Yale SCHOOL OF MANAGEMENT
Program on Financial Stability

Lessons Learned Oral History Project Interview

Interviewee Name and Crisis Position	Chris Ricciardi [1] Managing Director & Head of U.S. Structured Credit Products, CS First Boston (2000 – 2002) Managing Director & Global Head of Structured Credit Products, Merrill Lynch (2003 – 2005) CEO, Cohen and Co. (2006 - 2010)
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Introduction

The Yale Program on Financial Stability (YPFS) emailed Chris Ricciardi to request an interview regarding his time as Managing Director of the structured products group at Merrill Lynch and as President and CEO of Cohen and Company.[2]

Ricciardi started his career on Wall Street at Prudential Securities structuring a variety of fixed income securities in the 1990s and creating the first asset-backed CDO. In 2000 Ricciardi moved with his team to CS First Boston, where, as Managing Director, he led the firm within three years to become the top issuer of ABS CDOs. In 2003, he joined Merrill Lynch where he again led a successful three-year effort to make the firm a top CDO issuer. In 2006, Ricciardi moved to become CEO of investment company Cohen and Co. In 2011, he co-founded investment management firm Mead Park Management to invest in insurers, banks, and other lending companies.

A graduate of the University of Richmond and the University of Pennsylvania's Wharton School, Ricciardi is presently the founder and CEO of Edly ISA marketplace, a promoter of income sharing agreements (ISAs) that provide an alternative to student loans by financing college tuitions in exchange for an income stream from a share of graduates' future earnings, i.e. investing in equity of students instead of debt.

[1] The opinions expressed during this interview are those of Mr. Ricciardi, and not those any of the institutions for which the interview subject is affiliated.

[2] A stylized summary of the key observations and insights gleamed from this interview with Mr. Ricciardi is available in the Yale Program on Financial Stability's *Journal of Financial Crises.*

This transcript of a telephone interview has been edited for accuracy and clarity.

Transcript

YPFS: **Could you tell us how you got into this area of structured finance and became such a leader at a pivotal time, involved in the making of the first CDO?**

Ricciardi: I started for Prudential Securities in 1991 in a fixed income training program, and after that I was placed in a mortgage and asset-backed trading desk. And I was there through the beginning of the year 2000. I started as a trader of agency mortgage-backed securities. And I spent a good number of years doing that. And then from that point moved into the asset finance area which, at the time, was just starting a program for CDOs. And it was brand new for Prudential and existed in the market at other larger firms so they did not have anything and so they tapped me. But it was a startup, like I said, they did not have anything. We started getting involved there, involved as a co-manager on some deals led by other firms and then started to do our own deals.

Probably worth working on the definitions right up front of what's what because it gets kind of confusing. But I use CDO as a generic term to mean all different types of assets of securitizations that are backed by other rated assets. So that would include something like a CLO, which is backed by rated loans and it can include different types of bond like CDOs. So, in that area there are corporate bonds. It is usually just listed as investment grade CDOs, high yield CDOs, and then there's asset-backed CDOs.

I think a lot of the questions are about asset-backed CDOs but also a lot of them are kind of general, it is not really clear. So, I always am pretty careful to use clear language. to, for example, when talking about asset-backed CDOs to say asset-backed CDOs. When we say CDOs I mean general CDOs, but it could apply to different types of CDOs backed by corporate loans or bonds, etc. So anyway, we at Prudential, even back then, were doing mostly CLOs, leveraged loan CLOs, high yield CDOs, and then started to do the first asset-backed CDOs.

YPFS (ML): **So, the CLOs could be asset-backed or not?**

Ricciardi CDOs is a general term. Collateral debt obligation. It could be any type of asset as long as it is a rating. So, what makes a CDO, a CDO is that it is a securitization. I do not know if in your discussion so far, you have defined these things, right? But a securitization... Let me just take a step back and talk about a securitization. So, a securitization is a corporate financing which is backed solely by the asset. Which distinguishes it from corporate transaction in general.

So, if you go and look in the market, you would see that there are asset-backed investments and asset-backed securitization professionals. They do that for a living and people who only work on corporate transactions, and the key difference is whether or not the assets are solely backing the offering. That makes it a securitization. It is an asset-backed securitization. Because there are a lot of corporate transactions where there are assets of course, right? Every senior secured corporate loan or bond is backed by some assets in fact, right? But It is still an obligation of the company and you still have that linkage. A securitization cuts that linkage, right? And that is what makes - using words like true sale and bankruptcy remote, and all the rest- that is what makes a securitization, a securitization. So, when I use terms like asset-backed or asset-backed securities (ABS), I mean solely backed by assets like auto loans or mortgages and not backed by a corporate guarantee. Does that make sense?

YPFS (ML): I think so. Steve, any question about that?

YPFS (SK): Nope.

YPFS (ML): Great. Can you walk us through, Chris, that process of structuring? Your perspective and your experience structuring an ABS CDO from start to finish from the underwriter's perspective?

Ricciardi: Sure. So, all cash CDOs basically work the same way. We are going to talk later, I guess, about synthetic CDOs, we do not have to do it now but all cash CDOs work the same way. And the cash CDO is securitization of rated assets, bonds, and loans. The process is that you need to collect a certain amount of those bonds or loans to for two reasons. One, because they are sometimes hard to collect. And so, if you went and sold the investors on the CDO, you might be scrambling too much to get the assets. But also, because the investors want to see the actual things that they are buying and do not want to just be told, "Oh, yeah. The manager's going to go out and get some assets." They want to see them.

So the convention in the market then, and I believe now, too—I'm not really involved with them right now but I believe the convention in the market now-- is for the banks to warehouse the assets. And all of these that we are talking about in the cash pool are managed CDOs. Meaning that there is an investment advisor who is hired to manage the portfolio. They are there to pick the assets, decide when to buy and sell, manage these for the best outcomes for the investors. And so they're the ones who are during the warehouse phase, basically telling whoever's doing the warehousing, it's usually the bank who's bringing the deal, "Oh, I want to buy this bond or that bond." And they settle that bond for them. Hold it in a warehouse so they have accumulated a sufficient amount, which there is no right answer to what that is but certainly a majority of the proposed portfolio. And usually a vast majority. When they have majority, the vast majority of the portfolio, that is when they start to go out and find investors for the CDOs.

