As a result of central banks in major developed countries using aggressive and unprecedented measures to reflate their economies, financial asset prices are arguably becoming distorted toward unattractive valuations. Anecdotally, negative nominal yields in lengthy maturities across euro-zone and Swiss yield curves illuminate one seemingly overvalued market segment. Valuations for nearly all risk assets are no longer cheap on absolute basis, but we feel collateralized loan obligations (CLOs) stand out as inexpensive relative to other alternative credit assets.

Extreme monetary accommodation from central banks globally indicates that the current credit cycle will be elongated relative to history. We expect default rates will be benign in the near term. Risk premia on most credit risk assets tightened throughout 2014 with one exception: CLOs. Regulatory uncertainty and strong new issuance widened U.S. CLO credit spreads across the capital structure in 2014. The CLO market is one of the few sectors of the securitized market that has seen new issuance coming back with strong momentum. We believe the CLO supply dynamic, however, is ripe for change in 2015, making the market attractive for investors seeking total return.

We expect slower new issuance will be the primary impact of a changing CLO manager landscape due to upcoming risk-retention rules. Collateral-sourcing challenges will also define 2015 and 2016, according to our research. From a fundamental perspective, we expect benign default probabilities and a continuation of solid corporate-sector health. Finally, the market remains as one of the few offering attractive valuation anomalies.

As a value investor, the above three factors fit well with our definition of an attractive credit sector. Most importantly, CLOs are floating-rate notes, which serve as a good hedge against a potential interest rate hike in the U.S. In this paper, we will provide an introduction to the global CLO market, including underlying collateral, structure, lifecycle, historical performance, issuance trends, and post-crisis CLO evolution. We will then assess the relative value we see across the capital structure in the global CLO market relative to other risk assets, geographic locations, vintages, and duration.

**WHAT IS A CLO?**

CLOs are tranched securitizations backed by a pool of leveraged loans that are actively managed via a bankruptcy-remote special purpose vehicle (SPV). Leveraged loans refer to syndicated bank loans issued to below investment-grade corporations. The economics behind CLO issuance are a function of the arbitrage opportunity between leveraged loan spreads on the asset side and the financing cost of CLO notes on the liability side. As a result, CLO issuance and performance are intricately intertwined with the leveraged loan market.

**CLO COLLATERAL**

Leveraged loans reside at the top of the capital structure of a corporation’s financing channels. They have priority to get paid before unsecured high yield bonds. Globally, the leveraged loan market is
large and deep with over $810 billion in par value outstanding in the U.S. and $100 bn outstanding in Europe. Leveraged loans are actively traded secondary markets in the U.S. with transparent pricing, one of the unique advantages of U.S. CLOs that set them apart from other securitized products (see Figure 1).

Leveraged loan new issue volume dropped to merely $60 bn in the first quarter of 2015 from $131 bn during the same time period in 2014. The drastic 40% drop in new issue volume is primarily due to recent regulatory clarification on the Interagency Guidance on Leveraged Lending, which constrains banks’ ability to originate loans to highly levered companies. As a result, loan leverage and issue volume both dropped (see Figure 2).

In March 2015, net demand exceeded net supply by approximately $16 bn, as shown in Figure 3.

Not surprisingly, loan prices rallied and credit spreads tightened in the first quarter of 2015. As shown in Figure 4, the percentage of loans with prices above par increased to 45% in March 2015 from below 10% in January 2015. The combination of low new issuance and higher prices make it difficult for CLO managers to source collateral. Moreover, less arbitrage opportunities exist today and competition from loan funds and hedge funds further complicates the task of finding collateral for CLO managers. As loans are callable at par, CLO managers need to purchase loans at a discount to par to fulfill their “build-par” mission. We believe the path of least resistance is for CLO new issuance to fall meaningfully in 2015 due to less attractive economics and a lack of loan collateral supply suitable for CLO managers (see Figure 4).
With the revival of the CLO market, CLOs are increasingly the dominant source of demand for leveraged loans in primary markets. Currently CLOs purchased 65% of institutional loans in primary markets with loan funds and hedge funds taking up the remaining 20% and 10%, respectively (see Figure 5). When the Federal Reserve begins a rate-hike cycle, loan fund outflows may reverse as investors see them as a good hedge for rate hikes.

