# Quantifying the Faustian Bargain: Visceral Need for Yield vs. Negative Convexity in the High Yield Space



August xx, 2016

<u>Don't sign the Faustian Bargain right now:</u> A patient and measured approach to current markets will ensure that investors are prepared to navigate the markets when volatility picks up again and the risk-reward is more attractive.

<u>Portfolio Construction:</u> With challenging trading liquidity, negatively convex bond pricing, low yields, tight spreads and ongoing uncertainties embedded in capital markets, we anticipate periodic bouts of market volatility in spite of the strong technical bids for yield product. As such, we believe the market warrants an increasingly cautious approach as the cost associated with a near term drawdown outweighs the prospective benefit of a longer term carry position.

Security Selection: Although we do not consider the high yield market to be attractive from a beta perspective, we believe one has the potential to generate intelligent returns over the intermediate-term horizon through the execution of a disciplined long-short strategy. We continue to identify pockets of potential opportunity in stressed, distressed and idiosyncratic situations on the long side and a number of catalyst-driven, over-valued securities on the short side. This opportunity set facing credit pickers seems most clearly evidenced by the spread differential between the B and CCC credit ratings buckets. While the "visceral need" for yield has driven spreads on BB and B-rated credits to arguably unsustainable levels, yield-chasing investors are less enthusiastic about the triple-C category. This relationship exemplifies the broader market opportunity for astute credit investors to employ a careful research driven investment process that may lead to attractive investment opportunities within the context of a long-short credit portfolio.

Implications for portfolio management – Effectively Synthesizing Security Selection and Portfolio Construction: the ability to identify interesting trades throughout the credit cycle is what should ultimately drive long-term results. Weiss' high yield strategy further depends on the ability to properly hedge market volatility so that we have the staying power to see investments through. This second leg may be especially important during times of general risk complacency, such as the case today.





# IT WON'T WORK. YOURS TRULY, FAUST

The "visceral need" for yield remains very real: With very limited alternatives across global capital markets and wide swaths of the government market hovering around or fully entrenched in negative rates, any type of yield is scrutinized and ultimately attacked as the temptation proves too strong to resist. With the Fed seemingly now on hold in the aftermath of Brexit / run-up to the US election, this search for yield will only intensify forcing investors to consider a number of rather unappealing options: (i) increasing net exposures / financial leverage while targeting returns, (ii) reaching down the credit spectrum into lower quality securities, (iii) extending their duration and (iv) buying less liquid securities.

So should investors let their guard down, embrace the need for yield and load up on carry? Coupling positive carry with mild price appreciation and some financial leverage gets you towards double digit returns rather quickly. After all, that is the path of least resistance.

Defining the Faustian Bargain: The problem with this scenario is that it is difficult to get truly excited about overall market conditions with yields well through their long term statistical averages and spreads not too far behind. While we can certainly make the argument that things are going tighter given this visceral need for yield, the margin of safety embedded in this market has narrowed significantly over the last few months while bond pricing is becoming negatively convex given the call structures embedded in the majority of HY bonds. This combination of a visceral need for yield versus a lower margin of safety / increased negative convexity as bonds transition to pure carry based instruments has come to define the Faustian Bargain that we are all so loathe to consider.

<u>Don't sign the Faustian Bargain right now:</u> Current markets require patience as we believe there will be better entry points. With challenging trading liquidity, negatively convex bond pricing, low yields, tight spreads and ongoing uncertainties embedded in capital markets, we anticipate periodic bouts of market volatility in spite of the strong technical bids for yield product. As such, we believe the market warrants an increasingly cautious approach as the cost associated with a near term drawdown outweighs the prospective benefit of a longer term carry position.



# <u>Portfolio Construction: Generating returns via idiosyncratic exposures while avoiding negative</u> convexity

At current market levels, we believe that investors should target limited / short market beta exposure with a true long-short cash bond portfolio. While we will shift our portfolio exposures incrementally in response to market levels and tactically trade our portfolio hedges in an attempt to capture the P&L associated with short term market moves, we want to avoid being forced to "call the market" while making big shifts in overall exposures.

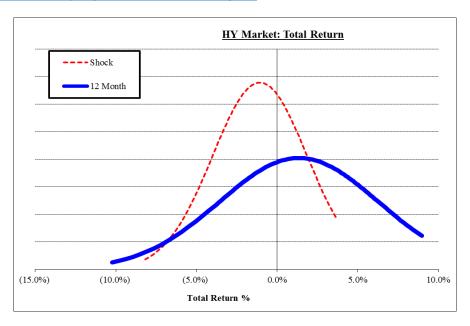
As such, we believe investors should structure their portfolios with (i) limited / net short market beta, (ii) primary focus on idiosyncratic long positions, (iii) focus on shorts with longer duration, negative convexity due to callability / extension risk, intermediate coupons and a degree of operating leverage, (iv) opportunistic hedging with volatility based products (i.e. VIX or equity put options). This market requires a nimble approach and a high degree of mental flexibility. With modest net yield on the portfolio, we believe investors have the potential to incrementally alter their exposures in response to market levels while allowing credit judgments to be the primary driver of returns over the longer term.

#### Security Selection: Still a Credit Picker's Market

Although we do not consider the high yield market to be attractive from a beta perspective, we are not conceding the opportunity to generate intelligent returns over the intermediate-term horizon. To the contrary, we continue to find pockets of potential opportunity in stressed, distressed and idiosyncratic situations. While the broad market opportunity is difficult to get really excited about, we continue to see opportunities in individual securities on both the long and the short side of the portfolio. Given our reluctance to fully embrace the market at these levels, focusing our collective efforts on identifying and capitalizing upon single name opportunities on both the long and short side makes logical sense. In doing so, we believe we have the potential to generate intelligent returns on behalf of our investors without exposing them to a step-function change in market risk premiums.



# Scenario Analysis: Quantifying the Faustian Bargain



|                                    |         | Shock: Pricing | Level |       |          |         | 1 Year Forward | d: Pricing Level |                 |                |                |
|------------------------------------|---------|----------------|-------|-------|----------|---------|----------------|------------------|-----------------|----------------|----------------|
| Market Index                       | Current | 0%             | 15%   | 60%   | 85%      | 100%    | 0%             | 15%              | 60%             | 85%            | 100%           |
|                                    |         | Best           | 4     |       | <b>—</b> | Worst   | Best           | 4                |                 | <b>→</b> 7     | Vorst          |
| Rates                              |         |                |       |       |          |         |                |                  |                 |                |                |
| Fed Funds Rate                     | 0.5%    | 0.8%           | 0.5%  | 0.5%  | 0.5%     | 0.3%    | 1.3%           | 1.0%             | 0.8%            | 0.5%           | 0.3%           |
| GT10 Govt                          | 1.5%    | 1.9%           | 1.7%  | 1.5%  | 1.3%     | 1.1%    | 2.1%           | 1.8%             | 1.6%            | 1.3%           | 1.2%           |
| HY Cash Index                      |         |                |       |       |          |         |                |                  |                 |                |                |
| Total Return (%)                   |         | 3.8%           | 1.7%  | 0.5%  | (4.1%)   | (8.3%)  | 9.1%           | 6.3%             | 4.0%            | (3.9%)         | (10.4%)        |
| Yield to Worst (%)                 | 7.2%    | 6.3%           | 6.9%  | 7.1%  | 8.3%     | 9.2%    | 6.0%           | 6.7%             | 7.1%            | 9.1%           | 10.4%          |
| Spread to Worst (bps)              | 615     | 499            | 568   | 606   | 737      | 846     | 434            | 531              | 592             | 817            | 957            |
| HY Cash Index - Ex Energy & Metals |         |                |       |       |          |         |                |                  |                 |                |                |
| Total Return (%)                   |         | 3.5%           | 1.6%  | 0.7%  | (3.6%)   | (7.4%)  | 8.9%           | 6.5%             | 4.9%            | (2.6%)         | (8.0%)         |
| Yield to Worst (%)                 | 6.7%    | 5.8%           | 6.3%  | 6.6%  | 7.7%     | 8.5%    | 5.5%           | 6.1%             | 6.4%            | 8.4%           | 9.5%           |
| Spread to Worst (bps)              | 563     | 443            | 511   | 547   | 674      | 769     | 388            | 474              | 519             | 747            | 866            |
| SPX Index                          |         |                |       |       |          |         |                |                  |                 |                |                |
| Price                              | 2,170   | 2,300          | 2,241 | 2,181 | 2,011    | 1,919   | 2,496          | 2,344            | 2,257           | 2,027          | 1,831          |
| Total Return (%)                   | ,       | 6.0%           | 3.3%  | 0.5%  | (7.3%)   | (11.6%) | 15.0%          | 8.0%             | 4.0%            | (6.6%)         | (15.6%)        |
| 37.1.22                            |         |                |       |       |          |         |                |                  |                 |                |                |
| <u>Volatility</u><br>VIX Index     | 12.7    | 15.0           | 13.9  | 12.7  | 23.9     | 35.0    | 15.0           | 13.8             | 12.6            | 21.3           | 30.0           |
|                                    |         |                |       |       |          |         |                | So               | urce: JPM HY Ir | ndex, Bloomber | g and Internal |

After evaluating where the markets currently stand, we can begin to evaluate where we think prices can go and what the prospective risk-reward looks like. There is a degree of humility required in any forecasting process as we fully recognize that predicting "exactly what is going to happen" is not possible. Instead, we focus on crafting a logical framework to evaluate the broad macro environment and define a range of possible outcomes for the financial markets. In doing so, we can begin to properly frame and quantify the Faustian Bargain that we have previously described.

