

Economic and Sector Summary & Outlook  
Fourth Quarter 2022

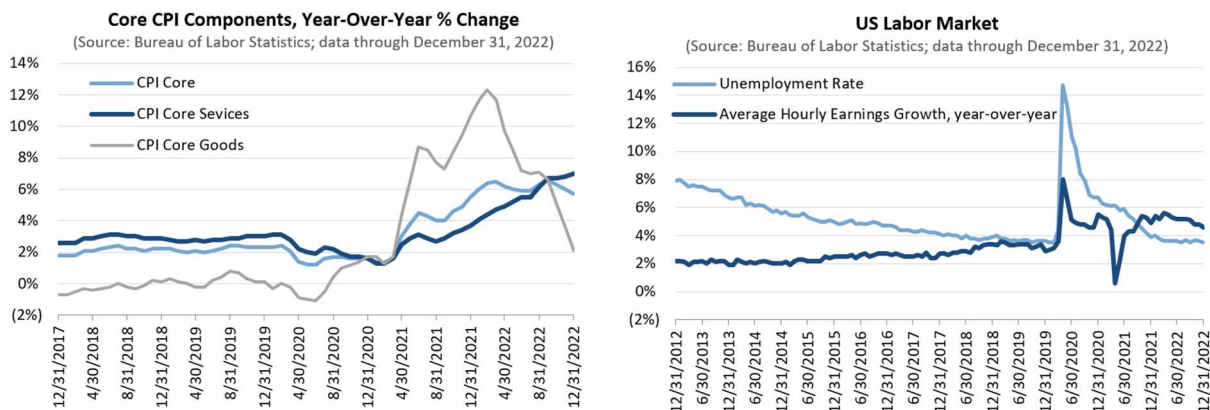
## US Economy

### Summary

In the fourth quarter of 2022, relatively favorable economic data and other news flow increased investor optimism regarding the potential for a “soft landing.” We believe US GDP growth in the fourth quarter will surpass the consensus estimate, supported by resilient US consumer spending. Inflation trended lower in the period led by declines in energy and goods prices. The Federal Reserve continued to tighten monetary policy to deter the rise in inflation but slowed the pace of rate rises to 50 basis points on December 14, 2022 from 75 basis points in each of the preceding four meetings (June, July, September and November 2022). In addition, mild winter weather and a decline in energy prices should help Europe avoid the worst-case recession scenarios. Finally, in December 2022, China quickly exited its zero-COVID policy, paving the way for an economic reopening and potentially better growth in the second half of the year.

The Federal Reserve’s GDP Now forecast expects fourth quarter US economic growth to increase at an annualized rate in excess of 3.5%, primarily due to resilient US consumer spending. For consumers, the benefit of strong labor markets and remaining excess savings from pandemic fiscal stimulus have more than offset the headwinds from negative real income growth, net worth losses, and the shift to tighter monetary policy. The robust labor market represents the primary focus of the Federal Reserve in its attempt to cool demand in the economy and reduce inflation. During the quarter, the jobs market moderated but remains extremely tight; notably, the unemployment rate fell to 3.5% and the economy added 247,000 jobs per month on average during the quarter. The Federal Reserve’s rate hikes continue to pressure the interest rate sensitive housing sector as evidenced by the S&P Case-Shiller Home Price index which recorded its fourth consecutive monthly decline in October. Weak survey data from ISM Manufacturing and Services, NFIB Small Business Optimism, University of Michigan Consumer Confidence, and Senior Loan Officers Bank Lending Practices all point to dark clouds on the horizon.

Improvements on the inflation front represent the most encouraging news in the quarter. Headline CPI fell from 8.2% year-over-year on September 30, 2022 to 6.5% on December 31, 2022 and the Core CPI, which excludes food and energy prices, declined from 6.6% to 5.7% (see chart, below). A 4.3% decline in energy prices and a 1.2% fall in goods prices over the quarter accounted for most of the improvement to headline CPI. However, core service prices, a focus of the Federal Reserve, continued to move higher and ended the quarter up 7.0% on a year-over-year basis (see chart, below). Wage pressures remain a concern, but the growth in average hourly earnings declined during the period from 5.1% on September 30, 2022 to 4.6% on December 31, 2022 (see chart, below).



