APOLLO

Paying for Alpha but Getting Beta?

Joseph Moroney, Partner, Co-Head of Multi-Credit
Rob Bittencourt, Partner, Co-Head of Opportunistic Credit
Akila Grewal, Partner, Head of Credit and FIG Product

November 2023

KEY TAKEAWAYS

- Fixed-income portfolios relying on traditional strategic asset allocation models could be exposed to hidden risks. As most traditional active and passive strategies are benchmarked to the same indices, market participants can end up with significant holdings overlap and suboptimal portfolio allocations. This benchmarking strategy risks degrading performance namely through increased concentration across holdings, higher volatility, lower returns, or worse—a portfolio paying for alpha but only receiving beta.
- We believe that relaxing these benchmark constraints in fixed-income portfolios can generate true alpha and higher risk-adjusted returns. This can be achieved through allocations to unconstrained strategies that extend the investable universe across sub-asset classes in both public and private markets. We believe it is important to consider managers who approach portfolio construction from a bottom-up perspective, which can translate to differentiated investment portfolios with lower correlation and increased performance over time.
- Loosening constraints can also provide active managers the flexibility to position portfolios dynamically throughout the market cycle, minimizing default and other risks, and creating new opportunities for potential alpha generation.
- In this paper, we examine how benchmarking issues can undermine performance in fixed-income portfolios. We also use an illustrative, simplified, non-optimized portfolio based on publicly available data to demonstrate how integrating less-constrained or unconstrained strategies can enhance long-term risk-adjusted returns.

Benchmark constraints in fixed income can have unintended consequences

Benchmark constraints can create unintended concentration in fixed-income portfolios and, as a result, undermine their long-term alpha-generation potential.

Most strategic asset-allocation frameworks used in fixed-income portfolios today employ standard sub-class categorizations, such as “core”, “core plus”, and “high yield”. Those allocation decisions are traditionally expressed via the deployment of passive and active traditional strategies, the latter of which are often used with the primary goals of diversification and alpha generation.

Passive strategies, by design, seek to replicate the performance of public benchmarks such as the Bloomberg US Corporate Bond Index or the ICE BofA High Yield Index. As a result, passive strategies’ holdings will, by definition, closely track the composition of the index and deliver low-fee beta exposure.

Active strategies look to add alpha by taking active positions and either underweighting or overweighting them relative to a specified benchmark. However, some active managers—in an effort to control tracking error—will refrain from taking high-conviction positions that deviate significantly from the relevant benchmark’s holdings. This can create significant problems.

First, while market participants typically employ a variety of traditional active managers with differing investment styles and philosophies, commonalities in holdings created by benchmarking can produce high levels of unintended concentration in aggregate portfolios.

Second, active managers through the adherence to tracking error budgets (which dictate how much managers can deviate from the benchmark) are sometimes forced to maintain sizable positions in assets in which they might have low conviction, such as a high allocation to low-quality credit (e.g., CCC-rated bonds) or have a high exposure to sectors that they may want to avoid.

Third, it’s possible that by seeking to diversify their portfolios, market participants might end up owning both overweight and underweight positions compared to the index. That’s because benchmarked-focused investment managers typically only have a limited number of index-diverging bets they can make.

The combination of these problems can significantly impact market participants’ performance. So how can a market participant overcome these issues and obtain true alpha when paying a manager for an actively managed portfolio?

Go beyond the benchmark

We believe the overall performance of a portfolio can be enhanced by replacing part of their fixed-income exposure with less-constrained or even unconstrained strategies. By loosening benchmark parameters, managers can have more latitude to implement their credit views and expand their universe of potential investments, which can reduce overlap with traditional fixed-income portfolios and create more diversification.

Going unconstrained can also allow managers to enhance portfolio yield and downside protection at each step along the credit-risk or duration spectrum. These benefits are particularly salient in the public markets—where market participants can pursue opportunities in a universe of asset classes that are not part of traditional benchmarks, thereby reducing correlation and increasing diversification. Loosening constraints can also allow market participants to expand opportunities beyond public markets by integrating private assets for additional yield enhancement.

