

Tapping a misunderstood alpha source—effective corporate bond portfolio construction

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Executive summary

- **Credit investors may be exposed to unnecessary downside risk when behavioral biases lead credit managers to overweight more risky corporate issues and produce higher portfolio betas than benchmarks.**
- **We feel tracking error is a useful but misunderstood risk metric; credit managers should be aware of portfolio tracking error but also beware of its limitations.**
- **Outperformance in up and down bond markets is achievable when effective portfolio construction can uncover sources of alpha.**



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Many factors can explain return attribution differences in credit portfolio returns—curve, interest rate positioning, sector allocation and security selection. Solid bottom-up fundamental credit research is certainly a cornerstone of any successful corporate bond management strategy, as most managers generally achieve a majority of their excess returns through sector allocation and security selection. But what if we told you that effective portfolio construction is an inexpensive alpha source that can allow a credit manager the opportunity to build portfolios around their best ideas while also producing consistent and uncorrelated excess returns in both bull and bear credit markets?

We believe most corporate credit investment managers don't place enough weight on the importance of portfolio construction. Moreover, many investors in the corporate credit market do not fully understand why portfolio construction is so important or what implications portfolio construction can bring to their overall returns.

In this paper, we explain why investors should look more closely at the portfolio construction process when considering and evaluating corporate credit managers. We will focus this discussion on three primary themes. First, many credit managers are vulnerable to behavioral biases that make them overly optimistic about their ability to forecast investment returns. This leads them to overweight portfolios to riskier segments of the investment grade market. These managers may shine when the credit market environment is favorable but offer little reprieve from downside risk when market conditions change.

Second, credit managers tend to rely heavily on tracking error to assess portfolio risk. This results in an inefficient anchoring bias to an inefficient benchmark. We maintain that it's important to be aware of portfolio tracking error, but also to beware of its limitations as a tool in portfolio construction. We believe there are better methods of assessing credit portfolio risks that can lead to better outcomes.

Third, we illustrate how effective portfolio construction, can potentially result in consistent and uncorrelated excess returns over the course of a full investment cycle. Through a hypothetical Example, we will demonstrate how credit managers who focus more deeply on portfolio construction can potentially produce more consistent and uncorrelated excess return when measured against their peer groups.

Under the influence of behavioral biases

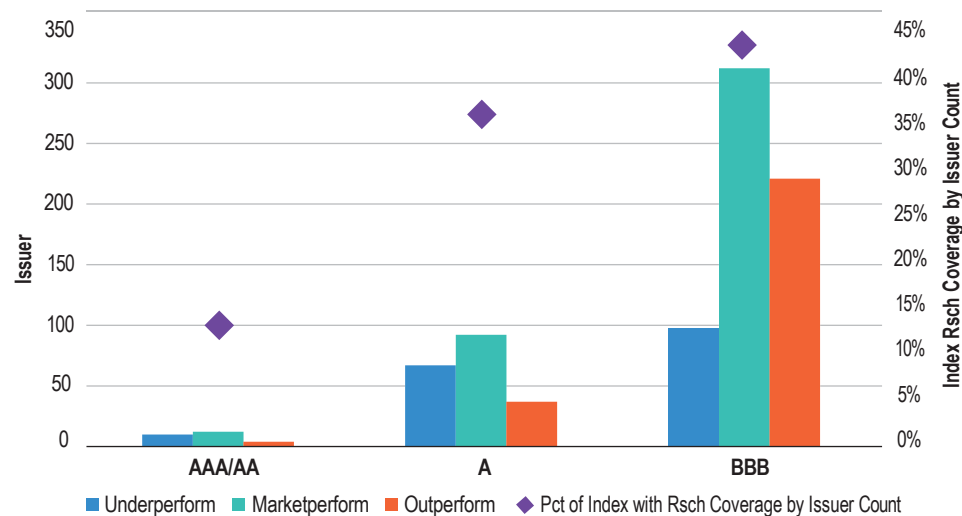
A good way to examine the impact of behavioral biases in the management of a corporate credit portfolio is to assess how often a manager outperforms their stated benchmark when assets are selling off or, stated differently, when credit spreads are widening. A manager who consistently outperforms in good markets but underperforms when markets are weak may be under the influence of an overly optimistic behavioral bias.

