

# Economic and Market Review

## Through Q1 2025

## Economic Review – 4<sup>th</sup> Quarter 2024

To close out the year, the Fed cut rates by a quarter point to 4.25%-4.5%, as the market expected. Now the messaging of fewer cuts next year coupled with the possibility of higher expected inflation seems to be front of mind for many investors. Following the meeting, bond yields initially rose, with the biggest increase in 2- and 3-year notes and smaller increases in longer maturities, reflecting the expected pause.

The statement released by the committee changed only slightly, to include “In considering **the extent and timing** of additional adjustments to the target range for the federal funds rate, the Committee will carefully assess incoming data, the evolving outlook, and the balance of risks.” This led most to believe they are open to skipping cuts at future meetings.

Beth Hammack was the only voting member to openly express opposition to the cuts and instead favored no change in rates for now. However, there are four dots still at 4.625%, suggesting others may have also opposed the rate cuts at this time. The median dots for 2025 now illustrates two cuts (previously four) while the GDP forecast and projections for unemployment remain relatively unchanged. The most significant change in forecasts came in the inflation outlook. The 2025 PCE forecast rose from 2.1% to 2.5%, while the core PCE inflation forecast rose from 2.2% to 2.5%.

According to the National Association of Realtors, existing-home sales ascended +4.8% in November to a seasonally adjusted annual rate of 4.15 million, the swiftest pace since March (4.22 million). Sales accelerated +6.1% from one year ago, the largest year-over-year gain since June 2021 (+23.0%).

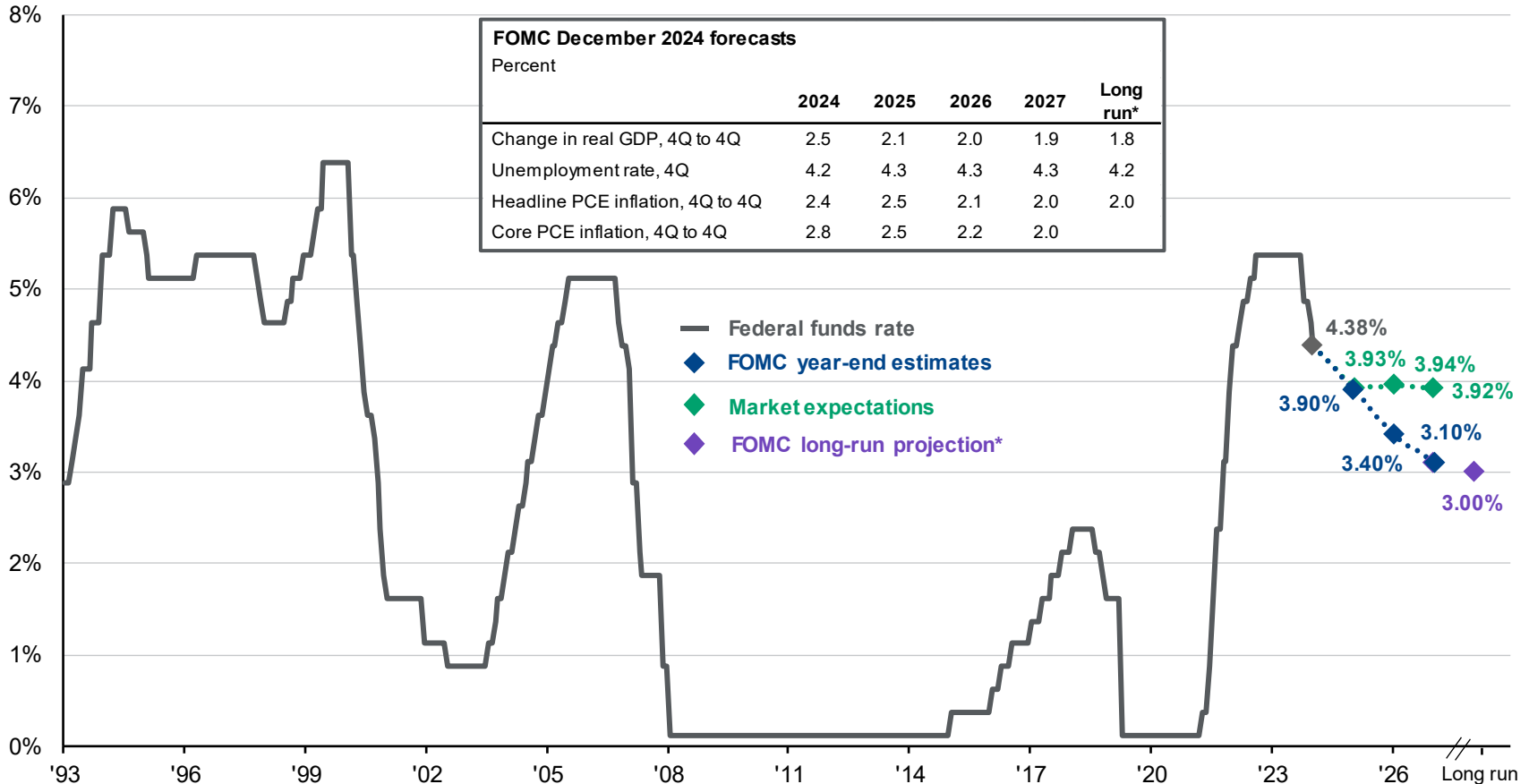
This is a stark contrast to December which saw a cooling in mortgage applications, possibly signaling a slowdown in the very hot housing market. Mortgage volumes were the lowest in 10 months on a seasonally adjusted basis likely attributed to elevated borrowing costs. As we go to print, 30 year mortgage rates flirt with 7%, as we have seen longer-dated Treasury yields rise following hawkish projections by the FOMC.

*Note: Returns as of December 31, 2024*

# The Fed and Interest Rates

## Federal funds rate expectations

FOMC and market expectations for the federal funds rate

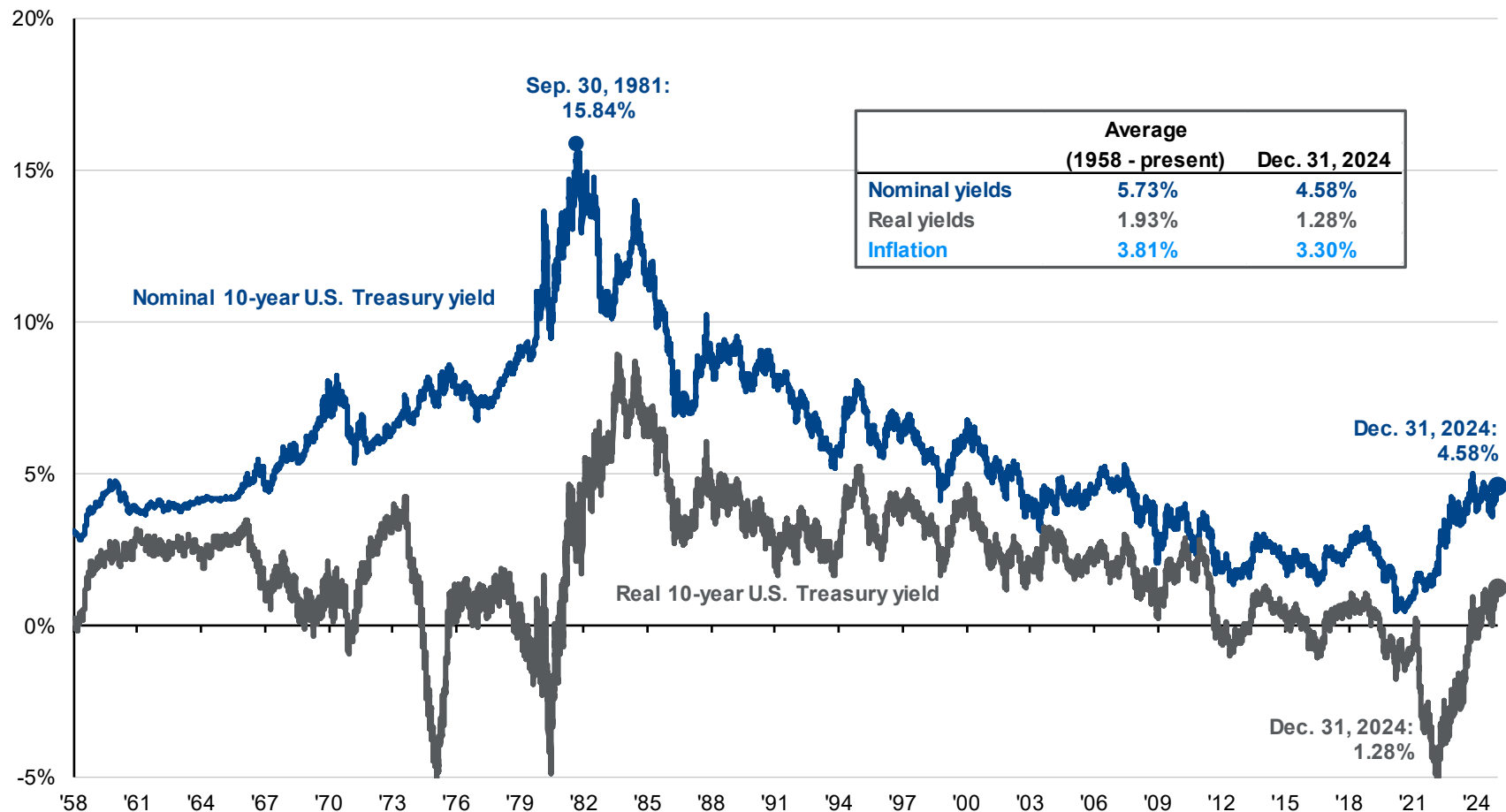


Source: Bloomberg, FactSet, Federal Reserve, J.P. Morgan Asset Management.

Market expectations are based off of USD Overnight Index Swaps. \*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.

