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Active Fixed Income Perspectives Q1 2024: Yield Mountain

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Performance

In mid-October, the yield on the 10-year U.S. Treasury note crossed 5%. Then, slower inflation and a dovish tone from the Federal Reserve fueled an all-asset rally to end the year. The 10-year fell quickly below 4% and credit spreads squeezed tighter. Market pricing reflects a soft landing for the economy.

Looking ahead

Our positive view on the value of fixed income still holds. We expect interest rates to ultimately settle above the unusually low levels experienced after the 2008 global financial crisis. Investors can capture durable, resilient yields, and if rates decline, additional price appreciation.

Approach

Credit spreads are narrow, but overall yields remain attractive. We still hold an up-in-quality bias. Corporate credit and high-yield spreads should widen later this year as the economy weakens, but not to extremes. We await a better entry point to add lower-quality risk. Municipal bonds exhibit strong fundamentals and attractive tax-adjusted yields, with the most value out on the curve and down in credit rating.

Contents

The descent from Yield Mountain

Jackson Hole, Wyoming, is famous in finance for being the site of the Federal Reserve's annual August symposium, but it is also home of one of the top ski resorts in the world. The skiing area on Après Vous and Rendezvous mountains features a 4,139-foot vertical drop, and half the runs are recommended for experts only.

Bond investors who rode a figurative gondola to what was likely the top of "Yield Mountain" in October experienced the thrill of the sudden descent in the following two months. The yield on the 10-year U.S. Treasury note, which began 2023 at 3.84%, fell from 5% in mid-October to back under 4% by mid-December.

- The Bloomberg U.S. Aggregate Index returned 9.29% between October 19 and December 31; investors who stood safely in cash may have felt that they missed out.

What's next? In 2024, we expect:

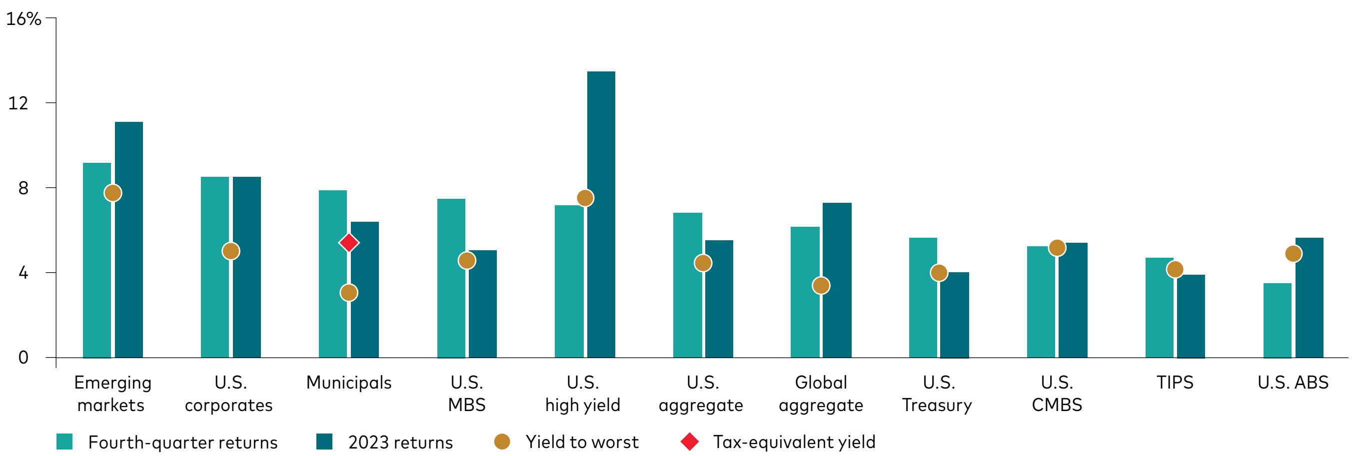
- Inflation, as measured by the core Personal Consumer Expenditures Price Index (core PCE), to fall steadily and end the year just above the Fed's 2% target.
- The Fed to cut rates. More easing would occur in a recession, but in either case we don't expect policy rates to return to the lows of the past.
- The yield curve to steepen as short-term rates decline.
- Credit sector returns to come more from yields than price gains. Yields are attractive, and any potential price declines ought to be contained in higher-quality bonds.

Fixed income investors should feel comfortable about the path ahead. We believe the range of likely potential outcomes for total returns has narrowed and leans more positive. Like on Rendezvous Mountain in Jackson Hole, the initial yield drop may prove to be the largest, but investors should enjoy the run ahead.

What could go wrong? There remains plenty to be concerned about:

- The economic environment is likely to be uneven as the economy slows.
- Credit spreads remain uncomfortably tight, so credit markets broadly face risk in the event of a recession, with lower-quality issuers most vulnerable.
- High fiscal deficits remain, even if the fall in interest rates eases the immediate fiscal pain of higher payments. Investor concerns about deficits could put upward pressure on long-term yields.
- The downtrend in inflation could stall, holding price levels above their long-run targets.

Fixed income sector returns and yields



Note: The municipal tax-equivalent yield is calculated using a 40.8% tax bracket, which includes a 37.0% top federal marginal income tax rate and the 3.8% Net Investment Income Tax to fund Medicare.

