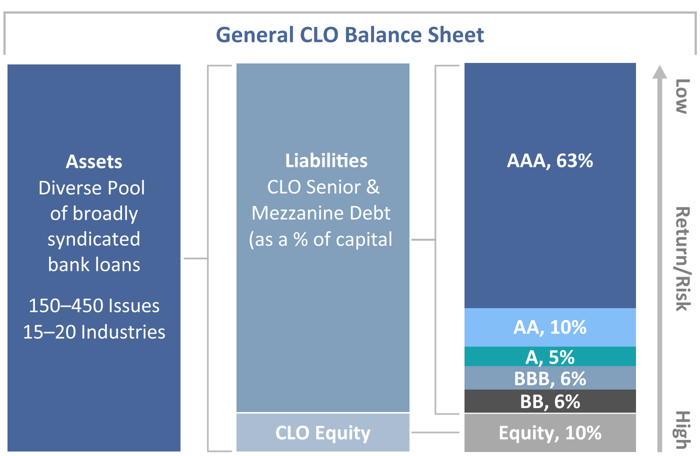
A 101 on CLOs

December 2023

It is important to first establish what a CLO is not. A CLO should not be confused with a CDO (Collateralized Debt Obligation). The term "CDO" for many, is synonymous with the Great Financial Crisis ("GFC") of 2008. CDOs were supported by the sub-prime residential loan market and as housing capitulated, so too did the CDO market, resulting in a horrific outcome for investors. However, the CLO market fared substantially better through the recessionary period of 2008/2009. According to data from Moody's rating agency, there have been zero defaults since 1993 (even throughout the GFC) within the higher rated AAA to A CLO tranches. Additional data from the Structured Finance Association shows that out of 11,409 CLO tranches rated by S&P between 1994 and 2019, only 40 tranches, or 0.004% of the rated tranches, have defaulted.

What is a CLO? At its core, a CLO, or Collateralized Loan Obligation, is an actively managed pool of floating rate loans. This pool of loans, legally structured in a single entity called a CLO, is then divided into different tranches based on risk. Generally, ~90% of the tranches are floating rate debt tranches with various credit quality ratings (Exhibit 1). Another way to think of a CLO is as a portfolio of loans that are levered via the issuance of liabilities to fund the additional purchase of assets, in much the same way as a company issues debt to make new corporate investments.

Exhibit 1

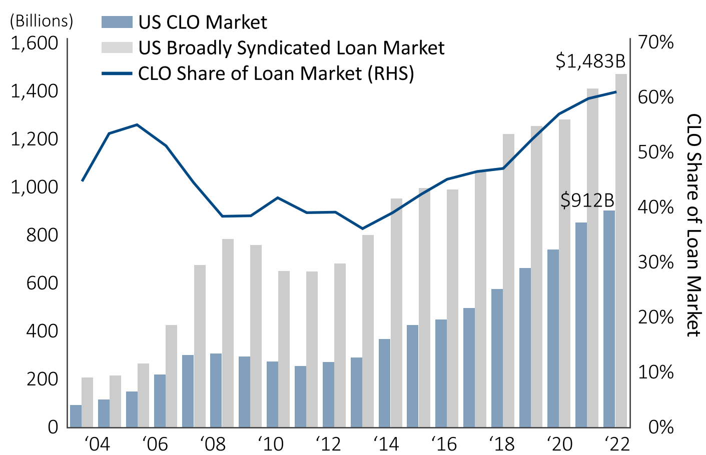


History of the asset class

CLOs originated in the late 1980s. The primary creation was to allow banks to package corporate loans together to provide investors with an investment vehicle with varied degrees of risk and return to best suit their investment objectives. Over the last +30 years, the asset class has evolved as several vintages of CLOs have been introduced to markets. The initial vintage of CLOs is commonly known as "CLO 1.0" and was first issued in the mid 1990's. CLOs 1.0 were the standard structure until the GFC. This vintage allowed high yield bond exposure as well as loans, and according to Standard & Poor's, exhibited strong credit performance during the great financial crisis. In spite of this strong underlying performance, CLO 2.0 emerged, which required substantial structural improvement from the previous edition. As compared to CLOs 1.0, CLOs 2.0 required enhanced overcollateralization, a near prohibitive approach to including high yield bonds in the CLO structure, as well as a shortening of the trading period during which the manager is allowed to actively trade in the portfolio (known as the reinvestment period). This restriction acted as a limiter of extension risk in CLOs. The enhancements in CLO 2.0 resulted in even stronger performance than seen in version 1.0.*

Today, the version 2.0 of CLOs make-up the dominant percentage of the overall US CLO market (~99%). For reference, as of March 2023 the US CLO market surpassed $1 trillion USD in size and is widely considered a fully functioning capital market (Exhibit 2).

