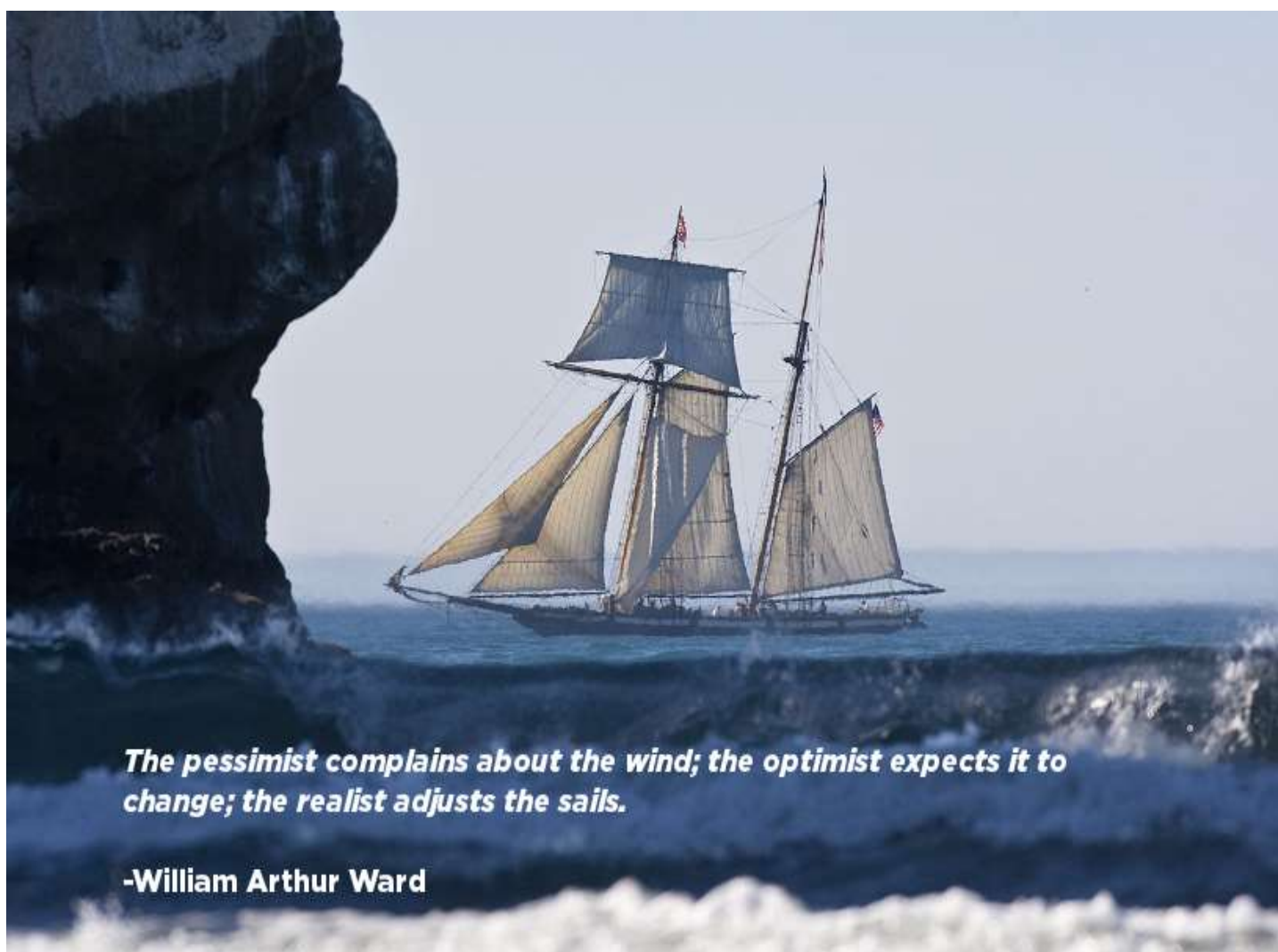




“Adjusting the Sails”: Navigating the High Yield Market Amidst Rising Rates, Low Yields & Tight Spreads

January 23, 2017



The pessimist complains about the wind; the optimist expects it to change; the realist adjusts the sails.

-William Arthur Ward

MARKET INSIGHTS

Executive Summary

2016 was a historic year for high yield. The HY index returned 18.3% - the fourth best tally on record since 1993 (JP Morgan Chase Global High Yield Bond index). What's more impressive is that HY achieved these results despite relatively modest returns across the equity markets with the S&P 500 up 11.96%. To put this performance in context, the other three instances of ~20% returns for HY (1995, 2003 and 2009) were accompanied by banner years for US equities. In terms of relative performance, 2016 trails only 2009 in terms of relative out-performance of HY versus equities.

The broad HY market beta rally heavily favored long-biased strategies in 2016. To the extent that credit funds survived the sell-off in 2015 with the balance sheet and risk appetite necessary to participate in the 2016 rally, a "buy-and-hold" strategy proved to be an expedient approach. For hedged strategies, 2016 was a far more difficult market to navigate. There were pockets of successful short opportunities, but even under-performing segments of the market proved to be costly shorts. Double-B bonds, for example, trailed the HY market by 696bps but were nonetheless up 11.3% on the year. In this environment, holding on to hedges was expensive and required exceptional long performance to compensate for the high costs of portfolio protection.

The question facing investors now is whether this situation will persist in 2017. Will 2017 belong once again to the long-biased funds, or will volatility and return dispersion favor a hedged approach? In this paper, we examine this question by deconstructing High Yield returns into their core components: rates and spreads. We then place these components in historical context and look for past analogs that can help shed light on our current situation. We focus our attention on historical instances of rising rates and try to understand and remember how High Yield markets cope with rate volatility. To perform this analysis, we not only studied the numbers, but also drew on experience and anecdote to recall the financial engineering and market conditions that were necessary to drive spreads to 263bps in June 2007, for example. Finally, we contemplate the likelihood of such conditions recurring today and analyze the prospective payout if it happens.

What this analysis reveals is that, for the first time since 2013, credit investors must once again face the reality that High Yield is a hybrid product: During periods of distress, HY is a dollar-price product that is valued like a stock. In normal times, this market is a yield product that combines rates and spreads to offer a total return that is sufficient to attract capital. When times are good, HY becomes a spread product, the price of which is more highly sensitive to underlying rates. For a nearly uninterrupted period since 2008, investors have been able to largely ignore the rate component of High Yield returns. A combination of falling or stable rates, combined with chunky spreads, reduced the effective rate DV01 of High Yield bonds and allowed investors to focus on risk premiums and liquidity as determinants of value.

In today's market, while there is still an opportunity for rates to fall and room for spreads to tighten further, the conjoined probability of such an outcome, and the prospective payout if it were to occur, leaves us unpersuaded by a carry-oriented long-only investment strategy. To the contrary, we believe the costs of hedging are lower and the payout from credit picking is higher in the current market than it has been in recent memory. To generate intelligent returns in this environment, we believe requires a long-short investment approach, combining effective security selection, risk management and tactical trading. This environment has the potential to suit our investment strategy and we welcome the potential to invest with a balanced set of opportunities on both the long and short side of the book in 2017.

It is difficult today, with equities marching higher, rates trading in a stable band and growth expectations rising to predict the timing or nature of the next crisis. But such is the nature of rogue waves. They are unexpected and dangerous but seem to afflict High Yield markets with unnerving frequency. The task for credit investors is to avoid the complacency that steady markets invite and craft a logical framework with which they can evaluate the prospective risk-reward of the HY credit. Such a framework allows for informed decisions on portfolio allocations and security selection. We are optimistic that performing this analysis will help us "adjust the sails" as markets continue to shift. The goal, as always, is to employ thoughtful portfolio construction and fundamental security selection to profit from the current opportunity, protect the downside and preserve our option to respond intelligently when the winds shift again.

Section I: Current HY Market Conditions

- Recent History: The HY market has experienced significant spread tightening over the last few months amidst the backup in US Treasury rates.
- Yields: Yields are low by historical standards.
- Spreads: After 8+ years of trading on a yield basis, HY bonds (especially B/BB) are now best characterized as a “spread product.” Corporate spreads are now also tight by historical standards – particularly in the higher quality BB / B market.
- Spread Differentials: B-CCC spread differentials remain wide given the structural challenges associated with owning CCC paper.

Section II: Historical Market Periods: Investing in Rising Rate Environments

Examining market history, periods of rising US Treasury rates are typically characterized by economic growth, increasing inflationary pressures (or at least the absence of deflationary pressures) and low corporate defaults. Given a macro environment that is generally supportive of overall credit quality, corporate spreads have typically tightened meaningfully to offset some portion of the move in rates. This makes sense. In this report, we examine six separate periods of rising rates over the last 25 years and the impact on the HY market. Primary lessons for the current market:

- 1994 Bond Massacre: Combination of shifting Fed policy, tight spreads and questionable positioning creates a treacherous environment. Investors need to survive the storm to harvest the field.
- Oil / TMT - 1998-2000: Higher US Treasury rates combined with deteriorating credit profile is a real problem.
- Financial Engineering: 2003-2007: Spread compression driven to historic levels by innovative financial engineering, including CLOs, total return swaps and aggressive prime brokerage finance.
- Late Cycle Spread Compression: June-2005 through June-2007: Late stages of credit cycle are characterized by spread compression and credit curve flattening.
- Taper Tantrum: Apr-2013 through Dec-2013: Low yields, tight spreads combined with any move in US Treasury rates is a particularly difficult environment requiring a long-short approach.

MARKET INSIGHTS

Section III: Evaluating Leveraged Returns in the HY Market

- Mathematical challenges associated with replicating the financial engineering of the 2003-2007 period: Record low spreads achieved in the 2003-2007 period were made possible by aggressive financial engineering. Although there is room in today's market for financial leverage to increase, there are also systemic roadblocks that will likely prevent history from repeating itself. Roadblocks include increased regulatory scrutiny and institutional limits on leverage. Perhaps more importantly, VAR-based stress tests that were used to justify financial leverage in 2007 will not allow similar results in 2017 because trailing credit market volatility is much higher now than it was then. Recent spikes in volatility (Aug-2011, May-2013, May-2014, and Feb-2016) make it difficult for the "smart but not wise" VAR models to justify an aggressively leveraged buy & hold strategy. This will likely prevent institutions from deploying financial leverage to the same degree as in the pre-financial crisis period.
- Implications of lower financial leverage – governor on further spread tightening: When combining (i) systemic roadblocks to increased financial leverage, (ii) the math behind leveraged returns at yields inside of 6.5%, (iii) the likelihood of rising US Treasury rates should the economy grow in a manner consistent with the current sentiment and (iv) current spreads on the BB / B market, we believe it is unlikely that the HY market revisit the spreads achieved during the 2003-2007 period.

Section IV: Scenario Analysis – “Common sense reduced to calculation”

HY Market Conclusions:

- High yield is likely to struggle earning its yield over the coming 12 months: Given the challenges associated with a rising rate environment and more limited ability to use financial leverage to drive further spread compression, we believe it is likely that the HY market will struggle to actually earn its yield in the coming 12 months.
- Prospective BB / B returns are not attractive: The limited upside scenario, combined with the risk of interim volatility, does not justify a long-only carry strategy.
- Credit Picker's Market: We continue to see opportunities within the Triple-C and distressed investment categories. While the beta opportunity in stressed/distressed credit has largely run its course, selective opportunities remain if supported by fundamental credit work and high conviction.

Implications for Portfolio Management:

- Generating carry is not a riskless endeavor: Episodic volatility in credit markets potentially creates challenges for long biased / carry-oriented / buy-and-hold strategies.
- Tactical long-short investment strategy likely better suited to current environment: Given the prospective return profiles of the HY market, we believe that there is an opportunity to generate positive returns on both the long and short side of a portfolio – providing a high quality return stream with limited market exposure.

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Section I: High Yield Market – Current Overview

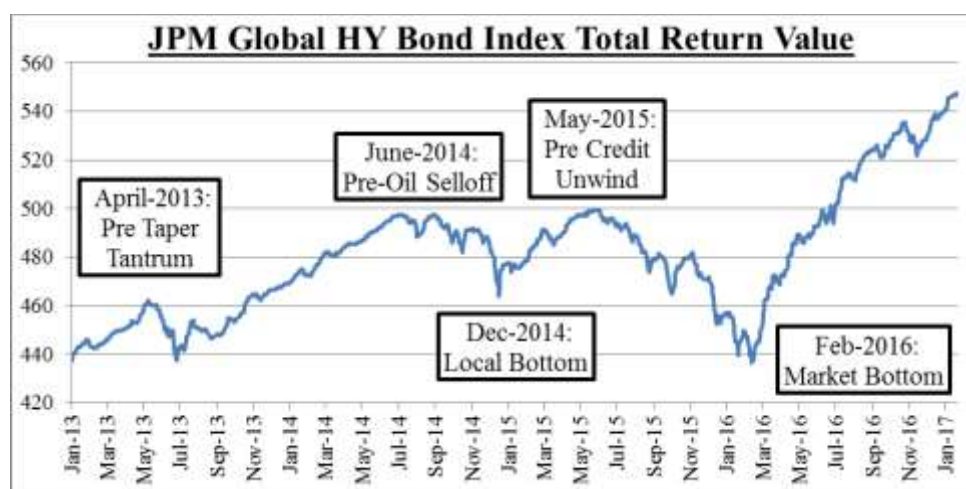
Current HY Market Conditions

- Recent History: The HY market has experienced significant spread tightening over the last few months amidst the backup in US Treasury rates.
- Yields: Yields are low by historical standards.
- Spreads: After 8+ years of trading on a yield basis, HY bonds (especially B/BB) are now best characterized as a “spread product.” Corporate spreads are now also tight by historical standards – particularly in the higher quality BB / B market.
- Spread Differentials: B-CCC spread differentials remain wide given the structural challenges associated with owning CCC paper.

Looking prospectively, how much additional spread tightening can be expected given the rally that has already occurred?

- Short answer: We believe, not enough to fully offset an additional rise in US Treasury rates.
- Opportunity for further spread compression: While there is opportunity for the credit curve to continue to flatten with spread compression between B's and CCC's, additional spread tightening is likely to be modest going forward.
- Obstacles to further spread tightening: We discuss the challenges associated with further spread tightening given rising US Treasury rates, increased structural volatility, more limited availability of financial engineering and higher borrowing costs later in this paper. Specifically, we examine (i) historical market regimes characterized by rising US Treasury rates and (ii) the economics behind leveraged investment strategies.

4-Year HY Market History: Market has taken a winding path to get where it is going



Return History: Jan-2013 - Current

Updated: 20-Jan-17

Cumulative Return %

Annualized Return %

Max Cumulative Drawdown %

Return %

01-Jan-13

25.0%

5.7%

(0.2%)

Return % from interim start dates

Apr-13

19.4%

4.9%

(4.7%)

Jun-14

10.0%

3.8%

(12.2%)

May-15

9.4%

5.6%

(12.7%)

11-Feb-16

25.3%

27.0%

Source: JP Morgan High Yield Index

Volatile market conditions create challenges for long biased / carry-oriented / buy-and-hold strategies: As any investor involved in the credit markets can attest, the market has taken a winding path to get to where it is going over the last few years. With numerous cross-currents (i.e. shifting Fed policy, uncertain economic growth, commodity weakness, episodic bouts of trading illiquidity and technical selling pressure), there have been a number of big “waves” to navigate.

In the tables above and on the next page, we examine the total returns associated with the HY market in the four year period beginning January 2013. From that initial start date (Jan-2013), the market is up cumulatively 25.0%. That equates to 5.7% annualized returns using a long-only / buy-and-hold strategy.

To put a 5.7% annualized return in context, the starting yield on the high yield market in the beginning of 2013 was 6.3%. Thus the actual market return realized about 90% of the offered yield in the four year period. In order to achieve this rather pedestrian outcome, investors had to weather draw-downs of 4.7%, 12.2% and 12.7%. What’s more, investors could have achieved the entire return of the 4 year period by simply sitting in cash until February 2016 and investing at the bottom. The return from February 2016 to January 2017 was 25.3%, slightly exceeding the cumulative 4 year period.

In the following table we analyze various other interim periods within the larger 2013 -2016 time frame. The point is to underscore that while HY is often marketed as a carry-oriented product, volatility frequently overwhelms carry. Quietly generating carry is not a costless exercise as it subjects investors to material drawdowns that may impair their ability to stay in the trade long enough generate long-term carry. Further, entering into a buy-and-hold strategy at the wrong time will likely prevent an investor from fully embracing opportunity when it inevitably presents itself.

The risks of buy-and-hold strategies are exacerbated when rates are low and spreads are tight, like they are today. To generate intelligent returns in this type of environment, we believe requires a true long-short investment approach that is less dependent upon carry generation and more focused on alpha generation through security selection, proper risk management and tactical trading.

