CLO Conference Notes 2019:

From the Information Management Network 8th Annual Investors Conference on CLOs and Leveraged Loans

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The 8th Annual Investors Conference on CLOs and Leveraged Loans was held on May 20–21, 2019 at the Sheraton New York Times Square Hotel. The event attracted 1,900 registered attendees (compared to roughly 1,800 at the 2018 event). The mood at the event was strongly positive, though it was sometimes tempered by remarks that loans have gotten weaker and the credit cycle must eventually turn.

Two topics that remain in the spotlight were the impending demise of LIBOR (and its potential replacement by SOFR) and tiering among CLO managers. Compared to last year, when many conference delegates expressed frustration or concern with the erosion of loan terms (covenants, EBITDA adjustments, etc.), delegates at this year's event seemed resigned to accept the situation. Of note, during the first day of the conference, Fed chairman Jerome Powell delivered a speech in Florida at which he stated: "[B]usiness debt is near record levels, and recent issuance has been concentrated in the riskiest segments. As a result, some businesses may come under severe financial

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EXHIBIT 1
Holdings of Leverage Loans by Type of Holder, 2018Q4 ($ billions)

CLOs	709
Mutual Funds	224
Banks	89
Insurance Companies	65
Other	60

Source: Federal Reserve, S&P Global Leveraged Commentary & Data

strain if the economy deteriorates."[1] He also noted that CLOs have become the largest holders of leveraged loans (Exhibit 1).

US CLO issuance has been very strong for the past two years, and 2019 is off to a good start (Exhibit 2). On the other hand, the current credit cycle is only getting older (Exhibit 3). The short-term outlook seems bright, but there is significant uncertainty looking beyond 2020.

The following summaries reflect remarks of the panelists who participated in selected sessions at the conference. For the most part, the summaries are drawn from notes that I took during the sessions. Unless otherwise indicated, the summaries reflect the panelists' remarks and not my views. The summaries have not been reviewed or approved by the panelists. While I have tried to capture panelists' remarks accurately, I apologize in advance for any inaccuracies and omissions. The exhibits interspersed among the summaries were added by me and are not the same as the slides shown by the panelists in their presentations. I wish to acknowledge the excellent work of Information Management Network in organizing and hosting the conference.

MONDAY, MAY 20, 2019

12:30 pm—Pre-Conference Workshop: CLO Analysis

A collateralized loan obligation ("CLO") is a securitization of corporate loans in which the principal and interest on a pool of corporate loans are used to pay debt and equity securities issued by the CLO. Proceeds from the issuance of the CLO's securities is used to purchase the corporate loans that compose the CLO's portfolio.

Most CLOs are actively managed securitizations with a manager that (1) has the ability to buy and sell loans during a portion of the CLO's life and (2) is responsible for reinvesting principal collections in new loans. A CLO is typically organized as a special purpose entity ("SPE") in a tax favored jurisdiction, such as the Cayman Islands.

There are two main types of CLOs: those backed by broadly syndicated loans ("BSLs") to large corporate borrowers, and those backed by loans to "middle-market" (i.e., smaller) borrowers. Middle-market CLOs are created to access attractive financing. BSL CLOs are typically structured as arbitrage vehicles to capture the margin between the weighted-average interest rate on a deal's loan portfolio and its weighted-average funding cost.

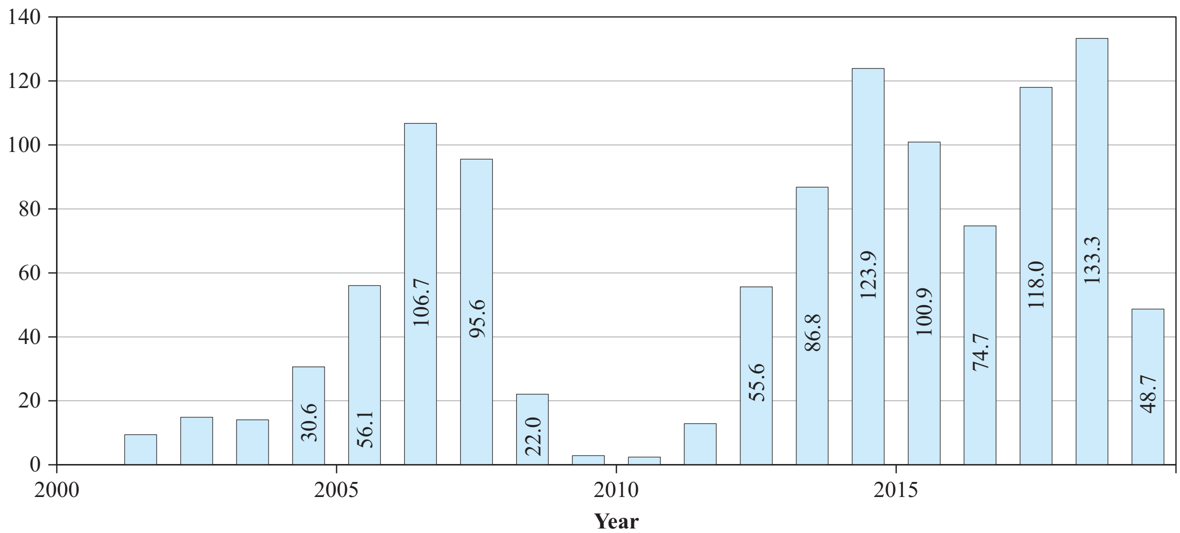
A CLO issues multiple classes (tranches) of notes with varying levels of seniority. The most senior class is the largest and is structured to obtain triple-A ratings. The junior classes are smaller and receive lower ratings.

Parties to a CLO. The manager is the pivotal party to a CLO. The manager has the central role in administering the CLO over its life and is usually the driving force behind its creation. The manager selects a law firm to draft the indenture and other necessary legal documents. The manager also hires an investment bank to sell the CLO's securities. The trustee and the collateral administrator enforce the indenture for the benefit of investors. The trustee and the collateral administrator represent the investors. Other parties that participate in the formation of a CLO include rating agencies, accountants, swap providers, and (of course) investors.

The investment bank often provides warehouse financing to allow a CLO manager to acquire corporate loans before the CLO issues its notes. The relevant legal document is a warehouse agreement. Another key legal document is a preliminary offering circular that is used for initially offering the CLO's securities to investors. It is followed by a final offering circular, which incorporates feedback or requirements from investors. The indenture is the key governing document for a CLO. Usually, there is also a collateral management agreement, a collateral administration agreement, an account control agreement, and a note purchase or placement agency agreement.

