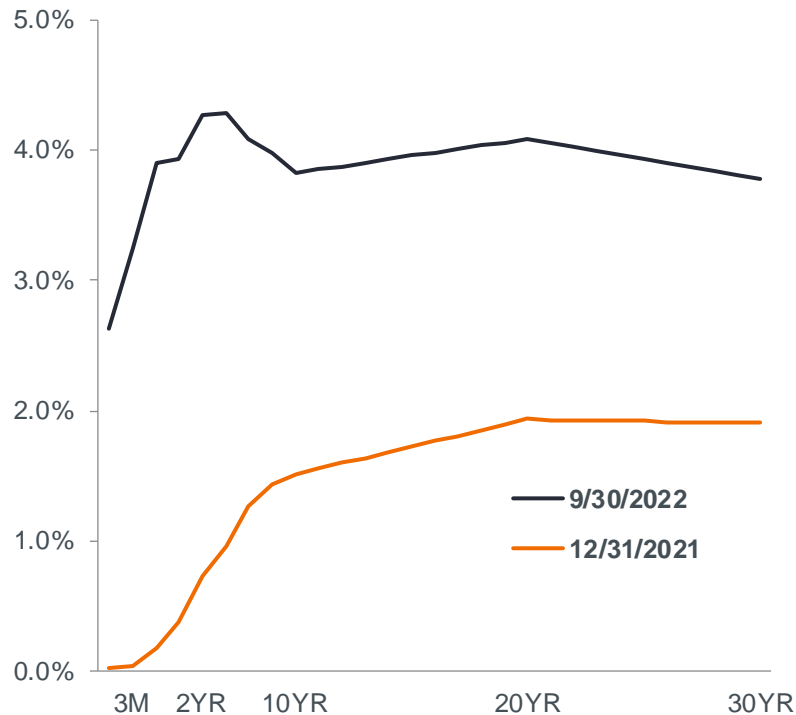
Note: The yields above represent current yields on global government bonds at their stated maturity and are not representative of an index.

Past performance is not a guarantee of future performance.

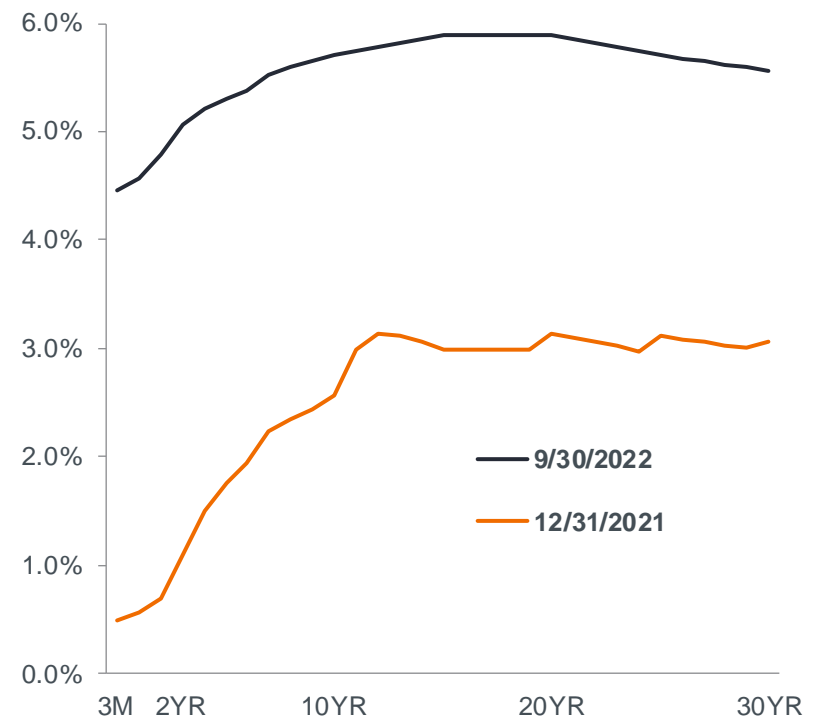
U.S. TREASURIES & CORPORATE YIELD CURVES

The Treasuries curve inverted early in the period – and remained that way – as the rise in front-end rates exceeded that of longer-dated notes due to global growth concerns

U.S. Treasuries Yield Curve



U.S. Investment-Grade Corporate Yield Curve



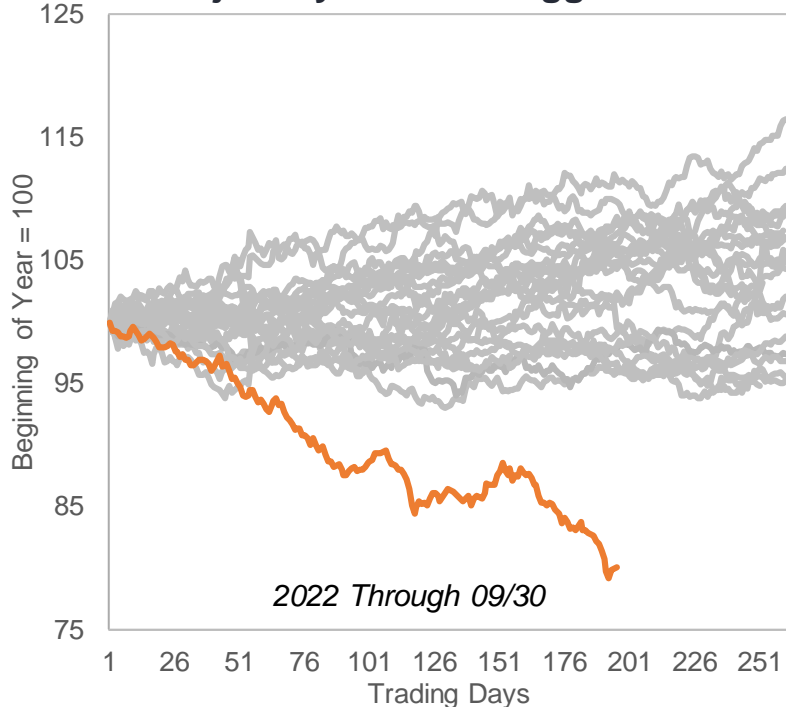
Source: Bloomberg, as of 30 September 2022.

Note: **Past performance is not a guarantee of future performance.**

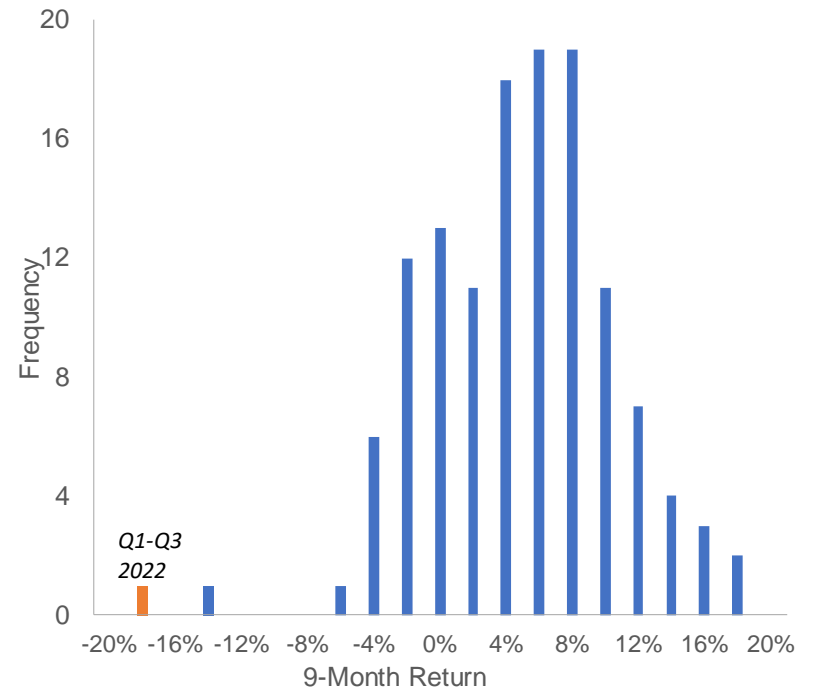
2022 GLOBAL AGGREGATE RETURNS

The first nine months of 2022 were unprecedented in global bond markets as investors pondered the possible end to inflation's "great moderation"

Annual trajectory of Global Agg since 1999



9-Month Global Agg returns since June 1990



Source: Bloomberg, as of 30 September 2022.

