Macro Keys
Credit Illiquidity: Structural Faultlines

Global Macro Strategy

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Ownership structure of credit

While current ownership of corporate bonds is largely concentrated among foreign investors, insurance companies, and mutual funds, it is important to look at changes in ownership for gauging if liquidity has improved or deteriorated since the financial crisis. Mutual funds have devoured much of the net new issuance in credit markets since the crisis, increasing $1.4tn since March 2009 while total debt outstanding has only increased $1.2tn. Yes, mutual funds have helped to finance the entirety of new issuance since the financial crisis, while adding positions from banks and hedge funds who have lowered their allocations.

Will liquidity be worse ever or not during the next cycle?

The current ownership structure suggests liquidity premiums will be worse than before in an "average" risk-off event. And, IF we experience 2008-type selling, liquidity premiums could in theory be worse than 2008. Why? The market is in less steady hands. US mutual funds, foreign investors and ETFs were major sellers of corporate bonds during the financial crisis. In contrast, the investors that supported credit markets in 2008 (hedge fund and P/E investors) have been fleeing the credit space.

A high risk of significant outflows and sustained liquidity premiums

Our downside estimate for US high-yield spreads in this cycle is 1,640bps based on record default rates of 14.2% and an excess spread of 600bps. However, there could be upside risks to our excess spread estimate. First, there is a strong link between liquidity risk and credit risk, and measures of credit risk today are very elevated. Second, there are already signs of near record-levels of corporate bond illiquidity in the marketplace. And third, over 50% of high yield is held by funds with more significant redemption risk. Conversely, high grade spreads will not come close to breaching last cycle's wides of 600bp. Spreads could surpass the high 200bp range seen during the early 2000 recession, but the last cycle was unique in that high grade suffered disproportionately due to the large concentration in bank debt.

Widening gap between cash and synthetic spreads

The differential between high-yield cash bond spreads and synthetic CDX high-yield spreads is now 265bps, the highest level since September 2008. Mutual funds have resorted to selling CDS contracts (i.e., going long credit) in the face of significant fund flow volatility and unpredictable liquidity needs. This phenomenon demonstrates that liquidity risk, not credit risk, is a primary concern in the market. It also illustrates the potential for a nasty, albeit temporal mark-to-market event in an extreme risk-off event. For cross-asset investors, this point is crucial: 700bps of credit spread for high yield cash bond indices today protects you less against credit risk than it did in 1999 or 2007 given the large proportion of compensation related to liquidity rather than fundamental risks.

Credit Illiquidity: Structural Faultlines

Corporate credit illiquidity remains a perennial topic in our client meetings with credit and macro accounts. But it remains a difficult subject to pin down. While most investors acknowledge that today's fears over illiquidity are justified, grasping the impact is quite nebulous. Many, including us in the past[1,2], have taken the road of analyzing trends in bid-ask spreads, dealer inventories, and trading volumes to form a mosaic about the deteriorating nature of illiquidity in the marketplace.

Less have focused on the problem from a foundational point of view. **Is today's ownership structure of credit strong enough to withstand the next recession? Or will it lead major outflows that cause credit spreads to gap wider than many expect? Our view is unfortunately tilting toward the latter camp for several reasons.**

• The ownership of credit has trended for years to US mutual funds and others most likely to flee the credit when risk surges.

• Deteriorating credit quality raises the prospect of future outflows when significant defaults and fallen angels hit credit investors.

• Current gaps between cash spreads and synthetic spreads highlight stress already: Be aware that 700bps of credit spread in high yield cash bonds today protects you less against credit risk than it did in 1999 or 2007 (as a significant proportion of this spread is related to illiquidity risk).

• The problem is particularly acute for speculative grade credit. We estimate that over 50% of high-yield bonds and 35% of leveraged loans are held by mutual funds and commingled funds with substantial "first mover" redemption risk.

Everything points in our view to liquidity premiums and ultimately credit spreads reaching lofty heights again during the next downturn, potentially equalling or even surpassing the 2008 levels seen in US high-yield. Macro and credit investors must take note. The future downside for credit is worse than it appears.

