High Yield Strategy

Quantifying HY Risk Premiums

27 October 2017

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United States

Environment supports further spread tightening

A 340bps US HY spread today is only a few basis points away from its post-GFC cyclical tights, and yet it still has about 90bps to go to reach all-time lows. The last time we were at these spread levels, in June 2014, the bullish market sentiment was neutralized by oil succumbing to a 1.5yr bear market. Yet here we are, almost two and half years later and back at it again, albeit with a couple of meaningful differences: our all-in yield is still 50bps inside of its mid-2014 lows (YTW scale, 5.37% today vs 4.85% back then), and the dollar price is now just under 102, compared to 106 in June 2014. HY has also become a shorter duration (-0.3yrs) and lower coupon (-75bps) asset class.

We think conditions are in place to see HY spreads continue to grind tighter from here, with a target of 290bps on the ICE BofAML US HY index scale (H0A0). We do not take this sub-300bps forecast lightly as we realize that many things need to go right for it to materialize, and any one of them going wrong could easily upset it. With the Fed targeting 2-3 hikes and increasing roll-offs from its balance sheet, as well as the ECB announcing a 50% reduction in purchases in 2018, investor concerns about a potential turn in the tide of central bank liquidity appear well founded.

Despite this backdrop, we find enough reasons to stay constructive on US HY. Driven by three major risk factors—credit, liquidity, and rates—the HY risk premium is responding to each with a different level of sensitivity. Credit risk dominates our asset class, naturally, and we find it to be responsible for 60% of variation in HY spreads over time, followed by liquidity risk at 28%, and rates risk at only 12%. We are therefore generally predisposed to play down interest rate risk concerns as they relate to the HY market, although this is not to say that we do not share any.

While sensitivity to rates is low over long-term time horizons, it can occasionally jump to meaningful levels. Thus, we cannot rule out a repricing of HY spreads wider at some point in the coming months, and in fact we list a poorly coordinated unwind of central bank policies as the single most important risk to credit valuations going forward. And yet, the knowledge of the historically loose connection between HY spreads and interest rates makes us view this risk as playing only a temporary role, even if it should materialize.

We have recently outlined our views on the credit cycle, which we find to have some room to develop despite its senior age and stretched headline leverage metrics. Our default forecast calls for a 2.3% US HY issuer rate one year from now, or a full percentage point below its current realized level. This input makes a key impact on our thinking about HY spreads going forward.

And finally, we devote a fair amount of time to discussing drivers of liquidity risk premiums in this report, zeroing in on indicators such as the stock of QE purchases (and not the flow), bank equities, real rates, fund flows, and the yield curve as the key liquidity factors in HY. Our analysis suggests that HY liquidity premiums could compress another 50bps from here, contributing to our constructive view on overall HY spreads.

Table of Contents

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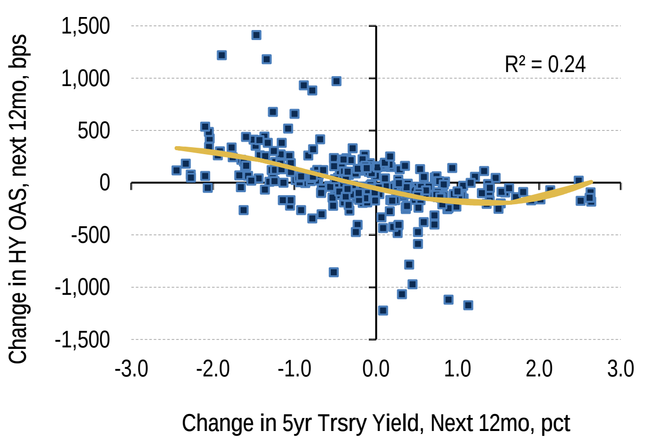
Quantifying HY risk premiums

We have recently outlined our views on the credit cycle, which we find to be mature, but also unusually slow in terms of both debt accumulation and earnings growth. Broad measures of corporate debt leverage look elevated but also continue to reflect influence of special factors, such as the weakness in energy sector fundamentals and unrepatriated overseas earnings. We furthermore hold the view that the current cyclical clock has been set back, at least partially, by the commodity default wave of 2015-2016. Combined, all these observations lead us to believe that this credit cycle has more room to develop over the next year or two. Our HY default rate model provides further support to this view as it points to a 2.3% default rate in a year from now, or a full percentage point below currently observed levels.