YPFS (SK): **What were the key things that had to be negotiated during that structuring phase? Whether it be negotiations with the manager or anybody else?**

Ricciardi: Yeah. Taking me back a few years but... So, as I recall, the way it would work is the investment bank had a pretty good sense for what would work, right? Because taking it to the extreme, an amateur might say, "Well, I only want to put Treasury bonds in this." The investment banks would say, "Okay, but I can't do anything with that because there's no... We're going to go out and try to sell interest to this at the various levels," and they're only getting in today's terms, whatever, one percent on the asset yield but yeah.

So, there is a lot of advice given from the investment banks as to what the market will bear. What investors are looking for? Where the assets are trading. Where the CDO classes are trading? So, in the CDO you would basically create three groups of classes, I would say. You have the senior-most class. And then you have one or more mezzanine classes. And then you have the equity. And each one has a clearing level at any point in time known best by the investment bank like what investors want to pay for each one.

So anyway, there is a process of the investment bank or underwriter telling the manager, "Look this is where it looks like this clear. This is where the investors want to buy." And so, the manager's usually proposing some sort of pool of assets that they want to buy, and the investment banks run it. And maybe there is an iterative process back and forth where they say, "All right. Well, you got to improve the portfolio and whatever, rating quality or yield." Or whatever it is. And do that back and forth. And then they finally hit on what they think is a marketable portfolio. Then they go out to the market to test that with actual investors, collect the interest and price and close the deal.

YPFS (SK): **Do you remember how, let us say at Merrill, how the warehouse risk, during that phase, was managed? Who bore that? Presumably the underwriter at Merrill or whoever was bearing that risk. If for whatever reason that deal did not close?**

Ricciardi: That's right. As I recall it was always the underwriter who was taking that risk. Not usually the managers. They may have had some other third-party investors that wanted specifically to take warehouse risk. But as I recall, almost always the underwriter would take the risk and the managers really viewed their job as being investment advisors who pick a portfolio within the buy box or the mandate that they had and that's what they were doing. Now, when I was at each of those companies, my specific role was not to manage that risk. I was not managing the trading desks, any of the trading desks for these assets. And that is where the asset risk would be held, right? The trading desk responsible for each warehouse would be those who normally traded the assets backing the CDO. So, for a CLO it is the leverage loan guys who were managing that risk, not the people who are putting together the CDO transactions.

YPFS (SK): Do you have a sense if those desks were hedging that risk in any way?

Ricciardi: I am sure they were. How they were doing it, I do not know. I do not really have visibility into that. But I would say these guys are managing large portfolios all the time of their various types of risk, whatever the underlying is, and they are used to managing and hedging those risks all the time. That could be something as simple as interest rate risk, right? They managed credit risk, other types of risk that might pop into it. So... But yeah, that was something that the trading desks, of the underlying assets would do.

Remember, that the CDO guys worked with many different asset classes I remember when I was at Merrill, for example, we had a pretty broad array of different types of assets that were in CDOs. They were, as previously mentioned, leveraged loans, high yield bonds, investment grade corporate bonds, specialized investment grade corporate obligations like bank trust-preferreds, insurance and REIT trust-preferreds. Real estate assets like commercial mortgage backed securities and other real estate corporate issues, municipals, asset-backed securities, mortgage backed securities. And we did this globally. So, did it at the time in all three regions, the US, Asia, and Europe.

YPFS (SK) In your interactions with the CDO managers during the structuring or marketing phases of deals, what were the sorts of things where issues were most likely to come up, where things had to be resolved and negotiated? Where was the tension in the relationship?

Ricciardi: Well, you mean in putting together a transaction and marketing it and getting it done?

YPFS (SK): Yeah. Sure. Or in the ramp up phase or the structuring phase, or collateral requirements. Because there is a natural tension between the underwriter and the manager, which is a normal part of that relationship. So, if you each have your own set of goals that do not perfectly overlap...

Ricciardi: Yeah. I guess. I am trying to think of what natural tension you are talking about. I guess, you are talking about the managers want to get-

YPFS (SK): Well, for example, you alluded before to the issue where managers would tend to want to have higher quality collateral but then on the flip side, if the portfolio doesn't yield enough then it's hard to sell. That would be an example.

Ricciardi: Yeah, that is putting another party over the regular investment management decisions, but I would argue that basic conflict exists internally for every investment manager. You, yourself as an investment manager, wrestle with that every day with your clients, right? Where on the one hand, you want the safest possible investment. On the other hand, you want the investment that is going to yield the most and so you use your judgment to get the best investments you can possibly get weighing the risks and returns. You as a manager, me as a manager, everyone I have ever worked for and everyone you have ever worked for basically manages that internal discussion and conflict all the time, right? So, I do not think that there is the manager on one side and the underwriter on another.

And then you are just adding in someone else who has all of a sudden, a structure that they have to think about too. And that is not unique to CDOs, right? I will give you the example of a 40 Act mutual fund, right? You also are putting a structure over a portfolio of assets and then you can manage within that. As a manager, you might want to use a lot of leverage, but you cannot. There are rules of the 40 Act funds which limit the leverage. Or a REIT, right? If you are familiar with how REITs are managed, right? They have these set of rules and structure considerations that you must deal with, right? The manager of the real estate assets might be like, "Well, I'm a real estate guy, I just want to manage real estate." But then the guy who is putting together a REIT for him is like, "Yeah, but they have these rules and you have to deal with it." Right? So, I would say that was more... That was more of the tension than like, "Oh, the manager just wanted pristine portfolios and the underwriters wanted shit."

YPFS (SK): **Well, CDOs tend to have a lot of rules and compared to a more total-return type of investment vehicle that a lot of managers might have been used to managing.**

Ricciardi: Yeah. That is what I am saying, it's a different structure for a lot of the managers, especially if they're a new manager. So, they had to learn the rules and work within those rules. And so... I guess my point is I do not know if there is as much tension as... Definitely stress and anxiety over like, "Okay, I have these rules and I have to manage them." And they were not necessarily used to managing a portfolio like that. And then all of a sudden, they are doing it within a CDO. But the same might be true if all of a sudden, they tried to closed-end bond fund for the first time. They would have to learn those set of rules and deal with the underwriter on that. Yeah. So, that was how I viewed it at the time. It was like you had to educate them. The rules were somewhat arcane. Many if not most of them were mandated by the rating agencies. So, therefore both of those parties are a taker of the rules as opposed to having any influence on what they were. You're just like, "All right. Well, if they decided these are going to be various rating criteria for certain things." And that is what you have to deal with.

