



# Guide to the Markets<sup>®</sup>

U.S. | 2Q 2022

As of March 31, 2022





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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 March 1997 and by FactSet since January 2022. Current next 12-months consensus earnings estimates are \$233. 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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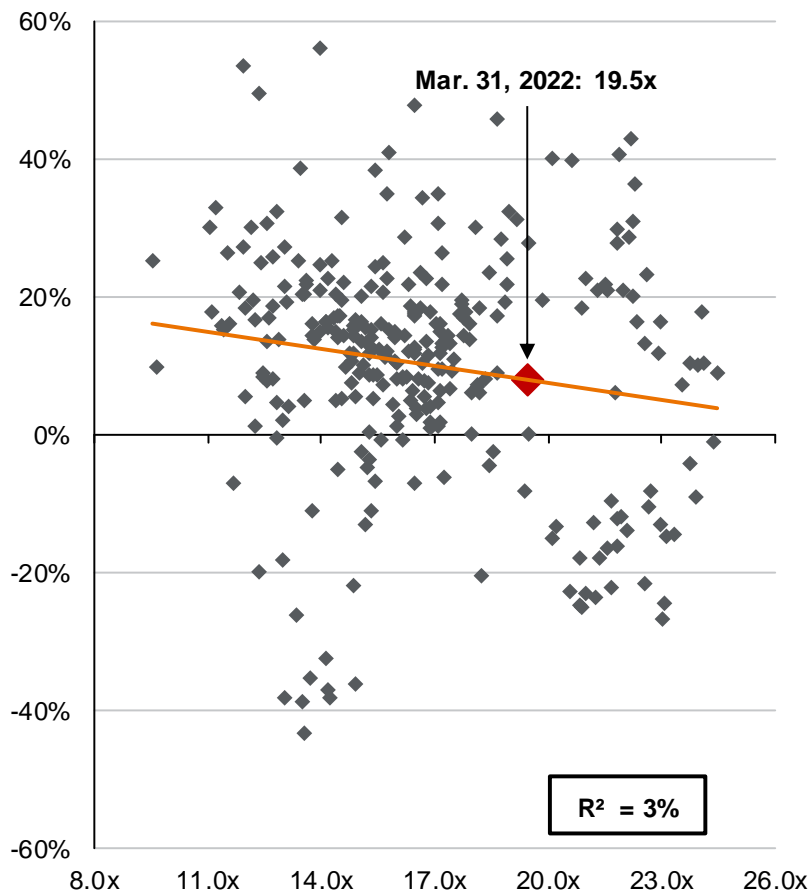
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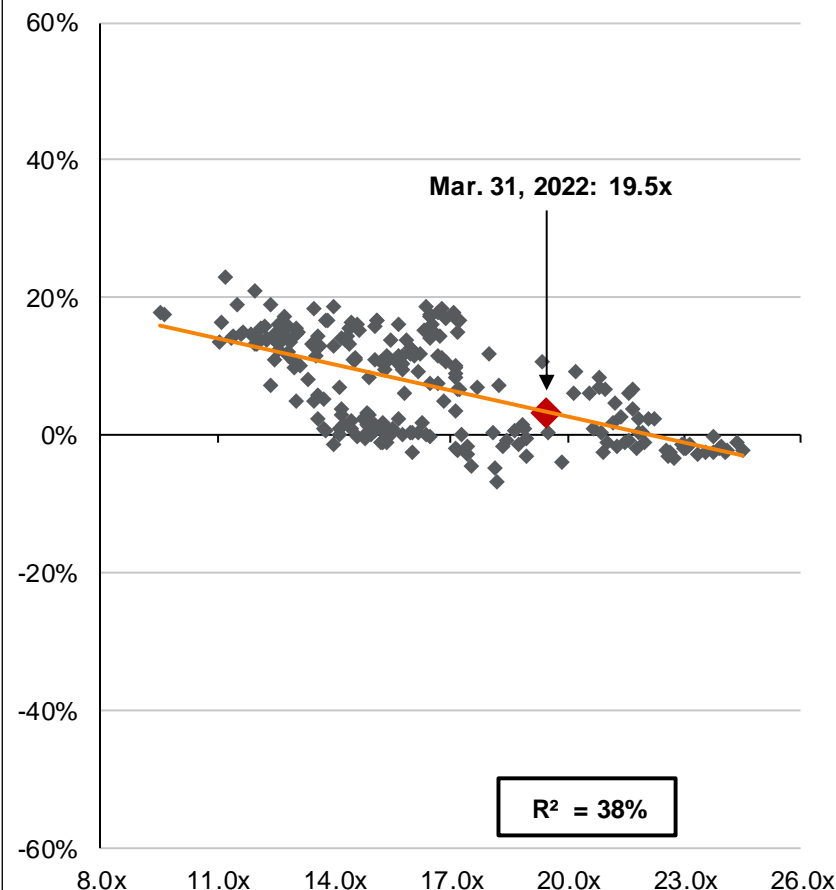
## Forward P/E and subsequent 1-yr. returns

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 2/28/97.  $R^2$  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 March 31, 2022.



# Corporate profits and sources of total return

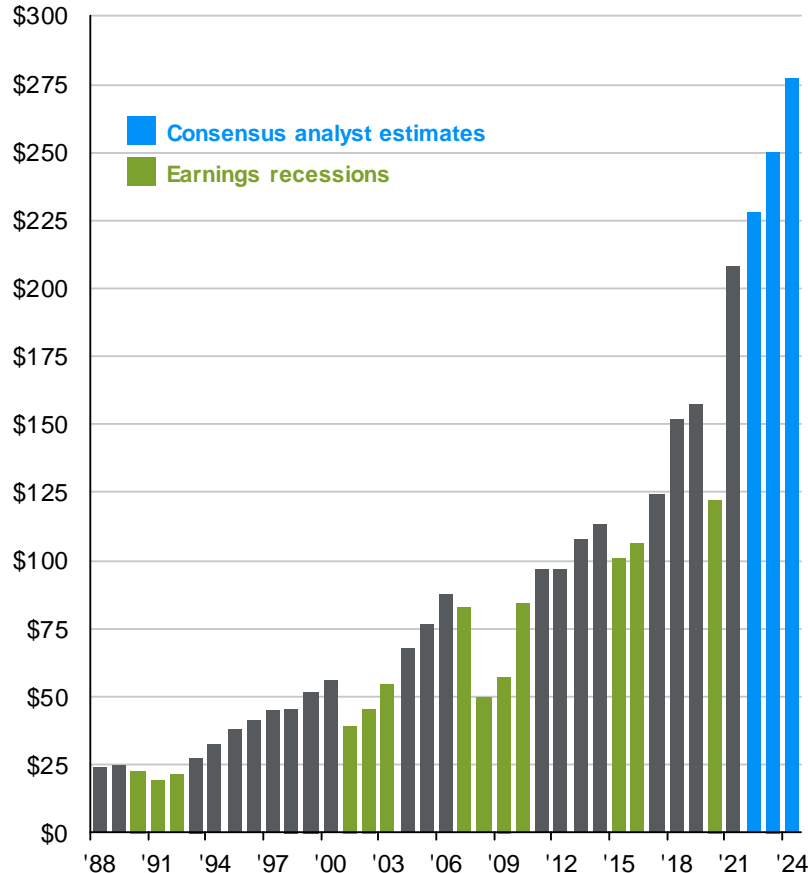
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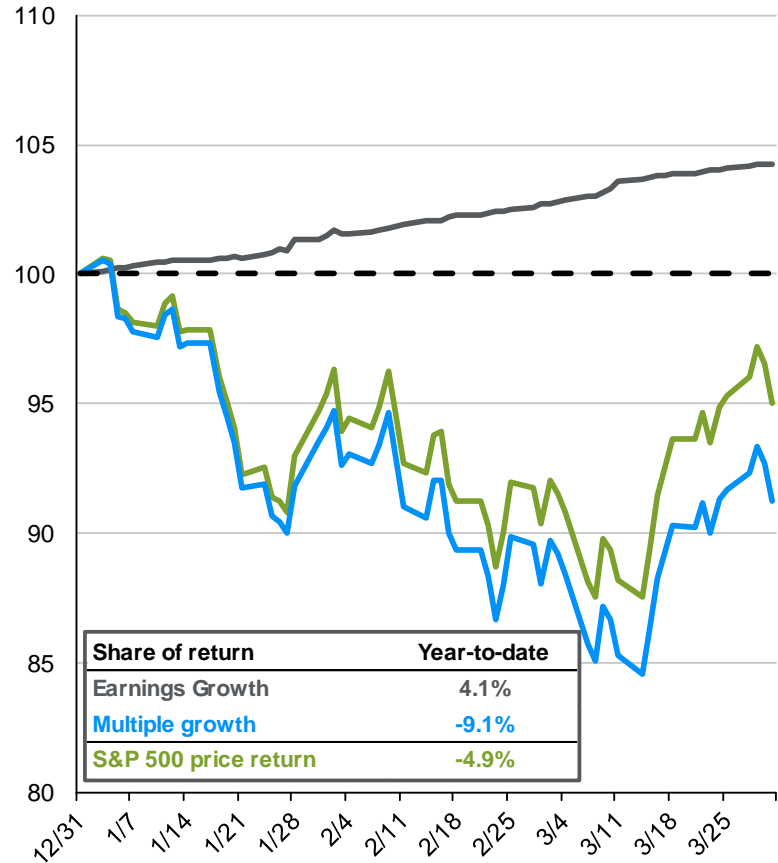
## S&P 500 earnings per share

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 percent changes over the next 12 months. Past performance is not indicative of future returns.

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# Sources of earnings per share growth

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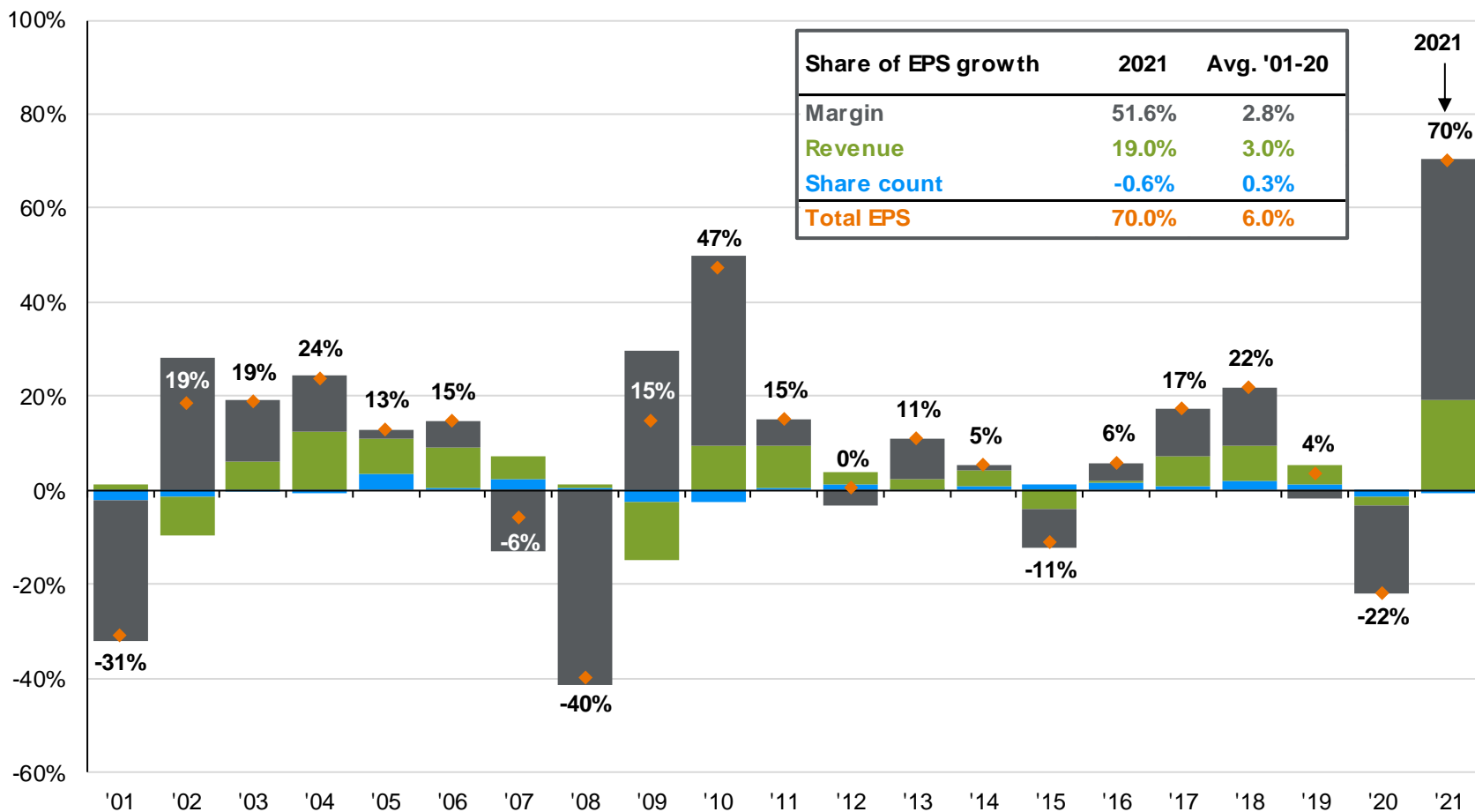
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## S&P 500 year-over-year operating EPS growth

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. 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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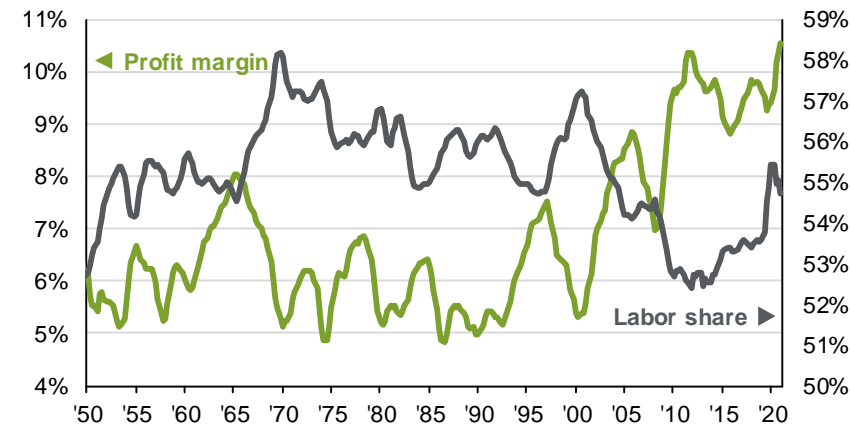
## S&P 500 profit margins

Quarterly operating earnings/sales



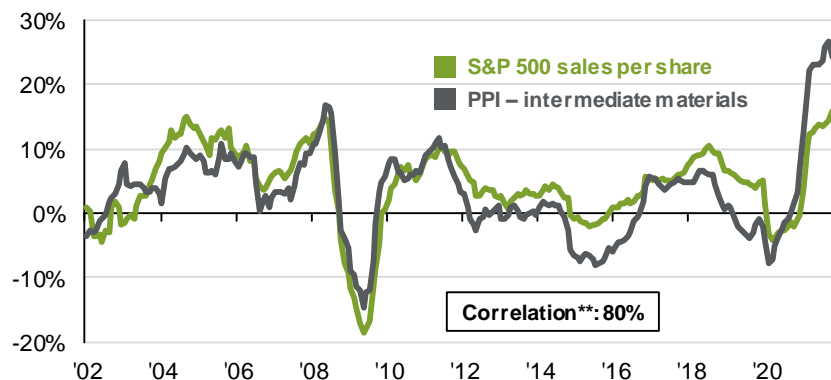
## Labor share of income and profit margins\*

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. \*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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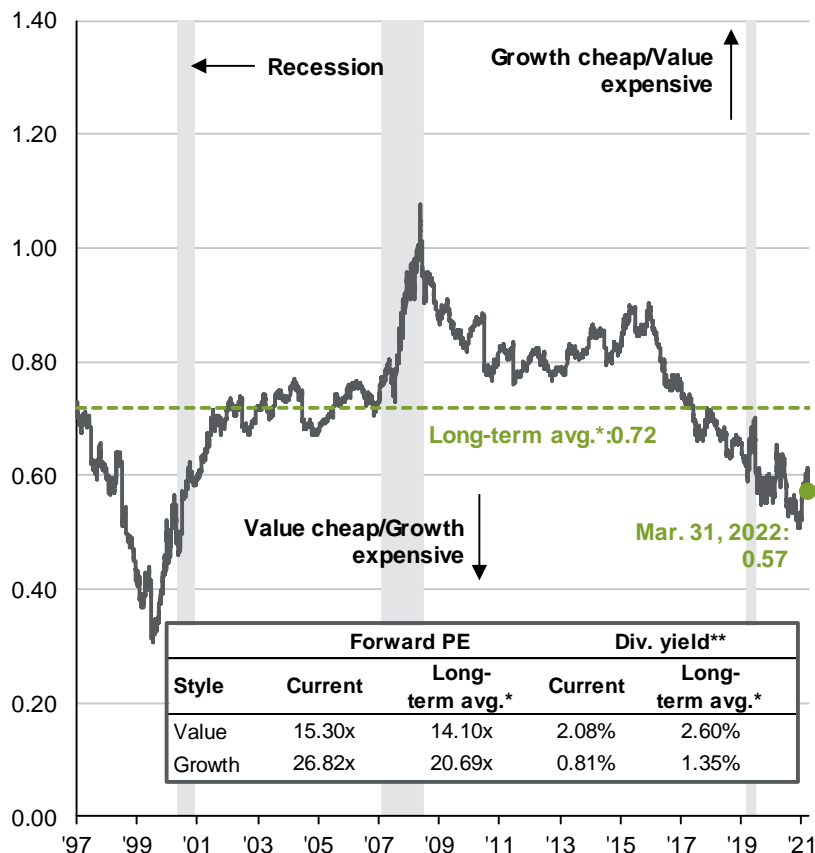
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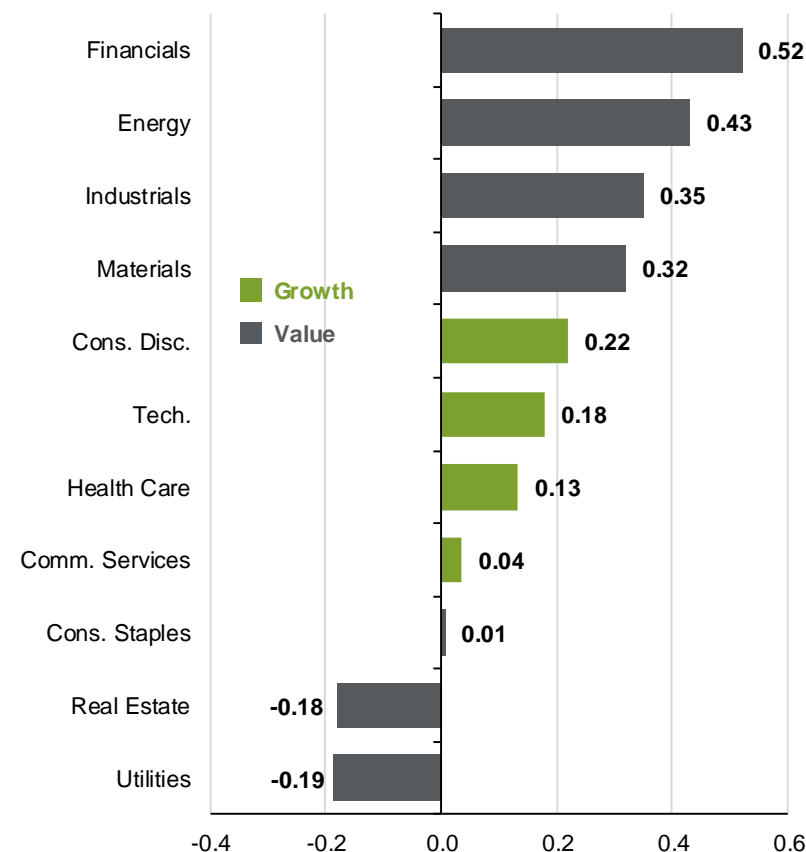
## Value vs. Growth relative valuations

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



## S&P 500 sector correlations to U.S. 10-yr. Treasury yield

10-year correlations, monthly moves in yield vs. monthly price returns



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) Correlations are calculated on a monthly basis over the last 120 months.

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ASSET MANAGEMENT



# S&P 500: Index concentration, valuations and earnings

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## P/E ratio of the top 10 and remaining stocks in the S&P 500 Next 12 months



## Weight of the top 10 stocks in the S&P 500 % of market capitalization of the S&P 500



## Earnings contribution of the top 10 in the S&P 500 Based on last 12 months' earnings



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

The top 10 S&P 500 companies are based on the 10 largest index constituents at the beginning of each month. The weight of each of these companies is revised monthly. As of 3/31/2022, the top 10 companies in the index were AAPL (7.1%), MSFT (6.0%), AMZN (3.7%), TSLA (2.4%), GOOGL (2.2%), GOOG (2.0%), NVDA (1.8%), BRK.B (1.7%), FB (1.3%), UNH (1.3%) and JNJ (1.2%). The remaining stocks represent the rest of the 494 companies in the S&P 500.

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# S&P 500: Valuation dispersion

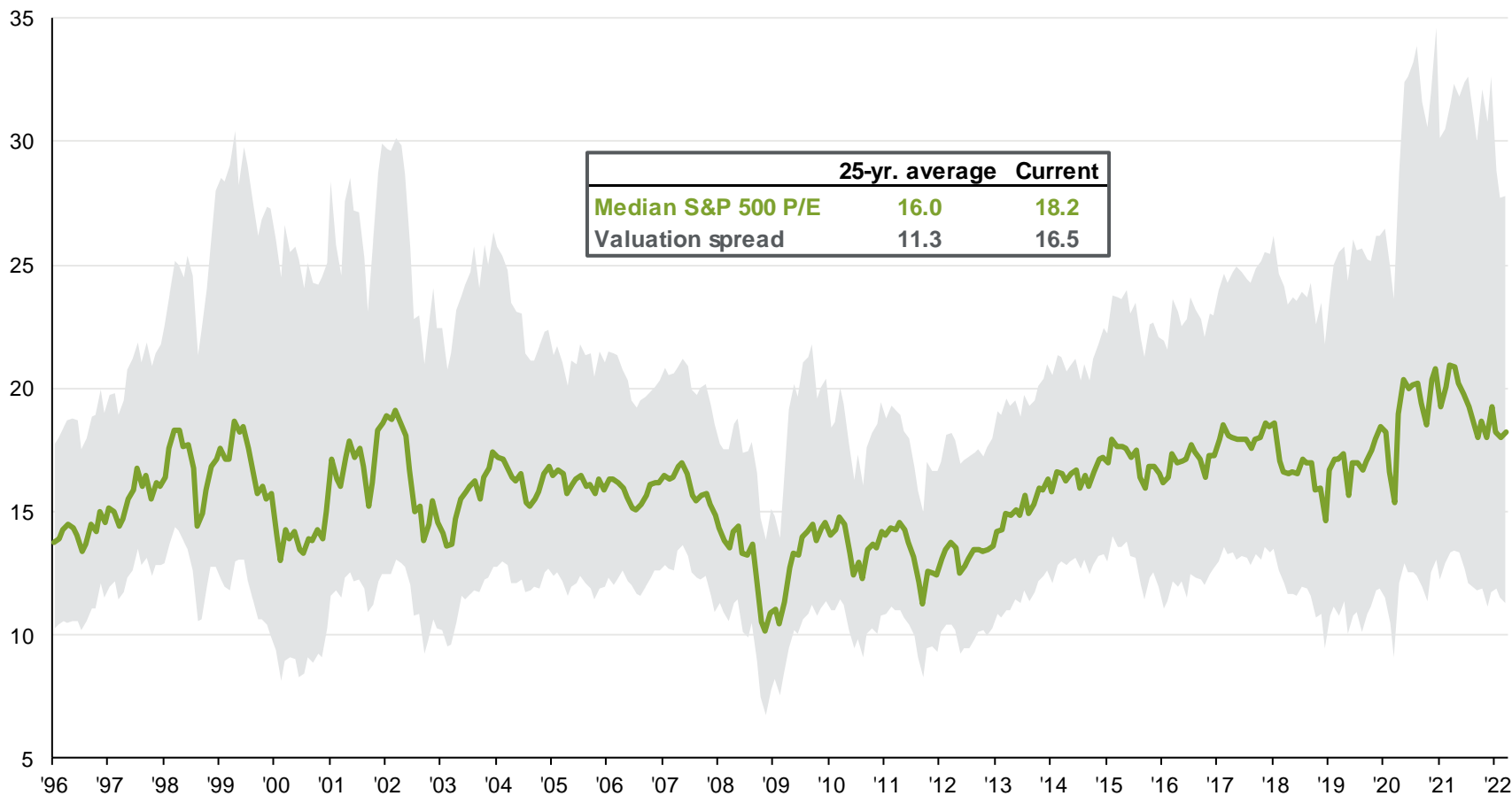
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## Valuation dispersion between the 20th and 80th percentile of S&P 500 stocks



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	11.7%	14.6%	17.0%
Mid	12.0%	12.9%	13.5%
Small	10.5%	11.0%	11.2%

## YTD

	Value	Blend	Growth
Large	-0.7%	-4.6%	-9.0%
Mid	-1.8%	-5.7%	-12.6%
Small	-2.4%	-7.5%	-12.6%

## Since market peak (February 2020)

	Value	Blend	Growth
Large	27.1%	45.0%	61.7%
Mid	32.4%	38.3%	42.9%
Small	37.1%	35.6%	31.7%

## Since market low (March 2020)

	Value	Blend	Growth
Large	104.0%	109.0%	114.6%
Mid	129.8%	118.3%	94.3%
Small	135.3%	111.3%	87.0%

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

	Value	Blend	Growth
Large	15.3 / 13.7	19.5 / 15.5	26.8 / 18.5
Mid	15.1 / 14.5	17.9 / 16.4	28.6 / 20.4
Small	14.7 / 17.0	21.1 / 21.4	40.5 / 35.5

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

	Value	Blend	Growth
Large	111.7%	125.7%	144.7%
Mid	104.2%	109.1%	140.3%
Small	86.6%	98.6%	114.1%

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 2/19/20 to March 31, 2022. Since Market Low represents period from 3/23/20 to March 31, 2022. Returns are cumulative returns, not annualized. For all time periods, total return is based on Russell style indices with the exception of 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>	<b>3.9%</b>	<b>2.6%</b>	<b>11.1%</b>	<b>7.9%</b>	<b>12.0%</b>	<b>28.0%</b>	<b>9.4%</b>	<b>2.7%</b>	<b>13.6%</b>	<b>6.1%</b>	<b>2.7%</b>	<b>100.0%</b>	<b>Weight</b>
Russell Growth weight	0.5%	0.9%	2.5%	6.1%	18.5%	46.2%	10.5%	1.7%	8.9%	4.2%	0.0%	100.0%	
Russell Value weight	7.1%	4.1%	20.8%	11.0%	5.0%	9.3%	7.1%	4.9%	17.9%	7.4%	5.4%	100.0%	
Russell 2000 weight	6.6%	4.0%	15.9%	15.5%	10.2%	13.7%	3.2%	7.8%	16.6%	3.5%	3.0%	100.0%	
<b>QTD</b>	39.0	-2.4	-1.5	-2.4	-9.0	-8.4	-11.9	-6.2	-2.6	-1.0	4.8	-4.6	<b>Return (%)</b>
<b>YTD</b>	39.0	-2.4	-1.5	-2.4	-9.0	-8.4	-11.9	-6.2	-2.6	-1.0	4.8	-4.6	
<b>Since market peak</b> (February 2020)	56.6	52.3	29.3	27.2	41.8	58.3	24.3	25.8	36.5	26.8	14.1	38.4	
<b>Since market low</b> (March 2020)	255.2	138.3	126.6	118.2	107.7	129.9	74.0	102.0	89.4	66.9	77.2	109.0	
<b>Beta to S&amp;P 500</b>	1.3	1.1	1.1	1.1	1.1	1.1	1.0*	0.7	0.8	0.7	0.4	1.0	<b>β</b>
<b>Correl. to Treas. yields</b>	0.3	-0.1	0.1	0.0	-0.3	-0.3	-0.2	-0.2	-0.3	-0.2	0.0	-0.2	<b>ρ</b>
<b>Foreign % of sales</b>	37.6	54.8	21.7	33.0	34.2	58.7	48.4	17.0	37.9	44.9	2.0	41.8	<b>%</b>
NTM earnings growth	38.9%	5.3%	-5.9%	30.1%	19.4%	12.2%	4.9%	8.5%	5.5%	6.0%	3.1%	9.3%	
<b>20-yr avg.</b>	<b>85.5%</b>	<b>18.2%</b>	<b>21.3%</b>	<b>13.6%</b>	<b>16.7%</b>	<b>14.2%</b>	<b>10.5%*</b>	<b>6.5%</b>	<b>8.9%</b>	<b>8.0%</b>	<b>4.0%</b>	<b>11.5%</b>	<b>EPS</b>
Forward P/E ratio	11.5x	16.0x	14.4x	19.9x	27.8x	24.4x	18.1x	21.9x	16.5x	21.2x	21.3x	19.5x	
<b>20-yr avg.</b>	<b>14.1x</b>	<b>14.7x</b>	<b>12.4x</b>	<b>16.2x</b>	<b>19.0x</b>	<b>18.3x</b>	<b>19.7x*</b>	<b>16.4x</b>	<b>15.2x</b>	<b>17.1x</b>	<b>15.0x</b>	<b>15.5x</b>	<b>P/E</b>
Buyback yield	0.8%	2.1%	3.5%	2.0%	1.6%	2.3%	3.3%	-1.5%	1.3%	1.4%	-0.9%	2.1%	
<b>20-yr avg.</b>	<b>1.5%</b>	<b>0.8%</b>	<b>0.2%</b>	<b>2.1%</b>	<b>2.3%</b>	<b>2.9%</b>	<b>1.4%</b>	<b>-1.3%</b>	<b>1.9%</b>	<b>1.8%</b>	<b>-1.0%</b>	<b>1.7%</b>	<b>Bbk</b>
Dividend yield	3.3%	1.9%	1.9%	1.6%	0.7%	0.9%	0.9%	2.7%	1.6%	2.6%	2.9%	1.5%	
<b>20-yr avg.</b>	<b>2.7%</b>	<b>2.5%</b>	<b>2.3%</b>	<b>2.2%</b>	<b>1.4%</b>	<b>1.1%</b>	<b>1.3%*</b>	<b>4.1%</b>	<b>1.9%</b>	<b>2.8%</b>	<b>3.9%</b>	<b>2.1%</b>	<b>Div</b>

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 2/19/20 to 3/31/22. Since market low represents period from 3/23/20 to 3/31/22. 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. Guide to the Markets – U.S. Data are as of March 31, 2022.



