Private Debt 3/2025:

Collateralised Loan Obligations:

Perpetuum Mobile oder Potemkinsches Dorf?

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Einleitung

Collateralized Loan Obligations

Einleitung

American International Group

- *AIG war vor der Finanzkrise eine der grössten Versicherungen der Welt*
- *Die Versicherung hatte eine kleine aber wie sich zeigen sollte, wichtige Abteilung: AIG Financial Products*
- *Diese verkaufte Kreditversicherungen im grossen Stil, fatalerweise auf hypothekenbesicherten Wertpapieren (MBS)*
- *In diesem Markt herrschten falsche Anreize, indem die Kreation von Hypotheken lediglich zur Weiter-Verpackung in* **CDOs** *(Collateralized Debt Obligations) getätigt wurden, ohne Sorgfalt und mit krimineller Energie*
- *CDOs sind tranchierte und strukturierte Arbitrage-Maschinen, die Wertpapiere mit verschiedenen Bonitätsratings produzieren. Darunter auch solche mit hohen Ratings*
- *Players wie AIG investierten in solche Papiere mit hohem Rating*
- *Offensichtlich unterschätzte AIG das Risiko dieser Produkte und hielt nicht genügend Kapital vor, um potentielle Verluste abzudecken*
- *Als die Hypothekenmärkte einbrachen, verloren viele CDO-Tranchen fast ihren gesamten Wert*
- *Selbst die Super-Senior-Tranchen, die implizit ein Rating von AAAA hielten (4xA!) waren betroffen, weil die Verluste viel höher waren als ursprünglich angenommen, so wurden einige AAAA-Tranchen um 80-90% abgewertet*
- *Ursprünglich wurden sie mit einer Default-Wahrscheinlichkeit von 0.05% bewertet, am Schluss wurden viele dieser Tranchen auf Junk-Status herabgesetzt*
- *Ausschlaggebend war eine Explosion in der Korrelation*
- *Im Q4 2008 verbuchte AIG einen Rekordverlust von 61.7 Milliarden USD, der höchste je von einem Unternehmen gemeldete Verlust*
- *Am 16.9.2008 ist AIG an einer Überdosis Korrelation gestorben*
- *Die Unternehmung wurde vom amerikanischen Steuerzahler mit einem Kredit-Defibrillator zurück ins Leben geholt, im Gegenzug übernahm der Staat 79.9% der Anteile an AIG*
- *Seither gilt der Fall AIG als Beispiel für die systematischen Risiken, die durch den Handel mit komplexen Finanzinnovationen entstehen*

- *Heute hantiert die Firma wieder mit einer ähnlichen Finanztechnik:* **CLOs** *(Collateralized Loan Obligations)*

Das Marketing

In 1 Satz:

Ein CLO ist eine Maschine, die hoch verzinsliche, private Schuldpapiere mit tiefem Rating poolt, das Risiko tranchiert und damit neue Wertpapiere mit hohem Rating, guter Handelbarkeit und einem sagenhaften Pedigree kreiert, die auch an Investoren mit tiefer Risikotoleranz und hohen Ratinganforderungen verkauft werden können.

Collateralized Loan Obligations

Business Case

Private Debt ist für Versicherungen und Banken nicht investierbar, da kaum handelbar und nicht mit einem ausreichenden Rating versehen

Mit einem CLO können Versicherungen und Banken trotzdem in eine Sub-Anlageklasse von „Private-Debt" investieren, Leveraged Loans, und zwar mit einem sehr hohen Rating...

„By purchasing CLOs, banks and insurance companies can obtain exposure to the senior secured loan market while benefitting from structural protections and favourable capital treatment." (2)

...verbesserter Liquidität...

„Secondary trading volumes in investment-grade CLO tranches have been fairly stable year over year, and underscore the ability of risk to change hands even in challenging market environments." (4)

..und einem hoch attraktiven Zins...

„CLO spreads typically are wider than those of other debt instruments, reflecting CLOs' greater complexity, lower liquidity, and regulatory requirements. Compared with investment grade corporates, as well as other higher-yielding debt sectors – notably high yield and bank loans – CLO spreads are especially compelling." (3)

..sowie einer verminderten Zinssensitivität, da sowohl das Underlying wie die CLO-Notes floating rate Papiere sind

„Leveraged loans and their CLO tranches are floating-rate instruments, priced at a spread above a benchmark rate . As interest rates rise or fall, CLO yields will move accordingly, and their prices have historically moved less than those of fixed-rate instruments. These characteristics can be advantageous to investors in diversified fixed income portfolios." (3)

Die höher gerateten Tranchen der CLOs verfügen nicht nur über ein hohes Rating, sondern auch über eine tiefe Default Rate und hohe Recoveries.

„As demonstrated by a variety of key metrics, with impairment rates the most notable example, CLOs have historically presented lower levels of principal loss when compared with corporate debt and other securitized products. " (3)

„The senior secured position of these loans has contributed to higher historical recoveries in default scenarios than those seen in the high-yield bond market." (4)

Business Case

Mit anderen Worten: Eine CLO-Tranche bietet eine aussergewöhnliche risikoadjustierte Verzinsung

„CLOs today provide investors with several advantages. They can offer higher returns (over the long-term) than other corporate debt types and can do so on a relative risk basis." (1)

CLOs haben sich historisch als eine Performance-Maschine für alle Beteiligten erwiesen

„ Over the long term, CLO tranches have outperformed other corporate debt categories, including leveraged loans, high yield bonds, and investment grade bonds, and have significantly outperformed at lower rating tiers. CLOs have also outperformed on a risk-adjusted basis, generating higher Sharpe ratios than many other credit asset classes." (5)

Obwohl auch die ursprünglichen CLOs eine hervorragende Performance erbrachten ist die Anlageklasse heute noch robuster und diversifizierter strukturiert, als die Varianten, die sogar die Grosse Finanzkrise überlebt haben

Ein zusätzlicher Bonus ist die verminderte Volatilität der CLO-Preise auch während Marktstress:

„Nearly all CLOs have no mark-to-market triggers or other similar provisions and have high hurdles to meet before a collateral liquidation is triggered, making them better equipped to withstand market volatility." (2)

Dadurch, dass die Asset und Liability Borrowing Terms fixiert, gematched und locked-in sind, ist ein Run auf den CLO nicht möglich

Und schliesslich: Die heutigen CLOs sind nicht die wackeligen strukturierten Bomben der Grossen Finanzkrise, sie wurden 2x heftig getestet

„CLOs fall into the structured credit category, an asset class that includes collateralized debt obligations that held subprime mortgages, a market segment at the epicenter of the 2008 Global Financial Crisis. As a result, the perception exists among some investors that all structured credit is inherently riskier than more traditional fixed income. Historical evidence, however, tells a much different story, especially for CLOs. CLOs have been tested through two major market crises. Through both the Global Financial Crisis and COVID-19 drawdown, the asset class ultimately experienced fewer defaults than corporate bonds of the same rating." (7)

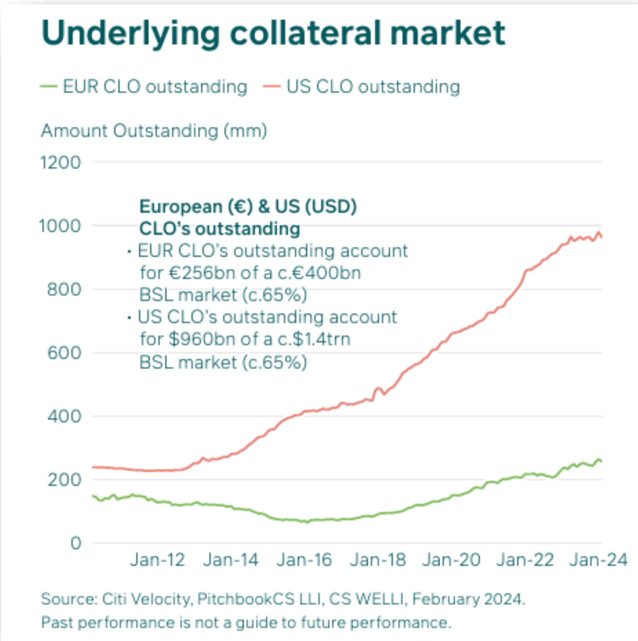
Collateralized Loan Obligations

Wer kauft CLOs?

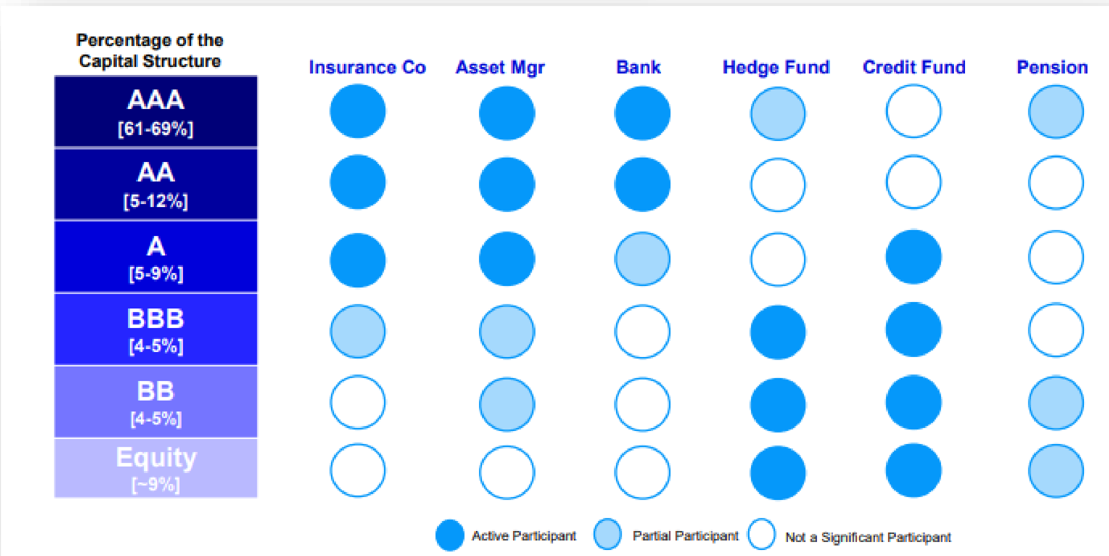
Mit der robusteren Struktur von CLO.2 und CLO.3 sind Versicherungen und Banken die dominierenden Investoren geworden: Das „Hot Money" ist nicht mehr in den Senior-Tranchen

„These structural protections have pulled new investors into the asset class, while regulatory protections (such as the demise of proprietary trading by investment banks) have pushed old categories of investors out of the asset class. The result is that the pre-financial crisis 'hot money' that could be found investing in CLOs has disappeared, replaced by a return of strong and stable investors with longer-term horizons, such as pension funds, insurance companies, private equity houses, and family offices. " (1)

„Prior to the GFC, investor sponsorship was largely dominated by hedge funds, structured investment vehicles, and Wall Street trading desks. However, post-crisis regulation has all but eliminated these highly leveraged investor types. Today's CLO investor base is primarily composed of large institutional asset managers, banks, and insurance companies." (4)



Quelle (6)



Quelle (44)

Das Underlying

Collateralized Loan Obligations

Das Underlying

CLOs verarbeiten Broadly Syndicated Leveraged Loans a.k.a. „Leveraged Loans“, man kann sagen, dass diese Loans speziell für die CLOs emittiert werden

Leveraged Loans für CLOs sind

- senior secured: Mit speziellen Vermögenswerten besichert und zwar vorrangig
- sub-investment grade: Firmen mit hohen Schulden
- gerated zwischen BB- und CCC: Mit sehr tiefen Ratings
- Schwergewichtig verwendet für LBOs
- Keine Wertpapiere, deshalb erschwert handelbar
- Floating Rate
- Mit individuellen Loan Covenants

…und damit nicht das was man unter Private Debt gemeinhin versteht, sondern eine Zwischenform zwischen private (illiquid) und public (gerated)

„Leveraged loans are typically defined as: Senior secured bank loans to sub-investment grade corporates rated BB+ or lower; or else are Loans that yield over 125 basis points above a particular benchmark interest rate and which are also secured by a first or second lien “ (1)

“Senior secured loans, also known as “leveraged loans” and “bank loans”, are loans to companies rated below investment grade. Senior secured loans are typically secured by a first-priority security interest in a borrower's assets, ahead of unsecured debt.” (2)

“As the term “senior secured” implies, these loans have a first-priority security interest in virtually all of a borrower’s assets in the event of a bankruptcy. Defaulted senior secured loans have historically had higher recovery rates than defaulted high yield bonds.” (2)

„Loans carry a number of covenants, including financial covenants that may restrict lender-unfriendly actions, and require compliance with certain credit metrics.“ (4)

“They differ from high yield bonds in that they are not “securities” and are not SEC registered.” (44)

Pro CLO werden plus/minus Loans von 200 Emittenten zusammen gepoolt, und damit wird eine hohe Diversifikation erreicht, möglich sind aber auch 400 Emittenten

„These CLO pools are considerable, comprising typically 150 to 250 loans.“ (1)

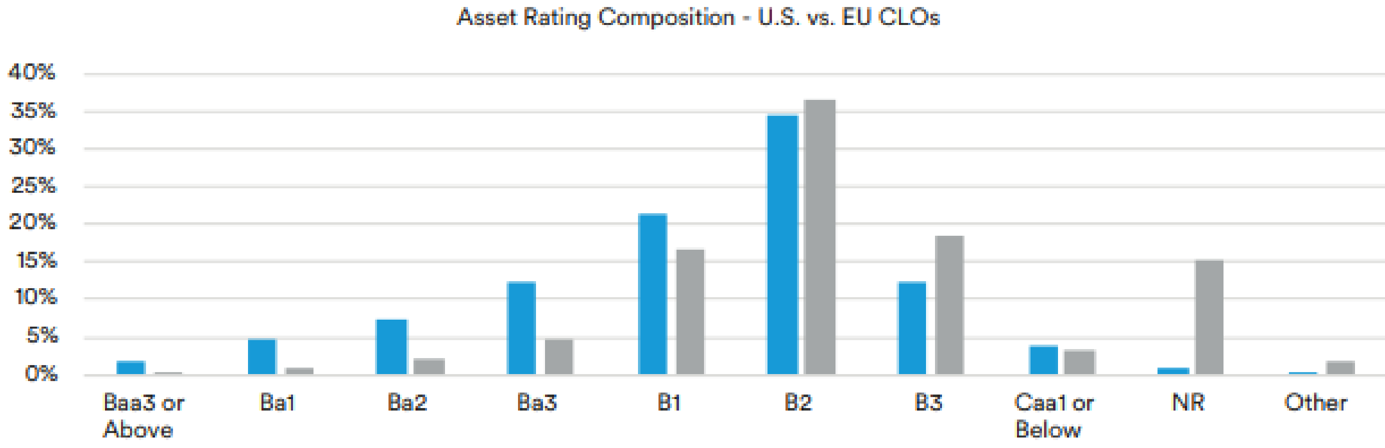
“The CLO collects interest and principal distributions from the pool of assets –typically 200-400 unique borrowers.” (44)

Collateralized Loan Obligations

Das Underlying

Der Median der Ratings im Underlying von CLOs ist B, die Spannweite ist von BB- bis CCC, d.h. es besteht signifikantes Ausfallsrisiko

Figure 2 | CLO Collateral Composition by Rating and Top Industries



Source: MetLife Investment Management, KANERAI, Intex, as of 5/31/2022

Quelle (36)

- *Dies sind Zahlen von 2024*
- *70% der Leveraged Loans sind B und CCC gerated*

Die Ratings im Underlying von CLOs befinden sich zwischen BB- und CCC, d.h. es besteht signifikantes Ausfallsrisiko, in der Sprache von S&P's:

BB-	- Diese Anlagen sind spekulativ. Probleme der Wirtschaft können leicht zu Ausfällen führen.
B+	- Ein Rating dieser Art bedeutet, dass die Anlage hochspekulativ ist. Bei auftretenden Problemen sind Ausfälle bei der Anlage sehr wahrscheinlich.
B	- Ein Rating dieser Art bedeutet, dass die Anlage hochspekulativ ist. Bei auftretenden Problemen sind Ausfälle bei der Anlage sehr wahrscheinlich.
B-	- Ein Rating dieser Art bedeutet, dass die Anlage hochspekulativ ist. Bei auftretenden Problemen sind Ausfälle bei der Anlage sehr wahrscheinlich.
CCC+	- Wird die Anlage so gewertet, dann sind Ausfälle zu erwarten. Lediglich günstige Entwicklungen der Anlage können Ausfälle verhindern.
CCC	- Wird die Anlage so gewertet, dann sind Ausfälle zu erwarten. Lediglich günstige Entwicklungen der Anlage können Ausfälle verhindern.
CCC-	- Bei einer solchen Anlage besteht eine hohe Wahrscheinlichkeit eines Ausfalles. Es kann auch sein, dass bereits ein Insolvenzverfahren läuft. Der Emittent ist aber noch nicht in Zahlungsverzug.
CC	- Bei einer solchen Anlage besteht eine hohe Wahrscheinlichkeit eines Ausfalles. Es kann auch sein, dass bereits ein Insolvenzverfahren läuft. Der Emittent ist aber noch nicht in Zahlungsverzug.
C	- Bei einer solchen Anlage besteht eine hohe Wahrscheinlichkeit eines Ausfalles. Es kann auch sein, dass bereits ein Insolvenzverfahren läuft. Der Emittent ist aber noch nicht in Zahlungsverzug.
D	- Dieses Rating ist gleichbedeutend mit einem Zahlungsausfall.

