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Dissecting and Forecasting the CLO Equity Arb

European Credit Strategy
Geoffrey Horton, CFA
+44 (0) 20 3134 2680
geoffrey.horton@barclays.com
Barclays, UK

US Credit Strategy
Bradley Rogoff, CFA
+1 212 412 7921
bradley.rogoff@barclays.com
BCI, US

Scott Schachter
+1 212 526 9716
scott.schachter@barclays.com
BCI, US

The terms "equity arb," or just "the arb," are commonly used by CLO and loan investors when referring to the arbitrage opportunity created by buying loans and securitizing them using a CLO, receiving more in asset interest income than is paid out in CLO debt costs.

While the definition is clear, investors, managers, arrangers, and commentators rarely agree on what the CLO equity arb currently is, with the most common response being that "the arb is challenged." Thus, we dig into how the arb is measured, how it has actually moved, why seemingly simple calculations often lead to so many different opinions on the current arb level, and, finally, the best ways to measure the current estimated arb.

The CLO Equity Arb Equation: Quantitative Factors

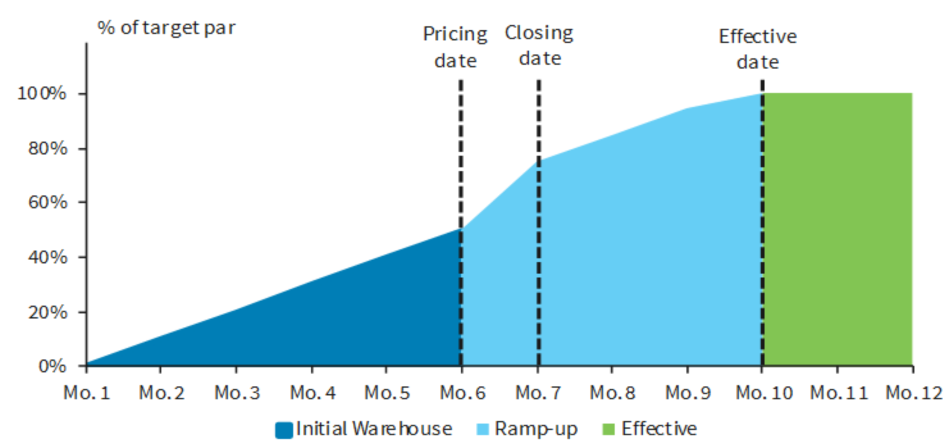
Because calculations for the arb can differ, we focus on the **equity yield** when discussing the direction and level of the arb, as this is the actual annual cash flow received by equity investors, compared with the more simple formula of asset interest minus CLO debt costs.

Equity yield = *(Asset interest – CLO debt costs – management fees) / equity notional*

- **Asset interest (+)** – Calculating the equity yield of a CLO begins with the income generated from the underlying assets, primarily through interest payments. Interest income is driven by the coupons on the credits selected by the manger (eg, riskier credits should pay higher interest income); thus, the level of income is constantly changing as proceeds from repayments or sales are reinvested into credits with different coupons and the par value of the portfolio declines over time due to some par losses.

  For our calculation of starting asset interest, we use each CLO's estimated target par value multiplied by the first reported weighted average spread (WAS) or coupon (WAC) following the effective date (when the collateral tests and limitations become effective). Anecdotally, CLO warehouses can remain outstanding for a few months up to a year, and deals take 3-6 months to become effective after closing (Figure), so determining the actual asset spread level at pricing is difficult. Thus, our data for new starting equity yields are lagged by roughly a quarter until deals become effective.