YPFS (SK): **Right. When you moved over to Cohen and Co., when you first put on the "CDO Manager" shoes and viewed the process of creating a CDO through**

that lens, what were your impressions? Was it different than you expected?

Ricciardi: I do not know if it was necessarily different. We had teams of people... So even at Cohen, our mandate asset-wise was not quite as broad as it was when I was at Merrill, but we still had a number of different types of assets there. We managed many different types of portfolios within CDOs or CLOs or loans, including middle market, which is a whole other category. A lot of trust preferreds, that is what we were known for. We were the biggest trust preferred manager, including in Europe. We did real estate, CDOs and munis too, we did the first muni CDO We had a lot of different things. In other words, I had teams of people who were expert in each of these areas... Because there was no way I was going to be an expert in all of these areas.

So, I relied on those people, even internally, to make those decisions about how best to put together the portfolios and to manage them. And so, my interaction with them was actually probably not even that much more extensive than when I was at the investment banks because they were all seasoned, experienced people that would have known exactly what to do It was more around the planning and issues relating to giving them the right resources, hiring people, technology, things like that. But yeah, I was on the buy side, at that point. But I would not say that there is any eye-opening moments that stick out.

YPFS (SK): How about just in interacting? I am sure you had interactions with prospective investors that were looking at your different CDOs. And you probably had known a lot of those people from your previous role. Were those interactions different? How you perceive it?

Ricciardi: The obvious difference is that I was now only talking to them about the Cohen CDOs, right? Whereas before I had forty different clients. And so now I had one and was talking from that perspective. Also, we were not always talking that directly with a lot of them because a lot of the underwriters did not necessarily want to give full access. That was particularly true for the super senior classes, they did not want to give access. It all depends on exactly how it was done.

YPFS (SK): I know every investor is different but did you have a feeling, focusing on the ABS CDOs specifically, for AAAs versus mezz' (mezzanine) versus equity, your perception of why different classes of investors found those different tranches to be appealing?

Ricciardi: Sure. It is probably worth taking a step back and figuring out why something like CDOs exist at all. I think not just ABS CDOs but CLOs or any of them. As a general matter, the reason that they exist is that they are attempting to provide leverage on an asset class without the risks of using short term borrowing. They are seeking long-term leverage on an asset class. In other words, not margin-type leverage or short-term type repo type leverage but long-term leverage. Right?

And that is sort of what distinguishes them from a lot of other leveraged investment strategies. The idea is that you could take an asset that is not very liquid, right? And you can get leverage on it and you do not have to worry too much about the fact that it is not very liquid, right? Whereas otherwise, if I were to use repo or margin leverage on a portfolio or something, if it were not very liquid, that would be a generally bad idea, right? So instead, you can use a CDO structure and you are locking in your leverage, right? That is what is in it for the equity guys of every CDO. They want to get a long-leveraged exposure without short-term refinancing risk. And in doing so, they end up with high absolute return. That means that the types of investors that want to buy that kind of thing, largely hedge funds, specialized funds, vehicles that are set up to do that, that type of thing. That is what is attractive for the equity guys.

For the super senior guys, the senior guys, they are usually interested in some sort of, not arbitrage exactly, but some sort of funding gap. So, the classic example, that could be a bank, right? It has very, very, low cost of funds, right? And if they can get this asset, floating rate and therefore, they have no specific interest rate risk, and they're comfortable that they have limited credit risk, then they're basically covering their cost of funds with the gap.

A specialized version of that is negative basis trades where a party attempts to basically step in the middle of those pieces, right? Close out the funding cost difference for a bank who is not as comfortable they know the risk of the assets, interpose another credit risk taker in the equation and then you can see the difference. So an example...a simple example, but if you have a LIBOR plus 100 asset, that was the senior class, LIBOR plus 100 and you can get your funding at LIBOR plus 50 but because you're going to pay an insurer 20 basis points, right? So, now that the total cost is 70 basis points, I am getting in 100, all the other parties are covered off, I have a net spread difference of 100 minus 70. But by the accounting rules of what I just did, you are actually allowed to PV that difference up front. Old rules, I am going back over 10 years but that is what related to what did happen (with) negative basis trades.

YPFS (SK): **Other people we have spoken to have pointed out that PV effect and related to that the lack of regulatory capital usage for banks using those structures. You maybe alluded to the answer already, but do you think that banks who were doing that negative basis trade really perceived the insurance to have any value to them? In terms of actual credit protection? Or was the value only in allowing them to get better regulatory and P&L treatment?**

Ricciardi: I do not know, it is hard to say. The counterparties that they were using were considered to be good counterparties at the time. For example, AIG, AAA-rated insurance, multi-lined insurance company. I do not know at the time that is was obvious that they were not a strong counterparty.

YPFS (SK): **I do not mean that they questioned the credit quality of the counter parties but were they really concerned about the credit quality before ramping it? That they felt that they needed it? Or was it simply because they got this benefit?**

Ricciardi: Oh, yeah. Did they feel like they needed to get the insurance CDS on top of the trade? I do not know, it is a good question. In theory, you would not necessarily needed it because you were starting with a AAA asset, but I think... As I understood it, the accounting benefit was so great that it made sense to put that piece into a trade. Which otherwise could have just been a bank bond buying the asset and enjoying the funding-gap difference that I alluded to before.

That is one way to do it, you do not have to pay the insurance guys, right? So why pay the insurance guys? In my example that was probably too much, I cannot remember exactly what numbers were back then, but it wasn't that much.

YPFS (SK): **The interesting thing is that PVing of profit ... it is not good or bad for the bank. It is probably more accurate to say that it's good for the employee that's responsible for that P&L.**

Ricciardi: Probably almost definitely good for the employee. I do not think it was considered bad to add an insurance protection on top of the trade, there are obvious benefits to doing that, right? And you could have always just said, "All right. Well, set up the reserve for the difference and take it overtime." I would not say it was impossible to find ways to properly incentivize traders or manage their risks.

