



# Investing beyond the cycle: A Guide to the Markets

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J.P. Morgan Asset Management  
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## Agenda

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- 1. The U.S. outlook and the Fed**
2. The global outlook and the dollar
3. Investment opportunities
4. Principles of long-term investing



# Fed tightening and recession fears have sent markets tumbling so far this year.

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																2007 - 2021	
2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	YTD	Ann.	Vol.
EM Equity 39.8%	Fixed Income 5.2%	EM Equity 79.0%	REITs 27.9%	REITs 8.3%	REITs 19.7%	Small Cap 38.8%	REITs 28.0%	REITs 2.8%	Small Cap 21.3%	EM Equity 37.8%	Cash 1.8%	Large Cap 31.5%	Small Cap 20.0%	REITs 41.3%	Comdty. 20.1%	Large Cap 10.6%	REITs 23.2%
Comdty. 16.2%	Cash 1.8%	High Yield 59.4%	Small Cap 26.9%	Fixed Income 7.8%	High Yield 19.6%	Large Cap 32.4%	Large Cap 13.7%	Large Cap 1.4%	High Yield 14.3%	DM Equity 25.6%	Fixed Income 0.0%	REITs 28.7%	EM Equity 18.7%	Large Cap 28.7%	Cash 0.9%	Small Cap 8.7%	EM Equity 22.9%
DM Equity 11.6%	Asset Alloc. 25.4%	DM Equity 32.5%	EM Equity 19.2%	High Yield 3.1%	EM Equity 18.6%	DM Equity 23.3%	Fixed Income 6.0%	Fixed Income 0.5%	Large Cap 12.0%	Large Cap 21.8%	REITs -4.0%	Small Cap 25.5%	Large Cap 18.4%	Comdty. 27.1%	Fixed Income -16.0%	REITs 7.5%	Small Cap 22.5%
Asset Alloc. 7.1%	High Yield -26.9%	REITs 28.0%	Comdty. 16.8%	Large Cap 2.1%	DM Equity 17.9%	Asset Alloc. 14.9%	Asset Alloc. 5.2%	Cash 0.0%	Comdty. 11.8%	Small Cap 14.6%	High Yield -4.1%	DM Equity 22.7%	Asset Alloc. 10.6%	Small Cap 14.8%	Asset Alloc. -16.6%	High Yield 6.6%	Comdty. 19.1%
Fixed Income 7.0%	Small Cap -33.8%	Small Cap 27.2%	Large Cap 15.1%	Cash 0.1%	Small Cap 16.3%	High Yield 7.3%	Small Cap 4.9%	DM Equity -0.4%	EM Equity 11.6%	Asset Alloc. 14.6%	Large Cap -4.4%	Asset Alloc. 19.5%	DM Equity 8.3%	Asset Alloc. 13.5%	High Yield -17.6%	Asset Alloc. 6.1%	DM Equity 18.9%
Large Cap 5.5%	Comdty. -35.6%	Large Cap 26.5%	High Yield 14.8%	Asset Alloc. -0.7%	Large Cap 16.0%	REITs 2.9%	Cash 0.0%	Asset Alloc. -2.0%	REITs 8.6%	High Yield 10.4%	Asset Alloc. -5.8%	EM Equity 18.9%	Fixed Income 7.5%	DM Equity 11.8%	Small Cap -19.0%	EM Equity 4.8%	Large Cap 16.9%
Cash 4.8%	Large Cap -37.0%	Asset Alloc. 25.0%	Asset Alloc. 13.3%	Small Cap -4.2%	Asset Alloc. 12.2%	Cash 0.0%	High Yield 0.0%	High Yield -2.7%	Asset Alloc. 8.3%	REITs 8.7%	Small Cap -11.0%	High Yield 12.6%	High Yield 7.0%	High Yield 1.0%	Large Cap -19.8%	DM Equity 4.1%	High Yield 12.2%
High Yield 3.2%	REITs -37.7%	Comdty. 18.9%	DM Equity 8.2%	DM Equity -11.7%	Fixed Income 4.2%	Fixed Income -2.0%	EM Equity -1.8%	Small Cap -4.4%	Fixed Income 2.6%	Fixed Income 3.5%	Comdty. -11.2%	Fixed Income 8.7%	Cash 0.5%	Cash 0.0%	DM Equity -21.9%	Fixed Income 4.1%	Asset Alloc. 11.7%
Small Cap -1.6%	DM Equity -43.1%	Fixed Income 5.9%	Fixed Income 6.5%	Comdty. -13.3%	Cash 0.1%	EM Equity -2.3%	DM Equity -4.5%	EM Equity -14.6%	DM Equity 1.5%	Comdty. 1.7%	DM Equity -13.4%	Comdty. 7.7%	Comdty. -3.1%	Fixed Income -1.5%	EM Equity -26.1%	Cash 0.8%	Fixed Income 3.3%
REITs -15.7%	EM Equity -53.2%	Cash 0.1%	Cash 0.1%	EM Equity -18.2%	Comdty. -1.1%	Comdty. -9.5%	Comdty. -17.0%	Comdty. -24.7%	Cash 0.3%	Cash 0.8%	EM Equity -14.2%	Cash 2.2%	REITs -5.1%	EM Equity -2.2%	REITs -26.6%	Comdty. -2.6%	Cash 0.7%

Source: Bloomberg, FactSet, MSCI, NAREIT, Russell, Standard & Poor's, J.P. Morgan Asset Management.  
 Large cap: S&P 500, Small cap: Russell 2000, EM Equity: MSCI EME, DM Equity: MSCI EAFE, Comdty: Bloomberg Commodity Index, High Yield: Bloomberg Global HY Index, Fixed Income: Bloomberg US Aggregate, REITs: NAREIT Equity REIT Index, Cash: Bloomberg 1-3m Treasury. The "Asset Allocation" portfolio assumes the following weights: 25% in the S&P 500, 10% in the Russell 2000, 15% in the MSCI EAFE, 5% in the MSCI EME, 25% in the Bloomberg US Aggregate, 5% in the Bloomberg 1-3m Treasury, 5% in the Bloomberg Global High Yield Index, 5% in the Bloomberg Commodity Index and 5% in the NAREIT Equity REIT Index. Balanced portfolio assumes annual rebalancing. Annualized (Ann.) return and volatility (Vol.) represents period from 12/31/2006 to 12/31/2021. Please see disclosure page at end for index definitions. All data represents total return for stated period. The "Asset Allocation" portfolio is for illustrative purposes only. Past performance is not indicative of future returns.  
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# The U.S. is not in recession yet, but it may soon enter one.

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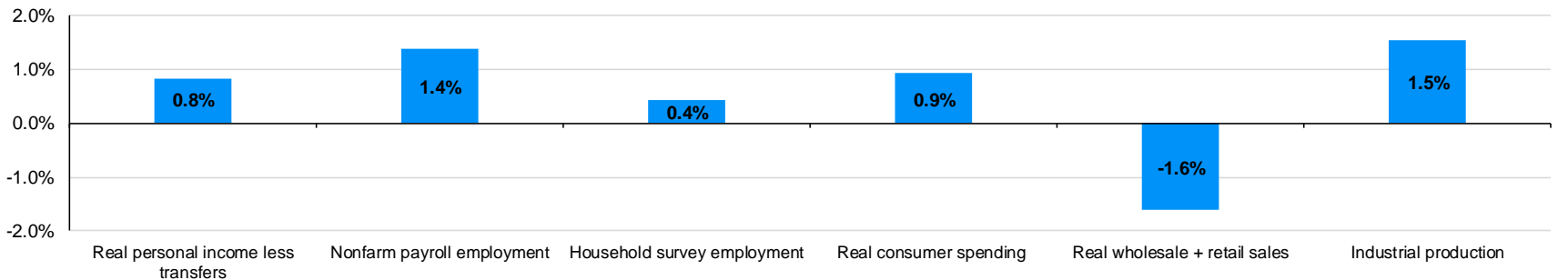
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## Variables used by the NBER in making recession determination\*

% change month-over-month



% change, last six months



Source: Bureau of Economic Analysis, Bureau of Labor Statistics, Census Bureau, Federal Reserve of St. Louis, NBER, J.P. Morgan Asset Management. Heatmap shading reflects 10 years of data, with green and red reflecting a range of +/- 0.5 standard deviations from a baseline of 0% monthly growth. \*The NBER's definition of a recession involves a significant decline in economic activity that is spread across the economy and lasts more than a few months. Because a recession must influence the economy broadly and not be confined to one sector, the committee emphasizes economy-wide measures of economic activity. Specifically, they consider real personal income less transfers, nonfarm payroll employment, employment as measured by the household survey, real personal consumption expenditures, wholesale-retail sales adjusted for price changes and industrial production. There is no fixed rule about what measures contribute to the process or how they are weighted, but the committee notes that "in recent decades, the two measures we have put the most weight on are real personal income less transfers and nonfarm payroll employment."

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# However, any recession would likely be mild because cyclical sectors aren't at extremes...

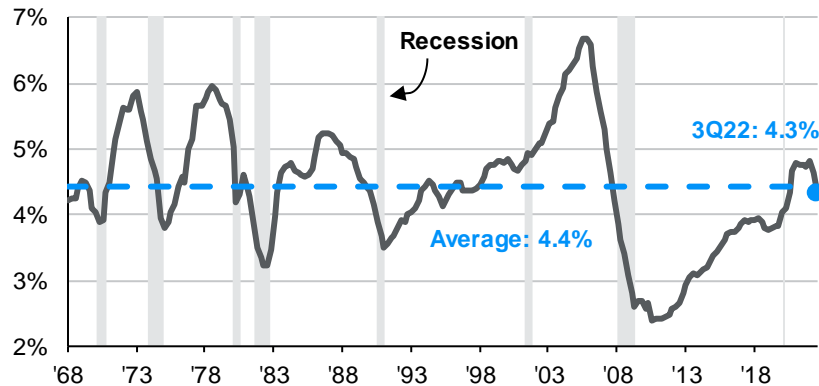
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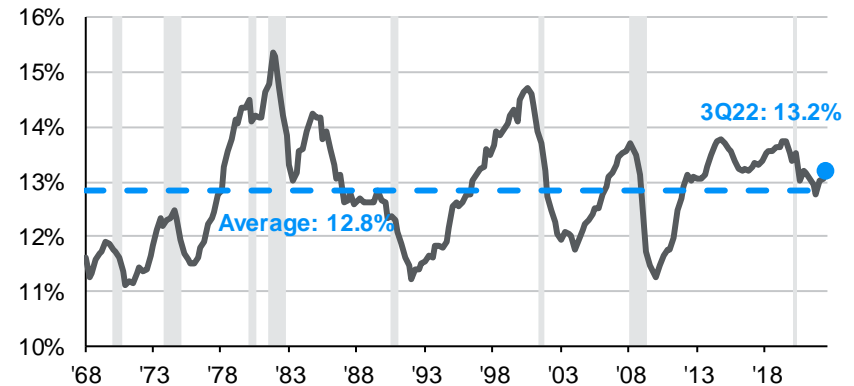
## Residential investment as a % of GDP

Quarterly, seasonally adjusted



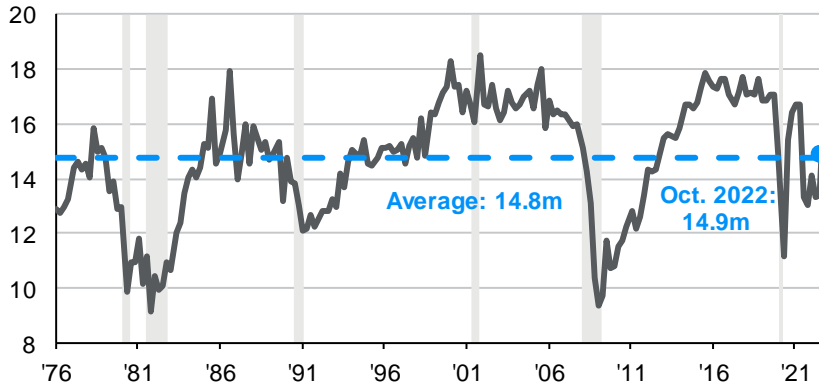
## Business fixed investment as a % of GDP

Quarterly, seasonally adjusted



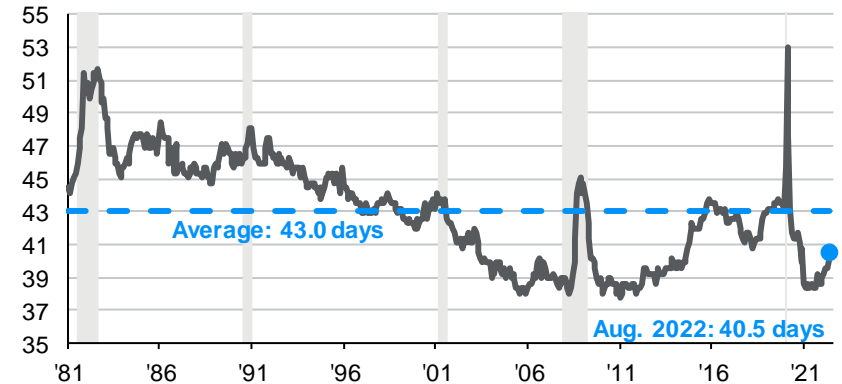
## Light vehicle sales

Mil vehicles, seasonally adjusted ann. rate



## Total business inventory/sales ratio

Days of sales, monthly, seasonally adjusted



Source: BEA, Census Bureau, FactSet, J.P. Morgan Asset Management. Data for light vehicle sales is quarterly apart from the latest monthly data point.

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# ...and there remains significant excess demand for labor.

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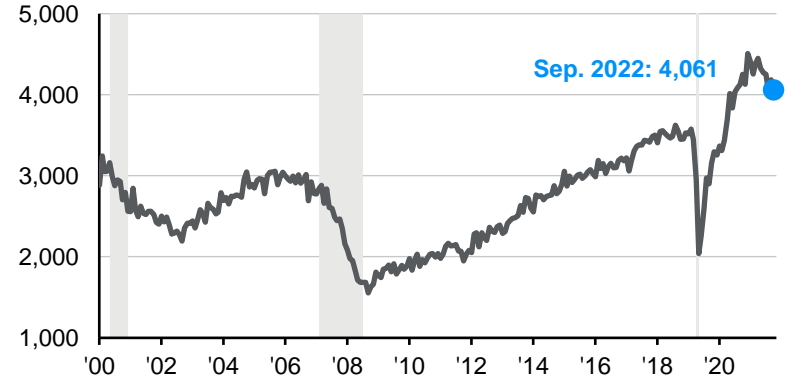
## Ratio of job openings to job seekers

Job openings\* lagged 1 month divided by unemployed persons, SA



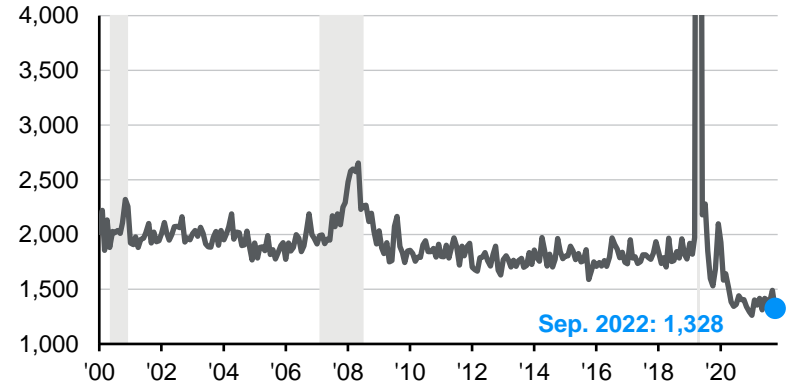
## JOLTS quits

Total nonfarm quits, thousands, seasonally adjusted



## JOLTS layoffs

Total nonfarm layoffs, thousands, seasonally adjusted



Source: U.S. Department of Labor, J.P. Morgan Asset Management. \*JOLTS job openings from February 1974 to November 2000 are J.P. Morgan Asset Management estimates.  
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# Inflation is now falling after peaking in June...

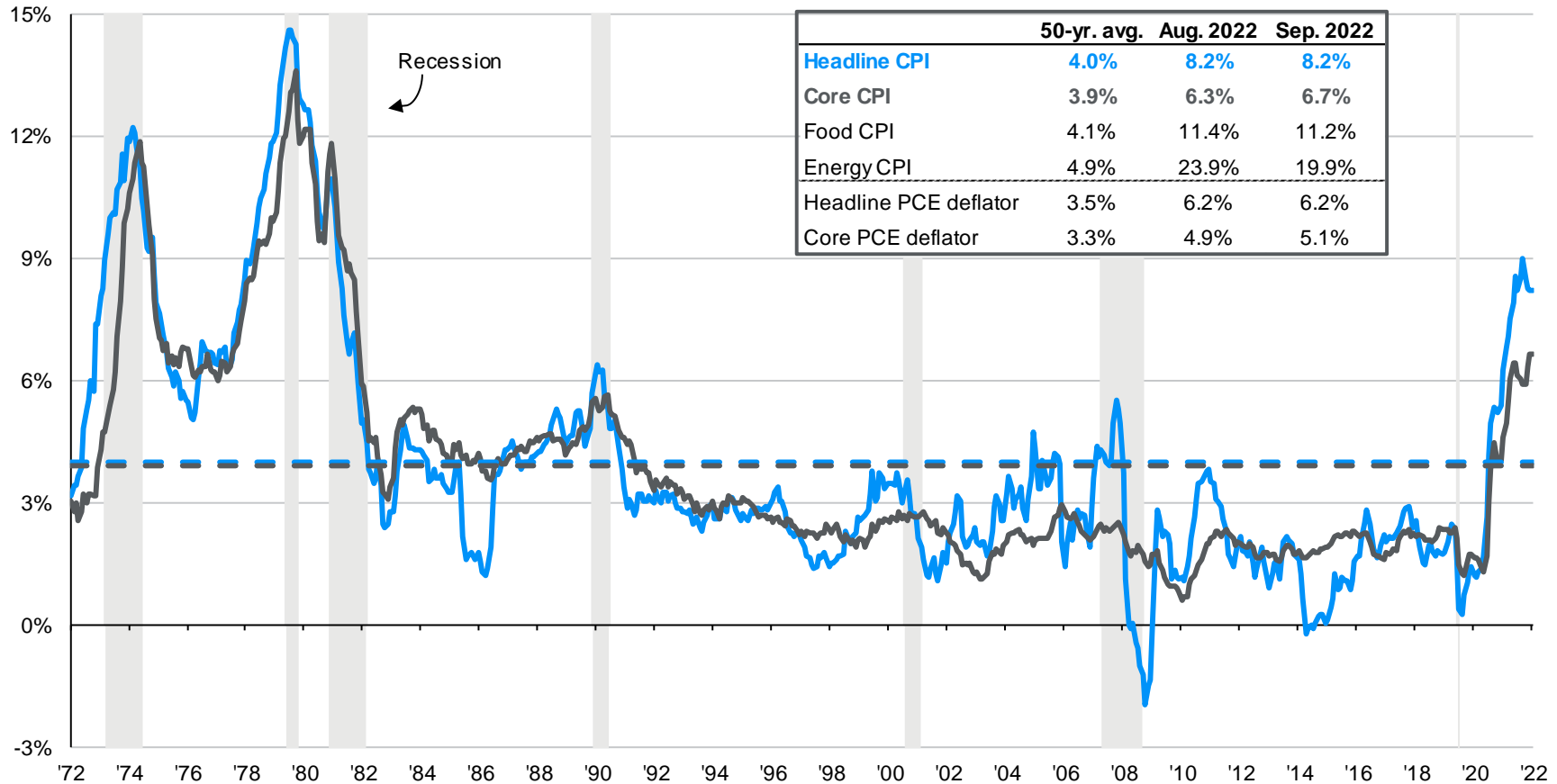
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## CPI and core CPI

% change vs. prior year, seasonally adjusted



Source: BLS, FactSet, J.P. Morgan Asset Management.

CPI used is CPI-U and values shown are % change vs. one year ago. Core CPI is defined as CPI excluding food and energy prices. The Personal Consumption Expenditure (PCE) deflator employs an evolving chain-weighted basket of consumer expenditures instead of the fixed-weight basket used in CPI calculations.

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# ...driven by declines in supply-driven inflation, but sticky inflation remains.

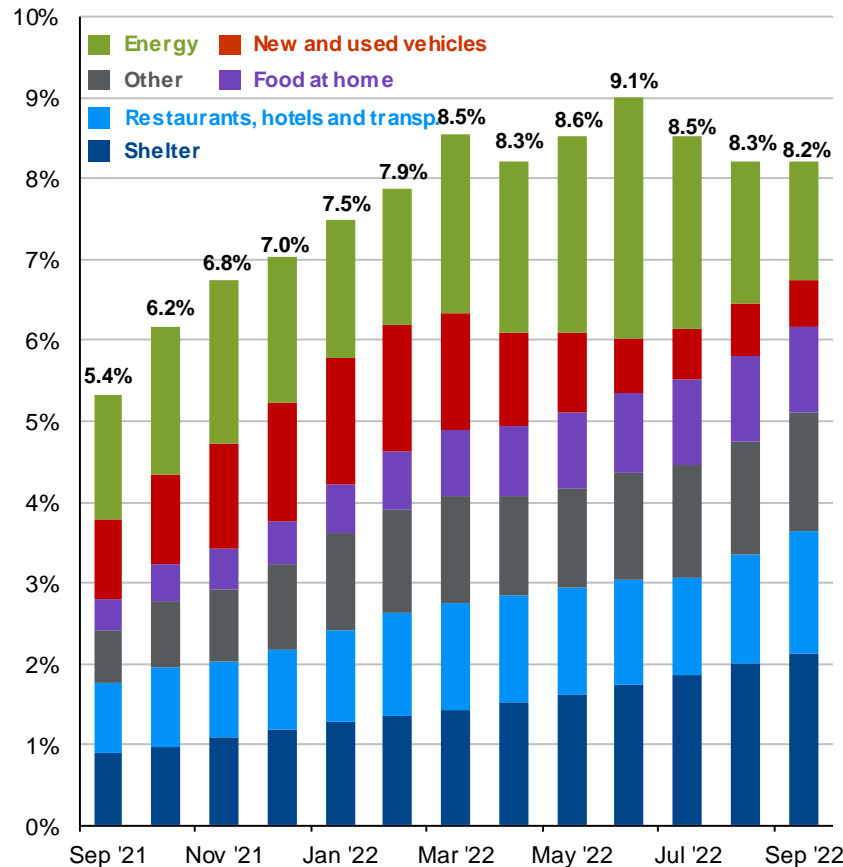
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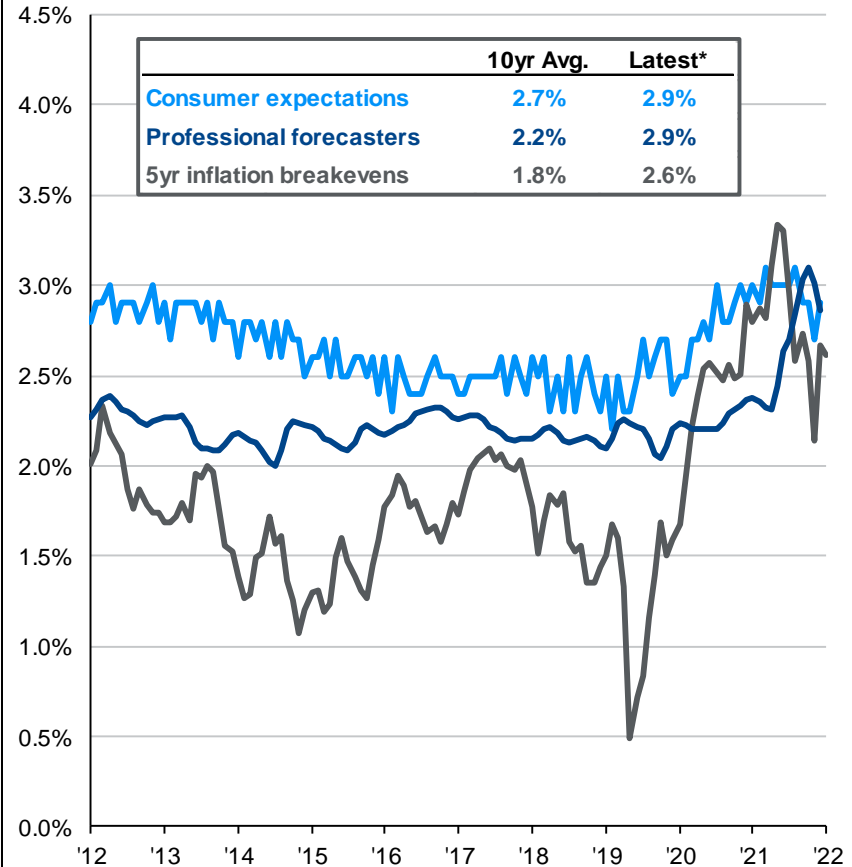
## Contributors to headline inflation

Contribution to y/y % change in CPI, not seasonally adjusted



## Inflation expectations, next 5 years

% change vs. prior year, non-seasonally adjusted



Source: Bureau of Labor Statistics, FactSet, Federal Reserve Bank of Philadelphia, University of Michigan, J.P. Morgan Asset Management. Contributions mirror the BLS methodology on Table 7 of the CPI report. Values may not sum to headline CPI figures due to rounding and underlying calculations. "Shelter" includes owners equivalent rent and rent of primary residence. "Other" primarily reflects household furnishings, apparel, education and communication services, medical care services and other personal services. Professional forecasters reflects the latest quarterly Survey of Professional Forecasters. The Survey of Professional Forecasters is conducted by the Federal Reserve Bank of Philadelphia and reflects the median estimate by professional forecasters of average CPI inflation over the next 5 years. *Guide to the Markets* – U.S. Data are as of November 4, 2022.



# Profits are likely to fall from very high levels.

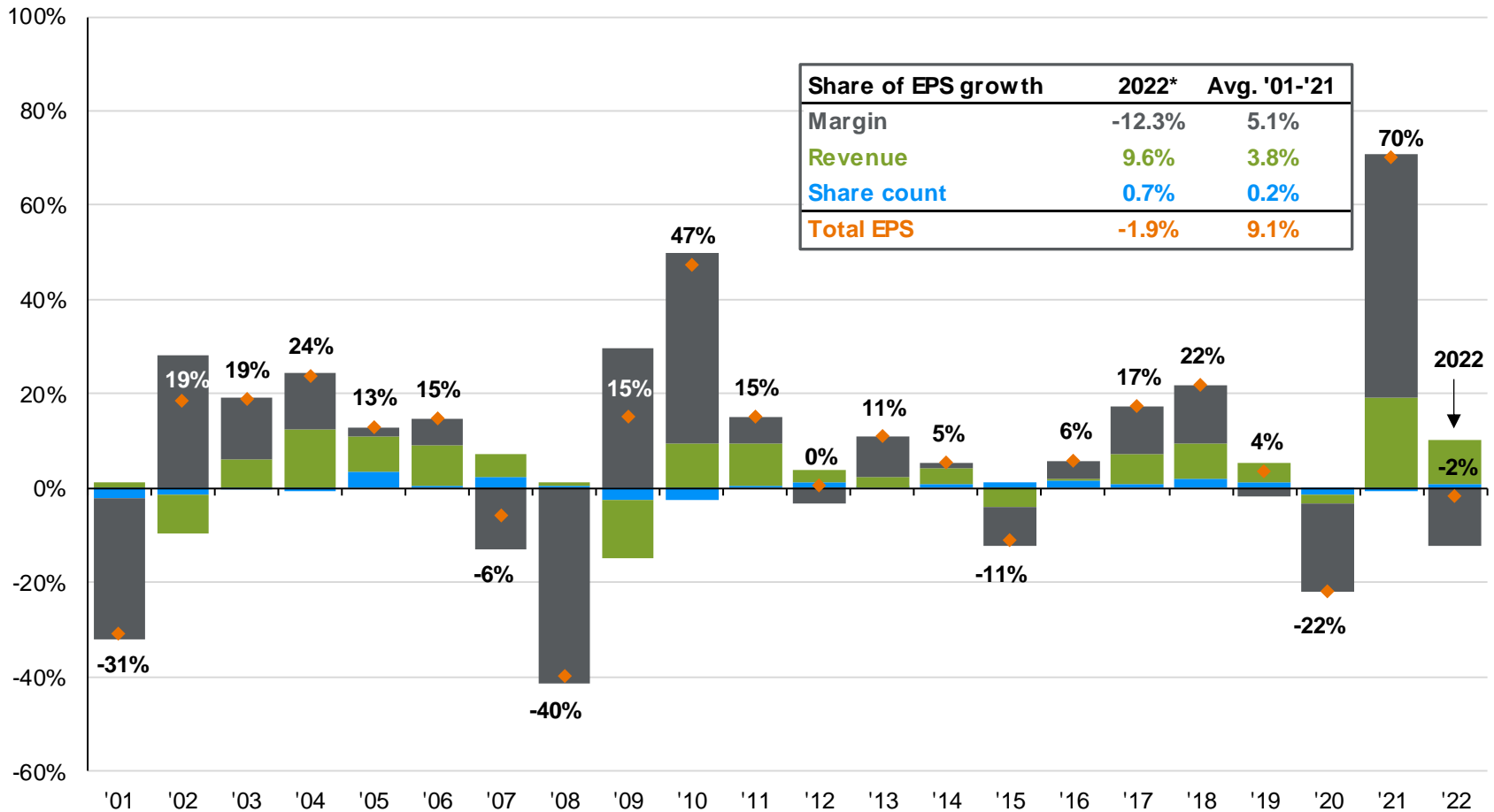
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## S&P 500 year-over-year operating EPS growth

Annual growth broken into revenue, changes in profit margin & changes in share count



Source: Compustat, FactSet, Standard & Poor's, J.P. Morgan Asset Management.

EPS levels are based on annual operating earnings per share. \*2022 earnings figures are based on weekly operating earnings estimates from Standard & Poor's. Percentages may not sum due to rounding. Past performance is not indicative of future returns.

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# The Fed continues to raise rates aggressively.

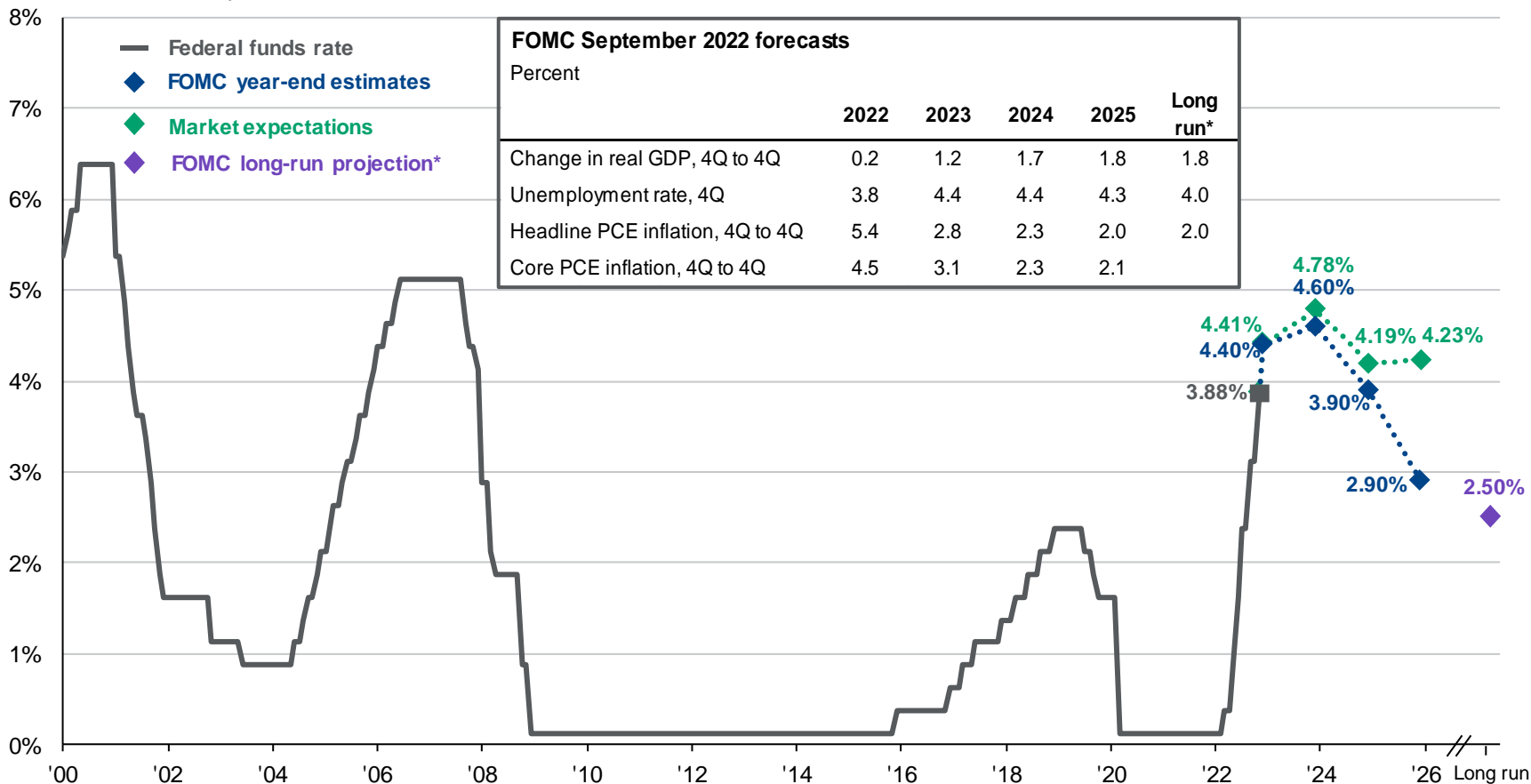
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## Federal funds rate expectations

FOMC and market expectations for the federal funds rate



Source: Bloomberg, FactSet, Federal Reserve, J.P. Morgan Asset Management.

Market expectations are based off of the respective Federal Funds Futures contracts for December expiry. \*Long-run projections are the rates of growth, unemployment and inflation to which a policymaker expects the economy to converge over the next five to six years in absence of further shocks and under appropriate monetary policy. Forecasts are not a reliable indicator of future performance. Forecasts, projections and other forward-looking statements are based upon current beliefs and expectations. They are for illustrative purposes only and serve as an indication of what may occur. Given the inherent uncertainties and risks associated with forecasts, projections or other forward-looking statements, actual events, results or performance may differ materially from those reflected or contemplated.

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4. Principles of long-term investing



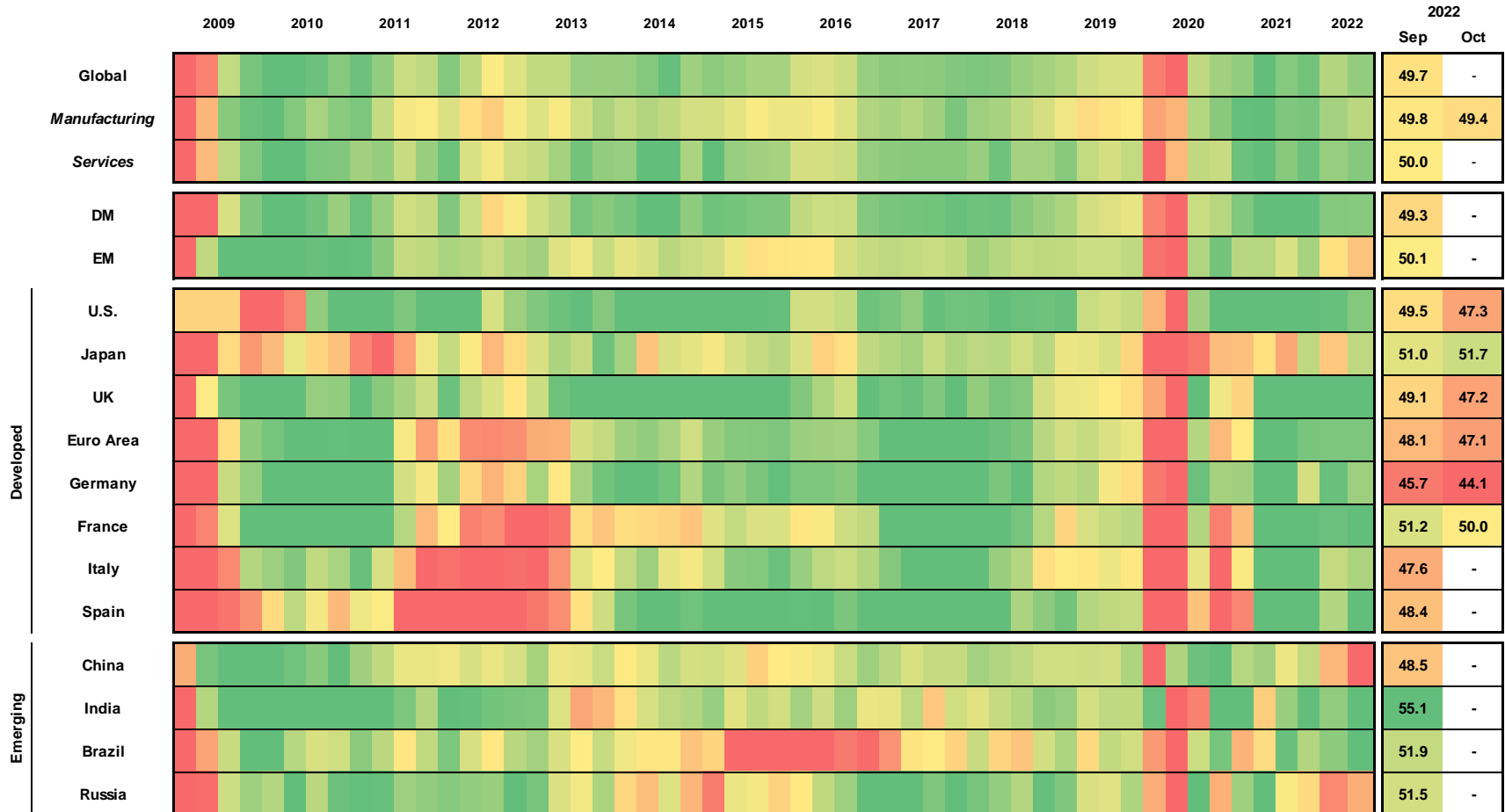
# Global momentum has slowed significantly...

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**Global Composite (manufacturing & services combined) Purchasing Managers' Index, quarterly**



Source: Standard & Poor's, J.P. Morgan Asset Management.

The Composite PMI includes both manufacturing and services sub-indices. Heatmap colors are based on PMI relative to the 50 level, which indicates acceleration or deceleration of the sector, for the time period shown. Heatmap is based on quarterly averages, with the exception of the two most recent figures, which are single month readings. Data for the U.S. are back-tested and filled in from December 2007 to September 2009 due to lack of existing PMI figures. DM and EM represent developed markets and emerging markets, respectively. \*September Global Composite, Manufacturing and Services PMIs are J.P. Morgan Asset Management estimates. *Guide to the Markets – U.S.* Data are as of November 4, 2022.

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## ...contributing to a much higher dollar.

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### The U.S. dollar

U.S. Dollar Index



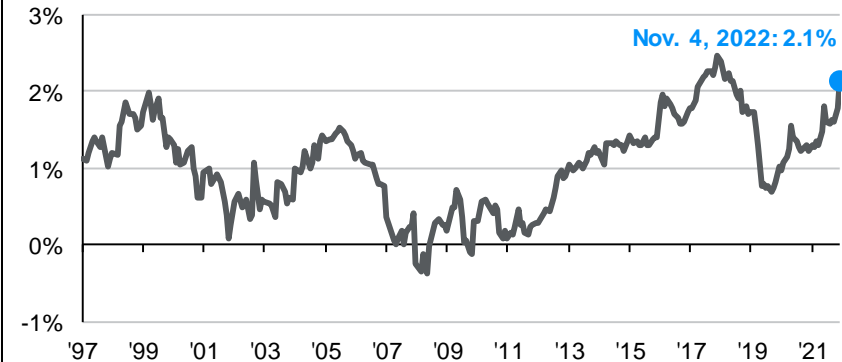
### The U.S. trade balance

Current account balance, % of GDP



### Developed markets interest rate differentials

Difference between U.S. and international 10-year yields\*



Source: J.P. Morgan Asset Management; (Left) FactSet, ICE; (Top right) Bureau of Economic Analysis, FactSet; (Bottom right) Tullett Prebon. Currencies in the DXY Index are: British pound, Canadian dollar, euro, Japanese yen, Swedish krona and Swiss franc. \*Interest rate differential is the difference between the 10-year U.S. Treasury yield and a basket of the 10-year yields of each major trading partner (Australia, Canada, Europe, Japan, Sweden, Switzerland and UK). Weights in the basket are calculated using the 10-year average of total government bonds outstanding in each region. Europe is defined as the 19 countries in the euro area. *Guide to the Markets – U.S.* Data are as of November 4, 2022.



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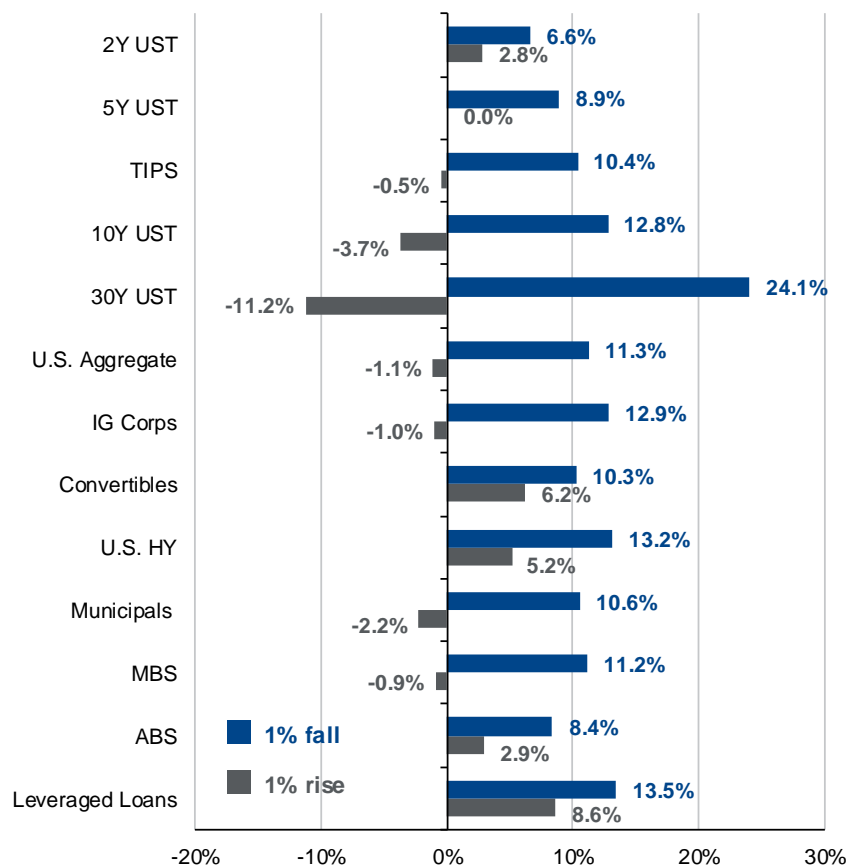
# Higher yields have made fixed income more attractive from both an income and portfolio perspective.

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U.S. Treasuries	Yield		Return		Avg. Maturity	Correlation to 10-year	Correlation to S&P 500
	11/4/2022	12/31/2021	2022 YTD				
2-Year	4.66%	0.73%	-5.06%	2 years	0.71	-0.25	
5-Year	4.33%	1.26%	-11.65%	5	0.93	-0.21	
TIPS	1.69%	-1.04%	-13.34%	10	0.61	0.31	
10-Year	4.17%	1.52%	-19.18%	10	1.00	-0.20	
30-Year	4.27%	1.90%	-37.28%	30	0.93	-0.22	
Sector							
U.S. Aggregate	5.10%	1.75%	-16.02%	8.5	0.86	0.16	
IG Corps	5.99%	2.33%	-19.80%	10.9	0.50	0.45	
Convertibles	7.87%	3.66%	-19.42%	-	-0.18	0.87	
U.S. HY	9.19%	4.21%	-13.24%	5.7	-0.14	0.75	
Municipals	4.18%	1.11%	-12.58%	12.8	0.47	0.19	
MBS	5.13%	1.98%	-14.95%	8.2	0.78	0.07	
ABS	6.11%	1.96%	-4.33%	3.4	-0.05	0.09	
Leveraged Loans	11.09%	4.60%	-1.34%	2.5	0.01	0.15	

## Impact of a 1% rise or fall in interest rates

Total return, assumes a parallel shift in the yield curve



Source: Bloomberg, FactSet, Standard & Poor's, U.S. Treasury, J.P. Morgan Asset Management. Sectors shown above are provided by Bloomberg unless otherwise noted and are represented by – U.S. Aggregate; MBS: U.S. Aggregate Securitized – MBS; ABS: J.P. Morgan ABS Index; Corporates: U.S. Corporates; Municipals: Muni Bond; High Yield: Corporate High Yield; Leveraged Loans: J.P. Morgan Leveraged Loan Index; TIPS: Treasury Inflation-Protected Securities; Convertibles: U.S. Convertibles Composite. Convertibles yield is as of most recent month end and is based on U.S. portion of Bloomberg Global Convertibles Index. Yield and return information based on bellwethers for Treasury securities. Sector yields reflect yield-to-worst. Convertibles yield is based on U.S. portion of Bloomberg Global Convertibles. Correlations are based on 15-years of monthly returns for all sectors. Past performance is not indicative of future results.  
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# Equities also look more reasonably priced after this year's sell-off.

