SKY HARBOR
CAPITAL MANAGEMENT

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GDP Growth and High Yield Total Returns

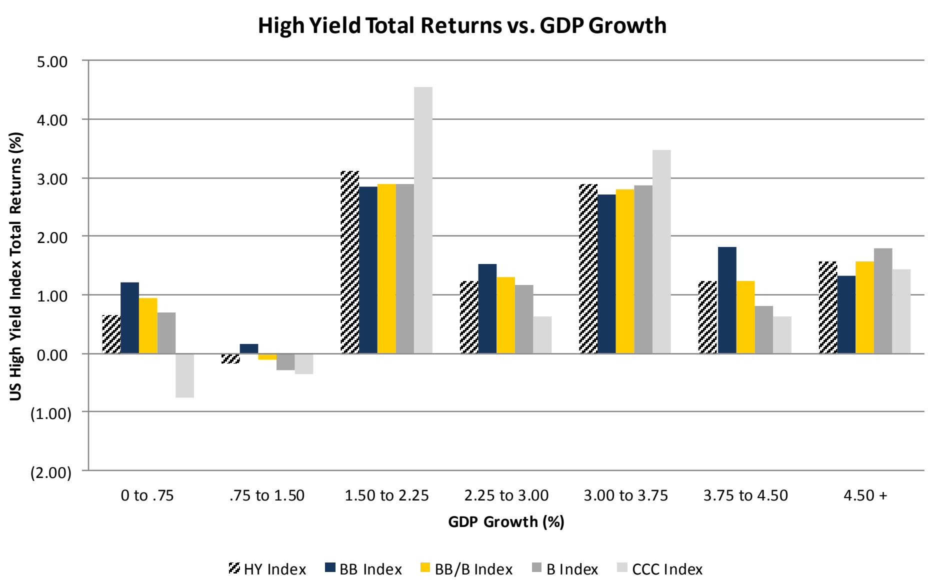
Finding the "Sweet Spot"

As we begin 2017, economists are expecting only modest improvements in US GDP growth from the 1.6% achieved last year. Probable tailwinds from infrastructure spending and tax cuts, expected under the Trump administration, are being offset by the potential harm a more protectionist stance on trade policy could portend. As such, consensus expectations call for moderate US GDP growth in 2017, with the potential for material upside and downside risks to arise as Trump's political agenda evolves. In an effort to identify the optimal environment for the US High Yield asset class, we compiled a data set of quarterly index returns and GDP growth dating back to 1997. What we have found is that the relationship between GDP growth and high yield returns is not linear in nature – in fact, the "sweet spot" occupies a place within the middle of the spectrum.

There are seventy-nine quarters between the start of 1997 and the third quarter of 2016 (fourth quarter 2016 data from the Bureau of Economic Analysis was not available at the time of this publication). Given the volatility typically associated with negative GDP growth (high yield returns during these periods are volatile and bifurcated, encompassing significantly negative returns as we enter recessions, and significantly positive returns in anticipation of the end of a recession), we eliminated quarters in which GDP growth was less than zero (six periods) from our data set. Furthermore, in an effort to increase the statistical significance of our results, we also grouped GDP growth into buckets, each encompassing a range of 75 basis points. The chart below presents a summary of our findings: high yield total returns tend to be highest when GDP growth is in the range of +1.50% and +2.25%, an optimal range for the index and all individual ratings classes.

Average Quarterly Returns in Various GDP Growth Environments (1997 - Present)

GDP Growth (%)	Occurences (#)	US HY Index	BB Index	BB / B Index	B Index	CCC Index
0 to .75	2	0.67	1.22	0.94	0.70	(0.76)
.75 to 1.50	11	(0.16)	0.15	(0.11)	(0.28)	(0.34)
1.50 to 2.25	16	3.13	2.85	2.89	2.89	4.54
2.25 to 3.00	17	1.24	1.53	1.30	1.17	0.63
3.00 to 3.75	9	2.89	2.72	2.79	2.86	3.47
3.75 to 4.50	9	1.24	1.82	1.23	0.81	0.62
4.50 +	9	1.57	1.32	1.58	1.79	1.43



Source: SKY Harbor, BofA ML HY indices (H0A0, H0A1, H0A4, H0A2, H0A3), Bloomberg, Bureau of Economic Analysis

Explaining the Ceiling

At first glance it may appear counter-intuitive that high yield returns could diminish in higher GDP growth environments. As such, we put forth two hypotheses that aim to explain this outcome. First, high yield competes for asset allocation dollars with all other investing options, which can often lead to fund flows influencing periodic total returns. With this in mind, we augmented our original analysis, this time matching GDP growth with returns from asset classes often considered to be high yield substitute or competing products. As depicted in the table below, equity products (in this analysis, the MSCI EM Equity and S&P 500 Indices) have typically outperformed in very high GDP growth environments, while investors typically seek the relative safety of government bonds and investment grade corporates in low or no growth GDP periods. Investors' anticipation of these findings may influence fund flows out of the high yield asset class at various levels of GDP growth expectations.