# Interest Rates and Inflation

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



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

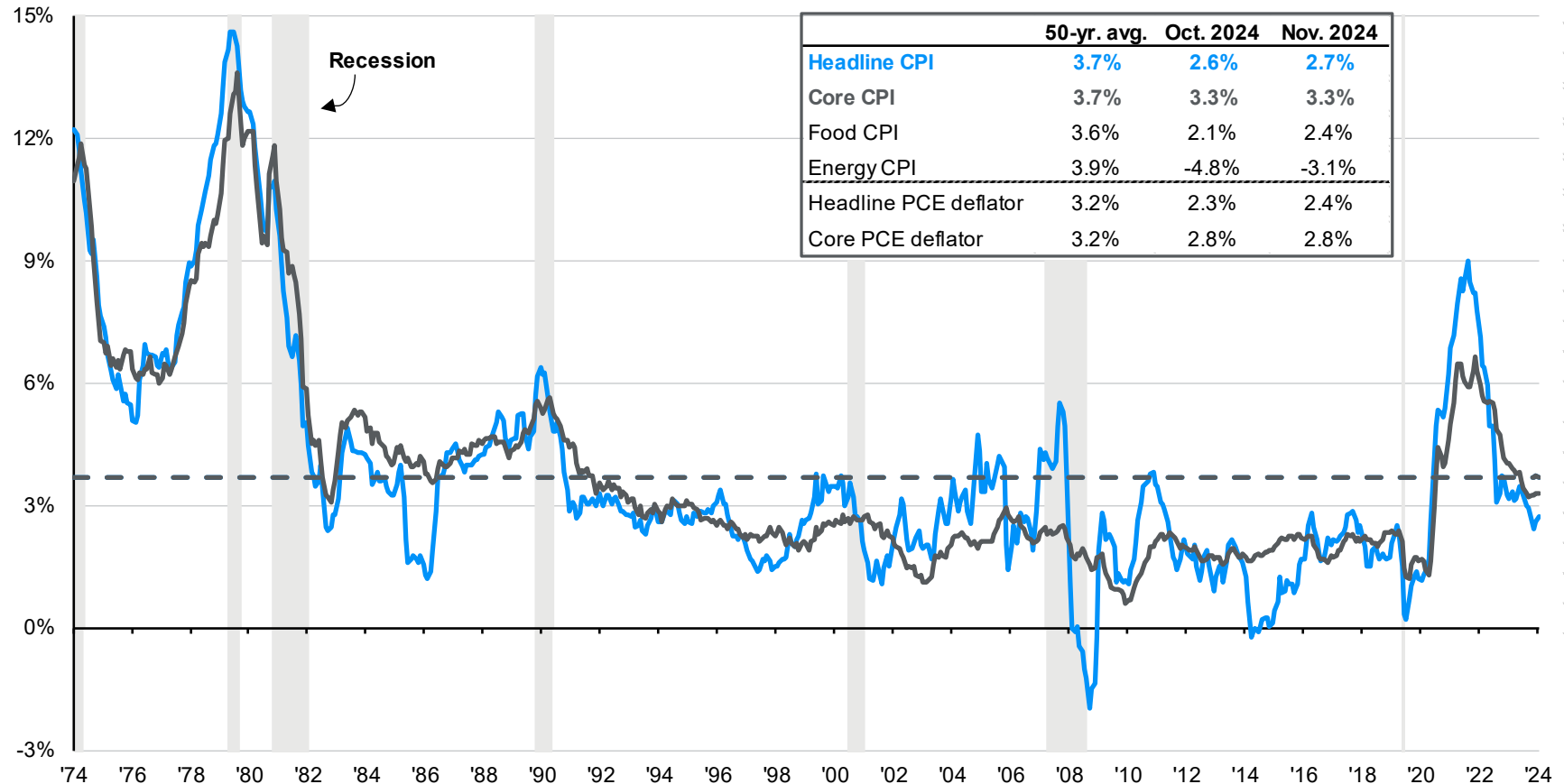
Real 10-year Treasury yields are calculated as the daily Treasury yield less year-over-year core CPI inflation for that month. For the current month, we use the prior month's core CPI figures until the latest data are available.

Guide to the Markets – U.S. Data are as of December 31, 2024.

# Inflation

## CPI and core CPI

% change vs. prior year, seasonally adjusted



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

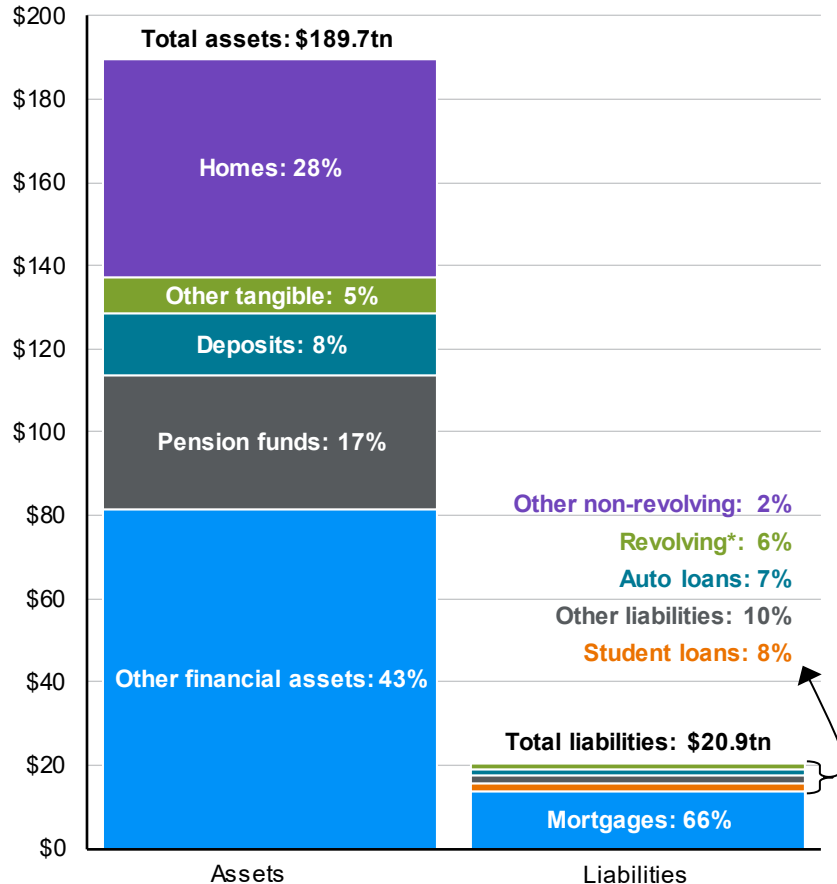
CPI used is CPI-U and values shown are % change vs. one year ago. Core CPI is defined as CPI excluding food and energy prices. The Personal Consumption Expenditure (PCE) deflator employs an evolving chain-weighted basket of consumer expenditures instead of the fixed-weight basket used in CPI calculations.

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# Consumer Finances

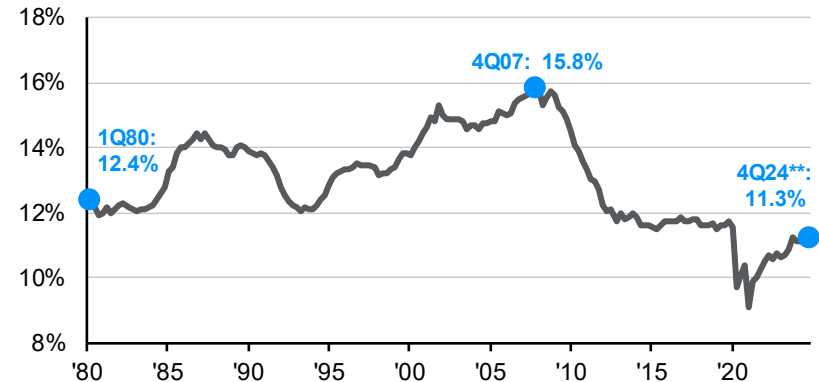
## Consumer balance sheet

3Q24, USD trillions, not seasonally adjusted



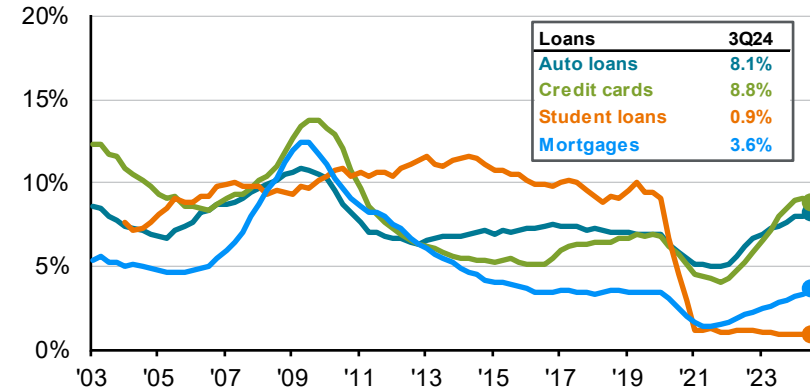
## Household debt service ratio

Debt payments as % of disposable personal income, SA



## Flows into early delinquencies

% of balance delinquent 30+ days



Source: FactSet, FRB, J.P. Morgan Asset Management; (Top and bottom right) BEA.

Data include households and nonprofit organizations. SA – seasonally adjusted. \*Revolving includes credit cards. Values may not sum to 100% due to rounding. \*\*4Q24 figures for debt service ratio are J.P. Morgan Asset Management estimates. Household debt service ratio data from 1Q80 to 4Q04 are J.P. Morgan Asset Management estimates. Due to the moratorium on delinquent student loan payments being reported to credit bureaus, missed federal student loan payments will not be reported until 4Q24.

## U.S. Equity Review – 4<sup>th</sup> Quarter 2024

U.S. equities closed 2024 on a relative low note, with the benchmark S&P 500 Index shedding -2.4% during December to close at 5,882. While a Santa Claus rally didn't materialize this year, the market as a whole made 57 all-time highs and posted a +25.0% total return on the year. What's more, the market's two-year performance ranks as one of the best since 1998.