In his press conference address on December 14, 2022 following announcement of the 50 basis point rate increase, Federal Reserve Chairman Powell observed a “welcome reduction in the monthly pace of price increases” for data released in October and November, but warned that “it will take substantially more evidence to give confidence that inflation is on a sustained downward path.” Federal Reserve representatives consistently pushed back against market expectations for rate cuts in 2023, and in the December Federal Reserve meeting not a single member of the Federal Open Market Committee (the “FOMC”) expected rate cuts this year.

## Outlook

The US economy, supported by a resilient consumer and strong labor markets, finished the year with positive momentum. We continue to forecast that the economy is heading into a recession in 2023 but moved our timing expectations to the second half of the year. A recession appears unavoidable given the combined effects of the Federal Reserve's tighter monetary policy, the outlook for softening labor markets, and declining corporate profits. A soft (i.e., shallow) recession rather than a hard landing seems more likely given the relative strength of consumer and corporate balance sheets entering the slowdown.

Inflation pressures improved significantly in the fourth quarter, but as Chairman Powell noted on December 14, "we have more work to do" to return to a sustainable 2% inflation target. Progress on inflation could become more difficult in the coming months as it may be contingent on restoring balance to labor markets in order to cool service sector inflation. Wage pressures moderated recently, but average hourly earnings growth would need to fall from the current 4.6% rate to approximately 3.5% to remain consistent with the overall inflation rate returning to 2%. We expect Core CPI to fall from 5.7% currently to approximately 3.25% by year end 2023.

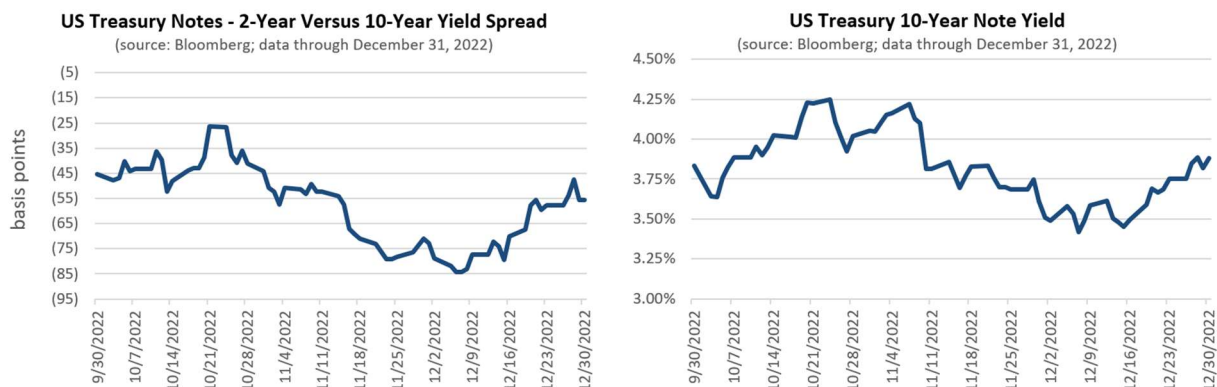
We expect the Federal Reserve to raise rates by 25 basis points in both February 2023 and March 2023 and then remain on hold for the balance of the year. Given the resilience in the economy and tight labor markets, we view current market expectations for up to 50 basis points in rate cuts in the second half of 2023 as mispriced. The Federal Reserve's credibility and lessons learnt in the 1970s regarding premature easing point to tighter monetary policy for a longer period than that maintained in previous cycles.

## Sector Analysis

### US Interest Rates

The federal funds target rate ended the fourth quarter of 2022 at 4.5%, a fifteen-year high and 150 basis points higher than at the beginning of the period. The rates move reflects the Federal Reserve's continuing battle against record-high inflation. Even after raising short-term interest rates at the fastest pace in 40 years, the Federal Reserve signaled in December that it plans to keep raising the federal funds rate to between 5.0% and 5.25% in 2023. Longer-term yields also increased during the period as inflation remained higher than forecast and investors continued to drive long-term rates higher in anticipation of further Federal Reserve rate increases.