First, a conceptual point on liquidity premium and credit spreads. The credit spread quoted in the market is really a combination of two risk factors. First, investors receive compensation for loss-related risks, due to expected default rates and recoveries. Second, investors receive compensation for non-loss related risks ("excess spread"), due to liquidity premiums, mark to market volatility, uncertainty over recovery rates and other factors. It is the latter form of risk we will focus on in this piece, though in reality the two are inextricably linked. As one can see below, the excess spread makes up a significant portion of the US high-yield spread at any point in time. And structurally we observe an increase in excess spreads through prior cycles, ascribing some of this phenomenon to the extraordinarily low level of short term interest rates[3].

Further, it is evident that the excess spread escalates during severe episodes of credit stress in the throes of a recession. The excess spread for US high-yield in 2008 reached 1,000bps as the financial system ground to a halt and major outflows were experienced. This was a major contributor to the fact that overall

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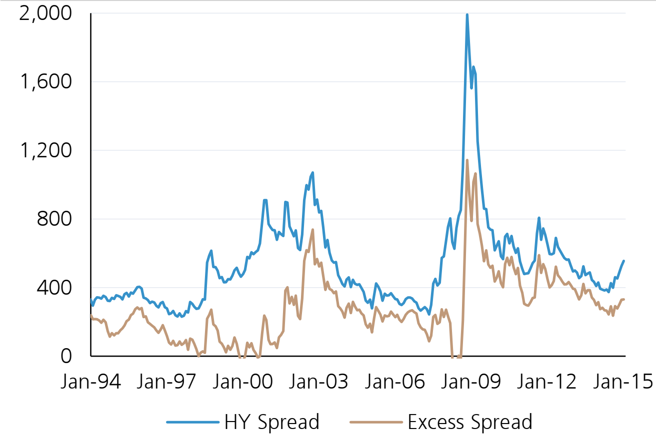
[1] A Primer on Corporate Bond Liquidity, M. Mish, 23-Oct-2014
[2] Visualizing Corporate Bond Liquidity: Risks Rising?, M. Mish, 28-Jan-2015
[3] US high yield: quantifying the downside risk in this cycle, M. Mish, 16-Mar-2016

high-yield spreads hit nearly 2,000bps. In high-grade, nearly 100% of the spread is theoretically considered excess, since the prospect for defaults is rare[4]. But here as well, you can see the severe impact of non-loss related risks, even for high-quality firms.

Figure 1: US high yield spreads vs. 'excess spreads' (bp)



Excess spreads are spreads after adjusting for realized losses (assuming perfect foresight). Source: UBS, Yieldbook, Moody's

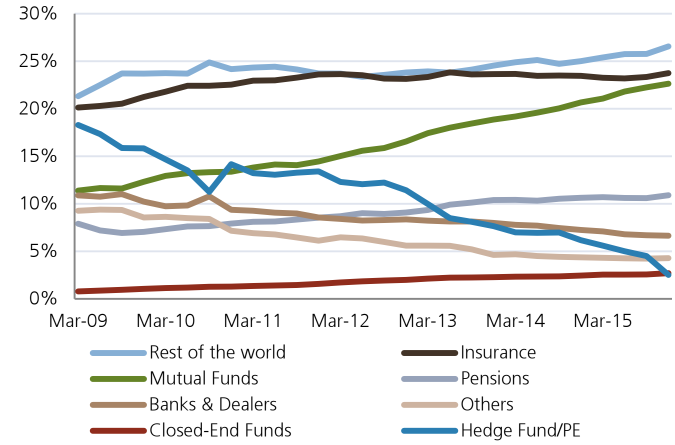
Figure 2: US High-Grade Spreads

Source: UBS, Yieldbook

To help us gauge where excess spreads could run this cycle, we analyze the current ownership holdings of credit. Figures 3 and 4 below highlight this as reported by the Federal Reserve Flow of Funds[5]. While current ownership of corporate bonds is largely concentrated among foreign investors (27%), insurance companies (24%), and mutual funds (23%), it is important to look at changes in ownership for gauging if liquidity has improved or deteriorated since the financial crisis. As one can see, mutual funds have devoured much of the net new issuance in credit markets since the crisis. **In dollar terms, the point is driven home. Mutual fund holdings have increased $1.4tn since March 2009, while total corporate debt outstanding has only increased $1.2tn**. Yes, mutual funds have helped to finance the entirety of new issuance since the financial crisis, while adding positions from banks and hedge funds who have lowered their allocations.