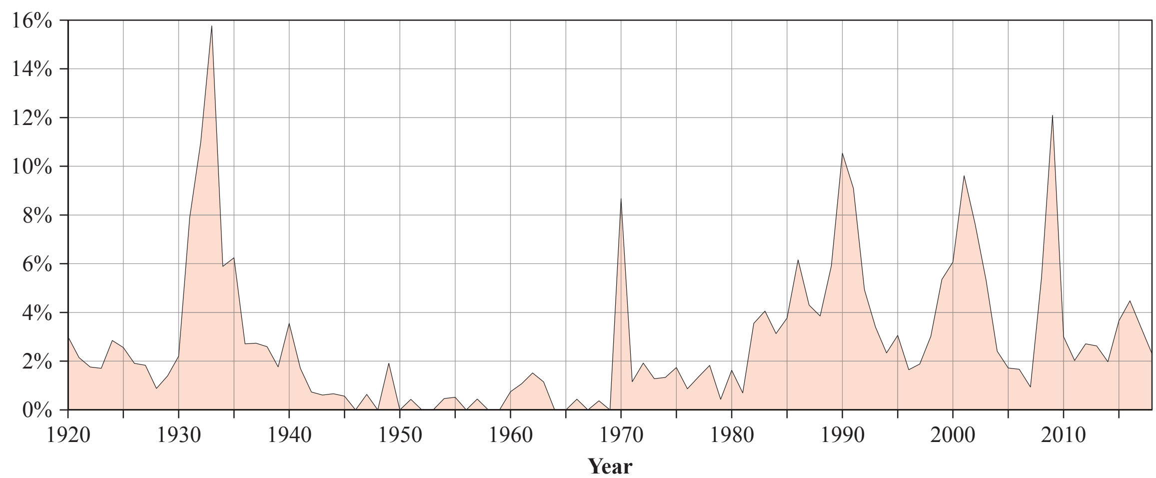
[1] Powell, J. H., *Business Debt and Our Dynamic Financial System* (May 20, 2019), https://www.federalreserve.gov/newsevents/speech/powell20190520a.htm (Remarks by Jerome H. Powell, Chair, Board of Governors of the Federal Reserve System, at "Mapping the Financial Frontier: What Does the Next Decade Hold?" 24th Annual Financial Markets Conference, sponsored by the Federal Reserve Bank of Atlanta, Amelia Island, Florida).

Exhibit 2
US CLO Annual Issuance (US$ billions)



Notes: 2019 data through mid-May. Does not include refis and resets.
Source: Asset-Backed Alert.

Exhibit 3
Moody's Global Issuer-Weighted Speculative-Grade Default Rate



Source: Moody's, Annual Default Study: Defaults Will Rise Modestly in 2019 Amid Higher Volatility.

CLO lifecycle. The first phase of a CLO's lifecycle is the warehouse period, which starts up to a year before the target closing date. During the warehouse period, the manager accumulates a portion of the loans to be included in the CLO's portfolio. The legal documents for the CLO are prepared during the warehouse period, typically between one and three months before the target closing date. Around the same time, the investment bank will start showing the CLO's tentative terms to investors and will use their feedback to adjust the structure and set the pricing for the offered securities. Pricing occurs about a month before the target closing date.

Between the pricing and the closing, the structure and the legal documents are finalized.

The closing date is when the CLO actually comes into existence. It is when investors pay for and receive the CLO's securities, the loans accumulated during the warehouse period are transferred into the CLO, and the legal documents are signed.

The ramp-up period starts on the closing date and lasts between four and six months. During the ramp-up period, the manager continues to purchase additional corporate loans until it reaches the target amount for the CLO (i.e., until the issuance proceeds are exhausted). The "effective date" marks the end of the ramp-up period. It is when the CLO's asset quality and coverage tests take effect and when the credit ratings are finalized. The CLO's first payment date is usually six months following the closing date.

A CLO's reinvestment period runs from the closing date until four or five years later. During the reinvestment period, the manager uses principal collections on the loans in the CLO's portfolio to purchase additional loans. This keeps the full balance of the portfolio invested and earning interest. At the end of the reinvestment period the CLO enters the amortization period, during which collections on the loans in the portfolio are applied to amortize the CLO's outstanding securities. Amortization is scheduled to conclude seven or eight years after the closing date and well in advance of the CLO's legal final maturity date, which is generally 10 or 12 years after the closing date.

A CLO's notes are typically callable starting two years after the closing date. In other words, a typical CLO has a two-year "non-call period." Redemption of the notes can occur any time after the non-call period. A CLO redemption can occur in a number of ways. A refinancing is when the outstanding notes are called and replaced by the issuance of new notes (presumably at a lower spread). A reset is when the manager uses a Dutch auction procedure to reset the interest rate(s) on one or more classes of a CLO's notes.

Compliance reporting. A typical CLO requires extensive compliance reports that address the quality and sufficiency of a CLO's underlying loans. The objective is to measure the ability of the CLO's loan portfolio to provide sufficient cash flow to repay the CLO's notes. There are three main types of compliance tests: (1) concentration limits—geographic, covenant-lite, Caa/CCC+; (2) credit quality—minimum floating spread, minimum coupon, maximum rating factor, Moody's diversity score, weighted average life, S&P CDO Monitor test; and (3) coverage tests—overcollateralization and interest coverage.

Cash flow waterfall. A CLO is a closed structure. The only source of funds for paying the CLO's notes is the cash flow from the loans in the CLO's portfolio. The distribution system is called the "waterfall" because it entails allocating available funds as if filling a sequence of buckets with water, with each bucket receiving water only after those before it have been filled. Interest and principal collections on the underlying loans generally have separate waterfalls, as shown in Exhibits 4 and 5.

1:10 pm—Pre-Conference Workshop: JP Morgan CLO Index

This year's US CLO issuance volume will likely be in the area of $120 billion and European CLO issuance volume will likely be around €30 billion. The amount of outstanding CLOs already exceeds $600 billion and could reach $800 billion by the end of 2019.

The JPM CLOIE is a benchmark index for US BSL CLO debt. It represents over 86% of the US CLO outstanding debt from 1,049 deals and 5,715 tranches managed by 150+ CLO managers. It offers 550 unique granular dissections, categorized by original rating, vintage, and weighted-average life. Over 500 firms and nearly 9,000 individuals subscribe via Bloomberg, with an estimated $40 billion in assets under management tracked in the CLOIE. It provides key daily statistics: discount margin, price, yield, margin, coupon, modified duration, weighted-average life, market value, par, etc. The price statistics come from a pricing service.

The CLOIE includes only US CLOs. It provides data about each of the underlying deals included in the index. It does not include euro-denominated CLOs because there is less price transparency on those deals.

The CLOIE rebalances monthly on the last day of the month. One of the nuances involves the handling of CLO refinancings and resets. The current methodology keeps refinancings and resets in their original vintages. However, that could change. A alternative approach being considered would track reinvestment buckets by vintage. The pricing assumptions include 20% CPR and 2% CDR. Seventy-nine percent of the index's constituent CLOs are priced to maturity.

