

WHAT TO DO WITH THE 40

MANAGING INTEREST RATE RISK IN FIXED INCOME

February 8, 2021

The traditional 60/40 stock/bond portfolio is under a microscope. Some doubt the 40's ability to fulfill its traditional role given low interest rates. This report is most pertinent to those with risk-based perpetual mandates. But even asset-liability matchers and goals-driven investors may benefit from a better understanding of how financial markets function in a low interest rate environment.

In a way, it is somewhat surprising that the 60/40 portfolio has been the constant target of scrutiny the past decade. Using the MSCI World index for the 60 and the Bloomberg Barclays U.S. Aggregate for the 40, the 60/40 portfolio has achieved a five-year annualized return of 10.2%, or 8.2% after inflation. As seen in Exhibit 1, this type of five-year return has been the best we have seen the past couple decades — save for the returns following the Global Financial Crisis. But can this performance continue? Investors are concerned the oft-uttered term “past performance does not guarantee future results” is all too relevant here.

Looking ahead, the obvious crux of the problem is the current low interest rate environment and its effect on future returns. Those who read our investment strategy work know we have been in the lower-for-longer camp since before the Obama administration — and remain in that camp to this day. As such, our expected returns for the 60/40 portfolio are likely slightly higher than others are fearing (we forecast 3.6%) but still a far cry from the long-term average (9.5%). Further, we recognize the challenges and concerns investors are facing with respect to income, total return and diversification. We believe some concerns are overblown while others can be ameliorated through portfolio construction techniques.

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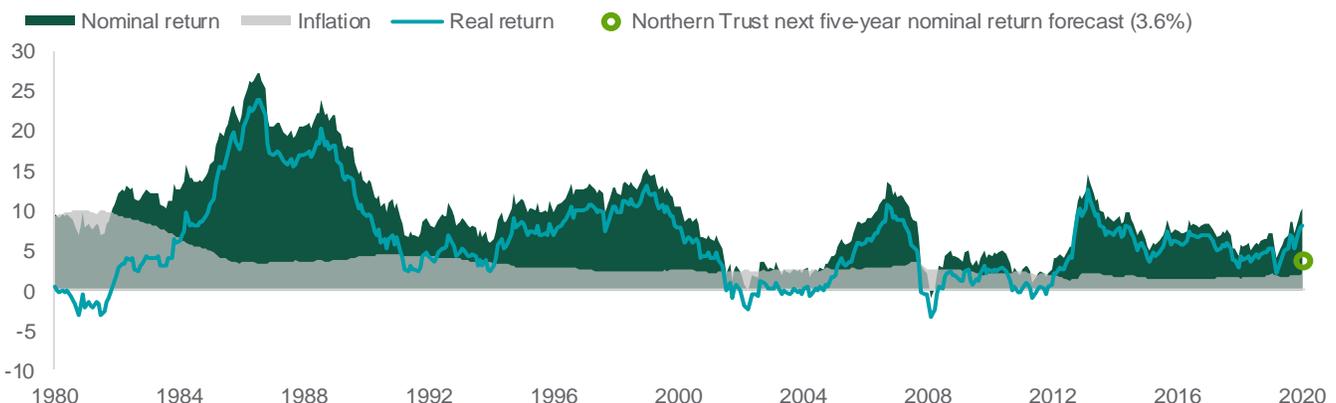
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EXHIBIT 1: IF IT AIN'T BROKE...?

The traditional 60/40 portfolio has performed well up to this point, but skepticism surrounds the future outlook.

FIVE-YEAR ROLLING 60/40 RETURN (%)



Source: Northern Trust Asset Management, Bloomberg. 60% = MSCI World, 40% = Bloomberg Barclays U.S. Aggregate Index. Monthly data from 1/31/1976 – 1/31/2021. Real return calculated by subtracting five-year annualized month-over-month inflation from the 60/40 portfolio. Past performance does not guarantee future results.