Pushing for alpha in investment grade

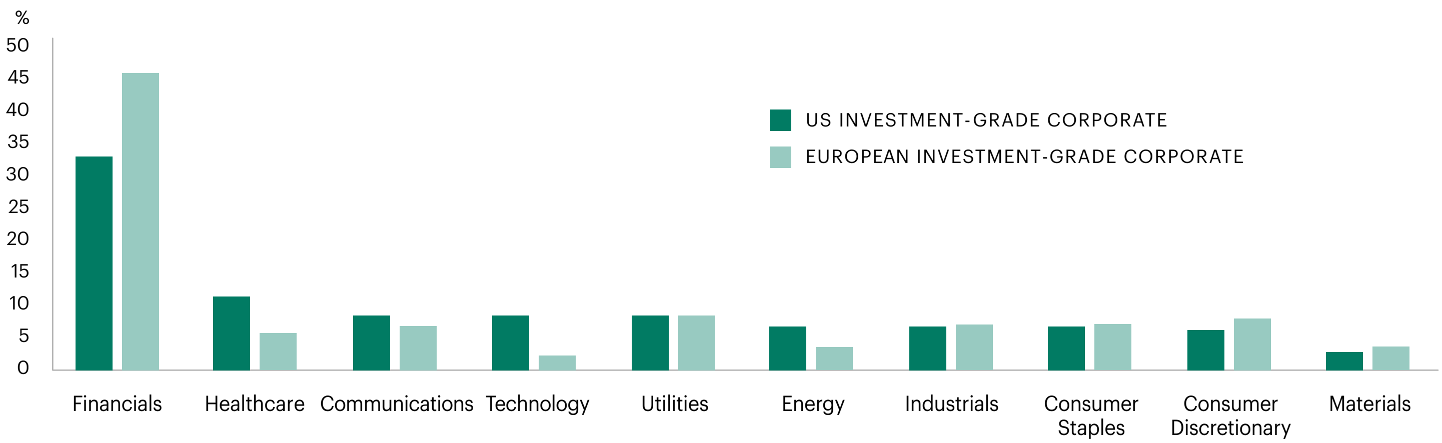
Typical core fixed-income portfolios, whether passive or active, are comprised of US Treasuries, government-related or corporate securities, fixed-rate agency mortgage-backed securities (MBS), asset-backed securities (ABS), and agency or non-agency commercial mortgage-backed securities (CMBS). For those wanting a bit more return in their investment-grade bucket, core-plus strategies often supplement these holdings with residential mortgage-backed securities (RMBS), emerging-market debt, collateralized debt obligations (CLOs), and convertible bonds. While this may sound like a diversified portfolio at first glance, given the proliferation of benchmarks like the Bloomberg Global Aggregate Bond Index and tight tracking budgets, when underlying portfolios of investment managers are inspected—often they tend to look very similar and have high correlations.

We believe realizing the full benefits of an unconstrained approach can be achieved in two ways:

1. Market participants can broaden their investment universe well beyond these standard categories, and consider assets from both primary and secondary markets, as well as opportunities from financial institutions, financial sponsors, and strategic originators. These can include traditional assets like bonds and loans, or more structured asset-backed securities, which are more complex but come with yield enhancement and downside protection. The universe can be expanded further by using proprietary sourcing and origination platforms to unlock opportunities that are beyond the reach of some market participants.
2. Removing any form of tracking error so that investment managers can fully express their credit views when constructing a portfolio. For example, financials have almost a 50% weight in the Bloomberg Pan-European Aggregate Bond Index (**Exhibit 1**). An investment manager tied to a tight tracking error would be forced to hold a significant allocation to this sector in any portfolio benchmarked to this index. Holding such a large allocation to financials during a period like the first quarter of 2023 when Silicon Valley Bank (SVB), Signature Bank, and Credit Suisse failed would have resulted in significant levels of volatility or even worse—losses to portfolios closely tracking the index. Therefore, even in investment grade, it pays to be selective and create portfolios from a fundamental, unconstrained perspective.

Exhibit 1: Benchmarks can be highly overweight in certain sectors

SECTOR BREAKDOWN OF INVESTMENT-GRADE CORPORATE INDEXES



Sources: Bloomberg, Apollo Chief Economist. Data as of June 30, 2023. US investment-grade corporate is represented by the Bloomberg US Corporate Bond Index. European investment-grade corporate is represented by the Bloomberg Pan-European Aggregate Bond Index.

Beware of unintended risk in high yield

High-yield credit portfolios utilize an even narrower spectrum of assets comprising of securities with below-investment grade ratings and high-yield CLO obligations, which can lead to even greater levels of correlation across investment managers.

Many of the most popular high-yield indices tend to include at least 10% of CCC-rated bonds.[1] An active manager who foresees an economic recession and higher risk of default might want to reduce exposure to these low-rated bonds. However, because of tracking error budgets, the investment managers' hands are effectively tied, and they may have to hold a portfolio that is carrying much more risk than they would want.

In essence, we believe market participants in this strategy are paying active management fees to a manager who is only delivering beta due to being "benchmarked". The more managers follow similar strategies, the more this issue compounds until a market participant ends up with a simple beta portfolio.

Allowing a wider funnel of opportunities can enable managers to invest across the full spectrum of high–yield credit such as global bond and loan markets, small and large companies, and across both corporate credit and asset-backed securities—which can lead to a diversified, yet focused portfolio. Additionally, managers with proprietary sourcing capabilities can include private assets, which can potentially further increase yields.

[1] The ICE BofA US High Yield Index (H0A0) and the ICE BofA European High Yield Index (HE00) are benchmarks that held at least a 10% allocation of CCC-rated bonds in their portfolios as of September 30, 2023.

To obtain true alpha in investment portfolios versus "beta plus", we believe it is important for market participants to consider managers who approach portfolio construction from a bottom-up perspective. This is especially true when looking at high-yield credit which carries with it more default risk than its investment-grade counterpart. We believe it is important for market participants to consider managers who can articulate a view on each position in their portfolio—"this is why I want to own this name". We believe applying this mentality across a wide sourcing funnel can lead to differentiated investment portfolios with low correlations to indices that can generate outperformance over time.

