Credit Investments Group

CREDIT SUISSE

A closer look at CLO equity

October 2023

About the Credit Investments Group

The Credit Investments Group (CIG) was founded in 1997. In the following paper, CIG shares an introduction to the subordinated note of the CLO, commonly referred to as CLO equity.

Introduction

Collateralized Loan Obligation (CLO) equity remains a relatively niche investment strategy, though it has ballooned alongside the broader CLO market. Equity accounts for approximately 10% of the nearly $1 trillion CLO market, making it about a $100 billion market on its own[1]. CLO equity offers the investor a levered exposure to the senior secured collateral of the CLO (primarily leveraged loans), offering diversification to many portfolios and the potential for double-digit returns over the life of the deal. Performing CLOs make distributions to equity on a quarterly basis, providing ongoing cash flow throughout the life of the investment. Not all CLO equity investments are created equal, however, as factors like manager quality and strategy have the potential to materially impact the returns to investors.

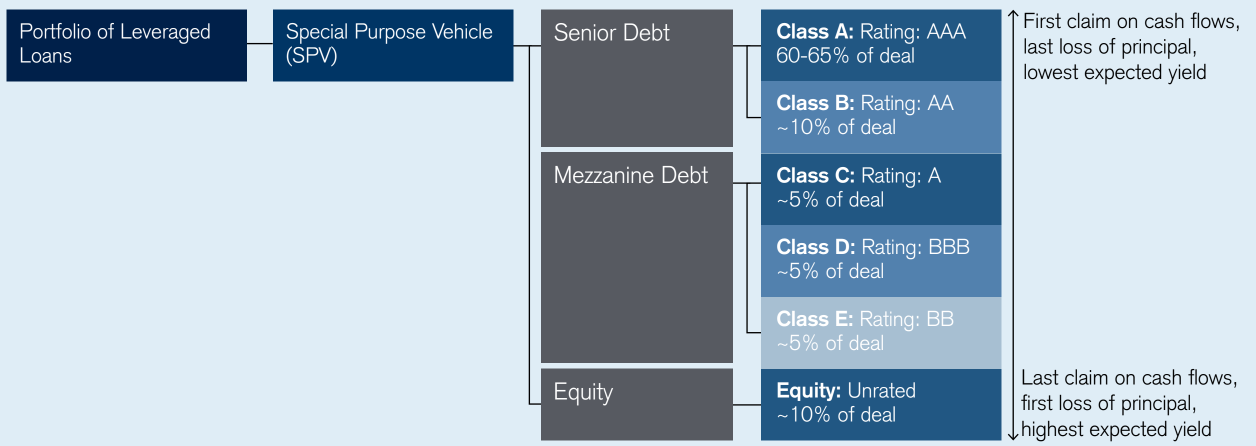
[1] Source: Bank of America. Data as of December 31, 2022.

What is CLO equity?

For a deeper explanation of the structure of a CLO, please see our earlier "Introduction to CLOs." For the purposes of this discussion of CLO equity, however, we will briefly describe the structure of a typical CLO.

A CLO is structured as a special purpose vehicle (SPV), which issues a combination of debt and equity to fund the purchase of a portfolio of assets, almost entirely leveraged loans in the case of a CLO. Exhibit 1 represents a typical CLO 2.0 (i.e., a CLO issued post-GFC) capital structure with five debt tranches and an equity tranche. The tranches are organized by seniority, with the most senior debt tranche having first claim among all the tranches on cash flows produced by the CLO portfolio. Conversely, the equity tranche, the most junior tranche in the capital structure, is only entitled to the residual cash flow after all debt tranches are paid their stated coupons. Given its first-loss position in the capital structure, the equity tranche also has the highest potential return upside.

Exhibit 1: Typical CLO Structure[2]



Source Credit Suisse. For illustrative purposes only.

