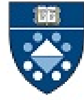

Yale SCHOOL OF MANAGEMENT
Program on Financial Stability

Lessons Learned Oral History Project Interview

Interviewee Name and Crisis Position	Sohail Khan[1] Former Managing Director, Citigroup
Interviewer Names	Steve H. Kasoff Former Partner, Elliot Management Corp., and International Center for Finance Advisory Board Member, Yale School of Management Matt A. Lieber (Independent Contractor) Yale Program on Financial Stability
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Introduction

The Yale Program on Financial Stability (YPFS) contacted Sohail Khan by email to request an interview regarding Khan's time as Managing Director, Fixed Income Sales at Citigroup from 2005-2008.[2] In 1996, after completing his MBA from Lahore University of Management Sciences (LUMS), Khan joined Citigroup where he gained broad experience in product structuring and sales of credit derivatives. As Managing Director during the subprime securitization boom and bust, Khan was involved with institutional sales of asset-backed securities (ABS) including collateralized debt obligations (CDOs); his clients were hedge funds, structured vehicles, and institutional buyers. In 2009 Khan left Citigroup to co-find Storm-Harbour Securities, a boutique investment bank where he continues as Managing Principal.

In the interview, Khan discusses the investment mindset related to mortgage-backed CDOs, the CDO management industry and business model, the institutional context within broker-dealers, trading imperatives, risk management practices, and whether any lessons have been learned from the crisis, among other issues.

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

Transcript:

YPFS (Matt Lieber): Sohail Khan, you have had a remarkable career. Please walk us through your professional background and how you came to be at

1 The opinions expressed during this interview are those of Mr. Khan, 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. Khan is available in the Yale Program on Financial Stability's Journal of Financial Crises.

Citigroup, where you had a long tenure before going to found StormHarbour. And how you got into the area of CDOs and structured finance.

Khan: Sure. Thank you. It is great to speak with you today. I joined Citigroup in 1996. I really joined them out of business school in Pakistan, worked there for about a year and a half, left them and came to the US looking for a job. Ended up again getting hired by Citigroup. This time in an area called credit derivatives. When I joined in '98, it was really nascent. It was so new that the material I was given before I walked in the first day was all academic research. I frankly thought when I had interviewed that I was being interviewed for a role in the derivatives credit department (i.e. counterparty risk management), as it turned out I entered the world of credit derivatives.

I started off as a structurer in the credit derivatives business, then did a few more things including repackaging various derivatives exposures, credit default swaps (CDS), total return swaps, etc. At that time, CDS was basically Citigroup doing two trades a month that had to be back to back. So basically, zero risk that obviously since moved on to become a trillion dollar plus market. And then after that I started focusing on the CDO business and structured credit in general, moving from a structuring to a product management role. And from there moved on to a sales role for a few years and then eventually left Citigroup in 2009 along with two other colleagues to start up StormHarbour, where I am today.

YPFS (ML): What kind of clients did you have before, when you were managing the structured, before you got into CDOs?

Khan: Well, before I was not in sales. So, what I was doing credit derivatives structuring. This is very early on - when JP Morgan was pitching Bistro- we were pitching our equivalent.[3] So this is really the 1998 timeframe, where credit derivatives at that point were simply, either Bistro-type transactions or some total return swaps or some single name credit default swaps. My role there was not as a salesperson. At that point I was a structurer. So, my job was to put the transaction together, to help price them and then to execute them. But obviously I was very junior also in that context, I was the junior most person on the desk.

YPFS (ML): Moving ahead to the role that you took on in sales, when did you move full time to the institutional sales?

Khan: From 2006 to 2009, I was in sales.

YPFS (ML): And what were the types of accounts that you covered for those?

Khan: It was a mix of CDO managers, some monolines, and some hedge funds. That was the primary client base.

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3 Christopher Whittall, "1997: JP Morgan's US $700m Bistro bond: The first CDO," IFR 2000 issue Supplement (20 August 2013) [URL: https://www.ifre.com/story/1292117/1997-jp-morgans-us700m-bistro-bond-the-first-cdo-fwl11bhsym accessed 8 March 2021].

YPFS (ML): **It is a wide mix. So, we want to get into that and explore that.**

YPFS (Steve Kasoff): Was it unusual that you covered such a range of different types of accounts?

Khan: Well, I got all the leftovers. At that time Citigroup had a structured sales team of about eight or nine people. I was moving from structuring / product management at that time to sales. And as the newest person to join the team, I got handed over all the accounts that nobody else really cared for, which was the normal process of being the next guy on the desk. Except for you (SK); in your case, they wanted to give me a prize, so you were the prize.

YPFS (SK): **Well, I think Greg was covering me before that and he probably left around that time.**

Khan: Yeah, you are right. That is probably what happened. Yes, that is right. That is right. Now it comes back to me.

