The Art and Science of CLO Analysis

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CLO tranche investments offer global fixed income investors attractive relative-value opportunities with targeted risk profiles. Yet, even after a resilient performance during the financial crisis—no tranches that were initially rated AAA or AA experienced losses during the crisis—and a vibrant re-emergence over the past several years, the broader investment community continues to overlook CLOs.[1]

This oversight is understandable. As a nuanced asset class, successful CLO investing requires strength in both quantitative structured credit and traditional corporate credit analysis—two disparate competencies not typically found in most investors. Furthermore, proper analysis requires qualitative assessments of the collateral manager, the CLO structure, and the underlying portfolio of assets.

CLO tranche analysis, therefore, comprises a blend of art and science. This paper describes both the qualitative and quantitative steps that shape PGIM Fixed Income's investment process for CLO tranches.

The Art

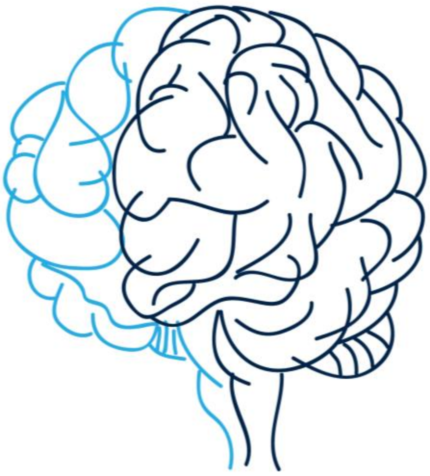
"There is no true greatness in art or science without that sense of harmony."

—Albert Einstein

Of the multiple factors that affect CLO tranche performance, the qualitative considerations listed below (The Art) are not defined by algorithms, models, or simulations. Rather, insight into these factors is an intuitive skill gained through extensive experience in analyzing and investing in CLOs. The details that follow not only show how these considerations affect tranche performance, but also demonstrate how investors who assemble these pieces into a comprehensive view may generate incremental alpha within the CLO sector.

The Art

- The CLO Manager
- Corporate Credit Analysis
- Covenant Assessment
- Primary Investing
- Secondary Trading
- Regulatory Perspective
- Ongoing Surveillance



The Science

- Objective Cash-flow Modeling and Analysis
- The CLO Indenture and Offering Memorandum

[1] "Twenty Years Strong: A Look Back at U.S. CLO Ratings Performance from 1994 Through 2013," Standard & Poor's, January 31, 2014. CLOs are Collateralized Loan Obligations.

Assessing the CLO Manager

With the underlying loans in a CLO serving as collateral for investors in the various debt tranches, CLO investors are essentially exposed to the discretion of the collateral manager. As seasoned investors in CLO tranches, as well as an experienced collateral manager, we believe that a collateral manager's credit selection process, portfolio management style, and conduct on prior CLO mandates may provide insight into the performance and volatility of prospective CLO tranche investments.

The manager's credit process includes its views regarding particular market sectors or capitalization levels (e.g. broadly syndicated versus middle market loans[2]), usage of second lien loans, and issues under duress. If a pool is holding higher risk loans, a manager's approach to mitigating credit losses or reaction to market dislocations could determine how various CLO tranches ultimately perform, especially the more junior tranches that have less credit enhancement and are, therefore, more sensitive to changes in the underlying collateral.

Perspective from a Top 10 Collateral Manager*

Additional, practical perspective may be brought to the CLO analysis process when an investor is also a collateral manager. Prudential Fixed Income is one of the 10 largest global CLO managers and managed or subadvised $10.7 billion across 26 cash and synthetic CLO/CDO structures as of June 30, 2015.

* Source: Creditflux Global CLO Manager Rankings as of March 2015

The collateral manager's track record, while not predictive of future performance, can indicate its tactics for seeking alpha, potentially revealing their core philosophy for generating excess returns. Reviewing manager performance and the market context in which it occurred often raises important questions: did the manager outperform by avoiding losses, taking greater credit or liquidity risk, loosely interpreting the indenture covenants, or executing relative value trades? Are those attributes desirable under current, or expected, market conditions? A manager's historical performance is assessed by analyzing trade history, realized losses, positions held over time, CLO amendments executed, and by checking its reputation with sell-side counterparties.

