

Actionable Ideas for the Power to Trade Smarter

FICC Market Structure and Electronification

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MS. BRENNAN: Hello, this is Nancy Brennan, managing director and global head of marketing for Bank of America Merrill Lynch. And welcome to "Challenge That", the podcast series where we ask our experts to weigh in on trending topics and challenge what they are hearing. Our guest today is Sonali Theisen, managing director and head of FICC market structure, and she's here with us to discuss the digitization of the fixed-income markets and what some are referring to as "the race to zero".

Sonali graduated cum laude in 2000 with a degree in Economics and a citation in Spanish. Recently, she was appointed to serve on the SEC Fixed Income Market Structure Committee in the U.S. while in Europe she serves as the chair of the secondary markets practicing committee of the International Capital Markets Association. We're very lucky to have you here, Sonali, so, welcome, and thank you.

MS. THEISEN: Thank you for having me, Nancy

MS. BRENNAN: We -- yeah, great. We've been talking about equity markets structure for a while, but roles like yours as head of fixed-income market structure are relatively new. I think it would be great if we could start at the beginning, and tell us why we need you in that role.

MS. THEISEN: Sure, absolutely, and you're absolutely right that roles like mine are relatively new in fixed income. You know, the title "head of market structure" just a few years ago. And I think it's important to recognize that, post the crisis, a decade of de-leveraging coupled with record issuance, low yields, higher rise in capital costs have all led to some pretty big structural changes for the fixed income markets. And so, the need for efficiency and capital provision and allocation has become really a front-and-center and multifaceted challenge. To me, the evolution of FICC market structure is more broad than simply talking about e-trading. It encompasses everything that we do on venues and with algorithms, of course, but it also touches so much more, such as bilateral connectivity with our clients, factor-based trading -- i.e., ETFs or portfolio trades -- gaining useful intelligence from the data that we get every day within our firm, optimizing our sales and trading workflow, and influencing the industry perspective on the direction that we should be headed together.

My view is that fixed-income markets generally lend themselves to hybrid-market making where the machine works for us, and people are informed by reliable data on a scale not yet seen and their decision-making, but people are still going to be, I think, the ultimate decision makers for the majority of fixed-income markets.

MS. BRENNAN: Alright. So that's fascinating. So there's nothing to be afraid of here, actually. You see it evolving in a way where the machine's working for us, as you said, but the people are still the decision makers, and they're leveraging the tools that are brought about by digitization. Fantastic. Talk to us a little bit about what the exceptions will be. Where will change be most prevalent?

MS. THEISEN: Sure.

MS. BRENNAN: and where will it be limited?

MS. THEISEN: Sure, I would say that, generally speaking, the more the market is simple, standardized, has relatively instruments to a breadth of participants, i.e. what you see in equities, the more likely that market is going to become electronic and has a higher degree of automation that's merited. So markets such as FX, portions of the rates market -- it's like on-the-run treasuries, CDS indices. Those markets have evolved to more highly electronically traded protocols, but then the more complex or risky the market, the more hybrid, the less black box model I think that market is likely to become. So, to me, that encompasses a majority of corporate mortgages, emerging markets, non-vanilla swaps. I think most of those markets, which are pretty large markets within the fixed-income universe, fall into this category of what I would call "hybrid market-making" over the long term.

MS. BRENNAN: That's fantastic, and it's so clear, it's easy for someone like me to understand, so thank you

MS. THEISEN: Sure.

MS. BRENNAN: I've gotten that. So it's interesting, then, can you -- if you think about bifurcating the expected change in the market in your eyes...

MS. THEISEN: Mm-hmm

MS. BRENNAN: is it the case that for FX rates, the simpler, more homogenous, more liquid markets to start with, are they going to look just like equities? And if they are, were they behind? What's happening that we're just catching up now?

MS. THEISEN: I think that these markets were ripe for standardization and digitization, but each market in the market structure is going to evolve in a way that's best suited for that asset class. There's always going to be nuances and differences with respect to, again, the investor base, their needs, whether or not there's actually buyers or sellers in the market every day that are looking to do very different things. So if you think about agency markets versus principle markets, if you took market makers out of agency markets today, I would argue that the bid offer might widen, but you would still have people today trading Apple stock in both directions, right? When you don't have that, when you need the capital infusion of someone standing behind a market and saying, "I will bid or I will offer", those markets are not going to lend themselves as readily to central order book trading or algorithms that are just agency algorithms because you need to find liquidity and someone actually has to stand behind it.

