

Fidelity *Alternative Angles*

CLO tranche investing: The paradox of structure and credit

TRANSCRIPT

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STEVE ROSEN: This is Alternative Angles, the Fidelity podcast where we hear from investors about complex strategies outside the realm of conventional stocks and bonds. I'm Steve Rosen, and I'm your host.

Greek mythology tells the story of Theseus, who after slaying the minotaur, returned to Athens on a ship that was kept in the harbor to commemorate his heroic feats. Its preservation over centuries led Athenians to swap out its wooden planks and philosophers to ask whether an object, after having all its components replaced, remains the same. For investors in CLOs (collateralized loan obligations), it's not just a thought experiment. Rather, it's central to their due diligence process. And that's because a CLO is not a static vehicle. The active management of the collateral pool means the planks of the ship change due to payoffs, defaults, upgrades, downgrades, and trading by the manager. In fact, over the life of a CLO, almost all the original underlying portfolio was replaced, which begs the question, does the primary driver of CLO tranche performance lie in the static durable structure of the vehicle or in the dynamic evolving collateral pool? For those investing at the top of the capital stack, the answer veers to structure. Holders of AAA tranches anchor to the resilience of the indenture. Things like credit enhancement, coverage tests, and cash flow waterfall, to insulate them from collateral volatility. They are protected by the design of the ship's hull. But for mezzanine tranche investors, the focus shifts. Structural protection is less robust, making the outcome more dependent on the underlying assets and the CLO manager's skills. In essence, mezzanine tranche investors must iteratively underwrite the planks and the carpenter as much as assess the design of the vessel.

To help us break down the interplay between static structure and dynamic collateral, I'm joined by Dave Debiase, manager of Fidelity's FAAA ETF, and Michelle Liu, manager of Fidelity's FCLO ETF. Combined, Michelle and Dave have fifty years of experience in the structured product. They possess a deep understanding of relative value and risk management, and I'm looking forward to hearing how they approach investing in CLO tranches. Michelle, Dave, welcome to Alternative Angles.

MICHELLE LIU: Hi, Steve. Great to be here.

DAVE DEBIASE: Thanks for the invite, Steve. It's great to be here.

STEVE ROSEN: Sure. Glad to have you guys. Now, to kick us off, I want to hear about your careers and how they led to your current role at Fidelity. So first, Michelle, let's give us a synopsis of your working life and times.

MICHELLE LIU: Great. So I started in the structured product banking group at Bear Stearns in 2005. After a short stay there, I spent most of my sales-side career at Bank of America in the structured securities group. So I was pretty much in the eye of the storm during the GFC (great financial crisis), structuring a lot of things on the way in and then restructuring quite a few of those same things on the way out. Those were very stressful, but also eye-opening years. I've questioned my career choice, but what kept me in it was that I really enjoyed cutting through the complexity, breaking structures down into basic elements of risks, returns, businesses, and human factors such as incentives and behaviors. So, by 2012, liquidity was coming back and asset managers were starting to invest in distressed structured products. That led me to Guggenheim in early 2013 to invest in CLOs and a few years later to KKR, where I helped launch and grew its structured credit investing strategy to a multi-billion-dollar business.

I joined Fidelity in September 2023, mainly because I saw the opportunity around the democratization of alternatives. You know, Fidelity, as one of the world's largest asset managers, is in a very unique position to bring liquid and less liquid alternatives to retail investors in a thoughtful way. And I wanted to be part of that change, especially as a structured credit and CLOs increasingly move from institutional-only product into wrappers like ETFs and mutual funds.

STEVE ROSEN: Great. And turning to you, Dave, I know we've known each other for ever and a day, but others aren't as familiar. So how about if you share a brief background on your career with us?

DAVE DEBIASE: Sure. Happy to. Yeah, quickly on my background. I started in the industry in the late nineties as an analyst in securitized markets. I did that for about eight years at a different money manager. I joined Fidelity in 2006, just in time for the financial crisis as a securitized trader. During that period, I traded mostly subprime mortgages and other non-agency mortgages during the financial crisis. And then I moved into trading mortgage CMOs and mortgage derivatives for a few years, then traded corporates for a couple years after that. For the past nine years I've been a portfolio manager in the investment grade bond division here at Fidelity. I'm part of a team we call it the low duration bond team we manage about eighty billion dollars it's mostly short duration um diversified portfolios. So that's the quick background for me.