Due to the Interagency Guidance on Leveraged Loans and other regulatory scrutiny, loan leverage is improving lately with fewer loans having leverage of debt to EBITDA of six or above. Loan default rates should remain benign with maturity walls pushed out into the distant future, mostly concentrated beyond 2017 to 2020, both in U.S. and Europe.

**LIFECYCLE OF CLO**

The lifecycle of a CLO includes a ramp-up period, reinvestment period, amortization period, and non-call period (see Figure 6). When a CLO is issued, the proceeds are used to purchase pools of leveraged loans. A warehousing period may exist, which provides a CLO manager several months to ramp up and optimize purchases. After the collateral is fully ramped up, CLO managers can still reinvest during the reinvestment period within certain parameters required in the prospectus. When the deal is out of the reinvestment period, it will start to amortize according to the cashflow waterfall priority from the top to bottom tranches. Losses will be allocated in reverse order from the bottom up. CLOs have two to three years of a non-call period and then it can be called by the ownership tranche. Both interest and principal payment are subject to overcollateralization and interest coverage ratio tests to ensure that enough collateral exists to repay the principal of the debt tranches and to service the interest cost of debt tranches. A failure to pass the tests triggers diversion of cash flows away from equity tranches to senior debt tranches.

**CLO MANAGER**

The role of the CLO manager is to actively buy, sell, and manage the loan collateral to maximize equity returns while minimizing defaults to ensure senior debt gets paid in full. The CLO manager’s focus is building par on the loan collateral by purchasing loans at discounts to par. Manager style is critical in terms of his or her approach to sector allocation and collateral selection to avoid default. Manager tiering is evident in the market and it will become increasingly important when the risk-retention rule starts to apply on December 24, 2016. We may see changes in the CLO manager landscape with more consolidation as small managers might not have the capital to comply with the risk-retention rule.

**OUTLINE OF THE GLOBAL CLO MARKET**

The global CLO market started in the 1990s. It suffered from a temporary shutdown in the primary market during the Global Financial Crisis from 2009 to 2011, with the U.S. CLO market recovering in 2012, which was followed by a revival in the European CLO market on a smaller scale in 2013 (see Figure 7).
The global CLO market is large and deep with an outstanding volume of $400 bn in the U.S. and $80 bn in Europe. The U.S. CLO market witnessed its strongest ever new issue volume in 2014 with roughly $120 bn bonds issued. Issuance momentum continued in 2015 with close to $40 bn already issued as of April 30. Even with the strong recovery in the U.S. CLO primary market in 2014, due to fast amortization the net issuance in both the U.S. and Europe are struggling to stay positive, as shown in the two charts below. Market participants distinguish outstanding CLOs into “1.0,” “2.0,” or “3.0,” with 1.0 designating pre-crisis deals, 2.0 as post-crisis deals, and 3.0 as 2014 or 2015 deals (see Figure 8 and Figure 9). The reason for these denotations is to differentiate the deal characteristics and deal structures, on which we will elaborate in our relative value analysis later in this paper.

Spread widening across the U.S. CLO capital structure in 2014 can be attributed to strong supply. However, CLOs’ strong rally amid still-strong supply in the first quarter of 2015 caught every investor by surprise. We believe the rally indicates investors are starting to recognize attractive value in CLOs.

**INVESTMENT THEME**

As a globally flexible, value-oriented credit investor, we are searching for the most attractive credit sectors in the global credit universe. Specifically, we seek those credit sectors that exhibit a combination of solid credit fundamentals, valuation anomalies, and potential catalysts that can renormalize valuations.

