



# High RISK In High Yield

Tesla's corporate debt is rated B2 and B- by Moody's and Standard & Poors respectively. In market parlance, this means that Tesla debt is rated 'junk'. This term is often a substitute way of saying 'low-rated' or frequently the term 'high-yield' is used interchangeably. Tesla's bond maturing in October of 2021 pays a 4.00% coupon and has a current yield to maturity of 6.29% based on a market price of \$93.625 per \$100 of face value. Based on prices in the credit default swap markets, Tesla has a 41% percent chance of defaulting within the next five years.

- *The upside of owning this Tesla bond is 6.29% annually*
- *The bond's annual expected return, factoring in the odds of a default and a generous 50% default recovery rate, is 0.17%*
- *Should Tesla default an investor could easily lose half of their initial investment.*

Tesla is, in many ways, symbolic of the poor risk/return proposition being offered throughout the high-yield (HY) corporate bond market. Recent strength in the HY sector has resulted in historically

low current yields to maturity and tight spreads versus other fixed income classes deemed less risky. Given the current state of yields and spreads and the overall risks in the sector, we must not assume that the outperformance of the HY sector versus other sectors can continue. Instead, we must ask why the HY sector has done so well to ascertain the expected future returns and inherent risks of an investment in this sector. In this article we'll examine:

- What is driving HY to such returns?
- How much lower can yields on HY debt go?
- Is further spread tightening possible?
- What does scenario analysis portend for the HY sector?

All data in this article is courtesy of Barclays.

