Morgan Stanley

INVESTMENT MANAGEMENT

The BEAT

BONDS | EQUITIES | ALTERNATIVES | TRANSITION

November 2024

Previously known as the Monthly Market Monitor.

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The **BEAT**, previously known as the Monthly Market Monitor, provides connectivity between changing market events and implications for investor portfolios.

Spanning **B**onds, **E**quities, **A**lternatives and **T**ransition*, this monthly review provides timely information across a broad array of markets and investment topics.

Each edition explores investment ideas, identifies areas of focus and provides a comprehensive outlook on asset allocation — all supported by a concise review of economic and asset class data through clear and impactful charts.

We believe The **BEAT** is a critical desk reference that enables more informed discussion and understanding of financial markets.

If you are viewing this book on your computer or tablet, **click or tap on the section box to jump to the beginning of each section.**

*Transition is an asset allocation view, which refers to cash, cash equivalents or liquid short-duration assets, such as short-dated Treasuries, that can be used to “transition” to other asset classes.

TOP IDEAS

Key Themes for November

Duration: Not What it Used To Be

What's the role of duration in your portfolio. Commonly, investors add duration as both a hedge and source of returns that sits alongside an equity allocation. This worked well from 1981-2020, a forty-year period when bond yields trended lower. But we think the regime has changed and it's more likely that bond yields trend sideways in a range. Additionally, we believe inflation is still a risk and term premia is on the rise. So, what role does duration play in a portfolio? It's still a hedge against strong downturns in markets, but since it may trade sideways, one should not expect duration to drive bond returns as in the past. It's a factor of bond returns that needs to be actively managed, no longer a passive factor.

What Many Are Getting Wrong About China

The transmission mechanism. A common mistake is for Westerners to view China through the lens of Western developed markets (DMs). China is adding stimulus to support market sentiment and while this has lifted markets, it is less clear that it will lead to a durable increase in real demand as one would assume in Western DMs. A longer-term bullish view requires confidence that stimulus leads to investment and consumption. This is yet to be seen and ultimately, we are skeptical.

How To Invest in Fully Valued Markets

Valuations are at the core. The good news is that asset values have risen to date in 2024. The challenge now is how to invest based on these valuations. In bonds, we note that yields have come down and spreads are tight. But opportunities still exist across the credit spectrum as a soft landing may keep default rates lower than priced in some sectors and credit cohorts. Same story in equities, where it's about valuations, asset and investment section more than just top-down asset allocation. Said differently, we believe we are entering a period where alpha may take on increased significance vs. beta in portfolios. Valuations, selection and active management will become more critical for returns.

When Will Geopolitical Risks Matter?

Answer? When they matter. In other words, geopolitical events are difficult to hedge and even more difficult to time. Sometimes there is no perfect hedge. However, an escalation of hostilities in the Middle East that affects oil flows in the Strait of Hormuz has the potential to be much more disruptive for oil markets (and the global economy) than what we have experienced to date. Although this is still a low probability scenario, we see little signs of de-escalation, so we look for ways to hedge our portfolio.

TOP IDEAS

The Portfolio Solutions Group – Our Top 4 Ideas

Oil Futures Are an Attractive Hedge at Current Levels

Better safe than sorry. Under current circumstances, we think that owning oil futures is a reasonable hedge. To be clear, this is a best guess, and we realize there are many events and supply dynamics that could push oil prices lower. We see this as a tail-risk hedge if geopolitical events worsen significantly. If those events don't materialize, a best-case outcome, then our portfolio allocations stand to gain more than the hedge position in oil may lose. We see this allocation as a means of dampening portfolio volatility at the tails.

Equities: Financials Preferred as Macro Data Improves

Selective cyclical exposure. The macro data trend has improved since August, driving cyclical sector outperformance relative to defensives. Amongst cyclical exposures, we believe Financials offer an attractive risk/reward across both our base-case, soft-landing view and a potential risk scenario where inflation concerns return and lift rates higher. Like other cyclical sectors, Financials see a relative performance tailwind as economic data improves. Financials should also benefit from a further lift in a normalizing interest rate environment, particularly as the spread between the long-term Treasury rates and short-term rates widens.

Covering Underweight in Duration

Trading the range. Last month we highlighted that we thought market pricing of Fed rate cut expectations was too aggressive, such that bond yields fell too low. We further underweighted duration, but with the U.S. Treasury (UST) 10-year at or above 4%, we look to take profits and add duration back to portfolios. Using the UST 10-year as a proxy for duration, we think 4%-4.25% represents a fair value range.

U.S. Utilities: Robust Structural Theme

Powering up. For the first time in decades, U.S. power demand has entered a new growth cycle, primarily driven by data centers and the need to power new technology like generative AI. As a result, utility companies are in the early stages of what will be a multi-year capital expenditure cycle designed to increase their power generation capacity and service new demand. Utilities have broadly outperformed other defensive sectors thus far this year, and we think that trend will continue as spending on data centers and AI remains strong into next year.

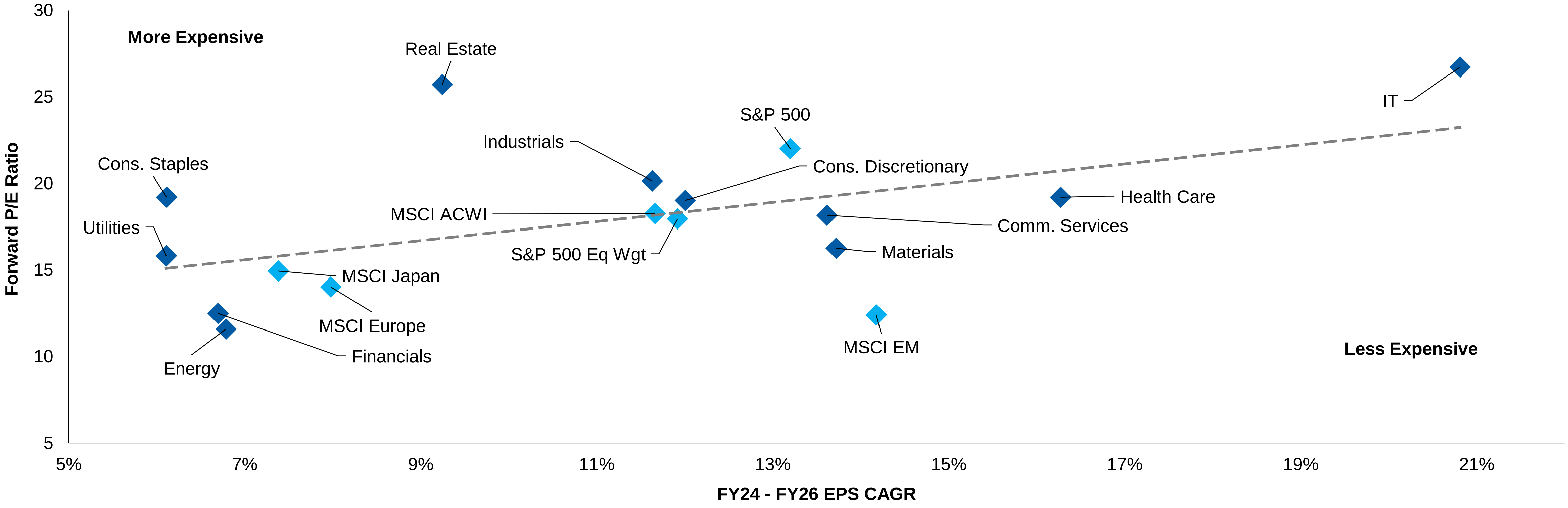
TOP IDEAS

Being Selective Is the Key To Navigating Fully-Valued Markets

Equity valuations in the U.S. and in certain global tech and defensive sectors look expensive even on a fundamentals-adjusted basis. Nevertheless, pockets of value still exist among non-U.S. equities and cyclical sectors, which could be effective portfolio diversifiers against a soft-landing backdrop and the prevailing valuation environment.

Not Everything Is Expensive Yet

Key equity regions and global sectors: Valuations and earnings growth



Source: Bloomberg, MSIM. Data as of October 17, 2024. The views and opinions expressed are those of the Portfolio Solutions Group at the time of writing/of this presentation and are subject to change at any time due to market, economic, or other conditions, and may not necessarily come to pass. Forecasts/estimates are based on current market conditions, subject to change, and may not necessarily come to pass. **Past performance is no guarantee of future results**.

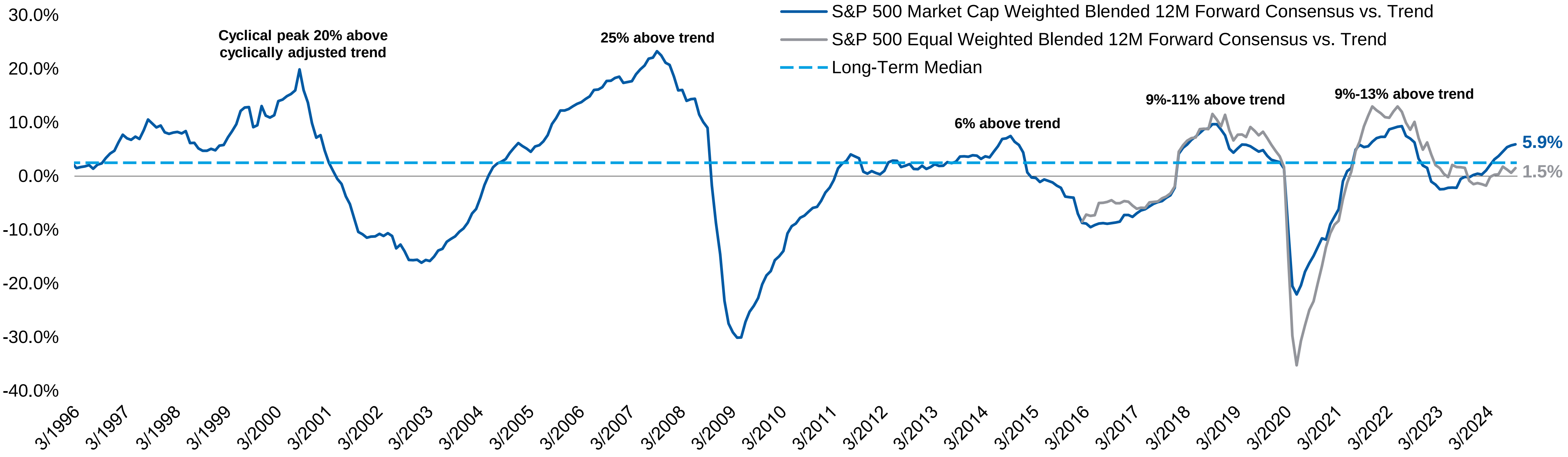
TOP IDEAS

Headroom to a Cyclical EPS Peak, Suggesting EPS Driven Return Potential

With equity valuations full, Earnings Per Share (EPS) growth is necessary for forward equity return potential. Consensus S&P EPS estimates appear to approach cyclical peak reference points, but current expectations reflect AI themes more than cyclical drivers. S&P equal-weighted EPS offer a cleaner comparison and show scope for cyclical EPS upside.

S&P Equal Weighted EPS Have Scope to Rise to Levels Historically Consistent with Cyclical Peaks – Currently Below Median

S&P 500 and S&P 500 Equal Weighted Index – blended 12M forward EPS relative to long-term exponential trend (a measure of cyclically adjusted EPS)



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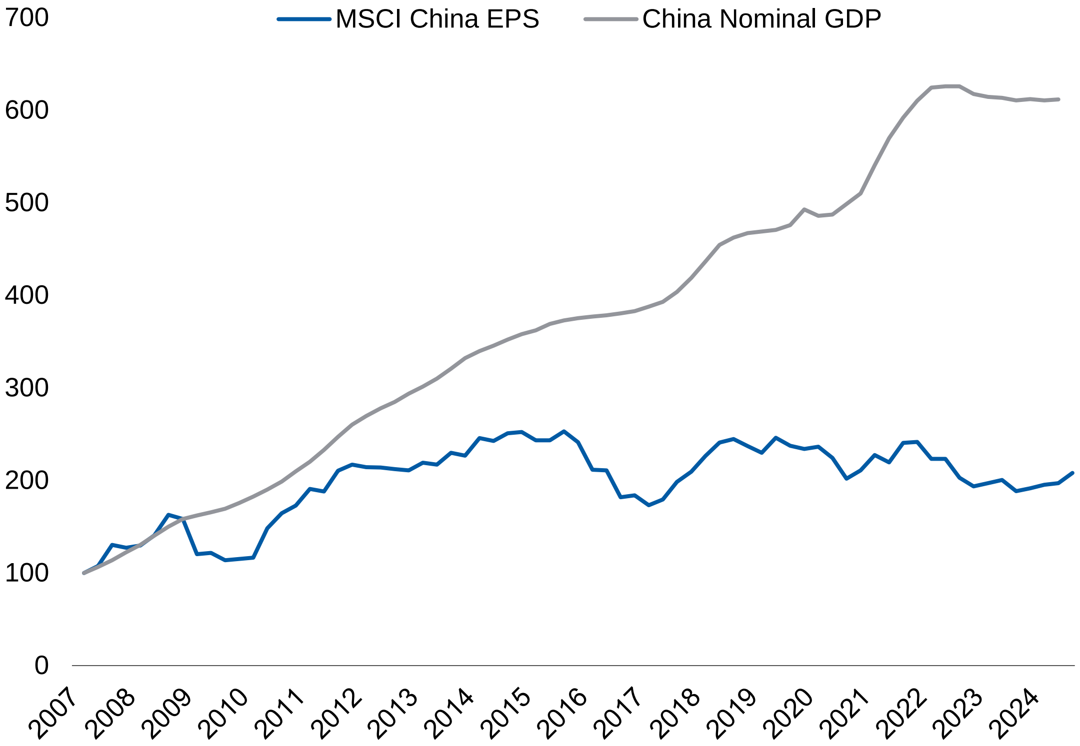
TOP IDEAS

Chinese Stimulus Has Yet to Filter Through to Real Demand

While China has implemented several stimulus measures intended to boost market sentiment, the key question remains whether stimulus can transmit to durable real demand and lift animal spirits. Past evidence shows that this transmission mechanism has not always been effective in creating a virtuous economic cycle.

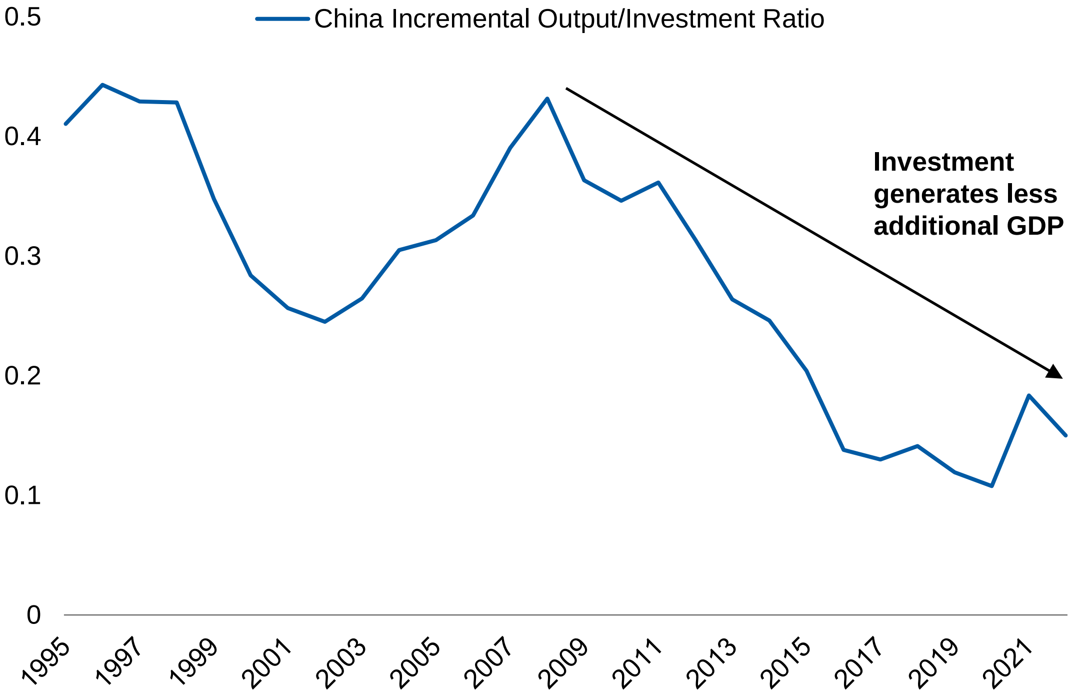
Chinese GDP Growth Has Yet to Translate Into EPS Growth

Index: 2007=100



Investment Spending is Generating Incrementally Less GDP

5-year Incremental Output/Investment Ratio (IOIR) = 5-year change in GDP/5-year total capital expenditures



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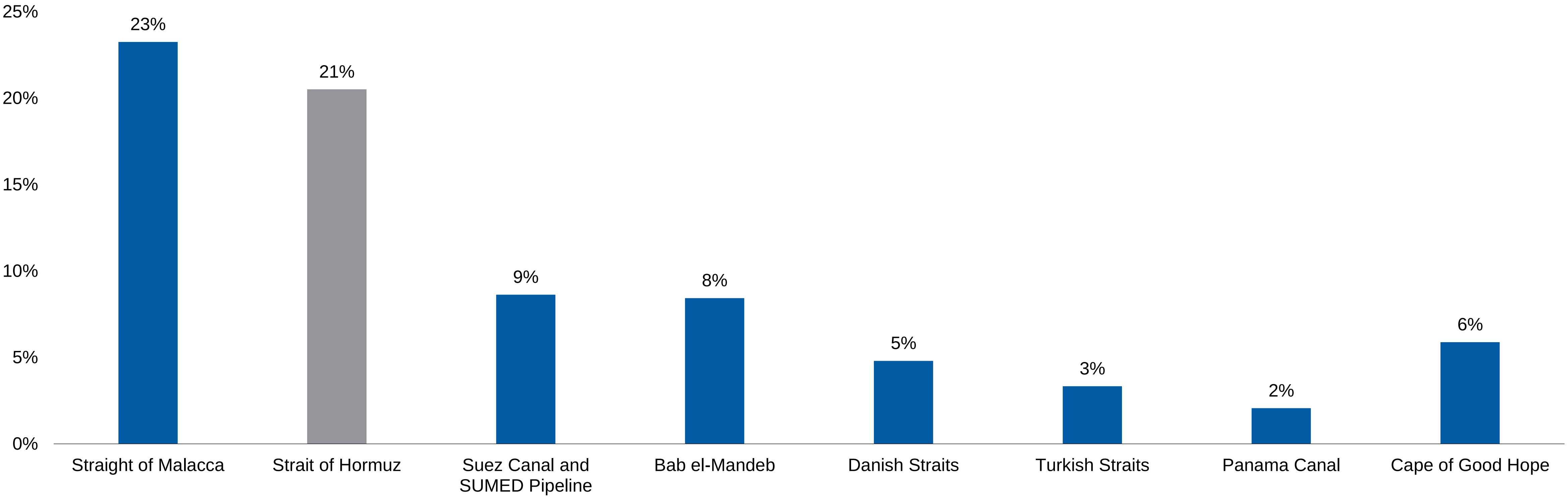
TOP IDEAS

When Will Geopolitical Risks Matter?

A further escalation of hostilities in the Middle East that affects oil flows in the Strait of Hormuz has the potential to be much more disruptive for oil markets (and the global economy) than what we have experienced until now. Although this is still a low probability scenario, we see few signs of de-escalation, thus look for ways to hedge our portfolio.

The Equivalent of 20% of Global Oil Supply is Transported Through the Straight of Hormuz, Making it a Key Chokepoint

Volume of crude and products transported through world chokepoints as a % of total oil supply



Source: US Energy Information Administration, as of October 21, 2024. The views and opinions expressed are those of the Portfolio Solutions Group at the time of writing/of this presentation and are subject to change at any time due to market, economic, or other conditions, and may not necessarily come to pass. Forecasts/estimates are based on current market conditions, subject to change, and may not necessarily come to pass. **Past performance is no guarantee of future results**.

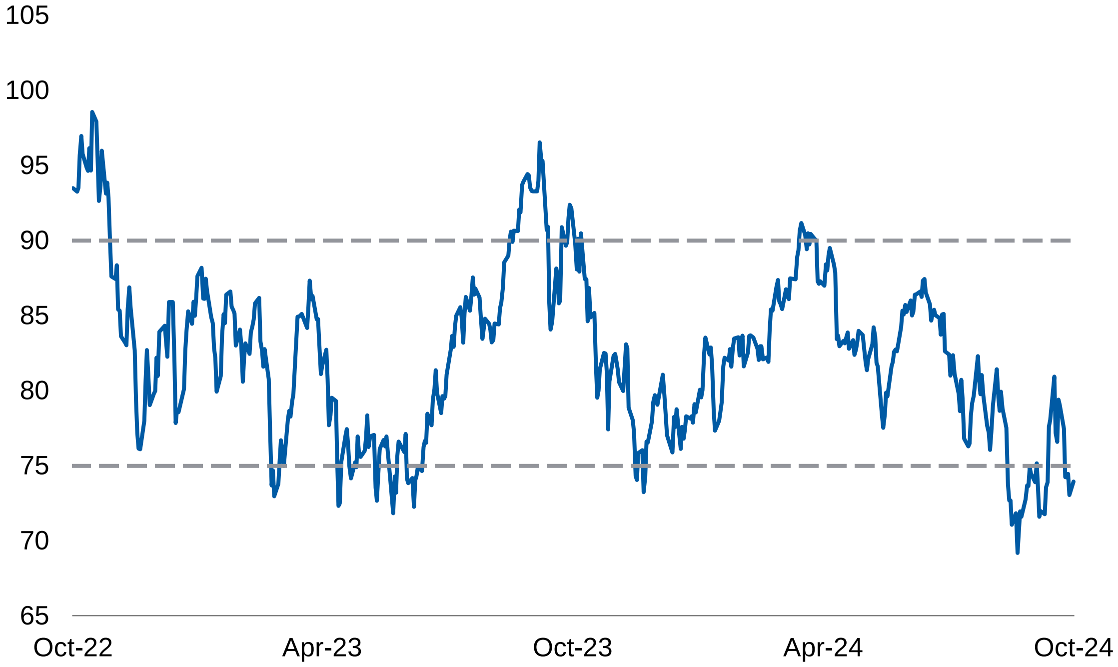
TOP IDEAS

Oil Futures Are an Attractive Hedge to Geopolitical Risks at Current Levels

We initiated a long position in Brent futures. Oil is trading close to the lower end of its recent range where, absent a deeper recession, prices should find more support. An improved entry point and positive carry make this our preferred way to add a portfolio hedge against geopolitical escalation in the Middle East.

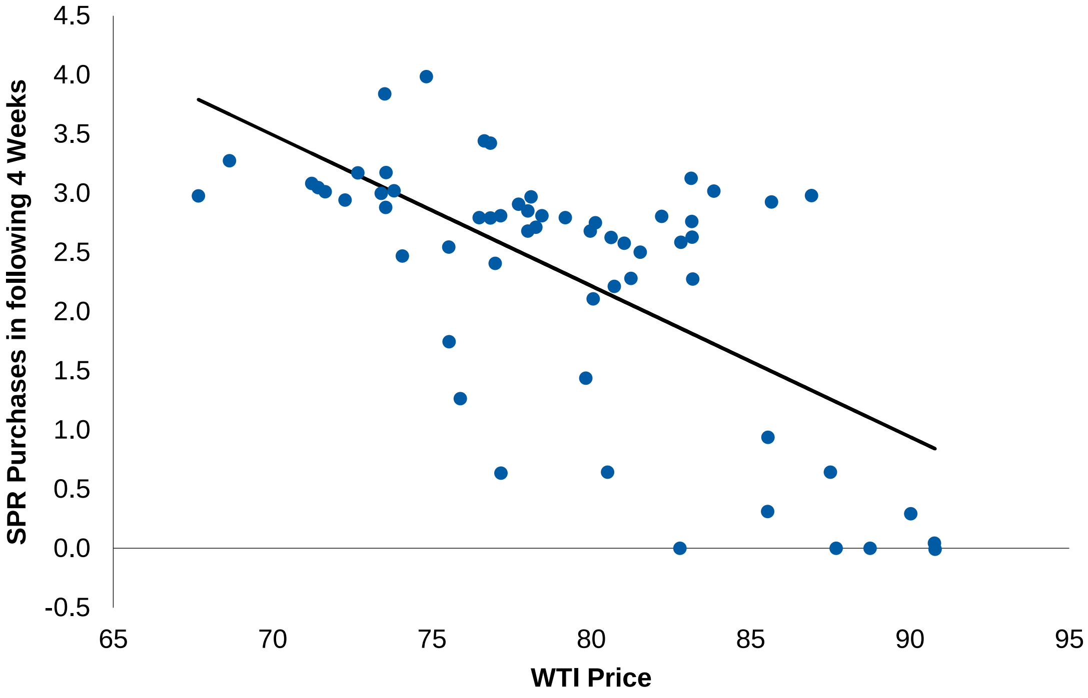
Oil Prices are at the Lower End of Their Recent Trading Range

Brent Price ($/b)



U.S. SPR (Strategic Petroleum Reserve) Purchases Have Been Picking Up as Prices Fall Below Recent Trading Range

WTI oil Price vs SPR purchases in following 4 weeks



Source: Macrobond, Bloomberg, Department of Energy, MSIM. Data as of October 21, 2024. RHS chart time series starts in August 2023, when US SPR purchases started. The views and opinions expressed are those of the Portfolio Solutions Group at the time of writing/of this presentation and are subject to change at any time due to market, economic, or other conditions, and may not necessarily come to pass. Forecasts/estimates are based on current market conditions, subject to change, and may not necessarily come to pass. **Past performance is no guarantee of future results**.