# 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.	Min. Vol.	Value	Small Cap	High Div.	Cyclical	Value	Value	Momen.	Small Cap	Momen.	Min. Vol.	Cyclical	Momen.	Value	Defens.	2.6%	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%			11.8%	22.5%
Defens.	Defens.	Cyclical	Multi-Factor	Min. Vol.	Value	Small Cap	Min. Vol.	Min. Vol.	High Div.	Cyclical	Momen.	Quality	Cyclical	Cyclical	High Div.	-1.5%	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%			11.5%	20.7%
Quality	High Div.	Multi-Factor	Momen.	Defens.	Small Cap	Multi-Factor	High Div.	Quality	Value	Quality	High Div.	Momen.	Small Cap	Quality	Min. Vol.	-3.8%	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%			11.2%	19.9%
Multi-Factor	Quality	Small Cap	Cyclical	Quality	Multi-Factor	Cyclical	Multi-Factor	Cyclical	Cyclical	Value	Defens.	Min. Vol.	Quality	Multi-Factor	Value	-3.8%	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%			10.5%	17.7%
Min. Vol.	Small Cap	Quality	High Div.	Multi-Factor	Momen.	Momen.	Momen.	High Div.	Multi-Factor	Multi-Factor	Cyclical	Value	Multi-Factor	Defens.	Multi-Factor	-4.1%	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%			10.1%	17.7%
Value	Value	High Div.	Min. Vol.	Momen.	Quality	Quality	Cyclical	Multi-Factor	Min. Vol.	High Div.	Quality	Multi-Factor	Min. Vol.	High Div.	Momen.	-7.3%	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%			9.4%	15.7%
High Div.	Multi-Factor	Min. Vol.	Quality	Value	Min. Vol.	High Div.	Defens.	Defens.	Quality	Min. Vol.	Multi-Factor	Small Cap	Defens.	Min. Vol.	Quality	-7.4%	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%			9.1%	15.1%
Cyclical	Momen.	Momen.	Value	Cyclical	Defens.	Defens.	Quality	Small Cap	Defens.	Small Cap	Small Cap	High Div.	High Div.	Small Cap	Small Cap	-7.5%	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%			9.1%	13.9%
Small Cap	Cyclical	Defens.	Defens.	Small Cap	High Div.	Min. Vol.	Small Cap	Value	Momen.	Defens.	Value	Defens.	Value	Momen.	Cyclical	-7.7%	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%			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. *Guide to the Markets* – U.S. Data are as of March 31, 2022.



# Annual returns and intra-year declines

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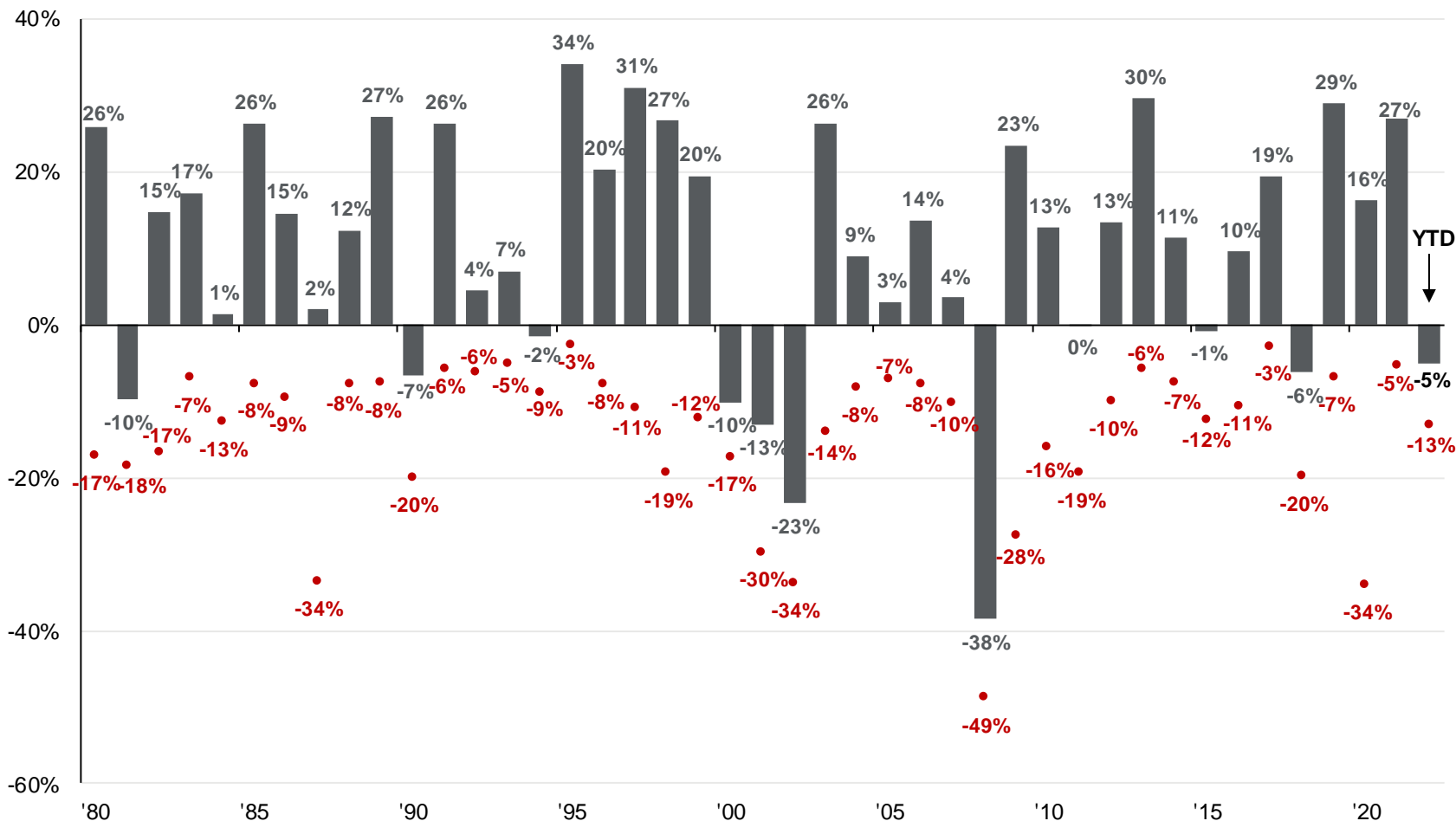
U.S.

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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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# Interest rates and equities

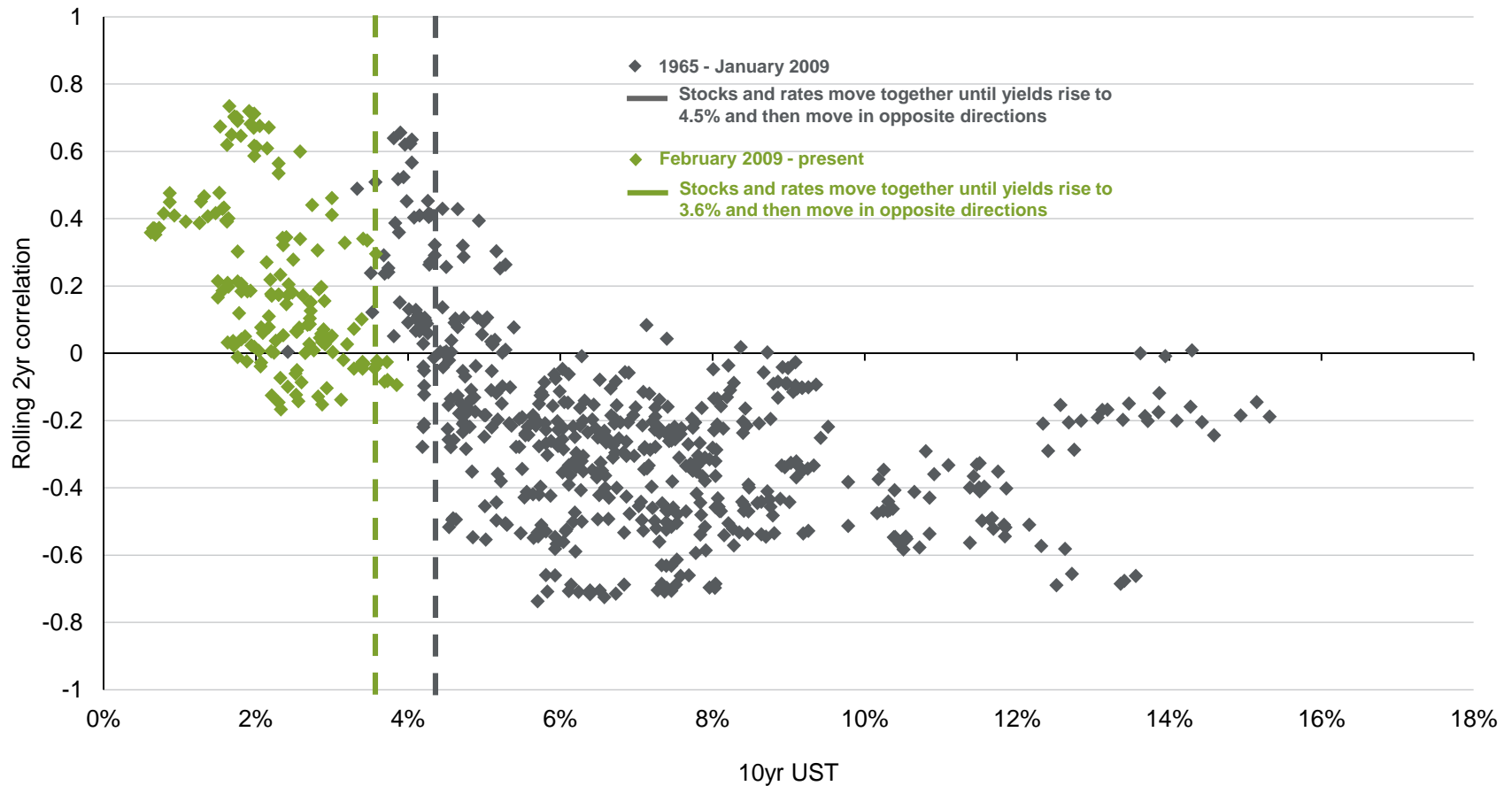
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## Stock returns and interest rate movements before and after the Global Financial Crisis

Monthly S&P 500 returns, 10yr U.S. Treasury, rolling 2yr correlations, 1965 – present



Source: FactSet, J.P. Morgan Asset Management. X-intercept for each data set is calculated using a quadratic regression where interest rates are the independent variable and the rolling 2-year correlation of stock returns and interest rate movements is the dependent variable.

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# Economic growth and the composition of GDP

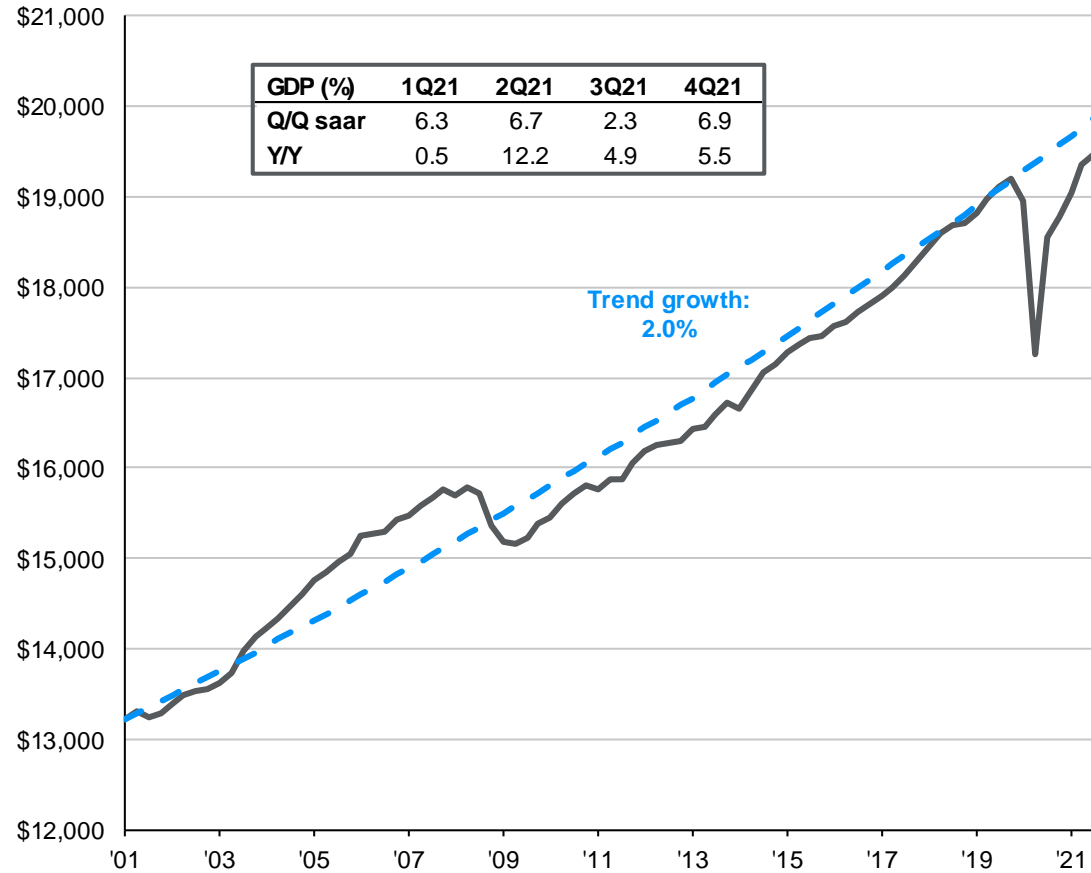
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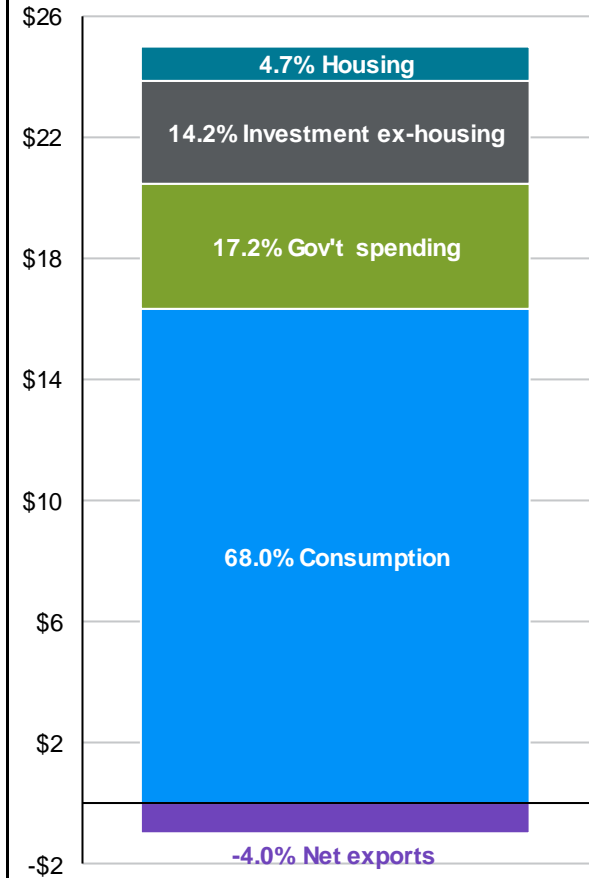
## Real GDP

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



## Components of GDP

4Q21 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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# COVID-19 and high-frequency data

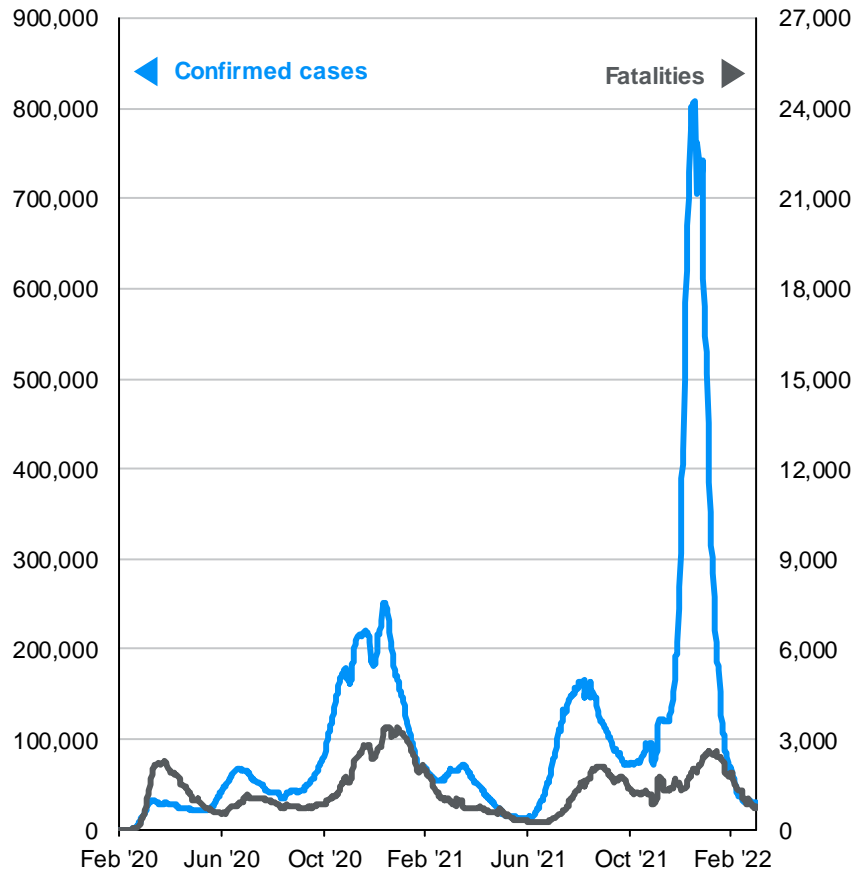
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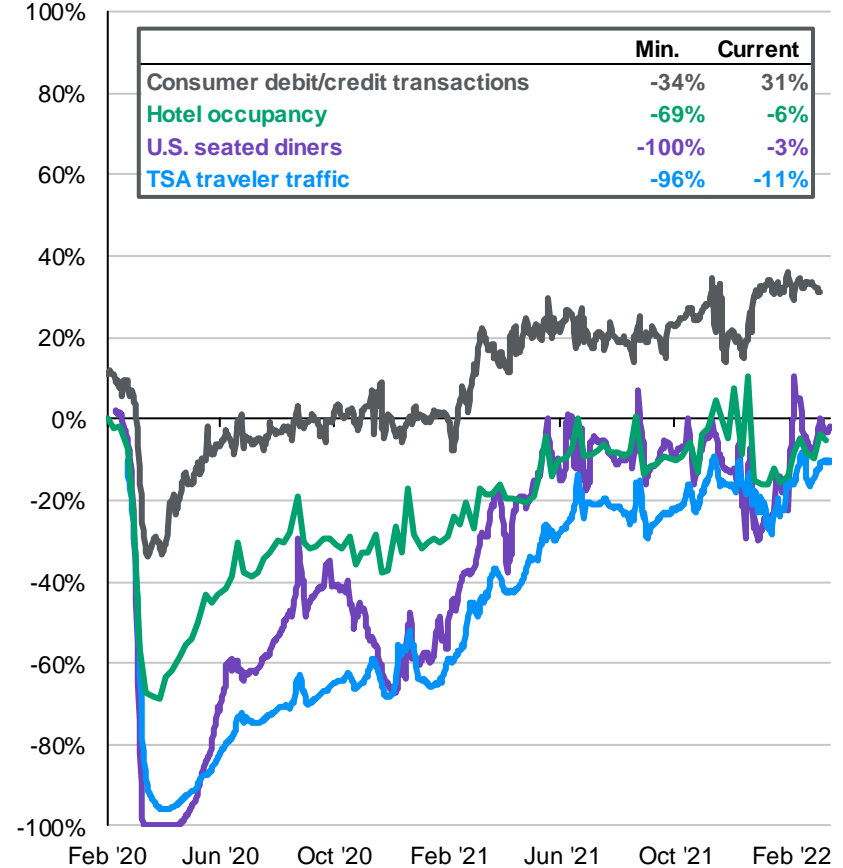
## Change in confirmed cases and fatalities in the U.S.

7-day moving average



## High-frequency data

% change from comparable week in 2019



Source: Centers for Disease Control and Prevention, Chase, OpenTable, Our World in Data, STR, Transportation Security Administration (TSA), J.P. Morgan Asset Management. Consumer debit/credit transactions, U.S. seated diners and TSA traveler traffic are 7-day moving averages. Consumer spending: This report uses rigorous security protocols for selected data sourced from Chase credit and debit card transactions to ensure all information is kept confidential and secure. All selected data are highly aggregated and all unique identifiable information—including names, account numbers, addresses, dates of birth and Social Security Numbers—is removed from the data before the report's author receives it. *Guide to the Markets* – U.S. Data are as of March 31, 2022.



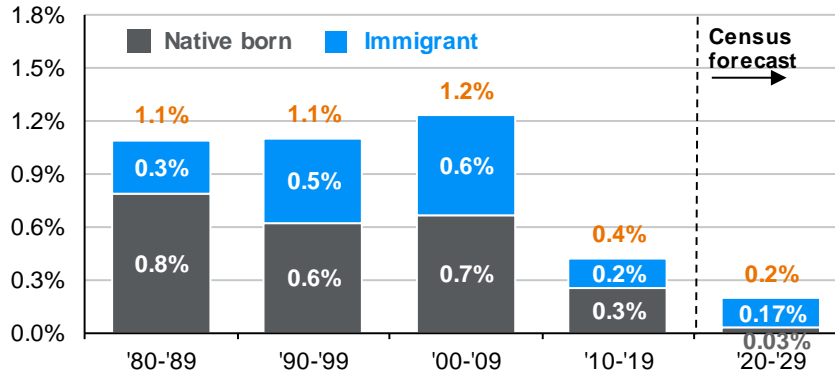
# Long-term drivers of economic growth

GTM U.S. 20

Economy

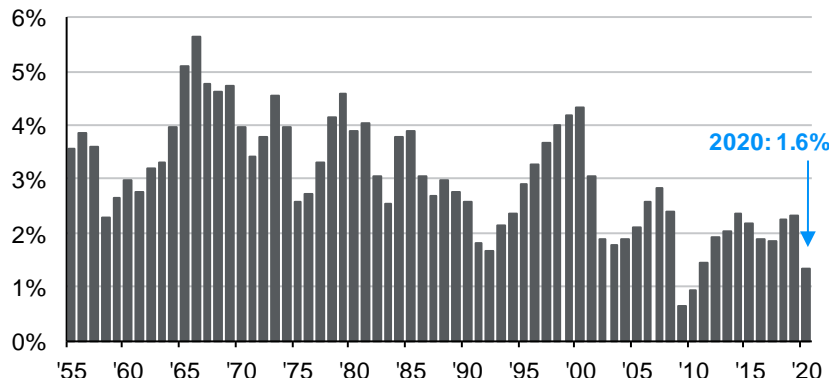
## Growth in working-age population

Percent increase in civilian non-institutional population ages 16-64



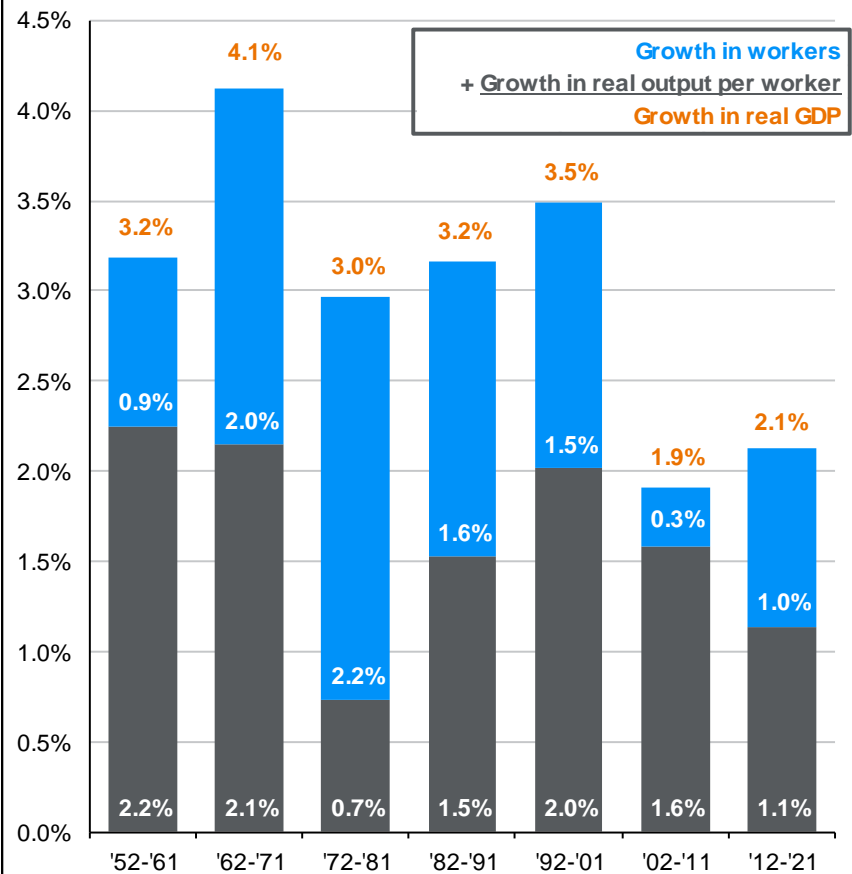
## Growth in private non-residential capital stock

Non-residential fixed assets, year-over-year % change



## Drivers of GDP growth

Average year-over-year % change



Source: J.P. Morgan Asset Management; (Top left) Census Bureau, DOD, DOJ; (Top left and right) BLS; (Right and bottom left) BEA.

GDP drivers are calculated as the average annualized growth in the 10 years ending in 4Q21. Future working-age population is calculated as the total estimated number of Americans from the Census Bureau, per the February 2020 report, controlled for military enrollment, growth in institutionalized population and demographic trends. Growth in working-age population does not include illegal immigration; DOD Troop Readiness reports used to estimate percent of population enlisted. Numbers may not sum due to rounding. 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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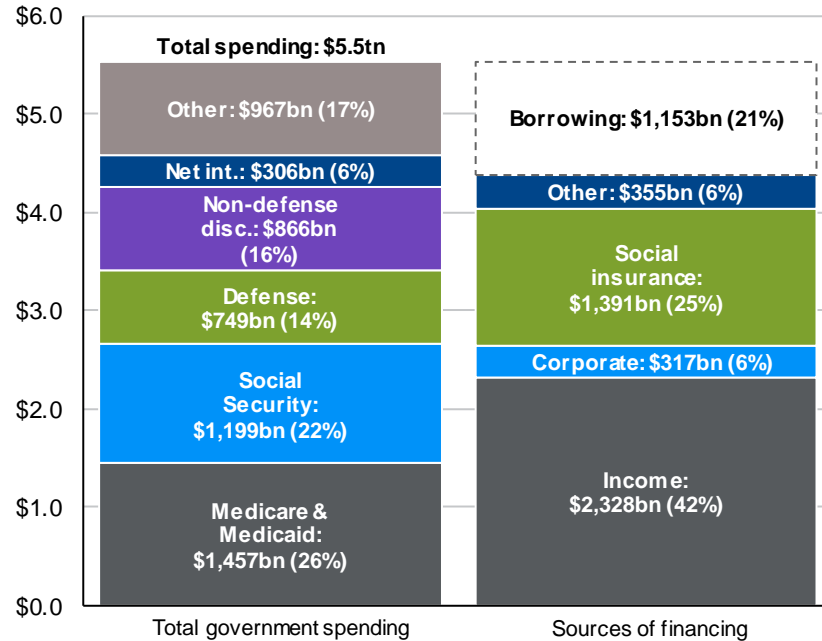


# Federal finances

GTM U.S. 21

## The 2022 federal budget

CBO Baseline forecast, USD trillions

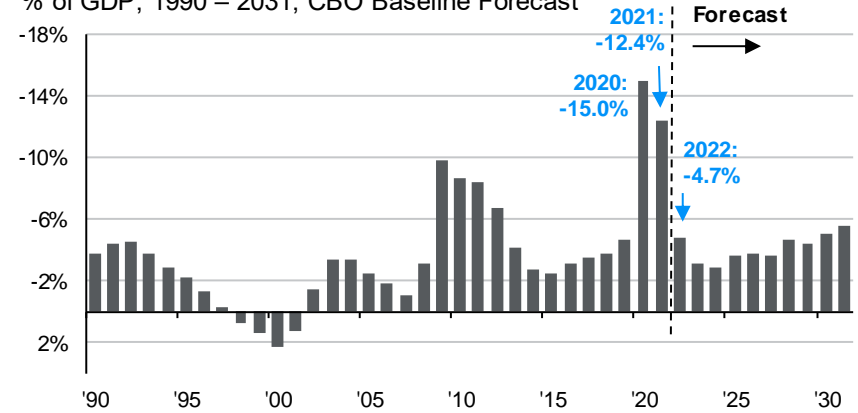


### CBO's Baseline economic assumptions

	2022	'23-'24	'25-'26	'27-'31
Real GDP growth	6.1%	1.6%	1.3%	1.6%
10-year Treasury	1.9%	2.1%	2.6%	3.2%
Headline inflation (CPI)	2.7%	2.3%	2.4%	2.4%
Unemployment	4.1%	3.8%	4.2%	4.4%

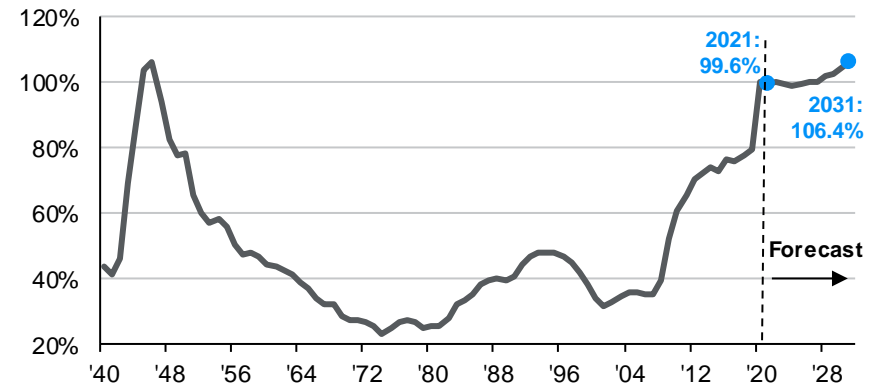
## Federal budget surplus/deficit

% of GDP, 1990 – 2031, CBO Baseline Forecast



## Federal net debt (accumulated deficits)

% of GDP, 1940 – 2031, 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) July 2021 Update to the Budget and Economic Outlook, except for 2021 estimates of the federal deficit and net debt levels. These estimates and the details on the breakdown of spending, excluding net interest, are J.P. Morgan Asset Management estimates. 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. Guide to the Markets – U.S. Data are as of March 31, 2022.