Sources: Bloomberg indexes and J.P. Morgan, as of December 31, 2023.

Past performance is no guarantee of future returns. The performance of an index is not an exact representation of any particular investment, as you cannot invest directly in an index.

Considerations for investors:

Investors can earn compelling yields in money markets or other cash instruments—up until the Fed starts to cut rates. The question for many is when to lock in yields for longer. We've previously highlighted the merits of adding some duration exposure as the hiking cycle matures and, given our outlook for lower policy rates, we still hold that view.

We think bonds will prove their worth again as a source of income and a diversifier to equities. There should be more opportunities ahead, even if investors need to traverse some moguls in the economy.

Rates and inflation

What happened: Growth decelerated from its third-quarter peak, but there is little evidence yet of a near-term recession.

- The Fed signaled that normalization of policy can begin in 2024, if core PCE, the Fed's preferred metric, continues to move sustainably toward the target level.
- Rates markets priced in a significant number of cuts in 2024, but they have since recalibrated to a less aggressive pace.

What's next: The recent easing of financial conditions has increased the odds of a soft landing. However, we see risks to this consensus view. We think it is unlikely that rates will move significantly higher, but rate cuts may come later than the market expects if growth stays above trend and inflation is sticky.

- Even if recession is avoided, the Federal Open Market Committee is likely to ease policy around the middle of the year to prevent real policy rates from becoming overly restrictive.
- More tolerable levels of inflation now mean the bar is lower for earlier rate cuts if economic conditions weaken.

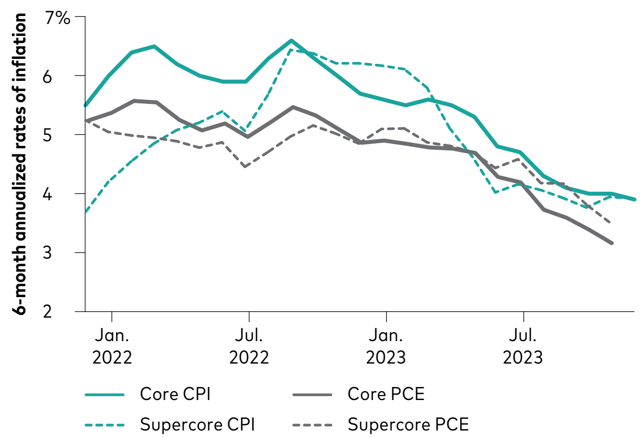
How we see it: We hold a preference for exposure in the belly of the yield curve, with carry very negative at the front end and the potential for steepening at the far end.

- Yields reflect a soft landing but have room to decline much further if a recession arrives.
- As rates rallied into year-end, we reduced our long-duration positions and are now neutral to our benchmarks.

What about outside the U.S.? We do expect growth and inflation to soften globally, with central banks preparing for rate cuts. Emerging markets countries should see the most activity.

- Among central banks in developed countries, the European Central Bank may need to act more quickly due to weak growth and falling euro zone inflation.
- Rate cuts by the Bank of England may come later due to more persistent inflation in the U.K.
- Bank of Japan policy normalization should push Japanese government bond yields higher, although yield gains will be limited if the U.S. falls into a recession.

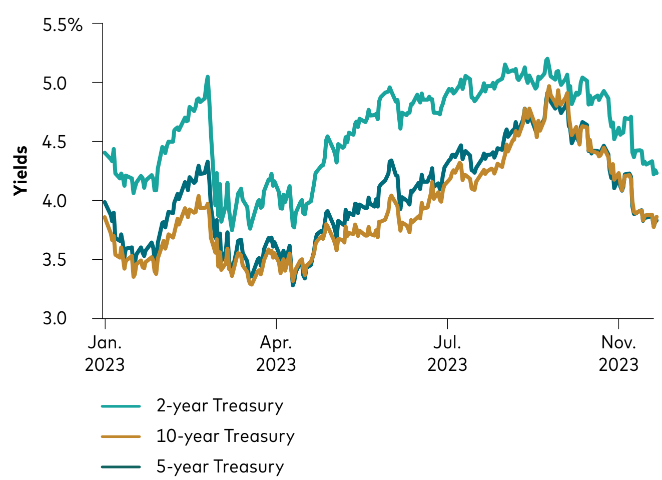
Core PCE tracking at 2%, although other inflation measures remain higher



Source: Bloomberg, as of December 31, 2023.

Note: Supercore inflation measures exclude housing from the core measures, because of the extra time it takes for mortgages and rents to be reflected in the data.

U.S. yields took a round trip back to where they began 2023



Source: Bloomberg, as of December 31 , 2023.

Mortgage-backed securities

What happened: Government-backed mortgage bonds outperformed Treasuries of similar duration last year. Spreads for mortgage-backed securities (MBS) ended 2023 near where they started, but higher yields propelled calendar-year returns above 5%.

What's next: This year, more certainty around the direction of rates should translate into lower levels of volatility, a positive for MBS. Housing fundamentals have held up well as rates have risen and default rates remain low. However, home-buying activity has fallen dramatically as mortgage rates have risen to multidecade highs. Supply of new MBS bonds this year should again be modest.