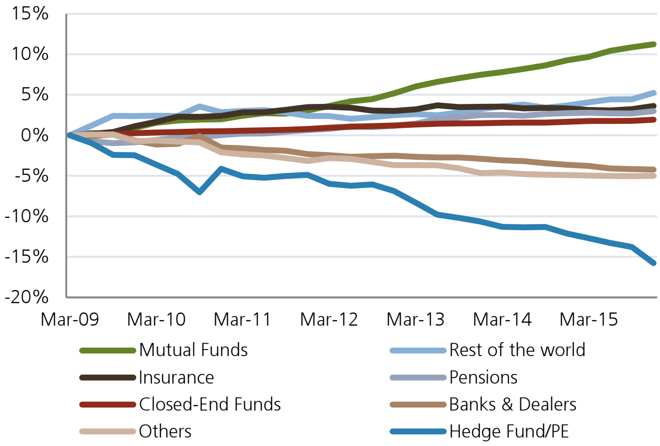
[4] Fallen angels are the parallel risk in that many high grade portfolios have restrictions on holding high yield securities. The risk is they are forced to sell at wider spreads and crystallize mark-to-market losses, rather than losses given default per se.
[5] Table L.213, Corporate and Foreign Bonds

Figure 3: % Ownership of US Credit



Source: UBS, Federal Reserve Flow of Funds

Figure 4: Cumulative % Change in Ownership since Mar 2009



Source: UBS, Federal Reserve Flow of Funds

But how do we know if this means liquidity will be worse or not during the next downturn? To make a reasonable guess, we conduct an empirical exercise. We isolate the worst quarterly high-yield total returns on record since 1990 to gauge major episodes of credit risk[6]. We then calculate the % buying/selling activity of these holders depicted in Figure 3. Finally, we construct a liquidity metric by applying the weights of each holder at points in time to their average behavior (i.e. buying/selling) during credit risk events. Hence, our liquidity measure will be worst (i.e. most negative) when the largest holders of credit are those who sell the most when times get tough.

The results are far from comforting (Figures 5&6). Today's ownership structure suggests liquidity premiums will be worse than before in an "average" risk-off event". And if we experience 2008-type selling, liquidity premiums would be worse than 2008. Conceptually one should think of the Y-axis below as the amount of net corporate bond issuance that would occur, given the holders of credit at a point in time. Our analysis suggests that issuance will be weaker than expected during an "average recession", and would contract significantly in a 2008 style scenario. This would propagate the feedback loop where a major rise in credit risk caused by any multitude of factors leads to credit outflows, which feeds back into further credit risk and outflows.

[6] We precisely look at the bottom 10th percentile of quarterly HY returns, or all quarters where total returns were less than -3%

Figure 5: Liquidity Gauge: Credit inflow/outflow assuming "average" credit risk event

