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Anatomy of a Trade: The Making of a Subprime CDO*

Steven H. Kasoff†

Author's Note

This article presents a short story, a sketch in eight parts of a single fictitious subprime collateralized debt obligation (CDO) transaction. The story is informed by expert interviews, documentary research, and the author's firsthand experience.

This anatomy of a subprime trade breaks down the different parts of the CDO origination process and shows the ways that they connect. The fictionalized format helps do that as vividly as possible. The timing of the story's chapters shows the sequence of key events in the creation of a typical CDO, beginning with a hedge fund manager's proposal to his investment committee. From ensuing scenes inside a large Wall Street dealer to the buy-side investor's discussion, we see various players interacting with each other. The give and take from the different sides distills the different perspectives documented in the expert interviews into one imaginary deal.

The fictionalized account also allows the anatomy of the subprime trade to move freely, unconstrained by real-world confidentiality concerns. In conducting our oral history research, we recognized the obligations of the investors and market actors we interviewed to maintain complete confidentiality on matters pertaining to their present and former employers and clients. Our standard interviewing rules, therefore, were to not ask about or discuss particular deals, people, or firms they had been involved with. There are no real clients or counterparties in this story.

Writing in the story format also helped us to distill the essence of the events, players, and deal structures. This anatomy, therefore, is a simplified, stylized version of what typically was happening during the subprime CDO era. Many of the more technical details naturally fell by the wayside. For more complete and technical details, the reader should refer to the interview summaries and full transcripts at the Yale Program on Financial Stability archive.

The reader will find two graphics that help visualize the pieces and links within a CDO deal. The first shows the structure of a typical CDO. The second depicts the trades and parts of a synthetic subprime CDO in which a hedge fund has participated on the short side. A glossary of key terms follows the story.

* This article is part of a special project of the Yale Program on Financial Stability–Lessons Learned Oral History Project: *Inside the CDO Machine*, which can be accessed at our website here, <https://som.yale.edu/centers/program-on-financial-stability/lessons-learned-oral-history-project>.

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Delving into the details of the subprime CDO trade of 2005–07 is potentially valuable in two regards. First, it helps us come to a better understanding of the Global Financial Crisis (GFC), specifically the ways that the subprime market was connected to the key factors and dynamics that propelled contagion throughout the global system. Second, beyond the GFC, we suspect that students of financial crises will recognize particular dynamics and patterns in the CDO deal-making that transcend this particular era and relate to other crises—past, present, and future.

We hope that the reader finds the story illuminating and is inspired to read the interviews. As the interviews demonstrate, the scenes detailed in the anatomy story will be completely familiar and recognizable to those who lived through that period—a “real fiction,” a genuine representation of one deal from start to finish.

Disclaimer

The following is a series of fictionalized descriptions of actual behaviors and activities observed by the author, directly or through contemporaneous secondhand accounts of others. These descriptions are a mosaic of many such observations; as such, none of the parties or events described represent any specific firm, person, or singular event, including the author or his former employers, and any similarities are purely coincidental.

Hedge Fund Internal Meeting

Presentation by Portfolio Manager to Investment Committee (excerpt)

Fall 2005

Background

- The market for subprime mortgages has grown significantly in recent years.
- This growth has been fueled by historically low interest rates and strong home price appreciation (HPA) in all regions.
- Housing affordability is poor, pushing additional borrowers into subprime.
- Subprime borrowers are stretching to buy homes that they can't afford, both in terms of price (LTVs above 80, and often above 90) and budget (DTI above 40).
- These borrowers have the worst credit scores—it is not atypical to see younger borrowers, first-time home buyers, and self-employed workers. Most also have significant other installment debt (auto, cards, etc.).
- More recently, loan underwriting standards have fallen, and it is now common that borrowers don't document income, employment, assets, etc.

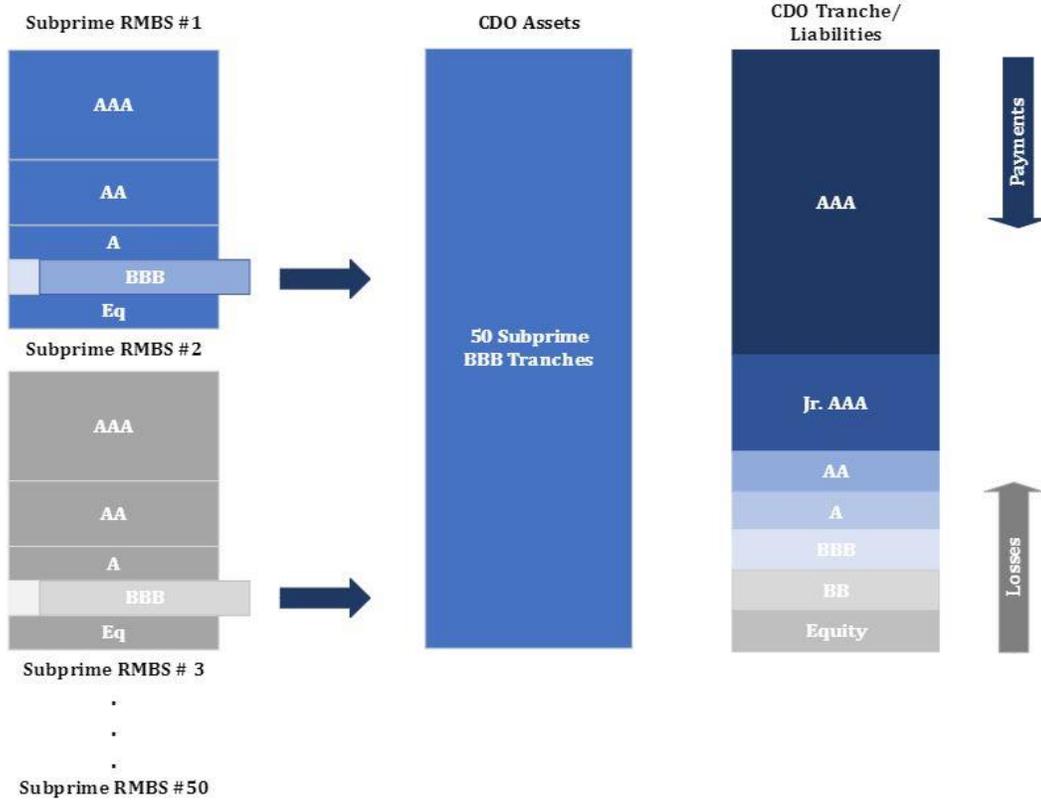
Subprime RMBS Structure

- Typically, 70–80% of the capital structure is AAA, with skinnier tranches at each rating category below that.
- We focused on BBB tranches, which generically represent the 2–6% slice of the securitization, e.g. 2% subordination and 6% thick. Losses exceeding 7–10% of the mortgage pool will wipe out this tranche (this threshold exceeds the subordination amount because most structures can also use excess spread to absorb losses).
- RMBS servicers typically advance unpaid mortgage P&I (principal and interest) to the structure. When defaulted mortgages are eventually resolved, any collections first reimburse these advances, which will increase the severity of loss severity.
- Despite being so junior in the structure, the BBB rating drives demand from real money investors such as insurance companies, and in recent years, the fast-growing “ABS CDO” market. Please refer to the attached diagram.
- BBB tranches (and often there are separate BBB+, BBB, and BBB- tranches) trade between LIBOR+100 and LIBOR+300, with variations based on rating, collateral quality, and market conditions.