How we see it: The MBS market should remain strong in 2024 for the following reasons:

- Prepayment uncertainty remains low. Three out of four borrowers are paying 4% or less on their mortgage loan. Any meaningful uptick in refinancing activity would require a significant decline in mortgage rates.
- Supply and demand are expected to be in better balance this year as banks move from net sellers to modest net buyers. The Fed, however, is likely to continue unwinding its MBS portfolio even when it ends quantitative tightening, reinvesting MBS paydowns into Treasuries. The burden to absorb supply will continue to fall on money managers, though to a lesser degree than previous years.
- Relative value between different coupons has normalized over the past several months. We hold a neutral position across the coupon stack and are looking for opportunities to reenter relative value coupon trades, while maintaining dry powder to take advantage of any future opportunities.

Credit

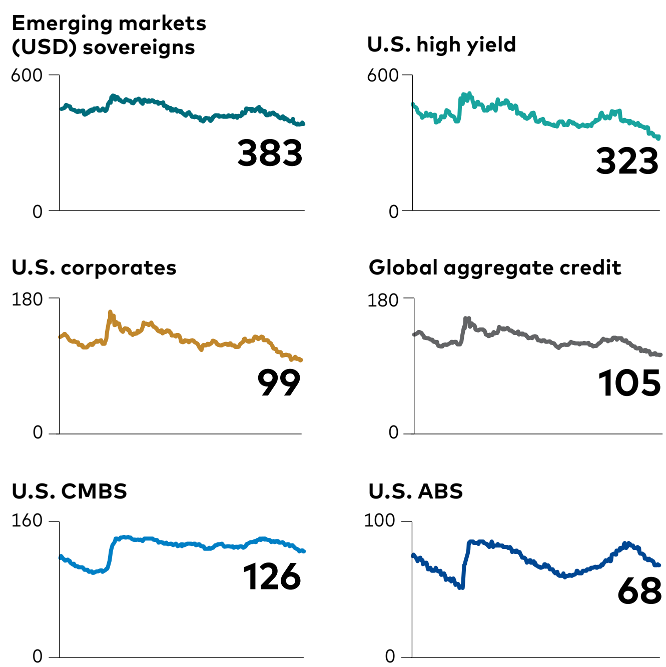
What happened: The Fed's unexpectedly dovish tone in December added fuel to the rally in risk assets that was already underway by the middle of the fourth quarter. With growth still above trend, credit sector valuations today are fully priced for a soft landing.

The big picture: Yields across credit sectors began 2024 lower than their October 2023 peaks but were still well above their 10-year averages. We see a strong case for credit to outperform government bonds this year, primarily due to higher yields.

- Spreads have little room to tighten much further, but in the event of a sell-off, price drops should be relatively contained because of positive supply/demand technicals and strong fundamentals.
- Lower-quality segments are more vulnerable to slower growth, even though they have performed well of late. We remain cautious on high-yield exposure but constructive on investment-grade corporates.

Credit spreads

(in bps, from December 31, 2022, through December 31, 2023)



Sources: Bloomberg indexes and J.P. Morgan EMBI Global Diversified Index, as of December 31, 2023.

Investment-grade corporates

What happened: High-quality corporate spreads averaged 125 basis points (bps) last year and held near that level for the last several months before falling below 100 bps during December's all-asset rally.

- In 2023, the number of rating upgrades exceeded downgrades by a ratio of 4 to 1.
- Companies in cyclical industries, which typically carry more leverage, led the way.
- As higher rates have increased the cost of capital, many companies have pivoted toward reducing debt to protect their balance sheet and credit rating.

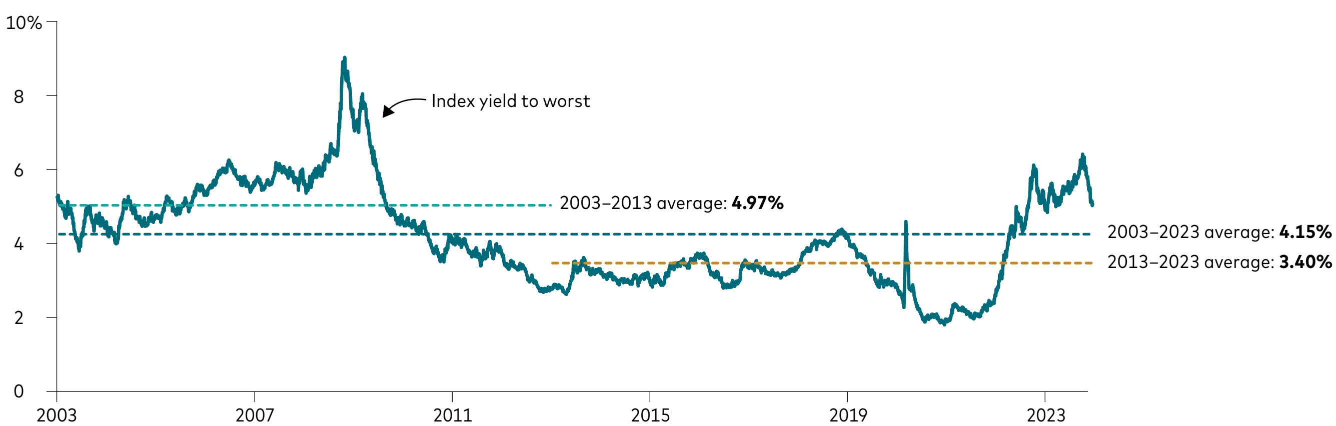
What's next: Corporate fundamentals look strong even as interest expenses rise and margins narrow. While we don't anticipate the pace of upgrades to continue, last year's action shows that investment-grade companies are adjusting to the new economic environment.

