INTERVIEW WITH
JIANG WANG
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J: Jiang Wang
G: George Roth
B: Bob McKersie

J: [pronounces his name: jahng wahng]

G: Thank you for pronouncing it. We were talking about Americanization, so I would probably have done that with your name as well.

We've had a bit of time to talk about our individual histories. What we really wanted to talk about in this interview was your experience at MIT. You came from China to the University of Pennsylvania. We are very interested, then, in how you first became aware of MIT and what you knew about MIT, what drew you here. Then we will talk about your time and career at MIT.

J: I guess there were two fields I grew up with. MIT is well-known in both of these fields. I started in physics and went to U-Penn for graduate school in physics. I was working in what is called condensed matter theory, which is about physical properties of materials that take some shape and form, and MIT is very strong in that field.

A particular area I was looking at actually is phase transitions. Several people at MIT like Bob Birgeneau were leading figures in the area.

B: I didn't realize that was his field in physics.

J: It was, and he was pretty well established there. When I was at Penn, I got interested in finance, somewhat accidentally. In part, it was because one of the professors on my committee was interested in using physics methods to explain the behavior of other systems like the stock market or natural disasters. At that time there was some effort in trying to use the

chaos theory to explain stock price movements. I just got a little bit curious, coming out of China. This was right after the Cultural Revolution, and we didn't have a stock market.

I went to Wharton, which is just a few blocks away, to sit in some classes. I thought, "Well, this is very interesting." In particular, physics is a fairly mature field, even if you talk about cosmology, etc., which may sound very exciting. But whatever you're working on tends to be fairly specialized. While looking at finance, it really is open, and we don't really know that much at all. And yet it is such an important area. That is how I got interested in finance.

B: Was this before you had completed your PhD in physics?

J: I had already finished my thesis, more or less, because the Chinese education is somewhat different in that the undergrad, if you choose a field, say physics, all four years will be physics, in terms of taking courses. There is quite a bit. When we get to the States, a lot of the courses were more or less done. Within a year I was more or less done with coursework. I got into the thesis phase fairly early on, and by my third year, I pretty much already had my thesis in place. It's also easy to do a theory thesis. If you were doing experimental, you would take another year or two to learn about the labs, etc.

Yes, I wasn't formally finished then, but I was in the process of finishing. That's also why I had a little bit of time to explore.

B: It's fascinating because here at MIT, as you know, when Andy, you and others would run these January sessions, the physicists would show up. At MIT, the difference between physics and the work you do, people understand it. I don't know whether you know, but I have an undergraduate degree from University of Pennsylvania, from the Moore School of Electronic Engineering. I can just see people scratching their heads saying, "What is this guy doing, coming from physics over to the Wharton School?" It isn't the same sort of easy pathway that it would be here at MIT.

J: Absolutely. I will come to talk about that. That's one of the things I find very attractive about MIT, and also enjoy very much being at MIT.

But you're right, I was just exploring. I actually decided that this was a fascinating field, and I would like to search into it. I went to talk to the director for the doctoral program at Wharton, asking if it was possible. This was Professor Paul Smith. He said, "Well, you are lucky," because his undergrad is also from physics. I told him that I didn't know anything about finance or economics, it was nonexistent in China, at least in terms of modern economics and finance. He said, "If you are really interested, I can give you a one-year fellowship, you take some courses. If you survive, you can continue. If not, well you find something else. Under one condition, you have to show me your physics transcript. If you aren't doing well there, I don't want you here!" Fortunately, I was doing okay in Physics. That's how I switched to Wharton into finance. I did do my defense, etc., and finished the degree because I had already done the research, but I switched to Wharton's program.

G: You defended your thesis in physics?

J: Yes.

G: What was that on?