From a market capitalization standpoint, 2024 was again dominated by the largest names in the broad market index. Specifically, the S&P Top 50 Index posted gains of +33.8% in 2024. The more than +800 basis point outperformance of Mega-Caps relative to the S&P 500 Index as a whole can also be highlighted by Factor and Sector contribution and concentration. For example, the S&P Momentum Index gained +46.0% in 2024, a nearly +1,000 basis point outperformance over the S&P 500 Growth Index (+36.1% return), and a nearly +2,000 basis point return on the S&P 500 Quality Index (+25.7% return). The S&P 500 Value Index on the other hand returned +12.3%.

Small- and Mid-Caps produced muted returns in Q4, with the Mid-Cap 400 and Small-Cap 600 Indices posting returns of +0.3% and -0.6%, respectively. While SMID-Caps collectively were underperformers during the period, their valuations remain compelling compared to Large-Caps, and Growth oriented sectors heading into 2025.

Concentration risk remains top of mind heading into 2025. The “Magnificent 7” again produced outsized returns in 2024. According to data compiled by JP Morgan, the Magnificent 7 represented 55% of the market's overall return. This small cohort of the market has been responsible for more than 50% of market returns for the past 3 consecutive years. Concentration risk can also be seen by the fact the U.S. makes up more than 67% of the world's investable universe, and that the top 10 names in the S&P 500 represent nearly 39% of the market, both all-time highs.

Concentrated performance remains a key risk for 2025; however, concentration may pose an opportunity for rebalancing across the rest of the market – from the “other” 493 stocks in the S&P 500, to Small- and Mid-Caps, and Value oriented sectors.

*Note: Returns as of December 31, 2024*

# U.S. Equity Returns

	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>3.2%</b>	<b>1.9%</b>	<b>13.6%</b>	<b>8.2%</b>	<b>11.3%</b>	<b>32.5%</b>	<b>9.4%</b>	<b>2.1%</b>	<b>10.1%</b>	<b>5.5%</b>	<b>2.3%</b>	<b>100.0%</b>	<b>Weight</b>
Russell Growth weight	0.4%	0.6%	6.5%	4.2%	15.9%	48.6%	13.3%	0.5%	6.6%	3.3%	0.2%	100.0%	
Russell Value weight	6.7%	4.2%	23.1%	14.7%	6.2%	9.3%	4.4%	4.7%	14.2%	7.9%	4.6%	100.0%	
Russell 2000 weight	5.1%	4.3%	18.7%	17.8%	9.7%	13.8%	2.7%	6.1%	16.3%	2.8%	2.7%	100.0%	
<b>QTD</b>	<b>-2.4</b>	<b>-12.4</b>	<b>7.1</b>	<b>-2.3</b>	<b>14.3</b>	<b>4.8</b>	<b>8.9</b>	<b>-8.5</b>	<b>-10.3</b>	<b>-3.3</b>	<b>-5.5</b>	<b>2.4</b>	<b>Return (%)</b>
<b>YTD</b>	<b>5.7</b>	<b>0.0</b>	<b>30.6</b>	<b>17.5</b>	<b>30.1</b>	<b>36.6</b>	<b>40.2</b>	<b>5.0</b>	<b>2.6</b>	<b>14.9</b>	<b>23.4</b>	<b>25.0</b>	
<b>Since market peak</b> (January 2022)	<b>67.7</b>	<b>0.1</b>	<b>29.4</b>	<b>32.3</b>	<b>13.6</b>	<b>53.3</b>	<b>30.6</b>	<b>-12.0</b>	<b>3.7</b>	<b>14.8</b>	<b>17.6</b>	<b>28.5</b>	
<b>Since market low</b> (October 2022)	<b>14.9</b>	<b>28.4</b>	<b>66.6</b>	<b>61.6</b>	<b>70.4</b>	<b>129.9</b>	<b>116.4</b>	<b>29.6</b>	<b>17.2</b>	<b>28.4</b>	<b>32.6</b>	<b>70.1</b>	
<b>Beta to S&amp;P 500</b>	<b>1.2</b>	<b>1.1</b>	<b>1.1</b>	<b>1.1</b>	<b>1.2</b>	<b>1.1</b>	<b>1.0</b>	<b>0.9</b>	<b>0.7</b>	<b>0.6</b>	<b>0.5</b>	<b>1.0</b>	<b>β</b>
<b>Correl. to Treas. yields</b>	<b>-0.2</b>	<b>-0.6</b>	<b>-0.4</b>	<b>-0.6</b>	<b>-0.5</b>	<b>-0.6</b>	<b>-0.6</b>	<b>-0.8</b>	<b>-0.7</b>	<b>-0.6</b>	<b>-0.5</b>	<b>-0.7</b>	<b>ρ</b>
<b>Foreign % of sales</b>	<b>37.2</b>	<b>52.2</b>	<b>28.2</b>	<b>33.1</b>	<b>35.5</b>	<b>56.4</b>	<b>48.9</b>	<b>17.7</b>	<b>34.1</b>	<b>39.3</b>	<b>1.0</b>	<b>41.6</b>	<b>%</b>
NTM earnings growth	4.1%	17.6%	8.3%	18.9%	11.5%	22.8%	14.5%	3.8%	20.3%	5.1%	8.5%	14.5%	<b>EPS</b>
<b>20-yr avg.</b>	<b>100.4%</b>	<b>12.8%</b>	<b>20.5%</b>	<b>13.7%</b>	<b>16.7%</b>	<b>12.1%</b>	<b>12.0%</b>	<b>6.8%</b>	<b>8.1%</b>	<b>7.3%</b>	<b>4.6%</b>	<b>10.9%</b>	
Forward P/E ratio	13.6x	18.3x	16.6x	21.6x	28.6x	28.9x	19.4x	17.1x	16.6x	20.8x	17.3x	21.5x	<b>P/E</b>
<b>20-yr avg.</b>	<b>13.4x</b>	<b>15.2x</b>	<b>12.7x</b>	<b>16.4x</b>	<b>19.9x</b>	<b>18.2x</b>	<b>18.9x</b>	<b>17.2x</b>	<b>15.1x</b>	<b>17.6x</b>	<b>15.8x</b>	<b>15.9x</b>	
Buyback yield	3.5%	1.3%	2.1%	1.6%	1.2%	1.4%	3.2%	-1.4%	1.2%	1.1%	-0.1%	1.7%	<b>Bbk</b>
<b>20-yr avg.</b>	<b>1.9%</b>	<b>1.0%</b>	<b>0.5%</b>	<b>2.4%</b>	<b>2.5%</b>	<b>3.0%</b>	<b>1.9%</b>	<b>-1.4%</b>	<b>1.9%</b>	<b>1.8%</b>	<b>-0.7%</b>	<b>1.9%</b>	
Dividend yield	3.5%	2.0%	1.6%	1.5%	0.7%	0.6%	0.9%	3.8%	1.9%	2.6%	3.2%	1.3%	<b>Div</b>
<b>20-yr avg.</b>	<b>2.8%</b>	<b>2.3%</b>	<b>2.3%</b>	<b>2.2%</b>	<b>1.4%</b>	<b>1.2%</b>	<b>1.1%*</b>	<b>3.7%</b>	<b>1.9%</b>	<b>2.9%</b>	<b>3.8%</b>	<b>2.0%</b>	

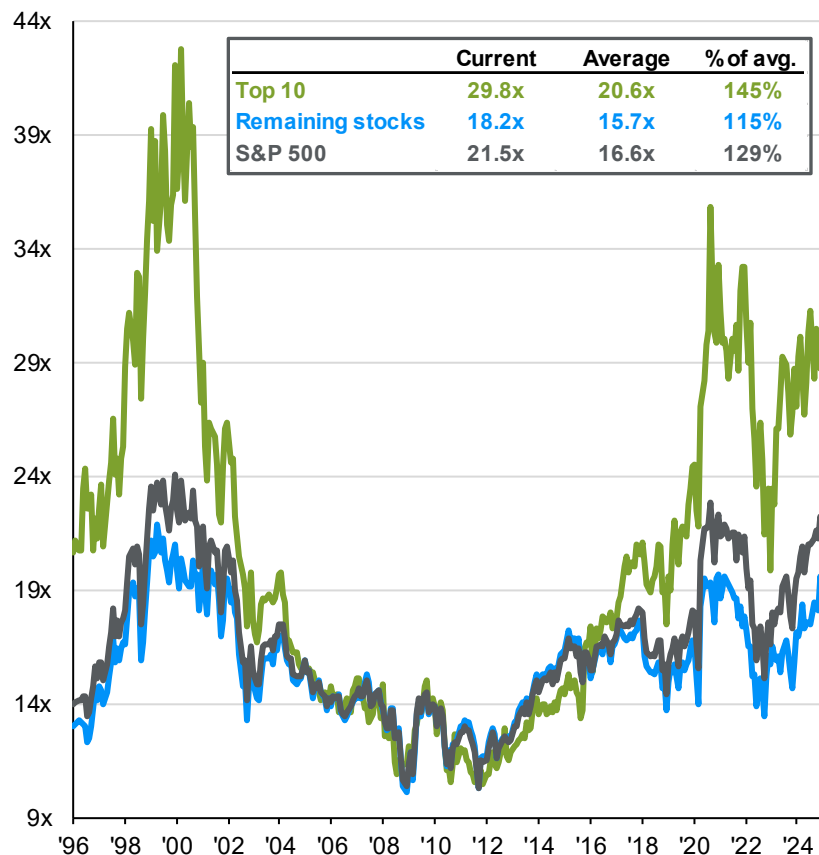
Source: FactSet, Refinitiv Datastream, Russell Investment Group, Standard & Poor's, J.P. Morgan Asset Management. All calculations are cumulative total return, not annualized, including dividends for the stated period. Since market peak represents period from January 3, 2022, to December 31, 2024. Since market low represents period from October 12, 2022, to December 31, 2024. 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 data. Past performance is not indicative of future returns.