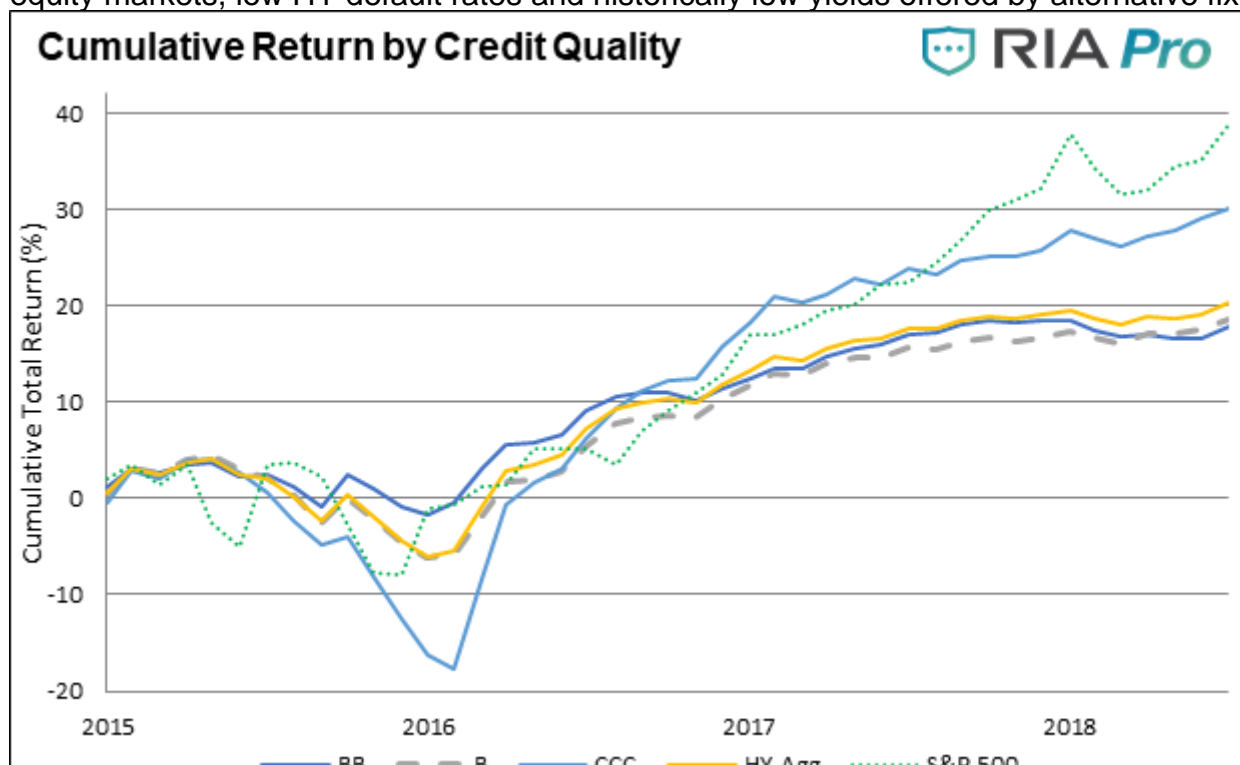
## HY Returns

The HY sector, again also known as "junk bonds", is defined as corporate bonds with credit ratings below the investment grade (IG) rating of BBB- and Baa3 using Standard and Poors and Moody's rating scales respectively. The table below presents returns over various time frames and the current yields for six popular fixed income sectors as well as Barclay's aggregate fixed income index

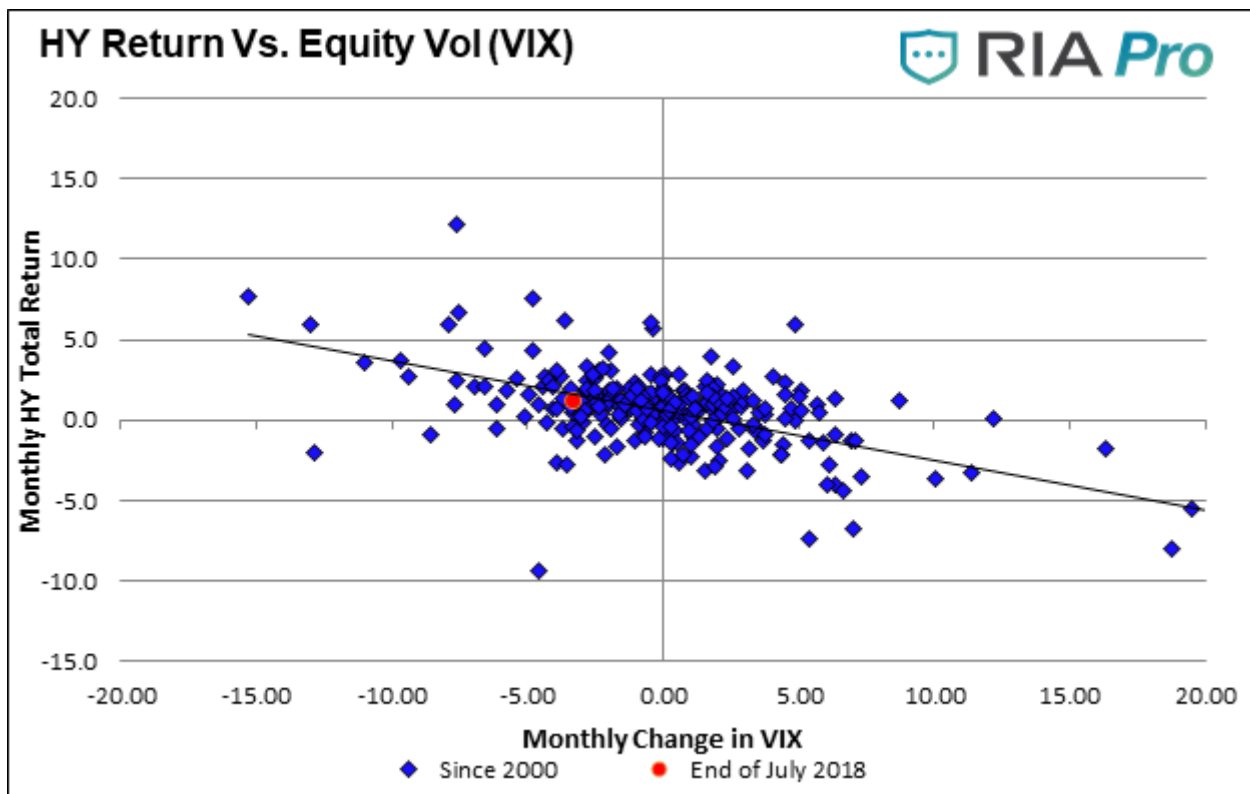
RIA Pro	MTD Total Return	3 Month Total Return	YTD Total Return	12 Month Total Return	Current Yield to Worst
U.S. Aggregate	0.64	0.54	-0.94	-1.05	3.30
Agg. Treasury	0.76	0.36	-0.71	-1.54	2.75
Agg. Investment Grade - Corp.	0.49	0.74	-1.97	-1.01	3.95
Agg. High Yield - Corp.	0.74	2.25	2.00	3.40	6.27
Agg. Securitized (ABS, MBS, CMBS)	0.63	0.56	-0.42	-0.55	3.42
Agg. Investment Grade - Muni.	0.26	0.59	0.27	0.49	2.68
Agg. Emerging Markets	-1.35	-0.38	-3.59	-2.91	5.96