Investment Proposal and Rationale

- Subprime borrowers represent the bottom 10–20% of the mortgage market by credit quality. In the event of even a mild recession, they are disproportionately more likely to encounter financial stresses that could lead to an inability to pay their mortgages.
- Most RMBS pools have high geographic concentrations in states that have experienced significant HPA in recent years (CA, FL, AZ, TX, NV). A correction in home prices in these regions will increase loss severities, likely well beyond the market's expectations. (We also believe negative HPA correlates with higher default rates.)
- BBB tranches can be shorted using the newly standardized “pay-as-you-go” CDS. We would trade under existing ISDAs and trading lines. The cost is similar to the trading spreads on the cash tranches (e.g., 100–300 bp). Unlike corporate CDS, these CDS do not expire—they last for the entire life of the reference tranche.
- Initial margin (IM) will be 3–6% of notional (2–3x the CDS spread). As the product matures, we expect that margin requirements will drop further. However, even at these IMs, the trade is very efficient to carry.
- Domestic consumption is a major driver of the US economy. In a recession, even a mild or regional event, consumption is the key underlying factor connecting (1) the stock prices of our core long positions and (2) subprime borrower financial health.
- Therefore, subprime CDS represents a highly leveraged option on US macro conditions. Although priced as a very out of the money (OTM) option, we believe the potential for payoff is far higher than implied by market prices.
- Comparing subprime CDS to our other hedges (mostly S&P puts and 10-year Treasury calls), we find this to compare very favorably and recommend reallocating a large portion of our hedge book into this product.

Figure 1: Structure of a Typical CDO



Source: Created by Yale Program on Financial Stability.

Large Investment Bank/Broker-Dealer Internal Meeting*RMBS/CDO Structuring/Trading Desk—Transcript (excerpts)*

Fall 2005

RMBS Head Trader: As you know, we recently agreed with the rest of the Street on the final ISDA docs for the standardized “pay-as-you-go” CDS. It was a long night in a windowless conference room, with a lot of stale pizza. But I can already say that it was worth it.

Risk Manager: I agree with that as well. When we first started trading subprime CDS, each confirm was bespoke and negotiated with the counterparties. Unlike trading bonds, or even some of the vanilla corporate CDS, we can’t just assign the old trade over to the new counterparty. There’s no central clearing either. So, if we bought protection on something for 125 bp and then sold protection on that same thing to someone else at 135 bp, we still have some risk. Both trades will live on our books for years. We did make 10 bp running, which might have a PV [present value] of a half point. And yes, we book that into P&L immediately. But if something goes wrong and the credit event terms don’t match in the two trades, we could have real exposure. With the standardized template, we still live with two trades, but at least the terms match exactly and we don’t have any residual risk except counterparty credit. I can say that our regulators and auditor are also very pleased with this.

RMBS Head Trader: Thanks. Now that you’ve put everyone to sleep, let me say what we all actually care about. Our customers like this product, and they want to trade it. A lot. Our volumes are up a ton, and the bid/ask in the market has held up. You can all see the P&L, and it’s going to get even better. Even if we tighten the bid/ask, which we might want to do, so we can be a dominant market maker.

Structured Credit Sales Manager: Let me expand on that thread. This trade is getting a lot of attention in the hedge fund community. We certainly pitched it aggressively at the ABS East conference a few weeks ago in Boca. But it’s taken on a life of its own. The hedgies love it. And these are guys that never traded RMBS before. They’re smart guys and have done some homework, but they’re really just focused on it as a macro trade. They don’t know how to analyze these structures. Some of them don’t even have Intex, but they’re still trading, just from the pool strats in the prospectus. They don’t know which shelves trade rich or anything like that. So, I think bid/ask spreads will hold up for a while. The scale of demand is big, and they’re impatient to get the trade on.

Head of CDO Structuring: So, as everyone knows, the hedge funds are on the short side of this trade. And apparently some of the banks, our competitors, are also holding a lot of the shorts for themselves. On the long side, we’ve been placing some of this with insurance companies and other real money investors, but as volumes grow, it’s clearly the CDOs that will buy most of it. We’re seeing it already. Ramping up a normal ABS CDO is so hard. It takes months, and we have to warehouse that risk along the way. Now that timeline gets compressed. We make just as much per deal. Actually more, since we can make the deals larger. And we can do even more deals.

Risk Manager: I wanted to ask about the collateral posting. There's a mismatch there, right? Also, I mentioned counterparty risk a few minutes ago—

RMBS Head Trader: Sorry to interrupt. Actually, not really sorry. By the way, do you even need to be at this meeting? Stop worrying about counterparty risk. The hedge funds are all on the short side. If the market blows up, we don't need to worry about their credit, because their trades will be in the money. And the CDOs hold cash collateral. So, no risk there, right?

Head of CDO Structuring: Yes, that's an important feature of the synthetic CDO. Even though the CDO's "assets" are all synthetic, e.g., they've sold protection via CDS, the CDO tranches they create are still cash. So those AAA, AA, A, etc. tranches that we sell are for cash. That cash sits in a trust within the CDO, and if there's a CDS credit event, we just call up the CDO's trustee and they send us some of that cash.

Risk Manager: But we have a funding exposure, don't we? If the trade goes in the money for the hedge fund, we post collateral to them. But we don't get any from the CDO. I know it's there; it's not a credit risk. But we have to fund the difference, unlike a normal back-to-back between regular counterparties, where we're posting and receiving equal collateral.

