

FCIC Interview of Satyajit Das, May 7, 2010

United States of America  
Financial Crisis Inquiry Commission

INTERVIEW OF  
SATYAJIT DAS

Friday, May 7, 2010

\*\*\* Confidential \*\*\*

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MR. SEEFER: I just walked in the room, so I assume they haven't given you the usual introductions. So let me do that.

We are all with the FCIC, as I'm sure you know. And as you may know, we have been tasked by a statute passed last year to figure out the causes of the financial crisis. As part of that, we are looking into the role of -- that derivatives may have played in either causing the financial crisis or acting as a propagating mechanism. And, therefore, we are talking to a lot of experts; and you were, of course, on our list for that.

Another thing I should tell you is, we are look -- and this is confidential, so please keep it confidential, sir -- we are looking at having a hearing in early June on the subject of derivatives and their role in the financial crisis. And you have to be there -- no, I'm just kidding.

But, actually, if you were interested in coming out, it would be great. But, of course, we're not going to ask you to travel 17 hours to the United States for that.

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MR. DAS: Okay.

MR. SEEFER: But my overall question is really just that in the beginning, and then I'll let these researchers that have Ph.D.s, that know this stuff much better than I do -- I'm just a lawyer here.

If you could just really, in the first instance, tell us what you think the role of derivatives were in the financial crisis, whether as a cause, a contributing cause, or as a propagating mechanism.

MR. DAS: The first thing I would say is, I love the word "*expert*," because Niels Bohr once defined it as somebody who has made every error possible in his field. So I think on that basis, I qualify.

Now, I think the first thing that I would say is, you have to look at derivatives as almost two sets of instruments. There is an element of derivatives which essentially used managed risk, which assumes an underlying position, whether it be credit, interest rates, or any other asset class.

The second is, you can, of course, use derivatives to create leverage.

Now, what is also very misunderstood about derivatives where it's used to create leverage is, there are two types of leverage. There is what I call "*explicit leverage*," which is basically where you

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effectively actually use the -- actually outlay cash to buy something, like in a futures contract -- or there's a variety of transactions you can do.

However, there is a much, much nastier form of derivative leverage which nobody really understands, which is called "embedded leverage." And I don't -- I can't remember whether they're in the papers I sent you -- I sent you stuff on embedded leverage.

MS. SHAFER: I don't believe so.

MR. DAS: No, I probably forgot.

MS. SHAFER: I would love to read that.

Please --

MR. DAS: I certainly will send that to you.

MS. SHAFER: Thank you.

MR. DAS: And essentially what that means is, effectively, in most derivatives transactions, what you do is, you disguise the borrowing to buy a larger proportion of assets.

The other type of embedded leverage is actually where you use an event and you scale the losses.

Let me give you a very quick example. For instance, if you have a normal option on, say, the S & P 500 and your strike price is, say, five -- say, 1,000. If the S & P 500 goes to 1,010, you make

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1 percent -- the difference between 1,010 and 1,000.

I'm assuming it's a call option.

However, I can also structure that so that if the S & P 500 goes above 1,000 -- say, it just goes to 1000.01, I get paid an amount of 10 percent. And this is known as a "digital option."

The point I'm making is, derivatives create leverage but not in obvious ways. And just as an aside, I would say this is why all the leverage covenants and the leverage rules that central banks are putting in place are going to be useless. Because I'll be very blunt with you: I can develop as many forms of leverage as humanly possible which will get around the rules. It's not going to make any difference.

MR. STANTON: Can I ask a question --

MR. DAS: So I think -- in coming back -- yes, of course, you can.

MR. STANTON: Can you explain that in more detail? I don't see the leverage part of my buying an option on the S & P 500. And I apologize for that, but you've got to do some remedial education here.

MR. DAS: No, no, that's fine. That's no problem.

Okay, let's say -- let's say I have a million dollars and I want to buy the S & P 500, right? So I

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have to outlay the entire million dollars and my exposure to the S & P 500 is a million dollars, right?

MR. STANTON: Yeah.

MR. DAS: And it's my money. So if the S & P 500 goes to zero, I lose all of it, okay. But the money was there in the first place. It's just been wiped out. Which has incidents; but at the moment, that's what it is.

So instead of actually buying the \$1 million worth of share, I might be able to buy a call option to buy the S & P 500 at a strike price, say, of 1,000. But the cost of that might only be 15 percent of the million dollars that I have to outlay.

MR. STANTON: Uh-huh.

MR. DAS: So basically, I have the same exposure to the S & P 500 that I would have, had I bought all the shares for a million dollars. But I effectively now have only outlaid 15 percent of the million dollars, \$150,000.

But my returns are based on movements on a million dollars. So it's like \$150,000 gives me exposure to \$1 million of shares. So it's like a 6-to-1, 7-to-1 leverage.

Does that make sense?

MR. STANTON: Yeah, it sure does. Thanks.

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MR. DAS: Now, the next thing, of course, is the leverage -- and this is the point of what I call the embedded or amplified leverage, is normally when the index goes from a 1,000 to 1,010, my 1 million would have grown from basically 1 million to 1,010,000, right?

MR. STANTON: Uh-huh.

MR. DAS: But if I have this strange thing called a "digital option" and it just goes up slightly, my principal actually grows effectively from 1 million to, say, 1,100,000, which is much more than it would have.

And, see, people think of leverage as borrowing. It's not. It's amplification of return. So you've got to [unintelligible] the end effect to work back to how you create leverage. At least that's what I've done in my work.

So coming back, so the risk management is fine; but once you get into leverage, we can create any form of leverage you like. That's the first problem. And essentially in the crisis, what happened was we created all sorts of this. And if you've got probably a year, I could sit you down in a room and take you through each one because they're certainly different.

Now, the next thing is -- that's one. But the next one that creates problems is what people don't seem

to have actually grasped with derivatives is, it layers a whole lot of other risks on top of it.

And the simplest one is effectively what we call counterparty risk.

Now, to go back to our option example, everybody assumes this is a bet on the S & P 500. Well, it is and it isn't. It's also a bet on whoever sold you that contract. Because you're assuming that person is going to be there to pay you that amount at the end of the period. And this becomes particularly important where you are relying on that contract as a hedge. And this is where the, what I would call the problems of derivatives get effectively very muddy. Because on the one side, you think you might be using a contract to hedge, but you actually end up with a different set of risks.

So the first risk you end up with is whoever is the party you're hedging with. And the classic example would be people like Citigroup and Merrill Lynch who are hedging with these insurance companies, who they thought would be there to make payments to them when they needed to on their mortgage portfolios. But, unfortunately, they didn't have enough capital. And under those circumstances, that hedge was not worthwhile.



And that counterparty risk is inherent in markets. And as you will know, there are a whole bunch of proposals now to deal with that after the horse and trolley left the planet.

But effectively, under those circumstances, that's the second risk. And it's a very, very difficult risk to manage.

And in one of the papers I sent you, I made that comment -- and it's very difficult to measure this. Because let me explain why it's difficult to measure.

Now, in most instruments, you know on day-one what your exposure is. If I lend money to you -- if I lend you \$100, I know that I could lose a \$100. But if I enter into a derivative contract with you, it depends on what happens to the underlying in terms of movement as to how much you may owe me. So I already know what that is in advance.

Now, let me give you a very concrete example of that. When people hedged with AIG, they were hedging what were called, effectively, super-senior pieces. Now, the idea is in the super-senior pieces, that you can never lose, or it's as close to risk-free as we can theoretically make something.

However, as it turned out, when mortgage losses mounted, then our models were wrong. So there

was rather a large exposure to AIG. And under those circumstances, AIG, if the contract had to be closed out, would owe us a lot of money.

And that wasn't anticipated in advance. And certainly, if you say that AIG knew that they had this problem when they entered into this contract, that would be wholly false. And if you look at all the evidence that's emerged from AIG, they had no clue how bad that exposure could potentially be. Their models were fundamentally wrong.

So the point is the counterparty risk exists, but also the counterparty is very vulnerable to models. That's the second thing.

The third thing is, no hedge is perfect. So even if you're hedging in terms of using a derivative to hedge, then what happens is, if you look at the match between the hedging instrument and the underlying, it's never exact. It's almost impossible to make it exact.

And so what happens is, particularly when markets go kind of awry as they have, then what happens is, these hedges start to have some very strange behaviors. So it can actually make you gain huge amounts, but it can also make you lose huge amounts.

And underlying this, of course, is a theme that you can see is, we become very model-dependent.

And the models are invented by people, generally speaking, who have very limited understanding of how markets work, and so they make assumptions which are grossly unrealistic, and so these models break down very quickly. And that's one of the problems that we have.

Now, the other thing I would, just for a second, loop back to, because it's related somewhat to counterparty risk, is also because of the way the financial structure of -- I'm sorry, this financial system is structured, we create these massive daisy-chains of risk.

So what happens is, you know, Warren Buffett hedges with Goldman Sachs, Goldman Sachs then splits up the risk into different little bits, hedges with JPMorgan, Deutsche, and Barclays. Barclays may hedge a little bit of that with Deutsche Bank. Deutsche Bank may hedge that with, say, a Japanese bank. And it goes on and on and on.

And the best comparison I can give you is it's within a -- it's like an electricity grid. What happens is, you have this massive thing between generators and consumers. But the point is, it flows through all sorts of people, all sorts of junction boxes, all sorts of elements.

The problem is, if any one of those fails, you

have a problem in the system. And that is actually what happened in September, October 2008, and that is actually what is starting to happen again now. And that is very, very important to understand.

And there is some other sort of ancillary issues here, and I'll mention a couple of them.

One is liquidity risk. And to understand the liquidity risk, you need to sort of go back in history.

I've been around this business since 1977. Now, when we started doing derivatives, generally, the only counterparties we had were very highly rated companies. And by that, I mean, AA and AAA companies. So this idea of counterparty risk became irrelevant.