Returns in Various GDP Growth Environments (Average Quarterly Returns, 1997-Present)

GDP Growth (%)	Occurences (#)	US High Yield Index	5yr US Treasury	US Corporate Master	MSCI EM Equity	S&P 500 Index
0 to .75	2	0.67	2.50	2.48	2.06	(2.35)
.75 to 1.50	11	(0.16)	0.98	0.67	(3.24)	(2.94)
1.50 to 2.25	16	3.13	1.36	2.08	3.34	3.60
2.25 to 3.00	17	1.24	1.50	1.70	0.15	0.10
3.00 to 3.75	9	2.89	0.71	1.45	9.95	2.78
3.75 to 4.50	9	1.24	1.96	2.02	(5.86)	2.99
4.50 +	9	1.57	0.32	0.51	7.35	6.67

Source: SKY Harbor Research, BofA Merrill Lynch, Bloomberg, Bureau of Economic Analysis

Additionally, higher levels of GDP growth often coincide with higher interest rates, which, at sufficiently elevated levels, begin to diminish the relative attractiveness of the high yield asset class as the spread cushion compresses. The positive correlation between GDP growth and rates in the matrix below lends credibility to this risk.

	GDP Growth	*Generic 3mo T-Bill*	*Generic 5yr Tsy*	*Generic 10yr Tsy*
GDP Growth	1.00			
Generic 3mo T-Bill	0.52	1.00		
Generic 5yr Tsy	0.48	0.94	1.00	
Generic 10yr Tsy	0.45	0.87	0.98	1.00

Source: SKY Harbor, BofA Merrill Lynch, Bloomberg

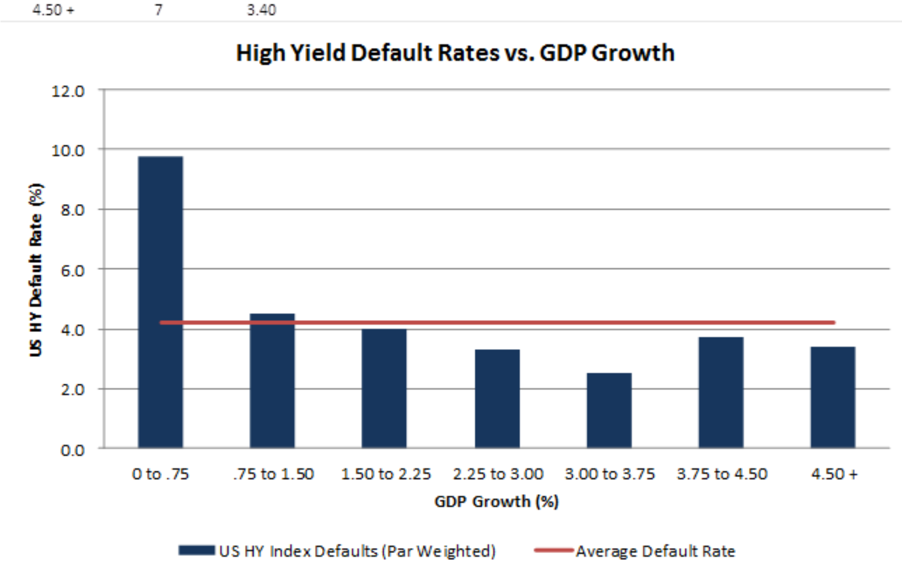
Explaining the Floor

While various macro indicators and fund flows in and out of high yield have an impact on the asset class, the primary driver of returns has been underlying fundamental strength. Given a focus on avoiding principal losses, the high yield default rate is of the utmost concern for investors, and has been a key driver of performance. Using quarterly data since 1998, we find that the average quarterly default rate (par-weighted basis) has been approximately 4.2%. If we then organize results by our GDP buckets, we find that defaults begin to rise to above-average levels when GDP growth falls below 1.5%, lending credence to the floor previously calculated in our optimal range.

Default Rates in Various GDP Growth Environments (Quarterly, 1998-Present)

GDP Growth (%)	Occurences (#)	US HY Index Defaults (Par Weighted)
0 to .75	2	9.78
.75 to 1.50	11	4.51
1.50 to 2.25	16	3.98
2.25 to 3.00	17	3.31
3.00 to 3.75	9	2.51
3.75 to 4.50	7	3.73
4.50 +	7	3.40

Long-term average = 4.22%



Source: SKY Harbor Research, BofA Merrill Lynch, Bloomberg, Bureau of Economic Analysis

Consensus Expectations for 2017

According to Bloomberg estimates, US GDP growth (on a YoY basis) is expected to be between 1.9% and 2.4% over the next 5 quarters (mean estimates from 65 contributors). This data suggests that GDP growth will fall within the range that has been historically optimal for high yield returns – i.e., high enough to protect against rising default rates and flows into investment grade corporates and/or Treasuries, and low enough to protect against rising rates and flows into equities.

Consensus GDP (% YoY) Expectations		
Actual	3Q16	1.7%
Estimates	4Q16	1.9%
	1Q17	2.3%
	2Q17	2.4%
	3Q17	2.2%
	4Q17	2.3%
	Next 5 Qtr. Avg.	**2.2%**

Source: Bloomberg

Key Takeaways

- The high yield asset class has, on an historical basis, demonstrated the strongest total returns when US GDP Growth (YoY) was within the range of +1.50% to +2.25%.
- We hypothesize that high yield returns may diminish under higher growth scenarios due to 1) fund flows into equity asset classes and 2) the expectations that higher GDP growth could lead to higher interest rates, which compresses the spread cushion.
- We hypothesize that high yield returns may diminish under lower growth scenarios due to 1) fund flows into investment grade corporate debt and government bonds and 2) the potential for higher-than-average default rates.
- Our analysis suggests that high yield default rates (par-weighted) tend to rise above long-run averages when GDP growth falls below 1.5%.