Quelle (40)

Durch die Floating-Struktur haben Leveraged Loans **kaum Durationsrisiko**, das heisst aber **nicht**, dass sie **risikofrei** sind, im Gegenteil

Die Struktur

Collateralized Loan Obligations

Die Struktur

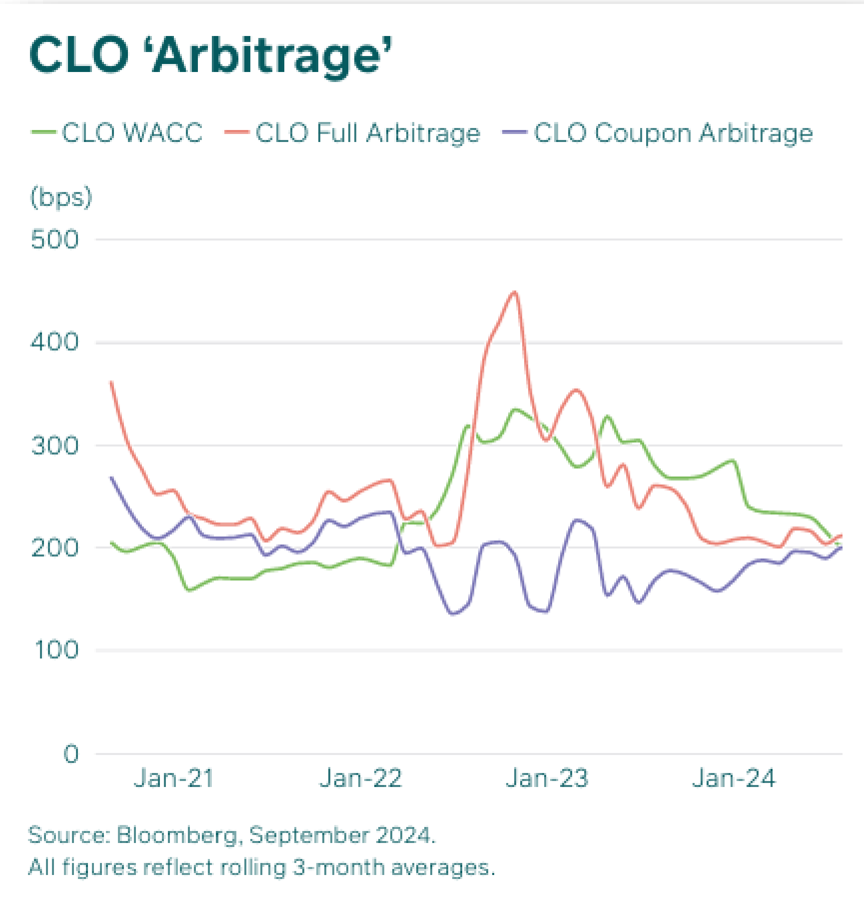
Zweck der Struktur ist es, aus sub-investment grade Loans ein Bündel von Wertpapieren zu kreieren, das verschiedene Anlegergruppen bedient:

1. Eine AAA Tranche für Investment Grade Fixed Income-Anleger…
2. ..ein Equity für Investoren in Leveraged Arbitrage Produkte..
3. ..und AA bis BB-Tranchen für Fixed Income-Anleger mit hoher Risikotoleranz

CLOs können kreiert werden, wenn eine „Arbitrage“ möglich ist: Die „Verzinsung“ des Equity sollte deutlich höher sein, als die Verzinsung der Notes, ideellerweise +400 bips vs. +200 bips über SOFR

„For the economics of a CLO transaction to work, the interest income from the loan portfolio must exceed the interest expense of the CLO debt obligations, with the CLO's equity investors receiving the excess interest.“ (2)

„Asset Spread @+400 vs. Liability Cost @+200, 10x levered“



Source: Bloomberg, September 2024.
All figures reflect rolling 3-month averages.

"The equity return is driven by the excess spread (or 'arbitrage') between asset spreads of +400bps and liability costs of +200bps and then enhanced by the leverage in the structure (usually a 10 to 1 ratio). As per the chart (purple line), the equity arbitrage is typically driven by the running difference in asset and liability costs, which is known as the 'Interest Only' arbitrage. The 'self-healing' nature of the arbitrage can however make these good moments to invest as they are often times when assets can be acquired at a discount to face value and so when a pull-to-par is achieved the all-in equity arbitrage (dark green line) is restored, or sometimes even substantially enhanced. This is known as a 'Principal Only' arbitrage, which has historically delivered some of the highest equity IRR's seen in the market, but requires impeccable timing in rare market conditions." (6)

Collateralized Loan Obligations

Die Struktur

Die Struktur hat sich über die Zeit gewandelt, sie ist robuster geworden, heute sind fast nur noch CLO.2 und CLO.3 erhältlich

„CLOs have certainly evolved since the pre-2008 transactions (known as a CLO 1.0) and the direction of travel has generally been to enhance investors' protections and interests. After the 2008 financial crisis, notable developments in the more recent versions (CLO 2.0 and 3.0) have included increased credit support, Volcker rule compliance and a further diversified assets portfolio (subject to various tests and limitations to prevent high concentration or over exposure to certain sectors, for example)." (1)

CLOs gibt es seit den späten 1980er und wurden zwei mal reformiert:

- „CLO 1.0" 1989
- „CLO 2.0" 2010
- „CLO 3.0" 2014

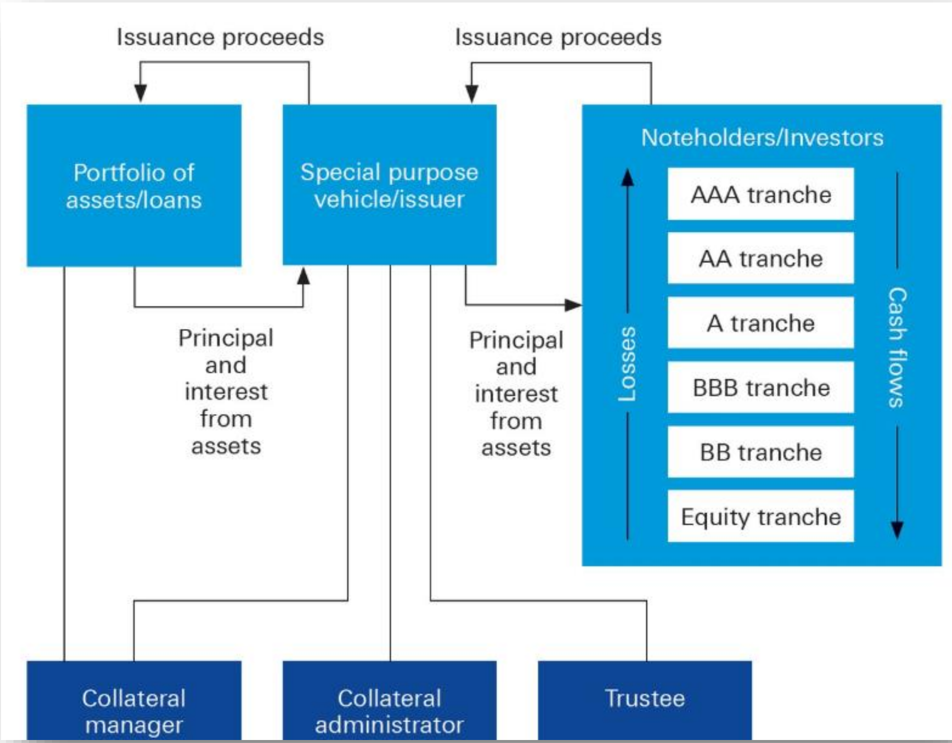
„CLOs originated in the late 1980s, similar to other types of securitizations, as a way for banks to package leveraged loans together to provide investors with an investment vehicle with varied degrees of risk and return to best suit their investment objectives. The first vintage of "modern" CLOs – which focused on generating income via cash flows – was issued starting in the mid- to late-1990s. Commonly known as "CLO 1.0," this vintage included some high yield bonds, as well as loans, and were the standard CLO structure until the financial crisis struck in 2008. The next vintage, CLO 2.0, began in 2010 and changed in response to the financial crisis by strengthening credit support and shortening the period in which loan interest and proceeds could be reinvested into additional loans. The current vintage, CLO 3.0, began in 2014 and aimed to further reduce risk by eliminating high yield bonds and adhering to the Volcker Rule and other new regulations. In 2020, the Volcker Rule was further amended, and high yield bonds are now allowed back into CLOs." (3)

CLOs bleiben auch nach all diesen Jahren komplex und jeder Deal wird zwischen den Parteien verhandelt und ist einzigartig

„The importance of understanding a CLO's structural characteristics cannot be underestimated. Two CLOs with the identical collateral assets may perform differently due to structural differences. The legal documentation that governs a typical CLO can be in excess of 300 pages, and a high degree of expertise and consistent market presence are required to analyze these documents and discuss key terms with managers looking to access the market. The ability to access the value in CLOs becomes available to investors with the appropriate mix of credit research, structuring experience, and legal expertise." (4)

Collateralized Loan Obligations

Die Struktur



1. Ein Portfolio wird aufgebaut
2. Ein SPV wird errichtet
3. Das SPV emittiert Tranchen
4. Die Investoren zahlen ein
5. Der CLO läuft
6. Der Manager darf während der „Reinvestment Period" (1-5 Jahre) handeln
7. Der Equity-Holder darf nach der Non-Call Period (0.5 – 2 Jahre) den CLO callen
8. Anschliessend an die Reinvestment Period werden die Tranchen nach Massgabe der Repayments amortisiert
9. Die Lebensdauer des CLOs wird beendet durch den Call oder Fälligkeit

„Typically Issued with a legal maturity of 12-13 years; weighted average life of 6-10 years" (3)

Collateralized Loan Obligations

Die Notes

Senior Debt: Die AAA-Tranche bekommt das höchste Rating: Die AAA-Investoren werden als erste bedient mit Zinszahlungen, kommt es zu Problemen im Pool, dann wird diese Tranche zuerst amortisiert, alle anderen Tranchen werden bei Verlusten betroffen, bevor die AAA-Tranche leidet und nach der Reinvestment-Periode wird die AAA-Tranche als erste amortisiert

„Senior debt obligations are the least risky (most protected) debt obligations with the lowest interest rates. They are typically rated AAA or AA and make up the bulk of total CLO debt issued." (2)

Mezzanine Debt: Die Tranchen zwischen der Senior Debt und dem Equity, in der Regel die A bis B-Tranche:

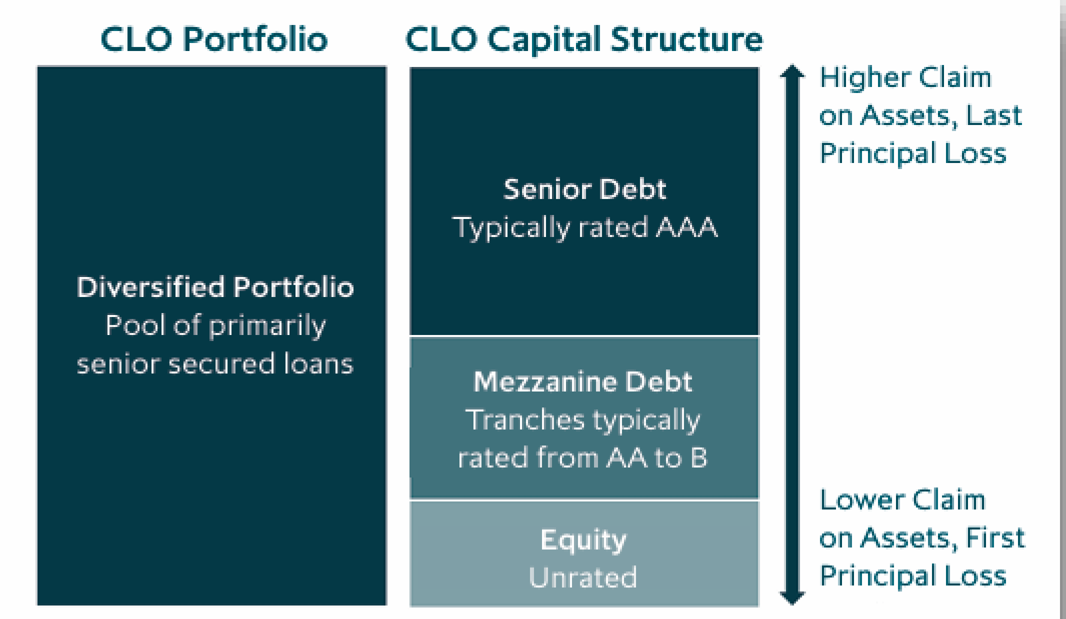
„Mezzanine debt obligations are riskier than the senior debt obligations. As a result, they offer higher rates of interest but may provide considerable protection against collateral defaults. They are typically rated from A to B." (2)

Equity ist nicht gerated und ist der First-Loss-Taker, hat aber auch das gesamte Upside

„The equity represents a claim on all excess cash flows once the obligations for each debt tranche have been met."(2)

70% AAA + 10% Equity ist üblich

„AAA senior tranches are the largest and typically represent 70 percent of the capital structure. Mezzanine AA to BB-rated tranches are much smaller and typically represent 4–12 percent of the capital structure each. Equity tranches vary in size but are typically about 8–10 percent of the capital structure."(4)



Note: Mezzanine debt and equity (collectively, "junior tranches")

Collateralized Loan Obligations

Cashflows

Die Zinsen, die von den Loans im Underlying reinkommen, werden wie ein Wasserfall über die Struktur gegossen, die AAA-Tranche zuerst, dann die AA-Tranche, das Equity am Schluss

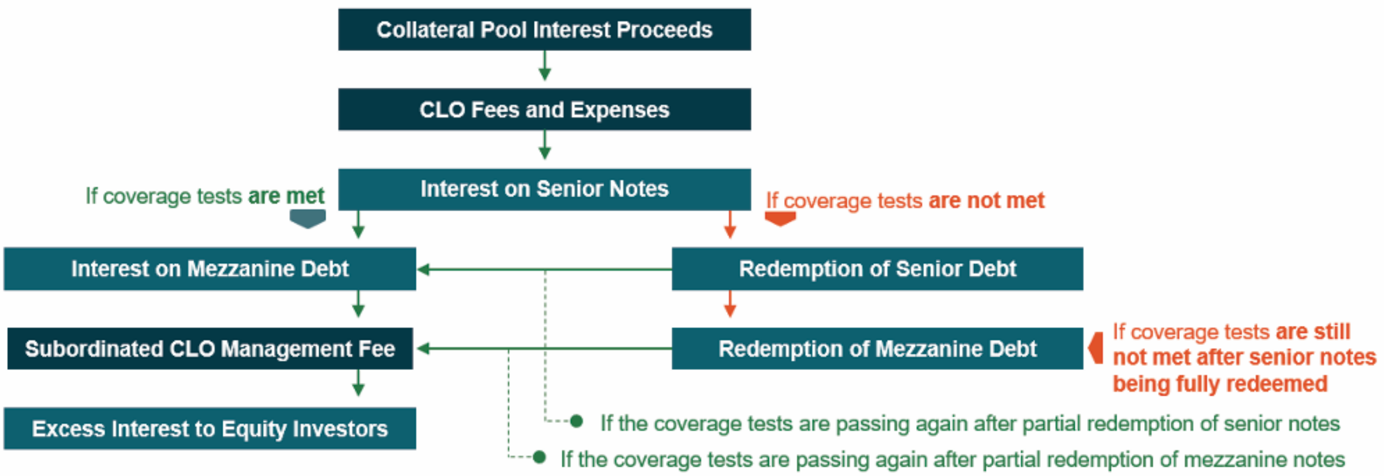
„The key concept is that distributions are paid sequentially starting with the senior-most tranche until each loan tranche has been paid its full distribution. Equity-tranche holders absorb costs and receive the residual distributions once the costs have been paid." (3)

„The senior CLO debt obligation must receive its full principal and interest due before any proceeds can flow down the waterfall and begin to repay the next debt obligation" (2)

Fees, Expenses und Senior Notes werden zuerst bedient.

Dann kommen die Coverage Tests: Wenn ok, dann bekommt die Mezzanine Debt ihre Cashflows.

Dann das Equity.