YPFS (ML): **So Sohail, can you tell us about the environment in 2005-06 and how you would describe that? The peak bull of the housing market before things really became apparent to anyone except for maybe a handful of very prescient individuals. How would you describe that investment environment around the work you were doing?**

Khan: Yeah, sure. I guess before you get into the environment. There are some fundamental truths that are defining the environment.

And in my mind, there were three fundamental truths. One was that housing prices nationally never go down.

The second truth was that losses will be normally distributed to the extent that losses ever do occur and as such, there are no fat tails. And the third view was more an internal structural view at all the banks. And again, my comments are generally going to be across banks in general and not specific to Citigroup

And then the third view was basically that, silos don't really matter as much, right? It's just about, you can make things into products, you can break them up and there doesn't need to be a clear chain from the origination of a mortgage all the way to the trading of a synthetic CDO squared.

And so, you can truncate all those different roles. And you can have different management teams managing those roles. And so, there was less need for information to flow freely. Those were the three received wisdoms that in my mind, everybody participating in the market either had formally signed off to, or just took them to be the state of the world. And that's just how things worked.

In that context, we can go through the different types of people and what their views were. So, from a CDO manager's perspective, it was a great envi-

ronment for asset accumulation. It was a fantastic time to be a CDO manager. There was a lot of demand for the paper and for their skillset. The biggest variable, or one of the biggest constraints around their growth was their ability to attract equity dollars. Placing the debt was generally considered very easy. It was a question of a few basis points here or there, because only a few basis points differentiated the very top end of the managers with many years of experience versus a newer shop that was less experienced as a standalone entity, but with seasoned people.

The way that the CDO managers viewed the world was very much in line with my earlier comments about the fundamental truths. In their view, the differentiation between one type of mortgage-backed security versus another type of mortgage-backed security is driven by the shelf, the type of collateral, and the structure. Those were the primary variables around determining what is worth buying or what is not worth buying.

And frankly, generally speaking, except for some shelves being off the table, it was more of a relative value analysis. It was more about what is the fair price for something, because generically speaking, it was viewed that except for certain shelves, most deals go through the same process with the agencies. And so, they are very similar. So, that is how the CDO managers were viewing the world at that point in time. Along - sorry, go ahead.

YPFS (SK): **Sorry. We are talking about subprime, not the CDOs themselves. So, what were the characteristics that the market tended to penalize. You commented that nobody expected house prices to ever go down. That presumes it is very hard to have losses on a mortgage. If that is what you meant, then what were the things that caused pricing on different subprime bonds to be better or worse? What were the most significant things that the market did care about?**

Khan: Yeah. Let me tell you about before that, I think I will share an anecdote, which I think you might enjoy. There was a meeting that happened probably around 2006. The objective of the meeting was for the research group to bring the sales team up to speed on mortgage-backed securities, RMBS (residential mortgage-backed securities) in general. In that meeting, the head of research at that point in time went through his analysis, aided by a thick research book with a lot of graphs and charts and a lot of explanation, about the robustness of the structures, the historic performance, etc. And then there was one graph that talked about home price appreciation (HPA).

I remember this vividly because it became slightly awkward and caused a bit of a stir in the room. I was asking him, well, "What happens if HPA is negative?" And he said, "That doesn't happen." I said, "But what happens if it went down, what would happen to these tranches?" And Miesner, who was also in the room, chimed in also. And so, we kind of pushed the research head a few times, and there was no answer. It was not like he was trying to skirt the issue or be insincere. It was like, it just hadn't crossed his mind, he hadn't done

the math of what would happen if that happened, because it was just such an unseen sort of a situation: It just couldn't happen.

So as far as how people were pricing RMBS, just to be clear, I was not responsible for selling mortgage backed securities.

My responsibility was selling the CDOs. So, my experience on the mortgage backed security is more second-hand, rather than in the context of having talked with CDO managers and other market participants. It is not as though I had sold mortgage-backed securities directly. But obviously there were things that people focused on within the deals themselves-- vintage, structural features like toggles, etc., when they kick, the shelf. historical ability to manage defaults and so on, recoveries, early payment, EPD history, things like that. And then their focus across all of those was generally from the context of saying, "OK, so what's the fair value given all of those?"

YPFS (ML): How much of these three fundamental truths unquestioned is due to the fact that it is a new area of securities, a new kind of security, a new market?

Khan: Well, look, I think it is driven by history. So HPA, you could point towards the graph that from 19, I forget what it is 1910 or 1920 showed historically there was never a negative nationwide HPA. And that was the graph that was put into, that I have seen in books before. Right? So, that is the real fact. And that is what gave people a lot of perceived comfort that this does not happen nationally.