YPFS (ML): **You said that was old rules.**

Ricciardi: I do not know if the rules are different now. I just have not been involved in it.

YPFS (ML): **I was wondering if that had been changed. And if so, who changed it.**

Ricciardi: Well, one thing they changed is, none of the transactions are available, the counterparties do not exist, it would take a lot to reconstruct something like that. But in the past, I did not really have a good visibility into it either. When I was at Merrill, in the beginning when a lot of these things were getting done, Merrill was obviously not a big player. Not a big bank. They did not have nearly the opportunity because they didn't have any good access to funding, right? So, the best that Merrill could do, to the extent that they wanted to get involved in negative basis trade, is line up the pieces like a broker. And occasionally they did but you can see that that is a lot harder to do than to actually be the bank with access to the better cost of funds.

YPFS (SK): I wanted to turn to the synthetic ABS CDO product, which was really very prevalent in 2006 and 2007, especially. I guess it was starting but it did not overlap a whole lot of your time at Merrill. I do not remember whether at Cohen you did any synthetic ABS CDOs. But I would be curious of your thoughts about that product as opposed to the cash version.

Ricciardi: Yeah. I think we must have done at least one, just because we were pretty active. And even though we were really a cash manager and focused mostly on cash, they were becoming more prevalent. And so, I do not fully recall but my guess is we probably did at least one. Differences? Well, so like most derivative trades, it is a complete capital markets product, they really exist for people to do transactions. Like options, right? They are capital markets trading products. It does not exist on its own, so to speak. A cash instrument, like a loan, exists on its own, whether it makes it into the capital markets or not, right? Where an option, that is only a capital markets product It's all about the transactions Derivatives are all about being set up to do transactions. So, with any of the synthetic CDOs, no different. Of course, the vast majority, the vast, vast majority of all the synthetic CDOs are corporate. Investment grade corporate... like not even close. That dominates. And so, the asset backed CDO portion of it was tiny in comparison. But it looked more or less like the corporate loans, as far as I can tell.

YPFS (SK): You or the portfolio managers that were running the ABS strategies, do you remember what you were thinking about, at that time? To your point about options and derivatives, requiring somebody from both sides of the trade. The reason the product came into existence was that there were a growing group of people that wanted to short these things. How did you and your colleagues feel about seeing that segment of the market developing and growing?

Ricciardi: Yeah. In the middle of it, actually it wasn't that clear that there's a growing interest in shorting them but obviously for the derivative to exist, someone has created the short side of the, someone has entered into the short side of the trade. But in derivatives, that is much more common with someone hedging than someone shorting. Because it was actually not the greatest way to short something, right? I know there has been a lot of press, but it's a really messy way to short something. Because the transaction costs are so high, right? That it really would not generally make sense unless there's a very big payoff, as there was. But obviously I could not have known that going into it. So, it probably was not the smartest thing to do but it somehow worked out really well for a lot of people. You were probably more involved in that stuff than I was. Were you guys involved with that? Were you thinking about that stuff at the time?

YPFS (SK): **We were, yeah. We were one of the shorts.**

Ricciardi: Right. And how did you get comfortable with the going in, the liquidity risk of those transactions. How did you think you were going to get out, that was the question I would have?

YPFS (SK): **Well, for the pay-as-you-go structure, I think we felt comfortable that you could potentially source the cash bonds at a discount. That would be one way to get out. But unlike with corporate CDS, number one, you could not be squeezed out of the trade. And you did not have the risk. You buy five-year protection on a corporate and the corporate lives for 5.1 years before defaulting, then that is a bad trade for you. With the pay-as-you-go structure, you were replicating the cashflow of the underlying security for its life, however long that might turn out to be. So, there was no need to... You might want to trade it, but you did not need to trade it in the way that you might with something else.**

Ricciardi: Yeah. But...

YPFS (SK): **We viewed it as a hedge initially in '05 when we were trading it, we viewed it as just that sub-prime borrowers were more levered to the underlying economic conditions than prime-borrowers. And o therefore, if you have a recession, they would be disproportionately impacted. And then, with an understanding of where in the capital structure BBB sat and the kind of losses that you needed to reach them, it felt like it was relatively low-cost, out of the money option on a recession. At first, that is how we thought about it. And then as we spent more time and underwriting criteria deteriorated, at some point it, for us, became an alpha-short.**

Ricciardi: Right.

YPFS (SK): **I could not say how other people thought about it, but it wouldn't surprise me if that evolution from '05 to '06 was common. The people who got into it late, who knows?**

Ricciardi: Yeah. Yeah. It was hard. So, I left Merrill in January of '06. So, I did not have that kind of visibility as to what investment banks were doing and what certain of their clients were doing. Hard to have that visibility from my side, which is where I was at Cohen.

YPFS (SK): **I've seen the people that were on the short side and the long side, by '06 it was a common topic of conversation at conferences and things like that. Which side are you on? And why? And how do you think about it.**

Ricciardi: Yeah. Yeah. No, for sure. For sure. Yeah. No, for sure. Obviously, it became more and more of a topic. I guess my point was that I was not on the investment bank side. And the mandate we had at Cohen for a long time was only the cash asset-backed space, meaning that you did not have a fund that could take derivatives from another side. We did start one at one point, it was later though. So, we missed this time period in question. Anyway. It was unclear to us, form where we were at Cohen, what people were doing and why, right? The collateral is there, to the extent we were doing synthetics, which I said was small. But still, they could show up in some cash deals too as some as assets in a deal that was not fully cash or fully synthetic.

YPFS (SK): **I do not remember if you did any CDO-squareds but I'm sure you remember that most ABS CDOs included an allocation for other CDO tranches. Do you remember how your portfolio managers thought about utilizing that allocation?**

Ricciardi: So, it was a pretty attractive proposition, right? Because they would generally carry, for the same rating and basically the same risk, right? Ostensibly the same risk, certainly for the original attachment point, by attachment point to attachment point it was the same. And it carried a lot more yield. So, to add a small amount to an otherwise cash ABS CDO, it was a pretty compelling opportunity.

