Collateral Thinking

# Deconstructing the default rate

Bank of America Merrill Lynch

20 October 2017

## Top of the stack

Nothing seems to back this market down - whether it's the different gradations of geopolitical risks around the world, elusive economic reforms, or a Hawkish Fed. And thus a reinvented Goldilocks story for credit continues to remain relevant today. But today's environment, while still supportive, is far from perfect because inflation exists, if only growing at a snail's pace. Granted global net QE is still positive thanks to the ECB and BOJ, but that could change next year. The bad news is that this cycle will end just like all others before it; the good news is we don't think that is an immediate risk. Instead, we see default rates in leveraged corporate credit, including Loans, going down next year.

## Market technicals

Net demand remained positive for loans during the last two weeks, totaling $7.4bn over the period. Although there was no CLO creation during the week ended October 13th, this was offset by a decline in issuance from $5.4bn to just $1.6bn, the smallest amount in nearly 2 months. Prepayments also remained healthy, causing net supply to come in at -$3.34bn last week. Demand during the week ending October 6th was driven by $1.82bn worth of new CLO creation and prepayments offsetting new supply. Gross bids on the *Instinct*® platform also climbed elevating the net bid interest in the market.

## Topical: Loan defaults to go lower in 2018

We forecast the issuer-weighted loan default rate to end 2018 at 1.25% based on our newly introduced HY default model. We think it makes sense to interpolate HY results to loans given a high overlap of issuers between the bond and loan universes, and a strong historical correlation between their default rates. While the model suggests a 1.15% default rate for loans next year, we also make certain qualitative adjustments for issuer and sector composition differences, to arrive at a formal 1.25% issuer weighted default rate for loans next year.

## Performance

Performance across credit markets has remained positive during the first two weeks of October, with Loans returning 18bps and 14bps respectively. CCCs have been responsible for the bulk of MTD returns, adding 1.1%. On the other hand, higher quality and more liquid capital structures have underperformed, with both groups returning 30-40bps month to date through October 13th.

## Primary market activity

Loan issuance has slowed recently, with $5.4bn and $1.6bn being launched over the last two weeks, respectively. The vast majority of new supply continues to be cov-lite in nature with 87% of month-to-date new deals lacking maintenance covenants. Despite these looser terms, the average new issue yield for single-B issuers in October is currently 4.31%, the lowest level since August 2010.


**Refer to important disclosures on page 12 to 14.**
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**Table 1: Loan performance**

| Index | Level | 1wk Δ | 2wk Δ | YTD Rtn |
|---|---|---|---|---|
| All Loan | 98.2 pts | 0.1 | 0.2 | +3.2% |
| BBs | 100.0 pts | 0.1 | 0.2 | +2.6% |
| Bs | 99.0 pts | 0.1 | 0.2 | +3.4% |
| CCCs | 84.5 pts | 0.4 | 0.4 | +8.6% |

Source: S&P LCD

**Table 2: HY performance**

| Index | Level | 1wk Δ | 2wk Δ | YTD Rtn |
|---|---|---|---|---|
| US HY | 346 bps | -6 | -08 | +7.3% |
| BBs | 205 bps | -3 | -04 | +7.0% |
| Bs | 343 bps | -8 | -12 | +6.7% |
| CCCs | 839 bps | -15 | -13 | +10.0% |

Source: BofA Merrill Lynch Global Research

**Table 3: Fund flows ($mn)**

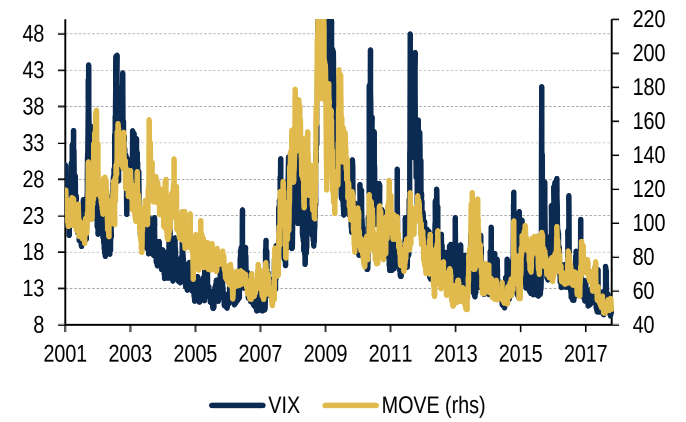
| Asset | 1wk | 2wk | YTD | LTM |
|---|---|---|---|---|
| Loans | +163 | +447 | +16,555 | +28,870 |
| US HY | +742 | +1,254 | -7,000 | -10,608 |
| US IG | +2,021 | +6,149 | +248,742 | +258,618 |

Source: EPFR Global

# Top of the stack

Nothing seems to back this market down. Whether it's the different gradations of geopolitical risks in Britain, the Catalonian region, the middle-east, and the Korean peninsula; or the lack of meaningful strides made by our own government towards delivering on election promises; or even some underappreciated concerns making the rounds in markets (inflation, China). The combination of low volatility (Chart 1), stable financial conditions and improving growth (Chart 2) on a global scale has proved to be so potent that markets have been able to calmly absorb the one-two punches of an increasing number of hawkish central banks worldwide. And thus a reinvented Goldilocks story for credit continues to remain relevant today, propping up assets and attracting fresh rounds of inflows.

