

THE VOLATILITY OF THE HIGH-YIELD CORPORATE BOND MARKET AND POPULAR MISCONCEPTIONS

Case Study | October 2018

High-yield corporate bonds, often referred to as “junk” bonds, are typically categorized as one of the riskier fixed-income asset classes. These bonds have a higher risk of default and thus require higher yields than better quality bonds in order to make them attractive to investors. At Redwood, we have uncovered an important aspect to high-yield corporate bond volatility: depending on the conditions, high-yield (“HY”) corporate bonds have historically displayed LOWER volatility than investment grade (“IG”) corporate bonds. On the face of it, a riskier asset class having lower volatility seems counterintuitive, but it can occur. Below are snapshots of different time periods, using Bloomberg charts, to display historical volatility and total return of HY corporate bonds (represented by the Barclay’s U.S. Corporate High Yield Total Return Index in white) versus IG corporate bonds (represented by the Dow Jones Corporate Bond Index in orange).

PERIOD 1: ECONOMIC EXPANSION: October 5, 1998 - January 20, 2000

Looking at the time period of October 5, 1998 – January 20, 2000, the U.S. 10-Year Treasury yield jumped 263 basis points from 4.16% to 6.79%

30-Day Historical Volatility of HY (white) and IG (orange)



The average 30-day historical volatility calculated from 10/5/98 to 1/20/00, is 2.484% for HY corporate bonds versus 5.435% for the IG corporate bonds.

Sources: Bloomberg. Data from 10/5/98 - 1/20/00. For illustration purposes only. Past performance is not a guarantee of future results. Please see disclosures at the end for additional important information.

Historical Total Return for HY (white) and IG (orange)



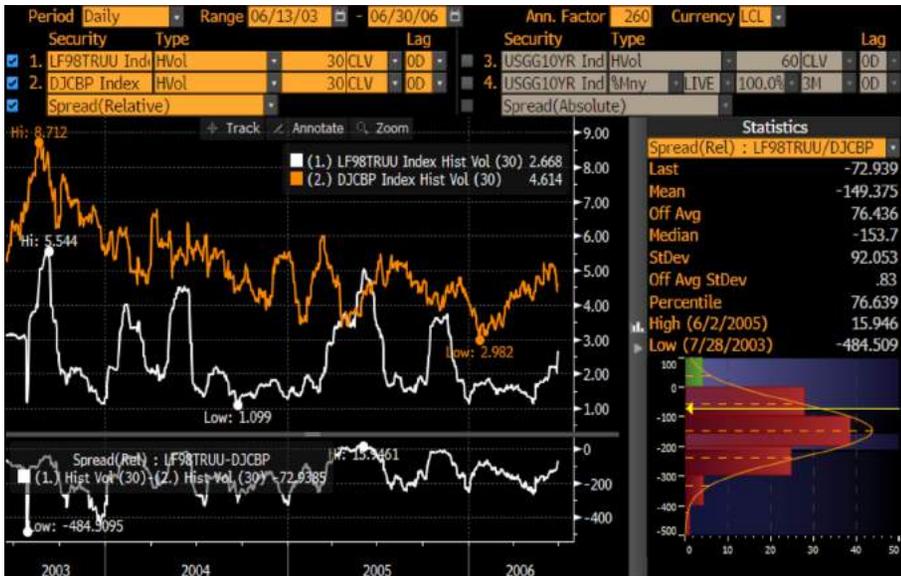
This chart illustrates the total return of the two indices. As an investor, the goal is to get from point A to point B, with the least amount of risk. As the volatility chart on the left illustrates, an investor in IG was exposed to approximately 142% more volatility, on average, with less reward (HY had a 3.68% total return while IG had a -12.20% total return).

Sources: Bloomberg. Data from 10/5/98 - 1/20/00. For illustration purposes only. Past performance is not a guarantee of future results. Please see disclosures at the end for additional important information.

**PERIOD 2: ECONOMIC EXPANSION: June 13, 2003 – June 30, 2006**

Similarly, in the charts below, the U.S. 10-Year Treasury yield rose 213 basis points from 3.11% to 5.24%. HY corporate bonds had lower volatility than IG corporate bonds (see below).

**30-Day Historical Volatility of HY (white) and IG (orange)**



From 6/13/03 to 6/30/06, HY corporate bonds displayed lower average 30-day historical volatility of 2.363% versus IG corporate bonds of 5.125%.

Sources: Bloomberg. Data from 6/13/03 - 6/30/06. For illustration purposes only. Past performance is not a guarantee of future results. Please see disclosures at the end for additional important information.