Interest rates tracked a wide range during the quarter as the 10-year US Treasury yield reached a multi-year high of 4.24% in late October and then traded to an intra-period low of 3.42% in early December. The 10-year US Treasury yield ended the quarter at 3.87% (see chart, below). The 2-year versus 10-year US Treasury yield spread curve flattened at one point to -84.3 basis points, a 2-year low, and finished the quarter at -55.7 basis points, 10 basis points flatter than at the beginning of the period (see chart, below). The yield on the 2-year US Treasury Note increased 16 basis points to end the period at 4.43%, while the yield on the 10-year US Treasury Note rose 5 basis points to 3.88%. The 30-year US Treasury Note yield increased 18 basis points to 3.96%.



We added a 5% short-duration position during the quarter and increased our yield curve flattening exposure. While inflation may have peaked, it nevertheless remains elevated with core PCE inflation at 4.95%, well above the

Federal Reserve's 2% long-term target. In addition, unemployment remains low at 3.5% suggesting that the Federal Reserve will continue to increase the federal funds rate until "substantial and sustained progress is made to lower inflation irrespective of slowing economic growth or rising unemployment." The Federal Reserve continues to deliver a broadly hawkish message that the tightening cycle is not over has dismissed expectations of near-term rate cuts, saying that inflation is likely to remain more persistent than what is currently reflected by pricing in most financial markets.

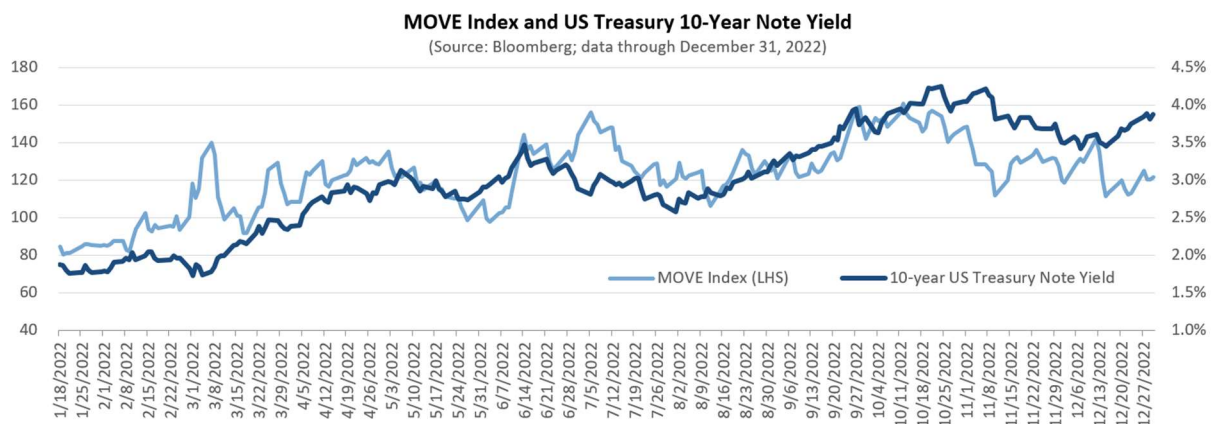
We believe the market is underestimating the terminal rate (i.e., the highest point that the federal funds rate will reach in the current cycle), and we expect higher rates into the first half of 2023 as current levels appear too low relative to fundamentals. Our outlook assumes that the Federal Reserve will continue with further hikes into the first quarter of 2023 and selectively in the second quarter, and then pause. We currently favor a short-duration position, given our belief that expectations of easing in the second half of 2023 appear premature when considering central bank outlooks and broad economic trends.

### Securitized Products

In the fourth quarter of 2022, markets experienced the peak in both interest rates and volatility for the year, which led mortgage market spreads to their widest level. MBS, ABS and CMBS all experienced significant spread widening at the beginning of the quarter. Notably, the negative performance for MBS bottomed in mid-October before closing out the year on a more positive trend.

The Federal Reserve's MBS holdings peaked in August 2022 and began a process of slowly running off. Higher interest rates have slowed the rate of mortgage refinancings and prepayments, resulting in a slower than expected runoff of the Federal Reserve's mortgage holdings. During the fourth quarter, the runoff in holdings averaged approximately \$19 billion per month, falling far short of \$35 billion per month maximum allowable roll-off set by the Federal Reserve. The Federal Reserve has not given any indication that it may accelerate the runoff by selling MBS outright.

