



Investing in CLOs

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Key Considerations for Today's Market

The fundamentals of CLO investing are largely unchanged since the earliest days of the market. Analysts must make judgments about the three key components of any CLO: portfolio, structure and manager. Each of these components presents a complex mix of risk and value that should be evaluated as an integrated whole. The challenges inherent in making such holistic judgments can be daunting in the best of circumstances given the complexities of loan portfolios, CLO structures and legal documents, in the context of a market defined by sudden shifts in risk and relative value.

At Ares, we rely on a rigorous investment process that we have honed over nearly twenty years of CLO investing experience. Our process establishes an analytical framework within which we maintain a consistent standard while still allowing for subjectivity and our experience in order to adapt to different strategies and market conditions.

Investment processes are often described as a series of steps, or diagrammed as flow charts or decision trees. At the heart of our investment process are hundreds of questions that we ask and answer – questions that are intended to reveal risk and value.

To help us answer these, and hundreds of other questions, we rely on a proprietary set of analytical tools and systems, called *INsight*. This technology platform was designed and built by our investment team specifically to invest in structured credit. Without such resources, we would find investing in the CLO market a formidable challenge given the wide range of risks present in today's market.

This paper is intended to provide a window into our investment process. We highlight what we believe are some of the key questions that investors should be asking today as they participate in this established, yet evolving, asset class.

Keith Ashton
Portfolio Manager

HEADQUARTERS
Ares Management, L.P.
2000 Avenue of the Stars
12th Floor
Los Angeles, CA 90067
www.aresgmt.com

Company Locations
U.S. Los Angeles, New York, Chicago, Boston, Atlanta, Washington D.C., Dallas, San Francisco
Europe/Middle East London, Paris, Frankfurt, Stockholm, Luxembourg, Dubai
Asia/Australia Shanghai, Hong Kong, Chengdu, Sydney

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Introduction

The fundamentals of CLO investing are largely unchanged since the earliest days of the market. Analysts must still make judgments about the three key components of any CLO: portfolio, structure and manager. Each of these components presents a complex mix of risk and value that must then be evaluated holistically – in aggregate.

The challenges inherent in making such judgments can be daunting. Each CLO references a diversified loan portfolio typically consisting of several hundred individual positions. Each loan portfolio itself comprises a unique subset of the investible loan universe. After investing in as few as fifteen CLO securities, an investor may find himself exposed to well over 1,000 unique corporate credits of varying quality and value.

Each CLO is designed (structured) largely according to rating agency criteria that stipulate minimum credit enhancement levels necessary to achieve target debt ratings (e.g. AAA, AA, A, BBB, BB, B). Rating agency criteria adapt (somewhat) to desired portfolio characteristics such that a more aggressive loan portfolio is likely to require higher levels of credit enhancement to achieve target tranche ratings. Certain structural features can also be a matter of negotiation with investors and the manager alike each seeking terms that may enhance the quality or value of their position. Consequently, no two CLOs are identical. While many of the differences may seem trivial, some can become critical factors in certain scenarios.

Each CLO is managed by a professional credit manager who not only constructs the initial loan portfolio but also actively trades the portfolio throughout the CLO's life. The manager makes many other decisions that can affect the quality and

performance of the portfolio over time. In our view, CLO managers differ markedly from one another in terms of their credit selectivity, investment process and competency in different market environments. Most CLO managers today also have a track record of performance through the recent default cycle. Their performance reveals not only skill in managing credit, but also competency in managing the CLO structure itself. Consequently, most managers have earned reputations among CLO investors, and are thereby perceived differently in the market.

As CLO investors, our job is to make risk and value judgments about a given CLO's portfolio, structure and manager, including a judgment as to how these three components aggregate to affect the risk and value of a given CLO investment. Such judgments rely heavily on our team's experience and skill in synthesizing volumes of data and other information into an investment thesis that can withstand the scrutiny of our investment committee.

At Ares, we rely on a rigorous investment process that we have honed over more than sixteen years of CLO investing experience. This process establishes an analytical framework within which we can maintain a consistent standard, while allowing us to adapt our analysis based on our qualitative views on different investment strategies and market conditions.

At the heart of our investment process are hundreds of questions that we ask and answer – questions that are intended to reveal risk and value. To help us answer these, and hundreds of other questions, we rely on a proprietary set of tools and systems, called *INSight*. This technology platform was designed and built by our investment team specifically to invest in structured credit. Without such resources, we would find investing in the CLO market a daunting challenge given the wide range of risks present in today's market.

What follows is an overview of what we consider the key questions that we are asking today as CLO investors.

Questions about CLO Portfolios

For CLOs to generate equity returns, the underlying loan portfolio must generate interest income (called excess spread) that is meaningfully greater than the amount required to pay all debt tranche interest payments and fund expenses (including management fees). Excess spread is an inherent feature of CLO structures as the average cost of debt capital in the CLO liability structure is lower than the average interest coupon earned on the underlying loan portfolio. This is what is often referred to

as “CLO arbitrage.” Figure 1 illustrates this arbitrage condition in terms of an income statement.

The quality of the arbitrage (i.e. the volume of excess spread) will vary during the life of the CLO. This is largely due to changes in the underlying loan portfolio over time. While CLO liabilities are set (fixed) for the life of the CLO, the assets are in a continual state of flux. Loans prepay, the CLO manager actively trades the loan portfolio, and market conditions change such that the CLO’s loan portfolio may generate materially higher or lower interest income at different times.

One of the key objectives of the CLO manager is to manage the quality of the arbitrage. This has an obvious benefit to equity investors as they may expect a more consistent stream of quarterly distributions. Debt investors also care deeply about the quality of the arbitrage. Debt investors can benefit from the ‘trapping’ of excess spread as the CLO structure works to protect (and replenish) credit enhancement levels in times of stress.

CLO managers can enhance the arbitrage by investing in loans that have higher interest coupons. Subject to certain investment guidelines and constraints, managers generally have latitude to construct and manage the CLO’s loan portfolio based on their preferences. Higher interest coupons are typically associated with riskier loans; consequently, managers must weigh the trade-off between enhancing the arbitrage (current distribution rates to equity) and the potential for defaults and losses inherent in riskier credits.

Each manager assesses this trade-off a little differently. Each works to capture value in the loan market through allocations to a range of credit risks. This results in a relatively wide range of CLO loan portfolio credit profiles, with some reflecting a more aggressive posture in credit and others a more conservative posture.

One of the challenges facing CLO managers today stems from the strong investor demand for loans. Whether in the form of retail funds or institutional allocations, the loan market has experienced – and continues to experience – a tremendous volume of capital inflows. Consequently, loan spreads have contracted, putting pressure on the quality of CLO arbitrage.

We have found that most CLO managers respond in predictable ways, by reassessing and refining their credit strategies. Many CLO managers have found value in second lien loans, high yield bonds, smaller cap credits, more leveraged credits, cyclical or out-of-favor sectors. Other CLO managers have found value in

primary markets, or among non-US credits. In our view, every CLO manager feels at least some pressure to stretch a little, to become more creative, or to dig a little deeper into the market to protect the arbitrage.

Question 1: Where is the stretch?

A common topic found within CLO research articles is the degree to which CLOs tend to own many of the same loans... in other words, credit overlap. Credit overlap is useful analysis in the sense that it suggests a degree of ‘beta’ within CLO portfolios as an asset class. Overlap tends to be very high within the 2.0 CLOs of a given manager, typically over 90%. However overlap drops to around 50% when comparing loan portfolios across managers. That is, when comparing two CLOs from two different managers, only about half of the credits will be held in common. Finally, when comparing a given CLO’s loan portfolio to a larger number of other CLOs (by different managers), one typically finds only about 10-20% of the credits are ‘unique’ to that CLO.

While high levels of overlap are important indicators of correlation (real correlation, not merely statistical), non-overlapping credits can be important indicators of what we call “the stretch” – the allocation to credits that represents a higher level of risk in the portfolio, and which tend to contribute disproportionately to the arbitrage.

One way to analyze the quality of a CLO’s arbitrage is to evaluate each underlying asset’s contribution to equity distributions. What we typically find is that anywhere from 10% to 30% of a typical 2.0 CLO loan portfolio contributes very little to equity distributions – the spread of these assets tends to just barely cover the CLO’s inherent costs. The manager in many cases is compelled to own such assets to meet portfolio quality criteria such as WARF, S&P Recovery Rating, and diversity requirements. The largest share of loan assets, typically 50% to 75%, contributes meaningfully to the arbitrage but are insufficient to produce acceptable equity returns.

In every CLO, some minor portion of the assets makes up the difference and then some. In fact, in most CLOs we have analyzed with this methodology, more than 40% of the equity distributions can be attributed to only 10%-20% of the loan assets. These tend to be the riskier credits with the highest spreads; they also tend to be the least overlapping credits. These represent ‘the stretch.’