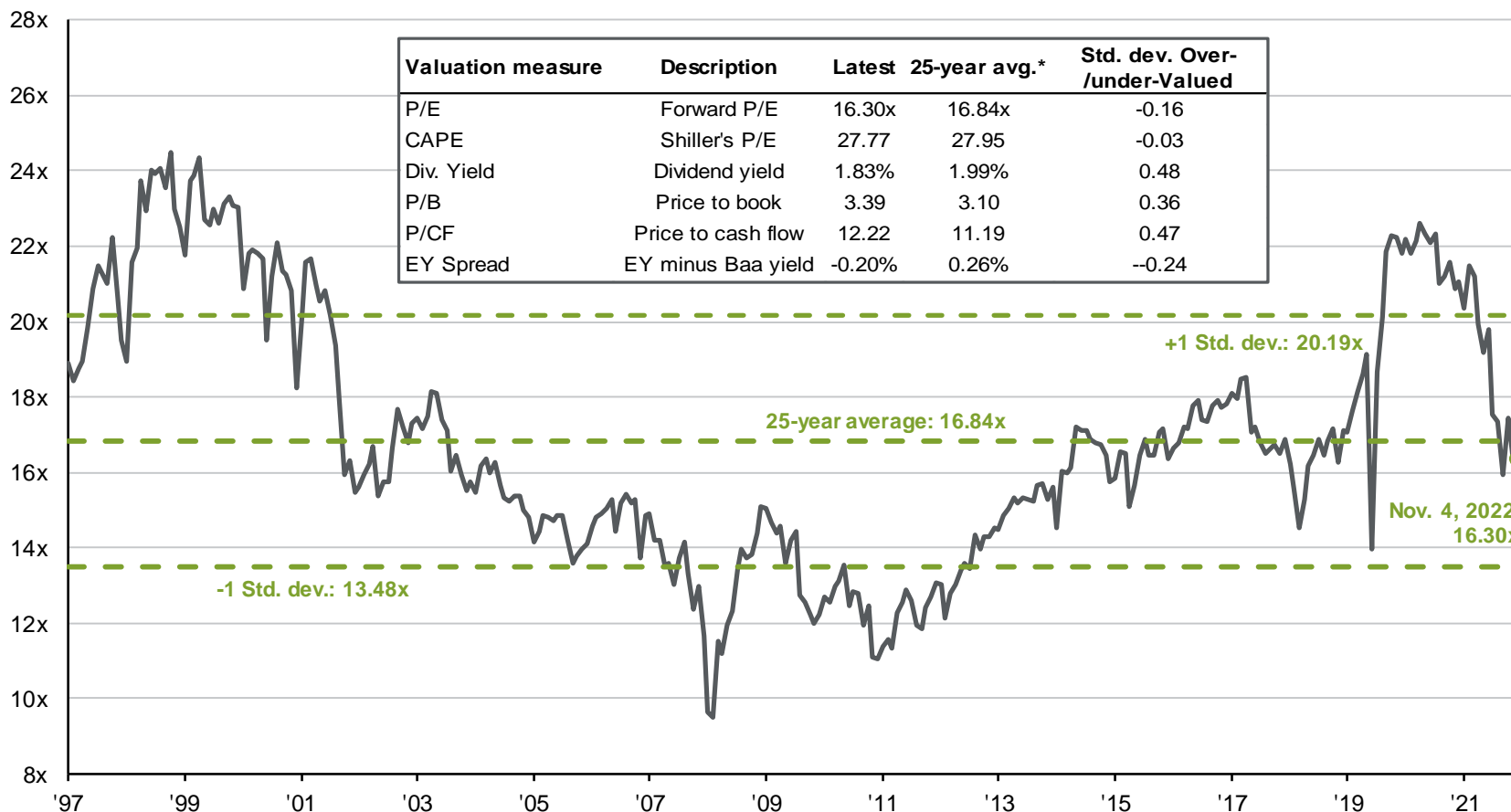
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Equities

## S&P 500 Index: Forward P/E ratio



Source: FactSet, FRB, Refinitiv Datastream, Robert Shiller, Standard & Poor's, Thomson Reuters, J.P. Morgan Asset Management.

Price-to-earnings is price divided by consensus analyst estimates of earnings per share for the next 12 months as provided by IBES since September 1997 and by FactSet since January 2022. Current next 12-months consensus earnings estimates are \$241. Average P/E and standard deviations are calculated using 25 years of history. Shiller's P/E uses trailing 10-years of inflation-adjusted earnings as reported by companies. Dividend yield is calculated as the next 12-months consensus dividend divided by most recent price. Price-to-book ratio is the price divided by book value per share. Price-to-cash flow is price divided by NTM cash flow. EY minus Baa yield is the forward earnings yield (consensus analyst estimates of EPS over the next 12 months divided by price) minus the Moody's Baa seasoned corporate bond yield. Std. dev. over-/under-valued is calculated using the average and standard deviation over 25 years for each measure. \*P/CF is a 20-year average due to cash flow availability.

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# Despite a recent rally from value stocks, they still look cheap relative to growth.

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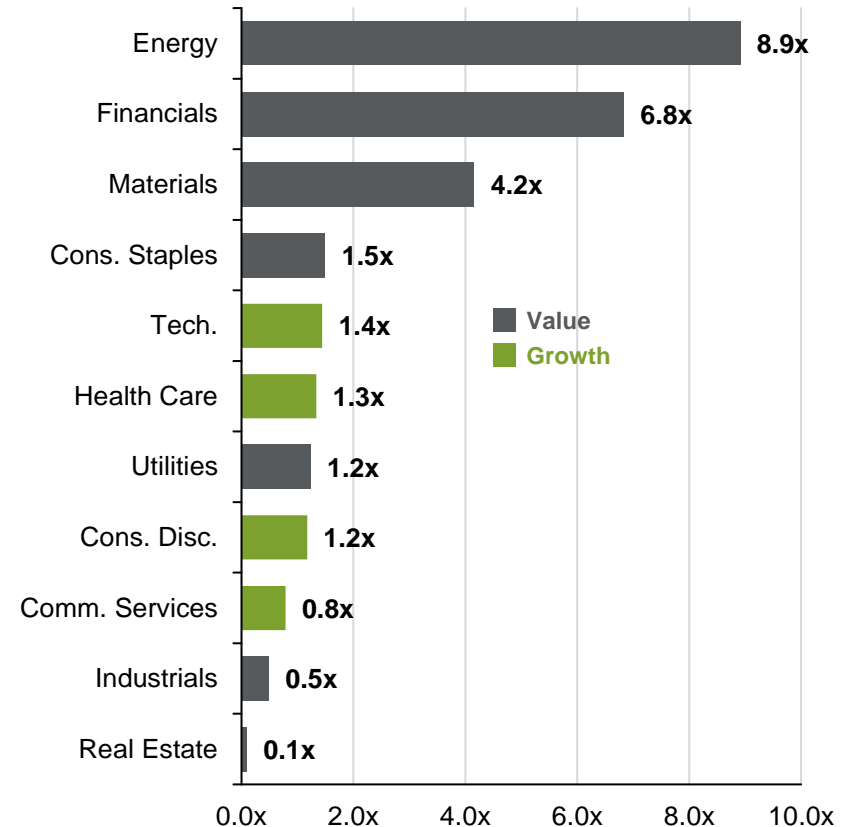
## Value vs. Growth relative valuations

Rel. fwd. P/E ratio of Value vs. Growth, 1997 - present



## S&P 500 operating leverage by sector

Impact on operating income from a 1% rise in revenues



Source: FactSet, FTSE Russell, NBER, J.P. Morgan Asset Management.

(Left) Growth is represented by the Russell 1000 Growth Index and Value is represented by the Russell 1000 Value Index. \*Long-term averages are calculated monthly since December 1997. \*\*Dividend yield is calculated as the next 12-month consensus dividend divided by most recent price. (Right) Operating leverage is a bottom-up calculation based on the 5-year compounded annual growth rate (CAGR) in EBIT divided by the 5-year CAGR in revenues. Each sector's operating leverage is weighted by market cap. Calculations use EBIT and revenue over the 5-year period between 2016 and 2021.

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# Valuation dispersion remains wide, pointing to opportunities in active management.

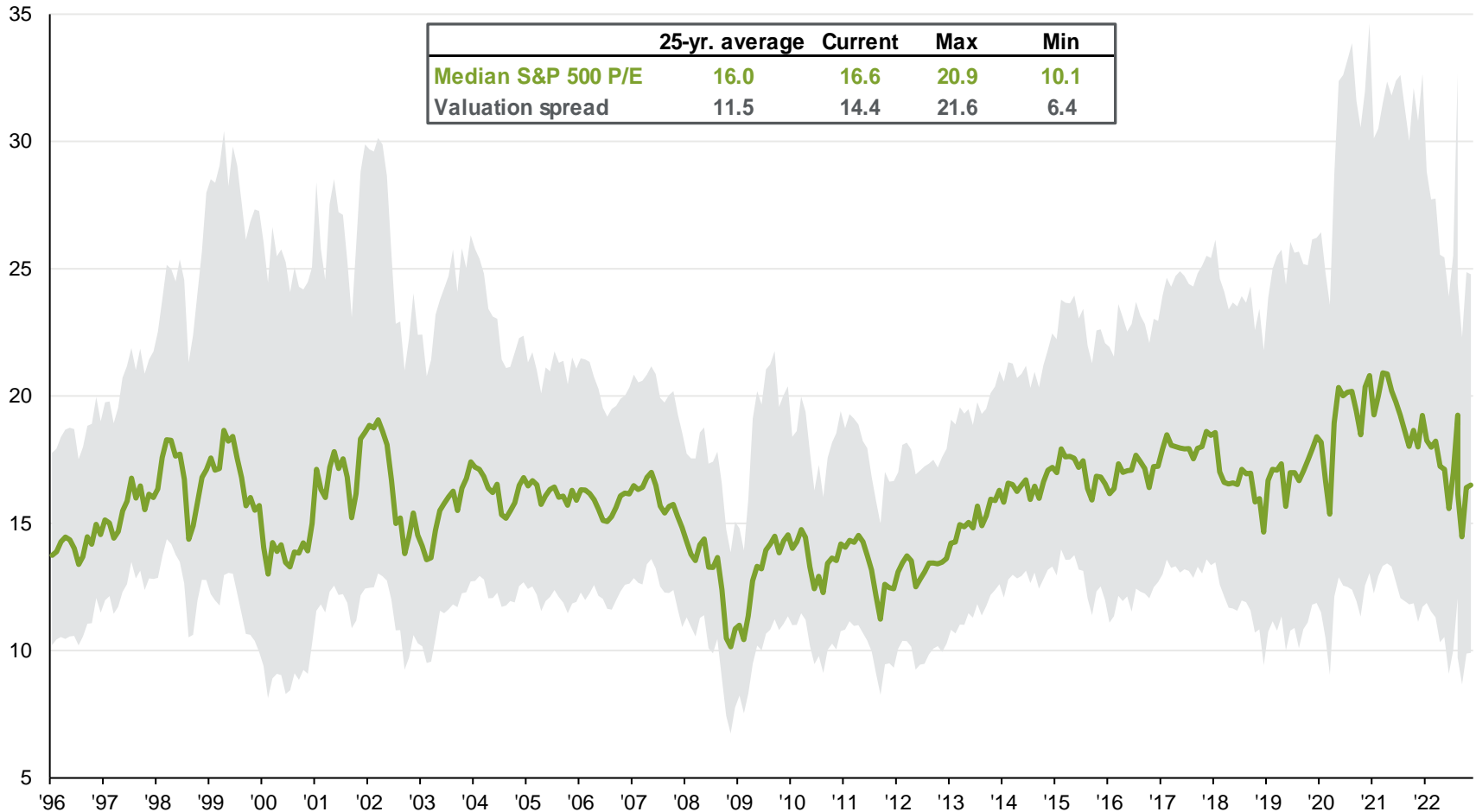
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Equities

## Valuation dispersion between the 20th and 80th percentile of S&P 500 stocks



Source: Compustat, FactSet, Standard & Poor's, J.P. Morgan Asset Management.  
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# International valuations and dividend yields have moved to even more attractive levels.

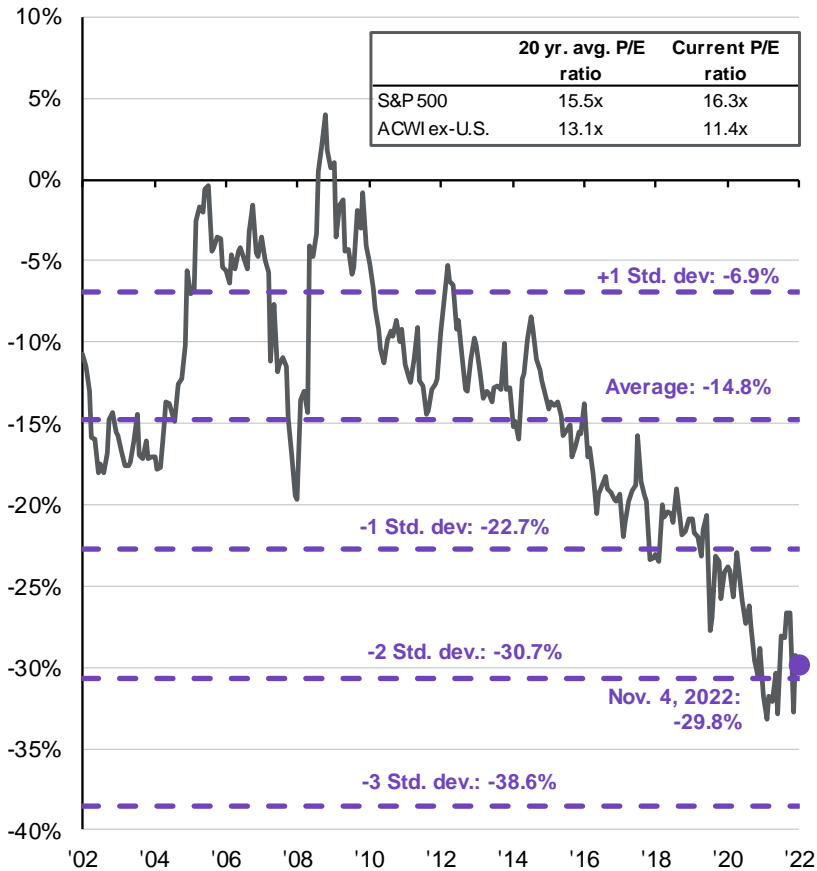
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## International: Price-to-earnings discount vs. U.S.

MSCI AC World ex-U.S. vs. S&P 500 Indices, next 12 months



## International: Difference in dividend yields vs. U.S.

MSCI AC World ex-U.S. minus S&P 500 Indices, next 12 months



Source: FactSet, MSCI, Standard & Poor's, J.P. Morgan Asset Management.  
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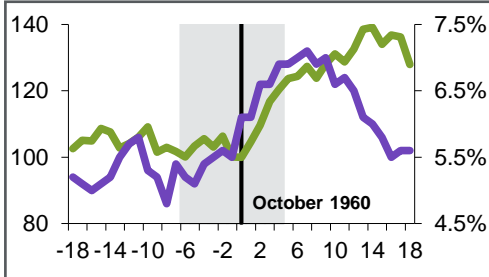
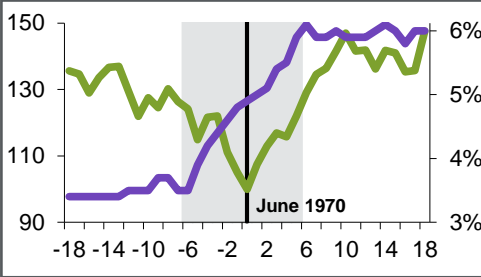
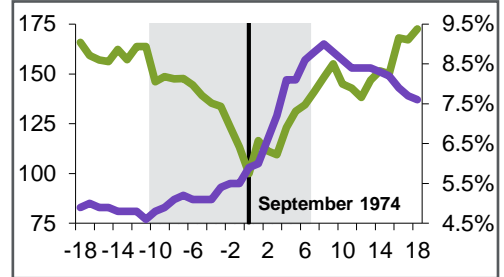
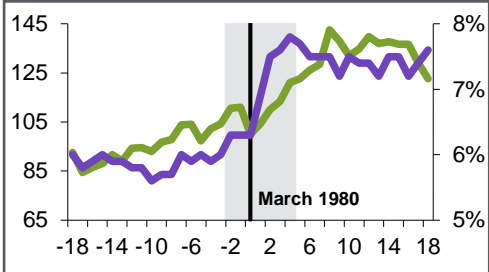
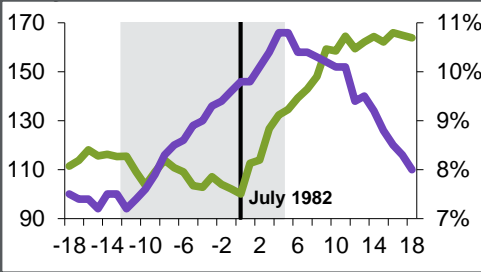
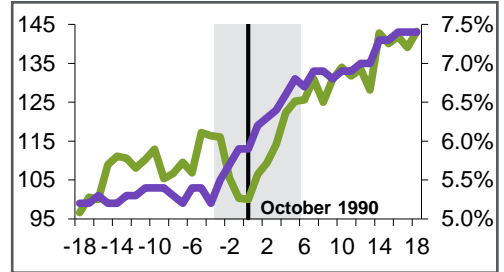
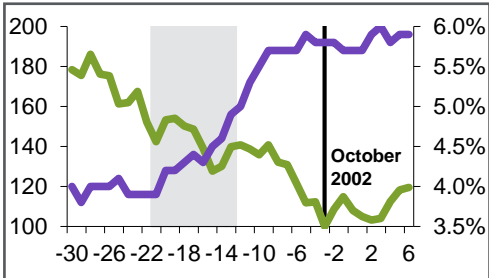
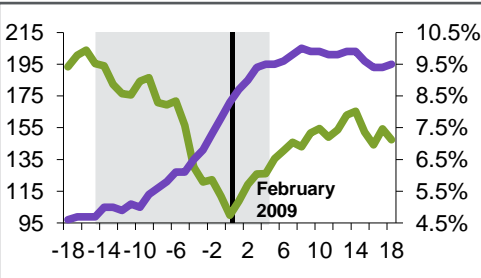
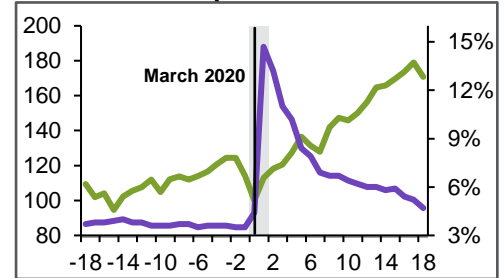


# History tells us that markets rebound before the economy does.

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**April 1960 – February 1961****December 1969 – November 1970****November 1973 – March 1975****January 1980 – July 1980****July 1981 – November 1982****July 1990 – March 1991****March 2001 – November 2001****December 2007 – June 2009****March 2020 – April 2020**

— Unemployment Rate    — Recession  
— S&P 500 Total Return    — Market Low

Source: BLS, Ibbotson, J.P. Morgan Asset Management. Time zero represents the numeric low of the S&P 500 Total Return Index associated with the recessionary period defined by the shaded grey area; data shown in months. S&P 500 Index is rebased to 100 at time zero. *Guide to the Markets – U.S.* Data are as of November 4, 2022.



# Investment decisions should be guided by logic, not emotion.

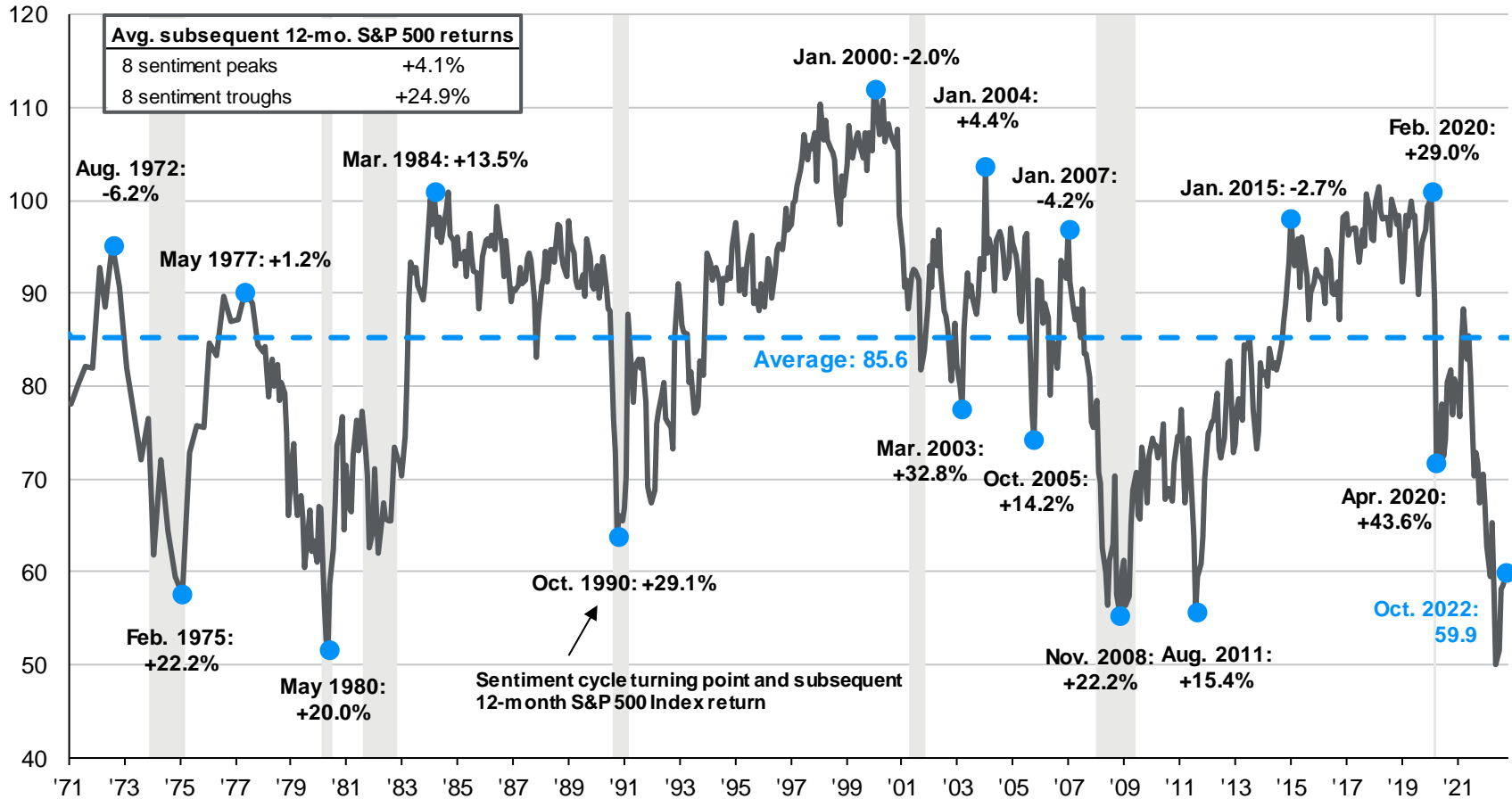
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Economy

## Consumer Sentiment Index and subsequent 12-month S&P 500 returns



Source: FactSet, Standard & Poor's, University of Michigan, J.P. Morgan Asset Management.

Peak is defined as the highest index value before a series of lower lows, while a trough is defined as the lowest index value before a series of higher highs. Subsequent 12-month S&P 500 returns are price returns only, which excludes dividends. Past performance is not a reliable indicator of current and future results.

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## Three ways to engage with Market Insights

**On the Minds  
of Investors**



**Insights Now  
Podcast**



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# Appendix





# Guide to the Markets<sup>®</sup>

U.S. | 4Q 2022

As of October 4, 2022





# Global Market Insights Strategy Team

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## Americas



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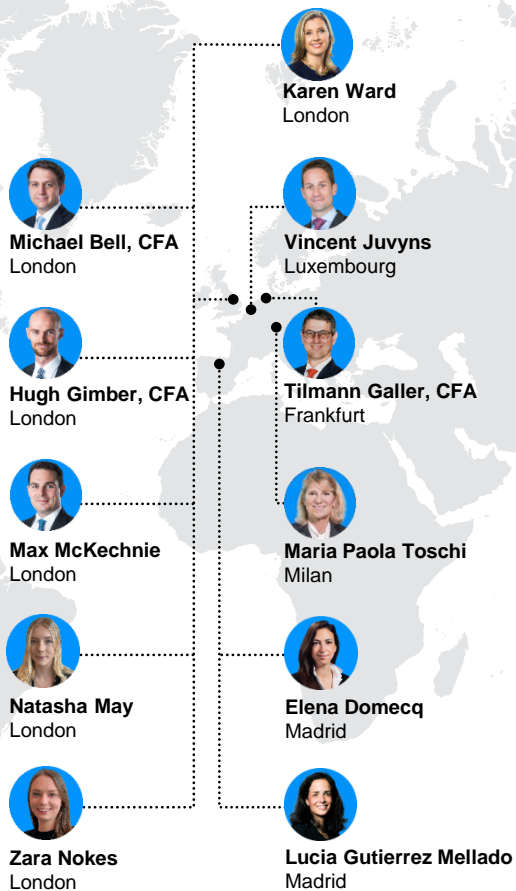
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Karen Ward  
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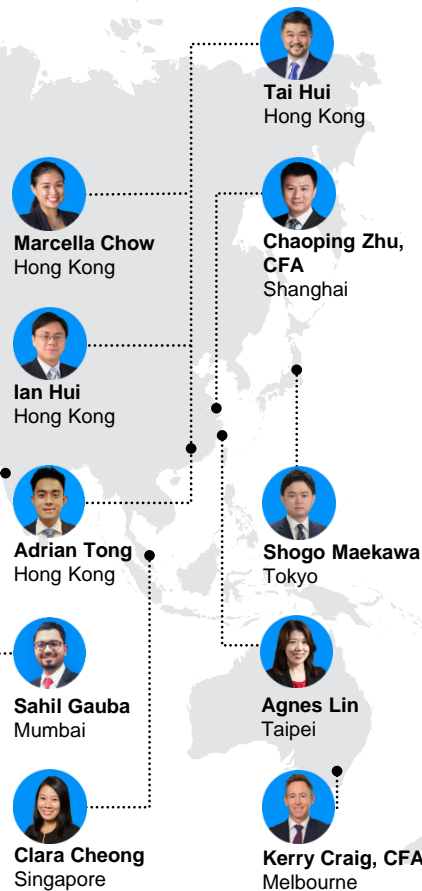
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Elena Domecq  
Madrid

Lucia Gutierrez Mellado  
Madrid

## Asia



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Agnes Lin  
Taipei

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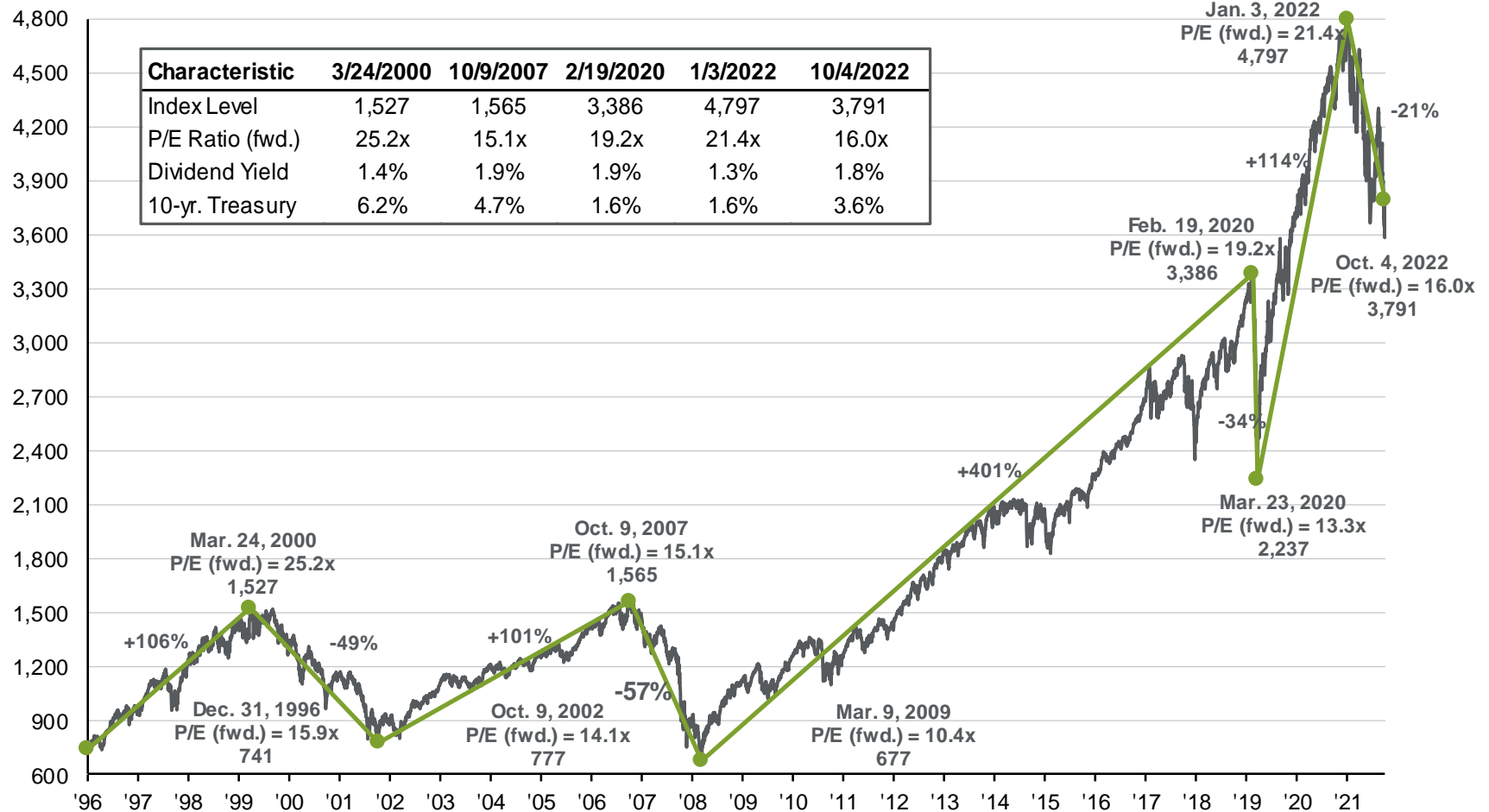
# S&P 500 Index at inflection points

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## S&P 500 Price Index



Source: Compustat, FactSet, Federal Reserve, Refinitiv Datastream, Standard & Poor's, J.P. Morgan Asset Management. Dividend yield is calculated as consensus estimates of dividends for the next 12 months, divided by most recent price, as provided by Compustat. Forward price-to-earnings ratio is a bottom-up calculation based on IBES estimates and FactSet estimates since January 2022. Returns are cumulative and based on S&P 500 Index price movement only, and do not include the reinvestment of dividends. Past performance is not indicative of future returns.

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# S&P 500 valuation measures

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## S&P 500 Index: Forward P/E ratio



Source: FactSet, FRB, Refinitiv Datastream, Robert Shiller, Standard & Poor's, Thomson Reuters, J.P. Morgan Asset Management.  
Price-to-earnings is price divided by consensus analyst estimates of earnings per share for the next 12 months as provided by IBES since September 1997 and by FactSet since January 2022. Current next 12-months consensus earnings estimates are \$241. Average P/E and standard deviations are calculated using 25 years of history. Shiller's P/E uses trailing 10-years of inflation-adjusted earnings as reported by companies. Dividend yield is calculated as the next 12-months consensus dividend divided by most recent price. Price-to-book ratio is the price divided by book value per share. Price-to-cash flow is price divided by NTM cash flow. EY minus Baa yield is the forward earnings yield (consensus analyst estimates of EPS over the next 12 months divided by price) minus the Moody's Baa seasoned corporate bond yield. Std. dev. over-/under-valued is calculated using the average and standard deviation over 25 years for each measure. \*P/CF is a 20-year average due to cash flow availability.  
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# P/E ratios and equity returns

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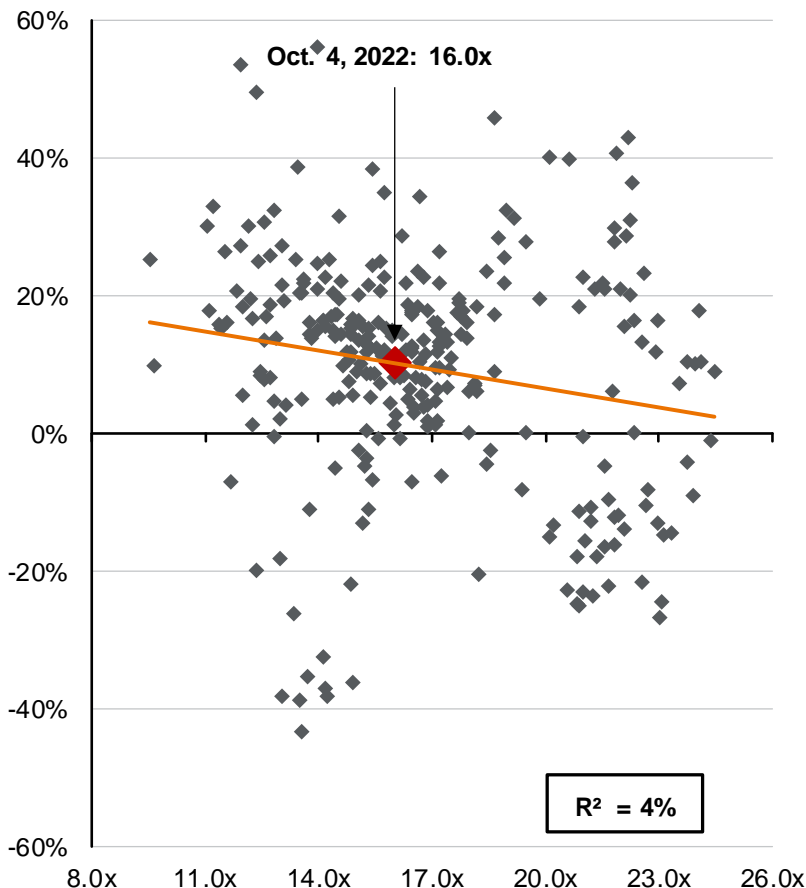
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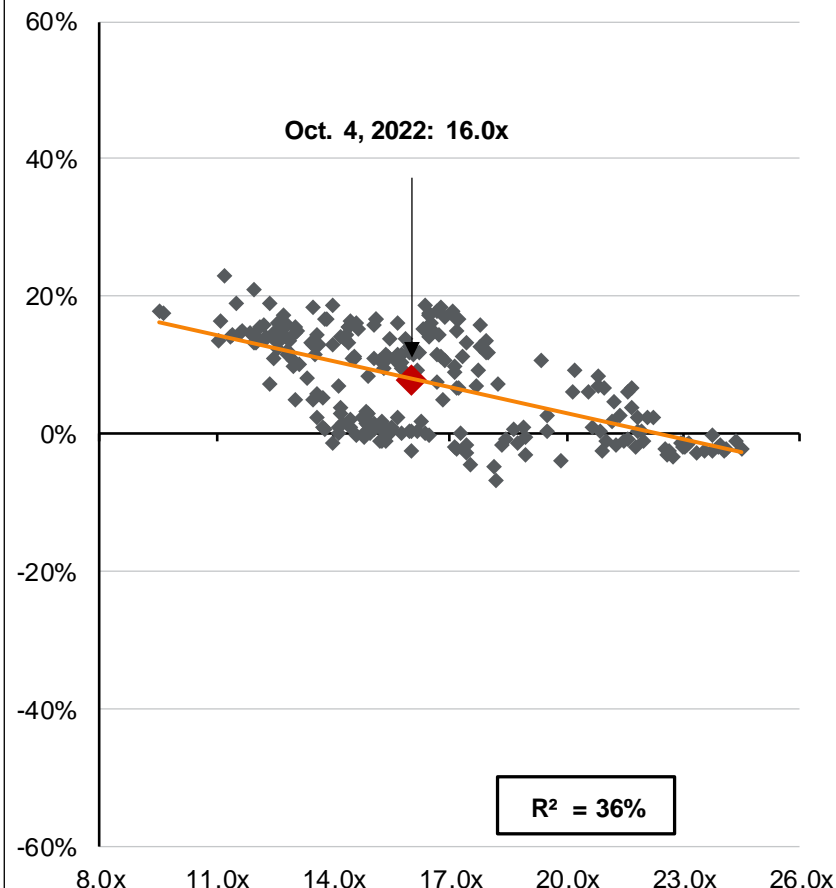
## Forward P/E and subsequent 1-yr. returns

S&P 500 Total Return Index



## Forward P/E and subsequent 5-yr. annualized returns

S&P 500 Total Return Index



Source: FactSet, Refinitiv Datastream, Standard & Poor's, Thomson Reuters, J.P. Morgan Asset Management. Returns are 12-month and 60-month annualized total returns, measured monthly, beginning 9/30/97.  $R^2$  represents the percent of total variation in total returns that can be explained by forward price-to-earnings ratios. Price-to-earnings is price divided by consensus analyst estimates of earnings per share for the next 12 months as provided by IBES since January 1997 and by FactSet since January 2022. *Guide to the Markets* – U.S. Data are as of October 4, 2022.



# Corporate profits and sources of total return

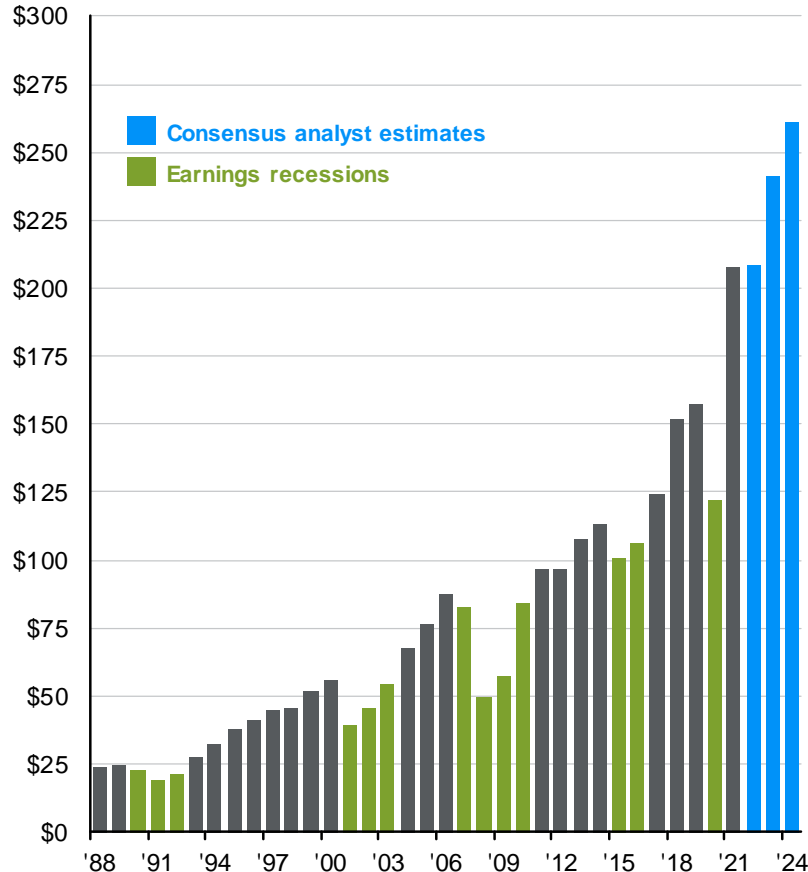
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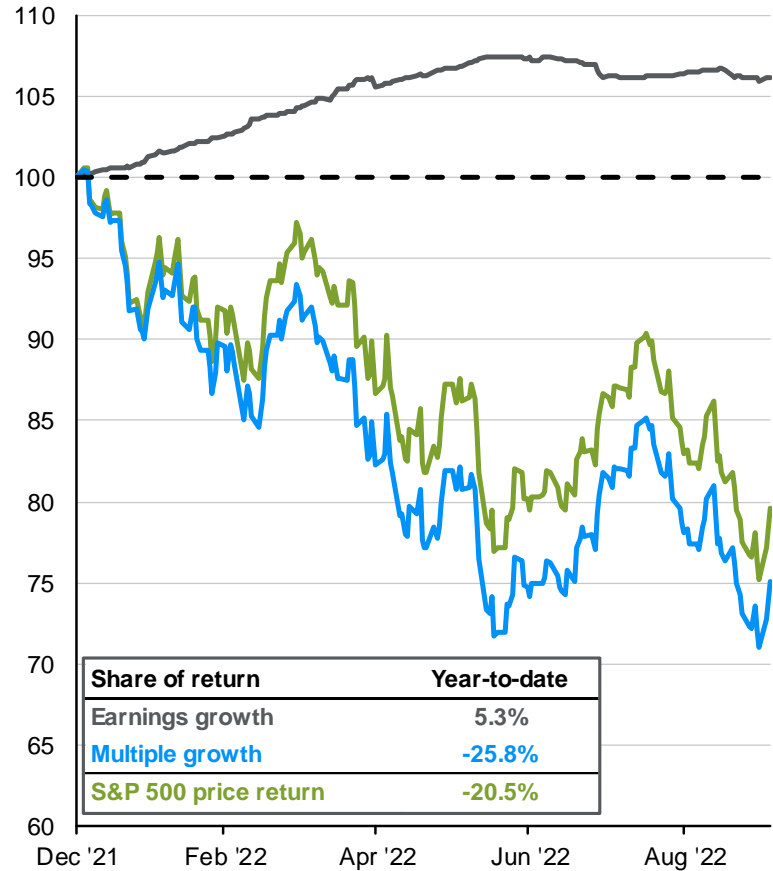
## S&P 500 earnings per share

Index annual operating earnings



## Percent change in S&P 500, earnings and valuations\*

Year-to-date, indexed to 100



Source: Compustat, FactSet, Standard & Poor's, J.P. Morgan Asset Management.

Historical EPS levels are based on annual operating earnings per share. Earnings estimates are based on estimates from Standard & Poor's and FactSet Market Aggregates. \*Earnings and multiple growth are both year-to-date percent changes of next 12-month estimates. Past performance is not indicative of future returns.

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# Sources of earnings per share growth

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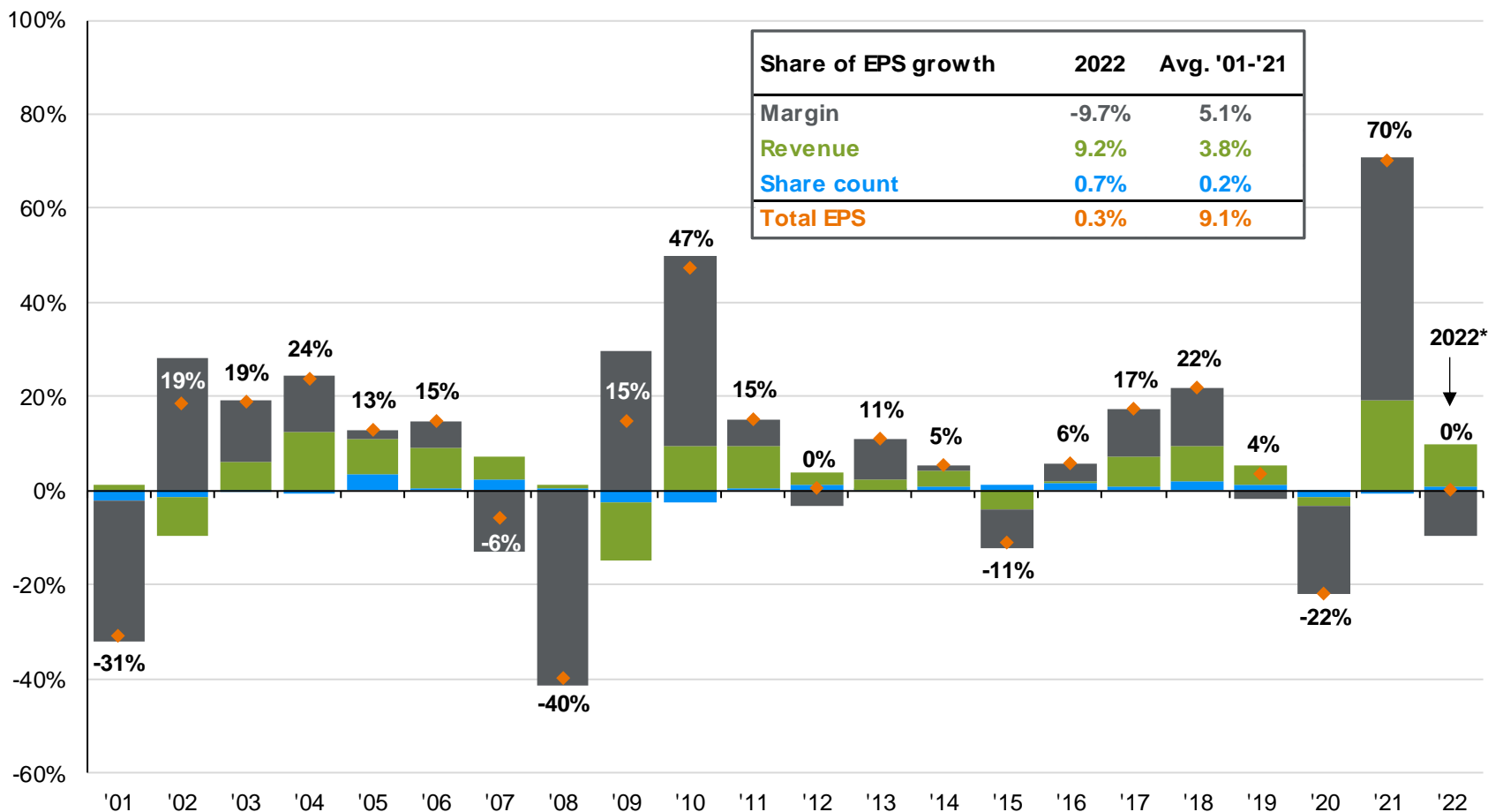
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## S&P 500 year-over-year operating EPS growth

Annual growth broken into revenue, changes in profit margin & changes in share count



Source: Compustat, FactSet, Standard & Poor's, J.P. Morgan Asset Management.

EPS levels are based on annual operating earnings per share. \*2022 earnings figures are based on weekly operating earnings estimates from Standard & Poor's. Percentages may not sum due to rounding. Past performance is not indicative of future returns.