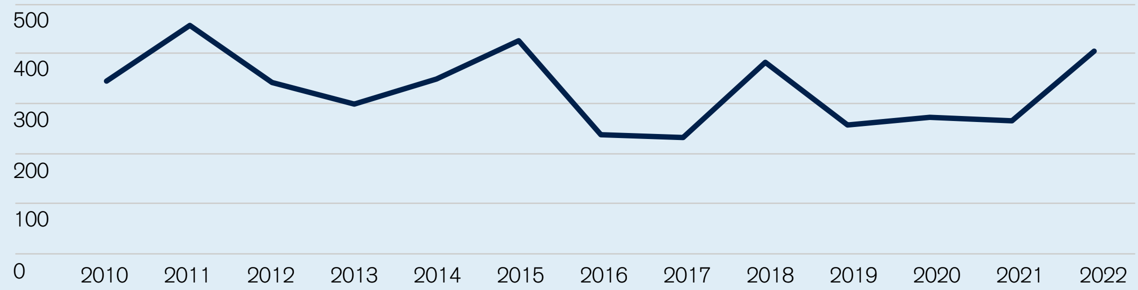
[2] Structure shown is representative of a "CLO 2.0" issued post-financial crisis. Please refer to our earlier publication, "Introduction to CLOs" for a discussion of the distinctions between CLO 1.0 and CLO 2.0.
GFC: Global financial crisis

The arbitrage principle of CLOs

CLOs are sometimes compared to traditional banks because they fundamentally rely on a similar arbitrage principle to produce returns for their equity holders – namely, to lend money at a higher rate than that at which it borrows. In a bank, money is "borrowed" in the form of deposits (which usually receive small interest payments), and money is lent to businesses and individuals. These businesses and individuals pay interest to the bank for the right to borrow the money, and the bank profits on the difference between the rate it receives and the rate it pays to its depositors.

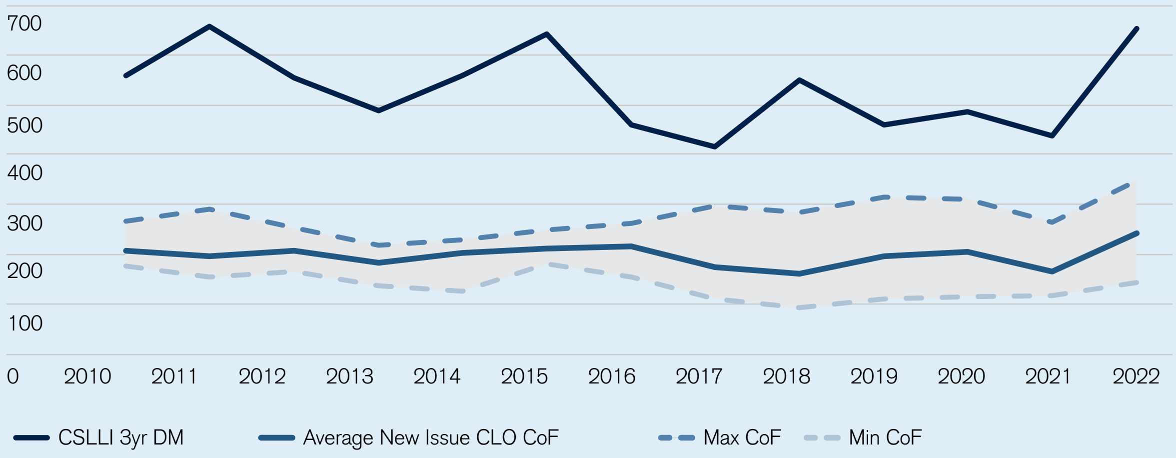
In a CLO, the equity profits on the difference between the cost of funding of the debt tranches issued by the CLO (the money being "borrowed") and the interest received by the portfolio of loans (the money being lent). An equity holder generally seeks to maximize the arbitrage, and thus all else being equal, an equity holder would prefer the CLO to have a lower cost of funding to maximize the basis between the interest received from the portfolio and paid out to the debt tranches. The arbitrage of CLOs fluctuates over time as the spreads on leveraged loans available in the market do not move in lock step with the spreads offered on new issue CLO liabilities and existing CLO liabilities are only repriced if the deal is reset or refinanced. As shown in Exhibit 2, in the twelve years ended 2022, arbitrage in new issue CLOs ranged from 239bps to 459bps, demonstrating that the arbitrage of CLOs can vary widely over time. Arbitrage is by no means deterministic of deal performance, however, and deals issued during times of challenged arbitrage levels can still achieve good relative performance compared to other vintages. In 2020, for example, arbitrage levels were near the low levels of the trailing 12-year period shown in Exhibit 2. Despite tight arbitrage, CLOs issued in 2020 have largely performed well, due to factors which we believe include manager skill during COVID-induced market volatility and depressed loan prices during the ramping period.