In March 2022, the Federal Reserve raised the Federal Funds rate after maintaining a zero percent lower bound for two years; it then proceeded to raise that rate six more times during the year, an unprecedented pace of tightening not seen since the Paul Volker years in the 1980s. This aggressive tightening of monetary policy resulted in not only higher interest rates across the entire yield curve, but an extended period of very elevated uncertainty and realized interest rate volatility as evidenced by the MOVE Index (see chart, below).



In the fourth quarter of 2022, all securitized products subsectors generated positive total returns, largely due to coupon income and spread tightening coupled with limited movement in interest rates. The MBS Index returned 2.14% in the fourth quarter, taking the year-to-date total return to -11.81%. The ABS Index generated 0.81% total return in the quarter, bringing its total return for the year to -4.30%, while the CMBS Index gained 1.02% in the period to finish the year with a -10.91% return. The relatively better performance of the ABS Index, our most overweighted sector, is attributable to its reduced interest rate sensitivity and higher credit quality.

Mortgage spreads, as measured by the mortgage current coupon versus the 5-year and 10-year US Treasury Note yield blend, peaked for the year on October 12, 2022 at 179 basis points after starting the year at 68 basis points. In the fourth quarter, the MBS spread fell 28 basis points to end the period at 145 basis points. The spread tightening during the quarter produced 106 basis points of excess return versus duration matched Treasuries. MBS Index performance for the year represents the second worst on record, exceeded only by the negative performance experienced in 2008 when investors questioned the credit worthiness of Fannie Mae and Freddie Mac. This year, interest rate volatility and the termination of the Federal Reserve's mortgage purchasing activities drove total returns.

ABS Index spreads widened from 53 basis point to 76 basis points in the period, resulting in -20 basis points of excess return. Concern regarding consumer financial health in a rising rate environment and continuing new issue supply negatively affected ABS Index performance in the fourth quarter of 2022. In October, heavy secondary bid wanted activity stretched the limits of trading desks' ability to absorb sales and pushed spreads meaningfully wider. As new issue supply subsided in November, spreads stabilized and then tightened throughout December. The ABS Index recorded its widest spread during the year of 103 basis points on November 30, 2022, reaching levels previously attained only during the housing crisis in 2008 and 2009 and the period immediately following the pandemic shutdowns.

In the fourth quarter of 2022, CLOs benefited from strong performance in below-investment grade credit and limited new issue supply combined with virtually non-existent refinance and reset activity. New issue supply declined 29.4% from 2021, while refinance and reset activity declined 90%. For the quarter, investment grade CLO spreads trended modestly tighter but remain wide of the year-end 2021 level.

Both the ABS and CLO sectors continue to experience liquidity issues as trading desk risk tolerance and balance sheet capital remain constrained. As a result, significant tiering exists between shelf names and collateral types. In ABS, large prime auto lender issuance trades well while smaller sub-prime issues trade at a spread concession. In the CLO space, issuance related to top-tier collateral managers enjoy elevated premiums to similar issues associated with smaller managers.

The CMBS Index generated -10 basis points of excess return during the quarter on modest spread widening of approximately 15 basis points (from 105 basis points at the beginning of the quarter to 120 basis points at period end). CMBS Index spreads started the year at 68 basis points and the subsector generated -120 basis points of excess return in 2022. The sector benefited from very light supply, but faces significant fundamental uncertainties in the coming quarters.

Looking forward, we plan to focus on opportunities and entry points to reduce our underweight in MBS relative to indices. The MBS subsector's significant underperformance over the last three years influenced investors to reset their perspective (think "hit the red button") of relative value as Federal Reserve and GSE purchases wane and traders search for clearing levels relative to other investable (i.e., large and liquid) fixed-income sectors. We look for a stabilization and ultimately a decline in interest rate volatility to act as catalysts for future MBS outperformance.