The second perceived truth about normality of distribution that came from the way, the rating agencies looked at the prequels to ABS CDOs, which were CLOs, investment grade CDOs and high yield CDOs. There the methodology said, we are going to take a bunch of correlated assets (bonds or loans) say there's "n" bonds that you're buying, we're going to run some different heuristics on that portfolio. and through that analysis equate those "n" correlated assets to "y" uncorrelated assets. And so, the very basis of the analytical approach was "I've got to change something that's correlated to something that's uncorrelated, so that I can apply binomial distribution." So the whole thesis behind it was, how do I change something correlated into something uncorrelated, because that's when I run the math on it and make it into a normal distribution and then truncate the risk. That to me was the reason that those truths were undeniable.

YPFS (SK): So that methodology has worked well and stood the test of a few recessions in the corporate world, in other words in CLOs. But it obviously did not work with ABS CDOs. And so, what do you think was the deficiency?

Khan: Because there is a single point of correlation. I remember having this conversation with one hedge fund in particular back then who then started shorting ABS after that, because he was shorting corporate CDOs before. He was very

bearish in general. He wanted to have a general macro-short, and he was asking what I thought was better. And this was probably in 2005 or early 2006. And I said, "Look, if you want to take a macro short view because you are extremely bearish, then in my opinion, you're better off doing that in the RMBS market than you are in straight corporate credit because there's a single point of correlation there, which is housing." And so, I think that is the fundamental difference. And I think what you are going to see next time around is unsecured debt is going to go down for the same reason. There is a single point of correlation there, but that is a separate story.

YPFS (SK): **Which is what?**

Khan: Which is what is happening with bank, pre-packaged bankruptcies and everybody getting primed and dip financing. And, not having enough time to have a seat at the table in a bankruptcy. So, there's cheap money, financial engineering, all the commonalities, I think about what we have seen before. And those are going to result in very low recoveries whenever we see that next cycle in non-secured debt.

YPFS (SK): **So should we maybe switch gears and talk about, you observed a lot of CDO managers in the process of creating these deals and, interacting with different people at different underwriters and everybody else in the process. Can you just describe your, your perception of the business model of being a CDO manager in the kind of 05-06 period?**

Khan: Yeah. So, there is two or three different types of CDO managers. They were managers that were associated with larger shops that were new. She will work with insurance companies or other large organizations like that. And then there were the more entrepreneurial CDO managers that were smaller groups, typically individuals with mortgage research backgrounds, or generally market research backgrounds who then set up CDO shops. From the street's perspective they looked at a new CDO manager, other than looking at the guy's background or the team's background. One of the drivers was looking at how much equity they could bring to the table, or could they bring the equity to the table. And so that was in the early stages of the time period, we are talking about during the boom part of that time period. Selling the equity was the hardest portion and that was a key variable in determining which managers, one banks or doesnt bank, because the debt could generally be placed.

YPFS (SK): **Who was generally buying the equity in that period?**

Khan: It was all over the place. Very early on, it was ultra-high net worth who was buying stuff. Then you had offshore accounts buying equity, you had hedge funds buying equity. It was a mix of those things.

YPFS (SK): **And what do you think they were looking for? What made a manager successful at being able to sell equity?**

Khan: Talking about their process, talking about their ability to choose credits. Their access to the relationships across the street. A mix of all those things. It could be about how their fees are in the waterfall. Some of this it has been 10, 12 years, so I do not remember exactly the timelines here. So, it is a bit of a muddle, but you know ...

YPFS (SK): What about in terms of the, like the model IRR. Is that these, these potential buyers were being shown tables with, with here is what the IRR, your equity is going to be under different scenarios. And how important was that when somebody was looking at five different opportunities from five different managers and maybe one manager was qualitatively better but had a lower IRR for instance.

Khan: Yeah, look, that was, it depended on - that is what generally would happen with, as I mentioned, the larger shops. The shop that were associated with large asset managers or large insurance companies. They generally tended to run their portfolios with more conservative names. And so, they had lower IRRs. There were investors out there who prefer that too. So, it really depended. It is hard to give a general comment. I think the general comment to make there is that the whole, the whole idea of running - if you have got a portfolio of a hundred bonds, what does a 0.5% default every year mean? Right? Because we are talking about a hundred discrete bonds.

It is not like you can default half of a bond. And so, a lot of the times when these numbers were shown, they were shown in, in this sort of a context of simplifying for the purpose of a presentation. Obviously, you could get as much supporting information as you wanted. But they were shown in the context where it was very difficult to see it actually applying out to get to those numbers in a real-world scenario. Because you just could not have a quarter of a bond defaulting. Right? Mathematically made sense, but in the real world, it did not make sense.

