

FIXED INCOME



US Bonds

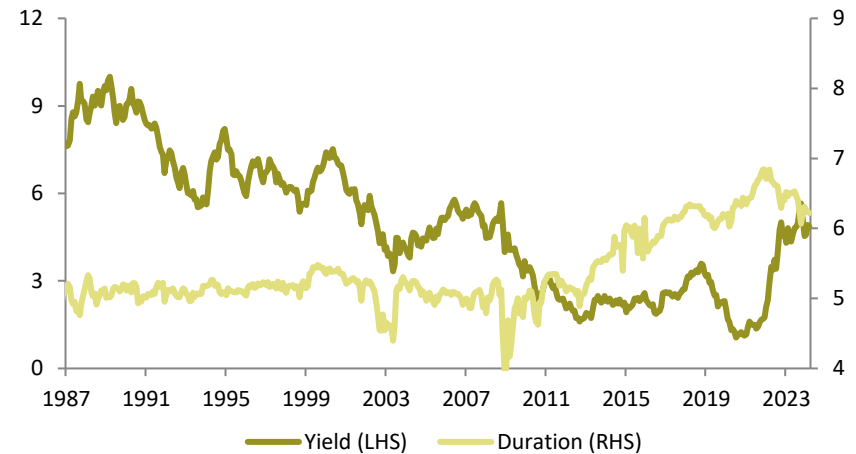
Facts & Figures First Quarter 2024

Core US bonds posted minor losses in 1Q as yields rose in response to warming growth and inflation data. The market is now pricing in fewer rate cuts for 2024 but slower Fed balance sheet shrinkage could help cap any increase in rates from here.

- The Bloomberg US Aggregate Bond Index returned -0.8% in 1Q, cooling off after a solid 2023 return of 5.5%.
- Performance of core fixed income assets like US Treasuries was boosted in 4Q as the market increasingly priced in Fed easing over the course of 2024. The pace of that easing has been rethought in recent weeks as economic growth surprises to the upside and recent inflation readings have come in slightly warmer than expected.
- Core PCE has fallen roughly half over the past two years to 2.8% yet remains above the Fed's target.
- Even if the Fed delivers fewer cuts in 2024 than had been expected, minutes from the March FOMC meeting suggest it may slow the pace at which it had been shrinking its balance sheet, which could cap any upward retracement of interest rates.
- The Bloomberg US Aggregate Bond Index yield rose around 30 bps in 1Q to 4.85% and remains well above its ten-year average. Higher yields should improve the ability of stock/bond blended portfolios to cushion equity market volatility and meet investors' spending needs.
- The Bloomberg Aggregate Index has a high-quality asset mix—over 70% of the index carries an AA or higher rating, and most of this is either a direct or indirect obligation of the federal government. Just about 12% of the index consists of corporate bonds carrying a rating of BBB or below.
- The relatively high duration of the Bloomberg US Aggregate index (over 6 years) means it is vulnerable to unexpected spikes in long-term yields.
- Credit spreads declined in 2023 and are now well below historical averages. Still, US IG corporate fundamentals remain healthy as rising earnings are helping to somewhat offset higher interest costs.

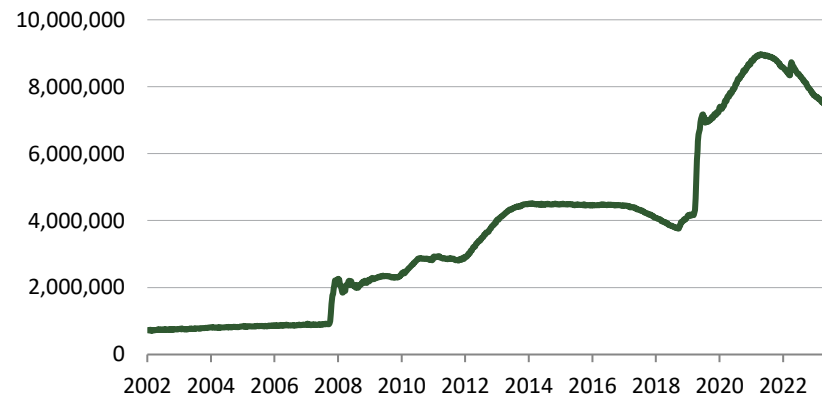
YIELD VS DURATION: BBG US AGGREGATE BOND INDEX

Jan 31, 1987 – Mar 31, 2024



FED BALANCE SHEET TOTAL ASSETS

Dec 18, 2002 – Mar 31, 2024 • US\$M



Sources: Bloomberg Index Services Limited, Federal Reserve Bank of St. Louis, and Thomson Reuters Datastream.

Notes: Fed balance sheet assets are weekly and not seasonally adjusted. Total assets are less eliminations from consolidation.

US Treasuries

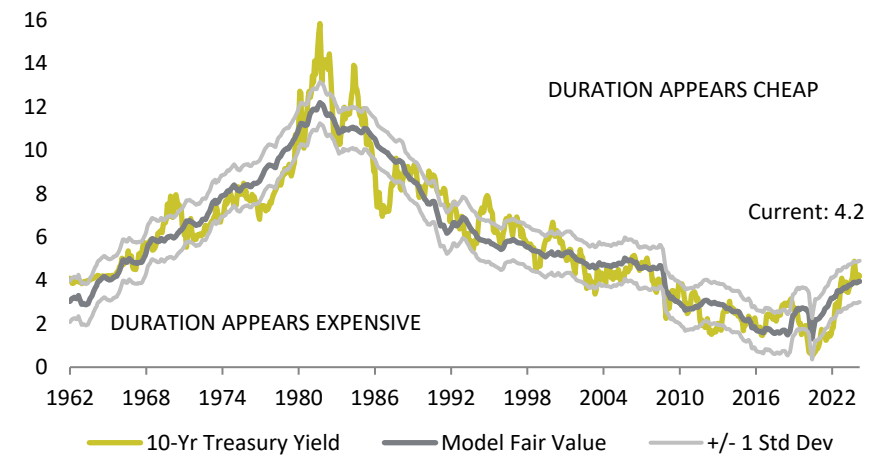
Facts & Figures First Quarter 2024

The Bloomberg US Treasury Index gained 4.1% in 2023 but was down 1% in 1Q 2024. The pullback coincides with stronger US economic and inflation data to start the year, which drove the market to par back the number of rate cuts it expected this year and interest rates higher.

- Ten-year US Treasury yields were yielding 4.2% as of March 31, more than 20 bps above where they started the year but well below their recent peak of 5% reached in 4Q 2023.
- Treasury valuations are somewhat elevated (i.e., cheap). Ten-year yields are 0.3 standard deviation above their implied fair value of 3.9%, based on trailing ten-year real GDP and CPI growth. Higher valuations tend to lead to better subsequent performance.
- Weaker growth and inflation, in addition to the dovish shift by the Fed, supported US Treasuries in 4Q 2024—trailing 12-month price momentum has rebounded off its recent bottom. However, the rally has reversed in 1Q 2024 given stronger-than-expected economic and inflation data to start the year.
- Consensus real GDP growth forecasts for 2024 have been revised up from 1.3% at the start of the year to 2.2%. US core CPI inflation rose 3.8% YOY in March, and the three-month annualized rate of inflation has been rising and was 4.5% in March.
- That said, inflation is forecast to fall by year-end and prominent measures of inflation are 150 bps to 200 bps below the median Fed funds target rate (5.375%). As such, the Fed views policy as restrictive and believes it can begin to ease policy at some point in 2024. The Fed currently projects it will cut rates by 75 bps this year, while the market has only penciled in 50 bps of cuts.
- Supply/demand technicals are another headwind. Treasury issuance is projected to increase in 2024 due to the US government's large fiscal budget deficit and the Fed's quantitative tightening. According to J.P. Morgan, net Treasury coupon issuance to the private sector (excluding the Fed) is projected to increase to \$1.9T in 2024.
- The inverted Treasury yield curve is another challenge. Currently, ten-year yields are 126 bps below cash rates.

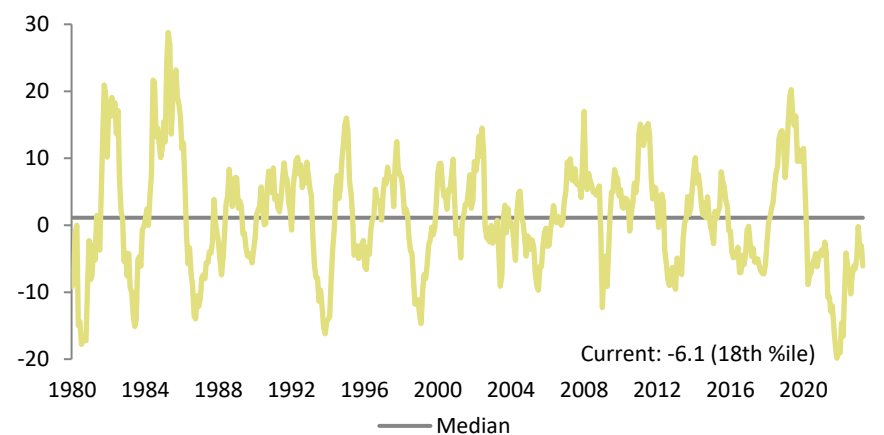
VALUATIONS: 10-YR TREASURY

Jan 31, 1962 – Mar 31, 2024 • Percent (%)



12-MONTH PRICE MOMENTUM: 10-YR TREASURY

Dec 31, 1980 – Mar 31, 2024 • Percent (%)



Sources: Federal Reserve and Thomson Reuters Datastream.

Note: The Model Fair Value is the predicted range of ten-year yields based on a multiple linear regression model that includes trailing ten-year real GDP and CPI change. CPI data are as of February 29, 2024.