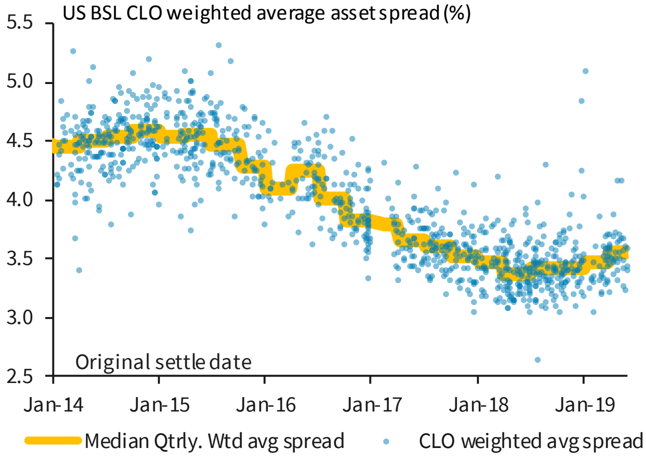
FIGURE 1
Example CLO Starting Lifecycle



Source: Barclays Research

FIGURE 2

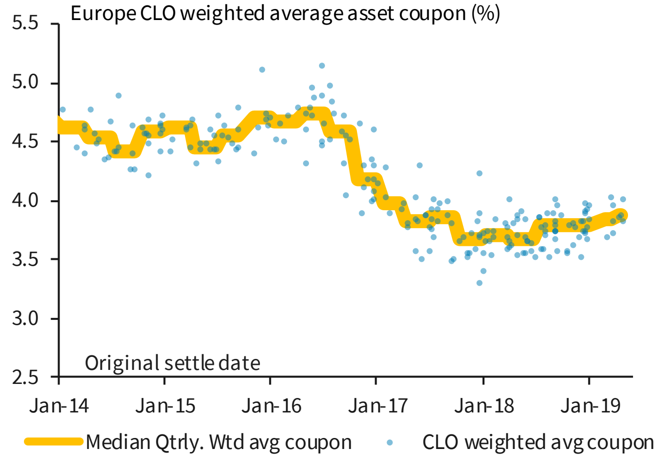
US BSL CLO *Initial* Weighted Average Spread (WAS)



Source: Kanerai, Intex, Barclays Research

FIGURE 3

EU CLO *Initial* Weighted Average Gross Coupon (WAC)



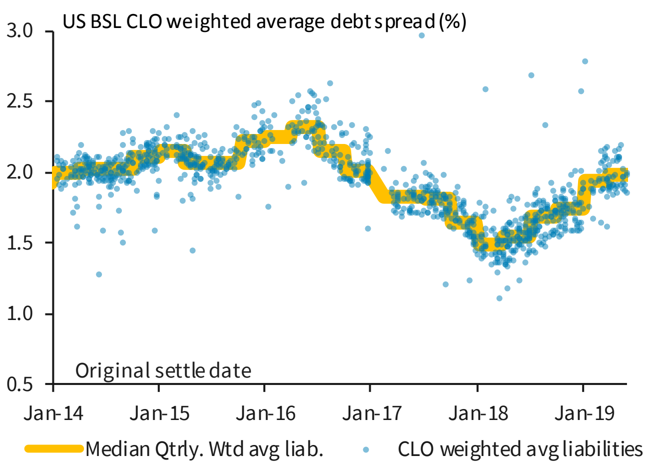
Source: Kanerai, Intex, Barclays Research

Since loans are immediately callable, a pickup in refinancings can also push interest income lower, decreasing the yield. For example, following the loan refi wave in 2016-17, initial CLO portfolio asset spreads in the US (Figure 2) and coupons in Europe (Figure 3) declined. To boost this part of the equation, CLO managers have increased exposure to riskier assets, including more B3-rated credits and lower-liquidity names, as discussed in *A CLOser Look inside the Matrix* (March 15, 2019).

- **CLO debt costs (-)** – New issue CLO debt costs (which are set at pricing) can be affected by the level of CLO supply, changes in demand from large buyer bases, differences in structure (eg, shorter reinvestment deals price tighter), and the value of CLOs relative to other segments of credit and securitized products. New issue CLO debt costs also tend to follow asset spreads, although CLOs lag because of differing holders and liquidity. Since 2011, there has been a higher correlation between weekly changes in new issue US CLO debt costs and two-week lagged BB/B loan spreads, compared with vice versa (ie, CLO debt costs are more likely to move in the direction of loan spreads, two weeks after the move in loans). However, CLOs typically have a two-year non-call period, ensuring that CLO debt costs remain constant for at least two years after pricing.