In addition, our manager evaluation identifies the number and quality of the day-to-day CLO staff as well as the organizational structure of the credit research and portfolio management teams. No less important is an analysis of a manager's operational, legal, and compliance functions. A manager's experience in settling leveraged loan trades, commitment to technology, development of business continuation plans, and established trade allocation policies can be critical components of the CLO investment process.

"The data show that very few of the rated CLO 1.0 tranches have defaulted despite these CLOs weathering through one and in some cases two recessions.

We believe a clearer picture emerges from this data, presenting CLOs as a robust platform that has been able to withstand significant levels of economic stress."

—Standard & Poor's, January 31, 2014

These qualitative characteristics can also have a tangible impact on a CLO's market liquidity. The list of aforementioned variables demonstrates that, even if two distinct CLOs have similar collateral pools and covenants, the assessment of the collateral manager is a crucial step in determining the appropriate credit spread for a CLO tranche.

[2] *Middle market loans are generally not widely distributed and are held by a limited investor base.*

Corporate Credit Analysis

A typical CLO is comprised of 150-300 issuers from at least 20 different industries and a global leveraged loan universe of over 1,000 issuers. This diversity reflects a collage of business models, capital structures, and industry dynamics, underscoring the challenge of fully comprehending the credit quality of the collateral pool securing a CLO bond. Additional factors that may affect collateral quality include whether the underlying loans are broadly syndicated, upper middle market, or traditional middle market. The definition of middle market loans is non-standard considering the variations in a manager's EBITDA cut off for traditional middle market loans. Thus, understanding the nuances of a loan's capitalization and its respective market is an important factor in assessing the underlying collateral.

When evaluating CLO collateral, current market spreads and credit ratings may provide a partial indication of credit quality, but they may also be misleading. Full comprehension of collateral quality requires a team of experienced credit analysts who possess the ability to reliably critique individual credits within the collateral pool through the use of internally developed credit views and risk assessments.

These credit views need to extend globally as major issuers increasingly look to foreign markets to diversify their funding sources or lower their cost of capital. In these cases, the picture of an issuer's credit quality is only complete when evaluating its entire capital structure across regions, currencies, and legal jurisdictions (please refer to the accompanying link for additional perspective on global loans).

Considering that most loans are prepayable at any time, properly valuing this callability is fundamental to determining option adjusted spread (OAS) levels and making informed relative-value decisions, particularly for asset managers who span the breadth of the global fixed income markets. In addition, individual loans are evaluated for the repricing risks associated with an underlying credit experiencing positive credit migration, tighter spreads, and the subsequent incentive to reprice a loan in order to lower its cost of capital (please refer to the accompanying link for more insight on valuing call options).

Marrying the quantitative option analysis with an issuer's idiosyncratic credit profile is an important step in differentiating value across loans with seemingly similar spreads or ratings. Conversely, an issuer facing credit deterioration and wider spreads will be at the mercy of the broader loan market, highlighting the refinancing and liquidity risks of high yield credits. The prepayment and credit risk scenarios are critical for CLO investors as they not only affect the quality of the underlying loan pool, but they also determine whether CLO bond covenants are tripped, thereby affecting the cash flows received by investors across the capital structure.

Given the expansive investable universe of leveraged loans, the secondary market provides another set of information for evaluating specific loans. For example, active loan traders can assess market sentiment towards particular issuers and generate alpha by reconciling market perception with the credit analyst's bottom-up views. Finally, a dedicated loan trading desk can assess how the market's flow of funds might affect trading in a particular sector, the broader leveraged loan market, or within the CLO tranche market.

CLO Covenant Assessment

The lines that define certain CLO covenant tests can be blurry. For instance, a seemingly straightforward asset quality test is the "covenant-lite" test, which attempts to measure how many of the underlying loans have maintenance covenants. Intuitively, this is a binary determination—an underlying loan either has this covenant or it does not. Yet, what is included or carved out from the definition of covenant-lite loans varies widely across CLO indentures. As a result, reported covenant-lite exposures may not provide an accurate depiction of the pool's actual covenant status.

Understanding the nuances of how key tests are defined, measured, and reported is critical to evaluating the strength of the CLO covenants as they will affect the performance of a given tranche.

