Why Credit Investors Need to Manage Duration More Creatively

The importance of duration management in a changing world—and five ways to improve it.

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KEY INSIGHTS

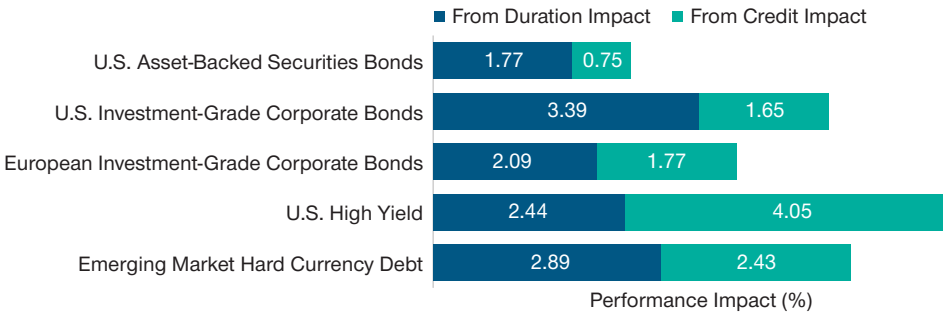
- Duration has been a key driver of credit returns over the past decade, emphasizing the importance of active duration management for credit investors.
- Techniques to creatively manage duration include using structural curve positioning, allocating across regions and currencies, and using credit derivatives.
- Actively managing the total duration of a portfolio by adjusting duration exposure for short periods can also significantly enhance returns.

Many credit investors pay little attention to duration, seeing themselves primarily as bottom-up investors who specialize in sector and security selection. However, duration has become a major driver of credit total returns over the past decade, making it increasingly difficult to ignore. Managing duration is likely to be a key source of performance for credit investors in the future—giving those who are skilled in it a major potential advantage.

Yet predicting what that future will look like is complicated by the fact that

Duration Has Been a Major Driver of Credit Returns Over 10 Years

(Fig. 1) In most strategies, it has exceeded returns from credit impact



As of March 31, 2021.
Past performance is not a reliable indicator of future performance.
Sources: Bloomberg Barclays U.S. Corporate Bond Index, Bloomberg Barclays U.S. ABS Index, Bloomberg Barclays Euro Corporate Bond Index, Bloomberg Barclays U.S. High Yield Bond Index, and Bloomberg Barclays EM USD Aggregate Corporate Index. Analysis by T. Rowe Price.

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we may be entering a different regime in which the playbook of the past decade no longer works. The 40-year bull market for bonds, and tailwind for credit returns, is likely exhausted. The massive expansion of the central bank balance sheets in response to the coronavirus pandemic, which have directly and indirectly benefited corporate borrowers and investors, will probably peak this year. Managing duration exposure in the period ahead is going to demand new—and creative—approaches from investors.

The fixed income market has evolved considerably since the global financial crisis (GFC). Vast injections of central bank liquidity have driven down bond yields and encouraged corporate issuers and investors to extend out the curve—bonds of more than 10 years' maturity now compose more than 28% of the Bloomberg Barclays Global Aggregate Corporate Index (as of December 31, 2020). The average credit investor now holds significantly more duration than in 2009: The duration of the index has increased by around two years, or around 1.4 times, since then.

And while credit strategies have performed very well over that time, much of that performance has been effectively "engineered" by central banks supressing sovereign bond yields. Changes in underlying risk-free rates—the duration impact—have accounted for the majority of the returns of U.S. and European investment-grade debt and emerging market (EM) hard currency bonds over the past 10 years and have contributed significantly to the returns of U.S. high yield strategies using index returns as a proxy (Figure 1).

The Post-Pandemic Recovery May Pave the Way for Inflation

The strong influence of duration on credit returns has not been a problem while yields were trending lower. However, with most of the major central banks at their lower bound on interest rates, the downtrend in yields is probably at its end. Indeed, the market has already started to price a return to more normal conditions as vaccination programs ramp up and fiscal stimulus takes the reins from monetary policy. As the lifting of restrictions enables economies to bounce back quickly, anticipation is building about central bank rate hikes and the cessation—or slowing down—of asset purchase programs, posing an eventual risk for credit investors.