We believe many corporate credit managers fall into this trap primarily because their portfolios are overweighted toward lower quality (or lower-rated credit risk) issues through the duration of an investment cycle. As a result, the excess returns generated by many corporate bond managers are highly correlated to the direction of credit spreads. These managers are knowledgeable, skilled and experienced, so what leads them to consistently maintain more risky allocations? In our view, these managers are overly optimistic about their ability to forecast investment performance, which creates a bias toward riskier credit market holdings.

As an example specific to the corporate credit market, when an analyst recommends a corporate bond they are typically making a recommendation for the direction of its credit spread relative to the average spread of a benchmark, a relevant sector, or peer group. From a behavioral standpoint, it can be difficult for a forward-looking investor to recommend a high-quality corporate bond that trades with a very tight spread relative to its benchmark or peer group, because this bond would only outperform if riskier bonds perform poorly. This is not a beneficial outcome.

To accentuate this point, we conducted a study to evaluate every investment-grade corporate bond recommendation from three sell-side research departments.¹ In the investment-grade credit universe, there are approximately 700 BBB rated issuers and 300 issuers rated A and above. In our study, we captured the “outperform”, “market perform” and “underperform” recommendations across each rating category published: triple- and AA; A; and BBB. (See Exhibit 1.)

Exhibit 1: Outperform recommendations on lower-quality bonds show optimism from sell-side research departments



Source: Barclays, BofA Securities, JP Morgan, Wells Fargo. Data as of March 31, 2022. These firms were selected as they are the three largest sell-side firms who make their credit recommendations publicly available.

From this data, it becomes clear there is a low-quality bias to the outperform recommendations; there are nearly 250 outperform recommendations on BBB-rated bonds, but just around 90 underperform recommendations in the same rating category. By contrast, the ratio of outperform to underperform recommendations among higher-rated bonds is more balanced; in the A-rated category, there are approximately 50 outperform recommendations and 70 underperform recommendations. Looking at this data another way, the number of outperform recommendations for BBB-rated bonds is five times higher than the number of outperform recommendations for A bonds.

We acknowledge this is a consolidation of the total sell-side research recommendations for the companies we analyzed. However, we believe it is reasonable to assume that if most buy-side investment firms conducted similar studies on their internal research recommendations, the skew toward more outperform recommendation for BBB-rated credits versus higher-quality credits would be similar.

Taking this analysis one step further, if credit portfolio managers are relying on research analysts for investment ideas, then naturally the list of recommendations will be heavily biased toward riskier securities. This can—and often does—result in credit portfolio allocations that are skewed toward risky bonds throughout the entire investment cycle.

1. These firms were selected as they are the three largest sell-side firms who make their credit recommendations publicly available.

Credit managers must be cognizant of two critical points to effectively address this behavioral bias when constructing their portfolios:

1. Are they maintaining an appropriate balance between higher-risk and higher-quality investment ideas as not to overweight riskier bonds for the duration of an investment cycle?
2. Have they established a process to help determine when investors are being compensated to add additional risk into their portfolios and, just as importantly, when they are not?

This second point is vital; if a manager maintains a long risk position at all times, its ability to add alpha is questionable. In such a case, any excess returns generated are merely the result of taking more risk and are not due to the skill or ability of the manager.

Be aware of tracking error, but beware of its limitations

Among the widely known and accepted methods for analyzing the risk of an actively managed corporate bond portfolio is to calculate its tracking error versus its benchmark. Benchmark indices are useful for credit managers for comparing return and risk characteristics among different asset classes. However, as advocates for active portfolio management, we also acknowledge that market indices are inherently inefficient. Managers should be able to solidly and consistently outperform their benchmarks. We believe this is where tracking error falls short as an effective risk allocation tool.