US Cash

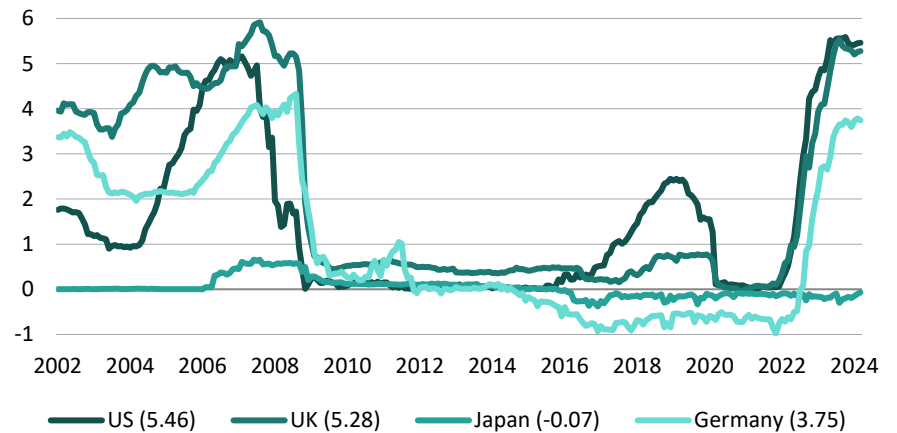
Facts & Figures First Quarter 2024

US cash returned 1.3% in 1Q 2024 and 5.2% over the trailing 12 months. Cash has been a stable source of returns for three straight years amid the sharp rise in interest rates. Holding cash may continue to payoff in the near-term given elevated cash yields and inverted yield curves across major regions, but cash will likely continue to underperform both stocks and bonds over longer periods.

- DM central banks aggressively raised interest rates in recent years to bring down inflation. The Fed, BOE, and ECB have raised their key policy rates by 525 bps, 515 bps, and 450 bps, respectively. The BOJ became the last major central bank to tighten its policy last quarter by increasing interest rates 10 bps and ending other unconventional policies.
- Monetary tightening has increased cash yields and inverted treasury yield curves, reducing the opportunity cost of holding cash. While the market has dialed-back its expectations for rate cuts this year, most central banks should begin to undue some of this tightening this year. In this scenario, cash yields would fall, and yield curves would steepen.
- Cash should be a stable source of returns across several economic environments, and its elevated yields and minimal duration risk should provide downside protection if interest rates continue to rise. However, holding cash for an extended period would be challenging, given the risk that inflation erodes the value of cash in real terms and the opportunity costs of not investing in assets with higher expected returns over longer periods. Additionally, reinvestment risk will likely increase quickly if central banks cut rates more than the market expects.
- Cash holdings are important for liquidity needs, particularly for investors with heavy operational spending, significant unfunded commitments, or that have currency and other hedging overlays. US investors should stick to secure instruments such as US T-bills. In the eurozone, cash should be kept in a core country bank within prudent limits.
- For investors that use money market funds, we recommend Treasury and government funds. Prime funds invest in bank commercial paper, corporate notes, and other credits and may have gating and floating-NAV provisions, making them slightly riskier.

T-BILL RATES

Jan 31, 2002 – Mar 31, 2024 • Percent (%)



MARKET EXPECTATIONS FOR FUTURE CENTRAL BANK RATES

As of Mar 31, 2024 • Percent (%)

	CURRENT	3M	6M	1Y	2Y
UK	5.25	5.10	4.85	4.32	3.73
Japan	0.00	0.11	0.19	0.36	0.51
EMU	4.00	3.74	3.42	2.87	2.38
US	5.38	5.22	5.00	4.49	3.87

Sources: Bloomberg L.P. and Thomson Reuters Datastream.

Notes: ECB data represented by the ECB overnight deposit rate. Feds funds target range is 5.25%-5.50%. The midpoint of 5.38% is used for future market expectations.

US Corporate Bonds

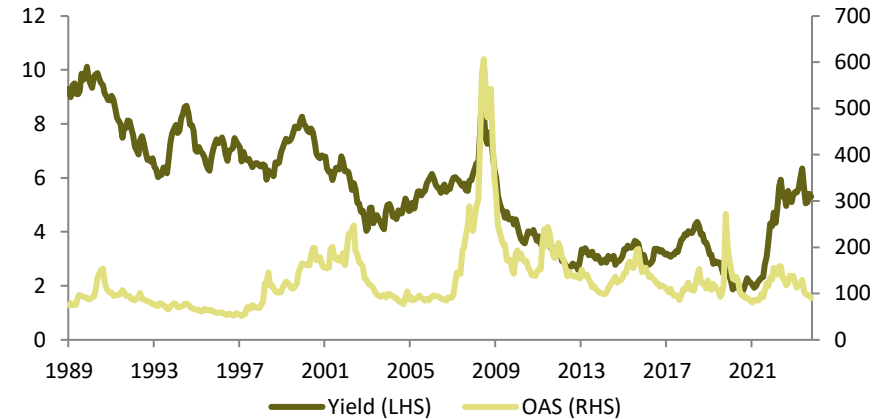
Facts & Figures First Quarter 2024

US investment-grade corporate bonds posted a minor loss in 1Q, cooling down after a strong 2023. Higher yields improve the risk/reward balance for investors, but delayed easing by the Fed could prove a headwind to returns.

- The Bloomberg Corporate Investment-Grade Index returned -0.4 in 1Q after a 2023 full-year return of 8.5%.
- Spreads declined slightly in 1Q to 0.90%, reflecting around the 25th percentile of historical readings. The index spread is a bit deceptive, however, as its average credit rating has declined over time. Looking at individual categories suggests IG bonds are more expensive; for example, the 44 bps OAS on AA-rated bonds is just 12th percentile.
- Spreads look unattractive on a historical basis, but yields may look more tempting. The 5.30% index yield at the end of 1Q was well above its ten-year average and has moved higher in April after resurgent inflationary data.
- Inflationary data, and delayed hopes of Fed easing, represent a larger threat to IG corporate bond investors than fundamentals. Morgan Stanley reports the median interest coverage ratio for investment-grade corporate borrowers was 10.9x at the end of 4Q. This marks a nearly 3x decline from its recent peak given the Fed hiking cycle but is well above levels seen pre-COVID. The consensus expects IG issuer EBITDA to rebound in 2024, which should lead to further improvement in debt coverage metrics.
- New issue supply was elevated in 1Q with around \$356 billion of net issuance after 2023 IG issuance of \$561B. The recent back-up in interest rates could cause some issuers to reevaluate issuance intentions although spreads remain below long-term averages.

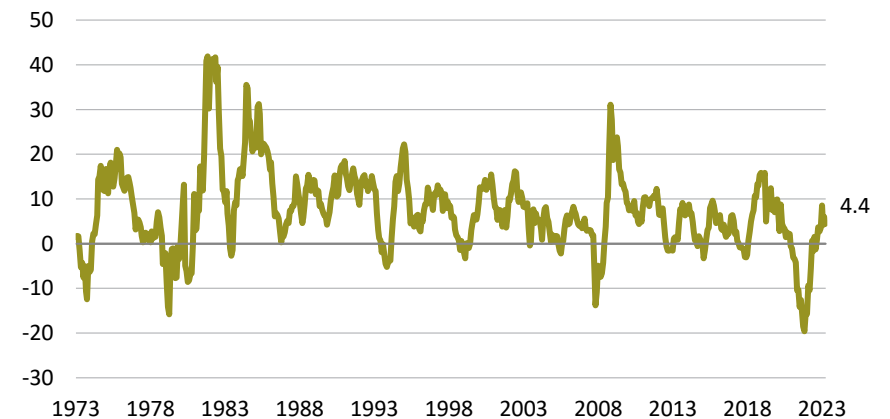
YIELD AND OPTION-ADJUSTED SPREAD: US INVESTMENT-GRADE CORPORATES

Jun 30, 1989 – Mar 31, 2024 • Percent (%)



TRAILING 12-MONTH RETURN: US INVESTMENT-GRADE CORPORATES

Dec 31, 1973 – Mar 31, 2024 • Percent (%)



Sources: Bloomberg Index Services Limited and Thomson Reuters Datastream.

US Tax-Exempt Bonds

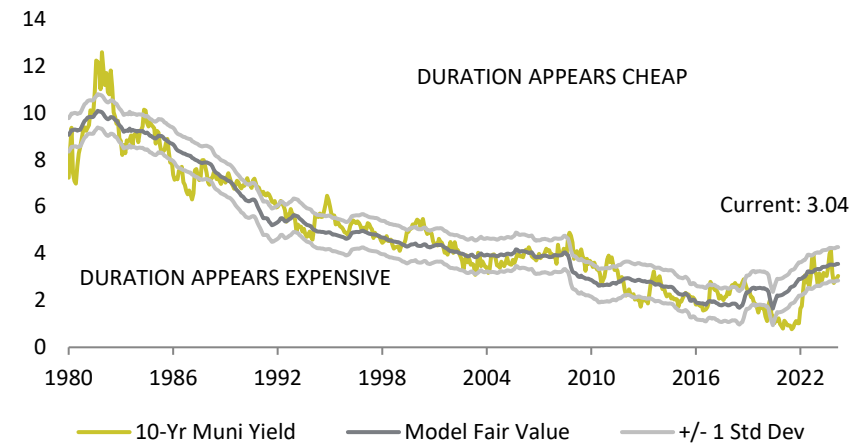
Facts & Figures First Quarter 2024

US municipal (munis) bonds returned 6.4% in 2023 *before* taxes but were down 0.4% in 1Q 2024 amid the pullback in US Treasuries, which returned 4.1% and -1.0% over the same periods.