Now, what happened in the inevitable nature of finance is over time, we want to broaden the market. The way we want to broaden the market, the counterparties we were dealing with were less creditworthy.

So what happened sometime in the eighties was, we were looking for ways to allow these people to trade with us but with minimal risk.

So under those circumstances, what we did was, we came up with different ways to enhance the credit. And the most common way to do that is actually to use what we call "collateral," which is bilateral

collateral. And that works very simply, which is I deal with you, I think you're okay but not so okay. So I say, look, if the contract's value changes and you would owe me money, under those circumstances, you have to put out some collateral, which historically has been cash or government securities. But over times, we've become a little bit more adventurous and we used other types of securities as well.

So under that circumstance, what happened was, you have to give us this money. Now, that, in a theoretical sense, is fantastic because it sort of safeguards your performance; but it creates liquidity pressures in the system. And this is what happened to AIG.

AIG ended up owing -- depending on who you believe -- between \$14 billion and \$18 billion.

Now, the interesting thing about this collateral is, it's not an actual loss because the contract values obviously fluctuate over time.

But the point is -- I'm sorry, at a given point in time, the issue is that if the contract was to be closed out, at that point in time you would owe this money. So that's the amount you have to put out. And that creates hugely volatile liquidity demands on people.

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And no matter how big a company you are, like AIG, if somebody comes to you and asks you to cut a check for \$18 million -- I'm sorry, \$18 billion -- it's not easy to reach into your back pocket and just hand that over.

And as liquidity pressure has built up in the system -- and this is where leverage gets attenuated through the system. So you have somebody dealing with somebody who has these collateral provisions, but they're leveraged. So basically what happens is, they have to draw down certain lines which transmits the risk to other people who are also leveraged. It makes the whole system quite fragile.

There are two or three other things here which I would very briefly mention. One is complexity and built levels of knowledge.

In my belief, the system is extremely complex. And also what is very, very clear, and it's become clearer to me over the last, probably, ten, 15 years, is there's probably less than 2,000 professionals in the world who would pass a fairly rigorous test on how derivatives work and how this thing works with the financial system.

And given the number of players now in the world, those 2,000 people are very, very thinly spread.

And the people with Ph.D.s in the room will forgive me for saying this, because I deeply believe that, Joseph Stiglitz in his recent book, "Freefall," said something which I literally had to wire my jaw back up when I read this statement, he basically said that there's no point in asking professionals for advice on derivatives because, in his view, the multi-lateral development agencies like the world banks had basically specialists who would be able to deal with that. Generally, those specialists are identified because they walk around with white canes, dark glasses, and guide dogs.

And this is part of the problem that you're going to have, is a problem of expertise. There is no way you're going to get a regulator who gets paid \$100,000 to be able to match wits with people who get paid \$10 million. That's just the nature of talent.

And, you know, as George Bernard Shaw once said, "The most unfair thing in life is to assume that people are equal." And that's what our markets have assumed.

And I'll give you a signed bet on that, the idea of a sophisticated investor, which is much in demand -- or much in debate, rather -- with Goldman Sachs is indictment. Anybody who thinks IKB, the German bank, is a sophisticated investor is delusional. I have

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dealt with IKB over the years. I've dealt with many other German Landes banks. And, generally, when there is a disaster in the world, there are four people you always find at the zone of the disaster looking crippled and deeply injured, and they start with the German Landes banks, the Japanese banks; and usually, you find Citigroup and Merrill Lynch somewhere nearby

MR. SEEFER: We are going to bring you out here.

MR. FELDBERG: First-class.

MR. DAS: Well, if you pay for me, I will come.

But it is actually quite, quite fascinating to see that. And I know because I used to work at Citigroup and I used to work at Merrill's. I know. I do understand what I'm saying because I used to sit there and I used to shake my head as to what that organization did.

But, anyway, so effectively, there's a huge issue of knowledge and complexity and asymmetry.

And the last element is effectively, when we look at this, just on a knowledge point, is what has happened over the last 15 or 20 years? The whole business has become industrialized. By "industrialized," I mean, it's become like a production



line.

Because when I started in derivatives, there were kind of, sort of dilettante bespoke products, where we used to sit there and rub our chin and look at each other and make profound, sort of, statements about certain things.

These days, it's an industrial process. And what that's done, is fragment the knowledge even further. The fragmentation of knowledge is actually extremely relevant to the problems. The right hand doesn't know what the left hand is doing, okay.

And I'll give you a concrete example of that, of how this works, which actually was very relevant in this crisis. As you know, many banks were writing these poor-quality subprime mortgages. If you actually look at the poor-quality subprime mortgages, the people writing them -- this is the people who were actually approving the loans, et cetera -- were not stupid. They knew, effectively, that these mortgages were essentially like hand grenades with the pins pulled out. It wasn't a question of whether they were going to blow up, it was just when.

So mostly they did it because they could then repackage them and sell them to investors on the other side.

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Now, those banks at the one side, what I would call the loan-origination and repackaging side were acutely aware of the risks, and were very, very keen to basically get rid of the mortgages off their balance sheets. And they, to varying degrees, succeeded.

Now, to give you some idea of how poor the internal coordination in the banks is, those same securities that were being created -- and these were being put through rating agencies, models, and made into AAA securities and so forth -- other parts of the bank were doing two things to it, which are quite hilarious:

The first thing they were doing was, certain parts of the bank, because it was AAA, were allowed to invest in these. So noted.

You know, one side of the bank is saying, "This is just toxic nonsense. Another part of the bank is saying, "Well, this is now rated AAA." They don't actually look through to the underlying at all. And their risk managers are approving them, and allowing them to hold tiny bits of capital.

MR. SEEFER: Look at Citi.

MR. DAS: Another part of the bank, which is the prime brokerage, which is dealing with hedge funds, is allowing hedge funds which own these AAA securities, like the now deceased Bear Stearns funds and a whole

bunch of other funds, to borrow up to 98 percent of the face value of these securities because they're AAA, without even concerning themselves -- in fact, they didn't know -- I know this for a fact -- they didn't know what the underlying securities were.

And this comes because the cultures in the bank are so different and there's a lack of coordination. And anybody who thinks banks are properly managed, you know, can't spell the word "management." And anybody who thinks that the directors are there other than effectively to provide social airs and graces are kind of missing the point somewhat, because there's just no way they can have the depth of knowledge that you actually can have.

If I go and look at the AIG board, for instance, there are several diplomats, there are -- there's, I think, an admiral from the Navy. And unless AIG was planning to wage some sort of war with nuclear aircraft carriers, I'm not sure if they had the right board for the business that they were in.

And there's just no way. I've sat on boards, and I do understand what the problem is. There is a huge gap in knowledge. So there's a huge complexity information asymmetry, management, directorial problem, in this.

And the last thing I would say is what you already know, is the incentive structures in the business are such that it is palpably open to some problems. And -- but rather than bore you with executive-compensation issues, which I'm sure you'll get tons of, I just want to point out some of the problems in that whole area which people don't often talk about, one of which they don't talk about is the difficulty of marking these instruments to market. And this is where the use of mark-to-market accounting is basically problematic.

Now, mark-to-market accounting was developed by a bunch of accountants who basically didn't have the personality to become actuaries.

Now, essentially, they have almost no understanding of how this mark-to-market is. They have this mythical idea that somewhere on a screen -- and when they go into dealing rooms, they see the bank of screens, and they immediately assume it's a bit like the tablet coming down from Mount Sinai carved in stone, that's what's there is actually true.

And so basically, they assume these are actually numbers.

Now, the fact of the matter is, particularly in the OTC derivatives market, very few things can be

properly valued, because very few things trade with the regularity that allows you to actually mark these things to market.

Now, that means that most of it's mark-to-model. And depending on the complexity, some of the mark-to-models are okay; but there's a whole bunch of things which are mark-to-market, which are not really a mark-to-market. At best, they're mark-to-model. But as I am fond of saying, and as I have said in print several times, this is not mark-to-market, this is mark-to-make-believe. Because a very small change in any of those assumptions can have material impact on the valuation of those positions.

Now, the next thing about that is, there is no way to verify this stuff, and it's a very circular process. The traders create the models -- or, to be very honest, they know what they want the model to say. So they get the quantitative people to create the models, which give them the answer they're looking for in the first place.

And then that model is used to calculate the risk. The regulators use the model to, say, calculate the capital. Then the credit people use that to calculate the credit risk. And then what they do is use this to mark-to-market their books and show how much

money they've made. It's a completely circular process.

And this is not a process which can be changed fundamentally because of the nature of these instruments. They just don't trade. And that's the fundamental problem that you have.

The second thing is, the mark-to-markets are bad, which creates a problem. But the other problem is, when you're PV'ing [*phonetic*] cash flows back to today, to actually value these, there are certain hidden costs down the track which are very, very imprecise and very, very difficult to actually value. And that became hugely problematic.

So the executive compensation, people focus on lots of things.

But Warren Buffett, at his *Woodstock for Capitalism* this year, made the comment which is that he disliked performance schemes, which were somewhat like archery, where you fired the arrow; and wherever it landed, you went and painted the target around, to make sure the arrow had hit the bull's-eye. Because that's what most of this industry does. That's a huge problem.

Now, the other problem is, in terms of compensation and so forth, is a somewhat different issue, which is people seem to misunderstand why derivatives and risk-taking became so important.

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Now -- and I would just make the following observation: People don't exist in vacuums, okay. Bankers don't create these products because they essentially think them out. There's a great myth about productivity and creativity in bankers. Bankers are among the most uncreative, dull people I have ever met in my life. Now, they couldn't invent anything.