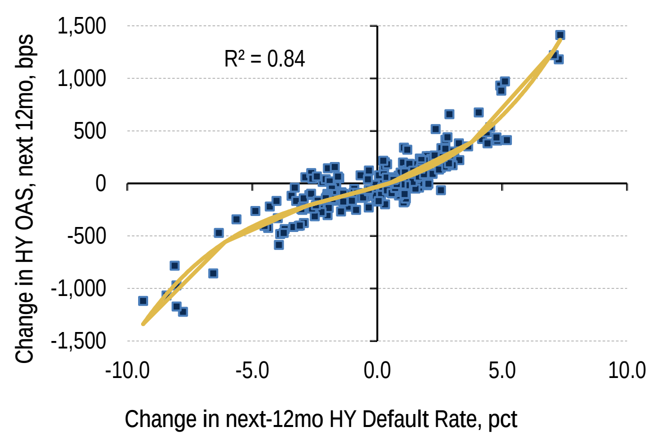
With this view on the credit cycle in mind, how do we judge HY valuations at current levels? We think of HY spread as compensation for the rate, credit, and liquidity risks, and so our analysis of its value originates from these three vantage points. These risks are not equal in their impact on HY valuations, nor are they equally easy to measure. For example, we can unequivocally define and measure rate risk as the beta of changes in HY OAS vs changes in the 5yr Treasury yields (Figure 1). We can also define credit risk by changes in expected default rates, and measure HY OAS sensitivity against it (Figure 2). This definition is somewhat loose as it purposefully ignores downgrade risk, which is correlated with, and thus probably reflected in, HY OAS beta vs defaults. Liquidity, on the other hand, is a type of risk that is more difficult to define or measure, especially over the long-term horizons such as the one we are constraining ourselves to. As such, we think of liquidity risk as the residual after accounting for the rate and credit risk.

Figure 1: Change in HY OAS vs change in 5yr treasury yield



Source: BofA Merrill Lynch Global Research

Figure 2: Change in HY OAS vs change in expected default rate



Source: BofA Merrill Lynch Global Research

Notice how the rate and credit risks are also vastly different in their impact on HY valuations, with the former showing a relatively low 24% r^2 and a hardly distinguishable beta, while the latter delivers a tight 84% r^2 fit and a steep beta. When we attempt to aggregate all three risks in a single regression with changes in HY spreads as the dependent variable, we get t-stats of 6x for rates, 29x for credit, and 14x for liquidity[1] as measured monthly since 1993. This implies that over the past 24 years, the HY risk premiums were driven by 60% credit, 28% liquidity, and 12% rates. Over the past decade, those proportions also averaged 60%, 30%, and 10% respectively. In other words, we generally do not lose sleep over concerns about interest rates.

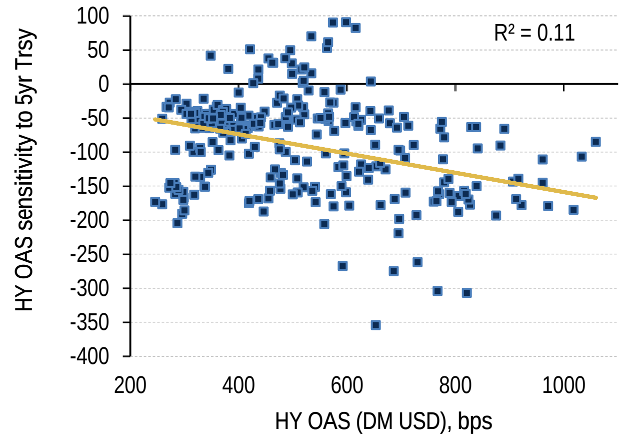
Of course these risk weightings are not necessarily static over time; there were periods of time in the past when HY was driven predominantly by one or two of these risks