So I think that each of these markets has its own nuance, but the ones that are -- again, if you just took out the banks and if you took out people committing capital to the markets every day just to market make -- that's where you tend to think about what's going to look most agency, what's going to look most principal. I think, as we talked about earlier, some of these markets like FX, they own their own portions of treasuries. There's enough diversity of flows every day and people doing different things, and investors doing different things that they tend to look a bit more like equities. All that said, though, I do believe that there are still many, many differences about how we connect, what APIs look like, what types of protocols work exactly, what type of information dissemination is appropriate, based on the underlying liquidity profile of those markets.

MS. BRENNAN: So are you saying -- I want to make sure I've captured this correctly in my own mind -- that, even for markets that might be more complex and less liquid, there are still opportunities for digitization to drive more transparency and efficiency.

MS. THEISEN: Yes, efficiency.

MS. BRENNAN: And bring some efficiency.

MS. THEISEN: Absolutely. I would hone in on that. You know, I recall a decade ago, being in the room and listening to this debate amongst seniors around whether credit markets, for example, corporate bond markets were going to look just like equities. And now, fast-forward a decade later, I think the answer is both "yes" and "no". I think there were parts to both sides of the debate that were correct. You know, the corporate bond markets were absolutely ripe for digitization and standardization of capturing the data, disseminating the data, more strategic technology architecture, but at the same time, this market, as I just discussed, has remained really predominantly principal as opposed to agency because of the very big difference in market structure, right? The number of participants versus the products traded is radically different in corporate bonds than it is in equities, and this is the key reason that many of these fixed-income markets really don't lend themselves again to the central limit order book, and with a couple of exceptions, they really remain negotiated quote-driven markets instead of order-driven markets.

MS. BRENNAN: So for those of us that don't know.

MS. THEISEN: Mm-hmm

MS. BRENNAN: In the FICC markets, the number of daily market participants is much smaller than in equities, but the average trade size is larger. Is that correct? Is that parts of what -- okay.

MS. THEISEN: That's absolutely correct. That's absolutely correct. Again, comparing equities to corporate bonds -- the average ticket size for a corporate bond is over 1 million as compared to the average ticket size in equities -- while I'm not the expert there, as I understand, may be as low as several thousand in notional, right? So if you consider, like, the S&P 500 index. The constituents have, give or

take, a cumulative market cap of 24 trillion. Those same companies, if you were look at their underling bonds, have, again, give or take, about 12,000 corporate bonds, right? So you're comparing 12,000 corporate bonds to 500 equity tickers, and those 12,000 corporate bonds have a cumulative notional that's about 1/6th of the market cap of the equity market. So you can see how different those market structures are. I was talking about the same companies, about how different they are. So the most liquid corporate bonds, just to give you a context -- when they're first issued, that's typically when a bond is the most liquid.

They trade on the average, at their most liquid, only 20 times a day. Very quickly fall to trading. Five times or less per day, and then -- I think this is a very interesting statistic -- a very long tail of corporate bonds. So up to 40% of corporate bonds trade less than five times in a year, so think about that relative to the equity markets where you see thousands and thousands and thousands of trades per day on any one security, and that security remains liquid whereas in corporate bonds what is liquid is constantly, constantly turning over. That's not even accounting for other differences. You know, the fact that there is maturities and subordination and all these features within bonds, so you can understand why this search for what's liquid in the corporate bond market is very, very different than finding liquidity in the equity markets.

MS. BRENNAN: So that's so interesting. I just have to ask one follow-up before we move in.

MS. THEISEN: Mm-hmm

MS. BRENNAN: Does that mean the older a bond, the longer it's been in market, the less you would likely see it finding any use in an e-trading venue? Like, in other words --

MS. THEISEN: That's correct.

MS. BRENNAN: That's it? Okay.

MS. THEISEN: Right. Bonds become seasoned.

MS. BRENNAN: And that's it.