- Bond yields peaked in October once it became clear the Fed was done tightening. Since then, ten-year muni yields dropped from a peak of 4.16%, their highest level since 2009, to 3.04% as of March 31, which is 30 bps above where they started of the year.
- Still, ten-year muni yields are not very compelling in absolute terms. Yields currently sit slightly above their trailing twenty-year median of 2.76% and are about 0.7 standard deviation below their implied fair value of 3.55% based on tax-adjusted economic fundamentals.
- Munis continue to offer an after-tax yield advantage over Treasuries (~60 bps), but that is down from over 170 bps less than six months ago. Additionally, the current ten-year muni/Tsy ratio of 0.72 is only slightly above its all-time low of 0.56 and the spread (-116 bps) is near its lowest level since 2000. A higher muni/Tsy ratio tends to lead to better relative subsequent performance for munis.
- It remains more likely than not the Fed will cut rates at some point this year. The Fed projects it will cut rates by 75 bps in 2024. That said, the macro-environment has been more challenging for bonds to start the year as economic and inflation data have both surprised to the upside.
- Retail investors, which own about 70% of the muni market, pulled a record \$120B from muni mutual funds and ETFs in 2022. Outflows have stabilized but demand remains tepid—there has only been \$10.9B in total inflows since the beginning of 2023.
- Robust state and local finances have helped reign in issuance in recent years and support fundamentals. Muni credit fundamentals remain solid. State balances as a percent of GDP (1.2% in FY 2023) remain well above pre-COVID levels, giving states ample cushion in a slowdown.
- Munis would still likely lag Treasuries in a flight to quality given their illiquid nature, but the risk of default among high-quality muni issuers is low and the sector is better prepared for a recession than corporates.

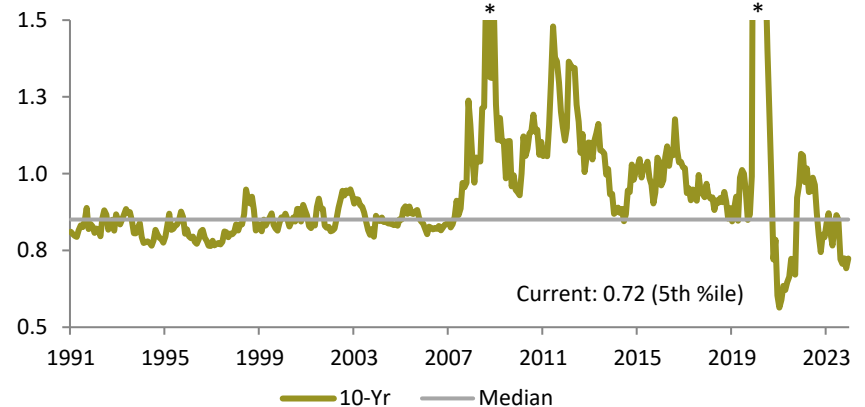
VALUATIONS: 10-YR MUNI

Jan 31, 1980 – Mar 31, 2024 • Percent (%)



RATIO OF 10-YR MUNI YIELDS TO TREASURY YIELDS

Apr 30, 1991 – Mar 31, 2024



* Axis is capped for scaling purposes. Ratio hit a high of 3.16 on 4/30/2020.

Sources: Bloomberg Index Services Limited and Thomson Reuters Datastream.

Note: The Model Fair Value is the predicted range of ten-year yields based on a multiple linear regression model that includes trailing ten-year real GDP and CPI change. CPI data are as of February 29, 2024.

US Inflation-Linked Bonds

Facts & Figures First Quarter 2024

The Bloomberg US TIPS Index gained 3.9% in 2023 but was down -0.1% in 1Q 2024. TIPS have outperformed Treasuries so far this year due to stronger inflation, which has increased inflation expectations.

- US ten-year real yields are roughly 60 bps below their recent peak of 2.5% in 4Q 2023, but they are up 15 bps this year to 1.9%.
- US TIPS look appealing at current yields. Ten-year real yields are above their long-term median of 1.5% and 0.7 standard deviations above their implied fair valued of 1.2%, based on trailing ten-year real GDP growth
- Real yields have increased this year as stronger-than-expected growth and inflation to start the year has resulted in the market paring back the number of rate cuts it expects from the Fed this year.
- Indicators of US economic activity have surprised to the upside so far in 2024 and consensus real GDP growth forecasts for 2024 have been revised up from 1.3% at the start of the year to 2.2%.
- Inflation also accelerated in 1Q 2024. US core CPI inflation rose 3.5% YOY in March, and the three-month annualized rate of inflation has been rising and was 4.6% in March.
- The consensus among market participant heading into the year was for the Fed to cut rates by a total of 150 bps in 2024. That is now down to 50 bps following the stronger-than-expected start to the year. Prior to March's CPI print, the Fed projected it will cut rates by 75 bps this year.
- Hotter inflation has put upward pressure on inflation expectations, which benefited TIPS over nominals. The ten-year breakeven inflation rate rose 16 bps in 1Q to 2.3%.
- TIPS are contractually linked to CPI and less liquid than Treasuries, which has led to them underperforming Treasuries when inflation is falling and during periods of markets stress.
- TIPS are one of the few assets that provide defense against unexpectedly high inflation. TIPS may offer more value if inflation is stickier than expected given higher real yields and relatively subdued breakeven inflation rates for the current environment.

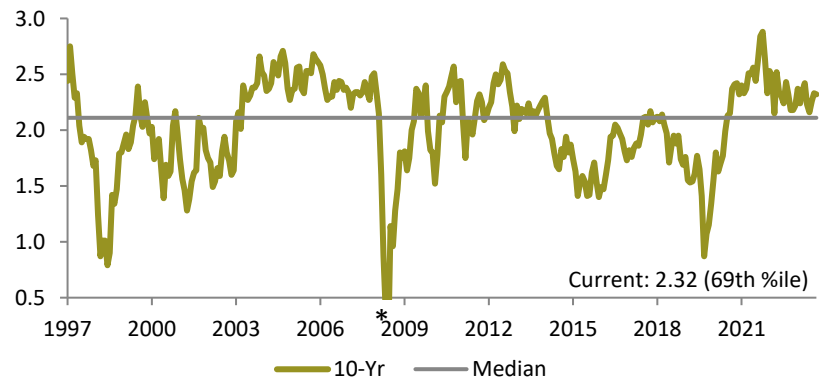
HISTORICAL YIELD: 10-YR TIPS

Jan 31, 1997 – Mar 31, 2024 • Percent (%)



10-YR BREAKEVEN INFLATION

Jul 31, 1997 – Mar 31, 2024 • Percent (%)



* Capped for scale purposes. 10-Yr BE Inflation hit a low of 0.11% on 12/31/2008.

Sources: Bloomberg Index Services Limited, Global Financial Data, Inc., and Thomson Reuters Datastream.

Global Inflation-Linked Bonds

Facts & Figures First Quarter 2024

Global linkers gained 5.5% in 2023 but were down 1.6% in 1Q 2024. Global linkers have outperformed global treasuries so far this year due to stronger inflation, which has increased inflation expectations.

- Global treasury yields peaked in 4Q, with real yields reaching as high as 1.9%, their highest level since 2009. Real yields have fallen since then and are roughly 60 bps below their recent peak, but they've backed up some this year. They are currently in line with their historical median.
- Global linker valuations have normalized somewhat since the peak in real yields, but they remain cheap. Global real yields are 0.8 standard deviations above their implied fair value of 0.6%, based on trailing ten-year real global GDP growth.
- Most major central banks now view their current monetary policy stance as appropriately restrictive and plan to cut rates at some point this year. However, stronger inflation this year, particularly in the US, has resulted in the market paring back the number of rate cuts it expects this year. The Fed, BOE, and ECB are projected to cut rates by around 130, 120, and 150 bps, respectively, this year.
- The repricing in rate expectations was driven by stronger-than-expected growth and inflation to start the year. Consensus forecasts DMs real GDP to grow 1.5% and inflation will average 3.9% in 2024, both of which are higher than at the beginning of the year. This has put upward pressure on inflation expectations in many DMs, which has benefited global linkers at the expense of nominals.
- A resumption of the decline in inflation we saw in 2H 2023 and the risk that central banks cause a recession are risks for linkers versus Treasuries. Linkers are contractually linked to inflation and less liquid than Treasuries, which has caused them to underperform when inflation is falling and in periods of markets stress.
- Linkers are one of the few assets that protect against unexpectedly high inflation. Linkers may offer more value if inflation continues to be stickier than expected given higher real yields and relatively subdued breakeven inflation rates in most DM countries.

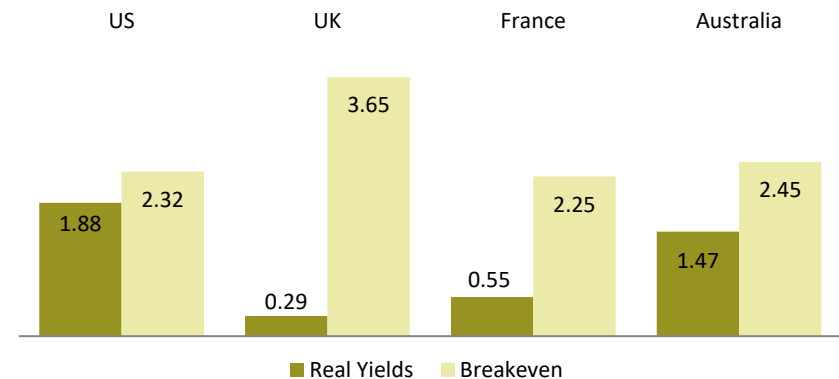
HISTORICAL INDEX YIELD: BBG GLOBAL LINKERS

Dec 31, 1996 – Mar 31, 2024 • Percent (%)



10-YR REAL YIELDS AND BREAKEVEN INFLATION

As of Mar 31, 2024 • Percent (%)



Sources: Bloomberg Index Services Limited and Thomson Reuters Datastream.

Notes: France data are based on the underlying securities within the Bloomberg Global Agg Treasuries and Bloomberg World Govt Inflation-Linked indexes. All other data are based on the Bloomberg real yield and breakeven series.