In other words, looser investment constraints pave the way for market participants to benefit from a much broader investable universe while also allowing active managers to execute their credit views fully, avoid security-selection pitfalls, and increase the odds of success by unlocking alpha on a security-by-security basis.

This expanded opportunity set can be realized across public and private markets, and we believe a well-rounded strategy can incorporate both when pursuing strong risk-adjusted returns over a cycle. We believe that combining a fundamental, unconstrained approach to public credit with the differentiated returns of private credit can increase diversification, minimize volatility, and enhance portfolio yield and long-term performance.

In the next section, we will examine the makeup of some of the most common fixed-income benchmarks and illustrate, using indices as proxies, how allowing managers to implement an unconstrained approach to credit portfolio construction can benefit risk and return dynamics.

Building an unconstrained portfolio

Exhibit 2 illustrates the expansionary power of an unconstrained strategy by comparing the composition of a traditional portfolio benchmarked to the Bloomberg US Aggregate Bond Index to that of an unconstrained investment-grade portfolio. As shown on the left, the traditional portfolio consists solely of public investment-grade credit assets, which are generally distributed across industry sectors and developed market geographies for diversification purposes.

On the right, we depict the composition of an unconstrained investment-grade portfolio, which expands the list of available asset types to include emerging markets, asset-backed finance, and private assets. Expanding the universe to include these categories opens the portfolio to include more than a dozen additional sub-categories, including emerging-market corporates, leveraged loans, CLOs, ABS, CMBS, residential mortgage loans, and US and European high yield, as well as private assets and strategies such as commercial mortgage loans, and investment-grade private debt.

Exhibit 2: Adopting an unconstrained mandate can unlock a huge universe of investment-grade assets

TRADITIONAL INVESTMENT-GRADE CREDIT PORTFOLIO	UNCONSTRAINED INVESTMENT-GRADE PORTFOLIO
US Public Investment Grade	US Public Investment Grade
EU Public Investment Grade	EU Public Investment Grade
	Emerging Markets
	Asset-Backed Finance
	Private Credit

Source: Apollo Analysts. Unconstrained investment-grade portfolio depicts a non-optimized investment-grade portfolio. The above information is solely for educational, informational, and illustrative purposes only and should not be construed as investment advice.

Exhibit 3 conducts the same exercise for high yield. As shown on the left, the traditional portfolio includes a mix of non-investment-grade corporate bonds, typically with a relatively heavy weighting to the consumer goods, communications, and energy sectors. On the right, we depict a portfolio constructed using an unconstrained approach. A portfolio based on an unconstrained model could hold well more than a dozen asset types and sub-categories, including US high yield, US loans, investment-grade credit, structured credit, European high yield, European loans, emerging-market corporates, residential and commercial real estate, as well as private corporate credit and asset-backed finance investments.

In both the investment-grade and high-yield portfolios, we believe broadening the opportunity set to a diversified basket of risk premia including credit, liquidity, and complexity—as well as lifting limitations to allow for the expression of a manager's views—can generate higher yields and create alpha potential.

To illustrate how, we can return to our earlier example of an active high-yield manager positioning the portfolio for an expected economic recession. A manager following a constrained strategy is forced to maintain significant exposure to lower-rated assets that make up a large portion of the high-yield index, even if their view is that a default cycle is coming. For instance, as of September 30, 2023, securities rated CCC or below comprised roughly 11% of the ICE BofA US High Yield Index.[2] A manager benchmarked to that index would be limited in their ability to adjust that exposure ahead of an estimated downturn.

Exhibit 3: An unconstrained high-yield mandate can be diversified across more than a dozen asset types and more sub-categories

TRADITIONAL HIGH-YIELD CREDIT PORTFOLIO	UNCONSTRAINED HIGH-YIELD PORTFOLIO
US Public High Yield	US Public High Yield
EU Public High Yield	EU Public High Yield
	US Loans
	EU Loans
	Emerging Markets
	Asset-Backed Finance
	Opportunistic
	Public Investment Grade
	Private Credit

Source: Apollo Analysts. Traditional high-yield credit portfolio represented by weightings from the ICE BofA Single-B US High Yield Index. Unconstrained high-yield portfolio depicts a non-optimized high-yield portfolio allocation. The above information is solely for educational, informational, and illustrative purposes only and should not be construed as investment advice.

> We believe broadening the opportunity set to a diversified basket of risk premia can generate higher yields and create alpha potential.

[2] Source: ICE BofA. Data as of September 30, 2023.

Testing the Apollo theory

To examine how the integration of unconstrained fixed-income strategies can impact portfolio performance, we used publicly available data to create two illustrative unconstrained portfolios in investment grade and high yield, respectively. We then compared the performance of these two portfolios to their corresponding benchmarks.

