



## OCTOBER 2023 – MARKET REVIEW

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# AssetGrade Market Summary – October 2023

- With the Fed near, if not already, at the end of its rate hiking cycle, **investors should be interested in the potential for rate cuts** as opposed to rate hikes in the year ahead.
- **If the economy avoids a recession, the Fed may be able to cut rates next year.** However, if we instead enter a recession, the Fed may be forced to cut rates more rapidly. Both outcomes, however, **should bode well for high-quality fixed income investments.**
- **Headline CPI, the broadest measure of inflation, is down to 3.7% from a peak of 9.1% 14 months.** Core inflation, which strips out food and energy, continued a downtrend after peaking eleven months ago. With rates up and inflation down, “Real” rates of return are once again positive.
- Easing inflation and improved prospects for growth have helped fuel optimism for a soft landing. After years of extremely low interest rates, investors with cash on the sidelines are being rewarded. **Interest rates on US Treasuries, with maturities ranging from 1 month to 30 years are the highest in 15 years.**
- **Consumers have remained resilient in the third quarter,** supported by a tight labor market and rising real wages. However, savings balances are being depleted and they are taking on more debt to maintain their current lifestyles.
- **Global markets relative to the S&P 500 are trading at historic discounts** as evidenced by discounted PE ratios and higher dividend yields. Economic momentum in both the Eurozone and China have proven weaker-than-expected, leading to a more challenged global picture.
- Investors would be well served to **think about cash sitting in bank accounts and consider increasing exposure to longer term high quality fixed income** to lock in what are now historically high rates. Exploring “alternative” asset classes in addition to stocks and bonds provides additional portfolio diversification and enhanced returns.

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# AssetGrade Market Summary

## Asset Class Returns

While 6 of 10 sectors are still positive, YTD returns declined on the back of negative 3<sup>rd</sup> quarter performance. Cash now has the highest return seen in the last 15 years.

2008 - 2022		2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	YTD
Large Cap	RBTs	Fixed Income	EM Equity	REITs	REITs	REITs	Small Cap	REITs	REITs	Small Cap	EM Equity	Cash	Large Cap	Small Cap	REITs	Comdty.	Large Cap
8.8%	23.4%	5.2%	79.0%	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%	13.1%
Small Cap	Small Cap	Cash	High Yield	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
7.2%	23.2%	1.8%	59.4%	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%	7.6%
REITs	EM Equity	Asset Alloc.	DM Equity	EM Equity	High Yield	EM Equity	DM Equity	Fixed Income	Fixed Income	Large Cap	Large Cap	REITs	Small Cap	Large Cap	Comdty.	High Yield	High Yield
6.6%	23.0%	-25.4%	32.5%	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%	5.0%
Asset Alloc.	Comdty.	High Yield	REITs	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.
6.1%	20.2%	-26.9%	28.0%	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%	4.5%
High Yield	DM Equity	Small Cap	Small Cap	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.	Cash
5.4%	20.0%	-33.8%	27.2%	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%	3.7%
Fixed Income	Large Cap	Comdty.	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	Small Cap
2.7%	17.7%	-35.6%	26.5%	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%	2.5%
DM Equity	High Yield	Large Cap	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
2.3%	13.0%	-37.0%	25.0%	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%	2.2%
EM Equity	Asset Alloc.	REITs	Comdty.	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
1.0%	12.4%	-37.7%	18.9%	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%	-1.2%
Cash	Fixed Income	DM Equity	Fixed Income	Fixed Income	Comdty.	Cash	EM Equity	DM Equity	EM Equity	DM Equity	Comdty.	DM Equity	Comdty.	Comdty.	Comdty.	Fixed Income	Small Cap
0.6%	4.2%	-43.1%	5.9%	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%	-3.4%
Comdty.	Cash	EM Equity	Cash	Cash	EM Equity	Comdty.	Comdty.	Comdty.	Comdty.	Cash	Cash	EM Equity	Cash	REITs	EM Equity	REITs	REITs
-2.6%	0.4%	-53.2%	0.1%	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%	-5.6%

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 12/31/2007 to 12/31/2022. Please see disclosure page at end for index definitions. All data represents total return for stated period. The "Asset Allocation" portfolio is for illustrative purposes only. Past performance is not indicative of future returns.  
 Guide to the Markets – U.S. Data are as of September 30, 2023.

# AssetGrade Market Summary

## S&P 500 valuation measures

Compared to prior peaks in the S&P 500, valuations remain reasonable though higher relative to mid and small cap stocks

### 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. *Guide to the Markets - U.S.* Data are as of September 30, 2023.