What it is driven by is forces from corporates and from investors who are looking for ways to make money. And I think you have to understand that, fundamentally, it became very, very difficult to make money in real corporate activity. Because one of the side effects of globalization, which nobody really focuses on, is that it absolutely crushed profit margins for most people. There's a few people who it helped, but they were few and far between.

And so what these people now do is they really rely heavily on financial activity to make money. And this is why there were lots of problems with Asian exporters with certain derivative structures which they entered into, which weren't really hedges at all but were highly speculative transactions. The reasons they actually entered into that is, effectively, that there is very -- there's almost no way they can actually make money without speculating. And, in fact, ironically,

it's even worse than that. They can't actually hedge because the cost of hedging would be far greater than their profit margin.

And investors on the other side, for a whole bunch of reasons, effectively are chasing returns. And the returns they're chasing are for two reasons -- and we can sort of stratify the investor pool quite easily.

For instance, if you have a defined benefit pension plan. And we all know -- I mean, the U.S. Social Security is a very good example, you're hopeless underfunded. So how do you make that up? I mean, the logical person would say you put more money into the fund. But if you don't have the money, well, that's going to affect your P&L.

Now, under those circumstances, what you do is, you chase returns.

Individuals, as you know, in the United States effectively are in particular 401(k)s. If you actually look at what they have to earn in terms of returns to have a reasonable sum left for them at retirement, they have to chase returns.

So all of those types of things create an environment when risk-taking became paramount. And in my judgment, what happened with derivatives was just a very elegant way to give them those risks, and that's



what happened. As we've just been talking, there's a whole bunch of risks in derivatives which are inherent in them. And effectively -- you know, it's like the old famous Mae West line: "I used to be Snow White, but I strayed." So basically, that's actually, that's what happened with derivatives over a period -- not of five years or six years, but like 20 years.

This started -- I saw this happen -- in the middle to late 1980's; and it gradually got worse and worse and worse. That's what happened.

Anyway, that's a half-a-hour answer to the first question. At this rate, we're going to be here at Christmas. But -- so basically, that is what the problems with derivatives are.

MR. STANTON: I have a question, please.

I haven't read much of your work. After your marvelous discourse just now, I plan to read a lot more. But I did read your chapter in your book on risk management which was, if I may say so, somewhat disparaging.

And I'm curious --

MR. DAS: Disparaging? I was basically being vicious. You don't have to say "disparaging."

MR. STANTON: All right. My question is, given that we have large, complex financial

institutions --

MR. DAS: Yes.

MR. STANTON: -- we have people in serious positions who may not understand what they need to understand. I've only seen two models so far of companies that managed risk well. One of them was a company, JPMorgan Chase, that had a principal that said, "If I don't understand it, I don't do it." Just a fundamental logic.

The other one, of course, was Goldman, where they presumably did understand it better than anybody else, and it is a relative game.

I'm curious, for all the rest of the firms in the world -- financial firms in particular -- what do you recommend as the most appropriate risk-management processes, structures, et cetera?

And then later, we can go to the questions you raised about the board.

MR. DAS: Okay, the first thing is, let me just sort of make a small observation about JPMorgan and Goldman Sachs, or whoever did well out of the crisis. I think there is a great degree of mythology about all of this. To be very blunt, they were lucky.

MR. STANTON: Okay.

MR. DAS: Okay. Now, that doesn't mean they

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did not have the same processes in place that would have worked very well, but they were lucky.

And I will make one slight observation about that, is -- and let me explain why I think they were lucky.

Goldman Sachs got lucky because John Paulson came to them. What is very clear in the indictment is, Goldman's famous risk management was more a result of John Paulson pointing out certain things to them, and Goldman's light bulb going on above their head, going, "Oh, my God, he's right."

The second one was JPMorgan was lucky because they would have actually had the biggest problem of anybody because they had the biggest derivatives books.

MR. STANTON: Uh-huh.

MR. DAS: It's because the part that would have blown them up was in disarray. Because when JPMorgan and Chase merged, their credit derivatives operation had a lot of problems because the cultures were different, the people had a lot of staff turnover. And during that period, when, effectively, everybody else was loading up, they effectively were in complete disarray for about three or four years. And essentially, they were able to avoid that.

So I think you need to be -- and I'm not

saying that they didn't do their jobs properly. But the point I'm making is, they got lucky.

The fact of the matter is, almost every bank essentially has exactly the same procedures, the same processes, the same, exact models they use, with slight variations.

And let me explain why that's the case. The first thing is, the regulatory rules actually prescribe the models. So the market-risk amendment of 1994 to the BASEL I Accord is what everybody still follows. Now, what most banks do is supplement that with essentially some variations to the statutory or the regulatory models.

Now, there may be some variations, but I have worked with quite a few of these institutions. The differences are there, but they are neither profound enough or significant enough to actually make the type or quantum of difference that you're talking about.

So then the question becomes, if that's not the case, what makes the difference?

I think there are certain things. One of the better firms that I saw in my working life in risk management was a company which became part of, ultimately, now UBS, it's called, "O'Connor Partners," which is a Chicago -- small Chicago specialist

derivative firm on the exchange. And what I learned, dealing with them, was they were good at it because it was their own money. It was actually as simple as that: It was their own money, and they didn't have a lot of it. So they hung on to their capital very, very well.

MR. FELDBERG: That's Econo Partners?

MR. DAS: The second -- that's O'Connor Partners. O'Connor Partners.

MR. SEEFER: O'Connor?

MR. FELDBERG: O'Connor?

MR. DAS: O'Connor, "O," apostrophe, C-O-N-N-O-R, Partners. It's a very famous firm.

And then they were bought by SBC, and then they were bought by UBS.

And effectively, if you actually look at that, and you look at UBS and you look at what they did, they adopted a lot of the systems -- not all of them -- but it shows that the system itself is not the issue.

I think there were two fundamental things that you also need. You need to have risk managers who are very good; but the point is, nobody wants to be really a risk manager in a bank. Why? Because we all like to say "yes." The risk manager's job is to say "no."

And the other thing is, if you really don't want to be the prom queen or the class captain, that's

a job you really go for. And I have met very few masochists in my life who like that. Because it's a horrible job.

And the other thing is, you also have enormous business pressures within the firm on risk managers. And no matter what you do to try to protect them, it's very difficult.

The other thing is, that's not only at the senior levels, those are the junior levels. Nobody effectively in the risk-management area, at the junior levels, sees that as their long-term career. They basically want to move into the front office, to trade or sell, and make \$5 million bonuses. Because in risk management, you're never going to make that.

So under those circumstances, what happens is, you have to deal with traders, salespeople, structuring people who, probably for 50 percent of the time, you're trying to do their job and the other 50 percent of the time, you're trying to basically, essentially do a recruitment interview, so they like you and think you're good so you're going to get a job with them. And that's fundamentally what happens in all of these banks.

And then you have very complex oversight layers where the blind are leading the deaf and dumb. So basically, it's just a complete farce.

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I mean, Lehman's had Henry Kaufman, the original Dr. Doom, because Nouriel Roubini isn't the original Dr. Doom -- on their risk management committee. And Henry Kaufman is not a person without ability, yet the risk management committee at Lehman only met twice a year. In fact, I think they only met twice in 2006 and 2007.

So the processes are there, they're very similar; but they're effectively not used in any meaningful way. And getting the quality of staff is important, getting them to do their job.

And, look, the reality is that there are very few fearless whistle-blowers in the world.

And the last comment I would make is that you cannot at all dismiss a culture. Almost all of these people go to the same universities or come from the same universities which the same doctrines are taught. The cultural milieu is very, very similar. They think the same, they talk the same, their ambitions are the same, and they have a very, very cohesive world view, which does not effectively withstand any tight scrutiny.

One book I would recommend you read, which is -- it's got nothing to do with finance -- it may be a little bit of a challenge -- is a book by a woman called Karen Ho. And the book is called, "*Liquidated*." It's

an ethnography of Wall Street. It's hard reading, but you can skim a lot of it. But you get an idea of the cultural constraints. And she's basically an anthropologist, who's working in the field of ethnography. And it's very interesting to see exactly the cultures.

And that's why risk management can never work. The risk management can never, ever work in that sort of environment.

And, you know, I don't want to be negative about it to the point of saying it can never be made to work; it does work sometimes a little better, but there's a lot of problems. And the fundamental thing is, human beings have an almost infinite capacity for self-delusion. And one of the pieces of self-delusion we have is that risk is something we understand and we can actually manage.

And I think it's always useful to go back to Frank Knight's concept of risk versus true uncertainty. What is really problematic is real uncertainty. And, frankly, that's very, very difficult for people to grasp. And I think a lot of the modern intellectual disciplines mask that to a degree, which is extremely, extremely dangerous.

And so all of those factors in risk management



become very, very important.

And, look, I think you can do whatever you like with the board of directors, you can do whatever you like with the internal structures -- and I'm sure you will. At the end of the day, I do not think it will guarantee success.

And Mr. Greenspan is not one of my favorite people on the planet; but I think he was right when, in one respect, he said, you know, when he was asked a question, I think at his testimony last year before one of the committees, where he said, "Look, Senator, I could regulate and I could assure you nothing will happen; and I can not regulate, and I can't give you any assurance that there won't be a failure, and that's exactly what you're going to sign."

Now, that doesn't mean you shouldn't try and improve it, but I think you need to have realistic goals.

But if you really want to do this, this is not something you're going to do, I know; but I could tell you how I would do it. One is, you'd want to make sure that all their net worth is in the sum. And you would basically say that if you felt a discharge of fiduciary duties, you would be basically shot by a firing squad if you were if you were *[unintelligible]* found guilty.

That would basically focus the mind wonderfully well.

MR. SEEFER: I think so.

Let me ask you one thing, since I believe when you were talking about the various areas on these derivatives, we were primarily, if not exclusively, talking about credit derivatives.

Do you see --

MR. DAS: No, I was talking about derivatives generally.