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# **Credit Market Overview**

- Visceral Need for Yield has provided a strong technical bid for HY credit that has only intensified given the rally in global rates in the aftermath of Brexit.
- Current market levels are not particularly attractive. Yields are low well within the 1st quartile of their historical averages. Spreads are tight - they may still have some room to run as they are not yet back to post financial crisis tights but will likely be capped by low yields.
- Opportunities likely remain for an astute credit picker as spread differentials remain very
  wide and single name opportunities are available. Should the rally continue, B's will likely
  benefit as investors reach further down the credit spectrum resulting in further spread
  compression. CCC's remain an "orphaned" asset class with 15% yields.
- Recent Divergence between High Yield and HY equities is worrisome.
- Given low coupons and high dollar prices, we see limited room for further price appreciation within BB's given the negative convexity.



# **HY Cash Index: Recent Market Performance**

| Recent HY Market   | History: Credit Unwind & Recovery                        | HY_Market | _Data  | Return % |            |              |
|--------------------|----------------------------------------------------------|-----------|--------|----------|------------|--------------|
| Updated: 27-Jul-16 |                                                          | Yield     | Spread | Monthly  | Cumulative | Recovery (1) |
| <b>Month</b>       | <b>Period</b>                                            |           |        |          |            | _            |
| Jun-15             | Credit Unwind: Oil, Greece, China, EM, Fed               | 7.09%     | 562    | (1.4%)   | (1.4%)     |              |
| Jul-15             | Credit Unwind: Oil, Greece, China, EM, Fed               | 7.27%     | 590    | (0.7%)   | (2.0%)     |              |
| Aug-15             | Credit Unwind: Oil, Greece, China, EM, Fed               | 7.93%     | 650    | (2.1%)   | (4.1%)     |              |
| Sep-15             | Credit Unwind: Oil, Greece, China, EM, Fed               | 8.67%     | 733    | (2.5%)   | (6.6%)     |              |
| Oct-15             | Credit Unwind: Oil, Greece, China, EM, Fed: Relief Rally | 8.03%     | 665    | 2.8%     | (4.0%)     |              |
| Nov-15             | Credit Unwind: Oil, Fed, Liquidations                    | 8.61%     | 702    | (1.9%)   | (5.8%)     |              |
| Dec-15             | Credit Unwind: Oil, Fed, Liquidations                    | 9.43%     | 772    | (2.9%)   | (8.5%)     |              |
| Jan-16             | Credit Unwind: Oil, Fed, Liquidations                    | 9.83%     | 846    | (1.6%)   | (10.0%)    |              |
| 11-Feb-16          | Credit Unwind: Local Low                                 | 10.49%    | 924    | (3.0%)   | (12.7%)    |              |
| Feb-16             | Credit Unwind: Oil, Fed, Liquidations                    | 9.73%     | 844    | 0.4%     | (9.7%)     | 3.5%         |
| Mar-16             | Credit Unwind: Oil, Fed, Liquidations: Relief Rally      | 8.89%     | 764    | 4.6%     | (5.5%)     | 8.2%         |
| Apr-16             | Credit Unwind: Oil, Fed, Liquidations: Relief Rally      | 8.19%     | 694    | 3.6%     | (2.1%)     | 12.1%        |
| May-16             | Credit Unwind: Oil, Fed, Liquidations: Relief Rally      | 7.95%     | 664    | 0.8%     | (1.3%)     | 13.0%        |
| Jun-16             | Credit Unwind: Oil, Fed, Liquidations: Relief Rally      | 7.75%     | 676    | 1.5%     | 0.2%       | 14.7%        |
| Jul-16             | Credit Unwind: Oil, Fed, Liquidations: Relief Rally      | 7.20%     | 615    | 2.5%     | 2.7%       | 17.6%        |

<sup>(1)</sup> Recovery Returns are calculated from the market low on 11-Feb-2016.

Source: JP Morgan High Yield Index

# Two main takeaways from the tables below:

- (i) <u>From the Ashes, Rises the Phoenix:</u> The HY market recovery from the 11-Feb-2016 low has been nothing short of impressive. The HY market is up 17.5% over that period making it one of the strongest rallies in the history of the HY market.
- (ii) <u>Still just recovering from 2015 Sell-off:</u> Despite the strength of the rally over the last few months, the HY market just recently crossed back over into the black from its high water mark June-2015. That is a testament to the volatility that the market has experienced over the last several quarters.



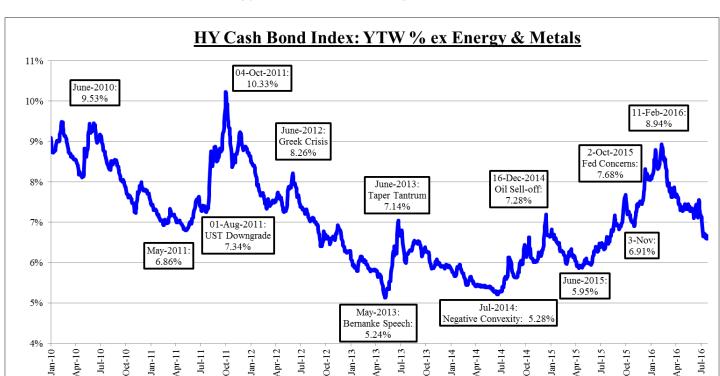
# **HY Cash Index: Performance De-Composition**

|                          |            |             |            |          |            |       |           |           |     |           | Recent | Market History |
|--------------------------|------------|-------------|------------|----------|------------|-------|-----------|-----------|-----|-----------|--------|----------------|
| JPM HY Cash Indices      | Current    |             | 2016 Low   | 7        | Change:    |       | 11-Feb-16 | 2015 High |     |           |        | 29-May-15      |
| 27-Jul-16                | YTW        | STW         | YTW        | STW      | YTW        | STW   | Return %  | YTW       | STW | YTW_Chg S | TW_Chg | Return %       |
| НҮ                       | 7.2%       | 615         | 10.5%      | 924      | (329)      | (309) | 17.6%     | 6.6%      | 529 | 65        | 86     | 2.7%           |
| HY_ex_ENER_METL          | 6.7%       | 563         | 8.9%       | 776      | (228)      | (213) |           | 5.9%      | 472 | 71        | 90     |                |
| Industry Type            |            |             |            |          |            |       |           |           |     |           |        |                |
| Cyclical                 | 6.9%       | 586         | 9.8%       | 861      | (296)      | (275) | 15.1%     | 6.4%      | 520 | 49        | 66     | 5.5%           |
| Defensive                | 6.5%       | 551         | 8.7%       | 752      | (218)      | (201) | 12.2%     | 5.9%      | 462 | 68        | 89     | 5.5%           |
| Energy                   | 9.5%       | 840         | 19.0%      | 1,754    | (946)      | (914) | 45.1%     | 8.5%      | 697 | 105       | 143    | (11.6%)        |
| Ratings                  |            |             |            |          |            |       |           |           |     |           |        |                |
| IG: AA                   | 2.6%       | 107         | 3.2%       | 160      | (63)       | (53)  | 4.6%      | 3.1%      | 112 | (51)      | (5)    | 6.2%           |
| IG: A                    | 3.0%       | 136         | 3.6%       | 186      | (61)       | (50)  | 6.0%      | 3.4%      | 134 | (44)      | 2      | 8.2%           |
| IG: BBB                  | 3.7%       | 207         | 4.8%       | 313      | (116)      | (106) | 9.6%      | 4.1%      | 202 | (46)      | 5      | 7.5%           |
| BB                       | 4.8%       | 376         | 7.4%       | 617      | (255)      | (241) | 12.7%     | 5.1%      | 372 | (32)      | 4      | 4.3%           |
| В                        | 6.8%       | 578         | 10.4%      | 931      | (365)      | (353) | 15.6%     | 6.8%      | 560 | (1)       | 18     | 0.0%           |
| CCC                      | 14.6%      | 1,356       | 21.6%      | 1,963    | (696)      | (607) | 32.0%     | 10.5%     | 938 | 408       | 418    | (1.3%)         |
| source: IP Morgan IULLUS | High Grade | e Index and | 1 IP Morga | n High Y | ield Index |       |           | ·         |     | ·         | ·      | ·              |

Two takeaways from looking a bit deeper into the decomposition of the HY Index:

- (i) <u>HY Energy Volatility is Staggering:</u> The Energy sector is up 47.4% from the lows of early February. Fully recognizing that is a very big number, the fact that the energy index is still down 10.2% from its May-2015 level is really amazing -- lending credence to the ferocity of the 2015 sell-off. It also demonstrates how painful the math is behind a big drawdown. As anybody who has lived through a drawdown can attest, being down 20% and then up 20% does not get you back to flat. While that is a very basic mathematical concept, it is useful to remember that idea as we evaluate near term drawdowns relative to prospective longer term returns below.
- (ii) <u>CCC demonstrate similar dynamic:</u> Up 32.1% from the lows but still down from last year's high water mark quite a ride. In evaluating where we stand currently, the CCC ratings class still offers 14.5% yield. Recognizing this is akin to big wave surfing (i.e. high risk, high return), with BB's at 4.8% and B's firmly inside 7%, sifting through the rubble of the CCC asset still offers the astute investor the potential for very interesting investment opportunities.