Head of CDO Structuring: Well, yes, that's true. But not a big issue. You said it—no credit risk, just funding temporarily. What's our balance sheet now? \$100 billion? 200? Our CP trades at LIBOR minus 5. I think we can swing this without breaking a sweat. But if it really bothers you, there are some European banks that would intermediate this for us. So, we'd face them on the CDS, and then they face the CDO on a back-to-back. I think they'd charge us 5 bp running, which is a great business for them and a dumb thing for us to do.

RMBS Head Trader: Well, this is so fascinating . . . It reminds me why I couldn't stand being a structurer and moved to trading. What everyone needs to know is this—how the market really works. The CDO managers, when they start ramping up a deal, they come up with a list of the best subprime bonds. Yeah, that's an oxymoron, but whatever. Even the hedge funds know those are not the ones they want to short. Or they will but at a tight spread. Then my structurer friend here needs to have a tough call to explain that the CDO portfolio needs to have enough yield for us to syndicate the whole thing. So now they need to hold their nose and look for slightly hairier subprime bonds that they're willing to buy. So that works, sort of. The yield is good but not great. The arb still doesn't work.

Head of CDO Structuring: That's the nature of the product. The CDO assets need to yield enough to pay the CDO tranches and still have something extra left over. Otherwise, no one would create them. A good CDO manager will find ways to generate yield, but they'll do it smartly. That's why they're getting paid.

RMBS Head Trader: Is that so? I'll take your word for it. Now back in the real world—what actually happens is that there are a couple smart hedge funds. They also know the difference between regular crappy subprime originators and the really horrid ones. And they do an OWIC. Get it? Like a BWIC, bids wanted in comp, when you sell a bond? But they're soliciting

people to offer protection on the worst subprime bonds they can find. And guess what? Those CDO managers that you guys think are so talented—that you take to London, Frankfurt, Singapore, and Tokyo, spending my profits on unnecessary boondoggles—they convince themselves that it's OK to have 5% or 10% of their portfolio in those turds. That's how they get the yield they need, and my structuring friend here puts it into his Excel, and he's happy. And like he said, the timeline is fast, and the deal closes, and we make a nice profit. If it eventually goes sideways, I'm glad you're the ones that'll need to explain it to your accounts that you sold it to.

Conversation Among Principals of Soon-to-Be Created CDO Manager (currently employed at large mutual fund company)

Summary of Email Exchange

January 2006

Portfolio Manager: Our annual bonuses get paid next week. As soon as the checks clear, you and I need to be ready. We'll both resign on the same day.

Senior Analyst: I'm ready but a bit nervous. I know it'll be a big step for me, but I'm worried about the risk. How long before we can start taking a salary? You've already made a lot of money. I don't have much saved up.

Portfolio Manager: I'm putting in a lot of that cash to fund the start-up expenses. And I'm giving you equity in the business. I told you already that the team at our favorite investment bank is ready to open a warehouse for us and start taking us on the road to meet investors.

Senior Analyst: I know. We have a good track record. Will our current employer let us use those numbers? Can they stop us?

Portfolio Manager: Sure, we can use it. And everyone knows us anyway. A lot of that is publicly available. You just stay on top of the market. A few weeks after we leave, we'll be up and running at our new office. And you can start buying as much of the new issue pipeline as you can. We need to ramp up that first deal fast, so we can get it into the market. Then we start receiving fees.

Senior Analyst: How many deals do we need to do before the fees cover our running costs?

Portfolio Manager: Probably two or three. Then after that it all goes to the bottom line. We should be able to crank out a deal every quarter. In two years, we'll have \$4 billion of AUM. Do the math on the fees from that!

Senior Analyst: That's a lot of bonds to buy. Can we use CDS also? That would make it much easier.

Portfolio Manager: Sure. You've seen these synthetic CDOs? More and more. The banks love them too! They have hedge funds banging down their doors to short subprime. Those guys have no idea which deals are good or bad. Some of the banks are even shorting too.

Senior Analyst: The banks? Why would they do that? Are they worried about the market?

Portfolio Manager: A lot of reasons that might not have anything to do with the market. Maybe they're hedging their RMBS origination business. Or even these warehouses they do for us. They take that risk themselves. Or some risk manager decided it was a good idea. Maybe they'll even short some bonds to us, to help speed up the ramp up of our deal.

Senior Analyst: You know they're about to launch the ABX Index. What if all those hedge funds and banks just want to short that? We can't just buy ABX as the assets for our CDO. Our investors expect us to build a differentiated portfolio.

Portfolio Manager: The dealer's trading desk will handle that. If a hedge fund shorts ABX and the dealer buys it, then what happens? They can't sell it to CDOs, as you pointed out. And I think the CDOs have priced everyone else out of the market. So, the dealers just synthetically sell us some other subprime bonds. That's what they do. They keep that basis risk on their books. Just like how the corporate CDS traders have been doing for the last few years.

Senior Analyst: And you really think the hedge funds will buy protection on the better subprime deals? They don't know the difference? I heard a rumor that a bunch of hedge funds were doing group trips to see the housing markets in California, Arizona, Florida. I think they're starting to get smarter on this.

Portfolio Manager: Some will. Others will just think it's a macro trade and buy anything. And some will decide that they're too cheap to short the bad deals. They'll want to short the better deals because the spreads will be lower.

Large European Commercial Bank Internal Communication

Email from Internal Treasury Manager to Senior Department Head (excerpt)

February 2006

I would like to follow up on our meeting last week regarding investments in CDOs backed by US subprime risk. During that meeting, you commented that the lending environment that the bank faces in its core business lines has become very competitive. In some key markets, the bank must lend at levels that are unprofitable, such as for long-standing corporate customers or to maintain market share or franchise perception. The proposed investments in subprime CDOs can provide a level of profitability that may help offset these lower-margin areas.

We propose a significant investment of the bank's balance sheet in CDO tranches with ratings of AAA, AA, and A. These tranches carry spreads over LIBOR well in excess of similarly rated alternatives, yet carry the same requirements for reserves, under both the existing and

proposed new regulatory and risk-based capital rules. As such, the ROE to the bank is very compelling.

In the case of AAA-rated tranches, we can expect yields of L+30 bp. In contrast, AAA-rated corporates yield less than LIBOR. We can also buy insurance on the tranches from a monoline insurance company at a cost of 8–10 bp per annum. While arguably unnecessary from a credit perspective, doing so reduces the regulatory capital required to zero. As we fund our balance sheet at LIBOR minus 5 bp, we net earn 25 bp running, while using no capital; an infinite ROE (return on equity). This is the “negative basis trade” we discussed.

Tranches rated AA and A yield L+60 bp and L+150 bp, respectively. The capital required is low as well, also making these investments very efficient and with high ROEs. By comparison, A-rated corporates yield L+30–40 bp.

