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CHART TALK

Opportunities in global fixed income and municipal bonds

The what, why and how of the municipal and global fixed income markets

Marketing communication | 31 Mar 2024

Presented by

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Fixed income market

Municipal market

The evolving fixed income market environment

U.S. growth to slow

- Forecast a slowdown in U.S. GDP growth this year to around 1.5-2.0%, but not a recession
- Consumer and corporate health have weakened, but not dramatically
- Job growth has remained strong, though unemployment has ticked higher
- Inflation has moderated substantially, some areas of stickiness remain

Global macro trends follow the U.S.

- Forecast tepid GDP growth around 1% for the U.K. and Europe
- Japanese GDP also slightly below 1%, a better outcome given its lower growth potential
- Expect further softness in China, with full-year growth of 4.3%, lower than consensus
- Emerging markets face headwinds but some bright spots on the horizon

Major central banks done tightening

- Believe the Fed is done hiking and anticipate 50 bps of rate cuts this year
- Balance sheet runoff expected to taper this year
- Treasury yields to continue moderating and curve to steepen
- ECB also finished their tightening cycle and expect a similar pivot toward cuts before mid-year
- Bank of Japan hiked rates and ended yield curve control as expected
- Chinese policymakers likely to continue fiscal support but substantial monetary easing unlikely

Deteriorating fiscal backdrop

- U.S. budget deficits remain at around 6% of GDP and expected to be elevated for the next decade
- Estimate current debt trajectory creates ~ +50 bps of upward pressure on 10-year term premium

Diversification and fundamental research critical

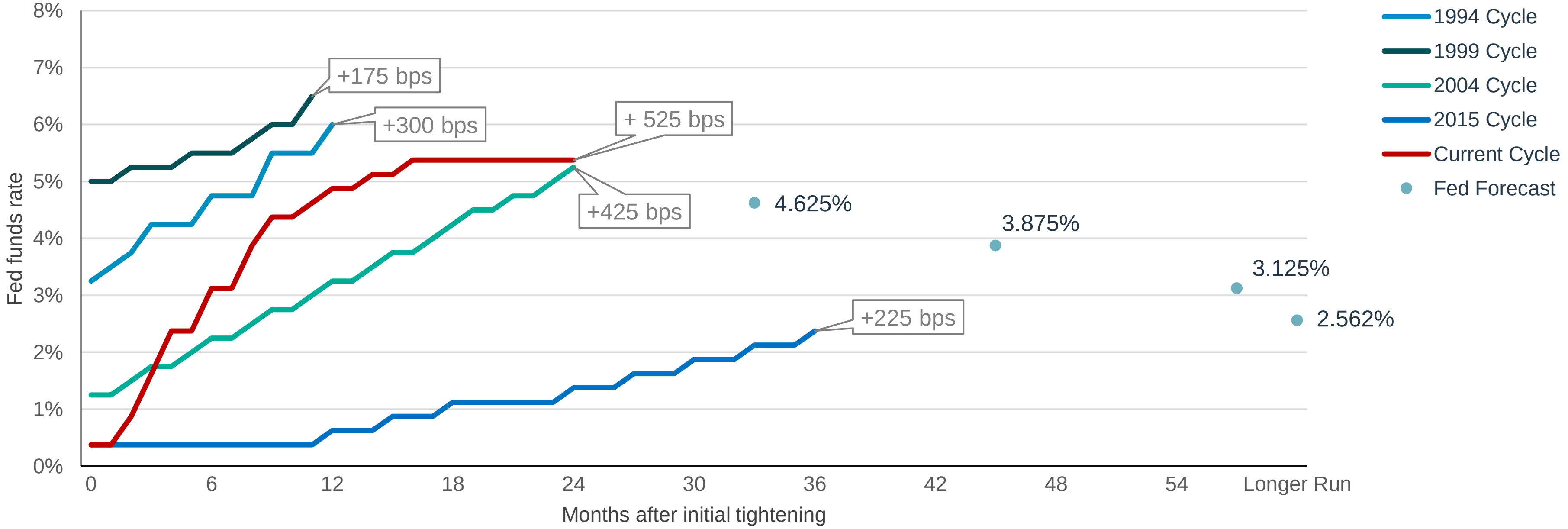
- Much higher yields make fixed income more attractive
- Favor spread sectors and credit risk, with an up-in-quality bias within asset classes
- Recommend adding incrementally to duration
- Credit spreads are poised to widen modestly in the coming months, which could create more attractive entry points for risk-taking
- Currently see some attractive opportunities in preferreds and BB rated high yield and senior loans

Attention has turned to the pace of Fed rate cuts

We expect 50 bps in rate cuts to begin mid-year.

- **Rate policy:**
  - — Expect a similar magnitude of cuts as the market is currently pricing, with two total cuts over the course of the year
- **Balance sheet reduction:**
  - — Reached its maximum monthly rate, with caps of $60 billion Treasuries and $35 billion MBS
  - — Tapering expected this year

Fed funds rate path across tightening cycles



Sources: Bloomberg; Federal Reserve Projection Materials. Fed funds rate and Fed forecasts as of 20 Mar 2024. Fed forecast represents the median forecast of each Federal Open Market Committee participant for the midpoint of the fed funds rate at year ends 2024, 2025, 2006 and longer run. Month 0 shows first rate increase. A basis point is a common unit of measure for interest rates and other percentages in finance. One basis point is equal to 1/100th of 1%, or 0.01% (0.0001).

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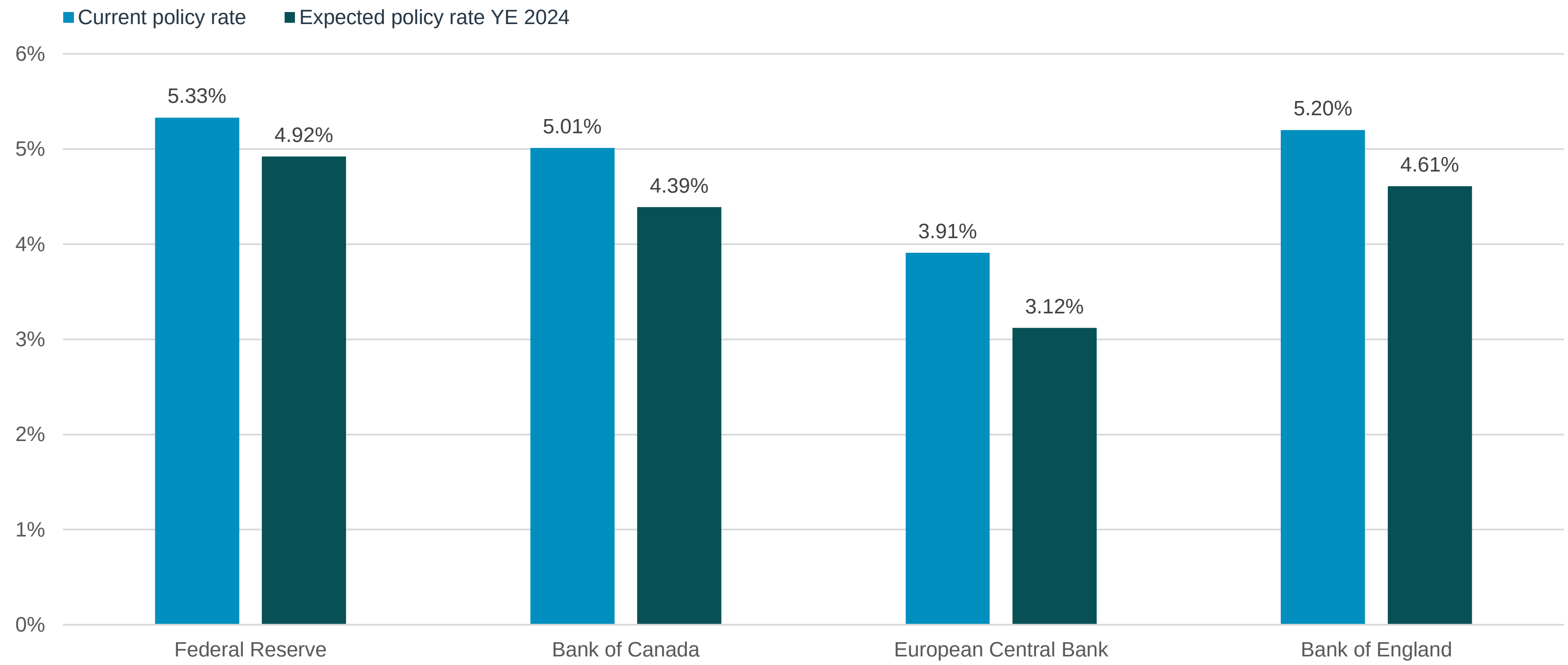
Central banks across the globe expected to begin reducing interest rates

Expect policy rates to decline in the second half of the year.



Source: Nuveen Portfolio Strategy & Solutions, Bloomberg.
As of 22 April 2024. Current policy rate represents the effective rate. Expected policy rate YE 2024 represents the market implied policy rate.

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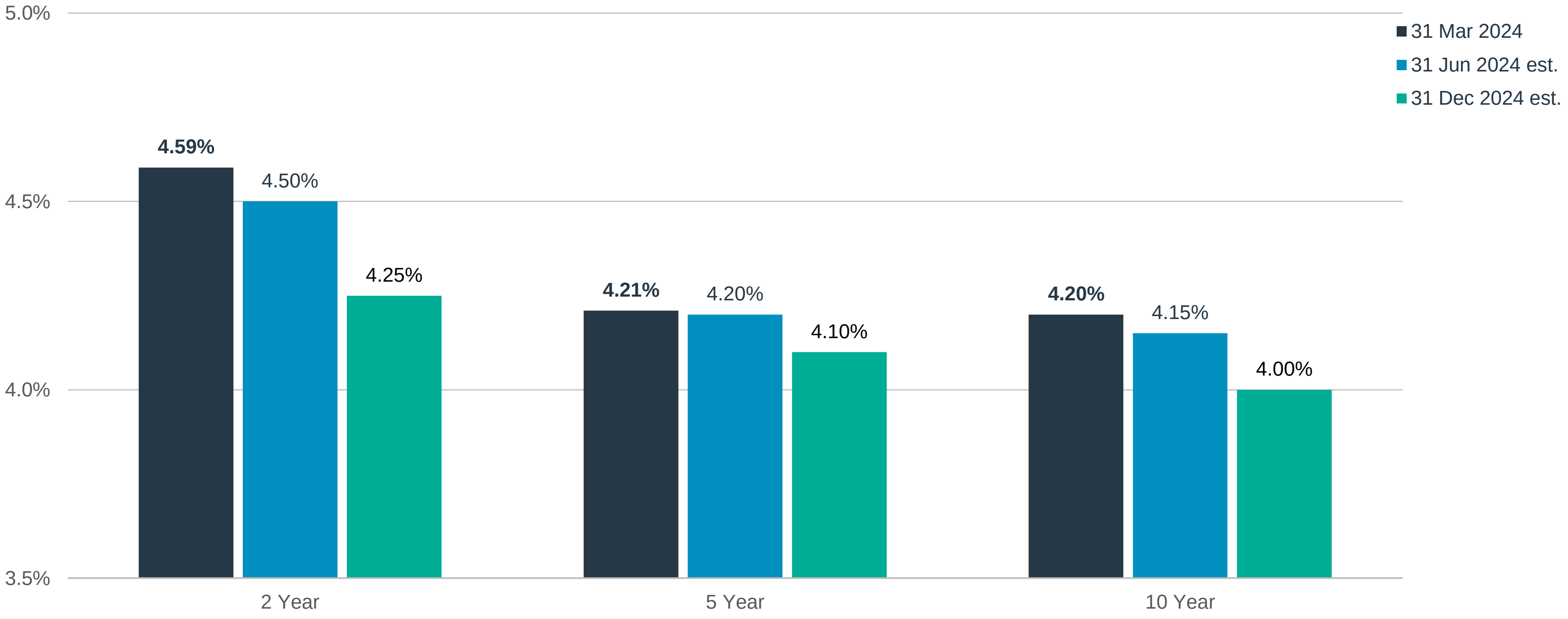
Interest rates likely to further moderate as Fed eases policy

Expect yields to decline and curve to steepen.

Treasury yields



Estimates as of 31 Mar 2024.
Sources: www.treasury.gov; Nuveen.

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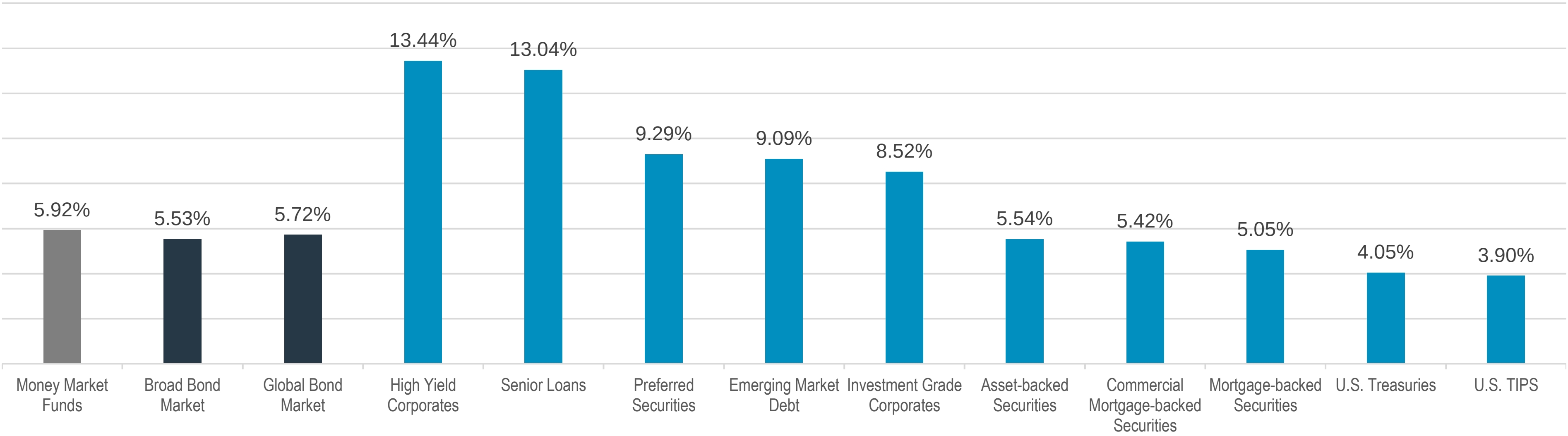
Income drove positive bond returns

As markets rallied strongly in the fourth quarter, fixed income returns benefited.

- Most sectors outperformed cash
- High yield corporates and senior loans benefited from generous yields and narrowing credit spreads
- Preferred securities recovered nicely from the early 2023 mini-bank crisis
- TIPS lagged as inflation fell throughout the year

2023 total returns by fixed income sector



Source: Morningstar Direct. As of 31 Dec 2023.

Representative Indices: **Money Market Funds:** Yield is the average of all funds in the Morningstar Prime Money Fund category; **Broad Bond Market:** Bloomberg U.S. Aggregate Index; **Global Bond Market:** Bloomberg Global Aggregate Index; **U.S. Treasuries:** Bloomberg U.S. Treasury Index; **MBS:** Bloomberg U.S. Mortgage-Backed Securities Index; **CMBS:** Bloomberg Commercial Mortgage-Backed Securities Index; **ABS:** Bloomberg Asset-Backed Securities Index; **Investment grade corporates:** Bloomberg U.S. Corporate Investment Grade Index; **Preferred securities:** ICE BofA U.S. All Capital Securities Index; **Senior loans:** Credit Suisse Leveraged Loan Index; **High yield corporates:** Bloomberg U.S. Corporate High Yield 2% Issuer Capped Index: **Emerging market debt:** Bloomberg Emerging Market USD Aggregate Index; **U.S. TIPS:** Bloomberg U.S. TIPS Index. **Performance data shown represents past performance and does not predict or guarantee future results.** It is not possible to invest directly in an index.

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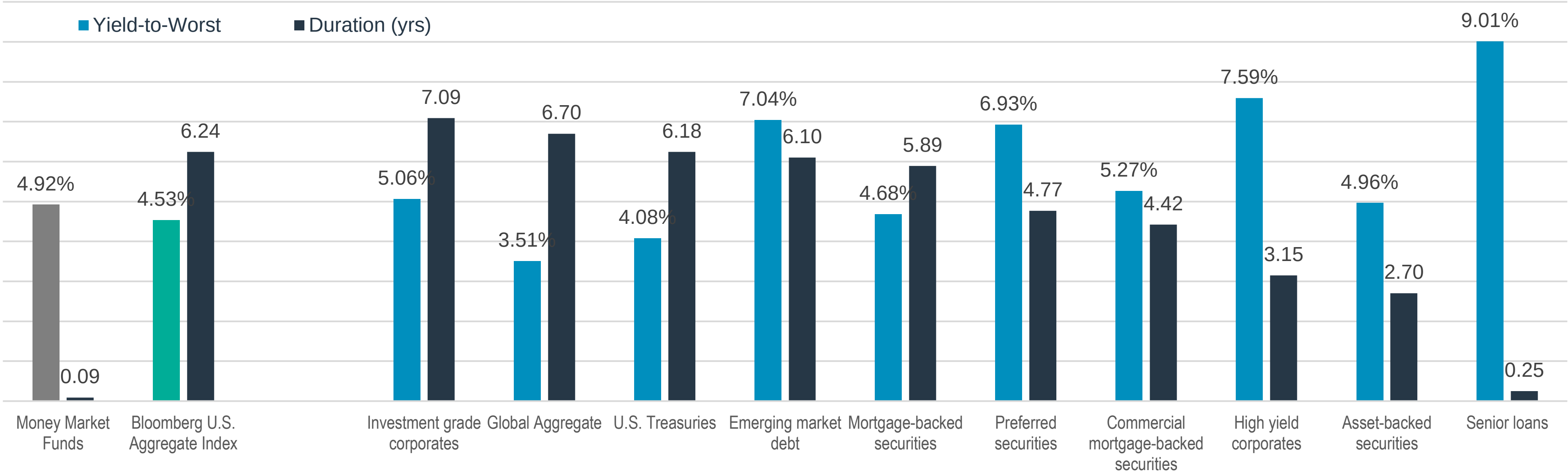
Traditional fixed income sectors have higher yields and longer durations

Adding sectors with longer duration positions portfolios for the next move in rates.

- Despite the recent rally, yields remain very attractive
- Multi-sector strategies offer the opportunity to balance stability with income

Non-cash sectors offer both yield and duration



As of 31 Dec 2023. Source: Bloomberg LP; Credit Suisse; Morningstar Direct.