EXHIBIT 4
CLO Interest Proceeds Waterfall

	Coverage Tests Passing	Coverage Tests Failing
1	Trustee and Administrative Fees (capped)	
2	Senior Management Fees	
3	Interest on Senior Notes	
4	Interest on Junior Notes (plus any deferred interest)	Repayment of Senior Notes
5	If Rating Confirmation Failure, Pay-down of Notes	Repayment of Junior Notes
6	If Interest Diversion Testis Failing, certain amount to be applied as Principal Proceeds	
7	Subordinated Management Fees	
8	Trustee and Administrative Fees (in excess of cap)	
9	Payments on Equity Class (upto the target return)	
10	80:20 split–80% to the Equity Class and 20% to the manager as Incentive Management Fee	

EXHIBIT 5
CLO Principal Proceeds Waterfall

	Reinvestment Period	Amortization Period
1	Certain payments if not paid in full with Interest Proceeds	
2	Reinvestment	Redemption of Senior Notes
3		Redemption of Junior Notes
4		Subordinated Management Fee
5		Trustee and Administration Fees (in excess of cap)
6		Payments on Equity Class (up to the target return)
7		80:20 split–80% to the Equity Class and 20% to the manager as Incentive Management Fee

The index does not yet have a formal mechanism for handling defaults of CLO notes. The index groups tranches by their initial ratings. It does not track rating changes.

In the future, the CLOIE might serve as the basis for CLO investing strategies.

1:50 pm—Hosts Welcome and Opening Remarks

The conference has 1,900 attendees and 61 sponsors. CLO issuance in 2018 was more than $125 billion. Leveraged loan originations were $622 billion for 2018. Refinancing slowed down. Covenant lite loans (i.e., loans with reduced covenant protections for the lender) accounted for 85% of new leveraged loans in 2018. CLO and loan documentation standards are in the forefront of investors' minds.

2:00 pm—Macro Credit: The Leveraged Loan Finance Arena

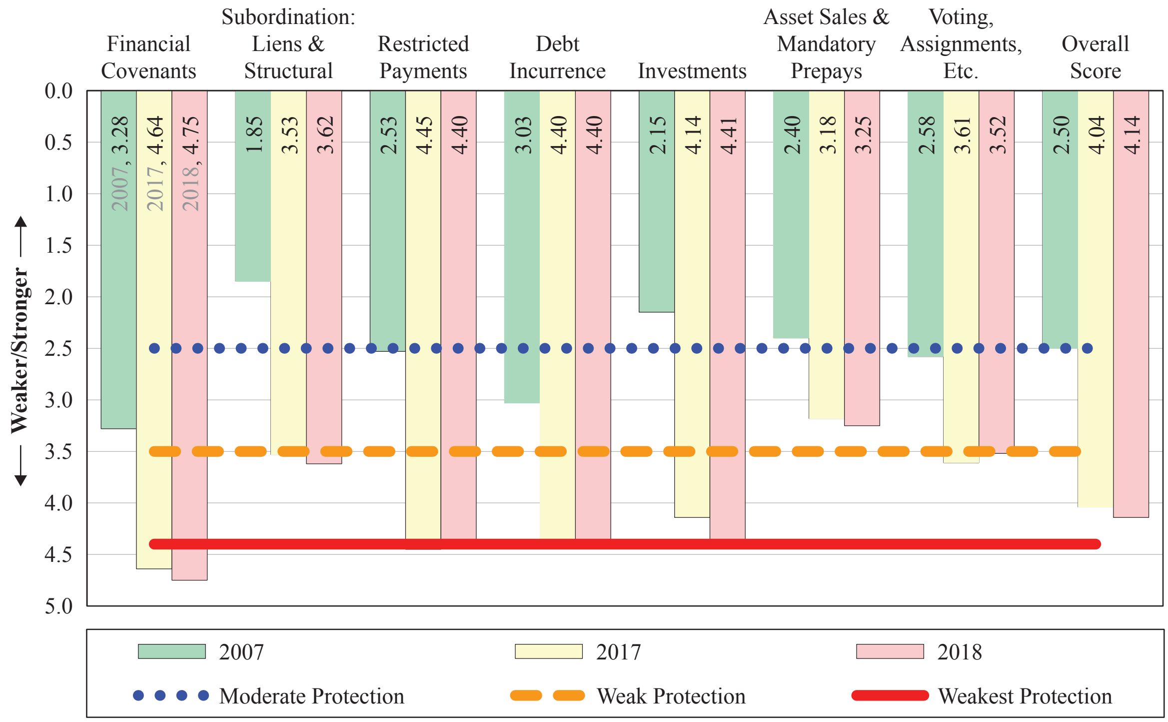
One panelist notes that Moody's expects modest, but healthy, growth for the US economy in 2019 (2.5%) and 2020 (1.7%), though the global economy will generally weaken. The amount of leveraged loans has grown to match the amount of high-yield bonds outstanding. The proportion of weaker credits has grown over time. In particular, the proportion of borrowers at the B3 credit grade has increased significantly.

Another panelist generally agrees, predicting that speculative grade defaults will be in the range of 1½% to 2% for 2019. The maturity profile is a positive, with only a small proportion of outstanding leveraged loans maturing by 2021.

A third panelist notes that some overseas investors have expressed concern that pressure is building as the

Exhibit 6

Loan Covenant Comparison Over Time (2007, 2017, & 2018)



Source: Moody's Investors Service.

debt load of the corporate sector increases. It may not be a problem as long as economic growth continues. However, when a recession eventually comes, the corporate sector may be particularly vulnerable and may experience weak recoveries on defaulted loans. Another panelist notes that leverage (i.e., ratio of total debt to EBITDA) is increasing in relation to very strong reported earnings, which may not be sustainable. If the economy cools off and earnings recede, leverage may spike.

Another panelist echoes a cautious sentiment. Investors will need to be nimble. Even if borrowers manage to avoid defaulting, investors will want to avoid downgrades.

One panelist asserts that there has been a severe deterioration in loan documents over the past decade. Covenants have declined dramatically across the board since the pre-crisis peak in 2007. Formerly robust lien scores now provide only moderate protection as lien dilution and structural subordination risk have increased significantly (Exhibit 6).

Financial covenants, if they are present, are so diluted with EBITDA adjustments that they've been rendered meaningless. Another issue is the erosion of restrictions on moving assets out of a company. Companies use that flexibility as a negotiating tool to pressure lenders.

One panelist states that the number distressed debt exchanges is likely to increase. The private equity sector owns a significant proportion of the B3-rated and B2-rated loans. Another panelist emphasizes that monetary policy is the main macro driver right now. A third panelist adds that inflated equity valuations can be a trap for lenders. Equity valuations can erode quickly, leaving lenders without the "equity cushion" that they thought they had. Another panelist asserts that it is essential to underwrite a credit on a "through the cycle" basis, rather than based on conditions in a hot market. Risk is not priced well today, but leveraged loans are still priced more attractively than high-yield bonds and emerging market bonds. A key discipline for investors (and lenders) is to be willing to exit the sector when they perceive a shift in the market that increases their vulnerability.