# HY Yield to Worst (%) - Ex Energy and Metals & Mining

| Yield History      |         | 1994 - Current |      |      |      |       |       |   |        | 2010 - Current |      |      |      |       |  |
|--------------------|---------|----------------|------|------|------|-------|-------|---|--------|----------------|------|------|------|-------|--|
| Updated: 27-Jul-16 | Current | % Dist         | 0%   | 25%  | 50%  | 75%   | 100%  | ſ | % Dist | 0%             | 25%  | 50%  | 75%  | 100%  |  |
|                    |         |                |      |      |      |       |       | ſ |        |                |      |      |      |       |  |
| HY                 | 7.20%   | 22%            | 5.2% | 7.5% | 8.5% | 11.4% | 20.9% |   | 50%    | 5.2%           | 6.4% | 7.2% | 8.2% | 10.5% |  |
| HY_Base            | 6.66%   | 17%            | 5.2% | 7.3% | 8.3% | 11.1% | 21.2% |   | 41%    | 5.2%           | 6.1% | 7.0% | 7.7% | 10.0% |  |
| •                  |         |                |      |      |      |       |       |   |        |                |      |      |      |       |  |

source: JP Morgan High Yield Index

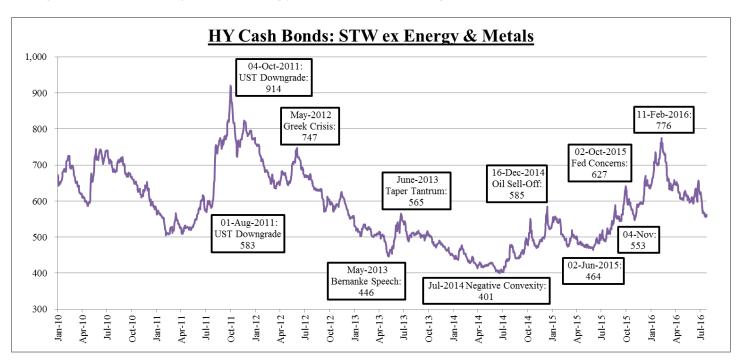
While the divergence between the energy and metals sectors is becoming less extreme given the recovery in those sectors, it is still helpful to examine the market while stripping out those particular sectors in attempt to focus our analysis on general risk premiums. We define our "Base Index" as the HY market ex Energy and Metals. A few takeaways:

(i) <u>Current Levels Very Tight on Long Term Historical Basis</u>: When looking at the longer term (i.e. 1994 - Current), with the YTW % on the HY index ex energy / metals at 6.71%, the market currently sits well within the 1st quartile of the historical range. Said in plain English, current yields are very low by historical standards. Given that spreads remain near their longer term median levels, it does not take a particularly blinding amount of insight to tell that this is largely a function of the current rate environment.



(ii) <u>Post Financial Crisis History - Not as Egregious:</u> Looking at 2010 until now (permitting an evaluation of the HY market post Financial Crisis), tells a slightly different story. With yields at 6.71% on the base index and 7.19% on the entire HY index, current market levels are near their median levels making the current environment less offensive to the naked eye.

## HY Spread to Worst (bps) - Ex Energy and Metals & Mining



| Spread History     |         | 1994 - Cu | ırrent |     |     |     |       | 2010 - Current |        |     |     |     |     |      |
|--------------------|---------|-----------|--------|-----|-----|-----|-------|----------------|--------|-----|-----|-----|-----|------|
| Updated: 27-Jul-16 | Current | % Dist    | 0%     | 25% | 50% | 75% | 100%  |                | % Dist | 0%  | 25% | 50% | 75% | 100% |
|                    |         |           |        |     |     |     |       |                |        |     |     |     |     |      |
| HY                 | 615     | 53%       | 263    | 474 | 597 | 740 | 1,925 |                | 57%    | 410 | 518 | 591 | 676 | 924  |
| HY_Base            | 563     | 45%       | 263    | 471 | 587 | 718 | 1,944 |                | 48%    | 398 | 501 | 566 | 649 | 896  |

source: JP Morgan High Yield Index

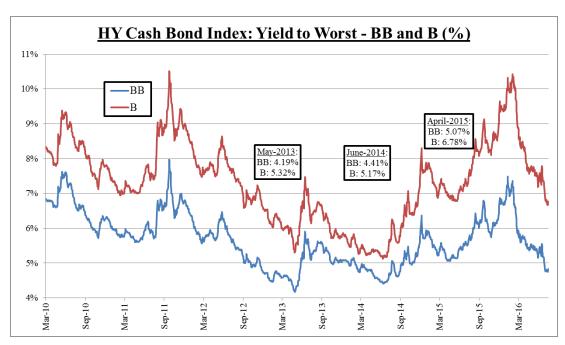
Continuing the analysis of the base index, here are a few points to consider when examining spreads:

- (i) <u>Current Levels very much in the middle of the historical range</u>: Regardless of the time frame referenced, with current spread levels of roughly 570 bps and 615 bps on the HY Base and HY index, current market levels sit very squarely in the middle of the historical range. For those looking for intellectual justification for going long and taking the carry, this measurement affords an investor a degree of cover.
- (ii) Excess Spread remain attractive given Low Default Rates: Recognizing that the Energy sector is not in the clear at this point, defaults across the HY market have been slow to materialize. Should that trend continue, excess spread (i.e. spread net of the cost associated with defaults) also remains near/wide to long term statistical averages. In a



yield starved world where investors are clamoring for income that is a compelling story that contributes to the underlying technical bid for HY credit.





|         | 1994 - Cu               | ırrent                                                                                                    |                                                                                                                                                             |                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                        | 2                                                                                                                                                                                                                                                                                | 2010 - Cu                                                                                                                                                                                                                                                                                                                                                                     | rrent                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
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| Current | % Dist                  | 0%                                                                                                        | 25%                                                                                                                                                         | 50%                                                                                                                                                                                                            | 75%                                                                                                                                                                                                                                                               | 100%                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                  | % Dist                                                                                                                                                                                                                                                                                                                                                                        | 0%                                                                                                                                                                                                                                                                                                                                                                                                                               | 25%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 50%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 75%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 100%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
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| 7.20%   | 22%                     | 5.2%                                                                                                      | 7.5%                                                                                                                                                        | 8.5%                                                                                                                                                                                                           | 11.4%                                                                                                                                                                                                                                                             | 20.9%                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                  | 50%                                                                                                                                                                                                                                                                                                                                                                           | 5.2%                                                                                                                                                                                                                                                                                                                                                                                                                             | 6.4%                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 7.2%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 8.2%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 10.5%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| 4.81%   | 9%                      | 4.2%                                                                                                      | 5.8%                                                                                                                                                        | 6.9%                                                                                                                                                                                                           | 8.6%                                                                                                                                                                                                                                                              | 14.9%                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                  | 17%                                                                                                                                                                                                                                                                                                                                                                           | 4.2%                                                                                                                                                                                                                                                                                                                                                                                                                             | 5.1%                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 5.7%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 6.2%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 8.0%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 6.77%   | 18%                     | 5.1%                                                                                                      | 7.4%                                                                                                                                                        | 8.4%                                                                                                                                                                                                           | 10.9%                                                                                                                                                                                                                                                             | 20.2%                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                  | 32%                                                                                                                                                                                                                                                                                                                                                                           | 5.1%                                                                                                                                                                                                                                                                                                                                                                                                                             | 6.5%                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 7.4%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 8.2%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 10.5%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| 14.62%  | 54%                     | 8.0%                                                                                                      | 11.6%                                                                                                                                                       | 13.3%                                                                                                                                                                                                          | 20.2%                                                                                                                                                                                                                                                             | 36.7%                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                  | 79%                                                                                                                                                                                                                                                                                                                                                                           | 8.0%                                                                                                                                                                                                                                                                                                                                                                                                                             | 10.0%                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 11.5%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 13.0%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 21.8%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|         | 7.20%<br>4.81%<br>6.77% | Current         % Dist           7.20%         22%           4.81%         9%           6.77%         18% | Current         % Dist         0%           7.20%         22%         5.2%           4.81%         9%         4.2%           6.77%         18%         5.1% | Current         % Dist         0%         25%           7.20%         22%         5.2%         7.5%           4.81%         9%         4.2%         5.8%           6.77%         18%         5.1%         7.4% | Current         % Dist         0%         25%         50%           7.20%         22%         5.2%         7.5%         8.5%           4.81%         9%         4.2%         5.8%         6.9%           6.77%         18%         5.1%         7.4%         8.4% | Current         % Dist         0%         25%         50%         75%           7.20%         22%         5.2%         7.5%         8.5%         11.4%           4.81%         9%         4.2%         5.8%         6.9%         8.6%           6.77%         18%         5.1%         7.4%         8.4%         10.9% | 7.20%         22%         5.2%         7.5%         8.5%         11.4%         20.9%           4.81%         9%         4.2%         5.8%         6.9%         8.6%         14.9%           6.77%         18%         5.1%         7.4%         8.4%         10.9%         20.2% | Current         % Dist         0%         25%         50%         75%         100%           7.20%         22%         5.2%         7.5%         8.5%         11.4%         20.9%           4.81%         9%         4.2%         5.8%         6.9%         8.6%         14.9%           6.77%         18%         5.1%         7.4%         8.4%         10.9%         20.2% | Current         % Dist         0%         25%         50%         75%         100%         % Dist           7.20%         22%         5.2%         7.5%         8.5%         11.4%         20.9%         50%           4.81%         9%         4.2%         5.8%         6.9%         8.6%         14.9%         17%           6.77%         18%         5.1%         7.4%         8.4%         10.9%         20.2%         32% | Current         % Dist         0%         25%         50%         75%         100%         % Dist         0%           7.20%         22%         5.2%         7.5%         8.5%         11.4%         20.9%         50%         5.2%           4.81%         9%         4.2%         5.8%         6.9%         8.6%         14.9%         17%         4.2%           6.77%         18%         5.1%         7.4%         8.4%         10.9%         20.2%         32%         5.1% | Current         % Dist         0%         25%         50%         75%         100%         % Dist         0%         25%           7.20%         22%         5.2%         7.5%         8.5%         11.4%         20.9%         50%         5.2%         6.4%           4.81%         9%         4.2%         5.8%         6.9%         8.6%         14.9%         17%         4.2%         5.1%           6.77%         18%         5.1%         7.4%         8.4%         10.9%         20.2%         32%         5.1%         6.5% | Current         % Dist         0%         25%         50%         75%         100%         % Dist         0%         25%         50%           7.20%         22%         5.2%         7.5%         8.5%         11.4%         20.9%         50%         5.2%         6.4%         7.2%           4.81%         9%         4.2%         5.8%         6.9%         8.6%         14.9%         17%         4.2%         5.1%         5.7%           6.77%         18%         5.1%         7.4%         8.4%         10.9%         20.2%         32%         5.1%         6.5%         7.4% | Current         % Dist         0%         25%         50%         75%         100%         % Dist         0%         25%         50%         75%           7.20%         22%         5.2%         7.5%         8.5%         11.4%         20.9%         50%         5.2%         6.4%         7.2%         8.2%           4.81%         9%         4.2%         5.8%         6.9%         8.6%         14.9%         17%         4.2%         5.1%         5.7%         6.2%           6.77%         18%         5.1%         7.4%         8.4%         10.9%         20.2%         32%         5.1%         6.5%         7.4%         8.2% |

source: JP Morgan High Yield Index

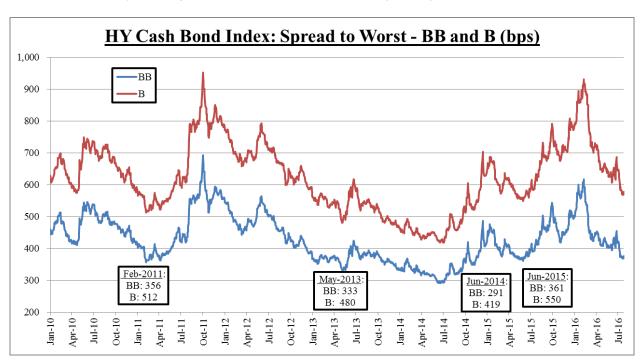
Given the rally across the energy and metals sectors (narrowing the divergence across sectors), it is once again becoming possible to analyze the market by ratings bucket without having the data entirely skewed by sector exposures. Few takeaways:

- (i) <u>BB's safe haven status</u>: With yields at 4.8%, the BB sector has benefitted from its own "safe haven" status in the HY market. There is another 50 bps to go to get to the lows in yields experienced in the pre-Taper Tantrum period. The recurrent question that we come back to -- with large swaths of the global government bond market at or near negative rates, is the market set to re-define new lows in yield the credit markets as well?
- (ii) <u>B's with more room to run:</u> Yields in the 6.75% area, may have a little more room to rally before the test the June-2014 lows but current levels are still well within the 1st quartile of longer term historical statistics.



(iii) <u>CCC's remain an orphaned asset class:</u> With yields at 14.5%, CCC's are still an unloved / under-owned / esoteric / idiosyncratic asset class.

# HY Spread to Worst by Ratings: Credit curve remains very steep



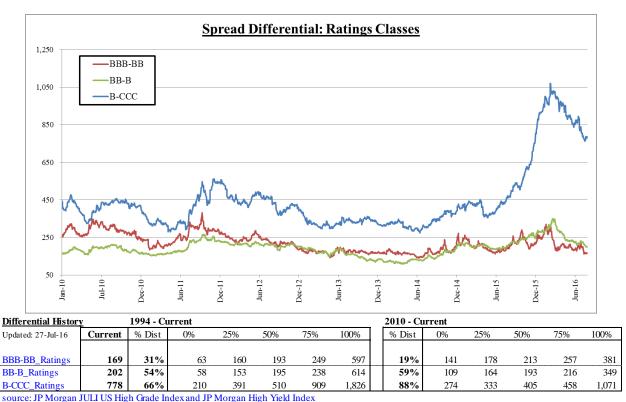
| Spread History     |         | 1994 - Cu | ırrent |     |       |       |       | 2010 - Cu | ırrent |     |       |       |       |
|--------------------|---------|-----------|--------|-----|-------|-------|-------|-----------|--------|-----|-------|-------|-------|
| Updated: 27-Jul-16 | Current | % Dist    | 0%     | 25% | 50%   | 75%   | 100%  | % Dist    | 0%     | 25% | 50%   | 75%   | 100%  |
|                    |         |           |        |     |       |       |       |           |        |     |       |       |       |
| HY                 | 615     | 53%       | 263    | 474 | 597   | 740   | 1,925 | 57%       | 410    | 518 | 591   | 676   | 924   |
| BB                 | 376     | 44%       | 173    | 320 | 394   | 472   | 1,322 | 27%       | 291    | 373 | 418   | 476   | 693   |
| В                  | 578     | 45%       | 251    | 474 | 605   | 726   | 1,866 | 37%       | 419    | 544 | 616   | 694   | 952   |
| CCC                | 1,356   | 63%       | 466    | 891 | 1,127 | 1,551 | 3,382 | <br>80%   | 697    | 875 | 1,024 | 1,169 | 1,987 |

source: JP Morgan High Yield Index

- (i) BB's spreads are likely to be governed by their yields: BB spreads remain in the 1st quartile of the Post Financial Crisis timeframe with another 80 bps to get back to their tights from last year. But with BB yields about 50 bps wide of their lows from May-2013, that is likely to be the governor on the performance of BB spreads.
- (ii) <u>Single B's spreads still have some room to run:</u> Should the rally in the credit market continue, given that the BB's have moved so dramatically, we would anticipate single B spreads to tighten further.
- (iii) <u>CCC's remain towards their wides:</u> At yields in the 15% range and UST rates near their lows, implied CCC spreads remain towards their wides of the Post-Financial Crisis period.



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# HY Spread Differentials: Next phase of any rally to be driven by further spread compression

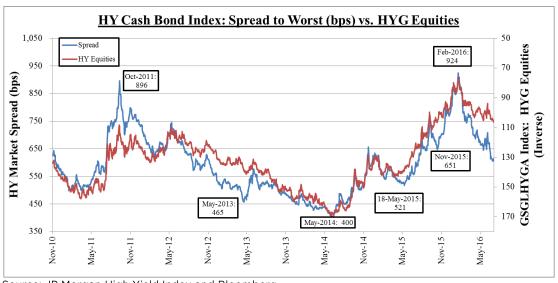
This graph depicts the spread differentials between ratings classes in the Post Financial Crisis era.

- (i) <u>BB's look rich regardless of what you are comparing them to:</u> BB's are currently in the "sweet-spot" for credit they still have another 50 bps of yield to get back to their lows, spreads have even more room and credit risk is manageable. Investors have flocked to this section of the HY market -- <u>making BB's look too tight relative to both BBB's and B's alike.</u>
- (ii) <u>Single B's likely to see further spread compression should the rally continue:</u> As is typical of any conventional rally in the credit markets, the later / last phase of the rally is focused on spread compression. Once investors ring all the spread they can out of the "safe" assets, they have no choice but to focus on less desirable assets. That focus usually incorporates (i) lower quality assets, (ii) less liquid assets or (iii) longer duration assets. In that phase of the market rally, we would expect the single B's to rally as spread compression intensifies in earnest.



(iii) <u>CCC's divergence still extreme:</u> While not at the extremes experienced earlier this February, the B-CCC spread differential remains near the Post-Financial Crisis wides. This spread differential continues to offer very real investment opportunities for astute credit investors with a flexible investment mandate.

## HY Cash Bond Index Spread to Worst vs. HYG Equities



Source: JP Morgan High Yield Index and Bloomberg

<u>This graph scares me</u>. This graph depicts the relationship between the spread on the JPM HY Cash Bond index and the inverse of the HYG Equities index. The divergence between these two indices over the last couple of months - with bonds materially outpacing stocks -- is worth noting.

- (i) Rationale for why divergence makes sense Long Yield Assets and Short Equities: In the aftermath of Brexit, one could argue that there is enough uncertainty embedded in the macro environment such that economic growth will continue to languish. This will cap where equities can rally to as additional upside will need to be predicated upon earnings growth as multiple expansion seems difficult to achieve given current levels. Simultaneously, this dynamic will likely allow the Fed and other central banks to maintain extremely accommodative monetary policy ensuring that income producing assets remain very well bid. This construct emboldening investors to reach for yield while shorting equities is what this graph is currently depicting.
- (ii) Rationale for why divergence will self-correct Short Yield Assets and Long Equities: Investors are starving for yield and paying up for it. There is a rationale for why fixed income products are more attractive than equities in the current environment but looking at this graph is very scary. Each time there has been a divergence between the debt and equity markets over the past few years (May-2013, May-2015, and Nov-2015), the equity markets "won" with the HY credit markets soon to follow. This divergence is more

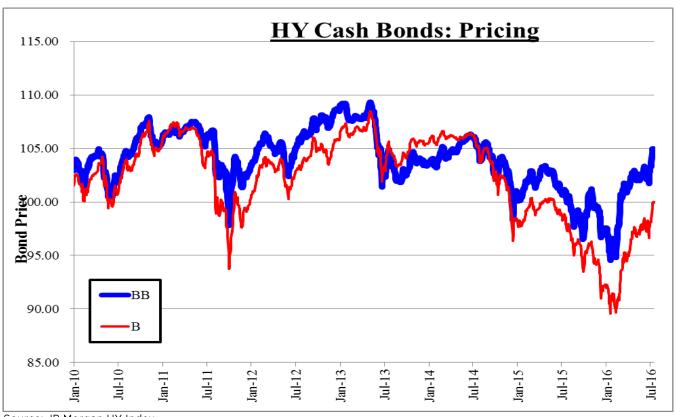


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pronounced than anything that we have seen over the last several years. So it is worth asking the question if "this time is different" while examining historical precedents.

But overall, this graph gives me real reason to pause and evaluate what current markets are telling you as it has very real implications for nearly all aspects of portfolio construction and security selection decisions.

### HY Cash Bond Index: Prices by Ratings Bucket



#### Source: JP Morgan HY Index

## BB pricing in this graph scares me.

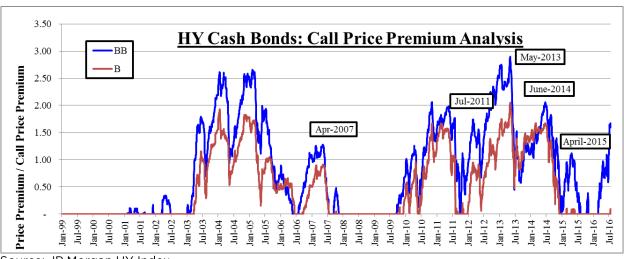
(i) BB's currently priced near \$105 - Nearing the point of being a pure carry instrument: When looking at this graph, pricing at \$105 does not look particularly egregious in historical context. BB bonds have priced and stayed above that level for relatively extended periods of time in the post Financial Crisis time period.