Tracking error can be a useful measure to explain potential deviations of portfolio performance versus a benchmark. As credit managers, we find tracking error to be quite useful in assessing risk and return attribution. Unfortunately, tracking error can also be widely misunderstood and used as a tether by portfolio managers. If benchmark indices are inefficient, then deviations from the benchmark should be beneficial by reducing risk or improving portfolio returns. However, too often deviating from a benchmark is viewed as “taking risk” rather than reducing it or improving risk adjusted returns. A few examples highlight this point:

1. When reducing tracking error can be bad:

A frequent misjudgment often made by portfolio managers is they may own a security they don't particularly like in a sector where they have an unfavorable outlook simply because the issue is a large contributor to the benchmark. They can articulate their disfavor of the security and the sector by owning a smaller allocation than the benchmark, but still maintaining an allocation nevertheless. In this situation, we feel reducing tracking error could be bad for the portfolio.

2. When adding tracking error can be good:

In this instance, if a portfolio manager holds an unfavorable view of a security or sector, they should feel confident in avoiding that part of the market and instead look for other areas with similar levels of risk, volatility and macro drivers in which to invest in order to offset the underweight. As a result, the investor is not exposed to a disfavored security or sector and instead invests that capital more heavily into preferred securities and sectors. This is an instance when adding tracking error is pure and good, and has the potential to result in improved risk adjusted returns for the investment portfolio, even though optically tracking error is higher.

If portfolio managers focused less on tracking error, they might do more of the latter and much less of the former, thus generating beneficial portfolio results throughout the course of an investment cycle. This is why we like to say, “Be aware of your tracking error, but beware of its flaws and limitations in portfolio construction.”

In our view, portfolio managers need to develop additional tools for allocating portfolio risk. While we expand on this in the next section, one solution to improve risk allocation in portfolio construction worth discussing now: focus on total portfolio volatility.

Total portfolio volatility is not a foreign concept to many institutional investors, but it receives much less focus in actively managed corporate bond funds. The same calculation made to assess a portfolio's tracking error can be modified to estimate and compare total projected portfolio volatility for the actively managed portfolio and its benchmark index.

If a portfolio manager can unshackle themselves from the limiting factors of tracking error and focus more on building maximum returns for minimal volatility, better risk-adjusted performance may occur. Portfolio managers will be focused on building a portfolio around their best ideas and less concerned with how those ideas align with the composition of an inefficient benchmark index.

This does not suggest that ignoring tracking error is prudent. It suggests that managing portfolio volatility plays a more dominant role in allocating risk in actively managed funds, and that tracking error plays a secondary role.

Case study—Uncovering hidden sources of alpha through portfolio construction

While portfolio construction is among the most misunderstood concepts in corporate bond portfolio management, it does not mean that credit managers do not use some form of portfolio construction process. The question is, do their construction processes exclusively target alpha generation or risk reduction? A robust portfolio construction process could feasibly provide both.

For example, credit portfolio managers typically have a formal process for credit research and a formal valuation process for identifying rich or inexpensive securities. However, in constructing credit portfolios they often follow bottom-up or simplistic approaches, such as purchasing the securities they like, avoiding those they dislike and ultimately determining whether they are happy with the resulting portfolio risk, duration and tracking error.

While these approaches are not wrong, we believe more specific structural risk allocation can help create more consistent investment returns over an investment cycle. Through these processes, managers may uncover additional sources of alpha. We believe in a strict approach to building credit portfolios utilizing our best ideas, while considering the environment and the valuation for risky assets, and then layering in downside risk management to enable outperformance regardless of the direction of credit spreads.

As a case study, let's consider an example of a hypothetical credit portfolio construction scenario to illustrate how much differentiation can exist in a simple, diversified corporate bond universe. For this example, we will create a benchmark index and multiple portfolios that include just 10 credit issuers in 10 individual sectors. The issuers were chosen based on the size of the investment universe and their respective sectors. We can also select a broad range of 2-, 5-, 10- and 30-year maturities for each issuer or sector, with the understanding that each sector/security must hold exactly 10% market value in each issuer. The only optional variable is which maturities can be purchased within each credit.

The portfolios must also keep key rate durations broadly neutral, and total portfolio durations very close to that of the benchmark. For comparison purposes, the sample benchmark index owns exactly 2.5% in each maturity – 2-year, 5-year, 10-year, 30-year – of each issuer in the 10 index sectors. (See Exhibit 2 below.) The portfolio is also balanced so that it contains five higher volatility sectors (shown in red) and five lower volatility sectors (shown in green.)² In our analysis of this hypothetical index, the duration is 7.631 years and annualized estimated portfolio volatility is 3.67%.