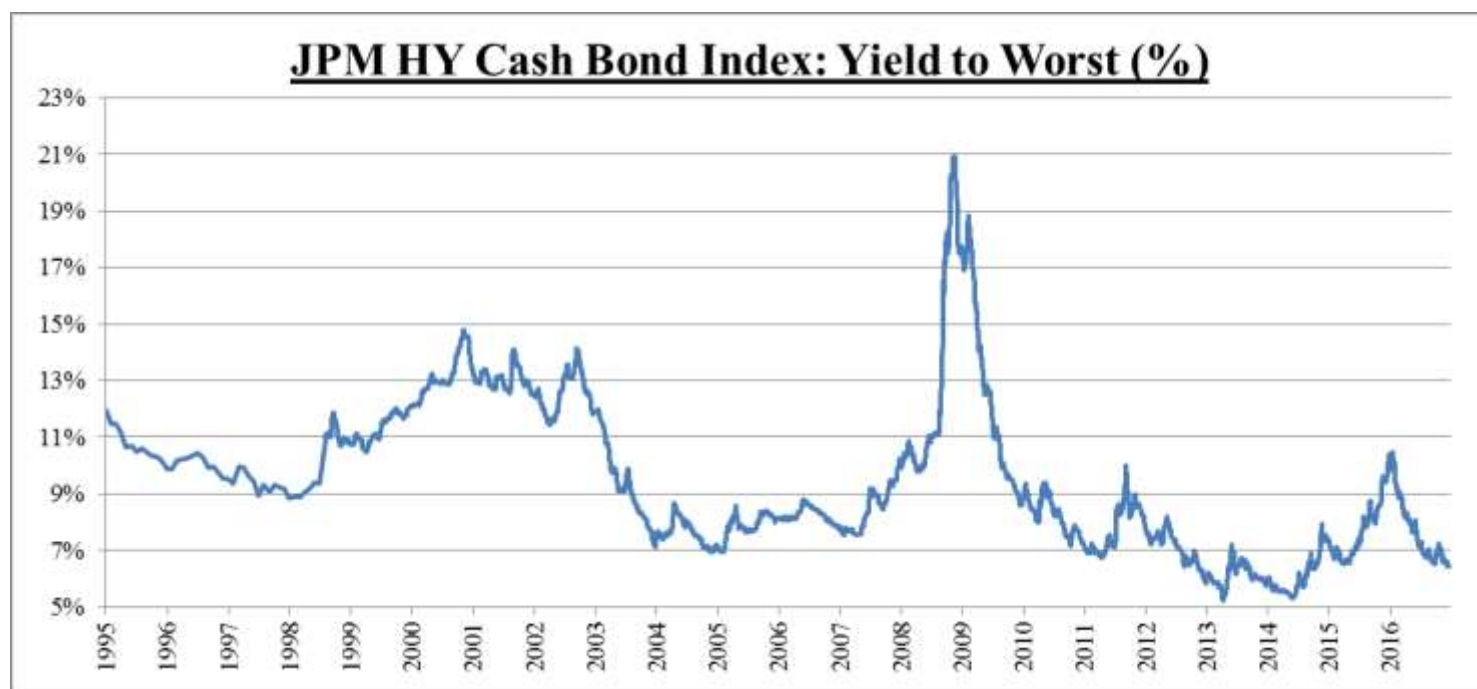
MARKET INSIGHTS

HY Market History: Jan-2013 through Current

Updated: 20-Jan-17

		HY Market Data		HY Return %		HY Return % : Cumulative from Interim Start Date				
		Yield	Spread	Monthly	YTD	Jan-13	Apr-13	Jun-14	May-15	11-Feb-16
Cumulative Return %						25.0%	19.4%	10.0%	9.4%	25.3%
Annualized Return %						5.7%	4.9%	3.8%	5.6%	27.0%
Max Cumulative Drawdown %						(0.2%)	(4.7%)	(12.2%)	(12.7%)	
Annual	Period									
2013	Taper Tantrum & Recovery	5.99%	459		7.4%					
2014	QE Ending, Negative Convexity, Oil	7.36%	593		1.7%					
2015	Credit Unwind: Oil, Fed, Liquidations	9.43%	772		(4.3%)					
2016	Credit Unwind: Recovery Rally	6.53%	482		18.3%					
2017	Trump, Higher UST Rates, Risk On	6.45%	479		1.1%					
Month										
Jan-14	QE Ongoing: Search for Yield	5.96%	477	0.7%	0.7%	8.1%	3.3%			
Feb-14	QE Ongoing: Search for Yield	5.57%	443	2.0%	2.7%	10.3%	5.3%			
Mar-14	QE Ongoing: Search for Yield	5.60%	435	0.3%	3.0%	10.6%	5.6%			
Apr-14	QE Ongoing: Search for Yield	5.59%	437	0.6%	3.7%	11.3%	6.3%			
May-14	QE Ongoing: Search for Yield	5.48%	435	1.2%	4.9%	12.6%	7.6%			
Jun-14	QE Ongoing: Search for Yield	5.40%	420	0.9%	5.8%	13.6%	8.5%			
Jul-14	QE Ending, Negative Convexity, Oil	6.07%	467	(1.2%)	4.6%	12.3%	7.3%	(1.2%)		
Aug-14	QE Ending, Negative Convexity, Oil	5.73%	453	1.3%	5.9%	13.8%	8.7%	0.1%		
Sep-14	QE Ending, Negative Convexity, Oil	6.53%	504	(2.0%)	3.8%	11.5%	6.5%	(1.9%)		
Oct-14	QE Ending, Negative Convexity, Oil	6.33%	503	0.9%	4.8%	12.5%	7.5%	(1.0%)		
Nov-14	QE Ending, Negative Convexity, Oil	6.63%	538	(0.9%)	3.8%	11.5%	6.5%	(1.9%)		
Dec-14	QE Ending, Negative Convexity, Oil	7.36%	593	(2.0%)	1.7%	9.2%	4.3%	(3.9%)		
Jan-15	QE Ending, Negative Convexity, Oil	7.28%	627	0.2%	0.2%	9.5%	4.6%	(3.7%)		
Feb-15	QE Ending, Oil: Relief Rally	6.70%	547	2.6%	2.9%	12.4%	7.3%	(1.1%)	0.0%	
Mar-15	QE Ending, Oil: Relief Rally	6.91%	573	(0.4%)	2.4%	11.9%	6.9%	(1.5%)		
Apr-15	QE Ending, Oil: Relief Rally	6.60%	538	1.6%	4.1%	13.7%	8.6%	0.0%	0.0%	
May-15	QE Ending, Oil: Relief Rally	6.55%	529	0.5%	4.7%	14.3%	9.2%	0.6%		
Jun-15	Credit Unwind: Oil, Greece, China, EM	7.09%	562	(1.4%)	3.2%	12.7%	7.7%	(0.8%)	(1.4%)	
Jul-15	Credit Unwind: Oil, Greece, China, EM	7.27%	590	(0.7%)	2.5%	12.0%	6.9%	(1.5%)	(2.0%)	
Aug-15	Credit Unwind: Oil, Greece, China, EM	7.93%	650	(2.1%)	0.3%	9.6%	4.6%	(3.6%)	(4.1%)	
Sep-15	Credit Unwind: Oil, Greece, China, EM	8.67%	733	(2.5%)	(2.2%)	6.8%	2.0%	(6.0%)	(6.6%)	
Oct-15	Credit Unwind: Relief Rally	8.03%	665	2.8%	0.5%	9.8%	4.8%	(3.4%)	(4.0%)	
Nov-15	Credit Unwind: Oil, Fed, Liquidations	8.61%	702	(1.9%)	(1.4%)	7.7%	2.9%	(5.2%)	(5.8%)	
Dec-15	Credit Unwind: Oil, Fed, Liquidations	9.43%	772	(2.9%)	(4.3%)	4.6%	(0.1%)	(8.0%)	(8.5%)	
Jan-16	Credit Unwind: Oil, Fed, Liquidations	9.83%	846	(1.6%)	(1.6%)	2.9%	(1.7%)	(9.5%)	(10.0%)	
11-Feb-16	Credit Unwind: Local Low	10.49%	924	(3.0%)	(4.6%)	(0.2%)	(4.7%)	(12.2%)	(12.7%)	
Feb-16	Credit Unwind: Bottom 11-Feb	9.73%	844	0.4%	(1.3%)	3.3%	(1.4%)	(9.1%)	(9.7%)	3.5%
Mar-16	Credit Unwind: Recovery Rally	8.89%	764	4.6%	3.3%	8.0%	3.2%	(5.0%)	(5.5%)	8.2%
Apr-16	Credit Unwind: Recovery Rally	8.19%	694	3.6%	7.0%	11.9%	6.9%	(1.5%)	(2.1%)	12.1%
May-16	Credit Unwind: Recovery Rally	7.95%	664	0.8%	7.9%	12.8%	7.7%	(0.7%)	(1.3%)	13.0%
Jun-16	Credit Unwind: Recovery Rally, Brexit	7.75%	676	1.5%	9.5%	14.5%	9.4%	0.8%	0.2%	14.7%
Jul-16	Credit Unwind: Recovery Rally	7.23%	624	2.4%	12.1%	17.2%	12.0%	3.1%	2.5%	17.4%
Aug-16	Credit Unwind: Recovery Rally	6.82%	570	2.3%	14.7%	19.9%	14.6%	5.5%	4.9%	20.2%
Sep-16	Higher UST Rates	6.72%	562	0.7%	15.5%	20.8%	15.4%	6.3%	5.7%	21.0%
Oct-16	Higher UST Rates	6.76%	552	0.6%	16.2%	21.5%	16.1%	6.9%	6.3%	21.8%
Nov-16	Trump, Higher UST Rates, Risk On	6.97%	528	(0.3%)	15.9%	21.2%	15.7%	6.6%	6.0%	21.4%
Dec-16	Trump, Higher UST Rates, Risk On	6.53%	482	2.1%	18.3%	23.7%	18.1%	8.8%	8.2%	23.9%
Jan-17	Trump, Higher UST Rates, Risk On	6.45%	479	1.1%	1.1%	25.0%	19.4%	10.0%	9.4%	25.3%

Source: JP Morgan High Yield Index

[Longer Term HY Market Overview: HY Index Yield to Worst](#)
**Yield History**

Updated: 20-Jan-17

1994 - Current

	Current	% Dist	0%	25%	50%	75%	100%
HY	6.45%	14%	5.2%	7.4%	8.4%	11.2%	20.9%
BB	4.84%	10%	4.2%	5.8%	6.9%	8.5%	14.9%
B	6.13%	11%	5.1%	7.4%	8.3%	10.8%	20.2%
CCC	11.38%	23%	8.0%	11.6%	13.4%	20.0%	36.7%

2010 - Current

	% Dist	0%	25%	50%	75%	100%
HY	24%	5.2%	6.5%	7.1%	8.1%	10.5%
BB	20%	4.2%	5.0%	5.6%	6.2%	8.0%
B	19%	5.1%	6.4%	7.3%	8.1%	10.5%
CCC	45%	8.0%	10.0%	11.7%	13.2%	21.8%

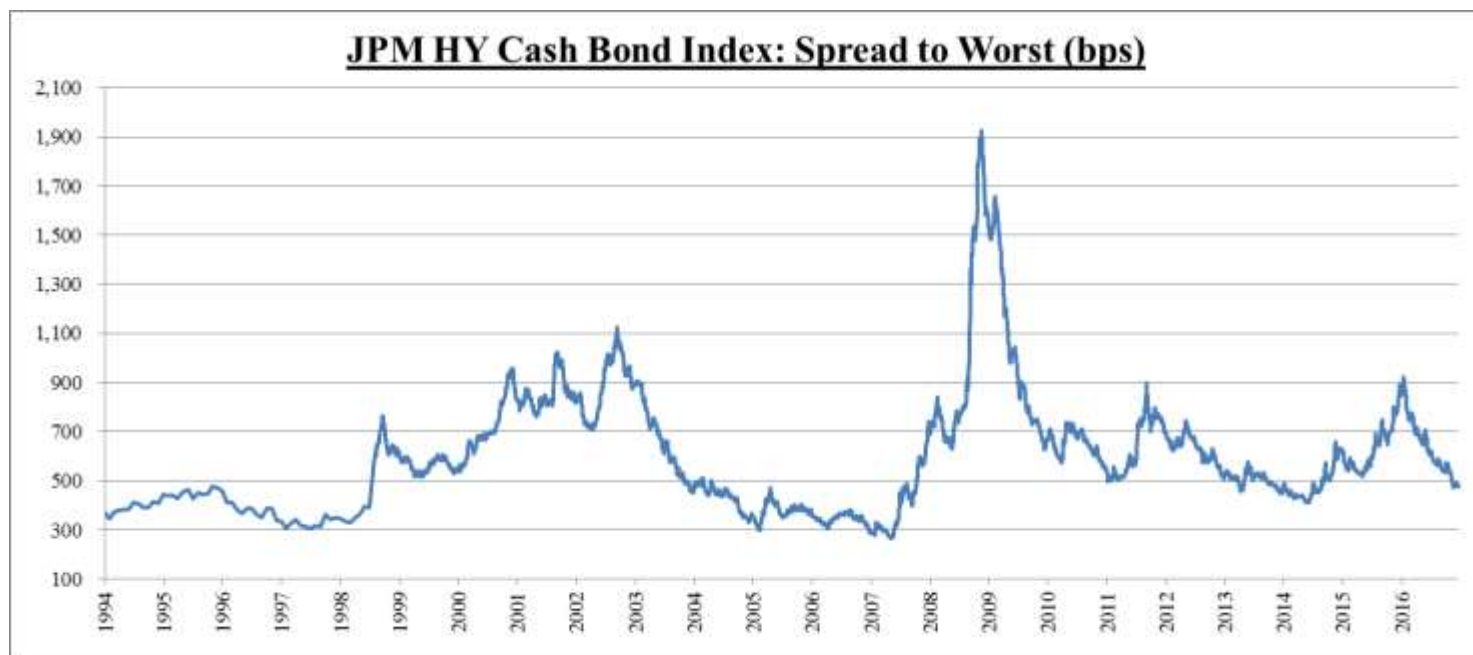
source: JP Morgan High Yield Index

Yields are low by historical standards: Whether looking at the index overall or the “higher quality” BB and B segments of the market, yields are well within the 1st quartile of their respective historical ranges.

Looking Prospectively -- Can the HY market rally continue from here? With yields near their historical lows, can the HY market rally further? While investors can hang their hat on the prospective fiscal stimulus / tax relief / regulatory reforms that President-elect Trump will theoretically enact, we believe that these policies are just as likely to cause rates to rise as they are to cause spreads to rally. And given the tight starting point on spreads, we find it difficult support an argument for all-in yields to tighten much further.

MARKET INSIGHTS

[Longer Term HY Market Overview: HY Index Spread to Worst](#)



Spread History

Updated: 20-Jan-17

Spread History		1994 - Current						2010 - Current					
Updated: 20-Jan-17	Current	% Dist	0%	25%	50%	75%	100%	% Dist	0%	25%	50%	75%	100%
HY	479	25%	263	478	592	735	1,925	16%	410	518	584	671	924
BB	308	23%	173	320	390	468	1,322	6%	291	366	411	472	693
B	450	22%	251	475	598	721	1,866	7%	419	538	605	686	952
CCC	983	34%	466	902	1,137	1,539	3,382	41%	697	882	1,039	1,210	1,987

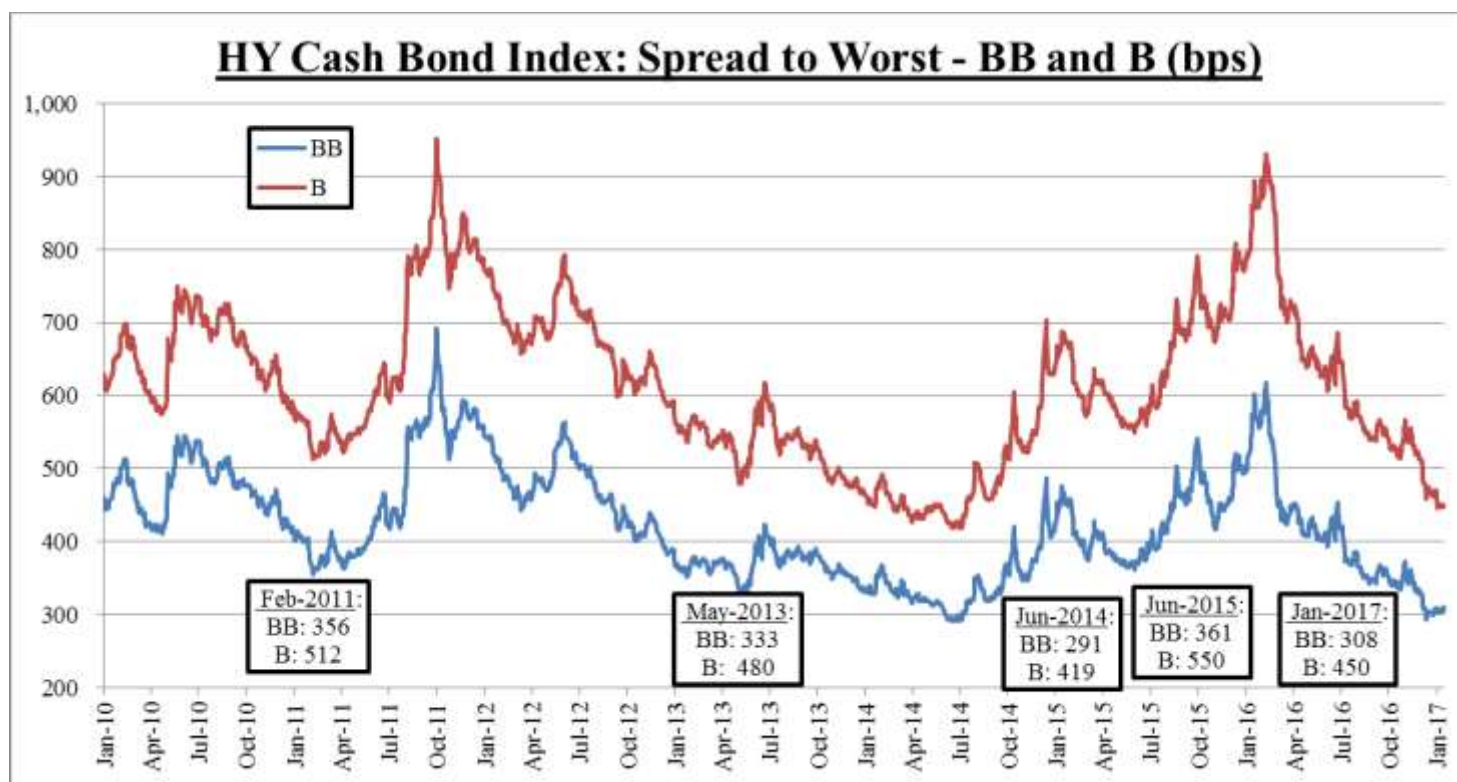
source: JP Morgan High Yield Index

Spreads are now also tight by historical standards: Since the Financial Crisis, yields have been the primary governor of how far the rally across the HY markets could go. With QE in full force, low US Treasury rates have made it largely unnecessary to evaluate corporate spreads. With the recent backup in US Treasury rates, that is no longer the case as spreads are now within the 1st quartile of their historical ranges. Further, with investors continuing to huddle amidst the perceived safety of BB / B credits, spreads across the higher quality spectrum of the HY market are particularly tight.