UK Gilts

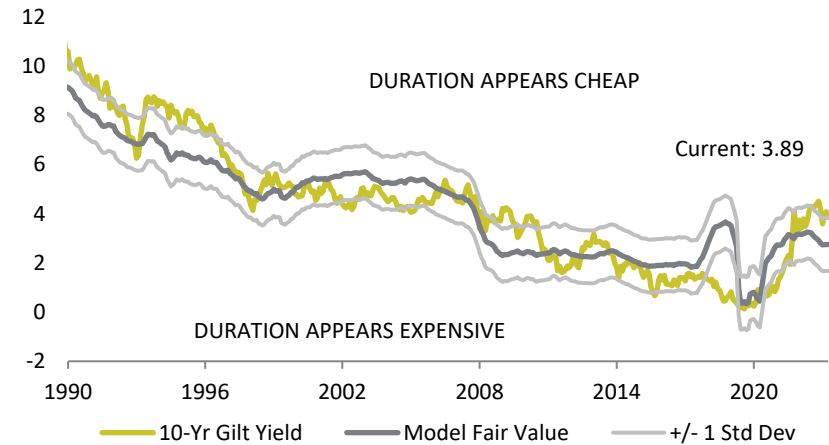
Facts & Figures First Quarter 2024

UK gilts gained 3.8% in 2023 in local currency terms but were down 1.7% in 1Q 2024. The pullback coincides with the market reducing the number of rate cuts it expects from major central banks this year following a pickup in US growth and inflation to start the year.

- Ten-year gilts were yielding 3.9% as of March 31, roughly 30 bps above where they started the year but well below their recent peak of 4.7% reached in August 2023.
- Gilt yields are elevated, and valuations are cheap. Ten-year yields are more than 1 standard deviation above their implied fair value of 2.7%, based on trailing ten-year GDP and inflation growth. Cheap valuations tend to lead to better subsequent performance.
- Further, the sell-off in bonds appears to have bottomed and momentum has reversed. Trailing 12-month price momentum is rising from record lows and is currently in the 27th percentile of observations.
- Stronger-than-expected US economic and inflation data led the market to reduce the number of rate cuts it expected from the Fed, and in turn, other major central banks that might be hesitant to lead the Fed and risk weakening their currencies.
- The BOE reaffirmed in March that it would likely cut rates this year, but the market now expects the BOE to cut rates by only 75 bps, compared to 125 bps at the start of this year.
- Weak domestic growth and a sharp decline in inflation have opened the door to rate cuts. The UK economy entered a technical recession in 4Q 2023 and consensus forecasts real GDP growth of only 0.3% in 2024. UK inflation has fallen significantly. UK CPI inflation dropped to 3.4% YOY in February, down from a high of 11.1% in late 2022.
- The openness of the UK economy and its fiscal position are risks, and the BOE plans to reduce its gilt holdings by £100B in this fiscal year. As a result, the OBR estimates the change in private sector gilt holdings will reach its highest level on record of 7.9% of GDP by FY 2024–25.
- The inverted gilt yield curve is another challenge. Currently, ten-year yields are 131 bps below cash rates.

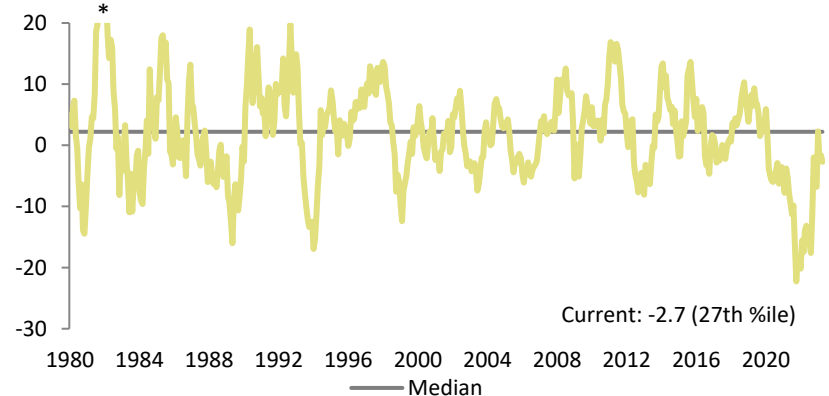
VALUATIONS: 10-YR GILTS

Jan 31, 1979 – Mar 31, 2024 • Percent (%)



12-MONTH PRICE MOMENTUM: 10-YR GILTS

Dec 31, 1980 – Mar 31, 2024 • Percent (%)



* Capped for scale purposes. The rolling 12-M Momentum was 44.5% in October 1982.

Source: Thomson Reuters Datastream.

Note: The Model Fair Value is the predicted range of ten-year yields based on a multiple linear regression model that includes trailing ten-year real GDP and RPI/CPI change. CPI data are as of February 29, 2024.

UK Corporate Bonds

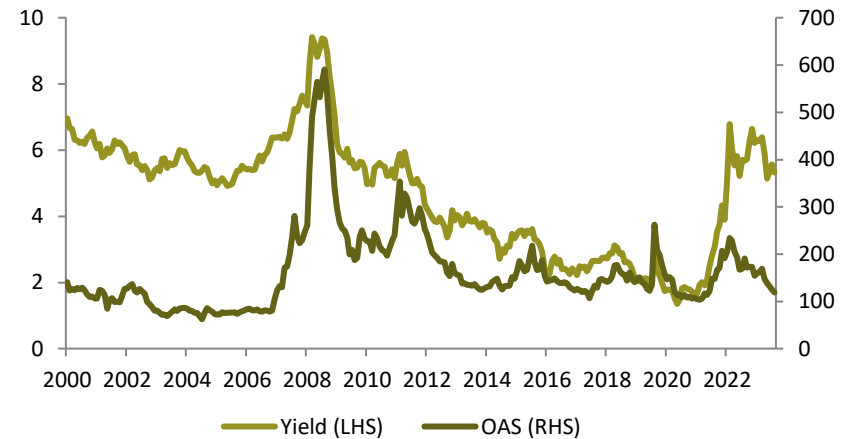
Facts & Figures First Quarter 2024

Sterling-denominated investment-grade corporate bonds were basically flat in 1Q as modest spread tightening offset a rise in underlying benchmark rates.

- Sterling investment-grade corporate bonds returned 0.1% in 1Q, though this follows a robust 2023 full-year return of 9.8%. Investors will need further gains to fully recover from a record drawdown of -19.3% in 2022.
- The index yield rose around 20 bps in 1Q to 5.32%. Investors may continue to be attracted by yields, which remain about 200 bps above their prior ten-year average (3.15%).
- The rise in yields was driven by lift in underlying gilt yields. The option-adjusted index spread fell around 20 bps in 1Q to 119 bps and is now around the 30th percentile of observed values.
- The BOE held its base rate steady in March at 5.25% but members suggested that rate cuts could begin this summer. Policymakers have more flexibility as inflation continues to cool. The February CPI reading of 3.4% remains above the target but is almost 8 ppts below its late-2022 peak.
- Despite the UK entering a technical recession 2023, monthly GDP figures grew in January and February, while PMI data suggested economic activity is expanding, supporting credit fundamentals. Still, the consensus expects just 0.3% GDP growth in 2024 as the lagged impact of recent rate hikes begin to take effect.

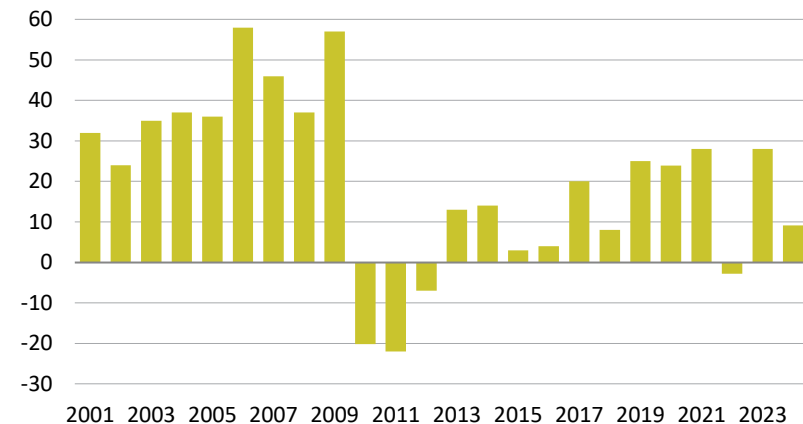
YIELD AND OPTION-ADJUSTED SPREAD: STERLING CORPORATES

Aug 31, 2000 – Mar 31, 2024 • Percent (%)



NET ANNUAL ISSUANCE: STERLING CORPORATES

2001-24 • Sterling (Billions)



Source: Bloomberg Index Services Limited.

Note: Issuance data for 2024 are through March 31.

Euro Area Sovereign Bonds

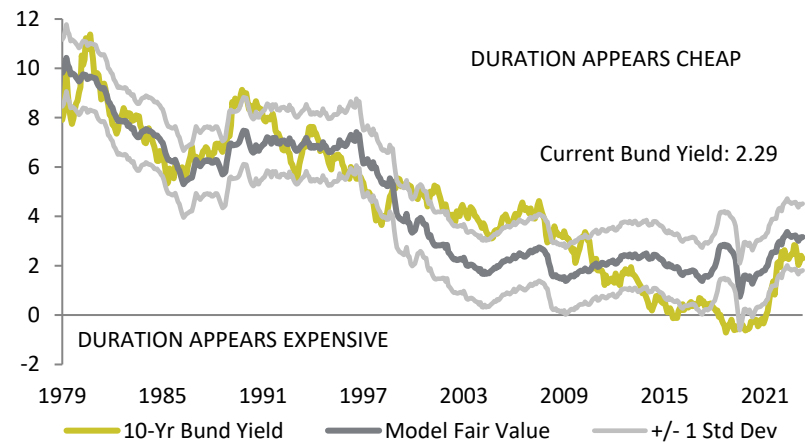
Facts & Figures First Quarter 2024

Core EA sovereigns (i.e., German bunds) returned 5.4% in 2023 in local currency terms but were down 1.3% in 1Q 2024. The pullback coincides with the market reducing the number of rate cuts it expects from major central banks this year following a pickup in US growth and inflation.