Source: Morgan Stanley, ICG

Collateralized Loan Obligations

Laufzeit des CLO

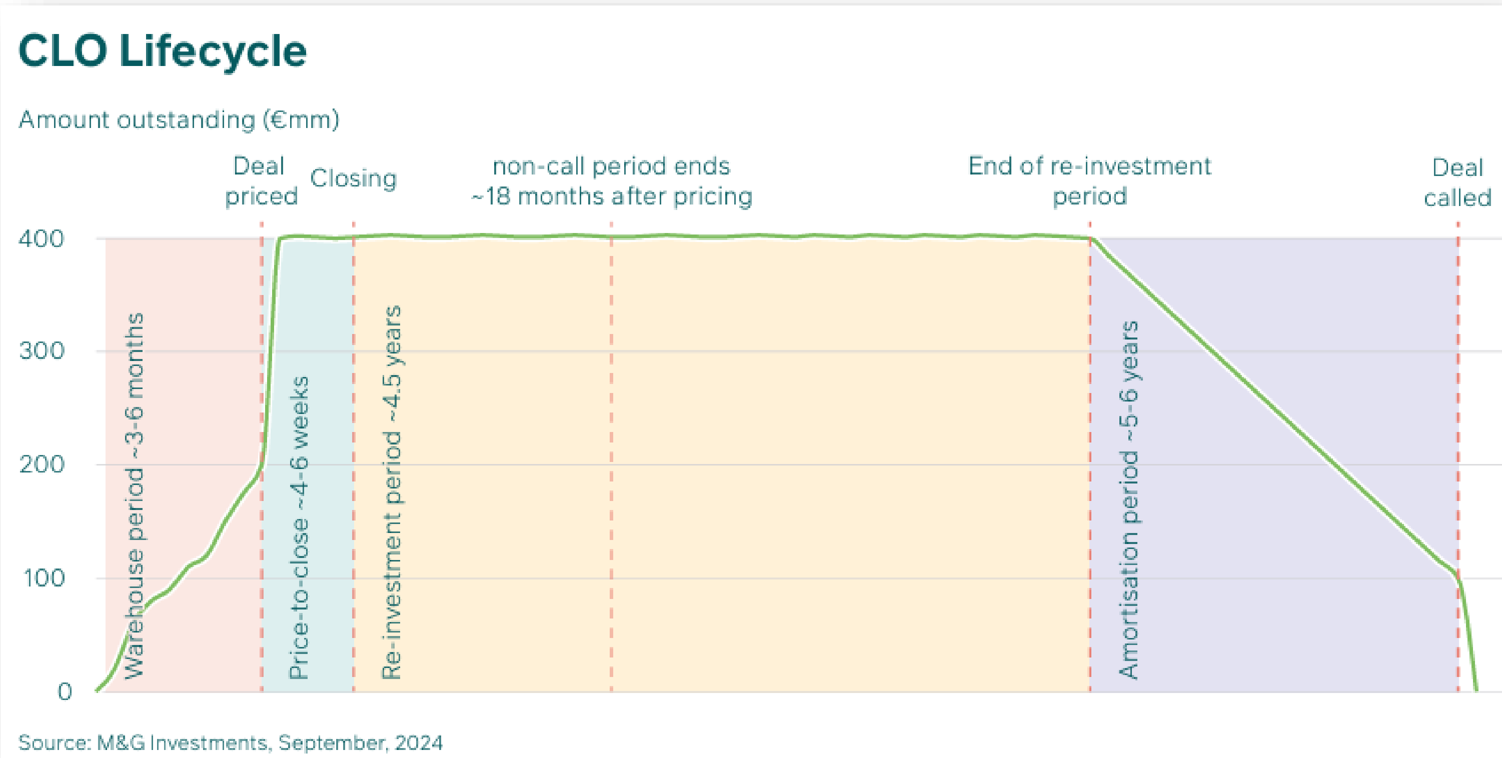
Die Laufzeit eines CLO liegt meist zwischen 12-13 Jahre
Der gesamte CLO-Lebenszyklus beträgt in der Regel 8-10 Jahre
Leveraged Loans im CLO-Portfolio haben üblicherweise eine Laufzeit von 5-7 Jahren

Der Mismatch wird ausgeglichen durch

1. Aktives Management während der Wiederanlageperiode
2. Vorzeitige Tilgungen der Leveraged Loans
3. Kündigungsoptionen des Equity-Holders

Der CLO endet in der Regel vor dem formalen Verfall mit einem Call der Equity-Inhaber und zwar nach der Reinvestmentperiode, wenn er nicht bereits aus ökonomischen Gründen vom Equity (nach der Non Call Period) gecalled wurde

„The Manager will invest and trade the portfolio throughout their investment period (typically 4.5 years), before the amortisation phase is reached when the liabilities are naturally repaid as assets in the portfolio repay, from the AAA tranche and downwards, according to the waterfall. At a point in this natural winddown, the deal is 'called' by the equity tranche (whereby the assets are sold, liabilities repaid and the structure collapsed). It is very rare for CLOs to reach their 13-year legal maturity, not least because the cost of capital increases as the cheaper notes are amortised first." (6)



Collateralized Loan Obligations

Laufzeit des CLO

Erfolgt kein Call oder keine Refinanzierung dann „stirbt“ der CLO aschliessend an die Reinvestierungsphase nach Massgabe der Rückzahlungen im Underlying, zuerst wird die höchste Tranche abgezahlt, gefolgt von der zweithöchsten etc. Deshalb verfügen die <u>verschiedenen Tranchen über eine unterschiedliche Lebenszeit</u>:

„Post the Reinvestment Period, income received from the underlying assets as well as any sale proceeds, must be used to pay down (“amortize”) the CLO debt tranches. Amortization begins at the highest rated debt tranche. Subject to certain requirements, the CLO may reinvest income and proceeds. Typically two to three years post the Reinvestment Period ending, the CLO is called due to lower equity distributions and rising debt costs. (44)

Principal Loss Order

Class	Size ($mm)	Rating (S&P)	Credit Enhancement	Weighted Average Life (WAL)	Coupon	Discount Margin (DM)
A	320.0	AAA	36.0%	6.5	SOFR +151bps	151bps
B	60.0	AA	24.0%	8.4	SOFR +185bps	185bps
C	30.0	A	18.0%	9.1	SOFR +225bps	225bps
D	30.0	BBB-	12.0%	9.6	SOFR +355bps	355bps
E	20.0	BB-	8.0%	10.0	SOFR +650bps	650bps
Equity	44.3	NR	NA		Residual	
	$ 504.3				SOFR +195bps	

Payment Order

Source: Illustrative Invesco CLO New Issue Structure, May 2024. For illustrative purposes only

Collateralized Loan Obligations

Safeguards

CLOs sind heutzutage regulierte:

„Among the key regulations governing CLOs are in the US, the Dodd-Frank Act (which implemented the Volcker Rule). In the EU, the Capital Requirements Regulation, the Securitisation Regulation, and the Alternative Investment Fund Managers Directive." (1)

Das Portfolio ist hoch diversifiziert:

„Specific covenants are incorporated into the transaction documents to regulate the type of loans that CLO managers may acquire, including covenants requiring managers to construct a diversified portfolio. The typical CLO is diversified across a wide range of industries and borrowers. It is common to have more than 175 individual companies in a US CLO " (2)

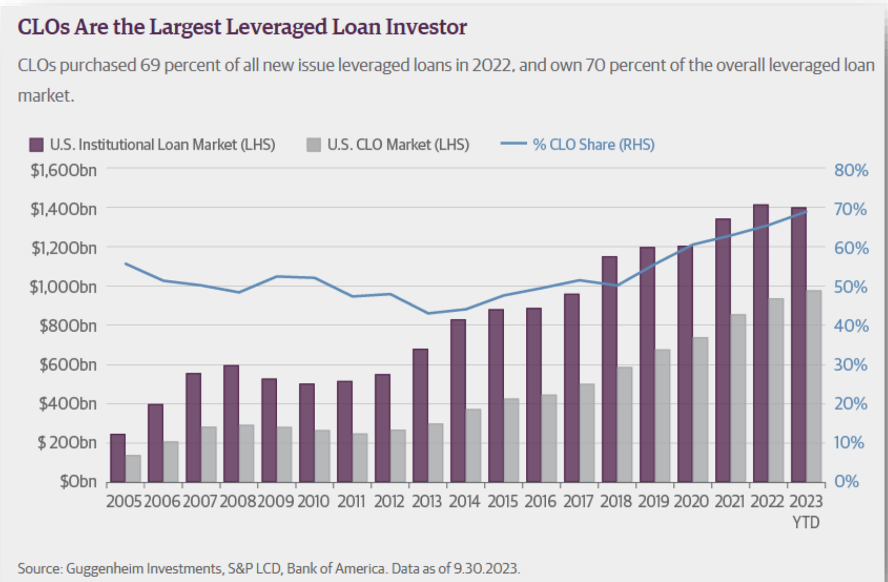
"Generally, only a small percentage of the assets (typically 2%) may be invested in the loans of any individual borrower. These limitations on portfolio composition mitigate outsized exposure to any single borrower or industry and restrict the purchase of lower credit quality loans." (2)

Generell sind die CLO der neuen Generation noch robuster als die CLOs 1.0

„Although pre-crisis CLO performance was strong through the financial crisis, post-crisis CLOs are characterized by even more robust structures. Structural improvements relative to their pre-crisis counterparts include: (i) substantially more credit enhancement for each rated debt tranche resulting in lower leverage, (ii) stricter limits on the portfolio composition, and (iii) more restrictive covenants protecting CLO investors." (2)

Heute sind CLOs Pure Play Leveraged Loans

„Currently, few CLOs allow for investments into high yield, and those that do generally limit the exposure to 5%-10%. To compensate for the exposure to high yield, these CLOs have increased levels of subordination to better protect debt tranches. Vintages 2.0 and 3.0 represent the biggest chunk of the market, with about $800 billion in principal outstanding, while less than 1% of the market remains in CLO 1.0 vintages." (3)



Der Leveraged Loan Markt ist ein CLO -Markt-Fundus geworden

Collateralized Loan Obligations

Safeguards

„Overcollateralisation“: Par Value Assets > Par Value Liabilities
„Credit Enhancement“: Untergeordnete Tranchen als Loss-Takers

Overcollateralisation deutet, dass der Nominalwert der zugrunde liegenden Vermögenswerte (Loan Pool) höher ist als der Nominalwert der ausgegebenen Schuldverschreibungen (die „rated tranches“). Das Equity ist der Puffer.

„The risk-reward balance is particularly favourable given the higher tranches in the CLO capital stack are typically over-collateralised, and today have both more stringent collateral eligibility requirements and higher levels of subordination. Higher subordination provides credit enhancement (that is, more protection should coverage tests or other performance tests not be met) to holders of senior debt tranches, for example by redirecting cash from debt tranches and equity.“ (1)

Die robustere Struktur der CLOs neuer Generation hilft auch beim OC-Test

„A possible benefit of stronger credit enhancement of CLO 2.0 may be more cushion on the overcollateralization tests, so that CLO 2.0 equity has a lower likelihood of cash flows being redirected from junior tranches. In the event of such a diversion, the amount of loss that equity would need to offset to cure the overcollateralization tests would also be lower. “ (2)

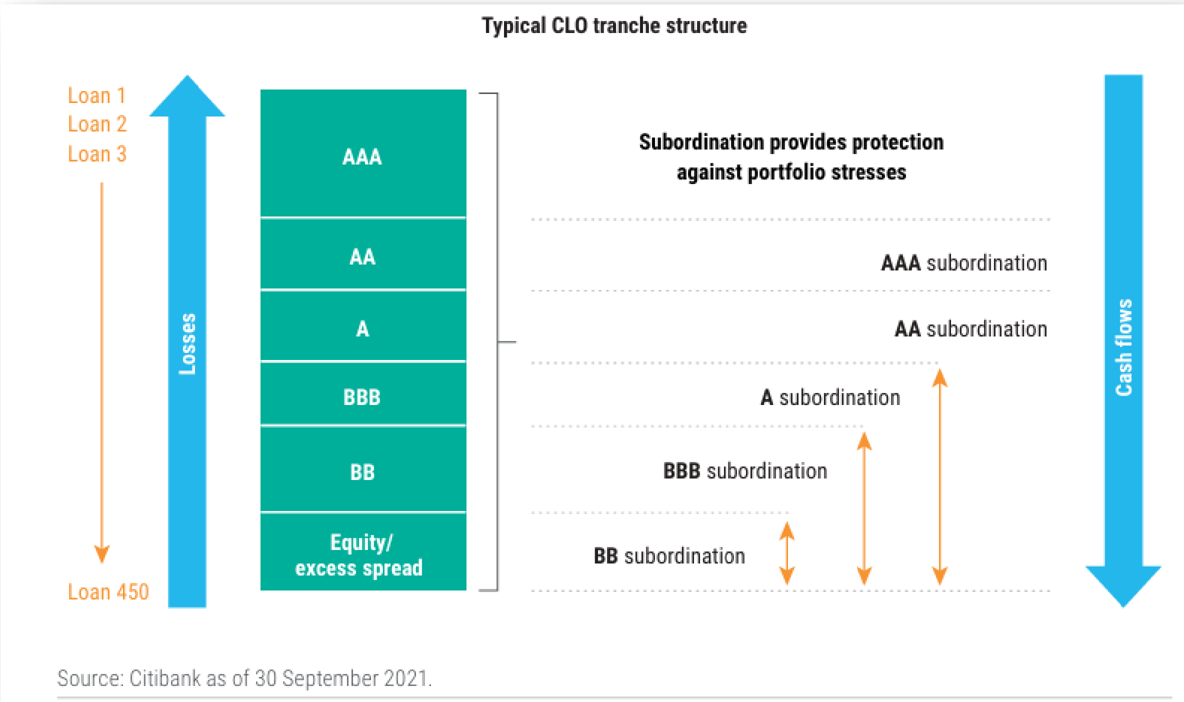
Safeguards

„Credit Enhancement / Subordination, das Lebenselixier der AAA-Tranchen“: Je höher die Tranche, desto mehr First-Loss-Takers hat sie unter sich, desto höher das Rating

Wenn man davon ausgeht, dass ein typischer CLO 70% AAA-Tranche besitzt und 10% Equity, dann ist der Puffer für die AAA-Tranche nicht weniger als 30%.

Geht man von einer Recovery Rate von 75% aus, dann braucht es einen kumulierten Default von 40% des Anlagepools..

..abgesehen davon, dass die AAA schon bei viel weniger Defaults in den Amortisationsprozess überführt wird.



Safeguards

CLOs verfügen über einen <u>Selbstheilungs-Mechanismus</u>: Wenn die Loans im Pool nicht mehr genügend performen, werden Zinszahlungen an <u>tiefere Notes und Equity umgeleitet</u> zur Amortisation der jeweils <u>höchsten</u> Tranche: Konkret: Gibt's Probleme bei den Zinszahlungen im Portfolio, dann wird Geld <u>an die AAA-Note</u> zur Amortisation frei gemacht, <u>zu Lasten aller anderen Tranchen</u>

„CLOs are self-correcting structures that incorporate performance tests that are measured regularly to detect warning signs of collateral quality erosion. By way of design, the performance tests <u>penalize CLO managers for carrying excessive low-quality assets by applying haircuts</u> to the excess par value. For example, a typical CLO has a pre-defined threshold for CCC-rated assets set at 7.5%. However, if the CLO portfolio carries more CCC assets than this threshold, the amount above the threshold will be carried at a discount to its par value. Regardless of the extent to which CLOs exceed this threshold they are not required to sell CCC assets. If collateral performance deteriorates enough, the CLO structures redirect cash flows from junior tranches to purchase additional collateral and repay the most-senior tranche." (2)

Regelmässige <u>Performance-Tests</u>:

"All CLOs have covenants that require the manager to test the portfolio's ability to cover its interest and principal payments monthly." (3)

a) <u>OC-Test</u>: Genug <u>Collateral</u> vorhanden?

„One such test is an overcollateralization test (OC test), which ensures the principal value of the bank loan collateral pool exceeds the outstanding principal of the CLO debt tranches. " (4)

b) <u>IC-Test</u>: Genug <u>Cashflow</u> da zum verteilen?

„Another test computes interest coverage (IC test), which ensures the adequacy of cash collected from the bank loan collateral to pay CLO tranche interest." (4)

„ Interest coverage dictates that the income generated by the underlying pool of loans must be greater than the interest due on the outstanding debt in the CLO" (7)

„ If the tests come up short, the manager must take cash flows from the lowest debt and equity-tranche holders and divert them to retire the loan tranches in order of seniority." (3)

Management

Das Portfolio wird aktiv gemanagte..