Exhibit 2



Source: Wells Fargo, December 2019; Credit Suisse, September 2022; BAML September 2022

Demystifying the Structure

Assets

A typical CLO portfolio consists of "assets" which are approximately 175-400 diversified senior secured corporate loans. The loans contained within the CLO are floating rate in nature – meaning they adjust as their reference rate (typically SOFR) adjusts and pay interest on a monthly or quarterly basis. A point of distinction is where loans reside within the capital structure of a corporation. Loans (also referred to as senior secured corporate loans) are typically secured by assets and are senior in a capital structure to bonds and equity. A benefit of this position is that loans typically provide a higher recovery in the case of default and the seniority in the capital structure allows the lender to be repaid first. The vast majority of loans are issued by below investment grade (high yield)

* The most recent version (beginning in 2014) is known as CLO 3.0. The intent of version 3.0 was to further limit risk by eliminating any high yield bond exposure and adhering to the Volcker Rule. However, the Volcker Rule was amended recently, and high yield bonds are now allowed in version 3.0 (typically limited to 5-10%). The countermeasure to this inclusion is elevated levels of subordination to ensure additional protection to the debt tranches within the CLO.

rated corporations. Some of these issuing corporations are well known – as an example, United Airlines, RiteAid, and Petco are all issuers in the loan market.

Liabilities

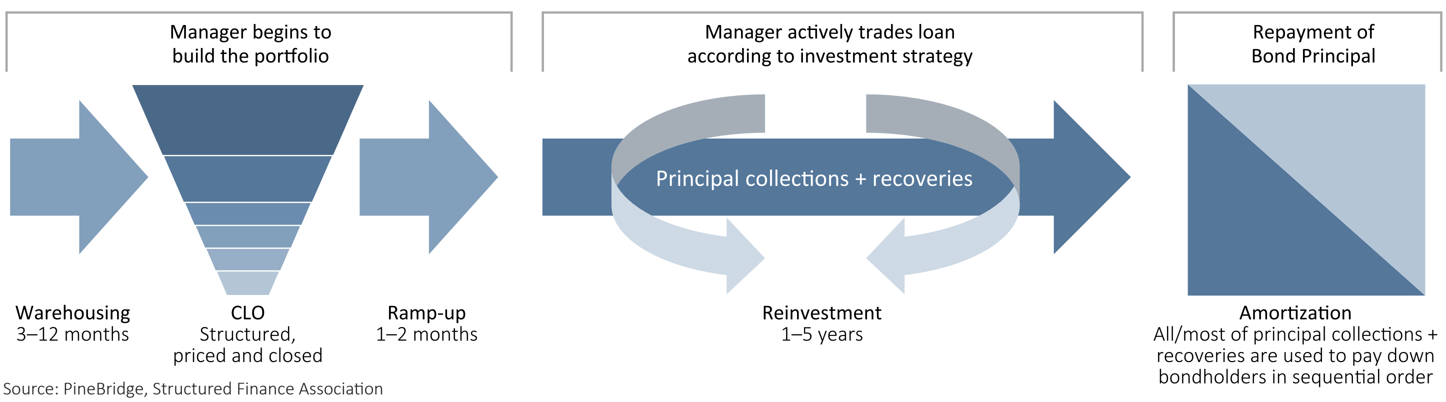
Contrasted with the assets are the debt obligations otherwise known as "liabilities". The lenders of the CLO are structured into "tranches" that redistribute the risk of the underlying loan exposure by offering a tiered investment approach by rating from AAA-Equity. Senior and mezzanine tranches (AAA-BB-) behave like other fixed income instruments (coupons, regular interest payments, maturities) while the subordinated tranche (equity) sits in the junior position within the capital structure and lacks a fixed coupon. A CLO structure is typically five rated tranches – from the most senior tranche (AAA) down to the most junior tranche (BB-). AAA senior tranches are the largest and typically represent ~65% of the capital structure. Mezzanine AA to BB-rated tranches are much smaller and typically represent 4–12% of the capital structure each. Equity tranches vary in size but are typically about 8–10% of the capital structure.