Put another way, the performance of this relatively small subset of credits has a disproportionate impact on the performance

and quality of the CLO. Consequently, in our view, one can learn a great deal about the manager's credit strategies and the quality of a CLO's arbitrage by focusing on 'the stretch.'

Question 2: Has there been a shift in credit strategy or discipline?

Credit strategies either shift or lack definition more often than many CLO managers are willing to admit. In our experience, it is fairly rare to find a manager who can not only articulate a clear strategy for investing within a CLO, but can then also execute on that strategy consistently over time. That isn't to suggest that there's a lack of credit discipline or process, however. Most investment processes among CLO managers can be articulated and described in great detail, and are followed as a matter of tradition (good or bad).

Strategy is a different matter altogether and speaks to the overall challenges and goals of a given CLO. An example of a strategy may be the observation that a given CLO has been negatively affected by loan refinancings or repricings, resulting in a weaker arbitrage and reduced distributions to equity. A manager's credit strategy for such a CLO might include a plan to replenish spread in the portfolio through rebalancing and trading, or even changing the risk profile of the loan portfolio. While the manager's investment process produces various investment ideas, the credit strategy should identify which of these investment ideas are best suited to improve the arbitrage.

In reality, most CLO managers tend to focus their time on assessing credit and give short shrift to fund strategy until there's a real problem confronting them that must be addressed. There is perhaps no better example of this phenomenon than to observe managers' behavior in response to WAL Test pressures among 1.0 CLOs between 2011 and 2013.

Many factors contributed to the erosion of WAL Test cushions in 1.0 CLOs, all of them identifiable. Notwithstanding, WAL Test cushions were almost universally ignored, despite being one of the most easily anticipated and most significant constraints that CLO managers faced as 1.0 CLOs neared the end of their reinvestment period. Typically buried on the third or fourth page of a trustee report, the WAL test simply wasn't on the radar for the vast majority of CLO managers until it was suddenly the most significant constraint on their ability to invest... at which point it was almost too late to do anything about it. Few managers, even those with better foresight, could articulate a strategy for managing around this constraint. Those

managers who studied the issue seriously and developed a strategy for dealing with it strongly outperformed those who did not.

In our experience, credit strategies tend to drift over time in most CLOs for three reasons: (a) they are not well defined or articulated; (b) there is a lack of follow-through or execution; or (c) clear goals or objectives are not established. Monitoring the drift, and its causes, is a key element to CLO surveillance as it not only reveals a changing risk profile but may also reveal a lack of focus or discipline by the manager.

While a manager's credit strategy should be an important consideration for both debt and equity investors alike, we find few CLO investors are even thinking about CLO managers, CLO portfolios and risk in these terms. One likely explanation is that identifying and tracking strategy is difficult in the best of circumstances, and therefore may be too costly (resources, time) for most CLO investors. However, we think this is one area where managers can be effectively differentiated. To the extent that most investors in the market have difficulty making such differentiations, it creates an opportunity for those who can to add value.

Question 3: How big are the tails?

Many factors combine within a CLO to create an uneven distribution of risk. Structural features can spring (or not) to shift risk and value within the CLO; credit risk is distributed unevenly across CLO tranches; and loan portfolios (as described above) contain a range of risks, not all of which are quantifiable in terms of ratings, spreads and recoveries.

One of the biggest challenges facing CLO investors is how to evaluate this distribution of risk within a given CLO, and then across various CLOs. The problem is complicated by the fact that the CLO market presents investors with a number of trade-offs to evaluate. For example, a CLO analyst has to determine how much more credit enhancement is sufficient to offset the risk of a more aggressive portfolio. We employ very sophisticated quantitative methods to systematically evaluate "risk adjusted" tranche value. These methods consist of highly effective tools of differentiation, such as risk ranking.

However, such an evaluation also needs to consider qualitative factors or judgments about concentrations of risk that some quantitative methodologies can understate. Inevitably, in our experience, this becomes a matter of evaluating tail risks. Tail risks, which include both risk concentrations and sudden shifts

in credit correlation, require a careful, rigorous approach to identify, quantify and monitor.

Many investors assume that as long as concentrations, or tail risks, do not present a threat to principal (i.e. there is sufficient credit enhancement to protect their investment from loss), then there is little to worry about. From a pure 'principal loss analysis' perspective, perhaps this is an appropriate conclusion. However, the development of such risks does pose a threat to market price, liquidity and possibly also ratings. Within an actively-managed portfolio, especially one focused on producing both absolute and total returns, tail risks should never be ignored.

Question 4: How does credit risk compare to other CLOs?

To many CLO investors, one of the most surprising developments during the financial crisis was the degree to which CLO portfolios began to differ from one another. Before the crisis, virtually all CLO loan portfolios were free from defaulted or distressed credits. The average market price of CLO loan portfolios was close to par, and there was very little distinction from one CLO to another in terms of the average market price of the underlying loan portfolio. In fact, one may have reasonably concluded that CLO portfolios were largely indistinguishable from one another, an inference many investors made if CLO tranche spreads during that period of time are any indication. There was very little, if any, difference in debt spreads across the entire market during the first half of 2007, evidence perhaps that the market saw little, if any, difference in risk among tranches of a comparable rating.

The onset of the market cycle created a completely different picture. Investors began to see just how different each CLO portfolio really was. We observed enormous ranges in exposure to different indicators of risk. Exposures to triple-C rated assets ranged from under 5% to over 25%. Average market prices of loan portfolios ranged from over 95 to below 65. Exposure to distressed or defaulted credits ranged from under 10% to over 30%. These wide ranges shattered the perception that CLO loan portfolios were largely homogeneous in terms of risk. Before the crisis, all of the real differences in credit risk were hidden from view, buried within the financial statements of each credit facility.

One of the most important functions of a CLO analyst is to differentiate the credit quality of a given CLO portfolio on both an absolute and relative basis. Doing so requires an integrated approach that synthesizes both fundamental credit and market information.

We believe there are significant differences in credit quality across CLO portfolios today – every bit as significant as existed within CLO portfolios in early 2007 – and similarly hidden within the financial statements of underlying credit facilities. The market today does only a slightly better job of both identifying and evaluating (through market spreads) these differences... which is to say, not well at all.

It requires a concerted effort, a significant amount of data and resources, and a fundamental credit approach to draw meaningful conclusions about credit risks in CLOs. We believe the lack of differentiation in the market today is once again a source of tremendous opportunity for investors who can positively select and construct high quality portfolios.

Question 5: What trends are developing within the portfolio?

The investment guidelines and other eligibility criteria that govern the type and quality of loans that a manager can purchase into a given CLO nonetheless provide the manager significant latitude and discretion. A manager can change the credit complexion of a CLO portfolio meaningfully without breaching guidelines designed to govern exposure.

CLO investors who rely on trustee reports alone to monitor collateral quality will almost certainly miss trends that can develop even while the manager is fully compliant with collateral quality tests.

Trends can reveal shifting strategies, growing exposures or concentrations to certain risks, or even trading behavior that primarily benefits certain investors in the CLO, like equity. By comparing the nature and pace of developing trends across CLOs and managers, one can start to identify managers who are behaving "differently" from their peers. This in turn can reveal potential value or risks that would otherwise remain hidden from view.

While trend analysis is inherently backward looking, we believe that certain patterns can nonetheless become leading indicators for larger scale changes in credit quality, risk or value. In that sense, it matters whether one is watching leading or lagging indicators, and if one is able to monitor data that others in the market are not, or cannot.

Question 6: What risks does the given portfolio amplify or diversify within the overall fund?

New investments introduced into a CLO portfolio should be evaluated not only for their quality and integrity as stand-alone

investments, but also for their contribution to risk and value within the context of an overall portfolio of CLO securities.

Until we developed the *INSight* platform in 2008, there was no effective way to aggregate credit exposure data across a portfolio of CLO tranches and assess risk that simultaneously accounted for both credit quality and CLO structure. That tremendous innovation unlocked the ability to construct and manage CLO portfolios toward specific risk goals.

Even without the enormous benefits of such technology and data, there are still important considerations when evaluating a particular CLO security for inclusion into a larger portfolio. Many of the questions asked above, especially those related to tail risks, credit overlap, trends and credit strategies can be evaluated in a non-quantitative way to still reveal the build-up of certain exposures or concentrations across a portfolio.

Most investors, given the time and trouble it requires to conduct such analysis, rely on principles of diversification, rating allocations and manager selection to help mitigate the inevitable amplification of certain (undesired) risks within CLO portfolios.

Questions about CLO Structures

CLO structure encompasses all of the features of the liabilities, including the priority of payments (i.e. waterfall), credit enhancement, triggers and tests, intercreditor rights and control rights. All cash flow CLO structures share similar, essential features that, in our opinion, have been key to the success of the CLO market across multiple default cycles and market environments.