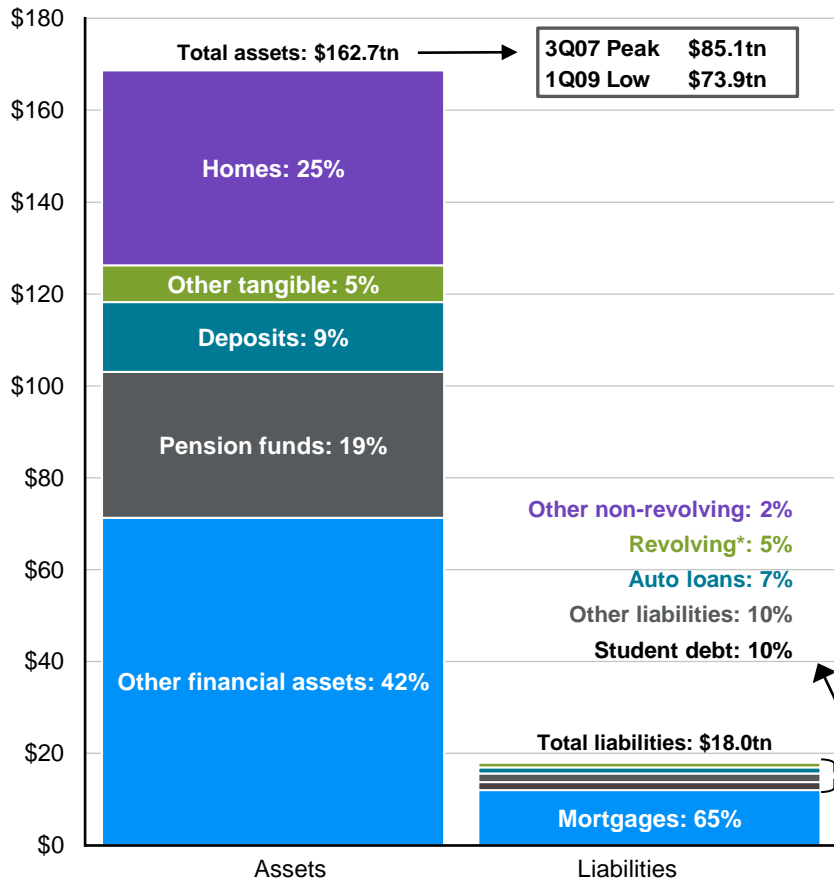
# Consumer finances

GTM U.S. 22

Economy

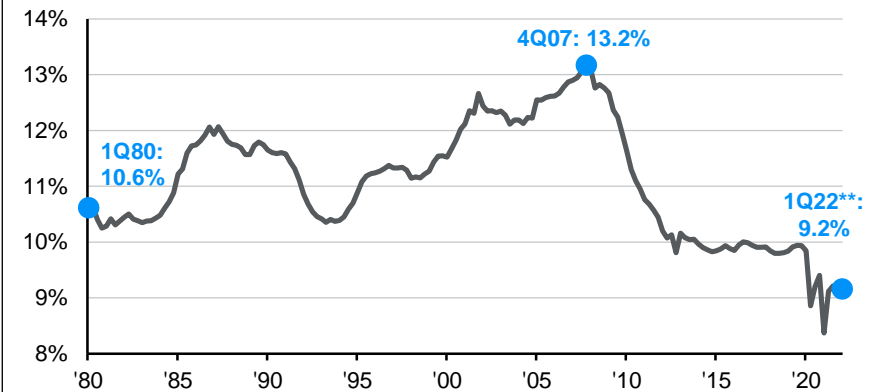
## Consumer balance sheet

4Q21, trillions of dollars outstanding, not seasonally adjusted



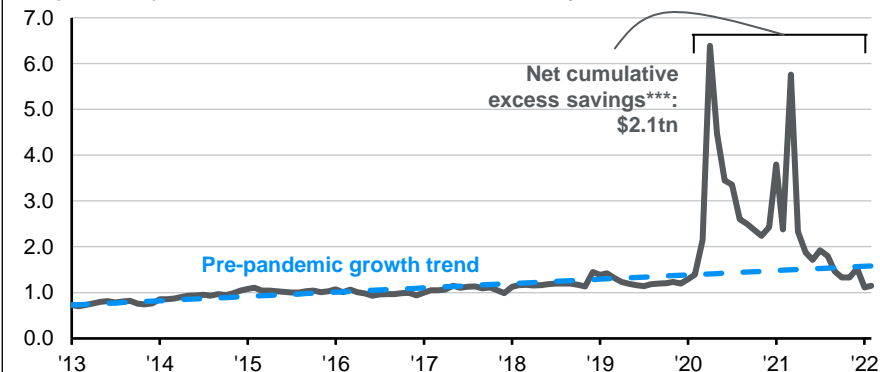
## Household debt service ratio

Debt payments as % of disposable personal income, SA



## Flow of personal savings

Disposable personal income less consumer outlays, trillions of USD, SAAR



Source: FactSet, FRB, J.P. Morgan Asset Management; (Top and bottom right) BEA.  
Data include households and nonprofit organizations. SA – seasonally adjusted. SAAR – seasonally adjusted annual rate. \*Revolving includes credit cards. Values may not sum to 100% due to rounding. \*\*1Q22 figures for debt service ratio are J.P. Morgan Asset Management estimates. \*\*\*Net cumulative excess savings are calculated by summing the difference in realized savings and pre-pandemic trend savings from March 2020 to February 2022 and dividing by 12.  
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# Consumer confidence and the stock market

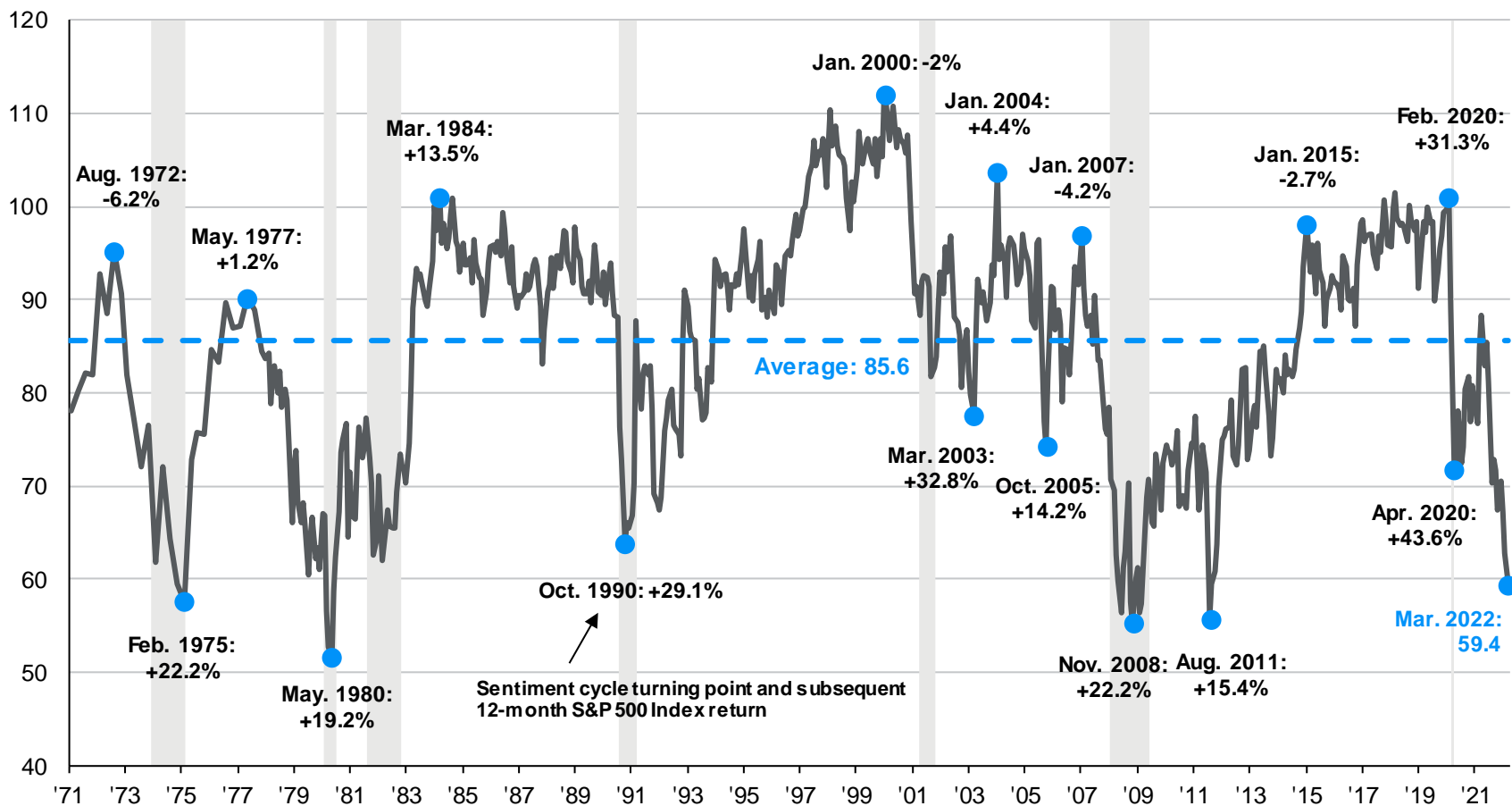
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Economy

## 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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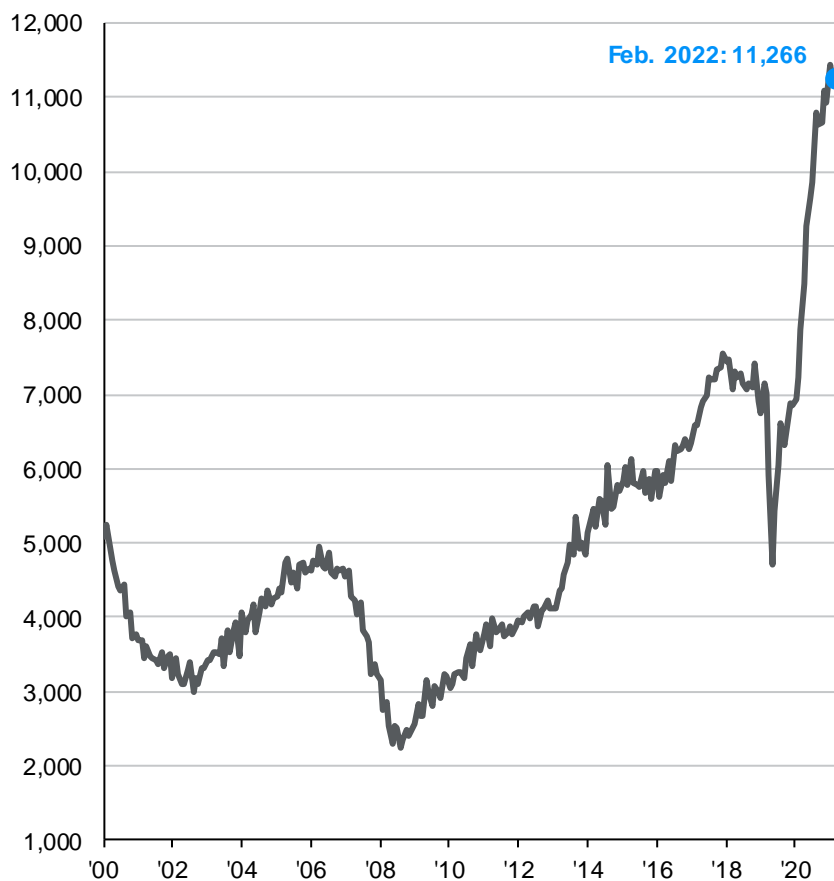
# Labor demand

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Economy

## JOLTS job openings

Total nonfarm job openings, thousands, seasonally adjusted



## 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.  
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# Unemployment and wages

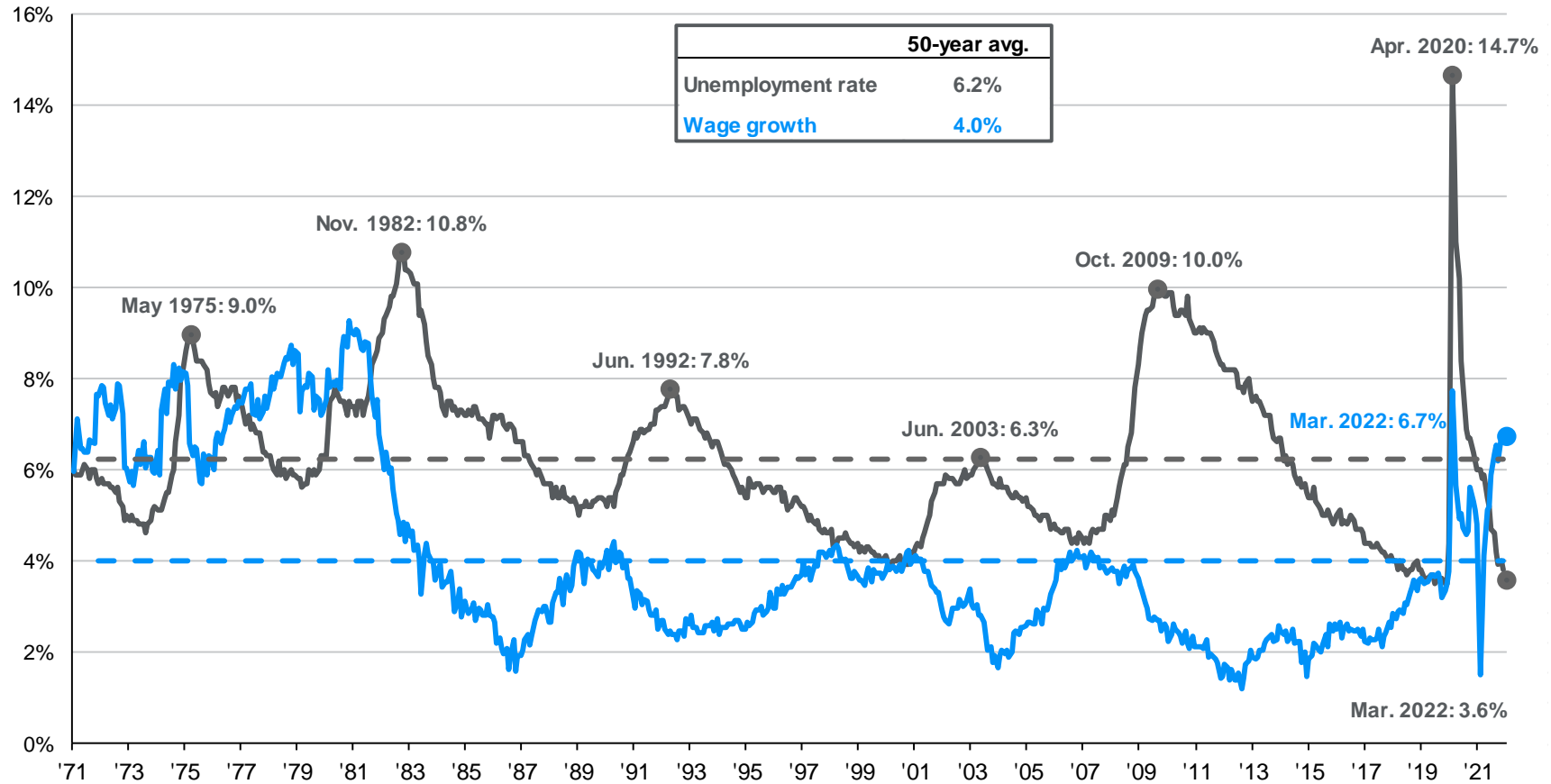
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## Civilian unemployment rate and year-over-year wage growth

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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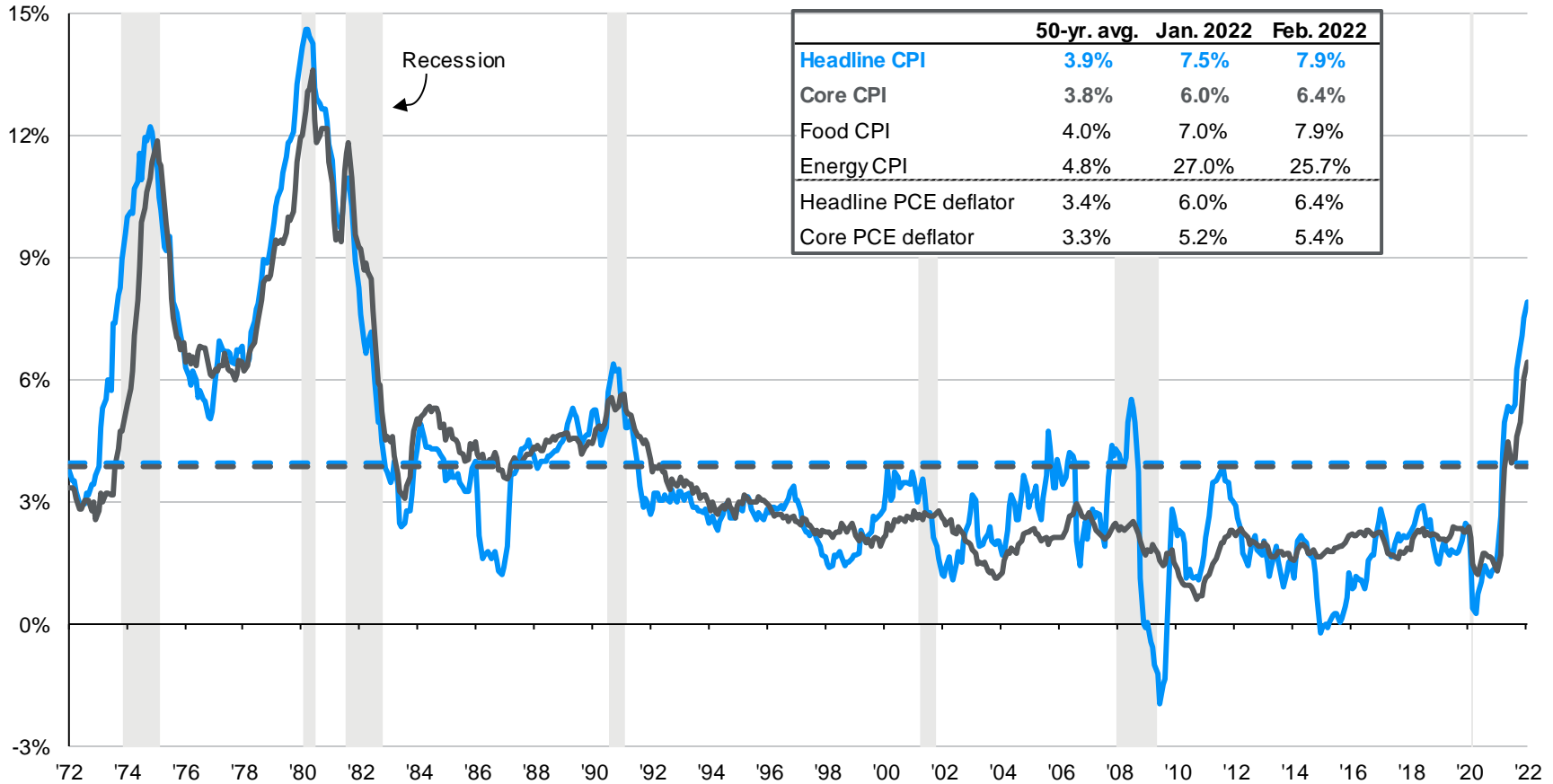
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Economy

## 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 components

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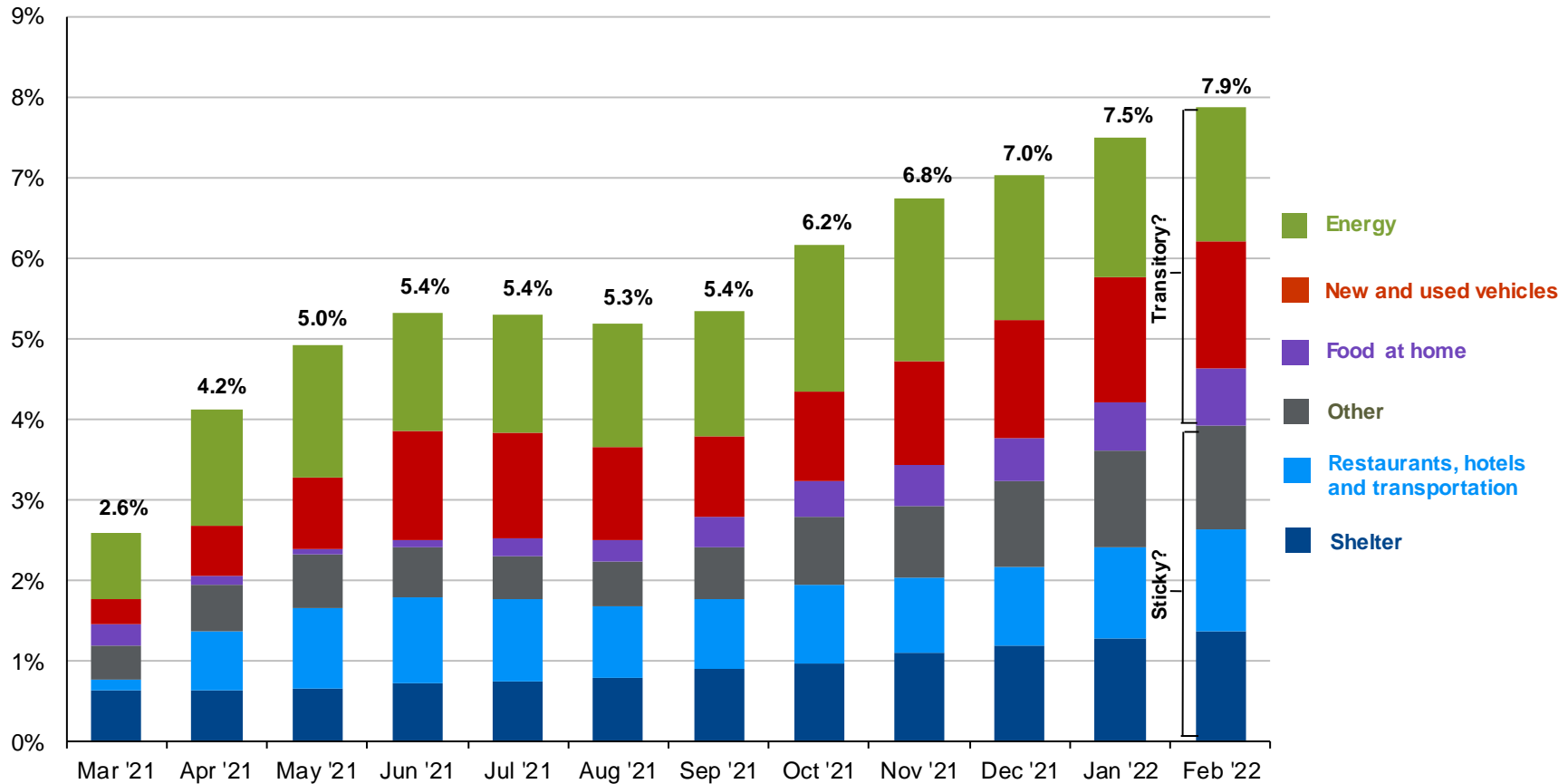
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Economy

## Contributors to headline inflation

Contribution to y/y % change in CPI, non seasonally adjusted



Source: BLS, 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 and medical care services.  
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# Dollar drivers

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Economy

## The U.S. dollar

U.S. Dollar Index



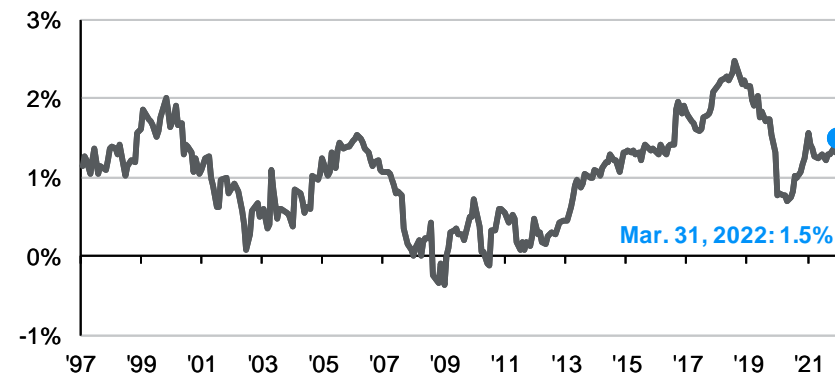
## The U.S. trade balance

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 on 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 March 31, 2022.