ISSUE #1: I'M NOT GETTING ENOUGH INCOME (OR RETURN)

Investment grade fixed income has historically contributed three benefits to the investment portfolio: income/total return, diversification and (for shorter-duration fixed income) liquidity. The least defensible in today's environment is income. While a case can be made that a decent future total return can still be generated (see paragraph below Exhibit 2), the income is simply not there. Exhibit 2 shows the U.S. Treasury yield curve (both today and what the markets expect in five years) and AAA municipal bond yield curve. On a nominal (before inflation) basis, yields are low; on a real (after inflation) basis, yields are actually negative (and are expected to remain as such five years from now!) — and that's before taxes. Municipal bonds solve the tax issue but those yields are lower for that reason. Bottom line: Regardless of Treasury or muni investing, it is currently impossible to earn positive real income without taking on credit risk. There have been rumors of U.S. Treasury 50-year issuance, but there are many challenges to consider and confront before that happens. High demand could hurt liquidity in the traditional yield curve while low demand would quickly kill the initiative. Further, even if challenges are overcome, it is not clear that the 50-year bond would provide significant real income. Even if it did, it may not be worth the significant duration risk such an investment would entail.

EXHIBIT 2: UNDERWATER

Real rates are negative all the way out the U.S. yield curve — and are likely to remain there.



Source: Northern Trust Asset Management, Bloomberg. Data as of 1/31/2021. Real curve calculated by subtracting the breakeven rate at the corresponding tenor from nominal yield. Real forward curve is Treasury Inflation Indexed curve.

While rates are low, the yield curve is by no means flat. The current spread between the 10-year and 2-year yield (0.97%) is above the long-term average (0.91%). This is, in and of itself, constructive for those looking for total return. It means interest rate increases are expected at least when you go beyond three years, which gets us past the Federal Reserve's pledge to keep rates on hold "at least" through 2023. In fact, if our house view that the 10-year will remain stuck near 1% over the next five years comes true, many will be pleasantly surprised by the amount of total return the Traditional 40 can provide (we forecast 2.3%). This is due to the rolldown effect. When yield curves have any steepness at all, the price of the bond increases as time passes. For example – assuming the yield curve stays fairly static over time – going from a 10-year bond to a 9-year bond means going from a higher discount rate to a lower discount rate, which means going from a lower price to a higher price. The bigger the yield curve steepness, the more impactful the rolldown. And, if instead of the yield curve staying static, it actually falls as we are currently forecasting, the rolldown is even more impactful. Investors benefit not only from the "rolldown" on the yield curve but also from the falling yield curve as well. Further, because most investors are enrolled in some type of ladder or constant maturity fixed income strategy, this benefit is self-sustaining. This is helpful for anyone willing to draw down the principal of their Traditional 40, but it does not help those only interested in withdrawing the generated income. And we know, the way some investment programs are set up, that this distinction is important. So what else can be done to increase the income that the Traditional 40 is not currently capable of providing?

WHAT ELSE CAN BE DONE FOR INCOME (AND TOTAL RETURN)

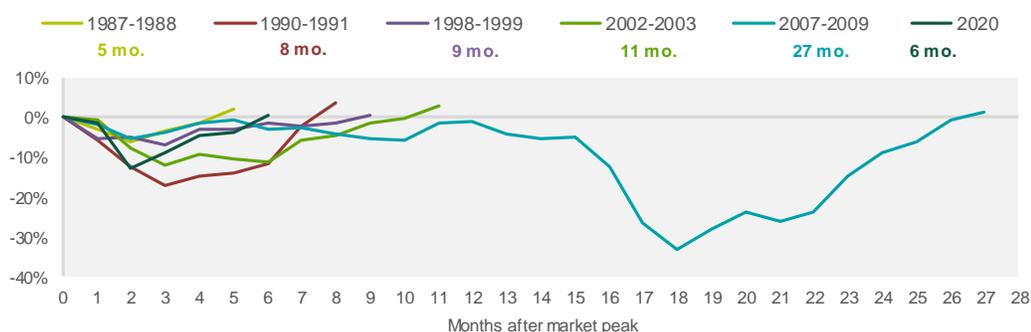
For income, the only answer is taking on more risk — most prominently credit risk. One solution is to bring some high yield bonds into the Traditional 40. High yield currently provides a 4.3% yield, well above the market’s current 2.1% five-year inflation expectation. High yield investing means taking on default risk such that the 4.3% yield may end up being less than that. Our research shows that, on average, the diversified high yield investor achieves 1.3% less in return than the starting point yield over five-year time frames. Investors demand a higher starting point yield to compensate for these expected defaults. Historically, on average, high yield has experienced an approximate 4% default rate — though some of that loss is ultimately regained through recovery values.