Real yields (the yields on Treasury Inflation Protected Securities, or TIPS) which exclude anticipated inflation, may not normally be followed closely by credit investors. However, we believe the direction of real yields is critical for total credit returns because they provide a window on future monetary conditions. Long-term real yields are determined by structural economic factors such as the pace of productivity growth and demographics, and deviations from the long-term level are driven by monetary policy. While nominal yields have recently bounced from all-time lows with expectations for higher inflation, real yields have remained near all-time lows as the Federal Reserve has maintained a consistently dovish outlook for monetary policy.

Many investors are worried about a repeat of 2013, when market panic over the prospect of the U.S. Federal Reserve tightening policy triggered the "taper tantrum" as government bonds and risk assets sold off dramatically, causing large losses for credit investors (the Bloomberg Barclays Global IG Corporate USD Hedged Index declined 5% in less than two months). Although we believe there is no immediate prospect of rate hikes, and therefore that a repeat of the taper tantrum is unlikely, the enormous amount of monetary stimulus injected into the global economy since the coronavirus swept the world will have to be reduced at some point. Tighter monetary policy, when it comes, should push up real yields closer to the long-run average rate, which we estimate is currently in the range of 0.0–0.5% (at the end of May, the yield on 10-year Treasury Inflation-Protected Securities (TIPS) was -0.86%).

Falling Real Yields Have Boosted Corporate Debt Returns

(Fig. 2) The change in U.S. 10-year real yields versus U.S. investment-grade (IG) debt returns

	Change in 10-Year U.S. TIPS Real Yield	U.S. IG Corporate Total Return
Dec. 31, 2009	-0.66%	18.68%
Dec. 31, 2010	-0.46	9.00
Dec. 30, 2011	-1.09	8.15
Dec. 31, 2012	-0.63	9.82
Dec. 31, 2013	1.52	-1.53
Dec. 31, 2014	-0.30	7.46
Dec. 31, 2015	0.23	-0.68
Dec. 30, 2016	-0.23	6.11
Dec. 29, 2017	-0.05	6.42
Dec. 31, 2018	0.55	-2.51
Dec. 31, 2019	-0.84	14.54
Dec. 31, 2020	-1.22	9.89
Mar. 31, 2021	0.46	-4.65

As of March 31, 2021.
Past performance is not a reliable indicator of future performance.
Yields and total return figures are annual to the date shown except for the March 2021 row, which shows the quarterly return.
Source: Bloomberg Finance L.P. Bloomberg Barclays U.S. IG Corporate Index.

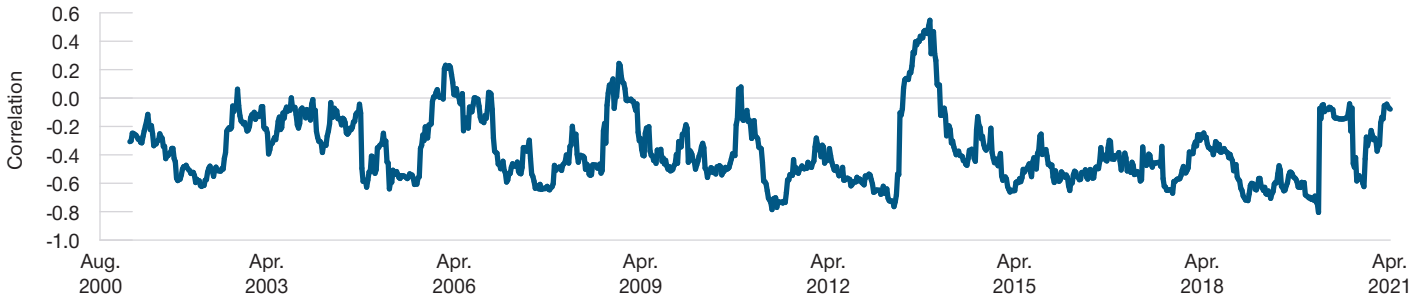
Typically, monetary policy and credit total returns are negatively correlated. Tighter monetary policy typically reduces the attractiveness of credit assets in several ways, such as reducing liquidity, improving the relative returns of risk-free assets (e.g., U.S. treasuries) versus risky assets, and increasing the cost of corporate borrowing. While corporates can usually absorb higher interest rates driven by higher inflation, higher real yields may squeeze profitability. Figure 2 shows that, over the past 13 years, tighter monetary policy and higher real yields have been associated with poor credit returns, and vice versa.