- We expect overall supply to be about flat and demand to remain robust.
- Investment-grade issuers do not have a looming maturity wall to address, so they have flexibility to be opportunistic and patient with their funding decisions.

How we see it: We still like the defensive characteristics of higher-quality credit at this point in the cycle.

- The banking sector, which lagged in 2023, now has more room to outperform.
- Bank earnings in the quarters following the Silicon Valley Bank crisis showed that their balance sheets are sound.
- The recent decline in Treasury yields has helped improve banks' asset portfolios, and earnings should grow if the yield curve steepens this year, as we expect.

Bloomberg U.S. Corporate Index yield to worst



Source: Bloomberg, as of December 31 , 2023.

Structured products

What happened: Asset-backed securities (ABS) and commercial mortgage-backed securities (CMBS) lagged credit sectors in the fourth quarter.

- In CMBS, higher interest rates have increased financing costs, lowered transaction volumes, and placed downward pressure on property prices. CMBS delinquency rates trended higher, with the office sector most hurt in 2023. Financial institutions have been hesitant to lend in the sector because of lower leasing demand, which is due to the rise of hybrid work.

What's next: ABS valuations, relative to 1- to 5-year investment-grade corporate bonds, have become attractive, particularly for lower-duration portfolios. CMBS should remain cheap due to concerns over property valuations and loan extension activity.

How we see it: U.S. consumers are financially healthy, based on the average ratio of nonmortgage liabilities like revolving credit, auto loans, and student loans to overall personal consumption. That bodes well for ABS, though we do see a more pronounced weakening among lower-credit-quality consumers. Higher-rated securities backed by quality collateral are a better bet.

- In CMBS we're cautious, but many property types outside the office sector continue to perform well. For example, multifamily and industrial properties are experiencing record-low delinquency rates.

High-yield corporates

What happened: Below-investment-grade bonds outperformed all other major bond market segments in 2023; the Bloomberg U.S. Corporate High Yield Index returned 13.45% for the year. Falling Treasury yields and a narrowing of spreads toward year-end provided the biggest boost. The 8.43% return over November and December was among the best two-month periods of performance for high yield ever.

What's next: Company fundamentals remain stable and the refinancing risks for the sector are low over the next year. In our view, lower-quality CCC rated companies require higher economic growth than we expect, and their bonds are vulnerable. But BB and B rated segments should fare well. This year we expect supply to pick up, rating upgrades to slow, and defaults to rise but not by much.

How we see it: Yield levels are still compelling, but with spreads now in the low 3% range, we're less excited about the value offered by owning generic high yield risk. However, dispersion across the sector is wide: 74% of bonds are trading at more than 100 basis points above or below average index yields. That provides a good environment for security selection.

- High yield still offers attractive income potential, but investors should be aware that if sentiment changes, spreads now have more room to widen, lowering total return.

The new high yield: More quality, less risk

Michael Milken[1] became the face of the high-yield (a.k.a. junk) bond market in the late 1970s and early 1980s. Milken, then a star at investment bank Drexel Burnham Lambert, used high-yield bonds to finance risky mergers and acquisitions and leveraged buyouts.

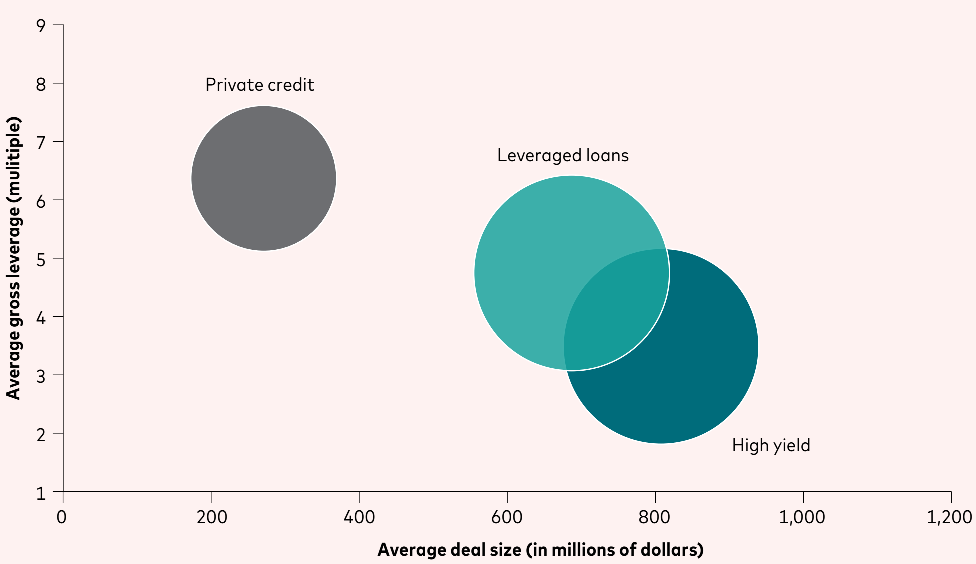
Once a niche asset class more suited for risk-takers, high yield has since matured, particularly in the past decade. This extraordinary transformation is due, in part, to riskier elements of high yield having migrated to leveraged loans and private credit. This is evident in the average ratings profile of high yield today, which has moved closer to investment-grade and away from the ratings categories that typically experience higher default rates. The sector has also shown improved diversification.