We

believe the outperformance is primarily due to four factors. First, many investors tend to treat the HY sector as a hybrid between a fixed-income and an equity security. The combination of surging equity markets, low HY default rates and historically low yields offered by alternative fixed-income



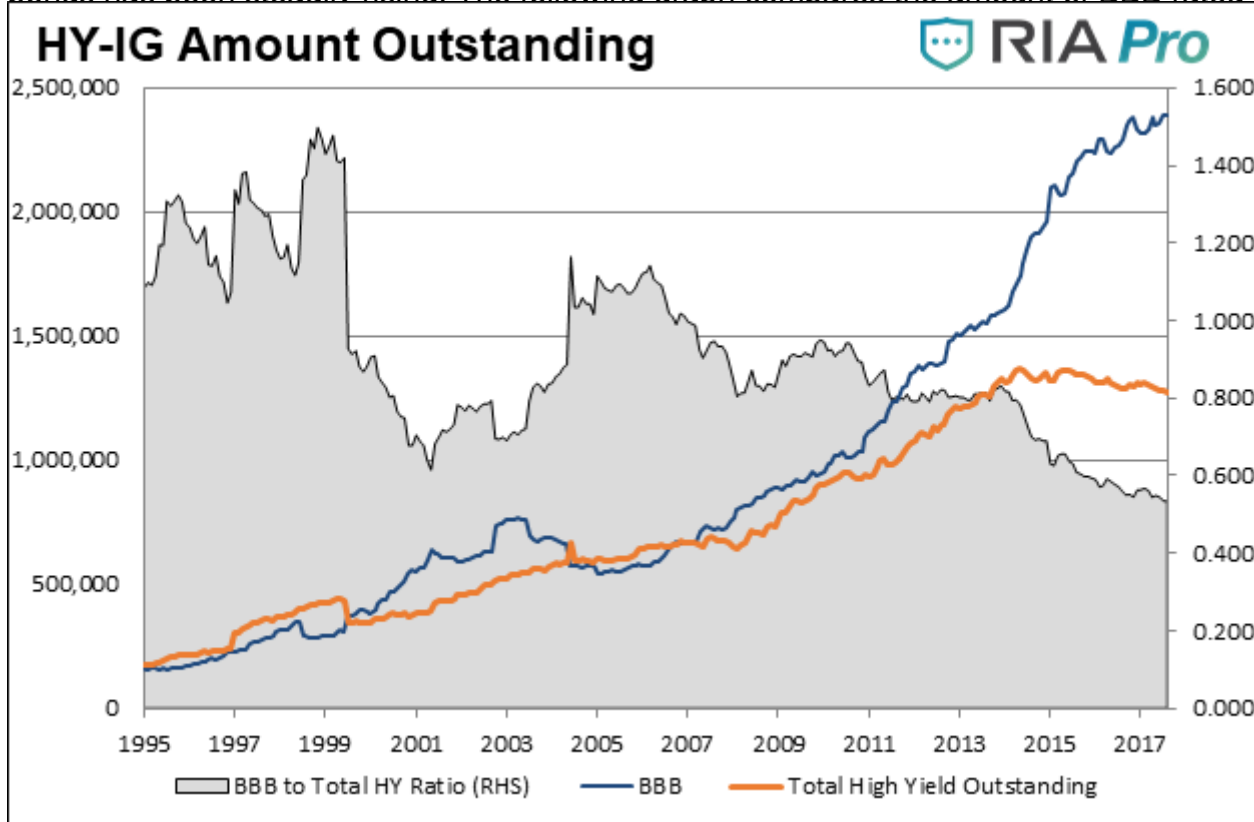
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Second,