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# Oil markets

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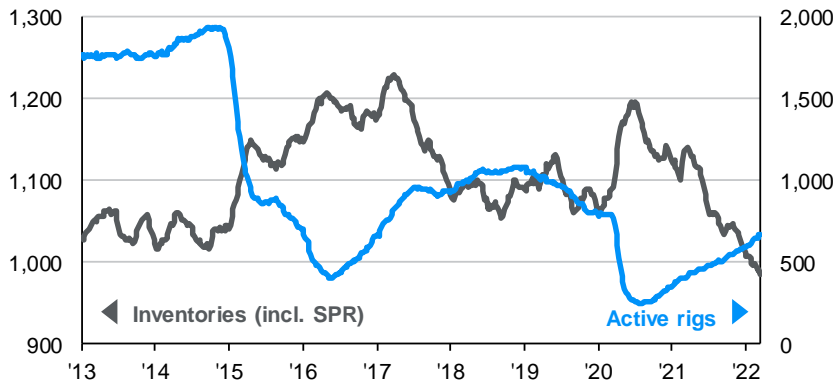
## Change in production and consumption of liquid fuels

Production, consumption and inventories, millions of barrels per day

Production	2019	2020	2021	2022*	2023*	Growth since '19
U.S.	19.5	18.6	18.9	20.4	21.6	10.8%
OPEC	34.7	30.8	31.7	34.4	34.7	-0.1%
Russia	11.5	10.5	10.8	10.8	10.8	-5.8%
<b>Global</b>	<b>100.3</b>	<b>93.9</b>	<b>95.6</b>	<b>101.0</b>	<b>103.0</b>	<b>2.6%</b>
Consumption						
U.S.	20.5	18.2	19.8	20.7	20.8	1.5%
China	14.0	14.4	15.3	15.7	16.2	15.8%
<b>Global</b>	<b>100.7</b>	<b>92.0</b>	<b>97.5</b>	<b>100.6</b>	<b>102.6</b>	<b>1.9%</b>
Inventory Change						
	-0.3	1.9	-1.9	0.4	0.4	

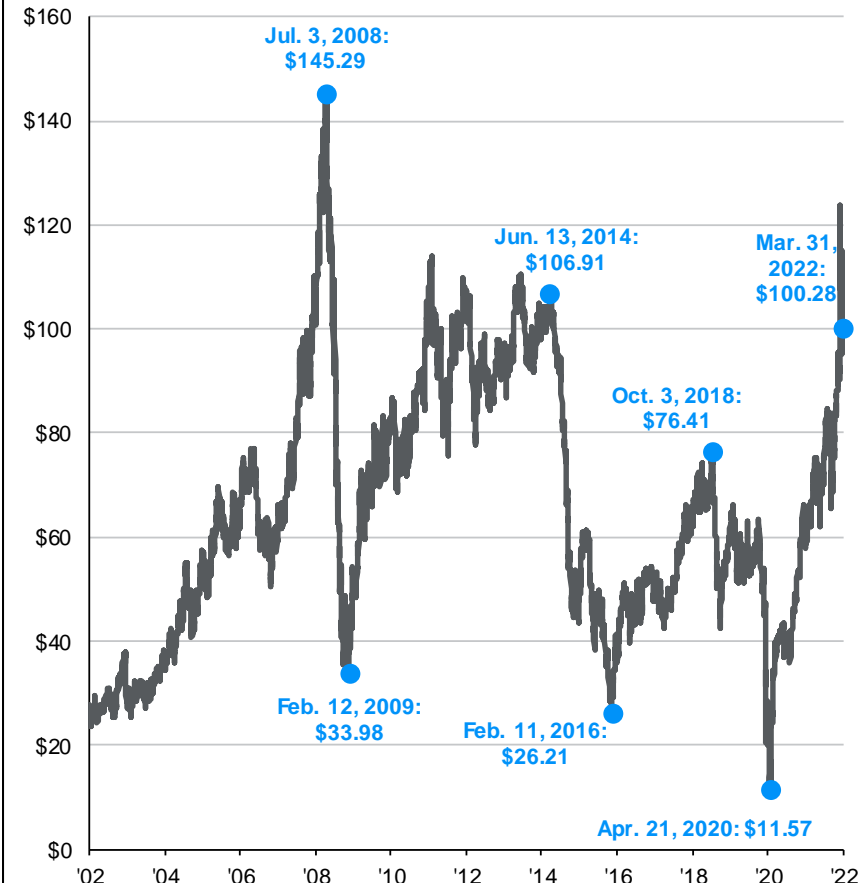
## U.S. crude oil inventories and rig count\*\*

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 March 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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# Commodity consumption and production

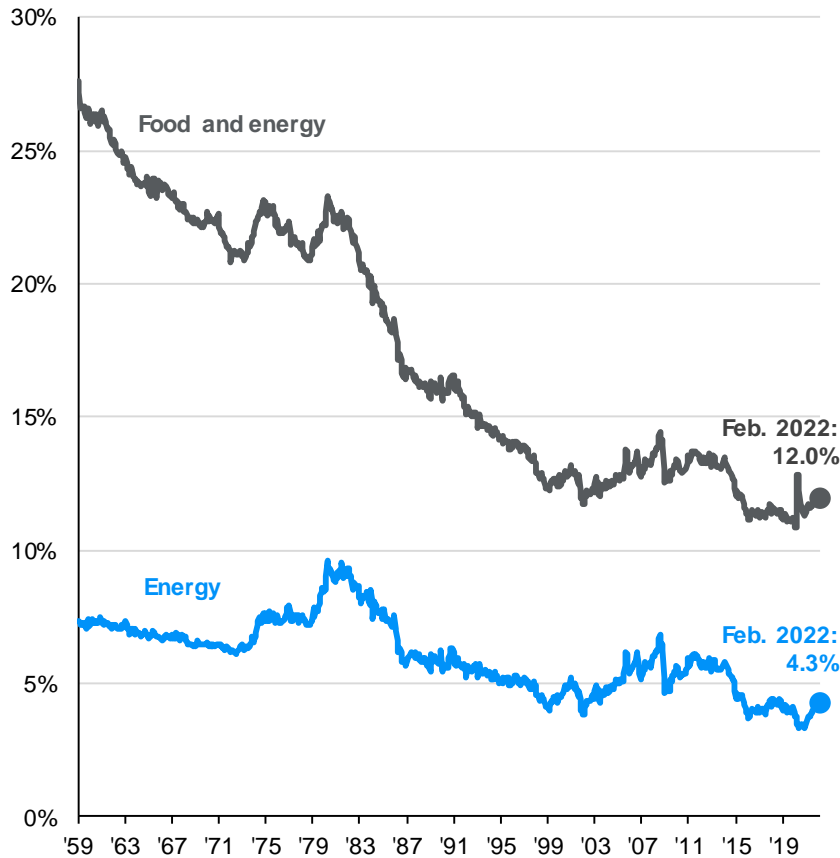
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## Consumer spending on energy and food

% share of energy goods and services and food in PCE



## Net imports of oil as a share of GDP

Nominal, SAAR



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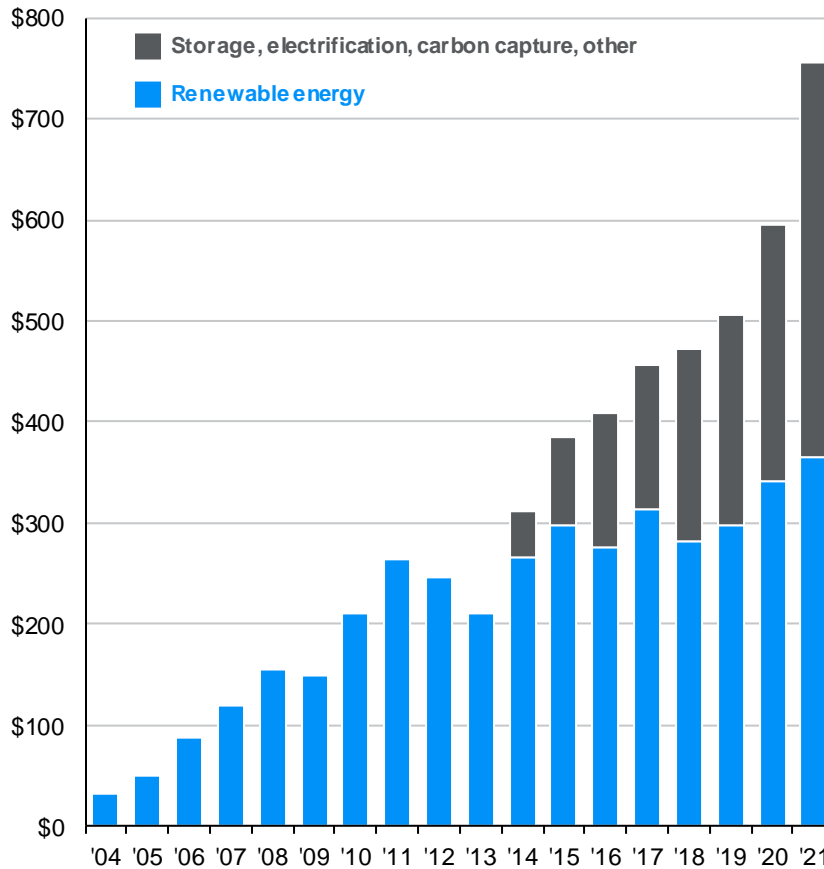


# Global energy transition

GTM U.S. 31

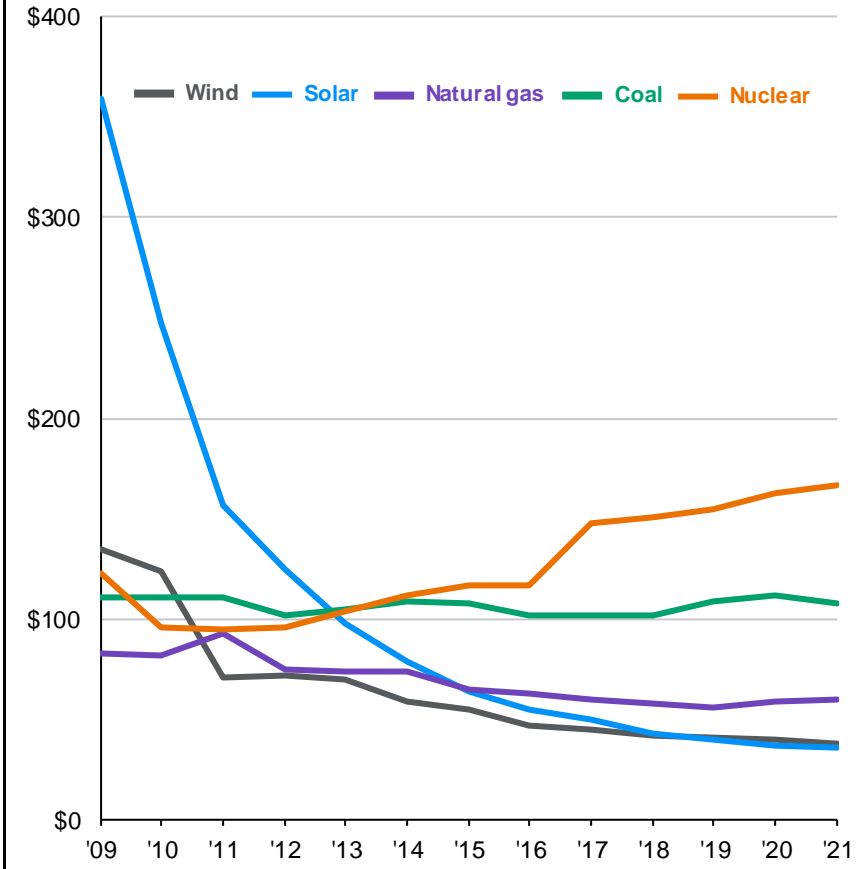
## Global investment in energy transition

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; (Top 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; (Top right) IEA, Global solar PV (photovoltaic) and wind power capacity additions, 2010-2020e, IEA, Paris <https://www.iea.org/data-and-statistics/charts/global-solar-pv-and-wind-power-capacity-additions-2010-2020e>. 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

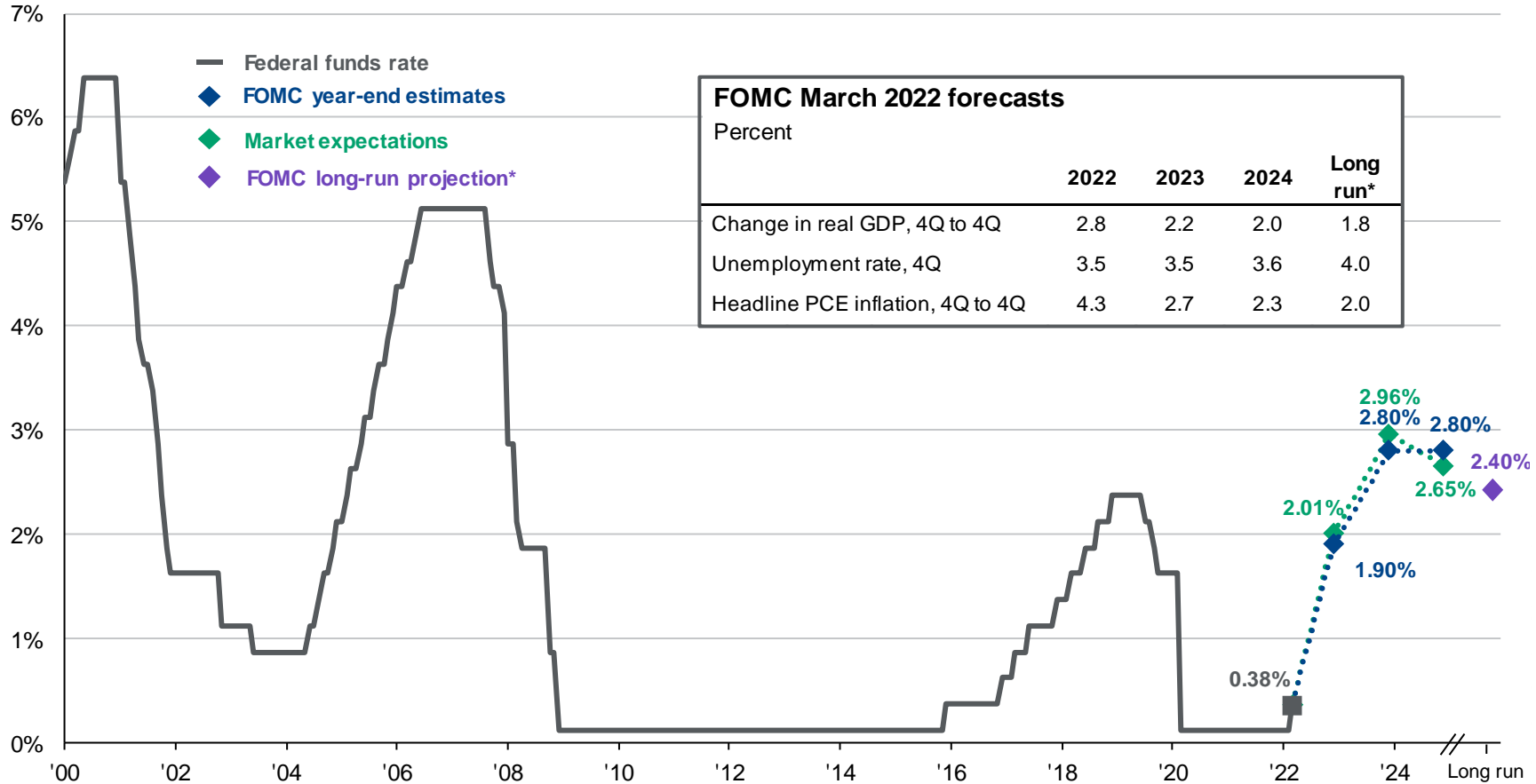
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## Federal funds rate expectations

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

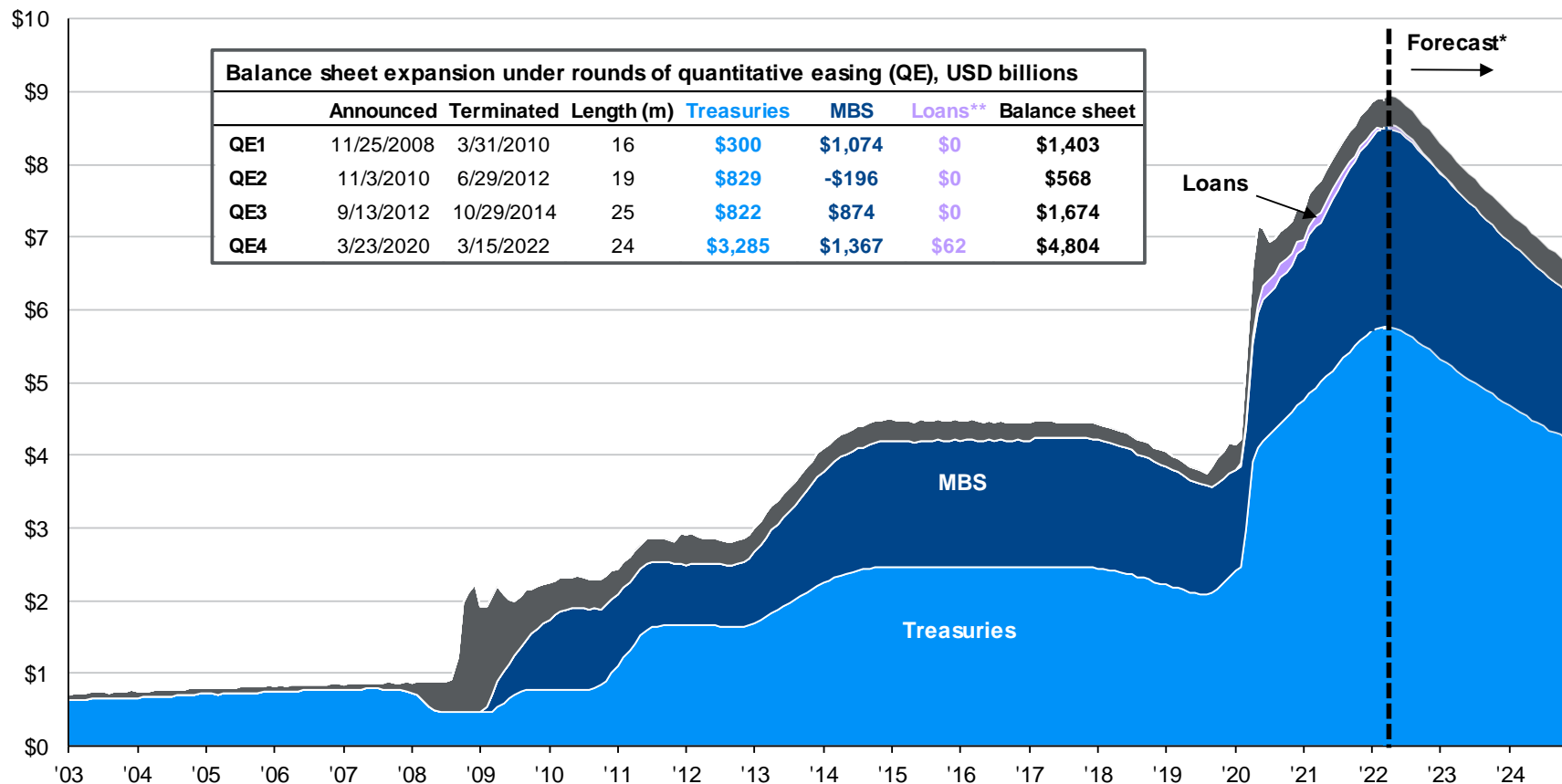
GTM

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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. \*The forecast assumes the Federal Reserve begins balance sheet runoff in mid-May and gradually increases the monthly cap on maturing Treasury and MBS securities per meeting until a max cap of \$100bn/month. 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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# Historical impact of Fed tightening

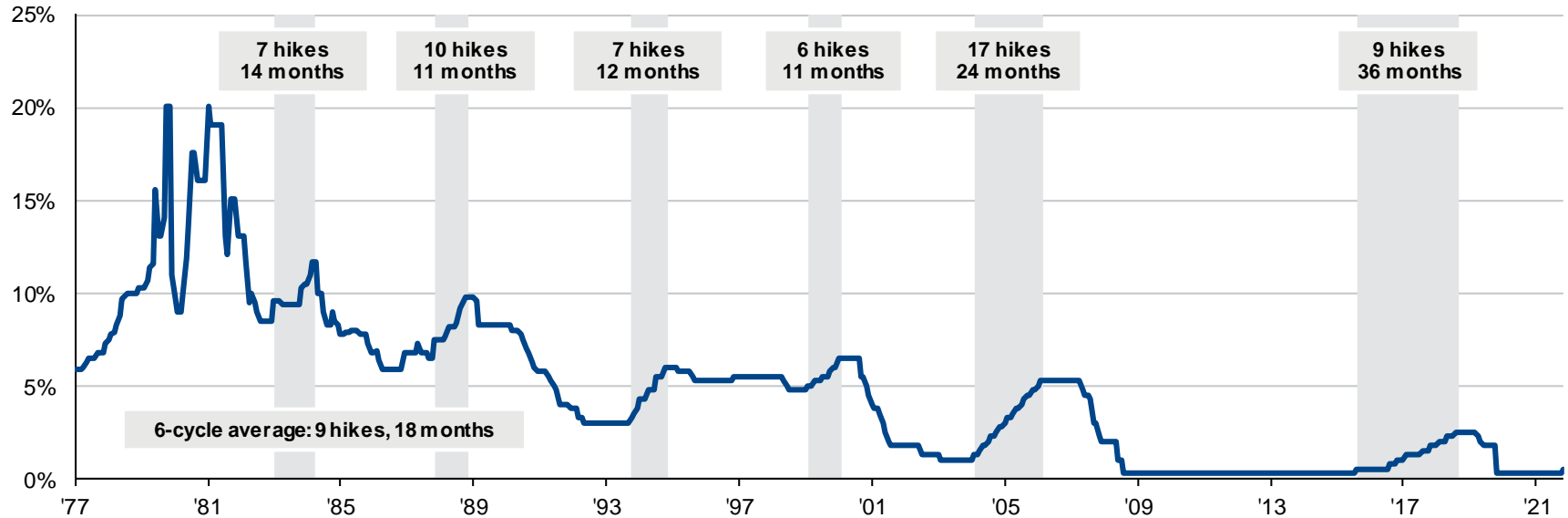
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## Federal funds rate

Target rate\*, shaded areas denote periods of rate hikes



## Market reaction during previous rate hiking cycles

	May 1983 – Jul. 1984	Mar. 1988 – Feb. 1989	Feb. 1994 – Feb. 1995	Jun. 1999 – May 2000	Jun. 2004 – Jun. 2006	Dec. 2015 – Dec. 2018	Mar. 2022 – Present	Avg. of past 6 rate hiking cycles
<b>Yield change (bps)</b>								
<b>Federal funds rate</b>	313	325	300	175	425	200	25	290
<b>2- year Treasury</b>	311	227	305	121	238	165	43	228
<b>10- year Treasury</b>	274	91	185	50	52	49	17	117
<b>S&amp;P 500 return</b>	-9.6%	6.8%	-2.1%	8.5%	12.0%	19.0%	6.3%	5.8%
<b>U.S. dollar</b>	10.4%	1.7%	-4.7%	3.4%	-5.8%	-1.4%	-0.6%	0.6%

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

S&P 500 returns are price returns and do not include reinvestment of dividends. Averages do not include the current cycle. Current cycle begins on March 16, 2022. \*Between 1979 and 1982, the FOMC changed its approach to monetary policy, focusing on the money supply, rather than the federal funds rate. In the fall of 1982, however, the Federal Reserve shifted back to its approach of targeting the "price" rather than the "quantity" of money. Thus, because the federal funds rate was not the FOMC's key policy tool, we exclude increases in the federal funds rate between 1979 to 1982 in our analysis of rate hike cycles. *Guide to the Markets* – U.S. Data are as of March 31, 2022.

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# Interest rates and inflation

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Fixed Income

## 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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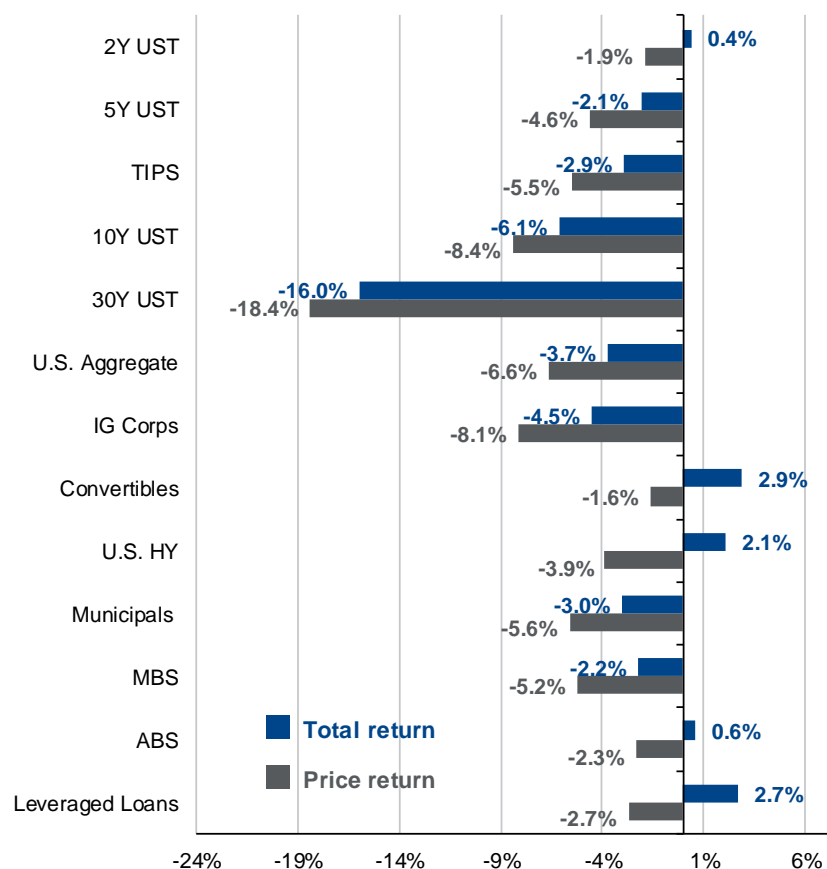
# Fixed income market dynamics

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U.S. Treasuries	Yield		Return			
	03/31/2022	12/31/2021	2022 YTD	Avg. Maturity	Correlation to 10-year	Correlation to S&P 500
2-Year	2.28%	0.73%	-2.54%	2 years	0.68	-0.37
5-Year	2.42%	1.26%	-5.16%	5	0.92	-0.34
TIPS	-0.52%	-1.04%	-3.02%	10	0.58	0.21
10-Year	2.32%	1.52%	-6.86%	10	1.00	-0.31
30-Year	2.44%	1.90%	-11.41%	30	0.93	-0.30
Sector						
U.S. Aggregate	2.92%	1.75%	-5.93%	8.8	0.85	0.04
IG Corps	3.60%	2.33%	-7.69%	11.9	0.44	0.39
Convertibles	4.44%	3.66%	-5.42%	-	-0.26	0.87
U.S. HY	6.01%	4.21%	-4.84%	6.2	-0.23	0.73
Municipals	2.60%	1.11%	-6.23%	12.9	0.40	0.10
MBS	2.99%	1.98%	-4.97%	7.1	0.81	-0.13
ABS	3.45%	1.96%	-2.11%	2.4	-0.42	0.62
Leveraged Loans	5.41%	4.60%	-0.01%	2.7	0.16	0.13

## Impact of a 1% rise in interest rates

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.  
Guide to the Markets – U.S. Data are as of March 31, 2022.



# Yield curve

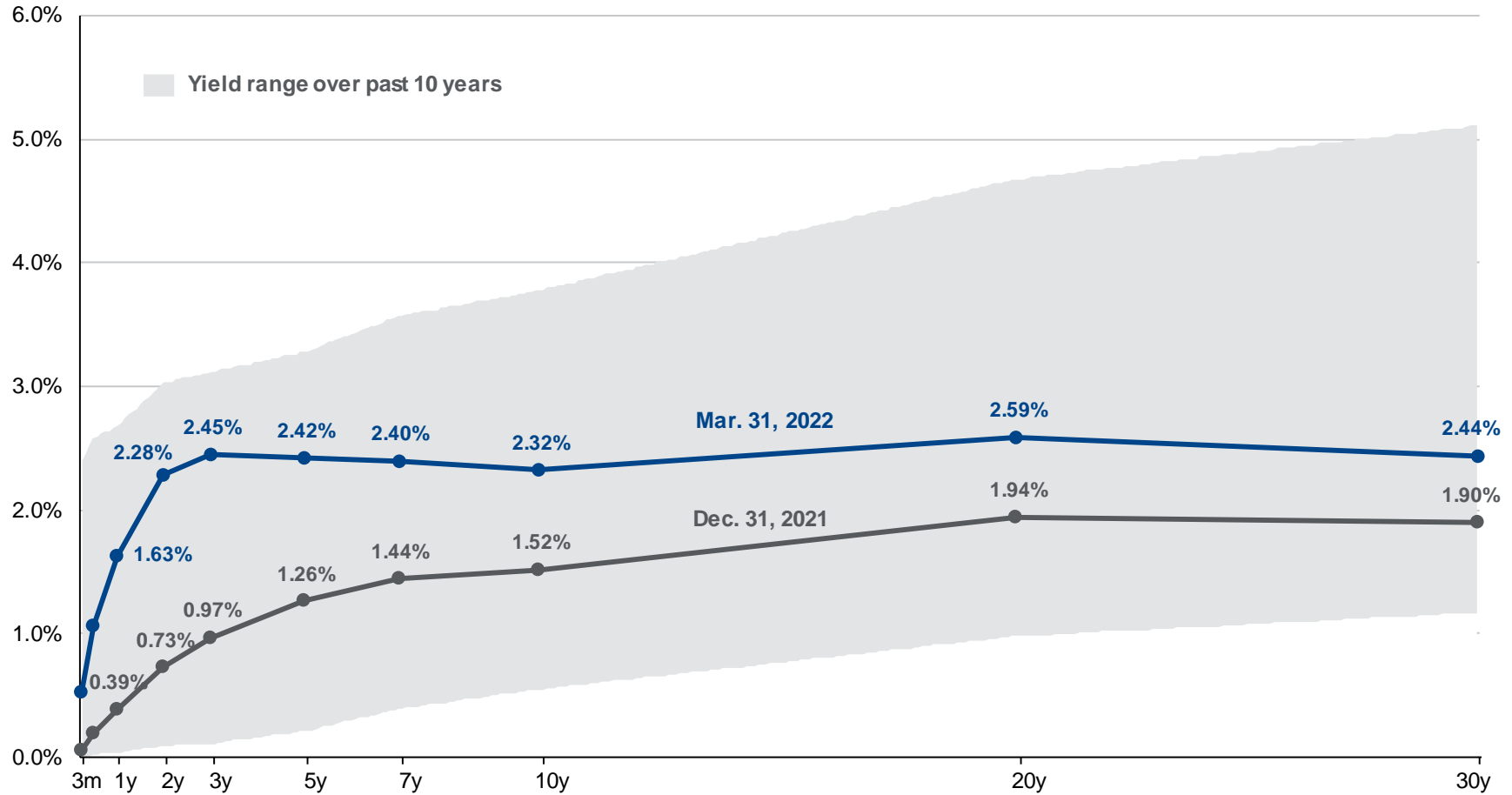
GTM

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

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## 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 December 2021. 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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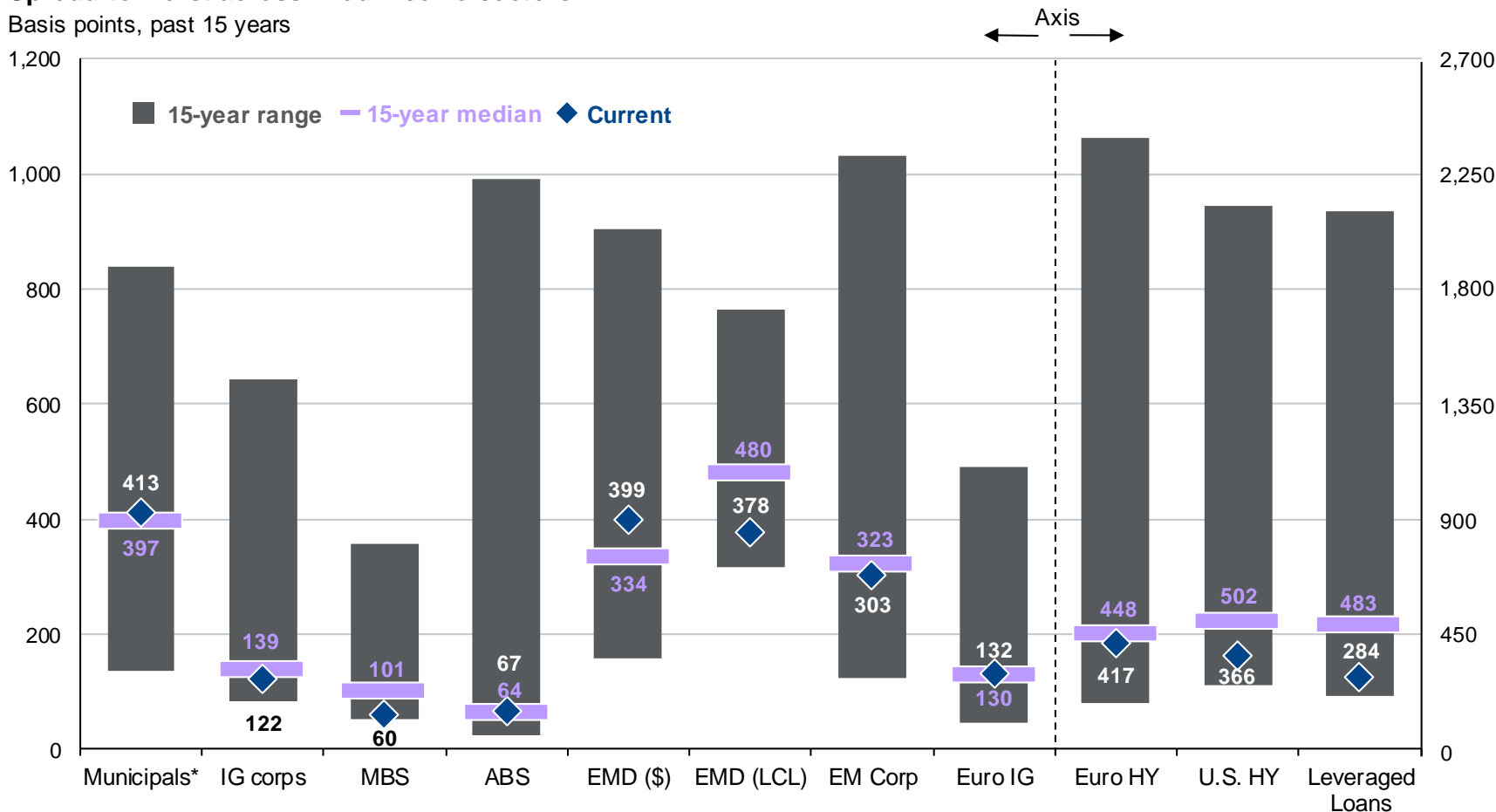


# Fixed income valuations

GTM U.S. 39

## Spread-to-worst across fixed income sectors

Basis points, past 15 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. Spread-to-worst indicated is the difference between the yield-to-worst of a bond and yield-to-worst of a U.S. Treasury security with a similar duration. All sectors shown are spread-to-worst except for Municipals, which is based on the tax-equivalent yield-to-worst, and Leveraged loans, which are based on spread to 3Y takeout. EM (LCL) spread-to-worst is calculated using the index yield less the YTM on the 5-year U.S. Treasury bellwether index.