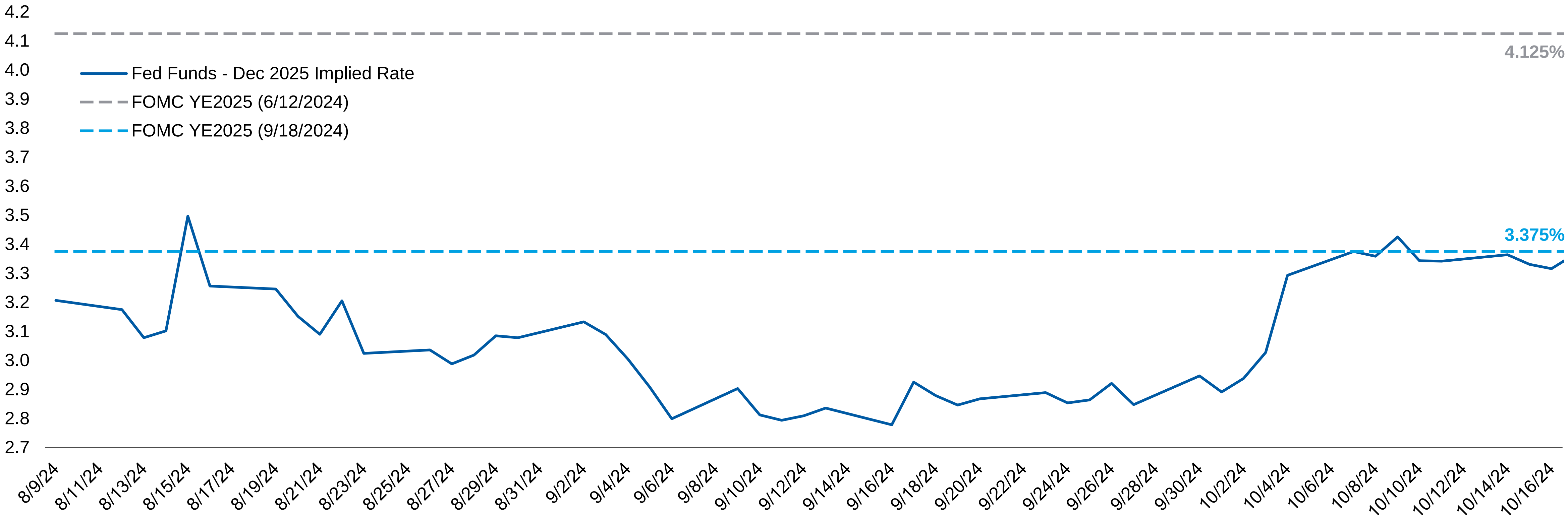
TOP IDEAS

Covering Underweight Duration

Following the September Fed meeting, the market was pricing in an aggressive rate cutting cycle, with the Fed Funds rate projected to reach under 2.8% by end 2025. We thought this path was too steep relative to our view of the economy, and further reduced our duration exposure. Now with the market aligned with the Fed, we are more constructive on rates.

December 2025 Fed Funds Futures Are Now in Line with Fed Projections

Market pricing of Fed rate cut expectations has now moved back in line with FOMC projections



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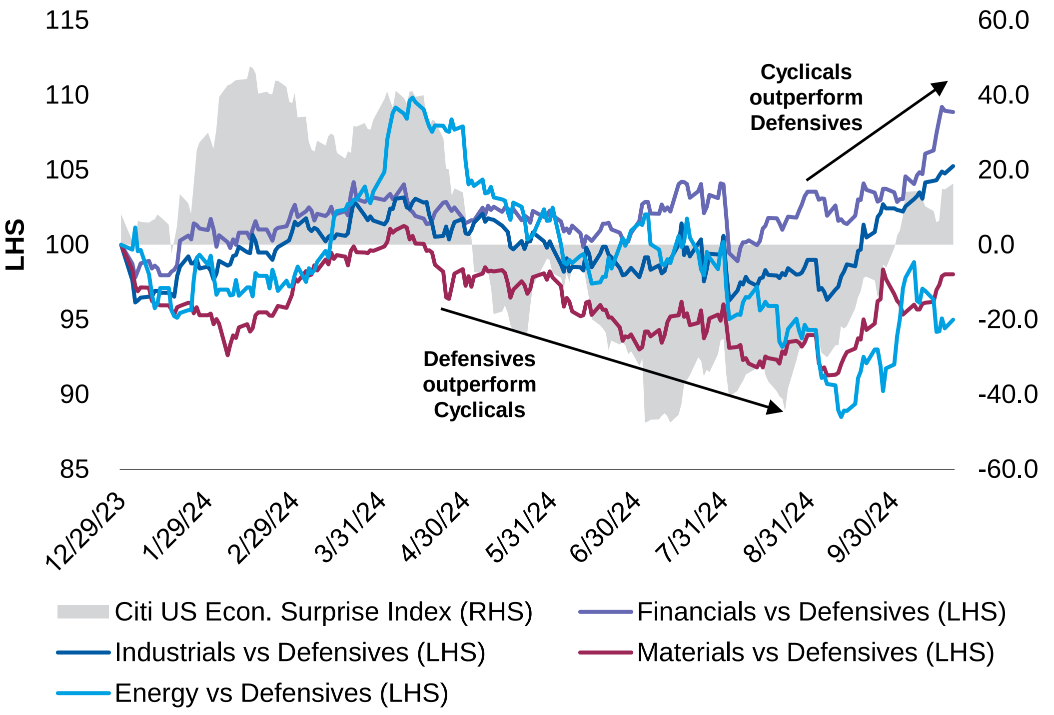
TOP IDEAS

Financials Are Our Preferred Cyclical Sector Exposure as Macro Data Improves

The macro data has improved since August, driving cyclical sector outperformance relative to defensives. Among cyclical exposures, we believe Financials offer an attractive risk/reward profile. The sector's positive exposure to rates may help the sector outperform both in our soft-landing base case, and a risk scenario driven by renewed inflation concerns.

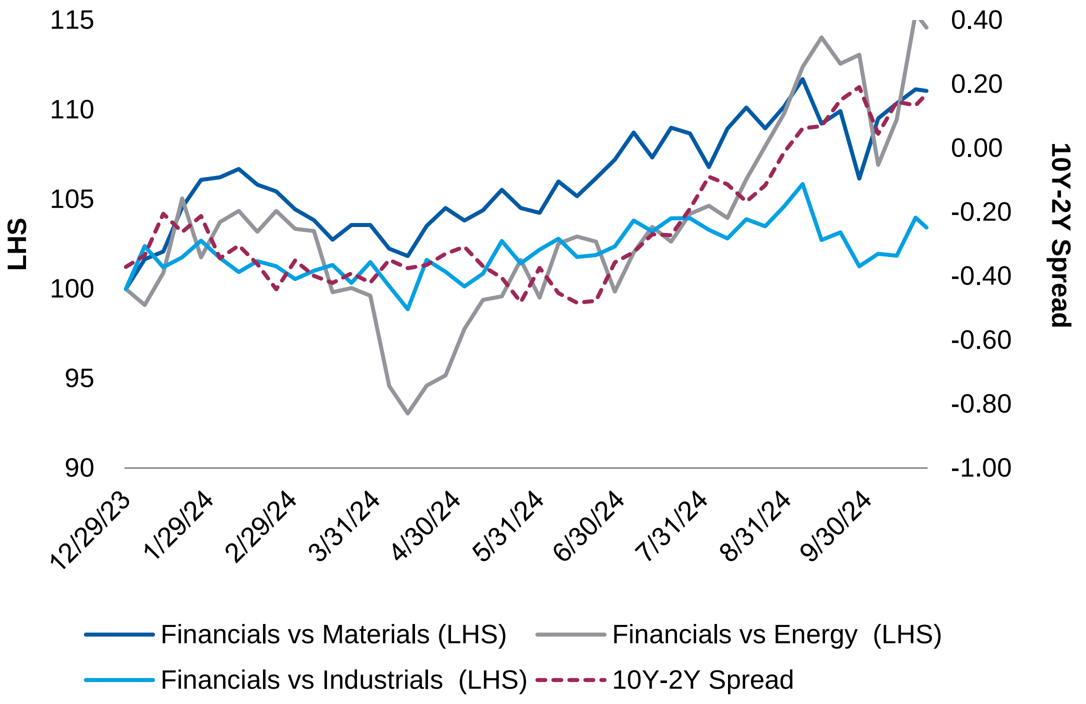
Stronger Macro Data Supported Cyclicals Over Defensives

Individual MSCI USA cyclical sectors vs MSCI USA Defensives Index



Financials Outperform Other Cyclicals, Driven by Rates

MSCI USA Financials relative performance vs stated cyclical sectors



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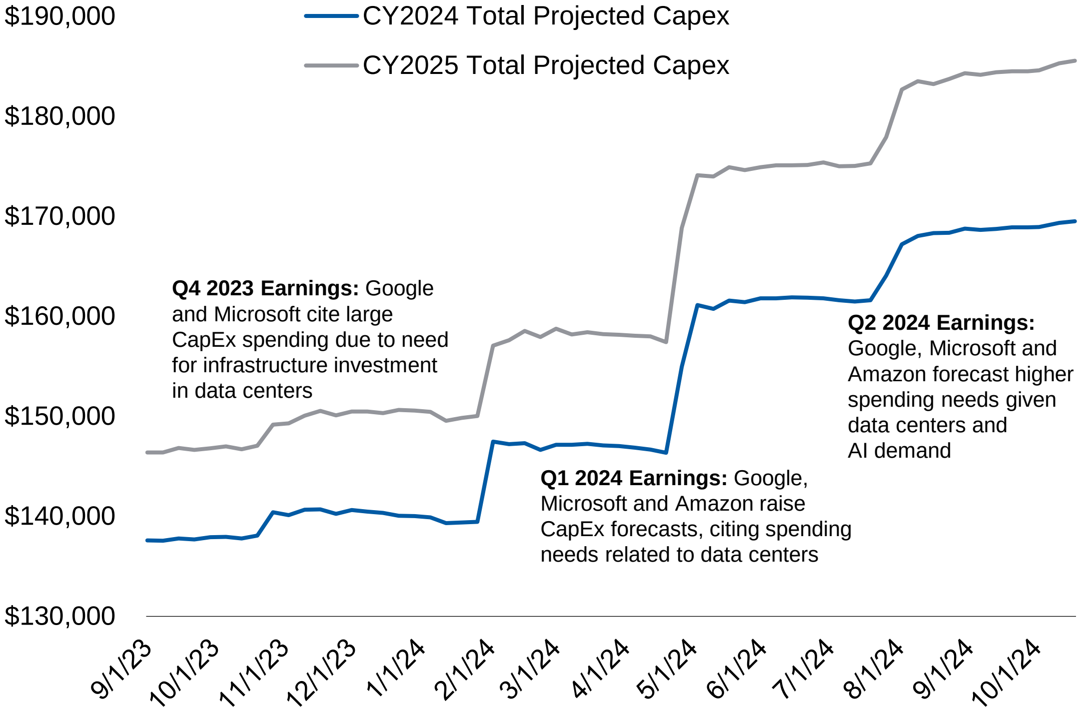
TOP IDEAS

U.S. Utilities Have Benefitted from Structural Growth in U.S. Power Demand

Three of the largest investors in AI (Google, Amazon, Microsoft) provided strong forward guidance for capital expenditures in early 2024 given needs to invest in AI-related infrastructure and data centers. Positive forecasts for the data center buildout have helped catalyze outperformance for utilities relative to other defensive sectors.

Total Forecasted Capital Expenditures From Google, Microsoft and Amazon Have Trended Higher This Year

Total projected for FY2024 and FY 2025 (in $ millions)



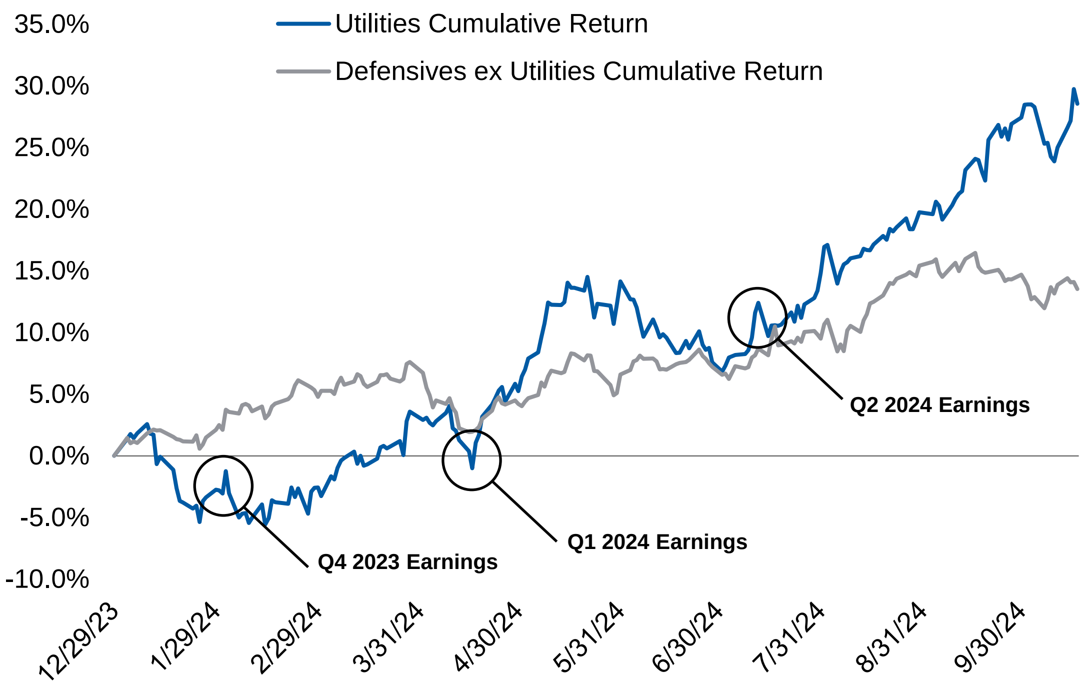
Q4 2023 Earnings: Google and Microsoft cite large CapEx spending due to need for infrastructure investment in data centers

Q1 2024 Earnings: Google, Microsoft and Amazon raise CapEx forecasts, citing spending needs related to data centers

Q2 2024 Earnings: Google, Microsoft and Amazon forecast higher spending needs given data centers and AI demand

Utilities Have Outperformed Other Defensive Sectors YTD in Part Due to Sensitivity to Data Center Demand

Utilities YTD performance vs. consumer staples/health care blended average



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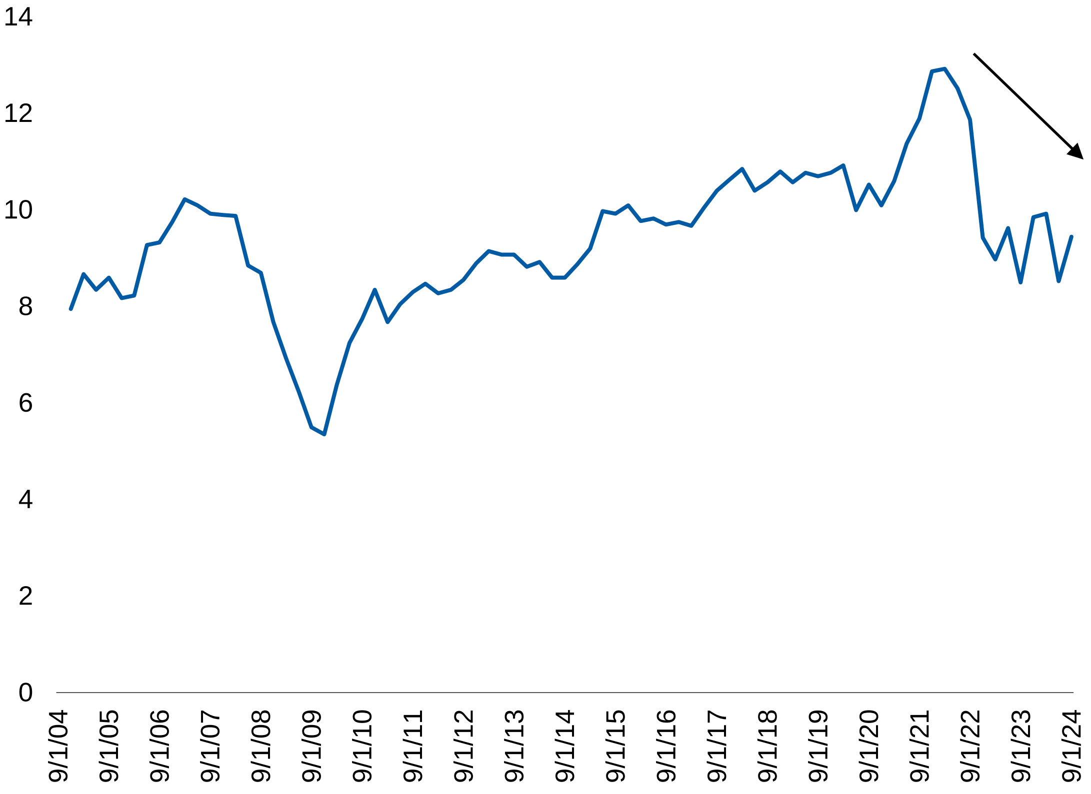
TOP IDEAS

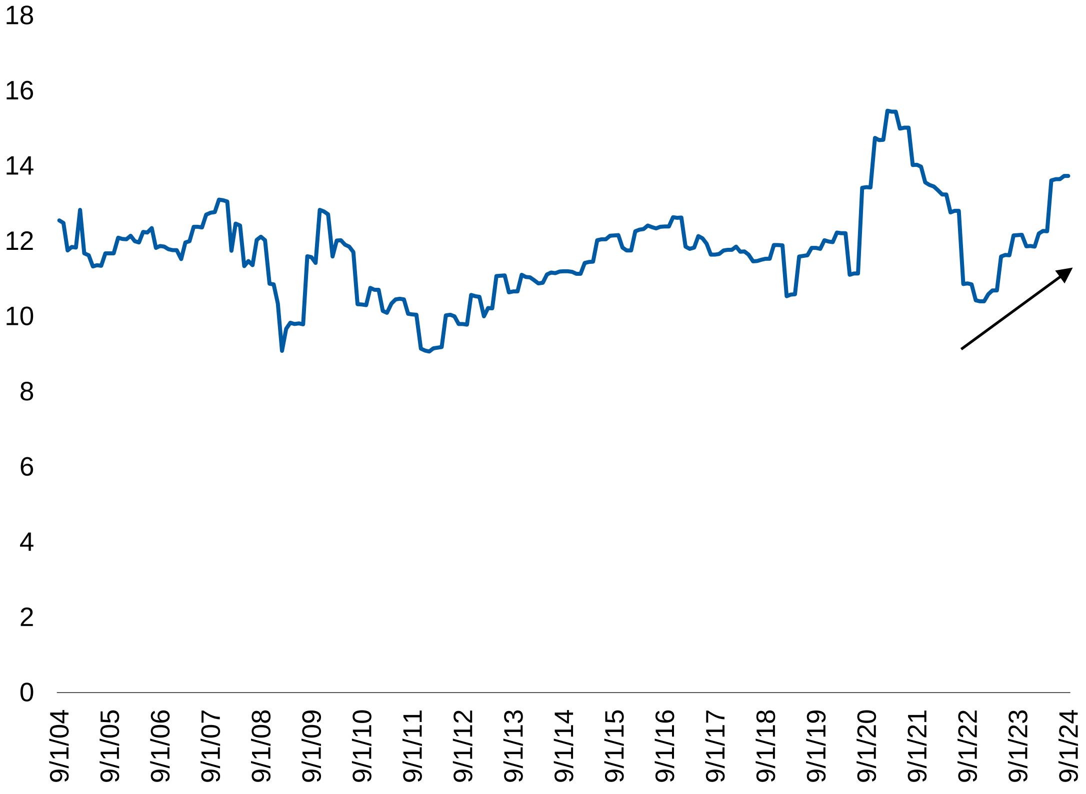
Private Equity Is at an Attractive Entry Point

PE valuations have adjusted to lower levels in 2024, although with volatility in the data. In contrast, public market valuations continue to rally.

Buyout Valuation Multiples



EV/EBITDA MSCI World



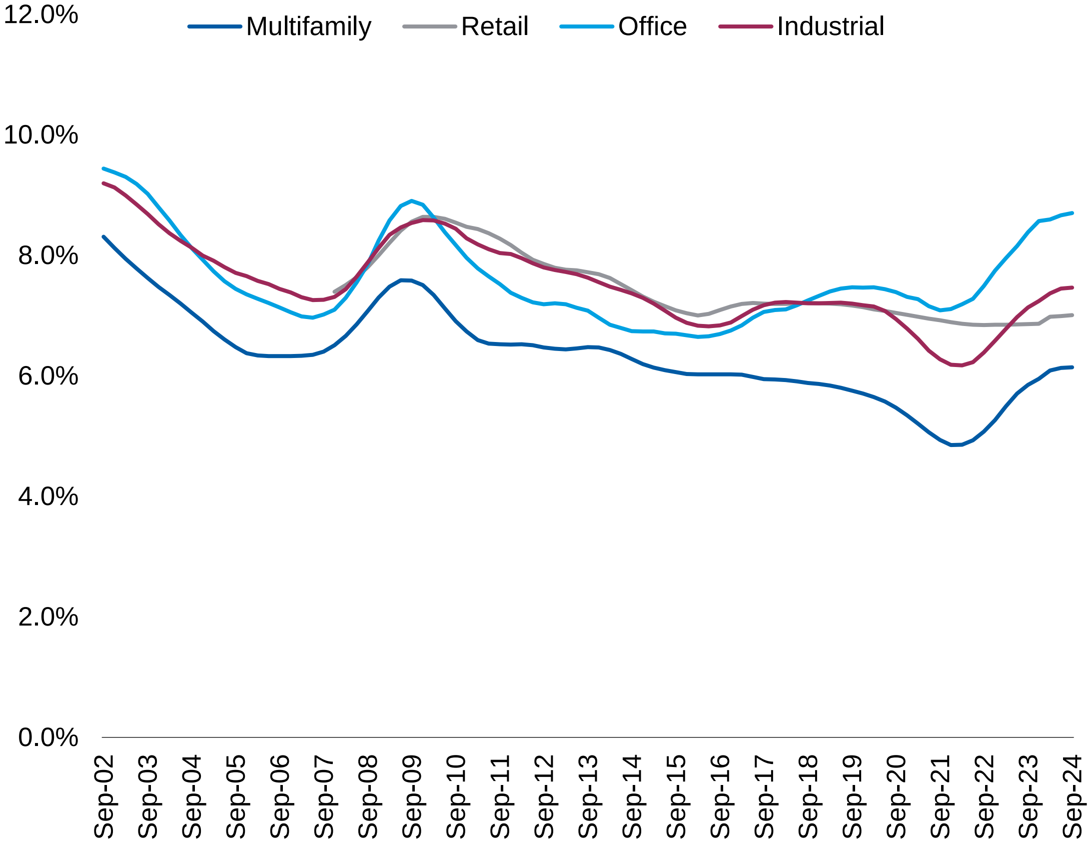
Sources: Bloomberg, Preqin as of September 30, 2024. This information reflects the views of the Portfolio Solutions Group as of the date hereof and not of any future date and are subject to change without notice in response to changing circumstances and market conditions. Senior Debt are loans secured by collateral that must be paid off before other debts when a company goes into default. Subordinated Debt are loans which rank after other debts (e.g. Senior Debt) if a company falls into default, and therefore carries more risk for the lender. EBITDA stands for Earnings Before Interest, Taxes, Depreciation and Amortization, a reflection a firm's short-term operational efficiency. A lower debt/EBITDA ratio generally reflects a healthier company from a financial standpoint, representing a higher level of cash from earnings to cover debt payments, viewed as less risky for an investor. **Past performance is no guarantee of future results**.

TOP IDEAS

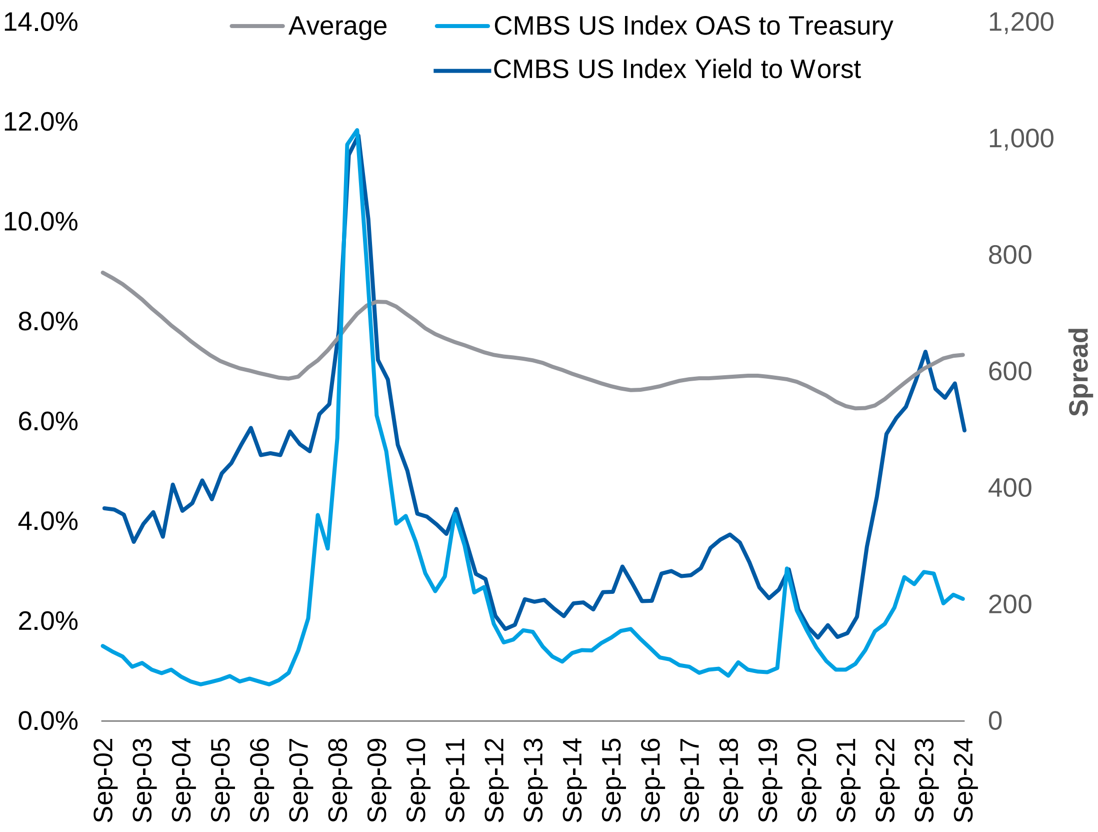
Commercial Real Estate Opportunity Set Strengthening

Valuations remain expensive against treasuries; however, we have reached the peak in cap rates as the market remains stable with no broad distress. Supply issues are subsiding while the cost of debt is receding.