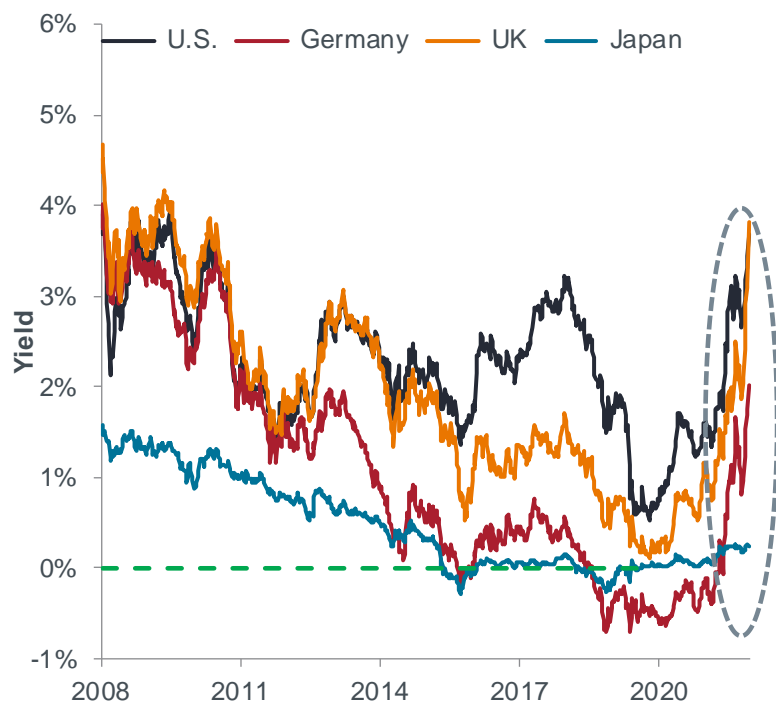
Note: Rolling nine-month returns from end of each quarter based on Bloomberg Global Aggregate Index.

Past performance is not a guarantee of future performance.

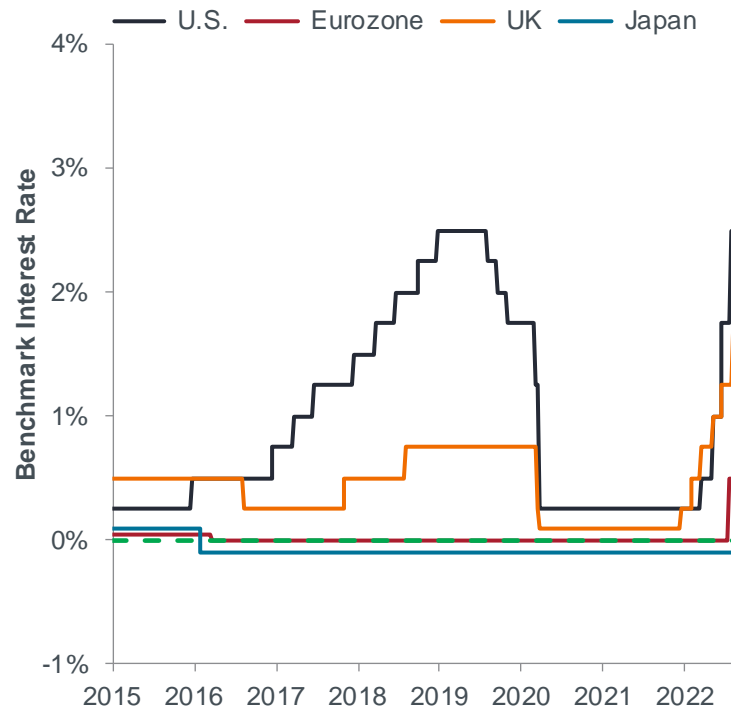
SOVEREIGN POLICY AND BENCHMARK RATES

The speed at which policy rates and longer-dated yields have risen was previously unfathomable, with Japan the only developed market grasping onto zero to negative rates

Yield on 10-Year Government Bonds



Central Bank Policy Rate



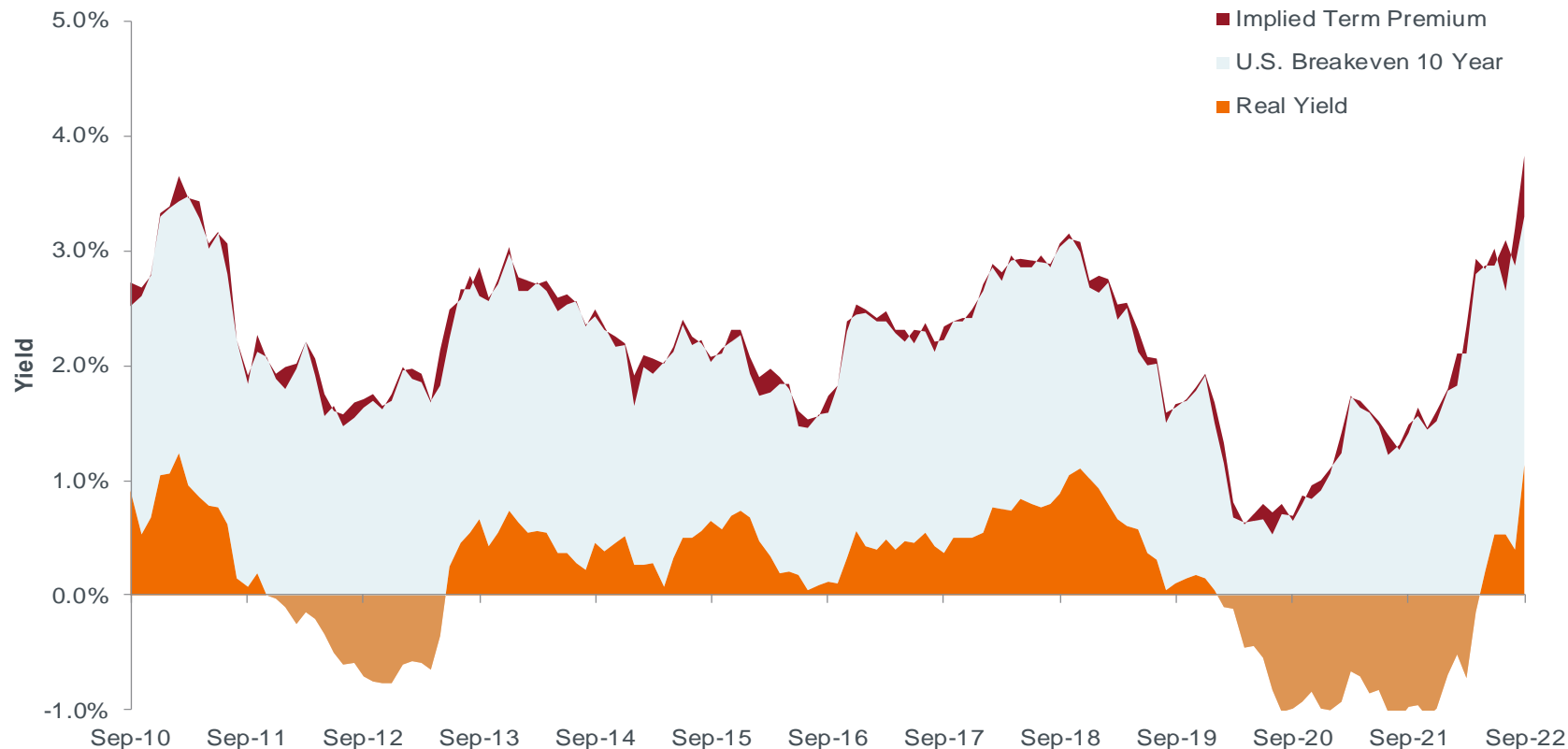
Source: Bloomberg, as of 30 September 2022.