There were a number of questions asked about the risks of the US housing market, and in particular the subprime part of that market. It is correct that subprime borrowers have weaker credit than prime borrowers. It is also correct that loan underwriting standards have deteriorated in the past two years. These headline risks are the primary reason that yields are wider than for similarly rated alternatives. However, that risk is mitigated in a number of important ways, leading to our conclusion that subprime CDOs represent an excellent risk-reward profile. The mitigants are summarized below.

1. *Asset value*: Subprime mortgages represent a first lien on the home. These mortgages are originated at 80–90 LTV. Even if we accept that the borrower is not a strong credit, the fallback for repaying the mortgage is anchored by the value of the house.
2. *HPA history*: Our economics team has done a robust macro analysis of the US housing market and believes the downside risks to be small. While the market may cool off, and could even drop in select regions, such a scenario is unlikely to result in significant default rates. In fact, at the national level, the US housing market has not experienced a year-over-year drop in house prices since the 1930s.
3. *Homeowner equity*: As mentioned in #1, homeowners have equity in their homes. This provides a first-loss cushion in the event of a default. Additionally, it provides a sense of ownership that is important for borrower behavior. Homeowners will likely continue paying their mortgage regardless of the home value unless they experience a stressful personal event such as loss of employment.
4. *Structural subordination in the subprime RMBS*: The BBB tranches of the subprime RMBS securitizations typically have 4–5% subordination. Historically, lifetime losses on subprime mortgage pools have been less than 2%. Therefore, the losses need to significantly exceed historical levels before those tranches will absorb losses.
5. *Structural subordination in the CDO*: Even if losses occur as described in #4, the CDO offers another layer of subordination. Subordination levels for the A, AA, and AAA are

typically 10%, 15%, and 30%, respectively. Therefore, losses on a few outlier RMBS will not impact our CDO tranches. Only if a significant portion of the underlying RMBS experience losses will we be at risk.

6. *Rating agencies:* The rating agencies have devoted significant time and resources to monitoring and rating these transactions. As risk-averse organizations that have been in business for nearly a century, and without the profit goals of other financial market players, they have a strong incentive to preserve their reputation. As such, we believe the ratings are likely conservative estimates of the true risk.
7. *CDO manager expertise:* We have conducted numerous meetings with CDO managers and have ranked them according to their skills and experience. While there is no doubt that some RMBS tranches are riskier than others, we believe that the CDOs we will propose for investment have savvy CDO managers that will navigate the market effectively.

Hedge Fund Internal Phone Call

Conversation between Portfolio Manager and General Partner—Transcript (excerpt)
March 2006

Portfolio Manager: Hi. I wanted to run a new idea by you. We've been shorting subprime for a few months now and have a decent position. There's good liquidity in ABX, so we use that a lot. But as we've built up our research capabilities, we've been able to identify subprime deals that have much riskier mortgages in them.

General Partner: Yes, that's great work. I want to keep shorting those deals. As much as we can. Even if it's more expensive than ABX.

Portfolio Manager: Right. Totally agree. The problem is that the CDO managers still have some discipline. We've found some deals where the risks are layered in subtle ways, and the CDO managers don't mind taking those. But most of what we want to short . . . the CDO managers don't want. If we pay up, they'll take a few here and there, but it's limited. And we're not the only hedge fund trying to get these.

General Partner: OK, so what's the new idea?

Portfolio Manager: I've been talking to one of the dealers, and they have a new CDO manager that they're trying to help launch. These are guys with a decent reputation. They recently left a big mutual fund company, and they had a five-star rating. But they want to get a couple CDOs ramped up quickly. So the opportunity is for us to "partner" with them, to sponsor the deal.

General Partner: Partner? What does that mean?

Portfolio Manager: Well, “partner” is the wrong word. Our relationship will still be arm’s length. But we’re going to put a list together of 50–100 subprime tranches that we want to short. Not all of them can be the crappiest deals, but a lot of them can be. The CDO manager might kick a few out, but we’ll negotiate to get a list that we all agree on—\$500 million of total size. We’ll short the whole thing, and the new CDO will take the long side. Instant ramp-up for them and block size for us.

General Partner: OK, that sounds good. At what price?

Portfolio Manager: The dealer will validate that it’s a midmarket price, and maybe they’ll take a few basis points out for themselves. But we get a big trade on right away, without having to fight in the market on the bid lists. The CDO manager is under pressure to get started, so I think they’ll accept more of the bad subprime bonds than others might.

General Partner: So, what do you think the average spread will be on our shorts? Maybe 250 bp? So \$500 million, we’ll pay \$12.5 million per year? That’s a lot, so let’s make sure we’re shorting enough of the ones we really hate.

Portfolio Manager: OK, so here’s the part that’s most interesting. We’ve seen a few other hedge funds do this already. Not only will we short the subprime tranches into the CDO, we’ll also buy the equity tranche of the CDO.

General Partner: Buy it? Explain that to me.

Portfolio Manager: I just emailed you a diagram that describes the CDO and the trades we would do. Keep in mind that the equity is only 4% of the CDO. So \$20mm of investment. But while the portfolio is performing, the equity will pay out \$5–\$6mm per year, depending on how tightly the other CDO tranches get priced. So, of the \$12.5mm per year that we pay as CDS premium into the CDO, the CDO uses about \$7mm to pay interest costs on the senior tranches. Then the rest of it gets paid to the equity tranche, so we’re getting back almost half of what we paid. And we’ve only given up the first 4% of upside on the shorts.

General Partner: I see it now. It’s like a correlation trade. If the CDO portfolio has losses on a few of the bonds we shorted, our gains on the shorts will be offset by losses on the CDO equity. But the market and the rating agencies and everyone else have mispriced the correlation.

Portfolio Manager: Exactly. How could only a few of these take losses? If some do, then the housing market is rolling over and subprime borrowers are defaulting *en masse*, and most of the other deals will take losses too. It’s sort of like all or nothing. We save almost half the cost of the short position, and we only sacrifice the first \$20mm of potential gains.

General Partner: I love it. It means we can increase our position size to a lot more than what I was targeting. For the same cost. And so, if we’re wrong and the market never cracks, this CDO equity just keeps paying out \$5–\$6mm per year?

Portfolio Manager: Yes, but it's even better than that. If you own the equity, or technically just a majority of it, then you also have a call option. After two years, you can basically unwind the whole trade. The CDO, the short positions, everything. With our other shorts, or ABX, there's the mark-to-market risk. If spreads tighten, it marks against us. And we just keep paying the CDS costs for maybe five to seven years until the deals pay off.