MS. THEISEN: and they effectively become traded by appointment, so it's not uncommon at all to see that a bond that is, you know, a year or more old -- bear in mind, bonds, you know, many of them have 30 year-plus maturities -- but after that first year, that bond's essentially trade by appointment. And that the holders of those bonds -- you know, the holdings are actually quite concentrated amongst maybe just a few market participants, so that's why, I think, when people think about equities versus credit, I think oftentimes the equity markets are confused as to why do you care about who bought the bond? Why do you need to know? Why do you need to talk about it? Well, if there's only a few people in the world that own your bond and one day you may need to liquidate that bond or reposition yourself, it's a lot more important to know who else may have once had an interest in that bond or holds that bond or would be able to provide you liquidity and warehouse that risk for you as a dealer.

MS. BRENNAN: Fantastic. Thank you so much. I'm getting it. Now with that background, maybe we can talk a little bit about some of the themes you mentioned that are really driving the change in the marketplace.

MS. THEISEN: Sure.

MS. BRENNAN: Can we start with e-trading on venues? Maybe you could just give us your views. Biggest changes in the last decade.

MS. THEISEN: Sure.

MS. BRENNAN: And have some of these changes, at least for the markets that can be impacted, have they been a solution for liquidity?

MS. THEISEN: Mm-hmm. It's a great question, Nancy. So, since the crisis, there was an immediate focus -- again, particularly in credit markets -- to find this new trading protocol that would solve the either real or perceived liquidity concerns in the market place. So there was really a lot of spaghetti at the wall. There was a lot of innovation. There was a lot of air lifting of protocols from other markets, such as FX and equities and futures and trying it out, experimentation in credit. And I think it was a very healthy exercise for the industry to go through, and some valuable innovation did come of it. That said, there wasn't a seismic shift in the protocol. We did start to experiment with things like dark pools and with auctions being introduced to the investor community, but, you know, now fast-forward ten years. The markets have still predominantly traded on a disclosed what we call RFQ -- request for quote -- protocol, and not on central limit order books or through dark pools. They've remained again the negotiated markets, for the most part. Not to say that there hasn't been some uptake in some of these other protocols, but when you look at the percentage of volumes, its minimal compared to the RFQ protocol.

MS. BRENNAN: But you're still pleased with the change and the progress.

MS. THEISEN: Yes, yes. I think what's been underlying what's been, I think, the most interesting change to underline has been really a revolution in data and data architecture, which has led to the search function in the market becoming more targeted. And now, we can chat a little more about that. I think we still have a ways to go in terms of completing the evolution, but that's where I think there's been some really interesting change.

MS. BRENNAN: Alright. So let's stay on data for a second, then.

MS. THEISEN: Sure.

MS. BRENNAN: What's the new frontier we're working on? Tell me a little bit about what everybody should be thinking about in data in terms of data and where you think -- ooh, this is a big question. I'm going to ask you where you think we might be with it in five years.

MS. THEISEN: Sure, sure. You know, I think if you think about how much has changed again in the last decade, with respect to all aspects of the data lifecycle, it's truly phenomenal, right? So if you think about data from ingestion to storage to cleansing to joining to visualizing, we didn't have these discussions in fixed-income markets a decade ago. You ask for some information, someone sent it to you on a spreadsheet, you couldn't really do anything with it, there was no analysis. So that's really been

MS. BRENNAN: Is that what you refer to right there is "joining"? Is that the word you used? Joining the data?

MS. THEISEN: Joining the data, yes.

MS. BRENNAN: Mm-hmm.

MS. THEISEN: So the ability to not only take our own trades and analyze them, but analyze our trades against trace data or SDR data or look at trading data from one venue and compare it to another venue, et cetera. There was really no ability to do any of that because none of the data was standardized. There was not really rules on how it would be ingested, who had ownership. There's so many decisions around data, and so what I think was really interesting was, again, this initial focus post the crisis was on e-trading protocols, but that really under-- like it fueled this sort of evolution in data. And that's really what's now been underpinning, I think, the evolution of fixed-income markets, and really where in the last, I would say, three years, the focus -- certainly in the last 18 months -- and the discussion has really shifted to what can we do with the data and how do we make this search function in the marketplace more targeted. Again, when we're looking at capital provision whether it's from dealers or looking for buy-side to buy-side trading even, like how do we find a capital provision in the market, and how do we use data to do so?

MS. BRENNAN: So can you share with us a little bit about some of the conversations you're having with some leading clients here?

MS. THEISEN: Sure.

MS. BRENNAN: What they're doing and how you're advising them?