„The active management of CLOs allows (subject to the specified and fixed 'reinvestment period' and factors such as the prepayment of loans) trades to be made to further protect the portfolio from losses and/or enhance returns. The final returns of a CLO for investors are therefore impacted by the skill of the CLO manager at every stage of the life cycle, from structuring, analysis and selection of the credits, as well as in the active management of the portfolio." (1)

"CLOs are not index funds; they are actively managed investment vehicles. Although CLOs have strict covenants regarding portfolio diversification, credit quality and other metrics by which CLO managers must abide, managers have substantial discretion to reinvest collateral proceeds. A CLO manager can, among other things, buy, sell and substitute loans in the underlying asset portfolio." (2)

Die Auswahl an Managern ist breit

„The CLO market is comprised of over 130 Managers and growing. Managers are divided into four tiers generally based on experience, performance, and assets under management ("AUM") or size. Tier 1 and Tier 2 Managers often command tighter spreads when pricing generally due to more tenured experience and track record versus a Tier 3 or Tier 4 Manager who may be a newer issuer with a limited track record of performance. Manager consolidation remains an ongoing theme in the CLO industry." (44)

…allerdings mit klaren Vorgaben:

- Collateral Concentration Limiten
- Borrower Diversifikation
- Borrower Klumpen-Restriktionen

Collateral concentration limits. Many deals mandate that at least 90% of the portfolio be invested in senior secured loans;
Borrower diversification. The pool of loans typically must be diversified across 150-450 distinct borrowers in 20-30 industries, with a small percentage of the assets (e.g., 2%) invested in the loans of any single borrower;
Borrower size requirements. Deals often restrict managers from purchasing loans to small companies, whose trading liquidity is low (3)

Eine spannende Frage ist, für wen die Struktur gemanaged wird. Für das Equity oder für den Gläubiger? Dies hat wichtige Implikationen für die Risikopositionierung

"Debt-Friendly vs. Equity Friendly Approach: A manager's strategy may be more conservative seeking to buy lowspread, high-quality (high-rated) assets, lending to a more "debt-friendly approach". This approach would likely result in a low weighted average spread (WAS) and low weighted average rating factor (WARF) for the portfolio. Other Managers may seek an opposite approach resulting in a portfolio with higher spread assets to generate higher returns, lending to a more "equity-friendly approach". This approach would likely result in a high weighted average spread (WAS) and high weighted average rating factor (WARF). Some may also choose a more middle ground approach, which resembles Invesco's CLO strategy.." (44)

Collateralized Loan Obligations

Der Zaubertrick

Es findet kein mark-to-market statt:

= Die Leveraged Loans werden nicht auf Marktpreise angepasst, sondern nach Amortized Cost bewertet, nur bei Impairment müssen sie abgewertet werden
= Die CLO-Tests laufen mit dem Nominalwert der Kredite, nicht nach dem Marktwert
= Marktbewegungen in den Preisen für Tranchen sind folgenlos für den Wasserfall und die Tests

Dass Collateralized Loan Obligations (CLOs) nicht "marked-to-market" sind, bedeutet, dass ihre Bewertung nicht laufend an aktuelle Marktpreise angepasst wird. Stattdessen werden sie in der Regel auf Basis des zugrunde liegenden Cashflows und nicht nach kurzfristigen Marktschwankungen bewertet.

Das bedeutet aber nicht, dass fallierte Loans zum Nennwert weiter im Portfolio dahinvegetieren

„CLOs mark assets at par and do not mark to market its underlying assets unless the underlying collateral (pool of loans) exceeds a defined CCC threshold or is a defaulted asset. Assets that have defaulted or that exceed this threshold are marked down to the lower of market value or recovery versus at par. Due to this, CLOs penalize high levels of CCC and defaulted assets." (44)

= Kein Forced Selling

„CLOs do not have mark-to-market tests and are only dependent upon cash flow performance (e.g., timely payment of principal and interest), ratings, maturities, and defaults of the underlying bank loans. Therefore, CLO managers are not forced sellers during periods of market volatility, and can buy and sell bank loans to take advantage of opportunities in the market to find value or minimize losses on deteriorating credits." (4)

= Weniger Volatilität

CLO-Tranchen werden meist zum Amortized Cost (abgezinster Anschaffungskosten) oder durch Modellbewertungen angesetzt, was stabilere Bilanzwerte für Investoren und Banken bedeutet.

= Bessere „risikoadjustierte" Returns

Arranger

„An Arranger provides a warehouse facility to finance the purchase of up to €200m of assets (senior secured, floating rate corporate loans), whilst the deal is being marketed to liability investors (a joint effort between the Manager and Arranger). In this way, the vehicle is certain of having revenue-generating investments at the point of launching and pricing its liability notes.“ (6)

Collateral Manager

„The Manager will invest and trade the portfolio throughout their investment period (typically .5 years), before the amortisation phase is reached when the liabilities are naturally repaid as assets in the portfolio repay, from the AAA tranche and downwards, according to the waterfall." (6)

Collateral Administrator

„The role of the collateral administrator is vital to the day-to-day running of the CLO. It books and settles trades and acts as a check / balance on the manager's obligations to act in accordance with the governing CLO documentation. It obtains valuations of the underlying assets, calculates, and performs compliance tests including performance and hypothetical trade testing, administers the bank accounts, makes payments and issues monthly investor and interest payment date reports on the underlying assets.“ (1)

Trustee

„The role of the collateral administrator and the role of the trustee are typically carried out by the same firm. This is usually a large commercial bank. The role of the trustee is to represent the noteholders in the transaction and to hold certain issuer covenants and the security package (for example, the accounts and loans) for the noteholders' benefit. Should there be an event of default, the trustee can take control over the assets and bank accounts to protect the noteholder interests. If the CLO manager wants to change the terms of the CLO, then the trustee is there to represent the noteholders' interests.“ (1)

Das Equity

Das Equity: Höchstes Risiko und potentiell höchster Ertrag: i.d.R. 10x gehebelt:

„The equity tranche occupies a distinct place in the CLO structure. It's essentially a highly leveraged play on the strength of the underlying collateral. Because the equity tranche's success depends on the success of the loan tranches – it's last in line to receive cash flows and first to realize loan losses – its owners take the most risk of any CLO investors. Their goal, then, is to maximize the value of the equity." (3)

Das Equity ist der Chef im CLO

„As compensation for providing the majority of equity capital, the majority equity-tranche holder is given potential control over the entire CLO in the form of options " (3)

„Economically, the CLO equity investor is the owner of the pool of loans and the CLO debt investors provide term financing to acquire the pool of loans." (4)

In der Regel besteht ein Mehrheits-Equity Holder

„Typically, there will be a majority (>51%) investor in the equity tranche, whose voting rights will ultimately carry a number of important decisions." (6)

Trotz seinem Namen ist das CLO-Equity ein Hybrid

„ CLO 'equity' is a hybrid – in form, a subordinated note but with the control features and upside participation normally associated with equity." (6)

Das Equity steuert den CLO mit seinen Optionen: Während der Call Period kann der Equity-Holder

- **Refinanzieren** *(CLO debt is refinanced into lower-cost debt with the same maturity and minimal changes to other deal terms (3))*
- **Reset** durchführen *(All CLO debt is refinanced, and the legal maturity of the debt is extended. Resets typically extend the reinvestment period of the CLO and the period during which the CLO equity can potentially capture value under volatile leveraged loan market conditions (3))*
- **Redemption** verlangen *(occurs when the assets are sold, the proceeds are used to pay off the debt, and the residual amount is paid to the equity. Redemption allows the majority equity holder to optimize the value of the underlying collateral by controlling the point in time that the loan assets are liquidated.) (3)*

Der Globale Size von CLO-Equity ist mittlerweile massiv:

„CLO equity outstanding is approximately $120bn and its appeal is growing thanks to reduced realisations from Private Equity and the historical delivery of 16.5% cash-on-cash returns." (6)

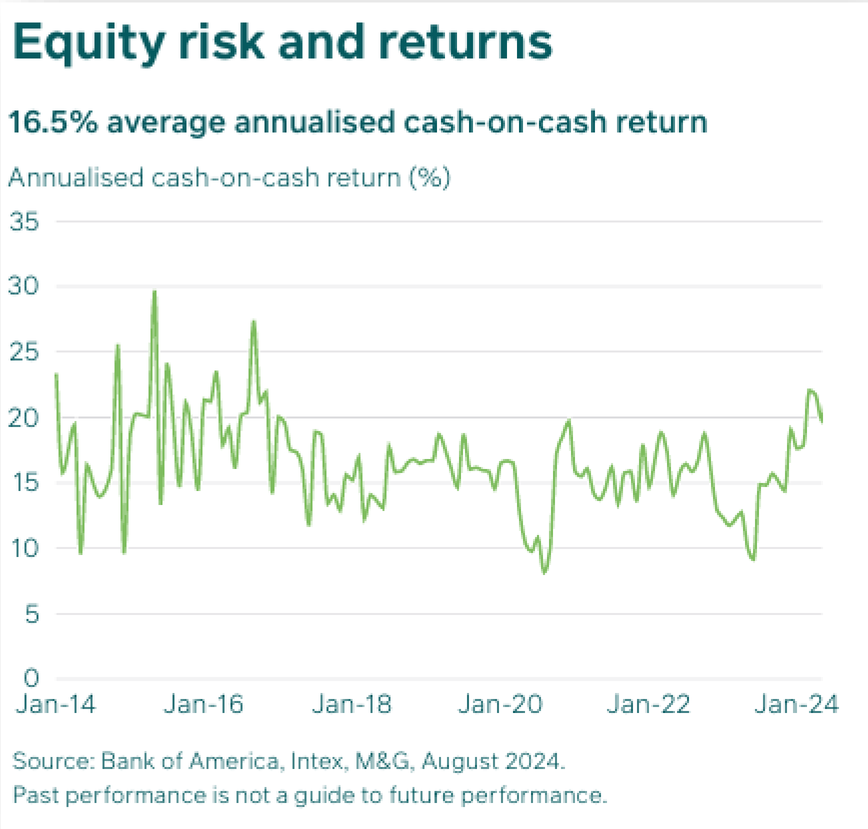
Collateralized Loan Obligations

Das Equity

Die historischen Renditen von CLO Equity sind enorm

„Historically delivering 16.5% average, annualised cash-on-cash returns, a CLOs equity return is principally a function of 1) the ‘arbitrage’; 2) default-loss avoidance; 3) the purchase price of the assets and the prevailing prepayment or exit price and; 4) how well the special rights available to controlling equity investors are exercised.“ (6)

Und das Schöne: CLO-IRRs sind frontloaded, während sie bei PE backloaded sind



CLO-Ratings:

- Die Ratingskala reicht von AAA über AA, A, BBB, BB bis hin zu B, wobei das Risiko und potentielle Renditen mit niedrigerem Rating steigen.
- Equity-Tranchen haben kein Rating
- Verschiedene Investorengruppen wählen CLO-Tranchen entsprechend ihrer Risikoneigung und regulatorischen Vorgaben.

CLO 2.0 und 3.0 müssen noch mehr bieten als die älteren CLO 1.0, um die hohen Ratings zu bekommen in den Senior Notes

„It is important to note that, as distinct from pre Global Financial Crisis 1.0 structures, the 2.0 era CLOs are deliberately designed with higher inherent buffers, meaning that through-cycle assumptions for default loss that encompass the most testing period known to markets have been factored into rating agency tolerances and accommodated within their structural assumptions." (6)

Der CLO wird regelmässig auf Herz und Nieren geprüft

„As part of these assumptions and to maintain the agency credit ratings of the notes, a number of strict, Eligibility Criteria (e.g. minimum size of obligor total indebtedness, the presence of a minimum agency rating, etc.) and Portfolio Profile Tests and minimum levels of structural enhancement, must be adhered to by CLO Managers. These include:

- *Credit quality tests*
- *Diversification tests*
- *Minimum spread tests*
- *Maximum single issuer exposure limits*
- *Maximum CCC exposure limits*
- *Over-collateralization ('OC') tests*
- *Interest coverage ('IC') tests*
- *Interest diversion tests ('IDTs')." (6)*

Collateralized Loan Obligations

Historische Performance

Die historische Performance und Robustheit von CLOs ist phänomenal, selbst in der Grossen Finanzkrise:

Noch nie in all den Jahren ist eine AAA-Tranche defaultet

„CLOs performed well through the financial crisis, with low default rates and attractive risk-adjusted equity returns. Even through the financial crisis, defaults on pre-crisis CLOs were minimal across all rating categories, and no CLO debt that was initially rated AAA has ever defaulted. " (2)

CLO 2.0 und 3.0: Bis hinunter zu BBB-Tranchen gab es bisher keine Defaults!

	CLO 1.0		CLO 2.0		Default %	
Original Rating Category	Original Rating Count	Default Count	Original Rating Count	Default Count	CLO 1.0	CLO 2.0
AAA	1,540	0	3,639	0	0.0%	0.0%
AA	616	1	2,964	0	0.2%	0.0%
A	790	5	2,449	0	0.6%	0.0%
BBB	783	9	2,230	0	1.1%	0.0%
BB	565	22	1,818	8	3.9%	0.4%
B	28	3	389	11	10.7%	2.8%
Total	**4,322**	**40**	**13,489**	**19**	**0.9%**	**0.1%**

Source: Guggenheim Investments, Standard and Poor's. Data as of 9.30.2023.

„Of the nearly 21,000 CLO tranches rated by Standard & Poor's, only 67 or 0.3% have defaulted. Most of this small group of defaults were by tranches originally rated below investment grade." (22)

"Obwohl BBB-Tranchen von CLOs selten ausfallen, gab es historisch in extremen Krisenfällen (z. B. 2008) einzelne Defaults. Moderne CLOs sind jedoch robuster, und BBB-Tranchen gelten als relativ sicher im Vergleich zu anderen strukturierten Kreditprodukten." ChatGPT

Historische Performance

Die historische Performance und Robustheit von CLOs ist phänomenal:

CLOs sehen gut aus ggü. Unternehmensanleihen (AAA-BBB):

„CLOs' historically low default rate across the ratings spectrum compares favorably to corporate debt. " (4)

CLO and Corporate Bond Cumulative Defaults

CLOs' historically low default rate across the ratings spectrum compares favorably to corporate debt.

	CLO 1.0 + 2.0	Corporate	
Original Rating Category		5 Year	10 Year
AAA	0.00%	0.42%	0.83%
AA	0.03%	0.41%	0.96%
A	0.15%	0.64%	1.65%
BBB	0.30%	1.79%	3.93%
BB	1.26%	7.26%	13.35%
B	3.36%	17.48%	24.79%

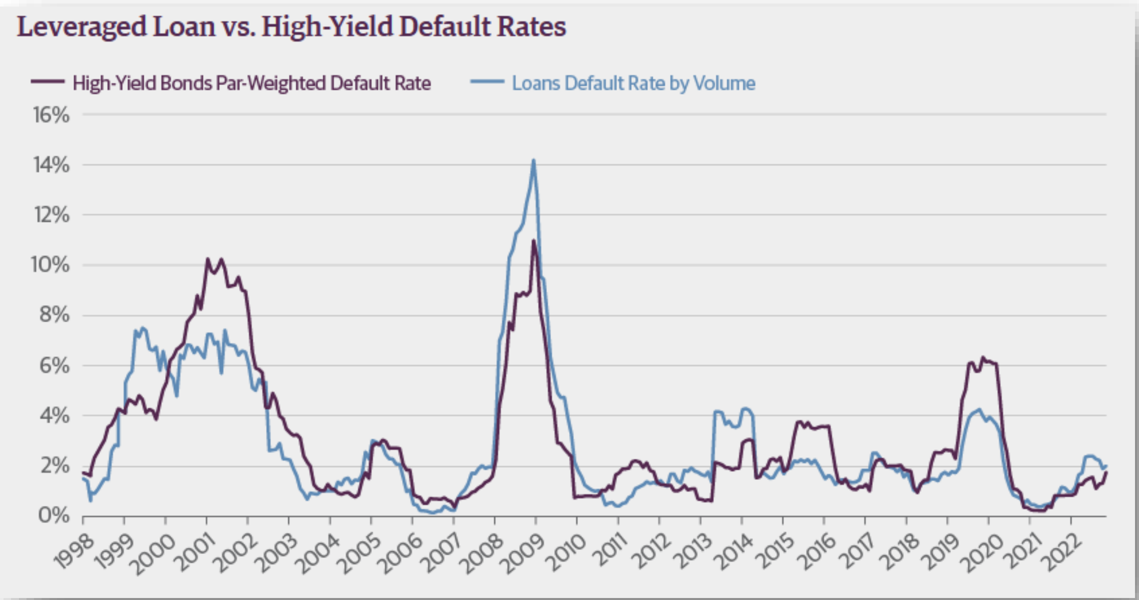
Source: Guggenheim Investments, Standard and Poor's. Data as of 9.30.2023.