J: It was on phase transition on liquid crystals. See, liquid crystals, well-known to people since they are used quite widely, say in many displays. But from a research perspective, liquid crystals are very interesting. Its elements are polymers, so they are a lot bigger in size than molecules. You're looking at a collection of these polymers, relative to a typical system we are looking at, these are gigantic, macroscopic systems. Yet, they exhibit very rich behavior. By looking at them, it's much easier to study some of the most basic phenomena. One of them is phase transition, when the system goes from one state to a different state, how does that process work? For example, when water turns into ice, that's a phase transition. But that process is not very easy to analyze, because things are happening at a much more microscopic level, while for liquid crystals, these are things you can literally shed light on, you can see how things behave.

When you look at the liquid crystals, for example, if you turn on a magnetic field, they all line up. So this is actually how, like in watches, when they line up, it becomes black, it's not reflective any more. But this process can be looked at under light or x-ray. It means it's much easier to have access to, rather than at atomic levels, which at that time it was much harder.

G: I was wondering about the underlying mathematics and modeling, because that's the part I thought might transition into finance.

J: Yes. Okay, so this was called a phase transition. But there are all kinds of phase transitions, system behavior changes suddenly. One of them is chaos, in which a system's dynamics sometimes changes drastically, from an orderly pattern into something that seems to be totally irregular. Some physicists speculate that a stock market looks like that: on one hand, it's wholly random, but maybe there's some underlying regularity in the patterns and we just don't see it easily. That was the idea. Although later on, I found that to apply these methods in physics to things like the stock market, there is a substantial gap where simply physical methods may not work. One thing is that here we are talking about a very different system, a system consists of humans, and humans change, they adapt, right? Whereas in physical systems, it's typically fixed at the very basic levels. Newton's Law – you write down a law and that's it. Here, whatever law you write down when people figure out how things work, they will adapt, they will change, and that's not something physical systems have.

B: What was the focus of your dissertation in the Wharton School?

J: The focus was on basically, again, what moves a stock price. If you look at any innovation on economic fundamentals, ranging from the macroeconomy to firms' and industries' earnings, etc., it's actually very difficult to explain the actual price movements based on these so-called economic fundamentals, because these fundamentals tend to move fairly slowly, yet stock prices move a lot in short periods. A particular feature of that is stock market crashes. Not only that daily there is a lot of volatility that we cannot explain, but also in these extreme scenarios,

prices will just drop 20%. There is no war, no natural disaster, there doesn't seem to be anything we can attribute the movement to. Yet, that's what we see, even in very mature markets.

My thesis tried to come up with some models or theories that would help us to explain this phenomenon. The idea is that if we do believe it is the information about these fundamentals that is ultimately driving the prices – because it is people's trading behavior that is driving these prices – then it must be that that information is not in the public domain, because if it is in the public domain, we should see it in the prices and be able to avoid a crisis. It's probably different information that different market participants have, so asymmetric information. Bob, you know something, and it's different from what I know, and those information don't get into prices right away. We trade in the market, and that moves the prices. That's not some information you can see from newspapers or TV. Also, if that's the situation, then you may see things like crashes, because when the market price moves beyond a certain point, people start trading more. When they trade more, more of the private information gets into the prices, so all of a sudden you see large price movements.

For this kind of phenomenon in finance, there are two schools of thought. One school believes that the market is irrational; it's just people doing crazy things, so you can't quite easily explain that. If you want to do that, you have to try to capture the behavioral patterns.

B: Who's that fellow, on Yahoo....?

J: Bob Shiller?

B: Right. Shiller versus Sloan.

J: Exactly. The foremost thing is that it's still fairly rational because people trade in these markets, they just want to make money, and that's very rational, they are not just doing some crazy things. But for the famous hypothesis for the rational school, the Efficient Market Hypothesis, there is one problem with that, which is if the price is reflecting information, how come you see these very large movements which is hard to attribute to any public information. In some sense, what I was working on is, in philosophy in the spirit but a more realistic description

of the market that actually could help us to explain these kinds of behavior. That's what my thesis was on.