FIGURE 4

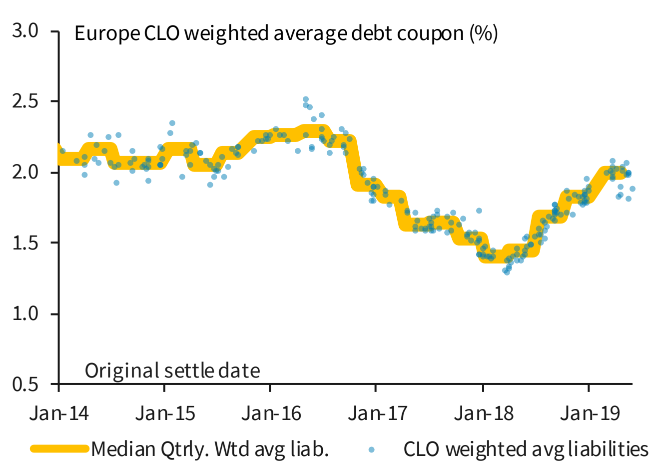
US BSL CLO *Initial* Weighted Average Cost of Liabilities



Source: Kanerai, Intex, S&P LCD, Barclays Research

FIGURE 5

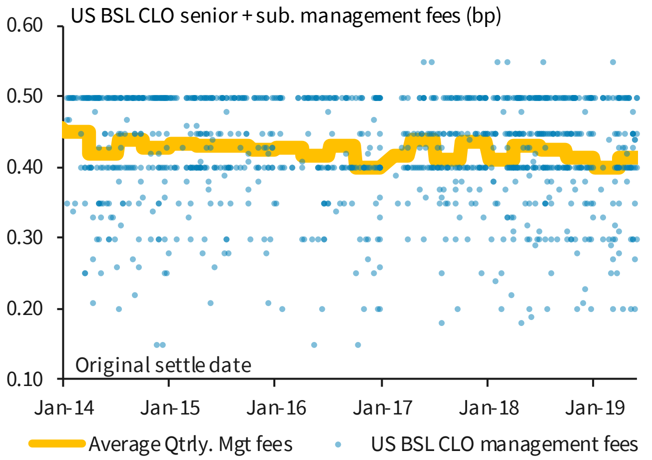
European CLO *Initial* Weighted Average Cost of Liabilities



Source: Kanerai, Intex, S&P LCD, Barclays Research

FIGURE 6

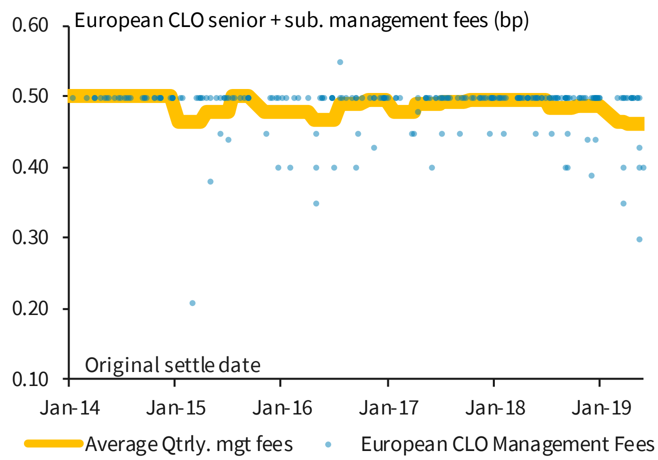
US BSL CLO *Initial* Management Fees



Source: Does not include fee rebates. Source: Intex, Barclays Research

FIGURE 7

European CLO *Initial* Management Fees



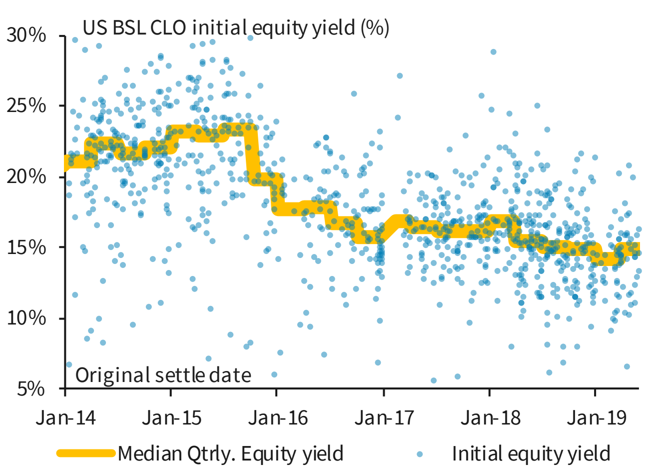
Source: Does not include fee rebates. Source: Intex, Barclays Research

- **Management fees (-)** – Finally, there are three management fees in a CLO: senior, subordinate, and incentive. The first two streams are recurring, while the incentive fee typically kicks in only when equity returns exceed 12%. The historical combined level of senior and sub fees has been 50bp, but the trend has been lower in the US (Figure 6) and Europe (Figure 7) recently, although fee rebates or side letters are not captured. We estimate that a 10bp fee cut equates to an approximately 1.0-1.5pt increase in equity return.