MR. SEEFER: Okay. Well, if you can then -- and, obviously, you can see I'm not one of the Ph.D.s in the room -- can you say something about the role of -- I mean, we have the various kinds of derivatives. And I will tell you, we have been certainly looking probably more at credit derivatives than other types of derivatives.

But were the other types of derivatives part of the causes of the crisis or the propagating mechanism of the crisis, whether it's interest-rate swaps, foreign-exchange swaps, equity, et cetera?

MR. DAS: To different degrees, yes. But you have to remember, this crisis, is the crisis of debt, the amount of debt. The securitization techniques and the credit derivatives which basically deal with debt will have a much greater disproportionate role.

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If you actually look at the volume of CDS contracts, credit default swap contracts, at the peak, it was around about \$62 trillion.

MR. SEEFER: Right.

MR. DAS: Which is less than 10 percent of the total outstandings of OTC derivatives.

MR. SEEFER: Right.

MR. DAS: But because, effectively, they were at the heart of the credit complex, they made things worse.

So this is one of those problems with going from one crisis to the other.

You know, the '87 crisis was a crisis of equity markets. The '97-98 crisis was one of emerging debts.

Each crisis, to some extent, is slightly different; so that the derivatives that affect it will be the ones that are most germane to what is, if you like, the central epicenter of a crisis. This just happened to be credit this time around.

But also, I think the fact that it was credit derivatives and securitization which led to the heart of this crisis, also has a subtle bi-line, and the bi-line is this: If you actually look at banks, no matter what anybody will tell you, the core risk a bank takes is

credit risk. And so the fact that these instruments related to that is actually extremely important.

Let me explain what I mean by that. What I actually mean by that is the essence, the fact that people thought they could use these instruments to transfer risk, created the moral hazard issue that they started to take on more and more risk because they thought they found the magic, sort of formula for making money with no risk. And that really was why they became important.

And I know you will be asked questions about things like sovereign CDSs and so forth. They are kind of, to me -- the best way to describe a sovereign CDS is it's like -- it's like basically *Alice in Wonderland*. It's like the Cheshire cat.

Can I ask you a really simple question?

The thought of JPMorgan selling protection on the United States has to be an oxymoron; doesn't it?

MS. NOONAN: Is the point that if the United States isn't making good on its debt, then JPMorgan isn't going to be able to?

MR. DAS: Exactly.

MR. FELDBERG: And we bailed them out.

MR. DAS: That's right. Because JPMorgan was selling protection to the United States while you were

bailing them out. It was quite funny, I thought this was just completely like the Cheshire cat. Eventually it's going to grin at you and disappear.

MR. SEEFER: It's brilliant.

You know, another thing that we're looking at is --

MS. NOONAN: Well, because they're making money on something that they're never going to actually have to pay out on.

MR. STANTON: Talk about counterparty risk.

MR. DAS: I generally like making promises that I don't have to honor as well.

MS. NOONAN: Right.

MR. SEEFER: Don't we all?

Another thing we're looking at, is the whole amplification within CDS, whether it's the use of naked CDS or whether it's, you know, synthetic CDOs that, you know, where bonds are referenced in multiple CDOs.

Have you done any work on that or do you have anything you can help us with on that?

MR. DAS: Look, I think -- there's a couple of things I would say. Look, the issues about CDSs, if you are logical, you will deal with as part of the derivatives issue overall. Because I think once you start to basically deal with -- try to segment the

derivatives universe, it's very dangerous. Okay, let me explain why I mean that.

If I say it's a CDS, how is that different from a derivative on a bond? It's not. It's exactly the same. So you get into definitional debate, which is what, as you know, the Senate and the House of Representatives are now in a tangle over, it's a definition of standardized derivatives and this is non-standardized derivatives. It's not a distinction which you need to make. So I think you need to deal with them overall.

Now, coming back to the naked CDOs issue, it goes to the issues we've talked about. If, effectively, you want these instruments to use as hedges, then basically you have to have an underlying position. It's as very simple as that.

And so if you own a loan and you're hedging it, that should be permitted.

Similarly, if you want to take that risk, instead of buying a bond, you basically are buying the risk through a CDS contract, that should be permitted. But you should have to put up 100 percent of the cash. Because if you bought the bond, you would have to put up 100 percent of the cash.

And once you put those rules in place, that

will effectively deal with one element of the problem.

Now, let me also give you the lobbyists on the other side who are going to come back to you. Their argument is going to be that, effectively, this will destroy the civilization as we know it, the Parthenon will crumble, the Capitol Hill will sort of have a crack open up underneath it, because liquidity in the markets will disappear.

The financial markets are generally not liquid, anyway. Okay, that's the first comment I would make.

Secondly, liquidity is not costless. Liquidity has a huge, huge cost. And one way to look at it is, a speculative interest is actually when it blows up, the cost of that liquidity.

And so the question is, you have to weigh the two up. And if you ban naked CDSs or naked derivatives generally, you've got to make up your mind that the cost and the benefit of that argument is in your favor.

And my view is, derivatives are just too large at the end of the day. They have to be brought down in size. That's the bottom line. And --

MR. STANTON: Let me ask quickly, how --

MR. DAS: -- you have to find a way to do it.

MR. STANTON: I've got a question. I mean, if

somebody creates a clearinghouse for derivatives in the United States, what's to stop the same trades from going to London or taking on a different form that hasn't been defined in the statute?

MR. DAS: Did I send you the paper called, "CCP Trans[unintelligible] Solutions?"

MR. STANTON: I don't have it, but I'd be delighted to read it.

MS. NOONAN: Yes, you sent it.

MS. SHAFER: Yes, you did.

MR. DAS: Yes, that goes to the clearinghouse.

MR. STANTON: Thank you.

MR. DAS: My only comment is, this is like aspirin. It cures everything.

It's not going to clear anything.

The first thing is, the whole proposal is deeply flawed.

The second thing is, to make this work, you have to have one clearinghouse globally.

Now, you're struggling with "too big to fail." This is "too big to survive."

And there is just no way the Chinese, the Europeans, the Japanese, the English and you are going to agree to have one clearinghouse. So you're going to have multiple clearinghouses, which has two problems.



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One is the problem that you've just mentioned, is that are you going to get migration to the clearinghouse which suits them.

Or secondly, the problem is going to be, there will be multiple clearinghouses with what we call "interoperability agreements" between them, so you can clear through them. And that is a recipe, in my judgment, for complete disaster.

MR. STANTON: I didn't mean to take you --

MR. DAS: One thing -

MR. STANTON: -- off course. Thank you.

MR. DAS: No, that's fine.

Just one last comment I would make on that, which is kind of interesting, is that one of the things I don't understand -- and you will pardon my somewhat bemusement at the attitudes of the United States to anything which is state-owned. I think there are certain things which have to be owned by the state. And effectively, one of the things I would have thought is, the clearinghouse would have to be owned by the state because it's the ultimate "too-big-to-fail" backstop entity.

And if you actually put this into private hands, it will be a disaster. The reason it will be a disaster is because if you look at individual commercial

entities running these things, they will want to make a profit and they will want to compete with each other. And the only way you can compete in a clearinghouse is to make the credit terms and the terms of engagement more loose, not more stringent. And that is not what you want in a clearinghouse. And that is fundamental to a clearinghouse. And that's going to be hugely problematic.

And the day they put a clearinghouse in financial markets, I'm basically buying a lot of cans of baked beans, salmon, and tuna, I'm getting a gun -- and I'm not great gun fanatic -- and I'm putting in an electronic barbed-wire fence, and I'm growing my own vegetables with my own spring and sitting there, waiting for the people who are the sort of extras from the road to come down the track.

Where were we again?

MS. NOONAN: Well, I mean, are there not any examples of other clearinghouses that work? I mean --

MR. DAS: Oh, yes, but they're very specific. They're very narrow.

See, it's like -- there's always a problem of scaling, right? Something works on a small scale. But when we make the scale too large, you have different problems.

We're trying to make this a central counterparty work for everything. It would work on a small scale. I think when you make it to the scale you're looking at, it becomes very difficult.

For instance, I'll give you a very simple example.

If you make a very large central counterparty, which is now going to basically be netting contracts which range from basically catastrophe bonds with derivatives to credit derivatives, to interest-rate and foreign-exchange derivatives -- potentially the foreign exchange seems to have fallen off the cliff -- but basically, if you try to net all those positions, this is going to be very difficult, and we're going to go back to assuming things about correlations between asset classes which the history will make monkeys of.

I can see a certain level of depression is setting in on your side.

MR. FELDBERG: Fortunately, we don't have to come up with a solution. We just need to explain what happened. And...

MR. DAS: That's right. I think you're in a very -- I had a lovely conversation with one of your senators' staff, who at the end basically I don't think ever wanted to talk to me again. Because they were

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almost 28 years old and bright and bushy I'd about changing the world. They discovered the world changes them, not the other way around.

MR. SEEFER: Yes, yes. And they were probably even younger than 28.

MR. DAS: They probably were. But I was giving them the benefit of the doubt.

MR. SEEFER: Right.

MS. SHAFER: Have you paid a lot of attention to data selection and who has decent data, if at all, and what data should be looked at?

MR. DAS: You mean, going backwards or going forwards?

MS. SHAFER: Well, first, backwards, actually.

MR. DAS: Look, the only data -- a little basic of history. Originally, nobody collected any data, okay, because it was all internally within some institutions.

In the eighties, what happened is a few institutions that were smart realized that the data gave them competitive edges, so they started to collect some data. And people like JPMorgan, Chase to some extent, some banks which now don't exist, like Bankers Trust, collected a lot of data.

Then what happened was in the

nineteen-nineties, there was a lot of data on financial market prices which were put together, mainly by JPMorgan, which has now been spun off into Risk Metrics.