- Ten-year bunds were yielding 2.3% as of March 31, roughly 30 bps above where they started the year but well below their recent peak of 3.0% reached in early 4Q 2023.
- Bund valuations are less supportive than DM peers. Ten-year bund yields are 0.6 standard deviations below their implied fair value of 3.2%, based on trailing ten-year GDP and inflation growth. Higher valuations tend to lead to better subsequent performance.
- Stronger-than-expected US economic and inflation data led to the market reducing the number of rate cuts it expected from the Fed, and in turn, other major central banks that might be hesitant to lead the Fed and risk weakening their currencies.
- The ECB held rates steady at their April policy meeting, but it plans to cut rates at some point this year. The market now expects the ECB to cut rates by only 75 bps, compared to 150 bps at the start of this year.
- Weak domestic growth and a sharp decline in inflation have opened the door to rate cuts. EA real GDP grew 0.4% in 2023 and consensus forecasts it will grow just 0.5% in 2024. EA inflation has fallen significantly. CPI rose just 2.4% YOY in March, down from a peak of 11%.
- Increased coordination within the EA and structural reforms within the periphery have reduced fiscal risk and kept EA spreads in check. According to Eurosystem projections, the EA budget deficit is estimated to steadily decline from 3.1% of GDP in 2023 to 2.6% in 2026. The Italian/German ten-year yield spread is 137 bps, which is below its trailing 20-year average of 150 bps.
- The ECB is reducing its bond holdings held in its APP portfolio and plans to begin the same process for its PEPP portfolio by mid-year.
- The inverted bund yield curve is a challenge. Currently, ten-year yields are 147 bps below cash rates.

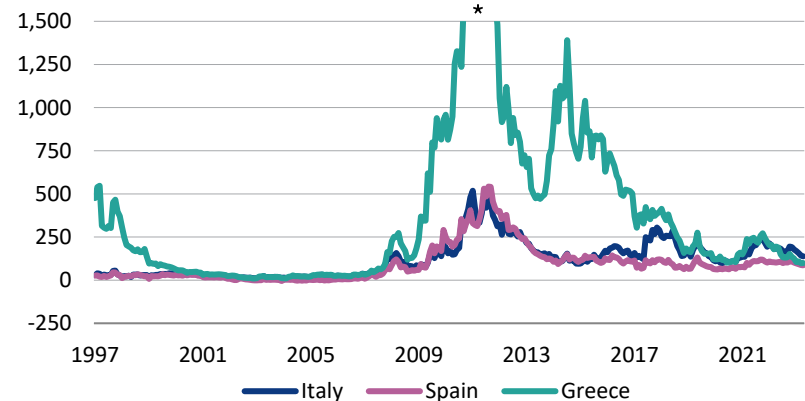
VALUATIONS: 10-YR BUNDS

Dec 31, 1979 – Mar 31, 2024 • Basis Points (bps)



HISTORICAL 10-YR SPREADS OVER BUND YIELDS

Jan 31, 1998 – Mar 31, 2024 • Basis Points (bps)



* Capped for scale purposes. Greece spread hit a high of 3,476 bps on 2/29/2012.

Source: Thomson Reuters Datastream.

Note: The Model Fair Value is the predicted range of ten-year yields based on a multiple linear regression model that includes trailing ten-year real GDP and CPI change.

Euro Area Corporate Bonds

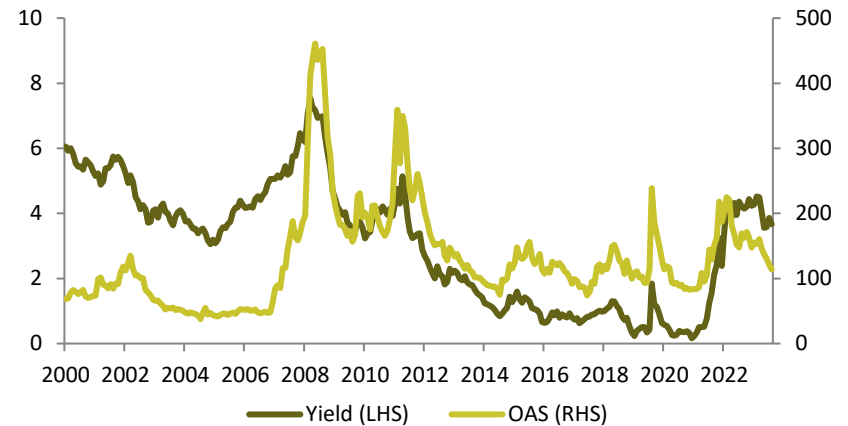
Facts & Figures First Quarter 2024

The Bloomberg Euro-Aggregate Corporate Index returned 0.5% in 1Q, cooling off after a robust 8.2% return in FY 2023. Intermediate-term returns remain subdued given back-to-back losses in 2021 and 2022.

- Yields on euro corporate bonds held fairly steady in 1Q as a decline in credit spreads offset an upward move in underlying sovereign yields. The current 3.66% yield is up slightly from year-end 2023 but well below levels seen last summer.
- The corporate bonds OAS of 114 bps is close to its historical median. This spread looks elevated relative to other IG bonds markets (e.g., the US) but the flipside is that index credit quality has fallen over time and there isn't a significant cushion for investors if fundamentals weaken.
- The macro backdrop is mixed for corporate earnings. The region avoided a recession in 2023 but the consensus estimate for 2024 Eurozone GDP growth remains subdued at 0.5%.
- In March, the ECB left its main base rate at 4.0% but suggested a rate cut could be imminent given the ongoing decline in inflationary pressures. HICP fell in March to 2.4% YOY, fairly close to its target.
- Trends in fundamentals for European corporates have recently seen limited improvement given weak economic growth. According to J.P. Morgan, European IG issuer EBITDA shrank 3% quarter-over-quarter in 4Q. Still, many metrics look healthy given companies refinanced debt during a multi-year period of near-zero interest rates. As example, interest coverage declined in 4Q to 15.5x but remains well above long-term averages.
- Issuance of Eurozone corporate bonds rebounded in 2023 to €166B, almost twice the level issued in 2022. This was still well below levels seen in 2019 and 2020 when issuers rushed to lock in low rates.

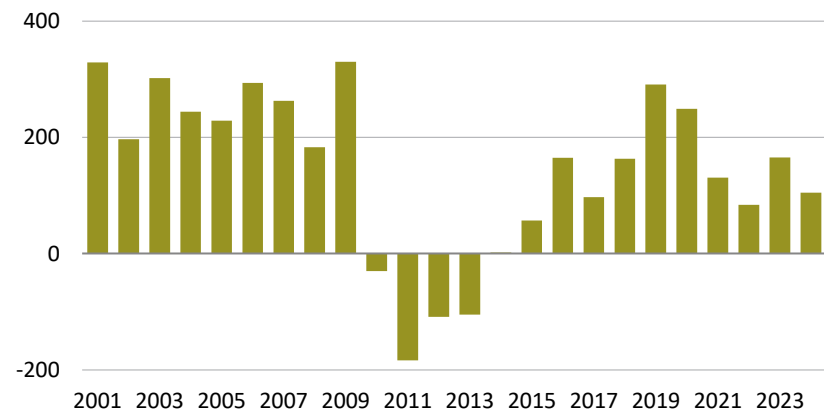
YIELD AND OPTION-ADJUSTED SPREAD: EUROPEAN CORPORATES

Aug 31, 2000 – Mar 31, 2024 • Percent (%)



NET ANNUAL ISSUANCE: EUROPEAN CORPORATES

2001-24 • Billions (EUR)



Source: Bloomberg Index Services Limited.

Note: Issuance data for 2024 are through March 31.

Structured Finance

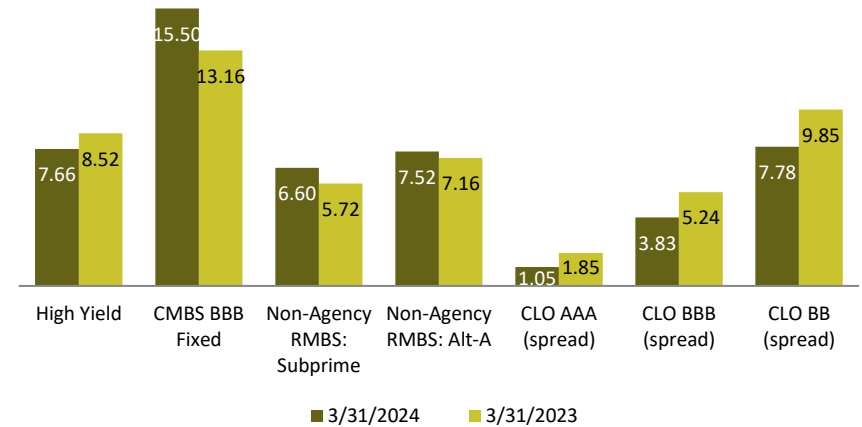
Facts & Figures First Quarter 2024

Most parts of the structured credit market generated positive returns in 2023 and this momentum has carried into 2024. Underlying credit fundamentals have been boosted by resilient economic growth but there remains secular headwinds for certain segments of the commercial property market. In general, floating-rate assets have seen stronger recent returns than longer-duration fixed-rate equivalents.