Cap Rates



Cap Rates vs. Cost of Debt



Sources: CoStar, Bloomberg. This information reflects the views of the Portfolio Solutions Group as of the date hereof and not of any future date and are subject to change without notice in response to changing circumstances and market conditions. Not to be construed as an investment or research recommendation. Forecasts/estimates are based on current market conditions, subject to change, and may not necessarily come to pass. **Past performance is no guarantee of future results**.

TOP IDEAS

Capital Markets Investment Framework

Representative Allocations from the Portfolio Solutions Group

🟦 Current allocation
⬅ Change from previous

– – High conviction underweight
– Underweight
= Neutral
+ Overweight
++ High conviction overweight

Asset Allocation	Our View					Commentary
	– –	–	=	+	++	
Bonds						
Duration		➡	🟦			Last month we felt that market pricing of Fed rate cut expectations was too aggressive, thus bond yields fell too low. At that time, we moved further underweight duration. With the UST 10-year at or above 4%, lifted by stronger macro data, we took profits and added duration back to portfolios. Using the UST 10-year rate as a proxy for duration, we think 4%-4.25% represents the fair value range. We maintain selective credit exposure. Spreads are tight, but we expect default rates to remain low.
Credit				🟦		
Equities						
Risk Level			🟦			A soft landing is ultimately a constructive backdrop for risk assets, but our optimism is constrained to a degree by the absence of excess risk premium in equities. Within this environment, we look to be opportunistic, taking advantage of overshoots both to the upside and to the downside.
Alternatives						
Private Markets			➡	🟦		We believe moderating asset prices and low transaction activity in equity private markets reached their much-anticipated turning points mid-2024. We expect investor cash flows to recover because of increasing market activity, and asset pricing to offer an attractive entry point. In private credit, loan pricing and terms are now in line with the long-term averages, but elevated rates and muted defaults are keeping total return expectations elevated.
Hedge Funds				🟦		Hedge funds are benefiting from a constructive market environment for skill-based managers. We maintain a preference for market neutral, relative value equity and macro strategies.
Commodities			🟦			We are neutral on key commodity markets: geopolitical upside risks are balanced by high spare capacity in markets such as crude, which limit upside absent physical disruptions.
Transition						
Cash/Short Duration			🟦	⬅		In adding duration back to portfolios, we reduce our position in cash and short duration instruments.

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TOP IDEAS

Global Fixed Income

Representative Positioning from Portfolio Solutions Group

■ **Current allocation**
⬅ **Change from previous**

– – High conviction underweight
– Underweight
= Neutral
+ Overweight
++ High conviction overweight

Fixed Income	Our View					Commentary
	– –	–	=	+	++	
Bonds						
U.S. Treasuries		➡	■			With the UST 10-year yield now back above 4%, we will be looking to add duration back into portfolios. Using the 10-year as a proxy for duration, we view 4%-4.25% as the fair value range.
Inflation Linked Bonds			■			We see some value in TIPS relative to nominal treasuries over the medium term, with breakeven inflation still reasonably subdued.
Eurozone Govt. Bonds		➡	■			We decreased our duration underweight after the recent leg up in bond yields.
EM Hard Currency Govt. Bonds				■		EMD spreads have narrowed a lot since their selloff over the summer. While somewhat expensive, we still see relative value in the asset class versus other very expensive parts of fixed income.
EM Local Currency Govt. Bonds			■			EM Local appears to offer some value on a relative basis with valuations closer to fair versus history, rather than rich. However, we assign a high probability to the USD rallying in the case of a Trump victory, which would be a negative for the asset class.
Public Credit						
Municipal Bonds			■	⬅		Muni ratios versus Treasuries have tightened and now look closer to fair value than cheap. We still like the asset class for taxable investors, but it looks marginally less attractive than it did a month ago.
Investment Grade		■				Spreads are near historical tights, excess return over USTs should be minimal, and IG remains sensitive to left-tail outcomes.
MBS/ABS					■	High conviction in ABS and yield per unit of credit quality remains attractive. U.S. 30-year fixed mortgage rates are higher than BB Corporate yields, a rare occurrence in 25 years.
High Yield			■			Our view of the economy has improved, likely signaling a lower future default path. However, the High Yield market has largely priced that in with index spreads now under 300 bps (basis points).
Bank Loans			■			Pricing Bank Loans to the forward curve makes them look slightly less attractive. A lot of the perceived "value" in loans is coming from the lower rated part of the market, as it is with High Yield.

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TOP IDEAS

Global Equity

Representative Positioning from Portfolio Solutions Group

🟦 Current allocation
⬅ Change from previous

– –	High conviction underweight
–	Underweight
=	Neutral
+	Overweight
++	High conviction overweight

Equity	– –	–	=	+	++
Regional					
Developed Markets			■		
U.S.			■		
Eurozone				■	
Japan				■	
Emerging Markets			■		
Style					
Growth vs. Value			■		
Quality				■	
Large Cap vs. Small Cap				■	
Dividend			■		

Commentary

Neutral U.S. equities as multiples (~21x 2025 consensus) sit at levels last seen during the peak of the pandemic and the dotcom bubble. Both valuation and growth expectations are skewed by the largest index weights, driven by AI themes. Equal-weighted multiples are high, but less extended.

We remain overweight European equities via specific segments of the market where the risk/return skew is favorable. We continue to see European banks as attractive, though we closed our French equities position last month.

The strengthening JPY (yen) is a risk for Japanese equities, but the risk looks properly priced as Japan has derated and is now trading at a 20% discount vs global equities. We maintain overweight, as we think the JPY will strengthen but at a gradual pace, while structural improvements remain on track.

The absence of a global hard landing and ongoing DM central banks rate-cut cycle are supportive for EM assets. Structural concerns persist for China, and we are not convinced that recent stimulus announcements can overcome these challenges.

Growth style indexes remain disproportionately exposed to Big Tech, where we seek to keep our risk exposure close to neutral.

With little excess risk premium in equities and a limit to economic growth acceleration due to inflation risk, we continue to prefer a tilt toward Quality. We balance with selective cyclical exposure.

The window for small cap outperformance is narrow, requiring Goldilocks growth and inflation

We see balanced risk for Dividend Yield style exposures. High dividend yield as an independent style factor does not imply Quality, though many dividend focused funds also seek Quality factors.

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TOP IDEAS

Alternatives

Representative Positioning from Portfolio Solutions Group

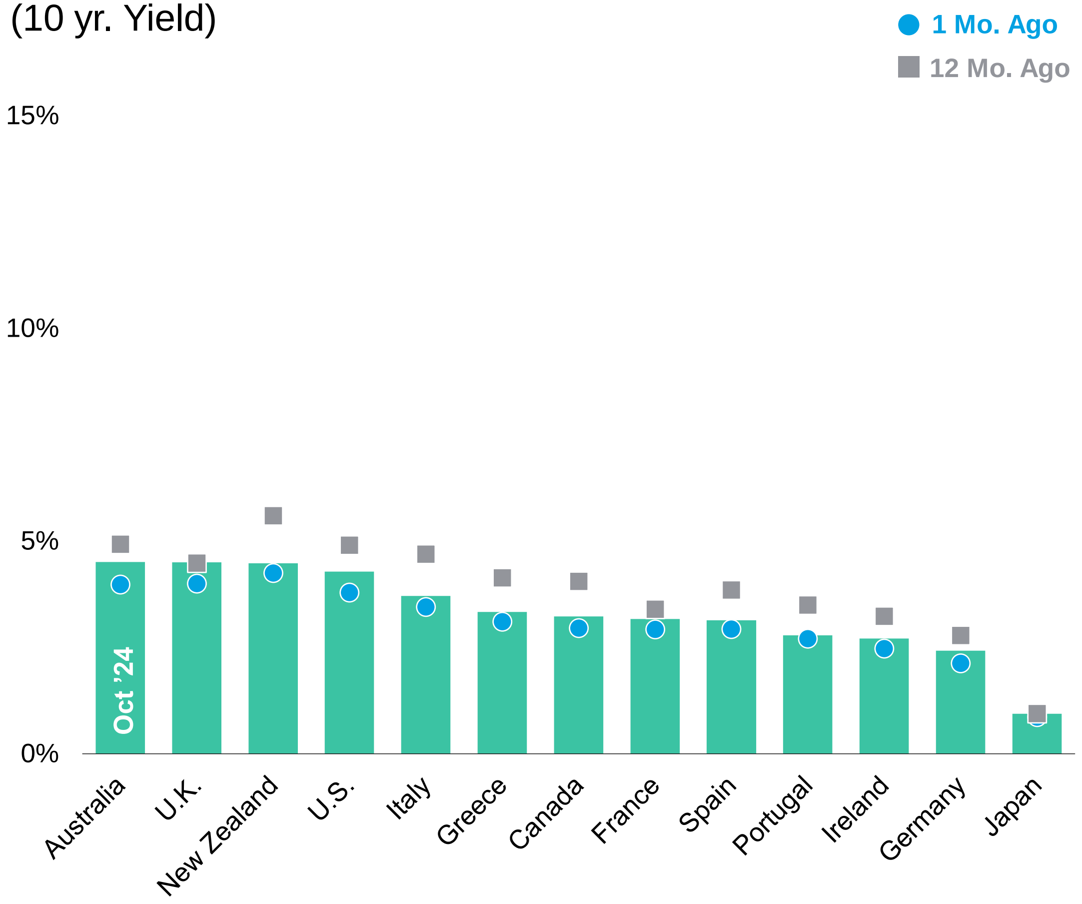
Alternative Assets	**Commentary**
Private Markets	
Private Equity	We believe moderating asset prices and low transaction activity in private equity reached their much-anticipated turning points mid-2024. We expect investor cash flows to recover because of increasing market activity, and asset pricing to offer an attractive entry point for strategies that have the tool kit to pursue value creation within an environment of higher debt service costs and lower leverage multiples. We continue to focus on strategies with compelling opportunities and expertise across revenue growth initiatives, margin expansion and capital structure optimization, and we believe the middle market is particularly well-placed to deliver attractive returns in this environment. Limited exits across the industry YTD further emphasize the importance of selecting a strategy with a clear value-creation plan.
	Commercial core real estate ended a run of seven consecutive negative quarters with a positive total return in 3Q24. This protracted adjustment was driven by higher debt costs and pockets of elevated supply. A significant amount of commercial real estate debt matures this year, which is expected to drive higher transaction volumes with attractive entry valuations. Long-term demand tailwinds in key sectors remain in place while supply issues are starting to subside. We expect these dynamics to lead to further improved pricing and represent a compelling opportunity.
Private Real Assets	Private infrastructure is benefiting from the tailwinds of several mega trends, including the digitization of society and economies, and the energy transition. Within the two segments, we have started to see a divergence in performance and valuations based on the underlying operating business structures. For example, lower energy prices are challenging renewable energy generation businesses with high merchant exposure. Within digital, significant capital has been deployed in the hyperscale space, increasingly more so during the past twelve months as AI has garnered additional attention. Smaller opportunities, such as co-location data centers, have seen less upward pressure on valuations. Opportunities with high-quality enterprise customers could present an interesting data center diversifier. Transport has also seen additional interest recently as assets that have recovered post-COVID are now changing ownership.
Private Credit	Private loan pricing and terms are now in line with the long-term average, but elevated rates and muted defaults are keeping total return expectations elevated. As corporates continue to seek ways to manage cashflow, custom solution providers can capitalize on favorable pricing / terms for opportunities that fall in the white space between more rigid mandates.
Liquid Alternatives	
Hedge Funds	Hedge funds are benefiting from a constructive market environment for skill-based managers. We maintain a preference for market neutral, relative value equity and macro strategies. Within macro strategies, we favor discretionary strategies that are tactically oriented given supportive levels of market and fundamental economic dispersion. Within equity strategies, we continue to have conviction in fundamental long/short equity, but also have increasing confidence in quantitative equity strategies that are benefiting from the reduction in asset price correlation at the stock level caused by geopolitical and U.S. election related uncertainty.
Commodities	We add exposure to oil prices in our portfolios: while high OPEC spare capacity and generally healthy supply from non-OPEC countries should limit oil price upside all things equal, the risk of an escalation in the Middle East with potentially big upside to oil prices skews outcomes more favorably.

For informational purposes and does not constitute an offer or a recommendation to buy or sell any particular security or to adopt any specific investment strategy. The tactical views expressed above are a broad reflection of our team's views and implementations, expressed for client communication purposes. Individual team allocations may differ. The information herein does not contend to address the financial objectives, situation or specific needs of any individual investor. The signals represent the Portfolio Solutions Group view on each asset class. Note: Over/underweight in private markets refers to decisions regarding the flow of new investments, not the stock of existing investments.

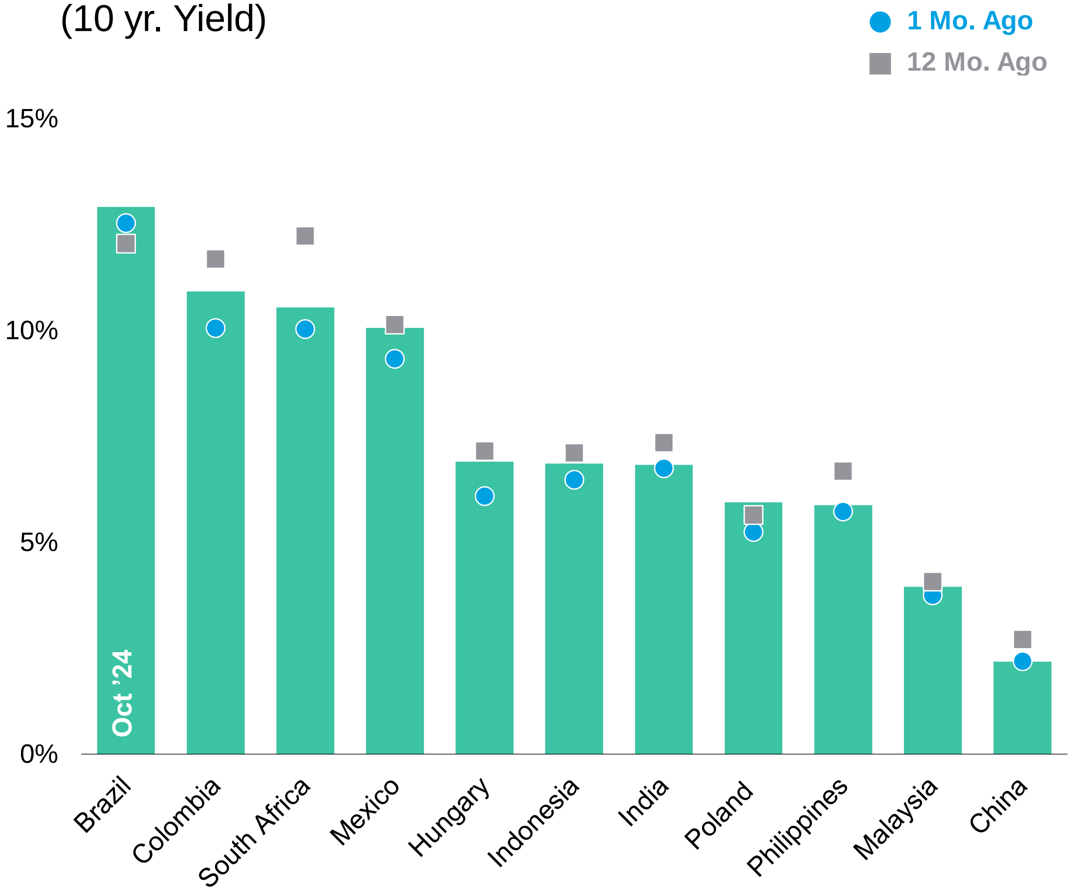
BONDS

Sovereign Bond Yields

Developed Markets
(10 yr. Yield)



Emerging Markets
(10 yr. Yield)



Past performance is no guarantee of future results.
It is not possible to invest directly in an index. Source: Factset as of 10/31/24. Data provided is for informational use only. See end of report for important additional information.

BONDS

Key Rates (%)

Security	Current	12-Mo. Ago	Average	Minimum	Maximum
1-Week SIFMA	3.24	4.09	3.44	1.90	4.55
Secured Overnight Financing Rate	4.90	5.35	5.27	4.81	5.40
1-Mo SOFR	4.66	5.32	5.25	4.66	5.37
3-Mo SOFR	4.56	5.38	5.21	4.56	5.39
2-Yr Treasury	4.16	5.06	4.45	3.54	5.05
5-Yr Treasury	4.15	4.82	4.13	3.41	4.71
10-Yr Treasury	4.28	4.90	4.19	3.62	4.76
30-Yr Treasury	4.48	5.06	4.38	3.93	4.95
2-Yr Japan	0.43	0.13	0.24	0.01	0.47
10-Yr Japan	0.94	0.94	0.84	0.56	1.10
2-Yr German Bund	2.31	2.99	2.67	2.02	3.11
10-Yr German Bund	2.42	2.78	2.36	1.91	2.75
2-Yr UK Gilt	4.48	4.74	4.22	3.53	4.76
10-Yr UK Gilt	4.50	4.48	4.06	3.46	4.50
Bloomberg US Agg	4.73	5.65	4.80	4.10	5.50
Bloomberg Global Agg	3.64	4.35	3.73	3.26	4.27
Bloomberg US Corporate	5.16	6.35	5.29	4.64	6.21
Bloomberg US Long Corporate	5.55	6.54	5.53	5.07	6.39
Bloomberg US Municipal	3.66	4.49	3.55	3.21	4.47
Bloomberg US Long Municipal	4.27	5.18	4.22	3.94	5.15
US High Yield	7.33	9.48	7.81	6.98	9.40
US Loans	9.09	10.60	9.85	9.05	10.53

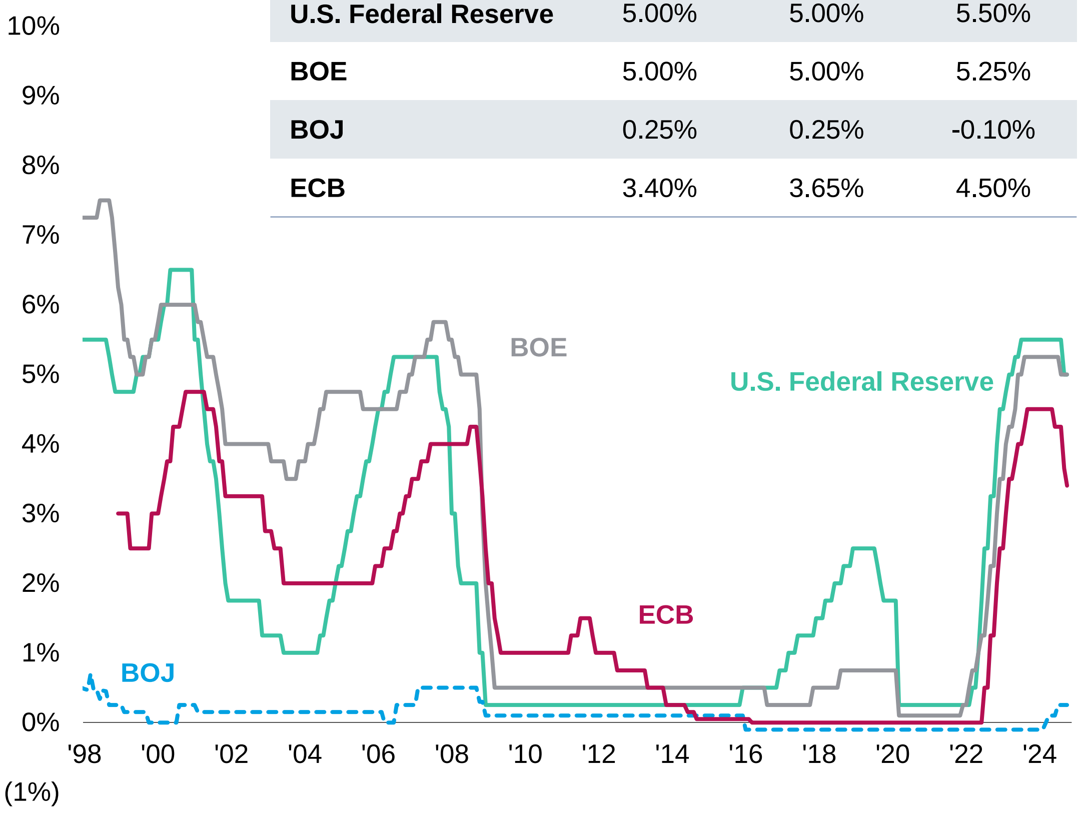
Past performance is no guarantee of future results.
It is not possible to invest directly in an index. Source: Bloomberg, Leveraged Commentary & Data (LCD), and Factset as of 10/31/24. Current represents most recent month. Average, minimum, and maximum measure a 12-month period ending most recent month. Data provided is for informational use only. US High Yield is represented by ICE BofA US High Yield Index. US Loans is represented by Morningstar LSTA U.S. Leveraged Loan Index. Bloomberg indices and ICE BofA US HY index using yield to worst. Morningstar LSTA U.S. Leveraged Loan Index using yield to maturity. SOFR is the Secured Overnight Financing Rate, a broad measure of secured overnight U.S. Treasury repo rates. See end of report for important additional information.

BONDS

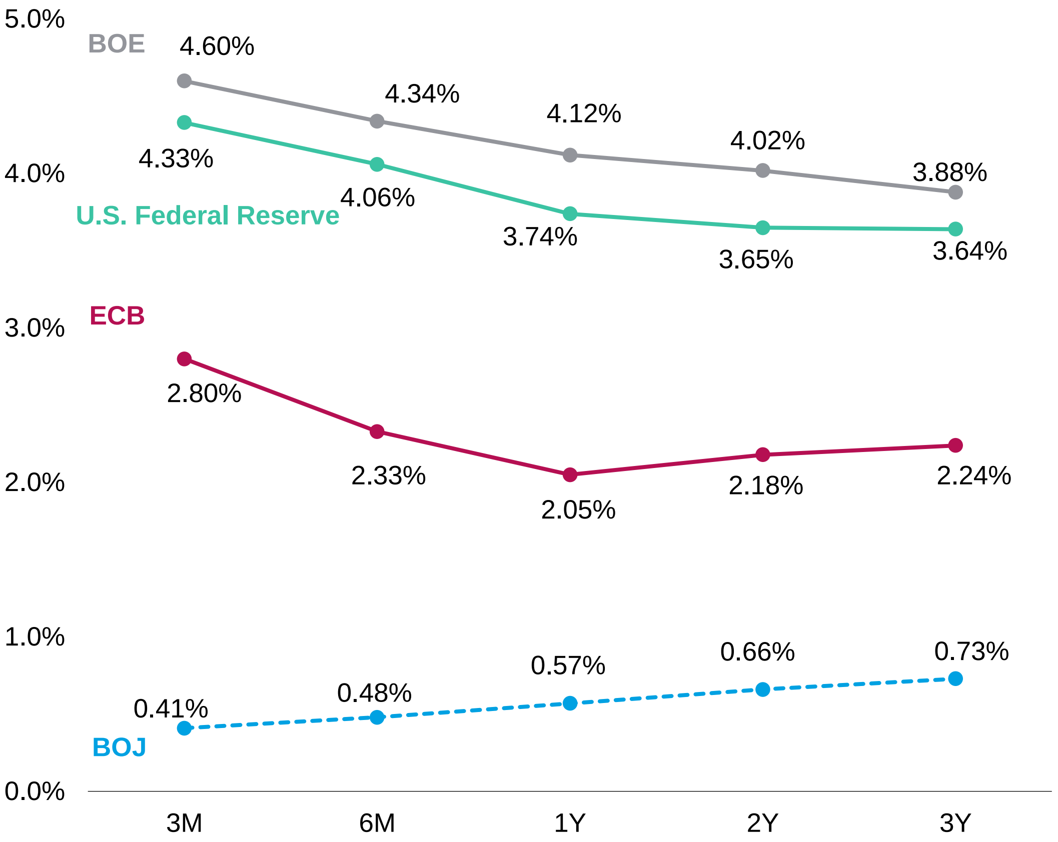
Monetary Policy

Central Bank Policy Rates

	Current	1-Mo. Ago	12-Mo. Ago
U.S. Federal Reserve	5.00%	5.00%	5.50%
BOE	5.00%	5.00%	5.25%
BOJ	0.25%	0.25%	-0.10%
ECB	3.40%	3.65%	4.50%



Market Expectations for Future Central Bank Rates

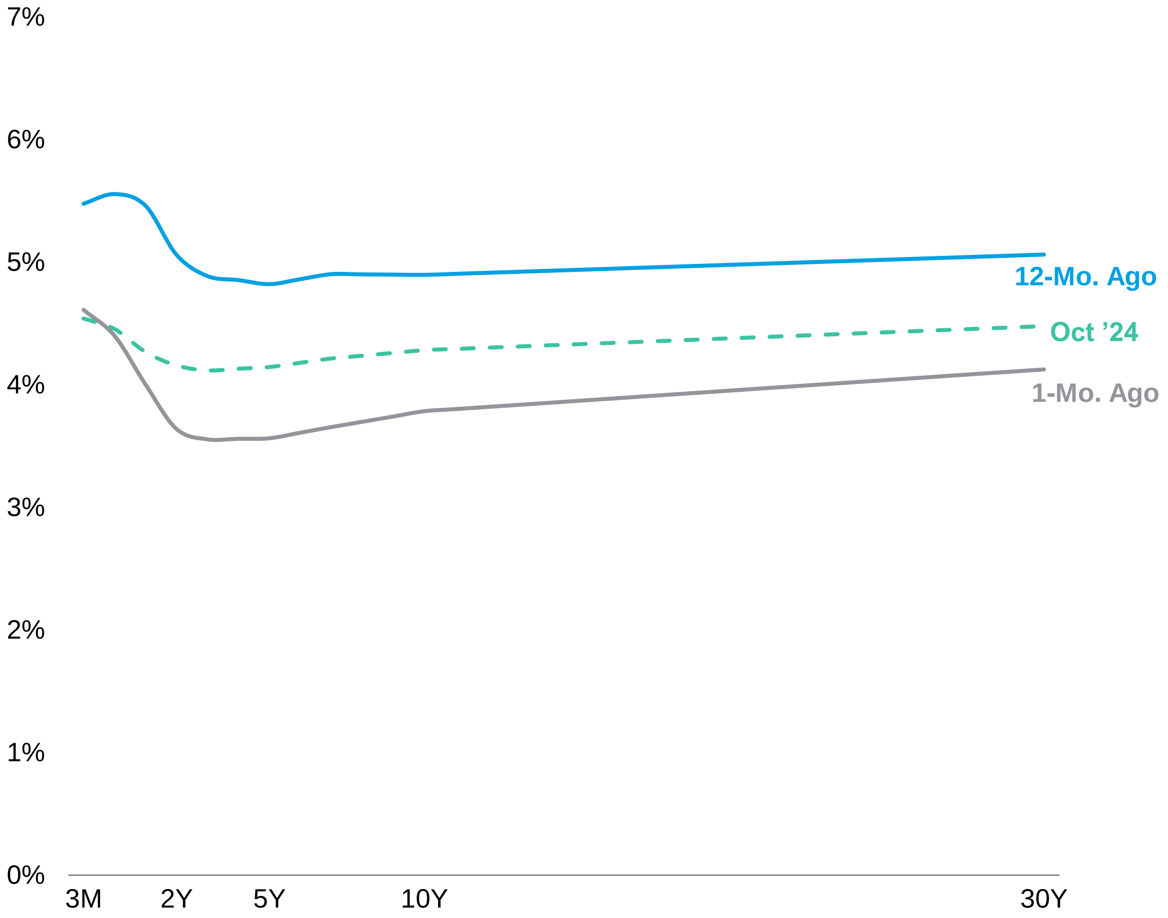


Source: Bloomberg, Factset as of 10/31/24. Data provided is for informational use only. See end of report for important additional information. Forecasts/estimates are based on current market conditions, subject to change, and may not necessarily come to pass.