YPFS (SK): **As you got into '07, we've heard anecdotally from others and as I'm sure you have, that mezz' tranches of new CDOs were the hardest to place. And that spread differential that you mentioned probably got even wider. And do you remember hearing about interactions with trading desks in your attempts to place that mezz' and what that environment felt like at the time?**

Ricciardi: Yeah. I do not know. You say it was harder, but the volume of total placements went up dramatically. So, you are saying in some sort of anecdotal relative basis? Or the numbers speak to something opposite of that, right? That they were easier, a lot more were getting placed.

YPFS (SK): **Well, I guess to your point about the volume. One of the issues was that you had people shorting the CDO BBB tranches as well. And so arguably that shorting activity was absorbing some of the demand potentially away from newly issued cash deals.**

Ricciardi: Let me see if I understand what you are saying. So, my point is that, I don't know the exact numbers, but if you look at 2006 to 2007: 2006 was a significantly bigger issuance year for CDOs than 2005; and 2007, I believe, was bigger than 2006. So my point was that I was sort of painting it like when I was there at Merrill where I had a more front row seat to what was going on there, the volumes of placed everything, including mezz', went up quite a bit, right? And so, yeah. So, I do not know, were they harder to place? I do not know, they were placing a lot more of them. So, by one objective metric, they were probably easier to place. But your point, the counterpoint was what?

YPFS (SK): Oh, that there was synthetic production that was absorbing some of that demand.

Ricciardi: I am saying that the cash issuance of CDOs of all kinds, including asset-backed CDOs of all classes including mezzanine, was up dramatically in '06 and '07 over previous years. If it is created, it needs to be placed and no amount of additional creation of synthetic versions of it is going to change that factor. It has to go someplace. It could just be that the banks took it all down, I do not know. I was not at the banks, (but) I don't think so.

YPFS (SK): Well, for example, I know this was after you left Merrill, but I want to talk a bit about the "correlation trade" that Magnetar was doing. I know it has been a long time but that was a trade that they were doing in a very open way that everybody in the market, I think, had an awareness of. I do not know if you worked with that at all at Cohen but I'm sure you observed the impact that they had on the market and what they were up to and talked about it. And I would love to hear your thoughts about what you remember.

Ricciardi: Sure. Yeah. I remember having some direct interaction with them, even when I was at Merrill. And a little bit at Cohen. I cannot remember the transaction it involved or not. But for sure, I do not think they were shy about telling some people what their strategy was. And it is a classic hedging strategy, right? That is basically the classic corporate credit default, structured credit defaults of corporate synthetic CDO trade that gets done all the time, right? And so, is there something you thought that was unusual about it?

YPFS (SK): My personal view is that there was nothing wrong with what they did either, in that they were very clear about their objectives. I called it a correlation trade before. You could call it capital structure trade, in the sense that they were long the equity tranche and they were shorting the BBB tranche of the same CDOs. The impact that that had on market was that all of those BBB tranches that they were shorting had to go somewhere. That was risk that had to find a home. And I think most dealers were committing to take it down initially in order to do the whole trade. And then try to figure out, after the fact, what they were going to do with it.

Ricciardi: Yeah. I do not know. Like I said, I was not really on the dealer side for that time that they were very active. They did it first, but I feel like we did it, a deal before I left, something like that.

I do not know, that seems really small in the scheme of things. There is definitely a media (thing), certain media stories that really resonate with the media. This seem to be one of them, I am not really sure why. Because ultimately, the fact that if I told you the same thing about, I don't know, some hedge fund that was buying whatever stock and buying protection on their bonds, would you put any mention whatsoever ever?

So, I think they are grasping a little bit at trying to, I guess, in a way, in a really less sophisticated way than you guys are, trying to say what? What was really going on. And anything that they could not explain, they latch on to. But they are reporters, so there is probably a lot of stuff they couldn't explain or understand. Or they would be doing something else other than just reporting on this stuff, right? So, I do not know, that seemed like a lot of smoke, no fire to me. Just someone doing trades where they are buying and selling different parts of the capital structure. Who cares? Did you have a different impression of it?

YPFS (SK): No, I think that what they were doing, specifically themselves, I don't see anything wrong with it but in doing it, my recollection is that they were doing it in enough size that it had market impact. And that is what I'm more interested in drilling into. It pushed spreads out on BBBs, it made new issued BBBs a lot harder to sell for a lot of dealers, I think.

Ricciardi: Yeah. Yeah. I can see that. I do not know that... I do not know the actual volume or impact on the market, but I think directionally at least, that's probably right. If you create more of supply of one thing, it is going to widen out unless the demand keeps up. I do not think that it was a cause of the financial crisis, I think it was just a trade that someone was doing. How big could they have possibly done it for it to matter? Mezzanine class of ABS CDOs were a minuscule part of the overall capital markets, really, really small.

YPFS (SK): I do not remember the numbers, but my recollection is, it was big enough in the niche market that ABS CDOs were to have an impact.

Ricciardi: On that market? Sure, yeah. And I think... Even if they caused it, they widen out maybe 10, 20 basis points. If you are sitting there, that is what you're doing every day, you're going to consider that a material difference. I am saying I don't think it has anything to do with the financial crisis. It does not matter, right?

YPFS (SK): One thing I should have asked earlier but just to circle back, in both in your time at Merrill and at Cohen, you mentioned the rating agencies and how they set the rules and then everybody else just structured and operated within those constraints. What did you think of the rating agency approach to rating ABS CDOs? In hindsight, they have gotten a lot of criticism for "getting it wrong." I actually listened to your interview

from 10 years ago and the comments you made then; I do not know if you remember them?[3]

Ricciardi: No, what did I say to it then? I am curious as to what I said.

YPFS (SK): At the risk of paraphrasing, I think that you pointed out that diversity scores were significantly lower for ABS CDOs. And so that in that way they were in some ways accounting for the lack of diversification compared to a CLO. And that the absolute losses on the underlying asset class, sub-prime mortgages, were just so out of line with the expectations that even if the structure were, even if the attachment points were significantly higher, it might not have made a huge difference. And I guess at a certain level, it would have made some difference, but a BBB would have gotten wiped out whether attached to five or 10%.