Note: 10-Year Treasury Yield is the interest rate on U.S. Treasury bonds that will mature 10 years from the date of purchase.

Past performance is not a guarantee of future performance.

10-YEAR TREASURY NOMINAL & REAL YIELDS

Having started 2022 below -1.0%, the real yield on the 10-year Treasury climbed above 1.0%, marking an increase in the cost of capital for the U.S. economy



Source: Bloomberg, as of 30 September 2022.

Note: **Past performance is not a guarantee of future performance.**

U.S. AGGREGATE YIELD AND DURATION

While rising rates have narrowed the difference, the historic mismatch between bonds' duration and yield continues to challenge risk-averse investors



Source: Bloomberg, as of 30 September 2022.

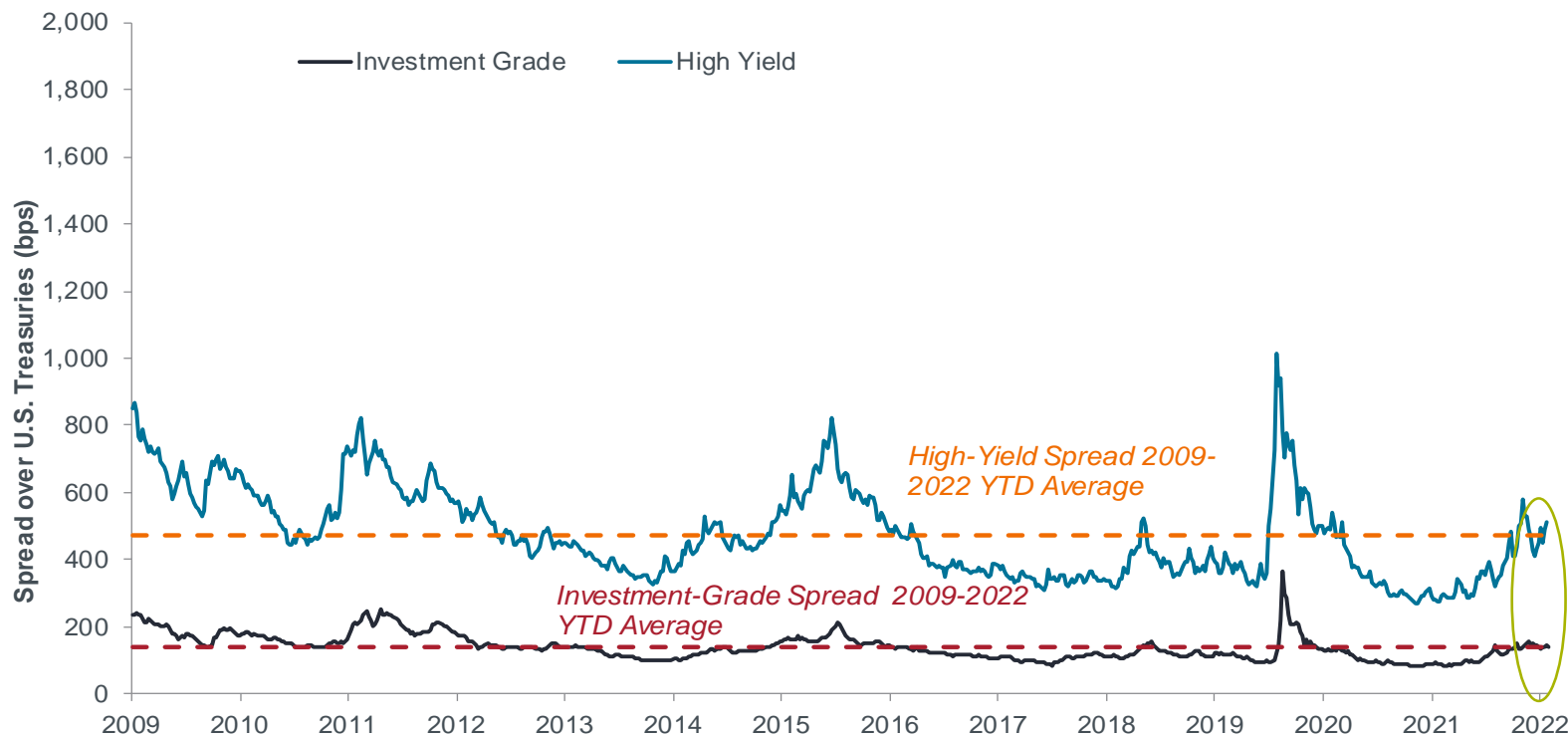
Note: Based on duration and yield to worst of Bloomberg U.S. Aggregate Bond Index.

Duration measures a bond price's sensitivity to changes in interest rates. The longer the duration, the higher its sensitivity to changes in interest rates and vice versa.

Past performance is not a guarantee of future performance.

U.S. CORPORATE SPREADS

Credit spreads have remained surprisingly resilient in the face of a slowing economy – a development likely due to many corporations having locked in low rates



Source: Bloomberg, as of 30 September 2022.

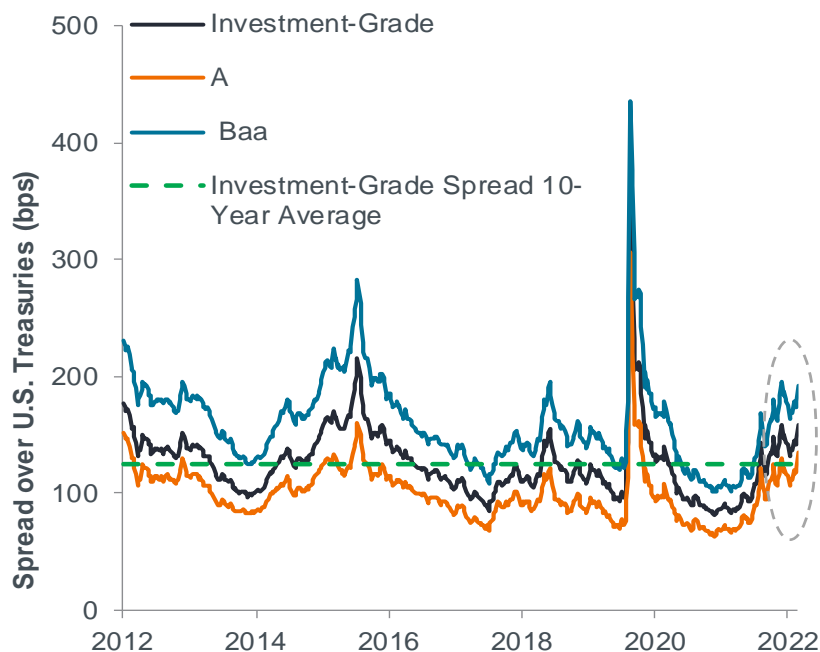
Note: This data represents the Option-Adjusted Spread (OAS) of Bloomberg Corporate Bond Indices tracking the performance of U.S. dollar-denominated investment-grade rated and high-yield corporate debt publicly issued in the U.S. domestic market. OAS are the calculated spreads between a computed OAS index of all bonds in a given rating category and a spot Treasury curve. An OAS index is constructed using each constituent bond's OAS, weighted by market capitalization. When the last calendar day of the month takes place on the weekend, weekend observations will occur as a result of month ending accrued interest adjustments.