Today, given unprecedented accommodation and a recovering global economy, the default rate is likely to fall below long-term averages. This probability is increased by the fact that the high yield market has never been of higher quality over the past 20 years. Issuers have strong balance sheets after record issuance and the market maturity schedule over the next few years is very benign. Overall, high yield is our global asset allocation team’s highest conviction tactical overweight, but what if that view is wrong? Our research shows it does not take an overly long time to recover from high-yield asset class drawdowns. Exhibit 3 shows the recovery time required to be made whole from notable credit spread spikes we have seen over the past 30 years. Other than the Global Financial Crisis, any credit spike-induced drawdown has been completely recovered in less than a year. After the most recent pandemic-induced collapse, high yield recovered in six months.

EXHIBIT 3: OVERCOMING ADVERSITY

High yield doesn’t exactly provide a constant NAV, but downturns are relatively short lived.

MONTHS NEEDED TO REGAIN LOSSES FROM HIGH YIELD SPREAD WIDENING



Source: Northern Trust Asset Management, Bloomberg. Bloomberg U.S. High Yield 2% Issuer Cap. Starting points based on material total return degradation caused by option-adjusted-spread widening. Past performance does not guarantee future results.

Because of the material drawdown risk seen above, we view high yield and similar asset classes (bank loans, private credit, emerging market debt) as risk assets. We would normally include these in the Traditional 60 (alongside equities) as opposed to the Traditional 40 (reserved for “risk-control” assets such as investment grade fixed income and inflation-linked bonds). But there is scope to move away from the “hard” definition of risk and risk-control assets and include some risk asset allocation in the risk-control portfolio (let’s call it the “everything done in moderation” strategy).

Because correlations between investment grade fixed income and high yield are well below one (0.26 since 2002), diversification benefits can offset some of the higher risk of the higher yielding asset classes. Once those diversification benefits are diminished, it becomes a fairly linear risk-to-income (or total return) tradeoff. There’s no silver bullet — instead, simply a judgment call on the appropriate balance. We have deep experience in constructing portfolios and can assist with these judgment calls — whether it be in the Traditional 40, the Traditional 60 or holistically. Portfolios confronting the income/total return issue — as well as other issues we will soon address — can be found in the Appendix.

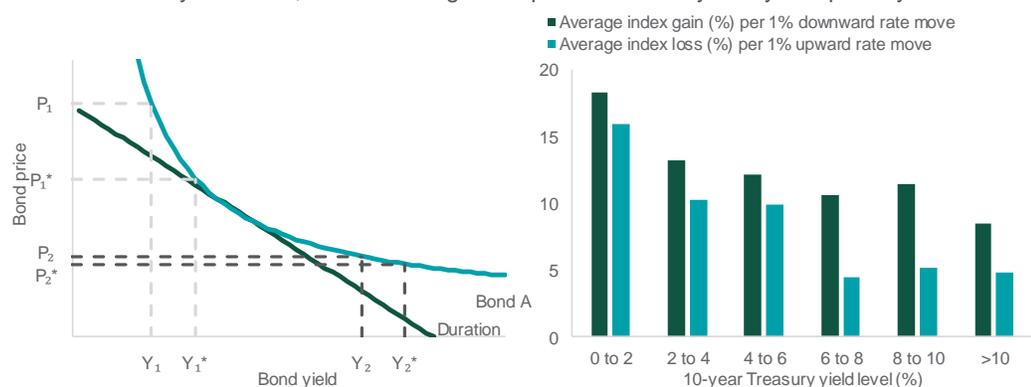
ISSUE #2: I'M EXPOSED TO DOWNSIDE MORE THAN UPSIDE

Beyond the lack of yield, investors have concerns over the perception of a poor upside/downside return tradeoff. The reasoning: The 10-year Treasury is only 1% away from rock-bottom. Investors rightly surmise that the Fed will not take rates below zero, making it difficult for interest rates out the yield curve to go below zero. Meanwhile, interest rates could go much higher, creating asymmetry. This would be true if the bond price/yield relationship was linear, but it isn't.