**Chart 1: Volatility is at or near all-time lows**




Source: BofA Merrill Lynch Global research, Bloomberg

**Chart 2: Global growth looking up**


Source: BofA Merrill Lynch Global research, IMF

But this time it is different. The original Goldilocks backdrop, circa 2012, existed because growth wasn't high enough for the fed to hike but also wasn't low enough to risk a recession. We've since migrated to a combination of above trend growth and below trend inflation with a fed well on a hiking path. The environment for credit today while still supportive is far from perfect because inflation exists, if only growing at a snail's pace. And the Fed is on a tightening cycle as opposed to quantitatively easing. Granted global net QE is still positive thanks to the ECB and BOJ, but that could change sometime next year. The bad news is that this cycle will end just like all others before it; the good news is we don't think that is an immediate risk.

Credit cycles end when accumulation of debt beyond a certain threshold meets an exogenous shock. The absence of either of these can be reason enough for markets to skirt credit cycle turns. Case in point: the flushing of the Energy sector, which was initiated due to an exogenous event (Saudi Arabia led change in oil production regime) but fell short of turning the business cycle or even resulting in a full credit cycle, due to the contagion effect being diluted by central bank monetary policies and relatively contained corporate debt accumulation since the end of the last credit cycle. We recently wrote about how we think this credit cycle has some more room to run based on several factors. As such we see default rates in leveraged corporate credit, including Loans, going down next year. In this report we take a deep dive into what drives loan default rates, the levels to expect by end 2018, and how those levels compare to expected defaults in HY.

# Deconstructing the default rate

## Market Technicals

Net demand remained positive for loans during the last two weeks totaling $7.4bn over the period (Table 4). Although there was no CLO creation during the week of October

13th, this was offset by a decline in issuance from $5.4bn to just $1.6bn, the smallest amount in nearly 2 months. Prepayments remained healthy, causing net supply to come in at -$3.3bn last week. Demand was also positive during the week ending October 6th, driven by $1.82bn worth of new CLO creation and prepayments offsetting new supply. The largest new CLO deal came from Mariner Investment Group LLC, which recently priced a $608mn at a AAA spread of 121bps. Year-to-date, demand is currently outpacing supply by a healthy $56.75bn, helping loans return just under 3.5% through October 18th.

**Table 4: Weekly Technicals ($mns)**

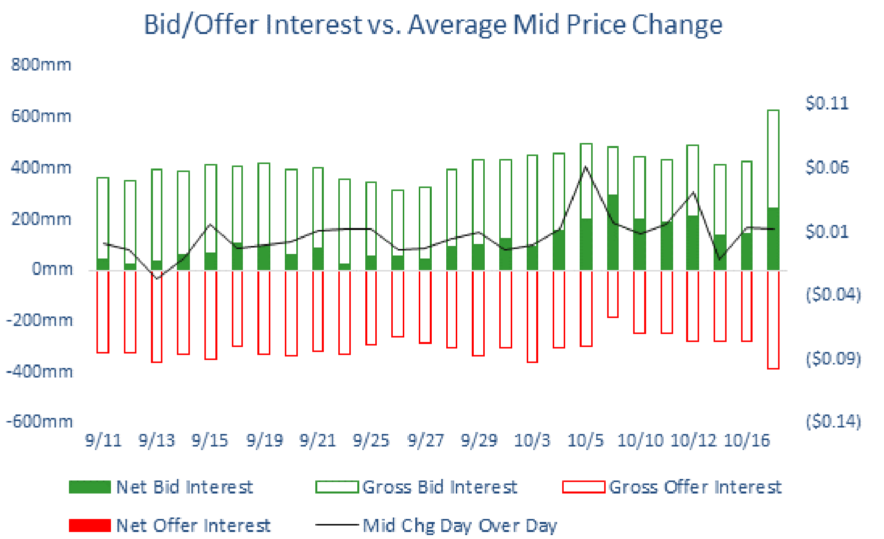
| | YTD | 10/13/2017 | 10/6/2017 | 9/29/2017 |
|---|---|---|---|---|
| Retail flows (a) | 16,555 | 163 | 447 | -54 |
| CLO creation (b) | 81,491 | 0 | 1,819 | 1,985 |
| Coupons (c) | 35,238 | 935 | 935 | 917 |
| Demand (a+b+c) | 133,284 | 1,098 | 3,201 | 2,848 |
| | | | | |
| Net issuance (d) | 348,077 | 1,598 | 5,426 | 6,699 |
| Prepayments (e) | 271,540 | 4,939 | 5,198 | 4,189 |
| Supply (d-e) | 76,537 | -3,341 | 228 | 2,510 |
| | | | | |
| Demand net of Supply | 56,747 | 4,439 | 2,974 | 338 |

Source: LCD, EPFR Global. Values in $mn. Weekly coupon values are estimated by dividing each month's coupon payment by 4.

## Instinct® Loans

To track market sentiment, we look at data from BofAML's electronic loan trading platform, *Instinct®*, which clients use to trade some of the most liquid loans in the market. There are several datasets from the platform that can be used for market color: first is the transaction mid-prices dataset which gives us the ability to track price movement across time. More importantly, the platform tracks net buyer and seller interest in the loan market. Because loans have been trading near their price ceiling more recently, the mid-prices of transactions do not fluctuate much, rendering them an ineffective way to track sentiment. Hence, looking at the net interest, described as the bid interest minus offer interest, could be more relevant today in that context, in our opinion. On the platform, gross bid interest continues to remain elevated MTD with Oct 16th seeing the highest gross bid interest in at least a month. At the same time, gross offer interest has remained relatively static through October. This has caused net bid interest to remain above its September levels (Exhibit 1). Change in mid prices has slowly been creeping lower after initially ticking higher at the beginning of the month.