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# Developed market monetary policy

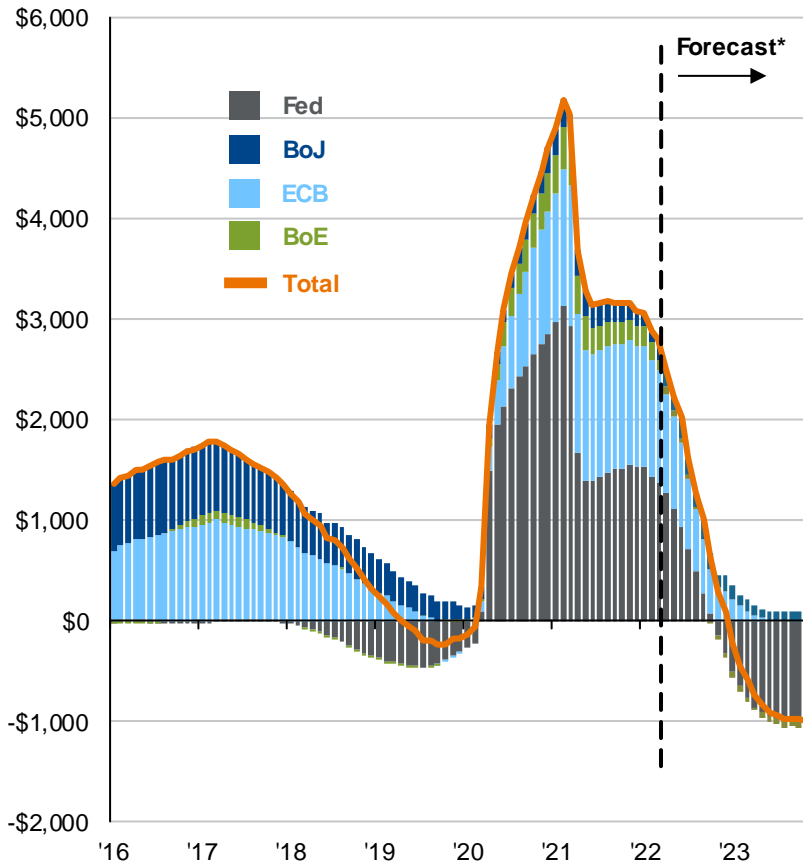
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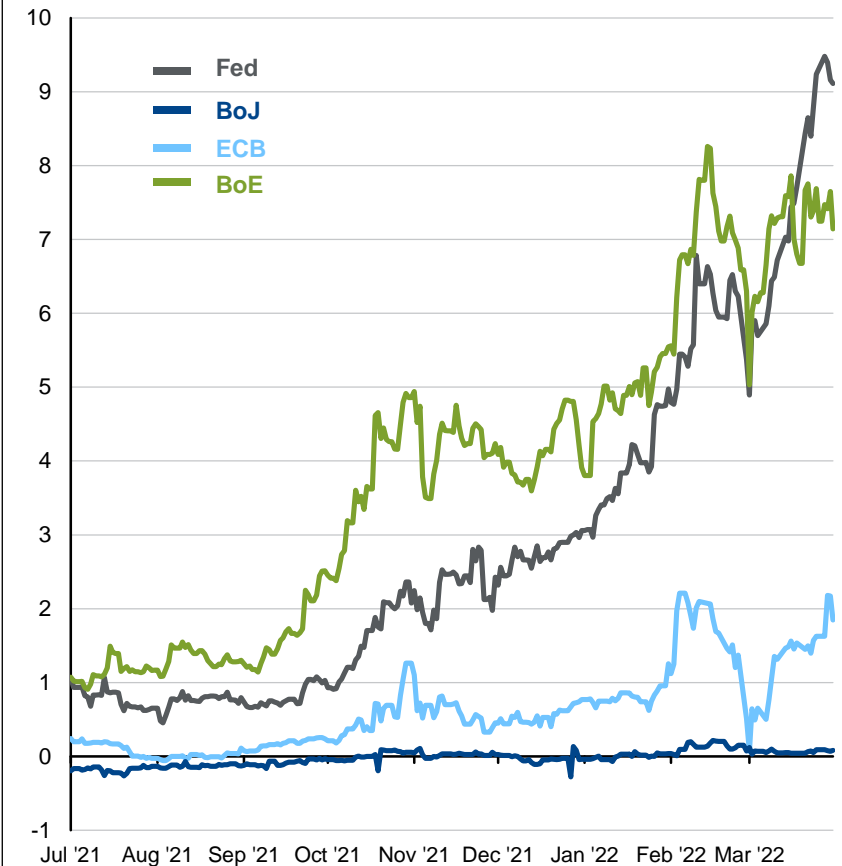
## Developed market central bank bond purchases

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.  
Guide to the Markets – U.S. Data are as of March 31, 2022.





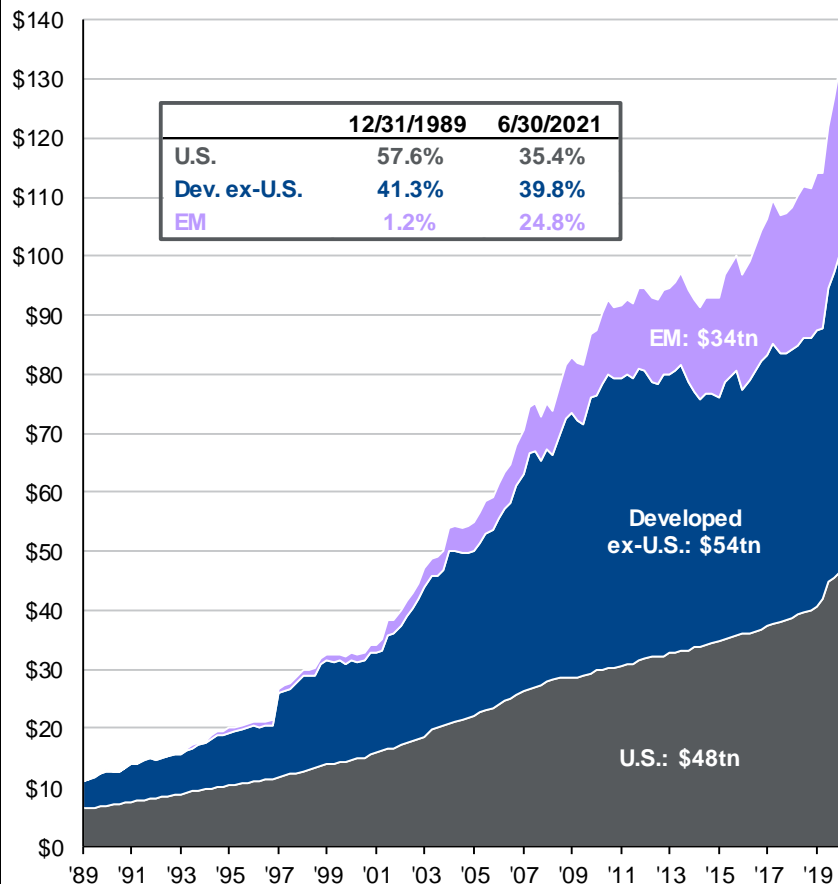
# Global fixed income

GTM U.S. 41

Aggregates	Yield		2022 Return		Duration	Correlation to 10-year
	03/31/2022	12/31/2021	Local	USD		
U.S.	2.92%	1.75%	-5.93%	-5.93%	6.6 years	0.89
Gbl. ex-U.S.	1.71%	1.07%	-	-6.28%	7.70	0.40
Japan	0.36%	0.18%	-1.52%	-6.57%	9.50	0.54
Germany	0.89%	0.05%	-4.92%	-6.98%	7.00	0.22
UK	2.02%	1.18%	-6.75%	-9.35%	10.30	0.31
Italy	1.48%	0.76%	-4.47%	-6.53%	7.00	0.05
Spain	1.13%	0.32%	-5.10%	-7.15%	7.20	0.05
Sector						
Euro Corp.	1.55%	0.52%	-4.96%	-7.01%	5.0 years	0.22
Euro HY	5.18%	3.55%	-4.13%	-6.20%	3.70	-0.19
EMD (\$)	6.42%	5.27%	-	-10.02%	6.90	0.01
EMD (LCL)	6.23%	5.72%	-7.77%	-6.46%	5.10	-0.03
EM Corp.	5.44%	4.11%	-	-8.82%	5.50	0.03

## 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. Guide to the Markets – U.S. Data are as of March 31, 2022.

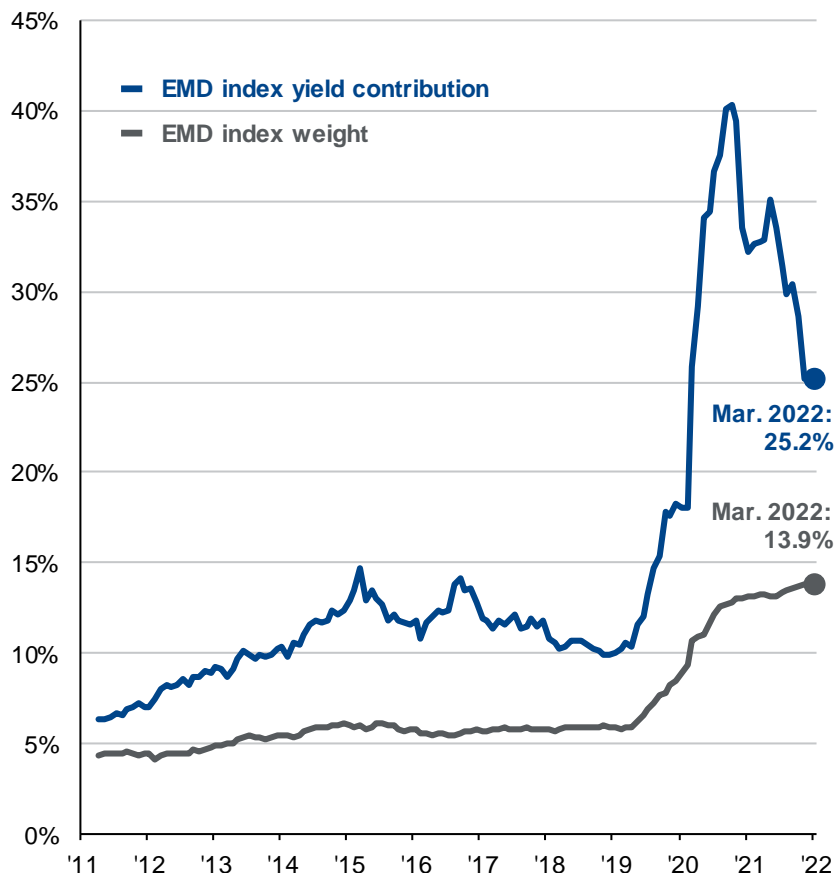


# Emerging market debt

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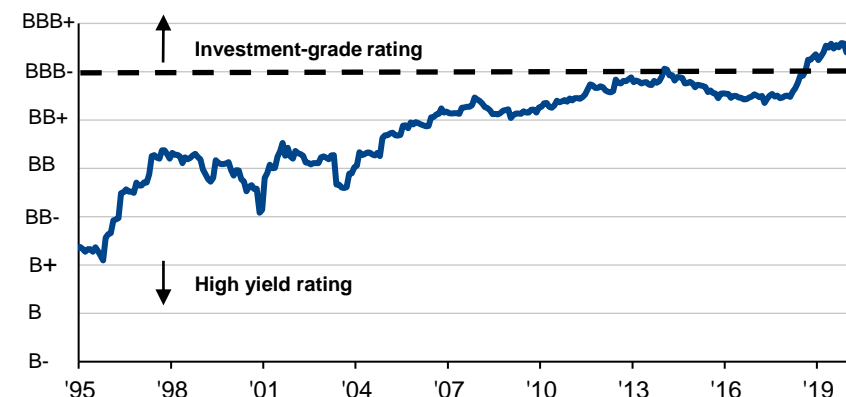
## EMD yield and weight in Bloomberg Global Agg. Index

Weighted yield-to-worst



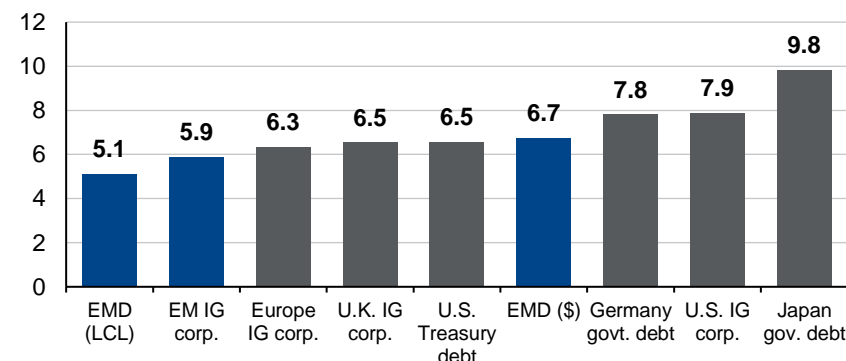
## Average credit rating of EM debt universe

EMBIG index



## Emerging and developed markets duration

Current modified duration



Source: Bloomberg, FactSet, J.P. Morgan Asset Management. Emerging market debt yield and weight contributions in the Bloomberg Global Aggregate Index include frontier markets.  
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# Fixed income sector returns

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Fixed Income

																	2007-2021	
2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	YTD		Ann.	Vol.
EMD LCL.	Treas.	High Yield	EMD LCL.	TIPS	EMD USD	High Yield	Muni	Muni	High Yield	EMD LCL.	ABS	EMD USD	TIPS	TIPS	ABS		High Yield	EMD LCL.
18.1%	13.7%	58.2%	15.7%	13.6%	17.4%	7.4%	9.1%	3.3%	17.1%	15.2%	2.7%	15.0%	11.0%	6.0%	-2.1%		7.4%	11.8%
TIPS	MBS	EMD USD	High Yield	Muni	EMD LCL.	ABS	Corp.	MBS	EMD USD	EMD USD	Muni	Corp.	Corp.	High Yield	TIPS		EMD USD	High Yield
11.6%	8.3%	29.8%	15.1%	10.7%	16.8%	-0.3%	7.5%	1.5%	10.2%	10.3%	1.3%	14.5%	9.9%	5.3%	-3.0%		6.1%	11.2%
Treas.	Barclays Agg	ABS	EMD USD	Treas.	High Yield	MBS	EMD USD	EMD USD	EMD LCL.	High Yield	MBS	High Yield	Treas.	Muni	High Yield		Asset Alloc.	EMD USD
9.0%	5.2%	24.7%	12.2%	9.8%	15.8%	-1.4%	7.4%	1.2%	9.9%	7.5%	1.0%	14.3%	8.0%	1.5%	-4.8%		5.5%	8.7%
Barclays Agg	Asset Alloc.	EMD LCL.	Corp.	Corp.	Corp.	Corp.	MBS	Treas.	Corp.	Corp.	Treas.	EMD LCL.	Barclays Agg	ABS	MBS		Corp.	Corp.
7.0%	-1.9%	22.0%	9.0%	8.1%	9.8%	-1.5%	6.1%	0.8%	6.1%	6.4%	0.9%	13.5%	7.5%	1.1%	-5.0%		5.5%	6.1%
MBS	TIPS	Corp.	Asset Alloc.	Barclays Agg	Asset Alloc.	Asset Alloc.	Barclays Agg	Barclays Agg	Asset Alloc.	Muni	Barclays Agg	Asset Alloc.	High Yield	Asset Alloc.	Treas.		Muni	Treas.
6.9%	-2.4%	18.7%	7.6%	7.8%	7.6%	-1.8%	6.0%	0.5%	4.8%	5.4%	0.0%	9.8%	7.1%	-0.2%	-5.6%		4.3%	5.0%
Asset Alloc.	Muni	Asset Alloc.	Barclays Agg	Asset Alloc.	TIPS	Barclays Agg	Asset Alloc.	ABS	TIPS	Asset Alloc.	Asset Alloc.	Barclays Agg	Asset Alloc.	Corp.	Asset Alloc.		TIPS	TIPS
6.2%	-2.5%	16.5%	6.5%	7.7%	7.0%	-2.0%	5.4%	0.2%	4.7%	5.3%	-0.6%	8.7%	6.6%	-1.0%	-5.9%		4.2%	4.8%
EMD USD	Corp.	Muni	TIPS	EMD USD	Muni	Muni	Treas.	Asset Alloc.	Barclays Agg	Barclays Agg	TIPS	TIPS	EMD USD	MBS	Barclays Agg		Barclays Agg	ABS
6.2%	-4.9%	12.9%	6.3%	7.3%	6.8%	-2.6%	5.1%	-0.4%	2.6%	3.5%	-1.3%	8.4%	5.3%	-1.0%	-5.9%		3.9%	4.2%
Corp.	EMD LCL.	TIPS	Treas.	MBS	Barclays Agg	Treas.	TIPS	Corp.	ABS	TIPS	High Yield	Muni	Muni	Barclays Agg	Muni		MBS	Asset Alloc.
4.6%	-5.2%	11.4%	5.9%	6.2%	4.2%	-2.7%	3.6%	-0.7%	2.0%	3.0%	-2.1%	7.5%	5.2%	-1.5%	-6.2%		3.5%	3.8%
Muni	EMD USD	Barclays Agg	ABS	ABS	ABS	EMD USD	High Yield	TIPS	MBS	ABS	Corp.	Treas.	MBS	EMD USD	EMD LCL.		Treas.	Muni
3.4%	-12.0%	5.9%	5.9%	5.1%	3.7%	-5.3%	2.5%	-1.4%	1.7%	3.0%	-2.5%	6.9%	3.9%	-1.8%	-6.5%		3.3%	3.7%
ABS	ABS	MBS	MBS	High Yield	MBS	TIPS	ABS	High Yield	Treas.	MBS	EMD USD	MBS	ABS	Treas.	Corp.		ABS	Barclays Agg
2.2%	-12.7%	5.9%	5.4%	5.0%	2.6%	-8.6%	1.9%	-4.5%	1.0%	2.5%	-4.3%	6.4%	3.4%	-2.3%	-7.7%		2.9%	3.3%
High Yield	High Yield	Treas.	Muni	EMD LCL.	Treas.	EMD LCL.	EMD LCL.	EMD LCL.	Muni	Treas.	EMD LCL.	ABS	EMD LCL.	EMD LCL.	EMD USD		EMD LCL.	MBS
1.9%	-26.2%	-3.6%	2.4%	-1.8%	2.0%	-9.0%	-5.7%	-14.9%	0.2%	2.3%	-6.2%	3.8%	2.7%	-8.7%	-10.0%		2.5%	2.5%

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

Past performance is not indicative of future returns. Fixed income sectors shown above are provided by Bloomberg unless otherwise noted and are represented by Broad Market: U.S. Aggregate Index; MBS: US Aggregate Securitized - MBS Index; ABS: J.P. Morgan ABS Index; Corporate: U.S. Aggregate Credit - Corporates - Investment Grade; Municipals: Municipal Bond Index; High Yield: U.S. Aggregate Credit - Corporate - High Yield Index; Treasuries: Global U.S. Treasury; TIPS: U.S. Treasury Inflation-Protected Notes Index; Emerging Debt USD: J.P. Morgan EMBIG Diversified Index; Emerging Debt LCL: J.P. Morgan EM Global Index. The "Asset Allocation" portfolio assumes the following weights: 20% in MBS, 5% in ABS, 20% in Corporate, 15% in Municipals, 5% in Emerging Debt USD, 5% in Emerging Debt LCL, 10% in High Yield, 15% in Treasuries, 5% in TIPS. Asset allocation portfolio assumes annual rebalancing.

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# Global equity markets

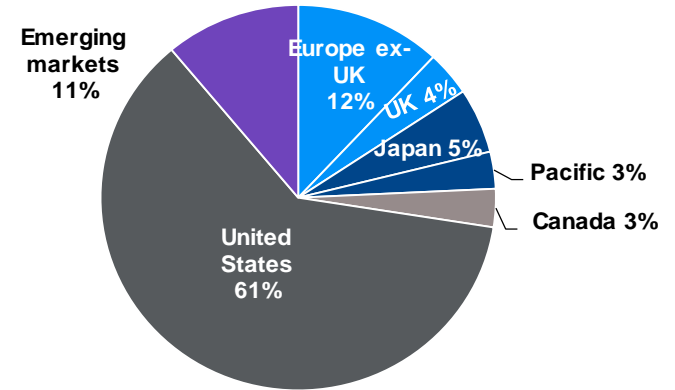
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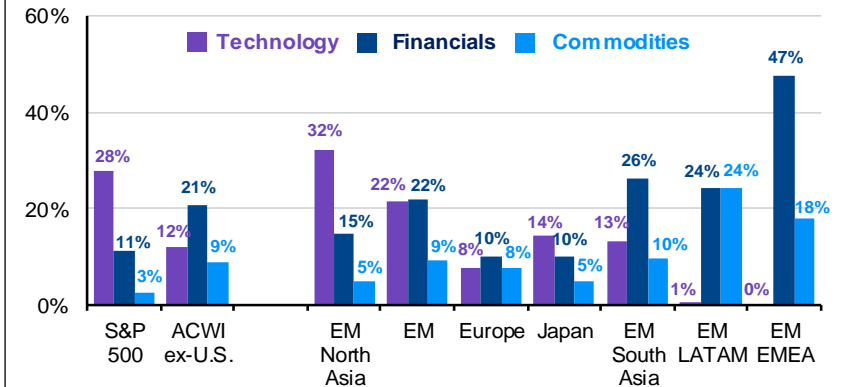
44

Returns	2022 YTD		2021		15-years	
	Local	USD	Local	USD	Ann.	Beta
<b>Regions</b>						
U.S. (S&P 500)	-	-4.6	-	28.7	10.7	0.90
AC World ex-U.S.	-3.8	-5.3	13.5	8.3	4.2	1.07
EAFE	-3.6	-5.8	19.2	11.8	4.1	1.04
Europe ex-UK	-8.1	-9.8	24.4	16.5	4.8	1.18
Emerging markets	-6.1	-6.9	0.1	-2.2	4.8	1.18
<b>Selected Countries</b>						
United Kingdom	4.8	1.8	19.6	18.5	2.3	1.02
France	-6.6	-8.6	29.7	20.6	4.7	1.22
Germany	-10.9	-12.8	13.9	5.9	4.7	1.31
Japan	-1.4	-6.4	13.8	2.0	3.4	0.72
China	-13.9	-14.2	-21.6	-21.6	5.8	1.10
India	0.1	-1.8	28.9	26.7	6.7	1.26
Brazil	16.0	36.0	-11.2	-17.2	0.9	1.50
Russia	-	-	21.6	20.0	0.9	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 March 31, 2022.



# Currency and international equity returns

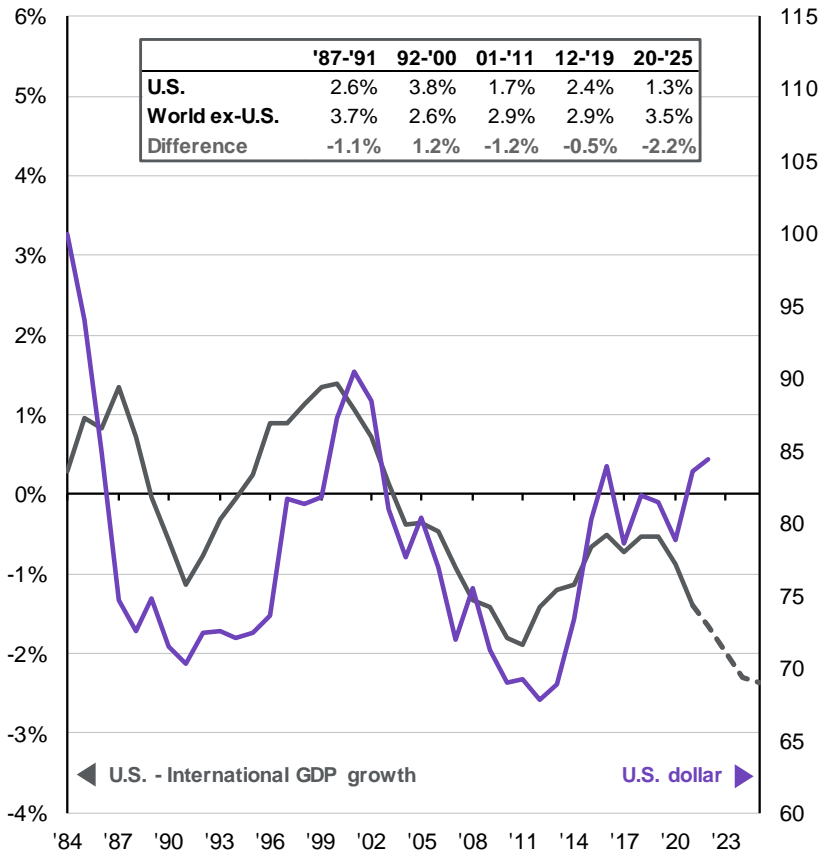
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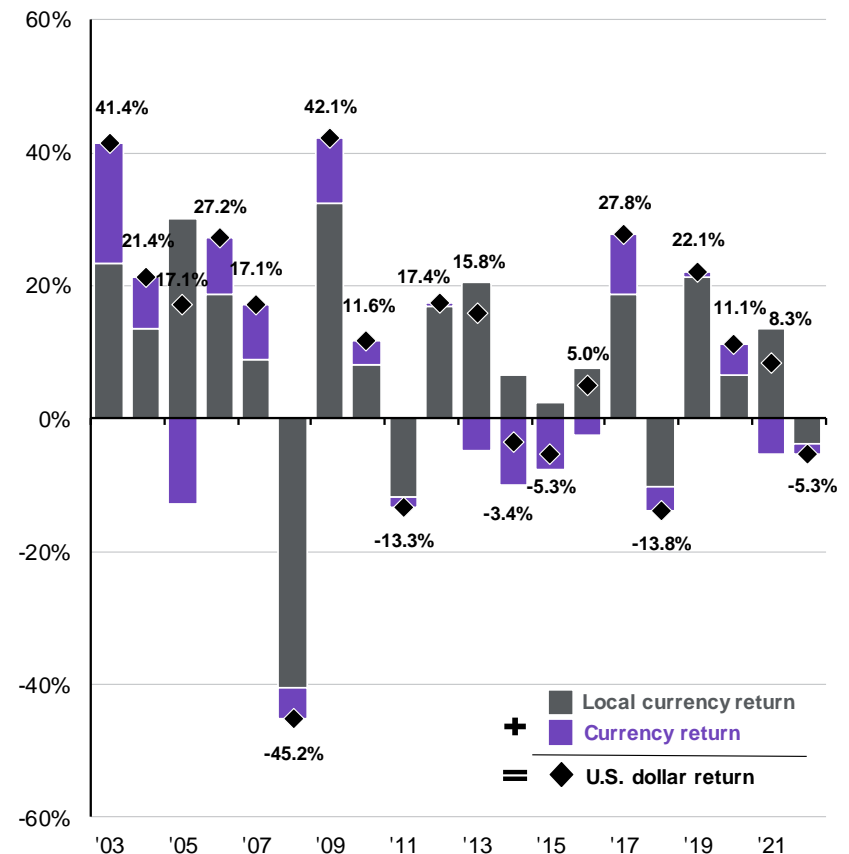
## U.S. dollar and international GDP growth

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

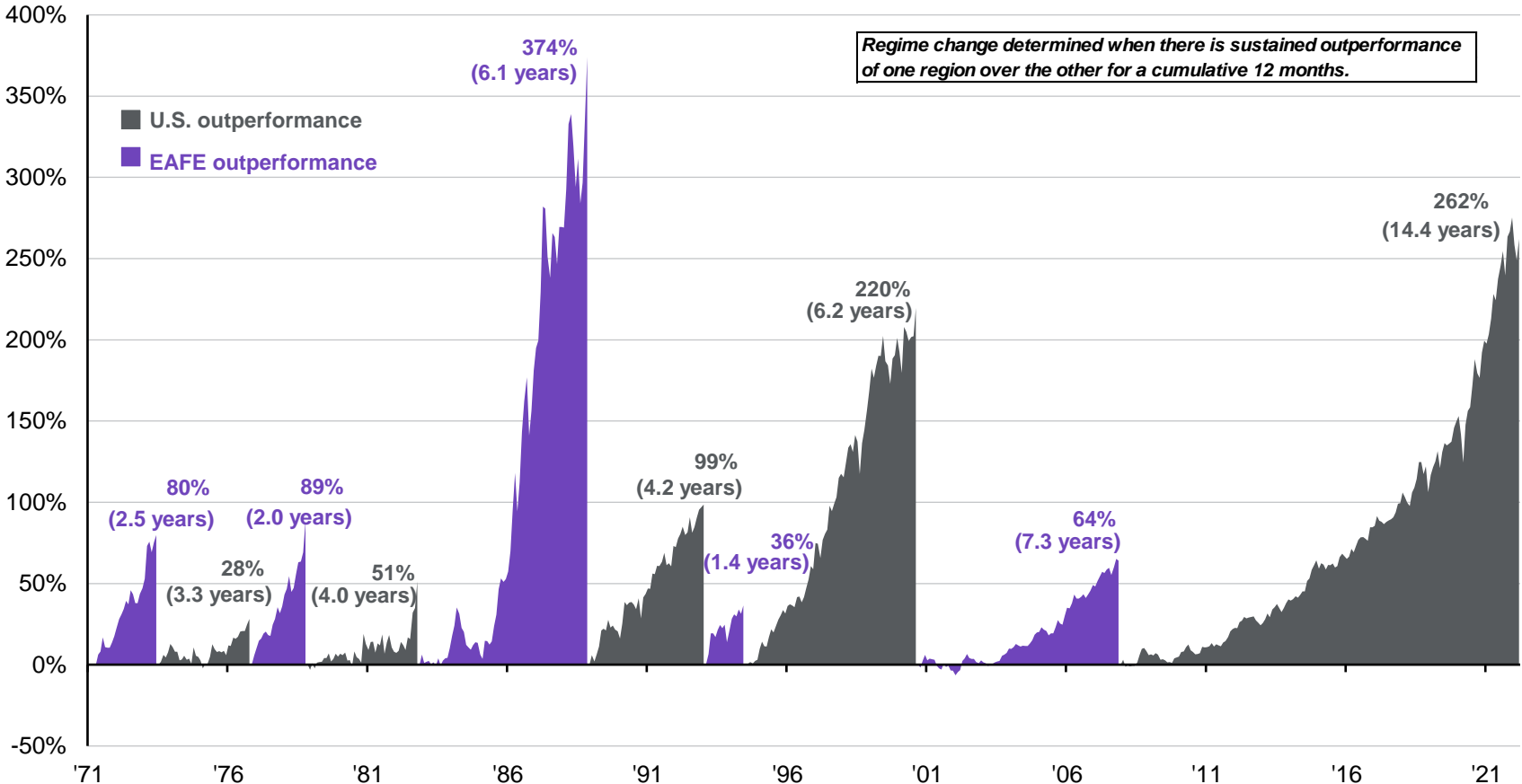
GTM

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## 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.