The challenge of doing that is that whenever you allow these kinds of information differences among market participants, modeling them becomes very difficult because you have to model every person's behavior and also how they try to figure out what the other side is doing. Then the market reaches equilibrium due to these complex interactions. That's the technical challenge, and that's something we have to overcome in order to be able to explain the market.

B: We want to talk about your research, but we also want to mark your journey here.

You finished up your studies at Wharton. Was this your first academic appointment?

J: Yes.

B: In 1990.

J: That's right. I think MIT is really the "Mecca" of modern finance. If you look at where modern finance was born, it's really three places, depending on which part: MIT, Stanford, and Chicago. In terms of really revolutionary progresses, it really came from those three places.

G: In your studies in finance, you became aware of people at MIT?

J: Of course, of course. I spent a lot of time with Bob Merton's papers and Paul Samuelson's, and Franco Modigliani's, and Stew Myers. Not to mention John Cox who at that time was already here.

Also Chi Fu Hwang – Bob may know him? He was slightly younger, but nonetheless later on he wrote a textbook on finance, which became a must read instantly for PhD students. So of course, MIT was where modern finance was created.

Compared to other fields, in finance and economics we have a pretty well-organized job market. Beginning of January we have conferences, both the American Finance Association and the American Economics Association, and the graduating students meet the schools for interviews after the schools review their packages, papers and recommendations. After the interviews, you may get invited for a campus visit. That's typically a one-day process for each of those schools.

Of course I was very excited to get invited to come to MIT for a campus visit. That was actually my first trip. I also got an invitation from Yale. I basically took the train, stopped at Yale, and then came to MIT. Very much to my surprise, by the end of that day they said, "We're going to change your schedule a little bit and you're going to meet John Cox." John was on sabbatical that year, so he wasn't on my schedule.

I said, "Great!" I thought it was a pity to miss him but now I got a chance to see him. I met him in his office. First he asked me a question. He didn't go to the seminar, but he asked me a very tough question, I had to struggle with it, to give him some answers. And we chatted a little bit more. Then he said he would like to make me an offer… Anyway, that certainly made me very happy.

There were things I learned, even though that was a fairly short trip, about MIT. This is a very open place, and all people care about is doing some exciting new things. I'll give you one example. At most other places, as a graduate student, you typically need to make an appointment to see a faculty as they are all fairly busy. Here, when we went to lunch, the PhD students joined. I just felt this is a place that I should be.

G: It sounds like the environment was what attracted you to MIT, the scholarly reputation...

J: Right, right....

G: ....and the offer as well?

J: Well, the offer – I think it's very competitive, but not in monetary terms. Actually, Sloan made it clear that they would not be the highest in terms of salary. But on the teaching side, it was quite attractive. Right now we have two course teaching, but at that time for junior faculty it was also two-course teaching load, until tenure. I thought that really reflected the School's commitment to top-notch research.

B: Yes, I think the first three years for junior faculty then was just two courses.

J: Exactly. After the first promotion, then you could do some other work.

B: So what courses did you swing in to teach when you came here?

J: The first course I taught was International Financial Markets. It was an elective for both the MBAs and non-MBAs. And later I picked up a doctoral course, Introduction to Financial Economics. I did that for a few years, and then I started teaching the first MBA finance course. At that time, it was 15.415.

G: Where was your office, and who were your colleagues?

J: At the beginning, for the first summer, I was in E40 because we didn't have any offices in E52. So I was with the OR Center, which was nice, actually. I got to learn from some of my colleagues there and some graduate students.

Then, when the semester began, the renovation for E52 was done – not like this one we just did, but it was a little bit, mainly on the third floor. I moved in with the Accounting group on the third floor. The Finance group and Applied Economics group were at that time on the fourth floor, and you were on the fifth. I was with the Accounting group for a year. For my second year I moved to the fourth floor with the rest of the Finance group.

G: Sometimes who you sit next to has an impact on some of your work. Did it have that impact for you?

J: Absolutely. First, I actually think that sitting with the OR group in the summer and also with the Accounting group for my first year was very good because that allowed me to interact more with these colleagues. Otherwise, I may not have. At that time, Paul Healey was in the Accounting group, whom I taked to quite bit, and Paul Asquith.