the supply of high yield debt has been stable while the supply of higher rated investment grade (IG) bonds has been steadily rising. The following graph compares the amount of BBB rated securities



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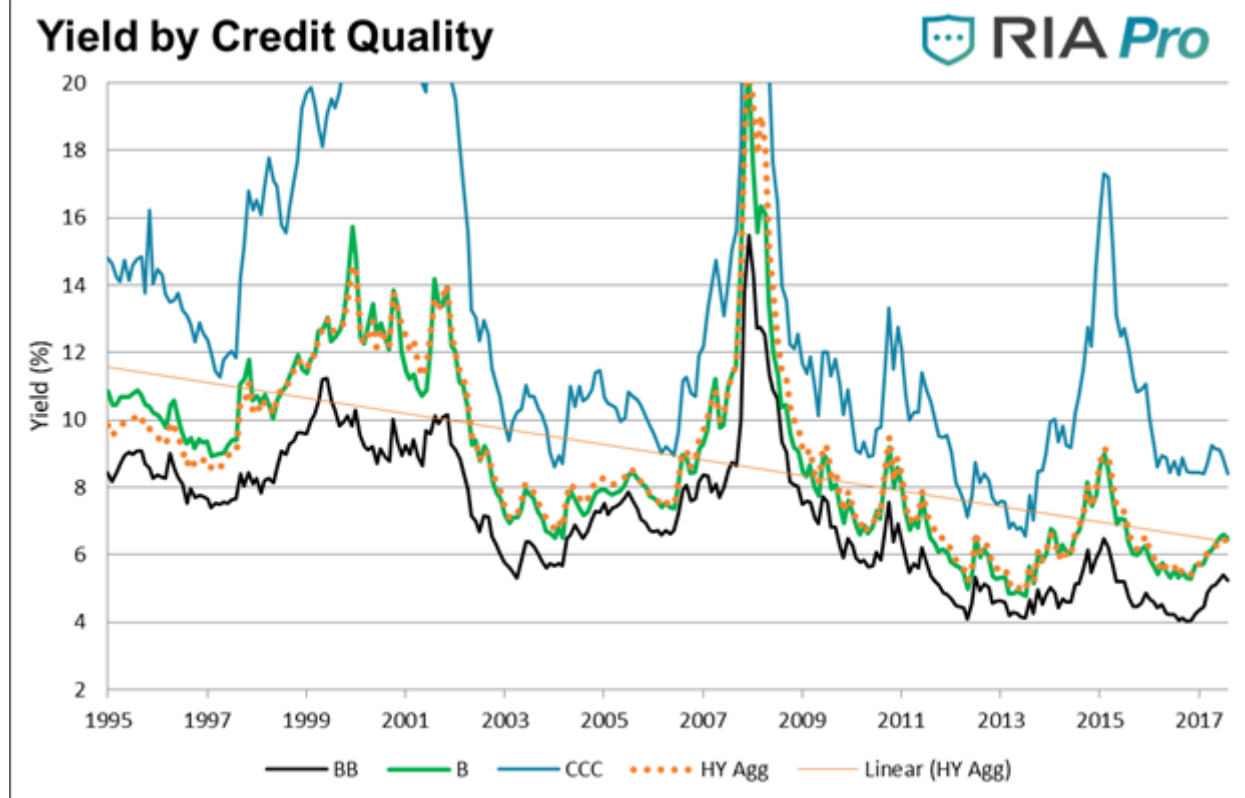
Third,

ETF's representing the HY sector have become very popular. The two largest, HYG and JNK, have grown four times faster than HY issuance since 2008. This has led many new investors to