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# Profit margins and input costs

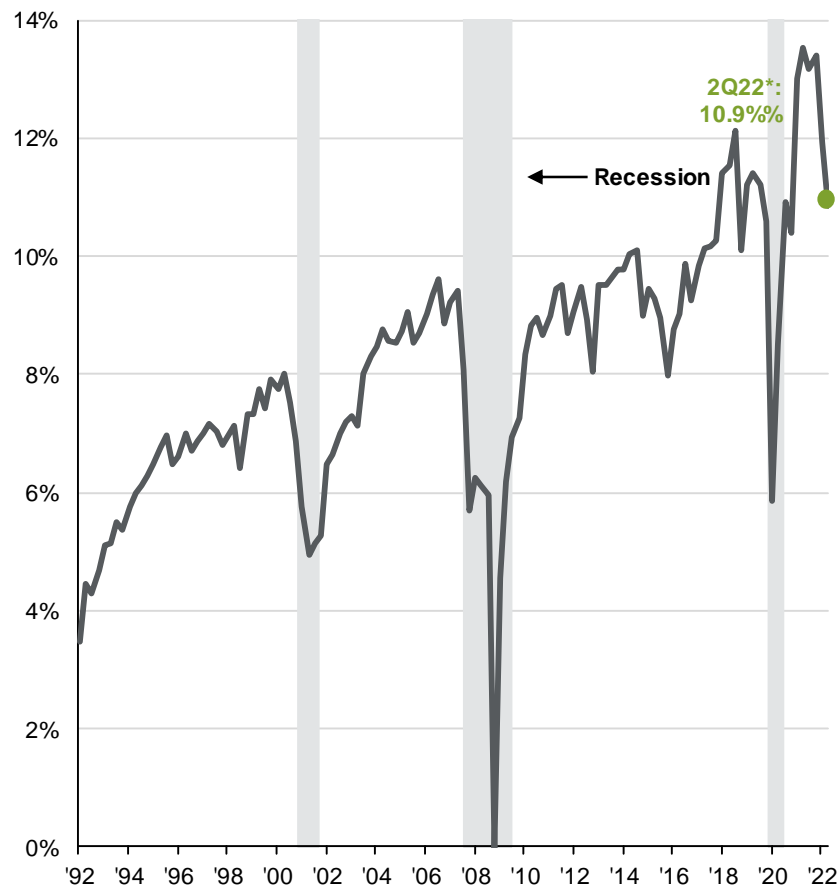
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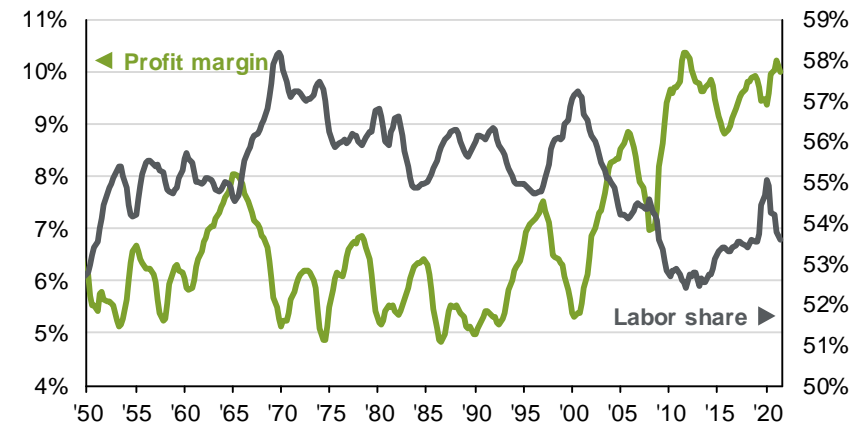
## S&P 500 profit margins

Quarterly operating earnings/sales



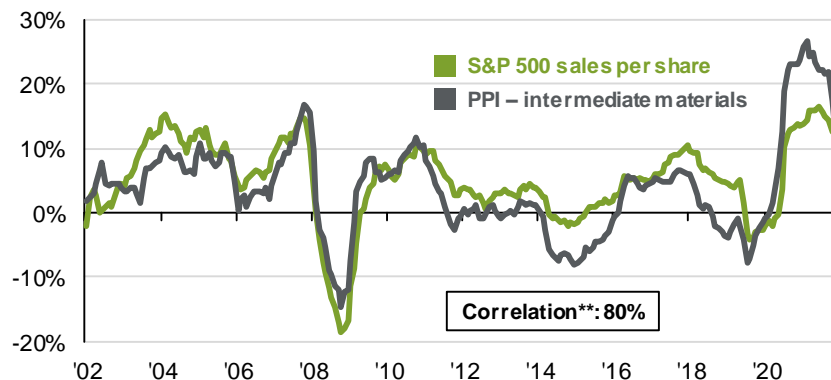
## Labor share of income and profit margins\*

Compensation and adjusted after-tax corporate profits as % of GDP



## S&P 500 sales per share and PPI for intermediate materials

Year-over-year % change, monthly, last 20 years



Source: BEA, Compustat, FactSet, Standard & Poor's, J.P. Morgan Asset Management. Past performance is not indicative of future returns. (Left)\* 2Q22 operating margins are based on 99.8% of S&P 500 companies having reported earnings. (Right)\* Labor share of income and profit margins are shown on a 4-quarter moving average basis. Compensation and adjusted after-tax corporate profits are shown as a percentage of real GDP, SAAR. \*\*Correlation is calculated using monthly y/y percent changes over the last 20 years between S&P 500 sales per share and PPI for intermediate materials.

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# Value vs. Growth

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## Value vs. Growth relative valuations

Rel. fwd. P/E ratio of Value vs. Growth, 1997 - present



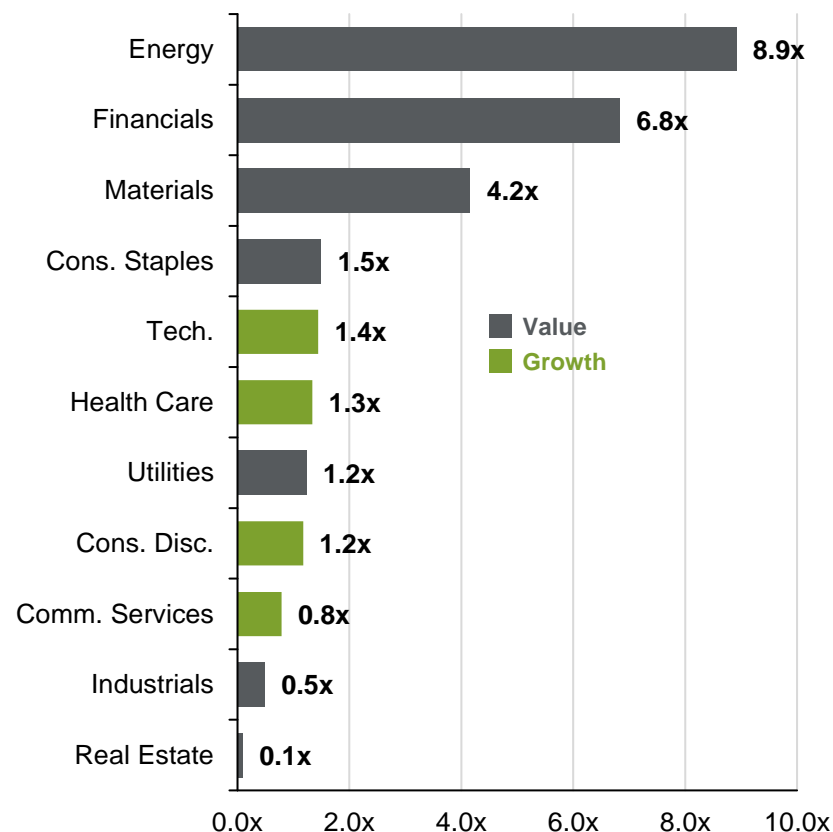
Source: FactSet, FTSE Russell, NBER, J.P. Morgan Asset Management.

(Left) Growth is represented by the Russell 1000 Growth Index and Value is represented by the Russell 1000 Value Index. \*Long-term averages are calculated monthly since December 1997. \*\*Dividend yield is calculated as the next 12-month consensus dividend divided by most recent price. (Right) Operating leverage is a bottom-up calculation based on the 5-year compounded annual growth rate (CAGR) in EBIT divided by the 5-year CAGR in revenues. Each sector's operating leverage is weighted by market cap. Calculations use EBIT and revenue over the 5-year period between 2016 and 2021.

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## S&P 500 operating leverage by sector

Impact on operating income from a 1% rise in revenues



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# S&P 500: Valuation dispersion

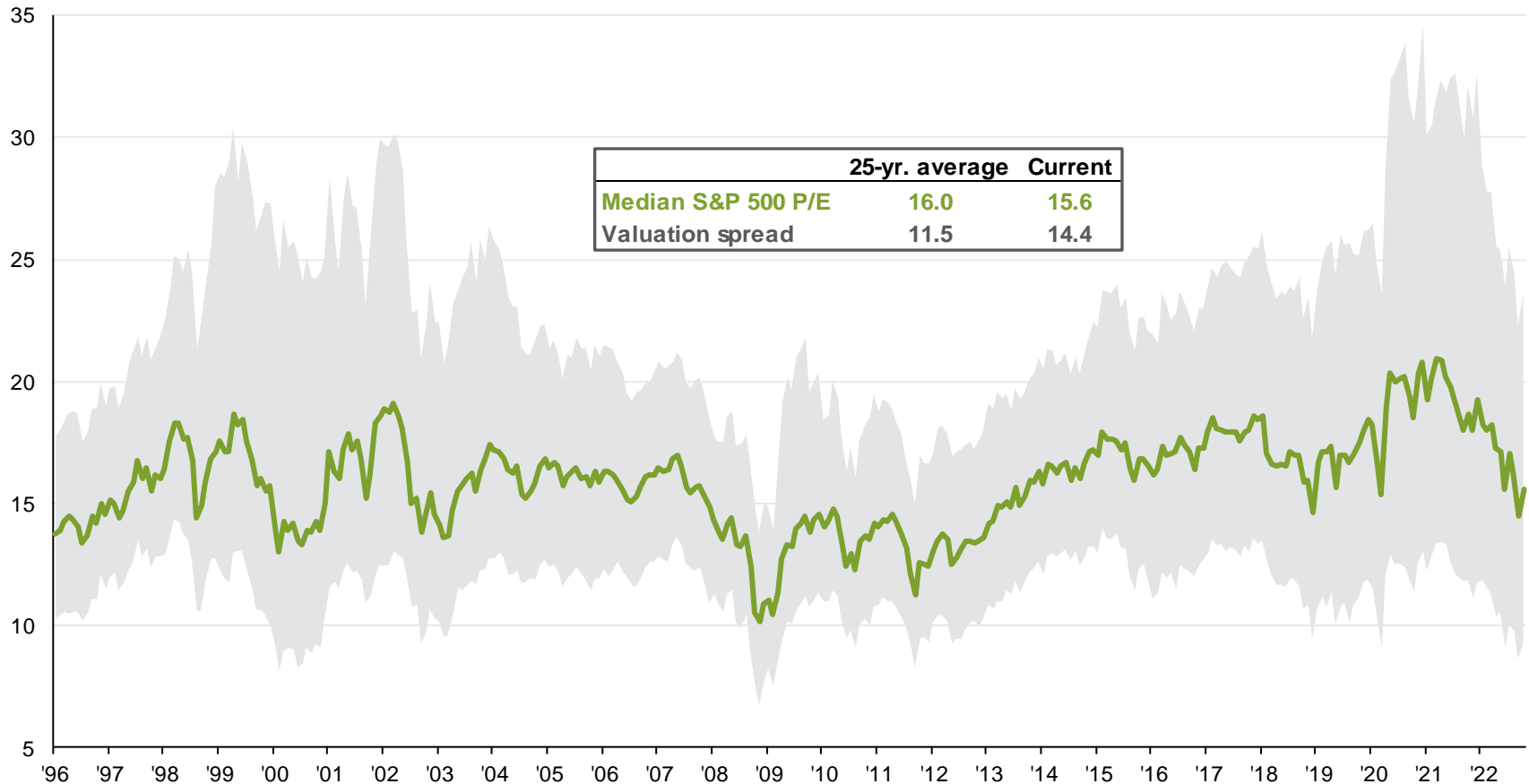
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## Valuation dispersion between the 20th and 80th percentile of S&P 500 stocks



Source: Compustat, FactSet, Standard & Poor's, J.P. Morgan Asset Management.  
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# Returns and valuations by style

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## 10-year annualized

	Value	Blend	Growth
Large	9.7%	12.2%	14.2%
Mid	10.0%	10.9%	11.5%
Small	8.5%	9.2%	9.5%

## YTD

	Value	Blend	Growth
Large	-12.7%	-19.5%	-26.7%
Mid	-15.0%	-19.1%	-26.7%
Small	-15.9%	-20.1%	-24.5%

## Since market peak (February 2020)

	Value	Blend	Growth
Large	11.0%	16.7%	18.5%
Mid	12.5%	11.8%	4.7%
Small	15.2%	8.4%	-0.5%

## Since market low (March 2020)

	Value	Blend	Growth
Large	79.4%	76.3%	72.9%
Mid	99.0%	87.2%	62.8%
Small	102.6%	82.6%	61.6%

## Current P/E vs. 20-year avg. P/E

	Value	Blend	Growth
Large	12.9 / 13.7	16.0 / 15.5	21.5 / 18.6
Mid	12.7 / 14.4	14.8 / 16.3	21.1 / 20.3
Small	14.1 / 16.9	17.9 / 21.4	24.1 / 35.5

## Current P/E as % of 20-year avg. PE

	Value	Blend	Growth
Large	94.0%	103.5%	116.0%
Mid	87.6%	90.5%	104.0%
Small	83.5%	83.7%	67.8%

Source: FactSet, Refinitiv Datastream, Russell Investment Group, Standard & Poor's, J.P. Morgan Asset Management. All calculations are cumulative total return, including dividends reinvested for the stated period. Since Market Peak represents period from February 19, 2020 to October 4, 2022. Since Market Low represents period from March 23, 2020 to October 4, 2022. Returns are cumulative returns, not annualized. For all time periods, total return is based on Russell style indices except for the large blend category, which is based on the S&P 500 Index. Past performance is not indicative of future returns. The price-to-earnings is a bottom-up calculation based on the most recent index price, divided by consensus estimates for earnings in the next 12 months (NTM) and is provided by FactSet Market Aggregates and J.P. Morgan Asset Management.  
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# Returns and valuations by sector

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	Energy	Materials	Financials	Industrials	Cons. Disc.	Tech.	Comm. Services*	Real Estate	Health Care	Cons. Staples	Utilities	S&P 500 Index	
<b>S&amp;P weight</b>	4.8%	2.5%	11.1%	7.9%	11.5%	26.5%	8.1%	2.7%	14.9%	6.7%	3.1%	100.0%	<b>Weight</b>
Russell Growth weight	1.6%	1.4%	3.1%	7.3%	16.7%	43.1%	7.6%	1.6%	12.1%	5.5%	0.0%	100.0%	
Russell Value weight	8.1%	4.2%	20.1%	10.1%	6.0%	8.8%	8.0%	4.7%	17.0%	7.1%	5.9%	100.0%	
Russell 2000 weight	6.4%	4.1%	17.2%	15.0%	10.3%	12.9%	2.7%	6.2%	18.4%	3.4%	3.4%	100.0%	
<b>QTD</b>	10.4	7.1	6.7	6.7	3.8	6.6	5.8	3.5	4.5	3.3	5.2	5.7	<b>Return (%)</b>
<b>YTD</b>	48.9	-18.4	-15.9	-15.4	-27.2	-26.9	-35.5	-26.3	-9.2	-8.9	-1.6	-19.5	
<b>Since market peak</b> (February 2020)	67.7	27.4	10.3	10.2	13.5	26.2	-9.0	-1.2	27.3	16.7	7.1	16.7	
<b>Since market low</b> (March 2020)	280.5	99.3	93.3	88.9	66.2	83.3	27.5	58.6	76.6	53.6	66.4	76.3	
<b>Beta to S&amp;P 500</b>	1.3	1.1	1.1	1.1	1.2	1.1	1.1*	0.8	0.8	0.6	0.5	1.0	<b>β</b>
<b>Correl. to Treas. yields</b>	-0.1	-0.4	-0.4	-0.4	-0.6	-0.7	-0.6	-0.5	-0.5	-0.3	-0.3	-0.6	<b>ρ</b>
<b>Foreign % of sales</b>	38.6	56.3	21.6	32.5	34.3	58.2	41.7	16.6	36.9	44.5	1.8	40.2	<b>%</b>
NTM earnings growth	6.2%	-3.1%	6.9%	19.8%	24.5%	7.7%	7.7%	6.9%	0.5%	5.5%	5.4%	7.7%	<b>EPS</b>
<b>20-yr avg.</b>	86.4%	17.1%	20.9%	13.9%	16.6%	13.8%	10.3%*	6.6%	8.6%	7.8%	4.1%	11.3%	
Forward P/E ratio	8.7x	13.4x	11.5x	16.1x	23.9x	19.7x	14.1x	16.4x	15.7x	19.2x	18.5x	16.0x	<b>P/E</b>
<b>20-yr avg.</b>	13.8x	14.7x	12.4x	16.2x	19.1x	18.1x	19.2x*	16.6x	15.1x	17.2x	15.2x	15.5x	
Buyback yield	1.9%	3.3%	4.1%	2.5%	2.0%	2.3%	4.5%	-1.9%	1.7%	1.2%	-0.4%	2.4%	<b>Bbk</b>
<b>20-yr avg.</b>	1.5%	0.8%	0.3%	2.2%	2.4%	2.9%	1.5%	-1.3%	1.9%	1.8%	-1.0%	1.7%	
Dividend yield	3.2%	2.3%	2.4%	2.0%	0.9%	1.2%	1.1%	3.6%	1.8%	2.9%	3.2%	1.8%	<b>Div</b>
<b>20-yr avg.</b>	2.7%	2.4%	2.3%	2.2%	1.4%	1.1%	1.2%*	4.0%	1.9%	2.8%	3.9%	2.1%	

Source: FactSet, Refinitiv Datastream, Russell Investment Group, Standard & Poor's, J.P. Morgan Asset Management. All calculations are cumulative total return, not annualized, including dividends for the stated period. Since market peak represents period from February 19, 2020 to October 4, 2022. Since market low represents period from March 23, 2020 to October 4, 2022. Correlation to Treasury yields are trailing 2-year monthly correlations between S&P 500 sector price returns and 10-year Treasury yield movements. Next 12 months (NTM) earnings growth is the percent change in next 12-months earnings estimates compared to last 12-months earnings provided by brokers. Forward P/E ratio is a bottom-up calculation based on the most recent S&P 500 Index price, divided by consensus estimates for earnings in the next 12 months (NTM), and is provided by FactSet Market Aggregates and J.P. Morgan Asset Management. Buyback yield is net of share issuance and is calculated as last 12-months net buybacks divided by market cap. Dividend yield is calculated as the next 12-months consensus dividend divided by most recent price. Beta calculations are based on 10-years of monthly price returns for the S&P 500 and its sub-indices. \*Communication Services (formerly Telecom) averages and beta are based on 5-years of backtested data by JPMAM. Past performance is not indicative of future returns.

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# Factor performance

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	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	YTD	2007 - 2021	
																	Ann.	Vol.
Momen.	17.8%	Min. Vol.	Value	Small Cap	High Div.	Cyclical	Value	Value	Momen.	Small Cap	Momen.	Min. Vol.	Cyclical	Momen.	Value	Defens.	Momen.	Small Cap
	17.8%	-25.7%	38.8%	26.9%	14.3%	20.1%	43.2%	17.7%	9.3%	21.3%	37.8%	1.5%	36.3%	29.6%	29.2%	-2.6%	11.8%	22.5%
Defens.	17.7%	Defens.	Cyclical	Multi-Factor	Min. Vol.	Value	Small Cap	Min. Vol.	Min. Vol.	High Div.	Cyclical	Momen.	Quality	Cyclical	Cyclical	High Div.	Quality	Value
	17.7%	-26.7%	36.9%	18.3%	12.9%	16.8%	38.8%	16.5%	5.6%	16.3%	27.3%	-1.6%	34.4%	27.8%	27.6%	-11.4%	11.5%	20.7%
Quality	10.1%	High Div.	Multi-Factor	Momen.	Defens.	Small Cap	Multi-Factor	High Div.	Quality	Value	Quality	High Div.	Momen.	Small Cap	Quality	Min. Vol.	Cyclical	Cyclical
	10.1%	-27.6%	29.8%	18.2%	10.1%	16.3%	37.4%	14.9%	4.6%	15.9%	22.5%	-2.3%	28.1%	20.0%	27.2%	-13.4%	11.2%	19.9%
Multi-Factor	5.5%	Quality	Small Cap	Cyclical	Quality	Multi-Factor	Cyclical	Multi-Factor	Cyclical	Cyclical	Value	Defens.	Min. Vol.	Quality	Multi-Factor	Multi-Factor	Min. Vol.	Momen.
	5.5%	-31.2%	27.2%	17.9%	7.5%	15.7%	35.0%	14.8%	2.6%	14.0%	22.2%	-2.9%	28.0%	17.1%	25.1%	-17.5%	10.5%	17.7%
Min. Vol.	4.3%	Small Cap	Quality	High Div.	Multi-Factor	Momen.	Momen.	Momen.	High Div.	Multi-Factor	Multi-Factor	Cyclical	Value	Multi-Factor	Defens.	Value	Multi-Factor	Multi-Factor
	4.3%	-33.8%	24.9%	15.9%	7.3%	15.1%	34.8%	14.7%	0.7%	13.7%	21.5%	-5.3%	27.7%	11.4%	25.0%	-18.2%	10.1%	17.7%
Value	1.1%	Value	High Div.	Min. Vol.	Momen.	Quality	Quality	Cyclical	Multi-Factor	Min. Vol.	High Div.	Quality	Multi-Factor	Min. Vol.	High Div.	Small Cap	High Div.	Quality
	1.1%	-36.9%	18.4%	14.7%	6.1%	12.8%	34.3%	13.6%	0.4%	10.7%	19.5%	-5.6%	26.6%	5.8%	21.9%	-20.1%	9.4%	15.7%
High Div.	0.0%	Multi-Factor	Min. Vol.	Quality	Value	Min. Vol.	High Div.	Defens.	Defens.	Quality	Min. Vol.	Multi-Factor	Small Cap	Defens.	Min. Vol.	Momen.	Defens.	High Div.
	0.0%	-39.3%	18.4%	14.2%	-2.7%	11.2%	28.9%	13.0%	-0.9%	9.4%	19.2%	-9.7%	25.5%	5.2%	21.0%	-22.4%	9.1%	15.1%
Cyclical	-0.8%	Momen.	Momen.	Value	Cyclical	Defens.	Defens.	Quality	Small Cap	Defens.	Small Cap	Small Cap	High Div.	High Div.	Small Cap	Quality	Value	Defens.
	-0.8%	-40.9%	17.6%	12.7%	-3.4%	10.7%	28.9%	10.7%	-4.4%	7.7%	14.6%	-11.0%	22.5%	1.7%	14.8%	-23.5%	9.1%	13.9%
Small Cap	-1.6%	Cyclical	Defens.	Defens.	Small Cap	High Div.	Min. Vol.	Small Cap	Value	Momen.	Defens.	Value	Defens.	Value	Momen.	Cyclical	Small Cap	Min. Vol.
	-1.6%	-44.8%	16.5%	12.0%	-4.2%	10.6%	25.3%	4.9%	-6.4%	5.1%	12.3%	-11.1%	21.4%	-0.2%	12.9%	-26.0%	8.7%	13.2%

Source: FactSet, MSCI, Russell, Standard & Poor's, J.P. Morgan Asset Management. The MSCI High Dividend Yield Index aims to offer a higher than average dividend yield relative to the parent index that passes dividend sustainability and persistence screens. The MSCI Minimum Volatility Index optimizes the MSCI USA Index using an estimated security co-variance matrix to produce low absolute volatility for a given set of constraints. The MSCI Defensive Sectors Index includes: Consumer Staples, Energy, Health Care and Utilities. The MSCI Cyclical Sectors Index contains: Consumer Discretionary, Communication Services, Financials, Industrials, Information Technology and Materials. Securities in the MSCI Momentum Index are selected based on a momentum value of 12-month and 6-month price performance. Constituents of the MSCI Sector Neutral Quality Index are selected based on stronger quality characteristics to their peers within the same GICS sector by using three main variables: high return-on-equity, low leverage and low earnings variability. Constituents of the MSCI Enhanced Value Index are based on three variables: price-to-book value, price-to-forward earnings and enterprise value-to-cash flow from operations. The Russell 2000 is used for small cap. The MSCI USA Diversified Multiple Factor Index aims to maximize exposure to four factors – Value, Momentum, Quality and Size. Annualized volatility is calculated as the standard deviation of quarterly returns multiplied by the square root of 4.

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# Annual returns and intra-year declines

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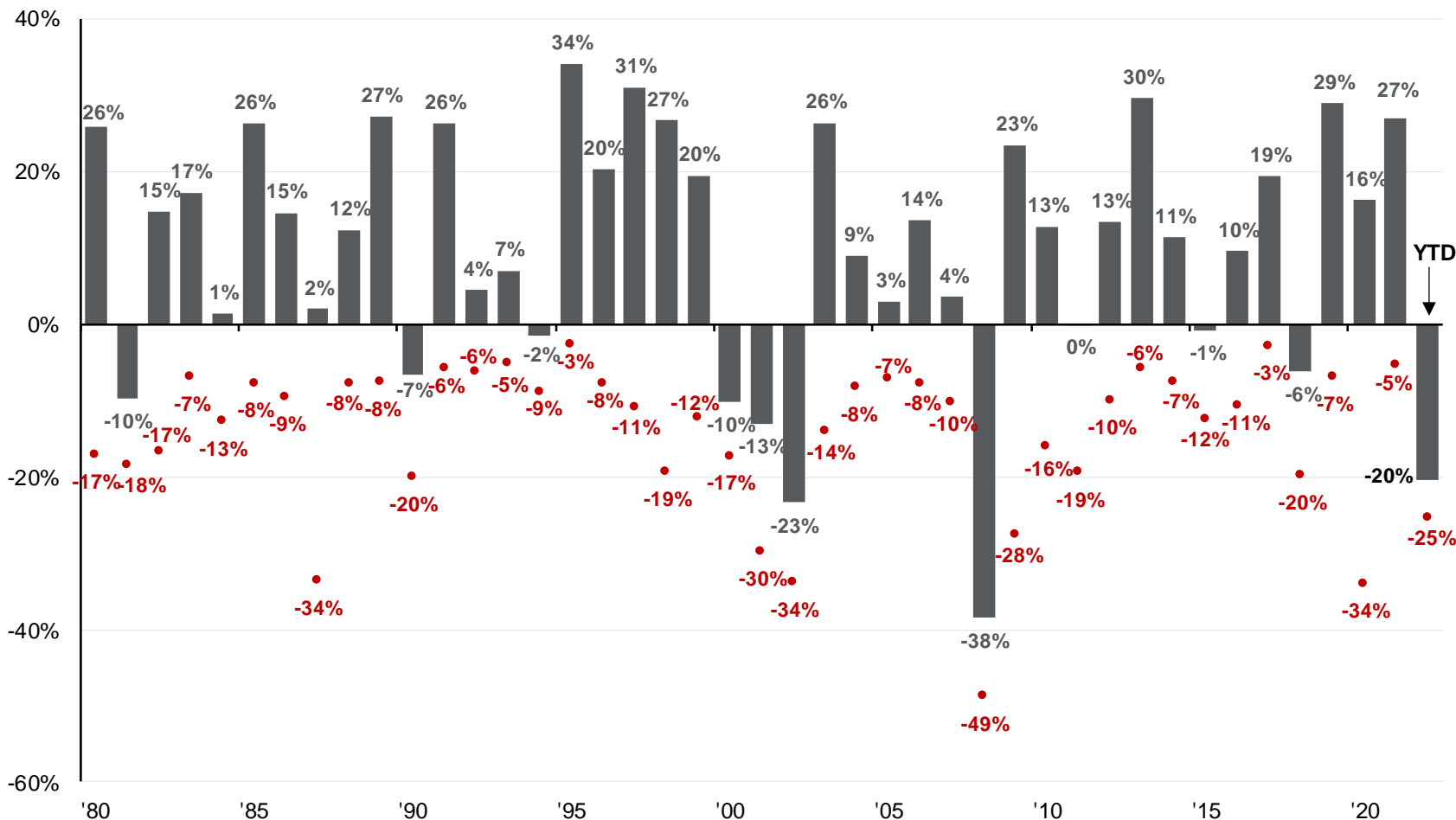
U.S.

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Equities

## S&P intra-year declines vs. calendar year returns

Despite average intra-year drops of 14.0%, annual returns were positive in 32 of 42 years



Source: FactSet, Standard & Poor's, J.P. Morgan Asset Management.

Returns are based on price index only and do not include dividends. Intra-year drops refers to the largest market drops from a peak to a trough during the year. For illustrative purposes only. Returns shown are calendar year returns from 1980 to 2021, over which time period the average annual return was 9.4%.

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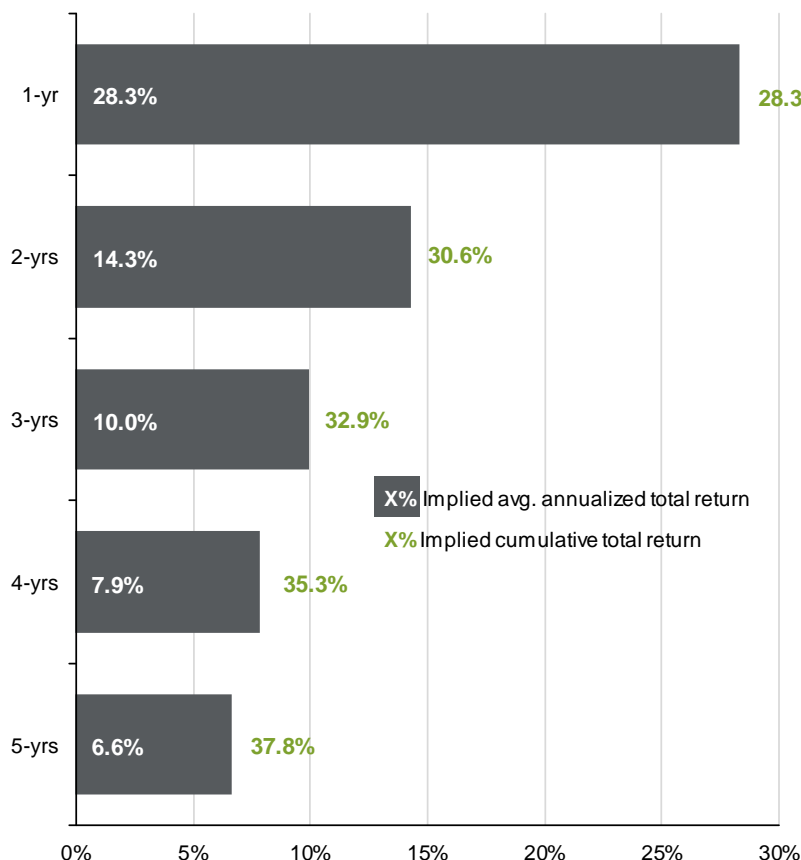


# Equity scenarios: Bull, bear and in-between

GTM U.S. 16

Equities

**Return needed to reach January 2022 peak of 4797**  
S&P 500 level as of October 4, 2022 is 3,678



## Bull and bear markets

Bull markets			Bear markets		
Bull begin date	Bull return	Duration (months)	Market peak	Bear return*	Duration (months)*
Jul 1926	152%	37	Sep 1929	-86%	32
Mar 1935	129%	23	Mar 1937	-60%	61
Apr 1942	158%	49	May 1946	-30%	36
Jun 1949	267%	85	Aug 1956	-22%	14
Oct 1960	39%	13	Dec 1961	-28%	6
Oct 1962	76%	39	Feb 1966	-22%	7
Oct 1966	48%	25	Nov 1968	-36%	17
May 1970	74%	31	Jan 1973	-48%	20
Mar 1978	62%	32	Nov 1980	-27%	20
Aug 1982	229%	60	Aug 1987	-34%	3
Oct 1990	417%	113	Mar 2000	-49%	30
Oct 2002	101%	60	Oct 2007	-57%	17
Mar 2009	401%	131	Feb 2020	-34%	1
Mar 2020	114%	21	Jan. 2022**	-25%	8
<b>Averages</b>	<b>162%</b>	<b>51</b>	<b>-</b>	<b>-41%</b>	<b>20</b>

Source: FactSet, NBER, Robert Shiller, Standard & Poor's, J.P. Morgan Asset Management. (Left) The current peak of 4797 was observed on January 3, 2022. (Right) \*A bear market is defined as a 20% or more decline from the previous market high. The related market return is the peak to trough return over the cycle. Bear and bull returns are price returns. \*\*The bear market beginning in January 2022 is currently ongoing. The "bear return" for this period is from the January 2022 market peak through the current trough. Averages for the bear market return and duration do not include figures from the current cycle.  
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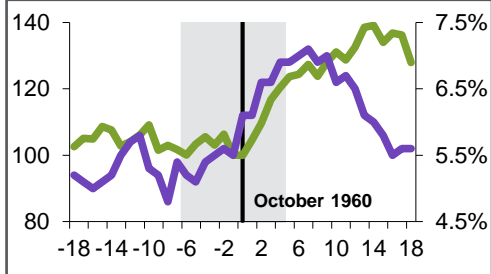
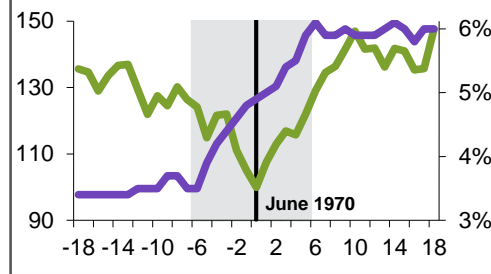
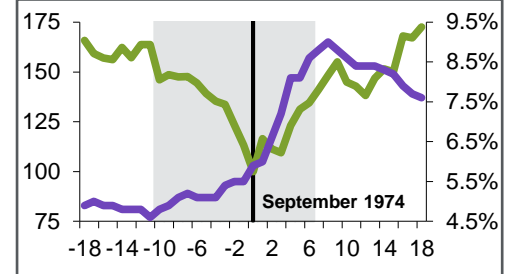
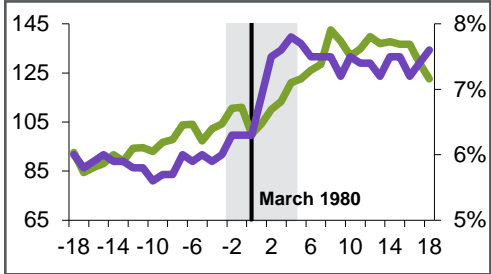
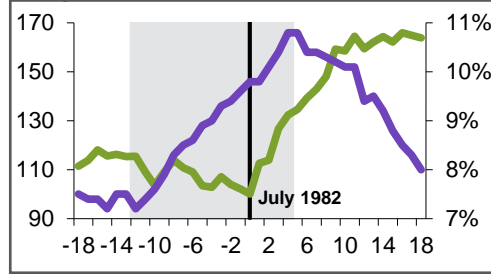
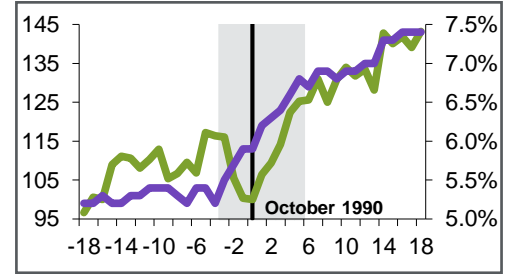
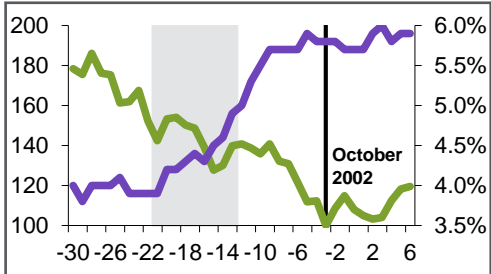
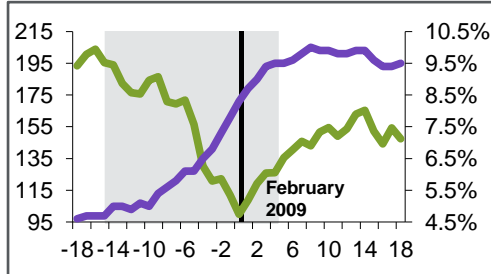
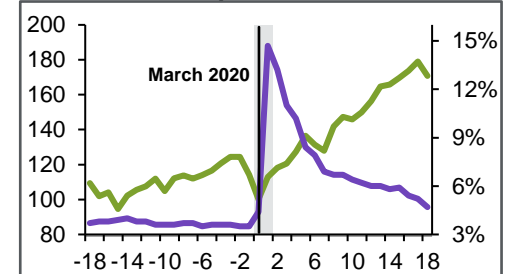


# Market inflection points, recessions and the unemployment rate

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**April 1960 – February 1961****December 1969 – November 1970****November 1973 – March 1975****January 1980 – July 1980****July 1981 – November 1982****July 1990 – March 1991****March 2001 – November 2001****December 2007 – June 2009****March 2020 – April 2020**

— Unemployment Rate  
— S&P 500 Total Return  
■ Recession  
— Market Low

Source: BLS, Ibbotson, J.P. Morgan Asset Management. Time zero represents the numeric low of the S&P 500 Total Return Index associated with the recessionary period defined by the shaded grey area; data shown in months. S&P 500 Index is rebased to 100 at time zero.  
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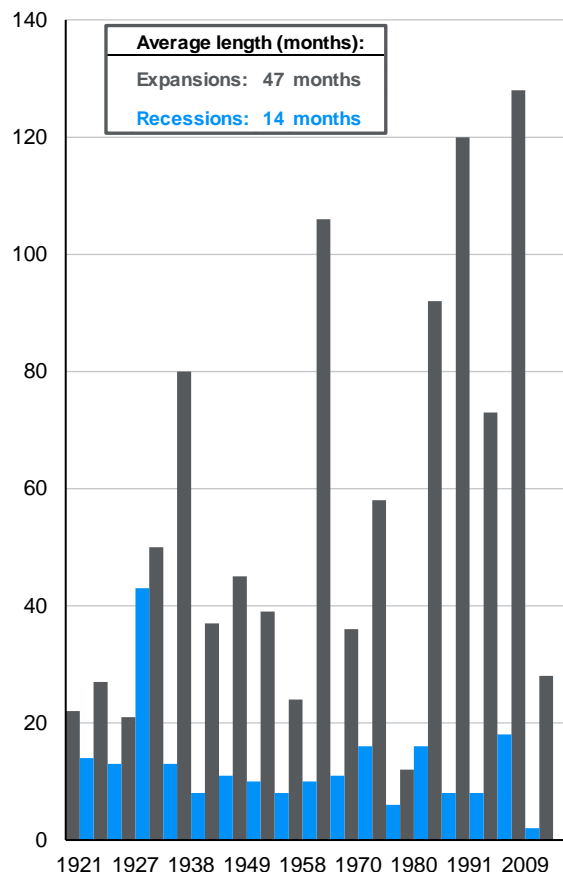


# U.S. expansions and recessions

GTM U.S. 18

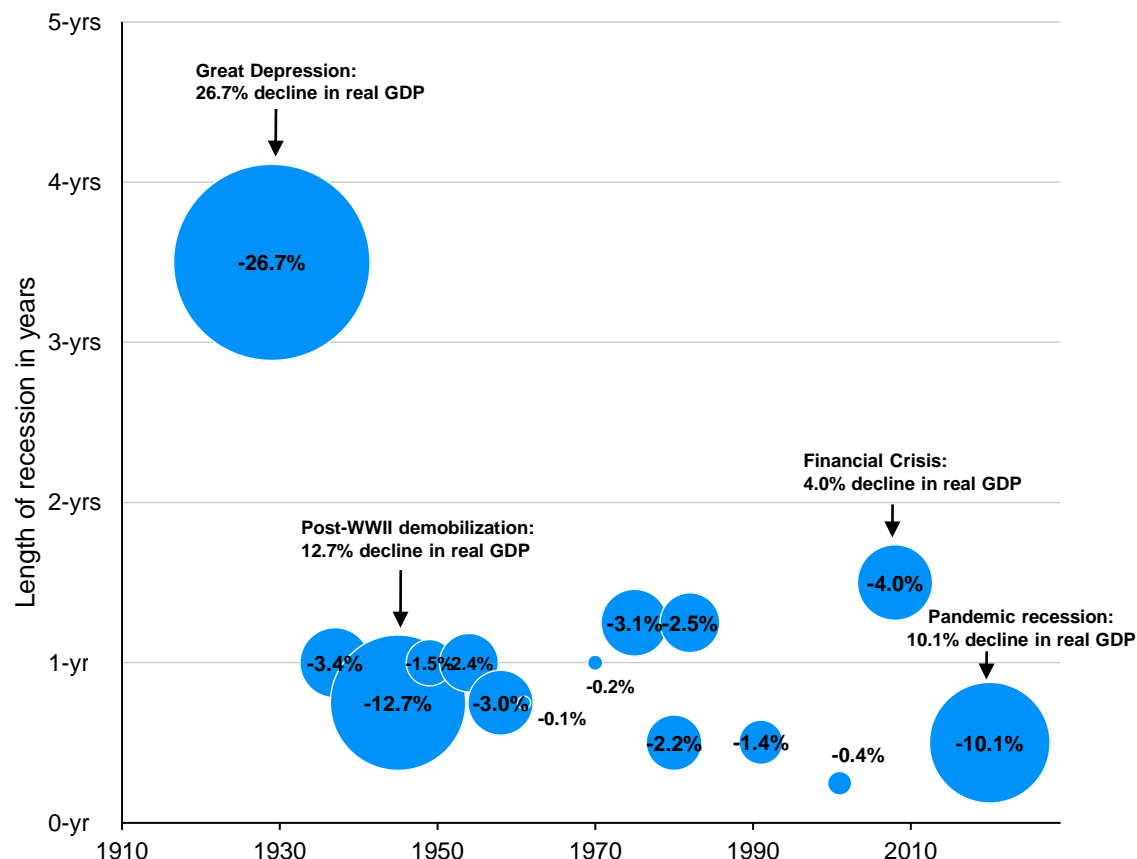
Economy

**Length of expansions and recessions**  
Months



**The Great Depression and post-war recessions**

Length and severity of recession



Source: BEA, NBER, J.P. Morgan Asset Management.

(Left) Chart assumes the current expansion lasted until at least September 2022. (Right) Bubble size reflects the severity of the recession, which is calculated as the decline in real GDP from the peak quarter to the trough quarter except in the case of the Great Depression, where it is calculated from the peak year (1929) to the trough year (1933), due to a lack of available quarterly data. Data for length of economic expansions and recessions obtained from the National Bureau of Economic Research (NBER). Past performance is not a reliable indicator of current and future results.

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# Economic growth and the composition of GDP

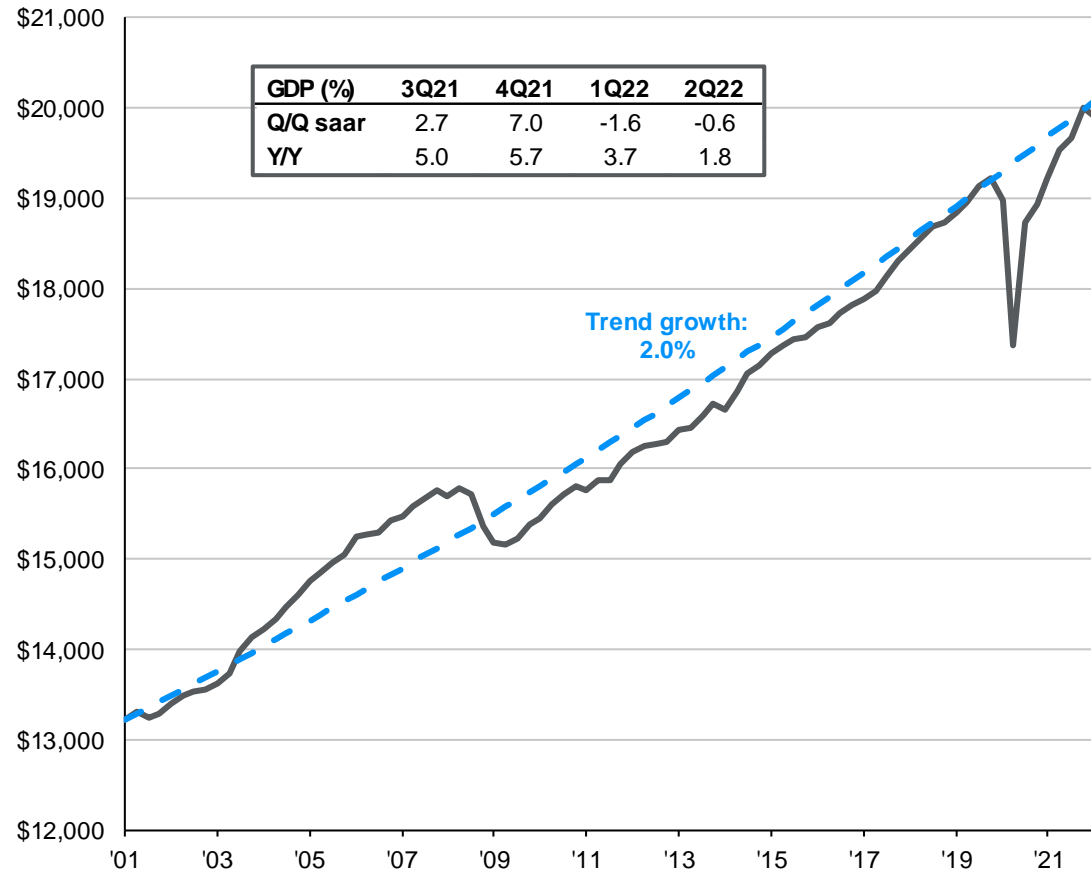
GTM

U.S.