STEVE ROSEN: Nice. So before we dive into today's topic, let's take a short step back to talk about the underlying collateral for a CLO, which are broadly syndicated loans, also known as leverage loans or term loans. So starting with you, Dave, please set a foundation for us with a table setter on broadly syndicated loans.

DAVE DEBIASE: Sure. Yeah. Let me just reiterate what Steve just said that broadly syndicated loans, leveraged loans, basically mean the same thing in the market terminology. They're loans to below investment grade companies that are typically rated double B or single B. They sit at the top of the borrower's capital structure and they're also secured by its assets. So a senior debt, they historically have a better recovery rates than unsecured debt. The loans are generally arranged by large investment banks and broadly syndicated to institutional investors such as loan funds and CLOs. CLOs are quite important in this market. They're the largest buyers of broadly syndicated loans. They probably buy about two-thirds of the broadly syndicated loan market. And I think the last thing to mention as we're talking about leveraged loans is there are differences between leveraged loans and private credit. Private credit is generally smaller loans to smaller companies. They're usually bilateral, which means it's usually one borrower, one lender. Occasionally, you'll see a couple lenders in one borrower, but generally it's pretty limited. Because they're bilateral, they'll have less liquidity, less price transparency. They don't really trade very often because it's not the vehicle they're designed for. They often have more customization in their structure. It's usually the company is looking for some kind of customized structure because of some situation with the business. And so broadly syndicated loans are in general larger, more liquid have more standard structure than private credit.

STEVE ROSEN: Right. Now, turning to you, Michelle, why don't you continue on with what Dave was talking about in terms of a description of leveraged loans. Give us a little bit of a description of the coupon structure of them. And then if you could, could you pivot to the historical credit performance of the leveraged loan market?

MICHELLE LIU: Sure. So loans are typically floating rate instruments that pay a spread over short term rate, which is a SOFR (secured overnight financing rate) which makes them especially attractive in a rising rate environment. Most also actually have a SOFR floor, which is not talked about broadly. The SOFR floor is around seventy-five to a hundred basis points, which helps preserve a minimum yield if risk-free rates fall too low. Now, on to credit performance, I would break that down into two important aspects, defaults and recovery. On defaults, the long-term volume-weighted average default rate, according to S&P since the year, is about two-point seven five percent, which is actually quite similar to high-yield bonds at roughly two-point eight percent. But like any credit asset, the average masks a lot of cyclicity. Defaults peaked at about twelve percent in 2009, hit roughly seven percent during the dot.com downturn and around five percent during COVID. In more borrower-friendly years, such as 2006 or 2021, defaults were below one percent.

Today, the trailing twelve-month default rate is around one and a half percent or closer to three percent if you include distressed exchanges. Now to recoveries, loans have historically outperformed high yield bonds because they are usually senior in the capital structure. So they rank ahead of bonds and equity in a bankruptcy. Post-GFC, every recovery has been, have been around the fifty-five percent for loans versus about thirty-eight percent for high yield bonds. That said, recoveries have drifted lower in recent years as covenant-like loans have become the norm. And that is an important risk factor to keep in mind when you're

masking CLOs and loans.

STEVE ROSEN: Okay. Now, moving from the underlying loans to today's topic, CLOs, Dave, how about if you give us a description of a collateralized loan obligation?

DAVE DEBIASE: Sure. Happy to do that, Steve. A CLO is essentially a temporary company. It's often a, you know, it's a special purpose vehicle. It's an entity built just for that purpose, to buy a pool of diversified leveraged loans that are then funded by different tranches of bonds sold to investors. So securitization through the CLO structure, in my mind, basically connects large institutional capital to the high yield loan market through tranches of varying risk. So instead of just a pool of single B rated loans, now investors have options to buy AAA rated bonds all the way down to equity, depending on their risk tolerance. And another key feature, as Michelle mentioned, the underlying loans are floating rate and the CLO bonds are also floating rate, which eliminates any kind of interest rate risk in the CLO tranches. The CLO is issued by a manager who tries to maximize return of the underlying collateral while minimizing defaults. That could be a money manager like Fidelity, an insurance company, a private credit fund, basically any entity that often has years of experience investing in leveraged loans. The tranches basically reallocate risk. So they create some bonds that are de-levered, like the senior AAA rated bonds, and then some bonds are leveraged to the pool of loans like the equity. The AAA bonds are usually the top sixty to sixty-five percent of the debt stack. The middle of the stack, usually called the mezzanine bonds, because they're in the middle, are the next twenty to twenty five percent, which are usually rated between double A to double B.

