Optimizing Bond Risk/Reward Exposure

Today’s low interest-rate climate and general hunt for yield have many investors looking for ways to enhance fixed-income performance. One compelling area of opportunity is the relatively new application of factor-based research to fixed-income markets.

We, at IndexIQ, have found that systematically applying a factor-based process through rules-based portfolio construction can be highly effective in enhancing risk-adjusted performance in core bond allocations and generating attractive levels of income and return with significantly less risk exposure in high-yield bonds.

With new research continuing to highlight the potential benefits of factor-based fixed-income investing, we expect investor interest to steadily grow, as more strategies are introduced into the marketplace.

ABOUT INDEXIQ

IndexIQ, a New York Life Investments Company, is a trusted provider of innovative financial solutions. A subsidiary of one of the oldest and largest insurance companies in the world, we have established a solid foundation and a long track record of demonstrating our culture of innovation. From offering the first liquid alternative ETF, to leveraging our multi-boutique platform, each ETF is thoughtfully constructed to provide specialized investment solutions across all broad asset classes.

Salvatore Bruno
Chief Investment Officer

Kelly Ye
Director of Research
Advancements in Factor-Based Investing

Factor-based investing has a long, well-established history in shaping risk/reward exposure in equity portfolios. This investment style focuses on identifying broad attributes that have persistently driven individual security performance and then weighting security allocations, based on the type of performance desired. Both single- and multi-factor strategies have gained considerable assets post-financial crisis, as investors explored innovative ways to expand portfolio diversification and enhance risk-adjusted returns.

Most Commonly Recognized Factors

<table>
<thead>
<tr>
<th>Factor</th>
<th>Description</th>
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<tbody>
<tr>
<td>Momentum</td>
<td>Seeks to isolate securities that see acceleration in their price or volume. This factor seeks to take advantage of the continuance of an ongoing trend in the market.</td>
</tr>
<tr>
<td>Low Volatility</td>
<td>Seeks to isolate securities with low volatility for a given period—in other words, the prices of these securities tend to move less.</td>
</tr>
<tr>
<td>Size</td>
<td>Seeks to isolate overlooked companies with smaller market caps, which may provide higher returns than companies with larger market caps.</td>
</tr>
<tr>
<td>Value</td>
<td>Seeks to isolate cheaper securities, which may generate higher returns than more expensive ones.</td>
</tr>
<tr>
<td>Quality</td>
<td>Seeks to capture excess returns for securities that are characterized by low debt, stable earnings growth, and other “quality” metrics.</td>
</tr>
<tr>
<td>Yield</td>
<td>Seeks to capture excess returns for securities that have higher-than-average yields.</td>
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</tbody>
</table>

There is no assurance that the investment objectives will be met.
Optimize Your Fixed-Income Allocations

Recent academic research has identified key areas where factors can be applied within fixed-income portfolios as well. A primary reason why factor-based investing has been so promising in the fixed-income segment is the significant impact systematic risk tends to have on these securities—particularly in terms of interest-rate movements. Idiosyncratic risk, another well-researched type of risk, increases as credit quality decreases, and should also be considered when dealing with fixed-income factor investing.

This should come as no surprise to bond investors, but fixed-income markets can often be boiled down to two primary sources of risk—interest-rate and credit risk. In fact, research indicates that almost 90% of the variance in bond returns has been historically driven by a combination of these two dynamics.1 Factor-based analysis offers insights into how these two areas can shape fixed-income performance attributes. Active fixed-income managers have historically looked to quality metrics of corporate bond issuers to help differentiate performance, just like equity managers. Some well-established factors also have strong behavioral support that can easily apply to fixed income, too, such as momentum and low volatility.

Factor-based fixed-income security selection provides opportunities to optimize risk-adjusted performance and introduce new return sources in a segment where it can be difficult to distinguish performance in a truly meaningful way. It also combines attractive attributes of active and passive investing, applying fundamental research through a systematic, rules-based process that helps eliminate behavioral biases and improves portfolio risk/reward characteristics, relative to strategies strictly focused on replicating traditional market-capitalization-based benchmarks.