Representative indices**: Money Market Funds:** Yield is the average of all funds in the Morningstar Prime Money Fund category; duration is the 1-month U.S. Treasury Bill; **U.S. Treasuries:** Bloomberg U.S. Treasury Index; **MBS:** Bloomberg U.S. Mortgage-Backed Securities Index; **CMBS:** Bloomberg Commercial Mortgage-Backed Securities Index; **ABS:** Bloomberg Asset-Backed Securities Index; **Investment grade corporates:** Bloomberg U.S. Corporate Investment Grade Index; **Emerging market debt:** Bloomberg Emerging Market USD Aggregate Index; **Preferred securities:** ICE BofA U.S. All Capital Securities Index; **Senior loans:** Credit Suisse Leveraged Loan Index; **High yield corporates:** Bloomberg U.S. Corporate High Yield 2% Issuer Capped Index. **Past performance is no guarantee of future results**. It is not possible to invest directly in an index.

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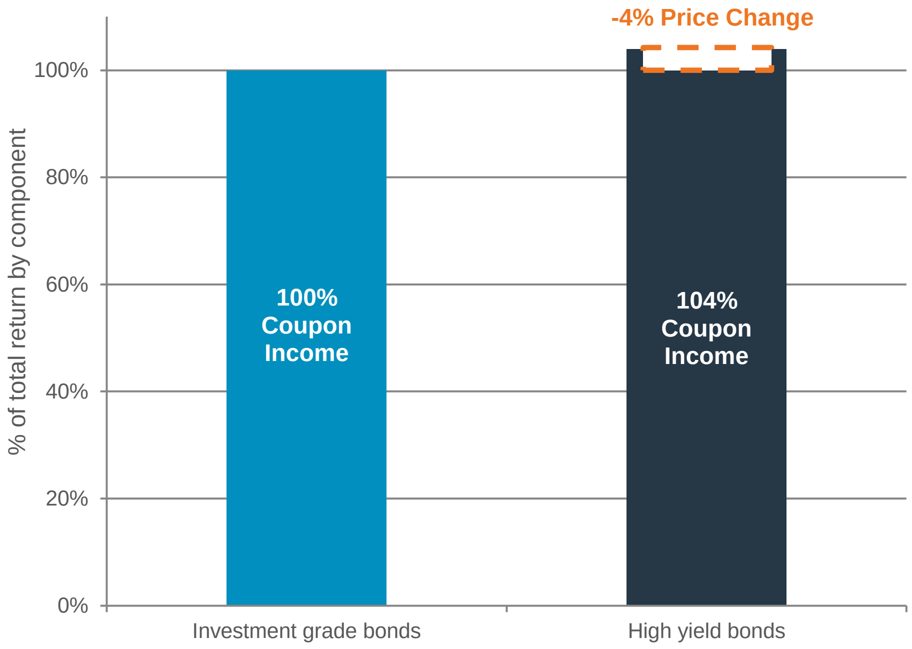
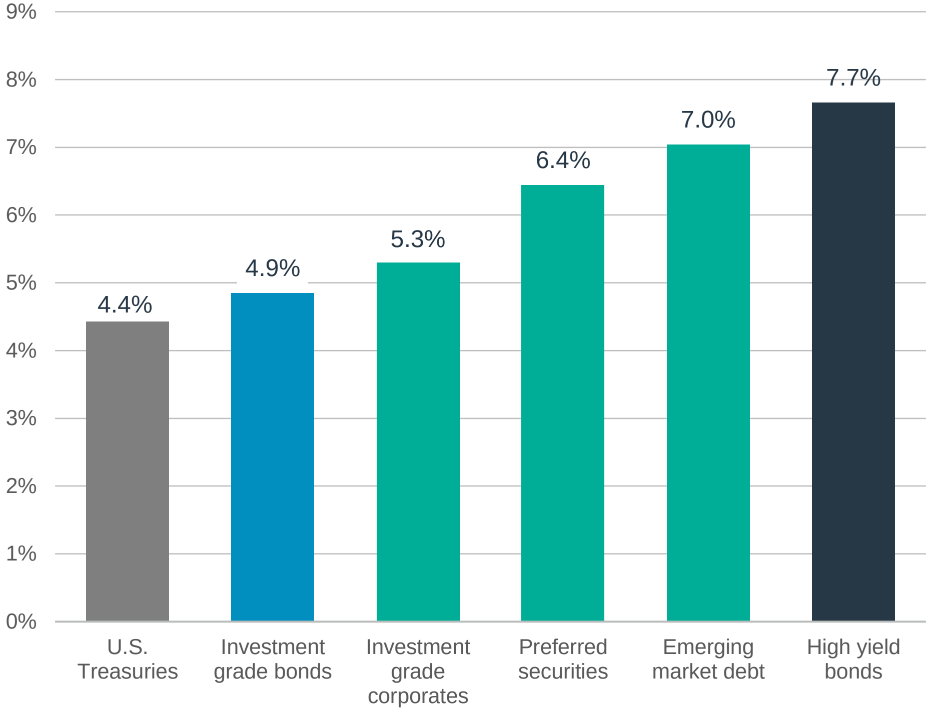
Income remains the primary contributor to total return

Income has dominated total return over time and can help offset any price declines.

Income comprises almost all return over time



Yields



Source: Bloomberg LP. As of 31 Mar 2024.
Chart shows the percent of annualized total return derived from coupon return (as opposed to price appreciation) since index inception. Investment grade bonds are represented by the Bloomberg Aggregate Bond Index, which has an inception date of 01 Jan 1976; returns from 31 Jan 1976 – 31 Mar 2024. High yield bonds are represented by the Bloomberg U.S. High Yield 2% Issuer Capped Index, which has an inception date of 31 Jan 1993; returns from 31 Jan 1993 – 31 Mar 2024. U.S. Treasuries are represented by the Bloomberg U.S. Treasury Index. The index return presented is for illustration purposes only and does not represent or predict performance of any Nuveen product. It is not possible to invest directly in an index. **Performance data shown represents past performance and does not predict or guarantee future results.**

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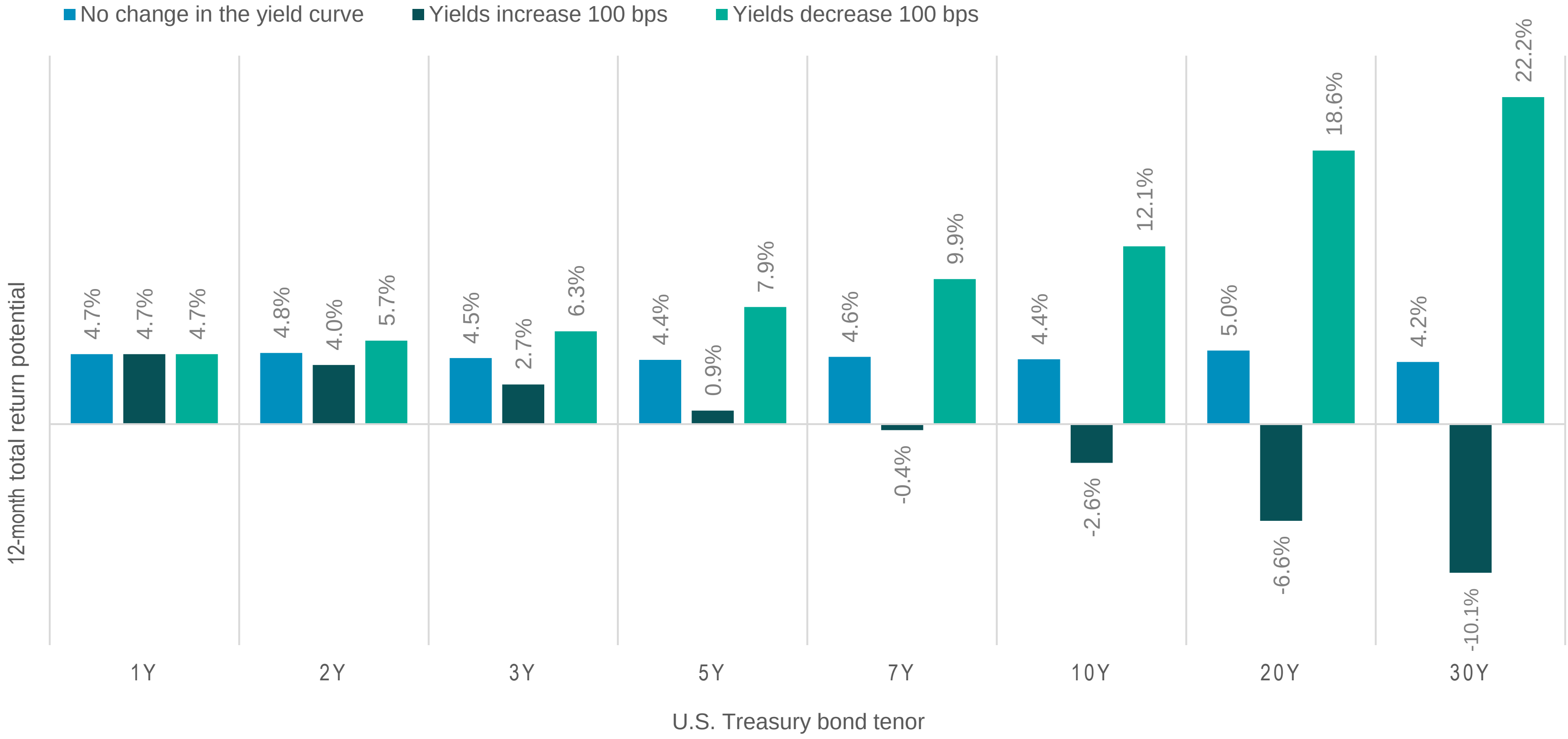
With Treasury yields likely to decline, bond math favors owning duration

Longer duration assets can outperform as rates fall.

Potential investment returns for Treasury tenors over the next year



	1Y	2Y	3Y	5Y	7Y	10Y	20Y	30Y
No change in the yield curve	4.7%	4.8%	4.5%	4.4%	4.6%	4.4%	5.0%	4.2%
Yields increase 100 bps	4.7%	4.0%	2.7%	0.9%	-0.4%	-2.6%	-6.6%	-10.1%
Yields decrease 100 bps	4.7%	5.7%	6.3%	7.9%	9.9%	12.1%	18.6%	22.2%

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Total return includes roll, price change and coupon return. As of 19 April 2024. Sources: Nuveen, Bloomberg, LP.

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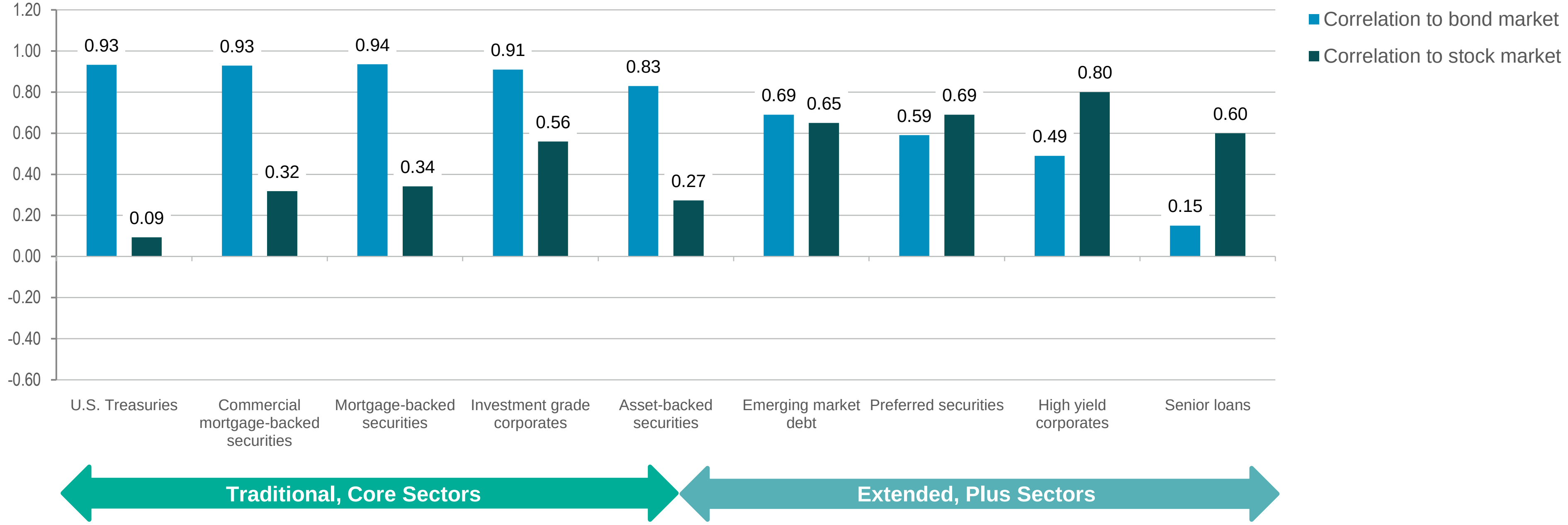
Traditional core sectors behave like bonds

Maintaining an allocation to traditional fixed income sectors helps balance equity risk.

Correlation to bond and stock market of selected sectors



Sources: Morningstar Direct.
Correlations for 10-year period ending 31 Mar 2024. Representative Indices: **Bond market:** Bloomberg U.S. Aggregate Index; **Stock market:** S&P 500 Index; **U.S. Treasuries:** Bloomberg U.S. Treasury Index; **MBS:** Bloomberg U.S. Mortgage-Backed Securities Index; **Investment grade corporates:** Bloomberg U.S. Corporate Investment Grade Index; **CMBS:** Bloomberg Commercial Mortgage-Backed Securities Index; **ABS:** Bloomberg Asset-Backed Securities Index; **Emerging market debt**: Bloomberg EM USD Aggregate Index; **Preferred securities:** ICE BofA U.S. All Capital Securities Index; **High yield corporates:** Bloomberg U.S. Corporate High Yield 2% Issuer Capped Index; **Senior loans:** Credit Suisse Leveraged Loan Index. **Performance data shown represents past performance and does not predict or guarantee future results.** It is not possible to invest directly in an index. Correlation is a statistical measure of how two securities move in relation to each other.

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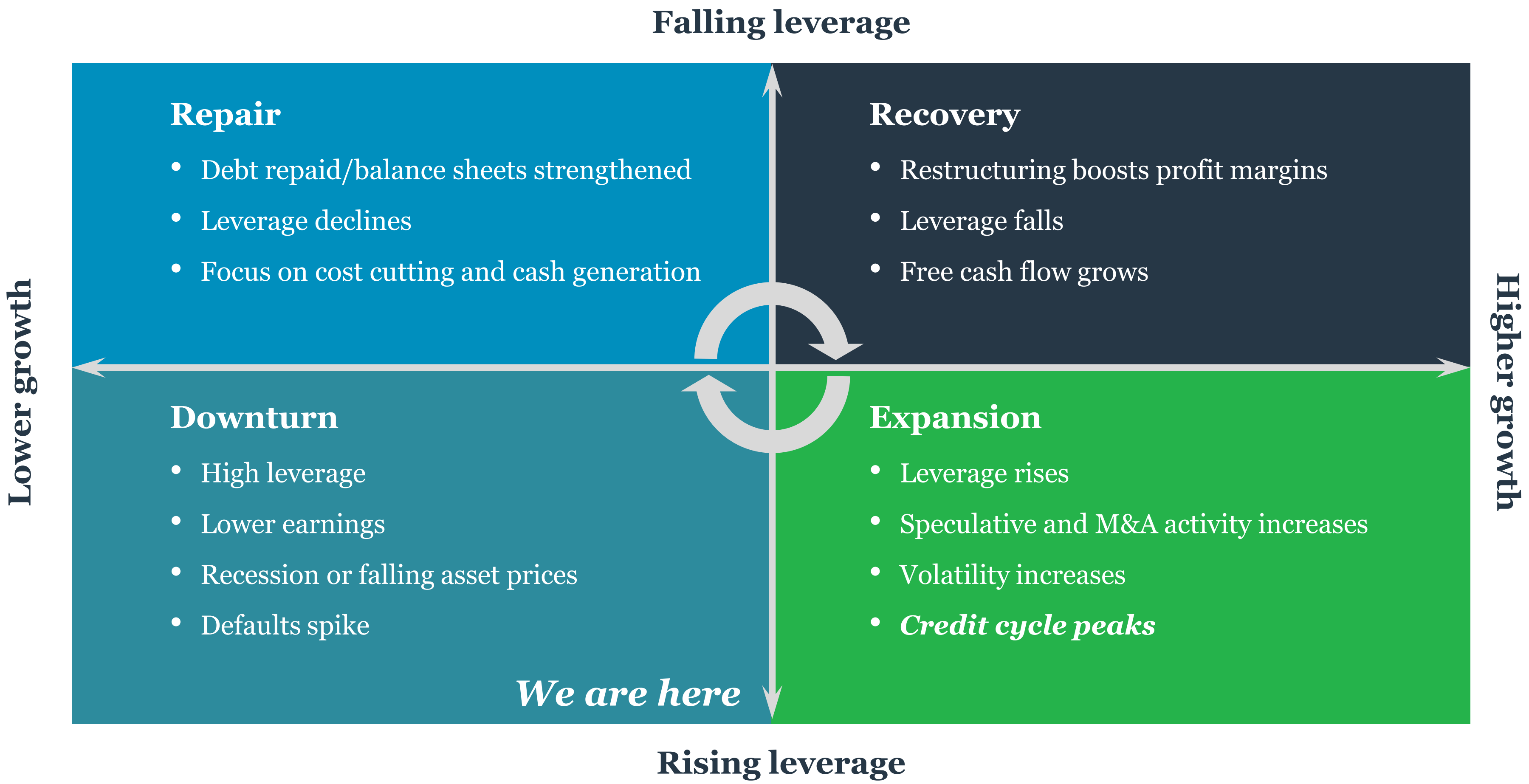
Credit cycle entering downturn stage



Falling leverage

Lower growth

Higher growth

Repair

- Debt repaid/balance sheets strengthened
- Leverage declines
- Focus on cost cutting and cash generation

Recovery

- Restructuring boosts profit margins
- Leverage falls
- Free cash flow grows

Downturn

- High leverage
- Lower earnings
- Recession or falling asset prices
- Defaults spike

We are here

Expansion

- Leverage rises
- Speculative and M&A activity increases
- Volatility increases
- ***Credit cycle peaks***

Rising leverage

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The need for income diversifiers