Then when I moved to the fourth floor, certainly it was nice to be closer to my finance colleagues. It was actually great fun. At that time, Chi-fu Huang was still here. His wife, at that time, was at Yale, so he was usually here by himself. Andrew Lo didn't have kids yet, and we also had a few other junior faculty: John Heaton, who is now at Chicago, and Jean Luc Villa. We basically hung out a lot, went to lunches, dinners, with doctoral students, etc. It was really a very stimulating environment.

B: Was it the Finance Group, or Finance in Economics, where you always met in that little conference room on the fourth floor for lunch one day a week?

J: That's Tuesday. That's actually not research but just like socializing.

B: Right, but is that all of Economics and Finance?

J: Yes, that's EFA: Economics, Finance and Accounting.

B: Right, the whole department. Just for informal meetings.

J: That's right. Informal discussions. We also had, at the same time, two accounting professors, and two applied economics professors, joining Sloan. We actually spent a lot of time together.

B: And a research workshop – you also have that, don't you?

J: We have a weekly workshop, but that's Finance. Every Wednesday, 4:00 to 5:30.

B: And that's been a long-standing....

J: Yes, that's been a long-standing tradition – although, before my time they used to have it in the evening. So there was no end point.

B: We interviewed someone whose name you might know – H. Martin Weingartner? He was here, and he started the Finance workshop back in the 1960s.

J: The seminars were great as well. We also have a very nice tradition, we have the junior faculty run the seminars. It's very good for us, to try to explore different kinds of research by inviting different people, and also to talk to them while they're here.

B: And you have your own PhD students in Finance....

J: Right.

B: They have to work with the Economics Department, don't they?

J: At that time the Applied Economics group still had a PhD program. It was slowly phasing out. I think around 1992-93, they stopped admitting their own students....

B: ...and then linked in with Economics.

J: Right.

B: What would be the size of the PhD group in Finance?

J: At that it wasn't big. The Finance group was relatively small. When I joined, we had 9 people, and they said that was the historic high! [Chuckles] The reason was, I guess, it was

a very intimidating group. You know, you had Franco Modigliani, Bob Merton, Fischer Black, Myron Scholes then, all these Nobel Prize winners, so it must be very difficult to get hired. It was still a small group when I joined. And the quota for PhD students was allocated according to the faculty count. I actually was running the PhD program for a good number of years. Finance and Accounting, added together, is basically alternating 3 to 4 a year. If this year it's 3, then next year it's 4. We have to split. Our PhD program ranges from 2 to 3, because we don't want to do 1. It was a very high-quality program because of the strength of the faculty.

B: Moving along, you are instrumental, along with Andy and others, for getting the Masters going in Finance?

J: Masters, yes. The Masters of Finance. We had been thinking about it for a while, probably in the mid-1990s if not before. But at that time we were very short of faculty, and there was tremendous demand on the MBA side. It just felt like we didn't have the faculty resources to do that, even though that was the idea that we liked very much. And also, we kept being pushed by the industry. The first Masters-level finance program in the U.S. was started at Carnegie, and Berkeley started one later. Given our position in finance – not just in research, but also in industry – we were often asked: "Why don't you guys? If there's any place, being at MIT, you guys should have done it." But we were just constrained on faculty.

Roughly in 2006, we got some additional time to think about future plans, and also every year being asked this question, we needed to give it more thought. All the senior faculty worked very hard on that. John Cox was the group head, and he worked relentlessly to put together the proposal, together with Stew Myers, Andrew Lo and others. Stew did a lot of work in terms of getting that process through MIT. He and I worked quite a bit on that as well.