Fixed-Income Managers Can Adjust Factor Exposure to Seek Opportunity

Fixed-Income Factors

These applications offer tremendous potential for fixed-income managers who can identify and methodically adjust exposures to the largest-factor determinants around risk and return potential in the credit markets.

Today’s Fixed-Income Challenges

One of the main challenges currently facing fixed-income investors is that traditional diversification may not be enough in today’s low-return/higher-risk bond markets. Bond markets continue to face sizable headwinds in the near term. The prolonged post-crisis, low interest-rate environment has considerably reduced yields across credit segments and compressed spreads, significantly elevating risk per unit of return at a time when many investors have extended their credit exposures in the search for income.

Investors Continue to Hunt for Yield

In addition, fixed-income investors now face a potentially lengthy tightening cycle, both in the U.S. and worldwide. Years of scant income offer little cushion to absorb price declines prompted by rising interest rates, and these pricing pressures, while probably more slowly realized than past periods, are unlikely to be resolved anytime soon, as central banks slowly normalize monetary policies after a decade of zero, and at times negative, interest rates.

2. Sources: Thomson Reuters Datastream, New York Life Investments, 12/31/17. Past performance is no guarantee of future results. It is not possible to invest directly in an index. Index definitions can be found at the end of this paper.
Today's Fixed-Income Challenges (continued)

There is also growing awareness of the inherent weaknesses in market-capitalization-based indices, including popular bond market benchmarks, such as the Bloomberg Barclays U.S. Aggregate Bond Index. This traditional index structure implicitly forces investors to “buy high” and “sell low,” as climbing prices increase market capitalization and falling prices reduce it. It is also important to remember that market capitalization is not an indicator of credit quality. Indeed, investors are forced to buy issuers with the most debt, which could, in turn, undermine creditworthiness.

The risk/reward profile of the Bloomberg Barclays U.S. Aggregate Bond Index has also notably changed post-crisis. The chart below highlights how pure passive bond portfolios replicating their allocations have become much more exposed to interest-rate risk in the form of duration, which has steadily risen, while being compensated with a much lower yield.

Skillful use of factors and fundamentally weighted strategies can offer thoughtful solutions to help address each of these areas. However, it is critical to have a deep expertise of the fixed-income markets to understand how best to apply these approaches in both strategy design and execution. Factor definitions and portfolio construction can be significantly different in fixed-income strategies compared to equity strategies, given the different dynamics in each market.

Traditional U.S. Bond Index Displays Elevated Interest-Rate Risk and Lower Yield

3. Sources: Thomson Reuters Datastream, New York Life Investments, 12/31/17. The “Traditional” U.S. Bond Index is represented by the Bloomberg Barclays U.S. Aggregate Bond Index. Past performance is no guarantee of future results. It is not possible to invest directly in an index. Index definitions can be found at the end of this paper.
Meeting Investor Needs through Factor Investing

Relative to equities, credit markets tend to offer less data, transparency, and liquidity, which collectively can shape how factors may play out in portfolio applications. Nonetheless, several key factors have demonstrated effectiveness across both asset classes—with sound behavior and economic backing (see illustration below). These include momentum, based on securities experiencing an acceleration in price or volume; low volatility, measuring relative price movements and/or volatility sensitivity; quality, focused on securities of issuers with healthier balance sheets and overall fiscal stability; and value, which sorts securities based on a low price relative to fundamental value.

Moreover, credit, which tracks security ratings, duration, measuring interest-rate sensitivity, and yield, gauging relative income potential, have also been shown to provide insights into fixed-income risk and return drivers. Over the next few pages, we examine how two of the most effective factors, momentum and low volatility, can be applied to enhance fixed-income portfolios.