# S&P 500: Index concentration and valuations

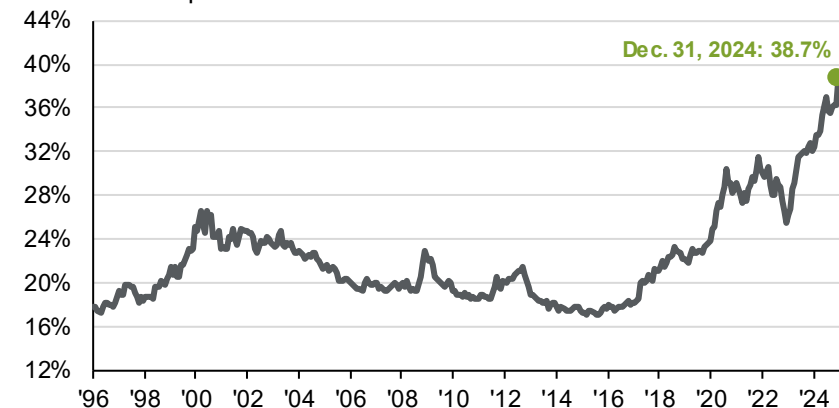
## P/E ratio of the top 10 and remaining stocks in the S&P 500

Next 12 months, 1996 - present



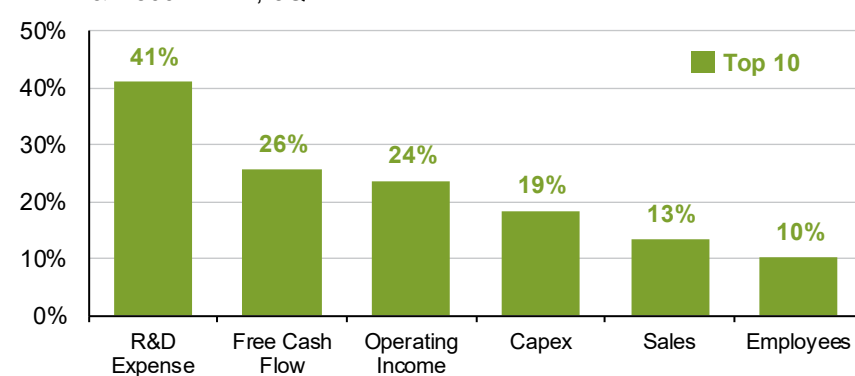
## Weight of the top 10 stocks in the S&P 500

% of market capitalization of the S&P 500



## Economic concentration in the S&P 500

% of S&P 500 metric, 3Q24

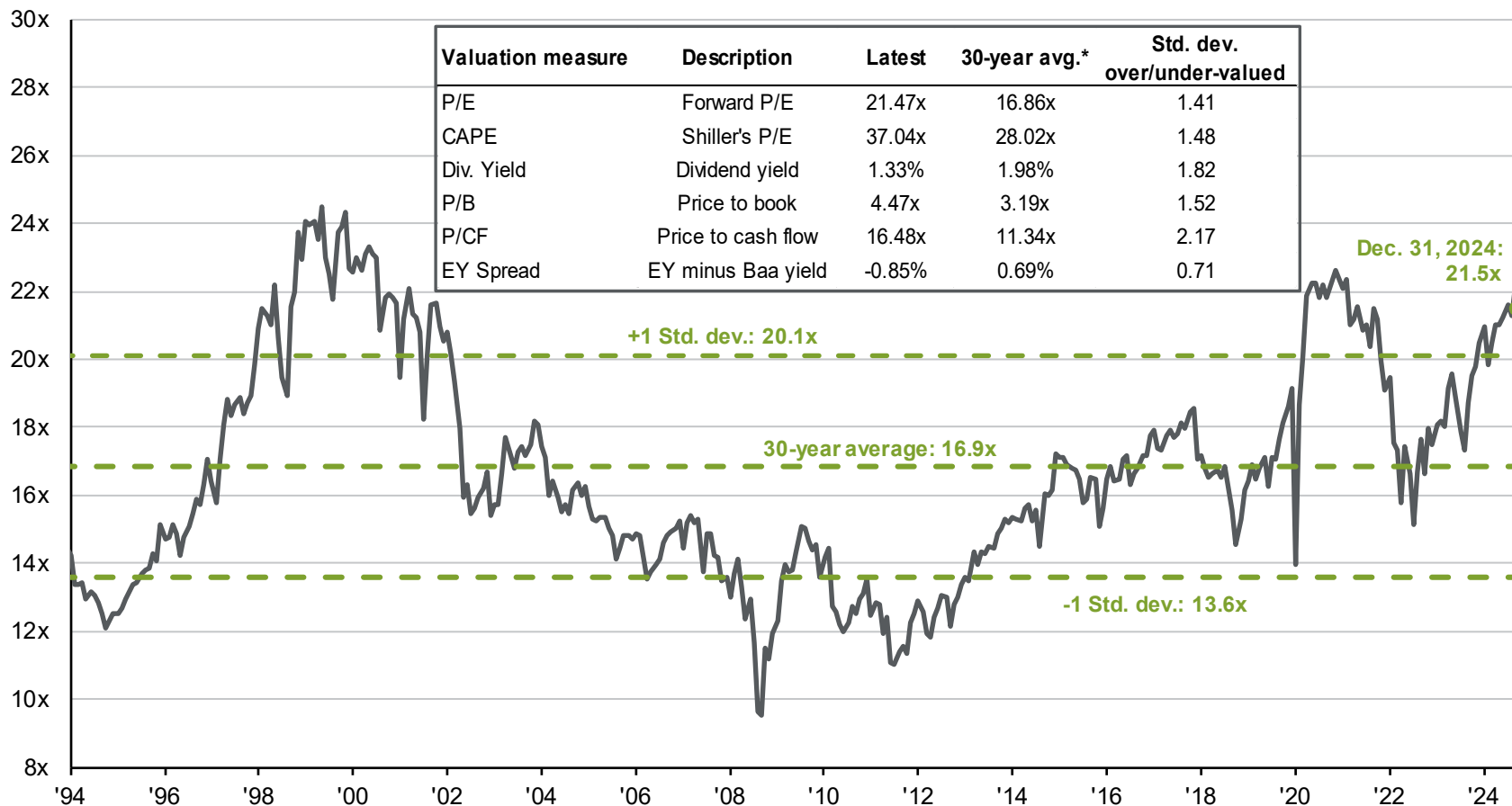


Source: FactSet, Standard & Poor's, J.P. Morgan Asset Management. The top 10 S&P 500 companies are based on the 10 largest index constituents at the beginning of each quarter. As of 12/31/2024, the top 10 companies in the index were AAPL (7.6%), NVDA (6.6%), MSFT (6.3%), AMZN (4.1%), GOOGL/GOOG (4.0%), META (2.6%), TSLA (2.3%), AVGO (2.2%), BRK.B (1.7%) and JPM (1.4%). The remaining stocks represent the rest of the 492 companies in the S&P 500.

Guide to the Markets – U.S. Data are as of December 31, 2024.

# S&P 500 Valuation Measures

## 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 1994 and by FactSet since January 2022. Average P/E and standard deviations are calculated using 30 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 Bloomberg US corporate Baa yield since December 2008 and interpolated using the Moody's Baa seasoned corporate bond yield for values beforehand. Std. dev. over/under-valued is calculated using the average and standard deviation over 30 years for each measure. \*Averages and standard deviations for dividend yield and P/CF are since November 1995 due to data availability.

# Value vs. Growth: Valuations and interest rates

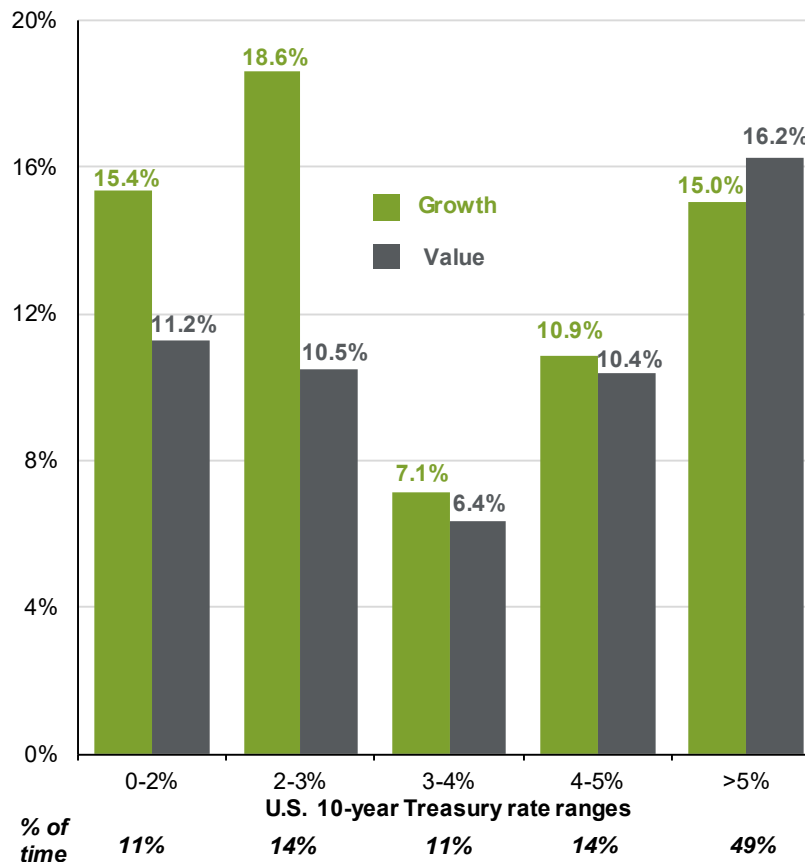
## Value vs. Growth relative valuations

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



## Value vs. Growth in different interest rate environments

Annualized total return by 10-year Treasury rate ranges, 1979 - present



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

Growth is represented by the Russell 1000 Growth Index and Value is represented by the Russell 1000 Value Index. (Left) \*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) Returns are calculated by annualizing the average monthly performance during each interest rate range.

## International Equity Review – 4<sup>th</sup> Quarter 2024

International markets produced mixed returns in Q4 but were generally negative. The MSCI EAFE Index, which tracks developed markets outside the U.S. and Canada, was down -8.1% during the quarter. The MSCI Emerging Market Index was down -7.9% during the period. For the year, Developed Markets were up +4.4% and Emerging Markets were up +8.0%, both underperforming U.S. Large cap equities by a wide margin.