BONDS

U.S. Treasury Yields

U.S. Treasury Yield Curves



	Yields & Performance				
	Yield (%)			Total Return (%)	
Security	Current	1-Mo. Ago	12-Mo. Ago	1-Mo.	12-Mo.
3-mo. Treasury	4.54	4.61	5.48	0.38	5.39
6-mo. Treasury	4.46	4.40	5.56	0.32	5.60
2-yr. Treasury	4.16	3.64	5.06	-0.65	5.45
3-yr. Treasury	4.12	3.56	4.89	-1.22	5.89
5-yr. Treasury	4.15	3.56	4.82	-2.30	6.72
10-yr. Treasury	4.28	3.79	4.90	-3.58	9.02
30-yr. Treasury	4.48	4.13	5.06	-5.37	14.11

Source: Factset, Morningstar as of 10/31/24. Data provided is for informational use only. Past Performance is not a reliable indicator of future results. See end of report for important additional information.

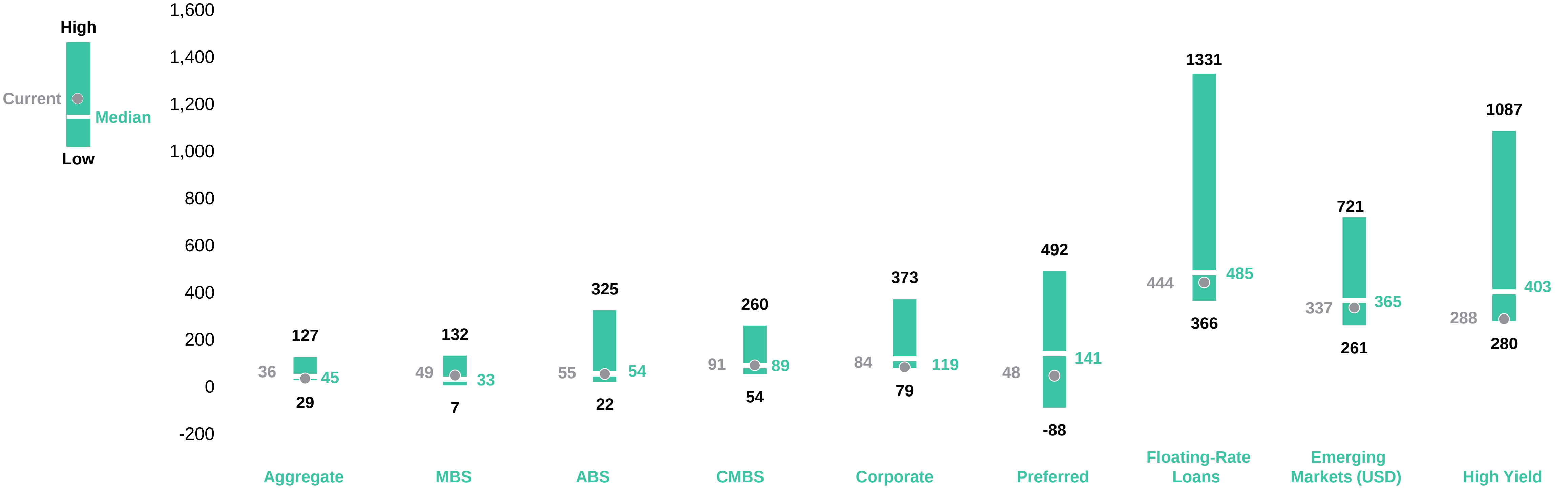
BONDS

Characteristics and Performance Analysis

Index	Averages						Total Returns (%)						
	Coupon (%)	Price ($)	Yield to Worst (%)	Spread (bps)	Maturity (yrs.)	Duration (yrs.)	1-Mo.	3-Mo.	YTD	1Y	3Y	5Y	10Y
U.S. High Grade													
Bloomberg U.S. Aggregate Index	3.39	91.5	4.73	36	8.4	6.1	-2.48	0.25	1.86	10.55	-2.20	-0.23	1.49
U.S. Treasury	2.93	91.6	4.27	–	7.7	5.9	-2.38	0.06	1.36	8.41	-2.55	-0.70	1.00
U.S. Mortgage Backed Securities	3.29	88.8	5.08	49	7.7	6.1	-2.83	-0.09	1.54	11.44	-2.08	-0.60	1.02
U.S. Asset Backed Securities	4.78	99.6	4.76	55	3.7	2.7	-0.70	1.25	4.34	8.14	1.69	1.91	2.05
U.S. Commercial Mortgage Backed Securities	3.29	92.7	5.13	91	4.7	4.2	-1.84	0.66	4.29	10.75	-0.77	0.78	2.16
U.S. Corp. Investment Grade	4.26	93.2	5.16	84	10.7	7.0	-2.43	0.86	2.77	13.63	-2.07	0.54	2.57
Bloomberg Municipal Bond Index	4.58	101.9	3.66	–	13.6	6.2	-1.46	0.30	0.81	9.70	-0.30	1.05	2.30
Bloomberg Taxable Municipal Bond Index	4.36	92.7	5.04	–	14.4	7.8	-2.76	-0.09	2.42	12.82	-2.98	0.18	2.91
ICE BofA US Inflation-Linked Treasury Index	1.02	93.1	1.92	–	7.6	5.1	-1.81	0.45	3.21	8.69	-1.80	2.11	2.27
ICE BofA Preferred Index (Fixed Rate)	5.30	94.1	5.29	48	–	5.2	-1.09	4.25	9.17	20.33	0.95	2.61	4.52
U.S. High Yield													
ICE BofA US High Yield Index	6.35	95.7	7.33	288	4.8	3.2	-0.55	2.68	7.44	16.47	2.95	4.38	4.78
Morningstar LSTA U.S. Leveraged Loan Index	S+3.48	96.9	9.09	444	4.5	–	0.86	2.22	7.45	10.56	6.68	6.02	4.92
Emerging Markets													
J.P. Morgan EM Bond Index (EMBI) Global Diversified	5.38	86.3	7.72	337	–	6.7	-1.72	2.42	6.78	18.16	-0.99	0.47	2.92
J.P. Morgan Corp. EM Bond Index (CEMBI) Broad Diversified	5.16	95.1	6.29	202	–	4.4	-0.86	2.05	7.57	14.90	0.92	2.44	3.81
J.P. Morgan Govt. Bond Index-EM (GBI-EM) Global Diversified	5.54	–	6.38	–	–	5.2	-4.61	1.65	0.10	8.76	-0.53	-0.92	-0.06
Global Developed Markets													
Bloomberg Global Aggregate Ex-U.S. Index	2.27	96.0	2.70	33	8.6	7.0	-4.12	0.86	-1.43	8.65	-5.62	-2.87	-0.85
FTSE World Government Bond Index	2.47	–	3.02	–	–	7.2	-3.46	0.38	-0.84	8.37	-5.40	-2.85	-0.47
ICE BofA European Union Government Bond Index	2.09	94.2	2.83	49	8.9	7.3	-3.69	1.02	-0.79	10.73	-6.14	-3.06	-1.02
ICE BofA Developed Mkts HY Ex-Sub Fincl Index (USD Hedged)	6.10	95.9	7.02	321	3.7	3.1	-0.25	2.81	7.68	16.11	3.34	4.47	4.94
Bloomberg Euro-Aggregate Corporates (EUR)	2.44	96.3	3.34	104	5.0	4.4	-0.31	1.22	3.51	8.79	-1.08	-0.38	1.08
Bloomberg Pan-European High Yield Euro (EUR)	4.68	97.0	5.93	320	3.8	3.2	0.60	2.71	6.91	13.11	2.44	2.93	3.72

Past performance is no guarantee of future results. It is not possible to invest directly in an index. Source: Bloomberg, J.P. Morgan, ICE BofA Data Indices, LLC, Factset, and Leveraged Commentary & Data (LCD), as of 10/31/24. Data provided is for informational use only. See end of report for important additional information. Yield to maturity is shown for the Morningstar LSTA U.S. Leveraged Loan Index and the FTSE World Government Bond Index. S+ refers to SOFR (Secured Overnight Financing Rate) as the base rate. Loan Index spread represents the three-year discounted spread over SOFR. Returns of the ICE BofA Developed Mtks HY Ex-Sub Financial Index are USD Hedged. The averages for the index are unhedged. Returns and averages for the Bloomberg Euro-Agg Corps and Bloomberg Pan-Euro HY indices are in EUR (unhedged).

Spread Analysis (bps)



	Aggregate	MBS	ABS	CMBS	Corporate	Preferred	Floating-Rate Loans	Emerging Markets (USD)	High Yield
Max Spread Date	3/20/2020	3/19/2020	3/26/2020	3/25/2020	3/23/2020	3/23/2020	3/20/2020	3/23/2020	3/23/2020
Min Spread Date	4/14/2021	4/14/2021	6/21/2021	6/21/2021	10/17/2024	12/6/2017	4/20/2018	2/1/2018	10/30/2024
Spread on 12/31/23	42	47	68	126	99	148	490	384	339
Spread on 12/31/22	51	51	76	120	130	227	645	452	479
Spread on 12/31/21	36	31	38	68	92	113	428	369	310

Past performance is no guarantee of future results. It is not possible to invest directly in an index. Source: Factset and Leveraged Commentary & Data (LCD) as of 10/31/24. Spread history measures past 10 years. Data provided is for informational use only. See end of report for important additional information. All fixed-income spreads are in basis points and measure option-adjusted yield spread relative to comparable maturity U.S. Treasuries using daily data. Aggregate represented by Bloomberg US Aggregate Index. MBS represented by Bloomberg U.S. Mortgage Backed Securities (MBS) Index. ABS represented by Bloomberg U.S. Asset Backed Securities (ABS) Index. CMBS represented by Bloomberg U.S. CMBS Investment Grade Index. Corporate represented by Bloomberg U.S. Corporate Investment Grade Index. Preferred represented by ICE BofA Fixed Rate Preferred Securities Index. Floating-Rate Loans represented by Morningstar LSTA U.S. Leveraged Loan Index. Loan Index spread represents the three-year discounted spread over SOFR (Secured Overnight Financing Rate). Emerging Markets(USD) represented by J.P. Morgan Emerging Markets Bond Index (EMBI) Global Diversified. High Yield represented by ICE BofA US High Yield Index.

Corporate Bond Market Update

	Averages						Total Returns (%)						
	Coupon (%)	Price ($)	Yield to Worst (%)	Spread (bps)	Maturity (yrs.)	Duration (yrs.)	1-Mo.	3-Mo.	YTD	1Y	3Y	5Y	10Y
U.S. High Grade													
Bloomberg U.S. Corp. Investment Grade Index	**4.26**	**93.2**	**5.16**	**84**	**10.7**	**7.0**	**-2.43**	**0.86**	**2.77**	**13.63**	**-2.07**	**0.54**	**2.57**
AAA Index	3.30	84.0	4.74	34	17.3	10.2	-3.91	0.00	-0.30	12.76	-5.25	-1.46	1.81
AA Index	3.61	89.4	4.81	45	13.0	8.0	-2.96	0.43	1.25	11.94	-3.59	-0.78	1.58
A Index	4.12	93.4	5.01	70	10.5	6.9	-2.53	0.79	2.45	12.96	-2.17	0.27	2.32
BBB Index	4.50	93.7	5.35	103	10.4	6.7	-2.22	1.01	3.35	14.53	-1.63	1.05	2.95
U.S. High Yield													
ICE BofA U.S. High Yield Index	**6.35**	**95.7**	**7.33**	**288**	**4.8**	**3.2**	**-0.55**	**2.68**	**7.44**	**16.47**	**2.95**	**4.38**	**4.78**
BB Index	5.77	97.5	6.26	180	5.1	3.5	-0.89	1.73	5.87	14.42	2.10	4.05	4.84
B Index	6.89	97.6	7.35	286	4.6	2.9	-0.45	2.26	6.70	15.46	3.16	3.97	4.40
CCC Index	7.24	84.7	11.84	756	4.2	2.8	0.62	7.93	16.06	28.17	5.41	6.52	5.50
Morningstar LSTA U.S. Leveraged Loan Index	**S+3.48**	**96.9**	**9.09**	**444**	**4.5**	**-**	**0.86**	**2.22**	**7.45**	**10.56**	**6.68**	**6.02**	**4.92**
BBB Index	S+1.98	100.0	6.79	197	4.9	-	0.59	1.68	6.25	7.90	6.09	4.54	4.20
BB Index	S+2.67	99.7	7.56	277	4.9	-	0.71	1.81	6.56	9.04	6.63	4.92	4.46
B Index	S+3.78	98.2	9.17	448	4.4	-	1.02	2.50	7.96	11.45	7.16	6.57	5.25
CCC Index	S+4.66	83.1	17.12	1238	3.5	-	0.05	2.15	8.74	12.27	4.03	6.22	6.16
D Index	-	33.7	-	-	-	-	1.77	-8.53	-18.89	-17.91	-29.31	-27.86	-19.12

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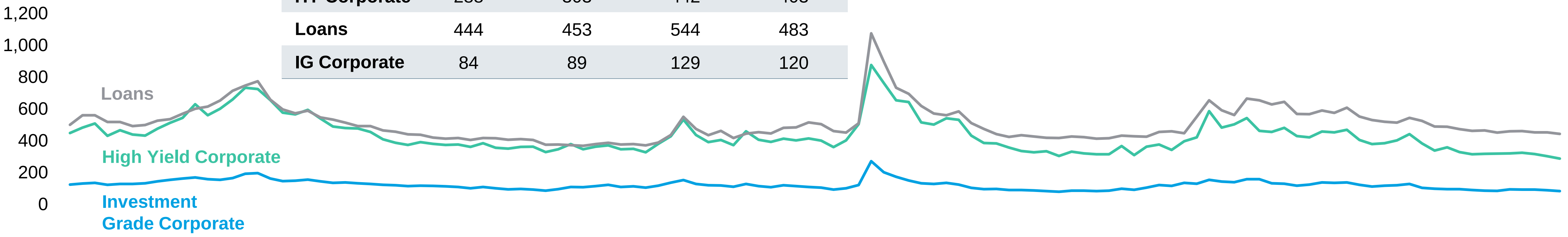
BONDS

Corporate Bond Market Update

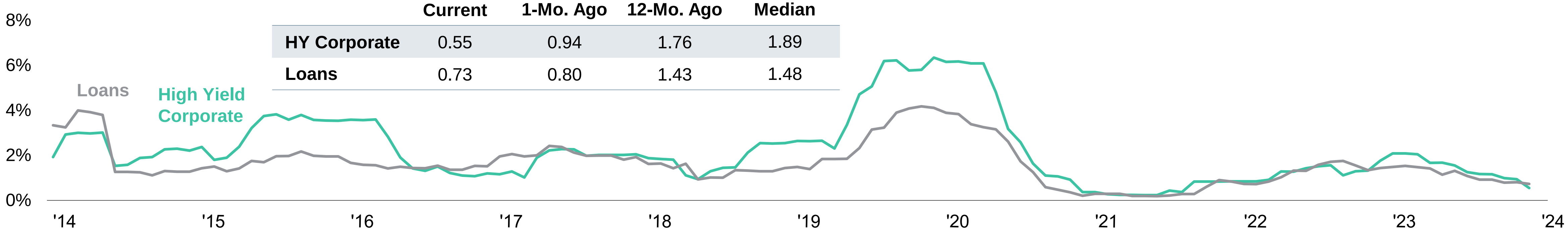
Average Spread (bps)

	Current	1-Mo. Ago	12-Mo. Ago	Median
HY Corporate	288	303	442	403
Loans	444	453	544	483
IG Corporate	84	89	129	120



Annual Default Rate

	Current	1-Mo. Ago	12-Mo. Ago	Median
HY Corporate	0.55	0.94	1.76	1.89
Loans	0.73	0.80	1.43	1.48



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It is not possible to invest directly in an index. Source: J.P. Morgan and Leveraged Commentary & Data (LCD), as of 10/31/24. Data provided is for informational use only. See end of report for important additional information. Corporate spreads are in basis points and measure option-adjusted yield spread relative to comparable maturity U.S. Treasuries. Loan Index spread represents the three-year discounted spread over SOFR (Secured Overnight Financing Rate).

BONDS

Municipal Bond Market Update

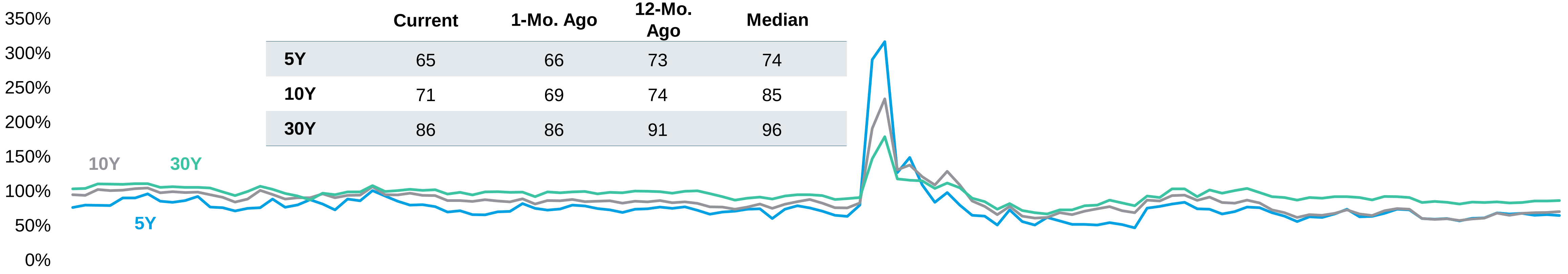
	Averages					Total Returns (%)						
	Coupon (%)	Price ($)	Yield To Worst (%)	Maturity (yrs.)	Duration (yrs.)	1-Mo.	3-Mo.	YTD	1Y	3Y	5Y	10Y
Bloomberg Municipal Bond Index	**4.58**	**101.9**	**3.66**	**13.6**	**6.2**	**-1.46**	**0.30**	**0.81**	**9.70**	**-0.30**	**1.05**	**2.30**
AAA Index	4.51	102.7	3.51	13.2	6.5	-1.56	0.29	0.09	9.10	-0.51	0.77	1.83
AA Index	4.61	102.9	3.53	13.1	6.1	-1.47	0.27	0.49	9.01	-0.38	0.90	2.08
A Index	4.57	100.2	3.89	13.9	6.2	-1.41	0.30	1.55	10.77	0.06	1.42	2.73
BBB Index	4.59	97.3	4.35	17.5	7.1	-1.25	0.63	2.94	14.00	0.12	1.85	3.43
5-Year Index	4.71	105.6	3.14	5.0	3.7	-1.04	0.94	1.17	6.60	0.10	1.01	1.65
10-Year Index	4.57	104.8	3.46	9.9	5.8	-1.65	0.14	-0.65	7.42	-0.30	1.05	2.36
22+ Year Index	4.60	97.9	4.27	26.7	9.8	-1.95	0.05	1.10	15.11	-1.67	0.57	2.73
Bloomberg High Yield Municipal Bond Index	**4.64**	**65.0**	**5.44**	**19.7**	**6.7**	**-1.52**	**0.53**	**5.84**	**17.47**	**0.67**	**2.71**	**4.40**
Hospital	5.27	75.4	5.83	20.4	5.9	-1.24	1.84	10.33	21.03	0.23	1.48	3.77
IDR/PCR	4.13	36.7	5.82	20.1	6.8	-1.35	0.18	3.91	16.13	-0.02	2.72	5.57
Tobacco	2.31	18.9	6.25	28.1	10.0	-1.49	-0.71	0.24	20.58	-1.35	3.06	7.18
Puerto Rico	3.59	55.8	4.65	19.3	7.1	-1.04	0.57	4.06	18.54	1.61	4.30	4.67

Past performance is no guarantee of future results.
It is not possible to invest directly in an index. Source: Bloomberg, Morningstar as of 10/31/24. Coupon and Yield To Worst figures are based on average market prices while Price is based on an average of par value. Data provided is for informational use only. See end of report for important additional information.

BONDS

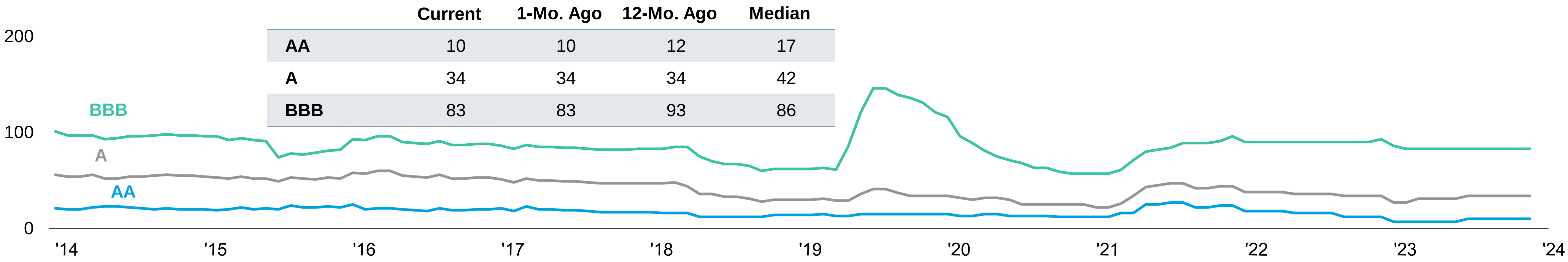
Municipal Bond Market Update

AAA Muni-to-Treasury Yield Ratios



	Current	1-Mo. Ago	12-Mo. Ago	Median
5Y	65	66	73	74
10Y	71	69	74	85
30Y	86	86	91	96

Credit Quality Spreads vs. AAA (bps)



	Current	1-Mo. Ago	12-Mo. Ago	Median
AA	10	10	12	17
A	34	34	34	42
BBB	83	83	93	86

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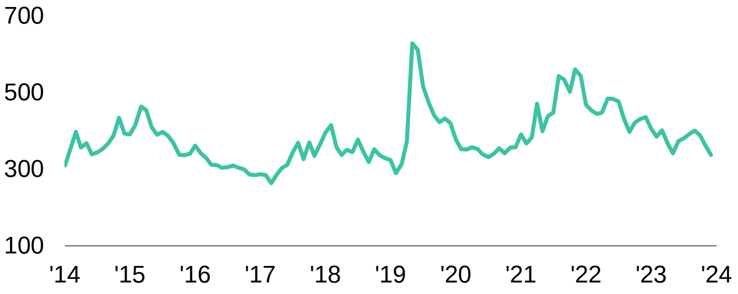
It is not possible to invest directly in an index. Source: Bloomberg as of 10/31/24. Data provided is for informational use only. See end of report for important additional information. All spreads are in basis points and measure option-adjusted yield spread relative to comparable maturity U.S. Treasuries.