CLO Primary Investing

For the discerning CLO investor, the primary market provides value-generating opportunities to negotiate specific CLO covenants that achieve favorable terms to optimize embedded optionality and cash flows. For instance, a senior debt investor will prefer highly diverse portfolios with favorable amortization covenants to protect against tail events. Equity investors, on the other hand, may focus on maximizing the structure's ability to reinvest, the manager's flexibility, and the ability to easily redeem or refinance the debt. Properly pricing these options is as important as negotiating the package of terms during the negotiation process.

CLO Secondary Trading

In the secondary market, tranche investors can generate significant alpha through active trading. While the sequential tranches in the CLO capital structure provide opportunities for a varied set of investors, some will invariably sell or underweight the asset class amid credit cycle downturns, heightened liquidity demands, or regulatory changes. Conversely, other investors may be impatient and willing to pay through new issue spreads in order to invest. These variations in demand can create additional alpha opportunities for those focused on the tranches' intrinsic value, experienced in investing in CLO tranches across multiple credit cycles, and supported by an active CLO tranche trading capability. An active trading desk can also determine the most efficient method to capitalize on market changes. Although BWIC (bids wanted in competition) lists are a popular way to trade, many opportunities may be captured away from bid lists and sourced through strong dealer relationships.

Regulatory Perspective

As global regulations have recast the investing landscape following the financial crisis, they have also created many attractive investment opportunities. Understanding how the market's structure or its participants are impacted allows the tranche investor to make informed assessments of where ongoing value resides within the sector.

One of the wider-reaching pieces of regulation from the Dodd-Frank Act—the Volcker Rule—has shaped the composition of recent CLOs. As a result, many U.S. bank investors are now prohibited from owning CLOs containing underlying collateral that is not a loan, which has restricted the ability of some managers to purchase bonds. This change has created attractive opportunities for non-bank investors to purchase non-Volcker compliant legacy CLOs in the secondary market.

In addition, regulators, such as the Federal Reserve, the Office of the Comptroller of the Currency, and the Federal Deposit Insurance Corporation (FDIC) have maintained a close watch on leveraged loan underwriting standards, which may positively impact the underlying collateral quality for tranche investors.

The heightened regulatory environment is also one where capital charges imposed by the FDIC for U.S. banking institutions and the European Union's Capital Requirements Directive (CRD IV) impact how CLOs are treated on some investors' balance sheets. Furthermore, regulation requiring collateral managers to retain some "skin in the game" is an important structural change that could impact the market for many years to come. Risk retention will redefine the landscape of CLO collateral managers as only well capitalized managers will meet ongoing capital requirements.

Ongoing Surveillance

Portfolio surveillance is critical to maximizing the value of CLO investments. CLO trustees provide monthly reports with detailed summaries of CLO bond covenants, results of percentage limitations tests, trading activity, prepayments, and changes on loans' credit ratings. Given the aforementioned nuances between individual CLOs, reviewing the monthly reports is critical to identifying errors on the part of the trustee, identifying changes to a manager's stated investment style, or identifying questionable behavior on the part of the collateral manager.[3] While the degree of transparency in these reports is high, the ability to synthesize the information and identify key trends is a requisite skill developed through extensive experience in the CLO market.

The Science

"Science is a way of thinking much more than it is a body of knowledge."

—Carl Sagan

The Science of CLO tranche investing incorporates disciplines from both structured credit and traditional corporate credit investing. Successful tranche investors will complement The Art through the use of quantitative methods to identify the intrinsic value of a CLO tranche relative to the underlying collateral pool. This side of tranche investing also requires a strong understanding of legal frameworks to interpret transaction documents in order to recognize and price the embedded optionality. The legal perspective helps us identify the options received by different participants in a CLO and subsequently value each of those options using pricing models as part of calculating the option adjusted spread for each tranche (please refer to the accompanying link for additional information on option modeling).

Objective Cash-Flow Modeling and Analysis

While many components of the CLO investment process involve the corporate credit analysis techniques honed through market cycles, the quantitative review of the same leveraged loan pool augments our views on individual credits. Once the collateral pool is assembled, the underlying assets are not independent entities and must be viewed as correlated system overseen by the collateral manager. This perspective underscores the importance of a quantitative review that begins with aggregating inputs to project the default and prepayment behavior of a pool of correlated credits.