**Exhibit 1: Instinct® Loans Market Monitor**



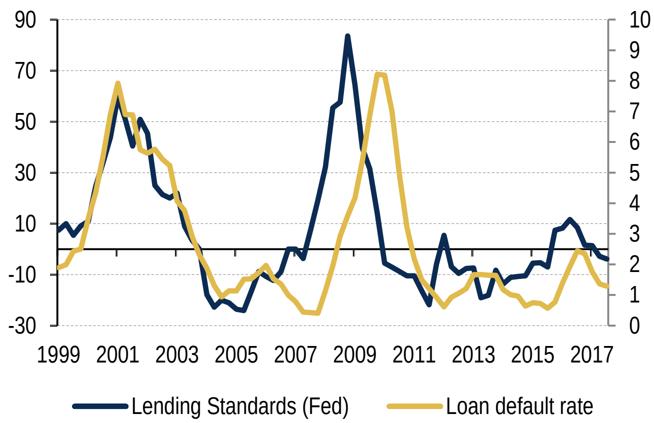

Source: BofA Merrill Lynch Instinct® Loans

## Topical: Issuer Default Rate to decrease to 1.2% in 2018

Being in one of the longest running credit cycles in history, the question we get asked most frequently is: when will we get the next default cycle? While we believe we are in the ninth inning, there is also evidence suggesting that the cycle has some more room to run in terms of accumulation of debt and generation of profits. As such we don't think that default rates have quite bottomed out yet and believe next year to be characterized by even fewer default losses than this year. Our belief rests on both the macro and micro indicators that we use to predict the direction of default rates in Loans as well as HY.

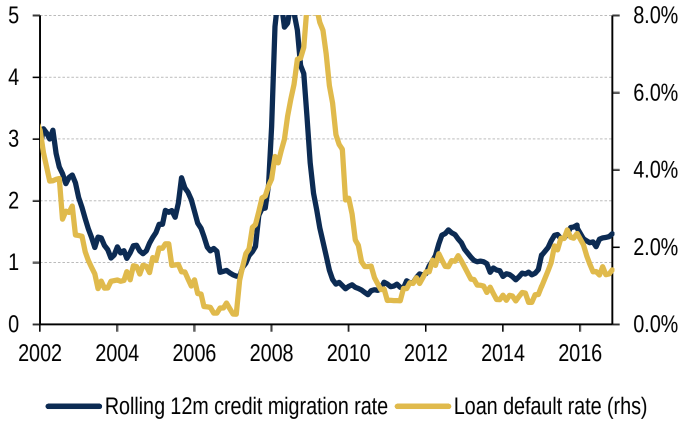
Specifically for the loan universe, which we define as the loans in the LCD index, we gauge the state of the macro environment through the senior loan officer survey. This survey determines the ease with which medium to large sized companies (annual revenue>$50mn) are able get bilateral loans from banks, and thus is a good broad level indicator of on-ground credit conditions. On a micro level, we capture the change in the credit risk of the Loan universe through migration rates. A combination of these two factors is able to explain almost all of the variation in default rates since 2009 with about a 12 month lag. Today, both those factors are largely supportive of loans- the survey shows financial conditions have been easing for two quarters in a row (Chart 3), while credit migration rates have not materially deteriorated to flash warning signs (Chart 4). We think this firmly sets the stage for a lower default rate in 2018.

**Chart 3: Senior officer loan survey leads default rates**




Source: Federal Reserve, S&P LCD

**Chart 4: As do loan migration rates**




Source: S&P LCD

### Comparing Bond and Loan default rates

To quantify the level of expected default losses in loans, we base our analysis on our freshly introduced HY default model. This model has the ability to include a variety factors that affect bond defaults over various time frames (3, 6, 9 and 12 months), and aggregate it up to generate a singular default rate over the next one year. The reason for using the HY bond default forecasting model for loans is two-fold: first, the former benefits from a deeper history spanning three credit cycles, and second, the reasonably high and consistent issuer overlap between HY bonds and Loans, in dollar terms, (Chart 5) allows us to extrapolate our findings in HY over to loans. And indeed, the relationship between the loan and HY default rates[1] has been rather strong in the past. Chart 6 shows that a simple polynomial trend-line can explain a majority of the variation between them. Using the relationship defined by the scatterplot, our forecast for the issuer-weighted HY default rate of 2.3% translates to about a 1.15% default rate in loans.

[1] For the purpose of this report, we define HY default rate as Moody's issuer-weighted US HY default rate, and loan default rate as the LCD LLI default rate.



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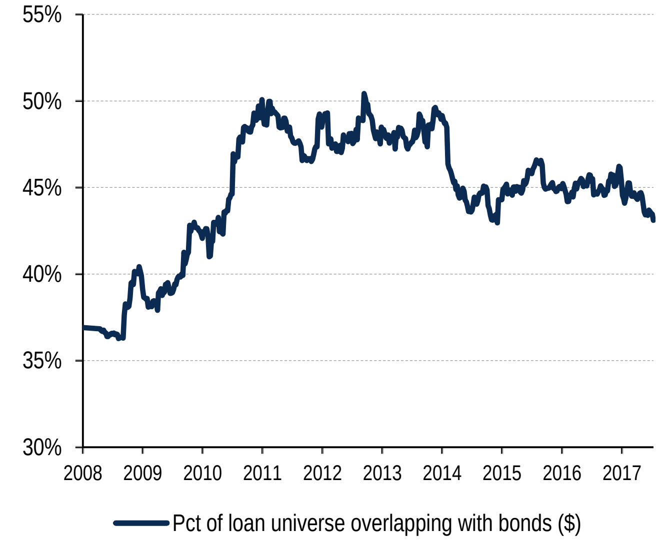
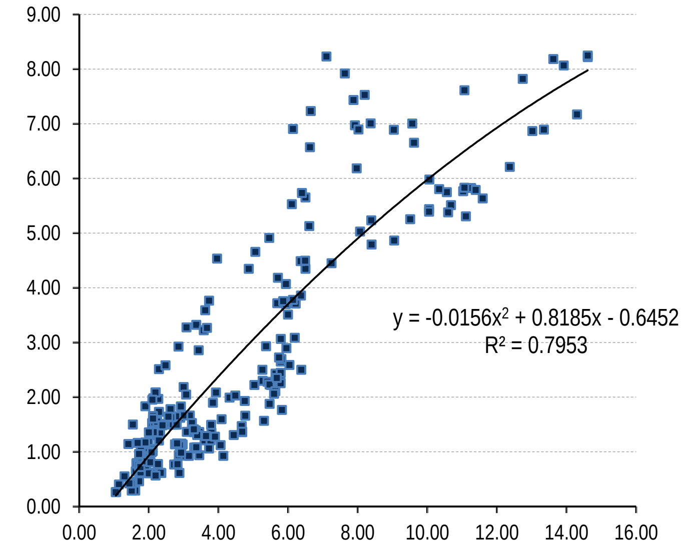
**Chart 5: Face value pct of issuer-matched pairs in bonds and loans**