It wasn't easy for us to get that through the MIT process. Turned out, this was the fourth Master degree at MIT – the first two were started a long time ago, Master of Science and Master of Engineering. The MBA was the third one because while the other two required a thesis, it's kind of difficult for the MBA because that's not what we or students wanted to spend time on. In order to get out of the thesis requirement, the MBA was created in the 1990s as a separate degree, which made us more or less compatible with all the other major business

schools. Master of Finance was the fourth one. So there were many hurdles we had to go through.

G: Does the Master of Finance require a thesis?

J: No, it doesn't. It's more like MBA, more like a professional degree.

B: And it's been a very successful program, just in terms of the interest, and the careers?

J: Yes. It really started a trend. I cannot count how many schools are starting this now. Because it took us quite a while to get through ourselves, the Finance Group, and the School, and also to get through the Institute, I think that took roughly three to four years. We thought we would be approved by 2007, and then just as we were approaching the end of the term, we got a note from the Undergrad Curriculum committee – even though this was a graduate program – saying that "we have to look at this" as it may have implications for MIT undergrads given their potential interest in the program. Thus, we had to present to the UCC. But it was kind of late in the academic year, and they dragged their feet a little bit. We missed that year for the Institute's approval. Finally, we got approved in 2008. I was saying to myself, "This was probably the worst time to start this program," because that's exactly when the financial crisis was happening.

G: With the exception that people were available to take time out and go to school. Applications went way up to MBA programs during that time.

J: That is true.

B: Do we get some of our bright undergraduates applying to the program? And will you accept them?

J: Very much so.

B: I didn't know – like for the MBA, they want people to have 2-3 years' experience....

J: Actually, the MIT undergrads would have quite a bit, because as you know, Course 6 and 15 and 14, they are really sought by Wall Street firms. A lot of them have worked in industry as interns. The first year was a pilot year, so the target was only 25 students. Originally, we wanted to just consider MIT undergrads to get started. You know, the best students? You could have fun, and there's enough interest, so let's start with that.

Interestingly, Dave Schmittlein, our current dean, he did a bit of marketing about this program in an interview with *Financial Times*. All of a sudden we got all these applicants saying, "We want to apply to this program." We kept saying no, it's not open yet. But that's actually the power of the Internet – somehow they discovered this and they just applied. Dave made a very wise call, and said, "If they apply, we don't open it up, but we also should consider them." We got roughly something like 30 MIT undergrads, and another roughly 150 of these people we didn't invite for applications. That was basically our first class. In the second year, we opened it up, and brought the class size to 60. And the applications really shot through the roof.

B: Very selective.

J: Yes, very selective. Right now, we get roughly 1,700 applications for 120 seats. And it's from all over the world.

B: Before we run out of time, we want to talk about your research, because it's really exciting.

J: My research, for a large part, is trying to understand the irregularities in stock market, abnormal asset market movements. What's driving them? Then, from two different perspectives: the micro-perspective, what's driving them? And in designing trading strategies,

how do you factor in these irregularities in prices? Also, if you are managing assets, how do you control for risk caused by these irregularities? You need models that can capture these irregularities in price movements.

One thing I did, which is somewhat different from what people usually do. As I described earlier, the models we try to build up, aim at taking into account the differences among different market participants, in terms of information, risk preferences, and certain constraints they face. If you are trading from a trading desk versus trading for a pension fund, your information, risk tolerance and constraints are quite different. And all of these factors have an important impact on the trading behavior and ultimately the price behavior.

You can build models, but you have to test them, especially their new predictions, validate these models. It's also important to get more granular information on market participants' trading behavior. One thing I worked very hard on is, in addition to looking at just prices, also looking at this area of information. How people trade; what kind of trading volume do you see; how that connects with the price movements?

By bringing both quantity and prices, the two basic elements whenever you think about a market, into a single framework. First, it allows us to understand better the validity of the models, because you can have more data to really test the models. Also it allows us to get a better understanding of what's driving the prices. Based on that, it has many applications. On the micro side, if you can build up models like that, you can design investment strategies, trading rules, and also manage risk because all of these movements are driven by different people's behavior and that can have very important risk implications for your own portfolio.