Putting together the pieces, we find that initial equity yields in the US (Figure 8) and Europe (Figure 9) have declined steadily since 2014. In the US, the median equity yield declined to 14.2% in 1Q19, a post-crisis quarterly low, or about 270bp lower than two years earlier in 1Q17. Similarly in Europe, the median equity yield declined to 14.9% in 1Q19, also a post-crisis quarterly low, and about 92bp lower than two years earlier in 1Q17. While the overall averages have trended lower, the dispersion around the average shows that some managers can still find ways to generate higher equity yields, while other yields are much lower than expected, possibly implying that other non-qualitative factors are at work or that these deal's equity is being retained or placed into risk-retention style funds, as noted in *On the Road- Notes from IMN NY 2019*.

FIGURE 8

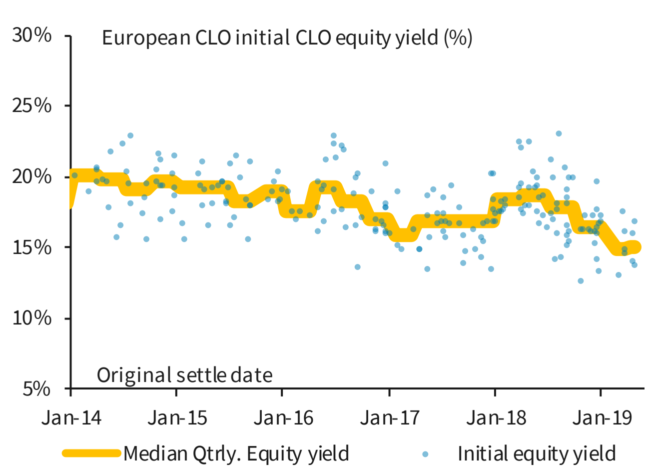
US BSL CLO *Initial* Equity Yields Have Slowly Declined…



Source: Kanerai, Intex, S&P LCD, Barclays Research

FIGURE 9

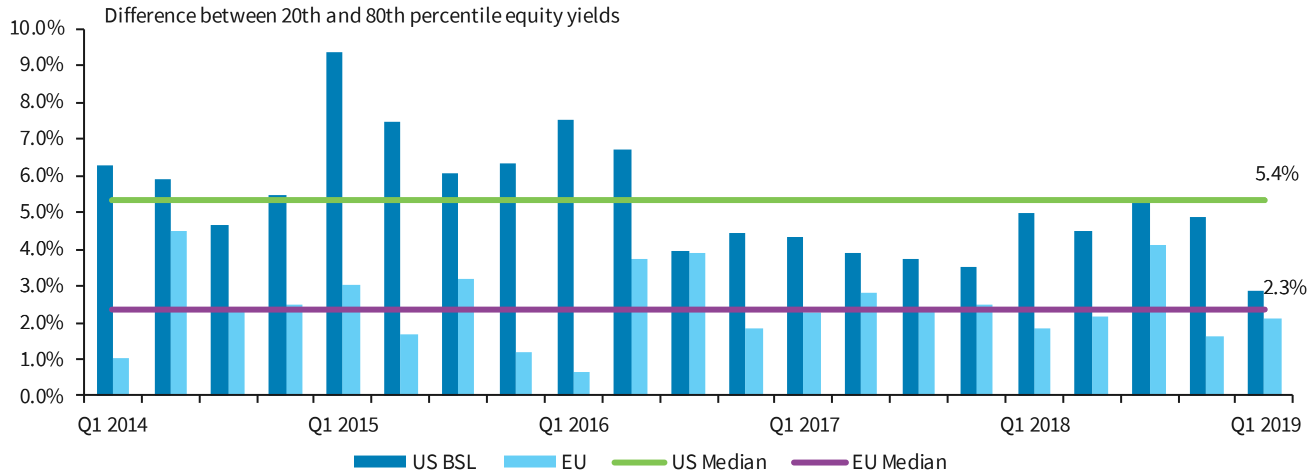
…As Have European CLO *Initial* Equity Yields