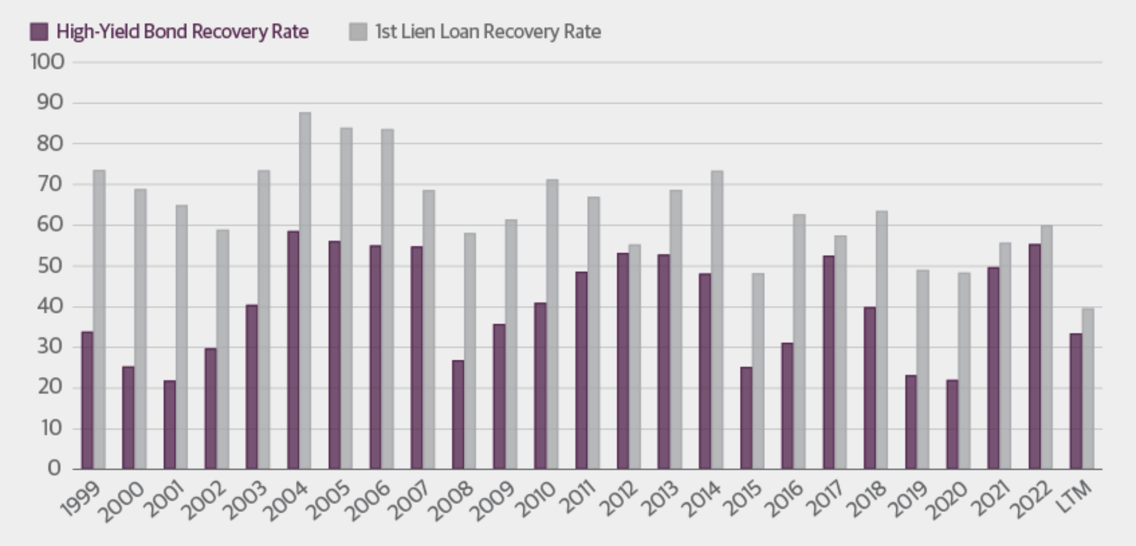
Historische Performance

CLOs sehen auch gut aus ggü. High Yield (BB-B):

Historisch **tiefere Default Rate** als High Yield und **höhere Recoveries** als High Yield

„Leveraged loans' senior secured status has historically led to lower default rates and higher recoveries compared to high-yield bonds. CLOs historically have further mitigated default and recovery risk of individual company credits by holding diverse portfolios of leveraged loans—typically more than 200 borrowers—that are actively managed." (4)



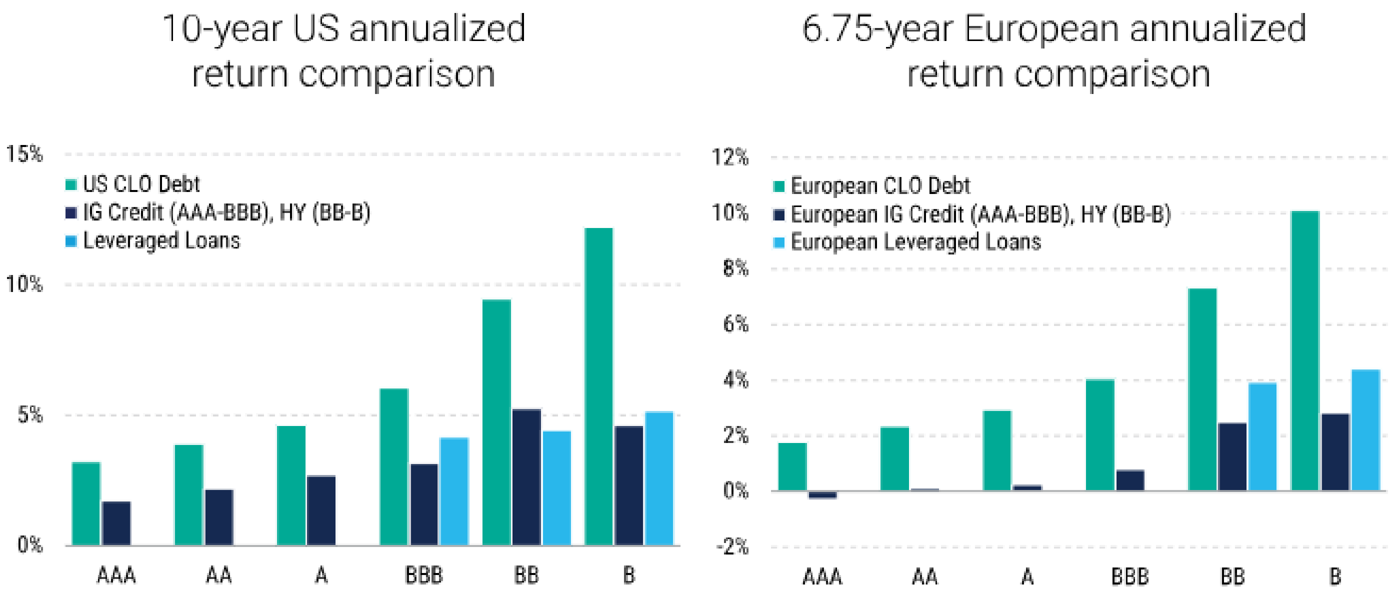


Source: Guggenheim Investments, JP Morgan. Data as of 10.31.2023. Past performance does not guarantee future success.

Dies alles manifestiert sich in einer starken Performance

CLOs sehen über alle Tranchen gut aus

CLOs Historically Have Offered Attractive Returns vs. IG Credit, High Yield, and Leveraged Loans …



Sources: J.P. Morgan, Bloomberg, and LCD, as of 30 September 2024. US CLO debt ten-year annualized returns represented by the J.P. Morgan CLOIE Index; IG credit: Bloomberg US Credit Index; High yield bonds: Bloomberg US Corporate High Yield Bond Index; Leveraged loans: Morningstar LSTA Leveraged Loan Index. European CLO Debt 6.75-year annualized returns represented by the: European J.P. Morgan CLOIE Index with data since inception with first month of returns in January 2018; European IG Credit: Bloomberg Euro Aggregate Corporate TR Index; European high yield bonds: Bloomberg Pan-European HY (Euro) TR Index; European Leveraged loans: Morningstar LSTA European Leveraged Loan Index. Past performance is not indicative of future results.

Rating	Return	Sharpe Ratio
Broad CLOs	3.95	0.60
IG CLOs	3.63	0.61
AA-BB CLOs	6.15	0.55
AAA Rated CLOs	3.24	0.69
AA Rated CLOs	3.92	0.55
A Rated CLOs	4.64	0.53
BBB Rated CLOs	6.07	0.50
BB Rated CLOs	9.46	0.55
US IG	2.96	0.21
US HY	4.95	0.45
Leveraged Loans	4.47	0.57
US IG FRNs	2.81	0.44
Agg	1.87	0.05

Quelle (5)

Collateralized Loan Obligations

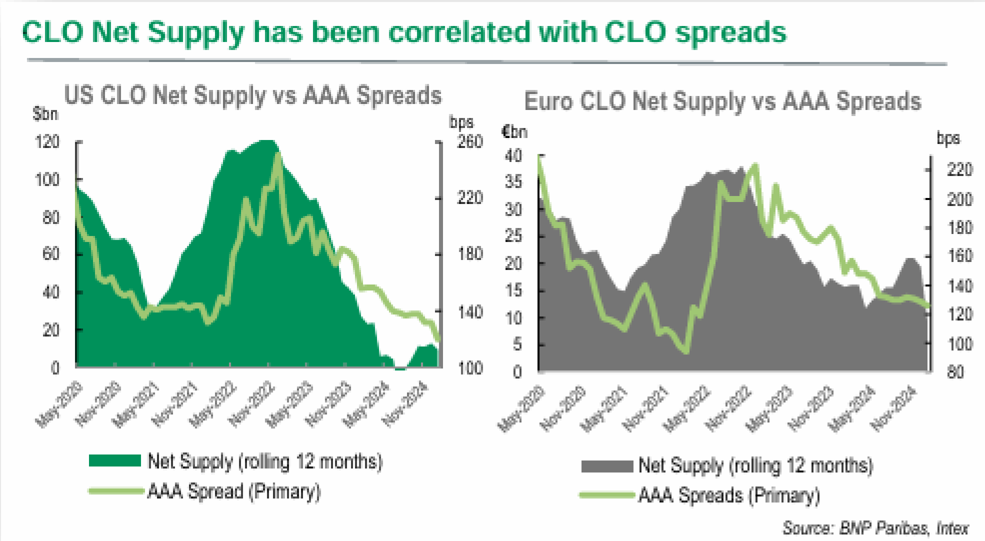
Aktuelle Spreads

Wie alle Corporate Spreads, Investment Grade oder Junk sind auch die CLO-Spreads gesunken.

AAA-CLO-Spread ist aktuell in der Nähe von 120 bips, das ist eine Spread-Kompression von 50% seit dem Top von 2022.

"The 'almost' uninterrupted rally in CLO spreads since the end of 2022 has been driven by three key factors, in our view: (1) attractive all-in yields, (2) muted net supply and (3) resilient fundamentals. It has led spreads to reach historical tights, especially in the US." (8)

"CLO spread performance is highly correlated with the state of net supply, in our view. As net supply growth has been decelerating over the last two years, spreads kept grinding tighter." (8)



Weniger Angebot = tiefere Spreads, in Europa, wie in den USA.

Quelle (8)

CLO & ABS Movers: 17 March 2025

Secondary CLO Spreads [1]

Generic Spreads	14-Mar-25	07-Mar-25	WoW Move	27-Dec-24	YTD TR (2)
US CLO AAA	132	123	9	124	1.0%
US CLO AA	175	160	15	155	0.9%
US CLO A	220	210	10	205	1.0%
US CLO BBB	330	305	25	300	1.2%
US CLO BB	685	615	70	625	1.4%
EUR CLO AAA	103	94	9	100	0.8%
EUR CLO AA	170	160	10	165	0.8%
EUR CLO A	215	200	15	210	0.8%
EUR CLO BBB	310	290	20	310	1.0%
EUR CLO BB	555	530	25	565	1.7%
EUR CLO B	845	795	50	820	1.9%

Die Zeiten von AAA +200 sind vorbei, 130 (USA) und 100 (Europa) sind jetzt die Norm

Quelle BNP CLO & ABS Movers

Collateralized Loan Obligations

Zusammen-fassung

Wir fassen zusammen:

- Ein CLO ist eine Maschine, die hoch verzinsliche, private Schuldpapiere mit tiefem Rating poolt, das Risiko tranchiert und damit neue Wertpapiere mit verschiedenen, hohen und tiefen Ratings, guter Handelbarkeit und einem sagenhaften Pedigree kreiert, die auch an Investoren mit tiefer Risikotoleranz verkauft werden können.

- Der CLO ermöglicht Versicherungen und Banken in hochverzinsliche Papiere mit AAA und AA-Siegel zu investieren, in eine besonders robuste Spielart des Private Debts

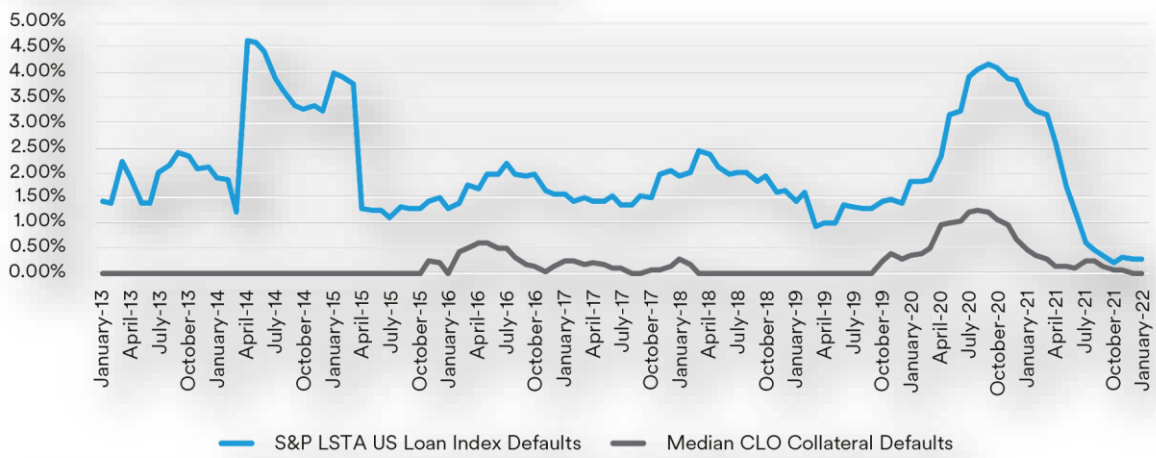
- Sowohl Underlying wie CLO-Notes sind enorm robust, die Erstere wegen dem Senior Secured-Siegel, der hohen Diversifikation, dem Floating Rate-Charakter und der hohen Verzinsung, die Letztere wegen der hohen Subordination, den Tests und dem Selbstheilungsmechanismus sowie ebenfalls dem Floating Rate-Charakter.

- Die Anlagekategorie hat einen unglaublich guten Performance-Nachweis, wurde mehrere Male getestet, wurde strukturell zwei mal aus Sicht des Gläubigers aufgerated und sieht historisch überlegen aus gegenüber Corporate Bonds und High Yield, und zwar über alle Tranchen hinweg.

- Die Struktur ist so robust, dass sie auch grosse Schwankungen im Underlying erträgt

- CLOs sind nicht marked-to-market und deshalb geschützt von einem Run

Figure 6 | CLO Collateral vs Loan Defaults



Sources: Leveraged Commentary & Data (LCD); S&P/LSTA Leveraged Loan Index, February 2022

Collateralized Loan Obligations

CLO = CDO?

CDOs waren strukturierte Massenvernichtungswaffen: Sie waren der Auslöser für die Grosse Finanzkrise

"According to a study by the Yale School of Management, Program on Financial Stability, "The primary catalyst that triggered the Global Financial Crisis (GFC) of 2007–09 was the market for subprime mortgage securities in the U.S. The engine driving the subprime surge … CDOs." "(22)

"Lax borrowing standards, minimal loan documentation, and even fraud exacerbated the problems with subprime mortgages. CDOs further magnified losses through leverage and derivatives." (22)

CLOs sind in entscheidenden Punkten nicht mit CDOs zu vergleichen:

Das Underlying ist nicht kontaminiert, wir haben es nicht mit Subprime zu tun

"The primary catalyst that triggered the Global Financial Crisis (GFC) of 2007–09 was the market for subprime mortgage securities in the U.S. The engine driving the subprime surge … CDOs. (..) Preceding the GFC, the underlying collateral of CDOs was comprised primarily of subprime mortgages to consumers." (22)

Beim CLO handelt es sich um Unternehmensschulden, nicht Konsumentenschulden, Unternehmensausfälle sind in der Regel weniger korreliert als Hypothekenausfälle

"CDOs generally represent pools of consumer debt. CLOs represent pools of senior secured corporate loans. In consumer debt pools like CDOs, there is a higher potential correlation of defaults across assets, significantly tied to unemployment rates. For households, the impact of a recession and higher unemployment is largely binary. Household breadwinners lose their jobs. Defaults on mortgages and other consumer loans may follow. As a result, consumer debt pools, backed by household wealth, are less diversified and highly correlated." (22)

Leveraged Loans sind Senior Secured, das hilft beim Recovery

"CLOs generally invest in first-lien, senior secured loans. While these loans are generally rated BB or B, senior CLO tranches can earn investment-grade ratings due to their priority claim on cash flows from the underlying pools." (22)

Collateralized Loan Obligations

CLO = CDO?

Keine Verschachtelung, es gibt (bis jetzt) kaum "CLO on steroids"

"Complex financial engineering increased the underlying risk of many CDOs. Notably, some CDOs allowed underlying collateral portfolios to include other CDOs as well as derivatives, such as credit default swaps on CDOs. (CDOs backed by other CDOs were called "CDOs squared." CDOs backed by CDOs squared were called "CDOs cubed." "CLOs squared" also existed, however cumulative loss rates across CLO tranches were nowhere near CDO levels. The leverage, layering, and complexity of "CDOs on steroids" exacerbated losses." (22)

"The CDOs that got into trouble during the financial crisis did not buy loans, they bought junior tranches of other CDOs (mortgage-backed securities) and credit default swaps (derivatives) referencing other CDOs. The process of repackaging CDO tranches into new CDOs significantly amplifies risk, which is why senior investors in those products lost so much money." (23)

Bis jetzt sind synthetische CLOs nicht gross in Mode: Die vernichtende Kraft der CDOs war nur möglich wegen synthetischen Strukturen

"Unlike traditional CDOs, which are backed by actual loans and assets, synthetic CDOs are created using credit default swaps (CDS) and other derivatives. These instruments allowed investors to bet on the performance of a portfolio of loans without owning the actual loans. Synthetic CDOs amplified the risk in the market by creating multiple layers of bets on the same set of underlying assets. This added complexity and inter-connectedness made the financial system more fragile." (32)

CLOs sind besser diversifiziert als die CDOs

"CLO portfolios are typically diversified across 150 to 250 or more loans and dozens of industries. Contractually, exposure to any single industry is generally capped at 15% and exposure to any single company is generally capped at 2%. CLO managers are required to meet diversification requirements prescribed by a CLO indenture, which further helps to mitigate downside risk." (22)

CLO-Tests sind Non-Marked-To-Market, das vermindert die Wahrscheinlichkeit von Forced Sales

"The coverage tests are non-mark-to-market and are based on cash flows, defaults, and the ratings quality of the underlying loans. This structure insulates CLO investors from short-term swings in loan prices and market volatility. Thus, CLOs do not become forced sellers of loans in market downturns." (22)

Fragen:

1) Ist etwas faul im Underlying?

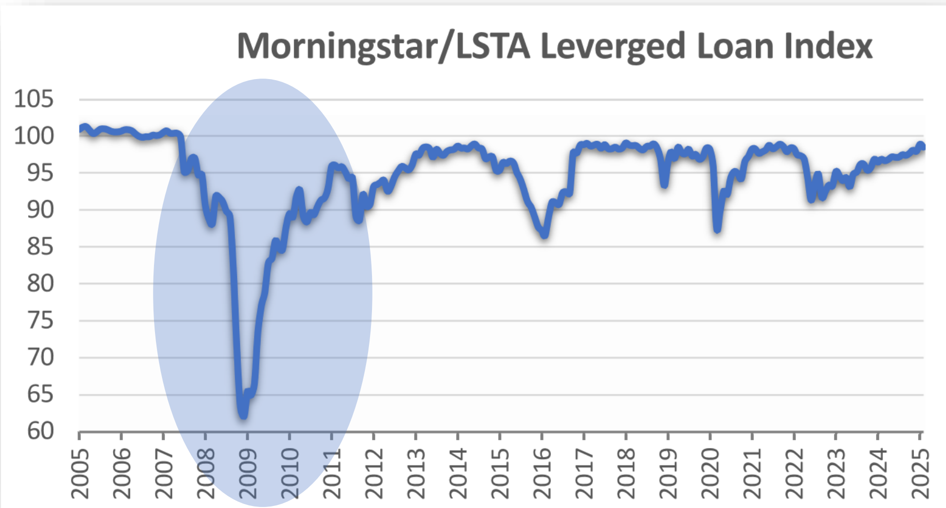
Fragen zum Underlying

Wie robust waren Leveraged Loans in der Grossen Finanzkrise wirklich?