Factors Demonstrating Effectiveness across Asset Classes

Equity
- Dividends
- Size
- Momentum
- Low Volatility
- Quality
- Value

Fixed Income
- Credit
- Duration
- Yield

Goals-Based Investing Solutions

Portfolio Construction

Pragmatic Solutions for Today's Fixed-Income Investors

Momentum Investing

The momentum factor is driven by investor behavior and enhanced by bond markets’ more opaque structure. Although it has been proven to exist across asset classes, momentum is characterized somewhat uniquely in fixed income. Because bonds have maturity dates, while equities do not, the time horizon to evaluate momentum is different. Much like equities, fixed-income momentum is evaluated by comparing short- and long-term averages, rather than a single period return, to discount the impact of any erratic, temporary price jumps. However, different fixed-income segments can have very distinct risk profiles, and momentum calculations need to take this volatility into account to allow fair comparisons.
Momentum Investing (continued)

Portfolio Application Example: Underlying momentum can help design a core fixed-income portfolio with enhanced risk-adjusted performance characteristics. Our approach applies to three main sectors of the Bloomberg Barclays U.S. Aggregate Bond Index—U.S. Treasurys, mortgage-backed securities, and corporate bonds—to dynamically shape allocations among credit and interest-rate risk exposures, based on each sector’s momentum signal. Diversification can be further broadened in a “momentum plus” approach with the potential addition of high-yield corporate securities and emerging market debt, depending on the current investment environment and outlook. We overweight sectors showing strong momentum and underweight sectors showing weak momentum. Strict portfolio risk management helps ensure that proper, core fixed-income risk exposure, relative to the benchmark, is maintained. Liquid, low-cost exchange-traded funds (ETFs) representing these sectors are used for implementation to reduce transaction costs and increase overall efficiency.

Attractive Results: The momentum approach generally outperformed during periods of market stress, as exhibited in the chart below. The one exception was the very brief, one-month period during the U.S credit downgrade in August of 2011, which was a result of an underweight to U.S. Treasurys due to the segment’s weak momentum trend leading into the crisis and the incredibly strong rally it experienced afterwards. Overall, however, the defensive attributes of the approach were very consistent. As displayed in the chart on the next page, applying this approach meaningfully increased the total returns compared to the performance of the index, with less volatility, for the 10-year period ending December 31, 2017.

Strong Defensive Attributes in Stress Periods

Cumulative Total Returns, 12/31/02 – 12/31/17

<table>
<thead>
<tr>
<th>Event</th>
<th>Momentum</th>
<th>Index</th>
<th>Performance Improvement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fed Rising Rates (Jun 2004-Jul 2006)</td>
<td>10.84%</td>
<td>7.98%</td>
<td>+2.86% (+36%)</td>
</tr>
<tr>
<td>Credit Crisis (Apr 2008 – Oct 2008)</td>
<td>-1.80%</td>
<td>-3.83%</td>
<td>+2.03% (+53%)</td>
</tr>
<tr>
<td>U.S. Credit Downgrade (Aug 2011)</td>
<td>0.54%</td>
<td>1.46%</td>
<td>-0.92% (-63%)</td>
</tr>
<tr>
<td>U.S. Taper Tantrum (May 2013 – Jun 2013)</td>
<td>-2.28%</td>
<td>-3.30%</td>
<td>+1.02% (+31%)</td>
</tr>
</tbody>
</table>

4. Sources: IndexIQ, Bloomberg, BoA/ML, 12/31/17. Performance data for the Momentum and Momentum Plus strategies above are hypothetical and based on the underlying index performance. Momentum and Momentum Plus strategies both use sector weight and tracking error constraints to construct a risk-controlled portfolio that aims to outperform the benchmark within a certain risk tolerance level. The “Index” is represented by the Bloomberg Barclays U.S. Aggregate Bond Index. Performance data above does not include fees and expenses, which would lower returns. Past performance is no guarantee of future results, which will vary. This example is hypothetical and not indicative of actual investment performance. It is not possible to invest directly in an index. Index definitions and information on the Momentum and Momentum Plus strategies can be found at the end of this paper.
Momentum Investing (continued)