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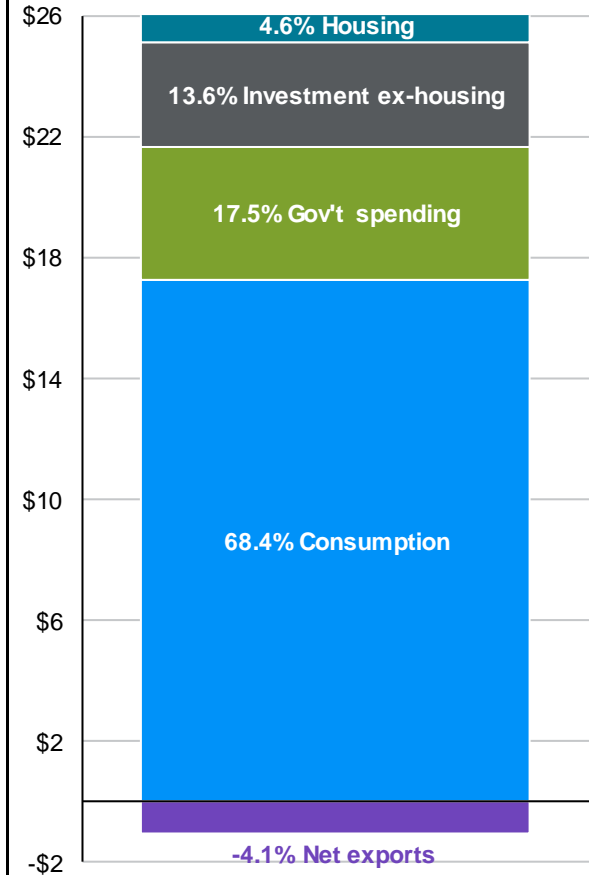
## Real GDP

Billions of chained (2012) dollars, seasonally adjusted at annual rates



## Components of GDP

2Q22 nominal GDP, USD trillions



Source: BEA, FactSet, J.P. Morgan Asset Management. Values may not sum to 100% due to rounding. Trend growth is measured as the average annual growth rate from business cycle peak 1Q01 to business cycle peak 4Q19.  
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# Recession determinants

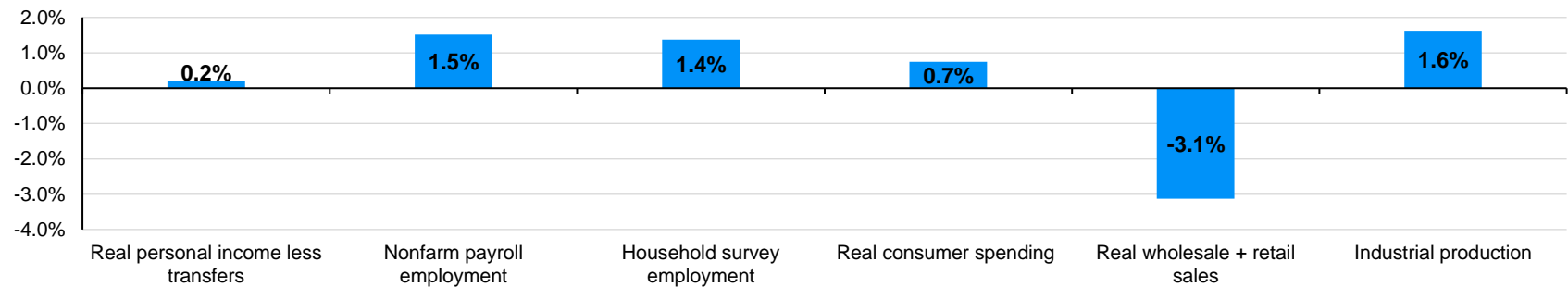
GTM U.S. 20

## Variables used by the NBER in making recession determination\*

% change month-over-month



## % change, last six months



Source: Bureau of Economic Analysis, Bureau of Labor Statistics, Census Bureau, Federal Reserve of St. Louis, NBER, J.P. Morgan Asset Management. Heatmap shading reflects 10 years of data, with green and red reflecting a range of +/- 0.5 standard deviations from a baseline of 0% monthly growth. \*The NBER's definition of a recession involves a significant decline in economic activity that is spread across the economy and lasts more than a few months. Because a recession must influence the economy broadly and not be confined to one sector, the committee emphasizes economy-wide measures of economic activity. Specifically, they consider real personal income less transfers, nonfarm payroll employment, employment as measured by the household survey, real personal consumption expenditures, wholesale-retail sales adjusted for price changes and industrial production. There is no fixed rule about what measures contribute to the process or how they are weighted, but the committee notes that "in recent decades, the two measures we have put the most weight on are real personal income less transfers and nonfarm payroll employment." *Guide to the Markets – U.S.* Data are as of October 4, 2022.



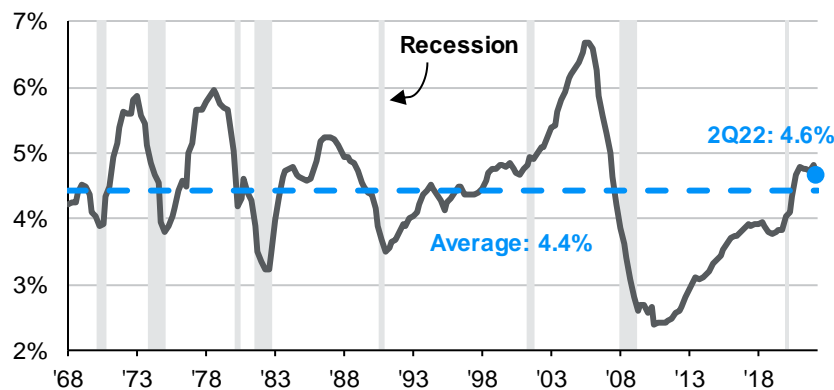


# Cyclical sectors

GTM U.S. 21

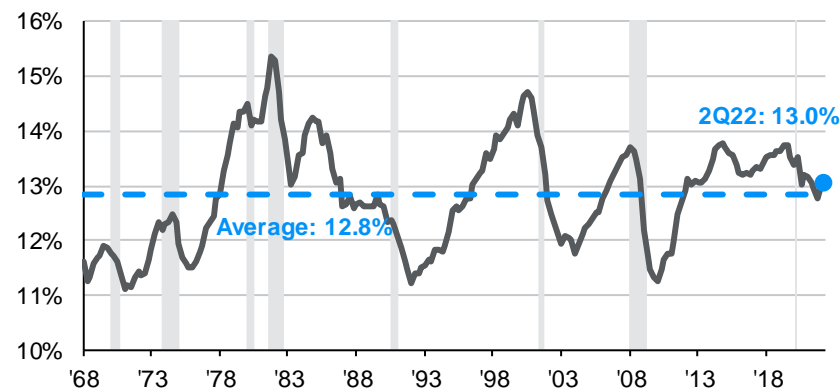
## Residential investment as a % of GDP

Quarterly, seasonally adjusted



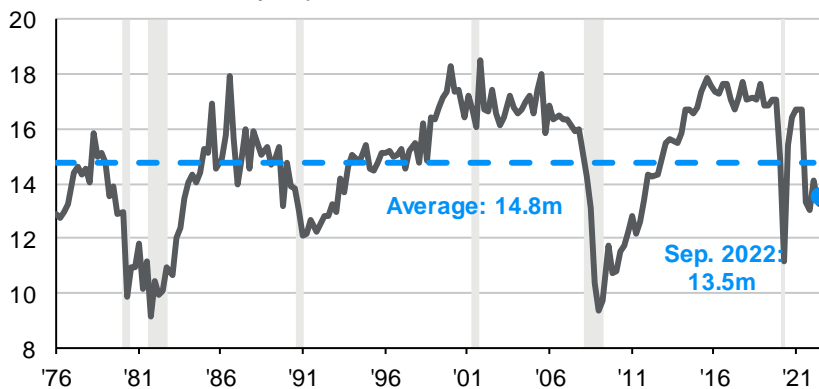
## Business fixed investment as a % of GDP

Quarterly, seasonally adjusted



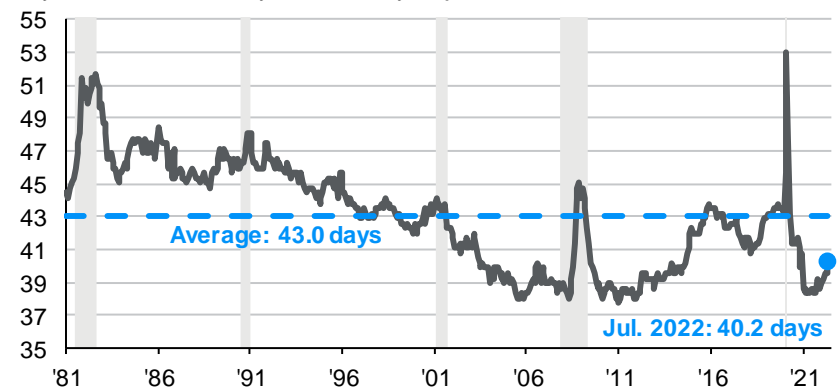
## Light vehicle sales

Mil vehicles, seasonally adjusted ann. rate



## Total business inventory/sales ratio

Days of sales, monthly, seasonally adjusted



Source: BEA, Census Bureau, FactSet, J.P. Morgan Asset Management. Data for light vehicle sales is quarterly apart from the latest monthly data point.

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# Home prices and affordability

GTM

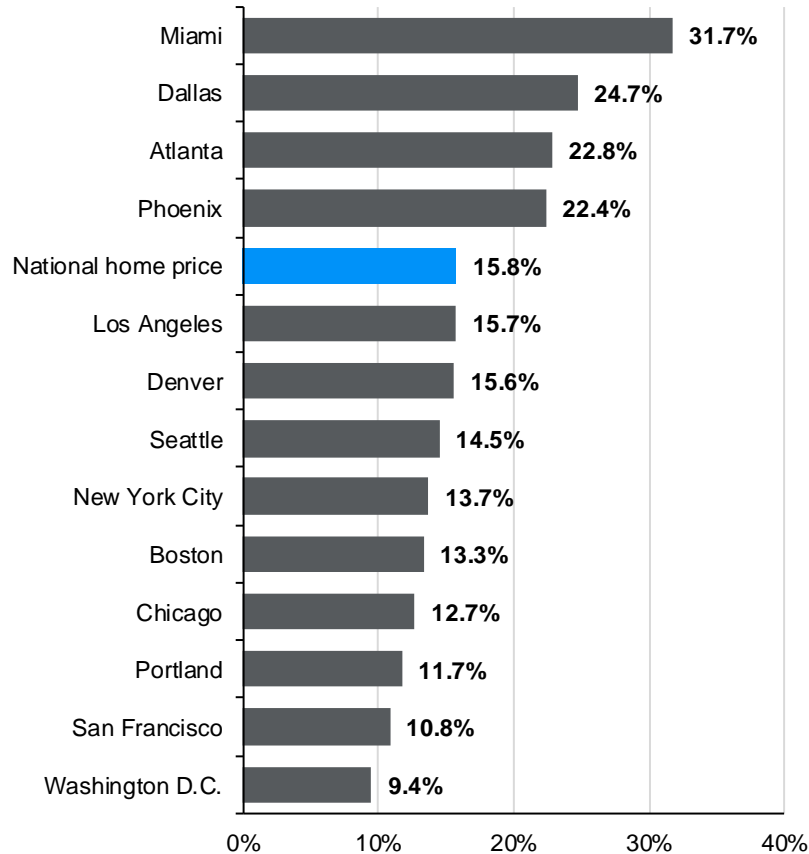
U.S.

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Economy

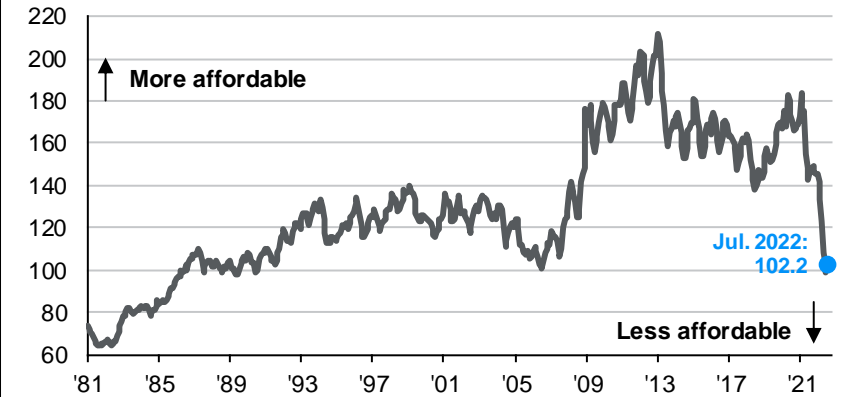
## U.S. home price growth by city

S&P Case-Shiller Home Price Index, Jul. 2022, y/y % change



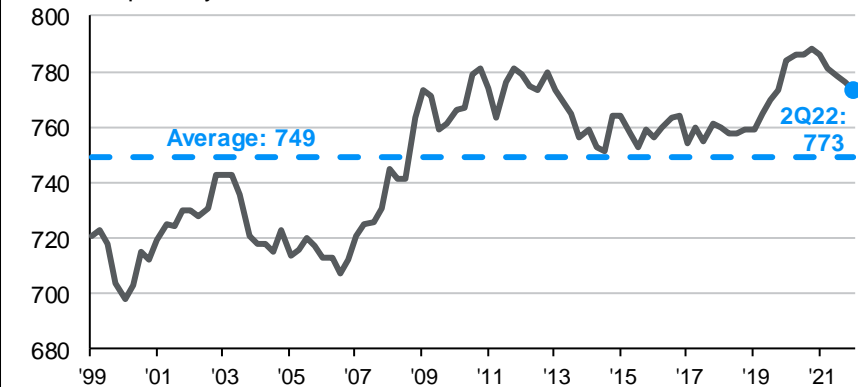
## Housing affordability index\*

Index



## Credit score at mortgage origination

Median, quarterly



Source: J.P. Morgan Asset Management. (Left) FactSet, Robert Shiller, Standard & Poor's; (Top right) U.S. National Association of Realtors; (Bottom right) New York Fed Consumer Credit Panel/Equifax. \*Based on the National Association of Realtors methodology, an index value above 100 signifies that a family earning the median income has more than enough income to qualify for a mortgage loan on a median-priced home. The calculation assumes a down payment of 20% of the home price and it assumes a qualifying ratio of 25%.  
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# Residential real estate

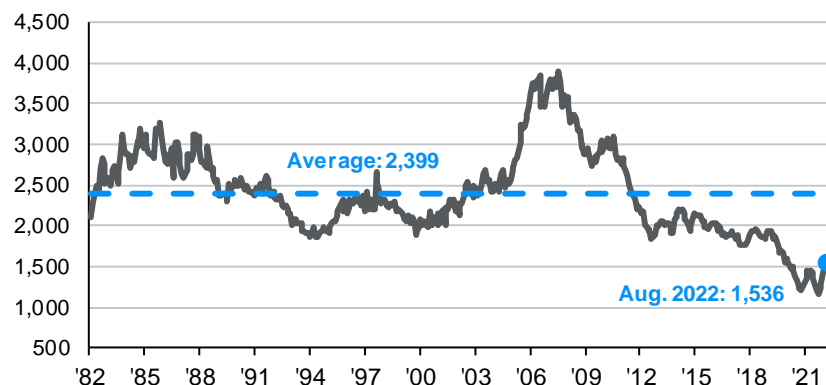
GTM

U.S.

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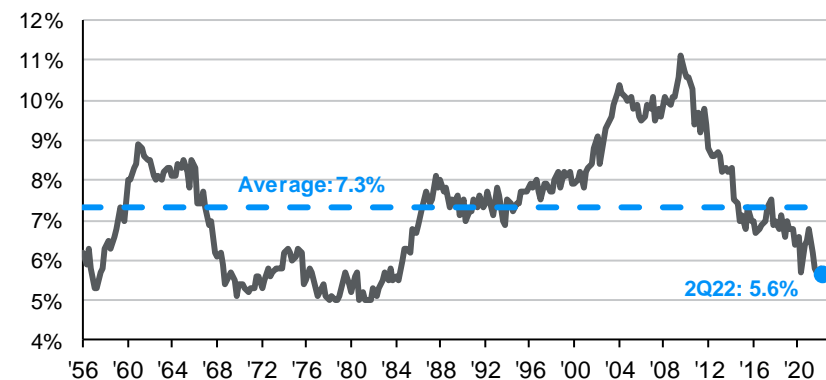
## Housing inventories

Inventory of new and existing single family homes for sale, thous, SA\*



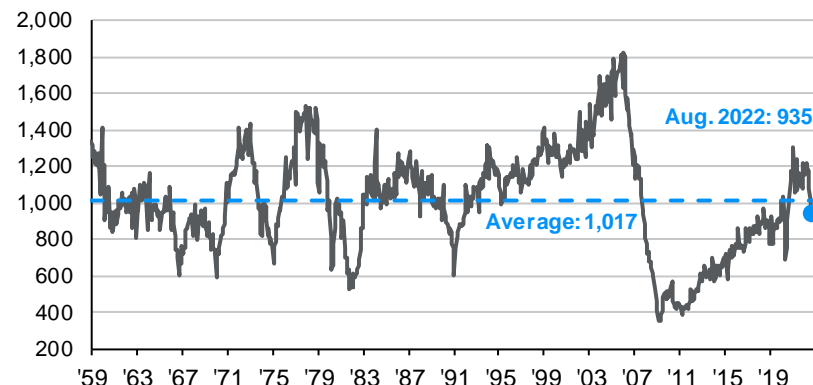
## Rental vacancy rate

Percent



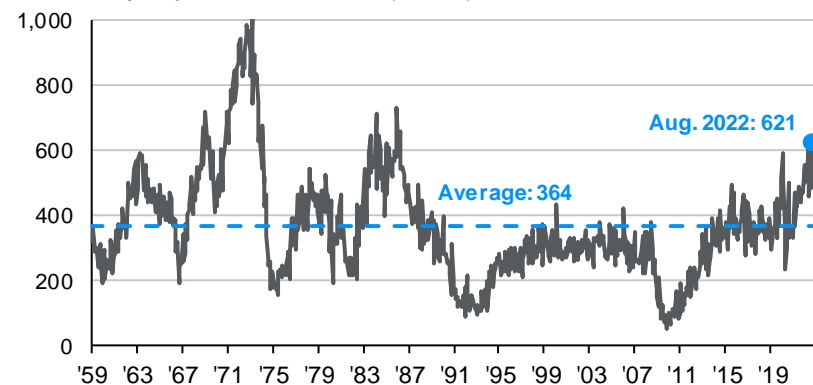
## Single-family housing starts

Seasonally adjusted annual rate (SAAR), thous houses



## Multi-family housing starts

Seasonally adjusted annual rate (SAAR), thous houses



Source: U.S. Census Bureau, U.S. National Association of Realtors, J.P. Morgan Asset Management. \*Inventory of new and existing single family homes for sale is seasonally adjusted by J.P. Morgan Asset Management.  
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# Federal finances

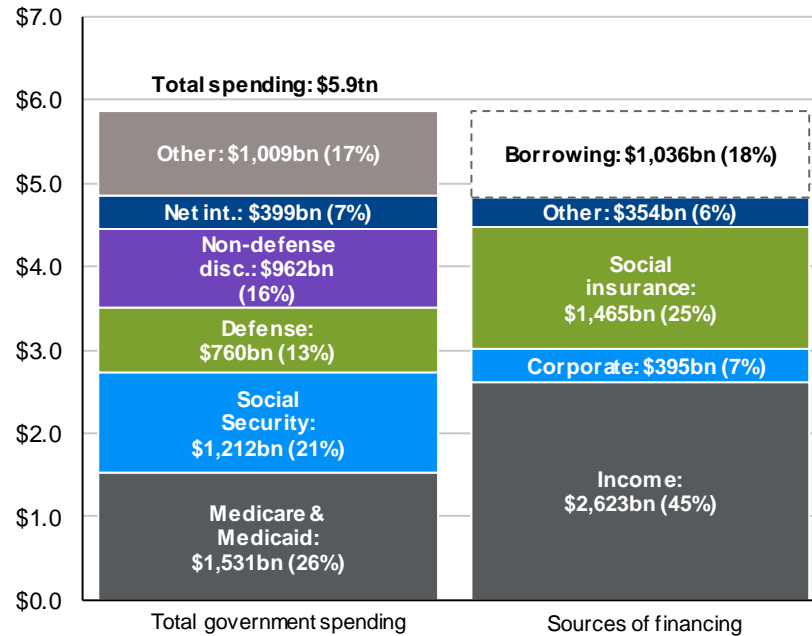
GTM

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## The 2022 federal budget

CBO Baseline forecast, USD trillions

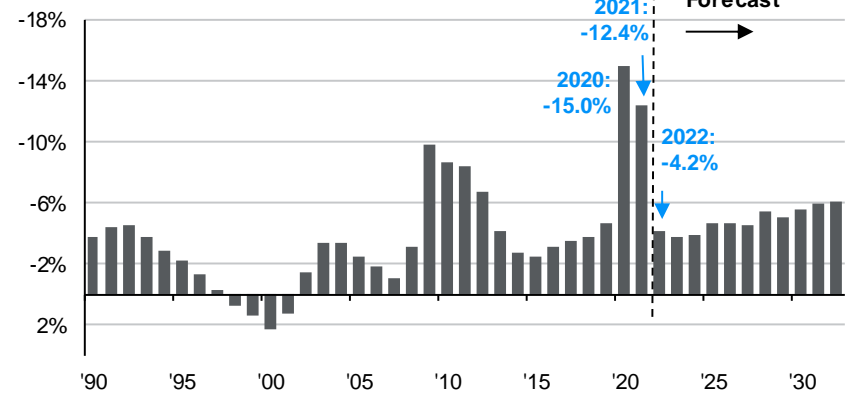


### CBO's Baseline economic assumptions

	2022	'23-'24	'25-'26	'27-'32
Real GDP growth	4.4%	2.4%	1.5%	1.7%
10-year Treasury	2.1%	2.9%	3.3%	3.8%
Headline inflation (CPI)	6.6%	3.0%	2.3%	2.4%
Unemployment	3.9%	3.6%	3.9%	4.5%

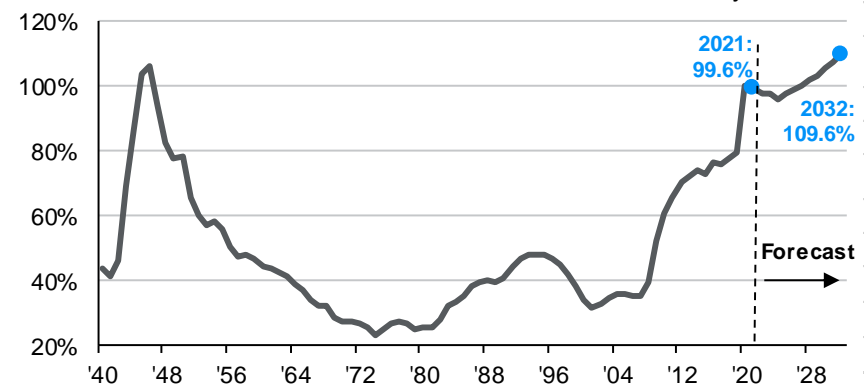
## Federal budget surplus/deficit

% of GDP, 1990 – 2032, CBO Baseline Forecast



## Federal net debt (accumulated deficits)

% of GDP, 1940 – 2032, CBO Baseline Forecast, end of fiscal year



Source: CBO, J.P. Morgan Asset Management; (Top and bottom right) BEA, Treasury Department.

Estimates are based on the Congressional Budget Office (CBO) May 2022 Update to the Budget and Economic Outlook. Other spending includes, but is not limited to, health insurance subsidies, income security and federal civilian and military retirement. Note: Years shown are fiscal years. Forecasts are not a reliable indicator of future performance. Forecasts, projections and other forward-looking statements are based upon current beliefs and expectations. They are for illustrative purposes only and serve as an indication of what may occur. Given the inherent uncertainties and risks associated with forecasts, projections or other forward-looking statements, actual events, results or performance may differ materially from those reflected or contemplated.

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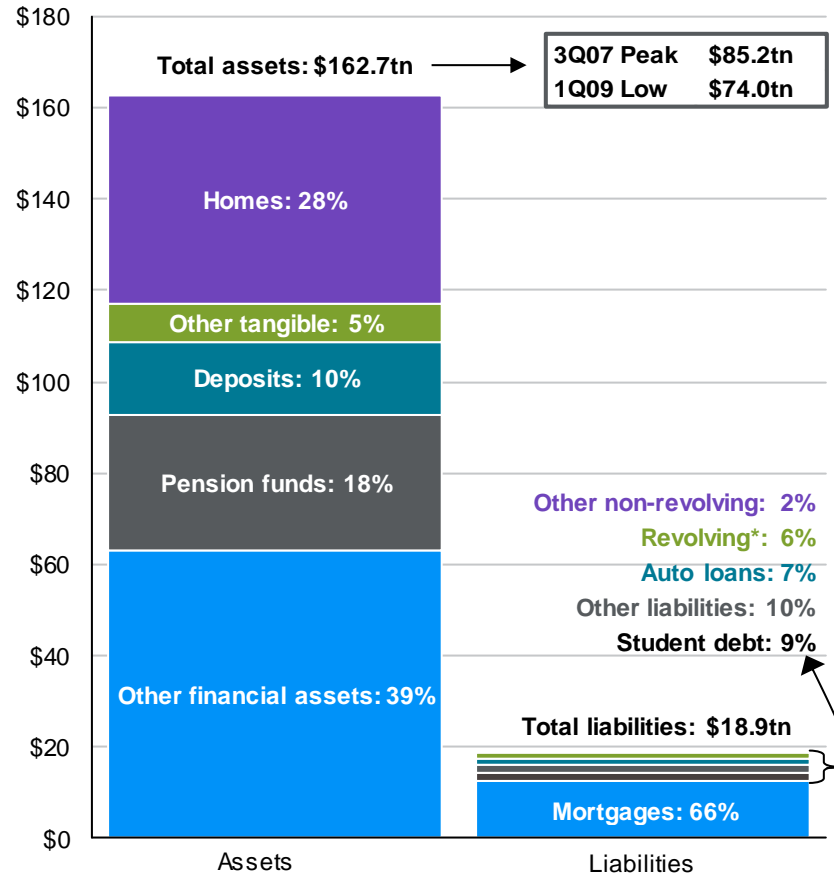
# Consumer finances

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Economy

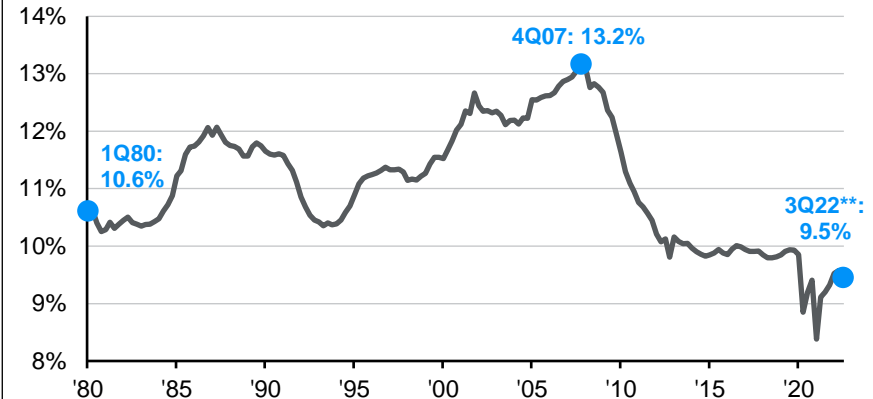
## Consumer balance sheet

2Q22, trillions of dollars outstanding, not seasonally adjusted



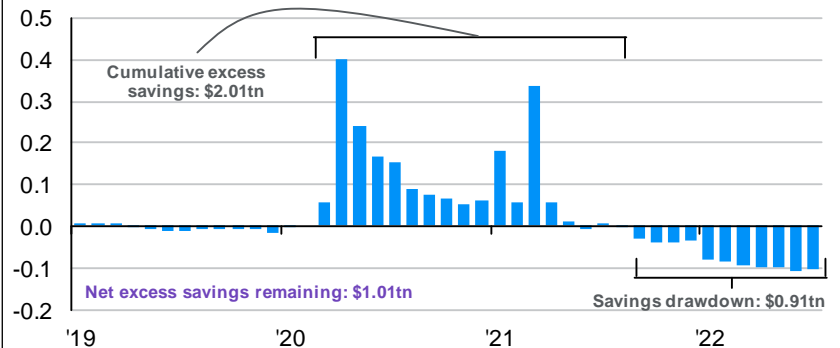
## Household debt service ratio

Debt payments as % of disposable personal income, SA



## Excess personal savings relative to pre-pandemic trend

Disposable personal income less consumer outlays, minus pre-pandemic trend growth\*\*\*, \$ trillions, monthly



Source: FactSet, FRB, J.P. Morgan Asset Management; (Top and bottom right) BEA.  
Data include households and nonprofit organizations. SA – seasonally adjusted. \*Revolving includes credit cards. Values may not sum to 100% due to rounding. \*\*3Q22 figures for debt service ratio are J.P. Morgan Asset Management estimates. \*\*\*Figures reflect the difference in monthly realized savings vs. pre-pandemic trend savings. From March 2020 to August 2021, consumers amassed \$2.0 trillion in excess savings. Since August 2021, consumers have begun to draw down on those excess savings, with the remaining reflected in the chart annotation.  
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# Consumer confidence and the stock market

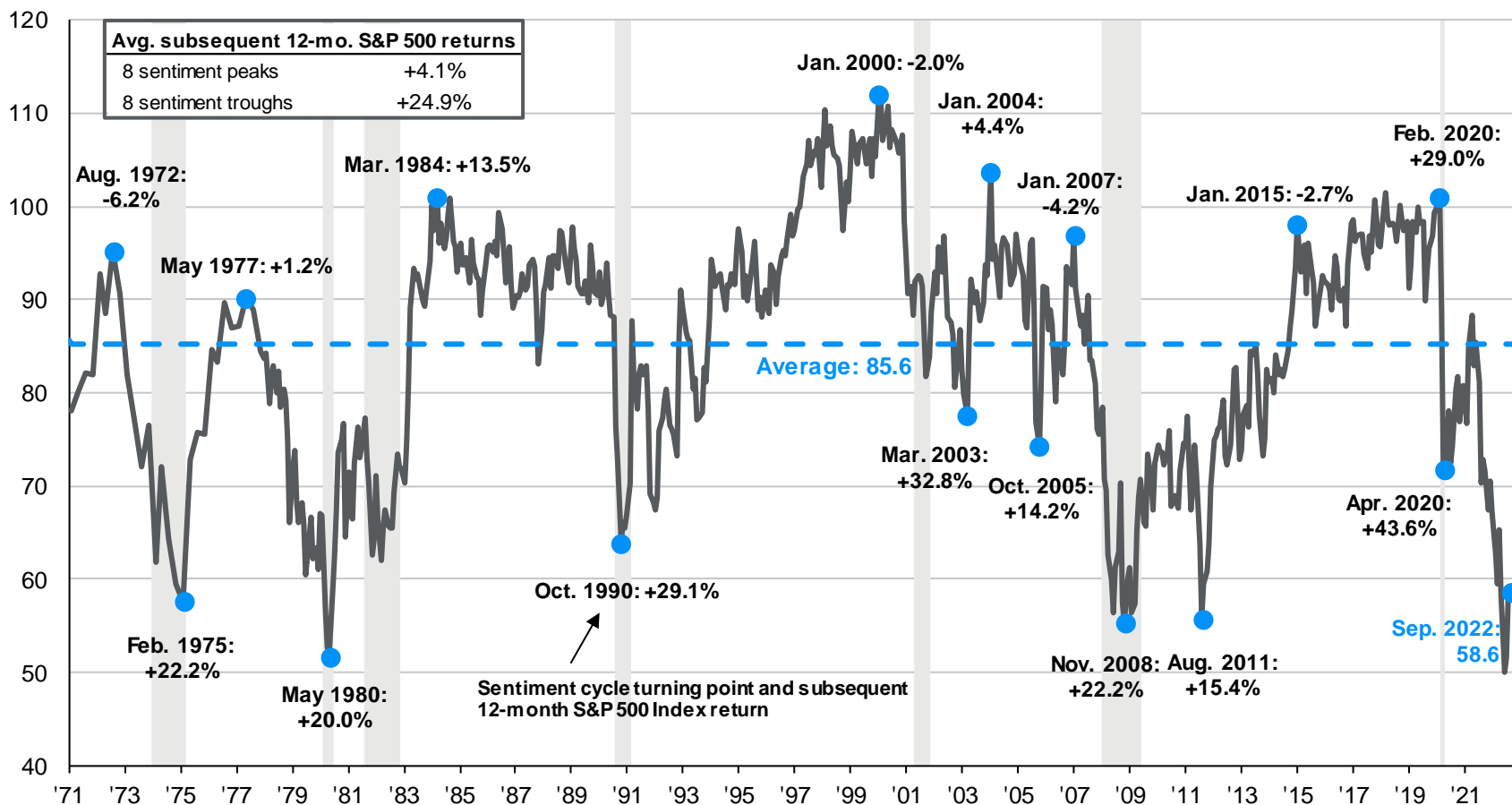
GTM

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Economy

## Consumer Sentiment Index and subsequent 12-month S&P 500 returns



Source: FactSet, Standard & Poor's, University of Michigan, J.P. Morgan Asset Management.

Peak is defined as the highest index value before a series of lower lows, while a trough is defined as the lowest index value before a series of higher highs. Subsequent 12-month S&P 500 returns are price returns only, which excludes dividends. Past performance is not a reliable indicator of current and future results.

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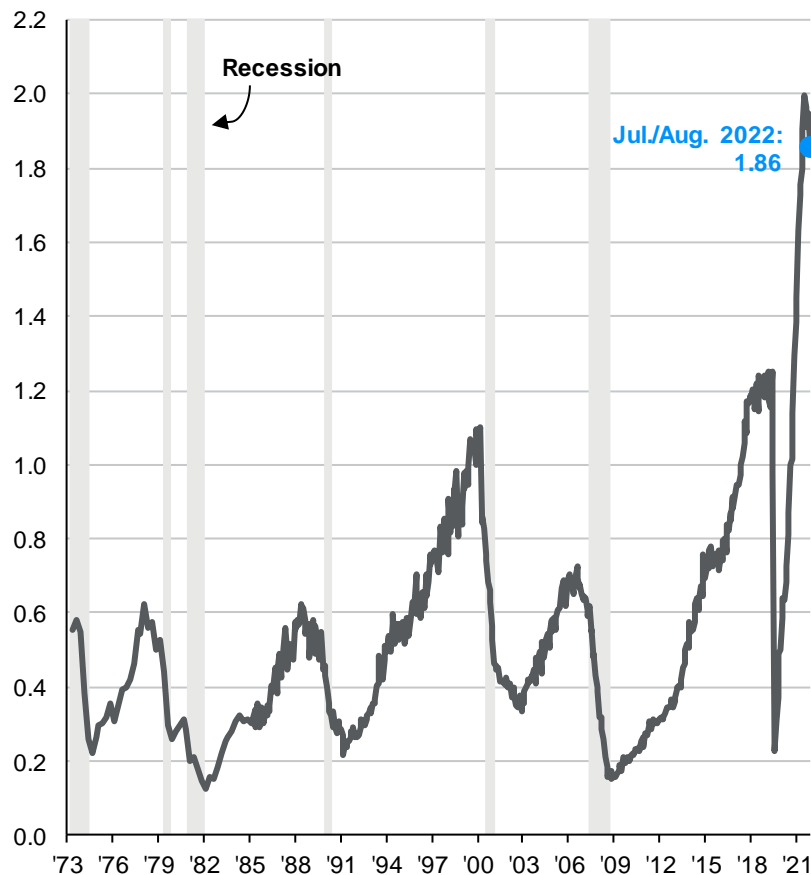
# Labor demand

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Economy

## Ratio of job openings to job seekers

Job openings\* lagged 1 month divided by unemployed persons, SA



## JOLTS quits

Total nonfarm quits, thousands, seasonally adjusted



## JOLTS layoffs

Total nonfarm layoffs, thousands, seasonally adjusted



Source: U.S. Department of Labor, J.P. Morgan Asset Management. \*JOLTS job openings from February 1974 to November 2000 are J.P. Morgan Asset Management estimates.  
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# Unemployment and wages

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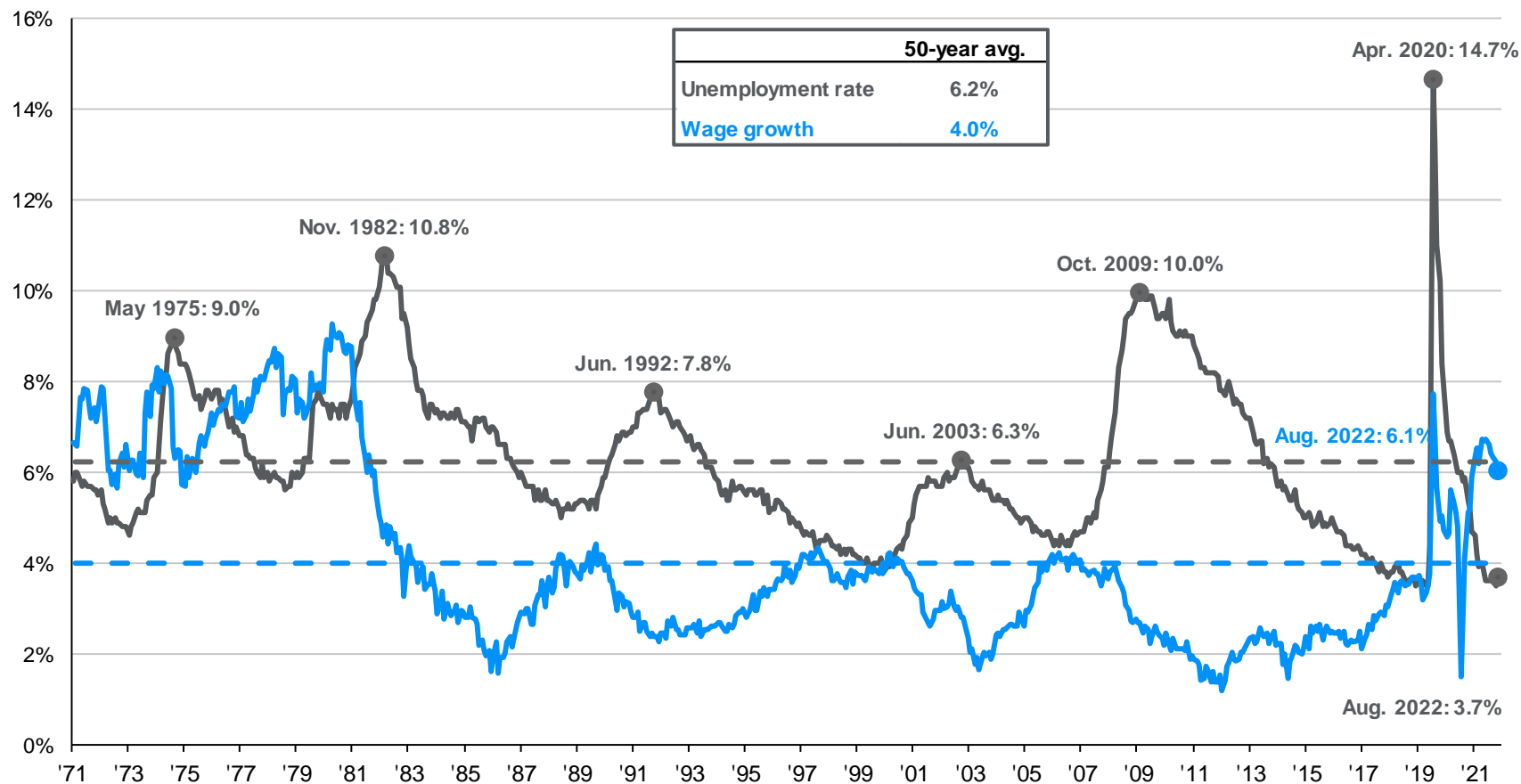
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Economy

## Civilian unemployment rate and year-over-year wage growth

Private production and non-supervisory workers, seasonally adjusted, percent



Source: BLS, FactSet, J.P. Morgan Asset Management.  
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# Inflation

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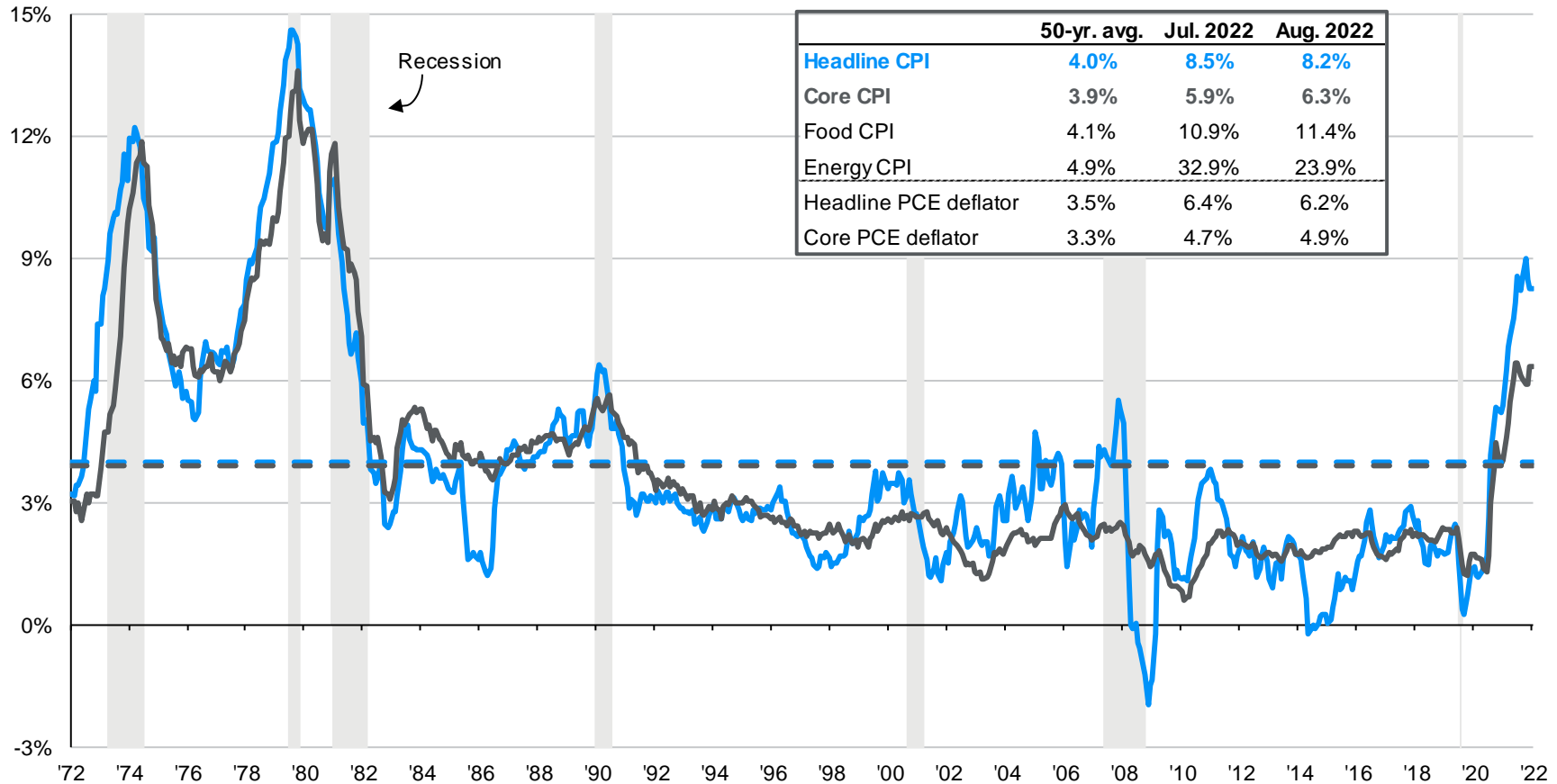
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Economy

## CPI and core CPI

% change vs. prior year, seasonally adjusted



Source: BLS, FactSet, J.P. Morgan Asset Management.

CPI used is CPI-U and values shown are % change vs. one year ago. Core CPI is defined as CPI excluding food and energy prices. The Personal Consumption Expenditure (PCE) deflator employs an evolving chain-weighted basket of consumer expenditures instead of the fixed-weight basket used in CPI calculations.

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# Inflation drivers and expectations

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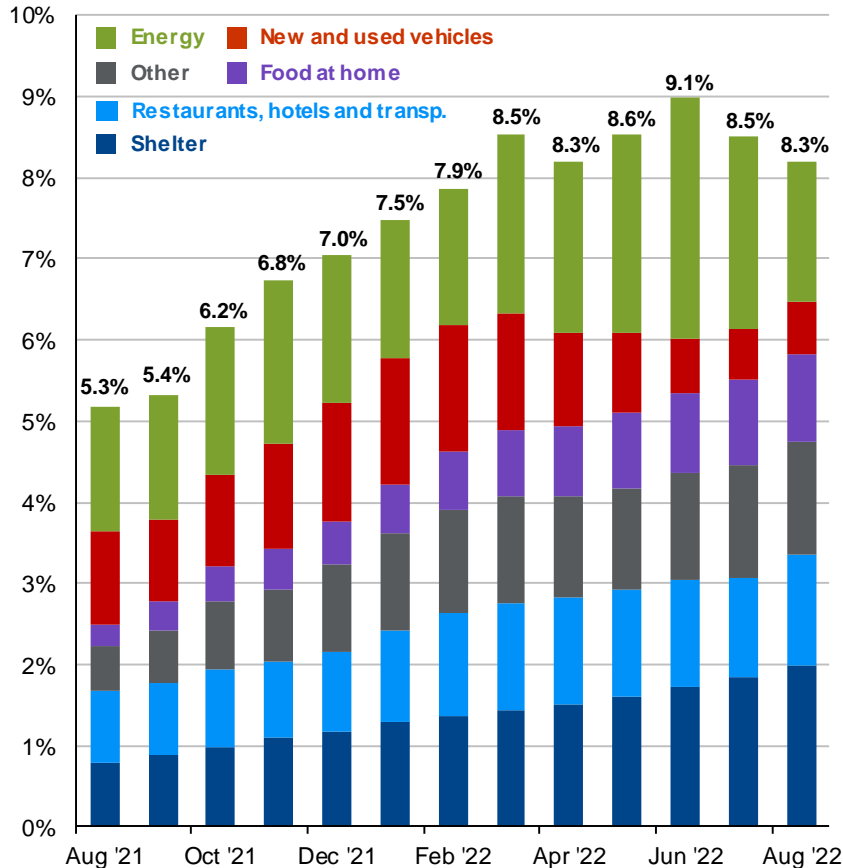
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Economy

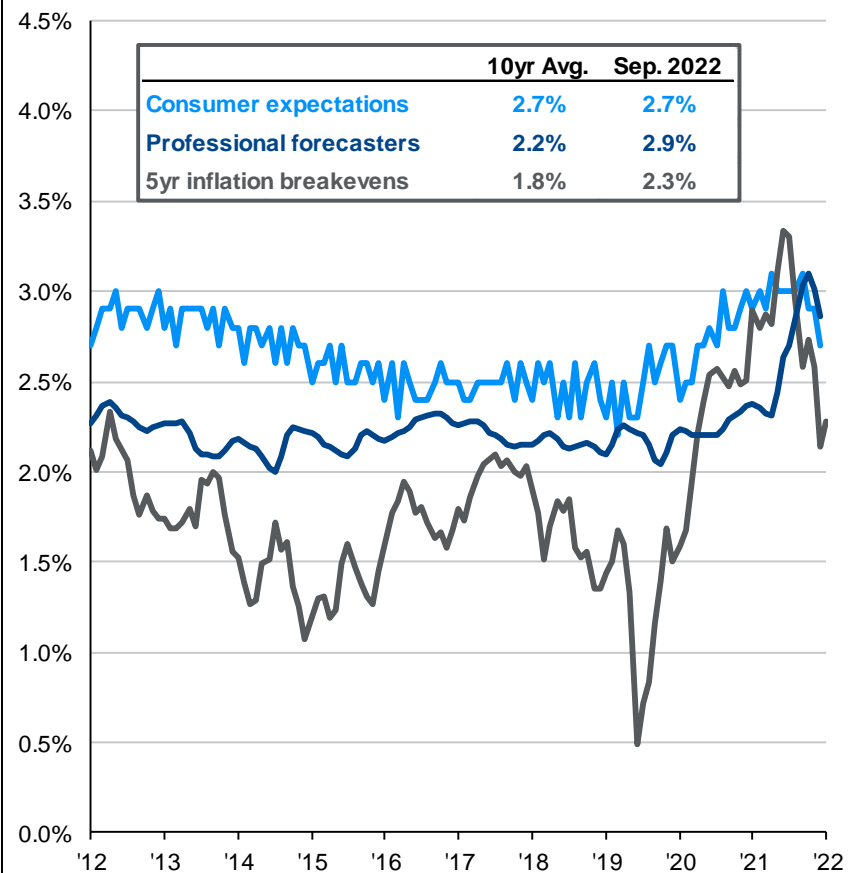
## Contributors to headline inflation

Contribution to y/y % change in CPI, not seasonally adjusted



## Inflation expectations, next 5 years

% change vs. prior year, non-seasonally adjusted



Source: Bureau of Labor Statistics, FactSet, Federal Reserve Bank of Philadelphia, University of Michigan, J.P. Morgan Asset Management. Contributions mirror the BLS methodology on Table 7 of the CPI report. Values may not sum to headline CPI figures due to rounding and underlying calculations. "Shelter" includes owners equivalent rent and rent of primary residence. "Other" primarily reflects household furnishings, apparel, education and communication services, medical care services and other personal services. Professional forecasters reflects the latest quarterly Survey of Professional Forecasters on a 1-month lag. The Survey of Professional Forecasters is conducted by the Federal Reserve Bank of Philadelphia and reflects the median estimate by professional forecasters of average CPI inflation over the next 5 years. Guide to the Markets – U.S. Data are as of October 4, 2022.