HY, some with little understanding of the intricacies and risk of the HY sector. Fourth, the recent tax reform package boosted corporate earnings overall and provided corporate bond investors a greater amount of credit cushion. While the credit boost due to tax reform applies to most corporate issuers of debt, HY investors tend to be more appreciative as credit analysis plays a much bigger role in the pricing of HY debt. However, it is important to note that many HY corporations do not have positive earnings and therefore are currently not impacted by the reform. In summation, decreased supply from issuers relative to investment grade supply and increased demand from ETF holders, coupled with better earnings and investors desperately seeking yield, have been the driving forces behind the recent outperformance of the HY sector.

## HY Yields and Spreads

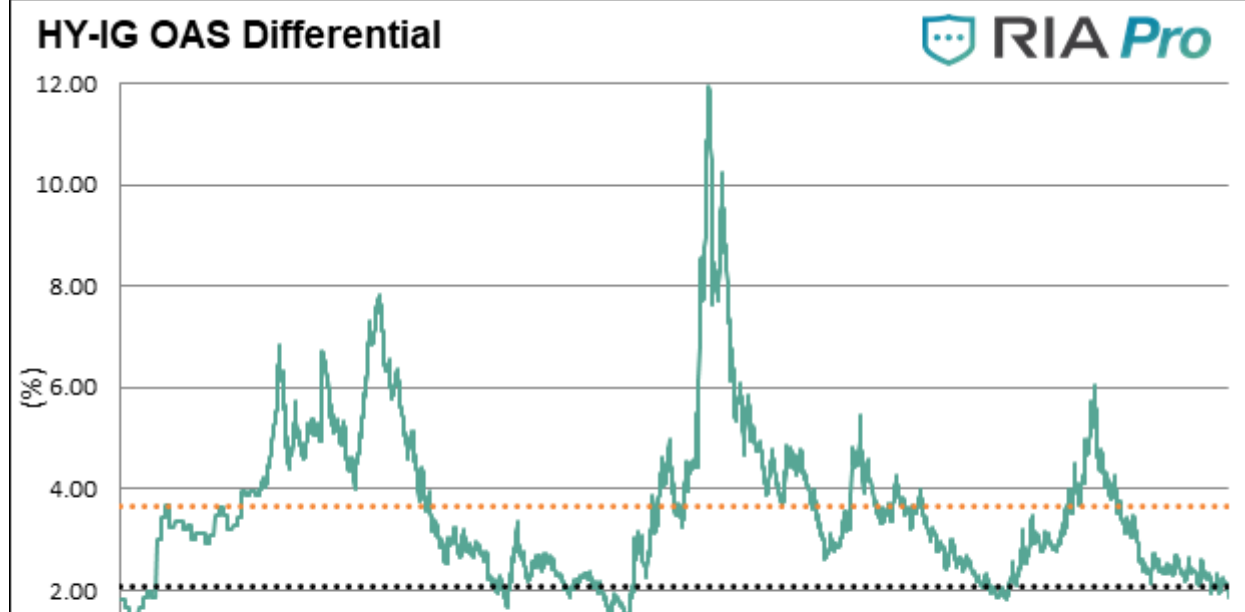
Analyzing the yield and spread levels of the high yield sector will help us understand if the positive



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decline slightly to reach the all-time lows seen in 2013 and 2016, which would provide HY investors