Source: Kanerai, Intex, S&P LCD, Barclays Research

FIGURE 10

Dispersion in Initial Equity Yields Has Also Decreased Slightly



Source: Kanerai, Intex, S&P LCD, Barclays Research

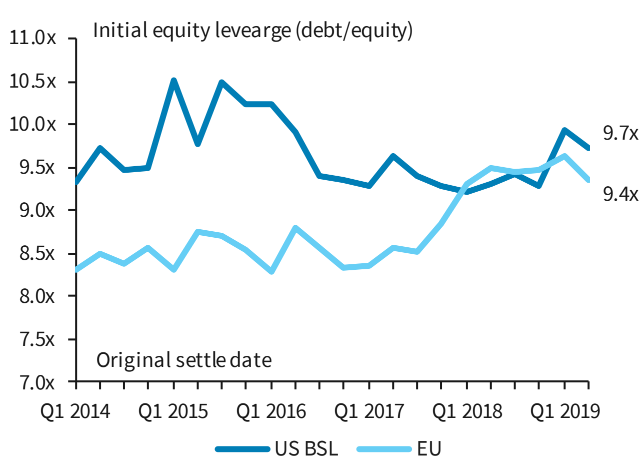
In line with the general decline in equity yields, dispersion by quarter has also decreased slightly. Since 2014, the difference between the 20th and 80th percentiles of initial equity yields has averaged 5.4% for US BSL CLOs and 2.4% for EU CLOs (Figure 10). This dispersion is likely driven by differences in CLO warehouse timing, manager trading skill, management fees, and debt execution. For example, a deal from a higher-tier manager could price with a lower cost of debt than a deal from a newer or lower-tier manager in the same period, improving the equity yield even if asset income levels are similar.

While initial equity yields have declined, the rate of decline has been slower recently. However, we find that the decline *could* have been much steeper had equity leverage not increased and fees not been lowered. Figure 11 shows that structural leverage (debt / equity balance) has been flat for US CLOs since 2014, but has risen steadily for EU CLOs.

The increase in leverage and decline in management fees have allowed initial equity yields to post less of a decline. If structural leverage were similar to 2014 levels and combined management fees were still 50bp, average initial equity yields for CLOs would be roughly 100-200bp lower than they are today (Figure 12).

FIGURE 11

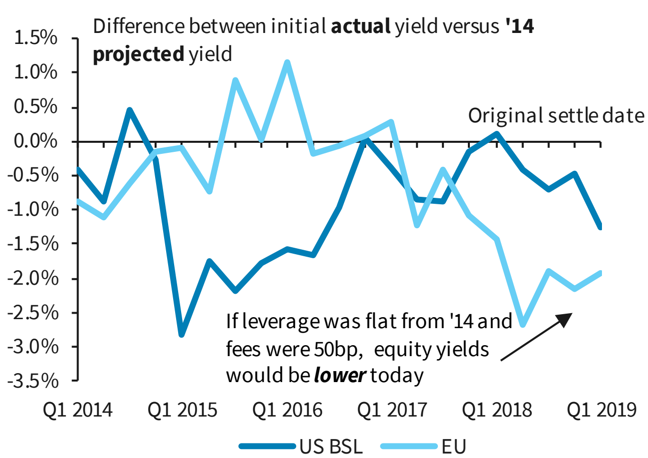
Structural Leverage in Europe Has Increased Steadily since 2017



Source: Kanerai, Intex, S&P LCD, Barclays Research

FIGURE 12

Without Leverage Increase and Fee Cuts, Yields Would Be Lower



Source: Kanerai, Intex, S&P LCD, Barclays Research

The CLO Equity Arb Equation: Qualitative Factors

While the equity arb is typically considered the average excess spread currently available to equity investors, determining the optimal time to price a deal from an equity perspective is more complicated. The additional qualitative factors considered by equity investors can have a large effect on final equity returns.