Investment Grade

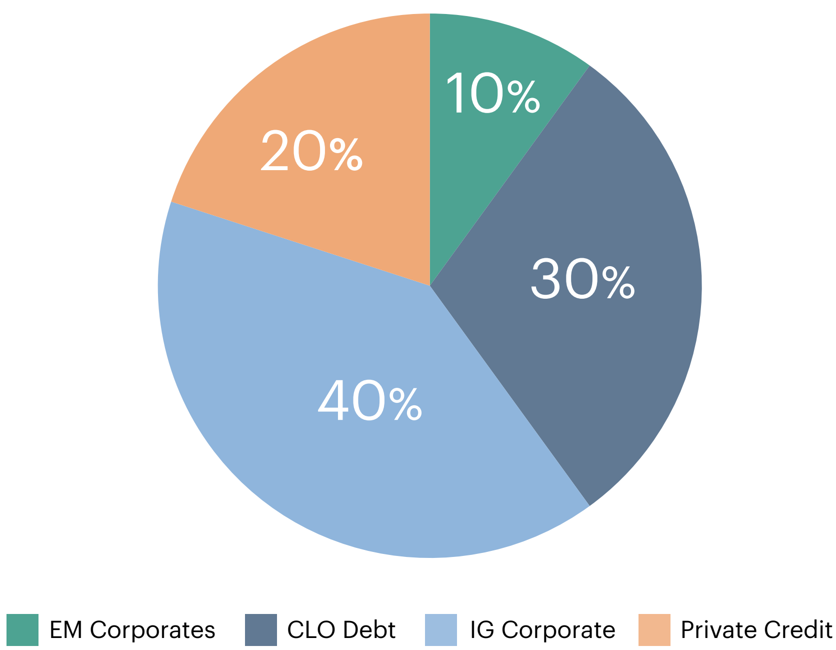
We started our work by constructing a simplified, non-optimized unconstrained investment-grade portfolio. For the purposes of this exercise, we built the portfolio using sub-asset classes that can be easily represented through publicly available benchmark proxies. That said, individual security selection across an expanded universe of opportunities can generate upside opportunities for alpha generation.

As a result, we believe market participants have the potential to achieve strong results through manager selection, and by integrating other liquid and illiquid assets not represented in benchmarks and in this work (as noted in the previous section). Our sample unconstrained investment-grade portfolio (**Exhibit 4**) consisted of 40% investment-grade corporates, 30% CLO debt, and 10% emerging-market corporates, with an additional allocation of 20% to private credit.

We then analyzed how this portfolio performed over the long term. From the five-year period from May 31, 2018, to May 31, 2023, the unconstrained investment-grade portfolio generated an annual net return of 4.0%, compared to -3.6% for the Bloomberg US Corporate Index. The unconstrained portfolio also achieved that outperformance with a lower level of volatility (4.8% standard deviation versus 5.4% for the index). We believe that these results can be further enhanced by unconstrained active managers, who can achieve further improvements in security selection and portfolio optimization.

Exhibit 4: An unconstrained investment-grade portfolio can create opportunities for alpha

ILLUSTRATIVE UNCONSTRAINED INVESTMENT-GRADE PORTFOLIO



Source: Apollo Analysts. Investment-grade corporates represented by the Bloomberg US Corporate Bond Index; CLO debt represented by the JP Morgan CLOIE A Index; private credit represented by the Preqin Private Debt Index; and emerging-market corporates represented by the JP Morgan CEMBI Broad Investment Grade Index. The above information is solely for educational, informational, and illustrative purposes only and should not be construed as investment advice.