- Most structured credit indexes posted positive returns in 1Q. Examples included CLO liabilities, as AAA CLO debt returned 1.8%, outpacing the return of the Bloomberg US Aggregate Index (-0.8%).
- Lower-rated private label CMBS also bounced back despite ongoing concerns over commercial real estate fundamentals and refinancing risks. BBB-rated CMBS bonds have an average dollar price in the mid-to high-60s, providing ample room for outperformance when shifts in sentiment (or data) occur.
- Many structured finance instruments are floating rate, which had been a tailwind during the Fed hiking cycle. Recently persistent inflationary pressures have caused markets to reevaluate the potential for Fed easing in 2024 and led to a sell off in duration, allowing shorter-duration bonds like CLO debt to again outperform.
- Fundamentals have held up reasonably well with some exceptions. While leverage levels are elevated for some loan issuers in CLO pools and interest costs have risen, resilient economic growth has led to a rebound in corporate earnings and thus improvement in metrics like interest coverage ratios. In contrast, delinquency rates on underlying loans in CMBS pools have risen YOY but shown some mild improvement in recent months.
- Some structured credit assets are less liquid than corporate equivalents and often require specialized systems to analyze. Many also have indefinite maturities given amortizing loan pools. The result is a spread premium to similarly rated corporate debt.
- Investors can access structured credit through several vehicles and mandates, including mutual funds, hedge funds, and closed-end funds.

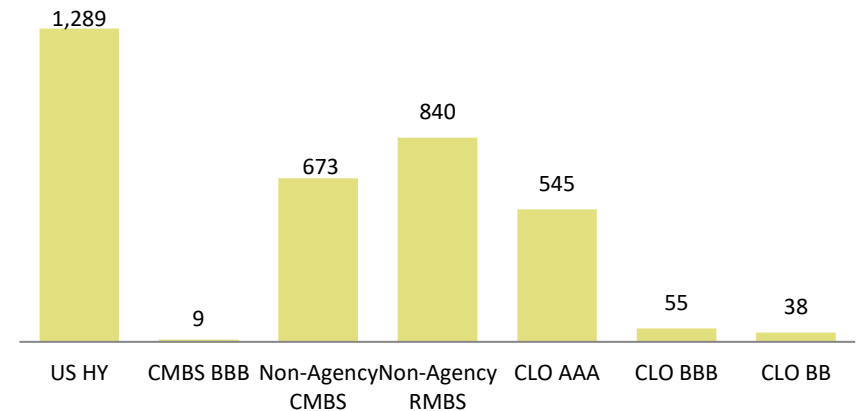
YIELD: SELECT STRUCTURED CREDITS

Percent (%)



MARKET CAP: SELECT STRUCTURED CREDITS

As of March 31, 2024 • US\$B



Sources: Bloomberg Index Services Limited, ICE BofA Merrill Lynch, J.P. Morgan Securities, Inc., Securities Industry and Financial Markets Association(SIFMA), and Thomson Reuters Datastream.

Notes: CLOs yield data are represented by discount margins. Non-Agency CMBS and Non-Agency RMBS market-cap data are as of December 31, 2021.

US High-Yield Bonds

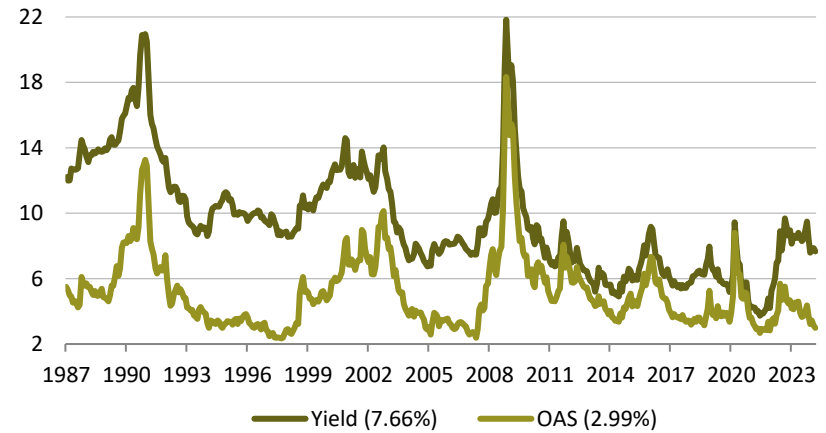
Facts & Figures First Quarter 2024

US high-yield bonds returned 1.5% in 1Q, cooling off after a strong 13.4% return in 2023. Spreads are well below their historical median, offering investors little protection if higher rates or a recession mean fundamentals deteriorate.

- The Bloomberg High-Yield Index returned 1.5% in 1Q, trailing benchmarks like US leveraged loans (2.5%) and a 70/30 MSCI ACWI/30% Bloomberg Govt/Credit portfolio (5.5%).
- The high-yield index yield rose slightly in 1Q to 7.66%. As was demonstrated in 1Q, this yield is not at a level historically associated with outperformance compared to stock/bond blends.
- The index OAS fell 24 bps in 1Q to 299 bps. This falls in the bottom decile of observed values and offers investors limited cushion if defaults rise further or persistent inflation puts upward pressure on base rates.
- Moody's reported a speculative-grade default rate of 2.5% at the end of February, close to its long-term median of 2.3%. As hopes for a soft landing have risen, the distressed ratio has fallen, suggesting market concerns about an elevated default cycle are starting to fade.
- Should the US economy enter a recession, credit fundamentals will be starting from a healthy position. Morgan Stanley reports the median interest coverage for HY borrowers stood at 4.9x at the end of 4Q as earnings rose slightly (1.4%) YOY.
- Technicals are mixed for high-yield bonds. Lipper reports that supply has been resurgent in 2024 with around \$97B of issuance YTD. While investor demand has been tepid (around \$3B of inflows into US HY mutual funds), a variety of other sources of liquidity (coupon payments, bond redemptions, etc) has helped pick up the slack.
- The average credit rating for the high-yield index ticked down to B1/B2 in late 2023. A recession could bring additional downgrades and threaten stability, though 2023 rating agency upgrades (by dollar volume) outnumbered downgrades.

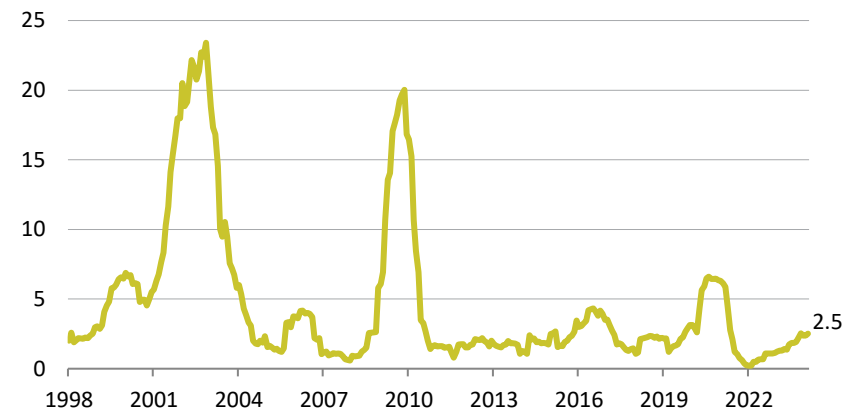
YIELD AND OPTION-ADJUSTED SPREAD: US HIGH-YIELD INDEX

Jan 31, 1987 – Mar 31, 2024 • Percent (%)



PAR DEFAULT RATES: US HIGH-YIELD

Jan 31, 1998 – Feb 29, 2024 • Percent (%)



Sources: Bloomberg Index Services Limited, Deutsche Bank Credit Strategy, and Moody's Investors Service. Notes: Data prior to June 30, 2017, are represented by Moody's default rates as provided by the Deutsche Bank US Credit Strategy Chartbook. All default rate data on and after June 30, 2017, are sourced from the Moody's Investor Services Default Report.

Leveraged Loans

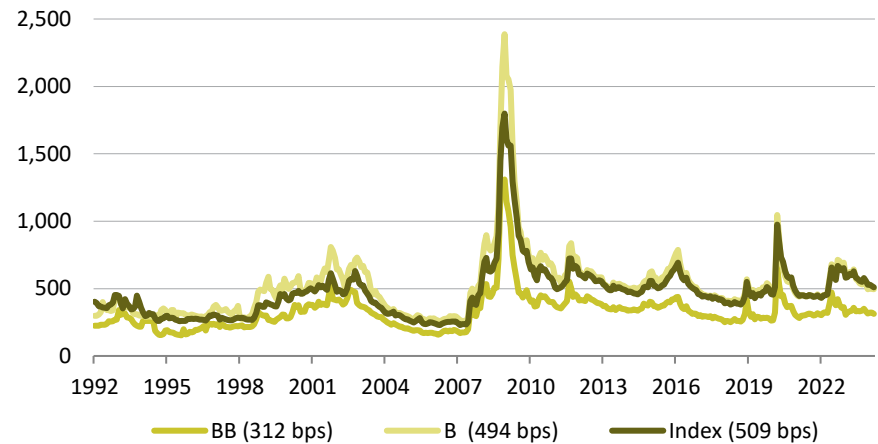
Facts & Figures First Quarter 2024

US leveraged loans built on their impressive 2023 return with a solid 2.5% return in 1Q. While fundamentals started the year at a relatively strong level, rising rates and tepid earnings growth mean metrics like interest coverage are deteriorating and leading to higher defaults.

- Leveraged loans returned 2.5% in 1Q, outperforming US high-yield bonds and many fixed income benchmarks. Loan returns over the past two years have been cushioned by their floating rate format as inflation rose and the Fed in turn aggressively hiked rates.
- Discount margins for leveraged loans declined around 20 bps in 1Q to 509 bps but remain above their long-term median of 457 bps.
- The current discount margin coupled with one-month SOFR (around 5.3%) means the implied yield on leveraged loans is over 10%.
- Fundamentals are mixed as improving economic growth has allowed issuers to boost revenues, while at the same time higher base rates mean interest costs are rising. According to J.P. Morgan, the median interest coverage ratio (ICR) for loan issuers stood at 3.4x at the end of 4Q, down from more than 4x in mid-2022. Stronger revenue growth means the tail of weaker borrowers (e.g., those with ICRs <2x) is shrinking but at 36% is well above levels seen prior to the Fed hiking cycle.
- This weaker tail ties with higher default rates. J.P. Morgan reports the trailing default rate for leveraged loans rose to 3.5% at the end of 1Q. Recently 2024 default forecasts have been trimmed by some analysts given resilient economic growth; however, resurgent inflation is also pushing back expected Fed easing, which creates concern around companies with elevated interest costs.
- The loan index has lower average credit quality than the HY index, leaving it more vulnerable to future downturns. According to LCD, just 30% of the S&P loan index has at least one BB rating.
- Loan supply has been strong in 2024 helped in part by strong CLO demand. After totaling just \$370B gross in 2023, loan issuance reached \$318 billion in 1Q 2024.