Guide to the Markets – U.S. Data are as of March 31, 2022.



# International valuations and dividend yields

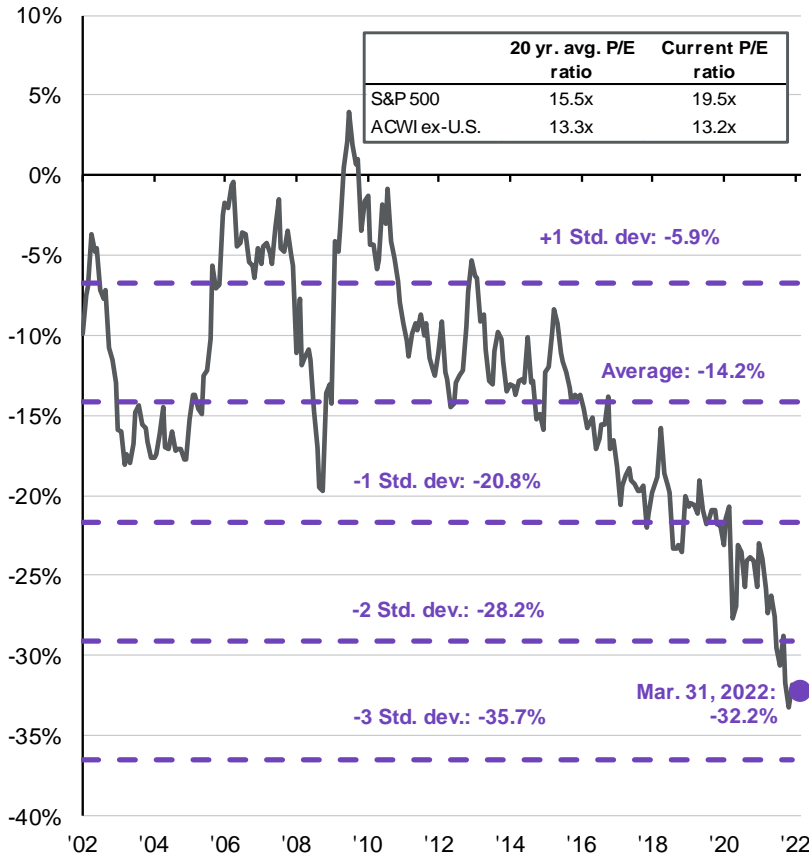
GTM

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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 March 31, 2022.



# International equity earnings and valuations

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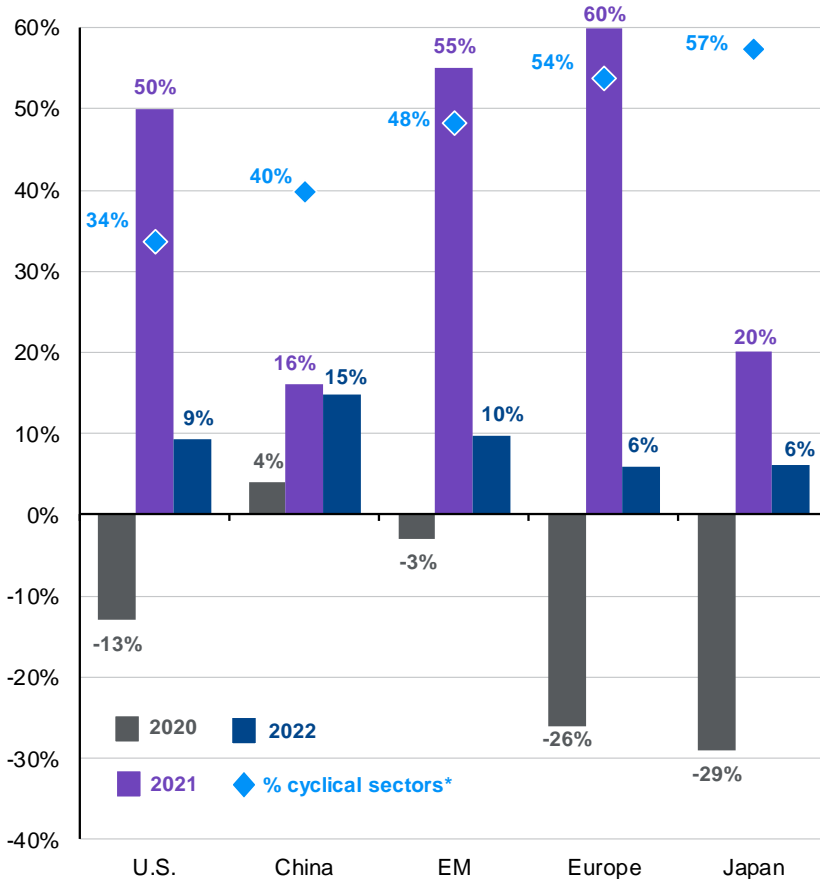
U.S.

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International

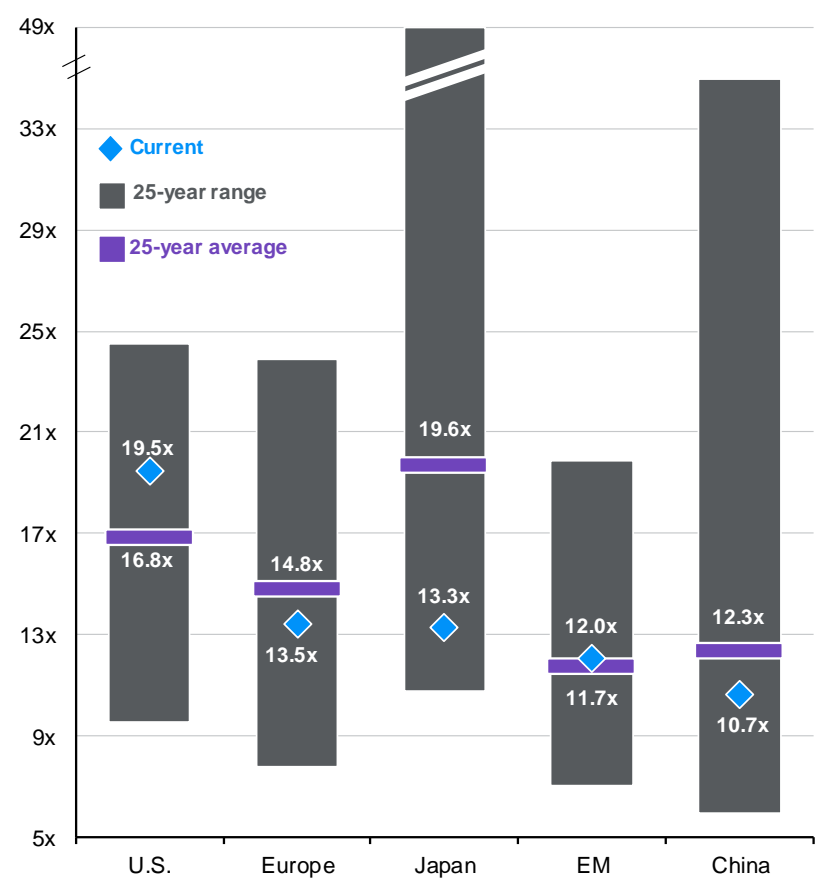
## Global earnings growth

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 cyclicals 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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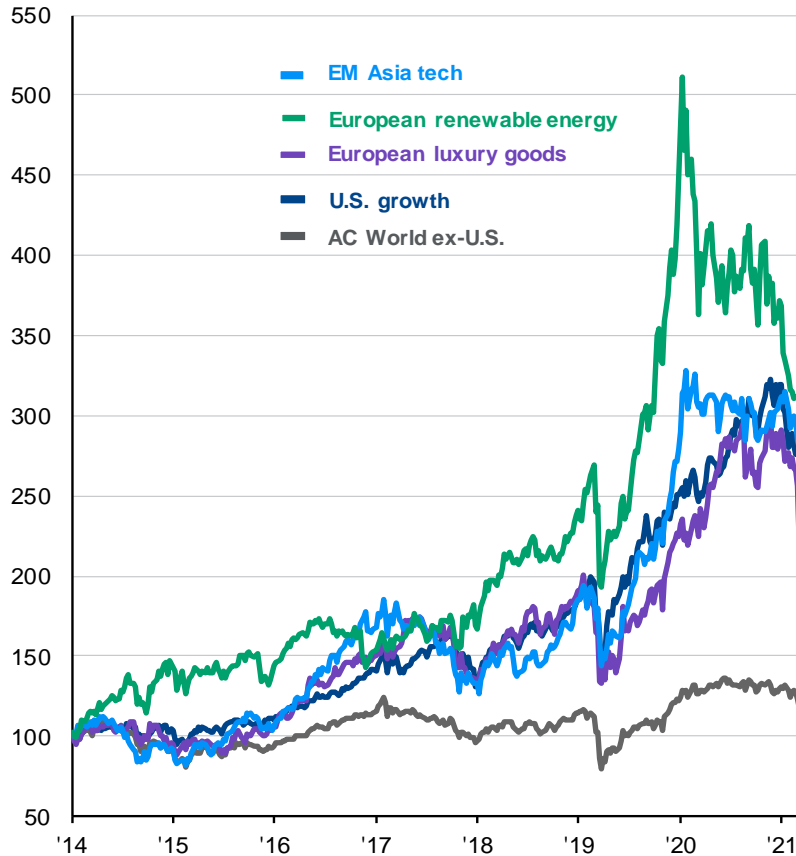


# International markets

GTM U.S. 49

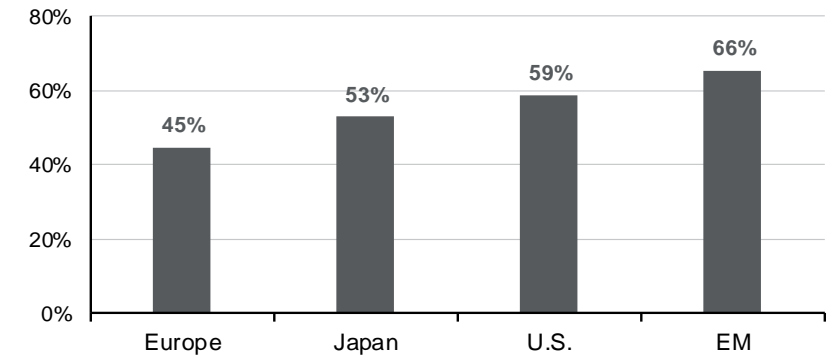
## Returns of thematic indices

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



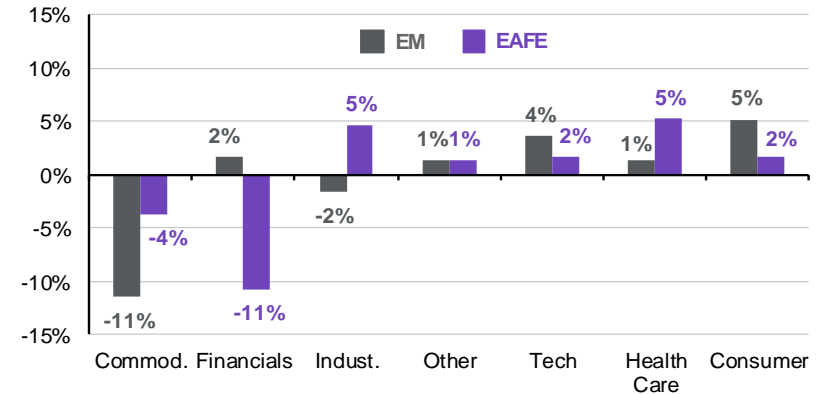
## Revenue exposure vs. country of listing

% 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 3/31/2022.

Guide to the Markets – U.S. Data are as of March 31, 2022.



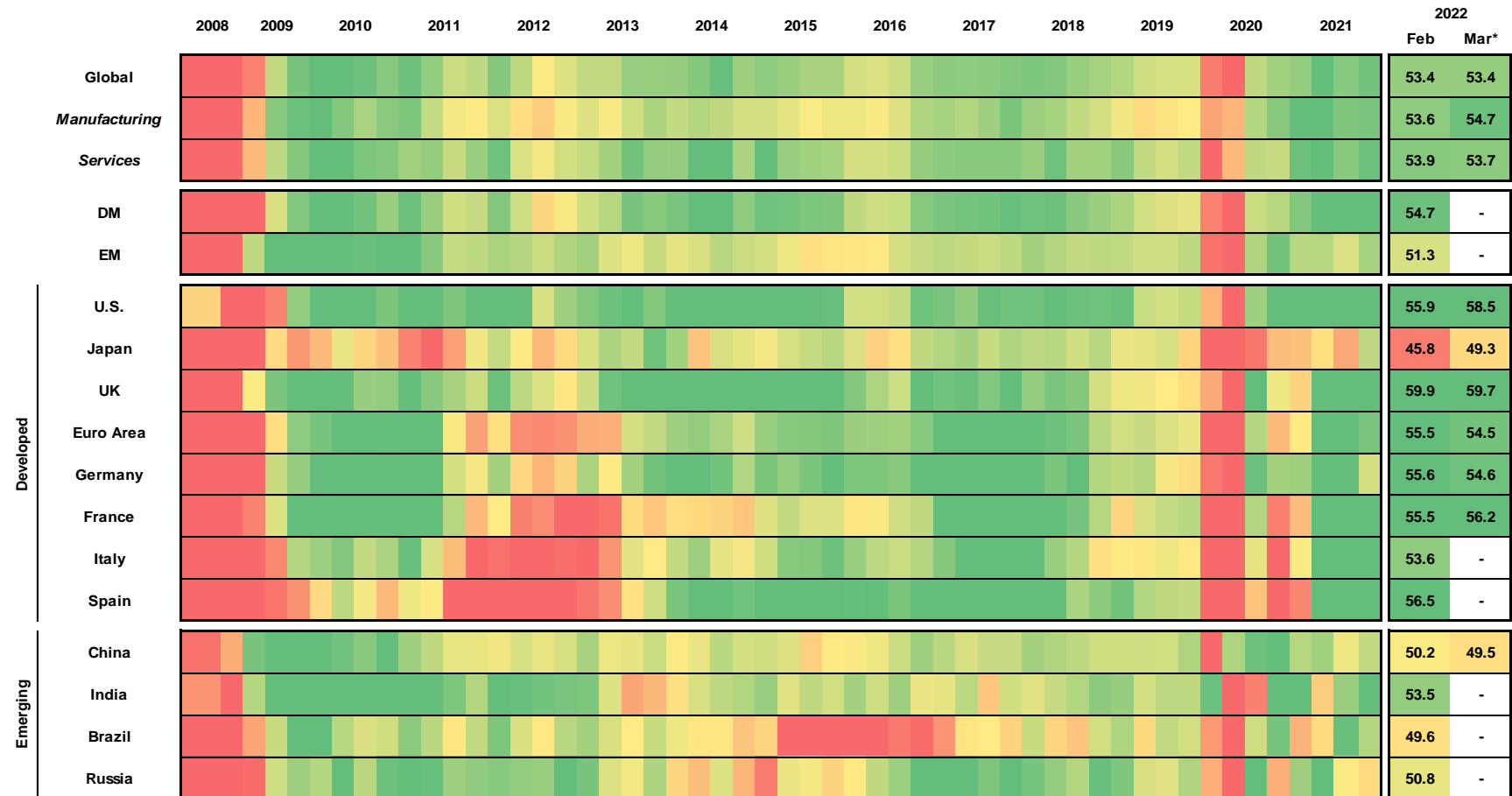
# Global economic activity momentum

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



Source: Markit, 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. \*March Global, Manufacturing, and Services PMIs are based on estimates from J.P. Morgan Asset Management.

Guide to the Markets – U.S. Data are as of March 31, 2022.

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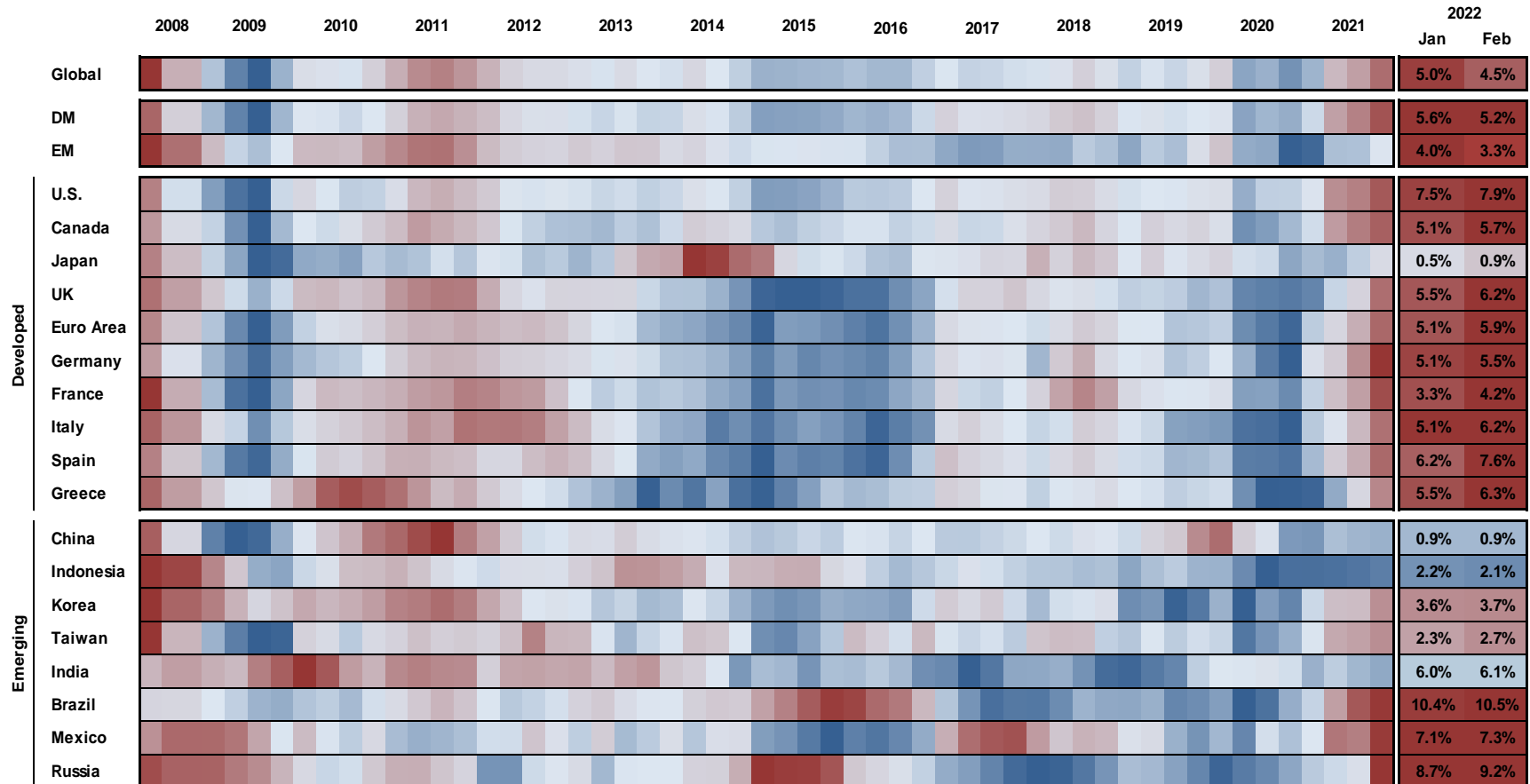
# Global inflation

GTM

U.S.

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## 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 chain pressures

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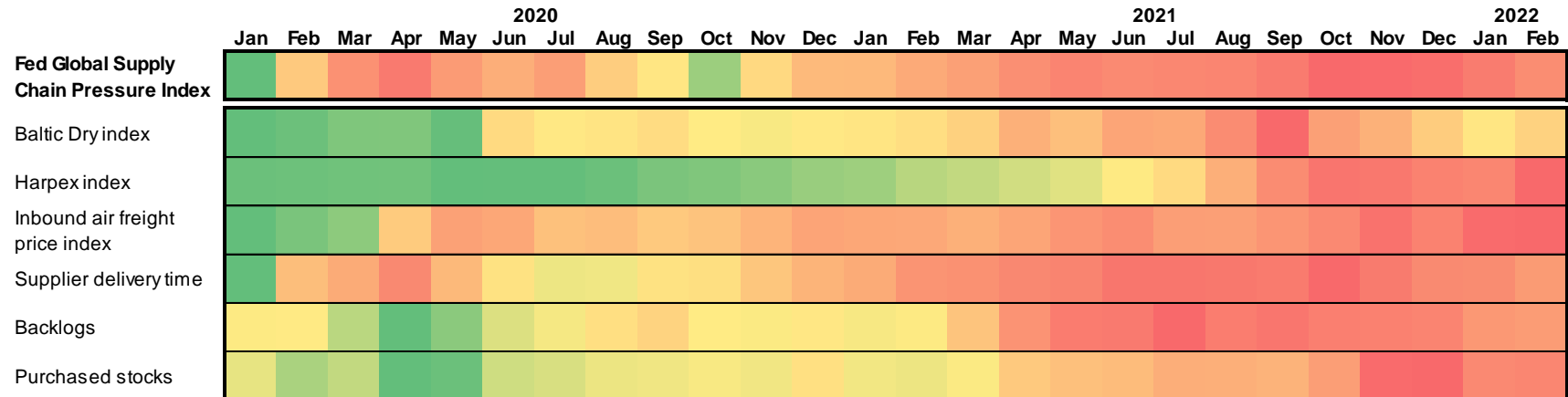
52

## Fed Global Supply Chain Pressure Index\*

Standard deviation from average value



## Fed Global Supply Chain Pressure Index subcomponents



Source: Federal Reserve Bank of New York, IHS Markit, J.P. Morgan Asset Management.

\*The Federal Reserve Bank of New York bases its Global Supply Chain Pressure Index on the Baltic Dry Index (benchmark for the price of moving raw materials by sea), Harpex Index (benchmark for the rate liners pay to charter ships), BLS airfreight cost indices (benchmarks for measuring change in rates for air transportation) and 3 PMI supply chain-related components: delivery times (the amount of time elapsed between the time an order is placed and the time it is shipped), backlogs (the volume of orders that a company has received, but not yet fulfilled) and purchased stocks (the level of inventory of materials purchased in the current month compared to the month prior) for manufacturing firms across seven interconnected economies: China, the euro area, Japan, South Korea, Taiwan, the United Kingdom and the United States. Heatmap colors determined by that month's level compared to 10-year average. Red = Very slow/constrained, Yellow = Average/moderate, and Green = Fast/least constrained.

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# Emissions targets and global energy mix

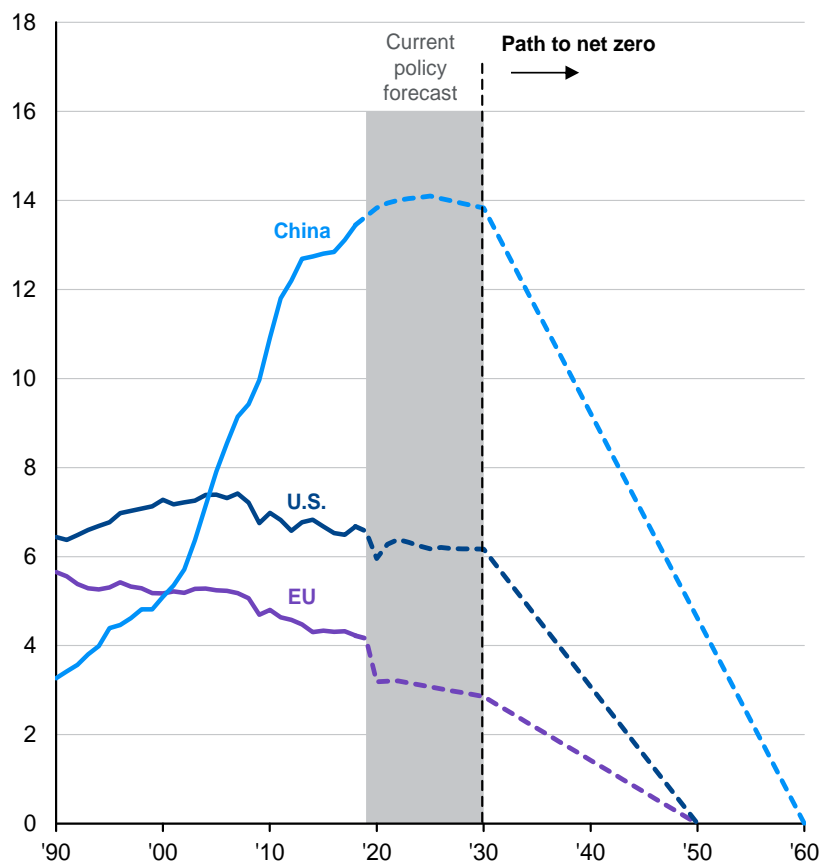
GTM

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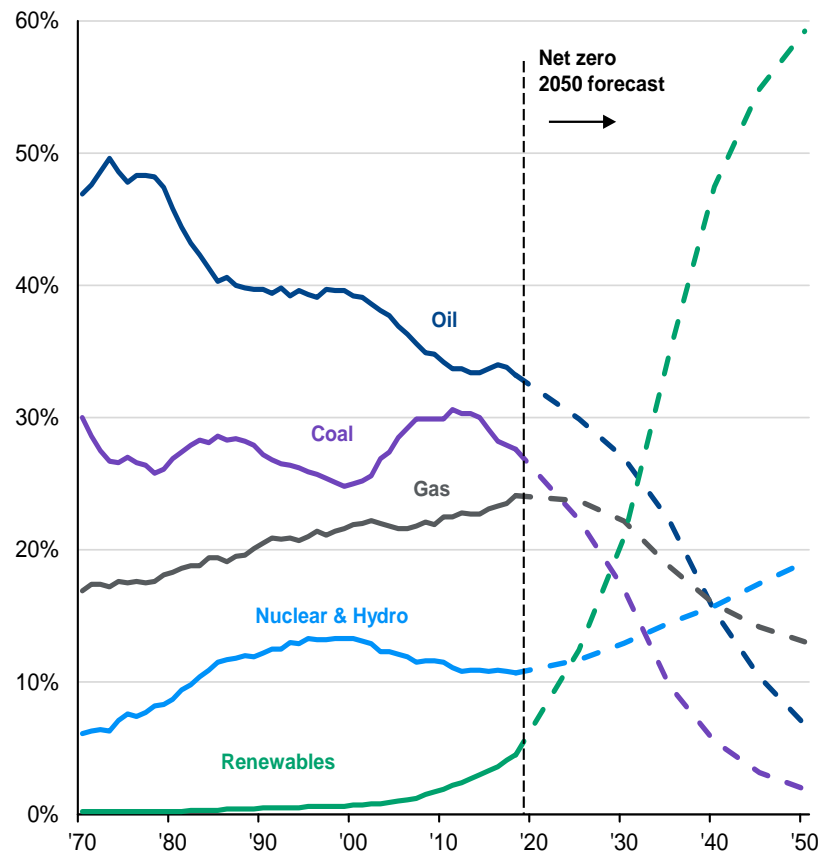
## Greenhouse gas emissions targets

Billions of tons per year, CO2 equivalent



## Global energy mix

% of primary energy consumption



Source: J.P. Morgan Asset Management; (Left) ClimateActionTracker; (Right) BP Energy Outlook 2022. 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 statements, actual events, results or performance may differ materially from those reflected or contemplated.