And then finally, the last phase was Market Partners, which is basically a utility firm which is owned by all the banks, which is, I call it, the plumber of financial markets. And they essentially provide a lot of mark-to-market information and lots of information. But it's mainly price data.

Now, there's a parallel effort which came in, in response to regulatory noises, which is the DTC repository, which collects a lot data, particularly on CDS contracts and feeds them back to people, which was really a regulatory information-gathering exercise to provide more transparency and so forth.

Now, I think that's all very positive. I think that's very, very positive. But what you've got to be really, really careful about is, A, the quality of the data; and the second thing is, the detail and granularity of the data. Because I'll give you why I think it's kind of interesting.

You will remember about two years ago, Société Générale was blown up by Mr. Kerviel. Mr. Kerviel reported net positions, and his net position was zero. The problem is, he was long \$50 billion of certain

stocks. And the reason he showed zero was he had these fictitious trades on the other side showing net, that he was long and short. So when he netted the two things out, he had no position.

So if you start to get net data, it becomes very difficult. And since it's all about the degree of granularity -- and to some extent, the information-gathering is very valuable, but you need to understand what you're trying to do with the information, how that will help you achieve whatever regulatory or control objectives you have, and get that.

And the industry will always say that it's competitively fenced in and essentially people will trade against us if they know the data. And that's absolutely true. That's absolutely true. So balancing that is not easy.

And also what you have to do is, you can't collect fragmented data from one class of institution or from one geographic location. So you would have to collect it for everybody -- every institution which is active in the market.

And let me explain why that's important because people often use filters of size of positions and trades. And if you go back to my example of embedded leverage, I could have a very small trade, but

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its potential amplification of loss under certain circumstances could be huge. And that's what you've got to be careful about.

MR. FEDLBERG: So what should we be most concerned about when it comes to causes of the crisis? I mean, you know, obviously, the losses to Citi and AIG and UBS were probably the biggest places where derivatives were relevant.

MR. DAS: Sure.

MR. FEDLBERG: But are there other ways where it was -- where the market had an impact?

MR. DAS: I think one of the things it did was transmitted the virus fairly effectively. So if you think of Citigroup and so forth as Patient Zero, they slept around a fair bit.

MR. FEDLBERG: So more or less allegorically? Metaphorically? \*\*

MR. DAS: They traded with everybody. And this is a concentration risk issue, because basically, there's only less than 12 dealers in the world to which everything flows. And so once you get -- and the problem is, if Citigroup infects Barclays, then Barclays can infect thousands of people.

MR. FEDLBERG: So what do you think of them? Some people argue to us that the derivatives market

actually worked very well; and even after Lehman went bankrupt, trades were transacted as they were supposed to; and that the only real problem is that there were kind of nodes in the system, or dead-ends, like AIG, where there was no hedges, so people had to take losses.

MR. DAS: You're talking about my friends at ISDA, I think.

MR. FEDLBERG: I think that's very likely.

MR. DAS: That's right. Mr. Pickel.

I think -- isn't it a wonderful name for somebody to -- who has to be the head of the trade organization with the name of Pickel? I think it's just got to be one of life's great, great, surreal pieces of divine humor.

But, anyway, leave that to one side.

It worked well in the sense that, effectively, it functioned. But let me actually now pick up on that point since you've raised it. A couple of interesting issues that I would raise with you. ISDA is a private body, it is actually, basically, funded by the industry. It's a lobby group, yet it plays a very disproportionate role in financial markets. And I'll explain what I mean by that. I sent you a series of papers on credit derivatives, because that seems to be an area of focus.

Particularly, I draw your attention to the one



called, "Quantum Mechanics." And effectively, what my argument there is, is that ISDA have created documentary framework is almost extrajudicial. They have now what they call the "Determinations Committee," which now determines whether somebody has defaulted or payments will be made and credit default fault swaps.

MALE SPEAKER: Uh-huh.

MR. DAS: Now, to give you some idea of the extent of that and the problems that it causes, AMBAC has not filed for Chapter 11 or any other form of bankruptcy, to the best of my knowledge, yet the ISDA Determinations Committee has ruled that they actually have triggered the bankruptcy provision of its CDS contract, okay, which is quite extraordinary.

And technically, that might be correct, but it's kind of an extraordinary step, is the first comment I would make.

The second thing is, if you actually look at the paper it goes through, that the mechanism by which they work out the pay-out on the CDS contracts themselves have exaggerated the losses enormously, which suggests that these mechanisms have distorted the market quite considerably.

And I do not see how that sits particularly well with the comment that everything has functioned

hunky-dory.

The next comment I would make is that you should look at Lehman's and the Lehman's bankruptcy proceedings, because there is an awful tale of what goes wrong with derivatives.

And I have to be very careful talking to you about Lehman's because essentially I have some involvement in the matter, so I will tell you what I can. But there's certain things I can't talk about.

The major thing is, when Lehman's failed, all the derivative contracts with Lehman's would have either automatically terminated or been able to be terminated.

Now, that would require the following procedure: It would close out all the contracts, and the idea would be that you would value them. The way you're meant to value them is basically value them at market prices by getting market quotations. And the idea is that everybody on the other side would go into the market and hedge themselves, and they would work out what they either owe Lehman's or what Lehman's owes them, and then there would be a settlement.

That process, if you go to Lehman's bankruptcy, you will very quickly discover that basically most of the contracts did not actually settle in the way that it was intended. And there are huge,

ongoing legal disputes about that. And this is all on the public domain.

And if I can make one suggestion: You might like to get somebody from the firm of Alvarez & Marsal, which is actually running the restructuring of Lehmans. And you might interview them about their experience with the derivative contracts. I think that would be fairly salutary. And perhaps then, you can calibrate the issue about whether or not the contracts worked as intended.

MR. STANTON: Is that in the trustee's report as well, this information?

MR. DAS: That would be in the trustee's report, you're absolutely correct. That may be in the trustee's report or the -- are you referring to the trustee's or the examiner's report?

MR. STANTON: I'm sorry, the examiner's report.

MR. DAS: I'll be honest, the examiner's report has some of that. But the examiner got a bit excited by repos, the repo when it [unintelligible], they spent about 2,000 pages talking about that.

But the better one to go to would be Alvarez & Marsal actually have to publish a statement. And so in the court filings, you'll find a very voluminous document, plus some PowerPoint slides which set out this

process.

To give you some idea, probably less than 50 percent -- very much less than 50 percent of the derivatives contracts at Lehmans had opened, which was like 1.2 million contracts, have actually been able to be settled and closed out.

MR. FEDLBERG: I'm sorry, what percent?

MR. DAS: But, of course, ISDA doesn't find it convenient to talk about that.

MR. STANTON: Thank you.

MS. NOONAN: Yes, this is Dixie Noonan. I have a question.

You talked some about models. Do you have any familiarity with the model that AIG used to price its credit default-swap contracts?

MR. DAS: Yes. It's a standard model. There's nothing unusual about their model.

MS. NOONAN: Is this the Wharton model or is this the model that --

MR. DAS: No, no, no, it's not the Wharton model.

Basically, what you do -- I mean, it's not rocket science at the end of the day.

What do you model these securitizations? You put in a bunch of default probabilities for the

mortgages, then you say if they're going to go and not pay me, how much can I sell the house for? How much is the mortgage outstanding? So how much am I going to lose? And you put in a default correlation factor, so that basically if one bunch of mortgages goes down, one other bunch of mortgages will simultaneously go down. That's all you put into that.

But it's not the model -- the model itself is fairly standard, and the Gorton model -- did you say Wharton or Gorton?

MS. NOONAN: Well, I think it's the same thing, but yes. I said, "Wharton."

MR. DAS: Gorton is the guy -- the poor guy who's going to go to his grave being blamed for this, together with David Lee.

MS. NOONAN: Is there a reason why he shouldn't go to his grave, being blamed for it?

MR. DAS: Absolutely, because he did what was standard practice.

He was asked to solve a problem, right? He was asked to solve a problem of, you know, how many of these mortgages are likely to default and how large are the losses to be? He solved their problem.

What he did not solve for is what could happen, even if these mortgages didn't default in terms

of the market-to-market, which is based on credit spreads blowing out.

And this is quite important to understand. And since you raised this, it's worth spending a couple of minutes talking about that.

I'll have a bet with you that the AIG credit-default swaps on which they owed \$18 billion, if they're held to maturity, the losses will be different, and probably substantially lower.

MS. NOONAN: Right. Now, they have particular problems that were --

MR. DAS: The *[unintelligible]* mark to --

MS. NOONAN: -- I mean, it seems to me -- and correct me if I'm wrong -- it seems to me as though they had particular contractual provisions that made AIG post collateral in various events --

MR. DAS: That's right.

MS. NOONAN: -- that were different from other CDS contracts.

MR. DAS: No, no, come back a stage. You were correct in your first half but not quite in the second half. Let's go back, okay? Let's go back to the first things.

Now, if I sold protection to you on these AAA and super-senior pieces of mortgages, anytime I really

lose money, if the losses get to what's called the "attachment point," which might be like on these pools at 30 to 40 percent total losses, that doesn't mean that's not going to happen, but it's going to be highly unlikely it's going to happen on every pool of mortgages.

And remember, AIG sold protection mostly on pre-2005 and pre-2006 mortgage pools. That's the first thing, okay.

MS. NOONAN: Uh-huh.

MR. DAS: So if I can hold these things through to maturity, then effectively, there is a good chance that I won't lose that much money at all.

Now, the next thing is, then come back one stage and say, "Well, what was the problem?" The problem was, when I agree to mark these contracts to market, how do I do it?

Now, what Gorton was doing at AIG, he's using historical data on the mortgage defaults, likely levels of recoveries, and correlations to work out what he thought these mortgages were worth.