And then the bottom ten percent or so is the equity that is not rated. The cash flow from the loans, the interest and the principal is distributed in what is called a waterfall as it rolls down from the senior triple A tranche first and then into the lower rated bonds and ultimately to the equity. If loans default and there are losses in the underlying collateral, then those are allocated from the bottom up. So it's the opposite of how the principal and interest is distributed. The losses go from the bottom up. It goes first to the equity, then to the double B, triple B, et cetera, from the bottom up. Maybe an example of the reallocation of risk might be helpful. If there is one point of loss in the underlying pool, there's defaults and then recoveries, and there's a point of loss. And if you own that loan pool overall, then you would lose one percent of your principal. It's pretty straightforward concept if you just own that pool of loans. But for example, if you own the bottom ten percent of a structure with that same loan pool and say one percent loss, now you just lost one point of your ten and you lost ten percent of your principal. Conversely, the triple A doesn't take any write down until losses get above thirty-five percent or so. That is like the basic way the risk is reallocated by tranching, by creating these different tranches where some of the losses are concentrated and some of the losses are, you know, protected by this, the credit enhancement and structure of the vehicle.

And the last point I'll mention is there are also additional structures, structural features in the CLOs such as industry and issuer diversification tests over collateralization and interest coverage tests that divert cash flows, triple C ratings tests and limitations and several others that protect the bonds and divert cashflow in the structure that actually adds additional enhancement for the senior bonds.

STEVE ROSEN: Okay, nice description. Michelle, moving back to you, from the point of view of an allocator, be it an institutional investor or a wealth manager who's got numerous choices, where do the CLOs fit and what are the trade-offs to consider in making an allocation to them versus, say, the other fixed income options that are probably more straightforward or at least structurally so?

MICHELLE LIU: Sure. For a capital allocator, whether institutional or wealth, I think CLOs fit very naturally in an income-oriented portfolio. You know, we're no longer in the world of QE (quantitative easing) and zero rates. In today's market, where rate volatility remains elevated and the inflation has been stickier than many expected, I think floating rate carry assets deserve a real place in fixed income allocations. And CLOs in many cases offer more carry than similarly rated traditional fixed income products. I also think CLOs fit well in a multi-strategy credit portfolio, which has been pretty popular among institutional investors. In particular, lower mezzanine CLO tranches can offer a compelling combination of structural protection and more carry than loans and high-yield bonds. They can also be a useful way for investors to express a macro view on the broader credit cycle, including defaults, recovery, and spread direction. In terms of trade-offs, I think lower-mezz CLO tranches can be more price volatile, especially during risk-off periods. CLOs also generally have relatively limited call protection, so reinvestment risk can be fairly high. And later in the credit cycle, when spreads are tight and the deals are refinancing, I think that is exactly when investors need to be more careful about putting money back to work in the same assets at less attractive levels.

STEVE ROSEN: Okay. Now you're investing in the same loan pools, but in different risk tranches of the capital structure. So starting with you, Dave, what do you pay very close attention to in the AAA strategy that might be of less concern, say, to an investor in mezz tranches?

DAVE DEBIASE: Sure. Yeah. As a senior investor, I would say the thing that I think is the most important is the legal structure of the deal. And what I mean by that is there's rules within these deals that I think are important. Concentration limits, over-collateralization rules that are being followed, issuer limits, industry concentrations, all those kind of things, and obviously the credit enhancement of the deal. We're really worried about systemic risk because we have thirty-five to forty percent of the structure below us. I explained that a little bit earlier where the losses are put into the deal from the bottom up. And if a deal is heavily exposed to one sector like energy or software, that's what I worry about as a problem. Idiosyncratic risk is important, but I think it's less important to the AAA investor because one company defaulting is not really going to hurt the AAAs when they have thirty five percent enhancement. But as I kind of explained earlier, if you're in the mezz class or even at the equity, that's going to really matter to you. So, I think that's really one of the major, major issues we think about is the structure. Prepayment risk or reinvestment risk is also another thing we think about quite a bit um there's reinvestment periods in these deals where the manager recycles loans that have paid off but once that ends you could be exposed to pay downs as the first paid tranche in the AAA so you get pay downs and also you could have the bonds refinanced away from you. So, if I have a higher than market coupon that creates reinvestment risk for us. So that's something we think about quite a bit as well.