**Historical Total Return for HY (white) and IG (orange)**



IG corporate bonds, again, did not provide additional reward despite the fact that an investor in the investment grade bonds were exposed to approximately 149% more volatility, on average, with *much* less reward (28.19% for HY vs. -13.40% for IG).

Sources: Bloomberg. Data from 6/13/03 - 6/30/06. For illustration purposes only. Past performance is not a guarantee of future results. Please see disclosures at the end for additional important information.

Although one would think the “riskier” asset would be more volatile, the examples in periods 1 and 2 above suggest this is not always the case. Why? During periods of economic expansion, the default risk associated with HY corporate bonds diminishes. If the economy is performing well, the chance of bond default is reduced. Default risk, rather than interest rate movement has historically been the primary driver of HY corporate bond price trend and volatility. In other words, during periods of economic expansion, the risk of HY corporate bonds defaulting is reduced, thus resulting in lower volatility and higher prices. On the other hand, as the economy improves, there is a tendency for interest rates to increase, which in turn drives volatility higher and prices lower for IG corporate bonds (IG corporate bond prices move inversely to interest rates).

**PERIOD 3: ECONOMIC CONTRACTION: October 31, 2007 – April 30, 2009**

When we look closer at a period of economic contraction shown below, we see the exact opposite holds true: HY corporate bonds display greater risk in terms of volatility than IG corporate bonds. Because default risk has historically been the primary driver of HY corporate bond prices, in a period of economic contraction, the risk of default increases. Greater risk of default brings greater volatility.

**30-Day Historical Volatility of HY (white) and IG (orange)**



**Historical Total Return for HY (white) and IG (orange)**



HY corporate bonds are more driven fundamentally by credit/default risk, as seen in the 2008 recession from the chart above. HY corporate bonds had an average 30-day historical volatility of 7.852% while IG corporate bonds had historical volatility of 8.635% in the same period.

The default risk in this recession led to larger price deterioration of HY corporate bonds as shown above at -13.92% versus -5.38% for IG corporate bonds.

Sources: Bloomberg. Data from 10/31/07 - 4/30/09. For illustration purposes only. Past performance is not a guarantee of future results. Please see disclosures at the end for additional important information.

Sources: Bloomberg. Data from 10/31/07 - 4/30/09. For illustration purposes only. Past performance is not a guarantee of future results. Please see disclosures at the end for additional important information.

**PERIOD 4: ECONOMIC RECOVERY: December 31, 2008 – December 31, 2009**

The U.S. 10-Year Treasury yield increased rose 86.89% in 2009, from 2.05% to 3.84% from December 30, 2008 thru December 31, 2009.

**30-Day Historical Volatility of HY (white) and IG (orange)**



From 12/31/08 to 12/31/09, while both the volatility for HY corporate bonds and IG corporate bonds were trending lower, HY corporate bonds were approximately 49% less volatile, on average, than IG corporate bonds.

Sources: Bloomberg. Data from 12/31/08 to 12/31/09. For illustration purposes only. Past performance is not a guarantee of future results. Please see disclosures at the end for additional important information.

**Historical Total Return for HY (white) and IG (orange)**



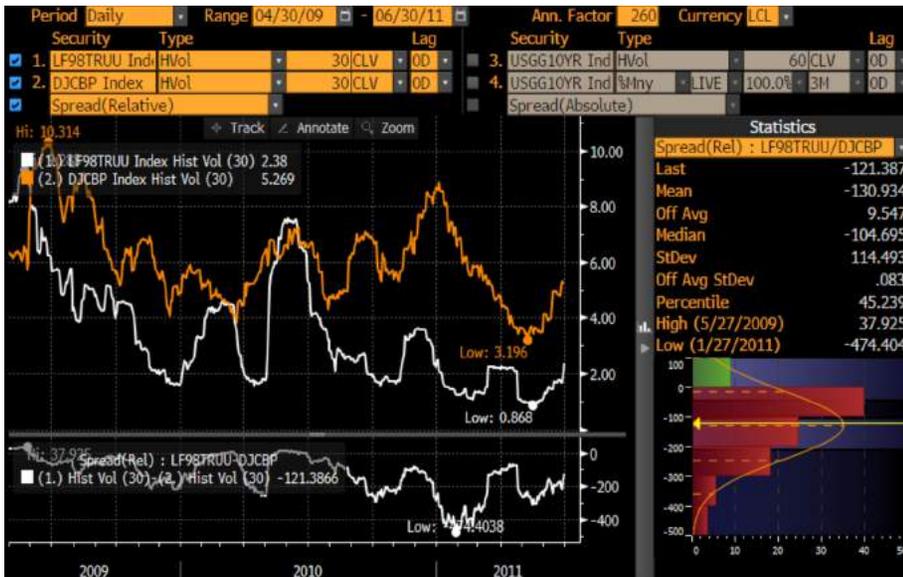
Despite the lower volatility displayed by HY corporate bonds in this time period, investors were shown to be rewarded greater for holding HY, which is considered fundamentally riskier than IG corporate bonds.