The Life of a CLO

Each CLO has its own lifecycle during which the underlying collateral (loans) are purchased, managed, and redeemed (which returns capital to investors). This typical lifecycle consists of five phases:

1. **Warehousing** (3-12 months): The period during which the CLO manager purchases the underlying collateral before the close date.
2. **Ramp Up** (1-2 months): Post the close date, the period where the manager purchases any remaining collateral to complete the portfolio. Additional testing is also performed during this period to ensure adequate coverage of interest and principal payments.
3. **Reinvestment** (1-5 years): Subsequent to the ramp up, this is the period during which the CLO manager can reinvest loan proceeds – through the active management of the portfolio to potentially alter the credit quality of the portfolio.
4. **Non-Call** (first 0.5 to 2 years of reinvestment): The period during which the equity is not permitted to call (or refinance) the debt tranches. After this period, the equity owners are permitted the right to refinance the debt tranches.
5. **Repayment and Deleveraging** (1-5 years): After the reinvestment period, the underlying loans mature or are paid off, the collateral manager pays off the various tranches by seniority (AAA to BB-) and ultimately distributes the remaining proceeds to the CLO tranche equity holders.

Exhibit 3



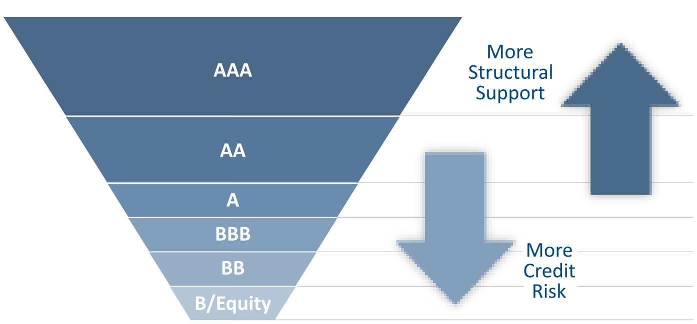
Source: PineBridge, Structured Finance Association

CLO Buyer Base

Given the fully developed CLO marketplace that we see today, the buyer base of CLOs is diverse. Typical ownership of tranches varies by risk appetite. The least risky most senior tranche (AAA) portions of a CLO are widely owned by banks, asset managers, insurers, and pension plans.

Conversely, investors with an increased tolerance for risk (compensated via higher yields and the potential for elevated returns) tend to own the lower rated tranches or the equity of a CLO. These respective buyers tend to be asset managers, credit funds, BDCs, and risk retention vehicles.

Exhibit 4



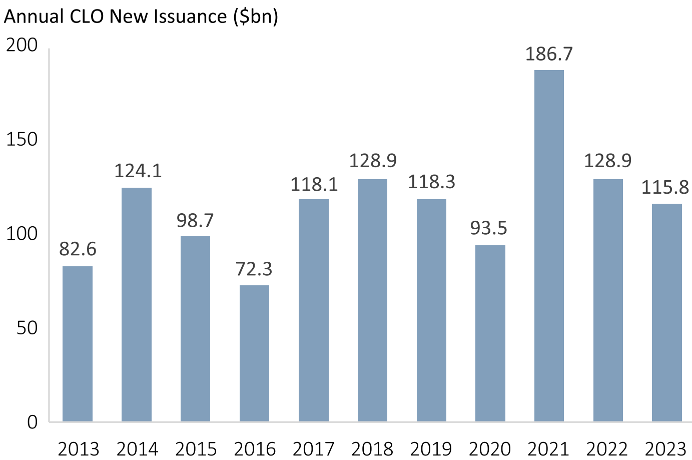
Rating	Investor Type
AAA – AA	Banks / Asset Managers / Insurers / Pensions
A – BBB	Asset Managers / Insurers / Pensions / Credit Funds
BB – B	Asset Managers / Pensions / Credit Funds
Equity	Asset Managers / CLO Managers / Credit Funds / BDCs / Insurers / Risk Retention Vehicles

Liquidity within the CLO asset class

There are two identifiable methods of defining liquidity within the CLO market: issuance and secondary trading ability. CLO issuance reached its peak rate in 2021 via the issuance of nearly $187bn; since then, there has been approximately $120–$130bn issued per year.** We believe from a technical standpoint that this amount of issuance is enough to support a fully functioning capital market and provide adequate trading liquidity.