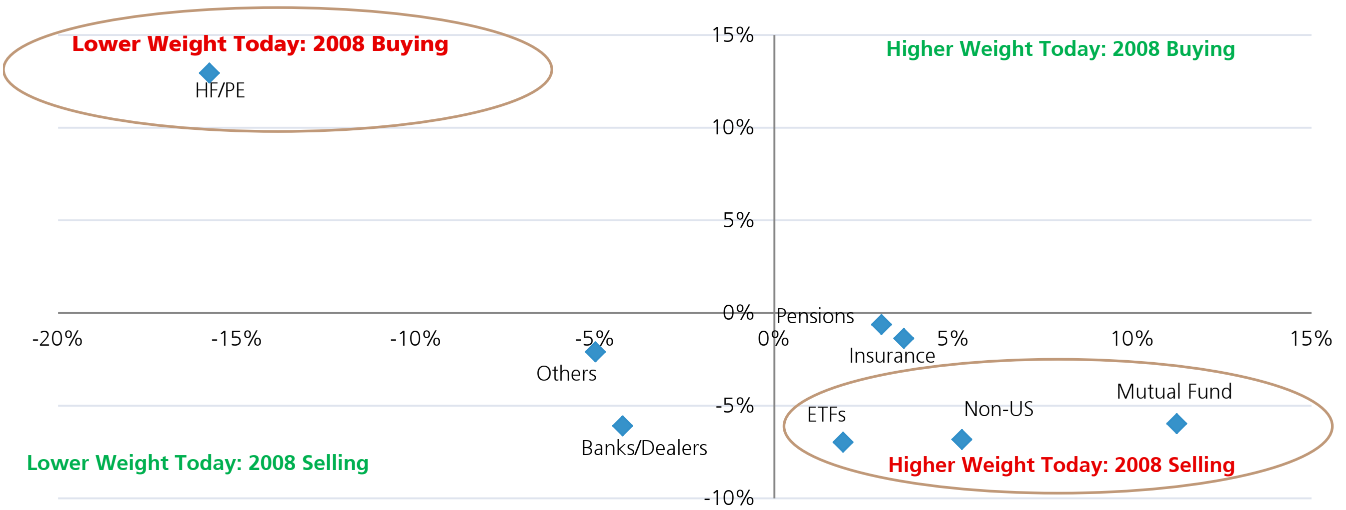
Source: UBS

Figure 6: Liquidity Gauge: Credit inflow/outflow assuming 2008 credit risk event

Source: UBS

Why are the results so poor? Figure 7 is a crucial scatter to remember. The x-axis represents the % increase/decrease in ownerships since 2009, while the Y-axis represents the % flow during the 2008 crisis. The major growth in ownership has gone to US mutual funds, while foreign investors and ETFs have also increased their slice of the pie. These three holders were major sellers of corporate bonds during the financial crisis. In contrast, the investors that supported credit markets in 2008 (hedge fund and P/E investors) have been fleeing the credit space, according to Fed data. It is almost as if hedge funds and P/E firms are waiting for credit risk to rise and weaker hands to fold before stepping in, a troubling sign for broader markets.

Figure 7: Credit ownership since 2009 is growing toward those who sold most in the financial crisis



Source: UBS, Flow of Funds

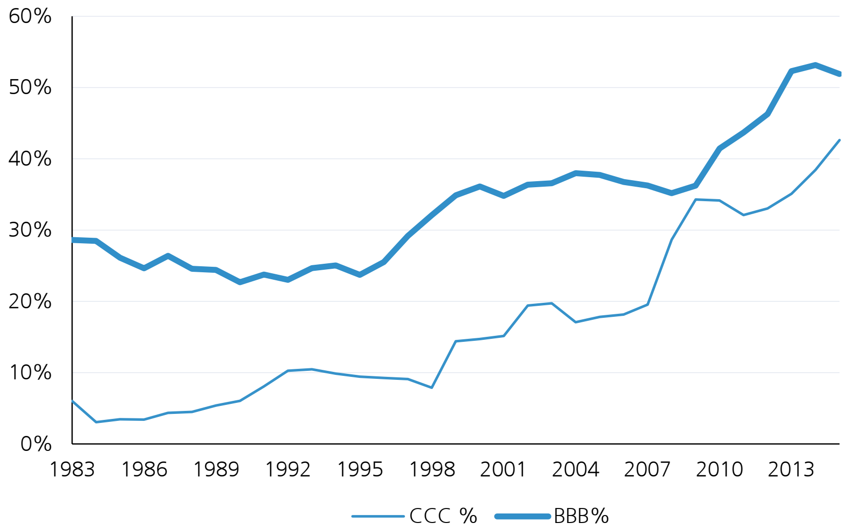
Do we believe 2008 style outflows, and ultimately 2008 sized liquidity premiums, are possible? We do, though to be precise, more so for high-yield. High-grade credit suffered disproportionally last cycle, due to the large representation of bank debt in high-grade universe index. Without a banking sector crisis in 2008, high-grade spreads shouldn't gap out to 600bps. However, spreads could easily surpass the high 200bp range experienced during the early 2000 recession. If that sounds fanciful, we should remember that 30year high-grade spreads were already at

284bps on Feb 11th of this year alone. It is highly likely in our view that high-grade spreads will have a 3 handle when the next recession hits.