Looking Prospectively – Can spreads tighten further? That is a crucial question when considering the prospective path for the HY market. When investing at low historical yields / tight historical spreads, it seems logical that investment is predicated upon basic premise of a stable / accommodative macro environment characterized by strong economic growth. While we will not offer a concrete opinion on the direction of US Treasury rates, we believe investors (especially those attempting to construct a bull case for high yield spreads) have to acknowledge the **likely probability** that rates will continue to rise from current levels. Stated simply – if economic growth accelerates, while the curve may flatten, we expect that US Treasury rates are likely to go higher across the curve. If that is our “upside scenario”, is there enough room for spreads to tighten and fully offset that rise in rates?

That is a very important question. Our short answer is no. While there is opportunity for the credit curve to continue to flatten with spread compression between B’s and CCC’s, the pace of spread tightening is likely to abate going forward. **We discuss the challenges associated with further spread tightening given rising US Treasury rates, increased structural volatility, more limited availability of financial engineering and higher borrowing costs later in this paper.**

Longer Term HY Market Overview: BB and B Spreads are tight



Spread History

Updated: 20-Jan-17

1994 - Current

	Current	% Dist	0%	25%	50%	75%	100%
BB	308	23%	173	320	390	468	1,322
B	450	22%	251	475	598	721	1,866

2010 - Current

	% Dist	0%	25%	50%	75%	100%
BB	6%	291	366	411	472	693
B	7%	419	538	605	686	952

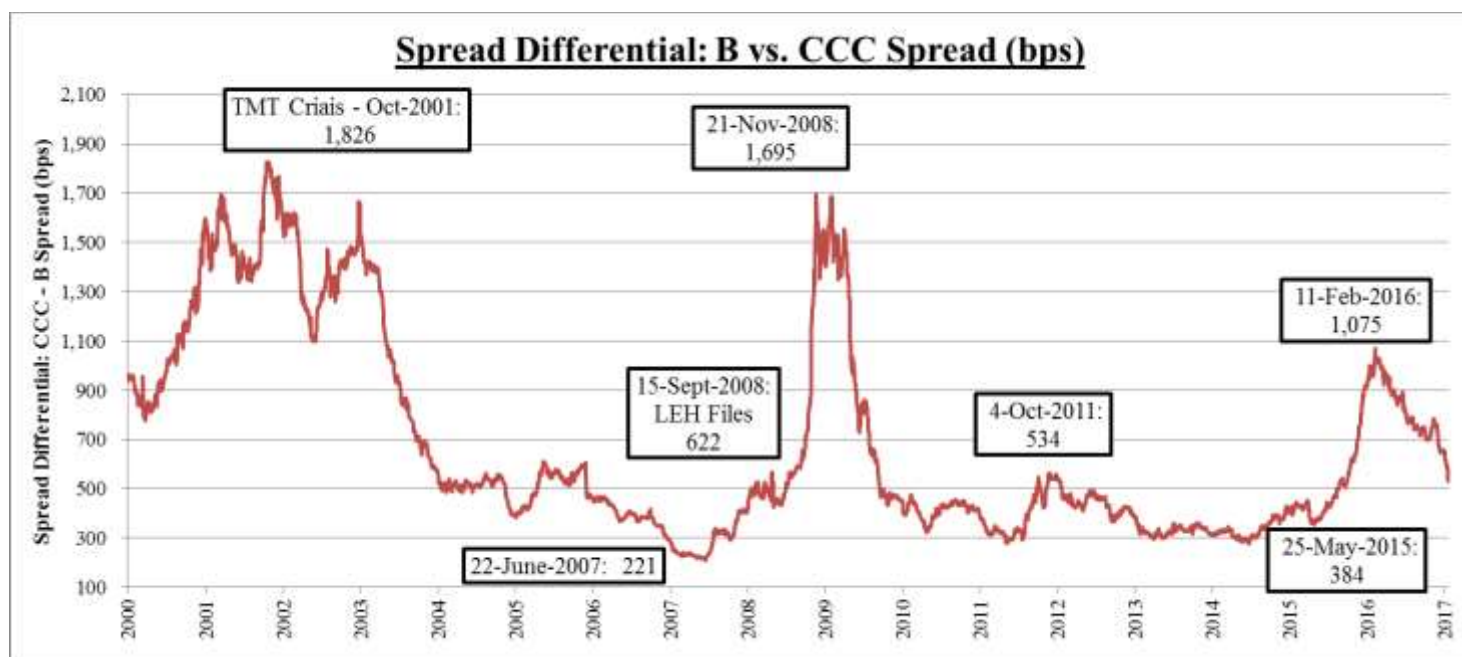
source: JP Morgan High Yield Index

Regardless of the time frame, “higher quality” high yield spreads are tight by historical standards: In an effort to better illustrate the point regarding BB and B spreads, we believe this graph is instructive – providing a more recent history of spreads since with some relevant dates. With BB’s threatening to trade inside of 300 bps and B’s in the area of 450 bps, spreads are tight regardless of the time period evaluated.

As we discuss later in this paper, we believe it is unlikely that the markets will be structurally capable of revisiting the tightness in spreads established in the pre-Financial Crisis period of 2005-2007. If that basic premise is accepted, further price appreciation is likely to be limited given the potential for higher US Treasury rates. **That puts HY investors in the unenviable position of holding largely negatively convex carry-oriented securities amidst an environment where structural volatility remains high.**

MARKET INSIGHTS

Longer Term HY Market Overview: CCC Spread Differential -- Credit Curves Remain Steep



Spread History

Updated: 20-Jan-17

1994 - Current

	Current	% Dist	0%	25%	50%	75%	100%
B	450	22%	251	475	598	721	1,866
CCC	983	34%	466	902	1,137	1,539	3,382
B-CCC Ratings	533	51%	210	394	518	897	1,826

2010 - Current

	% Dist	0%	25%	50%	75%	100%
B	7%	419	538	605	686	952
CCC	41%	697	882	1,039	1,210	1,987
B-CCC Ratings	77%	274	336	416	483	1,071

source: JP Morgan High Yield Index

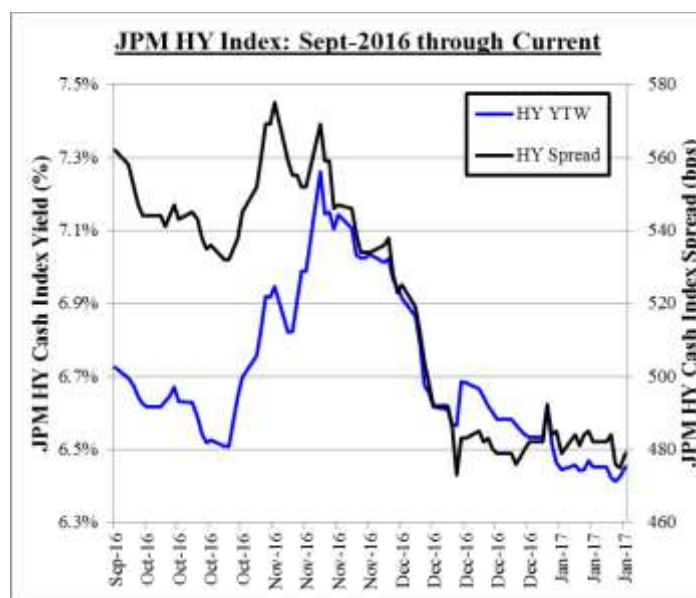
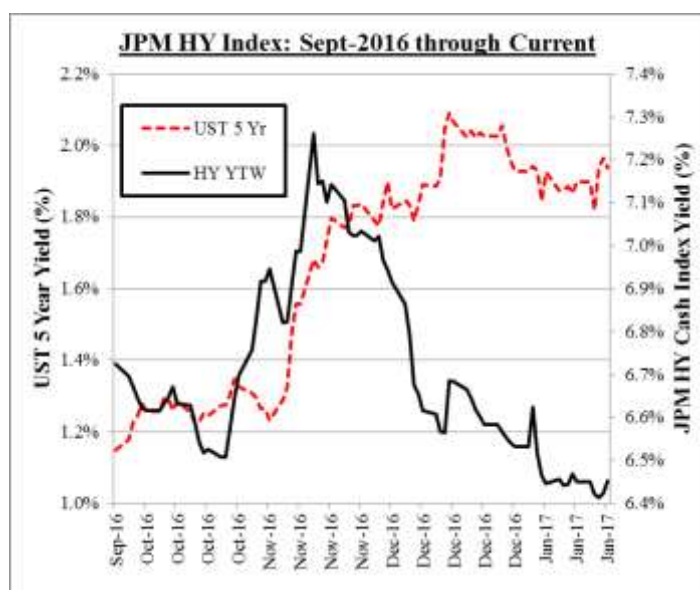
Spread differentials remain wide given the structural challenges associated with owning CCC paper: While this spread differential has most certainly narrowed since the Feb-2016 wides and more recently in the Trump inspired rally, with more onerous capital requirements and questionable trading liquidity, CCC's remain a largely orphaned asset class. At current levels, the B-CCC spread differential still remains wide by historical standards.

Many would argue that investing in lower quality / arguably less liquid securities during the later stages of a credit cycle may seem antithetical to the idea of focusing on capital preservation. That seems like a logical argument to make. We tend to agree with that from a top-down, asset-allocation perspective, investors are prudent to upgrade the quality of their portfolio as spreads narrow and the reach for yield intensifies. That said, we believe that within this world of discarded CCC securities, careful investors can find attractive investment opportunities with largely idiosyncratic investment, manageable credit risk and limited effective DV01 exposure to rising interest rates.

Further, as we described on prior page, BB's and B's are at historically tight spreads. It is arguable that investors clamoring for the perceived safety and liquidity of "higher quality" securities are significantly over-paying for negatively convex carry instruments with limited prospects for further price appreciation.

We believe combining those two dynamics provides a target rich environment for long-short credit investors capable of doing proprietary credit analysis.

Recent HY Market History: Significant Spread Tightening Already amidst the backup in US Treasury Rate



Sept-2016 through Current Updated: 20-Jan-17	UST Yield %				HY Yield to Worst				HY Spread to Worst			
	Fed Funds	2 Yr	5 Yr	10 yr	HY	BB	B	CCC	HY	BB	B	CCC
Sep-16	0.5%	0.8%	1.2%	1.6%	6.7%	4.6%	6.5%	14.0%	562	356	545	1,281
Jan-17	0.8%	1.2%	1.9%	2.5%	6.5%	4.8%	6.1%	11.4%	479	308	450	983
Change	25	43	79	87	(27)	20	(35)	(257)	(83)	(48)	(95)	(298)
Spread Offset									149%	70%	159%	728%
Total Return %									3.5%	0.9%	2.9%	8.0%
Annualized Return %									10.9%	2.8%	8.9%	25.9%
source: Bloomberg, JPM HY Index												

HY Overview – Can spreads continue to offset the move in US Treasury rates? Optimism surrounding the upcoming Trump presidency has unleashed the “animal spirits” that Mr. Keynes eloquently wrote about in 1936. The prospect of pending fiscal stimulus, tax reform and regulatory relief all has investors giddy about the potential for real organic economic growth. That optimism has led many investors to question whether November 2016 will mark the end of the 30+ year rally in US Treasury rates. Given the Fed’s intention to methodically remove monetary policy accommodation over the coming 12-36 months, this certainly has the potential to be a pivotal point in US Treasury markets. US Treasury rates have already backed up 50-75 bps across the curve and there is no obvious answer to the question of high rates can go.

Simultaneously, all of this optimism has led investors embrace risk assets and once again focus on their visceral need for yield – emboldening them to actively scour the financial markets for anything with a spread on it. As the graphs and table indicate, the HY market has rallied despite the sell-off in the rates market. Stated another way – HY market spreads have more than offset the underlying move towards higher rates. B’s and CCC’s have disproportionately benefitted from the risk-on rally with spreads tightening meaningfully.

This brings up a natural question that is the main focus of this paper -- how much additional spread tightening can be expected given the rally that has already occurred and current spread levels? To answer that question, in the next two sections of this report, we examine (i) historical market regimes characterized by rising US Treasury rates and (ii) the economics behind leveraged investment strategies.

Section II: Historical Market Periods - Investing in Rising Rate Environments

In an effort to better understand the implications of investing in a rising interest rate environment, we examine 6 specific periods over the past 25 years of the modern high yield market. We have segmented these periods into 3 categories determined by the ability of the market's credit spread to "offset" or absorb the underlying rise in US Treasury yields.

- **Full Spread Offset:** Spread tightening more than offsets the underlying rise in US Treasury yields allowing HY credit yields to actually rally. Essentially, HY is able to earn its initial yield and experience price appreciation through spread tightening. Representative periods: (i) 2001-2002 period characterized by TMT defaults and (ii) the 2003-2007 period of Financial Engineering / leveraged investment strategies.
- **Partial Spread Offset:** Spreads tighten but are unable to actually keep pace with the rise in US Treasury rates. HY proves unable to earn its initial yields as prices go lower due to the higher US Treasury rates. This typically impacts the higher quality BB's and B's more dramatically than the lower quality / higher yielding CCC's. Representative periods: (i) 2005-2007 period characterized as Late Cycle Spread Compression and (ii) the 2013 Taper Tantrum.
- **Spread Widening:** Spreads widen while US Treasury yields are going higher. These are particularly difficult periods for credit as there is no reprieve from higher US Treasury rates given the widening of underlying risk premiums. Representative periods: (i) 1994 Bond Massacre and (ii) 1998-2000 period of Oil and TMT Defaults.

Rising Rate Environments	% Spread Offset				Period Return %				Annualized Return %			
	HY	BB	B	CCC	HY	BB	B	CCC	HY	BB	B	CCC
Updated: 20-Jan-17												
Updated: 20-Jan-17	149%	70%	159%	728%	3.5%	0.9%	2.9%	8.0%	10.9%	2.8%	8.9%	25.9%
Full Spread Offset												
TMT Defaults: 2001-2002	239%	163%	267%	1632%	5.5%	5.8%	6.9%	8.7%	13.7%	14.4%	17.2%	22.0%
Financial Engineering: 2003-2007	138%	78%	113%	424%	45.0%	33.2%	43.6%	72.0%	9.7%	7.4%	9.5%	14.5%
Partial Spread Offset												
Late Cycle Compression: 2005-2007	68%	26%	63%	322%	17.7%	12.2%	18.0%	25.8%	8.5%	5.9%	8.7%	12.2%
Taper Tantrum: 2013	38%	22%	81%	98%	2.6%	0.7%	2.9%	6.0%	3.9%	1.0%	4.3%	9.1%
Spread Widening												
Bond Massacre: 1994	(13%)				(3.5%)	(2.5%)	(2.5%)	(15.8%)	(3.9%)	(2.7%)	(2.8%)	(17.1%)
Oil / TMT: 1998 - 2000	(6%)	(9%)	29%	(70%)	3.0%	5.9%	3.4%	8.8%	1.8%	3.5%	2.0%	5.2%
									source: Bloomberg, JPM HY Index			

Historical Market Regimes: Summary Descriptions

Full Spread Offset:

- **Telecom / Media / Technology Defaults: Oct-2001 through Mar-2002:** This short-lived rise in US Treasury rates was in the midst of the TMT crisis when defaults were peaking in the HY market. Similar to the other structural sell-offs that we have examined (i.e. 2008-2009 Financial Crisis and 2015 Credit Unwind), this was a powerful relief rally that ultimately proved premature. The US Treasury market was anticipating a return to organic economic growth that did not truly materialize until mid/late 2003. Nonetheless, the HY market was nearing the end of its default cycle. With yields north of 13% on the HY index and spreads approaching 1,000, there was ample room for credit spreads to more than offset the rise in US Treasury rates.
- **Leveraged Carry Strategy: June-2003 through June-2007:** With easy access to credit, this 4 year period was characterized by tightening spreads and extremely aggressive use of financial leverage. Fundamentally, the macro environment was very supportive with strong economic growth domestically and very limited credit defaults. As capital markets heated up, inflationary concerns prompted the US Fed Reserve began tightening monetary policy – helping to drive US Treasury rates higher. Given the availability of very cheap financing, the leveraged finance community (i.e. financial institutions, banks, hedge funds and structured products vehicles) was able to financially engineer double digit returns while driving credit spreads to their all-time tights. While this ultimately helped to sow the seeds for the Financial Crisis of 2008, the credit markets were able to offset the move in US Treasury rates through spread tightening.