Fixed Income 101 did a disservice as it stressed the importance of duration in determining price change per interest rate change. It is easy to understand but incomplete. Duration accurately predicts the price/yield relationship for instantaneous and small interest rate moves. But the longer the timeframe and — particularly important for this report — the more extreme interest rates are (low or high), the less useful duration is. As seen in the left panel of Exhibit 4, duration is a linear solution to a convex issue. Why this matters: Look at the two sets of Y (yield) vs. P (price) shifts. Both shifts equal a 1% change in interest rates; but the price movement at low interest rates is more pronounced than the price movement at high interest rates. In other words, there is more upside in fixed income, even now, than many appreciate, as demonstrated in Exhibit 4.

EXHIBIT 4: FIXED INCOME INVESTING 201

Duration is a very blunt tool; understanding the impact of convexity is key — especially at extremes.



Source: Northern Trust Asset Management, Bloomberg. Right-panel chart using data from 12/31/1973 through 12/31/2020.

The theory plays out in practice. Before we go further, by fixed income here we mean Treasuries. We wish to show the interest rate impact in isolation. Exhibit 4 uses the Bloomberg Barclays Long Government Index to show returns in relation to yield changes at different starting-point 10-year yields (as proxy). The lower the starting-point interest rate, the greater the price sensitivity to interest rate changes. Also, there is an upside/downside asymmetry found across all interest rate levels — with the upside always greater than the downside. This asymmetry is greater at higher rates (note the difference between the green and teal bars on the right versus on the left), but the positive asymmetry remains at low rates as well.

So what does this mean for the Traditional 40? First, interest rate changes in low rate environments do not drive greater downside than upside on the Treasury portfolio. It's actually still the opposite. As such, investors should not fear fixed income. In fact, to us fixed income looks decent from a total return perspective given our expectation for continued low or possibly lower rates. Second, while it's true sensitivity to interest rate changes is higher in low-rate environments, this does not make fixed income more risky relative to history. Remember, change in price determines the change in yield — not the other way around. As such, you tend to see smaller changes in rates at lower interest-rate starting points because price action does not materially change.

WHAT ELSE CAN BE DONE TO DEAL WITH DECLINING POSITIVE ASYMMETRY

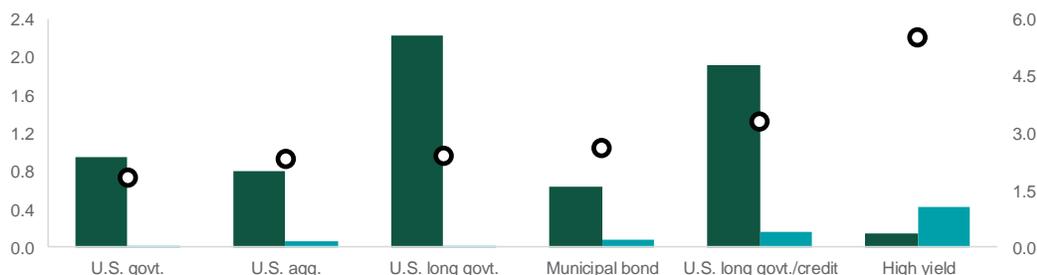
We have just shown that Treasury investors never lose their convexity-driven positive asymmetry. But it is true that the upside/downside tradeoff is not as attractive at lower rates — and may drive investors into other asset classes that have less term beta (i.e., interest rate exposure). As we know, however, risk and return are related — so dropping term risk means picking up some other risk to generate returns. Across asset classes (as opposed to within asset classes), dropping term risk generally means taking on market risk. In fact, term and market are the two risks we focus on most when assessing asset allocation. Exhibit 5 shows the term and market exposures (betas) of the primary public market candidates to include when going beyond the Traditional 40. Also included are our five-year annualized forecasts to provide a reasonable return expectation. As would be expected, most fixed income asset classes have material term beta, which increases as asset class duration increases.