An increase in real yields is not the only risk to credit investors. Central banks are concerned about a premature withdrawal of monetary stimulus, preferring instead to maintain easy liquidity conditions until the economic recovery is well advanced. The risk from this approach is higher expected inflation and interest rate volatility. So even if the Fed stays dovish and the market does not price a significant tightening of policy in the next few years, the long end of the Treasury curve should steepen in order to price in a greater term premium that captures inflation and Fed policy uncertainty. At present, in spite of very high current inflation, the market is forecasting that longer term inflation will be only slight above the Fed's 2% target. If the recent price gains do not cool, it will cause a headache for bond investors.

As interest rates fell over the past 40 years, corporate investors were rewarded by the decline in the risk-free rate plus the additional credit spread. Holding corporate debt has often helped to mitigate the impact of periodic sovereign yield spikes as credit duration was lower and spreads were able to

Credit/Rate Correlations Tend to Mean-Revert Over Time

(Fig. 3) Trailing six-month correlation between IG option-adjusted spreads and 10-year U.S. Treasury yields



As of April 30, 2021.
Source: Bloomberg Finance L.P. Analysis by T. Rowe Price.

> ...we believe the diversification impact of corporate debt has diminished over the past decade...

compress, cushioning the blow from rising risk-free rates and demonstrating a negative correlation. However, in times when market stress coincides with significant Treasury yield moves, the correlation may flip to positive as the market's rates concerns translate into credit concerns (Figure 3).

The correlation has been mean-reverting, but what if inflation persists and gives rise to additional uncertainty over the Fed's policy reaction? Could the correlation remain near zero where it is today, or possibly move into positive territory? This is not our current base case, but it is a risk to be aware of, particularly with regards to portfolio construction. Furthermore, we believe the diversification impact of corporate debt has diminished over the past decade as U.S. and European investment-grade indices have become more sensitive to interest rate rises (Figure 4). In my view, the current combination of very low sovereign yields

U.S. and European IG Indices Have Become More Sensitive to Rate Rises

(Fig. 4) Bondholders are in a vulnerable position

Index	Date	Rates + 25bps	Rates + 50bps	Rates + 100bps
U.S. Investment-Grade Corporates	Dec. 31, 2020	-2.17%	-4.26%	-8.20%
	Dec. 31, 2015	-1.67	-3.29	-6.37
	Dec. 31, 2010	-1.60	-3.14	-6.10
European Investment-Grade Corporates	Dec. 31, 2020	-1.38	-2.72	-5.40
	Dec. 31, 2015	-1.34	-2.68	-5.28
	Dec. 31, 2010	-1.12	-2.23	-4.37

As of December 31, 2020.
Shows the hypothetical performance impact from different potential increases in interest rates based on index composition as of each date. Subject to change.
Sources: Analysis is based on the Bloomberg Barclays Euro Corporate Bond Index and Bloomberg Barclays U.S. Corporate Bond Index. Bloomberg PORT (see Additional Disclosures). Analysis by T. Rowe Price. Analysis based on the Bloomberg PORT full valuation model. The model assumes a parallel Treasury curve movement. **Stress testing is hypothetical and for illustrative purposes only, and figures do not represent actual investment results. Actual investment results may differ materially.**

(greater interest rate risk), tight credit spreads (less cushion), and less diversification benefits puts credit bondholders in a vulnerable position. This suggests a need for greater duration flexibility.