No single fixed income asset class leads in all markets

2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Preferred securities 15.44	Preferred securities 7.58	High yield corporates 17.13	Preferred securities 10.58	High yield municipals 4.76	Preferred securities 17.71	Investment grade corporates 9.89	High yield municipal 7.77	Senior loans -1.06	High yield corporates 13.44
High yield municipals 13.84	Investment grade municipals 3.30	Emerging markets debt 10.15	Emerging markets debt 10.26	Investment grade municipals 1.28	Emerging markets debt 15.04	U.S. Treasuries 8.00	Senior loans 5.40	Investment grade municipal -8.53	Senior loans 13.04
Investment grade municipals 9.05	High yield municipals 1.81	Senior loans 9.88	High yield municipals 9.69	Senior loans 1.14	Investment grade corporates 14.54	Broad bond market 7.51	High yield corporates 5.26	High yield corporates -11.18	Emerging markets debt 11.09
Investment grade corporates 7.46	Emerging markets debt 1.18	Investment grade corporates 6.11	High yield corporates 7.50	U.S. Treasuries 0.86	High yield corporates 14.32	Preferred securities 6.95	Preferred securities 2.24	U.S. Treasuries -12.46	Preferred securities 9.29
Emerging markets debt 7.43	U.S. Treasuries 0.84	High yield municipals 2.99	Investment grade corporates 6.42	Broad bond market 0.01	High yield municipals 10.68	Emerging markets debt 5.26	Investment grade municipal 1.52	Broad bond market -13.01	High yield municipal 9.21
Broad bond market 5.97	Broad bond market 0.55	Broad bond market 2.65	Investment grade municipals 5.45	High yield corporates -2.08	Broad bond market 8.72	Investment grade municipal 5.21	Investment grade corporates -1.04	High yield municipal -13.10	Investment grade corporates 8.52
U.S. Treasuries 5.05	Senior loans -0.38	Preferred securities 2.32	Senior loans 4.25	Investment grade corporates -2.51	Senior loans 8.17	High yield municipal 4.89	Broad bond market -1.54	Preferred securities -14.85	Investment grade municipal 6.40
High yield corporates 2.46	Investment grade corporates -0.68	U.S. Treasuries 1.04	Broad bond market 3.54	Emerging markets debt -4.26	Investment grade municipals 7.54	High yield corporates 4.68	Emerging markets debt -1.80	Investment grade corporates -15.76	Broad bond market 5.53
Senior loans 2.06	High yield corporates -4.43	Investment grade municipals 0.25	U.S. Treasuries 2.31	Preferred securities -4.34	U.S. Treasuries 6.86	Senior loans 2.78	U.S. Treasuries -2.32	Emerging markets debt -17.78	U.S. Treasuries 4.05

Chart does not represent the past performance or yields of any Nuveen fund. For fund performance visit nuveen.com. Data source: Morningstar Direct, 01 Jan 2014 – 31 Dec 2023. **Performance data shown represents past performance and does not predict or guarantee future results.** Performance of all cited indexes is calculated on a total return basis and includes income reinvestment but does not reflect taxes. Diversification does not assure a profit or protect against loss. **Representative indexes: broad bond market:** Bloomberg U.S. Aggregate Bond Index; **high yield corporates:** Bloomberg Corporate High Yield 2% Issuer Capped Index; **high yield municipals:** Bloomberg High Yield Municipal Bond Index; **investment grade corporates:** Bloomberg U.S. Corporate Index; **investment grade municipals:** Bloomberg Municipal Index; **preferred securities:** ICE BofA Preferred Stock Fixed Rate Index; **senior loans:** Credit Suisse Leveraged Loan Index; **U.S. Treasuries:** Bloomberg U.S. Treasuries Index; **emerging markets debt:** JPMorgan Emerging Markets Bond Index (EMBI) Global. Different benchmarks, economic periods, methodologies and market conditions will produce different results. See Endnotes for important disclosures regarding asset-class-related risks.

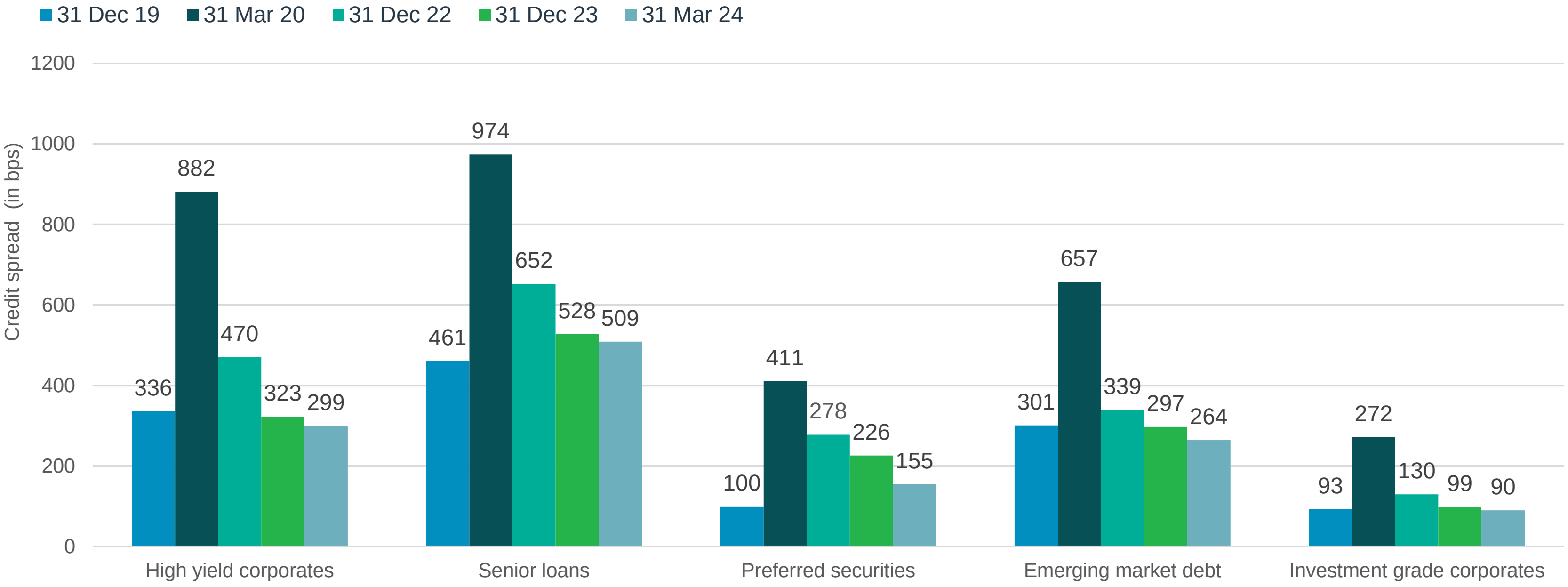
OPINION PIECE. PLEASE SEE IMPORTANT DISCLOSURES IN THE ENDNOTES.

Spread levels fully valued given economic conditions

We believe spreads are likely to widen modestly in the near term, providing better entry points for risk taking in the coming months.

- Some major credit sectors have reached pre-COVID levels
- We believe credit fundamentals remain healthy with modest leverage, solid cash flows and slowly rising defaults

Credit spread levels by fixed income sector



Source: Bloomberg LP., Credit Suisse. As of 31 Mar 2024.

Representative indices: **High yield corporates:** Bloomberg U.S. Corporate High Yield 2% Issuer Capped Index; **Senior loans:** Credit Suisse Leveraged Loan Index; **Emerging market debt:** Bloomberg Emerging Market Aggregate Index; **Preferred securities:** ICE BofA U.S. All Capital Securities Index; **Investment grade corporates:** Bloomberg U.S. Corporate Investment Grade Index.

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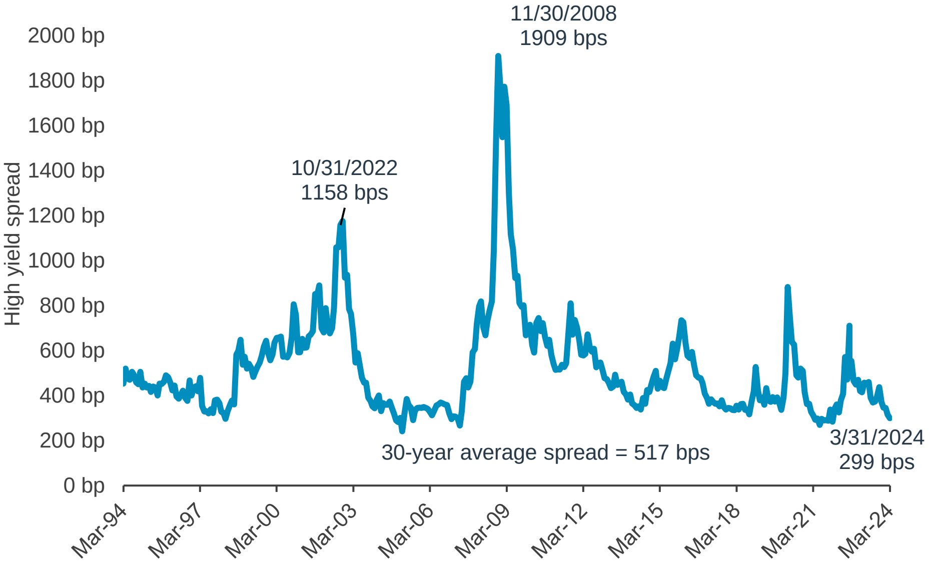
High yield can continue to offer attractive risk-adjusted returns

We believe high yield offers attractive value for investors seeking income.

- Fundamentals remain sound, with nearly half of outstanding debt rated BB and only about 10% rated CCC. Issuers have strong balance sheets as we head into a potentially more challenging economic environment
- Technical factors are still solid and investors are starting to notice the attractiveness of the asset class – even relative to equites after adjusting for valuations and expected inflation
- Spreads remain tight relative to historical norms and this may persist given the higher-quality tilt today
- We continue to favor non-cyclical sectors and higher-quality issuers, and expect to identify opportunities among lower-rated, private issuers where we anticipate on-going price volatility

High yield valuations send mixed message



Source: Bloomberg LP. As of 31 Mar 2024.

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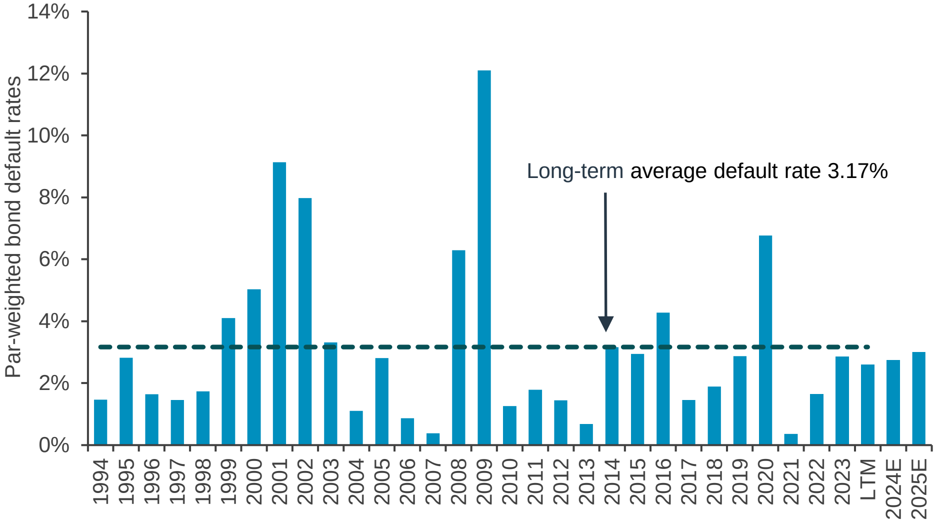
Default rates expected rise, but only to near long-term average levels



Source: JPMorgan. As of 31 Mar 2024.

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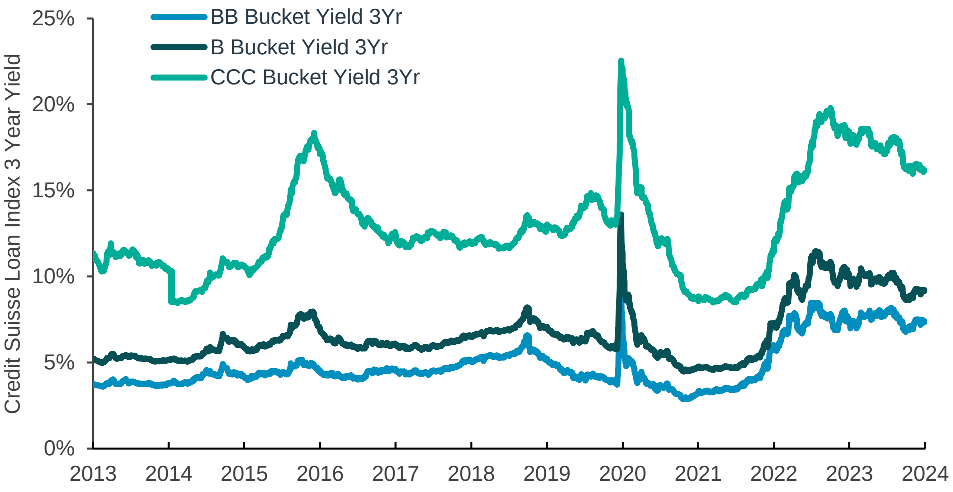
Senior loan yields offer compelling value

We believe senior loans continue to offer attractive income opportunities for investors.

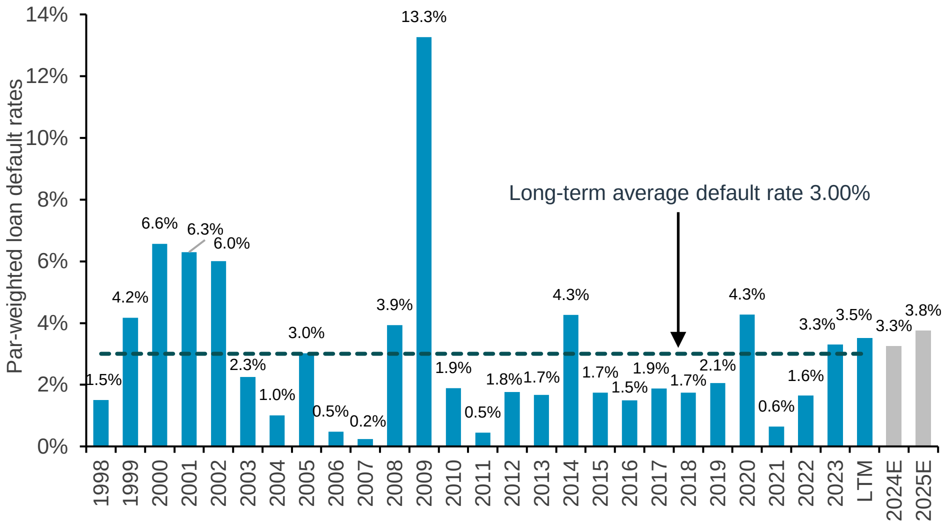
- With yields exceeding 9%, senior loans are one of the highest yielding asset classes across the fixed income landscape. Despite the end of the Fed hiking cycle, expect short term rates to stay elevated for an extended period
- Recent refinancing activities have created a highly liquid market with borrowers that have extended their maturity wall
- Finding attractive opportunities in higher quality issuers that offer attractive yields (8%-9%) with relatively low default risks
- Believe volatility will persist in lower quality issuers, allowing active managers with a robust credit underwriting process to capitalize on market fluctuations and identify potential total return opportunities

Loan yields by rating



Sources: Credit Suisse. As of 31 Mar 2024.

Loan default rates over time



Source: JP Morgan. As of 31 Mar 2024.

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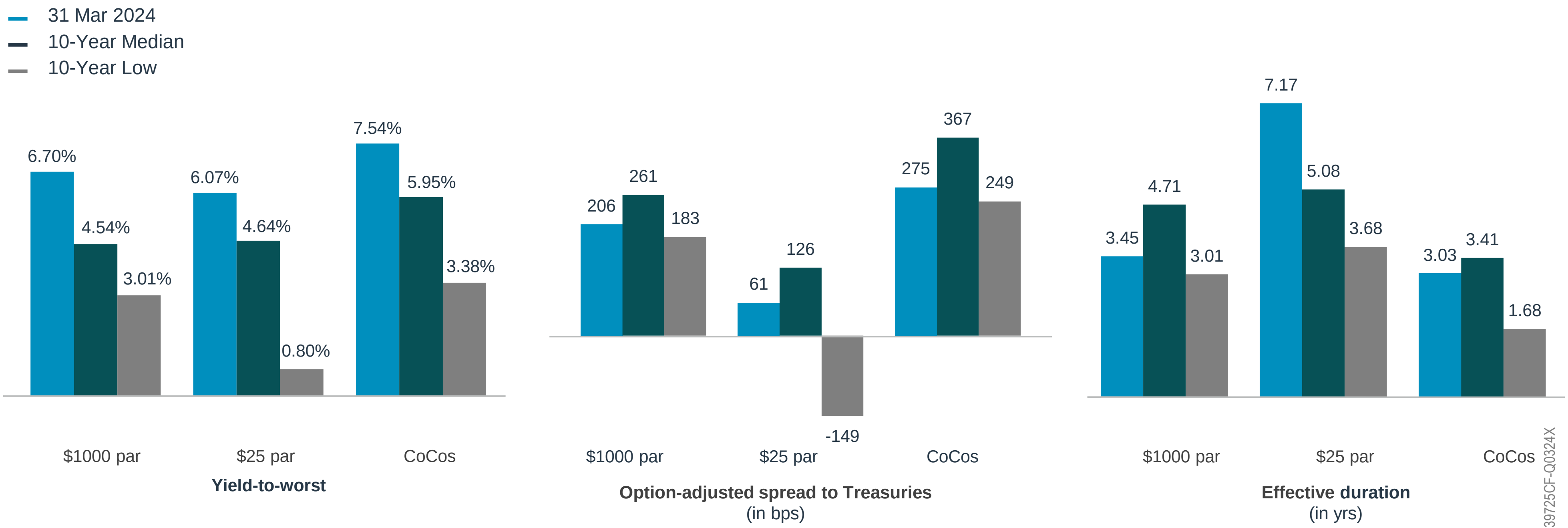
Not all preferreds are created equal

Valuations vary across segments but spreads are still well above all-time lows.

- We continue to favor $1000 par preferreds given their higher option-adjusted spreads (OAS) compared to $25 par preferreds
- While U.S. dollar CoCo security OAS is below its longer-term median level, it is still above early 2020 historic lows
- Western European banks face lower commercial real estate risk and less competition for deposits than U.S. banks, and thus are still compelling on a risk-adjusted basis



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As of 31 Mar 2024.

Representative indexes: **$1,000 par preferred:** ICE BofA U.S. Institutional Capital Securities Index; **$25 par preferred**: ICE BofA Core Plus Fixed Rate Preferred Index; **Contingent Capital (CoCo):** ICE BofA USD Contingent Capital Index.