EXHIBIT 5: MORE (MARKET) RISK, MORE RETURN

Getting reasonable return/income today requires taking on equity exposure (market beta).

FIXED INCOME CHOICES - BETAS AND TOTAL RETURN FORECASTS

■ Term beta (left-hand side) ■ Market beta (left-hand side) ● Northern Trust 5-year forecast (% , right-hand side)



Source: Northern Trust Asset Management, Bloomberg. Indices in order are Bloomberg Barclays (BBG) U.S. Government, BBG U.S. Aggregate, BBG U.S. Government: Long, BBG Municipal Bond, BBG U.S. Long Government/Credit, BBG U.S. High Yield 2% Issuer Cap. Betas measured on monthly returns from 12/31/1993 - 12/31/2020.

The one exception is high yield and high yield-like asset classes noted earlier. These asset classes have little term beta. In fact, they are more exposed to equity markets, showing statistically significant market beta despite being a fixed income asset. Adding a credit element helps to reduce term exposure. Spreads generally contract as interest rates rise. This is true even in investment grade fixed income. Most investors realize this; it is why the Bloomberg Barclays Aggregate Index is often used for the Traditional 40. But why stop there? Why not add in some more credit via high yield as we did in the previous section? Even though we view high yield as a risk asset, the “everything in moderation” strategy provides scope to bring some high yield into the New 40. Another way to diversify away from interest rate exposure is hedged credit, which we cover in more detail later in the report.

ISSUE #3: I’VE LOST MY DIVERSIFICATION BENEFITS

We saved what we believe is the most interesting concern for last. It is interesting in that it is the concern least supported by historical data — but is definitely susceptible to market regime change. The concern goes as follows: Historically speaking, falling equity markets coincide with falling interest rates. Since lower interest rates mean higher bond prices, diversification abounds. But what if we enter a market regime wherein, due to the equity market’s current dependence on easy money and low interest rates, higher interest rates correspond with lower equity markets? The traditional relationship is flipped on its head and no (traditional) portfolio is safe from diversification deterioration. This is a concern we have been hearing for the past decade, ever since we entered the quantitative easing era. However, before we get too concerned, let’s look at the data. The correlation between the Traditional 40 and the Traditional 60 caps out at 0.5 on a five-year rolling average. More interestingly, since the Global Financial Crisis correlation has been closer to zero. There have been short periods of time

where fixed income returns meaningfully correlated with equity returns such as 2013's taper tantrum. But over any decent rolling period — as far back as we have data — the diversification of bonds has held strong. This has also been true with high-grade municipals (almost an identical pattern).

EXHIBIT 6: PERSISTENT DIVERSIFICATION

For equity diversification, nothing matches investment grade fixed income (taxable or non-taxable).



Source: Northern Trust Asset Management, Bloomberg. Indices: BBG U.S. Aggregate, BBG U.S. High Yield 2% Issuer Cap, BBG U.S. Government. Data through 12/31/2020. BBG U.S. Aggregate data goes back to 1976. Other indices have shorter history.

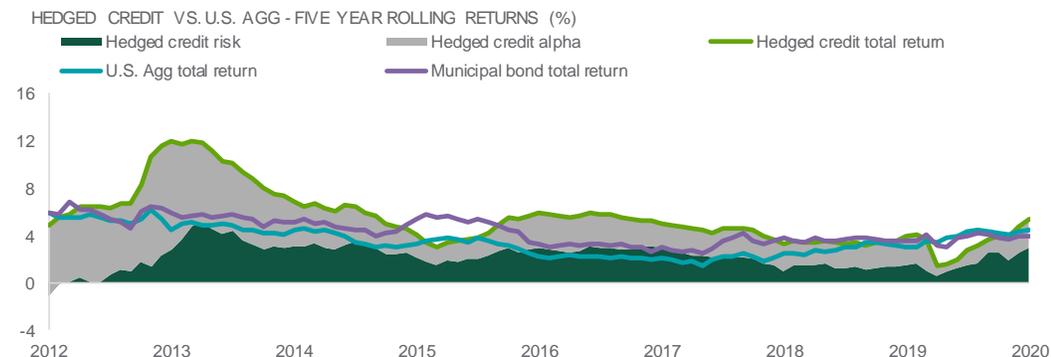
The historical data, combined with our expectation for Stuckflation and continued low interest rates, leaves us less concerned over this prospect than others in the industry. But certainly the case can be made and we should have solutions to offer. Once again, high yield steps up as a potential solution. High yield's correlation to global equities has been between 0.7 and 0.8 for the last decade, having become much more correlated to equities after the Global Financial Crisis than before it (see Exhibit 6). Further, the asset class is vulnerable to spiking equity correlations during times of stress. That said, while packing a much higher correlation to equities than traditional (investment grade) fixed income, it does have better diversification benefits than other (more equity-oriented) risk assets.