***Final equity return** = Equity yield + document optionality – arranger fees – credit losses*

- **Document optionality** – This is harder to quantify, but looser indenture language allows more manager flexibility when trading the portfolio or amending deal documentation. Recently, this has included, but is not limited to, higher allowances for discount and default swaps (*CLO Managers' Distressed Debt Dilemma*, August 2, 2019), lower purchase price limits, higher risk asset buckets, more flexibility to trade post-reinvestment, and more opportunities to flush par.

  Valuing these embedded benefits is an imperfect science and can likely only be qauntified when the deal is terminated, as two managers with similar document stipulations can still react and trade in very different manners.

- **Arranger fees** – A lower equity purchase price essentially equates to lower fees for arrangers. Under standard modelling assumptions, we estimate that a 2.5pt drop in equity purchase price equates to an additional 0.5-1.0pt in final equity returns. Because purchase prices can differ by investor type and are closely negotiated among the investor, arranger and manager, estimating purchase prices can be difficult.

- **Credit losses** – Losses in the underlying portfolio are the last "cost" component. Credit losses depend on a number of factors, including manager capabilities, expected default cycles, underlying asset recoveries, and more. Typical pricing assumptions include 2% constant default rates and 65-70% recovery rates. A scenario where defaults are lower than the typical assumptions obviously creates a higher-than-expected return.

Thus, an initial low equity arb does not necessarily correlate to lower final returns, as equity yields are constantly evolving and hard-to-measure qualitative factors can provide additional benefits, but also additional downside, in specific future scenarios, as evidenced by pre-crisis deals where vintages with the lowest equity arb produced the highest IRRs.

However, as we argued in *CLO Equity: The Long and Short of It* (April 12, 2019), we think that longer-term equity investors should focus on what they can measure today – deals with higher starting yields to front-load cash flows and reduce market value risk from the final PO (principal only) payment.

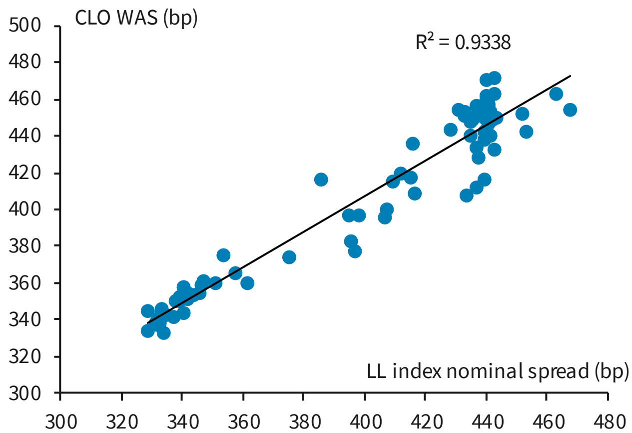
Measuring the Current CLO Equity Arb

While looking at *historical* equity yields using actual debt costs and effective asset coupons is important, the timelier, but also more difficult, assessment is the health of *current* equity yields, which leads to insight into the ultimate demand from new issue CLOs.

As noted above, our data are lagged by approximately a quarter, as we have to wait until CLOs become effective to have an idea of where asset income levels were when deals were initially priced. CLO debt costs, management fees, and leverage are typically slower moving, so determining the current asset income level arguably becomes the most influential (and difficult) variable in calculating the current equity yield. However, estimating when a CLO manager is purchasing assets, at what level, and whether it is being done in the primary or secondary market is a guessing game. As such, we took a simplistic approach to determining the best guide for current WAS, testing multiple S&P LCD loan indices, on both a lagged a non-lagged basis, to find the best approximate match.

FIGURE 13

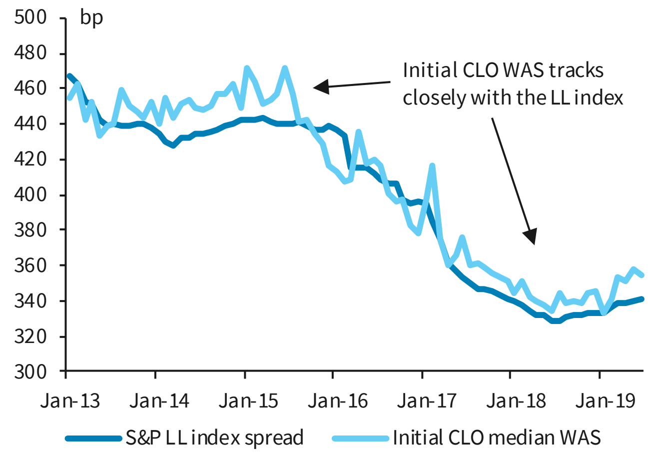
US CLO WAS and LL Index Strongly Related since 2013