Source: BofA Merrill Lynch Global Research, LCD

**Chart 6: Loan DR (y-axis) as a function of HY DR (x-axis)**




Source: BofA Merrill Lynch Global Research, LCD, Moodys

However, though the issuer overlap in terms of face value has been largely consistent over time, hanging in the 45%- 50% range, such is not the case on a number of issuers basis. Here, not only is the overlap between bonds and loans lower, but its trend over time is also less favorable. The lower overlap using this measure (~30%) is due to a larger presence of small issuers in the loan space, and the fact that they contribute disproportionally higher to the total number of issuers than to the outstanding face value. Additionally, the trend of a declining overlap indicates that the incidence of smaller issuers is increasing over time.

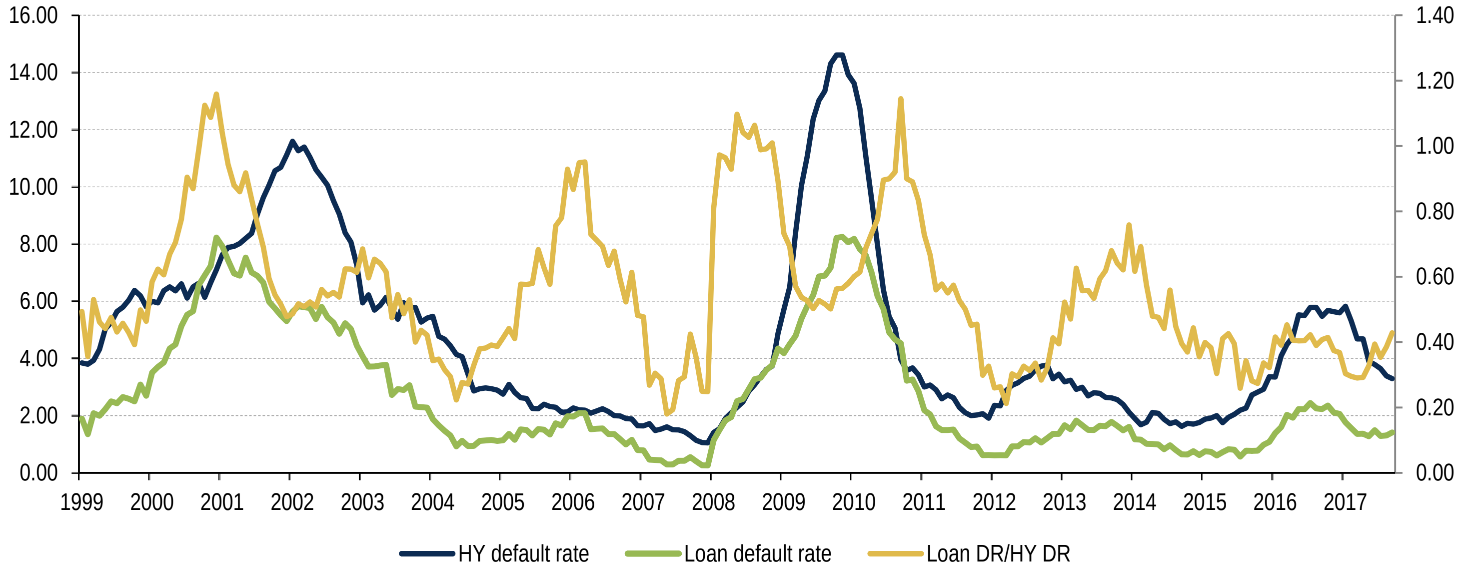
Secondly, the sector mix of the two asset classes has also been diverging. For example, the loan universe contains a lot less energy and a lot more technology paper than the bond universe. So while using the HY default rate model as a base is still justified, we believe some adjustments are warranted to the 1.15% rate derived from the above relationship when forecasting for defaults in the loan space.

### Lessons from history

The trends in the default relationship between bonds and loans can be visualized by exploring the evolution of the ratio between their default rates. Chart 7 shows the ratio of the realized loan default rates to HY default rates (Chart 7) along with loan and default rates on a timeline. The most important observation to be made here is that loan default rates are generally lower than bond default rates. In fact, the only times they even come close to overlapping each other (i.e. their default rate ratio reaching 1x in the chart below) is while going into, and coming out of a default cycle. There are exactly four instances of this in the past two cycles, three of which occurred in low default rate environments. The fourth instance, in 2001, occurred when the loan asset class was still in its infancy.