Exhibit 2: Historical CLO arbitrage* by vintage
(basis points)



Source Valitana. Data as of December 31, 2022. *Arbitrage is calculated as the 3-year Discount Margin of the Credit Suisse Leveraged Loan Index at vintage year end minus the average Cost of Funding of CLOs priced during the vintage year.

Exhibit 3: Historical CLO cost of financing and loan index spreads by vintage
(basis points)



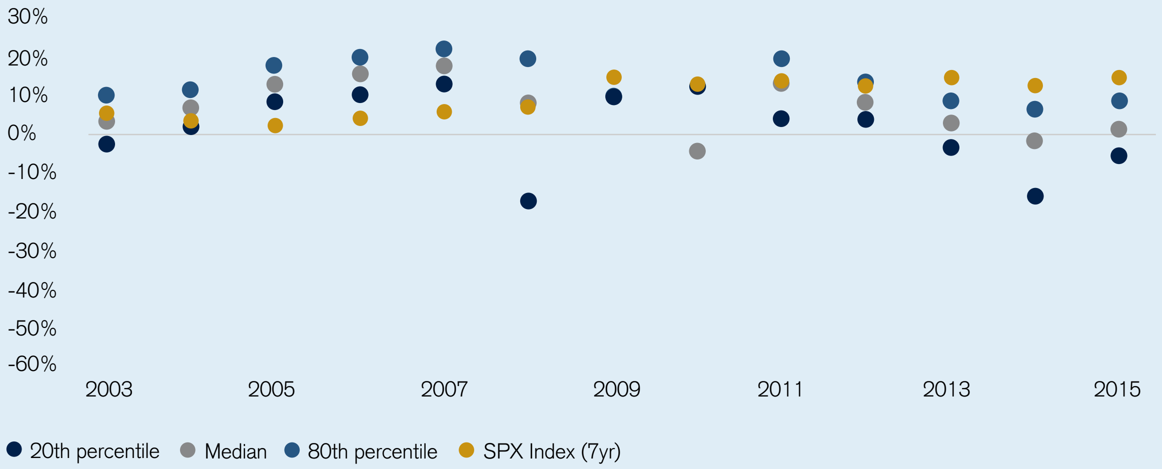
Source Credit Suisse. For illustrative purposes only.

The preference among equity investors for a lower cost of financing is generally a positive for more established CLO managers, as they may be able to secure lower cost financing more easily than a new entrant to the market. As shown in Exhibit 3, the cost of financing of CLOs can vary widely between and within vintages. Even in a year like 2015 where the range of funding costs was relatively small, the cost of financing for deals varied by 68 basis points. Variance in the cost of financing is due to a combination of factors, including market conditions, manager performance history, and manager reputation, and can have a material impact on the return to equity over the life of a deal.

As mentioned, the arbitrage and cost of financing of a deal at issuance do not determine the performance of its equity. Many other factors can influence performance throughout the life of the deal. The range of returns can be wide within and across deal vintages, further supporting our belief that manager quality is one of the most important factors to consider as a CLO equity investor.

The returns in Exhibit 4 are the IRRs calculated for CLOs that have been completely liquidated. The S&P 500 returns are shown for the 7-year period beginning at the start of the vintage year, as most CLOs have lives of approximately 7-years including the ramping, reinvestment, and liquidation periods. To highlight the range of potential outcomes for a CLO investor, consider the 2007 vintage of deals. At first, many market observers thought the Global Financial Crisis would be the end of securitized products, but many CLOs were able to weather the market volatility to produce attractive IRRs for their equity. Top quintile managers produced gross IRRs above 20% while average managers posted gross IRRs of about 18.1% and bottom quintile managers produced gross IRRs of 13.1% or less, all greater than the S&P 500 over the 7 years following the onset of the Crisis. Conversely, while 2015 appeared to be a good year for CLO issuance from an arbitrage perspective, even top quintile managers underperformed the S&P 500 over the following 7-year period.