[1] We use a measure of residual HY liquidity premium after accounting for credit risk in this exercise. This measure is described in-depth on the following pages.

irrespective of their longer-term nature. For example, rates were the top investor concern during the taper tantrum in June 2013, when HY OAS widened over 100bps into a 100bps increase in 5yr Treasury yields. Similarly, liquidity risk arguably made a disproportionate contribution in December 2015, following a shutdown of a small distressed fund and ensuing concerns about outflows from mainstream HY funds. However, regardless of their temporary ranking on the list of investor concerns, it probably makes sense to keep the longer-term perspective in mind.

We think this point is particularly important to remember as we are facing the likely turn in global central bank monetary policies in the coming months and quarters, and as investors need to assess the potential impact of this change to their portfolios. The rate risk, as dominant as it may seem at the moment, is simply not the key driving force of the HY market. And while HY OAS sensitivity to rates becomes stronger at tighter spread levels, it has not turned consistently positive in the past (i.e. spreads generally have not widened into higher rates, except for temporary selloffs similar to the taper tantrum experience). Figure 3 shows HY OAS sensitivity to rates plotted against absolute spread levels.

Figure 3: Spread sensitivity to rates (y-axis) vs actual sprd levels (x-axis)



Source: BofA Merrill Lynch Global Research

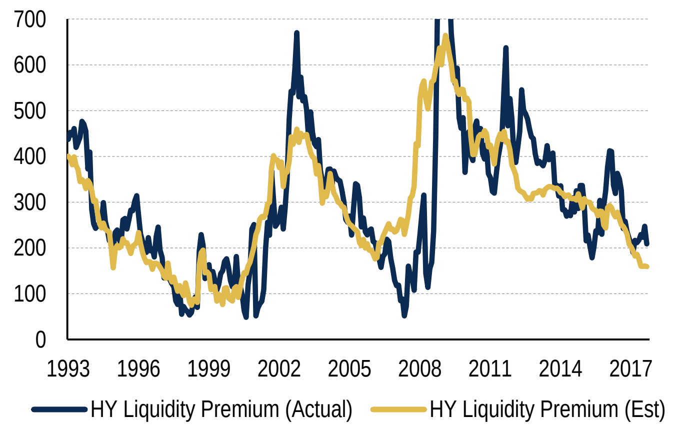
Perhaps this time could be different, although we generally do not find enough reasons to think rates pose an outsized risk here. BofAML rates strategists are forecasting a 45bps increase in US 5yr and a 50bps increase in US 10yr Treasury yields over the next 12mo from here, a forecast we find to be in line with our thinking. Based on the loose relationship between HY spreads and 5yr yields, the former could tighten about 10-15bps from here based on the rates component alone, although a sharper near-term move could easily push HY OAS temporarily wider.

Shifting gears away from rates, our analysis imposes a simple requirement for HY OAS to always cover the *expected* credit loss, which is a product of our own default rate forecast (2.3% for the next 12 months) and expected distance to recovery (we assume 40% average recovery rate). We thus focus our efforts on explaining the ***liquidity premium (LP)***, which we define as the difference between HY OAS and its expected credit loss over the next twelve months (blue line in interactive Figure 4). By moving away from actual realized next-12mo credit loss (standard practice) towards an expected one, we avoid the shortcoming of having to make historical judgments based on observations that were not available at the time. The model-driven estimated credit loss we use for this analysis ensures that both past and future measurements of liquidity premiums are driven by the same transparent and replicable set of factors.

HY LPs reached their tights just prior to a cyclical turn in defaults (late 1990-ies, 2007), averaging just around 100bps at those lows. We note that given our 2.3% default rate forecast, we are looking at roughly 130bps in expected credit losses (assuming 40% recovery), which translates into 210bps of HY LP based on current 340bps of HY OAS. And while the historical average for this measure is around 300bps, we would expect the LP to be well below average in today's environment. To better formulate our view on how much lower LPs should be today, we turn this conversation to a description of factors that we believe could be driving liquidity conditions.