And I think the last thing to mention probably as a AAA investor that we think about a lot is liquidity. We think about that quite a bit. And so liquidity is often determined by manager and deal performance. So if either a manager or a specific bond is underperforming the market, it will become less liquid. So ongoing surveillance of the market is really important. So that's something that we spend a lot of time on and something that we think about quite a bit is liquidity of whether it's the manager broadly or the deal specifically.

STEVE ROSEN: Okay. And Michelle, let me reorient that question for you. What do you follow carefully and try to predict that matters to a strategy that's more focused on risk?

MICHELLE LIU: Sure. So, Steve, if I'm investing in a more credit-centric, say, BBB or BB CLO tranche portfolio, or tranche backed by the same loan pool in your question, what I'm really trying to underwrite is the forward credit performance of that pool. I'm thinking about which loans are more likely to default, how much loss the portfolio may experience, and what reading migration could look like over the next twelve to twenty-four months. Then I take those views and layer in the CLO structure to assess how the bond itself is likely to perform. So for a credit-oriented CLO strategy, it really comes down to two things, the health of the underlying portfolio and the strength of the structural cushions protecting the tranche. Those are really the key drivers of how a BB or a BBB-rated CLO will perform or behave, especially in the sense of trading prices in the secondary market.

And lastly, I want to mention that I also spend a lot of time analyzing CLO managers and predicting their behaviors because those portfolios are actively managed and they evolve over time. Manager behavior really matters. Their ability to select the right credits, avoid weaker situations, and treat the portfolio effectively can have a meaningful impact on the performance.

STEVE ROSEN: Okay. Now, when I think of each of your strategies and I hear AAA, I think about safety. And when I hear mezzanine, I think about credit risk. But those are oversimplifications. They're incomplete characterizations of your strategies. But to turn those generalizations on their respective heads, how about Dave, what are the risks of investing in the more senior CLO tranches? Because there must be some.

DAVE DEBIASE: Oh, there's definitely risks. Yeah, for sure, Steve. Although I would say when I think about AAA, I do think about safety also. But there are for sure risks. Let me just start by saying I do hear what you're saying and think about the risk quite a bit. I think the principal loss discussion on AAA CLOs is part of the analysis. We talked about the structure. But I think a little bit more about how these bonds perform in different market environments. I think the spread is pretty low relatively speaking to other tranches in the capital structure. Triple As, you know ballpark, are in the generally in the a hundred to one thirty over spread for triple As, so the level of interest rates, in this case SOFR which is what CLOs are benchmarked to, which is the secured overnight funding rate which is the floating rate part of the coupon is really important. So that's currently about seventy-five percent of the coupon that you get in a triple A CLO. And if short rates decline,

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that makes these bonds less compelling, I would say. So interest rates are a big thing to think about when you're investing in triple A CLOs. That's probably the first thing and biggest because it's a big part of that coupon. Prepayment risk or reinvestment risk is another thing to think about. Triple A bonds are first to be paid. So if you have an attractive coupon that you own, that bond could be paid down or refinanced away from you. So that's a risk we think about as well in these bonds.

And then I would say the other thing is, generally speaking, liquidity is something to think about. Michelle touched on this. Generally, they're pretty liquid. But in moments of market panic, the prices of AAA CLOs can move quite a bit. So that's something to think about when managing position sizes or overall risk position is that the bonds are very resilient from a credit perspective, like I mentioned, but they do have liquidity issues occasionally. And so you don't want to be selling bonds during a distressed period in lock-in losses for yourself. So that's another thing I would think about when investing in AAA CLOs.

STEVE ROSEN: All right. And Michelle, why don't you give us some perspective on the historical resilience of CLO structures?