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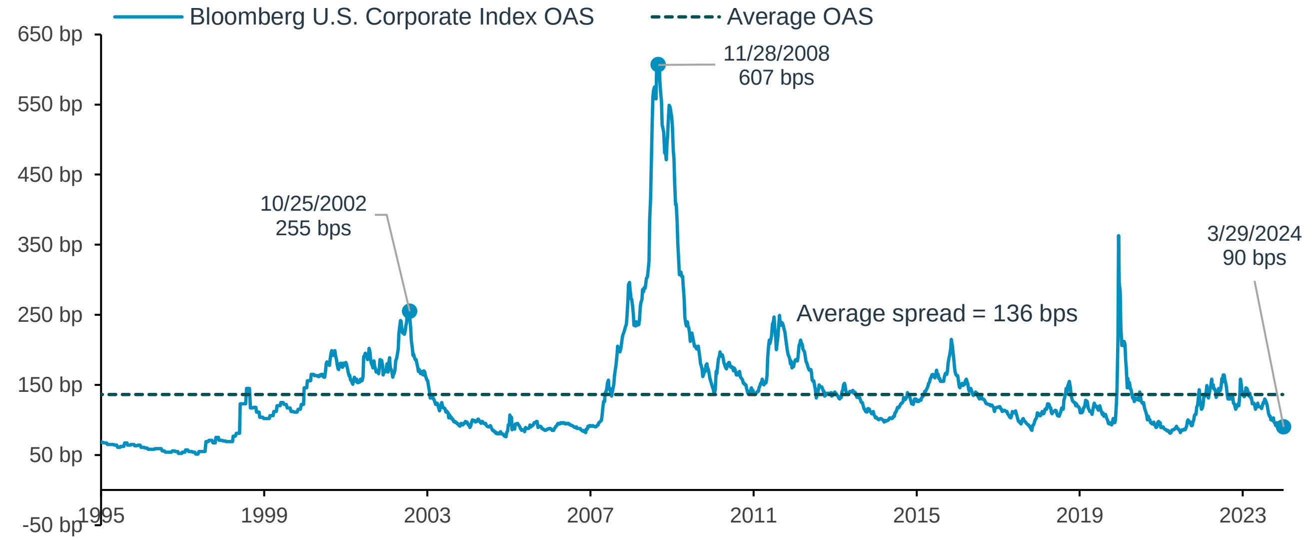
Technical tailwinds continue to support investment grade corporates

Positive flows and a healthy appetite for the asset class from U.S. and non U.S. investors will likely have staying power

- Additionally, given strong equity performance, pension funds may rebalance portfolios by increasing fixed income exposure
- Anticipate spreads will remain in a narrow range in 2024 and likely to retest new tights in the very near term as all-in yields remain attractive
- Favor up-in-quality and up-in-liquidity positioning and prefer banks, energy and telecommunications, the last of which we view as defensive and utility-like in nature

Limited opportunity for narrowing as spreads at very tight level



Sources: Bloomberg LLC. As of 31 Mar 2024.
OAS is option-adjusted spread, a measure of the difference between corporate yields and those of similar duration Treasuries.

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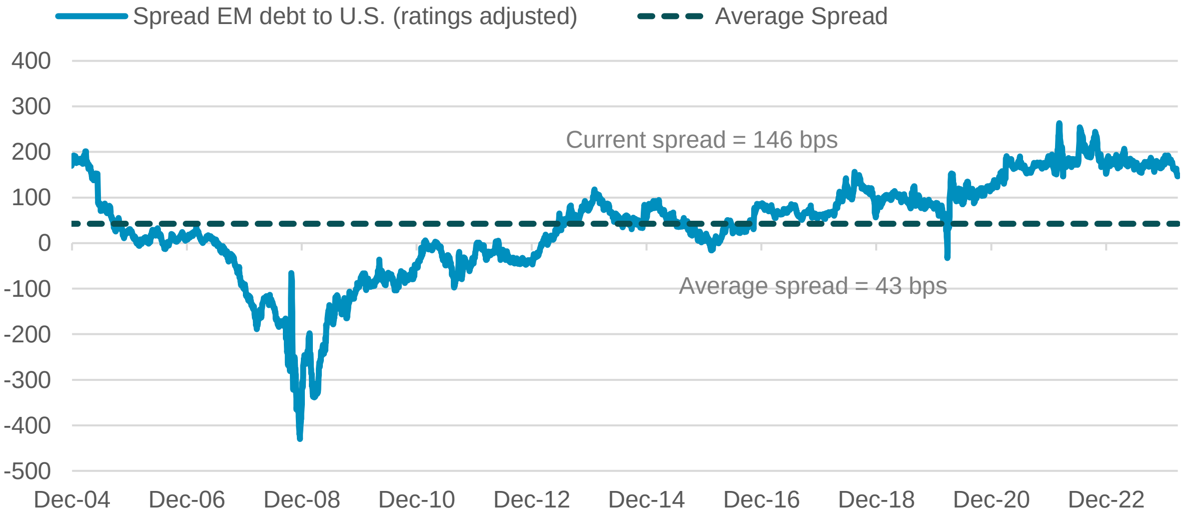
Emerging markets offer compelling characteristics in current economic cycle stage

Yield vs. duration profile particularly attractive as we pass peak Fed hawkishness.

- Global macro risks are more balanced, highlighted by inflation moving closer to Central Bank targets. Total return potential remains attractive in "higher for longer" interest rate regimes
- Fundamentals are entering a repair and improving phase of the EM credit cycle, which, along with elevated yields, can create durable investment opportunities across EM sovereign credit, particularly in high yield
- Corporates still offer wider spreads than sovereigns, and yields are generally attractive
- Prefer markets that were proactive in their hiking cycles while remaining wary of those with unorthodox policymaking

Emerging market debt cheap to U.S. credit



Source: Bloomberg, J.P. Morgan, Nuveen. As of 31 Mar 2024.
Spread of emerging market debt to U.S. credit (ratings adjusted) is the credit spread of the JPMorgan Emerging Markets Bond Index - Global Diversified (EMBI-GD) less the blended credit spread of a 50-50 mix of the Bloomberg U.S. High Yield Index and the Bloomberg U.S. Investment Grade Corporate Index.

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Our investment philosophy

We believe we can achieve solid risk-adjusted returns over time by combining deep sector expertise, an active approach and risk management

Fundamental tenets of our investment philosophy

- Leverage sector specialists
- Exploit market inefficiencies through active management
- Consider risk at every decision point
- Take a long-term view

This philosophy, and the process that supports it, enables us to serve our clients and helps achieve their objectives

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2024 municipal market themes

Economic environment

Inflation	• Inflation trajectory remains favorable on a YoY basis. The Fed projects marginally lower Core PCE Inflation by year-end. • Core services inflation excluding housing remains sticky but is trending down.
Policy	• After increasing the Fed Funds rate by 525 bps during this cycle, the Fed has been on hold since July 2023. Fed policy remains data dependent. • We expect rate cuts in 2024 and the timing depends on inflation, wages and employment data.
Economic growth	• U.S. growth has been resilient and recession risks have declined. Key factors include employment data, consumer spending and levels of excess household savings. • Capital markets are currently anticipating less risk of recession, but risks remain.
Interest rates	• Uncertainty regarding the beginning of Fed rate cuts and balance sheet contraction will continue to cause rate volatility. Rates could decline if a slowdown or recession develops.

Municipal market environment

Credit fundamentals	• Credit remains strong, with robust levels of rainy day and reserve funds. • While revenue collections are below peaks witnessed in 2022, they remain above pre-pandemic levels. • We expect municipal defaults will remain low, rare and idiosyncratic.
Supply & demand	• Supply has picked up relative to 2023 levels and could be more predominant before the election. However, we continue to predict more coupon, calls and maturities than new issues. • Demand has favored owning duration, with 1Q24 posting shareholder inflows. Investors don't want to miss out, driving demand. • As yields remain higher-for-longer, investor demand has begun to return due to prevailing market sentiment of anticipated Fed rate cuts.
Valuations	• Municipals have displayed strong relative performance to begin the year. • High yield municipal credit spreads remain near historic averages, while other credit markets are near all-time tight spread levels. • Absent a meaningful rate rally or spread contraction, municipals can still post attractive returns based on elevated income generation.

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Source: Nuveen as of 31 Mar 2024. Certain statements may be deemed forward-looking statements. Please note that any such statements are not guarantees or intended to constitute a prediction of any future performance; actual results or developments may differ materially from those projected.

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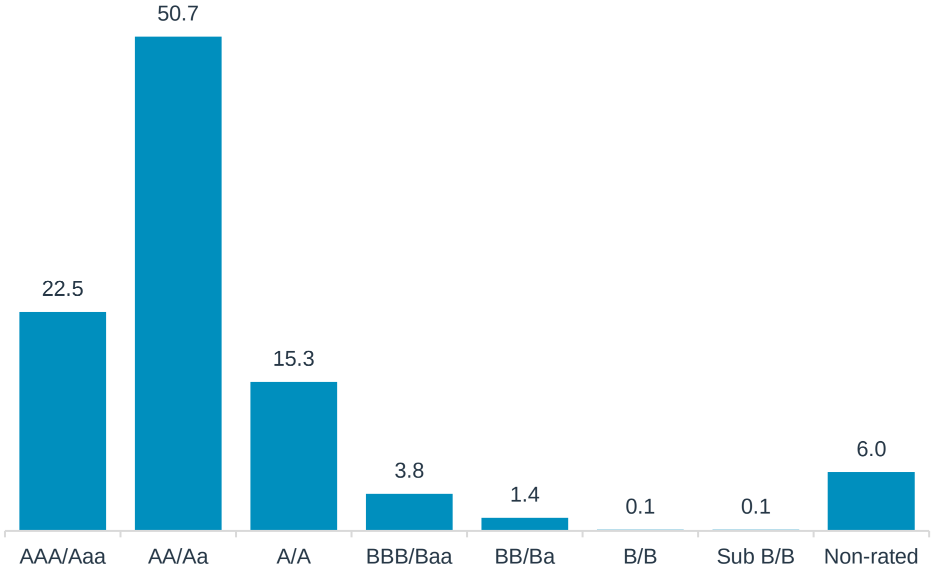
The market is dominated by high quality and essential service sectors

Municipal bonds generally feature high credit qualities and are backed by tax revenues or linked to essential services

Municipal market credit quality breakdown (%)



Municipal market sector breakdown (%)

●	**45.2**	**Tax-supported**
	41.9	**Essential services**
●	7.4	Education
●	8.2	Health care
●	4.1	Housing
●	11.2	Transportation
●	11.0	Utility
	12.9	**Other sectors**
●	5.2	Industrial
●	2.9	Other revenue
●	4.1	Pre-refunded/ETM
●	0.8	Tobacco

Data source: Standard & Poor's for the S&P Municipal Bond Index, 31 Mar 2024. Ratings shown are the highest rating given by one of the following national rating agencies: Standard & Poor's (S&P), Moody's Investors Service, Inc. (Moody's) or Fitch, Inc. (Fitch). Credit ratings are subject to change. Aaa, Aa, A and Baa are investment grade ratings; Ba, B and Caa/Ca/C are below investment grade ratings. Certain bonds backed by U.S. government or agency securities are regarded as having an implied rating equal to the rating of such securities. Holdings designated N/R are not rated by these national rating agencies. High yield or lower-rated bonds and municipal bonds carry greater credit risk and are subject to greater price volatility. Totals may not add up to 100% due to rounding.

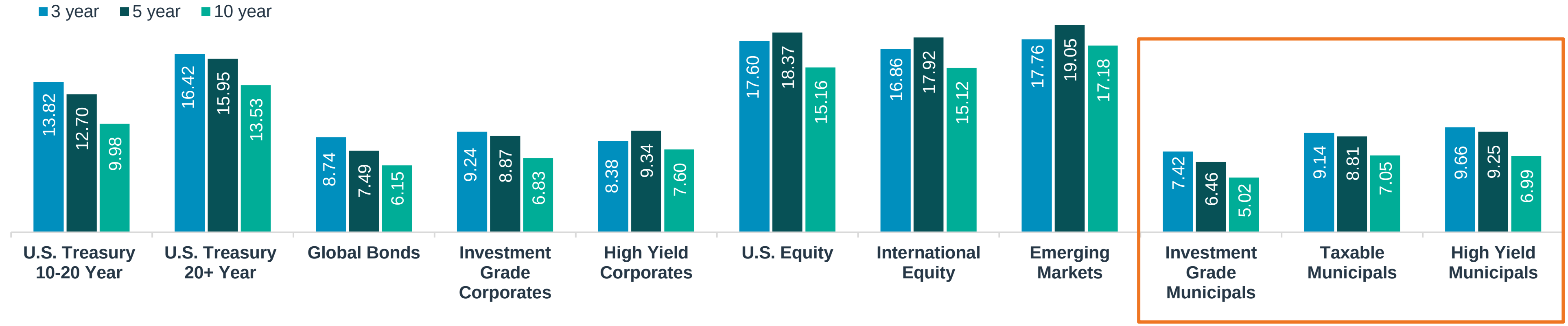
OPINION PIECE. PLEASE SEE IMPORTANT DISCLOSURES IN THE ENDNOTES.

GPM-3506384PG-M0324P

Municipals have exhibited lower volatility with strong risk-adjusted returns

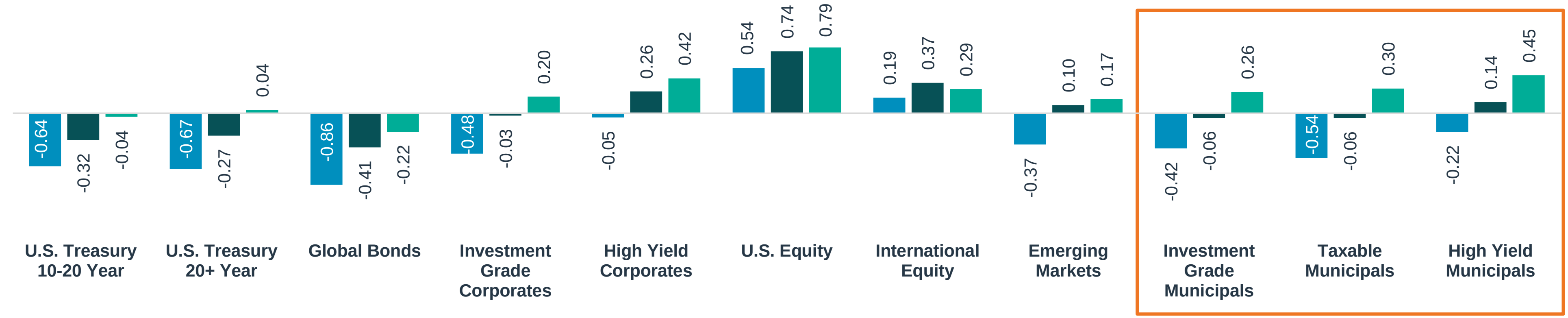
Standard deviation

Municipals have exhibited low volatility among asset classes.



Sharpe ratio

Municipals have been relatively attractive on a risk-adjusted basis.



Data source: Morningstar, period ending 31 Mar 2024. **Performance data shown represents past performance and does not predict or guarantee future results. Representative Indexes: Treasuries:** Bloomberg U.S. 10-20 Year Treasury Index and the Bloomberg U.S. 20+ Year Treasury Index; **Global bonds:** Bloomberg Global Aggregate Unhedged Index; **Investment grade corporates:** Bloomberg US Corporate Bond Index; **High yield corporates:** Bloomberg High Yield Corporate Index; **U.S. equity:** S&P 500 Index; **International equity:** MSCI EAFE Index; **Emerging markets:** MSCI Emerging Markets Index; **Investment grade municipals:** Bloomberg Municipal Bond Index; **Taxable municipals:** Bloomberg Taxable Municipal Bond Index; **High yield municipals:** S&P Municipal Yield Index.

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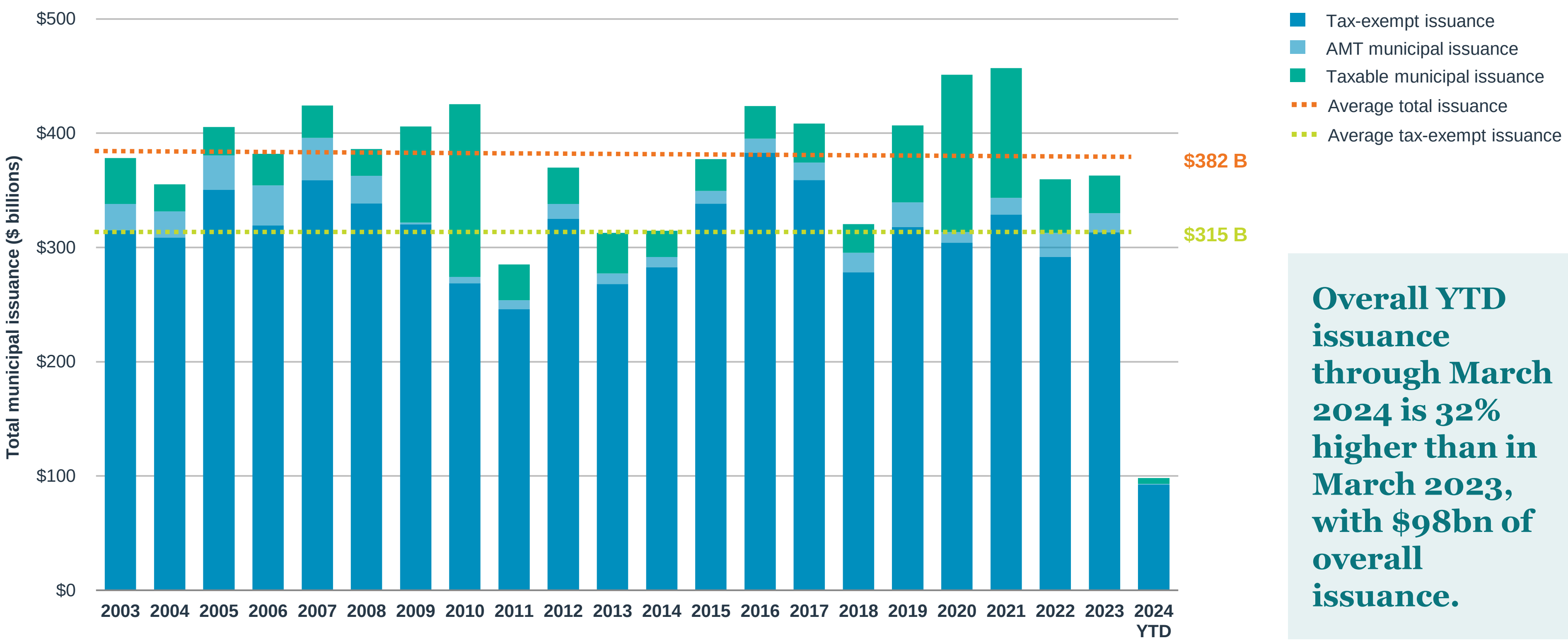
Issuance patterns could be more concentrated in the months leading up to the US election

Tax-exempt supply has started 2024 above 2023 levels.