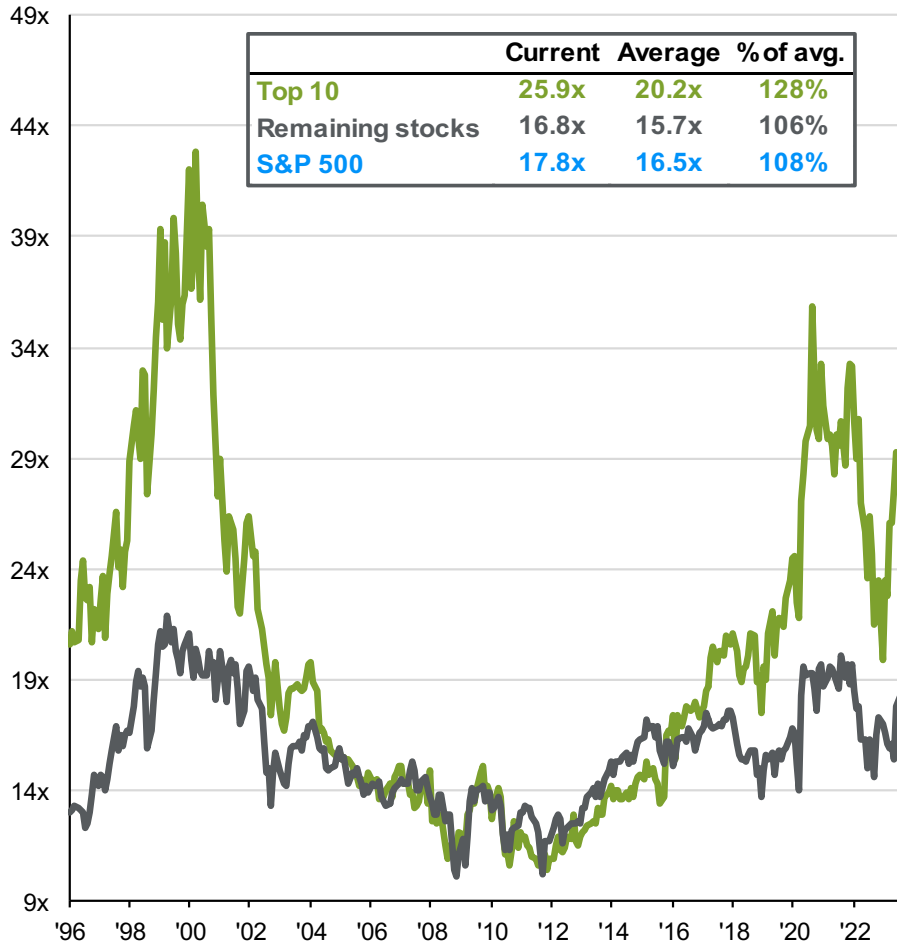
# AssetGrade Market Summary

## Index concentration, valuations and earnings

The “Magnificent Seven,”: Apple, Microsoft, Alphabet, Amazon, Nvidia, Tesla, and Meta drove concentration in the S&P 500 among the top 10 stocks.

### 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



### 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. As of 9/30/2023, the top 10 companies in the index were AAPL (7.0%), MSFT (6.5%), AMZN (3.2%), NVDA (3.0%), GOOGL (2.2%), TSLA (1.9%), META (1.9%), GOOG (1.9%), BRK.B (1.8%), XOM (1.3%) and UNH (1.3%). The remaining stocks represent the rest of the 494 companies in the S&P 500.

Guide to the Markets – U.S. Data are as of September 30, 2023.