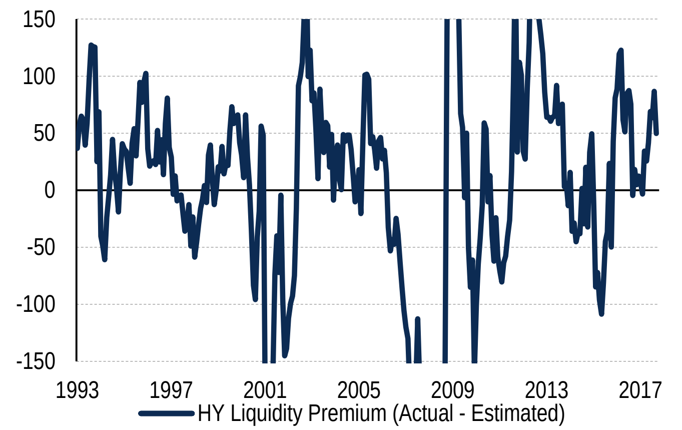
We have made a choice to use the *next-12mo average* HY LP as our target for two reasons: (1) it smoothes out unnecessary noise in the original dataset; and (2) makes the measure more compatible to the next-12mo default rate, which effectively is a product of all months from 0 to 12, as opposed to a measurement of a closing date on a single month that happens to be a year away.

Figure 4: HY liquidity premium, actual versus estimate (interactive)



Source: BofA Merrill Lynch Global Research

Figure 5: Liquidity premium, actual - estimate (interactive)



Source: BofA Merrill Lynch Global Research

We identified the following set of measures as having the strongest power to explain variation in HY LPs:

- **Bank equities:** defined here as a ratio of the S&P500 Banks index (S5BANKX) to its recent peak level. The rationale here is that when banks come under significant pressure, their willingness to extend balance sheet in support of market making activities declines, thus reducing market liquidity and increasing liquidity premiums. The t-stat of this measure vs next-12mo average HY LP is -7.6x, implying an inverse relationship between the two.

- **Stock of QE:** defined as the size of combined balance sheets between the Fed, the ECB, and the BOJ, as a percent of the Bloomberg Global Agg index (ticker: LEGAMVU). The rational for including this factor in today's environment requires no explanation, and its t-stat measured -8.9x, the strongest across all indicators we looked at. We also examined net purchases (flows) as opposed to balances (stock) of QE and they appeared to be a less reliable contributor. This point has far-reaching potential consequences, which we discuss later in this report in the section titled Risks to liquidity premium.

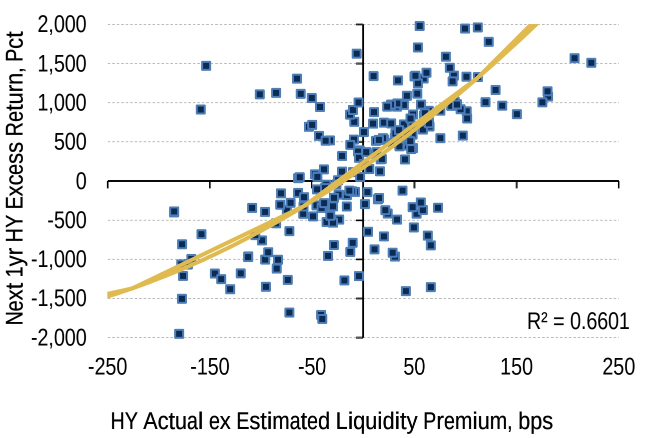
- **Real rates:** the difference between the 2yr nominal Treasury yield and core CPI. Interestingly, our inclination to use nominal ex TIPs breakevens was overruled by the fact that this seemingly more backward-looking indicator has shown a stronger fit against HY LPs, so we are just going with what data tells us. The t-stat is a meaningful -7.7x, suggesting an inverse relationship. This may come as a surprise to some of our readers, as it did to us. The rational here appears to be that higher positive real rates tend to reflect a Fed trying to cool down a potentially overheating economy, and excessively low risk premiums.