Exhibit 4: Terminated CLO gross irr data by vintage versus the S&P 500
(basis points)



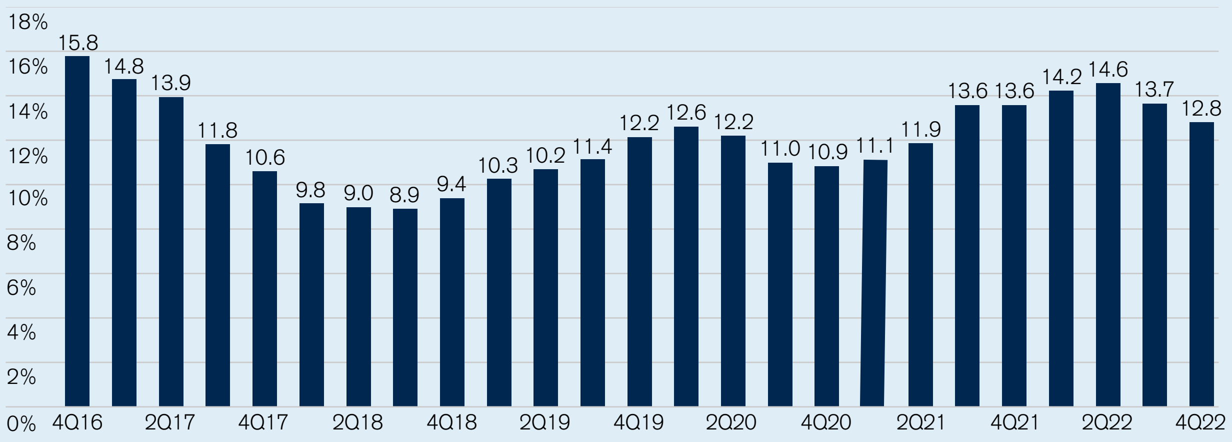
Source Credit Suisse. For illustrative purposes only.

Cash flow and distributions

Aside from the capital structure and cost of financing of the CLO, equity returns are largely determined by both the regular cash flow produced by the underlying portfolio and the potential par build (or burn) that results from a manager's active management of the portfolio. Par build refers to growth of the CLO portfolio caused by capital gains. Many CLO managers engage in active management, whereby the manager is continually seeking opportunity in the market, selling names that are believed to be overvalued in exchange for names that appear undervalued by the market. Through this process, the CLO manager may be able to increase the total par value of the loans in the portfolio as well as the cash flows produced by them. Both accrue to the benefit of the CLO equity holders, as the increased cash flows would boost their distributions (assuming the portfolio produces enough cash flow to pay the debt tranches) and the increased par value would go to the equity at the time of CLO liquidation (again, assuming the portfolio is large enough to pay the debt tranches). Par build is an elusive objective, however, and very few managers have been able to pull it off consistently.

The quarterly distributions received by the equity holders typically constitute most of the returns received by the investor and are a strong differentiating factor for CLO equity as compared to other investment strategies with similar target returns, like traditional equities. The distributions help to spread returns out over the life of the deal, unlike the "J-curve" return profile of some other asset classes where all or most of the return is realized in one payment at liquidation of the investment. In a CLO, distributions are made quarterly to equity as long as there is residual cash left over after each of the debt tranches is paid their coupon. As shown in Exhibit 5, the distributions received by equity holders can fluctuate over time, but have historically remained strong, even during periods of stress like the COVID pandemic. Potentially sizeable cash distributions during the life of the investment can make CLO equity particularly attractive to investors that value a potentially ongoing stream of distributions.

Exhibit 5: CLO universe quarterly annualized equity distributions

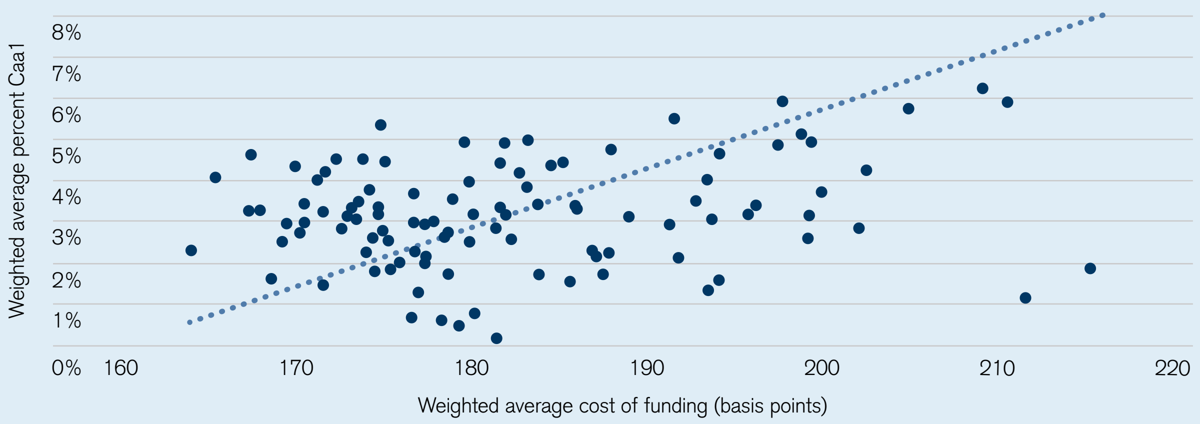


Source Valitana and Intex. Data as of December 31, 2022. Past performance is no guarantee of future results.