2. Historical spread volatility calculated by Franklin Templeton based on historical data grouping together companies with similar volatility patterns. These are proprietary calculations and may be subject to change in the future.

Exhibit 2: Economic sector analysis forecast: Impact of sector, issuer and maturity composition in risky and high quality allocations in our sector analysis forecast

				High Quality Allocations					
Sector	Security	Security Allocation	Sector Allocation	Sector	Security	Security Allocation	Sector Allocation	Benchmark	
Finance	BAC 2y	2.5%	10.0%	Healthcare	PFE 2y	2.5%	10.0%	Duration	7.6
	BAC 5y	2.5%			PFE 5y	2.5%		Base scenario—Expected rtn	1.90%
	BAC 10y	2.5%			PFE 10y	2.5%		Total volatility	3.7
	BAC 30y	2.5%			PFE 30y	2.5%			
Telecom	VZ 2y	2.5%	10.0%	Consumer	ABIBB 2y	2.5%	10.0%		
	VZ 5y	2.5%			ABIBB 5y	2.5%			
	VZ 10y	2.5%			ABIBB 10y	2.5%			
	VZ 30y	2.5%			ABIBB 30y	2.5%			
Midstream	KMI 2y	2.5%	10.0%	Energy	XOM 2y	2.5%	10.0%		
	KMI 5y	2.5%			XOM 5y	2.5%			
	KMI 10y	2.5%			XOM 10y	2.5%			
	KMI 30y	2.5%			XOM 30y	2.5%			
Auto	F 2y	2.5%	10.0%	Technology	MSFT 2y	2.5%	10.0%		
	F 5y	2.5%			MSFT 5y	2.5%			
	F 10y	2.5%			MSFT 10y	2.5%			
	F 30y	2.5%			MSFT 30y	2.5%			
Technology	DELL 2y	2.5%	10.0%	Utilities	DUK 2y	2.5%	10.0%		
	DELL 5y	2.5%			DUK 5y	2.5%			
	DELL 10y	2.5%			DUK 10y	2.5%			
	DELL 30y	2.5%			DUK 30y	2.5%			

Economic sector analysis forecasting does not reflect actual investment results and are not indications of future results. Results reflected are part of an exercise by portfolio managers to generate forward looking return insights. They do not include any transaction costs or management fees that would reduce returns, are based on assumptions that are subject to changing market conditions and may not come to pass. Investment involves risk including potential loss of principal. Chart is for illustrative purposes and not intended as investment advice.

Now we will demonstrate how constructing distinctly different portfolios, using this this sample benchmark index can result in vastly different tracking errors, volatilities and performance in different investment environments, even in this simple universe where every portfolio owns exactly 10% of each issuer. Our belief is these allocation differences highlight the importance of portfolio construction in corporate bond investing with an exponentially larger opportunity set, while also highlighting the weaknesses of tracking error as a risk metric.

For each sample portfolio, we calculated duration, base case returns, tracking error and portfolio volatility statistics. We also calculated excess returns for each sample portfolio against our custom benchmark in 15 different investment scenarios. Of the 15 different investment scenarios, there are three different interest rate environments: bull (lower yields), bear (higher yields) and flat. There are also five different credit spread scenarios for each interest rate environment: a base case to reflect general views on credit markets; a bull

credit spread scenario; and three bear credit spread scenarios—baby bear, normal bear and big bear³—which reflect gradually increasing levels of spread widening volatility.

Our analysis begins with two relatively simplistic portfolios—one risky and the other defensive.

3. For credit spread scenario definitions, please see page 11.

Exhibit 3: Risky portfolio sector analysis forecast

- Overweights risky sectors by allocating 5% to each 10- and 30-year bond for issuers in the higher volatility sectors; maximizes longer duration positions in risky names.
- Underweights higher-quality sectors by allocating 5% to each 2- and 5-year bond for issuers in the lower volatility sectors; maximizes shorter duration position in safer names.
- Higher total volatility than the sample index.
- Outperforms the index in base case and bull credit environments but underperforms in bear credit environments.
- Tracking error is 50.