Leveraged Loans waren überhaupt nicht robust in der GFC:

- *Während der Finanzkrise 2008 gerieten Leveraged Loans massiv unter Druck, sie verzeichneten hohe Preisverluste, steigende Ausfallraten und eine stark eingeschränkte Liquidität.*
- *Der S&P/LSTA- Leveraged Loan Index fiel von etwa 96% des Nennwerts auf unter 65% im Dezember 2008*
- *Die Default-Rate für Leveraged Loans stieg von unter 2% im 2007 auf über 10% Ende 2009*
- *Recovery Rates für Leveraged Loans lagen bei der Krise bei 70-80%, während der Krise fielen sie auf 50-60%, da Verkäufe von Sicherheiten oft unter Druck stattfanden*
- *Viele Banken und Hedgefonds, die Leveraged Loans hielten, mussten Notverkäufe durchführen, um Liquidität zu sichern*
- *Ab 2009 kehrte das vertrauen langsam zurück und der S&P/LPSTA Index stieg wieder auf über 90%*
- *Anleger, die 2008/2009 günstig Leveraged Loans kauften, erzielten hohe Renditen in den folgenden Jahren*

Quelle: Chat GPT



Collateralized Loan Obligations

Fragen zum Underlying

Ist etwas faul im Underlying?

2024 war ein enorm profitables Jahr bei Leveraged Loans und CLOs:

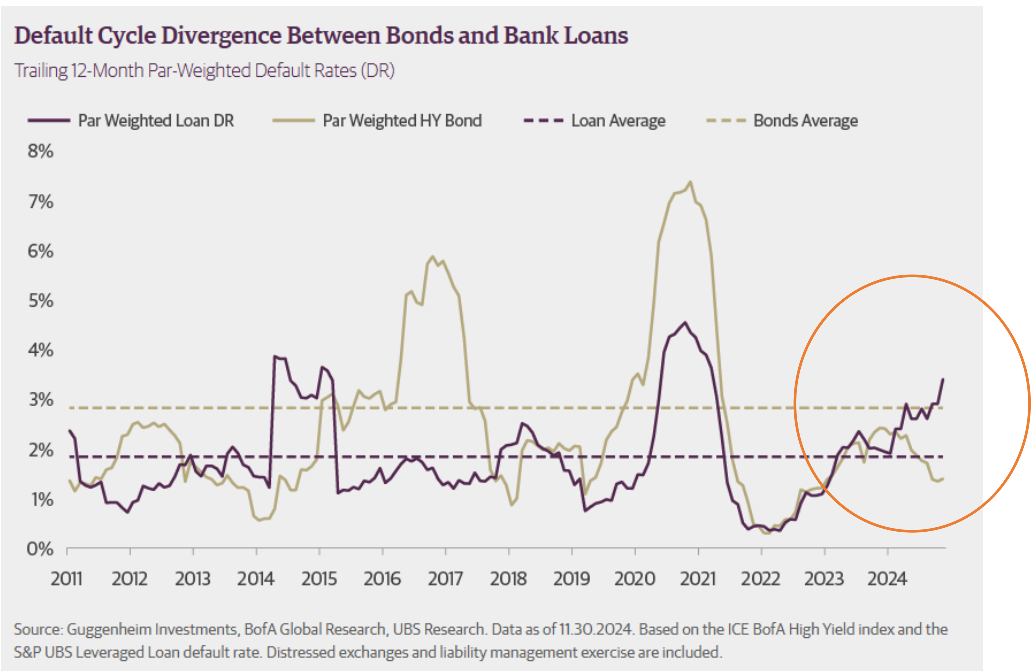
„..risk-on environment and strong investor demand for fixed income. High yield corporate bonds returned 8.2 percent while U.S. leveraged loans returned 9 percent. (..) with CCC-rated loans returning 12 percent, outperforming BB and B-rated credits." (10)

"The $1.3 trillion CLO market, which repackages leveraged loans into bonds of varying risk and kind, was on a tear last year. (..) CLO total returns ranged between 8% and 21% due to sharp spread tightening last year, with Nomura analysts determining CLO equity had its best year since 2021, averaging 25% for total returns." (29)

Die hohen Zinsen erhöhen aber die Defaults bei Leveraged Loans bei gleichzeitig tieferer Kreditqualität und Loan-only-financings sowie Liability Management Exercises

„The UBS S&P Leveraged Loan par-weighted default rate rose to 3.4 percent, up from 1.9 percent the previous year and nearly double the decade average of 1.8 percent. This disparity reflects the greater sensitivity of floating-rate loans to rising interest rates (..) and lower average credit quality in the loan market. Other dynamics played a role as well, including the presence of sponsors and the market's adjustment to the aftermath of loan-only financing (with no other subordinated debt in the capital structure). This also drove a notable increase in liability management exercises—transactions designed to restructure debt through amendments or debt swaps, often as a proactive alternative to bankruptcy." (10)

"Meanwhile, the default rate for leveraged loans reached a 46-month high according to JPMorgan Chase & Co., and services growth is running at the slowest pace in three months." (14)



Collateralized Loan Obligations

Fragen zum Underlying

Die durchschnittliche Kreditqualität im Leveraged-Loan-Markt scheint zu fallen…

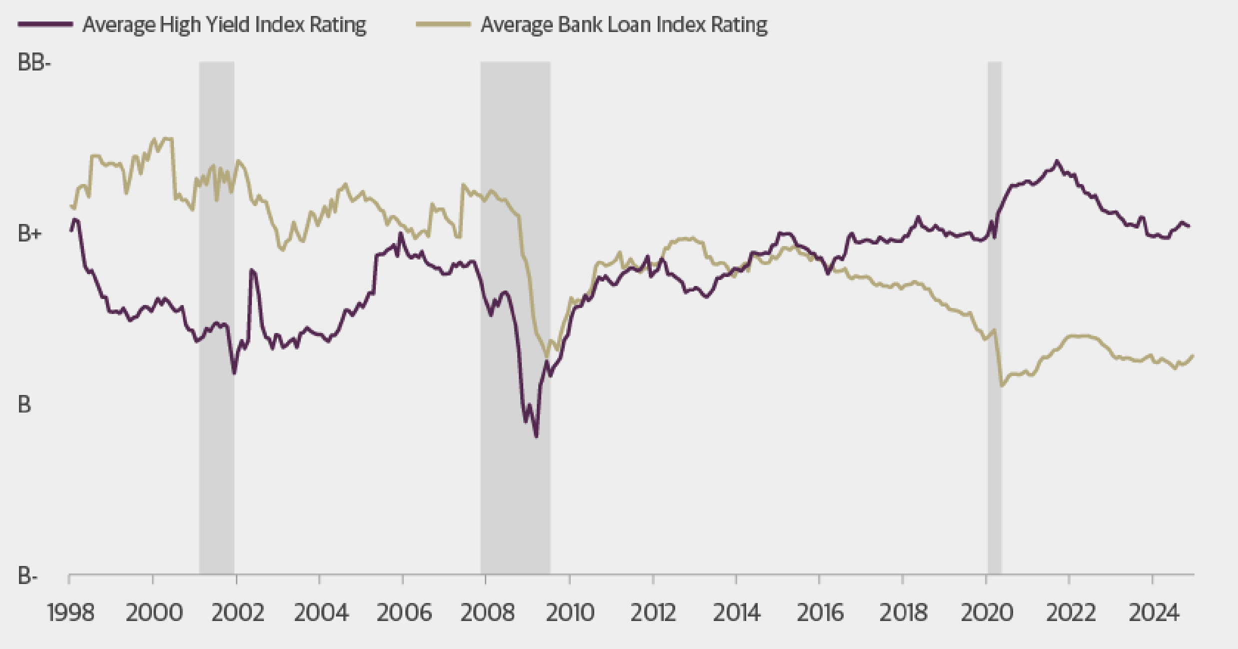
„The bank loan market has become increasingly concentrated in B and B- issuers, which represent 55 percent of the index today versus 33 percent 10 years ago. BB rated loans used to be 35 percent of the market and are now just 24 percent. Again, this increased risk of default is reflected in wider spreads on the index." (10)

"The opacity in private credit leaves a greater chance of an abrupt repricing in credit spreads. Rising bankruptcy filings, leveraged-loan defaults and widening IG credit spreads could be the heart murmur that belies a bigger problem." (13)

" There are clear signs of greater riskiness in global leveraged loans and private debt," the UBS strategists wrote. (..) The composition of the market is weighted toward more indebted companies, many of them owned by private equity firms who have been hit by higher borrowing costs after failing to hedge. About 37% of loan issuers have an interest coverage ratio between one and two, JPMorgan data show." (14)

High Yield Bond Market Quality Has Improved While Loans Have Worsened

Average High Yield Index and Bank Loan Index Credit Quality



Source: Guggenheim Investments, ICE Index Services, UBS. Data as of 12.31.2024. Gray areas represents recession.

Der Zinsanstieg erhöht nicht nur die Defaults, er könnte auch die Recoveries drücken

"Leveraged loan recovery rates are currently running about 13 percentage points below average in the US despite low default rates, compared with just 5 percentage points below historical norms for high yield bonds. The composition of the market is weighted toward more indebted companies, many of them owned by private equity firms who have been hit by higher borrowing costs after failing to hedge. About 37% of loan issuers have an interest coverage ratio between one and two, JPMorgan data show, meaning they could struggle to make their payments if the economic backdrop deteriorates. "The economy is so critical to the loan market," said Nelson Jantzen, a strategist at JPMorgan. "It's a much weaker issuer mix."" (14)

Fragen zum Underlying

Im Markt, aus dem das Underlying der CLOs extrahiert wird, machen sich absonderliche **Euphemismen** breit, die Probleme maskieren, wie zum Beispiel

"**Liability Management Exercises**": LMEs sind ein komplett neuer Weg, mit Problemfällen umzugehen. Werden **Defaults kaschiert?**

Typische LMEs bei Leveraged Loans:

- Bestehende Gläubiger erhalten die Möglichkeit, ihre Darlehen in neue, vorrangigere Tranchen mit besseren Sicherheiten oder höheren Kupons umzuwandeln.
- Unternehmen nutzen Unrestricted Subsidiaries oder bestimmte Collateral Baskets, um neue Schulden außerhalb der bestehenden Kreditstruktur aufzunehmen, oft zum Nachteil bestehender Kreditgeber
- Altschulden werden in neue Kredite mit geänderten Konditionen umgewandelt, z. B. längere Laufzeiten oder höhere Sicherheiten
- Kreditnehmer verlängern die Laufzeit bestehender Kredite mit Zustimmung der Gläubiger, oft gegen eine höhere Marge oder andere Zugeständnisse
- Unternehmen oder Sponsoren kaufen bestehende Kredite mit Abschlag zurück, entweder direkt oder über verbundene Gesellschaften. Kreative Finanzierungsmechanismen, bei denen Unternehmen Sicherheiten an neue Gläubiger verpfänden, um frische Liquidität zu generieren, oft ohne Zustimmung aller Kreditgeber.

LMEs sind ein **wachsendes Problem** für den Gläubiger

"Leveraged loan market volatility is rising and asset quality deteriorating as risky borrowers slash debt with so-called liability management exercises, according to Carlyle Group Inc. LMEs have become popular as companies seek out creative ways to restructure and cut their debt loads. In fact, "liability management" was mentioned 200 times in the final quarter of 2024 — a 44% increase since the pandemic roiled markets — across documents including earnings calls." (16)

Dass Senior-Schulden, rangierend über dem Equity, einen **Haircut** verpasst bekommen ist gewöhnungsbedürftig

"A lot of us have trouble thinking about how debt could be taking a haircut before equity," said Lauren Basmadjian, Carlyle's global head of liquid credit, on Bloomberg Intelligence's Credit Edge podcast. "That's not the way our market has historically operated, and it feels like a sea change." (16)

Fragen zum Underlying

LMEs werden begünstigt von Covenant Light-Strukturen:

"Liability management exercises have been rising in popularity as managers seek new ways to address debt piles and avoid drastic restructurings. (..) LMEs are increasingly common for companies that need to fix their balance sheets because loose debt documentation gives borrowers the flexibility to cut existing debt, raise additional liquidity or change the order of repayment as long as they have the backing of enough creditors." (30)

Covenant Light ist die Konsequenz von Angebot und Nachfrage im Leveraged Loan Markt

"Once relatively rare, covenant-lite has become the norm in both the US and European leveraged loan markets, thanks to sustained investor demand in the asset class. While widely accepted, major questions about cov-lite remain. Chief among them: How will these credits fare when the long-running default cycle finally turns, and loan defaults begin to mount? Historically, recoveries in cases of default on cov-lite loans have been on par with that of traditionally covenanted credits, though there is consensus that recent-vintage deals will recover somewhat less than their predecessors, due to a larger share of lesser-quality issues being cov-lite, along with other types of credit deterioration. Like second-lien loans, covenant-lite loans are a particular kind of syndicated loan facility. At the most basic level, covenant-lite loans are loans that have bond-like financial incurrence covenants, rather than traditional maintenance covenants that are normally part and parcel of a loan agreement. What's the difference? Incurrence covenants generally require that if an issuer takes an action (paying a dividend, making an acquisition, issuing more debt), it would need to still be in compliance. (..) Maintenance covenants are far more restrictive. This is because they require an issuer to meet certain financial tests every quarter, whether or not it takes an action. (..)
For lenders, clearly, maintenance tests are preferable because it allows them to take action earlier if an issuer experiences financial distress. (..)
Conversely, issuers prefer incurrence covenants precisely because they are less stringent." (33)

LMEs geben den Schuldnern Zeit, aber die Defaults kommen dann oft trotzdem, und zwar mit tieferem Recovery, und trotzdem ist Covenant Light die Norm, nicht die Ausnahme

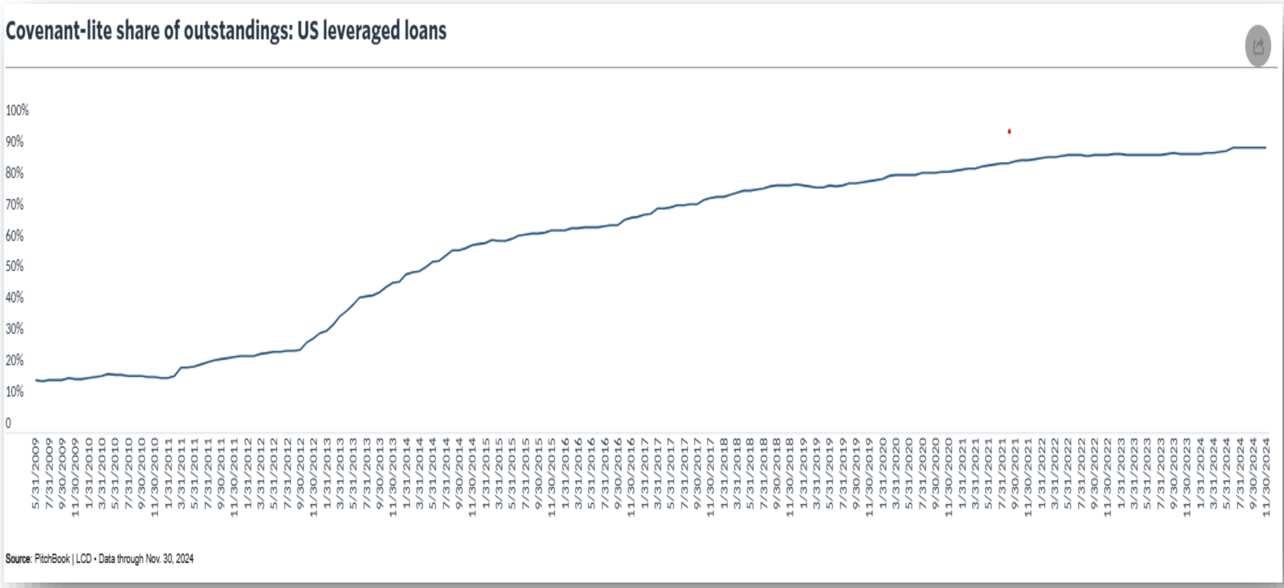
"About 40% of the companies that did a liability management exercise defaulted again within three years of completing a restructuring, according to a study last year by Bank of America. If the company ends up filing for bankruptcy after restructuring, recoveries for investors are also lower. Companies that did not conduct a liability management transaction got higher recoveries for an average of 53% versus 23% for those that did, according to an analysis by Fitch published in December" (30)

*"The vast majority of broadly syndicated loans are covenant-lite. LCD data has shown that the share of the syndicated loan market that is covenant lite has grown to **over 90%**." (33)*

Collateralized Loan Obligations

Fragen zum Underlying

Der Markt für Leveraged Loans ist verseucht mit Covenant Light



Und das bringt uns zu: "Payment In Kind (PIK)"… Auch hier die Frage: Werden Defaults kaschiert?