Below we discuss our approach to comparing relative value in CLOs against other alternative credit sectors. Then we assess the relative value of the global CLO market within itself by looking across geographical locations, vintages, capital structures, and duration curves. We conclude that certain sectors in the global CLO markets meet our criteria for “most attractive assets.” We see attractive value in U.S. CLOs, especially in 2.0 deals. We like BB rated CLOs due to attractive yields/spread on an absolute basis. We also like AAA rated tranches due to their relatively wide spreads compared to other AAA credit assets.

1. **Solid fundamentals with few defaults:** CLOs have performed well in the past. Performance of leveraged loans is a function of gross domestic product growth and credit cycles. Different versions of loan default statistics and studies are shown below:

   - According to S&P statistics, of the over 6,100 ratings it issued on over 1,100 U.S. CLO transactions, only 25 tranches have defaulted. Based on this, S&P calculated a 0.41% default rate. Investors experienced no principal losses on tranches with ratings above BBB level for traditional cash flow CLOs (see Figure 10).
Based on JP Morgan’s loan default and recovery study, the 17-year (from 1998 to 2014) average annual default rate is 3.4%, with a 68% recovery rate on first-lien debt.

According to S&P LCD data, post the Global Financial Crisis, the default rate for leveraged loans has been benign at an average rate of 2%. Average exposure to oil and gas is only 5%—relatively low compared to 18% in high yield bonds. Therefore, leveraged loans are more insulated to an oil and gas selloff (see Figure 11).

In order to assess the margin of safety across the capital structure of CLOs, we calibrate how much cushion each tranche has to withstand historical average losses. We use the highest of the above three default rate statistics combined with average recovery rates to derive the historical average loss rate. After we stack the collateral loss rate against the credit support levels for each tranche, we can see that even BB tranches with the thinnest credit support have considerable cushion to avoid losses. The chart below shows the margin of safety in investing in CLOs based on historical losses (see Figure 12).
CONTRIBUTING FACTORS TO BETTER PERFORMANCE

- CLO structure, which represents cashflow waterfall and various embedded coverage tests, also includes overcollateralization and interest coverage tests to help protect senior debt holders. Failure of tests will cause cashflow diversion.
- Seniority of loans in the capital structure helps. Strong and consistent recoveries around 80% provide good protection even in a severe default rate environment. Leveraged loans are senior to high yield bonds with higher historical recovery rates. Recovery rates vary by industry and are pro-cyclical.
- A CLO collateral pool is not static. During the reinvestment period, CLO managers have to comply and maintain eligibility criteria and portfolio profile tests when they source, manage, and reinvest loans to ensure the quality of the collateral and minimize default risks. For CLOs that went through the Global Financial Crisis, managers had the luxury of buying distressed loan collateral to build par. That phenomenon contributed to better performance and quicker recovery of CLOs relative to other securitized products. Collateral-quality eligibility tests are defined below:
  a. WARF (weighted average rating factor measures the average rating of the collateral pool). The higher number, the worse quality;
  b. CCC asset ratio (the % of loan pool that are rated CCC or lower);
  c. Diversity score (measures the concentration of the collateral in terms of issuer and industry concentration);
  d. WAL (weighted average life) test limits the average life of the loan collateral;
  e. WAS (weighted average spread) test ensures the assets pay a sufficient spread above LIBOR, also indicate the riskiness of loans;
  f. % of senior secured loans;
  g. % of second-liens.