Sources: Bloomberg. Data from 12/31/08 to 12/31/09. For illustration purposes only. Past performance is not a guarantee of future results. Please see disclosures at the end for additional important information.

**PERIOD 5: LONGER-TERM ECONOMIC EXPANSION: May 2009 – June 2011**

The charts below display similar behavior to the charts in Period 4. In a longer period of economic expansion, following the financial crisis and a bear market, HY corporate bonds historically displayed lower volatility than IG corporate bonds.

**30-Day Historical Volatility of HY (white) and IG (orange)**



The chart above shows that during the period of economic expansion from 4/30/09 to 6/30/11, IG corporate bonds had more than twice the volatility of HY bonds, on average: 3.469% for HY versus 6.128% for IG.

Sources: Bloomberg. Data from 4/30/09 to 6/30/11. For illustration purposes only. Past performance is not a guarantee of future results. Please see disclosures at the end for additional important information.

**Historical Total Return for HY (white) and IG (orange)**



During this period, HY corporate bonds returned 60.92%, with lower average volatility than IG corporate bonds, while IG corporate bonds returned 15.50%.

Sources: Bloomberg. Data from 4/30/09 to 6/30/11. For illustration purposes only. Past performance is not a guarantee of future results. Please see disclosures at the end for additional important information.

**PERIOD 6: RISING RATES, LOWER DEFAULTS: October 7, 2010 - February 8, 2011**

From October 7, 2010 to February 8, 2011, the U.S. 10-Year Treasury yield rose approximately 64%, from 2.38% to 3.74%.

**30-Day Historical Volatility of HY (white) and IG (orange)**



In the chart above, from 10/7/10 to 2/8/11 the 30-day historical volatility for HY corporate bonds was 2.303%. IG corporate bonds had an average volatility 3 times more, at 6.939%.

Sources: Bloomberg. Data from 10/7/10 to 2/8/11. For illustration purposes only. Past performance is not a guarantee of future results. Please see disclosures at the end for additional important information.

**Historical Total Return for HY (white) and IG (orange)**



During this period, HY corporate bonds showed an appreciation by 5.14% versus a decline in -5.34% for IG corporate bonds with less volatility.

Sources: Bloomberg. Data from 10/7/10 to 2/8/11. For illustration purposes only. Past performance is not a guarantee of future results. Please see disclosures at the end for additional important information.

**PERIOD 7: TAPER TANTRUM AND THE FAST AND STRONG INCREASE IN RATES: May 2, 2013 – September 5, 2013**

In 2013, the U.S. 10-Year Treasury Yield moved from 1.63% to just below 3% in approximately 120 days. The third week of June had a nearly four standard deviation move in treasury prices. During this period, there was a wide sell-off of fixed-income securities in response to investor fears of Fed tapering.

**30-Day Historical Volatility of HY (white) and IG (orange)**



**Historical Total Return for HY (white) and IG (orange)**



In the chart above, from 5/2/13 to 9/5/13, HY corporate bonds had an average 30-day historical volatility of approximately 62% lower than that of IG corporate bonds.

Sources: Bloomberg. Data from 5/2/13 to 9/5/13. For illustration purposes only. Past performance is not a guarantee of future results. Please see disclosures at the end for additional important information.

Over this period, the lower volatility of HY corporate bonds helped to reduce overall return declines for HY corporate bonds (-2.39%) compared to IG corporate bonds (-7.72%).

Sources: Bloomberg. Data from 5/2/13 to 9/5/13. For illustration purposes only. Past performance is not a guarantee of future results. Please see disclosures at the end for additional important information.

**PERIOD 8: TREASURY YIELD BOTTOM AND HIGH VELOCITY INCREASE IN RATES: July 8, 2016 – December 16, 2016**

On July 8th of 2016, the U.S. 10-Year Treasury yield bottomed at 1.35%. Over the next 5 months, the yield jumped to 2.60%, a 91% increase in just under 4 months. While there was a selloff in multiple sectors of traditional investment grade bonds, HY corporate bonds performed relatively well.