General Partner: Wow, this market makes my head spin. There's so much that's mispriced! This CDO equity basically has a call option on a high vol asset. The other CDO tranches are short that option. Do the senior tranche buyers even know it?

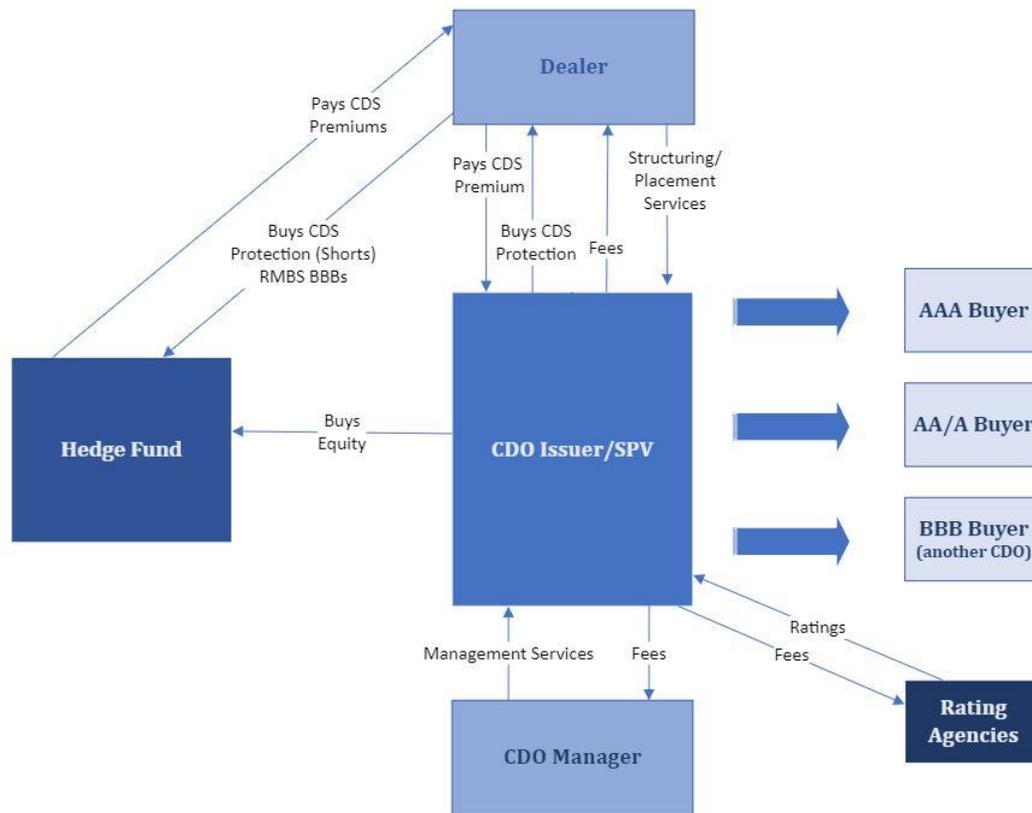
Portfolio Manager: I don't think so. They buy it because they look at the ratings. And the spreads are higher than on other stuff with the same ratings. They don't speak our language. Correlation, vol, etc.

General Partner: Clearly, that's true. The guy buying the CDO's BBB tranche? He's just above our equity in terms of risk. It's almost the same risk if you understand how high the correlation is. And the CDO equity gets 25% returns, and the BBB gets L+325. Wow. Even if the market falls apart, if it takes a few years, then the CDO equity could have a positive return and the BBB will take a bath. So the more junior tranche is actually less risky!

Portfolio Manager: Yes. In fact, I know you'll love this. The next thing we're working on is trying to short the CDO tranches. The BBB or the single A. For exactly the reasons you just said. The risk is even more mispriced and concentrated than for the subprime bonds.

General Partner: This is unbelievable. Someday, someone's going to write a book about this. Let's try to keep our positioning as quiet as possible. I don't want to be in that book . . .

Figure 2: Synthetic Subprime CDO with Hedge Fund Participation



Source: Created by Yale Program on Financial Stability.

Hedge Fund Portfolio Manager and Head Trader at Broker-Dealer's ABS/CDO Trading Desk

Phone Call Transcript (excerpt)

April 2006

Hedge Fund PM: Hey, has your structuring team heard back from the CDO manager? We'd love to get the portfolio finalized so we can execute the trade.

ABS/CDO Trader: I know, I know. But you keep proposing really ugly subprime bonds, and they're getting tired of rejecting them.

Hedge Fund PM: Good. That's the idea. If they're so worn down and anxious to get this done, they should just accept my revised portfolio. And by the way, I did also add a few of the better-quality subprime deals. I hope they appreciated that.

ABS/CDO Trader: They did. But those also trade at tighter spreads, so it's helpful and also not helpful.

Hedge Fund PM: Well, sorry, that's how markets work. The better stuff is more expensive!

ABS/CDO Trader: Thanks for explaining that to me. I've only been market-making for 15 years.

Hedge Fund PM: And did you ask your structuring team about the CDO bucket? Could our CDO own 5% or 10% of other CDO tranches? We'd really like to short some of those. In return, we could also remove some of the other subprime bonds they hate. That should be a win-win.

ABS/CDO Trader: Structurally, it'll work. The rating agencies have already let a few other deals do this. We just need to convince our CDO manager. They didn't love it.

Hedge Fund PM: So, do you think they'll eventually agree? You can be very persuasive when you want to be.

ABS/CDO Trader: Thanks. That's why I do this job. Not for the money. It's really for all that validation from smart guys like you. OK, but seriously, I think we can make this happen, but there's another condition.

Hedge Fund PM: Of course there is. How much will it cost me?

ABS/CDO Trader: No, it's not like that. We'll find a way to get this. The CDO will have maybe 7% or 8% allocated to BBB tranches of other CDOs. But you don't get to short all of that into the CDO. You need to share some with me.

Hedge Fund PM: You want to short some of these CDO tranches? I thought you were just a market maker.

ABS/CDO Trader: Yes, but this isn't really a market. You're not the only hedge fund that wants to short CDO tranches. And no one wants to be long them. Well, not enough people anyway. And every new CDO that gets created just adds to the supply. The last few CDOs we did, we couldn't sell all of the BBBs. So guess who is the proud owner?

Hedge Fund PM: You could sell them today if you wanted to. Just not at par.

ABS/CDO Trader: You'd like to think so. In fact, with all the fees we earned from those CDOs, my basis in the BBBs is actually just 95. And guess how many bids I have there? The market is really thin. You want them?