The reason why loans see an early onset of defaults as compared to bonds is because of their incidence of smaller issuers. In general, as a default cycle perpetuates, the first wave of defaults takes out the issuers with the least access to capital. Small issuers, with their natural limitations to accessing some capital markets relative to large issuers, are naturally susceptible. As the fear factor spreads, gripping the broader market, larger issuers get impacted as well, leading to bond default rates accelerating past loan default rates. At full throttle, loans default at roughly about half the pace of bonds as seen by the troughs in the ratio between them in the below chart.

**Chart 7: Relationship between default rates of HY bonds and leveraged loans**

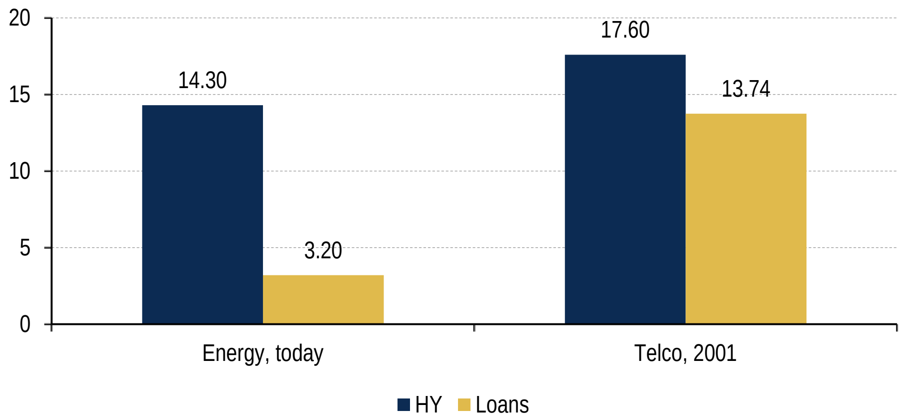



Source: BofA Merrill Lynch Global Research, LCD, Moodys

But that lesson is perhaps more relevant later on in the credit cycle. What matters next year however, are the trends in times of low default rates. Noticeably, for a majority of the credit cycle, loan default rates sit lower than those of bonds. This has been especially true last few years, where loan default rates have remained in check despite several episodes of market turmoil. Even the mini downturn led by energy in 2015 did not prove to be large enough to push loans any closer to bond default rates.

One reason for this of course is that Energy represents a much smaller proportion of Loans than it does in HY, so it has been impacted to a lesser degree. By comparison in 2001, telecom representations in loans and HY were nearly similar (Chart 8) affecting both asset classes equally. The takeaway here is that loans may not react to macro events to the same degree as bonds going forward, owing to the steadily diverging composition of the underlying universes.

**Chart 8: Proportion of overall market by face value, pct**




Source: BofA Merrill Lynch Global Research, LCD

## Adjusting for recent loan trends

As noted above, we generally expect the loan-to-bond default ratio to peak at 1x going into a downturn as HY and loan default rates converge. This ratio didn't quite materialize in the energy led cycle, finishing in the 0.7x context as opposed to the 1x as seen going into cycles led by telecom or financials. At 1.15%, loan defaults generate a ratio of around 0.5x to the expected default rate of 2.3% in HY, which is in line with the (limited number of) declining peak observations we have made thus far in the cycle.

Finally, we make one last adjustment for the sector that we think is likely to present the most negative surprises next year, retail. While the sector is not large enough to precipitate a full blown default cycle in either loans or bonds, its mismatched weight in two universes poses a risk to their mutual default rate relationship that we have relied on to forecast loan defaults. Assuming Retail defaults were to double in 2018 to 14% from the current 7% (in HY), and given that the difference in sector weights for the two asset classes is about 1.5%, this represents a 10bps incremental negative impact on Loan default rates. Adjusting for that, we get to a 1.25% default rate in loans for next year.

Interpolating a bond par-weighted default rate to loans will be a tad easier than the issuer-weighted default rates as we have done above. Owing to the high bond-loan overlap in face value terms (50%) which has largely been consistent, there may not be any major adjustments we need to make once we have the historical default rate relationship between bonds and loans on a par weighted basis. While we don't have a formal par default rate forecast for bonds yet, we believe the direction of that rate will be the same as the issuer-weighted rate, i.e. lower in both bonds and loans.

## Performance by segment

Performance across credit markets has remained positive during the first two weeks of October, with Loans returning 18bps and 14bps respectively. On October 18th, Loan spreads touched a post-crisis tight of just 383bps over LIBOR, 60bps tighter on the year. CCCs have dominated performance so far in October, returning a cumulative 1.1%. On the other hand, higher quality and more liquid capital structures underperformed, with both groups returning 30-40bps month to date through October 13th.

**Table 5: Total Returns (price plus coupon return), bps**

| | 10/13/2017 | 10/6/2017 | 9/29/2017 | 9/22/2017 |
|---|---|---|---|---|
| All Loans | 14 | 18 | 8 | 10 |
| BB | 11 | 17 | 9 | 10 |
| B | 13 | 17 | 8 | 13 |
| CCC | 51 | 57 | 35 | 17 |
| 2nd Lien | 17 | 46 | 25 | 20 |
| LL100 | 16 | 22 | 8 | 5 |
| Middle Market | 14 | 10 | 7 | 22 |

Source: S&P LCD

Middle market defined as $50mn EBITDA or less. LL100 composed of the 100 largest issuers (by face value) in the S&P LCD Leveraged Loan Index.