WHAT ELSE CAN BE DONE TO REGAIN DIVERSIFICATION

Hedge funds, specifically hedged credit strategies, are one solution. These strategies seek to remove term exposure (actually show an average -0.2 term beta) and replace those forgone term-driven returns with alpha generation (assisted by the average 0.3 market beta). As Exhibit 7 shows, the average hedged credit fund has historically achieved the alpha desired. And despite the modest level of market beta, hedge funds are a viable substitute for at least part of the Traditional 40.

EXHIBIT 7: I'D LIKE TO BUY AN ALPHA

Hedged credit's ability to replace investment grade fixed income hinges on alpha generation.



Source: Northern Trust Asset Management, Bloomberg. Data through 2020. Past performance does not guarantee future results.

Hedged credit strategies' lower factor exposure (term or market) is due to less constrictive investment mandates, such as the ability to short securities. We expect manager skill, which is the alpha

referenced above, to be the primary driver of returns. To generate this alpha, hedged credit strategies move across the credit quality spectrum and capital structure, implementing long-short trades to varying degrees of net factor exposures. Hedged credit strategies may also have expertise in niche areas of the markets — largely ignored by traditional, long-only credit managers — such as debt restructuring, structured credit, global fixed income relative value and market making.

The alpha generation is imperative here. Without the average hedge fund's alpha, you effectively get the returns represented by the green shaded area in Exhibit 7 — not sufficient to match the returns of investment grade fixed income or municipal bonds over the bulk of the past decade for which we have data. Further, because hedged credit managers do not manage to any specific benchmark, you can't buy the hedged credit index. Nor can you buy the "average" hedged credit manager (well, you can, but you wouldn't know it at the time). When pursuing this strategy, a good manager selection process — including an understanding of historical alpha generation, confidence in the manager's investment process and comfort with the risk management policy — is essential.

To be clear, hedged credit strategies can be a good substitute for a portfolio's investment grade fixed income, but not a perfect substitute. Hedged credit does not generally provide income. It can't be used to meet short-term spending needs and it comes with investment and operational risk that must be managed through a robust due diligence process. However, done right — and with sufficient alpha — hedged credit strategies can serve as one piece of the "New 40", providing a similar risk/return profile as investment grade fixed income while carrying little or actually negative term exposure.

CONCLUSION: DON'T WORRY, YOU HAVE OPTIONS FOR YOUR 40

Investors need not be overly fearful of the current low rate environment and its impact on the traditional 60/40 portfolio. Concerns over rising interest rates need to be balanced with opportunities that a further fall in interest rates may bring. Also, history shows that the 60 generally goes higher when the 40 goes lower, and we don't think that dynamic dramatically changes. Those looking to reduce interest rate sensitivity and/or increase income generation have options. An asset mix analysis can reveal ways to reorient portfolios while maintaining a similar risk profile.