Nearly all CLO structures include the credit tranching of risk into rated debt securities. The most senior tranches benefit from the subordination and overcollateralization of more junior tranches, and therefore have less exposure to risks present in the underlying portfolio. The typical CLO structure is illustrated in Figure 2 with five debt tranches and an equity tranche.

Nearly all CLO structures establish three major periods between issue date and legal maturity date. These include (i) a ramp-up period; (ii) a reinvestment period; and (iii) an amortization period (see Figure 3). Various rules and constraints govern each period in the life of a CLO, and investors are subject to certain risks that are somewhat unique to each period. The average life of a CLO security, as well as its expected principal window, is largely governed by the specific features of each period.

It is both a blessing and curse that despite basic similarities among CLOs, no two CLO structures are identical. Structures evolve and adapt over time in response to both market conditions, rating agency criteria, and changes in collateral composition. Even CLOs issued in the same market environment can differ markedly from one another as a function of negotiation among investors and the manager alike. The lack of standardization in the CLO market is perhaps the most important reason why CLOs have not been adopted more broadly in the market as have other asset-backed securities, including ABS, CMBS, and RMBS.

While there have been various attempts at standardization over the 20 year history of the CLO market, all have failed to garner the support of CLO market participants. Unlike the securitization asset classes whose structures and terms have become highly standardized, CLOs are unique in that they reference an actively managed portfolio of liquid, rated assets. Standardization in securitization seems to work best when the assets are a homogeneous, static pool. A 'one-size-fits-all' approach to CLO structures would, in our opinion, fail to address the lack of standardization found in CLO portfolios and credit strategies. In building portfolios of CLO securities, we find tremendous value in the ability to select CLOs with structural features we prefer for a given strategy or risk profile.

The role of rating agencies in the establishment of a CLO structure cannot be overstated. A key difference in today's CLO market is the preponderance of tranches rated by a single rating agency. Prior to 2008, nearly all CLO debt tranches were rated by at least two rating agencies (usually Moody's and S&P). The few CLO tranches rated by a single agency that were issued pre-cycle were generally not well received by the market. Most such CLOs were structured in an unusual way (e.g. synthetic tranches, or very high leverage) that did not allow them to pass the criteria by the other agencies. By contrast, today nearly all CLO debt tranches (except for AAA tranches) are rated by a single agency; the market fully accepts this single-rating convention.

Rating agency criteria, reflected in CLO structures since the beginning of the market, have been generally consistent over time with some notable exceptions. During the financial crisis, and the period of intense market and political pressure that followed, rating agencies temporarily revised their rating criteria. This triggered a wave of downgrades across the CLO market. Nearly every CLO tranche, with only a few exceptions among AAA tranches, was downgraded at least two notches. Most ratings fell between four and seven notches (i.e. one to

two rating categories). Key changes to criteria included revised scenarios that imposed extreme stress on the underlying loan portfolios including unprecedented and sustained default rates, high rates of default correlation, and significantly lower recovery rates.

Market participants generally viewed these new criteria as unrealistic and unreasonable. Eventually even the rating agencies came to a similar conclusion. Within two years, the agencies re-revised their criteria and triggered a second wave of rating actions: this time, upgrades. The large majority of CLO tranches were restored to their original ratings by one of the agencies. This created a large market of “split-rated” CLO tranches that persists to a large degree even today. In our view, the rating agencies’ handling of criteria through the cycle undermined the confidence that investors once had in the rating process.

Today’s CLO market is dominated by Moody’s and S&P in the US, and Fitch and S&P in Europe. Each agency takes a similar approach to establishing credit enhancement levels. However, each agency has introduced certain features that are somewhat unique to its criteria. These differences in criteria have led some managers and investors to prefer one agency over the other. While such behavior smacks of ‘ratings shopping,’ in our view these decisions are typically motivated by legitimate concerns over the compatibility of certain agency criteria with a manager’s investment style or credit strategy.

We have identified several areas where certain agency criteria actually create an incentive to increase credit risks as managers are compelled to make certain credit decisions merely to meet the criteria standard. Sophisticated CLO investors are keenly aware of these trade-offs and the motivations behind the selection of a rating agency in today’s market.

Ratings criteria attempt to reconcile the risk of the loan portfolio (within stated limits) with a statistical likelihood of tranche impairment for a given rating (see Figure 4). The objective is to equilibrate the risk of all CLO tranches of a given rating. The results of this reconciliation can be, and frequently are, at odds with the way investors may evaluate the same security.

Consequently, in our experience we perceive significant differences in risk among tranches of the same rating. Likewise, the market attempts to differentiate weak from strong, aggressive from conservative, but using metrics and analytics that are simply outside the scope of rating agency criteria. So while the market is compelled to live with the structure that the

ratings process produces, sophisticated CLO investors tend to look well beyond the rating to make judgments about the integrity and value of the security.

Question 1: How does the structure compare to other CLOs in its peer group?

It is something of a truism that, like snowflakes, no two CLO structures are identical. Despite strong similarities among essential characteristics, and a relatively limited range of differences, CLO structures are ultimately a product of the rating process, investor negotiations and market conditions. Structures can also vary depending on the arranging bank and by manager; each party can impose preferences or alternative solutions to addressing investor demands.

When market conditions are healthy and demand is strong, we see relatively little market price differentiation among CLOs based on structure. CLO tranches with relatively weak structures will still find acceptance and can trade at spreads very similar to CLO tranches having a strong structure. However, at times of market stress and when demand is weaker, stronger structures still tend to enjoy liquidity and experience less spread volatility compared to weaker structures. Consequently, we think it’s important to identify relative strength and weakness in structures as one means of positioning for future trading opportunities.

Beyond market liquidity and volatility considerations, about which some investors may have less sensitivity, structural differences among 2.0 CLOs can have a meaningful impact on performance, ratings, average life and optionality. Of course these are the very factors that ultimately drive investor preferences in times of stress.

All things equal, debt investors should be primarily interested in structures that are protective of credit enhancement (e.g. relatively tight triggers) and limit extension risks (e.g. relatively strict governance of reinvestment, especially after the reinvestment period date). In many scenarios, such ‘debt friendly’ structures have the added feature of creating an economic incentive for equity investors, and perhaps managers, to redeem and restructure the CLO earlier than they might otherwise. Compared to a CLO without such features, the debt-friendly structure may present a debt investor an element of relative value.

By carefully evaluating and then comparing structural features, one can begin to select structures that tend to support one’s

investment view or strategy, and provide another means of diversifying certain risks within a portfolio.

Question 2: Has the choice in rating agency introduced risks in the portfolio or credit strategy that would otherwise not be present?

The prevalence of single-rated CLOs in today's market, combined with substantive differences in criteria among the rating agencies, introduces the possibility that the chosen agency's criteria provided some value to one or more of the CLO's stakeholders. A thorough understanding of each agency's criteria, especially those factors that tend to be the most constraining, is essential to identifying possible motivations.

A recent example involves a CLO manager who struggled to assemble a loan portfolio that both produced a healthy arbitrage while still meeting S&P's minimum recovery rate criteria given the structural leverage they were hoping to achieve. By choosing instead to have the CLO rated by Moody's, the manager was able to avoid the S&P recovery rate test altogether (in exchange for taking on Moody's diversity score and WARF tests). The result was a loan portfolio that had over 20bps more spread than would have been achievable had they been constrained by the S&P tests. One might reasonably conclude a few things from this example.

It's not always clear 'who is right' in these situations, so investors need to evaluate the implications of avoiding a rating agency constraint that is ostensibly designed to protect investors. However, such constraints can also incentivize a manager to purchase loans it may otherwise not choose for reasons of risk and value simply to pass an arbitrarily set limit. In that sense, an element of credit selection and portfolio construction has been ceded to the rating agency. Some managers, rightly or wrongly, bristle at the notion of being compelled to change their credit strategy to suit rating agency criteria.

We believe investors should take an agnostic view of these things and focus instead on evaluating a manager's portfolios and strategies on their own merits. One area of particular focus is the comparison of loan portfolios, and risk allocations, should the manager have CLOs rated by different rating agencies. This tends to produce a greater number of non-overlapping positions which can reveal how the agency criteria has shaped risk for better or worse. Such a comparative approach can also highlight the sophistication with which a manager works under CLO constraints – an important element in manager evaluation, especially for newer CLO managers.

Question 3: What is the value of the credit enhancement?

CLO investors benefit from four different forms of credit enhancement, each contributing a different type and value of economic protection against unexpected stress.

1. Subordination
2. Excess Spread
3. Structure
4. Active Management

The economic value of the first three forms of credit enhancement can be estimated using advanced quantitative methods and cash flow models representing the CLO's asset-liability structure. While a quantitative approach has certain limitations inherent in modeling, it is nonetheless a useful tool for comparing and differentiating one CLO from another.

Subordination: The value of subordination, or excess collateral, has two components. Perhaps the most obvious is the protection it provides against a potential principal loss. Should all subordination be eroded through par losses in the underlying loan portfolio, the tranche faces a strong likelihood of actual impairment, or default.