**30-Day Historical Volatility of HY (white) and IG (orange)**



The average 30-day historical volatility from 7/8/16 to 12/16/16, was 3.478% for HY corporate bonds versus 4.506% for the IG corporate bonds.

Sources: Bloomberg. Data from 7/8/16 to 12/16/16. For illustration purposes only. Past performance is not a guarantee of future results. Please see disclosures at the end for additional important information.

**Historical Total Return for HY (white) and IG (orange)**



During this period, IG corporate bonds lost 6.4%, while HY corporate bonds gained 5.31%.

Sources: Bloomberg. Data from 7/8/16 to 12/16/16. For illustration purposes only. Past performance is not a guarantee of future results. Please see disclosures at the end for additional important information.

**PERIOD 9: CONSECUTIVE RATE HIKES AND RISING RATE ENVIRONMENT: September 2017 – September 2018**

While the U.S. 10-Year Treasury yield fell slightly again after the spike in 2016, consecutive rate hikes from the Fed pushed yields eventually higher. From 9/11/17 to 5/17/18, the U.S. 10-Year Treasury yield rose to its highest level since 2011, from 2.04% to 3.11%.

**30-Day Historical Volatility of HY (white) and IG (orange)**



The average 30-day historical volatility for IG corporate bonds was almost twice as high as the volatility of HY corporate bonds. In the period, IG corporate bonds had a historical volatility of 3.588% versus HY corporate bonds at 1.885%.

Sources: Bloomberg. Data from 9/11/17 to 9/28/18. For illustration purposes only. Past performance is not a guarantee of future results. Please see disclosures at the end for additional important information.

**Historical Total Return for HY (white) and IG (orange)**



As yields continued to rise, IG corporate bonds lost 4.59%. Meanwhile, HY corporate bonds in the same period gained 3.72%.

Sources: Bloomberg. Data from 9/11/17 to 9/28/18. For illustration purposes only. Past performance is not a guarantee of future results. Please see disclosures at the end for additional important information.

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## Conclusion

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So what if short-term interest rates were to climb back towards 4 percent and even head higher? Advisors and investors are concerned about the effect of future rising interest rates and how these issues correspond to bond prices and volatility. In the years ahead, holding different types of credit may result in increased volatility, loss of capital and fair liquidity, **but not all fixed income is created equal.**

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**The Barclays U.S. Corporate High Yield Total Return Index** is a market value-weighted index which covers the U.S. high-yield or non-investment grade fixed-rate debt market. **The Dow Jones Corporate Bond Index** is an equally weighted basket of 96 recently issued investment-grade corporate bonds with laddered maturities. The index intends to measure the return of readily tradable, high-grade U.S. corporate bonds. **U.S. 10-Year Treasury** is a debt obligation issued by the United States government that matures in 10 years, backed by its full faith and credit. A Treasury bond is a marketable, fixed-interest U.S. government debt security with a maturity of more than 10 years. **High-yield corporate bond** is defined as a high paying bond with a lower credit rating than investment-grade bonds and thus a higher perceived risk of default. **Investment grade corporate bond** is defined as a bond with a credit rating that indicates that the bond has a relatively low risk of default. **Fixed-income (bonds or investment grade bonds) security**, commonly referred to as a bond or money market security, is an investment that provides a return in the form of fixed periodic payments and the eventual return of principal at maturity. A bond price falls as its yield rises. **Default** is the failure to meet the legal obligations (or conditions) of a loan, or when a corporation or government fails to pay a bond which has reached maturity. **Yield** is the income return on an investment. This refers to the interest or dividends received from a security. Yield shown may represent different yield types and calculations and varies from index (or asset class) to index determined by availability of data. **Historical volatility**, also known as statistical volatility, is a measure of the volatility of the underlying price. **Total return** is the return of an asset or index that includes its price and yield. **Bear market** is a market condition in which the prices of securities are falling, and widespread pessimism causes the negative sentiment to be self-sustaining. **Standard deviation** is a measure of dispersion of a set of data from its mean, generally applied to the annual rate of return of an investment to measure the investment's volatility. **Fed tapering** is the gradual winding down of the Federal Reserve activities used to improve the conditions for economic growth. Federal Reserve (Fed) is the central bank of the United States that raises or lowers interest rates. **Liquidity** is the degree to which an asset or security can be quickly bought or sold in the market without affecting the asset's price.

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