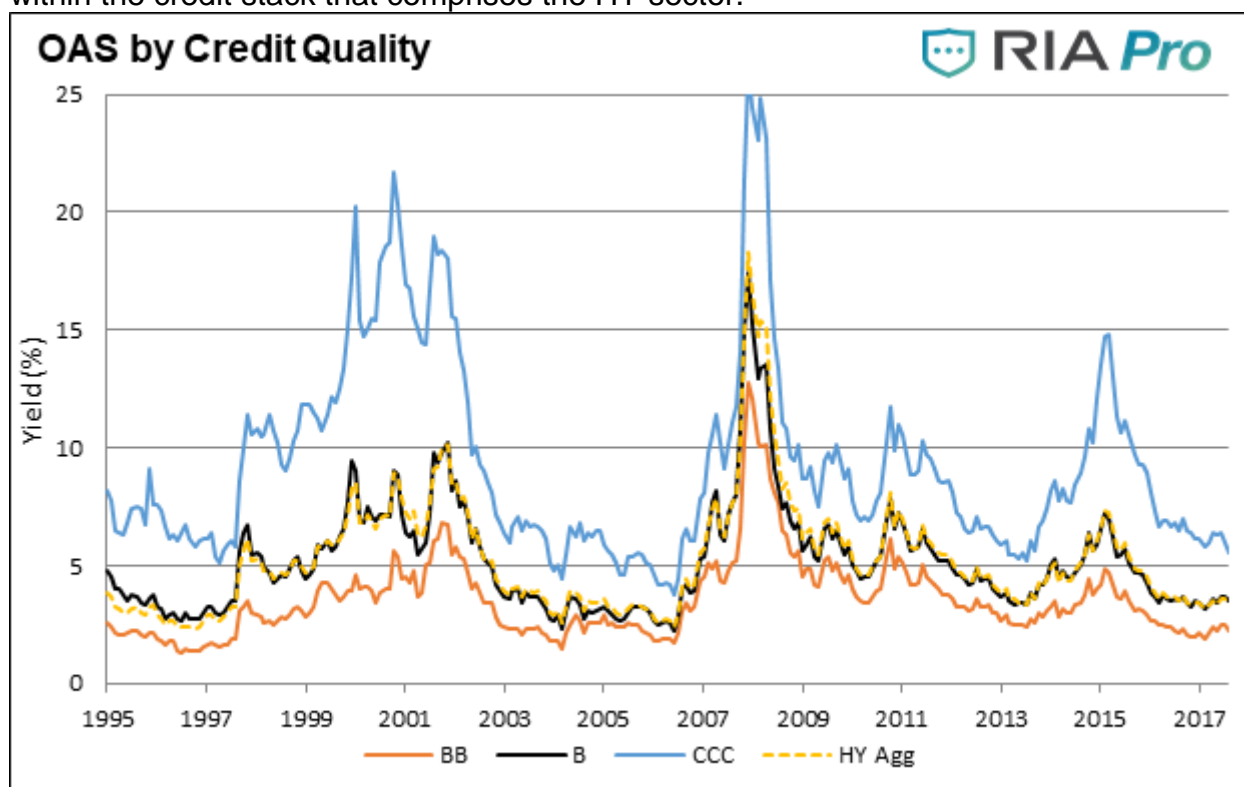
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below shows spreads between HY, IG, Treasury (UST) securities and components of the high-yield sector versus each other by credit rating.

Credit Spreads								
	IG/UST	HY/UST	HY/IG	CCC/UST	CCC/HY	CCC/IG	CCC-B	B-BB
Current	1.16	3.48	2.32	5.56	2.09	4.41	1.94	1.23
Min	0.85	2.54	1.61	4.01	1.47	3.09	1.56	0.36
Max	6.52	19.85	13.32	28.47	14.27	22.09	14.19	5.91
Average	1.89	5.96	4.07	10.17	4.21	8.28	4.44	1.63
Sigma	1.11	1.26	1.29	1.23	0.97	1.18	1.00	1.29

The following graph depicts option adjusted spreads (OAS) across the HY sector broken down by credit rating. Again, spreads versus U.S. Treasuries are tight versus historical levels and tight within the credit stack that comprises the HY sector.



## Down in Credit

As mentioned, the HY sector has done well over the last three years. Extremely low levels of volatility over the period have provided further comfort to investors. The strong demand for lower rated credits and lack of substantial volatility has led to an interesting dynamic. The Sharpe Ratio is a barometer of return per unit of risk typically measured by standard deviation. The higher the ratio the more return one is rewarded for the risk taken. When long term Sharpe ratios and return performance of IG and HY are compared, we find that HY investors earned greater returns but withstood *significantly greater* volatility to do so. • Note the Sharpe Ratios for IG compared to HY and its subcomponents for the 2000-2014 period as shown below. Now, do the same visual analysis for the last three years. The differences can also be viewed in the ?Difference? section of the table.