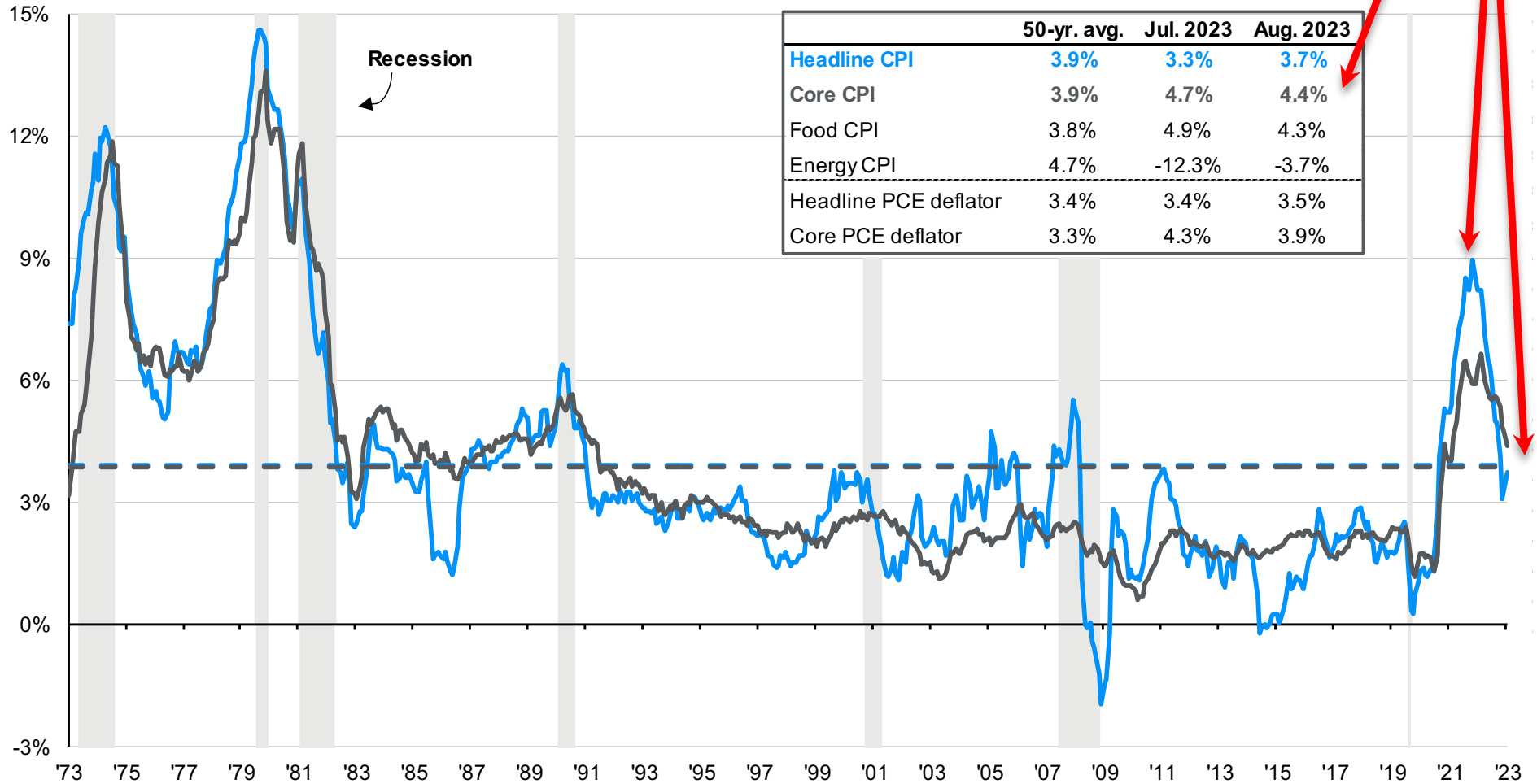
# AssetGrade Market Summary

## Inflation

Headline inflation has declined from 9.1% June 2022 to 3.7% in August 2023. While more stubborn, Core CPI has declined to 4.4%.

### 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.

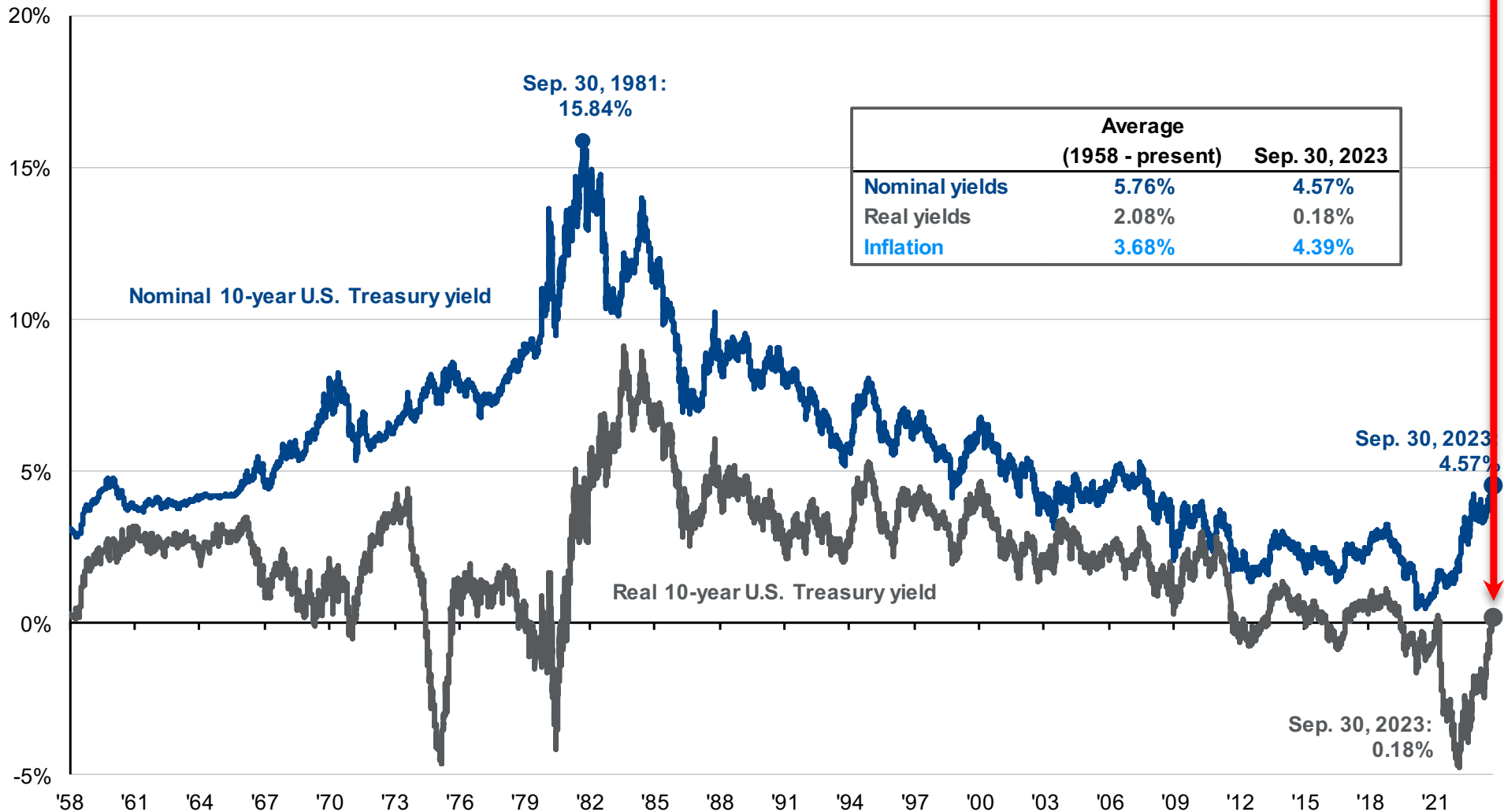
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# AssetGrade Market Summary

## Interest rates and inflation

With the rise in interest rates and the decline in inflation- “Real” rates are again positive. If inflation continues to decline and rates stay steady, real rates will go higher.