"Not all LME's get labeled as defaults, but many of them do if the rating agencies determine that the creditors received anything less than originally promised. Many of these LME's have only modest or no haircut to the term loan debt. Instead they negotiate other concessions such as new super senior liquidity facilities, maturity extensions, and payment in kind ("PIK"). While many of these features result in a default rating, these default ratings are immediately cured and the issuer again is classified as performing on CLO trustee reports." (30)

Die PIK-Epidemie schreckt die Behörden auf, spät aber immerhin

"The International Monetary Fund is planning a deep dive on the growing prevalence of payment-in-kind debt that allows companies to defer interest payments, amid wider fears the tool could undermine financial stability by obscuring stress. The watchdog plans to look at how often the expensive debt used to keep struggling companies alive is in fact merely delaying an inevitable insolvency, according to a person with knowledge of the matter." (18)

CLOs sind von PIK tangiert, denn sie bedienen sich in einem Markt, in welchem PIK die Norm geworden ist, nicht die Ausnahme. PIK erhöhen den Leverage im Underlying, soviel scheint klar, unklar ist das Ausmass. Zahlen für Aggregate wie CLOs zu bekommen ist schwierig.

„Rating Agenturen haben bereits gewarnt, dass eine zunehmende Nutzung von PIK-Strukturen die Qualität von CLO-Portfolios beeinträchtigen könnte." ChatGPT

„PIK-Tests (Payment-in-Kind Tests) sind tatsächlich in CLOs (Collateralized Loan Obligations) vorhanden, aber sie sind eher die Ausnahme als die Norm." Perplexity

Fragen zum Underlying

Fragwürdige Verwendungen von Leveraged Loans: "Dividend Recapitalization " und "NAV Loans"… … Wird PD missbraucht von PE?

NAV-Loans sind (noch?) eher selten in CLOs verpackt. Dividend Recaps-Loans aber schon

Net Asset Value Deals: Ein klarer Interessenskonflikt innerhalb der PE/PD-Cluster

- Ein Private-Equity-Fonds beschafft auf Basis des Net Asset Value (NAV) seiner Portfoliounternehmen Kapital
- Oft genutzt, um Liquidität für Investoren bereitzustellen, ohne dass der Fonds seine Beteiligungen direkt verkaufen muss

"As buyout firms have struggled to sell companies in a difficult M&A market, many have turned to "net asset value" loans, where they borrow money from specialist funds or banks secured against a portfolio of their holdings — often at very high interest rates. It's been a controversial way to avoid booking losses on asset sales while hoping for a better environment for making deals." (19)

"…Net Asset Value financing, or NAV loans, which allow funds to borrow against their own portfolios. Some critics of the loans argue that they might tempt firms to appraise their assets at an unrealistic value so they can borrow more money at cheaper rates." (42)

Dividend Recaps: Um die PE-Maschine in Gang zu halten

- Ein Dividend Recap ist eine Transaktion, bei der ein Private-Equity-gesponsertes Unternehmen Schulden aufnimmt, um eine Sonderdividende an seine Eigentümer (PE-Fonds) auszuzahlen
- Der PE-Fonds muss dabei keine Anteile verkaufen, um Geld an seine Investoren zurückzugeben

„If private asset managers want their explosive growth to continue, limited partners need to get their money back. Leaders in the space are well aware. (..) Private equity groups need to return money in order to raise their next funds, and build track records to prove they are good stewards of capital.„ (28)

"Then there's so-called dividend recapitalizations, or debt-funded payouts for p.e. players and their LPs. The year-to-date volume for such transactions reached $22.4 billion as of Feb. 13 per PitchBook, dusting the $14 billion seen at this time last year and well on the way towards 2021's full-year record of $74.2 billion." (17)

"Dividend recap volume picked up last year after a quiet 2022, but the floodgates opened to start 2024. The rolling six-month cumulative volume of this activity hit $23.3 billion in February, a two-year high. That resurgence came amid increased investor demand that was frustrated by a lack of new-issue loan supply via the LBO and M&A channels (..) the dearth of fresh M&A leveraged loan financing has left the door open to opportunism in many forms." (34)

"With the syndicated loan market stars aligned, private equity sponsors rushed to extract dividends from portfolio companies at the fastest pace in years. Thus far in 2024 sponsors have collected $11.69 billion via dividends financed in the leveraged loan market, the highest reading for any comparable period in at least five years. And that's already approaching the full-year total from 2023, when sponsors took out $13.5 billion through the broadly syndicated market." (34)

Fragen zum Underlying

Fazit: Die Marktpreise von Leveraged Loans sind hoch, die Qualität fällt

"There are drastically different perceptions of the credit quality of leveraged loan issuers between investors and the rating agencies. Rating agency indicators show that the high interest rate environment, coupled with situational struggles post the pandemic, has led to a huge increase in the Moody's default measure and also a large increase in the percentage of issuers rated CCC. Yet market measures of credit quality, such as average loan price and some key CLO metrics indicate a healthy credit profile of leveraged loan issuers. Both investors and rating agencies are correct. The rating agencies are correctly highlighting alarming increases in leverage for a large subset of issuers. Investors believe that the large volume of restructurings (frequently labeled as LME's by the market and labeled as defaults by Moody's) has bought the troubled issuers enough runway (12-24 months) to improve their credit profiles via EBITDA growth and lower SOFR." (26)

"The Moody's leveraged loan default rate peaked at 7.1% in Sept-2024, more than two times its long-term average and near its pandemic peak of 7.5% in Sept-2020. Yet, during this same time period of a rising rate environment, we saw the average loan price increase from 92.2 in Sept-2022 to 97.3 in Sept-2024. In addition, the tail risk portions of CLO portfolios have also shrunk (13.8% average CLO loans <85 at Dec-2022 vs 7.0% Sept-2024), all of which points to high investor confidence in the leveraged loan market." (30)

Die publizierten Default Rates werden unzuverlässiger

"Historically, leveraged loan investors could measure historic loss and project future loss by measuring default rate and multiplying it by average recovery ('1 – recovery'). The explosion of LME's in 2024 have made both metrics almost unmeasurable. One rating agency reports LTM default rate at 1% and the other at 7%. The divergence between the two has eliminated any type of consensus as to what the default rate is." (26)

Je nach Rating Agentur ist die Default Rate bei Leveraged Loans bei 1% oder 7%

"Pitchbook's more traditional definition of loan defaults (only bankruptcies and missed payments) has resulted in an LTM default rate below 1%, which is well below the long-term average" (30)

"The unique impact of the LME defaults cannot be overstated. The traditional default measure of bankruptcy and payment default is running at less than 1%; and the wider measure, including distressed exchanges is running at 7%. The 6% difference between the two can be explained by the high volumes of distressed exchanges frequently labeled as LME's." (30)

Die Analyse eines CLO-Portfolios bedingt massive Analyse-Kapazitäten

„Capturing opportunities in the CLO market requires the expertise to perform bottom-up research on individual bank loans in the underlying collateral pool. Because CLOs routinely have over 200 issuers in their collateral pools, investment managers must have significant corporate credit research capabilities to fully evaluate the underlying credit risk in each CLO." (4)

Collateralized Loan Obligations

Fragen zum Underlying

Wenn man bei den Large Language Models die Frage stellt „Welches sind die Gründe für die historisch tiefen Ausfallsraten bei Leveraged Loans", dann bekommt man folgende Aussagen:

- ***„Günstige Finanzierung wegen tiefen Zinsen"***
- *„Covenant Light, die Schuldner können weitermachen, auch wenn sie bankrott sind"*
- *„Amend and extend"-Zombies*
- *„Starke wirtschaftliche Rahmenbedingungen"*
- *„Private Equity als Stütze"*
- *„Starker Sekundärmarkt für Distressed Debt"*
- *„Ergebnis von lockerer Kreditvergabe, Refinanzierungen und günstigen Marktbedingungen"*

Eigentlich nicht die Gründe, die man haben will, wie starke Bilanzen, robuste Cashflows, überlegene Selektion durch PE-Sponsoren

Fragen:
2) Gibt's Schwachpunkte in der CLO-Struktur?

Fragen zur CLO-Struktur

Die CLO-Tranchen wurden in der GFC und Corona ebenfalls kräftig durchgeschüttelt: CLOs sind keineswegs immun gegen Preisschwankungen

- *Während der Krise kam der CLO-Markt fast vollständig zum Erliegen*
- *CLO-Tranchen verloren massiv an Wert, selbst AAA-Tranchen handelten zu grossen Abschlägen*
- *Es kam zu massenhaften Herabstufungen von CLO-Tranchen durch Ratingagenturen*
- *AAA-Tranchen verloren zwischen 10-30% an Wert, A/BBB/BB- Tranchen erlitten starke Verluste von 50-80%, Equity-Tranchen wurden fas t vollständig ausgelöscht*
- *CLOs, die aus Leveraged Loans bestanden, hatten zwar massive Preisverluste, zeigten jedoch eine höhere Widerstandsfähigkeit als viele andere strukturierte Produkte*
- *Keine AAA-Defaults: Kaum AAA-CLO Tranchen fielen tatsächlich aus, im Gegensatz zu Mortgage CDOs, wo selbst AAA-Tranchen fast wertlos wurden*
- *CLOs hatten robuste Kreditstrukturen mit Overcollaterization und Cashflow-Triggern, die Verluste abdämpften*
- *CLOs erlitten weniger Korrelation als die CDOs, weil die Leveraged Loans nicht so korreliert ausfielen wie Subprime-Hypotheken*

Quelle: ChatGPT

Aber entscheidend ist: Wer nicht verkaufen musste, hatte keinen Ausfall, die Strukturen sind einfach zu robust

"If lenders were to recover $0.40 on the dollar for loans in default, then 60% of the loans in CLO portfolios would have to default before the AAA-rated tranches would even begin to lose money." (23)

*"AAA-rated tranches of CDOs issued before the 2008 crisis lost $325 billion during the following years. In contrast, Standard and Poor's found that AAA-rated tranches of CLOs issued before the 2008 crisis lost **nothing**. " (23)*

"According to estimates by Wharton Professors Roberts and Schwert, loss rates would need to far exceed the 31% default rate seen in the Great Depression of the 1930s before the impairment of CLO collateral would impact investors in the largest, senior tranches. In comparison, leveraged loan default rates reached a record 10.8% in 2009; current default rates for leverage loans are under 1%." (22)

Fragen zur CLO-Struktur

Es gibt einen ungesunden Mix von Angebot und Nachfrage: Der Sog von CLOs und CLO-ETFs auf die Anlageklasse Leveraged Loans ist massiv

ETFs auf CLO-AAA-Tranchen verstärken die Probleme

"The $1.3 trillion CLO market is about to become a victim of its own success because managers can't create the bonds fast enough to meet demand and are running out of things to buy. A slowdown in mergers and acquisitions after borrowing costs rose is continuing to deprive the lenders of the leveraged loans that the industry was built on. (..) Demand for the safest CLO tranches soared this year after an influx of money into exchange-traded funds. Banks have also been piling into the AAA bonds, and some Japanese institutions may scoop up more of the debt." (15)

"The rapid growth of US CLO ETFs over the past year is bringing in new investors to the most senior, safest tranches. In addition to making the product available to retail investors, the liquidity and transparency of ETFs makes this a highly suitable vehicle for institutional investors to become acquainted with the benefits of investing in CLOs. The first actively-managed CLO ETF vehicle (Janus AAA) has grown to almost US$10bn in size and could easily act as the anchor buyer of the AAA portion of primary deals." (35)

Leveraged Loans werden öfter vorausbezahlt, bestehende CLOs werden in grosser Zahl gecalled

"On top of that, Bank of America estimates that about $64 billion of the debt has been paid back so far this year, including amortizations and called CLOs, meaning asset owners have more capital to put to work. (..) Demand is so strong that even an 86% increase so far this year in US sales of new issue CLO bonds from the same period in 2023 hasn't been enough to sate investors' appetite." (15)

„Leveraged loan borrowers may choose to prepay their loans in pieces or completely. While experienced CLO managers may anticipate prepayments, they're nonetheless unpredictable. The size, timing, and frequency of prepayments could potentially disrupt cash flows and challenge managers' ability to maximize portfolio value." (3)

Nachfrage bleibt stark, unabhängig vom Qualitätstrend

"The Moody's default rate of 7.1% is more than two times the long-term historic average. The percentage of CLO portfolios with Caa and CCC ratings has increased to 7.7% and 8.9%, respectively, at or near the levels in September-2020. In addition, the average S&P and Moody's WARFs in CLO portfolios have climbed to alarmingly high levels, also equal to what we saw during the pandemic in 2020, indicating an average rating of B- vs an average rating of B flat at the beginning of the rate hike cycle in 2022." (30)

Resultat: (zu) hohe Preise für Leveraged Loans und Tranchen

"Spreads on the AAA debt have compressed by more than 100 basis points over the benchmark since late 2022, when the tranches were reaching eye-popping levels that made equity returns unattractive for investors. (..) "The supply and demand balance is out of whack, it's become more difficult to find assets at attractive levels," said Christina O'Hearn, portfolio manager for the leveraged loan and CLO business at Pretium Partners."" (15)

Fragen zur CLO-Struktur

Negative Trends im Underlying können sich auch auf dem Level der Tranchen bemerkbar machen:

Die LMEs haben auch einen Impact auf die Qualität der CLOs: LMEs bei Credits im Portfolio durchlaufen quasi einen Flash-Crash und werden gleich wieder auf Perform rauf gestellt:

"The LME defaults last often just a few days and then are upgraded and treated immediately after as performing credits within the CLO portfolios. Whereas in a traditional Chapter 11, a defaulted issuer will be carried as 'Defaulted' for several months in a CLO portfolio; and the restructuring usually involves permanent impairment." (30)

Die grosse Frage: Zeigen einige CLOs eine zu hohe Overcollateralisation an?

"Not all LME's get labeled as defaults, but many of them do if the rating agencies determine that the creditors received anything less than originally promised. Many of these LME's have only modest or no haircut to the term loan debt. Instead they negotiate other concessions such as new super senior liquidity facilities, maturity extensions, and payment in kind ("PIK"). While many of these features result in a default rating, these default ratings are immediately cured and the issuer again is classified as performing on CLO trustee reports. This is one of the reasons that the %Defaulted (D rating) buckets in the broad CLO portfolio are so low when compared to the published Moody's default rate. This also helps explain the wide gap between poor CLO average rating metrics on trustee reports but still the rather healthy levels of Jr OC Cushions." (30)

Muss man die LME-Credits im Portfolios als Zombies ansehen? Was, wenn die Zinsen hoch bleiben?

"The high volume of LMEs has bought time (typically 12-24 months of liquidity runway) for many of their portfolio issuers. But this wide population of low-rated issuers is still over-leveraged and producing little or negative free cash flow." (30)

Covenant Light könnten die Recoveries senken, das würde sich auch auf das Rating der Tranchen auswirken

"It shows that lower recovery rates on underlying loans can also lower CLO ratings, with small falls in expected recovery rates when loans default leading to Downgrades. (..) This is particularly relevant in the current context given concerns about 'cov-lite' leverage loans. While the weaker covenants of cov-lite loans may delay the triggering of a loan default, it may worsen recoveries when the default actually occurs (as the default may occur at a point when the loan has deteriorated further). If cov-lite loans' recovery rates are lower than anticipated, then CLO tranche ratings may be affected." (37)

Was macht das non-mark to market mit dem Risiko einer CLO-Tranche?

Solange ein Loan in einem CLO seine Cashflows leistet, wird er in der Regel mit 100 (pari) bewertet, unabhängig davon, wie sich der Marktpreis für diesen Loan entwickelt.

Ist dies ein verstecktes Risiko?

Wenn sich die Kreditqualität verschlechtert, sieht man das nicht sofort, weil CLOs nicht auf Marktpreise reagieren. Marktpreise könnten schon zeigen, dass ein Loan Probleme hat (z. B. bei 80 gehandelt), aber der CLO hält ihn weiter bei 100, bis er wirklich Probleme anzeigt.

Wenn die Verschlechterung in der Bonität des Underlying mit einer Reduktion des Ratings einhergeht, dann merkt dies der CLO dann, wenn der WARF schlechter wird und/oder CCC-Anteil zu gross wird. Zu spät?

CLOs haben Regeln, die verhindern sollen, dass zu viele schlechte Kredite im Portfolio sind.

Wenn zu viele Loans in CCC-Ratings abrutschen, könnten die OC-Tests verletzt werden → das kann die Cashflows an die Equity-Tranche reduzieren.

„CLOs mark assets at par and do not mark to market its underlying assets unless the underlying collateral (pool of loans) exceeds a defined CCC threshold or is a defaulted asset. Assets that have defaulted or that exceed this threshold are marked down to the lower of market value or recovery versus at par. Due to this, CLOs penalize high levels of CCC and defaulted assets." (44)

Ein gewisses Risiko verbleibt: In einem Tail-Szenario könnten CLOs zu langsam sein

Ohne MtM ist es schwieriger zu erkennen, wie gesund ein CLO wirklich ist.