The problem with taking comfort in this analysis is that the underlying coupon stack has declined very materially over the last several years. Given that the call structures embedded in HY bonds are typically a function of the bond's coupon (i.e. first call price is usually 50-75% of the coupon), as coupons have systematically come down with lower UST rates, the call prices for new issue bonds in the HY market have come down commensurately. So, today's \$105 price is different than a \$105 price of year's past given the change in the underlying call structure.



(ii) <u>B's currently priced at \$100 - A little more room to run</u>: Very strong bounce in B's over the last several months - currently pricing at \$100. There are likely a couple more points in this index before it shifts entirely into a negatively convex set of carry bonds.

## HY Cash Bond Index: Call Price Premium Analysis



Source: JP Morgan HY Index

This is an extension of the last graph but scares me even more. As previously described, call prices are determined at issuance typically as a function of the bond's underlying coupon. Taking that to the logical conclusion, this analysis is focused on quantifying the negative convexity and extension embedded in the HY credit markets. We are measuring the price premium to par relative to the likely call premium (assumed to be 50% of the bond coupon). When this ratio of the price premium vs. the estimated call premium exceeds 1.0, further price appreciation becomes more limited as bonds begin to exhibit a higher degree of negative convexity as callable bonds -- i.e. carry instruments. The data series below is calculated as follows:

#### Ratio = (Market Price - 100) / (50% \* coupon)

(i) This type of environment can last for a little while but ultimately does break: As the graph below demonstrates, these conditions can last for a while but ultimately do break down as bonds don't remain at a premium in perpetuity. Given the structure, negative convexity and extension risk embedded in HY bonds trading at a premium to their call price, the market is not built to sustain itself at these levels. It is similar to trying to stay on the peak of mountain where is oxygen is sparse and conditions are tough – you can get there but can't overstay your welcome. At some point, something goes wrong and you are very quickly reminded of the old, crude adage that "carry trades eat like birds and sh\*t like elephants." With that rather unpleasant visual in mind, investors begin to ask themselves why they own a below-investment grade carry bond and levels reset in a typically violent manner. The dates highlighted in the graph below are testament to this idea.

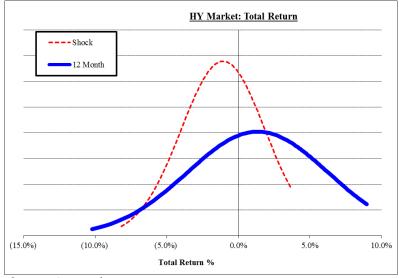


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- (ii) Why does this happen? Investing in HY bonds is not simply a risk premium exercise given the embedded call structure: While fully recognizing that the lower bounds on bond yields have been redefined over the past few months, it remains clear that it becomes mathematically more difficult for HY bonds to keep going higher when they reach certain levels. This is particularly relevant with a callable bond structure as it is no longer simply a function of risk premiums. The bonds themselves are structured in a manner that works against the buyer should "good" things happen. This is call option that HY bond owners have sold. As bonds shorten (i.e. trade to their call dates rather than their maturity date), extension risk increases and DV01's decline. Again, this caps further price appreciation as small changes in bond prices will meaningfully move the underlying yield.
- (iii) <u>BB's are vulnerable</u>: When incorporating the declining coupons into this analysis, BB's look vulnerable up at \$105. To put this into context, the current coupon on the BB index is roughly 6%. That is down by 150 bps over the last two years as companies have appropriately taken advantage of the rally in the UST curve to refinance their capital structures. When thinking about a 6% bond priced at \$105, we would expect that the 1st call price would be something in the \$103 range implying that most bonds are trading as callable securities with limited room for further capital appreciation.
- (iv) <u>B's have a little more room</u>: Given that B's are currently pricing at par, there is likely a bit more room for those to run meaning a couple more points of principal appreciation before they exhibit similar characteristics of negative convexity.



# **Scenario Analysis Overview**



Source: Internal

<u>Scenario Analysis Overview</u>: After evaluating the current state of the HY market, we can begin to evaluate where we think pricing levels can go and what the prospective risk-reward looks like. There is a degree of humility required in any forecasting process as we fully recognize that predicting "exactly what is going to happen" is not possible. Instead, we focus on crafting a logical framework to evaluate the broad macro environment and define a range of possible outcomes for the financial markets. In doing so, we can begin to properly frame and quantify the <u>Faustian Bargain</u> that we have previously described.

That Faustian Bargain is largely defined by the risk associated with a near term drawdown (i.e. shock - 10 day period) versus the prospective longer term return associated with successfully owning an income producing asset and earning a yield over a 12 month period (i.e. 12 Month). In the graph below and tables on the subsequent pages, we detail the scenarios that we use in our analysis. We define our scenarios in a confidence range from 0% (being the maximum or upside scenario) to 100% (being the minimum or extreme downside scenario). We have slightly skewed the distribution with our base case scenario representing a 60% likelihood scenario.

<u>Shock Scenarios</u>: Given the rally that the market has experienced over the last few months, the prospective distribution of returns for the near term is heavily skewed with limited upside and a large negative tail.

<u>12 Month Scenarios</u>: With the benefit of time and relatively benign default rates, we believe the HY market will benefit from "earning its carry" and create a more attractive prospective return profile.



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In the pages ahead, we lay out of the various scenarios that we have considered in framing the current market opportunity. We pay particular attention to the Upside Scenario as the global search for yield has re-defined the lower bound for fixed income yields.

## Upside Scenario: Can markets redefine the lower bound to HY?

|                                    |         | Shock: Pricing | Level        |       |         |         | 1 Year Forwar | d: Pricing Level |                 |                |                |
|------------------------------------|---------|----------------|--------------|-------|---------|---------|---------------|------------------|-----------------|----------------|----------------|
| <u>Market Index</u>                | Current | 0%             | 15%          | 60%   | 85%     | 100%    | 0%            | 15%              | 60%             | 85%            | 100%           |
|                                    |         | Best           | <del> </del> |       | <b></b> | Worst   | Best          | ←                |                 | <b>→</b> '     | Worst          |
| Rates                              |         |                |              |       |         |         |               |                  |                 |                |                |
| Fed Funds Rate                     | 0.5%    | 0.8%           | 0.5%         | 0.5%  | 0.5%    | 0.3%    | 1.3%          | 1.0%             | 0.8%            | 0.5%           | 0.3%           |
| GT10 Govt                          | 1.5%    | 1.9%           | 1.7%         | 1.5%  | 1.3%    | 1.1%    | 2.1%          | 1.8%             | 1.6%            | 1.3%           | 1.2%           |
| HY Cash Index                      |         |                |              |       |         |         |               |                  |                 |                |                |
| Total Return (%)                   |         | 3.8%           | 1.7%         | 0.5%  | (4.1%)  | (8.3%)  | 9.1%          | 6.3%             | 4.0%            | (3.9%)         | (10.4%)        |
| Yield to Worst (%)                 | 7.2%    | 6.3%           | 6.9%         | 7.1%  | 8.3%    | 9.2%    | 6.0%          | 6.7%             | 7.1%            | 9.1%           | 10.4%          |
| Spread to Worst (bps)              | 615     | 499            | 568          | 606   | 737     | 846     | 434           | 531              | 592             | 817            | 957            |
| HY Cash Index - Ex Energy & Metals |         |                |              |       |         |         |               |                  |                 |                |                |
| Total Return (%)                   |         | 3.5%           | 1.6%         | 0.7%  | (3.6%)  | (7.4%)  | 8.9%          | 6.5%             | 4.9%            | (2.6%)         | (8.0%)         |
| Yield to Worst (%)                 | 6.7%    | 5.8%           | 6.3%         | 6.6%  | 7.7%    | 8.5%    | 5.5%          | 6.1%             | 6.4%            | 8.4%           | 9.5%           |
| Spread to Worst (bps)              | 563     | 443            | 511          | 547   | 674     | 769     | 388           | 474              | 519             | 747            | 866            |
| SPX Index                          |         |                |              |       |         |         |               |                  |                 |                |                |
| Price                              | 2,170   | 2,300          | 2,241        | 2,181 | 2,011   | 1,919   | 2,496         | 2,344            | 2,257           | 2,027          | 1,831          |
| Total Return (%)                   | ,       | 6.0%           | 3.3%         | 0.5%  | (7.3%)  | (11.6%) |               | 8.0%             | 4.0%            | (6.6%)         | (15.6%)        |
| Volatility                         |         |                |              |       |         |         |               |                  |                 |                |                |
| VIX Index                          | 12.7    | 15.0           | 13.9         | 12.7  | 23.9    | 35.0    | 15.0          | 13.8             | 12.6            | 21.3           | 30.0           |
|                                    |         |                | •            | •     |         |         |               | So               | urce: JPM HY Ir | ndex, Bloomber | g and Internal |

# <u>Macro Overview: Escape Velocity Reached -- Economy takes off as organic growth materializes in earnest regardless of political headwinds</u>

Markets are happy, optimism becomes contagious and true growth takes hold. The UK / Brexit concerns recede entirely as policy makers find a way to elegantly manage the transition - likely through a mixture of support agreements, revised trade agreements and currency debasement. Lingering political concerns allow central bankers to maintain extremely accommodative monetary policy while the "doomsday" scenario and financial Armageddon become a less remote possibility, defying the conventional wisdom that there needs to be a day of reckoning to "clear the decks" and re-establish the global economy's footing on firmer ground. But over the intermediate term, as the solution is more generally accepted, there is nothing "obvious" to be concerned with allowing market reflexivity to actually kick in. This helps to ignite true animal spirits and drive true organic economic growth. Risk premiums narrow to new tights creating positive market reflexivity / virtuous feedback loop that breaks the current stalemate.