The German market had a modest gain in December as the DAX was up +1.4%, outperforming the STOXX Europe 600 Price index, which was down -1.0% on the month. This continues the 2024 trend as the German DAX has significantly outperformed the STOXX Europe 600 (+18.9% vs +9.0%), reaching an all-time high in December and was one of the top performing European countries in 2024. Despite Germany's solid performance in 2024, it failed to eclipse the US market and has showed some signs of concern. The IFO Institute's business-climate index, which measures German business managers optimism, dropped to 84.7, marking the sixth decline in seven months and the lowest point since May of 2020. Germany has been struck with political uncertainty as Premier Scholz lost a confidence vote in the German parliament earlier in December. Additionally, the country's manufacturing sector shows signs of slowing as major employers such as Volkswagen, Bosch, and Schaeffler have announced layoffs.

The Shanghai Composite Index also had a positive quarter returning +0.7% and a positive year up +16.2%, but still underperformed US markets. China's economy currently grapples with significant excesses: a vast number of vacant or incomplete apartment complexes, trillions of dollars in debt that are straining local governments, and a surge in industrial production that is fueling an increase in exports and escalating global trade tensions. According to a recent WSJ article, the Chinese property meltdown has destroyed nearly \$18 trillion of household wealth. To put this in perspective, that is more than American households lost during the 2008-2009 great financial crisis and is greater than the value of all listed stocks in China. China's working age population continues to decline, while borrowing is approaching nearly three times its annual GDP. Time will tell if China's strengths, such as its leadership in manufacturing or new stimulus packages will be enough to offset these robust headwinds.

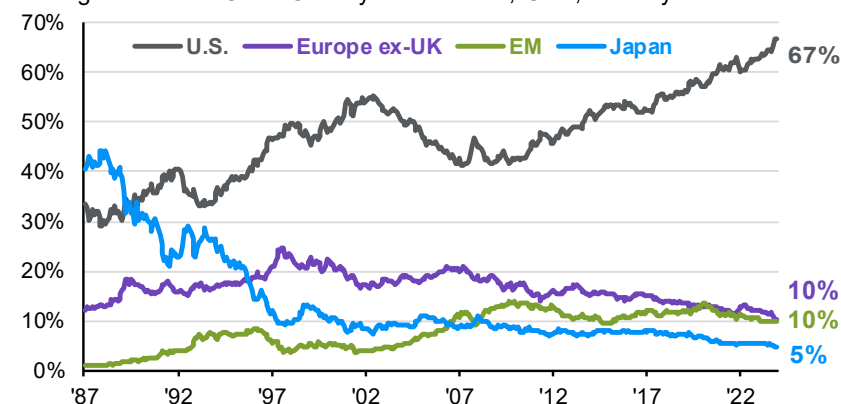
*Note: Returns as of December 31, 2024*

# Global Equity Returns

Returns	2024		2023		15-years	
	Local	USD	Local	USD	Ann.	Beta
<b>Regions</b>						
U.S. (S&P 500)	-	25.0	-	26.3	13.9	1.0
AC World ex-U.S.	13.2	6.1	14.7	16.2	5.2	1.0
EAFE	11.8	4.3	16.8	18.9	5.7	1.0
Europe ex-UK	8.1	1.0	17.3	22.7	6.0	1.1
Emerging markets	13.7	8.1	10.3	10.3	3.4	1.0
<b>Selected Countries</b>						
Japan	21.2	8.7	29.0	20.8	6.3	0.8
United Kingdom	9.5	7.5	7.7	14.1	4.9	1.0
France	1.8	-4.6	18.1	22.3	5.8	1.2
Canada	23.0	12.7	13.3	16.4	5.9	1.1
Germany	18.4	11.0	19.8	24.0	5.7	1.3
China	19.8	19.7	-10.6	-11.0	2.5	0.9
Taiwan	44.3	35.1	31.1	31.3	12.0	1.0
India	15.7	12.4	22.0	21.3	6.9	0.9
Brazil	-11.4	-29.5	22.7	33.4	-2.5	1.3

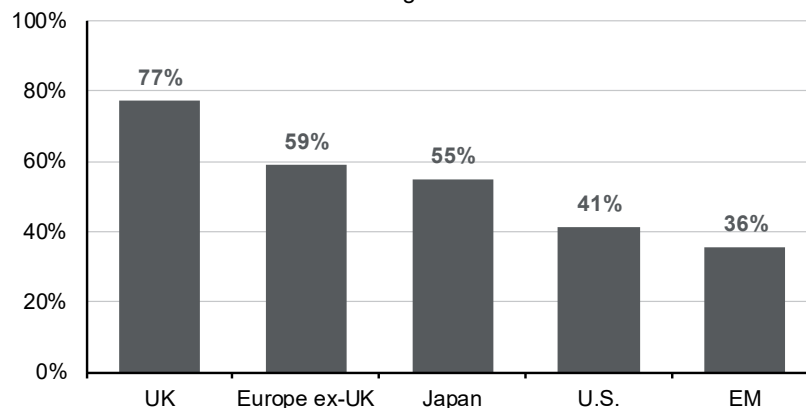
## Share of global market capitalization

% weight in the MSCI All Country World Index, USD, monthly



## Revenue exposure vs. country of listing

% of total revenue derived from foreign countries



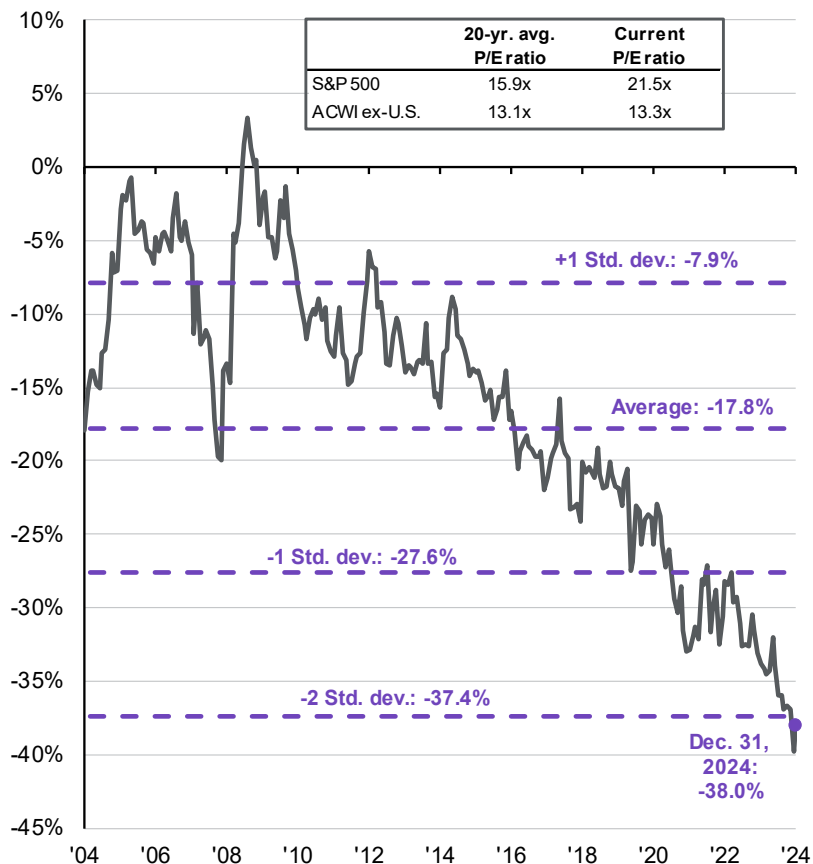
Source: FactSet, MSCI, Standard & Poor's, J.P. Morgan Asset Management. (Left) All return values are MSCI Total Return Index (Gross) data. 15-year history based on USD returns. 15-year return and beta figures are calculated using a rolling 12-month time period ending with the previous month-end. Beta is for monthly returns relative to the MSCI All Country World Index. Annualized volatility is calculated as the standard deviation of quarterly returns multiplied by the square root of four. 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. (Bottom right) Revenue exposure data are as of the previous quarter-end.

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# International valuations and dividend yields

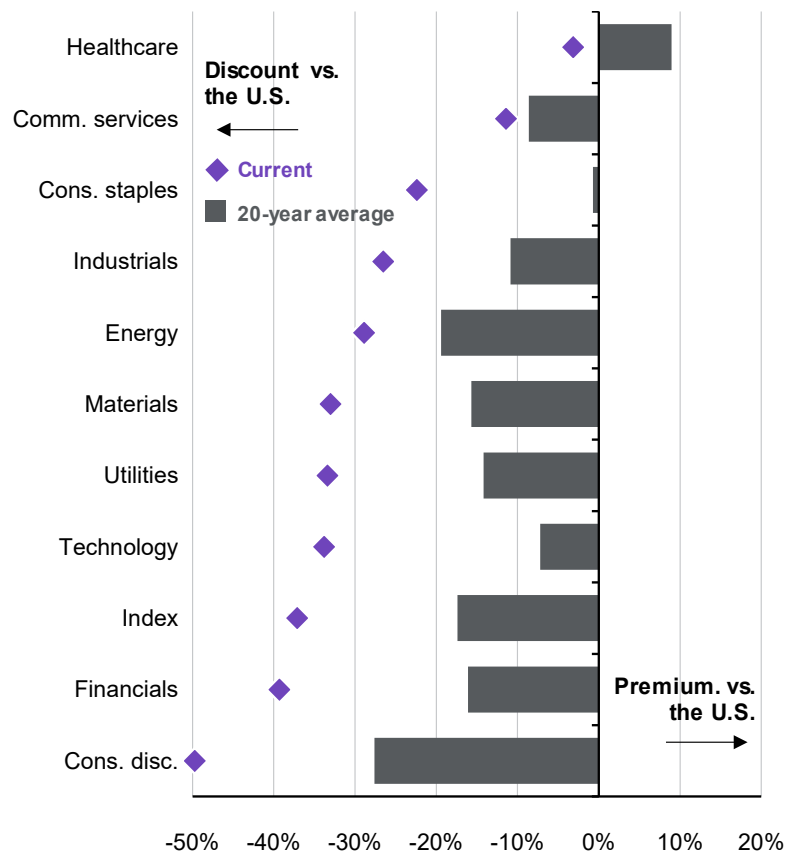
## International: Price-to-earnings discount vs. U.S.