## Primary market activity

Loan issuance has slowed recently, with $5.4bn and $1.6bn of new money being launched over the last two weeks, respectively. On the other hand, repricings have continued to remain active with $12.7bn and $7.6bn repriced over the previous 2 weeks, respectively; this brought the YTD total repricings up to $427.1bn. The vast majority of new supply continues to be cov-lite in nature with 87% of month-to-date new deals lacking maintenance covenants. Despite the looser terms, new issue clearing yields have continued to decline for BB and B rated issuers. The average yield for single-B issuers in October is currently 4.31%, the lowest level since August 2010. At the same time however, CCC/NR issuers have not seen a similar tailwind, with their average clearing yields increasing from 8.72% in August to 9.32% today.

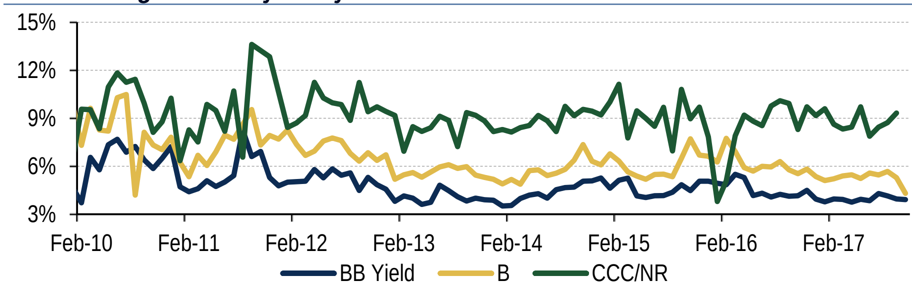
In recent amendments, Greenhill tightened terms on its first-lien term loan initially launched September 27th, with the coupon now guided to L+375 from original talk of L+400bps. Additionally, the OID was increased to 99.5 from 99, while the deal was upsized to $350mn from $300mn. Greenhill plans to use the proceeds to repay debt and repurchase up to $235mn of common stock.

**Table 6: Recent loan new issues**

| Launch Dt | Issuer | Deal Name | Size | New Inst. Money | Moody's | S&P | ABL | Cov Lite | Proceeds | Sector | Country |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 10/12/2017 | Belron International Ltd | Belron (US TL 11/17) | 1017 | 1017 | Ba3 | BB | No | Yes | Dividend | Retail | United Kingdom |
| 10/12/2017 | ELO Touch Solutions | Elo Touch (11/17) | 150 | 150 | B2 | B+ | No | No | Dividend | Computers & Electronics | United States |
| 10/12/2017 | Fairmount Santrol Inc | Fairmount Santrol (TL 11/17) | 700 | 700 | B3 | B- | No | Yes | Refinancing | Metals & Mining | United States |
| 10/12/2017 | Thermon Group Holdings Inc | Thermon (TL 11/17) | 250 | 250 | B2 | B+ | No | Yes | Acquisition | Manufacturing & Machinery | United States |
| 10/11/2017 | Innovative Chemical Products | ICP Group (11/17) | 290 | 250 | B3 | B | No | No | Refinancing | Chemicals | United States |
| 10/11/2017 | Plz Aeroscience Corp | PLZ Aeroscience (Add-on 11/17) | 160 | 160 | B2 | B+ | No | Yes | Acquisition | Chemicals | United States |
| 10/11/2017 | Press Ganey Holdings Inc | Press Ganey (Amend Add-on 11/17) | 756 | 88 | B2 | B | No | Yes | Refinancing | Services & Leasing | United States |
| 10/10/2017 | UPC Holdings | UPC (US 11/17) | 1600 | 1600 | Ba3 | NR | No | Yes | Refinancing | Cable | Netherlands |
| 10/6/2017 | Blount International Inc | Blount (Amend Add-on 11/17) | 615 | 144 | B1 | B+ | No | No | Dividend | Manufacturing & Machinery | United States |
| 10/5/2017 | MRO Holdings, Inc | MRO Holdings (11/17) | 225 | 225 | B2 | B+ | No | No | Refinancing | Transportation | United States |
| 10/5/2017 | Vantage Specialty Chemicals | Vantage Specialty (2nd Lien 11/17) | 170 | 170 | Caa2 | CCC | No | Yes | LBO | Chemicals | United States |
| 10/5/2017 | Vantage Specialty Chemicals | Vantage Specialty (TL 11/17) | 465 | 465 | B3 | B- | No | Yes | LBO | Chemicals | United States |
| 10/4/2017 | Sirius Computer Solutions | Sirius Computer (Add-on 11/17) | 337 | 337 | B1 | B | No | Yes | Acquisition | Computers & Electronics | United States |
| 10/4/2017 | United Road Services Inc | United Road Services (TL 11/17) | 260 | 260 | B2 | B | No | Yes | LBO | Retail | United States |
| 10/3/2017 | Beacon Roofing Supply Inc | Beacon Roofing (TL 11/17) | 970 | 970 | B2 | BB+ | No | Yes | Acquisition | Building Materials | United States |
| 10/3/2017 | Altice Group | Altice (US 11/17) | 900 | 900 | B1 | BB- | No | No | Refinancing | Cable | Netherlands |
| 10/3/2017 | Navicure | Navicure (2nd Lien 11/17) | 185 | 185 | Caa2 | CCC | No | Yes | Acquisition | Computers & Electronics | United States |
| 10/3/2017 | Navicure | Navicure (TL 11/17) | 435 | 435 | B2 | B | No | Yes | Acquisition | Computers & Electronics | United States |
| 10/3/2017 | SFR Group | SFR Group (US 11/17) | 2150 | 2150 | B1 | B+ | No | Yes | Refinancing | Cable | France |
| 10/2/2017 | Bombardier Recreational Products Inc | Bombardier (Amend Add-on 11/17) | 793 | 100 | Ba3 | BB | No | Yes | Refinancing | Automotive | Canada |