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# Dollar drivers

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Economy

## The U.S. dollar

U.S. Dollar Index



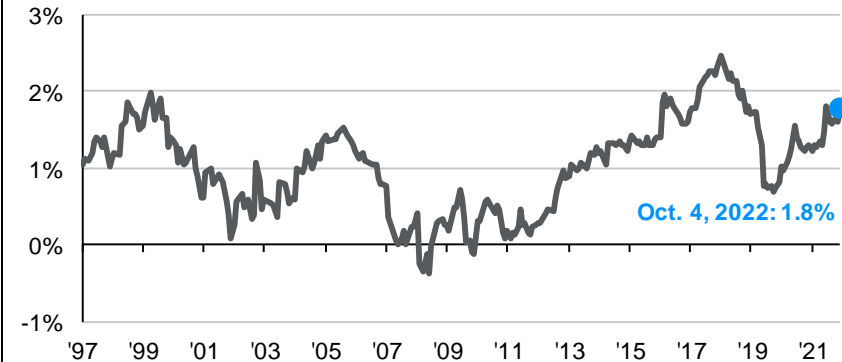
## The U.S. trade balance

Current account balance, % of GDP



## Developed markets interest rate differentials

Difference between U.S. and international 10-year yields\*



Source: J.P. Morgan Asset Management; (Left) FactSet, ICE; (Top right) Bureau of Economic Analysis, FactSet; (Bottom right) Tullett Prebon. Currencies in the DXY Index are: British pound, Canadian dollar, euro, Japanese yen, Swedish krona and Swiss franc. \*Interest rate differential is the difference between the 10-year U.S. Treasury yield and a basket of the 10-year yields of each major trading partner (Australia, Canada, Europe, Japan, Sweden, Switzerland and UK). Weights in the basket are calculated using the 10-year average of total government bonds outstanding in each region. Europe is defined as the 19 countries in the euro area. *Guide to the Markets – U.S.* Data are as of October 4, 2022.

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# Oil markets

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## Change in production and consumption of liquid fuels

Production, consumption and inventories, millions of barrels per day

Production	2019	2020	2021	2022*	2023*	Growth since '19
U.S.	19.5	18.6	19.0	20.2	21.4	9.7%
OPEC	34.6	30.7	31.7	34.1	34.5	-0.3%
Russia	11.5	10.5	10.8	10.9	9.3	-18.7%
<b>Global</b>	<b>100.3</b>	<b>93.9</b>	<b>95.7</b>	<b>100.1</b>	<b>101.3</b>	<b>1.0%</b>
Consumption						
U.S.	20.5	18.2	19.9	20.4	20.8	1.0%
China	14.0	14.4	15.3	15.3	16.0	13.9%
<b>Global</b>	<b>100.7</b>	<b>91.8</b>	<b>97.4</b>	<b>99.5</b>	<b>101.5</b>	<b>0.8%</b>
Inventory Change						
	-0.4	2.1	-1.7	0.6	-0.2	

## U.S. crude oil inventories and rig count\*\*

Million barrels, number of active rigs



## Price of oil

WTI crude, nominal prices, USD/barrel



Source: J.P. Morgan Asset Management; (Top and bottom left) EIA; (Right) FactSet; (Bottom left) Baker Hughes.

\*Forecasts are from the September 2022 EIA Short-Term Energy Outlook and start in 2022. \*\*U.S. crude oil inventories include the Strategic Petroleum Reserve (SPR). Active rig count includes both natural gas and oil rigs. WTI crude prices are continuous contract NYM prices in USD.

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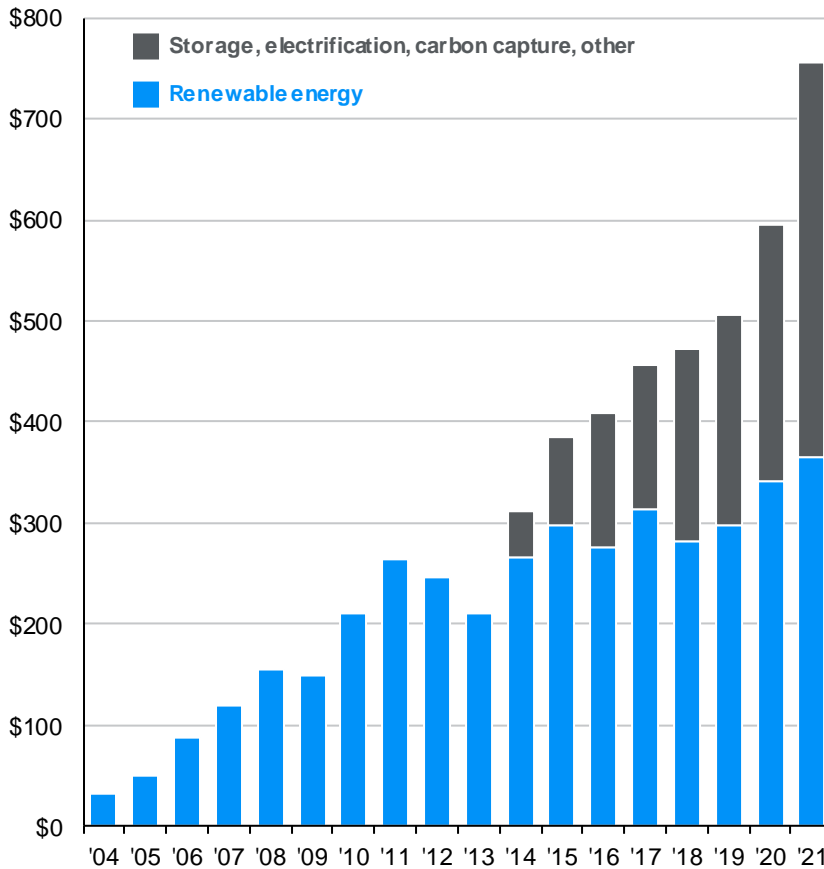


# Global energy transition

GTM U.S. 33

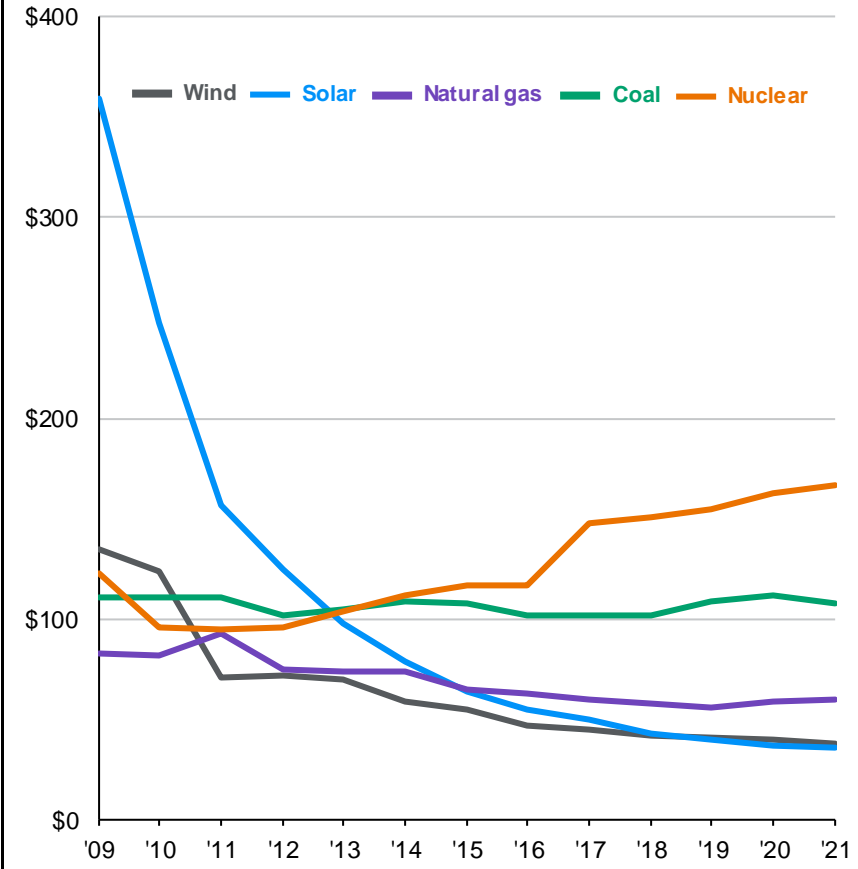
## Global investment in energy transition

Billions USD, nominal



## Cost of wind, solar, natural gas, nuclear and coal

Mean LCOE\*, 2021, dollar per megawatt hour



Source: Bloomberg NEF, BP Statistical, Eurostat, Lazard, METI, J.P. Morgan Asset Management; (Left) Storage, electrification, other includes hydrogen, carbon capture and storage, energy storage, electrified transport and electrified heat; (Right) \*LCOE is levelized cost of energy, the net present value of the unit-cost of electricity over the lifetime of a generating asset. It is often taken as a proxy for the average price that the generating asset must receive in a market to break even over its lifetime; Forecasts are not a reliable indicator of future performance. Forecasts, projections and other forward-looking statements are based upon current beliefs and expectations. They are for illustrative purposes only and serve as an indication of what may occur. Given the inherent uncertainties and risks associated with forecasts, projections or other forward-looking statements, actual events, results or performance may differ materially from those reflected or contemplated.  
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# The Fed and interest rates

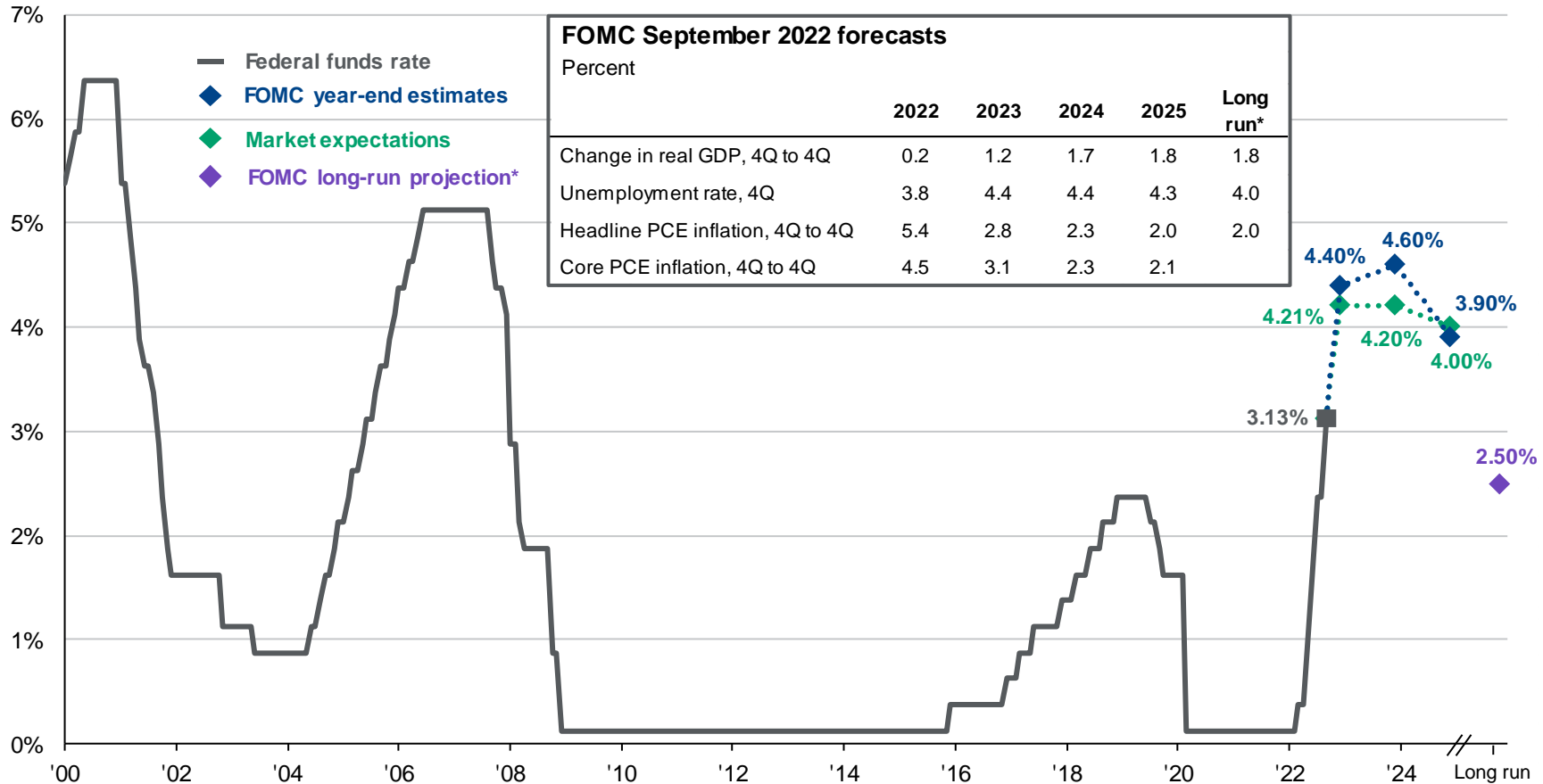
GTM

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## Federal funds rate expectations

FOMC and market expectations for the federal funds rate



Source: Bloomberg, FactSet, Federal Reserve, J.P. Morgan Asset Management.

Market expectations are based off of the respective Federal Funds Futures contracts for December expiry. \*Long-run projections are the rates of growth, unemployment and inflation to which a policymaker expects the economy to converge over the next five to six years in absence of further shocks and under appropriate monetary policy. Forecasts are not a reliable indicator of future performance. Forecasts, projections and other forward-looking statements are based upon current beliefs and expectations. They are for illustrative purposes only and serve as an indication of what may occur. Given the inherent uncertainties and risks associated with forecasts, projections or other forward-looking statements, actual events, results or performance may differ materially from those reflected or contemplated.

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# The Federal Reserve balance sheet

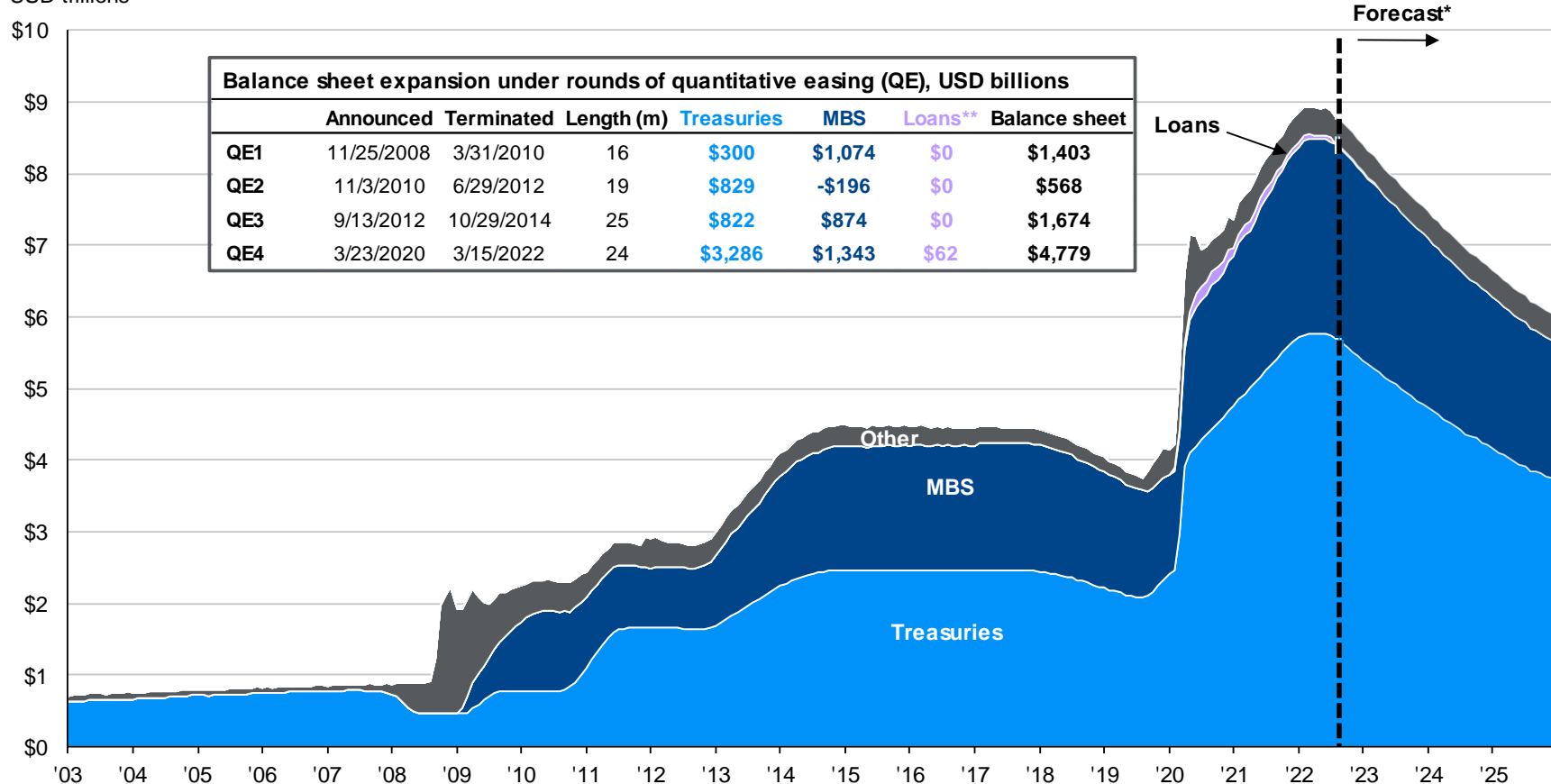
GTM

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## The Federal Reserve balance sheet

USD trillions



Source: FactSet, Federal Reserve, J.P. Morgan Investment Bank, J.P. Morgan Asset Management

At its peak, the balance sheet contained \$5.8tn in Treasuries and \$2.7tn in MBS. \*Per the most recent Federal Reserve policy meeting, the forecast assumes the Federal Reserve began balance sheet runoff in June 2022. From June to August, the committee allowed up to \$30bn in U.S. Treasury securities and \$17.5bn in agency mortgage-backed securities to mature per month, with that pace doubling to \$60bn and \$35bn respectively in September. Any maturing amount in excess of these caps are reinvested. The forecast does not include the active selling of securities from the committee. \*\*Loans include liquidity and credit extended through corporate credit facilities established in March 2020. Other includes primary, secondary and seasonal loans, repurchase agreements, foreign currency reserves and maiden lane securities. Forecasts are not a reliable indicator of future performance. Forecasts, projections and other forward-looking statements are based upon current beliefs and expectations. They are for illustrative purposes only and serve as an indication of what may occur. Given the inherent uncertainties and risks associated with forecasts, projections or other forward-looking statements, actual events, results or performance may differ materially from those reflected or contemplated.

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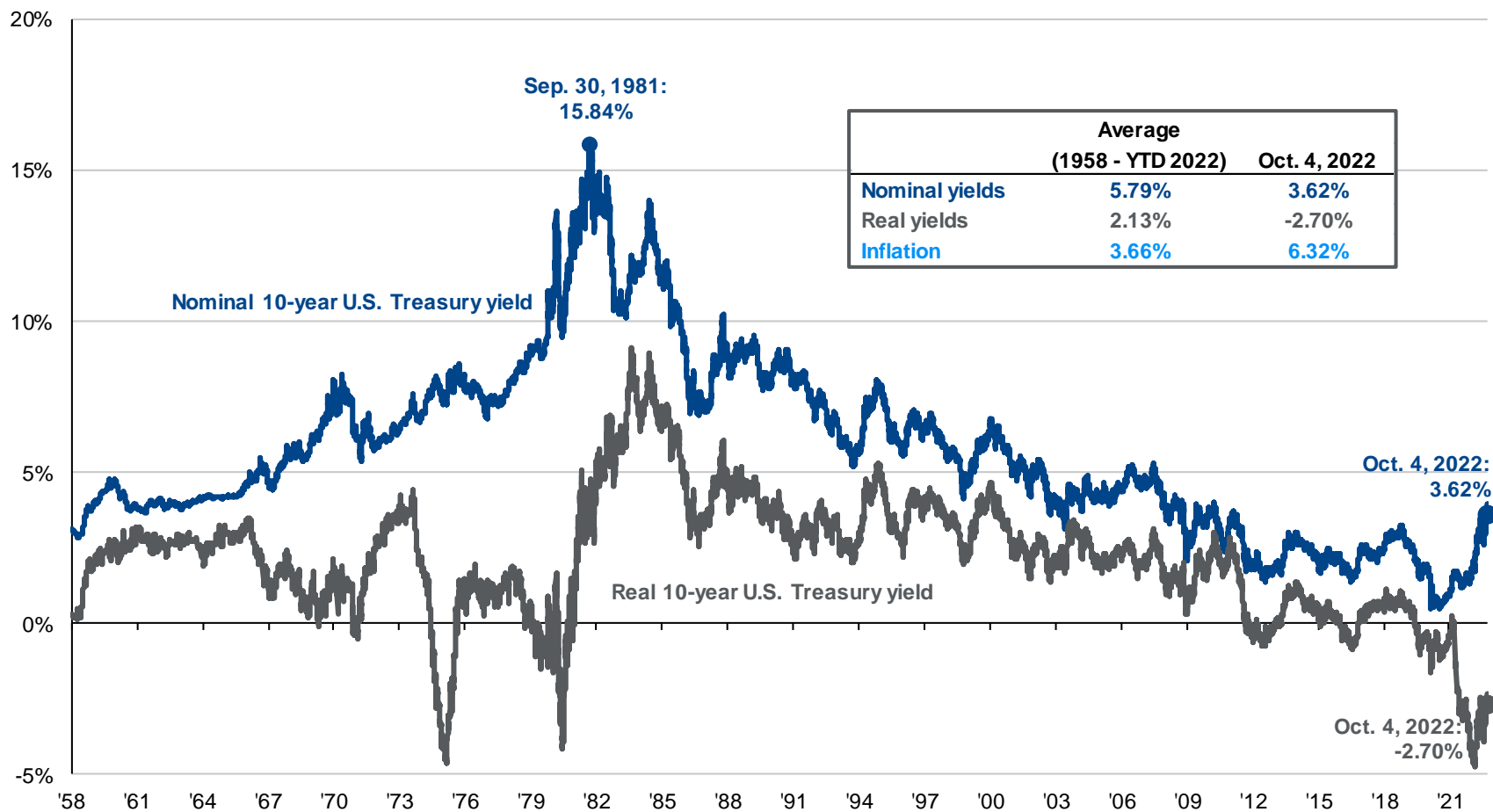
# Interest rates and inflation

GTM

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## Nominal and real U.S. 10-year Treasury yields



Source: BLS, FactSet, Federal Reserve, J.P. Morgan Asset Management.  
Real 10-year Treasury yields are calculated as the daily Treasury yield less year-over-year core CPI inflation for that month. For the current month, we use the prior month's core CPI figures until the latest data is available.  
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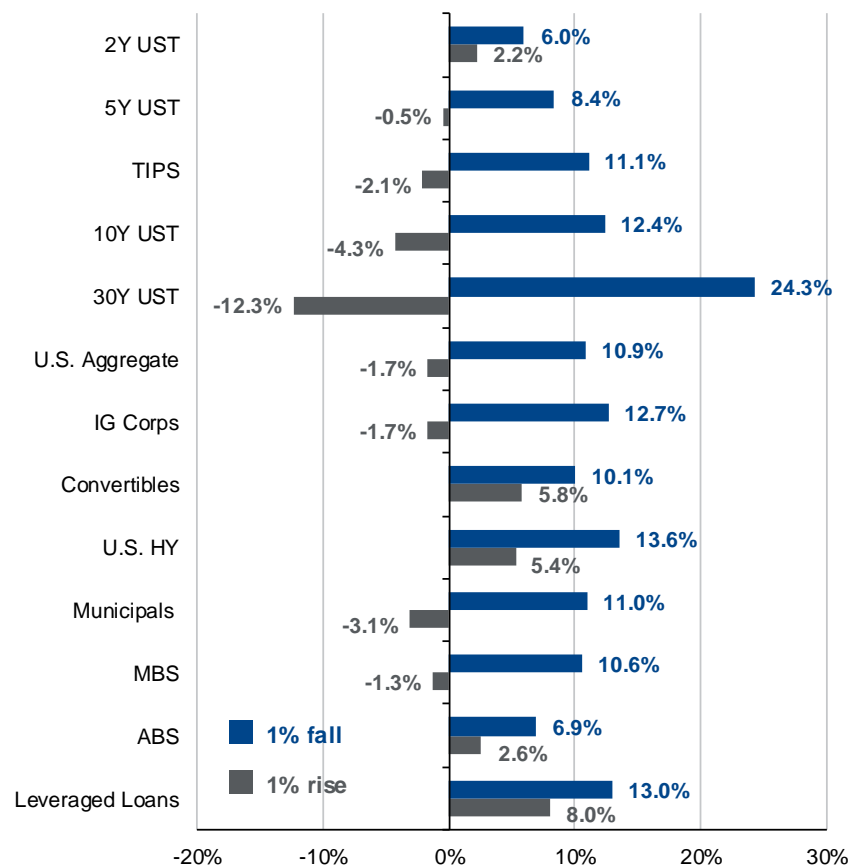
# Fixed income market dynamics

GTM U.S. 37

U.S. Treasuries	Yield		Return			
	10/4/2022	12/31/2021	2022 YTD	Avg. Maturity	Correlation to 10-year	Correlation to S&P 500
2-Year	4.10%	0.73%	-4.34%	2 years	0.71	-0.25
5-Year	3.84%	1.26%	-9.99%	5	0.93	-0.21
TIPS	1.38%	-1.04%	-12.27%	10	0.61	0.30
10-Year	3.62%	1.52%	-15.73%	10	1.00	-0.19
30-Year	3.70%	1.90%	-30.69%	30	0.93	-0.20
Sector						
U.S. Aggregate	4.58%	1.75%	-13.64%	8.6	0.85	0.18
IG Corps	5.48%	2.33%	-17.42%	11.2	0.50	0.46
Convertibles	7.49%	3.66%	-19.27%	-	-0.17	0.87
U.S. HY	9.49%	4.21%	-13.17%	5.7	-0.14	0.75
Municipals	3.94%	1.11%	-11.42%	12.9	0.47	0.20
MBS	4.63%	1.98%	-12.50%	8.0	0.78	0.09
ABS	5.37%	1.96%	-3.47%	2.3	0.05	-0.12
Leveraged Loans	10.25%	4.60%	-2.06%	2.5	-0.04	0.24

## Impact of a 1% rise or fall in interest rates

Total return, assumes a parallel shift in the yield curve



Source: Bloomberg, FactSet, Standard & Poor's, U.S. Treasury, J.P. Morgan Asset Management. Sectors shown above are provided by Bloomberg unless otherwise noted and are represented by – U.S. Aggregate; MBS: U.S. Aggregate Securitized – MBS; ABS: J.P. Morgan ABS Index; Corporates: U.S. Corporates; Municipals: Muni Bond; High Yield: Corporate High Yield; Leveraged Loans: J.P. Morgan Leveraged Loan Index; TIPS: Treasury Inflation-Protected Securities; Convertibles: U.S. Convertibles Composite. Convertibles yield is as of most recent month end and is based on U.S. portion of Bloomberg Global Convertibles Index. Yield and return information based on bellwethers for Treasury securities. Sector yields reflect yield-to-worst. Convertibles yield is based on U.S. portion of Bloomberg Global Convertibles. Correlations are based on 15-years of monthly returns for all sectors. Past performance is not indicative of future results.  
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# Yield curve

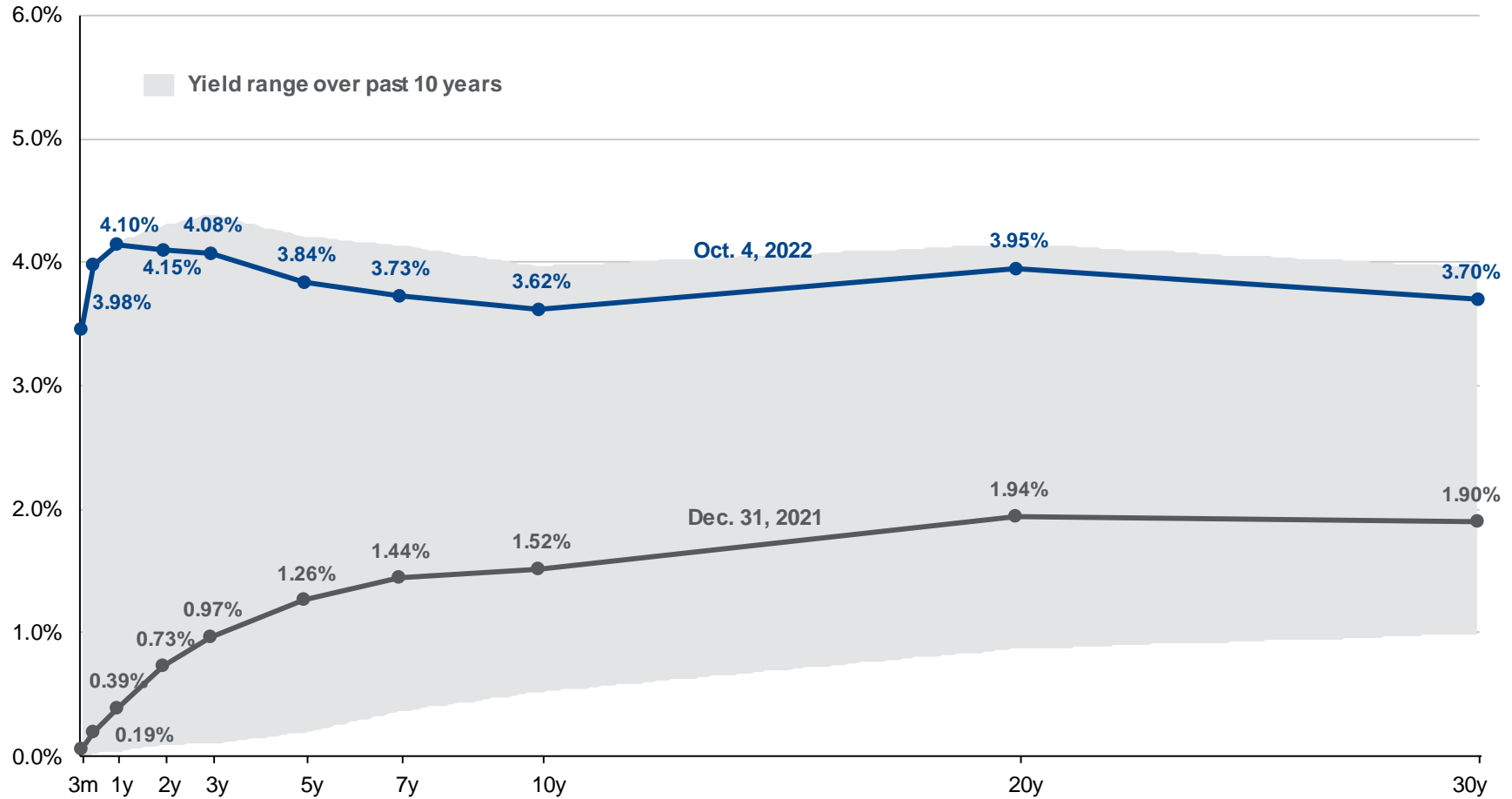
GTM

U.S.

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Fixed Income

## U.S. Treasury yield curve



Source: FactSet, Federal Reserve, J.P. Morgan Asset Management.  
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# High yield bonds

GTM

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Fixed Income

## Default rate and spread-to-worst

Percent



Source: J.P. Morgan Global Economic Research, J.P. Morgan Asset Management.

Default rates are defined as the par value percentage of the total market trading at or below 50% of par value and include any Chapter 11 filing, prepackaged filing or missed interest payments. The default rate is an LTM figure (last 12 months) and tracks the % of defaults over the period. Recovery rates are based on the price of the defaulted bonds or loans 30 days post the default date. Default and recovery rates are as of most recent month-end. Spread-to-worst indicated are the difference between the yield-to-worst of a bond and yield-to-worst of a U.S. Treasury security with a similar duration. High yield is represented by the J.P. Morgan Domestic High Yield Index.

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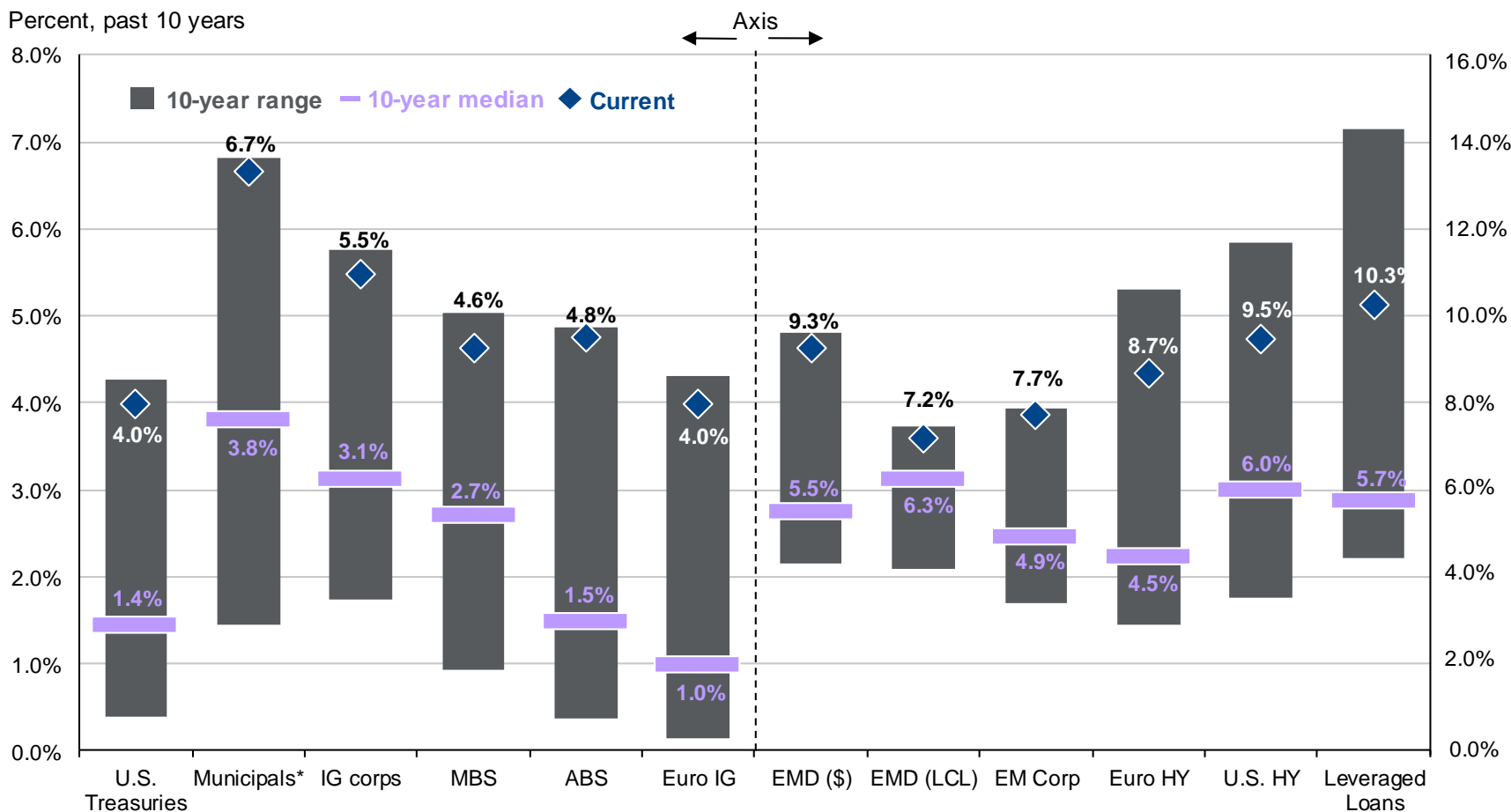


# Fixed income valuations

GTM U.S. 40

## Yield-to-worst across fixed income sectors

Percent, past 10 years



Source: Bloomberg, FactSet, J.P. Morgan Credit Research, J.P. Morgan Asset Management. Indices used are Bloomberg except for emerging market debt and leveraged loans: EMD (\$): J.P. Morgan EMIGLOBAL Diversified Index; EMD (LCL): J.P. Morgan GBI-EM Global Diversified Index; EM Corp.: J.P. Morgan CEMBI Broad Diversified; Leveraged loans: JPM Leveraged Loan Index; Euro IG: Bloomberg Euro Aggregate Corporate Index; Euro HY: Bloomberg Pan-European High Yield Index. Yield-to-worst is the lowest possible yield that can be received on a bond apart from the company defaulting. All sectors shown are yield-to-worst except for Municipals, which is based on the tax-equivalent yield-to-worst assuming a top-income tax bracket rate of 37% plus a Medicare tax rate of 3.8%.

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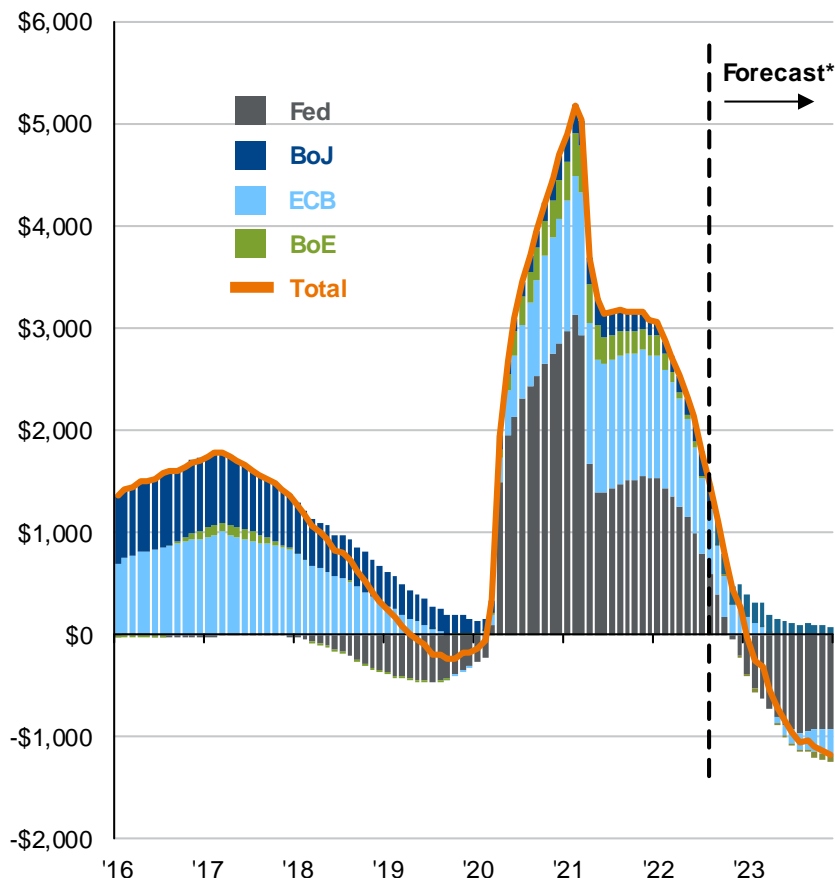


# Developed market monetary policy

GTM U.S. 41

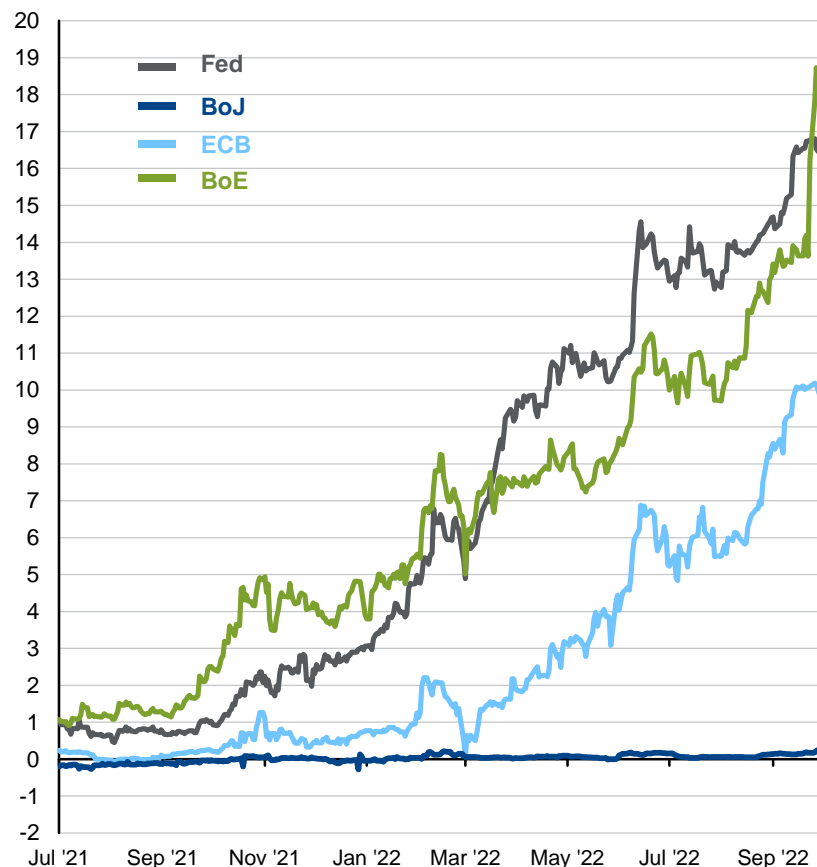
## Developed market central bank bond purchases

USD billions, 12-month rolling flow



## Market pricing for central bank hikes in 2022

Number of 25bp hikes priced into OIS contracts for year-end 2022\*\*



Source: BIS, Bloomberg, FactSet, J.P. Morgan Asset Management; (Left) Bank of England (BoE), Bank of Japan (BoJ), European Central Bank (ECB), Federal Reserve System (Fed), J.P. Morgan Global Economic Research. \*DM bond purchase forecasts are internal assumptions based on government bond purchases as outlined in the most recent monetary policy announcements from the BoE, BoJ, ECB and Federal Reserve through December 2023. \*\*Rate hikes shown are cumulative and reflect hikes delivered year-to-date. Forecasts, projections and other forward-looking statements are based upon current beliefs and expectations. They are for illustrative purposes only and are not a reliable indicator of future performance. Given the inherent uncertainties and risks associated with forecast, projections or other forward-looking statements, actual events, results or performance may differ materially from those reflected or contemplated.  
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# Global fixed income

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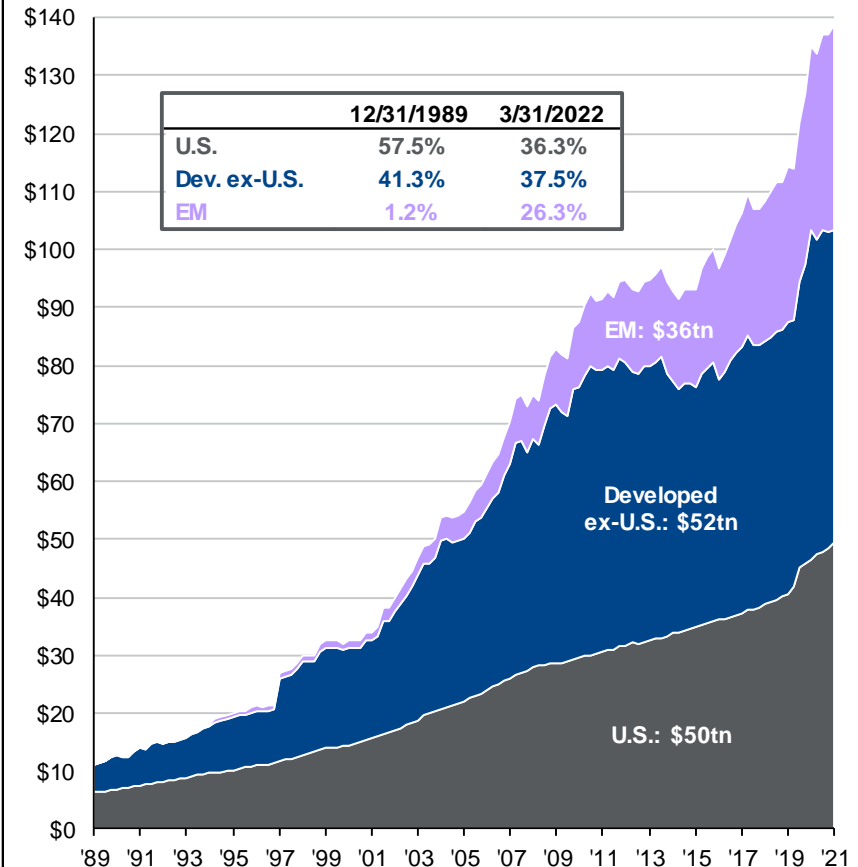
U.S.