MSCI All Country World ex-U.S. vs. S&P 500, next 12 months



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

MSCI All Country World ex-U.S. minus S&P 500, next 12 months



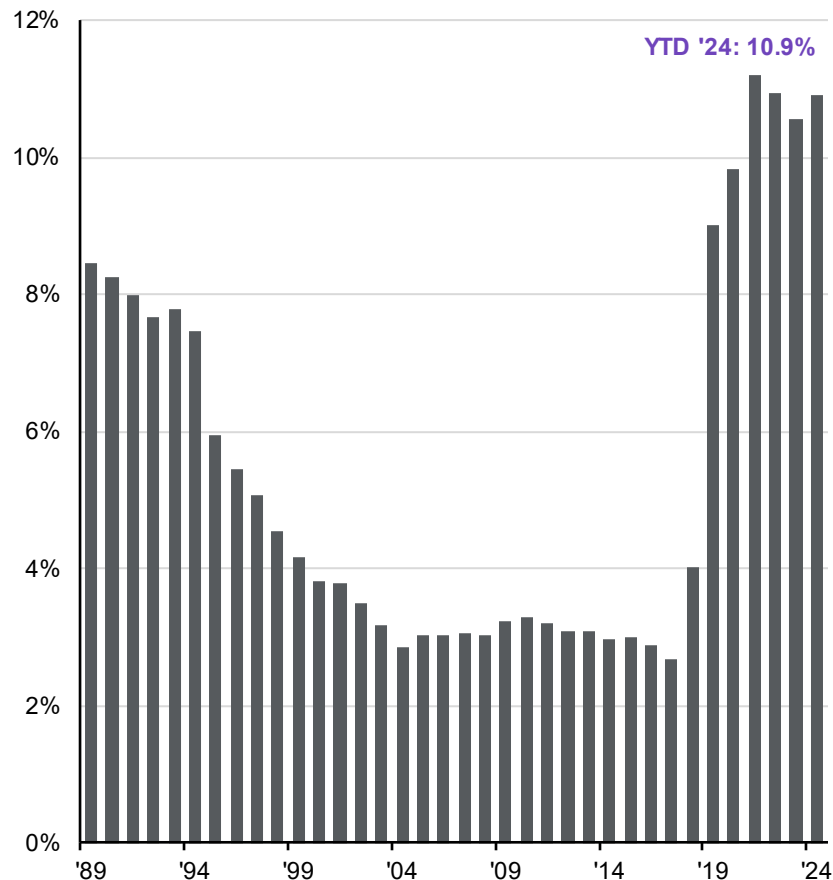
Source: FactSet, MSCI, Standard & Poor's, J.P. Morgan Asset Management.

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# Global Trade Patterns

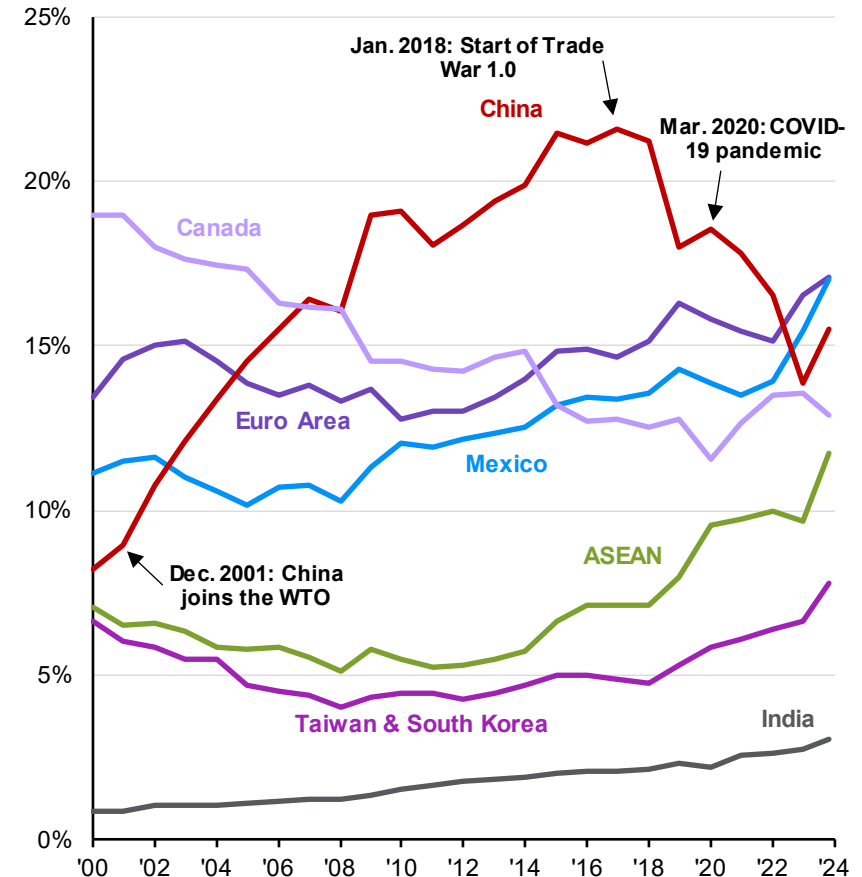
## Average tariff rate on U.S. goods imports from China

Duties collected / value of total goods imports for consumption



## U.S. goods imports by country

% of total U.S. goods imports, annual and YTD 2024



Source: J.P. Morgan Asset Management. (Left) United States International Trade Commission. Imports for consumption: goods brought into a country for direct use or sale in the domestic market. YTD 2024 is through October 2024 (latest available). (Right) FactSet, U.S. Census Bureau. ASEAN: Indonesia, Malaysia, Philippines, Singapore, Thailand and Vietnam. Other ASEAN countries excluded due to a lack of available data. Annotations are approximate. YTD 2024 is through October 2024 (latest available).

## Fixed Income Review – 4<sup>th</sup> Quarter 2024

In December, the Federal Reserve lowered the Federal Funds Target Rate by another 25 basis points, as expected. This rate cut was a bit controversial due to the lack of recent progress in bringing inflation back down to target. The most commonly referenced inflation measurements have actually reversed course and begun to move higher since September 2024.

To counterbalance the dovish positioning of an interest rate cut, the Fed's statement and Dot Plot (a chart showing Fed official's interest rate expectations) were significantly more hawkish than prior releases. The market had been expecting continued interest rate cuts throughout 2025. The Federal Reserve has tempered those expectations, with more than 100 basis points of market projected 2025 rate cuts evaporating during the fourth quarter of 2024.

Many market outlooks for 2025 have voiced concerns over the ability to push inflation lower from current levels. The outcome of the Presidential and Congressional elections have also influenced those concerns, given a focus on tariffs and moving production to more expensive locations.

These concerns may leave bond yields range bound in the near-term, as the markets wait to see what effects the change in administration will bring. Even so, the yield levels currently available on high quality fixed income investments are quite compelling on their own.

The month of December and the entire fourth quarter of 2024 was challenging for bonds as interest rates rose, and pushed bond prices lower. During Q4, the Bloomberg US Aggregate Bond Index returned -3.1%, primarily hurt by the rise in rates. For the year, the bond indices tracked were uniformly positive, even with the headwind of rising interest rates. This is due to the attractive risk/return tradeoff that fixed income offers. Current yields are high enough to offset moderately rising interest rates, which can be viewed as a self insurance mechanism. This risk/return tradeoff is near its most attractive levels in 15 years.

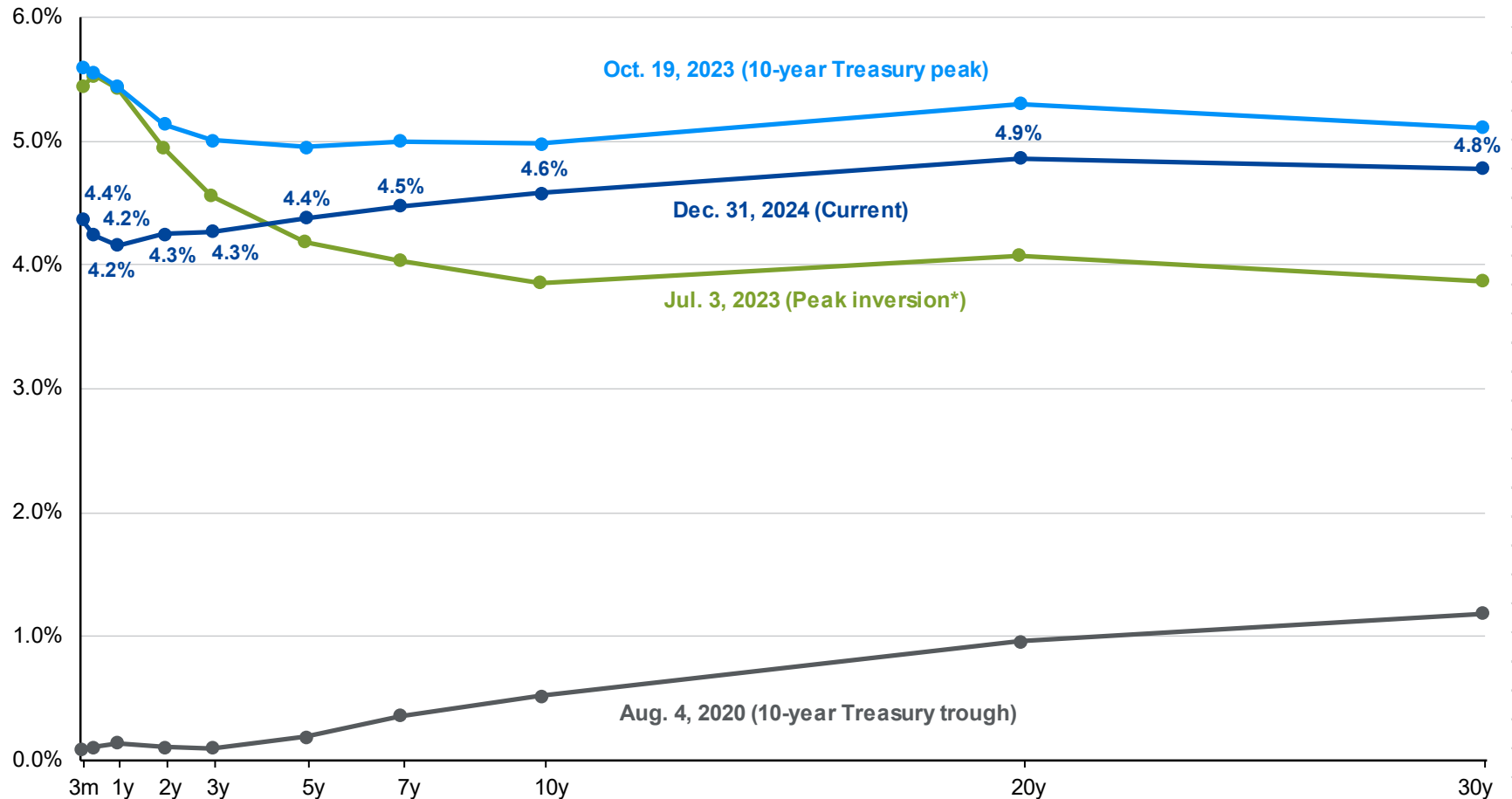
High Yield bonds were one of the top performing fixed income categories of 2024 due to their high coupon cashflow, relatively short duration, and a tailwind of tightening yield spreads. ABS, Leveraged Loans, and Emerging Market bonds also offered relatively high returns for the year, clearly rewarding risk takers in 2024.