BONDS

Emerging Markets Bond Market Update

Sovereign EMD Spreads (USD)

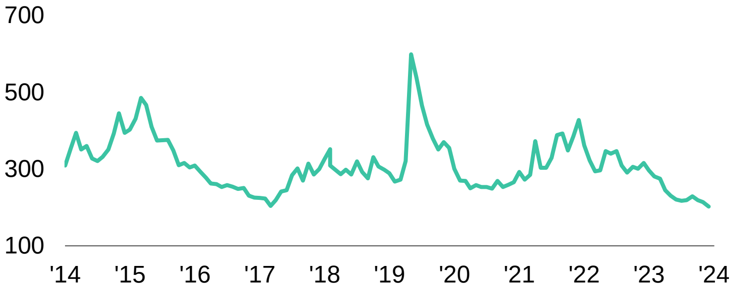
bps



	Avg. Spread (bps)
Current	337
1-Mo. Ago	361
12-Mo. Ago	436
Median	368

Corporate EMD Spreads (USD)

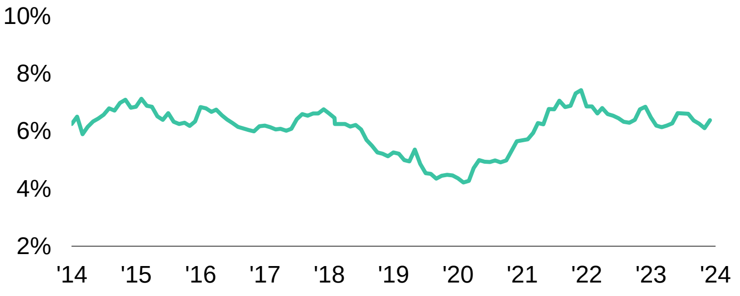
bps



	Avg. Spread (bps)
Current	202
1-Mo. Ago	214
12-Mo. Ago	316
Median	301

Local EMD Yields (%)

bps



	Avg. Yield (%)
Current	6.38
1-Mo. Ago	6.11
12-Mo. Ago	6.85
Median	6.28

	Averages				Total Returns (%)						
	Coupon (%)	Price ($)	Yield (%)	Duration	1-Mo.	3-Mo.	YTD	1Y	3Y	5Y	10Y
JPMorgan Emerging Markets Bond Index (EMBI) Global Diversified	5.38	86.3	7.72	6.7	-1.72	2.42	6.78	18.16	-0.99	0.47	2.92
JPMorgan Corporate Emerging Markets Bond Index (CEMBI) Broad Diversified	5.16	95.1	6.29	4.4	-0.86	2.05	7.57	14.90	0.92	2.44	3.81
JPMorgan Government Bond Index-Emerging Markets (GBI-EM) Global Diversified	5.54	–	6.38	5.2	-4.61	1.65	0.10	8.76	-0.53	-0.92	-0.06

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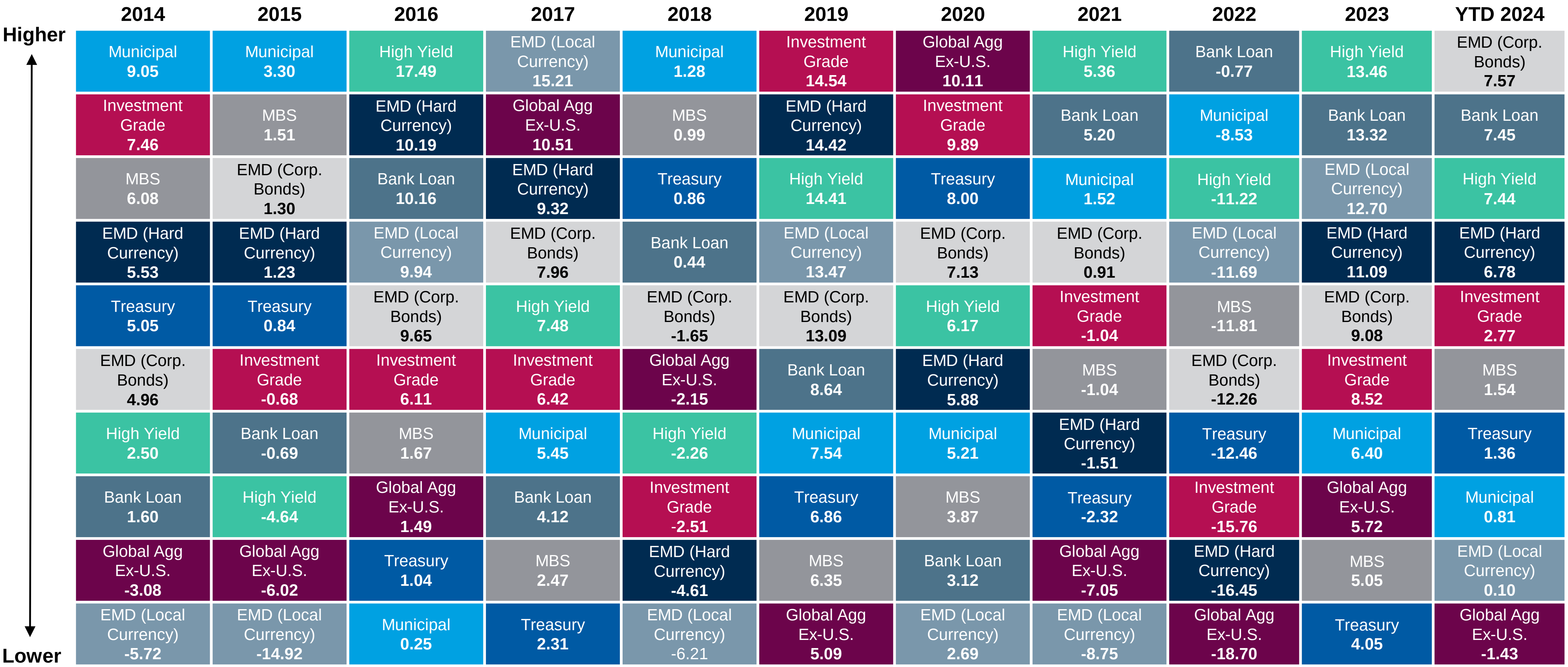
It is not possible to invest directly in an index. Source: J.P. Morgan, Morningstar as of 10/31/24. Data provided is for informational use only. See end of report for important additional information. All spreads are in basis points and measure option-adjusted yield spread relative to comparable maturity U.S. Treasuries.

BONDS

Asset Class Return Analysis (%)



	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	YTD 2024
Higher	Municipal **9.05**	Municipal **3.30**	High Yield **17.49**	EMD (Local Currency) **15.21**	Municipal **1.28**	Investment Grade **14.54**	Global Agg Ex-U.S. **10.11**	High Yield **5.36**	Bank Loan **-0.77**	High Yield **13.46**	EMD (Corp. Bonds) **7.57**
	Investment Grade **7.46**	MBS **1.51**	EMD (Hard Currency) **10.19**	Global Agg Ex-U.S. **10.51**	MBS **0.99**	EMD (Hard Currency) **14.42**	Investment Grade **9.89**	Bank Loan **5.20**	Municipal **-8.53**	Bank Loan **13.32**	Bank Loan **7.45**
	MBS **6.08**	EMD (Corp. Bonds) **1.30**	Bank Loan **10.16**	EMD (Hard Currency) **9.32**	Treasury **0.86**	High Yield **14.41**	Treasury **8.00**	Municipal **1.52**	High Yield **-11.22**	EMD (Local Currency) **12.70**	High Yield **7.44**
	EMD (Hard Currency) **5.53**	EMD (Hard Currency) **1.23**	EMD (Local Currency) **9.94**	EMD (Corp. Bonds) **7.96**	Bank Loan **0.44**	EMD (Local Currency) **13.47**	EMD (Corp. Bonds) **7.13**	EMD (Corp. Bonds) **0.91**	EMD (Local Currency) **-11.69**	EMD (Hard Currency) **11.09**	EMD (Hard Currency) **6.78**
	Treasury **5.05**	Treasury **0.84**	EMD (Corp. Bonds) **9.65**	High Yield **7.48**	EMD (Corp. Bonds) **-1.65**	EMD (Corp. Bonds) **13.09**	High Yield **6.17**	Investment Grade **-1.04**	MBS **-11.81**	EMD (Corp. Bonds) **9.08**	Investment Grade **2.77**
	EMD (Corp. Bonds) **4.96**	Investment Grade **-0.68**	Investment Grade **6.11**	Investment Grade **6.42**	Global Agg Ex-U.S. **-2.15**	Bank Loan **8.64**	EMD (Hard Currency) **5.88**	MBS **-1.04**	EMD (Corp. Bonds) **-12.26**	Investment Grade **8.52**	MBS **1.54**
	High Yield **2.50**	Bank Loan **-0.69**	MBS **1.67**	Municipal **5.45**	High Yield **-2.26**	Municipal **7.54**	Municipal **5.21**	EMD (Hard Currency) **-1.51**	Treasury **-12.46**	Municipal **6.40**	Treasury **1.36**
	Bank Loan **1.60**	High Yield **-4.64**	Global Agg Ex-U.S. **1.49**	Bank Loan **4.12**	Investment Grade **-2.51**	Treasury **6.86**	MBS **3.87**	Treasury **-2.32**	Investment Grade **-15.76**	Global Agg Ex-U.S. **5.72**	Municipal **0.81**
	Global Agg Ex-U.S. **-3.08**	Global Agg Ex-U.S. **-6.02**	Treasury **1.04**	MBS **2.47**	EMD (Hard Currency) **-4.61**	MBS **6.35**	Bank Loan **3.12**	Global Agg Ex-U.S. **-7.05**	EMD (Hard Currency) **-16.45**	MBS **5.05**	EMD (Local Currency) **0.10**
Lower	EMD (Local Currency) **-5.72**	EMD (Local Currency) **-14.92**	Municipal **0.25**	Treasury **2.31**	EMD (Local Currency) -6.21	Global Agg Ex-U.S. **5.09**	EMD (Local Currency) **2.69**	EMD (Local Currency) **-8.75**	Global Agg Ex-U.S. **-18.70**	Treasury **4.05**	Global Agg Ex-U.S. **-1.43**

Past performance is no guarantee of future results. It is not possible to invest directly in an index. In general, fixed income investments are subject to credit and interest rate risks. High yield investments may have a higher degree of credit and liquidity risk. Foreign securities are subject to currency, political, economic and market risks. Investors should carefully review the risks of each asset class prior to investing. Source: Morningstar as of 10/31/24. Data provided is for informational use only. See end of report for important additional information. Investment Grade represented by Bloomberg U.S. Corporate Index. MBS represented by Bloomberg U.S. Mortgage Backed Securities (MBS) Index. Treasury represented by Bloomberg U.S. Treasury Index. High Yield represented by ICE BofA US High Yield Index. Municipal represented by Bloomberg Municipal Bond Index. Bank Loan represented by Morningstar LSTA U.S. Leveraged Loan Index. Global Agg Ex-U.S. represented by Bloomberg Global Aggregate Ex-USD Index. EMD (Local Currency) represented by J.P. Morgan Government Bond Index-Emerging Markets (GBI-EM) Global Diversified. EMD (Hard Currency) represented by J.P. Morgan Emerging Markets Bond Index (EMBI) Global Diversified. EMD (Corp. Bonds) represented by J.P. Morgan Corporate Emerging Market Bond Index (CEMBI) Broad Diversified.

EQUITIES

Performance: Market Barometer (%)

1-Month Returns

	Value	Core	Growth
Large Cap	-1.10	-0.70	-0.33
Mid Cap	-1.26	-0.54	1.75
Small Cap	-1.56	-1.44	-1.33

Global -2.24	**U.S.** -0.91
International -5.44	**Emerging Markets** -4.45

1-Year Returns

	Value	Core	Growth
Large Cap	30.98	38.07	43.77
Mid Cap	34.03	35.39	38.67
Small Cap	31.77	34.07	36.49

Global 32.79	**U.S.** 38.02
International 22.97	**Emerging Markets** 25.32

3-Year Returns

	Value	Core	Growth
Large Cap	6.85	8.12	8.84
Mid Cap	5.10	3.55	0.61
Small Cap	1.95	-0.05	-2.30

Global 5.51	**U.S.** 9.08
International 2.70	**Emerging Markets** -1.43

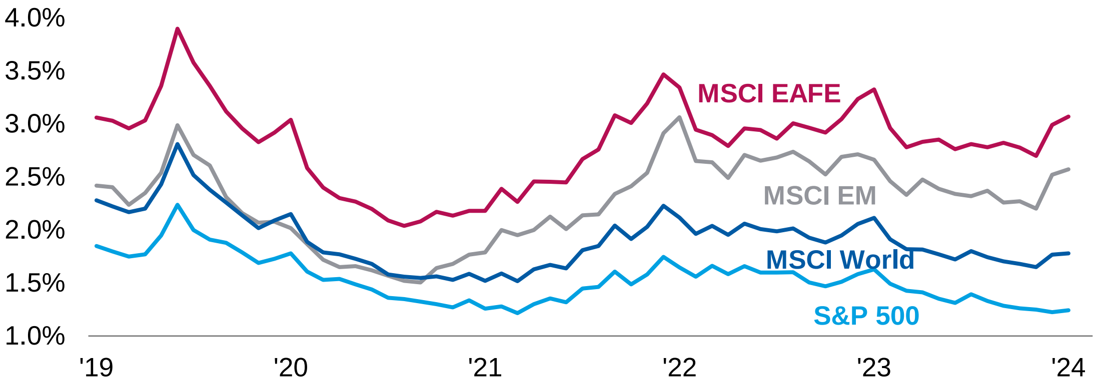
- 🟪 < -20
- 🟥 -20 to -10
- 🟥 -10 to 0
- 🟦 0 to 10
- 🟩 10 to 20
- ⬛ > 20

Past performance is no guarantee of future results.
It is not possible to invest directly in an index. Source: Morningstar as of 10/31/24. Data provided is for informational use only. See end of report for important additional information. Returns over 1 year are annualized. Large Cap Value represented by Russell 1000 Value Index. Large Cap Core represented by Russell 1000 Index. Large Cap Growth represented by Russell 1000 Growth Index. Mid Cap Value represented by Russell Mid Cap Value Index. Mid Cap Core represented by Russell Mid Cap Index. Mid Cap Growth represented by Russell Mid Cap Growth Index. Small Cap Value represented by Russell 2000 Value Index. Small Cap Core represented by Russell 2000 Index. Small Cap Growth represented by Russell 2000 Growth Index. Global represented by MSCI ACWI Index. US represented by S&P 500 Index. International represented by MSCI EAFE Index. Emerging Markets represented by MSCI Emerging Markets Index.

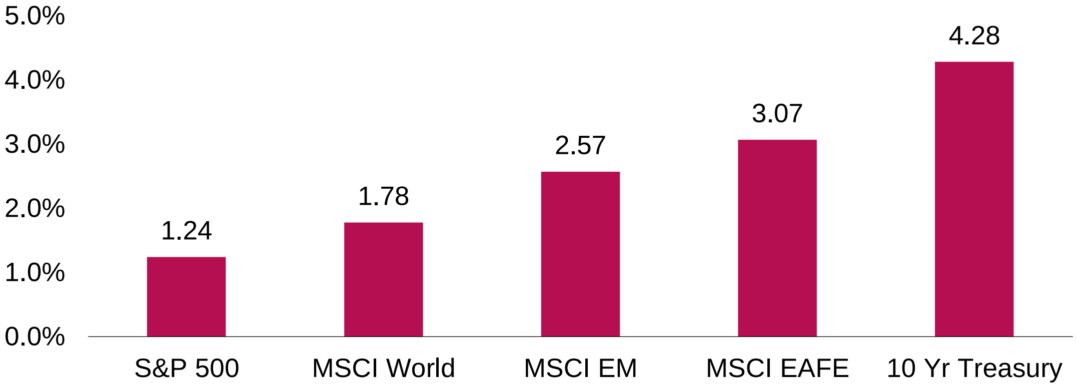
EQUITIES

Dividend Yields and Volatility Analysis

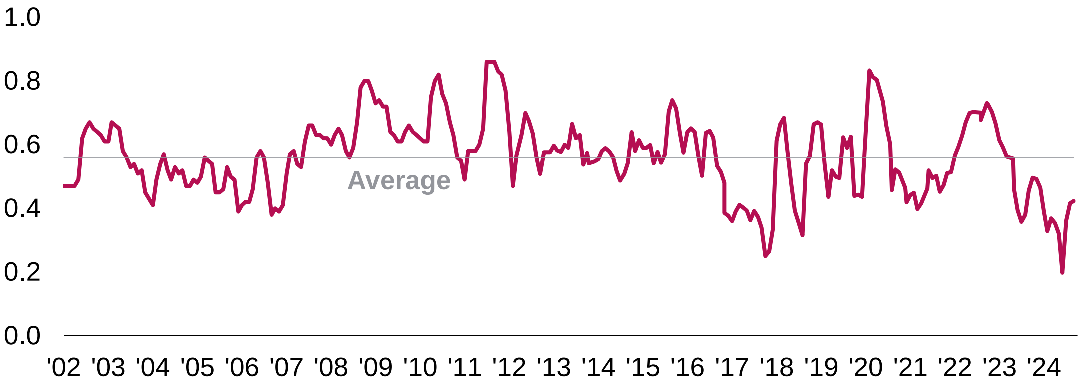
Historical Yields



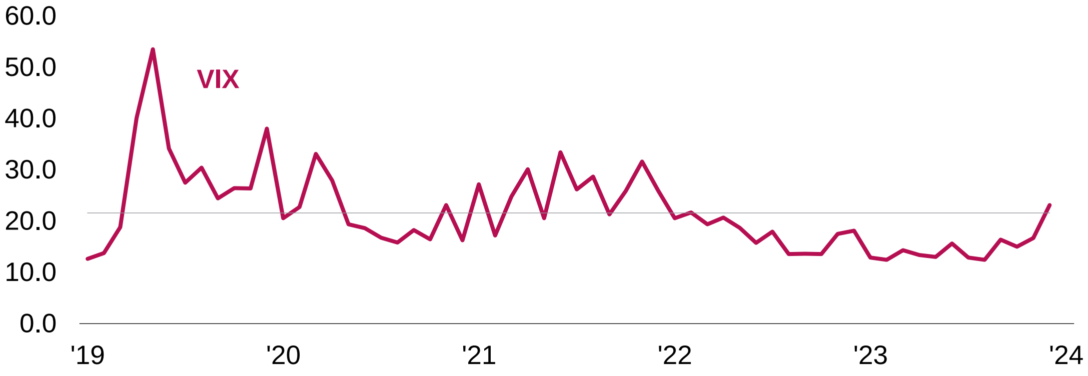
Current Yields



Correlation of S&P 500 Stocks



CBOE Market Volatility Index (VIX)

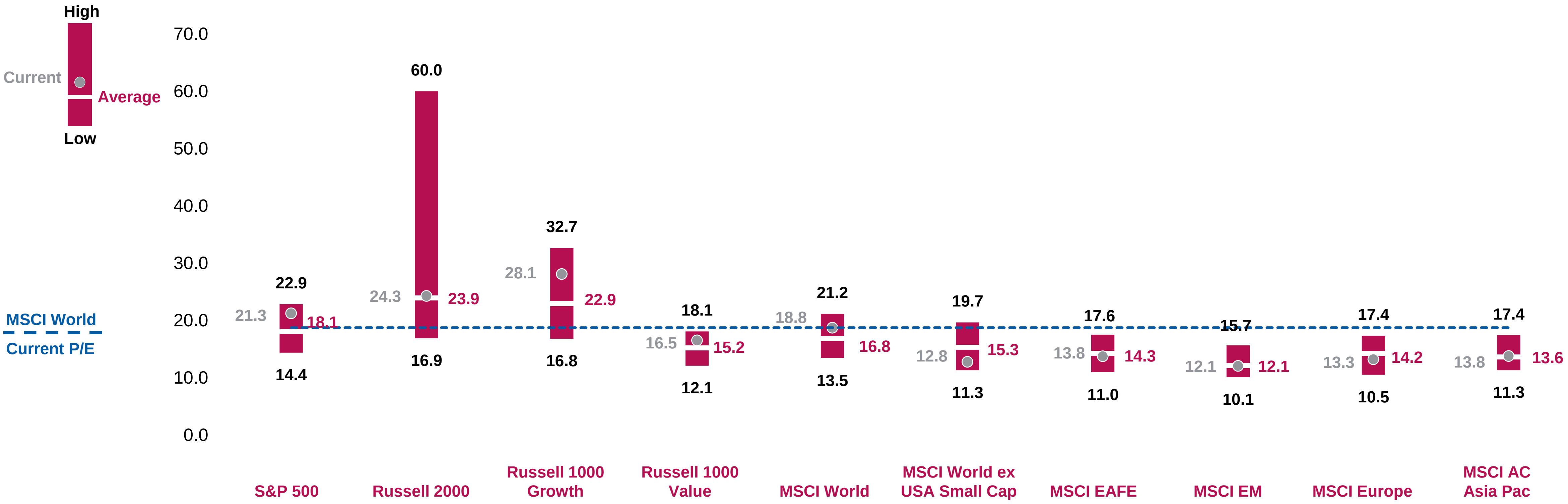


Past performance is no guarantee of future results.
It is not possible to invest directly in an index. Source: FactSet and Ned Davis Research as of 10/31/24. Correlation of S&P 500 Stocks is measured by the median 63-day rolling correlation of one day returns data provided is for informational use only. See end of report for important additional information.

EQUITIES

Valuation Analysis

Regions/Styles: Current NTM P/E vs. 10-Year High, Low, Average



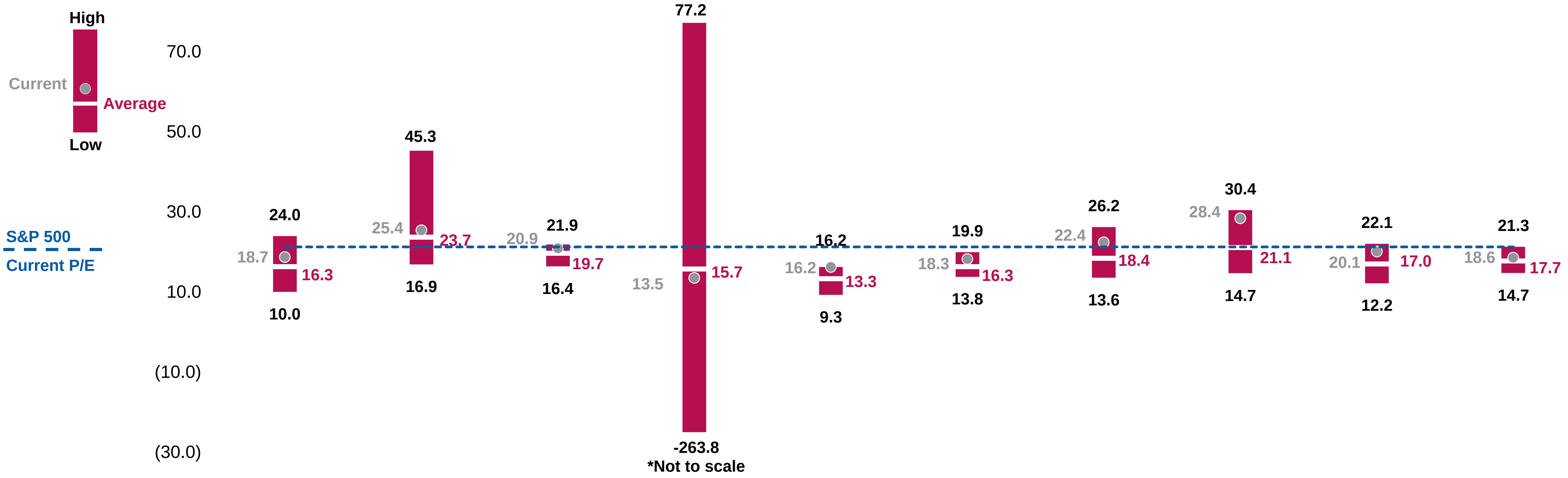
	S&P 500	Russell 2000	Russell 1000 Growth	Russell 1000 Value	MSCI World	MSCI World ex USA Small Cap	MSCI EAFE	MSCI EM	MSCI Europe	MSCI AC Asia Pac
High Date	8/20	6/20	8/20	3/21	8/20	8/20	8/20	1/21	6/20	1/21
Low Date	12/18	9/22	2/16	9/22	12/18	9/22	9/22	10/18	9/22	12/18

Source: FactSet as of 10/31/24. NTM P/E is market price per share divided by expected earnings per share over the next twelve months. Data provided is for informational use only. See end of report for important additional information. Forecasts/estimates are based on current market conditions, subject to change, and may not necessarily come to pass.

EQUITIES

Valuation Analysis

S&P 500 Sectors: Current NTM P/E vs. 10-Year High, Low, Average



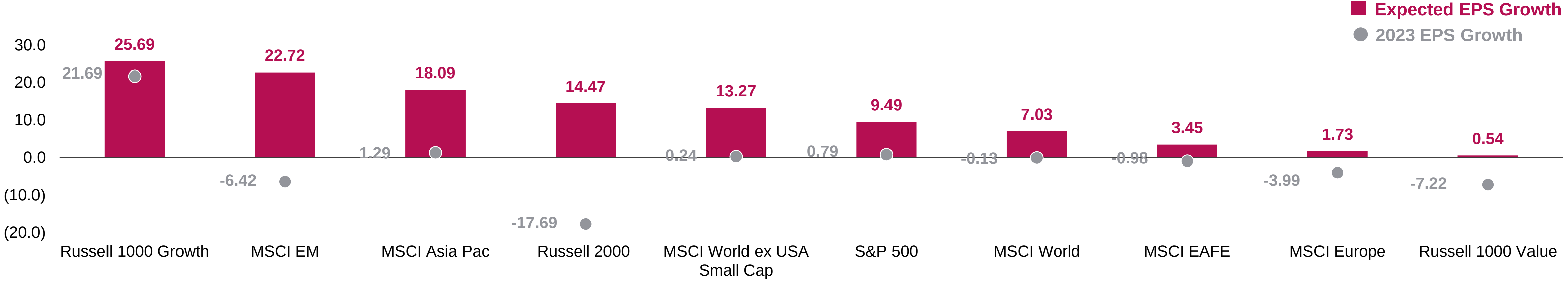
	Communication Services	Consumer Discretionary	Consumer Staples	Energy	Financials	Health Care	Industrials	Information Technology	Materials	Utilities
High Date	8/20	6/20	12/21	4/16	10/24	8/24	8/20	6/24	7/20	3/22
Low Date	5/18	2/16	4/18	7/20	3/20	3/20	12/18	12/18	9/15	6/15

Source: FactSet as of 10/31/24. NTM P/E is market price per share divided by expected earnings per share over the next twelve months. The Real Estate sector is excluded from this 10-year chart since the sector was created on August 31, 2016. Data provided is for informational use only. See end of report for important additional information. Forecasts/estimates are based on current market conditions, subject to change, and may not necessarily come to pass.