Where is the risk?

The below-investment-grade market now looks like this:

- The leveraged loan market, which has historically been much smaller than high yield, is now about the same size, at around $1.4 trillion of assets under management as of December 31, 2022.
- High yield now makes up only 37% of the below-investment-grade universe; leveraged loans and private credit combined now assume the majority at 36% and 27%, respectively.
- The average leverage of private credit and leveraged loan deals are increasing, with an average of 5 to 6.3 times an issuer's earnings before interest, taxes, depreciation, and amortization (EBITDA) by year-end 2022. By contrast, high-yield issues averaged 3.5 times EBITDA.
- Leveraged loans are dominated by paper rated B and below. Meanwhile, credit ratings on high-yield bonds have risen on average. In 2023, nearly half of high yield was made up of BB rated bonds—one step below investment grade—compared with only 16% in 1990.

Moving risk: High-yield bond issues are larger, with less leverage

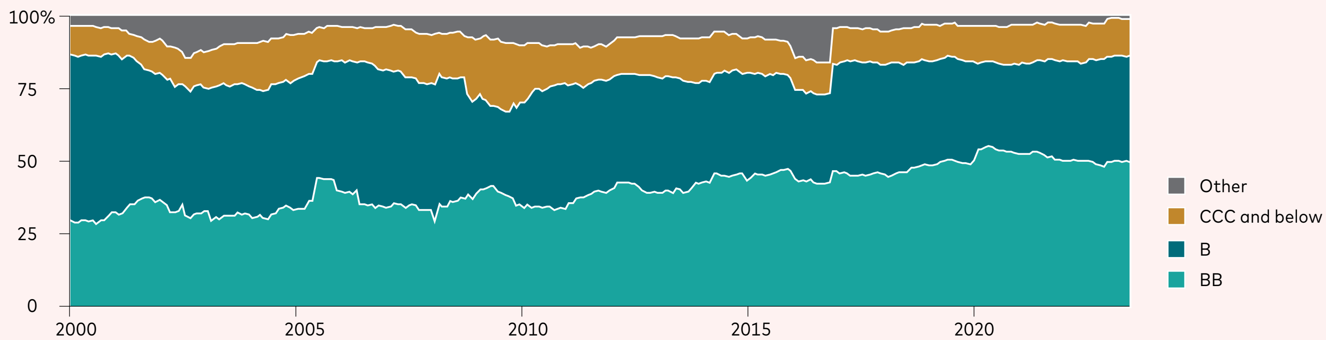


Note: Each circle's diameter represents each market's total market size.

Sources: Vanguard calculations, J.P. Morgan First Quarter 2023 Leveraged Loan Credit Fundamental Report, as of December 31, 2022.

1 After the junk bond market he helped build collapsed, Milken pleaded guilty to securities fraud in 1990. He was issued a presidential pardon in 2020.

Ratings on U.S. high-yield bonds have gradually risen



Source: Vanguard calculations based on data from J.P. Morgan, as of September 30, 2023.

Three separate markets

There are key differences between high yield, leveraged loans, and private credit.

High-yield bonds are issued by corporations with sub-investment-grade credit ratings. These bonds tend to yield more than investment-grade corporates, given the additional risks, which include higher debt and probability of default. High-yield issuers include companies seeking funding for capital expansion, mergers and acquisitions, and leveraged buyouts. High yield also includes the debt of formerly investment-grade companies that has been downgraded.

Leveraged loans share many similarities with high yield, and historically many corporations chose to issue in both markets. Leveraged loans typically have first or second liens on a company's assets. Loans are floating-rate instruments with fixed credit spreads and prepayable at par at any time.

Private credit encompasses a range of nonbank lending, which includes direct lending to companies. Issuance historically has come from smaller, private companies and the lender base is more consolidated. Similar to leveraged loans, private credit loans are senior in a company's capital structure and feature floating rates.

High yield yesterday and today

When high yield has swooned historically, it has typically been driven by concentration in one or a few industries. For example, during the dot-com bubble, telecom and media dominated the sector. Before the 2008 global financial crisis, high percentages of high-yield bonds were linked to leveraged buyouts. And prior to the 2015 commodity sell-off, issuance by energy exploration and fracking companies was high.

These types of sector concentration in lending, which have often preceded notable default episodes, are absent in today's high-yield market. Furthermore, concentration among issuers and sectors has steadily declined over the past two decades.

The bottom line

High yield now appears higher quality than at any time in its history. Looking forward, we believe it will look more like a quality asset with these characteristics:

- Lower likelihood of downside tail risk like that has been experienced in previous bear market episodes.
- Less dramatic default (principal loss) potential.
- Lower excess return—given the reduced risk—over U.S. Treasuries.
- Improved risk-adjusted return.