Long & Short Term Annualized Returns and Risk									
	2000-2014			2015-2018			Difference		
	Return	Volatility	Sharpe	Return	Volatility	Sharpe	Return	Volatility	Sharpe
IG	6.52%	5.56%	1.17	2.58%	3.78%	0.68	-3.94%	-1.78%	-0.49
HY	7.74%	10.02%	0.77	5.65%	5.26%	1.07	-2.09%	-4.76%	0.30

The bottom line is that HY investors were provided much better returns than IG investors but with significantly decreased volatility. Dare we declare this recent period an anomaly?

## Scenario Analysis

Given the current state of yields and recent highs and lows in yield, we can build a scenario analysis model. To do this we created three conservative scenarios as follows:

- HY yields fall to their minimum of the last three years
- No change in yields
- HY yields rise to the maximum of the last three years

Further, we introduce default rates. As shown below, the set of expected returns on the left is based on the relatively benign default experience of the last three years, while the data on the right is based on nearly 100 years of actual default experience.

Annualized Total Return Scenario Analysis										
	Based on Prior 3yr Default Rates					Based on Historical Default Rates*				
	IG	HY	BB	B	CCC	IG	HY	BB	B	CCC
Yields to 3yr. Min	6.35	7.02	6.37	7.27	8.41	6.20	5.13	5.35	5.47	5.33
No Change	3.99	6.31	5.23	6.46	8.39	3.84	4.42	4.43	4.66	5.31
Yield to 3yr. Max	3.93	4.05	4.02	4.71	3.33	3.78	2.16	2.12	2.91	0.25
Average	4.76	5.79	5.20	6.15	6.71	4.61	3.90	3.97	4.35	3.63
Expected Sharpe	1.26	1.10	1.19	1.19	0.73	1.22	0.74	0.91	0.84	0.39

\*Moody's 1920-2017

Regardless of default assumptions and given the recent levels of volatility, the biggest takeaway from the table is that Sharpe Ratios are likely to revert back to more normal levels. The volatility levels, potential yield changes and credit default rates used above are conservative as they do not accurately portray what could happen in a recession. Given that the current economic cycle is now over ten years old, consider the following default rates that occurred during the last three

Annual Default Rates					
	IG	HY	BB	B	CCC
Mean (1920-2017)	0.15%	2.81%	1.02%	3.17%	10.50%
Last 3 Recessions	0.29%	7.88%	2.52%	8.69%	25.35%
Difference	0.14%	5.07%	1.50%	5.52%	14.85%

Needless to say,

a recession with a sharp increase in HY defaults accompanied with a surge in volatility would likely produce negative returns and gut wrenching changes in price. **This scenario may seem like an outlier to those looking in the rear view mirror, but those investors looking ahead should consider the high likelihood of a recession in the coming year or two and what that might mean for HY investors.**

## Summary

An interest rate is the cost for borrowing money and the return for lending money. Most importantly for investors, interest rates or yields help ascertain the amount of risk investors believe is inherent in a security. When one's risk expectation and those of the market are vastly different, an opportunity exists. Given the limited ability for yields, spreads, volatility and default rates to decline

further, we think the reward for holding HY over IG or other fixed income sectors is minimal. Not surprisingly, we believe the risk of a recession, higher yields, wider spreads, higher default rates and increased volatility carries a higher probability weighting. **As such, the risk/reward proposition for HY appears negatively skewed, and chasing additional outperformance at this point in the cycle appears to be a fool's errand.** For those investors using ETF's to replicate the performance of the HY sector, you should also be especially cautious. As a point of reference, Barclays HY ETF (JNK) fell 33% in the last few months of 2008. A repeat of that performance or even a fraction thereof would be a high price to pay for the desire to pick up an additional 2.03% in dividend yield over an IG ETF such as LQD. **The bottom line: Markets are not adequately paying you to take credit risk, move up in credit!**