From a secondary market perspective, trading volume increased and was supported even in a period of stress (i.e. COVID market volatility). In today's market, we believe the argument can be made that CLOs may at times possess greater liquidity than comparably rated corporate debt.

Exhibit 5



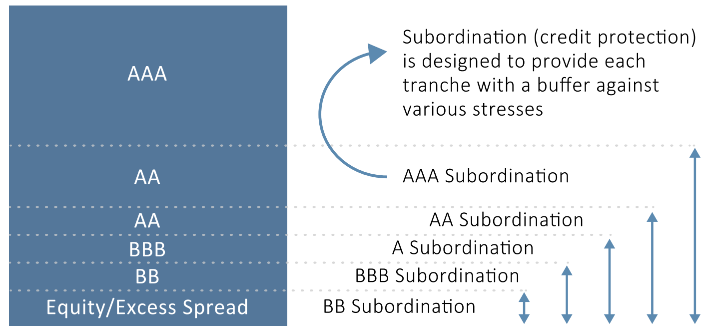
Source: LCD, December 2023

What does the term "Waterfall" mean in relation to CLOs?

The term "waterfall" can be defined within a CLO structure as the hierarchy that establishes the order in which cash flows are to be distributed. The cash flow payments begin with the senior most CLO tranche (AAA as it holds the highest claim on the flow of funds), followed by payment to the lower-rated tranches (AA–BB), then the equity tranche, in order of their seniority.

The CLO's most senior rated tranche (AAA) offers the lowest coupon, but has priority on cash flow distributions and is the most loss-remote. Moving down in credit quality to the mezzanine tranches (AA–BB) results in higher coupons but increases the potential of loss exposure and lower overall credit ratings. Lastly, the most junior and highest risk position in the CLO is the equity tranche (which is not rated and not coupon bearing). The equity tranche holds claim on any funds that remain at the end of the waterfall and may be distributed to equity investors as a return on their investment.

Exhibit 6a



In addition to claims on cash flows within the CLO structure, the various tranches offer differing levels of yield, spread, and price to investors. The more senior tranches offer lower yield, less spread, and typically higher dollar prices than those tranches that reside lower in the CLO. For example, as of the end of December 2023 the table below highlights the differing levels of yield, spread and price.

Exhibit 6b

Market Data	Yield (%)	DM (BPS)	Price ($)
JP Morgan CLO Indices			
AAA-Rated	5.7	148	99.9
AA-Rated	6.0	215	99.4
A-Rated	6.6	271	99.0
BBB-Rated	8.0	409	98.1
BB-Rated	12.4	850	92.5
B-Rated	19.2	1,503	71.5

Source: JPMorgan, December 2023
Past performance is no indication of future results.

Benefits of incorporating CLOs

Historically Strong Returns: Historically, CLO tranches have performed well as compared to other corporate debt asset classes. This performance was specifically noticeable in the lower rated CLO tranches.

Exhibit 7

Index Return (%)	TR 2023	TR 2022	TR 2021	TR 2020	TR 2019
CLOIE Total	10.54	0.21	2.37	3.11	5.50
By Original Rating					
AAA	8.68	1.05	1.40	2.54	4.61
AA	10.86	-0.17	2.09	2.97	5.95
A	13.35	-1.67	3.13	4.64	6.72
BBB	17.66	-2.77	4.30	5.47	8.91
BB	24.52	-3.82	11.20	8.04	10.84
B	26.77	-6.39	28.43	6.22	4.17

Source: JPMorgan, December 2023
Past performance is no indication of future results.