								High Quality Allocations				
Sector	Security	Allocation	Sector Allocation	Sector	Security	Allocation	Sector Allocation	Benchmark	Risky Portfolio			
Finance	BAC 2yr	—	10.0%	Healthcare	PFE 2y	5.0%	10.0%	Duration	7.6	7.3		
	BAC 5y	—			PFE 5y	5.0%		Base scenario—Expected rtn	1.90%	2.07%		
	BAC 10y	5.0%			PFE 10y	—		Base scenario—Excess rtn		0.18%		
	BAC 30y	5.0%			PFE 30y	—						
Telecom	VZ 2y	—	10.0%	Consumer	ABIBB 2y	5.0%	10.0%	Total volatility	3.7	3.9		
	VZ 5y	—			ABIBB 5y	5.0%		Tracking error (Correl adj.)		0.5		
	VZ 10y	5.0%			ABIBB 10y	—						
	VZ 30y	5.0%			ABIBB 30y	—						
Midstream	KMI 2y	—	10.0%	Energy	XOM 2y	5.0%	10.0%	Scenario Analysis	Index Return		Excess Return	
	KMI 5y	—			XOM 5y	5.0%			Base credit	1.9%	0.18%	
	KMI 10y	5.0%			XOM 10y	—			Flat rates forecast	Baby bear	0.7%	-0.06%
	KMI 30y	5.0%			XOM 30y	—			Bear	-3.6%	-0.46%	
Auto	F 2y	—	10.0%	Technology	MSFT 2y	5.0%	10.0%		Big bear	-14.5%	-1.44%	
	F 5y	—			MSFT 5y	5.0%			Bull credit	4.0%	0.24%	
	F 10y	5.0%			MSFT 10y	—			Bear rates forecast	Base credit	-5.7%	0.37%
	F 30y	5.0%			MSFT 30y	—			Baby bear	-6.9%	0.13%	
Technology	DELL 2y	—	10.0%	Utilities	DUK 2y	5.0%	10.0%		Bear	-11.2%	-0.26%	
	DELL 5y	—			DUK 5y	5.0%			Big bear	-22.1%	-1.25%	
	DELL 10y	5.0%			DUK 10y	—			Bull credit	-3.6%	0.43%	
	DELL 30y	5.0%			DUK 30y	—			Base credit	6.5%	0.08%	
							Bull rates forecast	Baby bear	5.3%	-0.16%		
							Bear	0.9%	-0.55%			
							Big bear	-9.9%	-1.54%			
							Bull credit	8.6%	0.14%			

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Exhibit 4: Defensive portfolio sector analysis forecast

- Underweights risky sectors by allocating 5% to each 2- and 5-year bond for issuers in higher volatility sectors.
- Overweights higher-quality sectors by allocating 5% to each 10- and 30-year bond for issuers in lower volatility sectors.
- Short-duration/higher beta credit risk and long-duration/lower volatility credit risk.
- Good performance in bear credit environments; lower total portfolio volatility than the benchmark.
- Like the risky portfolio, also has tracking error of 50 bps.