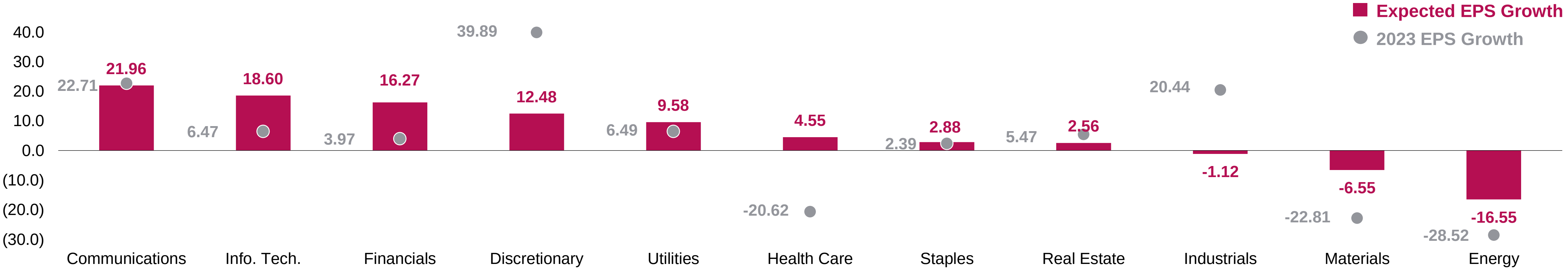
EQUITIES

Corporate Earnings Growth

Regions/Styles



S&P 500 Sectors

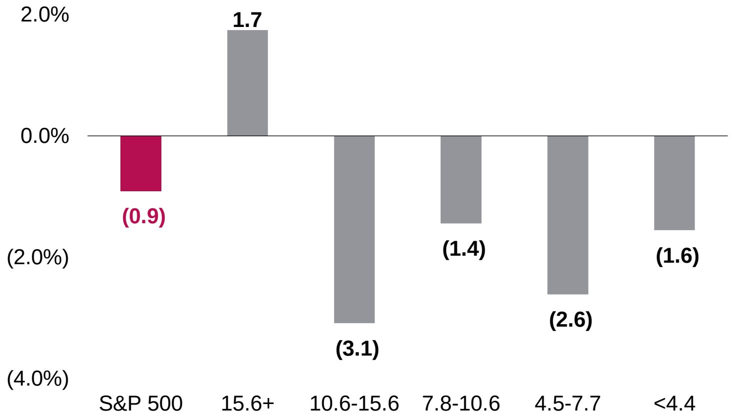


Source: FactSet as of 10/31/24. Expected EPS Growth is defined as the expected % change in the EPS growth from the beginning of the current calendar year though the end of the calendar year. 2023 EPS Growth is defined as the % change in EPS from the beginning of the year through the end of the year. Data provided is for informational use only. See end of report for important additional information. Forecasts/estimates are based on current market conditions, subject to change, and may not necessarily come to pass.

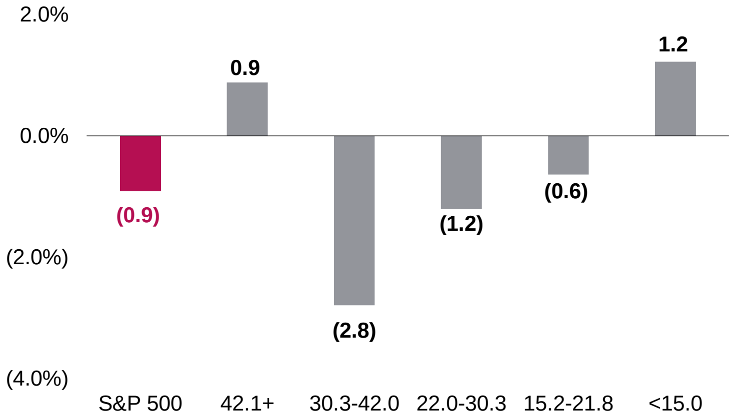
EQUITIES

S&P 500 Index: 1-Month Return Analysis

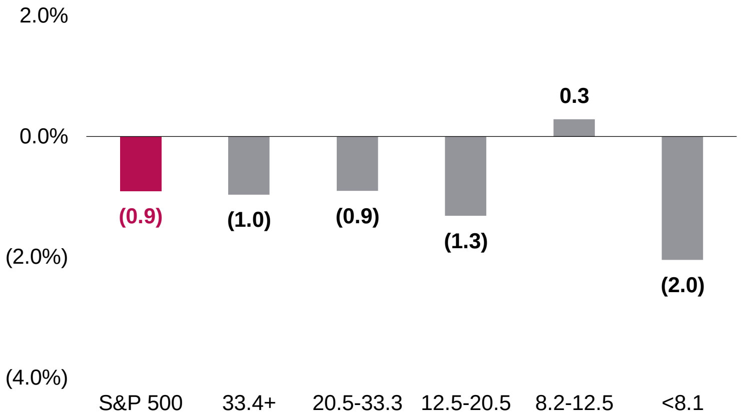
3-5 Year Earnings Growth



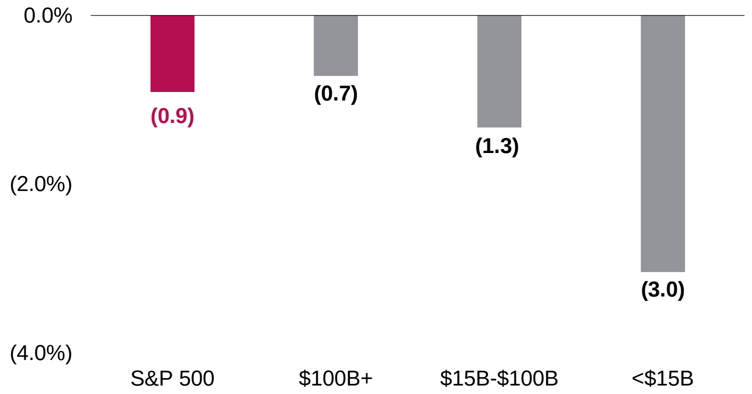
Trailing 12 Month P/E



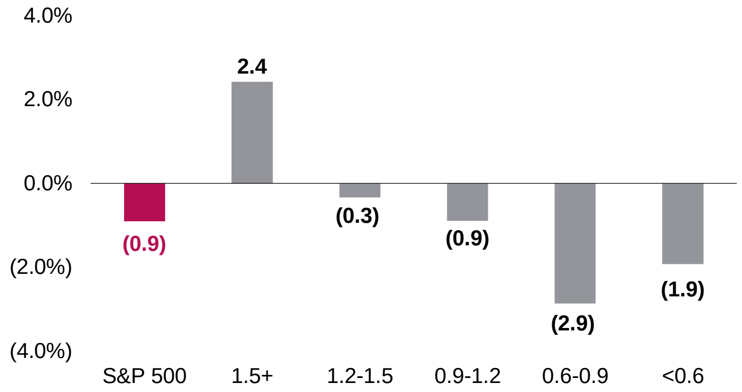
Return On Equity



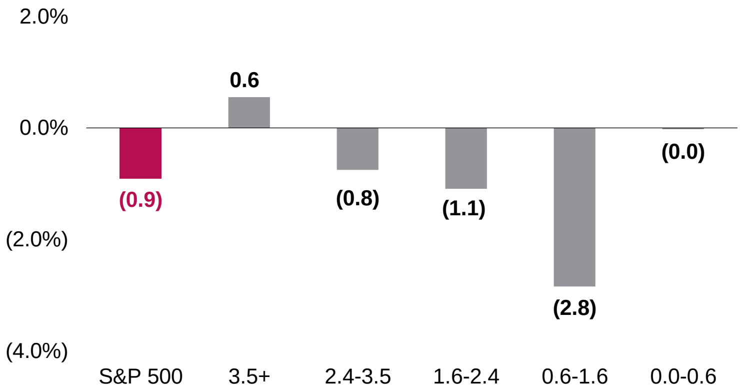
Market Cap



Beta



Dividend Yield



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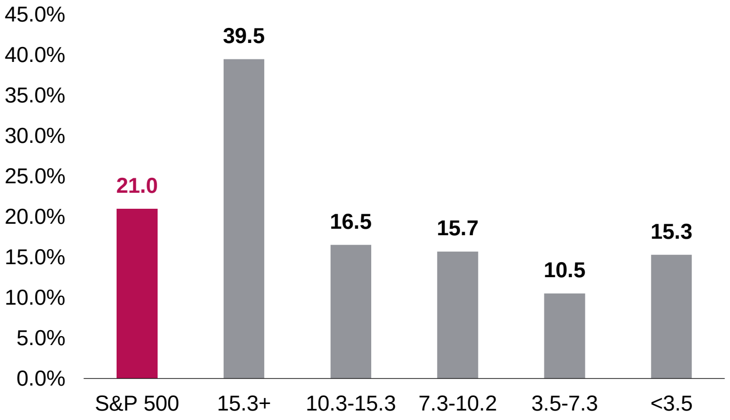
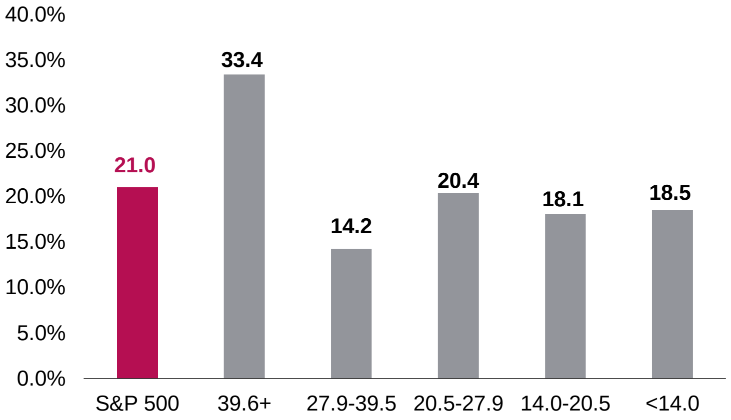
EQUITIES

S&P 500 Index: YTD Analysis

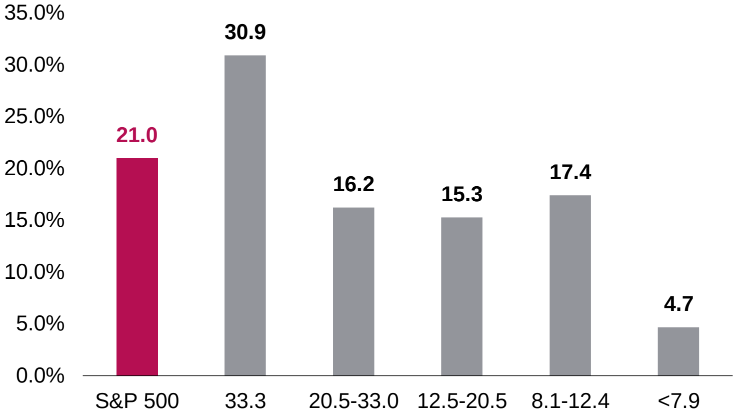
3-5 Year Earnings Growth



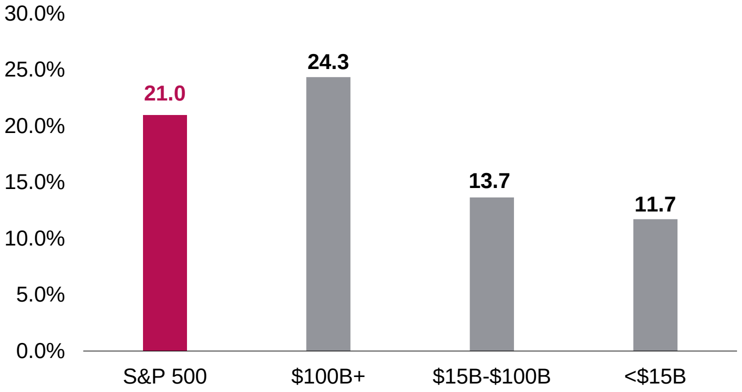
Trailing 12 Month P/E



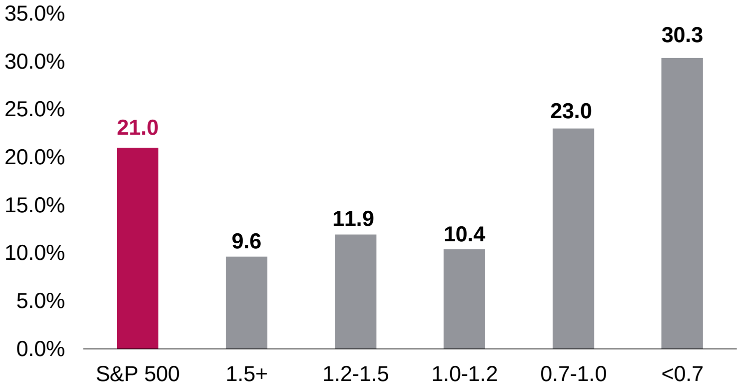
Return On Equity



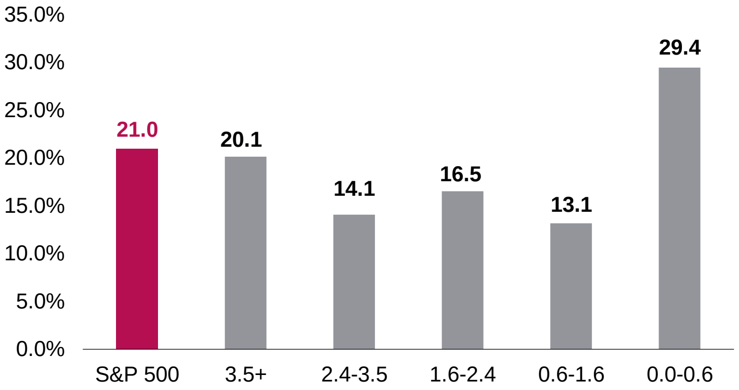
Market Cap



Beta



Dividend Yield



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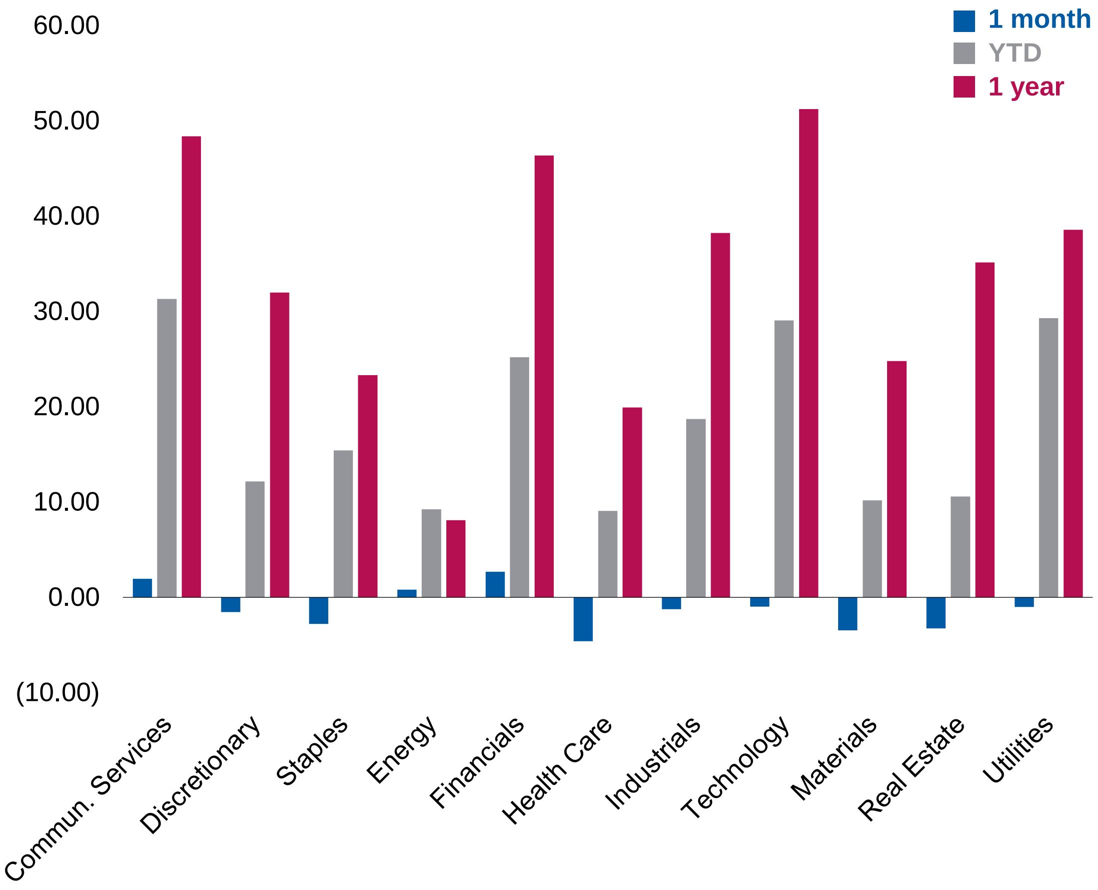
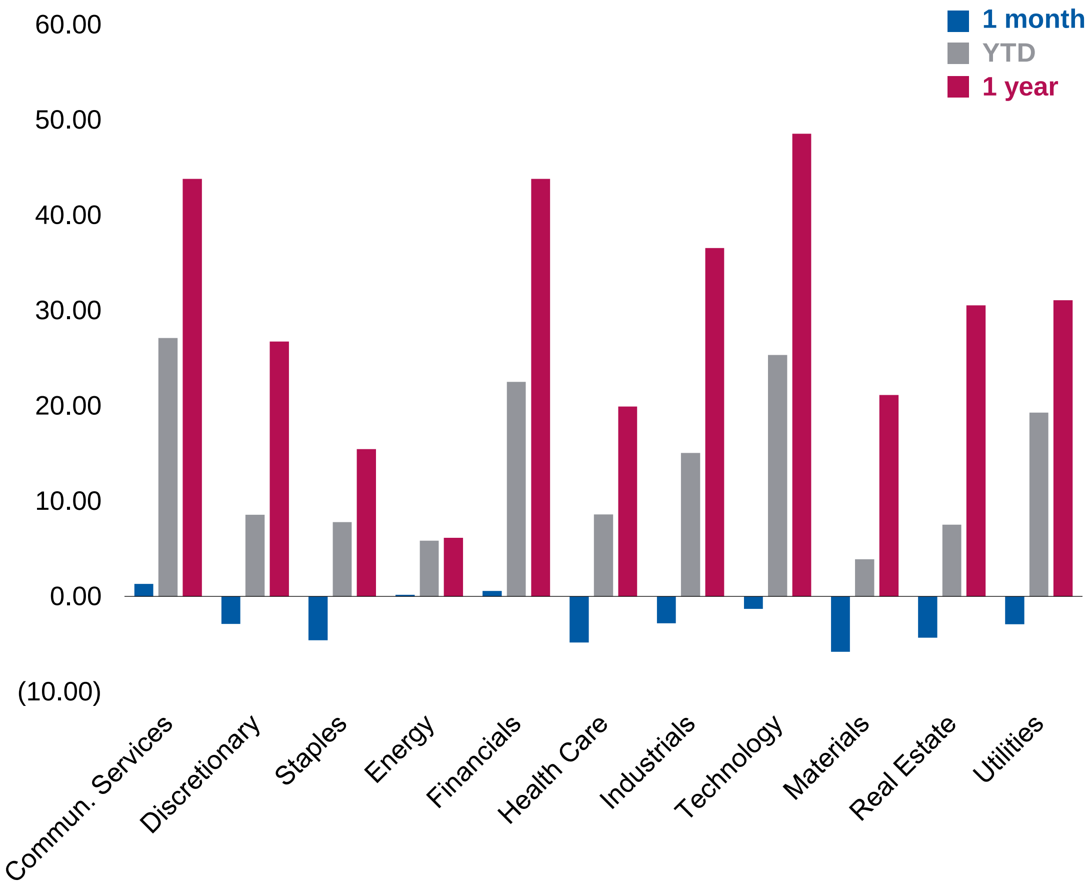
EQUITIES

Index Sectors: Return Analysis

S&P 500
Return %



MSCI World
Return %



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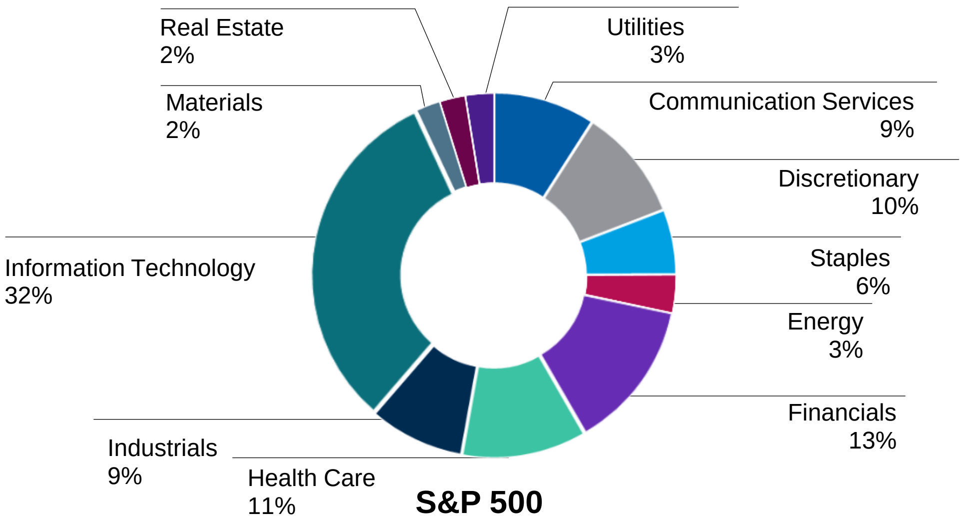
It is not possible to invest directly in an index. Source: Morningstar as of 10/31/24. Data provided is for informational use only. See end of report for important additional information.

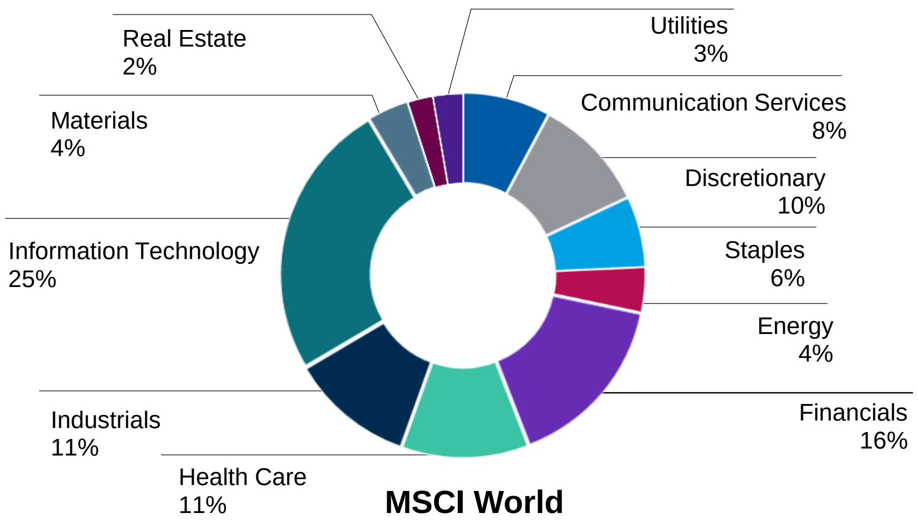
EQUITIES

Current Characteristics and Sector Weights

	S&P 500	R2000	R1000G	R1000V	MSCI World	MSCI World ex USA Small Cap	MSCI EAFE	MSCI EM	MSCI Europe	MSCI Asia Pac
Number of Holdings	503	1969	394	871	1409	2297	731	1278	414	1331
Maximum Market Cap	$3,434.77B	$13.74B	$3,434.77B	$972.07B	$3,427.64B	$10.10B	$361.87B	$792.01B	$361.87B	$792.01B
Minimum Market Cap	$6.74B	$0.01B	$0.62B	$0.30B	$1.61B	$0.02B	$1.61B	$0.14B	$1.61B	$0.14B
Dividend Yield	1.24	1.30	0.54	1.99	1.78	3.00	3.07	2.57	3.26	2.41
NTM PE	21.27	24.31	28.10	16.53	18.76	12.80	13.76	12.08	13.25	13.79
Price to Book	4.98	2.06	13.32	2.76	3.40	1.34	1.83	1.89	2.03	1.72
Price to Cash Flow	17.73	14.26	26.86	12.45	14.92	8.62	10.43	8.81	9.40	11.22
Price to Sales	2.98	1.28	5.69	1.81	2.25	0.86	1.33	1.47	1.33	1.41
Est 3-5 Yr EPS Growth	14.68	12.81	18.73	10.09	13.53	11.03	9.57	15.84	9.67	13.21
5Yr. Div Growth Rate	4.44	6.16	5.40	1.16	2.62	4.89	0.62	2.63	-0.27	0.96



S&P 500



MSCI World

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EQUITIES

Asset Class Return Analysis (%)