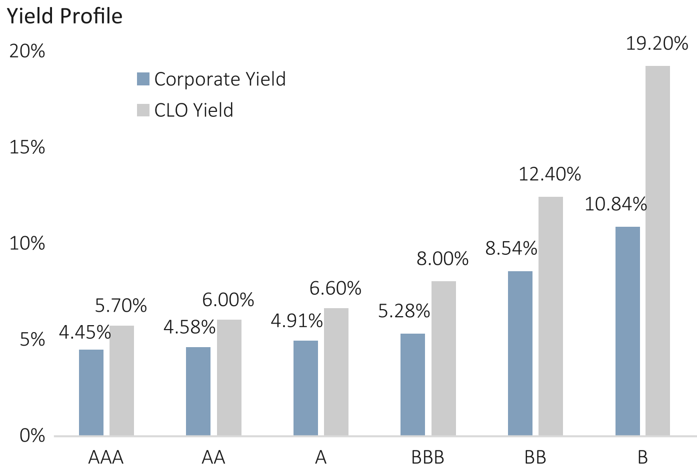
** Source: LCD, September 2023

What is a CLO?

December 2023

Historically Attractive Yields: Historically, the CLO asset class has provided a meaningful yield pickup over similarly rated corporate and high yield securities.

Exhibit 8



Source: JPMorgan, December 2023. AAA–BBB = Barcalys US Corporate Index, BB and B = per LCD average new issue yield of BB and B loans.

Enviable Risk Profile: Due to the securitization structure, credit support, and covenants – historically, CLO default rates and loss rates have been significantly lower than similarly rated debt securities.

Exhibit 9

Historic Impairment and Loss Rates				
Moody's US CLO 10yr Cumulative Impairment & Loss Rates (1993–2022)				
	Impairment Rates		Loss Rates	
Cohort Rating	10yr Cumulative	Annualized	10yr Cumulative	Annualized
AAA	0.0%	0.0%	0.0%	0.0%
AA	0.0%	0.0%	0.0%	0.0%
A	0.0%	0.0%	0.0%	0.0%
BBB	5.8%	0.6%	2.0%	0.2%
BB	13.3%	1.3%	7.1%	0.7%
B	16.1%	1.5%	6.7%	0.7%
CCC	13.1%	1.2%	6.8%	0.7%
Investment Grade	1.6%	0.2%	0.5%	0.1%
Speculative Grade	14.8%	1.4%	7.6%	0.7%
All	4.5%	0.4%	2.1%	0.2%

Source: Moody's, 2023

Diversification: CLO correlations versus other fixed income asset classes have been relatively low; thereby highlighting the effectiveness of including CLOs into a diversified fixed income portfolio. In fact, over the past 3 years, CLOs have been one of the least correlated instruments to 5yr and 10yr US Treasuries.

Exhibit 10

Cross asset class 3-year correlation

Index	5Y Tsy	10Y Tsy	JPM MBS Bond	JULI HG	JPM HY	S&P 500	JPM EMBI	Gold	US inflation	JPM LevLoans	CLOIE AAA	CLOIE AA	CLOIE A	CLOIE BBB	CLOIE BB	CLOIE B
5Y Tsy																
10Y Tsy	97%															
JPM MBS Bond	65%	68%														
JULI HG	63%	65%	93%													
JPM HY	36%	34%	72%	77%												
S&P 500	27%	28%	58%	67%	83%											
JPM EMBI	47%	49%	78%	89%	81%	78%										
Gold	48%	47%	37%	38%	19%	15%	35%									
US inflation	-5%	-4%	-21%	-21%	-40%	-4%	-31%	-2%								
JPM LevLoans	34%	35%	47%	55%	72%	54%	63%	20%	-60%							
CLOIE AAA	40%	38%	51%	58%	55%	45%	66%	27%	-56%	84%						
CLOIE AA	37%	38%	39%	47%	41%	34%	54%	24%	-51%	84%	93%					
CLOIE A	41%	39%	44%	51%	45%	41%	57%	26%	-47%	82%	95%	96%				
CLOIE BBB	43%	43%	49%	55%	52%	44%	63%	31%	-52%	86%	91%	94%	94%			
CLOIE BB	40%	40%	45%	54%	51%	45%	59%	22%	-45%	85%	80%	87%	87%	93%		
CLOIE B	25%	26%	38%	40%	50%	41%	49%	20%	-41%	73%	61%	70%	70%	79%	79%	

Source: JPMorgan, November 2023

Aristotle Pacific Capital, LLC
December 2023

IMPORTANT NOTES AND DISCLOSURES

ARISTOTLE
PACIFIC CAPITAL