Past performance is not a guarantee of future performance.

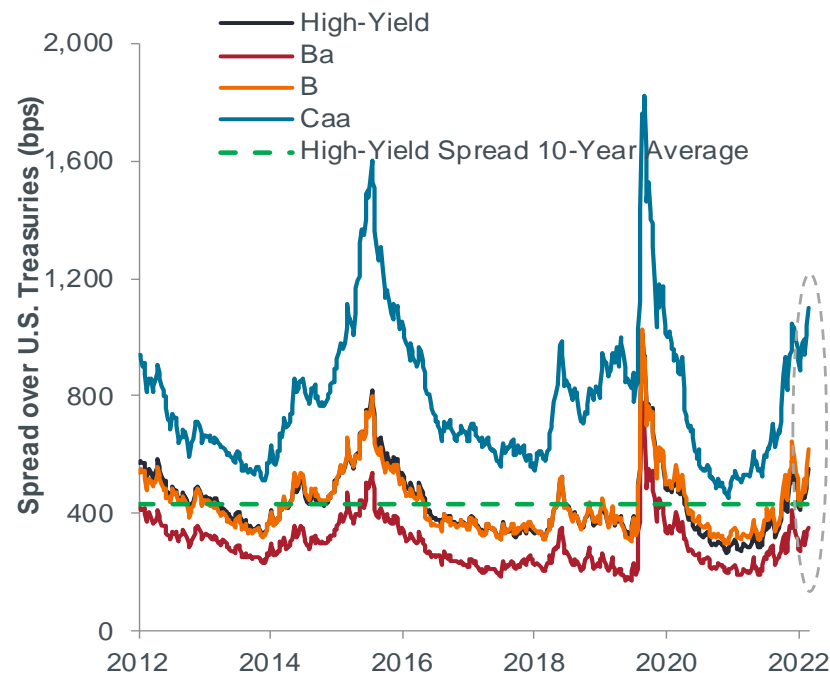
U.S. CORPORATE SPREADS

As the economy slows, we expect to see companies with weaker cash flow generation and higher near-term refinancing needs come under greater scrutiny

Investment-Grade Corporate Spreads



High-Yield Corporate Spreads



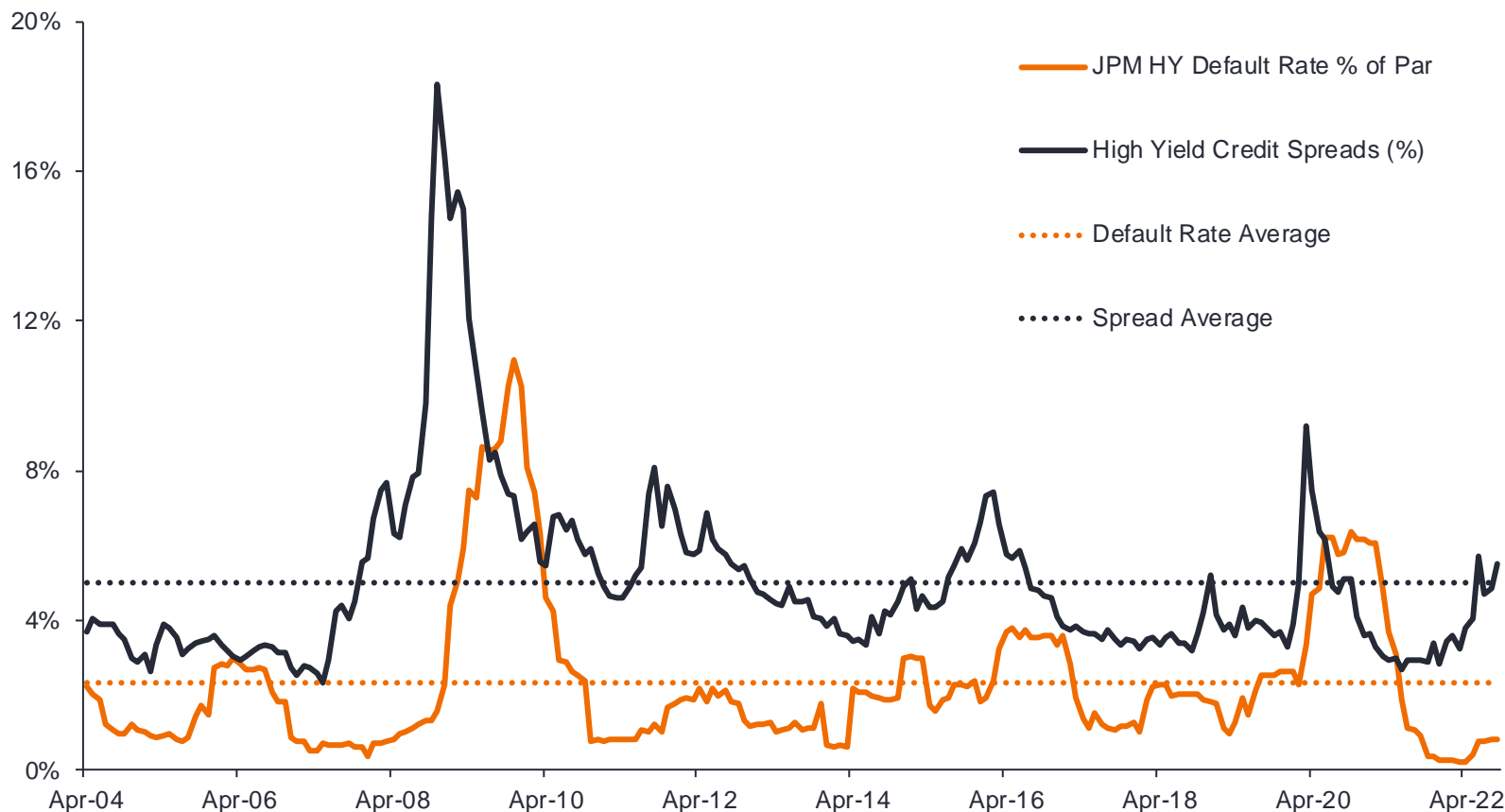
Source: Bloomberg, as of 30 September 2022.

Note: This data represents the Option-Adjusted Spread (OAS) of Bloomberg Corporate Bond Indices tracking the performance of U.S. dollar-denominated investment-grade rated and high-yield corporate debt publicly issued in the U.S. domestic market. OAS are the calculated spreads between a computed OAS index of all bonds in a given rating category and a spot Treasury curve. An OAS index is constructed using each constituent bond's OAS, weighted by market capitalization. When the last calendar day of the month takes place on the weekend, weekend observations will occur as a result of month ending accrued interest adjustments. Credit quality ratings are measured on a scale that generally ranges from Aaa (highest) to C (lowest).

Past performance is not a guarantee of future performance.