Unfortunately, the markets don't use that. The markets use market data. And what they do is, they calculate some of this import from credit spreads. So what happened is in late 2007, early 2008, as the

subprime losses went up, the credit spreads went up. Because, as you know, people who trade in financial markets don't make a very pretty sight at the first sign of panic. They may be very cool at Gorton Gecko's when things are going well, but they're not when things don't go well.

So credit spreads went absolutely ballistic.

And under those circumstances, what actually happened was, when you came to mark these contracts to market, there were massive losses. But those losses are just people's estimates of what they think they're going to be. Whether they're actually going to take place or not is irrelevant.

However, if you have to mark your contracts to market, firstly, that has an earnings impact.

And this goes back to my earlier comment, that basically if you're going to mark this stuff to market, you have to have a market. And there is no market for this stuff. So basically, you were just marking to model, and the models would try to be calibrated to market inputs, which is basically completely nonsensical because it's based on three people-who-are-panicking's estimate of what's happening in the world.

Then the next problem becomes AIG had a provision.



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Now, you have to go back in history. AIG was AAA-rated. And AIG Financial Products made its name in doing very long dated transactions, 30-, 40-year transactions. And I did some of these with them.

Now, when people used to do these transactions with them, there was always a point of debate with them. And the point of debate was simple: You're AAA now, but you may not be AAA in the future, so how do we protect ourselves?

So what most people did -- which is quite logical as well -- is to put in place what we call a contingent collateral provision. Under the terms of those provisions, if AIG got downgraded below AA-minus, then what would happen is, they would have to post collateral.

So this is actually worse than collateral normally, which is gradual [*unintelligible*].

So under those circumstances, what actually happened was that when the problem started, you had the combination of two quite toxic events, which is the fact of the mark-to-market prices on these mortgages was very, very adverse; and, in my view, overestimated the risk of default quite considerably.

And then secondly, you have this liquidity condition being triggered because theoretically AIG

had to pay over the collateral based on these perhaps-not-correct values.

So to go back to Mr. Gorton, Mr. Gorton was asked to work out whether he would lose money. And he may or may not be right.

But the second question is, he was never asked about what would happen if there was a mark-to-market problem and there was this collateral provision, which I suspect he wasn't even aware of.

MS. NOONAN: Well, whose fault is that? I mean, at some point, if they were allowed a model, shouldn't someone who understands those provisions of the contract work with rather whoever is putting the assumptions into the model?

MR. DAS: But if I can take you back to an earlier discussion, I pointed out that different parts of the same organization deal with different parts of the problem.

So Gorton was given a problem in a nice, little box.

Because generally, with quants, the way you treat them is you keep them in a little cage, you throw them some food occasionally, and you get them to do some party tricks occasionally. But you train them to do the party tricks.

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MR. SEEFER: And you don't --

MR. DAS: Frankly, you give them the stuff.  
I'm sorry?

MR. SEEFER: I was just going to say,  
apparently you don't throw them a copy of the CDS  
contract?

MR. DAS: No. No, no, no. Because, A,  
they're not lawyers. They wouldn't understand it.  
Besides, there's a selective fee. You don't want people  
to know too many things because that causes problems.  
And part of that is not because you're trying to hide  
things.

Part of it is, you don't want the person to  
decide to try to work out what the contract is when he  
may not, which may waste everybody's time.

MR. SEEFER: Uh-huh.

MR. DAS: So essentially, that's how the whole  
system operates.

And so, you know, there would have been  
something called a "Peratt" [*phonetic*] committee meeting  
or something. I have chaired these committee meetings,  
I have attended them, I have presented at them for most  
of my life. They're a joke, because a product like --  
if you do it properly, it would take you two or three  
days to go through very carefully and work out what the

risks were, and then actually deal with this.

But fundamentally, effectively, what would happen is that you would rely on somebody who gives you a ten-page report which you don't read, but saying to you at the meeting, "No, that's fine, I think we've got the risk all boiled down and I have a model." That's what it would boil down to.

And Gorton probably would not have seen the CDS contract. He wouldn't know known exactly how it was done. And he was basically answering the question he was put.

So if you gave him a grade on his exam answer, it would probably be an "A."

I think the stunned silence suggests that you had a much more high-tech version of how banking works.

MR. SEEFER: Maybe we were just under the false impression that the people that build models might know a little bit more about the product they're building the model for.

MS. NOONAN: Well, let me press this a little bit, and this is based on, you know, what I learned from reading Michael Lewis' book, "*The Big Short*." So we're trying -- we're partially sort of, I'm trying to figure out if what he wrote is right.

But if Gorton is the one who's responsible for

putting the correlation assumptions into the model on the risk of the rest of the mortgages defaulting, if some of the mortgages default, in Lewis' book, he says that Gary Gorton was asked, "How many of these loans -- how many of these bonds do you think have underlying subprime residential mortgages as their assets?" And he said something like, "Oh, maybe 10 percent," when, in fact, it was 90 percent.

So if the person -- I just -- I'm trying to figure out who I'm supposed to go ask, who should have known that the assumptions were wrong.

MR. DAS: You have to go back to the layers, right? Somebody writes the mortgages. He's the only person who probably knows whether the guy is actually, basically going to pay you back or not because he's looking at him across the table.

Then that's sold to somebody who then aggregates at a higher level of data, and somebody who aggregates it another high level of data.

By the time you get to the end, there's just no way, because each one of these mortgage pools would have between, say, two and half thousand and 5,000 mortgages.

Unless you go through all of them and actually collect the data, it's very, very difficult for any

person to do it.

And it's like everything. As you know, we use reduced-form models in financial markets because you can't deal with the complexity at that level of granularity. You just can't do it, so you simplify it. And once you do that, people lose interest in the detail.

I can give you a quote from one of the rating agencies, which basically the guy who was doing some of this said that he was an expert in the securitization process, not in the underlyings.

MS. NOONAN: Right.

MR. DAS: And he had no interest in the underlying.

Look, you know, I'll be very blunt with you: If you give me a financial problem, I'll make it elegant and simple. Why? Because I don't want to go and root around in 5,000 mortgages of some idiot in Nevada, whether he's going to pay me back or not, and how he's related to the next idiot in Nevada. I don't want to do that. I like buying loans. I don't want to go around, you know -- and these people are big, nasty, ugly, with tattoos and guns.

That's all my competitive advantage in life.

MR. SEEFER: What about -- have you heard

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any -- I mean, one of the things that we've read about and heard about from some folks that we've talked to is when we get into the spring and summer of '07 and the collateral calls come from Goldman to AIG, is that, lo and behold, you know, Goldman's models are resulting in marks that are substantially lower than any of the other broker/dealers and, lo and behold, that apparently is the first big collateral call on AIG, not to mention apparently having a ripple effect on Bear Stearns at the time, in terms of how they should be valuing their assets and perhaps contributing to the BSAM blowups.

Any knowledge about that whole area?

MR. DAS: Oh, I know a lot about that but there's not much I can tell you without having to kill you, but...

MR. SEEFER: Well, you're far away. I'll take that chance.

MR. DAS: Okay. No, I take my confidentiality and conflict of interest very seriously.

I can tell you certain things which are well-known, and I can't tell you other things.

MR. SEEFER: Okay.

MR. DAS: But just before I do that, coming back to your question is, I'm a little worried that you're relying on Michael Lewis' *"The Big Short"* as a

deep piece of analysis on this.

MS. NOONAN: It's just a starting point.

MR. DAS: I hope so. I hope so.

You know how there's chick-lit? There's now crunch-lit. And I would emphasize the "lit" part of the crunch. There's quite considerable degrees of factual inaccuracies, because I happen to know several of the individuals involved in all of this. And I also happen to know some of the episodes he's describing.

And there is -- and he writes beautifully. And so there is a little bit of literary license in that, which you need to be careful about.

But coming back to the margin calls. You've raised a couple of issues, okay. The first thing is, when did this all happen? People have the wrong idea. This started to happen at the end of 2006. I noticed this probably around the third quarter of 2006, because basically at that stage, what was happening was the mortgage brokers were sort of falling over like nine-pins. And that gave me quite a degree of considerable anxiety about what actually was going on. That's the first thing.

The second thing was, when the margin calls started to come, there was a huge problem because, as you know, when you do margin calls, you have to mark the



contract to market.

Now, the first thing is, nobody really knew where to mark [unintelligible] the market. And this also loops back to a question you talked about in models.

Now, effectively, the models used, what's known as a Gaussian copula, to do the correlation and the creation of the loss distribution.

Now, you have to put the correlation into that, and you take the correlation across the portfolios of mortgages. Now, without getting too geeky about it or too wonky about it, effectively what was happening is a little technical problem. If people sort of said, "Okay, well, really, the AAA should be priced at X," then what we were finding was the correlation had to be more than one to get to that number, which is, of course, impossible, which was pointing to me that the fact that the models are actually deeply flawed. But everybody said this was just an aberration. And since we didn't have a better model, so let's not get too head-up about this.

So what people decided to do initially -- which is the end of 2006, early 2007 -- is keep the marks on the AAAs at very close to par.

So what you have is a discussion which went

something like this: "Where do you think we should mark the AAAs?"

Everybody goes, "Well, we know it's going to pay back in full. So we really should be at par or a hundred."

"Oh, but all the other spreads have moved and we've got all these defaults. What should we do?"

"Well, let's mark it at 95."

That's what's going on.

Now, then what happened was, you will remember the introduction of the famous ABX index.

MR. SEEFER: Uh-huh.

MR. STANTON: Uh-huh.

MR. DAS: The moment the ABX index was introduced -- and I have to say, that was not a very smart thing for people to do. But, you know, we are all wise with the benefit of hindsight.

The moment the ABX was introduced -- so people like Paulson and everybody else wanted to short that. And then the other thing which also happened at the same time, was the banks, which had mortgages in their books, and because the securitization market was shutting down, and they had all this inventory that they couldn't move, they basically now had to go and hedge. And everybody started to hit this like there was no tomorrow. So it

was just technical.