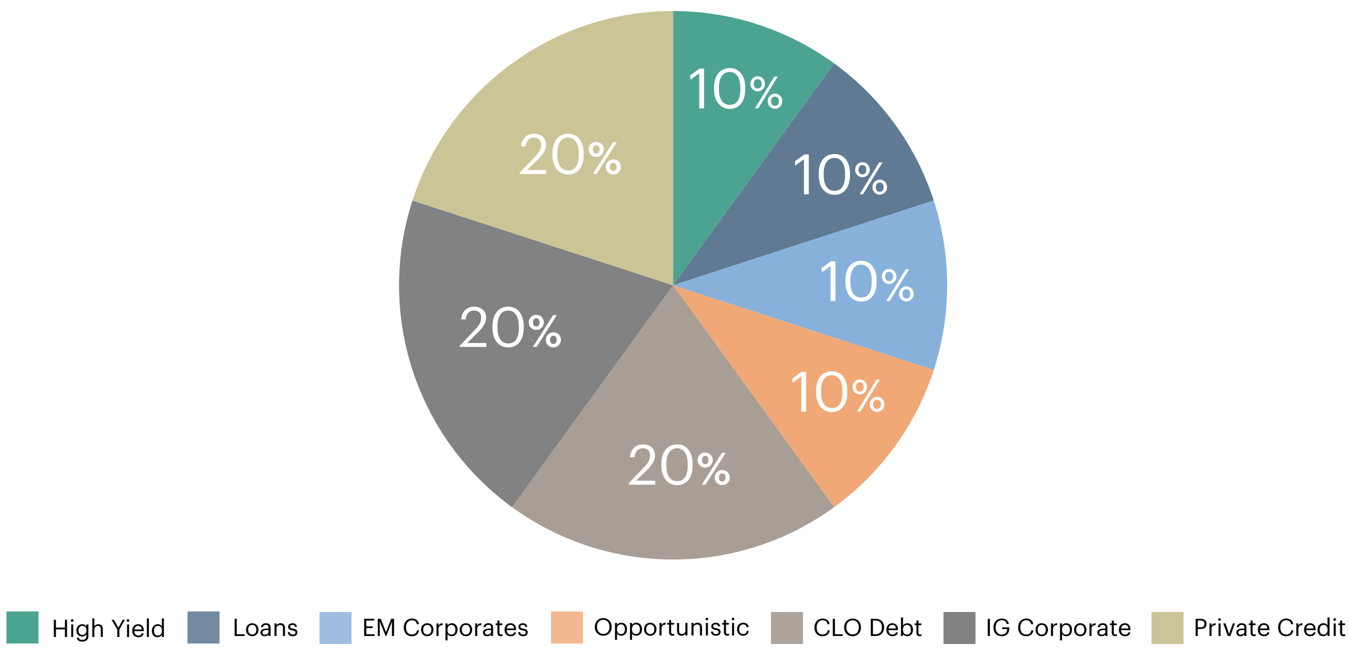
High Yield

We continued our work by constructing a simplified, non-optimized unconstrained high-yield portfolio. As with the investment-grade portfolio, we limited the unconstrained high-yield portfolio to sub-asset classes that can be relatively easily represented through publicly available benchmark proxies. Our sample unconstrained high-yield portfolio (**Exhibit 5**) consisted of 20% CLO debt, 10% high yield, 10% loans, 10% emerging-market corporates, 10% opportunistic, 20% investment-grade corporates, and a 20% allocation to private credit.

How did this portfolio perform? For the same five-year period ending May 2023, the unconstrained high-yield portfolio outperformed the benchmark by some 400 basis points, generating an annual net return of 6.3%, compared to 2.1% for the ICE BofA High Yield Index. The unconstrained portfolio delivered that outperformance with significantly less volatility, recording an annual standard deviation of 5.5% over the period, compared to 9.2% for the benchmark. Again, we believe market participants can achieve stronger levels of performance with an unconstrained portfolio allowing for individual security selection across the expanded universe of available investments.

Exhibit 5: An unconstrained high-yield portfolio can create opportunities for alpha and enhanced income

ILLUSTRATIVE UNCONSTRAINED HIGH-YIELD PORTFOLIO



Source: Apollo Analysts. CLO debt represented by the JP Morgan CLOIE A Index; private credit represented by the Preqin Private Debt Index; investment-grade corporates represented by the Bloomberg US Corporate Bond Index; opportunistic credit represented by the ICE BofA ML Single B US High Yield Index; emerging-market corporates represented by the JP Morgan CEMBI Broad Investment Grade Index; loans represented by the S&P Leveraged Loan Index; high yield represented by the ICE BofA US High Yield Index. The above information is solely for educational, informational, and illustrative purposes only and should not be construed as investment advice.

Integrating unconstrained strategies into a fixed-income portfolio

These findings strengthened our argument that the unconstrained portfolio could enhance performance if used as a replacement for, or supplement to, both traditional investment-grade or high-yield allocations.