HIGH-YIELD CORPORATE DEFAULT RATES

Ultra-low rates and government initiatives have enabled high-yield issuers to avoid the wave of defaults that many had feared at the onset of pandemic-related lockdowns

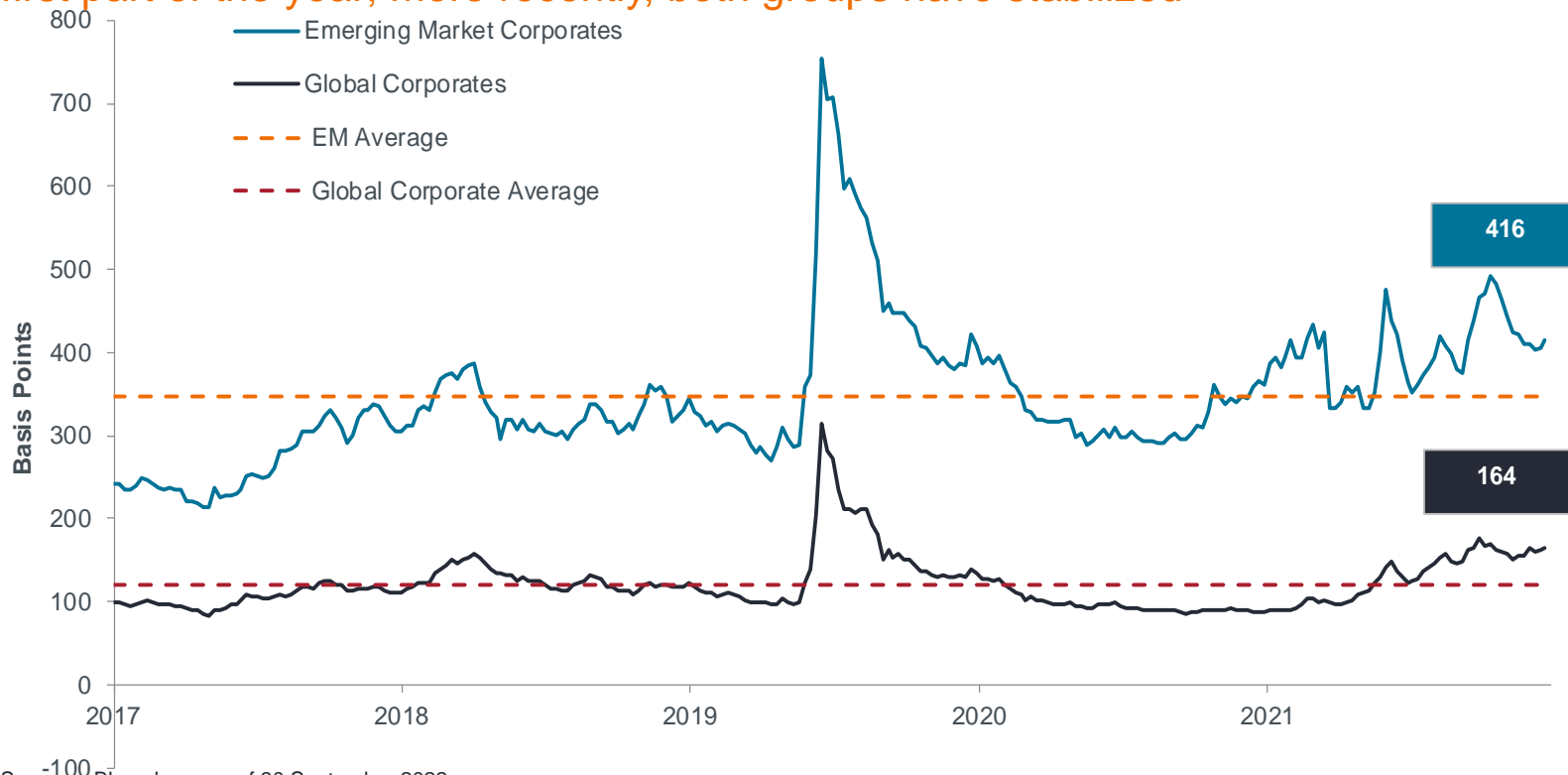


Source: JPMorgan, as of 30 September 2022.

Past performance is not a guarantee of future performance.

GLOBAL CORPORATE SPREADS

Given the degree to which they had drifted below their long-term averages, developed market credit spreads widened at a faster pace than those of emerging markets in the first part of the year; more recently, both groups have stabilized



Source: Bloomberg, as of 30 September 2022.

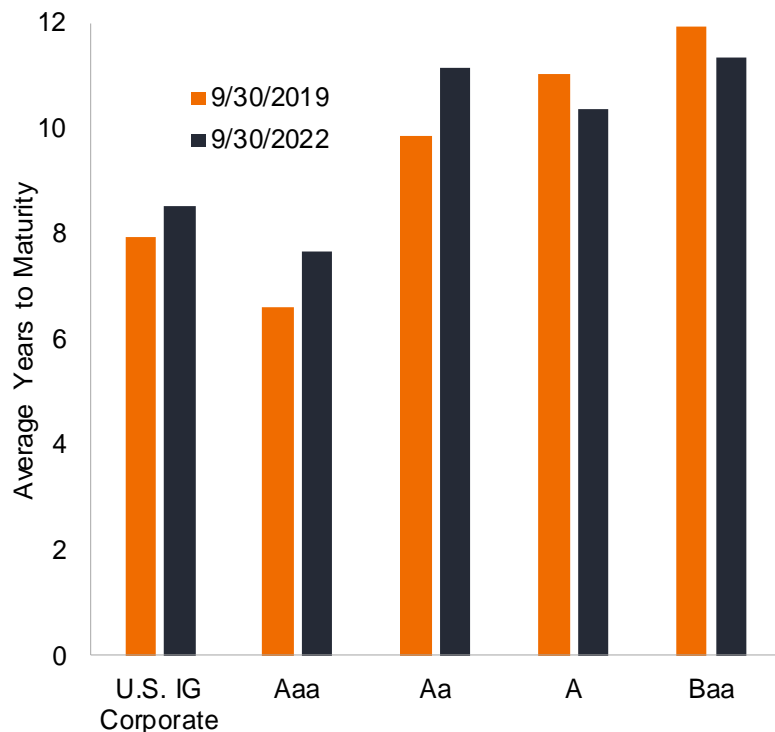
Note: This data represents the Option-Adjusted Spread (OAS) of Bloomberg Corporate Bond Indices tracking the performance of U.S. dollar-denominated investment-grade rated and high-yield corporate debt publicly issued in the U.S. domestic market. OAS are the calculated spreads between a computed OAS index of all bonds in a given rating category and a spot Treasury curve. An OAS index is constructed using each constituent bond's OAS, weighted by market capitalization. When the last calendar day of the month takes place on the weekend, weekend observations will occur as a result of month ending accrued interest adjustments.