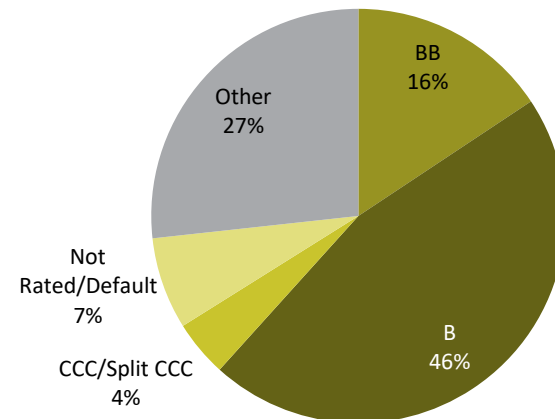
DISCOUNT MARGIN: CS LEVERAGED LOAN INDEX

Jan 31, 1992 – Mar 31, 2024 • Basis Points



RATINGS BREAKDOWN: CS LEVERAGED LOAN INDEX

As of March 31, 2024



Source: Credit Suisse.

Notes: Discount margin assumes a three-year life, assuming all loans are paid off at par with no defaults. Other category includes Split BBB, Split BB, and Split B. Not Rated/Default includes CC, C, and Not Rated/Default loans.

Pan-European High-Yield Bonds

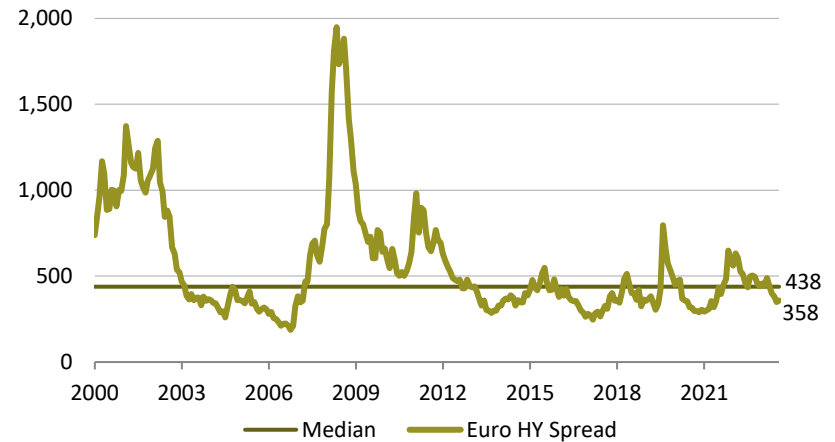
Facts & Figures First Quarter 2024

In 2023, European high-yield bonds had their highest return in over a decade. Returns cooled and became more “carry like” in 1Q 2024. Spreads continue to compress despite lackluster economic data in part because central banks are expected to ease later this year.

- The Bloomberg Pan-European High-Yield Index returned 1.8% in 1Q 2024, following a FY 2023 return of 12.8%.
- Returns for 1Q were driven by carry as yields rose slightly. The 7.72% index yield is slightly below its 4Q peak but well above average levels over the last decade.
- The index OAS fell again in 1Q to 358 bps, well below its historical median. Investors seem to be accepting below average spreads given yields remain higher than historical averages.
- Sovereign yields reversed course in 1Q and rose across global markets. Still, inflation is declining across European markets at a faster pace than seen in the US. The ECB and Bank of England both kept base rates unchanged during recent meetings, but signaled rate cuts could occur in the near future.
- Defaults have been contained in recent years as low rates boosted interest coverage metrics. According to Moody's the trailing 12-month default rate was just 1.5% at the end of February. Looking ahead, European HY credit metrics overall look healthy given the previous extended era of low rates, but there is a tail of borrowers that are seeing earnings and thus metrics deteriorate. At the end of 1Q, several of these borrowers appointed restructuring advisors, suggesting default rates could see some upside from here.
- Credit globally has been boosted by central bank asset purchases and investors' thirst for income in a low-yield environment. This tailwind is reversing, with the Bank of England now selling assets and the ECB no longer reinvesting proceeds from maturing bonds purchased under its Asset Purchase Program.
- On a relative basis, European borrowers are less levered than those in the United States. More than 65% of the European HY Index carries at least one BB rating.

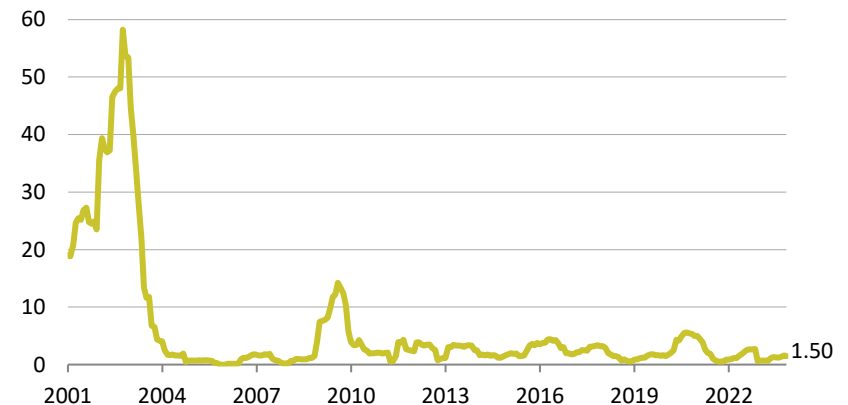
OPTION-ADJUSTED SPREAD: EUROPEAN HIGH YIELD

Aug 31, 2000 – Mar 31, 2024 • Basis points (bps)



PAR DEFAULT RATES: EUROPEAN HIGH YIELD

Apr 30, 2001 – Feb 29, 2024 • Percent (%)



Sources: Bloomberg Index Services Limited and Moody's Investor Services.

Notes: The European high-yield option-adjusted spread peaked in December 31, 2008, at 1,949 bps. The European high-yield default rate peaked on January 31, 2003, at 58.2%.

Distressed Investing: Non-Control

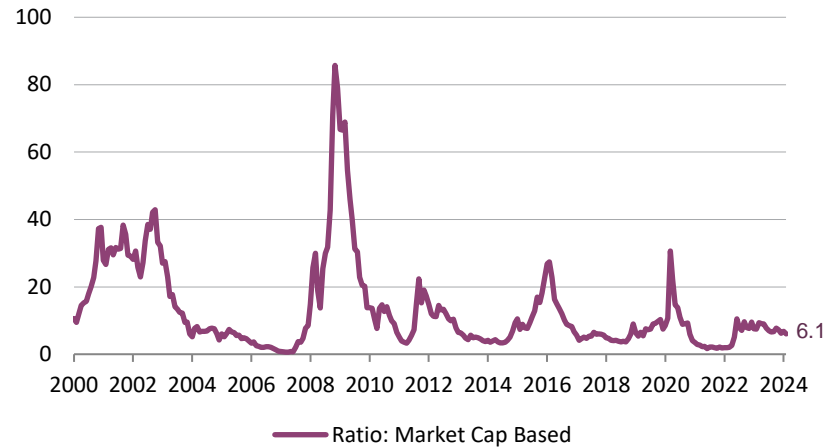
Facts & Figures First Quarter 2024

Distressed hedge funds have generated healthy returns in recent quarters. Distressed ratios are not elevated on a historical basis but credit markets have grown in size and funds are finding opportunity as some companies struggle with elevated borrowing costs.

- The HFRI Event Driven: Distressed/Restructuring Index returned 2.8% in 1Q following a 7.9% full-year 2023 return. Distressed hedge funds trailed the broader fund-of-funds (diversified) HF Index in 1Q but outperformed broader credit indexes like the Bloomberg US Corporate High Yield Index (1.5%).
- Distressed funds have seen their opportunity set fluctuate over the past couple of years. Currently, only 6% of the \$1.4 trillion face value HY index trades with a spread above 1,000 bps. The flipside is that the combined US HY and leveraged loan market has more than doubled in size since the GFC, so the overall opportunity set is larger.
- High total yields (given recent Fed hikes) may be helping put a floor under demand. Dollar prices suggest funds are having an easier time underwriting double-digit returns, as the average price of CCC-rated bonds is around 84 cents.
- Despite its lower credit ratings, less than 4% of the leveraged loan index trades below 80 cents despite interest coverage ratios coming under pressure for companies with predominantly floating rate liabilities.
- Distressed debt and credit opportunity funds could see a growing opportunity set as credit fundamentals have softened for some companies and default rates are rising. Bank of America reports interest coverage for typical B- and CCC+ rated borrowers was 1.4x and 1.2x, respectively, at the end of 2023. There is little to cushion these companies if growth and thus revenue disappoints in 2024.
- The flipside is that funds should tread carefully as weak loan documentation means recoveries after default may be lower.
- There are a variety of ways to invest in distressed debt, including hedge funds and lock-up vehicles, which will do everything from trade existing securities to provide rescue finance for troubled companies. Skilled managers may find opportunities beyond traditional focus areas, including structured credit and property-backed credit.

DISTRESSED RATIO: BOFA ML HIGH YIELD MASTER II INDEX

Jan 31, 2000 – Feb 29, 2024 • Percent (%)



MARKET VALUE OF DISTRESSED PAPER FOR SELECT INDUSTRIES

As of March 31, 2024 • US\$B



Source: ICE BofA Merrill Lynch.

Notes: Bottom chart represents the ICE BofA Merrill Lynch US High Yield Index universe. Distressed bonds are defined as bonds with option-adjusted spreads greater than 1,000 basis points. Only industries with a market value equal or greater than \$2 billion are shown.