Our forecast for US high-yield downside is 1,640bps[7] based on an excess spread of 600bps (which would be near the highest on record) and elevated default rates of 14.2%. However, the scope is there for high-yield spreads to gap out even wider if liquidity premiums hit 2008 levels.

Why do we believe 2008 style outflows and liquidity premiums are possible? Three main reasons: First, there is a significant link between liquidity risk and credit risk through the default-driven liquidity channel[8]. And measures of credit risk today are the highest on record. The number of HY issuers rated CCC (highly leveraged companies with non-trivial probabilities of default) is now 42% of the total, the highest on record according to Moody's data. And the percentage of investment-grade credit that is rated BBB (the most leveraged companies in the high grade universe) is 52%, far in excess of anything experienced over the past 33 years. In short, the prospect for default driven losses and fallen angels is high: we have forecasted a peak default rate of 14.2% for US HY[5] and high-grade fallen angel debt of over $400bn over a 2 year period during the next recession[9]. This means the prospect for future credit returns is weak. And the academic literature[10] suggests that negative returns don't drive outflows; they drive outflows with more intensity than good performance drives inflows.

Figure 8: Default Risk and Fallen Angel Risks are at record heights



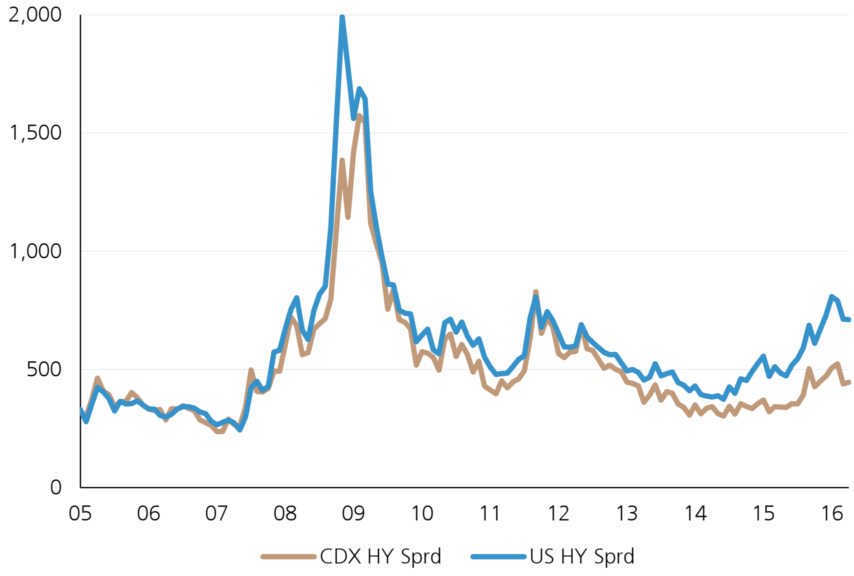
Source: UBS, Moody's

Second, there are already signs of near record-levels of corporate bond illiquidity in the marketplace. The gap between high-yield cash bond spreads and synthetic CDX high-yield spreads (which tend to be more liquid and require less upfront cast to initiate a position) is now 265bps. That is the highest level since September 2008, which was in the heat of the financial crisis. However, we are not in near a recession yet as per our recession framework. Recent academic work points to this CDS – cash basis divergence being an important one for macro investors to watch.

[7] US high yield: quantifying the downside risk in this cycle, M. Mish, 16-Mar-2016
[8] Quantifying Liquidity and Default Risks of Corporate Bonds over the Business Cycle, H. Chen et al, 2014
[9] 2016 US IG Outlook: How The Dominos Will Fall?, S. Caprio, 14-Jan-2016
[10] Investors Flows and Fragility in Corporate Bonds, I. Goldstein, H. Jiang, D. Ng, Jun 2015

W. Jiang and Z. Zhu[11] find that mutual funds resort to selling CDS contracts (i.e. going long credit) when they face unpredictable liquidity needs and when CDS securities are liquid relative to underlying cash bonds. The piece explicitly finds that a one standard deviation increase in fund flow volatility is associated with a 10x increase in the amount of mutual fund CDS selling, relative to normal.