Municipal issuance



Overall YTD issuance through March 2024 is 32% higher than in March 2023, with $98bn of overall issuance.

Data source: Securities Industry and Financial Markets Association (SIFMA.org), *U.S. Bond Market Issuance and Outstanding*, 02 Apr 2024 for period ending 31 Mar 2024. The average total issuance and average tax-exempt issuance shown are for the period 01 Jan 2003 – 31 Dec 2023. AMT municipal issuance is part of the tax-exempt municipal market.

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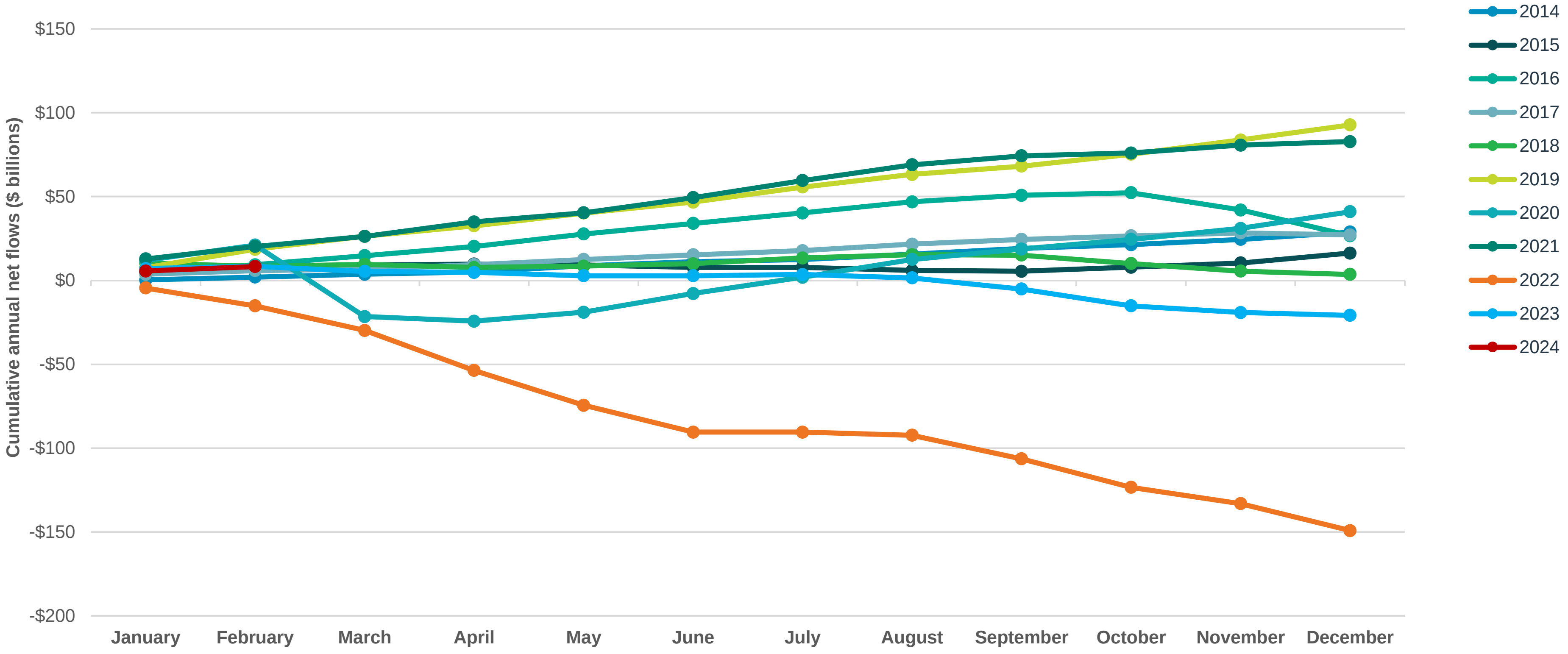
Fund flows are positive to start 2024

Municipal open-end fund net inflows were $8.31 billion through February.

Annual municipal bond fund flows by month

2014 – 2024 YTD



Data source: Morningstar Direct, 01 Jan 2014 – 29 Feb 2024, cumulative flows for each calendar year, shown monthly. Net flows represent the total of all municipal bond open-end funds.

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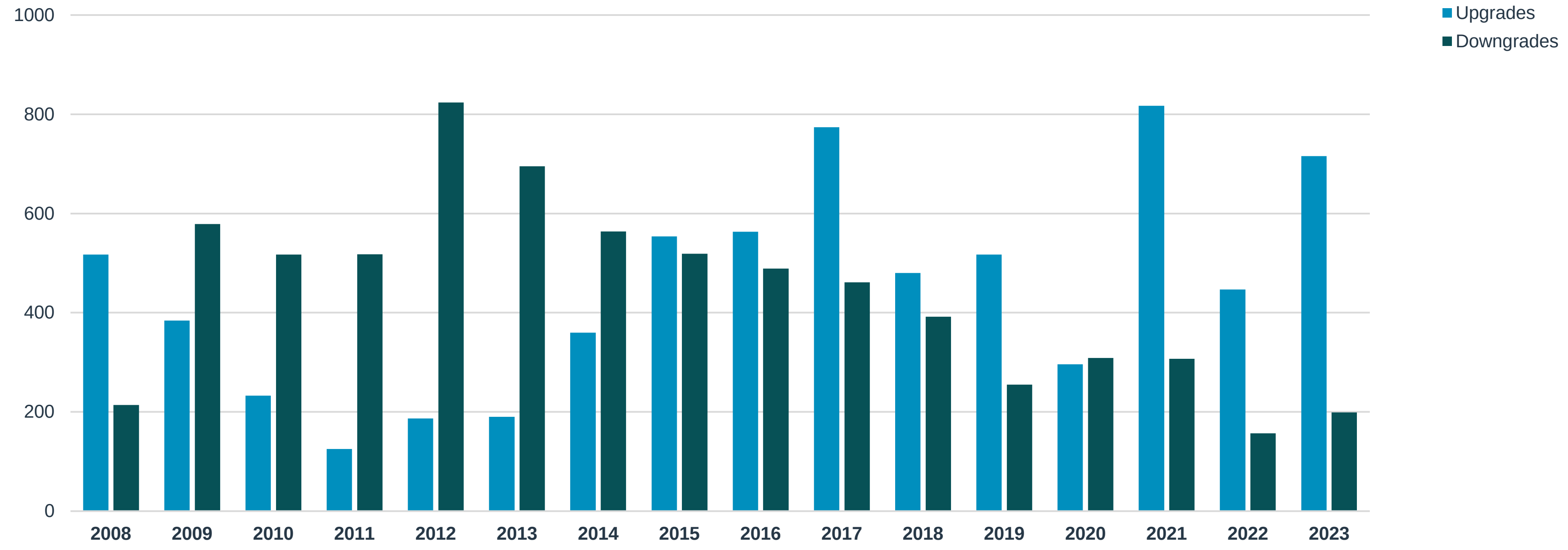
Rating upgrades have continued to exceed downgrades in recent history

Credit rating upgrades outpaced downgrades by nearly 4 to 1 in 2023. We expect this to normalize in 2024.

Number of rating changes for public finance



Data sources: Moody's Investors Service, *Quarterly and Annual Municipal Rating Revisions*, 29 Feb 2024, data as of 31 Dec 2023; most recent data available.

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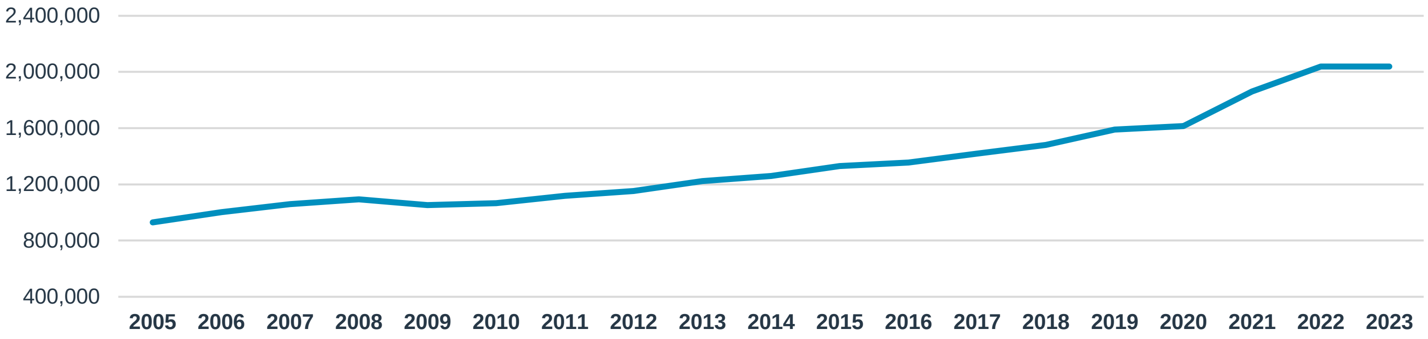
Municipalities are in a strong financial position

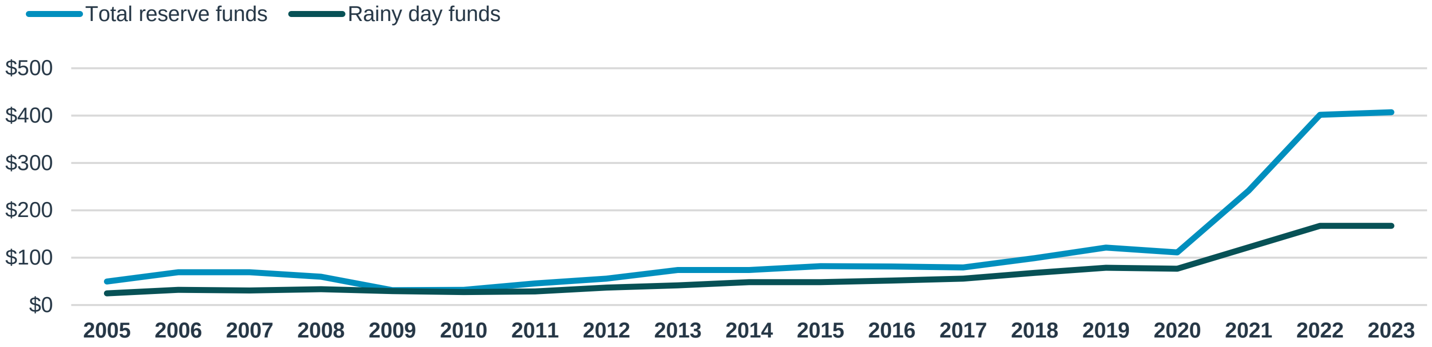
Revenue collections and reserve levels are the highest in more than 40 years.

State & local government tax revenue collections ($ millions)[1]



2023 state revenues increased marginally compared to 2022.

State government funds ($ billions)[2]



Total reserve funds for 2023 ended modestly above 2022 levels, at $406 billion.

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1 Data source: census.gov, 31 Dec 2023; updated annually.

2 Data sources: National Association of State Budget Officers (NASBO), *The Fiscal Survey of States*, Spring 2022. Pew Charitable Trust, *States Build Their Reserves Amid Growing Uncertainties*, 31 Dec 2023.

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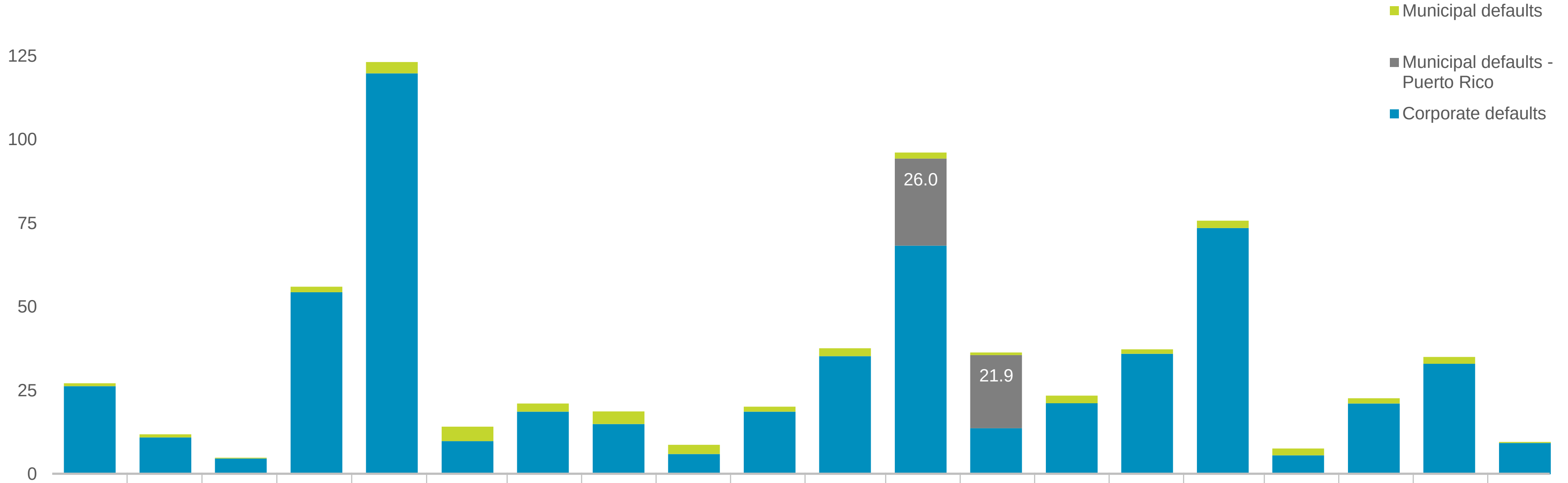
Defaults remain in line with historical trends

Municipal payment defaults ($ billions)



	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024 YTD
🟩	0.9	0.9	0.2	1.6	3.4	4.3	2.4	3.8	2.8	1.5	2.3	27.8*	22.7*	2.3	1.3	2.2	2.1	1.6	2.0	0.4
🟦	26.3	11.0	4.7	54.4	119.8	9.9	18.7	15.0	6.0	18.7	35.3	68.3	13.7	21.2	36.0	73.6	5.6	21.1	33.0	9.3

Municipal defaults YTD through 29 February 2024 were concentrated in nursing homes (46%), hospitals (42%) and industrial development (12%).

Data sources: Bank of America/Merrill Lynch Research, 02 Apr 2024, municipal default data as of 31 Mar 2024. Bank of America/Merrill Lynch Research HY Credit Chart book, corporate default data as of 31 Mar 2024. Data represents defaults on the entire universe of bonds, both rated and unrated, and includes Puerto Rico defaults. *For 2016 and 2017, the figures shown for municipal defaults were primarily from Puerto Rico defaults; $26.0B (2016) and $21.9B (2017).

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Municipal bond default rates have fared better than for similarly rated corporate bonds

A-rated municipal default rates are lower than for Aaa corporate bonds.

Moody's average cumulative default rates of municipals vs. global corporates, 1970-2022[1]

	YEAR 5			YEAR 10		
Rating	**Corporate**	**Municipal**	**Difference**	**Corporate**	**Municipal**	**Difference**
Aaa	**0.08%**	0.00%	0.08%	**0.34%**	0.00%	0.34%
Aa	0.28%	0.01%	0.27%	0.75%	0.02%	0.73%
A	0.66%	**0.03%**	0.63%	1.90%	**0.10%**	1.81%
Baa	1.47%	0.44%	1.03%	3.64%	1.05%	2.60%
Ba	7.94%	1.83%	6.10%	15.82%	3.31%	12.51%
B	20.49%	11.74%	8.75%	34.66%	16.65%	18.01%
Caa-C	32.31%	19.01%	13.30%	47.92%	23.58%	24.33%

GPM-3506384PG-M0324P

[1] Data source: Moody's Investors Service, *U.S. Municipal Bond Defaults and Recoveries, 1970 – 2022*, 19 Jul 2023, with data as of 31 Dec 2022; updated annually. **Performance data shown represents past performance and does not predict or guarantee future results.** The universe for the study represents approximately 12,500 fundamental U.S. public finance ratings from Moody's.

Municipal bond sectors are resilient in times of uncertainty

Municipal bonds fund essential services such as roads/highways, education, water & sewer, and electric, and many projects are backed by stable revenue sources.

How a potential economic downturn may affect municipal sectors

Low impact	Medium impact	Mixed impact	High impact
• State and local governments • Toll roads • Ports • Airports • Airlines • Public power	• Higher education • Health care • Land secured	• Industrial development revenue/ Pollution control revenue (IDR/PCR) • Charter schools	• Long-term care

Less impact ⟷ *More impact*

GPM-3506384PG-M0324P

The way rates rise can determine how fixed income may react

Fed funds rising rate periods rates since 1994

	Period 1 **04 Feb 1994 to 01 Feb 1995**	**Period 2** **30 Jun 1999 to 16 May 2000**	**Period 3** **30 Jun 2004 to 29 Jun 2006**	**Period 4** **15 Dec 2015 to 19 Dec 2018**	**Period 5** **16 Mar 2022 to 26 Jul 2023**
Starting rate level	3.00%	4.75%	1.00%	0 to 25 bps	0 to 25 bps
Number of hikes	7	6	17	9	11
Duration	12 Months	10 Months	24 Months	36 months	16 months
Ending rate level	6.00%	6.50%	5.25%	2.50%	5.50%
Magnitude	300 basis points	175 basis points	425 basis points	225 basis points	525 basis points

GPM-3506384PG-M0324P

Data sources: Bloomberg, www.federalreserve.gov., data indicates changes in fed funds rates. Data shown applies to the actual time periods noted in the table. Data for period 5 is as of 31 Mar 2024**. Performance data shown represents past performance and does not predict or guarantee future results.** One basis point equals .01%, or 100 basis points equal 1%. Different benchmarks and economic periods will produce different results. Other methods and market conditions may result in slightly different outcomes. All investments carry a certain degree of risk, including possible loss of principal, and there is no assurance that an investment will provide positive performance over any period of time. Each period has its own specific factors that may help or hurt the total returns of bonds. These may be economic in nature or technically driven.

OPINION PIECE. PLEASE SEE IMPORTANT DISCLOSURES IN THE ENDNOTES.