Partial Spread Offset:

- **Late Cycle Spread Compression: June-2005 through June-2007:** Segmenting the last half of the 2003-2007 period is useful in understanding the impact of rising US Treasury rates amidst the late stages of a credit cycle. Having already experienced a significant degree of spread tightening during the early stages of the 2003-2007 credit cycle, the HY market struggled amidst the rise in rates and failed to fully offset the move in US Treasury yields. Higher quality BB's / B's proved unable to earn their yields as spread compression had largely run its course – only partially offsetting the move in US Treasury rates. Meanwhile, with accommodative capital markets, limited defaults and ample access to financial leverage, investors aggressively reached down the credit spectrum causing CCC spreads to compress meaningfully. This strategy requires an investor to do a great deal of credit work and brings with it opportunity as well as peril. While we believe there have been structural changes to the current HY market that will prevent the same degree of spread compression, there are a number of similarities between the current market and this period that require thought and analysis. We examine those similarities and differences in this report.
- **Taper Tantrum: Apr-2013 through Dec-2013:** With financial markets globally still struggling in the aftermath of the Financial Crisis, central bankers globally experimented with a number of unconventional monetary policies in an attempt to stimulate the global economy. Overnight lending rates were brought down aggressively and the markets were introduced to Quantitative Easing on a global scale with central banks amassing large war chests of government bonds. Yields established new lows across global capital markets and investors were left to scour the world for anything with a yield attached to it. Corporate HY rallied to new all-time lows in yields in early 2013. In Federal Reserve Ben Bernanke's speech on 22-May-2013 to the Joint Economic Committee, he suggested that the Federal Reserve "made clear it is prepared to increase or reduce the pace of its asset purchases." The mere mention of a reduction in Fed purchases proved enough to cause the "Taper Tantrum." US Treasury rates backed up sharply causing HY credit to do the same. With low yields and tight spreads, the higher quality segment of the HY market suffered disproportionately. While the market would re-establish new lows in yields during 2014, the HY market spreads were unable to fully offset the move in US Treasury rates during this period.

Historical Market Regimes: Summary Descriptions

Spread Widening:

- **Bond Massacre: Jan-1994 through Dec-1994:** In response to the strong US economy and low unemployment rates, the US Federal Reserve embarked upon an aggressive tightening campaign – raising the overnight lending rate by 300 bps from Feb-1994 through Feb-1995. The US Treasury market sold off sharply across the entire curve. The central bank's move put pressure on global F/X markets highlighted by the Dec-1994 Mexican peso devaluation that came to be known as the Tequila Crisis. Given the steepness of the US Treasury curve in the 1992-1993 period, institutional investors employed a variety of leveraged carry strategies across the fixed income markets. As losses mounted amidst the sell-off in 1994, investors were forced to deleverage and liquidate their portfolios – culminating with the high profile municipal default of Orange County in Dec-1994. Despite the volatility in the broader capital markets, the fundamentals underpinning the HY credit market remained supportive and defaults were largely non-existent. While the fundamentals remained supportive, the ferocity of the sell-off in rates coupled with tight underlying credit spreads and a broad financial deleveraging proved to be a bad combination. Credit spreads were unable to offset any of the rise in rates and actually widened throughout 1994 contributing to the market's negative returns. This was a challenging market but the volatility would remain largely localized to the fixed income markets as the US economy continued to generate 3-4% GDP growth for the next several years as the Internet / Technology / Telecommunications revolution took shape. Notably, as Fed policy softened and ultimately shifted to further policy accommodation in 1995, the US Treasury markets stabilized and the HY recovered dramatically -- generating annualized returns of roughly 15% over the 1995-1997 time period.
- **Oil / TMT Defaults: Sept-1998 through May-2000:** In the aftermath of the 1997 Asian crisis, currency crises rippled across the global economy with a number of pegged currencies coming under extreme pressure. As trade patterns were threatened given the uncertainty in F/X rates, volatility intensified across a number of commodity markets. This weakness was highlighted by the collapse in oil prices with WTI oil trading down towards \$10 per barrel. This daisy chain of events culminated with the Russian sovereign default in Aug-1998. Simultaneously, US Treasury rates headed higher as the US Federal Reserve was attempting to manage the intensifying NASDAQ bubble. As that bubble ultimately burst, the telecom / technology sector came under increasing pressure as the aggressive financings of the late 1990's proved truly problematic. This made for a challenging HY market as credit deterioration contributed to spread widening while US Treasury rates were backing up. Returns across the HY market remained positive but barely so as yields went materially higher amidst volatile markets.

**Historical Periods of
Higher Rates**

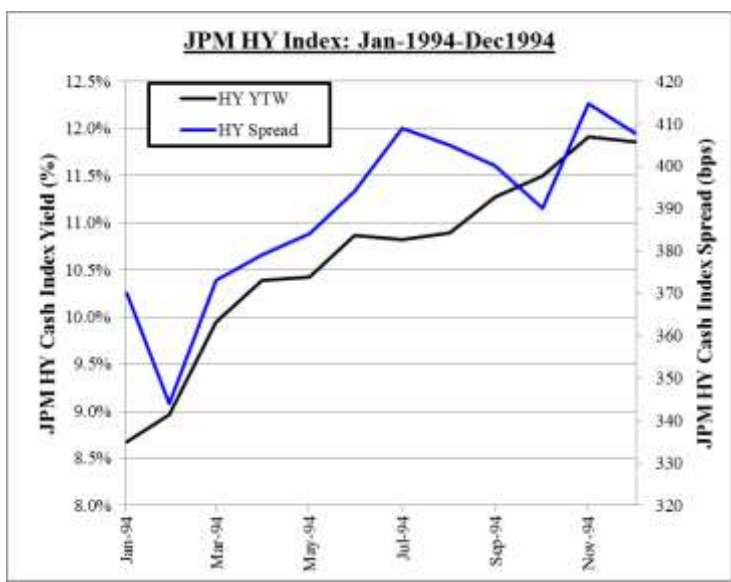
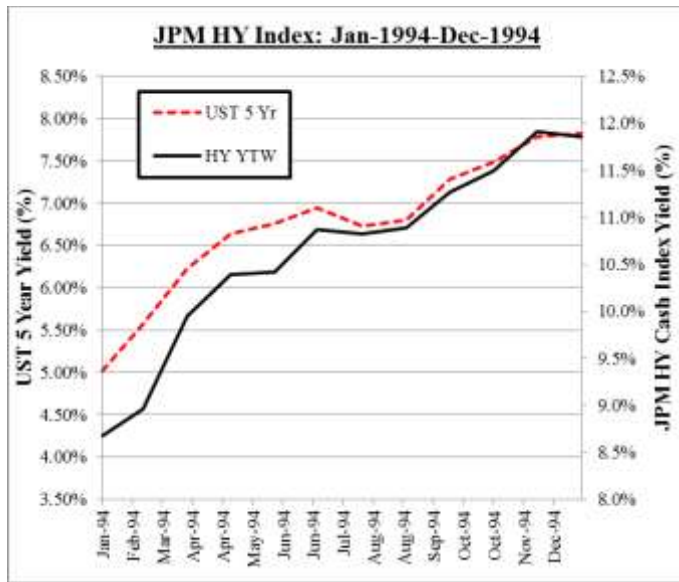
	UST Yield %				HY Yield to Worst				HY Spread to Worst			
	Fed Funds	2 Yr	5 Yr	10 yr	HY	BB	B	CCC	HY	BB	B	CCC
Full Spread Offset												
TMT Defaults: 2001-2002												
Oct-01	2.5%	2.4%	3.5%	4.2%	13.5%	9.4%	12.8%	31.6%	991	583	929	2,733
Mar-02	1.8%	3.7%	4.8%	5.4%	12.0%	8.6%	10.9%	23.8%	725	383	627	1,899
Change	(75)	129	136	119	(155)	(77)	(189)	(783)	(266)	(200)	(302)	(834)
Spread Offset									239%	163%	267%	1632%
Total Return %									5.5%	5.8%	6.9%	8.7%
Annualized Return %									13.7%	14.4%	17.2%	22.0%
Financial Engineering: 2003-2007												
Jun-03	1.0%	1.3%	2.4%	3.5%	9.2%	6.6%	8.4%	18.3%	681	420	625	1,577
Jun-07	5.3%	4.9%	4.9%	5.0%	8.2%	7.2%	8.1%	10.4%	321	221	313	545
Change	425	356	251	151	(100)	58	(37)	(789)	(360)	(199)	(312)	(1,032)
Spread Offset									138%	78%	113%	424%
Total Return %									45.0%	33.2%	43.6%	72.0%
Annualized Return %									9.7%	7.4%	9.5%	14.5%
Partial Spread Offset												
Late Cycle Compression: 2005-2007												
Jun-05	3.3%	3.6%	3.7%	3.9%	7.8%	6.3%	7.6%	13.3%	405	252	391	955
Jun-07	5.3%	4.9%	4.9%	5.0%	8.2%	7.2%	8.1%	10.4%	321	221	313	545
Change	200	123	122	111	39	89	45	(283)	(84)	(31)	(78)	(410)
Spread Offset									68%	26%	63%	322%
Total Return %									17.7%	12.2%	18.0%	25.8%
Annualized Return %									8.5%	5.9%	8.7%	12.2%
Taper Tantrum: 2013												
Apr-13	0.3%	0.2%	0.7%	1.7%	5.5%	4.3%	5.6%	8.9%	489	353	514	835
Dec-13	0.3%	0.4%	1.7%	3.0%	6.0%	5.1%	5.8%	8.9%	459	332	465	778
Change	-	17	107	136	49	74	11	1	(30)	(21)	(49)	(57)
Spread Offset									38%	22%	81%	98%
Total Return %									2.6%	0.7%	2.9%	6.0%
Annualized Return %									3.9%	1.0%	4.3%	9.1%
Spread Widening												
Bond Massacre: 1994												
Jan-94	3.0%	4.1%	5.0%	5.6%	8.7%				370			
Dec-94	5.5%	7.7%	7.8%	7.8%	11.9%				408			
Change	250	358	281	218	318				38			
Spread Offset									(13%)			
Total Return %									(3.5%)	(2.5%)	(2.5%)	(15.8%)
Annualized Return %									(3.9%)	(2.7%)	(2.8%)	(17.1%)
Oil / TMT: 1998 - 2000												
Sep-98	5.3%	4.3%	4.2%	4.4%	11.0%	8.2%	11.2%	18.5%	666	383	690	1,415
May-00	6.5%	6.7%	6.5%	6.3%	13.2%	10.4%	12.7%	22.2%	678	402	629	1,568
Change	125	240	230	185	223	224	148	372	12	19	(61)	153
Spread Offset									(6%)	(9%)	29%	(70%)
Total Return %									3.0%	5.9%	3.4%	8.8%
Annualized Return %									1.8%	3.5%	2.0%	5.2%

source: Bloomberg, JPM HY Index

MARKET INSIGHTS

[1994 Bond Massacre: Jan-1994 through Dec-1994](#)

[Spread Widening](#)



Bond Massacre: 1994

<u>Bond Massacre: 1994</u>	UST Yield %				HY Yield to Worst				HY Spread to Worst			
	Fed Funds	2 Yr	5 Yr	10 yr	HY	BB	B	CCC	HY	BB	B	CCC
Jan-94	3.0%	4.1%	5.0%	5.6%	8.7%				370			
Dec-94	5.5%	7.7%	7.8%	7.8%	11.9%				408			
Change	250	358	281	218	318				38			
Spread Offset									(13%)			
Total Return %									(3.5%)	(2.5%)	(2.5%)	(15.8%)
Annualized Return %									(3.9%)	(2.7%)	(2.8%)	(17.1%)
									source: Bloomberg, JPM HY Index			

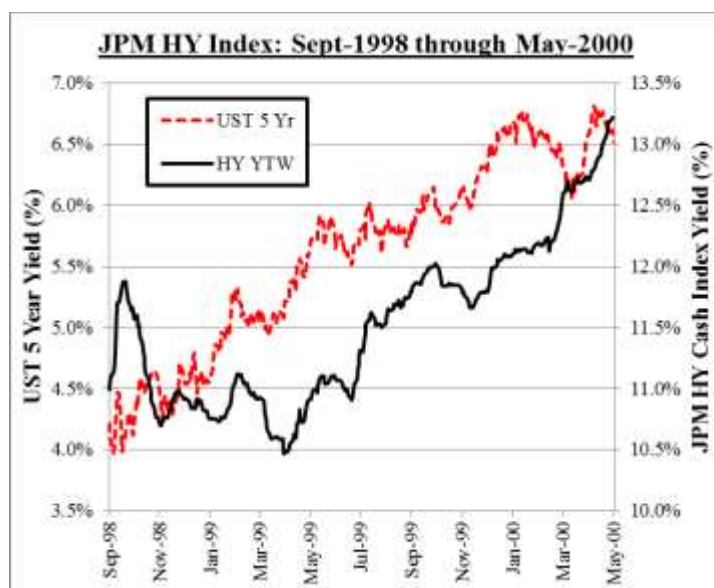
US Treasury Overview – Aggressive Fed hikes coupled with leveraged investors prompt real sell-off in rates: With the US economy rebounding strongly from the 1991 recession, the US Federal Reserve raised rates very aggressively in 1994 – taking the overnight rate up by 300 bps from 3.0% to 6.0% in 12 months. This shift in Fed policy caught the investment community off-guard and resulted in steep investment losses throughout 1994. The US Treasury curve flattened dramatically in response to the policy shift -- exposing a number of leveraged carry investment strategies that required liquidation / deleveraging.

HY Market Overview – Despite generally supportive credit environment, nowhere to hide given scale of rate move: While defaults were limited and the broad macro environment was supportive of the credit markets, the scale of the rate move overwhelmed the positive market fundamentals resulting in yields rising by more than 300 bps and spreads actually going wider. The HY market returns were negative across the credit spectrum in 1994 with the majority of the loss taken in the first four months of 1994. The sell-off in the US Treasury market would last another eight months through Dec-1994 – during which time, the HY market largely tread water as it coupon income basically offset the principle losses associated with higher yields.

Main Takeaway – Combination of shifting Fed policy, tight spreads and questionable positioning creates treacherous environment – Need to survive the storm to harvest the field: The 1994 Bond Massacre was a painful period for fixed income investors. As the US Treasury market stabilized and HY market fundamentals remained strong, the HY market generated 15%+ annualized returns over the ensuing three years. Those investors that had been focused on carry generation in 1993 when spreads were tight, policy was shifting and positioning was questionable did not live through the 1994 market. **To harvest that much more attractive market opportunity, investors needed to remain solvent through the storm.**

Oil / TMT Defaults: Sept-1998 through May-2000

Spread Widening

**Oil / TMT: 1998 - 2000****UST Yield %**

	Fed Funds	2 Yr	5 Yr	10 yr
Sep-98	5.3%	4.3%	4.2%	4.4%
May-00	6.5%	6.7%	6.5%	6.3%
Change	125	240	230	185

HY Yield to Worst

	HY	BB	B	CCC
Sep-98	11.0%	8.2%	11.2%	18.5%
May-00	13.2%	10.4%	12.7%	22.2%
Change	223	224	148	372

HY Spread to Worst

	HY	BB	B	CCC
Sep-98	666	383	690	1,415
May-00	678	402	629	1,568
Change	12	19	(61)	153

Spread Offset

Total Return %

Annualized Return %

(6%)	(9%)	29%	(70%)
3.0%	5.9%	3.4%	8.8%
1.8%	3.5%	2.0%	5.2%

source: Bloomberg, JPM HY Index

US Treasury Overview – Sustained sell-off in rates: After cutting the Federal Funds rate by 50 bps in late 1998, the US central embarked upon a tightening campaign in mid-1999 that lasted through May-2000. During that period, the Fed raised rates six times totaling 175 bps – in an unsuccessful effort to manage the Telecom / Internet / NASDAQ bubble that was dominating the capital markets. The US Treasury curve flattened and inverted at certain points of this period – indicating a degree of skepticism about the broader economic outlook.

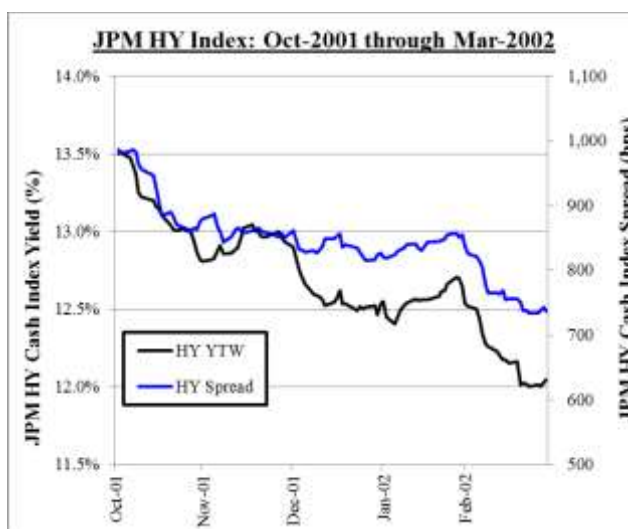
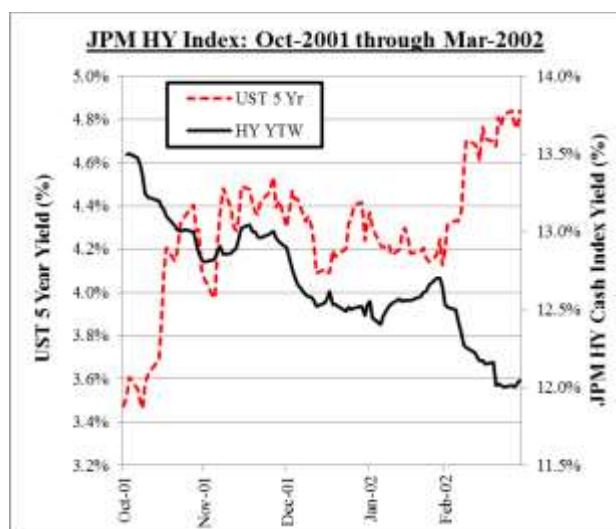
HY Market Overview – Lots of cross-currents amidst deteriorating credit environment: With an unsettled macro environment in the aftermath of the Asian Crisis (Jul-1997), commodity markets faltered highlighted by WTI crude oil prices collapsing towards \$10 per barrel. Ultimately, that led to the Russian default (Aug-1998) and continuing market volatility. The HY energy sectors sold off sharply with energy related sector defaults peaking at 13% in 1999. More broadly, credit deterioration intensified as the telecom sector came under fire with the collapse of the Internet Bubble. With Telecom representing 19% of the HY market, the collapse of the TMT sector had a very significant impact on the HY market. Given these sectors dislocations, the market was characterized by extreme credit differentiation, volatility and wider spreads.