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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# AssetGrade Market Summary

## Oil markets

Oil prices drove higher gas prices. Increased demand from countries like China and India combined with production cuts by OPEC and Russia are keeping oil prices elevated.

### Change in production and consumption of liquid fuels

Production, consumption and inventories, millions of barrels per day

Production	2019	2020	2021	2022	2023*	2024*	2019-2023
U.S.	19.5	18.6	19.0	20.3	21.6	22.2	10.8%
OPEC	34.6	30.7	31.7	34.2	33.3	33.8	-3.7%
Russia	11.5	10.5	10.8	10.9	10.6	10.6	-7.2%
<b>Global</b>	<b>100.3</b>	<b>93.9</b>	<b>95.7</b>	<b>99.9</b>	<b>101.2</b>	<b>102.9</b>	<b>0.9%</b>

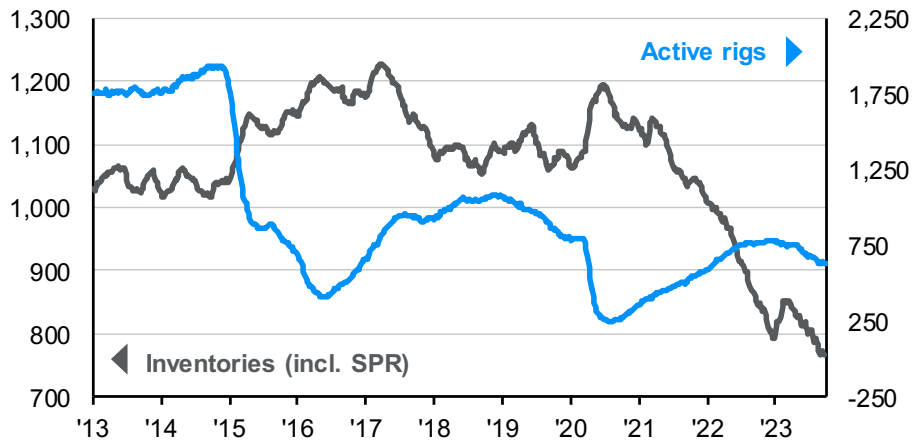
Consumption	2019	2020	2021	2022	2023*	2024*	2019-2023
U.S.	20.5	18.2	19.9	20.0	20.1	20.3	-1.9%
China	14.0	14.4	15.3	15.2	15.9	16.3	13.7%
India	4.9	4.5	4.7	5.0	5.3	5.6	8.1%
<b>Global</b>	<b>100.9</b>	<b>91.6</b>	<b>97.1</b>	<b>99.2</b>	<b>101.0</b>	<b>102.3</b>	<b>0.1%</b>

Inventory Change	2019	2020	2021	2022	2023*	2024*
	-0.6	2.3	-1.4	0.8	0.2	0.5

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

Million barrels, number of active rigs



### Price of oil

WTI crude, nominal prices, USD/barrel



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

\*Forecasts are from the September 2023 EIA Short-Term Energy Outlook and start in 2023. \*\*U.S. crude oil inventories include the Strategic Petroleum Reserve (SPR). Liquid fuels include crude oil, natural gas, biodiesel and fuel ethanol. Active rig count includes both natural gas and oil rigs. WTI crude prices are continuous contract NYM prices in USD.