Risk-taking and par build in CLO portfolios

While the regular distributions made to investors determine most of the investment return, par build or burn is important to keep in mind as it reminds an investor that outsized yield is not necessarily worth the added risk normally associated with higher yielding assets. For example, a manager with an above average cost of financing or one seeking to enhance distributions, may be tempted to seek additional yield by purchasing riskier assets in the portfolio. As shown in Exhibit 6, managers with higher costs of financing generally own more Caa1-rated names than those with a lower cost of funding. The portion of lower-rated names is sometimes used to approximate the risk being taken by a manager to achieve their target returns. Higher exposure to lower rated names, at least in theory, exposes the portfolio to a higher incidence of default, potentially burning par and detracting from cash flows in the process. While rating is not a perfect proxy for risk, and a skilled manager may be able to manage a lower-rated portfolio successfully, it demonstrates some of the pressure towards risk taking felt by managers with a higher cost of financing.

Exhibit 6: CLO percent Caa1-rated collateral versus cost of funding



Source Valitana and Intex. Data as of September 30, 2022.

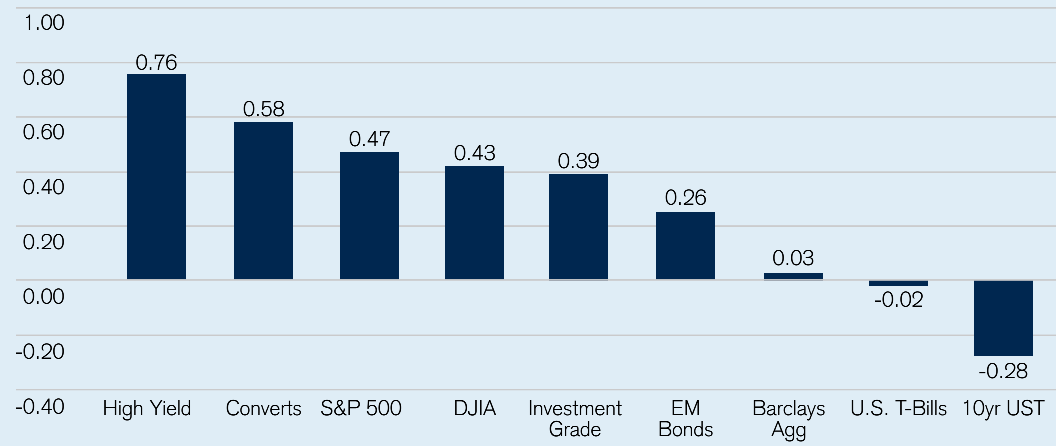
Par build or burn can also vary highly, due to the manager's skill at managing portfolios of leveraged loans. In general, CLOs can benefit from volatile markets where opportunities for active management are typically more plentiful. Skilled managers may also be able to identify opportunity during more "boring" markets, though it can be significantly more difficult. Regardless of market, most managers burn par during the life of the CLO, demonstrating how difficult it is to find a truly skilled manager. Given that the underlying portfolio consists of sub-investment grade credit, some level of default loss is to be expected during the life of a deal. In fact, most managers and investors include such default assumptions into the underwriting of deals. Market convention is normally something like a 2% constant annual default rate with a 65% default recovery, equating to about 0.70% default losses each year in the portfolio. A manager that is able to pare back default losses compared to their peers may be able to deliver superior performance to the equity in particular, as losses in the portfolio hit equity returns first.

Where does CLO equity fit into a portfolio?

Investors sometimes wonder where CLO equity can fit into their portfolio allocations as arguments can be made for the strategy as equity, fixed income, or alternatives – equity for its subordination in the CLO capital structure, fixed income for the fact that it is based on a portfolio of predominantly leveraged loans and tracks the performance of the sub-investment grade market, and alternatives because of the relative illiquidity and esoteric nature of the asset class. Ultimately, an investor could decide to include CLO equity in any sleeve of their portfolio and reap the potential benefits of equity-like returns that are based on the leveraged loan asset class. Leveraged loans normally exhibit low correlation to traditional equity and fixed income indices, offering the opportunity for diversification from some traditional portfolio allocations.