Source: Kanerai, Intex, S&P LCD, Barclays Research

FIGURE 14

Few Periods When CLO WAS Higher Than LL Index Spread



Source: Kanerai, Intex, S&P LCD, Barclays Research

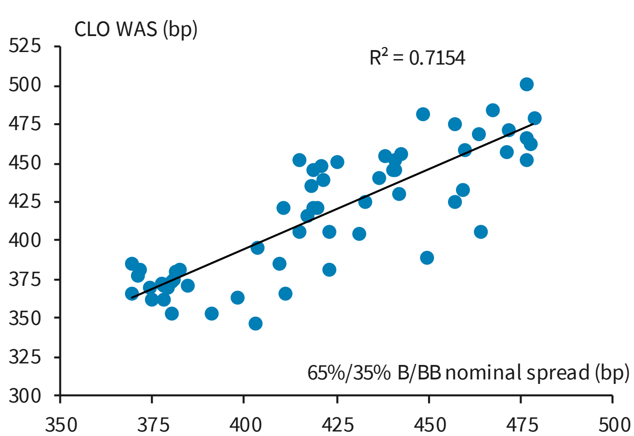
Using multiple loan indices available from S&P LCD, we found that the weighted average unlagged nominal spread of the S&P/LSTA Leveraged Loan Index had the highest R-squared with and lowest predicted differences (eg, residuals) from the initial median CLO WAS for US BSL CLOs (Figure 13). While there are periods when CLO WAS tends to be higher than the index (Figure 14), the overall trend and closeness in actual value tend to track quite well. Even when using the historical nominal spreads of the "BB-B" (BB/B 32%/68% current mix), "B- and Above," "Cov-lite," or "Loan 100 " indices, or an average mix of new issue spreads, we found that using the larger loan index with no lag tracked the best.

However, for European CLOs, we found that a no-lagged mix of the weighted average nominal spreads of the BB and single-B indices tracked best, with the most optimal weighting being 65% of the single-B index and 35% of the BB index (Figure 15).

The R-squared and residuals of this sample were weaker than the US results, likely because of the illiquidity and smaller size of the EU loan market, as well as the fact that EU CLOs can purchase bonds. As such, the movement of the nominal mixed index spread versus EU CLO WAS (Figure 16) has a wider difference for brief a period, although the trend is still similar.

FIGURE 15

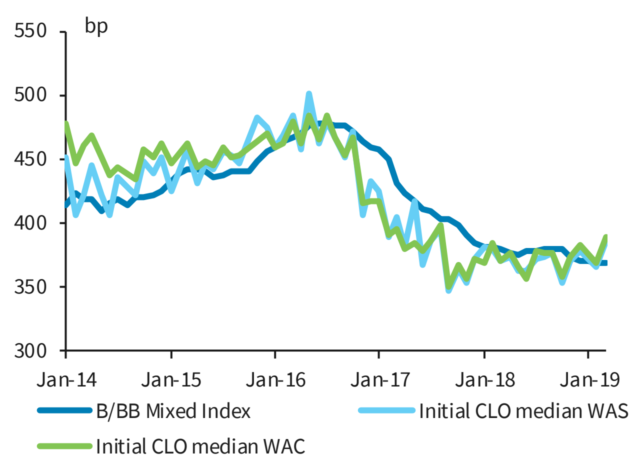
EU CLO WAS and Mixed Index Strongly Related since 2014



Source: Kanerai, Intex, S&P LCD, Barclays Research

FIGURE 16

Moves in Mixed Loan Index Also Close to EU CLO WAS



Source: Kanerai, Intex, S&P LCD, Barclays Research

Even though CLOs can have long purchase periods, as detailed in Figure 1, the R-squared of historical effective WAS to non-lagged nominal index spreads was always higher than when introducing a one- to three-month lag. In some sense, this suggests that CLOs are primarily priced as "print and sprint" transactions, skipping the longer warehousing period and instead quickly ramping up the portfolio using mostly secondary market transactions.