Momentum Significantly Improved Returns

Average Annual Returns, 12/31/03 – 12/31/17

<table>
<thead>
<tr>
<th>Performance over Entire 10-Year Period</th>
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<tbody>
<tr>
<td></td>
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<tr>
<td>Momentum Plus</td>
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<tr>
<td>Cumulative Return</td>
</tr>
<tr>
<td>Volatility</td>
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<tr>
<td>Correlation</td>
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<td>Max. Drawdown</td>
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</tbody>
</table>

Low Volatility Investing

The volatility factor is driven by active investors’ behavioral bias toward high beta assets. Like equities, a low volatility factor, applied to high-yield corporate debt securities, has the potential to offer significant downside risk management during credit sell-offs, while potentially delivering competitive performance over the long term. To achieve this, it is crucial to understand how volatility works in a fixed-income context. Historical price volatility, which is used to measure volatility in equity strategies, is not a reliable predictor of bond volatility, as bonds are less frequently traded and mature over time. Instead, fixed-income analysts typically use Duration Times Spread (DTS) and Marginal Contribution to Risk (MCR).

DTS measures systematic exposure to credit risk by quantifying sensitivity to shifts in yield spreads. Overall, if a security has a DTS half that of another security, a widening of credit spreads would be expected to have half the impact on its price. DTS offers an effective measure of absolute volatility. Bonds under distress, however, can, at times, exhibit relatively low DTS rankings. Hence, MCR can provide a more objective, market-based measure of credit risk to help identify securities and sectors that are at risk.

At a high level, MCR measures the added risk a security contributes to the market. It is calculated by taking the difference between the bond’s DTS and the DTS of a security trading at the average market credit spread level. The higher the MCR, the more implied the credit risk is.

Low Volatility Investing (continued)

As shown in the chart below, low MCR bonds have historically outperformed riskier peers during periods of market duress. For example, low MCR bonds were quick to detect stress in the telecom and IT sectors in 1999, the automobile and financial sectors in 2005 and 2006, and the energy sector in 2014. Using the metric to signal a warranted underweight or complete avoidance of these sectors would have protected against significant losses in each case. 

Portfolio Application Example: The low volatility factor can help design a high-yield portfolio with enhanced income/risk trade-off characteristics. A portfolio constructed using MCR rankings has historically been less volatile, more liquid, and of higher quality, generating attractive income and total returns comparable to the broader high-yield universe, with far less risk. Our approach focuses on bonds in the lower half of the MCR spectrum. A buffer is used in portfolio construction to reduce turnover needs.

Attractive Results: Although removing the riskiest bonds from the high-yield universe naturally lowers yield potential, the benefits to overall performance provide much more risk-efficient exposure to the asset class. The first chart on the next page shows that low MCR high-yield bonds still maintain favorable income characteristics relative to other yield-focused segments, especially when viewed in context with their much lower volatility. Over the past 10 years, these securities delivered over 56% more average income than investment-grade credits, for example, capturing an average of 85% of the broader high-yield universe yield, but with almost 30% less volatility. From a total return perspective, low MCR high-yield bonds delivered similar annualized gains versus the broader high-yield universe – 6.96% versus the index’s 6.99% – but with almost half the credit risk (measured by value at risk), as shown in the chart below. The approach also offered an effective way to help manage duration risk compared to other fixed-income assets, as highlighted in the second chart on the next page, given the historical negative correlation between spreads and interest rates.

Stronger Risk/Return Profile than Other High-Yield Bonds

Average Annual Total Return vs. Value at Risk, 2/28/97 – 12/31/17

6. Sources: IndexIQ, BoA/ML, New York Life Investment Management, 2017. High-Yield Index is represented by the BoA/ML U.S. High Yield Master II Constrained Index. BB Index is represented by the BoA/ML Cash Pay High Yield BB-B Rated 1-5 Year Index. Cash is represented by the three-month LIBOR. Cash dilution is represented by a combination of cash and the HY Index. Past performance is no guarantee of future results, which will vary. This example is hypothetical and not indicative of actual investment performance. It is not possible to invest directly in an index. Index definitions can be found at the end of this paper.
Low MCR High-Yield Bonds Offered Attractive Average Income with Significantly Less Volatility