These loan level inputs include collateral spread, price, maturity, credit rating, sector, expected recovery rate, and call option features. The analyst will also develop a view on the correlation of the assets in the pool. Collateral defaults and prepayments are projected in a risk-neutral environment by modeling each firm's value stochastically while considering the correlation of a firm's value to market and industry factors. We further adjust the nominal market loan spread using a proprietary option pricing model that accounts for a loan's lack of call protection. This modification helps to better estimate the market's embedded default expectations for a given loan.

Typical CLO Capital Structure

Principal & Interest

Tranche Name	Credit Quality	Enhancement
A	AAA Senior Debt	62% of Deal 38% Enhancement
B	AA Senior Debt	13% of Deal 25% Enhancement
C	A Mezzanine Debt	8% of Deal 17% Enhancement
D	BBB Mezzanine Debt	5% of Deal 12% Enhancement
E	BB Junior Debt	5% of Deal 7% Enhancement
F	B & Equity	7% of Deal

Losses

Source: Pramerica Fixed Income as of September 2015. Shown for illustrative purposes only.

[3] *For example, a 2012 legal judgment found a collateral manager's proposed settlements of trades, which it had previously committed to, violated the CLO's indenture.*

After simulating the collateral prepayment and default behavior, the collateral results are applied to the CLO's unique deal structure (overcollateralization triggers and waterfall) to produce cash flows and prices for each tranche in the CLO's capital structure. Ultimately, this process helps us estimate value across the CLO's capital structure while allowing us to perform sensitivity analysis of the model inputs and assess potential changes in the capital structure during the new issue process.

Given a tranche's call option, another important aspect of evaluating a CLO tranche is the behavioral and economic conditions required for equity holders to exercise their option to call the transaction or refinance one or more tranches. Thus, the potential call decision is modeled along all simulated paths described above. Key output statistics include the modeled tranche price, expected tranche write down, loss-adjusted spread, and tranche performance in tail scenarios. Although it is not market convention to price deals in this manner, these outputs are a key tool for us to evaluate tranches.

By developing a comprehensive analytical framework, investors have a tool that incorporates both the value of the underlying collateral and the cashflow waterfall of the CLO structure, thereby objectively determining a fundamental value for each tranche in the CLO capital structure. It also helps an investor assess and calibrate how structural nuances, such as the priority of payments (the waterfall), the characteristics of the tranche's credit enhancement and thickness, and other embedded options, may affect the value of a tranche.

The CLO Indenture and Offering Memorandum

While the average indenture and offering memorandum includes about sixteen sections and over 300 pages, it is critical that investors not only understand its legal framework, construction, and interconnectedness, but also the options that are being given and received by disparate CLO tranche investors.

We believe there are key sections of an indenture that every investor should understand, including the payment waterfall, the ability to modify an indenture without noteholders' consent, the approvals necessary to modify "money terms," the event of default provisions, and the collateral manager's investment flexibility during the reinvestment and amortization period.

Structural factors requiring consideration regard the methodology for calculating overcollateralization ratios and the specific haircuts certain securities may receive as part of this calculation. For example, some CLOs may hold an asset as a default, while others may not given the nuances in indenture terms. Other critical structural attributes include how payments are prioritized to sequentially paydown notes and a manager's ability to reinvest during the amortization period or in scenarios where collateral quality tests are not met.

Conclusion

The search for risk-adjusted spread and yield has been a driving force in the fixed income market over the past several years, and the CLO market has emerged as a vibrant, growing sector in the wake of the Great Recession. Much was learned during that period, including the growing realization that simply having a view on just the collateral or just the structure is insufficient to achieve above market returns. Rather, it takes equal parts art and science to develop a comprehensive analysis of CLO tranches that includes recognizing how embedded options in the collateral and the tranches will affect an investment's long-term return across credit cycles.

The CLO investment process described in the preceding pages has been developed over years of managing tranche investments for clients and with a close eye on the constant developments within the market. The process is constantly refined as the qualitative aspects—born from market experiences—are enhanced by empirical models. It is a fusion of diverse skillsets that underscores the tendency of the broader investment community to overlook the CLO sector. This creates an environment where an experienced trading and research platform can capitalize on the most attractive risk-adjusted opportunities within the CLO tranche market.

Notice

Source(s) of data (unless otherwise noted): PGIM Fixed Income as of September 2015.

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