MS. THEISEN: Absolutely. So, you know, many of our sophisticated clients that I would say -- you know, I would get a phone call or a meeting every single day on the topics of data aggregation and visualization, and this is where some of the conversations, I believe, sound similar to the discussions that happened way back when in equities. Clients are really talking about what order-management system should I use? Do we need a -- you know, that's the OMS -- do we need an EMS, an execution management system on top of our OMS? What type of pipe should we consume the data? Is it a fixed pipe? Is it an API? Should we build point-to-point? And this is a language that we are all becoming fluent in in fixed income that we didn't discuss. You know, this was usually a complete separate part of the world, and outside of -- FX has gone earlier than corporate bonds. Rates has moved a bit ahead. But these are really still -- it's really in the last five or six years, we've been having these discussions.

So with our most sophisticated clients, we are very focused on getting our axes. You know, what we want to trade in a day, what we want to do -- that's what we call our "axes". Our axes, our inventory, directly through pipes into our clients, so that when clients want to decide who to make that outbound phone call to, Nancy, they have a lot more data at their fingertips to make that decision. It's our goal to show up in blinking lights in their front end, whatever it is that they're looking at when we've earned that phone call. And I think our biggest clients would like to make sure that they don't make the wrong phone call, right? They don't necessarily, as we're talking about -- if a bond is only held by a few counter-parties and only one dealer really knows where they can kind of off lay that risk, clients also don't want to go out and ask the world who they should trade with. So this becomes, I think, a virtuous cycle with the data. The cleaner it becomes and the more clients can analyze -- again, in their own front end -- that a dealer always stands up to their markets, sends out the most runs, has traded this bond or this complex, this company, this corporation the more frequently. I want to call them first and see if they can trade these for me. And, by the way, I also now know that these two or three dealers are also involved, and I can frame the market. It's now making that search function in the marketplace a lot more targeted, but it looks again -- this evolution, this digitization looks quite different than it has inequities.

MS. BRENNAN: That's so interesting. I've never heard it described that way, and it becomes almost more important in the age of digitization

MS. THEISEN: Yes. Yes.

MS. BRENNAN: It makes perfect sense to me. That's great. Thank you. Can I ask you a question?

MS. THEISEN: Sure.

MS. BRENNAN: This evolution in data and the role it's playing -- is it something that is having an impact on the less liquid, more seasoned fixed-income markets? Like it is it being felt there? Because I can easily imagine the role it's playing in the more liquid.

MS. THEISEN: Yes, that's a great question, and we actually think it's potentially the most valuable for the most season, and the less liquid instruments that don't trade. We hear that back from some of our clients, as well. The products that are more go, go, on the run have a price on the screen all day, every day. You don't actually necessarily need, again, what I would call this kind of softer data. How often is this quoted? How wide is the bid offer? Because you're actually seeing transactions every day in the most liquid, right? If there is a trace print or an SDR print in an instrument every day, you know where the market is 'cause you saw where it just traded. But these instruments that we talked about, with the corporate bond goes from trading 20 times a day, to five times a day, to five times a year, as it kind of moves into that very long tail of becoming less liquid, how many data points can you collect when you need to trade that bond? It actually becomes, I think, more impactful. Now, I'll temper all this by saying in terms of where we are in the evolution, obviously initial focus has always been for both the sell side and the buy side, "Let's get the easiest, most standardized, most liquid instruments up there first because it's the most observable and easiest." So, we still have a ways to go, I think, before we unlock

the true impact that these direct pipes and data aggregation can get to. I say this a lot, I think we're at the toddler phase of much of this innovation. We can walk, we can waddle around, we have a sense of the basics, but we still haven't gotten to the point where we're fully up and running and we know exactly where this is heading. But we're figuring that out, and I'm excited about where we are to date.

MS. BRENNAN: So, how is it changing the role of the trader on both the buy side and the sell side? I would imagine that data analytics has never been more important. How do you see their role evolving?