YPFS (ML): OK. Next question, I think, unless you have more to ask about the CDO manager, Steve. Do you want to move on?

YPFS (SK): For the independent managers that created themselves solely for the purpose of doing this, what was the business model and how much did they need to issue in order for them to be viable as a firm? What were the incentive structures around them, in terms of, of marketing themselves, doing deals, balancing that versus, generating a good track record that would have longevity as a company?

Khan: OK. So, the basic math was on a high grade CDO would make eight to 12 basis points in fees. The typical deal size was about a billion. So, that meant your fees were a million dollars a year on a high-grade CDO. On a mezzanine CDO, the fees were anywhere from 25 to 35, maybe more 45 basis points. But the deal size was more like 300 until synthetics started to happen. Initially it was about three to 500, maximum five hundred million. The teams that you needed for an independent shop, you needed about five to seven people in the

team. And so, my impression is, if you take out the senior guy, the total cost structure was probably about $3 to $4 million. So, if you use that math, you do not need a lot of CDOs. And a lot of that was also variable.

So based upon those numbers, you did not need to have a lot under management to be able to break even. And so it was certainly a business of accumulation of assets and as you know, once you've taken on a management of a CDO, that cashflow stream lasts for anywhere from five to seven years, if not longer, depending on the deal. It was really an accumulation business where you get as much as you can in new dollars coming in. And in that context for the smaller managers, typically, what they would have to do, is it is very difficult to be a small manager. And to argue that I run my portfolio much more conservatively than everybody else. And so, you should be able to buy my equity at a lower IRR than everybody else. Because as a small manager, you typically do not have the institutional credibility to be able to argue that. So as a small manager, you typically would have to argue for being able to generate better returns, being able to do better analysis, being able to source bonds cheaper and so argue that I can deliver a higher return or I'll charge less in fees.

And so, there is a strong incentive to grow. These managers did grow very, very quickly and very aggressively. Especially once the synthetics started to happen that growth rate was phenomenal.

YPFS (ML): With the five to seven-year deal timeframe, what is the longest that any of these CDO managers lasted? And the follow-up to that is, since you mentioned some of the similar characteristics, is there a second life of an analogous parallel cottage industry today?

Khan: Yeah, so the CDO manager, the SPACs [Special Purpose Acquisition Company] are the parallel, but that is beside the point, but we can come back to that. But effectively the CDO managers were, again, we are talking about - the CDO, the ABS CDO business in earnest started in about 2004 (there were a few deals done before that) but really 2004 and then ended in 2007. So, the whole industry was around for only two or three years. You have got their cousins to the CLOs, which obviously have been around longer. And in that case, the manager's fees have lasted six, seven years on deals. But on ABS CDOs, most of them went into some form of event of default by 2009. The deals were paying fees from 2000 at the earliest, with a vast majority between 2003 to 2009. That is the longest. And most of them were done in 2007 or six. So that is, that is, I do not know if that answers the question.

YPFS (ML): The question of the broker dealers and the different groups within sales trading desk, were there competing goals, and how did these get dealt with?

Khan: Yeah, look so competing goals, again, just Street-wide. A lot of that is based upon a provenance of the group. So, for example, I can give you an example of Citigroup. The originals, ABS CDO team were a part of the mortgage-backed

sales and trading desk. But the problem that they were facing was that, unlike mortgage backed product, CDOs are a managed product. And so, the investor base for the CDO product could be very different from a typical mortgage backed security. And so, the ABS CDO business was having a hard time getting off the ground because they just could not place the paper and did not get the focus that they wanted. And so, they moved into the corporate CDO business. So, they became a part of that. At other firms that did not, at some firms, it did not happen. Some firms, it stayed in the mortgage side of the business, or it went to the derivative side of the business.

A lot of what happened is a function of where you came from. And a lot of that was driven by the politics and by the reality of the situation. So, if you have somebody who is taking the initiative in one group and runs with it, and that starts to grow. It is very difficult for a different group within the bank then to claim it and naturally it would be unfair to. And so, you ended up with situations where the CDO business was sitting in strange places or unnatural places, what I would call unnatural places at different firms. And sometimes that benefited them, right? So, my contention would be that the reason that Goldman did better than others in the crisis is because they had a much more intensive market-to-market approach and much more intensive risk management approach in the part of the business where their CDO business sat compared to some other firms.

YPFS (ML): **That's interesting.**

Khan: So, I think, it just, it very much depends on where you came from. Also, Goldman had the benefit of not having a big business. So, if you do not have a big business, it's very easy to flip your position to go from being long, to being short. If you have got a $60 billion book, there is no option to flip it. So, you naturally cannot sell, a lot of this is the card that you're dealt, right? So, if you are dealt with 60 billion of risk, we can talk about hedging it on the margins, but really, you're long the risk. And so, does that subliminally impact the way you view the risk? I think it does, but that is my view, like for any situation.