Source: S&P LCD

**Chart 9: Average new issue yields by month**

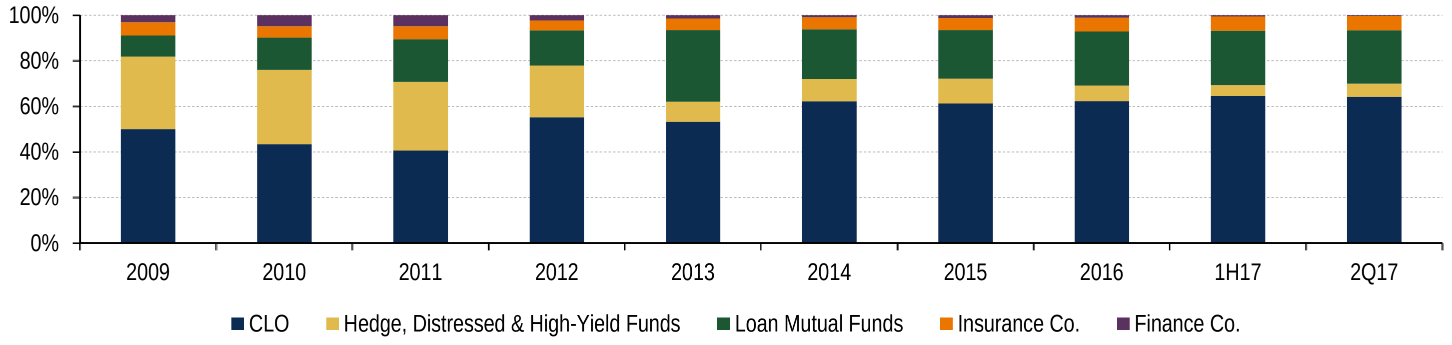



Source: S&P LCD

# Appendix

CLOs are an important factor to consider in the loan market given they are the single biggest buyer of loans and represent 60% of the primary demand within this asset class. Loan retail funds are the second largest buyers although their participation has shrunk since the peaks of 2013. Since then, we have seen increasing activity from CLO managers. At the same time, hedge, distressed & high yield funds have played a lesser role in the primary market.

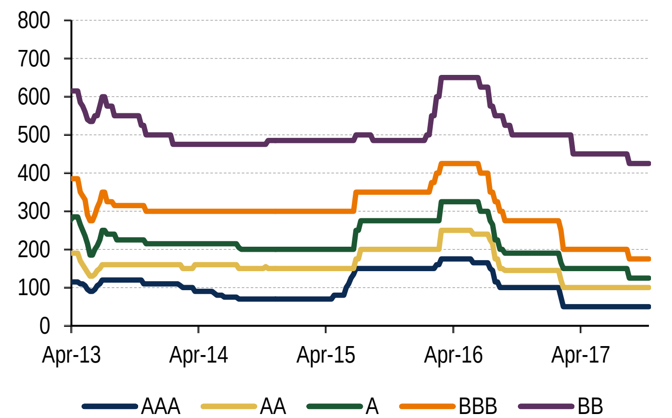
**Chart 10: Primary institutional investor market by type**




Source: S&P LCD

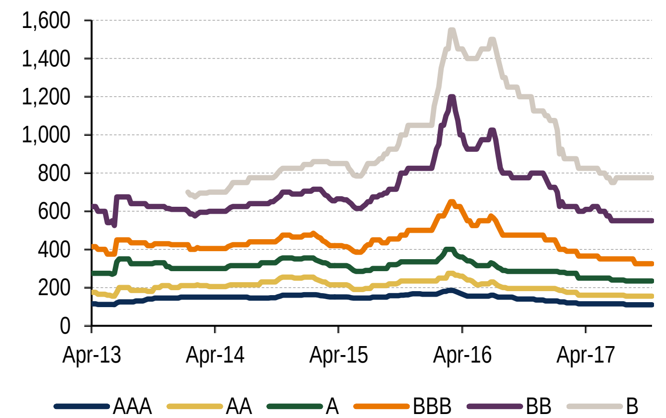
Three generations of CLOs exist today, CLO 1.0 (pre-crisis), and CLO 2.0/CLO 3.0 (post-crisis). The market is primarily driven by the latter. Below charts show CLO spread levels by tranches.

**Chart 11: US CLO 1.0 indicative spread levels (bps)**




Source: BofA Merrill Lynch Global Research

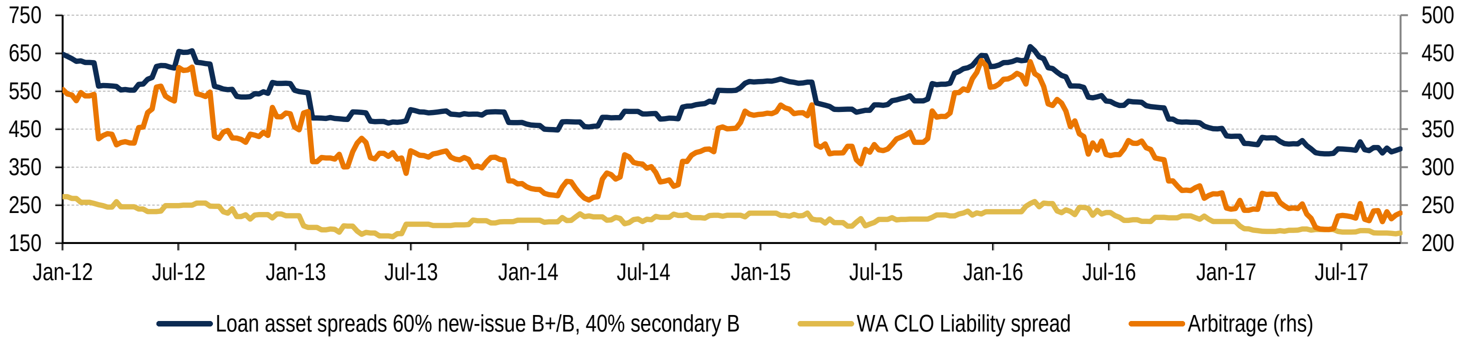
**Chart 12: US CLO 2.0/3.0 indicative spread levels (bps)**