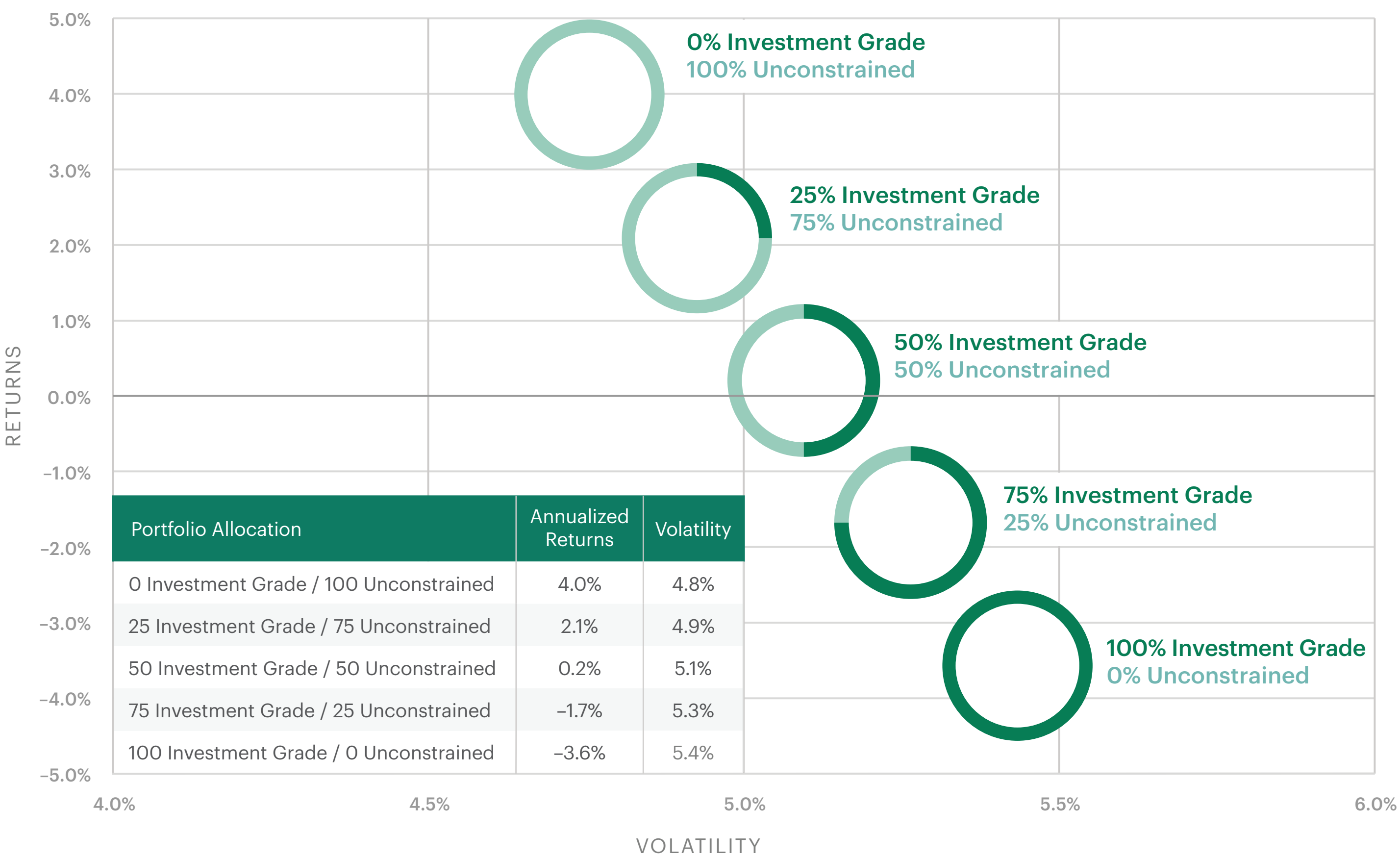
As a final step in our exercise, we wanted to see how the unconstrained portfolio would perform when added to a typical fixed-income portfolio. To do so, we created several allocation scenarios to fully understand the impact that deploying the solution would have on overall performance.

Exhibit 6 shows the results for investment grade. As illustrated, the addition of even a relatively small allocation of the unconstrained portfolio can have a positive impact. Replacing one-quarter of a traditional investment-grade portfolio with an allocation to the unconstrained portfolio resulted in 190 basis points of improvement in annual net returns—from –3.6% to –1.7%—and reduced standard deviation from 5.4% to 5.3%. Incremental allocations to the unconstrained portfolio generated comparable results, enhancing annual returns, and reducing volatility.

Exhibit 6: Adding an unconstrained strategy to an investment-grade portfolio can have a positive impact on returns

PORTFOLIO RISK/RETURN

Annualized volatility and returns (May 31, 2018 to May 31, 2023)



Portfolio Allocation	Annualized Returns	Volatility
0 Investment Grade / 100 Unconstrained	4.0%	4.8%
25 Investment Grade / 75 Unconstrained	2.1%	4.9%
50 Investment Grade / 50 Unconstrained	0.2%	5.1%
75 Investment Grade / 25 Unconstrained	–1.7%	5.3%
100 Investment Grade / 0 Unconstrained	–3.6%	5.4%

Source: Apollo Analysts. Traditional investment-grade credit allocation represented by the Bloomberg US Corporate Bond Index. Unconstrained investment-grade allocation is a non-optimized portfolio. The portfolio consists of 40% investment-grade corporates, as represented by the Bloomberg US Corporate Bond Index; 30% CLO debt, as represented by the JP Morgan CLOIE A Index; 20% private debt, as represented by the Preqin Private Debt Index; and 10% emerging-market corporates, as represented by the JP Morgan CEMBI Broad Investment Grade Index. The above information is solely for educational, informational, and illustrative purposes only and should not be construed as investment advice.