„Finally, an additional risk lies in the potential for a wave of rating downgrades, which could have procyclical effects, as holders of leveraged loans might need to liquidate some of their holdings. Usually, CLO managers or trustees value leveraged loans at face value when calculating over-collateralisation requirements (i.e. the amount by which the par amount of the collateral must exceed the par amount of the issued CLO tranches). However, when the share of leveraged loans rated below B- exceeds a specified percentage, the excess is valued at market value (Fitch, 2018). Therefore, CLOs might need to sell the loans to meet the overcollateralization requirement, at a time where the liquidity in the underlying loan market could deteriorate, thereby amplifying the price decline." (10)

Collateralized Loan Obligations

Fragen zur CLO-Struktur

Warum spricht niemand über das Korrelations-Risiko und ist es wichtig? Gibt es extreme Tail-Risiken?

Korrelationsrisiko:

Wenn ein CLO-Investor wünschen könnte, ob er bei gleichem Default-Erwartungswert entweder

1.) Mit 100% Wahrscheinlichkeit genau 20% Defaults hat in seinem Portfolio über die Anlagezeit (Erwartungswert 20%) = geringe Korrelation

..oder..

2.) Mit 20% Wahrscheinlichkeit 100% Defaults hat in seinem Portfolio über die Anlagezeit und mit 80% überhaupt keine (Erwartungswert 20% Defaults) = hohe Korrelation

…dann wird der Equity-Holder sich Variante 2 wünschen und der AAA-Holder Variante 1

…d.h. der Equity Holder ist long Korrelation, der AAA-Noteholder ist short Korrelation, die AA-Holder ist eher short, der BB-Holder eher long

Korrelationsrisiko kann wichtig werden bei strukturierten Produkten:

- *Gemeinsame Faktoren: Die zugrunde liegenden Kredite können von gemeinsamen Faktoren oder Schocks beeinflusst werden, was ihre Korrelation erhöht*
- *Systemisches Risiko: Während der globalen Finanzkrise 2007-2009 litten viele strukturierte Produkte unter weit verbreiteten Ausfällen und Herabstufungen, da der Zusammenbruch eines Marktes eine systemische Krise auslöste*
- *Auswirkungen auf Tranchen: Obwohl CLOs durch Diversifizierung des Kreditpools das Gesamtrisiko zu reduzieren versuchen, kann eine hohe Korrelation zwischen den Krediten zu gleichzeitigen Ausfällen führen, was insbesondere die Tranchen mit niedrigerem Rating stärker betrifft*
- *Konjunkturelle Abhängigkeit: Wirtschaftliche Abschwünge oder branchenspezifische Herausforderungen können zu höheren Ausfallraten führen, was das Korrelationsrisiko verstärkt*

Das Korrelationsrisiko wird im CLO-Marketing kaum genannt, wieso?

Fragen zur CLO-Struktur

Die Finanzmärkte haben sich schon einmal komplett getäuscht im Korrelationsrisiko, allerdings nicht mit Leveraged Loans als Underlying, sondern mit verbrieften Hypotheken:

*„During the financial crisis, over **13,250 AAA-rated tranches** with an issuance value of $1.26 trillion consequently **defaulted** on their claims. A commonly perceived force of this activity is that actors did not understand the highly correlated nature of **Mortgage Backed Securities** (MBS), Collateralized Debt Obligations (CDO), and other structured finance collateral's default risk. A Financial Times article concisely summarizes: "Simply stated, what was supposed to be correlated in a certain way turned out to be correlated in a completely different fashion."" (9)*

Das Korrelationsrisiko wurde systematisch unterschätzt

"The global financial crisis of 2007-2008 (..) showed how default correlation — a key input in securitisation — had been underestimated in credit rating models, leading to significant under-identification and under-pricing of risk. When house prices declined throughout the U.S., a large portion of mortgages that had been issued in different states and that had been pooled into mortgage-backed securities (MBSs) started to default at the same time. This resulted in waves of massive downgrades on AAA-rated CDOs and a rise in defaults for US CDOs." (37)

Korrelation ist eine der wichtigsten Stellschrauben

"The modelling and calibration of default correlation within the CLO portfolio is key in determining credit ratings. However, owing to a lack of data the estimation of correlation is very difficult. Nonetheless, moderate changes in default correlation can have a sizeable impact on default probability (and on credit ratings' accuracy)." (37)

Covenant Light spielt auch hier eine wichtige Rolle, weil es die Korrelation im CLO-Pool erhöhen könnte

"Recent developments in the leveraged loan market point to a deterioration in loan documentation, a widespread decline of financial covenants and increased use of accounting techniques by borrowers to reduce their apparent financial leverage (i.e. 'add-backs' influencing EBITDA levels). These trends magnify the risk that when defaults occur, they are more likely to occur together – clustered across firms and sectors (since it takes a higher shock to make firms default). " (37)

Fragen zur CLO-Struktur

Das Korrelationsrisiko sitzt nicht nur innerhalb des Leveraged Loan-Markts, sondern auch im Markt für CLOs, da sich alle CLOs aus dem gleichen Markt bedienen:

"The complexity of CLO structures might lead to model risk, especially regarding the modelling of default correlation among leveraged loans in the CLO portfolio. An unexpected rise in default rates correlation could lead to ratings downgrades which could result in forced sales from investors, thereby putting downward pressure on the CLO and leveraged loans markets. In addition, there tends to be a large overlap among CLO, as CLOs are exposed to the same borrowers. Based on a sample of 902 CLOs, J.P. Morgan reports that 92% have exposure to at least one of the top 50 borrowers . A default of the borrower would then impact several CLO at the same time." (10)

Sind die Korrelationsmodelle der CLO-Manager und der Rating-Agenturen akkurat? Wir wissen es nicht.

"Another source of model uncertainty is related to the modelling of joint extreme events. Indeed, simultaneous defaults on leveraged loans might be more likely to occur during recessions than during economic expansions. However, in the EU and the US, most CLO models use the Gaussian copula, where the default dependence is entirely characterised by the correlation coefficient (Fitch, 2018). This implies that the occurrence of extreme events – such as the simultaneous defaults of leveraged loan borrowers – is underestimated." (10)

"..how well a portfolio credit model captures the co-occurrence of loan defaults is central to its ability to model the credit risk of the whole loan portfolio and of the CLO debt tranches in turn." (37)

Es gibt Überlegungen, wonach die Korrelation bei CLOs bzw. Leveraged Loans tiefer ist als bei den berüchtigten CDOs der Grossen Finanzkrise:

"In consumer debt pools like CDOs, there is a higher potential correlation of defaults across assets, significantly tied to unemployment rates. For households, the impact of a recession and higher unemployment is largely binary. Household breadwinners lose their jobs. Defaults on mortgages and other consumer loans may follow. As a result, consumer debt pools, backed by household wealth, are less diversified and highly correlated.
In contrast, senior secured corporate loan pools (like those collateralizing CLOs) benefit from mandatory borrower and industry diversification, generally better access to capital, and potential avenues for management flexibility during downturns. In the face of a recession and a resulting decline in revenues, corporations can cut costs, staffing, and capital spending, and can shut plants. Businesses can lower their break-even levels and mitigate recession-induced declines in revenues and profitability. By contrast, households do not have these advantages." (22)

Klar ist: Default Korrelation ist nicht stabil

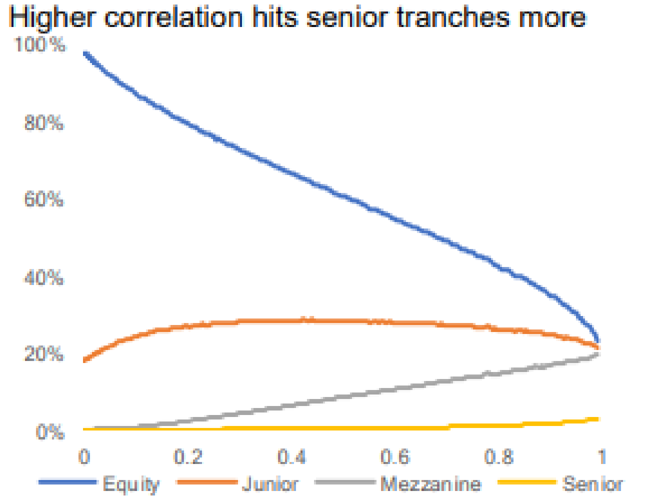
"Default correlation, however, is also inherently difficult to measure given that it tends to shift in crisis periods, crisis periods tend to be distinctive from each other, and data on crisis periods are relatively limited compared with data from other periods." (37)

Collateralized Loan Obligations

Fragen zur CLO-Struktur

Der Investor muss berücksichtigen, dass unterschiedliche Tranchen ein unterschiedliches Vorzeichen in Ihrer Stellung gegenüber dem Korrelationsrisiko sind:

Der Equity-Investor ist Long Correlation
Der Junior-Investor ist mässig Long Correlation
Der Mezzanine-Investor ist mässig Short Correlation
Der Senior-Investor ist Short Correlation



Note: Gaussian copula tranche expected losses as proportion of tranche value in % (y-axis) for different default correlation values (x-axis) - assuming same default correlation among all loans.
Sources: ESMA calculations

Wichtig ist aber auch zu sagen, dass der Investor in CLOs, speziell der AAA und Mezzanine-Tranche durch eine Reihe von Sicherheitsventile vor Korrelation geschützt wird:

- Diversity Score
- Collateral Tests
- Ratings der Leveraged Loans
- Ratings der Tranchen
- Beschränkungen des Anteils an CCC

Fragen zur CLO-Struktur

CLOs sind kein Cash-Ersatz, dafür sind sie zu komplex, zu wenig standardisiert und die Risiken zu divers

Hoch komplex: Das Legal Doc ist >300 S.: Jeder CLO ist einzigartig

„LO spreads typically are wider than those of other debt instruments, reflecting CLOs' greater complexity, lower liquidity, and regulatory requirements." (5)

"Each CLO is unique, even if managed by the same CLO manager, so CLO tranche portfolio managers must understand the loan collateral and structural features that drive returns. This involves cashflow modelling and access to underlying CLO portfolio information, as well as real time pricing information to identify potential value. Perhaps most importantly, the ability to "look through " the CLO collateral portfolio and perform loan-level analysis is crucial." (7)

"The terms of each CLO indenture are based on intense negotiations between the Manager and its investors. This makes each CLO indenture unique. Market conditions and Manager tier levels will often dictate how language between vintages shifts." (44)

Partiell illiquid: Ein guter Teil der Prämie kommt von der Illiquidiät

*"refers to the excess return investors can make through private credit in exchange for giving up liquidity, or the ability to move in and out of investments with ease. Offering that premium is crucial, especially as spreads continue to compress. Private credit deals typically have an illiquidity premium of **150 to 200 points**." (53)*

Aber: Es braucht wohl einen Super-Gau um die höchsten Tranchen wirklich in Gefahr zu bringen

„We could see a combination of deteriorating leveraged loan credit quality, lower-than expected recovery rates, and increases in default correlations. Occurring together, these would have a cumulative impact which could not only lead to more significant and numerous downgrades of CLO tranches, particularly for the junior and mezzanine tranches, but also affect some senior tranches." (37)

..und zwar mutmasslich einen Super-GAU der grosser ist als Covid

*"CLO historical loss experience, coupled with ratings resilience through the great financial crisis and COVID-19 pandemic, has demonstrated robust performance through tail risk events. In 2020, the downgrade percentage of issuers within the leveraged loan universe reached 47%, the majority of which occurred in March and April. However, using the J.P. Morgan CLOIE index to give a perspective on the US CLO rating transitions, only 2% of US CLO bonds by volume and 9% by count were downgraded. 95% of those downgrades were primarily concentrated in Single-B, and BB-rated tranches and to a lesser extent BBB-rated tranches. Globally, rating agencies continue to unwind pandemic driven downgrades and positive rating migration in loans has been improving CLO collateral profiles leading to CLO upgrades in subordinated tranches. **Approximately 54% of CLO tranches downgraded in 2020 have since been upgraded** or had its rating withdrawn as a result of paydowns, refinancings and resets." (36)*

Collateralized Loan Obligations

Fragen

Ein grosser Teil der CLOs sind in den Portfolios von Versicherungen und Pensionskassen

Die Symbiose CLO/Versicherungen ist offensichtlich

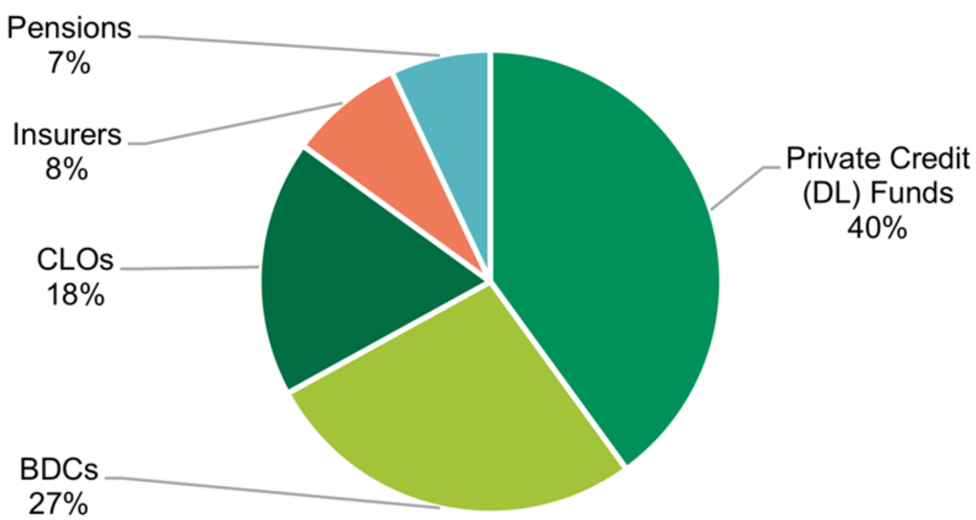
„Years before Marc Rowan became CEO of Apollo Global Management, he had an idea: the swashbuckling private equity house/investment giant should snap up a boring old annuity writer. In 2021, Apollo announced it would complete the acquisition of Athene, one of the biggest annuity providers in the US. The deal was an unconventional one, but the thinking behind it was, in retrospect, pretty simple. Insurers have huge pools of money that they need to put to work. Typically they need to invest in something with yield and with long duration. Liquidity (the ease of buying and selling) isn't such a big deal to them, given that they're generally investing over extremely long timeframes. Enter private credit. (..) Today, insurers are arguably the driving force behind the growth of private credit in an under-appreciated way. (..) Writing in the Financial Times, he estimates that insurers now account for 43% of the credit assets under management at the top seven listed private credit groups, up from just 32% towards the end of 2021. Apollo now gets about 70% of its credit AUM from insurers, according to Oliver Wyman, and others are not far behind. Insurers fund about 56% of KKR's credit assets and 43% at Blackstone, they say." (12)

Und die Versicherungen beschränken sich nicht auf die CLO-AAA-Tranchen:

„An Update by Tranche2 revealed that "just over half of the securities held by insurance companies were mezzanine or equity tranches" and pension funds were not far behind, with over one-fifth of their investments in the mezzanine or equity tranches." (35)

Fig. 2: Ownership of private credit shifting to mainstream

Holders of US private credit*



** Based on the most recent available data for each component*
Source: Preqin investor survey, Preqin year in review 2024, Fitch, Pitchbook LCD, BNP Paribas

Fazit

1. Der Business Case ist extrem stark
2. Das Underlying Leveraged Loans hat sich als ungemein harte Asset Class erwiesen, trotz gewissen Schwankungen
3. Es gibt gewisse Cracks im Underlying: LME, Covenant Light, PIK, Dividend Recap etc. sind ernst zu nehmen
4. Trends bei Leveraged Loans zu verfolgen bleibt zentral
5. Die Durchschnittsqualität in Leveraged Loans ist über die Zeit gefallen, durch eine Verschlechterung der Credits im Pool aber auch durch eine verstärkte Emission von Loans mit sehr tiefen Ratings
6. Die CLO-Struktur hat sich als ungemein robust erwiesen
7. Wer nicht verkaufen muss, wenn die Bude brennt, hat gute Karten für attraktive Returns
8. Angebot und Nachfrage nach CLO-Tranchen ist ungünstig für den Investor
9. Wird eine verschlechterte Arbitrage mit zusätzlichem Risiko eingekauft?
10. Das non-markt-to-market-Feature von CLOs ist riskant, aber durch zahlreiche Sicherheitsventile abgesichert
11. Das grösste Risiko bei hoch gerateten Tranchen ist u.E. das Korrelationsrisiko, je nach dem wo man in der Struktur positioniert ist, ist es ein Long- oder Short-Risiko
12. Non-market-to-market und Korrelationsrisiko verdichten sich zu einem Tail-Risiko von unbekannter Höhe, eine Hürde, die noch nie gerissen wurde
13. Je tiefer die Tranche, desto wichtiger diese kritischen Punkte zum Underlying, je höher die Tranche, desto mehr wird der Investor von den strukturellen Stärken geschützt
14. Das CLO-Konstrukt wurde mehrfach getestet und durchlief problemlos mehrere Tail-Events
15. CLOs sind kein Cash-Ersatz
16. Was nach Free Lunch tönt ist keiner, CLO sind kein Perpetuum Mobile, aber ganz sicher auch kein Potemkinsches Dorf
17. Eine Verbreitung von synthetischen Leveraged Loans und synthetischen CLOs^2 wären klare Red Flags

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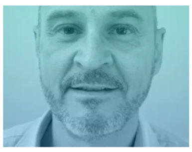

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