Emerging markets

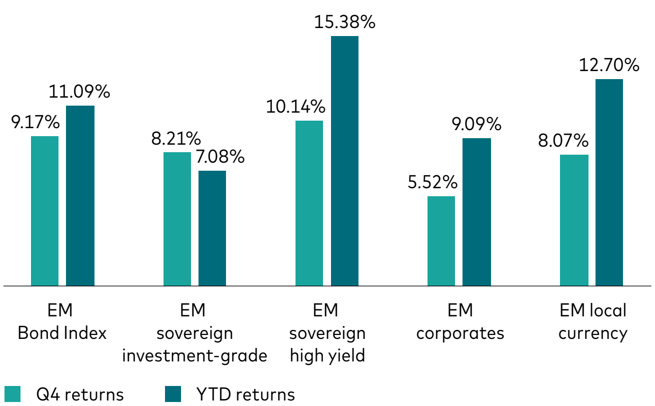
What happened: Both emerging markets (EM) credit and local currency-denominated bonds generated double-digit returns in 2023. Economic resilience supported the performance of lower-rated issuers, and a decline in interest rates boosted EM broadly. Flows turned positive near year-end after an extended period of outflows.

What's next: A wave of issuance in January forced spreads wider in countries with high credit ratings. Distressed countries are being priced for their higher risks. Even with elevated borrowing costs and weaker growth, we see EM benefiting from a positive risk appetite and falling global yields.

- Yield levels near 8% remain attractive, and the longer-duration characteristics of EM credit can provide additional upside to returns this year if rates move lower, as we expect.

How we see it: We favor local currency fixed income positions that could benefit from rate cuts in countries with restrictive policy levels and improving inflation. With the Fed on pause, EM policymakers should have more room to lower their policy rates. Patience and flexibility will be important in the quarters ahead. More dispersion across the market should unlock more opportunities for country and credit selection.

Emerging markets bond returns



Source: Bloomberg, as of December 31, 2023.

Past performance is no guarantee of future returns. The performance of an index is not an exact representation of any particular investment, as you cannot invest directly in an index.

Implications for Vanguard funds

Rates

- We maintain a neutral duration stance and would look to reestablish long-duration exposure if rates retrace toward recent highs.
- MBS valuations have moved from cheap to fair. We've reduced our exposure but see relative value opportunities in specified pools and collateralized mortgage obligations.
- Agency CMBS is an attractive opportunity offering high-quality carry with lower volatility.

Credit

- Relative to longer-run averages, we are maintaining a more defensive exposure in credit. We see better risk/reward in investment-grade corporates with a focus on earnings quality.
- High yield and emerging markets offer attractive security selection opportunities. Selective emerging markets interest rate exposure can add value.
- We are keeping our overall CMBS exposure low with room to add as opportunities arise.

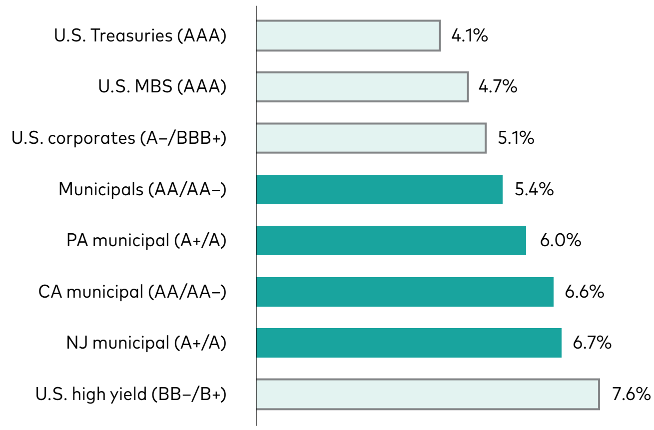
Municipal bonds

What happened: Municipal bonds rallied alongside the taxable fixed income sectors, with longer maturities enjoying higher total returns. Despite that, municipal yields are still at some of their highest levels over the past decade, and tax-equivalent yields demonstrate the value that municipals offer among highly rated bonds.

Alongside the fixed income rally, higher-rated segments of the municipal market richened, as shown by the yield ratios of AAA municipals to U.S. Treasuries against their long-term averages. The front end of the curve looks particularly expensive, while ratios in the long end appear more attractive yet still rich by historical standards. This appears to be driven by technicals, with supply slowing during the winter holiday season (as is typical), but there is still meaningful demand for this segment of the market, likely from direct bond purchases.

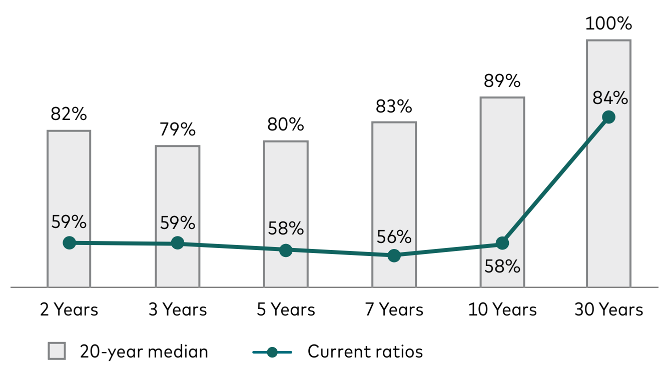
Technical factors have had the opposite effect lower on the rating spectrum, pushing spreads on A and BBB rated issues wider than broadly strong fundamentals justify. Such enticing valuations are a result of fund outflows (largely for tax-loss harvesting) over the past two years.