### Market Overview: Fears cast aside - Animal Spirits are unleased

With the political and macro environments improving and global central banks maintaining an extremely accommodative stance (waiting to see if the aftermath of Brexit is truly a non-event), there are no identifiable fears left in the market prompting investors to embrace their animal spirits. US rates prove reluctant to move higher given vast swaths of international markets firmly entrenched at negative yields. Credit spreads tighten meaningfully as the search for yield comes to dominate all decisions bringing global credit yields to new all-time lows, equity valuations improve and volatility continues to collapse. Bears wed to their ideological investment thesis



regarding the ultimate day of reckoning are severely squeezed as markets defy all predictions and break through to all-time highs.

Given that scenario, how do you quantify the upside? In a yield starved world, how do you define the upside? What is the lower bound for yields across the HY market? Do historical precedents matter? Are we going to break through all-time lows in yields simply because there are no alternatives? Can CDS spreads go negative? Is the Japanese bond market a good proxy for what the US market can become? Those are certainly legitimate questions to consider with no easy answers. In an attempt to frame this, we look to the past for guidance before fully committing to the idea that "this time is different."



# <u>Upside Scenario: Pre-Financial Crisis Spread Tights - Unachievable in the current market</u> construct

<u>Pre-Financial Crisis</u> spread precedents are worth examining but ultimately unlikely to repeat themselves given the structural changes in the market. Low nominal yields and more costly financing options effectively limiting financial leverage make pre-financial crisis spread tights unachievable in the current market construct.

(i) <u>Jan-1995 through Jul-1998</u>: No defaults and double digit yields: Prior to the Russian default and the collapse of LTCM, spreads across the credit market were in the 300-475 bps range for several years. Recognizing that period was different given that the HY market was far less transparent and less well developed, it was somewhat similar to current times given that investors were able to justify reaching for what they considered to be excess spread given very low default rates.

<u>The obvious difference relative to today's market</u>: During the 1995-1998 period, the HY market was yielding in the 9% - 12% range. Given that spreads were relatively tight, this was largely a function of the UST market yields (10 year UST rates were in the 5.5% - 8.0% range over that period). That is a very material difference in the prospective return for investors - making a true comparison difficult to justify.

| Pre-Financial Crisis Tights          |         | Period Distr | ibution (Ja | m-95 throu | ıgh Jul-98 | )     |
|--------------------------------------|---------|--------------|-------------|------------|------------|-------|
| 1995-1998: High Yields & No Defaults | Current | 0%           | 25%         | 50%        | 75%        | 100%  |
| Yield to Worst (%)                   | 7.2%    | 8.9%         | 9.3%        | 9.9%       | 10.3%      | 11.9% |
| Spread to Worst (bps)                | 615     | 304          | 340         | 374        | 437        | 474   |
| source: JP Morgan High Yield Index   |         |              |             |            |            |       |

(ii) <u>Jan-2005 through Jul-2007</u>: No defaults and plenty of financial engineering: The run-up to the financial crisis was another period where spreads averaged in the 300-400 bps range. Default rates were non-existent, the economy was growing and spreads continued to grind tighter and tighter as investors were able to take advantage of financial engineering (i.e. leverage) to generate returns. With yields in the 7-9% range and access to all the financial leverage that one could ask for (i.e. 7-15% equity requirements at LIBOR + 15-25 bps on B and CCC credits), investors did not need underlying spread to generate attractive total returns on behalf of their investors.

The obvious difference relative to today's market: Leaving aside the difference in the underlying UST yields, in the post-financial crisis world, there are far more stringent capital requirements / regulations designed specifically to prevent this type of financial engineering. Without this type of financial leverage, it makes it very difficult to attract capital to the HY credit markets without significantly wider underlying spreads. As such, it is very difficult to envision the market retesting those tights in spreads that we experienced routinely during this period

| Pre-Financial Crisis Tights        | Period Distr | ibution (Ja | n-05 throu | ıgh Jul-07 | )    |      |
|------------------------------------|--------------|-------------|------------|------------|------|------|
| 2005-2007: Financial Engineering   | Current      | 0%          | 25%        | 50%        | 75%  | 100% |
| Yield to Worst (%)                 | 7.2%         | 7.0%        | 7.7%       | 8.0%       | 8.3% | 8.8% |
| Spread to Worst (bps)              | 615          | 263         | 321        | 352        | 374  | 471  |
| source: JP Morgan High Yield Index |              |             |            |            |      |      |



# <u>Upside Scenario: Post-Financial Crisis Spread Tights - Can be retested but very difficult to</u> sustain

<u>Post Financial Crisis</u>: After having effectively ruled out the tights in spreads that the market experienced during the 90's and mid 2000's due to structural changes to the market, we turn our attention to a few periods in the post financial crisis world to evaluate where yields/spreads can rally towards. Those precedents for lows in yields provide short term boundaries but are very difficult to sustain for any extended period. As detailed below, each of the three periods last rather briefly and was followed by a period of violent volatility:

(i) <u>May-2013: Pre-Taper Tantrum</u>: QE / Operation Twist was in full effect. The prospect of any Fed rate hike was way off in the future, companies continued to focus on deleveraging, defaults were very low across the market and investors were grabbing for yield. Yields in the HY market got to 5.25% with spreads in the 450 bps range.

<u>Comparison to today's markets</u>: The current UST curve is much flatter than it was during that period – driven primarily by the fact that the long end of the UST curve is at materially lower yield levels currently than it was in 2013. While this is a reflection of the current views on the Fed's likely policy actions and shift in the view of forward inflationary pressures, it is also a function of a very different global rates market. As the table below indicates, international rate markets have rallied sharply over the last few years – exacerbating that "visceral need" for yield across the global markets and forcing investors to attack anything with a positive yield at this point.

What happened post this peak? Mr. Bernanke's speech before the Joint Economic Committee on May 22, 2013 where he indicated that the Fed was considering a reduction of its purchases of UST and mortgage assets - triggering the "taper tantrum" causing the HY market to sell off back towards 7% in relatively short order.

(ii) <u>June-2014</u>: <u>Negative Convexity prior to the collapse in oil prices</u>: Following the taper tantrum, risk markets stabilized and once again began to march higher. Investors once again took comfort in the idea that the Fed was likely to remain accommodative for the foreseeable future – emboldening them to reach for yield with impunity. Yields across the HY market once again got towards 5.25%. Oil and commodities were all very strong and defaults were non-existent across the HY market.

<u>Comparison to today's markets</u>: HY was roughly 200 bps inside of current levels on a yield basis. The UST curve was considerably steeper - the long end of the UST was reflecting expectations of a change in monetary policy, international rate markets were still positive and commodities had not cracked yet. Clearly, that was a very different environment from today.

What happened post this peak? With the Fed was making more noise regarding data dependent policy decisions, the USD began to march higher in anticipation of coming rate hikes. The USD strength combined with recurring questions about global economic growth weighed very heavily on the commodity complex as crude, copper, iron ore and basically all things commodity related sold off very hard. Clearly, that had a significant impact on the HY market over the last 24 months given the energy / metals & mining sector exposure.



(iii) <u>April-2015: False Dawn amidst the broader commodity sell-off</u>: The HY market rallied off a Dec-2014 bottom with a short covering squeeze across the energy sector as oil staged a mini-rally back to \$60 per bbl. That proved to be a false bottom as economic concerns, commodity weakness and low yields / tight spreads proved to be a toxic combination.

<u>Comparison to today's markets</u>: Commodities and international rates are meaningfully lower today. HY still has another 75 bps to get back to the yield levels achieved in April of last year.

What happened post this peak? Historic sell-off second only to the Financial Crisis with HY down 12.5% from the May-2015 peak to the Feb-2016 low.