Figure 9: HY Cash vs. CDX Spreads



Source: UBS, Yieldbook, Markit

We can't prove this is the reason behind the widening gap between cash and synthetic spreads, though feedback from individual clients suggests some accounts are driving down this road. But the picture you see above is a portrait of what should happen if mutual fund concerns over large-scale redemptions are real.

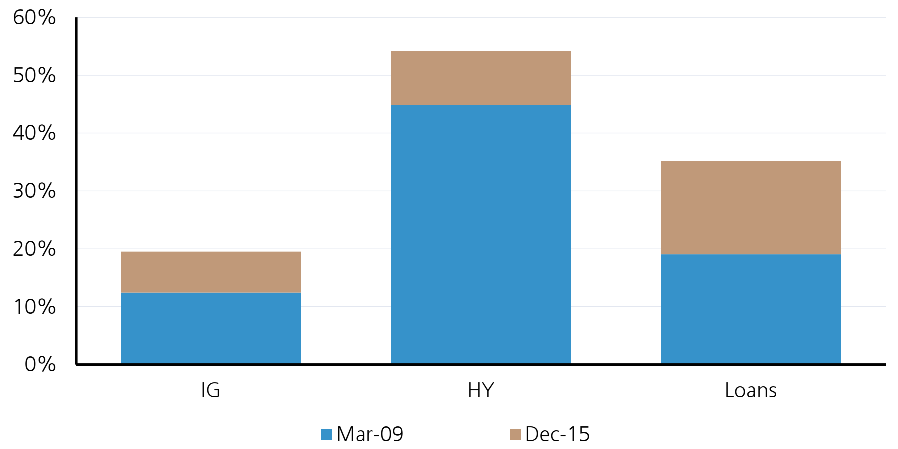
It also demonstrates to us that liquidity, not simply credit risk, is a dominant concern; the market is still comfortable with being long credit exposure with CDX spreads in the mid 400bp range. For cross-asset investors, this is key: **700bps of credit spread in high yield cash bonds today protects you less against credit risk than it did in 1999 or 2007 (given the large proportion of compensation related to technical (i.e., liquidity) rather than fundamental risks).**

Lastly, to tie the knot, we think Fed data even understates the risk of liquidity in speculative grade credit markets. The amount of corporate credit owned by fund structures that are highly susceptible to a "first mover" redemption risk has ballooned since 2009. This includes both retail and institutional holdings of mutual funds and commingled funds. These fund types contain a "first mover" advantage to those owners who act quickest to sell their fund shares; the remaining investors will suffer the externality of the fund selling illiquid credit at potentially fire-sale prices to meet prior redemptions. For high-yield, a sizeable 55% of index eligible bonds are held by funds facing major redemption risk. For leveraged loans, this number is 35%, but has almost doubled from 19% in 2009.

[11] Mutual Fund Holdings of Credit Default Swaps: Liquidity Management and Risk Taking, W. Jiang and Z. Zhu, Nov 2015

High-grade scores best on this metric, with only 20% of bonds being held within more redemption prone fund types.