The investor base for CLO equity is very broad, ranging from endowments to family offices to hedge funds, and each investor comes to the asset class with a unique set of parameters for their portfolio. We believe that CLO equity may be appropriate for many portfolios given many of the attributes discussed in this paper including current income, low correlation, and performance track record.

Exhibit 7: Leveraged loan correlations to various asset classes
(Jan 1992 to Dec 2022)



Source Bloomberg. Data as of December 31, 2022.
For index definitions, please refer to the Index definitions section at the end of the document.

Conclusion

CLO equity investments are unique in their potential to produce double-digit returns on the basis of a senior secured asset class, while producing potentially sizeable regular distributions. Of course, CLO equity outcomes can vary widely based on numerous factors that influence the quality and value of the underlying portfolio over the lifetime of the deal. We believe that manager selection is one of the most critical components of any CLO equity investment decision. Skilled CLO managers can potentially optimize their portfolios to maintain ongoing cash flow and distributions, without sacrificing the quality of the portfolio. As the first loss tranche of the deal, equity investors are heavily affected by the manager's actions, but also have the greatest potential for upside if the manager is able to produce positive relative returns.

Potential benefits and risks of CLOs

Potential benefits we see include:

- **Varied Risk and Return:** The tranched structure of CLOs allows investors to buy at their preferred risk and return level.
- **Active Management:** Most CLO portfolios are actively managed, which offers the potential for outperformance under a skilled manager.
- **Diversification:** CLO investors are given proportional exposure to the entire underlying portofolio, which might consist of anywhere from 150-500 borrowers in a fully ramped CLO.
- **Floating Rate and Match Funding:** CLOs benefit from match funding, meaning that both their assets and liabilities are predominantly floating rate instruments. The floating rates may make investors relatively less sensitive to interest rate fluctuations with low interest rate duration.

Risks we see include but are not limited to:

- **Structure Risk:** The structure and guidelines of CLOs can vary deal to deal, so factors such as leverage, portfolio testing, callability, and subordination, among other things, can all influence the risks associated with a particular deal.
- **Third Party Risk:** Third party risk is introduced by the various third parties involved in the typical CLO. Counterparties include the manager, trustees, custodians, lawyers, accountants, and rating agencies.
- **Collateral Risk:** The CLO portfolio, which almost entirely consists of leverage loans, is subject to the risks inherent to sub-investment grade debt. Those risks include but are not limited to default, diversity, and recovery risks.
- **Macroeconomic and Political Risk:** Pricing and liquidity of the underlying portfolio can be impacted by macroeconomic and political events without warning.
- **Liquidity Risk:** CLO tranches can be thinly traded, meaning that there may be limited liquidity in the secondary market.
- **Prepayment Risk:** CLOs have average lives that are typically shorter than the stated maturity and CLO tranches can be called early after the non-call period has lapsed. A majority of subordinated note holders normally determine such actions.

List is for illustrative purposes only and is not intended to represent an exhaustive list of risks associated with investments in CLOs or other structured products.

Glossary

Base Rate: Base rates, like the Secured Overnight Funding Rate (SOFR), fluctuate in time and attempt to quantify the implied market willingness to lend. SOFR is calculated using data from actual market transactions and is published daily by the New York Federal Reserve.

Mark to Market: Mark to market refers to the revaluing of assets according to the value currently available in secondary markets. If an investor owns a loan with a par value of 100 that is currently trading in the secondary market at 95, the investor can choose to value their portfolio based on the par value of the loan (non-mark to market) or based on the market price (mark to market).

Senior Debt: Senior debt is at the "top" of a company capital structure, meaning that it has the highest priority for repayment in the event of default. Its seniority also means that it has lower risk than more junior debt in the capital structure.

Special Purpose Vehicle (SPV): A special purpose vehicle is a bankruptcy-remote legal entity, often structured as a subsidiary of the management company. The bankruptcy-remote status means that if the parent company (usually the CLO manager) were to collapse, the CLO itself would be free from liability. Conversely, if the CLO were to collapse, investors would also have limited recourse against the manager.

Tranche: French for "slice", tranche refers to the various debt and equity classes that constitute the capital structure of a CLO. The tranches vary by their seniority and stated yield or expected return.