YPFS (SK): **Right. Let us maybe take, I mean, that is a good. We are maybe going a little bit out of order. I think it is a natural segue, right? There were a number of banks that had the order of multi that you described 60 plus or minus billion of risk. But in general, that tended to be very senior, securities in CDO capital structure with very low yields. What is your impression of these different banks? Did they view that as real risk, or in which case maybe they would have thought about the question of whether it was hedgeable or not? Did they view it as so risk remote that, that question never even entered their mind?**

Khan: They did not view it as default risk, for sure. They viewed it as market-to-market risk. So, it was really could the fair value on the super senior move from eight basis points to 12bps? Could it go to the 13? Could it go to 14? And what is the impact on my book as a result of that? Nobody felt that -

YPFS (SK): **Let us go through like an example. Right? Let us, I mean, we could use round numbers if you had. I'm trying to quantify what does that mean to have 60 billion or a hundred billion of something and then whatever duration you think it had and what is the feedback, what is the basis point of mark-to-market equate to?**

Khan: ... yeah, so. OK, Steve, you are going to ask a sales guy to do some math. OK. That is fine. I get it. I get it. OK. So, you have got a billion dollars. On a billion dollars, 10 basis points is a million dollars. So, on 60 billion, it is $60 million dollars. So, 10 basis points comes to $60 million a year. I think people would assume around a four-year duration. So, if you widened that out by 20%, it would mean a $240mm times 20% about a $50 million market-market hit, roughly if I am right. On a 60 billion portfolio, assuming a four-year duration and assuming spreads widen up by 20%.

YPFS (SK): **So, from ten basis points to 12.**

Khan: Correct.

YPFS (SK): **And so, what was the perception was that, would that two-basis point change, would that have been viewed as a significant move? Like how would that have been thought of by a risk manager?**

Khan: Yeah, absolutely. Look, the thing about risk, and this is another thing about big banks, right? The hardest thing to do is lose your first 50 million bucks. Once you have lost your first 50 million, it goes down quickly. It does not really matter anymore because now you know you are done. And you are out, right? And again, this is just my generic perception. You are fighting the hardest on the first $50 million loss after that reality starts setting in. And that is just, I think, just human psyche, right? There are different points based upon what your role is, but there is always a point after which you'd say, "OK, I capitulate now." And so, if you look at the super senior book, nobody could perceive that this thing was going to go from eight to 10 basis points to 20 or 25 basis points. It just was beyond the realm of reason. Again, I think you add that as the fourth, universal truth that it just, would not not happen.

YPFS (SK): **That's because they thought that the fair value of that risk was not even eight basis points or 10 basis points.**

Khan: Absolutely. Absolutely. That was the view, without a doubt. And that was backed up with all sorts of modeling. There were whole teams of people. I remember people really, reviewing like 80-page decks of just numbers. There is was a lot that went into it, but again, if you believe the fundamental truth, tell me how you're going to lose money at the super senior level, if HP doesn't go down. So, it goes back to the fundamental truth.

YPFS (ML): **Right. And so the description you made, Sohail, of the thinking there about distinguishing market, default risk from, from out of the question from basis point risk, was that across the board from the sales and trad-**

ing on the desk close to the action the same as in the C-suite, or was there some kind of differentiation?

Khan: I do not know what was going on in the C-suite or even know what was going on the desk from a trading perspective. I am giving you my perception of things. I did not know what traders' positions were, nor should I, and so I'd never really know where they think or how they think directly. But if I am a risk taker and there's real crisis, what are my concerns? My concerns I am being whipsawed. I know it is traded down, but it is traded down below fundamental value. This is coming back. This is the last time I want to put on a hedge. And I saw a situation like that. I had situations where we could have put on dramatic hedges where the firm was not as interested, because the fear was of getting whipsawed. And in one case, we did put on that hedge and it turned out to be a very, very good hedge. But it took a lot for the firm to get comfortable putting it on because of the fear of being, of being whipsawed.

The other thing is that as you get into these sort of crises, you either maintain the discipline of keeping a mark-to-market framework, or you start moving to a mark-to-model framework. The super seniors were always mark-to-model animals. They were never mark-to-market animals. And so, the super senior was always viewed as a, because on a, on a pure risk perspective, it would show up as zero risk effectively. So, it was all pure structural risks and mark-to-market and accounting models, volatility risk.

YPFS (SK): Do you think that banks that had big super senior positions on, were their motivations, more that they like the ROE because you did not have to hold any capital. And even though it was eight or 10 basis points of spread, it generated just, 60 billion of notional, that is a lot of money. Did they think of it intrinsically just as a good investment, or did they think of it as something that they were doing primarily because it allowed them to facilitate the underwriting of new CDOs, which generated a nice stream of fee revenue?