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Aggregates	Yield		2022 Return		Duration	Correlation to 10-year
	10/4/2022	12/31/2021	Local	USD		
<b>U.S.</b>	4.58%	1.75%	-13.64%	-13.64%	6.3 years	0.90
<b>Gbl. ex-U.S.</b>	2.88%	1.07%	-	-21.64%	7.20	0.54
<b>Japan</b>	0.54%	0.18%	-2.64%	-22.39%	9.40	0.58
<b>Germany</b>	2.60%	0.05%	-12.52%	-23.41%	6.50	0.43
<b>UK</b>	4.52%	1.18%	-21.80%	-34.16%	8.40	0.47
<b>Italy</b>	3.57%	0.76%	-14.57%	-25.20%	6.30	0.28
<b>China</b>	2.82%	2.75%	5.40%	-7.72%	6.00	0.56
<b>Sector</b>						
<b>Euro Corp.</b>	3.98%	0.52%	-13.46%	-24.23%	4.6 years	0.38
<b>Euro HY</b>	8.68%	3.55%	-14.08%	-24.78%	3.20	0.00
<b>EMD (\$)</b>	9.25%	5.27%	-	-22.46%	5.90	0.31
<b>EMD (LCL)</b>	7.21%	5.72%	-8.81%	-16.98%	4.80	0.17
<b>EM Corp.</b>	7.72%	4.11%	-	-15.63%	4.90	0.19

## Global bond market

USD trillions



Source: J.P. Morgan Asset Management; (Left) Bloomberg, FactSet; (Right) BIS.

Fixed income sectors shown above are provided by Bloomberg and are represented by the global aggregate for each country except where noted. EMD sectors are represented by the J.P. Morgan EMBIG Diversified Index (USD), the J.P. Morgan GBI EM Global Diversified Index (LCL) and the J.P. Morgan CEMBI Broad Diversified Index (Corp). European Corporates are represented by the Bloomberg Euro Aggregate Corporate Index and the Bloomberg Pan-European High Yield Index. Sector yields reflect yield-to-worst. Correlations are based on 10-years of monthly returns for all sectors. Past performance is not indicative of future results. Global bond market regional breakdown may not sum to 100% due to rounding.

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# Municipal finance

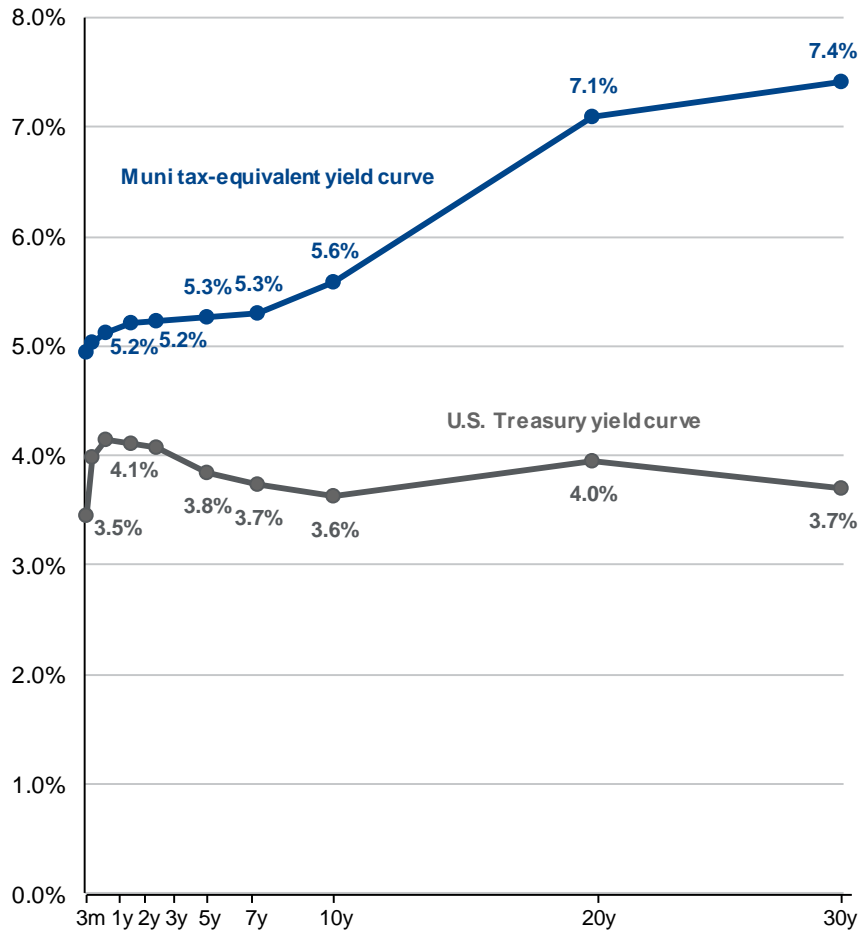
GTM

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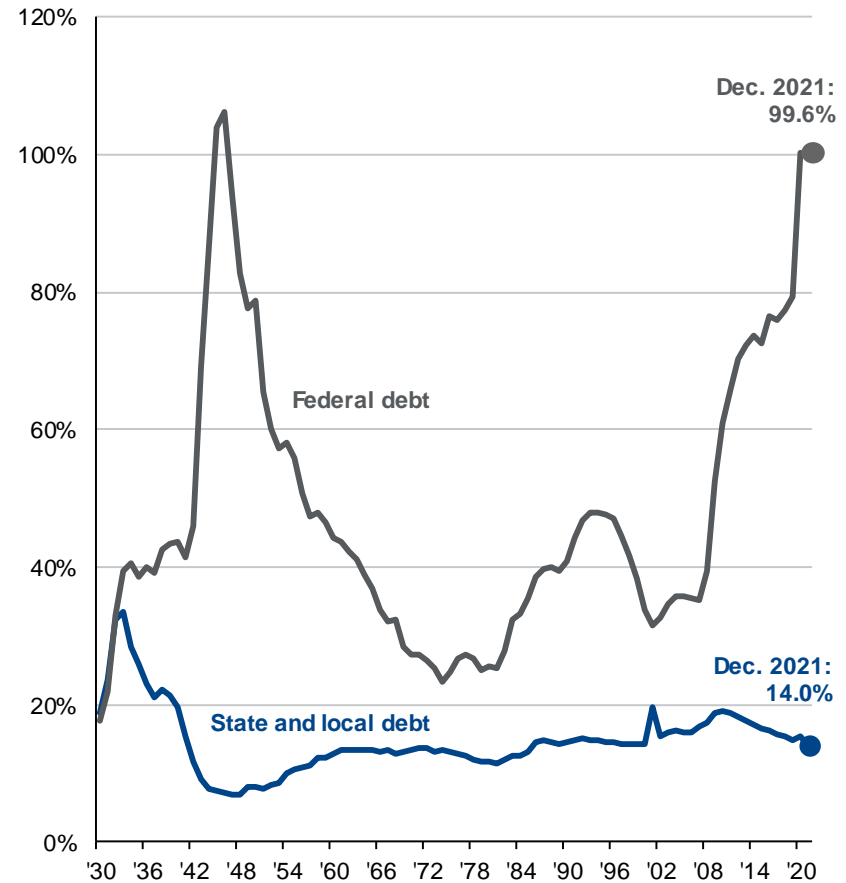
Fixed Income

### Muni tax-equivalent and Treasury yield curves



### State and local and federal net debt

% of GDP, 1930-2021, end of fiscal year



Source: J.P. Morgan Asset Management, (Left) Bloomberg, FactSet, Federal Reserve; (Right) Census Bureau, Congressional Budget Office (CBO). State and local debt are based on the Census Bureau's Annual Survey of State and Local Government Finances. Municipal tax-equivalent yield assumes a top-income tax bracket rate of 37% plus a Medicare tax rate of 3.8% for a total tax rate of 40.8%. *Guide to the Markets* – U.S. Data are as of October 4, 2022.

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# Bloomberg U.S. Agg. annual returns and intra-year declines

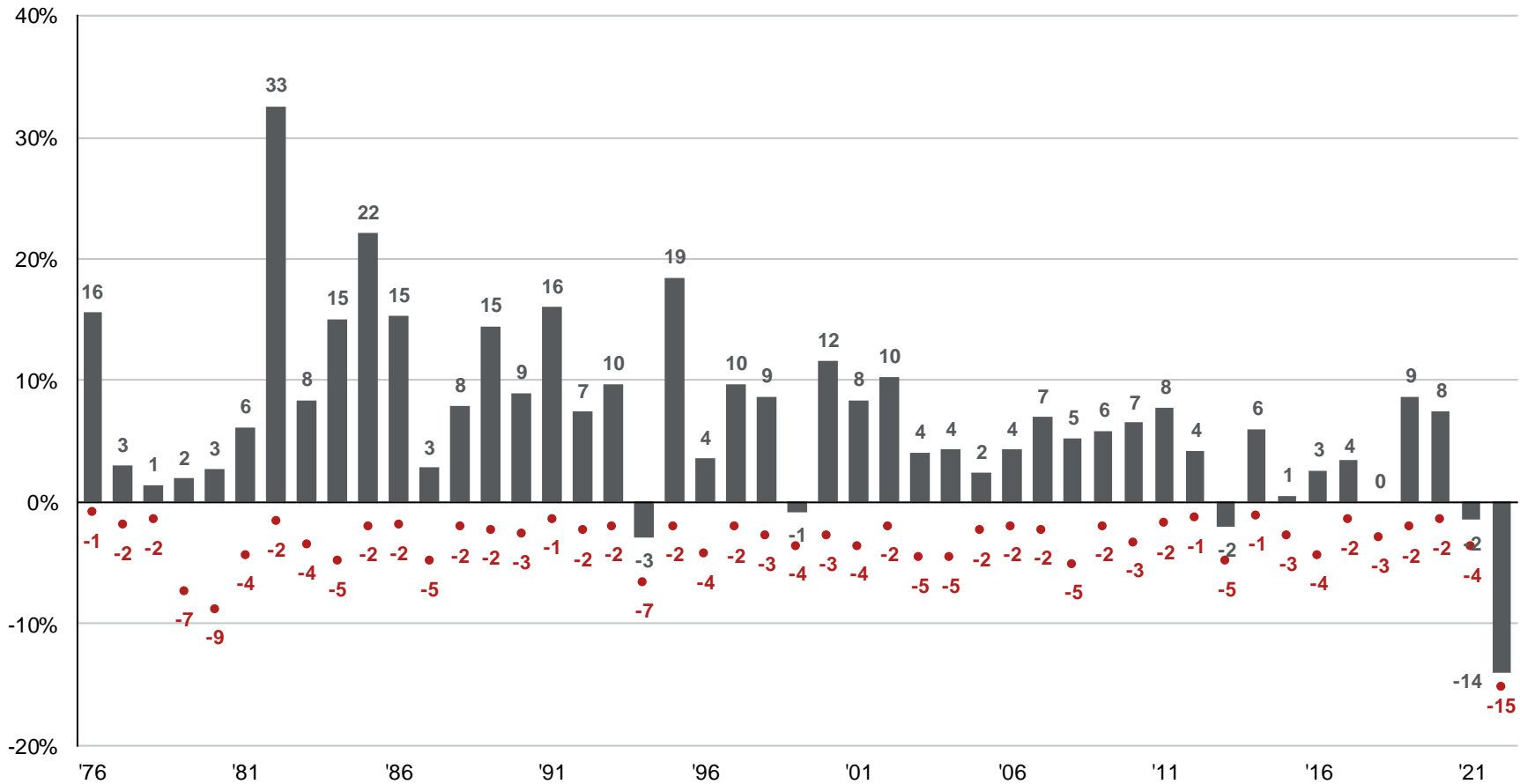
GTM

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## Bloomberg U.S. Aggregate intra-year declines vs. calendar year returns

Despite average intra-year drops of 3.1%, annual returns positive in 42 of 46 years



Source: Bloomberg, FactSet, J.P. Morgan Asset Management.

Returns are based on total return. Intra-year drops refers to the largest market drops from a peak to a trough during the year. For illustrative purposes only. Returns shown are calendar year returns from 1976 to 2021, over which time period the average annual return was 7.1%. Returns from 1976 to 1989 are calculated on a monthly basis; daily data are used afterwards.

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# Global equity markets

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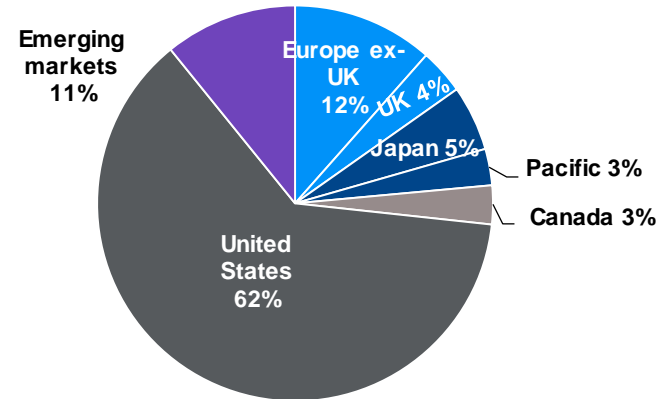
U.S.

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Returns	2022 YTD		2021		15-years	
	Local	USD	Local	USD	Ann.	Beta
<b>Regions</b>						
U.S. (S&P 500)	-	-19.5	-	28.7	10.7	0.90
AC World ex-U.S.	-13.1	-23.1	13.5	8.3	4.2	1.07
EAFE	-10.8	-23.1	19.2	11.8	4.1	1.04
Europe ex-UK	-17.5	-27.2	24.4	16.5	4.8	1.18
Emerging markets	-19.2	-25.4	0.1	-2.2	4.8	1.18
<b>Selected Countries</b>						
United Kingdom	1.4	-14.6	19.6	18.5	2.3	1.02
France	-13.1	-24.0	29.7	20.6	4.7	1.22
Germany	-23.7	-33.2	13.9	5.9	4.7	1.31
Japan	-3.3	-22.9	13.8	2.0	3.4	0.72
China	-29.4	-31.0	-21.6	-21.6	5.8	1.10
India	-0.1	-8.9	28.9	26.7	6.7	1.26
Brazil	14.9	24.5	-11.2	-17.2	0.9	1.50
Korea	-25.9	-38.2	0.8	-7.9	5.9	1.49

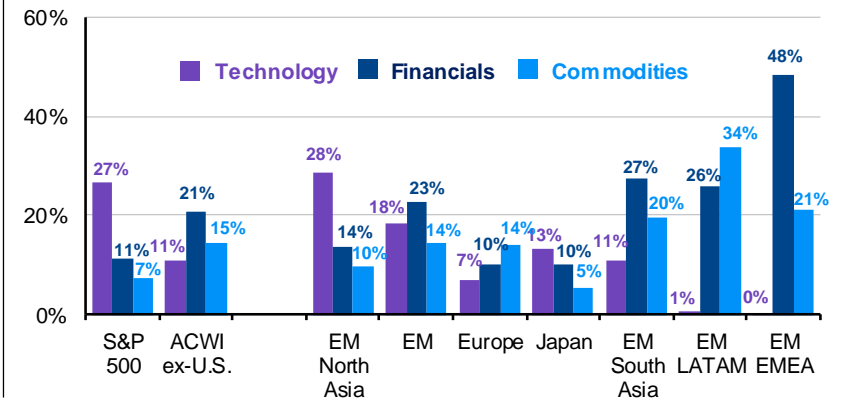
## Weights in MSCI All Country World Index

% global market capitalization, float adjusted



## Representation of key sectors in international markets

% of index market capitalization



Source: FactSet, Federal Reserve, MSCI, Standard & Poor's, J.P. Morgan Asset Management. All return values are MSCI Gross Index data. 15-year history based on USD returns. 15-year return and beta figures are calculated for the time period 12/31/2006 to 12/31/2021. Beta is for monthly returns relative to the MSCI AC World Index. Annualized volatility is calculated as the standard deviation of quarterly returns multiplied by the square root of 4. Chart is for illustrative purposes only. Please see disclosure page for index definitions. Past performance is not a reliable indicator of current and future results. EM North Asia includes China, Taiwan and South Korea. EM South Asia includes India, Indonesia, Malaysia, Pakistan, Philippines, Taiwan and Thailand. Guide to the Markets – U.S. Data are as of October 4, 2022.



# Currency and international equity returns

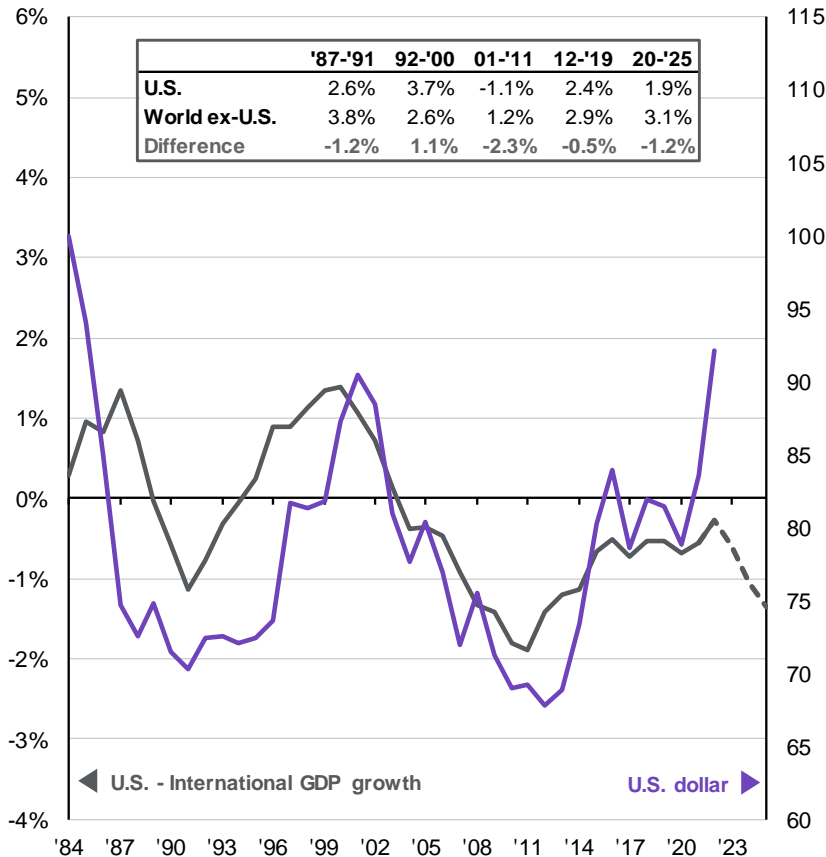
GTM

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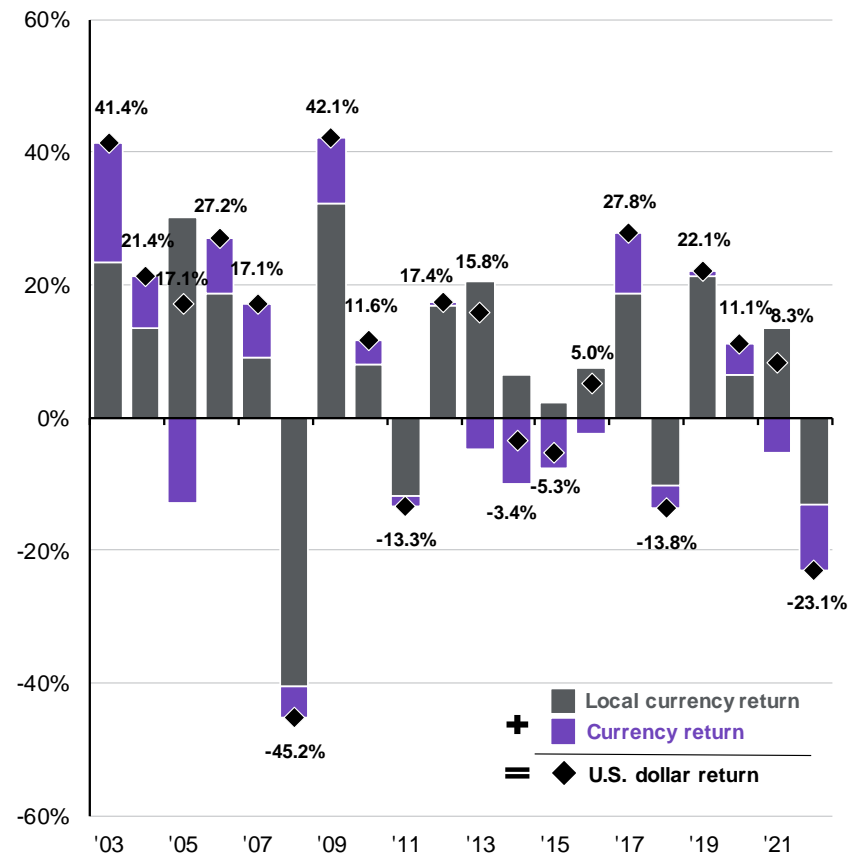
## U.S. dollar and international GDP growth

Real GDP growth: U.S.-intl. (5-year moving avg.); U.S. dollar: 100 = 1984



## Currency impact on international returns

MSCI All Country World ex-U.S. Index, total return



Source: J.P. Morgan Asset Management; (Left) IMF, J.P. Morgan Global Economic Research; (Right) MSCI.

Global GDP growth is based on GDP at market exchange rates as weights. U.S. dollar is the J.P. Morgan Global Economic Research real broad effective exchange rate (CPI), calculated as year-end moves versus the prior year-end. Past performance is not a reliable indicator of current and future results. Forecasts are not a reliable indicator of future performance. Forecasts, projections and other forward-looking statements are based upon current beliefs and expectations. They are for illustrative purposes only and serve as an indication of what may occur. Given the inherent uncertainties and risks associated with forecasts, projections or other forward-looking statements, actual events, results or performance may differ materially from those reflected or contemplated.

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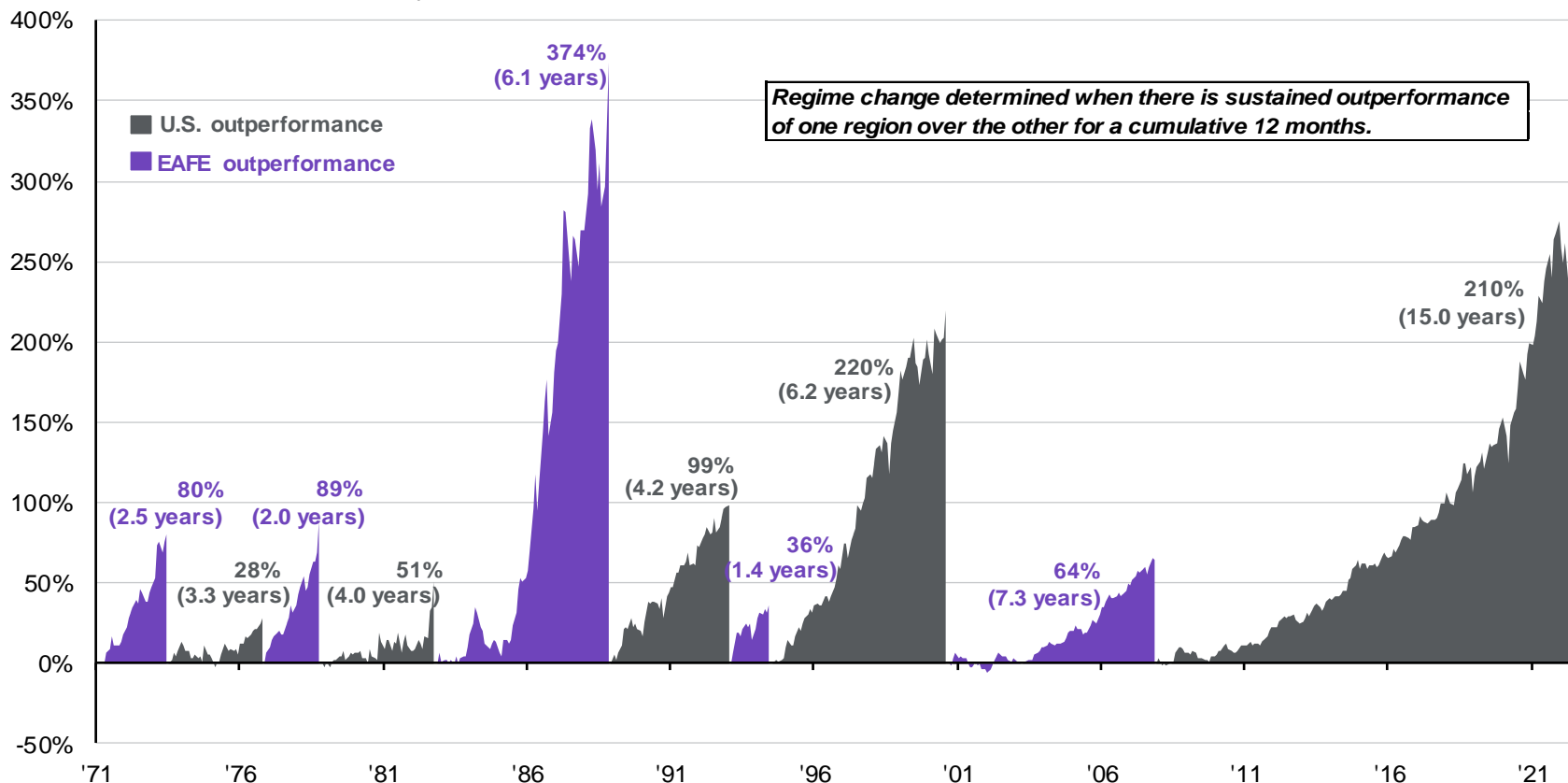


# Cycles of U.S. equity outperformance

GTM U.S. 47

## MSCI EAFE and MSCI USA relative performance

U.S. dollar, total return, cumulative outperformance\*



Source: FactSet, MSCI, J.P. Morgan Asset Management. \*Cycles of outperformance include a qualitative component to determine turning points in leadership.  
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# International valuations and dividend yields

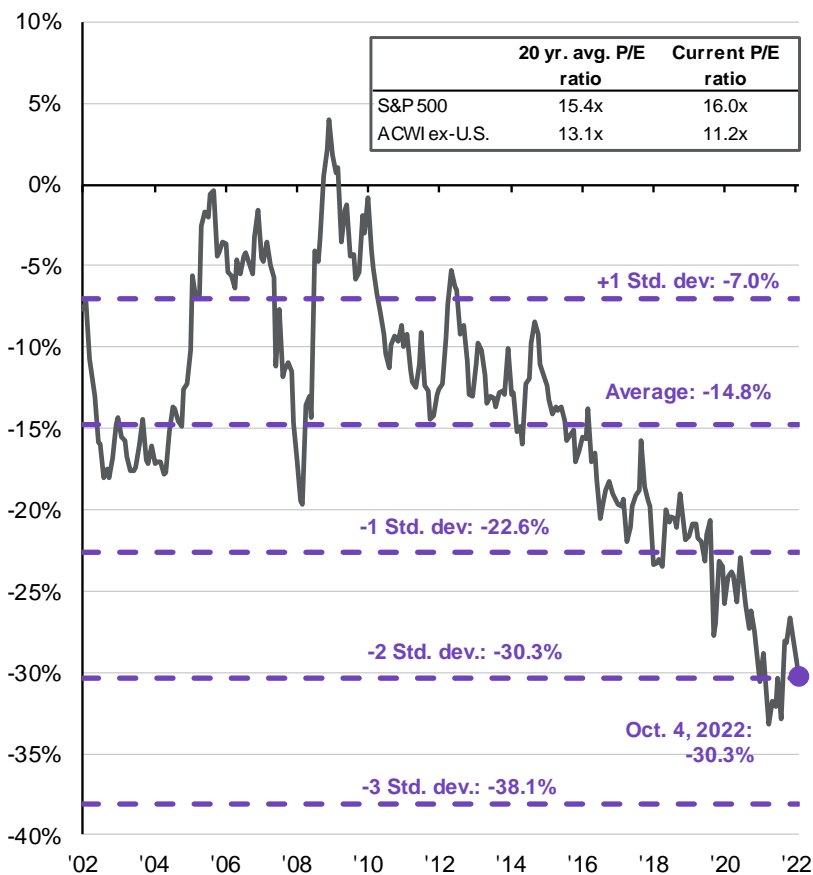
GTM

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## International: Price-to-earnings discount vs. U.S.

MSCI AC World ex-U.S. vs. S&P 500 Indices, next 12 months



## International: Difference in dividend yields vs. U.S.

MSCI AC World ex-U.S. minus S&P 500 Indices, next 12 months



Source: FactSet, MSCI, Standard & Poor's, J.P. Morgan Asset Management.  
Guide to the Markets – U.S. Data are as of October 4, 2022.



# International equity earnings and valuations

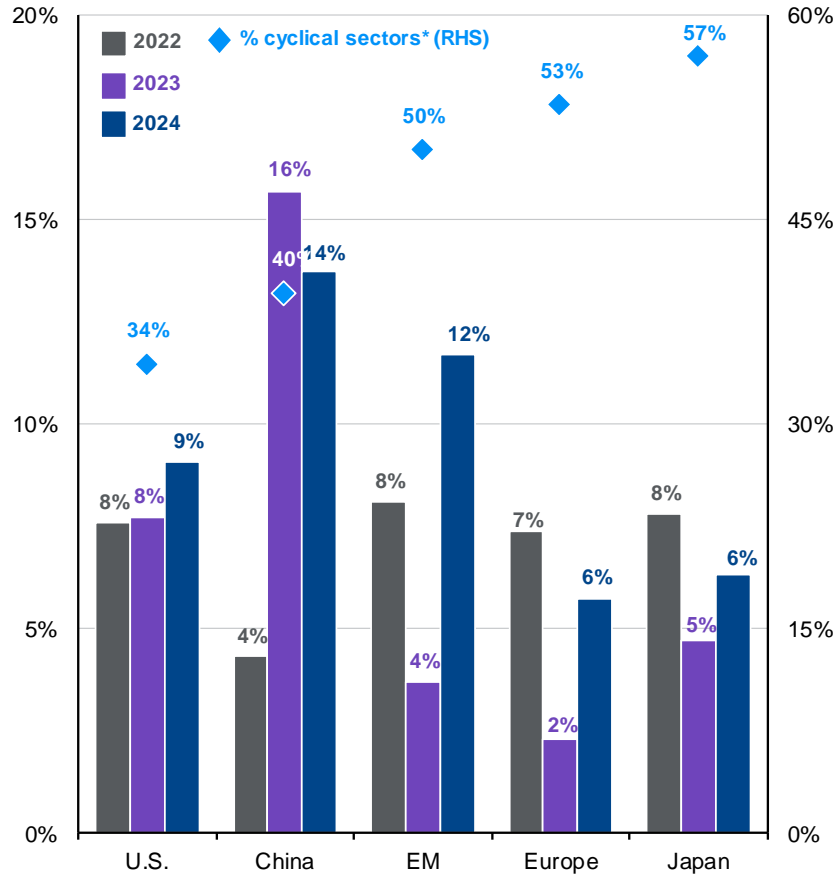
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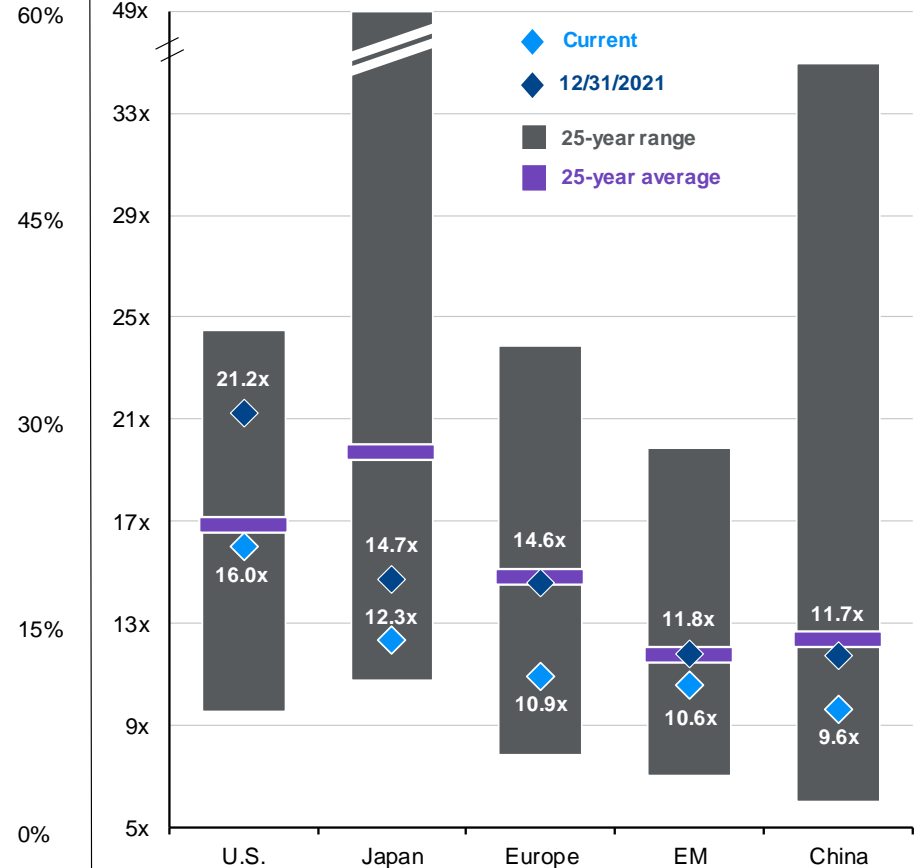
## Global earnings growth

Calendar year consensus estimates



## Global valuations

Current and 25-year next 12 months price-to-earnings ratio



Source: FactSet, MSCI, Standard & Poor's, Thomson Reuters, J.P. Morgan Asset Management.

\*Cyclical sectors include consumer discretionary, financials, industrials, energy and materials. The Internet and direct marketing subsector has been removed from the cyclical calculation. In our judgement, companies in this space do not yet fit into the cyclical category, as they are still in a transitional growth phase and are not being directly impacted by the business cycle. Valuation and earnings charts use MSCI indices for all regions/countries, except for the U.S., which is the S&P 500. All indices use IBES aggregate earnings estimates, which may differ from earnings estimates used elsewhere in the book. MSCI Europe includes the eurozone as well as countries not in the currency bloc, such as Norway, Sweden, Switzerland and the UK (which collectively make up 44% of the overall index). Past performance is not a reliable indicator of current and future results.

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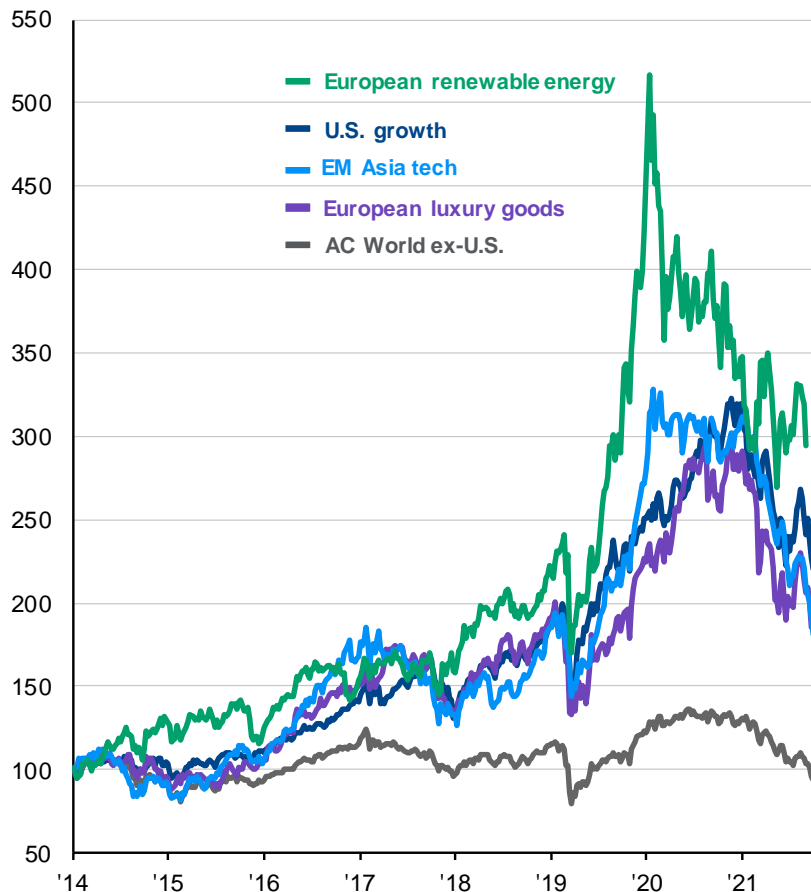


# International markets

GTM U.S. 50

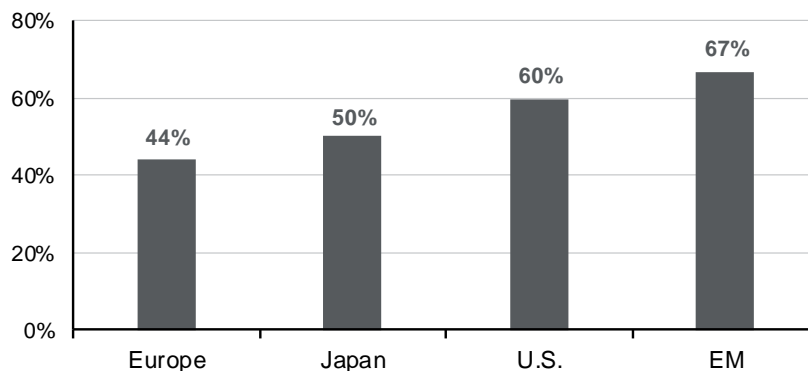
## Returns of thematic indices

Total return, U.S. dollar, Dec. 31, 2014 = 100



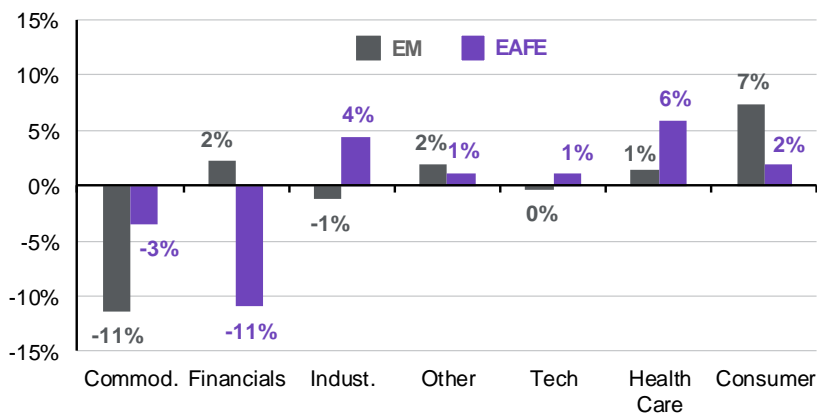
## Revenue exposure vs. country of listing

% of total revenue from home countries



## Change in international sector weightings

% point change from Dec. 31, 2005



Source: Bloomberg, FactSet, MSCI, Russell, Societe Generale, J.P. Morgan Asset Management. Indices used are as follows: EM Asia Tech: MSCI EM Asia Information Technology, European Luxury Goods: MSCI Europe Textiles, Apparel and Luxury Goods, U.S. Growth: Russell 1000 Growth, AC World ex-U.S.: MSCI AC World ex USA, European Renewable Energy: Societe Generale European Renewable Energy, Europe: MSCI Europe, Japan: MSCI Japan, U.S.: S&P 500, EM: MSCI EM, EAFE: MSCI EAFE. Revenue exposure vs. country of listing and change in international sector weightings is as of 9/30/2022.

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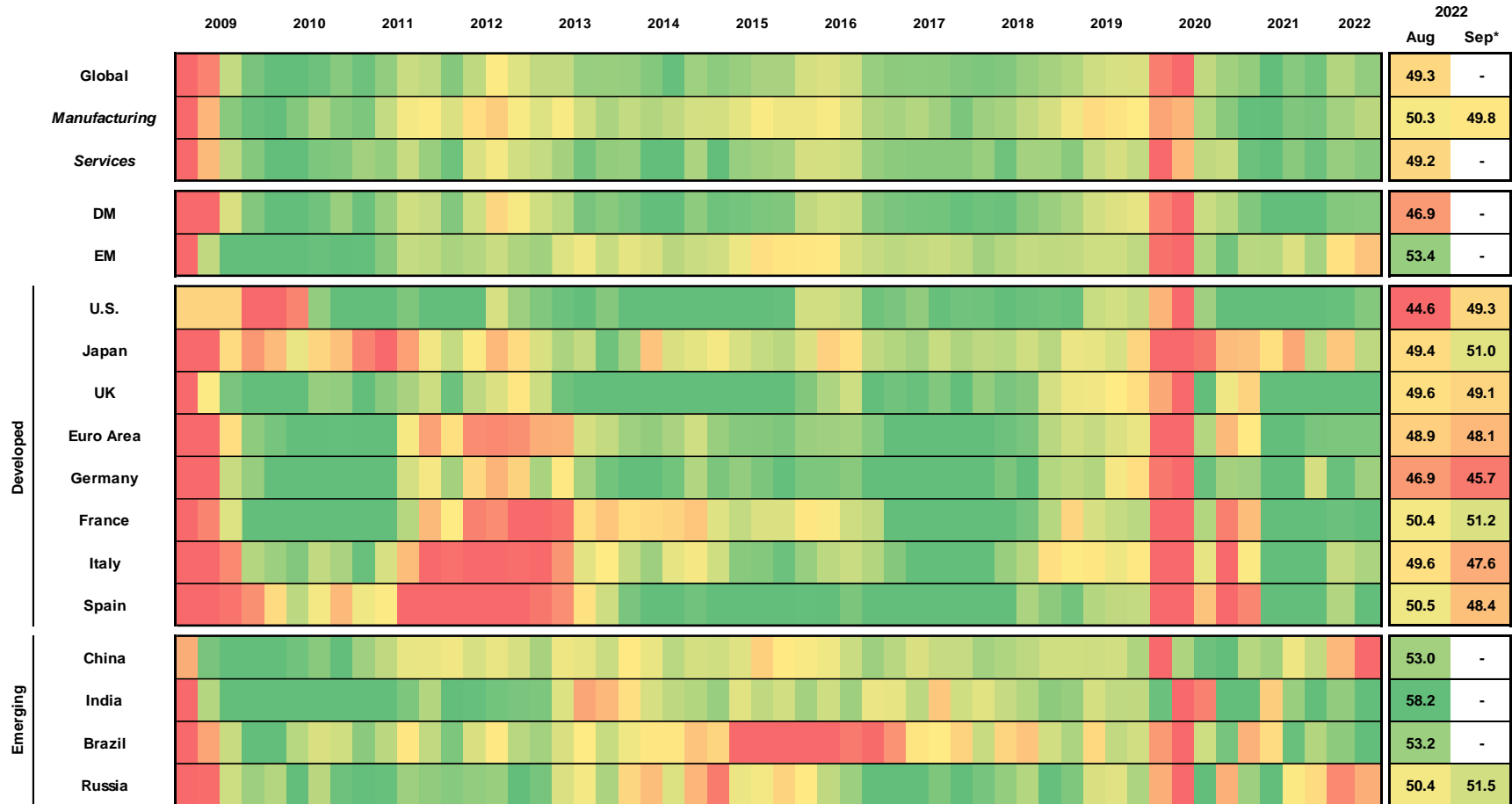
# Global economic activity momentum

GTM

U.S.

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## Global Composite (manufacturing & services combined) Purchasing Managers' Index, quarterly



Source: Standard & Poor's, J.P. Morgan Asset Management.

The Composite PMI includes both manufacturing and services sub-indices. Heatmap colors are based on PMI relative to the 50 level, which indicates acceleration or deceleration of the sector, for the time period shown. Heatmap is based on quarterly averages, with the exception of the two most recent figures, which are single month readings. Data for the U.S. are back-tested and filled in from December 2007 to September 2009 due to lack of existing PMI figures. DM and EM represent developed markets and emerging markets, respectively.

Guide to the Markets – U.S. Data are as of October 4, 2022.