Bond index yield comparison—using tax-equivalent municipal yields



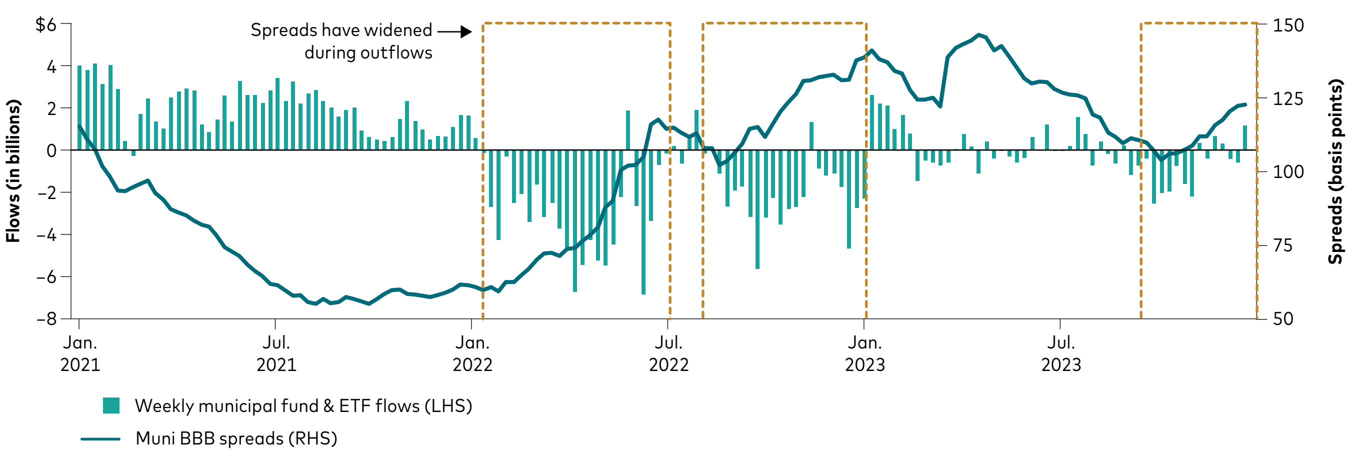
Source: Bloomberg, as of December 31, 2023.

AAA Municipal/Treasury ratios



Source: Bloomberg, as of December 31, 2023.

Fund and ETF outflows often pressure spreads wider

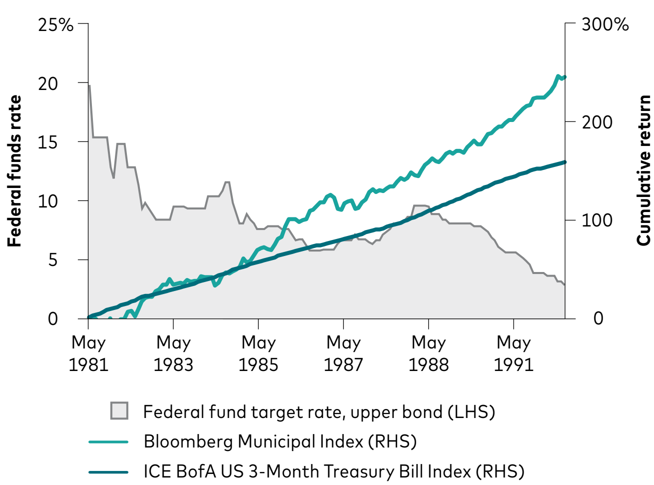


Source: Bloomberg and Investment Company Institute, as of December 31, 2023.

What's next: The fundamental picture remains strong, with healthy balance sheets across most municipalities. Many issuers are sitting on adequate reserves and have increased their rainy day funds over the past several years. Further, we do not expect higher investment-grade default rates compared with historical averages, even in a recession scenario. Thus, we expect A and BBB rated credits to perform well into the foreseeable future.

Given an inverted yield curve, many municipal investors are holding cash instead of longer-dated bonds. However, the period from May 1981 to September 1992 serves as a relevant long-term test case for longer-duration exposures generating total returns greatly exceeding those of cash-like positions. While the cumulative returns shown below do not incorporate federal tax exemption for coupon income, doing so at the final date calculates a tax-equivalent total return of 390%, more than double that of T-bills. As investors become more attuned to these trends as the curve steepens, positive flows should resume within municipal funds. We expect this meaningful technical factor to drive spreads tighter.

Cumulative index returns as fed rate declines



Source: Vanguard, Bank of America, and Bloomberg.

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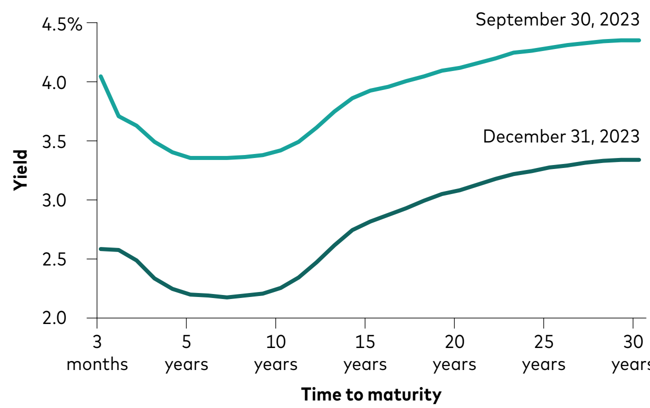
How we see it: Within our funds, we have constructed barbelled maturity positions, which aim to capitalize on more attractive valuations out on the curve while keeping tight to our duration targets. In addition, barbelling avoids the lower yields offered at the bottom of the U-shaped AAA muni curve.