- **Fund flows:** defined as a long-term average flow into HY/loan funds and expressed as a percentage of assets, this indicator's presence in estimating liquidity premiums requires no rationalization. It features a t-stat of -7.7x, implying a strong inverse relationship to LPs.

- **Yield curve:** in its standard 2/10yr Treasury form, this measure produces a respectable +6.7x t-stat impact on HY liquidity premiums, with flatter curves implying tighter LPs. If the yield curve is viewed as a representation of term premium in the Treasury market, then its relationship to other measures of risk premiums is naturally expected to be positive.

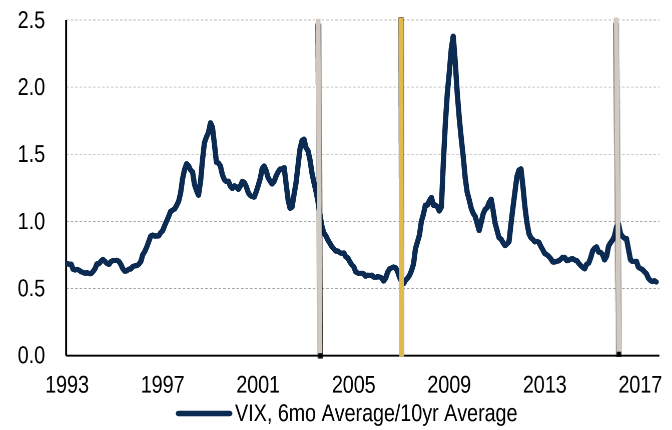
The yellow line in Figure 4 represents an estimated value of the next-12mo average HY liquidity premium based on factors described above, and Figure 5 goes on to show the differential between the actual observed LP and this estimated value. The current estimate for average HY liquidity premiums over the next 12mo is 160bps, compared to its actual observed present day value of 210bps. This leaves us with about 50bps of expected overall HY spread tightening from here and results in a DM USD HY OAS target of 290bps. This target implies that the HY market could be on its way to setting the new tights for this credit cycle which would be 45bps inside of the previous post-crisis low established in mid-2014. Finally, a 290bps HY OAS would be 40bps away from previous all-time tights of 250bps established in both mid-2007 and late 1997.

Figure 6: Actual less estimated LP vs next 12mo excess return



Source: BofA Merrill Lynch Global Research

Figure 7: VIX, 6 month average / 10 year average



Source: BofA Merrill Lynch Global Research

Estimated values of HY LPs have also proven to show a strong relationship to subsequent realized excess returns in HY, as demonstrated by the scatterplot in Figure 6. The horizontal axis here is the value of actual less estimated HY LP, and the vertical is the next-12mo excess return measured monthly since Jan 1996. The relationship between the two shows a 66% r^2 and implies a potential for further positive excess returns from here given the +50bps actual ex estimated LP value.

Could we revisit previous record tights?

We do not take a sub-300bps HY spread forecast lightly. Many things need to go right for this projection to materialize and any one of them going wrong could upset it. And yet when we look at the macro environment as it exists today, we can't help but think we are in this rare goldilocks scenario which could deliver such an unusual outcome. In a recent interview, Michael Milken described the current market environment as the "golden age for private equity"[2]. He went on to qualify this description by pointing out the ease at which issuers can presently get leverage in the market and borrow without covenants, allowing PE firms to achieve very unusual rates of return at times of low yields and tight spreads.

[2] See Bloomberg News, a story by Steve Dickenson, "Michael Milken Says Private Equity's 'Golden Age' Will Continue", September 14, 2017.

As we listened to that interview, we caught ourselves thinking how long it has been since we last heard someone in a similar position of authority and respect in our market describe it in these words. It has been about ten years or so, if memory serves us well.