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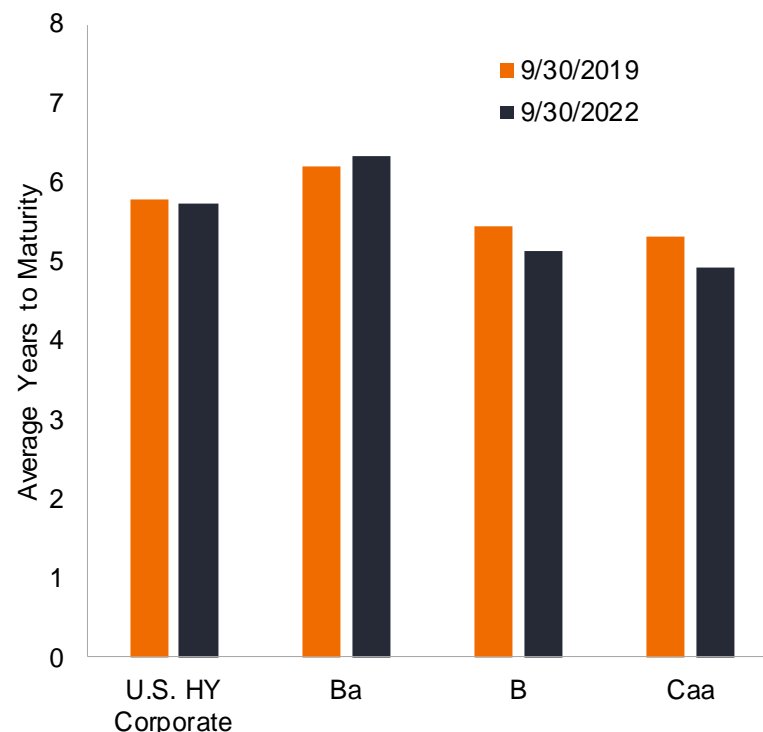
U.S. CORPORATE AVERAGE YEARS TO MATURITY

Maturity profiles for most segments of corporate bonds rose during the pandemic era as companies locked in low rates with the aim of increasing balance sheet resilience

Investment-Grade Maturity Profile by Rating



High-Yield Maturity Profile by Rating

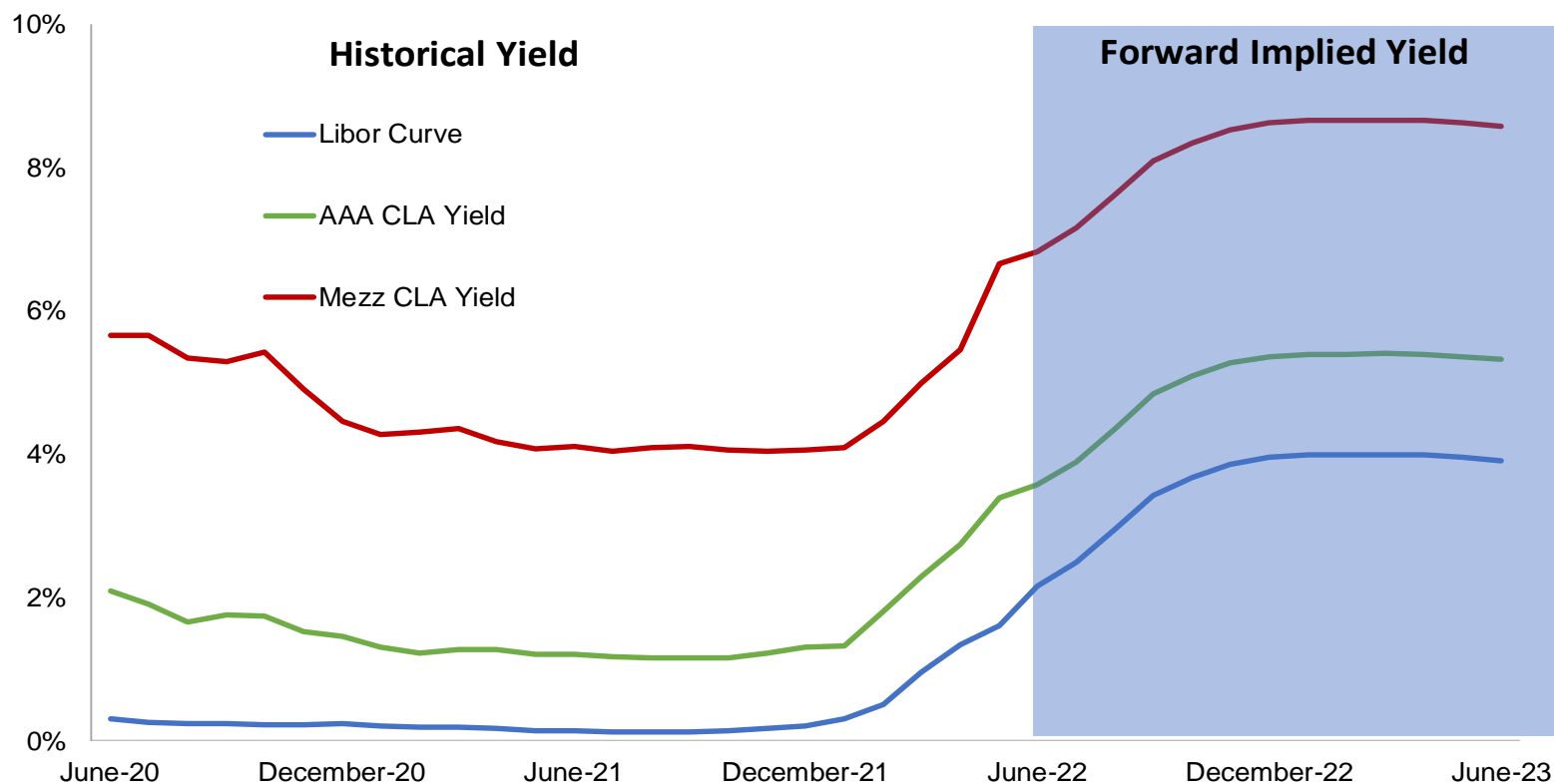


Source: Bloomberg, as of 30 September 2022.

Note: **Past performance is not a guarantee of future performance.**

HISTORICAL AND IMPLIED CLO YIELDS

With rates on the rise, yields on collateralized loan obligations appear well positioned as their reference rates potentially reset to higher levels



Source: Bloomberg, as of 30 September 2022.

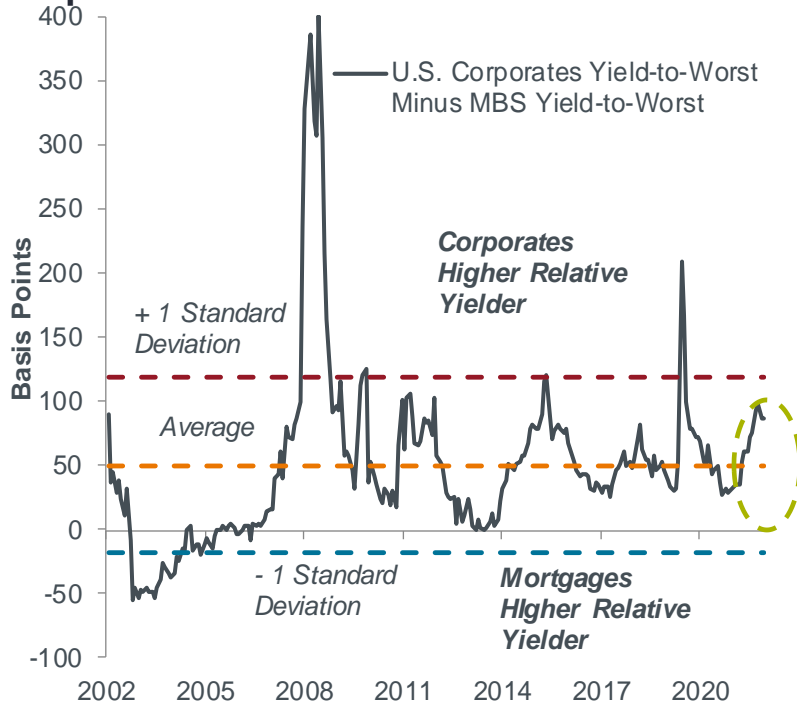
Note: JPMorgan CLOIE AAA Index and JPMorgan CLO High Quality Mezzanine Index historical spreads used for historical yield. Forward Implied Yield calculated using forward 3 Month LIBOR curve and historical average index spreads as of April 2022.