The way rates rise can affect returns along the yield curve

	Period 1					Period 2					Period 3					Period 4					Period 5				
	04 Feb 1994 to 01 Feb 1995					30 Jun 1999 to 16 May 2000					30 Jun 2004 to 29 Jun 2006					15 Dec 2015 to 19 Dec 2018					16 Mar 2022 to 26 July 2023				
Bloomberg Municipal Bond Index	6-month return before	Total return during	Change in yields during	6-month return after	Total return across three periods	6-month return before	Total return during	Change in yields during	6-month return after	Total return across three periods	6-month return before	Total return during	Change in yields during	6-month return after	Total return across three periods	6-month return before	Total return during	Change in yields during	6-month return after	Total return across three periods	6-month return before	Total return during	Change in yields during	6-month return after	Total return across three periods
1-year	2.45%	2.06%	+204 bps	3.77%	8.50%	1.35%	3.11%	+92 bps	2.99%	**7.63%**	0.28%	3.40%	+188 bps	2.08%	5.85%	0.39%	4.96%	+109 bps	1.54%	4.90%	-1.33%	1.52%	+172 bps	1.68%	**1.86%**
5-year	4.38%	-0.95%	+152 bps	6.83%	10.45%	-0.21%	1.90%	+68 bps	5.02%	6.78%	-0.90%	4.76%	+77 bps	3.22%	7.16%	2.13%	9.48%	+69 bps	3.82%	10.64%	-4.45%	0.47%	+107 bps	1.70%	-2.37%
10-year	6.13%	-3.49%	+142 bps	8.55%	**11.19%**	-1.73%	1.71%	+53 bps	6.92%	6.87%	-0.81%	7.81%	+30 bps	4.77%	12.05%	3.44%	14.40%	+49 bps	5.61%	17.10%	-5.31%	1.20%	+81 bps	1.75%	-2.49%
22+year	6.73%	-6.21%	+128 bps	8.29%	8.40%	-1.68%	-2.68%	+75 bps	9.69%	4.95%	-1.26%	15.93%	-47 bps	6.17%	**21.53%**	4.20%	18.61%	+48 bps	7.31%	**22.37%**	-6.67%	-3.75%	+122 bps	1.41%	-8.91%
	Yield curve flattened **76 bps** Best performer: **10-year**					Yield curve flattened **17 bps** Best performer: **1-year**					Yield curve flattened **235 bps** Best performer: **22+**					Yield curve flattened **61 bps** Best performer: **22+**					Yield curve flattened **50** bps Best performer thus far: **1-year**				

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Data source: Bloomberg, L.P. Data shown applies to the actual time periods noted in the table**. Performance data shown represents past performance and does not predict or guarantee future results. Representative indexes: 1-year bonds:** Bloomberg 1-Year Municipal Bond Index; **5-year bonds:** Bloomberg 5-Year Municipal Bond Index; **10-year bonds:** Bloomberg 10-Year Municipal Bond Index; **22+-year bonds:** Bloomberg Long Municipal Bond Index; **Municipal bond market:** Bloomberg Municipal Bond Index. Different benchmarks and economic periods will produce different results. Other methods and market conditions may result in slightly different outcomes. Index returns include reinvestment of income and do not reflect investment professional and/or other fees that would reduce performance in an actual client account. All investments carry a certain degree of risk, including possible loss of principal, and there is no assurance that an investment will provide positive performance over any period of time. Each period has its own specific factors that may help or hurt the total returns of bonds. These may be economic in nature or technically driven.

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Staying the course has benefited investors

Since 2008, significant events have caused municipal yields to increase by at least 100 bps in less than a year, followed by full recovery.

2008 2010 2012 2014 2016 2018 2020 2022

Global financial crisis

Sept 2008 – Oct 2008

Reduced market liquidity after collapse of Lehman Brothers

Municipal default scare

Oct 2010 – Jan 2011

Strong supply and prediction of uptick in defaults and bankruptcies

Taper tantrum

May 2013 – Sept 2013

Fed tapering, Detroit bankruptcy filing and Puerto Rico challenges

Brexit | U.S. election

July 2016 – Dec 2016

Near-historic low yields after Brexit vote and U.S. election

Covid-19 pandemic

Mar 2020

Dramatic selloff and decoupling of municipals and Treasuries

Post-pandemic inflation

Jan 2022 – Oct 2022

Fed interest rate hikes, inflation and geopolitical concerns

We are beginning to see signs of recovery after an extended stretch of elevated inflation and rising rates.

Municipal bond market yields as represented by Bloomberg Municipal Bond Index.

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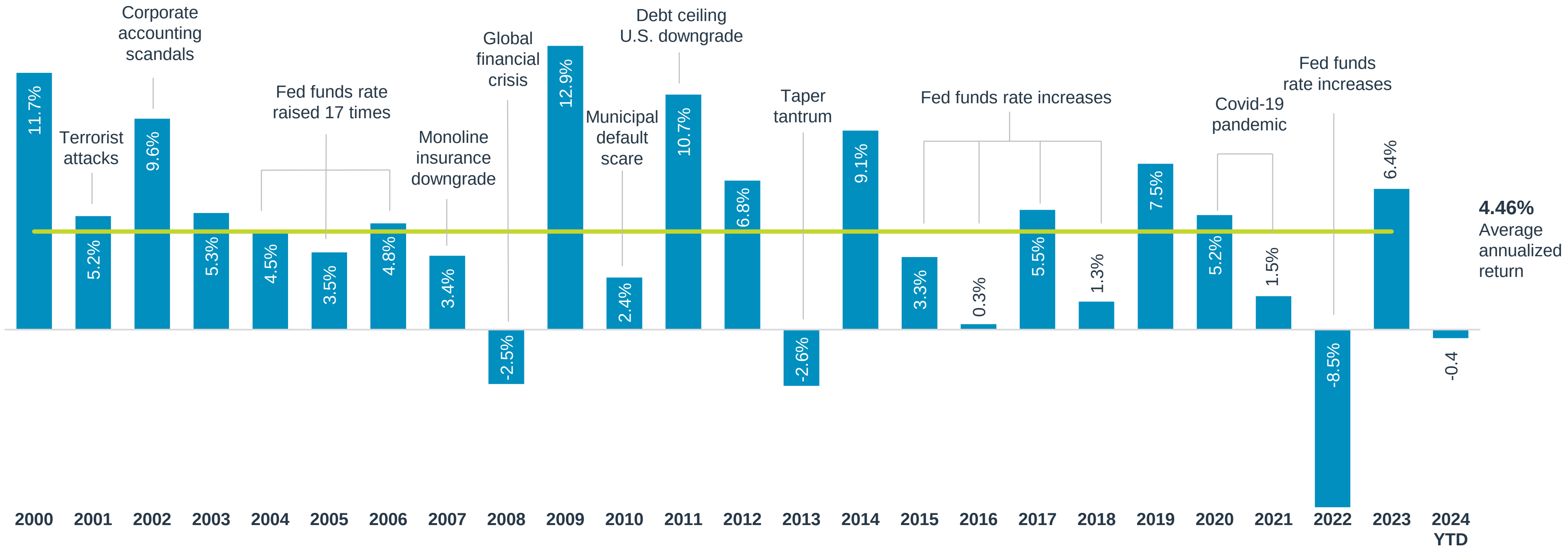
Municipals have typically rebounded after challenging years

Bloomberg Municipal Bond Index Returns (%)



A strong rally to close 2023 created positive returns of 6.40%. YTD index performance was -0.39% through March. Performance could emerge as the year progresses.

Data source: Bloomberg, L.P., 31 Mar 2024. The average annualized return shown is for the period 01 Jan 2000 – 31 Dec 2023. **Performance data shown represents past performance and does not predict or guarantee future results.** All investments carry a certain degree of risk, including possible loss of principal, and there is no assurance that an investment will provide positive performance over any period of time. Index returns include reinvestment of income and do not reflect investment professional and other fees that would reduce performance in an actual client account.

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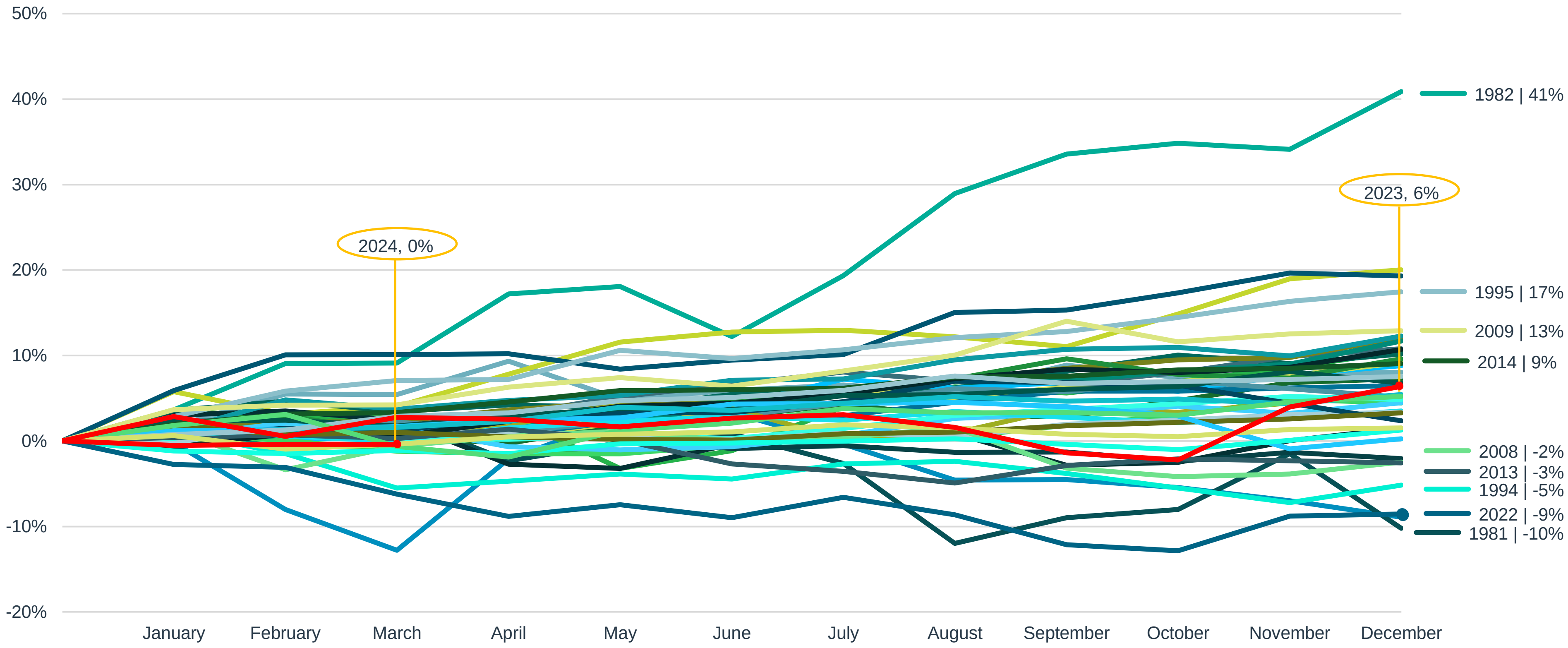
Despite seasonal headwinds to start 2024, performance could emerge as the year progresses

Returns were slightly negative to start the year, returning -0.39% through March.

Bloomberg Municipal Bond Index performance, calendar year path



Data source: Bloomberg, L.P., 01 Jan 1980 – 31 Mar 2024; cumulative returns for each calendar year, shown monthly. **Performance data shown represents past performance and does not predict or guarantee future results.**

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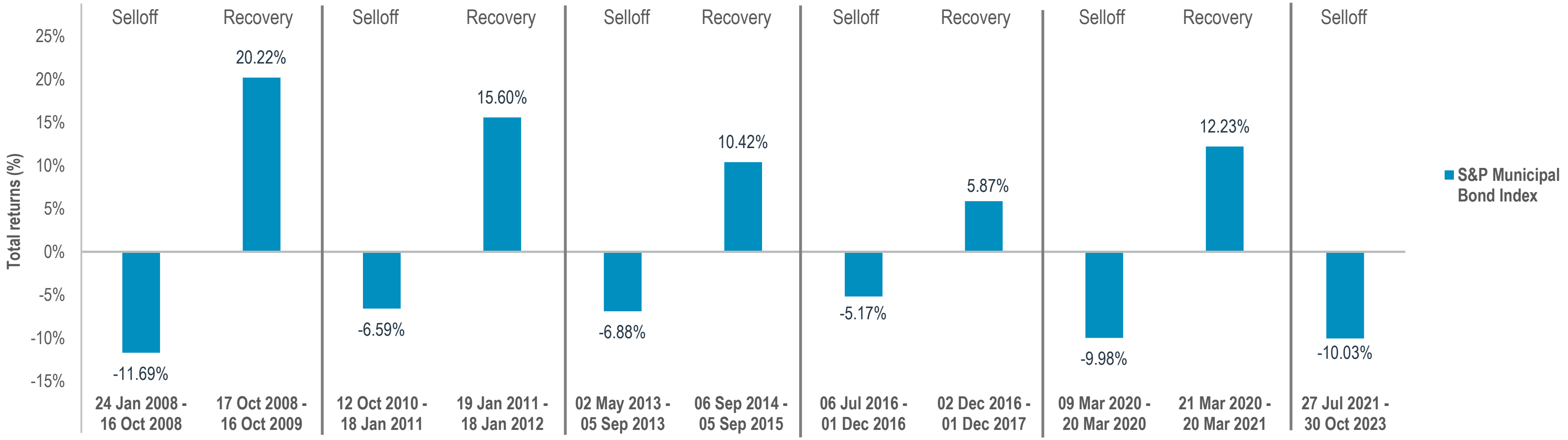
Municipal market has generally bounced back within one year after major downturns

Municipal performance during selloffs and subsequent 1-year recoveries

S&P Municipal Bond Index total returns



Cumulative municipal returns were 8.01% over the past five months, from the end of the selloff period on 31 October 2023 through 31 March 2024. 2023 returns were 5.85%.

Data source: Morningstar Direct. Data shown applies to the actual time periods noted in the table. **Performance data shown represents past performance and does not predict or guarantee future results.** The drawdown time periods are based on periods where the S&P Municipal Bond Index declined 5% or more. The recovery periods are the 1-year period from the trough. Data shown is based on the most recent data provided to Morningstar by asset managers, which may be modified based on Morningstar's methodology and is subject to change.

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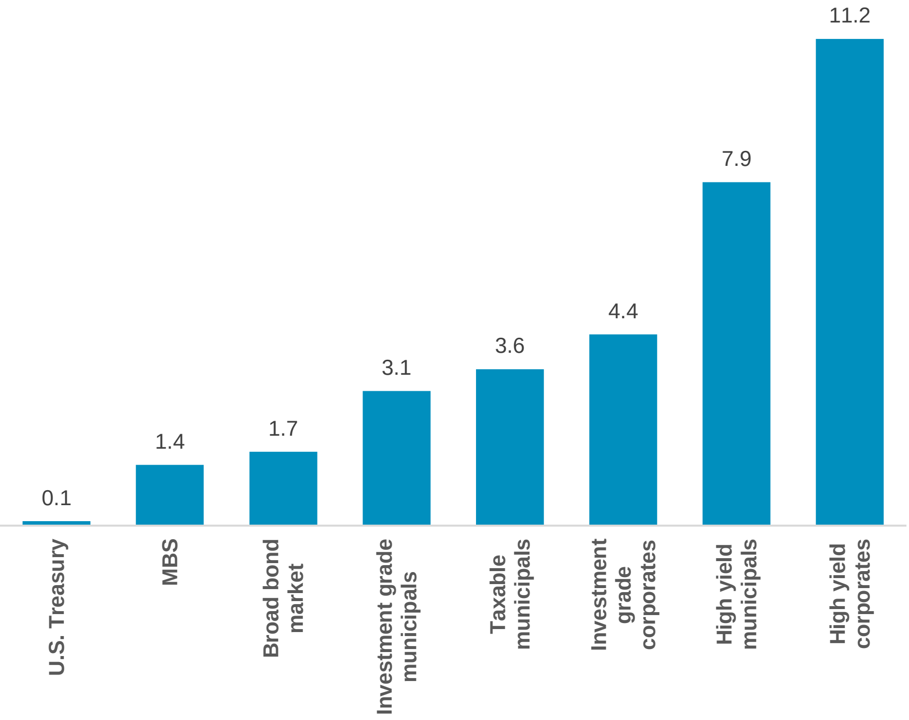
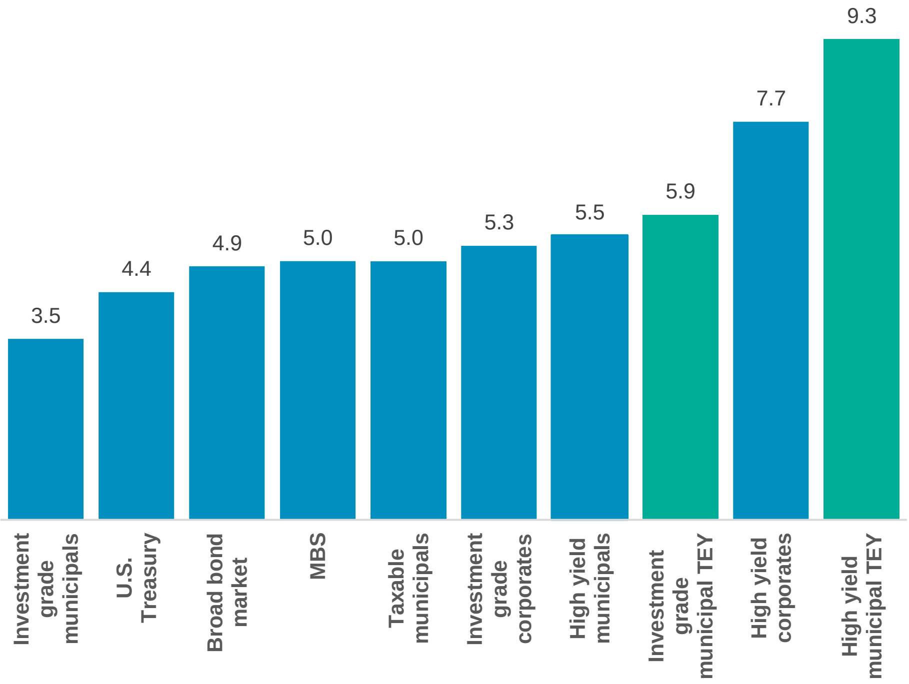
Fixed income sector performance is mixed, and investment grade municipals show resilience

Comparing asset class returns and yields

Trailing 12 month returns (%)



Yield to worst (%)



Data source: Bloomberg, L.P., trailing 12 month returns from 31 Mar 2023 – 31 Mar 2024; yield to worst as of 31 Mar 2024. **Performance data shown represents past performance and does not predict or guarantee future results.** Yields are yield to worst. **Yield to worst** is the lowest potential yield that can be received on a bond without the issuer defaulting. **Representative indexes: Broad bond market:** Bloomberg U.S. Aggregate Bond Index; **High yield corporates:** Bloomberg U.S. Corporate High Yield Index; **High yield municipals:** Bloomberg High Yield Municipal Bond Index; **Investment grade corporates:** Bloomberg U.S. Corporate Investment Grade Index**; Investment grade municipals:** Bloomberg Municipal Bond Index; **Mortgage-backed securities (MBS):** Bloomberg MBS (fixed rate) Index; **Taxable municipals:** Bloomberg Taxable Municipal Bond Index; **U.S. Treasury:** Bloomberg U.S. Treasury Index; The taxable-equivalent yield is based on the highest individual marginal federal tax rate of 37%, plus the 3.8% Medicare tax on investment income (the Net Investment Income Tax). Individual tax rates may vary.