Dynamically Managing Duration Risk

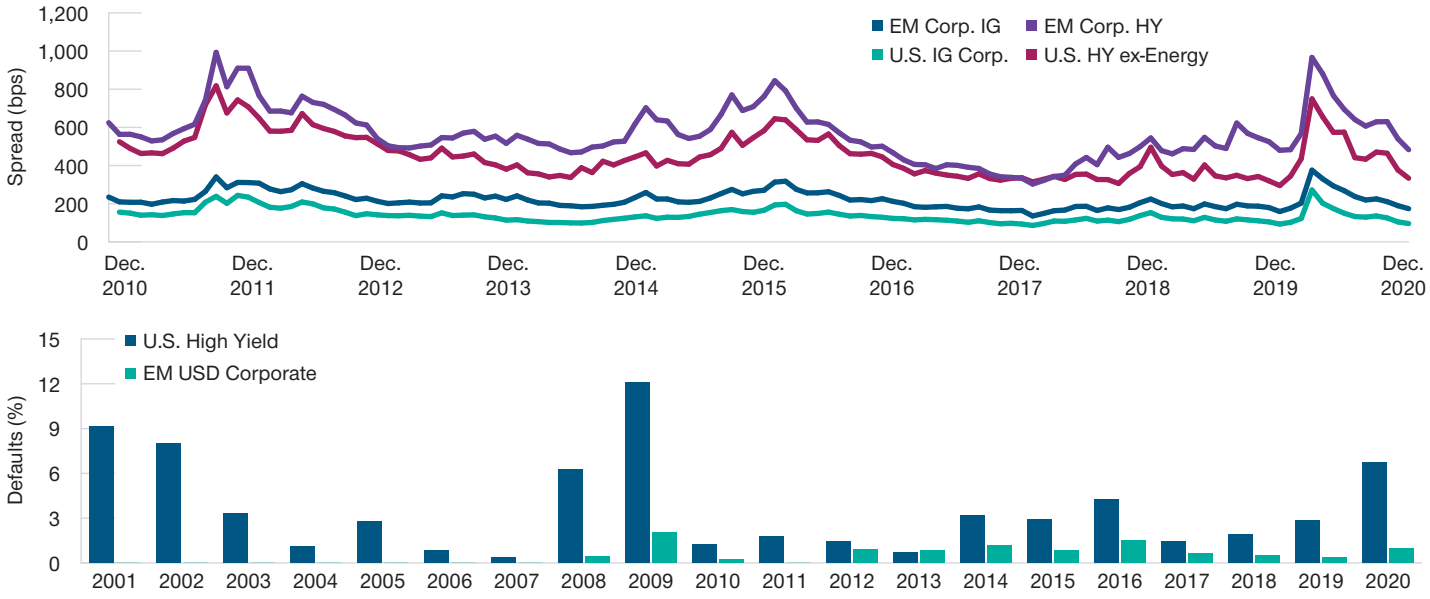
This does not mean, however, that credit investors should systematically reduce the duration of their bond portfolios. On the contrary, we believe that duration will continue to provide some beneficial properties to credit portfolios, particularly as we believe the correlation between sovereign bond and credit returns will likely revert to its historical average. This means that during higher-volatility "risk off" periods in financial markets, the duration component of credit should offset a portion of any spread widening that occurs, helping to reduce the overall volatility of the portfolio. Credit investors who systematically reduce the duration of their bond portfolios must be prepared to accept higher volatility in their returns, especially during more turbulent times.

A better approach, in our view, would be to try to mitigate the impact of rising yields and a more challenging environment for credit returns through portfolio construction and dynamically managing duration risk. There are five ways to do this:

1. **Structural Curve Positioning:** One way to do this would be to use structural curve positioning, specifically by adopting a curve steepener initially, followed by a curve flattener. Curve steepeners are typically constructed by underweighting the long end of the credit curve and using short-maturity government bond futures or interest rate swaps to make up the

EM Credit Has Offered Wider Spreads and Fewer Defaults Than U.S. Corporate Debt

(Fig. 5) EM investment grade and high yield debt has offered more compelling spreads



As of December 31, 2020.

Past performance is not a reliable indicator of future performance.