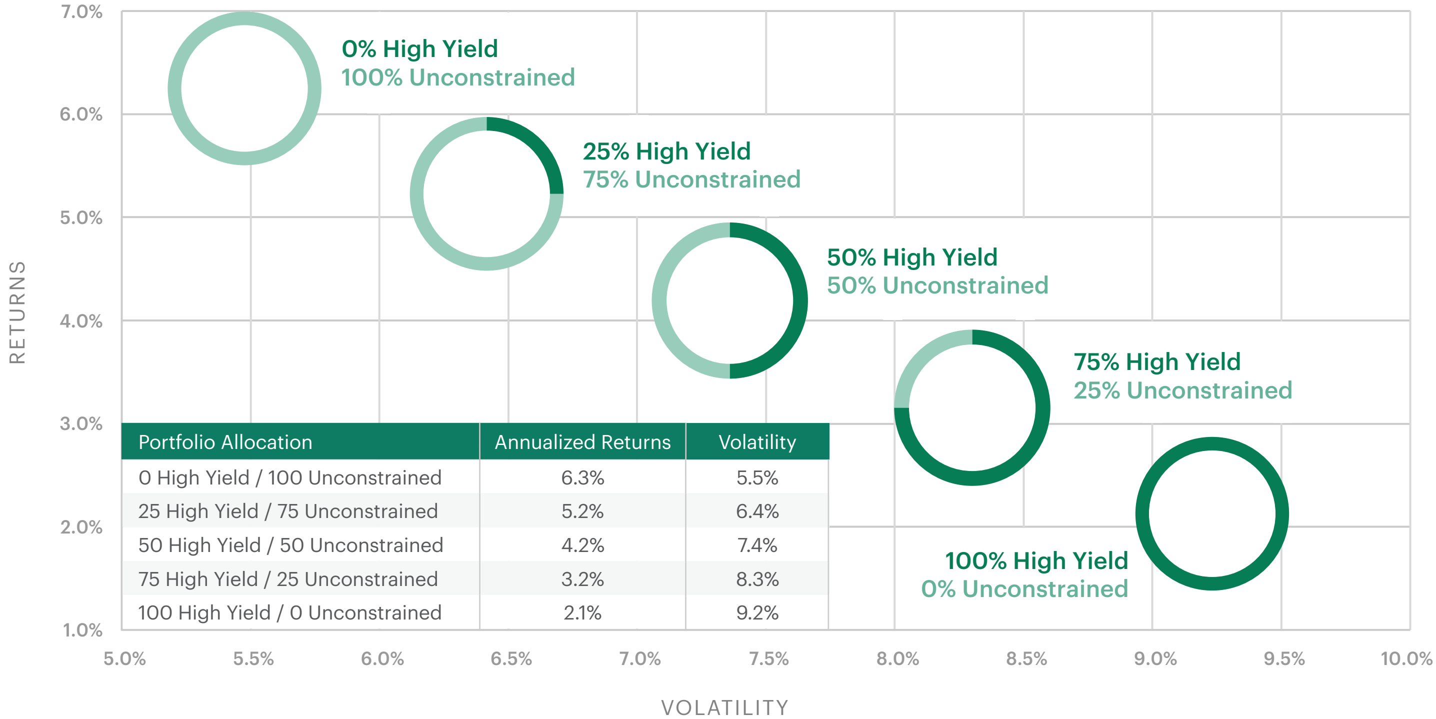
Exhibit 7 illustrates the impact on a high-yield allocation. As shown, replacing just a quarter of a traditional high-yield allocation with the unconstrained high-yield portfolio results in a 110 basis-point enhancement in annual net returns. The addition also results in a significant drop in volatility, reducing standard deviation from 9.2% to 8.3%. Enhancements can be amplified by replacing half, three-quarters, and even the entire traditional high-yield portfolio with the unconstrained approach.

It is important to reiterate that these results represent the performance of the indices chosen to represent fixed-income sub-asset classes. As previously mentioned, we believe unconstrained managers can further enhance the performance depicted in our sample portfolios through individual security selection, full expression of credit convictions, and an even larger investable universe.

Exhibit 7: Integrating an unconstrained strategy to a high-yield portfolio can enhance returns, while lowering volatility

PORTFOLIO RISK/RETURN

Annualized volatility and returns (May 31, 2018 to May 31, 2023)



Portfolio Allocation	Annualized Returns	Volatility
0 High Yield / 100 Unconstrained	6.3%	5.5%
25 High Yield / 75 Unconstrained	5.2%	6.4%
50 High Yield / 50 Unconstrained	4.2%	7.4%
75 High Yield / 25 Unconstrained	3.2%	8.3%
100 High Yield / 0 Unconstrained	2.1%	9.2%

Source: Apollo Analysts. Traditional high-yield allocation represented by the ICE BofA US High Yield Index. Unconstrained high-yield allocation is a non-optimized portfolio. The portfolio consists of 20% private credit, as represented by the Preqin Private Debt Index; 20% investment-grade corporates, as represented by the Bloomberg US Corporate Bond Index; 20% CLO debt, as represented by the JP Morgan CLOIE A Index; 10% opportunistic credit, as represented by the ICE BofA ML Single B US High Yield Index; 10% emerging-market corporates, as represented by the JP Morgan CEMBI Broad Investment Grade Index; 10% loans, as represented by the S&P Leveraged Loan Index; and 10% high yield, as represented by the ICE BofA US High Yield Index. The above information is solely for educational, informational, and illustrative purposes only and should not be construed as investment advice.

Conclusion

Loosening constraints on fixed-income strategies can deliver much-needed portfolio diversification while providing active managers with enhanced opportunities for risk reduction and alpha generation.

Benchmark constraints can limit active managers' investable universe as well as their ability to fully express their own views when building portfolios through credit selection. Because most active and passive strategies are benchmarked to the same indices, market participants can end up with significant and unintended overlap in their portfolios across both managers and strategies. The lack of flexibility and unintended concentration have the potential to increase portfolio volatility and erode risk-adjusted returns over time.