Main Takeaway – Higher US Treasury rates combined with deteriorating credit profile is real problem: High yields and wide spreads were not enough to offset the combination of higher rates and deteriorating credit quality. With the spike in defaults associated with the collapse in oil followed by the TMT crisis, spreads actually went wider while rates went higher. To put that into context, the market generated annualized returns of roughly 1.8% during this period while yields were in the 11-13% range and spreads were north of 650 bps – a market eating through a lot of carry without generating significant returns.

MARKET INSIGHTS

[TMT Defaults: Oct-2001 through Mar-2002](#)

[Full Spread Offset](#)



TMT Defaults: 2001-2002

TMT Defaults: 2001-2002	UST Yield %				HY Yield to Worst				HY Spread to Worst			
	Fed Funds	2 Yr	5 Yr	10 yr	HY	BB	B	CCC	HY	BB	B	CCC
Oct-01	2.5%	2.4%	3.5%	4.2%	13.5%	9.4%	12.8%	31.6%	991	583	929	2,733
Mar-02	1.8%	3.7%	4.8%	5.4%	12.0%	8.6%	10.9%	23.8%	725	383	627	1,899
Change	(75)	129	136	119	(155)	(77)	(189)	(783)	(266)	(200)	(302)	(834)
Spread Offset									239%	163%	267%	1632%
Total Return %									5.5%	5.8%	6.9%	8.7%
Annualized Return %									13.7%	14.4%	17.2%	22.0%
									source: Bloomberg, JPM HY Index			

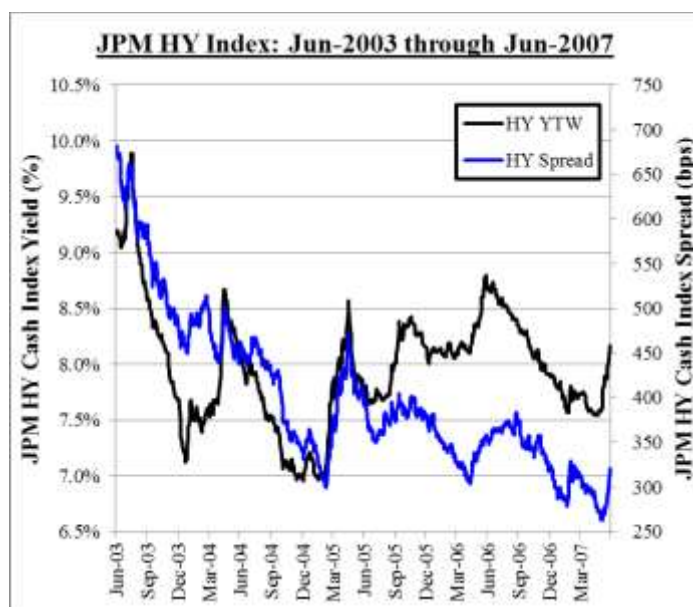
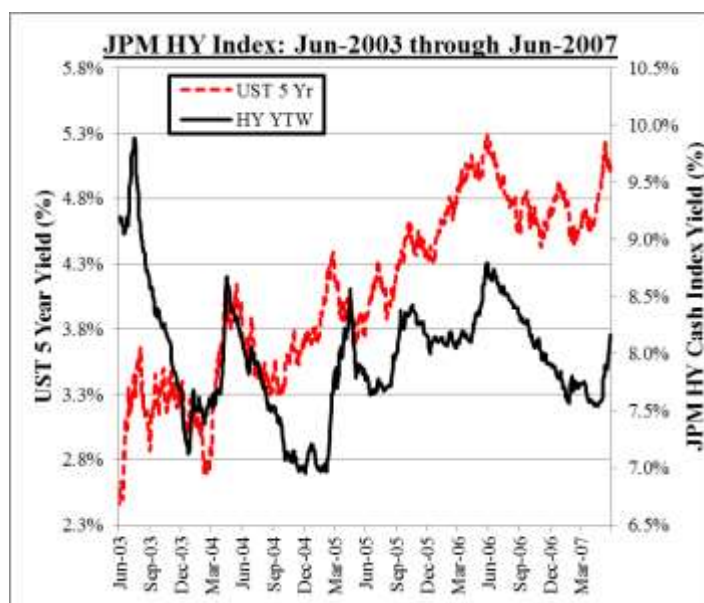
US Treasury Overview – Short lived move in rates as the US economy failed to generate organic growth: The US Treasury market sold off sharply from October-2001 through March-2002. The Fed was in the midst of lowering rates in an attempt to kick-start an anemic economy still reeling from the collapse of the Technology Bubble -- cutting the Fed Funds rate by 75 bps during this period. The US Treasury curve steepened very significantly in response to the aggressive monetary policy – with the entire curve from the 2 year out through the 10 year rising by roughly 130 bps. This sell-off in US Treasury rates was short-lived as monetary policy proved incapable of solving the problems associated with the Internet Bubble popping. US Treasury rates quickly reversed course and headed lower as the economy slowed and volatility picked up – ultimately setting new lows in 2003.

HY Market Overview – High yields, wide spreads and defaults: This move in US Treasury rates occurred in the midst of the HY TMT bust of 2001-2002 – a structural sell-off that would take more than two years to fully mature. As is typical of structural sell-offs, there were periodic relief rallies that created tremendous volatility. During this particular relief rally, spread tightening more than offset of the move in rates – helping to drive yields lower while generating a total return of 5.5% for the HY Index. But similar to the US Treasury market, this relief rally would prove short-lived as the default cycle intensified in mid-2002 with the Worldcom bankruptcy filing and corporate malfeasance associated with Tyco Industries.

Main Takeaway – Too short of a time period to be material: With yields in the 12-14% range and spreads in the 750-1,000+ bps range on the HY index, the US Treasury market was not the primary driver of the credit market during this period. Credit fundamentals and defaults were much more instrumental in driving HY returns amidst this short-lived rise in rates.

Financial Engineering: June-2003 through June-2007

Full Spread Offset



Financial Engineering 2003-2007	UST Yield %				HY Yield to Worst				HY Spread to Worst			
	Fed Funds	2 Yr	5 Yr	10 yr	HY	BB	B	CCC	HY	BB	B	CCC
Jun-03	1.0%	1.3%	2.4%	3.5%	9.2%	6.6%	8.4%	18.3%	681	420	625	1,577
Jun-07	5.3%	4.9%	4.9%	5.0%	8.2%	7.2%	8.1%	10.4%	321	221	313	545
Change	425	356	251	151	(100)	58	(37)	(789)	(360)	(199)	(312)	(1,032)
Spread Offset									138%	78%	113%	424%
Total Return %									45.0%	33.2%	43.6%	72.0%
Annualized Return %									9.7%	7.4%	9.5%	14.5%
									source: Bloomberg, JPM HY Index			

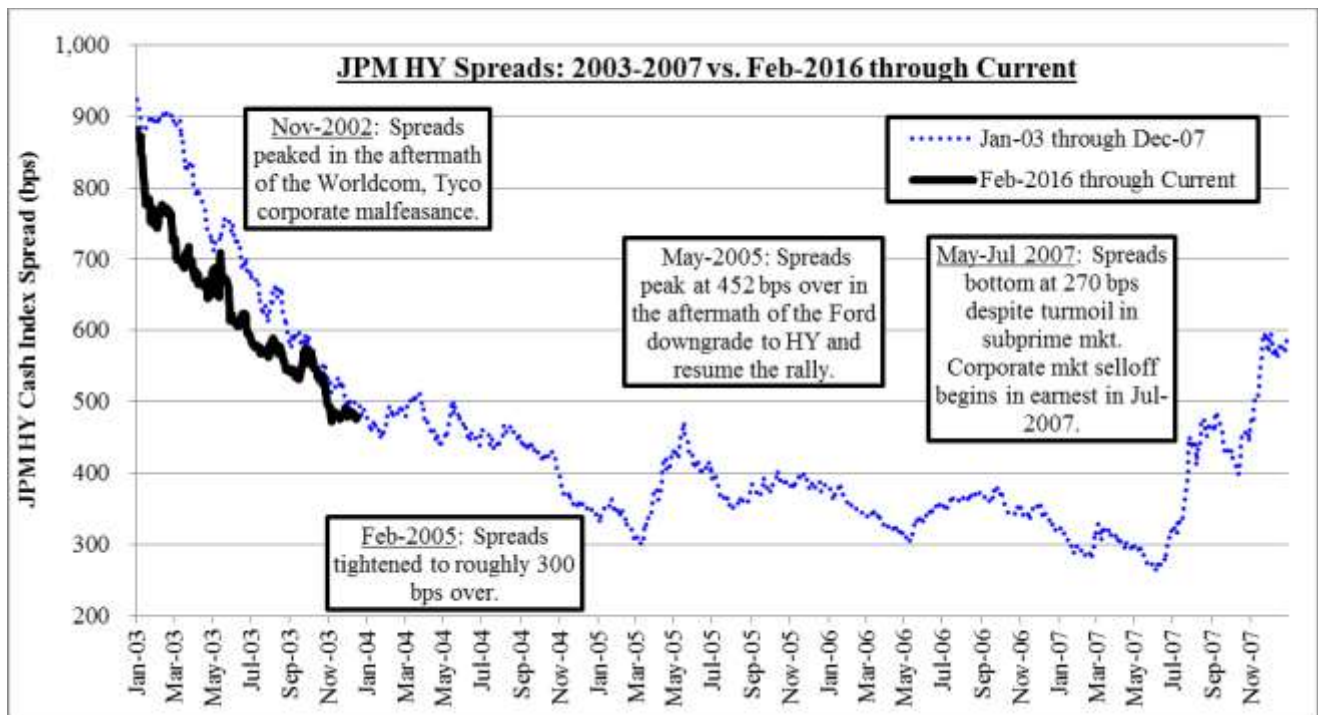
US Treasury Overview – Sustained move higher in rates over a 4 year period: In response to the weak US economic growth of 2002, the US Federal Reserve cut rates aggressively during late 2002 / early 2003. In textbook Keynesian fashion, economic growth accelerated in response to the accommodative monetary policy. Anticipating the eventual shift in Fed policy, the US Treasury markets began to shift in June-2003. Unlike the 2001-2002 period, this initial shift in rates was sustained and intensified over the coming quarters as true organic economic growth actually took hold.

HY Market Overview - Spread compression facilitated by financial engineering: With strong US economic growth, limited credit defaults and a generally supportive macro environment, improving underlying credit fundamentals supported spread tightening across the HY market. While there were intermittent periods of market weakness during this period (i.e. Apr/May-2004 with initial sell-off in the US Treasury market and Mar/Apr-2005 with the Ford downgrade to HY), the HY broader market was characterized by meaningful spread tightening and high degrees of financial engineering.

Main Takeaway – Financial engineering driving spread compression unlikely to reoccur to the same degree: Coupling supportive credit fundamentals with extreme degrees of cheap financing / leverage allowed the market to get to all-time tight spreads. Perhaps even more notable than the absolute change in spreads at the index levels is the spread compression that occurred (i.e. CCC's sharply outperforming BB's given lower DV01 sensitivity). We examine the math behind this financial engineering later in this paper as we evaluate the implications for the current HY market.

MARKET INSIGHTS

2003-2007 Precedent: Can the current market stay along the same glide path towards lower spreads?



Source: JPM HY Index

Can HY revisit the tights in spreads from the 2007 period? Short answer -- **no, we do not believe they can.**

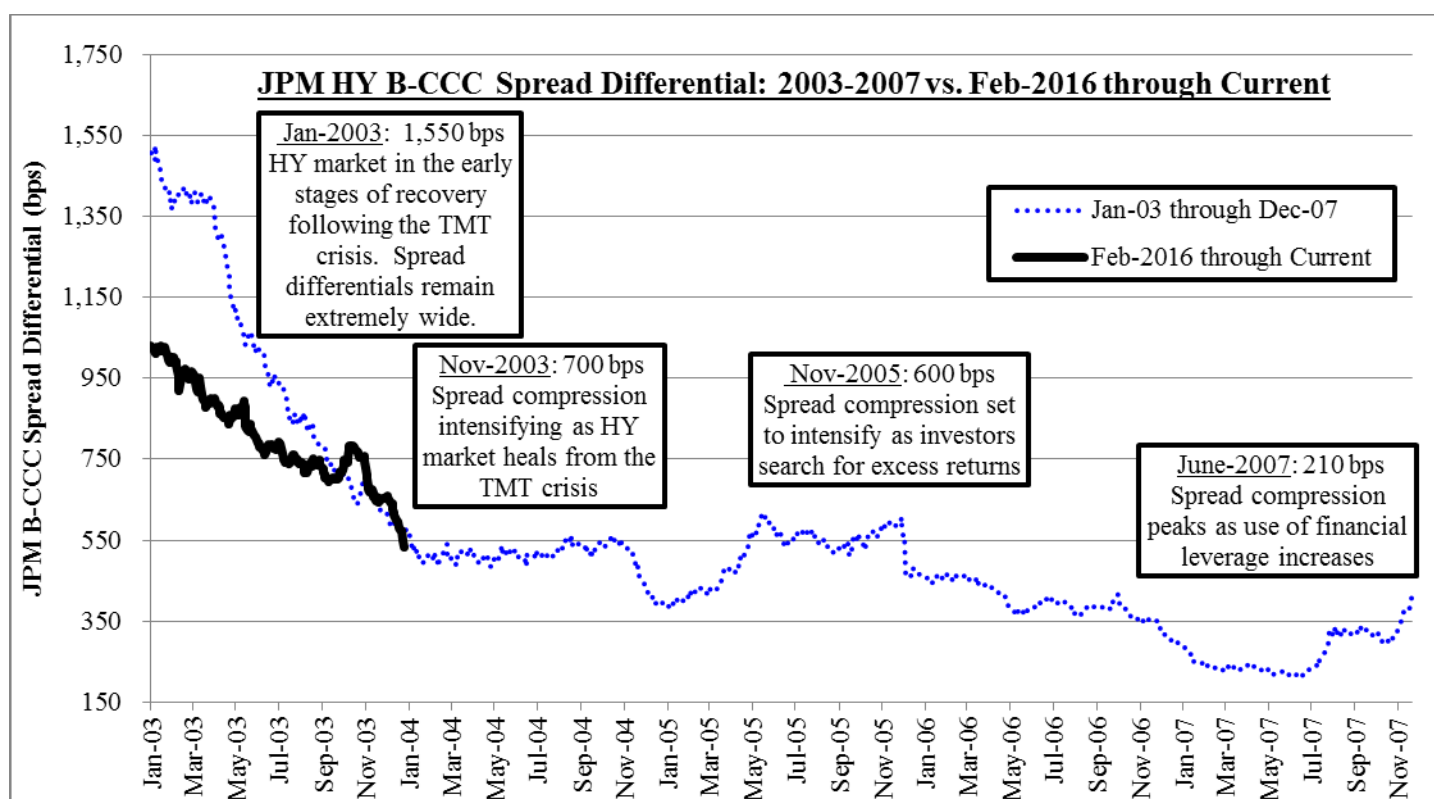
The graph above compares the JPM HY Cash Index Spread from the local Feb-2016 highs through the current day versus the Jan-2003 through Dec-2007 time period. The paths to this point are largely indistinguishable. It makes logical sense to evaluate the market extremes so as to define the boundaries as to where things can go. With that goal in mind, it brings us to a natural question -- can spreads revisit the spread tights established in the 2005-2007 time period?

How did the market get to those spread levels in the 250-300 bps range during the 2005-2007 period? With very limited credit defaults in the 2004-2007 timeframe, low market volatility, steady US Treasury rates and a strong economic backdrop, fixed income investors were incentivized to run long carry strategies. With absolute yields in the 7-9% range, the unleveraged investor community (i.e. insurance companies, pension and endowments, long only mutual funds) provided a stable source of demand for high yield credit. Given the prevailing macro environment, when combined with an equity allocation in a diversified total return portfolio, HY offered institutional investors the opportunity to generate returns consistent with their overall investment mandates.