Index definitions

Bloomberg US Aggregate Bond Index is a broad-based flagship benchmark that measures the investment grade, US dollar-denominated, fixed-rate taxable bond market. The index includes Treasuries, government-related and corporate securities, MBS (agency fixed-rate and hybrid ARM pass-throughs), ABS and CMBS (agency and non-agency).

ICE BofA US High Yield Index tracks the performance of US dollar denominated below investment grade corporate debt publicly issued in the US domestic market. Qualifying securities must have a below investment grade rating (based on an average of Moody's, S&P and Fitch), at least 18 months to final maturity at the time of issuance, at least one year remaining term to final maturity as of the rebalancing date, a fixed coupon schedule and a minimum amount outstanding of $250 million. In addition, qualifying securities must have risk exposure to countries that are members of the FX-G10, Western Europe or territories of the US and Western Europe. The FX-G10 includes all Euro members, the US, Japan, the UK, Canada, Australia, New Zealand, Switzerland, Norway and Sweden. Original issue zero coupon bonds, 144a securities (both with and without registration rights), and pay-in-kind securities (including toggle notes) are included in the index. Callable perpetual securities are included provided they are at least one year from the first call date. Fixed-to-floating rate securities are included provided they are callable within the fixed rate period and are at least one year from the last call prior to the date the bond transitions from a fixed to a floating rate security. Contingent capital securities ("cocos") are excluded, but capital securities where conversion can be mandated by a regulatory authority, but which have no specified trigger, are included. Other hybrid capital securities, such as those issues that potentially convert into preference shares, those with both cumulative and non-cumulative coupon deferral provisions, and those with alternative coupon satisfaction mechanisms, are also included in the index. Securities issued or marketed primarily to retail investors, equity-linked securities, securities in legal default, hybrid securitized corporates, eurodollar bonds (USD securities not issued in the US domestic market), taxable and tax-exempt US municipal securities and DRD eligible securities are excluded from the index.

ICE BofAML US Corporate Index tracks the performance of US dollar denominated investment grade corporate debt publicly issued in the US domestic market.

ICE BofAML US Convertible Excluding Mandatory Index (ticker: V0A0) tracks the performance of publicly issued US dollar denominated non-mandatory convertible securities of US companies. Qualifying securities must have at least $50 million face amount outstanding and at least one month remaining to the final conversion date. In order to qualify for inclusion in the index securities must pay at a fixed rate, which includes those with zero, step-up and rating-sensitive coupons. The underlying equity of qualifying securities must be publicly listed and actively trading, and have a US country of issue and a US country of risk. Convertible securities where the underlying is a basket of equities qualify for inclusion in the index, as do convertible preferred securities. Securities with mandatory conversion features and those in legal default are excluded from the index, as are synthetic and reverse convertibles, floating rate securities and securities with suspended or inactive underlying equities.

ICE BofAML Current 10-Year US Treasury Index (ticker: GA10) is a one-security index comprised of the most recently issued 10-year US Treasury note. The index is rebalanced monthly. In order to qualify for inclusion, a 10-year note must be auctioned on or before the third business day before the last business day of the month.

Credit Suisse Leveraged Loan Index is designed to mirror the investable universe of the $US-denominated leveraged loan market. New loans are added to the index on their effective date if they qualify according to the following criteria: Loans must be rated "5B" or lower; only fully-funded term loans are included; the tenor must be at least one year; and the Issuers must be domiciled in developed countries (Issuers from developing countries are excluded). Fallen angels are added to the index subject to the new loan criteria. Loans are removed from the index when they are upgraded to investment grade, or when they exit the market (for example, at maturity, refinancing or bankruptcy workout). Note that issuers remain in the index following default. Total return of the index is the sum of three components: principal, interest, and reinvestment return. The cumulative return assumes that coupon payments are reinvested into the index at the beginning of each period.

S&P 500® Index is widely regarded as the best single gauge of large-cap U.S. equities and serves as the foundation for a wide range of investment products. The index includes 500 leading companies and captures approximately 80% coverage of available market capitalization.

FTSE 3-month Treasury Bill Index (ticker: SBMMTB3) is intended to track the daily performance of 3 month US Treasury bills.

Dow Jones Industrial Average is a price-weighted average of 30 blue-chip stocks that are generally leaders in their industry. It has been a widely followed indicator of the stock market since October 1, 1928.

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