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APPENDIX – A PORTFOLIO CONSTRUCTION DESK CASE STUDY: DEALING WITH LOW INTEREST RATES

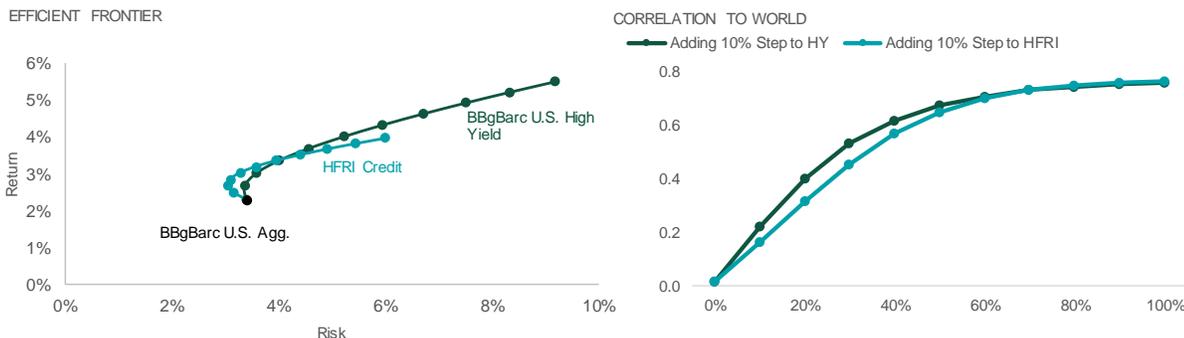
THE OPPORTUNITY SET: IDENTIFYING SUITABLE COMPLEMENTS TO THE TRADITIONAL 40

Credit strategies are the best candidates for modifying the Traditional 40. But we must be conscious of their market exposure so we don't overload the risk-control portfolio with risk assets. Below we show the two asset classes we are reviewing for this case study — high yield and hedged credit — alongside the data we need to perform the mean-variance optimization. We also included the traditional proxies for risk-control (Bloomberg Barclays U.S. Aggregate) and risk assets (MSCI World IMI – effectively a broader version of MSCI World that includes smaller cap companies).

	Liquidity	CMA (5Y)	Risk	Downside Risk	Correlation To Agg	To World Equities
RISK CONTROL: BBgBarc US Agg Bond						
		2.30%	3.39%	1.84%	1.00	0.02
BBgBarc US Corporate High Yield	Liquid	5.50%	9.17%	6.34%	0.22	0.76
HFRI Credit	Semi-Liquid	3.97%	5.99%	4.74%	0.09	0.76
RISK ASSET: MSCI World IMI						
		4.80%	15.00%	10.57%	0.02	1.00

THE PROCESS: THE NEW EFFICIENT FRONTIER AND RELATED CORRELATIONS TO WORLD EQUITIES

We are interested in how our two candidates interact with the Bloomberg Barclays U.S. Aggregate to understand the risk/return tradeoff. To do this we add both high yield (using the Bloomberg Barclays Corporate High Yield) and hedged credit (using HFRI Credit) in increments of 10% of the portfolio. You'll notice that the first few 10% increments of these riskier asset classes actually improves returns and lowers risk. Such is the power of diversification. We also care about how much our portfolio is correlating with the MSCI World IMI; we already have a risk-asset piece of the portfolio so we don't need another piece of the portfolio that behaves similarly. Ideally we keep that correlation below 0.2.



THE OUTPUT: DIFFERENT ASSET MIXES TO ACHIEVE DIFFERENT RISK LEVELS

The key here is to strike the right balance between reducing term exposure and ensuring sufficient diversification to the risk asset portfolio. Below we identify three allocations for both high yield and hedged credit: 1.) The allocation that produces the lowest risk-control portfolio risk; 2.) The allocation that creates a risk profile similar to Agg (but more return); and 3.) The largest allocation before the risk-control portfolio correlates with the risk asset portfolio at a level above 0.2.

	Weight (%)	Return	Risk	Corr. Primary Bonds	Corr. To World
Adding US HIGH YIELD					
Lowest Risk Combination	6%	2.5%	3.4%	1.0	0.1
Similar Risk to AGG	11%	2.7%	3.4%	1.0	0.2
Do Not Go Beyond:	11%	2.7%	3.4%	1.0	0.2
Adding HEDGE FUND CREDIT					
Lowest Risk Combination	22%	2.7%	3.1%	0.9	0.3
Similar Risk to AGG	44%	3.1%	3.4%	0.6	0.6
Do Not Go Beyond:	15%	2.6%	3.1%	1.0	0.2