Income vs. Maximum Drawdown, 12/31/07 – 12/31/17

Lower Interest-Rate Sensitivity vs. Other Bond Segments

Correlation, 1/31/97 – 12/31/17

7. Sources: IndexIQ, Bloomberg, BoA/ML, New York Life Investment Management, 2017. High dividend stocks are represented by the Dow Jones U.S. Select Dividend Index. MLPs are represented by the Alerian MLP Index. Long-term Treasurys are represented by the ICE U.S. Treasury 20+ Year Bond Index. Mortgage REITs are represented by the FTSE NAREIT All REITs Index. Emerging market bonds are represented by the J.P. Morgan EMBI Global Core Index. Investment grade bonds are represented by the Markit iBoxx USD Liquid Investment-Grade Index. High-yield bonds are represented by the BoA/ML U.S. High Yield Master II Constrained Index. Short duration high-yield bonds are represented by the BoA/ML Cash Pay High Yield BB-B Rated 1-5 Year Index. Average income is measured by the average yield of the index. Past performance is no guarantee of future results, which will vary. This example is hypothetical and not indicative of actual investment performance. It is not possible to invest directly in an index. Index definitions can be found at the end of this paper.

8. Sources: IndexIQ, BoA/ML, Bloomberg, 1996-2017. Intermediate U.S. Treasurys are represented by the Bloomberg Barclays 5-7 Year U.S. Treasury Bond Index. The Aggregate Index is represented by the Bloomberg Barclays U.S. Aggregate Bond Index. The Investment-Grade Corporate Index is represented by the Bloomberg Barclays U.S. Corporate Investment-Grade Index. Past performance is no guarantee of future results, which will vary. This example is hypothetical and not indicative of actual investment performance. It is not possible to invest directly in an index. Index definitions can be found at the end of this paper.
Looking to the Future: Other Potentially Additive Factors

In addition to momentum and low volatility, our research is indicating potential in several other factors that have been widely used in a cost-efficient way by active managers in equity investing and show promise when applied to fixed-income strategies. We continue to research how each of these factors and others may be applied to help strengthen fixed-income portfolio risk/reward exposure.

Solutions Tailored to Investors’ Goals

Fixed-Income Factors

- **Value**: Valuation is also important in the fixed-income segment. The deviation from market value of a bond to its intrinsic value could create potential return opportunities.

- **Quality**: Corporate issuer credit quality is a factor used to determine issuer credit risk. Active managers monitor such metrics as leverage and free cash flow to determine credit quality and evaluate an issuer’s ability to repay debt. This evaluation process could be handled more systematically in a rules-based format.

- **Income**: Most of fixed-income return is generated by income, and it is a primary reason why investors invest in the asset class. However, income should not be viewed in isolation. Taking a quality income factor approach that balances the need for income with the management of risk could provide investors with a strategy that offers a more optimized income/risk trade-off.

- **Macro Factors**: Interest rates, inflation, and the credit cycle all affect fixed-income returns. Many active managers apply a top-down approach in their security selection process to add potential value. Therefore, strategies that can help to systematically navigate the macro environment could also be desirable.

Consider Fixed-Income Smart Beta Strategies

Factor-based fixed income investing continues to be an exciting area of development. As pioneers in the space, we believe in taking a solutions-based approach in researching and developing factor-based strategies to help solve the challenges investors face when it comes to fixed-income markets. Our research has been extremely promising, showing that when used effectively, factor-based approaches to fixed-income investing can offer new sources of returns and risk management beyond pure active and traditional beta strategies. Incorporating factor-based portfolios into current fixed-income allocations can help to pursue enhanced risk-adjusted performance and potentially manage volatility, interest-rate risk, inflation, and credit risk more efficiently.

9. There is no assurance that the investment objectives can be met.
About Risk

This material is provided for educational purposes only and should not be construed as investment advice or an offer to sell or to buy any security. All investments are subject to market risk, including possible loss of principal. Diversification cannot assure a profit or protect against loss in a declining market. Past performance is no guarantee of future results. An investment cannot be made directly into an index.