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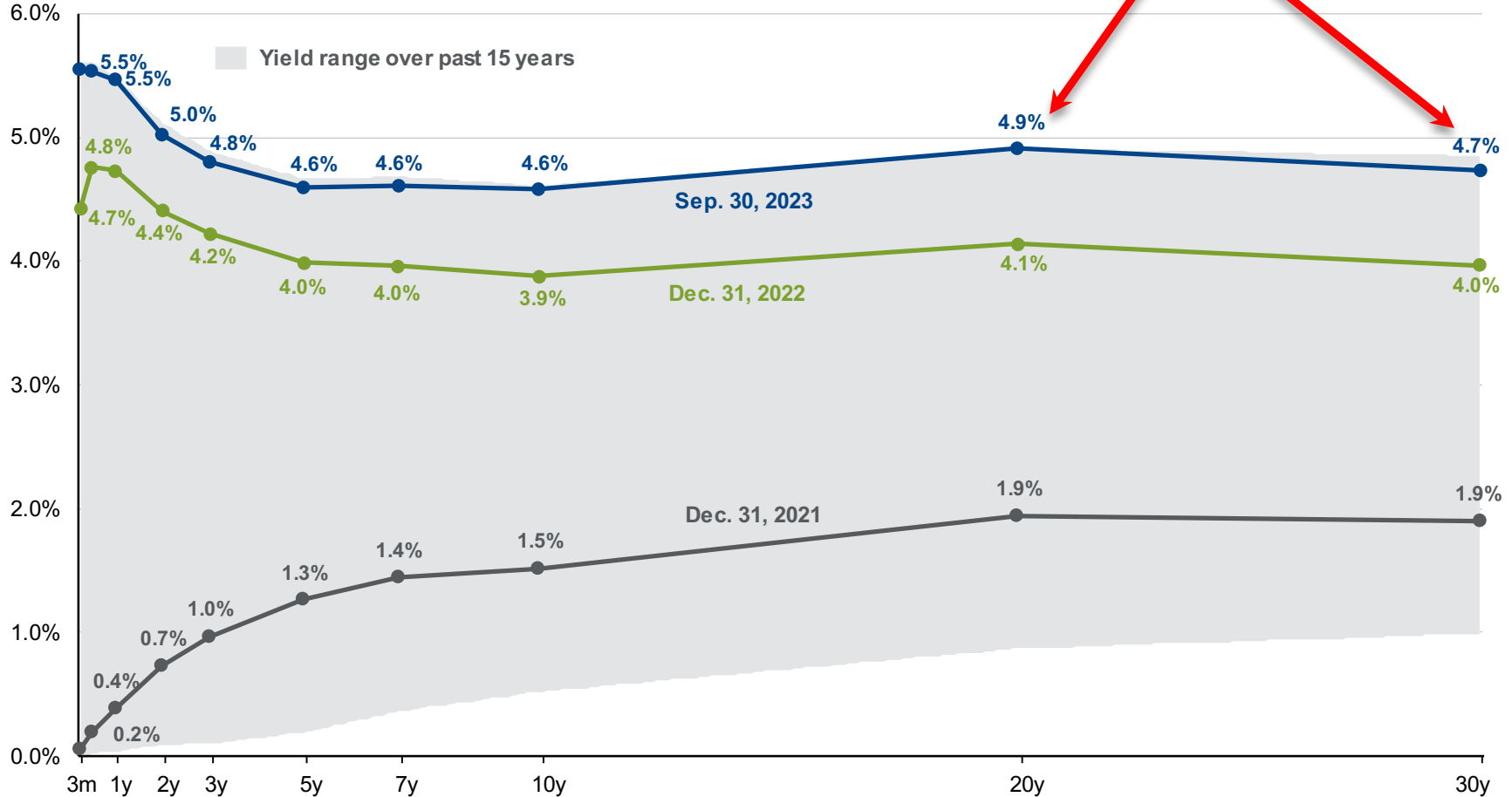


# AssetGrade Market Summary

## Yield curve

Treasury rates across the yield curve continued to rise as the Fed continues to signal one more rate hike may be coming. Rates on the long end are approaching 5%.

U.S. Treasury yield curve



Source: FactSet, Federal Reserve, J.P. Morgan Asset Management.  
*Guide to the Markets – U.S.* Data are as of September 30, 2023.

# AssetGrade Market Summary

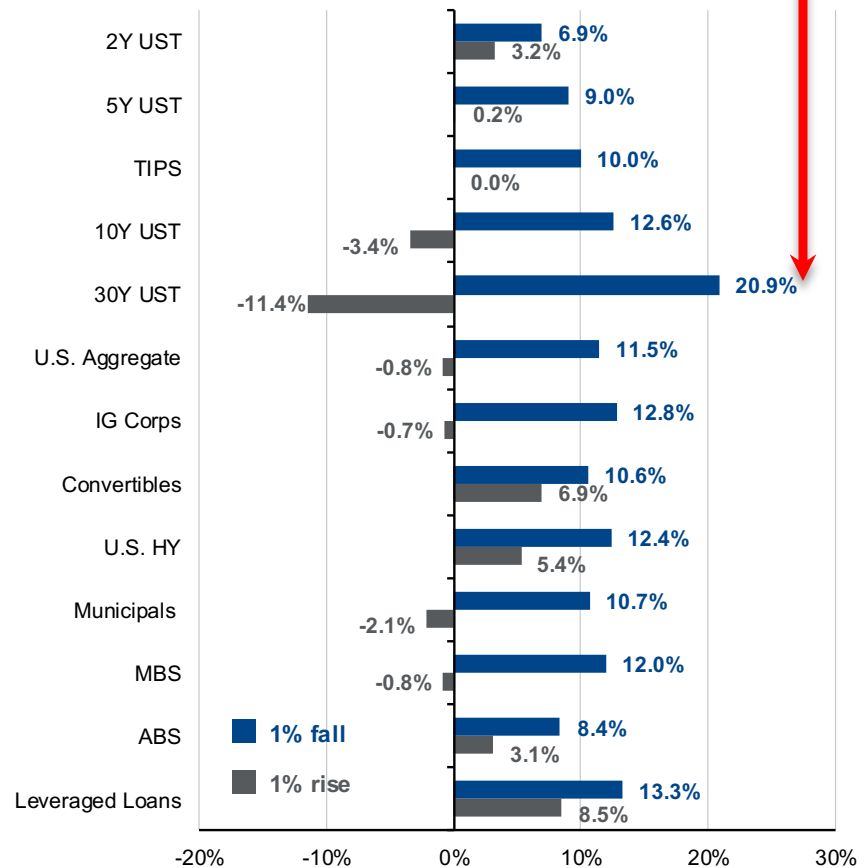
## Fixed income market dynamics

While short term rates are higher, investors should be focusing on the longer term bonds. Enjoy rates not seen in years and if rates go down in the future, longer term bonds will enjoy much higher gains.