# Upside Scenario: Post Financial Crisis Spread Tights - Can be retested but very difficult to sustain

| Post Financial Crisis      | Credit Marl      | cet Tights: P  | ricing Levels  |                  | Pricing Ch | ange                                    | vs. Current   |              |
|----------------------------|------------------|----------------|----------------|------------------|------------|-----------------------------------------|---------------|--------------|
|                            | <u>27-Jul-16</u> | 8-May-13       | 24-Jun-14      | 27-Apr-15        | 8-May-13   | 3                                       | 24-Jun-14     | 27-Apr-15    |
| US Rate Market             |                  |                |                |                  |            |                                         |               |              |
| Fed Funds Rate             | 0.50%            | 0.25%          | 0.25%          | 0.25%            |            | 25                                      | 25            | 25           |
| GT2 Govt                   | 0.72%            | 0.22%          | 0.46%          | 0.52%            |            | 50                                      | 26            | 20           |
| GT5 Govt<br>GT10 Govt      | 1.09%<br>1.50%   | 0.74%<br>1.77% | 1.67%<br>2.58% | 1.34%<br>1.92%   |            | 34<br>(27)                              | (58)<br>(108) | (25)<br>(42) |
| GT30 Govt                  | 2.21%            | 2.99%          | 3.40%          | 2.61%            |            | 78)                                     | (119)         | (42)         |
| G130 G0VI                  | 2.21/0           | 2.7770         | 3.40/0         | 2.0170           | <u> </u>   | (10)                                    | (11))         | (40)         |
| Credit: Cash YTW           |                  |                |                |                  |            |                                         |               |              |
| IG                         | 3.32%            | 3.44%          | 3.77%          | 3.52%            |            | (12)                                    | (45)          | (20)         |
| HY_ex_ENER_METL            | 7.20%<br>6.66%   | 5.24%<br>5.24% | 5.32%<br>5.21% | 6.54%<br>5.88%   |            | 96<br>41                                | 189<br>145    | 67<br>78     |
| HI_EX_ENER_WELL            | 0.00%            | 3.24%          | 3.2170         | 3.00%            | 1          | 41                                      | 143           | 70           |
| Credit: Cash STW           |                  |                |                |                  |            |                                         |               |              |
| IG                         | 171              | 152            | 122            | 158              |            | 19                                      | 50            | 14           |
| HY                         | 615              | 459            | 411            | 542              |            | 56                                      | 204           | 73           |
| HY_ex_ENER_METL            | 563              | 459            | 400            | 480              | I          | 04                                      | 163           | 83           |
| Credit: CDX Spread         |                  |                |                |                  |            |                                         |               |              |
| IG_CDX                     | 74               | 69             | 57             | 61               |            | 5                                       | 16            | 12           |
| HY_CDX                     | 381              | 337            | 299            | 333              |            | 44                                      | 82            | 48           |
| <u>Equities</u>            |                  |                |                |                  |            |                                         |               |              |
| SPX Index: Price           | 2,167            | 1,633          | 1,950          | 2,109            | 32.        | 7%                                      | 11.1%         | 2.7%         |
| SPX Index: P/E Ratio       | 20.2x            | 16.2x          | 17.9x          | 18.9x            |            | 3.9x                                    | 2.2x          | 1.2x         |
| Volatility                 |                  |                |                |                  |            |                                         |               |              |
| VIX Index                  | 12.8             | 12.7           | 12.1           | 13.1             |            | 0.2                                     | 0.7           | (0.3)        |
| UX2 Index                  | 17.3             | 15.1           | 14.0           | 16.5             |            | 2.2                                     | 3.3           | 0.8          |
| UX6 Index                  | 20.0             | 17.4           | 16.5           | 18.6             |            | 2.6                                     | 3.5           | 1.3          |
|                            |                  |                |                |                  |            |                                         |               |              |
| Currencies                 | 07.1             | 01.0           | 00.2           | 060              | 10         | <b>5</b> 0/                             | 20.00/        | 0.20/        |
| DXY Index<br>Euro / USD    | 97.1<br>1.11     | 81.9<br>1.32   | 80.3<br>1.36   | 96.8<br>1.09     | 18.        | *************************************** | 20.8%         | 0.3%<br>1.5% |
| Japanese Yen / USD         | 105.4            | 99.0           | 102.0          | 119.0            |            | 5%                                      | 3.4%          | (11.5%)      |
| _ supunese Ten / CBB       | 105.1            | 77.0           | 102.0          | 117.0            | 0.         | 570                                     | 3.170         | (11.570)     |
| Commodity                  |                  |                |                |                  |            |                                         |               |              |
| WTI Oil                    | 41.9             | 96.6           | 106.0          | 57.0             | (56.6      |                                         | (60.5%)       | (26.4%)      |
| Copper                     | 218.5            | 340.3          | 313.9          | 279.6            | (35.8      |                                         | (30.4%)       | (21.9%)      |
| Iron Ore                   | 58.6             | 131.9          | 93.0           | 59.1             | (55.5      | )%)                                     | (36.9%)       | (0.8%)       |
| International Rate Markets |                  |                |                |                  |            |                                         |               |              |
| Germany                    |                  |                |                |                  |            |                                         |               |              |
| 2 Year                     | (0.63%)          | 0.01%          | 0.04%          | (0.27%)          |            | (64)                                    | (66)          | (35)         |
| 10 Year                    | (0.08%)          | 1.27%          | 1.32%          | 0.16%            | (1         | 35)                                     | (140)         | (24)         |
| United Kingdom             |                  |                |                |                  |            |                                         |               |              |
| 2 Year                     | 0.13%            | 0.28%          | 0.87%          | 0.51%            | (          | (14)                                    | (74)          | (38)         |
| 10 Year                    | 0.74%            | 1.77%          | 2.73%          | 1.69%            | (1         | 03)                                     | (200)         | (95)         |
| Italy                      |                  |                |                |                  |            |                                         |               |              |
| 2 Year                     | (0.06%)          | 1.22%          | 0.61%          | 0.15%            | (1         | 28)                                     | (67)          | (20)         |
| 10 Year                    | 1.21%            | 3.83%          | 2.88%          | 1.36%            | `          | (62)                                    | (167)         | (15)         |
|                            |                  |                |                |                  |            |                                         | , ,           | , ,          |
| Japan<br>2 Vaar            | (0.37%)          | 0.11%          | 0.08%          | (0.010/.)        | ,          | 77)                                     | (45)          | (26)         |
| 2 Year<br>10 Year          | (0.30%)          | 0.11%          | 0.08%          | (0.01%)<br>0.30% |            | (47)<br>(89)                            | (45)<br>(87)  | (36)<br>(59) |
| Source: Bloomberg          | (0.3070)         | 0.37/0         | 0.5070         | 0.3070           |            | (1)                                     | (01)          | (39)         |
| Scarce. Dicomocing         |                  |                |                |                  | L          |                                         |               |              |



# Base Scenario: Grinding Higher as the Visceral Need for Yield over-powers everything else

|                                    | Shock: Pricing Level |       |       |       |         |        | 1 Year Forward: Pricing Level                |          |       |            |         |  |
|------------------------------------|----------------------|-------|-------|-------|---------|--------|----------------------------------------------|----------|-------|------------|---------|--|
| Market Index                       | Current              | 0%    | 15%   | 60%   | 85%     | 100%   | 0%                                           | 15%      | 60%   | 85%        | 100%    |  |
|                                    |                      | Best  | •     |       | <b></b> | Worst  | Best                                         | <b>←</b> |       | <b>→</b> 7 | Worst   |  |
| Rates                              |                      |       |       |       |         |        |                                              |          |       |            |         |  |
| Fed Funds Rate                     | 0.5%                 | 0.8%  | 0.5%  | 0.5%  | 0.5%    | 0.3%   | 1.3%                                         | 1.0%     | 0.8%  | 0.5%       | 0.3%    |  |
| GT10 Govt                          | 1.5%                 | 1.9%  | 1.7%  | 1.5%  | 1.3%    | 1.1%   | 2.1%                                         | 1.8%     | 1.6%  | 1.3%       | 1.2%    |  |
| HY Cash Index                      |                      |       |       |       |         |        |                                              |          |       |            |         |  |
| Total Return (%)                   |                      | 3.8%  | 1.7%  | 0.5%  | (4.1%)  | (8.3%) | 9.1%                                         | 6.3%     | 4.0%  | (3.9%)     | (10.4%) |  |
| Yield to Worst (%)                 | 7.2%                 | 6.3%  | 6.9%  | 7.1%  | 8.3%    | 9.2%   | 6.0%                                         | 6.7%     | 7.1%  | 9.1%       | 10.4%   |  |
| Spread to Worst (bps)              | 615                  | 499   | 568   | 606   | 737     | 846    | 434                                          | 531      | 592   | 817        | 957     |  |
| HY Cash Index - Ex Energy & Metals |                      |       |       |       |         |        |                                              |          |       |            |         |  |
| Total Return (%)                   |                      | 3.5%  | 1.6%  | 0.7%  | (3.6%)  | (7.4%) | 8.9%                                         | 6.5%     | 4.9%  | (2.6%)     | (8.0%)  |  |
| Yield to Worst (%)                 | 6.7%                 | 5.8%  | 6.3%  | 6.6%  | 7.7%    | 8.5%   | 5.5%                                         | 6.1%     | 6.4%  | 8.4%       | 9.5%    |  |
| Spread to Worst (bps)              | 563                  | 443   | 511   | 547   | 674     | 769    | 388                                          | 474      | 519   | 747        | 866     |  |
| SPX Index                          |                      |       |       |       |         |        |                                              |          |       |            |         |  |
| Price                              | 2,170                | 2,300 | 2,241 | 2,181 | 2,011   | 1,919  | 2,496                                        | 2,344    | 2,257 | 2,027      | 1,831   |  |
| Total Return (%)                   | ,                    | 6.0%  | 3.3%  | 0.5%  | (7.3%)  |        |                                              | 8.0%     | 4.0%  | (6.6%)     | (15.6%) |  |
| ``                                 |                      |       |       |       | ()      | (/     |                                              |          |       | ,,         | , ,     |  |
| Volatility                         |                      | 1     | 12.0  | 40.5  | 22.0    | 25.0   |                                              | 12.0     | 10.6  | 21.2       | 20.0    |  |
| VIX Index                          | 12.7                 | 15.0  | 13.9  | 12.7  | 23.9    | 35.0   | 15.0                                         | 13.8     | 12.6  | 21.3       | 30.0    |  |
|                                    |                      |       |       |       |         |        | Source: JPM HY Index, Bloomberg and Internal |          |       |            |         |  |

# Macro Overview: Moderate Economic Growth in spite of Political Headwinds and Structural Challenges

Political concerns remain but the economy continues to march along. Organic growth remains "below trend" by historical standards but positive nonetheless. The economy continues to grow at a meager, albeit positive, trajectory as underlying fundamentals prove unable to fully right themselves. The US economy leads the way forward despite currency headwinds / USD strength and uncertainty emanating from the Eurozone. The Fed's plans to raise rates are sidelined by political uncertainty following Brexit and the upcoming Presidential election. Trade volumes slow given rising nationalism but not enough to truly harm the economy. F/X volatility shifts global trade balances / competitiveness -- creating opportunity and instability simultaneously. Overall -- economy muddles along in spite of political headwinds.

# Markets Overview: Visceral need for yield proves too strong for any political, economic or structural concerns

Given the rally that the markets have experienced over the last few weeks, further upside is becoming more difficult to generate or justify but markets continue to grind higher as the "visceral need" for yield proves to be too powerful an incentive. All of the concerns regarding slow growth, political uncertainty, structural issues and low nominal yields remain fully entrenched. Overtime those concerns actually intensify as the underlying problems are fundamentally difficult to fully eradicate. But given the limited investment alternatives and true need for yield, investors simply can't resist the temptation to remain invested. Markets continue to exhibit episodic bouts of volatility but overall trend is higher. Landscape will require discipline and patience as temptation to "do something" will grow stronger with each passing day. Markets are getting to the point where negative convexity will take over fully but are likely not quite there yet.