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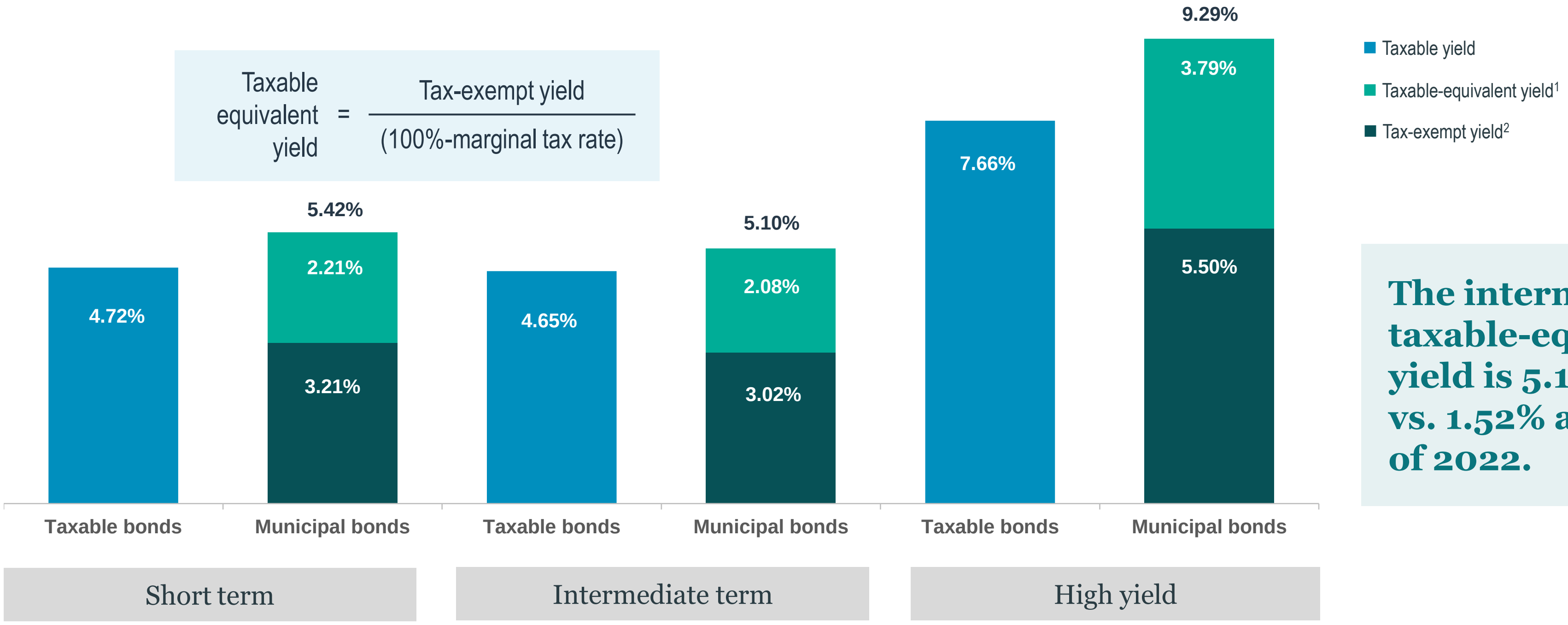
Municipals are attractive on an after-tax basis

Yield comparison



$$\text{Taxable equivalent yield} = \frac{\text{Tax-exempt yield}}{(100\%\text{-marginal tax rate})}$$

The intermediate taxable-equivalent yield is 5.10% today vs. 1.52% at the start of 2022.

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1 The taxable-equivalent yield is based on the highest individual marginal federal tax rate of 37%, plus the 3.8% Medicare tax on investment income (the Net Investment Income Tax). Individual tax rates may vary.

2 Some income may be subject to state and local taxes and the federal alternative minimum tax.

Data source: Bloomberg L.P., 31 Mar 2024. **Performance data shown represents past performance and does not predict or guarantee future results.** Yields are yield to worst. **Yield to worst** is the lowest potential yield that can be received on a bond without the issuer defaulting. **Taxable-equivalent yield** is the yield a taxable investment needs to possess (before taxes) for its yield to be equal to that of a tax-free municipal investment. The yields shown are based on the highest individual marginal federal tax rate of 37%, plus the 3.8% Medicare tax on investment income. Individual tax rates may vary. They do not take into account the effects of the federal alternative minimum tax (AMT) or capital gains taxes. **Representative indexes: Short term taxable bonds:** Bloomberg U.S. Government/Credit 1-5 Year Index; **Short term municipal bonds:** Bloomberg Municipal Short Index; **Intermediate term taxable bonds:** Bloomberg U.S. Government/Credit 5-10 Year Index; **Intermediate term municipal bonds:** Bloomberg Municipal Intermediate Index; **High yield taxable bonds:** Bloomberg Corporate High Yield 2% Issuer Capped Index; **High yield municipal bonds:** Bloomberg High Yield Municipal Bond Index. Different benchmarks, economic periods, methodologies and market conditions will produce different results.

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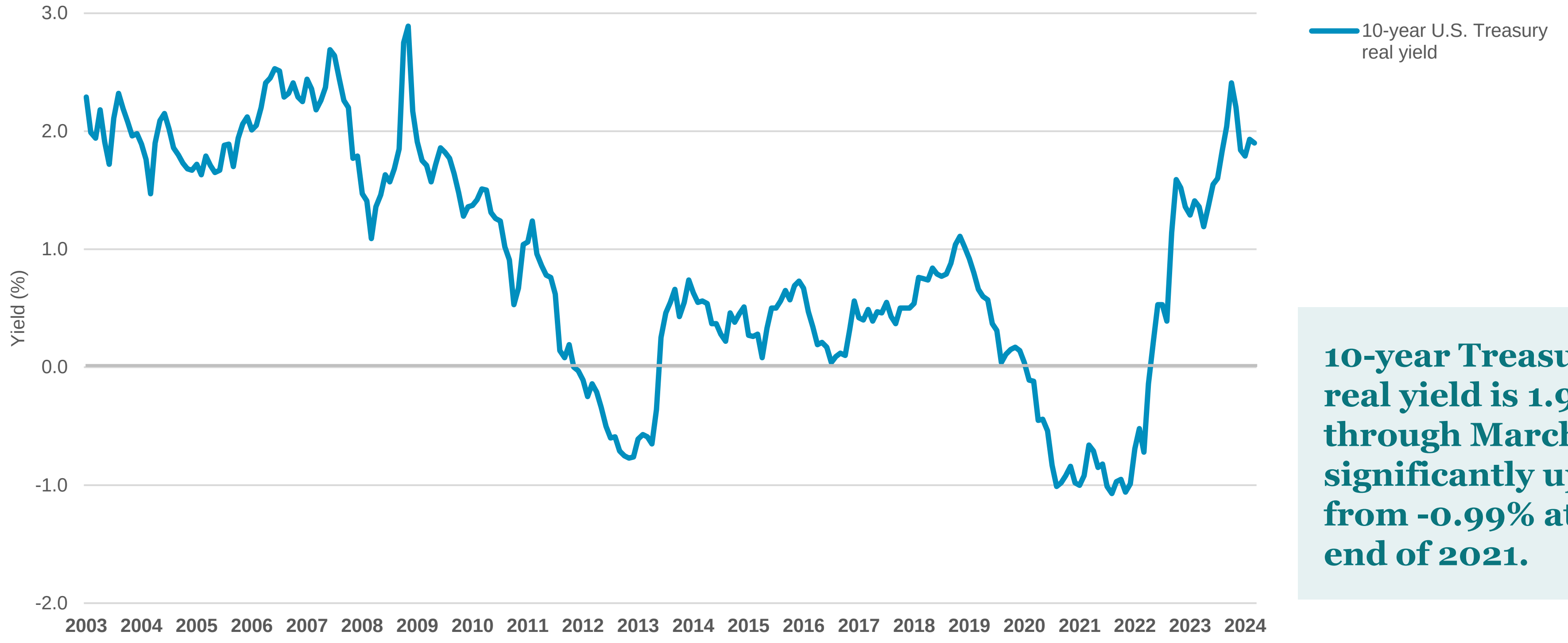
Real yield levels are now outpacing inflation

Treasury yield minus inflation remains at levels not seen in over a decade.

10-year U.S. Treasury real yield



10-year Treasury real yield is 1.90% through March, significantly up from -0.99% at the end of 2021.

GPM-3506384PG-M0324P

Data source: FRED, 31 Jan 2003 – 31 Mar 2024, shown monthly. The real yield is a measure of the stated return on Treasury bonds, minus inflation.

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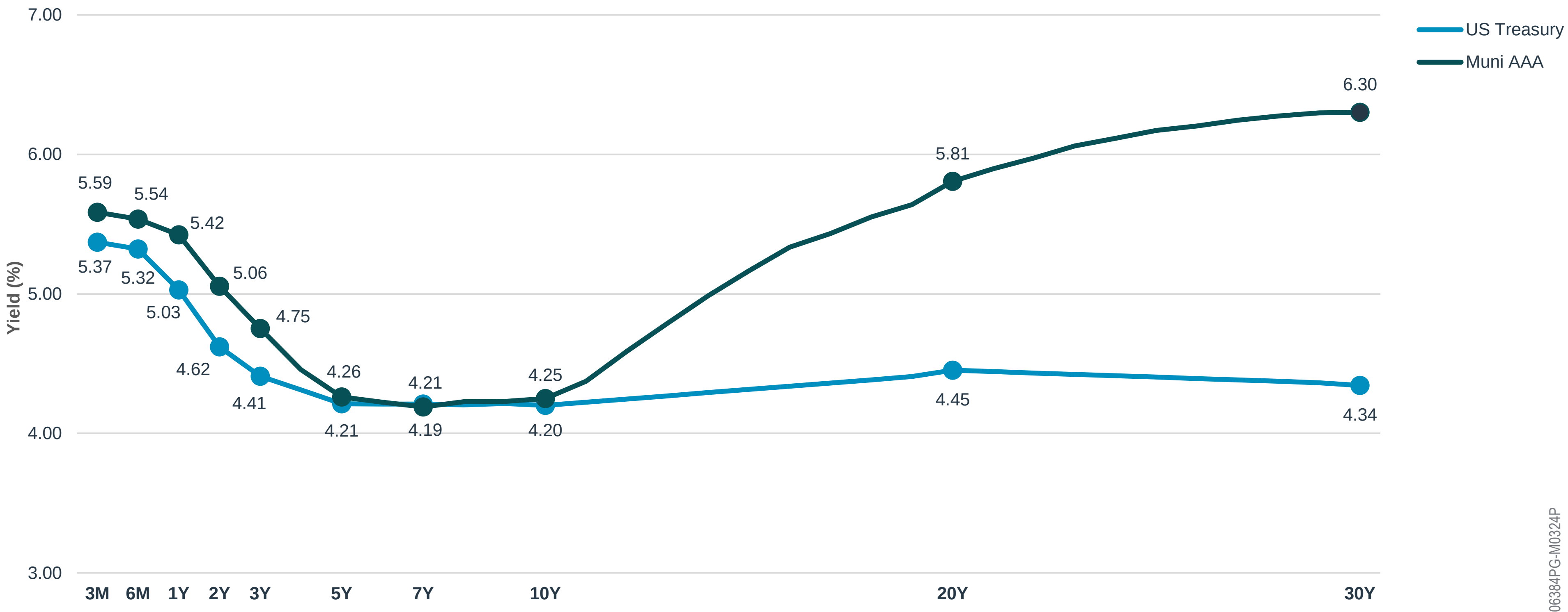
Are you considering alternatives to short-term Treasuries?

By extending duration, municipal investors can achieve higher tax-efficient yields.

U.S. Treasuries vs. AAA municipal yield curve (taxable equivalent yield)



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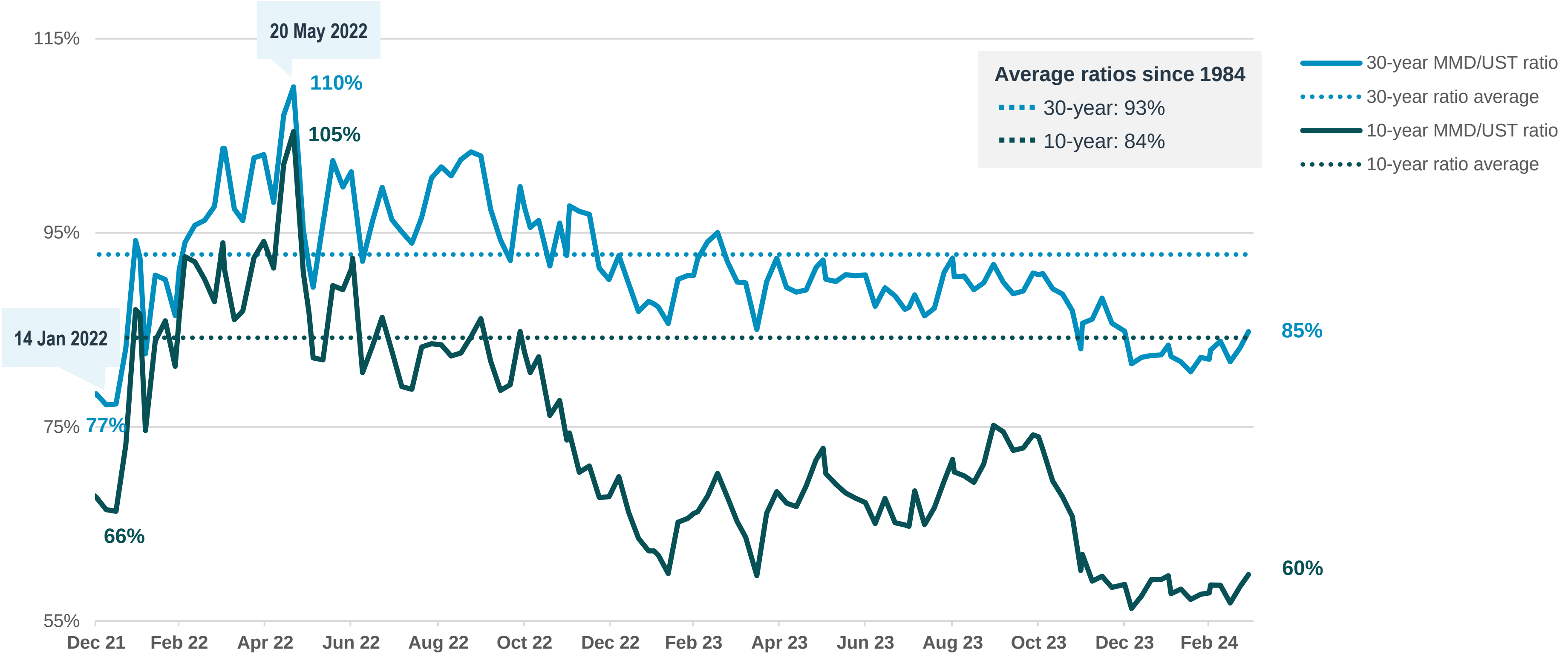
Data source: Bloomberg; Nuveen Portfolio Strategy & Solutions, as of 31 Mar 2024. **Taxable-equivalent yield (TEY)** is the yield a taxable investment needs to possess (before taxes) for its yield to be equal to that of a tax-free municipal investment. The yields shown are based on the highest individual marginal federal tax rate of 37%, plus the 3.8% Medicare tax on investment income. Individual tax rates may vary. They do not take into account the effects of the federal alternative minimum tax (AMT) or capital gains taxes.

OPINION PIECE. PLEASE SEE IMPORTANT DISCLOSURES IN THE ENDNOTES.

Technical conditions move to the rich side of fair value, but overall yield levels remain attractive

Municipal-to-Treasury ratios: AAA municipal bonds value relative to Treasuries



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Data source: Refinitiv MMD for fair value Municipal 10- and 30-Year Index AAA General Obligation bonds; Bloomberg for 10- and 30-year U.S. Treasury yields, shown weekly, 31 Dec 2021 – 31 Mar 2024, averages shown from 01 Jan 1984 – 31 Mar 2024. **Performance data shown represents past performance and does not predict or guarantee future results.** Municipal-to-Treasury ratio represents the value of AAA municipal yields relative to U.S. Treasury yields.