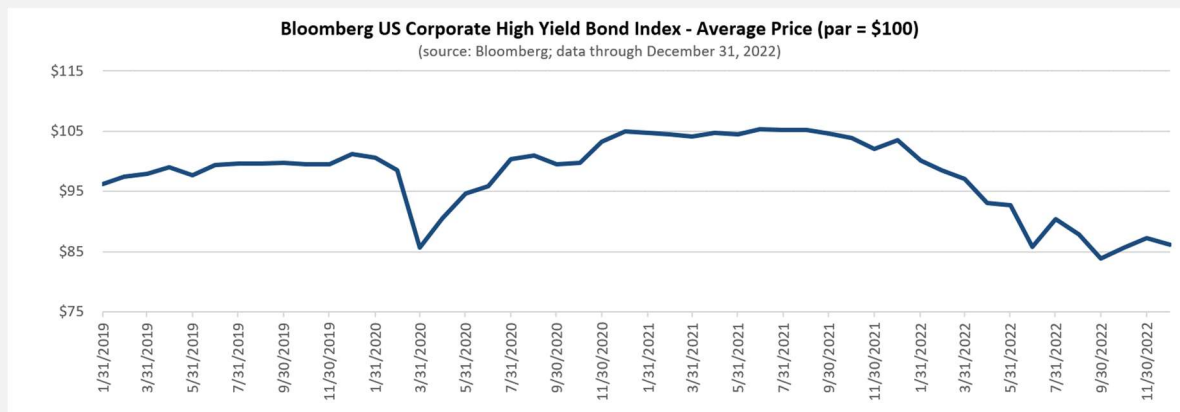
We remain overweight the ABS sector and intend to maintain this position so long as fundamentals and relative valuations hold. We generally view ABS holdings to be high quality, high yielding and defensive assets. Given the Federal Reserve's stated objective of maintaining interest rates higher and longer, we plan to focus on short average life structures (i.e., 0.5 to 1.5 years), backed by high-quality collateral and issued from larger and more frequently issuing shelves (specifically, prime auto and the largest sub-prime issuers.) Importantly, many ABS sub-prime structures benefit from a long track record of performance tested during economic downturns while offering a spread premium that we find attractive. We expect that CLOs will face headwinds as economic uncertainty increases and plan to look for opportunistic purchases of AAA-rated short average life structures that yield between 6.5% and 7.5%. Our exposure to the CMBS sector remains limited as we see few attractive opportunities in the space for the next year.

## Credit Spotlight

### Discount Shopping

Entering 2023, we plan to focus on low-dollar price opportunities in High Yield, as we expect both the downside protection and the potential for upside appreciation may work in our favor.

Near the end of 2021, the term “transitory” abruptly disappeared from our vocabulary and financial markets braced for an impending Federal Reserve rate hiking blitz aimed at quelling inflation. While strategists and pundits forecasted higher rates and increased volatility, few on Wall Street could have predicted the speed and magnitude with which the Federal Reserve would move to squash what turned out to be “not so transient inflation.” In 2022, the Federal Reserve hiked rates seven times and increased the federal funds target rate a staggering 425 basis points to a level not seen since December 2007. Bonds, generally viewed as an asset class with low correlation to equities, failed to live up to their safe haven status, as the 10-year Treasury yield shot up over 235 basis points during the year in response to Federal Reserve policy. As a result, the Bloomberg US Corporate High Yield Bond Index fell over 20 points to end the year 2022 at an average dollar price of 89.04 and produce a total return of -15.76%.



Today, credit investors are left with an interesting question: how much additional value should one assign to a low-dollar priced bond versus a similar bond issued today at (or close to) par?

Discount bonds offer a bevy of advantages to investors, most notable being that purchasing a low-dollar price bond reduces downside risk in the unfortunate event of a default or distressed scenario. Simply put, purchasing a bond at \$80 (rather than at par) with a recovery of \$60 reduces your potential loss from 40% to 25%.

Another advantage provided by purchasing discounted bonds includes the ability to enjoy capital appreciation without being limited by the existence of a call structure. High yield bond indentures often include call features that allow the issuer to repurchase the bonds at a future date (at or slightly above par); the provisions essentially allow issuers some ability to refinance debt as interest rates decline, either through market moves or improvement in the issuer’s credit profile. This phenomenon sometimes leads to a situation where high yield bonds trading above par can become quickly call constrained with their ceiling for price appreciation capped by the embedded repurchase right. Investors can avoid that situation by purchasing a discounted bond as the low price paid, \$80 using the above example, leaves room for meaningful gain if the bond is called at a price of par or higher.