And as that index fell to "4," now everybody had a problem, because you can see this index trading up there and you're marking these things at 95, AAA tranches, where effectively the market's saying it's trading at well below that to the ABX.

MR. SEEFER: Uh-huh.

MR. DAS: And at that point in time, things got very tricky. Okay, things got very, very tricky.

And so that's when people started to -- and then, you know, people started to put in model correlations of 140 percent into the AAA tranches to get to the number they needed to. And, in fact, the big problem was, how to make the Gaussian copula work with a correlation of more than one?

I remember having these discussions with three very puzzled people with backgrounds in non-financial disciplines, who said to me, "You want me to do this?"

And I would say, "Yes."

And they would say, "But this is stupid."

And I would say, "Yes, it's stupid; but this is what I want you to do because this is the number I want to come out of the other side of the system. So I don't care how you get there. This is the input, this is the output. Just go and code this thing up so it

works in this way."

And they would roll their eyes and look at me like, "This guy is insane."

And I'd say, "I'm not insane, but I'm paying your paychecks. So can we please get on with life?"

MR. SEEFER: So let me ask you another thing that you didn't mention that we've heard from some folks that also may have contributed to these problems in this time frame, was at least in the U.S., anyway, there was a change in SEC reporting requirements, that required people to disclose Level 1, Level 2, and Level 3 assets. And a lot of people sort of noticed, "Holy shit, look at all the Level 2 and Level 3 assets."

Any comment on that?

MR. DAS: Yes, I can certainly make a couple of comments about that.

I don't think that caused the crisis. It's just one of those wonderful things about transparency. Everybody thinks transparency is wonderful, and it later reveals the truth, then it's not so wonderful.

So, you

MR. SEEFER: Unless it would have been there all along, right? I mean --

MR. DAS: Yes, it's best not to know the evil.

It's like, you know, your partner says that

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she or he is working late at the office, when you think she is having an affair. Do you really want to know the truth?

MR. SEEFER: There's been a lot of memorable phrases from you during this interview.

MR. DAS: Never mind, never mind.

Anyway, coming back to that point --

MR. SEEFER: As I'm working late tonight, my wife is wondering where I am, so...

MR. DAS: That's right, that's right. And I will tell on you if you don't pay me a large sum of money.

I used to trade for a living; so, you know, don't ever tell me anything that you don't want other people to know. Never let a trader know anything that can be made to work against you. They will use it at some point.

MR. SEEFER: Of course.

MR. DAS: Coming back, just before I come back to the Tier 1, Tier 2, just to answer the question on the correlations and the marks, just to mention one part I just remembered, which is the Goldman Sachs accusations that they marked these positions at very, very disadvantageous levels to AIG.

That was the question as well; wasn't it?

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MR. SEEFER: Yes.

MR. DAS: Okay, look, I'm sure that was possible, but you will never, ever nail anybody on that for a very simple reason. I can just move correlations and some of the assumptions by one or two percentage points and get to the result that I want.

You certainly need to understand thing. Generally, when we use models, the traders and the people who really know what's going on, use the model to get to the number they think should be the number. And Goldman's probably said to themselves -- and I can never prove this, and you can never prove this, either -- you know, said that, "Look, this is going to get a lot worse. We need to get in more collateral while they have cash." So basically, you would move the number to a number that you're comfortable with.

And if you think this process is actually a scientific process, which has worked from principles of high science, that's not how it works, because that's what I would have been doing.

What I would have been saying is, "Look, they have money now? How much -- how bad do we think -- how bad do we think we'll get? If we need to get in \$5 billion, we'll tweak the numbers so we get to \$5 billion, for God's sake. Let's not be purists about

it."

MR. STANTON: Well, why would AIG pay it? Why would AIG --

MR. DAS: Read the agreement. Read the agreement.

The agreement is very clear: One party has the right to call for collateral and they have the right to do the calculation, and they're the calculation agent.

MS. NOONAN: Well, I mean, it's not quite that simple. I think there was a process where you had to get five dealers just to bid bids. But, anyway...

MR. DAS: Well, that's easy. That's the least of your problem, because all the dealers have the same interest because you have a quiet conversation with them, and the conversation is never conspiratorial, but it goes something like this: It goes -- you say to the guys, "You know, we think we're having some problems to actually marking these. You know, we think that's the number. What do you think?"

MR. STANTON: Got it.

MR. DAS: And they go, "Oh, yes. Yes, that seems right. Which side of the trade are you?," "Oh, that's it." "Oh, yes, we think that's right."

MS. NOONAN: So you said you were actually --

you were actually directing people to do models in this way.

What work were you doing? I'm sorry that I don't --

MR. DAS: Oh, don't be sorry. I consulted people.

So if somebody came to me and said, you know, "If the correlation's more to one, more than one, how do we make the model work?"

MS. NOONAN: I see. So you were just on the outside consulting basis?

MR. DAS: Yes. I don't work for anybody. Nobody would employ me.

Not if they have any common sense.

MR. STROEBEL: So -- I'm sorry, if I'm a little slow on this; but if you're trying to raise the marks, wouldn't you need the correlation to go down and not up?

MR. DAS: It depends on which tranche you're looking at. If you're looking at the super-senior ones, you have to put the correlation up.

MR. STANTON: If the super-seniors are going to get hit, the model is [unintelligible] go down together.

MR. DAS: Yes, that's right. If the



super-senior has to get hit, you have to have a lot more defaults. So you're saying, with very few defaults, there's going to be a huge number of defaults. That's why the correlation has to go above "1." That's just how it works.

On the lower tranches, the correlation has to go towards zero. So, by the way, if you actually go and check some of these and get the correlations on the equity and mezzanine tranches versus the senior and super-senior, we're using different correlations for those.

So we were using what's known as the "skew." And the skew was on the low tranches we were using, very close to zero. And we were using very, very high correlations on the super-senior tranches.

MR. STANTON: May I ask a totally different question, please?

MR. DAS: I haven't answered Tier 1 and Tier 2.

I'll come back to Tier 1 and Tier 2 --

MR. STANTON: Oh, go ahead.

MR. DAS: A different question.

MR. STANTON: Go ahead.

MR. DAS: Can you hang on to your question?

MR. STANTON: Yes.

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MR. DAS: Okay, Tier 1 and Tier 2, Tier 3 goes to the accounting problems that we've alluded to, that you couldn't mark-to-market. And it created, effectively, an illusion that these assets were bad.

Now, they may well be bad; but the point is, Tier 1, Tier 2, and Tier 3 are very rigorous under the accounting rules. Tier 1 is where you have prices; Tier 2 is you don't have the price of the instrument but you have verifiable input, which you can put through a standard model; and Tier 3 is everything else.

And so people got very nervous about Tiers 2 and 3 under those circumstances. So in themselves, Tier 1, Tier 2, and Tier 3 are not meaningful; it's just that they created this illusion that all the Tier 3 assets were bad, which may or may not be the case. And depending on what the assets are and how well they're marked, that would not be problematic.

But the other thing that the Tier 3 assets created was a concern that people were actually manipulating the values of those Tier 3 assets.

So you have to disconnect -- the accounting rules allow you to -- or force you to classify in a particular way. But on the other side, you know, you don't know how they're being done. So while in one level it looks very transparent, on the other level,

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you don't know how transparent it is and how much manipulation is going on.

So I heard banking analysts, for instance, basically say, "Well, all the Tier 3 should be written off against equity."

And I'm going, "Why? I don't know what's in there." So that created even greater uncertainty. And that's the problem with Tier 1, Tier 2.

Look, I'll send you after this paper -- after this conference call, rather, two papers: One on embedded leverage, one I published on the accounting standards, and basically my comments on the accounting standards and looking at this Tier 1, Tier 2, and Tier 3 issue.

So you might find them moderately entertaining over a bottle of vodka.

MR. SEEFER: Okay. I might just take you up on that.

MR. STANTON: You'll send the bottle of vodka.

MR. DAS: Next question.

MR. STANTON: Next question: For good reason, Wall Street hoards information. Because if I've got more than somebody else, I benefit.

What was the incentive for the people that created the ABX index that you mentioned, and what was

the incentive of people to let their trades -- the prices of their trades be reported on the index?

MR. DAS: Oh, okay. The ABX was part of a whole, sort of movement.

As you know, there's this whole family of credit indices which started -- actually started right about '97, so it's a long time ago. And at that stage, the individual investment banks had their own indices. And eventually, what happened was, they were consolidated into things like the ABX.

Now, the background to that is, it was a business necessity. And it was a business necessity for some curious reasons.

One of the curious reasons was, if you wanted to sell anything to a fund manager or an investment firm, they ask two rather inane questions.

The first question is, is there a benchmark? Because they need a benchmark to track, effectively, their performance, and show that they've outperformed -- as you know, the investment management industry, they like to outperform indexes. So if the market's gone down 40, you've only gone down 30, they actually show a performance of plus-10 and then claim bonuses on that, by the way. But that's neither here nor there.

So that's the first people who wanted these

indexes. So it was a business necessity for that reason.

The other reason it was a business necessity was, with the previous credit indexes that were created on CDS contracts -- this is like the iTraxx and the CDS indexes -- there was quite an active trading market in that, and, so the dealers hoped to capture some fees from the bit off the spread of trading those. So that was the second reason.

And there was a third reason, which came, actually, from auditors and accountants.

Now, as you imagine, when we are going around, putting these correlations into these models, these correlations are sort of works of fiction, because none of us know what these correlations are, right? And if you're honest, you know what answer you want to get, and you work back into correlation. But you obviously don't tell the auditors that. You basically say, you have to defend the correlation using history and so forth.