The municipal AAA curve continues to exhibit "U" shape



Source: Bloomberg, as of December 31, 2023.

Also important from a rates perspective: The curve has moved lower, leading to a meaningful shift in convexity profiles for many bonds, depending on their coupon levels and maturity dates. With yields as they currently are, many bonds with 4% coupons are particularly prone to further convexity risks (both duration extensions and compressions) if yields continue to oscillate around current levels.

From a credit beta perspective, we prefer to be overweight due to wider spreads and generally strong balance sheets across the municipal landscape. Sectors that have been challenged by pandemic pressures, like health care, are recovering, and we believe they have turned the corner—labor costs are abating and margins are improving. We favor hospitals over retirement communities, the latter of which likely still face considerable margin challenges.

Elsewhere, we see value in transportation and airports, both of which are pandemic recovery stories. As a recession remains a strong possibility, we have paired our credit beta with a duration overweight, which we expect to serve as a hedge if spreads widen.

Holding more credit and duration offers additional strategic benefits with a potential fund inflow cycle on the horizon. When this occurs, these exposures should add considerable value for our investors if a broad rally follows. While the timing of this trend is uncertain, historically it has occurred quickly enough that proactive positioning is likely necessary to reap the gains.

Implications for Vanguard funds

- Better valuations in the long end, and a U-shaped curve, make a barbelled-maturity position more attractive.
- Technicals-driven spread widening led to favorable valuations for lower-rated investment-grade credit, with opportunities in sectors with pandemic recovery stories.
- Not only can a duration overweight hedge against our credit beta, but both positions should benefit from the rally driven by fund flows.
- Convexity management remains crucial, especially if yields are volatile over the next year.

Vanguard active bond funds and ETFs

Vanguard active bond funds and ETFs		Admiral™ Shares or ETF ticker symbol	Expense ratio*
Treasury/ Agency	GNMA†	VFIJX	0.11%
	Inflation-Protected Securities	VAIPX	0.10
	Intermediate-Term Treasury	VFIUX	0.10
	Long-Term Treasury	VUSUX	0.10
	Short-Term Federal	VSGDX	0.10
	Short-Term Treasury	VFIRX	0.10
Investment-grade corporate	Core Bond	VCOBX	0.10%
	Core Bond ETF	VCRB	0.10
	Core-Plus Bond	VCPAX	0.20
	Core-Plus Bond ETF	VPLS	0.20
	Intermediate-Term Investment-Grade	VFIDX	0.10
	Long-Term Investment-Grade†	VWETX	0.12
	Multi-Sector Income Bond	VMSAX	0.30
	Short-Term Investment-Grade	VFSUX	0.10
	Ultra-Short-Term Bond	VUSFX	0.10
	Ultra-Short Bond ETF	VUSB	0.10
Below-investment-grade	High-Yield Corporate†	VWEAX	0.13%
Global/ international	Emerging Markets Bond	VEGBX	0.40%
	Global Credit Bond	VGCAX	0.25

Vanguard active municipal bond funds			
National municipal	Ultra-Short-Term Tax-Exempt	VWSUX	0.09%
	Limited-Term Tax-Exempt	VMLUX	0.09
	Intermediate-Term Tax-Exempt	VWIUX	0.09
	Long-Term Tax-Exempt	VWLUX	0.09
	High-Yield Tax-Exempt	VWALX	0.09
State municipal	California Intermediate-Term Tax-Exempt	VCADX	0.09%
	California Long-Term Tax-Exempt	VCLAX	0.09
	Massachusetts Tax-Exempt‡	VMATX	0.13
	New Jersey Long-Term Tax-Exempt	VNJUX	0.09
	New York Long-Term Tax-Exempt	VNYUX	0.09
	Ohio Long-Term Tax-Exempt‡	VOHIX	0.13
	Pennsylvania Long-Term Tax-Exempt	VPALX	0.09

Active fixed income leadership team

Sara Devereux
Global Head of Fixed Income Group
31 years' experience

Chris Alwine, CFA
Global Head of Credit
33 years' experience

Roger Hallam, CFA
Global Head of Rates
23 years' experience

Paul Malloy, CFA
Head of U.S. Municipals
18 years' experience

Active fixed income at Vanguard

$219B
Taxable bond AUM
19 funds/ETFs**

$208B
Municipal bond AUM
5 national funds/
7 state-specific funds

25+
Portfolio managers

35+
Traders

60+
Credit research analysts

130+
Dedicated team members

* As reported in each fund's prospectus. A fund's current expense ratio may be higher or lower than the figure shown.
† Investment advisor: Wellington Management Company LLP.
‡ Investor Shares available only. There is no minimum investment required for advised clients.
** Includes funds advised by Wellington Management Company LLP.
Note: Data as of December 31, 2023.

For more information about active fixed income, speak with your financial advisor.

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