Khan: Yeah. So, I do not know of any bank other than one prop team that was looking at super senior risk to take it on from a third-party dealer. So, I do not think Goldman ever bought super senior exposure from Bank of America as an example. Right? So that to me implies that it was not being put on solely because of the risk itself, that it was good risk to take, but in the context of other tangential fee streams. And so, that is how I would view it. I think it was a constraint to the growth of the business. Growth of any of these businesses at any of the firms was what do you do with the super senior? And initially a lot of that was hedged out through negative basis trades, but then you end up in situations of how much exposure do I want to take to a monoline? And so at some point, given the duration of these assets, you very, very quickly ended up-- and this is, again, these are all my perceptions, I'm not going back to Citigroup, this is just my view-- you quickly end up with situations where you fill up your monoline lines. And so now what do I do with the Super Senior? And then you start saying, "Well, I got to another two options. I can either put it on my book or keep it there. Or maybe I can sell leveraged super senior

transactions." So, people started to do leveraged super senior exposures, which effectively made the risk even more remote.

YPFS (SK): I just thought of a question that I did not put in the list. So, if you do not mind a little bit of a curveball, I think it is a question you'd like, though. You made the comment about mark-to-market versus mark-to-model for these, for these and other instruments that you did not have a lot of trading data in. So, you are right. People were tending to mark these things to model, and you could tweak your model to make it say eight or 10 or 12 basis points probably pretty easily. But, in my recollection the beginning of the end for that was, Valentine's day of 2007, I am sure you remember what happened on that day, right?

Khan: That was the TABX. Was that the-

YPFS (SK): Launch of the TABX.

Khan: ... yes. Yes. Yes.

YPFS (SK): Do you want to just like give your thoughts and recollections of you were probably covering people were trading that, was a crazy day.

Khan: It was a crazy, I frankly did not cover anybody directly that traded that. Again, I was not trading anything that was liquid, so I did not do it. That was Greg's (area), Greg did that.···

YPFS (SK): I am sure you must have heard the screaming across the trading floor though.

Khan: Yes. Yes. There was a lot of that, I guess. There is a lot of that, but I was not as close to that, so I do not want to be commenting on something I do not feel like I am as well versed on. So, I was not directly as close to that at all.

YPFS (SK): OK. But do you have any, just recollections of how that impacted people's thinking?

Khan: I do not think he did because I think another variable, if you asked me, who the "villains" are in this whole thing, right? One of the villains would be in my mind would be a lot of firms had a culture where risk management was risk management and not drivers of business. And so, I think that is the other big difference in Goldman and a lot of other firms. I think Goldman risk management was really empowered. And at other firms they were not as empowered. And so, I do not think people were marking to market. I do not think CDOs were being marked to market based upon where the TABX was trading at a lot of firms. And so, I do not think that was the case because you would have heard things popping much quicker.

YPFS (SK): Interesting.

Khan: Because the argument was, well, look, that is just a static deal. Our deals are managed. The manager is going to add value. We have got triggers in the deal that you do not have, triggers there. There are all sorts of arguments that are fair arguments until the world has a correlation of one.

YPFS (SK): It sounds like you are suggesting that those arguments were not being made by risk managers, but rather by people that were, exerting pressure or influence on risk managers.

Khan: No, I am not saying - I have no personal experience with that - all I am saying is that my perception and comments that are conversations I had with other people at that time. My perception is that Goldman was doing a much better job or Goldman's risk management was much more forceful and had a big role to play in how they were able to turn things around.

YPFS (SK): How much do you think, and then another factor which would be interesting to explore would be the difference between the actual banks versus the pure broker dealers, right? Goldman did not really have balance sheet, in the way that, that some of the big money center banks did. And so, I am wondering how much of that influenced, the amount of exposure that they had on their books.

Khan: I completely agree. Absolutely 100%. No debate on that one. And there are all sorts of weird things, right? There is one other major bank that I will not name for this conversation where the CEO has commented on how they are really smart for not taking a lot of risks. And I think the reason they did not take as much risk was because they hired a guy on a two-year guarantee to run the group. And he basically said, "I'll ease into growing the business." So, there is a lot of weird reasons why things happen the way they happen.

YPFS (ML): Did the fact that, that the banks that were more or less smart on risk management ultimately performed better or worse, does that say that there was actual market accountability? Because we hear so much about the losses of on wall street and were socialized and everybody went down and paid the price, but···

Khan: Yeah, but I think that was at a different level. Right? I think that generically speaking, the bigger your CDO business was, the more you lost money, because you would have to hold the AAA, the senior tranches in some form, generically speaking, right. Whether you were the French banks, you were the US banks, that is generically what was happening. The bigger your business, the more risk you had to take. And frankly, some of the French banks, they took on much more risk than their size of their business because they were trying to get into the business.