Ricciardi: Right. Yeah. I think that is right. Right. So yeah, so taking a step back. Think about rating agency approach to CDOs in general is, they, unlike other securitizations they will use the ratings on the underlying asset to determine the loss probability, right? And the loss from default. That is the thing that makes, like I said before, a CDO different is instead of them looking at a mortgage originator's historical losses and saying, "All right. That's my baseline." They look at the rating itself, which implies a loss probability itself, right? If I say, "Oh, can't I use that?" And then, because you have to account for correlation somehow, they come up with this diversity score, right?

I guess my point then was directionally, they got it right, right? If a diversity score in a corporate CDO is a bit high, right? 50-60, whatever, then ABS CDO they might have been 15-20. So, if they were accounting for increased correlation among the different fields... And some people said, "Oh, they got it wrong," I do not know if that's exactly right. If you go back and back-test it, I do not know if it was the correlation... There is a big difference, right? Could it have been a little bit bigger? Whatever. It could not have been that much bigger. The diversity score that they were getting was already pretty low. But it could have been on the margin, the difference. It seems to me the big issue is, not so much they got things right or wrong but... Well, they did not have visibility into all of the things that were important in their analysis. Like true visibility, the inputs were flawed in many ways. I do not think the process was necessarily wrong. Same with investors, right? It is like you...

Taking another step back, what makes a mortgage backed security, including one at sub-prime, what makes it valuable? It is mostly the collateral, right? Particularly on a sub-prime because you are saying, going in, "I'm not really giving a lot of credit to this borrower," right? It is sub-prime, right? So, you are

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[3]Chris Ricciardi, "FCIC staff audiotape of interview with Chris Ricciardi, Merrill Lynch (Part 1)," interview by Chris Seefer, 15 September 2010, audio, 1:29:34, https://ypfs.som.yale.edu/library/fcic-staff-audiotape-interview-chris-ricciardi-merrill-lynch-part-1 [URL accessed 24 February 2021].

looking a lot at the collateral. If that collateral value is wrong, then that is going to be the problem. And I think, now in retrospect, you can see that collateral value is wrong in a few ways. One, those values were possibly inflated by appraisals... Appraisals were in turn inflated, right? It is really hard to tell at the time, right? But in retrospect, it is easier to tell someone fudged those numbers at the appraisal level. And two, the same thing is not really... This I do not fault the rating agencies or any of the investors for not getting the home price levels exactly right.

It is a timing thing. It is like house prices routinely have some base level of appreciation in the country, forever, right? And it is four or five percent a year. But at any point in time, they can be different. It could go down from month to month, right? Even on a national level, that is harder. It could certainly go down in the market month to month. But over long periods of time, they definitely revert back to this mean, small appreciation, each year four to five percent. And so, when you are putting together a long-term transaction or a long-term rating and all the rest saying, "Over the life of this transaction or 10 years or whatever," I think that's right. It ended up being correct, for the most part, right?

YPFS (SK): **That's an interesting point, right? Because it is the idea that there's some trendline of a couple percent a year. If you were looking at the stuff in '06, what you would have been seeing is two or three years of massively outperforming that trendline instead of two or three percent HPA, you were getting 10 or 12 and in some markets even more than that.**

Ricciardi: That's right.

YPFS (SK): **So, would you have, should you have looked at that and said, "Wow, we're now 20 points above the trendline and we're due for a correction." Or would you have said that "Well, just because it's gone up by that much it doesn't mean it has to go back down. And maybe the trendline has permanently shifted higher."**

Ricciardi: Yeah. I guess my point is that it is not that it has to correct in that year or whatever. But that is what happened, right? It corrected over two years, right? It did not have to be that way, it could have corrected over 10 years, right? And if you took a 10-year perspective, right? And look, 10 years after the peak of the market, you were back to the peak in HPA, right? The index level's the same, right? And it is up 25% from then until now, right? So, with a long enough perspective, none of that stuff really matters. If you try to just take one period of time, that is going to be the real problem.

And so, if you are talking about causes of that or any financial crisis, in my opinion one of the main causes is this funding mismatch, if you will. That is, in my opinion, the main cause of almost every financial crisis. At least in the US.

And I would challenge you to find one that was not like that because I've seen a lot, even though I'm not that old. But starting with Long Term Capital Management, that was the issue there. Kidder, Peabody... The S&L crisis was the same thing. And then, of course, this global financial crisis. And they are all basically the same... Different versions of the same thing. And you can try to point to one thing or other, like the junk bonds caused the problem. Not necessarily, right? And maybe the quality was not as good as it otherwise might have been. But the problem was that S&Ls bought it and they should not have because they didn't have a way to fund it through the natural life that it needed to be funded with. So, I think that is really the issue, right? It is like if you have these weak hands or this funding mismatch and then you throw any amount of volatility around it... Because peak to trough, the house-price appreciation only went down 25%. 25% could be a lot. That is if you bought all the way at the top until all the way to the bottom, right? Which most people did not do.

So that is the worst it could be. If the system is so weak that it cannot handle some version of that down decline, that is the real issue, right? The system is too weak. And that is pretty much exactly what we found. We found that there's over-leverage in the institutions that were taking this risk. They were basically buying long-term assets and funding them with very short-term liabilities.

And it wasn't so much that the fundamentals of the assets were really that off, right? [4] They're well within stock market (swings) ... Certainly individual stocks change all the time by 10-20%, no one bats an eye, right? But when you concentrated... But people know that about equity now. If you concentrated it in the hands of some of those investment banks in particular that were super high over-leveraged, they cannot handle it, right? It is not the right place for that risk.[5]

YPFS (SK): **So what do you think, when you look at the market today, a lot of people have commented at how there are similarities, in the sense that asset prices, stock prices, a lot of things- not house prices in the same way- but a lot of things have become very expensive by whatever metrics that are used to measure themselves. Do you see signs that we are heading towards another type of experience like that?**

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[4]In a follow-up email to YPFS, Ricciardi wrote in support of this point, "This is from Fed Reserve Bank paper in 2013. Even with likely aggressive write-downs (beyond their intrinsic values which were subsequently found to be higher) there was only 218 billion of ABS CDO write-downs - globally from regulated institutions. This is a tiny amount of bank assets at the time." Table 1: Crisis-Related ABS CDO write-downs through January 26, 2009 (in millions of dollars). Source: Creditflux Ltd. (2009).

In a more updated accounting of ABS CDOs, Cordell et al estimate total writedowns at $410 billion. See Larry Cordell, Greg Feldberg, and Danielle Cass, "The Role of ABS CDOs in the Financial Crisis," *The Journal of Structured Finance* (Spring 2019), 1-17.