Sources: J.P. Morgan and Bloomberg Barclays; data analysis by T. Rowe Price (see Additional Disclosures).

Top chart: EM Corporate IG and HY are based on the J.P. Morgan CEMBI Broad Diversified. U.S. HY ex-Energy is based on the Bloomberg Barclays U.S. HY ex-Energy Index. U.S. IG Corporate is based on Bloomberg Barclays U.S. Aggregate Corporate Index.

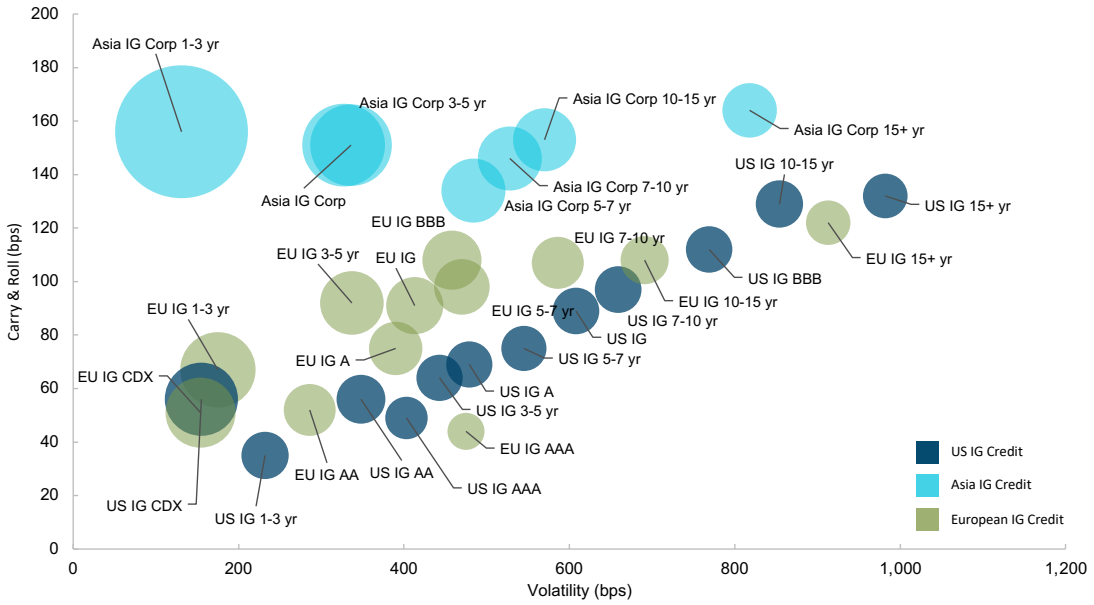
Bottom chart: U.S. HY default rates include distressed exchanges after 2007. EM Corporate default rate data begin in 2008. EM USD Corporate includes high yield and investment grade bonds.

lost duration. They typically work well when markets are concerned about inflation and the possibility of rate hikes in the more distant future, and they have the added potential benefit of improving the carry and roll-down profile of the portfolio, which should boost returns even if the yield curve remains unchanged. Once central banks start to withdraw monetary accommodation, however, it may be prudent to consider shifting to a curve flattener position. Curve flatteners should outperform if central banks are able to anchor long-term inflation and rate expectations later in the cycle.

2. **Allocating Across Regions and Sectors** can also help to mitigate duration risk. Many investors are wary of emerging market corporate debt, for example, as they regard it as too high risk. Yet there are many investment-grade issuers in emerging markets these days, and emerging market corporate debt has lower duration as well as higher yields than developed market credit—at the end of March, the Bloomberg Barclays Emerging Markets USD Corporate and Quasi Sovereign Investment Grade Index had a yield of 2.47% and a duration of 5.9 years compared with a yield of 1.77% and a duration of 7.25 years for the Bloomberg Barclays Global Corporate Index. Allocating to emerging market credit can, therefore, likely provide greater yield while simultaneously lowering duration risk. Both investment-grade and high yield corporate debt have consistently offered more compelling spreads

Asia Corporate Credit Offers Strong Risk/Reward Characteristics

(Fig. 6) Comparing IG corporate debt by region, duration, and credit quality



As of February 28, 2021.