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Factor-Based Fixed-Income Investing

About Risk (continued)

**Treasury securities** are backed by the full faith and credit of the U.S. government, as to payment of principal and interest if held to maturity. Interest income on these securities is exempt from state and local taxes. **Mortgage- and asset-backed securities** risk lies in the underlying debt, which may be prepaid ahead of schedule, if interest rates fall, thereby reducing the value of the Fund’s investment. If interest rates rise, less of the debt may be prepaid, and the Fund may lose money. **Corporate bonds** are subject to interest-rate risk and could lose principal value when interest rates rise. **High-yield securities** (commonly referred to as ‘junk bonds’) have speculative characteristics and present a greater risk of loss than higher-quality debt securities. These securities can also be subject to greater price volatility. **Emerging market debt** is debt issued in a country that has some characteristics of a developed market, but does not meet the standards to be a developed market. This includes countries that may become developed markets in the future or were in the past. **Real Estate Investment Trusts** (“REITs”) are pooled investment vehicles that invest primarily in either real estate or real estate-related loans. Investment in REITs carries with it many of the risks associated with direct ownership of real estate, including declines in property values, extended vacancies, increases in property taxes, and changes in interest rates. In addition to these risks, REITs are dependent upon management skills, may not be diversified, may experience substantial cost in the event of borrower or lessee defaults, and are subject to heavy cash flow dependency. An **MLP** only has to distribute the amount set forth in the partnership agreement. Distributions made to shareholders may be considered dividend income, non-taxable return of capital, or capital gains. **Bonds** are subject to interest-rate risk and can lose principal value when interest rates rise. Bonds are also subject to credit risk, in which the bond issuer may fail to pay interest and principal in a timely manner. **Stocks/equity securities** may fluctuate as a result of general economic conditions, including changes in interest rates. Certain industries or individual companies may come in and out of favor with investors. In addition, changing technology and competition may make the equity securities of a company or industry more volatile. Investors buy equity securities to make money through dividend payments and/or selling them for more than they paid.
Index Definitions