One panelist notes that the market will eventually reprice credit risk, and it is natural for credit to periodically reprice. Moreover, the repricing does not have to come with a recession or with a decline in the equity market; it can come at any time. Another panelist adds that credit repricing occurs when expectations change.

One panelist describes the events of February 2016, when high yield spreads widened significantly and energy prices plummeted. The key point is that volatility happens more often than many market participants expect.

2:50 pm—Keynote Address: David Bowman: The Federal Reserve's Role in the LIBOR Transition and the Implications for Leveraged Loans

The problems with LIBOR started to emerge during the financial crisis and developed more strongly in 2012. The Fed was not involved in the prosecution of the LIBOR manipulation cases.

The key policy agencies ultimately decided that it would not be practical to rehabilitate LIBOR because there are not enough transactions that underlie the LIBOR fixings. The solution was to create a replacement rate, which came to be SOFR, the Secured Overnight Financing Rate. SOFR is based on overnight Treasury repos. It is based on a huge number of transactions and is calculated by the Federal Reserve Bank of New York ("FRBNY"), which is not motivated by profit. SOFR already qualifies for FASB hedge accounting, and it will be the basis of a robust derivatives market. There is no requirement to use SOFR, but it is likely to be the best overnight floating rate available to market participants.

It is a bad idea to use LIBOR as a reference rate in new transactions because it is going to disappear. It is not a matter of "if" but rather "when." Any new transactions that use LIBOR should include fallback language that provides for switching to a replacement rate when LIBOR goes away. The Alternative Reference Rates Committee ("ARRC") has proposed an amendment approach that provides for a spread adjustment. However, it will not be practical to negotiate amendments for all outstanding contracts at the same time (i.e., when LIBOR disappears). An alternative proposal by the ARRC is for a "hardwired" approach that does not require renegotiation. The alternative resembles the approach being used for derivatives. It would use a compound average of SOFR for term rates (e.g., 1-month, 3-month, and 6-month floating rates).[2]

For CLOs and other securitizations, a key consideration should be using the same reference rate for a deal's assets and liabilities. A challenge, however, is having to convert all of the underlying assets of thousands of deals at the same time.

Over time, it should be possible to offer a robust, forward-looking term rate based on SOFR derivatives. SOFR futures already trade on the Chicago Mercantile Exchange. The ARRC plans to have a SOFR-based term rate at the end of 2021. Some firms are currently using "SOFR in arrears" for term rates. Lenders may not be able to offer compounded SOFR; however, their existing systems would likely allow for lending based on simple-averaged SOFR (rather than compound-averaged SOFR).

3:40 pm—Myth vs. Reality: Addressing the Headlines

There have been a number of negative (arguably alarmist) headlines about CLOs and leveraged loans over the past year. The panel will attempt to get to the truth behind the headlines.

One panelist begins by quoting a selection of racy headlines about CLOs and leveraged loans.

Regulators issued warnings in 2016 about the growing prevalence of covenant-lite loans. One panelist explains that this prevalence reflects the current stage of the credit cycle. The higher prevalence of covenant-lite loans, combined with a higher prevalence of weaker (triple-C grade) borrowers, means that there will be greater dispersion of outcomes when companies experience stress. The absence of covenants means that lenders will not be able to reprice loans when a borrower suffers a financial setback that would have been a covenant breach.

[2] There are various other proposals for bootstrapping 1-month, 3-month, and 6-month term rates from overnight SOFR. *See*, LSTA and Cadwalader, Wikersham & Taft, *Leaving Libor: A Business Case Roundtable*, p. 10 (May 30, 2019), https://www.lsta.org/uploads/DocumentModel/4248/file/lsta-cwt-libor-roundtable.pdf. The ARRC and the LSTA appear not to want to use 1-month, 3-month, and 6-month Treasury rates as the benchmark rates for those tenors. See Alternative Reference Rates Committee, *Second Report*, pp. 10, 14 (March 2018), https://www.newyorkfed.org/medialibrary/Microsites/arrc/files/2018/ARRC-Second-report.

One panelist adds that investors should consider both the quality of a loan's documentation and the borrower's credit quality in pricing the loan. Another panelist adds that the presence of loan covenants will not transform a bad borrower into a good one, and the absence of covenants will not transform a good borrower into a bad one. The covenant landscape is likely to evolve as the credit cycle continues to evolve.

One panelist notes that senior, secured debt is the standard for leveraged loans. Having a layer of junior debt in a borrower's capital structure is beneficial for a senior, secured lender because it provides a durable cushion to absorb losses. It is better to have the layer of junior debt than to have only equity. The decline in the prevalence of junior debt in borrower capital structures (along with the rise of covenant-lite loan terms) may lead to lower recoveries on defaulted loans in the future.

One panelist asserts that CLO equity investors generally have substantial analytic resources and are sophisticated at pricing risk.

The liquidity of CDO tranches is improving. Episodes of stress in the leveraged-loan market may be advantageous for CLOs because they are not market-to-market vehicles. That is, CLO coverage tests are based on the par amounts of the loans in a CLO's portfolio rather than on their market values.

One panelist states that it is important to focus on the capabilities of a CLO manager. Another panelist adds that managing a CLO is more challenging than simply managing the loan portfolio because the CLO structure imposes many constraints. A number of panelists state that there is likely to be increased dispersion of manager performance in the future. One panelist adds that today there is greater availability of data than in the past and that this helps investors.

One panelist asserts that CLOs and leveraged loans cannot trigger a financial crisis because there are no derivatives on leveraged loans (as there were on subprime mortgage loans before the 2008 financial crisis). There certainly will be a credit downturn at some point, and CLOs may suffer, but they will not precipitate an economic crisis.

4:30 pm—Credit Fundamentals: CLO and Loan Document Trends

In a poll of the audience for the session, respondents indicated that their biggest concerns in the area of loan documentation are:

- Additional debt incurrence 35%
- EBITDA add backs 28%
- Covenant-lite terms 21%
- Restricted payment provisions 14%
- Loan-only structures 2%

One panelist asserts that leveraged loans have gotten weaker along multiple dimensions. There is a greater prevalence of weak (triple-C) borrowers, covenant lite loans, and other weaknesses in loan terms.

According to a poll of the audience, the biggest concerns with respect to CLO structures are:

- CCC definitions and buckets 32%
- Loosening terms if initial anchor investor exits 20%
- Par flush provisions 20%
- Supplemental indenture requirements 17%
- Post reinvestment language 7%
- Deep discount buckets 5%

Another panelist argues that it is advantageous to allow a manager to have extra flexibility in order to manage difficult situations. It makes sense to allow a successful, experienced manager to have greater flexibility than one that lacks such a track record. However, the natural trend toward standardization means that newer managers may receive the added flexibility even though they have not earned it.

One of the key changes from CLO 2.0 to CLO 3.0 is the increased specificity about who can control resets and refis and how they happen.[3] The documents for newer transactions also provide for potentially resetting a CLO's tranches separately. Another panelist adds that new CLO documents treat modified loans as new investments and allow for combining and splitting tranches.