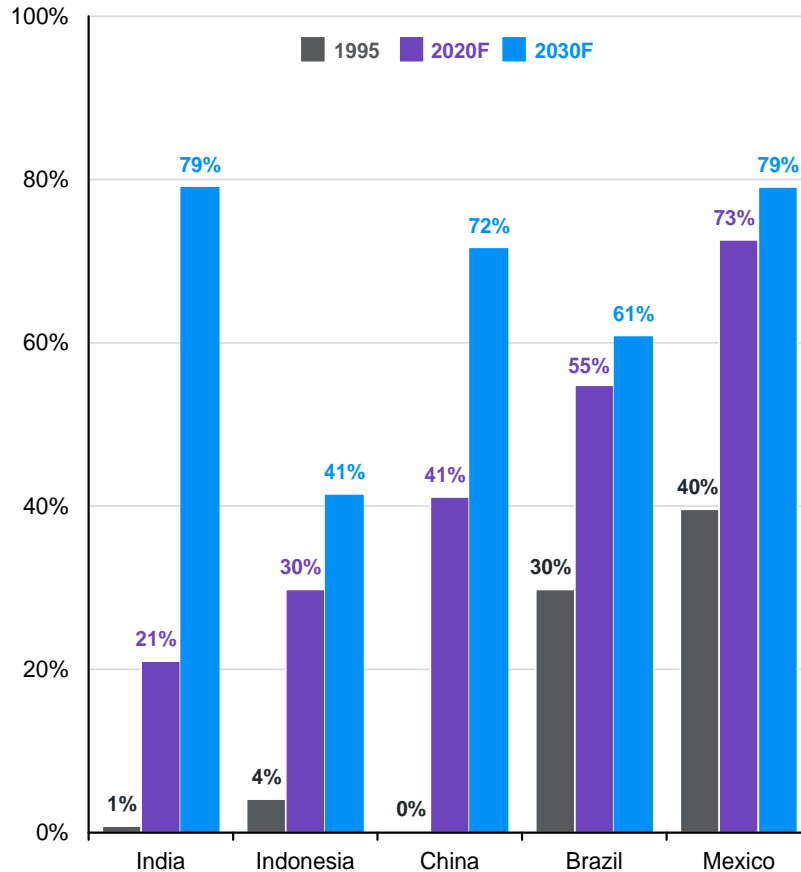
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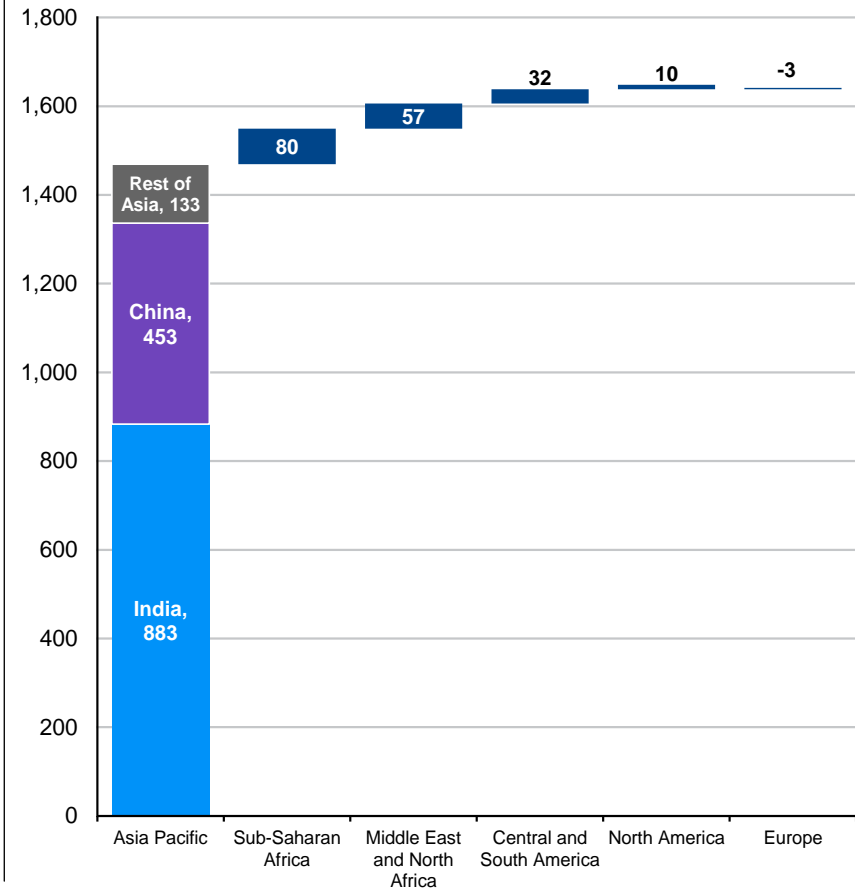
# The emergence of the EM middle class

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.  
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# China: Economic growth

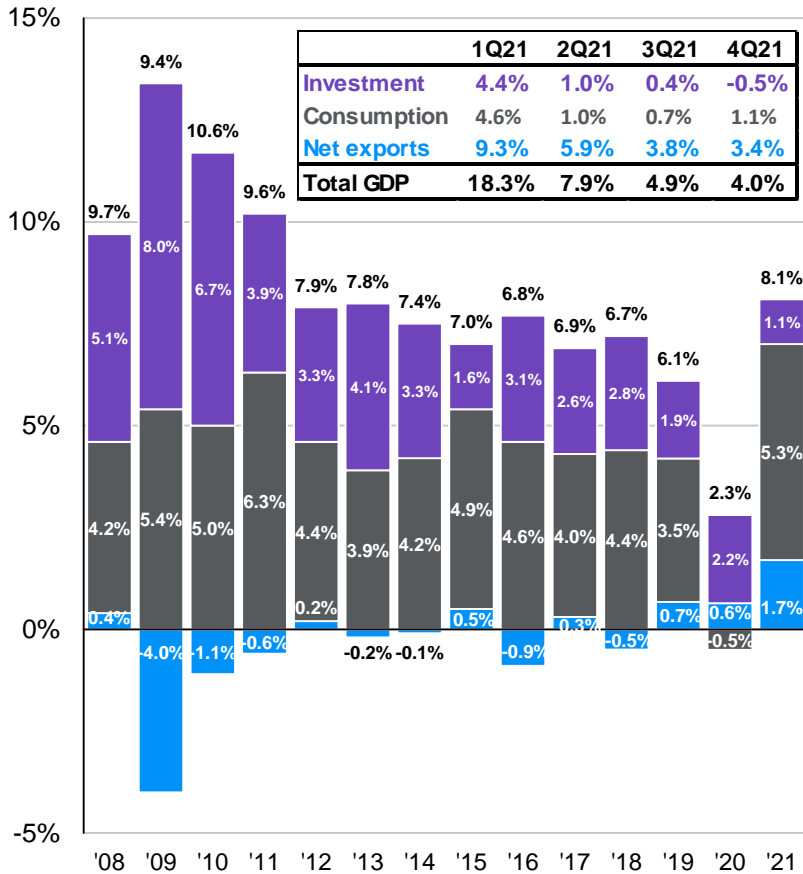
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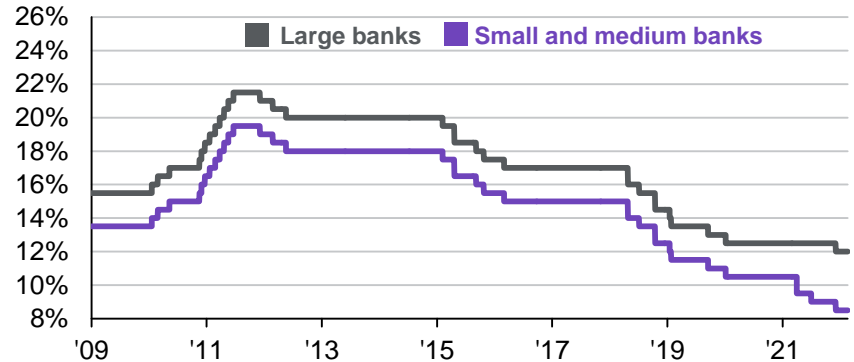
55

## China real GDP contribution

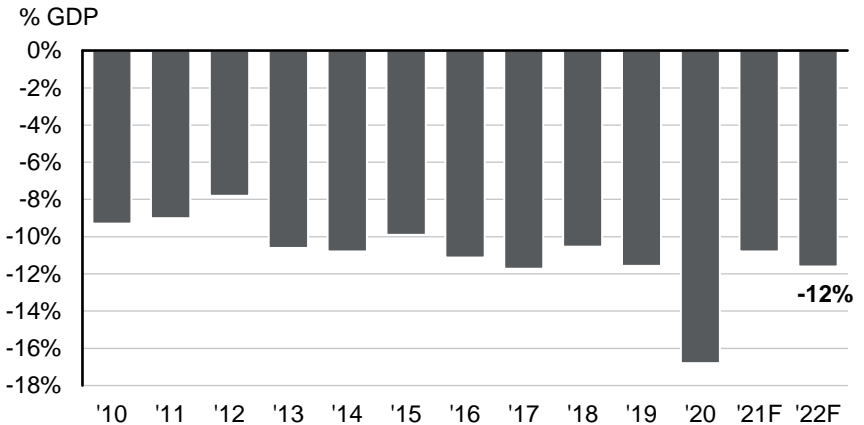
Year-over-year % change for GDP, contribution to GDP for components



## 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 statements, actual events, results or performance may differ materially from those reflected or contemplated.

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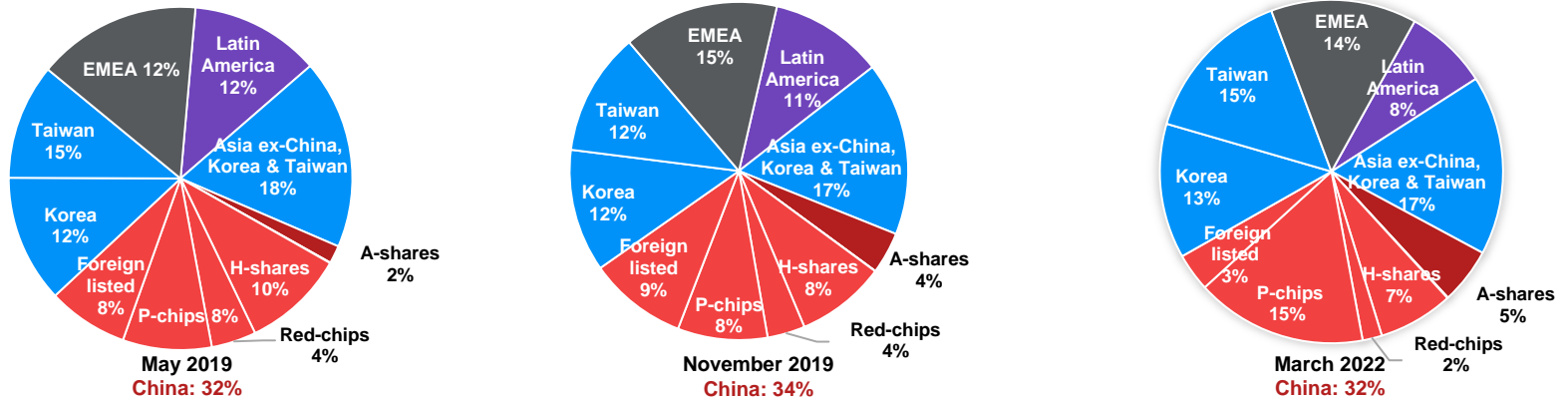
# Chinese equity and fixed income markets

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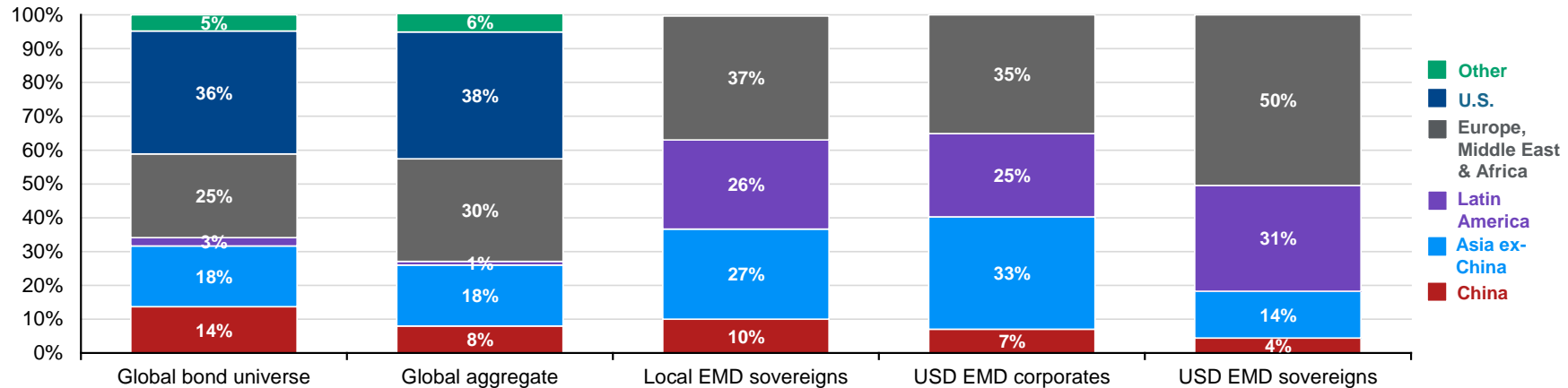
U.S.

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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 March 31, 2022.





# Correlations and volatility

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	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	0.87	0.76	0.02	0.82	0.22	-0.35	0.62	0.43	0.72	0.90	0.81	0.03	14%
EAFE		1.00	0.90	0.02	0.84	0.24	-0.51	0.70	0.46	0.56	0.91	0.85	0.13	15%
EME			1.00	0.13	0.82	0.31	-0.65	0.77	0.47	0.46	0.80	0.81	0.35	18%
Bonds				1.00	0.24	0.86	-0.18	0.57	-0.30	0.24	-0.06	-0.30	0.50	4%
Corp. HY					1.00	0.39	-0.44	0.85	0.50	0.65	0.84	0.74	0.21	8%
Munis						1.00	-0.24	0.70	-0.18	0.47	0.16	-0.04	0.41	4%
Currencies							1.00	-0.52	-0.42	-0.06	-0.31	-0.58	-0.52	6%
EMD								1.00	0.26	0.54	0.61	0.56	0.46	8%
Commodities									1.00	0.29	0.54	0.76	0.33	17%
REITs										1.00	0.61	0.58	0.09	15%
Hedge funds											1.00	0.86	0.02	5%
Private equity												1.00	0.00	8%
Gold													1.00	15%

Alternatives

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 3/31/2012 to 3/31/2022, except for Private equity, which is based on the period from 9/30/2011 to 9/30/2021. This chart is for illustrative purposes only.  
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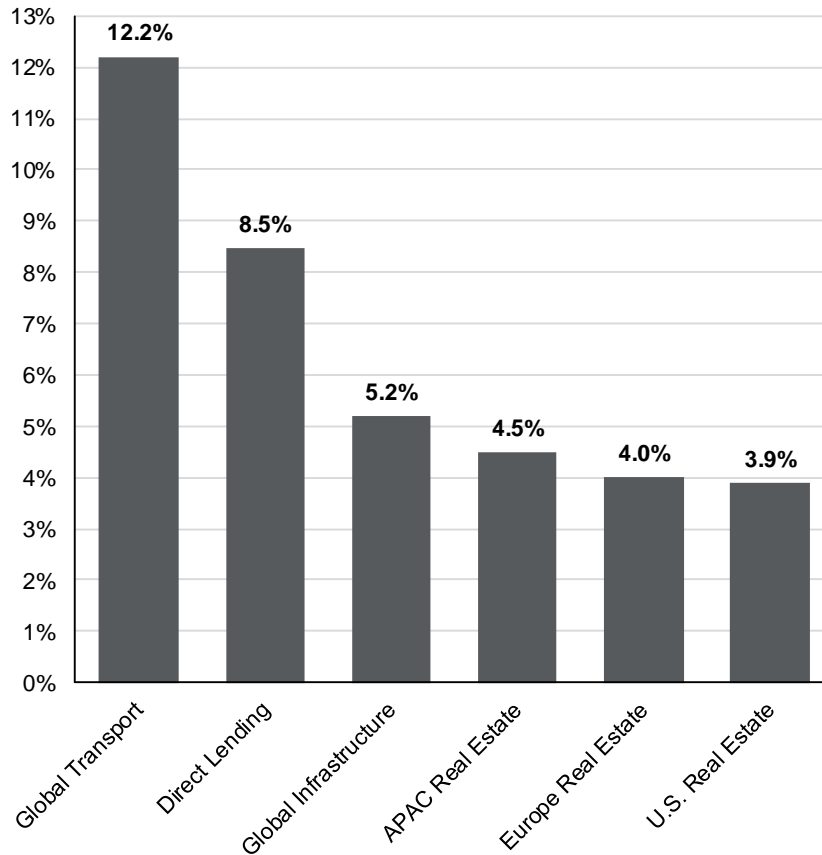
# Alternative sources of income and diversification

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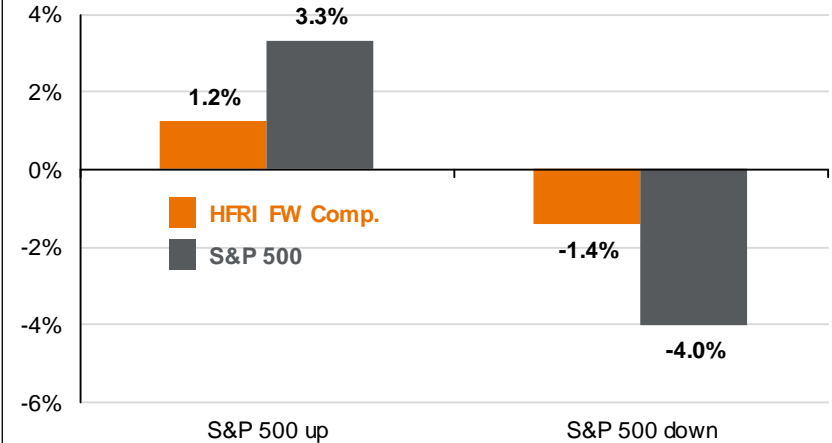
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## Alternative asset class yields



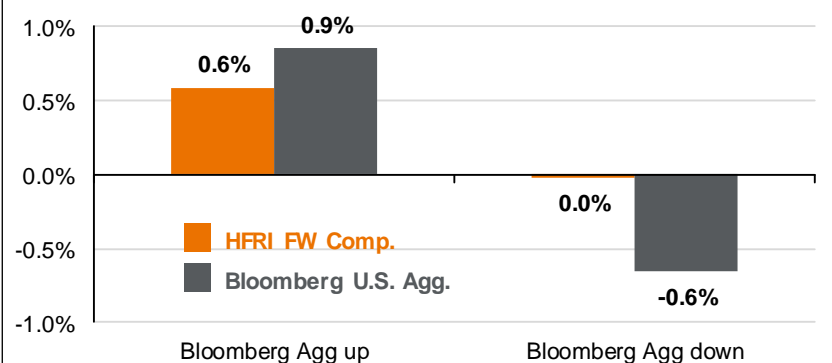
## Hedge fund returns in different market environments

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.



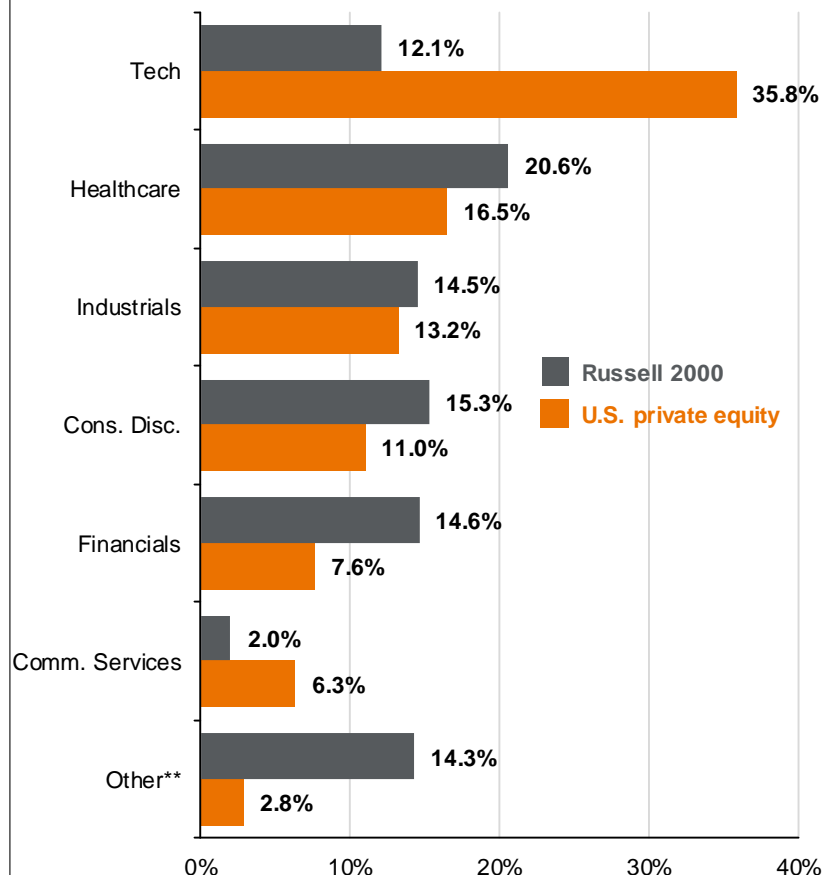
Source: BEA, Bloomberg, Clarkson, Cliffwater, Drewry Maritime Consultants, FactSet, HFRI, J.P. Morgan Asset Management. Global Transport and Direct Lending yields are as of 12/31/2021. Global Infrastructure and U.S., Europe and APAC Real Estate yields are as of 9/30/2021. Global Transport: Levered yields 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. This slide comes from our [Guide to Alternatives](#).  
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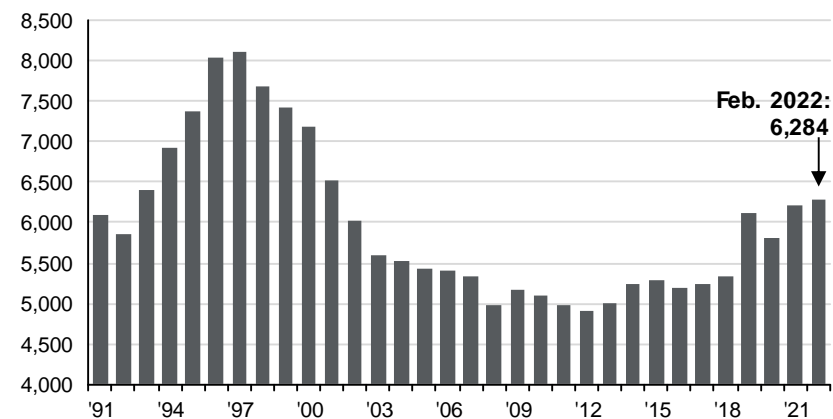
# Private equity

GTM U.S. 59

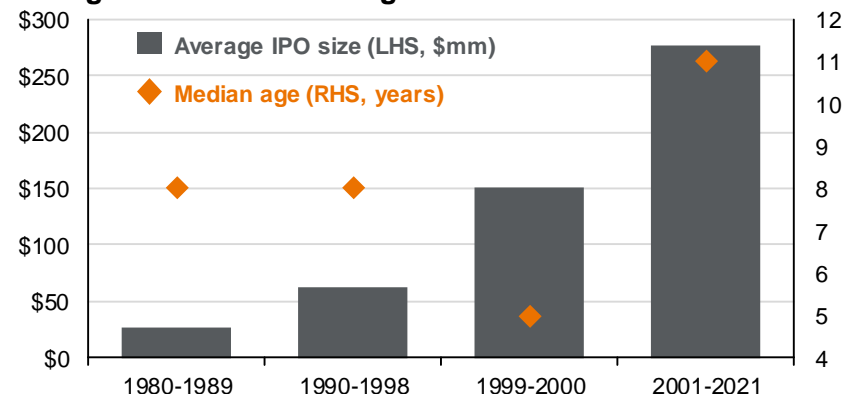
## Private vs. public equity sector weights



## Number of listed U.S. companies\*



## Average size and median age at IPO



Source: Cambridge Associates, Jay Ritter, Russell, University of Florida, World Federation of Exchanges, J.P. Morgan Asset Management. The sample is IPOs with an offer price of at least \$5.00, excluding ADRs, unit offers, closed-end funds, REITs, natural resource limited partnerships, small best efforts offers, banks and S&Ls, and stocks not listed on CRSP (CRSP includes Amex, NYSE and NASDAQ stocks). Average IPO size is defined as the aggregate IPO proceeds during the period shown, divided by the number of IPOs. \*Number of listed U.S. companies is represented by the sum of number of companies listed on the NYSE and the NASDAQ. \*\*Other includes real estate, utilities and energy. Percentages may not sum due to rounding. Sector weights are as of 6/30/2021. This slide comes from our [Guide to Alternatives](#).  
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# Global commodities

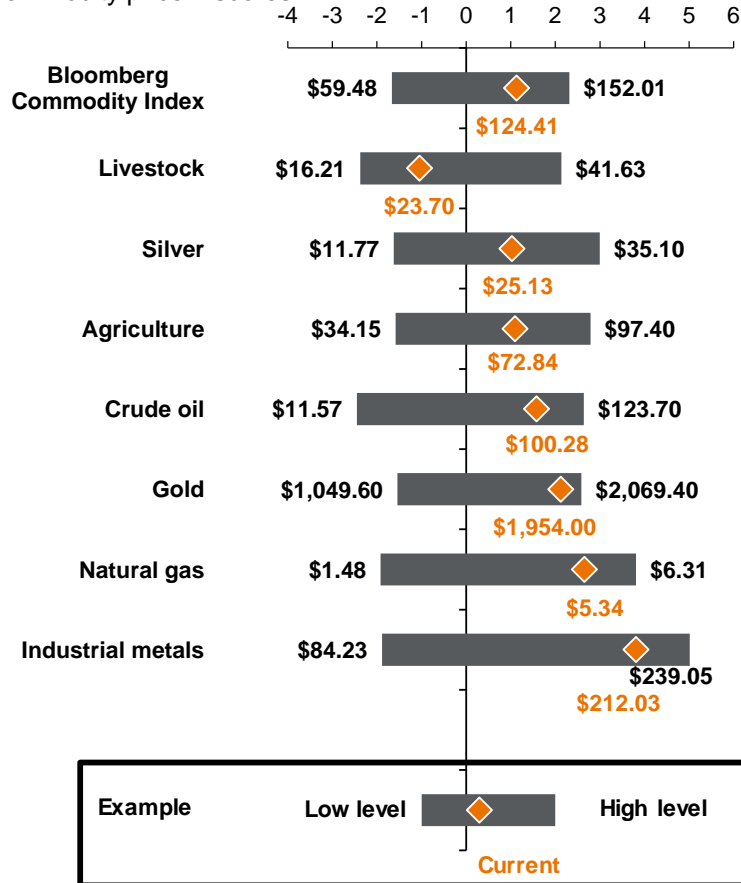
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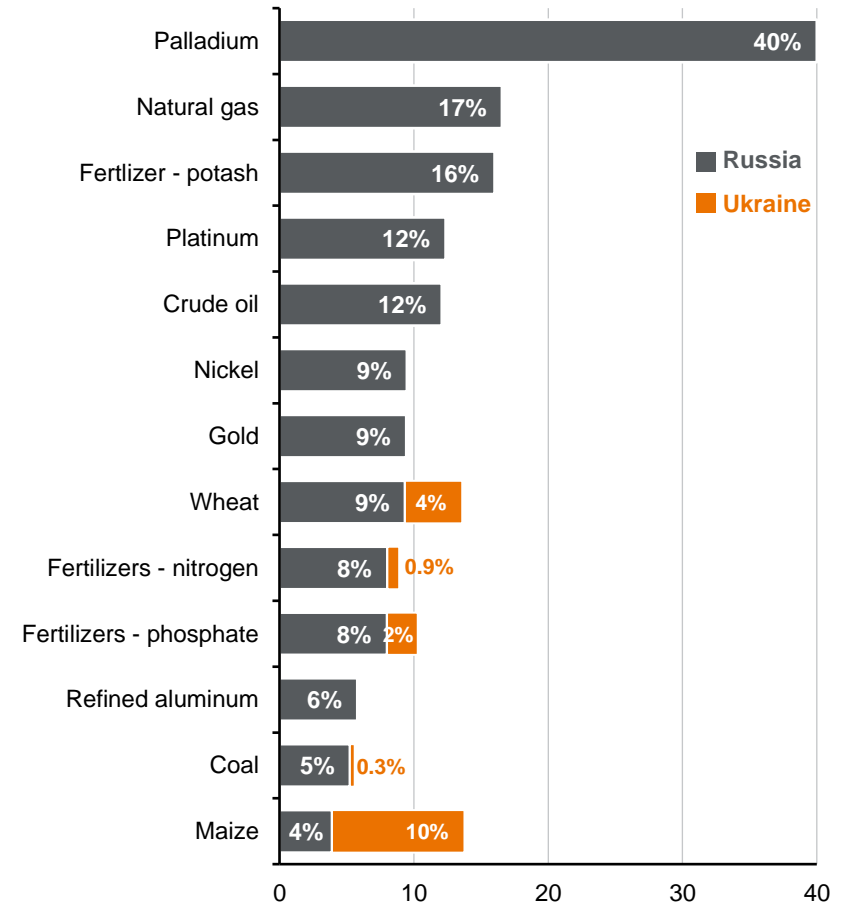
## Commodity prices

Commodity price z-scores



## Contribution to global production of commodities

% of global production, latest



Source: FactSet, J.P. Morgan Asset Management; (Left) Bloomberg, CME; (Right) EuroStat, HSBC.  
Commodity prices are represented by the appropriate Bloomberg Commodity subindex. Crude oil shown is West Texas Intermediate (WTI). Other commodity prices are represented by futures contracts. Z-scores are calculated using daily prices over the past 20 years.  
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# Asset class returns