*Note: Returns as of December 31, 2024*



# U.S. Treasury Yield Curve

## U.S. Treasury yield curve



Source: FactSet, Federal Reserve, J.P. Morgan Asset Management. Analysis references data back to 2020. \*Peak inversion is measured by the spread between the yield on a 10-year Treasury and 2-year Treasury.

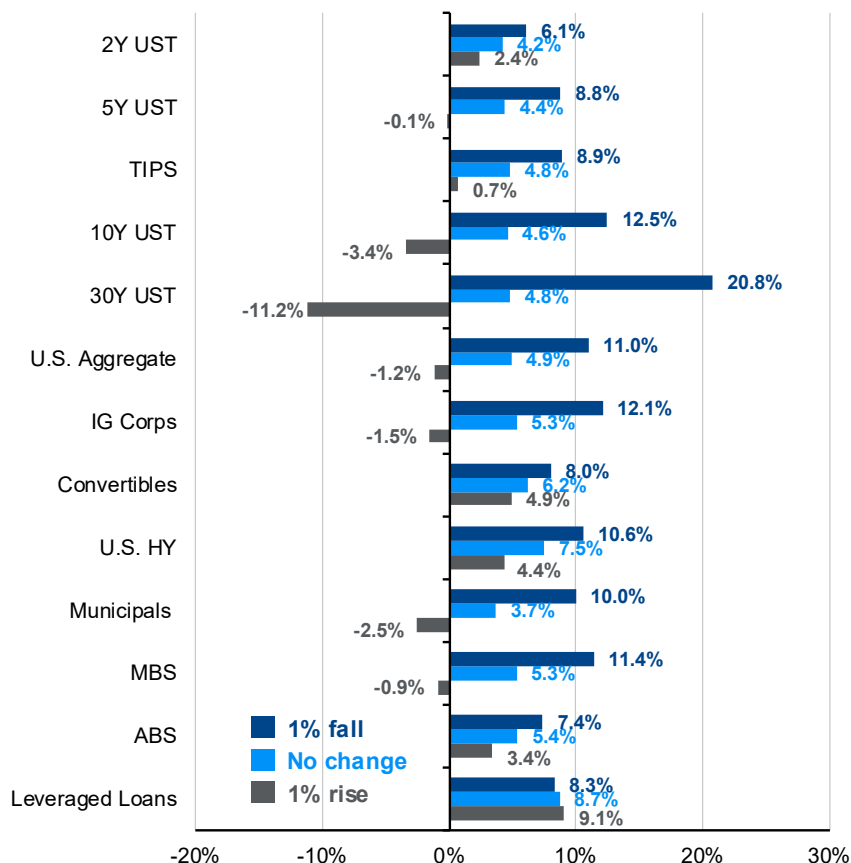
Guide to the Markets – U.S. Data are as of December 31, 2024.

# Fixed Income Returns

U.S. Treasuries	Yield		Return		Avg. Maturity	Correlation to 10-year	Correlation to S&P 500
	12/31/2024	12/31/2023	2024				
<b>2-Year</b>	4.25%	4.23%	3.79%	2 years	0.75		0.00
<b>5-Year</b>	4.38%	3.84%	1.19%	5	0.94		-0.02
<b>TIPS</b>	2.13%	1.72%	1.84%	7.1	0.73		0.33
<b>10-Year</b>	4.58%	3.88%	-1.73%	10	1.00		-0.07
<b>30-Year</b>	4.78%	4.03%	-8.09%	30	0.93		-0.11
<b>Sector</b>							
<b>U.S. Aggregate</b>	4.91%	4.53%	1.25%	8.4	0.90		0.25
<b>IG Corps</b>	5.33%	5.06%	2.13%	10.5	0.69		0.47
<b>Convertibles</b>	6.22%	7.26%	10.95%	-	-0.04		0.86
<b>U.S. HY</b>	7.49%	7.59%	8.19%	4.7	0.09		0.79
<b>Municipals</b>	3.74%	3.22%	1.05%	13.6	0.74		0.26
<b>MBS</b>	5.27%	4.68%	1.20%	7.8	0.81		0.26
<b>ABS</b>	5.38%	5.65%	6.81%	2.3	0.42		0.22
<b>Leveraged Loans</b>	8.68%	10.59%	9.33%	4.7	-0.22		0.62

## Fixed income returns in different interest rate scenarios

Total return, assumes a parallel shift in the yield curve

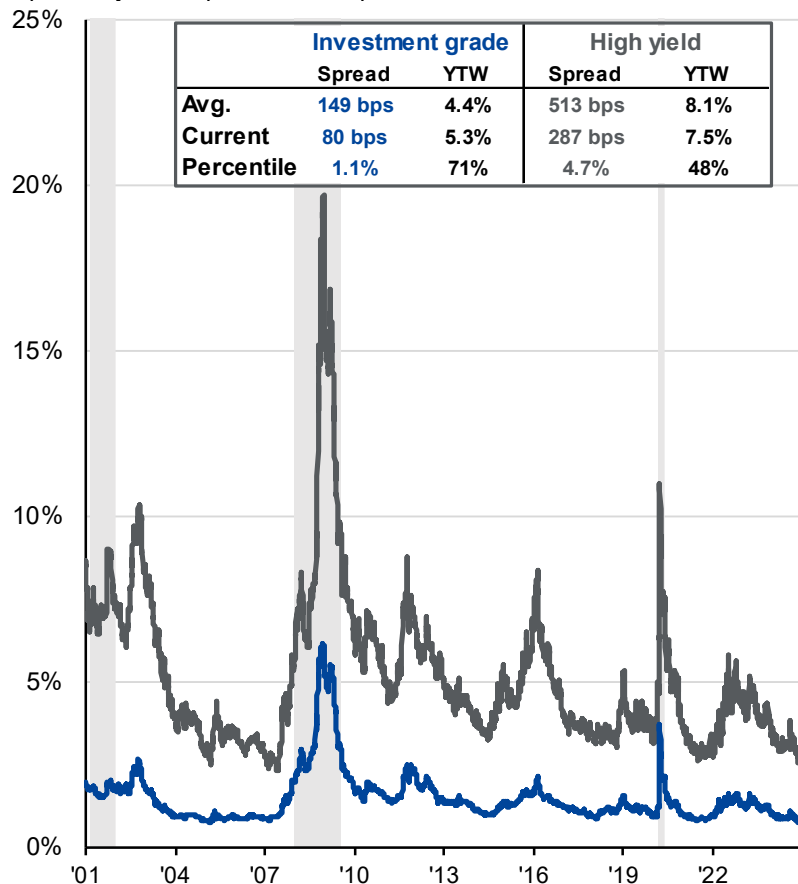


Source: Bloomberg, FactSet, Federal Reserve Bank of Cleveland, Standard & Poor's, U.S. Treasury, J.P. Morgan Asset Management. Sectors shown above are provided by Bloomberg unless otherwise noted and are represented by – U.S. Aggregate; MBS: U.S. Aggregate Securitized - MBS; ABS: J.P. Morgan ABS Index; IG 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. Yields shown for TIPS are real yields. TIPS returns consider the impact that inflation could have on returns by assuming the Cleveland Fed's 1-year inflation expectation forecasts are realized. Sector yields reflect yield-to-worst. Leveraged loan yields reflect the yield to 3Y takeout. Correlations are based on 15-years of monthly returns for all sectors. ABS returns prior to June 2012 are sourced from Bloomberg. Past performance is not indicative of future results.