MICHELLE LIU: Sure. I will just start with this. In periods of market stress, you will see CLO structures bend, but don't break. That to me is the key historical takeaway. The structure has been tested, as Dave alluded to, through multiple credit cycles, and importantly, it has generally done what it's designed to do. So first, the subordination matters. The equity sits at the bottom of the stack and is there to absorb losses before they even reach the rated debt tranches. Second, when a deal starts to come under pressure, the structure has mechanisms that can trap equity cash flows and redirect that value to protect the debt, whether that means paying down senior notes, or buying more collateral. And third, the CEO managers are usually given both time and the flexibility to actively manage through stress. That can mean selling tail risk credits, buying loans they believe are oversold relative to fundamentals, or simply holding onto loans they still expect to pay back at par, regardless of where they happen to be trading, regardless of where they happen to be trading in the market. So when people think about CLO stress, it is important to separate price volatility from actual structural impairment. Those are not the same thing. And the CLOs, that distinction really matters. And if you look at the historical numbers, they reinforce that point. According to S&P's tally, over more than thirty years, only forty out of roughly thirty-three hundred double B CLO tranches issued have been impaired, and only nine out of about four thousand triple B CLO tranches have been impaired. And no CLO notes originally rated AAA, AA, or single A has defaulted. So yes, CLOs, especially mass debt, can absolutely be volatile in stress market. But historically, the structure has proven to be a lot more resilient than the price action alone may suggest.

STEVE ROSEN: Okay. And Michelle, sticking with you, given the risks and the opportunities that you and Dave have just outlined, what are the resources the two of you have here at Fidelity to help you fulfill your mandates?

MICHELLE LIU: I will start with the fact that Fidelity as a fixed income platform, is a real powerhouse. In credit

alone, we have roughly three hundred analysts covering thousands of businesses every day, which gives us deep bottom-up insight into companies, industries, and the credit trends. Then you add our scale, our vantage points to see capital flows and our presence across the capital markets, and that gives us a broader and more informed view of the overall market and macro economy. It also matters that we are a CLO manager ourselves. We have dedicated analysts covering the vast majority of the loan market, including all those names underlying each CLO. So we understand the collateral from the inside, not as from the outside. And as one of the largest asset managers in the world, we have a broad access to dealers and CLO managers, which helps drive more information flow, enabling better manager selection and better execution.

STEVE ROSEN: Okay. Now, Dave Michelle just mentioned CLO managers. In your view, what characterizes a top-tier CLO manager and to what degree do you think investing in their deals may result in extra return for your investors?

DAVE DEBIASE: Yeah, sure. I mean, I think manager selection is critical. It's something that we think about a lot. And the best managers are very good at-risk management and credit selection. Those are, I think, the two main things. What do I mean? What do I mean by those two things? Generally the best managers are better than average avoiding defaults. They minimize selling loans below cost, which can be a problem in a CLO. It locks in losses and reduces the collateralization of the deal so that's basically the protection. So that's a problem and they generally have fewer negative rating actions than other managers. So basically they have the resources, the personnel, the infrastructure to pick the best loans and then when loans are going bad they're early in risk management. So that's generally the characteristics we look for. A lot of times if they're very good they can build par in deals, which means you buy loans at discounts that eventually will fully recover and then add collateralization to the structure, which is another benefit they can offer if they're very good. The extra return that you mentioned for investors, it depends and it's generated by which tranche you're in. So the equity returns can vary widely by manager. As we've mentioned, that's the leveraged part of the structure. So they basically get the residual of all the loan cash flows minus all the financing costs of the bonds. So those can vary widely. Mezzanine tranches have, I would say, moderate to high exposure to managers. Obviously, the lower rated tranches have more exposure. But as you go more up the capital structure, there's a little less. But a weaker manager might you know have deals that are tripping triggers and diverting cash flow more often than other managers and that's a that's a negative for mezzanine tranches. And then what I would say the AAAs is probably more related to the reputation of the manager, which impacts liquidity and spreads on the senior bonds quite a bit so the market will differentiate between different managers in their historical track record on how well they trade and you know, where the bonds trade on a, on a spread basis. So I say, those are the, those are the kind of the different areas where the manager can matter.

STEVE ROSEN: All right. And, and Dave sticking with you aside from manager quality, what other elements of a CLO can produce alpha for you?