YPFS (SK): I wonder if that was necessary as opposed to just expedient, right? Maybe the French banks were just not as good at distributing that risk to other people.

Khan: Sure.

YPFS (SK): As you pointed out, Goldman did not take that risk, Deutsche bank who had balance sheet did not take that risk.

Khan: Deutsche bank had special person there, right? You had a guy at the desk that had a very negative view and was one of the frontiers of thinking about how you short this market for many years. So, I think Deutsche is a special case from that perspective. But the French banks, obviously, they hired people. They hired people on guarantees. They hired people on compensation structures, directly linked with P and Ls that were produced. And, they had balance sheet available. This was viewed as remote risk by everyone, everyone across the board.

YPFS (SK): So, let us ask you an interesting question, right? Among our group here, we talk a lot about *The Big Short* and what it got, right and what got wrong. *The Big Short* gives you the impression that the people on the short side were completely, had absolute knowledge of what was going to happen and conviction. And there was no question in their mind that this trade was going to be a massive success. And, my perception, my recollection is, is very different from that.

Khan: Yes.

YPFS (SK): Maybe I just was not as smart as some of the protagonists. But I mean, is that your impression as well, but there was much more uncertainty even by the people put it in short trade on?

Khan: Absolutely. I mean, I know that firsthand without a doubt, right. There were situations where I showed them opportunities where they could put on significant additional shorts. Some of them, I would argue very well-structured, where they would be able to cancel the shorts at no additional cost and hereby not have the risk of being whipsawed, they said, "No."

YPFS (SK): Do you remember - I remember being at conferences, other events where you would end up talking to people who were on the other side of this trade. I was short, so talking to people that were long, for instance. And you would have a debate and I am sure you observed, were involved in debates like that, too.

Khan: Yeah. And I have been told that I dissuaded somebody who wanted to put on massive shorts from shorting. So, I apparently cost that guy hundreds of millions of dollars. I heard this from a third person, he did not say that to me directly, but somebody else told me that. And it is again the forest versus the trees, right? When you were in it, especially when you were in it before you heard the argument on the other side, it was very easy to get lost in all the toggles. It is very easy to get lost in - again, remember the problem was the silos. Right, going back to the original sins, right? The silos were the issues from the sell-side perspective. So as a guy that was quote unquote, selling de-

rivatives off the CDOs and CDOs, etc. I never talked to somebody who actually originated a mortgage. I did not ever talk to a mortgage back security banker. I had no idea what was going on at that level. And yet I am selling the third and fourth derivative of that risk. So, CDOs are just accentuating the risks on to different parts of the capital structure - are accentuating or reducing the risk - on the underlying asset. If your underlying asset is not performing well, leveraged exposure to them through a CDO is not going to help.

And so, it was the silos where we were not interacting with those people. I will give you another example. One thing that I found in one of the deal pitches books out of the blue was something called "Midprime." So, I go to the guy who I will not obviously name, but somebody who should know this stuff really, really well, who was not a salesman and I said, "What's ‘mid-prime’"? And he had no idea. Right. And so “Mid-prime” came out of nowhere one day because it created more diversification.

So, there was all these things that were done that were, again, not malicious in any way. But being too close to, the trees, you just did not see what was going on outside. Talking about these conferences, I remember one conference, and this is something that was in The Big Short. So that famous dinner that was talked about at the ABS conference. I vividly remember the next day meeting with one of the people in that conversation and who was on the long side and him telling me how crazy the guy next to him was at that dinner, because he didn't understand all the toggles and all the nuances and all the structural features of either the mortgage backed securities or the CDOs.

YPFS (SK): **And so how did guys like that, how did they think about the fact that so many people were shorting on this stuff?**

Khan: It is very easy to explain why they were shorting the stuff. The view was they were putting on macro hedges, they have got other trades on the back, and this is just a macro hedge. It is a bunch of punters coming into the market. And it is a fantastic opportunity as a result of that, because they are driving up spreads and they don't know what they're doing. And so, let us go.

YPFS (SK): **So, there was not, there was not any sort of [inaudible 00:50:48]. Are you there Sohail? I think we lost Sohail. Sohail. Can you guys hear.**

Khan: Yeah. I can hear you now. Yeah.

YPFS (SK): **OK.**

Khan: But the volume is really low.

YPFS (SK): **We were talking about the guys on the long side and their perception of people who were shorting this. So, it the last thing we heard you say was that the perception was that they were some combination of either. They were not sure if they were just hedging out the risks and that they did not really understand this product. They were kind of outsiders**

coming into the product and just driving up spreads, which was great for people on the long side.