2. Valuation anomaly: CLO valuations appear to be cheap relative to other alternative credit assets across the entire capital structure. A BB CLO tranche yields over 8% — a 700 basis point (bps) discount margin, and AAA tranches yield a spread above a 150 bps discount margin, as shown in Figure 13. Discount margin refers to the excess return above a floating-bond reference rate when it is valued at a discount price. CLO spreads are either unchanged or widened from 2014 levels. The valuation anomaly can be attributed to:

- Misconstrued association with collateralized debt obligations (CDOs): CDOs are backed by subprime mortgages and broadly went bust in 2008, whereas the CLO endured mark-to-market volatility, then recovered when managers reinvested in cheaper loans at bigger discounts, which built back par consequently. Rating upgrades followed and new issuance markets more quickly recovered.
- Uncertain regulatory environment: Major regulatory changes from the Volcker Rule and Risk Retention Rule impacted banks’ appetite for CLOs in the near term and changed the CLO manager landscape. CLO managers have been working to comply with those two rules, and we expect further clarity to evolve.
- Increasing new issue supply: the recently announced risk-retention rule should reduce CLO new supply in the intermediate term. Our expected new issuance volume this year would be below $100 bn (see Figure 13).

3. Potential catalyst for spread tightening:

- The new issue market will face two headwinds in 2015, potentially reducing new issuance meaningfully. Firstly, the risk-retention rule, which will take effect on December 24, 2016, will potentially cause more consolidation in the CLO manager arena as small managers will find it difficult to have the capital ready to retain 5% of their CLO deals. Secondly, CLO managers will be challenged in sourcing loan

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**Figure 13** U.S. CLO New Issue Spreads

![Figure 13](image-url)
collateral as loan demand outstrips loan supply and arbitrage economics break down due to increasingly higher loan prices.

- More certainty on the front of regulation: the Volcker rule prohibits banks from owning “covered funds,” which means banks are not allowed to invest in CLO ownership tranches with “high yield bonds” in their collateral pools. The majority of CLOs issued in 2014 and 2015 are already Volcker-compliant. As the deadline of July 16, 2015, draws near, the spread between Volcker-compliant deals and non-Volcker-compliant deals will mostly disappear. More seasoned deals are also trying to comply with the Volcker rule by refinancing with amendments. The risk-retention rule requires CLO managers to retain 5% value in CLOs they manage by December 24, 2016. CLO managers are working toward compliance of the risk-retention rule.

- Demand for higher-yielding, safer credit products has been getting increasingly stronger in this low-yield environment. Money managers and insurance companies are attracted to the CLO market. Liquidity in this market is decent with roughly 100 million bonds in bid with competition on a daily basis, with bid/ask spread of 5-25 bps.

**RELATIVE VALUE IN CLO SECURITIES GLOBALLY**

1. **Across different asset classes:** Comparing spread movement of CLO new issues versus high yield corporates as well as comparing spread ratios of CLO new issues versus leveraged loans, we can see BB rated CLOs are cheaper than high yield corporate and leveraged loans (see Figure 14 and Figure 15).

   **Figure 14** Comparing Spreads Between CLO New Issues and HY Corporates
   
   Spread (bps), as of April 10, 2015
   
   ![Comparing Spreads Between CLO New Issues and HY Corporates](source: Morgan Stanley Research)

   **Figure 15** Spread Ratio: CLO New Issue vs. Leveraged Loans
   
   Spread Ratio, as of April 10, 2015
   
   ![Spread Ratio: CLO New Issue vs. Leveraged Loans](source: Morgan Stanley Research)

2. **Across geographic location - U.S. CLO vs. European CLO:**
   Although European CLOs rallied in 2014 due to less new issuance and quantitative easing (QE) expectations, many U.S. CLO managers went to the European market to issue Capital Requirements Regulation (CRR)-compliant deals. CRR is the European version of the U.S. risk-retention rule. Compared to U.S. CLOs, European CLOs have less diversified collateral from a fewer number of obligors and more collateral overlap. Collateral is mostly originated from several core European countries and the U.S. The following chart of default rate trend shows higher default rates in Europe due to the bloc’s weaker economy since 2011, with higher credit support as an offset (see Figure 16). However, recently the default rates of the two markets started to converge along with gradual European economic recovery as a result of ECB QE, a cheaper euro, and lower oil prices. European CLO spreads widened in the first quarter of 2015 whereas spreads tightened on U.S. CLOs. However, U.S. CLOs are still relatively cheaper, with a larger market and deeper liquidity.