So, generally, I used to go back to the Napoleonic wars to use the correlation sometimes and say, "Well, you know, it's a bit like the Battle of Waterloo." So we just used to make up a piece of history.

But then the auditors got a little smarter and

started to ask questions like, you know, "Is there a market benchmark that you can point us to?"

And what happened with the CDX and the iTraxx index is, there are specific tranches on those indexes which trade. And we used to back out the correlations because there are certain techniques by which you can do that. And that became very much accepted by the auditing profession and the accounting profession as ways to calibrate the inputs.

And so basically, there was some business drivers to creating the ABX index to enable us to track some of this information.

And the last element was that some of the dealers themselves were very keen, rather like the S & P 500 equity futures; that they were looking for an instrument which was available to provide them with some level of hedging. And so all those factors conspired at the same time rather disastrously and unfortunately in the creation of the ABX.

And, obviously, at that point in time the people who were creating this didn't realize that it was going to -- the market was going to tank and, B, that this was going to become problematic in terms of effectively showing the actual performance in a way which was going to create big problems for them. Nobody

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realized that.

MR. STANTON: And when --

MR. DAS: I'll be honest with you, I didn't realize it at all.

MR. STANTON: When did the ABX come into being? Sorry?

MR. DAS: You'd have to look at it. It would have been around September -- it was in 2007 -- 2006, 2007. I don't remember the exact date.

MR. STANTON: Okay.

MR. DAS: I think it was 2006.

Just go and have a look at it. I think it's 2006 it came in.

MR. STANTON: Okay, thank you. This is good.

MR. DAS: I just forget when it was.

MR. SEEFER: Anybody else?

MR. DAS: I'm sorry that I'm disappointing you that I haven't given you any new stochastic calculus equations and pointed to learned Nobel laureates.

MR. SEEFER: So let me ask you this: Our last question -- God knows, we've been taking a lot of your time. Who would you suggest other -- to use the dreaded word "experts" again in the field of derivatives that you would suggest we talk to, to get, you know, more opinions on how they contributed or did not contribute

or propagated the financial crisis?

MR. DAS: Look, I'm very biased, so I -- the purpose of my comments with that -- I think that three or four people you would do well to talk to, to get a plurality of opinions because I'm sort of out there with Genghis Khan, I suppose.

But certainly the names that come to mind that you could talk to Janet Tavakoli, who you may or may not have spoken to. She has her views and she has some particular axes to grind.

I think the other people I would talk to is -- there's two other people, one you know of, I think Frank Partnoy --

MR. SEEFER: Yes.

MR. DAS: -- who you probably have spoken to.

Frank is trying to basically get the rating agencies at the moment, I think, so he's kind of preoccupied with that.

There's another guy called Robert Reoch in London who would be interesting for you to talk to.

MS. NOONAN: How do you spell his last name?

MR. DAS: Reoch, R-E-O-C-H.

MR. SEEFER: Thank you.

MR. DAS: He runs a company called Reoch Consulting.



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The reason I'm giving you these names, is these are people who have a fairly good knowledge of the industry, actually practitioners, but are not allied to any individual firm.

Because if you go to people in the firms, you're going to basically find it's very difficult to get a degree of honesty, I suppose, in the opinions. That's my comment.

The other people you could talk to, which would be very, very interesting if you could get them to talk, is some of the people who used to work at some of the troubled firms who are no longer there.

First, there's a guy called Robert Gumerlock. I don't know where he is these days. Robert Gumerlock, G-U-M-M-E-R-L-O-C-K. He was the head of risk for O'Connor Partners and Swiss Bank Corporation for many years, who left after the merger.

So they would provide some interesting information and perspective.

If I could give you one piece of unsolicited advice.

MR. SEEFER: Please.

MR. DAS: Try to get an understanding of the history, because I think there is always a desire to look at the proximate events. But look at how this

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built up over a long period of time. This didn't happen in a year. This happened over 15 to 20 years.

And, if nothing else, if you can contribute to some degree of understanding of this may -- and I stress the "may" part of it -- prevent another one. Because whatever is going to happen next time will make whatever happened this time look like a Sunday-school outing.

MR. STANTON: Thank you for the reassurance.

MS. NOONAN: We'll sleep so well tonight.

MR. SEEFER: That's been the course we've been on over the last --

MR. DAS: I'll be dead. I'll be long dead, so I don't care.

MR. SEEFER: You don't have kids?

MR. DAS: No, I don't have kids.

MR. SEEFER: Okay. Well --

MR. DAS: If you have kids, you have a different agenda.

MR. SEEFER: Yes, yes. Or at least I have kids.

Do you guys have --

Me and Tom have kids. The rest of them are young'uns here, or at least younger than us.

Das, thank you very much for your time. It's been a very interesting and enlightening conversation.

I've enjoyed it very much.

You know, as I tell everybody we talk to, I'm sure after we go over our notes, particularly from this conversation, we may have some follow-up questions.

Is it all right if we give you a ring back after we go through them?

MR. DAS: Yes, yes, yes.

MR. SEEFER: Okay, great.

MR. DAS: I have nothing to do, so I like reminiscing. I'm like the drunk at the end of the bar.

MS. SHAFER: Das, there actually are a couple of papers that you referred to.

MR. DAS: Yes, yes.

MS. SHAFER: I don't believe we have --

MR. DAS: Which ones do you have? I've forgotten. I write a lot.

MS. SHAFER: We have the Wilmont Magazine piece, we have Derivatives, Tango, and Tranquilizers.

MR. DAS: Oh, that's right, because you specifically mentioned, if I remember correctly, CDSs, so I didn't give you the other stuff.

That's fine, I will --

MS. SHAFER: So I would read it.

MR. DAS: You would read it?

I don't know, if you actually bothered to read

the "*Traders, Guns & Money*."

MS. SHAFER: I have bought it, but --

MS. NOONAN: Part of it.

MR. DAS: Good. As long as you buy it, I get my 10¢ of royalties. I don't care whether you read it or not. It's irrelevant.

MS. SHAFER: *[Unintelligible]* the new one.

MR. DAS: The new one, *[unintelligible]* because it's not going to be out until I think about -- oh, I don't know, it's August or something. But it's not new; it's just got -- look, I'll tell you the truth, it's not new at all. It's just basically got an appendix, which basically looks at what happened.

Like all good authors, I basically am a prostitute so basically I have the same book with a new addendum, basically.

Okay, so I will send you the stuff. I'll send you three or four papers. So let me get this clear what I'm sending you.

I'm going to send you a paper on, "Mark-to-market."

I will send you a paper on -- what was the other thing that you --

MS. SHAFER: Leverage.

MS. NOONAN: Embedded leverage.

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MR. SEEFER: Embedded risk.

MR. DAS: Leverage, leverage, leverage? I can send you a page on leverage.

MS. SHAFER: And Quantum Mechanics. We have that one.

MR. DAS: You have that one. I think you have that one.

MS. NOONAN: Quantum Hedges is what we have.

MS. SHAFER: Someone's holding out on me.

MR. DAS: Sorry, sorry.

And then the other thing I will send you is, I did a very lengthy paper somewhere on the lead-up to the credit crisis and my diagnosis of the current crunch, which shows some of the derivative links. It might be amusing for you guys, who don't seem to have any life other than to read these tedious pieces of drivel. So I will send that off to you.

MR. SEEFER: Well, again, thank you very much.

MS. SHAFER: You, sir, are among the most amusing.

MR. DAS: What was that?

MS. SHAFER: You, sir, are among the most amusing. We can count on lots of fun quotes.

MR. DAS: Oh, that's fine. That's fine.

Look, anything you need, I'm happy to help you

in any way. Because all joking aside, this is a serious matter. And if you can help along the way, I think I'm happy to help you because this stuff is going to end up costing people. And, you know, people forget there's a human side to this.

And I'll just finish up with a little story which, you know, is not a very pleasant one; but it's important to remember.

About two or three years ago, I was in Tokyo when the Argentines were doing their debt restructuring. And, as you know, in countries, rescheduled debt, their finance minister and so forth goes up and explains this to the investors. I happened to be in Tokyo at the same hotel and they were there. And I know one of the investment bankers that were going around with them.

And he said to me, "Look, this is very odd. They're going to hold this investors meeting in this big ballroom."

And I said, "Why? You usually have a little room, a dingy room where three people turn up and yawn."

But basically, it was -- and I went, because I said to him, "Can I come?"

And he said, "Yes, of course, you can come."

So I went along. And I noticed it was filled with Japanese, mainly women. The average age would have

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been over 70. And the Argentine minister, who was a little perturbed by this, got up and gave his usual standard speech of how this would be good for Argentina and the world economy and everybody. And, by the way, of the 100 cents on the dollar that they owed the rest of the world, they were going to pay 35, and that wasn't going to be paid for six years. The interest would be deferred for six years, and so on, and it was wonderful.

At the end of the speech, an old woman, who she would be well into her eighties, stood up and asked a question which was translated, and the question went something like this: "I invested all my life savings in Argentine bonds because they paid a higher rate of return because that's the only way I could continue to afford to live, and was there any prospect that I would get any interest and return of principal in my lifetime?"

And I will remember that to my dying day.

So this is a serious matter, joking aside. So if you can't do anything to prevent a repeat of this, it would be because people who have lost their life savings -- there are people in Hong Kong, several people I know who committed suicide because of the loss of their savings through Lehmans. So this is not a trivial matter, though I joke about it.

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So if you can do anything, it would be much appreciated; and I, for one, would be among your greatest fans.

So on that cheery note, I will leave you to a delightful weekend, and I will send you some reading in the next ten minutes.

MR. SEEFER: Thank you very much, Das.

MS. SHAFER: Thank you.

MR. DAS: My pleasure.

Take care now. Bye-bye.

MR. SEEFER: You, too. Bye-bye.

*(End of interview with Satyajit Das)*

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