U.S. Treasuries	Yield		Return			
	9/30/2023	12/31/2022	2023 YTD	Avg. Maturity	Correlation to 10-year	Correlation to S&P 500
<b>2-Year</b>	5.03%	4.41%	1.14%	2 years	0.74	-0.12
<b>5-Year</b>	4.60%	3.99%	-0.56%	5	0.93	-0.11
<b>TIPS</b>	5.02%	4.38%	-0.78%	7.1	0.62	0.37
<b>10-Year</b>	4.59%	3.88%	-3.43%	10	1.00	-0.12
<b>30-Year</b>	4.73%	3.97%	-9.68%	30	0.93	-0.15
<b>Sector</b>						
<b>U.S. Aggregate</b>	5.39%	4.68%	-1.21%	8.5	0.86	0.22
<b>IG Corps</b>	6.04%	5.42%	0.02%	10.6	0.58	0.46
<b>Convertibles</b>	8.37%	7.58%	6.48%	-	-0.13	0.87
<b>U.S. HY</b>	8.88%	8.96%	5.86%	5.0	-0.09	0.73
<b>Municipals</b>	4.32%	3.55%	-1.38%	13.0	0.57	0.20
<b>MBS</b>	5.57%	4.71%	-2.26%	8.4	0.78	0.17
<b>ABS</b>	6.36%	5.89%	4.03%	3.3	0.08	-0.02
<b>Leveraged Loans</b>	10.91%	11.41%	10.09%	2.4	-0.34	0.58

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

Total return, assumes a parallel shift in the yield curve



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

Guide to the Markets – U.S. Data are as of September 30, 2023.

# AssetGrade Market Summary

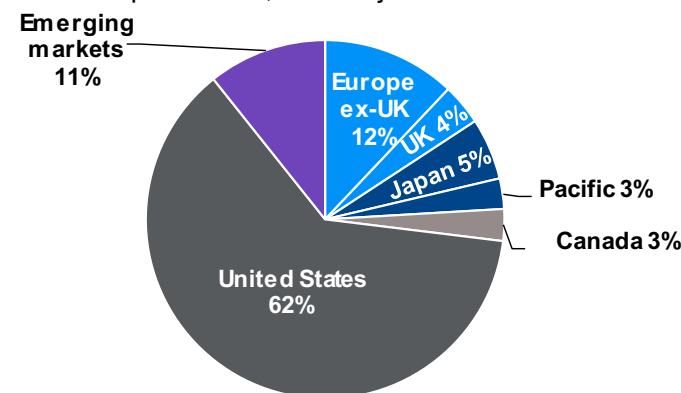
## Global equity markets

Global market index returns are lagging the S&P 500 and even lower when converted to US dollars given the continued strength of dollar.

Returns	2023		2022		15-years	
	Local	USD	Local	USD	Ann.	Beta
<b>Regions</b>						
U.S. (S&P 500)	-	13.1	-	-18.1	11.3	0.9
AC World ex-U.S.	8.7	5.8	-9.2	-15.6	4.8	1.0
EAFE	11.2	7.6	-6.5	-14.0	5.2	1.0
Europe ex-UK	10.0	9.2	-12.2	-17.3	5.5	1.2
Emerging markets	4.4	2.2	-15.2	-19.7	4.1	1.1
<b>Selected Countries</b>						
Japan	26.2	11.6	-4.1	-16.3	4.9	0.7
United Kingdom	5.2	6.8	7.2	-4.8	4.3	1.0
France	11.7	10.8	-6.9	-12.7	5.8	1.2
Canada	4.2	4.5	-5.8	-12.2	4.7	1.1
Germany	10.6	9.7	-16.5	-21.6	4.1	1.3
China	-6.1	-7.1	-20.6	-21.8	4.2	1.0
Taiwan	17.4	11.8	-21.3	-29.1	10.9	1.0
India	8.7	8.3	3.0	-7.5	7.7	1.1
Brazil	7.1	13.0	8.6	14.6	1.1	1.4

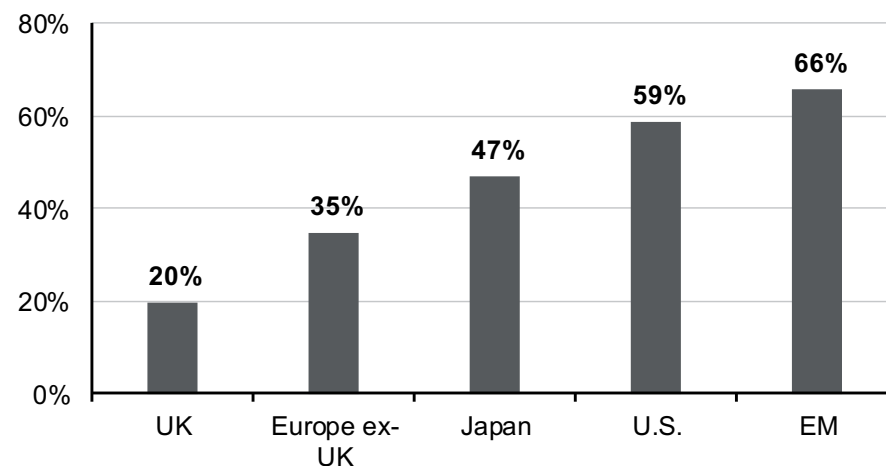
### Weights in MSCI All Country World Index

% global market capitalization, float adjusted



### Revenue exposure vs. country of listing

% of total revenue from home 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 previously completed month. 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 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. (Bottom right) Revenue exposure vs. country of listing is as of 9/30/2023. *Guide to the Markets – U.S.* Data are as of September 30, 2023.