Downside Scenario: "Reluctant Pessimism" as Uncertainty Outweighs Need for Yield



|                       |         | Shock: Price | cing Level  |       |         | 1 Year Forward: Pricing Level |        |       |       |         |         |  |
|-----------------------|---------|--------------|-------------|-------|---------|-------------------------------|--------|-------|-------|---------|---------|--|
| Market Index          | Current | 0%           | 15%         | 60%   | 85%     | 100%                          | 0%     | 15%   | 60%   | 85%     | 100%    |  |
|                       |         | Best <       | <del></del> |       | <b></b> | Worst                         | Best < |       |       | <b></b> | Worst   |  |
|                       |         |              |             |       |         |                               |        |       |       |         |         |  |
| Fed Funds Rate        | 0.5%    | 0.8%         | 0.5%        | 0.5%  | 0.5%    | 0.3%                          | 1.3%   | 1.0%  | 0.8%  | 0.5%    | 0.3%    |  |
| GT10 Govt             | 1.5%    | 1.9%         | 1.7%        | 1.5%  | 1.3%    | 1.1%                          | 2.1%   | 1.8%  | 1.6%  | 1.3%    | 1.2%    |  |
| HY Cash Index         |         |              |             |       |         |                               |        |       |       |         |         |  |
| Total Return (%)      |         | 3.8%         | 1.7%        | 0.5%  | (4.1%)  | (8.3%)                        | 9.1%   | 6.3%  | 4.0%  | (3.9%)  | (10.4%) |  |
| Yield to Worst (%)    | 7.2%    | 6.3%         | 6.9%        | 7.1%  | 8.3%    | 9.2%                          | 6.0%   | 6.7%  | 7.1%  | 9.1%    | 10.4%   |  |
| Spread to Worst (bps) | 615     | 499          | 568         | 606   | 737     | 846                           | 434    | 531   | 592   | 817     | 957     |  |
| HY Cash - Base        |         |              |             |       |         |                               |        |       |       |         |         |  |
| Total Return (%)      |         | 3.5%         | 1.6%        | 0.7%  | (3.6%)  | (7.4%)                        | 8.9%   | 6.5%  | 4.9%  | (2.6%)  | (8.0%)  |  |
| Yield to Worst (%)    | 6.7%    | 5.8%         | 6.3%        | 6.6%  | 7.7%    | 8.5%                          | 5.5%   | 6.1%  | 6.4%  | 8.4%    | 9.5%    |  |
| Spread to Worst (bps) | 563     | 443          | 511         | 547   | 674     | 769                           | 388    | 474   | 519   | 747     | 866     |  |
| SPX Index             |         |              |             |       |         |                               |        |       |       |         |         |  |
| Price                 | 2,170   | 2,300        | 2,241       | 2,181 | 2,011   | 1,919                         | 2,496  | 2,344 | 2,257 | 2,027   | 1,831   |  |
| Total Return (%)      |         | 6.0%         | 3.3%        | 0.5%  | (7.3%)  | (11.6%)                       | 15.0%  | 8.0%  | 4.0%  | (6.6%)  | (15.6%) |  |
| Volatility            |         |              |             |       |         |                               |        |       |       |         |         |  |
| VIX Index             | 12.7    | 15.0         | 13.9        | 12.7  | 23.9    | 35.0                          | 15.0   | 13.8  | 12.6  | 21.3    | 30.0    |  |
|                       | 1       |              |             |       |         |                               |        |       |       |         | ,       |  |

Source: JPM HY Index, Bloomberg and Weiss Credit Opportunities

#### Macro Overview: Political uncertainty intensifies contributing to weak economic growth

Political uncertainty intensifies leading to a further slowdown in economic growth. Weak existing organic growth exacerbated by lower global trade volumes and dampened consumer confidence. Euro weakness once again forces shift in global trade patterns intensifying focus on mercantilist export strategies. With the rest of the global central banks focused on accommodative monetary policies, the Fed continues to speak of eventual data-driven tightening bias - ultimately causing further USD strength. The F/X headwinds create slows activity for domestic US exporters - ultimately stoking concerns about upcoming earnings. Overall -- weaker economic growth, rising political uncertainty and intensifying sense of nationalism. Falls short of causing global recession but definitively casts a shadow over the global economy.

# Market Overview: "Reluctant Pessimism" -- No spectacular collapse but political concerns, slowing economy & flaws of manipulated markets too much to ignore

There is no spectacular collapse in the aftermath of Brexit but investors across a variety of markets grow tired of the uncertainty and lackluster outlook causing risk premiums to rise generally. Expect periodic waves of uncertainty followed by repeated attempts from central bankers and policy makers to offer calming reassurances. Markets avoid boiling over but uninspiring underlying fundamentals and persistent long term structural questions shift tone from one of "cautious optimism" to one of "reluctant pessimism". Uncertainty, increased volatility, contracting valuations, negative reflexivity, and higher yields, wider spreads but generally avoid true chaos as the markets grapple with political issues and generally weak tone. Markets require nimble approach and flexible investment ideology but offer considerable and recurring investment opportunities. These are treacherous and tricky markets but offer the potential for a fertile investment landscape.



#### Extreme Downside Scenario: Really that wish you did not sign that contract

|                       |         | Shock: Pric | 1 Year Forward: Pricing Level |       |        |         |        |       |       |        |         |
|-----------------------|---------|-------------|-------------------------------|-------|--------|---------|--------|-------|-------|--------|---------|
| Market Index          | Current | 0%          | 15%                           | 60%   | 85%    | 100%    | 0%     | 15%   | 60%   | 85%    | 100%    |
|                       |         | Best <      | -                             |       | -      | Worst   | Best < | -     |       | -      | Worst   |
| Fed Funds Rate        | 0.5%    | 0.8%        | 0.5%                          | 0.5%  | 0.5%   | 0.3%    | 1.3%   | 1.0%  | 0.8%  | 0.5%   | 0.3%    |
| GT10 Govt             | 1.5%    | 1.9%        | 1.7%                          | 1.5%  | 1.3%   | 1.1%    | 2.1%   | 1.8%  | 1.6%  | 1.3%   | 1.2%    |
| HY Cash Index         |         |             |                               |       |        |         |        |       |       |        |         |
| Total Return (%)      |         | 3.8%        | 1.7%                          | 0.5%  | (4.1%) | (8.3%)  | 9.1%   | 6.3%  | 4.0%  | (3.9%) | (10.4%) |
| Yield to Worst (%)    | 7.2%    | 6.3%        | 6.9%                          | 7.1%  | 8.3%   | 9.2%    | 6.0%   | 6.7%  | 7.1%  | 9.1%   | 10.4%   |
| Spread to Worst (bps) | 615     | 499         | 568                           | 606   | 737    | 846     | 434    | 531   | 592   | 817    | 957     |
| HY Cash - Base        |         |             |                               |       |        |         |        |       |       |        |         |
| Total Return (%)      |         | 3.5%        | 1.6%                          | 0.7%  | (3.6%) | (7.4%)  | 8.9%   | 6.5%  | 4.9%  | (2.6%) | (8.0%)  |
| Yield to Worst (%)    | 6.7%    | 5.8%        | 6.3%                          | 6.6%  | 7.7%   | 8.5%    | 5.5%   | 6.1%  | 6.4%  | 8.4%   | 9.5%    |
| Spread to Worst (bps) | 563     | 443         | 511                           | 547   | 674    | 769     | 388    | 474   | 519   | 747    | 866     |
| SPX Index             |         |             |                               |       |        |         |        |       |       |        |         |
| Price                 | 2,170   | 2,300       | 2,241                         | 2,181 | 2,011  | 1,919   | 2,496  | 2,344 | 2,257 | 2,027  | 1,831   |
| Total Return (%)      |         | 6.0%        | 3.3%                          | 0.5%  | (7.3%) | (11.6%) | 15.0%  | 8.0%  | 4.0%  | (6.6%) | (15.6%) |
| Volatility            |         |             |                               |       |        |         |        |       |       |        |         |
| VIX Index             | 12.7    | 15.0        | 13.9                          | 12.7  | 23.9   | 35.0    | 15.0   | 13.8  | 12.6  | 21.3   | 30.0    |
| ·                     |         |             |                               |       |        |         |        |       |       |        |         |

Source: JPM HY Index, Bloomberg and Weiss Credit Opportunities

# Macro Overview: Political Uncertainty boils over creating economic gridlock, weakness, volatility and self-reinforcing chaos

Global growth remains weak and uninspired despite global central banks efforts to kick-start the economy. Limited organic growth, trade protectionism and F/X mercantilism continue to weigh on the longer term structural stability of the economy threatening to slow international trade --creating a negative feedback loop towards more protectionism, FX devaluations and political populism. Weak global growth is compounded by intensifying uncertainty emanating from Europe. While the initial response to Brexit was a non-event, its formal implementation leads to "natural accidents" given the interconnected, complex nature of the EU. Follow-on political uprisings lead to structural deterioration of the EU and the euro. Central banks globally attempt coordinated effort to stimulate the economy to no avail as lower rates simply exacerbate the underlying structural problems.

## Market Overview: Political chaos and economic weakness drives extreme market volatility

With the US and global economy heading for recession and the EU in disarray, focus on yield generation shifts very quickly towards capital preservation. After a few of months of benign headlines following the initial Brexit referendum, the process to extricate Britain from the EU is implemented. Initial concerns that market had largely dismissed as too draconian prove accurate as implementation process is cumbersome and messy. With the political landscape in disarray, other countries begin to evaluate their own exit option further destabilizing the EU. Combining the political uncertainty with a weak macro backdrop drives market volatility to spike as it drives corporate earnings lower and default risk higher. Risk premiums rise meaningfully. Market reflexivity turns decidedly negative creating a feedback loop that proves extremely difficult to break - unmasking further imbalances that prove to be "unknown unknowns". USD reigns supreme, UST rates rally sharply, commodities sell off once again, credit spreads gap wider



particularly in leveraged high yields credit and equities sell-off hard. Expect considerable central bank intervention in the wake of market volatility but need to be on the right side of the initial trade.



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