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DAVE DEBIASE: Yeah, good question. I would say the other two things I think about probably away from the manager that has impact on the CLO is probably the deal structure, which I talked a little bit before. That's obviously very critical, particularly for the senior bonds. And then the vintage is also really important besides the manager. Again, it depends on where you are in the capital structure, but CLOs are not static. So if loans can be purchased by the CLO when they are at discounts, for example, sometimes deep discounts, like periods after COVID when loans were at kind of historically low prices. And the capital structure can be refinanced in later years to lower debt costs. Much of that appreciation in the loans will accrue to the equity and other parts of the capital structure. A good vintage when the arbitrage is attractive and loans are below par will generally benefit all tranches, but more so for the equity and lower rated tranches. When low prices are near par and the arbitrage is tight, those vintages can be a little bit disappointing.

So we think a lot about the vintage and where loans are being purchased and how tight the arbitrage is. I think another broad way to generate alpha with CLOs is identifying relative value among different fixed income opportunities. CLOs often have additional spread versus similarly rated bonds due to their complexity, primarily. And so if you have the resources to analyze the managers, the underlying collateral and the structure, there is additional yield to be captured within the CLO market at the various rating categories.

STEVE ROSEN: OK, now I'm going to jump back to you, Michelle. Dave just mentioned this idea of relative value, and so I'm just curious, are there rules of thumb that tell you when CLO tranches are attractive relative, say, to their own history? And versus other choices, be it an investment-grade credit, high-yield credit, and other structured products?

MICHELLE LIU: Yeah, sure, Steve. That's a great question. I do have a few rules of thumb. Although in CLOs, I'd call them guidelines, not laws of physics, because the market is constantly evolving. So first, relative to CLO's own history, I usually anchor off the CLO two-point era that refers to all the deals issued after the financial crisis since late 2012, early 2013. Very roughly, median spreads have been about one hundred and thirty to one hundred fifty basis points for AAA, around three hundred eighty for BBB, and about six seventy-five basis point for double B. So if the spreads are meaningfully wider than those levels, that usually gets my attention. That said, I try not to be too formulaic because this market has evolved. I do think the median spreads have come down over time as the CLOs have become more mainstream. And some of the post-GFC PTSD in structural credit has faded. As people always say, history rhymes, but it doesn't repeat. As CLO investors, we try to stay flexible and recognize that the market keeps changing. A better rule, in my view, and this is less intuitive, is to look at the spread relationship between double B and single B rated loans. If single B loans spreads look too tight relative to double B loans, CLOs are probably too rich as well, given that CLOs own anywhere between eighty-five to ninety percent of the single B loan market and in some ways are essentially derivatives of that market.

Conversely, if single B loan spreads widen relative to double B loans beyond historical averages, CLOs usually cheapen too, which can create compelling entry point, especially in mezzanine CLO tranches. On the

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other lens of relative value is versus a similarly rated alternative, whether that's IG (investment-grade), high-yield, or other securitized products. CLOs do tend to trade wider, which on the surface looks attractive, but wider spreads do not automatically mean better total return, especially lowering the cap stack. CLOs can be more volatile. And because they are floating rate instrument, the coupon can come down if the Fed cuts rates. So the real question is not just whether CLOs look wide, but whether you are being paid enough for the complexity, the liquidity, the volatility, and where we are in the credit cycle. I think CLOs are part of the broader credit complex. And the one rule of thumb that always holds in my mind is that the pricing of risks and the sentiments swing like a pendulum in credit. So I use that quite a bit in framing relative values at different point of time.

STEVE ROSEN: That makes sense. Now let's move to liquidity. Michelle, please describe it broadly for the different segments of the CLO market. And if there's a liquidity pinch point, is it buying or selling?

MICHELLE LIU: Sure. I'll start with very high-level comments there. Secondary liquidity in CLOs have broadly capped pace with the growth of the market. Average annual secondary trading volumes as a percentage of bonds outstanding is roughly twenty percent for investment-grade CLOs and about forty percent for below investment-grade CLOs. Those percentages have stayed fairly stable over the years, even as the market has nearly tripled in size over the past decade. So in that sense, I think liquidity has improved meaningfully as market depth has grown. What's driving that improvement is that there are simply more participants across more types of accounts. CLO reporting has also become more standardized and transparent. And the tools and data available to investors are much better and more real-time than they used to be. So overall, the market is deeper, broader, and easier to navigate than it was five or ten years ago. That said, in a market that is gapping down, CLOs, as Dave mentioned earlier, especially lower mezzanine tranches, can still see meaningfully wider bid-ask spreads, partly because dealer balance sheet dedicated to the CLO trading are generally smaller than they were five or ten years ago. And if there is a pinch point in my view, a real pinch point is a CLO equity. That part of the market has less depth and more information asymmetry. So, if you ask whether the liquidity pinch point is on the buying side or the selling side, I think it's usually a selling problem. Markets tend to feel liquid until everyone wants out at once.