A third advantage of investing in discounted bonds relates to tax consequences. From the perspective of post-tax returns, if the income tax rate is higher than the capital gains tax rate, an investor would benefit from purchasing low-dollar priced bonds, as the bulk of the return will come from price appreciation (i.e., capital gain) rather than coupon income.

Call structure language, the risk of default, and other market dynamics will likely create more low-dollar priced opportunities in High Yield, and in some situations, we may favor a lower yielding discounted bond versus a par bond trading at slightly higher yield. In Investment Grade, where there is a considerably lower risk of default and less onerous call constraints, we expect to see fewer low-dollar price opportunities. That said, and all else being equal, we will consider low dollar price opportunities in Investment Grade if spreads between two issues appear comparable. Generally speaking, however, we would not give up spread in Investment Grade to hold a lower dollar priced bond of similar maturity.

### Investment Grade Credit

The year 2022 was a period of rapidly accelerating inflation, a steep Federal Reserve hiking cycle, and significant interest rate volatility. During the fourth quarter, investors began looking ahead to the themes that will likely



influence returns in 2023: slowing US inflation, declining economic growth, the end of the Federal Reserve hiking cycle, and lower interest rate volatility. The OAS on the Bloomberg US Corporate Bond Index (the “Corporate Index”) tightened 29 basis points to end the quarter at 130 basis points, generating a total return of 3.53% and an excess return of 293 basis points versus comparable US Treasuries. The 130 basis points year-end spread widened 38 basis points from the beginning of the year but resides well below the peak of 165 basis points experienced in October. For the year 2022, the Corporate Index realized its worst performance on record by generating a total return of -15.44%, representing the second consecutive year of negative returns, an occurrence last seen in 1979 and 1980. A vast majority of the negative full year total returns were driven by an outsized move in rates; Corporate Index excess returns generated a relatively modest negative 137 basis points.

In the fourth quarter of 2022, investment grade primary gross issuance declined 33% to \$195 billion, versus \$295 billion in the prior year period. A relative lack of new issue supply coupled with an investor base that is historically underweight the asset class provided technical support that led to spread tightening into year end. As markets approach the Federal Reserve targeted terminal rate (currently estimated at between 5.00% and 5.25%), we believe that interest rate volatility should continue to decline and lead to increased demand for investment grade credit from yield-focused investors such as pension funds and insurance companies. Investment grade outflows declined in each of the last two months of 2022, suggesting this trend continues to develop.

The best-performing industries and sub-segments of the Corporate Index on an excess return basis included metals and mining, railroads, consumer non-discretionary, utilities, and aerospace and defense. REITs, banks, autos, construction machinery, and packaging ranked among the worst-performing industries and sub-segments during the quarter.

With recent inflation data suggesting that inflation has peaked, the market is rushing to price-in increasing odds of a soft economic landing and rate cuts towards the end of 2023. Federal Reserve board members have staunchly pushed back against this view and have instead been endorsing a higher-for-longer policy. With the Federal Reserve firmly committed to bringing inflation down to the 2% target, the increasing potential for an overshoot in unemployment and economic deceleration is escalating recessionary risk in 2023.

While corporate balance sheets remain healthy, economic growth is slowing and consumer financial health is weakening. The deteriorating macro picture suggests that spreads (now well off their recent peaks) appear too tight and fail to reflect the economic risks on the horizon. We remain cautious on credit spreads and therefore maintain an underweight position in investment grade credit as we patiently wait for more attractive entry points.

### High Yield

The US high yield bond market found its footing in the fourth quarter of 2022, partially reversing extremely challenging performance through the first three quarters of the year. The Bloomberg US Corporate High Yield Bond Index gained 4.18% in the fourth quarter, resulting in a 11.18% loss for the full year 2022. At 552 basis points, high yield spreads started the fourth quarter near year-to-date wides (583 basis points in early July) but rallied 83 basis points to finish the year at 469 basis points (186 basis points wider than year-end 2021). Yields also compressed during the quarter, finishing 2022 at 8.96%, 475 basis points higher than the 4.21% yield at the start of the year. High yield performance across rating tiers in the fourth quarter reflected investors’ increasing focus on the potential for a recession in 2023, with Bs and BBs returning 4.93% and 4.30%, respectively, while CCCs gained just 0.50%. While high yield investors shied away from credit risk, they appeared comfortable taking cyclical risk, as gaming, home construction, oilfield services, and metals and mining ranked among the top performing sectors, while communications, healthcare and retail all lagged.