MS. THEISEN: Yes, and I think that's an interesting segue as well into not just treating single securities, but the evolution that's been happening around portfolio trading and ETF trading, because, again, I think that this evolution of data architecture couples with the macro environment, by the way, in the last few years, has really facilitated or driven the ability to think about risk not just on, "Do I want to buy or sell this bond," but, "Do I want to think about risk on a more factor-based approach, right? So, if you think about trading an ETF, or a portfolio, and not just think about those as individual line items, but think about the risk on factors -- I want to give you a portfolio of 1,000 bonds, Nancy, and I just want you to come back to me with a price on the entire portfolio. I don't necessarily care what your price is on each individual security. That wasn't a conversation, again, we had, really, five years ago, because we didn't have the data, and the industry has now also become more reliant, more comfortable with using third-party composite prices to frame the market. And this, again, was an important evolution because it's a neutral price. Before, you and I might have been interested in trading a portfolio and saying, "Well, we'll trade it at 20 cents plus some mid," but us agreeing what "mid" meant was gonna be a debate. And now that the market is -- again, because the data has become cleaner and there's these composites -- the market has become more comfortable using third-party composites, we can now have that conversation. So, again, what's interesting is, if you think about factor-based, whether it's via the ETF, or just trading portfolios more broadly than the ETF construct, it's not adding another sleeve of investment ideas and decisions so that the market is becoming more heterogeneous again, which I think is a positive thing. Now you have different people doing different things and pursuing different strategies a bit more than we did a few years ago.

MS. BRENNAN: What impact does that have on liquidity?

MS. THEISEN: Yeah, that's an interesting question. I don't know that any of these initiatives that we've undertaken as an industry are necessarily creating more liquidity or new liquidity. I think, again, it's helping us find the liquidity, and maybe turn over instruments that are already liquid more frequently. And on the instruments that are less liquid and destined to be less liquid for all the reasons we just discussed earlier, it's giving us a frame work on which to evaluate what the illiquidity premium is worth and how it should be compensated. So, it's giving us, I think, an architecture or frame work to talk about what is liquid and what's not, and how illiquid something is, and what the illiquidity premium is. I don't know that it's necessarily creating additive liquidity, but it's allowing us to sort of recycle liquidity and think about how to quantify what's a liquid a bit better.

MS. BRENNAN: All right, Sonali, so, it all sounds good. Let me ask you this. Does anything concern you about the evolution of the market?

MS. THEISEN: The one piece that I think is interesting, and, again, is a relatively new phenomenon, but what I think merits attention as an industry, that we should really keep our eye on, is the role of derived data and these composites. Again, since it's been a relatively new shift for us to utilize them to now transfer larger and larger sleeves of risk in the industry, it's very important to me to ensure -- and I'm not saying that this is not happening -- but it's very important to ensure that those composites are constructed in a robust frame work, and that they are reliable in times of stress. We would not want a situation where these composites become sort of a negative feedback loop, or an incorrect feedback loop. So, that's one that I think we should keep on the radar and think about as an industry. How do we ensure that these composites are reflective of where the market really is? And I think that's an area that we'll continue to focus on, and think about, and examine. One thing that doesn't worry me, if you want to know, to the extent it may others, is, again, technology replacing humans.

I think that technology, of course, in every industry, not just ours, has the potential, and has been disruptive, but for the majority of fixed-income markets, I really do believe we'll continue to see this hybrid model where the machine works for us, and the machine is more efficient at repetitive, smaller tasks, but ultimately, humans have higher order strengths and abilities, and I believe we can scale the business and increase market share, or grow the pie, turn over markets more frequently than we do today by harnessing the value of technology. So, while I think, you know, I always say with technology, it's both fascinating and frightening, where some of these things may be leading us. I am excited, I think, about where the potential lies with some of the initiatives that we're working on.

MS. BRENNAN: So, back to where we started, it's actually not a race to zero, but it's a drive for efficiency and liquidity in the marketplace.

MS. THEISEN: I would agree with that, that, if done correctly, innovation can be additive to the turnover, and therefore, the efficiency in the markets, and I don't necessarily know that it will foster new liquidity, but I think that search function in the market to find liquidity, and to recycle liquidity, can be benefited by technology. And, like I said, I think we're still at the toddler phase. You know, we figured out the basics, but I think we have, you know, a ways to go before these markets mature in what they look like from an electronic perspective.

MS. BRENNAN: Terrific, so, Sonali, I think what I've heard, then, is it's not a race to zero, but a drive for efficiency and liquidity across markets, asset classes, where data and technology enhance trader performance, not replace it. And I want to thank you so much for being here with us today. You brought some great insights, I learned an awful lot.

MS. THEISEN: Thank you so much. I loved being here.

MS. BRENNAN: And I hope you'll come back again. I'm sure there's going to be lots to follow up on the story. I also want to thank our listeners. This "Challenge That" podcast series is part of our continued commitment to help clients achieve their trading goals through actionable insights and ideas that come from advanced research and custom analytics.

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