While the demand from the “real money community” was very supportive of tighter spreads, we would argue the factor that drove spreads to their all-time tights was the leveraged finance community (i.e. leveraged investment banks, structured products, hedge funds). Given those yields in the 7-9% range and access to all the financial leverage that one could ask for, leveraged investors did not need wide underlying credit spreads to generate tempting total returns on behalf of their investors. Instead, the leveraged community became a financing vehicle -- essentially substituting financial engineering via leverage and the creation of structured products for actual unleveraged return generation through underlying credit spreads.

What does this have to do with the current market? With more limited access to financial engineering and higher borrowing costs, it is not possible to generate the same returns in today’s market – making it more difficult to justify spreads tightening to the same extremes achieved in the 2003-2007 period. As we describe later this paper, the math behind leveraged carry strategies does not support spread tightening to those same levels.

2003-2007 Precedent: Where are we in terms of spread compression?



Source: JPM HY Index

Reaching for yield resulting in spread compression: Similar to the analysis on the preceding page, we compare recent market history with the 2003-2007 period. In this graph, we are focused on the spread differential for the JPM HY Cash B Index relative to the CCC Index.

Investors looking for excess returns during the later stages of the 2003-2007 period were faced with a number of uninviting but seemingly age old questions. How do you generate a return amidst the HY market when everything seems to be going well and risk premiums are low?

The traditional answer involves “reaching for yield”. That can be accomplished in a few basic ways: (i) increasing net exposure / lifting any shorts, (ii) extending the duration of your investments, (iii) investing in less liquid / illiquid assets and / or (iv) moving down the credit spectrum into lower quality assets. Investors should pick their respective poison carefully as each carries with it steep penalties for being wrong should the environment shift.

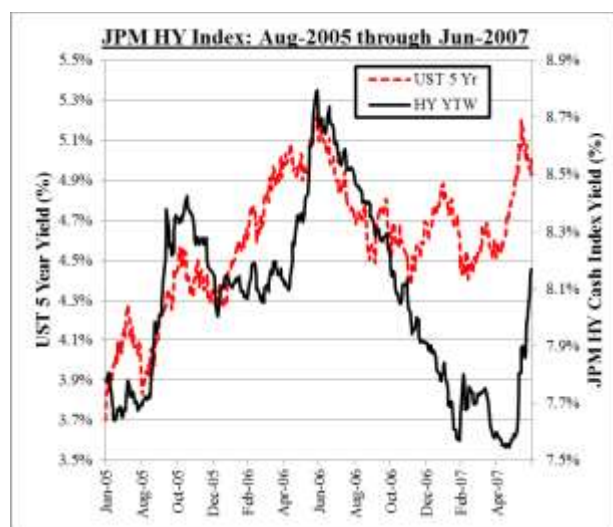
The 2003-2007 period exhibited a number of these characteristics but none perhaps more notable than moving down the credit spectrum into lower quality assets, easily demonstrated by the spread compression between B and CCC credits. This proved to have very real implications for investors as the 2008 Financial Crisis unfolded and spread differentials once again widened dramatically.

Implications for current market: With the current B-CCC spread at 650 bps, the market is not yet to the levels achieved in the later stages of the 2003-2007 credit cycle. As we detail in the next two pages, generating intelligent returns in the later stages of a credit cycle amidst rising interest rates requires the ability to navigate this dynamic of spread compression properly.

MARKET INSIGHTS

Late Cycle Spread Compression: June-2005 through June-2007

Partial Spread Offset



Late Cycle Compression 2005-2007

UST Yield %

	Fed Funds	2 Yr	5 Yr	10 yr
Jun-05	3.3%	3.6%	3.7%	3.9%
Jun-07	5.3%	4.9%	4.9%	5.0%
Change	200	123	122	111

HY Yield to Worst

	HY	BB	B	CCC
Jun-05	7.8%	6.3%	7.6%	13.3%
Jun-07	8.2%	7.2%	8.1%	10.4%
Change	39	89	45	(283)

HY Spread to Worst

	HY	BB	B	CCC
Jun-05	405	252	391	955
Jun-07	321	221	313	545
Change	(84)	(31)	(78)	(410)

Spread Offset

Total Return %

Annualized Return %

68%	26%	63%	322%
17.7%	12.2%	18.0%	25.8%
8.5%	5.9%	8.7%	12.2%

source: Bloomberg, JPM HY Index

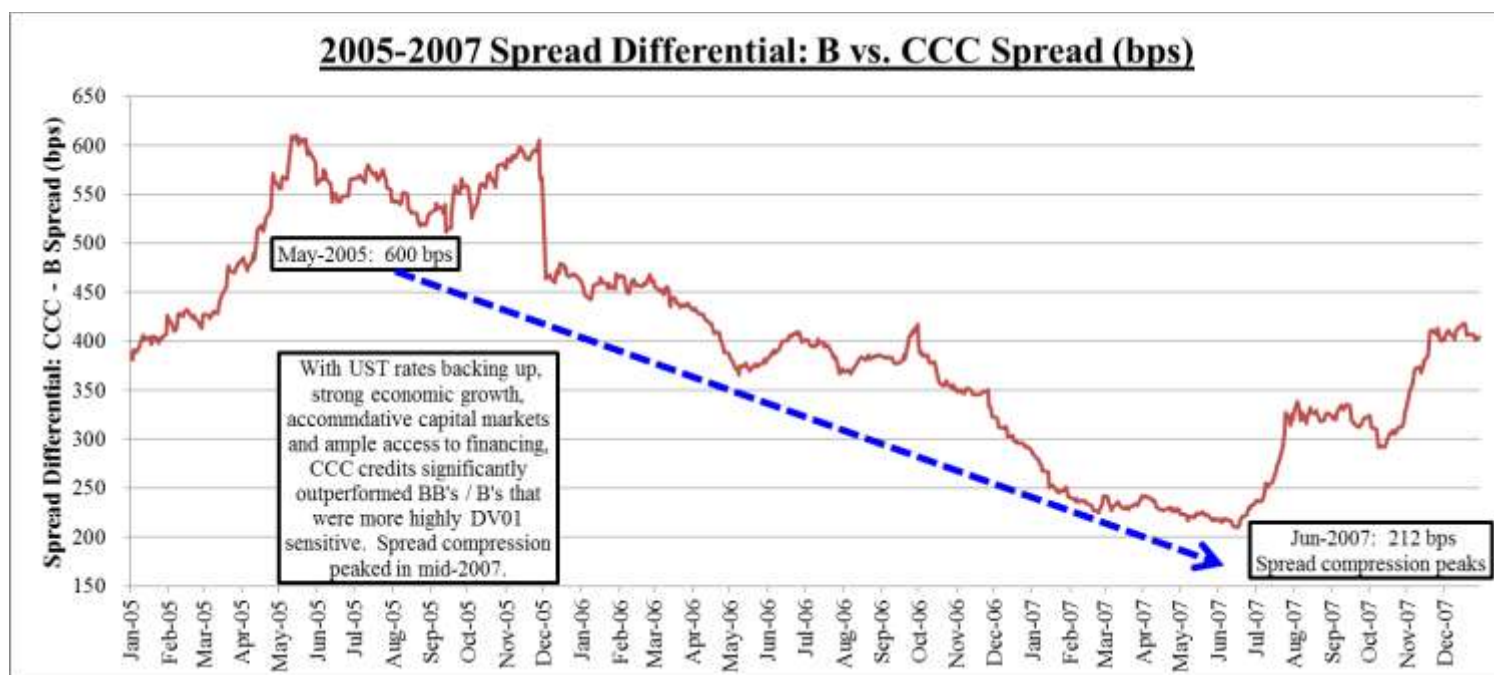
2005-2006 - Tail End of the Tightening Cycle: This is a subsection of the broader 2003-2006 Leveraged Carry period. Given the duration and scope of the period's tightening cycle (US Federal Reserve raised Federal Funds rates by 425 bps from June-2004 through June-2006), it is useful to segment this cycle to evaluate the HY market's reaction.

US Treasury Overview – Late stage economic cycle leading to US Treasury selloff: Following several quarters of solid domestic economic growth, the US Federal Reserve was aggressively raising rates in an attempt to withdrawal the proverbial “punch bowl”. The US Treasury market went through a bear flattener as the back end began to reflect the impact of the more restrictive monetary policy.

HY Market Overview – More difficult for HY to absorb the US Treasury move at tighter spreads: Financial engineering remained in full force throughout this period as institutional investors invested heavily in structured products and leveraged carry investment strategies. The macro environment was supportive but cracks in the financial system began to show in late 2006 emanating from the subprime mortgage market. Credit quality deteriorated as companies took on additional financial leverage and the LBO activity accelerated. BB bonds struggled to keep pace with the move in Treasuries - unable to actually earn their yields. Simultaneously, the CCC market generated solid returns as spread compression continued to intensify.

Main Takeaway – Late stage of credit cycle characterized by spread compression / credit curve flattening: Examining this sub segment of the broader 2003-2006 period of clearly demonstrates the impact of spread compression on the market. Higher quality / lower yielding / tighter spread BB bonds suffer from rising DV01 sensitivity. Lower quality / wider spread CCC bonds benefit from investors need for spread and a supportive macro environment - offering both opportunity and peril.

2005-2007 Precedent: Can the market experience a similar degree of spread compression?



Source: JPM HY Index

Can the market get back to those tights in spread compression?

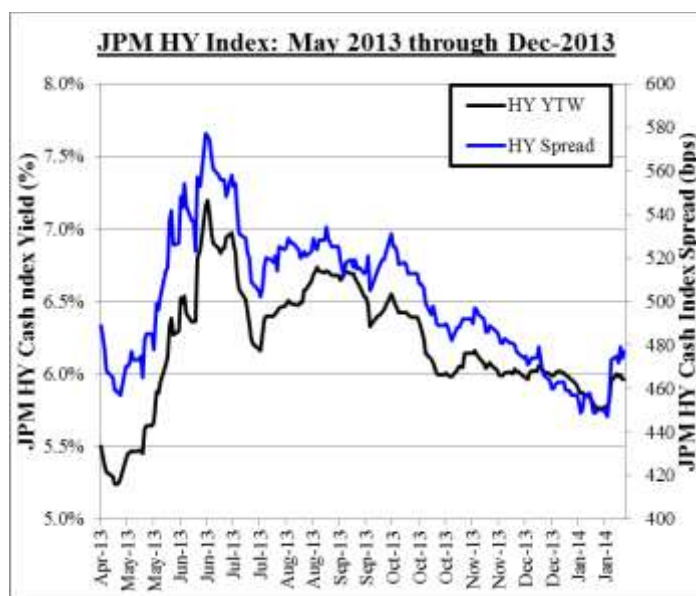
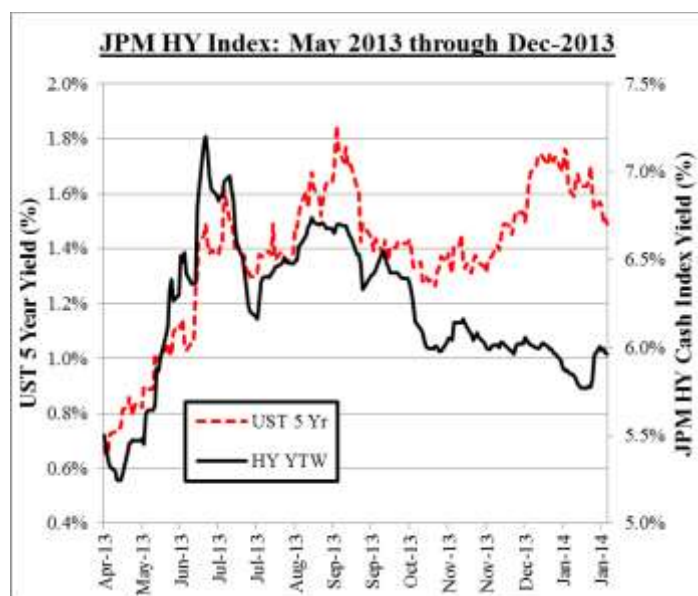
Short answer: No.

Similar to our analysis on absolute spread levels for the 2003-2007 period, we do not believe that the tights in spread compression can be revisited. Given the structural changes to the HY market with higher capital requirements and more limited trading liquidity, CCC credits should require a wider spread differential going forward.

While it is unlikely to retest the tights established in 2003-2007 period, is there room for further compression?

Short answer: Yes.

While those structural changes make it less likely that the same degree of spread compression can be achieved, when considering that the B-CCC spread was inside 400 bps as recently as May-2015, we believe there is still room from current levels for CCC spreads to tighten relative to the rest of the HY market.



Taper Tantrum: 2013

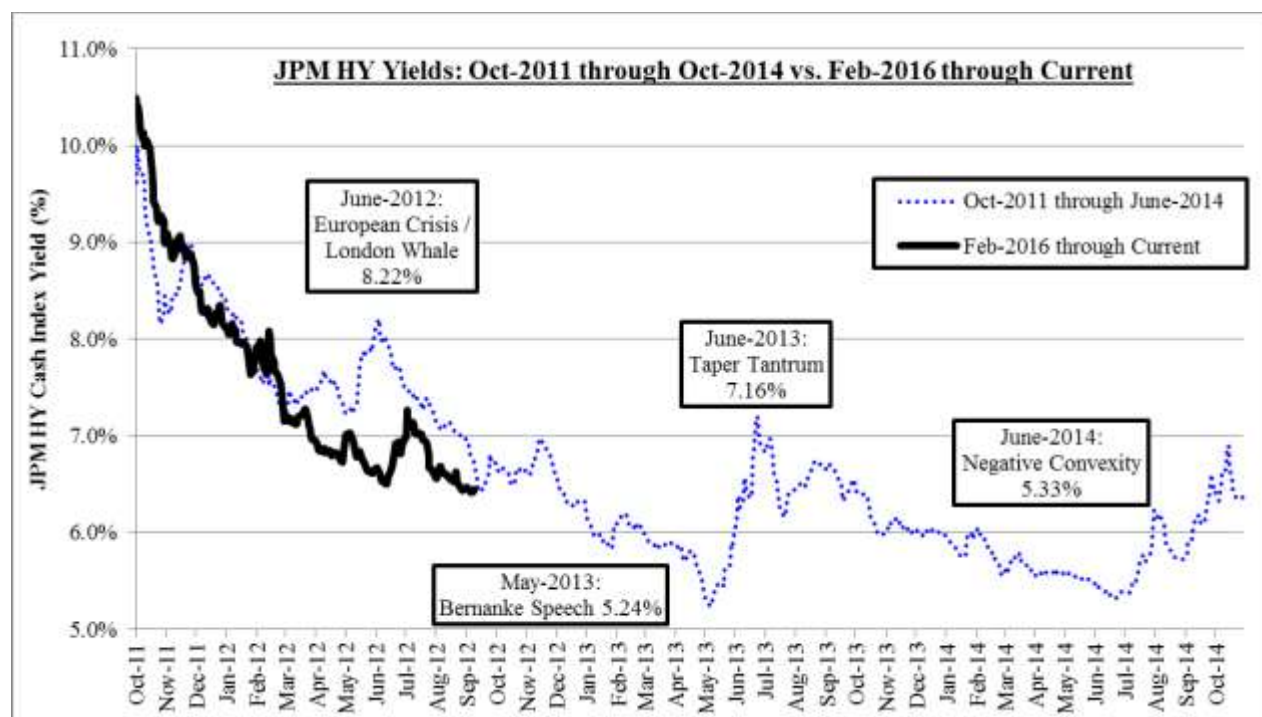
	UST Yield %				HY Yield to Worst				HY Spread to Worst			
	Fed Funds	2 Yr	5 Yr	10 yr	HY	BB	B	CCC	HY	BB	B	CCC
Apr-13	0.3%	0.2%	0.7%	1.7%	5.5%	4.3%	5.6%	8.9%	489	353	514	835
Dec-13	0.3%	0.4%	1.7%	3.0%	6.0%	5.1%	5.8%	8.9%	459	332	465	778
Change	-	17	107	136	49	74	11	1	(30)	(21)	(49)	(57)
Spread Offset									38%	22%	81%	98%
Total Return %									2.6%	0.7%	2.9%	6.0%
Annualized Return %									3.9%	1.0%	4.3%	9.1%
									source: Bloomberg, JPM HY Index			

US Treasury Overview – Bernanke speech triggers taper tantrum but economy can't follow through: With global central bankers all embarking on some form of quantitative easing, global rates rallied to levels not seen since the Great Depression. In May-2013, the Fed Chairman Ben Bernanke suggested that the Fed was preparing to reduce the pace of its bond purchases. US Treasury rates moved sharply higher with a steepening of the curve in the aftermath of the comments. While the US Treasury market remained cautious around the tapering of Fed purchases, domestic growth proved elusive as the economy faltered in 2015 leading US Treasury rates to rally back towards the lows in yields.

HY Market Overview – Sharp correction in credit followed by the return to the search for yield: After having established new all-time lows in yields, the HY market sold off sharply in response to Chairman Bernanke's comments. The JPM HY Cash index sold off roughly 3.4% during the two month period ending Jun-2013 with the BB sector suffering disproportionately given its higher DV01 exposure. With rates stabilizing at higher yield levels, the credit market found its footing and began to rally once again as investors continued to search the capital markets for yields.

Main Takeaways – Low yields, tight spreads combined with any move in US Treasury rates becomes problematic: With low yields and tight spreads going into the sell-off, the market did not have the margin of safety necessary to absorb the move in rates. While the market ultimately recovered and rallied from the initial Taper Tantrum, the initial sell-off from May through June was painful for those who were attempting to generate returns via a long carry strategy. That dynamic becomes particularly problematic if it forces investors to compromise their investment strategy follow the initial sell-off when investment opportunities are more attractive – effectively compounding the initial investment losses.