Ricciardi: So, I guess I would ask you why, when we had the pretty substantial distress in the market in the early parts of the pandemic, why didn't that create a financial crisis? What is your opinion, just theoretically?

YPFS (SK): My opinion is that you had a very rapid response from the federal government of flooding the system with liquidity.

Ricciardi: Exactly. It was corrected very quickly, right? And so... But if it did not correct very quickly, rather if it just stayed there for a little bit longer, right? That is basically what you saw in the GFC, then all of a sudden it washes out all of these guys who are not really set up to handle it, right?

YPFS (SK): Maybe it got close, in March and April you saw the mortgage rates getting really close to ... whether that would have cascaded into the domino effect we saw in '08, I don't know. But if nothing else, they learned the lesson of the last war.

Ricciardi: Yeah. That is right. Yeah. Anyone who uses short-term assets to fund long-term liabilities, especially ones that have some amount of inherent liquidity or credit risk, that is the problem, right? There is no other - in my opinion, right? What Magnetar has with their particular trade strategy, none of that matters, right? It is all media noise around trying to make sense of something or create some villains for this purpose of selling some newspapers. But that is basically it, right? And so, some buyers and structures are inherently set up that way, which is dangerous, right? So, you mentioned the mortgage REITs, they are inherently set up that way. So, they definitely have the potential for a problem. The conduits that were... I do not think they do them anymore but back in the day, they are inherently set up that way to have that kind of problem.

Those auction-rate preferred things inherently set up not to be able to handle that. And banks are inherently set up that way. The difference with banks is, we need the banks to do that, right? That is the purpose of the bank, right? And so, I guess one possible conclusion and we have seen this a little bit is that to the extent that you need to do... You need to have those risks, keep them in a system where you can effectively deal with it if it happens, right? Because if you give it enough time, right, regardless of what is happening with it, there are really no bad financial products out there, they just have sometimes of price drops and illiquidity, right? They respond to differences in what is going on in the markets and with the underlying. But if they are in weak hands, if they're in hands that have borrowed short-term but leveraged the crap out of them, that's a recipe for disaster.

So, you have to support the banks, you will support the banks. So, one of the other reasons why I think things are pretty good is these stress tests are actually pretty thoughtful, right? And they are doing things like this, right? And some of the insurance companies even now [inaudible 01:01:58] liquidity.

People are much more cognizant of it today than in the past. And they can still have some vehicles that are out there that are going to have these problems, like the mortgage REITs, but it is not nearly as big a universe as it was before.

YPFS (SK): **Do you think there is some other place where we should be watching for the next financial crisis to emerge from? If your point is that the banks are better managed, less levered, more aware of what they own and subject to more strict regulatory criteria, which is probably likely to get even more strict in the next few years rather than less.**

Ricciardi: Well, when did you start in the business? What year did you enter Wall Street?

YPFS (SK): **'93.**

Ricciardi: '93. I entered in '91. We are at the tail-end, towards the tail-end of a pretty dramatic reduction in interest rates that have been built up in a time that we had somewhat massive inflation. And so, one of the consequences of the path we are on right now is that we could be heading towards some pretty massive inflation. And one of the reasons that it is difficult is because global governments are more in sync with each other as to how they are dealing with monetary fiscal policy. And that is a different type of crisis but no less painful one, possibly even more painful because it impacts regular people very hard, right? But I can certainly see a scenario where if we stay on this path, we have really unacceptably high levels of runaway inflation, it is not going to be great.

YPFS (SK): **A very different kind of crisis, right? It would not be a financial crisis per se, right? It would look very different than '08.**

Ricciardi: Oh, it would. Yeah. It would. It would look more like when you had the stagflation of the 70s and 80s. Yeah.

YPFS (ML): **Yeah. I have been thinking about that one. To your point, Chris, about the Great Moderation that you suggest, the important part in your comments there about inflation, is this idea that things are going to stay within the bounds. And we have had those nice bounds for 20 years but now we have another couple of crises and another big government intervention. And I guess my sense of danger, that you were suggesting, to me more credible than inflation would be another thing.**

But let me just give you my counter on inflation: Where is it going to be? We have been saying it for 10 years. Textbooks say it is coming. It is in assets, right? So, is it going to be in goods? Maybe in food, I can see that. But in labor? So, these other areas that you do not see it as much as I see the investors misallocating capital because of the massive intervention by government. So, does that pick up as inflation?

Ricciardi: Right. Yeah. Asset inflation is inflation, right? So, say that all of the real estate, it already has inflated but let us say it continues to inflate. But we live and work and do things in real estate. And so, it has to be something that is very serious that needs to be dealt with, right? And so, it is not that big a deal if gold goes up because you just wear silver or whatever, who cares, right? But some of the assets that have experienced and will experience asset inflation are real estate assets. And even in the financial assets. If you can no longer save because of the way that the asset inflation is making the thing basically - let's say you had to run a pension fund right now or were just saving for your own retirement, would you buy bonds?

YPFS (ML): They do not pay anything. There is no returns.

Ricciardi: Exactly. Right? And so, there is no real savings mechanism either, right? Because of what is happened with asset inflation. And maybe more of that to come, right? And so, I guess you can go into equities, right? And while they continue to inflate, you are good. But the moment they do not, the consequences are very bad. You do not have the same consequences if you buy bonds at even five or six percent. That is not on the cards right now. Correction to that level is very painful. That is my point about asset prices. Will food inflation happen or not? I do not know, that's largely more of a choice in supply and demand and how good the farmers are. Seems like we can crank out much more food than we could possibly consume.

YPFS (SK): I would suggest that what we are seeing and concerned about is not the kind of classic Keynesian inflation that we learned about in Macro 101 or whatever class that was. What we are seeing is not really inflation, it's currency devaluation. Is gold really going up or is the dollar going down? The reason you do not really see the dollar going down- now it has sold off a little bit recently- is that every western central bank is more or less doing the same thing. In maybe different sizes but it is a synchronized money printing.