In the mid-2000s, I also started to get interested in the macro implications of this analysis. When people behave in this way, it actually could cause market crashes, a form of instability, which may not be desirable. To understand that better, and also to understand whether or not there would be a role for government to play, both in terms of regulation and interventions. This was actually kind of interesting because part of that was triggered by the event in 1998, the LTCM [Long-Term Capital Management], which was a large hedge fund run by many of our alums and former colleagues.

B: Yes, Bob Merton....

J: Yes, and Myron Scholes another Nobel Prize winner who also did his work here as an assistant professor. Not to mention many former MIT graduates. It was a very successful fund.

But in 1998, relatively small events, things happening in Russia and Argentina, triggered a huge crisis. And at that time, their total positions were on the order of $1 trillion, which at that time was equivalent to the total GDP of China. And also, more importantly, their total capital was on the order of a few billion dollars. The leverage ratio was very large. It turned out a small movement somewhere that seems not that important can triggered big losses.

What happened then is somewhat of a precursor to what happened in 2008. When LTCM suffered large losses, a lot of the large investment banks also suffered large losses. The problem is market dynamics, it's the human or institutional behavior. If I find that George has a profitable trading strategy, I'm going to copy it. It's very easy, because there is no patent protection or legal restrictions. I'll just hire one of George's traders, and now can do more or less the same strategy. When this happens, first the opportunity slowly goes away. You may not see it right away, but it does. Second, it creates a very strong correlation between us now. When you want to buy, I want to buy too. When you want to sell, I want to sell as well.

G: Reinforcing behavior....

J: Exactly. That is going to introduce systematic risks into the system, which we don't quite see or understand until it shows up. That's exactly what happened. When these large banks suffered losses, it looks like they're just going to cut positions – and because these positions are leveraged – when you lose money, you have to act, you have to liquidate. And when you liquidate, your losses get bigger. The things you have to sell, now the prices are even lower and the things you have to buy, now the prices are even higher. Bigger loses lead to further liquidation. It became a spiral.

That's when the New York Fed actually stepped in. At that time, this was just a hedge fund. The NY Fed cannot just lend money to nonbanks, which they did in 2008. At that time, they couldn't. What they did was to call a meeting at the NY Fed, and all these large banks

had to come to the meeting. When these people got there, LTCM gave a report on what's happening, hoping that these banks could help to save the firm. But when they saw the picture, they started calling their own people on the trading desks, and soon they realized they were all in the same boat. If they don't do anything, the whole market would collapse. Finally, they agreed to form a consortium to inject $3-plus billion into the fund. That kind of avoided a market-wide crisis. But after that, there was a substantial backlash about what the Fed did. It was like, "Why do you want to save a hedge fund?"

In 2004-05, I was on sabbatical and spent most part of it at the NY Fed. I was talking to Tim Geithner, who was the president at that time, about the kinds of issues he was thinking about. The question he raised was that this kind of situation could happen again and how do we think about what to do?

This is something very much related to what I was doing, but more on the macro and policy side. I started working on both issues. Of course, at that time nobody expected that we would see something a lot bigger. It's more or less a same mechanism, but just on a much bigger scale.

In terms of what happened, I do think that our experience, in particular, the lawmakers and to some extent regulators, about the nature and the importance of this systematic risk, could often be pushing decision makers to move in the opposite direction. For example, this time the government did save Bear Stearns. After Bear Stearns was saved, the reaction was, "Things were OK, and why did you do that?" It's like you don't look that sick, why did you do all these preventive measures? I think there's a reason to do that.

I'm not saying whether or not they should have saved Lehman Brothers, but I'm just saying that a lot of these political forces are not necessarily based on a good understanding of how the market works.

B: How do you look into the best thinking of political processes and behavioral processes? As an economist, this is a big field now.

J: Yes.

B: People like Bob Gibbons in behavioral economics. You're talking about behavior. How do you hook into see what those disciplines can say?