The third quarter 2022 earnings season demonstrated continued improvement in credit fundamentals, which are largely at or better than pre-pandemic levels. Leverage declined for the sixth consecutive quarter to 4.0x, the lowest reading since the fourth quarter of 2012 and well below the 6.1x peak registered in the fourth quarter of 2020. With a default-free fourth quarter, the high yield default rate ended 2022 at under 1%. However, ratings downgrades outpaced upgrades in the period for the first time since the fourth quarter of 2020, suggesting that credit quality is weakening. Looking to 2023, we anticipate that fundamentals will deteriorate due to slumping earnings, as profit margins remain vulnerable against a backdrop of weaker demand and high labor costs. Defaults will likely increase and possibly end 2023 at or above the long-term average of approximately 3%.

With interest rates elevated, high yield issuers remained on the sideline in the fourth quarter, as just \$16.5 billion of primary issuance priced, the lowest quarterly total in over a decade and down from \$18.9 billion in the third quarter. For the full-year 2022, new issue supply totaled \$106.5 billion, representing a nearly 80% decline from 2021. On the demand side, retail funds reported \$7.2 billion of inflows in the quarter, partially offsetting large outflows earlier in 2022 (outflows totaled \$47 billion for the year). Rising stars remained another technical positive for the high yield market, with \$22.4 billion of high yield bonds moving to the investment grade market in the quarter, bringing the year-to-date total to \$113 billion. Although supply has been muted, to say the least, the high yield market remains open to most issuers. The lack of primary market issuance continues to provide a positive technical element. Given the wave of refinancings completed in 2021, most high yield issuers do not need to tap the market but companies may choose to start addressing 2024 and 2025 maturities as the year progresses.

The high yield market has rallied in the initial weeks of 2023, leaving spreads in the low-400 basis point area and at the tight end of the range over the past few quarters. With earnings and credit fundamentals likely to deteriorate in coming periods, we remain cautious with respect to positioning, preferring higher-rated credits (including an allocation to BBBs) and less-cyclical sectors. Our house bias expects the FOMC to tighten more than current markets suggest, and we believe spreads are not accounting for such a scenario. Although higher yields to start the year represent good carry, we anticipate that spread widening in coming quarters – possibly reflecting a recessionary economic environment – will provide a more attractive entry point for high yield investors.

### Leveraged Loans

The Credit Suisse Leveraged Loan Index generated its best performance of the year in the fourth quarter, gaining 2.33% to bring the year-to-date total return to -1.06%. On a total return basis, loans outperformed other fixed income sectors by a wide margin in 2022, highlighting the benefits of the floating rate feature in a period of aggressive rate hiking by the Federal Reserve. Average loan prices finished the year at 91.89, up approximately 0.25 points in the fourth quarter but down 6.50 points for the year. Although spreads tightened 16 basis points in the fourth quarter, they widened 213 basis points during the year to finish December at 652 basis points. Given the sharp increase in LIBOR (and SOFR) during the year, loan yields ended 2022 at 10.76%, up 550 basis points on the year and almost 200 basis points higher than the high yield yield-to-worst (YTW). Against a potential recessionary backdrop, loan investors remained focused on higher-quality tiers of the market in the fourth quarter, with BB-rated loans outperforming (3.6% in the fourth quarter and 2.7% for the year 2022) while CCCs continued to get punished (-2.9% in the fourth quarter and -13.3% for the year). As was the case in the high yield market, energy proved to be the best performing sector in 2022, gaining 6.3%, while food and drug and utilities also generated respectable returns (4.0% and 4.8%, respectively). Consumer durables (-7.1% total return in the fourth quarter) and telecom (-4.2% total return in the fourth quarter) underperformed.