# AssetGrade Market Summary

## Global equity markets

Global markets relative to the S&P 500 are trading at historic discounts as evidenced by discounted PE ratios and higher 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: Difference in dividend yields vs. U.S.

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.  
 Guide to the Markets – U.S. Data are as of September 30, 2023.

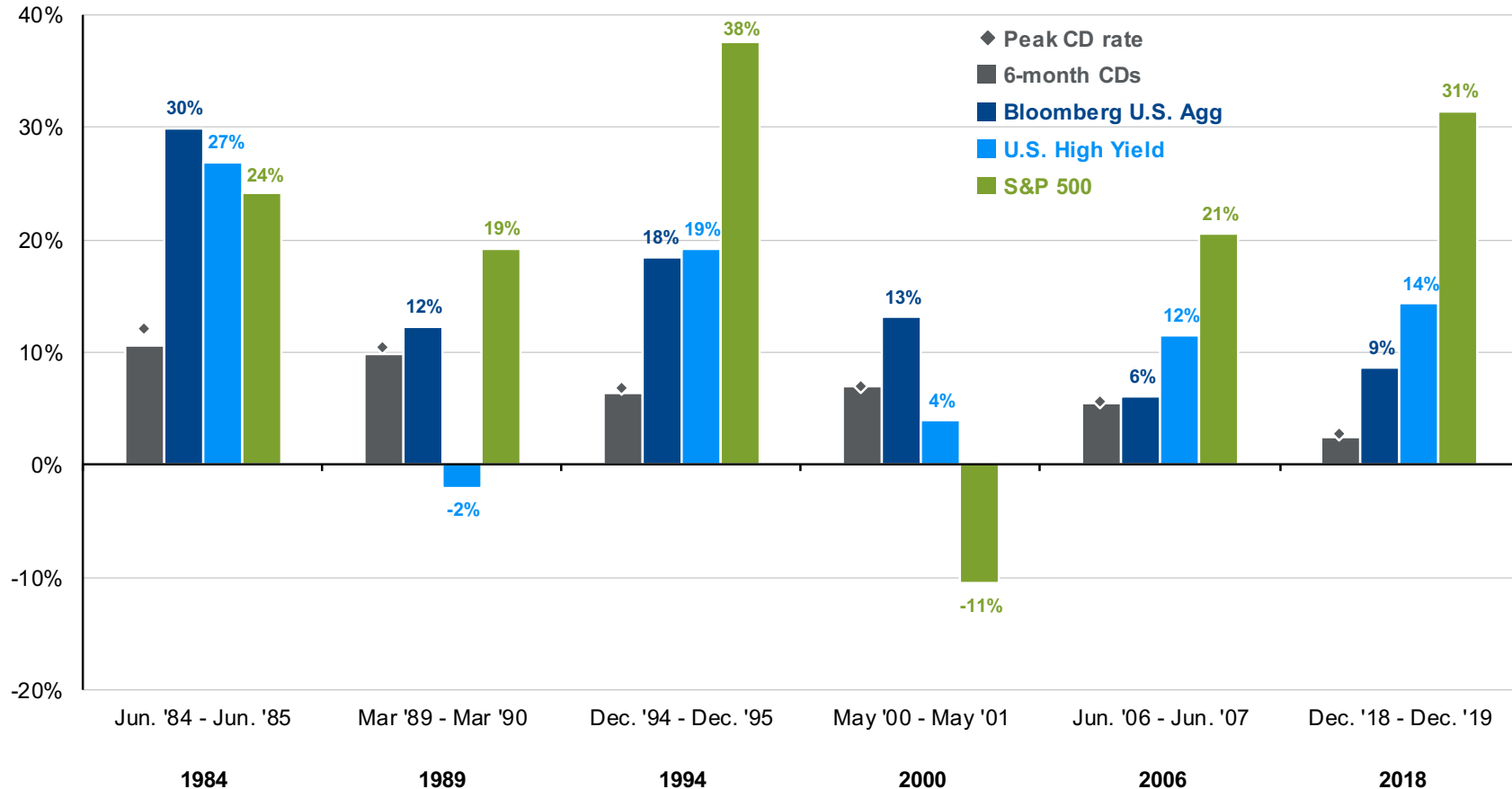
# AssetGrade Market Summary

## Investment opportunities

Following previous peaks in periods of rising rates, stock and bond markets have typically performed well. Don't be tempted to keep too much money tied up in these higher short term rates.