J: It's a difficult process, because a lot of these considerations are not necessarily economical. There are actually a lot of political factors in it, and it's not easy to figure out what they are, how important they are, and all the intricate connections. There's a limit as to how much we could do to understand them.

At the same time, and particularly after 2008, people know more about these vulnerabilities in the system, and it's very important to understand better about these potential risks. There is actually quite a bit we can do. If you look at research in that area, it has just exploded after the crisis. We are also becoming more aware of the potential risks. The researchers, collectively, are becoming more vocal now. That may or may not change the actual decision-making process, or the mindset of the decision makers. But at least to bring that new information into the discussion, I think is a very good thing.

Having said that, I should also mention that our understanding about the financial system, due to its complexity, is still quite limited. We also should be careful not to push the arguments too far without having a really solid understanding of it.

B: There are probably a couple of Nobel Prizes waiting to be given out.

J: For sure. In many ways, the crisis changed the paradigm, changed our thinking completely. After the WWII, we had a tremendous run – even going back to the Great Depression – after that, things were going pretty well. We felt like we had a handle on what the right system should be, and it's doing pretty well. Until this crisis, and then we realize, "Well, we are probably missing a lot of big pieces."

B: We are getting near to the end of our time, so we have to find out what else we've missed here.

G: We often ask people, as they look back – and you've had 25 years to look back over – is there something you can think of that you are particularly proud of, that you would want to call out attention to? We ask you not to be humble here! When you think of your 25 years and what you've accomplished here, and who you have influenced – however you want to think about it – what comes to mind?

J: I have to say, I had a great time here. I certainly enjoyed it. That IS a decision I should be proud of, coming here. And things have played out well. This is a very stimulating place, and it's also been a very productive place for me. In particular, I've certainly learned a lot from many of my colleagues, and a lot of them are really giants in the field.

But also beyond that. It's not just the Finance group, but the EFA, the Economics Department, and the Sloan School as a whole.

Also the rest of MIT. I have colleagues in the Math department, the Physics department, and the Engineering departments. It's just a fantastic place – even though some of the things were not necessarily connected to my research, but to be part of this environment, and hopefully I contributed a little bit to it as well. So that's something I'm very satisfied with.

G: It's a tough thing. I sometimes see people here, and as you say, they have colleagues that are giants in their field, and if you use that as your yardstick, it's a very difficult one sometimes for people who have made enormous contributions on many levels, but the bar is very high.

J: Yes, it's very high. I guess it depends on how you look at it. I always view that as a tremendous asset. It would be kind of disappointing if you are the smartest guy in the room, then how do you learn? I view that as really a blessing.

B: And for the future, you see yourself working on these tough problems?

J: These are incredibly important questions, and yes, that's something I'm continuing to work on.

The other thing I'm doing a little bit new is also spending some time on the Chinese capital market. The School's collaborations there led me to go there from time to time, so I get to learn a little more about that market.

B: You have some role, don't you, with the Chinese? Are you an advisor?

J: Yes. One is, because of our collaboration with Tsinghua University, they wanted to set up a Finance Research Center. We agreed to help them with that. I'm nominally the director, although it's mostly just to give them some suggestions.

The other is the Shanghai Advanced Institute of Finance, set up by the Shanghai city government. Their inspiration is to build Shanghai into a global financial center. They really want to promote research and also high-level professional education. I'm helping our as an advisor as well.

B: You probably have to guard your time. I would think that knowing your expertise and your depth of connections in China, you would be sought after frequently.

J: That's something I guess we will have to do, to protect our time spent on research. These experiences are interesting and they are valuable. It's also allowed me to learn a little bit about that market, which is already the second-largest, and it's growing. One day they may exceed us. But it's also, from both research and teaching perspectives, important.

It's also necessary to bring the knowledge of these markets here for our students to actually learn a little bit about the path and reality there. The next one is going to be India, and I'm sure South America is going to come along. We're becoming more and more global, so it's really important for us to understand these markets.

B: This has been terrific.

END OF INTERVIEW