However, a default of principal on a CLO tranche is an exceptionally rare event. In our view, there is a more immediate value to subordination than principal protection: market perception. Investors and CLO trading desks spend a lot of time and effort focused on relative subordination levels among CLO tranches. Tranches with high subordination levels tend to be considered of higher quality; tranches with low subordination levels tend to be considered lower quality. Trading spreads tend to reflect these judgments. Accordingly, a trend toward par erosion or par creation can have a material impact on tranche liquidity and relative value.

Excess Spread: Excess spread is significantly harder to value not because it is less tangible, but because it relies on cash flow models and is contingent (captured only if certain triggers are breached). Despite these challenges, excess spread is, in our opinion, one of the most significant and valuable forms of credit enhancement available to CLO investors. It was the capture of excess spread that absorbed losses and then replenished credit enhancement that had been lost within CLO portfolios during the past two credit cycles.

Structure: CLO structures include features, including investment limits and triggers, that protect investors from

certain portfolio concentrations and from degradation in portfolio quality, subordination or excess spread.

The economic value of certain structural features can be measured using sophisticated simulation analyses. This approach allows the analyst to measure the economic impact of a structural feature relative to a base line (standard) structure, or under a variety of market scenarios. Such analyses can provide meaningful insights into relative value and risk. During the previous cycle, Ares employed a proprietary simulation technology, within *INsight*, specifically to help us identify structural features we perceived to be mispriced in the market.

Active Management: Because both subordinated management fees and performance fees are only payable if the CLO structure and arbitrage are healthy, managers face strong economic incentives to manage the loan portfolio for positive outcomes. In practice, we have found that these incentives are an important form of credit enhancement that doesn't exist in other structures, such as static CLOs. In the hands of a talented manager, active management of the underlying portfolio can (and certainly did during the previous cycle) improve credit enhancement levels beyond what the CLO structure alone could have provided.

Question 4: Does the structure impede the manager from “doing the right thing” or executing their strategy in certain scenarios?

The variety of CLO structures that existed in June 2007 created something of a laboratory for investors to evaluate the impact of CLO structures on manager behavior and performance. Several larger managers had, over the course of 2005-2007, issued a number of CLOs with significantly different structural features.

Ares observed in most of these cases that the manager's credit strategies were largely consistent across each CLO in terms of risk allocations, credit overlap, and key portfolio attributes. Yet as the cycle progressed, the varying CLO structures began imposing different constraints and created unique portfolio and trading challenges for the managers. Some created unexpected incentives that resulted in divergent trading and credit decisions... and ultimately different performance.

CLO structures in today's primary market are generally more consistent with one another. However, in our view there is a more marked vintage effect than we have observed before. The evolution of cov-lite limits, reinvestment language, optional

redemption rights, and many other features have experienced large swings in both directions since 2011. Micro-vintages now exist defined by market conditions that either favored equity or debt investors.

The differences are more than nuances, in our opinion. We have always maintained that it is incumbent on investors to very carefully read and analyze the legal documents governing every CLO investment. We feel this duty is as relevant today as ever; we fully expect that certain structures will have a material impact on performance as they impose constraints on CLO managers, or create unexpected incentives or outcomes.

Question 5: Does the structure create uncertainty about the timing and length of the principal repayment window?

In today's market, there is perhaps no structural feature more frequently debated among sophisticated CLO investors than the specific language governing principal reinvestment after the end of the reinvestment period.

Relatively few CLOs are so tightly structured as to completely eliminate the possibility of principal window extension as a function of manager discretion or trading activity. Perhaps ironically, the risk and economic implications of extension are fraught with complexity as they combine both legal interpretation, market conditions and opportunity, and mitigating structural features that are, frankly, impossible to forecast with any certainty.

Given that, investors tend to take a simplistic approach. Documents and structures that are perceived to be 'loose' around the issue of reinvestment tend to be modeled assuming a worst-case scenario (that is, very extended). Stricter documents receive a different, but not always significant, treatment.

Evaluating the economic implications of these features is vexing given currently low interest rates and a relatively steep term structure. The 'modeled' value of extension today barely registers. However, the specific legal language within a given CLO's indenture relative to extension risk could one day become a very material component to price and yield calculations. The details do matter.

Question 6: What structural features were the most contested / negotiated among investors prior to finalization?

The typical new issue CLO begins life as a discussion among a sponsoring equity investor, a manager and an arranging bank. Certain key terms or features are agreed with the equity

investor typically leading those conversations. The arranging bank is then tasked with executing those agreed terms with debt investors.

Generally the next conversation takes place between the arranging bank and a lead AAA investor. The current cohort of AAA investors are generally very sophisticated in their analysis of CLO terms and structures. The ensuing negotiation often results in the lead AAA investor proposing changes to the initial terms. In some cases, this triggers an intense round of negotiations between the lead equity investor and the lead AAA investor, with the arranging bank mediating.

Once an agreement has been reached, the resulting structure and terms reflect a series of compromises, some favoring debt investors and others favoring equity investors.

In our experience, the points of greatest contention tend to be very instructive. Perceiving shifts in negotiating leverage, and thereby shifts in structure and terms, can indicate upcoming shifts in relative value and risk. By participating broadly in the primary CLO market, we often get an early read of these developments and can then position for these shifts through trading.

Questions about CLO Managers

Efficient markets theory suggests that managers are limited, at best, in their ability to create value and are, at worst, an unnecessary cost imposed on investors as they add no real value. While empirical studies of certain markets (i.e. publicly traded stocks) would seem to support such statements, the same cannot be said of credit managers generally, and CLO managers specifically. Prior to the recent financial crisis, it was common to hear CLO investors say that the manager “doesn’t matter.” Such sentiments were especially popular among investors in the senior tranches who could argue that virtually nothing the manager did would really impact their investment.

Statistically, that statement is probably true. Given that no senior CLO tranche has ever defaulted, it may stand to reason that the managers’ actions, whether competent or reckless, had no ultimate effect.

But such a view ignores some stark realities. Despite the remarkable success of CLOs as an asset class, there were indeed winners and losers in the market where investors differentiated based on quality and performance. Those judgments were often swift and severe. As a function of both liquidity (demand)

and execution (spread), tiering by manager has been, and continues to be, a favorite pastime of CLO investors.

With robust issuance and the entrance of new CLO managers, it may be tempting to again ignore manager quality in the view that they don’t matter. In our opinion, such indifference toward managers ignores the very real implications of tiering in the market on both structure and portfolio quality, and by extension asset liquidity.

The pressures to create and maintain an arbitrage among even top-tier managers are significant today. A weaker manager is in an even tougher position. Debt execution levels for a second- or third-tier manager may be as much as 20-30 basis points wider than for a top tier manager. Equity investors (justifiably) also demand a higher return from a weaker manager. To deliver that return given higher debt costs, the weaker manager will need to construct and maintain a higher spread collateral portfolio. The weaker manager may also be compelled to reduce their management fees (perhaps significantly) as a means of compensating for weaker debt execution levels. Such relationships suggest a classic case study in adverse selection.

Investors who ignore this new market reality may be in for an unwelcome surprise in the next downturn as they find themselves holding onto distressed positions for which there may be few bidders. In our experience as investors, the few extra basis points earned as compensation for investing in a weaker manager will be swallowed by illiquidity and a much higher risk premium.

Empirical CLO data show a strong relationship between CLO performance and manager; in fact, the effect of a manager can dwarf the effects of both vintage and structure. Our due diligence experience with hundreds of managers has revealed a wide range of CLO manager qualities. We find large differences in talent, aptitude, credit competency, investment process, operations, sophistication around CLO structures and technology. We find some managers fully equipped to support the complicated task of creating value within CLO structures while others are still developing those resources and skills.

You will never hear a member of our team say that managers don’t matter. Rather, you’ll hear instead strong opinions about managers based on regular, probing interactions with them.

Question 1: What evidence is there to suggest the manager is sophisticated in the management of CLOs?

Managing a CLO is unlike managing almost any other kind of loan fund. Most CLO managers will freely admit that there is a relatively steep learning curve to managing loans within a CLO structure with its myriad rules and constraints. Mistakes are common among new managers.

However, competent managers having deep experience with CLO structures often laud CLOs as one of the best vehicles for creating value for investors, especially in times of stress. Such managers are few in number, but not terribly hard to identify.

Most managers can articulate a clear and logical process for managing credit and making credit decisions. Far fewer can articulate a clear and logical process for managing the CLO structure. In our view, the best CLO managers are those who see their roles as managing both credit and structure with equal rigor.

Sophistication is evidenced in a manager's investment in the kind of resources (professional staff and technology) necessary to manage CLOs. It is evidenced in a manager's fluency with CLO structural features, especially those that are easy to overlook. It is also evidenced in a manager's trading and cash management decisions. Sophisticated managers simply talk a different game and view the CLO structure as a vehicle for creating value.