There is a recent case in which one party argued that leveraged loans are securities.[4] The prevailing view is that leveraged loans are not securities. If that changes, it would be a problem for the CLO market.

The key parties for determining the terms of CLO documents are the CLO managers and the investors in

[3] The term "CLO 2.0" generally refers to the cohort of CLOs issued from 2010 through 2013. The term "CLO 3.0" generally refers to CLOs issued in 2014 and later.

[4] *Kirschner v. JPMorgan Chase Bank*, No. 17 Civ. 6334 (S.D.N.Y).

the triple-A-rated tranches. If a deal has an outside equity investor, the equity investor will also likely have a voice. Another panelist adds that sometimes the lawyers are the source of key provisions, and managers may not be aware of the details. Another panelist adds that some CLO documents provide that certain protections terminate if the initial anchor investor sells its position.

Panelists have divergent views about how CLO documentation should address the LIBOR issue. One panelist asserts that some investors have tried to overreach, insisting that the fallback rate should be the Prime Rate. The better solution is to allow a manager to have sufficient flexibility to act in a way that is fair to all the parties and allows the deal to work. Another view is that investors need to have certainty about what interest rate will apply.

US risk retention regulations do not apply to CLOs backed by broadly syndicated loans. The Japanese risk retention regulations likewise do not apply to CLOs of broadly syndicated loans.

The documentation for a CLO often gets revised to accommodate investor demands and rating agency comments right up to (and sometimes even beyond) the transaction's pricing.

There are arguments for and against greater standardization of CLO documents. Managers that have greater flexibility want to preserve it. Investors that make special demands may not appreciate the cost of asking a manager to vary its regular practices for a given deal.

TUESDAY, MAY 21, 2019

8:35 am—Are Women Claiming Turf on Wall Street?

Citigroup research measures the performance of CLO managers and publishes monthly reports that follow four metrics. The research finds that managers led by women take more "calculated risk" compared to CLO managers led by men. However, managers led by men produced higher returns for CLO equity.

One theory is that a greater proportion of female CLO professionals went through the credit training programs of the major commercial banks. Those programs may have given female CLO professionals better credit skills than their male counterparts. Women faced greater sex discrimination at investment banks, so more of them came up through the ranks of commercial banks.

A recent study of hedge fund staffing showed that 19% of hedge fund staff are women, but women account for only 10% of risk-taking roles in hedge funds. One possibility is that female employees are steered toward so-called soft roles such as recruiting, while another possibility is that women prefer non-risk-taking roles.

Diversity of views and backgrounds in key decision-making groups within a firm leads to better decisions. This includes having both male and female participants and also having participants with different cultural backgrounds.

A firm that has both (i) a significant proportion of women in its professional workforce and (ii) a significant proportion of women in senior roles will have an advantage in recruiting the most talented female recruits.

One panelist asserts that female researchers may have a competitive advantage in emphasizing thoroughness of analysis before making decisions or recommendations. Women may also have a competitive advantage in communication skills.

Takeaways from the panelists:

1. Have a brand, be authentic to yourself, know when to listen and when to speak-up, get along with colleagues, retain a sense of humor.
2. Pay it forward, build a sense of belonging for all, focus on both diversity and inclusion.
3. Work hard and it will come; if you are as good as your competition you will get ahead.
4. Now there are both women and men who will recognize and appreciate talent.

9:15 am—Market Recap and Prediction: Can This Red-Hot Market Continue to Burn Bright?

US CLO reset and refi activity has declined this year relative to last year (Exhibit 7). Also, the difference between the yield on leveraged loans and the yield on AAA-rated CLO tranches has declined (Exhibit 8). Thus, there is less arbitrage value in recent deals.

The strong level of CLO issuance activity in the early part of the year may reflect loan purchases and warehouse facilities that were accumulating loans in 2018.

The second half of the year might have slower activity levels unless loan spreads widen. A slowdown in new issue supply in the second half of the year will likely lead to spread tightening on CLO tranches.

The dynamics of selling CLOs have evolved. A year ago it was possible, and even common, to issue a deal without an "anchor investor." Today's deals always have an anchor investor, which may purchase the whole triple-A tranche.

Leveraged-loan outstandings are about $1.6 trillion,[5] of which about 45% is in CLOs. There has recently been volatility in loan prices.

The retail and energy sectors have experienced the most stress in recent years. Other industries are well-diversified across subsectors and present lower risk. CLOs have substantial exposure to the tech and health-care sectors, both of which are well diversified across diverse sub-sectors. One panelist asserts that when the credit cycle turns, its effects will be concentrated in certain subsectors.

Investor panelists note that macro-economic conditions are currently benign. A challenge for investors is the rising prevalence of weaker loans and other risky features in newer CLOs.

One panelist asserts that the increased prevalence of covenant-lite loans has changed the operation of the credit cycle for leveraged loans. In 2008–2009, most loan defaults were technical defaults rather than payment defaults. Going forward, technical defaults will not occur because the loans do not have covenants. However, loans that are not in default might trade at very low prices because of financial deterioration (but not covenant breaches). CLOs with reinvestment periods that end two years from now may face difficulties.

Another panelist adds that CLO mezzanine tranches are heavily oversubscribed. That is not the case for the senior classes and equity. Senior and equity investors steer the deals.

One panelist asserts that the managers that performed the best were those that had higher levels of portfolio turnover and those that had the lowest levels of uninvested cash. There is more that influences CLO performance than loan default rates.

The low-interest-rate environment reduces the demand for loans by loan funds. On the other hand, the low-interest-rate environment has a positive credit effect on the loans.

The Japanese risk retention rule is not a major factor.

Many new investors entered the CLO sector last year. New investors participated in both new deals and resets/refis of older deals. Interest from new investors has made it possible to sell senior CLO tranches on a broadly syndicated basis. By contrast, in 2018Q4 and 2019Q1 it was not possible to find many investors for the senior tranches.

Forecasts by the panelists:

1. CLO issuance will be $120 billion for 2019 and $70 billion for 2020. Net issuance will be $60 billion for 2019 and $20 billion for 2020.
2. CLO issuance for 2019 will be flat relative to 2018. Spreads will be tighter, and the yield curve will steepen.
3. CLO issuance will be $120 billion for 2019. Spreads will tighten marginally in the short term. Exogenous macro factors, such as Brexit and US relations with China, will influence markets including the CLO and leveraged loan sectors.
4. CLO issuance for 2019 will be in the range of $110 billion to $120 billion. The environment for sourcing loans will be challenging, which will cause CLO warehouses to hold assets for longer periods.
5. CLO issuance for 2019 will be $100 billion.