				High Quality Allocations								
Sector	Security	Security Allocation	Sector Allocation	Sector	Security	Security Allocation	Sector Allocation	Benchmark	Defensive Portfolio			
Finance	BAC 2yr	5.0%	10.0%	Healthcare	PFE 2y	—	10.0%	Duration	7.6	8.0		
	BAC 5y	5.0%			PFE 5y	—		Base scenario—Expected rtn	1.90%	1.72%		
	BAC 10y	—			PFE 10y	5.0%		Base scenario—Excess rtn		-0.18%		
	BAC 30y	—			PFE 30y	5.0%						
Telecom	VZ 2y	5.0%	10.0%	Consumer	ABIBB 2y	—	10.0%	Total volatility	3.7	3.5		
	VZ 5y	5.0%			ABIBB 5y	—		Tracking error (Correl adj.)		0.5		
	VZ 10y	—			ABIBB 10y	5.0%						
	VZ 30y	—			ABIBB 30y	5.0%						
Midstream	KMI 2y	5.0%	10.0%	Energy	XOM 2y	—	10.0%	Scenario Analysis	Index Return	Excess Return		
	KMI 5y	5.0%			Flat rates forecast	XOM 5y	—			Base credit	1.9%	-0.18%
	KMI 10y	—				XOM 10y	5.0%			Baby bear	0.7%	0.06%
	KMI 30y	—				XOM 30y	5.0%			Bear	-3.6%	0.46%
Auto	F 2y	5.0%	10.0%	Technology		MSFT 2y	—	10.0%	Big bear	-14.5%	1.44%	
	F 5y	5.0%			Bear rates forecast	MSFT 5y	—		Bull credit	4.0%	-0.24%	
	F 10y	—				MSFT 10y	5.0%		Base credit	-5.7%	-0.37%	
	F 30y	—				MSFT 30y	5.0%		Baby bear	-6.9%	-0.13%	
Technology	DELL 2y	5.0%	10.0%	Utilities		DUK 2y	—	10.0%	Bear	-11.2%	0.26%	
	DELL 5y	5.0%			Bull rates forecast	DUK 5y	—		Big bear	-22.1%	1.25%	
	DELL 10y	—				DUK 10y	5.0%		Bull credit	-3.6%	-0.43%	
	DELL 30y	—				DUK 30y	5.0%		Base credit	6.5%	-0.08%	
								Baby bear	5.3%	0.16%		
							Bear	0.9%	0.55%			
							Big bear	-9.9%	1.54%			
							Bull credit	8.6%	-0.14%			

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What's surprising in the first analysis of these examples is that both portfolios have similar tracking errors of 50 bps, despite significant deviations in their holdings. This highlights one flaw of using tracking error as a risk metric; the two portfolios are distinctly different in how they might perform through an investment cycle, yet they still have the same tracking error. This could be misleading to a credit manager.

Taking this analysis one step further, the next sample portfolio, Volatility Focused, articulates the benefits of thoughtful portfolio construction using portfolio risk allocation tools. What's different in the Volatility Focused Portfolio is the allocation seeks to balance portfolio risk by taking longer duration credit risk in two higher-volatility sectors. It also has long duration overweight risk in two lower volatility sectors.

Exhibit 5: Volatility focused portfolio sector analysis forecast

- Maximize total return in base interest rate and base credit environment.
- Limit total portfolio volatility to less than or equal to index volatility.
- Returns in the base case environment are higher than in the other scenarios.
- Total portfolio volatility is slightly less than the index.
- Underperformance in bear credit environments is much lower than the risky portfolio, despite better risk-adjusted returns in all environments.
- Tracking error is only marginally higher at 61 bps.

High Quality Allocations												
Sector	Security	Security Allocation	Sector Allocation	Sector	Security	Security Allocation	Sector Allocation	Benchmark	Volatility Focused Portfolio			
Finance	BAC 2yr	1.7%	10.0%	Healthcare	PFE 2y	—	10.0%	Duration	7.6	7.7		
	BAC 5y	3.5%			PFE 5y	4.6%		Base scenario—Expected rtn	1.90%	2.33%		
	BAC 10y	4.8%			PFE 10y	2.8%		Base scenario—Excess rtn		0.43%		
	BAC 30y	—			PFE 30y	2.6%						
Telecom	VZ 2y	6.9%	10.0%	Consumer	ABIBB 2y	—	10.0%	Total volatility	3.7	3.6		
	VZ 5y	3.1%			ABIBB 5y	1.9%		Tracking error (Correl adj.)		0.61		
	VZ 10y	—			ABIBB 10y	3.4%						
	VZ 30y	—			ABIBB 30y	4.7%						
Midstream	KMI 2y	—	10.0%	Energy	XOM 2y	3.5%	10.0%	Scenario Analysis	Index Return	Excess Return		
	KMI 5y	0.5%			Flat rates forecast	XOM 5y	5.8%			Base Credit	1.9%	0.44%
	KMI 10y	3.8%				XOM 10y	0.6%			Baby Bear	0.7%	0.06%
	KMI 30y	5.7%				XOM 30y	—			Bear	-3.6%	-0.09%
Auto	F 2y	—	10.0%	Technology		MSFT 2y	4.2%	10.0%	Big Bear	-14.5%	-0.45%	
	F 5y	7.4%			Bear rates forecast	MSFT 5y	4.3%		Bull Credit	4.0%	0.16%	
	F 10y	2.6%				MSFT 10y	1.5%		Base Credit	-5.7%	0.12%	
	F 30y	—				MSFT 30y	—		Baby Bear	-6.9%	-0.26%	
Technology	DELL 2y	—	10.0%	Utilities		DUK 2y	0.5%	10.0%	Bear	-11.2%	-0.40%	
	DELL 5y	—			Bull rates forecast	DUK 5y	1.1%		Big Bear	-22.1%	-0.76%	
	DELL 10y	—				DUK 10y	3.2%		Bull Credit	-3.6%	-0.15%	
	DELL 30y	10				DUK 30y	5.2%		Base Credit	6.5%	0.61%	
								Baby Bear	5.3%	0.23%		
							Bear	0.9%	0.09%			
							Big Bear	-9.9%	-0.27%			
							Bull Credit	8.6%	0.34%			