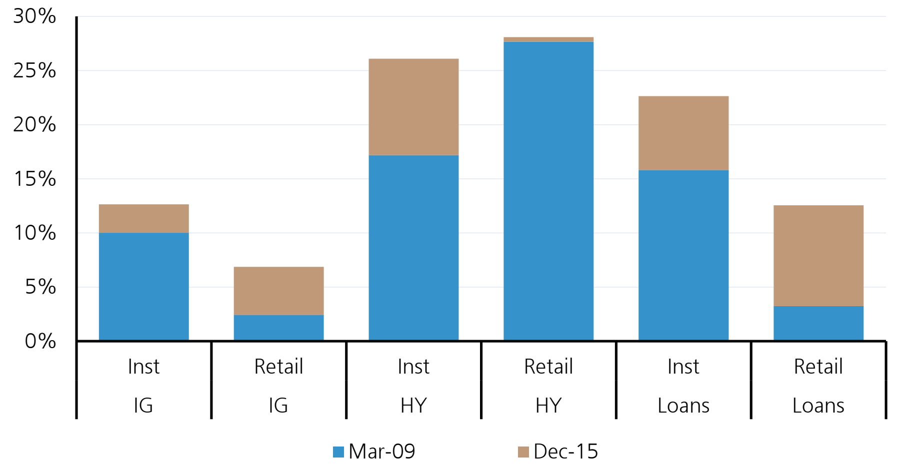
Figure 10: How much of credit is owned by funds with significant redemption risk?



Source: UBS, eVestment

We also breakdown the total holdings into institutional and retail, given that retail holders will more likely flee the asset class when returns sour. Here again, high-yield is most at risk, with 28% of the total owned by retail, followed by loans (13%) and high-grade credit (7%).

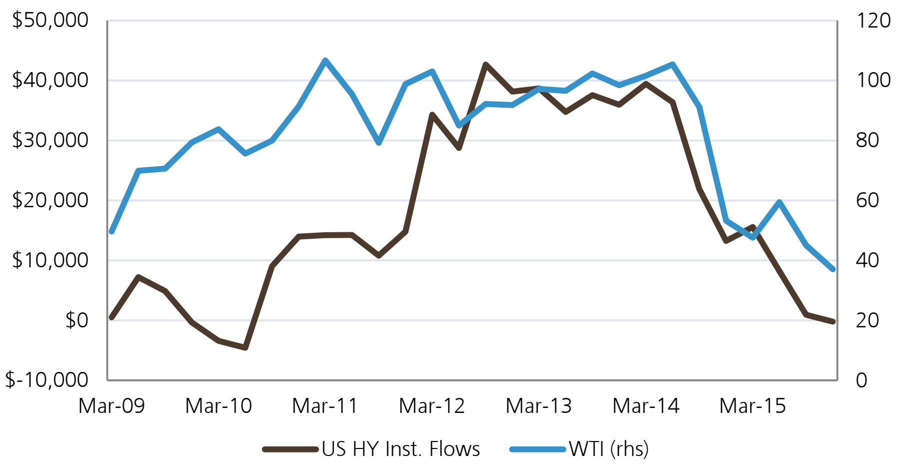
Figure 11: How much of credit is owned by funds with significant redemption risk?



Source: UBS, eVestment

Now some may argue that the presence of institutional investors even within a "dangerous" fund structure is permissible; these investors may have dedicated capital to the asset class that is sticky. We don't disagree in concept. We would rather have a higher institutional rather than retail allocation. But empirically, the evidence is not as strong as first appears. Below is a simple picture of cumulative US HY institutional (NOT retail) flows since 2009 graphed vs. oil prices. It is quite clear from the below that even institutional investors can run from credit, and fast, when credit risk rises, making the above analysis all the more stark.

Figure 12: US HY cumulative institutional flows vs. WTI oil prices



Source: UBS, eVestment, Bloomberg

How could we be wrong? Perhaps default rates and fallen angel quantities are less than we expect during the next recession and our view of credit risk is too pessimistic. Perhaps the SEC is able to regulate the redemption risk away from mutual funds. But the most likely threat to our view comes again from the ownership perspective, namely from the Federal Reserve. If most owners of credit are selling during the next downturn, could the Fed step in order to anchor spreads and keep primary markets open during the next recession? Luckily for us, we don't believe this is a question that needs to be answered for 2016. But it may prove handy to keep in the back of one's mind.

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Risks of multi-asset investing include but are not limited to market risk, credit risk, interest rate risk, and foreign exchange risk. Correlations of returns among different asset classes may deviate from historical patterns. Geopolitical events and policy shocks pose risks that can reduce asset returns. Valuations may be adversely affected during times of high market volatility, thin liquidity, and economic dislocation.

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