Many investors confuse equity performance or some other metric with sophistication. While equity outperformance is an indication of something special, we have found strong equity performance among some managers who are barely literate in their own indentures. Evaluating managers based on data is necessary, but wholly insufficient.

In our experience, nothing beats on-site, in-person manager due diligence. Over the years, our team has invested hundreds of hours meeting with managers in their offices. In every single one of those meetings, we were able to learn something important that we could not have gleaned from looking at the data alone.

Question 2: What is the general market opinion of this manager, and is it likely to change over time?

Every manager that is today considered 'top tier' by the market was once a start-up with no reputation and was greeted by CLO investors with a measure of deserved skepticism. Managers earn their reputations among CLO investors through

performance and by demonstrating a real commitment to their CLO business.

Manager tiering is a common feature in the CLO market today. While investors may have different views of managers, tiering is evident in trading levels and liquidity (depth of bid). One potential source of value, excess returns, can stem from identifying managers whose reputations are likely to improve over time.

The only process we have found to help establish such a view on a manager is conducting a series of on-site, in-person due diligence meetings over time. Especially for newer CLO managers – whether or not they are established in other businesses – a rigorous analysis of the platform (including a thorough investigation of their investment process, operations, financials and technology), can reveal strengths and weaknesses that would otherwise be missed.

Question 3: How accessible is the portfolio manager and analyst team? Are they willing to share information freely?

A remarkable feature of the recent financial crisis was the manner in which CLO managers dealt with their investors. Almost all CLO managers boast of offering transparency and access when marketing a new CLO to investors; fewer continue to extend that offer in practice after the CLO has been issued. Some go to seemingly great lengths to avoid interaction with investors.

It seems hard to imagine, but several managers simply refused to interact with investors and other market participants during the financial crisis. Prior to the cycle, some of these bad actors were highly respected and had a strong following. As a testament to the professional integrity of the CLO investor base, all such managers today struggle to access the market.

Even despite the fact that in several cases these managers' CLO performance was ultimately decent, their CLO businesses are effectively dead having suffered the self-inflicted wound of investor neglect. Two of these managers have been working diligently to repair the damage to their reputations, but continue to experience very poor reception by the market.

Transparency and a proactive approach to investor relations is important even if – as many managers will admit – only a handful of investors actually take advantage of this access.

Question 4: How has the manager performed in terms of par and spread? Has the manager been lucky or smart?

In times of peace and plenty, when default rates are low and the loan market is active and healthy, the focus shifts somewhat to value creation within the CLO of a different sort than is available during types of stress. Managers can build par, slowly but steadily, by participating in primary issue loans and managing cash prudently while taking advantage of loan market volatility. Managers can also spend time that might otherwise be invested in a work-out situation to find value away from the bread and butter credits in their portfolios.

One of the easier analyses investors can conduct is to measure the degree to which managers have performed in terms of par (built or lost) and spread (built or lost).

As the table below shows, these two metrics reveal a considerable difference among 2.0 managers where the difference between top and bottom performers is, in most cases, a function of trading and management strategy.

	Δ Par	Δ Spread
Top 5%	+1.97	+0.01
Median	+0.10	-0.30
Bottom 5%	-1.98	-0.66

As of 1Q 2018.

It is insufficient to note that a manager has created or lost par, or bucked the repricing trend in the loan market; the important question is how? What combination of circumstances and strategy led to the performance?

One example is worth highlighting. We recently evaluated a US manager who has been consistently outperforming other managers in terms of par creation, across time and across their 2.0 CLOs. As we investigated how this was happening, we discovered that they were buying almost every new issue loan and flipping out on the breaks. Because the flips were generally conducted on the same day as the purchase, the trustee report recorded only the ‘net’ positions (if any); the initial (larger) position and subsequent sale (whole or partial) were not designated as “discretionary,” “credit risk,” or “credit improved” trades as they are supposed to be. Effectively, the manager was working outside the indenture’s definitions of trading, although virtually all of the par creation was a function of these flip trades.

This example is just another reminder that investors should not become distracted by statistics, even those suggesting positive

performance. The age-old question, ‘is the manager lucky or smart,’ is as relevant today as ever.

Question 5: Is the manager appropriately resourced: analyst team, operations, business management, technology?

It has been said that managing a CLO is not for the faint of heart. With dozens of different investment limits and criteria, tests, triggers and reporting metrics – all of which have to be reported accurately each month, coupled with a diversified portfolio of loans with their own operational burdens... it’s frankly surprising that anyone willingly volunteers for the job of CLO manager, let alone succeeds at it. And yet this market includes managers who have undeniably mastered the art and science of CLO management.

Yet no one, to our knowledge, has ever done so without having made very significant and specific investments in their platform. Furthermore, every CLO manager we have ever asked admits to mistakes, some serious, as they moved up the CLO management learning curve. CLOs, in our opinion, are best managed by highly competent professionals who have a sophisticated approach to managing CLO structures and the operations that support them.

Since 2010, nearly fifty credit managers entered the CLO market by issuing their very first CLO. Fifteen of these new CLO managers have already issued three or more CLOs. The limited timeframe in which some newer managers have entered and established themselves is, we believe, a key consideration for investors. We find, generally, only a small minority of these new managers have invested sufficiently in their platforms such that we can have confidence in their ability to perform as expected.

Even established managers can fall behind or become complacent. Manager due diligence remains an essential component to our ability to differentiate risk and relative value. We find too many CLO investors – typically new to the market themselves – complacent about manager competency and sophistication.

Question 6: What is the manager’s edge as a loan investor? Does that edge translate into real value creation?

It’s almost axiomatic in our market that every CLO manager’s pitch book has a page showing how they outperformed the broad loan market, either on a total return basis, or on a default / loss basis.

Turns out, beating the broad loan market index as a CLO manager wasn’t terribly hard to do. In our view, the

combination of investment guidelines, collateral limits and diversification requirements probably did as much to contribute to index outperformance as anything they did.

Creating value within the CLO structure consists of far more than beating the loan index. The best performers through the past cycle developed strategies suited for CLO structures and used the structures as an offensive weapon. The weakest performers almost always describe the CLO structure as the ‘thing that got in their way.’

While nearly all managers can boast of good CLO performance (e.g. strong equity returns, healthy structures), the difference between the top and bottom performers reveals substantial differences in strategy, sophistication and competence.

There is no simple way to evaluate a manager’s edge. There is no metric, statistic, or graph that reliably differentiates smart from lucky. The analysis is more complicated, and requires significant effort and experience to distill. However, in our opinion, there are a handful of CLO managers who consistently operate at a higher level than their peers.

Question 7: Is the manager financially stable, well capitalized and profitable?

Most CLO managers are relatively small companies consisting of founding partners – who often also act as portfolio managers – and a small team of analysts, operations and other support staff. They are typically thinly capitalized, and they rely heavily on outsourced resources for accounting, legal and human resources.

The typical CLO generates somewhere between \$1.5 and \$2.0 million of management fee revenues, split into senior (highly certain) fees of approximately \$500,000 and subordinated (less certain) fees of approximately \$1.0 million or more. Overhead for a typical CLO business runs between \$2.5 and \$4.0 million annually, excluding bonuses and distributions to the partners.

One reason CLOs are a popular fund vehicle for such smaller companies is that they provide a source of long-term capital and a stable basis of revenues. Managers generally find that senior fees alone on four to five CLOs are sufficient to cover all SG&A expenses. Subordinated fees can then be used to support business growth, bonuses and partner distributions. Performance fees in CLOs can be very substantial but are typically very back-ended and highly uncertain.

That said, not all CLO fee structures are typical, and not all managers have typical costs. We have seen several platforms

where breakeven revenues were substantially higher, where far greater reliance on subordinated fees put pressure on the manager to print as many CLOs as possible, quickly, whether or not it was ‘sensible’ to do in every case.

Smaller managers (with loan AUM <\$2.5 billion) also face what the market sometimes refers to as the “S&P Tax.” Because of the inherent business risks of such a manager, S&P’s CLO rating criteria require that a back-up manager be in place for the life of the CLO. The back-up manager, a larger, established CLO manager (and typically also participating as a triple-A investor in the CLO), charges a back-up manager fee of approximately 10bps. This back-up management fee is essentially paid by the CLO manager, reducing senior management fee revenues to perhaps only 5bps to 10bps (hence the notion of a small manager ‘tax’). The financial implications of this tax are obvious – shifting overhead breakevens out to six CLOs or more, and creating an even stronger economic incentive to get to \$2.5 billion AUM as fast as possible.