10:15 am—LSTA Keynote Address: Navigating the LIBOR Crossroads

The problem is that LIBOR serves as the reference rate for contracts with an aggregate notional amount of roughly $200 trillion.[6] By comparison, LIBOR is based on less than $1 billion of daily interbank trading. LIBOR is likely to disappear in 2021. This creates a need for something to replace it. The Alternative Reference

[5] Forbes recently put the amount of outstanding leveraged loans at $1.4 trillion globally and $1.2 trillion in the US. *See* Valladares, M.R., *Big Banks Are Very Exposed to Leveraged Lending and CLO Markets*, Forbes (April 15, 2019), https://www.forbes.com/sites/mayrarodriguezvalladares/2019/04/15/big-banks-are-very-exposed-to-leveraged-lending-and-clo-markets/#533c33857309.

[6] The $200 trillion figure includes roughly $190 trillion of derivative contracts. The second report of the Alternative Reference Rates Committee ("ARRC") gives the breakdown as follows:

Rates Committee ("ARRC") is the committee that is working to develop a replacement for LIBOR. The new overnight right is the Secured Overnight Financing Rate ("SOFR"), which the ARRC has promulgated. SOFR is calculated each day by the Federal Reserve Bank of New York. SOFR is based on a market with roughly $800 billion of daily activity.[7]

SOFR is compliant with IOSCO principles for reference rates.[8] Those principles call for having a large volume of underlying transactions.

The adoption of SOFR has been decided. Now the focus is on implementation of a phased transition from LIBOR to SOFR. A market for SOFR-based derivatives is emerging, and it should allow for determining forward looking compounding for contracts with 1-, 3-, and 6-month interest rate adjustment intervals.

The LSTA recommends a five-step process for transitioning away from LIBOR:[9]

- Know your LIBOR exposures
- Understand (and adjust to) your replacement rates
- Build workable fallbacks to a new rate
- Operationalize fallbacks (and, presumably, new loans)
- Issue new instruments on the replacement rate

Know your LIBOR exposures. There are $4 trillion of US$-denominated syndicated loans and about $600 billion US$-denominated CLOs.

Know your replacements. SOFR is the replacement for LIBOR. While LIBOR is based on a term structure, SOFR is based on an overnight rate. One criticism of SOFR is that it is too volatile. But, the volatility is confined to points at quarter-end and year-end. That can be handled. Another criticism of SOFR is that it is lower than LIBOR. Therefore, a spread adjustment is necessary to convert from LIBOR to SOFR. A third criticism is that there is no term SOFR. The response is that it already exists but it is not an IOSCO compliant reference rate. It is possible that we will not be able to get to an IOSCO compliant term SOFR, but alternatives might be either compounded SOFR or SOFR in arrears.[10]

Build workable fallbacks. A fallback has two components: (1) a trigger event and (2) a replacement rate with a spread adjustment. One approach is an amendment approach and a second approach is a hard-wired approach. The securitization working group of the ARRC has been preparing proposed language for use in new deals that use LIBOR.

There is some debate about what should be the trigger event. One view is that it should be an announcement of the permanent cessation of LIBOR. Another view is that a trigger event should include an announcement that LIBOR no longer reflects the underlying economics. For securitizations, another trigger would

Estimated US$ LIBOR Market Footprint by Asset Class

Category	Type of Contract	Volume ($ trillions)
Over-the-Counter Derivatives	Interest rate swaps	81
	Forward rate agreements	34
	Interest rate options	12
	Cross currency swaps	18
Exchange-Traded Derivatives	Interest rate options	34
	Interest rate futures	11
Business Loans*	Syndicated loans	1.5
	Non-syndicated loans	0.8
	Non-syndicated CRE/ commercial mortgages	1.1
Consumer Loans	Retail mortgages	1.2
	Other consumer loans	0.1
Bonds	Floating/Variable Rate Notes	1.8
Securitizations	Mortgage-backed securities (incl. CMOs)	1.0
	Collateralized loan obligations	0.4
	Asset-backed securities	0.2
	Collateralized debt obligations	0.2
Total US$ LIBOR Exposure		199

*Notes: * The figures for syndicated and corporate business loans do not include undrawn lines. Non-syndicated business loans exclude CRE/ commercial mortgage loans.*

Source: Alternative Reference Rates Committee, Second Report, p. 2 (Mar 2018), https://www.newyorkfed.org/medialibrary/Microsites/arrc/files/2018/ARRC-Second-report.

[7] Alternative Reference Rates Committee, *Second Report*, p. 10 (Mar 2018), https://www.newyorkfed.org/medialibrary/Microsites/arrc/files/2018/ARRC-Second-report.

[8] Board of the International Organization of Securities Commissions, *Principles for Financial Benchmarks, Final Report*, FR07/13 (July 2013), https://www.iosco.org/library/pubdocs/pdf/IOSCOPD415.pdf.

[9] Coffey, M., *Tick Tock The End of LIBOR…and How It Affects You*, pp. 5–20 (9 Apr 2019), https://www.lsta.org/document/default/download/file/da78d513-5a1c-11e9-bd85-bc764e0453da; LSTA, *Credit Cycles & Systemic Risks*, pp. 16–22 (May 6, 2019), https://www.lsta.org/uploads/DocumentModel/4192/file/lsta-may-2019-systemic-vs-credit-risk-_lmfs_libor.pdf.

[10] *See* note 2, *supra*.

be when less than 50% of the underlying loans are based on LIBOR.

Derivatives are going to use compounded SOFR in arrears.

11:30 am—Securing Yield: Spotting Opportunities Across the Horizon

According to a poll of the audience, the reasons why CLOs have consistently offered higher yields than other products include the following:

• Structural complexity	52%
• Guilt by association with CDOs	28%
• Call risk and bad convexity	17%
• Liquidity	7%
• Dynamic loan investments	3%

Comparing CLOs to other products. CLOs provide higher yields than other investment products at the same rating level. CLO spreads have remained wide for three reasons. The first is changing expectations about the likelihood of a rate hike by the Fed. The second is a strong flow of new issuance. The third is uncertainty about the timing of cash flows, average life, and maturity. Another possible factor is that it is harder to analyze CLOs on a vintage basis because of reinvestment and active management during a deal's life.

One panelist asserts that an investor should not invest in CLOs unless it is comfortable with reading indentures and understanding structural complexity. It should not invest in a CLO merely on the basis of knowing the manager. By the same token, there are so many inefficiencies and idiosyncrasies in the CLO market, and there are frequent opportunities for skilled investors to exploit them. Many such opportunities emerge in the mezzanine tranches because they are only a peripheral consideration in selling a CLO's senior debt and its equity (and in the inherent tension between the senior debt and the equity).

Loan spreads vs. CLO spreads. The CLO and loan markets have historically traded in tandem over the long-term, but they are not necessarily closely tethered in the short term (see Exhibit 8). Tightening of loan spreads reduced the available arbitrage from packaging loans into a CLO. The high volume of CLO issuance in early 2019 is not justified by the contemporaneous arbitrage opportunity. Rather, it likely represents the packaging of loans acquired or warehoused during the brief period of spread widening in late 2018.