Past performance is not a reliable indicator of future performance.

CDX = Credit default swap.

Volatility is measured by the standard deviation of annualized returns over a period of time.

Analysis conducted by T. Rowe Price using index data with 5-year lookback. Asia IG Credit data based on J.P. Morgan Asia Credit IG Index; U.S. IG Credit data based on Bloomberg Barclays U.S. Corporate Index; European IG Credit data based on Bloomberg Barclays European Aggregate Corporate Bond Index.

> ...Asia corporate credit, particularly lower-duration Asian credit, offers strong potential return opportunities for its risk level.

than their U.S. equivalents, while default rates among emerging market investment-grade and high yield issuers are significantly below those of U.S. high yield issuers (Figure 5).

Within the major geographical regions of the U.S., Europe, and Asia, investment-grade corporates issued by Asia-domiciled companies offer some of the best risk/reward opportunities. It is a relatively newer space and has fewer money managers researching companies, which may provide fertile ground for well-resourced teams. In Figure 6, we compare the carry and roll (a total return metric) versus historical volatility for investment-grade corporates broken out by geography, duration, and credit quality. The dark blue circles are for U.S. issuers, the green circles are for European issuers, and the light blue circles are for Asian issuers. The size of the circle represents the efficiency of the segment and is simply the carry and roll divided by the volatility—the larger the circle, the more efficient the segment.

As the chart shows, Asia corporate credit, particularly lower-duration Asian credit, offers strong potential return opportunities for its risk level. It also reveals that European credit opportunities are often relatively more attractive than similar U.S. credit segments (see also the following section on euro-denominated credit). This suggests that U.S. credit managers could improve their risk-return profile by allocating to global opportunities.

3. **Holding Euro-Denominated Credit** may also help to offset duration risk in the current environment. The European Central Bank is likely to be slower to hike interest rates than other central banks, and when it does eventually raise rates, it will probably be by less. This means that, over the longer term, the euro yield curve could be more resilient to sell-offs than the U.S. dollar yield curve and, therefore, that euro-denominated corporate bonds should offer a degree of insulation against future spikes in global yields. As Figure 7 shows, European corporate spreads are competitive with those of U.S. corporates.

Global Spread Dispersion Highlights Importance of Credit Selection

(Fig. 7) European corporates are competitive with their U.S. counterparts

	U.S. Corporates			European Corporates—USD-hedged			Emerging Markets Corporates		
	Yield to Maturity	Spread	Duration (yrs)	Yield to Maturity	Spread	Duration (yrs)	Yield to Maturity	Spread	Duration (yrs)
AAA	2.2%	47	12.4	0.9%	53	8.0	1.7%	56	10.7
AA	2.0	53	9.3	0.7	54	4.6	1.5	64	5.8
A	2.1	71	8.1	0.9	74	5.4	2.0	104	6.2
BBB	2.6	111	8.3	1.2	103	5.1	2.9	184	5.4
Total IG Index	**2.3**	**90**	**8.4**	**1.2**	**89**	**5.2**	**2.4**	**145**	**5.8**
Q1 2021 Performance		**-4.7%**			**-0.5%**			**-2.2%**	

As of March 31, 2021.

Past performance is not a reliable indicator of future performance.

Sources: ICE BofA/ML and Bloomberg Barclays (see Additional Disclosures). U.S. Investment Grade represented by the Bloomberg Barclays U.S. Corporate Index; European Corporate Investment Grade represented by the Bloomberg Barclays Euro Aggregate Corporate Index; Emerging Markets Investment Grade represented by the ICE BofA/ML High Grade Emerging Markets Corporate Plus Index; European Corporate YTM hedged to USD assuming 0.70% spread between 3-month USD LIBOR and EUR. Numbers may not total due to rounding.