### Investment opportunities outside of CDs

Peak 6-month certificate of deposit (CD) rate during previous rate hiking cycles and subsequent 12-month total returns



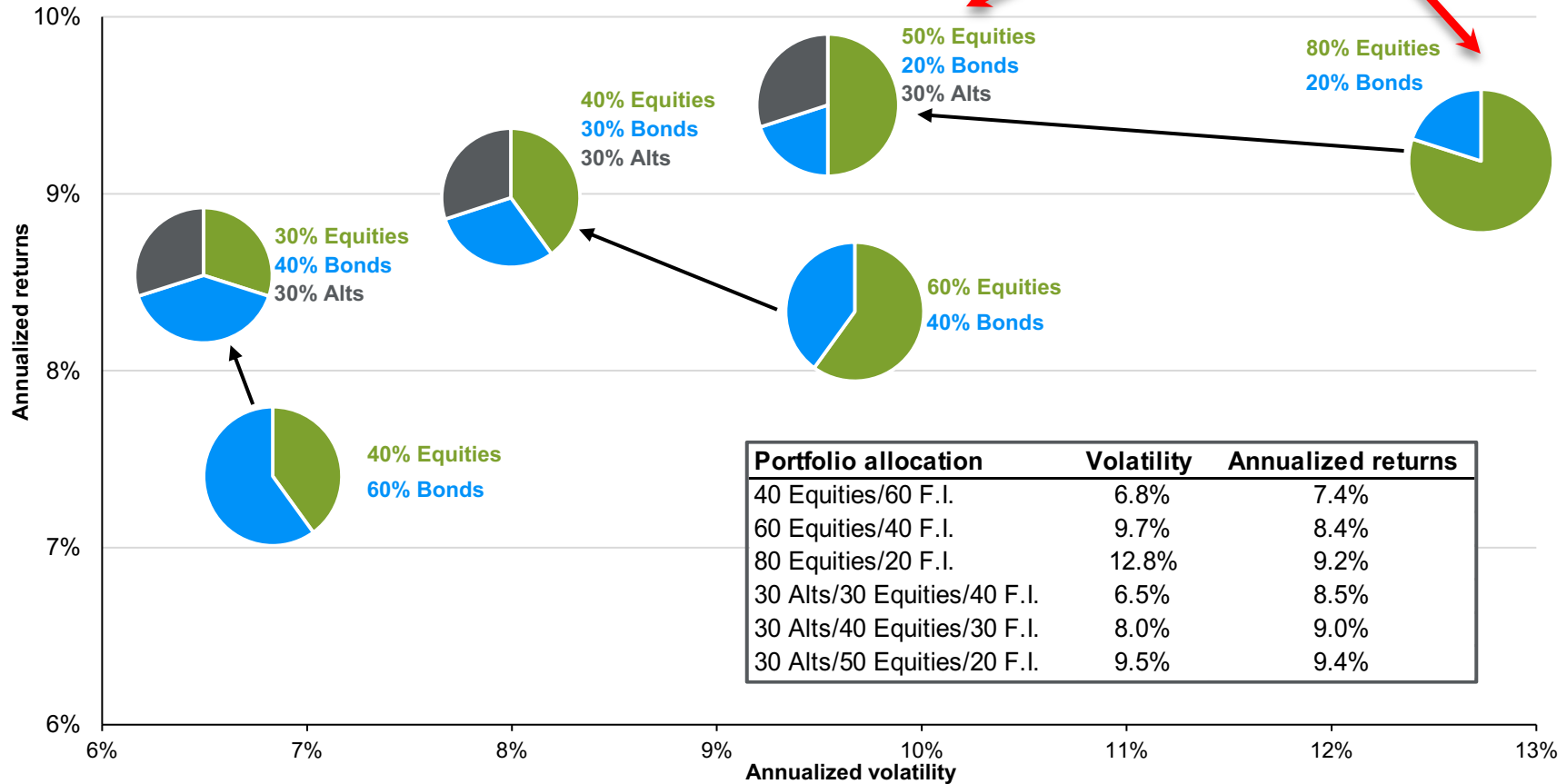
Source: Bloomberg, FactSet, Federal Reserve, Robert Shiller, J.P. Morgan Asset Management.  
 U.S. High Yield: Bloomberg U.S. Corporate High Yield Index. The S&P 500 total return figure from the 1984 period was calculated using data from Robert Shiller. The analysis references the month in which the month-end 6-month CD rate peaked during previous rate hiking cycles. CD rate data prior to 2013 are sourced from the Federal Reserve, whereas data from 2013 to 2023 are sourced from Bloomberg. CD subsequent 12-month return calculation assumes reinvestment at the prevailing 6-month rate when the initial CD matures.  
 Guide to the Markets – U.S. Data are as of September 30, 2023.

# AssetGrade Market Summary

## Investment diversification

Diversification beyond stocks and bonds improves returns while reducing volatility, sometimes dramatically so.

**Alternatives and portfolio risk/return**  
Annualized volatility and returns, 1989 – 1Q23



Source: Bloomberg, Burgiss, FactSet, HRFI, NCREIF, Standard & Poor's, J.P. Morgan Asset Management. Alts include hedge funds, real estate and private equity, with each receiving an equal weight. Portfolios are rebalanced at the start of the year. This slide comes from our [Guide to Alternatives](#).  
*Guide to the Markets – U.S.* Data are as of September 30, 2023.

# Appendix

## Disclosures

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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.

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## Disclosures

### *Fixed income:*

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

The **Bloomberg Barclays 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 Barclays 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 Barclays 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 Barclays 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.

*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.

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

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