		1-Mo.	3-Mo.	YTD	1Y	3Y	5Y	10Y	2023	2022	2021	2020	2019
U.S. Equities	S&P 500	-0.91	3.66	20.97	38.02	9.08	15.27	13.00	26.29	-18.11	28.71	18.40	31.49
	Russell 1000 Defensive	-1.92	2.43	16.13	28.57	6.68	12.15	11.86	20.23	-16.43	26.93	13.93	30.47
	Russell 1000 Dynamic	0.53	5.24	24.61	48.39	9.50	17.66	13.45	33.34	-21.94	25.57	27.69	32.35
	Russell 2500	-0.93	0.29	10.27	33.08	1.51	9.81	8.92	17.42	-18.37	18.18	19.99	27.77
	Russell 1000 Growth	-0.33	4.63	24.14	43.77	8.84	19.00	16.18	42.68	-29.14	27.60	38.49	36.39
	Russell 1000 Value	-1.10	2.96	15.40	30.98	6.85	10.14	8.87	11.46	-7.54	25.16	2.80	26.54
	Russell Mid Cap	-0.54	3.74	14.02	35.39	3.55	10.94	9.80	17.23	-17.32	22.58	17.10	30.54
	Russell 2000	-1.44	-2.24	9.56	34.07	-0.05	8.50	7.94	16.93	-20.44	14.82	19.96	25.52
	CBOE S&P 500 Buywrite BXM	-0.50	3.84	12.99	18.52	4.61	6.05	6.39	11.82	-11.37	20.47	-2.75	15.68
Global Equities	MSCI World	-1.98	2.45	16.50	33.68	6.38	12.03	9.78	23.79	-18.14	21.82	15.90	27.67
	MSCI EAFE	-5.44	-1.46	6.85	22.97	2.70	6.24	5.27	18.24	-14.45	11.26	7.82	22.01
	MSCI EM	-4.45	3.58	11.66	25.32	-1.43	3.93	3.43	9.83	-20.09	-2.54	18.31	18.44
	MSCI AC Asia Pac	-4.64	1.94	12.05	26.30	0.48	5.04	5.21	11.45	-17.22	-1.46	19.71	19.36
	MSCI ACWI	-2.24	2.57	16.00	32.79	5.51	11.08	9.06	22.20	-18.36	18.54	16.25	26.60
	MSCI Europe	-5.89	-1.80	6.13	22.43	3.00	6.91	5.23	19.89	-15.06	16.30	5.38	23.77
	MSCI World Small Cap	-2.69	-0.38	8.03	29.45	0.08	7.81	7.51	15.76	-18.76	15.75	15.96	26.19
	MSCI World Ex USA Small Cap	-5.72	-1.36	5.15	23.60	-2.55	4.75	5.64	12.62	-20.59	11.14	12.78	25.41
	FTSE 100	-5.54	-2.03	9.19	21.85	5.55	5.91	3.87	14.38	-7.01	17.36	-8.73	22.03
	FTSE All Small	-5.31	-1.29	10.65	31.18	-1.51	7.74	5.59	12.57	-23.06	22.15	10.77	22.63
	STOXX Europe 600	-6.97	-1.77	6.21	22.90	2.54	6.95	5.37	19.87	-16.14	16.09	6.83	24.53
	Nikkei 225 Average	-3.22	-0.70	9.49	27.73	2.06	5.50	7.41	22.05	-19.49	-4.69	23.99	21.35
Sectors	S&P 500 Comm. Services	1.94	7.98	31.31	48.39	6.14	14.35	9.89	55.80	-39.89	21.57	23.61	32.69
	S&P 500 Cons Disc	-1.55	4.40	12.14	31.97	0.76	11.67	12.64	42.41	-37.03	24.43	33.30	27.94
	S&P 500 Cons Staples	-2.80	3.91	15.42	23.31	7.94	9.44	8.95	0.52	-0.62	18.63	10.75	27.61
	S&P 500 Energy	0.79	-3.58	9.22	8.10	20.44	14.61	4.37	-1.33	65.72	54.64	-33.68	11.81
	S&P 500 Financials	2.69	6.74	25.19	46.35	6.97	12.46	11.42	12.15	-10.53	35.04	-1.69	32.13
	S&P 500 Health Care	-4.62	-1.44	9.07	19.91	4.88	11.19	10.04	2.06	-1.95	26.13	13.45	20.82
	S&P 500 Industrials	-1.25	5.02	18.70	38.23	10.45	13.23	11.18	18.13	-5.48	21.12	11.06	29.37
	S&P 500 Info Tech	-0.97	2.77	29.04	51.23	16.42	25.54	22.07	57.84	-28.19	34.53	43.89	50.29
	S&P 500 Materials	-3.49	1.43	10.16	24.81	5.20	12.19	9.01	12.55	-12.27	27.28	20.73	24.58
	S&P 500 Real Estate	-3.28	5.71	10.56	35.15	0.10	5.50	7.57	12.36	-26.13	46.19	-2.17	29.01
	S&P 500 Utilities	-1.02	10.64	29.30	38.59	9.58	7.93	9.45	-7.08	1.57	17.67	0.48	26.35

Past performance is no guarantee of future results. It is not possible to invest directly in an index. Source: Morningstar as of 10/31/24. Data provided is for informational use only. Results in US Dollar. See end of report for additional information.

EQUITIES

Asset Class Return Analysis (%)

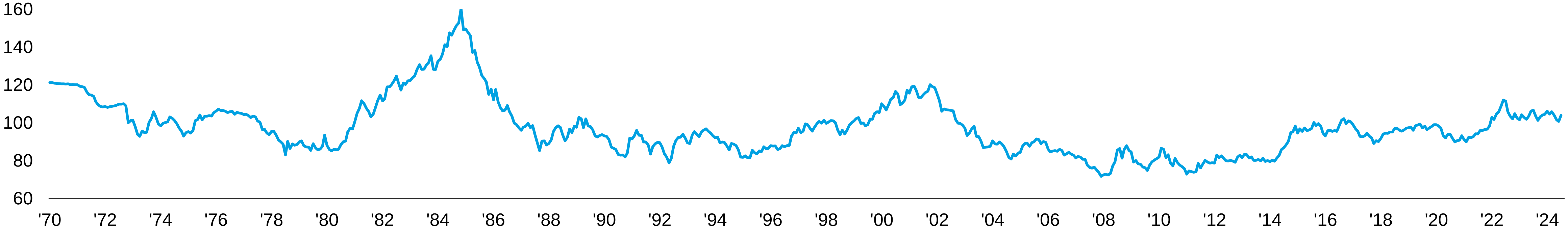
	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	YTD 2024
Higher	S&P 500 **13.69**	Growth **5.67**	Small-Cap **21.31**	Emerging Markets **37.28**	Growth **-1.51**	Growth **36.39**	Growth **38.49**	S&P 500 **28.71**	Value **-7.54**	Growth **42.68**	Growth **24.14**
	Value **13.45**	International Small-Cap **5.46**	Value **17.34**	International Small-Cap **31.04**	S&P 500 **-4.38**	S&P 500 **31.49**	Small-Cap **19.96**	Growth **27.60**	International **-14.45**	S&P 500 **26.29**	S&P 500 **20.97**
	Mid-Cap **13.22**	S&P 500 **1.38**	Mid-Cap **13.80**	Growth **30.21**	Value **-8.27**	Mid-Cap **30.54**	S&P 500 **18.40**	Value **25.16**	Mid-Cap **-17.32**	Global **22.20**	Global **16.00**
	Growth **13.05**	International **-0.81**	S&P 500 **11.96**	International **25.03**	Mid-Cap **-9.06**	Global **26.60**	Emerging Markets **18.31**	Mid-Cap **22.58**	S&P 500 **-18.11**	International **18.24**	Value **15.40**
	Small-Cap **4.89**	Global **-2.36**	Emerging Markets **11.19**	Global **23.97**	Global **-9.42**	Value **26.54**	Mid-Cap **17.10**	Global **18.54**	Global **-18.36**	Mid-Cap **17.23**	Mid-Cap **14.02**
	Global **4.16**	Mid-Cap **-2.44**	Global **7.86**	S&P 500 **21.83**	Small-Cap **-11.01**	Small-Cap **25.52**	Global **16.25**	Small-Cap **14.82**	Emerging Markets **-20.09**	Small-Cap **16.93**	Emerging Markets **11.66**
	Emerging Markets **-2.19**	Value **-3.83**	Growth **7.08**	Mid-Cap **18.52**	International **-13.79**	International Small-Cap **25.41**	International Small-Cap **12.78**	International **11.26**	Small-Cap **-20.44**	International Small-Cap **12.62**	Small-Cap **9.56**
	International **-4.90**	Small-Cap **-4.41**	International Small-Cap **4.32**	Small-Cap **14.65**	Emerging Markets **-14.58**	International **22.01**	International **7.82**	International Small-Cap **11.14**	International Small-Cap **-20.59**	Value **11.46**	International **6.85**
Lower	International Small-Cap **-5.34**	Emerging Markets **-14.92**	International **1.00**	Value **13.66**	International Small-Cap **-18.07**	Emerging Markets **18.42**	Value **2.80**	Emerging Markets **-2.54**	Growth **-29.14**	Emerging Markets **9.83**	International Small-Cap **5.15**

Past performance is no guarantee of future results.
It is not possible to invest directly in an index. In general, Foreign securities are subject to currency, political, economic and market risks. The risks of investing in emerging market countries are greater than investments in foreign developed countries. Investors should carefully review the risks of each asset class prior to investing. Source: Morningstar as of 10/31/24. Data provided is for informational use only. See end of report for important additional information. Small-Cap represented by Russell 2000 Index. Emerging Markets represented by MSCI Emerging Markets Index. Value represented by Russell 1000 Value Index. Mid-Cap represented by Russell Midcap Index. Global represented by MSCI ACWI Index. Growth represented by Russell 1000 Growth Index. International represented by MSCI EAFE Index. International Small-Cap represented by MSCI World Ex USA Small Cap Index.

Developed Market Currency Performance and Yields

	Spot Returns vs. USD (%)					Spot Returns vs. EUR (%)					Local Interest Rates (%)
Currency	**1-Mo.**	**YTD**	**1Y**	**3Y**	**5Y**	**1-Mo.**	**YTD**	**1Y**	**3Y**	**5Y**	**1Y**
U.S. Dollar (USD)	-	-	-	-	-	2.80	1.75	-2.64	2.15	0.55	4.23
Euro (EUR) *	-2.72	-1.72	2.71	-2.11	-0.54	-	-	-	-	-	2.48
British Pound (GBP)	-4.15	0.85	5.95	-2.11	-0.13	-1.47	2.62	3.15	-0.01	0.42	4.70
Japanese Yen (JPY)	-6.10	-7.45	-0.58	-9.20	-6.63	-3.47	-5.83	-3.20	-7.25	-6.12	0.44
Australian Dollar (AUD)	-5.59	-4.01	3.45	-4.46	-1.01	-2.94	-2.33	0.72	-2.41	-0.46	4.16
Canadian Dollar (CAD)	-3.08	-5.41	-0.41	-3.84	-1.17	-0.37	-3.75	-3.04	-1.77	-0.63	3.24
New Zealand Dollar (NZD)	-6.46	-6.00	2.32	-5.96	-1.48	-3.84	-4.36	-0.38	-3.94	-0.94	3.82
Norwegian Krone (NOK)	-4.51	-7.93	1.28	-8.47	-3.60	-1.84	-6.32	-1.39	-6.50	-3.08	4.25
Swedish Krona (SEK)	-5.27	-5.81	4.42	-7.07	-2.08	-2.61	-4.17	1.66	-5.07	-1.54	2.05
Danish Krone (DKK)	-2.77	-1.77	2.79	-2.19	-0.51	-0.05	-0.05	0.07	-0.09	0.03	1.99
Swiss Franc (CHF)	-2.45	-2.67	5.24	1.86	2.68	0.29	-0.96	2.47	4.05	3.24	0.39

U.S. Dollar Index



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It is not possible to invest directly in an index. *German Rate. Source: Factset, Bloomberg as of 10/31/24. Dollar is represented by the US Trade Weighted Dollar Index (DXY). Data provided is for informational use only. See end of report for important additional information.

ALTERNATIVES

Emerging Market Currency Performance and Yields

	Spot Returns vs. USD (%)					Spot Returns vs. EUR (%)					Local Interest Rates (%)
Currency	**1-Mo.**	**YTD**	**1Y**	**3Y**	**5Y**	**1-Mo.**	**YTD**	**1Y**	**3Y**	**5Y**	**1Y**
Asia, excluding Japan											
Chinese Renminbi (CNY)	-1.40	-0.33	2.85	-3.48	-0.23	1.36	1.41	0.13	-1.40	0.32	1.38
Malaysian Ringgit (MYR)	-5.83	4.93	8.80	-1.85	-0.93	-3.20	6.77	5.93	0.27	-0.39	3.23
Indian Rupee (INR)	-0.34	-1.04	-0.98	-3.79	-3.35	2.45	0.69	-3.60	-1.72	-2.82	6.50
Indonesian Rupiah (IDR)	-3.54	-1.90	1.21	-3.36	-2.21	-0.84	-0.18	-1.46	-1.28	-1.67	6.05
Philippine Peso (PHP)	-3.57	-4.71	-2.36	-4.63	-2.67	-0.87	-3.04	-4.93	-2.58	-2.14	4.08
Singapore Dollar (SGD)	-3.09	-0.29	3.56	0.64	0.57	-0.38	1.46	0.83	2.81	1.12	2.69
South Korean Won (KRW)	-5.24	-6.67	-2.13	-5.39	-3.36	-2.59	-5.04	-4.72	-3.36	-2.83	2.92
Taiwanese Dollar (TWD)	-1.23	-4.21	1.23	-4.61	-1.02	1.54	-2.54	-1.44	-2.56	-0.48	1.34
Thai Baht (THB)	-4.65	1.15	6.51	-0.56	-2.20	-1.98	2.92	3.70	1.58	-1.66	2.08
Latin America											
Brazilian Real (BRL)	-5.92	-16.09	-12.88	-0.88	-7.06	-3.29	-14.62	-15.18	1.25	-6.55	12.64
Chilean Peso (CLP)	-6.61	-9.17	-6.61	-5.50	-5.07	-3.99	-7.58	-9.07	-3.47	-4.56	4.95
Colombian Peso (COP)	-5.42	-12.21	-6.26	-4.90	-5.20	-2.77	-10.68	-8.73	-2.86	-4.68	6.78
Mexican Peso (MXN)	-2.17	-15.48	-9.90	0.84	-0.88	0.57	-14.00	-12.27	3.01	-0.34	10.63
Peruvian New Sol (PEN)	-1.18	-1.63	1.89	1.93	-2.33	1.59	0.09	-0.80	4.12	-1.80	2.08

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ALTERNATIVES

Emerging Market Currency Performance and Yields

	Spot Returns vs. USD (%)					Spot Returns vs. EUR (%)					Local Interest Rates (%)
Currency	**1-Mo.**	**YTD**	**1Y**	**3Y**	**5Y**	**1-Mo.**	**YTD**	**1Y**	**3Y**	**5Y**	**1Y**
Europe											
Czech Koruna (CZK)	-3.09	-4.14	-0.26	-1.65	-0.39	-0.38	-2.46	-2.89	0.47	0.15	3.35
Hungarian Forint (HUF)	-5.38	-8.00	-3.68	-6.14	-4.79	-2.73	-6.39	-6.22	-4.12	-4.27	5.37
Polish Zloty (PLN)	-4.29	-1.89	5.13	-0.18	-0.98	-1.61	-0.18	2.36	1.97	-0.44	4.03
Romanian Leu (RON)	-2.70	-1.71	2.57	-2.27	-1.44	0.03	0.01	-0.14	-0.16	-0.90	5.50
Russian Ruble (RUB)	-4.24	-8.07	-3.78	-9.97	-8.01	-1.56	-6.46	-6.32	-8.03	-7.50	--
Turkish New Lira (TRY)	-0.30	-13.87	-17.49	-34.55	-30.12	2.49	-12.36	-19.67	-33.14	-29.74	42.79
Middle East and Africa											
Ghanaian Cedi (GHS)	-2.77	-26.68	-26.86	-27.96	-19.50	-0.05	-25.39	-28.79	-26.41	-19.06	17.90
Israeli Shekel (ILS)	-0.57	-3.74	8.14	-5.50	-1.19	2.22	-2.06	5.29	-3.47	-0.65	4.39
Kenyan Shilling (KES)	0.00	21.71	16.71	-4.80	-4.35	2.80	23.84	13.63	-2.75	-3.82	14.96
Moroccan Dirham (MAD)	-1.33	0.27	4.68	-2.68	-0.47	1.44	2.02	1.91	-0.59	0.07	2.71
Nigerian Naira (NGN)	-0.60	-46.58	-46.12	-37.32	-26.42	2.19	-45.64	-47.54	-35.97	-26.02	24.65
South African Rand (ZAR)	-2.53	3.44	6.03	-4.91	-3.15	0.20	5.25	3.24	-2.87	-2.62	8.30
Ugandan Shilling (UGX)	0.74	3.28	3.55	-0.92	0.29	3.56	5.09	0.82	1.21	0.84	14.49
Zambian Kwacha (ZMK)	-1.12	-3.80	-17.31	-13.56	-13.04	1.65	-2.11	-19.49	-11.70	-12.56	16.00

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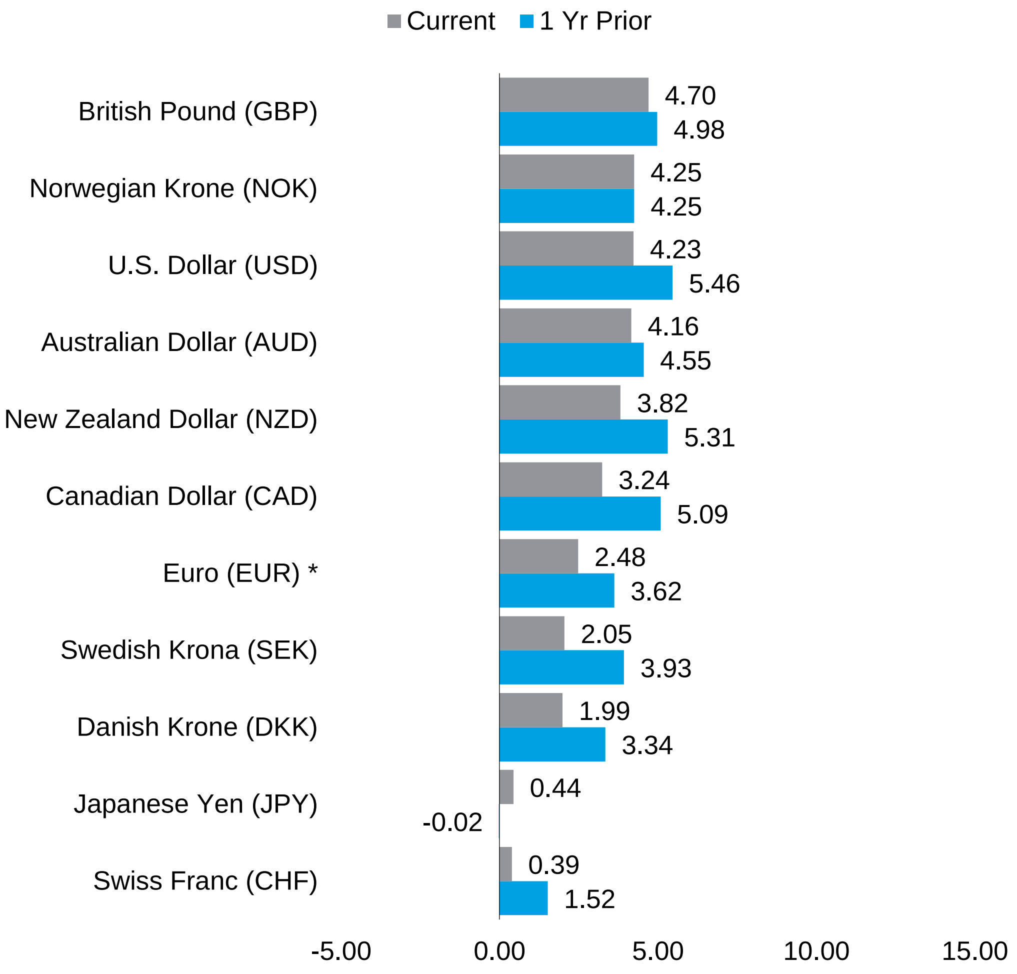
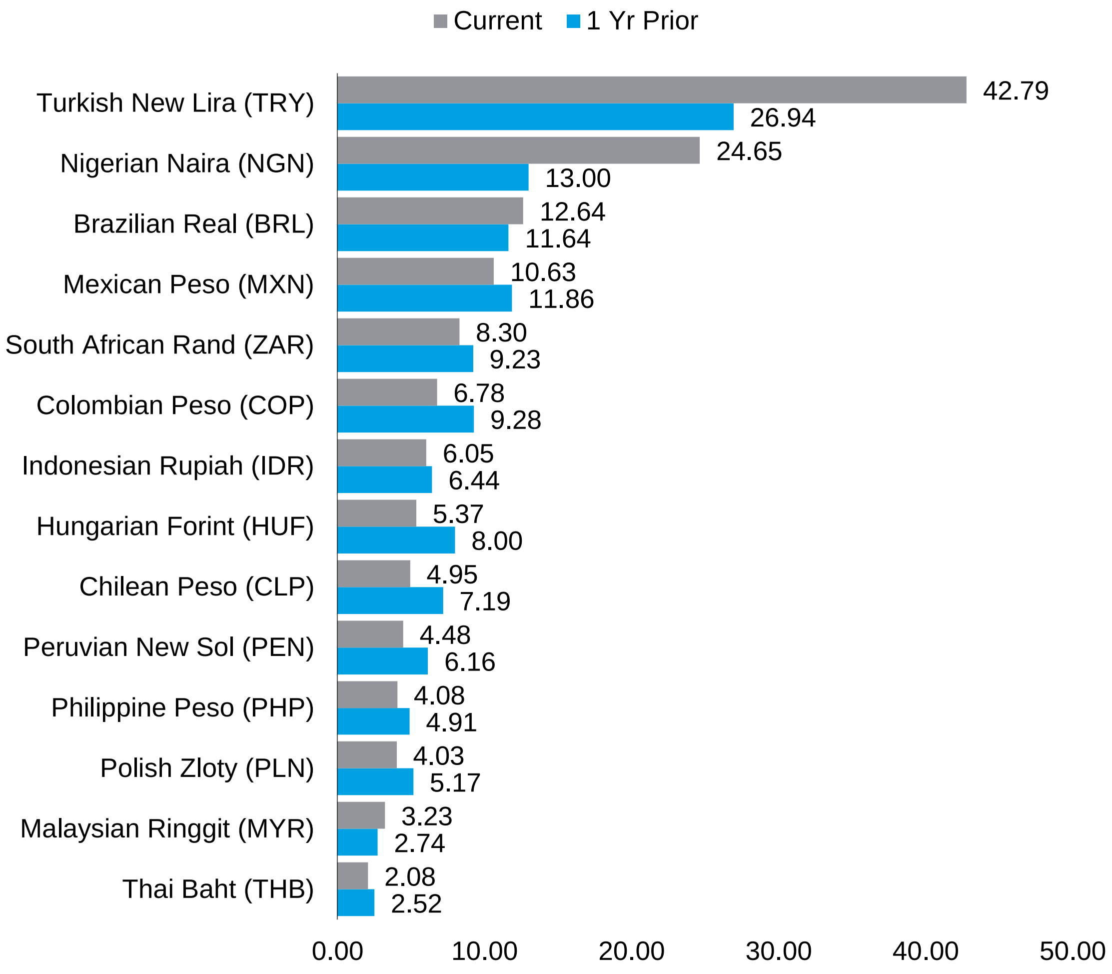
ALTERNATIVES

Local Sovereign Currency Yields

Developed Market Local Interest Rates % (1 Year)



Emerging Market Local Interest Rates % (1 Year)



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It is not possible to invest directly in an index. *German Rate. Source: Bloomberg as 10/31/24. Data provided is for informational use only. See end of report for important additional information.