Hedge Fund PM: Funny. So you want to short those CDO tranches into our CDO?

ABS/CDO Trader: Maybe. That would be great. But it could be different CDOs instead. They're all basically the same risk, right? But I need to take half of it. If we can get \$40 million of our CDO portfolio allocated to other CDO tranches, I get to short \$20 million, and you can have the other half.

Hedge Fund PM: OK, if that gives you enough incentive to make this happen, and quickly, I suppose I can live with that.

CDO Preliminary Offering Circular¹*Risk Factors—Conflicts of Interest (excerpt)*

May 2006

Initial Equityholder may enter into credit derivative transactions relating to Collateral Securities in the Issuer's portfolio. On or after the Closing Date, the Initial Equityholder may enter into credit derivative transactions relating to a substantial portion of the Collateral Securities in the Issuer's portfolio, under which it takes a short position (for example, by buying protection under a credit default swap relating to such obligation or security) or otherwise hedges certain of the risks to which the Issuer is exposed. The Issuer and Noteholders will not receive the benefit of these transactions by the Initial Equityholder and, as a result of these transactions, the interests of the Initial Equityholder may not be consistent with those of Noteholders.

Certain Conflicts of Interest Involving the Initial Purchaser. The Initial Purchaser or its Affiliates may structure issues of Collateral Securities and arrange to place such Collateral Securities with the Issuer. The Initial Purchaser or an Affiliate thereof also may have acted as underwriter, agent, placement agent, or dealer for a significant portion of the Collateral Securities.

CDO Manager Portfolio Manager and Head of CDO Structuring at Broker-Dealer*Phone Call Transcript (excerpt)*

May 2006

Head of CDO Structuring: Our syndication process for your CDO is almost done. All of the tranches except the BBB are oversubscribed, and that's not far off. But the levels are a bit wider than we had modeled.

CDO Manager PM: Why is that? How much wider?

Head of CDO Structuring: Well, there's a few reasons. The market's been up and down lately. Nothing fundamental, as far as I can tell, but there are a lot of other CDOs in the market right now. And a big pipeline of deals that everyone wants to get into the market before summer.

¹ This section is sourced from the offering document of an actual (and very typical) 2006 CDO, with only minor edits. These paragraphs represent a very small portion of the "Risk Factors" section, which is more than 40 pages long. The first paragraph discloses that the anonymous investor (likely a hedge fund) that is buying the equity tranche is also taking short positions in many of the assets owned by the CDO. This creates potential conflicts of interest because this investor may have influenced the selection of those assets (although that risk is inadequately disclosed) and the investor may not have bought the equity tranche because they expected it to perform well.

The second paragraph discloses that other assets bought by the CDO may have been structured or underwritten by the dealer structuring this CDO. Implied is that the dealer may still own those assets and have an incentive to sell some of those assets to the CDO.

We also had two investors pass on your deal. They decided that they're not going to buy deals from a "first-time manager." But they liked you and will probably buy your next one.

CDO Manager PM: OK, but you're still going to price it?

Head of CDO Structuring: Yes. We have approval to take down up to \$10 million of your BBBs if we need to. But we're going to price that 25 bp wider than we modeled. The rest of the capital structure is close to the model. It averages to about 3–4 bp wider for the whole CDO.

CDO Manager PM: That's OK, right? You said after we price this one, you could open a warehouse for our next CDO. We'd really like to get started.

Head of CDO Structuring: Yes, we're working on getting that credit approved. For this CDO, though, the extra 3–4 bp of funding cost just means that you need to get a bit more yield into your portfolio. I emailed you some thoughts on how you could do that.

CDO Manager PM: You want me to buy the BBB tranche of those other CDOs. Those are deals you underwrote, so I assume you couldn't sell them? And also swap out a few of the better RMBS for some riskier ones.

Head of CDO Structuring: You're the CDO manager, of course, and the credit decisions are entirely yours to make. That's not something we want to be involved with. I was just presenting the math. There are a lot of constraints in managing a CDO, as you well know. And what I emailed was just a few hypothetical ideas that would make the math work. Anything else you come up with, as long as the math works . . . that's up to you.

CDO Manager PM: Great. You say that, but then you show me a very aggressive offer on those bonds you want to sell me.

Head of CDO Structuring: Sure, that's the trading desk. He decides what price to offer it. Think of it as a favor. It's a better price than you can get from any other dealer on anything similar in risk. He's axed, that's true. He wants to sell it. But he could've offered it to someone else too.

CDO Manager PM: OK, fine. I'll have my guy call him later today. It's just a small part of the overall portfolio. I really want this deal done so we can start working on the next one. And listen to me, for this next one, you need to give me time to buy bonds in the market. I don't want to do this again, where we let a hedge fund short the whole portfolio.

Head of CDO Structuring: I get it. And you'll have more time. But everything is a trade-off, and everything has a cost. You got really fast execution by doing it this way. And we charged less too since we didn't have to hold your warehouse risk for two months. Even when you're doing it your way, just remember it's still the hedge funds that drive the other side of this trade.

CDO Manager PM: Yes, I get it. It'll be really nice a year from now. I'm imagining the global ABS conference next year. Maybe we'll all be hanging out at that club in Barcelona. The one by the beach. The housing market will be up another 10%, and these hedge funds will want to get out of their money-losing shorts and move on to something completely different. Maybe I'll buy them a few drinks and try not to gloat.

Glossary²

2/28 ARM or 3/27 ARM	Two commonly marketed types of subprime mortgage. The interest rate on the mortgage would be fixed for either two or three years (usually at a very low “teaser” rate). After that point, the mortgage would become an adjustable-rate mortgage (ARM), in which the rate would reset periodically, but at a higher spread above a benchmark interest rate for the remaining 28- or 27-year period.
ABCP	Asset-backed commercial paper. A short-term investment vehicle that matures between 90 and 270 days. Typically, firms use ABCP to finance short-term needs. [James Chen, “Asset-Backed Commercial Paper (ABCP),” Investopedia, updated May 12, 2020, https://www.investopedia.com/terms/a/asset_backed_commercial_paper.asp].
ABS	Asset-backed securities. A type of fixed-income security whereby a pool of assets is deposited into a special purpose entity, and one or more securities (often called “tranches”) are issued. The cash flows of those securities are backed by the cash flows generated by the asset pool. Typically, the assets are those that have stable and predictable cash flows, especially when pooled together so that the risks of individual assets are offset by the benefits of a large and diversified pool. The most common forms of ABS are those backed by mortgages (MBS, CMBS, RMBS), credit card receivables, auto loans, or other debt (CDOs).
ABX Index	A standardized CDS product that was created in 2006. The initial ABX Index comprised 25 tranches from recent subprime RMBS transactions. Market participants could buy or sell protection on those 25 tranches with a single trade. As a result, ABX was highly liquid (more so than CDS on individual subprime tranches) and was used actively by many in the market to hedge risk or speculate.