A major driver of the underperformance of lower-rated loans in 2022 includes the expectation that deteriorating economic conditions will hit those borrowers particularly hard, as they already exhibit higher leverage and weaker interest coverage metrics. Rating agencies actions in 2022 reflect that perspective, and in the fourth quarter alone, downgrades outpaced upgrades by a 3-to-1 margin (on a dollar basis). The preponderance of downgrades came despite an overall improvement in loan issuer credit metrics in the third quarter of 2022, as revenue and EBITDA increased 18% and 17%, respectively, on a year-over-year basis, a deceleration from the prior quarter. Average leverage declined to 4.8x (as compared to 4.0x for high yield issuers) from 5.0x in the third quarter of 2022, and 7.8x in the first quarter of 2021 (and compared to a pre-pandemic level of 4.9x). Despite rising interest rates, interest coverage metrics actually improved to 4.9x, a three-year high. We anticipate that this measure will deteriorate in 2023 and become particularly problematic for lower-rated borrowers. Following six defaults in the third quarter, there were no defaults in the final quarter of 2022, and as a result, the default rate dropped to 0.97% at year-end from 1.14% at the end of September. We expect defaults to pick up in 2023 as the loan market is particularly at risk for deteriorating fundamentals, given a concentration of highly-leveraged, private equity-owned issuers with lower average credit quality.

Continued retail outflows and a slowdown in CLO primary issuance weighed on loan market technicals in the fourth quarter. Retail loan funds posted a \$11.4 billion outflow in the quarter (leaving the YTD outflow also at \$11.4 billion), while only \$22.6 billion of CLOs priced, the slowest quarter of 2022. Even with more tepid loan demand in the fourth quarter, the primary market picked up slightly as \$44.7 billion of new loans priced, up from



\$24.0 billion in the immediately preceding period. For the full-year 2022, loan issuance totaled \$252.2 billion, down 70% from 2021. With approximately \$40 billion of committed LBO debt financings (high yield bonds and leveraged loans) still hung up on bank balance sheets and acting as a market overhang, we anticipate loan market technicals to remain challenged in the beginning of the year. Headwinds include a more formidable maturity wall (versus the high yield market), slower CLO formation, and growing fundamental credit concerns.

With loan market yields and spreads at recent highs (specifically relative to the high yield market), the loan market continues to appear attractive, particularly as a carry trade. However, we remain cautious regarding performance over the next few quarters as the potential for a Federal Reserve-induced recession poses significant risk to loan market fundamentals. Higher interest expenses and deteriorating earnings trends in 2023 pose specific risks to the loan market, which compared to high yield, is now dominated by lower-rated issuers with limited access to additional capital. We remain focused on higher-rated loan issuers that have subordinated debt (high yield bonds or second lien loans) in their capital structures, the ability to handle higher interest burdens, and operate in less cyclical industries.

## Disclaimers

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### Past performance is no guarantee of future results.

The MOVE Index is a measure of US interest rate volatility that tracks the movement in US Treasury yield volatility implied by current prices of one-month over-the-counter options on 2-year, 5-year, 10-year and 30-year Treasuries.

The Bloomberg US Aggregate Bond Index is a broad-based flagship benchmark that measures the investment grade, US dollar-denominated, fixed-rate taxable bond market. The index includes Treasuries, government-related and corporate securities, MBS (agency fixed-rate pass-throughs), ABS and CMBS (agency and non-agency).

The Bloomberg US Credit Index measures the investment grade, US dollar-denominated, fixed-rate, taxable corporate and government related bond markets. It is composed of the US Corporate Bond Index and a non-corporate component that includes foreign agencies, sovereigns, supranationals and local authorities.

The Bloomberg US Corporate Bond Index measures the investment grade, fixed-rate, taxable corporate bond market. It includes USD denominated securities publicly issued by US and non-US industrial, utility and financial issuers.

The Bloomberg US Corporate High Yield Bond Index measures the USD-denominated, high yield, fixed-rate corporate bond market. Securities are classified as high yield if the middle rating of Moody's, Fitch and S&P is Ba1 / BB+ / BB+ or below. Bonds from issuers with an emerging markets country of risk, based on Barclays EM country definition, are excluded.

The Credit Suisse Leveraged Loan Index tracks the investable market of the US dollar denominated leveraged loan market. It consists of issues rated "SB" or lower, meaning that the highest rated issues included in this index are Moody's / S&P ratings of Baa1 / BB+ or Ba1 / BBB+. All loans are funded term loans with a tenor of at least one year and are made by issuers domiciled in developed countries.