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Looking at these results, we can begin to see how portfolio construction can provide an unexpected source of alpha. By making one simple tweak to focus portfolio construction on maximizing return while limiting volatility, this example illustrates how to generate a higher return than the risky portfolio with better downside risk management, but we can go one step further still.

Let us take this analysis one step further to demonstrate a more comprehensive process for portfolio construction. The last sample portfolio, Risk Mitigation Focused Portfolio, uses more sophisticated tools to build portfolios based on targeted portfolio volatility.

Risk Mitigation Focused Portfolio is where the alpha component of portfolio construction really emerges. The difference in portfolio construction between this portfolio and the others is that we have holistically incorporated sensitivity analysis of multiple investment environments into the risk allocation process. Maximum outperformance in the base case view is still targeted, as is total portfolio volatility equal to or less than that of the index. Yet, portfolio performance does not meaningfully underperform during a period of credit weakness.

This carefully planned and well-executed portfolio construction process has the potential to produce the kind of consistent results that allow credit portfolio managers to invest with conviction and provide more confidence to investors in these strategies.

Exhibit 6: Risk mitigation focused portfolio sector analysis forecast

- Seeks to maximize excess return in base case scenarios with significant downside protection in bear environments.
- Limit total portfolio volatility to less than or equal to index volatility.
- Returns in base case environment are slightly lower, but greatly improve potential outcomes in down markets.
- Total portfolio volatility is less than the index.
- Underperformance in bear credit environments is virtually eliminated.
- Tracking error is higher, at 74 bps, but still well within acceptable ranges.

High Quality Allocations								Risk Mitigation Focused Portfolio			
Sector	Security	Security Allocation	Sector Allocation	Sector	Security	Security Allocation	Sector Allocation	Benchmark	Excess Return		
Finance	BAC 2yr	7.3%	10.0%	Healthcare	PFE 2y	—	10.0%	Duration	7.6	7.5	
	BAC 5y	—			PFE 5y	—		Base scenario—Expected rtn	1.90%	2.34%	
	BAC 10y	2.7%			PFE 10y	10.0%		Base scenario—Excess rtn		0.44%	
	BAC 30y	—			PFE 30y	—					
Telecom	VZ 2y	10.0%	10.0%	Consumer	ABIBB 2y	—	10.0%	Total volatility	3.7	3.6	
	VZ 5y	—			ABIBB 5y	3.6%		Tracking error (Correl adj.)		0.74	
	VZ 10y	—			ABIBB 10y	6.4%					
	VZ 30y	—			ABIBB 30y	—					
Midstream	KMI 2y	—	10.0%	Energy	XOM 2y	0.8%	10.0%	Flat rates forecast	Base credit	1.9%	0.43%
	KMI 5y	—			XOM 5y	9.2%			Baby bear	0.7%	0.07%
	KMI 10y	—			XOM 10y	—			Bear	-3.6%	0.07%
	KMI 30y	10.0%			XOM 30y	—			Big bear	-14.5%	0.07%
Auto	F 2y	—	10.0%	Technology	MSFT 2y	2.2%	10.0%	Bear rates forecast	Bull credit	4.0%	0.07%
	F 5y	10.0%			MSFT 5y	7.8%			Base credit	-5.7%	0.37%
	F 10y	—			MSFT 10y	—			Baby bear	-6.9%	0.01%
	F 30y	—			MSFT 30y	—			Bear	-11.2%	0.01%
Technology	DELL 2y	—	10.0%	Utilities	DUK 2y	—	10.0%	Bull rates forecast	Big bear	-22.1%	0.00%
	DELL 5y	—			DUK 5y	—			Bull credit	-3.6%	0.01%
	DELL 10y	—			DUK 10y	2.3%			Base credit	6.5%	0.47%
	DELL 30y	10			DUK 30y	7.7%			Baby bear	5.3%	0.12%
								Bear	0.9%	0.11%	
								Big bear	-9.9%	0.11%	
								Bull credit	8.6%	0.12%	