² Matthew A. Lieber contributed this glossary.

Aircraft ETC	Aircraft equipment trust certificate. A form of ABS in which the assets being securitized are large airplanes, typically under long-term leases to established airlines. The ETC benefits from the predictable cash flows during the lease term but is exposed to risk at the end of the lease, based on renewal lease rates or aircraft residual values at that time. The ETC is also exposed to the airlines' credit risk.
Alt-A	A classification of residential mortgage that was used in the years before the GFC. Alt-A mortgages did not satisfy the criteria for prime mortgages but were less risky than subprime.
arb	Arbitrage. CDOs are sometimes referred to as "arbitrage CDOs." For a CDO to be economical to create, the sum of the values of each tranche must be equal to, or greater than, the cost of purchasing the assets to be owned by the CDO. Although not an arbitrage in the classical sense, when used in this context, the "CDO arb" is meant as a shorthand for the relative value between the yield on the CDO assets and the required yield to sell the tranches. When the CDO arb is larger, the expected return to the equity tranche will increase, leading to more CDOs being created. Eventually, the increased supply will cause tranche yields to increase and/or drive down the yields of the assets. In either case, an equilibrium level will be achieved.
AUM	Assets under management. For companies that manage money for a fee, on behalf of clients, AUM is the primary measurement of size. Since most investment management fee arrangements are a simple percentage of AUM (hedge funds are the main exception), a company with more AUM will have proportionately higher revenue.

BWIC	Bids wanted in “comp” (competition), also referred to as a bid list. A common process used by both dealers and investors to sell illiquid securities, such as ABS or CDO tranches. Similar to a traditional closed auction, a list of securities for sale is circulated to interested parties. At a specific time, bids can be submitted, and the seller will sell each bond to the highest bidder. Typical market practice is for the seller to disclose to all parties the “cover bid” (next highest bid) but not the winning bid, which protects a buyer that may have overpaid (e.g., a “wide cover”). If none of the bids meet the seller’s “reserve” price, the bond will not trade.
CDO	Collateralized debt obligation. A form of ABS in which the assets being securitized are other forms of debt. The most common form of CDO is the collateralized loan obligation (CLO), which is backed by syndicated loans of large, non-investment-grade corporations. For a few years before and during the GFC, there was significant issuance of CDOs backed by tranches of subprime RMBS, often referred to as “ABS CDOs” or “subprime CDOs.”
CDO squared	A less common form of CDO. A CDO squared would own tranches of other CDOs. In 2007 and early 2008, CDO squareds were at times created as a way for dealers or other owners of CDO tranches to sell off some of that risk.
CDS	Credit default swap. A derivative product whereby two parties agree to exchange risk on a specific asset, such as a corporate bond, or ABS tranche, known as the “reference obligation.” The “protection buyer” will pay a fixed fee (the “CDS premium”), typically every month or quarter, to the “protection seller.” In the event of specific “credit events,” such as a default on the reference obligation, the protection seller will be obligated to make a payment to the protection buyer or purchase the reference obligation at par. For this reason, buying protection is very similar to having a short position, and selling protection is similar to taking a long position.

CLO	Collateralized loan obligation. A security backed by a pool of corporate loans, issued often by firms with low credit ratings or by private equity firms conducting leveraged buyouts [Troy Segal, "Collateralized Loan Obligation (CLO)," Investopedia, updated March 10, 2022, https://www.investopedia.com/terms/c/clo.asp].
CMBS	Commercial Mortgage-backed securities. Mortgage-backed securities backed by commercial mortgages, e.g., mortgages secured by a first lien on commercial properties, such as office buildings, retail properties, multifamily rental buildings, hotels, and industrial facilities.
Correlation trading	Dealers' correlation trading desks create and sell (or buy) tranches of risk backed by portfolios of corporate credit (or ABS securities). Because they are trading only slices of the risk of the underlying portfolio, they need to hedge that risk using smaller quantities of CDS on each of the underlying credits in the portfolio. The key variable in determining the proper hedge ratios is the correlation of default risk among and between the credits in the portfolio.
CUSIP	Committee on Uniform Securities Identification Procedures. A unique identifying code for securities.
DCP	Dynamic Credit Partners. A CDO manager firm founded in 2003 by Jim Finkel and Tonko Gast.
Delta hedging	An options trading strategy aimed at reducing the risk associated with price movements in the underlying [James Chen, "Delta Hedging," Investopedia, updated January 28, 2021, https://www.investopedia.com/terms/d/deltahedging.asp].
DTI	Debt-to-income ratio. An important statistic in assessing the credit quality of a mortgage. Indicates the borrower's ability to make the required payments on the mortgage. Usually calculated as the required monthly mortgage payment divided by the borrower's monthly income. Some versions of DTI also add other installment debt payments (such as auto loan payments) to the numerator.

Freddie and Fannie	Freddie Mac and Fannie Mae. Formally known as the Federal Home Loan Mortgage Corp. (FHLMC) and the Federal National Mortgage Association (FNMA). Freddie and Fannie are government-sponsored enterprises that support the mortgage and housing markets by purchasing or guaranteeing prime mortgages. Most of those mortgages are then securitized into a special type of MBS, which is extremely liquid and trades at very tight spreads. The majority of mortgages originated in the US are purchased by or guaranteed by Freddie and Fannie.
GFC	Global Financial Crisis.
Hedge funds	Private investment funds managed by sophisticated managers. Unlike mutual funds, hedge funds have wide latitude to invest in very risky assets, use leverage, or take short positions.
HPA	Home (or house price appreciation. The aggregate change in house prices over a period of time. The primary index used to measure HPA is the Case-Shiller index, which publishes data at the US national level, as well as for many large metropolitan areas. HPA is important for mortgage credit, since the value of the house is the collateral securing the mortgage.
Intex	An independent analytics company that developed a system for monitoring and analyzing a variety of MBS and ABS products, including subprime RMBS and CDOs. In the years before the GFC, a significant number of investors in these products used Intex as their primary analysis tool.
ISDA	An "ISDA" is shorthand for an "ISDA Master Agreement," which is the standard document that governs all forms of swap agreements, including CDS.
LTV	Loan-to-value ratio. An important statistic in assessing the credit quality of a mortgage. Indicates how much equity the homeowner has in the property.
MBS	Mortgage-backed securities. A general term for ABS in which a pool of mortgages is securitized.