Relative value among the tranches. One panelist notes that some CLO equity investors are willing to accept low returns, and this has allowed managers to execute deals offering wider spreads on the debt.

Post-crisis CLOs are more customized than those issued before the crisis. Post-crisis CLOs allow greater flexibility to amend a deal without investor consent. The additional flexibility may benefit some investors and may hurt others.

In a poll of the audience, respondents indicate which tranches in a typical CLO's capital stack offer the best value:

• AAA	29%
• AA	10%
• A	10%
• BBB	13%
• BB	29%
• B	3%
• Equity	26%

One panelist asserts that all CLO tranches except for the BBB-rated tranches offer attractive value. He especially likes the AAA-rated tranches. Another panelist recommends debt with shorter average lives and equity with longer average lives. The panelist particularly recommends short tenor BB-rated tranches and equity from 2018-vintage deals.

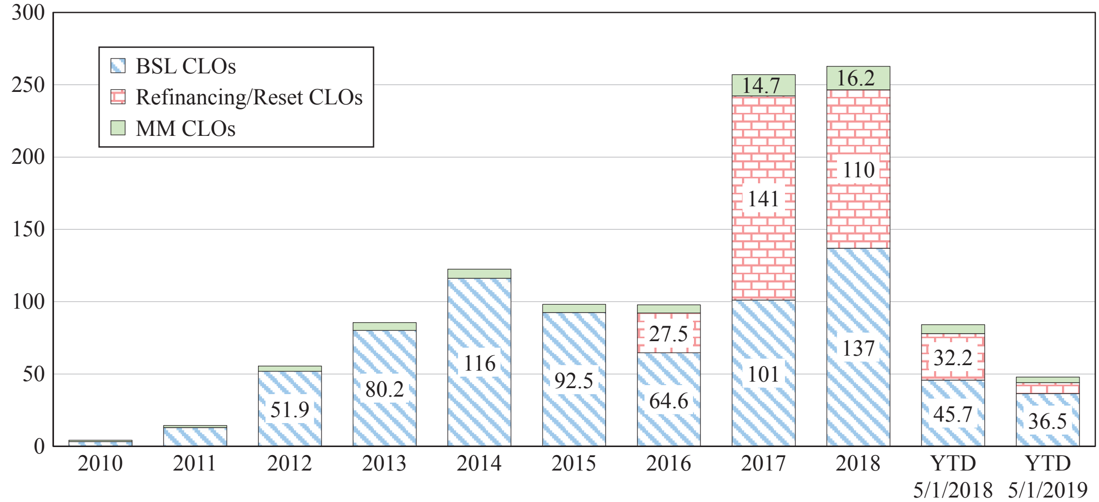
Investors are negotiating LIBOR provisions on new deals.

CLO equity investors seek returns in the range of 12% to 14%. Vintage and manager are the two biggest drivers of equity returns. Their impact is even greater on recent deals than on older ones. Variation in loan documentation is likely to amplify the dispersion of loan portfolio performance over the next few years. When thinking about a CLO's vintage, an investor should consider both the vintage of the issued notes and the vintage(s) of the deal's underlying loans.

1:20 pm—Assessing the Landscape: Europe and the US

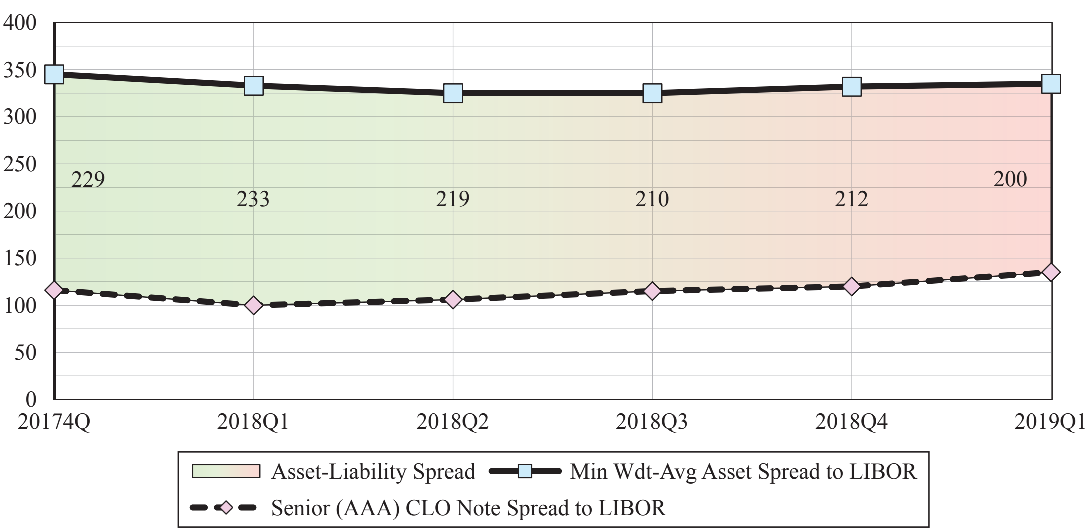
Relative value between US and European CLOs. Issuance volume and relative value have been among the most important topics for the CLO sector for

EXHIBIT 7
US CLO Issuance ($ billions)



Notes: BSL CLOs are CLOs backed by broadly syndicated leveraged loans. MM CLOs are CLOs backed by middle-market loans.
Source: FitchRatings.

EXHIBIT 8
CLO Asset-Liability Spread (basis points)



Source: FitchRatings.

2019. The supply of new deals is flat to slightly higher than this time last year. By contrast, the volume of resets and refis are down (see Exhibit 7). Despite the erosion of the arbitrage opportunity (see Exhibit 8), new CLO issuance volume has remained high. Senior tranches offer attractive spreads. There is an issue with Japanese regulation of CLOs, but it has not caused a significant drag on the sector.

One panelist asserts that CLO pricing is being driven more by supply and demand than by credit fundamentals. Pricing has become strange in some settings. In Europe, Euribor has become negative and, therefore, investors are very hungry for investment alternatives. Another panelist observes that there is more geographical diversification in European CLO portfolios. Recovery rates are likely to be lower in the future because of weaker loan terms.

CLOs vs. loan funds vs. direct lending. Some investors are restricted to purchasing only rated securities. Those investors cannot invest in loan funds and have to use CLOs to get exposure to the syndicated loan sector. Investors with greater flexibility can pursue direct lending to firms in sectors that banks are avoiding, such as shipping. On the other hand, direct loans are very illiquid and an investor must be willing to hold a loan for its entire life. Loan funds may provide liquidity, but they are still an imperfect solution. A fund may allow for unrestricted redemptions, but it would not be possible for the fund to liquidate all its assets quickly. The better model for a loan fund would be to restrict redemptions for several years (i.e., a lock-up).