2013-2014 Precedent: Can we revisit the lows in yields established during the 2013-2014 period?



Source: JPM HY Index

Can markets revisit its lows in yields? In this graph, we consider the path of yields from the Oct-2011 highs to the lows achieve prior to the Bernanke speech in May-2013 and compare to the recent recovery from the Feb-2016 highs. Similar to our analysis of the spread trajectories for the 2003-2007 period of spread compression, the two paths are largely indistinguishable to this point. Each market rallied sharply after achieving yields north of 10% -- a testament to the global market's structural need for yield product. Is the market destined to retest those lows established in the pre-Taper Tantrum period? Given the backup in rates that the market has already experienced, can the market revisit the lows in the yields established during the 2013-2014 / QE dominated / search for yield period? **We do not believe that it can.**

<u>Retesting 2013-2014 Lows in Yields</u>				<u>Current Market</u>		<u>Low Yields</u>	
Updated: 20-Jan-17				20-Jan-17	Change	Low Yield	
<u>JPM HY Index</u>							
Yield				6.45%	(118)	5.28%	5.28% 5.32%
UST				1.66%	-	1.66%	0.71% 1.21%
Spread				479	(118)	362	457 411
source: JP Morgan High Yield Index							

The above table is a very simplistic comparison of the current market relative to the May-2013 / June-2014 lows in yields. Assuming no change to current rates (a very big assumption given the recent Fed announcements and price action), getting back to yields in the 5.3% area would require spreads to rally to levels approaching 350 bps over. As we described previously, we believe achieving and sustaining spreads in the 300-350 bps range will prove difficult making it unlikely that the market retests those lows in yields.

Section III: Evaluating Leveraged Returns in the HY Market

Financial engineering – a science that is “smart but not wise”:

“Often tools get mistaken for theories with unfortunate consequences; elaborate computer programs ... or mathematical derivations are occasionally assumed to make a real scientific statement, regardless of their scientific underpinnings. Indeed, entire literatures have undergone successive refinements and degradations, during each generation of which the original theoretical notions ... are crowded out by an increasing focus on tool adeptness. **This often results in science that is ‘smart but not wise.’**” (Source: Complex Adaptive Systems, Miller and Page, 2007)

“As usual, Long Term was content to earn relatively tiny spreads because it intended to multiply its returns with leverage.” (Source: When Genius Failed, Lowenstein, 2000)

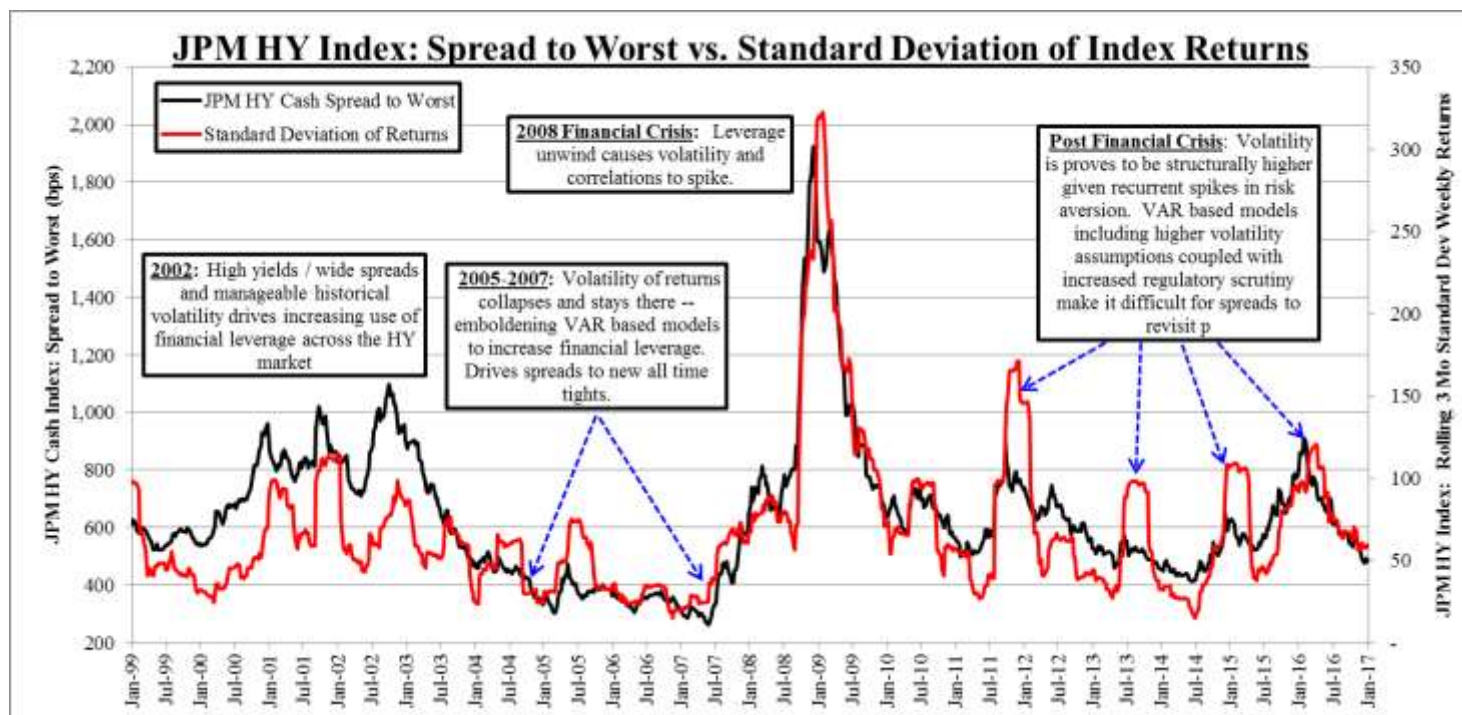
“It was my understanding there would be no math.”

(Source: Saturday Night Live, Chevy Chase portraying US President Gerald Ford, 1976)

Why does financial engineering matter?

- Mathematical challenges associated with replicating the financial engineering of 2003-2007 period: While there are natural systemic roadblocks to increasing leverage in today’s markets (i.e. increased regulatory scrutiny, VAR based stress tests incorporating the Financial Crisis, institutional limits on leverage), volatility across the credit markets has been structurally higher over the last 5 years with episodic spikes. These spikes in volatility (Aug-2011, May-2013, May-2014, and Feb-2016) make it difficult for the “smart but not wise” VAR models to justify an aggressively leveraged buy & hold strategy. This will prevent institutions from deploying financial leverage to the same degree as in the pre-Financial crisis period.
- Implications of lower financial leverage – governor on further spread tightening: When combining (i) those natural systemic roadblocks to increased financial leverage, (ii) the math behind leveraged returns at yields inside of 6.5%, (iii) the likelihood of rising US Treasury rates should the economy grow in a manner consistent with the current sentiment and (iv) current spreads on the BB / B market, we believe it is unlikely that the HY market revisit the spreads achieved during the 2003-2007 period.

Leveraged Return Analysis: Why did financial engineering become so extreme in the 2003-2007 period?



Source: JPM HY Index

Fully recognizing that this graph requires explanation, I find it instructive. It compares the volatility of the underlying return stream of the JPM HY Market Index relative to the spread to worst. We have used the rolling 3 month standard deviation of weekly returns as a measure of the market's volatility. When examining that graph, it is interesting to segment it into four periods:

- (i) 1999 – 2002 TMT Defaults: Episodic periods of volatility given the high default rates across the TMT sector. Spreads and yields were correspondingly high creating an interesting investing environment.
- (ii) 2003 – 2007 Spread Compression: Volatility effectively collapsed and essentially stayed there. With limited historical volatility, VAR based portfolio risk systems were emboldened to increase position sizing as spreads tightened and volatility remained low. This became a virtuous cycle – return volatility declined, driving position sizes higher, driving spreads lower which in turn drove volatility lower. As described earlier in this report, access to financing was plentiful and cheap with the end result that leverage increased dramatically. This all worked wonderfully until the fundamentals began to crack. Investors were left with the largest position sizing at the worst possible time (i.e. when spreads were tightest).
- (iii) 2008 Financial Crisis: Financial modeling broke down, volatility spiked and correlations migrated towards 1.0 as forced liquidations intensified. **Ultimately, the VAR based models proved to be “smart but not wise.”**
- (iv) Post Financial Crisis: While there are natural systemic roadblocks to increasing leverage in today's markets (i.e. increased regulatory scrutiny, VAR based stress tests incorporating the Financial Crisis), volatility across the credit markets has been structurally higher over the last 5 years with episodic spikes. These spikes in volatility (Aug-2011, May-2013, May-2014, and Feb-2016) make it difficult for the “smart but not wise” VAR models to justify an aggressively leveraged buy & hold strategy.

MARKET INSIGHTS

Leveraged Return Analysis: Math behind the financial engineering at market extremes

Leveraged IRR % : HY	Current	Spread Tights		Low Yields	
Updated: 20-Jan-17	Jan-17	Feb-05	Jun-07	May-13	Jun-14
<u>JPM HY Index</u>					
Yield	6.45%	7.00%	7.59%	5.28%	5.32%
UST	1.66%	3.91%	4.95%	0.71%	1.21%
Spread	479	309	264	457	411
<u>Financing Cost</u>					
12 mo LIBOR	1.73%	3.53%	5.42%	0.70%	0.55%
Borrowing Spread (bps)	80	19	17	93	90
Total	2.53%	3.72%	5.59%	1.63%	1.45%
<u>Financing (%)</u>					
Debt	81%	85%	87%	77%	78%
Equity	20%	15%	13%	24%	23%
Total	100%	100%	100%	100%	100%
Implied Leverage	4.1x	5.7x	6.7x	3.3x	3.4x
Leveraged IRR %	22.6%	25.6%	20.9%	17.2%	18.7%

source: JP Morgan High Yield Index, Bloomberg, Weiss estimates

Analysis Methodology / Assumptions: In the above table, we provide a simplified analysis of the leveraged return profile of the HY market at various points historically. Specific assumptions include:

(i) **Equity Financing and Borrowing Costs:** Assumed borrowing spreads and equity collateral requirements have declined over the last few years as markets recovered from the financial crisis but have yet to return to pre-financial crisis levels. We assume a 12 month holding period and use the current 2 month LIBOR rate as our underlying financing cost.

(ii) **Returns are not reflective of cash allocation in actual portfolio:** Fully recognizing that running a leveraged investment strategy requires a significant allocation to cash that will ultimately dilute overall portfolio returns, looking at leveraged returns offered at the line item level is instructive.

Current Market: Given assumed financing availability and borrowing costs, prospective leveraged returns on the current HY market look to be in 23.5% area. These levels are comparable to levels achieved amidst the 2005-2007 spread tights and are approaching levels from the 2013-2014 period when HY yields established its historic lows.

2005-2007 Spread Tights: Investors were able to utilize very cheap financing to generate leveraged returns in the 20-25% range. Overall, employing a high degree of financial leverage with very low borrowing spreads (i.e. 7.5-15% equity haircuts at LIBOR +15-25 bps) created a powerful financing structure that made it possible for spreads to narrow very dramatically.

2013-2014 Lows in Yields: In response to the 2008 financial crisis, financial regulation increased dramatically, capital requirements became more stringent and financing was more difficult to procure. This was offset by aggressive monetary policy that drove US Treasury rates / LIBOR to historically low levels. With limited defaults, improving credits, a deleveraging corporate sector and spreads in the 400-500 bps range, investors able to generate reasonable returns with lower degrees of financial leverage.

Leveraged Return Analysis: Math behind the financial engineering looking prospectively

Leveraged IRR % : HY	Current	Lower Yields				Lower Yields + Higher Rates (50 bps)			
Updated: 20-Jan-17	<u>Jan-17</u>	6.25%	6.00%	5.75%	5.50%	6.25%	6.00%	5.75%	5.50%
<u>JPM HY Index</u>									
Yield	6.45%	6.25%	6.00%	5.75%	5.50%	6.25%	6.00%	5.75%	5.50%
UST	1.66%	1.66%	1.66%	1.66%	1.66%	2.16%	2.16%	2.16%	2.16%
Spread	479	459	434	409	384	409	384	359	334
<u>Financing Cost</u>									
12 mo LIBOR	1.73%	1.73%	1.73%	1.73%	1.73%	2.23%	2.23%	2.23%	2.23%
Borrowing Spread (bps)	80	80	80	80	80	80	80	80	80
Total	2.53%	2.53%	2.53%	2.53%	2.53%	3.03%	3.03%	3.03%	3.03%
<u>Financing (%)</u>									
Debt	81%	81%	81%	81%	81%	81%	81%	81%	81%
Equity	20%	20%	20%	20%	20%	20%	20%	20%	20%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%
Implied Leverage	4.1x	4.1x	4.1x	4.1x	4.1x	4.1x	4.1x	4.1x	4.1x
Leveraged IRR %	22.6%	21.6%	20.3%	19.0%	17.7%	19.5%	18.2%	17.0%	15.7%

source: JP Morgan High Yield Index, Bloomberg, Weiss estimates

Applying that simplified framework to the current HY market is interesting:

- Is it possible for the rally from here? Given current financing requirements and borrowing costs, leveraged returns appear to be in the mid 20% range. As detailed on the prior pages, that is comparable to the levels achieved during the financial crisis but still somewhat higher than the levels achieved in the 2013-2014 timeframe. Looking prospectively while assuming no change in the broader capital markets, generating leveraged returns at lower yield levels becomes more challenging.
- Implications of Rising Rates – Creates a Challenging Environment: Further complicating this analysis, we assume that the Fed makes good on its promise to raise rates over the coming year. To simplify the analysis, we have assumed that the entire US Treasury curve moves higher by 50 bps in a parallel shift. This very quickly threatens the viability of this leveraged investment strategy.
- Math behind BB's and B's is more challenging: It is important to note that the spread differential between BB / B and CCC credits partially obscures this analysis. As we detail on the next page, combining the current BB yields / spreads with the available financing does not offer a particularly attractive entry point. With the leveraged IRR % on the current market at roughly 18%, that is similar to leveraged return profiles of the 2005-2007 time period and only slightly higher than the opportunity offered at the lows in yields of the 2013-2014 time period. When stripping out the CCC portion of the market, it is challenging to support a further rally in the higher quality BB / B segment of the HY market.

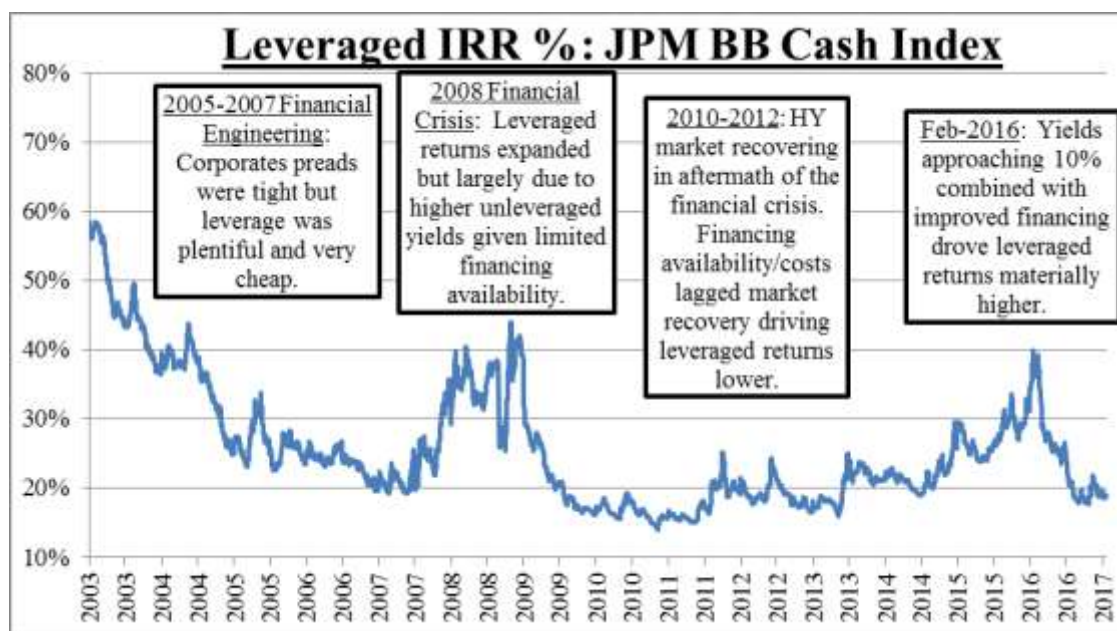
When combining (i) the math behind leveraged returns at yields inside of 6.5%, (ii) the likelihood of rising US Treasury rates should the economy grow in a manner consistent with the current sentiment and (iii) current spreads on the BB / B market, we believe it is unlikely that the HY market can rally meaningfully from current levels.