And so this is where we think the market finds itself today: as open and as supportive of credit risk, as it was in the last couple of years of the previous credit cycle. With many new deals coming as oversubscribed and priced at the tight end, we think the "golden age" description of today's capital markets feels appropriate. Taken a step further, if one defines a default trigger not as a fundamental balance sheet issue but instead as mostly a liquidity event (in which a weak issuer is finally cut off from its ability to refinance or close a negative cash flow hole by issuing new debt), then in our opinion today's environment presents little opportunity to see many defaults materialize. It is not that there are not enough overlevered balance sheets out there, but rather that the market is willing to provide leverage and do so on issuers' terms.

A two-handle HY spread goes against our consciousness as long-term investors, and our best judgment of long-term value, and yet it appears appropriate in the context of the one year forecasting horizon. In fact, a question we have heard on a number of occasions recently is if the market is so accommodative, volatility remains low, and defaults continue to be rare, what is it going to take for us to retest all-time tights? It is going to take time.

This view has a precedent in the last cycle, where it took three-plus years after the volatility collapse in late 2003 for us to reach the tights in spreads in early 2007 (see the distance between grey and yellow vertical lines in Figure 7). It has been almost two years since the last time we had a major spike in volatility in late 2015/early 2016; thus, we think time is still on our side.

Risks to liquidity premium

We have previously identified the following broader risks to our constructive view on the credit cycle: (1) an unexpected and meaningful rise in inflation, forcing the hand of the central banks to withdraw liquidity faster; (2) some form of contagion developing from the isolated pockets of the market that are presently in distress; and (3) a geopolitical accident. These three risks, or their close derivatives, have the capacity to turn around the entire argument as it relates to the credit cycle and defaults. Without question, they would also have an impact on HY liquidity premiums. In this report, we want to focus on risks exclusive to LPs, however, and those could be somewhat different, albeit still broadly related to the ones described above.

Specifically, we are referring to a faster than expected wind-down of central bank liquidity, but differentiating between reasons behind it. Our concern with implications for the cycle as a whole originates in a substantive inflation surprise that persists over a sustained period, forcing market consensus and central banks to reassess their longer-term neutral rate projections and/or expectations for policy accommodation.

However even in a scenario with no meaningful inflation surprises and no reassessments of a neutral policy stance, we could potentially face a set of circumstances where well-intended and properly telegraphed tightening by one central bank overlaps with a similar action by another. This could produce an unintentional correlated unwind of liquidity, where consequences of their combined actions could be greater than the sum of their parts. Consider the following scenario: the Fed proceeds with its 2-3 rate hikes from here and ramps up its balance sheet run-offs to $50bn/month, while at the same time the ECB halves its purchases to €30bn/month and signals a potential for suspension of purchases later in 2018. In addition, the BOJ drops its yield-curve targeting policy and freezes its balance sheet at current levels. The net effect of these announcements would be only a modest monthly contraction in their combined balance sheets, and yet the market reaction could be exacerbated by the realization that this is the first time since at least early 2013 that we would see the aggregate stock of their holdings contract.

A temporary spike in rates/equity volatility in this scenario could easily reprice HY LPs closer to their historical averages (300bps), before dust settles and the argument for intrinsic value at those levels becomes strong. And so while the longer-term case for the credit cycle as a whole—and HY as an instrument to play it—would remain intact, its near-term performance could temporarily suffer under such a scenario. In the end, it is important to keep in mind the risk factor weightings we described earlier in this report and demonstrated in Figure 1 and Figure 2. Rates have rarely been a sustained risk factor driving HY valuations in the past, and we think they are unlikely to become one in the future.

Another reason why we believe that an unintended correlated tightening by two or more global central banks would likely make only a temporary dent in HY performance is the history of recent central bank actions. In years since the global financial crisis, every time their actions caused a meaningful spike in volatility—as was the case with the ill-timed ECB rate hike in 2011, the taper tantrum announcement in 2013, and the overly optimistic dot plot in late 2015—it was the central banks in question who stepped back from their announced policy path. Perhaps the change in the Fed's leadership brings about a change in this response function, we just don't know yet. Even if it does, however, it would probably not be tested in the early stages of the new chairperson's tenure, meaning it would likely not be a 2018 story. And with the ECB/BOJ leaderships unchanged, few surprises are likely to originate in Frankfurt or Tokyo.