The (central banks) do not call it money printing because they've gotten smart enough to know that the markets don't really like to hear that. So, they have invented new terms like "QE" to obfuscate what is actually happening, which is a significant increase in the money supply, defined broadly. And so, for hard assets and things like gold or Bitcoin, which I guess is the new gold apparently (I confess, I don't really understand it very well), you just wonder if that's a reaction to what people are seeing central banks doing- and seem to be ready to continue doing- in just shocking size.

Maybe the money printing is what we need. Maybe with the pandemic and other things, maybe it is the lesser of all evils. But the scale of these programs, when you line them up against 12 years ago and what was

done during the financial crisis, the economy is only maybe 25-30% bigger than it was then, but these programs are double, triple, quadruple in size. And it is one after another, after another. And to think if that would not have an effect on people's perception of the value of the currency measured against hard assets and not measured against other currencies that have the same problem. I guess, to me, it is not that surprising.

Ricciardi: Yeah, that is why I've said it scares me a little bit, because the size is big. It is something we've never done. It is politically coordinated to a point, right? But it seems politically easy and expedient to say, "Oh, let's just borrow more money and give it out." And even as contrasted with something like The New Deal or whatever, where you said, "Oh yeah," where you can see that spending is a way forward which can really help us and stimulate. But what are we spending on, right? If we were building things that we could use for the next generations, that would be different, right? And for the most part, our infrastructure is horrible, right? Plowing tons of money into infrastructure does have the impact of stimulating current economy. It also has the impact of making us more productive in the long-term. Why aren't we doing more of that and less transfer payments, right?

Because transfer payments have another problem which is that they make the workforce less skilled over time, right? They break the linkage between, "Oh, you need to be able to go out and work and be productive and all the rest." The more you break that linkage, the harder it is to replace, right? People need skills, or they become less relevant. So, I do not know, I would try to find ways to get people back to work as much as possible. And infrastructure is an obvious choice. It seems like that might get something... That seems like something people ... because then even if you are paying for it... You have got to pay for it some point, you're just paying for it now. That is fine because you can use it later. Good use of capital.

YPFS (ML): About the funding mismatch, which you implied has improved despite these fears you have talked about just now, what made the banks better structured in this present vulnerability moment?

Ricciardi: Sure. Two things. One, they have flushed out their competitors in the independent investment banks, right? If you. I think I made this comment at the FCIC, is that what they called it? Yeah. When you got rid of Glass–Steagall, you allowed the commercial banks to basically get involved in the securities business. And they are doing a lot of the things that we've been talking about today. They have an inherently low cost of funding, right? Which they use, right? And they use it... At least they used it back then to compete with the investment banks who had a higher cost of funds, right?

So, in order for (the investment banks) to compete and still satisfy their shareholders, they had to find another way to get the same ROE, right? You have a higher cost of funds. You want to deliver the same ROE as the bank competitors, you have to leverage yourself, right? So, they were leveraged many more times than the banks but basically to equate the same ROE. A little bit higher usually because they were considered the riskier. So, yeah. In my opinion, one of the consequences of letting the banks back into the securities business was you effectively forced the investment banks who had a higher cost of funds, to leverage themselves more, right?

And so, anyway, fast forward. If they all are gone basically, right? The (investment) banks themselves. And so now you have done that which got rid of those guys. And you have also solidified the too-big-to-fail, right? So, you will not let the banks fail, that is clear. You will not even let them have them have uncomfortable moments, right? So, that is a positive when you look at it like, "Oh, are the banks going to blow up again?" No, they are not because how can they at this point, right? They are going to always be bailed out. But that was my point about what it means for the governments, right? So, if the governments are always just going to bail everyone out then the financial resources have to come. It has to come from some place, right? And therefore, they come from the governments and the people and that has consequences, right? It has the inflation consequence of course. That was how I see things having evolved from then until now.

YPFS (ML): That's interesting, because that brings with it a pretty big moral hazard, right? I guess you think that the regulations that they are complying with are effectively keeping them properly -

Ricciardi: Not the regulations, just the fact that we will keep bailing them out regardless of what happens. The regulations rarely - Unless you tell them they are not in the business, they rarely are going to be moved by the other regulatory issues. They are going to do what they need to do.

YPFS (ML): OK. Right. Because you said stress-test, so that made me think ...

Ricciardi: Yeah. Well, the stress-tests are helpful in the sense that you can quantify what the bailout is needed in any point in time, right? And I guess that is what allowed them to get comfortable and grow so large.

YPFS (SK): Thank you very much, we really appreciate your time. This has been great. Thank you for everything.

Addendum

Mr. Ricciardi added the following written comments two weeks after the interview.

Ricciardi: I have been thinking a lot about the issues raised in this discussion and squaring some of the activity at the time of the crisis with what I knew or thought I knew. On the one hand, I felt like the amount of mezzanine ABS created or asset backed CDOs created was rather small. As compared to commercial real estate values for example, it was tiny. But it did seem to have a somewhat outsized impact on some financial institutions. Why was that? And while national house prices did drop somewhat significantly, ABS are typically structured to withstand some amount of price drops. And anyway, the prices did not stay down for so long and not everyone bought at the peak anyway. How could this have caused such disruption?

A thought occurred to me as I was watching the GameStop, Reddit situation unfold. What initially sparked the Reddit revolt was anger over tactics some hedge funds used to short stock and profit from shorts in certain stocks. Particularly interesting was the reported short interest which was 1.6 times the public float of the stock. While there are some rules in place which are supposed to prevent this from happening, they obviously are not perfect.

But what became clear to me is that there were basically no rules preventing the creation of unlimited amounts of shorts for ABS in the time leading up to the GFC. And, in fact, it seemed like many multiples more shorts were created relative to the existing cash bonds. Not only that but, if self-reported accounts of hedge fund activities in the space are correct from books like *The Big Short*, the hedge funds actively lobbied rating agencies, and others and made public statements designed to drive the prices on these derivatives down. The threat of unlimited supply and an active public relations campaign to talk down the values spelled trouble for any entity holding these assets and using short term borrowing to do so.

If the owners of the assets could just hold on for the long term (as the assets were designed to be held), then the values would have recovered as house prices eventually recovered and the major losses could have been avoided.

From a policy standpoint, it probably makes sense to examine limiting the number of shorts which can be created by derivatives such that they cannot exceed the value of the assets they reference. Had such a rule been in place then, it might have been a totally different outcome.

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