Past performance is not a guarantee of future performance.

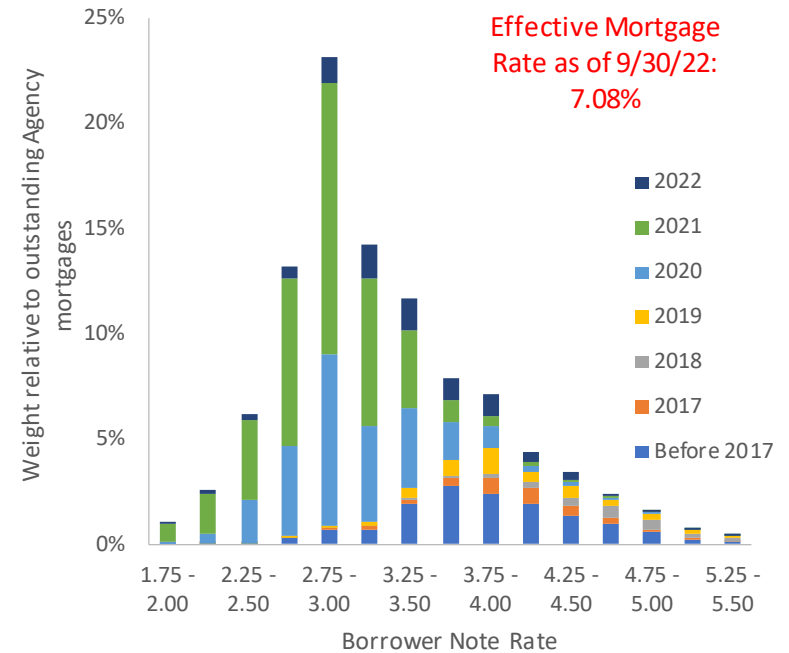
MORTGAGE-BACKED SECURITIES

With the lion's share of mortgages possessing interest rates lower than the prevailing rate, refinancing risk has likely been considerably reduced

Spread between MBS and Investment-Grade Corporate Bond Yields



Yield Profile of Mortgage Issuance by Year



Source: Bloomberg, as of 30 September 2022.

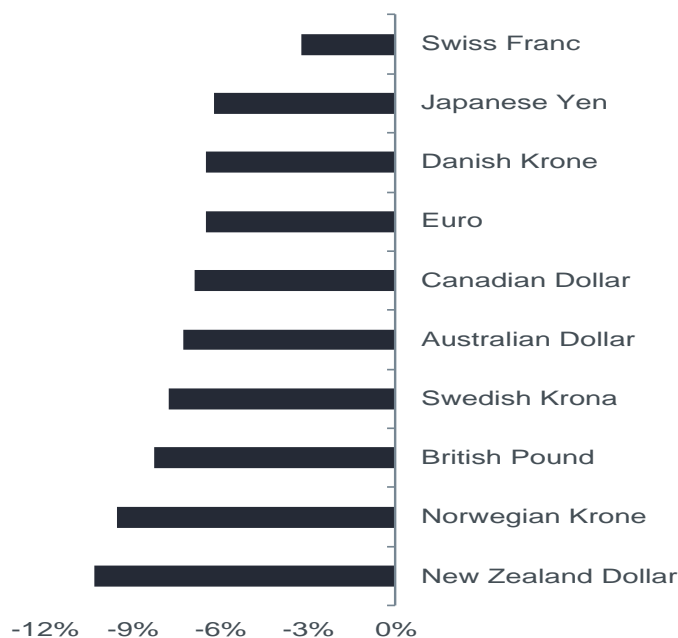
Note: **Past performance is not a guarantee of future performance.**

ALTERNATIVES

CURRENCY MARKETS AND ASSET CLASS CORRELATION

Higher U.S. rates continued to punish developed market currencies, which risked these countries being exposed to even more pronounced imported commodities inflation; meanwhile, sour investor sentiment pushed up correlations between equities and bonds

Major Currency Q3 Returns versus U.S. Dollar



Q3 2022 Asset Class Correlations

	U.S. Equities	Developed Market Equities	Emerging Market Equities	U.S. Aggregate Bond Index	Short-Term Treasuries	Intermediate Treasuries	Investment-Grade Credit	High-Yield Credit	Commodities	Real Estate
U.S. Equities	1.00									
Developed Market Equities	0.97	1.00								
Emerging Market Equities	0.16	0.30	1.00							
U.S. Aggregate Bond Index	0.38	0.43	0.05	1.00						
Short-Term Treasuries	0.37	0.40	0.02	0.85	1.00					
Intermediate Treasuries	0.36	0.40	0.00	0.97	0.94	1.00				
Investment-Grade Credit	0.42	0.48	0.11	0.97	0.76	0.90	1.00			
High-Yield Credit	0.67	0.79	0.42	0.52	0.44	0.47	0.61	1.00		
Commodities	0.22	0.31	0.30	(0.03)	0.06	(0.01)	(0.03)	0.30	1.00	
Real Estate	0.75	0.80	0.29	0.54	0.49	0.54	0.58	0.76	0.23	1.00

Source: Bloomberg, as of 30 September 2022.

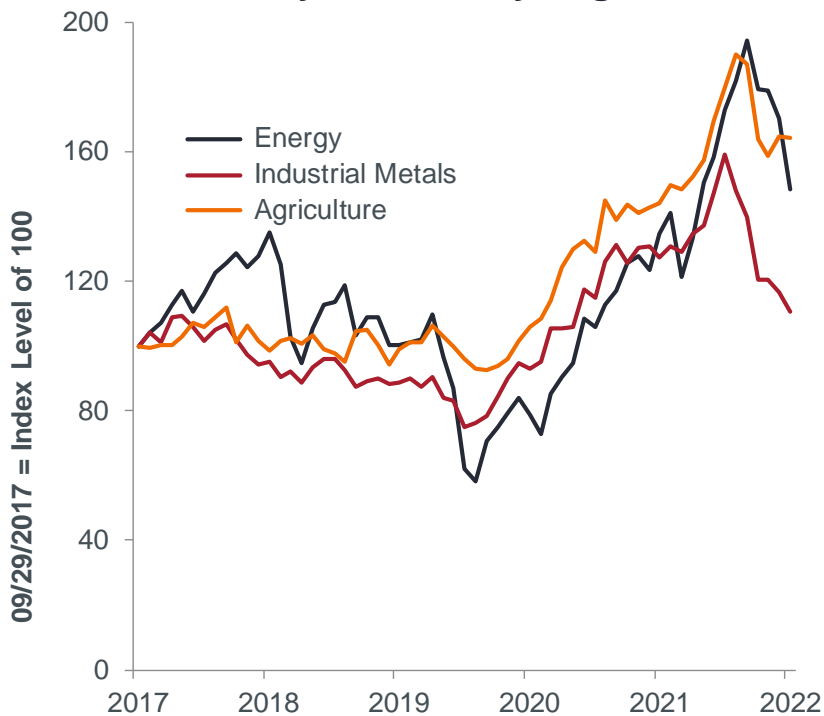
Note: Based on S&P 500® Index (U.S. Stocks), MSCI Emerging Market Index (Emerging Market Stocks), U.S. Aggregate Bond Index (Aggregate Bonds), U.S. Corporate High-Yield Index (High-Yield Bonds), S&P GSCI Index (Commodities), U.S. Intermediate Treasuries Index (Intermediate Treasuries), U.S. Aggregate Corporate Credit Index (Investment-Grade Bonds), U.S. 1-3 Year Treasury Index (Short-Term Treasuries), FTSE EPRA Nareit Global REITS Index (Real Estate).