GTM U.S. 61

																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. 25.5%	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 0.0%	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%	Asset Alloc. -3.9%	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%	Large Cap -4.6%	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%	REITs -5.3%	Asset Alloc. 5.7%	DM Equity 18.9%
Large Cap 5.5%	Comdty. -35.6%	Large Cap 25.5%	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%	High Yield -5.7%	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%	DM Equity -5.8%	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%	Fixed Income -5.9%	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 -6.9%	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%	Small Cap -7.5%	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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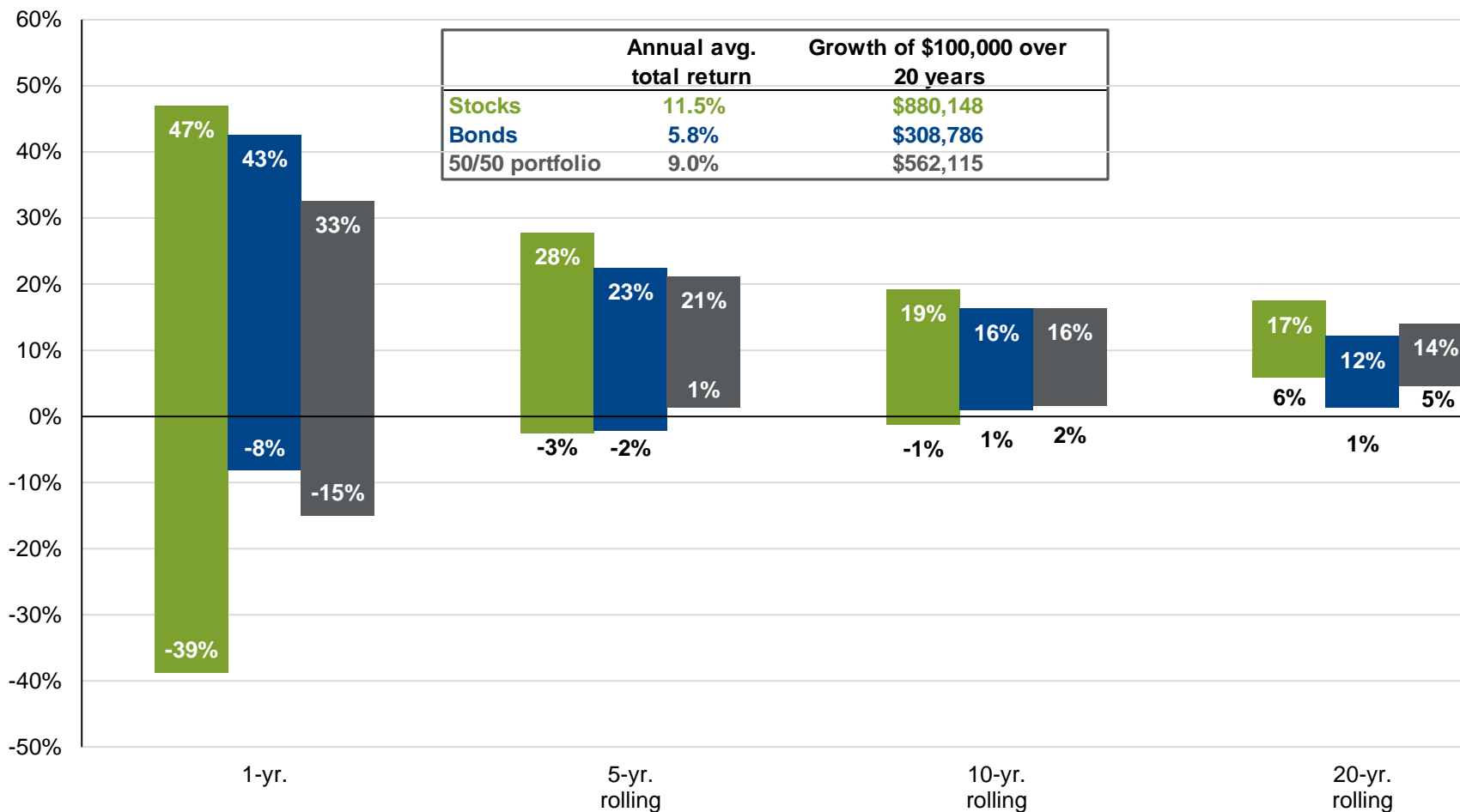


# Time, diversification and the volatility of returns

GTM U.S. 62

## 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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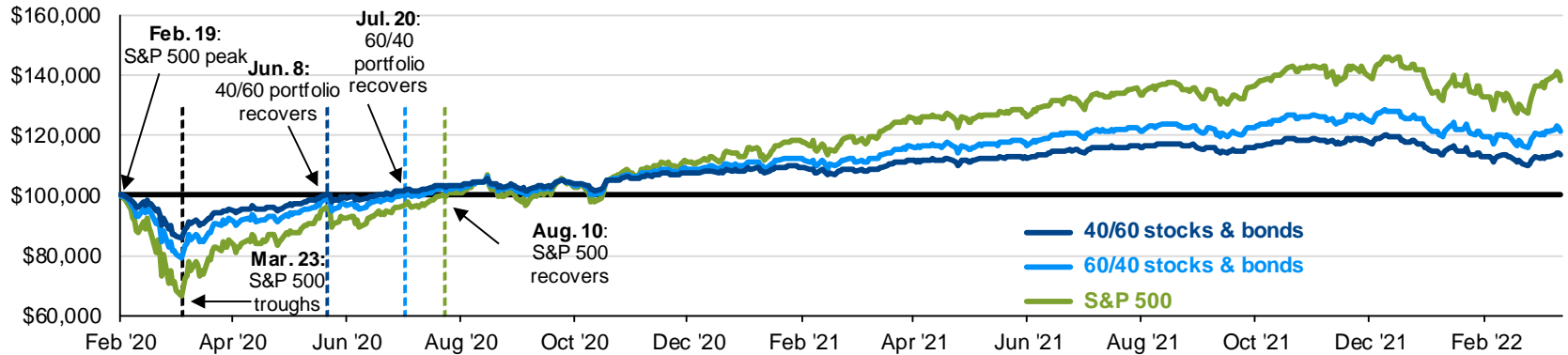
# Diversification and the average investor

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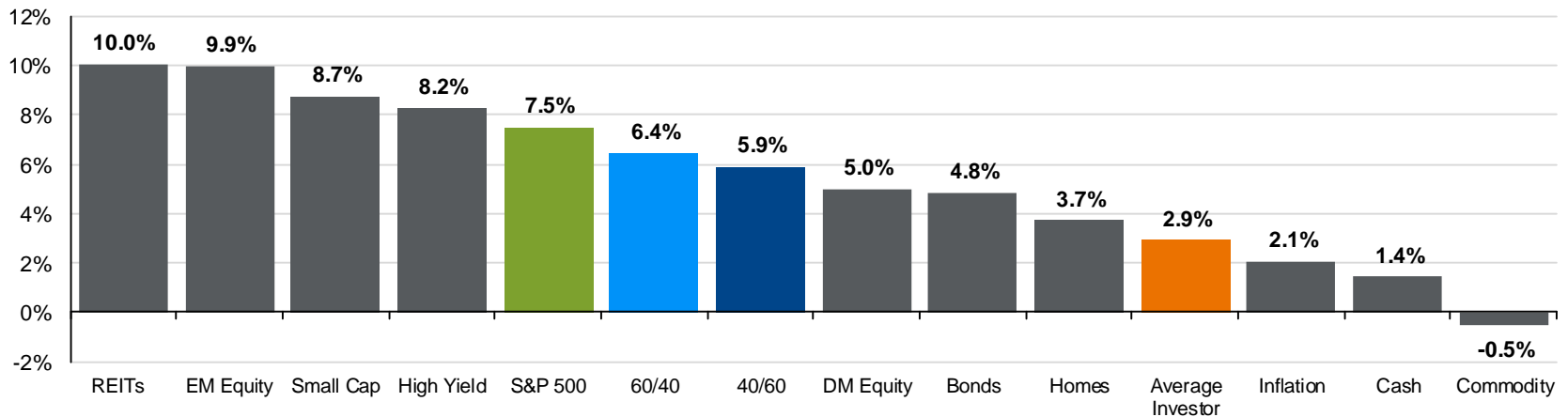
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## Portfolio returns: Equities vs. equity and fixed income blend



## 20-year annualized returns by asset class (2001 – 2020)



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.  
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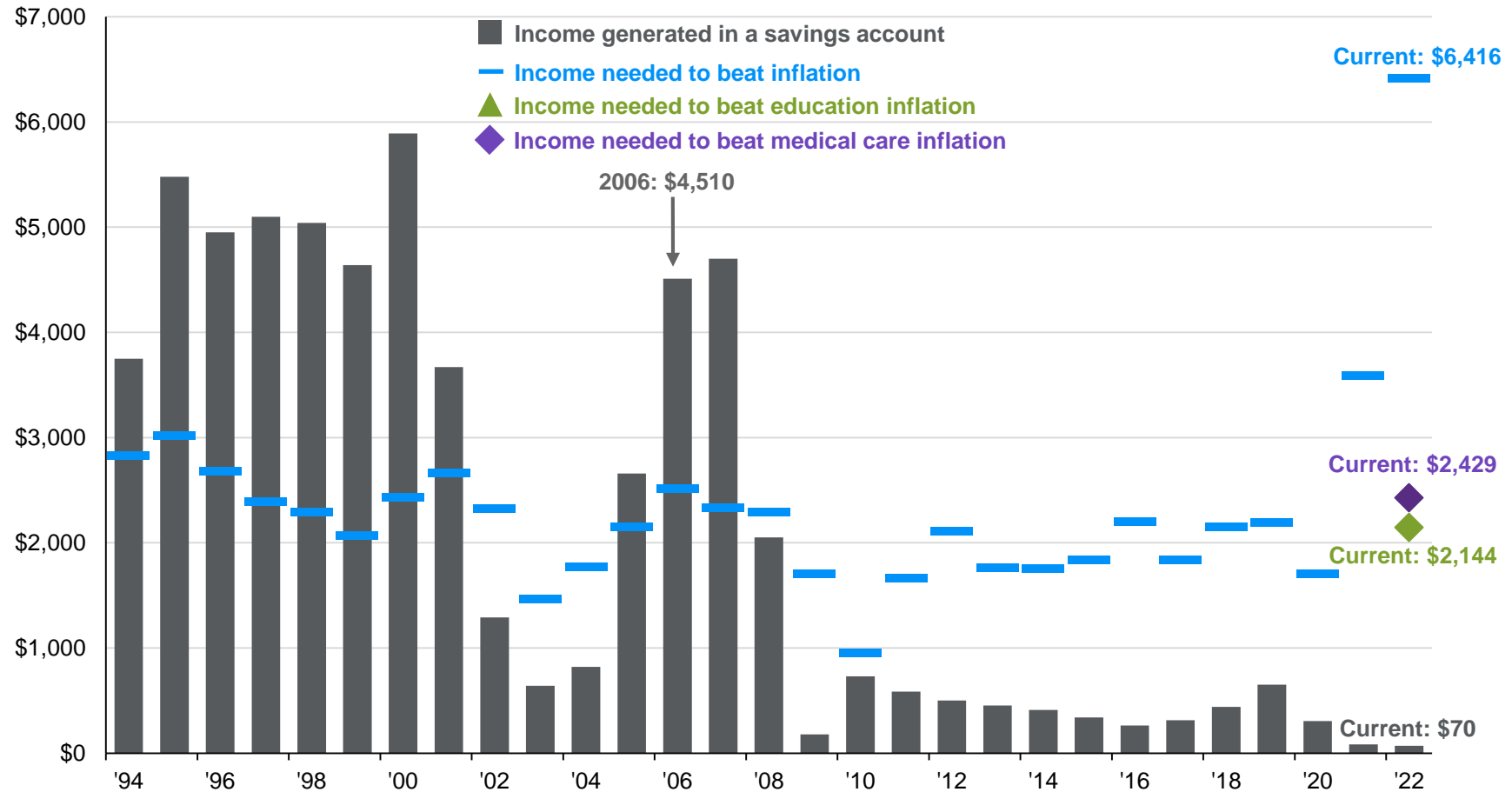
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# Cash account returns

GTM U.S. 64

## Income earned on \$100,000 in savings accounts\*



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

\*Savings account is based on the national average annual percentage rate (APR) on money market accounts from Bankrate.com from 2010 onward. Prior to 2010, money market yield is based on taxable money market funds return data from the Federal Reserve. Annual income is for illustrative purposes and is calculated based on the average money market yield during each year and \$100,000 invested. Current inflation is based on February 2022 Core CPI, education inflation and medical care inflation. Current savings account is based on the March 2022 national average annual percentage rate (APR) on money market accounts. Past performance is not indicative of comparable future results.

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# Equity market correlations and yields

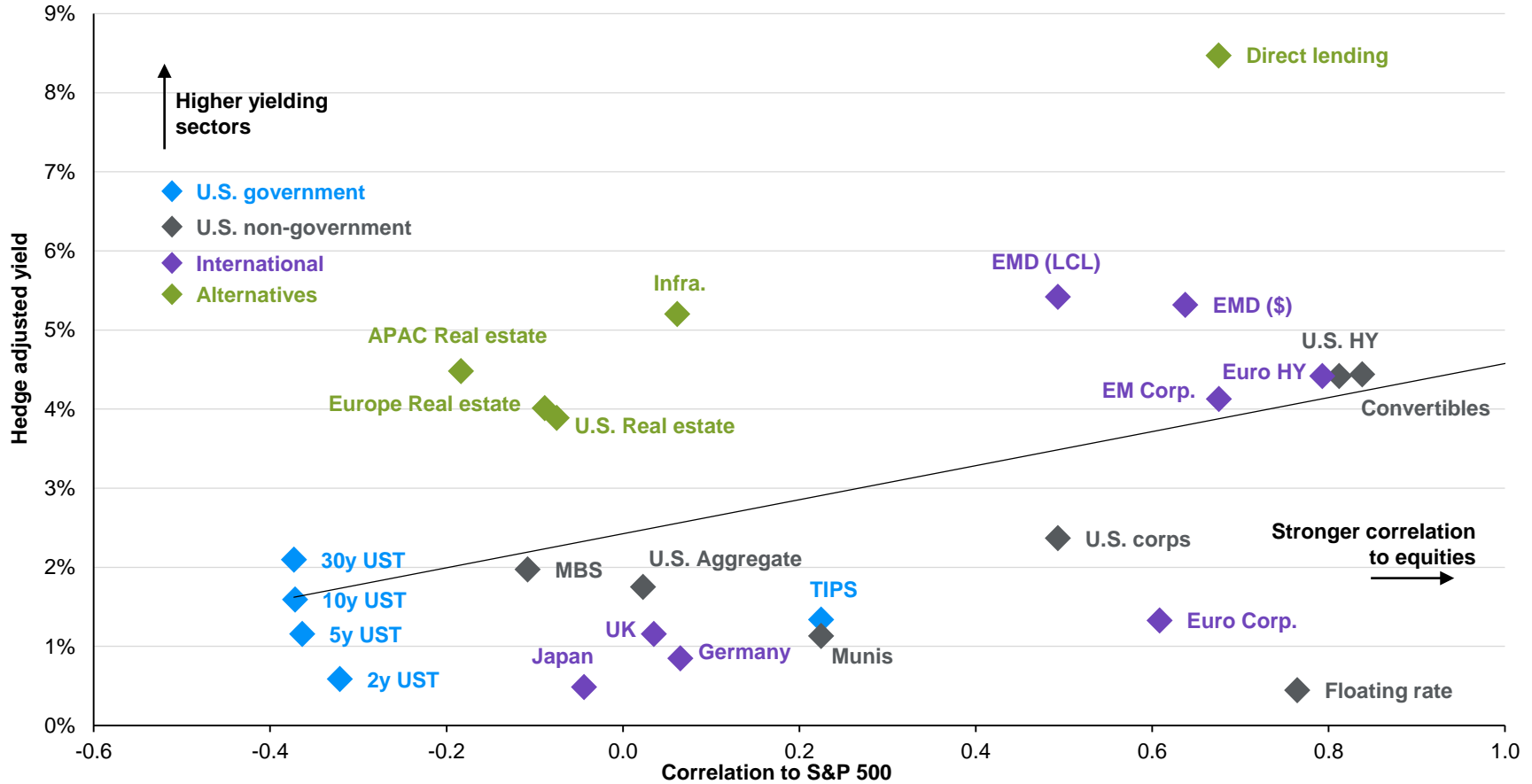
GTM

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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: Muni Bond 10-year; 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 3/31/2022, except Infra, Europe and APAC Real Estate, which are through 9/30/2021 and U.S. Real Estate and Direct Lending, which are through 12/31/2021. 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 9/30/2021 except Direct Lending, which is through 12/31/2021. 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 March 31, 2022.

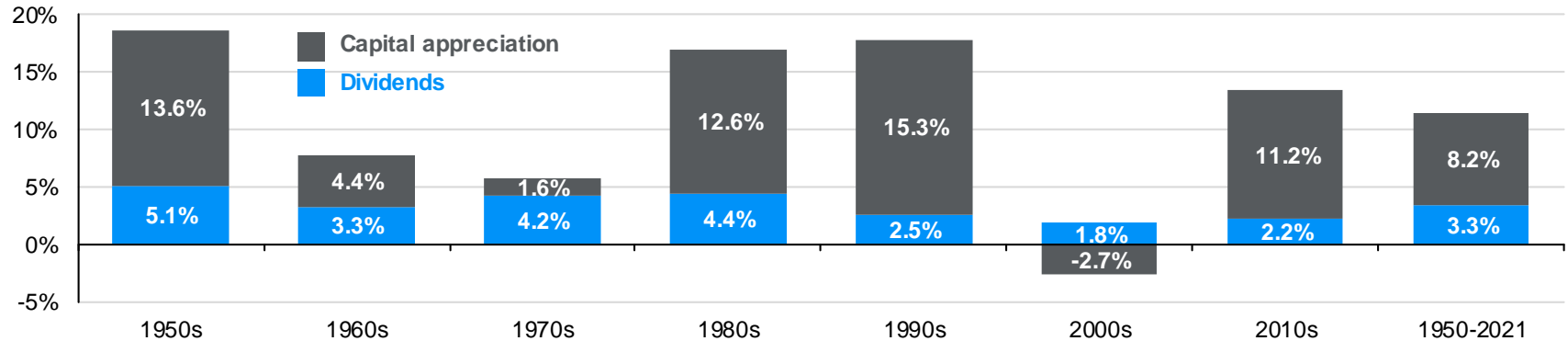


# Yield alternatives: Domestic and global

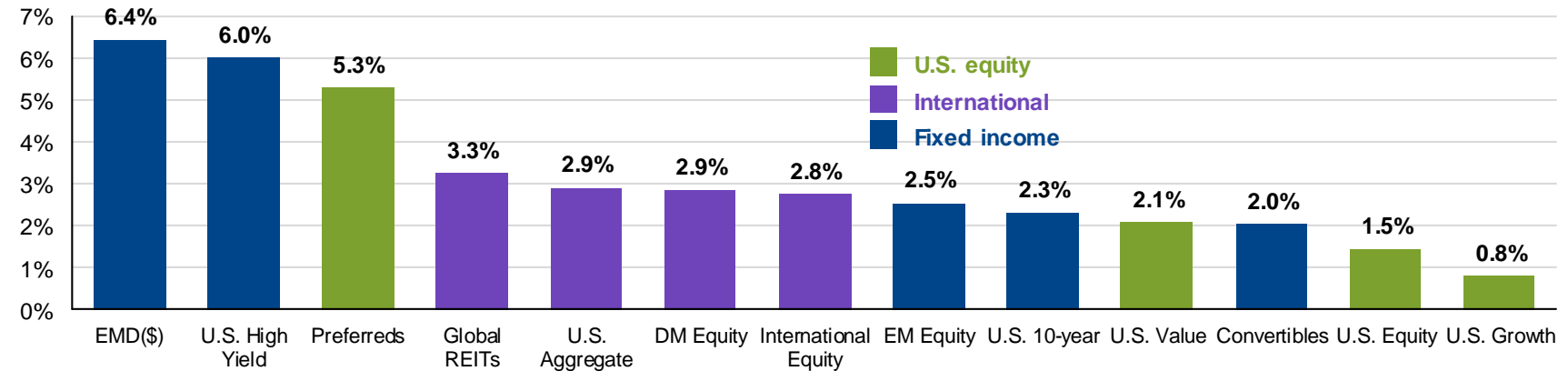
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## S&P 500 total return: Dividends vs. capital appreciation

Average annualized returns



## Asset class yields



Source: FactSet, Standard & Poor's, J.P. Morgan Asset Management; (Top) Ibbotson; (Bottom) BAML, Bloomberg, Federal Reserve, FTSE, J.P. Morgan, MSCI, NCREIF, Russell. Dividend vs. capital appreciation returns are through 12/31/2021. Yields are most current. Preferreds: BAML Hybrid Preferred Securities; U.S. High Yield: Bloomberg US Corporate High Yield; Global REITs: FTSE NAREIT Global REITs; U.S. Aggregate: Bloomberg US Aggregate; EMD(\$): J.P. Morgan EMBIG Diversified; Convertibles: Bloomberg U.S. Convertibles Composite; International Equity: MSCI AC World ex-U.S.; EM Equity: MSCI Emerging Markets; DM Equity: MSCI EAFE; U.S. Equity: S&P 500; U.S. Growth: Russell 1000 Growth; U.S. Value: Russell 1000 Value; U.S. 10-year: Tullett Prebon. Positive yield does not imply positive return.  
Guide to the Markets – U.S. Data are as of March 31, 2022.

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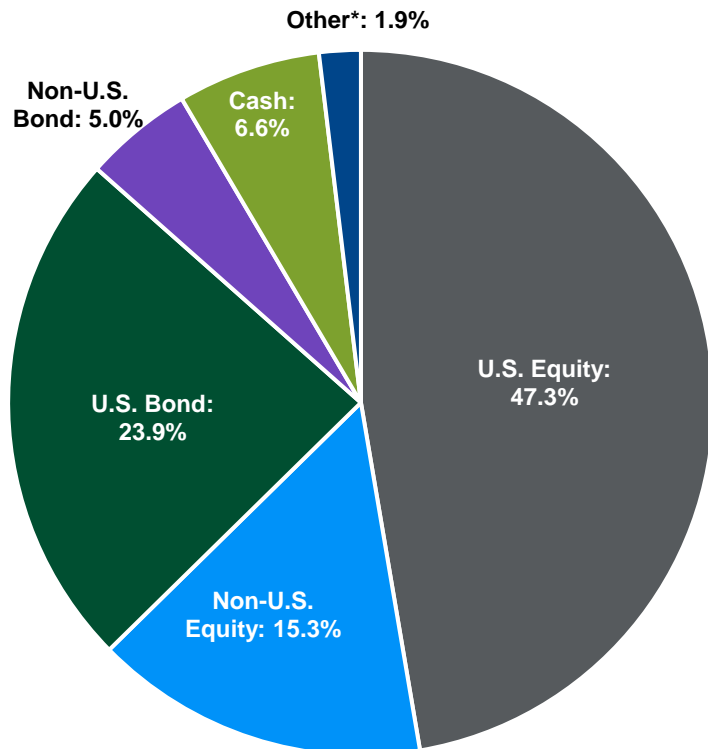


# Individual investor asset allocation

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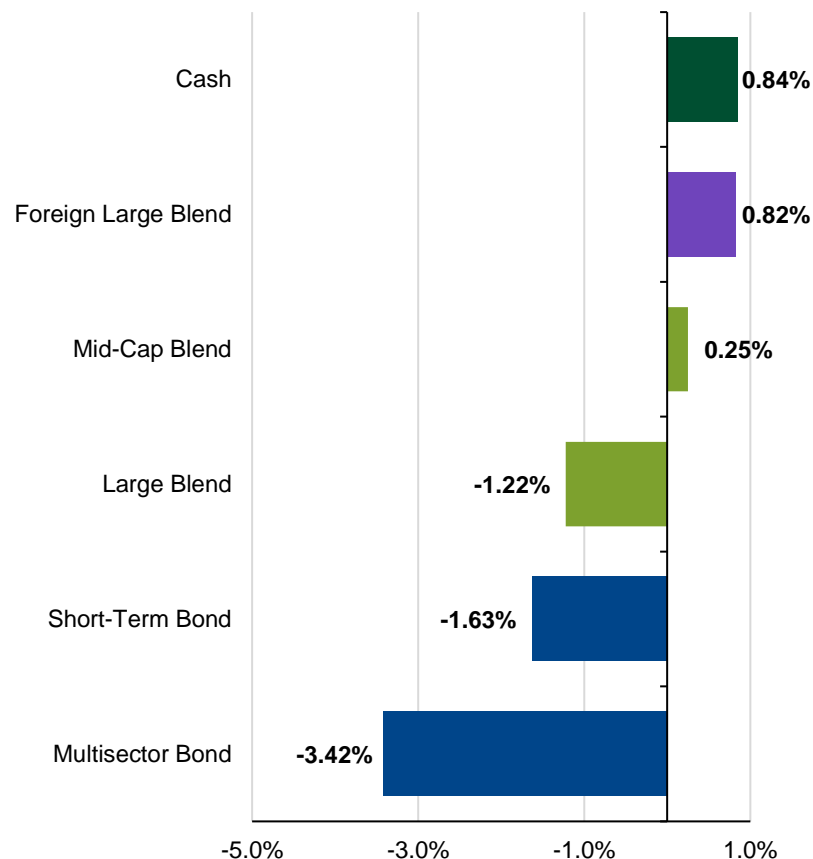
## Asset allocation: Current portfolio positioning

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



## Biggest portfolio shifts

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



Source: J.P. Morgan Portfolio Insights. 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 November 2021 to February 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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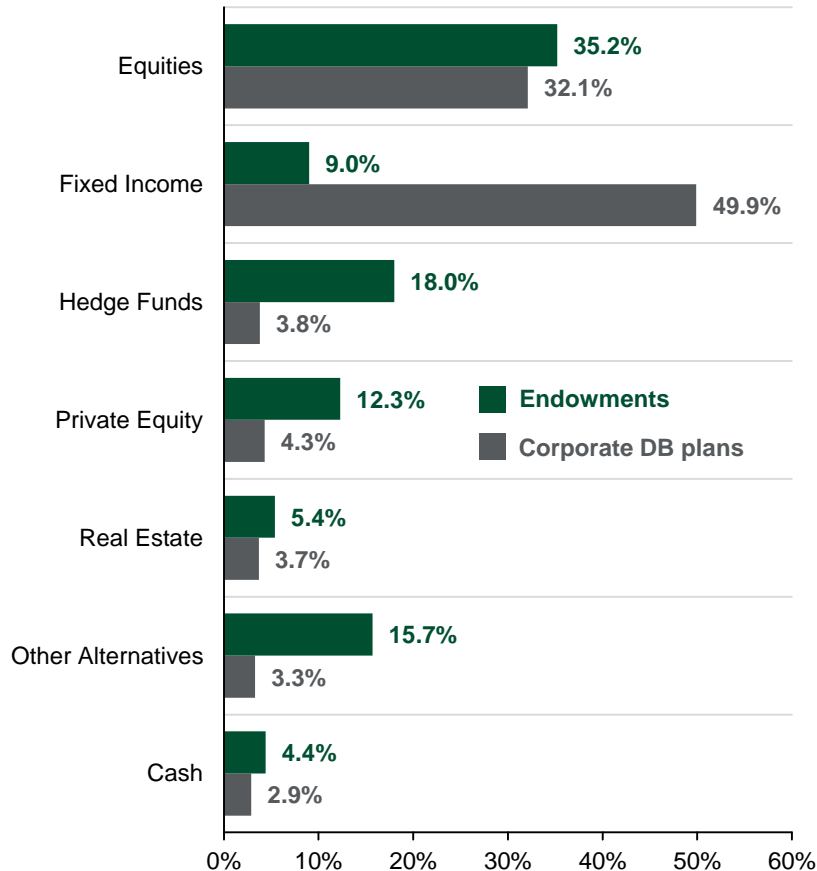
# Institutional investor behavior

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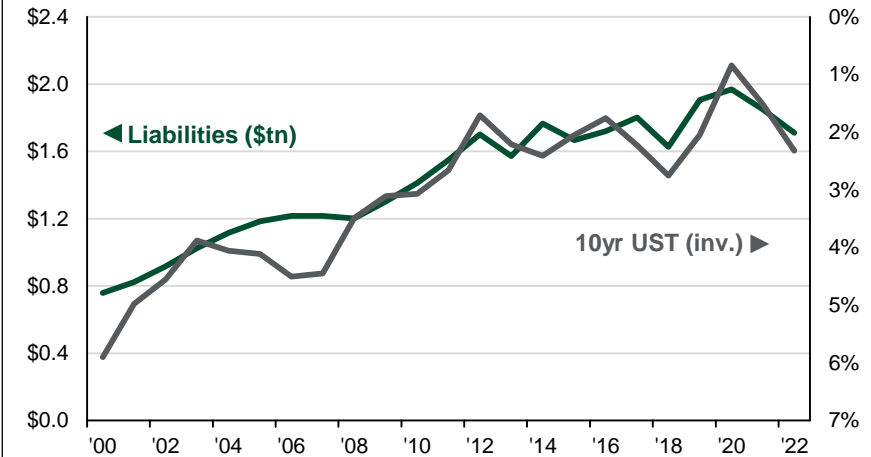
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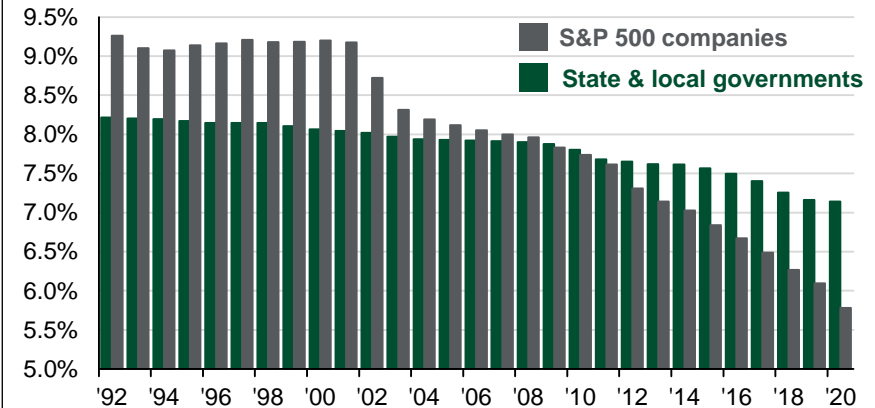
## Asset allocation: Corporate DB plans. endowments



## 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 March 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 March 31, 2022 or most recently available.

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