Khan: Yeah. Tell me who, who was a market participant before 2006 in CDOs who made a lot of money other than, maybe…

YPFS (SK): On the long side or short side.

Khan: On the long side who flipped his view? So there really nobody who knew the product well who ended up making money shorting. Let us put it this way. No one who could talk to me about the indentures and the waterfalls and the toggles and the modeling behind it and the rating method methodology made money shorting! Tell me who made money, who had that background? Nobody, I cannot think of anybody. So basically, it was the guys who, who basically were able to say the fundamental truth does not exist. And that guy was the guy that won.

YPFS (SK): Meaning there was a certain myopia among the longs, because there was so focused on a narrow set of parameters and they were not thinking more holistically.

Khan: Exactly. So, they were not the disruptors, right? They were the disruptees basically. And they are like the disruptors in any industry. They were just sitting there fat and happy. They believed what they were doing. They had done it forever. Portfolio theory works, diversification works, rating agencies work. What is the problem? HPA works. What is the issue? You have got these yahoos from outside coming in, who do not know what they are talking about. Cannot even tell me what a trigger is, and they want a short, go for it. That is the counter narrative that does not get out there.

YPFS (SK): So, in a way, it almost sounds like they were, they were pleased because the more people came in on the short side, the more, the more money that they would make.

Khan: The more the arbitrage, the more of the opportunity. They were happy. Right? The guys on the long side, the CDO managers, etc., they were not worried by the shorts coming in. They were happy that the shorts were coming in because that was allowing them to produce product at spreads that made sense based upon some guy not knowing what he is doing, putting on shorts.

YPFS (SK): And was that, I mean, that is certainly makes sense for a CDO manager to have that view. Do you think that that view was shared among the people that were buying investment grade rated tranches of the CDO? Not necessarily the super senior of all being the insurance companies in the world that were buying single A's or triple B's, double A's.

Khan: I think they were too far removed. Look, pre-crisis- it sounds crazy now, right- but pre-crisis, how many people even ask for sources and uses of funds on the CDO? Nobody asks for that. So, it was just a world where everybody

looked at their small sliver and said, "What am I getting on my sliver?" And at the top of the capital, further up the capital structure that you went, the more it was about trying to get paid an extra basis point or two and getting you. allocation.

YPFS (SK): Meaning they relied on the ratings effectively.

Khan: Yeah. Because the whole system told them to rely on ratings. The calculation of the amount of capital required to be held by a bank or insurance company was mostly based upon that rating. You yourself, as the regulator, have basically said that something that is rated AA is really low risk. You said that, not me. So, the regulators have encouraged that mindset not discouraged it.

YPFS (SK): Interesting. Realizing we are hitting 12 o'clock. Matt, did you want to ask some kind of final wrap up questions?

YPFS (ML): Sure. Yeah. Sohail, you have said several interesting things, that I think Steve and the group, and I are going to mull over. At this stage, we just want to give you one chance to make any summary takeaways in terms of the main lessons learned about the financial crisis story you have told us.

Khan: Well, when you say, I do not think there is any lessons learned, frankly. What are the lessons learned? We are putting on massive leverage throughout this system again. We have got all sorts of, crazy things like SPACs happening all over the place. You have got valuations through the roof. Regulators are encouraging leverage. You have got the ECB buying all risks, killing the securitization market because you can just post everything to the ECB itself. And so, they are keeping all the super senior risk and the mezzanine risk and, in some cases, the junior risk. So, what is the lesson learned?

YPFS (SK): I guess we should have asked the question as what lesson should have been learned?

Khan: All of the above. Until we, the problems are much bigger, right? We all know this, right? So right now, we have got a very fat tail ahead of us it’s just a question of when we enter that. Because that fat tail is going to come from sovereigns, and it is going to come from unsecured debt and it is going to be systemic and it's going to be thick. Because that is what fat tails are. right? The correlations are always higher in the tails by definition. So, it is easy to talk about correlation being low when you're talking about the median scenario. When you talk about a tail scenario, correlations are high, do we enter that tail scenario or not? Who knows? But if you enter it, it is getting very ugly very, very, very quickly.

YPFS (ML): Well, that would be another interview. Wouldn't it? Sohail Khan thank you so much for your time and insights this morning. Would there be anyone else that you would recommend, we talk to any references-

Khan: Yeah. I have already put Steve in touch with a couple of people.

YPFS (SK): You did. I have spoken to one of them and have a call set up with another. And so, I very much appreciate that.

Khan: No worries at all.

YPFS (ML): Sohail Khan, thank you again. I will be in touch with a transcript in the next week.

Khan: Best of luck guys.

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