STEVE ROSEN: Yes. Now, before we wrap up, we've had a great discussion so far, but we're getting close to time. I want to address economic scenario analysis from a historical perspective. So what happens to CLO tranche credit and price volatility in say a mild recession and in a more significant downturn? And Dave, why don't you start and Michelle tack on as you see fit.

DAVE DEBIASE: Sure. Thanks, Steve. I would say in the mild recession category, and we think about AAAs and mezzanine bonds probably differently, AAAs, you know, we've mentioned this a few times, they have thirty five percent or more credit enhancement, can easily absorb an uptick in defaults. So in a mild recession, if defaults increase a couple percent, that's not a huge concern for AAAs, but you are going to see spread widening. So you're going to see, you know, on the order of fifty to seventy-five, maybe even one hundred basis points of widening in the top of the capital structure. So there's definitely some spread

volatility there. On mezzanine bonds, I would say there is probably more, you know, more credit concern in a mild recession. Obviously, they're lower in the capital structure. They have more sensitivity to defaults. So you could potentially see some downgrades. And you will see, again, a lot of price volatility. Prices may drop two, three percent even. So there's quite a bit there. I would say in a severe recession, if you're thinking about the financial crisis or even more recently in March 2020 during Covid, we did see pretty good drawdowns in triple A's of you know a couple percent and triple Bs saw drawdowns even more extreme than that for a short period of time, you know double digit percentage drawdowns.

But even during the financial crisis there has never been a triple A CLO default and mezz defaults as we mentioned earlier were pretty minimal even in distress periods. So I think the takeaway would be the credit performance is pretty resilient. And I think the greatest risk probably for CLO investors is being forced to sell during those market periods of distress. So the credit performance has been historically resilient, but there is price volatility. But if you can hold on, I think the credit has been pretty resilient.

And the last thing I'll mention is that to be clear for everyone, the structure is a closed vehicle. So the CLO is never winding down during distress periods. It's not a fund that is getting redeemed and being forced to sell loans. So if you hold the bonds, the structure never changes. And so the bonds often recover because of that. So there's volatility around CLOs, but I think the credit has been very resilient. So the bonds often recover pretty quickly.

STEVE ROSEN: And Michelle, you have anything to add?

MICHELLE LIU: I think Dave summarized it really well. But I would just add one thing. I think that the shape of the downturn, you know, I think in the mild downturn, I think pretty much across CLO debt cap stack, all the tranches will fare okay. But in a more significant severe downturn, I think the shape of the, or the length of the period of that downturn matters. So if you look at the GFC period, this is very much a V-shaped downturn. So all these bonds have very big drawdowns, significant drawdowns, but they all bounce back relatively quickly. But in a more protracted downturn, I think that's probably the relatively more dangerous type for the lower mezz tranches. But even having said that, you still need multiple years of consecutive elevated losses on the order of three to five percent hitting the underlying loan portfolios to impair a double B tranche. And if you compare that number with what the loan market has experienced historically, which is roughly one hundred basis points of losses plus or minus over three decades. And also, you know, looking at these CLO portfolios, they actually generally outperform the broad market from a par preservation standpoint. These portfolios, depending on the manager caliber, experience losses anywhere between zero to a hundred basis points. So, yeah, just going back to my earlier point, I think the shape of the downturn and the tenure of the downturn matters, but it still would take significantly more stress than what we have experienced historically to even impair the junior debt tranches in CLO structures.

STEVE ROSEN: Okay. Well, that's a wrap for my questions. I really appreciate that you guys took the time to sit with me and talk about CLOs. And so thank you.

MICHELLE LIU: Thank you, Steve.

DAVE DEBIASE: Happy to do it, Steve.

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