USD-Denominated Emerging Markets Debt

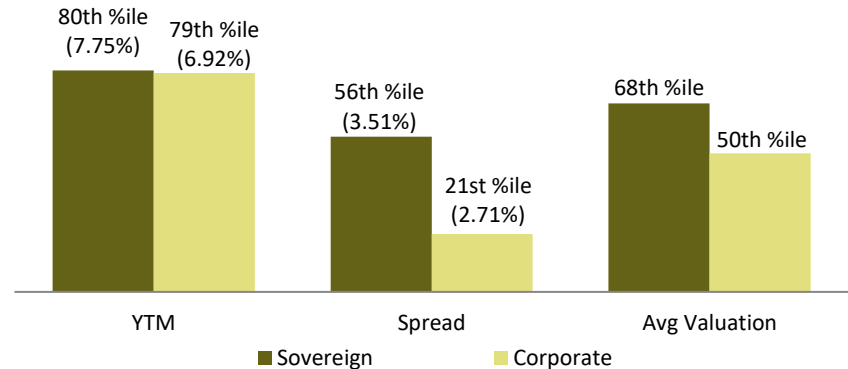
Facts & Figures First Quarter 2024

EM debt indexes rallied in 2023, rebounding from 2022, when the (sovereign) JPM EMBI Global Diversified and (corporate) CEMBI Broad Diversified indexes returned -17.8% and -12.3%, respectively. Performance in 2023 was supported by slower policy tightening, capped off by the perceived Fed pivot and falling rates in 4Q.

- The sovereign and corporate EM debt indexes returned 11.1% and 9.1%, respectively, in 2023. Performance was concentrated in 4Q as the more dovish than expected Fed catalyzed a sharp fall in US Treasury yields and downward repricing of forward rate expectations. Both segments continued rallying in 1Q 2024, up around 2%.
- EM debt yields have risen around 300 bps over the past three years, pushed higher by the underlying move in Treasury yields, which have risen as growth and inflation forced the Fed to hike its target rate by 500 bps. Still, yields are down roughly 200 bps since their peaks late last year as the forward policy stance has become more dovish.
- EM sovereign debt spreads have narrowed significantly to near median levels (56th percentile). Corporate spreads also tightened, closing at their 21st percentile and nearly a full turn lower than sovereign peers.
- Sovereign yields look elevated from a historical perspective, but recent events highlight some of the unique risk factors for the asset class. In February 2022, Russia invaded Ukraine, and EM index providers responded to the uninvestible nature of Russian assets by eliminating them from many indexes. The benchmark JPM EMBI GD Index saw its 3% weight for Russian bonds written down to zero, while debt from Ukraine and surrounding countries also plunged.
- More broadly, EM debt index stats disguise wide variation in underlying fiscal health across borrowers. For example, the main EM sovereign index includes a number of CCC/CC-rated borrowers (Argentina, Ukraine, Sri Lanka, etc.) whose optically cheap debt will only prove attractive if coupons and principal payments are repaid.
- About 50% of the sovereign index has an investment-grade rating, which is similar for corporates. The wide dispersion of fundamentals and possible political outcomes suggests an active management approach to these assets may generate more successful outcomes.

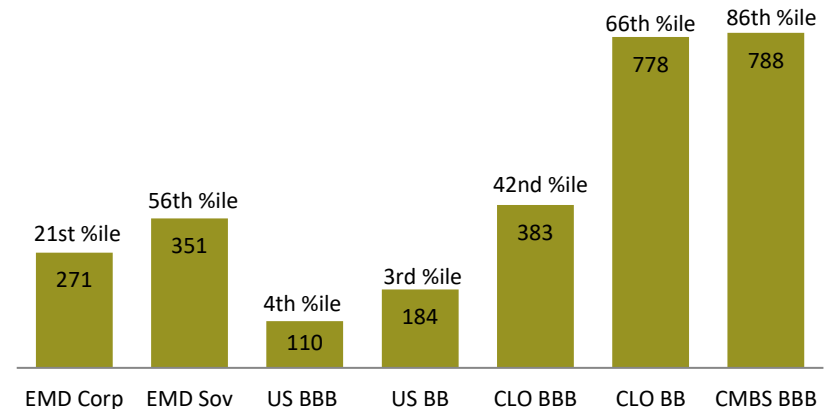
PERCENTILE RANK: USD EM DEBT

As of Mar 31, 2024 (Based on Post-2003 Data)



PERCENTILE RANK: OPTION-ADJUSTED SPREAD

As of Mar 31, 2024



Sources: Bloomberg Index Services Limited, J.P. Morgan Securities, Inc. and Thomson Reuters Datastream. Notes: Composite Valuation Indicator is the average of YTM percentile and spread percentile. Asset classes represented by J.P. Morgan Emerging Market Bond Index (EMD Sov), J.P. Morgan Corporate Emerging Markets Bond Index (EMD Corp), Bloomberg US Corporate Investment Grade BBB Index (US BBB), Bloomberg US High Yield BB Index (US BB), J.P. Morgan CLOIE BBB Index (CLO BBB), J.P. Morgan CLOIE BB Index (CLO BB), and Bloomberg US CMBS Baa Index (CMBS BBB).

Local Currency Emerging Markets Debt

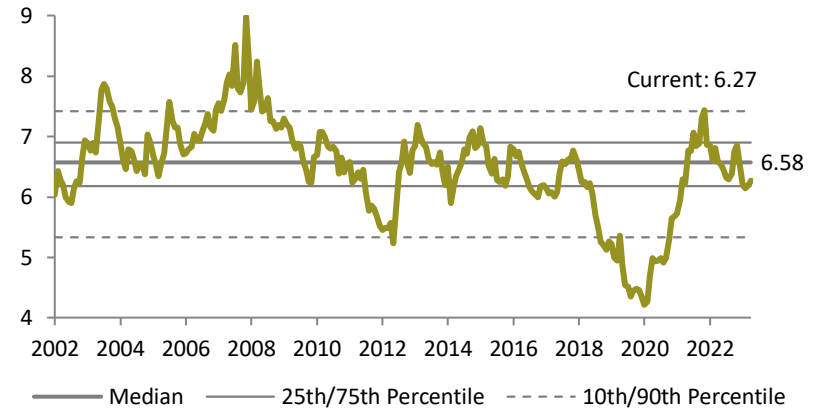
Facts & Figures First Quarter 2024

Local currency EM debt returned 2.0% in local currency terms in 1Q 2024. A strengthening US dollar saw weaker USD returns, falling 2.1% on the quarter. While yields rose modestly, in sympathy with moves in developed markets, the carry was sufficient to offset this despite the below average yield.

- EM local currency bond yields declined more than their DM equivalents in 2023 due to inflation that was moderating more quickly in the wake of earlier rate hikes. Last quarter however, they traded broadly in line with moves in DM bonds. The spread between EM and DM government bonds reached its narrowest level since 2007 during the quarter. While it was a positive for the asset class last year to trade more in line with the needs of its domestic economies, the narrow spread poses some risks in the event of another risk-off episode.
- EM currencies are highly sensitive to global growth prospects. Therefore, impairment of global supply chains and fears of a policy-induced economic slowdown and geopolitical risks have all proved headwinds at various times post-COVID. The recent boost in global growth estimates had proven beneficial to EM currencies when it was accompanied by an expectation of US rate cuts. Now that firmer data is seeing previously expected cuts removed, the dynamic has reversed for EM currencies.
- EM-LC bond yields rose by 8 bps during the quarter, now standing 116 bps below the October 2022 peak in yields. As a result, yields now sit back below median at the 31st percentile of historical observations. EM currencies are likely to remain the larger driver of returns for unhedged investors. While currency valuation has risen from the 2022 low, they remain relatively modestly valued, with the REER of EM fixed income-weighted currencies sitting at the 12th percentile.
- On a medium-term outlook, EM currencies look well placed to appreciate. Global growth will eventually improve more materially, risk appetite will pick up and the dollar should secularly decline. Shorter term headwinds could appear if the extent of an expected Fed pivot disappoints, or if recessionary fears rematerialize. The level of dispersion between the underlying countries suggests there are opportunities for active managers with broad mandates to add value.

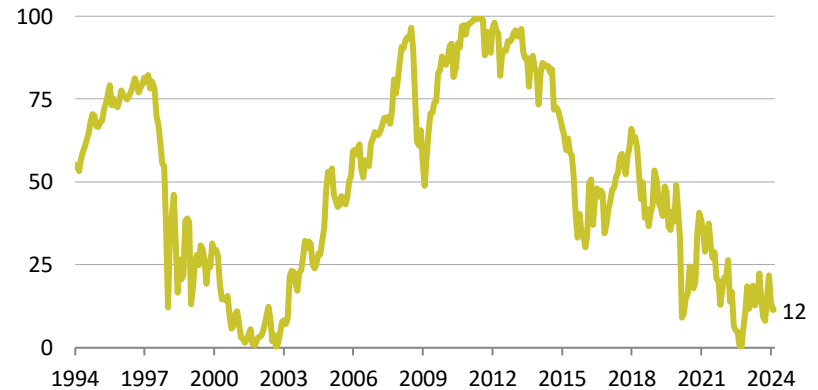
NOMINAL YIELD: JPM GBI-EM GLOBAL DIVERSIFIED INDEX

Dec 31, 2002 – Mar 31, 2024



FI-WEIGHTED EM REAL EXCHANGE RATE VS US: PERCENTILE

Jan 31, 1994 – Mar 31, 2024



Sources: Directorate-General of Budget, Accounting and Statistics, Executive Yuan, Taiwan; INE - National Institute of Statistics, Chile; International Monetary Fund; J.P. Morgan Securities, Inc.; MSCI Inc.; National Bureau of Statistics of China; Thomson Reuters Datastream; and US Department of Labor - Bureau of Labor Statistics. MSCI data provided "as is" without any express or implied warranties.