ALTERNATIVES

Commodities Return Analysis (%)

Index	1-Mo.	3-Mo.	YTD	1Y	3Y	5Y
Bloomberg Commodity Index	**-1.85**	**2.97**	**3.89**	**-1.18**	**2.15**	**6.96**
Bloomberg Sub Agriculture	**-4.16**	**4.48**	**-6.83**	**-9.24**	**2.03**	**9.83**
Coffee	-8.65	10.45	42.68	65.28	15.14	20.65
Corn	-2.92	3.67	-18.55	-21.60	-5.36	4.06
Cotton	-5.12	2.09	-12.41	-14.69	-5.78	6.29
Soybean	-7.11	-3.16	-20.70	-21.87	3.57	8.57
Soybean Oil	4.35	7.70	-5.21	-9.28	-1.89	14.73
Sugar	1.60	19.42	19.10	-8.73	16.05	18.48
Wheat	-1.93	4.97	-14.63	-6.73	-15.65	-3.45
Bloomberg Sub Energy	**-4.42**	**-8.08**	**-8.34**	**-22.86**	**-5.88**	**-2.35**
Brent Crude	2.29	-7.03	5.26	-3.18	12.11	13.78
Heating Oil	3.59	-8.83	-3.30	-12.58	20.07	14.22
Natural Gas	-19.32	-7.99	-41.18	-60.94	-45.43	-31.86
Unleaded Gas	3.30	-7.97	3.95	-0.64	17.09	15.96
WTI Crude Oil	2.99	-6.45	8.15	-3.27	6.87	3.60

Index	1-Mo.	3-Mo.	YTD	1Y	3Y	5Y
Bloomberg Sub Industrial Metals	**-3.71**	**6.36**	**8.05**	**12.79**	**-0.15**	**7.32**
Aluminum	-0.17	14.42	8.06	13.84	-2.27	6.08
Copper	-4.30	4.22	14.23	21.50	1.94	11.40
Nickel	-10.48	-5.63	-5.91	-13.80	-6.28	-1.19
Zinc	-1.70	14.11	13.83	25.43	0.23	5.88
Bloomberg Sub Precious Metals	**4.00**	**12.70**	**33.12**	**38.25**	**13.96**	**11.48**
Gold	3.79	12.55	32.04	36.96	14.83	11.43
Platinum	1.25	1.55	0.03	6.91	1.06	1.81
Silver	4.66	13.11	36.08	41.95	10.66	11.41
Bloomberg Sub Livestock	**5.72**	**8.16**	**21.32**	**11.72**	**9.86**	**1.12**
Lean Hogs	14.81	23.31	34.85	22.95	6.84	-0.97
Live Cattle	1.21	0.85	16.68	7.97	12.05	2.59

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ALTERNATIVES

Asset Class Return Analysis (%)

Higher

2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	YTD 2024
Managed Futures 18.37	Multi-Strategy 3.84	MLP 18.31	Long/Short Equity 13.41	Fixed Income Arbitrage 1.10	Long/Short Equity 12.17	Convertible Arbitrage 10.25	MLP 40.17	MLP 30.92	MLP 26.56	MLP 18.56
Multi-Strategy 6.09	Long/Short Equity 3.55	Commodity 11.77	Currency 11.54	Global Macro -0.11	Global Macro 10.38	Long/Short Equity 7.86	Commodity 27.11	Managed Futures 19.12	Long/Short Equity 10.93	Long/Short Equity 14.11
Long/Short Equity 5.55	Equity Market Neutral 1.69	Convertible Arbitrage 6.60	Equity Market Neutral 8.45	Multi-Strategy -1.05	Managed Futures 9.01	Event Driven 6.95	Event Driven 12.92	Commodity 16.09	Event Driven 9.30	Event Driven 9.71
MLP 4.80	Convertible Arbitrage 0.81	Multi-Strategy 4.41	Multi-Strategy 6.83	Convertible Arbitrage -2.26	Event Driven 8.22	Global Macro 6.53	Global Macro 9.60	Global Macro 15.89	Currency 8.44	Equity Market Neutral 8.82
Fixed Income Arbitrage 4.37	Fixed Income Arbitrage 0.59	Fixed Income Arbitrage 4.29	Fixed Income Arbitrage 6.52	Currency -3.33	Convertible Arbitrage 8.15	Multi-Strategy 5.60	Long/Short Equity 8.35	Equity Market Neutral 1.71	Multi-Strategy 8.04	Fixed Income Arbitrage 7.97
Global Macro 3.11	Global Macro 0.18	Global Macro 3.58	Event Driven 6.30	Event Driven -3.95	Commodity 7.69	Fixed Income Arbitrage 3.64	Managed Futures 8.19	Multi-Strategy 1.27	Fixed Income Arbitrage 7.71	Multi-Strategy 7.64
Event Driven 1.57	Managed Futures -0.93	Currency 3.54	Convertible Arbitrage 5.01	Long/Short Equity -4.62	Multi-Strategy 7.25	Managed Futures 1.86	Multi-Strategy 6.97	Fixed Income Arbitrage -0.97	Equity Market Neutral 6.73	Commodity 5.86
Equity Market Neutral -1.19	Event Driven -6.29	Event Driven 2.68	Managed Futures 3.29	Equity Market Neutral -5.00	MLP 6.56	Currency 1.73	Convertible Arbitrage 6.33	Convertible Arbitrage -3.32	Convertible Arbitrage 4.04	Convertible Arbitrage 5.80
Convertible Arbitrage -1.68	Currency -7.61	Long/Short Equity -3.43	Global Macro 2.14	Managed Futures -6.67	Fixed Income Arbitrage 6.10	Equity Market Neutral 1.69	Equity Market Neutral 6.16	Long/Short Equity -5.77	Managed Futures -2.78	Global Macro 5.53
Currency -7.03	Commodity -24.66	Equity Market Neutral -4.58	Commodity 1.70	Commodity -11.25	Currency 5.20	Commodity -3.12	Fixed Income Arbitrage 5.22	Event Driven -6.80	Global Macro -5.19	Currency 3.78
Commodity -17.01	MLP -32.59	Managed Futures -6.84	MLP -6.52	MLP -12.42	Equity Market Neutral 1.58	MLP -28.69	Currency -3.09	Currency -7.14	Commodity -7.91	Managed Futures 2.43

Lower

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TRANSITION

Major Asset Classes Correlation Table

	S&P 500	International	Emerging Markets	Small Cap	U.S. Aggregate	Municipal	High Yield	Bank Loan	Commodities
S&P 500	1.00	0.87	0.69	0.86	0.37	0.38	0.79	0.60	0.40
International	0.89	1.00	0.80	0.78	0.41	0.46	0.81	0.61	0.45
Emerging Markets	0.71	0.79	1.00	0.63	0.39	0.44	0.71	0.57	0.50
Small Cap	0.86	0.84	0.71	1.00	0.28	0.30	0.77	0.64	0.37
U.S. Aggregate	0.55	0.59	0.55	0.46	1.00	0.85	0.48	0.15	-0.07
Municipal	0.57	0.64	0.63	0.51	0.85	1.00	0.54	0.28	0.02
High Yield	0.83	0.82	0.72	0.83	0.59	0.69	1.00	0.80	0.50
Bank Loan	0.62	0.62	0.62	0.68	0.22	0.38	0.81	1.00	0.50
Commodities	0.41	0.47	0.48	0.39	-0.02	0.10	0.48	0.49	1.00

▨ 5 Years ended October 31, 2024   🟪 10 Years ended October 31, 2024

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It is not possible to invest directly in an index. Source: Morningstar as of 10/31/24. The table above shows the return correlation between various asset classes (represented by market indices as defined in this disclosure) over the past five and ten years. Data provided is for informational use only. See end of report for important additional information. S&P 500 is represented by the S&P 500 Index. International is represented by MSCI EAFE Index. Emerging Markets is represented by MSCI Emerging Markets Index. Small-Cap is represented by Russell 2000 Index. US Aggregate is represented by the Bloomberg Barclays Capital US Aggregate Bond Index. Municipal is represented by Bloomberg Barclays Municipal Bond Index. High Yield is represented by ICE BofA US High Yield Index. Bank Loan is represented by Morningstar LSTA U.S. Leveraged Loan Index. Commodities is represented by Bloomberg Commodity Index.

TRANSITION

Fund and ETF Flows by Category

Top 10 Open-End Mutual Fund Categories by Monthly Flows ($MM)

	1 Mo.	3 Mo.	12 Mo.
Multisector Bond	4,808	12,236	33,774
Intermediate Core Bond	4,028	7,141	64,995
Intermediate Core-Plus Bond	2,752	5,680	17,393
High Yield Bond	2,414	7,832	14,295
Long Government	2,156	2,109	2,002
High Yield Muni	1,659	5,296	8,972
Muni National Interm	1,507	3,629	7,818
Real Estate	1,160	-249	-4,220
Nontraditional Bond	906	2,793	7,021
Ultrashort Bond	901	1,065	-535

Top 10 Exchange-Traded Fund Categories by Monthly Flows ($MM)

	1 Mo.	3 Mo.	12 Mo.
Large Blend	35,189	90,827	308,257
Intermediate Core Bond	8,095	19,068	55,576
Large Value	6,484	15,557	32,804
Intermediate Core-Plus Bond	5,249	9,882	27,538
Foreign Large Value	4,623	4,830	3,258
Foreign Large Blend	4,504	12,471	54,505
China Region	2,616	-791	-1,959
Large Growth	2,478	11,955	85,927
Multisector Bond	2,418	4,088	9,881
Diversified Emerging Mkts	2,396	1,287	10,664

Bottom 10 Open-End Mutual Fund Categories by Monthly Flows ($MM)

	1 Mo.	3 Mo.	12 Mo.
Foreign Large Value	-1,934	-3,487	-10,523
Mid-Cap Blend	-2,222	-4,182	-10,322
Foreign Large Blend	-2,266	-25	-2,871
Foreign Large Growth	-2,276	-6,329	-22,810
Mid-Cap Growth	-2,367	-8,222	-30,844
Intermediate Government	-4,233	-4,538	-2,160
Moderate Allocation	-4,503	-12,293	-37,143
Large Value	-6,631	-18,053	-65,799
Large Growth	-10,264	-31,672	-114,483
Large Blend	-10,727	-29,966	-82,039

Bottom 10 Exchange-Traded Fund Categories by Monthly Flows ($MM)

	1 Mo.	3 Mo.	12 Mo.
Trading--Miscellaneous	-408	-173	860
Consumer Cyclical	-414	-1,056	-1,878
Small Blend	-453	11,682	25,722
Inflation-Protected Bond	-465	239	-4,163
Corporate Bond	-538	4,891	21,139
Industrials	-783	-566	1,386
Equity Energy	-938	-2,909	-5,187
Japan Stock	-1,438	-2,733	1,906
Technology	-1,651	3,447	24,077
Financial	-3,168	1,205	2,019

Source: Morningstar as of 9/30/24. Flow data is on a one-month lag. Data provided is for informational use only. See end of report for important additional information.

TRANSITION

Major Asset Class Return Analysis (%)

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	YTD 2024
Higher	S&P 500 13.69	Municipal 3.30	Small-Cap 21.31	Emerging Markets 37.28	Municipal 1.28	S&P 500 31.49	Small-Cap 19.96	S&P 500 28.71	Commodities 16.09	S&P 500 26.29	S&P 500 20.97
	Municipal 9.05	S&P 500 1.38	High Yield 17.49	International 25.03	Bank Loan 0.44	Small-Cap 25.52	S&P 500 18.40	Commodities 27.11	Bank Loan -0.77	International 18.24	Emerging Markets 11.66
	US Agg 5.97	US Agg 0.55	S&P 500 11.96	S&P 500 21.83	US Agg 0.01	International 22.01	Emerging Markets 18.31	Small-Cap 14.82	Municipal -8.53	Small-Cap 16.93	Small-Cap 9.56
	Small-Cap 4.89	Bank Loan -0.69	Commodities 11.77	Small-Cap 14.65	High Yield -2.26	Asset Allocation 18.70	Asset Allocation 11.95	Asset Allocation 11.43	High Yield -11.22	Asset Allocation 14.09	Asset Allocation 9.23
	Asset Allocation 4.28	International -0.81	Emerging Markets 11.19	Asset Allocation 14.02	S&P 500 -4.38	Emerging Markets 18.42	International 7.82	International 11.26	US Agg -13.01	High Yield 13.46	Bank Loan 7.45
	High Yield 2.50	Asset Allocation -2.03	Bank Loan 10.16	High Yield 7.48	Asset Allocation -5.40	High Yield 14.41	US Agg 7.51	High Yield 5.36	Asset Allocation -13.04	Bank Loan 13.32	High Yield 7.44
	Bank Loan 1.60	Small-Cap -4.41	Asset Allocation 8.61	Municipal 5.45	Small-Cap -11.01	US Agg 8.72	High Yield 6.17	Bank Loan 5.20	International -14.45	Emerging Markets 9.83	International 6.85
	Emerging Markets -2.19	High Yield -4.64	US Agg 2.65	Bank Loan 4.12	Commodities -11.25	Bank Loan 8.64	**Municipal** 5.21	Municipal 1.52	S&P 500 -18.11	Municipal 6.40	Commodities 3.89
	International -4.90	Emerging Markets -14.92	International 1.00	US Agg 3.54	International -13.79	Commodities 7.69	Bank Loan 3.12	US Agg -1.54	Emerging Markets -20.09	US Agg 5.53	US Agg 1.86
Lower	Commodities -17.01	Commodities -24.66	Municipal 0.25	Commodities 1.70	Emerging Markets -14.57	**Municipal** 7.54	Commodities -3.12	Emerging Markets -2.54	Small-Cap -20.44	Commodities -7.91	Municipal 0.81

Past performance is no guarantee of future results. It is not possible to invest directly in an index. Source: Morningstar as of 10/31/24. Data provided is for informational use only. Investing involves risks including the possible loss of principal. Investors should carefully review the risks of each asset class prior to investing. See end of report for important additional information. S&P 500 represented by the S&P 500 Index. International represented by MSCI EAFE Index. Emerging Markets represented by MSCI Emerging Markets Index. Small-Cap represented by Russell 2000 Index. US Aggregate represented by the Bloomberg Capital US Aggregate Bond Index. Municipal represented by Bloomberg Municipal Bond Index. High Yield represented by ICE BofA US High Yield Index. Bank Loan represented by Morningstar LSTA U.S. Leveraged Loan Index. Commodity represented by Bloomberg Commodity Index. The Asset Allocation portfolio assumes the following weights: 25% in the S&P 500 Index, 15% in the MSCI EAFE Index, 5% in the MSCI Emerging Markets Index, 10% in the Russell 2000 Index, 25% in the Bloomberg Capital US Aggregate Bond Index, 5% in the Bloomberg Municipal Bond Index, 5% in the Bloomberg US Corporate High Yield Index, 5% in the Morningstar LSTA U.S. Leveraged Loan Index, and 5% in the Bloomberg Commodity Index.

Portfolio Solutions Group

The Portfolio Solutions Group provides top-down, macro analysis of equity, fixed income and alternative assets, designed to help clients capitalize on evolving economic dynamics and market dislocations globally. The team builds custom multi-asset investment solutions across a range of broadly-diversified to hyper-focused portfolios.

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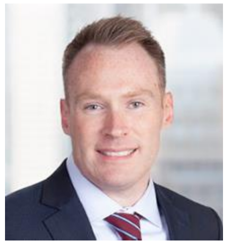
Chief Investment Officer
Managing Director

EWA TUREK SEMMELROTH

Executive Director

ERIC ZHANG

Executive Director



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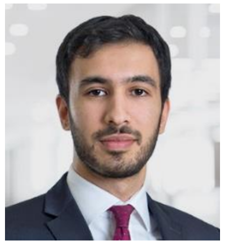
Vice President

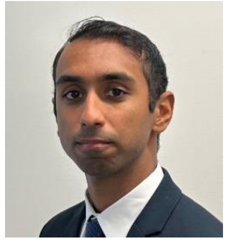


UMAR MALIK

Vice President

CHRIS CHIA

Vice President



SACHIN RAGHAVAN

Vice President

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Senior Portfolio Manager, Global Multi-Asset team

JUSTIN BOURGETTE
Portfolio Manager
Head of Investment Strategy for the High Yield team

CRAIG BRANDON
Portfolio Manager
Co-Head of the Municipals team

JIM CARON
Chief Investment Officer, Portfolio Solutions Group

AARON DUNN
Portfolio Manager
Co-Head of the Value Equity team

GREG FINCK
Portfolio Manager
Co-Head of the Mortgage and Securitized team

BRAD GODFREY
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KATIE HERR
Head of Fixed Income Product Strategy

LAUREN HOCHFELDER
Co-Chief Executive Officer of MSREI
Head of MSREI Americas

JITANIA KANDHARI
Deputy CIO, Solutions & Multi Asset Group;
Head of Macro & Thematic Research, Emerging Markets Portfolio Manager

VISHAL KHANDUJA
Portfolio Manager
Co-Head of the Broad Markets Fixed Income team

KYLE LEE
Portfolio Manager
Co-Head of the Emerging Markets team

SCOTT R. NORBY
Private Credit and Equity

ANDREW SLIMMON
Senior Portfolio Manager
Head of Applied Equity Advisors

ANDREW SZCZUROWSKI
Portfolio Manager
Co-Head of the Mortgage and Securitized team

STEVEN TURNER
Head of Investment Selection, Portfolio Solutions Group

MARK VAN DER ZWAN
Chief Investment Officer and Head of the AIP Hedge Fund Team

Glossary of Terms

Index Definitions

Bloomberg Commodity Index is a broadly diversified index tracking futures contracts on physical commodities.

Bloomberg Euro-Aggregate Corporates Index consists of bonds issued in the euro or the legacy currencies of the 16 sovereign countries participating in the European Monetary Union (EMU)

Bloomberg Global Aggregate Ex-USD Index is a broad-based measure of global Investment Grade fixed-rate debt investments, excluding USD-denominated debt.

Bloomberg High Yield Municipal Bond Index is an unmanaged index of non-Investment Grade Municipal bonds traded in the U.S.

Bloomberg Municipal Bond Index is an unmanaged index of Municipal bonds traded in the U.S.

Bloomberg Pan-European High Yield Index covers the universe of fixed-rate, sub-investment-grade debt denominated in euros or other European currencies (except Swiss francs).

Bloomberg Taxable Municipal Bond Index is an unmanaged index of Taxable Municipal bonds traded in the U.S.

Bloomberg U.S. Agency Index measures agency securities issued by U.S government agencies, quasi-federal corporations, and corporate or foreign debt guaranteed by the U.S. government.

Bloomberg U.S. Aggregate Index is an unmanaged index of domestic investment-grade bonds, including corporate, government and mortgage-backed securities.

Bloomberg U.S. Asset Backed Securities (ABS) Index measures ABS with the following collateral type: credit and charge card, auto, and utility loans.

Bloomberg U.S. CMBS Index measures the market of conduit and fusion CMBS deals with a minimum current deal size of $300mn.

Bloomberg U.S. Corporate Investment Grade Index is an unmanaged index that measures the performance of investment-grade corporate securities within the Barclays U.S. Aggregate Index.

Bloomberg U.S. Mortgage Backed Securities (MBS) Index measures agency mortgage-backed pass-through securities issued by GNMA, FNMA, and FHLMC.

Bloomberg U.S. Treasury Index measures public debt instruments issued by the U.S. Treasury.

CBOE Volatility Index (VIX) tracks the implied volatilities of a wide range of S&P 500 Index options.

CBOE S&P 500 BuyWrite Index measures the performance of a hypothetical buy-write strategy on the S&P 500 Index.

ICE BofA US Inflation-Linked Treasury Index tracks the performance of USD denominated inflation linked sovereign debt publicly issued by the US government.

ICE BofA Fixed Rate Preferred Securities Index is an unmanaged index of fixed-rate, preferred securities issued in the U.S.

ICE BofA European Union Government Bond Index tracks the performance of sovereign debt publicly issued by countries that are members of the European Union.

ICE BofA U.S. High Yield Index is an unmanaged index of below-investment grade U.S. corporate bonds.

ICE BofA Developed Markets High Yield Ex-Subordinated Financial Index (Hedged) is an unmanaged index of global developed market below investment grade corporate bonds, USD hedged.

FTSE 100 Index is an unmanaged market-capitalization weighted index representing the performance of the 100 largest UK listed blue chip companies, which pass screening for size and liquidity.

FTSE All Small Index consists of all the companies in the FTSE SmallCap and FTSE Fledgling indices.

FTSE World Government Bond Index (WGBI) measures the performance of fixed-rate, local currency, investment-grade sovereign bonds.

J.P. Morgan Corporate Emerging Markets Bond Index (CEMBI) Broad Diversified is an unmanaged index of USD-denominated emerging market corporate bonds.

J.P. Morgan Emerging Markets Bond Index (EMBI) Global Diversified is an unmanaged index of USD-denominated bonds with maturities of more than one year issued by emerging markets governments.

J.P. Morgan Government Bond Index-Emerging Markets (GBI-EM) Global Diversified is an unmanaged index of local-currency bonds with maturities of more than one year issued by emerging market governments.

Morgan Stanley Capital International (MSCI) Emerging Markets Index is an unmanaged index of emerging markets common stocks

MSCI EMU Index (European Economic and Monetary Union) captures large and mid cap representation across the 10 Developed Markets countries in the EMU. With 229 constituents, the index covers approximately 85% of the free float-adjusted market capitalization of the EMU.

Morgan Stanley Capital International All Country Asia Pacific Index (MSCI AC Asia Pac) is an unmanaged total return, capitalization-weighted index that measures the performance of stock markets in 15 Pacific region countries, including Australia, China, Hong Kong, India, Indonesia, Japan, Korea, Malaysia, New Zealand, Pakistan, the Philippines, Singapore, Sri Lanka, Taiwan and Thailand.

Morgan Stanley Capital International (MSCI) Japan Index is an unmanaged index designed to measure the performance of the large and mid cap segments of the Japan market.

Morgan Stanley Capital International (MSCI) World Index is an unmanaged index of equity securities in the developed markets.

Morgan Stanley Capital International (MSCI) World ex USA Small Cap Index is an unmanaged index of small-cap equity securities in the developed markets, excluding the United States.

Morgan Stanley Capital International All Country World (MSCI AC World) Index is an unmanaged free float-adjusted market-capitalization-weighted index designed to measure the equity market performance of developed and emerging markets.

Morgan Stanley Capital International Europe (MSCI Europe) Index is an unmanaged free float-adjusted market-capitalization-weighted index designed to measure the equity market performance of the developed markets in Europe.

ADDITIONAL INFORMATION

Glossary of Terms and About Risk

Index Definitions (cont.)

Morgan Stanley Capital International Europe, Australasia, Far East (MSCI EAFE) Index is an unmanaged index of equities in the developed markets, excluding the U.S. and Canada.

MSCI USA Index is designed to measure the performance of the large and mid cap segments of the US market. With 625 constituents, the index covers approximately 85% of the free float-adjusted market capitalization in the US.

Morningstar LSTA U.S. Leveraged Loan Index is an unmanaged index of the institutional leveraged loan market. Prior to August 29, 2022 the index name was S&P/LSTA Leveraged Loan Index.

Nikkei 225 Stock Average Index is unmanaged price-weighted index of 225 top-rated Japanese companies listed in the First Section of the Tokyo Stock Exchange.

Russell 1000 Index is an unmanaged index of 1,000 U.S. large-cap stocks.

Russell 1000 Growth Index is an unmanaged index of 1,000 U.S. large-cap growth stocks.

Russell 1000 Value Index is an unmanaged index of 1,000 U.S. large-cap value stocks.

Russell 2000 Index is an unmanaged index of 2,000 U.S. small-cap stocks.

Russell 2500 Index is an unmanaged index of approximately 2,500 U.S. small- and mid-cap U.S. stocks.

Russell Midcap Index is an unmanaged index of U.S. mid-cap stocks.

Standard & Poor's 500 Index is an unmanaged index of large-cap stocks commonly used as a measure of U.S. stock market performance.

STOXX Europe 600 Index is a fixed component number index designed to provide a broad yet liquid representation of large, mid and small capitalization companies in Europe.

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Terms

Municipal-to-Treasury Yield Ratios are relative value indicators that measure the richness or cheapness of Municipal bond yields to comparable maturity Treasury bond yields.

Yield to Worst is a measure which reflects the lowest potential yield earned on a bond without the issuer defaulting. The yield to worst is calculated by making worst-case scenario assumptions by calculating the returns that would be received if provisions, including prepayment, call or sinking fund, are used by the issuer.

About Risk

Bank Loans – There can be no assurance that the liquidation of collateral securing an investment will satisfy the issuer's obligation in the event of non-payment or that collateral can be readily liquidated. The ability to realize the benefits of any collateral may be delayed or limited. **Commodities** – The value of commodities investments will generally be affected by overall market movements and factors specific to a particular industry or commodity including weather, embargoes, tariffs, or health, political, international and regulatory developments. **Credit** – Investments in income securities may be affected by changes in the creditworthiness of the issuer and are subject to the risk of non-payment of principal and interest. The value of income securities also may decline because of real or perceived concerns about the issuer's ability to make principal and interest payments. **Duration** – Securities with longer durations tend to be more sensitive to interest rate changes than securities with shorter durations. Equity – Equity investment values are sensitive to stock market volatility. **Foreign** – Investments in foreign instruments or currencies can involve greater risk and volatility than U.S. investments because of adverse market, economic, political, regulatory, geopolitical, or other conditions. In emerging countries, these risks may be more significant. **Gov't Agency** – While certain U.S. Government-sponsored agencies may be chartered or sponsored by acts of Congress, their securities are neither issued nor guaranteed by the U.S. Treasury. **Income Market** – An imbalance in supply and demand in the income market may result in valuation uncertainties and greater volatility, less liquidity, widening credit spreads and a lack of price transparency in the market. There generally is limited public information about Municipal issuers. **Inflation-Linked** – Interest payments on inflation-linked securities may vary widely and will fluctuate as principal and interest are adjusted for inflation. Investments in inflation-linked securities may lose value in the event that the actual rate of inflation is different than the rate of the inflation index. **Interest Rate** – As interest rates rise, the value of certain income investments is likely to decline. The London Interbank Offered Rate or LIBOR, is used throughout global banking and financial industries to determine interest rates for a variety of financial instruments (such as debt instruments and derivatives) and borrowing arrangements. The ICE Benchmark Administration Limited, the administrator of LIBOR, is expected to cease publishing certain LIBOR settings on December 31, 2021, and the remaining LIBOR settings on June 30, 2023. The transition process may involve, among other things, increased volatility or illiquidity in markets for instruments that currently rely on LIBOR, such as floating-rate debt obligations. **Lower-Rated** – Investments rated below Investment Grade (typically referred to as "junk") are generally subject to greater price volatility and illiquidity than higher rated investments. **Maturity** – Longer-term bonds typically are more sensitive to interest rate changes than shorter-term bonds. **Preferred Stocks** – When interest rates rise, the value of preferred stocks will generally decline. **Prepayment - MBS** – Mortgage-backed securities are subject to prepayment risk. **Prepayment - Bank Loan** – Bank Loans are subject to prepayment risk. **Real Estate** – Changes in real estate values or economic downturns can have a significant negative effect on issuers in the real estate industry, including REITs.

ADDITIONAL INFORMATION

Risk Considerations

Diversification does not eliminate the risk of loss.

In general, equity securities' values also fluctuate in response to activities specific to a company. Investments in foreign markets entail special risks such as currency, political, economic, and market risks. The risks of investing in emerging market countries are greater than risks associated with investments in foreign developed countries. Fixed income securities are subject to the ability of an issuer to make timely principal and interest payments (credit risk), changes in interest rates (interest-rate risk), the creditworthiness of the issuer and general market liquidity (market risk). In a rising interest-rate environment, bond prices may fall and may result in periods of volatility and increased portfolio redemptions. In a declining interest-rate environment, the portfolio may generate less income. Longer-term securities may be more sensitive to interest rate changes. Alternative investments are speculative, involve a high degree of risk, are highly illiquid, typically have higher fees than other investments, and may engage in the use of leverage, short sales, and derivatives, which may increase the risk of investment loss. These investments are designed for investors who understand and are willing to accept these risks. Performance may be volatile, and an investor could lose all or a substantial portion of its investment.

There is no guarantee that any investment strategy will work under all market conditions, and each investor should evaluate their ability to invest for the long-term, especially during periods of downturn in the market.

A separately managed account may not be appropriate for all investors. Separate accounts managed according to the Strategy include a number of securities and will not necessarily track the performance of any index. Please consider the investment objectives, risks and fees of the Strategy carefully before investing. A minimum asset level is required.

For important information about the investment managers, please refer to Form ADV Part 2.

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MIDDLE EAST

Dubai: MSIM Ltd (Representative Office, Unit Precinct 3-7th Floor-Unit 701 and 702, Level 7, Gate Precinct Building 3, Dubai International Financial Centre, Dubai, 506501, United Arab Emirates. Telephone: +97 (0)14 709 7158).

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