While some deals are done in this fashion, most CLOs are not. Thus, the reason non-lagged index spreads likely line up best with initial effective WAS is that both are weighted average nominal spreads (spreads over Libor or Euribor), *not discounted secondary spreads*. Because CLOs remain the largest holders of loans, at approximately 60% in the US and 45% in Europe (EU CLOs also buy high yield bonds), it makes sense that CLOs have asset coupons that closely represent the current loan market average, since pricing levels move much more slowly than secondary prices.

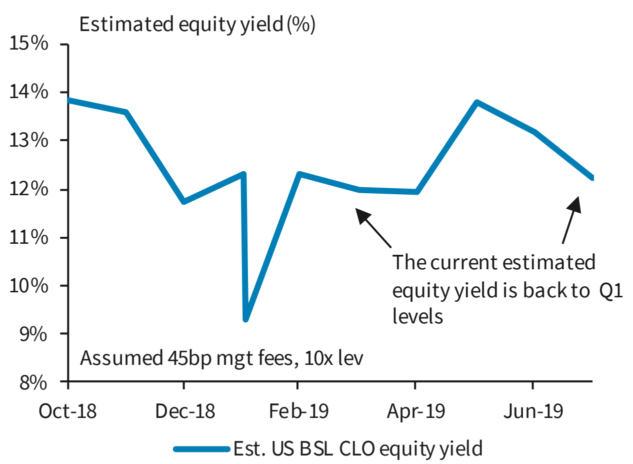
The largest difference between the asset profile of new issue CLOs and the loan market at time of pricing is likely to be in the asset spreads, or discounted margins (DMs), rather than average asset coupons. CLOs can be opportunistic when they purchase assets, especially if a warehouse is open during a period of high loan market volatility (eg, 4Q18), and end up with a very different average loan DM or weighted average price than the loan market would suggest at pricing. Thus, average asset coupons may match closely while other parts of the CLO structure could actually be benefiting (eg, from higher OC cushions).

With this understanding, and using the results from the index study above as a proxy for WAS, we estimate the current level of CLO equity yields in the US and Europe. Again, this is to provide a rough current equity yield estimate, since using the effective-date WAS is backward-looking (because of the roughly one-quarter lag). As the data show, the US BSL CLO equity yield has declined recently from the peak in May 2019 because of an increase in CLO debt costs (Figure 17). The European CLO equity arb has also declined, though to a lesser degree than in the US, and is still higher than 1Q19 levels (Figure 18). European CLOs have benefited from steady CLO debt costs, with new issue AAA spreads tightening materially in the past month, while loan spreads have widened marginally.

These data suggest that US CLO creation could continue in the near term, but with the arb nearing 12-month lows (ignoring late 2018/early 2019), issuance could be approaching a slowdown until CLO spreads tighten further. European CLO creation, despite the record year of issuance so far, could remain strong, as equity yields are still more attractive than in 1Q.

FIGURE 17

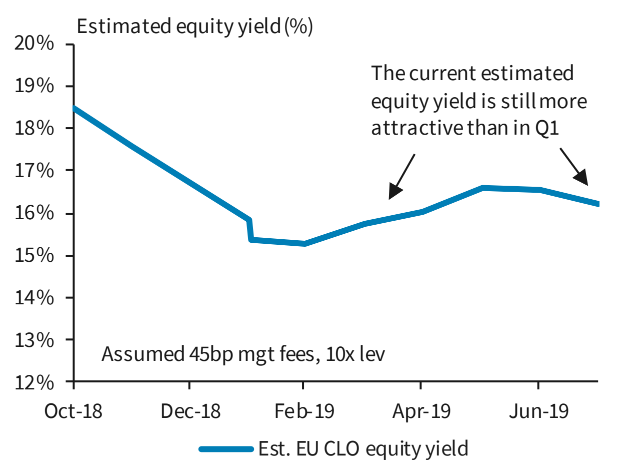
Estimated US BSL CLO Equity Yields Have Declined Recently



Source: Intex, S&P LCD, Barclays Research

FIGURE 18

Similar to European CLO Equity Yields



Source: Intex, S&P LCD, Barclays Research

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