Source: BofA Merrill Lynch Global Research

CLO arbitrage is a widely followed statistic in the loan market, and represents the theoretical spread that managers can capture by issuing CLOs. The below chart compares CLO asset (loan) spreads to the weighted average spreads of CLO liabilities. The difference between these two values is the theoretical arbitrage and represents the current attractiveness of creating new CLOs. A higher arbitrage number means a greater incentive for managers to bring new CLOs to the market, and thus provide incremental loan demand, and vice versa.

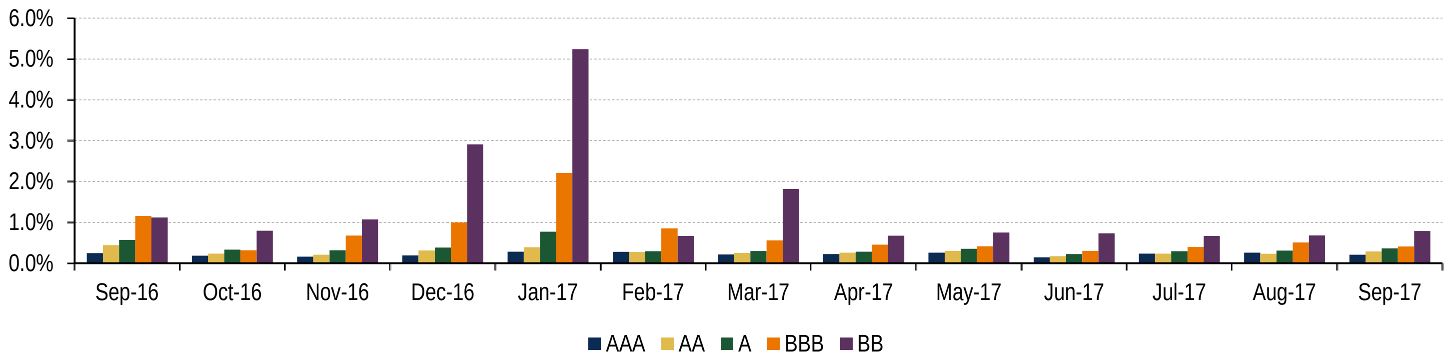
**Chart 13: CLO arbitrage (bps)**




Source: BofA Merrill Lynch Global Research

Chart 14 shows monthly CLO returns as defined by the Palmer Square CLO index (price plus coupon returns).

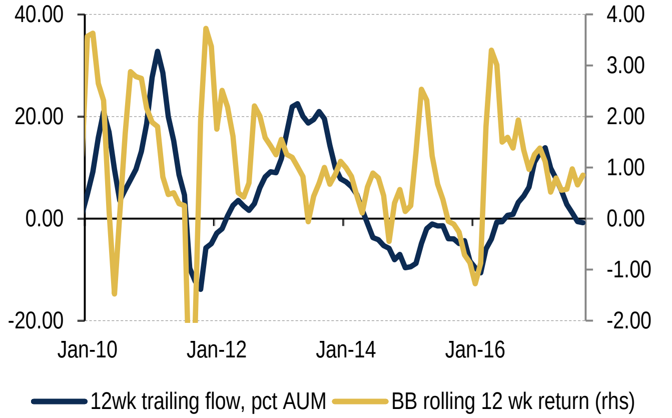
**Chart 14: Monthly CLO 2.0 returns by rating**




Source: BofA Merrill Lynch Global Research, Merrill Lynch PriceServe, Palmer Square CLO Indices, Bloomberg

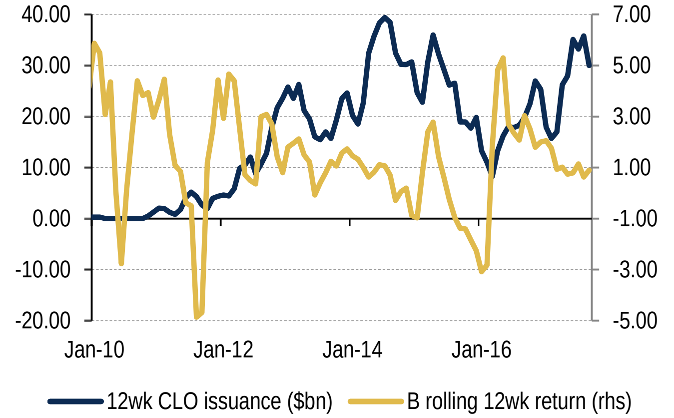
Since technicals play a big role in the loan market, following retail patterns is also essential. In general, we see that the performance of the BB section of the loan market correlates most with retail flows, while new CLO issuance seems to correlate to B Loan returns. This makes sense as mutual funds generally gravitate towards less risky investments while CLOs invest in single B rated assets on average. Chart 15 shows a measure of retail flows (12 week trailing retail flows as a percentage of outstanding AUM) vs. monthly BB Loan total returns, while Chart 16 depicts monthly CLO issuance vs. monthly B Loan total returns.

**Chart 15: BB performance vs Loan retail flows**




Source: S&P LCD, EPFR Global

**Chart 16: B performance vs CLO creation**




Source: S&P LCD, EPFR Global

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