Economic sector analysis forecasting does not reflect actual investment results and are not indications of future results. Results reflected are part of an exercise by portfolio managers to generate forward looking return insights. They do not include any transaction costs or management fees that would reduce returns, are based on assumptions that are subject to changing market conditions and may not come to pass. Investment involves risk including potential loss of principal. Chart is for illustrative purposes and not intended as investment advice.

Portfolio construction as a point of differentiation

Behavioral biases and misconceptions in risk analysis are challenges faced by all investment grade fixed income managers. If these biases are not recognized and properly accounted for, they can hamper a manager's ability to consistently outperform throughout an investment cycle. However, by approaching these challenges proactively and creating solutions to fix them, credit managers can take advantage of these limitations to add portfolio alpha.

We believe one of the most effective yet misunderstood ways to address these pitfalls is through the careful and

deliberate portfolio construction process. An effective process allows credit managers to look beyond the effects of behavioral bias and reduce the negative impacts of certain inhibiting risk metrics. A process that does not account for these characteristics will leave credit managers and investors vulnerable to unnecessary downside risk.

There is value in looking at metrics like tracking error, and we do consider this in our investment grade credit portfolios. However, we do not believe these metrics should be the sole or primary focus, given the constraints they place on a portfolio manager. As we relentlessly preach, "Be aware of tracking error, but beware of its flaws and limitations in portfolio construction."

Finally, an effective portfolio construction process allows a credit manager to take advantage of the structural inefficiencies in the credit markets, while still benefiting from a strong bottom-up and fundamentally based idea generation process. We believe managers who implement a process free from the constraints of a traditional benchmark-linked approach are likely to offer returns that outperform through every stage of an investment cycle. Consequently, their results are highly likely to be uncorrelated to their peers who do follow such an approach.

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Mr. Lohmeier has more than 20 years of experience in financial services, including 17 years as a portfolio manager. Prior to his current role, Mr. Lohmeier was head of investment grade credit and an investment officer at Aviva Investors. He also worked for AllianceBernstein as an investment grade portfolio manager and was assistant vice president of investments and investment grade portfolio manager at American Equity Investment Life Insurance Company. In addition, he has held analyst positions at Wells Fargo Financial and RSM McGladrey.

Mr. Lohmeier holds a bachelor's degree in finance from the University of Northern Iowa. He is a Chartered Financial Analyst (CFA) charterholder. He is also pursuing a master's degree in data science at Northwestern University.

IMPORTANT INFORMATION

Credit Spread Scenario Definitions

Interest rate scenario:

- Base Fed = flat rates, no changes looking out 6 months
- Bear Fed = Rates are increasing (50–150bps)
- Bull Fed = Rates are decreasing (25–50bps)

Credit scenario:

- Base = what our team thinks will happen in the next 6 months
- Bear = Spread widening (5–75bps)
- Big Bear = Spread widening (75 to 250bps)
- Inverted Big Bear = Spread widening (75 to 250bps) with the front end widening more than the back end
- Bull = Spread tightening (5–25bps)

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