Impact of european securitization regulation. After Brexit, the issue of the European securitization regulation has been the hottest topic of 2019. The European securitization regulation applies directly to EU-based entities but it may also apply indirectly outside the EU. For example, a European regulated investor can invest in a US deal only if the deal complies with the European risk retention rules.[11] There are conflicting views about whether the European transparency regulation (i.e., reporting requirements) would apply to US deals under the same principles. There are actually three views on how the European transparency regulation would apply to a US CLO: (i) it does not apply, (ii) it applies strictly such that a US issuer must provide all the detailed information required of an EU deal using the template specified by the EU authorities, and (iii) it applies but allows a US issuer to provide substantially similar information, at least until the European regulatory authorities issue a new template that specifically covers US deals. There are currently two templates; one has 121 fields and the other has 59 fields.

Brexit. Nobody really knows what will happen. One panelist views Brexit as a negative for CLOs. Another panelist asserts that Brexit creates an unhedgeable risk. None of the panelist experesses the view that risks associated with Brexit have already affected the CLO market.

2:05 pm—Manager Tiering: Qualities that Make an Investor Swipe Right

What is manager tiering? Each panelist defines manager tiering in five words:

1. Who do I want to invest with?
2. Perception and performance.
3. Ranking of performance and experience,
4. Performance, style, liquidity, platform, and team.
5. Investor differentiation.

One panelist asserts that tiering is reflected in the pricing of CLO deals.

Despite the nullification of US risk retention rules for CLOs,[12] it remains important for US CLO managers to have equity stakes in their deals. The original release of those regulations has had continuing influence on the market, making it easier for new or small CLO managers to raise capital for holding equity positions in their own deals.

Panelists broadly agree that a new manager must have a source of equity in order to get its first deals done. Once established, a manager can rise or fall in the market's view (and move up or down in the perceived tiering) based on both its performance track record and the strength of support and sponsorship from a corporate parent. One panelist asserts that the current economics would not support a start-up CLO manager today without sponsorship from a financially strong institutional sponsor that is willing to make an investment in the manager's "enterprise value."

Japanese and other Asian investors are the main buyers of the senior debt tranches and they are becoming

[11] *See* Regulation (EU) 2017/2402 of the European Parliament and of the Council of 12 December 2017, Laying Down A General Framework for Securitisation and Creating a Specific Framework for Simple, Transparent and Standardised Securitisation, and Amending Directives 2009/65/EC, 2009/138/EC and 2011/61/EU and Regulations (EC) No 1060/2009 and (EU) No 648/2012, Art. 5, § 1(d), 2017 O.J. (L 347) 35, 47, https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32017R2402&from=EN.

[12] *Loan Syndication and Trading Assn. v. S.E.C.*, No. 17-500 (D.C. Cir., decided 9 Feb 2018), https://www.cadc.uscourts.gov/internet/opinions.nsf/871D769D4527442A8525822F0052E1E9/$file/17-5004-1717230.pdf.

more demanding and sensitive to the nuances of individual deals.

CLO managers vary significantly with respect to how frequently they trade their portfolios. In an earlier panel, one panelist asserted that a CLO manager that has turnover rate below 40% per year is not doing its job. According to one panelist, a study of CLO manager trades showed that the trading activity produced substantial benefits in avoiding credit deterioration relative to what would have otherwise happened (i.e., frequent trading is correlated with trading out of deteriorating credits).

The management style for a given CLO manager is more dependent on its senior staff than on its support staff. A manager's CIO and portfolio managers define the firm's style to a much greater degree than its credit analysts. One panelist asserts that a CLO's equity investor may influence the management style for a given deal.

The loan market dropped 6 points in the last quarter of 2018.[13]

One panelist observes that tiering affects the resources that different CLO managers have for paying their staffs. Top-tier CLO managers have the resources to hire the best talent, while lower-tier managers do not. Another panelist notes that many CLO managers use in-house technology solutions, while others use third-party software. Either approach can work.

One panelist explains that managers produce a wide range of results with respect to being able to generate returns while maintaining strong credit quality. Panelists agree that tier-two managers would all like to become tier-one.

2:50 pm—CRE CLOs: Expanding the Product

CRE CLOs have emerged as a viable financing source for real estate bridge loans.

There has been $9 billion of CRE CLO issuance in the first third of 2019. CRE CLO issuance in 2018 was $13 billion.

[13] Other sources peg the 2018Q4 decline at a somewhat more modest level. According to a Bloomberg story, the S&P/LSTA leveraged loan index declined 0.9% in November 2018 and 2.5% in December 2018. See, Lee, L., *Leveraged Loans Suffered Biggest Monthly Decline in Seven Years*, Bloomberg (2 Jan 2019), https://www.bloomberg.com/news/articles/2019-01-02/leveraged-loans-suffered-biggest-monthly-decline-in-seven-years.

From an investor's perspective, a CRE CLO is like a floating-rate CMBS product. By contrast, from the issuer side, a CRE CLO is a financing tool that allows a real estate fund to obtain leverage. A CRE CLO provides matched, term funding for its underlying loans. In the early days, CRE CLOs were more like ABS CDOs (with underlying CMBS); today, the underlying assets are actual loans.

One panelist asserts that a key difference between a corporate or SME CLO and a CRE CLO is that a CRE CLO has hard collateral behind the deal. Reporting is more standardized for CRE CLOs.

From an issuer's perspective, issuing a CRE CLO provides diversification of funding sources. They also provide favorable pricing and advance rates. The match funding aspect is very attractive. The fact that a CRE CLO amortizes is a negative feature.

The warehouse period for a CRE CLO can be as long as two years, during which loans are accumulated. Sometimes the warehouse remains active even after a CRE CLO closes so that it can continue to hold loans that get added to the CLO later (i.e., after other loans may have paid down). The warehouse facility has margin calls.

The CRE CLO market includes both managed deals and static ones in roughly equal amounts. Managers decide between executing static or managed deals on a case-by-case basis depending on what they need at the time.

A CRE CLO manager benefits from having multiple funding sources so that it can use the structure opportunistically. One panelist notes that his firm loses some loans because its competitors ascribe higher values to the financed properties and, therefore, are willing to extend larger loans.

Sometimes a loan with a future funding obligation is included in a CRE CLO by splitting the loan into participation interests. The CRE CLO would include the participation interest representing the funded portion of the loan, and the participation interest representing the unfunded portion of the loan would remain outside of the deal. When the unfunded portion is later funded, it may be possible to bring it into the via reinvestment.

Reporting. The master servicer of a CRE CLO aggregates loan level data and passes it along to the trustee to perform the waterfall calculations. The manager provides additional color on the underlying loans because they are bridge loans and each one has a story.

One panelist states that the reporting for CRE CLOs is quite good. He notes that CREFC is working on developing a standardized reporting package for CRE CLOs, as it has done for CMBS.

One panelist notes that increasing leverage on the underlying loans is a cause for concern. The financing of equity is also sometimes a cause for concern. Another panelist remarks that competition might produce a dangerous erosion of credit standards.

The panelists predictions for 2019 CRE CLO issuance volumes range from $14 billion to $18 billion. Their issuance volume predictions for 2020 run as high as $20 billion.

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