NAIC	National Association of Insurance Commissioners. The NAIC sets rules for how much regulatory capital, or reserves, insurance companies are required to hold against assets in their general account. Previously, the required amounts were generally based on the asset's rating from a rating agency such as Moody's or S&P.
Negative basis trade	A trade in which a bond or ABS tranche is purchased and then the owner also uses a CDS to buy protection on that same bond or tranche. If the spread on the bond is higher than the cost of the CDS protection, the owner will earn the net difference. Although counterintuitive, this is referred to as a "negative basis" (for most corporate bonds, the bond spread is usually lower than the CDS spread, which is a positive basis). Regulated banks and insurance companies often executed this trade by buying AAA CDO tranches and then buying protection using CDS (or sometimes an insurance policy) from a monoline insurer. The risk was deemed to be zero, so the regulatory capital requirements was also zero.
New Century	A large subprime mortgage origination company. It was the first significant company of this kind to file for bankruptcy, in April 2007, an event that is considered one of the primary turning points for the subprime market.
Notional (value)	A number referenced in swap agreements to be used as the basis for calculations of the payments to be made under the swap. For example, in the case of a credit default swap, if the notional is \$5 million, and the premium is 2%, then the protection buyer will pay \$100,000 per year to the protection seller (\$5 million x 2%). If a loss event occurs on the underlying reference security, then the protection buyer will receive payments equal to the losses that would have been realized had they owned \$5 million of that reference security.

NRSRO	Nationally recognized statistical rating organization. The 2006 Credit Rating Agency Reform Act formalized US Securities and Exchange Commission (SEC) oversight of the industry in an effort to ensure that only qualified firms that had been approved by the agency as NRSROs were issuing ratings for financial instruments and entities that were being relied on by investors. The 2010 Dodd-Frank Act expanded the SEC's oversight authority and pushed regulators, which had also relied on ratings in judging a bank's risk level, to develop alternative measures of creditworthiness, introducing the "investment-grade" label. Institutional investors remain a key end-user of the NRSRO ratings. Currently, nine firms are registered as NRSROs; however, Standard & Poor's and Moody's have dominated the industry, responsible for more than 80% of ratings across all asset classes in 2018.
OTM	Out of the money. A term used to describe an option in which the underlying security is less or more than the strike price, in the case of a call or put, respectively. The owner of an out of the money option will not elect to exercise that option. The opposite would be "ITM," or in the money, in which case the option would be exercised profitably by the owner. When the underlying security is trading at the strike price, the option is "ATM," or at the money.
OWIC	Offers wanted in "comp" (competition). Similar to a BWIC. When used in the context of the CDS market, "offers" means offers of protection. Offering protection, or selling protection, is comparable to buying a bond, as both are a long risk position. In the years prior to the GFC, hedge funds that wanted to short specific subprime tranches conducted OWICs. CDO managers often used these OWICs to ramp up synthetic CDOs. In this case, the winning offer would be the one at the lowest CDS premium.
Pool strats	Pool stratifications. Tables commonly found in the marketing materials for RMBS and other asset-backed securities. These tables show how various important characteristics of the underlying mortgages are distributed within the pool. For example, an RMBS may have thousands of loans, each with a different LTV; the pool strats might include a table showing the distribution of LTVs within the pool.

Repo	Repurchase agreement. A short-term financing arrangement for liquid securities. The security owner sells the security to the counterparty and simultaneously agrees to repurchase it on a specific day and at a specific price (based on an implied interest rate, the “repo rate”). Most repos mature the next day and roll over day to day until terminated by one party.
RMBS	Residential Mortgage-backed securities. Mortgage-backed securities backed by residential mortgages, e.g., mortgages secured by a first lien on single-family houses. Some RMBS pools entirely comprised prime quality mortgages, and this remains true today. Before the GFC, separate RMBS pools were created that used only subprime mortgages.
RTC	Resolution Trust Corp. A quasi-governmental entity established by the US federal government in 1989 to help resolve the savings and loan crisis by managing failed banks, S&Ls, and thrifts, and disposing of loans on their balance sheets. One of the most efficient tools was to securitize commercial mortgages; this process helped spur the development of the then-nascent CMBS industry.
SIV	Structured investment vehicle. SIVs were entities used by large banks to move highly rated, lower yielding assets off of their balance sheets. This made the banks appear to be less leveraged than they were. Although the SIVs were legally separate entities from the sponsoring banks, they were funded with short-term commercial paper (CP). If the SIV was unable to roll the CP at a low enough interest rate, the sponsoring bank was legally obligated, via a “liquidity put,” to purchase the CP themselves. This occurred at some banks in 2008.
SPAC	Special purpose acquisition company. A company with no commercial operations formed to raise capital for acquiring or merging with an existing company [Julie Young, “Special Purpose Acquisition Company (SPAC),” Investopedia, updated March 14, 2022, https://www.investopedia.com/terms/s/spac.asp].

SPV	Special purpose vehicle. An SPV is the legal entity that issues an RMBS (or a CDO or other type of asset-backed security). It is a corporation or trust that is created at the time of issuance. It will own the underlying pool of mortgages or other assets, and it will issue the tranches that are backed by the cash flows from those assets. The entity will be legally limited to that sole purpose, and it may not conduct other business, acquire other assets, or issue additional debt or equity.
“Super seniors”	In some CDOs (and other types of ABS), there would be two AAA tranches, one of which was senior to the other. They would be referred to as the “super senior” and the “junior AAA.” Super seniors were deemed to be extremely low risk, and most buyers essentially treated them as risk-free.
TABX index	Tranched ABX. Each ABX index represents the risk of a portfolio of subprime RMBS tranches, whereas TABX represented slices of the risk of that subprime RMBS portfolio. For example, a “10–20” TABX tranche bore losses only after the ABX index sustained a 10% loss and lost its entire value when the ABX index had sustained a 20% loss. So, a TABX tranche had a risk profile similar to a tranche of a subprime CDO.
Tranche	A security issued by any type of ABS. Most ABS structures have many tranches. Each tranche of an ABS will have a different level of seniority. When losses occur within the ABS asset pool, the most junior tranche will absorb those losses first, while more senior tranches will be paid off in full. The varying levels of risk and seniority allow more senior tranches to be rated at higher levels (with the most senior tranche often rated AAA). Conversely, the yield promised to more senior tranches will be lower.