# Credit Market Dynamics

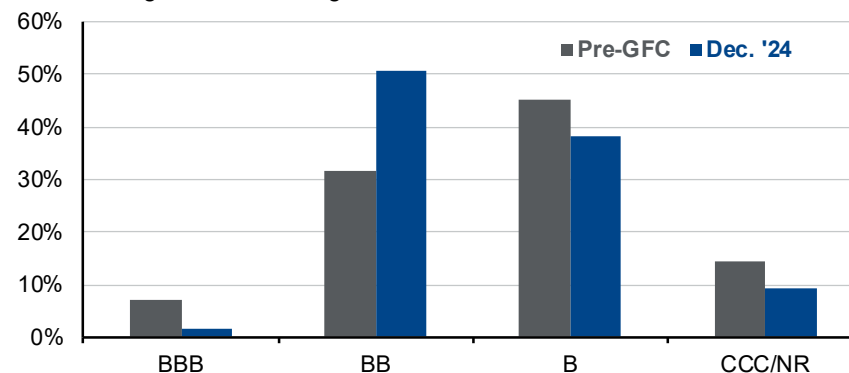
## Corporate credit spreads

Option-adjusted spread, 2001 - present



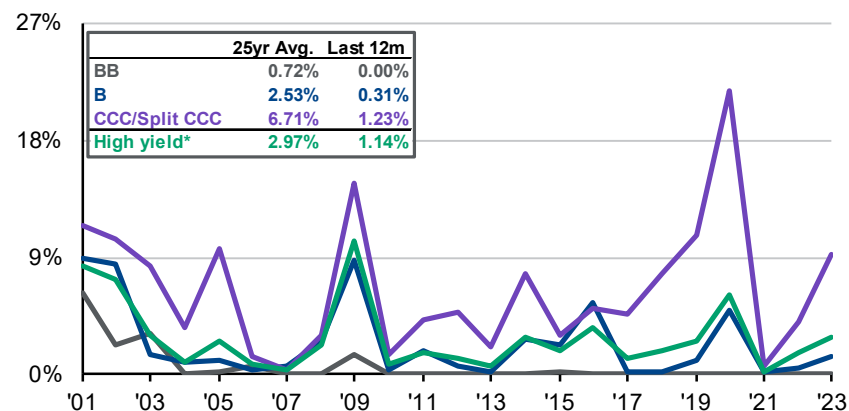
## U.S. high yield by credit rating

%, J.P. Morgan Domestic High Yield Index



## U.S. high yield default rates

By credit rating



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

(Left): U.S. Investment Grade: Bloomberg U.S. Corporate Investment Grade Index; U.S. High Yield: Bloomberg U.S. Aggregate Corporate High Yield Index. (Right): Last 12-month default rates are as of most recent month for which data are available. Default rates shown by credit rating do not include distressed exchanges and are grouped by rating 12 months prior to default. Bond ratings include split ratings. "NR" stands for not rated. Pre-GFC reflects data as of December 2007. \*Aggregate high yield default rate data do include distressed exchanges.

2010–2024		2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Ann.	Vol.															
Large Cap	Small Cap	REITs	REITs	REITs	Small Cap	REITs	REITs	Small Cap	EM Equity	Cash	Large Cap	Small Cap	REITs	Comdty.	Large Cap	Large Cap
13.9%	20.6%	27.9%	8.3%	19.7%	38.8%	28.0%	2.8%	21.3%	37.8%	1.8%	31.5%	20.0%	41.3%	16.1%	26.3%	25.0%
Small Cap	EM Equity	Small Cap	Fixed Income	High Yield	Large Cap	Large Cap	Large Cap	High Yield	DM Equity	Fixed Income	REITs	EM Equity	Large Cap	Cash	DM Equity	Small Cap
10.3%	17.9%	26.9%	7.8%	19.6%	32.4%	13.7%	1.4%	14.3%	25.6%	0.0%	28.7%	18.7%	28.7%	1.5%	18.9%	11.5%
REITs	REITs	EM Equity	High Yield	EM Equity	DM Equity	Fixed Income	Fixed Income	Large Cap	Large Cap	REITs	Small Cap	Large Cap	Comdty.	High Yield	Small Cap	Asset Alloc.
9.4%	16.8%	19.2%	3.1%	18.6%	23.3%	6.0%	0.5%	12.0%	21.8%	-4.0%	25.5%	18.4%	27.1%	-12.7%	16.9%	10.0%
Asset Alloc.	DM Equity	Comdty.	Large Cap	DM Equity	Asset Alloc.	Asset Alloc.	Cash	Comdty.	Small Cap	High Yield	DM Equity	Asset Alloc.	Small Cap	Fixed Income	Asset Alloc.	High Yield
7.2%	16.5%	16.8%	2.1%	17.9%	14.9%	5.2%	0.0%	11.8%	14.6%	-4.1%	22.7%	10.6%	14.8%	-13.0%	14.1%	9.2%
High Yield	Comdty.	Large Cap	Cash	Small Cap	High Yield	Small Cap	DM Equity	EM Equity	Asset Alloc.	Large Cap	Asset Alloc.	DM Equity	Asset Alloc.	Asset Alloc.	High Yield	EM Equity
5.9%	16.1%	15.1%	0.1%	16.3%	7.3%	4.9%	-0.4%	11.6%	14.6%	-4.4%	19.5%	8.3%	13.5%	-13.9%	14.0%	8.1%
DM Equity	Large Cap	High Yield	Asset Alloc.	Large Cap	REITs	Cash	Asset Alloc.	REITs	High Yield	Asset Alloc.	EM Equity	Fixed Income	DM Equity	DM Equity	REITs	Comdty.
5.7%	15.1%	14.8%	-0.7%	16.0%	2.9%	0.0%	-2.0%	8.6%	10.4%	-5.8%	18.9%	7.5%	11.8%	-14.0%	11.4%	5.4%
EM Equity	Asset Alloc.	Asset Alloc.	Small Cap	Asset Alloc.	Cash	High Yield	High Yield	Asset Alloc.	REITs	Small Cap	High Yield	High Yield	High Yield	Large Cap	EM Equity	Cash
3.4%	10.4%	13.3%	-4.2%	12.2%	0.0%	0.0%	-2.7%	8.3%	8.7%	-11.0%	12.6%	7.0%	1.0%	-18.1%	10.3%	5.3%
Fixed Income	High Yield	DM Equity	DM Equity	Fixed Income	Fixed Income	EM Equity	Small Cap	Fixed Income	Fixed Income	Comdty.	Fixed Income	Cash	Cash	EM Equity	Fixed Income	REITs
2.4%	9.4%	8.2%	-11.7%	4.2%	-2.0%	-1.8%	-4.4%	2.6%	3.5%	-11.2%	8.7%	0.5%	0.0%	-19.7%	5.5%	4.9%
Cash	Fixed Income	Fixed Income	Comdty.	Cash	EM Equity	DM Equity	EM Equity	DM Equity	Comdty.	DM Equity	Comdty.	Comdty.	Fixed Income	Small Cap	Cash	DM Equity
1.2%	4.7%	6.5%	-13.3%	0.1%	-2.3%	-4.5%	-14.6%	1.5%	1.7%	-13.4%	7.7%	-3.1%	-1.5%	-20.4%	5.1%	4.3%
Comdty.	Cash	Cash	EM Equity	Comdty.	Comdty.	Comdty.	Comdty.	Cash	Cash	EM Equity	Cash	REITs	EM Equity	REITs	Comdty.	Fixed Income
-1.0%	0.9%	0.1%	-18.2%	-1.1%	-9.5%	-17.0%	-24.7%	0.3%	0.8%	-14.2%	2.2%	-5.1%	-2.2%	-24.9%	-7.9%	1.3%

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 U.S. 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 U.S. 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 12/31/2009 to 12/31/2024. 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.

## Market Returns as of December 31, 2024

Asset Class	1 Month	Qtr	YTD	Annualized				Calendar Years				
				1 Yr	3 Yr	5 Yr	10 Yr	2024	2023	2022	2021	2020
S&P 500	-2.38	2.41	25.02	25.02	8.94	14.53	13.10	25.02	26.29	-18.11	28.71	18.40
Dow Jones Ind. Avg.	-5.13	0.93	14.99	14.99	7.56	10.55	11.57	14.99	16.18	-6.86	20.95	9.72
NASDAQ Composite	0.55	6.35	29.57	29.57	8.13	17.49	16.20	29.57	44.64	-32.54	22.18	44.92
Large Cap Stocks	-2.79	2.75	24.51	24.51	8.41	14.28	12.87	24.51	26.53	-19.13	26.45	20.96
Large Cap Growth Stocks	0.88	7.07	33.36	33.36	10.47	18.96	16.78	33.36	42.68	-29.14	27.60	38.49
Large Cap Value Stocks	-6.84	-1.98	14.37	14.37	5.63	8.68	8.49	14.37	11.46	-7.54	25.16	2.80
Mid Cap Stocks	-7.04	0.62	15.34	15.34	3.79	9.92	9.63	15.34	17.23	-17.32	22.58	17.10
Mid Cap Growth Stocks	-6.22	8.14	22.10	22.10	4.04	11.47	11.54	22.10	25.87	-26.72	12.73	35.59
Mid Cap Value Stocks	-7.32	-1.75	13.07	13.07	3.88	8.59	8.10	13.07	12.71	-12.03	28.34	4.96
Small Cap Stocks	-8.26	0.33	11.54	11.54	1.24	7.40	7.82	11.54	16.93	-20.44	14.82	19.96
Small Cap Growth Stocks	-8.19	1.70	15.15	15.15	0.21	6.86	8.09	15.15	18.66	-26.36	2.83	34.63
Small Cap Value Stocks	-8.33	-1.06	8.05	8.05	1.94	7.29	7.14	8.05	14.65	-14.48	28.27	4.63
International Stocks	-2.27	-8.11	3.82	3.82	1.65	4.73	5.20	3.82	18.24	-14.45	11.26	7.82
Emerging Markets	-0.14	-8.01	7.50	7.50	-1.92	1.70	3.64	7.50	9.83	-20.09	-2.54	18.31
US Real Estate	-8.20	-7.78	4.86	4.86	-4.14	3.00	5.64	4.86	12.25	-25.17	38.99	-5.29
Commodities	1.02	-0.45	5.38	5.38	4.05	6.77	1.28	5.38	-7.91	16.09	27.11	-3.12
Bonds (US Aggregate)	-1.64	-3.06	1.25	1.25	-2.41	-0.33	1.35	1.25	5.53	-13.01	-1.54	7.51
3 month T-Bill	0.40	1.17	5.25	5.25	3.89	2.46	1.77	5.25	5.01	1.46	0.05	0.67

# Index Definitions & Disclosures

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

## Domestic Equity Indexes:

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

## International Equity Indexes:

- 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.

## Fixed income Indexes:

- 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+ 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.

## Commodities & Real Estate Indexes:

- 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 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.

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SOURCES: Morningstar, S&P, FRB, BLS, JP Morgan, Russell, NBER, Marketwatch.com and Goldman Sachs among others noted on individual slides.