As we mentioned earlier, it is the stock of QE holdings and not the pace of their net purchases that has shown a greater propensity to explain the variation in HY LPs over time. For this reason we believe that the market will eventually get over an unavoidable negative surprise when the day comes to realize that the three major central banks are no longer net buyers of assets for the first time in years. Instead, we believe the market will shift its focus to the $14tn balance sheet that these three central banks have accumulated. At $50bn/mo combined, for example, it would take them more than 8 years to reduce the balance sheet to just $10tn, let alone normalize it fully.

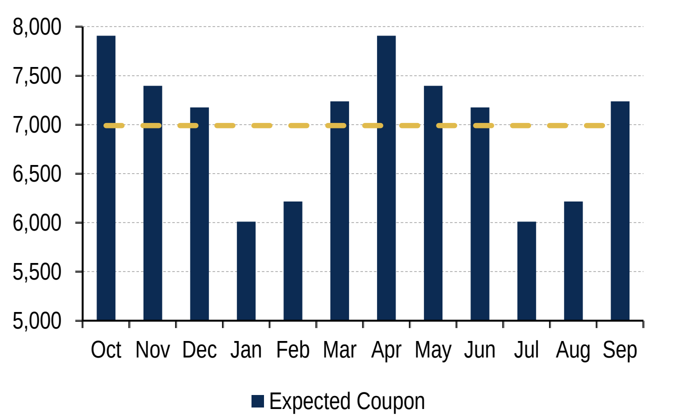
A relationship we have determined between the QE balance sheet size and the liquidity premiums in HY suggests that for every $1tn of balance sheet reduction our LPs could reprice by 40bps wider, all else being equal. Even when combined net run-offs reach $50bn/mo, it would take another 1.5 years to reduce the aggregate QE balance sheet by $1tn.

Credit pulse

With an expected $7.9bn cash expected to be generated from high yield coupons during October, this month is projected to have the highest coupon cash inflow on record over the next twelve months (Figure 8). This, combined with recent inflows into the asset class, has given high yield fund managers significant excess dry powder to re-invest and supported a strong technical backdrop for HY. Spreads have declined to a 3+ year low of just 338bp and are now within 3bps of their post-crisis tights set in June 2014.

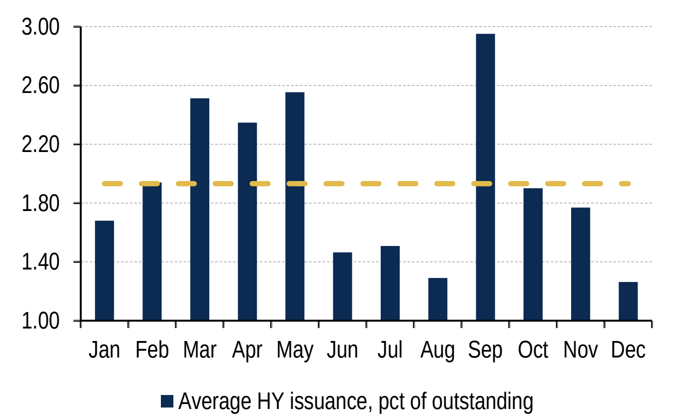
This spread compression has caused the proportion of bonds trading to call to increase significantly- 59.6% today versus 45% at the start of 2017 and the recent low of just 20% during the February 2016 episode. The proportion of bonds trading to call now rivals that of the all-time high set in late 2013/early 2014. However, because the average years to maturity has consistently declined since this time, effective duration and convexity have both plummeted to levels well below what they were 4 years ago (Figure 11, Figure 12, and Figure 13), presenting extension risk and limited upside potential to prices should spreads continue to decline. Moving forward, based on current constituents we expect November to also be an above average coupon month, despite roughly $500mn less cash coming in compared to October. And because the new issue pipeline tends to slow down during the final 2 months of the year (Figure 9), in our opinion HY fund managers will continue to see excess cash accumulation in the near term.