MARKET INSIGHTS

Leveraged Return Analysis: Looking Prospectively at BB's

Leveraged IRR % : BB	Current	Spread Tights		Low Yields	
Updated: 20-Jan-17	Jan-17	Feb-05	Jul-07	May-13	Jun-14
JPM HY BB Index					
Yield	4.84%	5.77%	7.23%	4.21%	4.41%
UST	1.76%	3.99%	4.97%	0.92%	1.48%
Spread	308	178	226	329	293
Financing Cost					
12 mo LIBOR	1.73%	3.53%	5.39%	0.70%	0.55%
Borrowing Spread (bps)	60	14	19	70	68
Total	2.33%	3.67%	5.58%	1.40%	1.22%
Financing (%)					
Debt	85%	90%	89%	81%	82%
Equity	15%	11%	12%	19%	18%
Total	100%	100%	100%	100%	100%
Implied Leverage	5.7x	8.5x	7.7x	4.3x	4.6x
Leveraged IRR %	19.0%	23.7%	19.9%	16.2%	18.9%

source: JP Morgan High Yield Index, Bloomberg, Weiss estimates



BB leveraged returns near the lows despite available financing: In the table and graph above, we consider the leveraged returns of the BB HY index. While collateral requirements and borrowing spreads have declined over the past few years, combining BB yields / spreads that are well within the 1st quartile of their historical ranges and higher LIBOR rates has resulted in sharply lower leveraged BB returns. With the prospect of rising interest rates and prospective returns already approaching historic lows, it becomes difficult to argue for further price appreciation.

Section IV: Scenario Analysis - “Common sense reduced to calculation”

“Probability theory is nothing but common sense reduced to calculation.”

(Source: Philosophical Essay on Probabilities, Pierre-Simon Laplace, 1902)

Scenario Analysis Approach: As we have written in the past, there is a degree of humility and mental flexibility required in any forecasting process. We fully recognize that predicting "exactly what is going to happen" is not possible. Instead, incorporating our thoughts on the current high yield market, investing during periods of rising rates and the return profile associated with leveraged investing, we focus on crafting a logical framework to evaluate the broad macro environment and define a range of possible outcomes for the HY and financial markets. In doing so, we attempt to ground our scenario analysis in a combination of professional experience, market history, a little math and “common sense reduced to calculation”.

In the next few pages, we briefly outline our framework and conclusions for analyzing the US Treasury and HY markets.

Main Conclusions:

- High yield is likely to struggle earning its yield over the coming 12 months: Given the challenges associated with a rising rate environment and more limited ability to use financial leverage to drive further spread compression, we believe it is likely that the HY market will struggle to actually earn its yield in the coming 12 months.
- BB / B Prospective returns are not attractive: Given this “upside” scenario, the prospective return profile is not particularly exciting. With a high likelihood of interim volatility, we do not believe this payout profile justifies a long-carry strategy.
- Credit Picker’s Market - Potential for further spread compression should the market remain accommodative: We continue to see opportunities within the CCC investment while fully recognizing that these investments require a tremendous amount of fundamental credit work – creating opportunity and peril simultaneously.

Implications for Portfolio Management:

- Generating carry is not a riskless endeavor: Volatile market conditions create challenges for long biased / carry-oriented / buy-and-hold strategies.
- Tactical long-short investment strategy better suited to current environment: Given the prospective return profiles of the HY market, we believe that there is an opportunity to generate positive returns on both the long and short side of a portfolio – providing a high quality return stream with limited market exposure.

In short, to generate intelligent returns in this type of environment, we believe requires a true long-short investment approach that is less dependent upon carry generation and more focused on alpha generation through security selection, proper risk management and tactical trading.

Scenario Analysis – US Economy: Will the economy generate true organic growth?

Will Trump prove to be the spark to true organic growth?

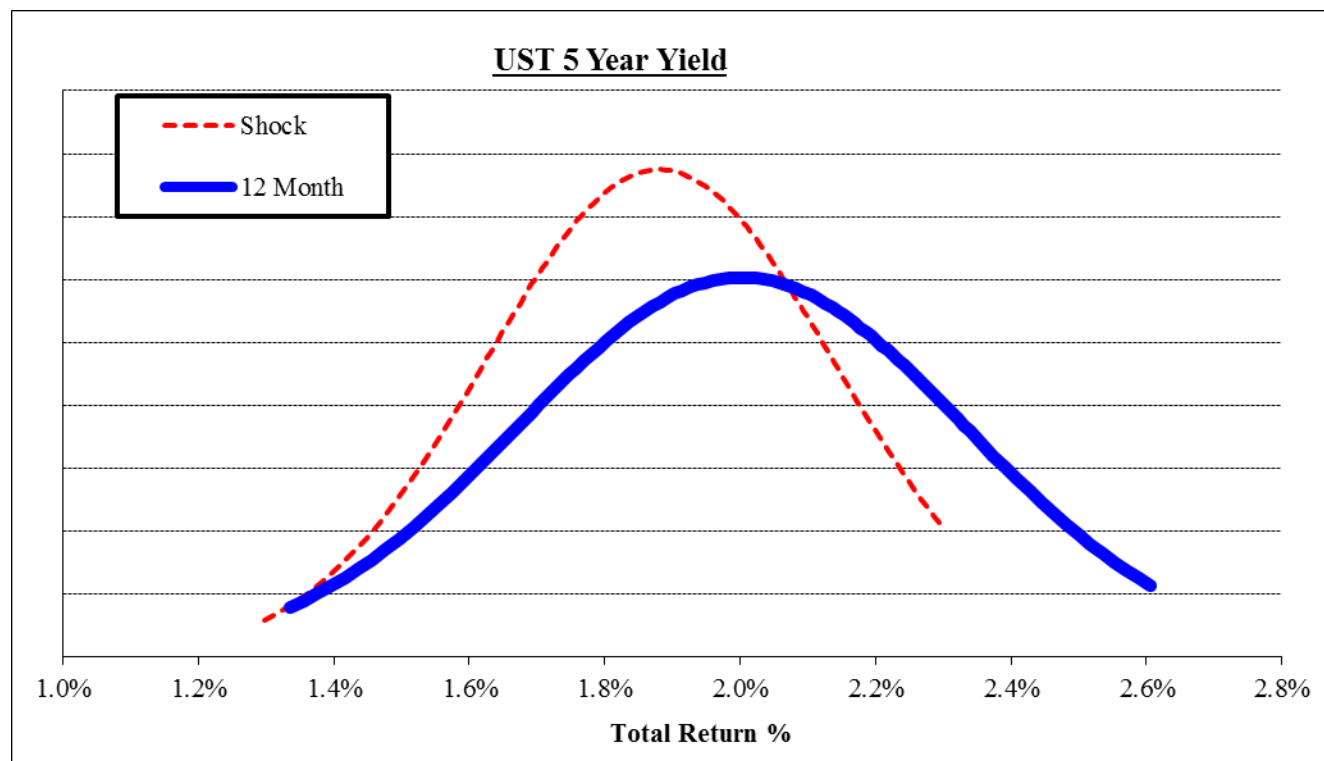
We do not fancy ourselves as economists. I suppose time will tell. It is with a degree of trepidation that we even venture a guess.

Recognizing that 1930 was a very different environment than today, Keynes' description of the "magneto trouble" seems relevant to today's economy given the difficulty in generating true, organic economic growth over the last several years. Could the solution be as simple as Trump's contract with the American Worker? Lower taxes, increased fiscal spending, lower regulation, and re-negotiated trade deals – kick-starting the long dormant US economy? Is it that simple? Or will this be another period of false hope for the broader economy dooming the world to realize that deflationary pressures are unavoidable?

Practical Purpose of this discussion: Regardless of the longer term answer to that question, financial markets are voting right now on this topic with implications across all types of asset classes – the US Treasury market most definitively included. It is with this practical reality in mind that we attempt to frame our “range of possible outcomes” for what the economy is actually going to do over the next 12 months.

Scenario Analysis – US Treasury Market: What if Trump provides the spark for true organic growth?

Utilizing that general framework of economic growth and inflationary expectations, we consider the near term implications of a two week “shock” to the financial system and the longer term implications over the coming 12 months for the US Treasury market. Below, we attempt to frame the implications for Fed policy and the shape of the US Treasury curve while describing our thinking behind the extreme scenarios below:



UST Market

Updated: 20-Jan-2017

	Current	Shock Scenarios					1 Year Forward Scenarios				
		0%	15%	60%	85%	100%	0%	15%	60%	85%	100%
UST: Yield %		Best	← Worst					Best	← Worst		
Fed Funds Rate	0.75%	1.00%	0.75%	0.75%	0.75%	0.50%	1.50%	1.25%	1.25%	0.75%	0.75%
GT2 Govt	1.19%	1.51%	1.38%	1.19%	0.89%	0.59%	1.90%	1.59%	1.61%	0.89%	0.59%
GT5 Govt	1.94%	2.30%	2.15%	1.99%	1.62%	1.30%	2.61%	2.34%	2.14%	1.64%	1.34%
GT10 Govt	2.47%	2.87%	2.71%	2.53%	2.12%	1.78%	3.10%	2.84%	2.66%	2.13%	1.80%
GT30 Govt	3.05%	3.47%	3.30%	3.11%	2.67%	2.29%	3.66%	3.41%	3.23%	2.65%	2.26%

Source: Bloomberg and Internal. For illustrative purposes only.

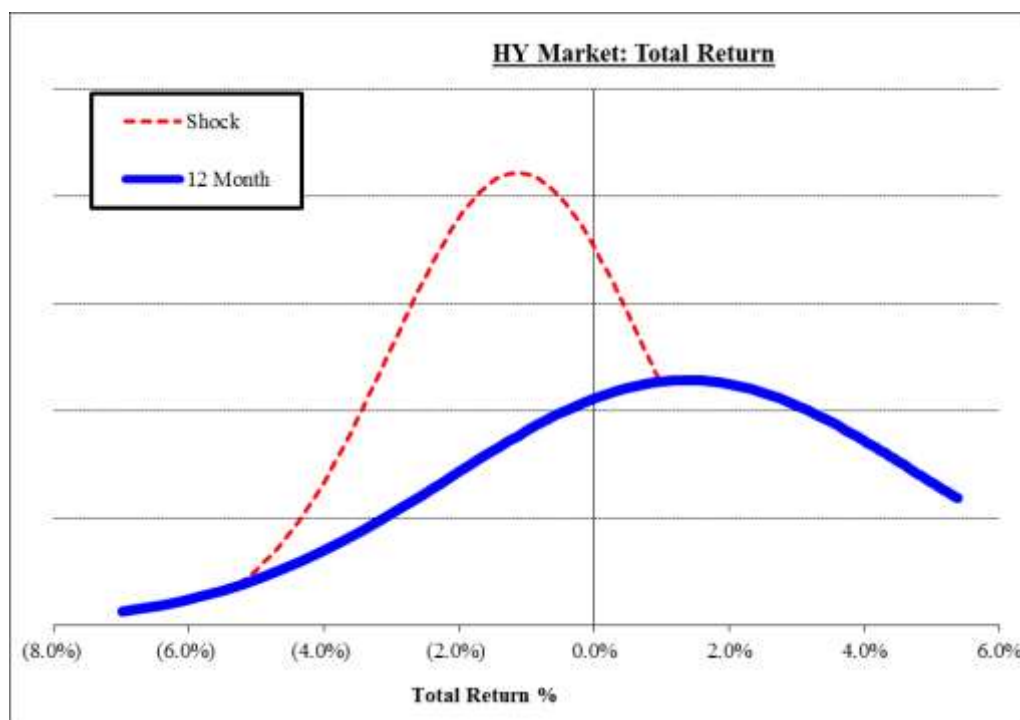
“Best” / Risk-On – US economy returns to growth: Should the US economy begin to grow, it seems logical to expect that the US Fed will feel emboldened to implement its indicated tightening path. In that scenario, we would anticipate that the US Treasury curve rises in aggregate but flattens as the back end begins to anticipate an end to the tightening cycle.

- (i) “Worst” / Risk-Off – Despite Trump’s best efforts, US economy threatens to go for a “triple dip”: True organic growth continues to prove elusive. The reflation trade that has taken place over the last few months is reversed as deflation is once again considered a possibility. Monetary policy remains accommodative and QE is re-instituted. Rates rally sharply.

MARKET INSIGHTS

Scenario Analysis - HY Market: Prospective return profile mandates a long-short approach

Continuing the analysis, below we build upon the scenarios described on the prior two pages for the broad economy and US Treasury market. Once again, we attempt to frame the range of possible outcomes for the HY market over a near term shock and 12 month period. Similarly, we describe the rationale behind our extreme scenarios below.



HY Market Scenario

Updated: 20-Jan-2017

	Current	Shock: Pricing Level					1 Year Forward: Pricing Level				
		0%	15%	60%	85%	100%	0%	15%	60%	85%	100%
		Best ← Worst					Best ← Worst				
Total Return (%)		1.0%	0.6%	0.4%	(3.5%)	(5.3%)	5.4%	4.6%	3.9%	(2.6%)	(7.0%)
Price	100.5	101.2	100.8	100.6	96.7	95.0	101.1	100.9	100.8	95.7	93.1
Yield to Worst (%)	6.5%	6.2%	6.3%	6.4%	7.6%	8.0%	6.1%	6.2%	6.3%	8.3%	9.0%
Spread to Worst (bps)	479	430	453	472	618	678	384	420	443	687	778
UST (%)	1.7%	1.9%	1.8%	1.7%	1.4%	1.2%	2.2%	2.0%	1.9%	1.4%	1.3%
Default Rate %							1.8%	2.4%	3.0%	4.4%	6.2%

Source: JPM HY Index, Bloomberg and Internal. For illustrative purposes only.

- (i) **“Best” / Risk-On – Animal spirits dominate:** The economy returns to organic growth justifying investors’ collective risk-on investment strategy. Defaults are non-existent. US Treasury rates back up as the Fed removes policy accommodation. Spreads tighten but not enough to fully offset the back up in rates. BB / B underperform CCC’s as credit curves flatten dramatically. HY fails to earn its yield despite the tightening spreads. Given this “upside” scenario, the prospective return profile is not particularly exciting. With a high likelihood of interim volatility, we do not believe this payout profile justifies a long-carry strategy.
- (ii) **“Worst” / Risk-Off – Violent Repricing of Risk:** The economy rolls over as the longstanding structural problems prove difficult to solve. Fed policy is on hold and QE is likely reinstituted or at least “stayed”. Credit fundamentals once again deteriorate resulting in rising defaults across the HY market. Risk premiums spike. While US Treasury risk is no longer a concern, HY makes the painful transition from a quasi-spread product, back to a yield product and in many cases, a price driven product.

Scenario Analysis: Ratings Class Distributions – BB / B vs. CCC

Expanding the analysis to the various ratings buckets, it should not be surprising given our commentary in the preceding sections, that the BB's and B's offer relatively paltry prospective returns in the “upside” scenario. Given the prospect of rising rates and more limited spread tightening, BB's and B's are unlikely to earn their yield.

As previously described, we continue to see opportunities within the CCC investment while fully recognizing that these investments require a tremendous amount of fundamental credit work – creating opportunity and peril simultaneously.



HY Market Scenarios

Updated: 20-Jan-2017

Shock Scenarios

1 Year Forward Scenarios

	Current	0%	15%	60%	85%	100%	0%	15%	60%	85%	100%
		Best ← Worst					Best ← Worst				
BB											
Total Return (%)		0.6%	0.5%	0.3%	(2.6%)	(3.4%)	4.6%	4.4%	4.1%	(0.9%)	(2.9%)
Price	103.7	104.1	104.0	103.8	100.8	100.0	103.2	103.2	103.2	99.0	97.5
Yield to Worst (%)	4.8%	4.7%	4.8%	4.8%	5.7%	5.9%	4.6%	4.7%	4.7%	6.2%	6.6%
Spread to Worst (bps)	308	261	283	299	410	458	227	254	273	454	520
UST (%)	1.8%	2.1%	1.9%	1.8%	1.6%	1.3%	2.3%	2.1%	2.0%	1.6%	1.4%
Default Rate %							0.7%	1.1%	1.7%	2.9%	3.9%
B											
Total Return (%)		0.7%	0.5%	0.4%	(3.4%)	(5.1%)	5.0%	4.7%	4.5%	(1.7%)	(6.1%)
Price	102.5	102.9	102.7	102.6	98.7	97.0	102.1	102.1	102.2	96.7	93.9
Yield to Worst (%)	6.1%	5.9%	6.0%	6.1%	7.3%	7.7%	5.7%	5.9%	6.0%	8.0%	8.7%
Spread to Worst (bps)	450	398	421	439	571	638	357	393	410	635	733
UST (%)	1.6%	1.9%	1.8%	1.7%	1.6%	1.3%	2.2%	2.0%	1.9%	1.6%	1.4%
Default Rate %							2.0%	2.5%	3.0%	4.0%	6.5%
CCC											
Total Return (%)		2.7%	1.4%	0.5%	(6.7%)	(11.9%)	10.7%	8.6%	6.6%	(5.7%)	(15.7%)
Price	92.0	94.1	92.9	92.1	85.4	80.6	96.6	95.5	94.5	85.3	77.8
Yield to Worst (%)	11.4%	10.9%	11.2%	11.3%	13.2%	14.1%	10.7%	11.0%	11.2%	14.3%	15.9%
Spread to Worst (bps)	983	909	946	969	1,169	1,279	860	911	935	1,277	1,452
UST (%)	1.6%	1.8%	1.7%	1.6%	1.5%	1.3%	2.1%	1.9%	1.8%	1.5%	1.4%
Default Rate %							4.5%	5.8%	7.0%	10.0%	12.5%

Source: Bloomberg and Internal. For illustrative purposes only.

AUTHOR

Clinton Matter

cmatter@gweiss.com

NEW YORK OFFICE

320 Park Avenue, 20th Floor
New York, NY 10022

HARTFORD OFFICE

One State Street, 20th Floor
Hartford, CT 06103

INQUIRIES

Gillian Tullman

Director of Investor Relations
and Marketing

gtullman@gweiss.com

+1 212 390-3451

Jena Roche

Vice President, Investor Relations
and Marketing

jroche@gweiss.com

+1 212 390-3445

WEBSITE

<http://gweiss.com>

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