High-yield corporate bonds are represented by the BoA/ML U.S. High Yield Master II Constrained Index, a market value-weighted index of all domestic and Yankee high-yield bonds, including deferred interest bonds and payment-in-kind securities. Emerging market bonds are represented by the Bloomberg Barclays Emerging Markets Bond Index, an unmanaged index that tracks total returns for external currency-denominated debt instruments of the emerging markets. High-yield municipal bonds are represented by the Bloomberg Barclays High-Yield Municipal Index, an unmanaged index consisting of non-investment-grade, unrated, or below Ba1 bonds. Short-duration high-yield bonds are represented by the BoA/ML U.S. Cash Pay High Yield BB-B Rated 1-5 Year Index, a subset of the BoA/ML U.S. Cash Pay High Yield Index, including all securities with a remaining term to final maturity less than five years and rated BB through B inclusive. Bank loans are represented by the S&P/LSTA Leveraged Loan Index, a broad index designed to reflect the performance of U.S. dollar facilities in the leveraged loan market. Corporate bonds are represented by the Bloomberg Barclays U.S. Corporate Investment Grade Index, which covers the USD-denominated, investment-grade, fixed-rate, taxable corporate bond market. The index excludes Emerging Markets debt. Mortgage-backed securities are represented by the Bloomberg Barclays U.S. MBS Index, which tracks agency mortgage-backed pass-through securities (both fixed-rate and hybrid ARM) guaranteed by Ginnie Mae (GNMA), Fannie Mae (FNMA), and Freddie Mac (FHLMC). Investment-grade bonds are represented by the Bloomberg Barclays Aggregate Bond Index, an unmanaged market value-weighted performance benchmark for investment-grade or better fixed-rate debt issues, including government, corporate, asset-backed, and mortgage-backed securities, with maturities of at least one year. U.S. inflation-linked notes are represented by the Bloomberg Barclays U.S. Inflation Indexed Notes Index that provides monthly data on changes in the prices paid by urban consumers for a representative basket of goods and services. Municipal bonds are represented by Bloomberg Barclays Municipal Bond Index, which covers the USD-denominated long-term tax-exempt bond market. The index has four main sectors: state and local general obligation bonds, revenue bonds, insured bonds, and pre-refunded bonds. U.S. 10-year Treasuries are represented by the Bloomberg Barclays Treasury Index, which is the non-securitized component of the Bloomberg Barclays U.S. Aggregate Bond Index. The index is based on public obligations of the U.S. Treasury that have remaining maturities of more than one year. Global bonds are represented by the Bloomberg Barclays Global Aggregate Bond Index, an unmanaged index that is comprised of several other Bloomberg Barclays indexes that measure fixed-income performance of regions around the world. Convertible bonds are represented by the BoFA/ML All U.S. Convertibles Index, a market capitalization-weighted index of domestic corporate convertible securities. To be included in the Index, bonds and preferred stocks must be convertible only to common stock. BB-rated bonds are represented by the BoA/ML U.S. Cash Pay High Yield BB-B Rated 1-5 Year Index, a subset of the BoA/ML U.S. Cash Pay High Yield Index, including all securities with a remaining term to final maturity less than five years and rated BB through B inclusive. MLPs are represented by the Alerian MLP Index TR (AMZX), which is the leading gauge of large- and mid-cap energy Master Limited Partnerships (MLPs). The float-adjusted, capitalization-weighted index includes 50 prominent companies and captures approximately 75% of available market capitalization. REITs are represented by the FTSE NAREIT All REITs Index, which contains all tax-qualified REITs with more than 50 percent of total assets in qualifying real estate assets other than mortgages secured by real property that also meet minimum size and liquidity criteria. Intermediate U.S. Treasuries are represented by the Bloomberg Barclays 5-7 Year U.S. Treasury Bond Index, which measures the performance of U.S. Treasury securities that have a remaining maturity of at least five years and less than seven years. High dividend stocks are represented by the Dow Jones U.S. Select Dividend Index, which aims to represent the U.S.’s leading stocks by dividend yield. Emerging market bonds are represented by the J.P. Morgan EMBI Global Core Index, a benchmark index for measuring the total return performance of international government bonds issued by emerging market countries that are considered sovereign (issued in something other than local currency) and that meet specific liquidity and structural requirements. Investment-grade bonds are represented by the Markit iBoxx USD Liquid Investment-Grade Index, which is designed to provide a balanced representation of the USD investment-grade corporate market and to meet investors’ demand for a USD-denominated, highly liquid, and representative investment-grade corporate index.
Definitions

**Systematic risk**, also known as “undiversifiable risk,” “volatility,” or “market risk,” affects the overall market, not just a particular stock or industry. **Idiosyncratic risk**, also referred to as unsystematic risk, is the risk that is endemic to a particular asset, such as a stock, and not a whole investment portfolio. **Cumulative return** is the aggregate amount an investment has gained or lost over time, independent of the period of time involved. **Volatility** is a statistical measure of the dispersion of returns for a given security or market index. **Correlation** is a statistic that measures the degree to which two securities move in relation to each other. **Maximum drawdown** is the maximum loss from a peak to a trough of a portfolio, before a new peak is attained. **Beta** is a measure of the volatility, or systematic risk, of a security or a portfolio in comparison to the market as a whole. **Duration** is a measure of the sensitivity of the price—the value of principal—of a fixed-income investment to a change in interest rates. **Spread** is the difference between the bid and the ask price of a security or asset. **Value at risk (VaR)** is a statistical technique used to measure and quantify the level of financial risk within a firm or investment portfolio over a specific time frame. **Active management** is an investment strategy involving ongoing buying and selling actions by the manager. Active managers purchase investments and continuously monitor their activity to exploit profitable conditions. Active management typically charges higher fees. **Passive management** is an investment strategy that aims to maximize returns over the long run by keeping buying and selling to a minimum. The idea is to avoid fees and the drag on performance that frequent trading can potentially cause.
Factor-Based Fixed-Income Investing

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