Figure 8: Oct and Nov expected to be above average coupon months



Source: BofA Merrill Lynch Global Research, ICE BofAML indices

Figure 9: While Nov and Dec tend to see below average supply volumes



Source: BofA Merrill Lynch Global Research

With spreads now matching their post-crisis tights experienced in June 2014, we find it appropriate to compare and contrast the two environments as they relate to the high yield market. As mentioned above, spreads and the proportion of bonds trading to call are roughly equal –335bps and 60% in both periods, respectively. Additionally, the overall size of the HY market has not changed significantly, declining just 1% to $1.30tn today.

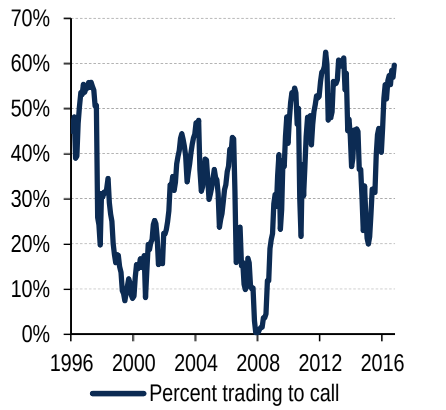
However, the similarities mostly stop there. Because intermediate term treasuries have risen, the average YTW is 50bps wide to its post-crisis tights. Similarly, although prices are above par today, they are still 4pts lower than their 2014 levels, during which time there were few opportunities for further price gains. With the Fed having hiked 4 times and a 5th hike expected later this year, the treasury curve has also flattened, by 130bps to a 10 year low of just 85bps today. Finally, it is not just the fixed income markets that have changed but the equity markets as well. Thanks to $9 EPS growth and nearly 4 points in multiple expansion, the S&P 500

Figure 10: Comparison: Today vs June 2014

	Today	June 2014
Face value ($mn)	1,300	1,310
Avg Coupon	6.44	7.12
OAS (bps)	338	335
YTW (pct)	5.37	4.85
Price	101.94	105.96
Years to maturity	6.24	6.68
Pct trading to call	59.6%	61.2%
Eff. Duration	3.81	4.11
Eff. Convexity	-0.29	-0.10
SPX	2,565	1,950
SPX P/E ratio	21.81	18.05
5yr Tsy	2.08	1.70
10yr Tsy	2.46	2.62
2s10s (bps)	85	214

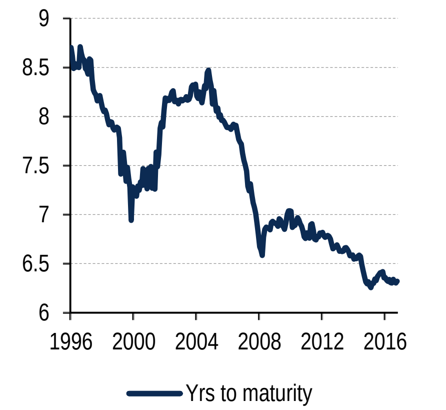
Source: Bloomberg, ICE BofAML Indices, BofA Merrill lynch Global Research has surged 32% since June 2014 to an all-time high of 2,565 in today's market.

Figure 11: The pct trading to call has increased (interactive)



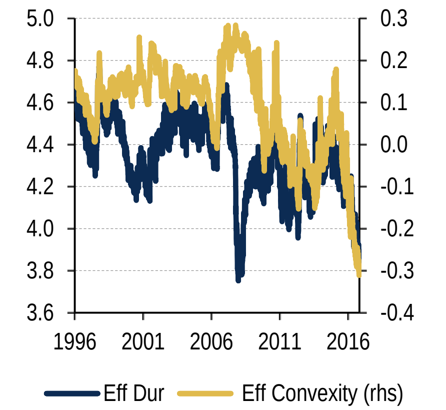
Source: BofA Merrill Lynch Global Research

Figure 12: While avg yrs to maturity has declined (interactive)



Source: BofA Merrill Lynch Global Research

Figure 13: Leading to all-time low duration and convexity (interactive)



Source: BofA Merrill Lynch Global Research

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