Allocating to Shorter-Maturity Bonds May Reduce Duration Risk

(Fig. 8) Using credit default swap indices might offset loss of yield

	Allocation (%)	Yield to Maturity	Duration	Spread Duration
U.S. Corporate Investment Grade	100	2.31	8.35	8.35
Shorter-Duration Portfolio + CDX				
U.S. Corporate 3–7 Years Index	34	1.59	4.30	4.30
U.S. Corporate 7–10 Years Index	64	2.54	7.37	7.37
CDX IG—5Y [25% notional overlay]	[25]	0.54	0.00	5.21
Cash Collateral	2	0.00	0.00	0.00
Total	100	2.30	6.18	7.48
Difference			-2.17	-0.87

As of March 31, 2021.
By limiting the CDX notional to 25%, a conservative estimate of a level investors would be comfortable with, we set aside cash to cover the derivative collateral requirements, then optimized the portfolio so that the yield to maturity would be equal to the U.S. Corporate Investment Grade index and with a duration less than the same index.
The information presented herein for the hypothetical portfolio is hypothetical in nature and is shown for illustrative, informational purposes only. Data does not reflect the actual returns of any portfolio/strategy but rather the results of a theoretical blend of the indicated indices.
The assumption of constant benchmark weights has been made for modeling purposes and is unlikely to be realized. The hypothetical portfolio does not reflect the impact that material economic, market or other factors may have on weighting decisions. If the weightings change, results would be different. Transaction costs, taxes, and other potential expenses, are not considered and would impact results. Actual results experienced by clients may vary significantly from the hypothetical illustration shown and data is subject to numerous limitations. Data shown for the hypothetical portfolio is as of the dates shown and is subject to change over time. The information is not intended as a recommendation to buy or sell any particular security, and there is no guarantee that results shown will be achieved. As this is a hypothetical illustration, the risk of leverage is not reflected. Derivatives may be riskier or more volatile than other types of investments because they are generally more sensitive to changes in market or economic conditions; risks include currency risk, leverage risk, liquidity risk, index risk, pricing risk, and counterparty risk.
Source: Bloomberg Finance L.P. and Bloomberg Barclays Live. Bloomberg Barclays U.S. Corporate Bond Index. Markit CDX North America Investment Grade Index (see Additional Disclosures).

4. **Allocating to Shorter-Maturity Bonds** is an obvious way of reducing duration risk, but one that comes with the disadvantage of providing less yield than investing in longer-dated bonds. This can be overcome by using derivatives in the form of credit default swap indices (CDX). Investment-grade CDX offer a way of gaining exposure to a benchmark without taking on the duration risk of longer-dated securities. Combining an allocation to short-duration bonds with exposure to investment-grade CDX therefore enables an investor to construct a portfolio that has similar carry and spread to the benchmark, but with less duration. In Figure 8, the corporate index has a yield of 2.31% and a duration of 8.35 years. By moving the allocation to the three- to seven-year index and the 7- to 10-year index and overlaying CDX, one could potentially generate around the same yield with a duration more than two years shorter. This is simply a hypothetical example, but it is meant to illustrate the additional flexibility provided by incorporating CDX.

5. **Active Management of Total Duration:** Finally, it is worth pointing out the potential benefits of actively managing the total duration of the portfolio. While significantly reducing the overall duration of a portfolio is not a desirable long-term option, adjusting the overall duration exposure for short periods, depending on circumstances,

can significantly boost returns. Doing this well will not be possible for everyone. It requires a rigorous monitoring of macroeconomic factors and government bond markets, on top of developments within industries and individual securities, which may not come naturally to all credit managers given their typical preference for focusing on bottom-up analysis.

Duration Management Set to Become a Key Driver of Returns

Lockdown measures imposed to control the spread of the coronavirus led to the worst global economic contraction since World War II. The rollout of vaccination programs across the world is fueling a rapid recovery this year, although some economies will require continued government support for a while yet. As the recovery gathers momentum, inflationary pressures may build, causing yield curves to steepen.

As duration in credit has steadily risen over the past decade, corporate bonds no longer offer the same degree of insulation against sovereign yield spikes as they did in the past. We believe that credit investors who add dynamic duration management to their traditional skills of sector and security selection are therefore likely to perform better over the next few years than those who do not.

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