Other sources of manager financial risk exist among much larger managers. A CLO analyst should carefully evaluate the overall nature of a manager’s business and fee revenues. For example, larger managers whose business revenues are sensitive to capital outflows, fund NAVs or carried interest tend to see CLOs as a ‘cash cow’ business (e.g. a stable source of revenue). They may not be as seriously committed to their CLO business or performance. Many ‘hedge fund’ managers who issued CLOs during the previous cycle underperformed the market as attention and resources during the financial crisis were pulled away from the management of CLOs and into challenges and opportunities perceived in other parts of the business.

The bottom line is that the financial incentives present in every CLO manager are a significant source of risk that must be carefully evaluated. CLOs have been called ‘shadow banks,’ not only because they perform the basic functions of a commercial or merchant bank, but because they face similar business and financial risks. The CLO analyst must always ask: is this a healthy bank? How likely is it that the functions of this bank will continue to run smoothly in times of stress?

Factors Related to CLO Supply

While the creation of new CLOs in today’s market is fundamentally a matter of economics, there are several other factors that have contributed to the robust pace and variety of CLOs issued recently.

Warehouses: The growth in primary issue supply has been fostered by not only a large cohort of investors, but also the re-emergence of capital for loan warehouses. By most estimates, more than 90% of primary CLOs in the US and Europe benefit from warehouse capital to begin ramping the initial portfolio well before the CLO is officially launched.

The availability of warehousing today has alleviated at least some of the spikes in demand for loans that created challenging loan market technicals in recent years. Managers are able to build portfolios at a more measured pace, including greater initial participation in primary issue loans. However, the availability of warehouses (currently estimated to represent \$10 billion of loan AUM) has kept the so-called CLO bid for loans steady and increasing, more than offsetting the volume of mutual fund and retail outflows that made headlines during 2014.

A notable difference between warehouses today and those from pre-2008 is the fact that banks – with rare exception – are not providing the ‘equity’ capital in warehouse facilities as they once did. Rather, today’s warehouses are capitalized by either managers, third-party investors or some combination of the two. While today’s warehouses are structured as mark-to-market facilities, they generally also feature an initial ‘MTM holiday’ and a one- to two-year (occasionally longer) amortization period should a CLO not be issued.

Warehouse leverage, typically set at 4:1, is also meaningfully lower than pre-cycle. This is both positive and negative. Warehouses today should be more robust to loan market dislocations, with far greater MTM cushion before the capital calls or forced liquidations are triggered. However, they also tend to be smaller compared to pre-cycle warehouses. Today’s warehouses are typically around 50% of the target CLO size (approximately \$250mm), providing a valuable head-start on ramping the target portfolio.

Naturally the very existence of \$10+ billion in leveraged warehouse facilities with MTM triggers suggests the potential for a domino-like liquidity event should the loan market experience the kind of dislocation we saw in 2008 and 2009. In our view, while the nature of the risk is similar, the magnitude and financial market repercussions strike us as very different given the participation of third-party capital, significantly lower leverage, and longer terms. These market structure differences suggest a fundamentally different tipping point and workout process.

Arrangers: The growth and pace of issuance has certainly been a boon to CLO bankers. Each year we expect to see more than 200 primary CLOs issued by nineteen different banks / arrangers, including several banking teams who entered the market for the first time in 2014. While more than half (according to league tables) of the primary market is still dominated by five banks, the competitive landscape among arrangers has certainly evolved in recent years. The smaller, or less active, arrangers have tended to focus their business (perhaps necessarily) on managers who are either new or may otherwise struggle accessing the market. Typically unable to provide warehousing, or even access to a loan trading desk, these arrangers tend to emphasize lower banking fees and/or a special relationship with a key investor (e.g. captive AAA).

CLO Management Fees: Management fee structures consisting of a senior fee, subordinated fee and performance fee, are virtually unchanged from pre-cycle. What has changed is that not every manager can command 50bps total fees on assets in today’s market. In fact, most managers have been compelled to reduce their fees either by prospectus or more commonly via private side-letter rebates to equity investors. As discussed above, this is largely due to pressures on CLO arbitrage especially among managers whose debt will be sold at wider spreads.

It’s not clear to us that there is a general trend toward lower CLO management fees overall, or that the market will settle into a ‘new norm’ lower than 50bps. Rather, it appears to be a circumstantial, and therefore temporary, accommodation that most managers are willing to make to access the market when arbitrage conditions are challenging.

Our expectation is that as the quality of arbitrage improves, equity investors may have to split the upside with both managers and arrangers who today tend to discount their fees for the sake of doing business. We expect these parties will be relatively aggressive in reclaiming some of their sacrifices. Consequently, when we invest in CLO equity we have always taken the approach of pre-negotiating fees with both parties well in advance, thus preserving any upside from improved arbitrage for our investors.

Trustees: A notable, but generally ignored, change in the market today has been the significant shift in market share among CLO trustees.

Trustee Name	Total	1.0 CLOs	2.0 CLOs
BNY	33%	54%	19%
US Bank	32%	13%	44%
Citi	10%	3%	15%
DB	9%	12%	8%
State Street	6%	7%	6%
WF	5%	2%	7%

As of 1Q 2018.

Among investors, this shift has been a somewhat welcome development. Anecdotally, prior to the cycle the perception was that there wasn't a greener pasture to be found among all of the choices available to CLO managers. Frustration with the accuracy, timeliness and content of trustee reports was a common lament among both managers and investors alike. It is far less common to hear complaints about trustee services in our manager meetings today.

That is not to suggest that there aren't problems, including serious mistakes that occasionally arise. For example, we recently identified a material misallocation of cash flows on the payment date of a CLO managed by a very large, well-respected US manager. Neither the manager nor the trustee, nor any other investor in the CLO, had noticed that a few million dollars had been distributed incorrectly, revealing a significant weakness in operational oversight by both the manager and trustee. Correcting this error took two full quarters.

We sense another era of complacency, or false security, among many investors and managers in their diligence and oversight of trustee reporting. We continue to emphasize quality checks of trustee report data in our surveillance processes.

Amortization and New Issue Dynamics

Strong primary issue volume in recent years has been received with mixed reactions by market participants and observers. While presenting strong evidence for both the acceptance and confidence that investors have in this asset class, it continues to defy the imagination just how much capital is 'out there' to absorb the volume of primary issue.

Sell-side CLO research analysts frequently direct attention to a 'net' supply statistic. That is, primary issue volumes have been offset at least somewhat by the amortization of older CLOs. Given the relatively high pace of prepayment and refinancing activity in the loan market, 1.0 CLOs have experienced fairly high prepayment rates themselves.

Figure 5 illustrates how, until mid-2013, the amortization rate of 1.0 US CLOs has kept the overall size of the US CLO market

relatively stable. In the past year or so, the volume of new issue has exceeded the rate of amortization and the overall US CLO market has grown for the first time since 2007, reaching \$350 billion in 2014.

But this map of the overall market hides an interesting shift in supply within the CLO market that we think is relevant to a discussion of the market opportunity today and going forward. Figures 6, 7, and 8 break down supply into constituents that better reflect investor types. A feature of the CLO market is that, with rare exception, the cohort of investors who participate in AAA – AA ('senior') tranches are different from the cohort who invest in A – BBB ('mezzanine'), or even BB-equity ('subordinate'). Each cohort sees the 'net' supply equation a little differently, and we see supply technicals affecting market spreads and volatility differently as a result.

CLO Models

At this point it is hopefully clear that choices in risk and value are significantly more complicated than the decision to invest in one rating class or another. However, another key element of risk that must not be ignored is model risk.

It is both a blessing and curse that today investors can license cash flow models that provide the means to evaluate CLO tranche values and performance under various scenarios. The most widely used models are licensed from Intex Solutions. Intex models are practically ubiquitous in the market today. Investors, traders and a myriad of service providers (e.g. valuation agents, accountants, risk management, reporting) who actively participate in the CLO market all license and use Intex as their main, or exclusive, cash flow models for CLOs.

The models themselves are far more sophisticated today than ever before. While this permits a greater range and depth of analysis, and greater flexibility to create specific scenarios, it also introduces greater reliance on modeled outputs. As we have tried to emphasize here, some of the most significant sources of risk and value lay in factors or features for which models either tend to fall short, or cannot approach.

The heavy reliance by the market on Intex models establishes a conventional wisdom about CLO tranche performance and valuations that has been widely adopted by market participants. These models have left many investors with the impression that credit risk within leveraged funds can be appropriately evaluated using statistical concepts like CDR and CPR. The fact is, were it not so difficult to conduct bottoms-up, line-item analysis, no one in their right mind would ever

recommend evaluating the risk or value of a given CLO tranche using statistical formulas.

Investors need to remain wary of models and understand both their limitations and the many ways they can mislead... to say nothing of actual errors that regularly appear in both the data and the code behind these models.

Key Issues in European CLOs

While the key questions around portfolio, structure, and manager are relevant to the analysis of both US and European CLOs, we believe that there are several factors unique to European CLOs that require an extra measure of focus and consideration.