   **Figure 16** Leveraged Loan Default Rates
   
   Percent; by Principal Amount, as of April 10
   
   ![Leveraged Loan Default Rates](source: Morgan Stanley)
3. **Across vintages**: Comparing CLO 1.0 deals versus 2.0 and 3.0 deals, we find that post-crisis structures have become more conservative with the following highlights:

- 2.0 deals have higher subordination, BB rated tranches in 2.0 deals enjoy more credit support than BBB rated tranches of 1.0 deals;
- 2.0 deals have shorter maturities, shorter weighted average lives, shorter reinvestment periods, and shorter non-call periods;
- No structured finance assets or re-securitization assets in 2.0 deals;
- 2.0 deals have lower second lien and cov-lite loans. Cov-lite loans refer to those loan covenants that are similar to the looser covenants of high yield bonds.
- 2.0 are mostly Volcker-compliant and have tighter indenture language.

Despite the above benefits of deal structures in CLO 2.0 deals, they still trade at a much wider spread than CLO 1.0 deals due to longer weighted average lives, as shown below. We believe 2.0 deals provide better value. However, 1.0 deal spreads may still tighten due to shorter lives and better technicals as a result of scarcity value (see Figure 17).

4. **Across capital structure**: We like a barbell approach and believe AAA, BB, and equity tranches look attractive:

- CLO AAA tranches are one of the cheapest AAA bonds when compared to comparable commercial mortgage-backed securities (CMBS) AAA and student loan AAAs (see Figure 18).
- BB lagged the rally due to a smaller investor base. They are cheaper than equivalently rated high yield bonds and leveraged loans (see Figure 19).
- We believe CLO equity tranches are attractive based on our outlook for a benign default rate and healthy corporate balance sheets. The returns on equity tranches are driven by the excess spread, which is the cash distribution derived from asset income after paying debt tranches, management fees, and administrative fees. The cash distribution is paid quarterly and front-loaded, subject to coverage tests. Investors can also take a “control” position of the deal by investing in equity tranches. According to JP Morgan research, the average annual cashflow returns to equity tranches for both pre-crisis and post-crisis deals are in the double-digit area (see Figure 20). The delay in a Federal Reserve policy-rate normalization should benefit equity tranches as the LIBOR floors will be worth more in the near future.
Across duration curve: Recently, refinanced CLO new issue activity picked up speed, we believe, due to the following three drivers:

- Investors’ demand for short CLO bonds. Refinance deals have shorter weighted-average lives than a generic CLO bond.
- Equity holders have incentive to reduce financing cost as CLO deals get deleveraged from cheaper top tranches to more expensive bottom tranches and roll down the credit-quality curve.
- Many CLO managers look to “Vocklerize” their deals through refinancing so that they can amend the documentation rather than re-write the documentation. Most CLOs originated in the 2012 vintage are in the money to refinance whereas some 2013 deals are out of the money to refinance. We like refinance deals to achieve shorter duration, better transparency, and improved liquidity.

CONCLUSION

We believe several sectors in global CLO markets offer attractive value in this low interest-rate and low-yield environment. We are particularly constructive on 2.0 U.S. CLOs in AAA, BB, and equity tranches of the capital structure. We also like refinance deals. We believe spreads on those CLO sectors should tighten in 2015 due to better market technicals and benign credit fundamentals. We will closely monitor leverage levels of underlying collateral as we are fully aware of the high percentage of cov-lite loans. However, we believe ultra-accommodative central bank policies and pushed-out maturity walls will elongate this credit cycle, benefiting investors seeking higher-yielding tranches of U.S. CLOs.

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