We believe investment outcomes can be improved by loosening, or even removing constraints governing traditional investment strategies, which allows investment managers to fully implement their credit views and broaden the investable universe. Based on the work presented in this paper, we believe market participants who supplement or replace a portion of a traditional investment-grade or high-yield portfolio with an unconstrained strategy have the potential to increase portfolio diversification, reduce volatility, and enhance long-term risk-adjusted returns.

There can be no assurance that any objectives described herein will be achieved.

We believe investment outcomes can be improved by loosening, or even removing constraints governing traditional investment strategies, which allows investment managers to fully implement their credit views and broaden the investable universe.

ABOUT THE AUTHORS

Joseph Moroney

Joseph Moroney is a Partner, Head of Sustainable Finance and Co-Head of Global Corporate Credit at Apollo. Prior to joining the Firm in 2008, he was with Aladdin Capital Management where he served as a Senior Managing Director of its Leveraged Loan Group. Joseph's investment management career includes experience at various leading financial services firms including Merrill Lynch Investment Managers and MetLife Insurance.

He graduated from Rutgers University with a BS in Ceramic Engineering and is a Director Emeritus of the Rutgers University Foundation. Joseph is a CFA charterholder and a member of the NYSSA.

Robert Bittencourt

Robert Bittencourt is Partner and Co-Head of Opportunistic Credit at Apollo. Prior to joining in 2006, he was with GSC Group, where he focused on distressed for control assets. Previously, Robert was a member of the restructuring group at Lehman Brothers.

He graduated cum laude from Harvard University with a BA in Economics.

Akila Grewal

Akila Grewal is a Partner in Client and Product Solutions, where she serves as the Lead of the Institutional Product Specialist team and Co-Lead of Product Management focused on strategies in Credit across Apollo's platform. Akila sits on several committees, including the Firm's Credit Management Team, Credit Allocations Sub-Committee, and the Apollo Opportunity Foundation's Council. Akila also serves on the not-for-profit Braven's NYC Board as well as the PK AirFinance Board.

Prior to joining in 2016, Akila was on the Proprietary Trading and Risk Management team at Mariner Investment Group. Previously, she was in the Business Development group at MKP Capital, and she started her career at Credit Suisse on the Hedge Fund of Fund's Portfolio Management team. Akila graduated from New York University's Stern School of Business with a BS in Finance and is a CFA charterholder.

Important Disclosure Information

All information herein is as of November, 2023 unless otherwise indicated.

This presentation is for educational purposes only and should not be treated as research. This presentation may not be distributed, transmitted or otherwise communicated to others, in whole or in part, without the express written consent of Apollo Global Management, Inc. (together with its subsidiaries, "Apollo").

The views and opinions expressed in this presentation are the views and opinions of the authors of the White Paper, speakers of the video and Apollo Analysts. They do not necessarily reflect the views and opinions of Apollo and are subject to change at any time without notice. Further, Apollo and its affiliates may have positions (long or short) or engage in securities transactions that are not consistent with the information and views expressed in this presentation. There can be no assurance that an investment strategy will be successful. Historic market trends are not reliable indicators of actual future market behavior or future performance of any particular investment which may differ materially, and should not be relied upon as such. Target allocations contained herein are subject to change. There is no assurance that the target allocations will be achieved, and actual allocations may be significantly different than that shown here. This presentation does not constitute an offer of any service or product of Apollo. It is not an invitation by or on behalf of Apollo to any person to buy or sell any security or to adopt any investment strategy, and shall not form the basis of, nor may it accompany nor form part of, any right or contract to buy or sell any security or to adopt any investment strategy. Nothing herein should be taken as investment advice or a recommendation to enter into any transaction.

Hyperlinks to third-party websites in this presentation are provided for reader convenience only. There can be no assurance that any trends discussed herein will continue. Unless otherwise noted, information included herein is presented as of the dates indicated. This presentation is not complete and the information contained herein may change at any time without notice. Apollo does not have any responsibility to update the presentation to account for such changes. Apollo has not made any representation or warranty, expressed or implied, with respect to fairness, correctness, accuracy, reasonableness, or completeness of any of the information contained herein, and expressly disclaims any responsibility or liability therefore. The information contained herein is not intended to provide, and should not be relied upon for, accounting, legal or tax advice or investment recommendations. Investors should make an independent investigation of the information contained herein, including consulting their tax, legal, accounting or other advisors about such information. Apollo does not act for you and is not responsible for providing you with the protections afforded to its clients.

Certain information contained herein may be "forward-looking" in nature. Due to various risks and uncertainties, actual events or results may differ materially from those reflected or contemplated in such forward-looking information. As such, undue reliance should not be placed on such information. Forward-looking statements may be identified by the use of terminology including, but not limited to, "may", "will", "should", "expect", "anticipate", "target", "project", "estimate", "intend", "continue" or "believe" or the negatives thereof or other variations thereon or comparable terminology.

The Standard & Poor's 500 Index (S&P 500) is a market-capitalization-weighted index of the 500 largest US publicly traded companies and one of the most common benchmarks for the broader US equity markets.

Additional information may be available upon request.

Past performance not necessarily indicative of future results.

To learn more, visit ApolloAcademy.com.

SM-20231109-3223849-10233508