Investors in European CLOs had a very different experience than investors in US CLOs through the cycle. Whereas virtually all US CLOs recovered (and in many cases benefitted) from the cycle, a large proportion of European CLOs will struggle to cross the finish line. We still expect very few debt tranche defaults, but European CLO equity investors will, on average, see very poor returns and many will see negative returns. Only a few 1.0 European CLOs, concentrated among just a handful of managers, will show strong equity performance.

While each CLO and manager's performance will have a specific story, there are four fundamental differences between European CLOs and US CLOs that we believe were the primary factors in the relative underperformance of European CLOs.

1. Smaller, less liquid syndicated loan market

The European credit market is markedly smaller than the US credit market, especially the leveraged loan market. Lagging the US market by several years, the rise of institutional (non-bank) credit investors was just beginning to accelerate as the financial crisis struck. Unlike in the US, where since 1994 banks have had less than a 25% market share in syndicated loans, the European loan market was still dominated by banks, limiting both the spectrum and availability of credit to non-bank investors. Consequently, European CLO portfolios were, on average, more concentrated than their US counterparts. European CLO diversity scores were roughly half of the US scores. It was common to find 2% - 3% position sizes in European CLOs (in some cases much larger). Larger exposures rendered European CLOs more vulnerable to credit mistakes.

A contributing factor was the relative lack of liquidity in

European loan markets. While this proved to be a significant hindrance especially for some of the larger credit managers in Europe (given larger notional exposures to given credits), CLO managers generally had a more challenging time executing either defensive or offensive strategies in their portfolios.

2. Loan market dominated by LBO credits

The predominance of private-equity sponsored loans, via LBO, changed both the actual process of recovery in Europe as well as the incentives that managers faced when working through a troubled credit. PE firms had every reason (and apparently the patience) to delay addressing capital structure problems which would have increased their cost of capital and possibly their own recoveries. Consequently, as LBO credits entered a work-out phase, the process was typically long and cumbersome.

One contributing factor was a conflict of interest that many managers faced during a restructuring process. As managers continued to be reliant on PE firms for new credit opportunities, they had overall business incentives to 'play nice.' As a result, European CLOs did not participate nearly to the same extent in amendment fees, higher spreads, and other economic offsets as did US CLOs, despite a higher default rate.

3. Jurisdictional uncertainties

Prior to the cycle, the great unanswered question for European CLO investors was: How would the multiple legal jurisdictions that were represented within every CLO portfolio affect the recovery process? This risk was clear and obvious, but there were very few actual data points. Now we know. As many investors feared, jurisdictional disputes became a common feature in European credit work-outs. Creditors sought to foreclose on their security in creditor-friendly countries and jurisdictions; companies and PE sponsors sought to relocate the court process into legal jurisdictions that had weak creditor protection laws. Not only did jurisdictional risks contribute to lower overall recovery rates, but also led to extended work-out processes as creditor groups struggled themselves to coordinate and work together.

4. Low recovery rates on non-senior collateral

Perhaps the biggest difference investors saw between European and US CLOs prior to the cycle was the much

higher exposure to non-senior collateral in European CLOs. In the US, first-lien loans constituted 90% of more of the collateral (and often 95% or more). Within European CLOs, it was very typical for managers to allocate 15% - 25% of the CLO portfolio to second-lien, mezzanine, unsecured bonds and other subordinated investments. Combined with generally higher concentrations and the challenges articulated above with work-out processes, non-senior collateral tended to realize very low average recovery rates with many notable (widely-held) second lien and mezzanine loans recovering close to zero.

These four factors together explain much of the difference in performance between US and European CLOs. Notably, these same fundamental factors are still present in European CLOs today, although it is now more common to see 90% or more first lien collateral in primary issue European CLOs.

Despite these factors remaining largely unchanged, there seems to be strong investor demand for new issue European CLOs, even for those managers who underperformed during the cycle. That is, in contrast to US managers where tiering and access are highly correlated to 1.0 performance, European managers do not seem to be experiencing the same treatment.

One contributing factor to the strong demand for European CLOs is the sunrise of new regulations aimed at governing securitization in Europe. The most burdensome of these regulations, called specifically Regulation 122a, or AIFMD Articles 51 and 53, requires the sponsor of a securitization to retain 5% of the 'risk' in the securitization. This has been further

specified to mean a vertical slice of the CLO capital structure (AAA through equity), or an equivalent amount of the equity tranche (approximately 35% of the equity notional). In value terms, given the typical size of a 2.0 European CLO, this requires an investment of approximately €15 million every time a CLO is issued. This capital burden is to be borne by the CLO manager. Consequently, few managers are both willing and able to capitalize CLOs to this extent, let alone multiple CLOs each year.

On the demand side, these same regulations require (of most institutions) that investors only participate in 122a, or AIFMD, compliant CLOs. They are either strictly prohibited from investing in non-compliant CLOs, or face prohibitively high capital charges.

The combination of capital-constrained supply and a captive audience of investors who cannot buy US 2.0 CLOs has not only led to significant CLO tranche spread tightening in Europe (vs the US) but apparently also market access to any European CLO manager who shows up with a compliant CLO.

In our view, given the challenges specific to CLO investing in Europe, the lack of differentiation among managers or loan portfolio credit risks, and relatively tight spreads (and lower yields on equity), investors need to be very deliberate and disciplined in their investment decisions. While the market may not be willing to differentiate much between a top tier manager and others, we believe the rewards of prudence will be earned as investors construct higher quality portfolios in advance of the next cycle – much more so than strategy that relies simply on diversification as a primary tool of risk management.

Figure 1. Sample CLO Economics (Annualized)

Assets	Par Amount	Avg Loan Coupon	Interest Income
CLO Loan Portfolio	500,000,000	4.90%	24,500,000

Expenses	Expense
Deal Expenses (0.08%)	(400,000)
Senior Loan Manager Fees (0.15%)	(750,000)
CLO Debt Securities Interest Expense	(13,716,400)
Contingent Loan Manager Fees (0.25%)	(1,250,000)
Total Expenses (~3.22%)	(16,116,400)

Net Income (Interest Income Minus Total Expenses)	8,383,600
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CLO Equity Face Amount	50,000,000
CLO Equity Cash Yield (Net Income / CLO Equity Face)	16.8%

Note: There can be no assurance potential returns will be achieved. As with any investment there is risk, including the loss of principal. Based on Ares' market observations and analysis.

1. The sample CLO economics shown are for illustrative purposes only and based on a CLO structure Ares believes is typical of recent primary CLOs.
2. The CLO Equity cash yield on par is the estimated cash yield on the entire notional of the CLO Equity Security. CLO Equity Securities receive net income distributions provided the CLO remains in compliance with certain tests, including minimum overcollateralization ratios.

Figure 2: Illustration of Typical CLO Structure

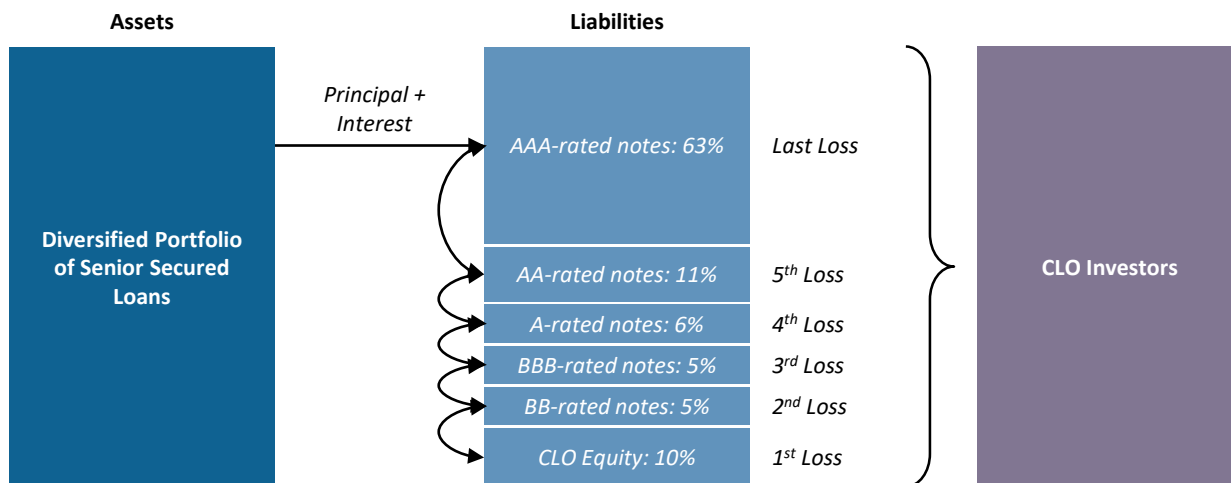


Figure 3: Timeline of Major Periods in a CLO's Life Cycle



Figure 4: Comparing Rating Agency Statistics

Using an example CLO (summarized in the first table), the statistical analysis below was produced by Citibank’s CLO structuring team using each agency’s models to achieve a target rating. The results are illustrative, and would differ somewhat from other CLOs based on terms and portfolio characteristics. However, each CLO tranche must ‘pass’ the statistical standards to achieve the target rating.