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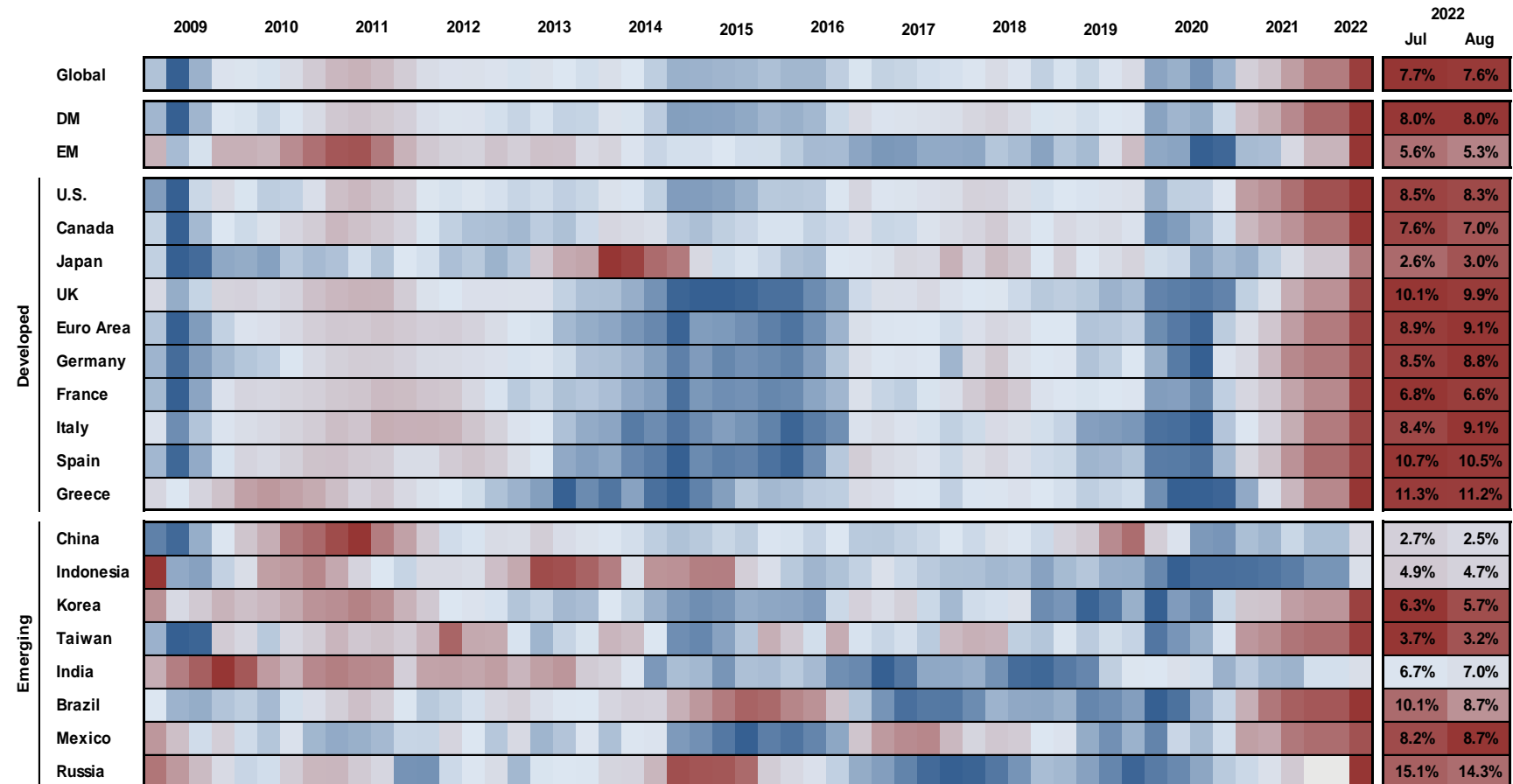
# Global inflation

GTM

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52

## Year-over-year headline inflation by country and region, quarterly



Source: Bank of Mexico, DGBAS, Eurostat, FactSet, Federal Reserve, Goskomstat of Russia, IBGE, India Ministry of Statistics & Programme Implementation, Japan Ministry of Internal Affairs & Communications, Korean National Statistical Office, Melbourne Institute, National Bureau of Statistics China, Statistics Canada, Statistics Indonesia, UK Office for National Statistics (ONS), J.P. Morgan Asset Management. Heatmap is based on quarterly averages, with the exception of the two most recent figures, which are single month readings. Colors determined by percentiles of inflation values over the time period shown. Deep blue = lowest value, light blue = median, deep red = highest value. DM and EM represent developed markets and emerging markets, respectively.

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# Global supply chains and inflation

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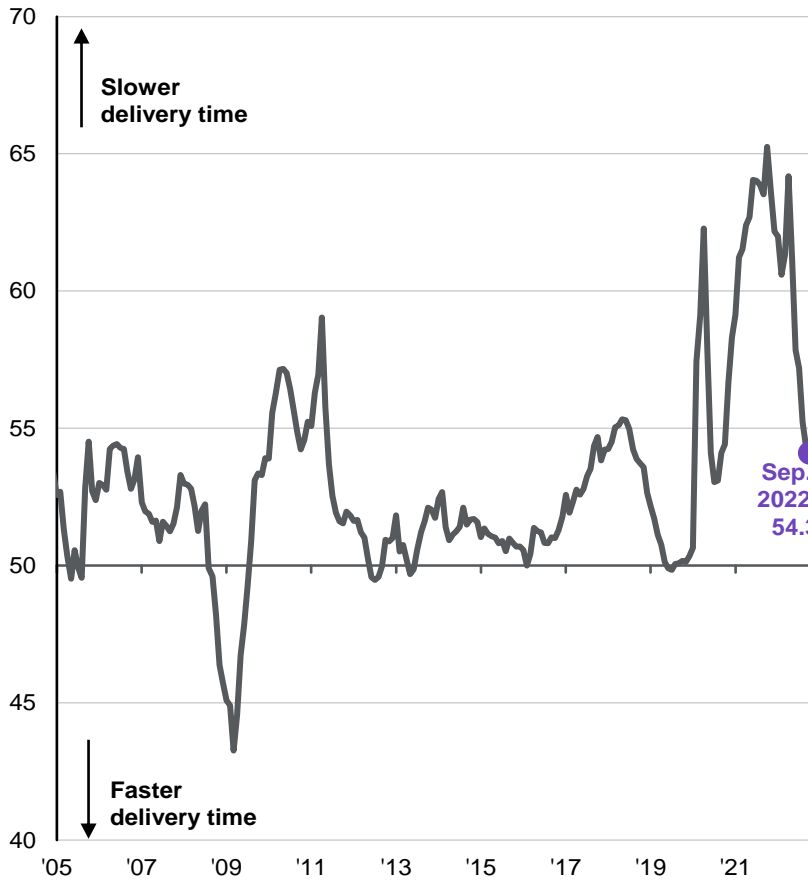
U.S.

53

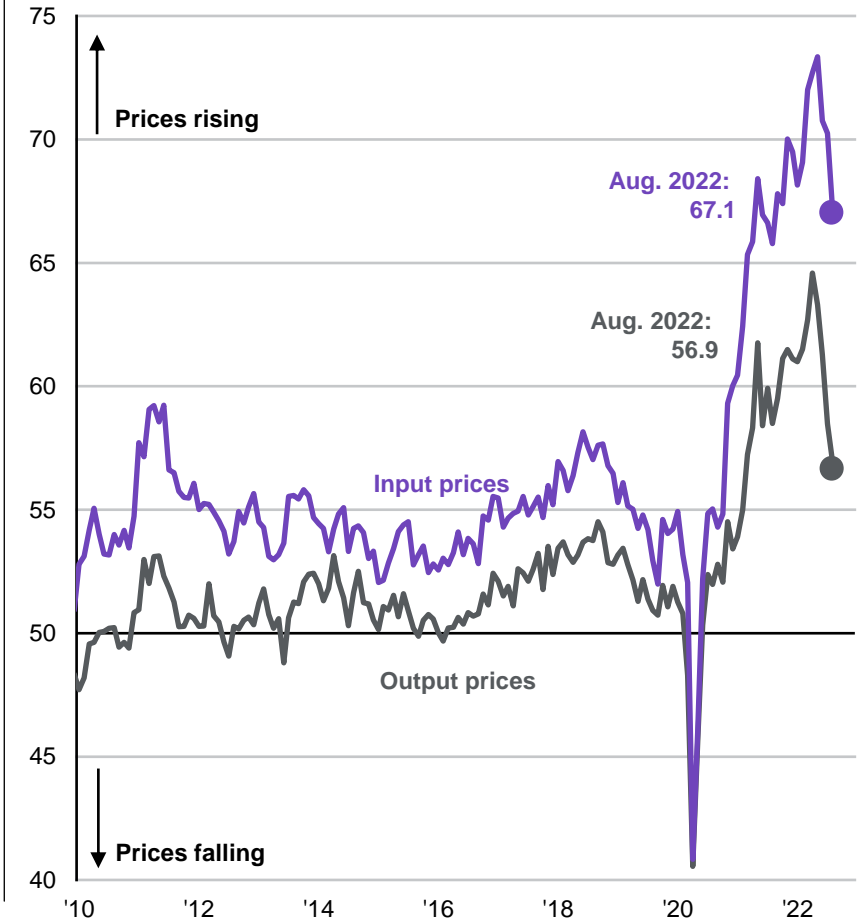
International

## Global PMI suppliers' delivery times\*

Figure shown is 100 - Global PMI suppliers' delivery times index



## Global PMI input and output prices\*\*



Source: Standard & Poor's, J.P. Morgan Asset Management.

\*Participants in Standard & Poor's PMI business surveys, conducted in 44 countries, are asked: "Are your suppliers' delivery times slower, faster or unchanged on average than one month ago?". Index includes the manufacturing and construction sectors. PMI score reflected above is 100 - PMI report by Standard & Poor's. A reading of 50 = no change, <50 = faster delivery time, >50 = slower delivery time.\*\*Participants are asked: "Are input/output prices the same, higher or lower?". Values shown reflect the composite index, which includes both manufacturing and services. A reading of 50 = no change, >50 = price increase, <50 = price decrease.

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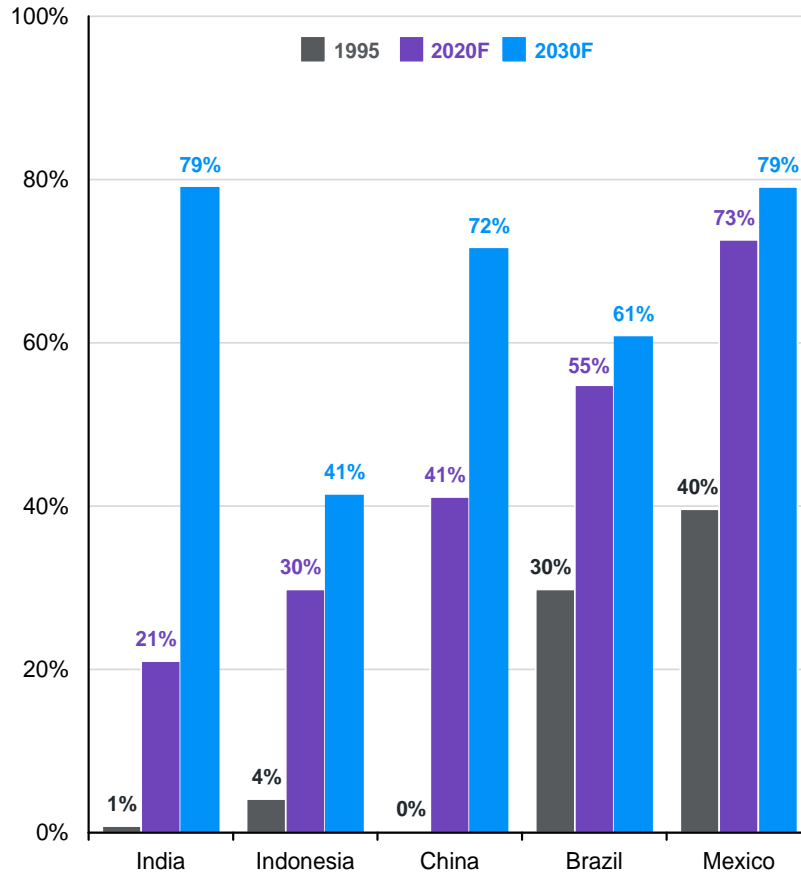
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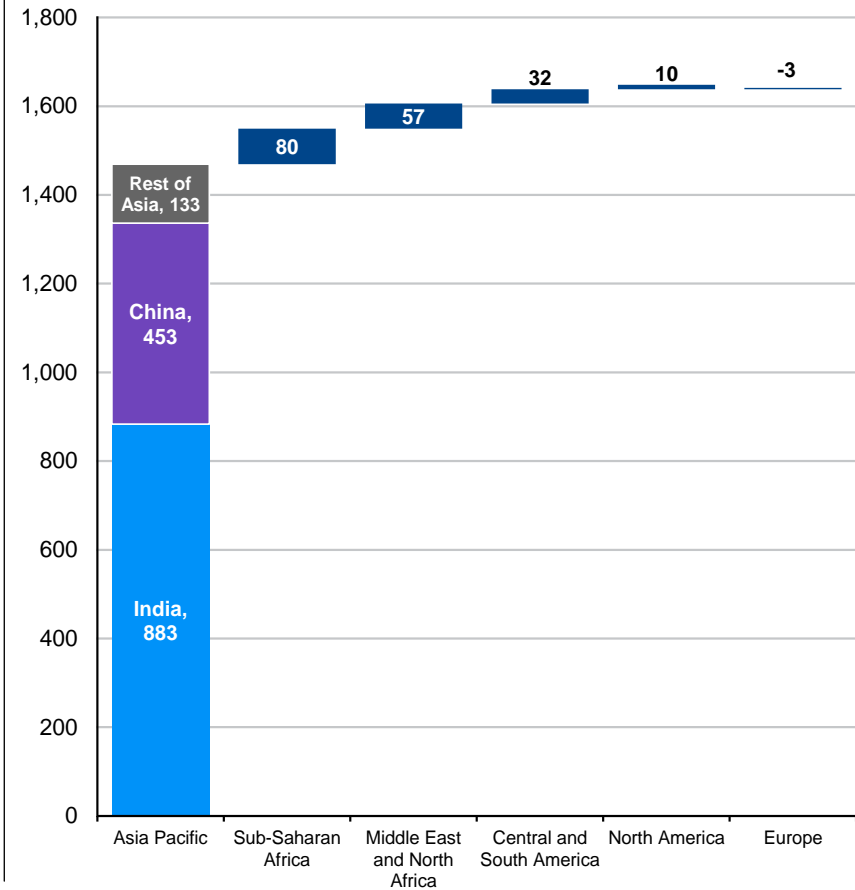
# The emergence of the EM middle class

GTM U.S. 54

**Growth of the middle class**  
Percent of total population



**Regional contribution to middle class growth: 2020 to 2030**  
Millions of people



Source: Brookings Institution, J.P. Morgan Asset Management. Estimates for regional contribution are from Kharas, Homi. The Unprecedented Expansion of the Global Middle Class, An Update. Brookings Institution, 2017. Middle class is defined as households with per capita incomes between \$11 and \$110 per person per day in 2011 PPP terms. Forecasts, projections and other forward-looking statements are based upon current beliefs and expectations. They are for illustrative purposes only and serve as an indication of what may occur. Given the inherent uncertainties and risks associated with forecasts, projections or other forward-looking statements, actual events, results or performance may differ materially from those reflected or contemplated.  
*Guide to the Markets – U.S.* Data are as of October 4, 2022.

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# China: Economic growth

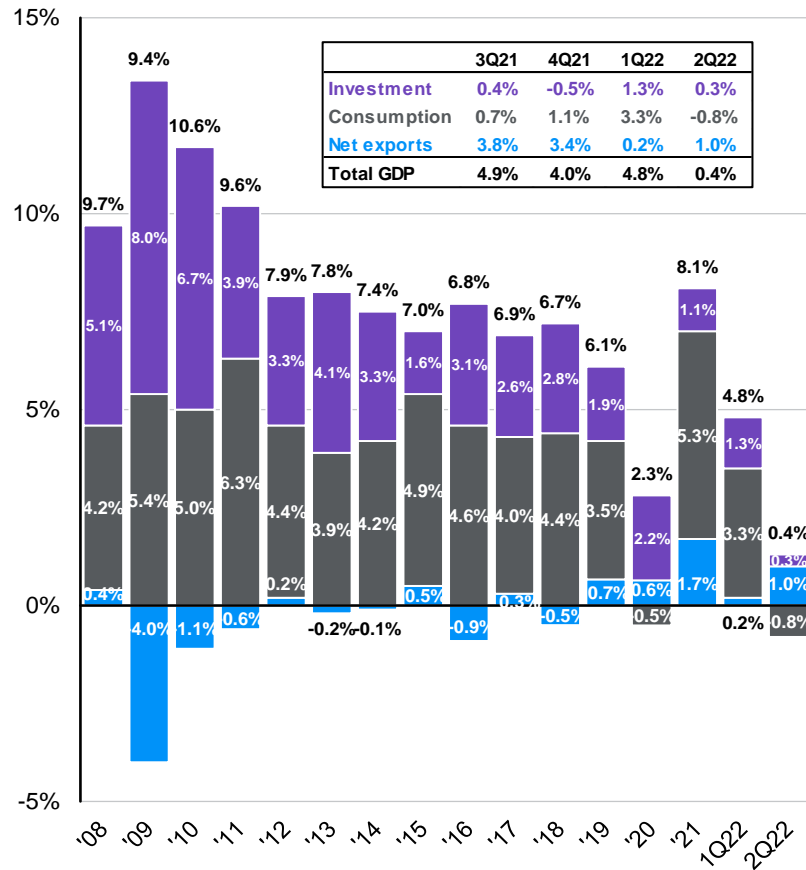
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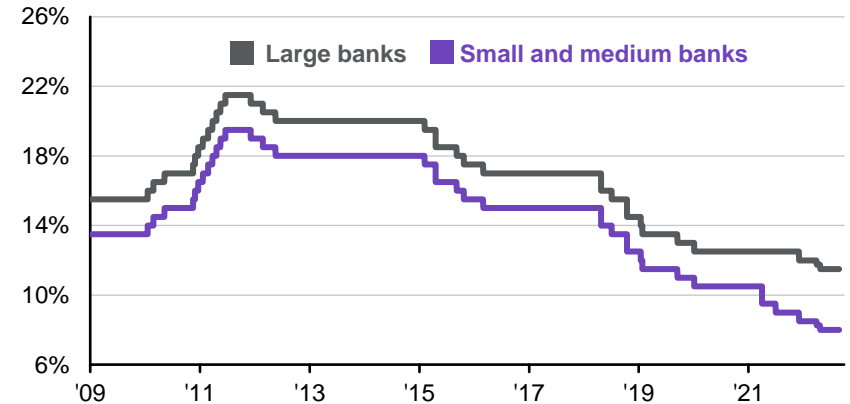
55

## China real GDP contribution

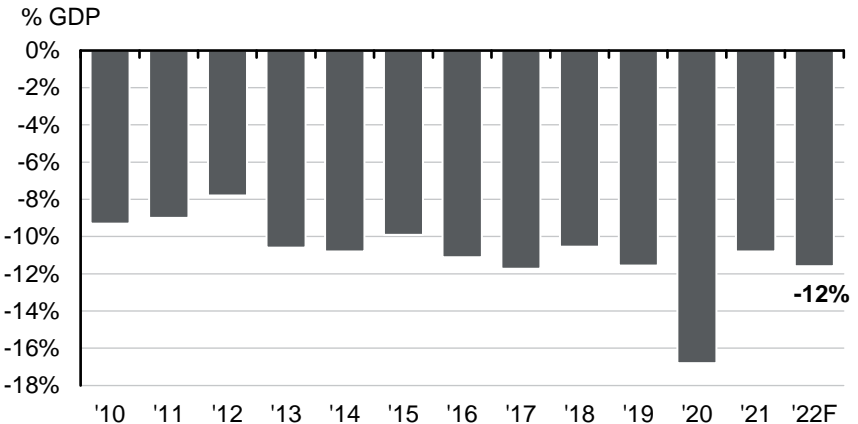
Year-over-year % change for GDP, contribution to GDP for components



## Monetary stimulus: Reserve requirement ratio



## Fiscal stimulus: Fiscal deficit\*



Source: FactSet, J.P. Morgan Asset Management; (Left) CEIC; (Top right) People's Bank of China; (Bottom right) China Agriculture Development Bank, China Development Bank, Ministry of Finance, People's Bank of China, Wind. \*The fiscal deficit is a J.P. Morgan Global Economic Research estimate of the augmented fiscal deficit. It measures the aggregate resources controlled by the government and used to support economic growth. It consists of the official budgetary deficit of the central and local governments, and additional funding raised and spent by local governments through Local Government Financing Vehicles and various government-guided funds, whose activities are considered quasi-fiscal. Large banks are six major banks in China, including Industrial and Commercial Bank of China, Agricultural Bank of China, Bank of China, China Construction Bank, Bank of Communications, Postal Savings Bank of China. The other banks are categorized as small and medium-sized banks. PBoC sets favorable required reserve ratio (RRR) for banks that have met specific criteria, such as loans to small and medium-sized enterprises and agricultural sectors. These measures have significantly brought down the actual RRR for banks. Forecasts are not a reliable indicator of future performance. Forecasts, projections and other forward-looking statements are based upon current beliefs and expectations. They are for illustrative purposes only and serve as an indication of what may occur. Given the inherent uncertainties and risks associated with forecasts, projections or other forward-looking statements, actual events, results or performance may differ materially from those reflected or contemplated.

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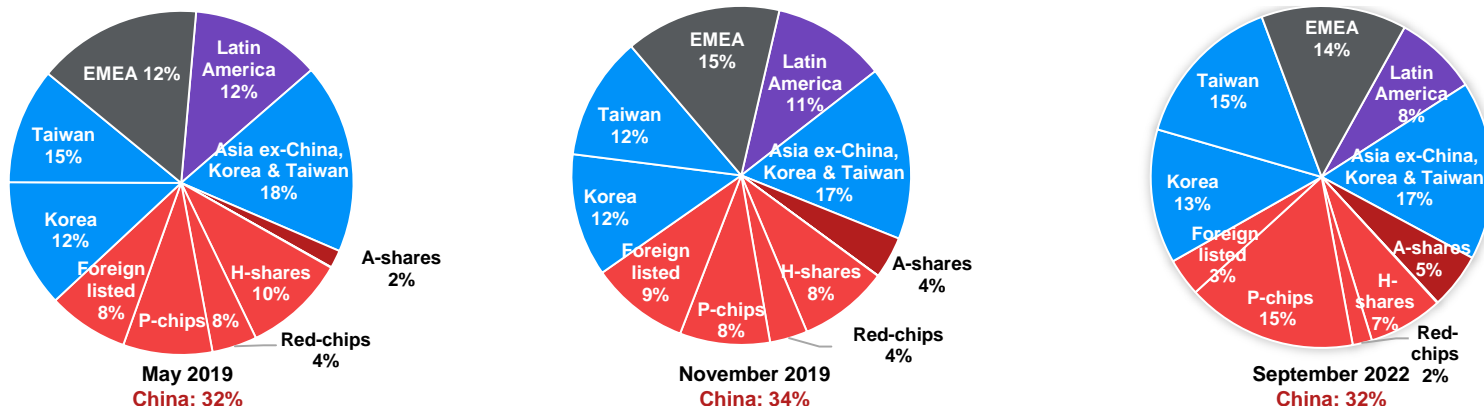
# Chinese equity and fixed income markets

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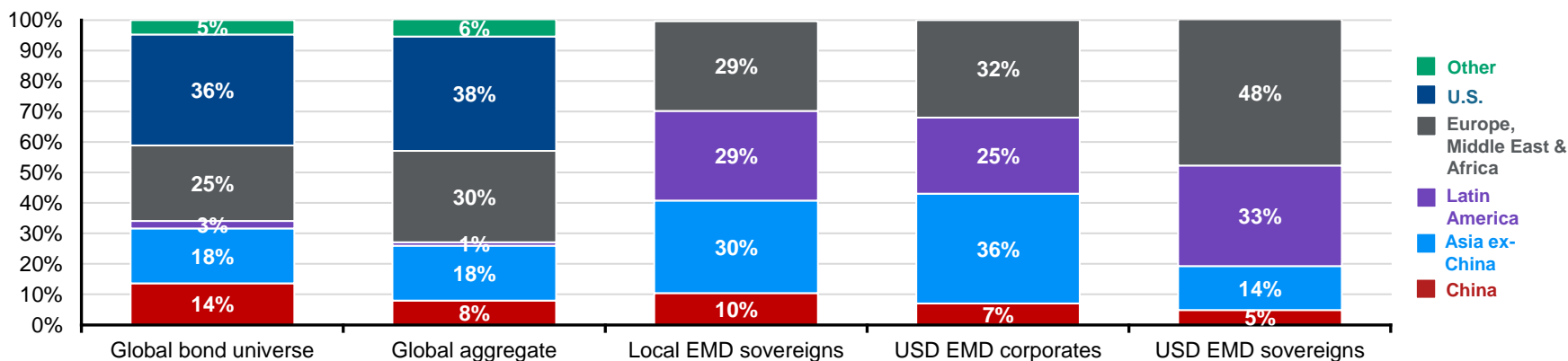
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## MSCI Emerging Markets Index: Inclusion of China A-shares



## Weight of China in bond universe and bond indices



Source: Bloomberg, FactSet, J.P. Morgan Economic Research, MSCI, J.P. Morgan Asset Management; (Top) Foreign listed includes American Depositary Receipts (ADRs); (Bottom) Based on J.P. Morgan CEMBI Broad Index (USD EMD corporates), J.P. Morgan EMBIG Broad Diversified Index (USD EMD sovereigns), J.P. Morgan GBI-EM Global Diversified Index (Local EMD sovereigns), Bloomberg Global Aggregate (Global Aggregate). This slide comes from our [Guide to China](#).  
*Guide to the Markets – U.S.* Data are as of October 4, 2022.



# Correlations and volatility

GTM U.S. 57

	U.S. Large Cap	EAFE	EME	Bonds	Corp. HY	Munis	Currency.	EMD	Cmdty.	REITs	Hedge funds	Private equity	Gold	Ann. Volatility
U.S. Large Cap	1.00	0.89	0.76	0.25	0.85	0.34	-0.42	0.68	0.43	0.77	0.84	0.79	0.09	0.15
EAFE		1.00	0.90	0.24	0.87	0.37	-0.57	0.75	0.47	0.64	0.86	0.82	0.17	0.15
EME			1.00	0.30	0.82	0.42	-0.69	0.80	0.49	0.52	0.76	0.76	0.37	0.18
Bonds				1.00	0.37	0.86	-0.35	0.66	-0.18	0.41	-0.02	-0.08	0.56	0.04
Corp. HY					1.00	0.45	-0.49	0.86	0.50	0.68	0.81	0.72	0.26	0.08
Munis						1.00	-0.34	0.74	-0.12	0.55	0.14	0.16	0.47	0.04
Currencies							1.00	-0.57	-0.44	-0.20	-0.32	-0.53	-0.55	0.06
EMD								1.00	0.29	0.61	0.57	0.54	0.50	0.08
Commodities									1.00	0.32	0.62	0.58	0.34	0.17
REITs										1.00	0.59	0.54	0.17	0.16
Hedge funds											1.00	0.81	0.03	0.05
Private equity												1.00	0.04	0.08
Gold													1.00	0.15

Source: Bloomberg, Burgiss, Credit Suisse/Tremont, FactSet, Federal Reserve, MSCI, Standard & Poor's, J.P. Morgan Asset Management.  
 Indices used – Large Cap: S&P 500 Index; Currencies: Federal Reserve Trade-Weighted Dollar; EAFE: MSCI EAFE; EME: MSCI Emerging Markets;  
 Bonds: Bloomberg Aggregate; Corp HY: Bloomberg Corporate High Yield; EMD: Bloomberg Emerging Market; Cmdty.: Bloomberg Commodity  
 Index; REITs: NAREIT All Equity Index; Hedge funds: CS/Tremont Hedge Fund Index; Private equity: Time weighted returns from Burgiss; Gold: Gold  
 continuous contract (\$/oz). Private equity data are reported on a one- to two-quarter lag. All correlation coefficients and annualized volatility are  
 calculated based on quarterly total return data for period from 9/30/2012 to 9/30/2022, except for Private equity, which is based on the period  
 from 3/31/2012 to 3/31/2022. This chart is for illustrative purposes only.  
 Guide to the Markets – U.S. Data are as of October 4, 2022.



# Equity market correlations and yields

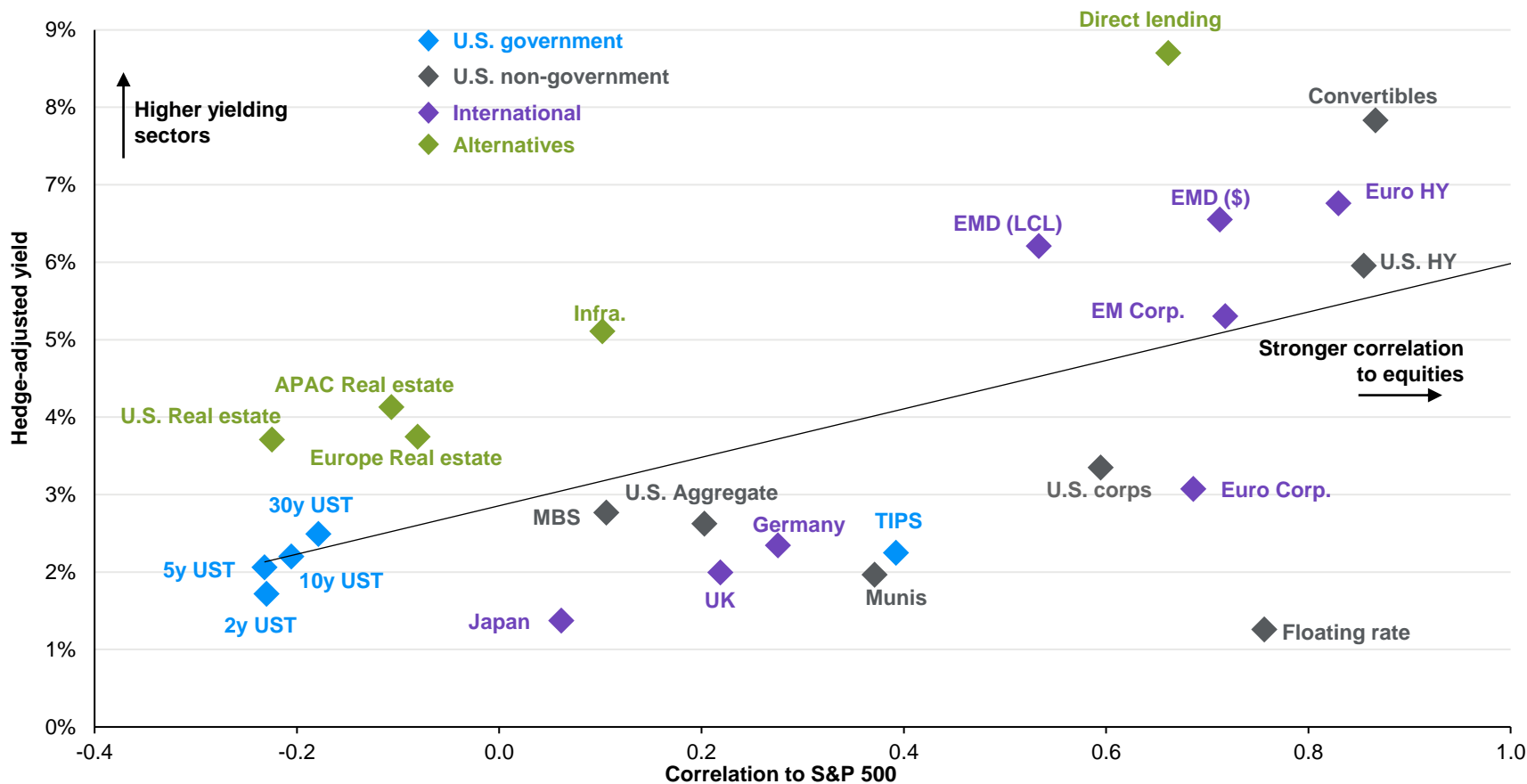
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## Equity market correlations and yields

Hedge-adjusted yield, last 12 months, 10-year correlations, quarterly



Source: Bloomberg, FactSet, ICE, MSCI, NCREIF, J.P. Morgan Asset Management. Fixed income shown above are represented by Bloomberg indices except for EMD and ABS – U.S. Aggregate; MBS: U.S. Aggregate Securitized – MBS; U.S. corps: U.S. Corporates; Munis: Municipal Bond; U.S. HY: Corporate High Yield; TIPS: Treasury Inflation-Protected Securities (TIPS); Leveraged loans: JPM Leveraged Loan Index; Convertibles: U.S. Convertibles Composite; ABS: J.P. Morgan ABS Index; EMD (\$): J.P. Morgan EMBIG Diversified Index; EMD (LCL): J.P. Morgan GBI EM Global Diversified Index; EM Corp: J.P. Morgan CEMBI Broad Diversified Index; Euro Corp.: Euro Aggregate Corporate Index; Euro HY: Pan-European High Yield Index; U.S. Real Estate: NCREIF Property Index – ODCE; Europe Real Estate: Market weighted-avg. of MSCI Global Property Fund Indices – U.K. & Cont. Europe; APAC Real Estate: MSCI Global Property Index – Asia-Pacific; Global infra.: MSCI Global Quarterly Infrastructure Asset Index (equal weighted blend); U.S. Direct Lending: Cliffwater Direct Lending Index; Convertibles yield is based on the U.S. portion of the Bloomberg Global Convertibles. Country yields are represented by the global aggregate for each country. Yield and return information based on bellwethers for Treasury securities. Correlations are based on quarterly return over the past 10 years through 6/30/2022, except Direct Lending and Infra, which are through 3/31/2022. International fixed income sector correlations are in hedged U.S. dollar returns except EMD local index. Yields for all indices are hedged using three-month LIBOR rates between the U.S. and international LIBOR and are a 12-month average. Alts yields are through 6/30/2022 except Direct Lending and Infra, which are through 3/31/2022. U.S. Real Estate yield is calculated using the MSCI Global Property Fund Index – North America. Guide to the Markets – U.S. Data are as of October 4, 2022.



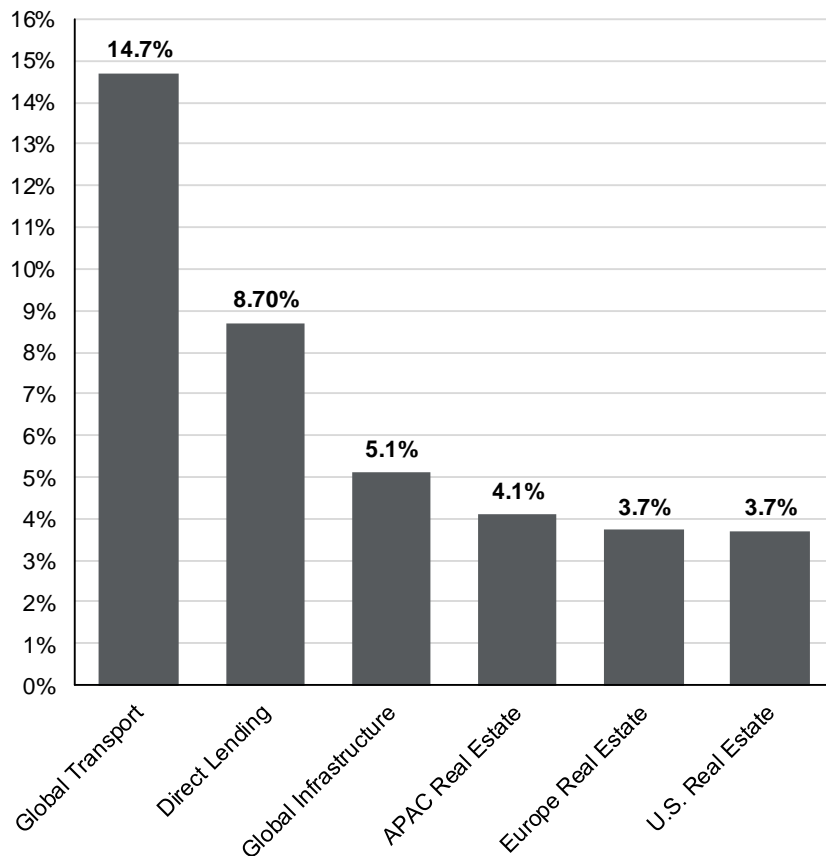
# Alternative sources of income and diversification

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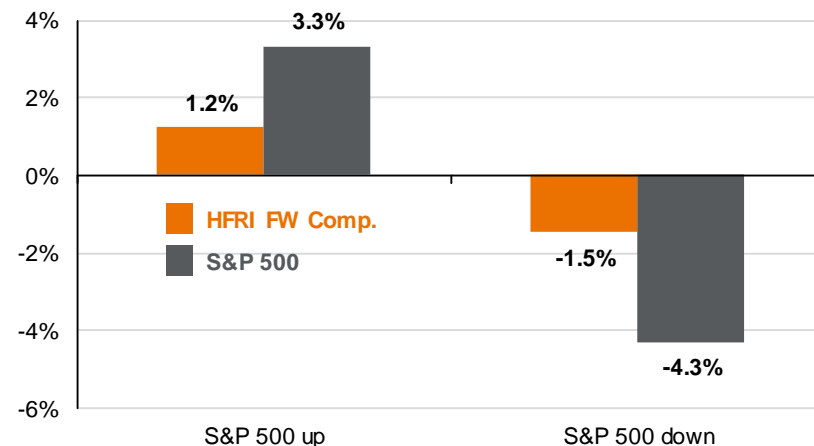
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## Alternative asset class yields



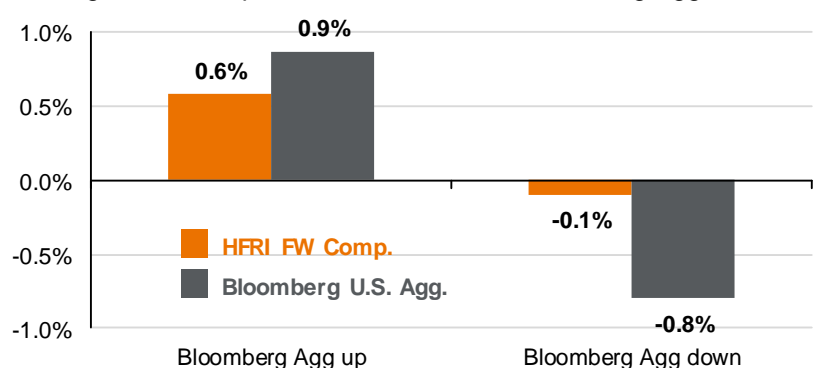
## Hedge fund returns in different market environments

Average return in up and down months for S&P 500



## Hedge fund returns in different market environments

Average return in up and down months for Bloomberg Agg.



Source: BEA, Bloomberg, Clarkson, Cliffwater, Drewry Maritime Consultants, FactSet, HFRI, J.P. Morgan Asset Management. All yields are as of 6/30/2022, except Global Infrastructure and Direct Lending, which are as of 3/31/2022. Global Transport: Levered yields for transport assets calculated as the difference between charter rates (rental income), operating expenses, debt amortization and interest expenses, as a percentage of equity value. Yields for each of the sub-vessel types are calculated and respective weightings are applied to arrive at the current levered yields for Global Transportation; Direct Lending: Cliffwater Direct Lending Index; Global Infrastructure: MSCI Global Infrastructure Asset Index-Low Risk; U.S. Real Estate: NCREIF-ODCE Index; Europe core real estate: IPD Global Property Fund Index – Continental Europe. Asia Pacific (APAC) core real estate: IPD Global Property Fund Index – Asia-Pacific. Positive yield does not imply positive return.

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# Global commodities

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## Bloomberg Commodity Index

Since index inception, total returns



## Commodity prices

Bloomberg commodity index constituents

Bloomberg Commodity Index			
Constituents	Current price level	YTD change	Change since 6/9/2022*
<b>Sub-indices</b>			
<b>Energy</b>	<b>\$48.51</b>	<b>57.0%</b>	<b>-21.7%</b>
WTI crude oil	\$92.01	28.3%	-24.3%
Natural gas	\$0.29	87.0%	-24.2%
Brent crude	\$493.89	40.8%	-18.6%
Low sulphur gas oil	\$321.34	84.8%	-15.7%
RBOB gasoline	\$479.10	47.7%	-21.7%
ULS diesel	\$4.89	35.2%	-11.7%
<b>Grains</b>	<b>\$49.44</b>	<b>17.5%</b>	<b>-12.1%</b>
Corn	\$13.88	22.4%	-6.3%
Soybeans	\$80.04	24.0%	-16.7%
Soybean meal	\$773.07	7.7%	-0.2%
Wheat	\$45.08	10.6%	-18.2%
Soybean oil	\$94.00	25.2%	-15.8%
HRW wheat	\$136.43	12.6%	-18.4%
<b>Industrial metals</b>	<b>\$149.65</b>	<b>-13.4%</b>	<b>-18.7%</b>
Copper	\$312.28	-22.6%	-20.9%
Aluminum	\$33.12	-16.8%	-14.9%
Zinc	\$98.48	-10.8%	-16.6%
Nickel	\$209.78	6.3%	-21.8%
<b>Precious metals</b>	<b>\$497.41</b>	<b>-6.3%</b>	<b>-5.9%</b>
Gold	\$187.04	-7.1%	-7.6%
Silver	\$188.11	-11.2%	-4.4%
<b>Softs</b>	<b>\$47.51</b>	<b>-1.0%</b>	<b>-10.8%</b>
Sugar	\$92.26	-1.8%	-6.4%
Coffee	\$13.57	-1.4%	-4.9%
Cotton	\$31.54	-5.5%	-29.1%
<b>Livestock</b>	<b>\$21.88</b>	<b>-2.4%</b>	<b>-1.1%</b>
Live cattle	\$54.67	-2.9%	0.2%
Lean hogs	\$3.86	-2.3%	-5.6%

Source: Bloomberg, FactSet, J.P. Morgan Asset Management. All the Bloomberg subsectors and constituents are represented by the respective Bloomberg subindex except ULS Diesel, which is represented by the EIA composite for U.S. ULS diesel prices. \*The Bloomberg Commodity Index peaked on June 9, 2022. Guide to the Markets – U.S. Data are as of October 4, 2022.





# U.S. real estate dynamics

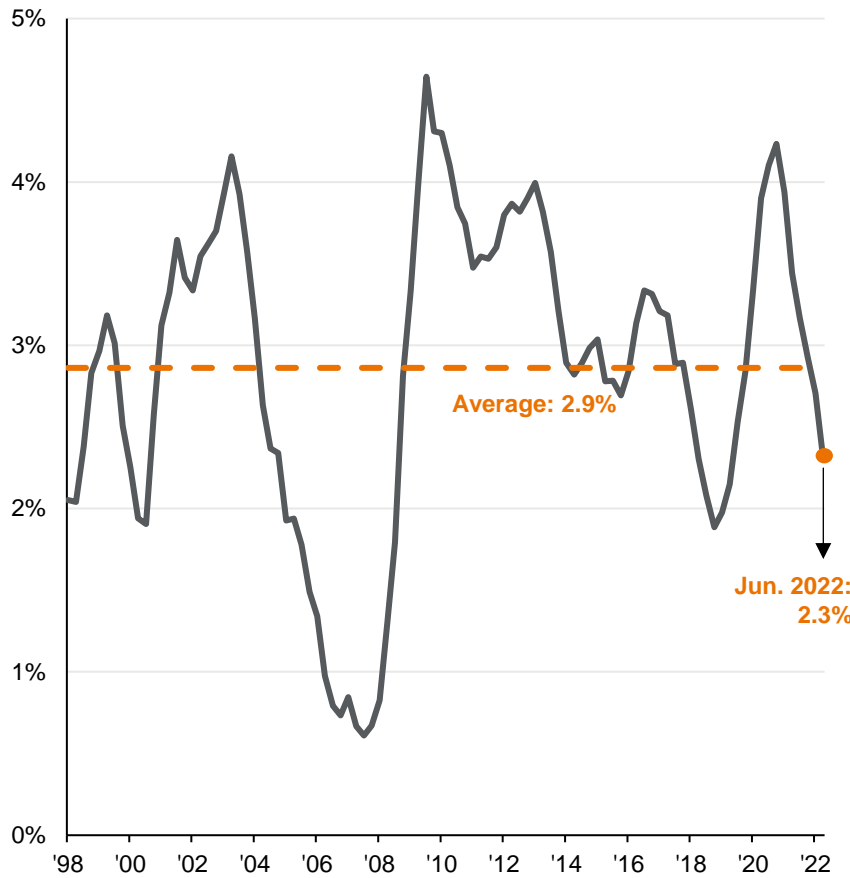
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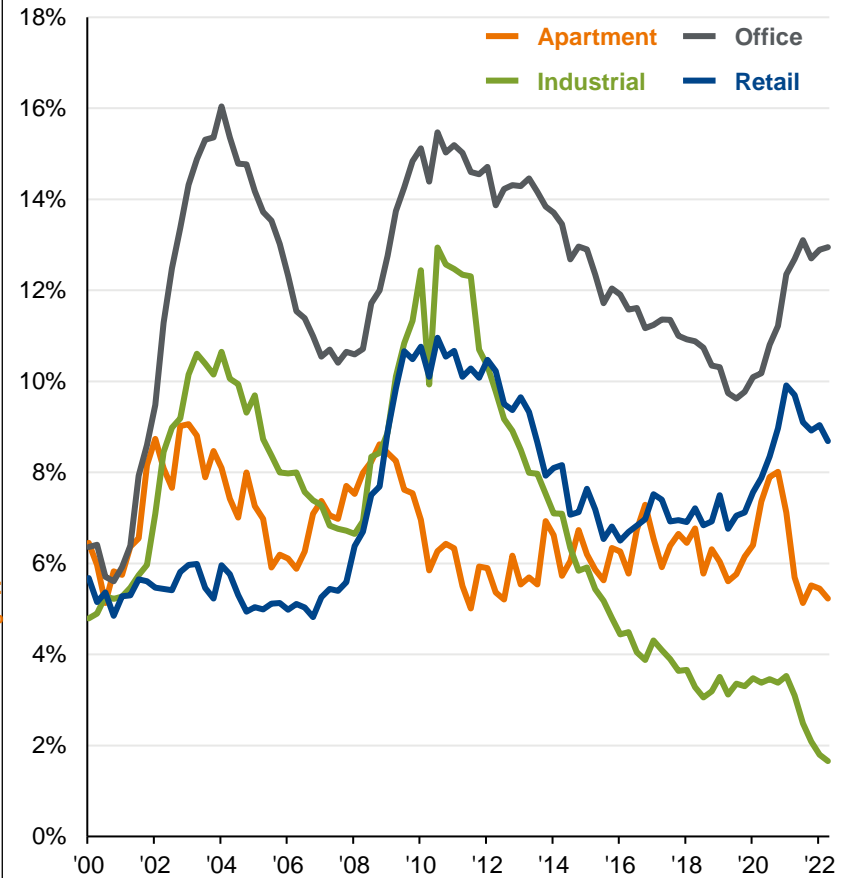
## U.S. real estate cap rate spreads

Transaction based, spread to 10y UST, 4-quarter rolling average



## U.S. vacancy rates by property type

Percent



Source: NAREIT, NCREIF, Statista, J.P. Morgan Asset Management.

The cap rate, which is computed as the net operating income over sales price, is the rate of return on a real estate investment property. Vacancy rate data is as of 6/30/2022. Data is based on availability as of 9/30/2022. This slide comes from our [Guide to Alternatives](#).