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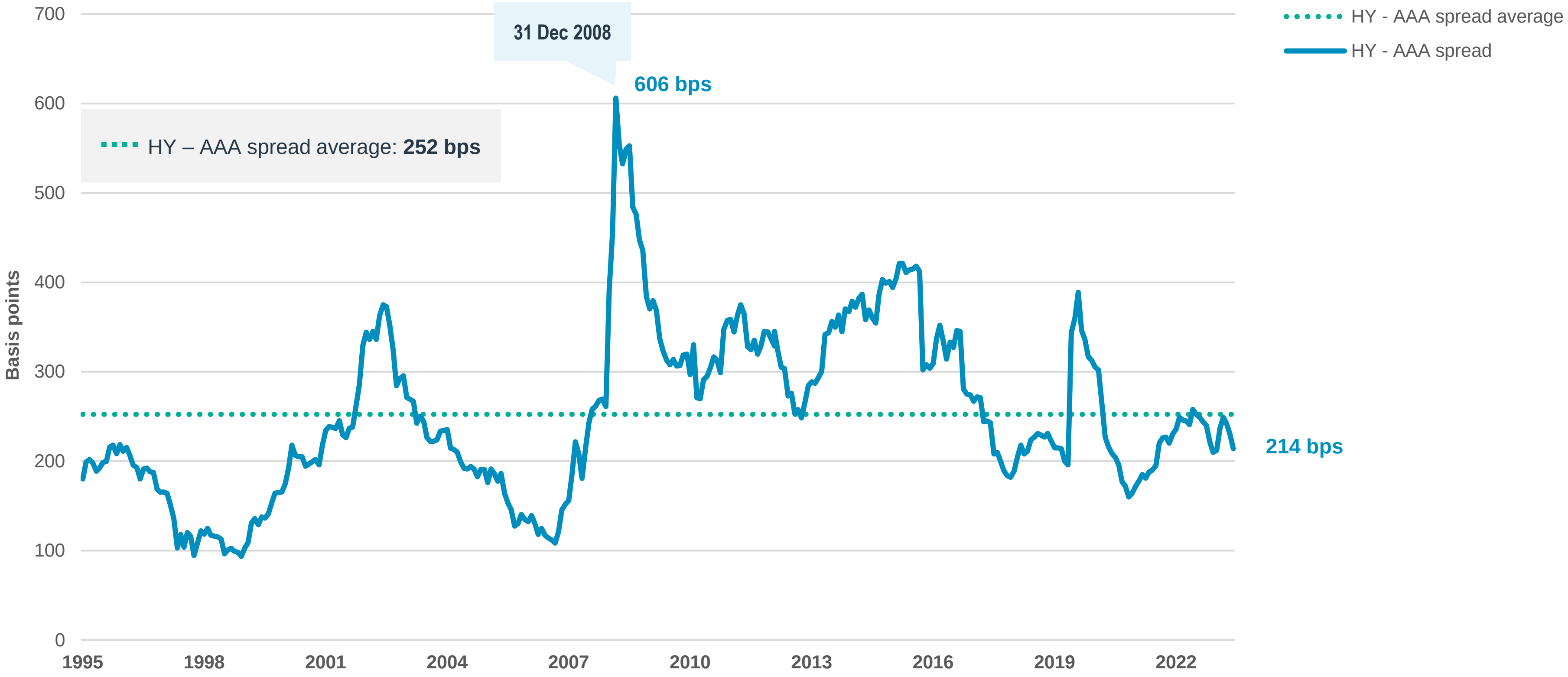
High yield credit spreads are near historical averages

Bloomberg High Yield Municipal Index versus AAA yields



Data source: Bloomberg, Refinitiv MMD, 31 Oct 1995 – 31 Mar 2024, shown monthly. Chart shows data to the earliest period available. **Performance data shown represents past performance and does not predict or guarantee future results.** High yield municipal yields represented by the Bloomberg High Yield Municipal Index; AAA municipal yields represented by Municipal Market Data (MMD) yields for AAA rated 20-year bonds. High yield or lower-rated bonds and municipal bonds carry greater credit risk, and are subject to greater price volatility. Ratings shown are from S&P and are subject to change. AAA,AA,A, and BBB are investment grade ratings; BB,B, CCC/CC/C and D are below-investment grade ratings. Different benchmarks, economic periods, methodologies and market conditions will produce different results.

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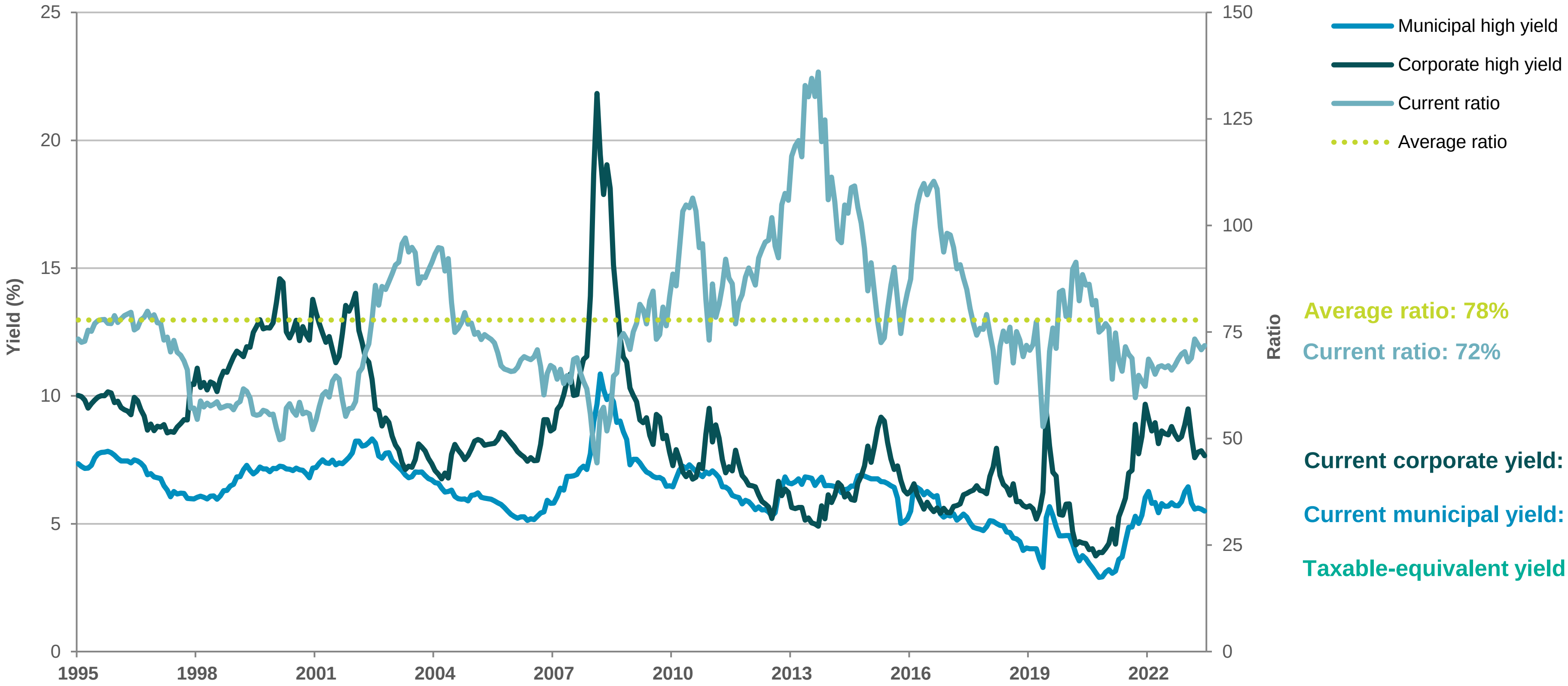
Higher yields have created opportunities across fixed income

Bloomberg High Yield Municipal Index vs. Bloomberg High Yield Corporate Index



Average ratio: 78%

Current ratio: 72%

Current corporate yield: 7.66%

Current municipal yield: 5.50%

Taxable-equivalent yield: 9.29%

Data source: Bloomberg, L.P., 31 Oct 1995 – 31 Mar 2024. **Performance data shown represents past performance and does not predict or guarantee future results. Representative Indexes: High Yield Municipal:** Bloomberg High Yield Municipal Index; **High Yield Corporate:** Bloomberg U.S. High Yield Corporate Index. High yield or lower-rated bonds and municipal bonds carry greater credit risk, and are subject to greater price volatility. The taxable-equivalent yield shown is based on the highest individual marginal federal tax rate of 37%, plus the 3.8% Medicare tax on investment income. Individual tax rates may vary. It does not take into account the effects of the federal alternative minimum tax (AMT) or capital gains taxes.

OPINION PIECE. PLEASE SEE IMPORTANT DISCLOSURES IN THE ENDNOTES.

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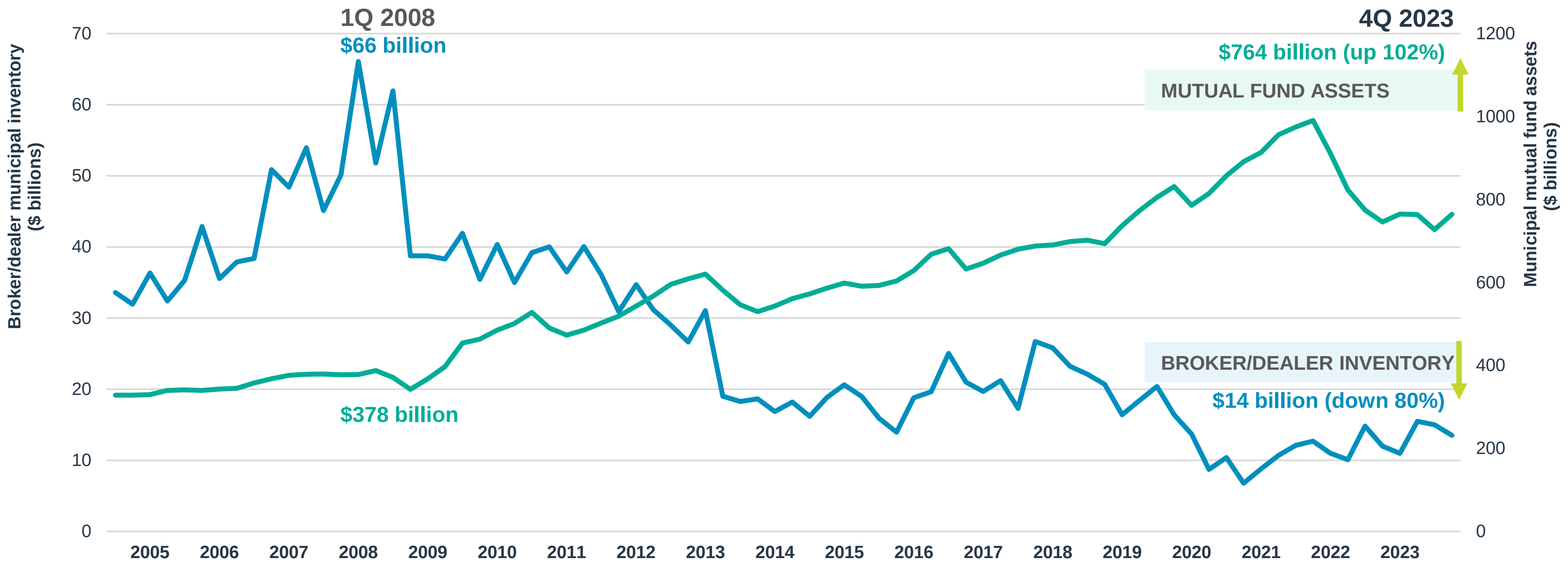
Building individual bond portfolios has become more difficult

Professional managers can help in an environment of lower inventory.



Other factors that support investing with a professional manager:

- Sources of liquidity have diminished for individual investors
- Municipal assets under management have increased since 2008, adding almost $400 billion in mutual funds

Data source: Assets and inventory data from *Federal Reserve Flow of Funds* ending 07 Mar 2024, data as of 31 Dec 2023; most recent data available.

OPINION PIECE. PLEASE SEE IMPORTANT DISCLOSURES IN THE ENDNOTES.

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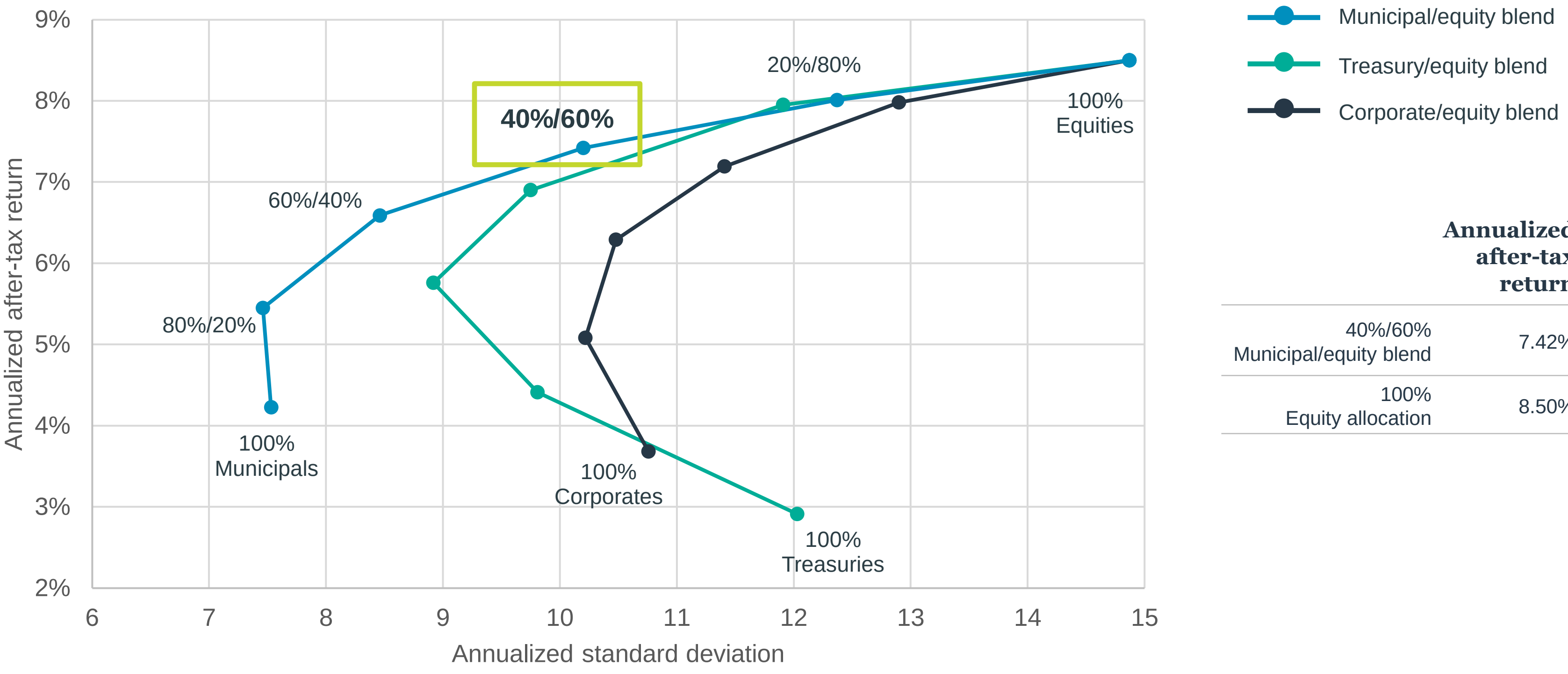
Municipal bonds may offer attractive portfolio diversification

Hypothetical blended portfolios, 2004 – 2023



	Annualized after-tax return	Standard deviation
40%/60% Municipal/equity blend	7.42%	10.20
100% Equity allocation	8.50%	14.87

Chart does not represent the past performance of any Nuveen product.

Data source: Nuveen Asset Management, 01 Jan 2004 – 31 Dec 2023. **Performance data shown represents past performance and does not predict or guarantee future results.** These conclusions are derived from the following portfolio assumptions: All investment income generated by the portfolio is reinvested annually, along with the after-tax proceeds of an arbitrarily assumed 20% annualized turnover rate. The allocation between the two assets was allowed to roam within a 1% band around its target before rebalancing. No provision was made for investment fees or commissions. Investment income was taxed at the historically appropriate rate for an individual with $100,000 in taxable income in year 2023 dollars; net capital gains taxes, if any, were deducted at the rate appropriate for the period. At the end of 2023, the portfolios were fully liquidated to recognize the existing tax liability. Different benchmarks, economic periods, methodologies and market conditions will produce different results. There is no assurance that any asset class or index will provide positive performance over time. It is not possible to invest directly in an index. Index data source: Bloomberg LP. **Representative indexes: municipal bonds:** Bloomberg Long Municipal Bond Index; **Treasury bonds:** Bloomberg U.S. Treasury Long Index; **corporate bonds:** Bloomberg Long Credit Index; **equities**: S&P 500® Index. Diversification does not insure against loss in a declining market.

OPINION PIECE. PLEASE SEE IMPORTANT DISCLOSURES IN THE ENDNOTES.

Municipal bond investing with Nuveen

Nuveen believes five key differentiators are important to creating portfolio growth

Credit research

The experienced research team evaluates municipal bonds and sectors, seeking to find value in bonds that the general public may have overlooked.

Institutional access

Nuveen navigates the inefficient municipal bond market through established relationships with more than 100 national and regional dealers.

Institutional trade execution*

A large presence in the market provides greater access to inventory to find bonds in appropriate sizes and at institutional prices.

Tax-aware investing

The ability to trade at institutional prices allows the team to efficiently capture tax losses and use them to offset gains.

Active portfolio oversight

By actively trading bonds, the team seeks to sell appreciated bonds, capture gains and purchase bonds that have the potential to enhance overall portfolio returns.

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*Institutional trade execution applies primarily to municipal bond trading as part of ongoing account management and generally does not include sales of legacy securities contributed to new or existing accounts or in connection with termination and liquidation instructions. Nuveen Asset Management, LLC (NAM) seeks to expeditiously and efficiently effect sales of legacy securities contributed to new or existing accounts or in connection with termination and liquidation instructions, generally by directing the execution of sale to the relevant broker-dealer/custodian designated by the client's managed account program, subject to program limitations. Primarily due to the time constraints and lot sizes applicable to these transactions, and because the full range of trading techniques is generally not available (including aggregation), the prices received in these transactions may be less favorable than the prices that could be attained for sales of securities selected by NAM as part of ongoing management. Clients always reserve the right to fund accounts with cash as opposed to legacy securities and to keep any securities in their accounts upon termination of services.

OPINION PIECE. PLEASE SEE IMPORTANT DISCLOSURES IN THE ENDNOTES.

Endnotes

IMPORTANT INFORMATION ON RISK

Investing involves risk; principal loss is possible. Debt or fixed income securities are subject to market risk, credit risk, interest rate risk, call risk, derivatives risk, dollar roll transaction risk and income risk. As interest rates rise, bond prices fall. Below investment grade or high yield debt securities are subject to liquidity risk and heightened credit risk. Preferred securities are subordinated to bonds and other debt instruments in a company's capital structure and therefore are subject to greater credit risk. Foreign investments involve additional risks, including currency fluctuation, political and economic instability, lack of liquidity and differing legal and accounting standards. Asset-backed and mortgage-backed securities are subject to additional risks such as prepayment risk, liquidity risk, default risk and adverse economic developments. The value of convertible securities may decline in response to such factors as rising interest rates and fluctuations in the market price of the underlying securities. Senior loans are subject to loan settlement risk due to the lack of established settlement standards or remedies for failure to settle. These investments are subject to credit risk and potentially limited liquidity, as well as interest rate risk, currency risk, prepayment and extension risk, and inflation risk.

Investors should contact a tax professional regarding the appropriateness of tax-exempt investments in their portfolio. If sold prior to maturity, municipal securities are subject to gain/losses based on the level of interest rates, market conditions and the credit quality of the issuer. Income may be subject to the alternative minimum tax (AMT) and/or state and local taxes, based on the state of residence. Income from municipal bonds held by a portfolio could be declared taxable because of unfavorable changes in tax laws, adverse interpretations by the Internal Revenue Service or state tax authorities, or noncompliant conduct of a bond issuer. It is important to review your investment objectives, risk tolerance and liquidity needs before choosing an investment style or manager.

Nuveen, LLC provides investment solutions through its investment specialists.

This information does not constitute investment research as defined under MiFID.

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