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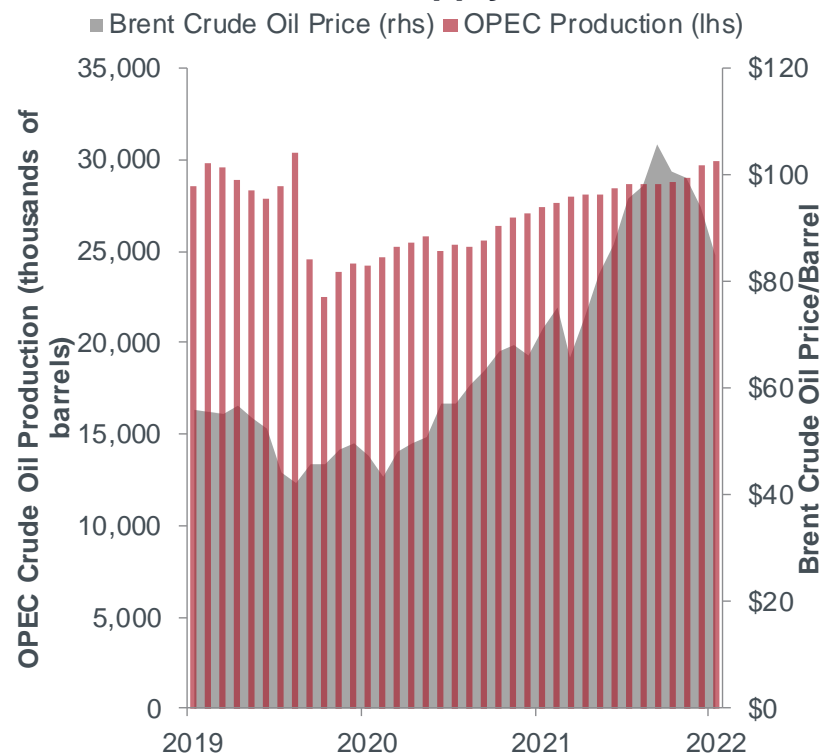
COMMODITIES

While cuts to production may support energy prices, metals weakness may be more reflective of underlying industrial demand

Total Returns by Commodity Segment



Crude Oil Prices and Supply



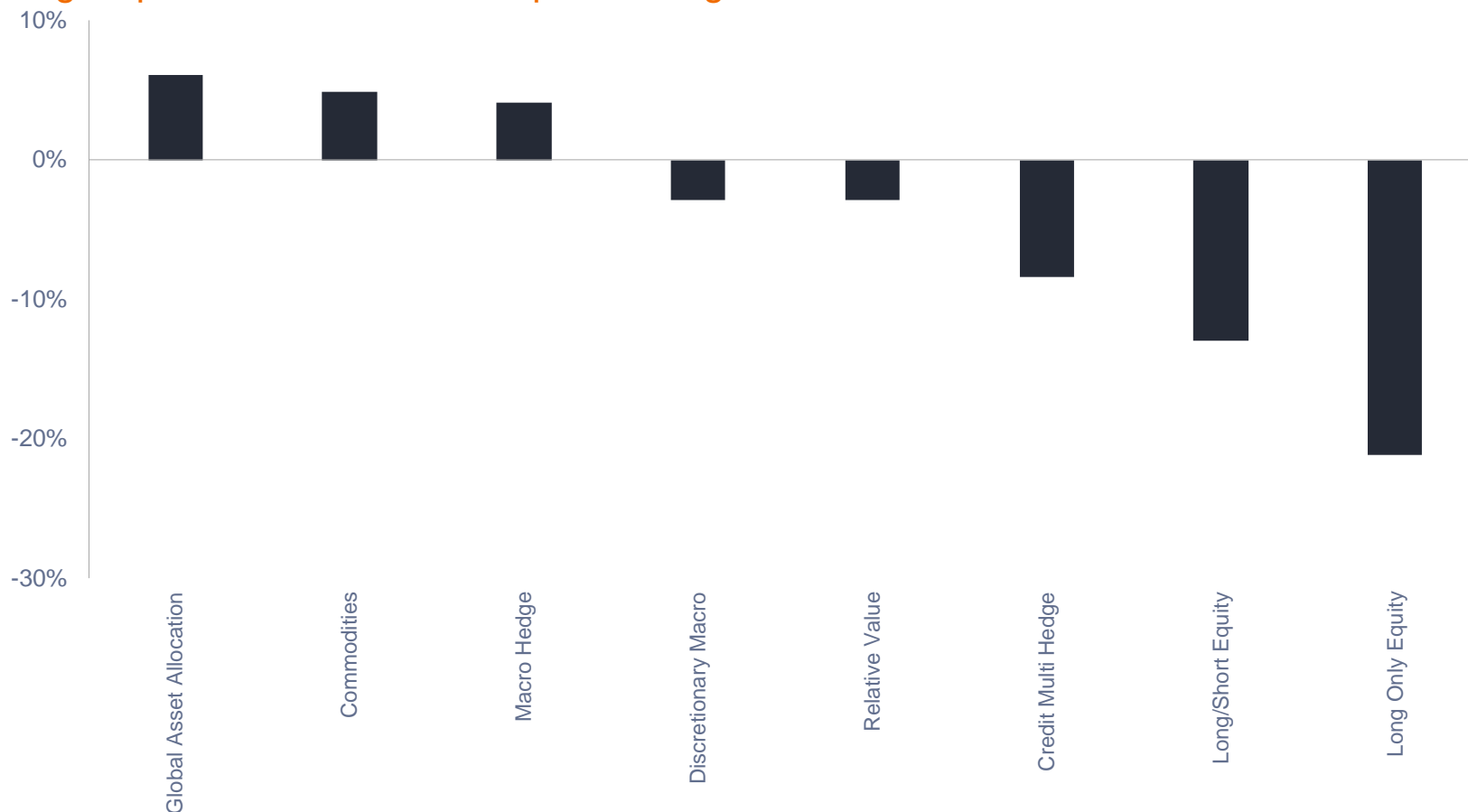
Source: Bloomberg, as of 30 September 2022.

Note: Commodity prices based on UBS Bloomberg CMCI Indices.

Past performance is not a guarantee of future performance.

ALTERNATIVE STRATEGY Q3 2022 RETURNS

With inflation elevated, it is little surprise that commodities-focused and macro hedge strategies performed well while equities caught the brunt of weaker economic outlook



Source: Bloomberg, as of 30 September 2022.

Note: All strategies based on Bloomberg Hedge Fund Indices.

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Important risks

Fixed income securities are subject to interest rate, inflation, credit and default risk. The bond market is volatile. As interest rates rise, bond prices usually fall, and vice versa. The return of principal is not guaranteed, and prices may decline if an issuer fails to make timely payments or its credit strength weakens.

High-yield or "junk" bonds involve a greater risk of default and price volatility and can experience sudden and sharp price swings.

Equity securities are subject to risks including market risk. Returns will fluctuate in response to issuer, political and economic developments.

Alternative investments include, but are not limited to, commodities, real estate, currencies, hedging strategies, futures, structured products, and other securities intended to be less correlated to the market. They are typically subject to increased risk and are not suitable for all investors.

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