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# Asset class returns

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																2007 - 2021	
2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	YTD	Ann.	Vol.
EM Equity 39.8%	Fixed Income 5.2%	EM Equity 79.0%	REITs 27.9%	REITs 8.3%	REITs 19.7%	Small Cap 38.8%	REITs 28.0%	REITs 2.8%	Small Cap 21.3%	EM Equity 37.8%	Cash 1.8%	Large Cap 31.5%	Small Cap 20.0%	REITs 41.3%	Comdty. 17.9%	Large Cap 10.6%	REITs 23.2%
Comdty. 16.2%	Cash 1.8%	High Yield 59.4%	Small Cap 26.9%	Fixed Income 7.8%	High Yield 19.6%	Large Cap 32.4%	Large Cap 13.7%	Large Cap 1.4%	High Yield 14.3%	DM Equity 25.6%	Fixed Income 0.0%	REITs 28.7%	EM Equity 18.7%	Large Cap 28.7%	Cash 0.7%	Small Cap 8.7%	EM Equity 22.9%
DM Equity 11.6%	Asset Alloc. 25.4%	DM Equity 32.5%	EM Equity 19.2%	High Yield 3.1%	EM Equity 18.6%	DM Equity 23.3%	Fixed Income 6.0%	Fixed Income 0.5%	Large Cap 12.0%	Large Cap 21.8%	REITs -4.0%	Small Cap 25.5%	Large Cap 18.4%	Comdty. 27.1%	Fixed Income -13.6%	REITs 7.5%	Small Cap 22.5%
Asset Alloc. 7.1%	High Yield -26.9%	REITs 28.0%	Comdty. 16.8%	Large Cap 2.1%	DM Equity 17.9%	Asset Alloc. 14.9%	Asset Alloc. 5.2%	Cash 0.0%	Comdty. 11.8%	Small Cap 14.6%	High Yield -4.1%	DM Equity 22.7%	Asset Alloc. 10.6%	Small Cap 14.8%	Asset Alloc. -16.2%	High Yield 6.6%	Comdty. 19.1%
Fixed Income 7.0%	Small Cap -33.8%	Small Cap 27.2%	Large Cap 15.1%	Cash 0.1%	Small Cap 16.3%	High Yield 7.3%	Small Cap 4.9%	DM Equity -0.4%	EM Equity 11.6%	Asset Alloc. 14.6%	Large Cap -4.4%	Asset Alloc. 19.5%	DM Equity 8.3%	Asset Alloc. 13.5%	High Yield -17.5%	Asset Alloc. 6.1%	DM Equity 18.9%
Large Cap 5.5%	Comdty. -35.6%	Large Cap 26.5%	High Yield 14.8%	Asset Alloc. -0.7%	Large Cap 16.0%	REITs 2.9%	Cash 0.0%	Asset Alloc. -2.0%	REITs 8.6%	High Yield 10.4%	Asset Alloc. -5.8%	EM Equity 18.9%	Fixed Income 7.5%	DM Equity 11.8%	Large Cap -19.5%	EM Equity 4.8%	Large Cap 16.9%
Cash 4.8%	Large Cap -37.0%	Asset Alloc. 25.0%	Asset Alloc. 13.3%	Small Cap -4.2%	Asset Alloc. 12.2%	Cash 0.0%	High Yield 0.0%	High Yield -2.7%	Asset Alloc. 8.3%	REITs 8.7%	Small Cap -11.0%	High Yield 12.6%	High Yield 7.0%	High Yield 1.0%	Small Cap -20.1%	DM Equity 4.1%	High Yield 12.2%
High Yield 3.2%	REITs -37.7%	Comdty. 18.9%	DM Equity 8.2%	DM Equity -11.7%	Fixed Income 4.2%	Fixed Income -2.0%	EM Equity -1.8%	Small Cap -4.4%	Fixed Income 2.6%	Fixed Income 3.5%	Comdty. -11.2%	Fixed Income 8.7%	Cash 0.5%	Cash 0.0%	DM Equity -23.1%	Fixed Income 4.1%	Asset Alloc. 11.7%
Small Cap -1.6%	DM Equity -43.1%	Fixed Income 5.9%	Fixed Income 6.5%	Comdty. -13.3%	Cash 0.1%	EM Equity -2.3%	DM Equity -4.5%	EM Equity -14.6%	DM Equity 1.5%	Comdty. 1.7%	DM Equity -13.4%	Comdty. 7.7%	Comdty. -3.1%	Fixed Income -1.5%	REITs -25.3%	Cash 0.8%	Fixed Income 3.3%
REITs -15.7%	EM Equity -53.2%	Cash 0.1%	Cash 0.1%	EM Equity -18.2%	Comdty. -1.1%	Comdty. -9.5%	Comdty. -17.0%	Comdty. -24.7%	Cash 0.3%	Cash 0.8%	EM Equity -14.2%	Cash 2.2%	REITs -5.1%	EM Equity -2.2%	EM Equity -25.4%	Comdty. -2.6%	Cash 0.7%

Source: Bloomberg, FactSet, MSCI, NAREIT, Russell, Standard & Poor's, J.P. Morgan Asset Management.

Large cap: S&P 500, Small cap: Russell 2000, EM Equity: MSCI EME, DM Equity: MSCI EAFE, Comdty: Bloomberg Commodity Index, High Yield: Bloomberg Global HY Index, Fixed Income: Bloomberg US Aggregate, REITs: NAREIT Equity REIT Index, Cash: Bloomberg 1-3m Treasury. The "Asset Allocation" portfolio assumes the following weights: 25% in the S&P 500, 10% in the Russell 2000, 15% in the MSCI EAFE, 5% in the MSCI EME, 25% in the Bloomberg US Aggregate, 5% in the Bloomberg 1-3m Treasury, 5% in the Bloomberg Global High Yield Index, 5% in the Bloomberg Commodity Index and 5% in the NAREIT Equity REIT Index. Balanced portfolio assumes annual rebalancing. Annualized (Ann.) return and volatility (Vol.) represents period from 12/31/2006 to 12/31/2021. Please see disclosure page at end for index definitions. All data represents total return for stated period. The "Asset Allocation" portfolio is for illustrative purposes only. Past performance is not indicative of future returns.  
Guide to the Markets – U.S. Data are as of October 4, 2022.

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# Time, diversification and the volatility of returns

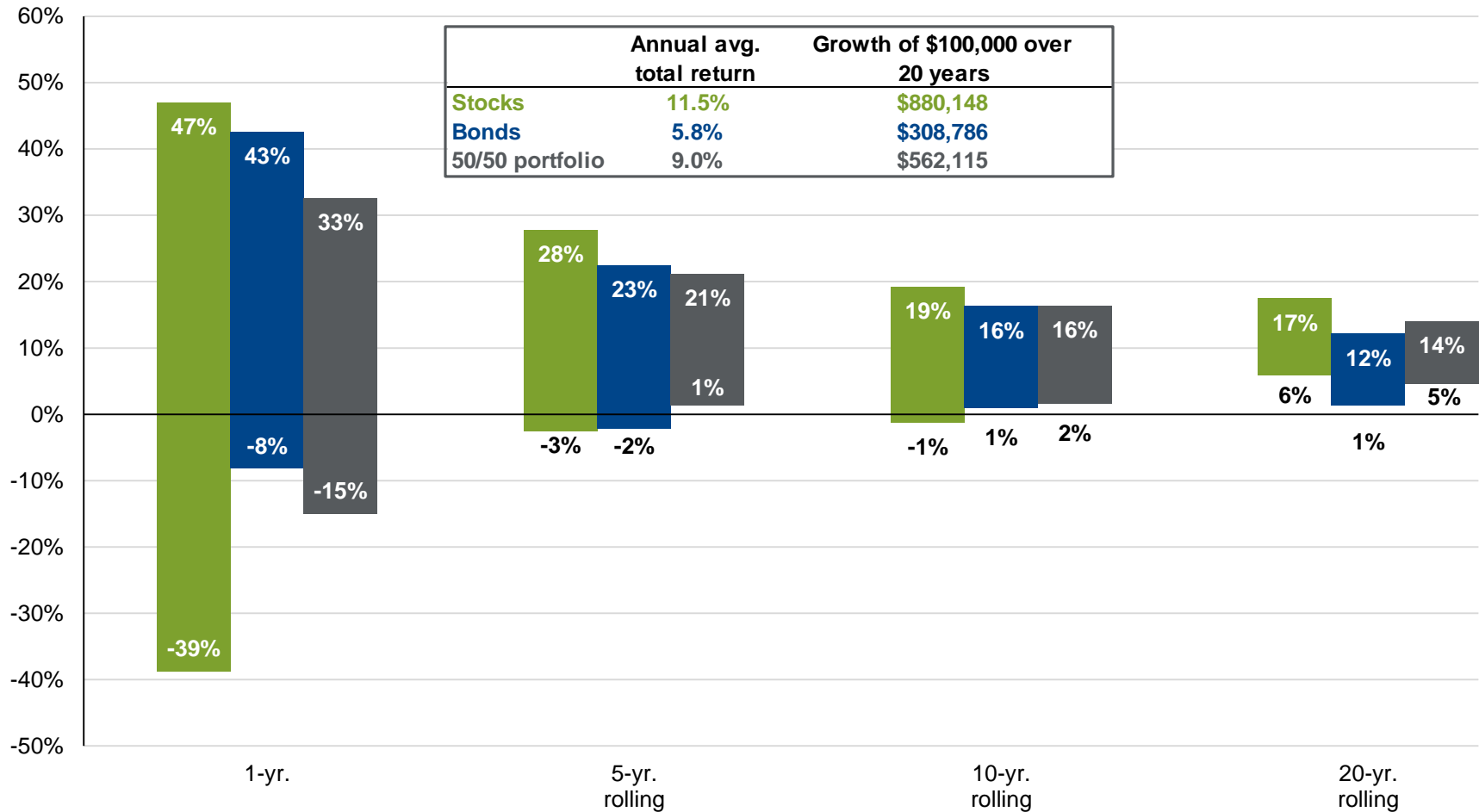
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## Range of stock, bond and blended total returns

Annual total returns, 1950 - 2021



Source: Bloomberg, FactSet, Federal Reserve, Robert Shiller, Strategas/Ibbotson, J.P. Morgan Asset Management.

Returns shown are based on calendar year returns from 1950 to 2021. Stocks represent the S&P 500 Shiller Composite and Bonds represent Strategas/Ibbotson for periods from 1950 to 2010 and Bloomberg Aggregate thereafter. Growth of \$100,000 is based on annual average total returns from 1950 to 2021.

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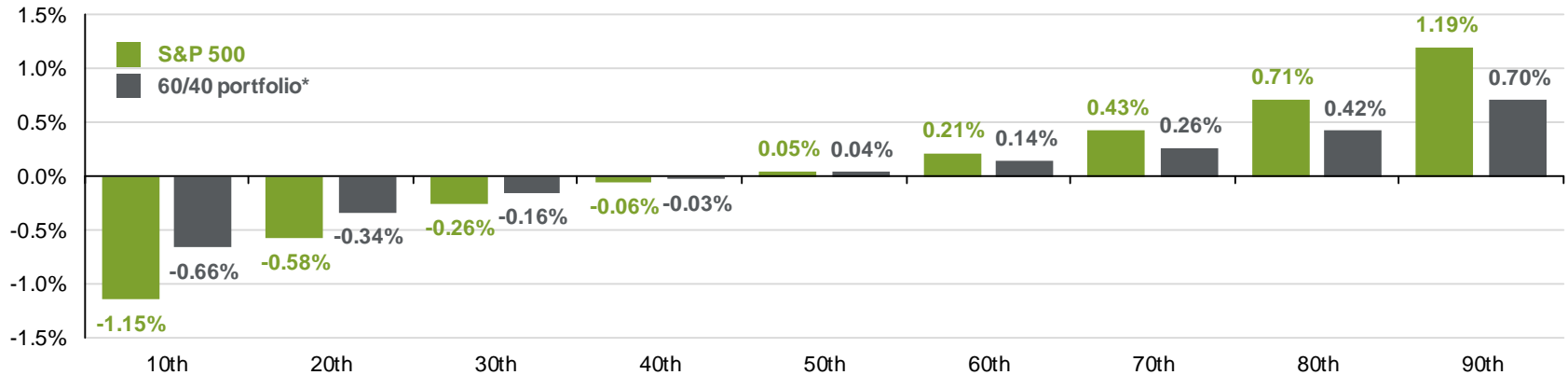
# Diversification and the average investor

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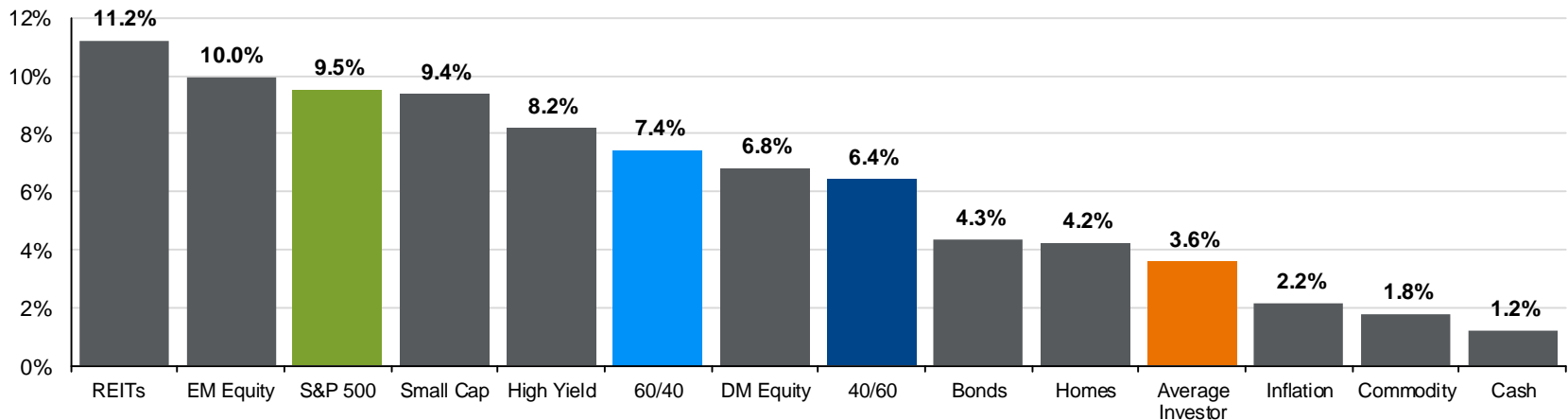
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## Equities vs. 60/40 portfolio: Last 20 years' daily market performance by decile



## 20-year annualized returns by asset class (2002 – 2021)



Source: Bloomberg, FactSet, Standard & Poor's, J.P. Morgan Asset Management; (Bottom) Dalbar Inc, MSCI, NAREIT, Russell.  
Indices used are as follows: REITs: NAREIT Equity REIT Index, Small Cap: Russell 2000, EM Equity: MSCI EM, DM Equity: MSCI EAFE, Commodity: Bloomberg Commodity Index, High Yield: Bloomberg Global HY Index, Bonds: Bloomberg U.S. Aggregate Index, Homes: median sale price of existing single-family homes, Cash: Bloomberg 1-3m Treasury, Inflation: CPI. \*60/40: A balanced portfolio with 60% invested in S&P 500 Index and 40% invested in high-quality U.S. fixed income, represented by the Bloomberg U.S. Aggregate Index. The portfolio is rebalanced annually. Average asset allocation investor return is based on an analysis by Dalbar Inc., which utilizes the net of aggregate mutual fund sales, redemptions and exchanges each month as a measure of investor behavior.  
Guide to the Markets – U.S. Data are as of October 4, 2022.

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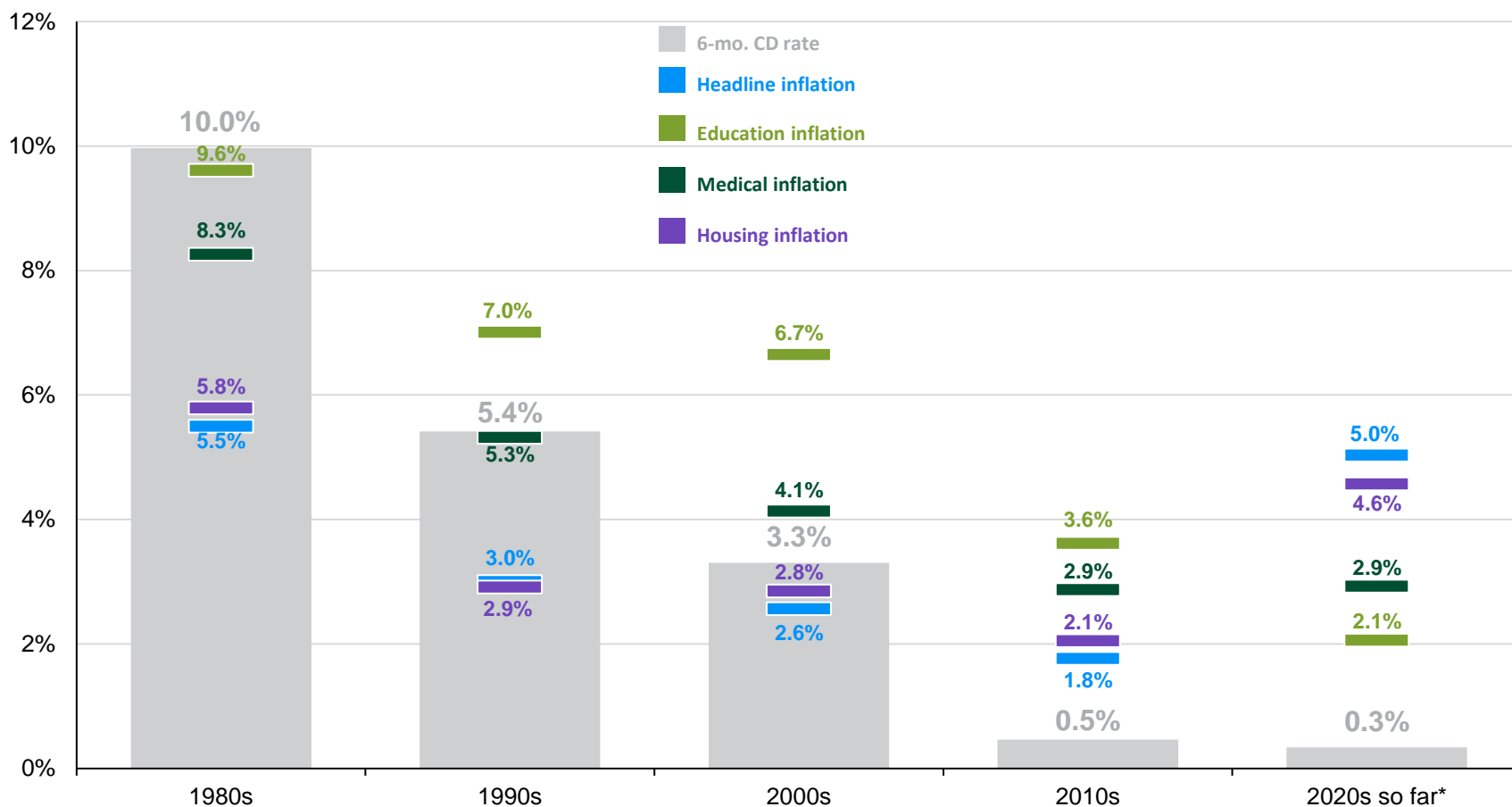


# Cash account returns

GTM U.S. 65

## Average annualized return on 6-month CD vs. annualized CPI inflation and subcomponents

By decade, derived from subcomponents of the consumer price index



Source: Bankrate.com, BLS, FactSet, Federal Reserve System, J.P. Morgan Asset Management.

6-month CD return is the average annualized return over the period. Headline CPI and subcomponents inflation is based on the annualized change over the period.

\*2020s so far is based on annualized change in headline CPI from December 2019 through August 2022. Past performance is not indicative of comparable future results.

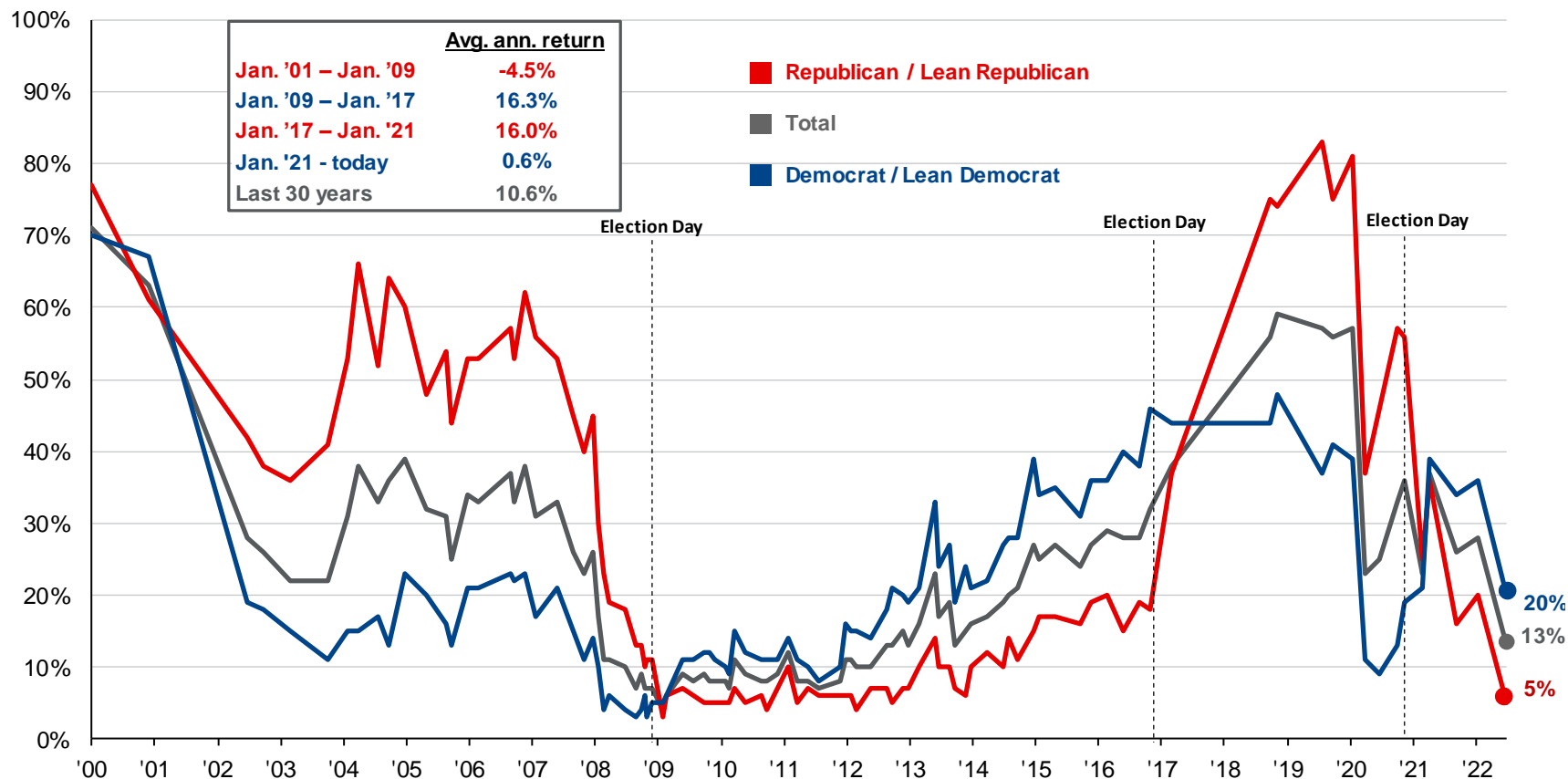
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# Consumer confidence by political affiliation

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Percent of Republicans and Democrats who rate national economic conditions as excellent or good  
Percent



Source: Pew Research Center, J.P. Morgan Asset Management. Pew Research Center, June 2020, "Republicans, Democrats Move Even Further Apart in Coronavirus Concerns." Question: Thinking about the nation's economy, How would you rate economic conditions in this country today... as excellent, good, only fair, or poor? The survey was last conducted in July 2022.

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# Individual investor asset allocation

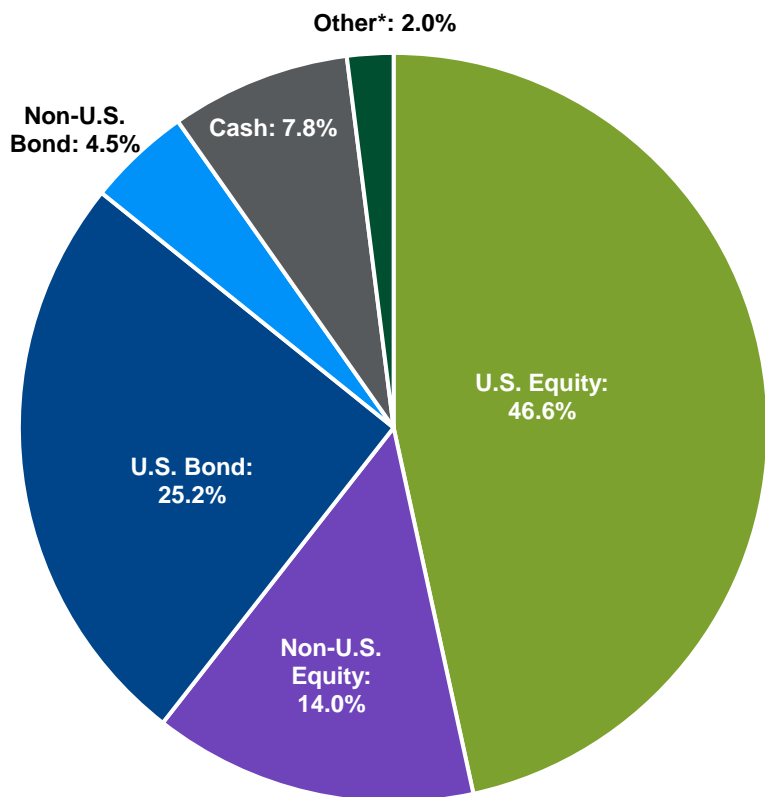
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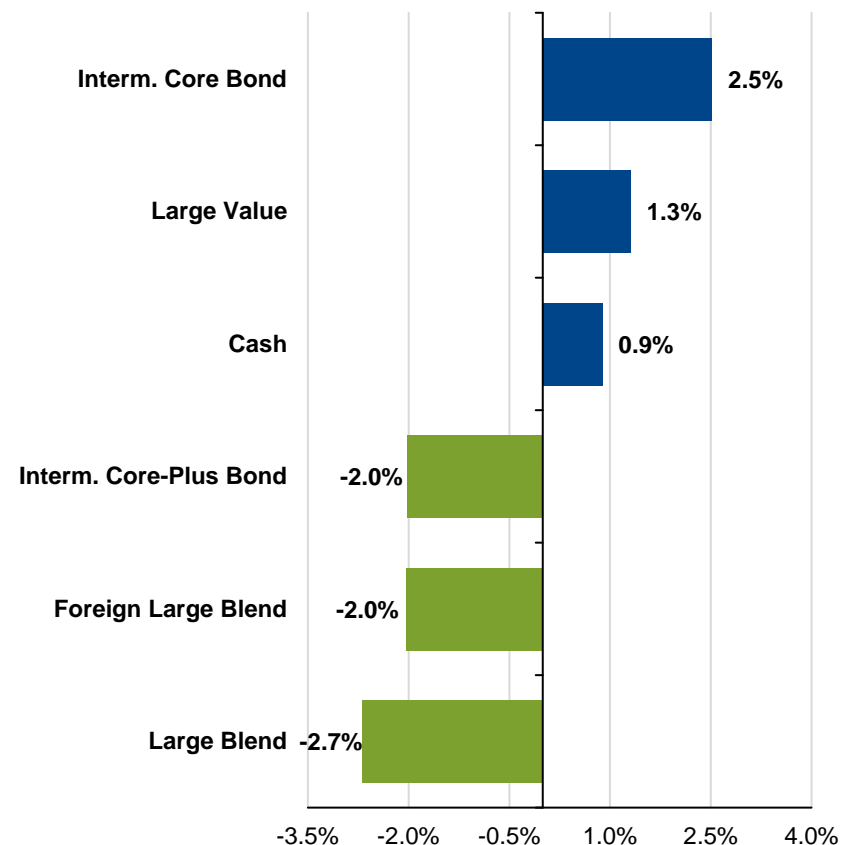
## Asset allocation: Current portfolio positioning

Average moderate (60/40) allocation as of June 2022



## Biggest portfolio shifts

Largest % allocation changes by Morningstar category, last 3 months\*\*



Source: J.P. Morgan Portfolio Insights, J.P. Morgan Asset Management. Data is aggregated from 5,501 portfolios analyzed through the Portfolio Insights tools over trailing 12 months. The current portfolio positioning chart represents the average overall asset allocation for all portfolios benchmarked relative to the JPMorgan 60/40 Benchmark. \*Other includes preferred stocks, warrants, options and other miscellaneous securities. \*\*The biggest portfolio shifts show the largest average % changes in moderate portfolios within the most used Morningstar categories from March 2022 to June 2022. The most used Morningstar categories is defined as those that appear with the greatest frequency in portfolio analysis. All information is shown for illustrative purposes only.  
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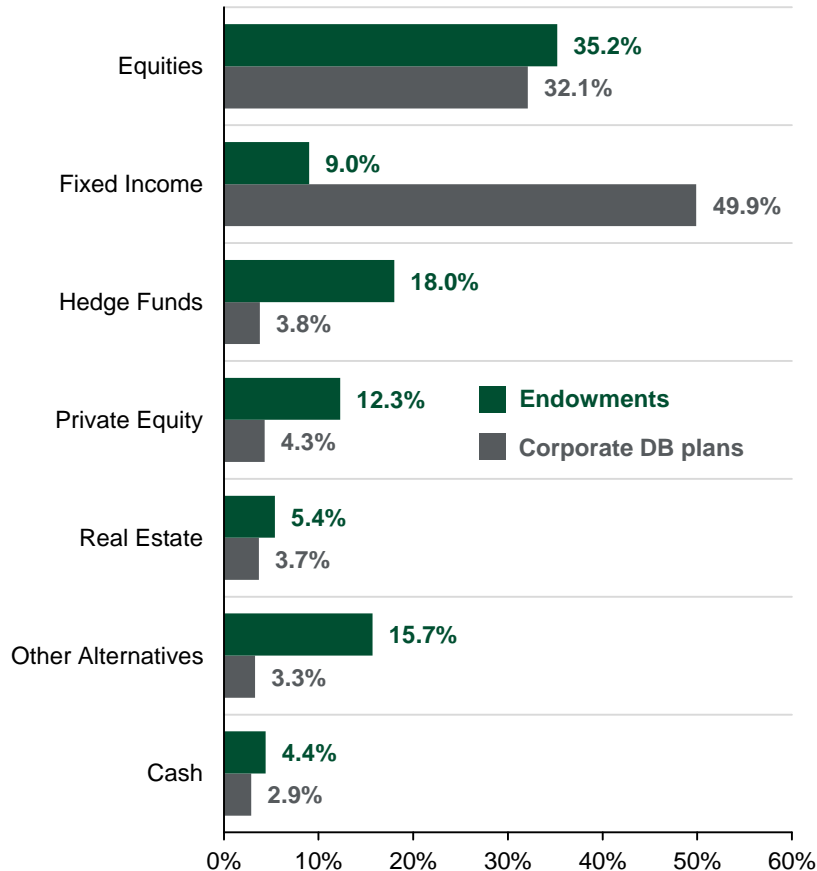
# Institutional investor behavior

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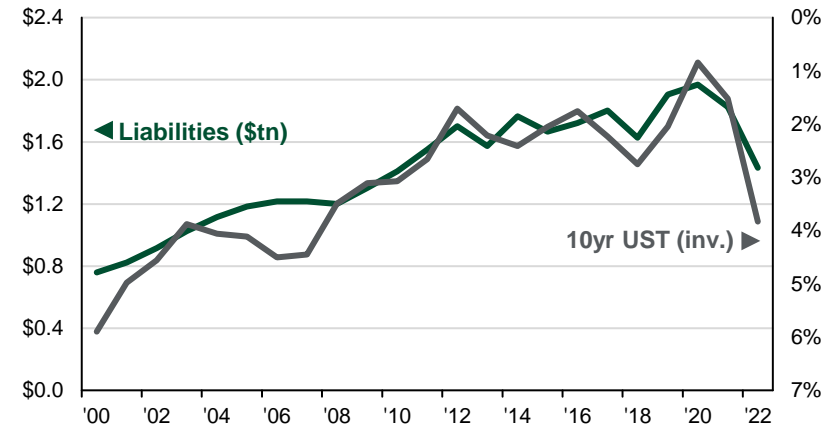
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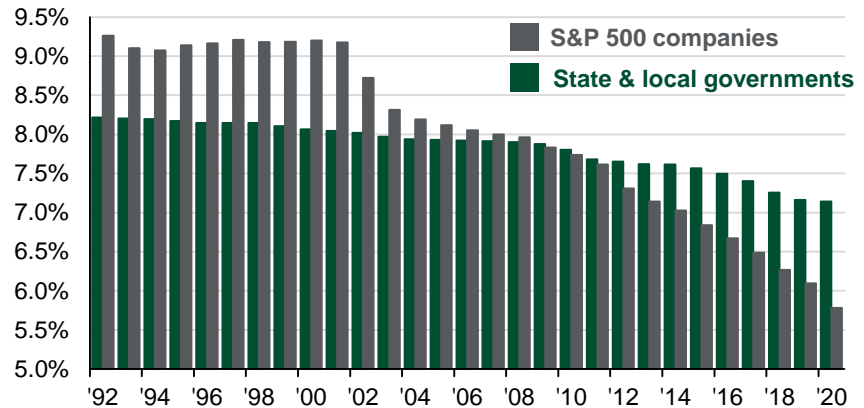
## Asset allocation: Corporate DB plans. endowments



## Corporate pension liabilities and 10-year UST yield



## Pension return assumptions



Source: J.P. Morgan Asset Management; (Left) NACUBO (National Association of College and University Business Officers), Towers Watson; (Top right) Milliman Pension Funding Index; (Bottom right) Census for Governments, Compustat, FactSet, S&P 500 corporate 10-Ks. Endowment asset allocation is as of 2019. Corporate DB plan asset allocation as of 2018. Endowments represents dollar-weighted average data of 749 colleges and universities. Corporate DB plans represents aggregate asset as of 12/31/2020 for Fortune 1000 pension plans. Pension return assumptions based on all available and reported data from S&P 500 Index companies and are as of 12/31/2019. State and local pension return assumptions are weighted by plan size. Pension assets, liabilities and funded status based on Milliman 100 companies reporting pension data as of August 2022. All information is shown for illustrative purposes only.  
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# J.P. Morgan Asset Management – Index definitions

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All indexes are unmanaged and an individual cannot invest directly in an index. Index returns do not include fees or expenses.

## Equities:

The **Dow Jones Industrial Average** is a price-weighted average of 30 actively traded blue-chip U.S. stocks.

The **MSCI ACWI (All Country World Index)** is a free float-adjusted market capitalization weighted index that is designed to measure the equity market performance of developed and emerging markets.

The **MSCI EAFE Index(Europe, Australasia, Far East)** is a free float-adjusted market capitalization index that is designed to measure the equity market performance of developed markets, excluding the US & Canada.

The **MSCI Emerging Markets Index** is a free float-adjusted market capitalization index that is designed to measure equity market performance in the global emerging markets.

The **MSCI Europe Index** is a free float-adjusted market capitalization index that is designed to measure developed market equity performance in Europe.

The **MSCI Pacific Index** is a free float-adjusted market capitalization index that is designed to measure equity market performance in the Pacific region.

The **Russell 1000 Index®** measures the performance of the 1,000 largest companies in the Russell 3000.

The **Russell 1000 Growth Index®** measures the performance of those Russell 1000 companies with higher price-to-book ratios and higher forecasted growth values.

The **Russell 1000 Value Index®** measures the performance of those Russell 1000 companies with lower price-to-book ratios and lower forecasted growth values.

The **Russell 2000 Index®** measures the performance of the 2,000 smallest companies in the Russell 3000 Index.

The **Russell 2000 Growth Index®** measures the performance of those Russell 2000 companies with higher price-to-book ratios and higher forecasted growth values.

The **Russell 2000 Value Index®** measures the performance of those Russell 2000 companies with lower price-to-book ratios and lower forecasted growth values.

The **Russell 3000 Index®** measures the performance of the 3,000 largest U.S. companies based on total market capitalization.

The **Russell Midcap Index®** measures the performance of the 800 smallest companies in the Russell 1000 Index.

The **Russell Midcap Growth Index®** measures the performance of those Russell Midcap companies with higher price-to-book ratios and higher forecasted growth values. The stocks are also members of the Russell 1000 Growth index.

The **Russell Midcap Value Index®** measures the performance of those Russell Midcap companies with lower price-to-book ratios and lower forecasted growth values. The stocks are also members of the Russell 1000 Value index.

The **S&P 500 Index** is widely regarded as the best single gauge of the U.S. equities market. The index includes a representative sample of 500 leading companies in leading industries of the U.S. economy. The **S&P 500 Index** focuses on the large-cap segment of the market; however, since it includes a significant portion of the total value of the market, it also represents the market.

## Fixed income:

The **Bloomberg 1-3 Month U.S. Treasury Bill Index** includes all publicly issued zero-coupon US Treasury Bills that have a remaining maturity of less than 3 months and more than 1 month, are rated investment grade, and have \$250 million or more of outstanding face value. In addition, the securities must be denominated in U.S. dollars and must be fixed rate and non convertible.

The **Bloomberg Global High Yield Index** is a multi-currency flagship measure of the global high yield debt market. The index represents the union of the US High Yield, the Pan-European High Yield, and Emerging Markets (EM) Hard Currency High Yield Indices. The high yield and emerging markets sub-components are mutually exclusive. Until January 1, 2011, the index also included CMBS high yield securities.

The **Bloomberg Municipal Index** consists of a broad selection of investment-grade general obligation and revenue bonds of maturities ranging from one year to 30 years. It is an unmanaged index representative of the tax-exempt bond market.

The **Bloomberg US Dollar Floating Rate Note (FRN) Index** provides a measure of the U.S. dollar denominated floating rate note market.

The **Bloomberg US Corporate Investment Grade Index** is an unmanaged index consisting of publicly issued US Corporate and specified foreign debentures and secured notes that are rated investment grade (Baa3/BBB or higher) by at least two ratings agencies, have at least one year to final maturity and have at least \$250 million par amount outstanding. To qualify, bonds must be SEC-registered.

The **Bloomberg US High Yield Index** covers the universe of fixed rate, non-investment grade debt. Eurobonds and debt issues from countries designated as emerging markets (sovereign rating of Baa1/BBB+/BBB+ and below using the middle of Moody's, S&P, and Fitch) are excluded, but Canadian and global bonds (SEC registered) of issuers in non-EMG countries are included.

The **Bloomberg US Mortgage Backed Securities Index** is an unmanaged index that measures the performance of investment grade fixed-rate mortgage backed pass-through securities of GNMA, FNMA and FHLMC.

The **Bloomberg US TIPS Index** consists of Inflation-Protection securities issued by the U.S. Treasury.

The **J.P. Morgan Emerging Market Bond Global Index(EMBI)** includes U.S. dollar denominated Brady bonds, Eurobonds, traded loans and local market debt instruments issued by sovereign and quasi-sovereign entities.

The **J.P. Morgan Domestic High Yield Index** is designed to mirror the investable universe of the U.S. dollar domestic high yield corporate debt market.

The **J.P. Morgan Corporate Emerging Markets Bond Index Broad Diversified (CEMBI Broad Diversified)** is an expansion of the **J.P. Morgan Corporate Emerging Markets Bond Index (CEMBI)**. The CEMBI is a market capitalization weighted index consisting of U.S. dollar denominated emerging market corporate bonds.

The **J.P. Morgan Emerging Markets Bond Index Global Diversified (EMBI Global Diversified)** tracks total returns for U.S. dollar-denominated debt instruments issued by emerging market sovereign and quasi-sovereign entities: Brady bonds, loans, Eurobonds. The index limits the exposure of some of the larger countries.

The **J.P. Morgan GBI EM Global Diversified** tracks the performance of local currency debt issued by emerging market governments, whose debt is accessible by most of the international investor base.

The **U.S. Treasury Index** is a component of the U.S. Government index.



# J.P. Morgan Asset Management – Definitions

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## Other asset classes:

The **Alerian MLP Index** is a composite of the 50 most prominent energy Master Limited Partnerships (MLPs) that provides investors with an unbiased, comprehensive benchmark for the asset class.

The **Bloomberg Commodity Index** and related sub-indices are composed of futures contracts on physical commodities and represents twenty two separate commodities traded on U.S. exchanges, with the exception of aluminum, nickel, and zinc

The **Cambridge Associates U.S. Global Buyout and Growth Index®** is based on data compiled from 1,768 global (U.S. & ex-U.S.) buyout and growth equity funds, including fully liquidated partnerships, formed between 1986 and 2013.

The **CS/Tremont Hedge Fund Index** is compiled by Credit Suisse Tremont Index, LLC. It is an asset-weighted hedge fund index and includes only funds, as opposed to separate accounts. The Index uses the Credit Suisse/Tremont database, which tracks over 4500 funds, and consists only of funds with a minimum of US\$50 million under management, a 12-month track record, and audited financial statements. It is calculated and rebalanced on a monthly basis, and shown net of all performance fees and expenses. It is the exclusive property of Credit Suisse Tremont Index, LLC.

The **HFRI Monthly Indices (HFRI)** are equally weighted performance indexes, utilized by numerous hedge fund managers as a benchmark for their own hedge funds. The HFRI are broken down into 4 main strategies, each with multiple sub strategies. All single-manager HFRI Index constituents are included in the HFRI Fund Weighted Composite, which accounts for over 2200 funds listed on the internal HFR Database.

The **NAREIT EQUITY REIT Index** is designed to provide the most comprehensive assessment of overall industry performance, and includes all tax-qualified real estate investment trusts (REITs) that are listed on the NYSE, the American Stock Exchange or the NASDAQ National Market List.

The **NFI-ODCE**, short for NCREIF Fund Index -Open End Diversified Core Equity, is an index of investment returns reporting on both a historical and current basis the results of 33 open-end commingled funds pursuing a core investment strategy, some of which have performance histories dating back to the 1970s. The NFI-ODCE Index is capitalization-weighted and is reported gross of fees. Measurement is time-weighted.

## Definitions:

Investing in **alternative assets** involves higher risks than traditional investments and is suitable only for sophisticated investors. Alternative investments involve greater risks than traditional investments and should not be deemed a complete investment program. They are not tax efficient and an investor should consult with his/her tax advisor prior to investing. Alternative investments have higher fees than traditional investments and they may also be highly leveraged and engage in speculative investment techniques, which can magnify the potential for investment loss or gain. The value of the investment may fall as well as rise and investors may get back less than they invested.

**Bonds** are subject to interest rate risks. Bond prices generally fall when interest rates rise.

Investments in **commodities** may have greater volatility than investments in traditional securities, particularly if the instruments involve leverage. The value of commodity-linked derivative instruments may be affected by changes in overall market movements, commodity index volatility, changes in interest rates, or factors affecting a particular industry or commodity, such as drought, floods, weather, livestock disease, embargoes, tariffs and international economic, political and regulatory developments. Use of leveraged commodity-linked derivatives creates an opportunity for increased return but, at the same time, creates the possibility for greater loss.

**Derivatives** may be riskier than other types of investments because they may be more sensitive to changes in economic or market conditions than other types of investments and could result in losses that significantly exceed the original investment. The use of derivatives may not be successful, resulting in investment losses, and the cost of such strategies may reduce investment returns.

**Distressed Restructuring Strategies** employ an investment process focused on corporate fixed income instruments, primarily on corporate credit instruments of companies trading at significant discounts to their value at issuance or obliged (par value) at maturity as a result of either formal bankruptcy proceeding or financial market perception of near term proceedings.

Investments in **emerging markets** can be more volatile. The normal risks of investing in foreign countries are heightened when investing in emerging markets. In addition, the small size of securities markets and the low trading volume may lead to a lack of liquidity, which leads to increased volatility. Also, emerging markets may not provide adequate legal protection for private or foreign investment or private property.

The price of **equity** securities may rise, or fall because of changes in the broad market or changes in a company's financial condition, sometimes rapidly or unpredictably. These price movements may result from factors affecting individual companies, sectors or industries, or the securities market as a whole, such as changes in economic or political conditions. Equity securities are subject to "stock market risk" meaning that stock prices in general may decline over short or extended periods of time.

**Equity market neutral strategies** employ sophisticated quantitative techniques of analyzing price data to ascertain information about future price movement and relationships between securities, select securities for purchase and sale. Equity Market Neutral Strategies typically maintain characteristic net equity market exposure no greater than 10% long or short.

**Global macro strategies** trade a broad range of strategies in which the investment process is predicated on movements in underlying economic variables and the impact these have on equity, fixed income, hard currency and commodity markets.

**International** investing involves a greater degree of risk and increased volatility. Changes in currency exchange rates and differences in accounting and taxation policies outside the U.S. can raise or lower returns. Some overseas markets may not be as politically and economically stable as the United States and other nations.

There is no guarantee that the use of **long and short positions** will succeed in limiting an investor's exposure to domestic stock market movements, capitalization, sector swings or other risk factors. Using long and short selling strategies may have higher portfolio turnover rates. Short selling involves certain risks, including additional costs associated with covering short positions and a possibility of unlimited loss on certain short sale positions.

**Merger arbitrage strategies** which employ an investment process primarily focused on opportunities in equity and equity related instruments of companies which are currently engaged in a corporate transaction.

**Mid-capitalization** investing typically carries more risk than investing in well-established "blue-chip" companies. Historically, mid-cap companies' stock has experienced a greater degree of market volatility than the average stock.

**Price to forward earnings** is a measure of the price-to-earnings ratio (P/E) using forecasted earnings. **Price to book value** compares a stock's market value to its book value. **Price to cash flow** is a measure of the market's expectations of a firm's future financial health. **Price to dividends** is the ratio of the price of a share on a stock exchange to the dividends per share paid in the previous year, used as a measure of a company's potential as an investment.

**Real estate** investments may be subject to a higher degree of market risk because of concentration in a specific industry, sector or geographical sector. Real estate investments may be subject to risks including, but not limited to, declines in the value of real estate, risks related to general and economic conditions, changes in the value of the underlying property owned by the trust and defaults by borrower.

**Relative Value Strategies** maintain positions in which the investment thesis is predicated on realization of a valuation discrepancy in the relationship between multiple securities.

**Small-capitalization** investing typically carries more risk than investing in well-established "blue-chip" companies since smaller companies generally have a higher risk of failure. Historically, smaller companies' stock has experienced a greater degree of market volatility than the average stock.



# J.P. Morgan Asset Management – Risks & disclosures

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Unless otherwise stated, all data are as of August 1, 2022 or most recently available.

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