Tranches	Par	Credit Enhancement
A1	372,000,000	38.0%
A2	76,000,000	25.3%
B	41,750,000	18.4%
C	31,700,000	13.1%
D	25,700,000	8.8%

Moody’s Statistical Requirements

Tranches	Target Rating	Max Expected Loss
A1	Aaa	0.0036%
A2	Aa2	0.0743%
B	A2	0.4560%
C	Baa2	1.5675%
D	Ba2	6.4130%

In the case of Moody’s, the tranche’s expected loss (calculated within the Moody’s model) must be no higher than the maximum set to achieve the target rating. The calculated expected loss incorporates elements of the CLO structure and portfolio to “equilibrate” tranche expected loss statistics by rating.

S&P Statistical Requirements

Tranches	Target Rating	Min. Default Rate
A1	AAA	66.80%
A2	AA	58.94%
B	A	53.09%
C	BBB	47.01%
D	BB	40.04%

In the case of S&P, each tranche must pass a minimum default rate scenario (i.e. a break-even default rate) to achieve the target rating. The minimum default rate is established by S&P’s model which incorporates elements of the CLO structure and portfolio to “equilibrate” tranche default probabilities by rating.

Figure 5: "Net" Supply of US CLOs

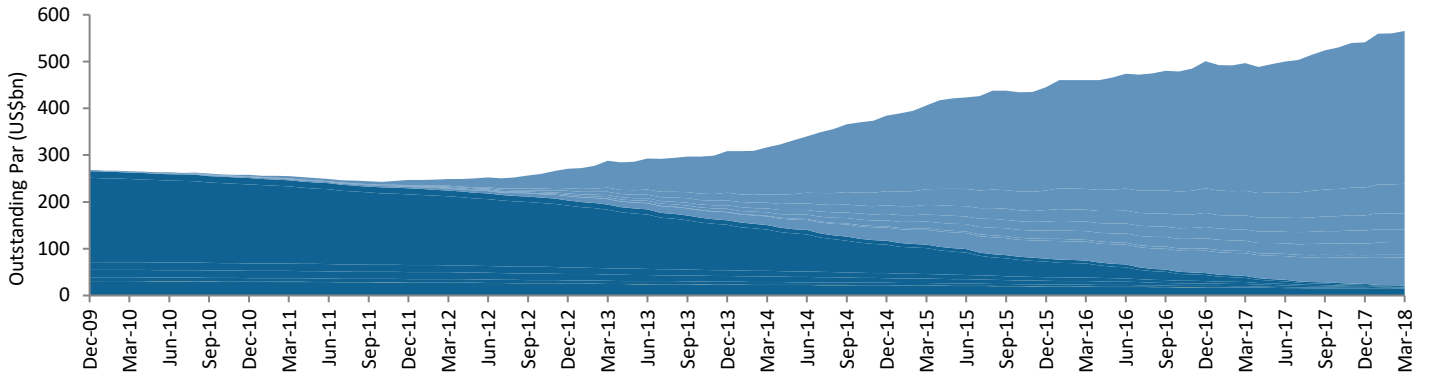


Figure 6: "Net" Supply of US CLO Senior Tranches

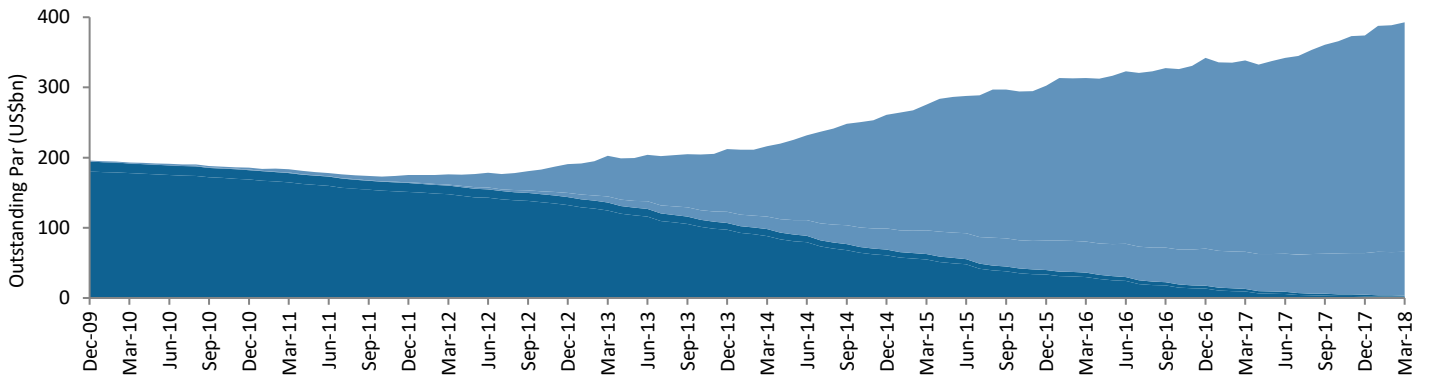


Figure 7: "Net" Supply of US CLO Mezzanine Tranches

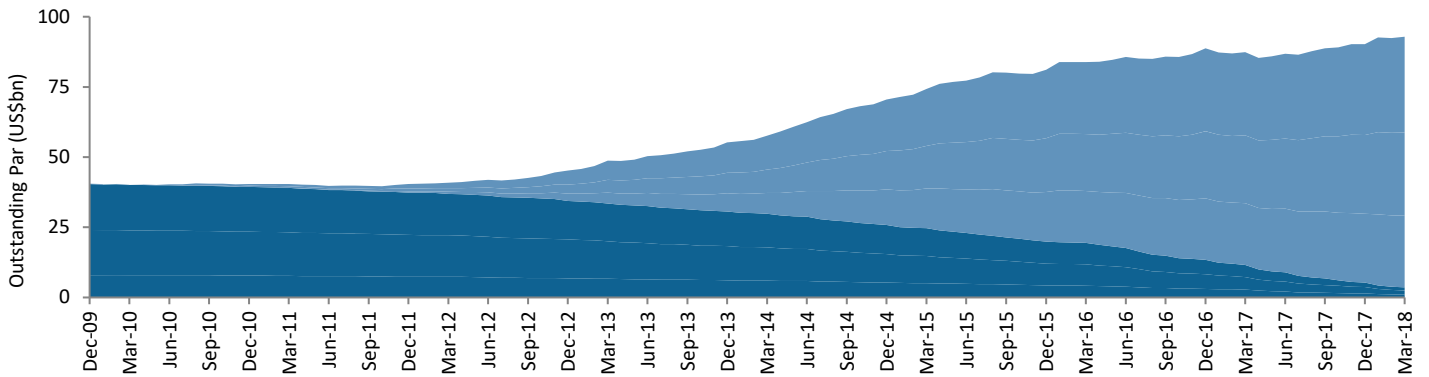
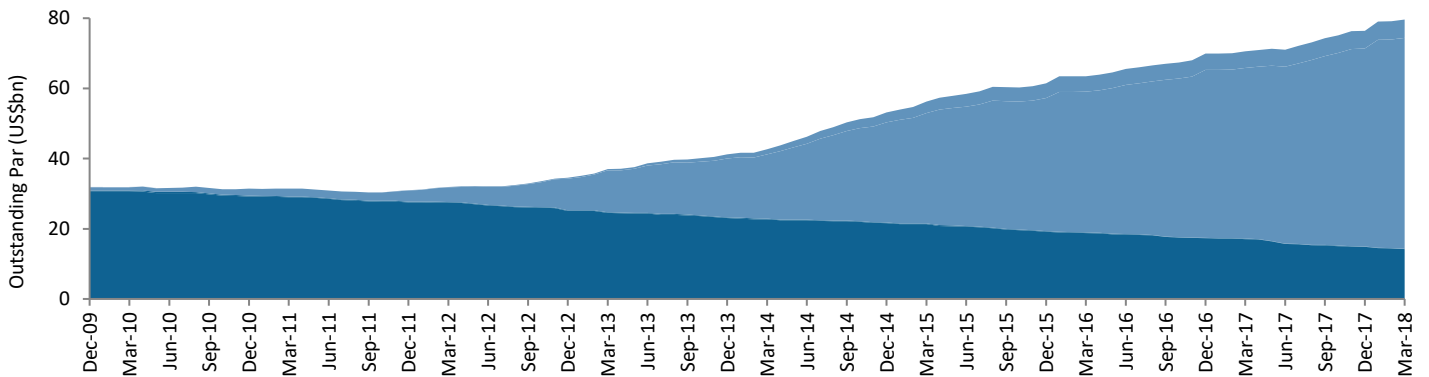


Figure 8: "Net" Supply of US CLO Subordinated Tranches



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